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Remedial Investigation

for

Site 08, Naval Undersea Systems Center (NUSC) Disposal Area

Naval Station Newport, Rhode Island

Naval Facilities Engineering Command Mid-Atlantic

Contract Number N62470-08-D-1001
Contract Task Order WE19

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FOR

SITE 08, NAVAL UNDERSEA SYSTEMS CENTER (NUSC) DISPOSAL AREA

NAVAL STATION NEWPORT, RHODE ISLAND

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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LIST OF ACRONYMS

ACH	air changes per hour
ADAF	age-dependent adjustment factor
ALM	Adult Lead Model
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
ATV	acoustical televiewer
AVS/SEM	acid volatile sulfide/simultaneously extracted metals
AWQC	Ambient Water Quality Criteria
BAF	biota-soil bioaccumulation factor
BCA	bias-corrected accelerated
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BHC	benzenehexachloride
BTEX	benzene, toluene, ethylbenzene, and xylenes
°C	degrees Celsius
Cal EPA	California Environmental Protection Agency
CCC	Critical Continuous Concentration
CDI	chronic daily intake
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CLP	Contract Laboratory Program
CLT	central limit theorem
cm	centimeter
COC	chemical of concern
COPC	chemical of potential concern
CS	Confirmation Study
CSF	cancer slope factor
CSM	conceptual site model
CTE	central tendency exposure
CTO	Contract Task Order
CUST	concrete underground storage tank
DABS	dermal absorption factors
DAD	dermally absorbed dose
DA_{event}	dermally absorbed dose per event
DCA	dichloroethane
DCE	dichloroethene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEC	direct exposure criterion
DERP	Defense Environmental Restoration Program
dL	deciliter
DNAPL	dense non-aqueous phase liquids
DO	dissolved oxygen
DoD	Department of Defense
DOT	Department of Transportation
DPT	direct push technology
DRO	diesel range organics
EBS	Environmental Baseline Survey
Eco-SSL	ecological soil screening level
EDAS	Ecological Data Application System
EM	electro magnetic
EMA	emergent wetland, marsh/wet meadow

EPA	United States Environmental Protection Agency
EPC	exposure point concentration
EPT	Ephemeroptera, Plecoptera, and Trichoptera
ERA	Ecological Risk Assessment
ESTCP	Environmental Security Technology Certification Program
ETPH	extractable total petroleum hydrocarbon
EU	exposure unit
FFA	Federal Facilities Agreement
FID	flame ionization detector
FMR	Field Modification Request
FOL	Field Operations Leader
FS	Feasibility Study
GA	State of Rhode Island Classification for Drinking Water source
GPR	ground penetrating radar
GPS	Global Positioning System
GRO	gasoline range organics
HBI	Hilsenhoff Biotic Index
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HI	hazard index
HMW	high molecular weight
HQ	hazard quotient
IAS	Initial Assessment Study
IC/DEC	industrial/commercial direct exposure criteria
ID	inside diameter
IEUBK	Integrated Exposure Uptake Biokinetic
ILCR	incremental lifetime cancer risk
IR	Installation Restoration
IRIS	Integrated Risk Information System
IUR	inhalation unit risk
K	hydraulic conductivity
kg	kilogram
K_p	permeability coefficient
L	liter
L/hr	liter per hour
LD_{50}	lethal dose for 50 percent of the animals being studied
LMW	low molecular weight
LNAPL	light non-aqueous-phase liquid
LOAEL	lowest-observed-adverse-effect-level
LOEC	lowest-observed-effects-concentration
LUCIP	Land-Use Control Implementation Plan
m^3	cubic meters
MCL	Maximum Contaminant Level
ME	monitoring event
µg	microgram
µg/dL	microgram per deciliter
µg/kg	microgram per kilogram
µg/L	microgram per liter
µm	micrometer
mg	milligram
mg/cm^2	milligram per square centimeter
mg/kg	milligram per kilogram
mg/L	milligram per liter
mL	milliliter
MSL	mean sea level
MVUE	minimum variance un-biased estimator

MW	monitoring well
NACIP	Naval Assessment and Control of Installation Pollutants
NAFAC	Naval Facilities Engineering Command
NAPL	non-aqueous phase liquid
NAVSTA	Naval Station
NCBC	Naval Construction Battalion Center
NCEA	National Center for Environmental Assessment
NERP	Navy Environmental Response Program
NETC	Naval Education and Training Center
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NOAEL	no-observed-adverse-effect-level
NOE	no-observed-effects
NOEC	no-observed-effect-concentration
NOTC	Naval Officer Training Center
NPL	National Priorities List
NRCC	Northeast Regional Climate Center
NSN	Naval Station Newport
NUSC	Naval Undersea Systems Center
NUWC	Naval Undersea Warfare Center
OABS	oral absorption factors
OD	outside diameter
OERR	Office of Emergency and Remedial Response
OFFTA	Old Fire Fighting Training Area
ORNL	Oak Ridge National Laboratory
ORP	oxidation-reduction potential
OSWER	Office of Solid Waste and Emergency Response
OTV	optical televiewer
PAH	polycyclic aromatic hydrocarbon
PAL	project action limit
PID	photo ionization detector
QAPP	Quality Assurance Project Plan
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PDB	passive diffusion bag
PEC	probable effects concentration
PEC-Q	probable effects concentration quotients
PEF	particulate emission factor
PEM	palustrine emergent
PGDN	propylene glycol dinitrate
PID	photoionization detector
ppb	parts per billion
PPRTV	provisional peer reviewed toxicity value
PRG	preliminary remediation goal
psi	pounds per square inch
PSS/EM	palustrine scrub-shrub/emergent
PUB	palustrine unconsolidated bottom
PVC	polyvinyl chloride
QDC	Quonset Development Corporation
RAB	Restoration Advisory Board
RAGS HHEM	Risk Assessment Guidance for Superfund: Human Health Risk Evaluation Manual
RAGS	Risk Assessment Guidance for Superfund
RBC	risk-based concentration
RCRA	Resource Conservation Recovery Act
RDA	recommended daily allowance
RDI	recommended daily intake

RfC	reference concentration
RfD	reference dose
RI	Remedial Investigation
RIDEM	Rhode Island Department of Environmental Management
RIDOT	Rhode Island Department of Transportation
RIEDC	Rhode Island Economic Development Corporation
RME	reasonable maximum exposure
RQD	rock quality designation
RSL	regional screening level
SAIC	Science Applications International Corporation
SARA	Superfund Amendments and Reauthorization Act
SASE	Study Area Screening Evaluation
SB	soil boring
SdSL	sediment screening level
SDWA	Safe Drinking Water Act
SER	Shore Establishment Realignment Program
SERA	Site Ecological Risk Assessment
SIM	selective ion monitoring
SMCL	Secondary Maximum Contaminant Level
SOPs	Standard Operating Procedures
SPLP	Synthetic Precipitation Leaching Procedure
SQL	sample quantitation limits
SSA	scrub shrub swamp
SSL	soil screening level
SSSL	surface soil screening level
SVOC	semi volatile organic compound
SwSL	surface water screening level
TAL	Target Analyte List for Inorganics
TCA	trichloroethane
TCE	trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TEF	toxicity equivalence factor
TIC	tentatively indentified compound
TOC	total organic carbon
TPH	total petroleum hydrocarbon
TRC	Technical Review Committee
TRV	toxicity reference value
TRW	Technical Review Workgroup
TSCA	Toxic Substances Control Act
TtNUS	Tetra Tech NUS, Inc.
TVOC	Total volatile organic compounds
UCL	upper confidence limit
USACE	US Army Corps of Engineers
USCS	Unified Soil Classification System
USCS	United States Soil Conservation Service
USEPA	United States Environmental Protection Agency
USFW	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
VC	vinyl chloride
VDEQ	Virginia Department of Environmental Quality
VF	volatilization factor
VOC	volatile organic compound
WQC	Water Quality Criteria
yr	year

EXECUTIVE SUMMARY

This Remedial Investigation (RI) report describes the investigations and data evaluation activities conducted to assess contamination in environmental media at Site 08, the NUSC Disposal Area Site (the Site), located at NAVSTA Newport, Rhode Island (the Base). The NUSC Disposal Area is identified by the U.S. Environmental Protection Agency (USEPA) as Operable Unit 7 of the NETC Newport Superfund Site. The investigation was performed under the U.S. Department of Defense (DoD) Installation Restoration (IR) Program. The RI Report was prepared by Tetra Tech NUS, Inc. (TtNUS), under the direction of the Naval Facilities Engineering Command, and Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62470-08-D-1001, Contract Task Order (CTO) WE19.

The objectives of the RI are as follows:

- Compile and evaluate available site data and collect additional data necessary to fully characterize the Site;
- Identify the source(s) of contamination at the Site;
- Determine the nature and extent of contamination in soil and groundwater at the Site;
- Assess the environmental fate and transport of Site contaminants;
- Evaluate the potential risks posed to human health and the environment as a result of exposure to site-related contaminants; and
- Present the RI data, evaluations, and conclusions in sufficient detail to support development of the feasibility study and selection of an appropriate remedy for the Site.

E.1 SITE BACKGROUND

The 11.1-acre NUSC Disposal Area Site is located in the northeast section of Navy Undersea Warfare Center (NUWC), a Navy research and engineering complex facility in Middletown, Rhode Island, which is part of NAVSTA Newport. The Site is surrounded on the northwest, west, and southwest by the NUWC facility; a wetland area on the NUWC grounds lies to the southeast and the Wanumetonomy Golf and Country Club golf course borders the Site to the northeast. During the RI the NUSC Disposal Area Site was expanded to add additional areas, including the Building 179 Concrete Underground Storage Tank (CUST) Area, located immediately upgradient (south). This area was added to address co-located groundwater contamination at the NISC Disposal Area resulting from a historical release at the Building 179 CUST Area. The Building 179 CUST Area will be investigated as part of a supplemental NUSC Disposal Area RI.

The eastern/southeastern portion of the Site is made up of upland situated on an elevated stream bank and fill area. The adjacent lowland area to the west/northwest features Deerfield Creek, a small unnamed stream flowing westerly from the golf course, associated wetlands and NUWC Pond, which is a 1.9-acre freshwater impoundment fed by the two streams. A dam spillway retaining this pond at the north end drains to an underground culvert that discharges to Narragansett Bay. Within the lowland area 0.8 acres meet the federal criteria for wetland designation. The upland portion of the Site was used as a disposal area from the early 1950s and to the 1980s. This portion of the site currently consists of the Paved Storage Area, the Building 185 Complex, and open fields referred to as the South Meadow and the North Meadow. Grasses and thick vegetation cover approximately 70 percent of the Site.

Site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the Site. Elevations range from approximately 58 feet at the southeast corner of the study area to 25 feet, which was the measured elevation for the pond water at the north end of the Site.

The Paved Storage Area is used for the temporary storage of large equipment such as steel buoys, empty torpedo casings, cable reels, molds, jigs, and other large miscellaneous equipment. Located south of the storage area, the Building 185 Complex is series of four structures (designated as Areas Nos. 1 through 4) that are fitted with low concrete perimeter berms. In the past the structures were used for storage of various materials including flammables, such as Otto Fuel II, and hazardous waste. Currently, only one structure is used for storage of Otto Fuel II and chemicals. The others are empty or contain inert materials such as sandbags and metal equipment. In 2004 it was discovered that an Otto Fuel release from Building 185 Area No. 1 had occurred in the past. Soil and concrete suspected of Otto Fuel contamination was removed for off-site disposal as hazardous waste, however no soil samples were collected to determine the extent of contamination.

Limited available historical information indicates that Site 08 was used for the disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time. Records and aerial photography indicate that Site 08 disturbance and fill activities began in the 1950s and continued until the 1980s. The Paved Storage Area covers earlier possible fill areas.

A Study Area Screening Evaluation (SASE) conducted in 2003 identified fill at the Paved Storage Areas, the Building 185 Complex, the South Meadow, and the North Meadow as possible sources of contamination based on historical aerial photographs, and confirmed its presence through field investigations. The SASE concluded that contaminants are present at the NUSC Disposal Area at concentrations exceeding risk-based standards and that additional investigations were necessary to complete an RI and baseline human health and ecological risk assessments. The SASE also concluded that limited removal actions should be performed to remove debris at two areas: the Buried Container

Area, where buried deteriorated metal containers were discovered, and the Buried Drum Area, where buried drums with contents unknown were found the South Meadow. Limited removal actions were conducted at theses areas in 2005 and 2006. Approximately 157 cubic yards of soil and metal debris were removed from the Buried Container Area and disposed of off site as hazardous waste due to high level of lead. A total of 36 drums and approximately 113 tons of contaminated soil were removed from the Buried Drum Area and disposed of off site as non-hazardous waste based on characterization test results.

E.2 FIELD INVESTIGATIONS

RI field activities were conducted between July 2007 and December 2008 and resulted in the collection of 362 environmental media samples. These investigations included surface geophysical surveys, test pit excavations, soil sampling and analysis, sediment and surface water sampling and analysis, groundwater sampling and analysis, hydrogeologic studies, fish and earthworm sampling and tissue analysis, and a wetland survey. The investigation efforts are summarized in the following subsections.

Geophysical Surveys and Test Pit Excavations - Two surface geophysical surveys, utilizing both electromagnetic (EM) and ground penetrating radar (GPR) methodologies, were conducted in upland areas of the Site to locate anomalies that may represent buried metallic objects, such as drums and paint cans. The first survey, covering unpaved area, mapped thirteen anomaly locations that were later checked by test pit excavations. The second surface geophysical survey covered approximately half of the Paved Storage Area as the remaining areas were not accessible due to stored items that were not readily movable. Four anomalies that are potential buried objects were mapped in the Paved Open Storage Area. However, test pits were not conducted to identify these anomalies because data collected during the RI indicates that a significant release of contamination has not occurred at these four locations.

Surface Soil Investigation – The surface soil collection investigation consisted of the initial collection of 48 samples for polycyclic aromatic hydrocarbon (PAH) analysis at unpaved Site areas to support selection of toxicity testing locations. A total of 81 samples were collected later across the Site to characterize surface soil.

Subsurface Soil Investigation – During the subsurface soil investigation 66 soil samples were collected from test pits, direct-push technology (DPT) soil borings, and conventional soil borings across the Site to characterize subsurface soil. DPT soil borings were advanced through the overburden to the top of the bedrock or refusal to collect soil samples. Three conventional drilling borings were advanced through overburden for the purpose of collecting soil samples and installing overburden groundwater monitoring wells.

Groundwater Investigation – The groundwater investigation included the installation of three shallow overburden monitoring wells and 27 bedrock wells. Borehole geophysical surveys were performed at eight boreholes to evaluate the bedrock hydraulic properties. Discrete interval groundwater sampling was also performed in bedrock wells to determine preferential pathways for groundwater contamination migration. Hydraulic conductivity was evaluated.

Two synoptic groundwater level measurement rounds were conducted during which the entire water column was checked for the presence of non-aqueous-phase liquid (NAPL). Groundwater samples were collected from the new monitoring wells and from seven previously installed monitoring wells using low-flow (low-stress) groundwater sampling procedures. Discrete interval groundwater samples were collected from selected monitoring wells. Volatile organic compound (VOC)-contaminated groundwater discharging to eastern NUWC Pond from the North Meadow area was sampled with passive diffusion bags (PDBs) installed at locations along the pond shoreline.

LNAPL Investigation - Following observation of light non-aqueous-phase liquid (LNAPL) in one monitoring well located near the Building 185 Complex, three borings were advanced into bedrock to collect additional soil samples and install wells for groundwater sample collection. The LNAPL was manually removed from the well.

Surface Water, Sediment, and Biota Investigations - The surface water, sediment, and biota investigations included the analysis, processing, and/or testing of samples. Upper Melville Pond, located approximately 3 miles away in Portsmouth, Rhode Island, was utilized as a reference pond for theses investigations. As part of these studies, 25 surface water samples and 54 sediment samples were collected for analysis to characterize water quality and sediment. Fourteen benthic macroinvertebrate samples were collected and processed to evaluate the benthic community health. The impact of site contaminants to invertebrates in soil was evaluated by analysis of earthworm tissue and through performance of earthworm toxicity tests. The impact to aquatic receptors was evaluated by analysis of fish tissue and through performance of sediment toxicity tests.

E.3 GEOLOGY AND HYDROGEOLOGY

The findings regarding Site 08 geology and hydrogeology are summarized below.

Overburden Characterization - The Site overburden consists of approximately 0.5 to 19.5 feet of unconsolidated materials underlain by bedrock. The overburden thickness is greatest at the western corner of the Paved Storage Area and thinnest in the North Meadow. Three overburden units consisting of debris fill, non-debris fill, and non-fill overburden materials were identified.

Debris fill materials dominate the overburden across the southern portions of the Site where past disposal operations filled low-lying areas or grading operations reworked the upper few feet of soil. Fill materials primarily consist of construction debris and/or natural soil or rock (silt, sand, gravel, and weathered bedrock fragments). Debris fill ranging typically from 4 to 18 feet thick was encountered throughout the entire South Meadow and the area between the Paved Open Storage Area and Deerfield Creek. Surface geophysical surveys and test pitting revealed significant metallic content in the debris fill of these areas. Crushed, corroded, metal drums were observed in the South Meadow debris fill. Some of the drums were observed to partially contain a solid tar-like substance. Debris fill with minimal metallic content was observed sporadically in the North Meadow, the Paved Open Storage Area, the area north of the North Meadow, and the area south of the Site.

Groundwater is not present in the overburden in the North Meadow or north of the North Meadow. Beneath the South Meadow the water table generally coincides with the bedrock/overburden interface. Within the Building 185 Complex the water table is close to the bedrock/overburden interface. South of the Site in the Building 179 Area, the water table is present within the overburden.

Bedrock Characterization - The bedrock beneath the Site consists of metamorphosed sedimentary rock, predominantly phyllite. The hardness and the degree of foliation of the rock varied with location, and the color of the rock varied from light to dark gray. Metaconglomerate, schist, and quartzite was encountered in a few discrete depths in several locations, but the predominant bedrock was phyllite. The upper portion of the bedrock is generally significantly weathered and degraded and contains evidence of groundwater flow through the fractures. Bedrock in the North Meadow is significantly degraded and weathered.

Depth to bedrock at the Site ranges from approximately 0.5 to 19.5 feet bgs. Beneath the Paved Storage Area and the Building 185 Complex the depth to bedrock ranges from 17 feet in the east to 3 feet in the west. In the South Meadow bedrock depths are between 5 feet and 16.5 feet, increasing from east to west through the South Meadow. Bedrock is very shallow (about 0.5 foot) in the bedrock valley which forms Deerfield Creek. Bedrock is also very shallow (within 5 feet of ground surface) in the North Meadow. North of the North Meadow the depth to bedrock increases to between 8.5 and 17 feet.

Topography at the Site tends to mimic the bedrock surface. Deerfield Creek and NUWC Pond have formed a deep bedrock valley. This valley and the valley for the unnamed stream were likely formed by weathering and erosion of softer bedrock at the Site.

Bedrock Fracture Zones - Borehole geophysics revealed that the strike and dip direction of the bedrock planar features are varied. These planar features consist of both potential fractures and potential water-bearing fractures. Possible or likely transmissive fractures were also identified in the bedrock cores. In

addition, during bedrock drilling evidence of water-bearing fractures (iron staining) was noted in core holes. In general, the number and frequency of fractures decreased with depth. Drilling observations, subsurface geophysics, and hydraulic conductivity testing indicate that there is a long linear zone of water-bearing fractures and highly degraded bedrock that extends from the South Meadow through the North Meadow and to the north.

Hydrogeology - Throughout the Site the water table is generally just at or in the top of bedrock. South of the Site, the water table is in the overburden. Beneath the Building 185 Complex, the Paved Storage Areas, and the South Meadow the water table is generally at the bedrock/overburden interface. Beneath the North Meadow and north of the North Meadow the water table is within the bedrock. Surface water on the Site includes Deerfield Creek, the unnamed stream, and NUWC Pond.

The depth to groundwater was observed to range from approximately 0.5 to 24 feet in May 2008 and from approximately 2 to 24 feet in September 2008. Groundwater at the Site flows toward the direction of NUWC Pond and Deerfield Creek. In the southern area of the Site groundwater generally flows in a west-northwesterly direction, beneath the Paved Storage Areas and the South Meadow. South of Site 08 at the Building 179 site, groundwater in bedrock flows generally northerly and appears to be influenced by Deerfield Creek. The creek appears to be a discharge for shallow bedrock groundwater flow south of the Site. In the northern portion of the Site groundwater flows in a west-northwesterly and a west-southwesterly direction towards NUWC Pond and associated wetlands. The intermittent unnamed stream appears to have little influence on the direction of groundwater flow. The potentiometric surface in the northern part of the Site could not be developed with any confidence, but groundwater in this area is expected to flow in a pattern that generally follows the ground surface topography, which drops steeply towards NUWC Pond.

In general, there is a downward vertical groundwater flow. The nature of the fill and the natural overburden material is such that it would not impede infiltration of water and/or a release of contaminants. In addition, the downward vertical hydraulic gradients would not impede this migration. One exception to these observations is the eastern corner of the Paved Gated Storage Area where a silt layer overlies the bedrock, and an upward hydraulic gradient exists, both of which are expected to minimize migration of contaminants to the water table.

The horizontal hydraulic conductivity in the overburden/ shallow bedrock ranges between 1.01 and 2.28 ft/day. The horizontal hydraulic conductivity in the deeper bedrock of the Site (with the exception of the North Meadow) ranges from 0.051 and 2.46 ft/day. The hydraulic conductivity of the North Meadow bedrock aquifer ranges between 4.69 and 19.5 ft/day.

E.4 CONTAMINANT PRESENCE AND EXTENT

The nature and extent of contamination in soil, groundwater, surface water, sediment, and tissue at the Site is summarized below.

Soil – Previous disposal activities at the Site have resulted in the presence of VOCs, SVOCs, metals, and pesticides/PCBs in the site soil. The most frequently detected contaminants are SVOCs, most notably PAHs. PAHs were detected at elevated levels in the South Meadow, the Paved Storage Areas, and the area between the Paved Storage Area and Deerfield Creek. PAHs were detected at lower levels and less frequently in the Paved Storage Area and the paint can removal area. In addition, several PAHs were detected in excess of screening criteria in soil north of the North Meadow and south of the Site boundary. For metals, arsenic was most frequently detected at levels above the screening criteria in soil samples collected from the Site, with the highest levels found within the Paved Storage Areas and one location just north of the North Meadow. PCBs were detected above soil above screening criteria in the area between the Paved Storage Area and Deerfield Creek, the South Meadow, and at the northwestern corner of the Paved Open Storage Area. PCBs were also detected at three locations outside the Site boundary (south or west of the Site). Pesticides were infrequently detected at concentrations below federal and state screening criteria. Several VOCs were detected in Site soils at low concentrations relative to state and federal criteria; however, none were detected above state and federal direct residential contact criteria. The origin of the soil contamination is likely the debris fill materials present in the overburden across the southern portions of the Site (Paved Storage Area, South Meadow and the area between the Paved Open Storage Area and Deerfield Creek).

Groundwater – Two areas of significant groundwater contamination were identified during the RI. The first is located in the upland area of the Site in the Paved Storage Area vicinity. The second is located at the North Meadow/NUWC Pond area. Groundwater in and around the Paved Storage Area contains PCE, TCE and their breakdown products, cis-1,2-DCE, VC, as well as arsenic, and benzo(k)fluoranthene. LNAPL was discovered in one monitoring well located near the Building 185 Complex; it was found to contain primarily petroleum material. Benzo(k)fluoranthene and low concentrations of Otto Fuel components were found in groundwater immediately south of the Building 185 Complex. At the North Meadow/NUWC Pond area, groundwater with TCE at concentrations up to 350 µg/L was found to be discharging from the bedrock through the overburden to southeastern NUWC Pond. Upgradient of the Site, chlorinated ethanes, including 1,1,1-TCA and its breakdown products, 1,1-DCA and chloroethane, were found in groundwater at concentrations significantly higher than in on-site groundwater samples. The area upgradient of the site is also an area of elevated arsenic concentration. Based on data collected, multiple sources of contaminants in groundwater are probable.

Surface Water – Deerfield Creek, the unnamed stream, and NUWC Pond surface water had very few exceedances of screening criteria. VOCs were detected infrequently and no SVOCs/PAHs were detected in RI surface-water samples. Metals detected at levels exceeding screening criteria include barium, manganese, iron, and lead. Lead was detected more frequently and at slightly higher concentrations in NUWC Pond samples than in stream samples. Only one pesticide, dieldrin, was detected in excess of screening criteria, with the maximum detection reported for a Deerfield Creek location upstream of the Paved Storage Area, suggesting an off-site source. PCBs were not detected in the surface water samples.

Sediment – Deerfield Creek and NUWC Pond sediments contain PAHs, pesticides, and metals above screening criteria. Many PAHs were detected above screening criteria in most samples collected. Pesticides (DDD, DDE, and DDT) were detected at high levels in the on-site sediment samples. For metals, arsenic, iron, and lead were most notable. Elevated concentrations of PAHs and metals in sediments may result from a combination of possible sources, including urban runoff, erosion of on-site contaminated surface soil, and storm water outfalls located west of NUWC Pond. It appears that soil containing lead from upstream areas has settled out in NUWC Pond due to the lower velocity flow conditions, resulting in elevated contaminant concentrations in NUWC Pond sediment.

Earthworm Tissue – Pesticides/PCBs were detected in on-site earthworm samples including alpha-chlordane, Aroclor-1254, Aroclor-1268, and dieldrin.

Fish Tissue – Fish tissue collected from NUWC Pond was found to have metals and pesticides/PCBs at concentrations significantly greater then the reference location concentrations. Some of the metals found in the tissue were also those frequently detected at levels exceeding criteria in sediment samples collected from the site.

E.5 HUMAN HEALTH RISK

The objective of the human health risk assessment (HHRA) is to determine whether detected concentrations of chemicals within the study area pose a significant threat of adverse health effects to potential human receptors under current and/or future land use scenarios. The HHRA for the Site was based on chemical data collected at the site. Potential risks (non-carcinogenic and carcinogenic) for human receptors resulting from exposures were quantitatively determined though standard EPA models. Six potential receptor groups were evaluated:

- Current industrial workers
- Current adolescent trespassers
- Current recreational users
- Future construction workers
- Future child residents
- Future adult residents

Potential unacceptable risks were identified from the following exposures:

- Exposure to soil in the upland area of the Site for all receptor groups – Carcinogenic PAHs are the major contributors to the potential cancer risks, with arsenic also a major contributor for exposures to subsurface soil in the paved area.

- Domestic use of Site groundwater by future residents (child, adult, and lifelong) – The major contaminants contributing to the potential cancer risk estimated are PCE, TCE, VC, benzo(b)fluoranthene, and arsenic.

- Exposure to groundwater for future construction workers and future residents (child, adult, and lifelong) – VOCs and metals are the major contributors to the non-carcinogenic health risks for these receptors.

- Exposure to sediment for the lifelong recreational user – Carcinogenic PAHs and arsenic are the major risk drivers.

- Ingestion of fish by recreational users (adult and lifelong) – Aroclors, 4,4'-DDE, dieldrin, and aldrin are the major contributors to the potential cancer risk.

One uncertainty that may greatly over-estimate the risk posed to potential future residents of the Site is the assumption that Site groundwater will be used as drinking water. There is no current plan for future use of groundwater at the NUSC Disposal Area as a drinking water source.

The HHRA evaluated exposure from vapor intrusion into indoor air from groundwater and soils. Cancer and noncancer risks for residential and industrial exposures via vapor intrusion were within acceptable levels.

Exposure to lead in soil, measured through blood lead models, was found to be below EPA's level of concern.

This HHRA did not include Building 179 Concrete UST groundwater. An evaluation Building 179 Concrete UST historical groundwater sampling results shows that overall concentrations of chemicals were higher in Building 179 CUST Area groundwater than in the NUSC Disposal Area groundwater. Since risks from exposures to groundwater at Site 08 were unacceptable, the risks from exposures to groundwater at Building 179 would also be unacceptable.

E.6 ECOLOGICAL RISK

The ecological risk assessment (ERA) evaluated risks to the terrestrial, benthic, and aquatic receptors exposed to contaminants at the Site. This ERA evaluated surface soil, sediment, surface water, fish tissue, and earthworm tissue, along with soil and sediment toxicity test data and benthic community data.

Terrestrial plants were eliminated as receptors of concern because it does not appear that significant impacts are occurring to plants based on the heavy vegetative growth at the Site, although several chemicals were present in the surface soil at concentrations that exceeded plant screening levels.

For terrestrial invertebrates exposed to soil at the Site, significant risks are not expected based on slight impacts to earthworms measured in toxicity tests.

Risks to sediment invertebrates in NUWC Pond and the streams were evaluated through sediment toxicity testing and a benthic community investigation. The benthic community in NUWC Pond appears to have been impacted by a combination of organic and inorganic chemicals. Because of this, NOECs and LOECs were developed for total DDx, total chlordane (LOEC only), total PCBs (LOEC only), HMW PAHs, total PAHs, and the PEC-Q for NUWC Pond based on the toxicity test data.

There was more uncertainty in the evaluation of the sediment invertebrates in the stream samples for various reasons discussed in Section 7. However, because the benthic community in the stream sediment may have been impacted by a combination of organic and inorganic chemicals, NOECs and LOECs were developed for total PCBs, HMW PAHs, total PAHs, and lead based on the toxicity test data.

Contaminants are not likely to be impacting aquatic organisms at the Site based on the measured concentrations in the surface water compared to screening levels.

Potential risks to insectivorous mammals and birds from contaminants in the surface soil exist at the Site due to the presence of several metals, namely cadmium, chromium, and selenium. However, no contaminants in the sediment are likely impacting piscivorous mammals and birds.

Building 179 CUST RI surface water and sediment sample data was evaluated for potential ecological risks. For surface water risks to aquatic organisms from chemicals detected are not expected and for sediment the data indicates that risks to sediment invertebrates are not likely.

E.7 CONCLUSIONS

Carcinogenic PAHs and arsenic in the soil at Site 08 appear to pose unacceptable human health risks under current exposure scenarios to workers, recreational users, and trespassers. These contaminants are also at concentrations that may pose unacceptable human health risks to future construction workers and residents.

VOCs and metals are present in groundwater at Site 08 at concentrations that may pose unacceptable human health risks to future construction workers, hypothetical child residents, and hypothetical adult residents. In addition, domestic use of Site 08 groundwater by hypothetical child residents, hypothetical adult residents, and hypothetical lifelong residents exceed the EPA target risk range and RIDEM cumulative cancer risk benchmark as a result of PCE, TCE, VC, benzo(b)fluoranthene, and arsenic.

PAHs and arsenic in sediment may pose unacceptable human health risks to lifelong recreational users. Ingestion of fish by adult and lifelong recreational users also poses unacceptable human health risks primarily due to presence of PCBs and pesticides.

The ERA revealed that NUWC Pond and stream benthic community has been impacted by a combination of organic and inorganic compounds and that potential risks to insectivorous mammals and birds from chemicals in the surface soil exist due to the presence of several metals.

Based on these findings, a Feasibility Study (FS) is required to evaluate alternatives to address the potential unacceptable risks identified. The FS must consider the calculated risks, as well as the uncertainties in the risk estimates and the proposed use of the Site in determining appropriate alternatives to consider. One uncertainty that may greatly over-estimate the risk posed to potential future residents of the Site is the assumption that Site groundwater will be used as drinking water. There is no current plan for future use of groundwater at the NUSC Disposal Area as a drinking water source.

The FS should be conducted to evaluate the need for remedial action (including institutional controls) to address unacceptable human health risks posed by exposure to the following media.

- Soil in the South Meadow, the Paved Storage Areas, and the area between the Paved Storage Area and Deerfield Creek;

- VOC groundwater plume in the North Meadow/NUWC Pond area;
- Groundwater in the southwestern area of the Site and;
- Sediment in NUWC Pond.

The FS should also evaluate the need for remedial action to address unacceptable ecological risks posed by exposure to the following media:

- Soil in the North and South Meadows for risks to insectivorous mammals and birds and;
- Sediment in NUWC Pond and the stream for risks to sediment invertebrates.

In addition, prior to implementation of the remedial action for the Site, the geophysical anomaly that resembles a buried metal container in the Paved Open Storage Area (Anomaly 1) should be investigated and/or removed from the ground.

Additional information is required to develop and evaluate remedial action alternatives during the FS. A supplemental investigation, with the findings reported in a Supplemental RI Report, should be conducted to address the data needs listed below.

1. The source of the TCE plume in the North Meadow and the vertical depth of TCE contamination.

2. The current concentrations and distribution of contaminants in groundwater, sediment and surface water in the Building 179 CUST Area.

3. Site groundwater characterization for 1,4-dioxane, a contaminant commonly found in groundwater that has been impacted by 1,1,1-TCA.

4. Site groundwater characterization for PGDN, the main component of Otto Fuel.

5. Building 185 Area No. 1 subsurface soil characterization for PGDN.

6. Qualitative risk assessment supplement for the combined NUSC Disposal Area and Building 179 CUST Area based on the supplemental investigation findings.

1.0 INTRODUCTION

This Remedial Investigation (RI) Report for the Naval Undersea Systems Center (NUSC) Disposal Area Site (Site 08) at Naval Station (NAVSTA) Newport, Rhode Island, was prepared by Tetra Tech NUS, Inc. (TtNUS) for Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62470-08-D-1001, Contract Task Order (CTO) WE19. Site 08 is located at the Naval Undersea Warfare Center (NUWC) in Middletown, Rhode Island, a Navy research and engineering facility that is part of NAVSTA Newport (Figures 1-1 and 1-2).

The NUSC Disposal Area Site RI was performed under the United States Department of Defense (DoD) Installation Restoration (IR) Program in accordance with the Federal Facilities Agreement (FFA) between the United States Navy, the United States Environmental Protection Agency (EPA), and Rhode Island Department of Environmental Management (RIDEM). The FFA directs the implementation of the IR Program for NAVSTA Newport.

During the NUSC Disposal Area Site RI, it was discovered that groundwater underlying the NUSC Disposal Area is being impacted by contamination associated with historical releases from the Building 179 Concrete Underground Storage Tank (CUST) Area, located immediately upgradient (south) of the Site. To address the co-located and nearby contamination associated with the Building 179 CUST Area and the NUSC Disposal Area, the Site 08 has been expanded to include the Building 179 CUST Area. The Building 179 CUST Area will be investigated as part of a supplemental NUSC Disposal Area RI. Building 179 CUST Site information and data presented later in this section was compiled from previously submitted reports for the remedial actions and investigations performed in the late 1990s.

This RI Report was prepared to fulfill the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and is consistent with EPA Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (1988a) and the Navy Environmental Restoration Program (NERP) Manual, Chapter 8, Remedial Investigation/Feasibility Study (Navy, 2006). The NUSC Disposal Area RI was conducted in accordance with the Work Plan for Remedial Investigation Revision 2 for Site 08 – NUSC Disposal Area, Naval Station Newport (TtNUS, 2007).

1.1 PURPOSE AND SCOPE OF REPORT

The purpose of the NUSC Disposal Area Site RI Report is to characterize the nature and extent of contamination associated with the past use and disposal of chemicals and chemical wastes at the Site and to determine the associated risks to possible human and ecological receptors. Meeting this objective also includes determining sources of contamination, potential contaminant migration pathways, potential

contaminant receptors, and associated exposure pathways. This information is necessary to determine whether, and to what extent, a threat to human health and/or the environment exists from Site-related contaminants and to determine if the development and evaluation of remedial action alternatives are necessary to address these contaminants.

The Site was originally identified as a Study Area in the FFA because of records of land disposal of solid wastes and general fill that occurred at the site from the 1950s to the 1980s. The need for an RI was based on the conclusions of the Study Area Screening Evaluation (SASE) for the NUSC Disposal Area (Study Area 08) (TtNUS, 2005). The SASE was conducted to determine if contaminants were present at concentrations exceeding risk-based standards and to determine if additional investigations were necessary under the IR Program. Taken collectively, the data evaluated in the SASE indicated that fill and waste containing different types of contaminants were placed at the Site from the 1950s to the 1980s.

This RI report describes the field investigation activities conducted from July 2007 through December 2008 and presents the resulting findings and conclusions.

1.2 REPORT ORGANIZATION

This RI report has been divided into the following eight sections:

- Section 1.0, Introduction, provides background information including the location, description, and history of NAVSTA Newport and the Site, and a discussion of previous investigations conducted at the Site.

- Section 2.0, Study Area Investigations, provides an overview of the field investigations that were conducted to assess the contamination and physical conditions at the Site.

- Section 3.0, Physical Characteristics, provides a description of the Site physical characteristics including regional physiography, regional and site-specific geology, and regional and site-specific hydrology and hydrogeology.

- Section 4.0, Nature and Extent of Contamination, describes contaminant levels and the horizontal and vertical extent of contamination in environmental media of concern at the Site, based on the results of the RI and previous investigations.

- Section 5.0, Contaminant Fate and Transport, analyzes contaminant migration based on the source characteristics, extent of contamination, and Site physical characteristics.

- Section 6.0, Baseline Human Health Risk Assessment, and Section 7.0, Ecological Risk Assessment, evaluates the potential threat to human health and the environment respectively, in the absence of any remedial action.

- Section 8.0, Summary and Conclusions, presents the findings of this RI presented in the format of a conceptual site model (CSM).

1.3 NAVSTA NEWPORT BACKGROUND INFORMATION

This section presents an overall description of NAVSTA Newport and a summary of its history.

1.3.1 NAVSTA Newport Description

NAVSTA Newport, located approximately 60 miles southwest of Boston, Massachusetts, and 25 miles south of Providence, Rhode Island, encompasses 1,063 acres on the western shore of Aquidneck Island facing the east passage of Narragansett Bay, and property that extends to Newport, Middletown, and Portsmouth, Rhode Island (Figures 1-1 and 1-2). The Base also includes the northern one-third of Gould Island in the Town of Jamestown, Rhode Island. Home of the Naval War College, NAVSTA Newport is the Navy's premier site for training officers and senior enlisted personnel. In addition, the Base serves as a center for development of advanced undersea warfare systems. Approximately 10,000 people live within 3 miles of NAVSTA Newport (TtNUS, 2004).

Elevations at NAVSTA Newport range from near mean sea level (MSL) to approximately 170 feet above MSL in the Melville North area of Portsmouth. Areas at low elevations are susceptible to flooding during storm surges. NAVSTA Newport is located at the southeastern end of the Narragansett Basin, which consists of non-marine sedimentary rock of the Pennsylvanian age. Glacially derived unconsolidated deposits overlie the bedrock, which is primarily of the Rhode Island Formation. The surficial deposits consist of till, sand, gravel, and silt and range in thickness from 1 to 150 feet. Till, which overlies bedrock, is the most extensive glacial deposit in Rhode Island. NAVSTA Newport is located on the Narragansett till plain. Stratified drift or outwash deposits overlie the till and are composed of sorted sand, silt, and gravel. (TtNUS, 2004).

Groundwater supply wells located throughout Aquidneck Island are used primarily for domestic supply, but small industries and businesses also make use of groundwater. Private wells located within 3 miles of NAVSTA Newport provide drinking water to an estimated 4,800 people and irrigation water for 220 acres of land. No supply wells have been identified on NAVSTA Newport, except on Gould Island. The

average depth of groundwater is 14 feet on Aquidneck Island. Over-pumping of groundwater wells located near the shoreline has resulted in salt water intrusion in some wells. The groundwater is less than 10 feet below ground surface (bgs) in most portions of NAVSTA Newport. Groundwater flows east to west across NAVSTA Newport toward Narragansett Bay (TtNUS, 2004).

The Base is located in the Narragansett Bay drainage basin. All surface water flows toward and empties into Narragansett Bay, which is used for boating and fishing. Surface runoff is discharged to Narragansett Bay through storm water collection systems.

1.3.2 NAVSTA Newport History

The NAVSTA Newport area has been used by the Navy since the Civil War era. Activities increased during war times and later decreased as Naval forces were reorganized. Since 1900, the facility was used as a refueling depot. The Shore Establishment Realignment Program reorganization in April 1973 resulted in reductions in personnel, and the Navy excessed a large portion of the acreage of the original facility. The Naval Education Training Center (NETC) was subsequently established. In the mid-1990s, several new laboratories at the NUWC (formerly NUSC) were constructed to provide research, development, testing, and evaluation and engineering and fleet support for submarines and underwater systems. In October 1998, NAVSTA Newport was established as the primary host command, taking over Base operating support responsibilities from NETC.

Extensive background information for NAVSTA Newport was compiled in the Initial Assessment Study (IAS) (Envirodyne Engineers, Inc., 1983), Confirmation Study (CS) (Loureiro Engineering Associates, 1985), and SASE report (TtNUS, 2004). The history of the Base presented below is primarily adapted from Section 5.2 of the IAS, except where specifically referenced.

The Newport area was first used by the Navy during the Civil War when the Naval Academy was moved from Annapolis, Maryland, to Newport to protect it from Confederate troops. The Naval Academy operated at Newport for about 4 years before returning to Annapolis.

In 1869, the experimental Torpedo Station at Goat Island was established (south of Coasters Harbor Island and the Claiborne Pell Bridge, commonly known as the Newport Bridge). This was the Navy's first permanent activity at Newport. The station was responsible for developing torpedoes and conducting experimental work on other forms of naval ordnance.

In 1881, Coasters Harbor Island was acquired by the Navy from the City of Newport and used for training purposes. In 1884, the Naval War College was established on the island. A causeway and bridge linking

the island to the mainland was constructed in 1892. In 1884, the USS Constellation was permanently anchored as a training ship for the Naval War College.

The Melville, Rhode Island, area was established as a coaling station for steam-powered ships in 1900. The Navy purchased 160 acres of land and constructed the Narragansett Bay Coal Depot. With the advent of ships burning liquid fuel, it became necessary to add oil tanks. Consequently, in 1910, four fuel oil tanks were added in the Melville area.

In 1913, the Navy established the Naval Hospital on the mainland of Aquidneck Island, directly adjacent to Coasters Harbor Island, at this time; the main hospital building was constructed.

The beginning of World War I caused a significant increase in military activity in Newport. Some 1,700 men were sent to Newport and housed in tents on Coddington Point and Coasters Harbor Island. A bridge was built at this time connecting Coddington Point with Coasters Harbor Island. In 1918, Coddington Point was purchased by the Navy. Much of the Base's organization was then transferred to Coddington Point. During the war, numerous destroyers and cruisers were fueled by the Melville coal depot and fuel tanks. By this time, a pipeline had been extended to the northern fueling pier and two additional oil tanks had been constructed.

Following World War I, fuel oil gradually replaced coal for use by the Navy fleet. In 1921, the Coal Depot was renamed to the Navy Fuel Depot. In 1931, the Navy sold the coal barges and coaling equipment.

In 1923, some 200 buildings that were part of the emergency war camps established on Coddington Point were stripped and sold for scrap. The station was put on caretaker status in 1933. The base remained relatively inactive until the onset of World War II.

Reactivation of the Base occurred in the late 1930s as a result of the military build-up in Europe. Just prior to reactivation, a 1938 hurricane and storm surge destroyed or severely damaged over 100 buildings and many of the sea walls. In 1940, Coddington Cove was acquired for use as a supply station, and hundreds of Quonset huts were constructed throughout the Base. Additional barracks were constructed on Coasters Harbor Island, increasing the Base housing capacity to over 3,500. Power plant facilities were also constructed at this time. Coddington Point was reactivated to house thousands of recruits. The Anchorage housing complex in the Coddington Cove area was constructed in 1942. In the Melville area, additional fuel facilities were constructed, along with a Motor Torpedo Squadron Boat Training Center, and nets for harbor defense. Tank Farms 1 through 5 were also built during this time period. The Fire Fighting School, Fire Control Training Building, and Steam Engineering Building were constructed in 1944.

In 1942, the Navy acquired the property where the NUSC Disposal Area is situated. The property was previously used as a hog farm and municipal airport with one hangar and landing strip (NAVSTA Newport, 2002).

The Torpedo Station at Goat Island was very active during World War II and expanded its operation to Gould Island. The Torpedo Station employed more than 13,000 people and manufactured 80 percent of all torpedoes used by the United States during the war. The Station was the largest single industry ever operated in Rhode Island.

Following World War II, the Base returned to a peace-time status, resulting in a reduction of Naval activity. Some 300 Quonset huts and buildings were removed, and the entire Naval complex was consolidated into a single Naval command designated the U.S. Naval Base in 1946. During this period, the Base increased its activities in the fields of research and development, specialized training, and preparedness for modern warfare. There was a brief period during the Korean War when some 25,000 sailors trained at Newport.

In 1951, the Torpedo Station on Goat Island was permanently closed after 83 years of service. Future manufacture of torpedoes was to be awarded to private industry. In place of the Torpedo Station, a new research and development facility, the Naval Underwater Ordnance Station, was established and given the responsibility of overseeing the private contractors. The Officer Candidate School was also established in 1951. In 1952, the Training Station and other Naval schools were shutdown, and the U.S. Naval Station and U.S. Naval Schools Command were established.

In 1955, Pier 1 was constructed, with Pier 2 added in 1957. Newport became the headquarters of the Commander Cruiser-Destroyer Force Atlantic in 1962. Some 55 Navy warships and auxiliary craft were homeported at Newport. New housing and bachelor quarters were added in the late 1950s and early 1960s.

Major expansion of the Naval War College occurred during the late 1950s and early 1970s, transforming the college into a major university. In July of 1971, the Naval Schools Command was restructured and named the Naval Officer Training Center (NOTC).

In April 1973, the Shore Establishment Realignment (SER) Program was announced and resulted in the largest reorganization of Naval forces in the Newport area. The fleet stationed in Newport was relocated to other Navy stations on the east coast. SER resulted in the closure of the Naval Communication Station

and the Fleet Training Center and related activities. The Public Works Center, Naval Supply Center, Naval Station, and Naval Base were absorbed by NOTC. In April 1974, NOTC was renamed NETC.

Since 1974, research and development and training have been the primary activities at Newport. The Base was renamed NAVSTA Newport in 1998. The major commands currently located at NAVSTA Newport include NETC, Surface Warfare Officers School Command, NUWC, and the Naval War College.

1.3.3 IR Program History

NAVSTA Newport includes multiple areas of contamination, including one landfill, a fire fighting training area, an old shipyard, five tank farms, and sites with varying degrees of groundwater contamination. Under the IR Program, the Navy is the lead agency for site investigation and cleanup, with formal oversight provided by EPA and RIDEM via an interagency FFA.

The IAS, completed in 1983, identified 18 sites where contamination was suspected to pose a threat to human health and the environment. Six of the 18 sites were investigated further in a CS completed in 1986. A Phase I RI/Feasibility Study (FS), completed in 1992, included McAllister Point Landfill (Site 01), Melville North Landfill (Site 02), Old Fire Fighting Training Area (OFFTA) (Site 09), Tank Farm Four (Site 12), and Tank Farm Five (Site 13). The McAllister Point Landfill, Melville North Landfill, and Tank Farm Four had been previously investigated in both the IAS and CS, while Tank Farm Five was included in the IAS. The OFFTA had not been investigated as part of either the IAS or CS. Investigations at four of the five sites have continued under the DoD IR Program following the listing of NAVSTA Newport (then NETC) on the NPL in 1989.

These investigations led to decision documents for the McAllister Point Landfill and Tank Farm Five - Tanks 53 and 56. Ten additional sites (Tank Farm One, Tank Farm Two, Tank Farm Three, Coddington Cove Rubble Fill Area, NUSC Disposal Area, OFFTA, Tank Farms Four and Five, Derecktor Shipyard, and Building 32, Gould Island) are still being investigated under the IR Program. The Melville North Landfill was investigated under RIDEM regulations rather than under the IR Program because it was not owned by the Navy at the time of the National Priorities List (NPL) listing.

A chronology of major activities at NAVSTA Newport CERCLA sites and IR Program investigations completed at the sites mentioned above is provided in the Five-Year Review for Naval Station Newport (TtNUS, 2004).

1.4 NUSC DISPOSAL AREA BACKGROUND INFORMATION

This section presents the site description and history for the NUSC Disposal Area.

1.4.1 Site Description

The NUSC Disposal Area Site is located within the NUWC facility in Middletown, Rhode Island. NUWC, a NAVSTA Newport tenant, is a Navy research and engineering complex. The Site is located adjacent to the northern boundary of the NUWC grounds (Figure 1-3) and is surrounded on the northwest, west, and southwest by developed areas of the NUWC facility. A wetland area lies southeast of the site, and the Wanumetonomy Golf and Country Club golf course adjoins the Site to the northeast. Building 179 is located approximately 420 feet south of the southern portion of the NUSC Disposal Area, and east of Cunningham Street.

The NUSC Disposal Area is located on the upland eastern/southeastern portion of the Site, which is situated on an elevated stream bank and fill area. The adjacent lowland portion of the Site includes two streams, associated wetlands and NUWC Pond (Figure 1-4). The upland area was used for disposal and storage areas beginning in the early 1950s. The approximately 11.1-acre NUSC Disposal Area consists of a paved storage area, including the Building 185 Complex (1.9 acres), upland open fields (2.1 acres), brush-covered slope (1.4 acres), NUWC Pond (1.9 acres), and lowland area south of NUWC Pond (0.7 acre). The Site contains 0.8 acre of land that meet the federal criteria for wetland designation. Prior to RI field activities, grasses and thick vegetation covered approximately 70 percent of the Site; it was necessary to clear approximately 2 acres of upland areas to provide access for test pit excavation and monitoring well installation. A chain-link security fence separates the NUWC grounds from the Wanumetonomy Golf Course along the northern boundary. A one-lane crushed-stone roadway runs along the NUWC side of the fence. The storage area, which includes the Building No. 185 Complex area, comprises the southeastern extent of the Site. A small stream, Deerfield Creek, makes up the southwestern edge of the disposal and storage areas. The Site extends west-northwest to the small impoundment known as NUWC Pond, which is also known as Deerfield Pond. Deerfield Creek and the western edge of NUWC Pond form the western boundary of the Site. A concrete dam at the northern terminus of the pond is the northern Site boundary.

Based on field investigation results the former Site boundary was extended toward the southeast to include an approximately 1-acre area that has been used for disposal of debris fill and possibly contaminated fill. The site boundary adjustment in this area is as follows: the southern boundary terminates at the southern edge of the grassy field located approximately 400 feet to the south; the

western extent of the site boundary in this area is the tree line; and the eastern extent of the adjusted site boundary in this area is approximately the crushed-stone roadway.

The Site boundary was also extended to include the Building 179 CUST Area (approximately 2 acres), which is located southwest of the Building 185 Complex and west of Deerfield Creek. It consists of a heavily vegetated wetland adjacent to Deerfield Creek, in the eastern portion of the area, and a heavily developed area in the western portion, much of which is paved, with a number of above- and below-ground process structures to support the Propulsion Test Facility (PTF). A description of the Building 179 CUST Area is provided in Section 1.6.

Access to the NUWC complex on which the Site is located is restricted to Navy and contractor personnel. The chain-link security fence running along the NUWC property line separates the Site from adjacent private property areas (golf course). The Site's western boundary along Deerfield Creek and NUWC Pond and northern boundary at the NUWC dam are not fenced. The southern boundary is partially fenced; the storage area paved access roadway is gated to control vehicle access. The crushed-stone roadway along the northeastern Site perimeter is used for walking and jogging by NUWC personnel.

Site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the Site. Elevations range from approximately 58 feet above MSL at the southeastern corner of the study area to 25 feet above MSL, which was the measured elevation for the pond water at the northern end of the Site.

The main features of the upland Site area consist of the storage area and two meadows. The storage area is located in the southeastern portion of the Site and consists of the Paved Area and the Building 185 Complex. The Paved Area is divided into two materials storage areas. The western section or Paved Open Storage Area is partially fenced and open to access on the southern edge, near the Building 185 Complex. The eastern section or Paved Gated Storage Area is gated to restrict access to the stored materials. The storage areas are used by NUWC for the temporary storage of large equipment such as steel buoys, empty torpedo casings, cable reels, molds, jigs, and other large miscellaneous equipment. Building 185 Complex information including its history and current description and use is provided in Section 1.4.3.

Northwest of the storage area and bounded on the west by Deerfield Creek and on east by the crushed-stone roadway is an elevated flat area referred to as the South Meadow. The South Meadow is a largely open grass-covered field with invasive woody plants encroaching from the north and west. North of an unnamed stream that enters the Site from the golf course and also adjacent to the crushed-stone roadway is a smaller flat, grass-covered, plateau-like area referred to as the North Meadow. The North

Meadow consists of an open field with invasive woody plants encroaching from the slopes that surround it.

The NUWC Pond, Deerfield Creek, unnamed stream, and associated lowlands form a deep valley/basin dominated by a variety of scrub/shrub vegetation. The lowlands at the southern end of the pond are inundated during seasonal periods of high water and support a variety of emergent vegetation. The steep slopes on the eastern and western shores of the pond allow for a narrow fringe of emergent vegetation. Stream channel changes in the lowland area have been documented.

Deerfield Creek is an intermittent stream with moderate meander that originates southeast of the Site. It enters the Site through a 36-inch-diameter culvert under the storage area paved-access roadway, flowing from the wetland area southeast of the Site. After discharging from the culvert, Deerfield Creek flows northwest along the southwestern border of the Site, becoming braided prior to entry into the NUWC Pond. In July 2008, the creek was approximately 1 to 4 feet wide, and average depth was less than 6 inches over a substrate of sand, gravel/cobbles, and shale. Canopy closure was estimated at 76 to 100 percent, and the dominant vegetation surrounding the channel varied. Fish, green frogs, and salamanders were observed in the creek.

The small unnamed stream originating from the adjacent golf course northeast of the Site currently flows to the southwest, meandering northwest until joining the NUWC Pond at the southern end. Dense shrubs and small trees vegetate the swale containing the unnamed stream and a fill area immediately south of the stream. The unnamed stream is a highly meandering intermittent stream observed in July 2008 to have a water width of 2 feet and depth of less than 6 inches over a substrate of sand and gravel/cobbles. The canopy closure above the channel was estimated to be 76 to 100 percent, and green frogs were observed in the channel.

NUWC Pond is a 1.9-acre freshwater impoundment formed by a concrete dam and spillway at the northern end. It is fed by Deerfield Creek and the unnamed stream, along with overland runoff and several storm water outfalls. The dam spillway drains to an underground culvert that flows northwest to a junction box where it is combined with storm water drainage from other sources (MCA, 1996). The combined flow discharges to Narragansett Bay, located approximately 700 feet northwest of NUWC Pond.

NUWC pond has a drainage area of approximately 0.6 square mile. North and east of the pond, the basin consists mainly of unpaved areas (Wanumetonomy Golf Course, agricultural land, and limited rural residential area), and to the south and west, the basin includes developed land (NUWC and housing areas) (MCA, 1996). The oblong-shaped NUWC Pond is approximately 700 feet long and averages about

120 feet in width. Water depths next to the dam have been reported in the range of 5.5 to 9.5 feet and from several inches to 1 foot at the opposite (southeastern) end of the pond. The pond volume varies seasonally depending on precipitation and was estimated at 160,000 cubic feet in August 1995 and 170,000 cubic feet in October 1995 (MCA, 1996). The northeastern and southwestern sides of the narrow pond are steeply sloped and densely covered by upland and wetland shrubs. Where Deerfield Creek discharges at the end opposite the dam, a vegetated delta has formed. During low-flow periods, mudflats are present at the southeastern end of the pond (MCA, 1996).

The Site also receives storm water drainage from the NUWC complex located to the southwest, including drainage collected by catch basins C-278, C-279 and C-281 located along Cunningham Street and discarded through outfalls B, C, and D, respectively.

RIDEM has established a state groundwater classification system to protect its groundwater resources. The NUSC Disposal Area Site area straddles the line delineating the boundary between GA and GB groundwater classification areas. As shown on Figure 1-4, groundwater under the northeastern half of the Site, abutting the Wanumetonomy Golf Course, is classified by RIDEM as GA. Groundwater classified as GA is suitable for public or private drinking water use without treatment. Groundwater underlying the southwestern half of the Site has a GB classification as does the NAVSTA property southwest of the Site. Groundwater classified as GB may not be suitable for drinking water without treatment because of known or presumed degradation. Groundwater classified as GB is typically located in highly urbanized areas in the vicinity of disposal sites for solid waste, hazardous waste, or sewage sludge.

1.4.2 Historical Site Use

Early records indicate that the Site and surrounding area were used for agriculture. The property northeast of the Site was maintained as a farm until the 1920s, when the Wanumetonomy Golf and Country Club constructed a golf course on the property. In March 1942, a part of the golf course was condemned. Based on the description in the deed, the condemned land is assumed to have included the Site. In 1942, the condemned land was conveyed to the Navy and later used for storage activities by the Navy. Some records indicate that prior to Navy acquisition, the property was used as a hog farm and municipal airport that consisted of one hangar and landing strip (NAVSTA Newport, 2002).

There is limited available historical information on the NUSC Disposal Area. It is reported that the site was used for the disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time (Envirodyne Engineers, Inc., 1983).

As part of the SASE, aerial photographs of the Site dating from 1942, 1951, 1963, 1965, 1970, 1975, 1981, and 1988 were reviewed at the Rhode Island Department of Administration, Division of Planning. Information gathered from these photographs is presented below and summarized on Figure 1-6.

- Based on the 1942 aerial photograph, there is no evidence of activity in the vicinity of the reported NUSC Disposal Area. The NUWC pond is shown on the photograph, and the North Meadow area is evident on the photograph as an open, grassy field.

- In the 1951 photograph, the perimeter of the NUWC pond adjacent to the site looks much as it did in the 1942 photograph; however, the pond appears nearly dry, with water visible only at its northwestern end. An area of light-colored soil, which may be indicative of ground disturbance and/or possible fill, was also observed in the 1951 photograph, extending from the future location of the Building 185 Complex to the north and northwest.

- The 1963 and 1965 photographs look very much like the 1951 photograph, although the area of light-colored soils (possible ground disturbance and/or fill) is somewhat larger, and extends further to the northeast from the Building 185 Complex.

- The 1970 photograph shows the disturbed area extending to the west of the area shown in the photographs from 1951, 1963, and 1965.

- Clear evidence of filling at the Site is shown on the 1981 and 1988 photographs. The 1981 photograph shows mounds of soil on the southern edge of the unnamed stream. This photograph also shows possible fill activity in the area that is now covered by the Paved Gated Storage Area north of the Building 185 Complex. The 1988 photograph shows a crescent-shaped area of ground disturbance on the southern portion of the North Meadow. The extent of the disposal area, as highlighted by light-colored material and mounds of soil, appears to extend north towards the pond in 1988.

- Two roadway turnouts are visible in the 1981 photograph, indicating possible traffic to the South Meadow, and alongside Deerfield Creek, west of the Paved Open Storage Area.

In summary, aerial photography indicates disturbance or fill in the areas shown on Figure 1-6 as the paved storage areas, South Meadow, and southernmost portions of the North Meadow. This material is evident southeast of the unnamed stream that flows into the site from the golf course in aerial photographs dated 1951 through 1988. These fill areas were targeted for investigation during the RI as described in this report.

1.4.3 Building 185 Description and History

This section provides a summary description of the Building 185 Complex along with its history and current usage. Additional information compiled for the Building 185 Complex is presented in the Building 185 Summary (Appendix C).

Located in the southern end of the storage area as shown on Figure 1-5, Building 185 consists of four one-story structures (Area Nos. 1 through 4), built in 1952. It is a hazardous materials and general storage unit that is managed and operated in accordance with NAVSTA Newport's Hazardous Materials Control and Management Plan (NAVSTA Newport, January 2004) Building 185 was built to store torpedo fuels, including early generation NAVOL (concentrated hydrogen peroxide), Otto Fuel, alcohols, and lubricating oils. NAVOL is no longer stored at the location. Building 185 was also reportedly used in the late 1980s as a less than 90-day accumulation area for drummed hazardous wastes that consisted primarily of Otto Fuel contaminated solids (including rags, Tyvec protective suits, and cleaning absorbents) (NUWC Newport 2009a).

Otto Fuel II is a highly flammable, distinct-smelling, reddish-orange, oily liquid used as a propellant for torpedoes and other weapons systems. Otto Fuel's chemical makeup is such that it can burn freely in an oxygen-free environment. It is a mixture of three synthetic substances: propylene glycol dinitrate (PGDN) (76 percent), dibutyl sebacate (22.5 percent), and 2-nitrodiphenylamine (1.5 percent).

The Building 185 Complex covers an area 163 feet long by 73 feet wide and consists of four structures referred to as Area Nos. 1 through 4 for the purposes of the RI. Each structure has a paved floor area surrounded by a concrete containment berm approximately 1 to 2 feet high and enclosed with chain-link fencing. Area Nos. 3 and 4 are fully covered, while Area No. 1 has a partial (three-fourths) cover and Area No. 2 is not covered. Area Nos. 1 and 2 have the same overall dimensions of approximately 81 feet long by 31 feet wide, while Areas Nos. 3 and 4 are smaller, approximately 31 feet long by 26 feet wide. Area Nos. 1 and 2 are constructed with the same general floor configuration, sloping from both ends to the center where a concrete cross wall separates the structure into two containment areas.

Uncovered Area No. 2 has the same area and similar floor configuration as Area No. 1. Smaller Area Nos. 3 and 4 are about the same size and have flat floors. Area No. 3 is equipped with a hip roof, and Area No. 4 has a flat roof. Between Area Nos. 1 and 3, are two steel lockers or sheds referred to as Shed No. 1, labeled "Otto Fuel" and Shed 2 labeled "Flammable".

Currently, only Area No. 1 is used for storage of Otto Fuel and flammable materials, such mineral spirits and lube oils. Area 3 was used to store Otto Fuel storage and other liquid hazardous material in the past

and is currently used to store wood, sand bags, and wooden traffic barricades but not hazardous materials. Areas 2 and 4 presently hold small numbers of miscellaneous parts, and have not had any recorded hazardous materials inventory in the current data that goes back to 2000. Locker Shed No. 1, the "Otto Fuel" locker, was previously used to store Otto Fuel and Otto Fuel substitute. It is currently empty, its use discontinued due to a corroded bottom. Locker Shed No. 2, the "Flammable" locker is in sound condition and currently used to store Otto Fuel and other liquid hazardous material.

Area No. 1 appears to have originally equipped with a single pipe drain through the southeast wall. In an early 1970s modification, two 2-inch drain pipes with gate valves were added. According to the NUWC representative, the drains were not connected to the remnant drain piping between the structure and Deerfield Creek as previously assumed.

Area No. 2 appears to have been originally equipped with a single pipe drain, with a second drain pipe added later through the northwest wall. A small circular patch in the northwestern concrete wall observed during the 2008 inspection indicates that a pipe drain system similar to one described for Area. No. 1 above may have been in place but removed at some point. During the RI, the geophysical survey results showed a, 70-foot-long, non-metallic, linear anomaly, similar to a pipe, adjacent to the northern wall of Area No. 2. This anomaly ran adjacent to much of Area No. 2 in a westerly direction towards Deerfield Creek and was observed to terminate prior to the break in slope going down into Deerfield Creek. It has been speculated that this anomaly may represent remnants of a former pipe drain system for rainwater, similar to the one observed in Area No. 1. This anomaly is described in Section 3.2.2.1.

No evidence of a drain in Area No. 3 was discovered. No information is available regarding the Area No. 4 floor drain observed during the 2008 inspection. As is the case with Area No. 3, the drawing providing for modifications does not indicate an existing or proposed drain in Area No. 4. The Navy's research indicates that the Area No. 4 drain is a blind drain (drains to compacted gravel under pavement). No additional information regarding this drain was found.

A review of the NUWC spill report log index for the period 2001 through October 2009 indicates that no leaks or spills occurred in Area Nos. 1 - 4 (NUWC Newport, 2009c). In addition, except for the historical release discovered in 2004 at Area No. 1 (discussed in Section 1.5.1), NUWC representatives whose work histories date back to 1987 are not aware of any releases from Area Nos. 1 through 4 to the environment (NUWC Newport, 2009a).

1.5 PREVIOUS INVESTIGATIONS

This section reviews investigations previously conducted at the NUSC Disposal Area (Site 08) as well as areas surrounding the Site.

1.5.1 History of Response Actions Pertaining to Site 08

This section presents a brief chronology of environmental response actions previously conducted at Site 08. The following chronology is based on information in previous environmental reports prepared for the Navy and information obtained from review of RIDEM files.

September 11, 1980 - The Naval Assessment and Control of Installation Pollutants (NACIP) program was initiated. The purpose of this program was to systematically identify, assess, and control environmental contamination from past use and disposal of hazardous substances at Navy and Marine Corps installations.

March 1983 - The IAS of NAVSTA was completed (Envirodyne Engineers, Inc., 1983). The Site was determined to contain inert materials and was classified as a site that "does not pose a threat to human health or the environment." It was not recommended for further investigation in the CS.

1984 - The Defense Environmental Restoration Program (DERP) was established to promote and coordinate efforts for the evaluation and cleanup of contamination at DoD installations. A major element of the program was the establishment of the IR Program, which focuses on the investigation and cleanup of contaminated sites in compliance with the procedural and substantive requirements of CERCLA, as amended by Superfund Amendments and Reauthorization Act (SARA), as well as regulations promulgated under these acts or by applicable state law.

1988 - A Technical Review Committee was convened to facilitate communication of information with regard to actions to be undertaken at NAVSTA. Technical Review Committee members include representatives from the Navy, EPA Region I, RIDEM, City of Newport, Towns of Portsmouth and Middletown, and local citizens' groups.

November 21, 1989 - NAVSTA was listed on the NPL as the "Naval Education and Training Center (NETC)."

1990 – A Community Relations Plan was issued for NAVSTA by the Navy. Public Information Repositories were also established to allow public access to NAVSTA documents. These are located in the public libraries in Newport, Middletown, Portsmouth, and Jamestown, Rhode Island.

1995 – The Navy established the Restoration Advisory Board (RAB) to provide ongoing information to the citizens in Newport, Middletown and Portsmouth, Rhode Island on Navy IR Program sites.

1999 – Building 179 Concrete UST Remedial Investigation Report by TRC Environmental Corporation (TRC) included the findings of the investigation of a former underground storage tank (UST) located upgradient (south) of the NUSC Disposal Area. Building 179 CUST Area investigations are presented in Section 1.6.

2002 – An Environmental Baseline Survey (EBS) Checklist for the NUWC Pond was conducted in 2002 by NAVSTA Newport (NAVSTA Newport, 2002). According to the report, the Navy allowed Wanumetonomy Golf Course, Inc., to pump pond water from NUWC Pond to the golf course greens for irrigation from 1974 until 1996. The EBS Checklist referenced water quality assessment sampling events, the most recent of which (winter 2002) stated that surface water levels of lead and aluminum and sediment levels of inorganics and pesticides exceeded criteria or standards.

June to November 2003 – The SASE concluded that removal actions and an RI, including baseline human health and ecological risk assessments, should be performed at the Site.

June 2004 - The Navy replaced the roof of Building 185 Complex Area No. 1. During removal of existing interior columns and concrete footings, the odor of Otto Fuel was detected in the soil underlying the southwest section of Area No. 1. The Navy responded to the discovery by removing soil (2,630 pounds) and concrete (1,450 pounds) suspected of Otto Fuel contamination for off-site disposal as hazardous waste. The extent of contaminated soil and concrete removal was based on visual and olfactory evidence. Otto Fuel is a reddish-orange, oily liquid with a distinctive odor. Soils containing Otto Fuel are typically bright yellow in color. No post-excavation soil samples were collected to confirm removal of contaminated soil. Five composite samples of the removed soil were tested for PGDN, the major component of Otto Fuel. One of the five soil samples was contaminated with PGDN (310 mg/kg), verifying that a release of Otto Fuel had occurred at the structure. (NUWC Newport, 2004; NUWC Newport, 2008; NUWC Newport, 2009a; and NUWC Newport, 2009b). The excavation was backfilled with clean soil and covered with pavement. RIDEM was notified of the test results and the soil and concrete removal and disposal by the NAVSTA Newport environmental department (NAVSTA Newport, 2004).

The actual date of the Otto Fuel release and the circumstances that caused it are unknown. Copies of NUWC spill log indexes dating back to 2001 do not list an Area No. 1 Otto Fuel release for the years 2001

through 2004. In addition, a NUWC representative whose Building 185 work experience dates back to 1994 is not aware of any leak or spill in Area No. 1 (NUWC Newport, 2009c). Therefore, it is likely the release occurred prior to 1994. A location survey of the area excavated to remove the Otto Fuel contaminated soil and concrete has not been found.

September 2006 – The Background Soil Investigation Report for the Site was finalized (TtNUS, 2006).

1.5.2 Summary of Investigations and Assessments

This section summarizes previous environmental investigations and actions pertinent to the NUSC Disposal Area Site RI, which are documented in the following reports:

- IAS (Envirodyne Engineers, Inc., 1993)
- EBS Checklist for NUWC Pond (NAVSTA Newport, 2002)
- Building 110 Otto Fuel Tank Closure
- SASE for the NUSC Disposal Area (TtNUS, 2005)
- Post SASE Removal Activities (TN & Associates, 2006)
- NUSC Disposal Area Background Soil Investigation (TtNUS, 2006)

Summaries of previous environmental investigations and actions pertinent to the Building 179 CUST Area are presented in Section 1.6.

1.5.2.1 Initial Assessment Study

The IAS Report identified areas at the NETC, presently known as NAVSTA Newport, where potential contamination from past waste disposal or handling practices may pose human health or environmental risks. For Site 08, available background information indicated that the NUSC Disposal Area was used for disposal of scrap lumber, tires, wire, cable, and empty paint cans. The IAS concluded that the site did not pose a threat to human health or the environment and was not recommended for inclusion in the subsequent CS. The IAS Report described several former NUSC operations that had the potential to generate hazardous materials. These operations included industrial plating, anodizing, and chemical cleaning in Building 1170 (formerly located approximately 200 feet southwest of the Site), and polychlorinated biphenyl (PCB) storage at an unnamed location.

1.5.2.2 EBS Checklist for the NUWC Pond

An EBS Checklist for the NUWC Pond was completed in 2002 by NAVSTA Newport 2002. According to the associated report, the Navy allowed the Wanumetonomy Golf Course, Inc., to pump pond water from NUWC Pond to the golf course greens for irrigation purposes. Documentation pertaining to the water usage arrangement agreement between the Navy and the golf course is dated 1974. Pond water was pumped from the pond to the golf course property until the spring of 1996 (NAVSTA Newport, 2002).

The EBS Checklist for the NUWC Pond referenced water quality sampling. One sampling event was conducted in 1995 in which only surface water samples were collected, and one sampling event was conducted in 1996 that assessed both surface water and sediment. Simultaneously, a study was conducted to determine what effects the withdrawal of water from the pond was having on the ecology and surrounding habitats. According to the most recent evaluation, conducted in the winter of 2002, surface water levels of lead and aluminum exceeded a criterion and standard, respectively. Inorganic contaminants and pesticides were detected in sediment in excess of a criterion or standard (NAVSTA Newport, 2002).

1.5.2.3 Building 110 Otto Fuel Tank Closure

During the early 1990s, an UST that had been used to store Otto Fuel was closed in place at Building 110, approximately 970 feet west of the NUWC Pond concrete dam. As part of the UST closure at Building 110, a monitoring well was installed adjacent to Building 1257 just west of the NUWC Pond to evaluate downgradient conditions.

1.5.2.4 Study Area Screening Evaluation

The NUSC Disposal Area SASE was conducted to determine if contaminants were present at the Site at concentrations exceeding risk-based standards and to determine if additional investigations were necessary under the IR Program. SASE investigation activities, conducted in July and August 2003, included a passive soil gas investigation, collection of sediment and surface water samples from nine locations in the streams and pond on site, excavation of 16 test pits in unpaved locations across the Site, and installation of 11 soil borings in paved and unpaved areas of the Site. Three soil samples were collected from each test pit and soil boring. Four groundwater wells were installed in the bedrock at the site. No overburden groundwater was encountered during the investigation. SASE sample locations are shown on Figure 1-7. A detailed discussion of the investigation is provided in the SASE Report prepared by TtNUS dated September 2004. A summary of significant findings is as follows:

- **Groundwater Contamination –** Analytical results exceeded groundwater screening criteria at the Site for the volatile organic compounds (VOCs) tetrachloroethene (PCE) and trichloroethene (TCE) and the metals arsenic and cadmium. Also, the VOC 1,1,1-trichloroethane (1,1,1-TCA) was detected at very low concentrations in one of the bedrock aquifer wells installed as a part of the SASE. The screening criteria used were the Federal Maximum Contaminant Levels, and RIDEM GA Groundwater Objectives.

- **Soil Gas Contamination** – TCE, benzene, toluene, ethylbenzene, and xylenes (BTEX), and petroleum hydrocarbons, represented by undecane, tridecane, and pentadecane, were detected in soil gas samples in isolated "hot spots" and fairly well-defined soil gas plumes (Figure 1-7). TCE was detected in two soil gas hot spots, one at the western edge of the North Meadow and the second in the South Meadow, north of the paved storage area. Concentrations of BTEX in soil gas were detected southwest of the Building 185 Complex area and at the western extent of the North Meadow. Undecane, tridecane, and pentadecane concentrations were elevated in the central portion of the storage area and the southeastern corner of the paved storage area. These soil gas results were unvalidated field results used in the SASE investigation to select groundwater and soil sampling locations.

- **Soil Contamination** – The compounds 1,2,4-Trimethylbenzene, PAHs, TPH, and metals were detected in soil samples collected from the Paved Gated Storage Area at concentrations greater than screening criteria. The screening criteria used were the EPA Region IX residential soil Preliminary Remediation Goals (PRGs) and the RIDEM residential soil DECs. PAHs and metals were detected in soil samples collected from the Paved Open Storage Area at concentrations greater than screening criteria. Naphthalene, carbazole, PAHs, PCBs, TPH, and metals were detected in soil samples collected from the South Meadow at concentrations greater than screening criteria. PAHs and metals were detected in soil samples collected from the North Meadow at concentrations above comparison criteria.

- **Sediment Contamination** – VOCs, semi-volatile organic compounds (SVOCs), pesticides, PCBs, and metals were detected in sediment from Deerfield Creek and NUWC Pond. No VOC concentrations exceeded the EPA Region 9 residential soil PRGs or Rhode Island residential soil DECs. Analytical results that exceeded criteria included PAH compounds [benzo(a) anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno (1,2,3-cd)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, and chrysene], pesticides/PCBs (Aroclor-1268, Aroclor-1260, and dieldrin), and metals (aluminum, arsenic, iron, lead, manganese, and beryllium).

- **Surface Water Contamination** – Compounds detected in surface water samples from both streams and the NUWC Pond included two VOCs, one SVOC, three pesticides, and metals (total and dissolved). None of the VOCs or SVOCs concentrations exceeded Ambient Water Quality Criteria (AWQC), CCCs or Maximum Contaminant Levels (MCLs). Analytical results that exceeded criteria included 4,4'-dichlorodiphenyltrichloroethane (DDT), aluminum, lead, and thallium. The SASE reported that 1,1,1-TCA was detected at trace concentrations in sediment and surface water samples collected from Deerfield Creek. The low concentration in on-site groundwater and the documented presence of 1,1,1-TCA in groundwater at the Building 179 Site, south and east (upgradient) of Site 08, suggests that concentrations in Deerfield Creek are the result of impacted groundwater from Building 179 discharging into Deerfield Creek.

The SASE concluded that contaminants were present at the NUSC Disposal Area at concentrations exceeding risk-based standards and that additional investigation was necessary to complete an RI and baseline human health and ecological risk assessments. In addition, the SASE identified fill at the NUSC Disposal Area as a possible source of the contaminants. Review of aerial photography indicated disturbance or fill in the areas shown on Figure 1-6 as the paved storage areas, South Meadow, and southernmost portions of the North Meadow. This alteration appears in aerial photographs dated 1951 through 1988 southeast of the unnamed stream, which flows onto the Site from the golf course. These fill areas were targeted during investigation for the SASE. The available historical information about the NUSC Disposal Area and the presence of empty paint cans and other debris referred to in the IAS Report led the Navy to presume at the outset of the SASE investigation that possible chemical hazards may include VOCs and heavy metals from paint residues and methane produced from the natural decomposition of organic materials.

The SASE also identified the Building 185 Complex where the enclosures are used for flammable material storage as a possible source of Site 08 contaminants.

In 1998, a member of the NAVSTA RAB, who was also a former employee of the NUSC, stated that in the 1970s, two concrete cylinders set in the ground at the Site were used for chemical disposal. One was used for alkaline chemicals and the other was used for acidic chemicals. The former employee accompanied investigators to the Site in June 2003 and identified the likely locations of these disposal areas. He also noted that he had never actually seen them used. These areas were investigated during the SASE by the advancement of soil borings SB-02 and SB-04, the approximate former locations of the reported chemical disposal areas, and are indicated on Figure 1-7. (TtNUS, 2004).

Field observations and analytical results in the SASE report confirmed the presence of fill on the Site. The fill consists primarily of construction debris and decomposed pressurized spray cans near the

southern-most corner of the Site. Drum(s) containing a tar-like substance were located at the center of the South Meadow (Figure 1-7). Soil contaminants in the fill area were detected at concentrations greater than screening criteria. Some of those contaminants, particularly lead and TCE, have migrated downgradient from the fill. Lead was detected in Deerfield Creek and TCE was detected in the bedrock aquifer. Based on the current use of the Site (storage and recreational), contaminants detected in soil, sediment, and groundwater exceed risk-screening criteria.

Based on these findings, the SASE concluded that limited removal actions should be performed to remove debris in two locations (Figure 1-7):

- Buried Container Area – unknown volume of buried deteriorated metal containers (presumed to be empty aerosol paint spray cans), metal debris, and associated contaminated soil southwest of the Paved Open Storage Area, at the eastern bank of Deerfield Creek, discovered during excavation of test pit TP14.

- Buried Drum Area – including an unknown quantity of buried drums with unknown contents at the center of the South Meadow, discovered during excavation of test pit TP02.

Contamination at these locations was presumed to pose a current threat of release to downstream environments including NUWC Pond and Narragansett Bay. The SASE also concluded that additional evaluations would be needed to complete an RI and baseline human health and ecological risk assessments.

1.5.2.5 Post-SASE Removal Activities

In response to the findings of the SASE, limited removal actions were conducted at the Buried Container Area and Buried Drum Area from June 2005 to February 2006. The removal action activities are summarized below. Further details can be found in the Final Interim Remedial Action Report prepared by TN & Associates, Inc. (2006).

At the Buried Container Area, an area approximately 34 feet by 30 feet by 9 feet deep adjacent to Deerfield Creek was excavated to remove empty aerosol paint spray cans, metal debris, and contaminated soil. In a second phase of the excavation, which involved the relocation of a utility pole, an adjacent area 6 feet by 12 feet by 8 feet deep was also excavated. However, some empty aerosol paint spray cans at the southern end of the excavation could not be removed without undermining the roadway culvert. A total of approximately 157 cubic yards (236 tons) of soil and metal debris were removed from the excavation, as shown on Figure 1-8.

During the removal action at the Buried Drum Area in the South Meadow, a total of 36 drums and 113 tons of contaminated soil were removed during multiple phases. The drums were in various states of decay and contained a tar-like substance. The final excavated area measured approximately 25 feet by 60 feet by 6 feet deep (see Figure 1-8). Due to its proximity to the excavation, monitoring well MW-01B could not be protected and was removed; a replacement well was installed at same location in June 2006.

Removal of buried drums from the Buried Drum Area in the South Meadow was conducted in two phases. During Phase 1, a composite sample of the contents of the 28 drums removed was collected for waste characterization. The sample was analyzed for VOCs, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP pesticides, TCLP herbicides, and TCLP metals. When eight additional drums were removed during Phase 2, a drum contents sample was analyzed for the hazardous characteristics ignitability and corrosivity only. Analytical results for this testing are provided in the Interim Remedial Action Report (Appendix A.2). All TCLP test results for the drum contents sample were below the TCLP limits and the sample passed the ignitability and corrosivity tests. Positive detections for the VOCs, total PCBs, and TPH analyses are provided in the table below:

VOCs (µg/kg)		
naphthalene	45,000	
toluene	81	
ethylbenzene	97	
m+p xylene	57	
total xylene	57	
Total PCBs (mg/kg)		
Aroclor-1248	0.15	J
Total TPH (mg/kg)[1]	110,000	

J result is estimate

Prior to backfilling, the completed excavations were lined with 6-mil-thick plastic sheeting to separate clean backfill from existing soil. The excavation areas were backfilled with virgin bedrock formation aggregate that was certified clean. Clean topsoil was placed over the backfill and the areas were graded to surrounding elevations. Slopes were covered with erosion control matting and other areas were seeded with rye and fescue. Riprap (4 to 8 inches) was placed on the slope of the Buried Container Area backfill (Deerfield Creek stream bank) as an erosion protection measure.

During the removal activities, samples were only collected to characterize excavated soil for disposal purposes; post-excavation sidewall and bottom samples were not collected as part of the removal. Based on characterization testing, material removed from the Buried Container Area excavation was disposed as hazardous due to high levels of lead. Drums and contaminated soil removed from the Buried Drum Area were disposed as non-hazardous based on waste characterization test results.

1.5.2.6 NUSC Disposal Area Background Soil Investigation

The objective of the NUSC Disposal Area background soil investigation was to provide a background data set for comparisons to soil data collected from the Site during the RI. The objective of the investigation was to identify chemical constituents expected to be present had the fill activities not occurred. These constituents include naturally occurring and anthropogenic metals and anthropogenic organic chemicals including pesticides, PCBs, and SVOCs. Previous investigations of nearby sites and the use of surrounding properties and historical use of the Site itself as agricultural land suggested that background levels of chemicals may be higher in site soil than in other background areas of Rhode Island. In 2004, 60 surface soil samples were collected at off-site upgradient locations and included the three soil types representative of those mapped by the United States Soil Conservation Service (USCS), at the Site. This Site-specific background data set was evaluated and incorporated into the Basewide Background Soil Investigation (TtNUS, 2006).

1.6 BUILDING 179 CUST SITE BACKGROUND INFORMATION

This section presents a description of the Building 179 CUST Site and its physical setting, history, previous investigations, and a summary of the soil and groundwater contamination characterization. Information in this section is primarily from the Building 179 Concrete UST Remedial Investigation Report (TRC, 1999). Two reports which provided significant additional detail include the Final Project Closure Report for Building 179 Tank Closures (FWEC, 1999) and the Final Project Close-Out Report for Building 179 Remediation (FWEC, 2000). All three documents are provided in Appendix A.

1.6.1 Building 179 CUST Site Description

The original Building 179 was constructed in 1961 and was used to test torpedo propulsion systems as part of the PTF at NUWC. The associated CUST, which was closed in place in December 1998, is located approximately 20 feet north of the northeast corner of Building 179. The Building 179 CUST Area consists of approximately 2 acres of land, including a heavily vegetated wetland adjacent to Deerfield Creek, in the eastern portion of the property, and a heavily developed area in the western portion, much of which is paved, with a number of above- and below-ground process structures to support PTF functions.

1.6.2 Building 179 CUST Site Physical Setting

This section describes the physical characteristics of the study area, including surface features, land use, surface hydrology, geology, and hydrogeology based on information presented in the Building 179 Concrete UST Remedial Investigation Report (TRC, 1999).

1.6.2.1 Surface Features and Land Use

Building 179 is located approximately 420 feet south of the Building 185 Complex, the southern portion of the NUSC Disposal Area, and east of Cunningham Street, near the northeastern boundary of the NUWC. Surface topography in the immediate vicinity of Building 179 is relatively flat. The land slopes gradually downward to the east to a wetland area and Deerfield Creek which flows north toward the NUSC Disposal Area. The difference in elevation between the area immediately west of Building 179 and Deerfield Creek to the east is approximately 10 feet.

In the vicinity of Building 179 to the west and north are NUWC Buildings, 1303, 438, 1192 and 178, which are bordered by Cunningham Street to the west. Beyond these buildings to the north is the access road to the Building 185 Complex at the NUSC Disposal Area. NUWC Buildings 1180 and 1301 are immediately to the south and southeast of Building 179. According to the Building 179 CUST RI Report, Buildings 179, 438, 1180, 1301 and 1303 form a significant portion of the PTF at NUWC (TRC, 1999).

1.6.2.2 Surface Hydrology

Deerfield Creek is located about 80 feet east of the former CUST. This portion of Deerfield Creek is surrounded by low-lying areas, some of which have been delineated as wetlands, to the southeast, east, and northeast of the former concrete UST. Deerfield Creek flows onto the NUWC property north of the Building 179 property. Several storm water outlets originate on NUWC and discharge to Deerfield Creek.

1.6.2.3 Geology

Overburden thickness ranges from about 3 to 9 feet at the Building 179 CUST area. Overburden materials consist of the following:

Fill - The fill unit encountered was a brown sand and gravel with various quantities of silt. This unit was encountered in five borings at thicknesses ranging from 1 to 7 feet, generally in developed portions of the site. Some fill may have been placed on grade to allow construction of buildings and roads in low-lying areas. Concrete debris was encountered in one area.

Peat/Loam - The peat/loam unit consists of either a soft hard brown fibrous peat or a dark brown silty loam and was observed in the wetland area and the grassy landscaped areas. This unit was encountered in 16 borings and ranged in thickness from several inches to 1-foot.

Silt and Sand - The silt and sand geologic unit was observed in almost all of the borings. This unit consists of grey silt with various quantities of fine sand and is present beneath the fill or peat/loam and above the till. This unit varies from about 1 foot to 6 feet in thickness.

Till - The till unit consists of a heterogeneous mixture of silt, sand, shale fragments and gravel. This unit is present in most of the borings and lies directly above bedrock, and ranged in thickness from about 1 to 4 feet.

Bedrock - The bedrock beneath the Building 179 CUST area has been characterized as shale. The uppermost bedrock has been characterized as degraded and weathered shale which is underlain by competent shale.

The bedrock surface elevations beneath the site range from about 50 feet at the southwestern corner of the site to 40 feet at the northeastern portion of the site adjacent to the stream channel. The top of bedrock topography typically follows the ground surface topography, showing a gradual slope towards the wetland and Deerfield stream.

Degraded, severely weathered shale was encountered at the bedrock/overburden interface in nearly all the borings advanced for the RI. Degraded bedrock (characterized as bedrock that was penetrated with a split spoon) has a rock-like fabric and composition, but crumbles easily (with hand pressure) was encountered at depths between 2.5 to 9 feet below ground surface and ranged between 1 and 5-feet thick.

The competent bedrock consists of gray shale, with small sections of conglomerate and white quartzite intrusions. The upper portion of the bedrock has many water-bearing coarse fractures. Fractures and iron staining were also observed deeper in the borings but were not as prevalent as in the upper 2 to 4 feet. Fractures were both high and low angle orientations.

1.6.2.4 Hydrogeology

The water table beneath the Building 179 CUST Area is in the overburden closer to Deerfield Creek but is in the bedrock west of the former CUST. Groundwater flow in both the overburden and bedrock generally mimics ground surface topography. Groundwater flow beneath the site is in a north-northeasterly direction

towards Deerfield Creek. Groundwater flows from the location of the former CUST to Deerfield Creek and the associated wetland area.

Hydraulic Gradients - The horizontal hydraulic gradients for overburden groundwater flow ranged from 0.005 ft/ft to 0.023 ft/ft. The average horizontal hydraulic gradients for the bedrock ranged from 0.001 ft/ft to 0.013 ft/ft. Horizontal gradients are generally in the higher range closer to Deerfield Creek and the northern portion of the Building 179 CUST Area.

Vertical hydraulic gradients between overburden and bedrock groundwater are downward in at the site (MW-7A/7B and MW-6A/6B) and downward on the eastern side of Deerfield Creek (in well clusters MW8A/8B and MW13A/13B).

Hydraulic Conductivity - Hydraulic conductivity (K) of overburden and bedrock at the Building 179 CUST Area was estimated using in-situ hydraulic conductivity tests (slug tests) and grain size analysis. The average K of overburden material ranged from 1.48 to 1.62 ft/day using slug tests and was 0.014 ft/day using grain size analysis. The average K of bedrock was between 0.47 and 0.50 ft/day using slug test data.

Groundwater Seepage Velocities - Average seepage velocities in the Building 179 CUST Area were estimated. In the overburden the average seepage velocity was estimated to be between 0.015 and 0.7 ft/day. The average seepage velocity in the bedrock was estimated to be between 0.01 and 0.16 ft/day.

1.6.3 Building 179 CUST Site History and Investigations

Prior to the 1961 construction of Building 179, the area appeared to be undeveloped farmland (TRC, 1999). In 1961, Building 179 and the associated 2,000 gallon CUST were constructed to support the Navy through the testing of torpedo propulsion systems. The CUST was constructed as two separate compartments separated by a concrete wall and covered with a steel plate. The CUST compartments were historically referred to as concrete “pits” and were used to collect byproducts generated from propulsion system testing. The materials temporarily held in the concrete pits included water mixed with engine oil, small amounts of cleaning fluids (mineral spirits and other solvent-based cleaners, including TCA); Otto Fuel; and combustion byproduct mixtures composed mostly of carbon with trace amounts of hydrogen cyanide (HCN) and cadmium. The HCN is a combustion product of Otto fuel while the cadmium was generated from engine component wear and tear during testing. Building floor drains collected waste materials such as those listed above and conveyed them to the smaller, 500-gallon capacity compartment within the CUST. The larger 1,500 gallon capacity compartment was used as a quench tank for water soluble exhaust gases resulting from the torpedo test emissions. The contents from

this compartment were pumped into a 6,000-gallon above-ground hazardous waste storage tank at the conclusion of each test. Based on information from tank and piping removal activities conducted immediately north of the CUST, an underground “Interceptor Tank” (now removed) connected to the CUST and had a discharge pipe extending approximately 50 feet east toward the wetland/Deerfield Creek (TECG, 1995; TRC, 1999).

The following history of Building 179 is presented in approximate chronological order:

In 1992, two double-walled stainless steel tanks were placed inside the two CUST compartments: a 500-gallon capacity tank on the west side and a 1,500-gallon tank capacity on the east side.

On February 24, 1995, a torpedo test failure and explosion occurred at Building 179 causing damage to the building and requiring the curtailing of activities. Reconstruction of Building 179 was required in order to reestablish full torpedo testing operational status.

In March 1995, in response to a request by NUWC to remove the CUST from RIDEM’s list of registered USTs, RIDEM requested a Closure Assessment of the CUST to evaluate whether a release had ever occurred.

From June through October 1995, in support of the Closure Assessment, The Environmental Compliance Group, Inc. (TECG) advanced four soil borings, installed three overburden groundwater monitoring wells and collected three soil and three groundwater samples, all of which were analyzed for VOCs, cyanide, cadmium and PGDN. VOCs were detected in soil. Chlorinated VOCs were present in all three groundwater samples, with Total VOCs ranging from 10,400 to 333,000 µg/L. The “UST Closure Assessment, Building 179 Concrete Pits, Naval Undersea Warfare Center” concluded that a release had occurred in the vicinity of the CUST, and soil and groundwater contamination were present (TECG, 1995). Between August and October 1995, three additional rounds of groundwater sampling and analysis were conducted by TECG to confirm groundwater results presented in the UST Closure Assessment Report. The October 1995 event also analyzed groundwater for SVOCs, petroleum and metals. In considering all four groundwater sampling events, maximum concentrations of several compounds were as follows: TCA at 310,000 µg/L; 1,1-dichloroethane (DCA) at 4,600 µg/L; chloroethane at 23,500 µg/L; PGDN at 470 µg/L; and the SVOCs naphthalene and 4-methylphenol at 6,000 J and 5,000 J µg/L, respectively.

In a letter dated October 4, 1995, based on the identified soil and groundwater contamination, RIDEM instructed NUWC to perform an RI, in accordance with Section 8.0 of RIDEM’s “Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases.”

From November 1995 to April 1996, TRC Environmental Corporation (TRC) conducted investigative activities to support the Building 179 Reconstruction Program, under contract to NUWC. Soil boring and groundwater monitoring well installation activities were conducted, including groundwater and soil sample collection and analysis (soils analyzed up to 6 feet in depth), to determine whether contamination would be encountered within the area that may be disturbed during reconstruction of Building 179. Soil and groundwater samples were analyzed for VOCs, SVOCs, cyanide, total petroleum hydrocarbons (TPH), and PGDN, and contamination was identified in both soil and groundwater. In groundwater, TCA was detected at 72,000 µg/L, exceeding RIDEM's GA groundwater standard. Other groundwater contaminants included 1,1-DCA at 6,500 µg/L; TPH at 91,000 µg/L; PGDN at 116,000 µg/L; and cyanide at 400 µg/L. In soil, eleven VOCs were detected, with a maximum of 292,600 µg/kg Total VOCs. The maximum concentrations of VOCs in soil were: TCA at 130,000 µg/kg; 1,1-DCA at 31,000 µg/kg; 1,2,4-trimethylbenzene at 64,000 µg/kg; n-butylbenzene at 22,000 µg/kg; and naphthalene at 10,000 µg/kg. Also, TPH was detected in soil up to 8,400 mg/kg.

In April 1996, also as part of the Building 179 Reconstruction Program, TRC conducted a "Sub-Slab Investigation" including additional soil sampling and analysis to evaluate soil directly beneath Building 179. One soil sample was collected at each of nine soil borings advanced through the floor of the building. Soil contaminants including VOCs, TCA, ethylbenzene and xylene were present. Maximum concentrations in soils were reported for the following: TCA at least 24,000 µg/kg (value is from a diluted sample);.total xylene up to 25,000 µg/kg; TPH at 7,500 mg/kg; cyanide at 18,900 µg/kg; and PGDN at 81,000 µg/kg. The soils with the highest concentrations of PGDN and chlorinated solvents were located in the northeastern area of the building footprint. On the basis of this preconstruction data, TRC prepared a conceptual design for bulk excavation of contaminated soil and installation of wells within the building footprint.

In October 1996, the "Building 179 CUST Remedial Investigation Work Plan" was prepared by TRC. The RI objective was to assess the nature and extent of contamination in the vicinity of the CUST, adjacent to Building 179. The investigation was conducted in three phases: Phase IA in December 1996; Phase IB in September and October 1998; and Phase II from July through December 1999, as summarized in chronological order with other events below.

In December 1996, Phase IA of the CUST RI was conducted by TRC, including a Geoprobe investigation with 34 soil borings, from which 28 groundwater samples were collected and analyzed for VOCs in a mobile on-site laboratory. Duplicate portions of six of the 28 groundwater samples also shipped for laboratory analysis by Method 8260, for comparison to mobile on-site laboratory results. The Geoprobe sample locations for Phase IA were confined to the vicinity of the CUST and Building 179. Groundwater

contamination was identified in the overburden (discussion of all RI findings are presented under the December 1999 entry below, the date of publication of the RI Report).

In July 1997, the "Building 179 Reconstruction Incidental Cleanup Work Plan" was prepared by Foster Wheeler Environmental Corporation (FWEC).

From November 1997 through April 1998, remedial activities were conducted by FWEC under the Building 179 Reconstruction Program primarily within the footprint of the Building 179 reconstruction (primarily in grids numbered 1 through 18). The associated remedial activities conducted by FWEC were reported in the "Final Project Close-Out Report for Building 179 Remediation", prepared by FWEC in March 2000.

Contaminated groundwater from excavations was pumped, treated on site, and discharged to the POTW. Railroad tracks, ties and ballast materials were removed and disposed of. Approximately 220 tons of concrete flooring were removed and disposed off site. Most of the floor slab was contaminated with TCA and was classified as hazardous waste. Within the excavation grid, soil was removed to meet the RIDEM Industrial/Commercial DEC. Within the building footprint, soil was excavated to the top of competent bedrock.

For restoration of the area within the footprint of the new building construction, a liner system (high-density polyethylene liner and concrete pad) and two groundwater extraction wells were installed. The extraction wells were installed to provide a means to remove and treat groundwater during reconstruction; it is not known if the wells were used. The liner system was installed to limit migration of any contaminant vapors into the newly reconstructed Building 179. In February 1998, post-excavation soil samples were collected from the floor and sidewalls of the Grid 1 through 18 excavations; the results are discussed below in Section 1.6.4.

Activities related to the CUST closure (considered part of Grid 19), which was closed in place, and to the Interceptor Tank closure, are summarized below.

From October through December 1998, FWEC conducted additional activities (described as "Building 179 Final Phase Remediation") related to the CUST closure (considered part of Grid 19), which was closed in place, and to the Interceptor Tank closure. The associated remedial activities conducted by FWEC were reported in the "Final Project Closure Report for Building 179 Tank Closures" dated October 1999.

These activities were conducted under a Work Plan Addendum to the July 1997 Building 179 Reconstruction Incidental Cleanup Work Plan. Activities included dewatering and treatment of

groundwater, removal of contaminated soil adjacent to the CUST and Interceptor Tank, and confirmatory sampling from within the excavations.

CUST/Grid 19 - The CUST contents were removed and the tank compartments were cleaned. Soil excavation exposed the north, south and east exterior walls of the CUST, where soils were removed to a depth of 9.5 feet below ground surface (bgs), exposing the bottom of the CUST. Also soils were removed from around the top and the sides of the CUST prior to closing the tank in place. (The inner stainless steel tanks from within the CUST had been previously cleaned, removed and relinquished for recycling.) A total of 11 post-excavation soil samples were collected in the Grid 19/CUST excavation: nine sidewall samples and two floor samples. These samples were collected to confirm that the RIDEM Industrial/Commercial DEC had been achieved; soil confirmation results are discussed below in Section 1.6.4.

The CUST was closed in place by filling the concrete vault with a flowable fill material, a non-shrinking inert solid composed of sand, gravel, water, cement and a plasticizing agent to increase flowability. The CUST was then capped with a 3,000 psi concrete slab, reinforced with a 6-inch on-center wire mat (FWEC, October 1999).

Interceptor Tank - Historically, the Interceptor Tank appeared to have been connected to the CUST. An inspection indicated the Interceptor Tank had one inlet coming from the direction of the CUST, and one outfall pipeline, extending approximately 50 feet eastward into the wetlands of Deerfield Creek. The tank was approximately three-fourths filled with wastewater and bottom sludge. The Interceptor Tank closure included removal of the tank's residual contents. Approximately 1,100 gallons of fluid, bottom sludges and residual product were removed. TCA up to 15,000 mg/kg and PGDN at a concentration of 1.52 mg/L were detected in the Interceptor Tank sludge samples. Soils above and next to the Interceptor Tank were excavated, and the tank was crushed and removed. Post-excavation soil samples were collected from the excavation bottom and sidewalls (FWEC, October 1999).

On April 17, 1998, RIDEM issued comments on the October 1996 "Building 179 Concrete UST (CUST) Remedial Investigation Work Plan," including a request to further define the nature and extent of overburden groundwater contamination that was identified during the Phase IA RI activities conducted in December 1996.

In September and October 1998, TRC conducted Phase IB of the CUST RI, including a Geoprobe investigation with 71 soil borings, from which 56 groundwater samples were collected and analyzed for VOCs (there was insufficient groundwater in other locations) in a mobile on-site laboratory with duplicate portions of seven of the 56 groundwater samples were also shipped for laboratory analysis by Method

8260, for comparison to mobile on-site laboratory results. Phase IB Geoprobe locations were in areas extending beyond those of Phase IA, to further evaluate overburden groundwater contaminant nature and extent. Five surface water samples were also collected and analyzed for VOCs during Phase IB in October 1998 (summarized below in December 1999 entry).

From July through December 1999, Phase II of the CUST RI was conducted by TRC including:

- a seismic refraction survey conducted to assess subsurface conditions and to profile the bedrock surface
- a total of 25 soil samples collected from borings and analyzed for VOCs, SVOCs, cyanide and TPH
- a total of 13 groundwater samples (from eight overburden and five bedrock monitoring wells) collected and analyzed for the compounds listed above
- three surface water/sediment sample pairs collected and analyzed for the parameters listed above
- in-situ hydraulic conductivity tests (slug tests)
- three rounds of groundwater level measurements (October, November and December 1999)

In October 1999, “Final Project Closure Report for Building 179 Tank Closures” was issued by FWEC. This report documented that Grid 19 excavation, and Interceptor Tank and piping removal and excavation.

In December 1999, the “Building 179 Concrete UST Remedial Investigation Report” was issued by TRC summarizing activities and data from all three phases of the RI, including Phase IA (December 1996), Phase IB (September through October 1998), and Phase II (July through December 1999). The focus of the RI was on the identification of the nature and extent of groundwater contamination.

Neither a human health risk assessment nor ecological risk assessment was conducted as part of the Building 179 CUST RI. The RI Report recommended additional groundwater investigation of the bedrock aquifer to fully define its nature and extent of contamination along with further data analysis and risk assessment to develop groundwater objectives under a RIDEM Remediation Regulations Method 2 or Method 3 approach. In addition, the RI Report also included a brief description of four remedial alternatives developed to address the observed groundwater contamination.

In March 2000, the “Final Project Close-Out Report for Building 179 Remediation”, was prepared by FWEC. This report summarized the Grids 1 through 18 excavations.

On November 28, 2000, the "Building 179 Concrete UST RI Report" was submitted to RIDEM.

1.6.4 Building 179 CUST Area Contamination Characterization Summary

This section presents a summary characterization of contamination for soil, groundwater, surface water and sediment at the Building 179 CUST Site based on the results provided in the CUST RI Report (TRC, 1999), the Building 179 Tank Closures Report (FWEC, 1999) and the Building 179 Remediation Report (FWEC, 2000).

1.6.4.1 Soil Contamination Characterization Summary

As discussed above, remedial activities, including tank closure and removal and soil excavation and removal have performed at the Building 179 CUST Area. The Building 179 residual soil characterization is based on the results of the post-excavation soil confirmation sampling conducted at Grids 1 through 19, as reported in the Building 179 Tank Closures Report (FWEC, 1999) and the Building 179 Remediation Report (FWEC, 2000) and for soil borings and geoprobe samples collected during the CUST RI (TRC, 1999).

For Grids 1 through 18, which underlie the Building 179 footprint, the post-excavation soil samples consisted of 18 samples collected from the excavation floor and 11 samples collected from the excavation sidewalls, as shown on Figure 1-9. Samples were analyzed for VOCs, SVOCs, TPH, total cyanide and PGDN. The results are provided in Appendix H of the Building 179 Remediation Report (see Appendix A). The table below provides Grids 1 through 18 post-excavation soil positive detection results for PGDN and for analytes exceeding the RIDEM Industrial Commercial DEC.

	I/C DEC	179-Grid-1 Post	179-Grid-11 Duplicate	179-Grid-11 Post	179-Grid-11 Sidewall 2 Post	179-Grid-11 Sidewall 4 Post	179-Grid-14 Post
EXPLOSIVES (MG/KG)							
PGDN	na	NA	NA	31	NA	NA	NA
SEMIVOLATILES (UG/KG)							
BENZO(A)PYRENE	800	1900	NA	-	-	-	-
1,1-DICHLOROETHENE	9500	-	10000	-	-	-	-
PETROLEUM HYDROCARBONS (MG/KG)							
TPH	2500	82	NA	5900	3500	5600	4000

Source: Building 179 Remediation Report (FWEC, 2000).

I/C DEC RIDEM Industrial Commercial Direct Exposure Criteria
na not applicable
NA not analyzed
SW Sidewall
"-" not detected
shaded exceeds criterion

As shown, only two exceedances of the Industrial/Commercial DEC for SVOCs were reported. The compound 1,1-DCE, at 10,000 µg/kg, slightly exceeds its criterion of 9,500 µg/kg in the Grid 11 excavation floor sample. The benzo(a)pyrene soil concentration in the Grid 1 excavation floor sample at 1,900 µg/kg exceeds the criterion (800 µg/kg). Also, the TPH Industrial/Commercial DEC of 2,500 mg/kg was exceeded in three Grid 11 samples at concentrations ranging from 3,500 to 5,900 mg/kg and in one Grid 14 sample at 4,000 mg/kg. Also, PGDN was reported at 31 mg/kg in Grid 11.

For Grid 19, a total of eleven post-excavation soil samples were collected in the Grid 19/CUST excavation: nine sidewall samples and two floor samples. It was reported that all eleven samples contained VOCs, primarily acetone and 2-butanone (both common laboratory contaminants), but there were no exceedances of the RIDEM Industrial/Commercial DEC. In addition, cyanide was not detected. Information regarding SVOC results was not included in the Tank Closures Report. Also, it was reported that TPH exceeded the RIDEM Industrial/Commercial DEC (2,500 mg/kg) at two sidewall samples at 3,300 mg/kg and 4,700 mg/kg (FWEC, October 1999).

At the Interceptor Tank, nine post-excavation soil samples were collected from the excavation bottom and sidewalls and analyzed for VOCs, mineral spirits, PAHs, and total cyanide. In addition, four of the soil samples were also analyzed for PGDN to evaluate potential Otto fuel contamination in the area of the Interceptor Tank; the report states PGDN was not detected (FWEC, October 1999).

During the CUST RI, 25 soil samples were collected from 23 borings located throughout the Building 179 CUST RI study area (beyond the soil excavation grids) as shown in Figure 1-10. Samples were analyzed for VOCs, SVOCs, cyanide and TPH. RIDEM's Residential DEC was not exceeded for any of the VOC compounds detected in these samples as reported in Table 6 of the CUST RI Report. In addition, no SVOCs, TPH or cyanide detections in the soil samples exceeded the RIDEM Residential DEC as reported in Tables 7 and 8 of the CUST RI Report.

Based on the residual soil characterization, additional investigation of the residual soil in the Building 179 CUST area is not warranted based on the following:

- For the Grids 1 through 18 soil excavation the target excavation levels (RIDEM's Industrial/Commercial DECs) were met with the exception of a few exceedances. A liner system was installed over the backfilled Grid 1 through 19 excavation within the footprint of the new building construction. The reconstructed Building 179 prevents access to the subsurface residual soils.

- For the Grid 19 soil excavation, the target excavation levels (RIDEM's Industrial/Commercial DECs) were met; no exceedances of the RIDEM Industrial/Commercial DECs were reported. The backfilled

CUST excavation was capped with a reinforced-concrete slab, which prevents access to the subsurface residual soils.

- For soil collected outside the soil excavations grids, no soil contamination was identified that exceeds either the RIDEM Residential DECs, or Leachability Criteria.

Furthermore, assessment of human health risk in the context of a residential scenario is not applicable. The Building 179 CUST Area is located on Federal property under jurisdictional control of the Navy. As the caretaker of the property, the Navy exercises administrative control over the property use through its base master plan. The Navy controls the Site physically by a security fence located along the NUWC property line that separates the Site from adjacent private property areas and by security patrols. Access to the NUWC complex, on which the Site is located, is restricted to Navy and contractor personnel. The Navy monitors use of the property through the 5-year review process. The planned future use for the Building 179 area is non–residential, not differing from the current usage. As part of the Site remediation the Navy will implement land use controls that will prohibit excavation of Site soils. In summary, the Navy's jurisdictional control and monitoring of the property will adequately prevent future unauthorized excavation of subsurface soils.

1.6.4.2 Groundwater Contamination Characterization Summary

The Building 179 groundwater characterization is based on the results of the groundwater sampling using Geoprobes and monitoring wells during the CUST RI (see Figure 1-11). VOCs were the primary groundwater contaminants detected during the Building 179 RI. Total VOC concentrations in groundwater samples from the bedrock aquifer ranged from 10 to 25,980 micrograms per liter (µg/L). The maximum total VOC concentrations were detected at bedrock monitoring well MW-7B located immediately adjacent to the former CUST. For overburden groundwater, total VOC concentrations ranged from non-detect to 4,656 ppb, with the greatest concentrations at MW-7A. Five chlorinated VOCs (TCA, 1,1-dichloroethene (DCE), 1,2,4-trichlorobenzene, PCE, and methylene chloride) were detected in groundwater samples in excess of established groundwater standards. In general, highest concentrations of VOCs were detected in bedrock groundwater at MW-7B, with significantly lower concentrations detected at MW-9B located north/northeast of the CUST. The primary compounds detected in bedrock groundwater at MW 9B were 1,1,1-TCA and 1,1-dichloroethane (DCA). These compounds were found in groundwater at concentrations significantly higher than in NUSC Disposal Area groundwater samples.

The chlorinated ethane groundwater plume that originates from the former CUST extends from the Building 179 CUST Area, generally following the alignment of Deerfield Creek, nearly to the northern side of the South Meadow. This chlorinated ethane plume consists primarily of 1,1,1-TCA and its breakdown

products, 1,1-DCA, and chloroethane. Cyanide contamination was also detected in groundwater samples collected in 1999 during the Building 179 CUST Area RI.

The chlorinated ethane plume is migrating northerly and into the Building 185/Paved Storage Area. As this plume migrates downgradient with groundwater flow, additional chemicals from non-point-source releases from the disposal and operations in the Paved Storage Area and in the Building 185 Complex co-mingle with the plume. The extent of this bedrock plume to the west has not been adequately defined.

Additional groundwater investigation of the Building 179 CUST Area is recommended based on the following:

- Building 179 CUST Area groundwater characterization is based on data collected 10 years ago; current concentrations and distribution of contaminants in groundwater must be established to adequately evaluate potential remedial responses. As stated in the Draft NUSC Disposal Area RI Report the source of chlorinated ethanes, including 1,1,1-TCA and its breakdown products, 1,1-DCA, and chloroethane is believed to be releases from the upgradient Building 179 Site.

- Groundwater in the Building 179 CUST Area has not been analyzed for 1,4–dioxane, a chemical that was historically added to some chlorinated solvents. The extent of 1,4-dioxane contamination (if any) in groundwater within the Building 179 CUST Area chlorinated ethane plume is unknown.

- The Otto Fuel component PDGN was detected at the Building 179 Site but was not analyzed for in groundwater. The extent of PGDN contamination (if any) in groundwater within the Building 179 CUST Area chlorinated ethane plume is unknown.

1.6.4.3 Surface Water and Sediment Contamination Characterization Summary

In the CUST RI, surface water and sediment contaminant concentrations were compared to National Oceanic Atmospheric Administration (NOAA) critical continuous concentration (CCC) values, which were used for comparative purposes only, in absence of specific RIDEM surface water/sediment criteria.

Several VOCs were reported in one or more of the three Deerfield Creek surface water samples, with the highest levels reported for TCA (200 µg/L) and 1,1-DCA (230 µg/L). The maximum “total VOCs” reported in surface water was 550 µg/L. None of the detected VOCs exceeded the available (NOAA CMC/CCC) comparison criteria. Cyanide was detected at 5.2 µg/L, and TPH was not detected in surface water (TRC, 1999).

Analytes reported in sediment samples from Deerfield Creek included VOCs, SVOCs, TPH, and cyanide. SVOCs in the sediment samples at concentrations greater than at least one of the NOAA sediment standards included the PAHs pyrene, benzo(a)anthracene, and chrysene. The maximum TPH and cyanide concentrations in sediment (280 mg/kg and 1.2 mg/kg, respectively), were detected in Deerfield Creek approximately 90 feet east of the CUST.

Additional investigation of the Building 179 CUST Area surface water and sediment is recommended as the current surface water and sediment characterization is based on data collected 10 years ago; current concentrations and distribution of contaminants in groundwater must be established to adequately evaluate potential remedial responses for the NUSC Disposal Area/Building 179 CUST Area.

2.0 STUDY AREA INVESTIGATIONS

This section describes the field investigation activities performed to obtain the data used in the evaluation of Site 08. Field activities were conducted between July 2007 and December 2008 in accordance with the Work Plan for Remedial Investigation, Revision 2, for Site 08 – NUSC Disposal Area (TtNUS 2007).

The following activities were completed during the RI:

- Surface geophysical surveys
- Soil sampling and analysis
- Sediment and surface water sampling and analysis
- Test pit excavation and soil sampling
- Bedrock drilling
- Borehole geophysics
- Construction and development of monitoring wells
- Low flow, conventional, groundwater sampling and analysis
- Discrete interval groundwater sampling and analysis
- Vapor diffusion groundwater sampling and analysis
- Hydraulic conductivity testing
- Groundwater level measurements
- Fish and earthworm sampling and tissue analysis
- Benthic macroinvertebrate sampling and processing
- Terrestrial invertebrate toxicity testing
- Aquatic invertebrate toxicity testing
- Wetland delineation survey
- Sample location/elevation survey
- Investigation derived waste (IDW) characterization and disposal

In addition, select data developed during the SASE were used to supplement the RI data.

2.1 PRE-RI ANALYTICAL DATA USABILITY REVIEW

Data from the SASE were that were used in the RI evaluations are provided in Appendix A, along with pertinent information regarding drum and paint can excavations performed at the Site prior to implementation of the RI. A brief evaluation of the SASE data and the logic for using or not using SASE data in the RI are provided in this section. SASE sampling locations are provided on Figure 2-1.

To be conservative, when there was more than one useable analytical result for one sample location, the maximum detected concentration was used as representative of the concentration of that contaminant at the given location. This occurred when a location was sampled more than one time (either during the SASE field work and RI field work or more than one time during the RI field work) and analyzed for the same parameter.

2.1.1 Pre-RI Surface Water and Sediment Samples

Chemicals detected in sediment during the SASE included VOCs, PAHs, pesticides, PCBs, and metals; however, VOC concentrations did not exceed their respective screening criteria. Eight PAH compounds exceeded their respective screening criteria. Two PCBs, Aroclor-1268 and -1260, and the pesticide dieldrin, were detected in excess of screening criteria at a sediment sample location (SD07) at the southern extent of NUWC Pond. Other PCBs and pesticides were not detected at concentrations greater than screening criteria. Five of the nine sediment sampling locations had PAHs at concentrations greater than screening criteria. Metals detected in excess of screening criteria included aluminum, arsenic, iron, lead, beryllium, and manganese. Arsenic, lead, and manganese concentrations exceeded screening criteria at most sediment sampling locations, and lead concentrations exceeded its criterion at five of the nine sampling locations.

The 2003 surface water SASE results were used quantitatively in the human health risk assessment (HHRA), and the ecological risk assessment (ERA) and were used qualitatively in the evaluation of nature and extent of contamination to provide the most recent depiction of current site conditions. This qualitative evaluation allowed a review of trends in surface water contaminant concentrations over time.

The sediment SASE results were used quantitatively in the HHRA, ERA, and nature and extent evaluation. Because concentrations of contaminants in sediment are not as likely to change over time as surface water concentrations, the SASE and RI sediment data were used in the HHRA, ERA, and nature and extent evaluation.

2.1.2 Pre-RI Soil Gas Samples

In July 2003, as part of the SASE, a soil gas survey was performed at the Site. A sampling grid was superimposed on the Site and samples were collected in the Paved Storage Area, South Meadow and North Meadow. Passive soil gas sorbent collectors were inserted into shallow boreholes (above the water table) and following a period of exposure, the sorbent collectors were retrieved and analyzed by WL Gore and Associates, Inc. (Gore) using modified EPA Method 8260/8270 for select VOCs. Samples were collected from depths ranging from 1.5 to 3 feet bgs.

Results of the soil gas survey indicated low levels of VOCs in select areas of the Site. Figure 1-7 shows the locations of the soil gas hot spots at the Site. Five soil gas hot spots consisting of petroleum compounds, BTEX or undecane, tridecane, and pentadecane (C11, C13, and C15), were detected at the Site. Four of these hot spots were within the Paved Storage Area. One BTEX hot spot was present in the southwestern corner of the Paved Open Storage Area, and another BTEX hot spot was close to the eastern corner of the Paved Gated Storage Area. Both of these BTEX hot spots were just north of the Building 185 Complex. Two C11, C13, and C15 hot spot areas were detected in the Paved Storage Area: one in the center of the Paved Gated Storage Area and one in the eastern corner of the Paved Gated Storage Area. The final BTEX hot spot was along the western edge of the North Meadow near where the topography drops off sharply to NUWC Pond.

Two TCE soil gas hot spots were also detected: one near the western boundary of the South Meadow and one along the eastern boundary of the North Meadow, co-located with the BTEX soil gas hot spot.

The analytical data from this soil gas investigation are screening-level data and were used in developing the RI Work Plan. The results of the soil gas survey were not used in the human health or the ecological risk assessment performed as part of the RI.

2.1.3 Pre-RI Soil Samples

During the SASE, test pit excavation (Figure 2-1) was performed between August 11 and 15, 2003. Sixteen test pits were advanced in suspected areas of possible VOC contamination as indicated by the soil gas survey results, in areas of suspected disposal as indicated by aerial photography review, and/or in areas where field observations indicated possible subsurface disposal. Test pits were excavated to the water table or until bedrock was encountered. In test pit TP02, drums and oily materials were encountered above the water table. In test pit TP14, an area of paint can disposal was observed. The materials from TP02 and TP14 were returned to the subsurface and were subsequently excavated in 2005-2006. The excavation is described in Section 1.0 and in the post-excavation report (TN & Associates, Inc., 2006).

Two to four soil samples were collected from each test pit. Soil samples were also collected from borings advanced within the Paved Gated Storage Area, Paved Open Storage Area, South Meadow, and North Meadow. Twenty-two soil samples were collected from soil borings SB01 through SB08 and the MW04B boring. Soil samples were not collected from borings SB09 through SB11 because they were located within 20 feet of a test pit from which soil samples were collected.

The soil in the Paved Gated Storage Area contained VOCs, SVOCs, TPH and metals at concentrations greater than screening criteria. The VOC 1,2,4-trimethylbenzene exceeded the screening criterion at one

location in the Paved Gated Storage Area (SB04). Two PAHs were detected in excess of screening criterion at locations SB01, SB04, and SB06. One gasoline range organics (GRO) excedance of criteria was at location SB04. Concentrations of metals arsenic, manganese, and iron consistently exceeded criteria at most sample locations. Aluminum and beryllium exceeded criteria at two locations each.

In soil samples collected in the Paved Open Storage Area, no VOCs, PCBs, or TPH were detected at concentrations greater than screening criteria. Two PAHs were detected in excess of criteria in two locations. However, one of these locations (TP14) was located in a paint can disposal area that was subsequently excavated (TN & Associates, Inc., 2006). The metals arsenic and iron were detected in excess of screening criteria in all soil samples from this area. Aluminum and manganese were detected in excess of criteria in seven of the nine samples. Lead, beryllium, and cadmium concentrations exceeded criteria at one location (TP14) in the paint can disposal area that was subsequently excavated. Soil samples collected from the South Meadow did not contain pesticides in excess of the screening criteria. Numerous SVOCs were detected in excess of screening criteria, most of which were PAHs. The locations where PAHs were most frequently detected were TP02, TP08, and TP15A. Because drums were found in TP02, this location was subsequently excavated in a drum removal action.

Soil samples from the North Meadow were collected from test pits and one soil boring. No VOCs, pesticides, PCBs, or TPH results exceeded screening criteria. PAH concentrations exceeded screening criterion in TP10 and TP12A. Aluminum, arsenic, iron, and manganese were frequently detected in excess of screening criteria at most locations in the North Meadow. Antimony, chromium, copper, and lead exceeded screening criterion in only one sample. The maximum concentration of arsenic detected at the Site during the SASE (90 mg/Kg) was in the 0 to1 foot sample at TP13 in what appeared to be native soil.

Soil samples from the SASE were validated using Tier II data validation standards. Soil samples from the SASE, with the exception of soil samples that were subsequently excavated, were used in both the nature and extent and the HHRA and ERA portions of the RI.

2.1.4 Pre-RI Groundwater Samples

During the SASE, four groundwater monitoring wells were installed and sampled (Figure 2-1). Samples from upgradient wells (TRC, 1999) were not collected during the SASE. Analytical results from groundwater samples collected during the SASE indicated that TCE and PCE concentrations were greater than screening criterion. TCE concentrations exceeded criteria in MW03B (in the North Meadow) and PCE concentrations exceeded criteria in MW04B (in the Paved Open Storage Area). Metals (arsenic and cadmium) exceeded criterion in both total and dissolved fractions in MW01B, and total arsenic exceeded

screening criteria in the sample from MW02B. Cadmium was elevated in MW01B and arsenic was elevated in MW02B.

Groundwater samples from the SASE were validated using Tier II data validation standards. However, because new groundwater data were collected from these monitoring points during the RI, only the RI groundwater analytical data were used in both the nature and extent and the human health and ecological risk assessment portions of the RI.

Separate discussions for each of the field investigation activities conducted at the Site are provided in Sections 2.1 through 2.8 of this report. An overview of the investigation activities for each major field task is presented, including an identification of sample numbers, locations, analyses, and rationales, for those tasks that included sample collection. Also provided is a discussion of field observations and measurements if applicable. Samples were collected and analyzed according to the quality assurance/quality control criteria defined in the Quality Assurance Project Plan (QAPP) prepared as part of the Work Plan (TtNUS, 2007).

As discussed in Section 1.5.2.6, based on SASE results, limited remedial activities were performed at two areas of the Site between 2005 and 2006 by Navy contractor, TN& Associates, Inc. The buried drum area, located in the South Meadow was excavated to remove buried drums. Monitoring well MW-01B, installed as part of the SASE, was destroyed during the excavation of these buried drums. TN & Associates installed a replacement well MW-01C. The well construction log for MW01C is provided as part of Appendix A.

2.2 SEDIMENT INVESTIGATION

During the RI, sediment sampling was performed in two streams and in NUWC Pond to further define the extent of contaminants previously detected during the SASE, and to provide sediment samples for toxicity testing in support of the ERA. A second pond, Upper Melville Pond located in Portsmouth, Rhode Island, was also sampled to provide reference samples for the NUWC Pond samples. Table 2-1 includes a description of each sediment sample location, its purpose, and the analyses conducted. The sediment investigation was performed in accordance with the procedures specified in the approved Work Plan, except for the following field modifications, approved by the Navy:

- The Work Plan stated that 28 sediment locations would undergo quick turnaround analysis for lead, and that these lead results would assist in the selection of a subset of ten of these locations that would then be sampled for toxicity testing and chemical analyses, including Target Compound List (TCL) VOCs, SVOCs, pesticides/PCBs, Target Analyte List (TAL) metals, gasoline range organics (GRO)

and extractable total petroleum hydrocarbons (ETPH), total organic carbon (TOC), total solids (TS), grain size and pH. Previously collected sediment data for PAHs and PCBs would also be used to help select the samples for toxicity testing, as needed, to ensure that some would be in areas with elevated concentrations of PAHs and PCBs, if possible. The proposed number of samples changed, in that a total of 30 sediment samples were collected for quick turn lead analysis (in July 2007) and a subset of thirteen locations were then sampled (in May 2008) for toxicity testing and the chemical analyses listed above (Field Modification Record [FMR] No. 8, Appendix D). This change in the number of samples was due to concerns about reaching consensus on the benthic sampling program in a short time frame. As described in the Work Plan, these sample locations were selected to be representative of the different areas of the Site and of the different degrees of contamination throughout the Site.

- In July 2007, it was observed that the location of the stream bed of the unnamed tributary had changed. Proposed sediment sample locations along the unnamed tributary (DA-SD113 and DA-SD109) were moved, due to changes in the stream bed configuration (FMR No. 2, Appendix D).

- In July 2007, the proposed sediment sample location SD-117 (as shown in the Work Plan) could not be safely accessed. A revised location for SD-117 was sampled during a subsequent sediment sampling event conducted in August 2008 (FMR No. 3, Appendix D).

- Part of the proposed sediment sampling methodology had to be modified. The proposed methodology included digging a secondary hole to one foot into sediment to observe potential visual evidence of contamination and to select additional locations for sediment samples, based on observations. However, field conditions including rocky, gravelly stream bottom required several repeated grab samples to collect the necessary sample volume at all stream locations, and did not permit the completion of a secondary hole (FMR No. 16, Appendix D). At pond sampling locations where a Ponar dredge was used, one foot of sediment was observed in the recovered sediment.

- Sample location SD-134 was selected during field activities because it was requested by RIDEM. It is located in the area of what was a suspected former discharge location from the Building 185 Complex Area 1 into the wetland adjacent to Deerfield Creek. Initially, the SD-134 sample was inadvertently assigned the same identification number as nearby SD-01 which is located approximately 33 feet west of the SD-134 location (FMR No. 17, Appendix D).

Including the SASE and RI sampling events, sediment samples were collected from 44 locations in the site vicinity to characterize the extent of site-related contaminants in sediment. At two of these locations,

DA-SD119 and DA-SD125 from NUWC Pond, two depth intervals were sampled (0 to 6 inches and 4 to 24 inches below sediment surface), in accordance with the Work Plan.

Sediment samples were collected for various analyses during four separate sampling events, one event conducted under the SASE in 2003, and three events conducted under the RI in 2007 and 2008. The table below summarizes sediment sample locations by event, month and year of sample collection.

	SASE	RI				SASE	RI		
Location	2003	July 2007 (Lead only)	May 2008	August 2008	Location	2003	July 2007 (Lead only)	May 2008	August 2008
DA-SD01	X	X			DA-SD113		X		
DA-SD02	X				DA-SD114		X	X	
DA-SD03	X				DA-SD115		X		
DA-SD04	X				DA-SD116		X	X	
DA-SD05	X				DA-SD-117				X
DA-SD06	X				DA-SD118		X		
DA-SD07	X				DA-SD119		X	X	X
DA-SD08	X				DA-SD120		X		
DA-SD09	X				DA-SD121		X	X	
DA-SD100		X			DA-SD122		X		
DA-SD101		X			DA-SD123		X		
DA-SD102		X			DA-SD124		X		
DA-SD103		X			DA-SD125		X	X	X
DA-SD104		X			DA-SD126		X		
DA-SD105		X			DA-SD127		X		
DA-SD106		X	X		DA-SD128				X
DA-SD107		X	X		DA-SD129				X
DA-SD108		X	X		DA-SD130				X
DA-SD109		X			DA-SD131				X
DA-SD110		X	X		DA-SD132		X		
DA-SD111		X	X		DA-SD133		X	X	
DA-SD112		X	X		DA-SD134			X	

As summarized above, the July 2007 RI event was for quick turn lead analysis only. In the May 2008 event, sediment samples were collected for a full analytical suite, including: VOCs, SVOCs, pesticides/PCBs, metals, GRO, ETPH, TOC, TS, grain size, pH and toxicity testing. August 2008 sediment sampling was conducted to collect samples that were not accessible during the May 2008 event, and to collect the two deeper sediment samples at DA-SD119 and DA-SD125. The August 2008 samples were analyzed for VOCs, SVOCs, pesticides/PCBs, metals, GRO and ETPH.

In addition to the 44 sediment locations in the site vicinity, five other sediment reference locations (SD-RP01 through SD-RP05) were sampled in May 2008 from Upper Melville Pond to serve as reference samples for

the NUWC Pond samples. Upper Melville Pond is located in Portsmouth, Rhode Island, approximately 3 miles from the Site. Sediment reference sample locations are shown on Figure 2-3.

Sediment sample locations in the site vicinity are shown on Figure 2-4 and are summarized as follows:

- One sample (SD-01) from Deerfield Creek upstream of the culvert that passes underneath the access road to the Building 185 Complex.
- One sample (SD-134) also upstream of the Deerfield Creek culvert described above, in the area of a suspected discharge location from the Building 185 Complex Area 1 into the wetland adjacent to Deerfield Creek. (This specific SD-134 location was selected because it was requested by RIDEM. Initially, the SD-134 sample was inadvertently assigned the same identification number as SD-01 which is located approximately 33 feet west of the SD-134 location).
- Eleven samples from Deerfield Creek downstream of the culvert where Deerfield Creek flows under the access road to the Building 185 Complex.
- Eleven samples from the wetlands south of NUWC Pond.
- Three samples from the unnamed stream (tributary from the golf course).
- Seventeen samples from NUWC Pond.
- Two deep sediment samples from NUWC Pond collected from 4 to 24 inches below the sediment surface (SD-119 and SD-125).

Of the 13 sediment samples shipped for toxicity testing:

- One (SD-134) was collected from a suspect discharge location upstream of the culvert that contains Deerfield Creek as it flows under the access road to the Building 185 Complex.
- Five (SD-133, SD-106, SD-110, SD-111, and SD-112) were collected downstream of the culvert in Deerfield Creek.
- Two (SD-107 and SD-108) were collected from the unnamed stream.
- Five (SD-114, SD-116, SD-119, SD-121, and SD-125) were collected from NUWC Pond.

During each sediment sampling event, samples were collected in a downstream to upstream direction. Depositional areas with suspected high organic content were targeted in the streams and in NUWC Pond, where possible. Before sediment sample collection started, the surface water overlying each sediment sample location was analyzed in the field for pH, dissolved oxygen, temperature, conductivity, salinity, and oxidation-reduction potential (ORP), using a YSI multi-parameter meter, and for turbidity, using a LaMotte Model 2020e meter. Table 2-2 presents a summary of results for these field parameters for each location.

The majority were shallow sediments collected from a depth of 0 to 6 inches below the sediment surface. Shallow sediment samples located in the shallow streams or at the pond edge were collected with a decontaminated hand auger that was manually inserted into the sediment to retrieve the sample. Shallow sediment samples collected from the center of the pond were collected using a petite Ponar dredge. Deep sediment samples were collected from 4 to 24 inches below the sediment surface. The samples collected from the central areas of ponds required the use of a small boat for sample collection. The two deep samples were collected using a polyvinyl chloride (PVC) coring device outfitted with a catch basket. The coring device was driven by hand into the sediment to a depth of 24 inches or until a compacted layer was reached that could not be penetrated by the coring device. After the core was brought to the surface, the water remaining within the PVC was drained, the core was extracted from the PVC, and sediment was removed from the core.

In accordance with the approved Work Plan, the VOC fraction of each sediment sample was collected according to SW846 Method 5035A, July 2002, to minimize any potential loss of VOCs. At each sediment sample location, and immediately upon retrieval of the first sample aliquot, the undisturbed VOC sample fraction was collected from the retrieved sediment using a pre-cut syringe. The sediment plug in the syringe barrel was then expelled into the preserved VOC vial. After the VOC sample was collected, in most cases field personnel deployed the sampling instrument multiple times to retrieve sufficient sample volume for the remaining analyses. In locations where gravel and/or cobbles were encountered and it was difficult to obtain sufficient sediment quantity, additional volume was collected from within a 2-foot radius until a full aliquot was collected. The sediment was homogenized in a decontaminated stainless steel bowl, and the remainder of the sample bottles were filled and placed on ice to cool. Sample bottles were labeled with the sample location and date.

The physical characteristics of each sediment sample were described using the Unified Soil Classification System (USCS) and recorded on sample logs sheets, presented in Appendix B. General observations such as sample type and number, sample time, depth, interval, and sampling equipment and methods used were also recorded on each sample log.

Samples were collected from 43 stations, as presented on Figure 2-2. The rationale for selection of the sampling stations is provided in Table 2-1. The stream samples were collected as close to the proposed sample locations as possible.

2.3 SURFACE WATER INVESTIGATION

Surface water sampling was conducted as part of the RI in January and May of 2008 to better define the extent of contaminants previously identified in the streams and in NUWC Pond, near the NUSC Disposal Area. Previous sampling under the SASE in 2003 indicated that contaminant concentrations in these

surface waters were at acceptable levels. However, because of potential ongoing impacts from groundwater contamination associated with Building 179 and continuing sources at the Site, further surface water sampling was performed under the RI to assess current conditions.

Surface water samples were collected from eight stream locations (from Deerfield Creek and an unnamed tributary) and from six locations within NUWC Pond into which the streams discharge. Samples were analyzed for full TCL organics (VOCs, SVOCs, Pesticides/PCBs) and TAL Metals (total and dissolved). In addition to the on-site locations, three surface water samples were collected from Upper Melville Pond to serve as reference samples for the NUWC Pond samples.

All surface water samples were collected in a downstream to upstream order and were co-located with corresponding numbered sediment samples, as depicted in Figure 2-4. At the eight stream locations, (SW-01, SW-106, SW-107, SW-108, SW110, SW-111, SW-112, and SW-133), VOC samples were collected via passive diffusion bag (PDB) samplers. The bags were filled with deionized ultra-filtered water placed inside of a slotted 2–inch schedule 40, PVC tube that was capped on each end, and then submerged below the water and left in place for one week. On January 31, 2008 when the PDB samplers were retrieved, the water within them was transferred to a standard 40mL VOC sampling vial preserved with hydrochloric acid. With the exception of metals samples, bottles which are pre-preserved, the remaining sample bottles were filled by the direct dip method on the same day that the PDBs were installed in the stream, on January 23, 2008. When the sample bottles were being filled, they were held one to two inches above the stream bed to ensure that the sediment was not disturbed during the sampling. Because the streams are generally shallow, at most locations the sample collection depth was not more than six inches below the water surface. Metals sample bottles were filled by filling an unpreserved 1L amber bottle and transferring that water into the 500 mL preserved metals bottle (for total metals analysis). One extra unpreserved 1L amber bottle was filled at each location and brought back to the field office to filter into a 500mL polyethylene bottle preserved with nitric acid for filtered metals analysis. Filtering was done using dedicated tubing, a peristaltic pump and a 0.45 µm filter.

For samples from NUWC Pond, locations with less than 1.5 feet of water were collected via direct dip method, as described above. At locations with water depths greater then 1.5 feet, a Kemmerer sampler was used. Where locations had water depths greater than 1.5 feet, surface water samples were collected within 6 inches of the bottom. All samples except VOCs and filtered metals were filled directly from the Kemmerer. The VOC vials were filled by transferring water from an unpreserved 1L amber bottle to the standard 40 ml VOC vials, pre-preserved with hydrochloric acid. Filtered metals bottles were filled at the field office as described above.

Three reference surface water samples were collected, two from Upper Melville Pond (SW-RP01 and SW-RP02) and one from the Upper Melville Pond outlet stream (SW-RP04). The two reference pond

samples were collected using the Kemmerer sampler as described above and the reference stream sample was collected using the direct dip method described above.

2.4 SOIL INVESTIGATION

2.4.1 Surface Soil Sampling and Analysis

The RI included surface soil collection and analyses performed in various phases as summarized below:

Date	Chemical Analyses	Samples	Sampling Method	Objective
July - August 2007	PAHs	Soil boring and monitoring well locations in unpaved areas	Hand auger	Provide data for toxicity testing location selection
January 2008	VOCs; SVOCs; Pesticides/PCBs; metals; grain size, TOC, pH, GRO, ETPH	Soil boring and MW locations in unpaved areas	Shovel	Characterize surface soil
February 21, 2008 - March 6, 2008	VOCs; SVOCs; Pesticides/PCBs; metals; grain size, TOC, pH, GRO, ETPH	Soil boring locations in paved and unpaved areas	DPT drilling rig	Characterize surface soil
March 18, 2008- April 18, 2008	VOCs; SVOCs; Pesticides/PCBs; metals; grain size, TOC, pH, GRO, ETPH	Monitoring well locations in paved and unpaved areas (SB-103)	Conventional drilling and split-spoon sampling	Characterize surface soil
April 14, 2008	Pesticides/PCBs	Unpaved area next to transformer	Shovel	Characterize surface soil
July 21 - 22, 2008	VOCs, SVOCs, GRO, ETPH	MW124B, 125B and 126B	Conventional drilling and split-spoon sampling	Light non-aqueous phase liquid (LNAPL) investigation

As part of the RI, a limited sampling event was conducted in July and August 2007 to evaluate surface soil PAH concentrations for subsequent determination of locations for toxicity testing. A total of 55 surface soil samples were collected using hand augers at sampling locations for PAH analysis from July 19 to August 2, 2007. The second surface soil sampling event was conducted from January 10 to 16, 2008 and included the collection of surface soil samples from unpaved areas with analysis for SVOCs, pesticides/PCB, GRO, ETPH, and TAL metals. Based upon the PAH results, 11 selected sample locations were also analyzed for earthworm toxicity, pH, TOC, and grain size. The soil sample locations are shown on Figure 2-5. Sample logs are presented in Appendix D.

During the July-August 2007 surface soil sampling event, soil samples were collected from ground surface to 1 foot bgs using a hand auger. During the January 2008 surface soil sampling event, a hole was dug at each location with a shovel to 1 foot bgs, and the sample was collected from ground surface to 1 foot bgs. Details on the sample analyses are discussed in Section 4.0. A summary of soil samples collected and selected for laboratory analysis is presented in Table 2-3.

Additional surface soil samples were collected using conventional drilling rig equipped with hollow-stem augers (HSAs) and split spoon sampling. A modified standard penetration test was used to collect the soil samples. The split spoons used to collect the samples were 3-inch diameter and 2-feet long and were advanced ahead of the augers using a 140-pound hammer falling 30-inches. The samples collected using this technique were also analyzed for VOCs, GRO, ETPH, SVOCs, TAL metals, pesticides and PCBs.

One final surface soil sample was collected from location SB103 in order to characterize surface soil adjacent to a pad-mounted transformer located adjacent to the access road to the Building 185 Complex. This surface soil sample was collected using a decontaminated shovel and was analyzed for pesticides and PCBs only.

2.4.2 Subsurface Soil Sampling and Analysis

The subsurface soil sampling and analysis was conducted in phases as shown below.

Dates	Analyses	Samples	Sampling Method	Objective
February 21, 2008 - March 6, 2008	VOCs; SVOCs; pesticides/PCBs; metals; grain size, TOC, pH, GRO, ETPH	Soil boring locations in paved and unpaved areas	DPT drilling rig	Characterize subsurface soil
March 18, 2008- April 18, 2008	VOCs; SVOCs; pesticides/PCBs; metals; grain size, TOC, pH, GRO, ETPH	Monitoring well locations in paved and unpaved areas	Drilling with conventional rig and split-spoon sampling	Characterize subsurface soil
February 7, 2008	VOCs, SVOCs, GRO, ETPH	Soil sample (DA-SB-TP103-0506) was collected from at approximately 5 to 6 feet bgs	Test pitting	Characterize subsurface soil
July 21- 22, 2008	VOCs, SVOCs, GRO, ETPH	MW 125B and 126B	Conventional drilling and split-spoon sampling	LNAPL investigation

The soil boring investigation was performed in accordance with the procedures specified in the approved Work Plan. Several field modifications to the soil boring program were made as described below:

- The Work Plan stated that soil samples would be collected continuously in 2-foot intervals from the ground surface, or surface of soil beneath man-made materials, i.e. pavement or concrete, to the top of rock. The work plan called for soil samples to be collected from surface soil and from subsurface soil utilizing direct-push technology (DPT) or conventional drilling techniques. Surface soil samples in unpaved areas were collected in July 2007 for PAH analysis only. The remaining analysis for all surface soil samples in unpaved areas was collected January 2008 by hand (FMR No. 6, Appendix D).

- Eleven surface soil samples were selected for earthworm toxicity testing, TOC, pH, and grain size analysis. These sample locations were selected based on the PAH concentrations in samples collected during the July-August 2007 sampling event. Table 2-4 presents the total PAH concentrations detected in these samples and the sample locations selected for earthworm sampling and rationale.

- Three soil sample locations were moved to accommodate conditions encountered in the field. These locations were moved to the closest practical location to the originally proposed location. SB-105B was moved to allow access for a drill rig, SB-119B was relocated due to a bees nest at the original location, and SB-120B was moved due to a soil pile at the original location. Other drilling locations within the paved storage areas were moved to locations as close as practical (typically to within 10 to 15 feet) to a proposed location that was blocked by stored materials.

During all sampling events, VOC sample aliquots were collected directly from the decontaminated shovel, auger, or split-spoon using dedicated syringes. After the VOC samples were collected, additional soil was collected, placed in a decontaminated stainless steel bowl, and homogenized prior to collecting aliquots for the remaining analyses. The physical characteristics of each soil sample were described using the USCS and recorded on sample logs, presented in Appendix D.

2.4.3 Surface Geophysical Surveys

Two surface geophysical survey events were conducted at the Site by Northeast Geophysical Services, a subcontractor to TtNUS. The first event was conducted in December 2007 and the second in July 2008; both events included an electromagnetic (EM) metal detection survey to locate potential buried metallic objects, and a ground penetrating radar (GPR) survey to evaluate the depth and condition (general size, shape, etc.) of significant metallic anomalies identified during the EM surveys.

On December 11 and 12, 2007, the first surface geophysical survey was conducted in the North Meadow, the South Meadow, the area between the Paved Storage Area and the break in slope to the west going down into Deerfield Creek, and in the area southwest of the Building 185 Complex (Figure 2-6). A Geonics EM-61 metal detector was used for the EM metal detection surveys. This detector was selected because it is designed specifically to locate medium to large, buried metal objects, such as drums and tanks. In the open,

flat areas the survey was performed along nearly parallel lines spaced about five feet apart. In the hummocky and vegetated portions of the survey area, the survey was necessarily conducted in a more wandering fashion, but still with typically less than 10 feet between adjacent passes. The GPR survey was conducted using a GSSI, SIR-3000 with an antenna and time range setting adjusted so the surveyed depth was about 10 feet. Eight GPR profile surveys were conducted. The traverses were staked and located relative to nearby structures. The geophysical survey results were used to guide the final selection of test pits and sampling locations.

From July 16 to 18, 2008 and on July 21 and 22, 2008, a second surface geophysical survey was performed, including EM and GPR. This survey was conducted in the paved areas of the Site (Figure 2-6). The same equipment used in the December 2007 geophysical survey was used. The GPR survey was performed along traverses spaced five feet apart. A total of 158 GPR profiles were performed within the Paved Open Storage Area and the cleared portion of the Paved Gated Storage Area.

The areas of the geophysical surveys and the EM survey results are presented on Figure 2-6, and the summary geophysical report from Northeast Geophysical Services is included in Appendix C.

Geophysical survey results for the Paved Open Storage Area include the detection of four anomalies (Anomalies 1 through 4). A description of the anomalies as presented in the geophysical report for the Paved Storage Areas (Appendix C) is repeated below.

> "Anomaly 1 is located in the southern end of the open storage area and is the strongest of the three anomalies found. It is an area of strong to very strong metal response that is about 15 to 18 feet wide. GPR profiles over this anomaly suggest several rounded objects, possibly drums, buried in the range of 2 to 6 feet deep. Anomalies 2 and 3 occur in the northern end of the open storage area. Anomaly 2 is a relatively small linear area of moderate metal response. The GPR profiles over Anomaly 2 indicate one or two narrow objects buried 1.5 to 2.5 feet deep. Anomaly 3 is an irregular-shaped area of weak to strong metal response that encompasses most of the northwest corner of the survey grid. This anomaly appears to be contiguous with a much larger area of weak to strong metal response that was detected during the first round of surveying. The GPR profiles over this anomaly indicate that it is caused by multiple objects in the range of 1.5 to 2 feet deep. Anomaly 4 is a nonmetallic pipe-like feature that is buried about 4 feet deep at the southern end of the open storage area."

Further investigation including test pit excavation of the Paved Storage Area have not been carried out because such actions would be logistically cumbersome and disruptive to an ongoing Navy activity. Furthermore, excavation of test pits at these geophysical anomaly locations is unwarranted as the RI data does not show that significant release of contamination has occurred at any of the four anomalies. The Paved Open Storage Area Data Review, provided in Appendix C, presents a review of RI groundwater and soil sample analytical results for locations in and around the Paved Open Storage Area. The data review indicates that a significant release of contamination has not occurred at any of the four geophysical anomaly locations.

2.4.4 Test Pit Excavations

Based upon the results of the December 2007 surface geophysical investigation in the unpaved areas of the Site, 13 test pit locations were excavated. Test pit locations are shown on Figure 2-6. This section provides a detailed description of the test pits (TP-100 through TP-112) excavated at the Site to observe metallic anomalies identified during the geophysical investigation. Test pits were excavated from February 6 to 12, 2008.

Between February 6 and 12, 2008, thirteen test pits were excavated and investigated at the site at geophysical anomalies identified during the surface geophysical investigation performed on unpaved portions of the site (Figure 2-6). Global Remediation Services of Boston, Massachusetts advanced and backfilled the test pits using a Kobelco, Model135RLC track-mounted excavator. The test pits were excavated to depths ranging from approximately 0.75 to 15 feet bgs. A geologist observed the excavations and documented each test pit with test pit logs and photographs (Appendix D). Soil was screened in the field using a portable photo-ionization detector (PID). The soils encountered, size of the excavations, depths to groundwater (if applicable), and the presence of debris, metal, oil, staining, or odor was recorded.

Test pits TP-100 through TP-106 were excavated in the South Meadow. Test pits TP-107 and TP-108 were excavated between the paved area and Deerfield Creek. Test pits TP-109 through TP-111 were excavated southeast of the paved area. TP-112 was excavated in the North Meadow.

One soil sample was collected from TP-103 at the depth of a corroded, 55-gallon capacity, steel, drum that was encountered, approximately 5 to 6 feet bgs. The portion of the sample selected for VOC analysis was collected directly from the decontaminated backhoe bucket, and was transferred into 40-mL glass vials using a pre-cleaned syringe. The remainder of the sample was transferred into a decontaminated stainless steel bowl using a pre-cleaned plastic scoop, homogenized, and transferred into the appropriate

sample containers. The soil sample was submitted for laboratory analysis of VOCs, SVOCs, pesticides/PCBs, GRO/ETPH, and TAL metals.

2.4.4.1 Test Pit TP-100

Test pit TP-100 was excavated along the northwestern edge of the South Meadow. The trench for test pit TP-100 was approximately 7 feet wide, 9 feet long, and 11 feet deep. Brown silt with some gravel and a little fine to coarse sand were encountered during the excavation intermixed with reinforced concrete blocks and thick, braided, electrical wire. Groundwater was encountered at a depth of approximately 10 feet. Weathered bedrock was encountered at 10 feet bgs in the excavation. Total volatile organic compounds (TVOCs) were not detected by screening soil in the field with a PID.

2.4.4.2 Test Pit TP-101

Test pit TP-101 was excavated along the eastern edge of the South Meadow area in order to evaluate the anomaly identified in this area. In addition, exposed reinforced concrete fragments were observed at the ground surface at TP-101 during the geophysical investigation. The trench for test pit TP-101 was approximately 8 feet wide, 12.5 feet long, and 9.5 feet deep. Topsoil was observed in the top six inches of the excavation. From 0.5 to 4.5 feet bgs fill material was observed. This fill was composed of brown silt with some gravel and a little fine to coarse sand with rebar, sheet metal, fire bricks and bricks. Native material was encountered below fill (from 4.5 feet bgs) and was described as brown to gray silt with fractured bedrock. Groundwater was observed in the bottom of the excavation at a depth of 9.5 feet. Saturated soil from the bottom of the test pit was screened for total VOC using a PID and the screening value was 35 ppmv. An odor and sheen were noted on the groundwater from the test pit. TVOCs were not detected on other soils screened in the field.

2.4.4.3 Test Pit TP-102

Test pit TP-102 was located southwest of TP-101 in the South Meadow to evaluate the geophysical anomaly located there. This test pit was located on the northern edge of the extent of excavation of the drum removal performed in 2006 (T&N Associates, 2006). The trench for test pit TP-102 was approximately 8.5 feet wide, 12 feet long, and 10 feet deep. Approximately 9 inches of topsoil was observed above 9 feet of fill material. The fill material was described as brown to gray silt with some gravel and a little fine to coarse sand. Concrete rubble, pipe debris and sheet metal were observed from 2.5 to 6 feet bgs. Natural material was observed from 9 feet and was described as dense, brown to gray silt with a little gravel and fine to coarse sand (till). Groundwater was not observed in this test pit. TVOCs were not detected in soils screened in this test pit.

2.4.4.4 Test Pit TP-103

Test pit TP-103 was excavated in the South Meadow in an area identified by the geophysical investigation with low to high metal responses, including a metal bed frame observed on the ground surface. The trench for test pit TP-103 was approximately 8 feet wide, 17 feet long, and 6.5 feet deep. Approximately 6 inches of topsoil was observed above 6 feet of fill material. The fill material was described as silt with some gravel and a little fine to coarse sand. Brick, metal cable, sheet metal, wood fragments, a corroded 55-gallon drum and a small open ended rectangular metal tub were observed from 0.5 to 6.5 feet bgs. Natural material and groundwater were not observed at this location. A soil sample (DA-SB-TP103-0506) was collected from the excavated soil at approximately 5 to 6 feet bgs in the vicinity of the 55-gallon drum. The test pit was backfilled with the excavated material. TVOCs were not detected in soils screened in this test pit.

2.4.4.5 Test Pit TP-104

Test pit TP-104 was excavated along the western edge of the South Meadow area in order to evaluate an anomaly identified during the geophysical investigation. The trench for test pit TP-104 was approximately 6.5 feet wide, 16 feet long, and 14.5 feet deep. Topsoil was observed in the first half foot of the excavation. From 0.5 to 14.5 feet bgs, fill material was observed as brown silt with some gravel and a little fine to coarse sand with concrete debris and steel pipe. Native material and groundwater were not encountered at this location. TVOCs were not detected in soils screened in this test pit.

2.4.4.6 Test Pit TP-105

Test pit TP-105 was excavated along the western edge of the South Meadow area in order to evaluate an anomaly identified during the geophysical investigation. The trench for test pit TP-105 was approximately 7 feet wide, 12 feet long, and 0.75 feet deep. Top soil was observed in the first half foot of the excavation, then from 0.5 to 0.75 foot bgs, fill material was observed as brown silt with some gravel and a little fine to coarse sand with a crushed 55-gallon drum. Native material and groundwater were not encountered at this location. This test pit was terminated at 0.75 foot due to the drum. TVOCs were not detected in soils from this test pit.

2.4.4.7 Test Pit TP-106

Test pit TP-106 was excavated in the southwestern portion of the South Meadow to the northwest of the Paved Storage Area in order to evaluate a low response metal anomaly identified during the geophysical investigation. The trench for test pit TP-106 was approximately 6.5 feet wide, 9.75 feet long, and 14.5 feet

deep. Fill material was observed from the ground surface to 5 feet bgs. The fill material was described as brown silt and gravel and a little fine to coarse sand with reinforced concrete beams. At approximately 5 feet bgs, a crushed asphalt layer was observed, followed by native material. The native material was described as brown silt with some fine to coarse sand and a little weathered bedrock (shale, phyllite). Groundwater was not observed at this location. TVOCs were not detected in soils from this test pit.

2.4.4.8 Test Pit TP-107

Test pit TP-107 was excavated in an area west of the Paved Storage Area (Figure 2-5) area in order to evaluate a low response metal anomaly identified during the geophysical investigation. The trench for test pit TP-107 was approximately 6 feet wide, 9.5 feet long, and 10 feet deep. Top soil was observed in the first quarter foot of the excavation, then from 0.25 to 8.25 feet bgs, fill material was observed. The fill consisted of brown silt with some gravel and a little fine to coarse sand with rebar reinforced concrete beams. From 5 to 8.25 feet bgs, a 6 inch layer of crushed asphalt was observed. Native material was encountered below the asphalt layer (from 5 to 8.25 feet bgs) and was described as gray silt with fractured bedrock and a little fine to coarse sand. Groundwater was not observed at this location. TVOCs were not detected in soils from this test pit.

2.4.4.9 Test Pit TP-108

Test pit TP-108 was excavated south of TP-107 along the western edge of the paved area in order to evaluate the anomaly identified during the geophysical investigation. The trench for test pit TP-108 was approximately 8 feet wide, 9 feet long, and 5.5 feet deep. Top soil was observed in the first quarter foot of the excavation, then from 0.25 to 5.5 feet bgs, fill material was observed as brown silt and gravel with a little fine to coarse sand. From approximately 2.5 feet bgs to the bottom of the excavation, 2-inch diameter steel pipe wrapped in insulation material was observed. In addition, a reinforced concrete block was also observed. Since pipe insulation often contains asbestos, the excavation was terminated at 5.5 feet due to health and safety concerns about the suspected asbestos material. Native material and groundwater were not encountered in TP-108. TVOCs were not detected in soils from this test pit.

2.4.4.10 Test Pit TP-109

Test pit TP-109 was excavated southeast of the Site in order to evaluate a weak metallic anomaly identified during the geophysical investigation. The trench for test pit TP-109 was approximately 10 feet wide, 15 feet long, and 5 feet deep. Topsoil was observed in the first half foot of the excavation, then from 0.5 to 3 feet bgs, fill material was observed as brown silt with some gravel with a little fine to coarse sand with a section of corrugated culvert pipe at a depth of 2.5 feet bgs. From approximately 3 feet bgs to the bottom of the excavation, native material, brown silt with some gravel and a little fine to coarse sand was observed. The excavation was terminated at 5 feet bgs. Groundwater was encountered at a depth of 3 feet bgs. TVOCs were not detected in soils from this test pit.

2.4.4.11 Test Pit TP-110

Test pit TP-110 was excavated approximately 50 feet northwest of TP-109 in the area southeast of the site in order to evaluate the anomaly identified during the geophysical investigation. The trench for test pit TP-110 was approximately 5 feet wide, 10 feet long, and 3 feet deep. Top soil was observed from ground surface to 0.33 foot bgs, and then from 0.33 to 3 feet bgs, native material was observed as brown silt, some gravel with a little fine to coarse sand with weathered bedrock observed at the bottom of the excavation. The excavation was terminated at 3 feet because weathered bedrock was observed. Fill material or metal was not encountered at this location. Groundwater was encountered at a depth of 3 feet bgs. TVOCs were not detected in soils screened in this test pit.

2.4.4.12 Test Pit TP-111

Test pit TP-111 was excavated southeast of the Site to the south of TP-109 to evaluate a weak metallic anomaly identified during the geophysical investigation. The trench for test pit TP-111 was approximately 10 feet wide, 13 feet long, and 5 feet deep. Topsoil was observed from grade to a depth of 0.33 foot. From 0.33 to 3.5 feet bgs fill material was observed as brown silt, little gravel and little fine to coarse sand. Debris observed within the fill material included a steel beam, corrugated steel culvert pipe, and metal debris. From 3.5 to 5 feet bgs, natural material, described as brown silt with trace gravel and fine to coarse sand, was observed in the test pit. The excavation was terminated at 5 feet. Groundwater was observed at a depth of 3.5 feet bgs. TVOCs were not detected in soils from this test pit.

2.4.4.13 Test Pit TP-112

Test pit TP-112 was excavated in the North Meadow area along the western edge of the site in order to evaluate the metallic anomaly identified during the geophysical investigation and surface observations of wire mesh. The trench for test pit TP-112 was approximately 8 feet wide, 8 feet long and 8 feet deep. Top soil was observed in the first half foot of the excavation, and then from 0.5 to 5 feet bgs, native material, brown silt some gravel little fine to coarse sand, was observed. From approximately 5 feet bgs to the bottom of the excavation, dense brown silt and weathered bedrock were encountered. The excavation was terminated at 8 feet and metal debris, other than the wire mesh at the ground surface, was not encountered. Groundwater was not encountered in TP-112. TVOCs were not detected in soils from this test pit.

2.4.4.14 General Summary of Test Pitting

Table 2-5 provides a general summary of the observations made during test pitting activities. Seven test pits were excavated in the South Meadow area (TP-100 through TP-106). Demolition debris, including: concrete blocks, reinforced concrete, electrical wire, sheet metal, small metal containers, pipes, brick, wood, ash, and asphalt was observed at all test pits in the South Meadow.. In addition to the general demolition debris, at two locations within the South Meadow (TP-103 and TP-105) corroded 55-gallon steel drums were observed. Bedrock was observed in four test pits at depths of ranging from 7 feet to 10 feet bgs. Groundwater was observed in the two northern-most test pits in the South Meadow (TP-100 and TP-101) at depths between 9.5 feet and 10 feet bgs. Groundwater accumulating in TP-101 contained an odor, sheen and an elevated total VOC (TVOC) concentration was observed when screening the saturated soil from this test pit. A soil sample was collected from TP-103 from beneath the drum and laboratory analyzed for VOC, ETPH, GRO, SVOC, PCB, pesticides and TAL metals. Section 4.0 presents the results of the analysis of this sample.

One test pit was excavated in the North Meadow (TP-112). Fill and groundwater were not observed at this location. Weathered bedrock was encountered at 5 feet bgs in this test pit.

Two test pits were excavated at locations west of the Paved Storage Area (TP-107 and TP-108). Demolition debris, consisting of: insulated pipe, reinforced concrete, concrete blocks and asphalt, was observed in this area. Groundwater was not observed at these test pit locations. Weathered bedrock was encountered at 8.25 feet in TP-107.

Three test pits (TP-109 through TP-111) were excavated at locations southeast of the Paved Storage Area. Groundwater at these locations was encountered between 3 feet and 3.5 feet bgs. Weathered bedrock was observed in the western-most test pit (TP-110) at about 3 feet bgs. At this western test pit demolition debris of any type was not observed. Demolition debris (steel beams, pipes) was observed at shallow depths in the two eastern test pits (TP-109 and TP-111).

2.5 SOIL BORING INVESTIGATION

This section and the subsections that follow discuss the geological and hydrogeological investigation activities that were conducted during field efforts, including the advancement of borings for soil sample collection and/or monitoring well construction. The subsurface exploration program was designed to address the areas of concern identified during the SASE (TtNUS 2005) and was expanded to more fully characterize areas of potential waste disposal identified in aerial photographs of the Site. Additionally, borings were placed at the Site to investigate areas of potential releases of contamination to soil and groundwater, to further characterize subsurface stratigraphy, and to install monitoring wells (Figure 2-5). A description of the site geology based on the data collected during the RI is provided in Section 3.0. Analytical data for surface and subsurface soil samples are presented and discussed in Section 4.0.

Between February 21 and March 5, 2008, Drilex Environmental, Inc. of West Boylston, Massachusetts advanced 47 soil borings at the Site using DPT. Borings were advanced through the overburden to the top of the bedrock or refusal. During advancement of these borings, soil samples were collected continuously from the ground surface to the bottom of the boring. In the event that a DPT drilling rig could not access an area safely, soil samples were collected from that area using hand tools. Borings SB-142 through SB-146 were advanced with hand tools.

Between March 18 and April 18, 2008, conventional drilling methods were used to advance 21 borings (MW-100B through MW-120B) through overburden and into bedrock and three borings (MW-103S, MW-106S and MW-112S) through overburden for the purpose of collecting soil samples and installing groundwater monitoring wells. Finally, between July 21 and 28, 2008, conventional drilling methods were again used to advance three additional borings (MW-124B, MW-125B and MW-126B) through overburden

and into bedrock at locations around the Building 185 Area. These three monitoring wells were added to the RI following observation of light-non-aqueous phase liquid (LNAPL) in nearby monitoring well MW-100B. The locations and number of borings/wells added in order to investigate the nature and extent of LNAPL were discussed with RIDEM and EPA prior to initiating field operations. During conventional drilling continuous soil sampling was conducted throughout the overburden, and the bedrock borings were completed as open hole monitoring wells. Where groundwater was encountered in the overburden, and additional borings were advanced without soil sample collection. Soil samples were not collected while advancing these three co-located borings (MW-103S, MW-106S and MW-112S) and these shallow borings were completed as overburden monitoring wells.

Figure 2-5 presents the locations of borings and monitoring wells that were advanced during the Remedial Investigation. Table 2-6 presents a summary of the soil borings.

The soil boring investigation was performed in accordance with the procedures specified in the approved Work Plan, except for the following field modifications approved by the Navy:

- The Work Plan states that DPT would be used for the installation of 54 shallow borings. At each location, soil samples were to be collected continuously from grade with aliquots collected for laboratory analysis. However, prior to mobilization to the field, surface soil samples were collected and sent to the laboratory for analysis at each of the unpaved locations. In addition, it was decided that the first boring at each SB location would be logged and field screened for TVOCs continuously and sample depths would be selected based upon this initial boring. A second boring was advanced within about two feet of the initial boring and soil aliquots were collected for analytical laboratory analyses (FMR No. 6, Appendix D, documents these changes).

- An additional soil sample was added to the DPT program to analyze soil in the vicinity of the drum discovered during excavation of TP-105. A soil sample was collected from 1 to 3 feet bgs from SB-133 and submitted for laboratory analysis (Appendix D).

- An attempt was made to advance an additional DPT boring near SB-132 to analyze soil at the depth of a drum found in TP-103. Several attempts were made to collect a soil sample from a depth of 4 to 6 feet bgs, however, shallow refusal was encountered several times and the attempt was abandoned (Appendix D). As described in Section 2.4.2, a soil sample had already been collected fromTP-103.

- Laboratory samples were collected at all of the DPT soil borings locations and analyzed for parameters as outlined in the work plan (TtNUS, 2006). The track-mounted DPT drilling rig could

not safely access SB-107, located on the west side of the former paint can excavation area. This boring was advanced using a hand-held DPT machine.

- During conventional drilling, some borings locations of were altered slightly due to overhead lines, or unsafe slope locations.

2.5.1 Overview of Soil Boring Investigation

For both DPT and conventional drilling, the physical characteristics of each soil sample were described using the USCS and recorded on boring logs, presented in Appendix B. In addition to sample characteristics, other pertinent observations such as water levels, sample moisture, depth changes in lithology, fill material, staining, and visual contaminants or odors were recorded on the boring logs. General observations such as sample type and number, sample time, depth, interval, and recovery, and drilling and sampling equipment and methods used were also recorded on each boring log. In addition to monitoring soil sample headspace, as each sampler was opened, the soils were monitored for organic vapors using a PID. These readings were also recorded on borings logs.

The soil samples were analyzed for VOCS, GRO, TAL metals, SVOCs; pesticides/PCBs; and TPH measured as GRO and extractable total petroleum hydrocarbons ETPH. Details on these analyses are discussed in Section 4 of this report. A summary of soil samples collected and selected for laboratory analysis is presented in Table 2-3, which also provides visual, olfactory and screening observations.

All borings that were not completed as monitoring wells were abandoned by backfilling with 2-foot alternating layers of sand and bentonite.

DPT Borings

Forty-seven shallow DPT borings (SB-100 through SB-139, SB-147 through SB-153) were advanced through overburden, and continuous soil samples were collected in 2 foot intervals to the top of bedrock or refusal. Table 2-6 provides a summary of the DPT soil borings. DPT drilling was conducted with a hydraulically-powered direct-push machine for physical characterization of soils, to determine depth to the water table (if present in the overburden), to evaluate presence or absence of NAPL and to collect soil samples for chemical characterization. Surface and subsurface soil samples were collected with a solid barrel sampler that measured 2.125 inches (OD) by 1.5 inches (ID). Soil cores collected inside the liner measured approximately 1.125 inches in diameter. In one area, the DPT drilling equipment could not be safety used (SB-107); therefore, surface soils were collected using a hand held DPT machine.

In addition, small diameter groundwater monitoring wells were installed at 2 of 3 planned soil boring locations. The boring and monitoring well locations are shown on Figure 2-5. Boring logs are presented in Appendix B.

During DPT drilling, two sample aliquots were collected from each 2-foot interval. One aliquot was used for jar headspace screening for organic vapors, and the second aliquot was stored for possible laboratory analysis. (Results from jar headspace screening for organic vapors were recorded on boring logs). After the boring was completed and headspace screening results were collected, a second boring immediately adjacent to the first boring was advanced to targeted intervals for collection of soil aliquot for VOC analysis. At DPT borings advanced in the paved portions of the Site, at least two soil samples for laboratory analysis were collected from each boring, in accordance with the Work Plan. One sample was taken from a 2-foot interval just below the asphalt road base material. The second sample for laboratory analysis was selected based on screening results, position of the water table, and visual, olfactory, or soil conditions noted. Since the surface soil samples were previously collected at locations in the unpaved portions of the Site prior to DPT drilling; only one sample was collected for laboratory analysis from the DPT borings in the unpaved areas.

During advancement of the second DPT boring for VOC sample collection, the VOC soil sample for laboratory analysis was collected as a grab sample from the most heavily contaminated portion of the split-spoon sampler, based on the headspace organic vapor screening results and/or visual observations. If no organic vapor detections and no visual evidence of contamination were noted, the grab VOC sample was collected from the last sample interval above bedrock. The samples for the remaining laboratory analyses were collected as a homogenized sample of the target depth interval (intervals were uniformly mixed before the remaining samples were collected). Observed geologic conditions possibly affecting contaminant distribution, such as potential confining layers, coarse-grained (relatively high porosity and/or high hydraulic conductivity) soils, were taken into account when selecting the VOC sample location from the sampler. Remaining soils from each boring were contained in 55-gallon drums until they could be properly disposed of off-site.

Conventional Drilling Borings

The borings advanced for construction of bedrock groundwater monitoring wells were initiated with hollow stem auger drilling techniques using a 4.25-inch insider diameter (ID) hollow stem auger with soil samples collected continuously from the ground surface to the top of bedrock.

At each of the bedrock boring locations, where continuous soil sampling were conducted, split-barrel samplers were advanced through the overburden following a modified procedure based on American Society for Testing and Materials (ASTM)-D1586-99 (Standard Test Method for Penetration Test and

Split-Barrel Sampling of Soils (SPT)). A 2-foot long, 2-inch outside diameter (OD) by 3-inch OD split-barrel sampler was used to collect soil continuously from the ground surface to refusal or the top of bedrock. A basket was installed in each split-barrel sampler to prevent loss of sample during advancement. The resistance to penetration was obtained by counting the number of incremental blows required to drive the sampler into the subsoil a specified distance, using a hammer of a specified weight. The modification to SPT procedure includes the use of nominal 3-inch OD split-barrels in place of 2-inch OD split-barrels. This modification was uniformly practiced during the RI in order to facilitate the collection of sufficient volume for analytical samples.

Drilling fluids consisted of potable water. The driller's water source was obtained from a hydrant on the base and was sampled as a source blank (DA-HD-SB01). Drilling fluids were changed (i.e. replaced with clean water) and mud-tub contents removed prior to bedrock coring to eliminate the potential for cross-contamination of aquifers. Rock coring was performed, in part, to provide additional information regarding the degree of fracturing of the bedrock and resulting potential contaminant transport. Bedrock borings were advanced approximately 30 feet below top of rock, or until less-fractured/weathered bedrock was reached. All bedrock monitoring wells were left as open boreholes.

2.5.2 Soil Boring Investigation Field Measurements and Observations

During the soil boring and sampling investigation, the field measurements and observations were recorded in a field notebook and/or on boring logs. Recorded field measurements and observations included jar headspace screening results for organic vapors measured with a PID and geologic soil descriptions including visual/olfactory signs of potential contamination (i.e., discolored soils, odors, etc.). Table 2-3 includes a summary of headspace readings and visual/olfactory observations of potential contamination for all soil samples collected. Field measurements and observations from the soil boring program are also presented in the soil boring logs and well construction logs included in Appendix B.

Borings that were not completed as monitoring wells were abandoned by placing alternating 2-foot lifts of bentonite and sand in the borehole.

The most prevalent materials encountered during the soil boring effort were fill, native material (brown to dark gray silty sands and gravels), till (gray to dark gray dense glacial till), and weathered bedrock (gray phyllite). These materials were often compositionally identical; the distinction between them was based upon the presence of manmade material (fill) and greater density (till). Where all of these layers were present, the silty sand and gravel layer always overlaid the till layer. Where the till was present, it was found immediately above the bedrock. The native material (silty sand and gravel layer) was encountered in all of the borings north of the North Meadow, and in many of the borings to the south. Till was encountered in several borings at locations throughout the Site. Depth to bedrock was less than a foot (in

SB-147 and SB148 located in the Deerfield Creek valley) to 19.5 feet (in MW-103S, adjacent to the Deerfield Creek valley).

Artificial fill materials consisting of construction debris (i.e., concrete, gravel, brick and wood) were encountered in most borings located in the South Meadow and Paved Storage Area. Thickness of the fill layer ranged from none encountered to 18 feet (MW-103S).

Soil boring (SB) 103 and bedrock boring MW101B were located near the transformer on the access road to the Building 185 Area from Cunningham Street, to evaluate the potential presence of PCBs in that area. Native material and weathered bedrock were encountered at both of these locations. Depth to bedrock ranged from 1 foot (SB103) to 7.5 feet (MW-101B) bgs. There were low positive detections of TVOCs measured in soils samples from MW-101B, the maximum reading was recorded from a depth of 4 to 6 feet bgs (20.2 parts per million by volume [ppmv]). TVOCs for soils from SB103 were not detected using the PID. None of these borings exhibited odors or visual evidence of contamination such as stained soils.

Borings SB116 through SB120; MW106B through MW109B, and MW126B were advanced in the Paved Gated Storage Area to assess the extent of contamination from possible historical land disposal activities in this area, as suggested by soil gas concentrations of BTEX and petroleum hydrocarbons previously detected. A petroleum odor and PID headspace readings of up to 2,964 ppmv TVOCs were noted in soil from SB116 (located just east of the Building 185 Area). However, in soil headspace from the boring for MW126B, located about five to ten feet from SB116, TVOC concentrations ranged from 5 to 10 ppmv.

Borings SB111 through SB115 were advanced in the Paved Open Storage Area to assess the extent of contamination from possible historical land disposal activities in this area. Boring SB111 was completed in the northwestern corner of the Paved Open Storage Area. Fill consisting of brown/gray fine sand, some medium to coarse sand and fine gravel was present from the surface to a depth of 4 feet bgs. An elevated TVOC headspace reading (300 ppmv) was observed at a depth of 2 to 4 feet bgs. Elevated headspace TVOC readings were also recorded for SB115 in the fill material ranging from 98 ppmv (2 to 4 feet bgs) and 138 ppmv (0 to 2 feet bgs) and SB112 (82 ppmv) from 0 to 2 feet bgs.

Borings SB104 through SB110 and B102B through B105B were advanced west of the Paved Open Storage Area in the east bank of Deerfield Creek to assess the extent of contamination from former land disposal activities in this area. PID headspace readings were low (< 4 ppmv) throughout the soil column for SB104 through SB109, B102B and B103B. Boring SB110 had elevated PID readings from 4 to 6 feet bgs (32 ppmv) and 8 to 10 feet bgs (59 ppmv) within the fill material. Low level PID readings were recorded in fill material from B104B ranging from 0.8 ppmv (2 to 4 feet bgs) to 13.1 ppmv (4 to 6 feet bgs). PID readings were below 9 ppmv for soil samples screened from boring B108B, with the maximum reading (8.6 ppmv) recorded at the surface to 2 feet bgs.

Borings SB100 through SB102, SB150, SB151, and MW100B, were advanced in the Building 185 Complex Area to assess the extent of contamination in this area. Boring B100B was completed in the paved area just inside the fence that secures this area. Prior to packer testing of this well, LNAPL was observed in this well. Additional borings MW-125B and MW124B were advanced in the building 185 Complex area to investigate the extent of the LNAPL. During drilling, headspace readings were collected on the rock cuttings and elevated readings were noted from 25 to 30 feet bgs (83.8 ppmv), 30 to 35 feet bgs (31.0 ppmv) and 35 to 40 feet bgs (12.1 ppmv). Minor elevated headspace readings were noted in soils encountered above rock at this location, ranging from 2.5 ppmv (0 to 2 feet bgs) to 30.1 ppmv (6 to 8 feet bgs). An elevated PID reading was noted for SB100 at the surface (49 ppmv), for SB101 at a depth of 6 to 8 feet bgs (70 ppmv), and for SB150 at the surface (54 ppmv).

Borings SB121 through SB133 and MW110B through MW113B were advanced in the South Meadow to assess the extent of contamination from former land disposal activities in this area, including the extent of buried drums previously identified in this area.

Borings SB134 through SB136 and MW114B through MW117B were advanced in the North Meadow to assess the extent of contamination from possible former land disposal activities in this area, including the extent of PCBs, SVOCs, and beryllium previously detected in soil in the area. SB137 through SB141 and MW118B through MW119B were advanced around the northeastern banks of NUWC Pond. SB140 through SB146 were only advanced to collect surface soil samples. Samples from SB140 and SB141 were advanced on the northern edge of NUWC Pond in order to assess the surface soil conditions that may have been impacted from the overflow of the dam. Borings SB142 through SB146 and MW120B were advanced on the West side of NUWC Pond. SB142 through SB146 were advanced to assess the extent of contamination below storm drain outlets on the western side of the NUWC Pond. MW120B was advanced to evaluate potential impacts from the closure of an Otto Fuel Tank at Building 110.

Borings SB147 through SB149 were advanced in the wetland valley at the southern end of NUWC Pond to characterize the deep soils in the wetland area. Boring SB147 was completed on the southern end of the North Meadow Area. Depth to bedrock was very shallow, and the bottom of the boring only advanced to 4 feet. Borings SB148 and SB149 were located in the wetland area and were completed as small diameter monitoring wells (MW122B and MW123B, respectively). PID screening of soils indicated very low concentrations of TVOCs, generally less than 1 ppmv, and no odors or staining were observed. Subsurface soil samples were not collected from these locations because weathered bedrock was encountered near the ground surface.

Borings SB152 and SB153 were advanced south of the site as reference locations. These locations were added to the RI Work plan in order to be used as background locations for toxicity testing. These borings were intended to be advanced at the former locations of background study locations SO-01 and SO-05

respectively (TtNUS, September 2006). One of these locations (SB-153) was moved about 100-feet west northwest of its corresponding background location (SO-05) because the density of the trees at the SO-05 location prevented access.

Based on soil borings advanced at the site during the RI, bedrock was encountered at depths ranging from 0.5 to 19.5 feet below grade.

Borehole Geophysics

The borehole geophysical surveys at the Site were performed to evaluate the hydraulic properties of the bedrock. The results were used in conjunction with other data to determine potential water bearing zones in the bedrock. The borehole geophysical methods employed included fluid temperature, fluid resistivity, caliper, acoustic televiewer, and heat-pulse flow meter logging under both ambient and induced-flow conditions. Results from the geophysical logging were used to determine hydraulic characteristics of the rock and to select intervals for discrete interval groundwater sampling and packer testing.

On April 15, 2008, in accordance with the Work Plan, NGS of Bangor, Maine performed borehole geophysics in two wells in the North Meadow (MW114B and MW115B). These wells were selected for borehole geophysical surveys because they are hydraulically upgradient of the SASE bedrock monitoring well MW-03B, which was identified as an area of concern during the SASE because TCE was detected in groundwater from MW-03B at a concentration of 1,500 µg/L and a significant fracture was noted in the advancement of MW-03B between 8 and 10 feet-bgs. The borehole geophysical survey reports are provided in Appendix C.

Between July 17 and 29, 2008, as part of the LNAPL investigation, borehole geophysics was performed by NES in six additional boreholes (MW100B, MW-101B, MW-102B, MW-124B, MW-125B and MW126B) in the general area of the Building 185 Complex.

2.5.3 Bedrock Well Installation

Geosearch, Inc. of Fitchburg, Massachusetts (Geosearch) performed the bedrock drilling, well installation, and packer testing. Two mobilizations to the Site for conventional drilling and monitoring well installation were performed during the RI. The first conventional drilling event occurred between March 18 and April 18, 2008. The first event was for the completion of the scope of work for conventional drilling described in the Work Plan. The second conventional drilling event occurred between July 21 and 25, 2008 and was performed to complete the scope of work presented to the regulatory agencies regarding the investigation of the extent of LNAPL discovered in well MW-100B.

During both events, conventional drilling was performed by advancing the borehole through the overburden using 4.25-inch ID hollow stem augers. Once bedrock was encountered, the boring was advanced using a 3.875-inch OD air hammer, a minimum of 2 feet into competent bedrock. Four inch diameter, schedule 40, black carbon steel was then grouted into place and was allowed to set for a minimum of 24 hours. The grout mixture consisted of a 94 pound bag of Portland Type II rapid-setting concrete mixed with 6.5 gallons of water and about 3 to 5 pounds of powdered bentonite. After allowing the grout to set, drilling continued with a combination of air hammer drilling and coring.

Wells were advanced into rock by bedrock coring and/or by air hammer. In general, a 3.75-inch diameter borehole was advanced approximately 30 to 40 feet into bedrock using HQ sized coring equipment. Alternatively a 3.875-inch diameter air hammer was advanced. Where collected, a nominal 3-inch diameter bedrock core was recovered and logged by the field geologist at the completion of each 5-foot core run. The air hammer borehole advancement was performed at MW-100B, MW-101B, MW-102B, MW-103B, and MW-105B (in the Building 185 Complex Area) and MW-118B and MW-120B (on the banks of the Deerfield Creek/NUWC Pond). MW-112B; MW-114B, MW-117B in the North Meadow were initiated using coring techniques but due to the highly fractured/weathered nature of the bedrock finishing the borehole using coring was not possible. These three wells were completed using air hammer techniques (FMR No. 4, provided in Appendix D).

The recovered rock core was described using standard rock description methods. The description included the rock type; the degree of rock weathering; the degree of rock brokenness; and the presence of planar features such fractures, joints, bedding planes, and other lithologic contacts. The Rock Quality Designation (RQD) was also calculated and recorded on each boring log.

During down hole air rotary drilling, the rock cuttings were observed and the times of drilling advancement were recorded.

In order to characterize the nature and extent of the LNAPL observed in MW-100B, three additional monitoring wells were installed in the Building 185 Complex Area: MW-124B; MW125B and MW-126B. In addition, six bedrock boreholes (MW109B, MW114B, MW115B, MW124B, MW125B, and MW126B) were packer tested to determine the locations of water-bearing zones, to collect discrete zone groundwater samples, and to measure hydraulic conductivity. Discrete interval groundwater sampling was also performed in these six bedrock wells in order to determine preferential pathways for groundwater contamination migration. The packer testing and sampling was performed in two mobilizations. The first mobilization was performed in the North Meadow on (MW115B and MW114B), and in the Paved Storage Area (MW109B), as per the Work Plan. The second packer testing and sampling event was performed on wells in the Building 185 Complex, area as part of the LNAPL investigation.

2.5.4 Packer Testing and Sampling

Geosearch, a subcontractor to TtNUS, installed "straddle (double) packers" within selected intervals at selected open borehole locations to allow discrete interval groundwater sample collection and hydraulic conductivity testing of the selected intervals. Between May 5 and May 8, 2008, discrete interval groundwater sampling and hydraulic conductivity testing was performed at selected locations in the North Meadow (MW114B and MW115B) and at one location in the Paved Storage Area (MW109B). A second packer sampling and testing event (associated with the LNAPL investigation) was performed in the Building 185 Complex Area (MW124B, MW125B and MW126B) between July 30 and August 4, 2008.

The packer equipment provided and operated by Geosearch included a centrifugal pump; two inflatable packers connected with a perforated 2-inch ID flow-through pipe capped at the bottom of the lower packer; 5- and 10-foot lengths of 2-inch ID blank steel pipe; 5- and 10-foot lengths of 2-inch ID perforated steel pipe; couplings; pressure gauges; water meters capable of instantaneous and total flow readings; compressed nitrogen; and nitrogen line.

Packer sampling and testing was conducted at multiple intervals per borehole, with intervals spaced typically every 5 or 10 feet. Original test intervals were selected based upon spacing and frequency of fractures identified in the rock cores and/or the borehole geophysics, in order to isolate potential water-bearing zones within the borehole. The packer spacing was modified in the field when necessary based on the observed response of the rock to water injection. The final tested intervals and the rationale for their selection are described on Table 2-7.

In MW109B three intervals were sampled and tested: 19 to 24 feet bgs; 30 to 35 feet bgs and 36 to 41 feet bgs. In MW114B three depth intervals were sampled and tested: 29 to 34 feet bgs; 34 to 39 feet bgs and 53 to 61 feet bgs. In MW115B two intervals were sampled and tested: 19 to 24 feet bgs and 26 to 31 feet bgs. In MW124B two intervals were sampled and tested: 10 to 20 feet bgs and 35 to 45 feet bgs. In MW125B two depth intervals were sampled and tested: 26 to 36 feet bgs and 36 to 43 feet bgs. In MW126B three test intervals were selected: 22 to 27 feet bgs; 42 to 46 feet bgs and 50 to 55 feet bgs. Some of the originally selected intervals were adjusted in the field in order to obtain sufficient packer seal and/or to select an interval that could accept water or conversely, an interval in which measurable pressure could be achieved during testing.

2.5.5 Discrete Interval Groundwater Sampling and Analysis

A "double packer" set-up was used. The discrete interval samples were collected starting at the top of the borehole and progressing to the bottom. Once the packer set-up was assembled and installed to the

initial interval to be sampled, the packers were inflated to isolate the testing interval. A modified low flow procedure was used to collect discrete interval groundwater samples for laboratory analysis at selected locations and depth intervals. Eight groundwater samples were selected from three bedrock monitoring wells (MW114B, MW115B and MW109B) and were sent to the laboratory for VOC, total iron and dissolved iron analysis (see Section 4). Seven groundwater samples were collected from three LNAPL wells (WM124B, MW125B and MW126B) and sent for laboratory analysis of VOC, GRO, ETPH, SVOC, and PCBs. A summary of discrete interval groundwater samples and the associated stabilization parameters during low flow sampling is presented in Table 2-8.

2.5.6 Hydraulic Conductivity Testing (Packer Tests)

Following completion of the low flow groundwater sampling from discrete intervals, the wells were tested for hydraulic conductivity of the discrete intervals starting from the bottom of the borehole and progressing to the top. Geosearch installed the packers mounted on rods into the borehole, inflated the packers, and pumped water into the packed off zone. The goal was to pump in sufficient water to establish back pressure in the packed off zone. Joints, connections and hoses were water tight so water loss did not occur between the water meter and the packed off section of borehole.

Attempts to measure pressures and flow were made at regular interval with the intent to measure pressures until stabilization was achieved. The wells in the North Meadow (MW114B and MW115B) took so much water that a measurable pressure buildup was not achieved. This problem was encountered in all of the tested intervals indicating that the hydraulic conductivity (K) of the bedrock was higher than could be measured using this technique. The opposite obstacle was encountered during packer testing performed in the Paved Storage Area and Building 185 Area. In wells MW109B, MW124B, MW125B and MW126B the tested zones would not take water. Pressure would build up but the water would come up around the inner casing indicating an inability for the formation to accept water and a lower K than could be measured via packer testing.

2.5.7 Shallow Well Installations

The overburden monitoring wells were installed using standard 4¼ inch HSA drilling methods. Monitoring wells MW-103S, and MW-106S were installed on April 18, 2008 and monitoring wells MW-112S, MW-122 and MW-123, were installed on February 27, 2008. The well screen depths for overburden wells were chosen based upon information obtained from split-spoon soil sampling conducted at the bedrock boring. As previously mentioned in Section 2.1.1, split-spoon soil sampling was conducted in all of the deep (bedrock) well borings to the depth of the bedrock. Soil samples submitted for laboratory analyses were collected as describe in Section 2.1.1. Each split-spoon was monitored using a PID and field observations and measurements were recorded in a field notebook or on boring logs.

Table 2-9 summarizes the construction details of the monitoring wells. The monitoring well construction logs are included in Appendix B. Overburden monitoring wells were installed at locations MW-103, MW-106, and MW-112 where water was observed in the overburden during installation of the bedrock well. Monitoring wells MW-122 and MW-123 were installed in the wetland valley at the southern end of NUWC Pond to characterize the deep soils in the wetland area.

2.5.8 Additional Investigation

On May 12, 2008, during an attempt to perform packer testing at MW100B, approximately 4.5-inches of LNAPL was discovered in monitoring well MW100B. MW100B was installed to monitor potential impacts from activities at the Building 185 Complex. Additional investigation activities were performed to determine the origin and extent of the LNAPL. The following activities were added to the RI:

- NAPL was collected from MW-100B for laboratory analysis of VOC, SVOC, pesticides, PCB, ETPH, and GRO.
- Approximately 1 gallon of water/LNAPL mixture was removed from MW100B on the date of discovery;
- The groundwater/LNAPL mixture was removed from MW100B on June 27, July 2 and 11, 2008;
- MW-100B was not packer tested due to the presence of LNAPL in the well.
- The following wells in the vicinity of MW-100B were checked for evidence of a sheen and or LNAPL: MW-101B, MW-107B, and MW-108B. Neither a sheen nor LNAPL were observed in any of these wells.
- The bottom of MW-100B was checked for DNAPL and a VOC sample was collected from the bottom of the well.
- Investigation of Areas 1 through 4 in the Building 185 Complex.
- Location and sampling of upgradient existing wells MW-12, MW-13A, and MW-13B.
- Installation of additional bedrock monitoring wells MW-124B, MW-125B and MW-126B.
- Soil sampling at additional bedrock locations for laboratory analysis of VOC, SVOC, ETPH, and GRO.
- Development and groundwater sampling of additional wells.
- Borehole geophysical testing of MW-100B and three new bedrock wells.
- Packer testing and discrete interval sampling was performed at the new bedrock wells.

2.6 GROUNDWATER INVESTIGATION

A groundwater investigation was conducted to evaluate the nature and extent of groundwater contamination and to provide information on the hydrogeology at the site. This section provides an

overview of the groundwater investigation, including summaries of well construction details, groundwater sampling methodology, well development methodology, field measurements and observations associated with the groundwater investigation conducted at the site. A description of the site hydrogeology based on the data collected during the Remedial Investigation is provided in Section 3.3. The RI soil boring and well boring logs and groundwater monitoring well construction logs are presented in Appendix B. A detailed evaluation of groundwater analytical data is presented in Section 4.0.

The groundwater investigation included the installation of three shallow monitoring wells (MW-103S, MW-106S, and MW-112S) screened either across the water table in the overburden or entirely below the water table within the overburden, and 27 bedrock wells (MW-100B through MW-126B) with open boreholes entirely within the bedrock. Monitoring wells MW-122 and MW-123 were installed in the wetland valley at the southern end of NUWC Pond to characterize the deep soils in the wetland area. The drilling was performed by a drilling subcontractor under the supervision of a TtNUS field geologist. Figure 2-5 shows the locations of the groundwater monitoring wells. Table 2-9 presents a summary of wells installed during the RI and previously existing wells used in this RI.

At each groundwater well location, a deep boring was advanced into bedrock, and soil samples were collected as described in Section 2.1.1 of this report. After completion of the deep boring, a bedrock monitoring well was constructed. After construction of the bedrock monitoring well, at locations where groundwater was observed in the overburden, a second co-located boring was advanced near the bedrock well for the installation of an overburden well.

The overburden monitoring wells were constructed of 2-inch ID, flush-threaded, Schedule 40 PVC screen and riser. The screen for two of the overburden wells was 10 feet long (MW-106S and MW-112S), two well screens were 5 feet long (MW-103S and MW-122), and one well screen was 6 feet long (MW-123). Each well screen was 10-slot (0.010 inches). The well annulus was backfilled with No.1 silica (quartz) sand filter-pack to 2 foot above the top of the well screen, and a 2-foot thick seal consisting of bentonite chips was placed above the sand pack with the exception of MW-122 and MW-123. In MW-122 sand was brought up to grade and one foot of bentonite was placed above the sand pack in MW-123. A native backfill or silica sand was placed in the well annulus from the top of the bentonite seal to the ground surface. Each well was completed with a 4.25-inch I.D. steel stick-up protective casing with a locking cap, except MW-106S, which was completed flush-mounted with a road box.

Bedrock monitoring wells were constructed of 4 inch black carbon steel casing grouted into bedrock with open bedrock borehole below the grouted steel casing, depths of installed casing ranged from 8 to 20 feet bgs.. Four inch diameter, schedule 40, black carbon steel was then grouted into place and was allowed to set for a minimum of 24 hours. The grout mixture consisted of a 94 pound bag of Portland Type II rapid-

setting concrete mixed with 6.5 gallons of water and about 3 to 5 pounds of powdered bentonite. After allowing the grout to set, drilling continued with a combination of air hammer drilling and coring.

2.6.1 Groundwater Monitoring Well Development and Synoptic Water Level Measurements

Following monitoring well installation activities, each newly installed monitoring well was developed. The majority of the wells were developed using with a submersible centrifugal (whale™ or grundfos™) pump. Monitoring well MW-304S was developed with a peristaltic pump due to malfunction of the whale pump. The micro wells (MW122 and MW123) were developed using a Waterra™ inertial pump. During well development, water quality parameters (stabilization criteria) were monitored, including: pH, conductivity, temperature, dissolved oxygen (DO), ORP and turbidity. During development of MW122 and MW123 DO and ORP were not monitored. The objective of the well development program was to remove fine-grained sediments from the vicinity of the well screen or borehole, pumping until the water quality parameters stabilized, including achieving turbidity of less than 5 NTUs, or for four hours of well development.

All monitoring wells were developed within these criteria with the exception of monitoring wells MW100B, MW101B, MW104B, MW107B, MW110B, MW111B, MW113B, MW122, MW123, MW124B, MW125B, and MW126B due to turbidity readings above 5 NTU. Table 2-10 provides a summary of the well development data collected, including the final stabilization criteria readings.

Two synoptic groundwater level measurement rounds were conducted. One was conducted on May, 13 2008 at the end of the original Work Plan scope of work. The second synoptic groundwater level measurement round was conducted on September 18, 2008 following the installation of the wells installed as part of the LNAPL investigation. Water levels were measured in monitoring wells associated with the Site and associated with the Building 179 site. Water levels in open borehole bedrock wells were measured from top of the steel casing. Water levels in the wells with PVC risers were measured to the top if the PVC risers. Water levels in the bedrock wells with grouted in steel casing were measured to the top of the steel casing.

On May 13, 2008, depths to groundwater ranged from approximately 0.51 to 24.24 feet bgs in on-site monitoring wells. Groundwater levels were converted to elevations and interpreted groundwater contour maps were generated, as discussed in Section 3.3. The entire water column was gauged in each monitoring well with an oil/water interface probe to check for the presence of both LNAPLs and DNAPLs. This synoptic event was performed one day following the first round of bailing LNAPL from MW100B. The oil/water interface probe did not detect measurable LNAPL in MW100B on May 13, 2008. LNAPL or DNAPL were not detected in wells.

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Louis Federici Associates, Inc. of Providence, Rhode Island, licensed land surveyors in the State of Rhode Island, surveyed the elevation and location of each of the groundwater monitoring wells. All newly installed monitoring wells were surveyed. In addition, previously installed monitoring wells: (MW01C, MW03B, MW13, MW13B, MW9A and MW9B) were surveyed or resurveyed. The elevations of the monitoring wells were surveyed with respect to the National Geodetic Vertical Datum of 1929 (NGVD, 1929). The horizontal datum used in the survey was the National Geodetic Datum of 1983 (NAD, 1983). The elevations of each well's outer protective casing and the top of the PVC inner riser pipe (when installed) were surveyed to the nearest 0.01 foot. The ground adjacent to each well was surveyed to the nearest 0.1 foot. The well coordinates and elevations are provided in Table 2-9. Well locations are presented on Figure 2-5.

2.6.2 Groundwater Sample Collection and Analysis

Groundwater samples were collected from 26 newly installed monitoring wells and from seven previously installed wells (MW-02B, MW-03B, MW-04B, MW-07A, MW-07B, MW-09B and MW-13A) during three separate events. From May 5 through June 4, 2008, low flow groundwater samples were collected form the following wells: MW-101B through MW-120B, MW-122, MW-123, MW-103S, MW-106S and MW-112S, and analyzed for the following laboratory parameters: TCL VOCs, TCL SVOCs, pesticides/PCBs, TAL metals, TAL dissolved metals, ferrous Iron (field analysis), TOC, ammonia, nitrite, orthophosphate, sulfate, sulfide, methane, ethane and ethene. Discrete interval samples collected form MW-109B (19'-24', 30'-35' and 36'-41'), MW-114B (29'-34', 34'-39', and 53'-61'), and MW-115B (19'-24', and 26'-31') were analyzed for TCL VOCs, total iron and dissolved iron. From July 30 through August 4, 2008, low flow groundwater samples were collected from MW-101B, MW-102B, MW-13A and discrete interval samples were collected from MW-124B (10'-20', and 35'-45'), MW-1225B (26'-36' and 36'-43') and MW-126B (22'-27', 42'-46' and 50'-55'). These samples were analyzed for TCL VOCs, TCL SVOCs,

Dates	Analyses	Samples	Sampling Method	Objective
May 5, 2008 - June 4, 2008	VOCs; SVOCs; pesticides/PCBs; metals; dissolved metals ferrous iron, ammonia; nitrite; orthophosphate; sulfate; sulfide; methane, ethane, and ethene	MW-101B through MW-120B, MW-122, MW-123, MW-103S, MW-106S and MW-112S	Bladder pump, low flow sampling	Characterize site groundwater
May 5, 2008 - June 4, 2008	VOCs; SVOCs; total iron and dissolved iron	MW-109B (19 to 24 feet, 30 to 35 feet, and 36 to 41 feet), MW-114B (29 to 34 feet, 34 to 39 feet, and 53 to 61 feet), and MW-115B (19 to 24 feet and 26 to 31 feet)	Discrete interval, bladder pump, low flow sampling	Characterize groundwater of selected discrete bedrock intervals
July 30, 2008 - August 4, 2008	VOCs, SVOCs, pesticides/PCB, ETPH/GRO	MW-101B, MW-102B and MW-13A	Bladder pump, low flow sampling	Evaluate groundwater in vicinity of LNAPL discovery in MW-100B
July 30, 2008 - August 4, 2008	VOCs, SVOCs, pesticides/PCB, ETPH/GRO	MW-124B (10 to 20 feet, and 35 to 45 feet), MW-1225B (26 to 36 feet and 36 to 43 feet) and MW-126B (22 to 27 feet, 42 to 46, and 50 to 55 feet)	Discrete interval, bladder pump, low flow sampling	Characterize groundwater of selected discrete bedrock intervals in vicinity of LNAPL discovery in MW-100B
September 18, 2008	SVOCs	MW-100B	Peristaltic pump, low flow sampling	Characterize groundwater in well where LNAPL was discovered

Prior to initiating groundwater sampling activities, the groundwater level of each monitoring well was measured to the nearest 0.01 foot using an oil/water interface probe. The probe was decontaminated before each use with a tap-water/non-phosphate detergent wash and a distilled/deionized water rinse. The oil/water interface probe was also used to check for the presence of NAPLs. The entire water column in the tested wells was monitored with an oil/water interface probe for the presence of separate phase petroleum products, including both LNAPL and DNAPL.

Low flow (low stress) groundwater sampling was conducted using the "EPA Region I Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, Revision 2", dated July 30, 1996, as amended 2002. Prior to sample collection the monitoring wells were purged using decontaminated bladder pumps that operated using compressed nitrogen. New Teflon bladders and pump fittings were used in each monitoring well. The intake of the purge and sample tubing was placed at

different depths for each well based on evaluation of several factors. Pump intake depths are provided in Table 2-9. Approximately 1.5 to 37.5 liters of groundwater were purged from each monitoring well prior to stabilization of sampling criteria, as presented in Table 2-11.

Field measurements of groundwater sampling criteria were collected every 3 to 5 minutes (or as appropriate) during purging of the monitoring wells to determine stabilization prior to sample collection. These parameters included the water level, flow rate, temperature, specific conductance, pH, ORP, DO and turbidity. Field measurements and notable observations made during groundwater sampling were recorded on "low flow" groundwater sample log sheets (Appendix D).

Passive Diffusion Bag Groundwater Sampling and Analysis

Fourteen passive diffusion bag samplers were installed at the shoreline of NUWC Pond between a point about 60 feet downstream from SW/SD109 and a point about 400 feet to the north of that located along the eastern shore of NUWC Pond (Figure 2-7). The diffusion bag samplers were filled with ultra-pure deionized water, placed in slotted 2 inch, schedule 40, PVC tubes that were capped on both ends, they were then buried about one foot below the ground surface directly below the water table at the edge of the pond. These diffusion bag samplers were installed to determine if groundwater contamination (chlorinated VOCs) previously found at MW-03B are entering NUWC pond. The passive diffusion bag samplers were separated by about 30-feet. The bags were left in place for one week and then collected. The samples DW-01 through DW-10 were collected on January 31, 2008. Because the results of the initial passive diffusion bag sampling indicated that there is a chlorinated VOC plume entering NUWC Pond, and the northern extent of the plume was not adequately defined, DW-01 and DW-02 were re-sampled and additional sampling points (DW-11 thru DW-14) were added to the program to define the northern extent of the plume. These additional samples were collected on August 1, 2008. Once collected, the water that was within the bag was transferred to a standard 40mL VOC vial preserved with hydrochloric acid (Hcl). These samples were analyzed for VOCs.

Discrete Interval Groundwater Sampling and Analysis

A double packer set-up was used to collect discrete interval groundwater samples from selected monitoring wells during two sampling events (as discussed in Section 2.5.4). The discrete interval samples were collected starting at the top of the borehole and progressing to the bottom. Once the packer set-up was assembled and installed to the initial interval to be sampled, the packers were inflated to isolate the testing interval. A modified low flow procedure was used to collect discrete interval groundwater samples for laboratory analysis at selected locations and depth intervals.

2.6.3 Hydraulic Conductivity Testing

Hydraulic conductivity (K) measurements were measured from the overburden/bedrock interface and in Hydraulic conductivity the bedrock wells. Hydraulic conductivity was evaluated through two separate efforts; slug testing and packer testing. The slug testing procedures are described below and the data results are described in Section 3.0.

Slug Tests

To aid in determining the bulk hydraulic conductivity of the aquifer(s) beneath the Site, rising and falling head slug tests were performed on overburden/bedrock interface wells and bedrock wells. Falling head slug tests were conducted in wells with fully saturated well screens. Hydraulic conductivity testing was performed at 26 on-site wells on June 6, 2008 and between July 17 and 29 2008. These site specific data, together with site-specific hydraulic gradients and estimated effective porosity, were used to estimate groundwater flow velocities across the Site. The slug test results are discussed in Section 3.0.

Prior to initiating slug testing at each selected well, the water level was recorded to the nearest 0.01 foot using an electronic water level indicator. After the static water level was established, a decontaminated solid PVC slug was lowered into the well to a point just above the water table. At open-hole bedrock well locations 3, 0.75-inch by 4.83-foot long solid slugs were attached to each other to maximize the volume of water displacement while performing the test. The slug(s) were quickly inserted into the water column so that its entire length was below the water table and the change in water level was recorded. After the water level stabilized following the slug insertion, the slug(s) were quickly removed from the water column, and the change in water level was recorded. This was how two types of variable head tests were conducted in each well: rising head tests (where groundwater is induced to flow from the formation into the well) and falling head tests (where groundwater is induced to flow from the well into the formation). The results are summarized in Section 3.0.

Pressure transducers were used to measure hydraulic pressure which was converted to water levels. Water level measurements were taken at logarithmic intervals and recorded using an electronic data logger, as well as using an electronic water level meter, as the water approached the initial static water level.

To minimize the potential for cross-contamination, the slug(s) were decontaminated between wells by rinsing with a non-phosphate soap solution, tap water rinse, distilled water rinse, and isopropanol rinse, followed by a final deionized water rinse.

K values are used in calculating groundwater flow rates and in estimating dissolved-phase contaminant migration rates in the overburden/bedrock interface and bedrock. Variable head slug tests were conducted as a part of the RI investigation and the K was determined by analyzing slug test data. The slug tests involved timing the recovery of the water level to static conditions after removal or introduction of a slug of known volume in a well. The water level recoveries versus time data were used to calculate an estimate of K in the vicinity of the well screen. All K estimates were limited by the well construction, length of the screened intervals, and the test methods used. Estimates were made through mathematical models that make various assumptions. One such assumption is that the change in water level in the well is instantaneous, which is not feasible with a large well screen length. Due to the assumptions required by the method used, the resulting K values are considered estimates.

2.7 BIOTA INVESTIGATION

2.7.1 Invertebrate Toxicity Tests

Toxicity tests are conducted by exposing groups of organisms to environmental samples and laboratory controls for a specified length of time in order to assess the impact, if any, to the organisms to the environmental media. Invertebrate toxicity testing was performed at the Site to support the baseline ecological risk assessment (Section 7.0).

2.7.1.1 Soil Invertebrate Toxicity Testing

Soil invertebrate toxicity testing was performed using the 14-day earthworm toxicity test as outlined in the "Standard Guide for Conducting Laboratory Soil Toxicity or Bioaccumulation Tests with Lumbricid Earthworm *Eisenia fetida* and the Enchytraeid Potworm *Enchytraeus albidus*" (ASTM 2004a). This test was selected because it is recognized by EPA as a standard test for determining acute toxicity to earthworms. The endpoint of the test is mortality as measured by survival of the earthworms.

Locations for soil samples used for earthworm toxicity testing were selected based on the results of PAH analysis of surface samples as summarized in Table 2-14. On January 15 and January 16, 2008, the soil samples for toxicogical evaluation were collected and placed in 1 gallon buckets and shipped to EnviroSystems, Inc., of Hampton, New Hampshire (EnviroSystems) for analysis.

Earthworm toxicity testing was performed on soil from nine on-site locations (SS-103B, SS-104, SS-105B, SS-108, SS-110B, SS-127, SS-130, SS-133, and SS-134) and 2 off-site up gradient boring locations (SB152 and SB153), which were selected as reference locations. One of the selected locations was collected from the former location of TP10, (SB134), in the southern portion of the North Meadow, where

high concentrations of metals were previously detected. In accordance with the 14-day toxicity test (ASTM 2004a); the soil samples were also analyzed for pH, TOC, particle size distribution, percent moisture, and water holding capacity. These physical characteristics in the soil can influence the toxicity of chemicals by binding the chemicals and hence making them less bioavailable, or conversely causing the chemicals to be present in forms that are more bioavailable.

The toxicological evaluation report generated by EnviroSystems is provided as Appendix E. The results of this evaluation are discussed in Section 4.5.3 and Section 7.4.2.2.

2.7.1.2 Sediment Invertebrate Toxicity Testing

Thirteen sediment sample locations were selected for toxicity testing (SD107, SD108, SD111, SD112, SD106, SD110, SD133, SD01, SD116, SD114, SD119, SD121 and SD125) based upon lead analysis results and results of previous analyses (Table 2-12). Toxicity testing was also performed on the reference samples from Upper Melville Pond. Sediment invertebrate toxicity tests were performed using the 28-day amphipod toxicity test as outlined in the "Standard Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates"(ASTM 2004b). This test was selected because EPA recognizes it as a standard test for determining chronic toxicity to benthic invertebrates.

Between May 19 and May 21, 2008, sediment samples were collected for toxicity testing by ESI. As described in Section 2.1.1, these samples were also analyzed for TAL metals, VOCs, SVOCs, Pesticides/PCBs, pH, TOC, and grain size by Katahdin Analytical. In accordance with the 28-day sediment toxicity test (ASTM 2004b), the overlying water at sediment sample locations was analyzed for turbidity, pH, DO, ORP specific conductance, and, temperature in the field. These surface water parameters are provided on Table 2-2. The physical characteristics of the sediment such as TOC and grain size can influence the toxicity of chemicals by binding contaminants and hence making them less bioavailable, or conversely causing the contaminants to be present in forms that are more bioavailable. Once collected the sediment samples for toxicity testing were placed in a one gallon bucket and shipped on ice to ESI for analysis.

2.7.2 Benthic Macroinvertebrate Sampling

On May 28 and 29, 2008, benthic macroinvertebrate samples were collected from the on-site streams and from NUWC Pond at the same locations as the sediment toxicity testing soil samples. The samples were spatially spread throughout the wetland and pond, and collected from different types of habitats, including pond, depositional wetland/stream, and rocky fast-moving stream. Table 2-13 provides a summary of the benthic macroinvertebrate sampling. Decisions on the exact sample locations were made in the field by

the field biologist after reviewing the Site and reference locations to ensure that similar habitat types were sampled in both reference and Site areas. One additional reference location (RP06) was added downstream from RP05 at Upper Melville Pond for benthic sampling only. The purpose of adding RP06 was to better represent the range of environments that were found on site. Previously collected sediment chemistry data was used to aid in the sample location selection process to ensure that some of the samples were collected in areas where chemical concentrations were elevated in the past. Because of the final array of macroinvertebrate sample locations, some level of repeat sampling was required to provide actual differences in assemblage composition.

The samples were collected in a stretch of streambed, not at a single location. The required stretch of streambed to collect sufficient sample was 5 to 6 meters. To find 5 to 6 meters of acceptable habitat the sample area ranged anywhere from 10 to 40 yards around the designated sample location, The 5 to 6 meters was typically sampled for a total of 3 to 5 minutes. Due to field conditions the amount of time sampled as well as the length of stream sampled varied from location to location. Stream samples were collected by placing a D-net with a 500 µm mesh netting on the stream bed and disturbing the sediment immediately upstream down to about 6 inches. As the sediment was disturbed it was captured in the net, the fines moved through the mesh and the larger material was caught. This was done at a few different spots within the stretch of stream to create the 5-meter sample. Once this was completed over the desired sections of stream for the desired amount of time the sample was examined. During examination any large sticks or stones were washed off in the net and discarded. The material that was remaining in the net was then placed in the sample jar.

Pond samples that were in wade able locations were sampled using a sweeping method. The net was placed on the sediment surface, as it was in the streambed sampling. Because there is little to no current in NUWC Pond, rather than disturbing the sediment and allowing the current to carry the material to the net, the net was bounced along the sediment to disturb it and moved forward at the same time to collect the sediment and microbes. As in the streambed sampling procedure, fines were washed out and large material (sticks and rocks) were washed off and discarded. Pond sampling locations that were not accessible by wading were sampled by using a Petite Ponar Dredge. At each location the Ponar Dredge collected three scoops that were then placed in 500-µm sieve buckets. The fines were washed out of the bucket and any material that did not make it through the sieve was placed into the sample jar.

After field washing in either the net or in the sieve bucket, all material (organic and inorganic) was placed in sample containers (1 liter Nalgene® sample jars) and preserved in 95% ethyl alcohol. Some samples required more than one bottle because of the amount of material that was collected. Information about how many bottles made up one sample was recorded on the bottle label as well as the chain of custody.

Samples were shipped priority overnight to Normandeau Associates, Inc. (Normandeau) in Stowe, Pennsylvania for sample processing and analysis. The Aquatic Invertebrate Sample Analysis report is provided as Appendix E.

2.7.3 Ecological Tissue Sampling

Earthworms and three fish species were collected from the Site for ecological tissue sampling. Analysis of these tissues is important for ecological risk assessment because both are indicators of contaminant transfer through the food chain.

2.7.3.1 Earthworm Tissue Sampling

Earthworm samples were collected from eleven surface soil locations (SS115B, SS134, SS123, SS113B, SS103B, SS130, SS108, SS153, SS104, SS121 and SS105B) shown on Figure 2-8. Rationale for selection of earthworm sampling locations can be found on Table 2-14. Earthworms were collected within a 5-foot radius of the designated sample location. To collect the worms, a trowel was used to loosen the top 4 to 6- inches of soil and debris. Generally the animals were found in this top layer. Once the earthworms were collected they were placed in an 8 ounce soil jar, and brought back to the field office where individual weights and number of animals collected were recorded. Prior to weighing each individual, care was taken to remove as much of the excess soil as possible by lightly brushing it off. The samples were then frozen and shipped to Alpha Analytical (Alpha) in Mansfield, Massachusetts where they were analyzed for pesticides/PCBs, metals and percent lipids.

SB127 was originally proposed as an earthworm tissue sample location but could not be sampled because of habitat. The soil in this area was very dry, compact and sandy; not ideal for earthworms. Field personnel attempted to unearth earthworms in this location for 45 minutes with no success. This location was chosen because it was the maximum concentration of PAHs. The second highest concentration of PAHs (SS123) was successfully sampled.

2.7.3.2 Fish Tissue Sampling

Fish for tissue analysis were collected at three areas within NUWC Pond (ET01, ET02 and ET03), as shown on Figure 2-4. In addition, fish for tissue analysis were also collected in Upper Melville Pond to provide reference concentrations. Fish tissue sampling was conducted from August 12 through 14, 2008. Three species of fish were collected from NUWC Pond: Brown Bullhead (*Ameiurus nebulosus)*, Bluegill (*Lepomis macrochirus)*, and White Perch (*Morone Americana)*. Brown Bullhead and Bluegill were also collected from Upper Melville Pond but white perch were not found in Upper Melville Pond so there is no

reference sample for that species. Two types of samples were taken from the fish, whole body and fillet. A total of five fillet samples and two whole body samples were collected from NUWC pond. Two fillet samples and one whole body sample were collected from Upper Melville Pond. Field conditions limited the samples to these numbers because some species (large mouth bass *Micropterus salmoides*, and yellow perch *Perca flavescens*) that were proposed for collection in the workplan were not present. A summary of the species of fish collected in NUWC Pond and Upper Melville Pond is provided below:

Sample Type	ET01	ET02	ET03	REF
Bullhead fillet	X	X	X	X
White Perch fillet		X		
Blue Gill fillet	X			X
Blue Gill whole	X	X		X

Additional fish tissue sample details (species numbers and individual lengths and weights) are provided in Table 2-15.

Fish samples were collected using a combination of electro fishing, trot lines and rod & reel. Fish samples ranged anywhere from one to 6 animals depending on size of the animals and the type of sample being collected. In general, the field team was trying to obtain 200 grams for each sample. Animals were weighed and measured individually in the field. This data was recorded on field log sheets. Samples were frozen in the field then picked up and transported by Alpha Analytical to their lab in Mansfield, Massachusetts. Samples were analyzed for SVOCs, pesticides/PCBs and TAL metals.

Sample designation was as follows, DA-FT for Disposal Area, Fish Tissue, and then ET*XX* for sample location followed by a designation abbreviating what type of sample it is. For example "BHF" stands for Bullhead Fillet. Last in the sample designation is the date that the sample was collected recorded as MMDDYY.

2.8 WETLAND DELINEATION SURVEY

On July 2 and 3, 2008, wetland scientists performed a systematic field survey of the Site 08 to identify jurisdictional wetlands. Prior to the survey a review of background information and a preliminary wetland determination walkover survey were conducted. The survey of the site was initiated with an inspection of the entire site to identify topographic, drainage, and vegetation features that would indicate the potential for wetland classification. Sampling locations within the distinct plant communities were then investigated using the Routine On-Site Determination Method (USACE, 1987). This method involves a detailed

examination of the soils, vegetation, and hydrologic indicators of a study area. At each sampling location, field data forms were completed to document vegetation, soil, hydrology, and general site characteristics. In addition, to further characterize each wetland, the hydrological connection to adjacent wetlands and water bodies occurring in and outside of the survey was evaluated. Methods for evaluating atypical situations and problem areas were followed according to the USACE Wetland Delineation Manual (1987). Wetland borders and other identified site features were located using a Trimble, Inc. Geo XT Global Positioning System (GPS).

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

This section describes the physical characteristics of the study area, including surface features, land use, geology, hydrogeology, surface water hydrology, wetlands and floodplains, ecology, and climate and meteorology.

3.1 SURFACE FEATURES AND LAND USE

Brief summaries of site setting and topography, land use and soil types are discussed below.

3.1.1 Setting and Topography

As described in Section 1.0, NAVSTA Newport is located in the Narragansett Bay Basin. NAVSTA Newport occupies approximately 1,063 acres, with portions of the facility located in the City of Newport and the towns of Middletown and Portsmouth, Rhode Island. The facility follows the western shoreline of Aquidneck Island for nearly 6 miles, facing the East Passage of Narragansett Bay (Figure 1-1). The Site is located on the northwestern boundary of the NUWC (Figure 1-2).

The Islands in Narragansett Bay are elongated and generally oriented in a north-south direction as a result of glacial movement. Due to climatic changes, the glaciers receded and deposited silt, sand, gravel and boulders over the bedrock. As a result, the site is located within the Narragansett Till Plains. Elevations at NAVSTA Newport range from near mean sea level (MSL) to approximately 170 feet above MSL in the Melville North area (USGS, 1975). Areas at low elevations are susceptible to flooding during storm surges.

Public water in the City of Newport and Town of Middletown is supplied and managed by the Newport Water Department. The Town of Portsmouth purchases water from the Newport Water Division, a division of the City of Newport's Department of Utilities. Most of the water supply for Aquidneck Island is public. However, private water wells exist on Aquidneck Island. In general, the majority of private wells are reportedly located on the eastern portion of Aquidneck Island, primarily in Middletown (TtNUS, 2001).

The Newport Water Department receives its water supply from a series of seven surface water reservoirs located on Aquidneck Island and two surface water reservoirs (Tiverton and Fall River) on the mainland. The seven surface water reservoirs on Aquidneck Island are Lawton Valley Reservoir; St. Marys Pond; Sisson Pond; Easton North Pond; Easton South Pond; Paradise or Nelsons Pond; and Gardners Pond.

Each of these reservoirs is supplied water via rainfall and runoff, and is not augmented by groundwater supply wells. The Newport Water Department stated that the safe yield of the reservoir system is approximately 11 to 13 million gallons per day (mgd). (TtNUS, 2001). The Lawton Valley, Sisson Pond, St. Marys Pond, and Easton North Pond surface water reservoirs are in within 3 miles of the northern boundaries of NAVSTA Newport.

Five wellhead protection areas are identified on Aquidneck Island. The wells associated with these areas are located over three miles south southeast of the Site. Smaller private groundwater supply wells are located throughout Aquidneck Island. The wells are used primarily for domestic supply; but small industries and businesses also make use of groundwater. No wells have been identified on NAVSTA Newport except on Gould Island. The average depth of groundwater is 14 feet on Aquidneck Island. Over-pumping of groundwater wells located near the shoreline has resulted in salt water intrusion in some wells. The groundwater is less than 10 feet bgs in most portions of NAVSTA Newport. Groundwater flows east to west across NAVSTA Newport toward Narragansett Bay (TtNUS, 2004).

The Site consists of approximately 8 acres of land that contains two streams (Deerfield Creek and an unnamed stream), associated wetlands and a small pond (NUWC Pond). The upland portions were used as disposal and storage areas since the Navy began developing the area in the early 1950s. Currently, the Site is used for secure storage of equipment (in the storage areas) and chemicals (in the Building 185 Complex area). The remainder of the Site is either unused or used for recreation. A map of the Site is provided as Figure 1-4.

As depicted on Figure 1-4, the Wanumetonomy Golf Course, Inc. borders the Site to the northeast. The Building 185 Complex consists of a series of four secured open-sided, covered sheds, with 1- to 2-foot concrete berms, and is considered the southeastern extent of the Site. The sheds are used for the storage of drummed oils and torpedo propellants. Deerfield Creek and the surrounding wetlands make up the southwestern edge of the disposal and storage areas. The Site extends west-northwest to the small pond NUWC Pond. Cunningham Street, to the west of the pond and Deerfield Creek, forms the western boundary of the Site. The dam at the northern terminus of the pond is the northern Site boundary.

The Site can be physically characterized as an elevated stream embankment area bordering Deerfield Creek to the southwest. The steep valley that is formed by Deerfield Creek is vegetated with shrubs, thickets, and trees. The small unnamed stream flows through the center of the Site into the valley in a westerly direction and discharges into the southeastern corner of NUWC Pond. This stream originates from the Wanumetonomy Golf Course northeast of the Site. Dense shrubs and small trees cover the swale containing the unnamed stream. The pond discharges through a culvert at the north end, which, in

turn, discharges to Narragansett Bay at a point south of McAllister Point Landfill. (Figure 1-3). North of the unnamed stream is a flat, grass covered, plateau-like area: the North Meadow. The North Meadow consists of an open field with invasive woody plants encroaching from the slopes that surround it. East of Deerfield Creek and to the northwest of Building No. 185 Complex is another elevated flat area, the South Meadow. The South Meadow is also largely an open field, with invasive woody plants encroaching from the north and west. There are two paved materials storage areas located adjacent to one another. The western paved section is partially fenced and open to access on the southern edge, near the Building 185 complex. The eastern section is gated to restrict access to the stored materials. The storage areas are used by NUWC personnel for the temporary storage of large equipment such as steel buoys, empty torpedo casings, cable reels, molds, jigs, and other large miscellaneous equipment (Figure 1-4).

Site topography is highly variable, with topographic relief of approximately 35 feet from the northern to the southern portions of the Site. Elevations range from approximately 60 feet NGVD at the southeast corner of the Site to 25 feet NGVD, which was the measured elevation for NUWC Pond water at the northern end of the Site. Topography is generally level in the southern portion of the site (Paved Storage Area and Building 185 Complex), and in the North and South Meadow areas. Topography drops steeply towards Deerfield Creek and NUWC Pond which have formed a steep valley. Between the area west of the Paved Open Storage Area and Deerfield Creek, topography drops 14-feet in a distance of 40 feet (a 19-degree slope angle). Between the North Meadow and NUWC Pond the change of elevation is about 20-feet in a distance of 45-feet (a 24-degree slope angle). The unnamed stream that flows from the Wanumetonomy Golf Course to NUWC Pond also forms a steep valley with topographic relief up to 8-feet in a distance of 20 feet (a 22-degree slope angle).

3.1.2 Soil Types

Natural soil in the area formed in glacial deposits of till and outwash. The glacial till consists of a mixture of unsorted particles ranging in size from large boulders to clay particles, whereas the glacial outwash is stratified deposits of sand, gravel, and cobbles laid down by streams as the glaciers melted. Thin, discontinuous glacial deposits overlie the bedrock in the area. These glacial deposits were derived mainly from shale, sandstone, and conglomerate.

According to the Soil Survey of Rhode Island, two non-hydric soil map units occur at the Site: Pittstown Silt Loam (PmB), and Stissing Silt Loam (Se). The northern and eastern portions of the Site, are mapped as PmB. The remainder of the Site is mapped as Se (Figure 3-1).

PmB consists of moderately well-drained soils found on side slopes of glacial upland hills and drumlins. These soils formed in compact glacial till derived mainly from dark sandstone, conglomerate, and phyllite.

Typically, the surface layer is very dark grayish brown silt loam approximately 8 inches thick. The subsoil is dark yellowish brown and olive brown silt loam, 20 inches thick, mottled in the lower part. The substratum is olive-gray, mottled channery silt loam that extends to a depth of 60 inches or more. Up to 10 percent of this unit consists of other soils (Stissing and Newport). Permeability is moderate in the surface layer and subsoil, and slow in the substratum. Available water capacity is moderate, and runoff is medium. The soil ranges from strongly acidic to medium acidic.

Se consists of poorly-drained soils found on glacial upland hills and drumlins. These soils formed in compact glacial till derived mainly from dark sandstone, conglomerate, and phyllite. Typically, the surface layer is very dark gray silt loam approximately 8 inches thick. The subsoil is dark grayish brown mottled silt loam, 7 inches thick. The substratum is dark gray mottled silt loam that extends to a depth of 60 inches or more. Up to 10 percent of this map unit consists of other soils (Pittstown and Mansfield). Permeability is moderate in the surface layer and subsoil, and slow in the substratum. Available water capacity is moderate, and runoff is slow. The soils acidity ranges from extreme to medium acidity.

3.1.3 Land Use

Currently, the Site is used for storage and recreation. Proposed future land use includes the same use as currently.

3.2 GEOLOGY

Available information on both regional and site-specific geology is discussed in the sections that follow.

3.2.1 Regional Geology

The geology of the region, in general, consists of glacially-derived unconsolidated deposits overlying Pennsylvanian-age sedimentary bedrock (USDA, 1981; Hermes et al, 1994). Wisconsin-age glaciers covered the region with ice several thousand feet thick. During ice advances, sediment and bedrock were eroded and carried beneath the ice sheet. As the glaciers melted and receded, unconsolidated glacial materials of variable thickness were deposited throughout the Narragansett Basin area. These glacial materials included till and sorted sand, silt, and gravel (USDA, 1981; EEI, 1983).

Regional geologic information pertinent to the RI for Site 08 is presented below. This discussion is presented in two subsections: overburden and bedrock geology.

3.2.1.1 Regional Surficial Geology

The glacial ice of the Pleistocene Epoch, starting about two million years back and extending to only 15,000 years ago shaped the topography of Rhode Island, including the Narragansett Bay area. The Narragansett Bay was an old sedimentary basin that had undergone significant stream erosion when the Wisconsin-age ice glaciers advanced into the area. The glaciers scoured off all but the hardest of the ancient rocks, and picked up sand, gravel, and boulders. As a glacier paused in its retreat, it dropped off deposits of these materials, creating thick moraines. The area also contains glacial erratics, carried from as far away as Canada. As the glaciers melted northward, rivers deposited sand and gravel to form broad plains and deltas. Massive chunks of ice lingered behind the retreating glacier, melting slowly, and formed some of the freshwater ponds along Rhode Island's southern shores and at inland places near the present Bay.

The Rhode Island shoreline is now undergoing a slow but steady process of erosion under the carving of the ocean storms and is submerging because of the slow rise in the level of the sea relative to the land.

Till is the most extensive of the glacial deposits in Rhode Island. This glacial deposit is unstratified and widely heterogeneous in grain size distribution, typically comprised of fine (clay/silt/sand) and coarse (pebbles/cobbles/boulders) fractions (USDA, 1981). In southern New England, the late Wisconsinan surface till is predominant. Published reports indicate that the surface till forms a discontinuous mantle over bedrock uplands and beneath stratified drift deposits. In general, the surface till comprises a loose sandy unit containing boulders and cobbles, and lenses of stratified sediments. However, surface tills vary in composition. The physical characteristics of surface till generally reflect local bedrock and older surficial materials from which the deposit was derived (TtNUS, 2001).

Regionally, the Upland till plains, the Narragansett till plains, and the Charlestown and Block Island end moraines are till deposits in Rhode Island. The site is located on the Narragansett till plain. This glacial till deposit may have been derived from a sedimentary and meta-sedimentary rock provenance (USDA 1981).

Stratified drift or outwash, composed of sorted sand, silt, and gravel deposits was laid down by glacial meltwaters as the ice sheet receded. The eroded materials carried by the glacial meltwater were deposited in irregular layers of various thicknesses. Regionally, large deposits of outwash are located in Providence and East Greenwich (USDA, 1981).

3.2.1.2 Regional Bedrock Geology

Narragansett Basin is an ancient north-south trending structural basin originating near Hanover, Massachusetts. This basin is a complex synclinal mass of Pennsylvanian-aged, non-marine sedimentary rocks, and is the most prominent geologic feature in eastern Rhode Island and adjacent Massachusetts. The basin's approximate length is 55 miles; its width varies from 15 to 25 miles. The western margin of the basin is in the western portion of Providence, Rhode Island, and the eastern margin extends through Fall River, Massachusetts. Exposures of older rocks on Conanicut Island and in the vicinity of Newport suggest that the southern extent of the basin may be near the mouth of Narragansett Bay. NAVSTA Newport is situated at the southeastern end of the Narragansett Basin.

The Pennsylvanian aged stratified rocks within Narragansett Basin (the Narragansett Bay Group) chiefly consist of conglomerates, sandstones, shales, and anthracite. Total thickness of the strata in the basin has been estimated at 12,000 feet. Many folds and some faults occur throughout the basin, but the character and amount of the folding and faulting was not evaluated as part of this report. Refer to Hermes et al (1994) for a depiction of the faults mapped in the surrounding area.

The bedrock of the Narragansett Bay Group has been divided into six units, which are, in descending stratigraphic order: the Dighton Conglomerate, the Purgatory Conglomerate, the Rhode Island Formation, the Wamsutta Formation, the Sachuest Arkose, and the Pondville Conglomerate. The Rhode Island Formation immediately underlies the Site. Refer to Hermes et al (1994) for a detailed depiction of the bedrock geology of Rhode Island. Bedrock beneath the Site and most of the surrounding areas consists of the Rhode Island Formation.

The Rhode Island Formation is the most extensive and thickest of the Pennsylvanian formations in Rhode Island. The majority of the Narragansett Basin is underlain by this formation. In northern Rhode Island, the Rhode Island Formation is not metamorphosed and primarily consists of gray to black, fine- to coarse-grained quartz arenite, litharenite, shale, and conglomerate. However, in the southern portion of the Basin, such as in the vicinity of NAVSTA Newport, this unit has been metamorphosed. Metasedimentary rocks, including metaconglomerates and metasandstones, as well as schist, carbonaceous schist, phyllites, and graphite are present within the formation (Hermes et al, 1994).

Within the Rhode Island Formation, there are a few areas of thick, mostly very coarse, conglomerates that are often gray to greenish in color. These conglomerates are composed of gravel, cobbles and boulders, interbedded with sandstone and greywacke. The stones witin the conglomerates are mostly quartzite that have been elongated due to tectonic forces. The conglomerate layers are topographically higher because they are more resistant to erosion than the surrounding bedrock.

Underlying the Pennsylvanian rocks of the Narragansett Basin are pre-Pennsylvanian igneous and metamorphic rocks such as granite, granite gneiss, porphoritic granite, slate and quartzite. These basement rocks are mostly deeply buried beneath the Pennsylvanian rocks.

3.2.2 Site Geology

This section summarizes the overburden and bedrock geology at Site 08. It describes the general nature of the unconsolidated geological units, a description of the bedrock, and identification of potential preferential contaminant pathways in various geological units. The geologic summary is based on data from published maps as well as data generated during the field investigation detailed in Section 2.0 of this report.

Subsurface investigation activities performed at the site during the RI included the drilling and sampling of 76 soil borings, the installation of 29 monitoring wells, and excavation of 13 test pits. Overburden stratigraphy and bedrock characterization was obtained from drilling operations and test pit excavations performed during the RI as the SASE. The locations of the soil borings, monitoring wells, and test pits are shown on Figures 2-2 and 2-5. Using the information from available boring logs, six geologic cross-sections were prepared for the site. Figure 3-2 shows the locations of cross-sections. Two cross-sections, A-A' (Figure 3-3) and B-B' (Figure 3-4) are oriented northwest-southeast through the Site. Three cross-sections, C-C' (Figure 3-5), D-D' (Figure 3-6) and E-E' (Figure 3-7) are oriented generally west-east through the Site. A sixth cross-section, F-F' (Figure 3-8) runs through the Paved Open Storage Area, and is oriented northwest-southeast. The cross-section orientations are presented on each figure. Boring logs and monitoring well construction logs generated during the RI are presented in Appendix B. Test pit logs generated during the RI are presented in Appendix D.

3.2.2.1 Site Overburden Characterization

The overburden materials encountered at the Site during the RI subsurface investigation were divided into three broad unconsolidated units: debris fill; non-debris fill and a sand, silt, and gravel unit. Each of these units is described below.

Surface Geophysical and Test Pitting Investigations

In order to characterize the nature and extent of the debris fill at the Site a surficial geophysical survey and test pitting program was implemented. A metal detection and ground penetrating survey was completed on site to determine the nature and extent of buried metal objects on site. The methodology used is described in Section 2.0. Buried metal objects of particular interest include drums, paint cans,

underground storage tanks and other objects that may be a source of contamination. The Site was divided into six different areas including the North Meadow, South Meadow and area adjacent to Paved Storage Area, Paved Open Storage Area, Paved Gated Storage Area and area southeast Paved Open Storage Area. Results are summarized in this Section.

The North Meadow only had a few areas of very small metal responses (Figure 2-6); it is very unlikely that the responses could have been caused by buried 55 gallon drums or any other storage containers. Some objects were visible on the surface including a monitoring well casing, a piece of metal screen and other pieces of metal trash.

The South Meadow and area adjacent to the Paved Open Storage Area had several scattered weak to moderate metal responses, and some high response areas (Figure 2-6). In general, the responses were located on the eastern-most portion of the South Meadow and throughout the area adjacent to the Paved Open Storage Area. Larger pieces of metal, unless buried more than a few feet deep, would most likely be found in area of high metal response (Figure 2-6). Visible metal objects observed included a chain, metal bedspring, small pieces of sheet metal, and pieces of reinforced concrete, indicating these areas may have been a dumping ground for demolition debris or miscellaneous trash.

In the area southeast of the Paved Open Storage Area several small weak to moderate metal responses were detected (Figure 2-6). Visible material encountered included a 55-gallon drum, and cut non-functioning exposed metal pipes. The responses detected indicate that small pieces of metal are present below the surface; it is very unlikely that a few 55 gallon drums could cause some of the responses in this area.

The Paved Gated Storage Area survey did not yield any buried metal objects or anomalies. The survey of the Paved Open Storage Area yielded four anomalies (Figure 2-6). Anomaly 1 yielded a strong metallic response, approximately 15 to 18 feet across and appears to be several rounded objects, possibly drums, buried from approximately 2 to 6 feet deep. Anomaly 2 produced a moderate metal response and appears to be one or two long narrow object, possibly a non-metallic pipe buried two feet below ground and 15-feet long. Anomaly 3 is a larger area of weak to strong responses located in the northwestern portion of the Paved Open Storage Area. This anomaly appears to be part of a larger area of weak to strong metal responses located in the South Meadow and area adjacent to the Paved Open Storage Area, located directly to the west. Finally anomaly 4 located in the southern portion of the Paved Open Storage Area appears to be a plastic or non-metallic pipe buried 4 feet below the pavement.

In order to investigate anomalies, 13 test pits were excavated at metallic anomalies at the Site. Test pits TP-100 through TP-106 were excavated in the South Meadow. Test pits TP-107 and TP-108 were

excavated between the paved area and Deerfield Creek. Test pits TP-109 through TP-111 were excavated southeast of the paved area. TP-112 was excavated in the North Meadow. These test pit data were used to supplement the test pit information obtained from 16 test pits excavated as part of the SASE.

TP-100 through TP-106 all contained metal debris which included electrical cable, reinforced concrete, sheet metal, metal pipes, etc. Two test pits in the South Meadow (TP-103 and TP-105) contained 55-gallon capacity steel drums. TP-103 contained one corroded 55-gallon capacity drum and a small open-ended rectangular metal tub. TP-103 was excavated in an area of the South Meadow that has the largest EM anomaly (Figure 2-6). TP-105 contained one crushed, corroded 55-gallon capacity drum with a black tar-like residue observed inside. Once the drums were encountered, TP-103 and TP-105 were terminated. Additional 55-gallon capacity drums likely exist within the South Meadow.

TP-107 and TP-108, located west of the Paved Open Storage Area, were excavated in areas of moderate EM anomalies (Figure 2-6). Both contained metal debris including reinforced concrete and metal piping. Containers such as 55-gallon capacity drums were not observed.

TP-109 through TP-111 were advanced southwest of the boundary of the Site, in areas where there were small metal responses using EM (Figure 2-6). Metal-containing debris (such as metal piping) was observed in TP-109 and TP-111 but not in TP-110.

TP-112, advanced in the North Meadow, did not contain debris, with the exception of wire mesh at the ground surface.

Debris Fill

Fill materials dominate the overburden across the southern portions of the Site where past disposal operations filled low-lying areas or grading operations reworked the upper few feet of soil for development purposes, such as the Paved Storage Areas. Fill materials primarily consist of construction debris (asphalt, brick, concrete blocks, slabs and curbing with rebar, corroded 55-gallon drums and 5-gallon containers with tar-like contents, fiberglass, mesh screens, metal cans, pipes and strapping, nails, plastic rubber hoses, steel cables and frames and wire) and/or natural soil or rock (silt, sand, gravel, and weathered bedrock fragments).

Figure 3-8 shows the thickness of the debris fill at the Site using the boring and test pit data. The thickness of debris contouring was produced using the inverse distance weighted method to estimate thicknesses on a grid. Figure 3-9 shows the thickness of overburden interpretation using the boring data.

(The overburden thicknesses map was generated using a least squares estimation algorithm (Kriging) to estimate thicknesses on a grid. Due to the grid superimposed upon the contoured area and estimation processes used, the interpreted thicknesses (Figures 3-8 and 3-9) do not necessarily correlate with the known data points).

Debris was encountered throughout the South Meadow and the area between the Paved Open Storage Area and Deerfield Creek. The debris thickness is the greatest between the Paved Open Storage Area and Deerfield Creek, in the vicinity of MW-103B. There is another pocket of thick debris in the South Meadow in the vicinity of TP-104 and MW-04B. Debris was observed only sporadically in the North Meadow, the Paved Storage Areas, and south of the Site where subsurface exploration occurred.

Fill was encountered in nearly all borings located within the South Meadow and the area west of the Paved Open Storage Area. Depth of fill material is shown on all cross-sections, with the deepest fill observed on cross-section B-B' (Figure 3-4) and D-D' (Figure 3-6). Most of the overburden material in the South Meadow (Figures 3-3, 3-5, and 3-6) and the area west of the Paved Open Storage Area (Figure 3-4) consists of debris fill. The northernmost boring (MW-119B) contained a small amount of debris fill at the ground surface.

Non-Debris Fill

Fill soils were difficult to visually distinguish from native soils. In the absence of debris, some fill soils appear to consist of road base materials beneath asphalt or loose soil. Other non-debris fill consisted of what appears to be reworked native deposits. The non-fill overburden materials within the North Meadow consist of silty gravel, gravelly sand, and silty sand with gravel. North of the North Meadow there is a thin sand layer above the gravelly sand and silty sand that appears to have been placed in order to construct the access road (Figure 3-3).

Non-Fill Overburden Materials

The non-fill overburden materials were characterized as grey to brown sand and silt with various quantities of gravel. Minimal fine-grained deposits (silt and clay) were found during soil sample characterization. The notable exceptions are in the vicinity of the Paved Gated Storage Area, and to a limited extent within and west of the Building 185 Complex (Figure 3-7). Non-fill overburden materials in the North Meadow are more coarse-grained, consisting of silty gravel or gravelly sand. Platy, angular or sub-angular gravel dominates the non-fill overburden materials. Much of this gravel appears to be derived in place from weathering of the local bedrock.

Although regional geology describes glacial till as a dominant geologic unit in Rhode Island, glacial till differentiated from other overburden materials was not identified at the Site. Typically glacial till would be differentiated from the silty sand and gravel unit by its higher density. As defined, glacial till consists of an unstratified mixture of clay, silt, sand, gravel, and boulders. Although this mixture of overburden material is found at the Site, much of the gravel observed at the Site appears to be derived from the local bedrock, indicative of formation in place, rather than deposition by glaciers.

Overburden Thickness and Saturated Thickness

The thickness of overburden is greatest in the western corner of the Paved Storage Area. It is also relatively thick adjacent to the break in slope going down to Deerfield Creek in the South Meadow and in spots between the Paved Open Storage Area and Deerfield Creek. The overburden thicknesses range from 4 to 8 feet over the remainder of the Site southeast of the unnamed stream. The overburden thickness is less, ranging from 0 to 4 feet in the North Meadow and becoming a bit thicker (4 to 8 feet) heading northwest towards MW-119B along the east bank of the NUWC Pond (Figure 3-9).

The saturated thickness of the overburden material at the Site is very limited. As shown on Figure 3-3, the groundwater is not present in the overburden in the North Meadow or north of the North Meadow. Beneath the South Meadow the water table generally coincides with the bedrock/overburden interface (Figures 3-3, 3-4, 3-5 and 3-6). South of the Site (Figure 3-4) and within the Building 185 Complex (Figure 3-7) the water table is close to the bedrock/overburden interface.

3.2.2.2 Site Bedrock Characterization

The type, depth, and characteristics of the bedrock beneath the Site were determined during the RI based on observations made during drilling and the results of bedrock borehole geophysical surveys and hydraulic conductivity testing. The conclusions of these investigations are described below, beginning with discussions of the type of rock present, the bedrock depth, and bedrock surface topography, and continuing with descriptions of the fracture characteristics and quality of the bedrock and fracture flow within the bedrock.

Rock Type and Description

Bedrock was confirmed during the RI and previous investigations at the Site. Bedrock borings were installed using a combination of air rotary drilling techniques and coring during the RI. The bedrock beneath the Site as encountered during the RI drilling and rock coring activities consists of metamorphosed sedimentary rock, predominantly phyllite. The hardness and the degree of foliation of

the rock varied with location, and the color of the rock varied from light to dark gray. A metaconglomerate was encountered in a few discrete depths in several core holes. Metaconglomerate was encountered in MW106B and MW107B, located in the southeastern corner of the Paved Gated Storage Area, and in MW104B, located in the western corner of the South Meadow. In MW104B it was observed from 35 to 36 feet in depth. In MW106B it was observed from 41 to 42 feet and 45 to 47.5 feet in depth. In MW107B the metaconglomerate was observed from 17.3 and 17.6 and from 20.5 to 27.5 feet in depth. Metaconglomerate and schist along with phyllite were observed in MW126B, located at the southern edge of the Site. Quartzite and phyllite were encountered in MW119B, located in the northern edge of the Site. The remainder of the bedrock observed was phyllite. These rock types are consistent with those described for the Rhode Island Formation (Hermes, 1994).

Due to the softness of the phyllite bedrock, the transition from weathered rock to competent rock was gradual and not clearly defined in all boreholes. The brokenness of the rock was a reflection of its softness and fissile nature.

The upper portion of the bedrock is significantly weathered and degraded and contains evidence of groundwater flow through the fractures. Bedrock in the North Meadow is significantly degraded so that it was often not possible to perform coring. Borings for MW114B, MW117B and MW-03B in the North Meadow, MW112B, just south of the unnamed stream, and MW119B north of NUWC Pond were initially advanced using coring techniques. These five borings had to be finished using air hammer drilling techniques due to the highly degraded nature of the rock. At DPT location SB135 in the North Meadow (adjacent to MW-03B) the bedrock was so degraded and soft that the DPT drilling rig penetrated significant depths (from about two to 20 feet bgs) into the bedrock.

Bedrock was confirmed and observed at all 24 conventional drilling locations (MW100B through MW120B and MW124B through MW126B), either by air rotary drilling or coring for the characterization of bedrock and the installation of open-hole bedrock wells. Depth to bedrock over most of the Site ranges from approximately 2 to 19.5 feet bgs. In the bottom of the bedrock valley (the Deerfield Creek valley), at locations SB149 (MW123) and SB148 (MW122) the depth to bedrock is one half foot. Refusal with the DPT drilling rig was typically taken as refusal on bedrock. The depth to bedrock at well and boring locations is presented in Table 2-6.

Bedrock fracture zones, in particular water bearing fractures, were identified during coring. The rock quality designation (RQD) obtained during coring and observations of possible water bearing fractures and the degree of weathering in the cores is described below:

- The core hole for MW104B (South Meadow) indicates weathered, soft phyllite from 17 feet bgs to

the bottom of the boring at 42 feet bgs, with one a one- foot run of conglomerate from 35 to 36 feet bgs. The rock quality designation (RQD) of the cores within this core hole was 0 percent from the top of bedrock to 32 feet bgs, increased to 23 percent from 32 to 37 feet bgs, and increased to 48 percent from 37 to 42 feet bgs. The fractures observed in this core hole contained iron staining, indicating water bearing fractures from the top of the initial core to 37 feet bgs.

- The core hole for MW106B (Paved Gated Storage Area) indicated weathered phyllite from 14 to 17 feet bgs where competent phyllite was encountered. A zone of conglomerate was observed from 41 to 42 feet bgs and from 45 to 47.5 feet bgs. The remainder of the cored rock was phyllite. The RQD varied within the core runs between 0 percent, (between 25 and 30 feet bgs and again between 30 and 35 feet bgs) and 53 percent between 40 and 45 feet bgs. A direct correlation between RQD and depth was not observed. Heavily weathered phyllite with indication of water was noted at 31 to 35 feet bgs 36 feet bgs, and 38.5 feet bgs.

- The core hole for MW107B (Paved Gated Storage Area) indicated weathered phyllite from 9.5 to 15 feet bgs with a medium grained phyllite beneath the weathered phyllite. Conglomerate was encountered in a portion of this core hole. The RQD in this location ranged from 0 percent (from 20 to 27.5 feet bgs) to 60 percent (34.5 to 39.5 feet bgs). Iron staining of fractures in this core hole were noted at 15 feet, 18 feet, 21.5 to 24 feet and 31 feet bgs. Below 31 feet indications of water bearing fractures were not observed.

- The core hole for MW108B (Paved Gated Storage Area) indicated phyllite with zones of weathered phyllite from 27 to 33 feet, 35 feet and 37 feet bgs. The RQD in this location ranged from 0 percent (from 16 to 20 and 25.5 to 29.7 feet bgs) to 65 percent (35 to 40 feet bgs). A direct correlation between RQD and depth was not observed. Iron staining of fracture surfaces, indicating the presence of water, were noted in zones from 16 to 26 feet, and 32 to 45 feet bgs.

- The core hole for MW109B (Paved Gated Storage Area) indicated phyllite with a zone of weathered phyllite from 21.5 to 22.35 feet bgs and a metamorphosed phyllite from 42.0 to 45 feet bgs. The RQD in this location ranged from 7 percent (from 16.0 to 21.0 and 21.0 to 25.4 feet bgs) to 84 percent (35.0 to 40.0 feet bgs), in general RQD increased with depth. Iron staining of fractures which indicate the presence of water in this core hole were noted at 16, 19, 23.5 to 24, 25 to 26.75, 31 to 32, 39, 40, 40.2, 41.5 and 43.0 feet bgs.

- The core hole for MW110B (South Meadow) indicated weathered phyllite from 16 to 38 and 41.75 to 49 feet bgs. A zone of metasandstone was observed from 38 to 41.75 feet bgs. The RQD

varied within the core runs between 0 percent, (between 19 and 21 feet bgs and again between 21 and 26 feet bgs) and 100 percent between 36 and 41 feet bgs. A direct correlation between RQD and depth was not observed. Iron staining of fractures in this core hole were noted at 19 to 21, 37 to 43, and 36 to 49 feet bgs, and are considered water bearing fractures.

- The core hole for MW111B (South Meadow) indicated weathered phyllite from 11.3 to 23 feet bgs, with less weathered phyllite below the weathered phyllite. The RQD was 0 percent in six out of seven runs (between 15 and 18 feet bgs, 18 and 23 feet bgs, 23 to 28 feet bgs, 28 to 33 feet bgs, 33 to 38 feet bgs and between 43 and 43 feet bgs) the remaining run from 38 to 43 feet bgs had an RQD of 60 percent. A direct correlation between RQD and depth was not observed. Iron staining of fractures are an indication of water bearing fractures and were noted at 15 to 38, 40 and 43 feet bgs.

- The core hole for MW113B (South Meadow) indicated weathered phyllite for the entire length of the rock core (from 10.5 to 46 feet bgs). The RQD varied within the core runs between 0 percent, (between 14 and 16 feet bgs, 16 and 21 feet bgs, 21 to 24.5 feet bgs, 24.5 to 26 feet bgs, 26 to 31 feet bgs) and 22 percent between 36 and 41 feet bgs. A direct correlation between RQD and depth was not observed. Water bearing, iron stained fractures in this core hole were noted at 14 to 36, and 44.5 to 45 feet bgs.

- The core hole for MW114B (North Meadow) indicated weathered phyllite from 2.75 to 22 feet bgs with more competent phyllite beneath the weathered phyllite. Coring was stopped at 39 feet bgs due to excessive water loss during the coring. The RQD was 0 percent in four out of five runs (from 10 to 15 feet bgs, 15 to 20 feet bgs, 20 to 25 feet bgs, 30 to 35 feet bgs and 35 to 40 feet bgs) and 8 percent from 25 to 30 feet bgs. A direct correlation between RQD and depth was not observed. Iron staining of fractures in this core hole were noted at 10 to 10.5 feet, 14.3 to 14.6 feet, 15 to 17 feet, 18.9 to 20, 25 to 26, 28.5, 29, 29.1, 29.8 and 38.1 to 38.4 feet bgs, which is an indication of water bearing fractures.

- The core hole for MW115B (North Meadow) indicated weathered phyllite from 2 to 17 feet bgs with highly fractured and weathered phyllite from 17 to 43 feet bgs and more competent phyllite from 43 to 48 feet bgs. The RQD was 0 percent in six out of nine runs (from 10 to 15 feet bgs, 15 to 17 feet bgs, 17 to 22 feet bgs, 22 to 27 feet bgs, 40 to 43 and 43 to 48 feet bgs) with no recovery in the remaining three runs (27 to 32 feet bgs, 32 to 37 feet bgs and 37 to 40 feet bgs). A direct correlation between RQD and depth was not observed. Iron staining of fractures in this core hole indicating the presence of water were noted at 10.4 to 16.3 feet, 16.3 to 16.7 feet, 17 to 17.9 feet, 43.1, 43.7 and 45.5 feet bgs.

- The core hole for MW116B (North Meadow) indicated extremely weathered phyllite from 5.25 to 10 feet bgs with weathered and fractured phyllite from 10 to 37.5 feet bgs and competent phyllite form 37.5 to 40 feet bgs. The RQD varied within the core runs between 0 percent, (between 14 and 12 feet bgs, 12 and 17 feet bgs, 22 to 27 feet bgs) and 43 percent between 37 and 40 feet bgs. A direct correlation between RQD and depth was not observed. No rock was recovered form 32 to 37 feet bgs. Iron staining of water bearing fractures in this core hole were noted at 10 to 12 feet, 12 to 13.4 feet, 14.2 to 14.3 feet, 14.9 feet, 15.7 feet, 15.9 feet, and 17 to 17.5 feet bgs.

- The core hole for MW119B (North of Concrete Dam) indicated extremely weathered phyllite from 10 to 15 feet bgs with highly weathered and fractured phyllite and quartzite from 15 to 25 feet bgs. The RQD was 53 percent from 15 to 20 feet bgs and 45 percent from 20 to 25 feet bgs. Coring was stopped at 25 feet bgs due to water loss and drilling continued via air hammer. Iron staining of fractures or water bearing fractures in this core hole were noted at approximately 17 feet, 21.25 feet, 21.7 feet and 22 feet bgs.

- The core hole for MW124B (Building 185 Complex) indicated fractured phyllite from 2.75 to 8.5 feet bgs with highly extremely weathered and fractured phyllite from 8.5 to 16.75 feet bgs, weathered and fractured phyllite from 16.75 to 42.7 and competent phyllite from 42.7 to 48.75 feet bgs. The RQD varied within the core runs between 0 percent, (between 8.5 and 11 feet bgs, and 11 to 11.75 feet bgs) and 76 percent between 41.75 and 46.75 feet bgs. A direct correlation between RQD and depth was not observed. Iron staining of fractures in this core hole were noted at approximately 8.5 to 9.5 feet, 17.7 feet, 23.4 feet, 25.2 to 25.4 feet, 27 feet, 28 feet, 34 feet, 34.7 feet, 37.1 feet 41.2 to 41.6 feet and 45.8 to 45.9 feet bgs. Heavy iron staining of fractures was observed at 21.5 feet and 41.8 to 42.7 feet bgs. These fractures are considered water bearing due to the presence of iron staining.

- The core hole for MW125B (Building 185 Complex) indicated extremely weathered and fractured phyllite from 4 to 11.5 feet bgs with weathered and fractured phyllite from 11.5 to 13.9 feet bgs, and competent phyllite from 13.9 to 50.5 feet bgs. The RQD varied within the core runs between 0 percent, (between 10.5 and 11.5 feet bgs) and 100 percent (between 31.5 to 36.5 feet bgs, 41.5 to 46.5 feet bgs, and 46.5 to 50.5 feet bgs). A direct correlation between RQD and depth was not observed. Iron staining of fractures which indicates the presence of water in this core hole were noted at approximately 10.5 to 11.5 feet, 11.5 to 11.9 feet, 13.3 to 13.9 feet, 18.5 feet, 19.5 feet, 27.2 feet, 27.4 feet, 33.7 feet, 34.9 to 37.2 feet, 37.5 to 37.7 feet, 40 feet, 40.5 to 41 feet, 41.2 feet, 42.5 feet and 42.7 feet bgs.

- The core hole for MW126B (Paved Gated Storage Area) indicated extremely weathered and phyllite from 4 to 22 feet bgs with weathered metaconglomerate from 22 to 25.5 and 36 to 46 feet bgs, phyllite or schist was observed from 26 to 31 feet bgs and 46 to 60 feet bgs. The RQD varied within the core runs between 0 percent, (between 20 and 21 feet bgs) and 100 percent (between 26 to 31 feet bgs, 36 to 41 feet bgs, and 56 to 60 feet bgs). A direct correlation between RQD and depth was not observed. Iron staining of fractures in this core hole were noted at approximately 22.25 feet, 22.7 feet, 22.9 feet, 23.2 feet, 23.5 feet, 24 feet, 24.3 feet, 24.7 feet, 36.7 feet, and 53.5 to 54 feet bgs, which is an indication of water bearing fractures.

Overall the RQD of the bedrock beneath the Site varied from 0 to 100 percent. One area of the Site had overall lower RQDs and lower core recovery percentages. This area spans from the northern end of the South Meadow (MW112B) through the middle of the North Meadow (MW-117B). The wells within this area (MW112B, MW114B, MW115B, MW117B and MW-03B) had RQDs that ranged from 0 to 10 percent. During advancement of all of these five wells, air hammer drilling had to be substituted form coring due to significant water loss and inability to retrieve core. Both MW115B and MW-03B had RQDs of 0 percent in all of the core runs. There was no rock recovered during the drilling of the borehole for MW-03B. One additional borehole (MW119B north of NUWC Pond) was initiated through coring and due to water loss was quickly continued via air hammer drilling. When the tools were removed from this borehole to switch drilling techniques, the borehole collapsed to 5 feet bgs. It appears that there is a long linear zone of water bearing fractures and highly degraded bedrock that extends from MW112B in the South Meadow, through the North Meadow and northeasterly at least to MW119B.

Once bedrock boreholes were advanced, borehole geophysics was performed. Borehole geophysics allowed refinement of the conceptual model regarding bedrock fracture flow that was based upon the previous SASE investigation. Borehole geophysical data were further used to select the most transmissive zones in select boreholes for placement of packers for discrete interval sampling and hydraulic conductivity measurements.

Borehole Geophysical Logging Results

In order to characterize the nature of fracture flow beneath the Site, geophysical logging in eight boreholes (MW-100B, -101B, -102B, -114B, -115B, -124B, -125B and -126B) was performed. Caliper logging, fluid temperature, fluid resistivity, acoustical televiewer (ATV), optical televiewer (OTV) and flowmeter measurements were collected from each borehole. Caliper logging was used to measure the borehole diameter. Fractures can be identified on the caliper log as abrupt widenings (breakouts) of the borehole; however, the widenings can sometimes be attributed to changes in borehole diameter due to well installation. Fluid temperature and resistivity was measured to help determine transmissive fractures

in the bedrock. Areas where water is entering or leaving the borehole may be identified as an abrupt temperature or resistivity changes relative to water that is already in the borehole. The ATV and OTV logging is used to measure fractures, bedding surfaces, joints along with the strike, dip direction and angle can also be determined. Flowmeter logging measures the vertical water flow within the borehole. Vertical flow occurs when there is a hydraulic gradient within the borehole. Flowmeter logging was performed under ambient and pumping (very low discharge) conditions. Changes in flowmeter logging as the probe is advanced through the borehole can indicate water bearing fractures in the borehole.

Results of the borehole geophysical logging are provided below. Fractures are characterized as likely or possible water bearing fractures. In addition planar features (possible fracture, joint, foliation, bedding, etc.) are also identified. The depths of these fractures and a general description of planar features are discussed below.

- A total of eighteen planar features were identified in MW-100B during borehole geophysics. Six of the features were characterized as possible water bearing features. The majority of these features strike northerly, while the secondary strike direction is westerly. The median dip of all of the features and a subset of the possible water bearing features is 52° to the west. A possible water bearing fracture identified on the caliper and HPFM logs was identified at 20 feet below ground (bgs). Two additional possible water bearing fractures were identified on the HPFM log at 23, and 35-36 feet bgs. The ATV and OTV logs describe possible water bearing fractures at depths of 20.2, 22.9, 23.3, 34.7, 35.2 and 36.0 feet bgs.

- Twenty-five planar features were identified in MW-101B during the borehole geophysics. Four of the features were characterized as possible water bearing features. In general the features strike to the north-northwesterly and have a median dip of 34° to the west-southwest. The four possible water bearing features strike between 313° and 5° true north, and dip from 10 to 43 degrees. A possible fracture identified on the caliper and flowmeter logs was identified at 41.4 and another possible fracture was identified on the flowmeter log at a depth of below 40 feet bgs, where a slight up flow was detected. The ATV and OTV logs depict possible water bearing fractures at depths of 38.1, 44.3, 46.6 and 47.2 feet bgs.

- Thirty-two planar features were identified in MW-102B using borehole geophysics. Four of the features were characterized as possible water bearing features; one feature was described as likely water bearing fracture. In general these features strike to the north-northwest and have a median dip of 43° to the east or west. There are also a smaller

number of fractures that strike east-northeast and dip to the south-southeast. A possible fracture identified on the caliper log was described at 17, 23.3 and 29.2 feet bgs. Flowmeter analysis indicated possible fractures at 17.1 and 29.4 feet bgs. The OTV and ATV log analysis confirmed the presence of three possible water bearing fractures at 17.1 feet bgs, and the presence of a likely water bearing fracture previously identified at 29.4 feet bgs. In addition, ATV and OTV analysis identified two additional possible water bearing fractures at 26.1 and 30.4 feet bgs.

- Seventy-three planar features were identified in MW-114B using borehole geophysics. Eleven features were characterized as possible water bearing features and four features was described as likely water bearing fractures. In general these features strike to the north and have a median dip of 22° to the east or west. There are also a smaller number of fractures that strike east-northeast and dip to the south-southeast; however there are some steeply dipping transmissive fractures. The caliper log shows that the borehole walls are quite rough and several possible fractures are possible. The temperature log shows temperature deflections at 25, 32, 50 and 56-57 feet bgs, which could represent possible fractures. The fluid resistivity log indicates changes in fluid resistivity at 25 feet and 32 feet bgs, which may be indicative of fractures. Under ambient conditions the flowmeter analysis indicated a slight downward groundwater flow (0.02 gallons per minute (gpm)) at 22 feet bgs. At 26 feet bgs downward groundwater flow increased dramatically to 0.74 gpm. Ambient downward groundwater flow continued to increase with depth in the borehole to a maximum rate of 0.97 gpm at 33 feet bgs. Below 33 feet down flow measurement decreased until 59 feet bgs where no measurable flow was detected. Under pumping conditions measurable upward groundwater flow of 0.05 gpm was detected at 53.5 feet bgs, increasing upward in the borehole until 25.5 feet bgs where the maximum up flow was detected at 1.06 gpm. Based on flowmeter results, under ambient conditions, water is entering through shallow fractures above 34 feet bgs and moving downwards in the borehole exiting through fractures located greater than 34 feet bgs. The OTV and ATV log analysis confirmed the presence of four likely water bearing fractures at 24.9, 26.9, 36.6 and 56.3 feet bgs, and the presence of possible water bearing fractures at 14.2, 15.3, 15.8, 21.9, 22.4, 30.9, 34.8, 45.6, 49.4, 50.0 and 54.5 feet bgs.

- Twenty-eight planar features were identified in MW-115B using borehole geophysical techniques. Seven of the features were characterized as likely water bearing features. Possible fractures were identified on the caliper and flowmeter logs located at 21 and 29.5 feet bgs. The temperature log shows an increase in temperature at 29 feet bgs

which is indicative of a possible fracture. Possible water bearing fractures were identified by the ATV and OTV logs at depths of 19.4, 21.1, 21.5, 29.1, 29.4, 29.6 and 29.7 feet bgs. In general, these features strike to the north or northeast and have a median dip of 19° to the east or south-east. However in the transmissive zones, there are more steeply dipping fractures such as 21.1 feet bgs which strikes 15° and dips 68° west-northwest and at 29.7 feet bgs which strikes 315° and dips 53° southwest.

- Twenty-two planar features were identified in MW-124B using borehole geophysics. Three features were characterized as likely water bearing features. In general, these features strike to the north and have a median dip of 40° to the west. Possible fractures were identified on the caliper and flowmeter logs at 11.2 and 10.3 feet bgs respectively. Two additional possible fractures were identified at 11.0 and 46.5 feet bgs were identified on the flowmeter log. Likely water bearing fractures were identified at 10.3, 11.0 and 46.5 feet bgs based upon interpretation of the ATV and OTV logs.

- Twenty-nine planar features were identified in MW-125B using borehole geophysics. Two of the features were characterized as possible water bearing features and three features were described as likely water bearing fractures. In general these features strike to the north and have a median dip of 40° to the east. Possible fractures were identified on the caliper log at 13.4 and 34.5 feet bgs. Flowmeter analysis confirmed the possible fractures at 34.5 feet bgs and identified a possible fracture 13 feet bgs. The temperature log indicated a subtle temperature deflection at 35 feet bgs, while the fluid resistivity log revealed slight changes in resistivity at 12.5 and 34.5 feet bgs, indicative of possible fractures. The OTV and ATV log analysis identified likely water bearing fractures at 13.0, 34.4 and 41.7 feet bgs. Possible water bearing fractures were identified at 28.7 and 35.1 feet bgs.

- Forty-two planar features were identified in MW-126B using borehole geophysics. Five features were characterized as possible water bearing features and three features were described as likely water bearing fractures. In general these features strike to the north and have a median dip of 40° to the west. Possible fractures were identified on the caliper log at 34 feet bgs and from 42 to 46 feet bgs feet bgs. The results of flowmeter, fluid resistivity and temperature logs indicate three possible fractures at 13, 34.4 and 41.7 feet bgs respectively. The OTV and ATV log analysis identified likely water bearing fractures at 33.1, 35.6 and 53.7 feet bgs. Possible water bearing fractures were identified at 22.2, 42.5, 42.7 feet bgs with two possible water bearing fractures at 43.7 feet bgs.

3.3 HYDROGEOLOGY AND GROUNDWATER CLASSIFICATION

Available information on regional and site hydrogeology and site groundwater classification is discussed below.

3.3.1 Regional Hydrogeology

A summary of regional groundwater hydrogeology is presented below. Much of the regional information described in the IAS report (EEI, 1983) was obtained from the Groundwater Map of the Prudence Island and Newport Quadrangles, Rhode Island (1964). Information from both references was used in the following description of the regional groundwater hydrogeology.

Many areas on Aquidneck Island, on which most of NAVSTA Newport is located, obtain their water supply from wells. Areas relying on groundwater are mostly on the east side of Middletown, but there are wells throughout Aquidneck Island. Most groundwater wells are used for domestic needs, although small industries and businesses use some wells. Production wells were installed at Gould Island, but were not found to provide enough water for industrial processes, and a fresh water supply was extended from Newport.

Groundwater on Aquidneck Island is obtained from the unconsolidated glacial deposits of till and outwash and from the underlying Pennsylvanian bedrock. Throughout the area, groundwater depths range from less than one foot to about 30 feet, depending upon the topographic location, time of year, and character of subsurface deposits. The average depth to the groundwater is around 14 feet on Aquidneck Island and moves from areas of high elevations to discharge to Narragansett Bay or the Sakonnet River.

Seasonal groundwater level fluctuations are common in the area. During the early spring the water table rises due to recharge from snowmelt and rainfall. In late spring and summer, the water table usually declines because rainfall either evaporates or is used by plants before it can reach the water table. During autumn the water table generally rises.

The unconsolidated glacial deposits range in thickness from less than 1 foot near rock exposures to about 50 feet at Aquidneck Island. The glacial deposits consist mostly of till and outwash.

The yield of wells completed in the unconsolidated deposits varies, depending upon the type and thickness of the water-bearing deposits penetrated. Till can only yield small supplies; yields from outwash are usually much greater. Yields range from less than one to as much as 120 gallons per minute, as reported from a public supply well on Prudence Island. The upper limits of the referenced well

yield are most likely for a well completed in outwash, not till. Under normal weather conditions, till wells yield a few hundred gallons of water per day and are adequate for domestic supplies. However, these wells are subject to going dry during seasonal or unusually severe droughts.

Bedrock wells in the Newport area range in depth from 14 to 1,300 feet, with an average depth of 135 feet. Yields from bedrock wells range from less than 1 to as much as 55 gallons per minute. Most bedrock wells yield less than 10 gallons per minute. The yields in the bedrock wells vary considerably over short distances because the joints and fractures that transmit water to the wells occur randomly. Joints and fractures are most numerous and widest near the top of the bedrock and become fewer and narrower with depth. Bedrock wells seldom go dry, but yields can be extremely low if not enough fractures and joints occur in the area of the well.

Chemical characteristics of the groundwater are similar throughout the area, and the water is generally satisfactory for most ordinary uses. Most groundwater in the area is soft or only moderately hard, with groundwater from till generally containing less mineral matter and being softer than groundwater from bedrock. Wells yielding water with high iron content occur throughout the area, being most numerous around Newport and Middletown and the northern part of Portsmouth.

In scattered locations near the shoreline, over-pumping has led to salt water intrusion in some wells. Bedrock wells are not as easily contaminated with salt water as wells completed in unconsolidated deposits, but the chance of contamination increases as the depth of the well below sea level increases.

The groundwater at NAVSTA Newport is very shallow, being less than 10 feet bgs in most areas. Therefore potential contaminants that may be released at the ground surface have a relatively short distance to travel before reaching the shallow groundwater table. Those pollutants that do migrate into the groundwater will migrate with groundwater flow and discharge into Narragansett Bay. Coastal sites such as exist at NAVSTA Newport are quite close to the shoreline, and the groundwater only has to migrate a short distance before discharging into Narragansett Bay.

The soils occurring at most of NAVSTA Newport have a permeability that is moderate to moderately rapid, and do not restrict the vertical movement of water. The glacial till, from which these soils were derived, is generally less permeable than the overlying soils and although it will restrict groundwater movement, it may not represent a complete barrier to the vertical migration of water. However, it is presumed that groundwater will follow a path of least resistance and this pathway in this case would be directly through less dense material to the Bay waters. There are also isolated areas where the bedrock occurs at the surface. Contamination is possible in these areas through the joints and fractures that commonly occur in the bedrock.

Information obtained from the NAVSTA Newport Installation Restoration Program indicates that the depth to groundwater ranged from approximately 4 to 28 feet bgs at NAVSTA Newport sites investigated prior to 1994. Slug tests conducted on monitoring wells at these sites indicated that the hydraulic conductivity of the till unit encountered above the bedrock ranged from 0.22 to 0.44 feet per day and the upper bedrock hydraulic conductivity ranged from 0.029 to 0.21 feet per day. Bedrock test data produced hydraulic conductivity values higher than those normally attributed to shale (3.28×10^{-4} to 3.28×10^{-8} feet per day (Driscoll 1987). Hydraulic conductivity results obtained from data collected during the RI are presented in Section 3.3.2.5.

3.3.2 Site Hydrogeology

Throughout the Site bedrock is shallow, and throughout much of the Site the water table is shallow, generally occurring at or near the bedrock/overburden interface or within bedrock. Beneath the Building 185 Complex, the Paved Storage Areas, and the South Meadow, the water table generally occurs at the bedrock/overburden interface. Further north, beneath the North Meadow and north of the North Meadow the water table is 15 or 20 feet into the bedrock. Across much of the Site, (Figure 3-8) a layer of debris fill exists. Non-debris fill and native overburden material is present in very limited quantities where the debris fill is present. The non-debris fill and the native overburden material consists of silty sand and gravel. The nature of the overburden material is such that it would not impede infiltration of water and/or a release of contaminants. The exception is in the eastern corner of the Paved Gated Storage Area where a silt layer overlies the bedrock.

This section summarizes the hydrogeologic information obtained during the RI and the SASE performed at the Site. This information includes groundwater flow directions, hydraulic gradients, hydraulic conductivities and estimated seepage velocities.

3.3.2.1 Groundwater Level Contour Evaluation

Two rounds of groundwater level measurements were conducted, one on May 13, 2008 and one on September 18, 2008. Table 3-1 presents the depth to groundwater measurements collected and the associated groundwater elevations (in feet, NGVD). These measurements were used to develop manually-prepared contour maps of potentiometric surface elevations (Figures 3-10 and 3-11), which provide an indication of groundwater flow patterns. Water table contour maps were not created for overburden because the overburden/bedrock interface wells typically have water levels similar to the adjacent bedrock well.

Surface water on the Site includes Deerfield Creek, the unnamed stream and NUWC Pond. Groundwater on the Site flows in the direction of NUWC Pond and Deerfield Creek. The highest groundwater elevation is located in the southeast corner of the Site at the general location of the MW106S/B well cluster, from which groundwater flows in a generally west-northwesterly direction, beneath the Paved Storage Areas and the South Meadow toward Deerfield Creek.

In the North Meadow, groundwater is at its highest elevation in the east (MW116B and MW115B) and flows in a west-northwesterly and a west-southwesterly direction towards NUWC Pond and the wetland area south of NUWC Pond. The unnamed stream between the North and South Meadows does not appear to have a significant influence on groundwater flow direction beneath the Site, and was observed to be an intermittent stream that was often not flowing.

Further north, the potentiometric surface at the northern end of NUWC Pond was not contoured due to the presence of few wells in this area, but is expected to flow in a pattern that generally follows the ground surface topography, as is the case at the remainder of the Site described above. In the vicinity of NUWC Pond, ground surface topography drops steeply toward the pond; further east and north of NUWC Pond, ground topography slopes more to the northwest, towards the East Passage of Narragansett Bay.

The potentiometric surface contours depicted in the area to the south of the Building 185 Complex are also supported by previous groundwater elevation data presented in the Building 179 CUST RI Report (TRC, 1999) and by the ground surface topography in this area, which flattens significantly along Deerfield Creek and the adjoining wetland, resulting in a lower flow gradient in this area compared to the area to the north. In this area south of the Building 185 Complex, groundwater flow also generally follows the ground surface topography and by and large flows toward Deerfield Creek. In the more southern area, near Building 179, the Deerfield Creek streambed is generally oriented north-south (with stream flow to the north) but takes a significant bend to the west-northwest in the vicinity of MW9A/B, MW12, and MW13A/B. This change in Deerfield Creek orientation south of the Building 185 Complex impacts groundwater flow directions: in the area west of Deerfield Creek, as the creek turns toward the west, the groundwater flow direction has a more northerly flow component; to the east of Deerfield Creek, as the creek turns toward the west, the groundwater flow direction has somewhat more of a southwesterly flow component, particularly in the area of the Building 185 Complex, and as presented in Figures 3-10 and 3-11.

3.3.2.2 Horizontal Hydraulic Gradients in Groundwater

Horizontal hydraulic gradients in the inferred direction of groundwater flow across the Site were calculated for the overburden/ shallow bedrock interface and bedrock groundwater. The horizontal hydraulic

gradient is the change in groundwater elevation divided by the distance between the measurement points. The horizontal gradient calculations are presented on Table 3-2.

The horizontal gradient in the overburden/ shallow bedrock interface beneath the Paved Storage areas was calculated between wells MW106S and MW103S. The horizontal hydraulic gradient was 0.046 ft/ft.

The horizontal hydraulic gradient in the bedrock was calculated for the North Meadow (between wells MW116B and MW117B; MW115B and MW114B). The horizontal hydraulic gradients beneath the North Meadow ranged between 0.22 and 0.30 ft/ft.

The horizontal hydraulic gradient for the Paved Storage Areas and South Meadow bedrock was calculated between MW109B and MW104B; MW106B and MW102B; and MW106B and MW103B. The horizontal hydraulic gradient beneath the Paved Storage Areas and the South Meadow ranged between 0.047 and 0.063 ft/ft.

The groundwater elevation drops more steeply going from the South Meadow into the wetland as measured between MW110B and MW112. The horizontal hydraulic gradient between these wells ranged from 0.077 and 0.080 ft/ft.

This evaluation indicates that the horizontal hydraulic gradients beneath the Site varies between the areas of the Site. The hydraulic gradient within the North Meadow is controlled by the steep topography dropping into NUWC Pond. The hydraulic gradients increase as the topographic gradient increases. The differences between hydraulic gradients measured in May 2009 versus those measured in September 2009 are negligible.

3.3.2.3 Vertical Hydraulic Gradients in Groundwater

Vertical hydraulic gradients were calculated at monitoring well couplets located at the Site and south of the Site to evaluate vertical flow conditions (Table 3-3).

The vertical component of groundwater flow between the overburden/ shallow bedrock and the bedrock is upward at MW106S/ MW106B, located at the eastern corner of the Paved Storage Area. The hydraulic gradient at his location was 0.068 ft/ft upward. The vertical component of groundwater flow is downward elsewhere on the Site and south of the Site.

The downward component of groundwater flow is more pronounced (higher vertical gradients) south of the Site at well pairs MW09A/ MW09B (downward gradient of 0.250 ft/ft) and MW13A / MW13B

(downward gradient of 0.081) then it is at the Site at well pairs MW103S/ MW103B (downward gradient of 0.0022 ft/ft), and MW112S/ MW112B (downward gradient of 0.00056 ft/ft).

Although the center of the well screens are only separated by 3 feet in elevation, the vertical component of groundwater flow within the bedrock was estimated at South Meadow well pair MW04B/ MW105B. The vertical hydraulic gradient within bedrock at this location was 0.154 ft/ft downward.

With the exception of the eastern corner of the Paved Storage Area, the vertical hydraulic gradients at the Site and south of the Site are downward. This suggests that there are not hydraulic impediments of the flow of groundwater between the uppermost fractured/weathered bedrock zone and the bedrock aquifer.

3.3.2.4 Aquifer Hydraulic Conductivity

In order to characterize the nature of groundwater flow beneath the Site, K of the overburden/shallow bedrock interface and the bedrock were estimated during the RI. In addition, K values from the SASE are used. K values are necessary for use in groundwater flow rate calculations and to estimate dissolved-phase contaminant migration rates in the overburden and bedrock. Variable head slug tests were conducted as a part of the RI investigation and the K was determined by analyzing slug test data. In addition, packer tests were performed in an attempt to determine the K of discrete intervals within the bedrock.

Slug Testing Results

In June/July 2008, during the RI, slug tests were performed in 22 newly-installed monitoring wells (MW101B, MW102B, MW103B, MW103S, MW104B, MW105B, MW106B, MW106S, MW107B, MW109B, MW110B, MW111B, MW112B, MW112S, MW113B, MW114B, MW115B, MW116B, MW117B, MW118B, MW119B and MW120B) located at the Site and in one existing monitoring well south of the Site (MW9B).

Slug tests from MW105B, MW112S, MW112B, MW03B, and MW117B through MW119B were not used because the water level response was insufficient. The slug test data results from MW112S were not useable due to water level stabilization problems. The slug test data from MW113B were not useable due to a lack of early water level data.

The slug tests involved timing the recovery of the water level to static conditions after removal or introduction of a slug of known volume in a well. As described in Section 2.0, the water level recoveries versus time data were used to calculate an estimate of K in the vicinity of the well screen. All K estimates are limited by the well construction, length of the screened intervals, and the test methods used.

Estimates were made through mathematical models that make various assumptions. One such assumption is that the change in water level in the well is instantaneous, which is not feasible with a large well screen length. Due to the assumptions required by the method used, the resulting K values are considered estimates.

Two types of variable head tests were conducted: rising head tests (where groundwater is induced to flow from the formation into the well) and falling head tests (where groundwater is induced to flow from the well into the formation). The K estimates were grouped into three subgroups: the overburden/shallow bedrock interface; bedrock in the majority of the Site and bedrock in the North Meadow. The geometric mean of a data set is defined as:

Geometric Mean = n^{th} root of $(X_1)(X_2)...(X_n)$
Where:
X_1, X_2, etc. = individual data points, and
n =the total number of data points used in the calculation.

The geometric mean is often used instead of an arithmetic mean if the data within a data set cover more than one order of magnitude, as is typical of K data. Therefore, the geometric mean and the minimum and maximums were used to compare subgroups. The results, along with the slug test results performed during the SASE (MW01B, MW02B, MW03B and MW04B) are presented in Table 3-4 and summarized below:

- **Overburden/Shallow Bedrock –** K was estimated in 2 wells completed in the overburden aquifer. The average K values ranged between 1.01 and 2.28 ft/day. This range of K is consistent of a silty sand (Freeze and Cherry, 1979).

- **Bedrock –** K was estimated in 10 new wells and 3 SASE wells completed in the bedrock. Using the The K values for this subgroup ranged between 0.051 and 2.46 ft/day with the geometric mean estimated at 0.552 ft/day.

- **North Meadow Bedrock –** K was estimated in three wells completed in the North Meadow bedrock aquifer. The K values for this subgroup ranged between 4.69 and 19.5 ft/day with the geometric mean estimated at 7.83 ft/day.

This indicates that the K of the bedrock around these wells is to high to measure in these locations. The K value was out of the range where slug tests were valid methods of K estimates. Because there are

results from each of these subgroups that indicate the K is to high to measure using slug testing, the average K presented here should be considered skewed slightly on the low side.

The geometric mean K in the North Meadow bedrock wells is the highest. The range of K's in the North Meadow is also higher than the range of K's in the other two subgroups. Overall the overburden/shallow bedrock K is about one-half order of magnitude less than the North Meadow bedrock K. Similarly, the geometric mean K of the bedrock subgroup is about one-half order of magnitude less than the geometric mean K of the overburden/ shallow bedrock. The ranges of hydraulic conductivities in the overburden/shallow bedrock wells overlaps with the range of hydraulic conductivities in the bedrock wells.

Results of hydraulic conductivity testing are depicted on Figure 3-12. These results indicate that there is a long linear zone of water high hydraulic conductivity bedrock that extends from the South Meadow (in the vicinity of MW112B through the North Meadow and along Deerfield Pond to MW119B.

Packer Testing Results

As described in Section 2.0, packer testing was conducted in six monitoring wells (MW-109B, MW-114B, MW-115B, MW-124B, MW-125B and MW-126B) in order to identify any water bearing zones in the cored sections of bedrock.

The results for the packer tests performed in monitoring well MW-109B indicate the three intervals tested had negligible infiltration rates at pressures ranging from 5 to 30-pounds per square inch (psi). As water was introduced in to the formation and as pressure was increased, water was observed at the top of the casing. These results indicated the inability of the formation to accept water at these pressures due to its low hydraulic conductivity and the water therefore took a path of least resistance which was a leak around the packer. The tested intervals were: 19 to 24 feet; 30 to 35 feet; and 36 to 41 feet bgs.

The results for the packer tests performed in monitoring well MW-114B and MW-115B shows that pressure was not building up inside the packer after water was introduced to each interval, as too much water was escaping into the formation. The tested intervals in MW-114B were: 34 to 39 feet and 53 to 61 feet bgs. The tested interval in MW-115B was 19 to 24 feet bgs. These results indicate that water cannot be introduced into the formation fast enough to obtain measurable pressure differences, indicating the K around these wells is very high.

The results for the packer tests performed in monitoring well MW-124B indicate the two intervals tested had negligible infiltration rates as pressure inside the packer was building up too fast and water was

escaping from the packer interval through the top of the packer, indicative of very low conductivity in the formation. The tested intervals were 10 to 20 feet; and 35 to 45 feet bgs.

The results for the packer tests performed in monitoring well MW-125B indicate the two intervals tested had negligible infiltration rates as pressure inside the packer was building up too fast and water was escaping from the packer interval through the top of the packer, indicative of very low conductivity in the formation. The tested intervals were 26 to 36 feet; and 36 to 46 feet bgs.

The results for the packer tests performed in monitoring well MW-126B indicate the two intervals tested had negligible infiltration rates as pressure inside the packer was building up too fast and water was escaping from the packer interval through the top of the packer, indicative of very low conductivity in the formation. The tested intervals were 21 to 26 feet; 42 to 46 feet; and 50 to 55 feet bgs.

3.3.2.5 Groundwater Seepage Velocities

Groundwater seepage velocities at the Site were estimated for the overburden/shallow bedrock, and bedrock based on slug test results, groundwater elevations, and representative effective porosities. Estimated groundwater seepage velocities can be used as an upper boundary for contaminant migration rates, which are usually lower than actual groundwater flow rates, primarily due to adsorption onto aquifer materials that reduces the amount of contaminant in the dissolved phase and other physical, chemical, and biological processes that tend to reduce the rate of contaminant transport or the mass of contaminant in groundwater.

The geometric mean K values were used in the groundwater seepage velocity calculations; the geometric mean K values were calculated using data from the rising head slug tests for the overburden, shallow bedrock and deep bedrock. A summary of geometric mean K values is presented in Table 3-4. The modified Darcy equation was used for calculating the velocity of groundwater flow as follows:

$$V = Ki/n$$

Where:

V = groundwater velocity (ft/d)

K = hydraulic conductivity (ft/d)

i = hydraulic gradient in horizontal direction (feet/feet)

n = effective porosity (fractional percent)

The effective porosity (n) values are representative of reported text book values (Fetter, 1994) based on a comparison of the associated geologic materials (sand and gravel for overburden and fractured bedrock). Representative n values for the overburden and the bedrock are estimated at 0.2 and 0.02, respectively.

Using the measured K and i values, and the representative n values, the average horizontal groundwater seepage velocities were estimated using the modified Darcy equation (above). In the North Meadow bedrock the average groundwater seepage velocity ranged between 70 and 101 ft/day. In the overburden/shallow bedrock interface the average groundwater seepage velocity was 0.35 ft/day. In the Paved Storage Area and South Meadow bedrock, the average groundwater seepage velocities ranged from 1.3 to 2 ft/day (Table 3-5).

The groundwater seepage velocities at the Site were slightly higher during the May 2008 event relative to the September 2008 event, due to the slightly steeper hydraulic gradient values in May.

3.3.3 Groundwater Classification

RIDEM has established a state groundwater classification system to protect its groundwater resources. The NUSC Disposal Area Site area straddles the line delineating the boundary between GA and GB groundwater classifications areas. As shown on Figure 1-4, groundwater under the northeast half of the Site, abutting the Wanumetonomy Golf Course, is classified by RIDEM as GA. Groundwater classified as GA is suitable for public or private drinking water use without treatment. RIDEM also has a GAA designation which is for groundwater resources known or presumed to be suitable for drinking without treatment. Groundwater underlying the southwest half of the Site has a GB classification as does the NASTA property to the southwest of the Site. Groundwater classified as GB may not be suitable for drinking water without treatment, because of known or presumed degradation. Groundwater classified as GB is typically located at highly urbanized areas in the vicinity of disposal sites for solid waste, hazardous waste, or sewerage sludge.

Water beneath the Site is not currently used for domestic, commercial or industrial purposes. At this time, there are no public water supply wells located on the Base. The City of Newport currently supplies municipal water to the Base. There is no current plan for future use of groundwater at the Base as a drinking water source.

3.4 SURFACE WATER HYDROLOGY AND DRAINAGE

This section provides a summary of regional and site surface water hydrology.

3.4.1 Regional Surface Water Hydrology

The information presented in this section was largely developed for the Old Fire Fighting Training Area located at Coasters Harbor Island (TtNUS 2001). This discussion is pertinent to the East Passage of Narragansett Bay.

NAVSTA Newport is located within the Narragansett Bay drainage basin. The basin covers an area of approximately 1,850 square miles, of which 850 square miles are in Rhode Island (USDA 1981). All surface water drainage from the Narragansett Bay drainage basin empties into Narragansett Bay.

Narragansett Bay occupies three former river valleys which have been drowned by the advance of the Atlantic Ocean. Narragansett Bay is 20 miles long and 11 miles wide and has a surface area of 102 square miles. The shape of the former river valleys has changed little since the last glaciation. The Bay is divided into an eastern and western passage by Conanicut Island. The average depth of the Bay is 30 feet. In the western passage, the average depth is 25 feet, while in the eastern passage; the average depth is 50 feet. The eastern passage, which NAVSTA Newport fronts, allows deep water access up to the south end of Prudence Island. In the eastern passage, channel depth exceeds 80 feet from Gould Island seaward, and depths in excess of 150 feet occur near the mouth of the Bay.

Freshwater flows into the Bay at an average rate of 1,239 cubic feet per second (cfs) from a drainage area of 1,850 square miles. This accounts for 90 percent of the annual flow of fresh water into the Bay. The other 10 percent is provided by direct rainfall into the Bay and sewage effluent. An average precipitation of some 43 inches per year of precipitation falls directly into the Bay. The freshwater input into the Bay is small compared to the large volume of saline water in the Bay. The relatively small freshwater input into the Bay results in the Bay water being well mixed with only small salinity gradients through the Bay. Salinity ranged from about 22 parts per thousand (ppt) in the Providence River to 32 ppt at the mouth of the Bay.

Tides are semi-diurnal in Narragansett Bay with a mean range of 3.6 feet at the mouth of the Bay and 4.6 feet at the head. About 13 percent of the volume of water in the Bay is exchanged each tidal cycle (TRC, 1992). This is over 250 times the mean tidal river flow into the Bay during a tidal cycle. The tidal movement is the single most important factor in water circulation in the Bay. Tidal currents range in velocity from 0.07 to 2.3 feet per second (TRC, 1992). The faster velocities occur in the east and west passages near the mouth of the Bay, while slower velocities occur in the upper bay.

3.4.2 Regional and Area Surface Water Classifications

All surface waters of Rhode Island have been categorized according to water use classifications considering public health, recreation, propagation and protection of fish and wildlife, as well as economic and social benefit. According to RIDEM's Water Quality Regulations and Water Quality Classification Descriptions, each class is defined by the most sensitive water uses to be protected (RIDEM, 2006). Generally, all waters shall be suitable for aquacultural uses, navigation, and industrial cooling, and have good aesthetic value.

Most of Narragansett Bay is described as Class "SA". This water quality classification denotes the water quality goal for the waterbody. Class "SA" seawaters are designated for shellfish harvesting for direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat (RIDEM, 2006).

3.4.3 Site Surface Water Hydrology

This section summarizes the surface hydrology of the Site. Further details can be found in the SASE report (TtNUS 2005).

Surface hydrology at the Site is dominated by the unnamed stream and Deerfield Creek that converge at the Site and form a wetland and NUWC Pond (Figure 3-13). Water flows into the pond from Deerfield Creek from the southwest. An unnamed stream from the Wanumetonomy Golf Course, Inc. to the northeast converges with Deerfield Creek just before the creek reaches the wetlands at the southern end of the pond. In addition, storm water is discharged to the pond through three outfalls from the NUWC facility storm drain network from the west. The two streams are generally shallow (ranging from a few inches to 20 inches in depth) and typically range from 2 to 4 feet in width. The stream substrates are a combination of boulder, cobble, gravel, and sand. It is apparent, based on field observations, that there are high flow conditions in the stream channels that have scoured and removed much of the fines from the streambeds. The fines have been deposited in the low gradient end of the streams and pond.

The NUWC Pond is a man-made freshwater pond located in a basin area at a significantly lower elevation than the northeastern and southwestern uplands that form its two sides. The impoundment area varies from approximately 1 to 2 acres depending on seasonal and physical influences on the volume of surface water. During heavy rainfall events or spring melts, the open water portion of the pond expands and extends into the lowlands at the south end of the pond. These lowlands consist of wetland and stream habitat that is typically vegetated and not characterized as open water habitat.

A concrete dam and spillway are present at the northern end of the pond. The water enters the spillway and flows through an underground pipeline that eventually discharges to Narragansett Bay. During major storm events, water has overflowed the dam headwall and flowed downhill in a northwesterly direction to a surface inlet that feeds into the storm drain system that discharges to Narragansett Bay.

The pond ranges in depth from approximately 10 feet on the northern end (when measured from the top of the concrete dam) to less than 1 foot in depth at the southern end. The water in the pond has historically been used by the Wanumetonomy Golf Course, Inc. as a source of irrigation water. During periods of high use, the water has dropped to approximately 3 feet (elevation of pump intake) in depth at the dam. The pond is classified as an open water habitat with a narrow and sporadic fringe of emergent vegetation along the pond edge. A significant density of emergent wetland vegetation is located at the southern end of the pond. Bedrock outcroppings are reportedly present in the pond. Near the dam, the pond substrate consists of organic mucky silt with some sand. The pond substrate gradually increases in sand content in the direction of the stream outlets at the southern end of the pond.

The Site is located within the Narragansett Bay Drainage Basin. This drainage basin covers an area of 1,850 square miles, with 820 square miles located in Rhode Island. All surface water drainage from the basin is into Narragansett Bay. Three major rivers (the Taunton, the Blackstone, and the Pawtucket) as well as the Providence River and a number of smaller rivers and streams drain into Narragansett Bay. The Narragansett Bay discharges into the Atlantic Ocean between Point Judith and Sakonnet Point in Rhode Island.

Narragansett Bay is located west of the Site. The shoreline consists mainly of manmade materials, including concrete slabs, degrading steel and wooden pilings, and building rubble.

Surface water runoff from the site evaporates, infiltrates into the site soils, or flows into NUWC Pond and eventually to Narragansett Bay.

3.5 FLOODPLAINS

Surface water bodies on site include the perennial stream, Deerfield Creek, and a manmade freshwater pond, NUWC Pond. An unnamed stream also enters the Site in the wetland area immediately above NUWC Pond (these surface water features are discussed further in Sections 3.4.3 and 3.6.2).

The official floodplain status of the Site has not been determined, based on the Federal Emergency Management Administration (FEMA) Statewide Flood Map (FEMA and Rhode Island Geographic Information System [GIS], June 1, 1997).

3.6 ECOLOGY

The Site contains a combination of habitats. The following sections summarize the ecological habitat and species on the Site.

3.6.1 Habitat and Wildlife Inventory

A wildlife inventory and a detailed description of the habitats at the Site was performed in 2003 as part of the SASE (TtNUS, 2005, Appendix E). Additional observations made during the 2007/2008 RI field work are added to the SASE species lists for birds, mammals, amphibians, and reptiles that were observed at the Site are presented in Appendix E. The new species observed are:

- mature and immature mute swans;
- bluegill sunfish;
- brown bullheads;
- golden shiners, and
- salamanders (not identified at any taxonomic level)

Inquiries made to the US Fish and Wildlife Service as part of the SASE indicated no species of special concern or ecologically significant natural communities are present at or near the study area.

3.6.2 Wetland Determination and Delineation

3.6.2.1 Wetland

The USFWS NWI data (USFWS 1975) identify no federally designated wetlands located within the Site boundary. The NUWC Pond is designated as a Palustrine Unconsolidated Bottom (PUB), and is included in the mapped waterbodies section below.

The Rhode Island State wetland survey identifies two freshwater wetland community types on site (RIGIS 1993). The RIGIS data identifies the lowland area immediately south of the NUWC Pond and a portion of Deerfield Creek, which are designated as an Emergent Wetland, Marsh/Wet Meadow (EMA).

Additionally, a Scrub-Shrub Swamp (SSA) is identified south of the Emergent Wetland along the riparian area surrounding Deerfield Creek, continuing southeast to the survey boundary (Figure 3-13).

A wetland determination and delineation was conducted at the Site during July/August 2008. The wetland delineation report is provided as Appendix E-5. The purpose of the investigation was to determine the presence and extent of areas within the survey parcel that meet the criteria for federal wetlands designations according to the U.S. Army Corps of Engineers (USACE) guidelines, and are potentially jurisdictional and regulated under Section 404 of the Clean Water Act (CWA).

The results of the wetland delineation indicates that the Site boundary contains one area that met the criteria for designation as wetland, comprising a total of 0.8 acres of wetland. The wetland was composed of two community types:

- Palustrine Emergent (PEM), and;
- Palustrine Scrub-Shrub / Emergent (PSS/EM).

The PEM wetland community (Appendix E-5) is characterized as a palustrine emergent persistent intermittently flooded wetland (PEM1J) (Cowardin et al. 1979). This wetland is associated with the riparian zones of Deerfield Creek on the west and the unnamed creek on the east. Water flow of both streams through the wetland is northwest, although Deerfield Creek becomes shallow and braided prior to reaching the NUWC Pond. The wetland continues north as a narrow fringe (8–10 feet width) surrounding the NUWC Pond, excluding the concrete dam at the north end. The wetland fringe boundary was estimated based on contour data and the width of existing wetland data points on the northern half of the east side of the pond (approximately 350 feet in length) due to impassible vegetation and steep slopes.

The PSS/EM wetland community (Appendix E-5) is classified as a palustrine scrub-shrub/emergent broad-leaved deciduous/persistent intermittently flooded (PSS1J/PEM1J) wetland (Cowardin et al. 1979). The riparian area surrounding Deerfield Creek composes the western boundary of the wetland, flowing north into the NUWC Pond. The eastern boundary is the riparian zone surrounding the unnamed creek entering from the northeast and flowing northwest into the NUWC Pond. Areas south are considered uplands with the exception of the meandering riparian zone of Deerfield Creek.

3.6.2.2 Waterbodies

The USGS 7.5 minute topographic quadrangle map (Prudence Island, RI, USGS, photorevised 1975) depicts one perennial stream (Deerfield Creek) which flows to the northwest along the western portion of

the Site toward the approximate center of the parcel. A body of open water is also depicted in the northwest portion of the Site, in the location of the NUWC Pond (Figure 3-13).

The USFWS NWI data (USFWS, 1975) identifies one mapped water body located within the site boundary, (NUWC Pond) and is characterized as a palustrine unconsolidated bottom (PUB) habitat. The Rhode Island State wetland survey classifies NUWC Pond as Palustrine Open Water (RIGIS, 1993). These habitat classifications do not support rooted emergent or woody vegetation and therefore do not meet the criteria for federally jurisdictional wetlands (Environmental Laboratory, 1987).

3.6.3 Benthic Macroinvertebrate Composition

Benthic macroinvertebrate sampling was conducted at the NUSC disposal area and Melville Pond reference area in May of 2008. This work was completed to assess the biological condition of the benthic macroinvertebrate assemblage in the NUSC streams, NUWC Pond, and wetland stream areas. The work was conducted as described in Section 2.7.2 of this RI report. Samples that were collected were shipped to Normeandeau Associates, in Stowe, PA, for statistical analysis. The statistical analysis as well as the full Benthic Macroinvertebrate Sampling report can be found in Appendix E-6 of this report.

Three comparisons were used to assess the effects of potential contaminants in Deerfield Creek, the Unnamed Stream and the NUWC pond: 1) comparison of biological indicators to the regional reference condition (Adamsville Brook RWU03, the regional reference stream for the NBRL in Tiverton/Little Compton) (streams only); 2) comparison to the local reference condition, and; 3) comparison among on-site samples in relation to habitat type and location.

An overall comparison of benthic composition in all samples shows general relationships between habitat types, and onsite and reference samples based on presence and absence of common taxa in the samples. Biological conditions in Deerfield Creek, the unnamed tributary, and in NUWC Pond show impairment in some stations. Site contamination may be responsible for impairment, however contaminants at the Site are partially due to off Site conditions or non-anthropogenic conditions (Section 5.0). These analyses alone are not adequate to prove causation between stressor sources, stressors, and biological responses. Variable nutrient enrichment levels among sites may be affecting results, but this cannot be confirmed because nutrient data were not reported.

Relative to the regional reference (Adamsville Brook), both index values and individual metrics indicate moderate impairment in the NUSC stream and wetland/stream sites, as well as in the local reference stream (Upper Melville Pond). The main differences are that the NUSC stream samples have more non-insect taxa, fewer EPT taxa and individuals, more tolerant individuals. NUSC stream samples have fewer

scraper individuals and local reference samples have more. So while the indices show impairment in both reference and NUSC sites, the metrics indicate that the type of impairment (and therefore the type of stressor) may be different. In addition, index values in Deerfield Creek are slightly worse than those in the local reference site.

The local reference site was selected as an example of a stream that has less exposure to certain contaminants and that is otherwise similar to the NUSC stream. From site visits and professional opinion, it was concluded that instream habitat conditions are similar among the local reference and NUSC sites. The immediate surrounding landscapes for the streams are not equal, however. Deerfield Creek originates in a wetland, the unnamed tributary originates in a golf course, and the local reference stream is just below Upper Melville Pond, which collects runoff from residential and urban areas. These differences may contribute to differences in nutrient concentrations, which were not analyzed. It is likely that nutrients are low in Deerfield Creek, slightly higher in the unnamed tributary, and higher still in the outflow of Upper Melville Pond. The NWSC Pond may have high nutrients do to the high probability of fertilizer application on the upstream golf course.

The biological assemblage in the local reference site indicates nutrient enrichment. The dominant taxon is the isopod *Caecidotea*, which is tolerant of pollution. These organisms and other non-insect scrapers and collectors are thriving in the pond outflow. By contrast, the assemblage in Deerfield Creek has fewer non-insects and fewer scrapers. This may be caused by contaminants acting on the organisms or their plant resources. Or the wetland at the head of Deerfield Creek is retaining nutrients and there is less productivity at the sampling sites, offering fewer food resources for scrapers.

The unnamed tributary on the NUSC site is biologically similar to the Deerfield Creek sites except for having relatively more scrapers. As in the comparison to the local reference stream this result may be due to either lower toxicity to the organisms or their food resources, or higher algal production.

The differences in the benthic pond communities are more stark and perhaps more conclusive. The habitats of the reference and NUWC ponds are similar and both apparently have contributing sources of nutrients. However, the diversity of organisms is much lower in the NUSC pond and the organisms found are all highly tolerant of pollution. By contrast, Upper Melville Pond has a relatively diverse community and some organisms are sensitive, or only moderately tolerant of pollution. If all other environmental conditions are relatively equal, we have some justification for attributing biological differences to differences in pollutant concentrations.

3.6.4 Concluding Statement

Overall, the quality of habitat for small mammals and songbirds is relatively high. The intact forest island provides a wealth of habitat for small mammals and oak-pine woodland bird species in an otherwise highly developed area. However, the relatively small patch size and isolation make it less suitable for other larger animals. Also, the habitats identified are relatively common in this part of Massachusetts and indeed statewide. Therefore no rare or unique habitats or fauna likely occur.

3.7 CLIMATE AND METEOROLOGY

The climate at NAVSTA Newport is presented below. Some of the climatological information was obtained from the IAS report (NAVFEC, 1983) and was updated by more recent climatological data. NAVSTA Newport is situated in a temperate climate zone characterized by wide variations in seasonal temperatures. Atmospheric conditions are influenced by the naval station's proximity to Narragansett Bay and the Atlantic Ocean, which affect the area's temperatures. Winter temperatures are somewhat higher and summer temperatures lower, than more inland areas. The orientation of Narragansett Bay exposes the Bay water and coastline to southerly sea breezes in summer months and nor'easter storms in the winter (SAIC 2000).

Temperature, precipitation and snowfall data collected at the Newport, Rhode Island meteorological station (the station) between 1957 and 2003 are summarized below. This data was provided by the Northeast Regional Climate Center (NRCC) at Cornell University.

The average annual temperature has varied between a maximum of 53.6 degrees Fahrenheit (°F) and a minimum of 48.9 °F. January and February were the coldest months, with a mean minimum temperature of approximately 23.6°F. July and August were the warmest months, with a mean maximum temperature of approximately 74.1°F.

The average annual precipitation for the station was 45.22 inches. The average monthly precipitation ranged from 2.90 inches for July to 4.67 inches for March. The wettest months on average were March, April, November and December. The average seasonal snowfall was approximately 23 inches, whereas, in the nearby inland area of Providence, Rhode Island the average seasonal snowfall was 35 inches. In Newport, January and February averaged 6.5 and 7.5 inches of snow, respectively. In Providence, the average monthly snowfall amount for January and February was 9.6 inches for each month.

Wind speed and direction data were collected for the period between July 1996 through June 2009 at the Newport State Airport located in Middletown, Rhode Island. The average wind speed measured was 8.7

miles per hour (mph). The prevailing wind direction between November and December was west-northwest. In January and February, the prevailing wind direction has been from the north (NRCC). These winds are due to high-pressure weather systems off of the Canadian Shield (SAIC). The prevailing wind direction between May and August has been from the south-southwest (NRCC). Bermuda high-pressure systems drive the winds from the southwest during spring and summer months (SAIC). For the months of September, October, March and April historical wind direction varies.

4.0 NATURE AND EXTENT OF CONTAMINATION

This section summarizes the analytical results obtained during the investigations performed to characterize the nature and extent of contamination in the environmental media at the Site. These investigations focused on characterization of the contaminant presence in site groundwater, surface water, soil, sediment and ecological tissue. Details of these investigations are described in Section 2.0. The analytical results are presented in this section by media and by chemical class (i.e. VOCs, SVOCs, pesticides/PCBs, GRO/ETPH, and metals). The detections are compared to regulatory criteria identified in the RI Work Plan (TtNUS, 2007), updated to current regulatory criteria. The screening criteria used in the data evaluations are presented in Tables 4-1, 4-2, 4-3 and 4-4. When available, onsite concentrations are compared to site background concentrations, and/or reference concentrations. The background soil investigation study for the Site (TtNUS, 2006) which is part of the basewide background study (TtNUS, 2008) was used to perform a dataset to dataset statistical comparison between the Site soil data and the Site background concentrations. This comparison is provided in Appendix E and results of this comparison are incorporated into the HHRA (Section 6.0) and the ERA (Section 7.0) but are not considered in the nature and extent of contamination evaluation in this section.

Samples collected were analyzed in accordance with the Final RI Work Plan (TtNUS, 2007). Chemical classes were evaluated in accordance with the following methods: volatile organic compounds (VOCs; EPA Method SW-846 8260B), semivolatile organic compounds (SVOCs; EPA Method SW-846 8270C), pesticides (EPA Method SW-846 8081A), polychlorinated biphenyls (PCBs; EPA Method SW-846 8082), TAL metals and molybdenum (EPA Methods SW-846 6010B/6020/7471A/7470A), gasoline range organics (GRO; EPA Method SW-846 8015B), and extractable total petroleum hydrocarbons (ETPH; EPA Method SW-846 8015B). In addition, select media were analyzed for other parameters as described below:

- Select sediment and soil samples were analyzed for total organic carbon (TOC) using the Lloyd Kahn method, pH using EPA method SW-846 9045C, and grain size distribution (ASTM D422).

- Biota samples (fish tissue and earthworms) were analyzed for lipid content by EPA Method SW-846 8290. Biota samples were not analyzed for VOCs as they would most likely be lost in the processing of tissues for analysis.

- Groundwater samples were analyzed for ammonia using EPA method 350.1; methane/ethene/ethane using RSK-174; nitrate/nitrite/orthophosphate/sulfate/sulfide using EPA Methods E353.2, E353.2, E365.2, E375.2, E376.1; and TOC using EPA 415.

All samples were analyzed for SVOCs in full scan mode. In addition, the samples were analyzed for SVOCs by selective ion monitoring (SIM) for a sub-set of the target compounds (including polynuclear aromatic hydrocarbons [PAHs] and other select SVOCs). The more sensitive SIM analysis provides lower detection limits. Since two results were obtained for this subset of target compounds, one result was selected to best meet the project action limits. In general, the result from the SIM analysis was reported except when the result exceeded the SIM calibration range, or was rejected by data validation actions. In these cases the results from the full scan analysis were reported.

The laboratory searched specifically for the three major Otto Fuel components: propylene glycol dinitrate (PGDN), dibutyl sebacate and 2-nitrodiphenylmine in its tentatively identified compound (TIC) search. Up to 20 non-target TICs for the semivolatile full-scan analysis were reported by the laboratory. The results of the Otto Fuel components screening, if present, are estimated concentrations.

Petroleum hydrocarbons (ETPH and GRO) were analyzed using a GC/FID method (EPA Method 8015B). The method was modified for quantification of extractable petroleum hydrocarbons in the C_9 to C_{36} range. These results were reported as ETPH (or in a few instances as diesel range organics [DRO]). In this report the results are all referred to as ETPH. In addition, gasoline range organic compounds (GRO) were analyzed in most samples for which VOCs were analyzed. The GRO analysis includes petroleum hydrocarbons in the C_5 to C_{12} range.

Tables of all the chemical analytical data collected as described in this section are provided in Appendix F-1 through F-4 of this report.

All the sample data were validated according to established U.S. EPA Region I Data Validation Guidelines (USEPA Region 1, February, 1989); (USEPA Region 1, December, 1996); (USEPA Region 1, February, 2004). A Tier II data validation was performed on the VOC, SVOC, pesticide, PCB, TAL metals (including molybdenum), GRO, ETPH, and MEE analyses. Tier II validation included evaluation of the following parameters:

- Data Completeness
- Preservation and Technical Holding Times
- GC/MS Instrument Performance Check (Tuning) (VOC, SVOC)
- ICP/MS Tuning (Select Metals)
- ICP/MS Internal Standard Performance (Select Metals)
- Initial and Continuing Calibrations/Calibration Verification
- Blanks
- Surrogate Standards (Organics)

- Internal Standards (VOC, SVOC)
- Matrix Spike/Matrix Spike Duplicates
- ICP Interference (Metals)
- ICP Serial Dilution (Metals)
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- Reporting Limits
- Tentatively Identified Compounds (SVOC)

Based on this validation process, several analytical results were qualified due to limitations inherent to sample matrix interferences or to field and or laboratory problems. Sample results qualified with a "J" are considered approximate because of limitations identified during data validation. Results for some analytes were rejected, either due to results not meeting QC limits in the matrix spike and matrix spike duplicate analysis or the laboratory control sample and laboratory control sample duplicate analysis; extremely low relative response factors in the calibration; or poor surrogate performance. Analytical results that are rejected are reported with the value reported by the laboratory, but with an "R" qualifier. These values are reported in the data tables in the appendix, but are not used for project decisions or detailed data analysis.

A Tier I validation was conducted on pH, grain size distribution, ammonia, nitrate/nitrite/orthophosphate/sulfate/sulfide, TOC, and lipid content analyses. The Tier I validation was limited to evaluation of data completeness only.

In general, data were acceptable for use in this RI. Qualifications on the reported data are documented in the data validation memoranda for each data package provided by the analytical laboratory. Data validation memoranda are presented in Appendix G.

The discussions in this section contain summaries of analytical results along with comparisons of detected contaminant levels to screening criteria. Comparison criteria were selected as described in the work plan, but with criteria updated from the date of publication of the workplan. Soil samples from site stations were compared against screening criteria. Groundwater samples collected from onsite were compared against groundwater samples collected from upgradient of the Site (eight locations). Sediment sample results were compared with data from reference stations at Melville Pond and stream, also presented herein.

Concentrations of chemical constituents detected compared as described above are presented in summary tables in this section, pertinent to each environmental media. Analytical results for field

duplicate samples were averaged with the original sample results. Sample stations where this calculation was performed are identified with the suffix "-AVG". For soil, sediment and surface water sampling locations that were sampled more than one time during the RI, the maximum concentration of a detected analyte was used for the nature and extent and risk assessment purposes. These samples are identified with the suffix "-LOCDEPTHMAX". For groundwater monitoring wells that were sampled more than one time during this RI the maximum concentration of a detected analyte was used for the RI data evaluation (both nature and extent and risk assessment purposes). These samples are identified with the suffix "-LOCMAX". The surrogate sample made with the highest detected concentration for groundwater also included combining the discrete interval samples with the entire well screen samples. This was a conservative approach for risk assessment and nature and extent purposes. The differences between discrete interval analytical results are evaluated separately in Section 5.0, contaminant fate and transport.

Separate subgroups were selected for discussion and comparison purposes. These subgroups consist of:

- exposed surface soil,
- unexposed surface soil,
- exposed subsurface soil,
- unexposed subsurface soil,
- upgradient overburden or the overburden-bedrock interface zone groundwater,
- upgradient bedrock groundwater,
- onsite overburden or the overburden-bedrock interface zone groundwater,
- onsite bedrock groundwater,
- onsite vapor diffusion bag groundwater samples,
- onsite surface water,
- reference locations surface water,
- sediment locations submerged by less than or equal to one foot of surface water,
- sediment locations submerged by more than one foot of surface water,
- reference locations sediment,
- earthworm tissue (onsite and background),
- blue gill whole body fish tissue (onsite and reference),
- blue gill fillet fish tissue (onsite and reference),
- bullhead fillet fish tissue (onsite and reference),
- white perch fillet fish tissue (onsite).

4.1 NATURE AND EXTENT OF CONTAMINATION IN SOIL

Evaluation of the nature and extent of contamination in soil is divided into several soil sub-groups to correspond with evaluations in the HHRA (Section 6.0) and ERA (Section 7.0). Within sub-groups, the evaluation is further divided by analyte group (VOCs, SVOCs, GRO/ETPH, pesticides/PCBs, and metals. The following soil sub-groups are evaluated in Sections 4.1.1 through 4.1.4: exposed surface soil, unexposed surface soil, exposed subsurface soil, and unexposed subsurface soil.

The soil data evaluated in Sections 4.1.1 through 4.1.5 are derived from the RI field investigation completed in 2008, as well as one previous investigation of the Site conducted in 2003, the SASE (TtNUS, 2005). A summary of analyzed soil samples are listed according to sub-group ("Sample Evaluation Group") in Table 4-5 with the associated location identifiers. Sometimes multiple soil samples from the same boring/location were analyzed. Section 4.1.5 presents a summary of contaminant nature and extent in soil. A summary of soil screening criteria is presented in Table 4-1.

4.1.1 Exposed Surface Soil Samples

The sample sub-group for exposed surface soil samples evaluated for this RI includes 78 samples collected from the 0 to 2 feet bgs depth interval, from areas of exposed soil (i.e., soil not covered by a building or other artificial surface such as asphalt or concrete) at the Site. This soil sub-group represents the surface soil that is currently available for human or ecological receptor exposure.

Seventy-eight exposed surface soil samples were collected during the SASE and the RI. All exposed surface soil samples were collected manually using hand tools. The surface soil sample locations are shown on Figure 2-5. A summary of the detected contaminants in each sample within this soil sub-group is presented in Table 4-6. Complete results for all analyzed chemicals are included in Appendix F. The following sections summarize the exposed surface soil data for the various chemical classes analyzed.

4.1.1.1 VOCs in Exposed Surface Soils

Seventy six exposed surface soil samples were analyzed for VOCs. The following table presents data summary statistics for VOCs detected in these samples. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,2,4-TRIMETHYLBENZENE	4/76	1600	1	401	DA-S-TP01-0001-01	67000	0		
1,3,5-TRIMETHYLBENZENE	1/76	860	860	860	DA-S-TP01-0001-01	47000	0		
2-BUTANONE	3/76	12	2.8	6.93	DA-MW118B-0001-LOCDEPTHMAX	28000000	0	10000000	0
4-ISOPROPYLTOLUENE	5/76	290	8	129	DA-S-SB03-0102-01				
ACETONE	49/76	7900	9.9	383	DA-SB145-0001-LOCDEPTHMAX	61000000	0	7800000	0
BENZENE	1/76	2	2	2	DA-B106B-0002	1100	0	2500	0
BTEX	4/76	580	0.79	147	DA-S-TP01-0001-01				
M+P-XYLENES	3/76	350	0.79	117	DA-S-TP01-0001-01	4500000	0		
METHYLENE CHLORIDE	1/76	3	3	3	DA-SB141-0001-LOCDEPTHMAX	11000	0	45000	0
N-BUTYLBENZENE	2/76	260	190	225	DA-S-TP01-0001-01				
N-PROPYLBENZENE	2/76	300	2	151	DA-S-TP01-0001-01				
O-XYLENE	1/76	230	230	230	DA-S-TP01-0001-01	5300000	0		
SEC-BUTYLBENZENE	1/76	6	6	6	DA-SS-B124B-0103-072108				
TOLUENE	1/76	4	4	4	DA-B106B-0002	5000000	0	190000	0
TOTAL CHLORINATED ETHENES	3/76	8.5	4	5.83	DA-SB135-0001-LOCDEPTHMAX				
TOTAL CHLORINATED VOCS	4/76	8.5	3	5.12	DA-SB135-0001-LOCDEPTHMAX				
TOTAL XYLENES	3/76	580	0.79	194	DA-S-TP01-0001-01	600000	0	110000	0
TRICHLOROETHENE	3/76	8.5	4	5.83	DA-SB135-0001-LOCDEPTHMAX	2800	0	13000	0

None of the 14 VOCs detected in exposed surface soil samples exceeded criteria. All maximum detections were reported at levels far below both state and federal DCR criteria, as shown in the above table. Acetone was the most commonly detected analyte with 49 detections in 76 samples. Acetone is known to be a common laboratory artifact. The remaining compounds were detected infrequently; none were detected in more than five samples.

4.1.1.2 SVOCs in Exposed Surface Soils

Seventy six exposed surface soil samples were analyzed for SVOCs. The following table presents data summary statistics for SVOCs detected in these samples. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1-BIPHENYL	1/57	660	660	660	DA-SB127-0001-LOCDEPTHMAX	3900000	0		
2-METHYLNAPHTHALENE	40/76	2400	3	104	DA-SB127-0001-LOCDEPTHMAX	310000	0	123000	0
3,3'-DICHLOROBENZIDINE	1/75	110	110	110	DA-S-TP12-0001-01	1100	0	1400	0
ACENAPHTHENE	59/76	9500	2.4	353	DA-SB127-0001-LOCDEPTHMAX	3400000	0	43000	0
ACENAPHTHYLENE	41/76	290	2.05	19.1	DA-S-TP12A-0001-01	3400000	0	23000	0
ANTHRACENE	64/76	13000	3.6	645	DA-SB127-0001-LOCDEPTHMAX	17000000	0	35000	0
BENZO(A)ANTHRACENE	69/76	20000	7.3	1300	DA-SB127-0001-LOCDEPTHMAX	150	44	900	22
BENZO(A)PYRENE	66/76	17000	9.3	985	DA-SB127-0001-LOCDEPTHMAX	15	65	400	30
BENZO(B)FLUORANTHENE	66/76	15000	9.6	1090	DA-SB127-0001-LOCDEPTHMAX	150	45	900	17
BENZO(G,H,I)PERYLENE	64/76	7400	8.8	508	DA-SB127-0001-LOCDEPTHMAX	1700000		800	10
BENZO(K)FLUORANTHENE	67/76	12000	10	796	DA-SB127-0001-LOCDEPTHMAX	1500	8	900	13
BENZOIC ACID	10/75	5900	520	1740	DA-S-TP09-0001-01	240000000	0		
BIS(2-ETHYLHEXYL)PHTHALATE	13/75	4500	280	1080	DA-SB145-0001-LOCDEPTHMAX	35000	0	46000	0
BUTYL BENZYL PHTHALATE	1/75	270	270	270	DA-SB145-0001-LOCDEPTHMAX	260000	0		
CARBAZOLE	15/75	7300	160	1070	DA-SB127-0001-LOCDEPTHMAX				
CHRYSENE	69/76	17000	9.6	1210	DA-SB127-0001-LOCDEPTHMAX	15000	1	400	33
DIBENZO(A,H)ANTHRACENE	49/76	3500	5.4	241	DA-SB127-0001-LOCDEPTHMAX	15	44	400	5
DIBENZOFURAN	6/75	4700	200	1150	DA-SB127-0001-LOCDEPTHMAX				
FLUORANTHENE	69/76	45000	16	2970	DA-SB127-0001-LOCDEPTHMAX	2300000	0	20000	3
FLUORENE	52/76	5900	2.3	341	DA-SB127-0001-LOCDEPTHMAX	2300000	0	28000	0
HIGH MOLECULAR WEIGHT PAHS	69/76	193100	66	12000	DA-SB127-0001-LOCDEPTHMAX				
INDENO(1,2,3-CD)PYRENE	63/76	9200	6.7	582	DA-SB127-0001-LOCDEPTHMAX	150	36	900	10
LOW MOLECULAR WEIGHT PAHS	70/76	89800	18.9	3770	DA-SB127-0001-LOCDEPTHMAX				
N-NITROSODIPHENYLAMINE	1/75	400	400	400	DA-SB146-0001-LOCDEPTHMAX	99000	0		
NAPHTHALENE	46/76	11000	2.3	372	DA-SB127-0001-LOCDEPTHMAX	3900	1	54000	0
PHENANTHRENE	69/76	48000	10	2360	DA-SB127-0001-LOCDEPTHMAX	1700000	0	40000	1
PYRENE	69/76	50000	11	2650	DA-SB127-0001-LOCDEPTHMAX	1700000	0	13000	3
TOTAL PAHS	70/76	282900	91.6	15600	DA-SB127-0001-LOCDEPTHMAX				

Twelve SVOCs (exclusively PAHs) were detected at concentrations that exceed Oak Ridge National Laboratory Regional Screening Levels (ORNL) direct contact residential (DCR) criteria (federal criteria), RIDEM DCR criteria, or both, in one or more samples. Six of the twelve PAHs that exceeded criteria had average detections that also exceeded criteria. Most of the maximum concentrations of the detected SVOCs were found in sample DA-SB127-0001-LOCDEPTHMAX, located in the South Meadow. High concentrations of PAHs were consistently found within the South Meadow (highest concentrations at the drum removal area). Figure 4-1 through Figure 4-6 are maps presenting concentrations and distributions of representative individual PAHs compared to ORNLSLDCR criteria. Figure 4-7 presents the

concentrations and distributions of total PAHs at the Site.

Six PAHs analytes were detected frequently at levels above criteria. Benzo(a)anthracene exceeded the ORNLSLDCR criterion in 44 samples and the RIDEM DCR criterion in 22 samples. Benzo(a)pyrene exceeded federal DCR criterion in 65 samples and exceeded RIDEM criterion in 30 samples. Benzo(b)fluoranthene exceeded federal DCR criterion in 45 samples, and exceeded RIDEM DCR criterion in 17 samples. Benzo(g,h,i)perylene did not exceed federal DCR criterion, but exceeded RIDEM DCR criterion in 10 samples. The chrysene RIDEM DCR criterion of 400 µg/Kg was exceeded in 33 samples, and the federal DCR criterion of 15,000 µg/Kg was exceeded in one sample. Forty four samples exceeded the federal DCR criterion for dibenzo(a,h)anthracene, and five samples exceeded the RIDEM DCR criterion of 400 µg/Kg. Thirty six samples exceeded federal DCR criterion for indeno(1,2,3-cd)pyrene, while 10 samples exceeded RIDEM DCR criterion.

Other PAHs exceeded criteria in anywhere from one to 13 samples.

4.1.1.3 GRO/ETPH in Exposed Surface Soils

Some samples were also analyzed for petroleum compounds. Extractable Total Petroleum Hydrocarbons (ETPH) were analyzed in 73 samples and there were 65 detections, some of which were above the RIDEM criterion of 500 mg/Kg (note that this criterion is for Total Petroleum Hydrocarbons [TPH], which is composed of ETPH plus Gasoline Range Organics [GRO]). ETPH results ranged from 11 mg/Kg to 1,600 mg/Kg. Figure 4-8 shows the concentrations and distribution of ETPH in surface soil samples. GRO was analyzed in 74 samples and was detected in 15 samples. Results ranged from 0.56 mg/Kg to 60 mg/Kg, with an average of 17.1 mg/Kg.

4.1.1.4 Pesticides/PCBs in Exposed Surface Soils

The following table presents data summary statistics for exposed surface soil samples analyzed for pesticides and PCBs. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
4,4'-DDD	4/76	5.2	2.1	3.75	DA-SS149-011708	2000	0		
4,4'-DDE	32/76	216	1.1	11	DA-S-TP07-0001-01	1400	0		

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
4,4'-DDT	26/76	184	1.2	15.5	DA-S-TP01-0001-01	1700	0		
ALPHA-CHLORDANE	3/76	235	3.2	84.7	DA-S-TP07-0001-01	1600	0	500	0
AROCLOR-1254	2/76	5220	152	2690	DA-S-TP07-0001-01	1100	1	10000	0
AROCLOR-1260	33/76	510	26	131	DA-SS153-011608	220	5	10000	0
AROCLOR-1268	9/76	620	134	369	DA-MW110B-0001-LOCDEPTHMAX	220	7	10000	0
DIELDRIN	3/76	23	1.3	9.47	DA-SS149-011708	30	0	40	0
ENDRIN	1/76	2.4	2.4	2.4	DA-SB143-0001-LOCDEPTHMAX	18000	0		
GAMMA-CHLORDANE	2/76	10	3.2	6.6	DA-SS149-011708	1600	0	500	0
HEPTACHLOR	2/76	1.7	1.2	1.45	DA-MW115B-0001-LOCDEPTHMAX	110	0		
TOTAL AROCLORS	35/76	5220	26	372	DA-S-TP07-0001-01	220	15	10000	0
TOTAL DDD/DDE/DDT	35/76	216	1.8	22	DA-S-TP07-0001-01				

Three types of Aroclors (commercial PCB mixtures) were reported at levels exceeding criteria: Aroclor-1254, Aroclor-1260 and Aroclor-1268. They exceeded federal criteria in one, five and seven samples respectively. All exceedances were less than an order of magnitude above the criteria. Figure 4-9 shows the concentrations and distribution of Aroclor-1260 in surface soils. Two of the samples with exceedances were found on the western side of NUWC Pond, outside the boundary of the Site. The highest Aroclor-1260 exceedance was found at SB153, collected near the extreme southeastern end of the Site. Figure 4-10 shows the concentrations and distributions of Aroclor-1268. Four of the seven samples with exceedances were found in the same area as TP-07,west of the former drum disposal area, in the South Meadow. Figure 4-11 shows concentrations and distribution of Total Aroclors in surface soil samples. The distribution of Total Aroclor concentrations (detected in 35 of 76 samples) most closely resembles that of Aroclor-1260 (detected in 33 of 76 exposed surface soil samples). The other two detected Aroclors were present in only two or nine of the 76 samples.

The eight pesticides detected in this sub-group had averages and maximums that were well below criteria.

4.1.1.5 Metals in Exposed Surface Soils

The following table presents summary statistics for exposed surface soil samples that were analyzed for metals. (All concentrations are in mg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	74/74	20700	1800	11600	DA-SS148-011708	77000	0		
ANTIMONY	5/74	5.5	0.19	1.74	DA-S-TP10-0001-01	31	0	10	0
ARSENIC	74/74	90	0.29	17.8	DA-S-TP13-0001-01	0.39	73	7	68
BARIUM	74/74	42.8	7.4	23.7	DA-SB145-0001-LOCDEPTHMAX	15000	0	5500	0
BERYLLIUM	74/74	0.74	0.21	0.416	DA-SS148-011708	160	0	0.4	38
CADMIUM	39/74	11	0.08	1.27	DA-S-TP01-0001-01	70	0	39	0
CALCIUM	74/74	8940	39	1000	DA-MW105B-0001-LOCDEPTHMAX				
CHROMIUM	74/74	64	1	16.4	DA-S-TP10-0001-01	230	0	390	0
COBALT	74/74	218	0.82	14.4	DA-SS149-011708	23	3		
COPPER	73/74	560	6.7	32.3	DA-S-TP10-0001-01	3100	0	3100	0
IRON	74/74	43700	5270	25900	DA-SS149-011708	55000	0		
LEAD	74/74	2870	4.2	72.4	DA-SS149-011708	400	1	150	2
MAGNESIUM	74/74	6240	407	2910	DA-SB118-0002				
MANGANESE	74/74	2020	79.8	383	DA-SS149-011708	1800	1	390	22
MERCURY	69/74	2	0.00821	0.0846	DA-SB133-0001-LOCDEPTHMAX	23	0	23	0
MOLYBDENUM	46/74	7.6	0.22	0.777	DA-SS149-011708	390	0		
NICKEL	74/74	38.5	0.98	21.1	DA-SB118-0002	1600	0	1000	0
POTASSIUM	74/74	886	125	436	DA-SB109-0001-LOCDEPTHMAX				
SELENIUM	10/74	0.67	0.19	0.494	DA-SB131-0001-LOCDEPTHMAX	390	0	390	0
SILVER	21/74	2	0.16	0.801	2 max samples	390	0	200	0
SODIUM	37/74	306	30	59.5	DA-SB146-0001-LOCDEPTHMAX				
THALLIUM	1/74	0.3	0.3	0.3	DA-S-SB03-0102-01	5.1	0	5.5	0
VANADIUM	74/74	47.2	1.5	20.9	DA-SB139-0001-LOCDEPTHMAX	390	0	550	0
ZINC	74/74	663	13.8	86.1	DA-SB122-0001-LOCDEPTHMAX	23000	0	6000	0

Five metals exceeded state or federal DCR criteria. Arsenic criteria was exceeded in 73 out of 74 samples collected. Figure 4-12 presents a map showing concentrations and locations of arsenic detections compared to ORNLSDCR criterion. Arsenic levels are relatively evenly distributed across the entire Site. The highest concentration of arsenic was detected in surface soil north of the North Meadow (TP-13). This sample location is outside of the area of the Site where land disposal was performed. The other metals that had exceedances in at least one sample were beryllium (38 samples exceeded the state DCR criterion); cobalt (three samples exceed the federal DCR criterion); lead (one sample exceed federal DCR criterion and two samples exceed state DCR criterion; and manganese (one sample exceed federal

DCR criterion and 22 samples exceed state DCR criterion).

4.1.2 Unexposed Surface Soil Samples

The unexposed surface soil samples for this field investigation include the samples collected from the 0 to 2 feet bgs depth interval, from areas beneath the paved storage areas and roads. This soil sub-group is representative of surface soil that is currently unavailable for human or ecological receptor exposure. The surface soil sample locations are shown on Figure 2-5. A summary of detected results in each sample within this soil sub-group is presented in Table 4-7. Results for all analyzed chemicals are included in Appendix F. The following sections summarize the unexposed surface soil data for the various chemical classes analyzed.

4.1.2.1 VOCs in Unexposed Surface Soils

The following table presents data summary statistics for VOCs detected in the 27 unexposed surface soil samples collected at the Site. (All concentrations are in units of µg/kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,2,4-TRIMETHYLBENZENE	1/27	8	8	8	DA-SB100-0002	67000	0		
1,3,5-TRIMETHYLBENZENE	1/27	5	5	5	DA-SB100-0002	47000	0		
2-BUTANONE	8/27	31	1.8	14.9	DA-SS-B126B-0103-072208	28000000	0	10000000	0
ACETONE	18/27	610	8	97.6	DA-SB150-0002	61000000	0	7800000	0
BTEX	2/27	13	0.61	6.8	DA-SB102-0002				
CARBON DISULFIDE	3/27	2	0.95	1.65	2 max samples	670000	0		
CHLOROFORM	1/27	0.76	0.76	0.76	DA-S-SB01-0102-01	300	0	1200	0
ETHYLBENZENE	1/27	2	2	2	DA-SB102-0002	5700	0	71000	0
M+P-XYLENES	2/27	9	0.61	4.8	DA-SB102-0002	4500000	0		
O-XYLENE	1/27	2	2	2	DA-SB102-0002	5300000	0		
SEC-BUTYLBENZENE	2/27	1.75	0.97	1.36	DA-SS-B125B-0103-072108-AVG				
TERT-BUTYLBENZENE	1/27	1.1	1.1	1.1	DA-S-SB01-0102-01				
TETRACHLOROETHENE	1/27	2.4	2.4	2.4	DA-S-SB02-0102-01	570	0	12000	0
TOTAL CHLORINATED ETHENES	2/27	3	2.4	2.7	DA-B101B-0002				
TOTAL CHLORINATED VOCS	3/27	3	0.76	2.05	DA-B101B-0002				
TOTAL XYLENES	2/27	11	0.61	5.8	DA-SB102-0002	600000	0	110000	0
TRICHLOROETHENE	1/27	3	3	3	DA-B101B-0002	2800	0	13000	0

A total of 13 VOCs were detected in unexposed surface soil samples. VOCs were detected at very low concentrations, and did not exceed criteria. Acetone was detected in 18 out of 27 samples. 2-butanone was detected in eight samples. The other VOCs were detected in less than three samples. Average and maximum concentration for VOCs detected were far below the federal or state DCR criteria.

4.1.2.2 SVOCs in Unexposed Surface Soils

The following table presents data summary statistics for SVOCs detected in the 27 unexposed surface soil samples that were collected at the Site. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
2-METHYLNAPHTHALENE	14/27	390	6.6	47.6	DA-SB116-0002	310000	0	123000	0
ACENAPHTHENE	15/27	890	1.8	145	DA-B108B-0002	3400000	0	43000	0
ACENAPHTHYLENE	4/27	38	3.1	15.7	DA-SB102-0002	3400000	0	23000	0
ANTHRACENE	18/27	2000	3.1	236	DA-B109B-0002	17000000	0	35000	0
BENZO(A)ANTHRACENE	24/27	5600	2.6	558	DA-B109B-0002	150	12	900	4
BENZO(A)PYRENE	25/27	4800	7.3	481	DA-B109B-0002	15	23	400	7
BENZO(B)FLUORANTHENE	23/27	5700	14	616	DA-B109B-0002	150	12	900	5
BENZO(G,H,I)PERYLENE	21/27	2000	3	232	DA-B109B-0002	1700000	0	800	1
BENZO(K)FLUORANTHENE	23/27	3900	6.8	451	DA-B109B-0002	1500	2	900	3
BIS(2-ETHYLHEXYL)PHTHALATE	2/27	410	410	410	2 max samples	35000	00	46000	0
CARBAZOLE	3/27	800	300	570	DA-B109B-0002				
CHRYSENE	25/27	5700	2.8	556	DA-B109B-0002	15000	0	400	7
DIBENZO(A,H)ANTHRACENE	14/27	760	10	130	DA-B109B-0002	15	13	400	1
DIBENZOFURAN	2/27	350	270	310	DA-B109B-0002				
FLUORANTHENE	26/27	10000	4.4	1090	DA-B109B-0002	2300000	0	20000	0
FLUORENE	13/27	870	3.8	146	DA-B109B-0002	2300000	0	28000	0
HIGH MOLECULAR WEIGHT PAHS	26/27	53660	23.4	5190	DA-B109B-0002				
INDENO(1,2,3-CD)PYRENE	19/27	2200	8.25	284	DA-B109B-0002	150	7	900	1
LOW MOLECULAR WEIGHT PAHS	25/27	12174	9.7	1250	DA-B109B-0002				
NAPHTHALENE	11/27	340	2.9	69.6	DA-B108B-0002	3900	0	54000	0
PHENANTHRENE	25/27	8500	4.6	860	DA-B109B-0002	1700000	0	40000	0
PYRENE	26/27	13000	3.3	1180	DA-B109B-0002	1700000	0	13000	0
TOTAL PAHS	26/27	65834	23.4	6390	DA-B109B-0002				

Eight SVOCs (all PAHs) exceeded either state DCR criteria, federal DCR criteria, or both criteria. Most

compounds had maximum detections in sample DA-B109B-0002. Location B109B is found in the western corner of the paved gated storage area. Benzo(a)anthracene exceeded federal DCR criterion in 12 samples and the state DCR criterion in 4 samples. Benzo(a)pyrene exceeded federal DCR criterion in 23 samples and the state DCR criterion in 7 samples. Benzo(b)fluoranthene exceeded federal DCR criterion in 12 samples and state DCR criterion in 5 samples. Chrysene exceeded state DCR criterion in 7 samples and dibenzo(a,h)anthracene exceeded federal DCR criterion in 13 samples and state DCR criterion in 1 sample. Indeno(1,2,3-cd)pyrene exceeded federal DCR criterion in 7 samples and state DCR criterion in 1 sample. Figure 4-1 through Figure 4-6 show locations and concentrations of representative individual PAHs. Figure 4-7 shows the distribution of total PAHs in surface soil.

4.1.2.3 GRO/ETPH in Unexposed Surface Soils

Some samples in this sub-group were also analyzed for petroleum compounds. ETPH was analyzed in 27 samples and was detected in all samples. Results ranged from 23 mg/Kg to 2,200 mg/Kg, above the RIDEM criterion of 500 mg/Kg (note that this criterion is for Total Petroleum Hydrocarbons [TPH], which is composed of ETPH plus gasoline range organics [GRO]). Figure 4-8 shows the distribution of ETPH in surface soil samples. GRO was analyzed in 27 samples and detected in five samples. GRO results ranged from 0.58 mg/Kg to 130 mg/Kg, with an average of 36.8 mg/Kg.

4.1.2.4 Pesticides/PCBs in Unexposed Surface Soils

The following table presents data summary statistics for the 25 unexposed surface soil samples analyzed for pesticides and PCBs. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
4,4'-DDD	4/25	2.7	1.2	1.78	DA-SB150-0002	2000	0		
4,4'-DDE	6/25	7.2	0.96	2.36	DA-SB113-0002	1400	0		
4,4'-DDT	6/25	6.7	1.3	3.35	DA-SB113-0002	1700	0		
AROCLOR-1248	1/25	43	43	43	DA-SB114-0002	220	0	10000	0
AROCLOR-1260	2/25	44	28	36	DA-SB111-0002	220	0	10000	0
AROCLOR-1268	2/25	117	94.1	106	DA-S-SB06-0515-01	220	0	10000	0
ENDOSULFAN II	2/25	2.6	0.98	1.79	DA-SB100-0002	370000	0		
TOTAL AROCLOR	5/25	117	28	65.2	DA-S-SB06-0515-01	220	0	10000	0
TOTAL DDD/DDE/DDT	8/25	15.2	0.96	5.17	DA-SB113-0002				

Three PCB Aroclors were detected but concentrations were well below both the federal and state DCR criteria. PCB Aroclor-1248, Aroclor-1260 and Aroclor-1268 were detected in one or two samples, and concentrations were also well below screening criteria. Averages for the detected analytes ranged from several orders of magnitude below to about half of their respective criteria.

4.1.2.5 Metals in Unexposed Surface Soils

The following table presents data summary statistics for 25 unexposed surface soil samples analyzed for metals. (All concentrations are in mg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	25/25	19500	4100	9530	DA-B101B-0002	77000	0		
ARSENIC	25/25	41	1.7	15.1	DA-S-SB04-0102-01	0.39	25	7	18
BARIUM	25/25	36.5	10	20.1	DA-SB100-0002	15000	0	5500	0
BERYLLIUM	24/25	0.57	0.21	0.37	DA-SB114-0002	160	0	0.4	9
CADMIUM	8/25	0.77	0.14	0.392	DA-SB112-0002	70	0	39	0
CALCIUM	25/25	2480	330	1100	DA-B101B-0002				
CHROMIUM	25/25	24.2	5.6	13.6	DA-B101B-0002	230	0	390	0
COBALT	25/25	28	2.7	11	DA-SB102-0002	23	1		
COPPER	25/25	26	8	16.6	DA-S-SB01-0102-01	3100	0	3100	0
IRON	25/25	38900	8540	23100	DA-B101B-0002	55000	0		
LEAD	25/25	54.8	7.3	18.3	DA-SB114-0002	400	0	150	0
MAGNESIUM	25/25	6020	920	2990	DA-B101B-0002				
MANGANESE	25/25	827	150	362	DA-B101B-0002	1800	0	390	7
MERCURY	10/25	0.05	0.01	0.0279	DA-SB101-0002	23	0	23	0
MOLYBDENUM	20/25	1.2	0.168	0.456	DA-SB102-0002	390	0		
NICKEL	25/25	34.2	7.4	18.6	DA-B101B-0002	1600	0	1000	0
POTASSIUM	24/25	1200	130	637	DA-SB119-0002				
SELENIUM	1/25	0.64	0.64	0.64	DA-SB101-0002	390	0	390	0
SILVER	12/25	0.82	0.034	0.302	DA-S-SB02-0102-01	390	0	200	0
SODIUM	14/25	307	33.4	101	DA-SB100-0002				
THALLIUM	3/25	0.38	0.18	0.293	DA-S-SB04-0102-01	5.1	0	5.5	0
VANADIUM	25/25	38	8.2	17.4	DA-SB119-0002	390	0	550	0
ZINC	25/25	94.7	27.5	50.3	DA-SB102-0002	23000	0	6000	0

Fourteen of the 25 metals detected were reported in every sample collected. Four metals exceeded criteria: arsenic, beryllium, cobalt and manganese. Arsenic exceeded criteria in every sample collected. Cobalt only exceeded the federal DCR criterion of 23 mg/Kg in one sample, DA-SB102-0002. Arsenic

concentrations compared to ORNLSDCR criterion and locations can be found on Figure 4-12. Beryllium and manganese exceeded state DCR criteria in nine and eight samples respectively. Beryllium maximum detection of 0.57 mg/Kg exceeded the state criterion of 0.4 mg/Kg. Manganese maximum detection of 827 mg/Kg exceeded the state criterion of 390 mg/Kg.

As mentioned above arsenic exceeded federal DCR criterion of 0.39 mg/Kg in every sample collected; it exceeded state DCR criterion of 7 mg/Kg in 18 samples collected. The highest arsenic concentration was found north of the North Meadow in TP-13.

4.1.3 Exposed Subsurface Soil Samples

The subsurface soil samples evaluated in this section are samples that were collected below the 0 to 2 foot interval. The sample sub-group for exposed subsurface soil samples evaluated for this RI includes 67 samples collected from depths below the exposed surface soil locations. Table 4-8 presents data for all parameters detected in exposed subsurface soil samples.

4.1.3.1 VOCs in Exposed Subsurface Soil Samples

Sixty seven soil samples collected from exposed subsurface soil borings were analyzed for VOCs. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,2,4-TRIMETHYLBENZENE	2/67	46	1.1	23.6	DA-B110B-1012	67000	0		
1,3,5-TRIMETHYLBENZENE	1/67	20	20	20	DA-B110B-1012	47000	0		
2-BUTANONE	2/67	7.9	5.1	6.5	DA-S-SB03-0304-01	28000000	0	10000000	0
4-ISOPROPYLTOLUENE	2/67	11	2.7	6.85	DA-B110B-1012				
ACETONE	31/67	1000	8	129	DA-B110B-1012	61000000	0	7800000	0
BTEX	3/67	1.4	0.78	1.05	DA-S-SB03-0607-01				
CARBON DISULFIDE	1/67	2.4	2.4	2.4	DA-S-SB03-0607-01	670000	0		
CIS-1,2-DICHLOROETHENE	1/67	1.3	1.3	1.3	DA-S-MW04B-1416-01	780000	0	630000	0
M+P-XYLENES	3/67	1.4	0.78	1.05	DA-S-SB03-0607-01	4500000	0		
METHYLENE CHLORIDE	2/67	670	2	336	DA-S-TP15A-0506-01	11000	0	45000	0
N-BUTYLBENZENE	1/67	1.8	1.8	1.8	DA-S-SB03-0607-01				
SEC-BUTYLBENZENE	3/67	4	1.4	2.4	DA-B110B-1012				
TERT-BUTYLBENZENE	2/67	1.2	0.93	1.06	DA-S-SB03-0304-01				
TETRACHLOROETHENE	12/67	11	0.64	4.03	DA-SB-TP103-0506	570	0	12000	0

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
TOTAL 1,2-DICHLOROETHENE	1/67	1.3	1.3	1.3	DA-S-MW04B-1416-01	700000	0		
TOTAL CHLORINATED ETHENES	13/67	41	0.64	9.93	DA-SB-TP103-0506				
TOTAL CHLORINATED VOCS	15/67	670	0.64	53.4	DA-S-TP15A-0506-01				
TOTAL XYLENES	3/67	1.4	0.78	1.05	DA-S-SB03-0607-01	600000	0	110000	0
TRICHLOROETHENE	7/67	30	1.7	11.3	DA-SB-TP103-0506	2800	0	13000	0

* BTEX = benzene, toluene, ethylbenzene, xylene

VOCs were detected at very low concentrations in samples collected from exposed subsurface soil. No VOCs exceeded federal or state DCR criteria. Averages as well as maximum concentration were all well below criteria. The most frequently detected VOC was acetone (a common analytical laboratory artifact), which was detected in 31 samples. The second most detected VOC (tetrachloroethene [PCE]) had 12 detections. The rest of the analytes were detected in seven or fewer samples.

4.1.3.2 SVOCs in Exposed Subsurface Soil Samples

Sixty seven samples collected from exposed subsurface soil were analyzed for SVOCs. The following table presents data summary statistics for SVOCs detected in these samples. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1-BIPHENYL	4/42	8300	170	2730	DA-SB110-0810	3900000	0		
2,4-DIMETHYLPHENOL	1/66	390	390	390	DA-SB127-0204	1200000	0		
2,4-DINITROPHENOL	1/67	310	310	310	DA-S-TP14-0910-01	120000	0	160000	0
2-METHYLNAPHTHALENE	27/67	23000	5.6	1540	DA-SB110-0810	310000	0	123000	0
3&4-METHYLPHENOL	2/67	2200	740	1470	DA-SB110-0810	310000	0		
3,3'-DICHLOROBENZIDINE	1/67	220	220	220	DA-S-TP14-0910-01	1100	0	1400	0
4,6-DINITRO-2-METHYLPHENOL	1/67	260	260	260	DA-S-TP14-0910-01	6100	0		
4-NITROANILINE	1/67	420	420	420	DA-S-TP14-0910-01	180000	0		
4-NITROPHENOL	1/67	520	520	520	DA-S-TP14-0910-01				
ACENAPHTHENE	40/67	480000	2.1	27800	DA-S-TP15A-0506-01	3400000	0	43000	3
ACENAPHTHYLENE	9/67	3500	1.9	435	DA-S-TP08-0708-01	3400000	0	23000	0
ANTHRACENE	45/67	970000	2.9	48800	DA-S-TP15A-0506-01	17000000	0	35000	5
BENZO(A)ANTHRACENE	46/67	1900000	3.2	92700	DA-S-TP15A-0506-01	150	36	900	21
BENZO(A)PYRENE	44/67	1500000	6.2	78200	DA-S-TP15A-0506-01	15	42	400	26
BENZO(B)FLUORANTHENE	45/67	1300000	7.2	66700	DA-S-TP15A-0506-01	150	37	900	21
BENZO(G,H,I)PERYLENE	43/67	830000	5.4	44200	DA-S-TP15A-0506-01	1700000	0	800	17
BENZO(K)FLUORANTHENE	45/67	1200000	7.3	62400	DA-S-TP15A-0506-01	1500	14	900	18
BENZOIC ACID	4/67	2300	440	1290	DA-S-TP14-0910-01	240000000	0		
BIS(2-ETHYLHEXYL)PHTHALATE	14/67	1900	240	535	DA-SB105-0406	35000	0	46000	0
CARBAZOLE	26/67	490000	92	46500	DA-S-TP15A-0506-01				
CHRYSENE	46/67	1700000	3.3	82900	DA-S-TP15A-0506-01	15000	6	400	32
DI-N-BUTYL PHTHALATE	1/67	120	120	120	DA-S-MW04B-1416-01				
DIBENZO(A,H)ANTHRACENE	35/67	330000	4.5	20900	DA-S-TP15A-0506-01	15	34	400	12
DIBENZOFURAN	17/67	250000	230	34900	DA-S-TP15A-0506-01				
FLUORANTHENE	47/67	4600000	4.8	217000	DA-S-TP15A-0506-01	2300000	2	20000	8
FLUORENE	38/67	480000	2.8	29700	DA-S-TP15A-0506-01	2300000	0	28000	5
HIGH MOLECULAR WEIGHT PAHS	48/67	17810000	4.8	836000	DA-S-TP15A-0506-01				
INDENO(1,2,3-CD)PYRENE	41/67	850000	7.5	47600	DA-S-TP15A-0506-01	150	29	900	16
LOW MOLECULAR WEIGHT PAHS	46/67	5650000	5.6	284000	DA-S-TP15A-0506-01				
NAPHTHALENE	33/67	220000	8.8	15800	DA-S-TP15A-0506-01	3900	6	54000	3
PENTACHLOROPHENOL	1/67	410	410	410	DA-S-TP06-0304-01	3000	0	5300	0
PHENANTHRENE	44/67	3500000	15	183000	DA-S-TP15A-0506-01	1700000	2	40000	6
PHENOL	1/67	380	380	380	DA-SB127-0204	18000000	0	6000000	0
PYRENE	45/67	3600000	18	178000	DA-S-TP15A-0506-01	1700000	2	13000	10
TOTAL PAHS	49/67	23460000	4.8	1090000	DA-S-TP15A-0506-01				

A total of 15 SVOCs (all PAHs) were detected in exposed subsurface soil samples at levels exceeding either federal DCR criteria, state DCR criteria, or both criteria. All PAHs exceeding criteria had maximum detections in sample DA-S-TP15A-0506-01. Benzo(a)anthracene exceeded the federal DCR of 150

µg/Kg in 36 samples, and the RIDEM DCR criterion of 900 µg/Kg in 21 samples. Benzo(a)pyrene was detected in 42 samples at levels exceeding the Federal DCR criterion of 15 µg/Kg, and 26 samples at levels exceeding the RIDEM DCR criterion of 400 µg/Kg. Benzo(b)fluoranthene exceeded the federal DCR criterion of 150 µg/Kg in 37 samples and the RIDEM DCR criterion of 900 µg/Kg in 21 samples. Seventeen samples exceeded the RIDEM DCR criterion of 800 µg/Kg for benzo(g,h,i)perylene. Benzo(k)fluoranthene exceeded the federal DCR criterion of 1500 µg/Kg in 14 samples and the state DCR criterion of 900 µg/Kg in 18 samples. Chrysene exceeded federal DCR criterion and 32 samples and the RIDEM DCR criterion in six samples. Dibenzo(a,h)anthracene exceeded the federal DCR criterion of 15 µg/Kg in 34 samples and the RIDEM DCR criterion of 400 µg/Kg in 12 samples. Indeno(1,2,3-cd)pyrene was found at levels exceeding federal DCR criterion of 150 µg/Kg in 24 samples and RIDEM DCR criterion of 900 µg/Kg in 16 samples. The other PAHs that exceeded criteria (acenaphthene, anthracene, fluoranthene, fluorene, naphthalene, phenanthrene and pyrene) were detected at these high levels in fewer than 10 samples.

Figures 4-13 through 4-19 present locations and concentrations of detections of select representative PAHs in subsurface soil compared to ORNLSDCR criteria. These figures clearly show that PAHs were either not detected or detected at low levels, below the ORNLSLDCR criteria, in the North Meadow. One location at the northwestern end of NUWC Pond (MW119B) that is outside the known disposal area had elevated concentrations of PAHs; above federal and state criteria. A second location (SB153), a background location south of the Site boundary, had benzo(a)pyrene detected above criteria.

4.1.3.3 GRO/ETPH in Exposed Subsurface Soil Samples

Extractable Petroleum Hydrocarbons (ETPH) were analyzed in 65 exposed subsurface soil samples and were detected in 52 samples. Results ranged from 2.3 mg/Kg to 63,000 mg/Kg, with nine samples exceeding the RIDEM criterion of 500 mg/kg (note that this criterion is for Total Petroleum Hydrocarbons [TPH], which is composed of ETPH plus gasoline range organics [GRO]). Figure 4-20 shows the distribution of ETPH in subsurface soil. GRO was analyzed in 67 samples and detected in 23 samples. Results ranged from 0.79 to 51 mg/Kg, with an average of 9.89 mg/Kg.

4.1.3.4 Pesticides/PCBs in Exposed Subsurface Soil Samples

The following table presents data summary statistics for pesticides and PCBs detected in samples collected from exposed subsurface soil locations. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
4,4'-DDD	1/67	3.1	3.1	3.1	DA-SB106-0608	2000	0		
4,4'-DDE	3/67	2.1	0.92	1.44	DA-B112B-0608	1400	0		
4,4'-DDT	9/67	347	1.7	108	DA-S-TP07-0304-01	1700	0		
ALPHA-CHLORDANE	1/67	15	15	15	DA-B119B-0204	1600	0	500	0
AROCLOR-1248	2/67	2190	132	1160	DA-S-TP07-0910-01	220	1	10000	0
AROCLOR-1254	2/67	44.5	40	42.2	DA-S-TP15A-0910-01	1100	0	10000	0
AROCLOR-1260	6/67	1100	19	335	DA-SB-TP103-0506	220	3	10000	0
AROCLOR-1268	10/67	4060	27.4	622	DA-B104B-0406-AVG	220	3	10000	0
ENDOSULFAN SULFATE	1/67	2	2	2	DA-SB129-0406	370000	0		
ENDRIN ALDEHYDE	1/67	1.2	1.2	1.2	DA-SB133-0810	18000	0		
GAMMA-CHLORDANE	1/67	20	20	20	DA-B119B-0204	1600	0	500	0
HEPTACHLOR	6/67	52	1.28	14.1	DA-SB110-0810	110	0		
TOTAL AROCLORS	16/67	4060	19	665	DA-B104B-0406-AVG	220	5	10000	0
TOTAL DDD/DDE/DDT	12/67	347	1.3	82	DA-S-TP07-0304-01				

Pesticides were infrequently detected in this subgroup and were not detected at levels exceeding federal DCR criteria. Averages for pesticides that were detected were well below both federal and state DCRs.

PCBs as Aroclor mixtures were detected infrequently and were sometimes above federal DCRs. Aroclor-1248 was detected in just two of 67 samples, and exceeded the ORNLSLDCR of 220 µg/Kg in just one sample. Aroclor-1260 exceeded the ORNLSLDCR of 220 µg/Kg in three samples out of six detections. Aroclor-1268 was detected in ten of 67 samples, and exceeded the ORNLSLDCR of 220 µg/Kg in three samples. For PCBs in subsurface soils, Figures 4-21 through 4-23 present locations and concentrations of Aroclor-1260, Aroclor 1268, and Total Aroclors, respectively. PCBs were typically detected in exposed subsurface soils within areas of confirmed disposal or filling (the South Meadow and the area between the Paved Open Storage Area and Deerfield Creek). One sample within the northern part of the North Meadow (SB136) contained PCBs, but was below federal and state DCR criteria.

4.1.3.5 Metals in Exposed Subsurface Soil Samples

The following table presents data summary statistics for metals detected in samples collected from exposed subsurface soil samples (All concentrations are in units of mg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	67/67	27200	4450	12500	DA-SB139-1012	77000	0		
ANTIMONY	7/67	6.2	0.26	1.63	DA-S-TP07-0910-01	31	0	10	0
ARSENIC	67/67	40	2.7	16	DA-S-TP13-0203-01	0.39	67	7	58
BARIUM	67/67	653	6.9	37.4	DA-SB106-0608	15000	0	5500	0
BERYLLIUM	67/67	2.5	0.21	0.435	DA-S-TP15A-0203-01	160	0	0.4	25
CADMIUM	24/67	8.8	0.17	1.42	DA-SB132-0406	70	0	39	0
CALCIUM	67/67	53000	70	4420	DA-S-TP15A-0203-01				
CHROMIUM	67/67	98.2	2.6	17.3	DA-SB106-0608	230	0	390	0
COBALT	67/67	35.6	3.4	14.6	DA-SB106-0608	23	6		
COPPER	67/67	2600	2.1	64.3	DA-S-TP07-0910-01	3100	0	3100	0
IRON	67/67	134000	3800	31300	DA-SB106-0608	55000	5		
LEAD	67/67	4650	6.2	187	DA-SB106-0608	400	4	150	5
MAGNESIUM	67/67	24000	1160	4290	DA-S-TP15A-0203-01				
MANGANESE	67/67	3300	122	558	DA-S-SB03-0304-01	1800	2	390	34
MERCURY	45/67	0.22	0.0088	0.0482	DA-B105B-0204	23	0	23	0
MOLYBDENUM	45/67	58.8	0.12	1.9	DA-SB106-0608	390	0		
NICKEL	67/67	102	4.4	24.4	DA-SB106-0608	1600	0	1000	0
POTASSIUM	67/67	3400	81	461	DA-S-TP15A-0506-01				
SELENIUM	2/67	0.36	0.32	0.34	DA-S-TP15A-0506-01	390	0	390	0
SILVER	22/67	2.5	0.12	0.641	DA-S-TP07-0910-01	390	0	200	0
SODIUM	37/67	1500	24.7	135	DA-S-TP15A-0506-01				
THALLIUM	2/67	0.89	0.06	0.475	DA-S-TP05-0607-01	5.1	0	5.5	0
VANADIUM	67/67	53.8	6.1	19.7	DA-SB135-1214	390	0	550	0
ZINC	67/67	9840	30	236	DA-B110B-1012	23000	0	6000	1

Seven metals were detected at levels exceeding either federal DCR criteria, state DCR criteria, or both. Four of those metals were detected at levels exceeding criteria very infrequently. Cobalt, iron, lead and zinc were detected at levels exceeding criteria in anywhere from one to six samples. Only lead was detected at levels exceeding both state and federal DCR criteria.

Arsenic, beryllium and manganese were detected at levels exceeding criteria far more frequently. Beryllium exceeded state DCR criterion in 25 samples, but did not exceed federal DCR criterion in any samples. Manganese was detected at levels exceeding federal criterion in two samples, and state DCR criterion in 24 samples. Arsenic was the only metal detected above federal criteria in all 67 samples; arsenic also exceeded state DCR criteria in 58 samples. Figure 4-24 shows concentrations and locations of samples with arsenic.

4.1.3.6 Buried Container and Buried Drum Excavation Areas

As part of the RI borings were installed at the perimeter of the two former excavation areas: the Buried Container Area and the buried drum excavation area. These former excavation areas are described in Section 1.5.2.6. The RI borings were advanced in order to collect confirmatory soil samples for the excavations.

The Buried Container Area – This are is located between the paved open storage area and Deerfield Creek. Four DPT borings (SB104, SB105, SB106 and SB107) were advanced outside of the clean soil backfill that was placed in the excavation. The subsurface samples from these borings were SB104-0608; SB105-0406, SB106-0608, SB107-0103 and SB108-0204. A fifth DPT boring (SB108) was advanced at the center of the Buried Container Area to confirm that the backfill is clean. A sample was collected in SB108 from 2 to 4 feet bgs. However, a sample from below the excavation depth in SB108 was not obtained because the bedrock was encountered at a depth of 6 feet bgs. Analytical results from these soil samples indicate that PAHs remain in the soil around the excavation, but generally at concentrations similar to PAH concentrations in the surrounding subsurface soil. The exception seems to be the sample from SB106 (the southeastern most boring in the Buried Container Area) which has higher concentrations of PAHs then the others. It appears that during excavation of this area excavation to the southwest was not continued because the access road tow the Building 185 Area would have been compromised.

Buried Drum Area - The Buried Drum Area is in the South Meadow. Four DPT borings (SB123, SB124, SB125 and SB126) were advanced just outside the clean soil backfill of the drum excavation area. The subsurface samples were taken from these borings were SB123-0508; SB124-0608; SB125-0810; SB126-1013. A fifth DPT boring (SB127) was advanced at the center of the drum excavation area to confirm that backfill is clean and the sample collected was from 2 to 4 feet bgs. The central boring was advanced to a depth of 11.5 feet bgs, however no soil sample was collected below the excavation depth. Review of analytical results from the Buried Drum Area indicate that the PAH in soil samples from the perimeter of the excavation are generally similar or lower than PAH concentrations in the surrounding South Meadow subsurface soils. However, the sample from the center of the excavation contains PAHs much higher than the surrounding soil, suggesting that either the sample was not collected from the backfill used to fill the excavation or that the backfill was not clean.

4.1.4 Unexposed Subsurface Soil Samples

Evaluated in this section is the unexposed subsurface soil samples collected from depths below the unexposed surface soil locations (i.e., soil covered by a building or other artificial surface such as asphalt

or concrete) at the Site. This soil sample sub-group is representative of subsurface soil currently found onsite. The subsurface unexposed soil is represented by 31 subsurface soil samples.

Subsurface soil sample locations are shown on Figure 2-5. A summary of results for all detected chemicals for each sample within this soil sub-group is presented in Table 4-9. Complete results for all analyzed chemicals are included in Appendix F. The following sections summarize the subsurface soil data for this sub-group for the various chemical classes analyzed.

4.1.4.1 VOCs in Unexposed Subsurface Soil Samples

The following table presents data summary statistics for VOCs detected in unexposed subsurface soil samples. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,2,4-TRIMETHYLBENZENE	3/31	17000	2.25	10300	DA-S-SB04-2535-01	67000	0		
1,3,5-TRIMETHYLBENZENE	2/31	7500	74	3790	DA-SB116-0204	47000	0		
2-BUTANONE	9/31	48	2.8	14.7	DA-B100B-0608	28000000	0	10000000	0
4-ISOPROPYLTOLUENE	4/31	6400	2.5	2370	DA-S-SB04-2535-01				
ACETONE	25/31	900	9.2	194	DA-SB112-0608-AVG	61000000	0	7800000	0
BTEX	8/31	1600	0.61	237	DA-S-SB04-2535-01				
CARBON DISULFIDE	7/31	4	0.93	1.88	DA-B107B-0608	670000	0		
CIS-1,2-DICHLOROETHENE	1/31	2	2	2	DA-B109B-0204	780000	0	630000	0
ETHYLBENZENE	3/31	1600	0.82	570	DA-S-SB04-2535-01	5700	0	71000	0
ISOPROPYLBENZENE	6/31	2800	0.58	514	DA-S-SB04-2535-01	2200000	0		
M+P-XYLENES	5/31	170	0.61	35.4	DA-SB116-0204	4500000	0		
METHYLENE CHLORIDE	1/31	2	2	2	DA-SB120-0406	11000	0	45000	0
N-BUTYLBENZENE	5/31	8100	5	2240	DA-S-SB04-2535-01				
N-PRPYLBENZENE	5/31	6100	2	1290	DA-S-SB04-2535-01				
O-XYLENE	3/31	1.4	0.575	0.895	DA-S-SB05-0304-01	5300000	0		
SEC-BUTYLBENZENE	10/31	4700	1.1	712	DA-S-SB04-2535-01				
TERT-BUTYLBENZENE	6/31	110	0.54	21.4	DA-SB116-0204				
TETRACHLOROETHENE	1/31	0.64	0.64	0.64	DA-S-SB02-5565-01	570	0	12000	0
TOLUENE	1/31	2	2	2	DA-B108B-0406	5000000	0	190000	0
TOTAL 1,2-DICHLOROETHENE	1/31	2	2	2	DA-B109B-0204	700000	0		
TOTAL CHLORINATED ETHENES	3/31	5	0.64	2.55	DA-B109B-0204				
TOTAL CHLORINATED VOCS	4/31	5	0.64	2.41	DA-B109B-0204				

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
TOTAL XYLENES	5/31	170	0.61	35.9	DA-SB116-0204	600000	0	110000	0
TRICHLOROETHENE	1/31	2	2	2	DA-B101B-0406	2800	0	13000	0
VINYL CHLORIDE	1/31	3	3	3	DA-B109B-0204	60	0	20	0

Many VOCs were detected in this sub-group of subsurface soil, but detections were infrequent and at relatively low concentrations. There were no detections of VOCs at levels above federal and state DCR criteria. The only VOC frequently detected was acetone, a common laboratory contaminant. Other detected VOCs were detected in ten samples at the most. Maximum detections for many of the analytes were frequently reported in DA-S-SB04-2535-01 and DA-B109B-0204. The aromatic VOCs were detected at the highest concentrations in the eastern corner of the paved storage area (SB116 and SB04). The highest concentrations of chlorinated VOCs were detected most frequently in the western corner of the paved gated storage area (MW109B).

4.1.4.2 SVOCs in Unexposed Subsurface Soil Samples

Thirty one soil samples collected from unexposed subsurface soil locations were analyzed for SVOCs. Most of the compounds detected were PAHs. The following table presents data summary statistics for the SVOCs detected in these samples (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1-BIPHENYL	1/21	310	310	310	DA-SB116-0204	3900000	0		
2-METHYLNAPHTHALENE	12/31	2600	3.5	228	DA-SB116-0204	310000	0	123000	0
ACENAPHTHENE	12/31	65.5	2.6	14.8	DA-SB112-0608-AVG	3400000	0	43000	0
ACENAPHTHYLENE	2/31	670	5.2	338	DA-SB112-0608-AVG	3400000	0	23000	0
ANTHRACENE	10/31	730	7.8	95.8	DA-SB112-0608-AVG	17000000	0	35000	0
BENZO(A)ANTHRACENE	17/31	7700	5.4	561	DA-SB112-0608-AVG	150	5	900	1
BENZO(A)PYRENE	15/31	5700	5.6	452	DA-SB112-0608-AVG	15	12	400	1
BENZO(B)FLUORANTHENE	15/31	6500	12.2	522	DA-SB112-0608-AVG	150	4	900	1
BENZO(G,H,I)PERYLENE	16/31	1350	3.4	116	DA-SB112-0608-AVG	1700000	0	800	1
BENZO(K)FLUORANTHENE	15/31	5350	5.4	400	DA-SB112-0608-AVG	1500	1	900	1

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
BIS(2-ETHYLHEXYL)PHTHALATE	2/31	410	410	410	2 max samples	35000	0	46000	0
CHRYSENE	18/31	7550	3.3	511	DA-SB112-0608-AVG	15000	0	400	2
DIBENZO(A,H)ANTHRACENE	7/31	700	6.9	132	DA-SB112-0608-AVG	15	6	400	1
FLUORANTHENE	19/31	11500	5	772	DA-SB112-0608-AVG	2300000	0	20000	0
FLUORENE	10/31	170	2.9	31.1	DA-SB112-0608-AVG	2300000	0	28000	0
HIGH MOLECULAR WEIGHT PAHS	21/31	60600	3.3	3540	DA-SB112-0608-AVG				
INDENO(1,2,3-CD)PYRENE	14/31	2750	9	237	DA-SB112-0608-AVG	150	1	900	1
LOW MOLECULAR WEIGHT PAHS	21/31	4799.5	4.8	470	DA-SB112-0608-AVG				
NAPHTHALENE	8/30	125	2.4	24.5	DA-S-SB04-0910-01-AVG	3900	0	54000	0
PHENANTHRENE	18/31	3100	4.8	267	DA-SB112-0608-AVG	1700000	0	40000	0
PYRENE	17/31	11500	11.2	843	DA-SB112-0608-AVG	1700000	0	13000	0
TOTAL PAHS	23/31	65399.5	3.3	3670	DA-SB112-0608-AVG				

A total of eight SVOCs (all PAHs) exceeded either federal DCR criteria, state DCR criteria, or both. Along with many of the other SVOC analytes, the maximum concentration for each analyte that exceeded criteria was found in sample DA-SB112-0608-AVG, located in the paved open storage area.

Only benzo(a)pyrene exceeded criteria in more than 10 samples. It was detected at levels exceeding federal DCR criteria in 12 samples and at levels exceeding state DCR criteria in one sample.

The rest of the PAHs exceeded criteria in fewer than 7 samples each. Benzo(a)anthracene was detected at levels exceeding federal DCR criterion in five samples and at levels exceeding state DCR criterion in one sample. Benzo(b)fluoranthene exceeded federal DCR criterion in four samples and state DCR criterion in one sample. Benzo(g,h,i)perylene exceeded state DCR criterion in one sample but it did not exceed the federal DCR criterion. Only one sample, DA-SB112-0608-AVG, had exceedances of state and federal DCR criteria for benzo(k)fluoranthene. Chrysene at did not exceed the federal DCR criterion, and exceeded state DCR criterion in two samples. Dibenzo(a,h)anthracene exceeded federal DCR criterion in six samples and RIDEM DCR criterion in one sample. Indeno(1,2,3-cd)pyrene was detected at levels exceeding federal and state DCR criteria in one sample only, DA-SB112-0608-AVG.

Figures 4-13 through 4-18 present locations and concentrations of select PAHs detected in unexposed subsurface soil samples. Figure 4-19 presents total PAH distribution in subsurface soil samples. All figures detection levels to ORNLSLDCR criterion.

4.1.4.3 GRO/ETPH in Unexposed Subsurface Soil Samples

Some samples in this sub-group were also analyzed for petroleum compounds. ETPH was analyzed in 31 samples and was detected in 22 samples. Results ranged from 2.7 mg/Kg to 1,900 mg/Kg, above the RIDEM criterion of 500 mg/Kg (note that this criterion is for Total Petroleum Hydrocarbons [TPH], which is composed of ETPH plus gasoline range organics [GRO]). Figure 4-20 shows the distribution of ETPH in subsurface soil samples. GRO was analyzed in 31 samples and nine detections were reported. Results for GRO ranged from 0.39 mg/Kg to 920 mg/Kg, with an average of 208 mg/Kg.

4.1.4.4 Pesticides/PCBs in Unexposed Subsurface Soil Samples

The following table presents data summary statistics for pesticides and PCBs detected in unexposed subsurface soil samples. (All concentrations are in units of µg/kg).

PARAMETER	FREQUENCY	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
4,4'-DDD	3/29	9.2	1.4	4.08	DA-SB112-0608-AVG	2000	0		
4,4'-DDE	1/29	1.03	1.03	1.03	DA-SB113-0406-AVG	1400	0		
4,4'-DDT	1/29	1	1	1	DA-B101B-0406	1700	0		
AROCLOR-1260	1/29	1500	1500	1500	DA-SB111-0204	220	1	10000	0
HEPTACHLOR	1/29	1.12	1.12	1.12	DA-SB112-0608-AVG	110	0		
TOTAL AROCLOR	1/29	1500	1500	1500	DA-SB111-0204	220	1	10000	0
TOTAL DDD/DDE/DDT	3/29	9.2	2.4	4.76	DA-SB112-0608-AVG				
TOXAPHENE	1/29	45.9	45.9	45.9	DA-S-SB02-0304-01	440	0		

Aroclor-1260 was the only analyte to exceed criteria in this category, and it only exceeded the federal DCR criterion in one sample: SB111 in the northwestern corner of the paved open storage area. Pesticides/PCBs were detected at very low frequencies. The maximum number of detections was three, and that occurred for only 4,4'-DDD.

4.1.4.5 Metals in Unexposed Subsurface Soil Samples

The following table presents data summary statistics for metals detected in unexposed subsurface soil samples collected. (All concentrations are in units of mg/kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	ORNLSLDCR		RIDEMDCR	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	29/29	20700	3800	11200	DA-B100B-0608	77000	0		
ANTIMONY	1/29	0.472	0.472	0.472	DA-SB113-0406-AVG	31	0	10	0
ARSENIC	29/29	122	2.25	18	DA-SB113-0406-AVG	0.39	29	7	28
BARIUM	29/29	55.8	8.5	23.4	DA-SB116-0204	15000	0	5500	0
BERYLLIUM	28/29	0.76	0.2	0.378	DA-SB113-0406-AVG	160	0	0.4	5
CADMIUM	3/29	0.41	0.18	0.29	DA-SB111-0204	70	0	39	0
CALCIUM	29/29	9620	160	1320	DA-SB111-0204				
CHROMIUM	29/29	103	6.8	18.5	DA-SB111-0204	230	0	390	0
COBALT	29/29	21.5	5.7	12.4	DA-SB102-0305	23	0		
COPPER	29/29	26.4	7.8	17.6	DA-SB111-0204	3100	0	3100	0
IRON	29/29	40000	13000	26700	DA-B100B-0608	55000	0		
LEAD	29/29	159	6.9	18	DA-SB111-0204	400	0	150	1
MAGNESIUM	29/29	7120	960	3140	DA-SB101-0608-AVG				
MANGANESE	29/29	2820	171	599	DA-SB102-0305	1800	3	390	10
MERCURY	10/29	0.12	0.00808	0.0393	DA-B109B-0204	23	0	23	0
MOLYBDENUM	21/29	1.56	0.185	0.589	DA-SB113-0406-AVG	390	0		
NICKEL	29/29	36.4	8	20.8	DA-SB101-0608-AVG	1600	0	1000	0
POTASSIUM	29/29	1080	120	390	DA-B101B-0406				
SELENIUM	4/29	1	0.598	0.784	DA-SB119-0204	390	0	390	0
SILVER	12/29	0.61	0.034	0.256	DA-SB111-0204	390	0	200	0
SODIUM	15/29	156	28.9	72.2	DA-SB100-0204				
THALLIUM	4/29	0.28	0.2	0.236	DA-S-SB01-0809-01	5.1	0	5.5	0
VANADIUM	29/29	29.4	9.4	18.5	DA-B109B-0204	390	0	550	0
ZINC	29/29	81.2	23	51.5	DA-SB111-0204	23000	0	6000	0

Four metals were detected at levels that exceeded federal DCR criteria or state DCR criteria or both. Those metals were arsenic, beryllium, lead and manganese. Arsenic was the only metal detected at levels exceeding criteria in more than 10 samples. Arsenic exceeded federal DCR criterion in all 29 samples within this subgroup and exceeded RIDEMDCR criterion in 28 samples. Figure 4-25 presents arsenic concentrations of subsurface soil samples.

Beryllium, lead, and manganese exceeded criteria much less frequently than arsenic. Beryllium and lead did not exceed federal DCR and exceeded state DCR criteria in five and one samples, respectively. Manganese (Figure 4-30) exceeded federal DCR criterion in three samples and exceeded state DCR criterion in 10 samples.

4.1.5 Summary of Nature and Extent of Soil Contamination

This section presents a summary of soil contamination, presented according to chemical class, generally comparing chemicals detected in the surface and subsurface soil and in particular areas of the Site.

4.1.5.1 VOCs

VOCs were detected in site soils at low concentrations relative to state and federal DCR criteria, with no exceedances.

4.1.5.2 SVOCs

PAHs are the SVOCs most frequently detected above state and federal criteria. PAHs are often byproducts of combustion and are common constituents of urban fill. PAHs are above criteria in surface and subsurface soils from the South Meadow, the Paved Storage Area, and to the west, between the Paved Storage Area and Deerfield Creek. PAHs also exceed criteria in some soil samples from the Building 185 Complex, however, fewer PAHs were detected at elevated concentrations in subsurface soil from this area, compared to surface soil.

In surface soil samples from the North Meadow, several PAHs exceed criteria; no subsurface soil samples from the North Meadow exceeded federal or state criteria. In the area located to the north of the North Meadow and the area south of the Site boundary at SB153, several PAHs were exceeded in some surface and subsurface soil samples. West of NUWC Pond, surface soil exceeded criteria for some PAHs, but subsurface soil samples did not exceed federal or state criteria.

In general, the highest concentrations of PAHs were detected most frequently in soil samples from the South Meadow, compared to soils from the other areas. The two PAHs which most frequently exceeded criteria in the South Meadow are benzo(a)pyrene and dibenzo(a,h)anthracene. For subsurface soils in particular, three areas within the South Meadow consistently had some of the highest concentrations of PAHs, including the former drum removal area, north of this area, and the area immediately west-northwest of the Paved Open Storage Area, where the most elevated levels of PAHs in subsurface soils were detected. During soil sampling at the South Meadow, combustion materials were observed at two locations, and elevated concentrations of PAHs were reported in soils from these locations.

4.1.5.3 Metals

Arsenic concentrations detected in surface and subsurface soil samples exceeded the federal DCR

criterion in every sample but one, and exceeded the state DCR in nearly 90 percent of the samples. Three of the four highest concentrations of arsenic, which exceeded the federal criterion by more than 100 times, were detected in soils from the Paved Storage Areas. One additional sample with arsenic detected in this range was located in the northernmost portion of the North Meadow.

4.1.5.4 Pesticides and PCBs

Four PCB congeners (Aroclors) were detected in soil samples from the Site, most very infrequently, particularly in unexposed soils in both surface and subsurface soil groups.

Aroclor-1260 was the most frequently detected PCB, reported in approximately 43 percent of exposed surface soil samples; however, only five of the 33 detections in this soil group exceeded the federal criterion, and the state criterion was not exceeded. The other three PCBs, Aroclor-1268, Aroclor-1254, and Aroclor-1248, were detected at a low frequency, as was Aroclor-1260 in all other soil groups.

In unexposed soils, only one sample exceeded a criterion, and this was in the only detection of PCBs in unexposed subsurface soils, where Aroclor-1260 exceeded the federal criterion at SB111 only (from 2 to 4 feet bgs), located at the extreme northwest corner of the Paved Open Storage Area. Immediately west of this location, Aroclor-1260 also exceeded the criterion in an exposed surface soil sample collected near the embankment of Deerfield Creek. Aroclor-1260 exceeded the criterion in only three other surface soil samples (exposed soils), located either in the southern portion of the Site or west of NUWC Pond. In subsurface soil, Aroclor-1260 was also above screening criteria in the South Meadow and at the northwestern corner of the Paved Open Storage Area.

Aroclor-1268 was detected at concentrations above screening criteria in surface soil in the South Meadow and between the Paved Open Storage Area and Deerfield Creek and in a sample north of the northern edge of NUWC Pond. In subsurface soil, Aroclor-1268 was detected at concentrations above the federal screening level in a few South Meadow locations.

Aroclor-1254 was detected in exposed soil locations only, two surface soil and two subsurface soil test pit locations. Only one sample exceeded the criterion.

Aroclor-1248 was detected in one unexposed surface soil location and in 2 exposed subsurface soil locations, with just one sample exceeding the criterion.

Several pesticides were detected infrequently, and at concentrations below federal and state screening criteria.

4.2 NATURE AND EXTENT OF CONTAMINATION IN GROUNDWATER

This section presents the results from analysis of groundwater samples. Groundwater samples were collected from monitoring wells using the "EPA Region I Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells Revision 2", dated July 30, 1996, as amended 2002. In addition, a complete presentation of all the groundwater data collected in this RI (including non-detected results) is presented in Appendix F. Data validation memoranda are presented in Appendix G.

The groundwater samples evaluated for this RI include samples collected at the Site during the period from May through August 2008 from groundwater monitoring wells and from passive vapor diffusion bags (sampled for VOCs only). In addition, for the purposes of the nature and extent of contamination discussion, a general comparison of groundwater results is included in Section 4.2.4 for three onsite bedrock wells that were sampled in both 2008 as well as in 2003 as part of the SASE (MW-02B, MW-03B and MW-04B). It is noted that the 2003 groundwater data is not evaluated in the HHRA based on the availability of the more recent 2008 data.

For discussion and evaluation purposes, analytical results for groundwater samples are divided into five sub-groups, or "Sample Evaluation Groups": (1) upgradient monitoring well samples from overburden or the overburden-bedrock interface zone (three locations); (2) upgradient monitoring well samples from bedrock (five locations); (3) onsite monitoring well samples from overburden or the overburden-bedrock interface zone (four locations); (4) onsite monitoring well samples from bedrock (24 locations); and (5) onsite vapor diffusion samples (14 locations, for VOCs only, collected at the water table along the eastern shoreline of NUWC Pond). The locations of the groundwater monitoring wells and passive diffusion samples are shown on Figure 2-7.

Within sub-groups, the evaluation is further divided by analyte group: VOCs, GRO/ETPH, SVOCs, pesticides, and metals, as applicable. It is noted that PCB compounds as well as cyanide (which is reported with the metals sample fraction) were not detected in any of the groundwater samples. These chemicals are therefore not listed or discussed further in the subsections below. The natural attenuation/wet chemistry results for all sub-groups are summarized at the end of the section. Table 4-2 summarizes the screening criteria for groundwater.

The distribution and concentrations of several compounds are shown on a series of figures for reference with the discussions that follow (all groundwater sub-groups are included on each figure). The compounds with associated distribution/concentration figures include: PCE, Figure 4-25, and breakdown products of PCE, including trichloroethene (TCE), Figure 4-26; cis-1,2-dichloroethene (cis-1,2-DCE),

Figure 4-27; and vinyl chloride, Figure 4-28. The distribution/concentration figures also include 1,1,1-trichloroethane (1,1,1-TCA), Figure 4-29, and breakdown products of 1,1,1-TCA including 1,1-dichloroethane (1,1-DCA) as Figure 4-30 and chloroethane as Figure 4-31. The compound 1,1-dichloroethene (1,1-DCE) is shown on Figure 4-32. Carbon tetrachloride is shown on Figure 4-33, and possible breakdown products are chloroform (Figure 4-46) and chloromethane (Figure 4-35). Toluene in groundwater is shown on Figure 4-36 and ETPH is shown on Figure 4-37.

The distribution/concentration of several metals in groundwater are also shown using the following figures: arsenic (Figure 4-38) and dissolved arsenic (Figure 4-39); iron (Figure 4-40) and dissolved iron (Figure 4-41); manganese (Figure 4-42) and dissolved manganese (Figure 4-43); and aluminum (Figure 4-44) and dissolved aluminum (Figure 4-45).

Two tables are applicable to the discussion of VOCs for all groundwater sub-groups; they include summaries of results by sample location: for PCE and its anaerobic degradation breakdown products (Table 4-10), and for 1,1,1-TCA and its anaerobic degradation breakdown products (Table 4-11).

4.2.1 Contaminant Nature and Extent in Upgradient Groundwater: Overburden-Bedrock Interface Zone

In areas upgradient of the Site, groundwater samples were collected from the overburden-bedrock interface zone at three locations, south and southeast of the Site: MW-07A, MW-13A, and MW-106S. A summary of results for detected chemicals in the three samples within this groundwater sub-group is presented in Table 4-12. Complete results for all analyzed chemicals are included in Appendix F. A discussion of the results is presented below.

4.2.1.1 VOCs, GRO/ETPH, SVOCs and Pesticides in Upgradient Groundwater: Overburden-Bedrock Interface Zone

The following table presents data summary statistics for VOCs and petroleum hydrocarbon results (GRO/ETPH) from three groundwater samples collected from the overburden-bedrock interface zone at upgradient locations. SVOCs and pesticides were not detected in any of the three samples analyzed in this sub-group (pesticides/PCBs were not analyzed in MW-13A. Summary statistics are provided for compounds that were detected. (All concentrations are in µg/L).

VOCs	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1,1-TRICHLOROETHANE	1/3	260	260	260	DA-MW07A-2008LOCMAX	9100	0	200	1	200	1
1,1-DICHLOROETHANE	1/3	380	380	380	DA-MW07A-2008LOCMAX	2.4	1				
1,1-DICHLOROETHENE	1/3	4	4	4	DA-MW07A-2008LOCMAX	340	0	7	0	7	0
ACETONE	2/3	10	9	9.5	DA-MW106S-2008LOCMAX	22000	0				
BTEX	1/3	0.3	0.3	0.3	DA-MW07A-2008LOCMAX						
CHLOROETHANE	1/3	85	85	85	DA-MW07A-2008LOCMAX	21000	0				
CIS-1,2-DICHLOROETHENE	1/3	1	1	1	DA-MW07A-2008LOCMAX	370	0	70	0	70	0
EXTRACTABLE TPH (ETPH, C09-C36)	2/3	570	58	314	DA-MW07A-2008LOCMAX						
GRO/ETPH											
GASOLINE RANGE ORGANICS (GRO)	1/3	140	140	140	DA-MW07A-2008LOCMAX						
O-XYLENE	1/3	0.3	0.3	0.3	DA-MW07A-2008LOCMAX	1400	0	10000	0	10000	0
TETRACHLOROETHENE	1/3	2	2	2	DA-MW07A-2008LOCMAX	0.11	1	5	0	5	0
TOTAL 1,2-DICHLOROETHENE	1/3	1	1	1	DA-MW07A-2008LOCMAX	330	0				
TOTAL CHLORINATED ETHENES	2/3	3.9	0.4	2.15	DA-MW07A-2008LOCMAX						
TOTAL CHLORINATED VOCS	2/3	732.9	0.4	367	DA-MW07A-2008LOCMAX						
TOTAL XYLENES	1/3	0.3	0.3	0.3	DA-MW07A-2008LOCMAX	200	0	10000	0	10000	0
TRICHLOROETHENE	2/3	0.9	0.4	0.65	DA-MW07A-2008LOCMAX	1.7	0	5	0	5	0

In two of the three samples, MW-13A and MW-106S, VOCs and GRO/ETPH compounds were not detected, with the exception of very low concentrations of TCE and ETPH reported in MW-13A (at 0.4 J µg/L and 58 J µg/L, respectively), and acetone, a common laboratory contaminant, reported in MW-106S.

The third upgradient location, MW-7A, was installed as part of a previous RI, the “Building 179 Concrete UST RI,” conducted by TRC in 1999. This location is adjacent to a known contaminant source, a concrete underground storage tank (CUST), and is approximately 370 feet south of the Site, near Building 179. TRC reported that the highest concentrations of total VOCs in groundwater had been detected at this location (MW-7A/7B), and that primary groundwater contaminants associated with the CUST included 1,1,1-TCA, as well as its breakdown products, 1,1-DCA and chloroethane.

The 2008 analytical results from MW-7A indicate the presence of nine individual VOCs, including two at concentrations exceeding the ORNLs (PCE and 1,1-DCA) and one exceeding the MCL (1,1,1-TCA). The six additional VOCs detected include: 1,1-DCE; chloroethane; cis-1,2-DCE; o-xylene; TCE; and acetone (a common laboratory contaminant). GRO and ETPH were reported at MW-7A at 140 and 570 µg/L, respectively.

4.2.1.2 Metals in Upgradient Groundwater: Overburden-Bedrock Interface Zone

Two of the three wells in this sub-group were analyzed for both total and dissolved (field-filtered) metals. These parameters were not analyzed in MW-13A. The table below presents data summary statistics for total metals sample results from the two upgradient monitoring well locations that are screened within the overburden-bedrock interface zone. Summary statistics are provided for the 13 compounds that were detected. (All concentrations are in µg/L).

PARAMETER (TOTAL)	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	1/2	336	336	336	DA-MW106S-2008LOCMAX	37000	0	50	1		
ARSENIC	2/2	7.7	5.8	6.75	DA-MW106S-2008LOCMAX	0.045	2	10	0		
BARIUM	2/2	80.8	9.6	45.2	DA-MW07A-2008LOCMAX	7300	0	2000	0	2000	0
CALCIUM	2/2	53900	20300	37100	DA-MW07A-2008LOCMAX						
COBALT	2/2	14.5	7.7	11.1	DA-MW07A-2008LOCMAX	11	1				
IRON	2/2	12200	3120	7660	DA-MW07A-2008LOCMAX	26000	0	300	2		
LEAD	1/2	1.7	1.7	1.7	DA-MW07A-2008LOCMAX			15	0	15	0
MAGNESIUM	2/2	10500	6090	8300	DA-MW106S-2008LOCMAX						
MANGANESE	2/2	5280	535	2910	DA-MW07A-2008LOCMAX	880	1	50	2		
NICKEL	1/2	8.1	8.1	8.1	DA-MW106S-2008LOCMAX	730	0			100	0
POTASSIUM	2/2	14500	2040	8270	DA-MW07A-2008LOCMAX						
SILVER	1/2	0.55	0.55	0.55	DA-MW07A-2008LOCMAX	180	0	100	0		
SODIUM	2/2	64600	12000	38300	DA-MW07A-2008LOCMAX						

Arsenic and cobalt were detected at concentrations exceeding the ORNLs only, two other metals exceeded the MCLs only (aluminum and iron), and one metal (manganese) exceeded both the ORNL and the MCL. Of the three detected metals with associated RIDEM GA criteria, none were detected at concentrations exceeding these criteria. Of the 13 total detected metals, nine were reported at their maximum concentrations at the CUST-related location MW-7A, including two of the three metals that exceeded the ORNLs, and two of three that exceeded the MCLs.

Data summary statistics for dissolved metals sample results from this sub-group are presented below. (All concentrations are in µg/L).

PARAMETER (DISSOLVED)	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ARSENIC	2/2	5.8	4.3	5.05	DA-MW106S-2008LOCMAX	0.045	2	10	0		
BARIUM	2/2	76	7.9	42	DA-MW07A-2008LOCMAX	7300	0	2000	0	2000	0
CALCIUM	2/2	52100	20700	36400	DA-MW07A-2008LOCMAX						
COBALT	2/2	12.3	7	9.65	DA-MW07A-2008LOCMAX	11	1				
IRON	2/2	10600	2420	6510	DA-MW07A-2008LOCMAX	26000	0	300	2		
LEAD	1/2	2.2	2.2	2.2	DA-MW07A-2008LOCMAX			15	0	15	0
MAGNESIUM	2/2	10600	6120	8360	DA-MW106S-2008LOCMAX						
MANGANESE	2/2	5400	519	2960	DA-MW07A-2008LOCMAX	880	1	50	2		
NICKEL	1/2	7.5	7.5	7.5	DA-MW106S-2008LOCMAX	730	0			100	0
POTASSIUM	2/2	13400	2010	7700	DA-MW07A-2008LOCMAX						
SELENIUM	1/2	1.3	1.3	1.3	DA-MW106S-2008LOCMAX	180	0	50	0	50	0
SILVER	1/2	0.42	0.42	0.42	DA-MW07A-2008LOCMAX	180	0	100	0		
SODIUM	2/2	60400	12200	36300	DA-MW07A-2008LOCMAX						

With the exception of aluminum which was not detected in the filtered samples, those total metals samples that exceeded the ORNLs and/or the MCLs, as summarized above, also exceeded these criteria in the corresponding filtered metals samples.

4.2.2 Contaminant Nature and Extent in Upgradient Groundwater: Bedrock

In areas upgradient of the Site, groundwater samples were collected from bedrock wells at five locations: MW-07B, MW-09B, MW-101B, and MW-106B, to the south and southeast of the Site; and MW-120B, northwest of the Site and upgradient of NUWC Pond. A summary of results for detected chemicals in the five samples within this groundwater subgroup is presented in Table 4-13. Complete results for all analyzed chemicals are included in Appendix F. A discussion of the results is presented below.

It is noted that SVOCs and pesticides were not detected in any of the five samples analyzed in this upgradient sub-group, with the exception of a trace level of one SVOC, di-n-butyl phthalate, at MW-106B.

4.2.2.1 VOCs in Upgradient Bedrock Groundwater

The following table presents data summary statistics for VOCs results from five bedrock groundwater samples collected from upgradient locations. Summary statistics are provided for compounds that were detected. (All concentrations are in µg/L).

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1,1-TRICHLOROETHANE	3/5	1600	76	595	DA-MW07B-2008LOCMAX	9100	0	200	1	200	1
1,1,2-TRICHLOROETHANE	1/5	0.3	0.3	0.3	DA-MW07B-2008LOCMAX	0.24	1	5	0	5	0
1,1-DICHLOROETHANE	3/5	1000	47	617	DA-MW07B-2008LOCMAX	2.4	3				
1,1-DICHLOROETHENE	3/5	79	14	50.3	DA-MW101B-2008LOCMAX	340	0	7	3	7	3
1,2,4-TRIMETHYLBENZENE	1/5	5	5	5	DA-MW07B-2008LOCMAX	15	0				
1,3,5-TRIMETHYLBENZENE	1/5	1	1	1	DA-MW07B-2008LOCMAX	12	0				
ACETONE	2/5	14	3	8.5	DA-MW09B-2008LOCMAX	22000	0				
BTEX	1/5	5	5	5	DA-MW07B-2008LOCMAX						
CHLOROETHANE	3/5	270	0.4	97.5	DA-MW101B-2008LOCMAX	21000	0				
CHLOROMETHANE	1/5	4	4	4	DA-MW101B-2008LOCMAX	1.8	1				
CIS-1,2-DICHLOROETHENE	1/5	0.4	0.4	0.4	DA-MW101B-2008LOCMAX	370	0	70	0	70	0
ETHYLBENZENE	1/5	1	1	1	DA-MW07B-2008LOCMAX	1.5	0	700	0	700	0
ISOPROPYLBENZENE	1/5	0.5	0.5	0.5	DA-MW07B-2008LOCMAX	680	0				
M+P-XYLENES	1/5	1	1	1	DA-MW07B-2008LOCMAX			10000	0	10000	0
N-BUTYLBENZENE	1/5	2	2	2	DA-MW07B-2008LOCMAX						
N-PROPYLBENZENE	1/5	1	1	1	DA-MW07B-2008LOCMAX						
O-XYLENE	1/5	1	1	1	DA-MW07B-2008LOCMAX	1400	0	10000	0	10000	0
SEC-BUTYLBENZENE	1/5	0.5	0.5	0.5	DA-MW07B-2008LOCMAX						
TETRACHLOROETHENE	1/5	2	2	2	DA-MW07B-2008LOCMAX	0.11	1	5	0	5	0
TOLUENE	1/5	2	2	2	DA-MW07B-2008LOCMAX	2300	0	1000	0	1000	0
TOTAL 1,2-DICHLOROETHENE	1/5	0.4	0.4	0.4	DA-MW101B-2008LOCMAX	330	0				
TOTAL CHLORINATED ETHENES	3/5	11.4	0.5	6.23	DA-MW101B-2008LOCMAX						
TOTAL CHLORINATED VOCS	3/5	2687.1	137.9	1360	DA-MW07B-2008LOCMAX						
TOTAL XYLENES	1/5	2	2	2	DA-MW07B-2008LOCMAX	200	0	10000	0	10000	0
TRICHLOROETHENE	3/5	5	0.5	3.17	DA-MW101B-2008LOCMAX	1.7	2	5	0	5	0
VINYL CHLORIDE	2/5	6	0.8	3.4	DA-MW101B-2008LOCMAX	0.016	2	2	1	2	1

VOCs were not detected at two of the five locations, MW-106B and MW-120B, located to the southeast and northwest of the Site, respectively. Results from the other three upgradient bedrock locations directly south of the Site (MW-07B, -09B, and -101B) indicate the presence of 21 VOCs, with six to 19

compounds detected at each of the three locations. Five VOCs that were detected at all three locations south of the Site were either chlorinated ethenes or chlorinated ethanes. Six VOCs exceeded the ORNLs at up to three locations: PCE; TCE; vinyl chloride (which also exceeded the MCL); 1,1,2-TCA; 1,1-DCA; and chloromethane. Two additional compounds exceeded MCLs and RIDEM GA criteria: 1,1-DCE at three locations and 1,1,1-TCA at one location. Additional VOCs detected include chloroethane (at three locations); alkyl benzene compounds (at MW-07B only); cis-1,2-DCE (at MW-101B only); and acetone (a common laboratory contaminant).

4.2.2.2 GRO/ETPH and SVOCs in Upgradient Bedrock Groundwater

The table below presents data summary statistics for GRO/ETPH results from the five upgradient bedrock groundwater samples. (All concentrations are in µg/L).

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
GASOLINE RANGE ORGANICS (GRO)	2/5	510	105	308	DA-MW07B-2008LOCMAX						
EXTRACTABLE TPH (ETPH, C09-C36)	2/5	200	70	135	DA-MW07B-2008LOCMAX						

The results of GRO/ETPH analyses for the five samples in this sub-group indicate low concentrations of these compounds were detected at MW-07B, and somewhat lower concentrations at MW-101B (no criteria are established for GRO or ETPH).

Of the five upgradient bedrock groundwater samples analyzed for SVOCs, a trace concentration of only one SVOC was detected at one location: 3 µg/L of di-n-butyl phthalate at MW-106B (no criteria established for this compound).

4.2.2.3 Metals in Upgradient Bedrock Groundwater

The table below presents data summary statistics for metals results from the five upgradient bedrock groundwater samples. Summary statistics are provided for the 19 compounds that were detected. (All concentrations are in µg/L).

METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	4/5	4920	415	1970	DA-MW101B-2008LOCMAX	37000	0	50	4		
ARSENIC	3/5	34.4	2.45	15	DA-MW07B-2008LOCMAX	0.045	3	10	1		
BARIUM	5/5	72.8	14	35.8	DA-MW07B-2008LOCMAX	7300	0	2000	0	2000	0
BERYLLIUM	1/5	0.27	0.27	0.27	DA-MW120B-2008LOCMAX	73	0	4	0	4	0
CALCIUM	5/5	77600	37400	53600	DA-MW101B-2008LOCMAX						
CHROMIUM	3/5	9.9	1.5	6.27	DA-MW106B-2008LOCMAX	110	0	100	0	100	0
COBALT	3/5	12.9	3.6	6.85	DA-MW120B-2008LOCMAX	11	1				
COPPER	2/5	10.4	9.8	10.1	DA-MW106B-2008LOCMAX	1500	0	1300	0		
IRON	5/5	44800	9420	21900	DA-MW07B-2008LOCMAX	26000	2	300	5		
LEAD	5/5	3.7	1.4	2.04	DA-MW101B-2008LOCMAX			15	0	15	0
MAGNESIUM	5/5	24900	7790	14000	DA-MW120B-2008LOCMAX						
MANGANESE	5/5	1620	248	813	DA-MW120B-2008LOCMAX	880	2	50	5		
MOLYBDENUM	2/5	2.6	2	2.3	DA-MW106B-2008LOCMAX	180	0				
NICKEL	4/5	29.2	5.9	12.6	DA-MW120B-2008LOCMAX	730	0			100	0
POTASSIUM	5/5	1850	711	1290	DA-MW09B-2008LOCMAX						
SILVER	3/5	0.69	0.268	0.526	DA-MW09B-2008LOCMAX	180	0	100	0		
SODIUM	5/5	47100	8940	30200	DA-MW09B-2008LOCMAX						
VANADIUM	2/5	7.65	2.1	4.88	DA-MW101B-2008LOCMAX	180	0				
ZINC	5/5	42	14.8	27.3	DA-MW09B-2008LOCMAX	11000	0	5000	0		

In the five samples from this sub-group, three metals (arsenic, iron and manganese) were detected at concentrations exceeding the associated ORNLs and MCLs in one or more samples, and two others exceeded either the MCL only (aluminum), or the ORNL (cobalt). Of the five detected metals with associated RIDEM GA criteria, none of the detected concentrations exceeded these criteria. The maximum concentrations of the 19 metals detected in upgradient bedrock groundwater were distributed between the five locations, with between three and five metals reported at their maximums at each location. Of the three metals that exceeded both ORNLs and MCLs, two were reported at their maximum concentrations at MW-07B.

Data summary statistics for dissolved (field-filtered) metals sample results from this sub-group are presented below. (All concentrations are in µg/L).

FILTERED METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	1/5	17.6	17.6	17.6	DA-MW120B-2008LOCMAX	37000	0	50	0		

FILTERED METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ARSENIC	2/5	24.7	4.5	14.6	DA-MW07B-2008LOCMAX	0.045	2	10	1		
BARIUM	4/5	47.4	17.9	32.4	DA-MW106B-2008LOCMAX	7300	0	2000	0	2000	0
BERYLLIUM	1/5	0.24	0.24	0.24	DA-MW120B-2008LOCMAX	73	0	4	0	4	0
CALCIUM	5/5	77400	36400	52700	DA-MW101B-2008LOCMAX						
COBALT	1/5	12.2	12.2	12.2	DA-MW120B-2008LOCMAX	11	1				
IRON	4/5	15000	556	5160	DA-MW120B-2008LOCMAX	26000	0	300	4		
MAGNESIUM	5/5	24200	7740	13400	DA-MW120B-2008LOCMAX						
MANGANESE	5/5	1570	81.5	676	DA-MW120B-2008LOCMAX	880	2	50	5		
NICKEL	2/5	26.7	0.46	13.6	DA-MW120B-2008LOCMAX	730	0			100	0
POTASSIUM	5/5	1780	660	1200	DA-MW09B-2008LOCMAX						
SILVER	1/5	0.418	0.418	0.418	DA-MW101B-2008LOCMAX	180	0	100	0		
SODIUM	5/5	47300	8980	30400	DA-MW09B-2008LOCMAX						
THALLIUM	1/5	1.8	1.8	1.8	DA-MW120B-2008LOCMAX	2.4	0	2	0	2	0
ZINC	1/5	11.7	11.7	11.7	DA-MW120B-2008LOCMAX	11000	0	5000	0		

With the exception of aluminum, the total metal samples that exceeded the ORNLs and/or the MCLs (as summarized above), also exceeded these criteria in one or more of the five filtered (dissolved) metals samples. Dissolved arsenic and manganese exceeded the ORNLs and MCLs in one or more samples, dissolved cobalt exceeded the ORNL in one sample, and dissolved iron exceeded the MCL in four samples.

4.2.3 Contaminant Nature and Extent in Site Groundwater: Overburden-Bedrock Interface Zone

In onsite areas, groundwater samples were collected from the overburden-bedrock interface zone at four locations. A summary of results for detected chemicals in the four samples within this groundwater sub-group is presented in Table 4-14. Complete results for all analyzed chemicals are included in Appendix G. A discussion of the results is presented below.

4.2.3.1 VOCs in Site Groundwater: Overburden-Bedrock Interface Zone

The following table presents data summary statistics for VOCs results from groundwater samples collected at four onsite locations, from the overburden or overburden-bedrock interface zone. Summary statistics are provided for compounds that were detected. (All concentrations are in µg/L).

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1,1-TRICHLOROETHANE	1/4	1	1	1	DA-MW122-2008LOCMAX	9100	0	200	0	200	0
1,1-DICHLOROETHANE	1/4	0.4	0.4	0.4	DA-MW122-2008LOCMAX	2.4	0				
ACETONE	2/4	8	2.25	5.12	DA-MW103S-2008LOCMAX	22000	0				
CIS-1,2-DICHLOROETHENE	1/4	0.4	0.4	0.4	DA-MW123-2008LOCMAX	370	0	70	0	70	0
TETRACHLOROETHENE	2/4	2	0.5	1.25	DA-MW123-2008LOCMAX	0.11	2	5	0	5	0
TOTAL 1,2-DICHLOROETHENE	1/4	0.4	0.4	0.4	DA-MW123-2008LOCMAX	330	0				
TOTAL CHLORINATED ETHENES	2/4	3.3	0.5	1.9	DA-MW123-2008LOCMAX						
TOTAL CHLORINATED VOCS	3/4	3.3	0.5	1.73	DA-MW123-2008LOCMAX						
TRICHLOROETHENE	1/4	0.9	0.9	0.9	DA-MW123-2008LOCMAX	1.7	0	5	0	5	0

Six VOCs were detected in groundwater from this sub-group, with four of the six compounds detected only at low concentrations and at just one of two locations: either MW-122 (1,1,1-TCA and 1,1-DCA) or MW-123 (TCE and cis-1,2-DCE). The only VOC that exceeded an ORNL was PCE, detected at MW-112S and MW-123, exceeding the ORNL of 0.11 µg/L at both locations. The only additional VOC detected was the common laboratory contaminant acetone, reported at low concentrations at MW-103S and MW-122. No MCLs or RIDEM GA criteria were exceeded.

4.2.3.2 ETPH, SVOCs and Pesticides in Site Groundwater: Overburden-Bedrock Interface Zone

ETPH was reported only at MW-103S, at a low concentration of 220 µg/L.

Low concentrations of three SVOCs were detected, each at just one location: bis(2-ethylhexyl)phthalate and phenanthrene at MW-103S, and benzyl alcohol at MW-123. Associated ORNLs and MCLs were not exceeded.

The pesticide compound, dieldrin, was detected at MW-122 at 0.0108 µg/L, which exceeds the ORNL of 0.0042 µg/L.

4.2.3.3 Metals in Site Groundwater: Overburden-Bedrock Interface Zone

The tables below present data summary statistics for total metals and dissolved metals sample results from the four onsite monitoring well locations that are screened within the overburden-bedrock interface zone. (All concentrations are in µg/L).

METALS (TOTAL)	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	2/4	564000	3420	284000	DA-MW103S-2008LOCMAX	37000	1	50	2		
ARSENIC	2/4	503	2.7	253	DA-MW103S-2008LOCMAX	0.045	2	10	1		
BARIUM	4/4	1390	9.5	358	DA-MW103S-2008LOCMAX	7300	0	2000	0	2000	0
BERYLLIUM	1/4	17.8	17.8	17.8	DA-MW103S-2008LOCMAX	73	0	4	1	4	1
CALCIUM	4/4	226000	26200	84300	DA-MW103S-2008LOCMAX						
CHROMIUM	2/4	868	5.2	437	DA-MW103S-2008LOCMAX	110	1	100	1	100	1
COBALT	2/4	637	3.7	320	DA-MW103S-2008LOCMAX	11	1				
COPPER	2/4	1440	6.5	723	DA-MW103S-2008LOCMAX	1500	0	1300	1		
IRON	4/4	1210000	19.4	304000	DA-MW103S-2008LOCMAX	26000	1	300	2		
LEAD	2/4	1890	3.6	947	DA-MW103S-2008LOCMAX			15	1	15	1
MAGNESIUM	4/4	195000	6210	54800	DA-MW103S-2008LOCMAX						
MANGANESE	4/4	13800	0.972	3800	DA-MW103S-2008LOCMAX	880	2	50	3		
MERCURY	1/4	1.9	1.9	1.9	DA-MW103S-2008LOCMAX	11	0	2	0	2	0
MOLYBDENUM	2/4	20.3	4.45	12.4	DA-MW103S-2008LOCMAX	180	0				
NICKEL	2/4	1160	6.5	583	DA-MW103S-2008LOCMAX	730	1			100	1
POTASSIUM	4/4	41800	1300	12200	DA-MW103S-2008LOCMAX						
SELENIUM	1/4	13.8	13.8	13.8	DA-MW103S-2008LOCMAX	180	0	50	0	50	0
SODIUM	4/4	56400	10300	23500	DA-MW122-2008LOCMAX						
VANADIUM	2/4	832	3.8	418	DA-MW103S-2008LOCMAX	180	1				
ZINC	2/4	3990	22.6	2010	DA-MW103S-2008LOCMAX	11000	0	5000	0		

DISSOLVED (FILTERED) METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	2/4	5900	181	3040	DA-MW103S-2008LOCMAX	37000	0	50	2		
ARSENIC	1/4	20.2	20.2	20.2	DA-MW103S-2008LOCMAX	0.045	1	10	1		
BARIUM	4/4	90.7	9.2	31.2	DA-MW103S-2008LOCMAX	7300	0	2000	0	2000	0
CALCIUM	4/4	143000	25800	64000	DA-MW103S-2008LOCMAX						
COBALT	1/4	6.8	6.8	6.8	DA-MW103S-2008LOCMAX	11	0				
COPPER	1/4	19	19	19	DA-MW103S-2008LOCMAX	1500	0	1300	0		
IRON	4/4	38200	7.1	9630	DA-MW103S-2008LOCMAX	26000	1	300	1		
LEAD	1/4	19.9	19.9	19.9	DA-MW103S-2008LOCMAX			15	1	15	1
MAGNESIUM	4/4	14800	6360	9700	DA-MW103S-2008LOCMAX						
MANGANESE	3/4	1910	240	1040	DA-MW103S-2008LOCMAX	880	2	50	3		
MOLYBDENUM	2/4	4.45	2.3	3.38	DA-MW122-2008LOCMAX	180	0				
NICKEL	1/4	10.6	10.6	10.6	DA-MW103S-2008LOCMAX	730	0			100	0
POTASSIUM	4/4	24300	1260	7820	DA-MW103S-2008LOCMAX						

DISSOLVED (FILTERED) METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
SILVER	1/4	0.352	0.352	0.352	DA-MW122-2008LOCMAX	180	0	100	0		
SODIUM	4/4	56000	10500	23800	DA-MW122-2008LOCMAX						
VANADIUM	1/4	7.5	7.5	7.5	DA-MW103S-2008LOCMAX	180	0				
ZINC	1/4	41	41	41	DA-MW103S-2008LOCMAX	11000	0	5000	0		

Except for sodium, the maximum concentrations of all metals detected in this sub-group were from location MW-103S, which had the highest turbidity of any groundwater sample in any of the sub-groups, (>1,100 NTUs). In the four samples from this sub-group, eight metals (aluminum, arsenic, chromium, cobalt, iron, manganese, nickel and vanadium) were detected at concentrations exceeding the associated ORNLs, in a maximum of two samples.

- Four of these metals, chromium, cobalt, nickel and vanadium, exceeded the ORNL (and MCL, where applicable) in just one sample, MW-103S (elevated turbidity, as discussed above). In the corresponding dissolved metals samples, these four metals were either not detected or were detected in MW-103S (filtered) only, and did not exceed a criterion. Elevated concentrations of these four metals may be related to suspended soils within the groundwater samples.

- Two of the eight metals, aluminum and arsenic, were detected only in the two samples with the two highest turbidities in this sub-group: MW-103S, as discussed above, and MW-112S, also with a somewhat elevated turbidity of 130 NTUs. One or both of the two corresponding dissolved metals samples also exceeded either the ORNL and MCL (arsenic, for MW-103S only) or just the MCL (aluminum, for MW-103S and MW-112S).

- Iron and manganese were detected in all four samples: total iron exceeded the ORNL and MCL in the two higher turbidity samples only, and in the dissolved iron samples, the ORNL and MCL were exceeded only at MW-103S. Both total and dissolved manganese concentrations exceeded the ORNL at MW-123 (which had a low turbidity of 3.2 NTUs) and at MW-103S. The MCL for manganese was exceeded by both total and dissolved concentrations at these two locations as well as at MW-112S.

Two additional metals, beryllium and copper, exceeded the MCLs at MW-103S, but not the ORNLs. In the dissolved metals analysis, only copper was detected and did not exceed a criterion.

Both total and dissolved concentrations of lead exceeded the MCL at MW-103S; there is no ORNL for lead.

4.2.4 Contaminant Nature and Extent in Site Groundwater: Bedrock

In onsite areas, groundwater samples were collected from 24 open-hole bedrock monitoring wells. A summary of results for chemicals detected in the samples within this groundwater sub-group is presented in Table 4-15. Complete results for all analyzed chemicals are included in Appendix F. A discussion of the results is presented below.

In addition, as noted previously in Section 4.2, a general comparison of groundwater results is presented for three onsite bedrock wells (MW-02B, MW-03B and MW-04B) that were also sampled in 2003 as part of the SASE (see Sections 4.2.4.1 and 4.2.4.4, VOCs and metals, respectively).

4.2.4.1 VOCs in Site Groundwater: Bedrock

The following table presents data summary statistics for VOCs results for the groundwater samples collected from 24 onsite bedrock wells. Summary statistics are provided for compounds that were detected. (All concentrations are in µg/L).

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1,1-TRICHLOROETHANE	5/24	4	0.4	2.08	DA-MW104B-2008LOCMAX	9100	0	200	0	200	0
1,1-DICHLOROETHANE	14/24	310	0.4	43.5	DA-MW100B-2008LOCMAX	2.4	6				
1,1-DICHLOROETHENE	7/24	7	0.5	2.33	DA-MW104B-2008LOCMAX	340	0	7	0	7	0
1,2,4-TRIMETHYLBENZENE	2/24	810	0.3	405	DA-MW100B-2008LOCMAX	15	1				
1,3,5-TRIMETHYLBENZENE	1/24	290	290	290	DA-MW100B-2008LOCMAX	12	1				
1,4-DICHLOROBENZENE	1/24	0.3	0.3	0.3	DA-MW124B-2008LOCMAX	0.43	0	75	0	75	0
4-ISOPROPYLTOLUENE	1/24	110	110	110	DA-MW100B-2008LOCMAX						
ACETONE	6/24	13	3	6.33	DA-MW110B-2008LOCMAX	22000	0				
BENZENE	1/24	0.4	0.4	0.4	DA-MW124B-2008LOCMAX	0.41	0	5	0	5	0
BROMOMETHANE	1/24	2	2	2	DA-MW126B-2008LOCMAX	8.7	0				
BTEX	8/24	155	0.6	30.9	DA-MW100B-2008LOCMAX						
CARBON DISULFIDE	1/24	0.6	0.6	0.6	DA-MW109B-	1000	0				

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
					2008LOCMAX						
CARBON TETRACHLORIDE	1/24	2	2	2	DA-MW03B-2008LOCMAX	0.2	1	5	0	5	0
CHLOROETHANE	2/24	130	1	65.5	DA-MW100B-2008LOCMAX	21000	0				
CHLOROFORM	2/24	7	1	4	DA-MW126B-2008LOCMAX	0.19	2	80	0		
CHLOROMETHANE	1/24	16	16	16	DA-MW126B-2008LOCMAX	1.8	1				
CIS-1,2-DICHLOROETHENE	14/24	26	0.3	4.99	DA-MW124B-2008LOCMAX	370	0	70	0	70	0
ETHYLBENZENE	1/24	58	58	58	DA-MW100B-2008LOCMAX	1.5	1	700	0	700	0
ISOPROPYLBENZENE	1/24	94	94	94	DA-MW100B-2008LOCMAX	680	0				
M+P-XYLENES	1/24	60	60	60	DA-MW100B-2008LOCMAX			10000	0	10000	0
N-BUTYLBENZENE	1/24	98	98	98	DA-MW100B-2008LOCMAX						
N-PROPYLBENZENE	1/24	140	140	140	DA-MW100B-2008LOCMAX						
O-XYLENE	1/24	37	37	37	DA-MW100B-2008LOCMAX	1400	0	10000	0	10000	0
SEC-BUTYLBENZENE	3/24	84	0.4	28.8	DA-MW100B-2008LOCMAX						
TERT-BUTYLBENZENE	1/24	0.4	0.4	0.4	DA-MW124B-2008LOCMAX						
TETRACHLOROETHENE	8/24	12	0.5	4.45	DA-MW125B-2008LOCMAX	0.11	8	5	3	5	3
TOLUENE	7/24	41	0.6	13.1	DA-MW109B-2008LOCMAX	2300	0	1000	0	1000	0
TOTAL 1,2-DICHLOROETHENE	14/24	29	0.3	5.2	DA-MW124B-2008LOCMAX	330	0				
TOTAL CHLORINATED ETHENES	17/24	732	0.3	66.1	DA-MW117B-2008LOCMAX						
TOTAL CHLORINATED VOCS	21/24	733.4	0.3	90.8	DA-MW117B-2008LOCMAX						
TOTAL XYLENES	1/24	97	97	97	DA-MW100B-2008LOCMAX	200	0	10000	0	10000	0
TRANS-1,2-DICHLOROETHENE	1/24	3	3	3	DA-MW124B-2008LOCMAX	110	0	100	0	100	0
TRICHLOROETHENE	12/24	730	2	82.6	DA-MW117B-2008LOCMAX	1.7	12	5	7	5	7
VINYL CHLORIDE	8/24	19	0.3	3.04	DA-MW124B-2008LOCMAX	0.016	8	2	1	2	1

A total of 29 individual VOCs were detected in wells from the onsite bedrock groundwater sub-group. More than half of these compounds (16) were detected just once.

Out of nine VOCs that were more widely distributed in bedrock groundwater at the site (in five to 14 of the 24 samples), seven are chlorinated VOCs, listed below with the respective number of detections: 1,1-DCA and cis-1,2-DCE, both present at 14 of 24 locations; TCE, at 12 sample locations; PCE and vinyl chloride, both at eight locations; 1,1-DCE at seven locations; and 1,1,1-TCA at five locations. Three of

these VOCs exceeded the ORNLs in each detection, and the MCLs in one or more detections, including TCE (ORNLs: 12 and MCLs: 7), PCE (eight and three), and vinyl chloride (8 and 1). The compound 1,1-DCA exceeded the ORNL at six of the 14 detections, and has no MCL. The remaining three VOCs did not exceed ORNLs or MCLs (where established).

Two non-chlorinated VOCs were detected at six or seven locations: toluene at seven locations, and acetone, a common laboratory contaminant, in six samples. Neither of these two compounds exceeded the ORNLs or MCLs.

Four of the 29 detected VOCs were reported in just two or three of the 24 onsite bedrock groundwater samples, as summarized below. In this groundwater sub-group, the highest concentrations by far of 1,2,4-trimethylbenzene, sec-butylbenzene and chloroethane were from MW-100B, where NAPL has been observed, and where 1,2,4-trimethylbenzene was more than 50 times the ORNL (the only exceedance of the ORNL). MCLs are not established for these three compounds. Chloroform exceeded the associated ORNL in both detections, at MW-126B and MW-109B, located in the eastern portion of the Paved Gated Storage Area. The MCL was not exceeded.

Of the 16 VOCs detected in just one sample, 12 have associated screening criteria (ORNLs and/or MCLs), of which four (all ORNLs) were exceeded by the sole detection of the associated compound. These include 1,3,5-trimethylbenzene and ethylbenzene (both at MW-100B, the NAPL location), as well as carbon tetrachloride (at MW-03B, in the North Meadow) and chloromethane (at MW-126B, east of Building 185). MCLs were not exceeded, or not established.

Three of the five most widely distributed VOCs in bedrock groundwater that also exceed the ORNLs most frequently are PCE and two compounds that can occur due to biodegradation of PCE: TCE and vinyl chloride. These three VOCs exceeded the ORNLs at each detection (at 8 to 12 locations). The VOC cis-1,2-DCE, also a common degradation compound of PCE and TCE, did not exceed the ORNL or MCL but was one of the most widely detected VOCs (at 14 locations) and was present in each of the wells where TCE was detected, and at trace concentrations in two additional wells. At six of the eight locations where PCE was detected in onsite bedrock groundwater, TCE was also detected, at slightly lower concentrations, in all but one well. These six bedrock well locations, from southeast to northwest, are: MW-125B near Building 185; MW-108B and MW-109B in the eastern portion of the Paved Storage Area; and MW-104B, MW-105B, and MW-110B, in the South Meadow. In bedrock groundwater in the North Meadow area, a low concentration of PCE was detected at only one location, MW-115B. TCE was also detected in six additional onsite bedrock wells that did not have PCE, including MW-124B, immediately south of Building 185, and two wells located to the west (downgradient) of the PCE wells, just east of the Deerfield Creek embankment (MW-102B and -103B), and three of which are located to the north, in the

North Meadow, where the maximum TCE concentrations were detected, exceeding most other detections of TCE in the southern areas of the Site by two orders of magnitude. These wells include MW-117B (730 µg/L, the highest concentration of any single VOC detected in bedrock groundwater at the site), MW-03B (190 µg/L), and further north at MW-118B (18 µg/L). It is noted that the groundwater sample from MW-03B that was collected in 2003 under the SASE had the highest concentration of TCE in groundwater in either 2003 or 2008: TCE was detected at 1,500 µg/L at MW-03B in 2003, but was significantly lower in 2008, when it was detected at 190 ug/L (still exceeding criteria).

Of the seven vinyl chloride detections in onsite bedrock groundwater, TCE was also present, at higher concentrations in each case but one, and PCE was present at five of these locations (both "parent" compounds of vinyl chloride).

The distribution pattern and concentrations of PCE, TCE and their degradation products in bedrock groundwater are indicative of the process of reductive dechlorination occurring at the site (see Section 4.3.6, Natural Attenuation Parameters, and Table 4-10 which presents a summary of the analytical results for PCE, TCE, and related breakdown products). In conjunction with groundwater flow directions at the Site, the pattern also indicates several possible source areas. A separate source area of TCE is apparent in the North Meadow area, where the highest concentrations of TCE at the site were detected (discussed above) and where PCE was detected very infrequently and at very low concentrations. A daughter product of TCE, the compound cis-1,2-DCE, is also present in the bedrock groundwater in the North Meadow, at very low concentrations; the end product, vinyl chloride, was not detected, with the exception of 2 µg/L at MW-119B at the extreme northern portion of the Site (east of NUWC Pond). No other VOCs were detected at MW-119B, however, the highest methane concentration reported, 2,300 µg/L, was also detected at MW-119B. It is noted that further degradation or further reduction in the concentration of vinyl chloride at this location is expected to be inhibited until methane levels in the associated groundwater decrease.

A source area(s) of TCE in groundwater is also likely in the area of MW-124B, immediately south of Building 185, and/or to the west or northwest near MW-101B, -102B, -103B, and -104B, located along the embankment of Deerfield Creek, where TCE was detected between 5 and 16 µg/L. (It is noted that elevated methane concentrations of 770 and 850 µg/L were reported in duplicate groundwater samples from MW-101B, where vinyl chloride was also reported at 6 µg/L. Further degradation or further reduction in the concentration of vinyl chloride at this location is expected to be inhibited until methane levels in the associated groundwater decrease.)

Low concentrations of 1,1,1-TCA and its common degradation products, 1,1-DCA and chloroethane occur primarily in wells located along the edge of the Deerfield Creek embankment, in the westernmost

portions of the site. Table 4-11 presents a summary of the analytical results for 1,1,1-TCA and its related breakdown products.

Low concentrations of toluene were reported in groundwater in three different areas of the site, in a total of seven wells. The maximum concentration (41 µg/L) was detected in the Paved Storage Area at MW-109B. Three of the seven toluene detections are in the southern more upgradient portion of the site, near Building 185 (MW-124B, MW-125B and MW-126B). The other area of toluene detections is the southern portion of the North Meadow (MW-114B and -115B).

Of the 16 VOCs detected in just one sample: eight were detected only at MW-100B, the location where NAPL was previously observed and sampled; four of the 16 VOCs were present only at MW-124B, located immediately south of Building 185; and two other VOCs, chloromethane and bromomethane, were detected only at MW-126B, near the southeast corner of the Site, and only in the deepest of the three sampled intervals within the well during discrete interval sampling. All three of the above locations are in the extreme southern (more upgradient) portion of the Site, in close proximity to Building 185. Of the remaining two VOCs with single detections in bedrock groundwater at the Site, carbon tetrachloride was detected only at MW-03B, in the North Meadow area, and carbon disulfide was detected only at MW-109B, in the Paved Storage Area.

In comparing 2003 results to 2008 results for MW-02B, -03B and -04B (the three wells that were sampled during both events), a generally comparable array of VOCs were detected in each well during both events, and in all cases, the concentrations of detected compounds were higher in 2003 groundwater samples than in 2008 groundwater:

- In groundwater from MW-02B in the Paved Open Storage Area, trace levels of five VOCs were reported in 2003 and even lower levels of just two of these VOCs were detected in 2008. The only two VOCs detected in 2008 were cis-1,2-DCE at 0.3 J µg/L (compared to 0.61 µg/L in 2003) and sec-butylbenzene at 2 µg/L (compared to 3.3 µg/L in 2003).

- In the 2003 groundwater sample from MW-03B in the North Meadow, TCE was the only VOC reported, and it was present at the maximum concentration detected, 1,500 µg/L. An elevated, though significantly lower concentration of 190 µg/L of TCE was detected in 2008. Both of these TCE results exceed comparison criteria. Five additional VOCs were detected in 2008 at concentrations ranging from 0.5 J µg/L to 2 µg/L, including 1,1,1-TCA, 1,1-DCA, 1,1-DCE, carbon tetrachloride, and cis-1,2-DCE. Other than TCE, carbon tetrachloride was the only other VOC to exceed a criterion.

- In groundwater from MW-04B in the South Meadow, six VOCs were reported in 2003 at concentrations ranging from 0.46 J µg/L to 49 µg/L. Three of these compounds were also detected in 2008, but all at lower levels. These 2008 detections included 1,1,1-TCA at 0.4 J µg/L; 1,1-DCA at 23 µg/L; and cis-1,2-DCE at 0.6 µg/L. This detection of 1,1-DCA exceeded the comparison criterion. A trace level of 1 µg/L of 1,1-DCE was also detected in 2008 (not reported in 2003). Three additional VOCs reported in 2003 but not in 2008 were PCE (8.4 µg/L), TCE (3.6 µg/L) and vinyl chloride (0.66 J µg/L). This detection of PCE exceeded comparison criteria.

4.2.4.2 GRO/ETPH, SVOCs, Pesticides in Site Bedrock Groundwater

The table below presents data summary statistics for GRO/ETPH results from the 23 bedrock groundwater samples in this sub-group. (All concentrations are in µg/L).

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
GASOLINE RANGE ORGANICS (GRO)	5/23	180	19	71.2	DA-MW117B-2008LOCMAX						
EXTRACTABLE TPH (ETPH, C09-C36)	11/23	1300	47.5	232	DA-MW124B-2008LOCMAX						

The results of GRO/ETPH analyses for the 23 samples in this sub-group indicate the presence of ETPH at 11 wells, at concentrations up to 1,300 µg/L (also at MW-124B), with an average concentration of 232 µg/L. Low levels of GRO compounds were detected in five samples, at concentrations up to 180 µg/L (at MW-117B). No criteria are established for GRO or ETPH. The highest concentrations of ETPH in onsite bedrock groundwater were detected in three wells located in the southernmost portion of the Site in the vicinity of Building 185. The maximum (1,300 J µg/L) was detected at MW-124B, and the next highest concentrations were detected at MW-125B and MW-126B. (MW-100B was not analyzed for ETPH or GRO.) ETPH was also detected in most of the wells in the Paved Storage Area to the north, and in four wells along the perimeter of the South Meadow area. ETPH was not detected in groundwater samples from the North Meadow area.

The GRO detections were primarily in four wells located in the vicinity of Building 185 and just north-northwest of the Building. The concentrations of GRO in groundwater from this area ranged from 19 to 74 µg/L. One other detection of GRO was reported further north in MW-117B in the North Meadow. This was also the location of the maximum concentration of GRO in this groundwater sub-group, 180 µg/L.

In onsite bedrock groundwater, low concentrations (4 to 5 µg/L) of two SVOCs were reported. In addition two TICs, PGDN and dibutyl sebacate, components of Otto fuel were detected. These compounds were reported at just one location, MW-124B, immediately south of Building 185. Dibutyl sebacate was detected at an estimated concentration of 30 µg/L and PGDN was detected at an estimated concentration of 5 µg/L.

Pesticides were not detected in this sub-group.

4.2.4.3 LNAPL in Site Bedrock Groundwater

The LNAPL sample collected from MW-100B was analyzed for organics (VOCs, SVOCs, Pesticides/PCBs, GRO and ETPH). Because this sample was mostly organic product, the analytical laboratory treats the sample as a solid and results presented below are in concentrations of mg/Kg.

Parameter	Concentration	
2-METHYLNAPHTHALENE	630	J
NAPHTHALENE	520	J
TOTAL PAHS	1150	J
1,2,4-TRIMETHYLBENZENE	4400	
1,3,5-TRIMETHYLBENZENE	1700	
4-ISOPROPYLTOLUENE	990	
ETHYLBENZENE	80	J
ISOPROPYLBENZENE	400	
METHYLENE CHLORIDE	92	J
N-BUTYLBENZENE	1200	
N-PROPYLBENZENE	840	
SEC-BUTYLBENZENE	710	
TOTAL CHLORINATED VOCS	92	J
EXTRACTABLE TPH (C09-C36)	530000	
GASOLINE RANGE ORGANICS	260000	J

As shown in the table above, the LNAPL contains primarily ETPH and GRO.

4.2.4.4 Metals in Site Bedrock Groundwater

The table below presents data summary statistics for metals results from the 20 site bedrock groundwater samples. Summary statistics are provided for the 21 compounds that were detected. (All concentrations are in µg/L).

METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	13/20	1950	31.4	515	DA-MW102B-2008LOCMAX	37000	0	50	12		
ANTIMONY	1/20	1.2	1.2	1.2	DA-MW119B-2008LOCMAX	15	0	6	0	6	0
ARSENIC	12/20	17.8	2.2	8.13	DA-MW116B-2008LOCMAX	0.045	12	10	3		
BARIUM	15/20	25.9	3.4	11.4	DA-MW02B-2008LOCMAX	7300	0	2000	0	2000	0
CALCIUM	20/20	57000	12100	35200	DA-MW102B-2008LOCMAX						
CHROMIUM	4/20	5.6	2.4	3.45	DA-MW102B-2008LOCMAX	110	0	100	0	100	0
COBALT	5/20	15.6	0.98	6.78	DA-MW02B-2008LOCMAX	11	1				
COPPER	5/20	17.3	0.89	6.22	DA-MW102B-2008LOCMAX	1500	0	1300	0		
IRON	18/20	26700	937	9530	DA-MW02B-2008LOCMAX	26000	1				
LEAD	7/20	3.5	1.1	1.62	DA-MW102B-2008LOCMAX			15	0	15	0
MAGNESIUM	20/20	13800	1850	9910	DA-MW108B-2008LOCMAX						
MANGANESE	20/20	8370	56	1610	DA-MW02B-2008LOCMAX	880	13	50	20		
MOLYBDENUM	3/20	3.8	1.4	2.77	DA-MW109B-2008LOCMAX	180	0				
NICKEL	14/20	10	0.335	3.36	DA-MW117B-2008LOCMAX	730	0			100	0
POTASSIUM	10/20	3600	722	1920	DA-MW103B-2008LOCMAX						
SELENIUM	1/20	1.7	1.7	1.7	DA-MW04B-2008LOCMAX	180	0	50	0	50	0
SILVER	1/20	0.392	0.392	0.392	DA-MW108B-2008LOCMAX	180	0	100	0		
SODIUM	20/20	38200	8680	13700	DA-MW119B-2008LOCMAX						
THALLIUM	1/20	2.3	2.3	2.3	DA-MW119B-2008LOCMAX	2.4	0	2	1	2	1
VANADIUM	1/20	1.5	1.5	1.5	DA-MW115B-2008LOCMAX	180	0				
ZINC	8/20	23.8	4.4	15.7	DA-MW104B-2008LOCMAX	11000	0	5000	0		

A total of 20 metals were detected in site bedrock groundwater. In the 20 samples from this sub-group, three metals (arsenic, iron and manganese) were detected at concentrations exceeding the associated ORNLs and MCLs in one or more samples, and three other metals exceeded either the MCL only (aluminum in 12 samples; thallium in one sample), or the ORNL (cobalt in one sample). Of the seven detected metals with associated RIDEM GA criteria, only thallium, detected in one sample, exceeded this criterion.

The metals that exceeded the ORNLs most frequently are arsenic (12 samples) and manganese (13 samples). The metals that exceeded the MCLs most frequently are manganese (20 samples), iron (18 samples), and aluminum (12 samples). Arsenic exceeded the MCL in three samples.

The maximum concentrations of 12 of the 20 detected metals were distributed between three locations,

with between three and five metals reported at their maximums at each location. Of the three metals that exceeded both ORNLs and MCLs, two (iron and manganese) were reported at their maximum concentrations at MW-02B, as was cobalt, which exceeded the ORNL in only this location. Well MW-02B is located immediately north of Building 185 in the Paved Storage Area. At MW-102B, located immediately southwest of MW-02B, five metals including aluminum (which exceeded the MCL in 12 samples) were reported at their maximum concentrations. Three metals' maximum concentrations, including thallium, were detected at MW-119B located at the extreme northern end of the site. Arsenic was detected at its maximum concentration at MW-116B, in the North Meadow.

Presented below is a general comparison of 2003 and 2008 total metals results for groundwater samples from MW-02B, -03B and -04B, the three wells that were sampled during both events:

- In the 2008 groundwater results from MW-02B in the Paved Open Storage Area, total metals concentrations of arsenic, cobalt, iron and manganese were the only four metals to exceed criteria. In 2003, with the exception of cobalt, these metals were detected at comparable or higher concentrations.

- In both the 2003 and 2008 groundwater results from MW-03B in the North Meadow, manganese was the only metal to exceed a criterion (81 µg/L in 2003 and 56 µg/L in 2008).

- In the 2008 groundwater results from MW-04B in the South Meadow, total metals concentrations of aluminum, arsenic, iron and manganese were the only four metals to exceed criteria. In the 2003 results, only manganese exceeded a criterion.

Data summary statistics for dissolved (field-filtered) metals sample results from this sub-group are presented below. (All concentrations are in µg/L).

FILTERED METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
ALUMINUM	2/20	186	22.1	104	DA-MW102B-2008LOCMAX	37000	0	50	1		
ARSENIC	11/20	18.4	1.37	8.02	DA-MW116B-2008LOCMAX	0.045	11	10	3		
BARIUM	12/20	25.6	3.1	12.2	DA-MW02B-2008LOCMAX	7300	0	2000	0	2000	0
CALCIUM	20/20	55100	12200	35000	DA-MW102B-2008LOCMAX						
COBALT	4/20	15.6	1	7.45	DA-MW02B-2008LOCMAX	11	1				

FILTERED METALS	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
IRON	15/20	26600	774	6400	DA-MW02B-2008LOCMAX	26000	1	300	15		
LEAD	2/20	1.8	0.732	1.27	DA-MW02B-2008LOCMAX			15	0	15	0
MAGNESIUM	20/20	13400	1870	9830	2 max samples						
MANGANESE	20/20	8220	53.5	1550	DA-MW02B-2008LOCMAX	880	13	50	20		
MOLYBDENUM	3/20	2.25	1.3	1.85	DA-MW108B-2008LOCMAX	180	0				
NICKEL	7/20	4.9	0.76	2.17	DA-MW116B-2008LOCMAX	730	0			100	0
POTASSIUM	10/20	3710	685	1810	DA-MW103B-2008LOCMAX						
SILVER	2/20	0.61	0.238	0.424	DA-MW02B-2008LOCMAX	180	0	100	0		
SODIUM	20/20	37200	8930	13600	DA-MW119B-2008LOCMAX						
ZINC	4/20	16.3	4.6	12.2	DA-MW104B-2008LOCMAX	11000	0	5000	0		

With the exception of aluminum and thallium, the total metals samples that exceeded the ORNLs and/or the MCLs (as summarized above), also exceeded these criteria in most of the associated dissolved metals samples. (Dissolved aluminum exceeded the MCL in only one sample, MW-102B, and dissolved thallium was not detected.)

4.2.5 Contaminant Nature and Extent in Site Groundwater: Onsite Vapor Diffusion Samples - VOCs

Along the eastern shoreline of NUWC Pond and west of the North Meadow Area, fourteen groundwater samples (DW01 through DW14) were collected from the shallow water table, extending approximately in a north-south direction, immediately adjacent to the pond. These groundwater samples were collected using diffusion bag sampling methods, as discussed in Section 2.0, and were analyzed for VOCs only. A summary of results for detected VOCs in the 14 samples within this groundwater sub-group is presented in Table 4-16. Complete results for all analyzed VOCs are included in Appendix F. The following table presents data summary statistics for VOCs that were detected in the fourteen vapor diffusion groundwater samples. (All concentrations are in µg/L.) A discussion of the results is presented below.

PARAMETER	FREQUENCY	MAX.	MIN.	AVG.	MAX. DETECTION LOC.	ORNLSLTW		EPA MCL		GA GW OBJ	
						CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES	CRITERIA	NUMBER OF EXCEEDANCES
1,1,1-TRICHLOROETHANE	9/14	2	0.6	1.34	4 max samples	9100	0	200	0	200	0
1,1-DICHLOROETHANE	13/14	3	0.6	1.48	2 max samples	2.4	2				
1,1-DICHLOROETHENE	7/14	0.9	0.5	0.671	2 max samples	340	0	7	0	7	0
2-BUTANONE	6/14	7	6	6.5	3 max samples	7100	0				
ACETONE	6/14	500	420	468	DA-DW11-2008LOCMAX	22000	0				
BTEX	5/14	0.7	0.3	0.49	DA-DW09-2008LOCMAX						
CARBON TETRACHLORIDE	5/14	1	0.9	0.98	4 max samples	0.2	5	5	0	5	0
CHLOROFORM	6/14	0.5	0.3	0.4	2 max samples	0.19	6	80	0		
CHLOROMETHANE	4/14	7	0.4	3.6	DA-DW14-2008LOCMAX	1.8	3				
CIS-1,2-DICHLOROETHENE	14/14	68	0.6	18.1	DA-DW14-2008LOCMAX	370	0	70	0	70	0
N-PROPYLBENZENE	1/14	0.45	0.45	0.45	DA-DW14-2008LOCMAX						
TETRACHLOROETHENE	4/14	2	0.5	1	DA-DW10-2008LOCMAX	0.11	4	5	0	5	0
TOLUENE	5/14	0.7	0.3	0.49	DA-DW09-2008LOCMAX	2300	0	1000	0	1000	0
TOTAL 1,2-DICHLOROETHENE	14/14	68.6	0.6	18.2	DA-DW14-2008LOCMAX	330	0				
TOTAL CHLORINATED ETHENES	14/14	357.6	0.6	149	DA-DW01-2008LOCMAX						
TOTAL CHLORINATED VOCS	14/14	367.4	0.6	153	DA-DW01-2008LOCMAX						
TRANS-1,2-DICHLOROETHENE	2/14	0.6	0.4	0.5	DA-DW14-2008LOCMAX	110	0	100	0	100	0
TRICHLOROETHENE	12/14	350	3	153	DA-DW01-2008LOCMAX	1.7	12	5	11	5	11
VINYL CHLORIDE	1/14	2	2	2	DA-DW08-2008LOCMAX	0.016	1	2	0	2	0

A total of 15 individual VOCs were detected in one or more of the 14 vapor diffusion groundwater samples. Five of the more widely detected compounds were reported in at least half of the samples include TCE; cis-1,2-DCE; 1,1-DCA; 1,1,1-TCA; and 1,1-DCE. Of these five VOCs, only two exceeded a criterion: TCE and 1,1-DCA. TCE is the primary contaminant in this area, exceeding the MCL and the RIDEM GA criteria in 11 of 12 detections, and exceeding the ORNL in all 12 detections, out of the 14 sample locations. The highest TCE concentrations were detected at the northernmost locations, from DW14 in the north to DW07, with the maximum concentration near the central part of these locations, at DW01. The VOC 1,1-DCA, also among the more widespread VOCs, exceeded the ORNL in two of 13 detections, and has no MCL. This compound was detected at 13 locations, with one of the two maximum concentrations also occurring at DW01.

The compound cis-1,2-DCE was the most widespread VOC, present in all 14 samples, with the six highest concentrations occurring in the six northernmost locations (DW01, 02 and 11-14). The highest concentration of cis-1,2-DCE was at DW-14, the northernmost sample, and was slightly below the MCL of 70 µg/L. The ORNL was not exceeded.

Very low concentrations of 1,1,1-TCA and 1,1-DCE were detected relatively frequently, at nine and seven locations, respectively, but no criteria were exceeded. The presence of these two compounds was also more focused in the northern portion of the vapor diffusion sample locations.

Seven additional VOCs were detected in four to six samples. MCLs were not exceeded, but four of these compounds exceeded the ORNLs in each, or nearly each detection: chloroform, in six of six detections; carbon tetrachloride, in five of five detections; PCE, in four of four detections; and chloromethane, in three of four detections. Chloroform and chloromethane detections were also primarily in the more northern locations. Detections of PCE were more dispersed, and the highest concentration occurred in the most southern sample location, DW10 (where the lowest detection of TCE was found). The single detection of vinyl chloride, 2 J µg/L, is equal to the MCL and RIDEM GA criteria, and exceeds the ORNL.

Three compounds that were reported in five or six samples did not exceed ORNLs or MCLs, including toluene as well as 2-butanone and acetone (both common laboratory contaminants). Acetone and 2-butanone were reported only in the samples that were collected on August 1, 2008, and not in those collected on January 31, 2008 and analyzed separately from the others, further evidence that these compounds may be laboratory contaminants. Trace levels of trans-1,2-DCE and n-propylbenzene were detected in two samples and one sample, respectively, and no criteria were exceeded.

The highest number of maximum concentrations of the detected VOCs were distributed between DW14, the northernmost location, DW05, near the central portion of the sample locations, and DW01, between these two locations.

4.2.6 Evaluation of Natural Attenuation Parameters in Groundwater

This section presents an evaluation of the analytical and field measurement data collected to assess the potential for biodegradation of contaminants. Groundwater samples from most wells were analyzed for several parameters used to assess whether subsurface conditions are conducive to biodegradation (natural attenuation parameters). Additionally, field measurements of several water quality parameters were taken to evaluate well stabilization during low flow sampling and to further evaluate biodegradation potential. These natural attenuation parameters and selected field measurements are presented in Table 4-17. The field measurements for all groundwater stabilization criteria monitored at all sampled wells are presented in Table 2-8 (Discrete Interval Groundwater Sampling Stabilization Record) and Table 2-11 (Groundwater Sampling Stabilization Record).

For the groundwater intervals sampled, the analytical data and field measurements provide solid evidence of strongly reducing conditions that could support anaerobic degradation of chlorinated solvents at the majority of bedrock wells throughout the study area, including wells in upgradient, onsite and

downgradient areas (analytical results for the compounds TCE and 1,1,1-TCA and for each of their breakdown products are listed in Tables 4-10 and 4-11, respectively). This evidence includes: extremely low ORP (less than -50mV) in conjunction with low dissolved oxygen concentrations (less than 2 mg/L) at many wells; the presence of methane in many wells; and the presence of elevated concentrations of ferrous iron in most wells. It is noted that the presence of methane in groundwater is one indicator that reductive dechlorination of organics by methane-producing bacteria (methanogens) may be occurring. Two main types of bacteria are responsible for reductive dechlorination of organics in groundwater: methanogens, which produce methane, and sulfate reducers which produce sulfides. While methane may also be generated by the decomposition of natural organic matter supporting reducing conditions, such as occurs at a municipal waste landfill, there is no evidence that the methane detected in groundwater at the Site would be related to landfill waste decomposition. The detected contaminants are largely related to contaminated debris fill placed at the Site or groundwater contaminants from solvents at or upgradient of the Site, in the vicinity of the Building 179 Area.

Wells listed below (primarily bedrock wells) with evidence of the most reducing conditions measured in the study area, have extremely low ORPs in conjunction with low dissolved oxygen levels, and elevated ferrous iron, including 11 wells with ferrous iron greater than 2.3 mg/L. Many of these wells also have methane present, and all but two (MW-107B and MW-116B, where no VOCs were detected) have varying amounts of one or more breakdown products of either PCE, 1,1,1-TCA, or of both parent compounds. Table 4-10 summarizes the presence of PCE and its breakdown (daughter) products. Table 4-11 summarizes the presence of 1,1,1-TCA and its breakdown products. The presence of breakdown products of PCE, TCE and/or 1,1,1-TCA in conjunction with the results of various indicator parameters that support anaerobic biodegradation also provide evidence that reductive dechlorination has occurred in the bedrock groundwater. Based on ORPs less than -100 mV, low D.O. (less than 0.5 mg/L), and the presence of ferrous iron, bedrock wells with the likelihood of strongly reducing conditions include: MW-7B, MW-110B, -119B, -109B, -115B, -107B and MW-116B. Based on ORP and D.O. measurements alone, wells MW-124B, -125B and -126B are also likely to have reducing conditions. Additional bedrock wells likely to have reducing conditions (based on ORP values that are negative, but higher than -100 mV, with the presence of ferrous iron and low D.O.) include: MW-104B, -103B, -117B, -102B, and MW-9B. (Reducing conditions are likely also present at MW-108B and MW-7A, based on ferrous iron and ORP results).

These include three wells in upgradient areas (MW-7A, -7B and -9B), all or nearly all wells in the Paved Storage Areas and west of the Paved Storage Areas (MW-102B, -103B, -107B, -108B, and -109B); the two wells immediately northwest of the Paved Storage Areas, in the South Meadow (MW-104B and MW-110B); three wells in the North Meadow (MW-115, -116 and -117); and MW-119B, located at the extreme northern end of the study area, near the northeast corner of the NUWC Pond. This well had the fourth

lowest ORP and fourth highest ferrous iron results, as well as the highest methane concentration (2,300 µg/L), more than 2.5 times above the next highest concentration. Groundwater from this well also contained 2 µg/L of vinyl chloride, but no other VOCs. The presence of vinyl chloride, the end breakdown product of anaerobic biodegradation of PCE or TCE, and the high concentration of methane at this well may indicate that reductive dechlorination by methane-producing bacteria (methanogenes) has occurred in the area. At methane concentrations greater than 500 µg/L, vinyl chloride accumulates (EPA, September 1998, Table 2.3). Further degradation or further reduction in the concentration of vinyl chloride at this location is expected to be inhibited until methane levels in the associated groundwater decrease.

Bedrock wells where the data indicate the possibility of mildly reducing conditions include MW-112B, MW-113B and MW-120B.

At overburden-bedrock interface wells (both upgradient and onsite), conditions measured at four of the six wells sampled for these parameters did not indicate reducing conditions (MW-122, -123, -106S and -112S). However, the reducing conditions measured at overburden-bedrock interface wells MW-103S and MW-7A would support anaerobic degradation of chlorinated solvents. This indicates the likelihood that localized areas of anaerobic, highly reducing conditions exist in the overburden-bedrock interface groundwater.

In general, the majority of wells with little to no evidence of strongly reducing conditions needed to support anaerobic biodegradation are roughly located toward the perimeter of the study area: toward the southeast and southwest (MW-106S/B and MW-101B); in the area bordering the South Meadow to the northwest (from MW-111B toward the east to MW-123 and MW-105B toward the west); and in the southwestern and northernmost portions of the North Meadow (MW-114B, MW-03B and MW-118B).

The highest concentrations of total chlorinated VOCs (total CVOCs) are found both in wells with, and without evidence of strongly reducing conditions. Elevated concentrations of total CVOCs (from 157.5 J to 2,687.1 J µg/L) were detected in wells MW-7A, MW-7B, MW-117B and MW-104B, where strongly reducing conditions are indicated. Elevated concentrations of CVOCs (from 116.6 J to 1,274.4 J µg/L) were detected in wells MW-101B, MW-03B and MW-105B, where analytical data and field measurements do not provide evidence of strongly reducing conditions

At upgradient wells MW-7A, -7B and -9B, near Building 179, moderate to highly reducing conditions are indicated. Elevated concentrations of 1,1,1-TCA and its breakdown products are present, (and low concentrations of PCE and its breakdown products are present at MW-7A and -7B), providing evidence that reductive dechlorination has occurred in the groundwater in this area. However, at MW-7B and -9B,

the presence of the breakdown products of 1,1,1-TCA at considerably lower concentrations than that of 1,1,1-TCA, and the relatively low concentrations of total organic carbon (TOC), phosphate, and nitrogen (as nitrate, nitrite, and ammonia) in the bedrock in this area may indicate that anaerobic biodegradation of the chlorinated compounds has stalled, perhaps because microbial activity is limited by insufficient amounts of available carbon and nutrients.

Based on a very low ORP, D.O., and an elevated ferrous iron concentration, strongly reducing conditions that would support reductive dechlorination are indicated at well MW-117B in the North Meadow, where the highest TCE concentration of the study area was detected (730 µg/L). However, the concentration of the only TCE daughter product detected, cis-1,2-DCE, was very low (2 µg/L) in relation to the TCE. This may be an indication that MW-117B may be located relatively close to the source of the TCE detected in this area.

4.2.7 Summary of Groundwater Contamination

A summary of the main groundwater contaminants at the Site is presented below according to chemical class. In general, the nature and extent of various chemicals are compared and contrasted between the five different groundwater sub-groups, and relative to the source areas at the Site. Since the water table at most of the site occurs primarily within the bedrock or coincides approximately with the top of bedrock, the majority of monitoring wells at the site are bedrock wells and the primary focus of the groundwater contamination discussion is bedrock groundwater. The exception to this is the contamination found in the groundwater discharge area near the NUWC Pond, where shallow groundwater was sampled using diffusion bag sampling techniques. These samples are within overburden, but are representative of bedrock groundwater discharging to the Pond.

4.2.7.1 VOCs

Acetone, a common laboratory contaminant, and a compound that did not exceed any criteria, is not included in the discussion below.

Of the four overburden or overburden/bedrock interface wells on or downgradient of the site, three have just trace levels of up to three VOCs (other than acetone). MW-112S in the northern portion of the North Meadow, and MW-123 (southwest of MW-112S) in the stream valley adjacent to Deerfield Creek, have PCE or PCE and two of its daughter products present at trace levels. MW-122, located between these two wells, has trace levels of 1,1,1-TCA and one of its daughter products. These five compounds are more widespread and occur at higher concentrations in bedrock groundwater at the site. These compounds are also present in groundwater upgradient of the site, at concentrations equal to or much

greater than these, in overburden/bedrock interface groundwater and in bedrock groundwater, at the Building 179 site.

Considering all groundwater subgroups together, at the site and upgradient of the site, the most frequently detected VOCs, and those with the highest percentage of criteria exceedances are chlorinated VOCs. The chlorinated VOCs found at the highest concentrations on the site (and at concentrations greater than in upgradient samples) are comprised primarily of chlorinated ethenes, including PCE, TCE, and breakdown products, cis-1,2-DCE and vinyl chloride. Maximum concentrations of these compounds range from 19 to 730 µg/L, and the average concentration of total chlorinated ethenes is 66.1 µg/L in onsite bedrock groundwater, compared to an average of approximately 6 µg/L total chlorinated ethenes in upgradient bedrock groundwater. The chlorinated ethenes PCE, TCE and vinyl chloride were also among the VOCs with the most criteria exceedances, including ORNLs (between 8 and 12 exceedances in onsite groundwater) and MCLs (between 1 and 7 exceedances in onsite groundwater).

In contrast, in bedrock and overburden groundwater upgradient of the site, the compounds found at the highest concentrations, and significantly higher than in onsite groundwater samples, are comprised primarily of chlorinated ethanes, including 1,1,1-TCA and its breakdown products, 1,1-DCA, and chloroethane. Maximum concentrations of these compounds range from 270 to 1,600 µg/L, and average concentrations range from 97.5 to 617 µg/L in upgradient bedrock groundwater samples in upgradient overburden groundwater, maximums range from 85 to 380 µg/L (compounds detected in MW-7A only). These chlorinated ethanes generally have fewer criteria exceedances than the ethenes (between one and three exceedances in upgradient groundwater, and in onsite bedrock groundwater, 1,1-DCA has six exceedances of the ORNL).

The distribution pattern of 1,1,1-TCA in groundwater within the study area is nearly linear from south to north-northwest. The 1,1,1-TCA detections approximately follow the Deerfield Creek stream valley, also a bedrock valley, and are found only in the sample locations closest to the Creek. South of the Building 185 Complex, the detections are found only in wells to the west of the Creek, where Building 179 is located. The highest concentrations of 1,1,1-TCA in groundwater are in the south, upgradient of the site at MW-7A and -7B near Building 179, with lower concentrations immediately north at MW-9B and -101B, also upgradient of the site. North of MW-101B, the concentrations of 1,1,1-TCA drop significantly to just trace levels of 0.4 J to 4 µg/L. In this area, 1,1,1-TCA detections are discontinuous, but it is detected in groundwater as far north as diffusion bag sample DW13.

The distribution of the breakdown product 1,1-DCA in groundwater is more widespread than that of 1,1,1-TCA, and higher concentrations are detected further north, as compared to 1,1,1-TCA (see MW-101B and MW-100B, with elevated concentrations of 310 to 805 µg/L, and MW-103B north to MW-04B, with

concentrations of 19 to 130 µg/L of 1,1-DCA). It is noted that the groundwater sample from MW-04B that was collected in 2003 under the SASE also had an elevated concentration of 1,1-DCA: 49 µg/L compared to 23 µg/L in 2008, significantly lower in 2008 but still exceeding the criterion. The compound 1,1-DCA is also detected as far north as vapor diffusion sample DW-14, though at much lower concentrations.

Chloroethane, the final breakdown product of 1,1,1-TCA, is limited in extent to the southernmost portion of the study area, from MW-7A and -7B near Building 179 to wells immediately west of Building 185, on either side of Deerfield Creek, where the highest concentrations of chloroethane were detected.

As seen in Figures 4-29 and 4-32, the distribution pattern of 1,1-DCE in groundwater, which can be a chemical reaction product of 1,1,1-TCA, is nearly identical to that of 1,1,1-TCA. The concentrations of 1,1-DCE are similarly highest in the southernmost portion of the study area, in MW-7B, -9B and -101B.

The distribution pattern of the chlorinated ethenes differs from that of the chlorinated ethanes discussed above, both in areal distribution and in areas with highest detections. PCE in groundwater is detected almost exclusively on the Building 185 property and downgradient of Building 185 (with the exception of 2 µg/L detected in upgradient wells MW-07A and -07B), in both bedrock and overburden wells (MW-112S and MW-123). Most detections of PCE are in areas that are likely not influenced by (downgradient of) Building 179 groundwater contamination. The highest concentration of PCE is immediately north of Building 185, at MW-125B, where both the ORNL (0.11 µg/L) and the MCL (5 µg/L) are exceeded. Three additional elevated detections of PCE, equal to or exceeding the MCL, are to the north at MW-108B, -109B and MW-110B, which are located in the Paved Storage Area and the South Meadow, in areas further east than are the detections of the chlorinated ethanes discussed above. Trace levels of PCE are detected as far north as diffusion bag sample DW01 and in bedrock well MW-115B in the North Meadow.

TCE, which can be a daughter product of PCE or can be a released material, is one of the most widespread VOCs detected in groundwater at the study area, present upgradient and downgradient of Building 185, but the highest concentrations by far are found in the North Meadow/NUWC Pond area, in bedrock and overburden (vapor diffusion) groundwater samples. The TCE MCL (5 µg/L) is exceeded in 18 samples, in wells as far south as MW-124B, but primarily in the northernmost wells and vapor diffusion samples. Where TCE is detected in overburden wells, only trace concentrations are present in the areas south of the North Meadow/NUWC Pond. The high levels of TCE in the shallow overburden vapor diffusion samples along NUWC Pond are likely representative of bedrock groundwater discharging to this area. Upgradient of the site, the highest concentrations of TCE are 4 and 5 µg/L, at MW-7B and MW-101B, respectively.

The compound cis-1,2-DCE, a daughter product of TCE and one of the most widespread VOCs in

groundwater, is present in all wells where TCE is detected and in several additional wells, with the exception of several locations upgradient of the site. (TCE was not detected at upgradient wells MW-7B, -9B, or -13A, where low levels of cis-1,2-DCE were detected). This compound is almost always detected at lower concentrations than TCE, with the exception of MW-124B to the south (where the only detection of trans-1,2-DCE, a further breakdown product, was reported) and DW14 to the north, where cis-1,2-DCE concentrations exceed those of TCE. Neither the ORNL or the MCL are exceeded; the highest concentration of cis-1,2-DCE is 68 J µg/L at DW14, slightly below the MCL of 70 µg/L.

The next daughter product of PCE or TCE in the reductive dechlorination chain is vinyl chloride, which was detected primarily in locations where cis-1,2-DCE was also present, but only as far north as the South Meadow area, with two exceptions: 2 J µg/L of vinyl chloride were detected at vapor diffusion location DW08 and at bedrock well MW-119B, located at the extreme northern end of the study area at the northeast corner of NUWC Pond. This was the only VOC detected at MW-119B, where measurements also indicate an extremely reducing environment, and where the highest concentration of the methane; reported at 2,300 µg/L. (Vinyl chloride accumulates at high concentrations of methane, greater than 500 µg/L). The highest concentration of vinyl chloride was detected at MW-124B, where the highest concentration of cis-1,2-DCE in the area south of the North Meadow was also detected. The MCL of vinyl chloride, 2 µg/L , was exceeded at this well and at MW-101B, to the west and across Deerfield Creek, where TCE was present at 5 µg/L.

Low concentrations of toluene were present in groundwater in limited, discontinuous areas of the site. The highest concentration of toluene was 41 µg/L at MW-109B in the northern portion of the Paved Storage Area. Two other areas of toluene were the vicinity of Building 185, at MW-124B, -125B and -126B; as well as the North Meadow/NUWC Pond area, at MW-114B and several vapor diffusion sample locations along the edge of the Pond. Upgradient of the site, a trace concentration of 2 µg/L of toluene was detected at MW-07B.

Eight additional VOCs were detected at just two locations in the study area. These include 1,2,4-trimethylbenzene; 1,3,5- trimethylbenzene; ethylbenzene; isopropylbenzene; m+p-xylenes; o-xylene; n-butylbenzene; and n-propylbenzene, all present at significantly higher concentrations (up to 810 µg/L) at MW-100B, where NAPL was detected. Much lower concentrations (0.5 to 5 µg/L) of these eight VOCs were detected upgradient of the site at MW-07B, in the Building 179 area. (Three exceptions are the additional detection of trace levels of three of these VOCs [0.3 J to 0.45 µg/L] at one additional location each).

Five of the six detections of carbon tetrachloride and the majority of detections of its reductive dechlorination daughter products, chloroform and chloromethane, were detected in the shallow

groundwater vapor diffusion samples immediately west of the North Meadow, along the eastern bank of NUWC Pond. The only other carbon tetrachloride detection was where the maximum concentration (2 J µg/L) was reported, at bedrock well MW-03B, also in the North Meadow (the other detections were each approximately 1 µg/L). Its daughter product, chloroform, was also present at four of same vapor diffusion locations, and at two additional vapor diffusion locations, at approximately one-half the concentration of the carbon tetrachloride. Chloroform was also detected at two bedrock wells in the Paved Storage Area, at MW109B and MW-126B, where the maximum of 7 µg/L was detected. Four of the chloroform locations, including three vapor diffusion locations and bedrock well MW-126B, also had higher concentrations of chloromethane, a further daughter product that can be produced in the dechlorination of carbon tetrachloride. The maximum concentrations of both chloromethane (16 µg/L) and chloroform (7 µg/L) were detected at MW-126B, in the southern portion of the site, east of Building 185. Chloromethane was also detected at MW-101B, west of Building 185, at 4 µg/L, and at the northernmost vapor diffusion sample location, DW14, at its second highest concentration of 7 J µg/L.

All detections of carbon tetrachloride (6) and chloroform (8) exceeded the associated ORNL, and five of the six chloromethane detections exceeded its ORNL. MCLs were not exceeded.

VOC results from groundwater samples collected from the wells along the eastern boundary of the Site (MW106B, MW106S, MW111B, MW116B and MW118B) were reviewed to determine if VOCs are migrating from offsite from the vicinity of the Wanumetonomy Golf Course. The only VOC in these wells above screening criteria is TCE. TCE was detected in MW118B at 18 ug/L. MW118B is located north of the North Meadow just west of the Site boundary. Although this well is cross-gradient of the presumed source area for the North Meadow TCE plume, the TCE detected in MW118B appears related to the North Meadow TCE release. Migration of VOCs dissolved in groundwater in a cross-gradient direction typically occurs via lateral dispersion. Overall, the results of the review of the eastern boundary wells does not suggest significant VOC migration from the Wanumentonomy Golf Course to the Site.

4.2.7.2 GRO/ETPH

GRO and ETPH were detected in groundwater primarily in wells toward the southern portion of the study area, including overburden and bedrock wells upgradient of the site. The highest and third highest concentrations of GRO were reported in bedrock and overburden wells MW-7B and MW-7A near Building 179, upgradient of the site. GRO was also present in groundwater downgradient of these wells at MW-101B, at 110 µg/L. Lower concentrations (up to 74 µg/L) were detected in four additional bedrock wells, those located closest to MW-101B, immediately east and north-northeast of this well. The only other detection of GRO in groundwater and the second highest concentration (180 µg/L) was in the northern portion of the study area, at MW-117B in the North Meadow. This was the only GRO detection in

groundwater north of MW-02B in the Paved Storage Area.

The highest concentrations of ETPH in groundwater were detected in four wells located in the southernmost portion of the study area, where the maximum (1,300 J µg/L) was reported at MW-124B, immediately south of Building 185. The second highest concentration (570 µg/L) was detected at upgradient overburden well MW-7A. The next highest ETPH concentrations in groundwater were detected in the vicinity of Building 185, and somewhat northeast and northwest of Building 185, including MW-126B, MW-125B, MW-02B and overburden well MW-103S, where concentrations of ETPH ranged from 190 to 360 µg/L. A comparable level of ETPH (200 µg/L) was also detected in upgradient bedrock well MW-7B. Lower levels of ETPH were detected in three other bedrock wells in the Paved Storage Area and in MW-101B, west of Building 185, as well as in four bedrock wells to the north, along the perimeter of the South Meadow area. ETPH was not detected in groundwater samples from the North Meadow area. (MW-100B, the NAPL well, was not analyzed for GRO or ETPH).

4.2.7.3 SVOCs

Low concentrations of five SVOCs were detected in groundwater at the site, and low concentrations of two components of Otto fuel, dibutyl sebacate (30 J µg/L) and PGDN (5 J µg/L) were tentatively identified in groundwater at one location, MW-124B (immediately south of Building 185). This well is also the location of two other SVOCs in groundwater, the PAH compound benzo(k)fluoranthene, the only detection of this compound, and di-n-butyl phthalate, detected at 4 J and 5 J µg/L, respectively. The only SVOC groundwater criteria exceeded was this detection of benzo(k)fluoranthene, which exceeded the ORNL of 0.29 µg/L. A trace concentration (3 µg/L) of di-n-butyl phthalate was also reported at MW-106B at the southeastern corner of the study area. The sole detections of two other SVOCs were reported at overburden well MW-103S, west of the Paved Storage Area, where low concentrations of bis(2-ethylhexyl)phthalate and the PAH compound, phenanthrene, were reported, each at 3 J µg/L. These concentrations are below the ORNLs and MCL. One additional SVOC, benzyl alcohol, was detected at overburden well MW-123 in the Deerfield Creek valley, at a low concentration of 110 µg/L, well below the ORNL.

4.2.7.4 Pesticides/PCBS

The only pesticide detected in groundwater at the study area is dieldrin, reported at just one location, overburden well MW-122, at 0.0108 µg/L, exceeding the ORNL of 0.0042 µg/L.

PCBs were not detected in groundwater at the study area.

4.2.7.5 Metals

A total of 31 groundwater samples were analyzed for both total and dissolved (field-filtered) metals compounds (and for cyanide, which was not detected). The five metals with the most frequent exceedances of criteria include arsenic, manganese, iron, aluminum and cobalt. With the exception of aluminum, those samples where total metals exceeded the ORNLs and/or the MCLs, as summarized below, also exceeded these criteria in most or all of the corresponding filtered metals samples.

For total metals analysis, of the 23 metal compounds detected in groundwater at the site, 18 have assigned ORNLs, of which eight were exceeded. The total metals with concentrations that exceeded ORNLs in from four to 19 samples include arsenic (in all 19 arsenic detections), manganese (18 samples), iron and cobalt (4 samples each). Four other metals exceeded the ORNLs at MW-103S only, where the highest turbidity (>1,100 NTUs) was observed. These include aluminum, chromium, nickel and vanadium. Elevated metals concentrations detected at MW-103S are likely due to soil particulates that were entrained in the highly turbid water sample. In some cases, some elevated sample turbidities at other locations may contribute to other elevated metals concentrations as well.

Fifteen of the detected total metals have associated MCLs, of which nine were exceeded. The total metals with concentrations that exceeded MCLs in from five to 30 samples include manganese (30 samples), iron (27 samples), aluminum (19 samples) and arsenic (5 samples). There were five metals that exceeded the MCL in just one sample; four of these metals exceeded in the highest turbidity sample only, MW-103S. These include beryllium, chromium, copper and lead. The fifth metal, thallium, exceeded the RIDEM GA criterion in the only detection at the site, at MW-119B in the northernmost portion of the site, near the NUWC Pond dam.

Nine detected metals have RIDEM GA groundwater objectives, of which eight are identical to the MCL criteria values. Five RIDEM GA objectives were exceeded, each by just one sample. Four of these exceedances were the same as discussed above for MCLs, including three of the four metals listed above that exceeded the criteria only at MW-103S, the highest turbidity sample: beryllium, chromium and lead, as well as thallium, that exceeded the RIDEM GA criterion only at MW-119B. Nickel also exceeded the RIDEM GA criterion at MW-103S only; nickel has no MCL.

The distribution of elevated concentrations of arsenic in groundwater is widespread at the study area, with the five highest concentrations present in three different areas, including upgradient of the site at MW-07B, the Paved Storage Area north of Building 185 (MW-02B) and west of this area (MW-103S, maximum turbidity sample), as well as the North Meadow area (MW-115B and -116B).

It is noted that in the areas south of the North Meadow, where ETPH was not detected in groundwater, nine of the 13 locations with elevated arsenic (and dissolved arsenic), including the three exceedances of the MCL in these areas, also have ETPH detected in groundwater.

Both manganese and iron were detected in nearly every sample, and commonly exceeded the MCLs. The associated ORNLs for these metals are much higher, and were exceeded far less frequently than MCLs. Manganese was one of three metals that were detected in every sample (others are calcium and magnesium). As noted above, manganese exceeded the MCL at 30 of 31 locations, and the ORNL at 18 locations.

Aluminum was one of the metals where the dissolved concentrations were generally noticeably lower than the total concentrations, and dissolved aluminum was detected in only twenty-five percent of the samples with total aluminum present. No significant distribution pattern was observed for dissolved aluminum, which was detected at five locations and exceeded the MCL at three locations (the ORNL was not exceeded).

4.3 NATURE AND EXTENT OF CONTAMINATION IN SURFACE WATER

Only the surface water data collected during the RI were used to characterize contamination in this medium. Analytical results from surface water samples collected in 2003 as part of the SASE are not used in this evaluation of the nature and extent of contamination because they do not represent current conditions at the Site. However, a comparison between sample results from the SASE and the RI indicate that copper is the only compound detected at levels above criteria in the RI surface water samples that was not detected above criteria in the SASE surface water samples. Copper was detected at levels above criteria in only one sample collected during the RI. Some individual VOCs, pesticides/PCBs, metals, and dissolved metals were detected in RI samples that were not detected in SASE samples, however, those compounds were not detected at levels exceeding criteria.

During the RI surface water was collected from 14 onsite locations. The locations were within Deerfield Creek, the Unnamed Stream and NUWC Pond. Three surface water samples were also collected from Melville Pond and its outlet stream to be used as reference samples. Surface water samples were collected in accordance with the Workplan and collection methods are described in Section 2.0.

Sample location identifiers include the site identifier (DA), the sample matrix (SW), the sample location (i.e.: 133), and the sample collection date (mmyy or mmddyy, i.e.: 0508 or 082108). Samples were analyzed for VOCs, SVOCs, pesticides/PCBs, metals and dissolved metals. Analytical results for field

duplicate samples were averaged with the original sample results. Sample stations where this calculation was performed are identified with the suffix "-AVG".

The locations of all surface water samples are shown on Figure 2-4. Table 4-3 provides a summary of screening criteria for surface water. For this Section, the ORNL RSL for tap water, the USEPA's MCL and RIDEMs GA Groundwater Objective were used for screening criteria. Although these screening criteria are not directly applicable for surface water, they were used for comparison purposes. The surface water analytical results are compared to ecological screening levels in Section 7.0. A summary of results for all detected chemicals for each onsite sample is presented in Table 4-18. Parameters that were detected in reference samples are summarized in Table 4-19. Complete results for all analyzed chemicals are included in Appendix F. The following sections summarize the surface water data for the various chemical classes analyzed.

4.3.1 VOCs in Surface Water

A total of 4 VOCs (acetone, cis-1,2-dichloroethene, toluene and trichloroethene) were detected infrequently (in between one and four of 14 onsite samples) in surface water samples. Two of the three reference samples did not contain VOCs. One VOC, acetone (a common laboratory artifact), was detected in the third reference sample. None of the VOCs that were detected in onsite or reference surface water samples were detected at levels exceeding criteria.

4.3.2 SVOCs/PAHs in Surface Water

There were no SVOCs/PAHs detected in surface water samples collected during the RI.

4.3.3 Pesticides/PCBs in Surface Water

Pesticides and PCBs were not detected in surface water reference samples. PCBs were not detected in onsite surface water samples. Two pesticides were detected: 4,4'-DDT and dieldrin. 4,4'-DDT was detected in five samples taken from Deerfield Creek and NUWC Pond and did not exceed screening criterion in any of them. Dieldrin was detected in 11 samples and exceeded screening criterion in all but one. Dieldrin was also detected in samples collected from Deerfield Creek and samples collected from NUWC Pond, but it was not detected in samples collected from the Unnamed Stream or the reference samples. Figure 4-46 shows locations and concentrations of dieldrin onsite. The levels detected ranged from 0.0033J µg/L in SW-117 to 0.013 µg/L in SW01.

PCBs were not detected in the surface water samples.

4.3.4 Total Metals in Surface Water

Eighteen metals were detected in surface water samples. Seven of those metals were detected at levels that exceeded criteria: aluminum, arsenic, barium, copper, iron, lead, and manganese. All other metals detected were at concentrations below criteria. Manganese was detected in all onsite samples and results exceeded criterion in all but one sample, SW116. A maximum result of 352 µg/L was detected in SW-117, which is more than seven times the EPA MCL of 50 µg/L. The average result for manganese was 158 µg/L, which is more than three times the EPA MCL. Figure 4-47 illustrates manganese results detected onsite compared to EPA MCL. Barium concentrations and locations are presented in Figure 4-48. It was detected and exceeded the criteria in every sample collected except reference pond sample SW-RP01, where it was not detected. Results ranged from 6.7 µg/L in SW108 to 21.4 µg/L in SW125. Iron was detected at levels exceeding criteria in six samples; it was detected at levels below criteria in seven samples; it was not detected in two samples. The maximum detection was 5,590 µg/L in SW125, and the average result was 830 µg/L. Figure 4-49 shows that most iron exceedances onsite were within NUWC Pond. Figure 4-50 shows that lead was detected in 7 samples and exceeded the ecological screening level in five of those. The maximum detection was 21.5 µg/L in SW125 and the average detection was 5.82 µg/L. Aluminum was detected in three samples and exceeded the EPA MCL of 50 µg/L in two. Arsenic was only detected in one sample: SW-117, at 4.9J µg/L which exceeds the screening criterion of 0.045 µg/L. Copper was detected in 11 samples but only exceeded screening criteria in one, SW125. The following table presents data summary statistics for total metals in onsite surface water. (All concentrations are in units of µg/L).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
ALUMINUM	3/14	3160	36	1080	DA-SW125-0508	50	EPA MCL	2
ANTIMONY	1/14	1.1	1.1	1.1	DA-SW106-LOCDEPTHMAX	6	EPA MCL	0
ARSENIC	1/14	4.9	4.9	4.9	DA-SW-117-082108	0.045	ORNLTW	1
BARIUM	14/14	21.4	6.7	11.6	DA-SW125-0508	4	ECO SL	14
CALCIUM	14/14	36200	18200	26800	DA-SW116-0508-AVG			
COBALT	12/14	4.4	0.26	0.958	DA-SW125-0508	11	ORNLTW	0
COPPER	11/14	14.2	1.8	3.58	DA-SW125-0508	9	ECO SL	1
IRON	13/14	5590	70.6	830	DA-SW125-0508	300	EPA MCL	6
LEAD	7/14	21.5	0.96	5.82	DA-SW125-0508	2.5	ECO SL	5
MAGNESIUM	14/14	9200	4850	7320	DA-SW-01-LOCDEPTHMAX			
MANGANESE	14/14	352	30.8	158	DA-SW-117-082108	50	EPA MCL	13
MERCURY	2/14	0.59	0.17	0.38	DA-SW121-0508	0.77	ECO SL	0
MOLYBDENUM	3/14	63	2.4	22.9	DA-SW-01-LOCDEPTHMAX	180	ORNLTW	0
NICKEL	11/14	6.1	0.79	1.99	DA-SW125-0508	52	ECO SL	0
POTASSIUM	14/14	4220	2890	3580	DA-SW-01-LOCDEPTHMAX			
SODIUM	14/14	57600	13800	37800	DA-SW111-LOCDEPTHMAX			
VANADIUM	5/14	5.3	0.49	1.68	DA-SW125-0508	20	ECO SL	0

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
ZINC	9/14	35.5	7.5	17	DA-SW125-0508	120	ECO SL	0

Surface water samples collected during the SASE had metal results similar to the samples collected during the RI. There were two metals that were detected but did not exceed criteria in the RI samples and were not detected in the SASE samples (antimony and vanadium). A notable difference between the two sampling events is that arsenic was only detected in one sample during the RI while it was detected in six SASE samples. Regardless of when samples were collected, all arsenic detections exceeded criterion. Lead results differed between the SASE and RI sampling events. As mentioned above, during the RI lead was detected in seven samples and exceeded criteria in five of those. Lead was detected and exceeded criteria in only one sample collected during the SASE.

During the RI, concentrations of metals, with the exception of barium, seem to be higher in NUWC Pond samples than onsite stream samples. The other metals mentioned above have a clear pattern of higher concentrations in samples collected from NUWC Pond, as mentioned above this is illustrated in Figures 4-47 through 4-50.

4.3.5 Dissolved Metals in Surface Water

Seventeen dissolved metals were detected in surface water samples. Of those seventeen metals, five were detected at levels exceeding criteria (aluminum, arsenic, barium, iron and manganese). Arsenic was only detected in one sample, SW-117; it exceeded the screening criterion of 0.045 µg/L with a result of 3 µg/L. Aluminum was also detected in only one sample and exceeded the screening criterion (EPA MCL) with a result of 54 µg/L in SW-01. Iron was detected in eight samples and exceeded the EPA MCL of 300 µg/L in two of those samples. The minimum result was 51.6 µg/L in DA-SW110-LOCDEPTHMAX; the maximum result was 358 µg/L in DA-SW125-0508. Manganese (Figure 4-51) was detected in every sample and was detected at levels exceeding the criteria in 13 of the 14 samples. Detections ranged from 211 µg/L in DA-SW01-LOCDEPTHMAX to 26.8J µg/L in DA-SW116-0508-AVG. Barium (Figure 4-52) was also detected in every sample and it exceeded criteria in every sample. Results ranged from 14.1 µg/L in DA-SW01-LOCDEPTHMAX to 6.8 µg/L in DA-SW108-LOCDEPTHMAX. The following table presents data summary statistics for dissolved metals in on site surface water. (All concentrations are in units of µg/L).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
ALUMINUM	1/14	54	54	54	DA-SW-01-LOCDEPTHMAX	50	EPA MCL	1
ANTIMONY	1/14	1.6	1.6	1.6	DA-SW125-0508	6	EPA MCL	0
ARSENIC	1/14	3	3	3	DA-SW-117-082108	0.045	ORNLTW	1
BARIUM	14/14	14.1	6.8	10.2	DA-SW-01-LOCDEPTHMAX	4	ECO SL	14
CALCIUM	14/14	35400	18300	26800	DA-SW116-0508-AVG			

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
COBALT	9/14	0.94	0.29	0.569	DA-SW125-0508	11	ORNLTW	0
COPPER	11/14	4.2	1.1	2.56	DA-SW-01-LOCDEPTHMAX	9	ECO SL	0
IRON	8/14	358	51.6	181	DA-SW125-0508	300	ECO MCL	2
LEAD	4/14	1.6	1	1.24	DA-SW119-0508	2.5	ECO SL	0
MAGNESIUM	14/14	9300	4760	7270	DA-SW-01-LOCDEPTHMAX			
MANGANESE	14/14	211	26.8	117	DA-SW-01-LOCDEPTHMAX	50	EPA MCL	13
MOLYBDENUM	2/14	64	3.15	33.6	DA-SW-01-LOCDEPTHMAX	180	ORNLTW	0
NICKEL	9/14	2.55	0.53	1.34	DA-SW-01-LOCDEPTHMAX	52	ECO SL	0
POTASSIUM	14/14	4200	2760	3530	DA-SW-01-LOCDEPTHMAX			
SODIUM	14/14	59000	14000	37500	DA-SW112-LOCDEPTHMAX			
VANADIUM	2/14	0.75	0.52	0.635	DA-SW121-0508	20	ECO SL	0
ZINC	6/14	17.3	14.9	16	DA-SW111-LOCDEPTHMAX	120	ECO SL	0

4.3.6 Summary of Nature and Extent of Contamination in Surface Water

In general, surface water samples had very few exceedances of screening criterion. VOCs and SVOCs did not exceed criteria. The only pesticide detected at levels exceeding criteria was dieldrin, which was detected frequently onsite, and not at all in the reference samples. Metals were a concern coming into this investigation because of high levels of lead found in previous investigations. Barium and manganese were detected at levels exceeding screening criterion most frequently in both the total metals and dissolved metals. Iron was also reported at levels exceeding screening criteria in both total metals and dissolved metals but exceeded screening criterion less frequently. Lead, a major COC, was only detected at levels exceeding criteria in the total metals samples. Laboratory results indicated that it was detected more frequently and at slightly higher concentrations in NUWC Pond samples than in stream samples.

4.4 NATURE AND EXTENT OF CONTAMINATION IN SEDIMENT

Under the RI, sediment samples were collected in July 2007 and May 2008. As part of the SASE, sediment samples had also been collected by TtNUS in 2003 (SD-01 through SD-06). The discussion of sediment analytical results is divided between two types of locations: those submerged by less than or equal to one foot of water (shallow water locations), and those that are submerged by more than one foot of water (deep water locations). Shallow water locations include samples that were collected from the onsite streams, the edges of the southern end of NUWC Pond, and four additional samples collected from a former stream bed (DA-SD128-082108 through DA-SD131-082108). Samples that were collected in the center and northern end of NUWC Pond are grouped in the deeper water location category. The logic for choosing this grouping for the nature and extent evaluation is for consistency with the Human Health Risk Assessment (Section 6.0), in which only sediments covered by less than one foot of water are considered for human exposure points. Table 4-5 provides a list of shallow water and deep water

sediment samples by subgroup as well as the analyses performed for each sample. The sediment sample locations are shown on Figures 2-3 (reference sample locations) and 2-4 (Site sediment sample locations).

Within the Site, sediment samples were collected for various analyses from 32 shallow water locations and from 12 deeper water locations. The 32 shallow water locations include six locations that were sampled during the SASE, only one of which, SD-01, was also sampled during the RI. It is noted that after collection of the RI sediment sample from SD-01 for quick-turn lead analysis in July 2007, a request was made by RIDEM to collect a sediment sample approximately 33 feet east of this SD-01 location. This new location was requested to be at the terminus of two 2-inch diameter pipes that were presumed to be the Area No. 1 drainage pipe discharge location. Therefore, during the next RI sampling event for full chemical analysis, a sediment sample was collected at this requested location (SD-134) on May 20, 2008. Initially, this sediment sample was inadvertently labeled SD-01, however, all associated documentation has since been revised to the correct new location, SD-134. It is also noted that due to the proximity of these two locations (33 feet) and the similar chemistry, they are considered equivalent locations, and one "LOCDEPTHMAX" sample is used which combines results from these two sample stations for the purpose of discussion in the nature and extent evaluation. Table 4-20, therefore, lists results for DA-SD-01-LOCDEPTHMAX, which is comprised of whichever result was the maximum detected for each of the two locations, SD-01 and SD-134, for each analyte, and this sample is used for the discussions which follow, in Section 4.4. For informational purposes, the individual chemical results for SD-134 are also included in Table 4-20.

Sediment samples were collected from the 0 to 6 inch interval at every location. Two additional samples (for nature and extent evaluation only) were also collected from deeper water locations at the center and north end of the pond from 4 to 24 inches (at SD-119 and SD-125). Five reference sediment samples were collected from Melville Pond. Three reference samples were collected in deeper water locations (RP01, RP-02 and RP-03), and two reference samples were taken from shallow water locations (RP-04 and RP-05). All reference samples were collected from 0 to 6 inches. Samples were collected as described in Section 2.0 of this report.

Sample location identifiers include the site identifier (DA), the sample matrix (SD), the sample location (i.e.: 133), and the sample collection interval (i.e.: 0006 for 0-6 inches). Sediment analyses included VOCs, SVOCs, pesticides/PCBs, metals (or total lead in some cases), GRO, ETPH, total organic carbon (TOC), toxicity, and grain size distribution, although not every sample was analyzed for all parameters. Analytical results for field duplicate samples were averaged with the original sample results. Samples where this calculation was performed are identified with the suffix "-AVG".

Sediment analytical results were compared against ecological screening criteria and soil screening criteria. Ecological screening criteria are described more in Section 7.0, the ERA. In addition, the ORNLDCR (soil), the ORNL POG (protection of groundwater) for soil, the RIDEMDCR for soil and the RIDEMPOG for soil were all used as screening criteria. The purpose of using these screening criteria in the nature and extent evaluation is to provide a method to compare the results between subgroups and reference locations. A summary of sediment screening criteria is provided in Table 4-4. A summary of results for detected chemicals for each sample in the shallow water sediment subgroup is presented in Table 4-20, and for the deeper water sediment subgroup, in Table 4-21. A summary of the analytical results for detected chemicals in the reference samples is presented in Table 4-22. Complete results for all analyzed chemicals are included in Appendix F. The following sections summarize the sediment data for the various chemical classes analyzed.

4.4.1 Sediment Samples (Shallow Water Locations)

Sediment samples for various analytical parameters were collected from a total of 32 shallow water sediment sample locations (including both SD-01 and SD-134) from onsite streams and along the edge of NUWC Pond (not all analytical parameters were analyzed at each location). Data from analysis of shallow water sediment samples from each of these locations are presented in Table 4-20.

4.4.1.1 VOCs in Sediment (Shallow Water Locations)

A total of 20 onsite shallow water sediment locations were sampled for VOCs (20 locations assumes using the single SD-01-LOCDEPTHMAX results, which combines SD-01 and SD-134). Thirteen VOCs were detected in this subgroup. Acetone and tetrachloroethene were the only two VOCs that were detected at levels above criteria. Acetone (a common laboratory artifact) was the most frequently detected and exceeded screening criteria. Tetrachloroethene was detected in only three samples. DA-SD114-LOCDEPTHMAX was the location of the maximum detection of 33 µg/Kg and DA-SD116-LOCDEPTHMAX had the minimum detection of 3 µg/Kg; all three samples exceeded the ORNLSLPOG of 0.052 µg/Kg.

Other VOCs detected include 1,1,1-trichloroethane, 1,1-dichloroethane, 1,2,4-trichlorobenzene, 2-butanone, 4-isopropyltoluene, chloroethane, cis-1,2-dichloroethene, dichlorodifluoromethane, m+p-xylenes, and trichloroethene. The only VOC detected in shallow water location sediment reference samples collected in the Melville Pond outlet was 4-isopropyltoluene.

4.4.1.2 SVOCs/PAHs in Sediment (Shallow Water Locations)

Samples for SVOCs analysis were also collected from a total of 20 onsite shallow water sediment locations. A total of 24 SVOCs were detected in shallow water sediment samples; 18 were detected at levels exceeding criteria. The distribution and concentrations of several PAHs are shown on a series of figures for reference with the discussion that follows (both shallow water and deep water sediment sub-groups are included on each figure). The compounds with associated distribution/concentration figures include: benzo(a)anthracene (Figure 4-53); benzo(a)pyrene (Figure 4-54); benzo(b)fluoranthene (Figure 4-55); chrysene (Figure 4-56); phenanthrene (Figure 4-57); pyrene (Figure 4-58); and Total PAHs (Figure 4-59).

Benzo(a)anthracene and benzo(a)pyrene exceeded criteria most frequently with 17 and 16 samples out of the 20 total samples, respectively. Benzo(a)anthracene had a maximum detection of 3400 µg/Kg and benzo(a)pyrene had a maximum detection of 2600 µg/Kg, both of these results were found in DA-S-SD03-01. Minimum detections for each analyte were found at location DA-SD108-LOCDEPTHMAX and averages were 623 and 566 µg/Kg for benzo(a)anthracene and benzo(a)pyrene respectively. The results for benzo(a)anthracene and benzo(a)pyrene in sample DA-S-SD03-01 are at least an order of magnitude higher than any other sample collected, except for DA-SD111-LOCDEPTHMAX. Maximum values of SVOCs/PAHs are detected in DA-S-SD03-01. The only sample with similar levels of contamination is DA-SD111-LOCDEPTHMAX. DA-SD111-LOCDEPTHMAX was collected about 100 feet downstream from DA-S-SD03-01.

Anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, benzoic acid, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene were frequently detected in samples at levels exceeding criteria. All of these analytes, with the exception of benzoic acid, had maximum detections in samples DA-S-SD03-01 and DA-SD111-LOCDEPTHMAX. Anthracene had an average of 332 µg/Kg and exceeded the ecological criteria of 57.2 µg/Kg in eight onsite samples. Benzo(g,h,i)perylene had an average result of 374 µg/Kg and exceeded the ecological criteria of 170 µg/Kg in eight onsite samples. Benzoic acid had an average result of 1150 µg/Kg and exceeded the ecological criterion of 65 in seven onsite samples. Chrysene had an average result of 626 µg/Kg and exceeded the ecological criterion of 166 µg/Kg in 12 onsite samples. Dibenzo(a,h)anthracene had an average result of 110 µg/Kg and exceeded the ORNL POG criterion of 15 µg/Kg in 14 onsite samples. Naphthalene had an average result of 48.3 µg/Kg and exceeded the ORNL POG criterion of 0.55 µg/Kg in eight onsite samples; Phenanthrene had an average of 1,130 µg/Kg and exceeded the ecological criterion of 204 µg/Kg in 10 onsite samples. Pyrene had an average result of 1210 µg/Kg which exceeded the ecological criterion of 195 µg/Kg in 14 onsite samples. Analytes not mentioned have averages that did not exceed criteria significantly. 2-Methylnaphthalene only exceeded criteria in DA-

SD111-LOCDEPTHMAX. Acenaphthene and fluorene only exceeded criteria in DA-S-SD03-01 and DA-SD111-LOCDEPTHMAX. In Figure 4-59, which shows locations and concentrations of Total PAHs, it is clear that the highest concentrations are within the wetland areas. The following table presents data summary statistics for SVOCs in onsite shallow water sediment samples. (All concentrations are in units of µg/Kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
2-METHYLNAPHTHALENE	9/20	200	3.1	29.7	DA-SD111-LOCDEPTHMAX	20.2	ECO SL	1
ACENAPHTHENE	14/20	1000	3.9	144	DA-SD111-LOCDEPTHMAX	290	ECO SL	2
ANTHRACENE	14/20	2000	17	332	2 max samples	57.2	ECO SL	8
BENZO(A)ANTHRACENE	17/20	3400	16	623	DA-S-SD03-01	14	ORNLSLPOG	17
BENZO(A)PYRENE	16/20	2600	15	566	DA-S-SD03-01	4.6	ORNLSLPOG	16
BENZO(B)FLUORANTHENE	14/20	2300	27	618	DA-S-SD03-01	47	ORNLSLPOG	13
BENZO(G,H,I)PERYLENE	16/20	1900	10	374	DA-S-SD03-01	170	ECO SL	8
BENZO(K)FLUORANTHENE	18/20	2300	2.8	442	2 max samples	240	ECO SL	7
BENZOIC ACID	7/11	1900	625	1150	DA-SD-129-082108	65	ECO SL	7
BENZYL ALCOHOL	1/20	400	400	400	DA-SD-01-LOCDEPTHMAX	52	ECO SL	1
CHRYSENE	18/20	3300	8.7	626	DA-S-SD03-01	166	ECO SL	12
DIBENZO(A,H)ANTHRACENE	15/20	640	11	110	DA-S-SD03-01	15	ORNLSLPOG	14
FLUORANTHENE	19/20	8500	24	1270	DA-S-SD03-01	423	ECO SL	11
FLUORENE	14/20	1300	4.2	183	DA-SD111-LOCDEPTHMAX	77.4	ECO SL	2
INDENO(1,2,3-CD)PYRENE	16/20	1700	9.5	328	DA-S-SD03-01	150	ORNLSLDCR	7
NAPHTHALENE	8/20	200	4.6	48.3	DA-SD111-LOCDEPTHMAX	0.55	ORNLSLPOG	8
PHENANTHRENE	17/20	8000	11	1130	DA-S-SD03-01	204	ECO SL	10
PYRENE	18/20	7000	21	1210	DA-S-SD03-01	195	ECO SL	14
TOTAL PAHs	19/20	45560	146.8	7100	DA-S-SD03-01	1610	ECO SL	13

Shallow water reference sediment samples had PAH detections as well as exceedances in many of the same parameters as the onsite samples. For the most part, results from the reference samples were well below averages, but many still exceeded criteria. Results for benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and fluoranthene were above averages in sample DA-SD-RP04-0006.

4.4.1.3 Pesticides/PCBs in Sediment (Shallow Water Locations)

Analytical results for pesticides and PCBs indicated that six pesticides and two PCB Aroclors were detected. All detections in onsite shallow water sediment samples exceeded criteria, with one exception: the pesticide 4,4'-DDD was detected in DA-SD133-0006 at levels below the criterion and 4'-4'-DDE was detected below the criterion in sample DA-SD107-LOCDEPTHMAX. The samples DA-SD116-LOCDEPTHMAX and DA-SD117-LOCDEPTHMAX have the maximum number of pesticide/PCB exceedances, with only two exceptions: Aroclor-1268, which was only detected in DA-S-SD03-01; and

dieldrin, which had a maximum detection in DA-SD-131-082108. The pesticide 4,4'-DDD had an average detection of 24.1 µg/Kg; 4,4'-DDT had an average detection of 23.2 µg/Kg; alpha-chlordane had an average detection of 25.4 µg/Kg; and gamma-chlordane had an average result of 19.4 µg/Kg. Each of these averages are about half of their respective maximum detections. The pesticides 4,4'-DDE and dieldrin had average results of 40.9 and 23.2 µg/Kg, respectively. The PCB Aroclor-1260 average detection was 153 µg/Kg. Each of these analytes had maximum exceedances close to three times their average results. Figures 4-54 through 4-57 show locations and concentrations of representative pesticides, and Figure 4-58 shows the locations and concentrations of PCB Aroclor-1260 in sediment. The locations of Total Aroclor exceedances are similar to those for Aroclor-1260 exceedances, except Total Aroclors exceeded the criterion at one additional location, at SD119-0424. The following table presents data summary statistics for pesticides/PCBs in onsite shallow water sediment samples. (All concentrations are in units of µg/Kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
4,4'-DDD	13/20	56	4.7	24.1	DA-SD116-LOCDEPTHMAX	4.88	ECO SL	12
4,4'-DDE	15/20	140	2.2	40.9	DA-SD-117-082108	3.16	ECO SL	14
4,4'-DDT	8/20	47	5.4	23.2	DA-SD116-LOCDEPTHMAX	4.16	ECO SL	8
ALPHA-CHLORDANE	12/20	53	4.5	25.4	DA-SD-117-082108	3.24	ECO SL	12
AROCLOR-1260	12/20	550	35	153	DA-SD116-LOCDEPTHMAX	14	ORNLSLPOG	12
AROCLOR-1268	1/20	64.4	64.4	64.4	DA-S-SD03-01	14	ORNLSLPOG	1
DIELDRIN	14/20	66	2.2	23.2	DA-SD-131-082108	0.09	ORNLSLPOG	14
GAMMA-CHLORDANE	11/20	37	3.3	19.4	DA-SD-117-082108	3.24	ECO SL	11
TOTAL AROCLOR	12/20	550	35	159	DA-SD116-LOCDEPTHMAX	59.8	ECO SL	8
TOTAL DDD/DDE/DDT	15/20	203	2.2	74.2	DA-SD-117-082108	5.28	ECO SL	14

All pesticides/PCBs detected in the shallow water sediment reference samples were detected at levels below criteria. 4,4'-DDD was found in two shallow water sediment reference samples (DA-SD-RP04-0006 and DA-SD-RP05-0006). Alpha-chlordane and gamma-chlordane were detected in one shallow water sediment reference sample (DA-SD-RP05-0006).

4.4.1.4 Metals in Sediment (Shallow Water Locations)

Fifteen metals were detected at levels exceeding criteria in samples collected in shallow water sediment locations. Results for arsenic, chromium, cobalt, iron, and manganese exceeded criteria in every onsite sample collected. Zinc, silver, nickel, molybdenum, lead, copper, beryllium, barium, and cadmium, were frequently detected at levels exceeding criteria.

Metals that exceeded criteria in every onsite sample showed some of their highest concentrations in Deerfield Creek sediments. Although levels exceeded criteria in samples from the unnamed stream as well, results were typically much lower. Arsenic had a maximum concentration of 18 mg/Kg in DA-SD-01-LOCDEPTHMAX and an average detection of 14.2 mg/Kg. Chromium had a maximum detection of 27.7 mg/Kg in DA-SD-117-082108 and an average detection of 16.6 mg/Kg. Cobalt had its highest detection in DA-SD133-LOCDEPTHMAX with a result of 204 mg/Kg and an average of 62.1 mg/Kg. Iron exceeded the criterion of 640 mg/Kg significantly with a maximum result of 42800 mg/Kg in DA-SD133-LOCDEPTHMAX and an average result of 25600 mg/Kg. DA-SD131-082108 had the maximum result for manganese with 2500 mg/Kg exceeding the criterion of 57 mg/Kg. Manganese had an average detection of 851 mg/Kg. Figures 4-59 through 4-72 illustrate the range of concentrations found for these metals as well as locations where these metals were found.

Lead was sampled at more locations than all other metals because an initial sampling round was conducted during the early summer of 2007 to asses only lead. It exceeded criterion of 35.8 mg/Kg in 27 out of 31 samples collected from shallow sediment locations (some sample locations were sampled twice). Lead had a maximum detection of 27,200 mg/Kg at DA-SD100-071207 and an average detection of 1880 mg/Kg. Lead was a major concern in sediment samples during the RI because it was found at high levels during past sampling events. Two samples that had detections of lead but did not exceed criterion were collected from the Unnamed Stream, DA-SD107-LOCDEPTHMAX and DA-SD108-LOCDEPTHMAX. This is significant because the unnamed stream originates on the golf course to the east of the site while Deerfield Creek originates on base and flows directly past the paint can removal area. Figure 4-67 illustrates the higher lead concentrations in sediment adjacent to around the paint can removal area (west of the Building 185 Complex), and within Deerfield Creek than other onsite areas sampled.

DA-S-SD04-01, DA-SD107-LOCDEPTHMAX and DA-SD108-LOCDEPTHMAX had the fewest number of exceedances with five each. These samples were collected in the Unnamed stream which originates in the Wanumetonomy Golf Course. With the exception of arsenic, all of the analytes that exceeded criteria in these samples were also detected in reference samples at levels exceeding criteria. In addition, with the exception of manganese, metals that exceeded criteria in DA-S-SD04-01, DA-SD107-LOCDEPTHMAX, and DA-SD108-LOCDEPTHMAX, have contaminant concentrations very near the reference samples. Manganese was found at significantly higher levels onsite then offsite, regardless of location. Manganese concentrations can be found in Figure 4-68.

Six metals that exceeded criteria in shallow sediment samples onsite were either not detected or detected at levels below criteria in reference samples. Arsenic, cadmium, and mercury were not detected in shallow sediment reference samples. Arsenic was exceeded criterion in 20 out of 20 onsite samples,

cadmium was detected in seven onsite samples at levels exceeding criterion and mercury was detected in four onsite samples at levels exceeding criterion. Barium, molybdenum, and nickel were detected below criteria in reference samples. Barium and molybdenum exceeded criterion in five onsite samples, and nickel exceeded criteria in 9 onsite samples. The following table presents data summary statistics for metals in onsite shallow water sediment samples. (All concentrations are in units of mg/Kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
ALUMINUM	20/20	21100	5000	11700	DA-SD-117-082108	25500	ECO SL	0
ARSENIC	20/20	18	9.4	14.2	DA-SD-01-LOCDEPTHMAX	0.39	ORNLSLDCR	20
BARIUM	20/20	81.4	17	38.6	DA-SD-117-082108	48	ECO SL	5
BERYLLIUM	20/20	0.71	0.29	0.428	DA-SD-01-LOCDEPTHMAX	0.4	RIDEMPOG	7
CADMIUM	14/20	2.4	0.17	1.04	DA-S-SD06-01	0.99	ECO SL	7
CALCIUM	20/20	7040	710	2070	DA-SD-130-082108			
CHROMIUM	20/20	27.7	6.5	16.6	DA-SD-117-082108	2.1	ORNLSLPOG	20
COBALT	20/20	204	8.1	62.1	DA-SD133-LOCDEPTHMAX	0.49	ORNLSLPOG	20
COPPER	20/20	52	9.1	29.7	DA-S-SD06-01	31.6	ECO SL	7
IRON	20/20	42800	14000	25600	DA-SD133-LOCDEPTHMAX	640	ORNLSLPOG	20
LEAD	31/31	27200	14	1880	DA-SD100-071207	35.8	ECO SL	27
MAGNESIUM	20/20	4000	1000	2810	DA-SD-129-082108			
MANGANESE	20/20	2500	137	851	DA-SD-131-082108	57	ORNLSLPOG	20
MERCURY	19/20	0.24	0.02	0.123	DA-SD116-LOCDEPTHMAX	0.18	ECO SL	3
MOLYBDENUM	19/20	7.5	0.44	2.92	DA-SD133-LOCDEPTHMAX	3.7	ORNLSLPOG	5
NICKEL	20/20	31.3	11	21.9	DA-SD-117-082108	22.7	ECO SL	9
POTASSIUM	19/20	1260	150	505	DA-SD-117-082108			
SELENIUM	2/20	0.92	0.48	0.7	DA-SD112-LOCDEPTHMAX	0.95	ORNLSLPOG	0
SILVER	18/20	4.8	0.16	1.42	DA-S-SD03-01	0.5	ECO SL	14
SODIUM	11/20	289	64.3	127	DA-SD-117-082108			
VANADIUM	20/20	40.5	12	24.3	DA-SD116-LOCDEPTHMAX	57	ECO SL	0
ZINC	20/20	228	36	115	DA-SD-117-082108	121	ECO SL	10

4.4.1.5 GRO/ETPH in Sediment (Shallow Water Locations)

ETPH was detected in each of the 15 samples which were analyzed (SASE locations were not sampled for GRO/ETPH). The results ranged from 53 to 1,800 mg/kg, with the maximum detected in DA-SD116-LOCDEPTHMAX. Three of the ETPH results were above the RIDEM DCR screening criterion of 500 mg/Kg (note that this criterion is for Total Petroleum Hydrocarbons [TPH], which is composed of ETPH plus gasoline range organics [GRO]). GRO was detected in one sample and the result was 4 mg/kg in DA-SD131-082108.

4.4.2 Sediment Samples (Deeper Water Locations)

A total of twelve deeper water sediment locations were sampled at the Site within NUWC Pond (locations with greater than one foot of overlying surface water). At two of the twelve locations (SD-119 and SD-125), two samples were collected, a surface sediment from a depth of 0 to 6 inches, and a subsurface sediment sample from a depth of 4 to 24 inches. Three additional sediment reference samples (RP-01; RP-02 and RP-03) were collected from Melville Pond. With the exception of the two deeper sediment samples, all samples were collected from a depth of 0 to 6 inches, including the reference samples. Not all chemical analyses were performed for every sample, as can be seen in Table 4-21, which presents the analytical results for chemicals detected in onsite deep water sediment samples. Analytical results for reference samples are included in Table 4-22.

4.4.2.1 VOCs in Sediment (Deeper Water Locations)

Seven VOCs were detected in samples collected onsite. They include 1,2,4-trichlorobenzene, 2-butanone, acetone, carbon disulfide, cis-1,2-DCE, dichlorofluoromethane, and toluene. Acetone had a maximum detection of 740J µg/Kg in DA-SD121-LOCDEPTHMAX and a minimum detection of 34 µg/Kg in DA-S-SD08-01. Acetone (a common laboratory artifact) exceeded criterion in all Site samples and three reference samples with similar results. Carbon disulfide exceeded criteria in four onsite samples and two reference samples. The maximum result was 13 µg/Kg from DA-SD119-0424. The reference samples contained carbon disulfide at similar levels. 1,2,4-trichlorobenzene, 2-butanone, and cis-1,2-DCE, dichlorofluoromethane, and toluene were not detected in onsite samples at levels exceeding screening criteria.

4.4.2.2 SVOCs/PAHs in Sediment (Deeper Water Locations)

A total of 20 SVOCs/PAHs were detected in samples collected at deeper water sediment locations. Eight SVOCs/PAHs were detected at levels exceeding criteria in every sample collected. The distribution and concentrations of several PAHs are shown on a series of figures for reference with the discussion that follows (both shallow water and deep water sediment sub-groups are included on each figure). The compounds with associated distribution/concentration figures include: benzo(a)anthracene (Figure 4-53); benzo(a)pyrene (Figure 4-54); benzo(b)fluoranthene (Figure 4-55); chrysene (Figure 4-56); phenanthrene (Figure 4-57); pyrene (Figure 4-58); and Total PAHs (Figure 4-59).

Three of the eight analytes that exceeded criteria in all deeper sediment onsite samples also exceeded criteria in all three deeper water reference samples. Benzo(a)anthracene deep water sediment onsite sample results ranged from 270 µg/Kg to 790 µg/Kg in samples DA-SD119-0424 and DA-S-SD07-01,

respectively. Reference sample results ranged from 110J µg/Kg to 150J µg/Kg. Benzo(a)pyrene results ranged from 270 µg/Kg to 1300J µg/Kg in sample DA-SD125-00.5-LOCDEPTHMAX. Benzo(a)pyrene reference results ranged from a minimum of 120 µg/Kg to a maximum of 200 µg/Kg. Benzo(b)fluoranthene had results similar to benzo(a)anthracene and benzo(a)pyrene exceeding criteria in all samples collected including the reference samples. The difference was that there was an over lap of maximum and minimum results between the onsite samples and the reference samples. Onsite samples ranged from 350 µg/Kg in DA-SD119-0424 to 1800J µg/Kg in sample DA-SD125-00.5-LOCDEPTHMAX. Reference samples ranged from 250 µg/Kg to 430 µg/Kg.

Dibenzo(a,h)anthracene exceeded criterion in all samples collected in 2008, including reference samples, and was not detected in deep water sediment samples collected during the SASE. The maximum result was 150 µg/Kg in DA-SD121-LOCDEPTHMAX and the minimum result was 56 µg/Kg in sample DA-SD119-0424. Reference sample results were about half of the minimum result.

Anthracene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene, and phenanthrene also exceeded criteria in onsite samples and they were detected in the reference samples at levels that were slightly lower. However, the results for the reference samples did not exceed criteria, with the exception of pyrene in DA-SD-RP02.

Three analytes were detected in onsite samples at levels exceeding criteria but were not detected at all in reference samples. Bis(2-Ethylhexyl)phthalate exceeded ecological criterion of 750 µg/Kg in five samples, a maximum detection of 2300J µg/Kg was found in DA-S-SD08-01 and DA-S-SD09-01, and a minimum result of 310 µg/Kg was detected in DA-SD119-0424. Naphthalene exceeded groundwater criterion of 0.55 µg/Kg in two deep water samples with a maximum result of 18J µg/Kg in DA-SD119-00.5-LOCDEPTHMAX. Diethyl phthalate exceeded ecological criterion of 630 µg/Kg in three samples with a maximum result of 2,000 µg/Kg in DA-S-SD09-01.

Benzoic acid was exceeded criterion in three onsite samples and was detected at levels below criterion in one reference sample. All samples that exceeded criterion were collected during the SASE. Results ranged from 1,900 µg/Kg to 2,700 µg/Kg.

A map showing locations and concentrations of total PAHs in sediment is presented in Figure 4-53. The following table presents data summary statistics for SVOCs in onsite deeper water sediment samples. (All concentrations are in units of µg/Kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
2-METHYLNAPHTHALENE	5/8	13	8.2	11.2	DA-SD125-00.5-LOCDEPTHMAX	20.2	ECO SL	0
ACENAPHTHENE	5/8	48	18	26.8	DA-SD119-00.5-LOCDEPTHMAX	290	ECO SL	0
ACENAPHTHYLENE	5/8	24	13	20	DA-SD125-00.5-LOCDEPTHMAX	160	ECO SL	0
ANTHRACENE	7/8	220	40	100	DA-S-SD07-01	57.2	ECO SL	5
BENZO(A)ANTHRACENE	8/8	790	270	594	DA-S-SD07-01	14	ORNLSLPOG	8
BENZO(A)PYRENE	8/8	1300	270	772	DA-SD125-00.5-LOCDEPTHMAX	4.6	ORNLSLPOG	8
BENZO(B)FLUORANTHENE	8/8	1800	350	996	DA-SD125-00.5-LOCDEPTHMAX	47	ORNLSLPOG	8
BENZO(G,H,I)PERYLENE	8/8	940	180	601	DA-S-SD08-01	170	ECO SL	8
BENZO(K)FLUORANTHENE	8/8	1000	240	667	DA-S-SD08-01	240	ECO SL	7
BENZOIC ACID	3/5	2700	1900	2330	DA-S-SD08-01	65	ECO SL	3
BIS(2-ETHYLHEXYL)PHTHALATE	7/8	2300	310	1180	2 max samples	750	ECO SL	5
CHRYSENE	8/8	1400	350	992	2 max samples	166	ECO SL	8
DIBENZO(A,H)ANTHRACENE	5/8	150	56	106	DA-SD121-LOCDEPTHMAX	15	ORNLSLPOG	5
DIETHYL PHTHALATE	3/8	2000	1000	1530	DA-S-SD09-01	630	ECO SL	3
FLUORANTHENE	8/8	2600	600	1850	DA-SD125-00.5-LOCDEPTHMAX	423	ECO SL	8
FLUORENE	5/8	60	28	44	DA-SD119-00.5-LOCDEPTHMAX	77.4	ECO SL	0
INDENO(1,2,3-CD)PYRENE	8/8	800	170	548	DA-S-SD08-01	150	ORNLSLDCR	8
NAPHTHALENE	2/8	18	6.2	12.1	DA-SD119-00.5-LOCDEPTHMAX	0.55	ORNLSLPOG	2
PHENANTHRENE	8/8	990	260	698	DA-S-SD07-01	204	ECO SL	8
PYRENE	7/8	2400	560	1560	DA-SD125-00.5-LOCDEPTHMAX	195	ECO SL	7
TOTAL PAHS	8/8	13596	3413.2	9310	DA-SD125-00.5-LOCDEPTHMAX	1610	ECO SL	8

4.4.2.3 Pesticides/PCB in Sediment (Deeper Water Locations)

Nine pesticides/PCBs were detected at levels exceeding criteria in samples collected onsite. 4,4'-DDD exceeded criterion in five out of eight onsite samples collected as well as two out of three reference samples. Results ranged from 22 µg/Kg in DA-SD119-0424 to 170J µg/Kg in DA-SD125-00.5-LOCDEPTHMAX. However results in the reference samples exceeding criterion were significantly lower than onsite samples, ranging from 6.6J to 7.4J µg/Kg. 4,4'-DDE also exceeded criterion in five out of eight samples collected onsite; results ranged from 56 µg/Kg to 430 µg/Kg in DA-SD119-0424 and DA-SD125-00.5-LOCDEPTHMAX respectively. All three reference samples exceeded criteria as well with results ranging from 7.6 µg/Kg to 39 µg/Kg. 4,4'-DDT concentration patterns are similar to 4,4'-DDD and 4,4'-DDT. 4.4'-DDT exceeded criterion in both onsite and reference samples but the onsite samples have higher concentrations than the reference samples. Onsite results ranged from 19J µg/Kg in sample DA-SD119-00.5-LOCDEPTHMAX to 77J µg/Kg in DA-SD125-00.5-LOCDEPTHMAX. The maximum concentration from the reference samples was 9.2J µg/Kg of 4,4'-DDT. Figure 4-57 presents a map showing concentrations and locations of Total DDD/DDE/DDT.

Six pesticides/PCBs exceeded criteria in deep water sediment samples collected onsite, but they were not detected in the reference samples. Alpha-chlordane, Aroclor-1260, and gamma-chlordane exceeded criteria in five out of eight onsite samples, dieldrin exceed criteria in six onsite samples, and Aroclor-1254 and Aroclor-1268 each exceeded criteria in one onsite sample. Minimum results for each of these analytes, excluding gama-chlordane, exceeded their respective criteria by at least an order of magnitude. The minimum result for gama-chlordane was 12 µg/Kg which exceeded the criterion of 3.24 µg/Kg by more than three times. Maps for each of these parameters showing concentrations and locations of exceedances are presented in Figures 4-54 through 4-58. The following table presents data summary statistics for pesticides/PCBs in onsite deeper water sediment samples. (All concentrations are in units of µg/Kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
4,4'-DDD	5/8	170	22	86.2	DA-SD125-00.5-LOCDEPTHMAX	4.88	ECO SL	5
4,4'-DDE	5/8	430	56	227	DA-SD125-00.5-LOCDEPTHMAX	3.16	ECO SL	5
4,4'-DDT	4/8	77	19	45.5	DA-SD125-00.5-LOCDEPTHMAX	4.16	ECO SL	4
ALPHA-CHLORDANE	5/8	180	15	85.8	DA-SD125-00.5-LOCDEPTHMAX	3.24	ECO SL	5
AROCLOR-1254	1/8	200	200	200	DA-SD-119-0424	5.1	ORNLSLPOG	1
AROCLOR-1260	5/8	450	150	268	DA-S-SD07-01	14	ORNLSLPOG	5
AROCLOR-1268	1/8	2480	2480	2480	DA-S-SD07-01	14	ORNLSLPOG	1
DIELDRIN	6/8	140	11	61.8	DA-SD125-00.5-LOCDEPTHMAX	0.09	ORNLSLPOG	6
GAMMA-CHLORDANE	5/8	130	12	64.2	DA-SD125-00.5-LOCDEPTHMAX	3.24	ECO SL	5
TOTAL AROCLOR	6/8	2930	150	670	DA-S-SD07-01	59.8	ECO SL	6
TOTAL DDD/DDE/DDT	5/8	677	98	350	DA-SD125-00.5-LOCDEPTHMAX	5.28	ECO SL	5

4.4.2.4 Metals in Sediment (Deeper Water Locations)

With the exception of selenium, all of the metals that were detected in shallow water sediment samples were also detected in deep water sediment samples. Chromium, cobalt, iron and manganese were each detected at levels exceeding criteria in every deep sediment sample collected, including the reference samples. Onsite chromium results ranged from 14 mg/Kg in DA-S-SD07-01 to 40.4 mg/Kg in DA-SD125-00.5-LOCDEPTHMAX. Reference samples had a maximum result of 17 mg/Kg. Cobalt results ranged from 35.9 mg/Kg in DA-SD119-0424 to 73.1 mg/Kg in DA-SD125-0424. Reference samples had a maximum result of 11.7 mg/Kg. Iron had a maximum result of 51100 mg/Kg in sample DA-SD125-00.5-LOCDEPTHMAX and a minimum result of 25000 mg/Kg in DA-S-SD07-01. Reference samples had a maximum exceedance of 24000 mg/Kg. Manganese results ranged from 255 mg/Kg in DA-SD119-0424 to 2800 mg/Kg in DA-S-SD07-01. Reference samples had a maximum exceedance of 530 mg/Kg. As it was the situation for most of the SVOCs and Pesticide/PCBs, although the reference samples did exceed criteria they were still lower than the minimum values detected in the onsite samples. Onsite distribution and concentrations of metals in sediment are illustrated on Figures 4-59 through 4-72.

Arsenic, beryllium, cadmium, copper, lead, silver and zinc exceeded criteria in most of the onsite samples but criteria was exceeded in only one or two reference samples. Arsenic, beryllium, cadmium, silver and zinc onsite sample results were similar to reference sample results. Arsenic, beryllium and silver concentrations in the onsite samples were not more than twice reference sample concentrations. Cadmium and zinc were both found at almost the same exact concentrations in the onsite samples as the reference samples. Copper concentrations were lower in the onsite samples than in the reference samples. Onsite copper samples had a maximum exceedance of 58 mg/Kg, and reference samples ranged from 34 mg/Kg to 116 mg/Kg.

Lead concentrations detected in deeper water sediment samples were generally lower than the lead concentrations that were detected in the shallow water sediment samples. Lead exceeded criteria in all onsite deeper sediment samples. The minimum value of lead found in the onsite samples was 104 mg/Kg in sample DA-SD126-072107. The maximum concentration of lead found in reference samples was 74.4 mg/Kg. Two out of three reference samples exceeded lead criterion. Figure 4-67 demonstrates lead concentrations at onsite locations.

Although aluminum, mercury and nickel exceeded criteria in onsite samples and did not exceed criteria in the reference samples, results of Site samples were not significantly elevated (not significantly different from reference samples) for these metals. The maximum detection for mercury was 0.33 mg/Kg in sample DA-S-SD08-01, just less than twice the criterion for mercury of 0.18 mg/Kg.

Barium results in onsite sediments, however, were frequently two and three times the results of reference samples (Figure 4-66) The following table presents data summary statistics for metals in onsite deeper water sediment samples. (All concentrations are in units of mg/Kg).

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
ALUMINUM	8/8	32400	11000	21800	DA-SD125-00.5-LOCDEPTHMAX	25500	ECO SL	3
ARSENIC	8/8	25	14.8	20.4	DA-S-SD09-01	0.39	ORNLSLDCR	8
BARIUM	8/8	127	59.3	84.7	DA-SD-125-0424	48	ECO SL	8
BERYLLIUM	8/8	1.1	0.45	0.73	DA-SD125-00.5-LOCDEPTHMAX	0.4	RIDEMPOG	0
CADMIUM	8/8	1.5	0.46	1.03	DA-SD-125-0424	0.99	ECO SL	4
CALCIUM	8/8	2970	1560	2470	DA-SD121-LOCDEPTHMAX			
CHROMIUM	8/8	40.4	14	26.6	DA-SD125-00.5-LOCDEPTHMAX	2.1	ORNLSLPOG	8
COBALT	8/8	73.1	35	46.6	DA-SD-125-0424	0.49	ORNLSLPOG	8
COPPER	8/8	58	27.4	45.6	DA-S-SD08-01	31.6	ECO SL	7
IRON	8/8	51100	25000	37600	DA-SD125-00.5-LOCDEPTHMAX	640	ORNLSLPOG	8
LEAD	14/14	350	104	192	DA-S-SD07-01	35.8	ECO SL	14
MAGNESIUM	8/8	5340	1900	3710	DA-SD125-00.5-LOCDEPTHMAX			

PARAMETER	FREQ.	MAX	MIN	AVG	LOCATION OF MAX.	CRITERIA		EXCEEDANCES
MANGANESE	8/8	2800	255	787	DA-S-SD07-01	57	ORNLSLPOG	8
MERCURY	8/8	0.33	0.2	0.261	DA-S-SD08-01	0.18	ECO SL	8
MOLYBDENUM	8/8	8.8	0.9	3.76	DA-S-SD09-01	3.7	ORNLSLPOG	2
NICKEL	8/8	40.9	20	30.6	DA-SD125-00.5-LOCDEPTHMAX	22.7	ECO SL	7
POTASSIUM	8/8	1540	260	938	DA-SD125-00.5-LOCDEPTHMAX			
SILVER	5/8	1.4	0.53	0.88	DA-S-SD07-01	0.5	ECO SL	5
SODIUM	5/8	282	149	217	DA-SD119-00.5-LOCDEPTHMAX			
VANADIUM	8/8	54.1	24	40.5	DA-SD125-00.5-LOCDEPTHMAX	57	ECO SL	0
ZINC	8/8	276	149	208	DA-SD121-LOCDEPTHMAX	121	ECO SL	8

4.4.2.5 GRO/ETPH in Sediment (Deeper Water Locations)

ETPH was analyzed in five samples and was detected in all five, results ranged from 640 mg/kg to 910 mg/kg in DA-SD125-0424. GRO were detected in five samples and results ranged from 6.7 mg/kg in DA-SD-RP01-0006 to 12J in DA-SD119-00.5-LOCDEPTHMAX.

4.4.3 Summary of Contaminants in Sediment

Sediment samples had far more exceedances of criteria than surface water samples. Acetone (a common laboratory artifact) was frequently detected. Carbon disulfide and tetrachloroethene were also detected at levels exceeding criteria but less frequently. A total of nineteen SVOCs/PAHs were detected at levels exceeding criteria. Many PAHs were detected above screening criteria in most samples collected. Deep water sediment samples and shallow water sediment samples detections were similar. Eight pesticides/PCBs were detected in samples at levels exceeding screening criteria. Five of those analytes were not detected or did not exceed criteria in reference samples. Three analytes (DDD,DDE and DDT) were detected at high levels in the reference samples as well as the onsite samples. All reference exceedances for these pesticides were detected in deep water sediment reference samples. Sixteen metals were detected at levels exceeding criteria in onsite samples. Four of those metals exceeded criteria in every sample collected including reference samples. The rest of the metals exceeding criteria ranged from three samples to exceeding in 21 out of 25 samples. Arsenic, iron and lead were found at concentrations much higher than criteria. Sediment sample results reveal a contamination problem of PAHs and metals onsite.

4.5 EARTHWORM TISSUE SAMPLES

On August 6 and 7, 2008, earthworms were collected for tissue analysis, using the methods and at the locations described in Section 2.0. Earthworm sample locations are presented on Figure 2-8. Earthworm tissues were analyzed for pesticides/PCBs, metals and percent lipids. As was presented in the RI Work Plan (TtNUS, 2007), the earthworm samples were not analyzed for PAHs because the hazard quotients were less than 1.0 for PAHs in the less conservative insectivorous wildlife food chain model (less conservative scenario in the Screening ERA. In addition, the earthworm samples were not analyzed for TPH because toxicological data are not available for evaluating risks to ecological receptors from TPH.

Table 4-23 presents data for all detected parameters in earthworm tissue samples on a dry weight basis. Earthworm tissue samples are labeled "DA-EWDRY-" followed by the location number (sample locations on Figure 2-8 are represented by "EW-" followed by the location number. There are no available criteria for levels of metals or pesticides/PCBs in earthworm tissue, so the results were compared against each other to determine whether parameters were elevated relative to other site samples.

A total of 19 metals were detected in earthworm tissue samples, and all but beryllium were detected in every sample (beryllium was detected in ten out of eleven samples). There was a large range in concentrations of metals between samples, and no one or two samples had the greatest number of maximum metals concentrations. For example, the greatest concentrations of cadmium (838 mg/kg) and zinc (1850 mg/kg) were in the sample from location SB121; the greatest concentrations of lead (881 mg/kg) and selenium (21.1 mg/kg) were in the sample from location MW115B; and the greatest concentrations of chromium (302 mg/kg) and nickel (171 mg/kg) were in the sample from location SB123.

Three pesticides and three PCB Aroclors were detected in earthworm tissue samples. The pesticide 4,4-DDE was by far the most frequently detected pesticide or PCB compound, in nine out of 11 samples analyzed. Positive detections for 4,4-DDE ranged from 4.14 to 49.5 J µg/Kg (maximum at MW105). The pesticides alpha-chlordane and dieldrin were detected in just three and one samples, respectively. Of the three PCB Aroclors detected, Aroclor-1260 was detected most frequently, in four out of eleven samples, at concentrations ranging from 415 µg/kg at SB121 (also the highest concentrations of cadmium and zinc) to 731 µg/kg at MW115 (also the highest concentrations of lead and selenium). PCB Aroclors -1254 and -1268 were both detected in just one sample, at SB104. This location had the highest number of combined pesticide/PCB compounds detected in a single sample: two pesticides and two PCB Aroclors.

4.6 FISH TISSUE SAMPLES

On August 12 and August 13, 2008 fish tissue samples were collected for chemical analysis. Samples were collected as described in Section 2.0 and were analyzed for SVOCs, pesticides/PCBs, metals and percent lipids. Fish tissue sampling areas are presented on Figure 2-4. As with earthworm tissue samples, there are no available criteria for acceptable levels of contaminants in fish tissue; therefore, chemical results are compared with contaminant levels found in reference samples that were collected from Melville Pond (reference sample locations are shown on Figure 2-3).

4.6.1 Blue Gill Whole Body Samples

A total of three whole body fish tissue samples, all blue gill species, were analyzed. Two were collected from NUWC Pond and one was collected from Melville Pond (reference). Twenty metals were detected in the samples. Of those 20 metals, five were detected in the reference sample at levels that were significantly lower than in the Site samples; two metals were detected in the reference sample at concentrations greater than site samples; and the remaining 13 metals were detected at similar levels in both the reference and Site samples. Aluminum, cadmium, iron, lead and manganese were the five metals detected in Site samples at concentrations that were significantly higher than the concentrations detected in the reference sample. Iron, lead and manganese are of special concern because these chemicals were frequently detected at levels exceeding criteria in sediment samples collected from the site streams as well as NUWC Pond.

Five pesticides and two PCB congeners were detected in the blue gill whole body samples. All seven parameters were detected at levels in Site samples that were significantly higher than the reference sample. The pesticides include 4,4'-DDD; 4,4'-DDE; alpha-chlordane; dieldrin; and gamma-chlordane. The PCBs include Aroclor-1254 and Aroclor-1260. These five pesticides and two PCB congeners exceeded the associated criteria in many onsite sediment samples.

Table 4-24 presents a summary of results (in wet weight) for all detected parameters in whole body fish tissue samples.

4.6.2 Blue Gill Fillet Samples

Two blue gill fillet samples were analyzed. One was collected from NUWC Pond and one was collected from the reference pond, Melville Pond. Eighteen metals were detected in onsite blue gill fillet samples. Five metals (calcium, cobalt, lead, manganese and molybdenum) were detected at much higher concentrations in onsite samples compared to the reference sample concentrations. Three metals were

detected at higher concentrations in the reference sample than in the Site sample, including aluminum, potassium, and selenium.

Seven pesticides/PCBs were detected in the onsite blue gill fillet sample. Four of these chemicals were also detected in the reference sample. The pesticide 4'4,-DDE was detected at the Site at a concentration that was significantly higher than the reference sample, detected at 247µg/Kg in the NUWC Pond sample and at 23.6 µg/Kg in the reference sample. The pesticide alpha-chlordane and two PCB congeners Aroclor-1254 and Aroclor-1260 were detected in the Site sample but were not detected in the reference sample. As in the blue gill whole body samples, the compounds that were detected at higher levels in the Site samples correspond with compounds that were detected at elevated levels in onsite sediment samples.

Table 4-25 presents a summary of results (in dry weight) for all detected parameters in fillet fish tissue samples.

4.6.3 Bullhead Fillet Samples

Four bullhead fillet samples were submitted for chemical analysis. Three samples were from NUWC Pond, one from each of the areas labeled ET01, ET02, and ET03 (sampling areas are presented on Figure 2-4). One reference sample was collected from Melville Pond. Eighteen of the nineteen metals detected in the onsite samples were present in all three samples. Vanadium was detected in only one sample, DA-FT-ET03-BHF-081208-AVG. Of those metals detected in onsite samples, only two, arsenic and cobalt, were not detected in the reference sample. Four metals were detected at higher concentrations in the reference sample than in the onsite samples, including aluminum, iron, mercury and sodium. The remaining detected metals were reported at similar concentrations in reference and onsite samples.

Eight pesticides/PCBs were detected in the onsite bullhead fillet samples. The pesticide, aldrin, was the only compound in this analyte group that was detected in onsite samples, but not in the reference sample. Two other pesticides, alpha-chlordane and dieldrin, were detected at much higher levels in the onsite samples than in the reference sample. Results for the pesticides 4,4'-DDD; 4,4'-DDE; and gamma-chlordane, and results for the two detected PCB congeners, Aroclor-1254 and Aroclor-1260, were similar in Site samples and in the reference sample.

Table 4-25 presents a summary of results (in dry weight) for all detected parameters in fillet fish tissue samples.

4.6.4 White Perch Fillet Samples

One white perch fillet sample was collected from NUWC Pond; however, no white perch were captured at the reference pond so there is no reference sample for comparison. Eighteen metals and nine pesticides/PCBs were detected in the white perch fillet sample. With the exception of the pesticide 4,4'-DDT, all detected compounds had been detected in at least one other fish tissue sample.

Table 4-25 presents summary of results (in dry weight) for all detected parameters in fillet fish tissue samples.

4.7 FOCUSED AREA SAMPLING RESULTS

This section discusses analytical results for specific Site areas identified for focused sampling based on site history, previous removal actions or information discovered during the RI. These areas consist of the following:

- Buried Container Area
- Buried Drum Area
- Building 185 Complex

4.7.1 Buried Container Area

The previously excavated Buried Container Area is located between the Paved Open Storage Area and Deerfield Creek, as described in Section 1.5.2.5. During the RI, borings were advanced at the perimeter of the formerly excavated Buried Container Area to collect excavation confirmatory soil samples. Soil boring locations are shown on Figure 2-2. The maximum depth of the Buried Container Area excavation was reported to be 8 feet.

For the soil samples collected from SASE test pit TP14 at the Buried Container Area, no VOCs, PCBs, or TPH compounds were detected above screening criteria. One SVOC, chrysene, exceeded the screening criterion in TP14. For metals, lead exceeded the soil criterion at a depth of 5 to 6 feet (co-located with empty paint cans). Beryllium and cadmium were also detected slightly above screening criteria in TP14 at a depth of 9 to 10 feet and 5 to 6 feet, respectively. Also detected in soils in TP14 were phenolic

compounds, as well as phthalates and PAHs. Concentrations of phenolics were generally higher at the bottom of the excavation.

Four RI DPT borings (SB104, SB105, SB106 and SB107) were advanced along the former excavation perimeter. The depths of these borings extended below the former excavation depth, ranging from 3 feet bgs (on the bank of Deerfield Creek) to 10 feet bgs. Backfill material was encountered in the borings in the 0 to 6 feet bgs interval. No evidence of plastic lining material or paint containers was reported for any of the borings. The subsurface samples from these borings were SB104-0608; SB105-0406, SB106-0608, SB107-0103 and SB108-0204. A fifth DPT boring (SB108) was advanced at the center of the Buried Container Area to confirm that the backfill is clean. A sample was collected in SB108 from 2 to 4 feet bgs, however, a sample from below the excavation depth in SB108 was not obtained because the bedrock was encountered at a depth of 6 feet bgs. The PAH, chrysene, was detected in all samples, with three of four perimeter boring soil samples exceeding the screening criterion. Compared to the SASE data, lower levels of phenolic compounds and phthalates were reported in the confirmation samples. Analytical results from these soil samples indicate that PAHs remain in the soil around the excavation, but generally at concentrations similar to PAH concentrations in the surrounding subsurface soil. The exception is the sample from SB106 (the southeastern-most boring in the Buried Container Area) which has PAHs at higher concentrations than the other samples. In addition, concentrations of several metals (barium, chromium, cobalt, iron, lead, molybdenum, and nickel) in the SB106 sample, collected at 4 to 6 feet bgs, were the highest levels reported for exposed subsurface soil samples. Concentrations of three metals exceed screening criteria. Lead at 4,650 mg/kg exceeds its RIDEM DEC criterion (150 mg/kg), while cobalt at 25.6 mg/kg and iron at 134,000 mg/kg exceed their federal DCR criteria (23 mg/kg and 55,000 mg/kg, respectively). The residual soil contamination found in SB106 is consistent with the description of the removal action provided in Section 1.5.2.5, which reported that some empty aerosol spray paint cans at the southern end of the excavation were not removed due to concerns about undermining the nearby roadway culvert.

The analytical results of the confirmation soil samples from the Buried Container Area excavation indicate that most of the buried paint cans and co-located contaminated soils were removed, however, some unknown quantity of paint cans and associated soil lead contamination remain south of the excavated area. The remaining paint cans and residual metals-contaminated soils constitute a continuing source of contamination to the sediments in Deerfield Creek and NUWC Pond.

4.7.2 Buried Drum Area

The previously excavated Buried Drum Area is located in the South Meadow, as described in Section 1.5.2.5. As part of the RI, borings were advanced within, and at the perimeter of, the excavated Buried

Drum Area to collect excavation confirmatory soil samples. Soil boring locations are shown on Figure 2-2.

Analytical results for SASE soil samples collected from test pit TP02 showed elevated levels of the VOC naphthalene, detections of several PAH compounds, and elevated levels of TPH. High concentrations of SVOCs and TPH were detected in the soils and sludge found, associated with the drum removed from SASE test pit TP02. One drum containing a tar-like substance was removed from this test pit during the SASE. SASE sample TP02-0203 represented the residue visible in the soil at the depth from which the drum was removed. Although this location correlates to a soil gas sample which showed relatively high concentrations of TCE, TCE was not found in soil samples collected from this test pit.

Four RI DPT borings (SB123, SB124, SB125 and SB126) were advanced along the former excavation perimeter just outside the clean soil backfill of the drum excavation area. The perimeter boring depths ranged from 11 to 13 feet bgs, exceeding the former excavation depth, and encountered mainly backfill materials in the 4 to 11 feet bgs depth range. No evidence of plastic lining material or drums was reported for any of the borings. Subsurface samples taken from these borings were SB123-0508; SB124-0608; SB125-0810; SB126-1013. A fifth DPT boring (SB127) was advanced at the center of the former drum excavation area to confirm that backfill is clean, and the associated soil sample was collected from 2 to 4 feet bgs. The central boring was advanced to a depth of 11.5 feet bgs, however no soil sample was collected below the excavation depth. Review of analytical results from the Buried Drum Area indicate that concentrations of PAHs in soil samples from the perimeter of the excavation area are generally similar to or lower than PAH concentrations in the surrounding South Meadow subsurface soils. However, the sample from the center of the excavation contains PAHs much higher than the surrounding soil, suggesting that either the sample was not collected from the backfill used to fill the excavation or that the backfill was not clean. TCE was only detected in one soil sample, from SB126, at a low level of 5 µg/kg.

The observations and analytical results of the confirmation soil samples from the Buried Drum Area excavation indicate that no buried drums remain in the area and that associated former contaminated soils were removed. There is no indication of significant residual soil contamination associated with the former Buried Drum Area remaining at the excavated area.

4.7.3 Building 185 Complex

During the 2008 field investigation for the NUSC Disposal Area RI, surface and subsurface soil samples from the Building 185 Complex, Area Nos. 1 through 4, were collected and analyzed. The analytical results and associated field data and observations were reviewed to evaluate possible evidence of

previous chemical releases to the ground in this area. Data from the following nine soil sample locations in the Building 185 vicinity were reviewed:

Building 185 Soil Samples

Location	Unexposed (Paved) Surface Soil Interval (feet bgs)	Exposed (Grass Covered) Surface Soil Interval (feet bgs)	Unexposed (Paved) Subsurface Soil Interval (feet bgs)
SB100	0 to 2	--	2 to 4
SB101	0 to 2	--	6 to 8
SB102	0 to 2	--	3 to 5
SB117	0 to 2	--	8 to 10
SB150	0 to 2	--	2 to 4
SB151	0 to 2	--	4 to 6
B100B	0 to 2	--	6 to 8
B124B[(1)]	--	1 to 3	--
B125B	1 to 3	--	3 to 4

Source: TtNUS, 2009 Draft NUSC Disposal Area Remedial Investigation Report
bgs below ground surface
-- not applicable
(1) top of bedrock 2.7 feet below ground surface

With the exception of B124B, all these locations occur under pavement. Soil boring locations are shown on Figure 2-2. At these locations a total of nine surface soil samples (from depths up to 3 feet) and eight subsurface soil samples (from 2 to 10 feet) were shipped for laboratory analysis. These samples were selected for analysis out of a total of 36 soil samples collected from these borings, based on observations including elevated PID readings or visual or olfactory evidence of possible contamination. Bedrock in the area is shallow, occurring at less than 6.5 feet below ground surface at six of the nine locations.

Chemical analyses for soil samples included VOCs, SVOCs, PCBs, metals, GRO and ETPH. Results were compared to ORNLDCRs and RIDEM DECs. The only criteria exceedances were for PAH compounds (up to a maximum of seven in one sample, with benzo(a)pyrene being the most frequently exceeded) and metals (up to a maximum of four in one sample, including arsenic, beryllium, cobalt and manganese).

Other than the common laboratory contaminants, acetone and 2-butanone, only trace concentrations of several VOCs, usually benzene compounds, were detected in two surface soil samples and in three subsurface soil samples. Two samples were observed to have a petroleum odor and several had somewhat elevated PID readings. Low concentrations of ETPH were detected in all nine surface soil samples and in six of eight subsurface soil samples, ranging from 23 to 2,200 parts per million (ppm). GRO was detected in only one sample at a trace concentration of 0.13 ppm. The RIDEM Industrial/Commercial DEC for TPH, which includes both GRO and ETPH, is 2,500 ppm and was not exceeded in any sample. The maximum ETPH concentrations in both surface and subsurface soil sample

categories were reported at SB100, from 0 to 2 feet and from 2 to 4 feet. The deepest soil sample with ETPH present was from SB117, from 8 to 10 feet. There is no associated ORNLSL DCR or RIDEM DEC for ETPH.

As reported in Section 1.5.1, an Otto Fuel release at Building 185 Area No. 1 occurred prior to 2004 (when it was discovered). The low concentrations of Otto Fuel components, PDGN (5 µg/L) and dibutyl sebacate (30 J µg/L), tentatively identified during the RI in groundwater immediately south of the Building 185 Complex (at MW-124B) are likely related to the past release. However, based on an evaluation of soil sample results collected from soil borings adjacent to Area Nos. 1 through 4, there is no evidence of any other significant release of chemical contaminants to soils in the Building 185 Complex area.

5.0 CONTAMINANT FATE AND TRANSPORT

The fate and transport of contaminants in environmental media are determined by a variety of factors. The physical and chemical properties of the contaminants and of the environmental media (i.e., soil groundwater, surface water, or sediment) into which the contaminants are released are all factors that determine the eventual fate of these chemicals. For Site 08, the combination of site-related contaminants and the geologic and hydrogeologic conditions influence how contaminants released at Site 08 have migrated into soils, sediments, surface water, and the underlying groundwater, or have been transformed as the result of degradation processes. This section presents the evaluation of these processes as they pertain to the contaminants detected at Site 08.

Section 5.1 presents a summary of the general processes that govern contaminant fate and transport in these environmental media. Section 5.2 presents a discussion of the chemical properties that govern the behavior of the major Site contaminants in the environment. Section 5.3 presents an assessment of the potential fate and transport of those chemicals at Site 08.

Activities associated with Site 08 and nearby areas of the Base have resulted in the presence of contaminants in Site soil, groundwater, surface water and sediment. The predominant contaminants in groundwater on Site 08 are VOCs: chlorinated solvents (PCE and its degradation products) are most widespread and are present at the highest concentrations. In soils and sediments, PAHs and PCB Aroclor-1260 are detected at elevated concentrations, as is Aroclor-1268 in soils. In groundwater, soil and sediment, elevated concentrations of arsenic are widely detected at Site 08. Contaminant presence is discussed in greater detail in Section 4 and Sections 5.2 and 5.3.

5.1 GENERAL FATE AND TRANSPORT PROCESSES

The fate and transport processes of concern for the NUSC Disposal Area Site are those that govern the migration and fate of contaminants (once released or deposited) in soil, groundwater, surface water, and sediment. This generalized discussion of fate and transport processes is provided so that the observed site-specific contamination conditions can be better characterized and understood.

5.1.1 General Fate and Transport Processes of Soil Contaminants

Organic and inorganic chemicals can be released to soils directly through spills or discharges at the surface or beneath the surface (i.e., via subsurface storage tanks or drains) or through deposition of atmospheric or airborne contaminants. Once organic and inorganic chemicals are released to soils, a

variety of processes may occur that may cause them to become immobilized, degraded, or to be mobilized to another environmental medium. Some of these processes include:

- **Sorption** – Chemicals may be taken up and held on soil particles by adsorption (sticking to a particle surface) or absorption (diffusion into the particle). Chemicals may sorb directly to the soil grains or to organic or metal oxyhydroxide coatings on the grains. The degree of sorption of a particular chemical in the environment is controlled by both soil properties (i.e., organic carbon content, metal oxyhydroxide content, clay content, or specific surface area) and by chemical properties (i.e., partition coefficients, solubility, polarity).

- **Volatilization** – Chemicals having high Henry's Law coefficients or vapor pressures will readily volatilize into the ambient air rather than remain adsorbed to the soil particles. Once in the atmosphere, the chemicals may undergo further transport through additional processes such as advection, diffusion, or dispersion. The chemicals may also be transformed through chemical processes such as photolysis or hydrolysis.

- **Leaching** – Chemicals may be transported downward through the soil strata by liquids that infiltrate through the soils or by water from precipitation. Chemicals released to or transported into soils beneath the groundwater surface may be leached from the soils by groundwater and transported downgradient in groundwater. The leaching of chemicals from soils and their subsequent mobilization are controlled by soil properties (i.e., adsorptive capacity, organic carbon content, clay content, or specific surface area) and by chemical properties (i.e., solubility, ability to partition to other phases).

- **Runoff/Erosion** – In situations where the chemicals remain sorbed (bound) to soil particles, chemicals may still be mobilized from one contaminated area to another or to other environmental media. Contaminants sorbed to soil particles can be conveyed over land, suspended in runoff that occurs during precipitation events, or transported through the wind erosion of contaminated soils. Contaminants sorbed to surface particles may also become solubilized in rainwater or snowmelt and be conveyed over land, dissolved in the precipitation runoff.

5.1.2 General Fate and Transport Processes of Groundwater Contaminants

Organic and inorganic chemicals may be directly released to groundwater from subsurface tanks or drainage structures or may be transported into groundwater from other media. Once in groundwater, a variety of processes may occur that affect the transport and transformation of contaminants. This section

describes the physical phases of contaminants in groundwater and the general transport and transformation processes affecting contaminants in groundwater.

Physical Phases of Contaminants in Groundwater

Contaminants occur in groundwater in two principal physical phases: dissolved (disassociated molecules) and suspended solids (adsorbed to mobile particles). These physical phases dictate how contaminants are transported and changed within the aquifer. The two phases and the fate and transport processes that govern them are described below:

- **Dissolved Phase** - Dissolved aqueous-phase organic and inorganic contaminants generally migrate in the direction of groundwater flow. Three processes transport dissolved-phase contaminants: advection, mechanical dispersion, and molecular diffusion. These processes are presented in more detail below. In addition, dissolved contaminants may interact with both the aquifer matrix and other groundwater constituents during transport. A variety of chemical, physical, and biological interactions can significantly retard or accelerate the rate of dissolved contaminant transport, or transform the contaminants into other chemicals or states.

- **Suspended Solid Phase** - Metals and some organic compounds can migrate through aquifers as suspended solids, either in insoluble form or adsorbed to small particles. Research has demonstrated that, depending on the nature of the geologic formation, clay- and silt-sized particles in the colloidal range (0.001 micron to 1.0 micron) can migrate through an aquifer with the groundwater, and that certain organic compounds and metals can be retained on the colloid surfaces through surface charge attractions. The low-flow sampling methods used to collect the groundwater samples evaluated in this RI are designed to obtain samples that include the colloids that would be transported with the groundwater, but exclude the larger particulates that would be introduced from a disturbance in the well caused by sampling.

General Transport and Transformation Processes of Contaminants in Groundwater

The major contaminant transport processes in groundwater (advection, dispersion, and molecular diffusion) and important transformation and retardation processes (degradation and sorption) are described below:

- **Advection** – Advection is the dominant contaminant transport process in groundwater. Advection is the flow of a fluid in response to a gradient, such as pressure or hydraulic head; contaminant transport results from the entrainment of the chemicals in the flow field. Advective

transport of contaminants consists of the movement of dissolved or suspended contaminants with the bulk flow of the groundwater. Under conditions where the only contaminant transport mechanism is advection, the rate and direction of advective transport coincide with the rate and direction of groundwater flow. However, the secondary transport and transformation processes described below may slow the rate of transport and spread the contaminants over a wider area than indicated by advective transport alone.

In non-ideal aquifer systems, preferential pathways for groundwater flow may occur because of heterogeneities in the subsurface soils or the bedrock matrix, or because of the presence of subsurface structures such as pipelines. Geologic materials (soils or bedrock fractures) that are more permeable than surrounding materials allow the preferential flow of groundwater through those geologic units. Similarly, gaps between a subsurface conduit and the surrounding soils or the presence of bedding materials that are more permeable than the surrounding soils may create preferred pathways for groundwater flow along the direction of the conduit.

- **Mechanical Dispersion** - Mechanical dispersion is a mixing process that results from velocity variations within bodies of moving fluids. In groundwater environments, variable velocity regimes are caused by irregularities in the aquifer media, and these irregularities exist at a variety of scales. For example, velocity variations at the microscopic scale arise from: 1) fluids moving faster through the centers of pores than along the edges; 2) fluids moving faster through large pore spaces than through narrow ones; and 3) some fluid particles following more tortuous flow paths than others as they travel around individual soil particles. At the macroscopic scale, velocity variations result from the presence of layers or lenses of materials having different hydraulic conductivities.

  The mixing due to dispersion increases as aquifer heterogeneity increases, and it results in the dilution of a solute body as contaminated water mixes with uncontaminated water along the margins of a plume. Dispersion also results in the spreading of a contaminant plume over a larger area (both parallel and perpendicular to the direction of flow) than would be expected from advection alone.

- **Molecular Diffusion** - Molecular diffusion is movement in response to a concentration gradient. Dissolved contaminants will move from areas of high concentration to areas of low concentration within an aquifer even if the groundwater is not moving, because the process is driven by the random thermal motion of the contaminant molecules. Diffusive transport is a slow process compared to the more rapid processes of advection and dispersion, and its impact on plume geometry is usually small. Diffusion is typically the dominant transport mechanism only in low-

permeability hydrogeologic systems. It is not expected to be important in the relatively permeable geologic materials at Site 08.

- **Sorption** – As described above relative to contaminant transport in soils, chemicals may be taken up and held on soil particles by adsorption (sticking to a particle surface) or absorption (diffusion into the particle). Both of these processes are known collectively as sorption. Sorption is an important process in contaminant transport in groundwater because most groundwater contaminants react to some extent with the aquifer's solid surfaces. Consequently, their transport is affected not only by the processes of advection, dispersion, and diffusion, but also by sorption reactions that retard the rate of contaminant transport. Contaminant sorption to mineral surfaces or the oxyhydroxide or organic coatings on these surfaces cause the contaminants to be removed from the groundwater, at least temporarily, thereby retarding the rate of contaminant transport. The extent to which the movement of a contaminant is retarded relative to the rate of groundwater flow depends on the solute's propensity to sorb to the aquifer's surfaces. Weakly sorbed contaminants will tend to repeatedly adsorb and desorb, continuing to flow with groundwater at a reduced rate. Strongly sorbed contaminants will tend to remain sorbed to the soil particles and remain out of the groundwater flow field. The propensity to sorb is governed by many factors including the chemical characteristics of the solute, the composition of the aquifer's solid surfaces, and the groundwater chemistry.

- **Biological Degradation** – The degradation of organic contaminants in groundwater can occur by biotic (biological) and abiotic (non-biological) means. In biological degradation (biodegradation), microorganisms use available carbon sources (i.e., organic contaminants or naturally occurring organic compounds) to obtain needed energy and nutrients through reduction-oxidation (redox) reactions. This involves the transfer of electrons from the food/energy source to an electron acceptor such as oxygen or nitrate. Thereby, the energy source (typically the contaminant or a naturally occurring organic compound) is oxidized and the electron receptor is reduced. Depending on the microorganisms and contaminants present, biodegradation can occur in groundwater under either aerobic or anaerobic conditions. In both cases, the microorganisms need the right conditions to thrive, including adequate sources of food (carbon), electron acceptors (such as oxygen or nitrate), and essential nutrients (various minerals).

  Under aerobic conditions, carbon (as either anthropogenic or naturally occurring organic compounds) is oxidized by microorganisms to provide a net energy gain that is necessary for their growth and reproduction. Dissolved oxygen is used as the primary electron acceptor by the aerobic microorganisms. Low-molecular-weight and highly water-soluble organic compounds are most readily degraded by aerobic microorganisms. The rate of biodegradation generally

decreases for higher-molecular-weight compounds; those with lower water solubility; and molecules with more complex chemical structures including aromatic rings, branching, or halogen atoms (Hemond, 1994).

After the oxygen in a system is depleted, anaerobic biodegradation becomes the predominant degradation mechanism. Anaerobic microorganisms typically use other available electron acceptors including nitrate, sulfate, ferric iron, and carbon dioxide. The redox reaction results in these electron acceptors being transformed to a reduced state. For example, nitrate is converted to nitrite, nitrous oxide, or nitrogen gas; sulfate to sulfide; ferric iron (Fe^{3+}) to ferrous iron (Fe^{2+}); and carbon dioxide to methane. In some cases, the chlorinated hydrocarbon can be used as the electron acceptor.

Aerobic biodegradation is the primary mechanism for biodegradation of petroleum hydrocarbons, such as the low concentrations of toluene present in groundwater in limited areas of Site 08. Petroleum hydrocarbons can also be degraded anaerobically, but anaerobic degradation typically occurs at a significantly lower rate than aerobic biodegradation.

There are two primary biodegradation processes for chlorinated solvents: anaerobic biodegradation by reductive dechlorination, and aerobic biodegradation by cometabolic oxidation. Both of these processes are cometabolic, meaning that the microorganisms obtain energy by metabolizing another carbon source (such as glucose, methanol, or co-located petroleum hydrocarbons) and simultaneously use the energy to break down the chlorinated compound without deriving any known benefit from oxidizing the chlorinated compound.

Reductive dechlorination is the only biodegradation process effective for breaking down PCE. Anaerobic biodegradation by reductive dechlorination requires the presence of highly reducing conditions, the right bacteria (methanogens or sulfate reducers), and another carbon source. In reductive dechlorination, the bacteria metabolize the other available carbon source to provide energy to sequentially break chlorine atoms off the chlorinated alkene molecule, reducing PCE to TCE, then DCE, VC, and ultimately ethene or ethane. Methanogens use carbon dioxide as the electron acceptor and produce methane in the redox reaction. Sulfate reducers use sulfate as the electron acceptor and produce sulfide in the reaction.

Cometabolic oxidation occurs under aerobic conditions and is effective for degrading TCE, DCE, and VC, but not PCE. Cometabolic oxidation is performed by methanotrophs (bacteria that can metabolize methane). In this process, methane is used as the energy source and oxygen is the electron acceptor. Degradation of the chlorinated compound is not sequential in this process.

Instead, an intermediate compound (i.e., TCE epoxide) is formed that rapidly hydrolyzes, and all the chlorines come off at once, forming a small, innocuous organic compound such as glycolic acid or aldehyde.

Through the biodegradation processes, chemicals that were not originally present at Site 08 may be produced. In some cases, if the biodegradation process is not completed, daughter products may remain that are more toxic than the original compounds released at a site. For example, if reductive dechlorination of PCE becomes stalled before all compounds are fully degraded, its more toxic daughter products (TCE and VC) will remain.

- **Abiotic Degradation** - Mechanisms of abiotic degradation include hydrolysis, photolysis, chemical oxidation, and chemical reduction. Subsurface contaminants may be degraded or transformed by these naturally occurring abiotic processes. Hydrolysis is the process where a chemical molecule and a water molecule are both split and recombine to form new chemicals. Chemical oxidation consists of the loss of electrons by an organic compound or a metal ion to break down or transform the compound. Photolysis is the chemical process by which molecules are broken down into smaller units through the absorption of light, typically yielding electrons. Chemical reductions are the chemical reactions whereby an organic compound or a metal gains electrons. The dominance or effectiveness of these transformation processes is governed by factors such as temperature, pH, conductivity, solubility, and chemical concentration.

5.1.3 General Transport Processes of Contaminants in Sediment and Surface Water

The transport processes of contaminants in sediment and surface water are generally the same as those observed controlling contaminant migration through soils and groundwater. These processes, as discussed in the previous sections, include advection, mechanical dispersion, molecular diffusion, biological and abiotic degradation, and sorption.

The surface waters present at Site 08 include two streams (Deerfield Creek and an unnamed stream), associated wetlands, and a small pond (NUWC Pond). The streams enter Site 08 off property from the south (Deerfield Creek) and the west (unnamed stream). The streams are characterized by steep banks along both sides and are variable in flow. The unnamed stream has been observed to be intermittent and portions of Deerfield Creek nearly dry during low precipitation periods. The upper (southern) end of the pond goes dry during seasonal low flow conditions; however, surface water remains in the northern end of the pond at all times.

As in groundwater, contaminants occur in surface water in both dissolved phase and sorbed to particles. These physical phases dictate how contaminants are transported and changed within the water body.

Dissolved-phase contaminants in site surface water are transported primarily by advection in the streams onsite, and also by mechanical dispersion and diffusion in the NUWC Pond. Contaminant transformation in surface water occurs by the same processes affecting groundwater contaminants (biological and abiotic degradation, and sorption); however, photolysis (an abiotic degradation mechanism) is typically more significant in surface water than groundwater.

Once entrained in the water column, sediments are subject to the transport mechanisms governing the surface water. In addition to advection driven by hydraulic gradient, as observed in groundwater transport processes, surface waters are also subject to wind-driven advection. Wind may create surface currents or drift in one direction, which in turn causes return currents at deeper levels.

Sediments may precipitate or settle out depending on the suspended solid particle mass and flow velocities of the surface water. The rate of settling depends on the grain size of particles and on the mineralogy and chemistry of the suspended solid particle. Once part of the sediment bed, the settled particle can be eroded and transported when the shear stress exerted on the bed by surface water flow exceeds a critical minimum shear value. The critical shear stress also varies according to sediment size, mineralogy, and chemistry. If sediment is deposited in locations where the critical shear stress is not exceeded, or is exceeded only infrequently, then the sediment will slowly consolidate, increasing in both density and strength. As bed density increases, the stress threshold for erosion increases, and the sediment deposit becomes more stable and less likely to be eroded by natural forces.

Sediments, both in the suspended and depositional state, can undergo chemical transformations through molecular diffusion and abiotic and biotic degradation similar to the process in saturated soils. In addition, the geochemical conditions of the surface water can also influence the state in which the chemical exists, either in an insoluble state or in a dissolved state, or can cycle back and forth between the soluble and insoluble states.

In addition, certain contaminants may also migrate through surface water and sediments in the tissue of mobile biota that have accumulated the contaminants by absorption or ingestion of contaminated sediments or surface water. Contaminants that have bio-magnified or bio-accumulated through the food chain can migrate with the affected animal within a site and also offsite.

5.2 FATE AND TRANSPORT CHARACTERISTICS OF SITE CONTAMINANTS

This section presents profiles of significant contaminant groups and individual contaminants detected at Site 08. The profiles are provided to give the reader an understanding of the potential sources of the

contaminants detected on Site 08 and their behavior in the environment. The contaminants are presented by class.

5.2.1 Volatile Organic Compounds (VOCs)

(The discussion below is for VOCs other than acetone and 2-butanone, which are very common laboratory contaminants.) Several VOCs were detected in Site 08 media, including soil, groundwater, surface water, and sediment. In soil, VOCs were detected infrequently and at low concentrations; criteria were not exceeded in either surface or subsurface soil. The most prevalent VOCs detected in soil were chlorinated ethenes, including PCE and TCE, occurring primarily in subsurface soils. Among other VOCs detected in soils are xylenes, 1,2,4-trimethylbenzene, butylbenzenes, and 4-isopropyltoluene. Chlorinated ethane compounds were not detected in site soils.

In groundwater, many VOCs were detected infrequently and at relatively low concentrations; however, several were much more frequently detected and were present at concentrations exceeding one or more criteria. The most prevalent VOCs exceeding a criterion most frequently in groundwater are 1,1-DCA; TCE; PCE; VC; chloroform; carbon tetrachloride; and chloromethane.

In surface water, only trace levels of three VOCs were detected (other than acetone). The highest concentration was just 1 µg/L of TCE, which also had the highest frequency of detection, occurring at 4 of 14 sample locations. No criteria were exceeded for VOCs in surface water.

In sediment, out of 12 VOCs detected, most occurred at a low frequency and at low concentrations. The most prevalent VOC in sediment is 1,1,1-TCA, detected in 7 of 28 onsite samples. Only three VOCs were detected at concentrations exceeding criteria: PCE, TCE, and carbon disulfide (carbon disulfide also exceeded criteria in two reference samples).

For the primary contaminants at Site 08, the typical uses and chemical and physical properties related to fate and transport are described below.

Tetrachloroethene (PCE) is a manufactured organic chemical that is widely used for dry cleaning of fabrics and for metal degreasing. It is also used to make other chemicals and is used in some consumer products. Other names for tetrachloroethene include perchloroethylene, PCE, and tetrachloroethylene.

PCE is a colorless liquid at room temperature. It is nonflammable, evaporates easily into the air and has a sharp, sweet odor. PCE is a chlorinated aliphatic compound that is soluble in water (to a limit of approximately 200 mg/L) and has a relatively weak tendency to sorb to soil particles. PCE is miscible in

hydrocarbons, oil, alcohol, chlorinated solvents, and most common organic liquids. PCE's relatively high vapor pressure and low affinity to soil indicate that if released to soil, it will evaporate rapidly into the atmosphere and can leach rapidly through soil and into groundwater. Because PCE is denser than water, a sufficiently large spill of PCE would be expected to sink through the water column until encountering a lower permeability barrier. Biodegradation may be an important, but slow, process for transformation of PCE. Biodegradation of PCE in groundwater may occur under anaerobic, highly reducing conditions by the process of reductive dechlorination. Reductive dechlorination would result in breakdown of PCE to TCE, DCE, VC, and ethene or ethane. PCE should not hydrolyze under normal environmental conditions.

Trichloroethene (TCE), also known as trichloroethylene, is a man-made chemical and is not known to occur naturally. It is mainly used as a solvent in industrial degreasing and cleaning of metals, but it is also used as a solvent for waxes, fats, resins, oils, and in numerous other applications. It is also a biodegradation product of PCE. Industrial grade TCE usually contains stabilizers that are known to be toxic such as triethylamine, triethanolamine, epichlorohydrin, or stearates.

TCE is a colorless, highly volatile liquid. It is a chlorinated aliphatic compound that is soluble in water (to a limit of approximately 1,100 mg/L) and has a relatively weak tendency to sorb to soil particles. TCE is miscible in hydrocarbons, oil, alcohol, chlorinated solvents, and most common organic liquids. Its relatively high vapor pressure and low affinity to soil indicate that if released to soil, it will evaporate rapidly into the atmosphere and can leach rapidly through soil and into groundwater. TCE is denser than water; therefore, a sufficiently large spill of TCE would be expected to sink through the water column until encountering a lower permeability barrier. Biodegradation may be an important, but slow, process for transformation of TCE in the subsurface. TCE may biodegrade in groundwater under either anaerobic or aerobic conditions: anaerobic biodegradation by reductive dechlorination or aerobic biodegradation by cometabolic oxidation. Cometabolic oxidation is less effective than reductive dechlorination for degrading TCE. Reductive dechlorination would result in break down of TCE to DCE, VC, and ethene or ethane. Cometabolic oxidation would result in rapid breakdown of TCE to an innocuous organic compound, without the formation of less-chlorinated intermediates. TCE is not hydrolyzed by water under normal environmental conditions.

Vinyl chloride (VC), also known as chloroethene, is a manufactured chemical and is not known to occur naturally. It is used primarily as an intermediate in the manufacture of PVC; limited quantities are used as a refrigerant and as an intermediate in the production of chlorinated compounds. It is also a biodegradation product of PCE, TCE and 1,2-DCE.

Under normal temperature and pressure, VC is a colorless gas with a mild sweetish odor. It is usually handled under pressure as a colorless liquid. Vinyl chloride is highly flammable and forms explosive mixtures with air. It is soluble in water (to a limit of approximately 2800 mg/L) and soluble in hydrocarbons, oil, alcohol, chlorinated solvents, and most common organic liquids. Vinyl chloride is a halogenated aliphatic hydrocarbon that has a high vapor pressure and a weak tendency to sorb to soil particles. If released to soil, it will evaporate rapidly into the atmosphere and can leach rapidly through soil and dissolve into groundwater, where it will be highly mobile. Vinyl chloride may slowly biodegrade in groundwater under either anaerobic conditions (by reductive dechlorination) or aerobic conditions (by cometabolic oxidation). Cometabolic oxidation is more efficient at degrading VC than TCE. Reductive dechlorination would result in break down of VC to ethene or ethane; cometabolic oxidation would result in its rapid breakdown to an innocuous organic compound.

1,1,1-Trichloroethane (1,1,1-TCA), also known as methylchloroform, is a synthetic chemical that does not occur naturally in the environment. It is a colorless liquid with a chloroform-like odor. It is a chlorinated aliphatic compound that is soluble in water (to a limit of approximately 1,500 mg/L) and in alcohol, chloroform, and other common organic solvents; it is miscible with other chlorinated solvents. It had many industrial and household uses, including use as a solvent for industrial degreasing and cleaning of metals, for dissolving other substances such as glues and paints, and as an ingredient of household products such as spot cleaners, glues, and aerosol sprays. Because of its adverse effects on the ozone layer, no 1,1,1-TCA was supposed to be manufactured for domestic use in the United States after January 1, 2002. Its relatively high vapor pressure and low affinity to soil indicate that if released to soil, it will volatilize rapidly into the atmosphere and can exhibit high mobility in soil, with a high potential to leach rapidly through soil and into groundwater. If released to groundwater, biodegradation of 1,1,1-TCA under anaerobic conditions is known to occur by reductive dechlorination, forming daughter products 1,1-DCA and chloroethane; however, it appears to be a slow process under most environmental conditions. If released to surface water, it is expected to undergo volatilization to the atmosphere. Aerobic biodegradation of 1,1,1-TCA can occur in the presence of methane-oxidizing bacteria. 1,1,1-TCA may very slowly undergo abiotic degradation in soil or water by elimination of hydrochloric acid (HCl) to form 1,1-DCE.

1,1-Dichloroethane (1,1-DCA) is a chlorinated aliphatic compound and a degradation product of 1,1,1-TCA. The chemical properties of 1,1-DCA governing its behavior in the environment are similar to those of 1,1,1-TCA; however, it is slightly less dense, less soluble, and has a lower sorption potential. 1,1-DCA is a colorless, oily liquid with a sweet odor that does not occur naturally in the environment. It evaporates easily at room temperature and burns easily. In the past, 1,1-dichloroethane was used as a surgical anesthetic. Today, however, it is used primarily to make other chemicals; to dissolve substances such as paint, varnish, and finish removers; and to remove grease.

Carbon tetrachloride, also known as tetrachloromethane, is a manufactured chemical and does not occur naturally in the environment. It is a reagent in synthetic chemistry, but because of its adverse health effects and effects on the ozone layer, it is no longer commonly used, and the manufacture and use of carbon tetrachloride has declined significantly. It was formerly produced in large quantities to make refrigeration fluid and propellants for aerosol cans, and was widely used in fire extinguishers and as a cleaning fluid (in industry and dry cleaning establishments as a degreasing agent, and in households as a spot remover for clothing, furniture, and carpeting). It was also used as a fumigant to kill insects in grain. It is a clear, colorless liquid with a sweet odor that can be detected at low levels, and evaporates very easily. Most carbon tetrachloride that escapes to the environment is therefore found as a gas. Carbon tetrachloride does not easily burn. Because carbon tetrachloride evaporates easily, most of the compound released to the environment during its production and use reaches the air, where it is found mainly as a gas. It can remain in air for several years before it is broken down to other chemicals. Small amounts of carbon tetrachloride are found in surface water; however, because it evaporates easily, much of it will move from surface water to the air within a few days or weeks. However, it may be trapped in groundwater for longer periods. Carbon tetrachloride is not expected to stick to soil particles. If spilled onto the ground, much of it will evaporate to the air. Some of it may also go into groundwater, where it can remain for months before it is broken down to other chemicals.

Chloroform, a trihalomethane, is a colorless liquid with a pleasant, nonirritating odor and a slightly sweet taste. It will burn only when it reaches very high temperatures. Other names for chloroform are trichloromethane and methyl trichloride. In the past, chloroform was used as an inhaled anesthetic during surgery; currently, chloroform is used to make other chemicals and can also be formed in small amounts when chlorine is added to water. In the environment, chloroform evaporates easily into air, where it can slowly break down. In air, breakdown products include phosgene and hydrogen chloride, which are both toxic. Chloroform doesn't stick well to soil and can travel through soil to groundwater. Chloroform dissolves easily in water and some of it may break down to other chemicals. Chloroform lasts a long time in groundwater.

Chloromethane, also known as methyl chloride, is a clear, colorless gas with a faint, sweet odor that is noticeable only at levels that may be toxic. It is heavier than air and extremely flammable. Chloromethane is found in air, surface water, groundwater, soil, and sediment, and is present at very low concentrations throughout the atmosphere. Chloromethane breaks down very slowly in air and water; however, certain microorganisms can break it down more quickly. Most of the chloromethane in soil will move to air. Some chloromethane is produced by industry, and it is also given off when materials like grass, wood, charcoal, and plastics are burned. Chloromethane is an impurity in VC, and can be associated with disposal of VC

waste. Other sources of exposure are cigarette smoke, polystyrene insulation, aerosol propellants, and chlorinated swimming pools.

5.2.2 Semi-Volatile Organic Compounds (SVOCs)

Many SVOCs (between 24 and 32 compounds), primarily PAH compounds, were detected in Site 08 surface and subsurface soils and in sediments. One PAH, benzo(k)fluoranthene, was also detected in one groundwater sample and exceeded the ORNL criterion. Four other SVOCs were detected in one to two groundwater samples, at low concentrations that did not exceed criteria.

All 17 PAH compounds were detected in surface soil, subsurface soil, and in sediment at a frequency ranging from 74 percent (subsurface soils) to 96 percent (sediments). The compounds (all PAHs) that exceeded the ORNL DCRs and/or RIDEM DCRs most frequently include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Other than PAHs, several SVOCs that were detected somewhat frequently are carbazole and dibenzofuran in soils, and bis(2-ethylhexyl)phthalate and benzoic acid in soils and sediments. The only criteria exceedance among these SVOCs was bis(2-ethylhexyl)phthalate in two sediment samples. SVOCs were not detected in surface water.

The origins and chemical properties of the main SVOCs that exceeded criteria in site media are described below. Where applicable, one compound (i.e., benzo(a)pyrene) is presented as a surrogate for others because they have similar chemical properties and are expected to behave similarly in the environment.

Benzo(a)pyrene and Related Chemicals –Benzo(a)pyrene and other PAHs detected in Site 08 soils and/or sediments are ubiquitous products of incomplete combustion of organic matter. The properties of benzo(a)pyrene that govern its fate and transport in the environment are described below. The other PAHs (including but not limited to benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene) have similar origins and chemical properties and are expected to behave similarly in the environment.

No current commercial production or use of benzo(a)pyrene is known. It is ubiquitous in products of incomplete combustion and in fossil fuels. Benzo(a)pyrene is primarily released to the air and removed from the atmosphere by photochemical oxidation and dry deposition to land or water. Environmental concentrations are highest near sources; however, it is reasonably stable in the atmosphere and may migrate long distances before deposition. If released or deposited to soil or sediment, benzo(a)pyrene is expected to adsorb very strongly and is not expected to leach to groundwater or surface water. Benzo(a)pyrene exists as yellowish plates and needles. It is nearly insoluble in water (solubility of

approximately 4.9 x 10^{-5} mg/L), but is soluble in benzene, toluene, and xylene and sparingly soluble in alcohol and methanol. Biodegradation is the most important transformation process in soil or sediment.

Naphthalene, is also a PAH compound, composed of two fused benzene rings. It is a white solid that is found naturally in fossil fuels and that exhibits a typical mothball odor. Naphthalene is a product of incomplete combustion of organic matter. It also occurs in crude oil, from which it may be recovered directly as white flakes; it can also be isolated from cracked petroleum, coke-oven emissions, or from high-temperature carbonization of bituminous coal. Naphthalene has numerous commercial uses. The major products made from naphthalene are moth repellents. It is also used for making dyes, resins, leather, tanning agents, and the insecticide carbaryl. Naphthalene's presence in the environment results mainly from fugitive emissions and exhaust from fuel oil and gasoline and direct discharges to land and water from spills of fuel oil, coal tar, or other petroleum products. Once discharged to the atmosphere, naphthalene rapidly photo-degrades. If naphthalene is released to soil, it is may sorb weakly or moderately, depending on the organic content of the soil. Naphthalene has a moderate sorption coefficient, lower than benzo(a)pyrene but higher than the VOCs described above. Biodegradation and volatilization are the dominant degradation processes in soil. Naphthalene's water solubility is relatively low (33 mg/L), but is much higher than that of benzo(a)pyrene and similar PAHs. Principle degradation processes in water are volatilization, photolysis, adsorption, and biodegradation.

Bis(2-ethylhexyl)phthalate, also known as di(2-ethylhexyl)phthalate (DEHP), is primarily used in the plastics industry as a plasticizer with such varied applications as wire insulation, food packaging, and biomedical applications such as tubing and blood containers. Other uses include vacuum pump oil and as a dielectric fluid in capacitors. The widespread uses of bis(2-ethylhexyl)phthalate have made the compound, along with other phthalic acid esters, ubiquitous in the environment. It has been detected in groundwater, surface water, drinking water, air, soil, plants, fish, and animals.

Bis(2-ethylhexyl)phthalate is a clear oily liquid that is only slightly soluble in water (approximately 0.285 mg/L), has a low vapor pressure, and has a relatively high tendency to sorb to soils. As a result, if released to soil it will neither evaporate nor leach into groundwater. Bis(2-ethylhexyl)phthalate may biodegrade in soil under aerobic conditions.

5.2.3 Pesticides

Nine pesticides were detected infrequently in subsurface soils and at low concentrations. In surface soils, nine pesticides (including six of those detected in subsurface soils) were detected somewhat more frequently than in subsurface soils, the most frequent being 4,4'-DDE, occurring in 42 percent of the exposed surface soil samples. Pesticides did not exceed screening criteria in surface or subsurface soils.

Six of the pesticides found in surface soils were also detected in sediment samples, and at a generally higher frequency than in soils. The most frequently detected pesticide in sediment and in surface water was dieldrin, which was reported in 71 percent of sediment samples (20 of 28 samples), exceeding the criterion in all detections, and in 79 percent of surface water samples (11 of 14 samples), exceeding the criterion in all but one detection. All five remaining pesticides in sediment were also detected at levels exceeding criteria. 4,4'-DDE exceeded the criterion in approximately [[Please check: 95 percent of the samples (19 of 20 detections), and with one exception, the other four pesticides also exceeded criteria in all detections, in 43 to 61 percent of the sediment samples. These four pesticides include 4,4'-DDD; 4,4'-DDT; alpha-chlordane; and gamma-chlordane. In surface water, one additional pesticide was detected: 4,4'-DDT was reported in 36 percent of the surface water samples, and all five detections exceeded a criterion. In groundwater, dieldrin was the only pesticide detected, and was present at just one location, exceeding a criterion in this one detection.

Pesticides generally have low water solubility and high solubility in most organic solvents. They have very low vapor pressures and Henry's law constants and moderate sorptive capacity. The importance of biodegradation as a transformation process varies among pesticides. Some, such as dieldrin, are generally resistant to biodegradation, others, such as heptachlor, may biodegrade at a slow rate under anaerobic conditions.

5.2.4 Polychlorinated Biphenyls (PCBs)

Four different PCB aroclors were detected in both surface and subsurface soils, and three of these aroclors were also detected in sediments at Site 08. PCB Aroclor-1260 was by far the most frequently detected aroclor in both surface soils and in sediments. In subsurface soils, Aroclor-1268 was detected somewhat more frequently than Aroclor-1260 (in ten vs. seven samples).

Aroclor-1260 was detected in approximately 34 percent of surface soil samples and exceeded the ORNLSDCR in just 4 percent of the samples (in 5 of 101 surface soil samples). In subsurface soils, Aroclor-1260 was reported in just 7 percent of the samples, exceeding the criterion in 4 percent of the samples. In sediments at Site 08, Aroclor-1260 is widely distributed, detected in approximately 61 percent of sediment samples. All detections in sediment exceeded the ORNLSLPOG.

Aroclor-1268 was detected in approximately 11 percent of surface and subsurface soil samples. Although the maximum and average concentrations were significantly higher in subsurface soils, the frequency of criterion exceedances in surface soils was more than twice that in subsurface soils (7 percent and 3 percent of samples, respectively). In sediments at Site 08, Aroclor-1268 was also detected infrequently, in approximately 7 percent of the samples. The detections in sediments (2 out of 28 samples) both exceeded the ORNLSLPOG.

The two additional aroclors were detected extremely infrequently. Out of the total 197 soil samples (considering both surface and subsurface soils) Aroclor-1248 and Aroclor-1254 were detected in just 3 and 4 samples, respectively. Six of the seven detections for these two aroclors were from exposed soil sample areas. Aroclor-1248 exceeded the ORNLSDCR in just one soil sample. This aroclor was not detected in sediment samples.

PCBs were not detected in groundwater or surface water at Site 08.

PCBs are a group of synthetic organic chemicals that contain 209 individual compounds (known as congeners). Mixtures of PCBs, or aroclors, were manufactured for use in industry as coolants and lubricants in electrical equipment before their manufacture in the United States was ended in 1977. They have been used in closed systems such as heat transfer liquids, hydraulic fluids, and lubricants, and in open systems such as plasticizers, surface coatings, inks, adhesives, pesticide extenders, and for micro encapsulation of dyes for carbonless duplicating papers. Some PCB congeners are considered dioxin-like. Aroclor-1242 and Aroclor-1260 are colorless, liquid PCB mixtures with an average chlorine content 42 percent (Aroclor-1242) and 60 percent (Aroclor-1260), respectively.

PCBs are inert, thermally and physically stable, and have dielectric properties. PCBs are only slightly water soluble and are strongly sorbed to soil. PCBs tend to remain immobile and sorbed to soil when leached with water; however, in the presence of organic solvents they may leach from soil. PCBs are resistant to biodegradation, although they may biodegrade slowly under some conditions. PCBs are also resistant to chemical degradation by oxidation or hydrolysis.

5.2.5 Metals

Numerous metals were detected in Site media. Arsenic is the most significant, exceeding the respective ORNL criteria in every sample collected for groundwater, soil, and sediment at Site 08. In surface water, arsenic exceeded the ORNL criterion in just one sample, the only detection of arsenic in that media, and the only metal in surface water exceeding an ORNL criterion. Other metals that were most prevalent in soil, sediment, and/or groundwater at concentrations exceeding criteria include manganese, cobalt, iron, and lead. The characteristics of two of the most frequently detected metals are described below.

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton plants. Arsenic cannot be destroyed in the environment; it can only change

its form. Arsenic in air will settle to the ground or is washed out of the air by rain. Many arsenic compounds can dissolve in water. The toxicity of inorganic arsenic depends on its valence state and also on the physical and chemical properties of the compound in which it occurs.

Arsenic exists in groundwater in two oxidation states; arsenite (As(III)) and arsenate (As(V)). As(III) is the more toxic of the two species and is more mobile. As(V) is the oxidized form and has a greater affinity for adsorption to other solids found in the aquifer, such as soil particles and other metal complexes. Two major factors that affect the form and amount of arsenic present in groundwater are pH and the redox state of the environment. As a general rule, when pH is neutral, the As(V) is negatively charged and will tend to bind to the surface of rock or soil particles that are positively charged, thus removing it from the water. As the pH increases, the arsenic concentrations in groundwater will tend to increase because the additional hydroxide ions present in the water compete with the As(V) for binding sites, thus leaving more As(V) free in the water. The redox state of the environment is also important. Under oxidizing conditions, most of the arsenic remains in the As(V) form where it is more stable and tends to bind to rock and soil particles. Under reducing conditions, As(III) is the most stable soluble form of inorganic arsenic. Because most of the arsenic will be present as As(III), more arsenic will remain in solution and arsenic will likely be more mobile under reducing conditions. The pH measured in Site groundwater during the 2008 RI sampling was generally neutral, with an average of pH 6.7.

Manganese is a silver-colored, naturally occurring metal that is found in many types of rocks and makes up about 0.10 percent of the earth's crust. Manganese is not found alone but combines with other substances such as oxygen, sulfur, or chlorine. Manganese can also be combined with carbon to make organic manganese compounds, including pesticides (e.g., maneb or mancozeb) and methylcyclopentadienyl manganese tricarbonyl (MMT), a fuel additive in some gasolines. Manganese is an essential trace mineral and is necessary for good health. Normal nutritional requirements of manganese are satisfied through the diet, which is the normal source of the element, with minor contributions from water and air. Prolonged exposure to elevated concentrations of manganese, either orally or by inhalation, can elicit a variety of serious toxic responses. Manganese cannot be destroyed in the environment; it can only change its form. Many manganese compounds can dissolve in water. The solubility depends on the chemical properties of the manganese and the groundwater.

Similar to arsenic, the pH and redox state of the subsurface environment will affect the form and valence state of manganese and will influence how much manganese remains bound to soil and rock surfaces and how much remains in solution. In general, under oxidizing conditions, naturally occurring manganese will remain bound in soil and rock or sorbed to suspended particles. Under reducing conditions, the concentration of dissolved manganese in groundwater will tend to increase as the manganese at the soil and rock surfaces is reduced to a more soluble form and remains in solution.

5.3 CONTAMINANT FATE AND TRANSPORT AT SITE 08

This section presents an evaluation of the likely sources, transport pathways, and environmental fate of significant contaminants detected at Site 08. The discussion is presented according to contaminant class.

5.3.1 Volatile Organic Compounds Fate and Transport

The predominant contaminants in groundwater at Site 08 are VOCs. In other Site 08 media, VOCs were detected, but at low concentrations not exceeding comparison criteria. As previously discussed, the most prevalent VOCs are chlorinated ethenes, including PCE and TCE and the breakdown product, cis-1,2-DCE. The other breakdown product, VC, was detected at a lower frequency, but exceeded the ORNLSLTW in all groundwater detections. Another chlorinated ethene, 1,1-DCE, was detected fairly frequently but did not exceed any of the comparison criteria. In the groundwater medium, chlorinated ethanes were also detected at a fairly high frequency, particularly 1,1-DCA, which also exceeded the ORNLSLTW in 19 percent of Site groundwater samples. The ethane compound 1,1,1-TCA was detected in approximately 36 percent of Site groundwater samples, but did not exceed any of the comparison criteria. In addition, carbon tetrachloride and its breakdown products, chloroform and chloromethane, were detected in approximately 29 to 43 percent of the vapor diffusion groundwater samples, and all but one of these detections (one of the four chloromethane detections) exceeded the ORNLSLTW. These three VOCs were also detected in one to two onsite bedrock groundwater samples and exceeded the ORNLSLTW in each of the detections.

The fate and transport evaluation for these VOCs is presented below, preceded by a brief summary of VOC presence at Site 08. (It is noted that this discussion is for VOCs other than acetone and 2-butanone, which are very common laboratory artifacts.)

5.3.1.1 VOCs in Soil

VOCs in Site 08 soil were detected infrequently and at low concentrations relative to the comparison criteria (ORNLSL DCRs and RIDEM DCRs), which were not exceeded in either surface or subsurface soil. Seventeen VOCs were detected in surface soils (not including acetone and 2-butanone), in a maximum of 5 percent of the samples. Eighteen VOCs were detected in subsurface soils, twelve of which were detected in less than 8 percent of the samples. The most frequently detected VOCs in subsurface soils (other than acetone and 2-butanone) were PCE and sec-butylbenzene, detected in approximately 14 percent of the samples. Chlorinated ethenes, including PCE and TCE, are the most prevalent VOCs detected in soil, and were found almost exclusively in subsurface soils, although the highest frequency of

any single VOC or VOC subgroup detected in soil samples was less than 20 percent (for chlorinated VOCs in subsurface soils). Among other VOCs detected in soils are low levels of aromatic hydrocarbons associated with petroleum products, including xylenes, 1,2,4-trimethylbenzene, 4-isopropyltoluene, as well as butylbenzenes. Chlorinated ethane compounds were not detected in Site soils.

The number of VOCs was higher in subsurface soils than in surface soils, and concentrations were also generally higher in subsurface soils (one exception is total xylene concentrations, which were higher in surface soils). The only chlorinated ethene detected in surface soil was TCE at three locations, with a maximum concentration of 8.5 µg/L. In subsurface soil, however, chlorinated ethenes including PCE, TCE, and breakdown products cis-1,2-DCE and VC were detected, with a maximum concentration of 41 µg/L for total chlorinated ethenes. The maximum concentration of PCE in subsurface soil was from TP-103 in the South Meadow (from 5 to 6 feet bgs). The only detection of PCE in surface soil was from SB-02 in the Paved Storage Area. Other VOCs present in subsurface soils that were not detected in surface soils include several petroleum-related compounds, including ethylbenzene, isopropylbenzene, and tert-butylbenzene. Maximum concentrations for these three VOCs were from either SB-04 or SB-116, in the southeastern portion of the Paved Storage Area.

5.3.1.2 VOCs in Groundwater

In bedrock groundwater at Site 08, 28 VOCs were detected (other than acetone and 2-butanone, common laboratory artifacts), most of which were present very infrequently and at relatively low concentrations. Thirteen of these compounds were also detected in shallow groundwater vapor diffusion samples, and five (all chlorinated VOCs) were also detected in onsite overburden-bedrock interface groundwater samples. The most frequently detected VOCs, and those with the highest percentage of criteria exceedances are chlorinated VOCs. As in soils, chlorinated ethenes including PCE and TCE and breakdown products cis-1,2-DCE and VC were frequently detected and, with the exception of cis-1,2-DCE, were present at concentrations exceeding the ORNLSLTW and/or MCLs and RIDEM GA GWOBJ criteria. However, unlike in soils, chlorinated ethanes were also detected in groundwater, and at a fairly high frequency, particularly 1,1-DCA which was detected in 66 percent of Site 08 groundwater samples and exceeded the ORNLSLTW in 19 percent of site samples. The ethane compound 1,1,1-TCA was detected in approximately 36 percent of site groundwater samples, but did not exceed criteria. Another chlorinated ethene, 1,1-DCE, was detected in 33 percent of the onsite samples and did not exceed criteria. In addition, carbon tetrachloride and its breakdown products, chloroform and chloromethane were detected in approximately 29 to 43 percent of the onsite vapor diffusion groundwater samples, and all but one of these detections (one of the four chloromethane detections) exceeded the ORNLSLTWs. These three VOCs were also detected in one to two onsite bedrock groundwater samples and exceeded the ORNLSLTWs in each detection. Several additional petroleum-related VOCs were detected, toluene being

the most prevalent, detected at low concentrations in approximately 28 percent of onsite groundwater samples.

5.3.1.3 VOCs in Surface Water

Trace levels of three VOCs were detected in surface water (in addition to acetone), including TCE, cis-1,2-DCE, and toluene. TCE was detected at the highest frequency, at 4 of 14 sample locations, and also had the maximum concentration in surface water, 1 µg/L detected at SW-121, in the middle portion of NUWC Pond. No criteria were exceeded for VOCs in surface water.

5.3.1.4 VOCs in Sediment

Twelve VOCs were detected in sediment samples (in addition to acetone and 2-butanone). Most compounds occurred at low frequencies and low concentrations: seven VOCs were detected in approximately 7 percent or fewer of the sample locations. The most prevalent VOC in sediment is 1,1,1-TCA, detected in 7 of 28 samples, with a maximum concentration at SD-133 in southern Deerfield Creek, the first sediment location downstream of SD-01 (which is upgradient of Site 08) that was sampled for VOC analysis. Concentrations of 1,1,1-TCA did not exceed criteria. Only three VOCs were detected at concentrations exceeding criteria (other than acetone): PCE, TCE, and carbon disulfide exceeded a criterion in each of the three to four detections. (Carbon disulfide also exceeded criteria in two reference samples). The maximum concentrations of PCE and TCE in sediment (33 and 39 µg/kg, respectively) were both detected at SD-114, in the upper (southern) portion of NUWC Pond and west of the North Meadow. Maximum concentrations of carbon disulfide and cis-1,2-DCE were both detected at SD-119, north of SD-114 in NUWC Pond, also west of the North Meadow. The only detection of toluene in sediment (38 µg/kg) was from SD-07, immediately south of SD114 in NUWC Pond and west of well MW-114B in the North Meadow, where the highest detection of toluene in groundwater from the North Meadow area was detected. Three other VOCs in sediment were detected at the highest concentration, or were present as the only detection, at SD-01, upgradient of Site 08 in Deerfield Creek.

5.3.1.5 VOCs Source

Site 08 is partially used for storage and the remainder is used for recreation or is undeveloped. Other than the four sheds that compose the Building 185 Complex Area at Site 08, other buildings or building footings are not present. Some of the undeveloped portions of Site 08, primarily the South Meadow and parts of the Paved Storage Areas, were used for disposal of refuse and construction debris.

It appears that there are three sources of the VOCs at Site 08. One source appears to be a release in the vicinity of the North Meadow. The second source appears to be associated with debris disposal and operations in the South Meadow, the Paved Storage Areas, and the Building 185 Complex (the portions of Site 08 south of the unnamed stream). The third source of VOCs appears to be the migration of VOC-impacted groundwater from the upgradient Building 179 Site.

The source of the release in the North Meadow was likely direct disposal of solvent(s) on the ground surface. A lack of TCE within the soil in the North Meadow and the deep water table (over 20 feet bgs) at this portion of the Site suggest that the TCE may have been deposited on the ground surface near the center of the North Meadow. This hypothesis is supported by the absence of TCE in upgradient monitoring wells MW115B and MW116B. In 2003, during the SASE, the concentration of TCE in MW03B was 1,500 µg/L. During the RI in 2008, the concentration of TCE in MW03B groundwater had decreased to 190 µg/L, and the highest concentration of TCE in groundwater was detected at MW117B, located hydraulically cross-gradient of MW03B. The release appears to be in the general vicinity of MW117B and MW03B. The source of TCE and its biodegradation products present in the North Meadow groundwater and in groundwater discharging to NUWC Pond is taken to be the dissolved phase TCE in the vicinity of these two wells, MW117B and MW03B.

Prior to the RI, the extent of the groundwater TCE plume in the North Meadow was unknown. The RI confirmed the presence of TCE in groundwater beneath the North Meadow and confirmed that TCE dissolved in groundwater is discharging into NUWC Pond. The width of the TCE plume in the North Meadow ranges from the area south of MW03B to the area northwest of MW118B (approximately 400 feet wide). Its width discharging into NUWC Pond is similar, ranging from the area near vapor diffusion sample location DW08 to the area northwest of DW14 (approximately 400 feet wide). The distribution of TCE in the area of the North Meadow suggests that it is migrating dissolved in groundwater from the south-southeast to the north-northwest. TCE and its breakdown products are dissolved in groundwater rather than sorbed to soil. TCE in this area extends downgradient (northwesterly) with groundwater flow and cross-gradient via dispersion.

VOCs have not been detected in Site 08 soils above screening criteria. A soil source of VOCs (i.e., a significant presence of VOCs in soil) has not been detected for those VOCs that are present in groundwater in the portions of Site 08 south of the unnamed stream. The presence of VC in groundwater from MW124B suggests a release to the groundwater in the vicinity of the Building 185 Complex. The VC in MW124B is collocated with an elevated ETPH concentration. MW124B is also in the vicinity of monitoring well MW100B where a LNAPL (composed primarily of ETPH) was detected.

The off-site source of VOCs in groundwater appears to be the former release at Building 179. Chlorinated VOCs and ETPH are present in the Building 179 area and are migrating, dissolved in groundwater, onto the Building 185 Site. These compounds appear to be co-mingling with releases from the Site in the vicinity of the Building 185 Complex.

5.3.1.6 Transport and Fate of VOCs

There is no identified continuing source of VOCs in Site 08 soil.

In the North Meadow, following the suspected release(s) of TCE to the ground surface, some of the solvent volatilized. Since the time of the suspected contaminant release(s), most of the TCE that did not volatilize has migrated through the unsaturated zone and into the bedrock groundwater. The lack of TCE concentrations above screening levels in unsaturated soils indicates that there is no source remaining in the unsaturated Site soil. After the dissolved VOCs reached the groundwater, they migrated by advective transport in a northwesterly direction towards NUWC Pond. The chlorinated solvents also spread out by molecular dispersion and preferential flow in a northerly direction along the fractured bedrock zone. The TCE was also subject to some amount of reductive dechlorination, which reduced the concentrations of TCE and resulted in the presence of its breakdown products (1,2-DCE, and to a lesser extent VC) in the passive diffusion bag groundwater samples collected within NUWC Pond.

5.3.1.7 Biodegradation of VOCs

As described in Section 4.2.6, the analytical data and field measurements of various groundwater quality parameters provide strong evidence that mild to strongly reducing conditions exist in groundwater in several areas of the site, and that anaerobic biodegradation and reductive dechlorination has occurred at Site 08.

5.3.1.8 LNAPL Presence

The scope for the RI was modified, and the conceptual model of Site 08 was modified, when light non-aqueous phase liquid (LNAPL) was discovered in MW100B. As mentioned above, the LNAPL is comprised primarily of ETPH. It also consists of GRO and specific VOCs (both aromatic and chlorinated).

The presence of the LNAPL is limited to the area around MW100B. LNAPL was not detected in surrounding wells. The hydraulic conductivity of individual fracture zones within the bedrock in the vicinity of the LNAPL (in wells MW124B, MW125B, MW126B, and MW109) was not measurable using packer testing techniques. This indicates that the hydraulic conductivity within the bedrock in this vicinity is low,

and the interconnectedness of fractures in the Building 185 Area is limited. Discrete-interval groundwater samples were collected from these monitoring wells by using a modified low-flow purge-and-sample technique; however, discrete-interval hydraulic conductivity in these wells was too low to measure. Furthermore, the ETPH in groundwater surrounding MW100B is limited. ETPH was detected dissolved in groundwater from onsite wells MW124B, MW125B, MW126B and MW02B. It was also detected in offsite upgradient wells MW13A, MW07A, and MW07B. These results indicate that the LNAPL in the vicinity of MW100B is limited in extent and likely trapped within a fracture or set of fractures.

Even if the LNAPL is trapped and immobile, the LNAPL phase has a mass that is typically several orders of magnitude greater than normally present in sorbed, water, or vapor states, implying the potential for long-term impacts. If the LNAPL is mobile, the release of an LNAPL to the subsurface can result in several methods of exposure, including: 1) the dissolution of constituents from LNAPL through percolating precipitation, and the downgradient movement of those constituents upon reaching the water table; 2) the release of a quantity of LNAPL that exceeds the absorption capacity of the unsaturated zone, resulting in an accumulation of the LNAPL lens at the water table surface; 3) the upward vapor-phase migration of volatile constituents from above the LNAPL lens and/or from the unsaturated zone to the land surface or to buildings; and 4) the downgradient migration of dissolved-phase constituents resulting from dissolution of the LNAPL lens.

5.3.2 Semi-Volatile Organic Compounds Fate and Transport

Many SVOCs, primarily PAHs, were detected in Site soil and sediment, and several were present in groundwater. The predominant PAHs detected in soil and sediment, and those that frequently exceeded criteria in these media are benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, chrysene, and benzo(g,h,i)perylene. These compounds are ubiquitous products of incomplete combustion of organic matter such as fuels, and were widely detected in subsurface soil, in exposed and unexposed surface soil, and in sediment. Concentrations of these PAHs were notably highest in subsurface soil at Site 08. Exposed surface soil concentrations of PAHs were somewhat higher than in sediments. PAHs in unexposed surface soil concentrations were typically lower than the other soil and sediment groups listed above, although still elevated. In sediment, several additional PAHs were reported with a significant presence of elevated concentrations exceeding criteria, including pyrene, fluoranthene, phenanthrene, anthracene, and naphthalene.

The significant presence of PAHs in subsurface soils, where the maximum concentrations were detected, as well as in unexposed soils, is likely due to the fact that much of the area consists of fill, with and without artificial materials incorporated within the soils, including asphalt and tar-like substances that were

observed during test pitting and soil boring activities. In addition, PAHs that were deposited on surface soils in the past, both on Site 08 and in areas that were sources of the fill materials now present onsite, may have been moved into the subsurface while adsorbed to the fill materials and/or the re-worked surface soil.

Several areas of elevated PAHs in surface soil related to onsite disposal activities are evident. The maximum concentration of total PAHs in surface soil and other elevated surface soil samples are in the vicinity of the former buried drum removal area in the South Meadow, including SB127, SB123, and SB126. Other elevated concentrations of PAHs are related to asphalt observed in test pits and borings, including TP-15, immediately northwest of the Paved Open Storage Area. The largest concentration of surface soil samples with the highest PAH levels is in the South Meadow area, where nearly all surface soil samples are among the highest concentrations detected. Other areas with clusters of some of the higher levels of PAHs in surface soil include the northern portions of the Paved Gated and Paved Open Storage Areas and between this area and Deerfield Creek, including the former paint can removal area (SB104, SB102). Elevated levels of PAHs in surface soils are also present in the southernmost portion of the North Meadow, in wetland soils such as SB148, in some locations in the vicinity of Building 185, including SB100 and SB118 (northeast of Building 185 at the perimeter of Site 08), and in offsite areas including south of Site 08 at SB153, at the northernmost sample location, MW119B, and west of NUWC Pond at SB145 (in the vicinity of storm water Outfall C) and at SB142 (at storm water Outfall B).

In sediments, PAHs were detected upgradient of Site 08 at a concentration of 3,887 J µg/kg for total PAHs (SD-01). Lower concentrations of total PAHs were detected in Deerfield Creek sediments downstream of this location until the more depositional environments are encountered in the wetland area below, such as locations SD106, SD03, and SD111. Concentrations of PAHs in sediments in the unnamed stream to the east do not appear to be contributing significantly to the levels detected downstream in the wetland area and in NUWC Pond sediments. The high concentrations of PAHs in the wetland area above NUWC Pond and in the Pond itself are in depositional, low-energy environments, where sediments can accumulate over time, more so than in the upper more channelized, high-energy areas of Deerfield Creek. In addition, PAH-contaminated bottom sediments can be mobilized during high-energy, high surface-water flow events, and can be transported further downstream within the surface water column, adsorbed to suspended soil/sediment particles. The elevated concentrations of PAHs in sediments are likely the result of a combination of possible sources, including: upstream offsite sources of PAHs in surface water and sediment from urban runoff (SD-01); overland runoff from the Site that may erode surface soil and incorporate PAHs present in these soils, discharging them into the streams, the wetland area, and NUWC Pond; and PAH-contaminated surface water or sediment discharged from one or more of the three storm water outfalls (Outfalls B, C, and D) located west of NUWC Pond (total PAHs

of 26,546 J µg/kg were detected in surface soil sample SB145, located near Outfall C, above NUWC Pond).

The absence of PAHs in surface water and in nearly all groundwater samples is attributable to the relative insolubility of these compounds and their strong sorption potential. PAHs in surface and subsurface soil would typically not be found dissolved in groundwater or surface water, but would remain adsorbed to soils. The only exceedance of an SVOC criteria in groundwater was the sole detection of benzo(k)fluoranthene at MW-124B. In addition, two SVOCs that are components of Otto Fuel were tentatively identified in groundwater (TICs) at MW-124B only: PGDN, at an estimated concentration of 5 µg/L, and dibutyl sebacate, at an estimated concentration of 30 µg/L.

5.3.3 Pesticides Fate and Transport

The highest frequency of pesticide detections and all but one of the criteria exceedances were in sediment and surface water, where six and two pesticide compounds were detected, respectively. Almost all pesticide detections in sediment and surface water also exceeded a criterion. Although the highest number of individual pesticide compounds (twelve) was found in soils (considering both surface and subsurface soils), none of the detected pesticides exceeded criteria in either surface or subsurface soil. The associated concentrations and the frequency of detection of most pesticides in soil were very low.

Six of the pesticides in surface soil were also detected in sediment, in descending order of frequency: dieldrin and 4,4'DDE; 4,4'DDD; alpha-chlordane; gamma-chlordane; and 4,4'-DDT. Two of these, dieldrin and 4,4'DDT, were also detected in surface water. In groundwater, just one pesticide, dieldrin, was detected in just one sample, and exceeded the criterion.

Dieldrin, one of the pesticides that is generally resistant to biodegradation, was the only pesticide detected in all four media at Site 08 (although in just one groundwater sample). In surface water and sediment, dieldrin was detected at a high frequency, in approximately 78 percent of surface water samples and in 71 percent of sediment samples, and exceeded a criterion in both media in all but one sample. However in soil, dieldrin was detected in just three samples (three percent of all surface soil samples), not exceeding a criterion, and was not detected in subsurface soil.

The compound 4,4'-DDT, the only other pesticide detected in surface water (in 36 percent of the samples), was detected in 43 percent of sediment samples. In sediment, the pesticide 4,4'-DDE was also detected at a high frequency, in 71 percent of the samples. These two compounds were the most frequently detected pesticides in surface soil, but were only present in 32 to 37 percent of the samples, and all concentrations in soil were very low: the ORNLSLDCR for 4,4'-DDT is nearly five times the

maximum concentration detected in soil (subsurface); and the ORNLSLDCR for 4,4'-DDE is approximately 6.5 times the maximum concentration detected in soil (surface).

The remaining three pesticides in sediment were also present at a fairly high frequency, in 57 to 64 percent of sediment samples; however, these pesticides were present in just 3 to 8 percent of surface soil samples, where they did not exceed criteria.

For dieldrin, the maximum surface water concentration was from the most upgradient (southern) sample location, SW01, in Deerfield Creek. The maximum dieldrin concentration in sediment was from the most northern location, SW125, located just above the dam on NUWC Pond, an area which is always submerged, and where the greatest possibility of settling of solids entrained in surface water would likely occur. In soils, there were just three detections of dieldrin, all well below the criteria, and all in surface soils: SS149 (MW-123), located in the wetland soils south of the pond, where the maximum was detected (this is very near MW-122, also in the wetland, where the only groundwater sample with dieldrin was collected); SB144, located immediately adjacent to NUWC Pond on the western shore; and SB140, located immediately below the NUWC Pond dam (this sample collected to assess the effect of dam water overflow on soils). These three soil locations are all in areas affected by surface water flow from Deerfield Creek or NUWC Pond (in wetland soil, in soil immediately adjacent to the Pond, and in soil which receives overflow water from NUWC Pond).

For 4,4'-DDT, the only other pesticide detected in surface water, the maximum concentrations in both surface water and in sediment samples were also from the northernmost location, SW125, described above for dieldrin in sediment.

Pesticides do not appear to have a major presence in site soil. In surface soils, most pesticides were detected in an average of only 3 percent of the samples, and the most frequently detected pesticide in surface soils, 4,4'-DDE, was detected in 37 percent of the samples. In subsurface soils, the most frequently detected pesticide, 4,4'-DDT, was detected in only 10 percent of the samples. None of the pesticides in soils exceeded criteria.

The pesticides detected at Site 08 are manufactured chemicals that were historically used as pesticides in the United States. These and many other pesticides are very persistent in the environment. Based on these factors, the low frequency of detection and low concentrations in Site soils and groundwater, it appears that pesticide presence in soil is not related to Site operations or activities. Pesticide presence in soil is likely a background condition related to general pesticide use on the Base and in areas that were sources of fill materials that were re-located to Site 08.

Considering the lack of significant levels of pesticides in site soils, and the fact that pesticides generally have low water solubility, it is likely that in surface water, pesticides may primarily enter Site 08 from upstream areas of Deerfield Creek, sorbed to particles that are entrained in the water column (as evidenced by the upstream location of the maximum dieldrin concentration in surface water). Under lower energy conditions, these settle out in sediments that deposit and accumulate upon encountering lower flow-velocity conditions, such as in the wetland area at the bottom of Deerfield Creek, and in NUWC Pond, which receive water and entrained particles from Deerfield Creek. In particular, the more northern areas of the pond, such as those in close proximity to (above) the dam, are areas where sediments are continuously submerged, and are also in a low flow-velocity area, allowing the highest opportunity for contaminants suspended in the water column to deposit and accumulate.

5.3.4 Polychlorinated Biphenyls (PCBs) Fate and Transport

Four PCB congeners, Aroclor-1248, Aroclor-1254, Aroclor-1260, and Aroclor-1268, were detected in Site soil, in both surface and subsurface soil. Three of these congeners, Aroclor-1254, Aroclor-1260, and Aroclor-1268 were also detected in Site sediments. PCBs were not detected in groundwater or surface water samples.

Aroclor-1260 was detected in approximately 34 percent and 7 percent of surface and subsurface soil samples, respectively, and the ORNLSDCR was exceeded in roughly 4 percent of the samples in both subgroups. In sediments, Aroclor-1260 was detected in 60 to 62 percent of the samples (shallow and deep water, respectively), and exceeded the ORNLSLPOG in all detections (in 12 and 5 samples, respectively). The highest concentrations of Aroclor-1260 were in subsurface soils, where it was detected in just 7 of 94 samples, and exceeded the ORNLSDCR in four of these seven detections. The maximum concentration was 1500 µg/kg at a depth of 2 to 4 feet bgs in SB-111, at the northwest corner of the Paved Storage Area (where the surface soil sample concentration was only 44 µg/kg). This elevated concentration of Aroclor-1260 in soil was relatively isolated: in the vicinity of this sample, Aroclor-1260 was either not detected (subsurface soil), or was detected at a concentration exceeding the criterion at just one nearby location (surface soil sample SB-110, 260 µg/kg). The only other subsurface soils that exceeded the criterion were in a cluster of three sample locations north of this sample, in the vicinity of TP-103 in the South Meadow, where Aroclor-1260 was detected between 260 and 1100 J µg/kg. In surface soil, three of the four concentrations that exceeded the criterion were from samples collected outside the Site 08 boundary. The maximum concentration in surface soil was detected to the southeast of Site 08 at SB-153. Two other exceedances were west and north of Site 08 and west of NUWC Pond, at SB142, located just downslope of storm water Outfall B, and at SB145, located just north of storm water Outfall C.

In sediments, the three highest concentrations of Aroclor-1260 (370 to 550 µg/kg) are in the southernmost area of NUWC Pond at SD116, SD07, and SD112, located downslope and just downgradient of Outfall C, and also downslope of SB145, where Aroclor-1260 was detected in surface soil at 350 J µg/kg. Aroclor-1260 was found at somewhat lower concentrations, but still exceeding the ORNLSDCR, in sediments upstream of this area, as shown in Figure 4-64. The distribution and concentrations of Aroclor-1260 as summarized above indicate that Outfall C is likely to have been one source of PCBs to soils and sediments in the vicinity, and that Outfall B could be contributing PCBs to downslope soils as well.

Aroclor-1268 was detected in approximately 11 percent of both surface and subsurface soil samples, and the ORNLSDCR was exceeded in roughly 7 and 3 percent of the samples in surface and subsurface samples, respectively. In sediments, Aroclor-1268 was detected in 7 percent of the samples (2 of 28 samples) and exceeded the ORNLSLPOG in one of the samples. As in the case of Aroclor-1260, the highest concentrations of Aroclor-1268 were also in subsurface soils, where it exceeded the criterion in 3 of the 10 detections. The maximum concentration was 4060 J µg/kg at a depth of 4 to 6 feet bgs in B104B (MW104B), at the southwestern corner of the South Meadow, where the surface soil sample was also elevated, at 400 µg/kg. Elevated concentrations of Aroclor-1268 in subsurface soil were detected in two other areas in the South Meadow. In surface soil, in addition to the South Meadow, elevated concentrations of Aroclor-1268 were also detected at one location west of the Paved Storage Area and at one location at the extreme northern portion of Site 08, at the northeast corner of NUWC Pond. In sediments, Aroclor-1268 was detected in just two samples, with a maximum of 2480 at SD07 in the southern portion of NUWC Pond, and a low detection upstream in Deerfield Creek at SD03.

Aroclors -1248 and -1254 were detected very infrequently in soils, in just three to four samples, and Aroclor-1254 was detected in just one sediment sample. These two PCB congeners do not have a significant presence at Site 08.

The maximum concentrations of some Aroclors in soils were detected at depths up to ten feet bgs. Since PCBs are nearly insoluble in water and sorb strongly to soil, most of the PCBs mass in soils likely remains bound in the soils, and is expected to remain immobile. Therefore, it is likely that PCB-contaminated soil was placed at depth as fill in some areas of the Site. PCBs are synthetic and are associated with dielectric fluids. As identified previously, the Site has historically received significant quantities of fill with debris. The areas and thicknesses of fill at the Site are presented in the geologic cross-sections, Figures 3-3 through 3-8, and the area and thickness of “debris fill” are presented in Figure 3-9.

When PCBs are present in stream and pond sediments, as at Site 08, PCBs would also be sorbed to the soil/sediment grains that could settle out in streambeds or pond bottoms under low velocity flows, or could be remobilized during higher flow periods, entrained in the surface water column, and transported

downstream, settling out in lower flow velocity areas, such as would occur where Deerfield Creek flows into NUWC Pond.

5.3.5 Metals Fate and Transport

In soil samples from Site 08, three metals (arsenic, manganese, and lead) were present at concentrations exceeding both federal and State DCR criteria in surface and subsurface soil. Beryllium and cobalt were present in surface and subsurface soil at concentrations exceeding either the State DCR (beryllium) or the federal DCR (cobalt, which has no State DCR). Iron and zinc exceeded a criterion in just one to five samples, in subsurface soil only. The locations with most of the maximum detected metals concentrations varied, although it is noted that in surface soils, the maximum concentrations of four metals, cobalt, iron, lead, and manganese, were detected at SS149 (MW-123) which is located in wetland soils near the lower portion of Deerfield Creek. In subsurface soil, the maximum concentrations of six metals, including cobalt, iron, and lead, were detected at SB106, located in the vicinity of the former paint can removal area.

In groundwater, the metals with the most frequent exceedances of criteria (ORNLs and/or MCLs) include arsenic, manganese, iron, and cobalt. The number of exceedances for these metals was approximately the same for both total and dissolved concentrations, indicating these four metals occur primarily in the dissolved phase. The distribution of elevated concentrations of arsenic, manganese, and iron is widespread at Site 08. For example, the three highest concentrations of arsenic in groundwater occur in three different areas, including upgradient of Site 08 at MW-07B, the Paved Storage Area (MW-02B), and the North Meadow (MW-115B and -116B). The five highest concentrations of iron in groundwater occur in four different areas, including the Paved Storage Area (MW-02B and MW-109B, not including the high turbidity sample MW-103S), the offsite area west of NUWC Pond (MW-120B), upgradient of Site 08 (MW-07A), and the North Meadow (MW-116B). For manganese, the highest concentrations were distributed between the Paved Storage Area and west of this area (MW-02B and MW-102B), upgradient of Site 08 (MW-07A), and the South Meadow. MW-120B, offsite and west of NUWC Pond, was also among the locations with the highest manganese concentrations. The three criteria exceedances for dissolved cobalt were in three separate areas, in the Paved Storage Area (MW-02B), upgradient of Site 08 (MW-07A), and offsite, west of NUWC Pond (MW-120B).

(For surface water, it is noted that location SW125, which was the location of maximum concentrations for several metals, had an elevated turbidity of 122 NTUs, the highest of any surface water sample. It is likely that the reported metals concentrations in this sample are artificially elevated, due to suspended solids in this sample.) Seven metals (total concentrations) were detected in surface water at levels exceeding criteria, and five of these metals were also detected exceeding criteria in dissolved concentrations. The four metals with the most frequent exceedances (in more than two samples) include

manganese, barium, iron, and lead. Both total and dissolved manganese and barium concentrations exceeded the EPA MCL in almost all surface water samples. However for iron, the dissolved concentrations exceeded the criterion in just two samples, vs. six exceedances for total iron. For total lead, concentrations in surface water exceeded the ESL criterion at five locations, three of which are in NUWC Pond, and all total lead exceedances were less than twice the criterion. Dissolved lead, however, did not exceed the criterion in any surface water sample. This indicates that the elevated lead detections in the total metals results for surface water are likely due to lead associated with suspended soil particles within the water column.

While the maximum total manganese concentration in surface water was detected in upper NUWC Pond (SW117), the maximum dissolved manganese concentration was upgradient of Site 08, at SW01 in Deerfield Creek (also the location of the second highest total manganese concentration). The third highest total manganese concentration was the next downstream location in Deerfield Creek (SW133), also the location of the next highest dissolved manganese concentration. For barium, both total and dissolved, the highest concentrations were also detected upgradient of Site 08 (SW01), and the next two highest concentrations were detected in the next two or three downstream locations in Deerfield Creek (SW133 and SW106 or SW110). For total iron in surface water, the only criterion exceedances were in the upper and middle portions of NUWC Pond; for dissolved iron, the only criterion exceedance was upstream of Site 08, at SW01, as was the case for dissolved manganese and barium. As discussed above, dissolved lead did not exceed the criterion in any surface water sample.

In sediments, sixteen metals exceeded criteria in site samples. Arsenic, iron and lead in particular, were detected at concentrations much higher than criteria. All arsenic concentrations in sediment were greater than 1,000 times the criterion. The highest concentration of arsenic in sediment was just above the NUWC Pond dam, and concentrations generally decreased with distance toward the upper portion of the Pond, to SD-119. The next highest concentration, 18 mg/kg, was detected in two samples, one in the southernmost portion of NUWC Pond (SD-07) and one at the most upstream location in Deerfield Creek, SD-01, upgradient of Site 08. The next highest arsenic concentrations were in the wetland area above the Pond, at SD-129 and SD-06.

All iron concentrations in sediment were greater than ten times the criterion. As in the case of arsenic, the maximum concentration of iron in sediment was just above the NUWC Pond dam, where the level was approximately 80 times the criterion. Five of the six highest concentrations of iron in sediment were from NUWC Pond. The third highest concentration was detected at location SD133, from the upper portion of Deerfield Creek.

The three highest concentrations of lead in sediment were detected in the upper portion of Deerfield Creek at SD100, SD133, and SD132, in the vicinity of the former paint can removal area, where elevated concentrations of lead were detected in soil. Lead concentrations in these three sediment samples were approximately 150 to 760 times the screening criterion. The next highest concentrations of lead in sediment were from the lower, wetland portion of Deerfield Creek (SD111, SD106, and SD110). High concentrations of metals in sediments, such as lead and iron, may impact surface soils in wetland areas. The high iron and lead in the wetland surface soil sample SS149 (MW-123) may be related to the high concentrations of iron and lead also detected in sediments in this vicinity, such as SD110, SD111, and SD106. Wetland soils that are periodically inundated by surface water likely receive contaminants from suspended solids in the surface water column, as do stream sediments.

Arsenic, manganese, lead, iron, and many other metals occur naturally in soils, at varying concentrations that are typically related to the composition of bedrock in the area that is generally the original source material. As described in Section 5.2.5, the redox state of the subsurface environment will affect the form and valence state of metals such as arsenic and manganese and will influence how much of each metal remains bound to soil and rock surfaces and how much remains in solution. In general, under oxidizing conditions, naturally occurring arsenic and manganese will remain bound in soil and rock or sorbed to suspended particles. Under reducing conditions, the concentrations of dissolved metals such as arsenic and manganese in groundwater will tend to increase as the metals at soil and rock surfaces are reduced to more soluble forms and remain in solution. The redox state is an important factor affecting metals concentrations in Site groundwater because, as detailed in Section 4.3.6, mildly to strongly reducing conditions exist in groundwater in many areas of Site 08, including some wells in upgradient areas, in the Paved Storage Area and west of this area, in the South Meadow area and in the North Meadow area.

With the exception of lead in some areas, the distribution of metals in Site media suggests that their presence is largely not site-related, although Site conditions may influence metals concentrations in some areas. Frequently, maximum concentrations or elevated concentrations that are comparable to those detected onsite are present upgradient of Site 08, in upgradient groundwater, surface water, or sediment. As discussed previously, some elevated concentrations of lead in Site media are likely related to the former paint can removal area, near the upper portion of Deerfield Creek.

In addition, the higher concentrations of some metals in sediments in the lower NUWC Pond are related to the fact that this area is continuously submerged (as opposed to the upper portions of the Pond that go dry in seasonal low-flow conditions), and this is also a low velocity flow area, just above a dam, with conditions conducive to suspended solids settling out and accumulating in sediments in this environment.

6.0 HUMAN HEALTH RISK ASSESSMENT

This section presents the Human Health Risk Assessment (HHRA) for Site 08 at the Naval Underwater Systems Center (NUSC) Disposal Area. The objective of the HHRA is to determine whether detected concentrations of chemicals in the study area pose a significant threat to potential human receptors under current and/or future land use. The potential risks to human receptors are estimated based on the assumption that no actions are taken to control contaminant releases.

The following current guidance and reports published by the Department of the Navy, the United States Environmental Protection Agency (EPA), and the State of Rhode Island were considered in the preparation of this document:

- Conducting Human Health Risk Assessments Under the Environmental Restoration Program (Navy, 2001).
- Navy (Policy on the Use of Background Chemical Levels (Navy, 2004).
- Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (RIDEM, 2004).
- Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part A) (USEPA, 1989).
- Soil Screening Guidance: Technical Background Document (USEPA, 1996).
- Exposure Factors Handbook USEPA, 1997).
- Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).
- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) (USEPA, 2004).
- Guidance for Characterizing Background and Chemical Concentrations in Soil for CERCLA Sites (USEPA, 2002).
- Guidelines for Carcinogen Risk Assessment (USEPA, 2005).

- Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) (USEPA, 2009).

The HHRA is structured and reported according to the guidelines of the Risk Assessment Guidance for Superfund (RAGS), Human Health Evaluation Manual, Part D: Standardized Planning, Reporting, and Review of Superfund Risk Assessments (RAGS Part D) (USEPA, 2001). The assessment follows the methodology presented in the approved work plan (TtNUS, 2007).

This HHRA consists of six components: data evaluation, exposure assessment, toxicity assessment, risk characterization, uncertainty analysis, and development of remedial goal options. Sections 6.1 through 6.6 contain detailed discussions of the six components of the HHRA.

Three major aspects of chemical contamination and environmental fate and transport must be considered to evaluate potential risks: (1) contaminants with toxic characteristics must be found in environmental media and must be released by either natural processes or by human action; (2) potential exposure points must exist; and (3) human receptors must be present at the point of exposure. Risk is a function of both toxicity and exposure. If any one of these factors is absent for a site, the exposure pathway is incomplete, and no potential risks are considered to exist for human receptors.

6.1 DATA EVALUATION

Data evaluation, the first component of a baseline HHRA, is a medium-specific task involving the compilation and evaluation of analytical data. The second step (and the main objective) of the data evaluation is to develop a medium-specific list of chemicals of potential concern (COPCs) that will be used to quantitatively and/or qualitatively determine potential human health risks for site media. COPCs are selected primarily based on a toxicity screen (i.e., a comparison of site contaminant concentrations to conservative toxicity screening values) and a background screen (i.e., a comparison of site concentrations to background concentrations).

6.1.1 Data Usability

Fixed-base analytical results for the target analytes lists for the field investigations were used in the quantitative risk evaluation. Unfiltered results for groundwater and surface water were used to assess

risks associated with these media. Field measurements and data regarded as unreliable (i.e., qualified as "R" during the data validation process) were not used in the quantitative risk assessment.

6.1.2 Selection of Chemicals of Potential Concern

The selection of COPCs is a qualitative screening process used to limit the number of chemicals and exposure routes quantitatively evaluated in the baseline HHRA to those site-related constituents that dominate overall potential risks. Screening by risk-based concentration (RBC) is used to focus the risk assessment on meaningful chemicals and exposure routes.

In general, a chemical is selected as a COPC and retained for further quantitative risk evaluation if the maximum detection in a sampled medium exceeds the lowest RBC. Chemicals detected at maximum concentrations exceeding the screening criteria but present at background levels are carried through the risk assessment and discussed in the risk characterization section. Chemicals eliminated from further evaluation are assumed to present minimal risks to potential human receptors. Medium-specific tables summarizing the selection of COPCs are included in the risk assessment.

6.1.2.1 Derivation of Screening Criteria

The primary criteria used to identify COPCs for Site 08 are based on risk-based screening levels developed by the Oak Ridge National Laboratory (ORNL) (USEPA, 2008) and criteria established by the RIDEM, Office of Waste Management (2004). The RSLs were developed and are maintained through a cooperative agreement between Oak Ridge National Laboratory and USEPA's Office of Superfund and are considered to be USEPA screening criteria. The ORNL Regional Screening Levels (RSLs) are based on exposure pathways for which generally accepted methods, models, and assumptions have been developed (i.e., ingestion, dermal contact, and inhalation) for specific land-use conditions and do not consider impact to groundwater or ecological receptors. The screening concentrations based on the ORNL RSLs correspond to a systemic hazard quotient (HQ) of 0.1 for non-carcinogens or an incremental lifetime cancer risk (ILCR) of 1×10^{-6} for carcinogens. The ORNL RSLs for non-carcinogens are based on an HQ of 1.0, whereas the screening concentrations used in the selection of COPCs were based on an HQ of 0.1 to account for the potential cumulative effects of several chemicals affecting the same target organ or producing the same adverse non-carcinogenic effect. The RSLs were updated in April 2009, which was after the draft HHRA was prepared. Section 6.5.1 presents a comparison of the September 2008 and April 2009 RSLs. The RIDEM criteria include residential direct contact exposure criteria, leachability criteria (classification GA), and GA groundwater objectives.

The COPC screening levels used for each medium in the risk assessment are discussed below.

Screening Levels for Soil and Sediment

Screening levels based on the following criteria were used to select COPCs for surface and subsurface soil and sediment:

- ORNL RSLs for residential soil (USEPA, 2008)
- RIDEM Direct Exposure Criteria (DECs) for residential soil (RIDEM, 2004)

Maximum chemical concentrations in soil were also compared to ORNL risk-based soil screening levels (SSLs) for groundwater protection and to RIDEM GA leachability criteria that were designed to be protective of groundwater at most sites. The SSLs for migration from soil to groundwater and the RIDEM leachability criteria were not used for the selection of COPCs for direct contact exposure; however, they do allow qualitative evaluation of the potential for chemical migration from soil to groundwater. Chemicals with concentrations exceeding the SSLs/RIDEM leachability criteria may potentially migrate from the soil to groundwater in sufficient quantities to pose groundwater quality problems.

The risk-based screening levels and health-based standards used in the COPC selection for soil and sediment are presented in Table 6-1.

Screening Levels for Groundwater and Surface Water

Screening levels based on the following criteria were used to select COPCs for groundwater and surface water:

- ORNL RSLs for tap water (USEPA, 2008)
- RIDEM GA groundwater objectives
- EPA maximum contaminant levels (MCLs) (2006)
- EPA Groundwater Screening Levels for Evaluating the Vapor Intrusion into Indoor Air from Groundwater and Soils (USEPA, 2002)

Risk-based COPC screening levels for tap water ingestion, which are based on daily residential exposure assumptions, were used to select COPCs for groundwater and surface water. In general, the use of tap water screening levels is regarded as a highly conservative approach to COPC selection at Site 08 because groundwater and surface water at the site are not used as potable drinking water sources.

The groundwater screening levels for evaluating the vapor intrusion to indoor air are published in Table 2c of the recent draft EPA guidance titled: Evaluating the Vapor Intrusion into Indoor Air (USEPA, 2002). These SSLs were derived to identify chemical concentrations in groundwater that may adversely affect the indoor air quality of a building overlying subsurface VOC contamination.

The risk-based screening levels and health-based standards used in the COPC selection for groundwater and surface water are presented in Table 6-2.

Screening Levels for Fish Tissue

There are no ORNL RSLs for fish ingestion; therefore, the EPA Region 3 Fish Tissue Screening Levels (USEPA, 2008) were used to select COPCs for fish ingestion. The risk-based screening levels used in the selection of COPCs for fish tissue are presented in Table 6-3.

Essential Nutrients

Per EPA guidance (USEPA, 1989) "Chemicals that are (1) essential human nutrients, (2) present at low concentrations (i.e., only slightly elevated above natural occurring levels), and (3) toxic at very high does (i.e., much higher than those that could be associated with contact at the site) need not be considered further in the quantitative risk assessment." Examples of such chemicals are magnesium, calcium, potassium, and sodium. Based on historical information available for the site, no unusual use or disposal of these constituents occurred at the site under investigation. Soil concentrations greater than 1,000,000 mg/kg (i.e., pure mineral intake) would be required before receptor intake would exceed recommended daily allowance (RDA) and recommended daily intake (RDI) values. A review of currently available analytical data indicates that such concentrations have not been detected in soil at Site 08.

Chemicals without Toxicity Criteria

Because of the lack of toxicity criteria, risk-based COPC screening levels are not available for some chemicals [e.g., acenaphthylene, benzo(g,h,i)perylene, phenanthrene, alpha- and gamma-chlordane, Endosulfan II, endosulfan sulfate, and endrin aldehyde]. For COPC screening, acenaphthene was used as a surrogate for acenaphthylene, pyrene was selected as a surrogate for benzo(g,h,i)perylene and phenanthrene, chlordane was selected as a surrogate for alpha- and gamma-chlordane, endosulfan was selected as a surrogate for Endosulfan II and endosulfan sulfate, and endrin was selected as a surrogate for endrin aldehyde.

Surrogate chemical screening values were not available for several chemicals [e.g., 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, sec-propylbenzene]. Consequently these chemicals could not be quantitatively evaluated in this HHRA. The uncertainty associated with the lack of screening levels for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

Site Data-to-Background Data Comparisons

Chemicals found at concentrations indicative of facility background levels are not considered to be site-related contaminants. Site-specific background soil data were used to determine whether detected chemicals in soil are present at levels potentially reflective of Site 08 sources. The comparison of

chemical concentrations (for naturally occurring inorganics and common anthropogenic chemicals, such as PAHs, pesticides, herbicides) to background levels for Site 08 reflects current Navy policy (2004) and is presented in Appendix F. Chemicals determined to be present at concentrations less than background concentrations were identified in the COPC selection tables but in accordance with EPA policy were not eliminated from the HHRA. Risk estimates for both site-related, naturally occurring, and anthropogenic COPCs are presented on the RAGS Part D Table 9s in Appendix H.1. Risk estimates for only site-related COPCs are presented on RAGs Part D Table 9s in Appendix H.2. The impact of evaluating COPCs present at naturally occurring levels is discussed in Section 6.4.3.8. In general, COPCs present at naturally occurring levels did not contribute significantly to the total risk. Chemicals present at naturally occurring levels were not retained as chemicals of concern (COCs) in accordance with Navy policy. The following EPA and Navy guidance documents were used to select the most appropriate statistical methods for determining if site concentrations differ from naturally occurring or anthropogenic background concentrations:

- Guidance for Environmental Background Analysis Volume 1: Soil, Naval Facilities Engineering Service Center (NFESC) User's Guide (Battelle, 2002).

- Guidance for Environmental Background Analysis Volume III: Groundwater, Naval Facilities Engineering Service Center (NFESC) User's Guide (Battelle, 2004).

- Guidance for Characterizing Background and Chemical Concentrations in Soil for CERCLA Sites (USEPA, 2002).

- Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (USEPA, 1989 and 1992).

- Environmental Background Analysis Seminar, Geochemical and Statistical Methods. Presented by Naval Facilities Engineering Command and Battelle Memorial Institute (NAVFAC, 2000).

To the extent possible, dataset-to-dataset comparisons were used to determine if site concentrations exceed background concentrations, using statistical tests such as the Wilcoxon rank-sum test. However, dataset-to-dataset comparisons often specify (1) a minimum number of data values in both the site dataset and background data set and (2) a minimum number of sample results (i.e., background plus site samples), to provide meaningful information. Also, such statistical tests are often of limited value when a large percentage of a data set are censored values (e.g., non-detect results). Consequently, visual inspection of the data (e.g., a review of probability plots) and professional judgment were used in some cases to determine if a detected concentration exceeded background levels. Statistical comparisons were conducted at the 5-percent significance level. Figure 6-1 provides an overview of the statistical

methodology that was used to conduct the background screen. This evaluation is included in the HHRA in accordance with the following Navy and EPA guidance:

- Navy Policy on the Use of Background Chemical Levels (Navy, 2004).
- Role of Background in the CERCLA Cleanup Program (USEPA 2002).

The results of the background comparisons are presented in Appendix F.

6.1.2.2 Decision Rules for Establishing COPCs

The following decision rules were used to select initial lists of COPCs for Site 08:

- A chemical detected in soil was selected as a COPC for soil if any detected chemical concentration exceeded the screening levels for soil.
- A chemical detected in groundwater was selected as a COPC for groundwater if the maximum detected concentration in any on-site and downgradient monitoring wells exceeded screening levels.
- A chemical detected in surface water or sediment was selected as a COPC for surface water or sediment if the maximum detected concentration in a potentially impacted surface water body exceeded the screening level for surface water or sediment.
- Chemicals detected at maximum concentrations exceeding toxicity screening concentrations but determined to be less than background levels were selected as COPCs and carried through the risk assessment. However, chemicals present at naturally occurring levels were not retained as COCs in accordance with Navy policy.

6.1.3 COPCs Selected for the HHRA

COPCs at Site 08 were selected for surface soil, subsurface soil, groundwater, surface water, sediment, and fish tissue using the risk-based COPC screening levels described in Section 6.1.2. A discussion of the chemicals identified as COPCs and the rationale for COPC selection is provided in the following subsections. A discussion of nature and extent of the chemicals detected in site media is presented in Section 4 and is not repeated in this section. COPC selection information for each medium is presented in Tables 6-4 through 6-18. Chemicals retained as COPCs for Site 08 are presented in Table 6-19. RAGS Part D tables for COPC selection are included in Appendix H.1.

The site was divided into two areas for the purposes of selecting COPCs for soil: the exposed area and the paved area. Only surface water samples collected from areas where the total depth of surface water was 1 foot or less were included in the surface water data set. Only sediments covered by 1 foot or less of surface water during times of low water levels were included in the sediment dataset.

6.1.3.1 Exposed (Non-Paved) Area Surface Soil (0 to 2 Feet)

Fifteen VOCs, 25 SVOCs, 11 pesticides/PCBs, 24 inorganics, and extractable TPH were detected in surface soil samples collected in the exposed area (non-paved area) of Site 08. A comparison of maximum detected surface soil concentrations to screening levels based on ORNL RSLs and RIDEM DECs for residential exposures is presented in Table 6-4. The following chemicals were detected at maximum concentrations exceeding direct contact risk-based COPC screening levels and were retained as COPCs for exposed area surface soil at Site 08:

- SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene].
- Pesticides/PCBs [Aroclor-1254, Aroclor-1260, Aroclor-1268, and total Aroclors].
- Inorganics [aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, and vanadium].
- Extractable TPH.

The maximum detected concentrations of aluminum, antimony, cadmium, chromium, copper, iron, and vanadium exceeded the screening toxicity levels (set at an HI of 0.1); however, they do not exceed the ORNL RSLs. Concentrations of benzo(g,h,i)perylene, fluoranthene, naphthalene, phenanthrene, pyrene, and beryllium exceeded RIDEM DECs but were less than the screening criteria based on the ORNL RSLs. Concentrations of Aroclor-1254, Aroclor-1260, Aroclor-1268, antimony, cadmium, chromium, copper, and vanadium exceeded the screening criteria based on the ORNL RSLs but were less than RIDEM DECs. Concentrations of vanadium appear to be within site background levels and are not considered to be site related (Appendix F). Although present at naturally occurring levels, vanadium was carried through the HHRA in accordance with EPA guidance, and the risk associated with this chemical is discussed in Section 6.4.

A comparison of maximum detected surface soil concentrations to EPA SSLs for chemical migration from soil to groundwater and RIDEM GA leachability criteria is presented in Table 6-5. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for migration from soil to groundwater and were retained as COPCs for the exposed area surface soil at Site 08:

- VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, acetone, benzene, methylene chloride, TCE and total xylenes).
- SVOCs [2-methylnaphthalene, 3,3'-dichlorobenzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl) phthalate, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and n-nitrosodiphenylamine].
- Pesticides/PCBs (4,4'-DDE, 4,4'-DDT, alpha-chlordane, Aroclor-1254, Aroclor-1260, Aroclor-1268, dieldrin, and heptachlor).
- Metals (antimony, arsenic, cadmium, chromium, cobalt, copper, iron, manganese, mercury, molybdenum, silver, and thallium).
- Extractable TPH.

Only TPH was detected at concentrations exceeding RIDEM GA leachability criteria. Methylene chloride, 2-methylnaphthalene, 3,3'-dichlorobenzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, n-nitrosodiphenylamine, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, Aroclor-1254, Aroclor-1260, Aroclor-1268, heptachlor, and cadmium were not detected in groundwater samples collected at Site 08. Concentrations of mercury appear to be within site background levels and are not considered to be site related (Appendix F).

There are no COPC screening criteria available for 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, carbazole, and dibenzofuran. The uncertainty associated with the lack of screening criteria for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

6.1.3.2 Exposed (Non-Paved) Area Subsurface Soil (Greater than 2 Feet)

Sixteen VOCs, 32 SVOCs, 12 pesticides/PCBs, 24 inorganics, and extractable TPH were detected in exposed area subsurface soil at Site 08. A comparison of maximum detected subsurface soil concentrations to screening levels based on the ORNL RSLs and RIDEM DECs for residential exposure is presented in Table 6-6. The following chemicals were detected at maximum concentrations exceeding direct contact risk-based COPC screening levels and were retained as COPCs for subsurface soil in the exposed area at Site 08:

- SVOCs [acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene].
- Pesticides/PCBs (Aroclor-1248, Aroclor-1260, Aroclor-1268, and total Aroclors).

- Inorganics (aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, thallium, vanadium, and zinc).
- Extractable TPH.

The maximum detected concentrations of acenaphthene, benzo(g,h,i)perylene, aluminum, antimony, beryllium, cadmium, chromium, copper, iron, manganese, molybdenum, thallium, vanadium, and zinc exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of anthracene and beryllium exceeded RIDEM DECs but were less than screening criteria based on ORNL RSLs. Concentrations of Aroclor-1248¸ Aroclor-1260, Aroclor-1268, antimony, cadmium, chromium, and copper exceeded screening criteria based on ORNL RSLs but were less the RIDEM DECs. Concentrations of beryllium, manganese, and thallium appear to be within site background levels and are not considered to be site related (Appendix F). Although present at naturally occurring levels, these chemicals were carried through the HHRA in accordance with EPA guidance, and the risks associated with these chemicals are further discussed in Section 6.4.

A comparison of maximum detected subsurface soil concentrations to EPA SSLs for chemical migration from soil to groundwater and RIDEM GA leachability criteria is presented in Table 6-7. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for migration from soil to groundwater and were retained as COPCs for exposed area subsurface soil at Site 08:

- VOCs (1,2,4-trimethylbenzene, methylene chloride, PCE, and TCE).
- SVOCs [2,4-dinitrophenol, 2-methylnaphthalene, 3&4-methylphenol, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, 4-nitroaniline, acenaphthene¸ anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl) phthalate, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, and pyrene].
- Pesticides/PCBs (4,4'-DDT, Aroclor-1248¸ Aroclor-1254, Aroclor-1260, Aroclor-1268, and heptachlor).
- Metals (antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, manganese, molybdenum, nickel, silver, thallium, and zinc).
- Extractable TPH.

Benzo(a)pyrene, naphthalene, and petroleum hydrocarbons were the only chemicals detected at concentrations exceeding RIDEM GA leachability criteria. Methylene chloride, 4-nitroaniline, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, pyrene, 4,4'-DDT, Aroclor-1248¸ Aroclor-1254, Aroclor-1260, Aroclor-

1268, heptachlor, and cadmium were not detected in groundwater samples collected at Site 08. Concentrations of manganese, silver, and thallium appear to be within site background levels and are not considered to be site related (Appendix F).

There are no COPC screening criteria available for 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, carbazole, dibenzofuran, tert-butylbenzene, and 4-nitrophenol. The uncertainty associated with the lack of screening criteria for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

6.1.3.3 Paved Area Surface Soil (0 to 2 Feet)

Fourteen VOCs, 20 SVOCs, 7 pesticides/PCBs, 23 inorganics, and extractable TPH were detected in surface soil samples collected in the paved area. A comparison of maximum detected surface soil concentrations to screening levels based on ORNL RSLs and RIDEM DECs for residential exposure is presented in Table 6-8. The following chemicals were detected at maximum concentrations exceeding the direct contact risk-based COPC screening levels and were retained as COPCs for surface soil in the paved area at Site 08:

- SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene].
- Inorganics (aluminum, arsenic, beryllium, chromium, cobalt, iron, and manganese).
- Extractable TPH.

The maximum detected concentrations of aluminum, beryllium, chromium, iron, and manganese exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of benzo(g,h,i)perylene, chrysene, and beryllium exceeded RIDEM DECs but were less than screening criteria based on ORNL RSLs. Concentrations of chromium exceeded screening criteria based on ORNL RSLs but were less RIDEM DECs.

A comparison of the maximum detected surface soil concentrations to EPA SSLs for chemical migration from soil to groundwater and RIDEM GA leachability criteria is presented in Table 6-9. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for migration from soil to groundwater and were retained as COPCs for the paved area surface soil at Site 08:

- VOCs (chloroform, ethylbenzene, PCE, and TCE).
- SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene].
- Pesticides/PCBs (Aroclor-1248, Aroclor-1260, and Aroclor-1268).

- Metals (arsenic, chromium, cobalt, iron, manganese, and thallium).
- Extractable TPH.

Petroleum hydrocarbons were the only chemicals detected at concentrations exceeding RIDEM GA leachability criteria. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, Aroclor-1248, Aroclor-1260, and Aroclor-1268 were not detected in groundwater samples collected at Site 08.

There are no COPC screening criteria available for sec-butylbenzene, tert-butylbenzene, carbazole, and dibenzofuran. The uncertainty associated with the lack of screening criteria for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

6.1.3.4 Paved Area Subsurface Soil (Greater than 2 Feet)

Nineteen VOCs, 19 SVOCs, 6 pesticides/PCBs, 24 inorganics, and extractable TPH were detected in subsurface soil samples collected in the paved area at Site 08. A comparison of maximum detected subsurface soil concentrations to screening levels based on ORNL RSLs and RIDEM DECs for residential exposure is presented in Table 6-10. The following chemicals were detected at maximum concentrations exceeding the direct contact risk-based COPC screening levels and were retained as COPCs for subsurface soil in the paved area at Site 08:

- VOCs (1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene).
- SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene].
- Pesticides/PCBs [Aroclor-1260 and total Aroclors].
- Inorganics (aluminum, arsenic, beryllium, chromium, cobalt, iron, lead, and manganese).
- Extractable TPH.

The maximum detected concentrations of 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, aluminum, beryllium, chromium, cobalt, and iron exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of benzo(g,h,i)perylene, chrysene, beryllium, and lead exceeded RIDEM DECs but were less than screening criteria based on ORNL RSLs. Concentrations of Aroclor-1260 and chromium exceeded screening criteria based on ORNL RSLs but were less RIDEM DECs. Concentrations of beryllium and manganese appear to be within site background levels and are not considered to be site-related (Appendix F). Although present at naturally occurring levels, these chemicals were carried through the HHRA in accordance with EPA guidance, and the risks associated with these chemicals are further discussed in Section 6.4.

A comparison of maximum detected subsurface soil concentrations to EPA SSLs for chemical migration from soil to groundwater and RIDEM GA leachability criteria is presented in Table 6-11. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for migration from soil to groundwater and were retained as COPCs for exposed area subsurface soil at Site 08:

- VOCs [1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, isopropylbenzene, methylene chloride, PCE, TCE, vinyl chloride (VC).]
- SVOCs [2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene].
- Pesticides/PCBs (Aroclor-1260 and toxaphene).
- Metals (arsenic, chromium, cobalt, iron, manganese, selenium, and thallium).
- Extractable TPH.

Only extractable TPH was detected at concentrations exceeding RIDEM GA leachability criteria. 2-Methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, Aroclor-1260, and toxaphene were not detected in groundwater samples collected at Site 08.

There are no COPC screening criteria available for sec-butylbenzene, tert-butylbenzene, 4-isopropyltoluene, n-butylbenzene, and n-propylbenzene. The uncertainty associated with the lack of screening criteria for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

6.1.3.5 Overburden-Bedrock Interface Groundwater

Seven VOCs, 3 SVOCs, dieldrin, 20 inorganics, nitrate, nitrite, and extractable TPH were detected in groundwater samples collected from the overburden-bedrock interface zone at Site 08. A comparison of maximum detected groundwater concentrations to screening levels based on ORNL RSLs for tap water, EPA MCLs, and RIDEM GA groundwater objectives is presented in Table 6-12. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for overburden-bedrock interface groundwater at Site 08:

- VOCs (PCE).
- Pesticides/PCBs (dieldrin).
- Total inorganics (aluminum, arsenic, barium, beryllium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, vanadium, and zinc).
- Filtered inorganics (aluminum, arsenic, cobalt, iron, lead, and manganese).

Concentrations of total barium, beryllium, copper, mercury, molybdenum, and zinc and filtered aluminum and cobalt exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of PCE, total barium, and total mercury exceeded ORNL RSLs but were less than EPA MCLs and/or RIDEM GA groundwater objectives. Consequently, ORNL RSLs should be viewed as conservative screening levels used for COPC selection, not COC determination. Maximum detected concentrations of inorganics were in the groundwater samples collected from MW-103S. The groundwater sample from this location was highly turbid. The concentrations of filtered inorganics in this sample were significantly less than unfiltered concentrations. This suggests that the highly elevated concentrations of inorganics in this sample are associated with particulates in the groundwater sample.

A comparison of maximum detected groundwater VOC concentrations to EPA screening levels for chemical migration from groundwater through building foundations and into indoor air is presented in Table 6-13. PCE was the only chemical detected at maximum concentrations exceeding the COPC screening levels and retained as a COPC for groundwater at Site 08:

6.1.3.6 Bedrock Groundwater

Twenty-nine VOCs, 2 SVOCs, 21 inorganics, nitrate, nitrite, and extractable TPH were detected in samples collected from the bedrock groundwater at Site 08. A comparison of maximum detected groundwater concentrations to screening levels based on ORNL RSLs for tap water, EPA MCLs, and RIDEM GA groundwater objectives is presented in Table 6-14. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for bedrock groundwater at Site 08:

- VOCs (1,1-DCA, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, bromomethane, carbon tetrachloride, chloroform, chloromethane, ethylbenzene, isopropylbenzene, PCE, total xylenes, TCE, and VC).
- SVOCs [benzo(k)fluoranthene].
- Total inorganics (aluminum, arsenic, cobalt, iron, manganese, and thallium).
- Filtered inorganics (aluminum, arsenic, cobalt, iron, and manganese).

Concentrations of bromomethane, isopropylbenzene, total xylenes, and thallium exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of carbon tetrachloride, chloroform, and ethylbenzene exceeded ORNL RSLs but were less than EPA MCLs and/or RIDEM GA groundwater objectives. Consequently, ORNL RSLs should be viewed as conservative screening levels used for COPC selection, not COC determination.

A comparison of maximum detected groundwater VOC concentrations to EPA screening levels for chemical migration from groundwater through building foundations and into indoor air is presented in Table 6-15. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for bedrock groundwater at Site 08:

- VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, carbon tetrachloride, chloroform, chloromethane, ethylbenzene, isopropylbenzene, PCE, TCE, and VC).

There are no COPC screening criteria available for 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and tert-butylbenzene. The uncertainty associated with the lack of screening criteria for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

6.1.3.7 Surface Water

Seven VOCs, bis(2-ethylhexyl) phthalate, 3 pesticides, and 19 inorganics were detected in surface water samples collected at Site 08. A comparison of maximum detected surface water concentrations to screening levels based on ORNL RSLs for tap water, EPA MCLs, and RIDEM GA groundwater objectives is presented in Table 6-16. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for surface water at Site 08:

- Pesticides/PCBs (dieldrin).
- Total inorganics (aluminum, arsenic, cobalt, iron, manganese, molybdenum, and thallium).
- Filtered inorganics (aluminum, arsenic, cobalt, iron, manganese, and molybdenum).

Concentrations of total cobalt, manganese, and molybdenum and filtered cobalt, manganese, and molybdenum exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of total and filtered arsenic exceeded ORNL RSLs but were less than EPA MCLs and/or RIDEM GA groundwater objectives. Concentrations of aluminum and iron only exceed secondary MCLs (SMCLs).

6.1.3.8 Sediments

Twelve VOCs, 24 SVOCs, 8 pesticides/PCBs, 22 inorganics, and extractable TPH were detected in sediment samples collected at Site 08. A comparison of maximum detected concentrations to screening levels based on ORNL RSLs and RIDEM DECs for residential exposure is presented in Table 6-17. The following chemicals were detected at maximum concentrations exceeding the direct contact risk-based COPC screening levels and were retained as COPCs for sediments at Site 08:

- SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene].
- Pesticides/PCBs (Aroclor-1260, dieldrin, and total Aroclors).
- Inorganics (aluminum, arsenic, beryllium, chromium, cobalt, iron, lead, manganese, and vanadium).
- Extractable TPH.

The maximum detected concentrations of aluminum, beryllium, chromium, iron, and vanadium exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs. Concentrations of benzo(g,h,i)perylene, chrysene, and beryllium exceeded RIDEM DECs but were less than screening criteria based on ORNL RSLs. Concentrations of dibenzo(ah)anthracene, Aroclor-1260, chromium, and vanadium exceeded screening criteria based on ORNL RSLs but were less than RIDEM DECs.

There are no COPC screening criteria available for 4-isopropyltoluene, carbazole, and dibenzofuran. The uncertainty associated with the lack of screening criteria for these chemicals is discussed in Section 6.5.1 in the Uncertainty Analysis.

6.1.3.9 Fish

Nine pesticides/PCBs and 19 inorganics were detected in fish fillet samples collected at Site 08. A comparison of maximum detected concentrations to screening levels based on the EPA Region 3 screening levels for fish tissue is presented in Table 6-18. The following chemicals were detected at maximum concentrations exceeding the risk-based COPC screening levels and were retained as COPCs for fish tissue at Site 08:

- Pesticides/PCBs (4,4'-DDE, 4,4'-DDT, aldrin, Aroclor-1254, Aroclor-1260, dieldrin, and total Aroclors).
- Inorganics (arsenic, chromium, and mercury).

The maximum detected concentrations of chromium and mercury exceeded screening toxicity levels (set at an HI of 0.1) but did not exceed ORNL RSLs.

6.1.3.10 Summary

Table 6-19 summarizes the chemicals retained as COPCs for soil, groundwater, surface water, sediment, and fish tissue at the Site 08. RAGS Part D tables for COPC selection are included in Appendix H.1.

6.2 EXPOSURE ASSESSMENT

The exposure assessment portion of the risk assessment defines and evaluates, quantitatively or qualitatively, the type and magnitude of human exposure to the chemicals present at or migrating from a site. The exposure assessment is designed to depict the physical setting of the site, to identify potentially exposed populations and applicable exposure pathways, to calculate concentrations of COPCs to which receptors might be exposed, and to estimate chemical intakes under the identified exposure scenarios.

Actual or potential exposures at Site 08 were determined based on the most likely pathways of contaminant release and transport, as well as human activity patterns. A complete exposure pathway has three components: a source of chemicals that can be released to the environment, a route of contaminant transport through an environmental medium, and an exposure or contact point for a human receptor.

6.2.1 Conceptual Site Model

A conceptual site model (CSM) facilitates consistent and comprehensive evaluation of potential risks to human health by creating a framework for identifying the pathways by which human receptors may come in contact with environmental media contaminated by site activities. A CSM depicts the relationships among the following elements, which are necessary for defining complete exposure pathways:

- Site sources of contamination
- Contaminant release mechanisms and transport/migration pathways
- Exposure routes
- Potential receptors

The elements of the CSM (contaminant source, release mechanisms, transport/migration pathways, exposure routes, and potential receptors) establish the manner and degree to which a potential receptor may be exposed to chemicals present at the site. The degree of risk incurred by a potential receptor varies according to the means of exposure, the duration of exposure, and the specific chemical to which the receptor is exposed. An exposure, however long in duration, does not necessarily result in an “unacceptable” health or environmental risk, although risks generally increase with increased frequency and/or duration of exposure.

The elements of the CSM, including how they pertain to Site 08, are discussed below. Sources of contamination, contaminant release mechanisms, transport and migration pathways, exposure routes, and potential receptors are defined. Table 6-20 provides a site-specific summary of the potential

receptors evaluated for Site 08. A summary of the exposure routes addressed quantitatively for each human receptor is provided in Table 6-21.

6.2.1.1 Site Sources of Environmental Contamination

Summarizing from the site history information presented in Section 1, the uplands portion of Site 08 was used for materials/equipment disposal and storage since the Navy began operating there in the early 1950s. Reportedly, Site 08 was used for the disposal of scrap lumber, tires, wire, cable, and empty paint cans. There were also historical operations at Site 08 that had the potential to generate hazardous materials. These operations included industrial plating, anodizing, and chemical cleaning within Building 1170 (located approximately 200 feet southwest of the site) and PCB storage at an unnamed location. However, the available information does not indicate that materials associated with these operations were disposed at Site 08. Also, the Building 185 complex, located in the southeastern portion of Site 08, is a possible source of contaminants. Building 185 is a series of four open sheds that were used for storage of flammable materials. Otto Fuel, a highly flammable material composed largely of propylene glycol dinitrate (PGDN) and used for fueling torpedoes, is also stored in this area. During the RI it was determined that a release of Otto Fuel had occurred in the Building 185 complex area.

6.2.1.2 Potential Contaminant Release Mechanisms and Transport/Migration Pathways

Past operations at Site 08 have resulted in the release of contaminants to surface and subsurface soil. These contaminants have been (or may be) transported to adjoining soil and other environmental media (groundwater, surface water, sediment, and air) by the following mechanisms:

- Surface water/sediment runoff. The topography of Site 08 is highly variable. The site can be physically characterized as an elevated stream embankment area bordering Deerfield Creek to the southwest. A second small unnamed stream flows through the northern section of the site to Deerfield Creek in an east-west direction. Deerfield Creek discharges into NUWC Pond located at the northwestern end of the site, which in turn, discharges through a culvert into Narragansett Bay. During precipitation events, surface water discharges to the two streams and to the pond. Prior to the RI when approximately 2 acres of the Site were cleared of brush, grasses and thick vegetation covered approximately 70 percent of the site. There is a paved area located in the southeastern portion of the site that limits the potential for sediment runoff.

- Surface soil contaminant transport via wind erosion and vaporization. Chemicals adsorbed to surface soil particulates at Site 08 may be transported off site by wind erosion. The particulates (fugitive dusts) may then be deposited off-site if the grain size is small enough and the wind speed is

great enough. Additionally, contaminants may be released from soil by volatilization if present at significant concentrations. However, as noted above, the site is mostly vegetated and portions are paved. This significantly limits the potential for airborne emissions from the site.

- Downward migration to and transport with groundwater. The groundwater underlying Site 08 is primarily recharged through infiltration of precipitation and subsurface flow from upgradient/adjacent areas. This allows for migration of contaminants downward through the buried wastes/soil column to the shallow groundwater. Shallow groundwater at the site discharges to streams and pond. Consequently, soil contaminants may further migrate through groundwater and discharge to in streams and pond where contaminants may impact surface water, sediment, and fish.

6.2.1.3 Potential Current and Future Receptors of Concern and Exposure Pathways

The baseline HHRA prepared for Site 08 considered receptor exposure under residential and non-residential (e.g., industrial, recreational) land-use scenarios. Based on current and potential/hypothetical future land use, the following potential receptors may be exposed to contaminated environmental media at Site 08:

- **Construction Workers** – A plausible on-site receptor under future land use. Construction workers could be exposed to soil (0 to 10 feet bgs) (incidental ingestion; dermal contact), shallow groundwater (incidental ingestion; dermal contact), as well as airborne contaminants emanating from these media (inhalation).

- **Industrial Worker** – A plausible receptor under current and future land use. This receptor could be directly exposed to soil (0 to 10 feet bgs, or if shallower, to soil to the top of the water table)(incidental ingestion; dermal contact) and airborne particulates and vapors from surface or shallow subsurface soil (inhalation). If this receptor worked in a hypothetical on-site structure, it is also plausible that this receptor could be exposed to VOCs migrating from contaminated subsurface soil or groundwater to the indoor air of a building.

- **Adolescent Trespasser** – A plausible receptor under current and future land use. A trespasser may be exposed to potentially contaminated surface soil (0 to 1 feet bgs) (incidental ingestion; dermal contact), air (inhalation), sediment in streams and shallow areas of the pond (incidental ingestion; dermal contact), and surface water in the streams and shallow areas of the pond (dermal contact). Direct contact with groundwater or subsurface soil is not anticipated for this receptor.

- **Child and Adult Recreational Users** – A plausible receptor under current and future land use. Recreational users are individuals using the site for passive recreation including walking, hiking, picnicking, or hunting. A recreational user may be exposed to potentially contaminated surface soil (0 to 2 feet bgs) (incidental ingestion; dermal contact), air (inhalation), sediment in streams and shallow areas of the pond (incidental ingestion; dermal contact), and surface water in the streams and shallow areas of the pond (dermal contact). Direct contact with groundwater or subsurface soil is not anticipated for this receptor. Receptor exposure to subsurface soil would only occur if subsurface soil was excavated and deposited on existing surface soil. Although this is an unlikely scenario, it is included in this HHRA for purposes of completeness and to assist the risk managers regarding the need for land use controls. Recreational users may also be exposed through ingestion of fish from the pond. The population of fish within the pond is insufficient to support subsistence level fishing.

- **Future Child and Adult Residents** – Given the anticipated future land use for much of Site 08 (commercial/industrial), residents are a very unlikely future receptor. However, the hypothetical future residential scenario is typically evaluated in a risk assessment for decision-making purposes. For example, the need for deed restrictions at a site may be eliminated prior to site closure if minimal risks are estimated for residential receptors. It is assumed that a hypothetical resident may be exposed to soil (0 to 10 feet bgs), groundwater (ingestion; dermal contact), and air (inhalation). Also, hypothetical residents could be exposed to VOCs migrating from contaminated subsurface soil or groundwater to the indoor air of a home. Receptor exposure to subsurface soil would only occur if subsurface soil was excavated and deposited on existing surface soil. Although this is an unlikely scenario, it is included in this HHRA for purposes of completeness and to assist the risk managers regarding the need for deed restrictions.

6.2.2 Central Tendency Exposure versus Reasonable Maximum Exposure

Traditionally, exposures evaluated in an HHRA were based on the concept of a reasonable maximum exposure (RME) only, which is defined as "the maximum exposure that is reasonably expected to occur at a site" (USEPA, 1989). However, subsequent risk assessment guidance (USEPA, 1992) indicates the need to address an average case or central tendency exposure (CTE).

To provide a full characterization of potential exposure, both RME and CTE scenarios were evaluated in the HHRA for Site 08. The available guidance (USEPA, 1993) concerning the evaluation of CTE is limited; therefore, professional judgment was exercised when defining CTE conditions for a particular receptor at the site.

6.2.3 Exposure Point Concentrations

The exposure point concentration (EPC), which is calculated for COPCs only (both site related and non-site related [i.e., naturally occurring/non-site-related anthropogenic chemicals]), is an estimate of the chemical concentration within an exposure unit (EU); the EPC is used to estimate exposure intakes. An EU is the area over which receptor activity is expected to occur. The following paragraphs discuss the EUs evaluated in this HHRA and the guidelines for calculating EPCs.

Two EUs were evaluated for soil. The exposed (currently unpaved) area was considered one EU. However, it was also assumed that in the future, the pavement in the southeastern portion of the site might be removed, exposing the soil beneath it. Consequently, the paved area was also considered to be an EU. Surface soil and subsurface soil were evaluated separately for each EU. Groundwater, surface water, and sediment samples were evaluated as one EU.

The following guidelines were used to calculate EPCs:

- For soil and sediment, the 95-percent upper confidence limit (UCL) on the arithmetic mean, which was based on the distribution of the data set, was selected as the EPC. EPCs were calculated following EPA's Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002) and using EPA's ProUCL software (USEPA, 2007).

- For groundwater, in accordance with the EPA New England Risk Updates (1995) maximum groundwater concentrations were used as EPCs for the RME scenario and average groundwater concentrations were used as EPCs for the CTE scenario.

- Non-detected values were evaluated in accordance with the ProUCL guidance. Duplicates were averaged for purposes of calculating EPCs for COPCs in environmental media at Site 08.

In accordance with EPA guidance for the Integrated Exposure Uptake Biokinetic (IEUBK) Model (USEPA, 1994) and the Technical Review Workgroup (TRW) for Lead Adult Lead Model (USEPA, 2003), average lead concentrations were used to estimate blood-lead levels from exposure to lead. This is because the first step in the model calculations is the development of a central estimate of blood-lead concentrations, which requires an "appropriate average concentration" for an exposed individual.

Table 6-22 summarizes the EPCs used in this HHRA. Appendix H.3 lists the samples that were used in the calculation of the EPCs. ProUCL Outputs are included in Appendix H.4. RAGS Part D Tables for the EPCs are presented in Appendix H.1.

6.2.4 Chemical Intake Estimation

The methodologies and techniques used to estimate exposure intakes are presented in this section. Intakes for the identified potential receptor groups were calculated using current EPA risk assessment guidance and are presented in the risk assessment spreadsheets. Risk assessment results are presented using EPA RAGS Part D table format. Assumptions regarding exposure are presented in Tables 6-23 and 6-24 for the RME and CTE scenarios, respectively.

Non-carcinogenic intakes were estimated using the concept of an average annual exposure. Carcinogenic intakes were calculated as incremental lifetime exposures, which assume a life expectancy of 70 years. The exposure assumptions reflect current EPA guidance. The majority of the exposure assumptions used to estimate chemical intakes were based on default assumptions described in several EPA guidance documents (e.g., USEPA 1989, 1991, 1993, 1997, and 2004) and RIDEM guidance (2004). The RIDEM guidance only contains exposure assumptions for industrial workers and residents exposed to soil via incidental ingestion and inhalation routes of exposure. RIDEM does not have default exposure assumptions for construction workers, trespassers, or recreational users. The following paragraphs discuss the non-default receptor-specific exposure assumptions used in the risk assessment.

6.2.4.1 Incidental Ingestion of Soil and Sediment

Direct physical contact with soil or sediment at Site 08 may result in the incidental ingestion of chemicals. Chemical intake for the incidental ingestion of soil and sediment is estimated in the following manner (USEPA, 1989):

$$\text{Intake} = \frac{(C_s)(IR)(FI)(EF)(ED)(CF)}{(BW)(AT)}$$

where:

Intake	=	intake of chemical from soil/sediment (mg/kg/day)
C_s	=	concentration of chemical in soil/sediment (mg/kg)
IR	=	ingestion rate (mg/day)
FI	=	fraction ingested from contaminated source (dimensionless)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
CF	=	conversion factor (1×10^{-6} kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days);

for non-carcinogens, AT = ED x 365 days/yr
for carcinogens, AT = 70 yr x 365 days/yr

Most of the exposure assumptions used to estimate chemical intakes from incidental ingestion of soil were based on default assumptions described in standard EPA guidance and are summarized in Tables 6-23 and 6-24. The following paragraphs briefly discuss the non-default receptor-specific exposure assumptions for incidental ingestion of soil that were used in the HHRA.

The selected exposure frequency assumptions consider anticipated receptor activities at Site 08. It is assumed that construction workers assigned to future excavation projects at Site 08 are exposed to soil for 5 days a week over 6 months (130 days a year) for 1 year under the RME scenario, and 2 days a week over 6 months (52 days a year) for 1 year under the CTE scenario. It is assumed that recreational users and adolescent trespassers are exposed to soil for 4 days per week over 12 weeks (48 days a year) and 2 days a week over 12 weeks (24 days a year) under the RME and CTE scenarios, respectively.

6.2.4.2 Dermal Contact with Soil and Sediment

Direct physical contact with soil or sediment may result in the dermal absorption of chemicals. Exposure associated with dermal contact with soil or sediment is estimated in the following manner (USEPA, 1989):

$$\text{Intake} = \frac{(C_{si})(SA)(AF)(ABS)(CF)(EF)(ED)}{(BW)(AT)}$$

where:

Intake	=	amount of chemical absorbed during contact with soil/sediment (mg/kg/day)
C_s	=	concentration of chemical in soil/sediment (mg/kg)
SA	=	skin surface area available for contact (cm^2/day)
AF	=	skin adherence factor (mg/cm^2)
ABS	=	absorption factor (dimensionless)
CF	=	conversion factor (1×10^{-6} kg/mg)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (year)
BW	=	body weight (kg)
AT	=	averaging time (days); for non-carcinogens, AT = ED x 365 days/year for carcinogens, AT = 70 years x 365 days/year

Most of the exposure assumptions used to estimate chemical intakes from dermal contact with soil were based on the default assumptions described in standard EPA guidance and are summarized in Tables 6-23 and 6-24. The following paragraphs briefly discuss non-default receptor-specific exposure assumptions for dermal contact with soil that were used in the HHRA.

The exposed skin surface areas of the body available for dermal contact with soil were determined on a receptor-specific basis because they correspond with assumed human activities and clothing worn during exposure events. With the exception of the skin surface area recommended for adult recreational users exposed to sediment and adolescent trespassers exposed to soil and sediment, all of the skin surface areas presented in Tables 6-23 and 6-24 are based on EPA default values. Current guidance (USEPA 1997 and 2004) was used to develop the skin surface area available for contact for the adolescent trespasser as follows:

- For adult recreational users, the skin surface area available for sediment contact is 6,880 cm^2 (which assumes that the head, forearms, hands, lower legs, and feet are exposed).
- For the adolescent trespasser, the skin surface area available for soil and sediment contact is 4,050 cm^2 (which assumes that the forearms, hands, lower legs, and feet are exposed).

A summary of the receptor-specific input values used to estimate chemical intakes from dermal contact with soil are presented in Tables 6-23 and 6-24 for RME and CTE exposure scenarios, respectively. The same exposure frequencies and durations recommended for the evaluation of incidental ingestion of soil were used to estimate chemical intakes for dermal contact with soil. The soil adherence factors presented are those in Exhibits 3.3 and 3.5 of RAGS Part E. To the extent possible, chemical-specific dermal absorption factors provided in RAGS Part E were used to evaluate the COPCs for soil. However, dermal absorption factors are only available for the short list of chemicals in Exhibit 3-4 of RAGS Part E. RAGS Part E recommends a dermal absorption faction of zero for volatiles because volatile organic compounds tend to volatilize from soil on skin and should be accounted for via the inhalation route. Also as indicated in RAGS Part E, absorption factors for metals other than arsenic and cadmium have not been developed due to insufficient data to support default values. Therefore, ABS was set equal to zero for these chemicals and risks from dermal absorption of metals other than arsenic and cadmium from soil were not quantified in this risk assessment. The uncertainty associated with the omission of these constituents is discussed in the uncertainty analysis. Dermal adsorption values used in this HHRA are presented in Table 6-25.

6.2.4.3 Inhalation of Air Containing Fugitive Dust/Volatiles Emitted from Soil

Intakes of both particulates and vapors/gases were calculated using the same equation, as follows (EPA, 2009):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{AT}$$

where:

EC	=	exposure concentration (mg/m^3)
C_{air}	=	concentration of chemical in air (mg/m^3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
AT	=	averaging time (hours);
	=	for non-carcinogens, AT = ED x 365 days/yr x 24 hours/day
	=	for carcinogens, AT = 70 yr x 365 days/yr x 24 hours/day

Some of the exposure assumptions used to estimate chemical intakes from inhalation of fugitive dusts/volatile emissions from surface and subsurface soil were based on default assumptions described in standard EPA guidance and are summarized in Tables 6-23 and 6-24. The same exposure frequencies and durations used to estimate incidental ingestion of soil intakes were used to estimate exposure via inhalation of fugitive dust/volatile emissions for surface and subsurface soil.

The concentrations of chemicals in air resulting from emissions from soil are developed following procedures presented in EPA Soil Screening Guidance (USEPA, 2002). Chemical concentrations in air were calculated as follows:

$$C_{air} = C_{soil} \times \left[\frac{1}{PEF} + \frac{1}{VF}\right]$$

where:

C_{air}	=	chemical concentration in air (mg/m^3)
C_s	=	chemical concentration in soil (mg/kg)
PEF	=	Particulate emission factor (m^3/kg)
VF	=	volatilization factor (m^3/k)

The particulate emissions factor (PEF) relates the concentration of the chemical in soil to the concentration of dust particles in air. A PEF value of 1.1 x 10^{+10} m^3/kg was obtained from EPA's Soil

Screening Internet site at http://rais.ornl.gov/epa/ssl1.shtml. This is the default value for Hartford, Connecticut, which is the closest city to Site 08 listed on the Internet site. Because air emissions resulting from fugitive dust emissions settings will be different than dust emissions generated during construction activities, a separate PEF was used for construction activities. The PEF for construction workers (1.62 x 10^{+6} m^3/kg) was calculated using the equations presented in the supplemental SSL guidance document (USEPA, 2002). Sample PEF calculations were calculated are presented in Appendix H.5.

Ambient air concentrations resulting from the volatilization of COPCs from soil are chemical dependent and were calculated using the following equation from EPA's Soil Screening Guidance:

$$VF = \frac{Q/C \; x \; (3.14 \; x \; D_a \; x \; T)^{0.5} \; x \; 10^{-4} \; (m^2/cm^2)}{(2 \; x \; \rho_b \; x \; D_a)}$$

and

$$D_a = \frac{[(\theta_a^{10/3} \; x \; D_i \; x \; H' + \theta_w^{10/3} \; x \; D_w)/n^2]}{\rho_b \; x \; K_d + \theta_w + \theta_a \; x \; H'}$$

where:

VF = volatilization factor (m^3-air/kg-soil)
Q/C = inverse of the mean concentration at the center of the source (gm/m^2-sec per kg/m^3)
D_a = apparent diffusivity, chemical specific (cm^2/sec)
T = exposure interval, exposure specific (sec)
ρ_b = dry bulk soil particle density (g/cm^3)
θ_a = air-filled soil porosity (L_{air}/L_{soil})
D_i = diffusivity in air, chemical specific (cm^2/sec)
H' = dimensionless Henry's law constant, chemical specific
θ_w = water-filled soil porosity (L_{air}/L_{soil})
D_w = diffusivity in water, chemical specific (cm^2/sec)
n = total soil porosity (L_{pore}/L_{soil})
K_d = soil-water partition coefficient, chemical specific

Chemical properties were obtained from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002) and are presented in Table 6-26. Input assumptions for the calculation of volatilization factors are presented in Table 6-27.

6.2.4.4 Ingestion of Groundwater

Ingestion of groundwater at Site 08 is expected to be limited to exposure that would occur under a future construction and residential scenario. Intakes associated with ingestion of groundwater were evaluated using the following equation (USEPA, 1989b):

$$\text{Intake} = \frac{(C_w)(IR_w)(EF)(ED)}{(BW)(AT)}$$

where:

Intake	=	intake of chemical from groundwater (mg/kg/day)
C_w	=	concentration of chemical in groundwater (mg/L)
IR_w	=	ingestion rate for groundwater (L/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
BW	=	body weight (kg)
AT	=	averaging time (days); for non-carcinogens, AT = ED x 365 days/yr for carcinogens, AT = 70 yrs x 365 days/yr

EPA standard default exposure assumptions were used to evaluate residential exposures to groundwater. The following paragraphs briefly discuss non-default receptor-specific exposure assumptions for incidental ingestion of surface water that were used in the HHRA.

No receptor-or activity-specific information was available to estimate incidental ingestion rates for construction workers exposed to groundwater. Therefore, incidental ingestion rates of 0.05 liter per hour (L/hr) and 0.025 L/hr were assumed for the RME and CTE scenarios, respectively.

A summary of the receptor-specific input values used to estimate chemical intakes from ingestion of groundwater are presented in Tables 6-23 and 6-24 for RME and CTE exposure scenarios, respectively.

6.2.4.5 Dermal Contact with Groundwater and Surface Water

The same equation was used to estimate intakes for dermal contact with groundwater and surface water. Hypothetical future residential receptors were assumed to use groundwater for domestic purposes (i.e., bathing, showering, and dish washing) that can result in dermal exposure. Short-term dermal exposure was assumed to occur for the construction worker during excavation activities. Recreational users and

adolescent trespassers may have dermal contact with surface water while wading in the streams or shallow areas of the pond at Site 08. The following equation was used to assess exposures resulting from dermal contact with groundwater and surface water (USEPA, 2004):

$$DAD = \frac{(DA_{event})(EV)(ED)(EF)(SA)}{(BW)(AT)}$$

where:

DAD	=	dermally absorbed dose of chemical from water (mg/kg/day)
DA_{event}	=	dermally absorbed dose per event (mg/cm^2-event)
EV	=	event frequency (events/day)
ED	=	exposure duration (yr)
EF	=	exposure frequency (days/yr)
SA	=	skin surface area available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days); for non-carcinogens, AT = ED x 365 days/yr for carcinogens, AT = 70 yrs x 365 days/yr

Most of the exposure assumptions used to estimate chemical intakes from dermal contact with groundwater were based on default assumptions described in standard EPA guidance and are summarized in Tables 6-23 and 6-24.

Dermal intakes for residents assumed total body exposure on a daily basis. For construction workers, recreational users, and adolescent trespassers, the exposed surface area of the body available for contact was based on assumed activities and was similar to the assumptions outlined for dermal contact with soil and sediment.

The absorbed dose per event (DA_{event}) was estimated using a non-steady-state approach for organic compounds and a traditional steady-state approach for inorganics. For organics, the following equations apply:

$$If\ t_{event} < t^*, then:\ DA_{event} = (2)(K_p)(FA)(C_W)(CF)\left(\sqrt{\frac{6\,\tau\,t_{event}}{\pi}}\right)$$

$$If\ t_{event} > t^*, then:\ DA_{event} = (K_p)(FA)(C_W)(CF)\left(\frac{t_{event}}{1+B} + 2\,\tau\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right)$$

where:

t_{event}	=	duration of event (hour/event)

t*	=	time to reach steady-state conditions (hour)
K_p	=	permeability coefficient from water through skin (cm/hour)
FA	=	chemical-specific fraction absorbed (dimensionless)
C_w	=	concentration of chemical in water (mg/L)
τ	=	lag time (hour)
π	=	Pi (dimensionless; equal to 3.1416)
CF	=	conversion factor (0.001 L/cm^3)
B	=	Dimensionless ratio of the permeability of the stratum corneum relative to the permeability across the viable epidermis

Values for the chemical-specific parameters (t*, K_p, FA, τ, and B) were obtained from the current dermal guidance (USEPA, 2004, Exhibit B-3) and are presented in Table 6-25. If published values were not available for a particular compound, they were calculated using equations provided in the EPA dermal guidance. While the dermal guidance provides chemical specific values for PAHs the guidance also recommends that dermal absorption of PAHs in groundwater and surface water not be evaluated quantitatively in a HHRA because such evaluations are outside of the effective predictive domain of the model. Therefore, no chemical-specific parameters are included in Table 6-25 for PAHs and dermal exposures to PAHs in water were not evaluated in this HHRA.

The following steady-state equation was used to estimate DA_{event} for inorganics:

$$DA_{event} = (K_p)(C_{wi})(t_{event})$$

The dermal permeability coefficient (K_p) values recommended in the EPA dermal guidance (USEPA, July 2004) were used to calculate DA_{event} for inorganic COPCs.

6.2.4.6 Inhalation of Volatiles in Groundwater

Groundwater exposure may also result in chemical intake through inhalation if the water resource is used as a domestic water supply or is exposed during construction activities and VOCs are present in the groundwater. This exposure route is plausible for residential receptors that may be exposed while showering, bathing, washing dishes, etc. and for construction workers contacting shallow groundwater during excavation activities. Per EPA Region I risk assessment protocol (1999), it was assumed that the risk resulting from a showering exposure is equivalent to the risk from ingestion of 2 liters of water. Inhalation exposures for the construction worker were estimated using an air intake estimation model.

For construction workers, chemical intakes from inhalation exposure due to the volatilization of COPCs in groundwater were estimated in the following manner (USEPA, 2009):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{AT}$$

where:

EC	=	exposure concentration (mg/m^3)
C_{air}	=	concentration of chemical in air (mg/m^3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
AT	=	averaging time (hours)
	=	for non-carcinogens, AT = ED x 365 days/yr x 24 hours/day
	=	for carcinogens, AT = 70 yr x 365 days/yr x 24 hours/day

Construction workers may be exposed to COPCs that have volatilized from groundwater when excavation exposes the shallow water table. The same exposure frequency and exposure time used to estimate intake from dermal contact with groundwater were used to evaluate intake from inhalation of VOCs from groundwater during construction activities.

There are no well-established models available for estimating migration of volatiles from groundwater into a construction/utility trench. To estimate EPCs for air in a construction trench, the HHRA used an approach suggested by the Virginia Department of Environmental Quality (VDEQ, 2008) that is based on a combination of a vadose zone model (to estimate volatilization of gases from contaminated groundwater into a trench) and a box model (to estimate dispersion of the contaminants from the air inside the trench into the above-ground atmosphere). The VDEQ methodology is described in the following paragraphs.

The airborne concentration of a contaminant in a trench can be estimated using the following equation:

$$C_{air} = C_{GW} \times VF$$

where:

C_{air} = air concentration of contaminant in the trench ($\mu g/m^3$)

C_{GW} = concentration of contaminant in groundwater ($\mu g/L$)

VF = volatilization factor (L/m^3)

It was assumed that a construction project at the Site could result in an excavation of 15 feet bgs or less. If the depth to groundwater at a site is less than 15 feet, the VDEQ model assumes that a worker would encounter groundwater when digging an excavation or a trench. The worker would then have direct exposure to the groundwater. The worker would also be exposed to contaminants in the air inside the trench that would result from volatilization from the groundwater pooling at the bottom of the trench.

The following equation was used to calculate the volatilization factor (VF) for a trench less than 15 feet deep:

$$VF = (Ki \times A \times F \times 10^{-3} \times 10^{4} \times 3{,}600) / (ACH \times V)$$

where:

Ki	=	overall mass transfer coefficient of contaminant (cm/s)
A	=	area of the trench (m^2)
F	=	fraction of floor through which contaminant can enter (unitless)
ACH	=	air changes per hour (h^{-1}) = 360 h^{-1}
V	=	volume of trench (m^3)
10^{-3}	=	conversion factor (L/cm^3)
10^{4}	=	conversion factor (cm^2/m^2)
3,600	=	conversion factor (seconds/hour)

Studies of urban canyons suggest that if the ratio of trench width, relative to wind direction, relative to trench depth is less than or equal to 1, a circulation cell or cells will be set up within the trench that limits the degree of gas exchange with the atmosphere and, based on measured ventilation rates of buildings, the air changes per hour (ACH) is assumed to be two. Based on the ratio of trench depth to average wind speed, if the ratio of trench width to trench depth is greater than 1, the air exchange between the trench and above-ground atmosphere is not restricted, and the ACH is assumed to be 360. The exposure assessment performed for this HHRA assumed that the width-to-trench depth ratio was greater than 1; therefore, the ACH was set at 360.

K_i was calculated using the following equation:

$$K_i = 1 / \{(1/k_iL) + [(RT) / (H_i\, k_iG)]\}$$

where:

K_i	=	overall mass transfer coefficient of containment (cm/s)
k_iL	=	liquid-phase mass transfer coefficient of i (cm/s)
R	=	ideal gas constant (atm-m^3/mole-°K) = 8.2 x 10^{-5}

T	=	average system absolute temperature (°K) (Default = 298°K)
H_i	=	Henry's Law constant of i (atm-m^3/mole)
k_iG	=	gas-phase mass transfer coefficient of i (cm/s)

The formulas for calculating k_iL and k_iG are as follows:

$$k_iL = (MWO_2/MW_i)^{0.5} \times (T/298) \times kL,O_2$$

where:

k_iL	=	liquid-phase mass transfer coefficient of component i (cm/s)
MWO_2	=	molecular weight of oxygen (g/mole)
MW_i	=	molecular weight of component i (g/mole)
kL,O_2	=	liquid-phase mass transfer coefficient of oxygen at 25°C (cm/s) = 0002 cm/s

$$k_iG = (MWH_2O/MW_i)^{0.335} \times (T/298)^{1.005} \times kG,H_2O$$

where:

k_iG	=	gas-phase mass transfer coefficient of component i (cm/s)
MWH_2O	=	molecular weight of water (g/mole)
kG,H_2O	=	gas-phase mass transfer coefficient of water vapor at 25°C (cm/s)= 0.833 cm/s (USEPA, 1988).

Chemical properties were obtained from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002) and are presented in Table 6-26.

6.2.4.7 Fish Ingestion

The fish consumption exposure pathway was evaluated for child and adult recreational users. Intakes for the fish ingestion exposure route were estimated using the following equation (USEPA, 1989):

$$\text{Intake} = \frac{(C \times IR \times FI \times EF \times ED)}{(BW \times AT)}$$

where:

Intake	=	ingestion intake (mg/kg-day)
C	=	chemical concentration in fish tissue (mg/kg)
IR	=	ingestion rate (kg/meal)
FI	=	fraction ingested from contaminated source (unitless)

EF	=	exposure frequency (meals/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/year
		for carcinogens, AT = 70 yr x 365 days/year

It was assumed that the adult recreational user consumed 0.013 kg per meal under the RME scenario and 0.0064 kg per meal under the CTE scenario. These values represent the 90th percentile and arithmetic mean ingestion rates for recreational anglers, respectively (E.S. Ebert et al, 1993). The ingestion rate for the child recreational user was assumed to be one-third of the adult recreational user or 0.00433 kg per meal and 0.00213 kg per meal under the RME and CTE scenarios, respectively. It was assumed the child and adult recreational user consumed 350 meals per year for both the RME and CTE scenarios. The exposure assumptions for ingestion of fish are summarized in Tables 6-23 and 6-24.

6.2.4.8 Assessing Cancer Risks from Early Life Exposures

EPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005) recommends making adjustments to the toxicity of carcinogenic chemicals that act via the mutagenic mode of action when evaluating early-life exposures. The guidance recommends using age-dependent adjustment factors (ADAFs) combined with age-specific exposure estimates when assessing cancer risks. In the absence of chemical-specific data, the supplement guidance recommends the following default adjustments, which reflect the fact that cancer risks are generally higher from early-life exposures than from similar exposures later in life:

- For exposures before 2 years of age (i.e., spanning a 2-year interval from the first day of birth until a child's second birthday), a 10-fold adjustment.
- For exposures between 2 and 16 years of age (i.e., spanning a 14-year time interval from a child's second birthday until their sixteenth birthday), a three-fold adjustment.
- For exposures after turning 16 years of age, no adjustment.

The adjustments were applied using the same method as that used by ORNL in the development of RSLs. Children were evaluated as two age groups, ages 0 to 2 years and ages 2 to 6 years, and adults were evaluated as two age groups, ages 6 to 17, and ages greater than 16 years old. Using this approach, the intakes for child and adult recreational users and hypothetical residents were calculated as follows:

$$Intake_{Child} = Intake_{(ages\ 0-2\ years)} \times 10 + Intake_{(ages\ 2-6\ years)} \times 3$$

$$Intake_{Adult} = Intake_{(ages\ 6-16\ years)} \times 3 + Intake_{(ages > 16\ years)}$$

And the intakes for adolescent trespassers were calculated as follows:

$$Intake_{Adolescent} = Intake_{(age\ 6-16\ years)} \times 3$$

The above approach was used only for those chemicals that are identified as mutagenic in the ORNL screening table (e.g., carcinogenic PAHs). Sample calculations showing how this approach was applied are included in Appendix H.5.

6.2.4.9 Vapor Intrusion into Buildings

Current/future industrial workers and hypothetical residents may be exposed to COPCs that have volatilized from groundwater and migrated through building foundations into indoor air. Indoor air concentrations resulting from vapor intrusion from groundwater were estimated using the Johnson and Ettinger volatilization model (USEPA, 2004). The model assumes that vapors of volatile chemicals are emitted from groundwater, migrate through subsurface soil, through cracks in the building foundation, and accumulate in air inside a building. Input values for the vapor intrusion model are presented in Table 6-28. Results of the vapor intrusion model are included in Appendix H.6.

6.2.4.10 Exposure to Lead

The equations and methodology presented in the previous section cannot be used to evaluate exposure to lead because of the absence of published dose-response parameters. Exposure to lead was assessed using the following models:

- The latest version of EPA's IEUBK Model for lead, (USEPA 2007, 2009). This model is typically used to evaluate lead exposure assuming a residential land use scenario.
- The EPA's TRW Model for Lead (USEPA 2003, 2009). This model is typically used to evaluate lead exposure assuming a non-residential land use scenario.

The IEUBK Model for lead is designed to estimate blood levels of lead in children (under 7 years of age) based on either default or site-specific input values for air, drinking water, diet, dust, and soil exposure. Studies indicate that infants and young children are extremely susceptible to adverse effects from exposure to lead. Considerable behavioral and developmental impairments have been noted in children with elevated blood-lead levels. The threshold for toxic effects from this chemical is believed to be in the range of 10 to 15 µg/dL. Blood-lead levels greater than 10 µg/dL are considered to be a "concern."

For Site 08, the IEUBK Model for lead was used to address exposure to lead in children when detected groundwater concentrations exceeded the 15 µg/L Federal Action Level promulgated under the Safe Drinking Water Act and when detected soil or sediment concentrations exceeded the EPA Office of Solid Waste and Emergency Response (OSWER) soil screening level of 400 mg/kg for residential land use (USEPA, 1994). Average chemical concentrations, as well as default parameters for some input parameters, were used in the evaluation. Estimated blood-lead levels and probability density histograms supporting this analysis are presented in Appendix H.7.

Non-residential adult exposure to lead in soil was evaluated using USEPA's TRW Model for lead (USEPA, 2003). In this model, adult exposure to lead in soil is addressed by an evaluation of the relationship between the site soil lead concentration and the blood-lead concentration in the developing fetuses of adult women. The Adult Lead Model generates a spreadsheet for each exposure scenario evaluated (e.g., industrial and recreational). The output of the spreadsheet is the probability that the blood-lead concentrations in the fetuses exceed 10 µg/L. The probability that fetal blood-lead levels will exceed 10 µg/L was calculated in accordance with the following EPA guidelines:

- Use of the TRW Interim Adult Lead Methodology in Risk Assessment (USEPA, 1999).
- Frequently Asked Questions (FAQs) on the Adult Lead Model (USEPA, ,2009).

No models are currently available to evaluate the periodic exposure of adolescent trespassers to lead; therefore, the results of the IEUBK Model for children were used to qualitatively assess exposure of this receptor. Potential adverse effects from exposure to lead are expected to be of a lesser magnitude for adolescent trespassers than for children.

6.2.4.11 Summary of Exposure Parameters

A summary of exposure input parameters for all exposure pathways is presented in Tables 6-23 and 6-24 for the identified potential receptor groups at Site 08. In general, standard default parameters (e.g., USEPA, 1989, 1991, 1997, and 2004), which combine mid-range and upper-end exposure factors, were used to assess RME conditions. CTE conditions were assessed primarily by the use of mid-range exposure factors presented in current risk assessment guidance (USEPA, 1989 and 1993).

6.3 TOXICITY ASSESSMENT

The objective of the toxicity assessment is to identify the potential adverse health effects in exposed populations. Quantitative estimates of the relationship between the magnitude and type of exposures and the severity or probability of human health effects are defined for the identified constituents of concern.

Quantitative toxicity values determined during this component of the risk assessment are integrated with outputs of the exposure assessment to characterize the potential for the occurrence of adverse health effects for each receptor group.

The toxicity value used to evaluate non-carcinogenic health effects for ingestion and dermal exposures is the reference dose (RfD). The reference concentration (RfC) is used to evaluate non-carcinogenic health effects for inhalation exposures. RfDs and RfCs are estimates of the daily exposure level for the human population that are likely to be without appreciable risk during a portion or all of a lifetime. They are based on a review of available animal and/or human toxicity data, with adjustments for various uncertainties associated with the data. Carcinogenic effects are quantified using the cancer slope factor (CSF) for ingestion and dermal exposures and inhalation unit risk (IUR) for inhalation exposures, which is a plausible upper-bound estimate of the probability of development of cancer per unit intake of chemical over a lifetime. It is based on available dose-response data from human and/or animal studies.

6.3.1 Toxicity Criteria for Oral and Inhalation Exposures

Oral RfDs and CSFs and inhalation RfCs and IURs used in the Site 08 risk assessment were obtained from the following primary EPA literature sources (USEPA, 2003):

- Integrated Risk Information System (IRIS).

- EPA Provisional Peer Reviewed Toxicity Values (PPRTVs) – The Office of Research and Development/National Center for Environmental Assessment (NCEA) Superfund Health Risk Technical Support Center develops PPRTVs on a chemical-specific basis when requested by EPA's Superfund program.

- Other Toxicity Values – These sources include but are not limited to California Environmental Protection Agency (Cal EPA) toxicity values, Agency for Toxic Substances and Disease Registry (ATSDR) values, and the Annual Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997).

Although toxicity criteria can be found in several toxicological sources, EPA's IRIS online database is the preferred source of toxicity values. This database is continuously updated, and the presented values have been verified by EPA. The ORNL RSL table may also be used as a source of toxicity criteria. This table is updated several times a year and reflects recent changes in IRIS. The toxicity criteria for the constituents selected as COPCs for Site 08 are presented in Tables 6-28 through 6-31.

6.3.2 Toxicity Criteria for Dermal Exposure

RfDs and CSFs found in literature are typically expressed as administered not absorbed doses. Therefore, these values are considered to be inappropriate for estimating the risks associated with the dermal route of exposure. Oral dose-response parameters based on administered doses must be adjusted to absorbed doses before the comparison to estimated dermal exposure intakes is made.

Adjustments to absorbed doses were made using chemical-specific gastrointestinal absorption efficiencies published in EPA dermal guidance (USEPA, 2004) using the following equations:

$$RfD_{dermal} = (RfD_{oral})(ABS_{GI})$$

$$CSF_{dermal} = (CSF_{oral}) / (ABS_{GI})$$

where:
- ABS_{GI} = absorption efficiency in the gastrointestinal tract
- RfD_{dermal} = RfD for the dermal route of exposure
- RfDoral = RfD for the oral route of exposure
- CSF_{dermal} = CSF for the dermal route of exposure
- CSF_{oral} = CSF of the oral route of exposure

As noted above, the preceding adjustment of the oral toxicity criteria (i.e., RfDs, CSFs) was necessary to allow quantitative evaluation of the dermal route of exposure in the baseline risk assessment. An explanation of this procedure and the need for this procedure are presented in Appendix A of EPA RAGS Part A.

6.3.3 Toxicity of Chromium

Toxicity criteria are available for different forms of chromium, which is considered to be more toxic in the hexavalent state. Because there is no evidence to support the conclusion that hexavalent chromium is present at the site, speciation analyses were not completed for Site 08. However, risks associated with this chemical were assessed by conservatively assuming that 100 percent of the reported total chromium result is attributable to hexavalent chromium.

6.3.4 Toxicity of PCBs

The HHRA of PCBs was conducted per the following USEPA guidance document: PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures (USEPA, 1996).

This guidance presents a tiered approach to the risk assessment of PCBs. A range of CSFs for PCBs is presented for use in HHRA according to criteria that consider the environmental media investigated, type of exposure, and anticipated persistence, bioaccumulation potential, and toxicity of the PCB homologues/congeners detected in the samples.

6.3.5 Toxicity Criteria for the Carcinogenic Effect of PAHs

Limited toxicity values are available to evaluate the carcinogenic effects from exposure to PAHs. The most extensively studied PAH is benzo(a)pyrene, which is classified by EPA as a probable human carcinogen. Although CSFs are available for benzo(a)pyrene, insufficient data are available to calculate CSFs for other carcinogenic PAHs. Toxic effects for these chemicals were evaluated using Toxic Equivalency Factors (TEFs) based on the potency of each compound relative to that of benzo(a)pyrene, as presented in current EPA guidance (USEPA, 1993). The TEFs are used to convert each individual carcinogenic PAH concentration into an equivalent concentration of benzo(a)pyrene.

EPA's Guidelines for Carcinogen Risk Assessment (USEPA, 2005) and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action. Carcinogenic PAHs are included in the group of chemicals that have been determined to act via the mutagenic mode of action. No chemical-specific ADAFs have been derived for carcinogenic PAHs; therefore, the following default ADAFs were used: 10 for ages 0 to 2, 3 for ages 2 to 16, and 1 (no adjustment) for ages 16 to 70. The ADAFs were used in evaluating exposures to carcinogenic PAHs for adolescent trespassers, recreational users, and hypothetical residents using the approach presented in Section 6.3.5.

6.4 RISK CHARACTERIZATION

This section provides a characterization of potential human health risks associated with potential exposures to COPCs at Site 08. Potential risks (non-carcinogenic and carcinogenic) for human receptors resulting from exposures outlined in the exposure assessment were quantitatively determined during the risk characterization component of this HHRA. Both RME and CTE estimates were generated. Sections 6.4.1 and 6.4.2 outline the methods used to quantitatively estimate the type and magnitude of potential risks for human receptors. Summaries of the risk characterization for Site 08 are provided in Section 6.4.3.

6.4.1 Quantitative Analysis of Chemicals Other Than Lead

Quantitative estimates of risk for chemicals other than lead were calculated according to risk assessment methods outlined in EPA guidance (USEPA, 1989). Lifetime cancer risks are expressed in the form of dimensionless probabilities, referred to as ILCRs, based on CSFs and IURs. Non-carcinogenic risk estimates are presented in the form of HQs that are determined through a comparison of intakes with published RfDs and RfCs.

ILCR estimates for ingestion and dermal exposures were generated for each COPC using estimated exposure intakes and published CSFs, as follows:

$$ILCR = (Estimated\ Exposure\ Intake)(CSF)$$

If the above equation resulted in an ILCR greater than 0.01, the following one-hit equation was used:

$$ILCR = 1-[\exp(-Estimated\ Exposure\ Intake)(CSF)]$$

This is consistent with the linear low-dose model.

ILCRs estimates for inhalation exposures were generated for each COPC using estimated exposure concentrations and published IURs, as follows:

$$ILCR = (IUR)(Exposure\ Concentration)(1000\ \mu g/mg)$$

An ILCR of 1×10^{-6} indicates that the exposed receptor has an one-in-one-million chance of developing cancer under the defined exposure scenario. Alternatively, such a risk may be interpreted as representing one additional case of cancer in an exposed population of one million people.

Non-carcinogenic risks were assessed using the concept of HQs and Hazard Indices (HIs). The HQ for a COPC is the ratio of the estimated intake to the RfD and is calculated for ingestion and dermal exposures as follows:

$$HQ = (Estimated\ Exposure\ Intake)/(RfD)$$

For inhalation exposures, HQ is calculated as follows:

$$HQ = (Exposure\ Concentration)/(RfC)$$

An HI was generated by summing the individual HQs for all COPCs. The HI is not a mathematical prediction of the severity of toxic effects and therefore is not a true "risk"; it is simply a numerical indicator of the possibility of the occurrence of noncarcinogenic (threshold) effects.

6.4.2 Interpretation of Risk Assessment Results

To interpret the quantitative risk estimates and to aid risk managers in determining the need for remediation, quantitative risk estimates were compared to typical RIDEM and EPA risk benchmarks. Calculated ILCRs were interpreted using the State of Rhode Island benchmark for cumulative risk (1×10^{-5}) and for individual chemicals (1×10^{-6}), and EPA's target cancer risk range (1×10^{-4} to 1×10^{-6}). HIs were evaluated against a benchmark value of 1.0. Current EPA policy regarding lead exposures is to limit the childhood risk of exceeding a 10 µg/dL blood-lead level to 5 percent.

Individual or cumulative ILCRs greater than 1×10^{-4} are generally considered to be "unacceptable" by the EPA. Risk management decisions are necessary when the ILCR is within 1×10^{-4} to 1×10^{-6}. Remediation is typically not required by EPA when the cumulative ILCR does not exceed 1×10^{-6}. Similarly, cumulative ILCRs greater than 1×10^{-5} are generally considered to be “unacceptable” by State of Rhode Island; remediation may or may not be necessary when the cumulative ILCR exceeds 1×10^{-5}.

An HI exceeding unity (1.0) indicates that there may be non-carcinogenic health risks associated with exposure. If an HI exceeds unity, target organ effects associated with exposure to COPCs are considered. Only those HQs for chemicals that affect the same target organ(s) or exhibit similar critical effect(s) are regarded as truly additive. Consequently, it may be possible for the cumulative HI to exceed 1.0, but no adverse health effects are anticipated if the COPCs do not affect the same target organ or exhibit the same critical effect (i.e., target-organ/critical effect-specific HIs do not exceed 1).

6.4.3 Results of the Risk Characterization

This section contains a summary of the results of the risk characterization for Site 08. Quantitative risk estimates for potential human receptors were developed for those chemicals identified as COPCs. Uncertainties associated with the risk estimates are discussed in Section 6.5. The methodology used to calculate the risks presented in this section was discussed in Sections 6.2 and 6.3. Potential risks from direct contact exposures to soil, groundwater, surface water, sediment, and fish tissue are discussed in Sections 6.4.4.1 through 6.4.4.4, respectively. Potential risks associated with vapor intrusion into buildings are discussed in Section 6.4.4.5. Potential risks associated with exposures to lead are discussed in Section 6.4.4.6.

Potential cancer risks and hazard indices were calculated for current/future construction workers, industrial workers, adolescent trespassers, child and adult recreational users, and hypothetical future child and adult residents under the RME and CTE scenarios and are summarized in Tables 6-32 through 6-33, respectively. Sample calculations are presented in Appendix H.5, and the results of the risk assessment in RAGS Part D format are included in Appendix H.1. However, concentrations of manganese were within background levels in subsurface soil. As discussed in Section 6.4.4.8, the HIs for construction workers exposed to only site-related chemicals in subsurface soil are within accepted levels.

6.4.3.1 Soil

Non-Carcinogenic Risks – RME

Exposed Area

HIs for the RME-case receptors exposed to COPCs in surface and subsurface soil in the exposed area were less than or equal to unity (1), with the exception of the construction worker and hypothetical child resident exposed to surface soil and subsurface soil.

The HI for construction workers exposed to surface soil in the exposed area was 2, although as shown below, the HIs for individual target organs were all less than or equal to 1.

Target Organ	Hazard Quotient
Blood	0.2
Body Weight	0.0001
Central Nervous System	1
Cardiovascular System	0.1
Gastrointestinal System	0.08
Kidney	0.01
Liver	0.0004
Skin	0.1
Respiratory System	0.4
Fetotoxicity	0.01
Bone	0.01

The HI for construction workers exposed to subsurface soil was 2. Aluminum and manganese were the major contributors to the HI developed for the construction worker. HIs developed for the inhalation-of-particulates pathway exceeded 1 (HIs for other pathways were less than 1).

The HI for hypothetical child residents exposed to surface soil in the exposed area was 3, although as shown below, the HIs for individual target organs were all less than or equal to 1.

Target Organ	Hazard Quotient
Blood	1
Body Weight	0.001
Central Nervous System	0.2
Cardiovascular System	1
Gastrointestinal System	0.6
Kidney	0.1
Liver	0.003
Skin	1
Respiratory System	0.0004
Fetotoxicity	0.09
Bone	0.09

The HI for hypothetical child residents exposed to subsurface soil in the exposed area was 5, although as shown below, the HIs for individual target organs were all less than or equal to 1.

Target Organ	Hazard Quotient
Blood	0.8
Body Weight	0.03
Central Nervous System	0.3
Cardiovascular System	0.8
Gastrointestinal System	0.9
Kidney	0.8
Liver	0.3
Skin	0.8
Respiratory System	0.0003
Bone	0.08

Paved Area

HIs for the RME-case receptors exposed to COPCs in surface and subsurface soil in the paved area were less than or equal to unity (1), with the exception of the construction worker exposed to subsurface soil and the hypothetical child resident exposed to surface soil and subsurface soil.

The HI for construction workers exposed to subsurface soil was 3. Aluminum and manganese were the major contributors to the HI developed for the construction worker. HIs developed for the inhalation-of-particulates pathway exceeded 1 (HIs for other pathways were less than 1). However, it should be noted that concentrations of manganese in subsurface soil are likely reflective of background conditions (Appendix F).

The HI for hypothetical child residents exposed to surface soil in the exposed area was 2, although as shown below, the HIs for individual target organs were all less than 1.

Target Organ	Hazard Quotient
Blood	0.5
Central Nervous System	0.2
Cardiovascular System	0.9
Gastrointestinal System	0.5
Kidney	0.0003
Skin	0.9
Respiratory System	0.0002
Fetotoxicity	0.07
Bone	0.07

The HI for hypothetical child residents exposed to subsurface soil was 3. Arsenic was the major contributor to the HI developed for the hypothetical child resident.

Carcinogenic Risks – RME

Exposed Area

ILCRs for all receptors exposed to surface soil in the exposed area were within EPA's target risk range of 10^{-4} to 10^{-6} with the exception of hypothetical child residents (ILCR = 3×10^{-4}) and hypothetical lifelong residents (ILCR = 3×10^{-4}). ILCRs for all receptors exposed to surface soil in the exposed area exceeded the RIDEM cumulative cancer risk benchmark of 1×10^{-5} with the exception of construction workers, adolescent trespassers, and adult recreational users. Carcinogenic PAHs were the major contributors to the ILCRs for exposures to surface soil in the exposed area.

ILCRs for all receptors exposed to subsurface soil in the exposed area exceeded EPA's target risk range with the exception of construction workers (ILCR = 9×10^{-5}). ILCRs for all receptors exposed to subsurface soil in the exposed area exceeded RIDEM's cumulative cancer risk benchmark. Carcinogenic PAHs were the major contributors to the ILCRs for exposures to subsurface soil in the exposed area.

Paved Area

ILCRs for all receptors exposed to surface and subsurface soil in the paved area were within EPA's target risk range with the exception of hypothetical child residents and hypothetical lifelong residents.

ILCRs for hypothetical child residents (ILCR = 2 x 10^{-4}) and hypothetical lifelong residents (ILCR = 2 x 10^{-4}) exposed to surface soil and hypothetical child residents (ILCR = 3 x 10^{-4}) and hypothetical lifelong residents (ILCR = 2 x 10^{-4}) exposed to subsurface soil exceeded EPA's target risk range.

ILCRs exceeded the RIDEM cumulative cancer risk benchmark for all receptors with the exception of construction workers, adolescent trespassers, and adult recreational users exposed to surface soil and subsurface soil. Carcinogenic PAHs were the major contributors to the ILCRs for exposures to surface soil, and arsenic and carcinogenic PAHs were the major contributors to the ILCRs for exposures to subsurface soil in the paved area.

Non-Carcinogenic Risks – CTE

Exposed Area

HIs for the all receptors exposed to surface soil and subsurface soil in the exposed area under the CTE scenario were less than or equal to unity (1).

Paved Area

HIs for the all receptors exposed to surface soil and subsurface soil in the paved area under the CTE scenario were less than or equal to unity (1).

Carcinogenic Risks – CTE

Exposed Area

ILCRs for all receptors exposed to surface soil and subsurface soil were within EPA's target risk range with the exception of industrial workers, hypothetical child residents, hypothetical adult residents, and hypothetical lifelong residents exposed to subsurface soil. The ILCR of 1 x 10^{-4} for industrial workers and hypothetical adult residents exposed to subsurface soil was equal to the upper bound of EPA's target risk range.

The ILCRs for exposures to subsurface soil by hypothetical child residents (4 x 10^{-4}) and hypothetical lifelong residents (5 x 10^{-4}) exceeded EPA target risk range. ILCRs for all receptors were less than RIDEM's cumulative cancer risk for exposures to surface soil but exceeded RIDEM's cumulative risk level

for exposures to subsurface soil except for adult recreational users. Carcinogenic PAHs were the major contributors to the ILCRs for exposures to subsurface soil in the exposed area.

Paved Area

ILCRs for all receptors exposed to surface soil and subsurface soil were within EPA's target risk range and less than or equal to RIDEM's cumulative cancer risk benchmark.

6.4.3.2 Groundwater

Non-Carcinogenic Risks – RME

HIs for construction workers (HI = 10), hypothetical child residents (HI = 679), and hypothetical adult residents (HI = 209) exposed to groundwater exceeded unity (1). VOCs and metals were the major contributors to the HIs.

Carcinogenic Risks – RME

The ILCR for construction workers exposed to groundwater (5×10^{-6}) was less the EPA and RIDEM target risk levels. The ILCRs for domestic use of groundwater by hypothetical child residents (7×10^{-3}), hypothetical adult residents (8×10^{-3}), and hypothetical lifelong residents (1×10^{-2}) exceed the EPA target risk range and RIDEM cumulative cancer risk benchmark. PCE, TCE, VC, benzo(b)fluoranthene, and arsenic were the major contributors to the ILCRs estimated for exposures to groundwater.

Non-Carcinogenic Risks – CTE

The HI for the CTE-case construction worker exposed to groundwater was 2, although as shown below, the HIs for individual target organs were all less than 1.

Target Organ	Hazard Quotient
Blood	0.3
Body Weight	0.02
Central Nervous System	0.5
Cardiovascular System	0.1
Gastrointestinal System	0.8
Kidney	0.2
Liver	0.02
Skin	0.1
Developmental	0.00005
Fetotoxicity	0.6
Bone	0.6
Respiratory	0.0004

The HIs for hypothetical child residents (HI = 355) and hypothetical adult residents (HI = 133) exposed to groundwater exceeded unity (1). Aluminum, arsenic, cobalt, iron, and manganese were the major contributors to the HI for the hypothetical child resident. Arsenic, cobalt, and manganese were the major contributors to the HI for the hypothetical adult resident.

Carcinogenic Risks – CTE

The ILCR for construction workers (ILCR = 1 x 10^{-6}) was less than the EPA and RIDEM target risk levels. The ILCRs for domestic use of groundwater by hypothetical child residents (1 x 10^{-3}), hypothetical adult residents (2 x 10^{-3}), and hypothetical lifelong residents (3 x 10^{-3}) exceeded the EPA target risk range and RIDEM cumulative cancer risk benchmark. PCE, VC, and arsenic were the major contributors to the ILCRs.

6.4.3.3 Surface Water

Non-Carcinogenic Risks – RME

HIs for adolescent trespassers and recreational users exposed to surface water under the RME scenario were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Carcinogenic Risks – RME

ILCRs for adolescent trespassers and recreational users exposed to surface water under the RME scenario were less than EPA's target risk range and the RIDEM cumulative cancer risk benchmark of 1 x 10^{-5}.

Non-Carcinogenic Risks – CTE

HIs for adolescent trespassers and recreational users exposed to surface water under the CTE scenario were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Carcinogenic Risks – CTE

ILCRs for adolescent trespassers and recreational users exposed to surface water under the CTE scenario were less than the EPA's target risk range and the RIDEM cumulative cancer risk benchmark of 1 x 10^{-5}.

6.4.3.4 Sediments

Non-Carcinogenic Risks – RME

HIs for all RME-case adolescent trespassers and recreational users exposed to sediments were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Carcinogenic Risks – RME

ILCRs for adolescent trespassers and recreational users exposed to sediment under the RME scenario were within EPA's target risk range. ILCRs for adolescent trespassers and adult recreational users were less than or equal to the RIDEM cumulative cancer risk benchmark. The ILCR of 2×10^{-5} for the child recreational user and lifelong recreational user exceeded the RIDEM cumulative cancer risk benchmark.

Non-Carcinogenic Risks – CTE

HIs for adolescent trespassers and recreational users exposed to sediments under the CTE scenario were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Carcinogenic Risks – CTE

ILCRs for adolescent trespassers and recreational users exposed to sediment under the CTE scenario were less than or within EPA's target risk range and less than the RIDEM cumulative cancer risk benchmark of 1×10^{-5}.

6.4.3.5 Ingestion of Fish

Non-Carcinogenic Risks – RME

HIs for ingestion of fish by child recreational users (HI = 0.8) and adult recreational users (HI = 0.5) were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Carcinogenic Risks – RME

The ILCR for ingestion of fish by child recreational users (ILCR = 5×10^{-5}) was within EPA's target risk range. The ILCR of 1×10^{-4} for ingestion of fish by adult recreational users was equal to the upper bound of EPA's target risk range. The ILCR for ingestion of fish by lifelong recreational users (ILCR = 2×10^{-4}) exceed EPA's target risk range. ILCRs for child, adult, and lifelong recreational users exceeded RIDEM's cumulative cancer benchmark. Aroclors, 4,4'-DDE, aldrin, and dieldrin were the major contributors to the ILCR.

Non-Carcinogenic Risks – CTE

HIs for ingestion of fish by child (HI = 0.08) and adult recreational users (HI = 0.2) were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Carcinogenic Risks – CTE

The ILCR for ingestion of fish by child recreational users (ILCR = 2×10^{-6}) was within EPA's target risk range and less than the RIDEM cumulative cancer benchmark. The ILCRs for adult recreational users (2×10^{-5}) and lifelong recreational users (2×10^{-5}) were within EPA's target risk range but exceeded the RIDEM cumulative cancer benchmark. Aroclors, 4,4'-DDE, and dieldrin were the major contributors to the ILCRs.

6.4.3.6 Vapor Intrusion

As discussed in Sections 6.1.3.4 and 6.1.3.5, several VOCs were detected in groundwater samples at concentrations exceeding EPA screening levels for chemicals that may volatilize from groundwater and migrate through building foundations and into the indoor air of a building. EPA's Johnson and Ettinger volatilization model (USEPA, 2003) was utilized to evaluate risks to hypothetical future residents and industrial workers potentially exposed to COPCs migrating from groundwater into indoor air.

Groundwater samples were collected at Site 08 from the overburden-bedrock interface (approximately 10 feet bgs) and bedrock (approximately 30 feet bgs). EPA's vapor intrusion guidance (USEPA, 2002) recommends that groundwater samples be collected from wells screened at or across the top of the water table. The samples collected from the overburden-bedrock interface were collected from wells screened across the top of the water table; therefore, the maximum detected concentrations of COPCs in groundwater samples collected from the overburden-bedrock interface was used as exposure point concentrations for the vapor intrusion evaluation. According to the boring and drilling logs, the US SCS soil type was determined to be loamy sand (LS). Model default values were used for dry bulk density (1.62 g/cm^3), porosity (0.39), and water-filled porosity (0.076 cm^3/cm^3). The EPA vapor intrusion guidance does not provide any default parameters for evaluating industrial exposures. Consequently, the EPA default values for exposure frequency (250 days per year) and exposure duration (25 years) were used to evaluate industrial worker exposure. Printouts for the Johnson and Ettinger volatilization model are presented in Appendix H.6. Results of the vapor intrusion modeling evaluation discussed below.

HIs estimated for industrial workers and residential receptors hypothetically exposed to VOCs migrating from groundwater to the indoor air of a building were less than unity (1), indicating that adverse non-

carcinogenic effects are not anticipated for these receptors under the conditions defined in the exposure assessment.

ILCRs estimated for industrial workers and residential receptors hypothetically exposed to VOCs migrating from groundwater to the indoor air of a building were less than EPA's target risk range and equal to RIDEM's cumulative risk benchmark.

Receptor	Hazard Index	Incremental Lifetime Cancer Risk
Industrial Workers	0.0003	4×10^{-7}
Hypothetical Residents	0.0004	6×10^{-7}

6.4.3.7 Risks from Lead

Lead was identified as a COPC in surface soil and subsurface soil in the exposed area, subsurface soil in the paved area, groundwater, and sediment at Site 08. The maximum detected concentration of lead in surface soil (2,870 mg/kg) and subsurface soil (4,650 mg/kg) from the exposed area, subsurface soil (159 mg/kg) in the paved area, and sediment (27,200 mg/kg) exceeded the OSWER soil screening level of 400 mg/kg for residential land use and/or the RIDEM residential direct contact criteria of 150 mg/kg. The maximum detected concentration of lead in groundwater (1,890 µg/L) exceeded the 15 µg/L federal Action Level promulgated under the Safe Drinking Water Act and the RIDEM GA groundwater objective of 15 µg/L.

Hypothetical residential exposures to lead in surface soil and subsurface soil were evaluated using EPA's IEUBK lead model (USEPA, 2007). Exposures to lead in surface soil and subsurface soil by construction workers and industrial workers were evaluated using a slope-factor approach developed by the EPA TRW (USEPA, 2003 and 2009). Although the IEUBK Model can be used to evaluate residential exposures to lead in groundwater, the maximum detected concentration of lead in Site 08 groundwater was approximately 126 times higher than the Federal Action Limit and RIDEM GA groundwater objective. Lead concentrations at these levels would result in unacceptable levels if evaluated using the IEUBK Model. Consequently, residential exposures to lead in groundwater were not evaluated with the IEUBK Model, but lead was retained as a COC in groundwater.

Hypothetical future residential exposures to lead in surface soil and subsurface soil were evaluated using the most recent version of the IEUBK lead model (v1.1 Build 9). As recommended in the IEUBK Model documentation, the average lead concentrations of 73.1 mg/kg in surface soil and 190 mg/kg in subsurface soil were used as the EPC for the exposed area, and the average lead concentration of 18

mg/kg in subsurface soil were used as the EPC for the paved area. Default values were used for the remaining model input parameters. IEUBK Model outputs are included in Appendix H.7. The results of the lead modeling are as follows.

Medium	Blood-Lead Geometric Mean Concentration (µg/dL)	Percent of Receptors Exceeding 10 µg/dL
Exposed Area		
Surface Soil	1.55	0.004
Subsurface Soil	2.64	0.23
Paved Area		
Subsurface Soil	1.01	<0.001

The probabilities (i.e., the percent of children exceeding a 10 µg/dL blood-lead level) presented are compared to the EPA goal of limiting the childhood risk of exceeding a 10 µg/dL blood-lead concentration to 5 percent (i.e., the 1994 OSWER Directive). None of the values presented exceed the EPA benchmark.

Child recreational users and adolescent trespassers could also be potentially exposed to lead in on-site soil. EPA's IEUBK Model is typically used to evaluate exposures to lead by children, but the evaluation of recreational/trespass exposures of short duration is outside the limits of the model. Exposures to lead in on-site soil and sediment by child recreational users and adolescent trespassers will contribute to the individual daily lead exposure for these receptors, but this exposure is not expected to be significant under exposures of short duration. In addition, a child's or adolescent's daily lead exposure will be heavily influenced by the concentration of lead in the soil of the child's or adolescent's own yard. Thus, the recreational child's and adolescent trespasser's daily lead exposure may depend mainly on the exposure to soil in the receptor's own yard, which is unknown. The potential adverse health effects from exposures to lead in soil at Site 08 are expected to be of a lesser magnitude for child recreational users and adolescent trespassers than for hypothetical child residents. Because the potential risks from exposure to lead in soil are not a concern for hypothetical child residents under the defined conditions, they are also not expected to be a concern for child recreational users and adolescent trespassers.

Exposures to lead in surface soil and subsurface soil by construction workers and industrial workers were evaluated using Adult Lead Model (ALM) developed by the EPA TRW for Lead (USEPA, 2003 and 2009). The ALM was not used to evaluate exposures to lead in soil by adult recreational users because the model should not be used when exposures are less than 1 day a week; the exposure frequency assumed for adult recreational users was 48 days per year. As recommended by the model, the average lead concentrations of 73.1 mg/kg in surface soil and 190 mg/kg in subsurface soil were used as the EPCs for the exposed area, and the average lead concentration of 18 mg/kg in subsurface soil were used as the

EPC for the paved area. ILCRs and HIs are calculated for non-lead chemicals using RME assumptions; however, the ALM guidance recommends the use of CTE assumptions in evaluating adult exposures to lead in soil (USEPA, 2003). Therefore, the incidental ingestion rate was assumed to be 100 mg/day for the construction worker and 50 mg/day for industrial workers and adult recreational users. The exposure frequency was assumed to be 130 days per year for the construction worker, 219 days per year for the industrial worker, and 52 days per year for the adult recreational user. Default parameters were used for the remaining model input parameters. Results of the model runs are included in Appendix H.7. The fetus of a pregnant worker is the ultimate receptor of concern for the TRW model. The results of the modeling are shown below.

Receptor	Medium	Blood-Lead Geometric Mean Concentration (µg/dL)	Percent of Receptors Exceeding 10 µg/dL
Exposed Area			
Construction Workers	Surface Soil	1.1	0.005
	Subsurface Soil	1.3	0.01
Industrial Workers	Surface Soil	1.1	0.004
	Subsurface Soil	1.3	0.01
Paved Area			
Construction Workers	Subsurface Soil	1.0	0.003
Industrial Workers	Subsurface Soil	1.0	0.003

The results for construction workers, industrial workers, and adult recreational users do not exceed the EPA goal of no more than 5 percent of children (fetuses of exposed women) exceeding a 10 µg/dL blood-lead level. Because the potential risks from exposure to lead in soil are not a concern for construction workers under the defined conditions, they are also not expected to be a concern for adult recreational users.

As noted above, the IEUBK Model and ALM cannot be used to evaluate exposures of short duration. Consequently, exposures to sediment by adolescent trespassers and recreational users could not be quantitatively evaluated. However, lead was detected at a maximum concentration of 27,200 mg/kg in sediment at Site 08. Concentrations of lead exceeded the OSWER soil screening level of 400 mg/kg in 15 sediment samples, the RIDEM residential DEC of 150 mg/kg in 19 sediment samples, and the ORNL RSL of 800 mg/kg in 5 sediment samples. The average lead concentration of 1,883 mg/kg also exceeds all of the available screening criteria. Because lead was detected frequently in sediment samples at elevated concentrations in excess of the screening criteria, lead was retained as a COC for sediment at Site 08.

RIDEM does not accept the use of EPA's ALM and IEUBK models. Instead, RIDEM regulations stipulate a value of 150 mg/kg for lead in soil. At the exposed area, lead concentrations in two surface soil

samples and five subsurface soil samples exceeded the RIDEM lead level. At the paved area, concentrations of lead in all surface soil samples were less than the RIDEM lead level. Lead was detected in only one subsurface soil sample from the paved area at concentrations exceeding the RIDEM lead level.

6.4.3.8 Effects of Background on Risk Estimates

As discussed in Section 6.1.2.1, all chemicals detected at maximum concentrations exceeding COPC screening levels were carried through the risk assessment regardless of whether they were present at background levels or not. Chemicals identified in Section 6.1.2.1 as being within background levels but retained as COPCs and carried through the HHRA are identified in Tables 6-4 to 6-11. In the exposed area, vanadium was within background levels in surface soil, and beryllium, manganese, and thallium were within background levels in subsurface soil. In the paved area, all of the COPCs in surface soil were greater than background levels, and beryllium and manganese were identified as being with background levels in subsurface soil. Table 6-34 presents a comparison of the cancer risks and HIs for exposures to surface soil and subsurface soil based on all chemicals versus risk estimates developed excluding those present at background levels. The RAGS Part D Table 9s for the risk estimates presented in Table 6-34 are included in Appendix H.2.

Cancer risks for all receptors excluding chemicals present at background levels are the same as those estimated including all chemicals. Beryllium was the only carcinogenic COPC within background levels. Beryllium is only carcinogenic via the inhalation exposure pathway; cancer risk estimates developed for inhalation of beryllium in fugitive dust emissions were insignificant in comparison to the cancer risks for other COPCs and other exposure pathways.

There are no significant differences between HIs for all receptors estimated excluding chemicals at background levels and those estimated including all chemicals with the exception of the construction workers exposed to subsurface soil. In the exposed area of Site 08, the HI for construction workers when all chemicals were included in the risk estimates was 2 as compared to an HI of 1 when chemicals present at background levels were excluded from the risk estimates. In the paved area, the HI for construction workers when all chemicals were included in the risk estimates was 3 as compared to an HI of 0.9 when chemicals present at background levels were excluded from the risk estimates. Inhalation of manganese was one of the major contributors to the HI in both the exposed and paved areas. When background concentrations are is taking into consideration the HI for construction workers is less than the acceptable level for subsurface soil in both the exposed and paved areas.

6.4.3.9 Risks Associated with Otto Fuel

Dibutyl sebacate, a component of Otto Fuel, was identified in one well as a tentatively indentified compound (TIC) at an estimated concentration of 30 µg/L. There are no human studies evaluating the toxicity of dibutyl sebacate, but some acute toxicity studies in animals exist that indicate that dibutyl sebacate is relatively harmless. The lethal dose for 50 percent of the animals being studied (LD_{50} values) are greater than 15 g/kg. The detected concentration is significantly less than the LD_{50}; consequently, no adverse health effects are anticipated from exposures of dibutyl sebacate in groundwater at the reported concentration.

Propylene glycol dinitrate, also a component of Otto Fuel, was identified as a TIC in monitoring well MW124B. It was detected at estimated concentration of 5 µg/L, which exceed the ORNL tap water RSL of 0.57 5 µg/L. Symptoms from exposure to PGDN include irritation of the eyes conjunctivitis, methemoglobinemia, headache, impaired balance, and visual disturbance. Liver and kidney damage has been reported in animals.

6.4.3.10 Risks Associated with Building 179 Groundwater

Groundwater analytical results available as a result of the Building 179 Concrete UST remedial investigation were not included as part of the groundwater database in this HHRA. The Building 179 groundwater data is included in Appendix A and summarized in Table 6-35. Also included in Table 6-35 is a comparison of the maximum detected concentrations in Building 179 groundwater data to the maximum detected groundwater concentrations in the Site 08 overburden and bedrock groundwater data. The maximum detected concentrations of 1,1-DCE, methylene chloride, 1,1-DCA, 1,1,1-TCE, PCE, 1,2,4-dichlorobenzene, Hexachlorobutadiene, naphthalene, and bis(2-ethylhexyl)phthalate exceeded the screening criteria for groundwater. Overall concentrations of chemicals were higher in groundwater from Building 179 than in groundwater from Site 08. Since risks from exposures to groundwater at Site 08 were unacceptable, the risks from exposures to groundwater at Building 179 would also be unacceptable.

6.5 UNCERTAINTY ANALYSIS

This section presents a summary of uncertainties inherent in the risk assessment and includes a discussion of how they may affect the quantitative risk estimates and conclusions of the risk analysis. The baseline HHRA for Site 08 was performed in accordance with current EPA guidance; however, there are varying degrees of uncertainty associated with the baseline HHRA. The following sections discuss general uncertainties in risk assessment and uncertainties specific to the risk assessment for Site 08.

Uncertainty in the selection of COPCs was related to the current status of the predictive databases; the grouping of samples; the numbers, types, and distributions of samples; data quality; and the procedures used to include or exclude constituents as COPCs. Uncertainty associated with the exposure assessment included the values used as input variables for a given intake route or scenario, the assumptions made to determine EPCs, and the predictions regarding future land use and population characteristics. Uncertainty in the toxicity assessment included the quality of the existing toxicity data needed to support dose-response relationships and the weight of evidence used to determine the carcinogenicity of COPCs. Uncertainty in risk characterization is associated with exposure to multiple chemicals and the cumulative uncertainty from combining conservative assumptions made in earlier steps of the risk assessment process.

Whereas there were various sources of random uncertainty and bias, the magnitude of bias and uncertainty and the direction of bias are influenced by the assumptions made throughout the risk assessment including selection of COPCs and selection of values for dose-response relationships. Throughout the entire risk assessment, assumptions that consider safety factors were made so that the final calculated risks were overestimated.

Generally, risk assessments include two types of uncertainty, measurement and informational uncertainty. Measurement uncertainty refers to the usual variance that accompanies scientific measurements. For example, this type of uncertainty is associated with analytical data collected for the site. The risk assessment reflects the accumulated variances of the individual values used.

Informational uncertainty stems from inadequate availability of information needed to complete the toxicity and exposure assessments. Often, this gap is significant, such as the absence of information on the effects of human exposure to low doses of a chemical, the biological mechanism of action of a chemical, or the behavior of a chemical in soil.

After the risk assessment is complete, the results must be reviewed and evaluated to identify the type and magnitude of uncertainty involved. Reliance on results from a risk assessment without consideration of uncertainties, limitations, and assumptions inherent in the process can be misleading. For example, to account for uncertainties in the development of exposure assumptions, conservative estimates were made to ensure that the particular assumptions were protective of sensitive subpopulations or the maximum exposed individuals. If a number of conservative assumptions are combined in an exposure model, the resulting calculations can propagate the uncertainties associated with those assumptions, thereby producing a much larger uncertainty for the final results. This uncertainty is biased toward overpredicting both carcinogenic and non-carcinogenic risks. Thus, both the results of the risk

assessment and the uncertainties associated with those results must be considered when making risk-management decisions.

This interpretation of uncertainty is especially relevant when the risks exceed the point of departure for defining "acceptable" risk. For example, when risks calculated using a high degree of uncertainty are less than an acceptable risk level (i.e., 10^{-6}), the interpretation of no significant risk is typically straightforward. However, when risks calculated using a high degree of uncertainty exceed an acceptable risk level (i.e., 10^{-4}), a conclusion can be difficult unless uncertainty is considered.

6.5.1 Uncertainty in Selection of COPCs

The most significant issues related to uncertainty in COPC selection at Site 08 are the usability of existing databases (only validated data were used in the risk assessment), the COPC screening levels used, and the absence of screening levels for a few chemicals detected in site media. A brief discussion of each of these issues is provided in this section.

Usability and Completeness of Existing Databases

As discussed in Section 6.1.1, data from samples collected from previous field investigations as well as data collected during the RI were used to assess risks to potential human receptors. The data were validated according to EPA data validation guidelines. Fixed-base analytical results only for the target analyte lists for the field investigations were used in the quantitative risk evaluation. Data regarded as unreliable (i.e., qualified as "R" during the data validation process) were not used in the quantitative risk assessment. The elimination of data qualified “R” may increase the uncertainty in the risk assessment. However, the results qualified as unreliable were detection limits (qualified “UR”), not positive detections. Therefore, it is unlikely that risks have been underestimated by the removal of the unreliable data from the data sets.

COPC Screening Levels

The use of risk-based screening values based on conservative land-use scenarios (i.e., residential land use for soil and ingestion of tap water for groundwater) corresponding to ILCRs of 10^{-6} and HIs of 0.1 ensured that all the significant contributors to risk from the site were evaluated. The elimination of chemicals present at concentrations that correspond to ILCRs less than 10^{-6} and HIs less than 0.1 should not have affected the final conclusions of the risk assessment because those chemicals were not expected to cause a potential health concern at the detected concentrations.

The draft HHRA was prepared using the September 2008 RSLs. The RSLs have been updated since the draft HHRA was prepared. Tables 6-36 and 6-37 show the September 2008 and April 2009 RSLs for soil

and groundwater, respectively. The only chemicals for which the RSLs for soil have changed were 1,1,1-TCA, 4-nitroaniline, and nickel. The direct contact RSL for 1,1,1-TCA increase from 900 to 9,000 mg/kg. The maximum detected concentrations of 1,1,1-TCA were all less than the September 2008 RSL, consequently the change in the RSL does not affect the HHRA. The direct contact RSL for 4-nitroaniline changed from 180 mg/kg based on noncarcinogenic effects to 24 mg/kg based on carcinogenic effects. The RSL for nickel decreased from 1,600 mg/kg to 1,500 mg/kg. The maximum detected concentrations of 4-nitroaniline and nickel are less than the updated RSLs therefore the change in the RSLs does not affect the HHRA. For groundwater, the RSL for chloromethane increased from 1.8 µg/L based on carcinogenic effects to 190 µg/L based on noncarcinogenic effects. Chloromethane was retained as a COPC for groundwater using the September 2008 RSLs but would not be retained as a COPC using the April 2009 RSLs. Chloromethane was also identified as a COC in this HHRA but would not be a COC based on the updated RSLs. The retention of chloromethane does not significantly affect the conclusions of this HHRA because while chloromethane was identified as a COC in this HHRA, chloromethane was not the major risk driver in groundwater. The elimination of chloromethane as a COC would not affect the selection of any remedial option for groundwater.

Chemicals without Established Screening Levels

Risk-based screening levels are currently not available for some constituents detected at Site 08 [e.g., acenaphthylene, benzo(g,h,i)perylene, phenanthrene, alpha- and gamma-chlordane, endosulfan II, endosulfan sulfate, and endrin aldehyde]. In the COPC screening, acenaphthene was used as a surrogate for acenaphthylene, pyrene was used as a surrogate for benzo(g,h,i)perylene and phenanthrene, chlordane was used as a surrogate for alpha- and gamma-chlordane, endosulfan was used as a surrogate for endosulfan II and endosulfan sulfate, and endrin was used as a surrogate for endrin aldehyde. Applying toxicity values for one compound to another compound increases the uncertainty in the risk assessment both in regard to the selection of COPCs and the calculated risks. The direction of the uncertainty is not known.

In addition, risk-based screening criteria were not available for 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, carbazole, dibenzofuran, sec-butylbenzene, tert-butylbenzene, and 4-nitrophenol is soil samples; 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and tert-butylbenzene, in groundwater samples; and 4-isopropyltoluene, carbazole, and dibenzofuran in sediment samples at Site 08. With the exception of carbazole and dibenzofuran, these chemicals were detected infrequently (i.e., less than 5 percent) and at low concentrations in samples at Site 08. Carbazole and dibenzofuran were detected in samples with elevated concentrations of PAHs, which have been identified as COCs at Site 08. The lack of risk-based screening criteria for these chemicals increases the uncertainty in the risk assessment both in regard to the selection of COPCs and the calculated risks. The uncertainty does not

affect the conclusions of this risk assessment because either these chemicals were detected infrequently and at low concentrations or they were co-located with chemicals identified as major risk drivers.

6.5.2 Uncertainty in the Exposure Assessment

Uncertainty in the exposure assessment arose because of the methods used to calculate EPCs, the determination of land-use conditions, the selection of receptors and scenarios, and the selection of exposure parameters. Each of these is discussed below.

Exposure Point Concentrations

Uncertainty is associated with the use of 95-percent UCLs on the mean concentration as EPCs. As a result of using 95-percent UCLs, the estimations of potential risk for the RME scenario were most likely overstated because UCLs represent the upper limit that potential receptors would be exposed to over the entire exposure period. In some cases (because datasets contained less than 10 samples or because the UCL was greater than the maximum concentration), the maximum concentration was used as the EPC. Use of the maximum concentration tends to overestimate potential risks because receptors are assumed to be exposed continuously to the maximum concentration for the entire exposure period. Uncertainty was also introduced when non-detect results were assigned a value of one-half the quantitation limit in the calculation of EPCs.

EPCs for construction workers hypothetically exposed to VOCs migrating from shallow groundwater to air were estimated using a VDEQ model for exposure of construction workers to vapors accumulating in an excavation trench. Site-specific parameters such as groundwater concentrations were used in the model. However, it was necessary to use model default values for most of the other input parameters. The use of model default values tended to increase the uncertainty in the calculated risks. The direction of the uncertainty was not known, although the model default values are generally conservative and tend to overestimate air concentrations.

Land Use

The current land-use patterns at NAVSTA Newport are well established, thereby limiting the uncertainty associated with land-use assumptions. Land use at Site 08 is currently limited and is expected to be limited in the future, as long as the NAVSTA Newport remains active (industrial workers and potential and infrequent trespassers are the only current and likely future receptors). To be conservative, risks to potential and future construction workers, recreational users, and hypothetical residents were estimated for the site.

Exposure Routes and Receptor Identification

The determination of various receptor groups and exposure routes of potential concern was based on current land use at the site and anticipated future land use. Therefore, the uncertainty associated with the selection of exposure routes and potential receptors was minimal because they were considered to be well defined. Although residential use of groundwater was evaluated as an exposure scenario at Site 08, groundwater is not currently used at the site, nor is it expected to be used in the future. Therefore, the evaluation of direct exposure to groundwater performed in this baseline HHRA was included primarily to aid in risk-management decision making.

Exposure Parameters

Each exposure factor (for RME and CTE scenarios) selected for use in the risk assessment had some associated uncertainty. Generally, exposure factors were based on surveys of physiological and lifestyle profiles across the United States. The attributes and activities studied in these surveys generally had a broad distribution. To avoid underestimation of exposure, in most cases, EPA guidelines on the RME receptor were used, which generally specify the use of the 95th percentile value for most parameters. Therefore, the selected values for the RME receptor represented an upper bound of the observed or expected habits of the majority of the population.

Generally, the uncertainty can be assessed quantitatively for many assumptions made in determining factors for calculating exposures and intakes. Many of these parameters were determined from statistical analyses on human population characteristics. Often, the database used to summarize a particular exposure parameter (i.e., body weight) is quite large. Consequently, the values chosen for such variables in the RME scenario have low uncertainty.

Many of the exposure parameters used to calculate exposures and risks in this report were selected from a distribution of possible values including EPA guidance (USEPA, 1989, 1991, 1993, 1997, and 2004). For the RME scenario, the value representing the 95th percentile was generally selected for each parameter to ensure that the assessment bounded the majority of actual risks from a postulated exposure. This risk number is used in risk management decisions but does not indicate what a more average or typical exposure might be or what risk range might be expected for individuals in the exposed population. To address these issues, EPA (USEPA, 1992) suggested the use of the CTE receptor, whose intake variables are often set at approximately the 50th percentile of the distribution. The risks for this receptor seek to incorporate the range of uncertainty associated with various intake assumptions. Some of the parameters presented in this risk assessment were estimated using professional judgment, although EPA does provide limited guidance for the CTE evaluation (USEPA, 1993).

6.5.3 Uncertainty in the Toxicological Evaluation

Uncertainties associated with the toxicity assessment (determination of RfDs and CSFs and use of available criteria) are discussed in this section.

Derivation of Toxicity Criteria

Uncertainty associated with the toxicity assessment was associated with hazard assessment and dose-response evaluations for the COPCs. The hazard assessment characterized the nature and strength of the evidence of causation or the likelihood that a chemical that induces adverse effects in animals will also induce adverse effects in humans. Hazard assessment of carcinogenicity was evaluated as a weight-of-evidence determination using EPA methods. Positive animal cancer test data may suggest that humans contain tissue(s) that may manifest a carcinogenic response; however, the animal data cannot necessarily be used to predict the target tissue in humans. In the hazard assessment of non-cancer effects, however, positive animal data often suggest the nature of the effects (i.e., the target tissues and type of effects) anticipated in humans.

Uncertainty in hazard assessment arose from the nature and quality of the animal and human data. Uncertainty was reduced when similar effects were observed across species, strain, sex, and exposure route; when the magnitude of the response was clearly dose-related; when pharmacokinetic data indicated a similar fate in humans and animals; when postulated mechanisms of toxicity were similar for humans and animals; and when the COPC was structurally similar to other chemicals for which the toxicity is more completely characterized.

Uncertainty in the dose-response evaluation included the determination of a CSF for the carcinogenic assessment and derivation of an RfD for the non-carcinogenic assessment. Uncertainty was introduced from interspecies (animal to human) extrapolation, which, in the absence of quantitative pharmacokinetic or mechanistic data, is usually based on consideration of interspecies differences in basal metabolic rate. Uncertainty also resulted from intraspecies variation. Most toxicity experiments are performed with animals that are very similar in age and genotype, so intragroup biological variation is minimal, but the human population of concern may reflect a great deal of heterogeneity, including unusual sensitivity or tolerance to the COPC. Even toxicity data from human occupational exposure reflect a bias because only those individuals sufficiently healthy to attend work regularly (the "healthy worker effect") and those not unusually sensitive to the chemical are likely to be occupationally exposed. Finally, uncertainty arises from the quality of the key study from which the quantitative estimate was derived and the database used. For cancer effects, the uncertainty associated with dose-response factors was mitigated by assuming the 95-percent upper bound for the slope factor. Another source of uncertainty in carcinogenic assessment is the method by which data from high doses in animal studies are extrapolated to the dose range expected

for environmentally exposed humans. The linearized multistage model, which is used in nearly all quantitative estimations of human risk from animal data, is based on a nonthreshold assumption of carcinogenesis. Evidence suggests, however, that epigenetic carcinogens, as well as many genotoxic carcinogens, have a threshold below which they are non-carcinogenic. Therefore, the use of the linearized multistage model was conservative for chemicals that exhibited a threshold for carcinogenicity.

For non-cancer effects, additional uncertainty factors may have been applied in the derivation of the RfD to mitigate poor quality of the key study or gaps in the database. Additional uncertainty for non-cancer effects arose from the use of an effect level in the estimation of an RfD, because this estimation was predicated on the assumption of a threshold less than which adverse effects were not expected. Therefore, an uncertainty factor is usually applied to estimate a no-effect level. Additional uncertainty arose in estimation of an RfD for chronic exposure from subchronic data. Unless empirical data indicated that effects did not worsen with increasing duration of exposure, an additional uncertainty factor was applied to the no-effect level in the subchronic study. Uncertainty in the derivation of RfDs was mitigated by the use of uncertainty and modifying factors that normally ranged between 3 and 10. The resulting combination of uncertainty and modifying factors may have reached 1,000 or more.

The derivation of dermal RfDs and CSFs from oral values may have caused uncertainty. This was particularly the case when no gastrointestinal absorption rates were available in the literature or when only qualitative statements regarding absorption were available.

Uncertainty in the Toxicity Criteria for Chromium

Toxicity criteria are available for different forms of chromium, which is considered to be more toxic in the hexavalent state. Although there is no evidence to support the conclusion that hexavalent chromium is present at Site 08, risks associated with this chemical were assessed by conservatively assuming that 100 percent of the reported chromium result is attributable to hexavalent chromium. Therefore, the risks calculated for chromium in soil, groundwater, and sediment at Site 08 are likely overestimated.

Uncertainty in the Toxicity Criteria for Trichloroethene

Toxicity criteria published by the California Environmental Protection Agency (Cal EPA) were used in the HHRA to evaluate exposures to trichloroethene because USEPA toxicity criteria were not available (on IRIS) for trichloroethene at the time the HHRA was prepared. However, in October 2009 USEPA published draft toxicity criteria for trichloroethene. USEPA has also determined there is sufficient weight of evidence to conclude that trichloroethene operates through a mutagenic mode of action. A comparison of the Cal EPA and USEPA toxicity criteria for trichloroethene is presented in the following table.

Toxicity Criteria	Current Cal EPA Value	Draft USEPA Value
Reference Dose (mg/kg/day)	No criteria available	0.0004
Reference Concentration (mg/m^3)	No criteria available	0.005
Cancer Slope Factor $(mg/kg/day)^{-1}$	0.013	0.05
Inhalation Unit Risk $(\mu g/m^3)^{-1}$	0.000002	0.000004

The draft USEPA cancer slope factor is approximately four times greater than the Cal EPA value, and the draft inhalation unit risk value is two times the Cal EPA value. Consequently the ILCRs estimated in this HHRA for exposures to trichloroethene in soil and groundwater would be higher if they had been calculated using the USEPA draft toxicity criteria.

Trichloroethene was not retained as a COPC in surface or subsurface soil at Site 08 because it was detected infrequently in surface and subsurface soil at Site 08 and the detected concentrations were orders of magnitude less than the screening criteria. The detected concentrations would still be less than screening criteria based on the draft toxicity criteria. Trichloroethene was retained as a COPC and as a COC in groundwater at Site 08. Consequently the conclusions of the HHRA would not change if the draft toxicity criteria had been used to evaluate exposures to trichloroethene.

6.5.4 Uncertainty in the Risk Characterization

Uncertainty in risk characterization resulted from assumptions made regarding additivity of effects from exposure to multiple COPCs from various exposure routes. High uncertainty exists when summing non-cancer risks for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Even when chemicals affect the same target organs, they may have different mechanisms of action or differ in their fate in the body, so additivity may not be an appropriate assumption in all cases. However, the assumption of additivity was considered because in most cases it represented a conservative estimate of risk.

Risks to any individual may also have been overestimated by summing multiple assumed exposure pathway risks for any single receptor. Although every effort was made to develop reasonable scenarios, not all individual receptors may be exposed via all pathways considered.

Finally, the risk characterization did not consider antagonistic or synergistic effects. Little or no information was available to determine the potential for antagonism or synergism for the COPCs. Because chemical-specific interactions could not be predicted, the likelihood for risks to be overpredicted or underpredicted could not be defined, but the methodology used was based on current EPA guidance.

6.6 REMEDIAL GOAL OPTIONS

Cleanup goals were developed for those media with ILCRs greater than 1 x 10^{-5} and HIs greater than 1.0. The cleanup goals were derived for the COCs that contributed significantly to the cancer risk and/or HI for each exposure pathway in a land use scenario for a receptor group. The COCs for Site 08 are presented in Table 6-38. Chemicals were not considered as significant contributors to risk and therefore are not included as COCs if their individual carcinogenic risk contribution was less than 1 x 10^{-6} and their non-carcinogenic HQ was less than 0.1. Also chemicals identified as being within naturally occurring levels were not retained as COCs.

Section 6.4.1 presented the equations for calculating cancer risks or hazard indices using the intakes of a chemical estimated by the equations presented in Section 6.2.4. In general ILCRs are calculated by:

$$ILCR = C \times Intake \times CSF$$

And HIs are calculated by

$$HI = C \times Intake / RfD$$

The equations can be rearranged to solve for a chemical concentration corresponding to a target cancer risk (TCR) or target hazard index (THI). The general equation for deriving a cleanup goal or remedial goal option (RGO) for carcinogens is then:

$$RGO_{cancer} = \frac{TCR}{Intake \times CSF}$$

And the general equation for noncarcinogens is:

$$RGO_{noncancer} = \frac{THI}{Intake / RfD}$$

Cleanup goals can be calculated from the above equations for different media and exposure pathways by entering the appropriate parameters for the intake. The media and receptor specific equations are presented below.

Soil

Using the intake equations for incidental ingestion, dermal contact, and inhalation of fugitive dust/volatiles emissions from soil presented in Sections 6.2.4.1, 6.2.4.2, and 6.2.4.3, respectively. the equation for deriving a carcinogenic RGO for exposures to soil by child or adult receptors is:

$$RGO_{Soil} = \frac{TCR \cdot AT}{EF \cdot ED \cdot \left[\frac{IR_{Soil} \cdot FI \cdot CF}{BW} \cdot CSF_{oral} + \frac{SA \cdot AF \cdot ABS \cdot CF}{BW} \cdot CSF_{derm} + \left(\frac{1}{VF} + \frac{1}{PEF} \right) \cdot ET \cdot IUR \right]}$$

The equation for a noncarcinogenic RGO for exposures to soil by child or adult receptors is:

$$RGO_{Soil} = \frac{THI \cdot AT}{EF \cdot ED \cdot \left[\frac{IR_{Soil} \cdot FI \cdot CF}{BW} \cdot \frac{1}{RfD_{oral}} + \frac{SA \cdot AF \cdot ABS \cdot CF}{BW} \cdot \frac{1}{RfD_{derm}} + \left(\frac{1}{VF} + \frac{1}{PEF} \right) \cdot ET \cdot \frac{1}{RfC} \right]}$$

The equation for lifetime exposures to carcinogens in soil is:

$$RGO_{Soil} = \frac{TCR \cdot AT}{EF \cdot \left[\begin{array}{l} \left(\frac{IR_{Soil-child} \cdot FI_{child} \cdot ED_{child}}{BW_{child}} + \frac{IR_{Soil-adult} \cdot FI_{adult} \cdot ED_{adult}}{BW_{adult}} \right) \cdot CF \cdot CSF_{oral} + \left(\frac{SA_{child} \cdot AF_{child} \cdot ED_{child}}{BW_{child}} + \frac{SA_{adult} \cdot AF_{adult} \cdot ED_{adult}}{BW_{adult}} \right) \cdot ABS \cdot CF \cdot CSF_{derm} \\ + \left(\frac{1}{VF} + \frac{1}{PEF} \right) \cdot \left(ET_{child} \cdot ED_{child} + ET_{adult} \cdot ED_{adult} \right) \cdot IUR \end{array} \right]}$$

And the equation for mutagenic chemicals is:

$$RGO_{Soil} = \frac{TCR \cdot AT}{Mut\_Int_{0-2} \cdot ADAF_{0-2} + Mut\_Int_{2-6} \cdot ADAF_{2-6} + Mut\_Int_{6-16} \cdot ADAF_{6-16} + Mut\_Int_{16-30} \cdot ADAF_{16-30}}$$

Mut_Int is the exposure intake for each age group and is calculated by:

$$Mut\_Int = EF \cdot ED \cdot \left[\frac{IR_{Soil} \cdot FI \cdot CF}{BW} \cdot CSF_{oral} + \frac{SA \cdot AF \cdot ABS \cdot CF}{BW} \cdot CSF_{derm} + \left(\frac{1}{VF} + \frac{1}{PEF} \right) \cdot ET \cdot IUR \right]$$

Exposures to Groundwater by Residents

EPA Region I risk assessment protocol (USEPA, 1999) specifies that only the ingestion and dermal pathways be used to developed cleanup goals for residential exposures to groundwater. Using the intake equations for incidental ingestion and dermal contact with groundwater presented in Sections 6.2.4.4 and 6.2.4.5, respectively, the equation for deriving a carcinogenic RGO for exposures to groundwater by child or adult residents is:

$$RGO_{GW} = \frac{TCR \cdot BW \cdot AT}{EF \cdot ED \cdot \left[IR_{GW} \cdot CSF_{oral} + DA_{event} \cdot EV \cdot SA \cdot CSF_{derm} \right]}$$

The equation for deriving a noncarcinogenic RGO for exposures to groundwater by child or adult residents is:

$$RGO_{GW} = \frac{THI \cdot BW \cdot AT}{EF \cdot ED \cdot \left[\frac{IR_{GW}}{RfD_{oral}} + \frac{DA_{event} \cdot EV \cdot SA}{RfD_{derm}} \right]}$$

The equation for lifetime exposures to carcinogens in groundwater is:

$$RGO_{GW} = \frac{TCR \cdot AT}{EF \cdot \left[\left(\frac{IR_{GW-child} \cdot ED_{child}}{BW_{child}} + \frac{IR_{GW-adult} \cdot ED_{adult}}{BW_{adult}} \right) \cdot CSF_{oral} + \left(\frac{DA_{event-child} \cdot EV_{child} \cdot SA_{child} \cdot ED_{child}}{BW_{child}} + \frac{DA_{event-adult} \cdot EV_{adult} \cdot SA_{adult} \cdot ED_{adult}}{BW_{adult}} \right) \cdot CSF_{derm} \right]}$$

And the equation for mutagenic chemicals is:

$$RGO_{GW} = \frac{TCR \cdot AT}{Mut\_Int_{0-2} \cdot ADAF_{0-2} + Mut\_Int_{2-6} \cdot ADAF_{2-6} + Mut\_Int_{6-16} \cdot ADAF_{6-16} + Mut\_Int_{16-30} \cdot ADAF_{16-30}}$$

Mut_Int is the exposure intake for each age group and is calculated by:

$$Mut\_Int = \frac{EF \cdot ED}{BW} \cdot \left[IR_{GW} \cdot CSF_{oral} + DA_{event} \cdot EV \cdot SA \cdot CSF_{derm} \right]$$

Exposures to Groundwater by Construction Workers

Using the intake equations for incidental ingestion, dermal contact, and inhalation of volatiles emissions from groundwater presented in Sections 6.2.4.4, 6.2.4.5, and 6.2.4.6, respectively, the equation for deriving a groundwater RGO for carcinogens is:

$$RGO_{GW} = \frac{TCR \cdot AT}{EF \cdot ED \cdot \left[\frac{IR_{GW}}{BW} \cdot CSF_{oral} + \frac{DA_{event} \cdot EV \cdot SA}{BW} \cdot CSF_{derm} + \frac{ET}{VF} \cdot IUR \right]}$$

And the equation for noncarcinogens is:

$$RGO_{GW} = \frac{THI \cdot AT}{EF \cdot ED \cdot \left[\frac{IR_{GW}}{BW} \cdot \frac{1}{RfD_{oral}} + \frac{DA_{event} \cdot EV \cdot SA}{BW} \cdot \frac{1}{RfD_{derm}} + \frac{ET}{VF} \cdot \frac{1}{RfC} \right]}$$

Sediment

Using the intake equations for incidental ingestion and dermal contact with sediment presented in Sections 6.2.4.1 and 6.2.4.2, respectively. the equation for deriving a carcinogenic RGO for exposures to sediment by child or adult receptors is:

$$RGO_{sed} = \frac{TCR \cdot BW \cdot AT}{EF \cdot ED \cdot CF \cdot \left[IR_{sed} \cdot FI \cdot CSF_{oral} + SA \cdot AF \cdot ABS \cdot CSF_{derm}\right]}$$

The equation for deriving a noncarcinogenic RGO for exposures to sediment by child or adult receptors is:

$$RGO_{sed} = \frac{THI \cdot BW \cdot AT}{EF \cdot ED \cdot CF \cdot \left[\frac{IR_{sed} \cdot FI}{RfD_{oral}} + \frac{SA \cdot AF \cdot ABS}{RfD_{derm}}\right]}$$

The equation for lifetime exposures to carcinogens in sediment is;

$$RGO_{sed} = \frac{TCR \cdot AT}{EF \cdot CF \cdot \left[\left(\frac{IR_{sed-child} \cdot FI_{child} \cdot ED_{child}}{BW_{child}} + \frac{IR_{sed-adult} \cdot FI_{adult} \cdot ED_{adult}}{BW_{adult}}\right) \cdot CSF_{oral} + \left(\frac{SA_{child} \cdot AF_{child} \cdot ED_{child}}{BW_{child}} + \frac{SA_{adult} \cdot AF_{adult} \cdot ED_{adult}}{BW_{adult}}\right) \cdot ABS \cdot CSF_{derm}\right]}$$

And the equation for mutagenic chemicals is:

$$RGO_{sed} = \frac{TCR \cdot AT}{Mut\_Int_{0-2} \cdot ADAF_{0-2} + Mut\_Int_{2-6} \cdot ADAF_{2-6} + Mut\_Int_{6-16} \cdot ADAF_{6-16} + Mut\_Int_{16-30} \cdot ADAF_{16-30}}$$

Mut_Int is the exposure intake for each age group and is calculated by:

$$Mut\_Int = \frac{EF \cdot ED \cdot CF}{BW} \cdot \left[IR_{sed} \cdot FI \cdot CSF_{oral} + SA \cdot AF \cdot ABS \cdot CSF_{derm}\right]$$

Fish

Using the intake equations for ingestion of fish presented in Section 6.2.4.7, the equation for deriving a carcinogenic RGO for ingestion of fish by child or adult receptors is:

$$RGO_{Fish} = \frac{TCR \cdot BW \cdot AT}{IR_{fish} \cdot FI \cdot EF \cdot ED \cdot CSF_{oral}}$$

And the equation for deriving noncarcinogenic RGOs for ingestion of fish by child or adult receptors is:

$$RGO_{Fish} = \frac{THI \cdot BW \cdot AT}{IR_{fish} \cdot FI \cdot EF \cdot ED \cdot \frac{1}{RfD_{oral}}}$$

And the equation for lifetime exposures to carcinogens from ingestion of fish is:

$$RGO_{fish} = \frac{TCR \cdot AT}{EF \cdot CSF_{oral} \cdot \left[\frac{IR_{fish-child} \cdot FI_{child} \cdot ED_{child}}{BW_{child}} + \frac{IR_{fish-adult} \cdot FI_{adult} \cdot ED_{adult}}{BW_{adult}} \right]}$$

Exposure assumptions used in the calculation of the cleanup goals are presented in Table 6-23. Cleanup goals were calculated for target cancer risk levels of 1×10^{-6}, 1×10^{-5}, and 1×10^{-4} and a target hazard index of 1. The calculated cleanup goals for soil, groundwater, sediment, and fish tissue are presented in Tables 6-39 through 6-42, respectively. Also included in the tables are and ORNL RSLs and RIDEM criteria.

6.7 SUMMARY

The baseline HHRA for Site 08 was conducted to characterize the potential risks to likely human receptors under current and potential future land use. Potential receptors under current land use are industrial workers, adolescent trespassers, and recreational users. Potential receptors evaluated in the HHRA for future land use are construction workers and hypothetical child and adult residents. Although future land use is likely to be the same as current land use, potential future receptors were evaluated in the baseline HHRA, primarily for decision-making purposes.

Site 08 was divided into two areas for the purpose of selecting COPCs for soil: the exposed area and the paved area. COPCs were identified for groundwater samples collected from the overburden-bedrock interface zone and bedrock zone. Only surface water samples collected from areas where the depth of surface water was 1 foot or less were included in the surface water dataset. Only sediments covered by 1 foot or less of surface water during times of low water levels were included in the sediment dataset. COPCs were also identified for fish fillets samples. Chemicals retained as COPCs are summarized in Table 6-19.

Quantitative estimates of non-carcinogenic and carcinogenic risks (HIs and ILCRs, respectively) were developed for potential human receptors. Two EUs were identified for the evaluation of soil: the exposed area and the paved area. The groundwater, surface water, sediment, and fish fillets datasets were evaluated as single EUs. The results of the HHRA are summarized below. Chemicals retained as COCs are summarized in Table 6-34. Inorganics identified as being within naturally occurring levels were not retained as COCs.

Soil Risks

HIs for all receptors exposed to site-related COPCs in surface and subsurface soil under the RME scenario were less than or equal to unity (1), with the exception of hypothetical child residents exposed to subsurface soil in the paved area. Arsenic was the major contributor to the HI for hypothetical child residents.

ILCRs for the following receptors exceed EPA's target risk range of 10^{-4} to 10^{-6} and RIDEM cumulative risk benchmark of 1×10^{-5}.

Area	Medium	ILCR Exceeds EPA's Target Risk Range of 10^{-4} to 10^{-6}	ILCR Exceeds RIDEM's Cumulative Risk Level of 10^{-5}
Exposed Soil	Surface Soil	Hypothetical Child Residents Hypothetical Lifelong Residents	Industrial Workers Child Recreational Users Lifelong Recreational Users Hypothetical Child Residents Hypothetical Adult Residents Hypothetical Lifelong Residents
	Subsurface Soil	Industrial Workers Adolescent Trespassers Child Recreational Users Adult Recreational Users Lifelong Recreational Users Hypothetical Child Residents Hypothetical Adult Residents Hypothetical Lifelong Residents	Construction Workers Industrial Workers Adolescent Trespassers Child Recreational Users Adult Recreational Users Lifelong Recreational Users Hypothetical Child Residents Hypothetical Adult Residents Hypothetical Lifelong Residents
Paved Soil	Surface Soil	Hypothetical Child Residents Hypothetical Lifelong Residents	Industrial Workers Child Recreational Users Lifelong Recreational Users Hypothetical Child Residents Hypothetical Adult Residents Hypothetical Lifelong Residents
	Subsurface Soil	Hypothetical Child Residents Hypothetical Lifelong Residents	Industrial Workers Child Recreational Users Lifelong Recreational Users Hypothetical Child Residents Hypothetical Adult Residents Hypothetical Lifelong Residents

Carcinogenic PAHs were the major contributors to the ILCRs for exposures to surface soil and subsurface soil in the exposed area. Carcinogenic PAHs were the major contributors to the ILCRs for exposures to surface soil, and arsenic and carcinogenic PAHs were the major contributors to the ILCRs for exposures to subsurface soil in the paved area.

Groundwater Risks

HIs for construction workers, hypothetical child residents, and hypothetical adult residents exposed to groundwater exceeded unity (1). VOCs and metals were the major contributors to the HIs.

The ILCR for construction workers exposed to groundwater was less the EPA and RIDEM target risk levels. The ILCRs for domestic use of groundwater by hypothetical child residents, hypothetical adult residents, and hypothetical lifelong residents exceed the EPA target risk range and RIDEM cumulative cancer risk benchmark. PCE, TCE, VC, benzo(b)fluoranthene, and arsenic were the major contributors to the ILCRs estimated for exposures to groundwater.

Maximum detected groundwater concentrations were used in the estimation of HIs and ILCRs. The maximum detected concentrations of inorganics were detected in the groundwater sample collected at location MW-103S, which was highly turbid. As discussed in Section 4.4.1.3, it is likely that the elevated concentrations of inorganics in this sample are associated with particulates in the groundwater sample.

Surface Water Risks

HIs and ILCRs for adolescent trespassers and recreational users exposed to surface water did not exceed EPA or RIDEM risk management benchmarks.

Sediment Risks

HIs for adolescent trespassers and recreational users exposed to sediments were less than unity (1). ILCRs for adolescent trespassers and recreational users exposed to sediment were within EPA's target risk range. ILCRs for adolescent trespassers, child recreational users, and adult recreational users were less than or equal to the RIDEM cumulative cancer risk benchmark. The ILCR for lifelong recreational users exceeded the RIDEM cumulative cancer risk benchmark. Carcinogenic PAHs and arsenic were the major contributors to the ILCR.

Risks from Ingestion of Fish

The ILCR for ingestion of fish by child recreational users was within EPA's target risk range and less than the RIDEM cumulative cancer benchmark. The ILCR for ingestion of fish by adult recreational users was equal to the upper bound of EPA's target risk range. The ILCR for lifelong recreational users exceeded EPA's target risk range. ILCRs for child, adult, and lifelong recreational users exceeded the RIDEM's cumulative cancer benchmark. Aroclors, 4,4'-DDE, dieldrin, and aldrin were the major contributors to the ILCR.

Risks from Vapor Intrusion

HIs for residential and industrial exposures via vapor intrusion were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. The ILCRs estimated assuming a residential land use scenario and an industrial land use scenario were less than EPA's target risk range and less than the RIDEM's cumulative risk benchmark.

Risks from Lead

Exposures to lead in surface soil and subsurface soil in the exposed area and paved area by hypothetical child residents were evaluated using EPA's IEUBK Model. The results of the IEUBK Model indicated that risks to hypothetical child residents exposed to lead in surface soil and subsurface soil in the exposed area and paved area do not exceed the EPA goal, as described in the 1994 OSWER directive, of no more than 5 percent of children exceeding a 10 µg/dL blood-lead level.

Child recreational users and adolescent trespassers could also be potentially exposed to lead in on-site soil. USEPA's IEUBK Model is typically used to evaluate exposures to lead by children, but the evaluation of recreational/trespass exposures of short duration is outside the limits of the model. Because the potential risks from exposure to lead in soil are not a concern for hypothetical child residents under the defined conditions, they are also not expected to be a concern for child recreational users and adolescent trespassers.

Exposures to lead in surface soil and subsurface soil in the exposed area and paved area by construction workers and industrial workers were evaluated using the ALM. Results of the ALM analysis conducted for these receptors also do not exceed the EPA goal regarding lead exposures (i.e., no more than 5 percent of children [or fetuses of exposed woman] having blood-lead levels exceeding a 10 µg/L blood-lead level).

The ALM was not used to evaluate exposures to lead in soil by adult recreational users because the model should not be used when exposures are less than 1 day a week; the exposure frequency assumed for adult recreational users was 48 days per year. Because the potential risks from exposure to lead in soil are not a concern for construction workers under the defined conditions, they are also not expected to be a concern for adult recreational users.

Although the IEUBK Model can be used to evaluate residential exposures to lead in groundwater, the maximum detected concentration of lead in groundwater was approximately 126 times higher than the federal Action Limit and RIDEM GA groundwater objective, indicating that there would be unacceptable risks from exposure to lead in groundwater. Consequently, residential exposures to lead in groundwater were not evaluated with the IEUBK Model, but lead was retained as a COC for groundwater.

The IEUBK Model and ALM cannot be used to evaluate exposures of short duration. Consequently, exposures to sediment by adolescent trespassers and recreational users could not be quantitatively evaluated. However, lead was detected at a maximum concentration of 27,200 mg/kg in sediment at Site 08. Concentrations of lead exceeded the OSWER soil screening level of 400 mg/kg in 15 sediment samples, the RIDEM residential direct contact criteria of 150 mg/kg in 19 sediment samples, and the ORNL RSL of 800 mg/kg in 5 sediment samples. The average lead concentration of 1,883 mg/kg also exceeded all of the available screening criteria. Because lead was detected frequently in sediment samples at elevated concentrations in excess of the screening criteria, lead was retained as a COC in sediment at Site 08.

RIDEM does not accept the use of EPA's ALM and IEUBK models. Instead, RIDEM regulations stipulate a value of 150 mg/kg for lead in soil. At the exposed area, lead concentrations in two surface soil samples and five subsurface soil samples exceeded the RIDEM lead level. At the paved area, concentrations of lead in all surface soil samples were less than the RIDEM lead level. Lead was detected in only one subsurface soil sample from the paved area at concentrations exceeding the RIDEM lead level.

7.0 ECOLOGICAL RISK ASSESSMENT

7.1 INTRODUCTION

This baseline ERA was conducted to determine whether adverse ecological impacts are potentially occurring from exposure to chemicals released to the environment through historical activities at Site 08. This ERA follows guidance presented in the following documents:

- Final Guidelines for Ecological Risk Assessment (EPA, 1998).
- Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (EPA, 1997a).
- Navy Policy for Conducting Ecological Risk Assessments (1999) and the Navy Guidance for Conducting Ecological Risk Assessments (http://web.ead.anl.gov/ecorisk/index.cfm).

Figure 7-1 is the ERA Tiered Approach.

A screening-level ERA (Steps 1, 2, and 3a) was prepared for NUSC as part of the SASE Report and concluded that several contaminants were present at concentrations that exceeded screening levels and were retained as COPCs after the Step 3a refinement (TtNUS, 2005). It was also determined that site-specific data needed to be collected to better evaluate risks to ecological receptors and to support a baseline ERA. The results of the screening-level ERA were then used to determine which site-specific data needed to be collected as part of the baseline ERA. Because additional surface water, sediment, and surface soil data were collected, the screening steps (Steps 1 and 2) were updated in this baseline ERA.

7.2 REFINED PROBLEM FORMULATION

The screening-level problem formulation was initially presented in the screening-level ERA in the Study Area Screening Evaluation (TtNUS, 2005) and was refined in this baseline ERA based on the results of the screening-level ERA.

7.2.1 Environmental Setting

The SASE Report presented a detailed description of the terrestrial and aquatic habitats at the NUSC Disposal Area. The following presents a summary of that information.

The NUSC Disposal Area is located on the northwestern edge of the NUWC and occupies approximately 8.1 acres northeast of Cunningham Street (Figure 1-4). The Site includes NUWC Pond and Deerfield Creek, and a golf course abuts the Site to the northeast. An unnamed small stream flows through the northern portion of the Site in a northeast-southwest direction. This unnamed stream originates from the golf course northeast of the Site and flows into NUWC Pond. This stream used to merge with Deerfield Creek prior to flowing into NUWC Pond but now enters the pond east of Deerfield Creek. The pond discharges through a dam/culvert system, which in turn discharges to Narragansett Bay. Habitats throughout and adjacent to the Site are characteristic of fragmented developed landscapes of lightly industrialized or commercial areas. Approximately 30 percent of the Site is covered by impervious surfaces (i.e., concrete, pavement, asphalt).

NUWC Pond is considered an open water habitat with some emergent vegetation along its edge. Depths vary from several inches to 1 foot at the southeastern end of the pond and 5.5 to 9.5 feet near the dam. Along the unnamed stream is a low-lying wet area with vegetation typical of a stream environment. Mature trees are present along the steam embankment, with sporadic trees are in low-lying areas along the stream. Fish such as bluegill, largemouth bass, and white perch are present but not abundant in the pond (MCA, 1996). In addition, during the fish tissue sampling event conducted as part of the RI, bluegill, bullhead, and a single white perch were collected.

The upland areas of the Site, North Meadow and South Meadow, are mainly open grassland with some dense ground cover of herbaceous plants. The surrounding area consists of woody shrubs, saplings, and trees. The storage area is paved with asphalt and does not provide ecological habitat.

Although the Site's natural community has been disturbed and its wildlife habitat fragmented, which is expected to limit the terrestrial, wetland, and avian species expected to use the Site, the dense vegetation in the area does provide cover, foraging, and breeding/nesting areas for birds, mammals, reptiles, and amphibians that do not require large home ranges. In fact, several mammals and birds were observed in the upland areas during a site visit by TtNUS in 2003 (see Appendix E of TtNUS, 2005). Several reptiles were observed (TtNUS, 2005) in the NUWC Pond area and salamanders were observed in Deerfield Creek in 2008. Various fish species were encountered in NUWC Pond during the fish sampling event conducted as part of the RI (Appendix E). The pond and streams provide important freshwater sources for wildlife, and migratory birds are expected to use the area during migration.

7.2.2 Potential Sources of Contamination

Relatively little historical information is available on the NUSC Disposal Area other than its reported use for disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time

(Envirodyne Engineers, Inc., 1983). As part of the SASE, 16 test pits were excavated (TtNUS, 2005). In several of the test pits, metal drum debris with tar-like residue, corroded drums, asphalt, roofing tar paper, etc. were found. Items disposed in soil across the Site are likely to be sources of some of the contaminants present.

Several chemicals were retained as ecological COPCs in the screening-level ERA (TtNUS, 2005) because their maximum concentrations exceeded screening levels or because screening levels were not available. However, after the Step 3a refinement, the list of COPCs was reduced to focus on the primary risk drivers at the Site. The Work Plan presented a summary of the screening-level ERA results for each of the receptor groups after the Step 3a refinement (TtNUS, 2007). In accordance with the Work Plan, all data, including historical and current data, were evaluated in the screening steps of this ERA.

7.2.3 Endpoints

Assessment endpoints are an explicit expression of the environmental value that is to be protected (EPA, 1997a). The selection of these endpoints is based on the habitats present, the migration pathways of probable contaminants, and the routes that contaminants may take to enter receptors. Measurement endpoints are estimates of biological impacts (i.e., mortality, reproduction) that are used to evaluate the assessment endpoints. The selection of measurement endpoints was based on available data and on the data collected as part of this investigation.

The screening-level ERA concluded that risks were possible to several ecological receptors from chemicals in soil, sediment, and surface water. EPA guidance (1997a) states that “it is not practical or possible to directly evaluate risks to all of the individual components of the ecosystem at a site. Instead, assessment endpoints focus the risk assessment on particular components of the ecosystem that could be adversely affected by contaminants from the site.” Therefore, the assessment and measurement endpoints listed in Table 7-1 were selected to focus on the endpoints tending to yield the highest risks, which is expected to account for endpoints that have lower risks.

7.2.4 Conceptual Site Model

A CSM in ERA problem formulation is a written description of predicted relationships between ecological entities and the stressors to which they may be exposed (EPA, 1998). The CSM consists of two primary components, predicted relationships among stressor, exposure, and assessment endpoint response and a diagram that illustrates the relationships (EPA, 1998). Figure 7-2 is a pictorial presentation of these relationships. Section 4, Nature and Extent of Contamination, and Section 5, Fate and Transport, provide additional information for the CSM. At the NUSC Disposal Area, the source of is scrap lumber, tires, wire,

cable, and empty paint cans disposed at the Site (Envirodyne Engineers, Inc., 1983). Therefore, the exposure medium is surface soil. Because the site consists of many different habitats such as upland vegetated areas, wetlands, streams, and the NUWC Pond, a variety of terrestrial and aquatic receptors may be present at the site. Terrestrial plants, invertebrates, and vertebrates are exposed to surface soil by direct contact and terrestrial invertebrates and vertebrates are additionally exposed by ingestion of soil and other food items. Contaminants are presumed to have infiltrated into groundwater, which was then released to surface water and may have contaminated associated sediment. Stormwater and stormwater carrying contaminated soil from the site or off-site areas such as the golf course also may have led to contamination of surface water and sediment. Aquatic and semi-aquatic vegetation, benthic invertebrates, and vertebrates are exposed to surface water and sediment by direct contact and/or ingestion of sediment and surface water and other food items. Terrestrial vertebrates are exposed to chemicals in the air via inhalation. Although the inhalation pathway is possible, it is not a significant pathway and was not evaluated in this ERA.

7.3 SCREENING-LEVEL EXPOSURE ESTIMATE AND RISK QUOTIENTS

7.3.1 Ecological Effects Evaluation

The ecological effects evaluation is an investigation of the relationship between the exposure to a chemical and the potential for adverse effects resulting from exposure. In this step, conservative screening levels for evaluating toxicity to ecological receptors from detected levels of chemicals at the Site were compiled. The potential for risks to terrestrial plants/invertebrates and aquatic receptors resulting from direct exposure to chemicals was determined by comparing chemical concentrations in the surface soil, surface water, and sediment to screening levels. Tables 7-2, 7-3, and 7-4 present the surface water, sediment, and surface soil screening values and their sources, respectively, used in the initial selection of ecological COPCs. For surface water, screening values were not adjusted for hardness because the water hardness based on average calcium and magnesium concentrations is close to 100 mg/L, which is the default hardness used for the screening values. For surface soil, the lowest of the plant, invertebrate, or wildlife EPA Eco SSL was selected as the screening level. Tables 7-2, 7-3, and 7-4 also present the hierarchy of sources used to select the final screening levels. These screening values were updated from those presented in the Work Plan, and are based on the current screening levels as of December 2008 (when preparation of this ERA began).

The potential for risks to wildlife receptors from exposure to chemicals in surface water, sediment, and surface soil was determined by estimating the Chronic Daily Intake (CDI) for each receptor and comparing the CDI to toxicity reference values (TRVs) representing acceptable daily doses in mg/kg-day. The TRVs were developed from no-observed-adverse-effects-levels (NOAELs) and lowest-observed-adverse-effects levels (LOAELs) obtained from wildlife studies, when available. The majority of the TRVs

were obtained from the ORNL Toxicological Benchmarks for Wildlife: 1996 Revision (Sample et al., 1996) and the EPA (Eco SSL) documents for the individual chemicals (http://www.epa.gov/ecotox/ecossl/) and were supplemented with other toxicity information when necessary. The chemical-specific Eco-SSL documents provide NOAELs and LOAELs from many studies, but TRVs were only calculated for NOAELs in the referenced documents because Eco-SSLs are meant to be conservative screening levels. The geometric mean of growth and reproduction LOAELs from the chemical-specific Eco-SSL documents were used as the LOAEL TRVs. Appendix I.1 presents the mammal and bird TRVs used in this ERA and identifies the source of the TRVs.

7.3.2 Exposure Characterization

To determine whether a chemical has the potential to impact an ecological receptor, a chemical concentration or dose must first be determined. That concentration/dose is then compared to the ecological effects data described above. The following paragraphs describe the concentrations/doses used for each set of ecological receptors.

Terrestrial invertebrates and plants are exposed to chemicals in surface soil through direct contact and/or ingestion. Aquatic receptors (such as fish and sediment invertebrates) are exposed to chemicals in surface water and sediment through direct contact and/or ingestion. The screening values developed for these receptors are in units of chemical concentration in each medium (see Tables 7-2 to 7-4). Maximum detected chemical concentrations in site samples were used in the screening step to select COPCs (see Section 7.3.4).

The chronic daily intakes (CDIs) in mg/kg-day were estimated for terrestrial wildlife (mammals and birds) using exposure dose equations. Per EPA request, all chemicals except VOCs that were detected in surface water, sediment, or surface soil were carried through the food-chain model for the complete exposure pathways (i.e., uptake into invertebrates and fish and subsequently ingested by wildlife). The only exceptions were calcium, magnesium, potassium, and sodium and chemicals detected in surface soil at concentrations less than EPA Eco-SSLs based on risks to mammals or birds. For VOCs, only incidental ingestion of soil, sediment, or surface water was evaluated; bioaccumulation into food items was not evaluated for VOCs based on an agreement with EPA Region I. For food-chain modeling, selection of a particular species is required so that intake through eating and drinking can be estimated. The availability of exposure parameters such as body mass, feeding rate, drinking rate, and home range were factors in selecting the following surrogate species for evaluation in the ERA:

- Insectivorous mammal - Short-tailed shrew
- Insectivorous bird - American robin
- Piscivorous mammal - Mink

- Piscivorous bird - Great blue heron

Food-chain modeling was conducted on a dry-weight basis to be consistent with soil and sediment concentrations, which were reported on a dry-weight basis. The concentrations in food items were converted to a dry-weight basis using percent solid values. Because the laboratory did not measure the percent solids content of the tissue samples, it was assumed that the percent solids values for earthworms and fish were 16 percent (EPA, 2007b) and 25 percent (Sample et al., 1997), respectively.

The following equation was used to calculate CDIs for terrestrial wildlife from exposure to chemicals in soil, surface water, and food items (i.e., earthworms and fish):

$$CDI = \frac{\left[\left(C_f * I_f\right) + \left(C_s * I_s\right) + \left(C_w * I_w\right)\right] * H}{BW}$$

Where:

CDI	=	chronic daily intake (mg/kg-day)
C_f	=	chemical concentration in food (mg/kg) (see discussion below)
C_s	=	chemical concentration in surface soil or sediment (mg/kg)
C_w	=	chemical concentration in surface water (mg/L)
If	=	food ingestion rate (kg/day)
Is	=	incidental surface soil/sediment ingestion rate (kg/day)
Iw	=	drinking water rate (L/day)
H	=	portion of food intake from the contaminated area (unitless)
BW	=	body weight (kg)

Table 7-5 summarizes the exposure factors used for the food-chain model, and Appendix I.2 presents the derivation of those parameters. The exposure assumptions (e.g., ingestion rate, body weight) were obtained primarily from the Wildlife Exposure Factors Handbook (EPA, 1993a) and EPA Eco-SSL Guidance Attachment 4-1 (2007b), with other sources used as necessary. Food ingestion rates are on a dry-weight basis as discussed above.

Earthworm and fish tissue (whole body samples) samples were collected from the Site for analysis, and the chemical concentrations in these tissue samples were used as the "C_f" values in the food chain model with one exception. If a chemical was detected in surface soil, surface water, or sediment but was not detected in the corresponding tissue sample, the chemical concentration in tissue for that chemical was set as zero in the food-chain model. In accordance with the Work Plan, because earthworm samples

were not analyzed for PAHs, the concentrations of PAHs (and other SVOCs) were estimated using literature-based bioaccumulation factors via the following equation:

$$Cf = Cs * BAF$$

Where:

Cf	=	contaminant concentration in food (mg/kg)
Cs	=	contaminant concentration in surface soil (mg/kg)
BAF	=	biota-soil bioaccumulation factor (unitless)

The BAFs used for PAHs and other SVOCs are presented in Appendix I.1. Appendix I.3 presents the surface soil, sediment, surface water, and tissue concentrations for the chemicals included in the food-chain model.

For selecting chemicals as COPCs, the following conservative exposure parameters were used to calculate the CDIs:

- Maximum soil concentrations
- Conservative receptor body weight and ingestion rates
- Receptors spend 100 percent of their time at the Site (H=1)

7.3.3 Risk Characterization

The risk characterization compares exposure to ecological effects. It is at this phase that the likelihood of adverse effects occurring as a result of exposure to a stressor is evaluated. Screening-level risk HQs were determined using the exposure estimates and screening levels/toxicity data developed as part of the previous steps. For each chemical and environmental medium, the HQ is expressed as the ratio of a potential exposure level to the applicable screening level/dose. An HQ of less than 1.0 indicates that the chemical alone is unlikely to cause adverse ecological effects.

The HQs for surface soil receptors were calculated as follows:

$$HQ = \frac{C_{ss}}{SSSL}$$

where:

HQ	=	hazard quotient (unitless)
Css	=	chemical concentration in surface soil (µg/kg or mg/kg)

SSSL = surface soil screening level (µg/kg or mg/kg)

The HQs for aquatic receptors were calculated as follows:

$$HQ = \frac{Csw}{SwSL} \text{ or } \frac{Csd}{SdSL}$$

where:

HQ = hazard quotient (unitless)
Csw = chemical concentration in surface water (µg/L)
Csd = chemical concentration in sediment (µg/kg or mg/kg)
SwSL = surface water screening level (µg/L)
SdSL = sediment screening level (µg/kg or mg/kg)

The HQs for the terrestrial wildlife model were calculated as follows:

$$HQ = \frac{CDI}{TRV}$$

where:

HQ = hazard quotient (unitless)
CDI = chronic daily intake dose from food-chain model (mg/kg-day)
TRV = toxicity reference value (NOAEL or LOAEL) (mg/kg-day)

7.3.4 Selection of Chemicals of Potential Concern

The final part of the screening evaluation includes the initial selection of ecological COPCs. Chemicals not retained as COPCs are assumed to pose negligible risk to ecological receptors and were not evaluated further in the ERA. Chemicals retained as COPCs were further evaluated in this ERA. All previous surface water, sediment, and surface soil data were used in the ERA, in combination with the data collected during of the RI. Only sediment data collected from 0 to 4 inches are evaluated in this Section. Sediment data collected from 4 to 24 inches were presented in Section 4 because the data were collected for nature and extent purposes only. Sections 1.0 and 2.0 describe the previous investigations. The only exception was one surface water sample at SW01. Because this location was resampled as part of the RI, the previous results from this location were not used. Also, for locations that were analyzed for the same parameters in multiple sampling events only one result was used. This occurred when soil samples were collected and analyzed for PAHs to help select the locations for toxicity testing. After the samples were selected for toxicity testing, the location was resampled for full chemical analysis, including

a reanalysis of PAHs. However, only the results from the samples collected in conjunction with the toxicity test samples were used to evaluate the toxicity test data. This also occurred in sediment for the lead results. The initial ecological COPCs were selected using the following procedures:

- Chemicals with maximum concentrations greater than screening levels were retained as COPCs because they have a potential to cause risk to ecological receptors.

- Chemicals with HQs greater than 1.0 based on the conservative food-chain model were retained as COPCs because they have the potential to cause risks to mammals and birds.

- Chemicals without screening values were retained as COPCs but were only evaluated qualitatively in the ERA if no other toxicity data were found for those chemicals.

- Calcium, magnesium, potassium, and sodium were not retained as COPCs because they are naturally occurring, essential nutrients that can be tolerated by living systems at high concentrations. No evidence indicates that these chemicals are related to Site operations, and they are not considered hazardous chemicals.

7.3.4.1 Surface Water Screen

Table 7-6 presents a summary of the occurrence, distribution, and selection of ecological COPCs in surface water. The following summarizes the results of surface water COPC selection:

- No VOCs were retained as COPCs because detected concentrations were less than screening levels.
- No SVOCs was retained as COPCs because detected concentrations were less than screening level.
- Two pesticides, in addition to total DDx (total DDE/DDD/DDT) were retained as COPCs because they were detected at concentrations that exceeded screening levels.
- Seven total inorganics and four filtered inorganics were retained as COPCs because they were detected at concentrations that exceeded screening levels.

7.3.4.2 Sediment Screen

Table 7-7 presents a summary of the occurrence, distribution, and selection of ecological COPCs in sediment. The following summarizes the results of sediment COPC selection:

- Five VOCs were retained as COPCs in sediment because they either did not have screening levels or were detected at concentrations that exceeded screening levels.

- Twenty-four SVOCs (including low molecular weight (LMW), high molecular weight (HMW) and total PAHs) were retained as COPCs because they either did not have screening levels or were detected at concentrations that exceeded screening levels.
- Six pesticides and two PCBs, in addition to total DDx and total Aroclors, were retained as COPCs because they were detected at concentrations that exceeded screening levels.
- Fifteen inorganics were retained as COPCs because they either did not have screening levels or were detected at concentrations that exceeded screening levels.
- Three Extractable TPH were retained as COPCs because they did not have screening levels.

7.3.4.3 Surface Soil Screen

Table 7-8 presents a summary of the occurrence, distribution, and selection of ecological COPCs in surface soil. Only analytical data from surface soil (top 2 feet) in unpaved areas were evaluated in the ERA. The following summarizes the results of surface soil COPC selection:

- Eight VOCs were retained as COPCs because they did not have screening levels.
- Nineteen SVOCs were retained as COPCs because they either did not have screening levels or were detected at concentrations that exceeded screening levels.
- Eight pesticides (including total DDx), one PCB, and total Aroclors were retained as COPCs because they were detected at concentrations that exceeded screening levels.
- Fifteen inorganics were retained as COPCs because they either did not have screening levels or were detected at concentrations that exceeded screening levels.
- Four Extractable TPH were retained as COPCs because they did not have screening levels.

7.3.4.4 Terrestrial Wildlife Screen

Tables 7-9 and 7-10 present summaries of the HQs for the food-chain models for insectivorous and piscivorous mammals and birds, respectively. Appendix I.3 contains spreadsheets presenting the HQ calculations for each of the receptors. Chemicals were retained as COPCs if their calculated NOAELs using conservative exposure assumptions (i.e., maximum detected chemical concentrations and conservative exposure parameters) was greater than 1.0. The following summarizes the results of terrestrial wildlife COPC selection:

- Nine SVOCs, Aroclor-1260, total Aroclors, and 14 inorganics were retained as COPCs for soil insectivorous mammals.
- Ten SVOCs, total Aroclors, and 14 inorganics were retained as COPCs for soil insectivorous birds.

- 4,4'-DDE, dieldrin, total DDx, Aroclor-1260, total Aroclors, and five inorganics were retained as COPCs for piscivorous mammals.
- Total Aroclors and three inorganics were retained as COPCs for piscivorous birds.

7.3.4.5 Summary of Screening

Based on this initial screening, several chemicals were retained as COPCs in surface soil, sediment, and surface water because they were detected at concentrations that exceeded screening levels or because the chemicals did not have screening levels. Also, several chemicals were retained as COPCs in surface soil, sediment, and surface water because their calculated NOAEL HQs were greater than 1.0 in the food-chain model for at least one receptor. The next section of the ERA presents a more detailed risk evaluation of the chemicals retained as COPCs.

7.4 RISK EVALUATION

Table 7-11 lists the chemicals retained as COPCs in surface soil, surface water, and sediment after the initial screening. For surface soil and sediment, the chemicals retained as COPCs because of food-chain modeling were also included in this table.

The risk evaluation step of the ERA further refines the list of chemicals retained as COPCs and endpoints at risk using the results of the toxicity testing and benthic community analysis, along with other refinement steps typically conducted as part of a Step 3a refinement. However, the risk evaluation in this section consists of more than the typical Step 3a refinement because of the availability of toxicity test data and benthic community study data. The following sections present the risk evaluation for each set of endpoints evaluated.

7.4.1 Terrestrial Plants

Risks to plants were evaluated by comparing the measured concentrations of chemicals in surface soil to plant screening levels and by looking for signs of stressed vegetation during the RI.

The screening levels used to select the COPCs in surface soil were the lower of the available screening levels for plants, invertebrates, and wildlife. Table 7-12 presents the concentrations of COPCs in soil compared to plant screening levels. The results of the background comparison are also shown on this table. The plant screening levels were (1) EPA Eco-SSLs (http://www.USEPA.gov/ecotox/ecossl/) and (2) the greater of the plant benchmarks (Efroymson et al., 1997a) and Canadian Soil Quality Guidelines (EC,

1999). The maximum detected concentrations of most metals were greater than plant screening levels. Plant screening levels were not available for most of the organic chemicals.

Mercury and vanadium were the only chemicals detected at concentrations that did not exceed background concentrations. Some other metals were detected at concentrations that just slightly exceeded background concentrations, and these will be discussed later in the ERA.

As discussed in the Work Plan, toxicity tests were not conducted to evaluate potential risks to plants because the Site is covered with dense vegetation, indicating that chemicals in soil do not appear to be having a significant impact on plants. During the RI, no obvious signs of stressed vegetation were observed in areas of elevated chemical concentrations. This is not surprising because the bioavailability of contaminants in toxicity studies is usually greater than the bioavailability of contaminants in environmental media. Toxicity tests use highly bioavailable forms of the metal, such as metal salts, which in many cases are much more toxic than equivalent concentrations of the metals in field collected soils (Allen, 2002). Therefore, although several chemicals were present in surface soil at concentrations that exceeded plant screening levels, based on the heavy vegetative growth at the Site, it does not appear that significant impacts are occurring to plants. For that reason, plants were eliminated as receptors of concern for the Site.

7.4.2 Terrestrial Invertebrates

Risks to soil invertebrates were evaluated by comparing the measured concentrations of chemicals in surface soil to invertebrate screening levels and by conducting earthworm toxicity tests.

7.4.2.1 Chemistry Evaluation

Table 7-12 presents the concentrations of COPCs in soil compared to invertebrate screening levels and background concentrations. The invertebrate screening levels included (1) EPA Eco-SSLs (http://www.USEPA.gov/ecotox/ecossl/) and (2) the greater of the ORNL Invertebrate benchmarks (Efroymson et al., 1997b) Canadian Soil Quality Guidelines (EC, 1999). In accordance with Navy policy, chemicals detected as concentrations less than background concentrations were eliminated as COPCs in Step 3. However, some chemicals that may not be site related and that would typically be eliminated from the ERA during this step were retained for further evaluation to help interpret the toxicity test data. The background evaluation of these metals is presented later in this ERA, when applicable.

The following is a summary of the chemistry evaluation:

- None of the VOCs retained as COPCs have invertebrate screening values, but most were detected infrequently (5 or less of 74 samples) with the exception of acetone, a common laboratory contaminant. Also, the maximum detected concentrations of the VOCs were less than most of the screening levels for the other VOCs. Therefore, although there is some uncertainty in whether the VOCs without screening levels are impacting plants or invertebrates, based on their low detection frequency and low concentrations relative to screening levels for other VOCs, it is not likely that plants and invertebrates are being significantly impacted by VOCs in the soil. For that reason, VOCs were eliminated as COPCs and were not evaluated further in this ERA.

- Six of the SVOCs retained as COPCs were not PAHs. Of these, 3,3-dichlorobenzidine and butylbenzyl phthalate were detected in only 1 of 73 samples, so they were eliminated from further evaluation. Benzoic acid and bis(2-ethylhexyl) phthalate, a common laboratory contaminant, were detected in 10 of 73 and 13 of 73 samples, respectively, and were not detected in any of the samples selected for toxicity tests so they could not be further evaluated. Finally, carbazole (detected in 15 of 73 samples) and dibenzofuran (detected in 6 of 73 samples) were detected in only a few samples selected for toxicity testing. In addition, the maximum detections of both of these chemicals were at the same location (SB127) as the maximum detected concentrations of PAHs. Therefore, risks from these chemicals will be accounted for when evaluating risks from PAHs. For that reason, carbazole and dibenzofuran were eliminated from further evaluation.

- A few PAHs (including both HMW and LMW PAHs) were detected at concentrations that exceeded the Eco-SSLs for invertebrates. Therefore, they have the potential to impact soil invertebrates, and PAHs were retained for further evaluation.

- The Canadian Soil Quality Guideline for DDT (EC, 1999) for soil contact based on risks to plants and invertebrates is 12,000 µg/kg, which is much greater than the maximum detected concentrations of any of the DDx compounds. However, the total DDx were retained for further evaluation, to be conservative.

- The other five pesticides were detected in 3 or less of 74, samples so they were eliminated from further evaluation based on low density frequency.

- The Canadian Soil Quality Guideline for PCBs (EC, 2001) for soil contact based on risks to plants and invertebrates is 33,000 µg/kg, which is much greater than the maximum detected concentrations of any of the PCB compounds. However, because PCBs are related to site activities and because earthworm toxicity tests were conducted, PCBs were retained for further evaluation of the toxicity test data.

- Mercury and vanadium were the only chemicals detected at concentrations that did not exceed background concentrations. Also concentrations of both metals were less than invertebrate screening levels (Table 7-12).

- Five metals (arsenic, copper, lead, manganese, and zinc) were detected at concentrations that exceeded their Eco-SSLs for invertebrates. In addition, cobalt and molybdenum do not have screening levels for invertebrates. All of these metals were retained for further evaluation in the ERA. The EPA Eco SSL document for aluminum states that aluminum should only be retained as a COPC is the soil pH is less than 5.5 S.U. The average soil pH at the site is 5.35 so aluminum was also retained for further evaluation in the ERA.

- Petroleum hydrocarbons were retained as COPCs because they lack ecological screening levels. However, because site-specific toxicity tests were conducted, these parameters were evaluated further in the ERA if they were detected in samples selected for toxicity testing. Gasoline range organics were detected in 15 of 74 samples, but none of the detections were in samples selected for toxicity testing. Extractable TPH (C09-C36), however, was detected in 65 of 73 samples, many of which were selected for toxicity testing. Therefore, Extractable TPH was retained for further evaluation in the ERA.

In summary, the following chemicals have the potential to impact soil invertebrates and have the potential to be site related, so they were evaluated further in the ERA:

- SVOCs: LMW PAHs, HMW PAHs, and total PAHs
- Pesticides: total DDx
- PCBs: total Aroclors
- Metals: aluminum, arsenic, cobalt, copper, lead, manganese, molybdenum, and zinc
- Petroleum Hydrocarbons: Extractable TPH

7.4.2.2 Toxicity Test Evaluation

Fourteen-day earthworm toxicity tests as outlined in Standard Guide for Conducting Laboratory Soil Toxicity or Bioaccumulation Tests with Lumbricid Earthworm *Eisenia fetida* and the Enchytraeid Potworm *Enchytraeus albidus* (ASTM, 2004a) were conducted to evaluate risks to terrestrial invertebrates. The endpoints of the tests were mortality as measured by survival of the earthworms and growth as measured by weight. The Work Plan specified only the survival endpoint, but the laboratory measured weight so growth was included as a second endpoint.

Initially, 53 surface soil samples were collected from unpaved locations and analyzed for PAHs. Based on those results, ten sample locations at the Site were selected for toxicity testing in areas of low, moderate, and high concentrations of PAHs. In addition, one background location was selected for toxicity testing for use as a reference sample. All of the samples selected for toxicity testing were analyzed for the full suite of analytical parameters. Note that location SS-153 was initially selected as a background location. However, after the draft RI report was completed, it was determined that this location was within the redefined site boundary and was not an acceptable background location. Therefore, the location was re-designated as a site location and evaluated as such. The toxicity test report in Appendix I.6 was not updated so it still identifies SS-153 as a reference location. Appendix I.4 presents PAH concentrations detected at each of the 53 Site locations, the locations selected for toxicity testing, and the rationale for selecting each location. The PAH concentrations in this appendix are not the same ones used to evaluate the toxicity test results. The samples selected for toxicity testing were reanalyzed for PAHs to ensure that the concentrations of PAHs in the actual samples used for toxicity testing were known.

PAHs were the only parameters selected for quick turn-around analysis because they were the primary chemicals of concern for earthworms at the Site based on the screening-level ERA (TtNUS, 2005). The elevated detections of metals were sporadic and not widespread across the Site and therefore were not considered as significant as the PAHs. The full suite analysis on the samples selected for toxicity testing was used to determine whether other chemicals present in soil could be responsible for any observed toxicity.

Appendix I.6 includes a copy of the earthworm toxicity test laboratory report. The only deviation from the ASTM method (2004a) noted in the test was that the temperature exceeded the upper limit of 22 degree Celsius (^{o}C) as specified in the protocol for approximately 11 hours. The mean survival in the laboratory control sample was 100 percent, which exceeded the acceptability criterion of 90 percent survival, so the temperature deviation is not believed to have affected the test results.

Table 7-13 presents a summary of earthworm toxicity test results. Mean survival was 92.5 percent in the reference sample, and 80 to 97.5 percent in the Site samples. Mean weight was 368 mg per worm in the reference sample, and 235 to 383 mg per worm in the Site samples.

The survival and growth rates of the earthworms were statistically compared to the survival and growth rates in the reference sample (analysis of variance [ANOVA] p less than 0.05) to determine if the survival or growth rates of the earthworms in the Site samples were lower than the survival or growth rates in the reference sample. The statistical comparison is presented in the laboratory report (Appendix I.6), and the results are summarized in Table 7-14.

Only one sample (from location SS127) had lower survival compared to one reference sample, and only two samples (from location SS105B and SS153) had a lower weight compared to the reference sample. The decision rules presented in the Work Plan established initial decision points based on survival being greater than or less than 80 percent. However, based on an agreement made during the June 24, 2009 technical meeting, the Navy agreed to remove the 80 percent survival threshold decision rules from the ERA.

Several additional decision rules were established in the Work Plan to evaluate the results of the toxicity tests. However, based on a resolution of EPA comments regarding other sites in Region 1, the Navy agreed that comparison of Site data to laboratory control data would not be used to make any risk decisions at the Site. In addition, the Navy agreed that no decisions would be made based on absolute differences in growth rates between Site samples and reference samples. Therefore, the decision rules to evaluate the earthworm toxicity test data were modified slightly from those in the Work Plan. The modified decision rules are presented below.

Site Sample Survival:

- If mean survival in any Site sample was not statistically different than the mean survival in the reference sample, that location was classified as “no unacceptable site-related survival risk to soil invertebrates.”
  - Nine locations were classified as “No unacceptable site-related survival risk to soil invertebrates.”

- If mean survival in any Site sample was statistically different than the mean survival in the reference sample, that location was classified as “potentially unacceptable site-related survival risk to soil invertebrates.”
  - One location (SB127) was assigned this classification. For the reasons listed below, the sample from location SB127 was reclassified as “no unacceptable site-related survival risk to soil invertebrates” :
    - The mean survival rate in the sample from that location was exactly 80 percent, which is typically considered an acceptable survival rate for toxicity testing.
    - Growth in this sample was not impacted.

Site Sample Growth Not Different from Reference Sample

- If mean growth in any Site sample was not statistically different than mean growth in the reference sample, that location was classified as “no unacceptable site-related growth risk” (i.e., risk not different than regional conditions).

    - Eight locations fell into this category and were classified as “No unacceptable site-related growth risk to soil invertebrates.”

- If mean growth in any Site sample was statistically different from the mean growth in the reference sample, that location was classified as “potentially unacceptable site-related growth risk.”

    - Two samples fell into this category (at location MW105B and SS153).

Table 7-15 presents a summary of the risk classifications based on toxicity testing results. Because at least one Site sample was classified as "potentially unacceptable site-related risk," (based on survival or growth) concentration plots were generated for the chemicals. Although growth at MW105B and SS153 was the only endpoint classified as "potentially unacceptable site-related risk," plots were generated for both survival and growth for information purposes. The plots were generated for the chemicals listed at the end of Section 7.4.2.1. In addition, for the organic chemicals, plots were generated for normalized results (bulk chemistry concentrations divided by percent TOC) to determine whether the amount of organic carbon in the soil impacted the bioavailability of the chemicals.

The concentration plots consist of the constituent concentration along the x-axis and percent survival or mean growth (in mg) along the y-axis (see Appendix I.6). A regression trend line was added to each plot to determine whether there was a positive or negative relationship between chemical concentrations and endpoints. The R^2 value indicates how well the data fits the regression line. Although regression lines with R^2 values greater than 0.6 are generally considered to fit the data well, an arbitrary standard of 0.6 was not used to determine whether there was an acceptable relationship between the chemical concentration and endpoint. The plots were visually inspected to determine whether there was a relationship between contaminant concentrations and toxicity (i.e., dose-response relationship).

Table 7-16 presents a summary of this evaluation. The R^2 values were all very low (less than 0.33), and there did not appear to be a dose-response relationship for any parameter. Arsenic was the only parameter plotted that had maximum concentrations in the surface soil sample at SS153. There was no correlation between the arsenic concentrations and percent growth. Also, the conservative Oak Ridge National Laboratory (ORNL) screening benchmark for earthworms for arsenic is 60 mg/kg. Therefore, it is

not likely that concentrations of arsenic resulted in the lower growth in the sample from SS-153.

Manganese and zinc were the only parameters plotted that had maximum concentrations in the surface soil sample at MW105B. However, in both cases, it is not likely that they resulted in the lower growth in that sample, as discussed below. The concentration of manganese at MW105B (416 mg/kg) was less that the Eco-SSL based on soil invertebrates (450 mg/kg) and was only 7 mg/kg greater than the next lowest concentration, which was not considered toxic. For zinc, the maximum detected concentration was at MW105B (the location with the lowest growth), and the concentration (152 mg/kg) was slightly greater than the conservative Eco-SSL based on soil invertebrates (120 mg/kg). Although the slightly elevated level of zinc may be responsible for the slightly lower growth in earthworms in the sample collected from MW105B, zinc does not appear to be significantly impacting earthworms at this location for the following reasons: (1) there was a very poor dose-response relationship and (2) the sample from this location had the highest percent survival (97.5 percent) at any location, including the reference location. The soil sample from MW105B had the lowest percent clay and lowest percent silt values in the samples where those parameters were measured (see Table 7-13). Therefore, although it is possible that the lower silt and clay content was responsible for the slightly lower growth, this too is unlikely because there was not an obvious relationship between percent silt or clay and growth. For example, the sample from SS134 had one of the lower growth values but had the greatest percent silt and clay values.

The samples from SB127 initially had a final classification of “potentially unacceptable site-related survival risk to soil invertebrates.” However, for reasons discussed above, the classification was changed to “no unacceptable site-related survival risk to soil invertebrates.” The concentration plots also showed no dose-response relationship for any chemicals. In fact, the concentrations at SB127 were in the lower range of concentrations for most chemicals, with one exception. The total PAH concentration at SB127 (282,900 mg/kg) was much greater than the PAH concentration in any other sample collected for toxicity testing. However, because this sample was not considered to have reduced survival, the PAH levels at this location were considered acceptable for soil invertebrates.

In summary, the toxicity test data revealed only minor (if any) impacts to earthworms. One Site sample had statistically lower survival compared to the reference sample. Also, only two samples had lower growth compared to the reference sample.

Table 7-16 presents the maximum detected concentrations in the samples selected for toxicity testing and included in the concentration plots. Because it does not appear that any of the chemicals were responsible for the slight impacts to earthworms, these maximum concentrations in soil samples used for toxicity testing were considered No-Observed-Effects Concentrations (NOECs). Lowest-Observed-Effects Concentrations (LOECs) were not determined for any parameter because there was not a

relationship between the contaminant concentrations and toxicity.

Table 7-17 presents the NOECs and invertebrate screening levels. The greater of the NOEC or invertebrate screening level is shaded on the table because concentrations less than either the NOEC or invertebrate screening level are not expected to impact soil invertebrates. All of the chemicals for which NOECs were developed were detected at concentrations that exceeded background concentrations. However, aluminum and manganese concentrations in the Site samples were just slightly greater than concentrations in the background samples (see Appendix F).

Appendix I.7 presents a table that compares the greater of the NOEC or invertebrate screening level on Table 7-17 to the chemical concentrations in the soil samples. As can be seen from the table, most of the chemical concentrations in the site samples are less than the NOEC or invertebrate screening level. There are a few exceedences of those values, which are in samples scattered across the site. It is not likely that these exceedences would result in significant impacts to soil invertebrates for the following reasons:

- Most of the exceedences are for aluminum and manganese which were detected at concentrations just slightly greater than background concentrations.
- Both the NOECs and invertebrate screening levels are conservative values because they are concentrations below which adverse impacts should not be expected. Therefore, slight exceedences of these values are not likely to result in significant impacts. In most cases, the concentrations were less than twice the NOEC or screening level.
- The exceedences are not widespread across the site so any impacts, if occurring, would be limited to small areas.

7.4.3 Sediment Invertebrates

Risks to sediment invertebrates were evaluated by comparing the measured concentrations of chemicals in sediment to screening levels, by conducting sediment toxicity tests, and by conducting a benthic community investigation.

7.4.3.1 Chemistry Evaluation

Table 7-18 lists the chemicals retained as COPCs in sediment and presents the detection frequency (for the Site samples) and maximum and average concentrations for Site samples, reference pond/stream samples, and NUSC sediment background samples. The table also notes whether the maximum or average detected concentration in the Site samples exceeded the maximum or average detected

concentration in either the reference or background samples. The following is a summary of this evaluation:

- Two of the VOCs retained as COPCs, acetone and carbon disulfide, are common laboratory contaminants and were detected at greater concentrations in the reference pond/reference stream samples than at the Site. Therefore, these VOCs were eliminated as COPCs.

- bis(2-Ethylhexyl) phthalate, a common laboratory contaminant, was detected at greater concentrations in NUSC sediment background samples than Site samples, so it was eliminated as a COPC.

- The maximum and average concentrations of all PAHs detected in Site samples exceeded the concentrations in reference pond/reference stream samples. The maximum detected concentrations of four PAHs in Site samples were less than concentrations in NUSC sediment background samples, and the average concentrations of seven additional PAHs (plus HMW PAHs and total PAHs) in Site samples were less than average concentrations in NUSC sediment background samples. However, because the maximum detected concentrations of several PAHs were greater than background concentrations, PAHs were not eliminated as COPCs.

- The maximum and average concentrations of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and total DDx (total DDD/DDE/DDT) in Site samples exceeded the concentrations in reference pond/reference stream samples. The maximum detected concentration of 4,4'-DDT in Site samples was less than its concentration in NUSC sediment background samples. Also, the average concentrations of 4,4'-DDE, total DDx, and alpha-and gamma-chlordane in Site samples were less than average concentrations in NUSC sediment background samples. However, because maximum detected concentrations of these pesticides were greater than background concentrations, these pesticides were not eliminated as COPCs.

- Dieldrin was detected in only one sample at a concentration that exceeded its screening level and was detected at greater concentrations in NUSC sediment background samples, so it was eliminated as a COPC.

- The maximum and average concentrations of most metals analyzed in Site samples exceeded the concentrations in reference pond/reference stream samples. The maximum detected concentrations of five metals (arsenic, barium, manganese, nickel, and zinc) were less than their concentrations in NUSC sediment background samples. Also, the average concentration of iron in Site samples was less than the average concentration in NUSC sediment background samples. However, because

metals could contribute to the toxicity observed in sediment toxicity tests, they are retained for further evaluation in the ERA.

As presented above, maximum and average chemical concentrations in Site samples generally exceeded concentrations in reference pond/reference stream samples; however, several chemicals detected in Site sediment samples were detected at similar or greater concentrations in NUSC sediment background samples. Therefore, although these chemicals may not be Site related and would typically be eliminated from the ERA during this step, most chemicals were retained for further evaluation to help interpret the toxicity test data. The background evaluation of these metals is presented later in this ERA, when applicable.

Five VOCs were retained as COPCs, three of which do not have screening levels. These three include 4-isopropyltoluene, chloroethane, and dichlorodifluromethane, which were detected in 2 of 26, 1 of 26, and 6 of 26 samples, respectively. These chemicals were detected at concentrations less than the screening levels for most of the other VOCs (see Table 7-7), so it is not likely that these chemicals would impact sediment invertebrates at the Site. Therefore, they were eliminated as COPCs.

Of the SVOCs retained as COPCs, 16 were PAHs (plus LMW PAHs, HMW PAHs, and total PAHs). These PAHs have the potential to cause toxicity to sediment invertebrates, so they are retained for further evaluation. Because the toxic effects of PAHs are additive, the evaluations focused on LMW PAHs, HMW PAHs, and total PAHs as opposed to individual PAHs. Of the remaining SVOCs (bis[2-ethylhexyl] phthalate was eliminated as discussed above), three were detected in 4 or less of 26 samples (benzyl alcohol, carbazole, and diethyl phthalate) and are not likely significant risk contributors at the Site. Therefore, they were eliminated as COPCs. The remaining SVOC, benzoic acid, was detected in 10 of 14 samples, so it was retained for further evaluation.

Six pesticides were retained as COPCs (including total DDx) because they were detected at concentrations that exceeded their screening levels. Dieldrin was eliminated as a COPC for reasons discussed above. Three of the pesticides, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT, were retained and further evaluated as total DDx (sum of the individual compounds). Similarly, alpha-chlordane and gamma-chlordane were retained for further evaluation as total chlordane.

Two PCBs (Aroclor-1260 and Aroclor-1268) and total Aroclors were retained as COPCs because concentrations exceeded screening levels. PCBs were retained for further evaluation as total Aroclors (sum of the individual compounds).

Several metals were retained as COPCs because they were detected at concentrations that exceeded screening levels. As discussed above, although several of the metals in Site samples were detected at greater concentrations than at reference and NUSC sediment background locations, they were retained as COPCs to help evaluate the sediment toxicity test data.

Analysis of sediment samples for Acid Volatile Sulfide/Simultaneously Extracted Metals (AVS/SEM) was considered in the Work Plan to determine the bioavailability of metals in the sediment. However, based on a review of the sediment data collected in 2003 for the SASE (TtNUS, 2005), it was determined that AVS/SEM data would not provide useful information, so the 2007 and 2008 sediment samples were not analyzed for AVS/SEM. The previously collected AVS/SEM data were not re-evaluated in this ERA.

Petroleum hydrocarbons were retained as COPCs because they lack ecological screening levels. GRO were detected in only 2 of 18 samples, and only one of the detections was in a sample used for toxicity testing. Therefore, risks to sediment from this parameter cannot be further evaluated in the ERA, and it is eliminated as a COPC. Also, many of the components of these petroleum hydrocarbons were included in the VOC and SVOC analytical list. Extractable TPH (C09-C36), however, was detected in 18 of 18 samples, many of which were selected for toxicity testing. Therefore, TPH was retained for further evaluation in the ERA.

In summary, the following chemicals have the potential to impact sediment invertebrates and have the potential to be site related, so they were further evaluated in the ERA:

- SVOCs: LMW PAHs, HMW PAHs, total PAHs, and benzoic acid
- Pesticides: total DDx and total chlordane
- PCBs: total Aroclors
- Metals: aluminum, arsenic, barium, beryllium, cadmium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, silver, and zinc.
- Petroleum Hydrocarbons: Extractable TPH

7.4.3.2 Toxicity Test Evaluation

Twenty-eight-day amphipod toxicity tests were conducted to evaluate risks to sediment invertebrates as outlined in Standard Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates (ASTM, 2004b). The endpoints of the tests were mortality, as measured by survival, and growth, as measured by dry weight.

Initially, sediment samples were collected from 37 Site locations for analysis of lead. Lead was the only parameter selected for the initial analysis because it was the primary chemical of concern for amphipods at the Site. Elevated detections of PCBs were sporadic and not widespread across the Site and therefore were not considered as significant. Also, based on historical data for locations sampled during the SASE, elevated concentrations of PAHs were generally co-located with elevated concentrations of lead, so the locations with elevated PAHs would likely be selected for toxicity testing.

After the initial lead results were reviewed, 13 locations were selected for toxicity testing in areas of low, moderate, and high concentrations of lead and based on habitat. Appendix I.4 presents the plan for Sediment and Biological Sampling that was sent to the regulators on April 25, 2008. The plan presented the lead results, locations selected for toxicity testing, and rationale for selecting each location. Lead concentrations in Appendix I.4 are not the same ones used to evaluate the toxicity test results. The samples selected for toxicity testing were analyzed for the full suite of analytical parameters (including lead) to ensure that the chemical concentrations in the actual samples used for toxicity testing were known. The locations were selected from toxicity testing:

- Three sediment locations in NUWC Pond (SD119, SD121, and SD125).

- SD114 and SD116 were in the stream channels slightly upgradient of where the channels enter the pond. Although these locations are within the pond during wetter years when water levels in the pond are high, based on the biological assessment (see Appendix I.7), it was determined that these locations are more similar to the stream locations than the pond locations.

- SD01 was initially proposed for only chemical analysis as an upstream location to determine whether chemicals were site related. However, it was determined in the field that this location may have been influenced by site activities, so samples from this location were also collected for toxicity testing and benthic community analysis.

- SD133 was located in Deerfield Creek where very high lead concentrations were previously detected. The substrate at this location was mostly bedrock, which is different than the other sediment locations.

- The remaining Site locations for sediment toxicity testing were spaced throughout Deerfield Creek and the unnamed tributary from the golf course.

Appendix I.6 includes a copy of the sediment invertebrate toxicity test laboratory report. There were only minor protocol deviations as described in the laboratory report. The deviations are not expected to impact the results of the test.

Table 7-19 presents a summary of sediment toxicity test data. The table is grouped into pond samples and stream samples to account for the differences in habitat between the two groups of samples.

For the pond locations, mean survival ranged from 77.5 percent to 85 percent in the reference samples and 2.5 percent to 67.5 percent in the Site samples. The mean weight ranged from 0.338 to 0.505 mg in the reference samples, and 0.146 mg to 0.310 mg in the Site samples. SD121 and SD125 had the greatest ammonia concentrations and the lowest dissolved oxygen (DO) concentrations. The laboratory was contacted about the low DO concentrations, and they indicated that the day 0 results were measured before the test organisms were added to the test chambers. Because of the low DO levels, all of the chambers were aerated prior to adding the organisms. This resulted in higher dissolved oxygen levels and likely lower ammonia levels (but ammonia was not remeasured). Therefore, these parameters probably did not impact the results of the toxicity test, although it is not known whether other parameters may have contributed to low survival and growth at SD121 and SD125.

For the stream locations, mean survival was 82.5 and 86.25 percent in the two reference samples and ranged from 21.25 to 91.25 percent in the Site samples. The mean weight was 0.322 and 0.333 mg in the reference samples and ranged from 0.249 to 0.427 mg in the Site samples.

The amphipod survival and growth rates were statistically compared to survival and growth rates in the reference and laboratory control samples (ANOVA, p less than 0.05) to determine if the survival or growth rates of amphipods in the Site samples were less than the survival or growth rates in the reference samples. The NUWC Pond samples were compared to the reference pond samples, and the Site stream samples were compared to the reference stream samples. The statistical comparison is presented in the laboratory report (Appendix I.6), and the results are summarized in Tables 7-20 (pond) and 7-21 (stream). All of the NUWC Pond samples (except one duplicate) had statistically lower survival than all three reference pond samples; the duplicate sample only had lower survival compared to one reference sample. All of the NUWC Pond samples (including the duplicate) had statistically lower growth compared to two of the three reference pond samples (see Table 7-20). None of the NUWC Pond samples had lower growth compared to reference pond sample RP02.

Three of the Site stream samples had statistically lower survival than both reference stream samples; one stream sample had lower survival than one of the reference stations. Two stream samples had

statistically lower growth than both reference samples, but neither of these samples had lower survival compared to the reference samples (see Table 7-21).

Several decision rules were established to evaluate the results of the toxicity tests. However, based on a resolution of EPA comments regarding other sites in Region 1, the Navy agreed that comparison of Site data to laboratory control data would not be used to make any risk decisions at the Site. In addition, the Navy agreed that no decisions would be made based on absolute difference in growth rates between Site samples and reference samples. Based on an agreement made during the June 24, 2009 technical meeting, the Navy agreed to remove the 80 percent survival threshold decision rule from the ERA. Therefore, the decision rules were modified slightly from those in the Work Plan to evaluate the amphipod toxicity test data. The modified decision rules are presented below.

Site Sample Survival:

- If mean survival in any Site sample was not statistically different than mean survival in any of the reference samples, that location was classified as "No unacceptable site-related survival risk to sediment invertebrates."

    - o No pond samples received this classification.
    - o Seven stream samples received this classification.

- If mean survival in any Site sample was statistically different than mean survival in at least one of the reference samples, that location was classified as "potentially unacceptable site-related survival risk to sediment invertebrates."

    - o Three pond samples received this classification with respect to both reference stations, and one duplicate sample was assigned this classification with respect to one reference station.
    - o Three stream samples fell into this category with respect to all three reference stations; while one sample fell into this category with respect to one reference station.

Site Sample Growth Not Different from Reference Sample

- If mean growth in any Site sample was not statistically different than mean growth in any of the reference samples, that location was classified as "no unacceptable site-related growth risk" (i.e., risk not different than regional conditions).

- No pond samples were classified as “no unacceptable site-related growth risk.”
- Nine stream samples were classified as “no unacceptable site-related growth risk.”

- If mean growth in any Site sample is statistically different from mean growth in at least one of the reference samples, that location was classified as “potentially unacceptable site-related growth risk.”

  - Two stream samples and three pond samples (plus one duplicate) received this classification.

Table 7-22 presents a summary of this evaluation. Because at least one Site sample was classified as "potentially unacceptable site-related risk," (based on survival or growth) concentration plots were generated for the list of chemicals presented at the end of Section 7.4.3.1, (see Appendix I.6) In addition, for organic chemicals, plots were generated for normalized results (bulk chemistry concentrations divided by percent TOC) to determine whether organic carbon in sediment impacted the bioavailability of the chemicals. Plots were also generated for mean Probable Effects Concentration (PEC-Q) quotients, which were calculated for each location using the following procedure:

1. Calculate the (PEC-Q) for the following parameters:
   - Total PAHs
   - Total PCBs
   - DDE
   - Individual metals (arsenic, cadmium, chromium, copper, lead, nickel, and zinc)
2. Average the 10 PEC-Qs listed above to generate an overall mean PEC-Q
3. Average the seven metal PEC-Qs listed above to generate an overall mean metals PEC-Q

The chemicals used for computing the PEC-Qs were selected because they were determined to have reliable PECs, as defined in Ingersoll et al. (2000), which also presents the methodology for calculating the PEC-Qs. An additional overall mean PEC-Q was generated using total DDx (total of DDD, DDE, and DDT) in place of DDE. The mean PEC-Qs in the plots labeled with labels starting with Overall Mean Probable Effects Concentration-Quotient (DDE)” included the 4,4’-DDE PEC-Q in the calculation of the values. The mean PEC-Qs in the plots with labels starting with “Overall Mean Probable Effects Concentration-Quotient (DDx)” included the total DDx PEC-Q in the calculation of the values.

The concentration plots in Appendix I.6 consist of the constituent concentration along the x-axis and percent survival or mean growth (as measured by weight in mg) along the y-axis. A regression trend line was added to each plot to determine whether there was a positive or negative relationship between chemical concentrations and endpoints, and the R^2 value indicates how well the data were fit to the regression line. Tables 7-23 and 7-24 present a summary of this evaluation for pond samples and stream

samples, respectively. Although regression lines with R^2 values greater than 0.6 are generally considered to fit the data well, a strict cutoff of 0.6 was not used to determine whether there was an acceptable relationship between chemical concentration and endpoint. The plots were visually inspected to determine whether there was a relationship between contaminant concentrations and toxicity (i.e., dose-response relationship), and professional judgment was used to evaluate each plot. Tables 7-25 and 7-26 summarize the evaluations for pond and stream samples, respectively.

Evaluation of Pond Samples

Appendix I.6 presents the concentration plots for pond samples. Plots were not generated for benzoic acid because it was not detected in any of the sediment samples selected for toxicity testing in the pond. As can be seen from Table 7-23, several samples had negative regressions lines and R^2 values greater than 0.6, indicating decreasing survival or growth with increasing chemical concentrations. High R^2 values can be misleading when sample sizes are small and when differences in concentrations between Site samples and reference samples is large, as in the survival plot for LMW PAHs, which has a high R^2 value of 0.74. Concentrations of LMW PAHs in the three Site samples are similar, but survival rates in the same three samples were very dissimilar, ranging from 2.5 to 67.5 percent (see Table 7-19).

The next step was to determine which chemicals were most likely responsible for the low survival and growth observed in the Site samples. Part of the difficulty in this evaluation is that the Site samples consist of a mixture of chemicals, and it was not always clear which chemicals are responsible for the impacts. Therefore, the first objective of this evaluation was to eliminate chemicals that were not likely responsible for the impacts, focusing the evaluation on chemicals that were potentially responsible. The concentration plots in Appendix I.6 were visually inspected to determine whether there appeared to be a dose-response relationship for each chemical. The following summarizes the items included in the evaluation to determine whether it was likely that the chemical was causing a reduction in survival or growth:

- Range of concentrations in Site samples: Several chemicals had a strong dose-response relationship but a low range of concentrations in Site samples. In those cases, it is more likely that another parameter is responsible for the apparent response because a significant decrease in survival or growth typically does not occur over a small range in concentrations. Examples of this are the survival plots for arsenic and barium.

- Highest concentration in the least toxic sample: For several chemicals, the sample with the maximum concentrations (typically SD125) had the greatest growth among the Site samples. The high growth despite high chemical concentrations probably indicates that the chemical is not responsible for the

decreased growth in other samples. As discussed later in the benthic evaluation, the reference pond appears to be more enriched with nutrients than the NUWC Pond. This may have led to higher growth in all of the reference stations compared to the Site stations. This is further indicated by the fact that growth in all three reference stations was greater than growth in the laboratory control station (see Table 7-19). The elevated growth at the reference stations compared to the Site stations may be the reason that, although several growth plots had high R^2 values, dose-response relationships were not as strong as they were for the survival plots. One example of this is the growth plot for aluminum.

Table 7-25 summarizes the evaluation of the concentration plots for pond samples. None of the metals appears to be responsible for the apparent dose-response relationships for survival or growth. The most common reason is the small ranges in concentrations between Site samples or between Site samples and reference samples, and it is not likely that significant changes in survival or growth would occur over small concentration gradients. To determine whether the combinations of metals in the samples were responsible for the decrease in survival or growth, a mean PEC-Q for metals was calculated as described above (see Table 7-27). The mean PEC-Q for metals ranged from 0.6 to 0.67 in the NUWC Pond samples and 0.18 to 0.39 in the reference pond samples. Although the mean metals PEC-Qs for all three Site samples were greater than the mean metals PEC-Qs for the reference samples, there was not a strong dose-response relationship (see plot in Appendix I.6). This further supports the conclusion that metals are not responsible for the decreased survival or growth in the Site samples. The normalized PCB concentrations in the pond samples ranged from 150 to 170 µg/kg; the normalized concentrations had a small TOC range as well (21 to 30 µg/kg). Even though survival decreased as concentration increased, because of the low concentration gradient, it is not likely that PCBs were responsible for the decrease in survival.

In summary, it appears that the parameters responsible for decreases in survival and growth in pond sediment samples include:

- Total DDx.
- Total chlordane.
- HMW PAHs.
- Total PAHs (although LMW PAHs did not show a strong relationship).
- Overall mean PEC-Q (the plots including the 4,4'-DDE PEC-Q in the overall mean PEC-Q had a stronger relationship than the plots including the total DDx PEC-Q in the overall mean PEC-Q).

These parameters had strong dose-response relationships over larger concentrations gradients. The degree to which reduced growth and survival are due to a combination of these parameters cannot be determined.

Evaluation of Stream Samples

Appendix I.6 presents the concentration plots for the stream samples. Plots were not generated for benzoic acid because it was detected in only one of the stream sediment samples selected for toxicity testing. Several samples had negative regression lines (see Table 7-24), indicating decreased survival or growth with increasing chemical concentrations, but all of the R^2 values were less than 0.5.

As in the evaluation conducted for the pond samples, each plot was visually inspected to determine whether there was a dose-response relationship for each chemical.

Table 7-26 presents the results of the evaluation of the concentration plots. Weak dose-response relationships were observed for the survival plots, but several chemicals had maximum concentrations at SD116, which had the lowest survival rate of any stream sample. For almost all chemicals, the sample with the next greatest concentration did not have reduced survival, but the concentration in that sample was only slightly less than the concentration at SD116. The other samples that had low survival rates (SD108 and SD110) generally had low to moderate chemical concentrations. In fact, several chemicals had their lowest concentrations at SD108. These results led to the conclusion of a weak dose-response relationship. It is possible that the combination of chemicals at SD116 was responsible for the low survival at that location, but no chemical could be identified as the primary cause for the low survival. To determine if the combination of chemicals in the samples was responsible for the decrease in survival or growth, various PEC-Qs were calculated as described above. A dose-response relationship was not observed for any of the PEC-Qs.

Similarly, there was not a strong dose-response relationship for the stream sample growth plots. However, a trend was noted for PAHs because the two samples that had statistically lower growth (locations SD111 and SD112) also had the greatest PAH concentrations.

Summary of Toxicity Test Results

In summary, all three pond locations were classified as having “potentially unacceptable site-related risk” for both the survival and growth endpoints. Four stream locations were classified as having “potentially unacceptable site-related risk” for survival, and two stream locations were classified as having “potentially unacceptable site-related risk” for growth. Several parameters including total DDx, total chlordane, HMW

PAHs, total PAHs, and the overall mean PEC-Q showed strong dose-response relationships over larger concentration gradients and are probably responsible, either separately or in combination, for the reductions in growth and survival in the NUWC Pond samples. There was not a strong dose-response relationship for the growth plots in pond samples. Poor dose-response relationships for survival and growth were observed for steam samples, although the two stream samples with statistically lower growth (locations SD111 and SD112) had the greatest PAH concentrations. The results of the toxicity tests are evaluated later in this ERA along with the chemical data and benthic community analysis data.

7.4.3.3 Benthic Macroinvertebrates

This section summarizes the evaluation of the benthic macroinvertebrate community conducted as the third line of evidence to determine whether sediment invertebrates were being impacted by chemicals at the Site. See Appendix I.7 for a copy of the benthic macroinvertebrate community analysis report.

Appendix I.4 contains the plan for Sediment and Biological Sampling that was submitted to the regulators on April 25, 2008. This plan described the proposed sampling locations and the rationale for selecting each location. A Biological Sampling Assessment was provided to the regulators in September 2007 that described the biological conditions at the Site, the potential sampling design, and the preliminary lead concentrations in sediment samples. This assessment is included in Appendix I.7, along with the laboratory report for the taxonomic analysis. The benthic community sampling was conducted by Tetra Tech biologists in May 2008, and the taxonomic analysis was conducted by Normandeau Associates. The benthic sampling consisted of the following:

- Three samples in NUWC Pond.
- Ten samples in Deerfield Creek and the unnamed creek from the golf course. Seven of these samples were grouped as stream samples and three were grouped as wetland/stream samples. The wetland/stream samples included the sample from the furthest upstream location in Deerfield Creek and the locations where Deerfield Creek and the unnamed creek enter NUWC Pond.
- Three samples in Upper Melville Pond, the local reference pond.
- Three samples in the stream downstream of Upper Melville Pond the local reference stream.

In addition, data from a regional reference stream used by RIDEM (Adamsville Brook) was included in the benthic evaluation. The regional reference site was not sampled in May 2008; data were provided from RIDEM. A figure showing the approximate sample locations for the Site samples is provided in Appendix I.7. Figure 2-4 shows the approximate sample locations for the local reference samples.

The following is a summary of the results from the benthic macroinvertebrate community analysis report (see Appendix I.7 for the full report):

Comparison to Regional Reference Stream

The conditions described by metrics and indices calculated for samples collected from Adamsville Brook, the regional reference stream, are different than conditions at either the local reference stream or the Site stream. The Site stream samples would be considered "moderately impaired." The local reference also would be considered impaired, though the level of impairment varied from "slightly impaired" to "moderately impaired" depending on the indicators.

Table 4 in Appendix I.7 presents the individual metrics that illustrate the major differences between reference and Site streams. Four metrics commonly used for assessment of benthic communities include total taxa, EPT taxa, % EPT individuals, and HBI. EPT refers to the pollution-sensitive insect orders Ephemeroptera, Plecoptera, and Trichoptera (mayflies, stoneflies, and caddisflies), and HBI is the Hilsenhoff Biotic Index, which is the average community tolerance to generalized pollution levels.

- After standardizing for subsample size, the number of taxa collected in all samples was relatively equal among site types, but the regional reference site had the lowest values on average. Taxa richness is expected to be high in sites with minimal stressors.

- The regional reference site had fewer of the more tolerant non-insect taxa than either the local reference or Site samples. The relative scarcity of insect taxa in the local reference site may be due to the high dominance of the isopod Caecidotea and snails, which are opportunistic and are apparently thriving in the pond outflow, which may be nutrient rich.

- EPT taxa (i.e., pollution-sensitive insects) made up a much larger proportion of the taxa and individuals in the regional reference samples compared to the local reference or Site samples.

- The HBI was lower in the regional reference samples compared to other samples, indicating that more pollution-tolerant individuals inhabit the local reference and Site samples.

- Percent scrapers (species that scrape algae from substrates for food) was high in the regional reference compared to the Site stream, but not as high as in the local reference stream. Although lack of scrapers can indicate toxicity or lack of substrate, overabundance can indicate overgrowth of algae, which is suspected in the local reference stream.

Comparison to Local Reference Stream

For two of the three indices, values for Site samples were lower than for local reference samples (see Table 3 in Appendix I.7). One index indicates better conditions in the Site samples compared to the local reference samples. This is probably due to the dominance of non-insect taxa that are retained in virtual subsampling, while the uncommon insect taxa were probably randomly removed. The virtual subsampling procedure is described in detail in Appendix I.7.

In contrast to the local reference samples, most Site samples lacked scrapers and total taxa and % EPT was also lower in some of the Site samples, though the difference is negligible for % EPT (see Table 4 in Appendix I.7). The HBI was unexpectedly lower in Site samples compared to the local reference samples, indicating that the local reference sites have more pollution-tolerant organisms. The HBI was developed to detect organic pollution caused by nutrient enrichment and is not specifically pollution from chemicals. This is another indication that the reference stream is higher in nutrients than the Site stream.

The ratio of insect taxa to non-insect taxa was higher in Site samples than local reference samples due to the high abundance of chironomids (midges) in the Site stream samples and the numerical dominance of isopods and snails in the local reference samples. Isopods and snails are pollution tolerant and were found in high densities, probably due to high nutrient levels. Chironomids are also generally pollution tolerant.

One factor to consider in the comparison of Site samples to reference samples is that portions of Deerfield Creek and the unnamed stream from the golf course are intermittent. During previous site visits, several locations such as SD106, SD110, SD111, and SD112 were dry or only moist. Other locations also may be intermittent, as well. It is not known whether the reference stream leading from the reference pond is intermittent, but it is likely perennial based on the opinion of the biologist that conducted the benthic community investigation. Therefore, some of the impacts to the benthic community in the stream samples may be related to the intermittent nature of the Site streams. For instance, chironomids may be able to withstand periods of desiccation by burrowing into moist sediments, but more sensitive EPT taxa could not.

Comparison to Local Reference Pond

In summary, it appears that the benthic community in all three NUWC Pond samples was impacted compared to the benthic community in the reference pond. No index specific to Rhode Island for assessment of benthic pond organisms was found. The foremost indicators were metrics representing the diversity and composition of the samples, such as total taxa and percent tubificid worms.

- Total taxa in the reference samples averaged about 16, compared to six in the Site pond samples (see Table 5 in Appendix I.7). This is a significant reduction in taxa, indicating that the conditions in the Site pond are not suitable for a diverse benthic community.

- Most of the organisms in the NUWC Pond sample were tubificid worms and the rest were chironomids. These are highly tolerant of polluted conditions, and this is reflected in maximum possible values of HBI. A greater diversity of organisms and more pollution-sensitive forms were found in the local reference pond. All of the metrics reflect relatively higher diversity in the taxa, their pollution tolerance, and their feeding mechanisms.

Summary of Benthic Community Analysis

Table 7 in the benthic macroinvertebrate community analysis report summarizes the assessment of whether each sampling station is impacted relative to the reference stations and the rationale for that conclusion. The following table is a summary of those conclusions.

Non-Impacted Stations	Impacted Stations
Pond Samples: None	Pond Samples: SD119, SD121, SD125
Stream Samples: SD107, SD108, SD111	Stream Samples: SD106, SD110, SD112, SD133
Wetland/Stream Samples: SD116	Wetland/Stream Samples: SD01, SD114

7.4.3.4 Summary of Impacts to Sediment Invertebrates and Development of NOECs and LOECs

Summary of Impacts tor Sediment

Potential impacts to sediment invertebrates were evaluated using three lines of evidence, sediment chemistry, whole sediment toxicity testing, and benthic community analysis. This section incorporates all three lines of evidence to determine whether sediment invertebrates were impacted at particular locations, and if so, whether chemicals in the sediment were responsible for the impacts.

As presented at the end of Section 7.4.3.2, several chemicals have the potential to impact sediment invertebrates because they were detected at concentrations that exceeded screening levels. These included SVOCs, pesticides, PCBs, metals, and Extractable TPH. Chemical concentrations greater than screening levels only indicate the possibility for impacts to sediment invertebrates because sediment screening levels are very conservative. Chemical concentrations greater than PECs are more likely to

impact sediment invertebrates. For that reason, mean PEC-Qs were calculated for each sample and plotted against percent survival and growth from toxicity tests (see Section 7.4.3.2 for calculation of the PEC-Qs). Table 7-27 presents the PEC-Qs for each parameter in each sample selected for toxicity testing, along with the mean PEC-Q for each sample. Lead and 4,4'-DDE had the greatest number of PEC-Qs that exceeded 1.0. All three NUWC Pond samples had mean PEC-Qs greater than 1.0 (using 4,4-DDE as the pesticide), as did samples from two of the Site stream locations (SD111 and SD133). Samples from three Site stream locations had mean metals PEC-Qs greater than 1.0 (SD110, SD111, and SD133).

A PEC-Q value of greater than 1.0 does not necessarily indicate a potential impact to sediment invertebrates, which is why the PEC-Q concentration plots were evaluated to determine the existence of dose-response relationships. Poor dose-response relationships were observed for the stream samples, so the mean PEC-Q of greater than 1.0 as an indicator of potential impacts to sediment invertebrates was given less weight than either the toxicity testing or benthic community endpoint.

Table 7-28 presents the overall summary of the three endpoints used to evaluate potential impacts to sediment invertebrates. Based on all lines of evidence, it appears that sediment invertebrates are being impacted in NUWC Pond and that the impacts are likely caused by a combination of organic chemicals at those locations.

Six of the Site stream locations and two of the wetland/stream locations had potential impacts based on at least one line of evidence. At three locations (SD108, SD111, and SD116), the benthic community was similar to that at the reference stations. Because the benthic community is an indication of what is actually living at the Site, this endpoint was given greater weight in the overall evaluation. For that reason, it was determined that impacts to sediment invertebrates at SD108, SD111, and SD116 were not significant.

All three endpoints indicate that this location SD110 is likely impacted. The high mean metals PEC-Q is largely due to a high lead concentration (799 mg/kg) at that location. However, the lead concentration plots indicate a very weak dose-response relationship for lead. This location had 60-percent survival in toxicity test samples and greater growth than the reference samples. Also, almost 5,500 individual organisms from 18 different taxa, including two EPT (pollution-sensitive) taxa, were identified at this location (see laboratory report in Appendix I.7). Therefore, the impacts to the benthic community at this location do not appear to be significant.

At SD106 and SD114, the benthic community was the only endpoint that was impacted. Both of these locations had relatively low chemical concentrations (see concentration plots in Appendix I.6) but neither

had unacceptable survival or growth rates in the toxicity tests. Also, both locations had a large number of taxa present and low percent dominance values, indicating a relatively diverse benthic community. Therefore, impacts to sediment invertebrates at SD106 and SD114 are not significant.

At SD112, two endpoints (toxicity testing and the benthic community) suggested that this location was impacted. This location had the second greatest concentrations of PAHs in the samples selected for toxicity testing (see Section 7.4.3.2). Although it is possible that PAHs were responsible for the impacted benthic community at this station, it is not likely for two reasons, (1) greater PAH concentrations were detected at SD111, but as discussed above, the benthic community at SD111 was similar to the benthic community in the reference stream samples and (2) the next greatest PAH concentration was at RP04, which had the greatest number of organisms, greatest number of taxa, and one of the lowest percent dominant taxon values. It is likely that if PAHs were responsible for the impacts at SD112, impacts also would have been observed at RP04, which had slightly lower concentrations. SD112 also had the highest or second highest concentrations of total DDx, total chlordane, and PCBs, so it is possible that a combination of these organic chemicals was responsible for the impacts to sediment invertebrates at this station. Again, similar to SD111, approximately 6,700 individual organisms from 21 different taxa, including and one EPT (pollution-sensitive) taxon, were identified at this location (see laboratory report in Appendix I.7). Therefore, impacts to the benthic community at this location do not appear significant.

SD133 is located in Deerfield Creek, just downstream of the culvert near the southwest corner of the Site. The substrate at this location consists mostly of bedrock and small pockets of sediment. The poorer benthic community at this location compared to the reference stations is probably due (at least in part) to the habitat (i.e., substrate). Also, survival at this location was just slightly lower than survival in one reference sample, and growth was not compared to either reference station, so the results from toxicity tests indicate marginal impacts to sediment invertebrates. This area of Deerfield Creek previously had the greatest concentrations of lead (<15,000 mg/kg), but when the area was resampled for the toxicity test, the lead concentration was 1,000 mg/kg. Because the benthic sampling was conducted over a larger area than was sampled for toxicity testing, it is possible that the benthic sampling included areas where lead concentrations were greater than 1,000 mg/kg. Therefore, there is uncertainty in whether the impacts to sediment invertebrates are being caused by the habitat or chemicals (most likely lead).

Development of NOECs and LOECs

Because benthic invertebrates have been impacted at some of the sample locations, it was necessary to develop NOECs and LOECs that could be used to evaluate the chemical data at locations where toxicity tests and benthic community analysis were not conducted. The first step for developing NOECs and LOECs at a site is to determine which samples are considered toxic and which samples are considered

non-toxic. Table 7-28 presents the overall evaluation summary for sediment invertebrates that used the chemical data, toxicity test data, and benthic community data to determine whether the locations were considered toxic and whether there was a dose-response relationship between chemical concentrations and effects. Based on conference calls between the Navy and USEPA on October 15, 2009 and October 22, 2009, it was agreed that the overall evaluation in that table would not be used to identify toxic and non-toxic samples because of the following:

- USEPA has concern with the benthic community data because of the intermittent nature of the streams and the fact that it is a difficult endpoint to interpret without having more data than was collected at the site.
- USEPA believes that chemicals may be responsible for the observed toxicity even though a clear dose-response relationship was not observed in the concentrations plots.

Therefore, it was agreed during those conference calls the results of the toxicity tests would be used to determine whether a sample was considered toxic or non-toxic. Because two different endpoints were evaluated in the toxicity test (survival and growth), there are two methods for developing the NOECs and LOECs. Table 7-22 presents the risk classification for each sample and each endpoint from the sediment toxicity test. The Navy suggested identifying samples as toxic or non-toxic based on each endpoint while USEPA suggested identifying samples as toxic or non-toxic based on each endpoint for developing the NOECs and LOECs. It was agreed that both approaches would be presented in this BERA.

Table 7-29 presents the development of NOECs and LOECs for the pond and stream samples. Page 1 of the table presents the NOECs and LOECs for the pond and stream samples using both the survival and growth data for identifying samples as toxic or non-toxic. Pages 2 and 3 of the table presents the NOECs and LOECs for the pond and stream samples using only the survival data or growth data, respectively, for identifying samples as toxic or non-toxic. The reference stream and reference pond samples are included in the non-toxic data set. The pond sample data are only presented on page 1 of the table because all three site samples were considered toxic for both the survival and growth endpoints.

The sediment in all three NUWC Pond samples was considered toxic to benthic invertebrates, and the toxicity was probably caused by a combination of chemicals at those locations. Because all three samples appear to be impacted, the LOECs are the minimum concentrations in the NUWC Pond samples and the NOECs are the maximum concentrations in the reference pond samples, provided that the LOECs were greater than the NOECs (which they were for all parameters) (see Table 7-29). NOECs and LOECs were developed for HMW PAHs, total PAHs, total PCBs, total DDT, and the mean PEC-Q values, while only LOECs were developed for total PCBs and total chlordane because PCBs and chlordane were not detected in the reference pond samples. These parameters all had good dose-response relationships

as presented in Table 7-25. A NOEC or LOEC was not developed for 4,4'-DDE (even though it is a COC) because risks from DDE are accounted for in the NOEC and LOEC for total DDT. Although these metals are considered COCs, NOECs and LOECs were not developed for arsenic, chromium, nickel, and zinc because the concentrations were less than their respective PECs and risks from metals are accounted for in the NOEC and LOEC for PEC-Qs. NOECs and LOECs were not developed for cadmium and copper because concentrations were greater in the non-toxic samples and these metals are not COCs. Finally, although lead is a COC, a NOEC or LOEC was not developed for lead because survival and growth were not correlated with lead concentrations. For example, the sample with the lowest lead concentration had the lowest percent survival rate and the sample with the greatest lead concentrations had the highest percent survival rate. Although the data are not conducive to develop a NOEC or LOEC for lead, because there is a NOEC and LOEC for the PEC-Q for metals that incorporates the lead results, not having a separate NOEC or LOEC for lead does not impact the overall conclusions of this risk assessment.

The sediment in four of the stream samples was considered toxic to benthic invertebrates based on the survival endpoint and the sediment in two of the stream samples was considered toxic to benthic invertebrates based on the growth endpoint. The survival and growth impacts occurred in different samples so a total of six samples were considered toxic. NOECs and LOECs did not need to be developed for cadmium, chromium, copper, nickel, or zinc because most of the detected concentrations in the samples selected for toxicity testing were less than or slightly greater than their respective screening levels. NOECs and LOECs were not developed for arsenic because concentrations in the non-toxic samples were similar to the concentrations in the non-toxic samples. NOECs and LOECs were not developed for the mean PEC-Q values because there was a poor correlation between toxicity and PEC-Q values (see Appendix I.4). Finally, NOECs and LOECs were not developed for pesticides for the following reasons:

- The highest concentration in a non-toxic sample (45.5 ug/kg at SD106) and the lowest concentration in a toxic sample greater than 45.5 ug/kg (48 ug/kg at SD116) are only 2.5 ug/kg different, well within the range of sampling and laboratory error. Therefore, it is not likely that DDE is responsible for the large difference in percent survival between the samples at SD106 (91.25%) and SD116 (21.25%). Also, a concentration of 79 ug/kg at SD112 did not result in reduced survival at that location.

- The highest concentration in a non-toxic sample (79.9 ug/kg at SD106) and the lowest concentration in a toxic sample greater than 79.9 ug/kg (127 ug/kg at SD112) based on growth are much lower than the PEC for total DDT (572 ug/kg). Also, the sample from SD116, which did not have reduced growth, had a greater total DDT concentration (151 ug/kg). Therefore, there is uncertainty in whether the total DDT is responsible for the reduced growth. The sample from SD116 had reduced survival. The sample with the next greatest total DDT concentration (127 ug/kg at SD112) did not have

reduced survival. The difference between these two values is only 24 ug/kg, which is well within the range of sampling error. For that reason, and because both concentrations are much lower than the PEC for total DDT (572 ug/kg), there is uncertainty in whether the total DDT is responsible for the reduced survival. It is likely that some other chemical is responsible for the reduced survival at SD116.

- The sample with the maximum total chlordane concentration (77 ug/kg at SD112) had reduced growth. The sample with the next greatest total chlordane concentration (75 ug/kg at SD116) did not have reduced growth. The difference between these two values is only 2 ug/kg, which is well within the range of sampling and laboratory error. Therefore, it is not likely that total chlordane is responsible for the reduced growth. The opposite is true for the survival endpoint because the sample from SD16 had low survival but the sample from SD112 did not.

- The concentrations of pesticides at the site are not indicative of disposal activities at the site, and are more representative of typical application. In fact total chlordane, was only detected in 3 of 74 samples, and most of the total DDT concentrations were less than 25 ug/kg, with a maximum concentration of 216 ug/kg.

Table 7-29, Page 1, shows the NOECs and LOECs developed considering a sample was toxic if either survival or growth was impacted. NOECs and LOECs were developed for lead, HMW PAHs, total PAHs, and total PCBs. The NOEC (543 mg/kg at SD106)) and LOEC (562 mg/kg at SD116) for lead are similar to each other, so there is uncertainty in whether the large reduction in survival at SD116 (21.25%) was caused by the lead.

Table 7-29, Pages 2 and 3, show the NOECs and LOECs developed considering a sample was toxic if only the survival or growth, respectively, was impacted. Based on the survival endpoint, NOECs and LOECs were only developed for total PCBs. NOECs and LOECs were not developed for lead or PAHs because greater concentrations of those parameters were found in the non-toxic samples. Based on the growth endpoint, NOECs and LOECs were only developed for lead, HMW PAHs, and total PAHs. NOECs and LOECs were not developed for total PCBs because greater concentrations of that parameter were found in the non-toxic samples.

Table 7-30 presents a summary of the NOECs and LOECs developed in Table 7-29. Figures in Section 4.0 present lead (Figure 4-67), total PAHs (Figure 4-56), total DDx (Figure 4-61), Aroclor-1260 (Figure 4-59), and alpha-(Figure 4-57) and gamma-(Figure 4-58) chlordane concentrations in sediment samples from across the Site. From these figures, it can be seen that the samples selected for toxicity testing in NUWC Pond contained the greatest concentrations of PAHs, pesticides, and PCBs.

7.4.4 Aquatic Organisms

Risks to aquatic organisms were evaluated by comparing the measured concentrations of chemicals in surface water to screening levels. Table 7-31 presents chemicals retained as COPCs in surface water, as well as detection frequencies, and maximum and average detected concentrations for Site samples and reference pond/stream samples. The table also notes whether maximum or average detected concentrations in Site samples exceeded maximum or average detected concentration in reference samples. In accordance with Navy policy, chemicals detected at concentrations less than background concentrations were eliminated as COPCs in Step 3. The chemicals in this table were further evaluated to determine whether it was likely that aquatic organisms are being impacted from chemicals in surface water. The following is a summary of this evaluation:

- 4,4'-DDE was detected in only 1 of 22 samples at a concentration of 0.014 µg/L. Based on its low detection frequency and because it was detected only in a sample collected in 2003, 4,4'-DDE is not likely to impact aquatic organisms at the Site, so it were eliminated as a surface water COPC.

- 4,4'-DDT and total DDx were detected in 6 of 22 samples. All of the detected concentrations exceeded the screening level of 0.001 µg/L. This screening level is based on the EPA Water Quality Criteria (WQC) and is a residue value; it is not reflective of potential risks to aquatic organisms. Therefore, the ORNL Secondary Chronic Value of 0.013 µg/L was used to evaluate risks to aquatic organic organisms (Suter and Tsao, 1997). With the exception of the maximum detected concentration, which was in a sample collected in 2003, all of the detected concentrations were less than this value. Therefore, 4,4'-DDT and total DDx are not likely to impact aquatic organisms at the Site, so they were eliminated as surface water COPCs.

- Several metals were selected as COPCs in total and dissolved surface water samples because their maximum detections exceeded screening levels. In accordance with EPA (1993a), dissolved metals more closely approximate the bioavailable fraction of metals in the water column than total recoverable metals. Therefore, the following evaluation included only filtered metal concentrations:

    - Both aluminum detections and the single lead detection that exceeded screening levels were from samples collected in 2003. None of the samples collected in 2008 had levels of these metals in excess of screening levels. Therefore, neither metal is likely to impact aquatic organisms at the Site, so they were eliminated as COPCs.

- Barium and manganese were detected in several surface water samples collected in 2003 and 2008 at concentrations that exceeded their respective screening levels. In sediment, both metals were detected at greater concentrations in the background samples, so they are not site related in sediment (see Table 7-18). Also, the sample at SW01 (the upstream location in Deerfield Creek) had the highest barium concentration of all samples and the highest manganese concentration in the 2008 samples. Therefore, it is not likely that either metal in surface water is site related, so they were eliminated as COPCs.

7.4.5 Birds and Mammals

As presented in Section 7.3.4.4, the HQs from the terrestrial food-chain modeling were greater than 1.0 for several chemicals using maximum chemical concentrations and conservative exposure assumptions. Therefore, as part of this risk evaluation, risks were recalculated using less conservative exposure assumptions (average chemical concentrations and average exposure parameters). The average chemical concentrations for surface water, sediment, and surface soil were the 95-percent UCLs unless the value was greater than the maximum detection. In that case, the value was the average concentration of all samples unless that value was greater than the maximum detection. If that occurred, the value was the average of detected concentrations. For tissue samples, the averages of samples with detected concentrations were used because there were fewer samples with which to calculate a 95-percent UCL. Appendix I.6 contains the analytical results that were used in the food-chain model.

Tables 7-32 and 7-33 present the NOAEL and LOAEL HQs from the food-chain models for soil insectivorous and piscivorous receptors, respectively, using less conservative exposure assumptions. The results for the various receptors are summarized as follows:

- Soil insectivorous birds: NOAEL HQs were greater than 1.0 for 11 metals. LOAEL HQs were greater than 1.0 for aluminum, cadmium, chromium, iron, mercury, and vanadium.
- Soil insectivorous mammals: NOAEL HQs greater than 1.0 for nine metals. LOAEL HQs were greater than 1.0 for aluminum, cadmium, iron, and selenium.
- Piscivorous birds: NOAEL HQs were greater than 1.0 for iron and lead. No LOAEL HQ was greater than 1.0.
- Piscivorous mammals: NOAEL HQs were greater than 1.0 for total Aroclors, aluminum, iron, and lead. One LOAEL HQ (for aluminum) was greater than 1.0.

The following sections present a further evaluation of the potential risks to wildlife after consideration of the magnitude of the exceedences, spatial distribution of the data, home range of the species, and background concentrations.

Insectivorous Birds and Mammals

Several metals had HQs greater than 1.1 based on NOAELs and LOAELs. Invertebrate ingestion of metals contributed most to the exposure doses for both the shrew and the robin for all of the metals with HQs greater than 1.0 (see food-chain model calculation sheets in Appendix I.3). Risks from these metals are discussed in the following paragraphs to determine whether risks are great enough to warrant further evaluation. Table 7-12 presents a comparison of chemical concentrations in the Site soil samples to background concentrations. Appendix I.3 contains an analytical summary table of earthworm tissue data. Mercury and vanadium were the only metals detected in Site samples at concentrations less than background concentrations. In addition, concentrations of aluminum in Site samples were slightly greater than background concentrations (see discussion in Appendix F). In fact, the average aluminum concentration in site soil samples (11,600 mg/kg) is similar to aluminum concentrations in the reference soil samples for the two soil types (11,200 mg/kg and 12,100 mg/kg). Also, the form of aluminum generally found in nature is less toxic than the forms used in toxicity testing. Therefore, aluminum, mercury, and vanadium were eliminated from further evaluation in the ERA because they are not site related.

Concentrations of iron in site samples were also very similar to concentrations in background samples (see discussion in Appendix F). In addition, the average iron concentration in Site earthworm samples (23,600 mg/kg) was just slightly greater than the concentration in the background earthworm sample (21,800 mg/kg). Iron is considered an essential nutrient and is therefore not considered toxic at the levels detected. Although arsenic concentrations in Site soil samples were greater than background soil concentrations, the average arsenic concentration in Site earthworm samples (17.8 mg/kg) was less than the concentration in the background earthworm sample (26.7 mg/kg). Therefore, any risks from arsenic and iron to insectivorous wildlife are similar to background risks, so these two metals were eliminated from further evaluation.

Of the remaining six metals, copper, lead, and nickel had HQs greater than 1.0 based on NOAELs. All of the HQs based on LOAELs were less than 1.0. Therefore, risks to mammals and birds from these metals are marginal. Cadmium, chromium, and selenium had HQs greater than 1.0 based on NOAELs and LOAELs for either the robin or shrew. Therefore, unacceptable risks to mammals and birds from these metals are possible.

As mentioned above, the concentrations of metals in earthworm tissue samples were the primary contributors to exposure doses in the food-chain model. The concentrations of six metals (cadmium, chromium, copper, lead, nickel, and selenium) were elevated in Site earthworm samples compared to the background sample. Maximum concentrations of cadmium, chromium, lead, and selenium, in Site

samples were more than 10 times the concentrations in the background sample (see the earthworm tissue analytical summary table in Appendix I.3). The maximum copper and nickel concentrations in site samples were approximately two and seven times greater than their concentrations in the background sample. The average concentrations for these metals (except copper) were also several times greater than their concentrations in background samples.

The reason for the elevated concentrations of metals in the earthworm samples from the site is not known. A table of metals, grain size, TOC and pH results for the soil samples collected adjacent to where the earthworm samples were collected is provided in Appendix I.3. A similar table for the earthworm sample analytical results is provided in Appendix I.3. Cadmium and lead were the only metals detected in Site soil samples at concentrations greater than twice the background soil concentrations. Five of the six metals, however, were detected in Site earthworms at concentrations that exceeded twice the background earthworm concentrations. Therefore, the reason for the greater concentrations of metals in the Site earthworm samples compared to the background earthworm samples does not appear to be related to the concentrations of metals in the soil. Some potential reasons for the differences in concentrations include the following:

- Different earthworm species may have been collected among locations; different species may accumulate metals at different rates.

- Different age/size individuals may have been collected among locations, which could impact their rate of accumulation. In fact, according to the field sample sheet, locations MW115B and SB121 were poor earthworm locations because the soil was dry, compacted silty sand with gravel. The specimens at these locations were very small.

- The laboratory did not analyze the earthworm samples for percent moisture, so a default percent solids value (16 percent) was used to convert the tissue results from wet weight to dry weight. Although generally the percent moisture values are expected to be similar among earthworms, percent solids may have been higher in worms living in dryer soil (i.e., at MW115B and SB121). This would result in an overestimation of the dry-weight concentration.

In summary, potential risks to mammals and birds exist at the site because the HQs are greater than 1.0 for several metals, even though the basis for the higher metals concentrations in the Site earthworm samples cannot be determined. Several factors mitigate the significance of the impacts, however, as discussed below. The food chain models assume that the receptors obtain 100 percent of their food from the site. While the home ranges for the selected species (robin and shrew) are small (less than one acre), only a few individuals (if any) would obtain all of their food from the site, given that the acreage of

the unpaved upland open field area is 1.6 acres and the brush-covered slope is 1.4 acres for the north meadow. Also, the food chain models assume a diet of 100 percent earthworms, but insectivorous mammals and birds will ingest a mixture of organisms (e.g., insects) and vegetation, most of which will have lower concentrations of metals than earthworms. These mitigating factors make it more likely that copper, lead and nickel are not impacting mammals and birds because only the HQs based on the NOAEL were greater than 1.0. The potential for cadmium, chromium, and selenium to impact mammals and birds is greater because HQs based on the LOAEL were greater than 1.0.

Piscivorous Birds and Mammals

Table 7-18 presents a comparison of the chemical concentrations in the Site samples to NUSC sediment background concentrations. The average iron concentration in the Site samples was lower than the average iron concentrations in the NUSC sediment background samples so iron was eliminated as a COPC. In addition, the average aluminum concentration in the Site samples (14,000 mg/kg) was just slightly higher than the average aluminum concentration in the NUSC sediment background samples (13,300 mg/kg) so it is not likely that aluminum is related to site activities. Therefore, it was eliminated as a COPC.

The HQ was calculated assuming that the mink obtains all of its food from the Site. The entire Site is about 8 acres, but NUWC Pond is between 1 and 2 acres. The streams add additional acreage but very few fish would be present in the streams except at the most downstream reaches where the streams enter the pond. The home range of mink is approximately 35 acres (see Table 7-5). Therefore, the Site is less than 25 percent of the mink's home range so they would be expected to obtain less than 25 percent of their food from the Site. The actual amount of food mink would obtain from the Site is likely lower, because the pond only makes up a small portion of the 8 acres. Mink are opportunistic feeders with a diet that includes mice, rats, frogs, fish, rabbits, crayfish, muskrats, insects, birds, and eggs. Given the difficulty in collecting fish from the pond during the sampling efforts, it is not likely that there are enough fish in the pond to comprise a majority of the diet for mink. Therefore, mink would obtain considerable amount of their food from terrestrial areas near the pond. Even assuming that mink obtain 25 percent of their food from the Site, the HQs for total Aroclor would decrease to less than 1.0, so risks from total Aroclor are not expected. Using the same approach, the HQs for lead would decrease to 1.8 for the mink.

The home range for great blue herons is 11 acres, but they would feed primarily in the pond. Assuming the feeding area is 2 acres, the Site is less than 20 percent of the heron's home range so they would be expected to obtain less than 20 percent of their food from the Site. Therefore, the HQ for lead would

decrease from 7.9 to 1.6. Another water body, Narragansett Bay is located in close proximity to the Site; therefore, herons would not forage in the pond disproportionately to the surrounding area.

As can be seen from the food chain model calculation sheets in Appendix I.3, sediment ingestion of lead contributes most of the exposure dose. The average lead concentration in the food chain model was 8,500 mg/kg and was the 95 percent UCL. The average concentration is very high because of three extremely elevated concentrations of lead (5,340 mg/kg, 15,300 mg/kg, 27,200 mg/kg) in the upstream portion of Deerfield Creek (see Figure 4-67). This portion of Deerfield Creek is not suitable for wildlife because there would be very few fish, if any, in this area. Therefore, the lead concentrations in the exposure area for the mink and heron are overestimated, and would be much lower if these samples were excluded from the calculation of the 95 percent UCL. The HQs would then be less than 1.0 so no impacts to piscivorous wildlife would be expected.

7.4.6 Evaluation of Building 179 Data

As discussed in Section 1.6.3, three surface water and sediment samples were collected in Deerfield Creek, upstream of the culvert by the NUSC site. The data are presented in Appendix A. These samples were analyzed for VOCs, SVOCs, TPH, and cyanide. Eight VOCs were detected at low concentrations in the surface water samples. Five of these VOCs (acetone, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethene, and trichloroethene) were detected in the surface water samples collected downstream of the culvert. The concentrations of these VOCs were less or just slightly greater than the screening criteria in Table 7-2. The three VOCs that were not detected in the downstream samples (chloroethane, methylene chloride, and 2-butanone) were detected at low concentrations (3 ug/L or lower) and less than screening criteria (Suter and Tsao, 1996), where available. Bis(2-ethylhexyl)phthalate was the only SVOc detected in the surface water samples. Its detection of 2 ug/L is less than its screening criteria in Table 7-2. TPH was not detected in any of the surface water samples. Cyanide was detected in all three samples but the maximum detected concentration (6.3 u/L) was just slightly greater than the USEPA WQC (USEPA, 2006). Also, it was detected in the blank sample so it may not actually be present in the sample. For these reasons, risks to aquatic organisms from chemicals detected in the surface water are not expected.

Several VOCs, SVOCs, TPH, and cyanide were detected in the three sediment samples. Three of the VOCs (acetone, methylene chloride, and 2-butanone) are common lab contaminants and may not be related to the site. The concentration of ethylbenzene and xylene slightly exceed their respective sediment screening levels (USEPA, 1996). However, acetone was only detected in 1 of 26 downstream samples, and ethylbenzene was not detected in any downstream samples. Therefore their contamination is not widespread. That, coupled with the fact that the concentrations just slightly exceeded their

respective criteria indicates that risks to sediment invertebrates are not likely. The concentrations of total PAHs in the sediment samples exceeded the screening levels in all three samples. The concentrations of total PAHs also exceeded the NOEC for stream samples (see Table 7-30) in two samples, and the LOEC in one sample. Therefore, sediment invertebrates are at potential risk from PAHs in the sediment. Cyanide was detected at low concentrations in all three sediment samples. No criteria exist for total cyanide in sediment but because it was detected in the blank sample, it may not actually be present in the sample. Therefore, risks to sediment invertebrates from cyanide are not likely.

7.5 UNCERTAINTY ANALYSIS

This section presents general uncertainties associated with the ERA.

7.5.1 Uncertainty in Measurement and Assessment Endpoints

Measurement endpoints were used to evaluate the assessment endpoints selected for this ERA, but the measures of effects were not the same as the assessment endpoints. Therefore, the measures were used to predict effects to the assessment endpoints by selecting surrogate species that were evaluated. For example, mortality of a shrew was used to assess mortality of the small mammal population. However, predicting mortality to a shrew may either under- or over-protect the small mammal population, resulting from differences in ingestion rates, toxicity, food preferences, etc., between the different species.

Several endpoints were not quantitatively evaluated in the ERA. For example, risks to amphibians were not quantitatively evaluated because exposure factors have not been established for most species, and toxicity data are very limited. However, because no chemicals were retained as COPCs for further evaluation regarding risks to aquatic organisms, it is not likely that amphibians, which are semi-aquatic, would be significantly impacted at the Site. Risks to fish were not quantitatively evaluated. A comparison of measured fish tissue concentrations to Critical Body Residue values for fish would measure risk to fish based on their body burden. However, Critical Body Residue values are generally limited to a small number of test endpoints from a single species and the available species data may be different from the fish on site. As NUWC Pond is not a high-quality fish habitat, it is not critical to evaluate risk to the fish themselves. Also, risks to herbivorous mammals and birds were not evaluated in this ERA because the previously prepared screening-level ERA did not find risks to these species.

7.5.2 Uncertainty in Exposure Characterization

The contaminant dose to terrestrial wildlife was calculated using an equation that incorporates ingestion rates, body weights, bioaccumulation factors, and other exposure factors. These exposure factors were

obtained from literature studies or predicted using various equations. Ingestion rates and body weights vary between species, especially between species inhabiting different habitats.

Bioaccumulation of contaminants into various biological media (i.e., plants, invertebrates, small mammals) depends on characteristics of the media such as pH, organic carbon, etc. Some of the uncertainties were reduced by collecting site-specific earthworm and fish tissue data for incorporation into the food chain model. However, as discussed in Section 7.4.4, there are uncertainties in the earthworm tissue data because the levels in the tissue samples are greater than what would be expected based on the concentrations in soil.

There is uncertainty in the use of toxicity test data, especially when sediments are manipulated and exposed to oxygen. Chemicals that are not bioavailable under field conditions may become bioavailable when sediments are collected and transported. Also, samples can be toxic to parameters that are not measured, or for reasons that cannot be determined. For example, the low survival and growth in some of the sediment samples could not be explained by the chemistry results in those samples. Having three lines of evidence for the sediment investigation (chemistry, toxicity test, and benthic community data) helped reduce the uncertainties in making decisions regarding risk to sediment invertebrates at the locations.

There is some uncertainty in the fish tissue exposure concentration used in the food chain model because only two bluegill samples were collected. Each of the bluegill whole body samples were composites of five fish, so a total of ten fish were collected. The analytical results for the two whole body bluegill samples from NUWC pond were similar to each other, so they likely provide a good representation for the pond. Therefore, although the small sample size reduces some of the confidence in the food chain calculation for the heron and mink, have additional data would not be expected to significantly change the overall conclusions of the risk assessment.

7.5.3 Uncertainty in Ecological Effects Data

Uncertainty exists in the ecological effects data, including the screening levels and wildlife TRVs. Several of the screening levels are very conservative, and typically are based on studies where the bioavailability of the chemical is much greater than it is in the environment. Also, toxicity data was not available or was limited for some chemicals.

Several chemicals were detected at concentrations that exceeded the plant screening levels in some of the samples at the Site. Because the Site is heavily vegetated, it was determined in the Work Plan that neither plant toxicity tests nor plant community studies needed to be conducted at the Site. Currently, the

vegetation at the Site is indicative of vegetation expected in physically disturbed environments. However, because Site-specific studies were not conducted to better evaluate potential risks to plants, it cannot be determined whether more sensitive species would occur at the Site in the absence of these chemicals.

The NOAELs/LOAELs used for the wildlife endpoints species are based on species other than the endpoint species (i.e., rats, mice). Uncertainty exists in the application of toxicity data across species because the contaminant may be more or less toxic to the endpoint species than it was to the test study species.

7.5.4 Uncertainty in Risk Characterization

The potential for adverse risks may be anticipated if an HQ is greater than or equal to 1.0 regardless of the magnitude of the HQ. Although the relationship between the magnitude of an HQ and toxicity is not necessarily linear, the magnitude of an HQ can be used as rough approximation of the extent of potential risks, especially if there is sufficient confidence in the screening level used. Uncertainty exists in how the predicted risks to a species at the Site translate into risk to the population in the area as a whole.

There was uncertainty in the evaluation of sediment invertebrates in the stream samples. The Site streams are intermittent (but the reference stream likely is not), the reference stream likely had a greater nutrient load than the Site streams, and the dose-response relationships were not very strong for most chemicals. Therefore, although several Site stream locations had lower survival or growth and lower benthic metrics compared to the reference samples, significant impacts to the benthic community were not evident, and in most cases, any impacts were not linked to specific chemical contamination. There is a subtle link between growth of *H. azteca* and PAH concentrations, but this link is not supported when the benthic community data are included in the evaluation. Therefore, there is uncertainty in the NOECs and LOECs that were developed for the stream samples because of the weak dose-response relationships and because impacts to sediment invertebrates in the stream are not expected to be significant.

7.6 SUMMARY AND CONCLUSIONS

This ERA evaluated surface soil, sediment, surface water, fish tissue, and earthworm tissue data, along with soil and sediment toxicity test data and benthic community data. Based on the initial screening of the chemical data, several chemicals were initially selected as COPCs in surface soil, sediment, and surface water because they were detected at concentrations that exceeded conservative screening levels, they had HQs greater than 1.0 in the conservative food chain model, or because they did not have screening levels.

These chemicals were then further evaluated to refine the list of COPCs, and to better characterize risks to ecological receptors. Part of this refinement included evaluating the toxicity test data and benthic community data that were collected as part of this investigation. The following presents the results of the ERA.

7.6.1 Terrestrial Plants

Risks to plants were evaluated by comparing the measured concentrations of chemicals in the surface soil to plant screening levels and by looking for signs of stressed vegetation during the site investigation. The maximum detected concentrations of most metals were greater than plant screening levels; plant screening levels were not available for most of the organic chemicals.

Toxicity tests were not conducted to evaluate potential risks to plants because the Site is covered with dense vegetation, indicating that chemicals in the soil are not having a significant impact on plants. During the site investigation, no signs of stressed vegetation in areas of elevated chemical concentrations were observed. It is possible that some sensitive species of plants may be impacted by site contaminants. However, given the industrial nature of the site and because much of the site is mowed, it is not likely that sensitive species of plant would be present. Therefore, although several chemicals were present in the surface soil at concentrations that exceeded plant screening levels, based on the heavy vegetative growth at the Site, it does not appear that significant impacts are occurring to plants. For that reason, plants were eliminated as receptors of concern for the Site.

7.6.2 Terrestrial Invertebrates

Risks to soil invertebrates were evaluated by comparing the measured concentrations of chemicals in the surface soil to invertebrate screening levels and by conducting earthworm toxicity tests. Based on the comparison of measured concentrations of chemicals in soil to invertebrate screening levels, it was determined that several chemicals had the potential to impact soil invertebrates and may be site-related. Therefore, those chemicals were further evaluated in the ERA in conjunction with the toxicity test data. Fourteen day earthworm toxicity tests were conducted to evaluate risks to terrestrial invertebrates. The endpoints of the tests were mortality as measured by survival of the earthworms and growth as measured by weight. The toxicity test data revealed only minor (if any) impacts to earthworms. One Site sample had statistically lower survival compared to the reference sample, but the survival rate in this Site samples was 80%, which is typically considered an acceptable survival rate for toxicity testing. Also, two samples had lower growth compared to the reference sample. Because none of the chemicals appeared to be responsible for the small impacts to earthworms, the maximum concentrations in the soil samples used for the toxicity tests were considered the NOECs. The NOECs were also compared to the invertebrate

screening levels, and the analytical data were compared to the greater of these values. Very few concentrations exceeded the greater of the NOEC or the invertebrate screening level, so significant risks to soil invertebrates are not expected.

7.6.3 Sediment Invertebrates

Risks to sediment invertebrates were evaluated by comparing the measured concentrations of chemicals in the sediment to screening levels, by conducting sediment toxicity tests, and by conducting a benthic community investigation. Based on the comparison of measured concentrations of chemicals in sediment to screening levels, it was determined that several chemicals had the potential to impact sediment invertebrates and may be site-related. Therefore, those chemicals were further evaluated in the ERA in conjunction with the toxicity test and benthic community data.

The aquatic habitat was divided and evaluated as two separate areas: 1) NUWC Pond and, 2) the streams. Twenty-eight day amphipod toxicity tests were conducted to evaluate risks to sediment invertebrates. The endpoints of the tests were mortality as measured by survival, and growth, as measured by dry weight. In addition, a benthic macroinvertebrate community investigation was conducted as a third line of evidence to determine whether the sediment invertebrates were being impacted by chemicals at the Site.

These site-specific studies indicated that amphipods in certain Site samples had lower growth and survival compared to the reference samples. Also, some Site samples had an impacted benthic community compared to the reference samples. The samples from NUWC Pond were more impacted in the toxicity test and benthic community investigation than the Site stream samples. As discussed in Section 5.0, the distribution and concentrations of contaminants (e.g. Aroclor-1260) in surface soil and sediment indicate that there are off-site sources of contamination, which could be contributing to the impacted benthic samples compared to reference samples.

Potential impacts to sediment invertebrates were then evaluated using all three lines of evidence: sediment chemistry, whole sediment toxicity testing, and benthic community analysis to determine whether sediment invertebrates were impacted at particular locations, and if so, whether chemicals in the sediment were responsible for the impacts.

In summary, the benthic community in all three NUWC Pond samples appears to have been impacted and the impacts were probably caused by a combination of organic and inorganic chemicals at those stations. LOECs were the minimum concentrations in the NUWC Pond samples and the NOECs were the maximum concentrations in the reference pond samples.

There was more uncertainty in the evaluation of the sediment invertebrates in the stream samples because the Site streams are intermittent (while the reference stream likely is not), the reference stream likely had a greater nutrient load than the Site streams, and the dose-response relationships were not very strong for most chemicals. Therefore, although several Site stream locations had lower survival or growth and lower benthic metrics versus the reference samples, significant impacts to the benthic community were not evident and in most cases, any impacts were not linked to specific chemical contamination. Therefore, impacts to sediment invertebrates in the stream are not expected to be significant. Although there were poor dose-response relationships and even though the benthic community survey indicated impacts to sediment invertebrates in the stream may not be significant, NOECs or LOECs were developed for the stream samples based on the toxicity test data.

7.6.4 Aquatic Organisms

Risks to aquatic organisms were evaluated by comparing the measured concentrations of chemicals in surface water to screening levels. It was determined that no chemicals are likely to impact aquatic organisms at the Site so no chemicals in surface water were retained as COPCs.

7.6.5 Insectivorous Mammals and Birds

Potential risks to insectivorous mammals and birds exist at the site because the HQs are greater than 1.0 for several metals, even though the basis for the higher metals concentrations in the Site earthworm samples cannot be determined. Several factors mitigate the significance of the risks, however. The food chain models assume that the receptors obtain 100 percent of their food from the site. While the home ranges for the selected species (robin and shrew) are small (less than one acre), very few individuals are expected to obtain all of their food from the site given that the area of the unpaved upland portion of the site is 1.1 acres for the south meadow and 0.8 acres for the north meadow. Also, the food chain models also assume a diet of 100 percent earthworms, but insectivorous mammals and birds will ingest a mixture of organisms and vegetation, most of which will have lower concentrations of metals than earthworms. These mitigating factors make it more likely that copper, lead and nickel are not impacting mammals and birds because only the HQs based on the NOAEL were greater than 1.0. The potential for cadmium, chromium, and selenium to impact mammals and birds is greater because HQs based on the LOAEL were greater than 1.0.

7.6.6 Piscivorous Mammals and Birds

After re-evaluating the food chain model using less conservative exposure assumptions, no chemicals in the sediment are likely impacting piscivorous mammals and birds.

8.0 SUMMARY AND CONCLUSIONS

This section provides a summary of the Site 08, NUSC Disposal Area Site RI activities, findings and conclusions. A brief summary of the RI activities are provided. The revised and updated Site CSM, based on the findings, is provided. Finally, recommendations for a Feasibility Study (FS) are presented.

8.1 REMEDIAL INVESTIGATION FIELD EFFORTS

The objectives of the RI are as follows:

- Compile and evaluate available site data and collect additional data necessary to fully characterize the Site;
- Identify the source(s) of contamination at the Site;
- Determine the nature and extent of contamination in soil, sediment, and groundwater at the Site;
- Assess the environmental fate and transport of Site contaminants;
- Evaluate the potential risks posed to human health and the environment as a result of exposure to site-related contaminants; and
- Present the RI data, evaluations, and conclusions in sufficient detail to support development of the feasibility study and selection of an appropriate remedy for the Site.

Field activities were conducted between July 2007 and December 2008 in accordance with the Site 08 RI Work Plan (TtNUS 2007). The RI activities included an ecological investigation and a hydrogeological investigation and resulted in the collection of 362 environmental samples. These investigations included surface geophysical surveys, test pit excavations, soil sampling and analysis, sediment and surface water sampling and analysis, groundwater sampling, hydrogeologic studies, fish and earthworm sampling and tissue analysis, and a wetland survey. The investigation efforts are summarized in the following subsections.

8.1.1 Surface Geophysical Surveys and Test Pit Excavations

Following brush clearing, two surface geophysical surveys were conducted. These surveys utilized both EM and GPR methodologies, and were conducted in upland areas of the Site to locate anomalies that may represent buried metallic objects, such as drums and paint cans, and used to guide the final selection of test pits and sampling locations. The first survey was performed in December 2007. This survey covered unpaved areas mapped anomaly locations that were later checked by test pit excavations. Test pits excavated in the South Meadow and area west of the Paved Storage Area uncovered mostly construction demolition debris. Two, corroded, empty 55-gallon steel drums were observed in the test pits

excavated in the South Meadow. Fill material was not observed in the single North Meadow test pit and limited debris was observed at shallow depths in the two of three test pits excavated in the area southeast of the Paved Storage Area.

The second surface geophysical survey conducted in July 2008 covered approximately half of the Paved Gated Storage Area, and the majority of the Paved Open Storage Area. The remaining areas of paved storage were not accessible due to stored items that were not readily movable. No anomalies were observed in the surveyed portion of the Paved Gated Storage Area. Four anomalies (potential buried objects) were mapped in the Paved Open Storage Area. Because data collected during the hydrogeologic investigation phase of the RI indicates that a significant release of contamination has not occurred at any of the four anomaly locations, test pits excavations were not conducted in the paved areas of the Site. However, Anomaly 1 (Figure 2-6), which resembles a buried metal container, will be further investigated using test pits and/or removed prior to or during the remedial action at the Site.

8.1.2 Surface Soil Investigation

Surface soil collection and analyses were performed in various phases as follows:

- 48 samples collected for PAH analysis at proposed unpaved area soil boring and monitoring well locations to support selection of locations for toxicity testing.
- 77 samples collected at soil boring and monitoring well locations to characterize surface soil.
- 1 sample collected for pesticides/PCBs at a transformer location to characterize surface soil.
- 3 samples collected as part of the LNAPL investigation.

8.1.3 Subsurface Soil Investigation

Subsurface soil collection and analyses were performed in various phases as follows:

- 1 sample collected from a test pit to characterize subsurface soil.
- 63 samples collected from DPT soil borings and conventional soil borings at paved and unpaved soil boring locations to characterize subsurface soil.
- 2 samples collected from conventional soil borings as part of the LNAP investigation.

DPT soil borings were first advanced through the overburden to the top of the bedrock or refusal. Soil samples were collected continuously from the ground surface to the bottom of the boring. Conventional drilling borings were advanced through overburden and into bedrock and 3 borings were advanced through overburden for the purpose of installing overburden groundwater monitoring wells. As part of the

LNAPL investigation three additional conventional drilling borings were advanced into bedrock at locations around the Building 185 Complex following observation of LNAPL in nearby monitoring well MW-100B.

8.1.4 Groundwater Investigation

Groundwater sampling and analyses performed were performed in various phases as follows:

- 25 groundwater samples collected from monitoring wells using low flow sampling methodology to characterize groundwater.
- 8 groundwater samples collected from discrete bedrock well fracture zones to characterize groundwater.
- 4 groundwater samples collected from monitoring wells using low flow sampling methodology as part of the LNAPL investigation.
- 7 groundwater samples collected from discrete bedrock well fracture zones as part of the LNAPL investigation.
- 1 free product sample collected from a monitoring well as part of the LNAPL investigation.
- 16 shallow groundwater samples collected using diffusion bags.

The groundwater investigation included the installation of three shallow overburden monitoring wells and 27 bedrock wells with open boreholes entirely within the bedrock, including three additional bedrock wells following the discovery of LNAPL in boring B100B. Borehole geophysical surveys were performed at eight boreholes to evaluate the hydraulic properties of the bedrock. Hydraulic characteristics of the rock were measured using geophysical logging and the results were used to select intervals for discrete-interval groundwater sampling and packer testing. Eight bedrock boreholes were packer tested to determine the locations of water-bearing zones, to collect discrete zone groundwater samples, and to measure hydraulic conductivity. Discrete interval groundwater sampling was also performed in these eight bedrock wells in order to determine preferential pathways for groundwater contamination migration. Hydraulic conductivity was evaluated through slug testing and packer testing.

Two synoptic groundwater level measurement rounds were conducted in May 2008 and in September 2008. The entire water column was gauged in each monitoring well with an oil-water interface probe to check for the presence of both LNAPL and DNAPL.

Groundwater samples were collected from 26 new monitoring wells installed and from seven previously installed monitoring wells using low-flow (low-stress) groundwater sampling procedures. A "double packer" set-up was used to collected discrete interval groundwater samples from selected monitoring wells. To determine if groundwater contamination (chlorinated VOCs) previously found in the North Meadow are

entering the pond, groundwater samples were collected using PDB at fourteen locations along the shoreline of NUWC Pond.

8.1.5 Surface Water, Sediment and Biota Investigations

The surface water, sediment and biota investigations included the analysis, processing and/or and testing of the following samples:

- 25 surface water samples collected from Deerfield Creek, the unnamed stream, NUWC Pond and Upper Melville Pond for analysis to characterize water quality.
- 54 sediment samples collected from Deerfield Creek, the unnamed stream, NUWC Pond and Upper Melville Pond for analysis to characterize sediment.
- 14 benthic macroinvertebrate samples collected from Deerfield Creek, the unnamed stream, NUWC Pond and Upper Melville Pond for processing to evaluate the health of the benthic community.
- 11 earthworm tissue samples collected from shallow soil locations for analysis to evaluate the impact to soil invertebrates exposed to site contaminants.
- 10 fish tissue samples collected from NUWC Pond and Upper Melville Pond for analysis to evaluate the impact to aquatic receptors exposed to site contaminants.
- 11 shallow soil samples collected for analysis and earthworm toxicity testing (14-day earthworm toxicity test) to evaluate to evaluate risks to terrestrial invertebrates exposed to site contaminants.
- 13 sediment samples collected from Deerfield Creek, the unnamed stream, NUWC Pond and Upper Melville Pond for analysis and invertebrate toxicity testing (28-day amphipod toxicity test) to evaluate risks to sediment invertebrates exposed to site contaminants.

8.2 REMEDIAL INVESTIGATION SUMMARY

This section summarizes the findings of the NUSC Disposal Area RI.

8.2.1 Site Description and History

The NUSC Disposal Area Site is located in the northeast section of NUWC, a Navy research and engineering complex facility, in Middletown, Rhode Island, which is part of NAVSTA Newport. The Site is surrounded on the northwest, west and southwest by the NUWC facility; a wetland area on the NUWC grounds lies to the southeast and the Wanumetonomy Golf and Country Club golf course borders the Site to the northeast. The NUWC perimeter security fence prevents access to the Site from the golf course. A

crushed-stone roadway running along the NUWC fence line is used for walking and jogging by NUWC personnel. Access to the NUWC complex is restricted to Navy and contractor personnel.

The eastern/southeastern portion of the 8.1-acre Site is made up of upland situated on an elevated stream bank and fill area. The adjacent lowland area to the west/northwest features Deerfield Creek, a small unnamed stream flowing from the golf course, associated wetlands and NUWC Pond, a 1.9-acre freshwater, impoundment fed by the two streams, along with overland runoff and several stormwater outfalls. The dam spillway drains to an underground culvert that discharges to Narragansett Bay. Within the lowland area 0.8 acres meet the federal criteria for wetlands designation. The NUSC Disposal Area, located on the upland portion of the Site, was used as a disposal area from the early 1950s and to the 1980s. This area currently consists of the Paved Storage Area, the Building 185 Complex, and open fields referred to as the South Meadow and the North Meadow. Grasses and thick vegetation cover approximately 70 percent of the Site.

Deerfield Creek and the western edge of NUWC Pond form the western boundary of the Site. A concrete dam at the northern end of the NUWC Pond is the northern Site boundary.

Site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the Site. Elevations range from approximately 58 feet at the southeast corner of the study area to 25 feet, which was the measured elevation for the pond water at the north end of the Site.

The Paved Storage Area is divided into a western Paved Open Storage Area that is open to access and an eastern Paved Gated Storage Area that is fenced to restrict access to the stored materials. The storage areas are used for the temporary storage of large equipment such as steel buoys, empty torpedo casings, cable reels, molds, jigs, and other large miscellaneous equipment.

Located south of the Paved Storage Area, the Building 185 Complex is a series of four structures (designated Areas Nos. 1 through 4) that are fitted with low concrete perimeter walls. In the past the structures were used for storage of various materials including flammable materials and Otto Fuel. The complex areas were also reportedly used in the late 1980s as a less than 90-day accumulation area for drummed hazardous wastes. Currently, only Area No. 1 is used for storage of Otto Fuel II and chemicals. The other three areas are used for storage of miscellaneous inert items. In 2004 it was discovered that an Otto Fuel release from Building 185 Area No. 1 had occurred in the past. Soil and concrete suspected of Otto Fuel contamination for off-site disposal as hazardous waste, however no confirmatory soil samples were collected.

Limited available historical information indicates that Site 08 was used for the disposal of scrap lumber, tires, wire, cable and empty paint cans for an unspecified period of time. Records indicate that Site 08

disturbance began in the 1950s and continued until the 1980s. The Paved Storage Area covers earlier possible fill activity locations.

Prior to the initiation of the RI field effort, the field investigations and activities conducted at the Site consisted of the SASE in 2003 and the Post SASE Removal Activities in 2005 and 2006. In addition, the NUSC Disposal Area Background Soil Investigation was performed in 2004.

SASE - The SASE identified fill at the Paved Storage Areas, the South Meadow, and the North Meadow as a possible source of the contaminants based on historical aerial photographs. The presence of empty paint cans and other debris supported the assumption that possible chemical hazards include VOCs and heavy metals from paint residues. The SASE also identified the Building 185 Complex, where the enclosures were used for material storage, as a possible source of contaminants.

The SASE concluded that contaminants are present at the NUSC Disposal Area at concentrations exceeding risk-based standards and that additional investigations are necessary to complete an RI and baseline human and ecological risk assessments. The SASE found VOCs and metals in groundwater exceeding groundwater screening criteria. It also found soil contamination levels exceeding screening criteria concentrations for 1,2,4-trimethylbenzene, naphthalene, carbazole, PAHs, PCBs, metals, and TPH. In the streams and NUWC Pond sediments VOCs, SVOCs, pesticides, PCBs, and metals concentrations exceeded screening concentrations. Finally, surface water contamination levels exceeded AWQC for 4,4-DDT and metals.

The SASE also concluded that limited removal actions should be performed to remove debris at the Buried Container Area, where buried deteriorated metal containers were discovered, and the Buried Drum Area, where buried drums with unknown contents were found the South Meadow.

Post-SASE Removal Activities - Limited removal actions were conducted at the Buried Container Area and the Buried Drum Area from June 2005 to February 2006. At the Buried Container Area, a total of approximately 157 cubic yards (236 tons) of soil and metal debris were removed and disposed of off site as hazardous due to high level of lead. A total of 36 drums and 113 tons of contaminated soil were removed at the Buried Drum Area in the South Meadow that were disposed of off site as non-hazardous waste based on characterization test results.

NUSC Disposal Area Background Soil Investigation – This investigation provided a background data set that was used to determine if NUSC Disposal Area Site RI soil data exceeds background levels.

8.2.2 Geology and Hydrogeology

Section 3 of this report presents the site specific geology and hydrogeology. The following is a summary of that information.

8.2.2.1 Overburden Characterization

The Site overburden consists of approximately one-half foot to 19.5 feet of unconsolidated materials underlain by bedrock. Three overburden units have been observed at the Site, as described below.

Debris Fill

Debris fill materials dominate the overburden across the southern portions of the Site where past disposal operations filled low-lying areas or grading operations reworked the upper few feet of soil for development purposes, such as the Paved Storage Areas. Fill materials primarily consist of construction debris (asphalt, brick, concrete blocks, slabs and curbing with rebar, corroded 55-gallon drums and 5-gallon containers with tar-like contents, fiberglass, mesh screens, metal cans, pipes and strapping, nails, plastic rubber hoses, steel cables and frames and wire) and/or soil or rock (silt, sand, gravel, and weathered bedrock fragments).

Debris fill was encountered throughout the entire South Meadow and the area between the Paved Open Storage Area and Deerfield Creek. The debris thickness in these areas is significant, ranging typically from 4 to 18 feet. The debris thickness is the greatest at the edge of the slope going down into Deerfield Creek, suggesting filling from above. In addition, surface geophysical surveys and test pitting reveals that the metallic content of the debris fill in these areas is significant (Figure 2-6). Crushed, corroded, metallic drums were observed in the debris fill in the South Meadow in some locations. Some of the drums were observed to partially contain a solid tar-like substance.

Debris fill was observed sporadically in the North Meadow, the Paved Open Storage Area, the area north of the North Meadow, and the area south of the Site where subsurface exploration occurred. Debris thicknesses in these areas were minimal. The metallic content of the debris fill in the North Meadow and south of the Site were minimal. The metallic content of the debris fill in the Paved Open Storage Area was significant but the area within the Paved Open Storage Area that contains debris fill is limited. The Paved Gated Storage Area was not observed to contain debris fill.

Non-Debris Fill

Fill soils were difficult to visually distinguish from native soils. In the absence of debris, some fill soils appear to consist of road-base materials beneath asphalt or loose soil. Other non-debris fill consisted of what appears to be reworked native deposits. North of the North Meadow there is a thin sand layer above the gravelly sand and silty sand that appears to be laid down to construct the access road.

Non-Fill Overburden Materials

The non-fill overburden materials were characterized as grey to brown sand and silt with various quantities of gravel. Minimal fine-grained deposits (silt and clay) were found during soil sample characterization. The notable exception is in the vicinity of the Paved Gated Storage Area, to a limited extent in the Building 185 Complex and west of the Building 185 Complex (Figure 3-7). The non-fill overburden materials within the North Meadow consists of silty gravel, gravelly sand and silty sand with gravel. Platy angular or subangular gravel dominates the non-fill overburden materials. Much of this gravel appears to be derived in place from weathering of the local bedrock.

Although regional geology describes glacial till as a dominant geologic unit in Rhode Island, glacial till differentiated from other overburden materials was not identified at the Site. Typically glacial till would be differentiated from the silty sand and gravel unit by its higher density. As defined, glacial till consists of an unstratified mixture of clay, silt, sand, gravel, and boulders. Although this mixture of overburden material is found at the Site, much of the gravel observed at the Site appears to be derived from the local bedrock, indicative of formation in place, rather than deposition by glaciers.

Overall Overburden Thickness and Saturated Thickness

The overburden thickness is greatest in the western corner of the Paved Storage Area. It is also relatively thick adjacent to the break in slope going down to Deerfield Creek and in the South Meadow. The overburden thickness typically ranges from 4 to 8 feet over the remainder of the Site southeast of the unnamed stream. The overburden thickness is less, generally ranging from 0 to 4 feet in the North Meadow and becoming a bit thicker at the northern edge of NUWC Pond.

The saturated thickness of the overburden material at the Site is very limited. Groundwater is not present in the overburden in the North Meadow or north of the North Meadow. Beneath the South Meadow the water table generally coincides with the bedrock/overburden interface. Within the Building 185 Complex the water table is close to the bedrock/overburden interface. South of the Site in the Building 179 Area, the water table is present within the overburden.

8.2.2.2 Bedrock Characterization

Rock Type and Depth

Bedrock was confirmed during the RI and previous investigations at the Site. Most bedrock descriptions at the Site and at surrounding NAVSTA Newport Sites are consistent with the published description for the Rhode Island Formation (Hermes, 1994). The bedrock beneath the Site consists of metamorphosed sedimentary rock, predominantly phyllite. The hardness and the degree of foliation of the rock varied with location, and the color of the rock varied from light to dark gray. Metaconglomerate, schist and quartzite were encountered in a few discrete depths at several locations, but the predominant bedrock type was phyllite.

Due to the softness of the phyllite bedrock, the transition from weathered rock to competent rock was gradual and not clearly defined in all locations. The upper portion of the bedrock is generally significantly weathered and degraded and contains evidence of groundwater flow through the fractures. Bedrock in the North Meadow is significantly degraded and weathered.

Depth to bedrock at the Site ranges from approximately one-half foot to 19.5 feet bgs (Figure 3-9). Beneath the Paved Storage Areas and the Building 185 Complex the depth to bedrock ranges from 17 feet in the east (MW106S) to three feet in the west (MW124B). Between the Paved Open Storage Area and the break in slope going down into the bedrock valley in which Deerfield Creek runs, the depth to bedrock is the deepest, up to 19.5 feet in depth at MW103S. In the South Meadow bedrock depths are between 5 feet (SB124) and 16.5 feet (SB131); again increasing from east to west through the South Meadow. Bedrock is very shallow (about one-half foot) in the bedrock valley which forms Deerfield Creek. Bedrock is also very shallow (within 5 feet of ground surface) in the North Meadow. North of the North Meadow the depth to bedrock increases to between 8.5 and 17 feet.

Bedrock Fracture Zones

Topography at the Site tends to mimic the bedrock surface and appears to be bedrock controlled. Topography drops steeply toward Deerfield Creek and NUWC Pond which occupy a deep bedrock valley. This valley and the valley in the vicinity of the unnamed stream were likely formed by weathering and erosion of softer bedrock at the Site.

Borehole geophysics measurements were performed in eight boreholes at the Site. The strike and dip of 269 planar features that intersect the boreholes were measured. The planar features may be fractures,

cleavage, or bedding planes. The strike and dip directions of the identified features in the boreholes are varied. Overall, the most common strike direction is north-south with a median strike of 359 degrees, and a dip direction to the east or the west. Most of the features are fairly shallow dipping, with a median dip of 36 degrees. These planar features consist of potential fractures and potential water bearing fractures.

The possible or likely transmissive fractures identified in the eight boreholes where geophysics was performed are described below:

- In MW-100B three possible transmissive zones were identified, two near the top of the corehole and one within the bottom five feet of the corehole.
- In MW-101B one possible transmissive zone was identified, near the bottom of the corehole.
- In MW-102B two possible transmissive zones were identified, one just below the well casing and one in the middle of the core hole.
- In MW-114B four possible transmissive zones were identified and four likely transmissive zones were identified. Possible transmissive zones were identified at depths of about 14 feet, 31 feet, 46 feet, and 49 feet. Likely transmissive zones were identified at depths of about 21 feet, 27 feet, 31 feet, and 55 feet.
- In MW-115B two likely transmissive zones were identified, at depths of 21 feet and 29 feet.
- In MW-124B two likely transmissive zones were identified, at depths of 11 feet (just below the well casing) and 47 feet (near the bottom of the core hole).
- In MW-125B three likely transmissive zones were identified, at depths of 13 feet (just below the well casing), 34 feet and 42 feet.
- In MW-126B one possible transmissive zone was identified at a depth of 36 feet. Three likely transmissive zones were also identified at depths of 32 feet 41 feet and 54 feet.

During bedrock drilling, evidence of water-bearing fractures (iron staining) was noted in core holes. In general, the density of fractures and the frequency of fractures with iron staining on fracture surfaces decreased with depth.

Based on bedrock drilling observations, subsurface geophysics and hydraulic conductivity testing, there is a long, linear zone of water-bearing fractures and highly degraded bedrock that extends from MW112B in the South Meadow, through the North Meadow and northwesterly as far as to MW119B.

8.2.2.3 Site Hydrogeology

Throughout the Site, bedrock is shallow and throughout the Paved Storage Area and the South Meadow the water table is shallow. The water table is generally just at or in the bedrock. South of the Site the

water table is in the overburden, beneath the Building 185 Complex, the Paved Storage Areas and the South Meadow the water table is generally at the bedrock/overburden interface. Beneath the North Meadow and north of the North Meadow the water table is within the bedrock.

Horizontal Groundwater Flow Patterns

Groundwater level measurements and resulting elevations were used to prepare potentiometric surface contour maps for the Site. At the time of the May 2008 groundwater level measurements, the depth to groundwater ranged from approximately 0.5 to 24 feet. In September 2008, groundwater depths ranged from about two to 24 feet. The May, 2008 contour map (Figure 3-5) and the September, 2008 contour map (Figure 3-6) show very similar horizontal groundwater flow patterns.

South of Site 08 at the Building 179 site, groundwater in bedrock flows generally northerly and appears to be influenced by Deerfield Creek, meaning Deerfield Creek appears to be a discharge for shallow bedrock groundwater flow south of the Site.

Surface water on the Site includes Deerfield Creek, the unnamed stream and NUWC Pond. Groundwater on the Site flows in the direction of NUWC Pond and Deerfield Creek. The highest elevation of groundwater is located in the southeast corner of the Site at the general location of MW106S and MW106B. The groundwater flows in a generally west-northwesterly direction, beneath the Paved Storage Areas and the South Meadow.

Groundwater in the North Meadow is at its highest elevation in the eastern portion of the North Meadow (MW116B and MW115B). Groundwater flows in a west-northwesterly and a west-southwesterly direction towards NUWC Pond and the wetland area south of NUWC Pond. The unnamed stream appears to have little influence on the direction of groundwater flow beneath the Site. The unnamed stream was observed to be an intermittent stream that was often not flowing.

The potentiometric surface in the northern part of the Site could not be contoured but is expected to flow in a pattern that generally follows the ground surface topography. Ground surface topography in this area drops steeply towards NUWC Pond but farther east and north of NUWC Pond the topography slopes more in a northwesterly direction towards the East Passage of Narragansett Bay.

Vertical Groundwater Flow Patterns

At the Site the water table generally occurs within the bedrock, indicating that most of the overburden and fill material is not saturated. However, where groundwater was encountered in the overburden or in the

overburden/uppermost weathered bedrock zone monitoring well couplets were installed. These couplets were used to evaluate the vertical component to groundwater flow. Four onsite locations were evaluated for vertical gradients and two off site locations (south of the Site) were evaluated for vertical hydraulic gradients. Of the six locations evaluated, the vertical component of flow was downward in all but one location. The upward hydraulic gradient was measured in the eastern corner of the Paved Gated Storage Area (MW106S/MW106B). One location just west of the Paved Open Storage Area and two locations within the South Meadow had downward vertical hydraulic gradients. The two offsite locations also had downward vertical hydraulic gradients.

Across much of the Site, (Figure 3-8) a layer of debris fill exists. Non-debris fill and native overburden material is present in limited quantities where the debris fill is present. The non-debris fill and the native overburden material consists of silty sand and gravel. The nature of the fill and the natural overburden material is such that it would not impede infiltration of water and/or a release of contaminants. In addition, the downward vertical hydraulic gradients would not impede this migration. The exception is in the eastern corner of the Paved Gated Storage Area where a silt layer overlies the bedrock, this location (MW106S/ MW106B) also has upward hydraulic gradients, further minimizing the likelihood of migration of contaminants to the water table.

Hydraulic Conductivities and Seepage Velocities

The horizontal hydraulic conductivity in the overburden/ shallow bedrock ranges between 1.01 and 2.28 ft/day. The horizontal hydraulic conductivity in the bedrock of the Site (with the exception of the North Meadow) ranges from 0.051 and 2.46 ft/day with the geometric mean estimated at 0.552 ft/day. The hydraulic conductivity of the North Meadow bedrock aquifer ranges between 4.69 and 19.5 ft/day with the geometric mean estimated at 7.83 ft/day.

8.2.3 Nature and Extent of Contamination

Section 4 of this RI report presents in detail nature and extent of contamination in soil, groundwater, sediment, and earthworm and fish tissue at Site 08. The following is a summary of that information.

8.2.3.1 Soil Contamination

Previous disposal activities at Site 08 have resulted in the presence of VOCs, SVOCs, metals and pesticides/PCBs in the site soil.

VOCs - Several VOCs were detected in site soils at low concentrations relative to state and federal criteria, however, none were detected above state and federal DCR criteria.

SVOCs - For SVOCs, PAHs were frequently detected above state and federal criteria in the Site soil samples. PAHs are often by products of combustion and are common constituents of urban fill. PAHs are above criteria in the South Meadow, the Paved Storage Areas, the area between the Paved Storage Area and Deerfield Creek. PAHs were detected at lower levels and less frequently in the Paved Storage Area and the paint can removal area. In addition, several PAHs were exceeded in both surface and subsurface soil north of the North Meadow, south of the Site boundary, in background location SB153 and in surface soil west of the Site boundary. In subsurface soil, PAHs did not exceed federal and state criteria in the North Meadow, but criteria were exceeded in surface soil.

PAHs were detected at high levels in the South Meadow, especially in the vicinity of the Buried Drum Excavation Area. Many PAHs were detected in the South Meadow, with benzo(a)pyrene and dibenzo(a,h)anthracene most frequently detected at elevated levels. At two South Meadow locations combustion materials were observed during sampling. Although these two locations did not contain the maximum PAH concentrations, they did consistently have higher levels of PAHs then other samples. The area immediately west of the northwest corner of the Paved Open Storage Area had the most elevated levels of PAH throughout the Site in subsurface soils.

Metals - Arsenic was frequently detected at levels above the screening criteria in surface soil samples and subsurface soil samples collected from throughout the Site. The highest arsenic detection locations were within the Paved Storage Areas and one location just north of the North Meadow.

Pesticides/PCBs - PCBs were detected above soil above screening criteria including Aroclor-1260 between the Paved Storage Area and Deerfield Creek. Aroclor-1260 was also above screening criteria in subsurface soil in the South Meadow and at the northwestern corner of the Paved Open Storage Area. Aroclor-1268 was detected at concentrations above screening criteria in surface soil in the South Meadow and between the Paved Open Storage Area and Deerfield Creek and in a sample north of the northern edge of NUWC Pond. Aroclor-1260 was detected at locations outside the Site boundary (south or west of the Site). Aroclor-1268 was detected in subsurface soil at concentrations above the federal screening level in a few South Meadow locations. Pesticides were infrequently detected at concentrations below federal and state screening criteria.

8.2.3.2 Groundwater Contamination

The water table at most of the site occurs primarily within the bedrock or coincides approximately with the top of bedrock, and therefore the primary focus of this groundwater contamination summary is bedrock

groundwater. The exception to this is the contamination found in the groundwater discharge area near the NUWC Pond. Groundwater at this location was sampled in the overburden, but the results are representative of bedrock groundwater discharging to the Pond.

VOCs – The most frequently detected VOCs, and those with the highest percentage of criteria exceedances are chlorinated VOCs comprised primarily of chlorinated ethenes, including PCE, TCE, and their breakdown products, cis-1,2-DCE and VC. Maximum concentrations of these compounds range from 19 to 730 µg/L, and the average concentration of total chlorinated ethenes is 66.1 µg/L in on-site bedrock groundwater.

PCE was detected almost exclusively in groundwater at the Building 185 Complex and downgradient thereof. The highest PCE concentration at 22 µg/L (MW-125B) was reported at Building 185 Complex. Three additional elevated detections of PCE were reported for locations in the Paved Storage Area and the South Meadow. TCE, which can be a daughter product of PCE or can be a released material, is one of the most widespread VOCs detected in groundwater. It is present both upgradient and downgradient of the Paved Storage Area. The highest concentrations are found in the North Meadow/NUWC Pond area bedrock groundwater at 730 µg/L (MW-117B). In addition, it was reported in the eastern NUWC Pond area overburden (vapor diffusion) groundwater samples ranging from 3 to 350 µg/L. More widespread is the compound cis-1,2-DCE, a daughter product of TCE, which is present in all wells where TCE is detected and in several additional wells. VC, the next daughter product of PCE or TCE in the reductive dechlorination chain, was detected primarily in locations where cis-1,2-DCE was also present, but only as far north as the South Meadow area, with two exceptions: 2 J µg/L of vinyl chloride were detected at vapor diffusion location DW08 and at bedrock well MW-119B, located at the extreme northern end of the study area at the northeast corner of NUWC Pond. The VC MCL (2 µg/L) was exceeded at MW-119B and at MW-101B, to the west and across Deerfield Creek, where TCE was present at 5 µg/L.

Carbon tetrachloride and its reductive dechlorination daughter products, chloroform and chloromethane, were detected in the shallow groundwater vapor diffusion samples along the eastern bank of NUWC Pond and in the North Meadow. Chloroform and chloromethane were also detected at bedrock wells in the Paved Storage Area, All detections of carbon tetrachloride and chloroform and five of the six chloromethane detections exceeded its exceeded the associated ORNL screening levels. MCLs were not exceeded.

In bedrock and overburden groundwater upgradient of the Site, the compounds found at the highest concentrations, and significantly higher than in onsite groundwater samples, are comprised primarily of chlorinated ethanes, including 1,1,1-TCA and its breakdown products, 1,1-DCA, and chloroethane. Maximum concentrations of these compounds range from 270 to 1,600 µg/L, and average concentrations range from 97.5 to 617 µg/L in upgradient bedrock groundwater samples. In upgradient overburden

groundwater, maximums range from 85 to 380 µg/L (in off-site well MW-7A only). These chlorinated ethanes generally have fewer criteria exceedances than the ethenes.

GRO/ETPH - GRO and ETPH were detected in groundwater primarily in wells toward the southern portion of the Site. Southwest of the Building 185 Complex GRO was present in groundwater at 110 µg/L (MW-101B). Lower concentrations (up to 74 ug/L) were detected in four additional bedrock wells located closest to MW-101B. MW-100B, located adjacent to MW-101B contained LNAPL that was composed primarily of ETPH, secondarily of GRO and lesser amounts of VOCs. North of the Paved Storage Area GRO was detected in two wells with the second highest detection at 180 µg/L in the North Meadow (MW-117B). The maximum and third highest concentrations of GRO were found in upgradient collocated bedrock and overburden wells (MW-7A and MW-7B) near Building 179.

The highest ETPH groundwater concentrations were detected in four wells located in the southernmost portion of the study area, where the maximum detection was reported at 1,300 J µg/L (MW-124B) for a location immediately south of Building 185, and adjacent to MW-100B. Additional groundwater ETPH detections were reported for the Paved Storage Area where concentrations of ETPH ranged from 190 to 360 µg/L. Lower levels of ETPH were detected in northern Paved Storage Area bedrock wells, along the perimeter of the South Meadow area. ETPH was not detected in North Meadow area groundwater wells. ETPH levels of 570 µg/L and 200 µ/L were reported for off-site upgradient overburden well (MW-7A) and bedrock well (MW-7B).

SVOCs - Low concentrations of five SVOCs were detected in groundwater at the Site, and low concentrations of Otto Fuel components, PDGN (5 µg/L) and dibutyl sebacate (30 J µg/L), were tentatively identified in groundwater, immediately south of Building 185 Complex (MW-124B). This well is also the location of two other SVOCs in groundwater, the PAH compound benzo(k)fluoranthene, the only detection of this compound, and di-n-butyl phthalate, detected at 4 J and 5 J µg/L, respectively. The only SVOC groundwater criteria exceeded was this detection of benzo(k)fluoranthene, which exceeded the ORNL of 0.29 µg/L. Trace and low concentrations of SVOCs were recorded at three other wells but none exceed the applicable ORNL screening criteria and MCL.

Pesticides/PCBs - The only pesticide detected in groundwater is dieldrin, reported at just one location, overburden well MW-122, at 0.0108 µg/L, exceeding the ORNL of 0.0042 µg/L. PCBs were not detected in groundwater at the study area.

Metals – The five metals with the most frequent exceedances of criteria in groundwater include arsenic, manganese, iron, aluminum and cobalt. With the exception of aluminum, those samples where total metals exceeded the ORNL screening levels and/or the MCLs, also exceeded these criteria in most or all of the corresponding filtered metals samples.

The distribution of elevated concentrations of arsenic in groundwater is widespread at the study area, with the four highest concentrations present in two different areas, consisting of the Paved Storage Area (MW-02B) and west of this area (MW-103S, maximum turbidity sample), and the North Meadow area (MW-115B and -116B). The area upgradient of the Site is also an area of elevated arsenic concentration (MW-07B). Both manganese and iron were detected in nearly every sample, and commonly exceeded the MCLs. The associated ORNL screening levels for these metals are much higher, and were exceeded far less frequently than MCLs.

Aluminum was one of the metals where the dissolved concentrations were generally noticeably lower than the total concentrations, and dissolved aluminum was detected in only twenty-five percent of the samples with total aluminum present.

8.2.3.3 Surface Water Contamination

Surface water samples were collected from Deerfield Creek, the unnamed stream, and NUWC Pond and from reference water bodies Upper Melville Pond and its outlet stream. Surface water samples had very few exceedances of screening criteria.

VOCs - VOCs were detected infrequently in surface water samples. Two of the three reference samples did not contain VOCs. None of the VOCs that were detected in onsite or reference surface water samples were detected at levels exceeding criteria. As discussed in Section 8.1.6.2, overburden groundwater with TCE concentrations up to 350 µg/L appears to be discharging to eastern NUWC Pond via groundwater from the North Meadow area. The surface water sample location nearest to the discharge area, SW-121, had a TCE level of 1 µg/L. The TCE levels reported for the other four NUWC Pond surface water sample locations ranged from not-detected to 0.8J µg/L. Therefore, the TCE-contaminated overburden groundwater discharge is having a low-level impact on to NUWC Pond water quality.

SVOC - There were no SVOCs/PAHs detected in surface water samples collected during the RI.

Pesticides/PCBs - The only pesticide detected at levels exceeding criteria was dieldrin, which was detected in samples collected from Deerfield Creek and NUWC Pond, but not in samples collected from the unnamed stream or the reference samples. The maximum detection was reported for a Deerfield Creek location upstream of the Paved Storage Area, suggesting an upstream source. PCBs were not detected in the surface water samples.

Metals - Barium and manganese were detected at levels exceeding screening criterion most frequently in both the total metals and dissolved metals. Iron was also reported at levels exceeding screening criteria in both total metals and dissolved metals but exceeded screening criterion less frequently. Lead, a major

COC, was only detected at levels exceeding criteria in the total metals samples. It was detected more frequently and at slightly higher concentrations in NUWC Pond samples than in stream samples.

8.2.3.4 Sediment Contamination

Sediment samples were collected from Deerfield Creek, the unnamed stream, and NUWC Pond and from reference water bodies Upper Melville Pond and its outlet stream. Sediment samples were collected from shallow water locations (submerged by less than or equal to one foot of water) within the on-site streams, the edges of the southern end of NUWC Pond, and from a former stream bed and from deep water locations (submerged by more than 1 foot of water) in the center and northern end of NUWC Pond.

VOCs – Carbon disulfide and PCE were infrequently detected in sediment at levels exceeding criteria.

SVOC - A total of nineteen SVOCs/PAHs were detected at levels exceeding criteria. Many PAHs were detected above screening criteria in most samples collected. Deep water sediment samples and shallow water sediment samples detections were similar.

Pesticides/PCBs - Eight pesticides/PCBs were detected in samples at levels exceeding screening criteria. Five of those analytes were not detected or did not exceed criteria in reference samples. Three analytes (DDD,DDE and DDT) were detected at high levels in the reference samples as well as the on-site samples.

Metals - Sixteen metals were detected in sediment at levels exceeding criteria in on-site samples. Four of those metals exceeded criteria in every sample collected including reference samples. The rest of the metals exceeding criteria ranged from three samples to exceeding in 21 out of 25 samples. Arsenic, iron and lead were found at concentrations much higher than criteria.

8.2.3.5 Earthworm Contamination

To evaluate the impact of site contaminants to terrestrial invertebrates, earthworm tissue was analyzed for pesticides/PCBs and metals. Ten on-site earthworm tissue results were compared to the reference earthworm tissue sample that was collected up gradient of the Site at SB153.

Metals - A total of 23 metals were detected in Site earthworm tissue samples. Only two metals (lead and silver) were detected at concentrations below the minimum value in the reference sample. The remaining 21 metals were detected in the reference sample at concentrations within the range of concentrations in the Site samples. Concentrations in reference samples were less than maximum concentrations in Site samples.

Pesticides/PCBs - Six pesticides/PCBs were detected in Site samples. Two (4,4-DDE and Aroclor-1260) of those six were detected in the reference sample. Alpha-chlordane, aroclor-1254, aroclor-1268 and dieldrin were each detected in site samples but not in the reference samples. These analytes were each detected in between one and three samples with a sample from the South Meadow (MW113B) location having the most maximum detections.

8.2.3.6 Fish Tissue Contamination

To evaluate the impact of contaminants to aquatic receptors fish tissue samples collected from NUWC Pond and Upper Melville Pond were analyzed for SVOCs, pesticides/PCBs and metals. NUWC Pond fish tissue sample results were compared with results for Upper Melville Pond reference fish tissue samples. Fish tissue samples consisted of blue gill whole body fish, blue gill filets, and bullhead fillets.

Metals - Ten metals (aluminum, cadmium, calcium, cobalt, iron, lead, manganese, mercury, molybdenum, and sodium) were detected at concentrations in NUWC Pond fish tissue samples significantly greater then the respective reference Pond fish tissue concentrations.

Pesticides/PCBs – Pesticides and PCBs were detected in the Site fish tissue samples at levels that were significantly higher then the respective reference Pond fish tissue samples. These pesticides/PCBs include: 4,4'-DDD, 4,4'-DDE, alpha-chlordane, Aroclor-1254, Aroclor-1260, dieldrin, alpha-chlordane and gamma-chlordane.

8.2.4 Contaminant Sources And Transport

Section 5 of this report presents in detail the fate and transport processes that are likely to affect contaminants found at the site. The following is a summary of that information.

8.2.4.1 VOCs

It appears that there are three sources of the VOCs at Site 08. One source appears to be a release in the vicinity of the North Meadow. The second source appears to be associated with debris disposal and operations in the South Meadow, the Paved Storage Areas and the Building 185 Complex (the portions of the Site south of the unnamed stream). The third source of VOCs appears to be the migration of VOC impacted groundwater from the downgradient Building 179 Site. The lack of TCE concentrations above screening levels in unsaturated soils indicates that there is no known source remaining in the unsaturated Site soil.

North Meadow VOC Plume

The source of the release in the North Meadow was likely was direct disposal of solvent(s) on the ground surface. A lack of TCE within the soil in the North Meadow and the deep water table (over 20 feet) at this portion of the Site, suggest that the TCE may have been deposited on the ground surface near the center of the North Meadow. This hypothesis is supported by the absence of TCE in upgradient monitoring wells MW115B and MW16B. In 2003, during the SASE, the concentration of TCE in MW03B was 1,500 ug/L. During the RI, in 2008, the concentration of TCE in MW03B had decreased to 190 ug/L. TCE was detected during the RI at the highest concentration in MW117B, located hydraulically cross-gradient of MW03B. The release appears to be in the general vicinity of MW117B and MW03B. The source of TCE, and its biodegradation products, in the North Meadow and groundwater discharging to NUWC Pond is taken to be the dissolved phase TCE in the vicinity of these two wells.

The distribution of TCE suggests that it is migrating dissolved in groundwater from the south southwest to the north northeast. TCE and its breakdown products are in groundwater rather than sorbed to soil. PCE extends downgradient (northwesterly) with groundwater flow and cross-gradient via dispersion.

In the North Meadow, following the release(s) of TCE to the ground surface, some of the solvent volatilized. Since the time of the suspected contaminant release(s) most of the TCE that did not volatilize, has migrated through the unsaturated zone and into the bedrock groundwater. After the dissolved VOCs reached the groundwater, they migrated by advective transport in a northwesterly direction towards NUWC Pond. The chlorinated solvents also spread out by molecular dispersion and preferential flow in a northerly direction along the fractured bedrock zone. The TCE was also subject to some amount of to reductive dechlorination, which reduced the concentrations of TCE and resulted in the presence of its breakdown products (1,2-DCE, and to a lesser extent VC) in the passive diffusion bag samples collected within NUWC Pond.

Site Sources South of Unnamed Stream

VOCs have not been detected in Site soils above screening criteria. A soil source of VOCs detected in groundwater in the portions of the Site south of the unnamed stream is not present. The presence of VC in groundwater from MW124B suggests a release to the groundwater in the vicinity of the Building 185 Complex. The VC in MW124B is collocated with an elevated ETPH concentration. MW124B is also in the vicinity of monitoring well MW100B where a LNAPL (composed primarily of ETPH, but also containing some VOCs) was detected.

Off Site Sources

The off site source of VOCs in groundwater appears to be the former release at Building 179. Chlorinated VOCs and ETPH are present in the Building 179 area and appear to be migrating, dissolved in groundwater, onto the Building 185 Site. These compounds appear to be comingling with releases from the Site, in the vicinity of the Building 185 Complex.

Mild to strongly reducing conditions exist in groundwater in several areas of Site 08 and evidence is that anaerobic biodegradation of chlorinated VOCs has occurred at Site 08.

8.2.4.2 LNAPL

The presence of the LNAPL is limited to the area around MW100B. LNAPL was not detected in surrounding wells. The hydraulic conductivity of individual fracture zones within the bedrock in the vicinity of the LNAPL (in wells MW124B, MW125B, MW126B and MW109 was not measurable using packer testing techniques. This indicates that the hydraulic conductivity within the bedrock in this vicinity is low and the interconnectedness of fractures in the Building 185 Area is limited. Discrete interval groundwater samples were collected from these monitoring wells by using a modified low flow purge and sample technique, however, discrete interval hydraulic conductivity in these wells was to low to measure. Furthermore, the ETPH in groundwater surrounding MW100B is limited. ETPH was detected dissolved in groundwater from onsite wells MW124B, MW125B, MW126B and MW02B. It was also detected in offsite upgradient wells MW13A, MW07A and MW07B. These observations indicate that the LNAPL in the vicinity of MW100B is limited in extent and likely trapped within a fracture or set of fractures.

Even if the LNAPL is trapped and immobile, the LNAPL phase has a mass that is typically several orders of magnitude greater than normally present in sorbed, water, or vapor states, implying the potential for long-term impacts. If the LNAPL is mobile, The release of an LNAPL to the subsurface can result in several methods of exposure, including: 1) dissolution of constituents from LNAPL through percolating precipitation and the downgradient movement of those constituents once it reaches the water table; 2) release of a quantity of LNAPL that exceeds the capacity of the unsaturated zone to absorb it resulting in an accumulation of the LNAPL lens at the water table surface; 3) upward vapor phase migration of volatile constituents from above the LNAPL lens and/or from the unsaturated zone to the land surface or buildings and 5) downgradient migration of dissolved-phase constituents resulting from dissolution of the LNAPL lens.

8.2.4.3 SVOCs

Many SVOCs, primarily PAHs, were detected in Site soil and sediment, and several were present in groundwater. The predominant PAHs detected in soil and sediment, and those that frequently exceeded criteria in these media are the carcinogenic PAHs: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, chrysene, and benzo(g,h,i)perylene. These compounds are ubiquitous products of incomplete combustion of organic matter such as fuels, and were widely detected in subsurface soil, in exposed and unexposed surface soil, and in sediment. Concentrations of these PAHs were notably highest in subsurface soil at Site 08. Exposed surface soil concentrations of PAHs were somewhat higher than in sediments. PAHs in unexposed surface soil concentrations were typically lower than the other soil and sediment groups listed above, although still elevated. In sediment, several additional PAHs were reported with a significant presence of elevated concentrations exceeding criteria, including pyrene, fluoranthene, phenanthrene, anthracene and naphthalene.

The significant presence of PAHs in subsurface soils, where the maximum concentrations were detected, as well as in unexposed soils, is likely due to the fact that much of the area consists of fill, with and without artificial materials incorporated within the soils, including asphalt and tar-like substances that were observed during test pitting and soil boring activities. In addition, PAHs that were deposited on surface soils in the past, both on Site 08 and in areas that were sources of the fill materials now present onsite, may have been moved into the subsurface while adsorbed to the fill materials and/or the re-worked surface soil.

Several areas of elevated PAHs in surface soil related to onsite disposal activities are evident. The maximum concentration of total PAHs in surface soil and other elevated surface soil samples are in the vicinity of the former buried drum removal area in the South Meadow. Other elevated concentrations of PAHs are related to asphalt observed in test pits and borings. The largest concentration of surface soil samples with the highest PAH levels is in the South Meadow area, where nearly all surface soil samples are among some of the highest concentrations detected. Other areas with clusters of some of the higher levels of PAHs in surface soil include the northern portions of the Paved Gated and Paved Open Storage Areas and between this area and Deerfield Creek, including the former paint can removal area (SB104). Elevated levels of PAHs in surface soils are also present in the southernmost portion of the North Meadow, in wetland soils, in some locations in the vicinity of Building 185, and in offsite areas including south of Site 08, at the northernmost sample location, north of the concrete dam, and west of NUWC Pond at SB145 (in the vicinity of storm water Outfall C) and at SB142 (at storm water Outfall B). These results suggest an off site source contributes much to the surface soil PAH contamination.

In sediments, PAHs were detected upgradient of Site 08 at a concentration of 3,887 J ug/kg for total PAHs. Lower concentrations of total PAHs were detected in Deerfield Creek sediments downstream of this location until the more depositional environments are encountered in the wetland area below, such as locations SD106, SD03, and SD111. Concentrations of PAHs in sediments in the unnamed stream to the east do not appear to be contributing significantly to the levels detected downstream in the wetland area and in NUWC Pond sediments. The high concentrations of PAHs in the wetland area above NUWC Pond and in the Pond itself are in depositional, low-energy environments, where sediments can accumulate over time, more so than in the upper more channelized, high-energy areas of Deerfield Creek. In addition, PAH-contaminated bottom sediments can be mobilized during high energy, high surface water flow events, and can be transported further downstream within the surface water column, adsorbed to suspended soil/sediment particles. The elevated concentrations of PAHs in sediments are likely the result of a combination of possible sources, including: upstream offsite sources of PAHs in surface water and sediment from urban runoff (SD-01); overland runoff from the Site that may erode surface soil and incorporate PAHs present in these soils, discharging them into the streams, the wetland area, and NUWC Pond; and PAH-contaminated surface water or sediment discharged from one or more of the three storm water outfalls (Outfalls B, C and D) located west of NUWC Pond (total PAHs of 26,546 J µg/kg were detected in surface soil sample SB145, located near Outfall C, above NUWC Pond).

The absence of PAHs in surface water and in nearly all groundwater samples is attributable to the relative insolubility of these compounds and their strong sorption potential. PAHs in surface and subsurface soil would typically not be found dissolved in groundwater or surface water, but would remain adsorbed to soils. The only exceedance of an SVOC criterion in groundwater was the sole detection of benzo(k)fluoranthene at MW-124B. In addition, two SVOCs that are components of Otto Fuel were tentatively identified in groundwater (TICs) at MW-124B only: PGDN, at an estimated concentration of 5 µg/L, and dibutyl sebacate, at an estimated concentration of 30 µg/L.

In onsite bedrock groundwater, low concentrations (4 to 5 µg/L) of two SVOCs were reported. In addition two TICs, PGDN and dibutyl sebacate, components of Otto fuel were detected. These compounds were reported at just one location, MW-124B, immediately south of Building 185. Dibutyl sebacate was detected at an estimated concentration of 30 µg/L and PGDN was detected at an estimated concentration of 5 µg/L. The presence of Otto Fuel in groundwater is associated with Building 185 Complex where Otto Fuel II has historically been and currently is stored. The release of Otto Fuel discovered in a Building 185 shed may be the source of the Otto Fuel contamination in MW124B. PGDN, the major component of Otto Fuel is not readily soluble in water. In addition, these Otto Fuel components were detected in groundwater in this one location and were not detected in soil. These data suggest Otto Fuel contamination is localized and limited in extent and it not expected to migrate dissolved in groundwater.

8.2.4.4 PCBs

Four PCB congeners, Aroclor-1248, Aroclor-1254, Aroclor-1260 and Aroclor-1268 were detected in Site soil, in both surface and subsurface soil. Three of these congeners, Aroclor-1254, -1260 and -1268 were also detected in Site sediments. PCBs were not detected in groundwater or surface water samples. Primarily the congeners Aroclor-1260 and Aroclor1268 were detected above criteria.

Aroclor-1268 was detected above criteria primarily in soil in the South Meadow and west of the Paved Open Storage Area. An outlier of Aroclor-1268 was detected above criteria in the surface soil from MW119B, north of NUWC Pond within the unimproved access road.

The highest concentrations of Aroclor-1260 were in subsurface soils. The maximum concentration was 1500 ug/kg at a depth of 2 to 4 feet bgs in SB-111, at the northwest corner of the Paved Storage Area This elevated concentration of Aroclor-1260 in this soil sample was relatively isolated. The only other subsurface soils that exceeded the criterion were in a cluster of three sample locations north of this sample, in the vicinity of TP-103 in the South Meadow.

In surface soil, three of the four Aroclor-1260 concentrations that exceeded the criterion were from samples collected outside Site 08 boundary. The maximum concentration in surface soil was detected to the southeast of Site 08 at SB-153. Two other exceedances were west and north of Site 08 and west of NUWC Pond, at SB142, located just down slope of storm water Outfall B, and at SB145, located just north of storm water Outfall C. In addition, Aroclor-1260 was detected in sediment samples in the upgradient Deerfield Creek sample and in the upgradient unnamed stream sample. The sediment concentrations of Aroclor-1260 increase in sediment between the streams and the lower portion of NUWC Pond. These data show that PCBs migrate onto the Site from offsite, but they also migrate from onsite soil into the stream and NUWC Pond sediment. Because PCBs are nearly insoluble in water and sorbs strongly to soil, most of the PCBs mass in soils likely remains bound in the soils, and is expected to remain immobile. When PCBs are present in stream and pond sediments, as at Site 08, PCBs would also be sorbed to the soil/sediment grains that could settle out in streambeds or pond bottoms under low velocity flows, or could be remobilized during higher flow periods, entrained in the surface water column and transported downstream, settling out in lower flow velocity areas, such as would occur where Deerfield Creek flows into NUWC Pond.

8.2.4.5 Pesticides

The highest frequency of pesticide detections and all but one of the criteria exceedances were in sediment and surface water. The concentrations and the frequency of detection of most pesticides in soil were very low. None of the pesticides in soils exceeded criteria.

The pesticides detected at Site 08 are manufactured chemicals that were historically used as pesticides in the United States. These and many other pesticides are very persistent in the environment. Based on these factors, the low frequency of detection and low concentrations in Site soils and groundwater, it appears that pesticide presence in soil is not related to Site operations or activities. Pesticide presence in soil is likely a background condition related to general pesticide use on the Base and in areas that were sources of fill materials that were re-located to Site 08.

Considering the lack of significant levels of pesticides in Site soils, and the fact that pesticides generally have low water solubility, it is likely that in surface water, pesticides may primarily enter Site 08 from upstream areas of Deerfield Creek, sorbed to particles that are entrained in the water column (as evidenced by the upstream location of the maximum dieldrin concentration in surface water). Under lower energy conditions, these settle out in sediments that deposit and accumulate upon encountering lower flow-velocity conditions, such as in the wetland area at the bottom of Deerfield Creek, and in NUWC Pond, which receive water and entrained particles from Deerfield Creek. In particular, the more northern areas of the Pond, such as those in close proximity to (above) the dam, are areas where sediments are continuously submerged, and are also in a low flow-velocity area, allowing the highest opportunity for contaminants suspended in the water column to deposit and accumulate.

8.2.4.6 Metals

In surface and subsurface soil samples from Site 08, arsenic, manganese lead, beryllium and cobalt were present at concentrations exceeding criteria. Iron and zinc exceeded a criterion in just one to five samples, in subsurface soil only. Arsenic is ubiquitous in the Site soil samples, however, it is also widespread in the NUSC background soil samples (Appendix F), suggesting a non site-related source.

The locations with most of the maximum detected metals concentrations varied, although it is noted that in surface soils, the maximum concentrations of four metals, cobalt, iron, lead and manganese, were detected at SS149 (MW-123) which is located in wetland soils near the lower portion of Deerfield Creek.

In subsurface soil, the maximum concentrations of six metals, including cobalt, iron and lead, were detected at SB106, located at the southern extent of the excavation in the former paint can disposal area. This excavation had been terminated in the southern direction in order to minimize disturbance to the road. These analytical results indicate that metals impacted soil remains in this area.

The distribution of elevated concentrations of arsenic, manganese and iron in groundwater is widespread at Site 08. For example, the three highest concentrations of arsenic in groundwater occur in three different areas, including upgradient of Site 08 at MW-07B, the Paved Storage Area (MW-02B), and the North Meadow (MW-115B and -116B). The five highest concentrations of iron in groundwater occur in four

different areas, including the Paved Storage Area (MW-02B and MW-109B, not including the high turbidity sample MW-103S), the offsite area west of NUWC Pond (MW-120B), upgradient of Site 08 (MW-07A), and the North Meadow (MW-116B). For manganese, the highest concentrations were distributed between the Paved Storage Area and west of this area (MW-02B and MW-102B), upgradient of Site 08 (MW-07A), and the South Meadow. MW-120B, offsite and west of NUWC Pond, was also among the locations with the highest manganese concentrations. The three criteria exceedances for dissolved cobalt were in three separate areas, in the Paved Storage Area (MW-02B), upgradient of Site 08 (MW-07A), and offsite, west of NUWC Pond (MW-120B). These data suggest that there may be small point sources of metals within Site 08, or subsurface conditions beneath Site 08 that mobilize metals. However, the data also indicate metals contamination dissolved in groundwater is entering the Site from upgradient source(s). Some of the metals contamination in groundwater is likely indicative of widespread non-anthropogenic contamination.

(For surface water, it is noted that location SW125, which was the location of maximum concentrations for several metals, had an elevated turbidity of 122 NTUs, the highest of any surface water sample. It is likely that the reported metals concentrations in this sample are artificially elevated, due to suspended solids in this sample.) Dissolved metals results in surface water are more representative. At numerous NUWC Pond locations lead exceeded surface water screening criteria. Dissolved lead, however did not exceed the criterion in any surface water sample. This indicates that the elevated lead detections in the total metals results for surface water are likely due to lead associated with suspended soil particles within the water column.

In sediments, sixteen metals exceeded criteria in Site samples. Arsenic, iron and lead in particular, were detected at concentrations much higher than criteria. All arsenic concentrations in sediment were greater than 1,000 times the criterion. The highest concentration of arsenic in sediment was just above the NUWC Pond dam, and concentrations generally decreased with distance toward the upper portion of the Pond, to SD-119. The next highest concentration, 18 mg/kg, was detected in two samples, one in the southernmost portion of NUWC Pond (SD-07) and one at the most upstream location in Deerfield Creek, SD-01, upgradient of Site 08. The next highest arsenic concentrations were in the wetland area above the Pond, at SD-129 and SD-06. Five of the six highest concentrations of iron in sediment were from NUWC Pond. These results indicate that metals (especially arsenic and iron) are transported adsorbed to sediment that is carried by surface water. In lower energy environments, like the deeper parts of NUWC Pond, more fine grained particles (onto which metals have sorbed) settle out and get deposited.

The three highest concentrations of lead in sediment were detected in the upper portion of Deerfield Creek at SD100, SD133 and SD132, in the vicinity of the former paint can removal area, where elevated concentrations of lead were detected in soil. Lead concentrations in these three sediment samples were approximately 150 to 760 times the screening criterion. The next highest concentrations of lead in

sediment were from the lower, wetland portion of Deerfield Creek (SD111, SD106, and SD110). High concentrations of metals in sediments, such as lead and iron, may impact surface soils in wetland areas: the high iron and lead in the wetland surface soil sample SS149 (MW-123) may be related to the high concentrations of iron and lead also detected in sediments in this vicinity, such as SD110, SD111, SD106. Wetland soils that are periodically inundated by surface water likely receive contaminants from suspended solids in the surface water column, as do stream sediments.

With the exception of lead in some areas, the distribution of metals in Site media suggests that their presence is largely not Site-related. Frequently, maximum concentrations or elevated concentrations that are comparable to those detected onsite are present upgradient of Site 08, in upgradient groundwater, surface water or sediment. Some elevated concentrations of lead in Site media are likely related to the former paint can removal area, near the upper portion of Deerfield Creek.

In addition, the higher concentrations of some metals in sediments in the lower NUWC Pond are related to the fact that this area is continuously submerged (as opposed to the upper portions of the Pond that go dry in seasonal low flow conditions), and this is also a low velocity flow area, just above a dam, with conditions conducive to suspended solids settling out and accumulating in sediments in this environment.

8.2.5 Human Health Risk Assessment

The baseline HHRA provided in Section 6.0 evaluated exposures to exposed and paved surface soil, exposed and paved subsurface soil, groundwater, surface water, sediment, and fish (fish fillets). The following receptors were included:

- Current industrial workers,
- Current adolescent trespassers,
- Current recreational users,
- Future construction workers,
- Future child residents, and
- Future adult residents.

Future land use is likely to be the same as current land use; the potential future receptors were evaluated primarily for decision-making purposes. In addition, cleanup goals were developed for those media that pose unacceptable human health risks. Risks associated with Building 179 groundwater were also evaluated based on historical data.

Soil Risks

A summary of cancer risks and hazard indices for soil based on RME scenarios is provided in Table 8-1. The HIs for the all receptors exposed to site-related COPCs in surface and subsurface soil under the RME scenario were less than or equal to unity (1), with the exception of hypothetical child residents exposed to subsurface soil in the paved area. Arsenic was the major contributor to the HI for hypothetical child residents.

ILCRs for hypothetical child residents and lifelong residents exceeded USEPA's target risk range of 10^{-4} to 10^{-6} for surface and subsurface soils in both the exposed and paved areas. In addition, the ILCRs for industrial workers, adolescent trespassers, child recreational users, adult recreational users, lifelong recreational users and hypothetical adult residents exceeded USEPA's target risk range for subsurface soil in the exposed area.

ILCRs for industrial workers, child and lifelong recreational users, and hypothetical child, adult and hypothetical lifelong residents exceeded RIDEM cumulative risk benchmark of 1×10^{-5} for surface and subsurface soils in both the exposed and paved areas. ILCRs for construction workers, adolescent trespassers, and adult recreational users exceeded RIDEM cumulative risk benchmark of 1×10^{-5} only for subsurface soil in the exposed area.

Carcinogenic PAHs were the major contributors to the ILCRs for exposures to surface soil and subsurface soil in the exposed area. Carcinogenic PAHs were the major contributors to the ILCRs for exposures to surface soil and arsenic and carcinogenic PAHs were the major contributors to the ILCRs for exposures to subsurface soil in the paved area.

Groundwater Risks

HIs for construction workers, hypothetical child residents, and hypothetical adult residents exposed to groundwater exceeded unity. VOCs and metals were the major contributors to the HI.

The ILCR for construction workers exposed to groundwater was less the USEPA and RIDEM target risk levels. The ILCRs for domestic use of groundwater by hypothetical child residents, hypothetical adult residents, and hypothetical lifelong residents exceed the USEPA target risk range and RIDEM cumulative cancer risk benchmark. PCE, TCE, VC, benzo(b)fluoranthene, and arsenic were the major contributors to the ILCRs estimated for exposures to groundwater.

The maximum detected concentration was used in the estimation of the HIs and ILCRs. The maximum detected concentration of inorganics occurred in the groundwater sample collected at location MW-103S, which was highly turbid. It is likely that the elevated concentrations of inorganics in this sample are associated with particulates in the groundwater sample.

Surface Water Risks

HIs and ILCRs for adolescent trespassers and recreational users exposed to surface water did not exceed USEPA or RIDEM risk management benchmarks.

Sediment Risks

HIs for adolescent trespassers and recreational users exposed to sediments were less than unity. ILCRs for adolescent trespassers and recreational users exposed to sediment were within USEPA's target risk range. ILCRs for adolescent trespassers, child recreational users, and adult recreational users were less than or equal to the RIDEM cumulative cancer risk benchmark. The ILCR for the lifelong recreational user exceeded the RIDEM cumulative cancer risk benchmark. Carcinogenic PAHs and arsenic were the major contributors to the ILCR.

Risks from Ingestion of Fish

The ILCR for ingestion of fish by child recreational users was within USEPA's target risk range and less than the RIDEM cumulative cancer benchmark. The ILCR for ingestion of fish by adult recreational users was equal to the upper bound of USEPA's target risk range. The ILCR for lifelong recreational users exceeds USEPA's target risk range. ILCRs for child, adult and lifelong recreational users exceeded the RIDEM's cumulative cancer benchmark. Aroclors, 4,4'-DDE, dieldrin, and aldrin were the major contributors to the ILCR.

Risks from Vapor Intrusion

HIs for residential and industrial exposures via vapor intrusion were less than unity, indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. The ILCRs estimated assuming a residential land use scenario and an industrial land use scenario were less than USEPA's target risk range and less than the RIDEM's cumulative risk benchmark.

Risks from Lead

Exposure to lead in soil, measured through blood lead models, was found to be below EPA's level of concern. A high level of lead in groundwater indicates that there would be unacceptable risks from exposure to lead in groundwater. In addition, sediment lead concentrations exceed all of the available screening criteria.

Cleanup Goals

Cleanup goals were developed for soil, groundwater, sediment, and fish tissue for the COCs that contributed significantly to the cancer risk and/or HI for each exposure pathway in a land use scenario for a receptor group. Chemicals were not considered as significant contributors to risk if their individual carcinogenic risk contribution was less than 1×10^{-6} and their non-carcinogenic HQ was less than 0.1. Also chemicals identified as being within naturally occurring levels were not retained as COCs. The

calculated cleanup goals for soil, groundwater, sediment, and fish tissue are presented in Tables 6-36 through 6-39, respectively.

Risks Associated with Building 179 Groundwater

Building 179 Concrete UST remedial investigation groundwater analytical results were not included as part of the groundwater database in this HHRA. The maximum detected concentrations in Building 179 groundwater data were compared to the maximum detected groundwater concentrations in the Site 08 overburden and bedrock groundwater data. Overall concentrations of chemicals were higher in Building 179 CUST Area groundwater than in the NUSC Disposal Area groundwater. Since risks from exposures to groundwater at Site 08 were unacceptable, the risks from exposures to groundwater at Building 179 would also be unacceptable.

8.2.6 Ecological Risk Assessment

The ERA reported in Section 7.0 evaluated ecological risks to the terrestrial, benthic and aquatic receptors exposed to contaminants at the Site. This ERA evaluated surface soil, sediment, surface water, fish tissue, and earthworm tissue, along with soil and sediment toxicity test data and benthic community data.

Terrestrial plants were eliminated as receptors of concern because it does not appear that significant impacts are occurring to plants based on the heavy vegetative growth at the Site, although several chemicals were present in the surface soil at concentrations that exceeded plant screening levels.

For terrestrial invertebrates significant risks are not expected based on slight impacts to earthworms in toxicity tests.

Risks to sediment invertebrates in NUWC Pond and the streams were evaluated through sediment toxicity testing, and a benthic community investigation. The benthic community in NUWC Pond appears to have been impacted by a combination of organic and inorganic chemicals. Because of this, NOECs and LOECs were developed for total DDx, total chlordane (LOEC only), total PCBs (LOEC only), HMW PAHs, total PAHs, and the PEC-Q for NUWC Pond based on the toxicity test data.

There was more uncertainty in the evaluation of the sediment invertebrates in the stream samples for various reasons discussed in Section 7. However, because the benthic community in the stream sediment may have been impacted by a combination of organic and inorganic chemicals, NOECs and LOECs were developed for total PCBs, HMW PAHs, total PAHs, and lead based on the toxicity test data.

No chemicals are likely to impact aquatic organisms at the Site based on the measured concentrations of chemicals in the surface water compared to screening levels.

After re-evaluating the food chain model using less conservative exposure assumptions, potential risks to insectivorous mammals and birds from chemicals in the surface soil exist at the site because the HQs are greater than 1.0 for several metals, namely cadmium, chromium, and selenium. However, no chemicals in the sediment are likely impacting piscivorous mammals and birds.

Building 179 CUST RI surface water and sediment sample data was evaluated for potential ecological risks. For surface water risks to aquatic organisms from chemicals detected are not expected and for sediment the data indicates that risks to sediment invertebrates are not likely.

8.3 DATA LIMITATIONS AND UNCERTAINTIES

This section identifies site characterization data limitations and risk assessment uncertainties associated with the Site 08 RI.

8.3.1 Site Characterization Data Limitations

Site characterization data limitations and uncertainties for the Site are discussed below. Although the soil, groundwater, surface water and sediment sample data sets are considered representative of the site conditions, a review of the sample data and the distribution of sample locations indicates potential data limitations exist.

Soil

The overall soil sampling distribution, while it included a focused, non-random sampling strategy, extensively characterized the site and is unlikely to have missed any significant hot spots within the study area. Elevated concentrations of arsenic have previously been identified on Aquidneck Island, approximately 1.5 miles east of the Site. Arsenic concentrations in soil were a focus of a background soil investigation (TtNUS, 2006).

The NUSC Disposal Area background soil investigation provides a background data set for comparisons to soil data collected from the Site during the RI. The background investigation identified chemical constituents expected to be present had the fill activities not occurred. Therefore the risk assessments were able to take these constituents such as naturally occurring and anthropogenic metals, such as arsenic and manganese, into account.

Although samples were collected across the Site, the horizontal distribution of sample locations is not completely uniform, because the investigation focused on the locations identified during the SASE, where

known disposal activities occurred, such as the South Meadow and the area west of the Paved Storage Area. The collection of samples focused in areas associated with disposal locations tends to bias the sample database and hence, receptor risks to represent areas of higher contamination. The activity patterns of trespassers and recreational visitors at the Site would vary from event to event and would result in an integrated exposure to soil locations that is essentially averaged over a larger portion of the site, rather than an exposure to specific selected locations. Hence, the impact of focused sampling tends to bias risks high, in favor of areas of contamination, while long-term receptors would actually incur a lesser degree of exposure as a result of frequenting other, less impacted areas of the Site.

Groundwater

As requested by EPA, the Site 08 RI hydrogeologic field investigation was undertaken during the spring to assess the existence of the overburden aquifer during high groundwater conditions. Annual groundwater levels of Rhode Island observation wells completed in sand and gravel and in till are reported to be highest during March and April (USGS, 1994). During the hydrogeologic studies time frame (March through early June 2008) it was found that the water table at Site 08 occurred primarily within the bedrock or coincides approximately with the top of bedrock. Groundwater within the overburden was not generally encountered. Several well were installed however, that straddle the overburden/ shallow bedrock fractured zone. Therefore the Site 08 RI groundwater contamination characterization primarily addresses bedrock groundwater.

Due to the nature of groundwater flow through bedrock fracture systems, characterization of the bedrock groundwater is complicated. The movement of contaminants and fluids is controlled by the heterogeneous distribution, orientation and characteristics of fractures in the rock. Estimating the hydraulic properties of these fracture systems is difficult. The RI attempted to map the fracture network and its interconnectivity, and estimate the hydraulic properties. However, some properties of the Site 08 bedrock system and the movement of contaminants and fluids within may not be fully understood. For example, the hydraulic conductivity in some of the wells was to high or to low to measure using slug tests and packer tests. This suggests that the hydraulic conductivity estimates are likely skewed low in some portions of the Site and skewed high in some portions of the Site.

Sediment and Biota

Upper Melville Pond and its outlet stream, located 3 miles from Site 08 were selected as reference locations for comparison of surface water, sediment, fish, and benthic sample results from like samples collected from on-site locations (NUWC Pond, Deerfield Creek and the unmanned stream). In addition, sediment vertebrate toxicity testing was conducted on Upper Melville Pond sediment for comparison with NUWC Pond sediment toxicity testing. Ideally, the reference water bodies should have been located in the

same water shed and have physical characteristics similar to the study area water bodies. The Upper Melville Pond location was selected after several other ponds located on Aquidneck Island were determined to be unsuitable for use as a reference location. While both Upper Melville Pond and NUWC Pond are man made impoundments, Upper Melville Pond's surface area is larger than NUWC Pond's. Other differences between the two locations is that the Upper Melville Pond drainage area is more developed than the Site 08 watershed and the Upper Melville Pond outlet stream is perennial while the on-site streams are intermittent flow streams. As a result Upper Melville Pond and its outlet stream receive more nutrients and this was evident in the benthic sample results comparison.

8.3.2 Risk Characterization Uncertainties

At this site, the distribution of sampling locations in some media of interest affects whether the data set is considered representative of potential site conditions for exposed receptors, and thus impacts the uncertainty for risk estimation. Significant uncertainties associated with the HHRA and ERA are discussed in detail in their respective sections.

For the Site 08 HHRA, one of the significant uncertainty lies with the measurement of inorganic contaminant concentrations in groundwater and the methods used to calculate EPCs, when the maximum concentration was used as the EPC. Maximum detected groundwater concentrations were used in the estimation of HIs and ILCRs. The maximum detected concentrations of inorganics were detected in the groundwater sample collected at location MW-103S, which had the highest turbidity (greater than 1,100 NTUs). These include aluminum, chromium, nickel and vanadium. The elevated metals concentrations detected at MW-103S are likely due to soil particulates that were entrained in the highly turbid water sample. In some cases, some elevated sample turbidities at other locations may contribute to other elevated metals concentrations as well. Use of the maximum concentration tends to overestimate potential risks because receptors are assumed to be exposed continuously to the maximum concentration for the entire exposure period.

8.4 CONCLUSIONS

The Site 08 NUSC Disposal Area RI characterizes the nature and extent of contamination associated with the past use and disposal of chemicals and chemical wastes at the Site. Based on those findings, the RI provides an HHRA (Section 6.0) that estimates the possibility of non-carcinogenic health risks and potential cancer risks associated with exposure to contaminated environmental media at Site 08. The RI also provides an ERA (Section 7.0) that estimates risks to possible ecological receptors from Site-related contaminants. These risk assessments are the basis of the determination for the need to develop and

evaluate remedial action alternatives to address these contaminants. Based on the RI findings, conclusions for the media of interest at Site 08 are discussed below.

8.4.1 Soil

Site 08 soils are contaminated mainly with PAHs, metals, and PCBs. PAHs are present at high levels in the subsurface soils in the South Meadow, Paved Storage Areas, and area between the Paved Storage Area and Deerfield Creek. Arsenic was frequently detected in soil samples collected throughout the Site, with the highest concentrations found within the Paved Storage Areas and one location just north of the North Meadow. PCBs were detected above screening criteria between the Paved Storage Area and Deerfield Creek. The origin of the soil contamination is likely the debris fill materials that dominate the overburden across the southern portions of the Site (Paved Storage Area, South Meadow and the area between the Paved Open Storage Area and Deerfield Creek). The HHRA determined that Site 08 soil contamination poses unacceptable human health risks to current workers, recreational users and trespassers due carcinogenic PAHs and arsenic. Also these contaminants are at concentrations that may pose unacceptable human health risks to future construction workers and residents. In addition, the ERA found that there are potential risks to insectivorous mammals and birds from metals in the surface soil.

8.4.2 Groundwater

Groundwater at Site 08 mainly occurs in the bedrock fracture system except for the overburden groundwater discharge to southeastern NUWC Pond form the North Meadow area. Two areas of significant groundwater contamination were identified during the RI, the first located in the upland area of the Site in the Paved Storage Area vicinity and the second at North Meadow/NUWC Pond area.

Groundwater in and around the Paved Storage Area is contaminated with PCE, TCE and their breakdown products, cis-1,2-DCE, VC, arsenic, and the PAH benzo(k)fluoranthene. The highest PCE concentration occurs at Building 185 Complex (22 µg/L at MW-125B). Elevated detections of PCE were reported for locations in the South Meadow. TCE, which can be a daughter product of PCE, is present both upgradient and downgradient of the Paved Storage Area. GRO and ETPH were also detected in groundwater southwest of the Building 185 Complex. While the distribution of elevated concentrations of arsenic in groundwater is widespread at the Site, the highest concentrations of arsenic are present at the Paved Storage Area and west of this area. LNAPL was discovered in monitoring well MW100B, located near the Building 185 Complex; it was found to contain primarily ETPH and GRO. Benzo(k)fluoranthene and low concentrations of Otto Fuel components were found in groundwater, immediately south of Building 185 Complex (MW-124B). Multiple sources for the Paved Area groundwater contamination are probable, including the buried drums and containers previously removed and the reported chemical disposal areas,

it appears that a likely source are the Building 185 Complex structures, where a Otto Fuel release from Structure 1 occurred.

At the North Meadow/NUWC Pond area groundwater with TCE concentrations ranging up to 350 µg/L is discharging from the bedrock through the overburden to southeastern NUWC Pond. The maximum TCE concentration detected during the RI (730 µg/L) occurs in the bedrock groundwater at this location (MW-117B). The source of TCE contamination the North Meadow appears to be separate from the Pave Storage Area source. The maximum concentration of TCE at the site (730 µg/L at MW-117B) is found at this area and PCE was detected infrequently and at very low concentrations.

Upgradient of the Site, chlorinated ethanes, including 1,1,1-TCA and its breakdown products, 1,1-DCA, and chloroethane are found in groundwater at concentrations significantly higher than in on-site groundwater samples. The area upgradient of the site is also an area of elevated arsenic concentration.

The HHRA determined that groundwater poses unacceptable non-carcinogenic risks for future for construction workers, hypothetical child residents, and hypothetical adult residents due to VOCs and metals. While unacceptable cancer risks are projected for as a result of domestic use of groundwater by future residents (child, adult, and lifelong due to PCE, TCE, VC, benzo(b)fluoranthene, and arsenic.

8.4.3 Surface Water

Deerfield Creek, the unnamed stream, and NUWC Pond surface water had very few exceedances of screening criteria. VOCs were detected infrequently and no SVOCs/PAHs detected in RI surface water samples. Metals detected at levels exceeding screening criteria include barium, manganese, iron, and lead. Lead was detected more frequently and at slightly higher concentrations in NUWC Pond samples than in stream samples. Only one pesticide, dieldrin, was detected in excess of screening criteria, with the maximum detection reported for a Deerfield Creek location upstream of the Paved Storage Area, suggesting an off site source. PCBs were not detected in the surface water samples. The HHRA determined that risks to health for adolescent trespassers and recreational users exposed to surface water do not exceed USEPA or RIDEM risk management benchmarks.

8.4.4 Sediment

Deerfield Creek and NUWC Pond sediment is contaminated with PAHs, pesticides, and metals. The HHRA determined that chemicals in the sediment pose unacceptable cancer risks for lifelong recreational users due to levels of carcinogenic PAHs and arsenic. Furthermore the benthic community in NUWC Pond is adversely impacted by exposure to sediment in the pond, a combination of organic chemicals contributing to the adverse effects. The elevated concentrations of PAHs and arsenic in sediments result

from a combination of possible sources, including: upstream off-site sources in surface water and sediment from urban runoff; overland runoff from the Site that erodes contaminated surface soil, discharging it into the streams, the wetland area, and NUWC Pond; and contaminated surface water or sediment discharged from one or more of the three storm water outfalls located west of NUWC Pond. Elevated contaminant concentrations in NUWC Pond sediment are a result of the accumulation of contaminated soil from upstream areas that has settled out due to the low velocity flow conditions in the pond.

8.4.5 Fish

NUWC Pond fish tissue was found to have metals at concentrations significantly greater then the reference location concentrations. In addition, pesticides/PCBs concentration levels in NUWC Pond fish tissue are significantly higher then the reference locations samples. Some of the metals were frequently detected at levels exceeding criteria in sediment samples collected from the site streams as well as NUWC Pond. Ingestion of NUWC Pond fish poses an unacceptable cancer risk for recreational users (child, adult and lifelong). The ILCR for ingestion of fish by adult recreational users was equal to the upper bound of EPA's target risk range. Aroclors, 4,4'-DDE, dieldrin, and aldrin were the major contributors to the potential cancer risk.

8.4.6 Vapor Intrusion

The HHRA determined that adverse non-carcinogenic effects are not anticipated for residential and industrial exposures via vapor intrusion under the defined exposure conditions. ILCRs estimated for both residential and industrial land use scenarios were less than USEPA's target risk range and less than the RIDEM's cumulative risk benchmark.

8.4.7 Lead

Exposure to lead in soil, measured through blood lead models, was found to be below EPA's level of concern.

8.5 CONCEPTUAL SITE MODEL

This section presents the CSM for the NUSC Disposal Area/Building 179 Area, which was developed based upon historical information, including the Building 179 CUST RI, and the findings of the RI. This CSM combines the two sites: the NUSC Disposal Area and the Building 179 Area, whereas the previous CSMs only considered the NUSC Disposal Area.

8.5.1 Physical Setting

This section provides a brief summary of the physical setting and the groundwater and surface water systems at the Site.

The Building 179 portion of the Site is developed and consists of a series of buildings adjacent to a wetland area and Deerfield Creek. After Deerfield Creek flows under the access road to Building 185, it quickly loses elevation and bedrock outcrops in the streambed. The Paved Storage Area, South Meadow and North Meadow are situated on the elevated stream bank and fill area east of Deerfield Creek and NUWC Pond. The adjacent lowland portion of the Site includes two streams (Deerfield Creek and the unnamed stream that flows onto the Site from the adjoining golf course to the east, and NUWC Pond.

The stratigraphy at the Site consists of a thin veneer of overburden, consisting primarily of fill, sand and silt and till. Groundwater beneath the Site is primarily within the bedrock, but in places is present in overburden just above the bedrock. Bedrock primarily consists of a low grade metamorphic rock, phyllite or shale. There is some preferential groundwater flow through bedrock fractures. The general orientation of those fractures is north-south with a long linear zone of water bearing fractures and highly degraded bedrock that extends from MW112B in the northern portion of the South Meadow, through the North Meadow and northeasterly at least to the northern edge of NUWC Pond (MW119B). In the North Meadow, the bedrock is extremely degraded and weathered and has a high hydraulic conductivity. In contrast, bedrock in the Paved Storage Area is competent and has low hydraulic conductivities.

Vertical hydraulic gradients are downward from the overburden or the uppermost degraded bedrock to the more competent bedrock. Adjacent to Deerfield Creek, however, vertical hydraulic gradients are upward. The fill and natural material on top of the bedrock generally does not impede the downward flow of groundwater with the exception of the eastern corner of the Paved Gated Storage Area where a silt layer overlies the bedrock and an upward hydraulic gradient exists.

Horizontal groundwater flow directions are strongly influenced by the surface water bodies at the Site. Groundwater on the Site flows in the direction of NUWC Pond and Deerfield Creek. Some of the Site is on the west of Deerfield Creek and most of the Site is on the east side of Deerfield Creek. Beneath the west side of the Site, groundwater flow is generally northeasterly. Beneath the east side of the Site, groundwater flow is generally northwesterly. Both overburden and bedrock groundwater flow discharges into Deerfield Creek and NUWC Pond from the east and the west.

The surface water at the Site consists of Deerfield Creek, the unnamed stream that flows from the adjoining golf course to the east, and NUWC Pond. In addition, storm water is discharged to NUWC Pond and Deerfield Creek through three outfalls from the NUWC facility storm drain network from the west. The

two streams are shallow and generally less than 4-feet in width. The stream channel in the area of Building 179 is not well defined and is associated with wetlands. Adjacent to the Building 185 portion of the Site the stream substrates are a combination of bedrock, cobble, gravel and sand. High flow conditions in this portion of the stream channel, and in the unnamed stream, have scoured and removed much of the fine grained material from the streambeds and deposited them in the low energy/ wetland environment at the end of Deerfield Creek and in NUWC Pond.

8.5.2 Contaminant Sources

Sources of contaminants at the Site, and the general distribution of contamination is described briefly in this section. Generally, a contaminant is only discussed in this CSM if it is above screening criteria identified within the NUSC RI and/or the Building 179 CUST RI. There are several broad categories of contaminant sources at the Site, including:

Debris Fill - Large portions of the Site have historically been used for disposal of debris. The areas where debris fill has been identified at the Site are the southeastern corner of the Site, the Paved Storage Areas, the area between the Paved Storage Area and Deerfield Creek, the South Meadow, a small portion of the North Meadow and just north of NUWC Pond. The location of this debris fill generally coincides with contamination of PAHs, PCBs and metals in soil.

Building 179 CUST Area – Two underground storage tanks (USTs) were formerly operational at the Building 179 Area: a CUST and an interceptor tank. These tanks were used for storage of chemicals and as a quench tank. These tanks were used to capture/store oil, water, cleaning fluids, Otto Fuel and combustion by products. The quench tank was used to absorb water soluble exhaust gasses from torpedo exhaust emissions. A discharge pipe from the UST towards the wetland/ Deerfield Creek was formerly operated.

Remediation, including tank closure and removal and soil excavation and removal has been performed on this portion of the Site. The chlorinated ethane groundwater plume that originates from these USTs extends from the Building 179 CUST area nearly to the northern side of the South Meadow, generally following the alignment of Deerfield Creek. Elevated arsenic is also present in groundwater in this southern portion of the Site, as in much of the Site groundwater. Cyanide contamination was also detected in groundwater samples collected in 1999 during the Building 179 CUST Area RI.

The Building 185 Area – This operational area consists of a series of four structures with low concrete berms, historically used for storage of various materials including Otto Fuel and hazardous chemical and is currently used for the storage of Otto Fuel and inert materials. Two components of Otto Fuel have been detected in groundwater in this area. In addition, chlorinated VOCs are present in groundwater beneath

this portion of the Site. Otto Fuel components (PGDN and dibutyl sebacate) are present in groundwater adjacent to Area No. 1 in MW-124B. The likely source is the historical release of Otto Fuel discovered during a 2004 upgrade to Area No. 1. Chlorinated and aromatic VOCs are also present in groundwater in this area.

Just west of the Building 185 Complex a LNAPL is present in the subsurface. This LNAPL is comprised of petroleum constituents, including ETPH and aromatic VOCs. The LNAPL was discovered in one well in 2008 and this well was subsequently bailed in 2008 until the product was not detected in the well.

A generalized area of dissolved ETPH in groundwater exists beneath the Building 185 Complex, much of the Paved Storage Area and much of the Building 179 CUST Area. Other than the location of the LNAPL (MW-100B), the highest concentration of ETPH occurs adjacent to the Building 185 Complex in the same location where Otto Fuel components are in groundwater (MW-124B).

The Paved Storage Area/South Meadow – This area includes the South Meadow, the Paved Open Storage Area, the Paved Gated Storage Area and the strip of land between the Paved Open Storage Area and Deerfield Creek. This area has historically been filled and contains significant amount of debris fill. This historical disposal in this area has resulted in the presence of SVOCs (primarily PAHs), metals, ETPH and PCBs at concentrations above state and/or federal screening criteria. Carcinogenic PAHs , PCBs and arsenic are present in soil in these areas at concentrations that are of concern.

Two discrete areas were previously excavated because they formerly contained buried metal containers. The Buried Container Excavation Area is northwest of the Building 185 Complex at the break in slope going down to Deerfield Creek. Most of the buried paint cans and co-located contaminated soils were removed, however, some unknown quantity of paint cans and associated soil lead contamination remain south of the excavated area. The Buried Drum Excavation Area is in the South Meadow. PAHs are present at especially high concentrations in this area and the area immediately west of the northwest corner of the Paved Open Storage Area. The carcinogenic PAHs benzy(a)pyrene and dibenzo(a,h)anthracene were the two PAHs most frequently reported. Arsenic is frequently present in soils at concentrations well above screening criteria and is particularly high within the Paved Storage Area. Two crushed, corroded, metallic drums were uncovered within the debris fill in the South Meadow and metallic and plastic items are present beneath the Paved Storage Area.

PCE, TCE (and their breakdown products), arsenic and benzo(b) fluoranthene are elevated in groundwater in this area. The source appears to be the disposal of debris within this area and operations within the Paved Storage Area.

The North Meadow - The groundwater contamination in the North Meadow is primarily limited to contamination by the chlorinated ethane, TCE and its breakdown products. However, groundwater in the North Meadow has not been analyzed for 1,4 –dioxane, a chemical that was historically added to some chlorinated solvents. Although no documented releases have occurred in the North Meadow, the distribution of contaminants suggests that the source of the chlorinated ethenes is a release(s) of TCE to the ground near the center of the North Meadow. Lacking any other information regarding releases of chlorinated solvents in this area, it appears that historical dumping of quantities of pure solvent or a mixture of solvents occurred in the North Meadow. The lack of TCE concentrations above screening levels in unsaturated soils indicates no remaining source in Site soil.

Elevated arsenic in groundwater, which is widespread at the Site, is also present in this area.

Deerfield Creek/NUWC Pond- This area includes the surface water and sediment associated with Deerfield Creek, NUWC Pond and the unnamed stream that flows onto the Site from the Wanumetonomy Golf Course.

Pesticides in sediment and surface water exceed screening criteria. The pesticides at the Site are manufactured chemicals that were historically used as pesticides in the United States. Pesticides are commonly applied to agricultural areas and golf courses. These pesticides are very persistent in the environment. Pesticide impact at the Site is related to agricultural use at the Site and surrounding properties.

Surface water samples collected at the Site had very few exceedances of screening criterion. Metals (barium, manganese, iron and lead) are in surface water at concentrations above criteria. Some of this impact is due to sediment entrained in the surface water samples.

Sediment at the Site has been impacted by Site activities and/or disposal. Many PAHs are present above screening criteria in most locations in deep water and shallow water. In addition, numerous metals are present in sediment above screening criteria. PAHs and metals are a contamination problem at the Site.

Areas of elevated PAHs and PCBs not related to onsite disposal activities are present adjacent to the Site. West of NUWC Pond at locations adjacent to stormwater outfalls from the Base surface soil contains PAH contamination. The elevated concentrations of PAHs in sediments are likely a result of a combination of sources including contaminated surface water and/or sediment discharged from one or more of the three storm water outfalls located west of NUWC Pond, as evidenced by PAH concentrations in surface soil.

8.5.3 Contaminant Transport and Migration Pathways

This section briefly describes the contaminant transport and migration pathways, if any, for the broad sources of contamination at the Site.

Debris Fill – The PAHs, metals and PCBs associated with the debris fill are generally fairly immobile. These compounds, particularly PAHs and PCBs, sorb strongly to soil particles and are not readily dissolved in groundwater or surface water. The general transport mechanism for PAHs, metals and PCBs at the Site is in the particulate phase, and erosion of contaminant sources that are exposed to surface water and direct precipitation. Metals, however, can be in the dissolved phase in groundwater and surface water and be transported in the dissolved and particulate phases.

Building 179 CUST Area - The chlorinated ethane plume originating in the Building 179 CUST Area consists primarily of 1,1,1-TCA and its breakdown products, 1,1-DCA, and chloroethane. The chlorinated ethane plume is migrating northerly and onto the Building 185/ Paved Storage Area. As this plume migrates downgradient with groundwater flow, additional chemicals from non point source releases from the disposal and operations in the Paved Storage Area and in the Building 185 Complex co-mingle with the plume. The extent of this bedrock plume to the west has not been adequately defined.

There is evidence that reductive dechlorination is occurring to the 1,1,1-TCA plume and the data also show that through time the concentration of the chlorinated ethane plume is decreasing, likely through transformation, dispersion and sorption. Dispersion and advective transport, however have increased the footprint of the plume to the north, northeast and northwest.

Building 185 Area - The presence of the LNAPL is limited to the area around MW100B. LNAPL was not detected in surrounding wells. The hydraulic conductivity of individual fracture zones within the bedrock in the vicinity of the LNAPL (in wells MW124B, MW125B, MW126B and MW109 was not measurable using packer testing techniques. This indicates that the hydraulic conductivity within the bedrock in this vicinity is low and the interconnectedness of fractures is limited. Furthermore, the ETPH in groundwater surrounding MW100B is of limited extent, suggesting LNAPL is trapped within a fracture or set of fractures, rendering it immobile.

Even if the LNAPL is trapped and immobile, the LNAPL phase has a mass that is typically several orders of magnitude greater than normally present in sorbed, water, or vapor states, implying the potential for long-term impacts, if the LNAPL is mobilized in the future. Following its discovery in 2008, LNAPL was purged from this MW100B, reducing the potential for continuing impacts.

Otto Fuel components have not been detected in soil at concentrations that suggest an on going source to groundwater. Furthermore, when the Otto Fuel release was discovered in 2004, soil remediation occurred, removing some mass of Otto fuel contaminated soil and reducing the potential for migration from the soil to the groundwater. Although it is not anticipated that soil remains that is an ongoing source of Otto fuel components to groundwater, the Otto Fuel components present in groundwater are likely being transported dissolved in groundwater in a northerly direction at the Site.

The Paved Storage Area/ South Meadow – The predominant contaminants in this portion of the Site are VOCs, and petroleum LNAPL. VOCs have not been found in soil at concentrations that suggest an on going source. Chlorinated VOCs including PCE is present in this area at fairly low concentrations, but above MCLs. In addition, one distinguishable source of these chlorinated VOCs has not been identified, but rather is they are related to debris disposal and operations within this area.

The distribution of ETPH in soil in this portion of the Site does indicate scattered locations where ETPH is present above the state screening criterion. These locations are related to disposal and operations within this area rather than a point source of contamination.

The North Meadow - After deposition on the ground surface at the North Meadow, the TCE quickly made its way down to the water table within the shallow bedrock zone. Following the release of the TCE to the ground surface, some of the solvent volatilized. Since the time of the suspected TCE release(s), most of the TCE that did not volatilize has migrated through the unsaturated zone and into the bedrock groundwater. After the dissolved TCE reached the groundwater, it migrated by advective transport in a northwesterly direction towards NUWC Pond. TCE and its breakdown products also spread out by molecular dispersion and preferential flow in a northerly direction along the fractured bedrock zone. Some amount of reductive dechlorination reduced the concentrations of TCE and resulted in the presence of its breakdown products (1,2-DCE and to a lesser extent vinyl chloride) within this plume (detected in the shallow groundwater samples collected at the edge of NUWC Pond). The three-dimensional extent of the TCE plume has not been fully delineated. In order to better assess the extent of the plume, additional groundwater investigation will required in the North Meadow.

Deerfield Creek/NUWC Pond - Dissolved phase contaminants in Site surface water are transported primarily by advection in the streams onsite and also by mechanical dispersion and diffusion in the NUWC Pond. Contaminant transformation in surface water occurs by photolysis (abiotic degradation), biological degradation and sorption.

Sediments being transported suspended in surface water can be deposited in the low energy environments at the southern portion of the Site and at the wetland area just south of NUWC Pond. Once

sediment is deposited, part of the sediment bed can be eroded and transported again when surface water flow is high.

PCBs migrate onto the Site from offsite, but they also migrate from onsite soil into the streams and NUWC Pond sediment. Because PCBs are nearly insoluble in water and sorb strongly to soil, most of the PCBs mass in soils likely remain bound in the soils, and is expected to remain immobile. The PCBs in Site stream and pond sediments would also be sorbed to the soil/sediment grains that could settle out in streambeds or pond bottoms under low velocity flows. These sorbed PCBs could be remobilized during higher flow periods, entrained in the surface water column and transported downstream, settling out in lower flow velocity areas, such as where Deerfield Creek flows into NUWC Pond.

It is likely that pesticides in surface water primarily enter the Site from upstream areas of Deerfield Creek, sorbed to particles that are entrained in the water column. Like the PCBs, these pesticides settle out in low energy environments, such as in the wetland area just south of NUWC Pond, and in NUWC Pond. In particular, the more northern areas of the Pond, such as those just south of the dam, are areas where sediments are continuously submerged, and are also in a low flow-velocity area, allowing the highest opportunity for contaminants suspended in the water column to deposit and accumulate.

Some elevated concentrations of lead in Site media are likely related to the former paint can removal area, near the Paved Storage Area portion of Deerfield Creek. Lead in soil and sediment are associated with the former paint can disposal area. Lead concentrations in sediment in this area are approximately 150 to 760 times the screening criterion. The next highest concentrations of lead in sediment were from a wetland portion of Deerfield Creek. Wetland soils that are periodically inundated by surface water likely receive contaminants from suspended solids in the surface water column, as do stream sediments.

With the exception of lead in some areas, the distribution of metals in Site media suggests that their presence is partially not Site-related. In addition, the higher concentrations of some metals in sediments in the northern portion of NUWC Pond are related to the fact that this is also a low velocity flow area, just above the dam. Low velocity environments allow settling of suspended solids and accumulating in sediments in this environment.

8.6 RECOMMENDATIONS

Based on the conclusion above, a Feasibility Study (FS) is required to evaluate alternatives to address the potential unacceptable risks identified in the HHRA and ERA. The FS must consider the calculated risks, as well as the uncertainties in the risk estimates and the proposed use of the Site, in determining appropriate alternatives to consider. The HHRA uncertainties are discussed in Section 6. One uncertainty that may greatly over-estimate the risk posed to potential future residents of the Site is the

assumption that Site groundwater will be used as drinking water. There is no current plan for future use of groundwater at the NUSC Disposal Area as a drinking water source. The Navy believes that the remedial goals for groundwater at the Site would be risk based. However, the Navy acknowledges that the EPA has expressed that it expects the groundwater cleanup goal for the Site would be to achieve MCLs across the Site.

The FS should evaluate the need for remedial action (including institutional controls) to address unacceptable human health risks posed by exposure to the following media:

- Soil in the South Meadow, the Paved Storage Areas, the area between the Paved Storage Area and Deerfield Creek;
- VOC groundwater plume in the North Meadow/NUWC Pond area;
- Groundwater in the southwestern area of the Site and;
- Sediment in NUWC Pond.

The FS should also evaluate the need for remedial action to address unacceptable ecological risks posed by exposure to the following media:

- Soil in the North and South Meadows for risks to insectivorous mammals and birds and;
- Sediment in NUWC Pond and the stream for risks to sediment invertebrates.

In addition, prior to implementation of the remedial action for the Site, the geophysical anomaly that resembles a buried metal container in the Paved Open Storage Area (Anomaly 1) should be investigated and/or removed from the ground.

Additional information is required to develop and evaluate remedial action alternatives during the FS. A supplemental investigation should be conducted with the findings reported in a Supplemnetal RI Report to address the data needs below.

1. The three-dimensional extent of the TCE plume in the North Meadow has not been fully delineated. Additional groundwater investigation is required to delineate the source of groundwater TCE contamination and to determine the depth to which the TCE has been transported.

2. Groundwater, sediment and surface water characterization for the Building 179 CUST Area is based on samples collected 10 years ago. The supplemental investigation should characterize the current concentrations and distribution of contaminants in groundwater, sediment and surface water due to the historical Building 179 release.

3. Groundwater at the Site has not been tested for 1,4-dioxane, a contaminant commonly found in groundwater that has been impacted by 1,1,1-TCA. Additional sampling and analysis is recommended to characterize the nature and extent of 1,4-dioxane in groundwater. As part of the NUSC Disposal Area/Building 179 Site supplemental investigation, groundwater monitoring wells at the Site should be sampled and analyzed for 1,4-dioxane.

4. Groundwater at the Site has not been tested for Otto Fuel components, Additional sampling and analysis is recommended to characterize the nature and extent of PGDN, the main component of Otto Fuel. As part of the NUSC Disposal Area/Building 179 Site supplemental investigation, groundwater monitoring wells at the Site should be sampled and analyzed for PGDN.

5. Because it is unclear if residual soil contamination from the Otto Fuel release remains below Area 1 of the Building 185 Complex, soil samples should be collected from beneath Area No. 1, as part of the supplemental investigation.

6. Because the NUSC Disposal Area and the Building 179 CUST Sites have been combined, a qualitative risk assessment supplement that considers the data from the Building 179 Site should be performed.

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TABLES

SURFACE WATER, SEDIMENT, FISH, AND EARTHWORM SAMPLE LOCATIONS AND ANALYSES
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Location ID	Location Description	Sampling Purpose & Analyses Performed
SW/SD01****	In Deerfield Creek where it flows through the wetland South (upgradient) of the Building 185 Complex.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, Lead, AVS/SEM
SD 134*****	Requested by RIDEM, at suspect discharge location into the wetland adjacent to southern Deerfield Creek. At terminus of two 2-inch pipes thought to be possibly from Building 185 Area 1.	Assess the sediment conditions at suspect discharge location. **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, GRO, ETPH
SW-02***	In Deerfield Creek upstream about 25' from MW-123 (same general area as SW/SD-105)	Assess the local surface water conditions **SW:** Field Parameters
SW-03***	In Deerfield Creek downstream about 45' from MW-123 (same general area as SW/SD-106)	Assess the local surface water conditions **SW:** Field Parameters
SW-04***	In the Unnamed Stream on the Northeast side of the perimeter access road where the stream flows beneath the road and onto Navy property	Assess the local surface water conditions **SW:** Field Parameters
SW-05***	In the former stream bed of the Unnamed Stream in the southern part of the wet land area south of the pond	Assess the local surface water conditions **SW:** Field Parameters
SW-06***	In Deerfield Creek in the center of the wetland area south of NUWC pond	Assess the local surface water conditions **SW:** Field Parameters
SW/SD100	In Deerfield Creek adjacent to paint can disposal area.	Assess the local sediment and surface water conditions **SW:** Field Parameters **SD:** Lead
SW/SD101, SW/SD102, SW/SD132	In Deerfield Creek downgradient of paint can disposal area, in potential depositional area. Sample locations of figure 3-1 may be shifted based on where depositional sediment is found. These 3 stations will remain within 100 feet of the paint can disposal area.	Assess the local sediment and surface water conditions **SW:** Field Parameters **SD:** Lead
SW/SD133	In Deerfield Creek downgradient of paint can disposal area, in potential depositional area.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD103	In Deerfield Creek downgradient of paint can disposal area and upgradient of wetland area, in potential depositional area.	Assess the local sediment and surface water conditions **SW:** Field Parameters **SD:** Lead

SURFACE WATER, SEDIMENT, FISH, AND EARTHWORM SAMPLE LOCATIONS AND ANALYSES
SITE 08, NUSC DISPOSAL AREA
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Location ID	Location Description	Sampling Purpose & Analyses Performed
SW/SD104	In Deerfield Creek downgradient of paint can removal area and upgradient of wetland area, in potential depositional area.	Assess the local sediment and surface water conditions **SW:** Field Parameters **SD:** Lead
SW/SD105	In Deerfield Creek about 20' upstream from MW-123	Assess the local sediment and surface water conditions **SW:** Field Parameters **SD:** Lead
SW/SD106	In Deerfield Creek about 40' downstream from MW-123B at the foot of the slope that comes down from Cunningham St.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD107	In Unnamed stream midway between NUWC Pond and golf course, just downstream from drum removal area.	Assess the local sediment and surface water conditions, including potential contamination from drums at South Meadow and contamination from North Meadow **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD108	In Unnamed stream as it enters the Site from the adjacent golf course, just upstream from drum removal area.	Assess the local sediment and surface water conditions, including potential contamination from neighboring golf course **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD109	In wetland area near embankment, just southwest of North Meadow.	Assess the local sediment and surface water conditions **SW:** Field Parameters **SD:** Lead
SW/SD110	Immediately downgradient of convergence of Unnamed stream former stream bed and Deerfield Creek.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD111	In Deerfield Creek as it flows through wetland area near Cunningham St. slope.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD112	In Deerfield Creek as it flows through wetland area near Cunningham St. slope.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO

SURFACE WATER, SEDIMENT, FISH, AND EARTHWORM SAMPLE LOCATIONS AND ANALYSES
SITE 08, NUSC DISPOSAL AREA
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Location ID	Location Description	Sampling Purpose & Analyses Performed
SW/SD113	In Unnamed Stream as it flows through wetland area near embankment, just west of North Meadow.	Assess the local sediment and surface water conditions, including potential contamination from North Meadow **SW:** Field Parameters **SD:** Lead
SW/SD114	Southern end of NUWC pond where the Unnamed Stream discharges.	Assess the local sediment and surface water conditions, and further define extent of PCB contamination detected at SD07 **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SD115	Southern end of NUWC pond near western embankment of North Meadow.	Assess the local sediment conditions, and further define extent of PCB contamination detected at SD07 **SD:** Lead
SW/SD116	Southern end of NUWC pond where Deerfield Creek discharges.	Assess the local sediment and surface water conditions, and further define extent of PCB contamination detected at SD07 **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD117	Southern end of pond.	Assess the local sediment and surface water conditions and further define extent of PCB contamination detected at SD07 **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SD118	Southern end of pond in the area where the vegetative boundary juts out into the water on eastern side.	Assess the local sediment conditions **SD:** Lead
SW/SD119**	Southern end of pond near western embankment of North Meadow.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SD120	Central area of pond near western side.	Assess the local sediment conditions **SD:** Lead
SW/SD121	Central area of pond.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SD122	Central area of pond.	Assess the local sediment conditions **SD:** Lead

SURFACE WATER, SEDIMENT, FISH, AND EARTHWORM SAMPLE LOCATIONS AND ANALYSES
SITE 08, NUSC DISPOSAL AREA
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Location ID	Location Description	Sampling Purpose & Analyses Performed
SD123	Northern end of pond.	Assess the local sediment conditions **SD:** Lead
SD124	Northern end of pond near eastern side.	Assess the local sediment conditions **SD:** Lead
SW/SD125**	Northern end of pond near western side.	Assess the local sediment and surface water conditions **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SD126	In NUWC Pond at west side of dam.	Assess the local sediment conditions **SD:** Lead
SD127	In NUWC Pond at east side of dam as close to shore as possible.	Assess the local sediment conditions **SD:** Lead
SD128, SD129, SD130, and SD131	In wetland area south of NUWC Pond.	Assess the local sediment conditions **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, GRO
SW/SD-RP01	Southern End of Melville Pond near wetland (Reference Location)	Assess the offsite sediment and surface water conditions for comparison to NUWC Pond samples **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SW/SD-RP02	Eastern Shore of Melville Pond (Reference Location)	Assess the offsite sediment and surface water conditions for comparison to NUWC Pond samples **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO
SD-RP03	Western Shore of Melville Pond (Reference Location)	Assess the offsite sediment conditions for comparison to NUWC Pond samples **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, GRO
SW/SD-RP04	20’ downgradient of the dam in the Lower Melville Pond	Assess the offsite sediment and surface water conditions for comparison to NUWC Pond samples **SW:** VOC, SVOC, Pest, PCB, Tot Metals, Diss Metals, Field Parameters **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, Lead, GRO

SURFACE WATER, SEDIMENT, FISH, AND EARTHWORM SAMPLE LOCATIONS AND ANALYSES
SITE 08, NUSC DISPOSAL AREA
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Location ID	Location Description	Sampling Purpose & Analyses Performed
SD-RP05	About 100' downgradient from the dam in the Lower Melville Pond in the stream.	Assess the offsite sediment conditions for comparison to NUWC Pond samples **SD:** VOC, SVOC, Pest, PCB, Metals/pH/TOC/TS, Grain Size, DRO, Toxicity, GRO
ET03*	Southern end of pond.	Assess contaminant load in fish **ET:** SVOC, Pest, PCB, TAL Metals, Percent Lipids
ET02*	Central area of pond.	Assess contaminant load in fish **ET:** SVOC, Pest, PCB, TAL Metals, Percent Lipids
ET01*	Northern end of pond.	Assess contaminant load in fish **ET:** SVOC, Pest, PCB, TAL Metals, Percent Lipids
FT-RP01	Melville Pond (Portsmouth RI)	Assess contaminant load in fish from a reference location to compare to samples collected in NUWC Pond **ET:** SVOC, Pest, PCB, TAL Metals, Percent Lipids
EW-MW103	Sample collected within a 5' radius of MW103, which is located in the shrubby area South West of the paved storage area	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-MW105	Sample collected within a 5' radius of MW105, which is located at the top of the embankment to the West of the South Meadow	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-MW113	Sample collected within a 5' radius of MW113, which is located in the hummocky area in the North part of the South Meadow	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-MW115	Sample collected within a 5' radius of MW115, which is located in the center of the North Meadow	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-SB104	Collected within a 5' radius of MW102, which is located at the top of the embankment next to the paint can removal area	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-SB108	At the top of the slope on the south side where the paint can removal area is	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-SB121	In the South Meadow next to the fence on the South East Side	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-SB123	In the middle of the South Meadow next to the hummocky area	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-SB130	On the North West edge of the South Meadow next to the hummocky area	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids
EW-SB134	On the Southern edge of the North Meadow at the top of the embankment that leads to the Unnamed Stream	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids

SURFACE WATER, SEDIMENT, FISH, AND EARTHWORM SAMPLE LOCATIONS AND ANALYSES
SITE 08, NUSC DISPOSAL AREA
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Location ID	Location Description	Sampling Purpose & Analyses Performed
EW-SB153	On the hummocky area south of the paved storage area, Reference location	Assess concentrations of contaminants in earth worm tissue **EW:** Pest, PCB, TAL Metals, Percent Lipids

Notes:

* A total of seven fish samples for tissue analysis, consisting of 5 fillets and 2 whole body, were collected from NUWC pond; three from ET01, three from ET02 and one from ET03. Three fish samples for tissue analysis were collected from Melville Pond, two fillets and one whole

** One location from the southern end of the pond (SW/SD119) and one location from the northern end of the pond (SW/SD125) were sampled at both 0-4 inches and 4 -24 inches to aid in accessing contamination in deeper sediments.

*** Only field parameters were measured during the RI, SW and SD samples were collected as part of the SASE

**** Surface water collected during the RI (and during the SASE). For sediment, the full chemistry analysis is from the SASE. During the RI, only lead (quick turn) was collected (also the location of RI benthic sample). Also see note for Location ID SD 134.

***** SD-134 location approximately 33 feet east of SD-01. For nature and extent evaluation, sample locations SD-01 and SD-134 considered equivalent, chemical results combined resulting in "LOCDEPTHMAX" sample with identification number "DA-SD-01-LOCDEPTHMAX".

SURFACE WATER FIELD PARAMETERS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Sample Location	Sample Date	Depth Sampled (ft)	Sample Method	Sample Time	Temp (^{o}C)	Spec. Cond. (mS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Comments
SW-01	1/23/2008	surface	Direct Dip	1345	2.47	544	7.59	150	13.19	0.7	Clear/colorless, VOC samples collected on 01/31/08 at 1625 via PDB
SW-02	1/23/2008	surface	Direct Dip	1245	2.19	567	7.67	209	13.98	0.7	Clear/colorless, no analytical samples collected
SW-03	1/23/2008	surface	Direct Dip	1118	1.53	557	7.57	221	13.99	10.0	Clear/colorless, no analytical samples collected
SW-04	1/23/2008	surface	Direct Dip	1020	3.95	255	7.58	119	13.20	1.1	Clear/colorless, no analytical samples collected
SW-05	1/23/2008	surface	Direct Dip	1000	3.02	255	7.68	116	13.16	0.7	Clear/colorless, no analytical samples collected
SW-06	1/23/2008	surface	Direct Dip	930	1.12	560	7.40	177	13.90	1.5	Clear/colorless, no analytical samples collected
SW-100	1/23/2008	surface	Direct Dip	1319	2.27	554	7.56	145	13.10	0.7	Clear/colorless, no analytical samples collected
SW-101	1/23/2008	surface	Direct Dip	1313	2.16	555	7.72	156	13.35	0.7	Clear/colorless, no analytical samples collected
SW-102	1/23/2008	surface	Direct Dip	1255	2.25	567	7.48	164	13.39	0.7	Clear/colorless, no analytical samples collected
SW-103	1/23/2008	surface	Direct Dip	1251	2.23	568	7.43	176	13.63	0.8	Clear/colorless, no analytical samples collected
SW-104	1/23/2008	surface	Direct Dip	1248	2.24	554	7.50	184	13.90	2.5	Clear/colorless, no analytical samples collected
SW-105	1/23/2008	surface	Direct Dip	1240	2.15	572	7.72	222	14.45	0.7	Clear/colorless, no analytical samples collected
SW-106	1/23/2008	surface	Direct Dip	1121	1.64	560	7.75	201	14.03	0.6	Clear/colorless, VOC samples collected on 01/31/08 at 1525 via PDB
SW-107	1/23/2008	surface	Direct Dip	900	2.04	265	7.31	142	12.95	1.2	Clear/colorless, VOC samples collected on 01/31/08 at 1500 via PDB
SW-108	1/23/2008	surface	Direct Dip	1005	3.49	259	7.51	111	13.32	1.5	Clear/colorless, VOC samples collected on 01/31/08 at 1510 via PDB
SW-109	1/23/2008	surface	Direct Dip	840	1.79	265	6.75	181	12.47	0.7	Clear/colorless, no analytical samples collected
SW-110	1/23/2008	surface	Direct Dip	1100	1.40	559	7.62	235	14.37	1.2	Clear/colorless, VOC samples collected on 01/31/08 at 1535 via PDB

SURFACE WATER FIELD PARAMETERS
SITE 08, NUSC DISPOSAL AREA
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Sample Location	Sample Date	Depth Sampled (ft)	Sample Method	Sample Time	Temp (^{o}C)	Spec. Cond. (mS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Comments
SW-111	1/23/2008	surface	Direct Dip	935	1.19	557	7.67	161	13.69	0.5	Clear/colorless, VOC samples collected 01/31/08 at 1530 via PDB
SW-112	1/23/2008	surface	Direct Dip	920	1.11	561	7.33	174	13.05	0.5	Clear/colorless, VOC samples collected on 01/31/08 at 1520 via PDB
SW-113	1/23/2008	surface	Direct Dip	835	1.8	282	6.58	203	12.66	1.2	Clear/colorless, no analytical samples collected
SW-114	5/20/2008	surface	Direct Dip	1530	14.24	242	6.79	310	10.44	n/a	Clear/colorless
SW-116	5/20/2008	surface	Direct Dip	1415	12.56	456	6.3	275	12.08	65.3	Clear/colorless
SW-117	5/20/2008	1.0	Direct Dip	1010	21.73	273	8.13	118.3	8.82	12.9	Brown
SW-119	5/21/2008	1.5	Direct Dip	930	13.27	242	6.23	274	10.73	10.6	n/a
SW-121	5/21/2008	4.5	Kemmler	1127	12.43	223	6.75	196	10.18	32.0	Brown
SW-125	5/21/2008	7.0	Kemmler	1245	12.87	237	7.13	92	10.41	122.0	Brown
SW-132	1/23/2008	surface	Direct Dip	1316	2.22	555	7.58	144	13.12	0.8	Clear/colorless, no analytical samples collected
SW-133	1/23/2008	surface	Direct Dip	1310	2.08	555	7.65	139	13.55	1.8	Clear/colorless, VOC samples collected on 01/31/08 at 1620 via PDB
SW-RP01	5/22/2008	4.0	Kemmler	900	15.77	254	6.19	295	13.28	2.8	Clear/colorless
SW-RP02	5/22/2008	4.0	Kemmler	1030	15.72	254	6.43	266	13.23	9.0	n/a
SW-RP04	5/22/2008	0.5	Direct Dip	1430	15.56	266	7.18	248	10.90	52.3	n/a

Notes:
PDB = Passive diffusion bag sample
VOC = Volatile organis compound

TABLE 2-3

SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SOIL BORINGS						
SB-100	0 – 2	49.3		DA-SB-100-0002	3/3/08	1430
	2 – 4	3.8		DA-SB-100-0204	3/3/08	1445
	4 – 6	1.0				
	6 – 8	1.2				
SB-101	0 – 2	10.7		DA-SB-101-0002	3/3/08	1335
	2 – 4	8.8				
	4 – 6	7.6				
	6 – 8	70.0	DUP04	DA-SB-101-0608	3/3/08	1345
SB-102	0 – 2	1.7		DA-SB-102-0002	3/3/08	1240
	2 – 4	---	No Recovery	DA-SB-102-0305	3/3/08	1245
	4 – 6	2.7	Sample collected above bedrock			
SB-103	0 – 0.7		PCB ONLY	DA-SS103-011709	1/17/08	0830
	2 – 4					
	4 – 6					
	6 – 8					
SB-104	0 – 1	0.0	PAH ONLY	DA-SS-104-073107	7/31/07	1450
	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS104-011508	1/15/08	1030
	0 – 2	0.1				
	2 – 4	0.1				
	4 – 6	0.0				
	6 – 8	0.1	Sample collected above bedrock	DA-SB-104-0608	2/28/08	1538
	8 – 10	0.1				
SB-105	0 – 1		PAH ONLY	DA-SS-105-073107	7/31/07	1135
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS105-011508	1/15/08	1330
	0 – 2	0.2				
	2 – 4	0.1				
	4 – 6	1.3	Sample collected above bedrock	DA-SB-105-0406	2/29/08	0915
	6 – 8	0.3				
	8 – 9.5	1.8				
SB-106	0 – 1	0.0	PAH ONLY	DA-SS-106-073107	7/31/07	1035
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS106-011408	1/14/08	1520
	0 – 2	0.7				
	2 – 4	0.8				

TABLE 2-3

SOIL SAMPLE LOCATIONS
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-106 *cont*	4 – 6	0.3	6'-8' Sampled	DA-SB-106-0608	2/29/08	0950
	6 – 8	7.1				
SB-107	0 – 1		PAH ONLY	DA-SS-107-073107	7/31/07	1005
	0 – 1	0.1	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS107-011508	1/15/08	1315
	0 – 2	0.8		DA-SB-107-0103	2/29/08	1130
	2 - 3	1.0	1'-3' Sampled			
SB-108	0 – 1	0.0	PAH ONLY	DA-SS-108-073107	7/31/07	1055
	0 – 1	0.1	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS108-011508	1/15/08	1115
	0 – 2	3.6				
	2 – 4			DA-SB-108-0204	2/29/08	1045
	4 – 6	0.8				
SB-109	0 – 1	0.9	PAH ONLY	DA-SS-109-073007	7/30/07	1740
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS109-011408	1/14/08	1500
	0 – 2	0.2				
	2 – 4	0.7		DA-SB-109-0204	2/28/08	1445
	4 – 6	0.1				
	6 – 8	0.3				
	8 – 10	0.2				
SB-110	0 – 1	1.5	PAH ONLY	DA-SS-110-073007	7/30/07	1655
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS110-011508	1/15/08	1045
	0 – 2	0.4				
	2 – 4	0.1				
	4 – 6	32.3				
	6 – 8	3.8				
	8 – 10	59.4		DA-SB-110-0810	2/28/08	1330
	10 – 12	11.0				
	12 – 14	12.2				
	14 – 16	0.7				
	16 – 18					
SB-111	0 – 2	62.0		DA-SB-111-0002	3/5/08	1115
	2 – 4	300		DA-SB-111-0204	3/5/08	1120
	4 – 6	9.0				
	6 – 8	40.0				
	8 – 10	6.3				
	10 – 12	6.1				

TABLE 2-3

SOIL SAMPLE LOCATIONS
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-112	0 – 2	82.2		DA-SB-112-0002	3/5/08	1010
	2 – 4	14.9				
	4 – 6	9.9				
	6 – 8	15.5	DUP06	DA-SB-112-0608	3/5/08	1015
	8 – 10	0.1				
	10 – 11	0.2				
SB-113	0 – 2	0.8		DA-SB-113-0002	3/3/08	1025
	2 – 4	1.0				
	4 – 6	10.9	DUP03	DA-SB-113-0406	3/3/08	1030
	6 – 8	0.6				
SB-114	0 – 2	1.9		DA-SB-114-0002	3/3/08	0945
	2 – 4	1.3				
	4 – 6	2.7		DA-SB-114-0406	3/3/08	0950
	6 – 8	0.2				
SB-115	0 – 2	138		DA-SB-115-0002	3/5/08	1330
	2 – 4	97.6		DA-SB-115-0204	3/5/08	1335
	4 – 6	13.3				
	6 – 8	21.2				
SB-116	0 – 2	238		DA-SB-116-0002	3/4/08	1030
	2 – 4	2964	Petroleum-like odor	DA-SB-116-0204	3/4/08	1035
	4 – 6	2675				
	6 – 8	19.0				
	8 – 10	915				
	10 – 12	14.0				
SB-117	0 – 2	1.8		DA-SB-117-0002	3/4/08	1130
	2 – 4	1.8				
	4 – 6	2.4				
	6 – 8	2.5				
	8 – 10	6.4	MS/MSD	DA-SB-117-0810	3/4/08	1135
	10 – 12	0.5				
SB-118	0 – 2	207		DA-SB-118-0002	3/4/08	1300
	2 – 4	11.4				
	4 – 6	68.3		DA-SB-118-0406	3/4/08	1305
	6 – 8	49.8				
	8 – 10	4.6				
	10 – 12	21.7				
	12 – 14	0.2				
SB-119	0 – 2	22.4		DA-SB-119-0002	3/4/08	1450
	2 – 4	12.5		DA-SB-119-0204	3/4/08	1455
	4 – 6	11.0				
	6 – 8	3.2				

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SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-120	0-1	0.0	PAH ONLY	DA-SS120B-080207	8/2/07	1140
	0 – 2	1.1		DA-SB-120-0002	3/6/08	0855
	2 – 4	0.1				
	4 – 6	0.6		DA-SB-120-0406	3/9/08	0910
	6 – 7	0.5				
SB-121	0 – 1	0.0	PAH ONLY	DA-SS-121-072607	7/26/07	1455
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS121-011008	1/10/08	1345
	0 – 2	7.6				
	2 – 4	4.6				
	4 – 6	13.6		DA-SB-121-0406	2/26/08	1515
	6 – 8	1.0				
	8 – 10	0.5				
SB-122	0 – 1	0.0	PAH ONLY	DA-SS-122-073007	7/30/07	0950
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides	DA-SS122-011008	1/10/08	1430
	0 – 2	34.1				
	2 – 4	9.8				
	4 – 6	20.8 (4-7 ft)		DA-SB-122-0407	2/26/08	1300
	6 – 8					
	8 – 10	5.0 (7-10 ft)				
	10 – 12	2.0				
	12 – 14	0.7				
	14 – 14.9					
SB-123	0 – 1	0.0	PAH ONLY	DA-SS-123-072607	7/26/07	1335
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides	DA-SS123-011008	1/10/08	1130
	0 – 2	0.3				
	2 – 4	0.4				
	4 – 6	0.5 (4-5 ft)		DA-SB-123-0508	2/25/08	1515
	6 – 8	143 (5-10 ft)				
	8 – 10					
	10 – 12	0.5				
	12 – 12.5					
SB-124	0 – 1	0.0	PAH ONLY	DA-SS-124-071607	7/26/07	1255
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides	DA-SS124-011008	1/10/08	1315
	0 – 2	3.5				
	2 – 4	0.3				

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SOIL SAMPLE LOCATIONS
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NAVSTA NEWPORT, RHODE ISLAND

Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-124 *cont*	4 – 6	0.4				
	6 – 8	0.9		DA-SB-124-0608	2/27/08	1330
	8 – 10	0.5				
	10 – 11					
SB-125	0 – 1	0.0	PAH ONLY	DA-SS-125-072607	7/26/07	1440
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides DUP01-011008	DA-SS125-011008	0/10/08	1050
	0 – 2	0.1				
	2 – 4	0.1				
	4 – 6	0.2				
	6 – 8	0.3				
	8 – 10	0.7		DA-SB-125-0810	2/27/08	1500
	10 – 12	0.1				
	12 – 13					
SB-126	0 – 1	0.0	PAH ONLY , DUP05	DA-SS-126-072607	7/26/07	1530
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides	DA-SS126-011408	1/14/08	1530
	0 – 2	13.2				
	2 – 4	1.6				
	4 – 6	2.5				
	6 – 8	1.4				
	8 – 10	2.2				
	10 – 12	988		DA-SB-126-1013	2/26/08	1045
	12 – 13					
SB-127	0 – 1	0.0	PAH ONLY	DA-SS-127-072607	7/26/07	1405
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS127-011508	1/15/08	0815
	0 – 2	5.4				
	2 – 4	9.8		DA-SB-127-0204	2/27/08	1415
	4 – 6	0.3				
	6 – 8	0.6				
	8 – 10	0.7				
	10 – 11.6	0.1				
SB-128	0 – 1	0.0	PAH ONLY	DA-SS-128-072607	7/26/07	1320
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS128-011608	1/16/08	1415
	0 – 2	0.3				
	2 – 4	0.1				

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SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-128 *cont*	4 – 6	0.8				
	6 – 8	0.2				
	8 – 10	4.6	DUP02	DA-SB-128-0810	2/25/08	1430
	10 – 11	0.2				
	11 – 11.8	0.0				
SB-129	0 – 1	0.0	PAH ONLY	DA-SS-129-073007	7/30/07	1045
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS129-011408	1/14/08	1500
	0 – 2	2.8				
	2 – 4	2.1				
	4 – 6	26.9		DA-SB-129-0406	2/26/08	0915
SB-130	0 – 1	0.0	PAH ONLY	DA-SS-130-073007	7/30/07	1445
	0 – 1	0.1	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS130-011508	1/15/08	0935
	0 – 2	0.2				
	2 – 4	0.1				
	4 – 6	0.1				
	6 – 8	0.1				
	8 – 10	0.9				
	10 – 11.5	7.5		DA-SB-130-1011.5	2/25/08	0945
	15 – 18.5	1.7				
SB-131	0 – 1	0.0	PAH ONLY	DA-SS-131-073007	7/30/07	1210
	0 – 1	0.1	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS131-011608	1/16/08	1440
	0 – 2	0.2				
	2 – 4	102				
	4 – 6	501		DA-SB-131-0406	2/25/08	1130
	6 – 8	322				
	8 – 10	238				
	10 – 12	---				
	12 – 14	47				
	14 – 16	16.6				
	16 – 20	1.2				
SB-132	0 – 1	0.0	PAH ONLY	DA-SS-132-073007	7/30/07	1020
	0 – 1	0.1	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS132-011408	1/14/08	1430
	0 – 2	59.1				
	2 – 4	1.9				
	4 – 6	6.6		DA-SB-132-0406	2/25/08	1300

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SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-132 *cont*	6 – 8	---				
	8 – 10	3.6				
	10 – 12	0.3				
	12 – 14	2.3				
	14 – 15.9	0.9				
SB-133	0 – 1	0.0	PAH ONLY	DA-SS-133-073007	7/30/07	1510
	0 – 1	0.3	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS133-011508	1/15/08	0845
	0 – 2	3.1		DA-SB-133-0102	2/27/08	1610
	2 – 4	---				
	4 – 6	10.3				
	6 – 8	0.8				
	8 – 10	79.1		DA-SB-133-0810	2/27/08	1620
	10 – 12	9.1				
	12 – 14	3.7				
	14 – 15					
SB-134	0 – 1	0.0	PAH ONLY	DA-SS-134-071907	7/19/07	1620
	0 – 1	0.3	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS134-011508	1/15/08	1525
	0 – 2	0.3				
	2 – 4	0.2				
	4 – 5	218		DA-SB-134-0405	2/22/08	1000
SB-135	0 – 1	0.0	PAH ONLY	DA-SS-135-071907	7/19/07	1610
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS135-011108	1/11/08	0900
	0 – 2	13.3				
	2 – 4	1.3				
	4 – 6	6.7				
	6 – 8	4.8				
	8 – 10	78.8				
	10 – 12	41.1				
	12 – 14	246		DA-SB-135-1214	2/26/08	1420
	14 – 16	7.4				
	16 – 18	1.1				
	18 – 20	2.9				
SB-136	0 – 1	0.0	PAH ONLY	DA-SS-136-072507	7/25/07	1430
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS136-011008	1/10/08	0905

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SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-136 *cont*	0 – 2	0.0				
	2 – 4	0.0				
	4 – 6	0.2				
	6 – 8	0.0				
	8 – 10	1.2	Bright color	DA-SB-136-0810	2/22/08	0930
	10 – 12	0.0				
SB-137	0 – 1	0.0	PAH ONLY	DA-SS-137-071907	7/19/07	1545
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS137-011108	1/11/08	1415
	0 – 2	0.5				
	2 – 4	0.0				
	4 – 6	1.2		DA-SB-137-0406	2/21/08	1640
	6 – 8	0.0				
	8 – 10	0.2				
	10 – 12	0.0				
	12 – 15	0.8				
	15 – 17	0.5				
	17 – 19.2	---	Lost sample trying to retrieve sleeve			
SB-138	0 - 1	0.0	PAH ONLY	DA-SS-138-071907	7/19/07	1525
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB MS/MSD	DA-SS138-011108	1/11/08	1030
	0 – 2	32.5				
	2 – 4	4.7				
	4 – 5	13.4	DUP01	DA-SB-138-0406	2/21/08	1500
	5 – 6	6.2				
	6 – 8	0.0				
	8 – 10	0.0				
	10 – 12	0.0				
	12 – 14	0.0				
SB-139	0 – 1	0.0	PAH ONLY	DA-SS-139-071907	7/19/07	1450
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS139-011108	1/11/08	1345
	0 – 2	0.2				
	2 – 4	0.0				
	4 – 6	0.0				
	6 – 8	0.0				
	8 – 10	0.0				
	10 – 12	0.0	VOC collected from 10-11 ft.	DA-SB-139-1012	2/21/08	1250

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SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-140	0 – 1	0.0	PAH ONLY	DA-SS-140-071907	7/19/07	1420
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS140-011108	1/11/08	1300
SB-141	0 – 1	0.0	PAH ONLY	DA-SS-141-071907	7/19/07	1400
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS141-011108	1/11/08	1215
SB-142	0 – 1	0.0	PAH ONLY	DA-SS-142-080207	8/2/07	1050
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS142-011708	1/17/08	0830
SB-143	0 – 1	0.0	PAH ONLY	DA-SS-143-080207	8/2/07	1115
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS143-011708	1/17/18	0915
SB-144	0 – 1	0.0	PAH ONLY	DA-SS-144-080207	8/2/07	1250
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS144-011708	1/17/08	1255
SB-145	0 – 1	0.0	PAH ONLY	DA-SS-145-080207	8/2/07	1320
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS145-011708	1/17/08	1330
SB-146	0 – 1		PAH ONLY	DA-SS-146-080207	8/2/07	1350
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS146-011708	1/17/08	1030
SB-147	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB DUP06	DA-SS147-011708	1/17/08	1315
	0 – 2	0.3	No sample – bedrock directly below surface soil			
	2 – 4	0.0				
SB-148	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS148-011708	1/17/08	1515
	0 – 2	0.0	No sample – bedrock directly below surface soil			
	2 – 4	0.0				
	4 – 6	0.2				
SB-149	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS149-011708	1/17/08	1430

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SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
SB-149 *cont*	0 – 2	7.2	No sample – bedrock directly below surface soil			
	2 – 4					
	4 – 6	0.3				
	6 – 8	0.1				
SB-150	0 – 2	54.3		DA-SB-150-0002	3/5/08	1430
	2 – 4	13.5		DA-SB-150-0204	3/5/08	1435
	4 – 6	7.9				
	6 – 8	2.2				
	8 – 10	2.2				
	10 – 11					
SB-151	0 – 2	2.9		DA-SB-151-0002	3/4/08	0900
	2 – 4	1.1				
	4 – 6	2.9	DUP05	DA-SB-151-0406	3/4/08	0915
	6 – 8	0.8				
SB-152	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS152-011608	1/16/08	0825
	0 – 2	0.2				
	2 – 4	0.3		DA-SB-152-0204	2/28/08	1145
	4 – 6	0.0				
	6 – 8	0.0				
SB-153	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS153-011608	1/16/08	0920
	0 – 2	13.2				
	2 – 4	39.3		DA-SB-153-0204	2/28/08	0900
	4 – 6	2.0				
	6 – 8	1.3				
	8 – 10	1.1				
	10 – 12	33.6				
	12 – 14	0.8				
	14 – 16	12.5				
	16 – 17.5	2.6				
MONITORING WELLS						
MW-100B	0-2	2.5	DUP06	DA-B100B-0002	3/19/08	1115
	2-4	3.3				
	4-6	5.4				
	6-8	30.1		DA-B100B-0608	3/19/08	1130
	8-9.5	6.6				
MW-101B	0-2	15.1		DA-B101B-0002	3/20/08	1115

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SOIL SAMPLE LOCATIONS
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
MW-101B *cont*	2-4	1.5				
	4-6	20.2				
	6-7.5	1.9		DA-B101B-0406	3/20/08	1130
MW-102B	0 – 1	0.0	PAH ONLY	DA-SS102B-073107	7/31/07	0940
	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS102B-011508	1/15/08	1435
	0-2					
	2-4	1.3				
	4-6	2.5				
	6-8					
	8-9.5	0.5				
MW-103B	0 – 1	0.5	PAH ONLY	DA-SS103B-073007	7/30/07	1720
	0 – 1	0.3	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size, DUP03	DA-SS103B-011508	1/15/08	1400
	0-2	0.4				
	2-4	1.6				
	4-6	2.8				
	6-8	2.0				
	8-10	4.0		DA-B103B-0810	4/7/08	1115
	10-12	3.1				
	12-14	2.1				
	14-16	1.0				
MW-104B	0 – 1	0.0	PAH ONLY	DA-SS104B-073007	7/30/07	1340
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB MS/MSD	DA-SS104B-011608	1/16/08	1100
	0-2	5.5				
	2-4	0.8				
	4-6	13.1				
	6-8	2.0				
	8-10	4.6				
	10-12	3.5				
	12-14	5.6				
	14-16	2.4				
MW-105B	0 – 1	0.0	PAH ONLY	DA-SS105B-073007	7/30/07	1410
	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS105B-011608	1/16/08	1015

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SOIL SAMPLE LOCATIONS
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
MW-105B *cont*	0-2	8.6				
	2-4	3.1				
	4-6	1.8				
	6-8	1.5				
	8-10	0.7				
	10-12	0.0				
	12-14	1.6				
	14-16	0.0				
MW-106B	0-2	4.6		DA-B106B-0002	3/19/08	1245
	2-4	4.6				
	4-6	8.9		DA-B106B-0406	3/19/08	1330
	6-8	2.0				
	8-10					
	10-12	2.1				
	12-14					
	14-16	1.9				
	16-18					
MW-107B	0-2	0.0		DA-B107B-0002	3/21/08	1045
	2-4	2.1				
	4-6	2.7				
	6-8	3.7		DA-B107B-0608	3/21/08	1110
	8-9.5	3.2				
MW-108B	0-2	3.3				
	2-4	4.6				
	4-6	7.9				
	6-8	1.6				
	8-9.5	4.1				
MW-109B	0-2	3.6	LAB QC	DA-B109B-0002	3/20/08	1345
	2-4	57.0		DA-B109B-0204	3/20/08	1400
	4-6	24.3				
	6-8	1.4				
	8-10	1.5				
MW-110B	0 – 1	0.0	PAH ONLY DUP06	DA-SS110B-073007	7/30/07	1145
	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB, pH, TOC, toxicity, grain size	DA-SS110B-011508	1/15/08	1600
	0-2	9.1				
	2-4	3.4				
	4-6	9.7				
	6-8	2.2				

TABLE 2-3

SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
MW-110B *cont*	8-10	11.6				
	10-12	104		DA-B110B-1012	4/11/08	0905
	12-14	3.7				
	14-16	0.1				
MW-111B	0 – 1	0.0	PAH ONLY	DA-SS111B-072607	7/26/07	1050
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS111B-011408	1/14/08	1355
	0-2	1.4				
	2-4	0.9				
	4-6	2.4		DA-B111B-0406	4/8/08	0745
	6-8	1.0				
	8-10	0.7				
	10-12	0.0				
MW-112B	0 – 1	0.0	PAH ONLY , MS/MSD	DA-SS112B-073007	7/30/07	1120
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB DUP04	DA-SS112B-011608	1/16/08	1330
	0-2	0.2				
	2-4	0.5				
	4-6	0.3				
	6-8	0.8		DA-B112B-0608	4/10/08	1530
	8-10	0.6				
	10-12	0.6				
	12-14	0.5				
MW-113B	0 – 1	0.0	PAH ONLY	DA-SS113B-072607	7/26/07	1025
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS113B-011608	1/16/08	1300
	0-2	0.2				
	2-4	0.1				
	4-6	0.3				
	6-8	1.1		DA-B113B-0608	4/10/08	1340
	8-10	0.0				
	10-12	0.2				
MW-114B	0 – 1	0.0	PAH ONLY	DA-SS114B-072507	7/25/07	1620
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS114B-011008	1/10/08	0945
	0-2	1.3				
	2-4	0.3		DA-B114B-0204	3/31/08	0945
	4-6	0.4				
	6-8	0.0				

TABLE 2-3

SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
MW-115B	0 – 1	0.0	PAH ONLY	DA-SS115B-072507	7/25/07	1600
	0 – 1		VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS115B-011008	1/10/08	0930
	0-2	0.4	No sample taken			
	2-4	0.1				
MW-116B	0 – 1	0.0	PAH ONLY	DA-SS116B-072507	7/25/07	1540
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS116B-011008	1/10/08	0820
	0-2	0.7				
	2-3	0.2				
	3-5	0.4		DA-B116B-0305	4/1/08	0815
	5-6	0.0				
MW-117B	0 – 1	0.0	PAH ONLY	DA-SS117B-072507	7/25/07	1500
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS117B-011008	1/10/08	0845
	0-2	1.7				
	2-4	0.7				
MW-118B	0 – 1	0.0	PAH ONLY	DA-SS118B-072507	7/25/07	1350
	0 – 1	0.2	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS118B-011608	1/16/08	1610
	0-2	0.0				
	2-4	2.4				
	4-6	1.7				
	6-8	5.2		DA-B118B-0608	3/18/08	1400
	8-10	3.7				
	10-12	2.8				
MW-119B	0 – 1	0.0	PAH ONLY	DA-SS119B-073007	7/30/07	1600
	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS119B-011608	1/16/08	1530
	0-2	0.5				
	2-4	2.5		DA-B119B-0204	4/14/08	0900
	4-6	0.7				
	4-6	0.3				
	6-8	1.4				
	8-10	0.5				
	10-12	0.2				
	12-14	0.0				
MW-120B	0 – 1	0.0	PAH ONLY MS/MSD	DA-SS120B-080207	8/2/07	1140

TABLE 2-3

SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
MW-120B *cont*	0 – 1	0.0	VOC, GRO, SVOC, TAL Metals, ETPH, Pesticides, PCB	DA-SS120B-011708	1/17/08	1055
	0-2	0.6				
	2-4	0.4		DA-B120B-0204	4/8/08	1307
	4-6	0.1				
	6-8	0.0				
MW-124B	0-2	0.0				
	2-4	74.2	Petroleum Odor, Lab QC	DA-SS124-0103-072108	7/21/08	1230
MW-125B	0-2	17.3	DUP05	DA-SS-B125B-0103-072108	7/21/08	1500
	2-4	25.0	Slight odor	DA-SS-B125B-0304-072108	7/21/08	1530
	4-6	0.0				
MW-126B	0-2	8.7		DA-SS-B126B-0103-072208	7/22/08	1000
	2-4	5.8				
	4-6	6.4				
	6-8	7.0		DA-SS-B126B-0608-072208	7/22/08	1030
	8-10	7.7	Slight petro. Odor			
	10-12	10.2	No odor observed			
TEST PITS						
TP-100	0-2	0.0				
	2-4	0.0				
	4-6	0.0				
	6-8	0.0				
	8-10	0.0	Groundwater at 10’			
	10-11	0.0				
TP-101	0-2	0.0				
	2-4	0.0				
	4-6	0.0				
	6-8	0.0				
	8-9.5	0.0	35.0 ppm PID hit on GW, Groundwater at 9.5’			
TP-102	0-2	0.0				
	2-4	0.0				
	4-6	0.0				
	6-8	0.0				
	8-10	0.0				
TP-103	0-1	0.0				
	1-2	0.0				

TABLE 2-3

SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
TP-103 *cont*	2-3	0.0				
	3-4	0.0				
	4-5	0.0				
	5-6	0.0		DA-SB-TP103-0506	2/7/08	1640
TP-104	0-2	0.0	Natural material never found, test pit became too large, had to abandon due to safety concerns			
	2-4	0.0				
	4-6	0.0				
	6-8	0.0				
	8-10	0.0				
	10-12	0.0				
	12-14.5	0.0				
TP-105	0-0.5	0.0				
	0.5-0.75	0.0				
TP-106	0-2	0.0				
	2-4	0.0				
	4-6	0.0				
	6-8	0.0				
	8-10	0.0				
	10-12	0.0				
	12-14.5	0.0				
TP-107	0-2					
	2-4					
	4-6					
	6-8					
	8-10					
TP0108	0-1	0.0				
	1-2	0.0				
	2-3	0.0				
	3-4	0.0				
	4-5.5	0.0				
TP-109	0-1	0.0				
	1-2	0.0				
	2-3	0.0	Groundwater at 3’			
	3-4	0.0				
	4-5	0.0				
TP-110	0-1	0.0				
	1-2	0.0				
	2-3	0.0	Groundwater at 3’			
TP-111	0-1	0.0				
	1-2	0.0				
	2-3	0.0				

TABLE 2-3

SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Boring No.	Depth Interval (ft)	PID Reading (ppmv) *	Comments	Laboratory Sample ID	Sample Date	Sample Time
TP-111 *cont*	3-4	0.0	Groundwater at 3.5			
	4-5	0.0				
TP-112	0-2	0.0				
	2-4	0.0				
	4-6	0.0				
	6-8	0.0				

Notes: ppmv – parts per million by volume of air
ft – feet below ground surface
* - readings of 0 ppmV indicate no positive response on PID during jar headspace screening.
PID – Photo Ionization Detector.
NR – Not Recorded

TABLE 2-4
SURFACE SOIL TOXICITY TESTING RATIONALE
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

SAMPLE LOCATION	SAMPLE NUMBER	TOTAL PAH CONCENTRATION (UG/KG)	SELECTED FOR TOXICITY TESTING	RATIONALE
SS115B	DA-SS115B-072507	120		
SS116B	DA-SS116B-072507	143		
SS135	DA-SS135-071907	143		
SS116B	DA-SS116B-072507	145		
SS138	DA-SS138-071907	175		
SS118B	DA-SS118B-072507	227		
SS144	DA-SS144-080207	255		
SS117B	DA-SS117B-072507	259		
SS108	DA-SS108-073107	379	X	Collected in middle of paint can excavation
SS114B	DA-SS114B-072507	385		
SS107	DA-SS107-073107	432		
SS111B	DA-SS111B-072607	457		
SS136	DA-SS136-072507	535		
SS140	DA-SS140-071907	559		
SS141	DA-SS141-071907	746		
SS139	DA-SS139-071907	836		
SS120	DA-SS120-080207	860		
SS105	DA-SS105-073107	1061		
SS143	DA-SS143-080207	1085		
SS146	DA-SS146-080207	1122		
SS134	DA-SS134-071907	1219	X	Historic sample had elevated metals concentrations
SS124	DA-SS124-072607	1263		
SS137	DA-SS137-071907	1266		
SS146	DA-SS146-080207	1302		
SS106	DA-SS106-073107	2028		
SS119B	DA-SS119B-073007	2150		
SS104	DA-SS104-073107	2279	X	collected along perimeter of paint can excavation
SS128	DA-SS128-072607	3252		
SS142	DA-SS142-080207	3361		
SS113B	DA-SS113B-072607	4094		
SS129	DA-SS129-073007	4725		
SS122	DA-SS122-073007	6579		
SS109	DA-SS109-073007	6753		
SS103B	DA-SS103B-073007	8116	X	Mid-range PAH concentration and earthworms were observed during soil sampling
SS102B	DA-SS102B-073107	8609		
SS104B	DA-SS104B-073007	9081		
SS125	DA-SS125-072607	9989		
SS132	DA-SS132-073007	10031		
SS103B	DA-SS103B-073007-D	11318		
SS126	DA-SS126-072607	11590		
SS130	DA-SS130-073007	11781	X	Historic sample had elevated PCB concentrations and earthworms were observed during soil sampling
SS126	DA-SS126-072607	12870		
SS131	DA-SS131-073007	12929		
SS110B	DA-SS110B-073007	14268	X	upper mid-range PAH concentration
SS121	DA-SS121-072607	14389		
SS110B	DA-SS110B-073007	21947		
SS145	DA-SS145-080207	26546		
SS110	DA-SS110-073007	28576		
SS133	DA-SS133-073007	36360	X	Black cynder-type material and possible copper shot for sand blasting. Will determine whether material is toxic
SS105B	DA-SS105B-073007	52340	X	Possible paint chips in sample and earthworms were observed during soil sampling
SS112B	DA-SS112B-073007	55210		
SS123	DA-SS123-072607	114840		
SS127	DA-SS127-072607	194400	X	collected in drum removal area
SS152	DA-SS152-011608*	110.2J	X	background/reference location
SS153	DA-SS153-011608*	4722J	X	background/reference location

Notes:

1) * = sample for PAH analysis was collected at the same time as toxicity samples so this PAH data not used to select toxicity locations.
2) J = estimated concentration
3) Sample location SS152 was initially sampled in 10/04 as part of the background soil investigation (SO-01) and was determined to be adequate as a background location. Those results are presented in TtNUS September 2006.
4) Sample location SS153 was initially sampled in 10/04 as part of the background soil investigation (SO-05) and was determined to be adequate as a background location. Those results are presented in TtNUS September 2006.

TABLE 2-5

TEST PIT EXCAVATION SUMMARY
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Test Pit ID	Location	Excavated	Total Depth (feet)	Natural Material Depth (feet)	Items Uncovered	Notes
TP-100	South Meadow	2/11/2008	11.0	10.0	electrical cable, reinforced concrete debris	No response on PID.
TP-101	South Meadow	2/11/2008	9.5	4.5	sheet metal; fire bricks, reinforced concrete debris	Odor and PID (35 ppm) response within saturated zone. No PID response within vadose zone.
TP-102	South Meadow	2/11/2008	10.0	9.0	concrete rubble, fire brick debris, metal pipe debris, corroded sheet metal	No PID response
TP-103	South Meadow	2/7/2008	6.5	not encountered	bricks, metal debris, large amount of steel cable, corroded 55-gallon drum (possibly empty), small open ended rectangular metal tub, ash, cinder blocks, possible paint cans, metal tie downs, sheet metal	No response on PID. Analytical sample collected at drum. Terminated at approximately 6-ft. depth due to drum discovery (potential unknown exposure).
TP-104	South Meadow	2/8/2008	14.5	not encountered	reinforced concrete debris, steel pipe	No response on PID
TP-105	South Meadow	2/8/2008	1.0	not encountered	crushed, corroded 55-gallon drum with black residue at 0.75 feet bgs	No response on PID. Terminated at approximately 1.0-ft. depth due to drum discovery (potential unknown exposure).
TP-106	South Meadow	2/7/2008	14.5	7.0	broken-up steel reinforced concrete beams, crushed asphalt, red "plate" debris	No response on PID
TP-107	West of Paved Area	2/6/2008	10.0	8.25	crushed asphalt, broken-up reinforced concrete beams	No response on PID
TP-108	West of Paved Area	2/6/2008	5.5	not encountered	concrete block, steam piping insulation, rebar	No response on PID
TP-109	Southeast of Paved Area	2/12/2008	5.0	3.0	4" corrugated culvert pipe located at 2.5 -ft. bgs	No response on PID
TP-110	Southeast of Paved Area	2/12/2008	3.0	0.0	no fill material observed, no metal or concrete debris observed	No response on PID
TP-111	Southeast of Paved Area	2/12/2008	5.0	3.5	steel beam at 2.0', corrugated culvert pipe/steam pipe at 1.5 -ft. bgs	No response on PID
TP-112	North Meadow	2/11/2008	8.0	0.0	no fill encountered, wire mesh (chicken wire) at ground surface	No response on PID

SOIL BORINGS SAMPLING FREQUENCY AND DEPTH
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Location	Drill Method	Sample Frequency	Revised Target Depth	Comments [(1)]	Depth to Bedrock*	Total Depth of Boring*
MW-100B	Hollow Stem Auger/Air Hammer	Continuous	N/A	Upgradient location, west of Building 185 complex	9.5	45
MW-101B	Hollow Stem Auger/Air Hammer	Continuous	N/A	Upgradient location, west of Building 185 complex	7.5	50
MW-102B	Hollow Stem Auger/Air Hammer	Continuous	N/A	Downgradient of paint can excavation area	9.5	44
MW-103B	Hollow Stem Auger/Air Hammer	Continuous	N/A	North of TP-14 (SASE) where paint cans were found	16	50
MW-103S	Hollow Stem Auger	Only from 12 to 16.9 feet	N/A	North of TP-14 (SASE) where paint cans were found	16	16.9
MW-104B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	South Meadow, former land disposal area	16	42
MW-105B	Hollow Stem Auger/Air Hammer	Continuous	N/A	South Meadow, former land disposal area	14	48
MW-106B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	N/A	Paved Storage Area, potential land disposal activities	14	50
MW-106S	Hollow Stem Auger	None	N/A	Paved Storage Area, potential land disposal activities	14	19
MW-107B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	Center of Paved Storage Area	9.5	45
MW-108B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	Center of Paved Storage Area	9.5	45
MW-109B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	Paved Storage Area, potential land disposal activities	10	45
MW-110B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	South Meadow, former land disposal area	16	49
MW-111B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	South Meadow, former land disposal area	11.3	44
MW-112S	Hollow Stem Auger	None	N/A	South Meadow, former land disposal area	13	20
MW-112B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	N/A	South Meadow, former land disposal area	13	47
MW-113B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	South Meadow, former land disposal area	10.5	46
MW-114B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	N/A	North Meadow, VOC impacted area	2.75	61
MW-115B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	North Meadow, VOC impacted area	2	48
MW-116B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	N/A	North Meadow, VOC impacted area	5.25	40
MW-117B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	N/A	North Meadow, VOC impacted area	1.35	40
MW-118B	Hollow Stem Auger/Air Hammer	Continuous	N/A	Perimeter of North Meadow	11.75	49
MW-119B	Hollow Stem Auger/HQ Wireline	Continuous	N/A	Downgradient of disposal activites	10.5	45
MW-120B	Hollow Stem Auger/Air Hammer	Continuous	N/A	West of NUWC Pond, downgradient of tank closed at Building 110	5.4	60
MW-122	Direct Push	Continuous	N/A	Wetland valley south of NUWC Pond	4	6
MW-123	Direct Push	Continuous	N/A	Wetland valley south of NUWC Pond	6.25	8
MW-124B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	40 feet into BR	Southwest of Building 185 Complex	2.75	48.75
MW-125B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	40 feet into BR	In center of Building 185 Complex	4	50.5
MW-126B	Hollow Stem Auger/HQ Wireline/Air Hammer	Continuous	40 feet into BR	Northeast of Building 185 Complex	4.9	60
SBs:						
100	Direct Push	Continuous	N/A	Near Building 185 complex, assess downgradient of Building 179.	4.6	8
101	Direct Push	Continuous	N/A	Near Building 185 complex, assess downgradient of Building 179.	4	7.9
102	Hollow Stem Auger	Continuous	N/A	Near Building 185 complex, assess downgradient of Building 179.	4.6	6
103	Direct Push	Continuous	N/A	PCB only near transformer	2	6.5
104	Direct Push	Continuous	N/A	Perimeter of paint can excavation area	8	10
105	Direct Push	Continuous	N/A	Perimeter of paint can excavation area	7	9.5
106	Direct Push	Continuous	N/A	Perimeter of paint can excavation area	6	8

SOIL BORINGS SAMPLING FREQUENCY AND DEPTH
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Location	Drill Method	Sample Frequency	Revised Target Depth	Comments [(1)]	Depth to Bedrock*	Total Depth of Boring*
107	Hand Held Direect Push	Continuous	N/A	Perimeter of paint can excavation area	NE	3
108	Direct Push	Continuous	N/A	Center of paint can excavation area	5	6
109	Direct Push	Continuous	N/A	Perimeter of paint can excavation area	9	10
110	Direct Push	Continuous	N/A	Perimeter of paint can excavation area	16	18
111	Direct Push	Continuous	N/A	Former land disposal area	8.25	12
112	Direct Push	Continuous	N/A	Former land disposal area	8	11
113	Direct Push	Continuous	N/A	Former land disposal area	6.6	8
114	Direct Push	Continuous	N/A	Former land disposal area	6	8
115	Direct Push	Continuous	N/A	Former land disposal area	NE	8
116	Direct Push	Continuous	N/A	Former land disposal area	12	12
117	Direct Push	Continuous	N/A	Former land disposal area	12	12
118	Direct Push	Continuous	N/A	Former land disposal area	13	14
119	Direct Push	Continuous	N/A	Former land disposal area	8	8
120	Direct Push	Continuous	N/A	Former land disposal area	6.5	7
121	Direct Push	Continuous	N/A	Former land disposal area	10	10
122	Direct Push	Continuous	N/A	Former land disposal area	14	14.9
123	Direct Push	Continuous	N/A	Perimeter of drum excavation area	10	12.5
124	Direct Push	Continuous	N/A	Perimeter of drum excavation area	6.3	11
125	Direct Push	Continuous	N/A	Perimeter of drum excavation area	8	13
126	Direct Push	Continuous	N/A	Perimeter of drum excavation area	11.5	13
127	Direct Push	Continuous	N/A	Center of drum excavation area	10	11.6
128	Direct Push	Continuous	N/A	Former land disposal area	11	11.8
129	Direct Push	Continuous	N/A	Former land disposal area	NE	6
130	Direct Push	Continuous	N/A	Former land disposal area	18.2	18.5
131	Direct Push	Continuous	N/A	Former land disposal area	17	17.9
132	Direct Push	Continuous	N/A	Former land disposal area	15.4	15.9
133	Direct Push	Continuous	N/A	Former land disposal area	15	15
134	Direct Push	Continuous	N/A	Former land disposal area	2.5	5
135	Direct Push	Continuous	N/A	Former land disposal area	2.25	20
136	Direct Push	Continuous	N/A	Former land disposal area	6	12
137	Direct Push	Continuous	N/A	Former land disposal area	19.2	19.2
138	Direct Push	Continuous	N/A	Former land disposal area	10	14
139	Direct Push	Continuous	N/A	Former land disposal area	12	12
140	Hand Auger	Continuous	N/A	Evaluate surface conditions from overflow of dam	NE	1
141	Hand Auger	Continuous	N/A	Evaluate surface conditions from overflow of dam	NE	1
142	Hand Auger	Continuous	N/A	Evaluate surface conditions below storm drain outlets western side of pond	NE	1
143	Hand Auger	Continuous	N/A	Evaluate surface conditions western side of pond	NE	1
144	Hand Auger	Continuous	N/A	Evaluate surface conditions western side of pond	NE	1

SOIL BORINGS SAMPLING FREQUENCY AND DEPTH
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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Location	Drill Method	Sample Frequency	Revised Target Depth	Comments (1)	Depth to Bedrock*	Total Depth of Boring*
145	Hand Auger	Continuous	N/A	Evaluate surface conditions below storm drain outlets western side of pond	NE	1
146	Hand Auger	Continuous	N/A	Evaluate surface conditions below storm drain outlets western side of pond	NE	1
147	Direct Push	Continuous	N/A	Characterize deep soils in wetland area	1.1	4
148	Direct Push	Continuous	N/A	Characterize deep soils in wetland area (small diameter well installed)	4	6
149	Direct Push	Continuous	N/A	Characterize deep soils in wetland area (small diameter well installed)	6.25	8
150	Direct Push	Continuous	N/A	Near Building 185 complex, assess downgradient of Building 179.	9	11
151	Direct Push	Continuous	N/A	Near Building 185 complex, assess downgradient of Building 179.	6.5	8
152	Direct Push	Continuous	N/A	Reference location	5	8
153	Direct Push	Continuous	N/A	Reference location	17.5	17.5

Shaded cells indicate change from Work Plan.

* Depths are measured as feet below ground surface.

(1) - For target areas, refer to Figure 2-2

NA Not Applicable.

BR Bedrock

OB Overburden

NE Not Encountered.

GROUNDWATER DISCRETE INTERVAL SAMPLE SELECTION RATIONALE
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Well ID	Depth (ft-btoc)	Rationale for Selection of Discrete Sample Interval
MW-109B	19-24	Numerous fractures and oxidation staining observed in core
	30-35	Oxidation observed on fracture
	36-41	Numerous fractures and iron staining
MW-114B	29-34	Caliper breakouts, HPFM, televiewer and abrubt fluid resistivity change
	34-39	Caliper breakouts; HPFM, televiewer
	53-61	Caliper breakouts, HPFM, televiewer
MW-115B	19-24	RQD = 0%, caliper breakouts, televiewer data
	26-31	Low RQD and recovery, caliper breakouts, televiewer data
MW-124B	10-20	Caliper breakouts; water enters borehole
	35-45	Caliper breakouts; water enters borehole
MW-125B	26-36	Several caliper breakouts; water enters borehole; possible fractures at gamma inflections
	36-43	Several caliper breakouts; water enters borehole; possible fractures at gamma inflections
MW-126B	22-27	Caliper breakouts; water enters from borehole
	42-46	Caliper breakouts; possible fractures at gamma inflections
	50-55	Caliper breakouts

Notes:
btoc - below top of casing

TABLE 2-8

DISCRETE INTERVAL GROUNDWATER SAMPLING STABILIZATION RECORD
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Well ID	Sample Date	Depth Sampled (Ft.)	Pump Type	Initial Clock Time	Final Clock Time	Water Depth Below MP (ft)	Purge Rate (mL/min)	Cum. Volume Purged (L)	Temp (C°)	Spec. Cond. (uS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)
MW-109B	5/8/2008	19.0-24.0	2" Bladder	1045	1115	11.16	100	3.5	14.27	652	7.27	-205.8	0.43	35.0
MW-109B	5/8/2008	30.0-35.0	2" Bladder	1425	1505	8.80	100	4.5	6.96	337	6.96	-68.2	0.48	120.0
MW-109B	5/8/2008	36.0-41.0	2" Bladder	1625	1650	9.37	100	3.0	14.17	342	7.06	-91.2	0.48	120.0
MW-114B	5/5/2008	29.0-34.0	2" Bladder	1200	1410	21.46	100	12.5	13.63	478	6.37	19.4	0.85	7.0
MW-114B	5/5/2008	34.0-39.0	2" Bladder	1530	1730	21.64	100	12.5	13.16	373	6.50	-35.0	1.94	65.0
MW-114B	5/5/2008	53.0-61.0	2" Bladder	0730	1200	23.20	100	12.0	15.41	350	6.14	26.4	2.29	80.0
MW-115B	5/7/2008	19.0-24.0	2" Bladder	0915	1020	4.90	100	7.0	11.96	423	7.09	-182.5	0.12	160.0
MW-115B	5/7/2008	26.0-31.0	2" Bladder	1155	1240	4.68	100	5.0	13.63	427	7.01	-172.2	0.33	160.0
MW-124B	8/1/2008	10.0-20.0	2" Bladder	1425	1455	3.42	250	7.5	25.81	884	7.69	-381.8	0.28	90.0
MW-124B	8/4/2008	35.0-45.0	2" Bladder	1050	1120	7.32	300	9.0	15.87	698	6.49	-110.8	0.88	100.0
MW-125B	7/31/2008	26.0-36.0	2" Bladder	1605	1635	10.41	300	9.0	17.55	463	7.15	-170.5	0.32	30.0
MW-125B	8/1/2008	36.0-43.0	2" Bladder	930	1005	11.80	200	7.0	15.39	419	7.19	270.0	0.15	190.0
MW-126B	7/30/2008	22.0-27.0	2" Bladder	1225	1245	7.26	400	8.0	19.38	282	7.44	-179.2	0.45	95.0
MW-126B	7/30/2008	42.0-46.0	2" Bladder	1555	1625	7.01	300	9.0	19.91	244	7.44	-199.8	0.40	150.0
MW-126B	7/30/2008	50.0-55.0	2" Bladder	2000	2030	7.54	200	6.0	16.42	229	7.44	-181.9	6.77	35.0

Notes:
N/R - not recorded

TABLE 2-9

WELL CONSTRUCTION DETAILS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Location	Well ID	Date Installed	Rhode Island Grid Coordinates NAD 1983		Ground Elevation (ft. NGVD)	Riser Elevation	Screen or Open Borehole Depth (ft bgs)		Depth of Pump Intake (ft bgs)	Elevation of Pump Intake (ft NGVD)
			Northing	Easting			Top	Bottom		
North Meadow	MW-03B	8/27/2003	165104.51	381250.48	44.0	47.19	4	24	21	23.0
	MW-114B	3/31/2008	165046.35	381299.59	43.4	45.55	9.75	61	60.6	-17.2
	MW-115B	3/31/2008	165100.47	381345.65	43.1	45.27	9.5	48	30	13.1
	MW-116B	4/1/2008	165175.39	381319.30	45.7	47.83	10	40	37	8.7
	MW-117B	3/31/2008	165176.31	381265.56	45.0	47.00	10	40	25	20.0
	MW-118B	3/18/2008	165385.45	381195.01	47.7	50.11	18	49	33.5	14.2
	MW-119B	4/14/2008	165658.21	380856.91	29.0	28.43	15	45	30	-1.0
	MW-120B	4/7/2008	165296.55	380934.49	45.0	47.37	10	60	56	-11.0
South Meadow	MW-01C*	6/15/2006	164886.68	381517.29	50.2	52.63	30	40	30	20.2
	MW-04B	8/29/2003	164849.69	381380.32	46.9	48.78	16	45	30	N/A
	MW-104B	4/9/2008	164777.36	381398.09	48.4	50.41	19	42	20	28.4
	MW-105B	4/8/2008	164826.57	381337.55	47.2	49.13	18	48	45	2.2
	MW-110B	4/11/2008	164864.53	381436.21	47.9	49.83	19	49	47	0.9
	MW-111B	4/8/2008	164973.60	381482.80	50.6	51.86	14	44	42	8.6
	MW-112S	4/18/2008	164942.53	381419.90	50.0	52.55	10	20	16	34.0
	MW-112B	4/18/2008	164932.79	381424.60	49.7	51.86	18	47	47	2.7
	MW-113B	4/13/2008	164984.51	381440.06	50.0	51.91	14	46	29	21.0
	MW-122 (SB148)	2/27/2008	164890.58	381330.45	28.7	31.75	0	5	4.1	24.6
	MW-123 (SB149)	2/27/2008	164830.05	381268.23	29.8	33.46	2	8	4.3	25.5
Paved Storage Area	MW-02B	8/26/2003	381588.22	164635.98	51.5	51.26	6.8	44.8	28	N/A
	MW-100B	3/19/2008	164531.23	381568.12	51.3	51.09	15	45	30	21.1
	MW-101B	3/20/2008	164500.21	381515.76	51.7	51.48	10	50	45	6.7
	MW-102B	4/1/2008	164601.46	381505.23	50.8	52.55	14	44	16	34.8
	MW-103S	4/18/2008	164670.31	381430.69	48.7	50.81	14.5	19.5	17	31.7
	MW-103B	4/1/2008	164666.91	381428.75	48.8	50.90	20	50	35	13.8
	MW-106S	4/18/2008	164690.79	381860.47	57.9	57.38	9	19	14	43.9
	MW-106B	3/19/2008	164689.55	381856.76	57.8	57.72	20	50	35	22.8
	MW-107B	3/21/2008	164697.54	381706.67	53.4	52.91	15	45	22	31.4
	MW-108B	3/21/2008	164756.39	381617.53	51.8	51.43	15	45	16	35.8
	MW-109B	3/20/2008	164798.20	381568.84	51.1	50.65	15	45	27	24.1
	MW-125B	7/21/2008	164576.90	381655.64	52.0	51.50	10	50.5	N/A	N/A
	MW-126B	7/22/2008	164656.84	381797.08	55.9	55.73	20	60	N/A	N/A
South of Paved Storage Area	MW-07A**	7/21/1999	164153.15	381564.13	56.8	56.32	6.5	11.25	7.5	49.3
	MW-07B**	7/21/1999	164150.51	381564.54	56.8	56.21	18	28	23.7	33.1
	MW-09A	7/16/1999	164429.51	381602.64	50.0	54.02	0	5.75	N/A	N/A
	MW-09B	7/16/1999	164428.23	381604.68	50.0	50.76	10	21.41	18	32.0
	MW-12	7/28/1999	164456.92	381683.64	46.7	50.23	0	4	N/A	N/A
	MW-13A	8/3/1999	164433.53	381736.06	47.8	51.49	0	6	5	48.49
	MW-13B	8/3/1999	164432.60	381738.41	47.7	49.98	13	23.94	N/A	N/A
	MW-124B	7/21/2008	164509.53	381631.71	47.1	48.95	8.5	48.75	N/A	N/A

Notes:
N/A - not applicable
* Former well MW-01B that was installed as part of the SASE in 2003 was destroyed during soil removal activities and was replaced in 2006 (by TN Associates, using New England Boring Contractors of CT., Inc.) The MW-01B screened interval was approximately 10 to 39 feet below ground surface (bgs), however, the "replacement well" MW-01C screened interval is approximately 30 to 40 feet bgs.
** Elevation of riser was calculated by subtracting the stickdown riser from the ground elevation, elevation was not surveyed

MONITORING WELL DEVELOPMENT STABILIZATION REFERENCE SUMMARY
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Well ID	Well Development Date	Pump Type	Initial Clock Time	Final Clock Time	Water Depth Below MP (ft)	Purge Rate (mL/min)	Cum. Volume Purged (gal)	Temp (^{o}C)	Spec. Cond. (uS/cm)	pH	DO (mg/L)	Turbidity (NTU)	ORP	Comments
MW-100B	4/29/2008	grundfos	1040	1440	38.70	1250	79	13.01	0.388	7.59	7.24	10.6	-84.0	Strong Petroleum Odor
MW-101B	4/28/2008	grundfos	1157	0954	33.40	800	96	13.58	0.530	7.75	6.18	22.4	164.0	Developed over two days
MW-102B	5/1/2008	grundfos	1020	1035	27.50	600	45	12.37	0.328	6.80	5.93	3.9	74.0	Developed over two days
MW-103B	5/1/2008	grundfos	1205	1330	16.50	1900	44	13.16	0.356	6.81	4.55	3.3	-29.0	
MW-103S	5/1/2008	grundfos	1405	1520	14.77	2700	60	10.26	0.823	7.06	4.55	1.2	-85.0	
MW104B	4/24/2008	grundfos	0900	1300	21.81	5000	320	11.98	0.299	6.72	5.38	9.5	85.0	
MW-105B	4/24/2008	grundfos	0750	0835	19.10	6300	75	11.69	0.296	6.66	6.21	2.7	47.0	
MW-106S	4/24/2008	whale/grundfos	0807	1155	7.30	1600	100	12.78	0.225	6.06	7.50	2.7	93.0	
MW-106B	4/25/2008	grundfos	0740	1055	7.75	5300	280	13.02	0.319	7.28	3.99	5.7	-118.0	
MW-107B	4/30/2008	grundfos	0835	1600	5.33	1300	331	13.83	0.387	7.29	4.76	8.7	-102.0	
MW-108B	5/2/2008	grundfos	1115	1320	22.11	2000	69	13.22	0.379	6.99	4.05	4.6	-88.0	
MW-109B	5/1/2008	grundfos	0845	0945	12.12	2400	64	13.51	0.330	7.14	6.51	3.9	-30.0	
MW-110B	4/23/2008	whale/grundfos	1315	1540	35.30	2900	185	12.97	0.302	7.02	4.60	48.3	-17.0	Developed over two days
MW-111B	4/22/2008	whale	1150	1620	15.14	2870	205	11.41	0.238	6.77	6.39	7.1	62.0	
MW-112S	4/24/2008	whale	1550	1715	12.82	3100	70	9.73	0.213	6.13	7.70	5.0	184.0	
MW-112B	4/22/2008	whale	1130	1300	13.65	1500	60	11.69	0.270	7.01	5.91	6.0	35.0	
MW-113B	4/23/2008	whale	0720	1125	13.55	2840	185	12.99	0.253	6.71	6.75	13.0	-30.0	
MW-114B	4/22/2008	whale	0800	0840	20.79	6150	65	10.76	0.128	5.80	10.35	1.0	280.0	
MW-115B	4/22/2008	whale	0850	1050	8.86	4730	150	11.66	0.208	6.70	6.06	5.4	-35.0	
MW-116B	4/21/2008	whale	0910	1500	13.27	5200	480	12.75	0.214	8.13	9.09	3.5	-65.0	
MW-117B	4/21/2008	whale	1540	1645	22.17	5830	90	12.94	0.193	8.55	8.63	1.5	-136.0	
MW-118B	4/24/2008	whale	1245	1330	26.63	4200	50	12.88	0.187	6.29	7.72	0.0	189.0	
MW-119B	4/28/2008	grundfos	1017	1047	13.97	4730	50	11.42	0.430	7.23	6.18	1.0	-109.0	
MW-120B	4/28/2008	grundfos	0923	0938	25.10	3790	60	12.58	0.567	5.64	8.28	3.9	16.0	
MW-122	5/29/2008	foot valve	1605	1640	4.37	710	7.5	11.65	0.318	6.92	NR	1175.0	NR	
MW-123	5/29/2008	foot valve	856	1008	5.81	526	10	13.18	0.827	7.09	NR	84.3	NR	
MW-124B	7/29/2008	grundfos	1615	1715	16.50	2840	45	17.60	0.601	6.73	7.23	26.0	-93.0	
MW-125B	7/29/2008	grundfos	1030	1300	9.20	2840	83	14.10	0.510	7.22	7.31	6.1	-213.0	
MW-126B	7/29/2008	grundfos	0730	0945	4.35	2840	101	14.80	0.389	7.08	7.16	6.2	-163.0	

Notes:
ND - not developed, previously
NR - not recorded

TABLE 2-11

GROUNDWATER SAMPLING STABILIZATION RECORD
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Well ID	Sample Date	Screen or Open Borehole Interval BGS (ft)		Water Depth BGS (ft)		Depth Sampled BGS (Ft.)		Pump Type	Initial Clock Time	Final Clock Time	Purge Rate (mL/min)	Cum. Volume Purged (L)	Temp (C°)	Spec. Cond. (uS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)
		Depth	Elevation	Depth	Elevation	Depth	Elevation											
MW-100B	9/18/2008	15-45	36.3-6.3	9.29	42.01	30.2	21.1	Peristaltic	1040	1200	160	12.8	17.5	497	7.24	-133.2	0.30	1.4
MW-101B	5/30/2008	10-50	41.7-1.7	12.94	38.76	45.2	6.5	2" Bladder	0935	1335	100	25.4	13.6	921	6.76	367.0	0.34	160.0
MW-101B	7/31/2008	10-50	41.7-1.7	14.73	36.07	45.2	5.6	2" Bladder	1100	1425	200	32.0	16.2	501	7.11	274.9	0.22	5.0
MW-102B	5/27/2008	14-44	36.8-6.8	12.34	38.46	14.3	36.6	2" Bladder	1350	1530	10	2.8	16.2	732	6.79	-56.8	0.67	25.0
MW-102B	8/1/2008	14-44	36.8-6.8	16.35	32.45	16.3	32.6	2" Bladder	1210	1345	200	19.0	14.7	388	6.12	-41.4	0.15	5.0
MW-103B	5/23/2008	20-50	28.8-(-1.2)	14.66	34.14	32.9	15.9	2" Bladder	1140	1315	400	37.5	11.4	571	6.50	-60.1	0.33	5.8
MW-103S	5/26/2008	14.5-19.5	34.2-29.2	14.39	34.31	14.9	33.8	2" Bladder	1135	1530	50	12.0	14.9	1433	7.01	-178.2	0.13	>1100
MW-104B	5/20/2008	19-42	29.4-6.4	14.39	34.01	18.0	30.4	2" Bladder	1135	1355	100	14.0	11.0	519	6.85	-90.1	0.30	65.0
MW-105B	5/20/2008	18-48	29.2-(0.8)	16.65	30.55	43.1	4.1	2" Bladder	1635	1705	100	3.5	10.5	509	6.99	35.1	0.34	0.0
MW-106B	5/21/2008	20-50	37.8-7.8	0.53	57.27	35.1	22.7	2" Bladder	1105	1300	100	12.5	12.7	554	7.11	336.8	0.27	40.0
MW-106S	5/21/2008	9-19	48.9-38.9	2.15	55.75	14.5	43.4	2" Bladder	1035	1545	100	35.0	12.0	378	6.15	49.0	1.96	23.0
MW-107B	6/4/2008	15-45	38.4-8.4	4.74	48.66	22.4	31.0	2" Bladder	1600	1800	50	7.5	15.5	589	7.03	-113.6	0.21	16.0
MW-108B	6/3/2008	15-45	36.8-6.8	7.68	44.12	N/R	N/R	2" Bladder	1120	1520	60	14.4	17.8	658	7.21	-242.9	PE	22.0
MW-109B	6/2/2008	15-45	36.1-6.1	7.58	43.52	27.5	23.7	2" Bladder	1055	1315	65	15.1	18.3	644	6.81	-141.9	0.32	14.0
MW-110B	5/19/2008	19-49	28.9-(-1.1)	11.85	36.05	45.1	2.8	2" Bladder	1055	1255	100	13.0	12.1	516	6.84	-202.0	0.19	30.0
MW-111B	5/16/2008	14-44	36.6-6.6	11.64	38.96	40.7	9.9	2" Bladder	1028	1228	250	28.0	10.5	312	5.98	11.3	1.75	21.0
MW-112B	5/16/2008	18-47	31.7-2.7	11.34	38.36	44.8	4.9	2" Bladder	1420	1505	200	10.0	11.8	468	6.92	-20.1	0.54	0.0
MW-112S	5/19/2008	10-20	40-30	11.68	38.32	13.5	36.6	2" Bladder	1505	1700	100	12.0	10.1	351	6.06	129.6	0.20	130.0
MW-113B	5/16/2008	14-46	36-4	10.97	39.03	27.1	22.9	2" Bladder	1434	1629	200	34.0	10.6	397	6.44	-15.7	0.35	107.6
MW-114B	5/16/2008	10-61	27.6-17.6	19.41	23.99	58.5	-15.1	2" Bladder	1030	1135	200	14.0	10.0	216	6.19	114.7	2.78	2.2
MW-115B	5/15/2008	9.5-48	33.6-(-4.9)	3.54	39.56	27.8	15.3	2" Bladder	1515	1715	100	12.5	12.4	418	6.76	-129.6	0.34	21.0
MW-116B	5/15/2008	10-40	35.7-5.7	5.99	39.71	34.9	10.8	2" Bladder	0940	1145	100	13.0	11.9	364	6.43	-113.3	0.29	3.6
MW-117B	5/15/2008	10-40	35-5	21.31	23.69	23.0	22.0	2" Bladder	1543	1608	90	9.5	12.1	337	6.58	-58.4	0.37	0.0
MW-118B	5/15/2008	18-49	29.7-(-1.3)	24.19	23.51	31.1	16.6	2" Bladder	0947	1142	110	22.7	12.3	276	6.29	156.8	0.38	4.6
MW-119B	5/14/2008	15-45	14-(-16)	13.61	15.39	29.9	-0.9	2" Bladder	1046	1121	100	5.7	13.8	734	6.78	-172.1	0.42	0.0
MW-120B	5/14/2008	10-60	35-(-15)	19.73	25.27	53.6	-8.6	2" Bladder	1140	1230	100	5.5	13.6	767	6.08	-17.6	0.62	3.6
MW-123	6/3/2008	2-8	27.8-21.8	2.54	27.26	4.3	25.5	1" Bladder	1415	1500	50	2.8	20.8	956	6.47	349.6	2.26	3.2
MW-122	6/4/2008	0.5-5.5	28.2-23.2	1.36	27.34	4.2	24.6	1" Bladder	1330	1355	50	1.5	13.2	486	6.29	156.8	0.77	4.9
MW-07A	5/28/2008	5-10	51.72-46.72	6.82	49.94	8.0	48.8	2" Bladder	1130	1320	<50	4.2	16.9	1620	7.05	-185.2	PE	4.3
MW-02B	5/27/2008	7-45	44.47-6.47	5.96	45.51	28.2	23.2	2" Bladder	1215	1400	50	5.5	16.0	406	6.35	-79.9	2.15	4.5
MW-03B	5/22/2008	4-24	40-20	20.42	23.58	17.8	26.2	2" Bladder	1135	1240	50	3.5	11.0	403	6.72	188.2	3.56	2.6
MW-04B	5/23/2008	15-45	35.64-5.64	16.22	30.70	28.1	18.8	2" Bladder	1215	1300	50	2.5	14.6	527	6.85	427.4	0.15	3.1
MW-07B	5/29/2008	18-28	38.72-28.72	7.50	49.27	24.3	32.5	2" Bladder	1420	1839	140	28.4	13.1	676	7.58	-216.0	0.11	120.0
MW-09B	5/28/2008	10-21.41	36.7-25.3	4.14	42.60	N/R	N/R	2" Bladder	1225	1345	10	4.2	19.1	929	7.41	-50.3	1.48	170.0
MW-13A	8/4/2008	0-6	47.8-41.8	0.35	47.45	1.3	46.5	2" Bladder	1310	1450	200	18.0	19.4	223	4.76	598.0	0.82	4.7

Notes:
N/R - not recorded
PE - probe error

SEDIMENT TOXICITY SAMPLING LOCATIONS AND RATIONALE
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Area	Sample Location	Lead Concentration (MG/KG)	Selected Toxicity Testing Location	Comments/Rationale For Selection
Deerfield Creek, upstream of the culvert	SD01	76	X	Upstream for Deerfield Creek
Deerfield Creek, downstream of the culvert	SD100	27200		
	SD132	5340		
	SD101	458		
	SD133	15300	X	Selected because it has a very high lead concentratin.
	SD102	624		
	SD103	530		
	SD104	255		
	SD02	610		
	SD105	314		
	SD106	824	X	Selected because it has a high lead concentration and sediment is present
	SD03	700		
	SD110	642	X	Selected because it has a high lead concentration and sediment is present
	SD111	344	X	Selected because it has a low-to-moderate lead concentratin and sediment concentration and sediemnt is present. Also, this area is a little rickier htan some of the other locations in thes area
	SD06	770		
	SD112	508	X	Selected because it has a moderate-to-high lead concentration and sediment is present
Unnamed Stream (tributary from the golf course)	SD04	14		
	SD108	23.5	X	Reference for benthic sampling
	SD107	13	X	Reference for benthic sampling
	SD109	25.4		
	SD05	130		
	SD113	77.9		
NUWC Pond	SD114	248	X	Actually in tributary before reaching pond. Selected because it has a moderate lead concentration and sediment is present
	SD115	106		
	SD07	350		
	SD116	441		Actually in tributary before reaching pond. Selected because it has a moderate lead concentration and sediment is persent.
	SD117	INACCESSABLE	X	
	SD118	187		
	SD119	230	X	Selected because it has a moderate lead concentration and is in the middle of the pond.
	SD120	220		
	SD121	119	X	Selected because it has a moderate lead concentration and is in the middle of the pond.
	SD122	176		
	SD08	180		
	SD123	183		
	SD124	164		
	SD125	155.5	X	Selected because it has a moderate lead concentration and is in the middle of the pond.
	SD09	150		
	SD126	104		
	SD127	142		

Notes:
1) Lead concentrations are from the July 2007 sediment sampling event

BENTHIC MACROINVERTEBRATE SAMPLING SUMMARY
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 1 OF 2

Sample ID	Time	Date	Sample Location Description	Duration of Sampling (min)	Sampling Description	# of Sample Jars	Notes
DA-ET01-0006	1415	5/27/2008	stream with embedded substrate that is 6" to 1' of mucky sediment, low shrubs for cover, stream 6" deep, no riffles only pool environment, very low flow, sample collected in areas with highest visible flow, stream is border between wetland and low shrubby area	3	total of 5 linear meters sampled in section of stream from 10 yrds upstream of SD01 to that location (10 yrd section)	5	
DA-ET106-0006	1220	5/27/2008	stream with embedded substrate and a riffle pool pattern, substrate is very rocky with rocks up to 4", less flow then the locations downstream from here due to a fork in the stream, depth was about 4", light tree cover	3	total of 6 linear meters sampled in section of stream from 5 yrds upstream to 10 yrds downstream of SD106 (15 yrd section)	3	
DA-ET107-0006	950	5/27/2008	stream with embedded substrate & algal matt, Riffle and pool pattern for entire length of sample section	3	total of 6 linear meters sampled in section of stream from 10 yrds upstream to 30 yrds downstream of SD107 (40 yrd section)	2	5 salamanders & one small fish removed from sample before it was jarred and preserved
DA-ET108-0006	1030	5/27/2008	stream with embedded substrate & algal matt, Riffle and pool pattern for entire length of sample section	3	total of 6 linear meters sampled in section of stream from 10 yrds upstream to 20 yrds downstream of SD108 (30 yrd section)	1	
DA-ET110-0006	1200	5/27/2008	stream with embedded substrate and a riffle pool pattern, substrate is very rocky with rocks up to 4", some tree cover	5	total of 5 linear meters sampled in section of stream from SD110 to point 10 yrds downstream from that location (10 yrd section)		
DA-ET111-0006	1135	5/27/2008	stream with embedded substrate and a riffle pool pattern, substrate is very rocky with rocks up to 4", light tree cover	3	total of 5 linear meters sampled in section of stream from SD111 to point 20 yrds downstream from that location (20 yrd section)	2	
DA-ET112-0006	1120	5/27/2008	stream with embedded substrate and riffle pool pattern, some tree cover and some emergent grass-like vegetation in stream	3	total of 5 linear meters sampled in section of stream from 5 yrds upstream to 5 yrds downstream of SD112 (10 yrd section)	2	
DA-ET114-0006	1050	5/27/2008	through wetland area on south end of NUWC pond, embedded substrate, no tree cover, low flow with no riffle areas, sediment 6" to 1' deep in this section	3	total of 5 linear meters sampled in section of stream from 8 yrds upstream to 3 yrds downstream of SD114 (11 yrd section)	2	
DA-ET116-0006	1110	5/27/2008	stream through wetland area on south end of NUWC pond, embedded substrate, small amount of tree cover, low flow with no riffle areas, sediment 6" to 1' deep in this section	3	total of 5 linear meters sampled in section of stream from 5 yrds upstream to 5 yrds downstream of SD116 (10 yrd section)	2	
DA-ET119-0006	1530	5/27/2008	South end of NUWC pond, water is about 2' deep, bottom consists of a very fine muck with trace organics, no tree cover	N/A	collected 3 scoops with the Ponar Dredge and composited them, washed away sediment with sieve bucket	1	

BENTHIC MACROINVERTEBRATE SAMPLING SUMMARY
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Sample ID	Time	Date	Sample Location Description	Duration of Sampling (min)	Sampling Description	# of Sample Jars	Notes
DA-ET121-0006	1545	5/27/2008	middle of NUWC pond, water is about 4' deep, bottom consists of a very fine muck, no tree cover	N/A	collected 3 scoops with the Ponar Dredge and composited them, washed away sediment with sieve bucket	1	
DA-ET125-0006	1600	5/27/2008	North end of NUWC pond, water is about 6' deep, bottom consists of a very fine muck, no tree cover	N/A	collected 3 scoops with the Ponar Dredge and composited them, washed away sediment with sieve bucket	1	
DA-ET133-0006	1400	5/27/2008	stream sediment is mostly bedrock with very little embeded sediment, high tree cover, stream depth about 3"	3	total of 6 linear meters sampled in section of stream from SD133 to 15 yrds downstream from that location (15 yrd section)	2	
DA-ET-RP01-0006	0815	5/28/2008	South end of Melville pond, about 3' deep with a little vegetation and trace organics, no tree cover	N/A	collected 3 scoops with the Ponar Dredge and composited them, washed away sediment with sieve bucket	1	
DA-ET-RP02-0006	0830	5/28/2008	middle of Melville Pond on ease side about 4' deep, no tree cover, no visible aquatic vegetation	N/A	collected 3 scoops with the Ponar Dredge and composited them, washed away sediment with sieve bucket	1	
DA-ET-RP03-0006	0845	5/28/2008	Middle of melville pond on the West shore, no tree cover, no visible aquatic vegetation	N/A	collected 3 scoops with the Ponar Dredge and composited them, washed away sediment with sieve bucket	1	
DA-ET-RP04-0006	1000	5/28/2008	stream with embeded substrate that is mostly sandy, light tree cover, mostly riffles with a couple pools	2	total of 6 linear meters sampled in section of stream from 5 yrds upstream to 20 yrds downstream from SD-RP04 (25 yrd section)	2	
DA-ET-RP05-0006	0945	5/28/2008	stream with heavy tree cover, wetlands on both sides, embeded substrate that is sandy	3	total of 6 linear meters sampled in section of stream from 5 yrds upstream to 15 yrds downstream from SD-RP05 (20 yrd section)	1	
DA-ET-RP06-0006	0930	5/28/2008	stream with embeded substrate, heavy tree cover, heavy organics on the stream bed, riffle pool pattern	3	total of 5 linear meters sampled in riffle areas of this section (no surfacewater or sediment samples collected at this location)	3	

TABLE 2-14

EARTHWORM TISSUE SAMPLING RATIONALE
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Sample Location	Sample Number	Total PAH Concentration (UG/KG)	Selected For Toxicity Testing	Rationale
SS115B	DA-SS115B-072507	120	X	Selected for spatial coverage
SS116B	DA-SS116B-072507	143		
SS135	DA-SS135-071907	143		
SS116B	DA-SS116B-072507	145		
SS138	DA-SS138-071907	175		
SS118B	DA-SS118B-072507	227		
SS144	DA-SS144-080207	255		
SS117B	DA-SS117B-072507	259		
SS108	DA-SS108-073107	379	X	Collected in middle of paint can excavation
SS114B	DA-SS114B-072507	385		
SS107	DA-SS107-073107	432		
SS111B	DA-SS111B-072607	457		
SS136	DA-SS136-072507	535		
SS140	DA-SS140-071907	559		
SS141	DA-SS141-071907	746		
SS139	DA-SS139-071907	836		
SS120	DA-SS120-080207	860		
SS105	DA-SS105-073107	1061		
SS143	DA-SS143-080207	1085		
SS146	DA-SS146-080207	1122		
SS134	DA-SS134-071907	1219	X	Historic sample had elevated metals concentrations
SS124	DA-SS124-072607	1263		
SS137	DA-SS137-071907	1266		
SS146	DA-SS146-080207	1302		
SS106	DA-SS106-073107	2028		
SS119B	DA-SS119B-073007	2150		
SS104	DA-SS104-073107	2279	X	Collected along perimeter fo paint can excavation
SS128	DA-SS128-072607	3252		
SS142	DA-SS142-080207	3361		
SS113B	DA-SS113B-072607	4094	X	Lower mid-range PAH concentration
SS129	DA-SS129-073007	4725		
SS122	DA-SS122-073007	6579		
SS109	DA-SS109-073007	6753		
SS103B	DA-SS103B-073007	8116	X	Mid-range PAH concentration and earthworms were observed during soil sampling
SS102B	DA-SS102B-073107	8609		
SS104B	DA-SS104B-073007	9081		
SS125	DA-SS125-072607	9989		
SS132	DA-SS132-073007	10031		
SS103B	DA-SS103B-073007-D	11318		
SS126	DA-SS126-072607	11590		
SS130	DA-SS130-073007	11781	X	historic sample had elevated PCB concentrations and earhtworms were observed during soil sampling
SS126	DA-SS126-072607	12870		
SS131	DA-SS131-073007	12929		
SS110B	DA-SS110B-073007	14268		
SS121	DA-SS121-072607	14389	X	Mid-range PAH concentration
SS110B	DA-SS110B-073007	21947		
SS145	DA-SS145-080207	26546		
SS110	DA-SS110-073007	28576		
SS133	DA-SS133-073007	36360		
SS105B	DA-SS105B-073007	52340	X	Possible paint chips in sample and earthworms were observed during soil sampling
SS112B	DA-SS112B-073007	55210		
SS123	DA-SS123-072607	114840	X	collected in drum removal area
SS127	DA-SS127-072607	194400	X	collected in drum removal area
SS153	DA-SS153-011608*	4722J	X	Background/reference location

Notes:
1) * - sample for PAH analysis was collected at the same time as toxicity samples so this PAH data not used to select toxicity locations.
2) J - estimated concentration
3) Sample location SS153 was initially sampled in October 2004 as part of the background soil investigation (SO-05) and was determined to be adequate as a background location. Those results are presented in TtNUS September 2006.
4) PAH results presented here are based upon the July 2007 Surface Soil Sampling event.

TABLE 2-15

FISH TISSUE SAMPLE DETAILS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Location	Location Description	Sample ID	Sample Description (species/type)	Number of Fish	Length (feet)	Weight (grams)
ET01	Northern end of NUWC Pond	DA-FT-ET01-BHF-081208	Bullhead Fillet	3	0.80	152
					0.68	111
					0.65	89.9
		DA-FT-ET01-BGF-081208	Blue Gill Fillet	2	0.53	92
					0.55	100
		DA-FT-ET01-BGW-081208	Blue Gill Whole	5	0.40	35
					0.38	34
					0.34	25
					0.35	28
					0.36	28
ET02	Central area of NUWC Pond	DA-FT-ET02-BHF-081208	Bullhead Fillet	3	0.90	250
					0.68	100
					0.64	94
		DA-FT-ET02-WPF-081208	White Perch Fillet	1	0.89	306
		DA-FT-ET02-BGW-081208	Blue Gill Whole	5	0.35	34
					0.34	24
					0.34	21
					0.35	23
					0.35	28
ET03	Southern end of NUWC Pond	DA-FT-ET03-BHF-081208	Bullhead Fillet	3	0.70	113
					0.88	235
					0.85	218
FT-RP01	Melville Pond (Portsmouth)	DA-FT-RP01-BHF-081309	Bullhead Fillet	1	1.29	790
		DA-FT-RP01-BGF-081308	Blue Gill Fillet	1	0.66	200
		DA-FT-RP01-BGW-081308	Blue Gill Whole	5	0.43	49
					0.54	80
					0.24	7
					0.21	4
					0.26	9

TABLE 3-1

SUMMARY OF GROUNDWATER LEVEL MEASUREMENTS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

LOCATION	WELL ID	STICKUP RISER	ELEVATION OF RISER	DEPTH TO WATER (below TOR)	ELEVATION OF WATER (NGVD)	DEPTH TO WATER (below TOR)	ELEVATION OF WATER (NGVD)
				May 13, 2008		September 18, 2008	
North Meadow	MW-03B	3.19	47.19	23.58	23.61	23.58	23.61
	MW-114B	2.15	45.55	21.57	23.98	22.31	23.24
	MW-115B	2.17	45.27	5.43	39.84	7.01	38.26
	MW-116B	2.13	47.83	7.85	39.98	9.57	38.26
	MW-117B	2	47.00	23.36	23.64	23.33	23.67
	MW-118B	2.41	50.11	26.65	23.46	26.77	23.34
	MW-119B	-0.57	28.43	13.39	15.04	14.01	14.42
	MW-120B	2.37	47.37	21.89	25.48	22.41	24.96
South Meadow	MW-01C	2.43	52.63	12.43	40.20	13.06	39.57
	MW-04B	1.88	48.78	17.75	31.03	17.65	31.13
	MW-104B	2.01	50.41	16.29	34.12	16.16	34.25
	MW-105B	1.93	49.13	18.55	30.58	18.42	30.71
	MW-110B	1.93	49.83	13.65	36.18	13.87	35.96
	MW-111B	1.26	51.86	11.44	40.42	11.84	40.02
	MW-112S	2.55	52.55	14.08	38.47	14.38	38.17
	MW-112B	2.16	51.86	13.4	38.46	13.71	38.15
	MW-113B	1.91	51.91	12.66	39.25	13.12	38.79
	MW-122 (SB148)	3.05	31.75	4.25	27.50	4.08	27.67
	MW-123 (SB149)	3.66	33.46	5.67	27.79	5.77	27.69
Paved Storage Area	MW-02B	-0.21	51.26	4.99	46.27	--	--
	MW-100B	-0.21	51.09	8.07	43.02	7.88	43.21
	MW-101B	-0.22	51.48	11.02	40.46	11.18	40.30
	MW-102B	1.75	52.55	13.5	39.05	13.91	38.64
	MW-103S	2.11	50.81	--	--	16.45	34.36
	MW-103B	2.1	50.90	--	--	16.58	34.32
	MW-106S	-0.52	57.38	1.53	55.85	3.07	54.31
	MW-106B	-0.08	57.72	0.43	57.29	1.9	55.82
	MW-107B	-0.51	52.91	3.2	49.71	4.19	48.72
	MW-108B	-0.37	51.43	5.68	45.75	6.12	45.31
	MW-109B	-0.45	50.65	5.75	44.90	6.72	43.93
	MW-125B	-0.5	51.50	--	--	5.65	45.85
	MW-126B	-0.17	55.73	--	--	--	--
South of Paved Storage Area	MW-07A*	-0.48	56.32	6.2	50.12	5.64	50.68
	MW-07B*	-0.59	56.21	5.93	50.28	6.09	50.12
	MW-09A	0.76	54.02	7.18	46.84	7.28	46.74
	MW-09B	4.02	50.76	7.13	43.63	7.12	43.64
	MW-12	3.53	50.23	--	--	--	--
	MW-13A	3.69	51.49	--	--	3.86	47.63
	MW-13B	2.28	49.98	--	--	3.62	46.36
	MW-124B	1.85	48.95	--	--	3.68	45.27

Notes:

* Elevation of riser was calculated by subtracting the stickdown riser from the ground elevation, elevation was not surveyed

MW-02B could not be gauged during the September round because equipment had been moved in the paved storage area and the well was inaccessable

MW-103B and MW-103S were missed during the May round

MW-12 was locked during both rounds and was never sampled

MW-13A and MW-13B had not been found at the time of the May round

MW-126 was not gauged during the September round because the expandable lid had rusted to the casing

MW-124B, MW-125B and MW-126B were not gauged during the May event because they were not installed until late July

TABLE 3-2
HORIZONTAL HYDRAULIC GRADIENTS
REMEDIAL INVESTIGATION REPORT
SITE 08: NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

Monitoring Well	Distance Between Wells	Groundwater Elevation	Head Difference (1)	Horizontal Gradients (2)	Area of Site and Zone
Synoptic Water Level Round Completed Mavy 13, 2008					
MW-116B		39.98			North Meadow Bedrock
MW-117B	55	23.64	16.34	2.97E-01	
MW-115B		39.84			North Meadow Bedrock
MW-114B	72	23.98	15.86	2.20E-01	
MW-109B		44.90			Paved Storage Area to South Meadow Bedrock
MW-104B	172	34.12	10.78	6.28E-02	
MW-106B		57.29			Paved Storage Area Bedrock
MW-102B	363	39.05	18.24	5.02E-02	
MW-110B		36.18			South Meadow to Wetland; Bedrock
MW-122	108	27.50	8.68	8.04E-02	
Synoptic Water Level Round Completed September 18, 2008					
MW-106B		55.82			Paved Storage Area Bedrock
MW-103B	432	34.32	21.50	4.98E-02	
MW-106S		54.31			Paved Storage Area; Overburden / Shallow Bedrock
MW-103S	432	34.36	19.95	4.62E-02	
MW-116B		38.26			North Meadow Bedrock
MW-117B	55	23.67	14.59	2.65E-01	
MW-115B		38.26			Paved Storage Area to South Meadow Bedrock
MW-114B	72	23.24	15.02	2.09E-01	
MW-109B		43.93			Paved Storage Area Bedrock
MW-104B	172	34.25	9.68	5.63E-02	
MW-106B		55.82			Paved Storage Area Bedrock
MW-102B	363	38.64	17.18	4.73E-02	
MW-110B		35.96			South Meadow to Wetland; Bedrock
MW-122	108	27.67	8.29	7.68E-02	

Notes:
(1) head difference = the difference in elevation of the water levels between the upgradient and downgradinet monitoring well
(2) horizontal gradient = head difference divided by the distance.

All measurements reported in feet. Elevations are based on National Geodetic Vertical Datum (NGVD 1929).

TABLE 3-3

VERTICAL HYDRAULIC GRADIENTS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

Site Area	Well ID	Date	Water Elevation (NGVD)	Middle of Screen (bgs)	Middle of Screen (NGVD)	Screen or Open Borehole Depth (ft bgs)		Ground Elevation (NGVD)	Head Difference (1) (ft)	Vertical Hydraulic Gradient (2) (ft/ft)
						Top	Bottom			
Paved Storage Area	MW-103S	9/18/2008	34.36	17	31.7	14.5	19.5	48.7	-0.040	-0.0022346
	MW-103B		34.32	35	13.8	20	50	48.8		
	MW-106S	5/13/2008	55.85	14	43.9	9	19	57.9	1.440	0.06824645
	MW-106B		57.29	35	22.8	20	50	57.8		
South Meadow	MW-112S	5/13/2008	38.47	15	35.0	10	20	50.0	-0.010	-0.0005618
	MW-112B		38.46	32.5	17.2	18	47	49.7		
	MW-04B	9/18/2008	31.13	30	16.9	15	45	46.9	-0.420	-0.1544118
	MW-105B		30.71	33	14.2	18	48	47.2		
South of Paved Storage Area	MW-09A	5/13/2008	46.84	2.875	47.1	0	5.75	50.0	-3.210	-0.2501949
	MW-09B		43.63	15.705	34.3	10	21.41	50.0		
	MW-13A	9/18/2008	47.63	3	44.8	0	6	47.8	-1.270	-0.0815671
	MW-13B		46.36	18.47	29.2	13	23.94	47.7		

Notes:
All measurements reported in feet. Elevations are relative to National Geodetic Vertical Datum of 1929 (NGVD 1929).
1) head difference = the difference in elevation of the water levels between the upgradient and downgradinet monitoring well
(2) vertical gradient = head difference divided by the vertical distance.
negative vertical gradients indicate downward component to groundwater flow

TABLE 3-4

HYDRAULIC CONDUCTIVITY (K) RESULTS SUMMARY
REMEDIAL INVESTIGATION REPORT
NUSC DISPOSAL AREA 08
NAVSTA NEWPORT, RHODE ISLAND

WELL IDENTIFICATION	FALLING HEAD (Bouwer-Rice)		RISING HEAD (Bouwer-Rice)		AVERAGE K AT WELL (ft/d)	GEOLOGIC MATERIALS
	(cm/s)	(ft/d)	(cm/s)	(ft/d)		
Hydraulic Conductivity Results - Bedrock Wells						
MW-101B	1.82E-05	0.0516			0.0516	Phyllite
MW-102B	1.79E-05	0.0507			0.0507	Phyllite
MW-103B	2.43E-04	0.689			0.689	Phyllite
MW-104B	8.23E-04	2.33	9.16E-04	2.60	2.46	Phyllite/metaconglomerate
MW-106B	1.62E-04	0.459			0.459	Phyllite/metaconglomerate
MW-107B	8.31E-05	0.236			0.236	Phyllite/metaconglomerate
MW-109B	9.91E-05	0.281			0.281	Phyllite
MW-110B	3.84E-04	1.09	4.13E-04	1.17	1.13	Phyllite
MW-111B	3.95E-04	1.12			1.12	Phyllite
MW-120B	9.08E-05	0.257			0.257	Phyllite
MW-01B					2.0	Slate/Phyllite
MW-02B					1.0	Slate/Phyllite
MW-04B					5.0	Slate/Phyllite/Quartz Schist
Minimum					0.051	
Maximum					2.46	
Geometric Mean					0.552	
	FALLING HEAD (Bouwer-Rice)		**RISING HEAD (Bouwer-Rice)**		**AVERAGE K AT WELL (ft/d)**	**GEOLOGIC MATERIALS**
	(cm/s)	**(ft/d)**	**(cm/s)**	**(ft/d)**		
Hydraulic Conductivity Results - Overburden / Shallow Bedrock Wells						
MW-103S	7.10E-04	2.01	8.99E-04	2.55	2.28	Silt, some gravel, little fine to coarse sand
MW-106S	4.10E-04	1.16	3.05E-04	0.865	1.01	Silt and weathered Phyllite
Minimum	4.10E-04	1.16	3.05E-04	0.865	1.01	
Maximum	7.10E-04	2.01	8.99E-04	2.55	2.28	
Geometric Mean	5.40E-04	1.53	5.24E-04	1.48	1.52	
Hydraulic Conductivity Results - North Meadow Bedrock Wells						
MW-114B	7.08E-03	20.1	6.71E-03	19.0	19.5	Phyllite
MW-115B	1.56E-03	4.42	2.14E-03	6.07	5.24	Phyllite
MW-116B	1.53E-03	4.34	1.78E-03	5.05	4.69	Phyllite
Minimum					4.69	
Maximum					19.5	
Geometric Mean					7.83	

Notes:
1) Hydraulic conductivity estimates using the Bouwer-Rice method for RI data.
2) Hydraulic conductivity estimates for the SASE wells (MW-01B, MW-02B and MW-04B) using Cooper, Bredehoeft, and Papadopulos (1967) method.

3) Slug tests performed on MW-9B, MW105B, MW-112S, MW112B, MW-03B, MW117B, MW118B and MW119B showed insufficient response to the addition or subtraction of water from the well.

cm/s - centimeters per second
ft/d - feet per day

TABLE 3-5

GROUNDWATER FLOW VELOCITIES
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SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

Well Pair	Distance Between Wells (ft)	Head Difference (ft)	Horizontal Hydraulic Gradient[1] (ft/ft)	Hydraulic Conductivity[2] (ft/d)	Groundwater Velocity[3] (ft/day)	Geologic Unit/Location	Average Groundwater Velocity with Geologic Unit (ft/d)
Synoptic Water Level Round Completed May 13, 2008							
MW-116B AND MW-117B	55	16.34	2.97E-01	7.83E+00	1.16E+02	BEDROCK / NORTH MEADOW	1.01E+02
MW-115B AND MW-114B	72	15.86	2.20E-01	7.83E+00	8.62E+01	BEDROCK / NORTH MEADOW	
MW-109B AND MW-104B	172	10.78	6.27E-02	5.52E-01	1.73E+00	BEDROCK / PAVED STORAGE AREA ; SOUTH MEADOW	1.97E+00
MW-110B AND MW-122	108	8.68	8.04E-02	5.52E-01	2.22E+00	BEDROCK / SOUTH MEADOW ; WETLAND	
MW-106B AND MW-102B	363	18.24	5.02E-02	5.52E-01	1.39E+00	BEDROCK / PAVED STORAGE AREA	1.39E+00
Synoptic Water Level Round Completed September 18, 2008							
MW-106S AND MW-103S	432	19.95	4.62E-02	1.52E+00	3.51E-01	OVERBURDEN / SHALLOW BEDROCK / PAVED STORAGE AERA	3.51E-01
MW-116B AND MW-03B	99	14.65	1.48E-01	7.83E+00	5.79E+01	BEDROCK / NORTH MEADOW	6.98E+01
MW-115B AND MW-114B	72	15.02	2.09E-01	7.83E+00	8.17E+01	BEDROCK / NORTH MEADOW	
MW-109B AND MW-104B	172	9.68	5.63E-02	5.52E-01	1.55E+00	BEDROCK / PAVED STORAGE AREA ; SOUTH MEADOW	1.84E+00
MW-110B AND MW-122	108	8.29	7.68E-02	5.52E-01	2.12E+00	BEDROCK / SOUTH MEADOW ; WETLAND	
MW-106B AND MW-103B	432	21.50	4.98E-02	5.52E-01	1.37E+00	BEDROCK / PAVED STORAGE AREA	1.34E+00
MW-106B AND MW-102B	363	17.18	4.73E-02	5.52E-01	1.31E+00	BEDROCK / PAVED STORAGE AREA	

Notes:
1) Calculated horizontal hydraulic gradients from Table 3-2.
2) Calculated geometric mean hydraulic conductivity (K) values presented on Table 3-6.
3) Groundwater velocity calculated using the modified Darcy equation (V = Ki/n), where V = groundwater velocity, K = hydraulic conductivity, i = hydraulic gradient, and n = effective porosity. The groundwater velocity is calculated for the overburden and bedrock using effective porosities of 0.2 and 0.02, respectively, based on comparison of geologic descriptions with published textbook values (Fetter, 1994).

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Parameter	ORNL Regional Screeing Levels [1] Direct Contact Residential (mg/kg)	RIDEM Direct Contact Residential (mg/kg)[2]	Ecological Screening Level (mg/kg)	Source
Volatile Organic Compounds				
1,2,4-Trimethylbenzene	67 N	NA	NA	NA
1,3,5-Trimethylbenzene	47 N	NA	NA	NA
2-Butanone	28,000 N	10,000	NA	NA
4-Isopropyltoluene	NA	NA	NA	NA
Acetone	61,000 N	7,800	NA	NA
Benzene	1.1 C	3	25	CCME
BTEX	NA	NA	NA	NA
Carbon Disulfide	670 N	NA	NA	NA
Chloroform	0.3 C	1.2	20	TV
cis-1,2-Dichloroethene	780 N	630	NA	NA
Total 1,2-Dichloroethene	700 N	NA	NA	NA
Ethylbenzene	5.7 C	71	55	CCME
Isopropylbenzene	2,200 N	NA	NA	NA
m+p-Xylenes	4,500 N[3]	NA	65	CCME
Methylene Chloride	11 C	45	0.4	TV
N-Butylbenzene	NA	NA	NA	NA
N-Propylbenzene	NA	NA	NA	NA
o-Xylene	5,300 N	NA	65	CCME
sec-Butylbenzene	NA	NA	NA	NA
Tert-Butylbenzene	NA	NA	NA	NA
Tetrachloroethene	0.57 C	12	3.8	CCME
Total 1,2-Dichloroethene	700	NA	NA	NA
Total Chlorinated Ethenes	NA	NA	NA	NA
Total Chlorinated VOCs	NA	NA	NA	NA
Toluene	5,000 N	190	75	CCME
Trichloroethene	2.8 C	13	3	CCME
Vinyl Chloride	0.06 C	0.02	NA	NA
Total Xylenes	600 N	110	65	CCME
Semivolatile Organic Compounds				
1,1-Biphenyl	3,900 N	NA	60	Reg 4/ORNL Plant
2,4-Dimethylphenol	1,200 N	NA	NA	NA
2,4-Dinitrophenol	120 N	160	NA	NA
2-Methylnaphthalene	310 N	123	29	ECO-SSL
3,3'-Dichlorobenzidine	1.1 C	1.4	NA	NA
3&4-Methylphenol	310 N[4]	NA	NA	NA
4,6-Dinitro-2-Methylphenol	6.1 N	NA	NA	NA
4-Nitroaniline	180 N[5]	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA
Acenaphthene	3,400 N	43	29	ECO-SSL
Acenaphthylene	3,400 N[6]	23	29	ECO-SSL
Anthracene	17,000 N	35	29	ECO-SSL
Benzo(a)anthracene	0.15 C	0.9	1.1	ECO-SSL
Benzo(a)pyrene	0.015 C	0.4	1.1	ECO-SSL
Benzo(b)fluoranthene	0.15 C	0.9	1.1	ECO-SSL
Benzo(g,h,i)perylene	1,700 N[7]	0.8	1.1	ECO-SSL
Benzo(k)fluoranthene	1.5 C	0.9	1.1	ECO-SSL
Benzaldehyde	7,800	NA	NA	NA
Benzoic Acid	240,000 N	NA	NA	NA
Bis(2-ethylhexyl)phthalate	35 C	46	0.1	TV
Butyl Benzyl Phthalate	260 N	NA	0.1	TV
Carbazole	NA	NA	NA	NA
Chrysene	15 C	0.4	1.1	ECO-SSL
Dibenzo(a,h)anthracene	0.015 C	0.4	1.1	ECO-SSL
Dibenzofuran	NA	NA	NA	NA
DI-N-Butyl Phthalate	NA	NA	NA	NA
Fluoranthene	2,300 N	20	29	ECO-SSL
Fluorene	2,300 N	28	29	ECO-SSL
High molecular weight PAHs	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.15 C	0.9	1.1	ECO-SSL
Low Molecular weight PAHs	NA	NA	NA	NA
Naphthalene	3.9 C	54	29	ECO-SSL
N-Nitrosodiphenylamine	99 C	NA	20	Reg 4/ORNL Invert
Pentachlorophenol	3 C	5	NA	NA

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Parameter	ORNL Regional Screeing Levels [1] Direct Contact Residential (mg/kg)	RIDEM Direct Contact Residential (mg/kg)[2]	Ecological Screening Level (mg/kg)	Source
Semivolatile Organic Compounds (Continued)				
Phenanthrene	1,700 N[7]	40	29	ECO-SSL
Phenol	18,000 N	6,000	NA	NA
Pyrene	1,700 N	13	1.1	ECO-SSL
Total PAHs	NA	NA	NA	NA
Pesticides/PCBs				
4,4'-DDD	2 C	NA	0.021	ECO-SSL
4,4'-DDE	1.4 C	NA	0.021	ECO-SSL
4,4'-DDT	1.7 C	NA	0.021	ECO-SSL
alpha-Chlordane	1.6 C[8]	0.5 (8)	0.00003	TV
Aroclor-1248	0.22 C	10[9]	40	ORNL Plant
Aroclor-1254	1.1N[5]	10[9]	40	ORNL Plant
Aroclor-1260	0.22 C	10[9]	40	ORNL Plant
Aroclor-1268	0.22 C[10]	10[9]	40	ORNL Plant
Dieldrin	0.03 C	0.04	0.49	ECO-SSL
Endosulfan II	370 N[11]	NA	0.00001	TV
Endosulfan Sulfate	370 N[11]	NA	NA	NA
Endrin	18 N	NA	0.00004	TV
Endrin Aldehyde	18 N[12]	NA	NA	NA
gamma-Chlordane	1.6 C[8]	0.5[8]	0.00003	TV
Heptachlor	0.11 C	NA	0.0007	TV
Total Aroclor	0.22 C[13]	10	40	ORNL Plant
Total DDD/DDE/DDT	NA	NA	0.021	ECO-SSL
Toxaphene	0.44 C	NA	NA	NA
Metals				
Aluminum	77,000 N	NA	pH<5.5	ECO-SSL
Antimony	31 N	10	0.00027	ECO-SSL
Arsenic	0.39 C	7	0.018	ECO-SSL
Barium	15,000 N	5,500	0.33	ECO-SSL
Beryllium	160 N	0.4	0.021	ECO-SSL
Cadmium	70 N	39	0.00036	ECO-SSL
Calcium	NA	NA	NA	NA
Chromium	230 N[5,15]	390[15]	0.026	ECO-SSL
Cobalt	23 N	NA	0.013	ECO-SSL
Copper	3,100 N	3,100	0.028	ECO-SSL
Iron	55,000 N	NA	pH<5, pH>8	ECO-SSL
Lead	400	150	0.011	ECO-SSL
Magnesium	NA	NA	NA	NA
Manganese	1,800 N	390	0.220	ECO-SSL
Mercury	23 N	23	0.00010	Reg 4/ORNL Invert
Molybdenum	390 N	NA	0.002	Reg 4/ORNL Plant
Nickel	1,600 N	1,000	0.038	ECO-SSL
Potassium	NA	NA	NA	NA
Selenium	390 N	390	0.00052	ECO-SSL
Silver	390 N	200	0.0042	ECO-SSL
Sodium	NA	NA	NA	NA
Thallium	5.1 N	6	0.0001	Reg 4/ORNL Plant
Vanadium	390 N	550	0.0078	ECO-SSL
Zinc	23,000 N	6,000	0.046	ECO-SSL
Petroleum Hydrocarbons				
Extractable Petroleum Hydrocarbons	NA	500	NA	NA
Gasoline Range Organics	NA	NA	NA	NA
TPH (C09-C36)	NA	500	NA	NA
Diesel Range Organics	NA	NA	NA	NA
Gasoline Range Organics	NA	NA	NA	NA

Notes:

1 - Oak Ridge National Laboratory Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.
[Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].

2 - Rhode Island Department of Environmental Management (RIDEM), DEM-DSR-01-93, February 2004.

3 - Value is for m-xylene.

4 - Value is for 4-methylphenol.

5 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.

6 - Value is for acenaphthene.

7 - Value is for pyrene.

8 - Value is for Chlordane.

9 - Value is for total PCBs.

10 - Value is for Aroclor-1260.

11 - Value is for Endosulfan.

12 - Value is for Endrin.

13 - Value is for high risk polychlorinated biphenyls.

14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.

15 - Value is for hexavalent chromium.

TABLE 4-1

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Parameter	ORNL Regional Screeing Levels [(1)] Direct Contact Residential (mg/kg)	RIDEM Direct Contact Residential (mg/kg)[(2)]	Ecological Screening Level (mg/kg)	Source

N - Noncarcinogenic
C - Carcinogenic

Screening Level Sources and Order of Preference:

1. Eco SSL – EPA Ecological Soil Screening Levels (U.S. EPA, 2003, 2005, 2006, 2007)
2. Region 4 – EPA Region IV Soil Screening Levels (U.S. EPA, 2001b) (Region 4 values that are based on the Dutch Target Value are used last in the order of preference.
3. CCME - Canadian Council and Minisiters of Environment
4a. ORNL Plant - Oak Ridge National Laboratory Plant Toxicological Bencmark (Efroymson, et al. 1997a).
4b. ORNL Invert - Oak Ridge National Laboratory Invertebrate Toxicological Bencmark (Efroymson, et al. 1997b).
5. TV - Target Value (MHSPE, 2006)

GROUNDWATER SCREENING CRITERIA
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Parameter	ORNL Regional Screening Level[1] Tap Water (ug/L)	USEPA MCL[2] (ug/L)	RIDEM GA Groundwater Objective[3] (ug/L)
Volatile Organic Compounds			
1,1,1-Trichloroethane	9,100 N	200	200
1,1,2-Trichloroethane	0.24 C	5	5
1,1-Dichloroethane	2.4 C	NA	NA
1,1-Dichloroethene	340 N	7	7
1,2,4-Trimethylbenzene	15 N	NA	NA
1,3,5-Trimethylbenzene	12 N	NA	NA
1,4-Dichlorobenzene	0.43 C	75	75
4-Isopropyltoluene	NA	NA	NA
2-Butanone	7,100 N	NA	NA
Acetone	22,000 N	NA	NA
Benzene	0.41 C	5	5
Bromomethane	8.7 N	NA	NA
Carbon Disulfide	1,000 N	NA	NA
Carbon Tetrachloride	0.2 C	5	5
Chloroethane	21,000 N	NA	NA
Chloroform	0.19 C	80	NA
Chloromethane	1.8 C	NA	NA
cis-1,2-Dichloroethene	370 N	70	70
Ethylbenzene	1.5 C	700	700
Isopropylbenzene	680 N	NA	NA
m+p-Xylenes	NA	10,000[4]	10,000[4]
N-Butylbenzene	NA	NA	NA
N-Propylbenzene	NA	NA	NA
o-Xylene	1,400 N	10,000[4]	10,000[4]
sec-Butylbenzene	NA	NA	NA
Tert-Butylbenzene	NA	NA	NA
Tetrachloroethene	0.11 C	5	5
Toluene	2,300 N	1,000	1,000
Total Chlorinated Ethenes	NA	NA	NA
Total Chlorinated VOCs	NA	NA	NA
Total 1,2-Dichloroethene	330 N	NA	NA
Total Xylenes	200 N	10,000	10,000
trans-1,2-Dichloroethene	110 N	100	100
Trichloroethene	1.7 C	5	5
Vinyl Chloride	0.016 C	2	2

GROUNDWATER SCREENING CRITERIA
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Parameter	ORNL Regional Screening Level[1] Tap Water (ug/L)	USEPA MCL[2] (ug/L)	RIDEM GA Groundwater Objective[3] (ug/L)
Semivolatile Organic Compounds			
Benzo(k)fluoranthene	0.29 C	NA	NA
Benzyl Alcohol	18,000 N	NA	NA
Bis(2-ethylhexyl)phthalate	4.8 C	6	6
di-n-Butyl Phthalate	3700 N	NA	NA
High Molecular Weight PAHs	NA	NA	NA
Low Molecular Weight PAHs	NA	NA	NA
Phenanthrene	1,100 N[5]	NA	NA
Total PAHs	NA	NA	NA
Pesticides/PCBs			
Dieldrin	0.0042 C	NA	NA
Metals			
Aluminum	37,000 N	50 to 200[6]	NA
Antimony	15 N	6	6
Arsenic	0.045 C	10	NA
Barium	7,300 N	2,000	2,000
Beryllium	73 N	4	4
Calcium	NA	NA	NA
Chromium	110 N[7]	100	100
Cobalt	11 N	NA	NA
Copper	1,500 N	1,300[8]	NA
Iron	26,000 N	300 [6]	NA
Lead	NA	15[8]	15
Magnesium	NA	NA	NA
Manganese	880 N	50[6]	NA
Mercury	11 N	2	2
Molybdenum	180 N	NA	NA
Nickel	730 N	NA	100
Potassium	NA	NA	NA
Selenium	180 N	50	50
Silver	180 N	100[6]	NA
Sodium	NA	NA	NA
Thallium	2.4 N	2	2
Vanadium	180 N	NA	NA
Zinc	11,000 N	5000[6]	NA
Miscellaneous Parameters			
Ammonia-N	NA	NA	NA
Methane	NA	NA	NA
Nitrate-N	58,000 N	10,000	NA
Nitrite-N	3,700 N	1,000	NA
Orthophosphate-P	NA	NA	NA
Sulfate	NA	250,000[6]	NA
Sulfide	NA	NA	NA
Total Organic Carbon	NA	NA	NA

GROUNDWATER SCREENING CRITERIA
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Parameter	ORNL Regional Screening Level[1] Tap Water (ug/L)	USEPA MCL[2] (ug/L)	RIDEM GA Groundwater Objective[3] (ug/L)
Petroleum Hydrocarbons			
Gasoline Range Organics	NA	NA	NA
ETPH (C09-C36)	NA	NA	NA

Notes:

1 - Oak Ridge National Laboratory Regional (ORNL) Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008. [Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].

2 - 2006 Edition of the Drinking Water Standards and Health Advisories (USEPA, August 2006).

3 - RIDEM, DEM-DSR-01-93, February 2004.

4 - Value is for total xylenes.

5 - Value is for pyrene.

6 - Secondary MCL.

7 - Value is for hexavalent chromium.

8 - The MCL for this parameter is actually a treatment technique. The SDWA action level (at the tap) has been presented.

C indicates carcinogenic

N indicates non-carcinogenic

NA indicates not available

TABLE 4-3

SURFACE WATER SCREENING CRITERIA
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	ORNL [1] Regional Screening Level Tap Water (ug/L)	USEPA MCL [2] (ug/L)	RIDEM GA Groundwater Objective [3] (ug/L)	Source of Screening Level
Volatile Organic Compounds				
1,1,1-Trichloroethane	9,100 N	200	200	SCV
1,1-Dichloroethane	2.4 C	NA	NA	SCV
Acetone	22,000 N	NA	NA	SCV
BTEX	NA	NA	NA	NA
Carbon Tetrachloride	0.2 C	5	5	RIDEM
Cis-1,2-Dichloroethene	370 N	70	70	SCV
Toluene	2,300 N	1,000	1,000	RIDEM
Total 1,2-Dichloroethene	330 N	NA	NA	SCV
Total Chlorinated Ethenes	NA	NA	NA	NA
Total Chlorinated VOCs	NA	NA	NA	NA
Trichloroethene	1.7 C	5	5	RIDEM
Semivolatile Organic Compounds				
Bis (2-Ethylhexyl)Phthalate	4.8 C	6	6	RIDEM
Pesticides				
4,4'-DDE	0.2 C	NA	NA	SCV
4,4'-DDT	0.2 C	NA	NA	NRWQC
Dieldrin	0.0042 C	NA	NA	NRWQC
TOTAL DDD/DDE/DDT	NA	NA	NA	NRWQC
Metals				
Aluminium	37,000 N	50 to 200[4]	NA	NRWQC
Antimony	15 N	6	6	RIDEM
Arsenic	0.045 C	10	NA	NRWQC
Barium	7,300 N	2,000	2,000	SCV
Calcium	NA	NA	NA	NA
Chromium	110 N[5]	100	100	NRWQC
Cobalt	11 N	NA	NA	SCV
Copper	1,500 N	1,300 [6]	NA	NRWQC
Iron	26,000 N	300[4]	NA	NRWQC
Lead	NA	15[6]	15	NRWQC
Magnesium	NA	NA	NA	NA
Manganese	880 N	50[4]	NA	SCV
Mercury	11 N	2	2	NRWQC
Molybdenum	180 N	NA	NA	SCV
Nickel	730 N	NA	100	NRWQC
Potassium	NA	NA	NA	NA
Sodium	NA	NA	NA	NA
Vanadium	180 N	NA	NA	SCV
Zinc	11,000 N	5,000[4]	NA	NRWQC

Notes:

1 - Oak Ridge National Laboratory Regional (ORNL) Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008. [Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].

2 - 2006 Edition of the Drinking Water Standards and Health Advisories (USEPA, August 2006).

3 - RIDEM, DEM-DSR-01-93, February 2004.

4 - Secondary MCL.

5 - Value is for hexavalent chromium.

6 - The MCL for this parameter is actually a treatment technique. The SDWA action level (at the tap) has been presented.

Screening Level Sources and Order of Preference:

1. NRWQC - National Recommended Water Quality Criteria (USEPA, 2006)
2. RIDEM - Rhode Island Department of Environmental Management (RIDEM, 2004)
3. SCV - Secondary Chronic Values (Suter and Tsao, 1996)

NA - Not available

SEDIMENT SCREENING CRITERIA
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Parameter	ORLN Regional Screening Levels [1] Direct Contact Residential (ug/kg)	RIDEM[2] Direct Contact Residential (ug/kg)	Ecological Screening Level (ug/kg)	Source
Volatile Organic Compounds				
1,1,1-Trichloroethane	NA	NA	170	EPA SQB
1,1-Dichloroethane	NA	NA	27	SCV
1,2,4- Trichlorobenzene	NA	NA	9,200	EPA SQB
2-Butanone	28,000,000 N	10,000,000	270	SCV
4-Isopropyltoluene	NA	NA	NA	NA
Acetone	61,000,000 N	7,800,000	9	SCV
BTEX	NA	NA	NA	NA
Carbon Disulfide	670,000 N	NA	0.85	SCV
Chloroethane	NA	NA	NA	NA
cis-1,2-Dichloroethene	780,000 N	630,000	400	SCV
Dichlorodifluoromethane	NA	NA	NA	NA
m+p Xylenes	4,500,000 N[3]	NA	4	NOAA
Tetrachloroethene	570 C	12,000	530	EPA SQB
Toluene	5,000,000 N	190,000	670	EPA SQB
Total 1,2-Dichloroethene	700,000 N	NA	400	SCV
Total Chlorinated Ethenes	NA	NA	NA	NA
Total Chlorinated VOCs	NA	NA	NA	NA
Total Xylenes	600,000 N	110,000	4	NOAA
Trichloroethene	2,800 C	13,000	1,600	EPA SQB
Semivolatile Organic Compounds				
2-Methylnaphthalene	310,000 N	123,000	20.2	NOAA
Acenaphthene	3,400,000 N	43,000	290	NOAA
Acenaphthylene	3,400,000 N[6]	23,000	160	NOAA
Anthracene	17,000,000 N	35,000	57.2	TEC
Benzaldehyde	7,800,000	NA	NA	NA
Benzo(a)Anthracene	150 C	900	108	TEC
Benzo(a)Pyrene	15 C	400	150	TEC
Benzo(b)Fluoranthene	150 C	900	1,800	NOAA
Benzo(g,h,i)Perylene	1,700,000 N[7]	800	170	LEL
Benzo(k)Fluoranthene	1500 C	900	240	LEL
Benzoic Acid	240,000,000 N	NA	65	NOAA
Benzyl Alcohol	NA	NA	52	NOAA
Bis(2-Ethylhexyl)Phthalate	35,000 C	46,000	750	NOAA
Butyl Benzyl Phthalate	260,000 N	NA	11,000	EPA SQB
Carbazole	NA	NA	NA	NA
Chrysene	15,000 C	400	166	TEC
Di-n-Butyl Phthalate	NA	NA	11,000	EPA SQB
Dibenzo(a,h)Anthracene	15 C	400	33	TEC
Dibenzofuran	NA	NA	2,000	EPA SQB
Diethyl Phthalate	NA	NA	630	EPA SQB
Fluoranthene	2,300,000 N	20,000	423	TEC
Fluorene	2,300,000 N	28,000	77.4	TEC
High Molecular Weight PAHs	NA	NA	193	NOAA
Indeno(1,2,3-cd)Pyrene	150 C	900	200	LEL
Low Molecular Weight PAHs	NA	NA	76.4	NOAA
Naphthalene	3,900 C	54,000	176	TEC
Phenanthrene	1,700,000 N[7]	40,000	204	TEC
Phenol	NA	NA	48	NOAA
Pyrene	1,700,000 N	13,000	195	TEC
Total PAHS	NA	NA	1,610	TEC

SEDIMENT SCREENING CRITERIA
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
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PAGE 2 OF 3

Parameter	ORLN Regional Screening Levels [1] Direct Contact Residential (ug/kg)	RIDEM[2] Direct Contact Residential (ug/kg)	Ecological Screening Level (ug/kg)	Source
Pesticides/PCBs				
4,4'-DDD	2,000 C	NA	4.88	TEC
4,4'-DDE	1,400 C	NA	3.16	TEC
4,4'-DDT	1,700 C	NA	4.16	TEC
Aldrin	NA	NA	2	LEL
Alpha-Chlordane	1,600 C[8]	500	3.24	TEC
Aroclor-1254	1,100 N[5]	10,000	59.8	TEC
Aroclor-1260	220 C	10,000	59.8	TEC
Aroclor-1268	220 C[10]	10,000	59.8	TEC
Dieldrin	30 C	40	120	EPA SQB
Endosulfan Sulfate	370,000 N[11]	NA	14	EPA SQB
Endrin Ketone	NA	NA	54	EPA SQB
Gamma-BHC (Lindane)	NA	NA	2.37	TEC
Gamma-Chlorodane	1,600 C[8]	500	3.24	TEC
Total Aroclor	240 C[13]	10,000	59.8	TEC
Total DDD/DDE/DDT	NA	NA	5.28	TEC
Metals				
Aluminum	77,000,000 N	NA	25,500,000	NOAA
Antimony	31,000 N	10,000	3,000	NOAA
Arsenic	390 C	7,000	9,790	TEC
Barium	15,000,000 N	5,500,000	48,000	NOAA
Beryllium	160,000 N	400	NA	NA
Cadmium	70,000 N	39,000	990	TEC
Calcium	NA	NA	NA	NA
Chromium	230,000 N[5,15]	390,000	43,400	TEC
Cobalt	23,000 N	NA	50,000	LEL
Copper	3,100,000 N	3,100,000	31,600	TEC
Iron	55,000,000 N	NA	20,000,000	LEL
Lead	400,000	150,000	35,800	TEC
Magnesium	NA	NA	NA	NA
Manganese	1,800,000 N	390,000	460,000	LEL
Mercury	23,000 N	23,000	180	TEC
Molybdenum	390,000 N	NA	NA	NA
Nickel	1,600,000 N	1,000,000	22,700	TEC
Potassium	NA	NA	NA	NA
Selenium	390,000 N	390,000	1,000	NOAA
Silver	390,000 N	200,000	500	LEL
Sodium	NA	NA	NA	NA
Vanadium	390,000 N	550,000	57,000	NOAA
Zinc	23,000,000 N	6,000,000	121,000	TEC
AVS/SEM				
Acid Volatile Sulfide	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA
Chromium	NA	NA	NA	NA
Copper	NA	NA	NA	NA
Lead	NA	NA	NA	NA
Mercury	NA	NA	NA	NA
Nickel	NA	NA	NA	NA
SEM	NA	NA	NA	NA
Total SEM-AVS	NA	NA	NA	NA
Zinc	NA	NA	NA	NA

SEDIMENT SCREENING CRITERIA
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

Parameter	ORLN Regional Screening Levels [1] Direct Contact Residential (ug/kg)	RIDEM[2] Direct Contact Residential (ug/kg)	Ecological Screening Level (ug/kg)	Source
Petroleum Hydrocarbons				
Diesel Range Orgaincs	NA	NA	NA	NA
Extractable Petroleum Hydrocarbons	NA	500	NA	NA
Gasolin Range Organics	NA	NA	NA	NA
ETPH (C09-C36)	NA	500	NA	NA

Notes:
1 - Oak Ridge National Laboratory Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.
[Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].
2 - Rhode Island Department of Environmental Management (RIDEM), DEM-DSR-01-93, February 2004.
3 - Value is for m-xylene.
4 - Value is for 4-methylphenol.
5 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.
6 - Value is for acenaphthene.
7 - Value is for pyrene.
8 - Value is for Chlordane.
9 - Value is for total PCBs.
10 - Value is for Aroclor-1260.
11 - Value is for Endosulfan.
12 - Value is for Endrin.
13 - Value is for high risk polychlorinated biphenyls.
14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
15 - Value is for hexavalent chromium.
N - Noncarcinogenic
C - Carcinogenic

Screening Level Sources and Order of Preference:
1. TEC - Threshold Effects Concentration (MacDonald, et al., 2000)
2. LEL - Lowest Effects Level (Persaud, et al., 1993)
3. EPA SQB - U.S. Environmental Protection Agency Sediment Quality Benchmark (USEPA, 1996)
4. NOAA - National Oceanic and Atmospheric Administration (Buchman, 1999)
5. SCV - Secondary Chronic Value (Jones, et al., 1997)

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
ECOLOGICAL	Benthic	DA-ET01-0006	0-6"																		X
		DA-ET106-0006	0-6"																		X
		DA-ET107-0006	0-6"																		X
		DA-ET108-0006	0-6"																		X
		DA-ET110-0006	0-6"																		X
		DA-ET111-0006	0-6"																		X
		DA-ET112-0006	0-6"																		X
		DA-ET114-0006	0-6"																		X
		DA-ET116-0006	0-6"																		X
		DA-ET119-0006	0-6"																		X
		DA-ET121-0006	0-6"																		X
		DA-ET125-0006	0-6"																		X
		DA-ET133-0006	0-6"																		X
		DA-ET-RP01-0006	0-6"																		X
		DA-ET-RP02-0006	0-6"																		X
		DA-ET-RP03-0006	0-6"																		X
		DA-ET-RP04-0006	0-6"																		X
		DA-ET-RP05-0006	0-6"																		X
		DA-ET-RP06-0006	0-6"																		X
	Earth worms	DA-EW-MW103-080708	N/A			X	X													X	
		DA-EW-MW105-080708	N/A			X	X													X	
		DA-EW-MW113-080608	N/A			X	X													X	
		DA-EW-SB134-080608-D	N/A			X	X													X	
		DA-EW-MW115-080608	N/A			X	X													X	
		DA-EW-SB104-080708	N/A			X	X													X	
		DA-EW-SB108-080708	N/A			X	X													X	
		DA-EW-SB121-080708	N/A			X	X													X	
		DA-EW-SB123-080608	N/A			X	X													X	
		DA-EW-SB130-080708	N/A			X	X													X	
		DA-EW-SB134-080608	N/A			X	X													X	
		DA-EW-SB153-080708	N/A			X	X													X	
	Fish Tissue	DA-FT-ET01-BGF-081208	N/A			X	X													X	
		DA-FT-ET01-BGW-081208	N/A			X	X													X	
		DA-FT-ET01-BHF-081208	N/A			X	X													X	
		DA-FT-ET02-BGW-081208	N/A			X	X													X	
		DA-FT-ET02-BHF-081208	N/A			X	X													X	
		DA-FT-ET02-WPF-081208	N/A			X	X													X	
		DA-FT-ET03-BHF-081208	N/A			X	X													X	
		DA-FT-ET03-BHF-081208-D	N/A			X	X													X	
		DA-FT-RP01-BGF-081308	N/A			X	X													X	
		DA-FT-RP01-BGW-081308	N/A			X	X													X	
		DA-FT-RP01-BHF-081308	N/A			X	X													X	
	QC	DA-FT-RB01-081208	N/A		X	X															
SURFACE WATER		DA-SW01-012308	N/A		X	X	X			X											
		DA-SW01-013108	N/A	X																	
		DA-SW106-012308	N/A		X	X	X			X											
		DA-SW106-013108	N/A	X																	
		DA-SW107-012308	N/A		X	X	X			X											
		DA-SW107-013108	N/A	X																	
		DA-SW108-012308	N/A		X	X	X			X											
		DA-SW108-013108	N/A	X																	
		DA-SW110-012308	N/A		X	X	X			X											
		DA-SW110-012308-D	N/A		X	X	X			X											
		DA-SW110-013108	N/A	X																	
		DA-SW110-013108-D	N/A	X																	
		DA-SW111-012308	N/A		X	X	X			X											
		DA-SW111-013108	N/A	X																	
		DA-SW112-012308	N/A		X	X	X			X											
		DA-SW112-013108	N/A	X																	
		DA-SW114-0508	N/A	X	X	X	X			X											
		DA-SW116-0508	N/A	X	X	X	X			X											
		DA-SW116-0508-D	N/A	X	X	X	X			X											
		DA-SW-117-082108	N/A	X	X	X	X			X			X								
		DA-SW-119-0508	N/A	X	X	X	X			X											
		DA-SW121-0508	N/A	X	X	X	X			X											
		DA-SW125-0508	N/A	X	X	X	X			X											
		DA-SW133-012308	N/A		X	X	X			X											
		DA-SW133-013108	N/A	X																	
		DA-SW-RP01-0508	N/A	X	X	X	X			X											
		DA-SW-RP02-0508	N/A	X	X	X	X			X											
		DA-SW-RP04-0508	N/A	X	X	X	X			X											
	Quality Control	DA-SW-RB01	N/A	X	X	X				X											
		DA-SW-TB01	N/A	X																	
		DA-SW-TB02	N/A	X																	
		DA-SW-TB03-0508	N/A	X																	
		DA-SWRB-01-012308	N/A							X											

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
SEDIMENT	<1' of Water	DA-S-SD01-01 (-071107 for lead)	0-6"	X	X	X	X	X						X	X		X				
		DA-S-SD02-01 (SASE Only)	0-6"	X	X	X	X										X				
		DA-S-SD03-01 (SASE Only)	0-6"	X	X	X	X										X				
		DA-S-SD04-01 (SASE Only)	0-6"	X	X	X	X										X				
		DA-S-SD05-01 (SASE Only)	0-6"	X	X	X	X										X				
		DA-S-SD06-01 (SASE Only)	0-6"	X	X	X	X										X				
		DA-SD100-071207	0-6"					X													
		DA-SD101-071207	0-6"					X													
		DA-SD102-071207	0-6"					X													
		DA-SD102-071207-D	0-6"					X													
		DA-SD103-071107	0-6"					X													
		DA-SD104-071107	0-6"					X													
		DA-SD105-071107	0-6"					X													
		DA-SD106-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD106-0006-D	0-6"	X	X	X	X														
		DA-SD106-071107	0-6"					X													
		DA-SD107-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD107-071107	0-6"					X													
		DA-SD108-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD108-071107	0-6"					X													
		DA-SD109-071107	0-6"					X													
		DA-SD110-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD110-071107	0-6"					X													
		DA-SD111-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD111-071107	0-6"					X													
		DA-SD112-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD112-071107	0-6"					X													
		DA-SD112-071107-D	0-6"					X													
		DA-SD113-071107	0-6"					X													
		DA-SD114-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD114-071107	0-6"					X													
		DA-SD115-071107	0-6"					X													
		DA-SD116-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD116-071707	0-6"					X													
		DA-SD-117-082108	0-6"	X	X	X	X						X								
		DA-SD118-071107	0-6"					X													
		DA-SD-128-082108	0-6"	X	X	X	X						X								
		DA-SD-129-082108	0-6"	X	X	X	X						X								
		DA-SD-130-082108	0-6"	X	X	X	X						X								
		DA-SD-131-082108	0-6"	X	X	X	X						X								
		DA-SD132-071207	0-6"					X													
		DA-SD133-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD133-071207	0-6"					X													
		DA-SD134-0006	0-6"	X	X	X	X						X	X	X	X					
	>1' of Water	DA-SD119-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD119-0006-D	0-6"	X	X	X	X						X	X	X	X					
		DA-SD-119-0424	4-24"	X	X	X	X						X								
		DA-SD119-071707	0-6"					X													
		DA-SD120-071707	0-6"					X													
		DA-SD121-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD121-071707	0-6"					X													
		DA-SD122-071707	0-6"					X													
		DA-SD123-071707	0-6"					X													
		DA-SD124-071607	0-6"					X													
		DA-SD125-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD-125-0424	4-24"	X	X	X	X						X								
		DA-SD125-071607	0-6"					X													
		DA-SD125-071607-D	0-6"					X													
		DA-SD126-071607	0-6"					X													
		DA-SD127-071607	0-6"					X													
	BR >1' of Water	DA-SD-RP01-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD-RP02-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD-RP03-0006	0-6"	X	X	X	X						X	X	X	X					
	BR <1' of Water	DA-SD-RP04-0006	0-6"	X	X	X	X						X	X	X	X					
		DA-SD-RP05-0006	0-6"	X	X	X	X						X	X	X	X					
	Quality Control	DA-SD-RB01	N/A	X	X	X															
		DA-SD-TB01	N/A	X									X								
		DA-SD-TB02	N/A	X									X								
		DA-SD-TB03	N/A	X									X								
		DA-SD-TB04	N/A	X									X								

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
SOIL	Unexposed Surface Soil	DA-B100B-0002	0-2'	X	X	X	X						X								
		DA-B100B-0002-D	0-2'	X	X	X	X						X								
		DA-B101B-0002	0-2'	X	X	X	X						X								
		DA-SB100-0002	0-2'	X	X	X	X						X								
		DA-SB101-0002	0-2'		X	X	X						X								
		DA-SB102-0002	0-2'	X	X	X	X						X								
		DA-B107B-0002	0-2'	X	X	X	X						X								
		DA-B108B-0002	0-2'	X	X	X	X						X								
		DA-B109B-0002	0-2'	X	X	X	X						X								
		DA-SB111-0002	0-2'	X	X	X	X						X								
		DA-SB112-0002	0-2'	X	X	X	X						X								
		DA-SB113-0002	0-2'	X	X	X	X						X								
		DA-SB114-0002	0-2'	X	X	X	X						X								
		DA-SB115-0002	0-2'	X	X	X	X						X								
		DA-SB116-0002	0-2'	X	X	X	X						X								
		DA-SB117-0002	0-2'	X	X	X	X						X								
		DA-SB119-0002	0-2'	X	X	X	X						X								
		DA-SB120-0002	0-2'	X	X	X	X						X								
		DA-SS-B125B-0103-072108	1-3'	X	X								X								
		DA-SS-B125B-0103-072108-D	1-3'	X	X								X								
		DA-SS-B126B-0103-072208	1-3'	X	X								X								
		DA-SB150-0002	0-2'	X	X	X	X						X								
		DA-SB151-0002	0-2'	X	X	X	X						X								
	Unexposed Subsurface Soil	DA-B100B-0608	6-8'	X	X	X	X						X								
		DA-B101B-0406	4-6'	X	X	X	X						X								
		DA-SB100-0204	2-4'	X	X	X	X						X								
		DA-SB101-0608	6-8'	X	X	X	X						X								
		DA-SB101-0608-D	6-8'	X	X	X	X						X								
		DA-SB102-0305	3-5'	X	X	X	X						X								
		DA-B107B-0608	6-8'	X	X	X	X						X								
		DA-B108B-0406	4-6'	X	X	X	X						X								
		DA-B109B-0204	2-4'	X	X	X	X						X								
		DA-SB111-0204	2-4'	X	X	X	X						X								
		DA-SB112-0608	6-8'	X	X	X	X						X								
		DA-SB112-0608-D	6-8'	X	X	X	X						X								
		DA-SB113-0406	4-6'	X	X	X	X						X								
		DA-SB113-0406-D	4-6'	X	X	X	X						X								
		DA-SB114-0406	4-6'	X	X	X	X						X								
		DA-SB115-0204	2-4'	X	X	X	X						X								
		DA-SB116-0204	2-4'	X	X	X	X						X								
		DA-SB117-0810	8-10'	X	X	X	X						X								
		DA-SB119-0204	2-4'	X	X	X	X						X								
		DA-SB120-0406	4-6'	X	X	X	X						X								
		DA-SB150-0204	2-4'	X	X	X	X						X								
		DA-SB151-0406	4-6'	X	X	X	X						X								
		DA-SB151-0406-D	4-6'	X	X	X	X						X								
		DA-SO-B126B-0608-072208	6-8'	X	X								X								
		DA-SS-B125B-0304-072108	3-4'	X	X								X								

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
SOIL	Exposed Surface Soil	DA-B106B-0002	0-2'	X	X	X	X						X								
		DA-SB118-0002	0-2'	X	X	X	X						X								
		DA-SS102B-011508	0-1'	X	X	X	X						X								
		DA-SS102B-073107	0-1'		X																
		DA-SS103B-073007	0-1'		X																
		DA-SS103B-073007-D	0-1'		X																
		DA-SS103-011708	0-1'			X															
		DA-SB103-0103	1-3'			X															
		DA-SS103B-011508	0-1'	X	X	X	X						X	X	X	X					
		DA-SS103B-011508-D	0-1'	X	X	X	X						X	X	X	X					
		DA-SS104-011508	0-1'	X	X	X	X						X	X	X	X					
		DA-SS104-073107	0-1'		X																
		DA-SS104B-011608	0-1'	X	X	X	X						X								
		DA-SS104B-073007	0-1'		X																
		DA-SS105-011508	0-1'	X	X	X	X						X								
		DA-SS105-073107	0-1'		X																
		DA-SS105B-011608	0-1'	X	X	X	X						X	X	X	X					
		DA-SS105B-073007	0-1'		X																
		DA-SS106-011408	0-1'	X	X	X	X						X								
		DA-SS106-073107	0-1'		X																
		DA-SB107-0103	1-3'	X	X	X	X						X								
		DA-SS107-011508	0-1'	X	X	X	X						X								
		DA-SS107-073107	0-1'		X																
		DA-SS108-011508	0-1'	X	X	X	X						X	X	X	X					
		DA-SS108-073107	0-1'		X																
		DA-SS109-011408	0-1'	X	X	X	X						X								
		DA-SS109-073007	0-1'		X																
		DA-SS110-011508	0-1'	X	X	X	X						X								
		DA-SS110-073007	0-1'		X																
		DA-SS110B-011508	0-1'	X	X	X	X						X	X	X	X					
		DA-SS110B-073007	0-1'		X																
		DA-SS110B-073007-D	0-1'		X																
		DA-SS111B-011408	0-1'	X	X	X	X						X								
		DA-SS111B-072607	0-1'		X																
		DA-SS112B-011608	0-1'	X	X	X	X						X								
		DA-SS112B-011608-D	0-1'	X	X	X	X						X								
		DA-SS112B-073007	0-1'		X																
		DA-SS113B-011608	0-1'	X	X	X	X						X								
		DA-SS113B-072607	0-1'		X																
		DA-SS114B-011008	0-1'	X	X	X	X						X								
		DA-SS114B-072507	0-1'		X																
		DA-SS115B-01008	0-1'	X	X	X	X						X								
		DA-SS115B-072507	0-1'		X																
		DA-SS116B-011008	0-1'	X	X	X	X						X								
		DA-SS116B-072507	0-1'		X																
		DA-SS116B-072507-D	0-1'		X																
		DA-SS117B-011008	0-1'	X	X	X	X						X								
		DA-SS117B-072507	0-1'		X																
		DA-SS118B-011608	0-1'	X	X	X	X						X								
		DA-SS118B-072507	0-1'		X																
		DA-SS119B-011608	0-1'	X	X	X	X						X								
		DA-SS119B-011608-D	0-1'	X	X	X	X						X								
		DA-SS119B-073007	0-1'		X																
		DA-SS120B-011708	0-1'	X	X	X	X						X								
		DA-SS120B-080207	0-1'		X																
		DA-SS121-011008	0-1'	X	X	X	X						X								
		DA-SS121-072607	0-1'		X																
		DA-SS122-011008	0-1'	X	X	X	X						X								
		DA-SS122-073007	0-1'		X																
		DA-SS123-011008	0-1'	X	X	X	X						X								
		DA-SS123-072607	0-1'		X																
		DA-SS124-011008	0-1'	X	X	X	X						X								
		DA-SS124-072607	0-1'		X																
		DA-SS125-011008	0-1'	X	X	X	X						X								
		DA-SS125-011008-D	0-1'	X	X	X	X						X								
		DA-SS125-072607	0-1'		X																
		DA-SS126-011408	0-1'	X	X	X	X						X	X	X						
		DA-SS126-072607	0-1'		X																
		DA-SS126-072607-D	0-1'		X																
		DA-SS127-011508	0-1'	X	X	X	X						X			X					
		DA-SS127-072607	0-1'		X																
		DA-SS128-011608	0-1'	X	X	X	X						X								
		DA-SS128-072607	0-1'		X																
		DA-SS129-011408	0-1'	X	X	X	X						X								
		DA-SS129-073007	0-1'		X																
		DA-SS130-011508	0-1'	X	X	X	X						X	X	X	X					
		DA-SS130-073007	0-1'		X																
		DA-SS131-011608	0-1'	X	X	X	X						X								
		DA-SS131-073007	0-1'		X																

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
		DA-SS132-011408	0-1'	X	X	X	X						X								
		DA-SS132-073007	0-1'		X																
		DA-SS133-011508	0-1'	X	X	X	X						X	X	X	X					

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
SOIL	Exposed Surface Soil	DA-SS133-073007	0-1'		X																
		DA-SB133-0102	1-2'	X	X	X	X						X								
		DA-SS134-011508	0-1'	X	X	X	X						X	X	X	X					
		DA-SS134-071907	0-1'		X																
		DA-SS135-011108	0-1'	X	X	X	X						X								
		DA-SS135-011108-D	0-1'	X	X	X	X						X								
		DA-SS135-071907	0-1'		X																
		DA-SS136-011008	0-1'	X	X	X	X						X								
		DA-SS136-072507	0-1'		X																
		DA-SS137-011108	0-1'		X	X	X						X								
		DA-SS137-011608	0-1'	X									X								
		DA-SS137-071907	0-1'		X																
		DA-SS138-011108	0-1'	X	X	X	X						X								
		DA-SS138-071907	0-1'		X																
		DA-SS139-011108	0-1'	X	X	X	X						X								
		DA-SS139-071907	0-1'		X																
		DA-SS140-011108	0-1'	X	X	X	X						X								
		DA-SS140-071907	0-1'		X																
		DA-SS141-011108	0-1'	X	X	X	X						X								
		DA-SS141-071907	0-1'		X																
		DA-SS142-011708	0-1'	X	X	X	X						X								
		DA-SS142-080207	0-1'		X																
		DA-SS143-011708	0-1'	X	X	X	X						X								
		DA-SS143-080207	0-1'		X																
		DA-SS144-011708	0-1'	X	X	X	X						X								
		DA-SS144-080207	0-1'		X																
		DA-SS145-011708	0-1'	X	X	X	X						X								
		DA-SS145-080207	0-1'		X																
		DA-SS146-011708	0-1'	X	X	X	X						X								
		DA-SS146-080207	0-1'		X																
		DA-SS146-080207-D	0-1'		X																
		DA-SS147-011708	0-1'	X	X	X	X						X								
		DA-SS147-011708-D	0-1'	X	X	X	X						X								
		DA-SS148-011708	0-1'	X	X	X	X						X								
		DA-SS149-011708	0-1'	X	X	X	X						X								
		DA-SS152-011608	0-1'	X	X	X	X						X	X	X	X					
		DA-SS153-011608	0-1'	X	X	X	X						X	X	X	X					
		DA-SS-B124B-0103-072108	1-3'	X	X								X								
SOIL	Exposed Subsurface Soil	DA-B103B-0810	8-10'	X	X	X	X						X								
		DA-B104B-0406	4-6'	X	X	X	X						X								
		DA-B104B-0406-D	4-6'	X	X	X	X						X								
		DA-B104B-1012	10-12'											X	X						
		DA-B105B-0204	2-4'	X	X	X	X						X								
		DA-B106B-0406	4-6'	X	X	X	X						X								
		DA-B110B-1012	10-12'	X	X	X	X						X	X	X						
		DA-B111B-0406	4-6'	X	X	X	X						X								
		DA-B112B-0608	6-8'	X	X	X	X						X								
		DA-B113B-0608	6-8'	X	X	X	X						X								
		DA-B114B-0204	2-4'	X	X	X	X						X								
		DA-B116B-0305	3-5'	X	X	X	X						X								
		DA-B118B-0608	6-8'	X	X	X	X						X								
		DA-B119B-0204	2-4'	X	X	X	X						X								
		DA-B120B-0204	2-4'	X	X	X	X						X								
		DA-SB104-0608	6-8'	X	X	X	X						X								
		DA-SB105-0406	4-6'	X	X	X	X						X								
		DA-SB106-0608	6-8'	X	X	X	X						X								
		DA-SB108-0204	2-4'	X	X	X	X						X								
		DA-SB109-0204	2-4'	X	X	X	X						X								
		DA-SB110-0810	8-10'	X	X	X	X						X								
		DA-SB118-0406	4-6'	X	X	X	X						X								
		DA-SB121-0406	4-6'	X	X	X	X						X								
		DA-SB122-0407	4-7'	X	X	X	X						X								
		DA-SB123-0508	5-8'	X	X	X	X						X								
		DA-SB124B-0608	6-8'	X	X	X	X						X								
		DA-SB125-0810	8-10'	X	X	X	X						X								
		DA-SB126-1013	10-13'	X	X	X	X						X								
		DA-SB127-0204	2-4'	X	X	X	X						X								
		DA-SB128-0810	8-10'	X	X	X	X						X								
		DA-SB128-0810-D	8-10'	X	X	X	X						X								
		DA-SB129-0406	4-6'	X	X	X	X						X								
		DA-SB130-1011.5	10-11.5	X	X	X	X						X								
		DA-SB131-0406	4-6'	X	X	X	X						X								
		DA-SB132-0406	4-6'	X	X	X	X						X								
		DA-SB133-0810	8-10'	X	X	X	X						X								
		DA-SB134-0405	4-5'	X	X	X	X						X								
		DA-SB135-1214	12-14'	X	X	X	X						X								
		DA-SB136-0810	8-10'	X	X	X	X						X								

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
		DA-SB137-0406	4-6'	X	X	X	X						X								
		DA-SB138-0406	4-6'	X	X	X	X						X								
		DA-SB138-0406-D	4-6'	X	X	X	X						X								
		DA-SB139-0406	4-6'			X															
		DA-SB139-1012	10-12'	X	X		X						X								
		DA-SB152-0204	2-4'	X	X	X	X						X								
		DA-SB153-0204	2-4'	X	X	X	X						X								
		DA-SB-TP103-0506	5-6'	X	X	X	X						X								

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
SOIL	Quality Control	DA-SO-TB40	N/A	X									X								
		DA-SS-RB02	N/A	X	X	X							X								
		DA-SS-TB-RB	N/A	X																	
		DA-SSTB-03-011408	N/A	X									X								
		DA-SSTB01-011008	N/A	X									X								
		DA-SSTB02-011108	N/A	X									X								
		DA-SSTB04-011508	N/A	X									X								
		DA-SSTB05-011608	N/A	X									X								
		DA-SSTB06-011708	N/A	X									X								
		DA-RB-01	N/A	X									X								
		DA-SBRB01-022908	N/A	X	X	X							X								
		DA-SBTB022508	N/A	X									X								
		DA-TB-01	N/A	X									X								
		DA-TB-022208	N/A	X									X								
		DA-TB-022708	N/A	X									X								
		DA-TB-030408	N/A	X									X								
		DA-TB-030508	N/A	X									X								
		DA-TB-030608	N/A	X									X								
		DA-TB-031808	N/A	X									X								
		DA-TB-033108	N/A	X									X								
		DA-TB-041108	N/A	X									X								
		RBTB-022908	N/A	X																	
		SBTB-022908	N/A	X									X								
		TB-022108	N/A	X									X								
		TB-022808	N/A	X									X								
		TB-030308	N/A	X									X								
		TB-041808	N/A	X									X								
		TB022608	N/A	X									X								
GROUNDWATER	Diffusion Bag	DA-DW01-013108	N/A	X																	
		DA-DW-01-080108	N/A	X																	
		DA-DW-02-080108	N/A	X																	
		DA-DW02-103108	N/A	X																	
		DA-DW03-013108	N/A	X																	
		DA-DW04-013108	N/A	X																	
		DA-DW05-013108	N/A	X																	
		DA-DW06-013108	N/A	X																	
		DA-DW07-013108	N/A	X																	
		DA-DW08-013108	N/A	X																	
		DA-DW08-013108-D	N/A	X																	
		DA-DW09-013108	N/A	X																	
		DA-DW10-013108	N/A	X																	
		DA-DW-11-080108	N/A	X																	
		DA-DW-12-081808	N/A	X																	
		DA-DW-13-080108	N/A	X																	
		DA-DW-14-080108-D	N/A	X																	
		DA-DW-14-080108	N/A	X																	
	Upgradient Bedrock	DA-MW07B-52908	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW09B-52808	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-GW-MW101B-073108	N/A	X	X	X							X								
		DA-MW101B-53008	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW101B-53008-D	N/A	X	X	X	X			X			X		X			X	X		
		DA-MW106B-52108	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW120B-51408	N/A	X	X	X	X			X		X	X		X			X	X		

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
GROUNDWATER	Site Bedrock	DA-GW-MW102B-080108	N/A	X	X	X							X								
		DA-MW02B-52708	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW03B-52208	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW04B-052308	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW100B-091908	N/A		X																
		DA-MW100B-51308	N/A	X																	
		DA-MW100B-PRODUCT	N/A	X	X	X							X								
		DA-MW100-DNAPL	N/A	X																	
		DA-MW102B-52708	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW103B-52308	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW104B-52008	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW105B-52008	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW-107B-6408	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW108B-6308	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW108B-6308-D	N/A	X	X	X	X			X			X		X			X	X		
		DA-MW109-1924	19-24'	X					X		X										
		DA-MW109-3035	30-35'	X					X		X										
		DA-MW109-3641	36-41'	X					X		X										
		DA-MW109B-6208	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW110B-51908	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW111B-51608	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW112B-51608	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW112B-51608-D	N/A	X	X	X	X			X			X		X			X	X		
		DA-MW113B-51608	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW114-2934	29-34'	X					X		X										
		DA-MW114-3439	34-39'	X					X		X										
		DA-MW114-5261	52-61'	X					X		X										
		DA-MW114B-51608	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW115-1924	19-24'	X					X		X										
		DA-MW115-2631	26-31'	X					X		X										
		DA-MW115B-51508	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW116B-51508	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW117B-51508	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW118B-51508	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW119B-51408	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW124B-1020	10-20'	X	X	X							X								
		DA-MW124B-3545	35-45'	X	X	X							X								
		DA-MW125B-2636	26-36'	X	X	X							X								
		DA-MW125B-3646	36-46'	X	X	X							X								
		DA-MW126B-2227	22-27'	X	X	X							X								
		DA-MW126B-4246	42-46'	X	X	X							X								
		DA-MW126B-5055	50-55'	X	X	X							X								
	OB/BR Interface Upgradient	DA-GW-MW13A-080408	N/A	X	X	X							X								
		DA-GW-MW13A-080408-D	N/A	X	X	X							X								
		DA-MW07A-52808	N/A	X	X	X	X			X			X		X			X	X		
		DA-MW106S-52208	N/A	X	X	X	X			X			X		X			X	X		
	OB/BR Interface Site	DA-MW103S-52608	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW112S-51908	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW122-6308	N/A	X	X	X	X			X		X	X		X			X	X		
		DA-MW122-6308-D	N/A	X	X	X	X			X			X		X			X	X		
		DA-MW123-6408	N/A	X	X	X	X			X		X	X		X			X	X		
	Quality Control	DA-HD-SB01	N/A	X	X	X				X			X		X			X	X		
		DA-RB-BB02	N/A	X																	
		DA-RB02	N/A	X	X	X				X			X					X	X		
		DA-TB-082108A	N/A	X									X								
		DA-TB-082108S	N/A	X									X								
		TB-013108	N/A	X																	
		DA-MW-TB01	N/A	X									X								
		DA-MW-TB02	N/A	X									X								
		DA-MW-TB04	N/A	X									X								
		DA-MW-TB05	N/A	X									X								
		DA-MW-TB06	N/A	X									X								
		DA-MW-TB07	N/A	X									X								
		DA-MW-TB08	N/A	X									X								
		DA-MW-TB09	N/A	X									X								
		DA-MW-TB10	N/A	X									X								
		DA-MW-TB11	N/A	X									X								
		DA-MW-TB12	N/A	X									X								
		DA-MW-TB13	N/A	X									X								
		DA-MW-TB14	N/A	X									X								
		DA-MW-TB15	N/A	X									X								
		DA-MW-TB16	N/A	X									X								
		DA-MW-TB17	N/A	X									X								
		DA-MW-TB18	N/A	X									X								
		DA-MW-TB19	N/A	X									X								
		DA-MW-TB20	N/A	X									X								
		DA-MW-TB21	N/A	X									X								

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																		
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
		DA-MW-TB22	N/A	X									X								
		DA-MW-TB23	N/A	X									X								
		DA-MW-TB24	N/A	X									X								

TABLE 4-5

SAMPLE ANALYSIS SUMMARY
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

MEDIA	SUBGROUP	SAMPLE ID	SAMPLE INTERVAL	ANALYSIS																	
				VOCs	SVOCs/ PAHs	Pesticides/ PCBs	Metals	Total Lead	Total Iron	Dissolved Metals	Dissolved Iron	Ferrous Iron	Petroleum Hydrocarbons	Grain Size	TOC	Toxicity	AVS/SEM	MISCELANEOUS PARAMETERS	VOLATILE GASES	Lipids	Benthic Community Analysis
GROUNDWATER	Quality Control	DA-MW-TB25	N/A	X									X								
		DA-MW-TB26	N/A	X									X								
		DA-TB27	N/A	X									X								
		DA-TB28	N/A	X									X								
		DA-TB29	N/A	X									X								
		DA-TB30	N/A	X									X								
		DA-TB31	N/A	X									X								
		DA-TB32	N/A	X									X								
		DA-TB33	N/A	X									X								
		DA-TB34	N/A	X									X								
		DA-TB35	N/A	X									X								
		DA-TB36	N/A	X									X								
		DA-TB37	N/A	X									X								
		DA-TB38	N/A	X									X								
		DA-TB39	N/A	X									X								
		DA-TB40	N/A	X									X								
		DA-TB41	N/A	X									X								
		DA-GW-TB42	N/A	X									X								
		DA-GW-TB43	N/A	X									X								
		DA-MWRB041708	N/A	X	X	X							X								

NOTES:
Miscellaneous parameters include Ammonia, Nitrite, Nitrate, Orthophosphate, Sulfate and Sulfide
Volatile gases include Methane, Ethane and Ethene
OB = Overburden
BR = Bedrock
D = Duplicate sample

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX	DA-MW105B-0001-LOCDEPTHMAX	DA-B106B-0002	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX
	LOCATION ID			DA-MW103B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B
	TOP DEPTH			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH			1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE			01/15/08	01/16/08	01/16/08	03/19/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 UJ	5 UJ	5 U	1 J	5 UJ	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ	5 U	6 UJ	5 U	6 UJ
	1,3,5-TRIMETHYLBENZENE	47000		5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ	5 U	6 UJ	5 UJ	5 UJ	6 UJ
	2-BUTANONE	28000000	10000000	25 U	25 UJ	25 U	6 J	25 U	25 U	25 UJ	25 U	41 U	27 U	25 U	30 U	12 J	25 U	29 U
	4-ISOPROPYLTOLUENE			5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U	8	6 U	14	5 U	6 U
	ACETONE	61000000	7800000	11.2 J	1700 U	25 UJ	82	1500 U	12 J	1450 U	25 UJ	120 J	46 J	21 J	120 J	160	55.2	2300 J
	BENZENE	1100	2500	5 U	5 UJ	5 U	2 J	5 U	5 U	5 UJ	5 U	8 U	5 U	5 U	6 U	5 U	5 U	6 U
	BTEX			5.6 U	5.6 UJ	5.6 U	6 J	5.6 U	5.6 U	5.6 UJ	5.6 U	9 U	5.8 U	5.6 U	6.8 U	5.6 U	5.6 U	6.8 U
	M+P-XYLENES	4500000		10 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U	10 U	12 U	10 U	10 U	12 U
	METHYLENE CHLORIDE	11000	45000	25 U	25 UJ	25 U	25 U	25 U	25 U	25 UJ	25 U	41 U	27 U	25 U	30 U	25 U	25 U	29 U
	N-BUTYLBENZENE			5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ	5 U	6 UJ	5 U	5 U	6 U
	N-PROPYLBENZENE			5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 U	5 U	6 U	5 U	5 U	6 U
	O-XYLENE	5300000		5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U	5 U	6 U	5 U	5 U	6 U
	SEC-BUTYLBENZENE			5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ	5 U	6 UJ	5 U	5 U	6 U
	TOLUENE	5000000	190000	5 U	5 UJ	5 U	4 J	5 U	5 U	5 UJ	5 U	8 U	5 U	5 U	6 U	5 U	5 U	6 U
	TOTAL CHLORINATED ETHENES			6.2 U	5 J	6.2 U	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 U	10 U	6.5 U	6.2 U	7.5 U	6.2 U	6.2 U	7.5 U
	TOTAL CHLORINATED VOCS			6.6 UJ	5 J	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	11 UJ	6.8 UJ	6.6 UJ	7.9 UJ	6.6 U	6.6 U	7.8 UJ
	TOTAL XYLENES	600000	110000	7.5 U	7.5 UJ	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	12 U	8 U	7.5 U	9 U	7.5 U	7.5 U	9 U
	TRICHLOROETHENE	2800	13000	5 U	5 J	5 U	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U	5 U	6 U	5 U	5 U	6 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		380 U	400 U	390 U	380 U	400 U	390 U	405 U	410 U	400 U	410 U	390 U	410 U	400 U	385 U	410 U
	2-METHYLNAPHTHALENE	310000	123000	36 J	11 J	35 J	8.6 J	33	33	120	21 J	26 J	22 U	22.5 U	23 U	22 U	22 J	23 U
	3,3'-DICHLOROBENZIDINE	1100	1400	380 U	400 UJ	390 UJ	380 UJ	400 U	390 U	405 UJ	410 UJ	400 U	410 U	390 U	410 U	400 UJ	385 UJ	410 U
	ACENAPHTHENE	3400000	43000	120	85	700 J	23 U	220	180	470 J	44	160	6.2 J	4.4 J	6.9 J	3.8 J	52.4 J	3.2 J
	ACENAPHTHYLENE	3400000	23000	9.45 J	8.5 J	6.9 J	23 U	64.5	22 U	5.8 J	3.4 J	22 U	4.3 J	3.3 J	4 J	22 U	6.8 J	7.4 J
	ANTHRACENE	17000000	35000	275 J	160 J	1200 J	23 U	540	380	1700 J	120	220	9.3 J	5.9 J	9 J	3.6 J	112 J	8.3 J
	BENZO(A)ANTHRACENE	150	900	980	840	4200	15 J	1600	1100	5000	430	400	46	24	47	26	202 J	77
	BENZO(A)PYRENE	15	400	920	750	3700	23 U	1350	1000	2500	240	320	44	24	47	22 J	170 J	79
	BENZO(B)FLUORANTHENE	150	900	945	780	3800	23 U	1650	790	3300	350	320	38	24.5	39	32	240	110
	BENZO(G,H,I)PERYLENE	1700000	800	470	330 J	1700 J	23 U	635	250 J	790 J	86	140	24 J	16 J	23 J	12 J	85	52
	BENZO(K)FLUORANTHENE	1500	900	615	750	3700	23 U	1120	800	2900	120	290 J	31 J	18 J	29 J	17 J	147 J	100
	BENZOIC ACID	240000000		940 U	990 U	960 U	940 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U	980 U	1100	600 J	960 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	380 U	400 UJ	390 UJ	380 U	400 U	390 UJ	405 UJ	410 UJ	440 J	410 UJ	390 UJ	410 UJ	400 UJ	385 UJ	410 UJ
	BUTYL BENZYL PHTHALATE	260000		380 U	400 UJ	390 UJ	380 U	400 U	390 UJ	405 UJ	410 UJ	400 UJ	410 UJ	390 UJ	410 UJ	400 UJ	385 UJ	410 UJ
	CARBAZOLE			235 J	400 U	390 U	380 U	400 U	390 U	405 U	410 U	400 U	410 U	390 U	410 U	400 U	385 U	410 U
	CHRYSENE	15000	400	915	1200	4400	13 J	1550	960	3800	310	520	46	24	43	29	325 J	85
	DIBENZO(A,H)ANTHRACENE	15	400	150 J	180 J	950 J	23 U	235 J	120	670 J	26	73	13 J	22.5 U	13 J	22 U	37.5 J	34
	DIBENZOFURAN			380 U	400 U	390 U	380 U	400 U	390 U	405 U	410 U	400 U	410 U	390 U	410 U	400 U	385 U	410 U
	FLUORANTHENE	2300000	20000	1950	2400	10000	22 J	3050	2300	13000	900	1100	81	42	84	63	640 J	100
	FLUORENE	2300000	28000	97 J	76 J	790 J	23 U	200	150	800 J	69	100	22 U	22.5 U	23 U	22 U	33.1 J	2.3 J
	HIGH MOLECULAR WEIGHT PAHS			8720 J	8910 J	41350 J	66 J	14795 J	9700 J	41760 J	3188	4323 J	418 J	214 J	409 J	246 J	2347 J	806
	INDENO(1,2,3-CD)PYRENE	150	900	720	370 J	2000 J	23 U	855	280	1000 J	78	180	32	18 J	31	15 J	160	72
	LOW MOLECULAR WEIGHT PAHS			1873.45 J	1644.2 J	10990 J	25.6 J	3312.5 J	2297	13450 J	906 J	1434 J	51.8 J	29.6 J	53.9 J	45.4 J	851.1 J	54.4 J
	NAPHTHALENE	3900	54000	96 J	13 J	1100 J	23 U	32	54	360 J	42	88	22 U	22.5 U	23 U	9 J	74.8 J	23 U
	N-NITROSODIPHENYLAMINE	99000		380 U	400 U	390 U	380 U	400 U	390 U	405 U	410 U	400 U	410 U	390 U	410 U	400 U	385 U	410 U
	PHENANTHRENE	1700000	40000	1240 J	1300	7200	17 J	2300	1500	10000	610	840	32	16 J	34	29	550 J	34
	PYRENE	1700000	13000	2100	1700	6900	16 J	3000	2100	8800	650	980	63	29	57	42	520 J	97
	TOTAL PAHS			10593.45 J	10554.2 J	52340 J	91.6 J	18107.5 J	11997 J	55210 J	4094 J	5757 J	469.8 J	243.6 J	462.9 J	291.4 J	3198.1 J	860.4 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.8 U	4 U	3.9 U	3.8 UJ	4 U	3.9 U	4.05 U	4.1 U	4 U	4.1 UJ	3.9 U	4.1 U	4 U	3.85 U	4.1 U
	4,4'-DDE	1400		5.35	8.6 J	3.9 U	3.8 UJ	6.6	3.9 U	4.05 U	4.1 U	4 UJ	4.1 UJ	3.9 UJ	4.1 UJ	4 U	6.45	1.3 J
	4,4'-DDT	1700		5.5	26 J	13	3.8 UJ	18 J	3.9 U	4.05 U	4.1 U	4 UJ	2 J	3.9 UJ	4.1 UJ	4 U	3.85 U	3.2 J
	ALPHA-CHLORDANE	1600	500	2 U	2.1 U	2 U	1.9 UJ	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ	2 UJ	2.1 UJ	2 U	2 U	2.1 U
	AROCLOR-1254	1100	10000	20 U	21 U	20 U	19 UJ	20 U	20 U	21 U	21 U	21 U	21 U	20 U	21 U	20 U	20 U	21 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	PARAMETER	ORNLSLDCR	RIDEMDCR	SAMPLE ID	LOCATION ID	TOP DEPTH	BOTTOM DEPTH	SAMPLE DATE	SAMPLE CODE
				DA-MW103B-0001-LOCDEPTHMAX	DA-MW103B	0	1	01/15/08	NORMAL
				DA-MW104B-0001-LOCDEPTHMAX	DA-MW104B	0	1	01/16/08	NORMAL
				DA-MW105B-0001-LOCDEPTHMAX	DA-MW105B	0	1	01/16/08	NORMAL
				DA-B106B-0002	DA-MW106B	0	2	03/19/08	NORMAL
				DA-MW110B-0001-LOCDEPTHMAX	DA-MW110B	0	1	01/15/08	NORMAL
				DA-MW111B-0001-LOCDEPTHMAX	DA-MW111B	0	1	01/14/08	NORMAL
				DA-MW112B-0001-LOCDEPTHMAX	DA-MW112B	0	1	01/16/08	NORMAL
				DA-MW113B-0001-LOCDEPTHMAX	DA-MW113B	0	1	01/16/08	NORMAL
				DA-MW114B-0001-LOCDEPTHMAX	DA-MW114B	0	1	01/10/08	NORMAL
				DA-MW115B-0001-LOCDEPTHMAX	DA-MW115B	0	1	01/10/08	NORMAL
				DA-MW116B-0001-LOCDEPTHMAX	DA-MW116B	0	1	01/10/08	NORMAL
				DA-MW117B-0001-LOCDEPTHMAX	DA-MW117B	0	1	01/10/08	NORMAL
				DA-MW118B-0001-LOCDEPTHMAX	DA-MW118B	0	1	01/16/08	NORMAL
				DA-MW119B-0001-LOCDEPTHMAX	DA-MW119B	0	1	01/16/08	NORMAL
				DA-MW120B-0001-LOCDEPTHMAX	DA-MW120B	0	1	01/17/08	NORMAL
PESTICIDES/PCBS (UG/KG)	AROCLOR-1260	220	10000	160 J	94 J	130	19 UJ	220	20 U	21 U	21 UJ	21 UJ	21 U	21 UJ	20 U	21 U	20 U	80.5	21 UJ
	AROCLOR-1268	220	10000	580 J	400 J	20 U	19 UJ	620	20 U	21 U	21 U	21 U	21 U	20 U	21 U	20 U	400	21 U
	DIELDRIN	30	40	3.8 U	4 U	3.9 U	3.8 UJ	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 UJ	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U
	ENDRIN	18000		3.8 U	4 U	3.9 U	3.8 UJ	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 UJ	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U
	GAMMA-CHLORDANE	1600	500	2 U	2.1 U	2 U	1.9 UJ	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ	2 UJ	2.1 UJ	2 U	2 U	2.1 U
	HEPTACHLOR	110		2 U	2.1 U	2 U	1.9 UJ	2 U	2 U	2.1 U	2.1 U	2.1 UJ	1.7 J	2 UJ	2.1 UJ	2 U	2 U	2.1 U
	TOTAL AROCLOR	220	10000	740 J	494 J	130 J	19 UJ	840	20 U	21 UJ	21 UJ	21 U	21 UJ	20 U	21 U	20 U	480.5	21 UJ
	TOTAL DDD/DDE/DDT			10.85	34.6 J	13	3.8 UJ	24.6 J	3.9 U	4 U	4.1 U	4 UJ	2 J	3.9 UJ	4.1 UJ	4 U	6.45	4.5 J
METALS (MG/KG)	ALUMINUM	77000		12000	11500	11900	9390	13100	13100	13200	15800	12500	15400	12400	13100	11500	13000	16200
	ANTIMONY	31	10	0.145 U	0.14 UJ	0.19 UJ	0.14 UJ	0.16 U	0.18 U	0.15 UJ	0.16 UJ	0.39 UJ	0.17 UJ	0.22 UJ	0.35 UJ	0.17 UJ	0.17 UJ	0.19 UJ
	ARSENIC	0.39	7	16.4	18.8	22.4	7.6 J	16.8	20.4	24	26	23	14.2	21.3	22.1	23.8	29.8	16.2
	BARIUM	15000	5500	26	35.8	38.4	20.4	41.6	17	17.9	14.8	22.8	26.3	20	21.5	20.2	27.6	28.3
	BERYLLIUM	160	0.4	0.415 J	0.5 J	0.5 J	0.21 J	0.4 J	0.4 J	0.385 J	0.37 J	0.48 J	0.58 J	0.46 J	0.4 J	0.45 J	0.5 J	0.48 J
	CADMIUM	70	39	1.5 J	0.57 J	0.48 J	0.01 U	0.74 J	0.32 J	0.02 UJ	0.02 UJ	0.3 UJ	0.24 UJ	0.17 UJ	0.19 UJ	0.02 UJ	0.02 UJ	6.5
	CALCIUM			834	1480	8940	893 J	1320	472	1130	1240	417 J	411 J	150 J	211 J	259	760	579 J
	CHROMIUM	230	390	19	22.8	16	16.4 J	19.5	15.7	16.8	18.3	16.2	28.8	16.5	18.4	15.2	15.5	17.6
	COBALT	23		27.7	12.9	17.6	7.9	10.8	13	15.4	17.1	13.6	11.4	13.5	12.9	14.2	14.8	12.3
	COPPER	3100	3100	24.8	26 J	39 J	11.5	24.9	23.7	24.9 J	23.9 J	43.4 J	24 J	25.8 J	25.9 J	23.4 J	22 J	18.7
	IRON	55000		27400	24100	30000	17600	27100	29000	32800	39400	31300	29200	30900	33700	29400	33800	30600
	LEAD	400	150	61.4	36.5	53.2	6.3	33.4	15.2	12.2	13.3	21.8	32.2	13.7	17.3	17.1	19.4	18.7
	MAGNESIUM			3360	3370	3770	2760 J	3830	3320	4080	4950	3170 J	3040 J	3180 J	3290 J	2850	3450	3660
	MANGANESE	1800	390	409	333	416	282	314	356	479	606	358 J	292 J	383 J	325 J	339	448	415
	MERCURY	23	23	0.035 J	0.03 J	0.09	0.01 U	0.2	0.02 J	0.01 J	0.03 J	0.03 J	0.02 J	0.01 J	0.02 J	0.02 J	0.03 J	0.03 J
	MOLYBDENUM	390		0.635 J	0.68 J	0.66 J	0.28 J	0.43 J	0.42 J	0.328 J	0.29 UJ	0.43 UJ	0.66 J	0.54 J	0.60 J	0.52 UJ	0.37 UJ	0.28 UJ
	NICKEL	1600	1000	22.2	25.9	30.4	13.7	25.8	24.5	27.6	30.2	26.2	28.9	27	29.1	25.6	25.8	25.1
	POTASSIUM			533	476	496	638 J	496	372	498	426	488 J	547 J	509 J	558 J	458	511	341 J
	SELENIUM	390	390	0.255 U	0.62 J	0.66 J	0.27 U	0.27 U	0.32 U	0.44 J	0.28 U	0.44 UJ	0.3 U	0.32 U	0.72 UJ	0.44 J	0.485 J	0.39 UJ
	SILVER	390	200	0.78 J	0.07 UJ	2 J	0.18 J	1.8 J	0.56 UJ	0.085 UJ	0.09 UJ	0.1 UJ	0.09 UJ	0.1 UJ	0.1 UJ	0.09 UJ	0.085 UJ	0.1 UJ
	SODIUM			45 UJ	51.6 UJ	65 UJ	45 J	62.2 J	31.7 UJ	35.2 UJ	28.2 UJ	46.4 J	40 J	29.8 UJ	39.5 J	45.7 UJ	46.4 UJ	38.2 J
	THALLIUM	5.1	5.5	0.045 UJ	0.06 UJ	0.04 U	0.03 UJ	0.03 UJ	0.04 U	0.1 UJ	0.03 U	0.04 U	0.06 UJ	0.04 U	0.04 U	0.05 UJ	0.06 UJ	0.08 UJ
	VANADIUM	390	550	19.7	20.1	19.9	15.8	24.6	19	19	21	22	29.2	22.5	29.1	23.8	19.8	21.9
	ZINC	23000	6000	105	371	152	32.8	76.5	53.5	66.4	76	67.1	58.2	60.5	61.9	64.3	69.5	79.7
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			92.5	87	82	88	89	91	88	86	89	89	88.5	86	89	94	87
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			19000	NA	30000	NA	30000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH			5.45	NA	5.2	NA	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			3.1 U	3.4 U	2.6 U	2.7 U	3 U	2.6 U	2.85 U	3.0 U	3.3 U	3.2 UJ	3.1 U	4.4 U	2.9 U	2.7 U	3.3 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			86500	96000 J	130000 J	230000	150000	35000	30500 J	52000 J	71000	48000	15000	59000	69000 J	25000 J	21000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLSLDCR	RIDEMDCR	DA-SS-B124B-0103-072108 / DA-MW124B / 1 / 3 / 07/21/08 / NORMAL / EXPOSED	DA-S-SB03-0102-01 / DA-SB-03 / 1 / 2 / 08/19/03 / NORMAL / EXPOSED	DA-S-SB07-0102-01 / DA-SB-07 / 1 / 2 / 08/18/03 / NORMAL / EXPOSED	DA-SB102B-0001-LOCDEPTHMAX / DA-SB102B / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SS103-011708 / DA-SB103 / 0 / 1 / 01/17/08 / NORMAL / EXPOSED	DA-SB103-0103 / DA-SB103 / 1 / 3 / 04/14/08 / NORMAL / EXPOSED	DA-SB104-0001-LOCDEPTHMAX / DA-SB104 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB105-0001-LOCDEPTHMAX / DA-SB105 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB106-0001-LOCDEPTHMAX / DA-SB106 / 0 / 1 / 01/14/08 / NORMAL / EXPOSED	DA-SB107-0001-LOCDEPTHMAX / DA-SB107 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB107-0103 / DA-SB107 / 1 / 3 / 02/29/08 / NORMAL / EXPOSED	DA-SB108-0001-LOCDEPTHMAX / DA-SB108 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB109-0001-LOCDEPTHMAX / DA-SB109 / 0 / 1 / 01/14/08 / NORMAL / EXPOSED	DA-SB110-0001-LOCDEPTHMAX / DA-SB110 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB118-0002 / DA-SB118 / 0 / 2 / 03/04/08 / NORMAL / EXPOSED	DA-SB121-0001-LOCDEPTHMAX / DA-SB121 / 0 / 1 / 01/10/08 / NORMAL / EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 UJ	590 U	0.21 U	6 UJ	NA	NA	5 UJ	5 UJ	6 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		5 U	590 U	0.18 U	6 UJ	NA	NA	5 UJ	5 UJ	6 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U
	2-BUTANONE	28000000	10000000	25 U	1200 U	0.27 U	29 U	NA	NA	26 U	25 U	30 U	25 U	25 U	25 U	25 U	26 U	25 U	25 U
	4-ISOPROPYLTOLUENE			5 U	290	0.22 U	6 U	NA	NA	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	73
	ACETONE	61000000	7800000	27	1200 U	50	430	NA	NA	11 J	12 J	95	25 UJ	45	120	20 J	10 J	25 U	24 J
	BENZENE	1100	2500	5 U	120 U	0.19 U	6 U	NA	NA	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BTEX			5.6 UJ	140 U	0.28 U	6.8 U	NA	NA	5.6 U	5.6 U	6.8 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
	M+P-XYLENES	4500000		10 UJ	120 U	0.50 U	12 U	NA	NA	10 U	10 U	12 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	METHYLENE CHLORIDE	11000	45000	25 U	1200 U	4.7 U	29 UJ	NA	NA	26 U	25 U	30 U	25 U	25 U	25 U	25 U	26 U	25 U	25 U
	N-BUTYLBENZENE			5 U	190	0.25 U	6 UJ	NA	NA	5 UJ	5 UJ	6 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U
	N-PROPYLBENZENE			2 J	120 U	0.23 U	6 UJ	NA	NA	5 UJ	5 UJ	6 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U
	O-XYLENE	5300000		5 UJ	120 U	0.40 U	6 U	NA	NA	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE			6 J	120 U	0.22 U	6 UJ	NA	NA	5 UJ	5 UJ	6 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U
	TOLUENE	5000000	190000	5 UJ	180 U	0.20 U	6 U	NA	NA	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES			6.2 UJ	160 U	0.27 U	7.5 U	NA	NA	6.2 U	6.2 U	7.5 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			6.6 UJ	380 U	0.38 U	7.8 UJ	NA	NA	6.6 UJ	6.6 UJ	7.9 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	7.5 UJ	120 U	0.5 U	9 U	NA	NA	7.5 U	7.5 U	9 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	5 UJ	120 U	0.25 U	6 U	NA	NA	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		380 U	NA	NA	430 U	NA	NA	390 U	380 U	410 U	370 U	380 U	380 U	390 U	390 U	380 U	410 U
	2-METHYLNAPHTHALENE	310000	123000	3.9 J	280 J	220 UJ	33	NA	NA	130	21 U	3.1 J	22 U	23 U	21 U	11 J	76	220	16 J
	3,3'-DICHLOROBENZIDINE	1100	1400	380 UJ	5600 UJ	100 UJ	430 U	NA	NA	390 U	380 U	410 U	370 U	380 UJ	380 U	390 U	390 U	380 U	410 U
	ACENAPHTHENE	3400000	43000	4.7 J	560 U	67 U	170	NA	NA	150	5.2 J	15 J	3 J	18 J	6.5 J	100	430 J	1400	120
	ACENAPHTHYLENE	3400000	23000	23 U	560 U	87 U	6.7 J	NA	NA	3.8 J	10 J	4.2 J	22 U	23 UJ	5.2 J	3.8 J	13 J	23 U	24 J
	ANTHRACENE	17000000	35000	7.2 J	560 U	44 U	470	NA	NA	520	24	35	9.3 J	31	14 J	300 J	1300	2000	380 J
	BENZO(A)ANTHRACENE	150	900	52 J	560 U	79 U	760	NA	NA	1400	120	200	42	180 J	49	630	2600	2600	1200
	BENZO(A)PYRENE	15	400	53 J	560 U	82 U	530	NA	NA	720	79	150	27	240	45 J	380	1600	2000	1000
	BENZO(B)FLUORANTHENE	150	900	65	560 U	100 U	680	NA	NA	600	98	210	43	210	41	510	2100	1800	1600
	BENZO(G,H,I)PERYLENE	1700000	800	38	560 U	120 U	310 J	NA	NA	170	45	83	22	200	24	230 J	930	950	740
	BENZO(K)FLUORANTHENE	1500	900	40 J	560 U	77 U	290 J	NA	NA	580	44 J	73	13 J	160	25 J	210 J	890 J	2000	680
	BENZOIC ACID	240000000		940 UJ	5600 U	230 UJ	1100 U	NA	NA	980 U	950 U	1000 U	920 U	960 UJ	940 U	960 U	970 U	940 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	380 U	400 J	420 U	430 U	NA	NA	390 U	380 UJ	410 UJ	370 U	380 U	380 U	390 UJ	390 U	380 U	410 UJ
	BUTYL BENZYL PHTHALATE	260000		380 U	560 U	100 U	430 U	NA	NA	390 U	380 UJ	410 UJ	370 U	380 U	380 U	390 UJ	390 U	380 U	410 UJ
	CARBAZOLE			380 U	560 U	76 U	430 U	NA	NA	400	380 U	410 U	370 U	380 U	380 U	390 U	390 U	1000	410 U
	CHRYSENE	15000	400	63 J	560 U	81 U	660	NA	NA	1100	80	170	37	160	42	540	2200	2300	1200
	DIBENZO(A,H)ANTHRACENE	15	400	16 J	560 U	140 U	98	NA	NA	96 J	19 J	30	5.8 J	85	11 J	61	180 J	270 J	140
	DIBENZOFURAN			380 U	560 U	120 U	430 U	NA	NA	210 J	380 U	410 U	370 U	380 U	380 U	390 U	390 U	750	410 U
	FLUORANTHENE	2300000	20000	120 J	560 U	66 U	1800	NA	NA	3000	250	450	86	370 J	70	1600	6300	6000	2600
	FLUORENE	2300000	28000	23 U	560 U	66 U	150	NA	NA	250	6 J	12 J	3.3 J	15 J	5.7 J	130	440 J	1100	120
	HIGH MOLECULAR WEIGHT PAHS			595 J	580 U	98 U	6728 J	NA	NA	10766 J	944 J	1796	376.8 J	2125 J	375 J	5461 J	22600 J	23920 J	12130 J
	INDENO(1,2,3-CD)PYRENE	150	900	48	790 U	160 U	500	NA	NA	200 J	73	160	35	230	39	350	1500	1000	570 J
	LOW MOLECULAR WEIGHT PAHS			82.3 J	280 J	79 UJ	1881	NA	NA	3820	116.8 J	232.3 J	55.2 J	224 J	71.4 J	1292 J	5976 J	11720	2259 J
	NAPHTHALENE	3900	54000	4.5 J	560 U	3.4 U	58	NA	NA	270	21 U	3.3 J	22 U	23 U	21 U	11 J	130	1000	23 J
	N-NITROSODIPHENYLAMINE	99000		380 U	1700 U	98 U	430 U	NA	NA	390 U	380 U	410 U	370 U	380 U	380 U	390 U	390 U	380 U	410 U
	PHENANTHRENE	1700000	40000	62 J	560 U	66 U	1000	NA	NA	2500	79	160	40	160	40	740	3600	6000	1600
	PYRENE	1700000	13000	100 J	560 U	72 U	1100	NA	NA	2900	160	270	66	290	54	950	4300	5000	2400
	TOTAL PAHS			677.3 J	280 J	90 UJ	8609 J	NA	NA	14586 J	1060.8 J	2028.3 J	432 J	2349 J	446.4 J	6753 J	28576 J	35640 J	14389 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		NA	8.99 UJ	1.95 UJ	4.3 U	4 U	3.7 UJ	2.1 J	3.8 U	4.1 U	3.7 U	3.8 U	3.8 U	3.9 U	3.9 U	3.8 U	4.1 U
	4,4'-DDE	1400		NA	8.99 UJ	0.92 UJ	4 J	4 U	3.7 U	5.1	1.2 J	5.9	3.7 U	3.8 U	1.1 J	1.7 J	3.9 U	3.8 UJ	1.8 J
	4,4'-DDT	1700		NA	8.99 UJ	1.84 UJ	5.7	4 UJ	3.7 UJ	6.5	1.8 J	4.1 U	3.7 U	3.8 U	1.4 J	3.3 J	3.9 U	3.8 UJ	4.1 UJ
	ALPHA-CHLORDANE	1600	500	NA	4.49 UJ	0.69 UJ	2.2 U	2.1 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U	2 U	2 U	2 U	2 UJ	2.1 UJ
	AROCLOR-1254	1100	10000	NA	56.2 UJ	22.4 U	22 U	21 U	19 U	20 U	20 U	21 U	19 U	20 U	20 U	20 U	20 U	20 U	21 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	PARAMETER	ORNLSLDCR	RIDEMDCR	SAMPLE ID	DA-SS-B124B-0103-072108	DA-S-SB03-0102-01	DA-S-SB07-0102-01	DA-SB102B-0001-LOCDEPTHMAX	DA-SS103-011708	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB118-0002	DA-SB121-0001-LOCDEPTHMAX
				LOCATION ID	DA-MW124B	DA-SB-03	DA-SB-07	DA-SB102B	DA-SB103	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107	DA-SB108	DA-SB109	DA-SB110	DA-SB118	DA-SB121
				TOP DEPTH	1	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0
				BOTTOM DEPTH	3	2	2	1	1	3	1	1	1	1	3	1	1	1	2	1
				SAMPLE DATE	07/21/08	08/19/03	08/18/03	01/15/08	01/17/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08	01/15/08	01/14/08	01/15/08	03/04/08	01/10/08
				SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PESTICIDES/PCBS (UG/KG)	AROCLOR-1260	220	10000	NA	56.2 UJ	12.6 U	22 U	230 J	96	80	20 U	20 U	68	19 U	20 U	20 U	20 U	260	20 U	170 J
	AROCLOR-1268	220	10000	NA	56.2 UJ	22.4 U	22 U	21 U	19 U	20 U	20 U	21 U	19 U	20 U	20 U	20 U	20 U	20 U	20 U	21 U
	DIELDRIN	30	40	NA	8.99 UJ	0.804 UJ	4.3 U	4 U	3.7 U	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U	3.8 U	3.9 U	3.9 U	3.8 UJ	4.1 UJ	
	ENDRIN	18000		NA	8.99 UJ	0.92 UJ	4.3 U	4 U	3.7 U	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U	3.8 U	3.9 U	3.9 U	3.8 UJ	4.1 UJ	
	GAMMA-CHLORDANE	1600	500	NA	4.49 UJ	0.575 UJ	2.2 U	2.1 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U	2 U	2 U	2 U	2 UJ	2.1 UJ	
	HEPTACHLOR	110		NA	4.49 UJ	0.69 UJ	2.2 U	2.1 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U	2 U	2 U	2 U	2 UJ	2.1 UJ	
	TOTAL AROCLOR	220	10000	NA	56 UJ	21 U	22 U	230 J	96	80	20 U	68	19 UJ	20 U	20 U	20 U	260	20 U	170 J	
	TOTAL DDD/DDE/DDT			NA	9 UJ	1.6 UJ	9.7 J	4 UJ	3.7 UJ	13.7 J	3 J	5.9	3.7 U	3.8 U	2.5 J	5 J	3.9 U	3.8 UJ	1.8 J	
METALS (MG/KG)	ALUMINUM	77000		NA	9500	5400	11100	NA	NA	13100	6050	12100	1800	8120	4940	5020	8460	18000	10800	
	ANTIMONY	31	10	NA	0.6 U	0.30 U	0.18 U	NA	NA	0.13 U	0.07 U	0.09 U	0.08 U	0.05 UJ	0.19 J	0.08 U	0.08 U	0.1 UJ	0.19 UJ	
	ARSENIC	0.39	7	NA	32	31 J	13	NA	NA	14.5	1.6	13.8	0.29	6.8	6.2	2	9.7	45.8	23.9	
	BARIUM	15000	5500	NA	12	8.2	25.9	NA	NA	28.3	18.6	22.9	7.4	22.4	32.4	16.6	23.1	17.3	26.3	
	BERYLLIUM	160	0.4	NA	0.4	0.33	0.4 J	NA	NA	0.42 J	0.38	0.37 J	0.45 J	0.31 J	0.4	0.27 J	0.31 J	0.53	0.4 J	
	CADMIUM	70	39	NA	0.018 U	0.018 UJ	1.1 J	NA	NA	0.6 J	0.09 J	0.38 J	0.09 J	1.6	1.4	0.27 J	0.72 J	0.01 UJ	2.4 J	
	CALCIUM			NA	690	45	1490	NA	NA	652	936	547	1350	1210	862	705	903	1610 J	1250 J	
	CHROMIUM	230	390	NA	13 J	8.1	16.2	NA	NA	14.6	5.4	14.3	1 J	11.8	6.5	5.4	11.4	26.2	19.6	
	COBALT	23		NA	16	14	9.3	NA	NA	11.1	2.4	8.2	0.82 J	20	3.6	3.4	7.5	16.6	11	
	COPPER	3100	3100	NA	26	24	19.4	NA	NA	18.7	6.7	19	2.3 U	15.9	38.2	8.6	17.6	16.2	26.5 J	
	IRON	55000		NA	29000	22000	24400	NA	NA	21800	8660	20700	5270	14800	15400	7850	16300	43000	25800	
	LEAD	400	150	NA	15	6.8	36	NA	NA	33.1	14.5	36.6	4.2	110	44.1	28.8	32	13.1	25.4	
	MAGNESIUM			NA	3100 J	1400	2520	NA	NA	2620	1120	2570	407	1920	980	1720	2220	6240	2990 J	
	MANGANESE	1800	390	NA	340	310	324	NA	NA	369	251	297	351	312	368	186	250	633	355 J	
	MERCURY	23	23	NA	0.00821 J	0.012	0.05	NA	NA	0.05	0.05	0.11	0.01 U	0.02 J	0.03 J	0.02 J	0.06	0.02 U	0.03 J	
	MOLYBDENUM	390		NA	0.39 U	0.47 U	0.78 J	NA	NA	0.40 J	0.20 UJ	0.38 J	0.10 UJ	0.32 J	0.72 UJ	0.18 UJ	0.36 J	0.13 UJ	0.47 J	
	NICKEL	1600	1000	NA	24	20	18.1	NA	NA	17.4	4.2	16.5	0.98 J	10.9	28.9	4.9	13	38.5	25.9	
	POTASSIUM			NA	160	140	583	NA	NA	546	758	491	771	681	703	886	647	338	592 J	
	SELENIUM	390	390	NA	0.11 U	0.11 U	0.31 U	NA	NA	0.23 U	0.11 U	0.15 U	0.14 U	0.32 UJ	0.12 U	0.14 U	0.14 U	0.69 U	0.16 U	
	SILVER	390	200	NA	0.031 U	0.032 U	0.55 UJ	NA	NA	0.44 UJ	0.04 U	0.32 UJ	0.04 U	1.3 J	0.21 UJ	0.08 UJ	0.44 J	0.27 J	0.05 UJ	
	SODIUM			NA	28 U	75 U	63.3 J	NA	NA	46.9 J	32.8 J	33.3 J	21.6 UJ	45.2 J	30 J	30.3 J	36.4 J	53 J	57.2 J	
	THALLIUM	5.1	5.5	NA	0.3 J	0.16 U	0.05 UJ	NA	NA	0.08 U	0.06 UJ	0.06 UJ	0.03 U	0.06 UJ	0.06 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 U	
	VANADIUM	390	550	NA	13	9.8	21	NA	NA	22.5	8.1	22	1.5 J	14.2	9.5	9.9	16.3	31.9	17.9	
	ZINC	23000	6000	NA	54 J	40 J	118	NA	NA	52.2	24.2	44.6	13.8	63.3	86	31.2	57	80.9	144	
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			NA	89	87	95	NA	NA	89	96	92	92	86	93	93	88	87	86	
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	22000	NA	NA	NA	NA	4900	NA	NA	NA	NA	
MISCELLANEOUS PARAMETERS (S.U.)	PH			NA	NA	NA	NA	NA	NA	5.5	NA	NA	NA	NA	5.4	NA	NA	NA	NA	
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			3.5 U	43	4.9 U	3.8 U	NA	NA	3 U	3.3 U	3.3 UJ	2.5 U	2.8 U	2.8 U	3 U	3 U	2.8 UJ	4.6 U	
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			130000 J	14000	57000 U	89000	NA	NA	23000	19000	22000	9500 U	38000	18000	15000	260000	160000	150000	

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX
	LOCATION ID			DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135
	TOP DEPTH			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	BOTTOM DEPTH			1	1	1	1	1	1	1	1	1	1	1	1	2	1	1
	SAMPLE DATE			01/10/08	01/10/08	01/10/08	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	6 U	9.5 UJ
	1,3,5-TRIMETHYLBENZENE	47000		5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	6 U	9.5 UJ
	2-BUTANONE	28000000	10000000	25 UJ	25 U	26 U	25 U	26 U	25 U	25 U	26 U	25 U	25 U	25 U	26 UJ	25 U	29 U	49.5 UJ
	4-ISOPROPYLTOLUENE			5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	6 U	9.5 UJ
	ACETONE	61000000	7800000	12 J	16 J	33 J	210 J	550	330	93	100	180	25 UJ	25	1100 J	340	120 J	99.5 J
	BENZENE	1100	2500	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	6 U	9.5 UJ
	BTEX			5.6 UJ	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U	6.8 U	11 UJ
	M+P-XYLENES	4500000		10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	12 U	20 UJ
	METHYLENE CHLORIDE	11000	45000	25 UJ	25 U	26 U	25 U	26 U	25 U	25 U	26 U	25 U	25 UJ	25 U	26 UJ	25 U	29 U	49.5 UJ
	N-BUTYLBENZENE			5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	6 U	9.5 UJ
	N-PROPYLBENZENE			5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	6 U	9.5 UJ
	O-XYLENE	5300000		5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	6 U	9.5 UJ
	SEC-BUTYLBENZENE			5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	6 U	9.5 UJ
	TOLUENE	5000000	190000	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	6 U	9.5 UJ
	TOTAL CHLORINATED ETHENES			4 J	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 UJ	6.2 UJ	6.2 U	7.5 U	8.5 J
	TOTAL CHLORINATED VOCS			4 J	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 U	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	7.8 UJ	8.5 J
	TOTAL XYLENES	600000	110000	7.5 UJ	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	9 U	15 UJ
	TRICHLOROETHENE	2800	13000	4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	6 U	8.5 J
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		400 U	400 U	410 U	380 U	400 U	660	410 U	440 U	390 U	400 U	400 U	410 U	380 U	420 U	410 U
	2-METHYLNAPHTHALENE	310000	123000	14 J	11 J	22 U	51 J	74	2400 J	3 J	37	37	99	140	90	13 J	23 U	6.6 J
	3,3'-DICHLOROBENZIDINE	1100	1400	400 U	400 U	410 U	380 U	400 U	380 U	410 UJ	440 U	390 U	400 UJ	400 U	410 U	380 U	420 U	410 U
	ACENAPHTHENE	3400000	43000	42	2600 J	28	320 J	600 J	9500	24	210	260 J	190	240	610 J	76	10 J	23 U
	ACENAPHTHYLENE	3400000	23000	6.5 J	8.3 J	5 J	21 U	96	21 U	7.2 J	15 J	12 J	6.9 J	23 U	10 J	23 UJ	3.6 J	23 U
	ANTHRACENE	17000000	35000	130	5600	55	500 J	1500	13000	70	580	650	340 J	390	1800	190	17 J	6.45 J
	BENZO(A)ANTHRACENE	150	900	680	10000	210	1320 J	5100	20000	320	1400	930	1100	870 J	3000	1100	130	38
	BENZO(A)PYRENE	15	400	420	6100	190	1060 J	3000	17000	190	1200	680	740	750 J	2100	280	99	41.5 J
	BENZO(B)FLUORANTHENE	150	900	540	10000	160	1200	3300	15000	480	910	880	890	650	2900	250	170	30.5 J
	BENZO(G,H,I)PERYLENE	1700000	800	170	4100 J	85	470	1100 J	7400 J	97	320 J	400 J	380 J	360 J	1300	130 J	64	31 J
	BENZO(K)FLUORANTHENE	1500	900	440	3800 J	150 J	715 J	2900	12000	110	930	350 J	810	620	1200	280	66	32 J
	BENZOIC ACID	240000000		990 U	990 U	1000 U	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U	990 U	1000 U	930 UJ	1000 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	400 UJ	400 UJ	410 UJ	380 UJ	400 UJ	380 U	410 UJ	620 J	390 UJ	400 UJ	400 UJ	410 U	380 U	420 U	410 UJ
	BUTYL BENZYL PHTHALATE	260000		400 UJ	400 UJ	410 UJ	380 UJ	400 UJ	380 U	410 UJ	440 UJ	390 UJ	400 UJ	400 UJ	410 U	380 U	420 U	410 UJ
	CARBAZOLE			400 U	400 U	410 U	315	1200	7300	410 U	370 J	390 U	400 U	400 U	270 J	380	420 U	410 U
	CHRYSENE	15000	400	640	8500	250	1110 J	4700	17000	220	1300	850	920	970	2800	1000	99	46.5 J
	DIBENZO(A,H)ANTHRACENE	15	400	140	1200 J	50	150 J	330	3500	24 J	140	91	190 J	190	380 J	52	23 U	23 U
	DIBENZOFURAN			400 U	400 U	410 U	200 J	360 J	4700	410 U	440 U	390 U	400 U	400 U	410 U	380 U	420 U	410 U
	FLUORANTHENE	2300000	20000	1400	22000	460	2400 J	8700	45000	470	2900	2300	2300	1600	7400	2400	200	95.5
	FLUORENE	2300000	28000	38	2700 J	22 J	206 J	540 J	5900 J	27	260	180	240 J	190	640 J	81 J	8.9 J	23 U
	HIGH MOLECULAR WEIGHT PAHS			5680	84200 J	2065 J	10845 J	43630 J	193100 J	2746	12210 J	8864 J	9860 J	8640 J	28080 J	7632 J	1073	396.5 J
	INDENO(1,2,3-CD)PYRENE	150	900	250	3500 J	110	350 J	1500	9200	86	310	600	430 J	370 J	1900	140 J	55	33.5 J
	LOW MOLECULAR WEIGHT PAHS			899 J	30640 J	343.4 J	3061 J	8789 J	89800 J	506.3 J	3742 J	2917 J	3069 J	3496	8280 J	2494 J	145.9 J	61.85 J
	NAPHTHALENE	3900	54000	15 J	740 J	3.4 J	134 J	79	11000	2.3 J	40	90	300 J	36	140 J	34	23 U	6.8 J
	N-NITROSODIPHENYLAMINE	99000		400 U	400 U	410 U	380 U	400 U	380 U	410 U	440 U	390 U	400 U	400 U	410 U	380 U	420 U	410 U
	PHENANTHRENE	1700000	40000	660	19000	230	1850 J	5900 J	48000 J	380	2600	1700	1900	2500	5000	2100	110	42
	PYRENE	1700000	13000	1000	15000	420	2600 J	13000	50000	750	2800	1800	2100	3200	5100	2000	190	48
	TOTAL PAHS			6579 J	114840 J	2408.4 J	13906 J	52419 J	282900 J	3252.3 J	15952 J	11781 J	12929 J	12136 J	36360 J	10126 J	1218.9 J	458.35 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		4 U	4 U	4.1 U	3.8 U	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ
	4,4'-DDE	1400		4 UJ	4 UJ	4.1 UJ	3.8 UJ	4 U	3.8 U	2.0 J	7.9	5.4	2.4 J	2.7 J	2.2 J	3.8 UJ	1.6 J	1.62 J
	4,4'-DDT	1700		4 UJ	4 UJ	4.1 UJ	3.8 UJ	4 U	3.8 U	4.2 J	12	16 J	4 U	5.4	4.1 U	3.8 U	1.7 J	2.98 J
	ALPHA-CHLORDANE	1600	500	2 UJ	2 UJ	2.1 UJ	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ
	AROCLOR-1254	1100	10000	20 U	20 U	21 U	20 U	21 U	19 U	21 U	22 U	20 U	21 U	20 U	21 U	19 U	22 U	21 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLSLDCR	RIDEMDCR	DA-SB122-0001-LOCDEPTHMAX / DA-SB122 / 0 / 1 / 01/10/08 / NORMAL / EXPOSED	DA-SB123-0001-LOCDEPTHMAX / DA-SB123 / 0 / 1 / 01/10/08 / NORMAL / EXPOSED	DA-SB124-0001-LOCDEPTHMAX / DA-SB124 / 0 / 1 / 01/10/08 / NORMAL / EXPOSED	DA-SB125-0001-LOCDEPTHMAX / DA-SB125 / 0 / 1 / 01/10/08 / NORMAL / EXPOSED	DA-SB126-0001-LOCDEPTHMAX / DA-SB126 / 0 / 1 / 01/14/08 / NORMAL / EXPOSED	DA-SB127-0001-LOCDEPTHMAX / DA-SB127 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB128-0001-LOCDEPTHMAX / DA-SB128 / 0 / 1 / 01/16/08 / NORMAL / EXPOSED	DA-SB129-0001-LOCDEPTHMAX / DA-SB129 / 0 / 1 / 01/14/08 / NORMAL / EXPOSED	DA-SB130-0001-LOCDEPTHMAX / DA-SB130 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB131-0001-LOCDEPTHMAX / DA-SB131 / 0 / 1 / 01/16/08 / NORMAL / EXPOSED	DA-SB132-0001-LOCDEPTHMAX / DA-SB132 / 0 / 1 / 01/14/08 / NORMAL / EXPOSED	DA-SB133-0001-LOCDEPTHMAX / DA-SB133 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB133-0102 / DA-SB133 / 1 / 2 / 02/27/08 / NORMAL / EXPOSED	DA-SB134-0001-LOCDEPTHMAX / DA-SB134 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SB135-0001-LOCDEPTHMAX / DA-SB135 / 0 / 1 / 01/11/08 / NORMAL / EXPOSED
PESTICIDES/PCBS (UG/KG)	AROCLOR-1260	220	10000	51 J	110 J	70 J	44.5 J	21 U	19 U	26 J	120	170	81	67	130	19 U	22 U	32.2 J
	AROCLOR-1268	220	10000	20 U	20 U	21 U	20 U	21 U	19 U	21 U	280	460	160	290 J	21 U	19 U	22 U	21 U
	DIELDRIN	30	40	4 UJ	4 UJ	4.1 UJ	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ
	ENDRIN	18000		4 UJ	4 UJ	4.1 UJ	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ
	GAMMA-CHLORDANE	1600	500	2 UJ	2 UJ	2.1 UJ	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	2.2 U	2.1 UJ
	HEPTACHLOR	110		2 UJ	2 UJ	2.1 UJ	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ
	TOTAL AROCLOR	220	10000	51 J	110 J	70 J	44.5 J	21 U	19 U	26 J	400	630	241	357 J	130	19 U	22 UJ	32.2 J
	TOTAL DDD/DDE/DDT			4 UJ	4 UJ	4.1 UJ	3.8 UJ	4 U	3.8 U	6.2 J	19.9	21.4 J	2.4 J	8.1 J	2.2 J	3.8 UJ	3.3 J	4.6 J
METALS (MG/KG)	ALUMINUM	77000		12000	13100	9550	9860	10600	7500	10800	13600	12600	12800	15000	11400	13600	16900	16200
	ANTIMONY	31	10	0.19 UJ	0.18 UJ	0.38 UJ	0.09 UJ	0.09 U	0.08 U	0.09 UJ	0.16 U	0.19 U	0.16 UJ	0.2 U	0.16 U	0.1 UJ	0.21 U	0.215 UJ
	ARSENIC	0.39	7	22.3	18.6	8.1	11.4	16.7	8.3	9.4	20.8	17.6	15.6	17.6	18.2	23.1	15.1	13.6
	BARIUM	15000	5500	39.6	42.7	30	24.8	19.1	22.3	21.2	24.1	22.6	28.5	30.9	28.2	23.5	26.4	23.6
	BERYLLIUM	160	0.4	0.57 J	0.48 J	0.42 J	0.465 J	0.32 J	0.42 J	0.31 J	0.38 J	0.36 J	0.44 J	0.43 J	0.39 J	0.43 J	0.48 J	0.52 J
	CADMIUM	70	39	1.6 J	0.43 J	1.5 J	0.41 J	0.73 J	0.3 J	0.01 UJ	1.1 J	0.44 J	0.56 J	0.81 J	3.2	0.01 UJ	0.46 J	0.11 UJ
	CALCIUM			1210 J	1100 J	1570 J	1340 J	949	1370	994	1400	1380	1320	607	2990	2440	442	452 J
	CHROMIUM	230	390	22.4	17.2	14.7	16.5	13.1	8.3	13.9	28.1	15.9	16.4	17.9	18.9	16.5	19.4	17.6
	COBALT	23		18.5	10.9	7.2	7.55	11.5	6.2	11.2	13	11.7	12.7	11.6	11.7	13.6	13.2	7
	COPPER	3100	3100	133 J	24.3 J	16.8 J	17.3 J	19	11	16.6 J	25.2	21.4	23.1 J	33.6	41.2	19.4	30.1	19.4 J
	IRON	55000		31300	28900	16600	19600	23500	15500	21600	31400	27200	27100	29500	28800	29400	32100	30800
	LEAD	400	150	86.1	23	23	23.2	55	17.3	63.7	81.8	22.8	33.9	35.6	50.8	14.1	20.8	20
	MAGNESIUM			2530 J	3260 J	2890 J	2520 J	2910	1860	3270	3780	3550	3660	3560	3190	3590	4100	3040 J
	MANGANESE	1800	390	782 J	395 J	348 J	364 J	389	381	443	424	363	397	396	337	411	326	220 J
	MERCURY	23	23	0.08	0.04	0.06	0.04 J	0.04	0.03 J	0.05	0.05	0.04	0.06	0.12	2	0.08	0.04	0.045
	MOLYBDENUM	390		0.69 J	0.57 J	0.76 J	0.41 J	1.2 J	0.29 J	1.8 J	0.68 J	0.38 J	0.53 J	0.49 J	0.70 J	0.34 J	0.41 J	0.535 J
	NICKEL	1600	1000	22.1	23.2	14.4	16.4	18.7	10.4	18.3	26.4	22.6	23.3	27	24.7	24.3	27.3	18.7
	POTASSIUM			465 J	552 J	679 J	784 J	396	784	475	626	522	608	416	441	572	550	468 J
	SELENIUM	390	390	0.32 U	0.37 UJ	0.16 U	0.15 UJ	0.16 U	0.13 U	0.26 J	0.27 U	0.33 U	0.67 J	0.34 U	0.27 U	0.7 UJ	0.36 U	0.495 UJ
	SILVER	390	200	0.1 UJ	0.09 UJ	0.05 UJ	0.045 UJ	0.55 J	0.2 UJ	0.05 UJ	0.66 J	0.57 UJ	0.58 J	0.78 J	0.98 J	0.79 J	0.74 J	0.095 UJ
	SODIUM			54.8 J	50.4 J	52.8 J	41.7 J	28.6 UJ	35.8 J	26.6 UJ	40.3 UJ	45.8 UJ	41.3 UJ	41.8 UJ	49.4 J	50.6 J	47 UJ	44.4 J
	THALLIUM	5.1	5.5	0.08 UJ	0.04 UJ	0.04 U	0.05 UJ	0.04 U	0.07 UJ	0.07 UJ	0.03 U	0.04 U	0.06 UJ	0.05 UJ	0.05 UJ	0.03 UJ	0.05 UJ	0.08 UJ
	VANADIUM	390	550	19.6	23.2	17	17.2	17.7	10.5	17.9	27.6	19.6	22.9	21.3	19.3	20.5	25	29.5
	ZINC	23000	6000	663	64.6	109	61.3	57.2	46.1	56	121	80.7	97.6	87	97.2	58.6	62.7	53.4
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			89	86	90	95	90.5	96	87	85	85	86	85	87	88	88	87
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	8300	NA	NA	30000	NA	NA	76000	NA	40000	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH			NA	NA	NA	NA	NA	5.1	NA	NA	5.6	NA	NA	5.3	NA	5.1	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			60	3.3 U	3.5 U	2.75 U	3.2 U	2.5 U	3.2 U	3.2 U	2.8 U	3.2 U	3.2 U	3.2 U	3.3 U	3.7 U	5.4 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			110000	66000	60000	106000	260000	1600000	26000 J	86000	42000	120000 J	90000	100000	31000	41000	95000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SS147-011708-AVG	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
	LOCATION ID			DA-SB136	DA-SB137	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144	DA-SB145	DA-SB146	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE			01/10/08	01/16/08	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08	01/17/08	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 U	6 UJ	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 UJ	5 U
	1,3,5-TRIMETHYLBENZENE	47000		5 U	6 UJ	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 UJ	5 U
	2-BUTANONE	28000000	10000000	25 U	30 UJ	38 UJ	31 U	25 U	27 U	27 U	34 UJ	32 U	30 U	29 U	31.5 U	38 U	25 U	30 U	25 U
	4-ISOPROPYLTOLUENE			5 U	6 UJ	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 U	5 U
	ACETONE	61000000	7800000	1700 U	140 J	1600 UJ	47	19 J	170 J	87	2200 UJ	24 J	7900 J	700 J	550 J	850 J	12 J	30 UJ	1200 J
	BENZENE	1100	2500	5 U	6 UJ	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 U	5 U
	BTEX			5.6 U	6.8 UJ	9 UJ	6.8 U	5.6 U	5.8 U	5.8 U	7.8 UJ	6.9 U	6.8 U	6.8 U	7.3 U	9 U	5.6 U	6.8 U	5.6 U
	M+P-XYLENES	4500000		10 U	12 UJ	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 U	12 U	12 U	13 U	15 U	10 U	12 U	10 U
	METHYLENE CHLORIDE	11000	45000	25 U	30 UJ	38 UJ	31 U	25 U	3 J	27 U	34 UJ	32 UJ	30 UJ	29 UJ	31.5 UJ	38 UJ	25 UJ	30 U	25 U
	N-BUTYLBENZENE			5 U	6 UJ	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 UJ	5 U
	N-PROPYLBENZENE			5 U	6 UJ	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 UJ	5 U
	O-XYLENE	5300000		5 U	6 UJ	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 U	5 U
	SEC-BUTYLBENZENE			5 U	6 UJ	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 UJ	5 U
	TOLUENE	5000000	190000	5 U	6 UJ	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 U	5 U
	TOTAL CHLORINATED ETHENES			6.2 U	7.5 UJ	9.8 UJ	7.5 U	6.2 U	6.5 U	6.5 U	8.5 UJ	7.8 UJ	7.5 UJ	7.5 UJ	8.1 UJ	9.8 UJ	6.2 UJ	7.5 U	6.2 U
	TOTAL CHLORINATED VOCS			6.6 UJ	7.9 UJ	10 UJ	7.9 UJ	6.6 UJ	3 J	6.8 UJ	9 UJ	8.1 UJ	7.9 UJ	7.8 UJ	8.5 UJ	10 UJ	6.6 UJ	7.9 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	7.5 U	9 UJ	12 UJ	9 U	7.5 U	8 U	8 U	10 UJ	9.5 U	9 U	9 U	9.8 U	12 U	7.5 U	9 U	7.5 U
	TRICHLOROETHENE	2800	13000	5 U	6 UJ	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U	6 U	6 U	6.5 U	8 U	5 U	6 U	5 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		390 U	NA	420 U	410 U	380 U	380 U	380 U	480 U	480 U	430 U	400 U	420 U	520 U	410 U	420 U	410 U
	2-METHYLNAPHTHALENE	310000	123000	22 U	22 U	22 U	22 U	23 U	6.1 J	11 J	8.5 J	27 U	12 J	8.7 J	7.2 J	11 J	7.3 J	26 U	25 U
	3,3'-DICHLOROBENZIDINE	1100	1400	390 U	NA	420 U	410 U	380 U	380 U	380 U	480 U	480 U	430 U	400 U	420 U	520 U	410 U	420 UJ	410 UJ
	ACENAPHTHENE	3400000	43000	9.9 J	10 J	22 U	21 J	3.2 J	6.7 J	48	11 J	2.4 J	90	21 J	3.15 J	17 J	10 J	3.8 J	46
	ACENAPHTHYLENE	3400000	23000	4.3 J	22 U	22 U	7.1 J	23 U	22 U	10 J	3.3 J	27 U	30	9.9 J	2.05 J	49	3.1 J	3.1 J	5.6 J
	ANTHRACENE	17000000	35000	13 J	15 J	22 U	30	5.6 J	10 J	110	31	4 J	400 J	50	4.4 J	110	33	5 J	180 J
	BENZO(A)ANTHRACENE	150	900	110	130	16 J	190	57	70	310	110	22 J	2400	210	38.5	450 J	120	7.3 J	340
	BENZO(A)PYRENE	15	400	100	99	18 J	180 J	45	66	270	120	21 J	1800	230	45	420	140 J	9.3 J	260
	BENZO(B)FLUORANTHENE	150	900	78	190	30	130 J	90	110	300	130	31	2600	200	38.5	320	120 J	9.6 J	240
	BENZO(G,H,I)PERYLENE	1700000	800	48	46	14 J	98 J	25	40 J	160	77	16 J	1200 J	140	29.5	250 J	98 J	8.8 J	99
	BENZO(K)FLUORANTHENE	1500	900	68 J	74	16 J	140 J	29	47	270	100	22 J	2000	190	38	340	110 J	10 J	220
	BENZOIC ACID	240000000		520 J	NA	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U	1100 U	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	390 UJ	NA	420 UJ	280 J	380 UJ	4300 J	380 UJ	480 UJ	480 UJ	4500 J	400 UJ	420 UJ	520 UJ	410 UJ	420 UJ	410 UJ
	BUTYL BENZYL PHTHALATE	260000		390 UJ	NA	420 UJ	410 UJ	380 UJ	380 UJ	380 U	480 UJ	480 UJ	270 J	400 UJ	420 UJ	520 U	410 U	420 UJ	410 UJ
	CARBAZOLE			390 U	NA	420 U	410 U	380 U	380 U	380 U	480 U	480 U	430 U	400 U	420 U	520 U	410 U	420 U	410 U
	CHRYSENE	15000	400	110	99	20 J	250	45	71 J	350	140	24 J	2500	290	49	690	180	9.6 J	380 J
	DIBENZO(A,H)ANTHRACENE	15	400	25	22 U	22 U	55 J	5.4 J	17 J	95	40	27 U	320	64	25.5 U	110	40 J	26 U	68
	DIBENZOFURAN			390 U	NA	420 U	410 U	380 U	380 U	380 U	480 U	480 U	430 U	400 U	420 U	520 U	410 U	420 U	410 U
	FLUORANTHENE	2300000	20000	190	230	36	430	91	130	700	240	50	5900	390	95.5	1400	250	16 J	910
	FLUORENE	2300000	28000	6.8 J	9.3 J	22 U	14 J	2.9 J	5.1 J	40	11 J	27 U	100	17 J	25.5 U	57	8.3 J	26 UJ	48 J
	HIGH MOLECULAR WEIGHT PAHS			967 J	1129	167 J	1983 J	502.4 J	660.2 J	2960	1199	226 J	23900	2274	431	5210 J	1348 J	88.3 J	3657 J
	INDENO(1,2,3-CD)PYRENE	150	900	65	41	15 J	110 J	20 J	45	180	87	19 J	1500	160	35.5	280	110 J	6.7 J	140
	LOW MOLECULAR WEIGHT PAHS			112 J	136.6 J	18.9 J	272.1 J	56.7 J	89.1 J	754 J	216.9 J	29.1 J	2646 J	379.6 J	67.3 J	1088 J	221.2 J	21.9 J	1065 J
	NAPHTHALENE	3900	54000	22 U	2.3 J	6.9 J	22 U	6.3 J	6.4 J	15 J	11 J	27 U	16 J	13 J	9.5 J	14 J	9.5 J	26 U	5.4 J
	N-NITROSODIPHENYLAMINE	99000		390 U	NA	420 U	410 U	380 U	380 U	380 U	480 UJ	480 U	430 U	400 J	420 U	520 U	410 U	420 U	410 U
	PHENANTHRENE	1700000	40000	78	100	12 J	200	45	65	520	150	23 J	2000	260	41	830	150	10 J	780
	PYRENE	1700000	13000	180 J	220	32	400	95	140	490	200	35	4000	400	61.5	950	180	11 J	1000
	TOTAL PAHS			1079 J	1265.6 J	185.9 J	2255.1 J	559.1 J	745.8 J	3714 J	1415.9 J	255.1 J	26546 J	2653.6 J	498.3 J	6298 J	1569.2 J	110.2 J	4722 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.9 UJ	NA	4.2 UJ	4.1 UJ	3.8 UJ	3.8 UJ	3.8 U	5.1 J	2.6 J	4.3 U	4 U	4.2 U	5.2 U	5.2 J	4.2 U	4.1 U
	4,4'-DDE	1400		3.9 UJ	NA	4.2 UJ	2.4 J	1.4 J	1.5 J	3.9 J	8 J	7.9	4.3 U	2.4 J	1.4 J	4.7 J	22	4.2 U	6.0
	4,4'-DDT	1700		3.9 UJ	NA	4.2 UJ	4.1 UJ	1.2 J	1.8 J	14 J	12 J	5.1 J	4.3 U	16 J	2.7 J	5.2 U	38	4.2 U	4.1 U
	ALPHA-CHLORDANE	1600	500	2 UJ	NA	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	3.2 J	2.2 U	2.1 U	2.2 U	2.7 U	16 J	2.2 U	2.1 U
	AROCLOR-1254	1100	10000	20 U	NA	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U	22 U	21 U	22 UJ	27 U	21 U	22 U	21 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	PARAMETER	ORNLSLDCR	RIDEMDCR	SAMPLE ID	LOCATION ID	TOP DEPTH	BOTTOM DEPTH	SAMPLE DATE	SAMPLE CODE
				DA-SB136-0001-LOCDEPTHMAX	DA-SB136	0	1	01/10/08	NORMAL
				DA-SB137-0001-LOCDEPTHMAX	DA-SB137	0	1	01/16/08	NORMAL
				DA-SB138-0001-LOCDEPTHMAX	DA-SB138	0	1	01/11/08	NORMAL
				DA-SB139-0001-LOCDEPTHMAX	DA-SB139	0	1	01/11/08	NORMAL
				DA-SB140-0001-LOCDEPTHMAX	DA-SB140	0	1	01/11/08	NORMAL
				DA-SB141-0001-LOCDEPTHMAX	DA-SB141	0	1	01/11/08	NORMAL
				DA-SB142-0001-LOCDEPTHMAX	DA-SB142	0	1	01/17/08	NORMAL
				DA-SB143-0001-LOCDEPTHMAX	DA-SB143	0	1	01/17/08	NORMAL
				DA-SB144-0001-LOCDEPTHMAX	DA-SB144	0	1	01/17/08	NORMAL
				DA-SB145-0001-LOCDEPTHMAX	DA-SB145	0	1	01/17/08	NORMAL
				DA-SB146-0001-LOCDEPTHMAX	DA-SB146	0	1	01/17/08	NORMAL
				DA-SS147-011708-AVG	DA-SB147	0	1	01/17/08	AVG
				DA-SS148-011708	DA-SB148	0	1	01/17/08	NORMAL
				DA-SS149-011708	DA-SB149	0	1	01/17/08	NORMAL
				DA-SS152-011608	DA-SB152	0	1	01/16/08	NORMAL
				DA-SS153-011608	DA-SB153	0	1	01/16/08	NORMAL
PESTICIDES/PCBS (UG/KG)	AROCLOR-1260	220	10000	20 U	NA	22 UJ	74 J	20 UJ	20 UJ	20 UJ	250 J	68 J	24 UJ	350 J	140	22 UJ	74	46	22 UJ	510 J
	AROCLOR-1268	220	10000	20 U	NA	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U	22 U	21 U	22 U	27 U	21 U	22 U	21 U
	DIELDRIN	30	40	3.9 UJ	NA	4.2 UJ	4.1 UJ	1.3 J	3.8 UJ	3.8 U	4.8 U	4.1 J	4.3 U	4 U	4.2 U	5.2 U	23	4.2 U	4.1 U
	ENDRIN	18000		3.9 UJ	NA	4.2 UJ	4.1 UJ	3.8 UJ	3.8 UJ	3.8 U	2.4 J	4.8 U	4.3 U	4 U	4.2 U	5.2 U	4.1 U	4.2 U	4.1 U
	GAMMA-CHLORDANE	1600	500	2 UJ	NA	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	3.2	2.2 U	2.1 U	2.2 U	2.7 U	10	2.2 U	2.1 U
	HEPTACHLOR	110		2 UJ	NA	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	2.4 U	2.2 U	2.1 U	2.2 U	2.7 U	1.2 J	2.2 U	2.1 U
	TOTAL AROCLOR	220	10000	20 U	NA	22 UJ	74 J	20 UJ	20 UJ	250 J	68 J	24 UJ	350 J	140	22 UJ	74	46	22 UJ	510 J
	TOTAL DDD/DDE/DDT			3.9 UJ	NA	4.2 UJ	2.4 J	2.6 J	3.3 J	17.9 J	25.1 J	15.6 J	4.3 U	18.4 J	4.1 J	4.7 J	65.2 J	4.2 U	6
METALS (MG/KG)	ALUMINUM	77000		11500	NA	17600	15700	14100	12600	12200	17600	16100	12200	11600	17200	20700	13800	14000	12100
	ANTIMONY	31	10	0.17 UJ	NA	0.09 UJ	0.21 UJ	0.14 UJ	0.16 UJ	0.15 UJ	0.19 UJ	0.17 UJ	0.43 J	0.08 UJ	0.185 UJ	0.26 UJ	0.19 UJ	0.09 UJ	0.18 UJ
	ARSENIC	0.39	7	26.9	NA	7.5	10.6	26.6	15.4	14.5	16.8	13.9	18.6	10	7.8	19.4	19.4	6	31.6
	BARIUM	15000	5500	19.4	NA	25.3	21.3	27.5	18.7	22.9	32.6	27.6	42.8	16.1	19.5	42.2	32	24.8	27.9
	BERYLLIUM	160	0.4	0.45 J	NA	0.54	0.49 J	0.51 J	0.43 J	0.54 J	0.58 J	0.58 J	0.49 J	0.43 J	0.45 J	0.74 J	0.55 J	0.45 J	0.44 J
	CADMIUM	70	39	0.24 UJ	NA	0.24 UJ	0.19 UJ	0.02 U	0.28 UJ	0.26 J	0.02 UJ	0.02 UJ	2.4	0.82 J	0.02 UJ	1.2 J	1.2 J	0.08 J	0.02 UJ
	CALCIUM			251 J	NA	305 J	363 J	531 J	732 J	616 J	491 J	580 J	1420 J	817 J	528 J	2230 J	1550 J	602	1290
	CHROMIUM	230	390	16.2	NA	15.2	16.9	22.5	15.5	16.1	19	16.1	33.4	16.1	19.9	26	19.1	14.3	15
	COBALT	23		9.5	NA	2.2 J	4.7 J	15.8	10.8	10.4	28.4	11.7	20.7	11.2	9.05	18.8	218	4.7	11.9
	COPPER	3100	3100	26.7 J	NA	9.1 J	17.2 J	23.5 J	16.5 J	21.2	20.4	12.7	63	48.8	14.9	28	50.4	12.9 J	21.1 J
	IRON	55000		31500	NA	18100	21500	37200	24600	25300	33600	30700	28200	21800	30600	38000	43700	17700	27300
	LEAD	400	150	20.6	NA	42.7	43.5	12.6	69.7	33.6	45.9	18.6	112	46.9	25.2	90.2	2870	14.5	23.4
	MAGNESIUM			2910 J	NA	1210 J	2220 J	3720 J	3450 J	2950	3140	2520	3650	3070	3580	4550	3940	2270	3120
	MANGANESE	1800	390	248 J	NA	79.8 J	150 J	517 J	359 J	354	866	231	444	487	282	1210	2020	105	377
	MERCURY	23	23	0.03 J	NA	0.03 J	0.06	0.02 J	0.02 J	0.08	0.08	0.03 J	0.08 J	0.04 J	0.05 J	0.15	0.05 J	0.32	0.04 J
	MOLYBDENUM	390		0.58 J	NA	0.50 J	0.63 J	0.46 J	0.22 J	0.49 J	0.53 J	0.59 J	3.2	0.45 J	0.495 J	0.98 J	7.6	0.34 UJ	0.44 UJ
	NICKEL	1600	1000	24.3	NA	8.7 J	15.3	28.3	21.1	19.6	27.4	24.7	27.9	18.9	23	32.5	28.5	14.3	22.4
	POTASSIUM			444 J	NA	301 J	354 J	586 J	421 J	416 J	380 J	319 J	505 J	392 J	359 J	586 J	416 J	320	500
	SELENIUM	390	390	0.3 UJ	NA	0.6 UJ	0.44 UJ	0.24 U	0.21 UJ	0.36 UJ	0.37 UJ	0.3 UJ	0.52 UJ	0.34 UJ	0.605 UJ	0.67 UJ	0.33 U	0.6 J	0.58 J
	SILVER	390	200	0.09 UJ	NA	0.05 UJ	0.05 UJ	0.07 UJ	0.05 UJ	0.08 UJ	0.1 UJ	0.09 UJ	0.16 J	0.04 UJ	0.315 J	0.73 J	0.68 J	0.05 UJ	0.09 UJ
	SODIUM			38.4 J	NA	44.3 J	40.6 J	56.5 J	52.4 J	32.9 J	34.5 J	41.9 J	274	306	31.6 J	61.8 J	108 J	44.9 UJ	58.9 UJ
	THALLIUM	5.1	5.5	0.04 UJ	NA	0.1 UJ	0.08 UJ	0.05 UJ	0.04 U	0.1 UJ	0.08 UJ	0.1 UJ	0.05 UJ	0.17 UJ	0.09 UJ	0.1 UJ	0.04 UJ	0.1 UJ	0.04 UJ
	VANADIUM	390	550	36.7	NA	27.2	47.2	19.9	21	21.5	36.2	21.3	27.1	23.6	28.2	38.6	24.4	22.7	19.2
	ZINC	23000	6000	58.5	NA	31.5	56.2	63.9	49.7	59.1	108	65.3	171	158	64.4	125	175	58	68.8
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			89	90	91	93	83	93	84	77	74	74	91.5	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72000	28000
MISCELLANEOUS PARAMETERS (S.U.)	PH			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2	5.3
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			3.4 U	4.0 U	3.3 UJ	3.6 U	2.8 U	2.6 U	3.2 U	4.5 U	4.4 U	3.5 U	3.3 U	4.2 U	5.0 UJ	8.1	3.6 U	3.1 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			36000	NA	68000 J	76000	19000	22000	57000	96000	24000	310000 J	100000	64000	58000	72000	56000 J	60000 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-TP01-0001-01	DA-S-TP05-0001-01	DA-S-TP06-0001-01	DA-S-TP07-0001-01	DA-S-TP08-0001-01	DA-S-TP09-0001-01	DA-S-TP09-0102-01-AVG	DA-S-TP10-0001-01	DA-S-TP10-0102-01	DA-S-TP11-0001-01	DA-S-TP12-0001-01	DA-S-TP12-0102-01	DA-S-TP12A-0001-01	DA-S-TP12B-0001-01	DA-S-TP13-0001-01	DA-S-TP15-0001-01
	LOCATION ID			DA-TP-01	DA-TP-05	DA-TP-06	DA-TP-07	DA-TP-08	DA-TP-09	DA-TP-09	DA-TP-10	DA-TP-10	DA-TP-11	DA-TP-12	DA-TP-12	DA-TP-12A	DA-TP-12B	DA-TP-13	DA-TP-15
	TOP DEPTH			0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0
	BOTTOM DEPTH			1	1	1	1	1	1	2	1	2	1	1	2	1	1	1	1
	SAMPLE DATE			08/11/03	08/11/03	08/13/03	08/12/03	08/15/03	08/14/03	08/14/03	08/14/03	08/14/03	08/14/03	08/13/03	08/13/03	08/15/03	08/15/03	08/15/03	08/12/03
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		1600	0.26 U	0.33 U	0.29 U	0.26 U	0.33 UJ	0.245 U	0.39 UJ	0.35 U	0.32 U	0.28 U	0.26 U	0.27 U	1.4 J	1.2 J	0.32 U
	1,3,5-TRIMETHYLBENZENE	47000		860 J	0.22 U	0.28 U	0.25 U	0.22 U	0.28 UJ	0.21 U	0.33 UJ	0.29 U	0.27 U	0.23 U	0.22 U	0.23 U	0.3 U	0.24 U	0.27 U
	2-BUTANONE	28000000	10000000	660 U	0.33 U	0.42 U	0.37 U	0.34 U	2.8 J	0.31 U	0.49 U	0.44 U	0.41 U	0.35 U	0.34 U	0.35 U	0.45 U	0.36 U	0.4 U
	4-ISOPROPYLTOLUENE			260	0.27 U	0.35 U	0.3 U	0.28 U	0.35 UJ	0.255 U	0.41 UJ	0.36 U	0.34 U	0.29 U	0.28 U	0.29 U	0.37 U	0.3 U	0.33 U
	ACETONE	61000000	7800000	590 U	5.4 U	6.9 U	6.1 U	5.6 U	66 J	5.15 U	8.2 U	7.3 U	6.8 U	5.8 U	5.6 U	5.7 U	7.5 U	9.9	6.7 U
	BENZENE	1100	2500	120 U	0.23 U	0.3 U	0.26 U	0.24 U	0.3 U	0.225 U	0.35 U	0.31 U	0.29 U	0.25 U	0.24 U	0.25 U	0.32 U	0.26 U	0.29 U
	BTEX			580	0.79	0.44 U	0.38 U	0.35 U	0.44 U	0.33 U	0.52 U	0.46 U	0.43 U	0.36 U	0.35 U	0.36 U	0.47 U	0.89	0.42 U
	M+P-XYLENES	4500000		350	0.79 J	0.78 U	0.69 U	0.62 U	0.78 U	0.585 U	0.92 U	0.82 U	0.76 U	0.65 U	0.62 U	0.64 U	0.84 U	0.89 J	0.75 U
	METHYLENE CHLORIDE	11000	45000	150 U	5.8 U	7.3 U	6.5 U	5.9 U	7.4 U	5.45 U	8.6 U	7.7 U	7.1 U	6.1 U	5.9 U	6.1 U	7.9 U	6.4 U	7.1 U
	N-BUTYLBENZENE			260	0.31 U	0.4 U	0.35 U	0.32 U	0.4 UJ	0.295 U	0.47 UJ	0.42 U	0.39 U	0.33 U	0.32 U	0.33 U	0.43 U	0.35 U	0.38 U
	N-PROPYLBENZENE			300	0.28 U	0.36 U	0.32 U	0.29 U	0.36 UJ	0.27 U	0.42 UJ	0.38 U	0.35 U	0.3 U	0.29 U	0.3 U	0.39 U	0.32 U	0.35 U
	O-XYLENE	5300000		230	0.49 U	0.63 U	0.56 U	0.5 U	0.63 U	0.47 U	0.74 U	0.66 U	0.61 U	0.52 U	0.5 U	0.52 U	0.68 U	0.55 U	0.61 U
	SEC-BUTYLBENZENE			160 U	0.28 U	0.35 U	0.31 U	0.28 U	0.35 UJ	0.265 U	0.41 UJ	0.37 U	0.34 U	0.29 U	0.28 U	0.29 U	0.38 U	0.3 U	0.34 U
	TOLUENE	5000000	190000	120 U	0.24 U	0.31 U	0.27 U	0.25 U	0.31 U	0.23 U	0.36 U	0.32 U	0.3 U	0.26 U	0.25 U	0.25 U	0.33 U	0.27 U	0.3 U
	TOTAL CHLORINATED ETHENES			130 U	0.33 U	0.42 U	0.37 U	0.34 U	0.42 U	0.32 U	0.5 U	0.44 U	0.41 U	0.35 U	0.34 U	0.35 U	0.46 U	0.37 U	0.41 U
	TOTAL CHLORINATED VOCS			120 UJ	0.47 U	0.6 U	0.53 U	0.48 U	0.6 UJ	0.45 U	0.71 UJ	0.63 U	0.58 U	0.5 U	0.48 U	0.5 U	0.65 U	0.52 U	0.58 U
	TOTAL XYLENES	600000	110000	580	0.79	0.78 U	0.69 U	0.62 U	0.78 U	0.585 U	0.92 U	0.82 U	0.76 U	0.65 U	0.62 U	0.64 U	0.84 U	0.89	0.75 U
	TRICHLOROETHENE	2800	13000	130 U	0.3 U	0.39 U	0.34 U	0.31 U	0.39 U	0.29 U	0.46 U	0.41 U	0.38 U	0.32 U	0.31 U	0.32 U	0.42 U	0.34 U	0.37 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLNAPHTHALENE	310000	123000	260 U	210 U	220 U	220 U	220 U	240 U	220 U	1300 U	240 U	240 U	230 U	220 U	240 U	250 U	220 U	220 U
	3,3'-DICHLOROBENZIDINE	1100	1400	120 U	100 U	110 U	100 U	100 U	110 U	110 U	600 U	110 U	110 U	110 J	100 U	110 U	120 U	100 U	100 U
	ACENAPHTHENE	3400000	43000	130 J	66 U	69 U	110 J	120 J	74 U	69 U	390 U	72 U	74 U	70 U	68 U	73 U	78 U	67 U	960
	ACENAPHTHYLENE	3400000	23000	100 U	86 U	90 U	88 U	89 U	97 U	90 U	510 U	95 U	97 U	92 U	89 U	290 J	100 U	87 U	87 U
	ANTHRACENE	17000000	35000	370 J	160 J	52 J	270 J	520 J	48 U	45 U	610 J	47 U	48 U	46 U	44 U	420 J	51 U	44 U	3200
	BENZO(A)ANTHRACENE	150	900	900	590	170 J	580	1600	90 J	82 U	1300 J	120 J	88 U	83 U	81 U	810	150 J	79 U	8100
	BENZO(A)PYRENE	15	400	730	460 J	120 J	460 J	840	91 U	85 U	1100 J	89 J	91 U	86 U	84 U	740	96 U	82 U	4800
	BENZO(B)FLUORANTHENE	150	900	630 J	460 J	140 J	420 J	820	110 U	100 U	1300 J	110 U	110 U	110 U	100 U	1300	190 J	100 U	4500
	BENZO(G,H,I)PERYLENE	1700000	800	500 J	330 J	120 U	370 J	420 J	130 U	120 U	890 J	130 U	130 U	120 U	120 U	510 J	140 U	120 U	2400
	BENZO(K)FLUORANTHENE	1500	900	680 J	470 J	130 J	430 J	880	86 U	79 U	1100 J	86 J	86 U	80 U	78 U	1100	160 J	77 U	4600
	BENZOIC ACID	240000000		280 U	230 U	240 UJ	230 U	240 UJ	5900 J	915 J	1400 U	1100 J	1600 J	1100 J	240 U	1500 J	3100 J	230 UJ	230 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	560 J	530 J	460 J	110 U	120 U	490 J	445 J	660 U	470 J	480 J	120 U	120 U	120 U	130 U	110 U	110 U
	BUTYL BENZYL PHTHALATE	260000		130 U	100 U	110 U	110 U	110 U	120 U	110 U	620 U	110 U	120 U	110 U	110 U	120 U	120 U	100 U	100 U
	CARBAZOLE			220 J	76 U	79 U	160 J	470 J	85 U	79 U	480 J	83 U	85 U	80 U	78 U	410 J	90 U	76 U	2800
	CHRYSENE	15000	400	910	610	180 J	570 J	1500	120 J	84 U	1500 J	130 J	91 U	85 U	83 U	1300	200 J	81 U	7900
	DIBENZO(A,H)ANTHRACENE	15	400	170 U	140 U	150 U	140 U	150 U	160 U	150 U	840 U	160 U	160 U	150 U	150 U	160 U	170 U	140 U	1000
	DIBENZOFURAN			140 U	120 U	120 U	120 U	120 U	130 U	120 U	710 U	130 U	130 U	130 U	120 U	130 U	140 U	120 U	670
	FLUORANTHENE	2300000	20000	2200	1300	370 J	1200	4100	230 J	68 U	2900 J	280 J	74 U	69 U	68 U	1700	320 J	66 U	21000
	FLUORENE	2300000	28000	160 J	70 J	68 U	100 J	180 J	74 U	68 U	390 U	72 U	74 U	69 U	68 U	73 U	78 U	66 U	1300
	HIGH MOLECULAR WEIGHT PAHS			8800 J	5610 J	1420 J	5350 J	13880 J	640 J	100 U	12590 J	925 J	110 U	100 U	100 U	9800 J	1310 J	98 U	73800
	INDENO(1,2,3-CD)PYRENE	150	900	450 J	290 J	160 U	320 J	420 J	180 U	160 U	920 U	170 U	180 U	160 U	160 U	540 J	180 U	160 U	2500
	LOW MOLECULAR WEIGHT PAHS			3040 J	1020 J	282 J	1480 J	3220 J	140 J	81 U	2510 J	220 J	87 U	83 U	80 U	1010 J	140 J	79 U	20680 J
	NAPHTHALENE	3900	54000	780 J	4.1 U	5.3 U	4.6 U	4.2 U	5.3 UJ	3.9 U	6.2 UJ	5.5 U	5.1 U	4.4 U	4.2 U	4.4 U	5.7 U	4.6 U	220 J
	N-NITROSODIPHENYLAMINE	99000		120 U	97 U	100 U	99 U	100 U	110 U	100 U	580 U	110 U	110 U	100 U	100 U	110 U	120 U	98 U	98 U
	PHENANTHRENE	1700000	40000	1600	790	230 J	1000	2400	140 J	68 U	1900 J	220 J	74 U	69 U	68 U	300 J	140 J	66 U	15000
	PYRENE	1700000	13000	1800	1100	310 J	1000	3300	200 J	75 U	2500 J	220 J	80 U	76 U	74 U	1800	290 J	72 U	17000
	TOTAL PAHS			11840 J	6630 J	1702 J	6830 J	17100 J	780 J	92 U	15100 J	1145 J	100 U	94 U	92 U	10810 J	1450 J	90 U	94480 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		94.4 U	38.6 U	20.2 U	79.1 U	10 U	10.9 U	2.02 U	115 U	10.6 U	10.9 U	2.05 U	2 U	43 U	115 U	1.03 UJ	39.1 U
	4,4'-DDE	1400		44.4 U	18.2 U	9.52 U	216	4.7 UJ	5.13 U	0.952 U	54 U	5 U	5.13 U	0.964 U	0.941 U	20.2 UJ	54 UJ	2.18 UJ	18.4 U
	4,4'-DDT	1700		184 J	36.4 U	19 UJ	74.4 U	9.41 UJ	10.2 U	1.9 U	108 UJ	10 U	10.2 U	1.93 U	1.88 U	40.5 UJ	108 UJ	1.26 UJ	36.8 U
	ALPHA-CHLORDANE	1600	500	33.3 U	13.6 U	7.14 U	235	3.53 U	3.85 U	0.714 U	40.5 U	3.75 U	3.85 U	0.723 U	0.706 U	15.2 U	40.5 U	0.575 UJ	13.8 U
	AROCLOR-1254	1100	10000	152 J	22.2 UJ	23.2 U	5220 J	22.9 U	25 U	23.2 U	26.4 U	24.4 U	25 U	23.5 U	22.9 U	24.7 UJ	26.4 U	22.4 U	22.4 UJ

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-6

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-TP01-0001-01	DA-S-TP05-0001-01	DA-S-TP06-0001-01	DA-S-TP07-0001-01	DA-S-TP08-0001-01	DA-S-TP09-0001-01	DA-S-TP09-0102-01-AVG	DA-S-TP10-0001-01	DA-S-TP10-0102-01	DA-S-TP11-0001-01	DA-S-TP12-0001-01	DA-S-TP12-0102-01	DA-S-TP12A-0001-01	DA-S-TP12B-0001-01	DA-S-TP13-0001-01	DA-S-TP15-0001-01
	LOCATION ID			DA-TP-01	DA-TP-05	DA-TP-06	DA-TP-07	DA-TP-08	DA-TP-09	DA-TP-09	DA-TP-10	DA-TP-10	DA-TP-11	DA-TP-12	DA-TP-12	DA-TP-12A	DA-TP-12B	DA-TP-13	DA-TP-15
	TOP DEPTH			0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0
	BOTTOM DEPTH			1	1	1	1	1	1	2	1	2	1	1	2	1	1	1	1
	SAMPLE DATE			08/11/03	08/11/03	08/13/03	08/12/03	08/15/03	08/14/03	08/14/03	08/14/03	08/14/03	08/14/03	08/13/03	08/13/03	08/15/03	08/15/03	08/15/03	08/12/03
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
PESTICIDES/PCBS (UG/KG)	AROCLOR-1260	220	10000	15.3 U	94.8	13.1 U	12.8 U	12.9 U	14.1 U	13.1 U	117	13.8 U	14.1 U	13.2 U	12.9 U	115 J	14.9 U	12.6 U	12.6 U
	AROCLOR-1268	220	10000	134	22.2 U	23.2 U	22.7 U	22.9 U	25 U	23.2 U	26.4 U	24.4 U	25 U	23.5 U	22.9 U	24.7 UJ	26.4 U	22.4 U	22.4 U
	DIELDRIN	30	40	38.9 U	15.9 U	8.33 U	32.6 U	4.12 UJ	4.49 U	0.833 U	47.3 U	4.38 U	4.49 U	0.843 U	0.824 U	17.7 UJ	47.3 UJ	2.18 UJ	16.1 U
	ENDRIN	18000		44.4 U	18.2 U	9.52 U	37.2 U	4.7 U	5.13 U	0.952 U	54 U	5 U	5.13 U	0.964 U	0.941 U	20.2 U	54 U	1.03 UJ	18.4 U
	GAMMA-CHLORDANE	1600	500	27.8 U	11.4 U	5.95 U	23.2 U	2.94 U	3.2 U	0.595 U	33.8 U	3.12 U	3.2 U	0.602 U	0.588 U	12.6 U	33.8 U	1.15 UJ	11.5 U
	HEPTACHLOR	110		33.3 U	13.6 U	7.14 U	27.9 U	3.53 U	3.85 U	0.714 U	40.5 U	3.75 U	3.85 U	0.723 U	0.706 U	15.2 U	40.5 U	1.72 UJ	13.8 U
	TOTAL AROCLOR	220	10000	286 J	94.8 J	22 U	5220 J	22 U	24 U	22 U	117	23 U	24 U	22 U	22 U	115 J	25 U	21 U	21 UJ
	TOTAL DDD/DDE/DDT			184 J	31 U	16 UJ	216	8 UJ	8.7 U	1.6 U	92 UJ	8.5 U	8.7 U	1.6 U	1.6 U	35 UJ	92 UJ	1.5 UJ	31 U
METALS (MG/KG)	ALUMINUM	77000		9100	7000	9500	5400	9400	8800	12500	9200	11000	11000	9500 J	8200	9000	10000	8700	8000
	ANTIMONY	31	10	1.3	0.33 U	0.45 U	0.22 U	0.25 U	0.4 U	0.107 U	5.5 J	1.1 U	0.33 U	0.23 U	0.32 U	1.3	0.74 U	0.41 U	0.27 U
	ARSENIC	0.39	7	19 J	13 J	18 J	19 J	25	11 J	10.5 J	15 J	13 J	19 J	14 J	19 J	15	14	90	21 J
	BARIUM	15000	5500	39	17	17	26	12	10	10.25	36	17	16	16	16	19	28	13	17
	BERYLLIUM	160	0.4	0.33	0.34	0.23 J	0.26	0.3	0.26 J	0.325 J	0.29 J	0.35 J	0.36 J	0.32 J	0.39 J	0.3	0.38	0.42	0.33
	CADMIUM	70	39	11	0.92 J	0.24 U	0.2 J	0.019 UJ	0.09 U	0.105 U	0.84 J	0.14 U	0.065 U	0.13 U	0.019 U	0.02 UJ	0.022 UJ	0.018 UJ	0.27 J
	CALCIUM			1400 J	800 J	1400 J	1200 J	590	280 J	270 J	2500 J	480 J	120 J	220 J	83 J	460	370	39	600 J
	CHROMIUM	230	390	26	9.3 J	13 J	7.1 J	11 J	11 J	14.5 J	64 J	13 J	12 J	12 J	11 J	13	12	9.5 J	9.2 J
	COBALT	23		17 J	9.2 J	8.3	9 J	14	5.9	11	10	9	7.4	11	13	8.9	7.3	20	10 J
	COPPER	3100	3100	51	24	19	17	20	16	19.5	560	20	18	20	24	24	18	30	18
	IRON	55000		21000	24000	24000 J	14000	26000	23000 J	30000 J	27000 J	25000 J	30000	27000 J	27000	24000	24000	28000	21000
	LEAD	400	150	120	22	26	23	9.7	25	9.65	160	15	17	7.8	6.4	36	40	11	14
	MAGNESIUM			2500	2200	3200 J	1400	2900	2100 J	3750 J	2900 J	2600 J	2300 J	2600 J	2200 J	2400	2000	2400	2200
	MANGANESE	1800	390	300	380	240	240	410	140	215	360	210	190	260	300	310	240	410	310
	MERCURY	23	23	0.14 J	0.084 J	0.072	0.14 J	0.00815 U	0.12	0.023	0.098	0.041	0.061	0.028	0.011 J	0.0426	0.0742	0.00813 U	0.029 J
	MOLYBDENUM	390		0.84	0.44	0.39 U	0.32 U	0.29 U	0.39 U	0.225 U	0.48 U	0.33 U	0.63 U	0.24 U	0.46 U	0.44 U	0.45 U	0.3 U	0.19 U
	NICKEL	1600	1000	24	15	17	12	21	14	22	18	18	17	19	21	17	16	26	16
	POTASSIUM			300	240	180	170	180	130	125	270	150	180	200	170	170	170	150	180
	SELENIUM	390	390	0.14 UJ	0.11 UJ	0.12 U	0.11 UJ	0.12 U	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.19 J	0.11 U	0.11 UJ
	SILVER	390	200	2	0.094 U	0.054 U	0.56 U	0.049 U	0.35	0.033 U	0.3 U	0.22 U	0.23 U	0.034 U	0.033 U	0.17 U	0.74	0.032 U	0.064 U
	SODIUM			48 U	29 U	26 U	22 U	23 U	26 U	20 U	37 U	32 U	30 U	21 U	18 U	20 U	23 U	17 U	29 U
	THALLIUM	5.1	5.5	0.97 U	0.79 U	0.83 U	0.8 U	0.81 U	0.89 U	0.825 U	0.94 U	0.87 U	0.88 U	0.84 U	0.82 U	0.88 U	0.94 U	0.79 U	0.79 U
	VANADIUM	390	550	18	14	18	13	14	19	17	29	20	24	15	15	24	28	14	14
	ZINC	23000	6000	120	71	65 J	40	46	35 J	49 J	280 J	50 J	44 J	46 J	46 J	72	68	59	48
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			72	88	84	86	85	78	84	74	80	78	83	85	79	74	87	87
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			27	0.56 J	1.6 J	0.75 J	7 U	2.3 J	0.955 J	1.2 J	2.9 J	1.4 J	5.6 J	1.7 J	7 U	7.9 U	8.6 U	0.7 J
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			63000 J	52000 J	20000 J	430000	59000 U	96000	60000 U	180000	62000 U	55000 J	17000 U	60000 U	11000	12000	57000 U	110000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-7

DRAFT FINAL

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0002-AVG	DA-B101B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-SS-B125B-0103-072108-AVG	DA-SS-B126B-0103-072208	DA-S-SB01-0102-01	DA-S-SB02-0102-01	DA-S-SB04-0102-01
	LOCATION ID			DA-MW100B	DA-MW101B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW125B	DA-MW126B	DA-SB-01	DA-SB-02	DA-SB-04
	TOP DEPTH			0	0	0	0	0	1	1	1	1	1
	BOTTOM DEPTH			2	2	2	2	2	3	3	2	2	2
	SAMPLE DATE			03/20/08	03/20/08	03/21/08	03/21/08	03/20/08	07/21/08	07/22/08	08/19/03	08/18/03	08/18/03
	SAMPLE CODE			AVG	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 UJ	4.4 U	0.33 U	0.24 U
	1,3,5-TRIMETHYLBENZENE	47000		5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 UJ	4.4 U	0.28 U	0.21 U
	2-BUTANONE	28000000	10000000	25 U	25 UJ	25 U	25 U	25 UJ	14.2 J	31 J	23	16	1.8 J
	ACETONE	61000000	7800000	12.2 J	25 J	32	14 J	25 UJ	51 J	160 J	94 J	46	8.5
	BTEX			5.6 U	5.6 UJ	5.6 U	5.6 U	5.6 UJ	5.6 UJ	5.6 UJ	0.99 U	0.44 U	0.32 U
	CARBON DISULFIDE	670000		5 U	5 UJ	5 U	5 U	5 UJ	5 U	2 J	0.95 J	0.44 U	0.33 U
	CHLOROFORM	300	1200	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 UJ	0.76 J	0.36 U	0.26 U
	ETHYLBENZENE	5700	71000	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 UJ	0.89 U	0.36 U	0.27 U
	M+P-XYLENES	4500000		10 U	10 UJ	10 U	10 U	10 UJ	10 U	10 UJ	0.89 U	0.78 U	0.58 U
	O-XYLENE	5300000		5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	0.89 U	0.62 U	0.46 U
	SEC-BUTYLBENZENE			5 U	5 UJ	5 U	5 U	5 UJ	1.75 J	5 UJ	0.97	0.35 U	0.26 U
	TERT-BUTYLBENZENE			5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 UJ	1.1 J	0.36 U	0.27 U
	TETRACHLOROETHENE	570	12000	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 UJ	0.89 U	2.4	0.26 U
	TOTAL CHLORINATED ETHENES			6.2 U	3 J	6.2 U	6.2 U	6.2 UJ	6.2 U	6.2 UJ	1.2 U	2.4	0.31 U
	TOTAL CHLORINATED VOCS			6.6 UJ	3 J	6.6 UJ	6.6 UJ	6.6 UJ	6.6 U	6.6 UJ	0.76 J	2.4	0.44 U
	TOTAL XYLENES	600000	110000	7.5 U	7.5 UJ	7.5 U	7.5 U	7.5 UJ	7.5 UJ	7.5 UJ	0.89 U	0.78 U	0.58 U
	TRICHLOROETHENE	2800	13000	5 U	3 J	5 U	5 U	5 UJ	5 U	5 UJ	0.89 U	0.38 U	0.28 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	123000	7 J	6.9 J	8.9 J	120	42	23.5 U	23 U	910 U	230 U	210 UJ
	ACENAPHTHENE	3400000	43000	2.65 J	3.3 J	4.5 J	890	710	23.5 U	23 U	570 U	70 U	64 UJ
	ACENAPHTHYLENE	3400000	23000	21 U	22 U	3.1 J	22 U	21 U	23.5 U	23 U	570 U	92 U	84 UJ
	ANTHRACENE	17000000	35000	21 U	12 J	9.5 J	890	2000	6.65 J	23 U	570 U	46 U	54 J
	BENZO(A)ANTHRACENE	150	900	73.5 J	46	130 J	2200	5600 J	9.95 J	2.6 J	240 J	83 U	190 J
	BENZO(A)PYRENE	15	400	68.5 J	28	72	1800	4800 J	9.35 J	7.3 J	160 J	86 U	130 J
	BENZO(B)FLUORANTHENE	150	900	132 J	58	150 J	2000	5700 J	23.5 U	23 U	270 J	110 U	120 J
	BENZO(G,H,I)PERYLENE	1700000	800	31.5 J	22 U	31 J	700	2000 J	7.75 J	3 J	570 U	120 U	110 UJ
	BENZO(K)FLUORANTHENE	1500	900	34.5 J	19 J	35	1700	3900 J	23.5 UJ	23 UJ	290 J	80 U	130 J
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	345 U	360 U	360 U	360 U	350 U	385 U	380 U	410 J	790 U	400 U
	CARBAZOLE			345 U	360 U	360 U	610	800	385 U	380 U	570 U	80 U	73 UJ
	CHRYSENE	15000	400	40	29	90 J	2000	5700 J	6.05 J	2.8 J	550 J	85 U	180 J
	DIBENZO(A,H)ANTHRACENE	15	400	16.2 J	22 U	17 J	150 J	760	23.5 UJ	23 UJ	570 U	150 U	140 UJ
	DIBENZOFURAN			345 U	360 U	360 U	270 J	350 J	385 U	380 U	570 U	130 U	120 UJ
	FLUORANTHENE	2300000	20000	90.5	78	110	5100	10000	8.45 J	4.4 J	1600	140 J	390 J
	FLUORENE	2300000	28000	6.25 J	4 J	3.8 J	450	870	23.5 U	23 U	570 U	69 U	63 UJ
	HIGH MOLECULAR WEIGHT PAHS			595.7 J	306 J	838 J	21210 J	53660 J	56.2 J	23.4 J	4310 J	260 J	1480 J
	INDENO(1,2,3-CD)PYRENE	150	900	36.5 J	22 U	33	760	2200 J	8.25 J	23 U	800 U	160 U	150 UJ
	LOW MOLECULAR WEIGHT PAHS			53.9 J	74.1 J	98.8 J	6190 J	12174	11.25 J	23 U	920	73 J	314 J
	NAPHTHALENE	3900	54000	21 U	2.9 J	22 U	340 J	52	23.5 U	23 U	4.4 U	5.2 U	3.9 U
	PHENANTHRENE	1700000	40000	38 J	45	69 J	3500	8500	4.6 J	23 U	920	73 J	260 J
	PYRENE	1700000	13000	72.5	48	170 J	4800	13000	6.4 J	3.3 J	1200	120 J	340 J
	TOTAL PAHS			649.6 J	380.1 J	936.8 J	27400 J	65834 J	67.45 J	23.4 J	5230 J	333 J	1794 J

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SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SURFACE SOILS
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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0002-AVG	DA-B101B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-SS-B125B-0103-072108-AVG	DA-SS-B126B-0103-072208	DA-S-SB01-0102-01	DA-S-SB02-0102-01	DA-S-SB04-0102-01
	LOCATION ID			DA-MW100B	DA-MW101B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW125B	DA-MW126B	DA-SB-01	DA-SB-02	DA-SB-04
	TOP DEPTH			0	0	0	0	0	1	1	1	1	1
	BOTTOM DEPTH			2	2	2	2	2	3	3	2	2	2
	SAMPLE DATE			03/20/08	03/20/08	03/21/08	03/21/08	03/20/08	07/21/08	07/22/08	08/19/03	08/18/03	08/18/03
	SAMPLE CODE			AVG	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.45 U	3.6 U	1.9 J	3.6 U	3.5 U	NA	NA	4.54 UJ	20.5 U	18.7 U
	4,4'-DDE	1400		3.45 U	3.6 U	3.6 U	3.6 U	3.5 U	NA	NA	4.54 UJ	9.64 U	8.79 U
	4,4'-DDT	1700		3.45 UJ	3.6 UJ	1.3 J	3.6 U	3.5 UJ	NA	NA	4.54 UJ	19.3 U	17.6 U
	AROCLOR-1248	220	10000	18 U	19 U	18 U	18 U	18 U	NA	NA	56.8 UJ	23.5 U	21.4 U
	AROCLOR-1260	220	10000	18 U	19 U	18 U	18 U	18 UJ	NA	NA	56.8 UJ	13.2 U	12.1 U
	AROCLOR-1268	220	10000	18 U	19 U	18 U	18 U	18 U	NA	NA	56.8 UJ	23.5 U	94.1
	ENDOSULFAN II	370000		3.45 U	3.6 U	3.6 U	3.6 U	3.5 U	NA	NA	4.54 UJ	20.5 U	18.7 U
	TOTAL AROCLOR	220	10000	18 U	19 U	18 U	18 U	18 UJ	NA	NA	57 UJ	22 U	94.1
	TOTAL DDD/DDE/DDT			3.4 UJ	3.6 UJ	3.2 J	3.6 U	3.5 UJ	NA	NA	4.5 UJ	16 U	15 U
METALS (MG/KG)	ALUMINUM	77000		17000	19500	8130	12100	6650	NA	NA	7200	5800	5200
	ARSENIC	0.39	7	3.7 J	6 J	15.9 J	15.2 J	2.6 J	NA	NA	31	21 J	41 J
	BARIUM	15000	5500	13.3	17.6	25.4	19.6	23.3	NA	NA	11	20	12
	BERYLLIUM	160	0.4	0.23 J	0.32 J	0.34 J	0.32 J	0.21 J	NA	NA	0.4	0.41	0.31
	CADMIUM	70	39	0.01 U	0.01 U	0.01 U	0.01 U	0.12 UJ	NA	NA	0.018 U	0.14 U	0.017 UJ
	CALCIUM			2040 J	2480 J	1050 J	879 J	1550 J	NA	NA	790	930	810
	CHROMIUM	230	390	23.3 J	24.2 J	17.2 J	15.8 J	12.3 J	NA	NA	10 J	8.7	7.7
	COBALT	23		13.6	16.4	8	10.7	4	NA	NA	15	8.4	18
	COPPER	3100	3100	16.8	25.2	12.2	16.2	8	NA	NA	26	14	21
	IRON	55000		34800	38900	22100	26600	11100	NA	NA	30000	20000	22000
	LEAD	400	150	15.4	16.3	10.1	13.3	7.3	NA	NA	11	22	12
	MAGNESIUM			5580 J	6020 J	2670 J	3410 J	2420 J	NA	NA	2600 J	920	1600
	MANGANESE	1800	390	530	827	348	324	289	NA	NA	410	400	340
	MERCURY	23	23	0.01 U	0.01 U	0.01 U	0.02 UJ	0.02 UJ	NA	NA	0.00819 U	0.0419	0.00724 U
	MOLYBDENUM	390		0.168 J	0.21 J	0.38 J	0.44 J	0.39 J	NA	NA	0.57	0.55 U	0.43 U
	NICKEL	1600	1000	24.6	34.2	14.9	21.3	8.3	NA	NA	24	10	18
	POTASSIUM			546 J	727 J	956 J	558 J	1070 J	NA	NA	130	92 U	140
	SELENIUM	390	390	0.61 U	0.68 U	0.63 U	0.62 U	0.26 U	NA	NA	0.11 U	0.24 U	0.11 U
	SILVER	390	200	0.22 J	0.2 J	0.36 J	0.4 J	0.15 J	NA	NA	0.046 J	0.82	0.81
	SODIUM			138 J	144 J	48.1 J	33.4 J	57.7 J	NA	NA	30 U	42 U	33 U
	THALLIUM	5.1	5.5	0.02 UJ	0.05 UJ	0.05 UJ	0.04 UJ	0.05 UJ	NA	NA	0.18 J	0.32 J	0.38
	VANADIUM	390	550	26	22.8	17.2	17.8	14.3	NA	NA	16	17	9.1
	ZINC	23000	6000	60.1	71.1	46	49.1	27.5	NA	NA	58 J	36 J	39 J
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			96	91	92	92	94	NA	NA	88	83	91
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			2.7 U	47	2.8 U	2.5 U	2.8 U	2.75 U	2.6 U	0.73 J	1.3 U	0.97 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			175000 J	92000	470000	200000	550000	112000	30000	39000 J	55000 J	23000 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	PARAMETER	ORNLSLDCR	RIDEMDCR	DA-S-SB05-0102-01	DA-S-SB06-0515-01	DA-S-SB08-0102-01	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002
	SAMPLE ID			DA-S-SB05-0102-01	DA-S-SB06-0515-01	DA-S-SB08-0102-01	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002
	LOCATION ID			DA-SB-05	DA-SB-06	DA-SB-08	DA-SB100	DA-SB101	DA-SB102	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115
	TOP DEPTH			1	0.5	1	0	0	0	0	0	0	0	0
	BOTTOM DEPTH			2	1.5	2	2	2	2	2	2	2	2	2
	SAMPLE DATE			08/19/03	08/18/03	08/19/03	03/03/08	03/03/08	03/03/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		3.8 U	0.19 U	3.5 U	8 J	6 UJ	7 UJ	5 U	5 UJ	5 U	6 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		3.8 U	0.16 U	3.5 U	5 J	6 UJ	7 UJ	5 U	5 UJ	5 U	6 U	5 U
	2-BUTANONE	28000000	10000000	7.6 U	0.24 U	7 U	17 J	9 J	36 U	25 U	25 U	25 U	28 U	27 U
	ACETONE	61000000	7800000	7.6 U	4 U	38 J	400 J	70	1600 UJ	1600 UJ	25 U	8 J	12 J	80 U
	BTEX			0.61	0.25 U	0.78 U	5.8 UJ	6.6 U	13 J	5.6 U	5.6 U	5.6 U	6.6 U	5.8 U
	CARBON DISULFIDE	670000		7.6 U	0.26 U	7 U	5 UJ	6 U	7 U	5 U	5 U	5 U	6 U	5 U
	CHLOROFORM	300	1200	1.1 U	0.21 U	1 U	5 UJ	6 U	7 U	5 U	5 U	5 U	6 U	5 U
	ETHYLBENZENE	5700	71000	0.76 U	0.21 U	0.7 U	5 UJ	6 U	2 J	5 U	5 U	5 U	6 U	5 U
	M+P-XYLENES	4500000		0.61 J	0.45 U	0.7 U	11 UJ	11 U	9 J	10 U	10 U	10 U	11 U	11 U
	O-XYLENE	5300000		0.76 U	0.36 U	0.7 U	5 UJ	6 U	2 J	5 U	5 U	5 U	6 U	5 U
	SEC-BUTYLBENZENE			0.76 U	0.20 U	0.7 U	5 UJ	6 UJ	7 UJ	5 U	5 UJ	5 U	6 U	5 U
	TERT-BUTYLBENZENE			3.8 U	0.21 U	3.5 U	5 UJ	6 UJ	7 UJ	5 U	5 UJ	5 U	6 U	5 U
	TETRACHLOROETHENE	570	12000	0.76 U	0.20 U	0.7 U	5 UJ	6 U	7 U	5 U	5 U	5 U	6 U	5 U
	TOTAL CHLORINATED ETHENES			0.99 U	0.24 U	0.91 U	6.5 UJ	7.2 U	9 U	6.2 U	6.2 U	6.2 U	7.2 U	6.5 U
	TOTAL CHLORINATED VOCS			2.4 U	0.34 U	2.2 U	6.8 UJ	7.7 UJ	9.4 UJ	6.6 UJ	6.6 UJ	6.6 UJ	7.6 UJ	6.8 UJ
	TOTAL XYLENES	600000	110000	0.61	0.45 U	0.7 U	8 UJ	8.5 U	11 J	7.5 U	7.5 U	7.5 U	8.5 U	8 U
	TRICHLOROETHENE	2800	13000	0.76 U	0.22 U	0.7 U	5 UJ	6 U	7 U	5 U	5 U	5 U	6 U	5 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	123000	4300 U	210 U	910 U	21 J	12 J	11 J	6.6 J	11 J	6.8 J	22 U	9.6 J
	ACENAPHTHENE	3400000	43000	2700 U	64 U	570 U	100 J	16 J	10 J	23 U	140	39	3.9 J	100
	ACENAPHTHYLENE	3400000	23000	2700 U	84 U	570 U	22 U	22 U	38	23 U	22 U	22 U	3.6 J	22 U
	ANTHRACENE	17000000	35000	2700 U	42 U	44 J	200	18 J	48	23 U	250	100	8.5 J	130
	BENZO(A)ANTHRACENE	150	900	2700 U	200 J	280 J	1100	76 J	470	23 U	890	240	69 J	240
	BENZO(A)PYRENE	15	400	2700 U	160 J	190 J	960	81 J	500	16 J	760	170	89 J	200
	BENZO(B)FLUORANTHENE	150	900	2700 U	180 J	180 J	1300	120 J	460	14 J	740	170	89 J	210
	BENZO(G,H,I)PERYLENE	1700000	800	2700 U	120 J	570 U	480	44 J	160	8.3 J	280	83	50 J	61
	BENZO(K)FLUORANTHENE	1500	900	2700 U	160 J	200 J	1200	50 J	550	6.8 J	670	110	29 J	130
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	5400 U	880 U	410 J	360 U	360 U	380 U	370 U	360 U	360 U	360 U	370 U
	CARBAZOLE			2700 U	74 U	570 U	300 J	360 UJ	380 UJ	370 U	360 U	360 UJ	360 UJ	370 U
	CHRYSENE	15000	400	2700 U	300 J	310 J	1300	87 J	500	14 J	910	260	76 J	230
	DIBENZO(A,H)ANTHRACENE	15	400	2700 U	140 U	570 U	140 J	26 J	110 J	23 UJ	140	51	40 J	55 J
	DIBENZOFURAN			2700 U	120 U	570 U	360 U	360 U	380 U	370 U	360 U	360 U	360 U	370 U
	FLUORANTHENE	2300000	20000	2700 U	540 J	520 J	2500	180 J	750	12 J	1800	490	57 J	1300
	FLUORENE	2300000	28000	2700 U	64 U	570 U	61 J	11 J	10 J	23 U	110	37	22 U	120
	HIGH MOLECULAR WEIGHT PAHS			2800 U	2110 J	2130 J	13010 J	869 J	4650 J	92.1 J	8110	2065	616 J	3704 J
	INDENO(1,2,3-CD)PYRENE	150	900	3800 U	150 U	800 U	530	55 J	240 J	9 J	420	91	37 J	78 J
	LOW MOLECULAR WEIGHT PAHS			2500 U	280 J	324 J	2894 J	191 J	332.3 J	23.6 J	1829 J	468.8 J	71 J	1369.6 J
	NAPHTHALENE	3900	54000	3.8 U	3 U	3.5 U	12 J	14 J	5.3 J	23 U	18 J	16 J	22 U	10 J
	PHENANTHRENE	1700000	40000	2700 U	280 J	280 J	2500	120 J	210	17 J	1300	270	55 J	1000
	PYRENE	1700000	13000	2700 U	450 J	450 J	3500	150 J	910	12 J	1500	400	80 J	1200
	TOTAL PAHS			2700 U	2390 J	2454 J	15904 J	1060 J	4982.3 J	115.7 J	9939 J	2533.8 J	687 J	5073.6 J

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UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

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SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-SB05-0102-01	DA-S-SB06-0515-01	DA-S-SB08-0102-01	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002
	LOCATION ID			DA-SB-05	DA-SB-06	DA-SB-08	DA-SB100	DA-SB101	DA-SB102	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115
	TOP DEPTH			1	0.5	1	0	0	0	0	0	0	0	0
	BOTTOM DEPTH			2	1.5	2	2	2	2	2	2	2	2	2
	SAMPLE DATE			08/19/03	08/18/03	08/19/03	03/03/08	03/03/08	03/03/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		215 UJ	189 U	22.7 UJ	3.6 U	3.6 U	3.8 U	3.7 U	1.2 J	1.3 J	3.6 U	3.7 U
	4,4'-DDE	1400		215 UJ	88.9 U	22.7 UJ	3.6 U	3.6 U	1.7 J	0.96 J	1.8 J	7.2	3.6 U	3.7 UJ
	4,4'-DDT	1700		215 UJ	178 U	22.7 UJ	3 J	3.6 UJ	3.1 J	3.7 UJ	4.5 J	6.7	3.6 UJ	3.7 UJ
	AROCLOR-1248	220	10000	53.8 UJ	21.7 U	56.8 UJ	19 U	18 U	20 U	19 U	19 U	18 U	43	19 U
	AROCLOR-1260	220	10000	53.8 UJ	12.2 U	56.8 UJ	19 UJ	18 UJ	20 UJ	44	28 J	18 U	19 UJ	19 U
	AROCLOR-1268	220	10000	53.8 UJ	117	56.8 UJ	19 U	18 U	20 U	19 U	19 U	18 U	19 U	19 U
	ENDOSULFAN II	370000		215 UJ	189 U	22.7 UJ	2.6 J	3.6 U	0.98 J	3.7 UJ	3.6 U	3.6 U	3.6 U	3.7 UJ
	TOTAL AROCLOR	220	10000	54 UJ	117	57 UJ	19 UJ	18 UJ	20 UJ	44	28 J	18 U	43 J	19 U
	TOTAL DDD/DDE/DDT			220 UJ	150 U	23 UJ	3 J	3.6 UJ	4.8 J	0.96 J	7.5 J	15.2 J	3.6 UJ	3.7 UJ
METALS (MG/KG)	ALUMINUM	77000		4300	4100	7800	11900	11600	14100	7980	5380	5650	7610	12000
	ARSENIC	0.39	7	7.7	12 J	10	11 J	14.2 J	16 J	15.1	5.3	3.7 J	6 J	25.4
	BARIUM	15000	5500	10	13	14	36.5	28.8	25.6	21.2	15.9	14.6	23.1	20.8
	BERYLLIUM	160	0.4	0.35	0.28	0.36	0.44	0.45	0.43 J	0.48	0.4	0.48	0.57	0.45
	CADMIUM	70	39	0.058 U	0.73 J	0.018 U	0.16 J	0.01 UJ	0.14 J	0.29 J	0.77 J	0.36 J	0.36 J	0.33 J
	CALCIUM			520	1100	330	1560	1350	953	1290 J	1420 J	609	572	1580 J
	CHROMIUM	230	390	5.6 J	8.6	19 J	20.1	15.5	18.8	10.2	6.9	6.6	7.5	14.8
	COBALT	23		4.7	8.8	8.6	11.9	12.5	28	9.9	4.5	4.8	5.4	10.3
	COPPER	3100	3100	9	18	17	21	19.6	18.7	17.2	12.1	9.1	10.8	18
	IRON	55000		10000	17000	18000	23300	24000	27700	21600	12000	11800	14700	24700
	LEAD	400	150	12	9.8	15	31.2	22.7	28.5	18.8	18	38.8	54.8	16
	MAGNESIUM			1400 J	1400	2400 J	4660	3960	3940	2160	1420	1600	1730	3710
	MANGANESE	1800	390	150	390	200	361	325	555	357	208	179	246	292
	MERCURY	23	23	0.00778 U	0.0161	0.0107 J	0.04	0.05	0.03 J	0.02 UJ	0.01 UJ	0.02 J	0.01 J	0.02 UJ
	MOLYBDENUM	390		0.39 U	0.70 U	0.42 U	0.43 J	0.53 J	1.2 J	0.5 J	0.44 J	0.53 J	0.67 J	0.36 J
	NICKEL	1600	1000	7.4	12	14	23.4	23.3	30.6	17.5	8.1	8.2	10.2	21.1
	POTASSIUM			540	320	230	1100	847	460	603	528	607	755	472
	SELENIUM	390	390	0.1 U	0.11 U	0.11 U	0.62 UJ	0.64 J	0.66 UJ	0.33 U	0.29 U	0.33 UJ	0.32 UJ	0.52 U
	SILVER	390	200	0.03 U	0.032 U	0.034 J	0.11 UJ	0.11 UJ	0.12 UJ	0.06 UJ	0.05 UJ	0.14 UJ	0.17 UJ	0.13 J
	SODIUM			73 J	41 U	26 U	307	169	63.8 UJ	50.7 J	93.5	78.3 UJ	122	38.6 J
	THALLIUM	5.1	5.5	0.15 U	0.15 U	0.16 U	0.04 UJ	0.05 UJ	0.04 UJ	0.08 UJ	0.07 UJ	0.06 UJ	0.08 UJ	0.04 UJ
	VANADIUM	390	550	8.2	9.7	12	24	19.5	24.3	13	9.2	10.1	13.2	16.3
	ZINC	23000	6000	28 J	39 J	33 J	56.5	54.4	94.7	54.6	44.9	41.4	48.9	52.2
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			93	90	88	90	92	86	88	90	92	90	89
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			0.58 J	0.74 U	5.5 J	3.2 U	130	3.3 U	3.2 U	2.9 UJ	3.0 U	3.0 U	2.8 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			83000	230000	32000 J	2200000	270000	250000	110000	130000	130000	200000	93000 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-7

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	PARAMETER	ORNLSLDCR	RIDEMDCR	DA-SB116-0002	DA-SB117-0002	DA-SB119-0002	DA-SB120-0002	DA-SB150-0002	DA-SB151-0002
	SAMPLE ID			DA-SB116-0002	DA-SB117-0002	DA-SB119-0002	DA-SB120-0002	DA-SB150-0002	DA-SB151-0002
	LOCATION ID			DA-SB116	DA-SB117	DA-SB119	DA-SB120	DA-SB150	DA-SB151
	TOP DEPTH			0	0	0	0	0	0
	BOTTOM DEPTH			2	2	2	2	2	2
	SAMPLE DATE			03/04/08	03/04/08	03/04/08	03/06/08	03/05/08	03/04/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		6 U	6 UJ	6 UJ	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		6 U	6 UJ	6 UJ	5 U	5 U	5 U
	2-BUTANONE	28000000	10000000	30 U	30 UJ	30 U	25 U	7 J	25 U
	ACETONE	61000000	7800000	97	27 J	900 UJ	28 U	610	53
	BTEX			6.8 U	6.8 UJ	6.8 U	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	670000		6 U	6 UJ	6 U	5 U	2 J	5 U
	CHLOROFORM	300	1200	6 U	6 UJ	6 U	5 U	5 U	5 U
	ETHYLBENZENE	5700	71000	6 U	6 UJ	6 U	5 U	5 U	5 U
	M+P-XYLENES	4500000		12 U	12 UJ	12 U	10 U	10 U	10 U
	O-XYLENE	5300000		6 U	6 UJ	6 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE			6 U	6 UJ	6 UJ	5 U	5 U	5 U
	TERT-BUTYLBENZENE			6 U	6 UJ	6 UJ	5 U	5 U	5 U
	TETRACHLOROETHENE	570	12000	6 U	6 UJ	6 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES			7.5 U	7.5 UJ	7.5 U	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			7.9 UJ	7.9 UJ	7.9 UJ	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	9 U	9 UJ	9 U	7.5 U	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	6 U	6 UJ	6 U	5 U	5 U	5 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	123000	390	22 U	110 U	14 J	22 U	22 U
	ACENAPHTHENE	3400000	43000	22 U	22 U	110 U	150	2.7 J	1.8 J
	ACENAPHTHYLENE	3400000	23000	22 U	22 U	18 J	22 U	22 U	22 U
	ANTHRACENE	17000000	35000	22 U	22 U	19 J	450	5.6 J	3.1 J
	BENZO(A)ANTHRACENE	150	900	17 J	16 J	130 J	1100	37	33
	BENZO(A)PYRENE	15	400	20 J	26	850 J	860	33	38
	BENZO(B)FLUORANTHENE	150	900	21 J	31	1200 J	940	41	45
	BENZO(G,H,I)PERYLENE	1700000	800	14 J	10 J	270 J	480	11 J	22 J
	BENZO(K)FLUORANTHENE	1500	900	11 J	12 J	340 J	760	20 J	21 J
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	360 U	360 U	720 U	370 U	360 U	370 U
	CARBAZOLE			360 U	360 U	720 U	370 U	360 U	370 U
	CHRYSENE	15000	400	24	21 J	94 J	1100	35	33
	DIBENZO(A,H)ANTHRACENE	15	400	22 UJ	22 U	130 J	170	10 J	22 UJ
	DIBENZOFURAN			360 U	360 U	720 U	370 U	360 U	370 U
	FLUORANTHENE	2300000	20000	31	18 J	110	2300	66	61
	FLUORENE	2300000	28000	30	22 U	110 U	180	22 U	22 U
	HIGH MOLECULAR WEIGHT PAHS			195 J	172 J	3584 J	10190	328 J	335 J
	INDENO(1,2,3-CD)PYRENE	150	900	18 J	16 J	340 J	480	20 J	30 J
	LOW MOLECULAR WEIGHT PAHS			754	9.7 J	147 J	2619 J	47.3 J	38.9 J
	NAPHTHALENE	3900	54000	270	22 U	110 U	25	22 U	22 U
	PHENANTHRENE	1700000	40000	64	9.7 J	110	1800	39	34
	PYRENE	1700000	13000	39	22 J	120 J	2000	55	52
	TOTAL PAHS			949 J	181.7 J	3731 J	12809 J	375.3 J	373.9 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-7

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB116-0002	DA-SB117-0002	DA-SB119-0002	DA-SB120-0002	DA-SB150-0002	DA-SB151-0002
	LOCATION ID			DA-SB116	DA-SB117	DA-SB119	DA-SB120	DA-SB150	DA-SB151
	TOP DEPTH			0	0	0	0	0	0
	BOTTOM DEPTH			2	2	2	2	2	2
	SAMPLE DATE			03/04/08	03/04/08	03/04/08	03/06/08	03/05/08	03/04/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.6 U	3.6 U	3.6 U	3.7 U	2.7 J	3.7 U
	4,4'-DDE	1400		3.6 U	3.6 U	1.3 J	3.7 U	1.2 J	3.7 U
	4,4'-DDT	1700		3.6 UJ	3.6 UJ	1.5 J	3.7 UJ	3.6 UJ	3.7 UJ
	AROCLOR-1248	220	10000	19 U	19 U	18 U	19 U	19 U	19 U
	AROCLOR-1260	220	10000	19 UJ	19 UJ	18 UJ	19 U	19 U	19 UJ
	AROCLOR-1268	220	10000	19 U	19 U	18 U	19 U	19 U	19 U
	ENDOSULFAN II	370000		3.6 U	3.6 U	3.6 UJ	3.7 U	3.6 UJ	3.7 U
	TOTAL AROCLOR	220	10000	19 UJ	19 UJ	18 UJ	19 U	19 U	19 UJ
	TOTAL DDD/DDE/DDT			3.6 UJ	3.6 UJ	2.8 J	3.7 UJ	3.9 J	3.7 UJ
METALS (MG/KG)	ALUMINUM	77000		11900	10400	4730	14000	10300	12900
	ARSENIC	0.39	7	20.7 J	23.1 J	1.7	19.2	32.7	17.6 J
	BARIUM	15000	5500	18.5	25.4	29.3	21.1	17.6	24.4
	BERYLLIUM	160	0.4	0.31 J	0.43 J	0.15 UJ	0.33 J	0.28 J	0.31 J
	CADMIUM	70	39	0.01 UJ	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ
	CALCIUM			709	940	1580 J	832 J	925 J	636
	CHROMIUM	230	390	14.7	13.5	9.6	18.3	13.8	16.8
	COBALT	23		11.4	14.2	2.7	15	14.6	12.5
	COPPER	3100	3100	18.7	19.4	8.5	20.1	21	17.8
	IRON	55000		28900	31200	8540	35000	35000	28200
	LEAD	400	150	13.3	8.5	26	16.8	9.6	9.5
	MAGNESIUM			3540	3450	1910	4570	4050	3660
	MANGANESE	1800	390	345	646	170	411	373	368
	MERCURY	23	23	0.04	0.01 U	0.01 UJ	0.02 UJ	0.01 UJ	0.02 J
	MOLYBDENUM	390		0.38 J	0.33 J	0.54 J	0.39 J	0.18 J	0.49 J
	NICKEL	1600	1000	22.2	24	9.7	27.2	27	23.5
	POTASSIUM			405	785	1200	431	1190	689
	SELENIUM	390	390	0.51 UJ	0.6 UJ	0.3 U	0.66 U	0.61 U	0.53 UJ
	SILVER	390	200	0.09 UJ	0.11 UJ	0.05 U	0.27 J	0.18 J	0.1 UJ
	SODIUM			40 UJ	54.6 UJ	98.5	30.2 UJ	39.4 J	71.3 UJ
	THALLIUM	5.1	5.5	0.02 UJ	0.03 UJ	0.06 UJ	0.04 UJ	0.07 UJ	0.04 UJ
	VANADIUM	390	550	17	21.2	38	21.4	18	20.8
	ZINC	23000	6000	53.3	58.9	29.4	60.2	66.8	54.6
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			90	91	92	89	91	88
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			3.1 U	3.3 U	3.4 UJ	2.5 UJ	2.8 U	3.0 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			890000	200000	1200000	170000	71000 J	250000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-MW04B-0810-01	DA-S-MW04B-1416-01	DA-B103B-0810	DA-B104B-1012	DA-B104B-0406 AVG	DA-B105B-0204	DA-B106B-0406	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204
	LOCATION ID			DA-MW04B	DA-MW04B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B
	TOP DEPTH			8	14	8	10	4	2	4	10	4	6	6	2	3	6	2
	BOTTOM DEPTH			10	16	10	12	6	4	6	12	6	8	8	4	5	8	4
	SAMPLE DATE			08/28/03	08/28/03	04/01/08	04/09/08	04/11/08	04/08/08	03/19/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		0.99 U	0.25 U	5 UJ	NA	5 U	5 U	5 U	46	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		0.22 U	0.21 U	5 UJ	NA	5 U	5 U	5 U	20	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U
	2-BUTANONE	28000000	10000000	0.33 U	0.31 U	25 U	NA	25 U	25 U	25 U	27 U	26 U	25 U	25 U	25 U	25 U	25 U	25 U
	4-ISOPROPYLTOLUENE			0.27 U	0.26 U	5 U	NA	5 U	5 U	5 U	11	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	61000000	7800000	5.5 U	5.2 U	16 J	NA	25 J	15 J	48	1000 J	26 U	120	8 J	25 U	25 U	25 U	25 UJ
	BTEX			0.35 U	0.32 U	5.6 UJ	NA	5.6 U	5.6 U	5.6 U	5.8 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 UJ	5.6 U	5.6 U
	CARBON DISULFIDE	670000		0.35 U	0.33 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,2-DICHLOROETHENE	780000	630000	0.32 U	1.3	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	M+P-XYLENES	4500000		0.62 U	0.58 U	10 U	NA	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	METHYLENE CHLORIDE	11000	45000	5.8 U	5.4 U	25 U	NA	25 U	25 U	25 U	27 UJ	26 U	25 U	25 U	25 U	25 U	25 U	25 U
	N-BUTYLBENZENE			0.31 U	0.30 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE			0.28 U	0.26 U	5 UJ	NA	5 U	5 U	5 U	4 J	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U
	TERT-BUTYLBENZENE			0.29 U	0.27 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TETRACHLOROETHENE	570	12000	0.28 U	3.7	5 U	NA	5 U	5 U	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	700000		0.29 U	1.3	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES			0.33 U	8.3	6.2 UJ	NA	6.2 U	6.2 U	6.2 U	2 J	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 UJ	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			0.47 UJ	8.3 J	6.6 UJ	NA	6.6 U	6.6 U	6.6 UJ	2 J	6.6 U	6.6 U	6.6 U	6.6 UJ	6.6 UJ	6.6 UJ	6.6 U
	TOTAL XYLENES	600000	110000	0.62 U	0.58 U	7.5 U	NA	7.5 U	7.5 U	7.5 U	8 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	0.30 U	3.3	5 UJ	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		NA	NA	380 U	NA	375 UJ	360 UJ	370 U	400 U	390 UJ	390 UJ	660 J	370 U	370 U	360 U	350 U
	2,4-DIMETHYLPHENOL	1200000		1100 U	520 UR	380 U	NA	375 U	360 U	370 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U
	2,4-DINITROPHENOL	120000	160000	290 U	140 U	960 UJ	NA	935 UJ	890 UJ	920 U	990 U	970 UJ	960 UJ	930 UJ	920 UJ	920 UJ	910 U	860 U
	2-METHYLNAPHTHALENE	310000	123000	440 U	210 U	120 U	NA	51 J	15 J	7 J	60	12 J	9.2 J	2500 J	22 U	22 U	5.6 J	260 J
	3&4-METHYLPHENOL	310000		380 U	180 UJ	380 U	NA	375 U	360 U	370 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U
	3,3'-DICHLOROBENZIDINE	1100	1400	210 U	100 UJ	380 U	NA	375 U	360 U	370 UJ	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U
	4,6-DINITRO-2-METHYLPHENOL	6100		240 U	120 U	960 U	NA	935 UJ	890 UJ	920 U	990 U	970 UJ	960 UJ	930 UJ	920 U	920 U	910 U	860 U
	4-NITROANILINE	180000		390 U	190 U	960 U	NA	935 U	890 U	920 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U
	4-NITROPHENOL			490 U	240 U	960 U	NA	935 U	890 U	920 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U
	ACENAPHTHENE	3400000	43000	440 J	94 J	41 J	NA	255 J	110	22 U	170	110	19 J	13000 J	22 U	22 U	22 U	710
	ACENAPHTHYLENE	3400000	23000	180 U	86 U	120 U	NA	5.45 J	2.5 J	22 U	24 U	1.9 J	2.2 J	110 U	22 U	22 U	22 U	21 U
	ANTHRACENE	17000000	35000	970 J	260 J	87 J	NA	970	160	2.9 J	390 J	170	38	32000	22 U	22 U	22 U	1600
	BENZO(A)ANTHRACENE	150	900	2300	610	240	NA	1340 J	440	19 J	1100	420	230	59000	22 U	22 U	22 U	3800
	BENZO(A)PYRENE	15	400	1900	400 J	190	NA	805	640 J	20 J	1000	370 J	160	30000	22 U	22 U	22 U	3000
	BENZO(B)FLUORANTHENE	150	900	1700	410 J	170	NA	1010	210	43	1400	500	240	42000	22 U	22 U	22 U	3700
	BENZO(G,H,I)PERYLENE	1700000	800	1300	290 J	110 J	NA	325	220	22 U	290	170	69	6500 J	22 U	22 U	22 U	1900
	BENZO(K)FLUORANTHENE	1500	900	1600	450 J	160	NA	420	180	14 J	370 J	210	75	16000	22 U	22 U	22 U	1000
	BENZOIC ACID	2.4E+08		470 U	230 U	960 U	NA	935 UJ	890 UJ	920 U	990 U	970 UJ	960 UJ	930 UJ	920 U	920 U	910 U	860 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	860 U	510 U	380 U	NA	375 U	280 J	370 U	380 J	390 U	390 U	240 J	370 U	370 U	360 U	350 U
	CARBAZOLE			760 J	140 J	380 U	NA	895 J	360 UJ	370 U	400 J	390 UJ	390 UJ	41000	370 U	370 U	360 U	1300 J
	CHRYSENE	15000	400	2200	600	210	NA	1400 J	570	14 J	1100	470	210	53000	22 U	22 U	22 U	3100
	DIBENZO(A,H)ANTHRACENE	15	400	380 J	140 U	34 J	NA	99	43	22 U	160	54	17 J	1800 J	22 U	22 U	22 U	340 J
	DIBENZOFURAN			340 J	120 U	380 U	NA	240 J	360 U	370 U	400 U	390 U	390 U	12000 J	370 U	370 U	360 U	590
	DI-N-BUTYL PHTHALATE			160 U	120 J	380 U	NA	375 U	360 U	370 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U
	FLUORANTHENE	2300000	20000	5000	1500	600	NA	4100	970	32	2000	1200	450	180000	4.8 J	22 U	22 U	8000
	FLUORENE	2300000	28000	520 J	140 J	42 J	NA	415	87	22 U	190	78	23 J	17000	22 U	22 U	22 U	710
	HIGH MOLECULAR WEIGHT PAHS			21780 J	5720 J	2194 J	NA	12679 J	4483 J	166 J	10230 J	4324 J	1794 J	515300 J	4.8 J	22 U	22 U	32240 J
	INDENO(1,2,3-CD)PYRENE	150	900	1200 J	260 J	100 J	NA	380	110	22 U	610	180	73	7000 J	22 U	22 U	22 U	1800
	LOW MOLECULAR WEIGHT PAHS			6510 J	1694 J	571 J	NA	5088.95 J	1190.5 J	25.9 J	2610 J	1124.9 J	350.4 J	230100 J	22 U	22 U	5.6 J	10380 J
	NAPHTHALENE	3900	54000	180 J	3.9 U	21 J	NA	92.5 J	26	22 U	100	33	19 J	5600 J	22 U	22 U	22 U	600
	PENTACHLOROPHENOL	3000	5300	810 U	390 U	960 U	NA	935 U	890 U	920 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U
	PHENANTHRENE	1700000	40000	4400	1200	380	NA	3300 J	790	16 J	1700	720	240	160000	22 U	22 U	22 U	6500

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-MW04B-0810-01	DA-S-MW04B-1416-01	DA-B103B-0810	DA-B104B-1012	DA-B104B-0406 AVG	DA-B105B-0204	DA-B106B-0406	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204
	LOCATION ID			DA-MW04B	DA-MW04B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B
	TOP DEPTH			8	14	8	10	4	2	4	10	4	6	6	2	3	6	2
	BOTTOM DEPTH			10	16	10	12	6	4	6	12	6	8	8	4	5	8	4
	SAMPLE DATE			08/28/03	08/28/03	04/01/08	04/09/08	04/11/08	04/08/08	03/19/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	PHENOL	18000000	6000000	220 U	110 UJ	380 U	NA	375 U	360 U	370 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U
	PYRENE	1700000	13000	4200	1200	380	NA	2800	1100	24	2200	750	270	120000	22 U	22 U	22 U	5600
	TOTAL PAHS			28290 J	7414 J	2765 J	NA	17767.95 J	5673.5 J	191.9 J	12840 J	5448.9 J	2144.4 J	745400 J	4.8 J	22 U	5.6 J	42620 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		40 U	19.3 U	3.8 U	NA	3.75 U	3.6 U	3.7 U	4 UJ	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 UJ
	4,4'-DDE	1400		18.8 UJ	9.09 UJ	3.8 U	NA	3.75 U	3.6 U	3.7 U	4 U	3.9 U	2.1 J	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U
	4,4'-DDT	1700		37.6 U	18.2 U	3.8 U	NA	3.75 UJ	7.8 J	3.7 U	18 J	3.9 UJ	3.9 UJ	3.7 U	3.7 UJ	3.7 UJ	3.6 U	3.3 J
	ALPHA-CHLORDANE	1600	500	14.1 UJ	6.82 UJ	2 U	NA	1.9 U	1.8 U	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	15 J
	AROCLOR-1248	220	10000	22.9 U	22.2 U	20 U	NA	57.5 U	18 U	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U
	AROCLOR-1254	1100	10000	22.9 U	22.2 U	40	NA	57.5 U	18 U	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U
	AROCLOR-1260	220	10000	12.9 U	12.5 U	20 U	NA	57.5 UJ	18 U	19 U	260	20 U	20 U	19 UJ	19 UJ	19 UJ	19 U	18 U
	AROCLOR-1268	220	10000	22.9 U	22.2 U	83	NA	4060 J	18 U	19 U	61	310	79	19 U	19 UJ	19 U	19 U	18 U
	ENDOSULFAN SULFATE	370000		25.9 U	12.5 U	3.8 U	NA	3.75 U	3.6 U	3.7 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U
	ENDRIN ALDEHYDE	18000		30.6 U	14.8 U	3.8 U	NA	3.75 U	3.6 U	3.7 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U
	GAMMA-CHLORDANE	1600	500	11.8 UJ	5.68 UJ	2 U	NA	1.9 U	1.8 U	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	20
	HEPTACHLOR	110		14.1 U	6.82 U	2 U	NA	1.28 J	1.8 U	1.9 U	2 U	1.5 J	2 U	21	1.9 UJ	1.9 U	1.9 U	1.8 U
	TOTAL AROCLOR	220	10000	22 U	21 U	123	NA	4060 J	18 U	19 U	321	310	79	19 UJ	19 UJ	19 UJ	19 U	18 U
	TOTAL DDD/DDE/DDT			32 UJ	16 UJ	3.8 U	NA	3.8 UJ	7.8 J	3.7 U	18 J	3.9 UJ	2.1 J	3.7 U	3.7 UJ	3.7 UJ	3.6 U	3.3 J
METALS (MG/KG)	ALUMINUM	77000		6500	6200	13800	NA	13200	10200	10200	9120	12900	13900	15400	26800	12500	14300	12800
	ANTIMONY	31	10	0.37	0.26	0.108 UJ	NA	0.0935 UJ	0.23 UJ	0.11 UJ	1 J	0.16 UJ	0.13 UJ	0.103 UJ	0.149 UJ	0.099 UJ	0.16 UJ	0.1 UJ
	ARSENIC	0.39	7	16 J	21 J	18.8	NA	20.8	10.8	9.8 J	10.8	21.7	16.6	22.8	6.6	27.5	20.1 J	10.3
	BARIUM	15000	5500	21	9.4	23	NA	22.6	28	23.8	60.2	25.1	28.2	21.7	8.1	17.1	20.2	16.1
	BERYLLIUM	160	0.4	0.27	0.24	0.35 J	NA	0.435	0.39	0.28 J	0.21 J	0.41 J	0.48	0.43 J	0.28 J	0.44	0.44	0.27 J
	CADMIUM	70	39	0.19	0.018 U	0.015 U	NA	0.145 UJ	0.26 UJ	0.01 U	5.6	0.04 UJ	0.32 UJ	0.014 U	0.02 U	0.014 U	0.01 U	0.08 UJ
	CALCIUM			7500 J	2700 J	1300	NA	1010	6110	1190 J	12600	1280	1380	1820	1410	226	233 J	3700
	CHROMIUM	230	390	9.7 J	11 J	16.3	NA	17.4	13	14 J	50.7	15.8	17.7	18.7	32	16.3	17.2 J	13.3
	COBALT	23		9.1 J	17 J	12.5	NA	10.8	14.6	11.2	16.7	11.4	11.9	14.2	26.3	15.9	14.8	15.2
	COPPER	3100	3100	17 J	22 J	19.1	NA	26.8	19.1	15	46.9	18.6	23.2	20.5	29.2	26.3	22.4	18.5
	IRON	55000		15000	18000	27300	NA	28900	22800	25400	20100	29900	29000	33100	58200	37600	38200	29600
	LEAD	400	150	17 J	24 J	14.8	NA	14.4	43.2	7.6	4540	19.5	28.9	11.4	14.6	11	10	78.3
	MAGNESIUM			1500	2000	3480	NA	3240	2890	2900 J	3310	3330	3200	3980	9760	3580	3750 J	3710
	MANGANESE	1800	390	270	300	335	NA	357	483	248	330	440	399	424	600	428	466	482
	MERCURY	23	23	0.0508	0.00806 U	0.02 J	NA	0.02 J	0.22	0.01 U	0.12	0.07	0.03 J	0.015 U	0.014 U	0.015 U	0.01 U	0.06
	MOLYBDENUM	390		0.53	0.59	0.39 J	NA	0.53 J	0.48 J	0.28 J	0.74 J	0.48 J	0.77 J	0.36 J	0.11 UJ	0.39 J	0.4 J	0.61 J
	NICKEL	1600	1000	11 J	14 J	23.2	NA	21.6	19.3	20.3	18.4	23.6	52.3	26.6	51.2	27.2	29.5	23.8
	POTASSIUM			180	140	512	NA	438	520	589 J	770	407	523	495	262 J	467	536 J	392
	SELENIUM	390	390	0.12 U	0.11 U	0.728 U	NA	0.63 U	0.554 U	0.57 U	0.38 UJ	0.711 U	0.679 U	0.693 U	1 U	0.665 U	0.62 U	0.7 UJ
	SILVER	390	200	0.11 U	0.20	0.131 UJ	NA	0.113 UJ	0.1 UJ	0.26 J	0.77 J	0.128 UJ	0.122 UJ	0.062 UJ	0.18 UJ	0.119 UJ	0.45 J	0.13 U
	SODIUM			47	28 U	47.2 J	NA	45.2 J	51.8 J	44.4 J	106 J	44.8 J	50.1 J	48.7 J	17.3 UJ	31.4 J	29.6 UJ	51.8 UJ
	THALLIUM	5.1	5.5	0.81 U	0.78 U	0.07 UJ	NA	0.05 UJ	0.04 UJ	0.08 UJ	0.04 UJ	0.04 UJ	0.1 UJ	0.06 UJ	0.011 U	0.03 UJ	0.04 UJ	0.01 U
	VANADIUM	390	550	12	11	19.8	NA	19	20.9	18.8	13.9	18.4	19.4	20.9	23	16.9	19.9	15.2
	ZINC	23000	6000	34 J	34 J	54.3	NA	62	61.3	44.3	9840	98.1	69.4	59.3	90.2	61.7	65.3	60.5
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			85	88	NA	NA	NA	NA	89	NA	NA	NA	NA	NA	NA	90	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	18000	NA	NA	NA	29000	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			1.5 U	0.86 U	2.9 U	NA	2.8 U	2.6 U	2.7 U	24	2.9 U	15	2.5 U	2.7 U	2.7 U	2.7 U	5.1 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			NA	NA	27000	NA	55500 J	980000	73000	170000	30000	67000	2500000	6000	3000 J	2300 J	200000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B120B-0204	DA-S-SB03-0304-01	DA-S-SB03-0607-01	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810	DA-SB118-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810
	LOCATION ID			DA-MW120B	DA-SB-03	DA-SB-03	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110	DA-SB118	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125
	TOP DEPTH			2	3	6	6	4	6	2	2	8	4	4	4	5	6	8
	BOTTOM DEPTH			4	4	7	8	6	8	4	4	10	6	6	7	8	8	10
	SAMPLE DATE			04/08/08	08/19/03	08/19/03	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08	03/04/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 U	3.8 U	3.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		5 U	3.8 U	3.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	2-BUTANONE	28000000	10000000	25 U	7.9	5.1 J	26 UJ	25 U	27 U	25 U	25 UJ	25 U	25 U	26 U	25 UJ	25 U	26 U	25 U
	4-ISOPROPYLTOLUENE			5 U	1 U	2.7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	ACETONE	61000000	7800000	25 U	35 J	91 J	26 UJ	9 J	620	530	13 J	20 J	29 U	53	27 J	8 J	26 U	14 J
	BTEX			5.6 U	0.84 U	1.4	5.8 U	5.6 U	5.8 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	670000		5 U	7.6 U	2.4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	CIS-1,2-DICHLOROETHENE	780000	630000	5 U	0.76 U	0.78 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	M+P-XYLENES	4500000		10 U	0.76 U	1.4	11 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
	METHYLENE CHLORIDE	11000	45000	25 U	7.6 U	7.8 U	26 U	25 U	27 U	25 U	25 U	25 U	2 J	26 U	25 UJ	25 U	26 U	25 U
	N-BUTYLBENZENE			5 U	0.76 U	1.8	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	SEC-BUTYLBENZENE			5 U	1.8	1.4	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TERT-BUTYLBENZENE			5 U	1.2 J	0.93 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TETRACHLOROETHENE	570	12000	5 U	0.76 U	0.78 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10	3 J	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	700000		5 U	0.93 U	0.99 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES			6.2 U	0.99 U	1 U	6.5 U	6.2 U	6.5 U	6.2 U	6.2 U	6.2 U	6.2 U	10	31 J	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			6.6 U	2.4 U	2.5 U	6.8 UJ	6.6 UJ	6.8 UJ	6.6 UJ	6.6 UJ	6.6 UJ	2 J	10 J	31 J	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	7.5 U	0.76 U	1.4	8 U	7.5 U	8 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	5 U	0.76 U	0.78 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	28 J	5 U	5 U	5 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		370 UJ	NA	NA	400 U	380 U	390 U	350 U	380 U	8300 J	380 U	360 U	360 U	370 U	380 U	390 U
	2,4-DIMETHYLPHENOL	1200000		370 U	1200 U	1200 U	400 U	380 U	390 U	350 U	380 U	1900 U	380 U	360 U	360 UJ	370 U	380 U	390 U
	2,4-DINITROPHENOL	120000	160000	930 UJ	2500 U	2400 U	1000 U	950 U	960 U	860 U	940 U	4600 U	940 U	900 U	890 UJ	910 U	940 U	960 U
	2-METHYLNAPHTHALENE	310000	123000	23 UJ	990 U	950 U	7.4 J	23 U	97	21 U	8 J	23000 J	82	28	25	22 U	23 U	17 J
	3&4-METHYLPHENOL	310000		370 U	740 U	710 U	400 U	380 U	390 U	350 U	380 U	2200 J	380 U	360 U	360 UJ	370 U	380 U	390 U
	3,3'-DICHLOROBENZIDINE	1100	1400	370 U	6200 UJ	6000 UJ	400 UJ	380 UJ	390 UJ	350 UJ	380 U	1900 UJ	380 U	360 U	360 UJ	370 UJ	380 U	390 U
	4,6-DINITRO-2-METHYLPHENOL	6100		930 UJ	2500 U	2400 U	1000 U	950 U	960 U	860 U	940 U	4600 U	940 U	900 U	890 UJ	910 U	940 U	960 U
	4-NITROANILINE	180000		930 U	860 U	830 U	1000 U	950 U	960 U	860 U	940 U	4600 U	940 U	900 U	890 U	910 U	940 U	960 U
	4-NITROPHENOL			930 U	1200 U	1200 U	1000 U	950 U	960 U	860 U	940 UJ	4600 U	940 U	900 U	890 UJ	910 U	940 U	960 U
	ACENAPHTHENE	3400000	43000	23 U	620 U	600 U	40	2.5 J	130	2.6 J	23 J	150000	280	12 J	290	2.1 J	23 U	120
	ACENAPHTHYLENE	3400000	23000	23 U	620 U	600 U	24 UJ	23 UJ	23 U	21 UJ	23 UJ	110 UJ	23 U	8.9 J	22 U	22 U	23 UJ	23 UJ
	ANTHRACENE	17000000	35000	23 U	620 U	600 U	66	5.1 J	640	6.8 J	48	270000	400	82	420	6.1 J	23 U	170
	BENZO(A)ANTHRACENE	150	900	23 U	620 U	600 U	140	19 J	2000	40 J	200	490000	500	120 J	1300	10 J	23 U	350 J
	BENZO(A)PYRENE	15	400	23 U	620 U	600 U	120	43	1700	72	220	440000	300	210 J	1200	6.2 J	23 U	280
	BENZO(B)FLUORANTHENE	150	900	23 U	620 U	600 U	120	28	1500	60	250	410000	250	73 J	1200	7.2 J	23 U	250
	BENZO(G,H,I)PERYLENE	1700000	800	23 U	620 U	600 U	43 J	60	1000	89	130	250000	160	130 J	630	22 U	23 UJ	140 J
	BENZO(K)FLUORANTHENE	1500	900	23 U	620 U	600 U	120	24	1500	42	200	350000	400	200 J	1200	7.3 J	23 U	280
	BENZOIC ACID	2.4E+08		930 UJ	6200 U	6000 U	1000 UJ	950 UJ	960 UJ	860 UJ	940 U	4600 UJ	940 U	900 U	890 UJ	910 U	940 UJ	960 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	370 U	450 J	1200 U	400 U	1900	390 U	350 U	380 U	1900 U	380 U	360 U	360 U	370 U	380 U	390 U
	CARBAZOLE			370 UJ	620 U	600 U	400 U	380 U	290 J	350 U	380 U	170000	250 J	360 UJ	340 J	370 UJ	380 U	390 U
	CHRYSENE	15000	400	23 U	620 U	600 U	140	18 J	1800	37	220	460000	460	520 J	1400	11 J	23 U	340 J
	DIBENZO(A,H)ANTHRACENE	15	400	23 U	620 U	600 U	16 J	21 J	160	30	60	90000	68	42 J	200	22 U	23 U	47
	DIBENZOFURAN			370 U	620 U	600 U	400 U	380 U	400	350 U	380 U	82000	380 U	360 U	360 U	370 U	380 U	390 U
	DI-N-BUTYL PHTHALATE			370 U	620 U	600 U	400 U	380 U	390 U	350 U	380 U	1900 U	380 U	360 U	360 U	370 U	380 U	390 U
	FLUORANTHENE	2300000	20000	23 U	620 U	600 U	210 J	32	3800	64	380	1100000	1200	280	2900	24	23 U	860
	FLUORENE	2300000	28000	23 U	620 U	600 U	32	23 U	120	21 U	19 J	150000	260	38	230	2.8 J	23 UJ	70 J
	HIGH MOLECULAR WEIGHT PAHS			23 U	640 U	620 U	1240 J	343 J	18160 J	590 J	2200	4740000	4508	2866 J	13690	83.7 J	23 UJ	3357 J
	INDENO(1,2,3-CD)PYRENE	150	900	23 U	860 U	830 U	51 J	71	1000	100	120	260000	170	91 J	660	22 U	23 UJ	140 J
	LOW MOLECULAR WEIGHT PAHS			23 UJ	580 U	560 U	400.4 J	22.6 J	4252	35.4 J	406.8 J	1571000 J	2652 J	784.9 J	3797	29 J	23 UJ	1127 J
	NAPHTHALENE	3900	54000	23 U	3.8 U	3.9 U	15 J	23 U	65	21 U	8.8 J	78000	330 J	16 J	32	22 U	23 U	70
	PENTACHLOROPHENOL	3000	5300	930 U	2500 U	2400 U	1000 U	950 U	960 U	860 U	940 U	4600 U	940 UJ	900 UJ	890 UJ	910 U	940 UJ	960 UJ
	PHENANTHRENE	1700000	40000	23 U	620 U	600 U	240	15 J	3200	26	300	900000	1300	600 J	2800	18 J	23 U	680

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B120B-0204	DA-S-SB03-0304-01	DA-S-SB03-0607-01	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810	DA-SB118-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810
	LOCATION ID			DA-MW120B	DA-SB-03	DA-SB-03	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110	DA-SB118	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125
	TOP DEPTH			2	3	6	6	4	6	2	2	8	4	4	4	5	6	8
	BOTTOM DEPTH			4	4	7	8	6	8	4	4	10	6	6	7	8	8	10
	SAMPLE DATE			04/08/08	08/19/03	08/19/03	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08	03/04/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	PHENOL	18000000	6000000	370 U	860 U	830 U	400 U	380 U	390 U	350 U	380 U	1900 U	380 U	360 U	360 U	370 U	380 U	390 U
	PYRENE	1700000	13000	23 U	620 U	600 U	280	27	3700 J	56	420	890000	1000	1200 J	3000	18 J	23 U	670
	TOTAL PAHS			23 UJ	620 U	600 U	1640.4 J	365.6 J	22412 J	625.4 J	2606.8 J	6311000 J	7160 J	3650.9 J	17487	112.7 J	23 UJ	4484 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.7 U	4.94 UJ	119 UJ	4 U	3.8 U	3.1 J	3.5 U	3.8 U	3.7 U	3.8 U	3.6 UJ	3.6 UJ	3.7 UJ	3.8 U	3.9 U
	4,4'-DDE	1400		3.7 U	4.94 UJ	119 UJ	1.3 J	3.8 U	3.9 U	3.5 U	3.8 U	3.7 UJ	3.8 UJ	3.6 U	3.6 U	3.7 U	3.8 UJ	3.9 UJ
	4,4'-DDT	1700		3.7 U	4.94 UJ	119 UJ	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U	3.8 UJ	3.6 UJ	3.6 UJ	3.7 UJ	3.8 U	3.9 U
	ALPHA-CHLORDANE	1600	500	1.9 U	2.47 UJ	59.5 UJ	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ	2 UJ	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ
	AROCLOR-1248	220	10000	19 U	61.7 UJ	59.5 UJ	21 U	20 U	20 U	18 U	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U
	AROCLOR-1254	1100	10000	19 U	61.7 UJ	59.5 UJ	21 U	20 U	20 U	18 U	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U
	AROCLOR-1260	220	10000	19 U	61.7 UJ	59.5 UJ	21 UJ	20 U	20 U	19	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U
	AROCLOR-1268	220	10000	19 U	61.7 UJ	59.5 UJ	21 U	20 U	20 U	18 U	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U
	ENDOSULFAN SULFATE	370000		3.7 U	4.94 UJ	119 UJ	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U	3.8 UJ	3.6 UJ	3.6 UJ	3.7 UJ	3.8 U	3.9 U
	ENDRIN ALDEHYDE	18000		3.7 U	4.94 UJ	119 UJ	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U	3.8 UJ	3.6 U	3.6 U	3.7 U	3.8 U	3.9 U
	GAMMA-CHLORDANE	1600	500	1.9 U	2.47 UJ	59.5 UJ	2.1 U	2 U	2 U	1.8 U	2 U	1.9 U	2 UJ	1.8 U	1.8 U	1.9 U	1.9 U	2 U
	HEPTACHLOR	110		1.9 U	2.47 UJ	59.5 UJ	2.1 U	2 U	2 U	1.8 U	2 U	52 J	2 UJ	3 J	1.8 UJ	1.9 UJ	1.9 UJ	2 UJ
	TOTAL AROCLOR	220	10000	19 U	62 UJ	60 UJ	21 UJ	20 U	20 U	19	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U
	TOTAL DDD/DDE/DDT			3.7 U	4.9 UJ	120 UJ	1.3 J	3.8 U	3.1 J	3.5 U	3.8 U	3.7 UJ	3.8 UJ	3.6 UJ	3.6 UJ	3.7 UJ	3.8 UJ	3.9 UJ
METALS (MG/KG)	ALUMINUM	77000		20100	9500	9200	16700	12500	11100	4450	13200	14200	9690	9600	11800	14800	14800	15700
	ANTIMONY	31	10	0.15 UJ	0.25 U	0.094 U	0.1 UJ	0.11 UJ	2.2 UJ	0.04 UJ	0.09 UJ	0.09 UJ	0.07 UJ	0.06 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.1 UJ
	ARSENIC	0.39	7	21.7	35	30	9.4	20.2	26.3	2.9	14.5	17	11.4	15.3	9.8	13.9	14.5	11.7
	BARIUM	15000	5500	18.8	100	60	25.1	25.9	653	14.2	26.3	51.6	22	14.7	42	16.8	21.3	23.1
	BERYLLIUM	160	0.4	0.45	0.72	0.68	0.35 J	0.47	0.46	0.36	0.34 J	0.74	0.3 J	0.42 J	0.55	0.42 J	0.33 J	0.28 J
	CADMIUM	70	39	0.016 U	0.098 U	0.094 U	0.01 UJ	0.33 J	1.7 J	0.66 J	0.01 UJ	0.01 UJ	0.01 UJ	0.23 J	0.17 J	0.02 UJ	0.02 UJ	0.01 UJ
	CALCIUM			290	830	740	1430	1260	9560	1230	946	12700	887 J	5070	35700	1520	525	2040
	CHROMIUM	230	390	23.2	12 J	13 J	21.2	15.5	98.2	4.9	17.4	16	13.9	21.1 J	14.7 J	19.4 J	19.5	20.9
	COBALT	23		19.8	34	16	12.5	12.1	35.6	14.7	10.3	11	10.8	8.8	7.7	16.5	19.4	14.2
	COPPER	3100	3100	25.5	2.1	5.8	19.6	19.1	140	6.5	21.5	20	13.2	17.8 J	17.7 J	31.8 J	27	19.9
	IRON	55000		48000	67000	43000	28600	26500	134000	10500	24500	23400	26100	21400	20000	35200	37800	30700
	LEAD	400	150	13.8	16	13	24.8	23.3	4650	25.6	19.4	28.6	8.1	9.7 J	13.9 J	18.4 J	12.3	13.9
	MAGNESIUM			5030	1400 J	1700 J	3720	2970	3700	1160	3390	8280	2780	4700	4620	4700	4570	4260
	MANGANESE	1800	390	677	3300	1300	415	393	920	356	312	460	337	361	322	565	679	753
	MERCURY	23	23	0.014 U	0.0314 J	0.0136 J	0.06	0.02 J	0.06	0.01 U	0.03	0.04	0.01 U	0.02 J	0.02 J	0.01 U	0.01 U	0.02 U
	MOLYBDENUM	390		0.38 J	0.064 U	0.24 U	0.36 J	0.56 J	58.8	0.18 J	0.49 J	0.47 J	0.23 J	0.75 J	0.44 J	0.64 J	0.44 J	0.63 J
	NICKEL	1600	1000	35.2	7.5	8.6	25	20.9	102	4.4	24.8	21.8	18.6	18.4	14.9	33.1	35	26.9
	POTASSIUM			351	250	260	346	542	275	1100	432	854	411	732 J	907 J	406 J	490	518
	SELENIUM	390	390	0.763 U	0.12 U	0.14 U	0.65 UJ	0.65 UJ	2.63 UJ	0.25 UJ	0.63 UJ	0.64 UJ	0.46 U	0.36 U	0.35 U	0.74 U	0.72 UJ	0.65 UJ
	SILVER	390	200	0.137 UJ	0.33	0.12	1.2 J	0.35 UJ	1.9 UJ	0.31 J	0.91 J	0.77 J	0.14 J	0.07 UJ	0.06 UJ	0.13 UJ	0.92 UJ	0.74 UJ
	SODIUM			40.5 J	57 U	60 U	41 J	56.4 J	64.4 J	29.3 J	43.8 J	266	35 J	95 J	109	31.8 J	37.7 J	47.8 J
	THALLIUM	5.1	5.5	0.03 UJ	0.86 U	0.82 U	0.04 UJ	0.02 UJ	0.04 U	0.07 UJ	0.05 UJ	0.07 UJ	0.06 UJ	0.02 UJ	0.02 UJ	0.01 U	0.02 UJ	0.04 UJ
	VANADIUM	390	550	24	40	30	23.6	16.3	28.6	6.1	23.3	22.2	19.4	22.4 J	16.2 J	17.9 J	22.5	25.6
	ZINC	23000	6000	74.4	30 J	30 J	67.9	53.5	148	40.1	58.6	60.2	42.5	48.6	47.6	69.8	72.2	57.7
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			NA	81	84	82	86	85	95	87	88	87	92	92	90	88	85
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			11	1.8 J	19	3.3 U	2.9 U	3.1 U	2.5 U	3.2 U	2.6 U	3.6 UJ	3.4 U	5.4 U	2.5 U	3.0 U	2.8 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			3800 J	62000 U	22000 J	22000	16000	220000	26000	190000	12000000	31000	2800000	530000	2600 J	5700 U	34000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810 AVG	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406	DA-SB138-0406 AVG	DA-SB139-0406	DA-SB139-1012
	LOCATION ID			DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137	DA-SB138	DA-SB139	DA-SB139
	TOP DEPTH			10	2	8	4	10	4	4	8	4	12	8	4	4	4	10
	BOTTOM DEPTH			13	4	10	6	11.5	6	6	10	5	14	10	6	6	6	12
	SAMPLE DATE			02/26/08	02/27/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08	02/21/08	02/21/08	02/21/08
	SAMPLE CODE			NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	1,3,5-TRIMETHYLBENZENE	47000		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	2-BUTANONE	28000000	10000000	27 U	25 U	25 U	26 U	25 U	26 UJ	25 U	25 U	30 U	26 U	27 U	26 U	25 U	NA	28 U
	4-ISOPROPYLTOLUENE			5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	ACETONE	61000000	7800000	27	11 J	25 U	160	690	45 J	89	23 J	38	27	130	26 U	10.8 J	NA	28 U
	BTEX			5.8 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 U	6.8 UJ	5.6 U	5.8 UJ	5.6 UJ	5.6 UJ	NA	6.6 UJ
	CARBON DISULFIDE	670000		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	CIS-1,2-DICHLOROETHENE	780000	630000	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	M+P-XYLENES	4500000		11 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U	10 U	NA	11 U
	METHYLENE CHLORIDE	11000	45000	27 U	25 U	25 U	26 U	25 U	26 UJ	25 U	25 U	30 UJ	26 U	27 UJ	26 UJ	25 UJ	NA	28 UJ
	N-BUTYLBENZENE			5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	SEC-BUTYLBENZENE			5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	TERT-BUTYLBENZENE			5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
	TETRACHLOROETHENE	570	12000	5 U	5 U	5 U	5 U	4 J	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ	5 UJ	NA	6 UJ
	TOTAL 1,2-DICHLOROETHENE	700000		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ	5 UJ	NA	6 UJ
	TOTAL CHLORINATED ETHENES			5 J	6.2 U	6.2 U	6.2 U	4 J	6.2 UJ	6.2 U	6.2 U	7.5 UJ	6.2 U	6.5 UJ	6.2 UJ	6.2 UJ	NA	7.2 UJ
	TOTAL CHLORINATED VOCS			5 J	6.6 UJ	6.6 UJ	6.6 UJ	4 J	6.6 UJ	6.6 UJ	6.6 UJ	7.9 UJ	6.6 UJ	6.8 UJ	6.6 UJ	6.6 UJ	NA	7.6 UJ
	TOTAL XYLENES	600000	110000	8 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 U	9 U	7.5 U	8 U	7.5 U	7.5 U	NA	8.5 U
	TRICHLOROETHENE	2800	13000	5 J	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U	5 U	NA	6 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		360 U	1800	365 U	380 U	390 U	380 U	380 U	170 J	370 U	370 U	350 U	380 U	350 U	NA	350 U
	2,4-DIMETHYLPHENOL	1200000		360 U	390	365 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U	350 U	NA	350 U
	2,4-DINITROPHENOL	120000	160000	890 U	950 U	915 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U	875 U	NA	870 U
	2-METHYLNAPHTHALENE	310000	123000	22 U	5600	250	22 J	86	31	26	500	22 U	22 U	21 U	23 U	21 U	NA	21 U
	3&4-METHYLPHENOL	310000		360 U	740	365 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U	350 U	NA	350 U
	3,3'-DICHLOROBENZIDINE	1100	1400	360 U	380 UJ	365 UJ	380 U	390 UJ	380 UJ	380 UJ	370 UJ	370 UJ	370 U	350 UJ	380 UJ	350 UJ	NA	350 UJ
	4,6-DINITRO-2-METHYLPHENOL	6100		890 U	950 U	915 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U	875 U	NA	870 U
	4-NITROANILINE	180000		890 U	950 U	915 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U	875 U	NA	870 U
	4-NITROPHENOL			890 U	950 U	915 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U	875 U	NA	870 U
	ACENAPHTHENE	3400000	43000	7.4 J	37000	1800	82	540	110 J	160	2500	22 U	22 U	21 U	23 U	21 U	NA	21 U
	ACENAPHTHYLENE	3400000	23000	22 U	230 UJ	22 U	23 U	23 U	23 U	23 U	44 UJ	22 U	22 UJ	21 U	23 U	21 U	NA	21 U
	ANTHRACENE	17000000	35000	7.5 J	45000	4200	140	650	200 J	380	4800	22 U	22 U	21 U	23 U	21 U	NA	21 U
	BENZO(A)ANTHRACENE	150	900	16 J	63000	9000 J	410	140 J	600 J	1100	10000	22 U	22 U	21 U	3.2 J	21 U	NA	21 U
	BENZO(A)PYRENE	15	400	13 J	52000	6400	300	820	520 J	1100	8600	22 U	22 U	21 U	23 U	21 U	NA	21 U
	BENZO(B)FLUORANTHENE	150	900	12 J	40000	6400	280	660	500 J	1100	6800	22 U	22 U	21 U	23 U	21 U	NA	21 U
	BENZO(G,H,I)PERYLENE	1700000	800	22 U	28000	3100	120	180 J	150	580	3700	22 U	22 UJ	21 U	8.5 J	21 U	NA	21 U
	BENZO(K)FLUORANTHENE	1500	900	12 J	46000	5800	300	800	430	770	7200	22 U	22 U	21 U	23 U	21 U	NA	21 U
	BENZOIC ACID	2.4E+08		890 UJ	950 UJ	915 U	940 UJ	960 U	940 U	930 U	910 UJ	440 J	910 UJ	870 U	950 U	875 U	NA	870 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	360 U	380 U	365 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U	350 U	NA	350 U
	CARBAZOLE			360 U	32000	2600 J	380 U	450 J	380 UJ	250 J	3100	370 UJ	370 U	350 UJ	380 U	350 U	NA	350 UJ
	CHRYSENE	15000	400	17 J	57000	8550 J	470	960	600	1100	8900	22 U	22 U	21 U	3.3 J	21 U	NA	21 U
	DIBENZO(A,H)ANTHRACENE	15	400	22 U	10000	1600	55	81 J	62	150	1600	22 U	22 UJ	21 U	4.5 J	21 U	NA	21 U
	DIBENZOFURAN			360 U	17000	1150	380 U	260 J	380 U	380 U	1500	370 U	370 U	350 U	380 U	350 U	NA	350 U
	DI-N-BUTYL PHTHALATE			360 U	380 U	365 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U	350 U	NA	350 U
	FLUORANTHENE	2300000	20000	35	130000	17000 J	920	2100	1500	1700	21000	22 U	22 U	5.2 J	23 U	21 U	NA	21 U
	FLUORENE	2300000	28000	5.7 J	29000	2150	58	380 J	110 J	120	2500	22 U	22 U	21 U	23 U	21 U	NA	21 U
	HIGH MOLECULAR WEIGHT PAHS			156 J	576000	80000 J	3835	8201 J	5732 J	10270	90100	22 U	22 UJ	5.2 J	29.5 J	21 U	NA	21 U
	INDENO(1,2,3-CD)PYRENE	150	900	22 U	30000	3150	120	260	170	570	4300	22 U	22 UJ	21 U	10 J	21 U	NA	21 U
	LOW MOLECULAR WEIGHT PAHS			59.1 J	278600 J	25715 J	1041 J	4386 J	1636 J	2250	29500 J	22 U	22 UJ	21 U	23 U	21 U	NA	21 U
	NAPHTHALENE	3900	54000	9.5 J	22000	815	29	430	85 J	64	1200	22 U	22 U	21 U	23 U	21 U	NA	21 U
	PENTACHLOROPHENOL	3000	5300	890 UJ	950 U	915 U	940 UJ	960 U	940 U	930 U	910 U	920 U	910 UJ	870 U	950 UJ	875 UJ	NA	870 U
	PHENANTHRENE	1700000	40000	29	140000	16500 J	710	2300	1100	1500	18000	22 U	22 U	21 U	23 U	21 U	NA	21 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810 AVG	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406	DA-SB138-0406 AVG	DA-SB139-0406	DA-SB139-1012
	LOCATION ID			DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137	DA-SB138	DA-SB139	DA-SB139
	TOP DEPTH			10	2	8	4	10	4	4	8	4	12	8	4	4	4	10
	BOTTOM DEPTH			13	4	10	6	11.5	6	6	10	5	14	10	6	6	6	12
	SAMPLE DATE			02/26/08	02/27/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08	02/21/08	02/21/08	02/21/08
	SAMPLE CODE			NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	PHENOL	18000000	6000000	360 U	380 J	365 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U	350 U	NA	350 U
	PYRENE	1700000	13000	51	120000	19000 J	860	2200	1200 J	2100	18000	22 U	22 U	21 U	23 U	21 U	NA	21 U
	TOTAL PAHS			215.1 J	854600 J	105715 J	4876 J	12587 J	7368 J	12520	119600 J	22 U	22 UJ	5.2 J	29.5 J	21 U	NA	21 U
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.6 UJ	3.8 U	3.65 U	3.8 UJ	3.9 UJ	3.8 UJ	3.8 U	3.7 U	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U	3.5 U	3.5 U	NA
	4,4'-DDE	1400		3.6 U	3.8 UJ	3.65 U	3.8 U	3.9 U	3.8 U	3.8 U	0.92 J	3.7 U	3.7 U	3.5 U	3.8 U	3.5 U	3.5 U	NA
	4,4'-DDT	1700		3.6 UJ	3.8 U	3.65 UJ	2.4 J	3.9 UJ	3.8 UJ	3.8 UJ	1.7 J	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U	3.5 U	3.5 U	NA
	ALPHA-CHLORDANE	1600	500	1.8 U	2 UJ	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U	1.8 U	1.8 U	NA
	AROCLOR-1248	220	10000	18 U	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U	18 U	18 U	NA
	AROCLOR-1254	1100	10000	18 U	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U	18 U	18 U	NA
	AROCLOR-1260	220	10000	18 U	20 U	19 U	20 U	20 U	19 U	19 U	82	19 U	19 U	45	20 U	18 U	18 U	NA
	AROCLOR-1268	220	10000	18 U	20 U	19 U	150	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U	18 U	18 U	NA
	ENDOSULFAN SULFATE	370000		3.6 UJ	3.8 U	3.65 UJ	2 J	3.9 UJ	3.8 UJ	3.8 UJ	3.7 U	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U	3.5 U	3.5 U	NA
	ENDRIN ALDEHYDE	18000		3.6 U	3.8 U	3.65 U	3.8 U	3.9 U	3.8 U	3.8 U	1.2 J	3.7 U	3.7 U	3.5 U	3.8 U	3.5 U	3.5 U	NA
	GAMMA-CHLORDANE	1600	500	1.8 U	2 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	2 U	1.8 U	1.8 U	NA
	HEPTACHLOR	110		1.8 UJ	2 UJ	1.9 U	2 UJ	2 UJ	1.9 UJ	1.9 U	1.9 UJ	5.8 J	1.9 UJ	1.8 UJ	2 U	1.8 U	1.8 U	NA
	TOTAL AROCLOR	220	10000	18 U	20 U	19 U	150	20 U	19 U	19 U	82	19 U	19 U	45	20 U	18 U	18 U	NA
	TOTAL DDD/DDE/DDT			3.6 UJ	3.8 UJ	3.6 UJ	2.4 J	3.9 UJ	3.8 UJ	3.8 UJ	2.62 J	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U	3.5 U	3.5 U	NA
METALS (MG/KG)	ALUMINUM	77000		16700	10600	17000	12500	12900	12500	13800	14100	23300	25900	17700	17400	11600	NA	27200
	ANTIMONY	31	10	0.11 UJ	0.05 UJ	0.11 UJ	0.2 UJ	0.11 UJ	0.1 UJ	1.6 J	0.1 UJ	0.1 UJ	0.17 UJ	0.1 UJ	0.14 UJ	0.1 UJ	NA	0.14 UJ
	ARSENIC	0.39	7	4.7	11.7	8.9	16.1	26.2	17.7	15.6	14.3	5.2	4.5	7.9	16.2	29.6	NA	11.9
	BARIUM	15000	5500	12.9	27.9	40.4	50.8	23.9	23.6	95.4	26.8	9.2	8	20.7	17.3	23.4	NA	9
	BERYLLIUM	160	0.4	0.28 J	0.26 J	0.46 J	0.53	0.46 J	0.4 J	0.42 J	0.36 J	0.28 J	0.29 J	0.26 J	0.7	0.49	NA	0.34 J
	CADMIUM	70	39	0.02 UJ	0.19 J	0.41 J	0.57 J	0.02 UJ	0.01 UJ	8.8	0.01 UJ	0.01 UJ	0.02 UJ	0.01 UJ	0.02 UJ	0.01 UJ	NA	0.02 UJ
	CALCIUM			1170	3300	2900	9590	4050	7190	6010	11800	1550	1310	244	268	600	NA	2350
	CHROMIUM	230	390	21.6 J	11.5	22.8 J	15.7 J	17.2 J	16.9 J	25.2 J	18.6	32 J	27.4 J	26 J	18.8 J	16.9 J	NA	33.6 J
	COBALT	23		18.6	7.6	19.4	9.5	18.3	11.2	14	10.8	21.1	15.9	22.6	25	18.4	NA	30.5
	COPPER	3100	3100	20.5 J	14.4	33 J	32 J	23.8 J	20.8 J	132 J	17.6	26 J	15.2 J	21.7 J	22.7 J	30.8 J	NA	29.5 J
	IRON	55000		32800	18800	38600	22800	31600	28200	31800	26100	49400	61400	48600	54600	46100	NA	69200
	LEAD	400	150	15.1 J	25.1	117 J	66.8 J	19.3 J	21.3 J	926 J	16.6	13.2 J	10.4 J	10.1 J	12.3 J	10 J	NA	10.7 J
	MAGNESIUM			5580	2470	5810	3090	3660	3630	4400	4560	9250	8500	4990	4920	3940	NA	9600
	MANGANESE	1800	390	553	300	1050	314	745	352	560	350	647	363	870	978	738	NA	1350
	MERCURY	23	23	0.01 U	0.09	0.02 J	0.12	0.02 J	0.03 J	0.05	0.02 J	0.01 U	0.01 U	0.01 U	0.01 J	0.01 U	NA	0.01 U
	MOLYBDENUM	390		0.13 J	0.29 J	1.26 J	0.64 J	0.63 J	0.36 J	2.2 J	0.31 J	0.12 J	2.5 J	0.9 J	0.14 J	0.58 J	NA	0.02 UJ
	NICKEL	1600	1000	31.2	13.1	36.7	24.5	29.5	20.7	31.7	22.9	46	23.9	35.1	31.8	36.8	NA	53.9
	POTASSIUM			240 J	579	348 J	627 J	384 J	460 J	379 J	664	174 J	196 J	253 J	294 J	570 J	NA	333 J
	SELENIUM	390	390	0.73 U	0.35 UJ	0.75 U	0.38 U	0.74 U	0.71 U	0.76 U	0.66 UJ	0.7 U	1.13 U	0.68 U	0.94 U	0.685 U	NA	0.94 U
	SILVER	390	200	0.4 J	0.13 UJ	0.135 UJ	0.07 UJ	0.16 J	0.17 J	0.54 J	0.74 J	0.13 UJ	0.67 J	0.12 U	0.17 UJ	0.12 UJ	NA	0.17 UJ
	SODIUM			21.4 UJ	47.6 J	24.7 J	74.7 J	47 J	66.9 J	77.8 J	74.9 J	20.3 UJ	21.6 UJ	27.5 UJ	30.1 J	88.8 J	NA	61 J
	THALLIUM	5.1	5.5	0.01 U	0.06 UJ	0.02 UJ	0.04 UJ	0.03 UJ	0.02 UJ	0.07 UJ	0.03 UJ	0.01 U	0.02 U	0.01 U	0.06 UJ	0.06 J	NA	0.02 U
	VANADIUM	390	550	19.2 J	16.1	19.8 J	18.9 J	21.2 J	20 J	27.6 J	22.7	23.4 J	53.8 J	32.1 J	20.8 J	19.1 J	NA	34.3 J
	ZINC	23000	6000	66.6	58.3	84.9	144	62.3	54.1	381	57.5	84.9	86	83.2	96.4	81.5	NA	106
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			92	87	90	87	85	88	88	90	90	90	95	86	94	94	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			2.8 U	2.8 U	2.75 U	3.2 U	2.9 U	2.9 U	2.7 U	2.8 U	3.4 U	3.1 U	3.2 U	3.1 U	2.8 U	NA	2.8 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			200000	1400000	545000	260000	94000	39000 J	150000	490000	4300 J	3800 J	6000	4300 J	2650 J	NA	2600 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
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TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID			DA-SB152-0204	DA-SB153-0204	DA-S-TP01-0304-01	DA-S-TP01-0607-01	DA-S-TP05-0607-01	DA-S-TP05-0910-01-AVG	DA-S-TP06-0304-01	DA-S-TP06-0910-01	DA-S-TP07-0304-01	DA-S-TP07-0910-01	DA-S-TP08-0708-01	DA-S-TP08-0304-01-AVG	DA-S-TP11-0304-01	DA-S-TP11-0203-01-AVG	DA-S-TP12-0203-01
	LOCATION ID			DA-SB152	DA-SB153	DA-TP-01	DA-TP-01	DA-TP-05	DA-TP-05	DA-TP-06	DA-TP-06	DA-TP-07	DA-TP-07	DA-TP-08	DA-TP-08	DA-TP-11	DA-TP-11	DA-TP-12
	TOP DEPTH			2	2	3	6	6	9	3	9	3	9	7	3	3	2	2
	BOTTOM DEPTH			4	4	4	7	7	10	4	10	4	10	8	4	4	3	3
	SAMPLE DATE			02/28/08	02/28/08	08/11/03	08/11/03	08/11/03	08/11/03	08/13/03	08/13/03	08/12/03	08/12/03	08/15/03	08/15/03	08/14/03	08/14/03	08/13/03
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	AVG	NORMAL
FRACTION (UNITS)	PARAMETER	ORNLSLDCR	RIDEMDCR	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 UJ	5 U	0.34 U	0.35 U	0.25 U	0.345 U	0.25 U	0.33 U	0.26 U	0.35 U	0.24 U	0.305 U	0.29 U	0.315 U	0.23 U
	1,3,5-TRIMETHYLBENZENE	47000		5 UJ	5 U	0.29 U	0.3 U	0.21 U	0.295 U	0.21 U	0.28 U	0.22 U	0.3 U	0.2 U	0.255 U	0.25 U	0.265 U	0.2 U
	2-BUTANONE	28000000	10000000	25 UJ	25 U	0.43 U	0.44 U	0.32 U	0.435 U	0.32 U	0.42 U	0.33 U	0.44 U	0.3 U	0.385 U	0.37 U	0.395 U	0.29 U
	4-ISOPROPYLTOLUENE			5 UJ	5 U	0.36 U	0.36 U	0.26 U	0.36 U	0.26 U	0.35 U	0.27 U	0.37 U	0.25 U	0.315 U	0.31 U	0.33 U	0.24 U
	ACETONE	61000000	7800000	25 UJ	73	7.1 U	7.3 U	5.2 U	7.25 U	5.2 U	7 U	5.5 U	7.4 U	5 U	6.3 U	6.2 U	6.6 U	4.8 U
	BTEX			5.6 UJ	5.6 U	0.96	0.46 U	0.33 U	0.45 U	0.33 U	0.44 U	0.35 U	0.47 U	0.31 U	0.4 U	0.38 U	0.42 U	0.3 U
	CARBON DISULFIDE	670000		5 UJ	5 U	0.46 U	0.47 U	0.34 U	0.465 U	0.34 U	0.45 U	0.36 U	0.48 U	0.32 U	0.41 U	0.4 U	0.425 U	0.31 U
	CIS-1,2-DICHLOROETHENE	780000	630000	5 UJ	5 U	0.41 U	0.42 U	0.3 U	0.42 U	0.3 U	0.4 U	0.32 U	0.43 U	0.29 U	0.365 U	0.36 U	0.38 U	0.28 U
	M+P-XYLENES	4500000		10 UJ	10 U	0.96 J	0.82 U	0.59 U	0.79 U	0.59 U	0.79 U	0.62 U	0.83 U	0.56 U	0.71 U	0.69 U	0.745 U	0.54 U
	METHYLENE CHLORIDE	11000	45000	25 UJ	25 U	7.5 U	7.7 U	5.5 U	7.65 U	5.6 U	7.4 U	5.8 U	7.8 U	5.3 U	6.65 U	6.5 U	6.95 U	5.1 U
	N-BUTYLBENZENE			5 UJ	5 U	0.41 U	0.42 U	0.3 U	0.415 U	0.3 U	0.4 U	0.32 U	0.42 U	0.28 U	0.365 U	0.35 U	0.375 U	0.28 U
	SEC-BUTYLBENZENE			5 UJ	5 U	0.36 U	0.37 U	0.26 U	0.365 U	0.26 U	0.35 U	0.28 U	0.37 U	0.25 U	0.32 U	0.31 U	0.335 U	0.24 U
	TERT-BUTYLBENZENE			5 UJ	5 U	0.37 U	0.38 U	0.27 U	0.38 U	0.28 U	0.37 U	0.29 U	0.39 U	0.26 U	0.33 U	0.32 U	0.345 U	0.25 U
	TETRACHLOROETHENE	570	12000	5 UJ	5 U	0.36 U	0.37 U	0.26 U	0.365 U	0.64 J	0.35 U	0.28 U	5.4	4.2	1.1425 J	0.31 U	0.335 U	0.24 U
	TOTAL 1,2-DICHLOROETHENE	700000		5 UJ	5 U	0.38 U	0.38 U	0.28 U	0.38 U	0.28 U	0.37 U	0.29 U	0.39 U	0.26 U	0.34 U	0.33 U	0.35 U	0.26 U
	TOTAL CHLORINATED ETHENES			6.2 UJ	6.2 U	0.44 U	0.44 U	0.32 U	0.44 U	0.64 J	0.42 U	0.34 U	13.2	4.2	1.1425 J	0.38 U	0.4 U	0.3 U
	TOTAL CHLORINATED VOCS			6.6 UJ	6.6 UJ	0.61 U	0.63 U	0.45 U	0.63 U	0.64 J	0.6 U	0.47 U	13.2	4.2	1.1425 J	0.53 U	0.57 U	0.42 U
	TOTAL XYLENES	600000	110000	7.5 UJ	7.5 U	0.96	0.82 U	0.59 U	0.79 U	0.59 U	0.79 U	0.62 U	0.83 U	0.56 U	0.71 U	0.69 U	0.745 U	0.54 U
	TRICHLOROETHENE	2800	13000	5 UJ	5 U	0.4 U	0.41 U	0.29 U	0.405 U	0.29 U	0.39 U	0.31 U	7.8	0.28 U	0.35 U	0.34 U	0.365 U	0.27 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		380 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DIMETHYLPHENOL	1200000		380 U	400 U	540 U	530 U	510 UJ	580 U	540 UJ	520 UJ	530 U	550 U	11000 U	540 U	500 U	530 U	510 UJ
	2,4-DINITROPHENOL	120000	160000	930 U	1000 U	140 U	140 U	140 UJ	160 U	150 U	140 UJ	140 U	150 U	2900 U	140 U	140 U	140 U	140 UJ
	2-METHYLNAPHTHALENE	310000	123000	23 U	24 U	220 U	220 U	210 U	240 U	220 U	210 U	220 U	230 U	8600 J	220 U	210 U	220 U	210 U
	3&4-METHYLPHENOL	310000		380 U	400 U	190 U	190 U	180 UJ	200 U	190 U	180 UJ	190 U	200 U	3800 U	190 U	180 U	190 U	180 U
	3,3'-DICHLOROBENZIDINE	1100	1400	380 UJ	400 UJ	100 U	100 U	100 U	110 U	110 U	100 U	100 U	110 U	2100 U	100 U	99 U	100 U	100 U
	4,6-DINITRO-2-METHYLPHENOL	6100		930 U	1000 U	120 U	120 U	110 UJ	130 U	120 U	120 UJ	120 U	120 U	2400 U	120 U	110 U	120 U	110 UJ
	4-NITROANILINE	180000		930 U	1000 U	200 U	190 U	190 U	210 U	200 U	190 U	190 U	200 U	3900 U	200 U	180 U	190 U	190 U
	4-NITROPHENOL			930 U	1000 U	240 U	240 U	230 UJ	260 U	250 U	240 UJ	240 U	250 U	4900 U	240 U	230 U	240 U	230 UJ
	ACENAPHTHENE	3400000	43000	23 U	7.5 J	73 J	120 J	65 U	74 U	69 U	66 U	67 U	71 U	27000	565 J	64 U	67 U	65 U
	ACENAPHTHYLENE	3400000	23000	23 UJ	24 UJ	89 U	94 J	85 U	97 U	90 U	86 U	88 U	93 U	3500 J	89 U	84 U	88 U	85 U
	ANTHRACENE	17000000	35000	23 U	14 J	170 J	340 J	42 U	48 U	94 J	43 U	110 J	88 J	55000	1850 J	42 U	44 U	42 U
	BENZO(A)ANTHRACENE	150	900	23 U	28	760	1300	78 U	88 U	290 J	78 U	460 J	310 J	78000	4100 J	77 U	80 U	78 U
	BENZO(A)PYRENE	15	400	23 U	22 J	730	1200	80 U	91 U	190 J	81 U	490 J	270 J	56000	2400	79 U	83 U	80 U
	BENZO(B)FLUORANTHENE	150	900	23 U	23 J	660	1100	100 U	110 U	220 J	100 U	510 J	280 J	51000	2450 J	99 U	100 U	100 U
	BENZO(G,H,I)PERYLENE	1700000	800	23 UJ	5.4 J	530 J	850	120 U	130 U	130 J	120 U	400 J	220 J	33000	1250	110 U	120 U	120 U
	BENZO(K)FLUORANTHENE	1500	900	23 U	23 J	700	1100	75 U	86 U	210 J	76 U	440 J	260 J	47000	2300 J	74 U	78 U	75 U
	BENZOIC ACID	2.4E+08		1500 J	1000 UJ	240 U	230 U	220 U	260 U	240 UJ	230 UJ	230 U	240 U	4700 UJ	240 UJ	220 UJ	915 J	220 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	380 U	400 U	460 J	110 U	410 J	470 J	440 J	420 J	450 J	120 U	2300 U	120 U	410 J	242.5 J	110 U
	CARBAZOLE			380 U	400 U	160 J	260 J	75 U	85 U	79 U	76 U	92 J	81 U	34000	1335 J	74 U	77 U	75 U
	CHRYSENE	15000	400	23 U	33	910	1500	80 U	91 U	290 J	80 U	570 J	330 J	71000	4050 J	79 U	82 U	80 U
	DIBENZO(A,H)ANTHRACENE	15	400	23 U	24 U	150 U	230 J	140 U	160 U	150 U	140 U	140 U	150 U	10000 J	445 J	140 U	140 U	140 U
	DIBENZOFURAN			380 U	400 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	130 U	23000	345 J	120 U	120 U	120 U
	DI-N-BUTYL PHTHALATE			380 U	400 U	79 U	78 U	75 U	86 U	80 U	76 U	78 U	82 U	1600 U	79 U	74 U	78 U	75 U
	FLUORANTHENE	2300000	20000	23 U	80	1900	3300	65 U	74 U	660 J	65 U	1100 J	650	200000	11050 J	64 U	67 U	65 U
	FLUORENE	2300000	28000	23 UJ	5.4 J	80 J	170 J	65 U	74 U	68 U	65 U	67 U	70 U	45000	760 J	64 U	67 U	65 U
	HIGH MOLECULAR WEIGHT PAHS			23 UJ	280.9 J	8250 J	14180 J	96 U	110 U	2520 J	97 U	5300 J	3070 J	726000 J	38195 J	94 U	98 U	96 U
	INDENO(1,2,3-CD)PYRENE	150	900	23 UJ	7.5 J	460 J	800 J	150 U	180 U	160 U	160 U	350 J	200 J	30000	1250	150 U	160 U	150 U
	LOW MOLECULAR WEIGHT PAHS			23 UJ	85.9 J	1423 J	2924 J	77 U	88 U	604 J	77 U	680 J	498 J	379100 J	11585 J	76 U	80 U	77 U
	NAPHTHALENE	3900	54000	23 U	24 U	5.4 U	5.5 U	4 U	5.5 U	4 U	5.3 U	4.2 U	5.6 U	20000	160 J	4.7 U	5 U	3.7 U
	PENTACHLOROPHENOL	3000	5300	930 U	1000 U	400 U	400 U	390 UJ	440 U	410 J	390 UJ	400 U	420 U	8100 U	400 U	380 U	400 U	390 UJ
	PHENANTHRENE	1700000	40000	23 U	59	1100	2200	65 U	74 U	510 J	65 U	570 J	410 J	220000	8250 J	64 U	67 U	65 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB152-0204	DA-SB153-0204	DA-S-TP01-0304-01	DA-S-TP01-0607-01	DA-S-TP05-0607-01	DA-S-TP05-0910-01-AVG	DA-S-TP06-0304-01	DA-S-TP06-0910-01	DA-S-TP07-0304-01	DA-S-TP07-0910-01	DA-S-TP08-0708-01	DA-S-TP08-0304-01-AVG	DA-S-TP11-0304-01	DA-S-TP11-0203-01-AVG	DA-S-TP12-0203-01
	LOCATION ID			DA-SB152	DA-SB153	DA-TP-01	DA-TP-01	DA-TP-05	DA-TP-05	DA-TP-06	DA-TP-06	DA-TP-07	DA-TP-07	DA-TP-08	DA-TP-08	DA-TP-11	DA-TP-11	DA-TP-12
	TOP DEPTH			2	2	3	6	6	9	3	9	3	9	7	3	3	2	2
	BOTTOM DEPTH			4	4	4	7	7	10	4	10	4	10	8	4	4	3	3
	SAMPLE DATE			02/28/08	02/28/08	08/11/03	08/11/03	08/11/03	08/11/03	08/13/03	08/13/03	08/12/03	08/12/03	08/15/03	08/15/03	08/14/03	08/14/03	08/13/03
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	AVG	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	PHENOL	18000000	6000000	380 U	400 U	110 U	110 U	100 UJ	120 U	110 U	110 UJ	110 U	110 U	2200 U	110 U	100 U	110 U	100 UJ
	PYRENE	1700000	13000	23 U	59	1600	2800	70 U	80 U	530 J	71 U	980 J	550 J	150000	8900 J	70 U	73 U	70 U
	TOTAL PAHS			23 UJ	366.8 J	9673 J	17104 J	88 U	100 U	3124 J	89 U	5980 J	3568 J	1105100 J	49780 J	87 U	91 U	88 U
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.8 U	4 U	80 U	79.1 U	1.01 UJ	8.72 UJ	2.02 U	9.66 U	198 U	82.9 U	40 U	20 U	1.89 U	1.98 U	1.91 U
	4,4'-DDE	1400		3.8 UJ	4 UJ	37.6 U	37.2 U	2.13 UJ	4.1 UJ	0.952 UJ	4.54 U	93 U	39 U	18.8 UJ	9.41 UJ	0.889 U	0.93 U	0.899 U
	4,4'-DDT	1700		3.8 U	4 U	225 J	200	1.24 UJ	8.2 UJ	1.9 U	9.09 U	347 J	171 J	37.6 UJ	18.8 UJ	1.78 U	1.86 U	1.8 U
	ALPHA-CHLORDANE	1600	500	1.9 UJ	2.1 UJ	28.2 U	27.9 U	0.562 UJ	3.08 UJ	0.714 U	3.41 U	69.8 U	29.3 U	14.1 U	7.06 U	0.667 U	0.698 U	0.674 U
	AROCLOR-1248	220	10000	19 U	21 U	22.9 U	22.7 U	21.9 U	25 U	23.2 U	22.2 U	22.7 U	2190 J	229 U	132 J	21.7 U	22.7 U	21.9 U
	AROCLOR-1254	1100	10000	19 U	21 U	22.9 UJ	22.7 UJ	21.9 UJ	25 UJ	23.2 U	22.2 U	22.7 UJ	23.8 UJ	229 U	22.9 UJ	21.7 U	22.7 U	21.9 U
	AROCLOR-1260	220	10000	19 U	21 U	12.9 U	12.8 U	12.4 U	14.1 U	13.1 U	12.5 U	12.8 U	502	129 U	12.9 UJ	12.2 U	12.8 U	12.4 U
	AROCLOR-1268	220	10000	19 U	21 U	96.7	27.4 J	21.9 U	25 U	23.2 U	22.2 U	54.4 J	23.8 U	229 U	22.9 UJ	21.7 U	22.7 U	21.9 U
	ENDOSULFAN SULFATE	370000		3.8 U	4 U	51.8 U	51.2 U	1.01 UJ	5.64 UJ	1.31 UJ	6.25 UJ	128 U	53.6 U	25.9 U	12.9 U	1.22 UJ	1.28 UJ	1.24 U
	ENDRIN ALDEHYDE	18000		3.8 U	4 U	61.2 U	60.5 U	1.57 UJ	6.67 UJ	1.55 U	7.39 U	151 U	63.4 U	30.6 U	15.3 U	1.44 U	1.51 U	1.46 U
	GAMMA-CHLORDANE	1600	500	1.9 U	2.1 U	23.5 U	23.2 U	1.12 UJ	2.56 UJ	0.595 U	2.84 U	58.1 U	24.4 U	11.8 U	5.88 U	0.556 U	0.581 U	0.562 U
	HEPTACHLOR	110		1.9 UJ	2.1 UJ	28.2 U	27.9 U	1.68 UJ	3.08 UJ	0.714 U	3.41 U	69.8 U	29.3 U	14.1 U	7.06 U	0.667 U	0.698 U	0.674 U
	TOTAL AROCLOR	220	10000	19 UJ	21 U	96.7 J	27.4 J	21 UJ	24 UJ	22 U	21 U	54.4 J	2692 J	220 U	132 J	21 U	21 U	21 U
	TOTAL DDD/DDE/DDT			3.8 UJ	4 UJ	225 J	200	1.5 UJ	7 UJ	1.6 UJ	7.8 U	347 J	171 J	32 UJ	16 UJ	1.5 U	1.6 U	1.5 U
METALS (MG/KG)	ALUMINUM	77000		9500	11400	7300	7300	6700	11500	7600	7900	6100	5700	8900	8400	17000	14000	10000
	ANTIMONY	31	10	0.08 UJ	0.1 UJ	0.47 U	0.37 U	0.26 U	0.155 U	0.26 U	0.35 U	0.25 U	6.2	0.39 U	0.295 U	1.1 U	0.23 U	0.11 U
	ARSENIC	0.39	7	6	12.6	19 J	15 J	26 J	14 J	16 J	20 J	16 J	14 J	24	23.5	14 J	15 J	7 J
	BARIUM	15000	5500	18.1	29.6	20	20	22	11.5	17	12	16	19	15	13.5	7.6 J	12	6.9
	BERYLLIUM	160	0.4	0.36 J	0.31 J	0.27	0.3	0.32	0.25	0.31 J	0.28 J	0.28	0.23	0.32	0.295	0.24 J	0.31 J	0.26 J
	CADMIUM	70	39	0.01 UJ	0.01 UJ	2.8 J	1.3 J	0.17 J	0.185 J	0.019 U	0.13 U	0.79 J	1.6 J	0.019 UJ	0.0185 UJ	0.24 U	0.145 U	0.018 U
	CALCIUM			573	757	1400 J	1700 J	220 J	910 J	960 J	630 J	720 J	2500 J	680	605	1900 J	890 J	700 J
	CHROMIUM	230	390	13.5	14.2	11 J	9.8	8.6 J	13.5 J	9.1 J	10 J	7.4	10	10 J	9.75 J	16 J	14 J	13 J
	COBALT	23		6.6	8.4	12 J	13 J	19 J	17 J	6.4	15	8.1 J	12 J	13	12	11	13	15
	COPPER	3100	3100	17.9	9.3	26	20	31	26.5	12	28	19	2600	20	19.5	18	20	28
	IRON	55000		19600	25200	23000	16000	28000	29500	16000	29000 J	14000	17000	24000	22500	42000	38500	25000
	LEAD	400	150	9	10.5	36	37	9.6	18.5	16	14	24	400	36	11.5	14	9.05	14
	MAGNESIUM			2210	2850	2300	2000	2200	4000	1400 J	2700 J	1200	1400	2400	2350	6400 J	4400 J	3900 J
	MANGANESE	1800	390	122	367	340	280	2700	625	180	920	240	260	330	330	280	310	400
	MERCURY	23	23	0.01 J	0.02 J	0.087 J	0.055 J	0.0089 J	0.02 J	0.041	0.007 U	0.045 J	0.13 J	0.0113 J	0.0154 J	0.0088 J	0.015 J	0.0084 U
	MOLYBDENUM	390		0.4 J	0.2 J	0.26 U	0.29 U	0.3 U	0.295 U	0.41 U	0.32 U	0.42	1	0.32 U	0.255 U	1	0.28 U	0.29 U
	NICKEL	1600	1000	16.1	17.2	19	14	27	24.5	9.8	25	11	14	18	17.5	21	22.5	22
	POTASSIUM			379	393	260	190	150	125	170	240	130	88	160	155	81	140	120
	SELENIUM	390	390	0.55 UJ	0.66 UJ	0.12 UJ	0.11 UJ	0.56 U	0.13 UJ	0.14 U	0.11 U	0.11 UJ	0.12 UJ	0.12 U	0.12 U	0.55 U	0.35 U	0.11 U
	SILVER	390	200	0.51 UJ	0.94 J	1.1	0.37 U	0.22 U	0.058 U	0.047 U	0.5	0.094 U	2.5	0.088 U	0.0975 U	0.031 U	0.032 U	0.031 U
	SODIUM			32.1 J	38.3 J	31 U	35 U	23 U	25.5 U	25 U	23 U	27 U	35 U	25 U	21.5 U	22 U	25 U	16 U
	THALLIUM	5.1	5.5	0.08 UJ	0.04 UJ	0.81 U	0.8 U	0.89 J	0.89 U	0.83 U	0.78 U	0.8 U	0.85 U	0.82 U	0.815 U	0.78 U	0.805 U	0.78 U
	VANADIUM	390	550	23.3	21.2	15	17	12	16	14	13	13	10	16	13.5	22	25.5	10
	ZINC	23000	6000	40	46.4	88	59	50	55.5	34 J	68 J	33	1200	42	41.5	58 J	58 J	51 J
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			88	82	85	86	89	78	84	88	86	82	85	85	90	86	89
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			3.0 U	2.8 U	1.8 J	0.81 J	1.1 J	0.955 J	1.4 J	0.79 J	4.9 J	9	6.9 U	8.75 U	1 J	1.95 J	1.4 J
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			5700 U	7200 U	190000	110000	16000 U	18000 U	60000 U	57000 U	140000	120000	17000	69500	56000 U	58000 U	56000 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-TP13-0203-01	DA-S-TP13-0405-01	DA-S-TP14-0910-01	DA-S-TP15-0203-01	DA-S-TP15-0506-01	DA-S-TP15A-0203-01	DA-S-TP15A-0506-01	DA-S-TP15A-0910-01	DA-SB-TP103-0506
	LOCATION ID			DA-TP-13	DA-TP-13	DA-TP-14	DA-TP-15	DA-TP-15	DA-TP-15A	DA-TP-15A	DA-TP-15A	DA-TP103
	TOP DEPTH			2	4	9	2	5	2	5	9	5
	BOTTOM DEPTH			3	5	10	3	6	3	6	10	6
	SAMPLE DATE			08/15/03	08/15/03	08/14/03	08/12/03	08/12/03	08/12/03	08/12/03	08/12/03	02/07/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		1.1 J	0.23 U	0.35 UJ	0.27 U	0.4 U	900 U	280 U	0.32 U	5 UJ
	1,3,5-TRIMETHYLBENZENE	47000		0.24 U	0.2 U	0.3 UJ	0.23 U	0.34 U	960 U	300 U	0.27 U	5 UJ
	2-BUTANONE	28000000	10000000	0.35 U	0.3 U	0.45 U	0.34 U	0.5 U	5900 U	1800 U	0.4 U	26 U
	4-ISOPROPYLTOLUENE			0.29 U	0.24 U	0.37 UJ	0.28 U	0.42 U	1200 U	360 U	0.33 U	5 U
	ACETONE	61000000	7800000	5.9 U	4.9 U	7.4 U	5.6 U	8.4 U	5300 U	1600 U	6.7 U	11 J
	BTEX			0.78	0.31 U	0.47 U	0.36 U	0.53 U	1100 U	340 U	0.42 U	5.6 U
	CARBON DISULFIDE	670000		0.38 U	0.32 U	0.48 U	0.36 U	0.54 U	970 U	300 U	0.43 U	5 U
	CIS-1,2-DICHLOROETHENE	780000	630000	0.34 U	0.28 U	0.43 U	0.33 U	0.48 U	650 U	200 U	0.38 U	5 U
	M+P-XYLENES	4500000		0.78 J	0.55 U	0.83 U	0.63 U	0.94 U	1400 U	420 U	0.75 U	10 U
	METHYLENE CHLORIDE	11000	45000	6.2 U	5.2 U	7.8 U	6 U	8.8 U	1300 U	670 J	7 U	26 UJ
	N-BUTYLBENZENE			0.34 U	0.28 U	0.42 UJ	0.32 U	0.48 U	1400 U	450 U	0.38 U	5 UJ
	SEC-BUTYLBENZENE			0.3 U	0.25 U	0.38 UJ	0.28 U	0.42 U	1400 U	440 U	0.34 U	5 UJ
	TERT-BUTYLBENZENE			0.31 U	0.26 U	0.39 UJ	0.3 U	0.44 U	1000 U	320 U	0.35 U	5 UJ
	TETRACHLOROETHENE	570	12000	0.3 U	0.25 U	0.38 U	1.3	0.42 U	1500 U	470 U	2	11
	TOTAL 1,2-DICHLOROETHENE	700000		0.31 U	0.26 U	0.4 U	0.3 U	0.44 U	920 U	280 U	0.35 U	5 U
	TOTAL CHLORINATED ETHENES			0.36 U	0.3 U	0.45 U	3	0.5 U	1100 U	360 U	5.6	41
	TOTAL CHLORINATED VOCS			0.51 U	0.42 U	0.64 UJ	3	0.72 U	1100 U	670 J	5.6	41 J
	TOTAL XYLENES	600000	110000	0.78	0.55 U	0.83 U	0.63 U	0.94 U	1400 U	420 U	0.75 U	7.5 U
	TRICHLOROETHENE	2800	13000	0.33 U	0.27 U	0.41 U	1.7	0.46 U	1200 U	370 U	3.6	30
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		NA	NA	NA	NA	NA	NA	NA	NA	400 U
	2,4-DIMETHYLPHENOL	1200000		520 U	510 U	1100 U	540 U	540 U	260000 U	270000 U	2700 U	400 U
	2,4-DINITROPHENOL	120000	160000	140 U	140 U	310 J	140 U	140 U	72000 U	74000 U	750 U	1000 UJ
	2-METHYLNAPHTHALENE	310000	123000	220 U	210 U	470 U	220 U	300 J	110000 U	110000 U	1100 U	100
	3&4-METHYLPHENOL	310000		180 U	180 U	400 U	190 U	190 U	93000 U	95000 U	960 U	400 U
	3,3'-DICHLOROBENZIDINE	1100	1400	100 U	100 U	220 J	100 U	100 U	52000 U	53000 U	540 U	400 UJ
	4,6-DINITRO-2-METHYLPHENOL	6100		120 U	110 U	260 J	120 U	120 U	59000 U	61000 U	610 U	1000 U
	4-NITROANILINE	180000		190 U	190 U	420 J	200 U	200 U	97000 U	99000 U	1000 U	1000 U
	4-NITROPHENOL			240 U	230 U	520 J	240 U	240 U	120000 U	120000 U	1200 U	1000 UJ
	ACENAPHTHENE	3400000	43000	67 U	65 U	140 U	570 J	1900	390000	480000	3200	560 J
	ACENAPHTHYLENE	3400000	23000	87 U	85 U	190 U	89 U	120 J	44000 U	45000 U	460 U	180
	ANTHRACENE	17000000	35000	44 U	42 U	130 J	1300	3600	790000	970000	8700	970
	BENZO(A)ANTHRACENE	150	900	79 U	78 U	420 J	3500	8300	1600000	1900000	16000	3500
	BENZO(A)PYRENE	15	400	82 U	80 U	180 U	3000	6700	1300000	1500000	12000	4400
	BENZO(B)FLUORANTHENE	150	900	100 U	100 U	440 J	2600	6100	1100000	1300000	9700	5700 J
	BENZO(G,H,I)PERYLENE	1700000	800	120 U	120 U	290 J	1800	4100	720000	830000	6200	3800
	BENZO(K)FLUORANTHENE	1500	900	77 U	75 U	400 J	2600	5600	1100000	1200000	10000	3600
	BENZOIC ACID	2.4E+08		230 UJ	220 UJ	2300 J	240 U	240 U	120000 U	120000 U	1200 UJ	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	110 U	110 U	940 J	120 U	120 U	57000 U	58000 U	590 U	400 U
	CARBAZOLE			76 U	75 U	170 U	680	2200	420000	490000	6000	300 J
	CHRYSENE	15000	400	81 U	80 U	460 J	3300	7700	1400000	1700000	14000	3400
	DIBENZO(A,H)ANTHRACENE	15	400	140 U	140 U	310 U	660	1600	280000 J	330000	2500 J	24 U
	DIBENZOFURAN			120 U	120 U	260 U	230 J	980	200000 J	250000 J	2500 J	400 U
	DI-N-BUTYL PHTHALATE			77 U	75 U	170 U	79 U	79 U	39000 U	40000 U	400 U	400 U
	FLUORANTHENE	2300000	20000	66 U	65 U	820 J	7900	20000	3800000	4600000	42000	7800
	FLUORENE	2300000	28000	66 U	65 U	140 U	540 J	1800	390000	480000	4400	380 J
	HIGH MOLECULAR WEIGHT PAHS			98 U	96 U	3570 J	33560	80200	15040000 J	17810000	152100 J	42800 J
	INDENO(1,2,3-CD)PYRENE	150	900	160 U	150 U	340 U	1800	4100	740000	850000	6700	5100
	LOW MOLECULAR WEIGHT PAHS			79 U	77 U	130 J	7710 J	23430 J	4740000 J	5650000 J	51600 J	5640 J
	NAPHTHALENE	3900	54000	4.4 U	3.7 U	5.6 UJ	100 J	710	170000 J	220000 J	1300 J	250
	PENTACHLOROPHENOL	3000	5300	400 U	390 U	860 U	400 U	400 U	200000 U	200000 U	2100 U	1000 U
	PHENANTHRENE	1700000	40000	66 U	65 U	140 U	5200	15000	3000000	3500000	34000	3200

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-8

SUMMARY OF ANLAYTICAL RESULTS: EXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-TP13-0203-01	DA-S-TP13-0405-01	DA-S-TP14-0910-01	DA-S-TP15-0203-01	DA-S-TP15-0506-01	DA-S-TP15A-0203-01	DA-S-TP15A-0506-01	DA-S-TP15A-0910-01	DA-SB-TP103-0506
	LOCATION ID			DA-TP-13	DA-TP-13	DA-TP-14	DA-TP-15	DA-TP-15	DA-TP-15A	DA-TP-15A	DA-TP-15A	DA-TP103
	TOP DEPTH			2	4	9	2	5	2	5	9	5
	BOTTOM DEPTH			3	5	10	3	6	3	6	10	6
	SAMPLE DATE			08/15/03	08/15/03	08/14/03	08/12/03	08/12/03	08/12/03	08/12/03	08/12/03	02/07/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	PHENOL	18000000	6000000	110 U	100 U	230 U	110 U	110 U	54000 U	56000 U	560 U	400 U
	PYRENE	1700000	13000	72 U	70 U	740 J	6400	16000	3000000	3600000	33000	5500
	TOTAL PAHS			90 U	88 U	3700 J	41270 J	103630 J	19780000 J	23460000 J	203700 J	48440 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		1.03 UJ	1.01 UJ	170 U	40 U	80 U	395 U	405 U	410 U	4 U
	4,4'-DDE	1400		2.18 UJ	2.13 UJ	80 U	18.8 U	37.6 U	186 U	190 U	193 U	4 U
	4,4'-DDT	1700		1.26 UJ	1.24 UJ	160 UJ	37.6 U	75.3 U	372 UJ	381 UJ	386 UJ	4 U
	ALPHA-CHLORDANE	1600	500	0.575 UJ	0.562 UJ	60 U	14.1 U	28.2 U	140 U	143 U	144 U	2.1 U
	AROCLOR-1248	220	10000	22.4 U	21.9 U	24.4 U	22.9 U	22.9 U	22.7 U	23.2 U	23.5 U	21 UJ
	AROCLOR-1254	1100	10000	22.4 U	21.9 U	24.4 U	22.9 UJ	22.9 UJ	22.7 UJ	23.2 UJ	44.5 J	21 UJ
	AROCLOR-1260	220	10000	12.6 U	12.4 U	13.8 U	12.9 U	12.9 U	12.8 U	13.1 U	13.2 U	1100 J
	AROCLOR-1268	220	10000	22.4 U	21.9 U	24.4 U	22.9 U	22.9 U	22.7 U	23.2 U	23.5 U	1300 J
	ENDOSULFAN SULFATE	370000		1.03 UJ	1.01 UJ	110 U	25.9 U	51.8 U	256 U	262 U	265 U	4 U
	ENDRIN ALDEHYDE	18000		1.61 UJ	1.57 UJ	130 U	30.6 U	61.2 U	302 U	310 U	313 U	4 U
	GAMMA-CHLORDANE	1600	500	1.15 UJ	1.12 UJ	50 U	11.8 U	23.5 U	116 U	119 U	120 U	2.1 U
	HEPTACHLOR	110		1.72 UJ	1.68 UJ	60 U	14.1 U	28.2 U	140 U	143 U	144 U	2.1 U
	TOTAL AROCLOR	220	10000	21 U	21 U	23 U	22 UJ	22 UJ	21 UJ	22 UJ	44.5 J	2400 J
	TOTAL DDD/DDE/DDT			1.5 UJ	1.5 UJ	140 UJ	32 U	64 U	320 UJ	330 UJ	330 UJ	4 U
METALS (MG/KG)	ALUMINUM	77000		7400	7400	14000	8500	9100	17000	15000	6500	13700
	ANTIMONY	31	10	0.29 U	0.32 U	0.45 U	0.27 U	0.28 U	0.15 U	0.23 U	1.3	0.69 J
	ARSENIC	0.39	7	40	23	12 J	18 J	17 J	3.4 J	2.7 J	16 J	22.5
	BARIUM	15000	5500	11	12	21	19	24	120	120	22	90.6
	BERYLLIUM	160	0.4	0.39	0.36	0.41 J	0.31	0.39	2.5	2.4	0.31	0.42 J
	CADMIUM	70	39	0.018 UJ	0.018 UJ	3.5 J	0.2 J	0.66 J	0.61 J	0.36 J	0.58 J	2.4
	CALCIUM			70	160	750 J	1000 J	3400 J	53000 J	46000 J	1100 J	5680
	CHROMIUM	230	390	9.4 J	8.8 J	14 J	9.6 J	10 J	3.7	2.6	8.6 J	25.3 J
	COBALT	23		16	16	13	9.8 J	9.8 J	4.4 J	3.4 J	8.5 J	27.1
	COPPER	3100	3100	29	24	20	19	23	13	11	26	92.6 J
	IRON	55000		28000	25000	29000	20000	21000	4800	3800	17000	29900
	LEAD	400	150	6.9	6.2	46	20	25	39	35	42	653 J
	MAGNESIUM			2300	2300	3000 J	2300	4000	24000	21000	1500	3490
	MANGANESE	1800	390	390	400	220	280	340	770	770	280	374
	MERCURY	23	23	0.00803 U	0.00802 U	0.036	0.064 J	0.044 J	0.069 J	0.075 J	0.076 J	0.09 J
	MOLYBDENUM	390		0.35 U	0.3 U	0.38 U	0.18 U	0.23 U	0.2 U	0.14 U	0.36 U	1.3 J
	NICKEL	1600	1000	25	23	19	16	18	7	6	13	33.8
	POTASSIUM			190	180	170	160	280	3200	3400	140	764 J
	SELENIUM	390	390	0.11 U	0.11 U	0.12 U	0.12 UJ	0.12 UJ	0.32 J	0.36 J	0.12 UJ	0.31 U
	SILVER	390	200	0.032 U	0.031 U	0.14 U	0.036 U	0.054 U	0.12 U	0.12 U	0.16 U	0.93 J
	SODIUM			20 U	19 U	48 U	35 U	72 U	1400	1500	30 U	119 UJ
	THALLIUM	5.1	5.5	0.79 U	0.78 U	0.87 U	0.82 U	0.81 U	0.81 U	0.82 U	0.84 U	0.14 UJ
	VANADIUM	390	550	12	12	19	13	14	21	18	12	23.1
	ZINC	23000	6000	52	46	57 J	45	87	57	51	73	414 J
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			87	89	80	85	85	86	84	83	82
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON			NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			6.5 U	6.2 U	1.4 J	6.1 J	1.9 J	51	42	4.2 J	25
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			57000 U	56000 U	380000	150000	230000	50000000	63000000	200000	260000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 1 OF 6

	SAMPLE ID			DA-B100B-0608	DA-B101B-0406	DA-B107B-0608	DA-B108B-0406	DA-B109B-0204	DA-SS-B125B-0304-072108	DA-SO-B126B-0608-072208	DA-S-SB01-0809-01	DA-S-SB01-5575-01	DA-S-SB02-0304-01	DA-S-SB02-5565-01
	LOCATION ID			DA-MW100B	DA-MW101B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW125B	DA-MW126B	DA-SB-01	DA-SB-01	DA-SB-02	DA-SB-02
	TOP DEPTH			6	4	6	4	2	3	6	8	5.5	3	5.5
	BOTTOM DEPTH			8	6	8	6	4	4	8	9	7.5	4	6.5
	SAMPLE DATE			03/20/08	03/20/08	03/21/08	03/21/08	03/20/08	07/21/08	07/22/08	08/19/03	08/19/03	08/18/03	08/18/03
	SAMPLE CODE	ORNLSLDCR	RIDEMDCR	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		6 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	3.4 U	4 U	0.27 U	0.26 U
	1,3,5-TRIMETHYLBENZENE	47000		6 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	3.4 U	4 U	0.23 U	0.22 U
	2-BUTANONE	28000000	10000000	48	25 U	25 U	25 U	25 U	25 U	25 U	6.8 U	8 U	0.34 U	0.32 U
	4-ISOPROPYLTOLUENE			6 U	5 U	5 U	5 U	5 U	5 U	5 U	0.68 U	0.8 U	0.28 U	2.5
	ACETONE	61000000	7800000	140	25 U	390	38	34	31	25 U	22 J	8 U	9.2	58
	BTEX			6.8 U	5.6 U	5.6 U	2 J	5.6 U	5.6 UJ	5.6 U	0.61	0.9 U	0.36 U	2.51
	CARBON DISULFIDE	670000		2 J	5 U	4 J	2 J	5 U	5 U	5 U	1 J	8 U	0.37 U	0.35 U
	CIS-1,2-DICHLOROETHENE	780000	630000	6 U	5 U	5 U	5 U	2 J	5 U	5 U	0.68 U	0.8 U	0.33 U	0.31 U
	ETHYLBENZENE	5700	71000	6 U	5 U	5 U	5 U	5 U	5 U	5 U	0.68 U	0.8 U	0.30 U	0.28 U
	ISOPROPYLBENZENE	2200000		6	5 UJ	5 U	5 UJ	5 U	5 U	5 U	0.68 U	0.8 U	0.33 U	0.31 U
	M+P-XYLENES	4500000		12 U	10 U	10 U	10 U	10 U	10 U	10 U	0.61 J	0.8 U	0.64 U	1.8
	METHYLENE CHLORIDE	11000	45000	30 U	25 U	25 U	25 U	25 U	25 U	25 U	6.8 U	8 U	6 U	5.7 U
	N-BUTYLBENZENE			5 J	5 UJ	5 U	5 UJ	5 U	5 U	5 U	0.68 U	0.8 U	0.33 U	0.31 U
	N-PROPYLBENZENE			2 J	5 UJ	5 U	5 UJ	5 U	5 U	5 U	0.68 U	0.8 U	0.30 U	0.28 U
	O-XYLENE	5300000		6 U	5 U	5 U	5 U	5 U	5 UJ	5 U	0.68 U	0.8 U	0.52 U	0.71 J
	SEC-BUTYLBENZENE			66	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5.2	1.1 J	0.29 U	0.27 U
	TERT-BUTYLBENZENE			12	5 UJ	5 U	5 UJ	5 U	5 U	5 U	0.54 J	4 U	0.30 U	0.28 U
	TETRACHLOROETHENE	570	12000	6 U	5 U	5 U	5 U	5 U	5 U	5 U	0.68 U	0.8 U	0.29 U	0.64 J
	TOLUENE	5000000	190000	6 U	5 U	5 U	2 J	5 U	5 U	5 U	1 U	1.2 U	0.25 U	0.24 U
	TOTAL 1,2-DICHLOROETHENE	700000		6 U	5 U	5 U	5 U	2 J	5 U	5 U	0.84 U	1 U	0.3 U	0.28 U
	TOTAL CHLORINATED ETHENES			7.5 U	2 J	6.2 U	6.2 U	5 J	6.2 U	6.2 U	0.9 U	1 U	0.35 U	0.64 J
	TOTAL CHLORINATED VOCS			7.9 UJ	2 J	6.6 UJ	6.6 UJ	5 J	6.6 U	6.6 U	2.1 U	2.6 U	0.49 U	0.64 J
	TOTAL XYLENES	600000	110000	9 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	0.61	0.8 U	0.64 U	2.51
	TRICHLOROETHENE	2800	13000	6 U	2 J	5 U	5 U	5 U	5 U	5 U	0.68 U	0.8 U	0.32 U	0.30 U
	VINYL CHLORIDE	60	20	12 U	10 U	10 U	10 U	3 J	10 U	10 U	1.4 U	1.6 U	0.48 U	0.45 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		410 U	370 U	360 U	370 U	360 U	370 U	370 U	NA	NA	NA	NA
	2-METHYLNAPHTHALENE	310000	123000	5.9 J	8.9 J	22 U	7.8 J	31	3.5 J	22 U	990 U	910 UJ	210 U	220 U
	ACENAPHTHENE	3400000	43000	25 U	2.7 J	22 U	30	9.3 J	5 J	22 U	620 U	570 UJ	66 U	67 U
	ACENAPHTHYLENE	3400000	23000	25 U	22 U	22 U	22 U	22 U	23 U	22 U	620 U	570 UJ	86 U	87 U
	ANTHRACENE	17000000	35000	25 U	22 U	22 U	50	29	7.8 J	22 U	620 U	570 UJ	43 U	44 U
	BENZO(A)ANTHRACENE	150	900	5.4 J	45	22 U	190 J	210 J	70	22 U	620 U	570 UJ	78 U	79 U
	BENZO(A)PYRENE	15	400	25 U	29	22 U	110	120	84	5.6 J	620 U	570 UJ	81 U	82 U
	BENZO(B)FLUORANTHENE	150	900	25 UJ	64	22 U	170 J	210 J	110	22 U	620 U	570 UJ	100 U	100 U
	BENZO(G,H,I)PERYLENE	1700000	800	4.1 J	14 J	22 U	39 J	43 J	48	3.4 J	620 U	570 UJ	120 U	120 U
	BENZO(K)FLUORANTHENE	1500	900	25 U	20 J	22 U	74	74	67 J	22 UJ	620 U	570 UJ	76 U	77 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	410 U	370 U	360 U	370 U	360 U	370 U	370 U	1200 U	410 J	410 U	110 U
	CHRYSENE	15000	400	25 U	33	22 U	92	130	84	22 U	620 U	570 UJ	80 U	81 U
	DIBENZO(A,H)ANTHRACENE	15	400	25 UJ	22 U	22 U	18 J	22 UJ	23 UJ	22 UJ	620 U	570 UJ	140 U	140 U
	FLUORANTHENE	2300000	20000	5 J	57	5.5 J	310 J	350 J	140	22 U	620 U	570 UJ	65 U	66 U
	FLUORENE	2300000	28000	25 U	2.9 J	22 U	18 J	5.5 J	23 U	22 U	620 U	570 UJ	65 U	66 U
	HIGH MOLECULAR WEIGHT PAHS			14.5 J	321 J	5.5 J	1320 J	1469 J	786 J	9 J	640 U	590 UJ	97 U	98 U
	INDENO(1,2,3-CD)PYRENE	150	900	25 U	16 J	22 U	47	52	63	22 U	860 U	800 UJ	160 U	160 U
	LOW MOLECULAR WEIGHT PAHS			5.9 J	61.3 J	4.8 J	325 J	298.8 J	73.3 J	22 U	580 U	540 UJ	77 U	79 U
	NAPHTHALENE	3900	54000	25 U	3.8 J	22 U	9.2 J	24	23 U	22 U	3.4 U	4 U	4.3 U	4.1 U
	PHENANTHRENE	1700000	40000	25 U	43	4.8 J	210 J	200 J	57	22 U	620 U	570 UJ	65 U	66 U
	PYRENE	1700000	13000	25 U	43	22 U	270	280	120	22 U	620 U	570 UJ	71 U	72 U
	TOTAL PAHS			20.4 J	382.3 J	10.3 J	1645 J	1767.8 J	859.3 J	9 J	620 U	570 UJ	89 U	90 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 2 OF 6

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0608	DA-B101B-0406	DA-B107B-0608	DA-B108B-0406	DA-B109B-0204	DA-SS-B125B-0304-072108	DA-SO-B126B-0608-072208	DA-S-SB01-0809-01	DA-S-SB01-5575-01	DA-S-SB02-0304-01	DA-S-SB02-5565-01
	LOCATION ID			DA-MW100B	DA-MW101B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW125B	DA-MW126B	DA-SB-01	DA-SB-01	DA-SB-02	DA-SB-02
	TOP DEPTH			6	4	6	4	2	3	6	8	5.5	3	5.5
	BOTTOM DEPTH			8	6	8	6	4	4	8	9	7.5	4	6.5
	SAMPLE DATE			03/20/08	03/20/08	03/21/08	03/21/08	03/20/08	07/21/08	07/22/08	08/19/03	08/19/03	08/18/03	08/18/03
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		4.1 U	1.4 J	3.6 UJ	3.7 U	3.6 U	NA	NA	4.94 UJ	4.54 UJ	1.93 UJ	195 U
	4,4'-DDE	1400		4.1 U	3.7 U	3.6 UJ	3.7 U	3.6 U	NA	NA	4.94 UJ	4.54 UJ	0.909 UJ	92 U
	4,4'-DDT	1700		4.1 U	1 J	3.6 UJ	3.7 U	3.6 UJ	NA	NA	4.94 UJ	4.54 UJ	1.82 UJ	184 U
	AROCLOR-1260	220	10000	21 U	19 U	18 UJ	19 U	19 U	NA	NA	61.7 UJ	56.8 UJ	12.5 UJ	12.6 U
	HEPTACHLOR	110		2.1 U	1.9 U	1.8 UJ	1.9 U	1.9 U	NA	NA	2.47 UJ	2.27 UJ	0.682 UJ	69 U
	TOTAL AROCLOR	240	10000	21 U	19 U	18 UJ	19 U	19 U	NA	NA	62 UJ	57 UJ	21 UJ	21 U
	TOTAL DDD/DDE/DDT			4.1 U	2.4 J	3.6 UJ	3.7 U	3.6 UJ	NA	NA	4.9 UJ	4.5 UJ	1.6 UJ	160 U
	TOXAPHENE	440		41 U	37 U	36 UJ	37 U	36 U	NA	NA	61.7 UJ	56.8 UJ	45.9 J	4640 U
METALS (MG/KG)	ALUMINUM	77000		20700	11600	11100	9530	16100	NA	NA	7600	8700	5300	5200
	ANTIMONY	31	10	0.25 UJ	0.35 UJ	0.31 UJ	0.07 UJ	0.35 UJ	NA	NA	0.5 U	0.39 U	0.15 U	0.092 U
	ARSENIC	0.39	7	14.4 J	8.9 J	14.1 J	8.2 J	28.6 J	NA	NA	16	18	11 J	7.4 J
	BARIUM	15000	5500	32.8	24.4	25.3	25.2	22.8	NA	NA	9	8.5	19	20
	BERYLLIUM	160	0.4	0.59	0.2 J	0.39 J	0.25 J	0.38 J	NA	NA	0.29	0.28	0.50	0.38
	CADMIUM	70	39	0.01 U	0.01 U	0.01 U	0.18 UJ	0.05 UJ	NA	NA	0.02 U	0.018 U	0.018 UJ	0.018 UJ
	CALCIUM			672 J	2150 J	821 J	822 J	2080 J	NA	NA	1000	1100	590	810
	CHROMIUM	230	390	21.5 J	19.5 J	16.1 J	16.8 J	22.1 J	NA	NA	11 J	13 J	6.8	9.4
	COBALT	23		13.8	9.3	12.6	7.2	15.2	NA	NA	12	12	15	8.6
	COPPER	3100	3100	11.4	16.2	20.6	14.6	25.4	NA	NA	21	23	12	11
	IRON	55000		40000	23400	30200	19600	33000	NA	NA	26000	30000	16000	13000
	LEAD	400	150	16.3	12.4	9.9	8.3	22.2	NA	NA	7.6	8.8	7.9	9
	MAGNESIUM			3410 J	3930 J	3170 J	2720 J	4660 J	NA	NA	2700 J	3100 J	960	1200
	MANGANESE	1800	390	733	373	312	375	382	NA	NA	190	180	370	230
	MERCURY	23	23	0.04 U	0.02 UJ	0.01 U	0.02 UJ	0.12	NA	NA	0.00893 U	0.00749 U	0.00817 U	0.00808
	MOLYBDENUM	390		0.65 J	0.59 J	0.44 J	1.5 J	0.64 J	NA	NA	0.68	0.53	0.39 U	0.96
	NICKEL	1600	1000	26.4	20	22.8	15.6	31	NA	NA	23	24	8	10
	POTASSIUM			410 J	1080 J	692 J	906 J	514 J	NA	NA	160	130	140	230
	SELENIUM	390	390	0.51 U	0.61 U	0.6 U	0.3 U	0.6 U	NA	NA	0.12 U	0.11 U	0.11 U	0.11 U
	SILVER	390	200	0.09 U	0.11 U	0.44 J	0.23 J	0.46 J	NA	NA	0.034 U	0.032 U	0.032 U	0.069 U
	SODIUM			110 J	147 J	44.8 J	44.5 J	63.2 J	NA	NA	30 U	31 U	33 U	36 U
	THALLIUM	5.1	5.5	0.07 UJ	0.06 UJ	0.04 UJ	0.05 UJ	0.02 UJ	NA	NA	0.28 J	0.2 J	0.16 U	0.16 U
	VANADIUM	390	550	25.2	19.2	18.1	17.4	29.4	NA	NA	12	13	14	12
	ZINC	23000	6000	63.7	42.4	55.4	38.3	59.5	NA	NA	48 J	52 J	23 J	37 J
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			80	90	91	90	91	NA	NA	81	88	88	87
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			7.4 U	2.6 U	2.6 U	2.6 U	40	2.5 U	2.5 U	0.73 J	1.3 J	0.97 U	1.1 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			23000	370000	30000	240000	180000	210000	2700 J	62000 U	57000 U	57000 U	37000 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
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SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SUBSURFACE SOILS
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SITE 08, NUSC DISPOSAL AREA
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	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-SB04-2535-01	DA-S-SB04-0910-01-AVG	DA-S-SB05-0203-01	DA-S-SB05-0304-01	DA-S-SB06-2535-01	DA-S-SB08-0607-01-AVG	DA-SB100-0204	DA-SB101-0608-AVG	DA-SB102-0305	DA-SB111-0204	DA-SB112-0608-AVG
	LOCATION ID			DA-SB-04	DA-SB-04	DA-SB-05	DA-SB-05	DA-SB-06	DA-SB-08	DA-SB100	DA-SB101	DA-SB102	DA-SB111	DA-SB112
	TOP DEPTH			2.5	9	2	3	2.5	6	2	6	3	2	6
	BOTTOM DEPTH			3.5	10	3	4	3.5	7	4	8	5	4	8
	SAMPLE DATE			08/18/03	08/18/03	08/19/03	08/19/03	08/18/03	08/19/03	03/03/08	03/03/08	03/03/08	03/05/08	03/05/08
	SAMPLE CODE			NORMAL	AVG	NORMAL	NORMAL	NORMAL	AVG	NORMAL	AVG	NORMAL	NORMAL	AVG
FRACTION (UNITS)	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		17000	230 U	3.4 U	3.5 U	0.22 U	3.6 U	6 U	2.25 J	5 U	5 U	5.5 UJ
	1,3,5-TRIMETHYLBENZENE	47000		560 U	74 J	3.4 U	3.5 U	0.19 U	3.6 U	6 U	5 U	5 U	5 U	5.5 UJ
	2-BUTANONE	28000000	10000000	3400 U	365 U	10	13	2.8 J	4.6 J	29 J	25.5 U	27 U	25 U	27.5 UJ
	4-ISOPROPYLTOLUENE			6400	77.25	0.68 U	0.71 U	0.23 U	0.725 U	6 U	5 U	5 U	5 U	5.5 UJ
	ACETONE	61000000	7800000	3100 U	325 U	33 J	140 J	25	50 J	230	190 J	670	300	900 J
	BTEX			1600	110 J	0.76 U	5.72	0.3 U	1.655	6.8 U	5.6 U	5.8 U	5.6 U	6.2 UJ
	CARBON DISULFIDE	670000		570 U	60 U	6.8 U	0.93 J	0.30 U	1.2 J	2 J	5 U	5 U	5 U	5.5 UJ
	CIS-1,2-DICHLOROETHENE	780000	630000	380 U	40.5 U	0.68 U	0.71 U	0.27 U	0.725 U	6 U	5 U	5 U	5 U	5.5 UJ
	ETHYLBENZENE	5700	71000	1600	110 J	0.68 U	0.82	0.25 U	0.725 U	6 U	5 U	5 U	5 U	5.5 UJ
	ISOPROPYLBENZENE	2200000		2800	152.5 J	0.68 U	0.58 J	0.27 U	0.725 U	6 U	4.5 J	5 U	5 U	5.5 UJ
	M+P-XYLENES	4500000		800 U	84.5 U	0.68 U	3.5	0.53 U	1.08 J	12 U	10 U	11 U	10 U	11 UJ
	METHYLENE CHLORIDE	11000	45000	760 U	81 U	6.8 U	7.1 U	5 U	7.25 U	30 U	25.5 U	27 U	25 U	27.5 UJ
	N-BUTYLBENZENE			8100	480 J	0.68 U	0.71 U	0.27 U	0.725 U	6 U	10 J	5 U	5 U	5.5 UJ
	N-PROPYLBENZENE			6100	280 J	0.68 U	0.71 U	0.24 U	0.725 U	6 U	6.5	5 U	5 U	5.5 UJ
	O-XYLENE	5300000		630 U	66.5 U	0.68 U	1.4	0.42 U	0.575	6 U	5 U	5 U	5 U	5.5 UJ
	SEC-BUTYLBENZENE			4700	310 J	2	6.1	0.24 U	0.725 U	6 U	19.5	5 U	5 U	5.5 UJ
	TERT-BUTYLBENZENE			600 U	63.5 U	1 J	2.6 J	0.24 U	3.6 U	6 U	2 J	5 U	5 U	5.5 UJ
	TETRACHLOROETHENE	570	12000	890 U	94 U	0.68 U	0.71 U	0.24 U	0.725 U	6 U	5 U	5 U	5 U	5.5 UJ
	TOLUENE	5000000	190000	650 U	68.5 U	1 U	1.1 U	0.21 U	1.1 U	6 U	5 U	5 U	5 U	5.5 UJ
	TOTAL 1,2-DICHLOROETHENE	700000		540 U	58 U	0.84 U	0.9 U	0.24 U	0.91 U	6 U	5 U	5 U	5 U	5.5 UJ
	TOTAL CHLORINATED ETHENES			670 U	71 U	0.9 U	0.93 U	0.28 U	0.94 U	7.5 U	6.2 U	6.5 U	6.2 U	6.9 UJ
	TOTAL CHLORINATED VOCS			570 U	69 U	2.2 U	2.3 U	0.41 U	2.3 U	7.9 UJ	6.6 UJ	6.8 UJ	6.6 UJ	7.2 UJ
	TOTAL XYLENES	600000	110000	800 U	84.5 U	0.68 U	4.9	0.53 U	1.655	9 U	7.5 U	8 U	7.5 U	8.2 UJ
	TRICHLOROETHENE	2800	13000	700 U	74 U	0.68 U	0.71 U	0.26 U	0.725 U	6 U	5 U	5 U	5 U	5.5 UJ
	VINYL CHLORIDE	60	20	560 U	59.5 U	1.4 U	1.4 U	0.40 U	1.4 U	12 U	10 U	11 U	10 U	11 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		NA	NA	NA	NA	NA	NA	380 U	360 U	410 U	380 U	1800 U
	2-METHYLNAPHTHALENE	310000	123000	220 U	235 U	900 U	4900 U	220 U	920 U	23 U	6.35 J	3.6 J	23 U	49 J
	ACENAPHTHENE	3400000	43000	67 U	71 U	560 U	3000 U	67 U	570 U	23 U	3 J	3.1 J	19 J	65.5 J
	ACENAPHTHYLENE	3400000	23000	87 U	93.5 U	560 U	3000 U	87 U	570 U	23 U	22 U	5.2 J	23 U	670 J
	ANTHRACENE	17000000	35000	44 U	46.5 U	560 U	3000 U	44 U	570 U	23 U	22 U	8.4 J	49	730 J
	BENZO(A)ANTHRACENE	150	900	79 U	84.5 U	560 U	580 J	79 U	570 U	14 J	22 U	56	210	7700
	BENZO(A)PYRENE	15	400	82 U	87.5 U	560 U	3000 U	82 U	570 U	13 J	22 U	59	190	5700
	BENZO(B)FLUORANTHENE	150	900	100 U	110 U	560 U	3000 U	100 U	570 U	15 J	22 U	48	220	6500
	BENZO(G,H,I)PERYLENE	1700000	800	120 U	125 U	560 U	3000 U	120 U	570 U	4.5 J	22 U	26	91	1350 J
	BENZO(K)FLUORANTHENE	1500	900	77 U	81.5 U	560 U	3000 U	77 U	570 U	7.7 J	22 U	29	140	5350
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	110 U	120 U	410 J	6100 U	410 U	1100 U	380 U	360 U	410 U	380 U	1800 U
	CHRYSENE	15000	400	81 U	87 U	560 U	600 J	81 U	570 U	23 J	22 U	44	190	7550
	DIBENZO(A,H)ANTHRACENE	15	400	140 U	155 U	560 U	3000 U	140 U	570 U	23 U	22 U	25 UJ	67 J	700 J
	FLUORANTHENE	2300000	20000	66 U	70.5 U	560 U	1100 J	66 U	570 U	25	22 U	71	440	11500
	FLUORENE	2300000	28000	66 U	70.5 U	560 U	3000 U	66 U	570 U	23 U	4.4 J	25 U	13 J	170 J
	HIGH MOLECULAR WEIGHT PAHS			98 U	100 U	580 U	3230 J	98 U	590 U	140.2 J	22 U	440 J	1978 J	60600 J
	INDENO(1,2,3-CD)PYRENE	150	900	160 U	165 U	790 U	4300 U	160 U	800 U	9 J	22 U	33 J	90 J	2750
	LOW MOLECULAR WEIGHT PAHS			91 U	125 J	530 U	390 J	79 U	540 U	22 J	21.2 J	67.3 J	261 J	4799.5 J
	NAPHTHALENE	3900	54000	84 U	125 J	3.4 U	3.5 U	3.6 U	3.6 U	23 U	7.45 J	25 U	23 U	15 J
	PHENANTHRENE	1700000	40000	66 U	70.5 U	560 U	390 J	66 U	570 U	22 J	22 U	47	180	3100
	PYRENE	1700000	13000	72 U	77 U	560 U	950 J	72 U	570 U	29	22 U	74	340 J	11500
	TOTAL PAHS			95 U	125 J	560 U	3620 J	90 U	570 U	162.2 J	21.2 J	507.3 J	2239 J	65399.5 J

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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-S-SB04-2535-01	DA-S-SB04-0910-01-AVG	DA-S-SB05-0203-01	DA-S-SB05-0304-01	DA-S-SB06-2535-01	DA-S-SB08-0607-01-AVG	DA-SB100-0204	DA-SB101-0608-AVG	DA-SB102-0305	DA-SB111-0204	DA-SB112-0608-AVG
	LOCATION ID			DA-SB-04	DA-SB-04	DA-SB-05	DA-SB-05	DA-SB-06	DA-SB-08	DA-SB100	DA-SB101	DA-SB102	DA-SB111	DA-SB112
	TOP DEPTH			2.5	9	2	3	2.5	6	2	6	3	2	6
	BOTTOM DEPTH			3.5	10	3	4	3.5	7	4	8	5	4	8
	SAMPLE DATE			08/18/03	08/18/03	08/19/03	08/19/03	08/18/03	08/19/03	03/03/08	03/03/08	03/03/08	03/05/08	03/05/08
	SAMPLE CODE			NORMAL	AVG	NORMAL	NORMAL	NORMAL	AVG	NORMAL	AVG	NORMAL	NORMAL	AVG
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		19.5 U	2.085 UJ	4.49 UJ	244 UJ	1.95 UJ	4.6 UJ	3.8 U	3.6 U	4.1 U	3.8 U	9.2 J
	4,4'-DDE	1400		9.2 U	0.982 UJ	4.49 UJ	244 UJ	0.92 UJ	4.6 UJ	3.8 U	3.6 U	4.1 U	3.8 UJ	3.7 UJ
	4,4'-DDT	1700		18.4 U	1.965 UJ	4.49 UJ	244 UJ	1.84 UJ	4.6 UJ	3.8 UJ	3.6 UJ	4.1 UJ	3.8 UJ	3.7 UJ
	AROCLOR-1260	220	10000	12.6 U	13.5 UJ	56.2 UJ	305 UJ	12.6 U	57.5 UJ	20 UJ	18 UJ	21 UJ	1500	19 U
	HEPTACHLOR	110		6.9 U	0.7365 UJ	2.25 UJ	122 UJ	0.69 UJ	2.3 UJ	2 U	1.8 U	2.1 U	2 UJ	1.12 J
	TOTAL AROCLOR	240	10000	21 U	23 UJ	56 UJ	300 UJ	21 U	58 UJ	20 UJ	18 UJ	21 UJ	1500	19 U
	TOTAL DDD/DDE/DDT			16 U	1.7 UJ	4.5 UJ	240 UJ	1.6 UJ	4.6 UJ	3.8 UJ	3.6 UJ	4.1 UJ	3.8 UJ	9.2 J
	TOXAPHENE	440		464 U	49.6 UJ	56.2 UJ	3050 UJ	46.4 UJ	57.5 UJ	38 U	36 U	41 U	38 UJ	37 UJ
METALS (MG/KG)	ALUMINUM	77000		5300	3800	12000	9200	5400	11000	11500	18800	19400	8360	9480
	ANTIMONY	31	10	0.13 U	0.12 U	0.23 U	0.11 U	0.22 U	0.096 U	0.05 UJ	0.1 UJ	0.11 UJ	0.07 UJ	0.07 UJ
	ARSENIC	0.39	7	13 J	24 J	33	17	18 J	13.5	9.6 J	2.25 J	14.2 J	11.6	13.3
	BARIUM	15000	5500	28	10	12	18	15	17.5	31.9	14.4	33.7	33.3	13.3
	BERYLLIUM	160	0.4	0.35	0.26 U	0.34	0.36	0.36	0.375	0.33 J	0.37 J	0.55	0.34 J	0.235 J
	CADMIUM	70	39	0.018 UJ	0.0195 UJ	0.018 U	0.019 U	0.018 UJ	0.018 U	0.18 J	0.015 UJ	0.02 UJ	0.41 J	0.01 UJ
	CALCIUM			430	445	1900	2000	160	190	733	2020	734	9620 J	1680 J
	CHROMIUM	230	390	9.5	7.4	15 J	11 J	7.7	22 J	13.2	22.2	20.9	103	14.4
	COBALT	23		14	14	14	9.9	11	13	5.7	17.5	21.5	15.2	7.8
	COPPER	3100	3100	13	24.5	26	19	14	22	9.6	24	20	26.4	13.3
	IRON	55000		20000	23500	29000	22000	20000	32000	17000	39000	39700	17400	20500
	LEAD	400	150	7.2	6.9	13	15	7.1	9.55	9	14.2	14.5	159	12.8
	MAGNESIUM			1400	1350	3900 J	2400 J	1100	3500 J	2310	7120	4650	2760	3770
	MANGANESE	1800	390	2000	335	370	440	480	295	171	322	2820	309	298
	MERCURY	23	23	0.00769 U	0.008245 U	0.025	0.0377	0.0121	0.00838 U	0.05	0.01 U	0.06	0.04 UJ	0.01 UJ
	MOLYBDENUM	390		0.32 U	0.46 U	0.32 U	0.35 U	0.49 U	0.4 U	0.29 J	0.025 UJ	0.73 J	0.46 J	0.185 J
	NICKEL	1600	1000	17	22	23	16	11	21	13.7	36.4	29.1	16.5	17.6
	POTASSIUM			150	145	140	200	120	165	562	291	384	497	438
	SELENIUM	390	390	0.11 U	0.12 U	0.11 U	0.12 U	0.21 U	0.11 U	0.34 UJ	0.688 J	0.85 J	0.3 U	0.465 U
	SILVER	390	200	0.16 U	0.0335 U	0.034 J	0.12	0.051 U	0.032 U	0.21 UJ	0.12 UJ	0.14 UJ	0.61 J	0.105 J
	SODIUM			30 U	25.5 U	60 U	36 U	38 U	30.5 U	156	37.6 UJ	56.7 UJ	58.7 J	72 J
	THALLIUM	5.1	5.5	0.80 U	0.235 J	0.78 U	0.17 U	0.23 J	0.16 U	0.09 UJ	0.01 U	0.06 UJ	0.04 UJ	0.03 UJ
	VANADIUM	390	550	14	9.4	16	13	12	16.5	18.6	19.2	25.7	14.5	18.7
	ZINC	23000	6000	34 J	41 J	48 J	46 J	29 J	46 J	33.9	72.6	75.8	81.2	40.4
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			87	81.5	89	82	87	87	86	92	80	87	90
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			920	85.5 J	0.39 J	1.4 J	0.58 U	0.52 J	3.1 U	2.9 U	3.6 U	2.6 U	2.75 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			300000	310000	56000 U	13000	57000 U	57000 U	320000	8550 U	89000 U	200000	1180000

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SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB113-0406-AVG	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810	DA-SB119-0204	DA-SB120-0406	DA-SB150-0204	DA-SB151-0406-AVG
	LOCATION ID			DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117	DA-SB119	DA-SB120	DA-SB150	DA-SB151
	TOP DEPTH			4	4	2	2	8	2	4	2	4
	BOTTOM DEPTH			6	6	4	4	10	4	6	4	6
	SAMPLE DATE			03/03/08	03/03/08	03/05/08	03/04/08	03/04/08	03/04/08	03/06/08	03/05/08	03/04/08
	SAMPLE CODE			AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 UJ	5 U	5 UJ	14000 J	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		5 UJ	5 U	5 UJ	7500 J	5 U	5 U	5 U	5 U	5 U
	2-BUTANONE	28000000	10000000	12 J	25 U	25 U	27 U	25 U	7 J	25 U	6 J	25 U
	4-ISOPROPYLTOLUENE			5 U	5 U	5 U	3000 J	5 U	5 U	5 U	5 U	5 U
	ACETONE	61000000	7800000	520 J	35	140	300 J	28	250	25 U	220	86.5 J
	BTEX			5.6 U	5.6 U	5.6 U	170 J	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	670000		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,2-DICHLOROETHENE	780000	630000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ETHYLBENZENE	5700	71000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ISOPROPYLBENZENE	2200000		5 UJ	5 U	5 UJ	120 J	5 U	5 U	5 U	5 U	5 U
	M+P-XYLENES	4500000		10 U	10 U	10 U	170 J	10 U	10 U	10 U	10 U	10 U
	METHYLENE CHLORIDE	11000	45000	25.5 U	25 U	25 U	27 U	25 U	25 U	2 J	25 U	25 U
	N-BUTYLBENZENE			5 UJ	5 U	5 UJ	2600 J	5 U	5 U	5 U	5 U	5 U
	N-PROPYLBENZENE			5 UJ	5 U	5 UJ	81 J	5 U	5 U	5 U	5 U	5 U
	O-XYLENE	5300000		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE			5 UJ	5 U	5 UJ	2000 J	12	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE			5 UJ	5 U	5 UJ	110 J	5 U	5 U	5 U	5 U	5 U
	TETRACHLOROETHENE	570	12000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	5000000	190000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	700000		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES			6.2 U	6.2 U	6.2 U	6.5 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			6.6 UJ	6.6 UJ	6.6 UJ	6.8 UJ	6.6 UJ	6.6 UJ	2 J	6.6 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	7.5 U	7.5 U	7.5 U	170 J	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	VINYL CHLORIDE	60	20	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		375 U	380 U	380 U	310 J	400 U	380 U	390 U	390 U	385 U
	2-METHYLNAPHTHALENE	310000	123000	5.25 J	23 U	23 U	2600 J	24 U	5.3 J	24 U	24 U	3.85 J
	ACENAPHTHENE	3400000	43000	14.3 J	2.6 J	14 J	24 U	9.5 J	23 U	24 U	24 U	23.5 U
	ACENAPHTHYLENE	3400000	23000	22.5 U	23 U	23 U	24 U	24 U	23 U	24 U	24 U	23.5 U
	ANTHRACENE	17000000	35000	34 J	9.1 J	32	24 U	9 J	23 U	24 U	24 U	23.5 U
	BENZO(A)ANTHRACENE	150	900	145	53 J	110	24 U	120	10 J	24 U	11 J	9.85 J
	BENZO(A)PYRENE	15	400	145	70 J	130	24 U	100	16 J	24 U	14 J	23.5 U
	BENZO(B)FLUORANTHENE	150	900	140	62 J	140	24 U	100	17 J	24 U	16 J	12.2 J
	BENZO(G,H,I)PERYLENE	1700000	800	72.5	35 J	51	24 U	56	7.7 J	24 U	7.9 J	23.5 U
	BENZO(K)FLUORANTHENE	1500	900	60.5 J	26 J	73	24 U	55 J	5.4 J	24 U	10 J	8 J
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	375 U	380 U	380 U	400 U	400 U	380 U	390 U	390 U	385 U
	CHRYSENE	15000	400	150	52 J	94	17 J	93	14 J	3.3 J	11 J	14.5 J
	DIBENZO(A,H)ANTHRACENE	15	400	51	23 UJ	52 J	24 U	30 J	6.9 J	24 U	24 U	23.5 UJ
	FLUORANTHENE	2300000	20000	190 J	64 J	150	13 J	200	9.5 J	24 U	27	7.75 J
	FLUORENE	2300000	28000	13.5 J	23 U	10 J	68	6 J	23 U	24 U	24 U	23.5 U
	HIGH MOLECULAR WEIGHT PAHS			1241.5 J	458 J	1034 J	52 J	1028 J	109.2 J	3.3 J	129.9 J	63.5 J
	INDENO(1,2,3-CD)PYRENE	150	900	67.5 J	30 J	64 J	24 U	64 J	9.7 J	24 U	17 J	23.5 UJ
	LOW MOLECULAR WEIGHT PAHS			218.55 J	71.7 J	176 J	2808 J	85.9 J	20.3 J	24 U	13 J	15.85 J
	NAPHTHALENE	3900	54000	9.5 J	23 U	23 U	NA	2.4 J	23 U	24 U	24 U	23.5 U
	PHENANTHRENE	1700000	40000	142 J	60 J	120	140	59	15 J	24 U	13 J	12 J
	PYRENE	1700000	13000	220 J	66 J	170	22 J	210 J	13 J	24 U	16 J	11.2 J
	TOTAL PAHS			1460.05 J	529.7 J	1210 J	2860 J	1113.9 J	129.5 J	3.3 J	142.9 J	79.35 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: UNEXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SB113-0406-AVG	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810	DA-SB119-0204	DA-SB120-0406	DA-SB150-0204	DA-SB151-0406-AVG
	LOCATION ID			DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117	DA-SB119	DA-SB120	DA-SB150	DA-SB151
	TOP DEPTH			4	4	2	2	8	2	4	2	4
	BOTTOM DEPTH			6	6	4	4	10	4	6	4	6
	SAMPLE DATE			03/03/08	03/03/08	03/05/08	03/04/08	03/04/08	03/04/08	03/06/08	03/05/08	03/04/08
	SAMPLE CODE			AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		1.65 J	3.8 U	3.8 U	4 U	4 U	3.8 U	3.9 U	3.9 U	3.85 U
	4,4'-DDE	1400		1.03 J	3.8 U	3.8 UJ	4 UJ	4 U	3.8 UJ	3.9 U	3.9 UJ	3.85 U
	4,4'-DDT	1700		3.75 UJ	3.8 UJ	3.8 UJ	4 UJ	4 UJ	3.8 UJ	3.9 UJ	3.9 UJ	3.85 UJ
	AROCLOR-1260	220	10000	19.5 UJ	19 UJ	20 U	21 U	21 UJ	19 UJ	20 U	20 U	20 UJ
	HEPTACHLOR	110		1.95 U	1.9 U	2 UJ	2.1 UJ	2.1 U	1.9 UJ	2 UJ	2 UJ	2 U
	TOTAL AROCLOR	240	10000	20 UJ	19 UJ	20 U	21 U	21 UJ	19 UJ	20 U	20 U	20 UJ
	TOTAL DDD/DDE/DDT			2.68 J	3.8 UJ	3.8 UJ	4 UJ	4 UJ	3.8 UJ	3.9 UJ	3.9 UJ	3.8 UJ
	TOXAPHENE	440		37.5 U	38 U	38 UJ	40 UJ	40 U	38 UJ	39 U	39 UJ	38.5 U
METALS (MG/KG)	ALUMINUM	77000		14400	13200	14000	12700	10000	14100	13500	12000	11400
	ANTIMONY	31	10	0.472 J	0.12 UJ	0.09 UJ	0.09 UJ	0.17 UJ	0.09 UJ	0.11 UJ	0.08 UJ	0.105 UJ
	ARSENIC	0.39	7	122 J	11.8 J	16.8	11.4	20 J	9.8	9.7	14.7	10.3 J
	BARIUM	15000	5500	18.6	31.4	19.3	55.8	22.4	30	37.8	25	25
	BERYLLIUM	160	0.4	0.76	0.57	0.38 J	0.37 J	0.31 J	0.34 J	0.34 J	0.34 J	0.31 J
	CADMIUM	70	39	0.015 UJ	0.28 J	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.02 UJ	0.01 UJ	0.01 UJ
	CALCIUM			916	1110	1370 J	1010 J	1260	660 J	551 J	540 J	868
	CHROMIUM	230	390	19.6	14.4	23.1	16.5	14.1	16.3	18.2	15.7	15.5
	COBALT	23		18.7	9.9	11.7	12.3	12.3	9.4	13.5	11.3	10.8
	COPPER	3100	3100	24.7	16.3	23	7.8	21.5	13.4	10.5	15	12.2
	IRON	55000		39600	23300	29300	28700	33100	29400	30200	23600	26600
	LEAD	400	150	29.3	17	44.7	10.9	10.6	10.6	10.2	10.6	8.75
	MAGNESIUM			4210	2710	4610	3010	3430	3280	3470	3070	3020
	MANGANESE	1800	390	539	344	306	870	1140	259	1880	334	702
	MERCURY	23	23	0.02 J	0.04	0.01 UJ	0.02 UJ	0.01 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 J
	MOLYBDENUM	390		1.56 J	0.62 J	0.4 J	0.32 J	0.32 J	0.5 J	0.35 J	0.23 J	0.405 J
	NICKEL	1600	1000	32.6	18.6	25	14.5	28.6	17.9	21.8	20.1	20.2
	POTASSIUM			413	439	351	446	431	505	381	358	626
	SELENIUM	390	390	0.598 J	0.35 UJ	0.62 U	0.61 U	0.62 UJ	1 J	0.77 U	0.57 U	0.625 UJ
	SILVER	390	200	0.155 UJ	0.26 UJ	0.17 J	0.23 J	0.11 UJ	0.25 J	0.28 J	0.14 J	0.13 UJ
	SODIUM			64.4 J	133 J	32.4 J	52.1 J	51.3 UJ	43.3 J	28.9 J	33.2 J	76.2 UJ
	THALLIUM	5.1	5.5	0.025 UJ	0.04 UJ	0.03 UJ	0.09 UJ	0.04 UJ	0.1 UJ	0.06 UJ	0.05 UJ	0.05 UJ
	VANADIUM	390	550	22	19.8	19.8	29.1	17.9	25.7	22.4	19.2	22
	ZINC	23000	6000	80	53	53.7	41.4	66.9	50.9	52.6	50.5	76.8
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			89	87	87	82	82	87	84	84	85
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			2.9 U	3.2 U	2.5 U	820 J	3.3 U	2.8 UJ	2.8 UJ	3.2 U	4.1 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			220000	160000	160000	1900000	200000	150000	9400 U	28000 J	235000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANAEROBIC BIODEGRADATION OF PCE: SUMMARY OF RESULTS FOR BREAKDOWN PRODUCTS (in ug/L)
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

PORTION OF STUDY AREA	LOCATION	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl chloride
	DW14 *	1 UJ	26 J	68 J	0.6 J	2 U
	DW13 *	1 UJ	140	27	1 U	2 U
	DW12 *	1 U	190	26	1 U	2 U
	DW11 *	1 U	140	43	1 U	2 U
	DW01 *	0.6 J	350	21	1 U	2 U
	DW02 *	1 U	220	37	0.4 J	2 U
	DW03 *	1 U	99	1	1 U	2 U
	DW04 *	1 U	200	4	1 U	2 U
NORTH	DW05 *	0.5 J	300	5	1 U	2 U
MEADOW	DW06 *	0.9 J	160	13	1 U	2 U
AREA	DW07 *	1 U	13	2	1 U	2 U
	DW08 *	1 U	1 U	3.5	1 U	2 J
	DW09 *	1 U	1 U	0.6 J	1 U	2 U
	DW10 *	2	3	2	1 U	2 U
	MW03B	1 U	190	1 J	1 U	2 U
	MW115B	0.5 J	1 U	1 U	1 U	2 U
	MW117B	1 U	730	2	1 U	2 U
	MW118B	1 U	18	0.4 J	1 U	2 U
	MW119B	1 U	1 U	1 U	1 U	2 J
PAVED	MW02B	1 U	1 U	0.3 J	1 U	2 U
AREA	MW108B	7	2	9.5	1 U	0.4 J
AND	MW109B	5 J	2	6	1 U	0.6 J
WEST	MW102B	1 UJ	11	3	1 U	0.4 J
	MW103B	1 U	6	4	1 U	2 U
	MW110B	7 J	3 J	2 J	1 UJ	2 UJ
SOUTH	MW112S	0.5 J	1 UJ	1 UJ	1 UJ	2 UJ
MEADOW	MW113B	0.6 J	1 UJ	1 UJ	1 UJ	2 UJ
AND	MW104B	0.5 J	7	8	1 U	1 J
WEST	MW105B	3	2	3	1 U	0.6 J
	MW04B	1 U	1 U	0.6 J	1 U	2 U
	MW123	2	0.9 J	0.4 J	1 U	2 U
UPGRADIENT						
OF SITE	MW07A	2	0.9 J	1	1 U	2 U
(AND ON OR DOWNGRADIENT	MW07B	2 J	4 J	1 U	1 U	0.8 J
OF BLDG. 179 SITE)	MW09B	1 U	0.5 J	1 U	1 U	2 U
	MW101B	1 U	5	0.4 J	1 U	6
BETWEEN STREAM						
AND BLDG. 185	MW100B **	50 U	50 U	50 U	50 U	100 U
(POSSIBLE IMPACT FROM BOTH SITES)						
NEAR BLDG. 185	MW13A	1 UJ	0.40 J	1 U	1 U	2 U
AND EAST OF	MW124B	1 U	16	26	3	19
DEERFIELD CREEK	MW125B	12	4	4	1 U	0.3 J

*Vapor diffusion samples, ordered from north to south. **LNAPL was present. Wells not listed were N.D. for these VOCs

ANAEROBIC BIODEGRADATION OF 1,1,1-TCA: SUMMARY OF RESULTS FOR BREAKDOWN PRODUCTS (in ug/L)
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, MIDDLETOWN, RHODE ISLAND

PORTION OF STUDY AREA	LOCATION	1,1,1-TCA	1,1-DCA	Chloroethane
	DW14 *	1 U	0.8 J	2 U
	DW13 *	0.6 J	1	2 U
	DW12 *	0.8 J	2	2 U
	DW11 *	0.7 J	1	2 U
	DW01 *	2	3	2 U
	DW02 *	2	2	2 U
	DW03 *	1 J	0.8 J	2 U
	DW04 *	2	1	2 U
NORTH	DW05 *	2	1	2 U
MEADOW	DW06 *	1	2	2 U
AREA	DW07 *	1 U	1	2 U
	DW08 *	1 U	0.6 J	2 U
	DW09 *	1 U	1 U	2 U
	DW10 *	1 U	3	2 U
	MW03B	2	2	2 U
	MW114B	1 U	1 J	2 U
	MW115B	1 U	0.8 J	2 U
	MW117B	1 U	0.4 J	2 UJ
WEST OF PAVED				
AREA	MW102B	1 U	2	2 U
(N.D. IN PAVED AREA)	MW103B	1	19	2 U
	MW110B	1 UJ	0.7 J	2 UJ
	MW112B	1 UJ	1 J	2 UJ
SOUTH	MW104B	4	130	2 U
MEADOW	MW105B	3	100	2 U
AND	MW04B	0.4 J	23	2 U
WEST	MW122	1	0.4 J	2 U
UPGRADIENT	MW07A	260	380	85
OF SITE	MW07B	1600	1000	22 J
	MW09B	76	47	0.4 J
(AND ON OR DOWNGRADIENT	MW101B	110	805	270
OF BLDG. 179 SITE)				
BETWEEN STREAM				
AND BLDG. 185	MW100B **	50 U	310	130
(POSSIBLE IMPACT FROM BOTH SITES)				
NEAR BLDG. 185	MW124B	1 U	18	1 J
AND EAST OF	MW125B	1 U	0.5 J	2 U
DEERFIELD CREEK				

*Vapor diffusion samples, ordered from north to south. **LNAPL was present. Wells not listed were N.D. for these VOCs.

SUMMARY OF ANALYTICAL RESULTS: UP-GRADIENT GROUNDWATER (OVERBURDEN/BEDROCK INTERFACE)
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW07A-2008LOCMAX / DA-MW07A / TBD	DA-MW106S-2008LOCMAX / DA-MW106S / 05/22/08 / NORMAL / TBD	DA-MW13A-2008LOCMAX / DA-MW13A / 08/04/08 / NORMAL / TBD
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	260	1 U	1 U
	1,1-DICHLOROETHANE	2.4			380	1 U	1 U
	1,1-DICHLOROETHENE	340	7	7	4	1 U	1 U
	ACETONE	22000			9	10 J	5 UJ
	BTEX				0.3 J	1.1 U	1.1 U
	CHLOROETHANE	21000			85	2 U	2 U
	CIS-1,2-DICHLOROETHENE	370	70	70	1	1 U	1 U
	O-XYLENE	1400	10000	10000	0.3 J	1 U	1 U
	TETRACHLOROETHENE	0.11	5	5	2	1 U	1 UJ
	TOTAL 1,2-DICHLOROETHENE	330			1	1 U	1 U
	TOTAL CHLORINATED ETHENES				3.9 J	1.2 U	0.4 J
	TOTAL CHLORINATED VOCS				732.9 J	1.3 U	0.4 J
	TOTAL XYLENES	200	10000	10000	0.3 J	1.5 U	1.5 U
	TRICHLOROETHENE	1.7	5	5	0.9 J	1 U	0.40 J
METALS (UG/L)	ALUMINUM	37000	50		35.4 UJ	336	NA
	ARSENIC	0.045	10		5.8 J	7.7 J	NA
	BARIUM	7300	2000	2000	80.8 J	9.6	NA
	CALCIUM				53900	20300	NA
	COBALT	11			14.5 J	7.7 J	NA
	IRON	26000	300		12200	3120	NA
	LEAD		15	15	1.7 J	0.97 UJ	NA
	MAGNESIUM				6090	10500	NA
	MANGANESE	880	50		5280	535	NA
	NICKEL	730		100	2.1 UJ	8.1 J	NA
	POTASSIUM				14500	2040	NA
	SILVER	180	100		0.55 J	0.52 UJ	NA
	SODIUM				64600	12000	NA
DISSOLVED METALS (UG/L)	ARSENIC	0.045	10		4.3 J	5.8 J	NA
	BARIUM	7300	2000	2000	76	7.9	NA
	CALCIUM				52100	20700	NA
	COBALT	11			12.3 J	7 J	NA
	IRON	26000	300		10600	2420	NA
	LEAD		15	15	2.2 J	0.97 UJ	NA
	MAGNESIUM				6120	10600	NA
	MANGANESE	880	50		5400	519	NA
	NICKEL	730		100	1.8 UJ	7.5 J	NA
	POTASSIUM				13400	2010	NA
	SELENIUM	180	50	50	0.96 U	1.3 J	NA
	SILVER	180	100		0.42 J	0.41 UJ	NA
	SODIUM				60400	12200	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N				2.1	0.042 J	NA
	NITRATE-N	58	10		0.05 U	4.9	NA
	ORTHOPHOSPHATE-P				0.019 J	0.05 U	NA
	SULFATE		250		9.5	34	NA
	TOTAL ORGANIC CARBON				5.8	0.64 J	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE				3.2 J	1.8 J	NA
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS				140	10 U	10 U
	TPH (C09-C36)				570	75 U	58 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: UP-GRADIENT GROUNDWATER (BEDROCK)
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW07B-2008LOCMAX	DA-MW09B-2008LOCMAX	DA-MW101B-2008LOCMAX	DA-MW106B-2008LOCMAX	DA-MW120B-2008LOCMAX
	SAMPLE ID				DA-MW07B-2008LOCMAX	DA-MW09B-2008LOCMAX	DA-MW101B-2008LOCMAX	DA-MW106B-2008LOCMAX	DA-MW120B-2008LOCMAX
	LOCATION ID				DA-MW07B	DA-MW09B	DA-MW101B	DA-MW106B	DA-MW120B
	TOP DEPTH								
	BOTTOM DEPTH								
	SAMPLE DATE				05/29/08	05/28/08	07/31/08	05/21/08	05/14/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	1600	76	110	1 U	1 U
	1,1,2-TRICHLOROETHANE	0.24	5	5	0.3 J	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	2.4			1000	47	805	1 U	1 U
	1,1-DICHLOROETHENE	340	7	7	58 J	14	79	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	15			5 J	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	12			1 J	1 U	1 U	1 U	1 U
	ACETONE	22000			3 J	14	5 U	5 UJ	5 UJ
	BTEX				5 J	1.1 U	1.1 U	1.1 U	1.1 U
	CHLOROETHANE	21000			22 J	0.4 J	270	2 U	2 U
	CHLOROMETHANE	1.8			2 U	2 U	4	2 U	2 U
	CIS-1,2-DICHLOROETHENE	370	70	70	1 U	1 U	0.4 J	1 U	1 U
	ETHYLBENZENE	1.5	700	700	1 J	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	680			0.5 J	1 U	1 U	1 U	1 U
	M+P-XYLENES		10000	10000	1 J	2 U	2 U	2 U	2 U
	N-BUTYLBENZENE				2 J	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE				1 J	1 U	1 U	1 U	1 U
	O-XYLENE	1400	10000	10000	1 J	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE				0.5 J	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	0.11	5	5	2 J	1 U	1 U	1 U	1 U
	TOLUENE	2300	1000	1000	2 J	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	330			1 U	1 U	0.4 J	1 U	1 U
	TOTAL CHLORINATED ETHENES				6.8 J	0.5 J	11.4 J	1.2 U	1.2 U
	TOTAL CHLORINATED VOCS				2687.1 J	137.9 J	1268.4 J	1.3 U	1.3 U
	TOTAL XYLENES	200	10000	10000	2 J	1.5 U	1.5 U	1.5 U	1.5 U
	TRICHLOROETHENE	1.7	5	5	4 J	0.5 J	5	1 U	1 U
	VINYL CHLORIDE	0.016	2	2	0.8 J	2 U	6	2 U	2 U
SEMIVOLATILES (UG/L)	DI-N-BUTYL PHTHALATE	3700			11 U	10 U	10 U	3 J	10 U
METALS (UG/L)	ALUMINUM	37000	50		1320	38 UJ	4920	1210	415
	ARSENIC	0.045	10		34.4	1.69 U	2.45 J	8 J	6.6 UJ
	BARIUM	7300	2000	2000	72.8 J	19.1 J	14 J	51.2	21.7
	BERYLLIUM	73	4	4	0.13 U	0.13 U	0.14 UJ	0.13 U	0.27 J
	CALCIUM				56000	50100	77600	46800	37400
	CHROMIUM	110	100	100	2.2 UJ	0.66 UJ	7.4 J	9.9 J	1.5 J
	COBALT	11			1.7 UJ	0.24 U	4.05 J	3.6 J	12.9 J
	COPPER	1500	1300		2.3 UJ	6.7 UJ	9.3 UJ	10.4 J	9.8 J
	IRON	26000	300		44800	28300	10200	9420	17000
	LEAD		15	15	1.8 J	1.8 J	3.7 J	1.4 J	1.5 J
	MAGNESIUM				8900	7790	14000	14400	24900
	MANGANESE	880	50		1200	547	248	448	1620
	MOLYBDENUM	180			2 J	0.48 UJ	1.3 UJ	2.6 J	0.3 U
	NICKEL	730		100	7.7 J	1.2 UJ	7.4 J	5.9 J	29.2 J
	POTASSIUM				1110	1850	1520	1280	711 J
	SILVER	180	100		0.62 J	0.69 J	0.268 J	0.54 UJ	0.29 U
	SODIUM				37200	47100	33100	8940	24600
	VANADIUM	180			2 UJ	0.38 U	7.65 J	2.1 J	0.38 U
	ZINC	11000	5000		17.2 J	42	34.2 J	28.5	14.8 J
DISSOLVED METALS (UG/L)	ALUMINUM	37000	50		14.6 U	14.6 U	27.2 UJ	28.2 UJ	17.6 J
	ARSENIC	0.045	10		24.7	1.69 U	1.69 U	4.5 J	6 UJ
	BARIUM	7300	2000	2000	45.2	17.9	4.85 UJ	47.4	19.2
	BERYLLIUM	73	4	4	0.13 U	0.13 U	0.13 U	0.13 U	0.24 J
	CALCIUM				54500	49600	77400	45400	36400
	COBALT	11			0.51 UJ	0.25 UJ	0.475 UJ	0.79 UJ	12.2 J
	IRON	26000	300		748	556	9 UJ	4340	15000
	MAGNESIUM				8500	7740	12600	14100	24200
	MANGANESE	880	50		957	385	81.5	384	1570
	NICKEL	730		100	0.45 UJ	0.42 U	0.42 U	0.46 J	26.7 J
	POTASSIUM				1020	1780	1240	1320	660 J
	SILVER	180	100		0.29 U	0.29 U	0.418 J	0.3 UJ	0.29 U
	SODIUM				38000	47300	33800	8980	23800
	THALLIUM	2.4	2	2	1.64 U	1.64 U	1.64 U	1.64 U	1.8 J

SUMMARY OF ANALYTICAL RESULTS: UP-GRADIENT GROUNDWATER (BEDROCK)
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	SAMPLE ID	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW07B-2008LOCMAX	DA-MW09B-2008LOCMAX	DA-MW101B-2008LOCMAX	DA-MW106B-2008LOCMAX	DA-MW120B-2008LOCMAX
	LOCATION ID				DA-MW07B	DA-MW09B	DA-MW101B	DA-MW106B	DA-MW120B
	TOP DEPTH								
	BOTTOM DEPTH								
	SAMPLE DATE				05/29/08	05/28/08	07/31/08	05/21/08	05/14/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER				TBD	TBD	PAVED	EXPOSED	EXPOSED
	ZINC	11000	5000		5.3 UJ	5.2 UJ	4.8 UJ	6.6 UJ	11.7 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: UP-GRADIENT GROUNDWATER (BEDROCK)
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FRACTION (UNITS)	PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW07B-2008LOCMAX	DA-MW09B-2008LOCMAX	DA-MW101B-2008LOCMAX	DA-MW106B-2008LOCMAX	DA-MW120B-2008LOCMAX
	SAMPLE ID				DA-MW07B-2008LOCMAX	DA-MW09B-2008LOCMAX	DA-MW101B-2008LOCMAX	DA-MW106B-2008LOCMAX	DA-MW120B-2008LOCMAX
	LOCATION ID				DA-MW07B	DA-MW09B	DA-MW101B	DA-MW106B	DA-MW120B
	TOP DEPTH								
	BOTTOM DEPTH								
	SAMPLE DATE				05/29/08	05/28/08	07/31/08	05/21/08	05/14/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MISCELLANEOUS PARAMETERS (MG/L)	NITRATE-N	58	10		0.05 U	0.05 U	0.0315 J	0.05 U	0.05 U
	ORTHOPHOSPHATE-P				0.079	0.018 J	0.0795 J	0.061	0.046 J
	SULFATE		250		11	2	14	41	65
	SULFIDE				1 U	1 U	1.05	1.3	1 U
	TOTAL ORGANIC CARBON				1.3	0.92 J	0.615 J	0.83 J	0.49 J
MISCELLANEOUS PARAMETERS (UG/L)	METHANE				22	500	810	10 U	2 J
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS				510	19 U	105	10 U	10 U
	TPH (C09-C36)				200	82 U	70 J	75 U	75 U

SUMMARY OF ANALYTICAL RESULTS: SITE GROUNDWATER (OVERBURDEN/BEDROCK INTERFACE)
REMEDIAL INVESTIGATION REPORT
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FRACTION (UNITS)	PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	SAMPLE ID	LOCATION ID	TOP DEPTH	BOTTOM DEPTH	SAMPLE DATE	SAMPLE CODE
					DA-MW103S-2008LOCMAX	DA-MW103S			05/26/08	NORMAL
					DA-MW112S-2008LOCMAX	DA-MW112S			05/19/08	NORMAL
					DA-MW122-2008LOCMAX	DA-MW122			06/03/08	NORMAL
					DA-MW123-2008LOCMAX	DA-MW123			06/04/08	NORMAL
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	1 U	1 UJ	1	1 U		
	1,1-DICHLOROETHANE	2.4			1 U	1 UJ	0.4 J	1 U		
	ACETONE	22000			8	5 UJ	2.25 J	5 U		
	CIS-1,2-DICHLOROETHENE	370	70	70	1 U	1 UJ	1 U	0.4 J		
	TETRACHLOROETHENE	0.11	5	5	1 U	0.5 J	1 U	2		
	TOTAL 1,2-DICHLOROETHENE	330			1 U	1 UJ	1 U	0.4 J		
	TOTAL CHLORINATED ETHENES				1.2 U	0.5 J	1.2 U	3.3 J		
	TOTAL CHLORINATED VOCS				1.3 U	0.5 J	1.4 J	3.3 J		
	TRICHLOROETHENE	1.7	5	5	1 U	1 UJ	1 U	0.9 J		
SEMIVOLATILES (UG/L)	BENZYL ALCOHOL	18000			24 U	20 U	22 U	110		
	BIS(2-ETHYLHEXYL)PHTHALATE	4.8	6	6	3 J	10 U	11 U	10 UJ		
	LOW MOLECULAR WEIGHT PAHS				3 J	10 U	11 U	10 U		
	PHENANTHRENE	1100			3 J	10 U	11 U	10 U		
	TOTAL PAHS				3 J	10 U	11 U	10 U		
PESTICIDES/PCBS (UG/L)	DIELDRIN	0.0042			0.024 U	0.021 U	0.0108 J	0.02 U		
METALS (UG/L)	ALUMINUM	37000	50		564000	3420	31.6 UJ	31.7 UJ		
	ARSENIC	0.045	10		503 J	2.7 J	1.69 U	1.69 U		
	BARIUM	7300	2000	2000	1390	17.6	14.7 J	9.5 J		
	BERYLLIUM	73	4	4	17.8 J	0.13 U	0.13 U	0.13 U		
	CALCIUM				226000	26200	41200	43700		
	CHROMIUM	110	100	100	868	5.2 J	0.52 UJ	0.57 UJ		
	COBALT	11			637	3.7 J	1.15 UJ	0.38 UJ		
	COPPER	1500	1300		1440	6.5 J	0.76 UJ	0.75 U		
	IRON	26000	300		1210000	6040	28.2 J	19.4 J		
	LEAD		15	15	1890	3.6 J	0.97 U	0.97 U		
	MAGNESIUM				195000	8600	9560	6210		
	MANGANESE	880	50		13800	501	0.972 J	904		
	MERCURY	11	2	2	1.9	0.03 U	0.03 U	0.03 U		
	MOLYBDENUM	180			20.3 J	0.52 UJ	4.45 J	0.38 UJ		
	NICKEL	730		100	1160	6.5 J	0.87 UJ	0.53 UJ		
	POTASSIUM				41800	1550	4200	1300		
	SELENIUM	180	50	50	13.8 J	0.96 U	0.96 U	0.96 U		
	SODIUM				16800	10400	56400	10300		
	VANADIUM	180			832	3.8 J	0.38 U	0.38 U		
	ZINC	11000	5000		3990	22.6 J	7.2 UJ	3.4 UJ		
DISSOLVED METALS (UG/L)	ALUMINUM	37000	50		5900	181 J	14.6 U	14.6 U		
	ARSENIC	0.045	10		20.2	1.69 U	1.69 U	1.69 U		
	BARIUM	7300	2000	2000	90.7	9.2	14.4	10.7		
	CALCIUM				143000	25800	41000	46400		
	COBALT	11			6.8 J	0.68 UJ	1.01 UJ	0.27 UJ		
	COPPER	1500	1300		19 J	0.75 UJ	1.55 UJ	0.75 U		
	IRON	26000	300		38200	288	7.1 J	18.2 J		
	LEAD		15	15	19.9	0.97 UJ	0.97 U	0.97 U		
	MAGNESIUM				14800	8130	9500	6360		
	MANGANESE	880	50		1910	240	1.09 UJ	978		
	MOLYBDENUM	180			2.3 J	0.3 U	4.45 J	0.3 U		
	NICKEL	730		100	10.6 J	0.42 U	1.1 UJ	0.64 UJ		
	POTASSIUM				24300	1260	4320	1380		
	SILVER	180	100		1.8 UJ	0.39 UJ	0.352 J	0.29 U		
	SODIUM				17600	10900	56000	10500		
	VANADIUM	180			7.5 J	0.47 UJ	0.395 UJ	0.38 U		
	ZINC	11000	5000		41	6.2 UJ	7.65 UJ	4.2 UJ		

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SITE GROUNDWATER (OVERBURDEN/BEDROCK INTERFACE)
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FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW103S-2008LOCMAX / DA-MW103S / 05/26/08 / NORMAL / TBD	DA-MW112S-2008LOCMAX / DA-MW112S / 05/19/08 / NORMAL / TBD	DA-MW122-2008LOCMAX / DA-MW122 / 06/03/08 / NORMAL / TBD	DA-MW123-2008LOCMAX / DA-MW123 / 06/04/08 / NORMAL / TBD
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N				1.8	0.084 J	0.1 U	0.1 U
	NITRATE-N	58	10		0.05 U	2.7	1.7	0.34
	NITRITE-N	3.7	1		0.05 U	0.1 U	0.05 U	0.014 J
	ORTHOPHOSPHATE-P				0.032 J	0.048 J	0.043 J	0.049 J
	SULFATE		250		46	27	24	26
	SULFIDE				1 U	1.4	1 U	1 J
	TOTAL ORGANIC CARBON				14	1.1	2.2	1.9
MISCELLANEOUS PARAMETERS (UG/L)	METHANE				150	72	10 U	4.9 J
PETROLEUM HYDROCARBONS (UG/L)	TPH (C09-C36)				220	82 U	82 U	81 U

TABLE 4-15

DRAFT FINAL

SUMMARY OF ANALYTICAL RESULTS: SITE GROUNDWATER (BEDROCK)
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW02B-2008LOCMAX	DA-MW03B-2008LOCMAX	DA-MW04B-2008LOCMAX	DA-MW100B-2008LOCMAX	DA-MW102B-2008LOCMAX	DA-MW103B-2008LOCMAX	DA-MW104B-2008LOCMAX	DA-MW105B-2008LOCMAX	DA-MW107B-2008LOCMAX	DA-MW108B-2008LOCMAX	DA-MW109B-2008LOCMAX	DA-MW110B-2008LOCMAX
	LOCATION ID				DA-MW02B	DA-MW03B	DA-MW04B	DA-MW100B	DA-MW102B	DA-MW103B	DA-MW104B	DA-MW105B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW110B
	TOP DEPTH															
	BOTTOM DEPTH															
	SAMPLE DATE				05/27/08	05/22/08	05/23/08	09/18/08	08/01/08	05/23/08	05/20/08	05/20/08	06/04/08	06/03/08	06/02/08	05/19/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER				PAVED	TBD	EXPOSED	PAVED	TBD	EXPOSED	EXPOSED	EXPOSED	PAVED	PAVED	PAVED	EXPOSED
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	1 U	2	0.4 J	50 U	1 U	1	4	3	1 U	1 U	1 U	1 UJ
	1,1-DICHLOROETHANE	2.4			1 U	2	23	310	2	19	130	100	1 U	1 U	1 U	0.7 J
	1,1-DICHLOROETHENE	340	7	7	1 U	0.5 J	1	50 U	1 U	1	7	5	1 U	1 U	1 U	1 UJ
	1,2,4-TRIMETHYLBENZENE	15			1 U	1 U	1 U	810	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	1,3,5-TRIMETHYLBENZENE	12			1 U	1 U	1 U	290	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	1,4-DICHLOROBENZENE	0.43	75	75	1 U	1 U	1 U	9 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	4-ISOPROPYLTOLUENE				1 U	1 U	1 U	110	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	ACETONE	22000			5 U	5 UJ	5 U	250 U	3 J	5 U	5 U	5 U	5 U	4 J	5 J	13 J
	BENZENE	0.41	5	5	1 U	1 U	1 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	BROMOMETHANE	8.7			2 U	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 UJ
	BTEX				1.1 U	1.1 U	1.1 U	155 J	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.6 J	41	1.1 UJ
	CARBON DISULFIDE	1000			1 U	1 U	1 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J	1 UJ
	CARBON TETRACHLORIDE	0.2	5	5	1 U	2	1 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	CHLOROETHANE	21000			2 U	2 U	2 U	130	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
	CHLOROFORM	0.19	80		1 U	1 U	1 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U	1	1 UJ
	CHLOROMETHANE	1.8			2 U	2 U	2 U	100 U	2 UJ	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ
	CIS-1,2-DICHLOROETHENE	370	70	70	0.3 J	1 J	0.6 J	50 U	3	4	8	3	1 U	9.5	6	2 J
	ETHYLBENZENE	1.5	700	700	1 U	1 U	1 U	58	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	ISOPROPYLBENZENE	680			1 U	1 U	1 U	94	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	M+P-XYLENES		10000	10000	2 U	2 U	2 U	60 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
	N-BUTYLBENZENE				1 U	1 U	1 U	98	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	N-PROPYLBENZENE				1 U	1 U	1 U	140	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	O-XYLENE	1400	10000	10000	1 U	1 U	1 U	37 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	SEC-BUTYLBENZENE				2	1 U	1 U	84	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	TERT-BUTYLBENZENE				1 U	1 U	1 U	50 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 UJ
	TETRACHLOROETHENE	0.11	5	5	1 U	1 U	1 U	50 U	1 UJ	1 U	0.5 J	3	1 U	7	5 J	7 J
	TOLUENE	2300	1000	1000	1 U	1 U	1 U	50 U	1 U	1 U	1 U	1 U	1 U	0.6 J	41	1 UJ
	TOTAL 1,2-DICHLOROETHENE	330			0.3 J	1 J	0.6 J	50 U	3	4	8	3	1 U	9.5	6	2 J
	TOTAL CHLORINATED ETHENES				0.3 J	191 J	0.6 J	62 U	14.4 J	10	16.5 J	8.6 J	1.2 U	18.9 J	13.6 J	12 J
	TOTAL CHLORINATED VOCS				0.3 J	197.5 J	25 J	440	16.4 J	31	157.5 J	116.6 J	1.3 U	18.9 J	13.6 J	12.7 J
	TOTAL XYLENES	200	10000	10000	1.5 U	1.5 U	1.5 U	97 J	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 UJ
	TRANS-1,2-DICHLOROETHENE	110	100	100	1 U	1 U	1 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	TRICHLOROETHENE	1.7	5	5	1 U	190	1 U	50 U	11	6	7	2	1 U	2	2	3 J
	VINYL CHLORIDE	0.016	2	2	2 U	2 U	2 U	100 U	0.4 J	2 U	1 J	0.6 J	2 U	0.4 J	0.6 J	2 UJ
SEMIVOLATILES (UG/L)	BENZO(K)FLUORANTHENE	0.29			10 U	10 U	10 U	9 U	9 U	11 U	11 U	10 U	10 U	10 U	12 U	10 UJ
	DI-N-BUTYL PHTHALATE	3700			10 U	10 U	10 U	9 U	9 U	11 U	11 U	10 U	10 U	10 U	12 U	10 UJ
	HIGH MOLECULAR WEIGHT PAHS				10 U	10 U	10 U	9 U	9 U	11 U	11 U	10 U	10 U	10 U	12 U	10 UJ
	TOTAL PAHS				10 U	10 U	10 U	9 U	9 U	11 U	11 UJ	10 UJ	10 U	10 U	12 U	10 UJ

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SITE GROUNDWATER (BEDROCK)
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	SAMPLE ID				DA-MW02B-2008LOCMAX	DA-MW03B-2008LOCMAX	DA-MW04B-2008LOCMAX	DA-MW100B-2008LOCMAX	DA-MW102B-2008LOCMAX	DA-MW103B-2008LOCMAX	DA-MW104B-2008LOCMAX	DA-MW105B-2008LOCMAX	DA-MW107B-2008LOCMAX	DA-MW108B-2008LOCMAX	DA-MW109B-2008LOCMAX	DA-MW110B-2008LOCMAX
	LOCATION ID				DA-MW02B	DA-MW03B	DA-MW04B	DA-MW100B	DA-MW102B	DA-MW103B	DA-MW104B	DA-MW105B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW110B
	TOP DEPTH															
	BOTTOM DEPTH															
	SAMPLE DATE				05/27/08	05/22/08	05/23/08	09/18/08	08/01/08	05/23/08	05/20/08	05/20/08	06/04/08	06/03/08	06/02/08	05/19/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	PAVED	TBD	EXPOSED	PAVED	TBD	EXPOSED	EXPOSED	EXPOSED	PAVED	PAVED	PAVED	EXPOSED
METALS (UG/L)	ALUMINUM	37000	50		14.6 U	18.4 UJ	140 J	NA	1950	102 J	784	193 J	376	539	129 UJ	820
	ANTIMONY	15	6	6	0.78 U	0.98 UJ	0.78 U	NA	0.78 U	1.3 UJ	0.89 UJ	0.78 U	1.5 UJ	1.2 UJ	0.78 U	1.9 UJ
	ARSENIC	0.045	10		17.2	1.69 U	2.5 J	NA	1.69 U	1.69 U	1.69 U	3.9 J	6.4 J	4.3 J	9.1	2.3 J
	BARIUM	7300	2000	2000	25.9 J	6.2	1.5 UJ	NA	6.5 UJ	3.4 J	5.3	5 J	23.8 J	20.8 J	10.5 J	5.5
	CALCIUM				12100	26600	42700	NA	57000	52700	48100	46000	45300	53300	45800	44000
	CHROMIUM	110	100	100	2.4 J	0.41 U	0.78 UJ	NA	5.6 J	1.1 UJ	3.1 UJ	1.2 UJ	1.6 UJ	3.4 J	2.4 J	3.3 UJ
	COBALT	11			15.6 J	0.31 UJ	1.1 UJ	NA	4.1 J	2.4 UJ	1.7 UJ	1.9 UJ	0.66 UJ	0.925 UJ	1.1 UJ	1.7 UJ
	COPPER	1500	1300		1.7 UJ	0.75 UJ	0.75 UJ	NA	17.3 J	0.75 UJ	0.75 UJ	0.75 UJ	0.75 U	7.7 UJ	4.6 UJ	1.6 J
	IRON	26000	300		26700	9.2 UJ	1330	NA	23200	5650	6740	937	7600	12600	17200	8680
	LEAD		15	15	1.4 J	0.97 UJ	0.97 UJ	NA	3.5 J	0.97 UJ	0.97 UJ	1.3 J	0.97 U	1.75 J	1.2 J	1.1 J
	MAGNESIUM				1850	7820	11500	NA	9950	7010	10300	11700	13200	13800	13000	12500
	MANGANESE	880	50		8370	56	1210	NA	3050	2010	1750	2550	351	1470	1700	2700
	MOLYBDENUM	180			0.37 UJ	0.3 U	0.84 UJ	NA	0.86 UJ	0.65 UJ	0.82 UJ	0.74 UJ	0.69 UJ	3.1 J	3.8 J	1.5 UJ
	NICKEL	730		100	1.8 UJ	0.42 U	0.42 U	NA	6 J	0.7 J	3 J	0.84 J	2 UJ	2.05 UJ	3.7 J	1.9 J
	POTASSIUM				1170	2370	637 UJ	NA	1330	3600	1250	654 UJ	722 J	3290	1060	2020
METALS (UG/L)	SELENIUM	180	50	50	0.96 U	0.96 U	1.7 J	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	180	100		0.29 U	0.29 U	0.48 UJ	NA	0.29 U	0.85 UJ	0.59 UJ	0.59 UJ	0.29 U	0.392 J	0.29 U	0.89 UJ
	SODIUM				13100	16100	11500	NA	21200	15400	12900	13300	9400	14000	14400	12100
	THALLIUM	2.4	2	2	1.64 U	1.64 U	1.64 U	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	180			0.38 U	0.49 UJ	0.61 UJ	NA	2 UJ	0.43 UJ	1.2 UJ	0.38 U	0.67 UJ	1.15 UJ	0.38 U	1 UJ
	ZINC	11000	5000		9.3 UJ	4.7 UJ	5.9 UJ	NA	21.5 J	16.9 J	23.8 J	9.5 UJ	6.2 UJ	13.4 J	15.7 J	9.7 UJ
DISSOLVED METALS (UG/L)	ALUMINUM	37000	50		14.6 U	15.8 UJ	19.4 UJ	NA	186 J	19.7 UJ	33.8 UJ	24.5 UJ	42.2 UJ	117 UJ	14.6 U	47.9 UJ
	ARSENIC	0.045	10		16.4	1.69 U	1.69 U	NA	1.69 U	1.69 U	2 J	3.3 J	6.1 J	5.25 J	9.3	1.69 U
	BARIUM	7300	2000	2000	25.6	6.7	0.59 U	NA	2.4 UJ	3.1 J	2.3 UJ	0.83 UJ	21.6	18.2	10.9	1.9 UJ
	CALCIUM				12200	27400	42600	NA	55100	53400	48400	45100	44600	51800	46700	41600
	COBALT	11			15.6 J	0.28 UJ	0.48 UJ	NA	2.6 UJ	2.3 UJ	1.1 UJ	0.58 UJ	0.48 UJ	0.725 UJ	1.2 UJ	1.3 UJ
	IRON	26000	300		26600	9 U	23 UJ	NA	5320	4360	1960	18.3 UJ	4730	8440	10400	4950
	LEAD		15	15	1.8 J	0.97 UJ	0.97 UJ	NA	0.97 U	0.97 UJ	0.97 UJ	0.97 UJ	0.97 U	0.732 J	0.97 U	0.97 UJ
	MAGNESIUM				1870	8020	11500	NA	9130	7100	10300	11500	12900	13400	13400	11800
	MANGANESE	880	50		8220	56.2	1090	NA	2860	2040	1750	2140	334	1440	1740	2540
	MOLYBDENUM	180			0.43 UJ	0.3 U	0.83 UJ	NA	0.3 U	0.8 UJ	0.61 UJ	0.57 UJ	0.43 UJ	2.25 J	2 J	0.93 UJ
	NICKEL	730		100	2.1 UJ	0.42 U	0.42 U	NA	2 UJ	0.42 U	1.3 J	0.42 U	0.89 UJ	0.675 UJ	0.88 UJ	0.42 U
	POTASSIUM				1110	2460	618 UJ	NA	1260	3710	1210	650 UJ	685 J	2650	706 J	1870
	SILVER	180	100		0.61 J	0.29 U	0.54 UJ	NA	0.29 U	0.73 UJ	0.29 UJ	0.59 UJ	0.29 U	0.238 J	0.29 U	0.35 UJ
	SODIUM				13100	16700	11500	NA	20400	15600	13100	13100	9210	13400	14100	11600
	ZINC	11000	5000		12.3 J	5.9 UJ	5 UJ	NA	8.1 UJ	8.5 UJ	16.3 J	6.1 UJ	4.3 UJ	5.15 UJ	7.8 UJ	7.2 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N				3	0.1 U	0.1 U	NA	0.1 U	0.06 J	0.1 U	0.1 U	0.1 U	0.1 U	0.04 J	0.1 U
	NITRATE-N	58	10		0.05 U	1.1	0.05 U	NA	0.05 U	0.81	0.3	0.048 J	0.05 U	0.05 U	0.05 U	0.078
	NITRITE-N	3.7	1		0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.037 J	0.05 U	0.05 U	0.05 U	0.05 U	0.0064 J
	ORTHOPHOSPHATE-P				0.055	0.07	0.016 J	NA	0.024 J	0.05 U	0.061	0.023 J	0.049 J	0.0245 J	0.025 J	0.063
	SULFATE		250		6.5	25	30	NA	5.1	11	19	28	44	29	36	33
	SULFIDE				1 U	1 U	1 U	NA	0.8 J	1 U	1.4	1 U	1 U	1 U	1.2	2
	TOTAL ORGANIC CARBON				5	1.3	0.41 J	NA	1.3	1.7	0.94 J	0.96 J	0.36 J	1.8	1.1	0.59 J
MISCELLANEOUS PARAMETERS (UG/L)	METHANE				260	10 U	8.8 J	NA	2.8 J	49	9.8 J	14	10 U	1.35 J	13	8.7 J
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS				74	47 U	10 U	NA	22	10 U	25 U	16 U	10 U	10 U	10 U	10 UJ
	TPH (C09-C36)				190	79 U	85 U	NA	81	83 U	69 J	84 U	75 U	79.5 J	52 J	77 UJ

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FRACTION (UNITS)	SAMPLE ID	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-MW111B-2008LOCMAX	DA-MW112B-2008LOCMAX	DA-MW113B-2008LOCMAX	DA-MW114B-2008LOCMAX	DA-MW115B-2008LOCMAX	DA-MW116B-2008LOCMAX	DA-MW117B-2008LOCMAX	DA-MW118B-2008LOCMAX	DA-MW119B-2008LOCMAX	DA-MW124B-2008LOCMAX	DA-MW125B-2008LOCMAX	DA-MW126B-2008LOCMAX
	LOCATION ID				DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW124B	DA-MW125B	DA-MW126B
	TOP DEPTH															
	BOTTOM DEPTH															
	SAMPLE DATE				05/16/08	05/16/08	05/16/08	05/16/08	05/15/08	05/15/08	05/15/08	05/15/08	05/14/08	08/04/08	08/01/08	07/30/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER				EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	PAVED	PAVED
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	2.4			1 U	1 J	1 UJ	1 J	0.8 J	1 U	0.4 J	1 U	1 U	18	0.5 J	1 U
	1,1-DICHLOROETHENE	340	7	7	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 J	1 U	1 U	0.8 J	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	15			1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U
	1,3,5-TRIMETHYLBENZENE	12			1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	0.43	75	75	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U	1 U
	4-ISOPROPYLTOLUENE				1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ACETONE	22000			5 U	5 UJ	5 UJ	5 J	8	5 U	5 U	5 U	5 UJ	46 U	5 U	5 U
	BENZENE	0.41	5	5	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U
	BROMOMETHANE	8.7			2 U	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2
	BTEX				1.1 U	1.1 UJ	1.1 UJ	14 J	2	1.1 U	1.1 U	1.1 U	1.1 U	18.4 J	12	4
	CARBON DISULFIDE	1000			1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	0.2	5	5	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	21000			2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 UJ	2 U	2 U	1 J	2 U	2 U
	CHLOROFORM	0.19	80		1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	7
	CHLOROMETHANE	1.8			2 U	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	16
	CIS-1,2-DICHLOROETHENE	370	70	70	1 U	1 UJ	1 UJ	1 U	1 U	1 U	2	0.4 J	1 U	26	4	1 U
	ETHYLBENZENE	1.5	700	700	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	680			1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES		10000	10000	2 U	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	N-BUTYLBENZENE				1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE				1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1400	10000	10000	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE				1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U
	TERT-BUTYLBENZENE				1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U
	TETRACHLOROETHENE	0.11	5	5	1 U	1 UJ	0.6 J	1 U	0.5 J	1 U	1 U	1 U	1 U	1 U	12	1 U
	TOLUENE	2300	1000	1000	1 U	1 UJ	1 UJ	14 J	2	1 U	1 U	1 U	1 U	18	12	4
	TOTAL 1,2-DICHLOROETHENE	330			1 U	1 UJ	1 UJ	1 U	1 U	1 U	2	0.4 J	1 U	29	4	1 U
	TOTAL CHLORINATED ETHENES				1.2 U	1.2 UJ	0.6 J	1.2 U	0.5 J	1.2 U	732	18.4 J	2 J	64	20.3 J	1.2 U
	TOTAL CHLORINATED VOCS				1.3 U	1 J	0.6 J	1 J	1.1 J	1.3 UJ	733.4 J	18.4 J	2 J	83.8 J	20.3 J	16
	TOTAL XYLENES	200	10000	10000	1.5 U	1.5 UJ	1.5 UJ	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	110	100	100	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	3	1 U	1 U
	TRICHLOROETHENE	1.7	5	5	1 U	1 UJ	1 UJ	1 U	1 U	1 U	730	18	1 U	16	4	1 U
	VINYL CHLORIDE	0.016	2	2	2 U	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 J	19	0.3 J	2 U
SEMIVOLATILES (UG/L)	BENZO(K)FLUORANTHENE	0.29			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J	10 U	10 U
	DI-N-BUTYL PHTHALATE	3700			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 J	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J	10 U	10 U
	TOTAL PAHS				10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	4 J	10 U	10 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

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	LOCATION ID				DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW124B	DA-MW125B	DA-MW126B
	TOP DEPTH															
	BOTTOM DEPTH															
	SAMPLE DATE				05/16/08	05/16/08	05/16/08	05/16/08	05/15/08	05/15/08	05/15/08	05/15/08	05/14/08	08/04/08	08/01/08	07/30/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER				EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	PAVED	PAVED
METALS (UG/L)	ALUMINUM	37000	50		106 J	426	275 J	53.8 UJ	952	84.6 UJ	15 UJ	32.8 UJ	31.4 J	NA	NA	NA
	ANTIMONY	15	6	6	0.94 UJ	1.55 UJ	0.78 U	0.78 U	0.86 UJ	0.78 U	0.78 U	0.78 U	1.2 J	NA	NA	NA
	ARSENIC	0.045	10		1.69 U	2.2 J	7.4 J	1.69 U	15.3	17.8	9.2	1.69 U	12.4 U	NA	NA	NA
	BARIUM	7300	2000	2000	5.1	2.7 UJ	5.5	2.3 UJ	11.6	9.1	8.5	1.2 UJ	24.5	NA	NA	NA
	CALCIUM				19600	40400	32200	12200	31600	20200	23200	15600	34700	NA	NA	NA
	CHROMIUM	110	100	100	0.79 UJ	1.6 UJ	2.2 UJ	0.41 U	2.4 UJ	0.61 UJ	0.5 UJ	0.41 U	0.41 U	NA	NA	NA
	COBALT	11			0.67 UJ	1.25 UJ	1.3 UJ	1.8 UJ	2.9 UJ	6.7 J	6.5 J	1.2 UJ	0.98 J	NA	NA	NA
	COPPER	1500	1300		0.75 UJ	0.75 UJ	4.8 J	0.75 UJ	6.5 J	0.75 UJ	0.75 UJ	0.75 UJ	0.89 J	NA	NA	NA
	IRON	26000	300		2930	1010	10800	9950	17300	8580	2620	76.3 UJ	7670	NA	NA	NA
	LEAD		15	15	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	1.1 J	0.97 UJ	0.97 UJ	0.97 UJ	0.97 U	NA	NA	NA
	MAGNESIUM				8070	12200	10500	5660	10500	8860	8840	8730	12200	NA	NA	NA
	MANGANESE	880	50		56.6	1300	1100	723	711	1140	914	496	454	NA	NA	NA
	MOLYBDENUM	180			0.3 U	0.53 UJ	0.98 UJ	0.33 UJ	1.3 UJ	0.48 UJ	0.53 UJ	0.56 UJ	1.4 J	NA	NA	NA
	NICKEL	730		100	8.4 J	0.335 J	2.1 J	2.1 J	2.3 J	4.7 J	10 J	1 J	0.42 U	NA	NA	NA
	POTASSIUM				754 UJ	703 UJ	772 UJ	848 UJ	835 UJ	646 UJ	720 UJ	832 UJ	2430	NA	NA	NA
METALS (UG/L)	SELENIUM	180	50	50	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 UJ	NA	NA	NA
	SILVER	180	100		0.5 UJ	0.29 U	0.67 UJ	0.41 UJ	0.6 UJ	0.43 UJ	0.29 U	0.54 UJ	0.29 U	NA	NA	NA
	SODIUM				11800	11300	10800	8680	9560	10600	9900	9800	38200	NA	NA	NA
	THALLIUM	2.4	2	2	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	2.3 J	NA	NA	NA
	VANADIUM	180			0.61 UJ	0.795 UJ	0.38 U	0.38 U	1.5 J	0.43 UJ	0.38 U	0.43 UJ	0.38 U	NA	NA	NA
	ZINC	11000	5000		6 UJ	6.55 UJ	11.1 UJ	6.6 UJ	15.6 J	14.4 J	11.1 UJ	4.7 UJ	4.4 J	NA	NA	NA
DISSOLVED METALS (UG/L)	ALUMINUM	37000	50		27.8 UJ	27.4 UJ	24 UJ	14.6 U	24.9 UJ	17.4 UJ	28.3 UJ	14.6 U	22.1 J	NA	NA	NA
	ARSENIC	0.045	10		1.69 U	1.37 J	2.8 J	1.69 U	14.1	18.4	9.2	1.69 U	12.4 U	NA	NA	NA
	BARIUM	7300	2000	2000	5.3	1.35 UJ	4.2 J	2.3 UJ	9.4	9	8.3	1.1 UJ	24.1	NA	NA	NA
	CALCIUM				20200	39200	32000	12800	32800	20400	23500	16000	33900	NA	NA	NA
	COBALT	11			0.65 UJ	0.965 UJ	1.4 UJ	1.9 UJ	1.7 UJ	6.8 J	6.4 J	1.1 UJ	1 J	NA	NA	NA
	IRON	26000	300		774	65.6 UJ	998	3520	5600	8470	2610	9 U	7280	NA	NA	NA
	LEAD		15	15	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 U	NA	NA	NA
	MAGNESIUM				8210	11800	10500	5840	10600	8990	8940	8880	11900	NA	NA	NA
	MANGANESE	880	50		53.5	1300	1070	747	684	1140	925	502	439	NA	NA	NA
	MOLYBDENUM	180			0.3 U	0.425 UJ	0.41 UJ	0.3 U	0.95 UJ	0.36 UJ	0.3 U	0.67 UJ	1.3 J	NA	NA	NA
	NICKEL	730		100	1.2 J	0.42 U	1.4 J	2.1 J	0.42 U	4.9 J	3.5 J	0.76 J	0.42 U	NA	NA	NA
	POTASSIUM				809 UJ	652 UJ	808 UJ	795 UJ	775 UJ	667 UJ	720 UJ	836 UJ	2390	NA	NA	NA
	SILVER	180	100		0.49 UJ	0.42 UJ	0.29 UJ	0.29 U	0.62 UJ	0.63 UJ	0.29 U	0.29 U	0.29 U	NA	NA	NA
	SODIUM				12200	11100	10900	8930	9720	10700	10000	10000	37200	NA	NA	NA
	ZINC	11000	5000		8.1 UJ	4.65 UJ	5.7 UJ	6.9 UJ	7.4 UJ	15.5 J	11.4 UJ	5.5 UJ	4.6 J	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N				0.1 U	0.1 U	0.047 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1.1	NA	NA	NA
	NITRATE-N	58	10		1.7	0.05 U	0.55	0.25	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
	NITRITE-N	3.7	1		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
	ORTHOPHOSPHATE-P				0.034 J	0.023 J	0.02 J	0.12	0.022 J	0.038 J	0.032 J	0.063	0.12	NA	NA	NA
	SULFATE		250		27	33	32	16	25	29	23	14	5	NA	NA	NA
	SULFIDE				1 U	1 U	1 U	1 U	3.1	1 U	1 U	1 U	3.1	NA	NA	NA
	TOTAL ORGANIC CARBON				1.3	0.59 J	0.67 J	1.1	0.38 J	0.28 J	0.41 J	0.28 J	2.1	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE				10 U	4.75 J	2.4 J	10 U	1.3 J	10 U	10 U	10 U	2300	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS				10 U	10 U	10 U	10 U	10 U	10 U	180	10 U	10 U	61	19	10 U
	TPH (C09-C36)				51 J	47.5 J	49 J	76 U	75 U	75 U	75 U	79 U	75 U	1300 J	270	360

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SITE GROUNDWATER (VAPOR DIFFUSION BAGS)
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	PARAMETER	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-DW01-2008LOCMAX	DA-DW02-2008LOCMAX	DA-DW03-2008LOCMAX	DA-DW04-2008LOCMAX	DA-DW05-2008LOCMAX	DA-DW06-2008LOCMAX	DA-DW07-2008LOCMAX
	SAMPLE ID				DA-DW01-2008LOCMAX	DA-DW02-2008LOCMAX	DA-DW03-2008LOCMAX	DA-DW04-2008LOCMAX	DA-DW05-2008LOCMAX	DA-DW06-2008LOCMAX	DA-DW07-2008LOCMAX
	LOCATION ID				DA-DW01	DA-DW02	DA-DW03	DA-DW04	DA-DW05	DA-DW06	DA-DW07
	TOP DEPTH										
	BOTTOM DEPTH										
	SAMPLE DATE				08/01/08	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	2	2	1 J	2	2	1	1 U
	1,1-DICHLOROETHANE	2.4			3	2	0.8 J	1	1	2	1
	1,1-DICHLOROETHENE	340	7	7	0.7 J	0.6 J	1 U	0.6 J	0.9 J	0.9 J	1 U
	2-BUTANONE	7100			6	6	5 U	5 U	5 U	5 U	5 U
	ACETONE	22000			440	420	5 U	5 U	5 U	5 U	5 U
	BTEX				0.3 J	1.1 U	0.6 J	1.1 U	1.1 U	1.1 U	0.4 J
	CARBON TETRACHLORIDE	0.2	5	5	1 J	1	0.9 J	1	1	1 U	1 U
	CHLOROFORM	0.19	80		0.5 J	0.4 J	1 U	0.4 J	0.5 J	1 U	1 U
	CHLOROMETHANE	1.8			3	4	2 U	2 U	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	370	70	70	21	37	1	4	5	13	2
	N-PROPYLBENZENE				1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	0.11	5	5	0.6 J	1 U	1 U	1 U	0.5 J	0.9 J	1 U
	TOLUENE	2300	1000	1000	0.3 J	1 U	0.6 J	1 U	1 U	1 U	0.4 J
	TOTAL 1,2-DICHLOROETHENE	330			21	37.4 J	1	4	5	13	2
	TOTAL CHLORINATED ETHENES				357.6 J	257.4 J	100	204	305.5 J	173.9 J	15
	TOTAL CHLORINATED VOCS				367.4 J	265.7 J	102.7 J	209 J	310.9 J	177.8 J	16 J
	TRANS-1,2-DICHLOROETHENE	110	100	100	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	1.7	5	5	350	220	99	200	300	160	13
	VINYL CHLORIDE	0.016	2	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-16

SUMMARY OF ANALYTICAL RESULTS: SITE GROUNDWATER (VAPOR DIFFUSION BAGS)
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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FRACTION (UNITS)	SAMPLE ID	ORNL TW	EPA MCL	RIDEM GA GW OBJ	DA-DW08-2008LOCMAX	DA-DW09-2008LOCMAX	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX
	LOCATION ID				DA-DW08	DA-DW09	DA-DW10	DA-DW11	DA-DW12	DA-DW13	DA-DW14
	TOP DEPTH										
	BOTTOM DEPTH										
	SAMPLE DATE				01/31/08	01/31/08	01/31/08	08/01/08	08/01/08	08/01/08	08/01/08
	SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER				TBD	TBD	TBD	TBD	TBD	TBD	TBD
VOLATILES (UG/L)	1,1,1-TRICHLOROETHANE	9100	200	200	1 U	1 U	1 U	0.7 J	0.8 J	0.6 J	1 U
	1,1-DICHLOROETHANE	2.4			0.6 J	1 U	3	1	2	1	0.8 J
	1,1-DICHLOROETHENE	340	7	7	1 U	1 U	1 U	0.5 J	0.5 J	1 U	1 U
	2-BUTANONE	7100			5 U	5 U	5 U	7	7	7	6 J
	ACETONE	22000			5 U	5 U	5 U	500	490	480	475
	BTEX				0.45 J	0.7 J	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CARBON TETRACHLORIDE	0.2	5	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROFORM	0.19	80		1 U	1 U	1 U	0.3 J	1 U	0.3 J	1 U
	CHLOROMETHANE	1.8			2 U	2 U	2 U	0.4 J	2 U	2 U	7 J
	CIS-1,2-DICHLOROETHENE	370	70	70	3.5	0.6 J	2	43	26	27	68 J
	N-PROPYLBENZENE				1 U	1 U	1 U	1 U	1 U	1 U	0.45 J
	TETRACHLOROETHENE	0.11	5	5	1 U	1 U	2	1 U	1 U	1 UJ	1 UJ
	TOLUENE	2300	1000	1000	0.45 J	0.7 J	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	330			3.5	0.6 J	2	43	26	27	68.6 J
	TOTAL CHLORINATED ETHENES				5.5 J	0.6 J	7	183	216	167 J	94.6 J
	TOTAL CHLORINATED VOCS				6.1 J	0.6 J	10 J	185.9 J	219.3 J	168.9 J	102.4 J
	TRANS-1,2-DICHLOROETHENE	110	100	100	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J
	TRICHLOROETHENE	1.7	5	5	1 U	1 U	3	140	190	140	26 J
	VINYL CHLORIDE	0.016	2	2	2 J	2 U	2 U	2 U	2 U	2 U	2 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

NATURAL ATTENUATION PARAMETER RESULTS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

LOCATION ID	DA-MW02B	DA-MW03B	DA-MW04B	DA-MW07A	DA-MW07B	DA-MW09B	DA-MW13A	DA-MW100B	DA-MW101B	DA-MW101B (Duplicate)
SAMPLE DATE	05/27/08	05/22/08	05/23/08	05/28/08	05/29/08	05/28/08	8/4/2008	9/18/2008	05/30/08	05/30/08
VOLATILE GASES (UG/L)										
ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U
ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U
METHANE	**260**	10 U	**8.8 J**	**3.2 J**	**22**	**500**	NA	NA	**770**	**850**
MISCELANEOUS ANALYTICAL PARAMETERS (MG/L)										
AMMONIA-N	**3**	0.1 U	0.1 U	**2.1**	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U
NITRATE-N	0.05 U	**1.1**	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	**0.031 J**	**0.032 J**
NITRITE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U
ORTHOPHOSPHATE-P	**0.055**	**0.07**	**0.016 J**	**0.019 J**	**0.079**	**0.018 J**	NA	NA	**0.11**	**0.049 J**
SULFATE	**6.5**	**25**	**30**	**9.5**	**11**	**2**	NA	NA	**14**	**14**
SULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	**1.6**
TOTAL ORGANIC CARBON (TOC)	**5**	**1.3**	**0.41 J**	**5.8**	**1.3**	**0.92 J**	NA	NA	**0.63 J**	**0.6 J**
FERROUS IRON (field analysis)	**22**	0	0	**6.8**	**1.06**	**1**	NA	NA	**0.07**	**0.07**
FIELD MEASUREMENTS IMMEDIATELY PRIOR TO SAMPLING										
TEMPERATURE	16	11	14.6	16.9	13.1	19.1	19.4	17.4	13.6	13.6
SPECIFIC CONDUCTIVITY (mS/cm)	406	403	527	1620	676	929	223	497	921	921
pH	6.35	6.72	6.85	7.05	7.58	7.41	4.76	7.24	6.76	6.76
OXIDATION REDUCTION POTENTIAL (mV)	-79.9	188.2	427.5	-185.2***	-216	-50.3	598	-133.2	367	367
DISSOLVED OXYGEN (mg/L)	2.15	3.56	0.15	PE	0.11	1.48	0.82	0.3	0.34	0.34

Notes:

Bold value = detected concentration

U = non-detect

J = value approximate

UJ = non-detect, detection limit approximate

NA = not analyzed

PE = probe error

*** = possible erroneous reading since corresponding D.O. measurement was in error.

TABLE 4-17

DRAFT FINAL

NATURAL ATTENUATION PARAMETER RESULTS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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LOCATION ID	DA-MW102B	DA-MW103B	DA-MW103S	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW106S	DA-MW107B	DA-MW108B	DA-MW108B (Duplicate)
SAMPLE DATE	05/27/08	05/23/08	05/26/08	05/20/08	05/20/08	05/21/08	05/22/08	06/04/08	06/03/08	06/03/08
VOLATILE GASES (UG/L)										
ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHANE	**2.8 J**	**49**	**150**	**9.8 J**	**14**	10 U	**1.8 J**	10 U	**1.3 J**	**1.4 J**
MISCELANEOUS ANALYTICAL PARAMETER										
AMMONIA-N	0.1 U	**0.06 J**	**1.8**	0.1 U	0.1 U	0.1 U	**0.042 J**	0.1 U	0.1 U	0.1 U
NITRATE-N	0.05 U	**0.81**	0.05 U	**0.3**	**0.048 J**	0.05 U	**4.9**	0.05 U	0.05 U	0.05 U
NITRITE-N	0.05 U	0.05 U	0.05 U	**0.037 J**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ORTHOPHOSPHATE-P	**0.024 J**	0.05 U	**0.032 J**	**0.061**	**0.023 J**	**0.061**	0.05 U	**0.049 J**	**0.024 J**	0.05 U
SULFATE	**5.1**	**11**	**46**	**19**	**28**	**41**	**34**	**44**	**29**	**29**
SULFIDE	**0.8 J**	1 U	1 U	**1.4**	1 U	**1.3**	1 U	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	**1.3**	**1.7**	**14**	**0.94 J**	**0.96 J**	**0.83 J**	**0.64 J**	**0.36 J**	**1.8**	**1.8**
FERROUS IRON (field analysis)	**3.01**	**2.45**	**2.33**	**1.73**	0	**3.8**	**NA**	**3.78**	**3.22**	**3.22**
FIELD MEASUREMENTS IMMEDIATELY PRIO										
TEMPERATURE	16.2	11.4	14.9	11	10.5	12.7	12	15.5	17.8	17.8
SPECIFIC CONDUCTIVITY (mS/cm)	732	571	1433	519	509	554	378	589	658	658
pH	6.79	6.5	7.01	6.85	6.99	7.11	6.15	7.03	7.21	7.21
OXIDATION REDUCTION POTENTIAL (mV)	-56.8	-60.1	-178.2	-90.1	35.1	336.8	49	-113.6	-242.9***	-242.9***
DISSOLVED OXYGEN (mg/L)	0.67	0.33	0.13	0.3	0.34	0.27	1.96	0.21	PE	PE

Notes:

Bold value = detected concentration

U = non-detect

J = value approximate

UJ = non-detect, detection limit approximate

NA = not analyzed

PE = probe error

*** = possible erroneous reading since correspo

TABLE 4-17

DRAFT FINAL

NATURAL ATTENUATION PARAMETER RESULTS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 3 OF 4

LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW112B (Duplicate)	DA-MW112S	DA-MW113B	DA-MW114B	DA-MW115B	DA-MW116B
SAMPLE DATE	06/02/08	05/19/08	05/16/08	05/16/08	05/16/08	05/19/08	05/16/08	05/16/08	05/15/08	05/15/08
VOLATILE GASES (UG/L)										
ETHANE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHENE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHANE	**13**	**8.7 J**	10 U	**4.6 J**	**4.9 J**	**72**	**2.4 J**	10 U	**1.3 J**	10 U
MISCELANEOUS ANALYTICAL PARAMETER										
AMMONIA-N	**0.04 J**	0.1 U	0.1 U	0.1 U	0.1 U	**0.084 J**	**0.047 J**	0.1 U	0.1 U	0.1 U
NITRATE-N	0.05 U	**0.078**	**1.7**	0.05 U	0.05 U	**2.7**	**0.55**	**0.25**	0.05 U	0.05 U
NITRITE-N	0.05 U	**0.0064 J**	0.05 U	0.05 U	0.05 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
ORTHOPHOSPHATE-P	**0.025 J**	**0.063**	**0.034 J**	**0.026 J**	**0.02 J**	**0.048 J**	**0.02 J**	**0.12**	**0.022 J**	**0.038 J**
SULFATE	**36**	**33**	**27**	**33**	**33**	**27**	**32**	**16**	**25**	**29**
SULFIDE	**1.2**	**2**	1 U	1 U	1 U	**1.4**	1 U	1 U	**3.1**	1 U
TOTAL ORGANIC CARBON (TOC)	**1.1**	**0.59 J**	**1.3**	**0.53 J**	**0.65 J**	**1.1**	**0.67 J**	**1.1**	**0.38 J**	**0.28 J**
FERROUS IRON (field analysis)	**2.37**	**3.04**	**0.75**	**0.01**	**0.01**	**0.06**	**0.6**	**0**	**1.83**	**2.98**
FIELD MEASUREMENTS IMMEDIATELY PRIO										
TEMPERATURE	18.3	12.1	10.5	11.8	11.8	10.1	10.6	10	12.4	11.9
SPECIFIC CONDUCTIVITY (mS/cm)	644	516	312	468	468	351	397	216	418	364
pH	6.81	6.84	5.98	6.92	6.92	6.06	6.44	6.19	6.76	6.43
OXIDATION REDUCTION POTENTIAL (mV)	-141.9	-202	11.3	-20.1	-20.1	129.6	-15.7	114.7	-129.6	-113.3
DISSOLVED OXYGEN (mg/L)	0.32	0.19	1.75	0.54	0.54	0.2	0.35	2.78	0.34	0.29

Notes:

Bold value = detected concentration

U = non-detect

J = value approximate

UJ = non-detect, detection limit approximate

NA = not analyzed

PE = probe error

*** = possible erroneous reading since correspo

TABLE 4-17

DRAFT FINAL

NATURAL ATTENUATION PARAMETER RESULTS
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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LOCATION ID	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-MW122	DA-MW122 (Duplicate)	DA-MW123	DA-MW124B	DA-MW125B	DA-MW126B
SAMPLE DATE	05/15/08	05/15/08	05/14/08	05/14/08	06/03/08	06/03/08	06/04/08	8/4/08	07/31/08	07/30/08
VOLATILE GASES (UG/L)										
ETHANE	10 U	10 U	50 U	10 U	10 U	10 U	10 U	NA	NA	NA
ETHENE	10 U	10 U	50 U	10 U	10 U	10 U	10 U	NA	NA	NA
METHANE	10 U	10 U	**2300**	**2 J**	10 U	10 U	**4.9 J**	NA	NA	NA
MISCELANEOUS ANALYTICAL PARAMETER										
AMMONIA-N	0.1 U	0.1 U	**1.1**	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA
NITRATE-N	0.05 U	0.05 U	0.05 U	0.05 U	**1.7**	**1.7**	**0.34**	NA	NA	NA
NITRITE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.014 J**	NA	NA	NA
ORTHOPHOSPHATE-P	**0.032 J**	**0.063**	**0.12**	**0.046 J**	**0.039 J**	**0.047 J**	**0.049 J**	NA	NA	NA
SULFATE	**23**	**14**	**5**	**65**	**24**	**24**	**26**	NA	NA	NA
SULFIDE	1 U	1 U	**3.1**	1 U	1 U	1 U	**1 J**	NA	NA	NA
TOTAL ORGANIC CARBON (TOC)	**0.41 J**	**0.28 J**	**2.1**	**0.49 J**	**2.2**	**2.2**	**1.9**	NA	NA	NA
FERROUS IRON (field analysis)	**2.41**	0	**3.27**	**3.06**	0	0	0	NA	NA	NA
FIELD MEASUREMENTS IMMEDIATELY PRIO										
TEMPERATURE	12.1	12.3	13.8	13.6	13.2	13.2	20.8	15.87	17.55	19.91
SPECIFIC CONDUCTIVITY (mS/cm)	337	276	734	767	486	486	956	698	463	244
pH	6.58	6.29	6.78	6.08	6.29	6.29	6.47	6.49	7.15	7.44
OXIDATION REDUCTION POTENTIAL (mV)	-58.4	156.8	-172.1	-17.6	156.8	156.8	349.6	-110.8	-170.5	-199.8
DISSOLVED OXYGEN (mg/L)	0.37	0.38	0.42	0.62	0.77	0.77	2.26	0.88	0.32	0.4

Notes:

Bold value = detected concentration

U = non-detect

J = value approximate

UJ = non-detect, detection limit approximate

NA = not analyzed

PE = probe error

*** = possible erroneous reading since correspo

TABLE 4-18

DRAFT FINAL

SUMMARY OF ANALYTICAL RESULTS: SURFACE WATER
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 1 OF 4

FRACTION (UNITS)	SAMPLE ID	ORNLTW	EPAMCL	RIDEMGAGWOBJ	EPAGWVOL	ECOSL	DA-SW-01-LOCDEPTHMAX-2008	DA-SW106-LOCDEPTHMAX	DA-SW107-LOCDEPTHMAX	DA-SW108-LOCDEPTHMAX	DA-SW110-LOCDEPTHMAX	DA-SW111-LOCDEPTHMAX	DA-SW112-LOCDEPTHMAX
	LOCATION ID						DA-SW/SD-01	DA-SW/SD106	DA-SW/SD107	DA-SW/SD108	DA-SW/SD110	DA-SW/SD111	DA-SW/SD112
	TOP DEPTH												
	BOTTOM DEPTH												
	SAMPLE DATE						01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER						<=1 FT OF WATER	<=1 FT OF WATER	<=1 FT OF WATER	<=1 FT OF WATER	<=1 FT OF WATER	<=1 FT OF WATER	<=1 FT OF WATER
VOLATILES (UG/L)	ACETONE	22000				1500	1.5 U	3 J	5 U	5 U	5 U	5 U	5 UJ
	BTEX						0.32 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.4 J
	CIS-1,2-DICHLOROETHENE	370	70	70		590	0.18 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOLUENE	2300	1000	1000		14	0.31 U	1 U	1 U	1 U	1 U	1 U	0.4 J
	TOTAL 1,2-DICHLOROETHENE	330				590	0.26 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL CHLORINATED ETHENES						0.32 U	1.2 U	1.2 U	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ
	TOTAL CHLORINATED VOCS						0.31 U	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ
	TRICHLOROETHENE	1.7	5	5		43	0.34 U	1 U	1 U	1 U	1 U	1 U	1 U
PESTICIDES/PCBS (UG/L)	4,4'-DDT	0.2				0.001	0.0022 U	0.01 UJ	0.01 UJ	0.01 U	0.00485 J	0.01 U	0.01 U
	DIELDRIN	0.0042				0.056	0.013 J	0.009	0.01 U	0.01 U	0.0105 J	0.0094 J	0.011 J
	TOTAL DDD/DDE/DDT					0.001	0.0044 U	0.01 UJ	0.01 UJ	0.01 U	0.00485 J	0.01 U	0.01 U
METALS (UG/L)	ALUMINUM	37000	50			87	36 J	19 U	19 U	19 U	58.9 J	19 U	19 U
	ANTIMONY	15	6	6		10	0.87 U	1.1 J	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
	ARSENIC	0.045	10			150	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
	BARIUM	7300	2000	2000		4	13.8	12.7	6.8	6.7	13	11.9	12
	CALCIUM						32000	33300	21200	20200	33100	32900	32700
	COBALT	11				23	0.26 J	0.54 J	0.26 U	0.35 J	0.71 J	0.59 J	0.43 J
	COPPER	1500	1300			9	1.8 J	2.5 J	0.6 UJ	0.94 UJ	2.65 J	2.4 J	2.1 J
	IRON	26000	300			1000	310	113	155	190	212	70.6 J	80.4 J
	LEAD		15	15		2.5	0.8 U	0.91 U	0.91 U	0.91 U	2.9 J	0.91 U	0.96 J
	MAGNESIUM						9200	8350	7550	7230	8320	8180	8060
	MANGANESE	880	50			120	220	165	74	78.5	162	109	110
	MERCURY	11	2	2		0.77	0.012 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	MOLYBDENUM	180				370	63	1.2 UJ	0.29 UJ	0.20 U	1.1 UJ	1.4 UJ	1.3 UJ
	NICKEL	730		100		52	2.67 J	1.4 J	0.79 J	1.3 J	1.35 J	1.1 J	1.1 J
	POTASSIUM						4220	4120	3020	2890	4150	3970	3940
	SODIUM						56500	57500	14400	13800	56400	57600	57100
	VANADIUM	180				20	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
	ZINC	11000	5000			120	17.6 J	15.1 J	5.4 UJ	6.5 UJ	16.7 J	14.7 J	15 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SURFACE WATER
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	PARAMETER	ORNLTW	EPAMCL	RIDEMGAGWOBJ	EPAGWVOL	ECOSL	DA-SW-01-LOCDEPTHMAX-2008	DA-SW106-LOCDEPTHMAX	DA-SW107-LOCDEPTHMAX	DA-SW108-LOCDEPTHMAX	DA-SW110-LOCDEPTHMAX	DA-SW111-LOCDEPTHMAX	DA-SW112-LOCDEPTHMAX
	SAMPLE ID						DA-SW-01-LOCDEPTHMAX-2008	DA-SW106-LOCDEPTHMAX	DA-SW107-LOCDEPTHMAX	DA-SW108-LOCDEPTHMAX	DA-SW110-LOCDEPTHMAX	DA-SW111-LOCDEPTHMAX	DA-SW112-LOCDEPTHMAX
	LOCATION ID						DA-SW/SD-01	DA-SW/SD106	DA-SW/SD107	DA-SW/SD108	DA-SW/SD110	DA-SW/SD111	DA-SW/SD112
	TOP DEPTH												
	BOTTOM DEPTH												
	SAMPLE DATE						01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
DISSOLVED METALS (UG/L)	ALUMINUM	37000	50			87	54	19 U	19 U	19 U	19 U	19 U	19 U
	ANTIMONY	15	6	6		10	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
	ARSENIC	0.045	10			150	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
	BARIUM	7300	2000	2000		4	14.1	13.1	6.9	6.8	12.8	11.5	12.4
	CALCIUM						32000	33900	20800	20600	33300	32100	33900
	COBALT	11				23	0.26 U	0.59 J	0.26 U	0.26 U	0.465 J	0.53 J	0.57 J
	COPPER	1500	1300			9	4.2 J	2.7 J	0.78 UJ	1 UJ	2.05 J	3.5 J	2.2 J
	IRON	26000	300			1000	350	35 UJ	58.3 J	92.8 J	51.6 J	31.4 UJ	26 UJ
	LEAD		15	15		2.5	1 J	0.91 U	0.91 U	0.91 U	1.27 J	0.91 U	1.1 J
	MAGNESIUM						9300	8490	7380	7350	8380	7910	8380
	MANGANESE	880	50			120	211	161	64.4	71.2	132	106	112
	MOLYBDENUM	180				370	64	1.2 UJ	0.20 U	0.20 U	1.1 UJ	1.3 UJ	1.2 UJ
	NICKEL	730		100		52	2.55 J	1.2 J	1.3 J	1.4 J	1.25 J	1.3 J	1 J
	POTASSIUM						4200	4190	2970	2920	4180	3880	4080
	SODIUM						55300	58000	14000	14100	56600	55800	59000
	VANADIUM	180				20	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
	ZINC	11000	5000			120	16.5 J	15.8 J	6.5 UJ	6.5 UJ	16.4 J	17.3 J	15.1 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
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TABLE 4-18

DRAFT FINAL

SUMMARY OF ANALYTICAL RESULTS: SURFACE WATER
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLTW	EPAMCL	RIDEMGAGWOBJ	EPAGWVOL	ECOSL	DA-SW114-0508 DA-SW/SD114 05/20/08 NORMAL <=1 FT OF WATER	DA-SW116-0508-AVG DA-SW/SD116 05/20/08 AVG <=1 FT OF WATER	DA-SW-117-082108 DA-SW/SD117 08/21/08 NORMAL <=1 FT OF WATER	DA-SW119-0508 DA-SW/SD119 05/21/08 NORMAL >1 FT OF WATER	DA-SW121-0508 DA-SW/SD121 05/21/08 NORMAL >1 FT OF WATER	DA-SW125-0508 DA-SW/SD125 05/21/08 NORMAL >1 FT OF WATER	DA-SW133-LOCDEPTHMAX DA-SW/SD133 01/31/08 NORMAL <=1 FT OF WATER
VOLATILES (UG/L)	ACETONE	22000				1500	7	3.25 J	7	5 U	5 U	5 U	5 U
	BTEX						1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CIS-1,2-DICHLOROETHENE	370	70	70		590	1 U	1 U	0.6 J	0.4 J	0.5 J	1 U	1 U
	TOLUENE	2300	1000	1000		14	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	330				590	1 U	1 U	0.6 J	0.4 J	0.5 J	1 U	1 U
	TOTAL CHLORINATED ETHENES						1.2 UJ	1.2 U	1 J	1.2 J	1.5 J	0.6 J	1.2 U
	TOTAL CHLORINATED VOCS						1.3 UJ	1.3 UJ	1 J	1.2 J	1.5 J	0.6 J	1.3 UJ
	TRICHLOROETHENE	1.7	5	5		43	1 U	1 U	0.4 J	0.8 J	1	0.6 J	1 U
PESTICIDES/PCBS (UG/L)	4,4'-DDT	0.2				0.001	0.01 U	0.00505 J	0.0094 UJ	0.01 UJ	0.0043 J	0.0059 J	0.0045
	DIELDRIN	0.0042				0.056	0.01 U	0.0105 J	0.0033 J	0.0064 J	0.0082 J	0.0087 J	0.01
	TOTAL DDD/DDE/DDT					0.001	0.01 U	0.00505 J	0.0094 UJ	0.01 UJ	0.0043 J	0.0059 J	0.0045
METALS (UG/L)	ALUMINUM	37000	50			87	261 UJ	80.4 UJ	103 UJ	310 U	386 U	3160	19 U
	ANTIMONY	15	6	6		10	1.5 U	1.5 U	1.92 U	1.5 U	1.5 U	1.5 U	0.87 U
	ARSENIC	0.045	10			150	5.2 U	3.3 UJ	4.9 J	5.4 U	3.4 UJ	5.9 U	1.3 U
	BARIUM	7300	2000	2000		4	8	10.3	10.9	11.1	11	21.4	13.2
	CALCIUM						22500	36200	21100	20100	19700	18200	31500
	COBALT	11				23	1.1 J	0.42 J	1 UJ	1 J	1.3 J	4.4 J	0.4 J
	COPPER	1500	1300			9	1.9 J	2.55 J	1.04 U	2.9 J	4 J	14.2 J	2.4 J
	IRON	26000	300			1000	652	138 U	1180	977	1120	5590	134
	LEAD		15	15		2.5	4.3 J	2.3 J	5.5 UJ	4.2 J	4.6 J	21.5	0.91 U
	MAGNESIUM						7380	8760	4850 J	5560	5430	5300	8370
	MANGANESE	880	50			120	86.8 J	30.8 J	352	193 J	187 J	253 J	193
	MERCURY	11	2	2		0.77	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.59	0.17 J	0.02 U
	MOLYBDENUM	180				370	2 U	3.35 J	3.7 UJ	2 U	2.4 J	2 U	1.1 UJ
	NICKEL	730		100		52	1.7 UJ	1.1 UJ	1.2 J	1.6 UJ	3.7 J	6.1 J	1.2 J
	POTASSIUM						3240	4040	3390	2920	3120	2970	4070
	SODIUM						15500	48800	26100	24100	23500	20600	57500
	VANADIUM	180				20	0.57 J	0.49 J	1.4 UJ	0.92 J	1.1 J	5.3 J	0.29 U
	ZINC	11000	5000			120	7.8 UJ	7.25 UJ	7.5 J	10.5 UJ	14.9 J	35.5	15.6 J

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SUMMARY OF ANALYTICAL RESULTS: SURFACE WATER
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	SAMPLE ID	ORNLTW	EPAMCL	RIDEMGAGWOBJ	EPAGWVOL	ECOSL	DA-SW114-0508	DA-SW116-0508-AVG	DA-SW-117-082108	DA-SW119-0508	DA-SW121-0508	DA-SW125-0508	DA-SW133-LOCDEPTHMAX
	LOCATION ID						DA-SW/SD114	DA-SW/SD116	DA-SW/SD117	DA-SW/SD119	DA-SW/SD121	DA-SW/SD125	DA-SW/SD133
	TOP DEPTH												
	BOTTOM DEPTH												
	SAMPLE DATE						05/20/08	05/20/08	08/21/08	05/21/08	05/21/08	05/21/08	01/31/08
	SAMPLE CODE						NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER	<=1 FT OF WATER	<=1 FT OF WATER	<=1 FT OF WATER	>1 FT OF WATER	>1 FT OF WATER	>1 FT OF WATER	<=1 FT OF WATER					
DISSOLVED METALS (UG/L)	ALUMINUM	37000	50			87	17.8 UJ	29 UJ	35.5 UJ	24.2 UJ	51.2 UJ	86.5 UJ	19 U
	ANTIMONY	15	6	6		10	1.5 U	1.5 U	1.6 U	1.5 U	1.5 U	1.6 J	0.87 U
	ARSENIC	0.045	10			150	5.2 U	4.2 UJ	3 J	4.8 UJ	3.5 UJ	3.6 UJ	1.3 U
	BARIUM	7300	2000	2000		4	6.9	10	7.4	9.3	9	9	13.9
	CALCIUM						22700	35400	20900	19700	19600	18300	32000
	COBALT	11				23	0.28 U	0.29 J	0.25 U	0.6 J	0.74 J	0.94 J	0.4 J
	COPPER	1500	1300			9	0.8 U	2.5 J	1.1 J	2.4 J	2.9 J	2.4 J	2.2 J
	IRON	26000	300			1000	45.4 UJ	15.3 UJ	251	153 U	230	358	59 J
	LEAD		15	15		2.5	1.4 U	1.4 U	1.8 UJ	1.6 J	1.4 U	1.4 U	0.91 U
	MAGNESIUM						7350	8530	4760 J	5370	5320	4890	8400
	MANGANESE	880	50			120	50.8 J	26.8 J	85.4	127 J	134 J	163 J	194
	MOLYBDENUM	180				370	2 U	3.15 J	3.6 UJ	2 U	2 U	2 U	1.0 UJ
	NICKEL	730		100		52	1.4 UJ	1.1 UJ	0.53 J	1.3 UJ	1.5 UJ	1.3 UJ	1.5 J
	POTASSIUM						3270	3980	3130	2760	2910	2820	4140
	SODIUM						15100	47800	24700	23300	23200	21000	57600
	VANADIUM	180				20	0.52 U	0.52 U	0.93 UJ	0.52 U	0.75 J	0.52 J	0.29 U
	ZINC	11000	5000			120	5.1 UJ	7.45 UJ	6.2 UJ	5.2 UJ	7.5 UJ	6.8 UJ	14.9 J

SUMMARY OF ANALYTICAL RESULTS: SURFACE WATER REFERENCE SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLTW	EPAMCL	RIDEMGAGWOBJ	EPAGWVOL	ECOSL	DA-SW-RP01-0508 / DA-SW/SD-RP01 / 05/22/08 / NORMAL / >1 FT OF WATER	DA-SW-RP02-0508 / DA-SW/SD-RP02 / 05/22/08 / NORMAL / >1 FT OF WATER	DA-SW-RP04-0508 / DA-SW/SD-RP04 / 05/22/08 / NORMAL / <=1 FT OF WATER
VOLATILES (UG/L)	ACETONE	22000				1500	5 UJ	13	5 U
METALS (UG/L)	ALUMINUM	37000	50			87	71.5 UJ	714	80.2 UJ
	BARIUM	7300	2000	2000		4	3.5 UJ	17	8.2
	CALCIUM						14600	14300	15300
	COBALT	11				23	0.39 J	0.99 J	0.31 J
	COPPER	1500	1300			9	3.3 J	21.9 J	2.5 J
	IRON	26000	300			1000	850	2660	638
	LEAD		15	15		2.5	1.5 J	5.7	1.7 J
	MAGNESIUM						2350	2460	2500
	MANGANESE	880	50			120	98.1 J	144 J	72.2 J
	MERCURY	11	2	2		0.77	0.16 J	0.24 J	0.02 UJ
	NICKEL	730		100		52	2.1 UJ	3.9 J	1.2 UJ
	POTASSIUM						3100	3140	3560
	SODIUM						37400	36800	37000
	VANADIUM	180				20	0.73 J	2.4 J	0.52 U
	ZINC	11000	5000			120	15.2 J	41.3	13.9 J
DISSOLVED METALS (UG/L)	BARIUM	7300	2000	2000		4	5.1	4.5 J	8.4
	CALCIUM						13900	14400	15500
	COPPER	1500	1300			9	2.4 J	2.8 J	1.7 J
	IRON	26000	300			1000	788	470	264
	MAGNESIUM						2260	2330	2540
	MANGANESE	880	50			120	103 J	60.4 J	34.9 J
	POTASSIUM						3000	3040	3340
	SODIUM						36200	36500	37000
	VANADIUM	180				20	0.61 J	0.52 U	0.52 U
	ZINC	11000	5000			120	10.7 J	10 UJ	13 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
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SUMMARY OF ANALYTICAL RESULTS: SHALLOW WATER SEDIMENT SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
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	SAMPLE ID						DA-SD-01-LOCDEPTHMAX	DA-S-SD02-01-AVG	DA-S-SD03-01	DA-S-SD04-01	DA-S-SD05-01	DA-S-SD06-01	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-LOCDEPTHMAX	DA-SD107-LOCDEPTHMAX
	LOCATION ID						DA-SW/SD-01	DA-SW/SD-02	DA-SW/SD-03	DA-SW/SD-04	DA-SW/SD-05	DA-SW/SD-06	DA-SD100	DA-SD101	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD107
	TOP DEPTH						0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						05/20/08	07/30/03	07/30/03	07/31/03	07/30/03	07/29/03	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	05/20/08	05/19/08
	SAMPLE CODE						NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL														
VOLATILES (UG/KG)	1,1,1-TRICHLOROETHANE					170	0.64 U	1.625	0.37 U	0.36 U	1.2	1.3	NA	NA	NA	NA	NA	NA	6.5 U	6 U
	1,1-DICHLOROETHANE					27	0.67 U	0.435 J	0.39 U	0.38 U	0.46 U	0.55 U	NA	NA	NA	NA	NA	NA	6.5 U	6 U
	1,2,4-TRICHLOROBENZENE					9200	4.6 U	0.285 U	0.3 UJ	2.3 U	0.35 U	0.43 U	NA	NA	NA	NA	NA	NA	6.5 UJ	6 U
	2-BUTANONE	28000000	1500	10000000		270	27 J	0.355 U	0.38 U	0.36 U	0.44 U	0.53 U	NA	NA	NA	NA	NA	NA	33 U	7 J
	4-ISOPROPYLTOLUENE						0.53 U	0.295 U	0.31 U	0.79 J	0.36 U	0.44 U	NA	NA	NA	NA	NA	NA	6.5 UJ	6 U
	ACETONE	61000000	4400	7800000		9	70 J	5.9 U	6.2 U	6 U	7.3 U	8.8 U	NA	NA	NA	NA	NA	NA	33 U	46 J
	BTEX						2.2	0.37 U	0.4 U	0.38 U	0.46 U	0.56 U	NA	NA	NA	NA	NA	NA	7.3 U	6.8 U
	CHLOROETHANE						1.6 J	0.26 U	0.28 U	0.27 U	0.32 U	0.39 U	NA	NA	NA	NA	NA	NA	13 U	12 U
	CIS-1,2-DICHLOROETHENE	780000	110	630000	1700	400	0.62 U	0.34 U	0.36 U	0.35 U	0.42 U	0.51 U	NA	NA	NA	NA	NA	NA	6.5 U	6 U
	DICHLORODIFLUOROMETHANE						66 J	13.7 J	7.7 J	0.42 U	5.4 J	0.61 U	NA	NA	NA	NA	NA	NA	13 U	12 U
	M+P-XYLENES	4500000	1600			4	2.2 J	0.66 U	0.7 U	0.68 U	0.82 U	0.99 U	NA	NA	NA	NA	NA	NA	13 U	12 U
	TETRACHLOROETHENE	570	0.052	12000	100	530	0.54 U	0.295 U	0.32 U	0.3 U	0.37 U	15	NA	NA	NA	NA	NA	NA	6.5 U	6 U
	TOTAL 1,2-DICHLOROETHENE	700000	99			400	0.56 U	0.31 U	0.33 U	0.32 U	0.38 U	0.46 U	NA	NA	NA	NA	NA	NA	6.5 U	6 U
	TOTAL CHLORINATED ETHENES						0.65 U	0.36 U	0.38 U	0.37 U	0.44 U	29	NA	NA	NA	NA	NA	NA	8.1 U	7.5 U
	TOTAL CHLORINATED VOCS						67.6 J	15.76 J	7.7 J	0.59 U	6.6 J	30.3	NA	NA	NA	NA	NA	NA	8.5 UJ	7.8 U
	TOTAL XYLENES	600000	230	110000	540000	4	2.2	0.66 U	0.7 U	0.68 U	0.82 U	0.99 U	NA	NA	NA	NA	NA	NA	9.8 U	9 U
	TRICHLOROETHENE	2800	0.61	13000	200	1600	0.59 U	0.33 U	0.35 U	0.34 U	0.4 U	14	NA	NA	NA	NA	NA	NA	6.5 U	6 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	900	123000		20.2	31 U	280 U	280 U	260 U	280 U	310 UJ	NA	NA	NA	NA	NA	NA	5.1 J	9.2 J
	ACENAPHTHENE	3400000	27000	43000		290	3.9 J	85 U	780	80 U	85 U	52 UJ	NA	NA	NA	NA	NA	NA	6.9 J	16 J
	ACENAPHTHYLENE	3400000	27000	23000		160	2.8 J	110 U	110 U	100 U	110 U	130 UJ	NA	NA	NA	NA	NA	NA	7.3 J	6.8 J
	ANTHRACENE	17000000	450000	35000		57.2	87 J	56 U	2000	53 U	56 U	140 UJ	NA	NA	NA	NA	NA	NA	20.5 J	33
	BENZO(A)ANTHRACENE	150	14	900		108	320 J	95 J	3400	96 U	100 U	430 UJ	NA	NA	NA	NA	NA	NA	230 J	170 J
	BENZO(A)PYRENE	15	4.6	400	240000	150	310 J	100 U	2600	99 U	100 U	360 UJ	NA	NA	NA	NA	NA	NA	205 J	100 J
	BENZO(B)FLUORANTHENE	150	47	900		1800	490 J	130 U	2300	120 U	130 U	320 UJ	NA	NA	NA	NA	NA	NA	350 J	180 J
	BENZO(G,H,I)PERYLENE	1700000	150000	800		170	420 J	150 U	1900	140 U	150 U	270 UJ	NA	NA	NA	NA	NA	NA	140 J	54
	BENZO(K)FLUORANTHENE	1500	460	900		240	300 J	74.5 J	2300	93 U	100 J	310 UJ	NA	NA	NA	NA	NA	NA	130 J	56
	BENZOIC ACID	240000000	33000			65	1500 J	625 J	1100 J	980 J	1200 J	1200 UJ	NA	NA	NA	NA	NA	NA	1250 UR	1200 UR
	BENZYL ALCOHOL					52	400 J	240 U	240 U	230 U	240 U	280 UJ	NA	NA	NA	NA	NA	NA	1040 U	990 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	1600	46000		750	500 U	570 J	680 J	560 U	570 J	700 UJ	NA	NA	NA	NA	NA	NA	510 U	490 U
	CARBAZOLE						130 U	98 U	1300	92 U	98 U	110 UJ	NA	NA	NA	NA	NA	NA	510 U	490 U
	CHRYSENE	15000	1400	400		166	380 J	95 J	3300	98 U	140 J	420 UJ	NA	NA	NA	NA	NA	NA	275 J	120 J
	DIBENZO(A,H)ANTHRACENE	15	15	400		33	37 J	180 U	640 J	170 U	180 U	210 UJ	NA	NA	NA	NA	NA	NA	39.5 J	18 J
	DIBENZOFURAN					2000	200 U	150 U	550 J	140 U	150 U	23 UJ	NA	NA	NA	NA	NA	NA	510 U	490 U
	DIETHYL PHTHALATE					630	120 U	88 U	420 J	83 U	88 U	530 UJ	NA	NA	NA	NA	NA	NA	510 U	490 U
	DI-N-BUTYL PHTHALATE					11000	130 U	98 U	100 J	93 U	98 U	110 UJ	NA	NA	NA	NA	NA	NA	510 U	490 U
	FLUORANTHENE	2300000	210000	20000		423	710 J	210 J	8500	80 U	200 J	920 J	NA	NA	NA	NA	NA	NA	420 J	220
	FLUORENE	2300000	33000	28000		77.4	4.2 J	84 U	1000	80 U	84 U	60 UJ	NA	NA	NA	NA	NA	NA	7.6 J	19 J
	HIGH MOLECULAR WEIGHT PAHS					193	3410 J	659.5 J	33640 J	120 U	610 J	920 J	NA	NA	NA	NA	NA	NA	2364.5 J	1240 J
	INDENO(1,2,3-CD)PYRENE	150	160	900		200	140 J	200 U	1700	190 U	200 U	220 UJ	NA	NA	NA	NA	NA	NA	140 J	52
	LOW MOLECULAR WEIGHT PAHS					76.4	477 J	102 J	11920 J	94 U	100 U	180 UJ	NA	NA	NA	NA	NA	NA	222.4 J	277 J
	NAPHTHALENE	3900	0.55	54000	800	176	8.1 U	4.45 U	140 J	4.6 U	5.5 U	6.7 U	NA	NA	NA	NA	NA	NA	31 U	13 J
	PHENANTHRENE	1700000	150000	40000		204	390 J	102 J	8000	80 U	84 U	550 UJ	NA	NA	NA	NA	NA	NA	175 J	180
	PYRENE	1700000	150000	13000		195	660 J	185 J	7000	87 U	170 J	820 UJ	NA	NA	NA	NA	NA	NA	435	270 J
	TOTAL PAHS					1610	3887 J	761.5 J	45560 J	110 U	610 J	920 J	NA	NA	NA	NA	NA	NA	2586.9 J	1517 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-20

SUMMARY OF ANALYTICAL RESULTS: SHALLOW WATER SEDIMENT SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 2 OF 6

FRACTION (UNITS)	PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD-01-LOCDEPTHMAX	DA-S-SD02-01-AVG	DA-S-SD03-01	DA-S-SD04-01	DA-S-SD05-01	DA-S-SD06-01	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-LOCDEPTHMAX	DA-SD107-LOCDEPTHMAX
	SAMPLE ID						DA-SD-01-LOCDEPTHMAX	DA-S-SD02-01-AVG	DA-S-SD03-01	DA-S-SD04-01	DA-S-SD05-01	DA-S-SD06-01	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-LOCDEPTHMAX	DA-SD107-LOCDEPTHMAX
	LOCATION ID						DA-SW/SD-01	DA-SW/SD-02	DA-SW/SD-03	DA-SW/SD-04	DA-SW/SD-05	DA-SW/SD-06	DA-SD100	DA-SD101	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD107
	TOP DEPTH						0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						05/20/08	07/30/03	07/30/03	07/31/03	07/30/03	07/29/03	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	05/20/08	05/19/08
	SAMPLE CODE						NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000	86			4.88	18 J	16.7 U	41.7 U	15.7 U	16.7 U	47.2 U	NA	NA	NA	NA	NA	NA	22 J	4.9 UJ
	4,4'-DDE	1400	60			3.16	31	8.66 J	19.6 U	7.41 U	18.6 U	22.2 U	NA	NA	NA	NA	NA	NA	45.5	2.2 J
	4,4'-DDT	1700	87			4.16	17 J	15.7 U	39.2 U	14.8 U	15.7 U	44.4 U	NA	NA	NA	NA	NA	NA	12.2 J	4.9 UJ
	ALPHA-CHLORDANE	1600	33	500	1400	3.24	19 J	5.88 U	14.7 U	19.1 J	5.88 U	16.7 U	NA	NA	NA	NA	NA	NA	20.5 J	2.5 U
	AROCLOR-1260	220	14	10000	10000	59.8	67	27 U	100 J	25.5 U	27 U	197	NA	NA	NA	NA	NA	NA	50.5	55
	AROCLOR-1268	220	14	10000	10000	59.8	26 U	47.8 U	64.4 J	45.1 U	47.8 U	54.2 U	NA	NA	NA	NA	NA	NA	26 U	25 U
	DIELDRIN	30	0.09	40		120	22	9.015 J	17.2 U	6.48 U	14.4 J	19.4 U	NA	NA	NA	NA	NA	NA	39	2.2 J
	GAMMA-CHLORDANE	1600	33	500		3.24	14	4.9 U	12.2 U	4.63 U	4.9 U	13.9 U	NA	NA	NA	NA	NA	NA	14.5	2.5 U
	TOTAL AROCLOR	220		10000	10000	59.8	67	45 U	164.4 J	43 U	45 U	197	NA	NA	NA	NA	NA	NA	50.5	55
	TOTAL DDD/DDE/DDT					5.28	66 J	8.66 J	34 U	13 U	17 U	38 U	NA	NA	NA	NA	NA	NA	79.7 J	2.2 J
METALS (MG/KG)	ALUMINUM	77000	55000			25500	10300	6000	7300	5000	7000	7700	NA	NA	NA	NA	NA	NA	13000	9170
	ARSENIC	0.39	0.0013	7		9.79	18	11	16	12	16	17	NA	NA	NA	NA	NA	NA	14.2	15.7
	BARIUM	15000	300	5500	9999999	48	41	17.5	39	17	22	47	NA	NA	NA	NA	NA	NA	43.3	22.3
	BERYLLIUM	160	58	0.4	9999999		0.71	0.305	0.34	0.35	0.35	0.39	NA	NA	NA	NA	NA	NA	0.45	0.35 J
	CADMIUM	70	1.4	39	9999999	0.99	0.98 J	0.445 J	1.2 J	0.17 J	0.48 J	2.4 J	NA	NA	NA	NA	NA	NA	0.435 J	0.02 UJ
	CALCIUM						1600	1100	1800	710	1500	2000	NA	NA	NA	NA	NA	NA	2340	1330
	CHROMIUM	230	2.1	390	9999999	43.4	14.9	7.4	12	6.5	9.1	13	NA	NA	NA	NA	NA	NA	18.5	13.8
	COBALT	23	0.49			50	12	175	160	8.1	38	140	NA	NA	NA	NA	NA	NA	70.3	12.1
	COPPER	3100	51	3100		31.6	33	27.5	40	9.1	21	52	NA	NA	NA	NA	NA	NA	25.9 J	20.3 J
	IRON	55000	640			20000	30500	14000	21000	14000	17000	19000	NA	NA	NA	NA	NA	NA	30000	28800
	LEAD	400		150	9999999	35.8	76	610	700	14	130	770	27200	458	624	530	255	314	824	14.3 J
	MAGNESIUM						2640	1200	1700	1000	1600	1400	NA	NA	NA	NA	NA	NA	3060	3150
	MANGANESE	1800	57	390		460	500	595	1700	200	730	1000	NA	NA	NA	NA	NA	NA	2040	722
	MERCURY	23	0.57	23	9999999	0.18	0.143 J	0.1015	0.088	0.0639 J	0.097	0.18	NA	NA	NA	NA	NA	NA	0.09	0.02 J
	MOLYBDENUM	390	3.7				5.9	3.2	6.4	0.21 U	3.1	3.4	NA	NA	NA	NA	NA	NA	4.35	0.44 J
	NICKEL	1600	48	1000	9999999	22.7	19.5	16	25	11	14	18	NA	NA	NA	NA	NA	NA	23.2	21.4
	POTASSIUM						303 J	150	250	83 U	150	210	NA	NA	NA	NA	NA	NA	489 J	512 J
	SELENIUM	390	0.95	390	9999999	1	0.097 U	0.073 U	0.14 U	0.069 U	0.073 U	0.17 U	NA	NA	NA	NA	NA	NA	0.325 UJ	0.33 UJ
	SILVER	390	1.6	200		0.5	0.24 J	2 J	4.8 J	0.16 J	0.78 J	2.8 J	NA	NA	NA	NA	NA	NA	0.828 J	0.08 UJ
	SODIUM						64.3 J	70.5 U	53 U	26 U	68 U	90 U	NA	NA	NA	NA	NA	NA	102 J	42.9 UJ
	VANADIUM	390	180	550		57	25	12	18	13	15	23	NA	NA	NA	NA	NA	NA	22.2	17.7
	ZINC	23000	680	6000		121	157	64	130	36	77	140	NA	NA	NA	NA	NA	NA	147	73.4
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS						51	68	68	72	68	60	80	78	61	69	71	68	52	71
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON						24000	11200	18200	13400	18600	25200	NA	NA	NA	NA	NA	NA	29000	14000
MISCELLANEOUS PARAMETERS (S.U.)	PH						7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.2	6.9
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE						2.12	0.073 UR	0.073 UR	0.069 U	0.073 UR	0.083 UR	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM						0.005 U	0.005 U	0.005 U	0.0001 U	0.005 U	0.012	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM						0.069	0.0445	0.091	0.03	0.058	0.104	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER						0.294	0.2905	0.337	0.075	0.188	0.464	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD						0.329	3.03	2.65	0.065	0.726	3.48	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY						0.0082	0.0061 U	0.0061 U	0.0058	0.0061 U	0.007 U	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL						0.114	0.1115	0.138	0.054	0.087	0.139	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS						0.2842	4.033	4.556	0.4758	1.934	5.539	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC						1.59	0.5565	1.34	0.246	0.875	1.34	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)			500			380	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	145	180
	GASOLINE RANGE ORGANICS						4.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5 UJ	4.5 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SHALLOW WATER SEDIMENT SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD108-LOCDEPTHMAX / DA-SW/SD108 / 0 / 0.5 / 05/19/08 / NORMAL	DA-SD109-071107 / DA-SD109 / 0 / 0.5 / 07/11/07 / NORMAL	DA-SD110-LOCDEPTHMAX / DA-SW/SD110 / 0 / 0.5 / 05/20/08 / NORMAL	DA-SD111-LOCDEPTHMAX / DA-SW/SD111 / 0 / 0.5 / 05/19/08 / NORMAL	DA-SD112-LOCDEPTHMAX / DA-SW/SD112 / 0 / 0.5 / 05/19/08 / NORMAL	DA-SD113-071107 / DA-SD113 / 0 / 0.5 / 07/11/07 / NORMAL	DA-SD114-LOCDEPTHMAX / DA-SW/SD114 / 0 / 0.5 / 05/20/08 / NORMAL	DA-SD115-071107 / DA-SD115 / 0 / 0.5 / 07/11/07 / NORMAL	DA-SD116-LOCDEPTHMAX / DA-SW/SD116 / 0 / 0.5 / 05/20/08 / NORMAL	DA-SD-117-082108 / DA-SW/SD117 / 0 / 0.5 / 08/21/08 / NORMAL	DA-SD118-071107 / DA-SD118 / 0 / 0.5 / 07/11/07 / NORMAL	DA-SD-128-082108 / DA-SD128 / 0 / 0.5 / 08/21/08 / NORMAL	DA-SD-129-082108 / DA-SD129 / 0 / 0.5 / 08/21/08 / NORMAL	DA-SD-130-082108 / DA-SD130 / 0 / 0.5 / 08/21/08 / NORMAL
VOLATILES (UG/KG)	1,1,1-TRICHLOROETHANE					170	5 U	NA	5 U	1 J	9 U	NA	2 J	NA	2 J	6 U	NA	5 U	7 U	12 UJ
	1,1-DICHLOROETHANE					27	5 U	NA	5 U	5 U	9 U	NA	8 UJ	NA	9 U	6 U	NA	5 U	7 U	12 UJ
	1,2,4-TRICHLOROBENZENE					9200	5 U	NA	5 UJ	5 U	9 UJ	NA	4 J	NA	9 UJ	6 UJ	NA	5 UJ	7 UJ	12 UJ
	2-BUTANONE	28000000	1500	10000000		270	25 U	NA	26 U	25 U	44 U	NA	39 UJ	NA	45 U	33	NA	26 U	37 U	59 UJ
	4-ISOPROPYLTOLUENE						5 U	NA	5 UJ	18	9 UJ	NA	8 UJ	NA	9 UJ	6 U	NA	5 U	7 UJ	12 UJ
	ACETONE	61000000	4400	7800000		9	13 J	NA	26 U	25 U	33 J	NA	19 J	NA	29 J	95	NA	13 J	37 UJ	100 J
	BTEX						5.6 U	NA	5.6 U	5.6 U	10 U	NA	9 UJ	NA	10 U	6.8 U	NA	5.6 U	8 U	14 UJ
	CHLOROETHANE						10 U	NA	10 U	10 U	17 U	NA	15 UJ	NA	18 U	12 U	NA	10 U	15 U	23 UJ
	CIS-1,2-DICHLOROETHENE	780000	110	630000	1700	400	5 U	NA	5 U	5 U	9 U	NA	4 J	NA	9 U	6 U	NA	5 U	7 U	12 UJ
	DICHLORODIFLUOROMETHANE						10 U	NA	10 U	10 U	17 U	NA	15 UJ	NA	18 U	12 UJ	NA	10 UJ	15 U	23 UJ
	M+P-XYLENES	4500000	1600			4	10 U	NA	10 U	10 U	17 U	NA	15 UJ	NA	18 U	12 U	NA	10 U	15 U	23 UJ
	TETRACHLOROETHENE	570	0.052	12000	100	530	5 U	NA	5 U	5 U	9 U	NA	33 J	NA	3 J	6 U	NA	5 U	7 U	12 UJ
	TOTAL 1,2-DICHLOROETHENE	700000	99			400	5 U	NA	5 U	5 U	9 U	NA	4 J	NA	9 U	6 U	NA	5 U	7 U	12 UJ
	TOTAL CHLORINATED ETHENES						6.2 U	NA	6.2 U	2 J	11 U	NA	76 J	NA	15 J	7.5 U	NA	6.2 U	9 U	15 UJ
	TOTAL CHLORINATED VOCS						6.6 U	NA	6.6 UJ	3 J	12 UJ	NA	82 J	NA	17 J	7.9 UJ	NA	6.6 UJ	9.4 UJ	16 UJ
	TOTAL XYLENES	600000	230	110000	540000	4	7.5 U	NA	7.5 U	7.5 U	13 U	NA	12 UJ	NA	14 U	9 U	NA	7.5 U	11 U	18 UJ
	TRICHLOROETHENE	2800	0.61	13000	200	1600	5 U	NA	5 U	2 J	9 U	NA	39 J	NA	12	6 U	NA	5 U	7 U	12 UJ
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	900	123000		20.2	23 U	NA	6.1 J	200	19 J	NA	9.4 J	NA	12 J	61 U	NA	26 U	3.1 J	3.8 J
	ACENAPHTHENE	3400000	27000	43000		290	23 U	NA	28	1000	34 J	NA	29 J	NA	30 J	24 J	NA	12 J	18 J	26 J
	ACENAPHTHYLENE	3400000	27000	23000		160	1.8 J	NA	25 U	28 U	17 J	NA	8.2 J	NA	16 J	12 J	NA	6.4 J	26 U	9 J
	ANTHRACENE	17000000	450000	35000		57.2	23 U	NA	62	2000	81 J	NA	70	NA	95	62	NA	24 J	41	51
	BENZO(A)ANTHRACENE	150	14	900		108	16 J	NA	200 J	3000	730 J	NA	500 J	NA	440 J	520	NA	160	320	300
	BENZO(A)PYRENE	15	4.6	400	240000	150	15 J	NA	120	2500	670 J	NA	320 J	NA	460 J	650	NA	160	420	280
	BENZO(B)FLUORANTHENE	150	47	900		1800	27	NA	240	2000	920	NA	630 U	NA	700 U	760	NA	170	530	310
	BENZO(G,H,I)PERYLENE	1700000	150000	800		170	10 J	NA	63	1300	450 J	NA	230 J	NA	560 J	310	NA	72	200	110
	BENZO(K)FLUORANTHENE	1500	460	900		240	2.8 J	NA	52	2300	450 J	NA	170 J	NA	220 J	710	NA	160	410	270
	BENZOIC ACID	240000000	33000			65	960 UR	NA	1000 UR	1200 UR	1800 UR	NA	1600 UR	NA	1700 UR	2500 UJ	NA	1100 UJ	1900 J	760 J
	BENZYL ALCOHOL					52	770 U	NA	840 U	940 U	1500 U	NA	1300 U	NA	1400 U	2000 U	NA	850 U	860 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	1600	46000		750	390 U	NA	420 U	470 U	540 J	NA	630 U	NA	550 J	470 J	NA	430 U	430 U	500 U
	CARBAZOLE						390 U	NA	420 U	1300	740 U	NA	630 U	NA	700 U	1000 U	NA	430 U	430 U	500 U
	CHRYSENE	15000	1400	400		166	8.7 J	NA	150 J	2800	830 J	NA	430 J	NA	550 J	870	NA	190	510	330
	DIBENZO(A,H)ANTHRACENE	15	15	400		33	23 U	NA	20 J	260	120 J	NA	56 J	NA	86 J	130	NA	31	97	52
	DIBENZOFURAN					2000	390 U	NA	420 U	580	740 U	NA	630 U	NA	700 U	1000 U	NA	430 U	430 U	500 U
	DIETHYL PHTHALATE					630	390 U	NA	420 U	470 U	740 U	NA	630 U	NA	700 U	1000 U	NA	430 U	430 U	500 U
	DI-N-BUTYL PHTHALATE					11000	390 U	NA	420 U	470 U	740 U	NA	630 U	NA	700 U	1000 U	NA	430 U	430 U	500 U
	FLUORANTHENE	2300000	210000	20000		423	24	NA	340	5400	1300	NA	770	NA	970	1600	NA	340	890	740
	FLUORENE	2300000	33000	28000		77.4	23 U	NA	37	1300	29 J	NA	31 J	NA	36 J	35 J	NA	12 J	18 J	26 J
	HIGH MOLECULAR WEIGHT PAHS					193	134 J	NA	1535 J	27060	7290 J	NA	3426 J	NA	4686 J	7130	NA	1665	4297	3142
	INDENO(1,2,3-CD)PYRENE	150	160	900		200	9.5 J	NA	60	1200	420 J	NA	180 J	NA	300 J	380	NA	92	250	150
	LOW MOLECULAR WEIGHT PAHS					76.4	12.8 J	NA	433.1 J	11600	819.9 J	NA	573 J	NA	716.2 J	653 J	NA	224.4 J	384.7 J	481.9 J
	NAPHTHALENE	3900	0.55	54000	800	176	23 U	NA	25 U	200	9.9 J	NA	5.4 J	NA	7.2 J	61 U	NA	26 U	4.6 J	6.1 J
	PHENANTHRENE	1700000	150000	40000		204	11 J	NA	300	6900	630	NA	420	NA	520	520	NA	170	300	360
	PYRENE	1700000	150000	13000		195	21 J	NA	290	6300	1400	NA	770	NA	1100	1200	NA	290	670	600
	TOTAL PAHS					1610	146.8 J	NA	1968.1 J	38660	8109.9 J	NA	3999 J	NA	5402.2 J	7783 J	NA	1889.4 J	4681.7 J	3623.9 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-LOCDEPTHMAX	DA-SD111-LOCDEPTHMAX	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108
	LOCATION ID						DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD111	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SD128	DA-SD129	DA-SD130
	TOP DEPTH						0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						05/19/08	07/11/07	05/20/08	05/19/08	05/19/08	07/11/07	05/20/08	07/11/07	05/20/08	08/21/08	07/11/07	08/21/08	08/21/08	08/21/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER																			
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000	86			4.88	3.9 UJ	NA	6.9 J	8.9 J	48 J	NA	21 J	NA	56 J	40	NA	6.4	36	9.6 J
	4,4'-DDE	1400	60			3.16	3.9 U	NA	6.3	12	79	NA	17	NA	48	140	NA	14	100	9.5
	4,4'-DDT	1700	87			4.16	3.9 UJ	NA	4.2 UJ	4.7 UJ	7.4 UJ	NA	17 UJ	NA	47 J	23 J	NA	5.4 J	34 J	8.6 UJ
	ALPHA-CHLORDANE	1600	33	500	1400	3.24	2 U	NA	4.5 J	2.4 U	44 J	NA	20 J	NA	39 J	53	NA	6.8 J	38 J	2.6 U
	AROCLOR-1260	220	14	10000	10000	59.8	35	NA	43	68	370	NA	220	NA	550	52 UJ	NA	22 UJ	22 UJ	86
	AROCLOR-1268	220	14	10000	10000	59.8	20 U	NA	22 U	24 U	38 U	NA	33 U	NA	36 U	52 U	NA	22 U	22 U	26 U
	DIELDRIN	30	0.09	40		120	3.9 U	NA	8	11	26	NA	6.3 U	NA	7 U	30	NA	11	64	11 J
	GAMMA-CHLORDANE	1600	33	500		3.24	2 U	NA	3.3	2.4 U	33	NA	17	NA	36	37	NA	5.3	26	2.6 U
	TOTAL AROCLOR	220		10000	10000	59.8	35	NA	43	68	370	NA	220	NA	550	52 UJ	NA	22 UJ	22 UJ	86
	TOTAL DDD/DDE/DDT					5.28	3.9 UJ	NA	13.2 J	20.9 J	127 J	NA	38 J	NA	151 J	203 J	NA	25.8 J	170 J	19.1 J
METALS (MG/KG)	ALUMINUM	77000	55000			25500	6860	NA	12000	11400	16400	NA	14100	NA	17800	21100	NA	12600	19000	13400
	ARSENIC	0.39	0.0013	7		9.79	14.8	NA	12.1	13.2	9.4	NA	10	NA	10.4	15.8	NA	16.1	17.4	13
	BARIUM	15000	300	5500	9999999	48	25.8	NA	20.7	23.8	42.5	NA	41.2	NA	63.9	81.4	NA	18.1	67.6	54.6
	BERYLLIUM	160	58	0.4	9999999		0.29	NA	0.36	0.37	0.65	NA	0.56	NA	0.7	0.55 J	NA	0.29 J	0.47 J	0.33 J
	CADMIUM	70	1.4	39	9999999	0.99	0.01 UJ	NA	0.17 UJ	0.16 UJ	0.14 UJ	NA	0.7 J	NA	1.2 J	1.5 J	NA	0.43 UJ	1.4 J	1.5 J
	CALCIUM						1010	NA	1440	1360	2370	NA	2300	NA	2960	2340	NA	1380	3240	7040
	CHROMIUM	230	2.1	390	9999999	43.4	11.6	NA	16.5	16.3	21	NA	19.3	NA	25.3	27.7	NA	19.1	23.5	19.2
	COBALT	23	0.49			50	9.7	NA	93.9	60.7	21.1	NA	23.8	NA	27.6	40.1	NA	14.4	32	17.7
	COPPER	3100	51	3100		31.6	18.6 J	NA	22.4 J	33.6 J	31.6 J	NA	24.1 J	NA	38.4 J	47.8	NA	20.1	30.2	36.2
	IRON	55000	640			20000	23700	NA	31100	26800	21200	NA	19900	NA	20900	33900	NA	29800	30600	26400
	LEAD	400		150	9999999	35.8	23.5	25.4	799 J	1520 J	508	77.9	288 J	106	562 J	264	187	44.9	137	86
	MAGNESIUM						2790	NA	3410	3030	3100	NA	2780	NA	3180	3800	NA	3660	4000	3730
	MANGANESE	1800	57	390		460	394	NA	733	269	147	NA	177	NA	137	398	NA	485	1300	632
	MERCURY	23	0.57	23	9999999	0.18	0.01 U	NA	0.07	0.17	0.17	NA	0.13	NA	0.24	0.21	NA	0.08	0.16	0.19
	MOLYBDENUM	390	3.7				0.44 J	NA	3.1	1.2	1.5	NA	0.56 J	NA	1.9	2.6 J	NA	0.55 J	2.5 J	0.85 J
	NICKEL	1600	48	1000	9999999	22.7	16.7	NA	22.3	20.6	21.7	NA	20.4	NA	23.8	31.3	NA	26.8	26.6	29.6
	POTASSIUM						673 J	NA	364 J	286 J	652 J	NA	498 J	NA	762 J	1260	NA	387	1040	697
	SELENIUM	390	0.95	390	9999999	1	0.26 UJ	NA	0.26 UJ	0.48 J	0.92 J	NA	0.2 UJ	NA	0.22 UJ	0.45 UJ	NA	0.39 UJ	0.26 UJ	0.26 UJ
	SILVER	390	1.6	200		0.5	0.06 UJ	NA	0.7 J	3.8 J	2.2 J	NA	0.96 J	NA	1.9 J	0.91 J	NA	0.32 J	0.51 J	0.26 J
	SODIUM						24.8 UJ	NA	65 J	72.3 J	161 J	NA	139 J	NA	216	289	NA	74.3 J	108 J	105 J
	VANADIUM	390	180	550		57	13.1	NA	22.6	22.8	31.6	NA	28.8	NA	40.5	37.1	NA	32	34.1	33
	ZINC	23000	680	6000		121	47.3	NA	98.9	94	95.5	NA	140	NA	171	228	NA	67.6	139	111
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS						84	66	76	66	67.5	53	50	70	46	NA	27	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON						3700	NA	96000	19000	64000	NA	31000	NA	55000	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH						7	NA	7.1	7	6.9	NA	7	NA	7	NA	NA	NA	NA	NA
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)			500			53	NA	82	160	500	NA	520	NA	1800	740	NA	95	120	270
	GASOLINE RANGE ORGANICS						3.2 U	NA	3.8 U	3.9 U	8.8 UJ	NA	7.3 U	NA	9.3 U	10 U	NA	3.1 U	4.8 U	7.4 U

SUMMARY OF ANALYTICAL RESULTS: SHALLOW WATER SEDIMENT SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD-131-082108 / DA-SD131 / 0 / 0.5 / 08/21/08 / NORMAL	DA-SD132-071207 / DA-SD132 / 0 / 0.5 / 07/12/07 / NORMAL	DA-SD133-LOCDEPTHMAX / DA-SW/SD133 / 0 / 0.5 / 05/20/08 / NORMAL	DA-SD134-0006 / DA-SD134 / 0 / 0.5 / 05/20/08 / NORMAL
VOLATILES (UG/KG)	1,1,1-TRICHLOROETHANE					170	6 U	NA	5 J	7 U
	1,1-DICHLOROETHANE					27	6 U	NA	6 U	7 U
	1,2,4-TRICHLOROBENZENE					9200	6 UJ	NA	6 U	7 U
	2-BUTANONE	28000000	1500	10000000		270	29 U	NA	28 U	33 U
	4-ISOPROPYLTOLUENE						6 U	NA	6 U	7 U
	ACETONE	61000000	4400	7800000		9	29 U	NA	28 U	33 U
	BTEX						6.8 U	NA	6.6 U	7.8 U
	CHLOROETHANE						12 U	NA	11 U	13 U
	CIS-1,2-DICHLOROETHENE	780000	110	630000	1700	400	6 U	NA	6 U	7 U
	DICHLORODIFLUOROMETHANE						12 UJ	NA	11 U	13 U
	M+P-XYLENES	4500000	1600			4	12 U	NA	11 U	13 U
	TETRACHLOROETHENE	570	0.052	12000	100	530	6 U	NA	6 U	7 U
	TOTAL 1,2-DICHLOROETHENE	700000	99			400	6 U	NA	6 U	7 U
	TOTAL CHLORINATED ETHENES						7.5 U	NA	7.2 U	8.5 U
	TOTAL CHLORINATED VOCS						7.8 UJ	NA	5 J	8.9 U
	TOTAL XYLENES	600000	230	110000	540000	4	9 U	NA	8.5 U	10 U
	TRICHLOROETHENE	2800	0.61	13000	200	1600	6 U	NA	6 U	7 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	900	123000		20.2	26 U	NA	22 U	31 U
	ACENAPHTHENE	3400000	27000	43000		290	6.5 J	NA	22 U	3.9 J
	ACENAPHTHYLENE	3400000	27000	23000		160	4.5 J	NA	22 U	2.8 J
	ANTHRACENE	17000000	450000	35000		57.2	17 J	NA	22 U	12 J
	BENZO(A)ANTHRACENE	150	14	900		108	150	NA	45 J	280 J
	BENZO(A)PYRENE	15	4.6	400	240000	150	200	NA	48	230 J
	BENZO(B)FLUORANTHENE	150	47	900		1800	270	NA	110	490 J
	BENZO(G,H,I)PERYLENE	1700000	150000	800		170	120	NA	38	220 J
	BENZO(K)FLUORANTHENE	1500	460	900		240	220	NA	31	120 J
	BENZOIC ACID	240000000	33000			65	1100 UJ	NA	920 UR	1200 UR
	BENZYL ALCOHOL					52	860 U	NA	740 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	1600	46000		750	430 U	NA	370 U	500 U
	CARBAZOLE						430 U	NA	370 U	500 U
	CHRYSENE	15000	1400	400		166	240	NA	49 J	260 J
	DIBENZO(A,H)ANTHRACENE	15	15	400		33	48	NA	11 J	37 J
	DIBENZOFURAN					2000	430 U	NA	370 U	500 U
	DIETHYL PHTHALATE					630	430 U	NA	370 U	500 U
	DI-N-BUTYL PHTHALATE					11000	430 U	NA	370 U	500 U
	FLUORANTHENE	2300000	210000	20000		423	430	NA	76	320
	FLUORENE	2300000	33000	28000		77.4	7 J	NA	22 U	4.2 J
	HIGH MOLECULAR WEIGHT PAHS					193	2118	NA	522 J	2577 J
	INDENO(1,2,3-CD)PYRENE	150	160	900		200	140	NA	36	140 J
	LOW MOLECULAR WEIGHT PAHS					76.4	165 J	NA	28	132.9 J
	NAPHTHALENE	3900	0.55	54000	800	176	26 U	NA	22 U	31 U
	PHENANTHRENE	1700000	150000	40000		204	130	NA	28	110
	PYRENE	1700000	150000	13000		195	300	NA	78	480 J
	TOTAL PAHS					1610	2283 J	NA	550 J	2709.9 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SHALLOW WATER SEDIMENT SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD-131-082108 / DA-SD131 / 0 / 0.5 / 08/21/08 / NORMAL	DA-SD132-071207 / DA-SD132 / 0 / 0.5 / 07/12/07 / NORMAL	DA-SD133-LOCDEPTHMAX / DA-SW/SD133 / 0 / 0.5 / 05/20/08 / NORMAL	DA-SD134-0006 / DA-SD134 / 0 / 0.5 / 05/20/08 / NORMAL
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000	86			4.88	36	NA	4.7 J	18 J
	4,4'-DDE	1400	60			3.16	89	NA	12	31
	4,4'-DDT	1700	87			4.16	37 J	NA	10 J	17 J
	ALPHA-CHLORDANE	1600	33	500	1400	3.24	34	NA	6.8 J	19 J
	AROCLOR-1260	220	14	10000	10000	59.8	22 UJ	NA	19 U	67
	AROCLOR-1268	220	14	10000	10000	59.8	22 U	NA	19 U	26 U
	DIELDRIN	30	0.09	40		120	66	NA	11	22
	GAMMA-CHLORDANE	1600	33	500		3.24	23	NA	4.8	14
	TOTAL AROCLOR	220		10000	10000	59.8	22 UJ	NA	19 U	67
	TOTAL DDD/DDE/DDT					5.28	162 J	NA	26.7 J	66 J
METALS (MG/KG)	ALUMINUM	77000	55000			25500	13700	NA	9450	10300
	ARSENIC	0.39	0.0013	7		9.79	16.3	NA	15.7	10.6
	BARIUM	15000	300	5500	9999999	48	49.6	NA	34.6	25
	BERYLLIUM	160	58	0.4	9999999		0.38 J	NA	0.36	0.71
	CADMIUM	70	1.4	39	9999999	0.99	1.2 J	NA	0.91 J	0.49 J
	CALCIUM						2280	NA	1330	1470
	CHROMIUM	230	2.1	390	9999999	43.4	20.9	NA	15.4	14.9
	COBALT	23	0.49			50	82.1	NA	204	10
	COPPER	3100	51	3100		31.6	31.3	NA	30.9 J	15.4 J
	IRON	55000	640			20000	31400	NA	42800	30500
	LEAD	400		150	9999999	35.8	580	5340	15300	43.7 J
	MAGNESIUM						3780	NA	3120	2640
	MANGANESE	1800	57	390		460	2500	NA	2360	500
	MERCURY	23	0.57	23	9999999	0.18	0.11	NA	0.02 J	0.06
	MOLYBDENUM	390	3.7				5.9	NA	7.5	2.7
	NICKEL	1600	48	1000	9999999	22.7	26.6	NA	24.4	19.5
	POTASSIUM						686	NA	222 J	303 J
	SELENIUM	390	0.95	390	9999999	1	0.41 UJ	NA	0.56 UJ	0.35 UJ
	SILVER	390	1.6	200		0.5	0.85 J	NA	1.5 J	0.09 UJ
	SODIUM						74.3 UJ	NA	40 UJ	64.3 J
	VANADIUM	390	180	550		57	28	NA	17.2	22
	ZINC	23000	680	6000		121	144	NA	130	157
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS						NA	80	82	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON						NA	NA	25000	24000
MISCELLANEOUS PARAMETERS (S.U.)	PH						NA	NA	7.2	7
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE						NA	NA	NA	NA
	CADMIUM						NA	NA	NA	NA
	CHROMIUM						NA	NA	NA	NA
	COPPER						NA	NA	NA	NA
	LEAD						NA	NA	NA	NA
	MERCURY						NA	NA	NA	NA
	NICKEL						NA	NA	NA	NA
	TOTAL SEM-AVS						NA	NA	NA	NA
	ZINC						NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)			500			150	NA	57	380
	GASOLINE RANGE ORGANICS						4	NA	3.2 U	4.9 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4-21

DRAFT FINAL

SUMMARY OF ANALYTICAL RESULTS: DEEP WATER SEDIMENT SAMPLES
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 1 OF 6

	SAMPLE ID						DA-SD120-071707	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD126-071607	DA-SD127-071607	DA-S-SD07-01	DA-S-SD08-01	DA-S-SD09-01	DA-SD119-00.5-LOCDEPTHMAX
	LOCATION ID						DA-SD120	DA-SD122	DA-SD123	DA-SD124	DA-SD126	DA-SD127	DA-SW/SD-07	DA-SW/SD-08	DA-SW/SD-09	DA-SW/SD119
	TOP DEPTH						0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						07/17/07	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/29/03	07/29/03	07/29/03	05/21/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL										
VOLATILES (UG/KG)	1,2,4-TRICHLOROBENZENE					9200	NA	NA	NA	NA	NA	NA	0.88 UJ	0.84 UJ	6.2 J	17.5 UJ
	2-BUTANONE	2.8E+07	1500	1E+07		270	NA	NA	NA	NA	NA	NA	69 J	11 J	28 J	190
	ACETONE	6.1E+07	4400	7800000		9	NA	NA	NA	NA	NA	NA	180 J	34 J	90 J	550 J
	BTEX						NA	NA	NA	NA	NA	NA	38 J	1.1 UJ	1 U	20 U
	CARBON DISULFIDE	670000	270			0.85	NA	NA	NA	NA	NA	NA	1.2 U	1.1 UJ	2.7 J	5.5 J
	CIS-1,2-DICHLOROETHENE	780000	110	630000	1700	400	NA	NA	NA	NA	NA	NA	1 U	1 UJ	0.91 U	7.5 J
	DICHLORODIFLUOROMETHANE						NA	NA	NA	NA	NA	NA	1.2 U	14 J	28 J	35.5 U
	TOLUENE	5000000	1700	190000	32000	670	NA	NA	NA	NA	NA	NA	38 J	0.77 UJ	0.7 U	17.5 U
	TOTAL 1,2-DICHLOROETHENE	700000	99			400	NA	NA	NA	NA	NA	NA	0.94 U	0.92 UJ	0.83 U	7.5 J
	TOTAL CHLORINATED ETHENES						NA	NA	NA	NA	NA	NA	1.1 U	1 UJ	0.95 U	7.5 J
	TOTAL CHLORINATED VOCS						NA	NA	NA	NA	NA	NA	1.6 UJ	14 J	34.2 J	7.5 J
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	900	123000		20.2	NA	NA	NA	NA	NA	NA	460 U	650 UJ	590 U	12 J
	ACENAPHTHENE	3400000	27000	43000		290	NA	NA	NA	NA	NA	NA	140 U	200 UJ	180 U	48 J
	ACENAPHTHYLENE	3400000	27000	23000		160	NA	NA	NA	NA	NA	NA	180 U	260 UJ	240 U	22.8 J
	ANTHRACENE	1.7E+07	450000	35000		57.2	NA	NA	NA	NA	NA	NA	220 J	140 J	120 U	118 J
	BENZO(A)ANTHRACENE	150	14	900		108	NA	NA	NA	NA	NA	NA	790 J	680 J	590 J	705 J
	BENZO(A)PYRENE	15	4.6	400	240000	150	NA	NA	NA	NA	NA	NA	810 J	930 J	830 J	690 J
	BENZO(B)FLUORANTHENE	150	47	900		1800	NA	NA	NA	NA	NA	NA	1000 J	1200 J	1100 J	985 J
	BENZO(G,H,I)PERYLENE	1700000	150000	800		170	NA	NA	NA	NA	NA	NA	760 J	940 J	830 J	445 J
	BENZO(K)FLUORANTHENE	1500	460	900		240	NA	NA	NA	NA	NA	NA	790 J	1000 J	870 J	495 J
	BENZOIC ACID	2.4E+08	33000			65	NA	NA	NA	NA	NA	NA	1900 J	2700 J	2400 J	2450 UR
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	1600	46000		750	NA	NA	NA	NA	NA	NA	1200 J	2300 J	2300 J	985 U
	CHRYSENE	15000	1400	400		166	NA	NA	NA	NA	NA	NA	1100 J	1400 J	1200 J	825 J
	DIBENZO(A,H)ANTHRACENE	15	15	400		33	NA	NA	NA	NA	NA	NA	300 U	430 UJ	390 U	110 J
	DIETHYL PHTHALATE					630	NA	NA	NA	NA	NA	NA	1000 J	1600 J	2000	985 U
	FLUORANTHENE	2300000	210000	20000		423	NA	NA	NA	NA	NA	NA	2100	2500 J	2300	1550
	FLUORENE	2300000	33000	28000		77.4	NA	NA	NA	NA	NA	NA	140 U	200 UJ	180 U	60 J
	HIGH MOLECULAR WEIGHT PAHS					193	NA	NA	NA	NA	NA	NA	9690 J	9450 J	10300 J	7790 J
	INDENO(1,2,3-CD)PYRENE	150	160	900		200	NA	NA	NA	NA	NA	NA	640 J	800 J	680 J	435 J
	LOW MOLECULAR WEIGHT PAHS					76.4	NA	NA	NA	NA	NA	NA	1210 J	1050 J	740 J	998.8 J
	NAPHTHALENE	3900	0.55	54000	800	176	NA	NA	NA	NA	NA	NA	14 UJ	13 UJ	12 UJ	18 J
	PHENANTHRENE	1700000	150000	40000		204	NA	NA	NA	NA	NA	NA	990 J	910 J	740 J	720 J
	PYRENE	1700000	150000	13000		195	NA	NA	NA	NA	NA	NA	1700	2000 UJ	1900	1550
	TOTAL PAHS					1610	NA	NA	NA	NA	NA	NA	10900 J	10500 J	11040 J	8788.8 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
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SUMMARY OF ANALYTICAL RESULTS: DEEP WATER SEDIMENT SAMPLES
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	SAMPLE ID						DA-SD120-071707	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD126-071607	DA-SD127-071607	DA-S-SD07-01	DA-S-SD08-01	DA-S-SD09-01	DA-SD119-00.5-LOCDEPTHMAX
	LOCATION ID						DA-SD120	DA-SD122	DA-SD123	DA-SD124	DA-SD126	DA-SD127	DA-SW/SD-07	DA-SW/SD-08	DA-SW/SD-09	DA-SW/SD119
	TOP DEPTH						0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						07/17/07	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/29/03	07/29/03	07/29/03	05/21/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL										
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000	86			4.88	NA	NA	NA	NA	NA	NA	69.1 U	97.7 UJ	88.5 U	61 J
	4,4'-DDE	1400	60			3.16	NA	NA	NA	NA	NA	NA	77.2 U	46 UJ	99 U	170
	4,4'-DDT	1700	87			4.16	NA	NA	NA	NA	NA	NA	65 U	92 UJ	83.3 U	19 J
	ALPHA-CHLORDANE	1600	33	500	1400	3.24	NA	NA	NA	NA	NA	NA	24.4 U	34.5 UJ	31.2 U	72 J
	AROCLOR-1254	1100	5.1	10000	10000	59.8	NA	NA	NA	NA	NA	NA	396 U	112 UJ	102 U	50.5 U
	AROCLOR-1260	220	14	10000	10000	59.8	NA	NA	NA	NA	NA	NA	450 J	63.2 UJ	57.3 U	150
	AROCLOR-1268	220	14	10000	10000	59.8	NA	NA	NA	NA	NA	NA	2480	112 UJ	102 U	50.5 U
	DIELDRIN	30	0.09	40		120	NA	NA	NA	NA	NA	NA	61.3 J	40.2 UJ	36.4 U	43.5
	GAMMA-CHLORDANE	1600	33	500		3.24	NA	NA	NA	NA	NA	NA	20.3 U	28.7 UJ	26 U	51
	TOTAL AROCLOR	240		10000	10000	59.8	NA	NA	NA	NA	NA	NA	2930 J	110 UJ	96 U	150
	TOTAL DDD/DDE/DDT					5.28	NA	NA	NA	NA	NA	NA	70 U	79 UJ	90 U	250 J
METALS (MG/KG)	ALUMINUM	77000	55000			25500	NA	NA	NA	NA	NA	NA	11000	18000 J	20000	19000
	ARSENIC	0.39	0.0013	7		9.79	NA	NA	NA	NA	NA	NA	18	23 J	25	14.8
	BARIUM	15000	300	5500	9999999	48	NA	NA	NA	NA	NA	NA	67	77 J	82	67.6
	BERYLLIUM	160	58	0.4	9999999		NA	NA	NA	NA	NA	NA	0.45	0.71 J	0.75	0.71 J
	CADMIUM	70	1.4	39	9999999	0.99	NA	NA	NA	NA	NA	NA	1.3 J	1.2 J	0.97 J	0.925 J
	CALCIUM						NA	NA	NA	NA	NA	NA	2700	2400 J	2400	2760
	CHROMIUM	230	2.1	390	9999999	43.4	NA	NA	NA	NA	NA	NA	14	22 J	23	25.8
	COBALT	23	0.49			50	NA	NA	NA	NA	NA	NA	73	35 J	36	39.8
	COPPER	3100	51	3100		31.6	NA	NA	NA	NA	NA	NA	43	58 J	56	39.8 J
	IRON	55000	640			20000	NA	NA	NA	NA	NA	NA	25000	40000 J	37000	34200
	LEAD	400		150	9999999	35.8	220	176	183	164	104	142	350	180 J	150	258 J
	MAGNESIUM						NA	NA	NA	NA	NA	NA	1900	3000 J	3200	3480
	MANGANESE	1800	57	390		460	NA	NA	NA	NA	NA	NA	2800	580 J	600	338
	MERCURY	23	0.57	23	9999999	0.18	NA	NA	NA	NA	NA	NA	0.22	0.33 J	0.32	0.22
	MOLYBDENUM	390	3.7				NA	NA	NA	NA	NA	NA	6.4	3.7 J	8.8	2.15
	NICKEL	1600	48	1000	9999999	22.7	NA	NA	NA	NA	NA	NA	20	27 J	28	27.6
	POTASSIUM						NA	NA	NA	NA	NA	NA	260	610 J	690	956 J
	SILVER	390	1.6	200		0.5	NA	NA	NA	NA	NA	NA	1.4 J	0.69 J	0.53 J	0.27 UJ
	SODIUM						NA	NA	NA	NA	NA	NA	110 U	180 U	160 U	282 J
	VANADIUM	390	180	550		57	NA	NA	NA	NA	NA	NA	24	38 J	40	34.2
	ZINC	23000	680	6000		121	NA	NA	NA	NA	NA	NA	180	200 J	180	219

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	SAMPLE ID	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD120-071707	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD126-071607	DA-SD127-071607	DA-S-SD07-01	DA-S-SD08-01	DA-S-SD09-01	DA-SD119-00.5-LOCDEPTHMAX
	LOCATION ID						DA-SD120	DA-SD122	DA-SD123	DA-SD124	DA-SD126	DA-SD127	DA-SW/SD-07	DA-SW/SD-08	DA-SW/SD-09	DA-SW/SD119
	TOP DEPTH						0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						07/17/07	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/29/03	07/29/03	07/29/03	05/21/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER															
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	2.45
	HYDROMETER-12.9UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	11
	HYDROMETER-21.5UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	13.8
	HYDROMETER-3.4UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	7.2
	HYDROMETER-32.8UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	38.8
	HYDROMETER-6.6UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2
	HYDROMETER-9.1UM						NA	NA	NA	NA	NA	NA	NA	NA	NA	6.1
	PERCENT CLAY						NA	NA	NA	NA	NA	NA	5.2	11 J	14	12.6
	PERCENT COARSE SAND						NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2
	PERCENT COARSE SILT						NA	NA	NA	NA	NA	NA	21	9.6 J	5.7	NA
	PERCENT FINE SAND						NA	NA	NA	NA	NA	NA	NA	NA	NA	9.15
	PERCENT FINE SILT						NA	NA	NA	NA	NA	NA	13	23 J	27	NA
	PERCENT GRAVEL						NA	NA	NA	NA	NA	NA	NA	NA	NA	1.85
	PERCENT MEDIUM SAND						NA	NA	NA	NA	NA	NA	NA	NA	NA	1.25
	PERCENT MEDIUM SILT						NA	NA	NA	NA	NA	NA	25	38 J	38	NA
	PERCENT SAND						NA	NA	NA	NA	NA	NA	35	19 J	15	NA
	PERCENT SILT						NA	NA	NA	NA	NA	NA	NA	NA	NA	73.8
	SIEVE 1"						NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 1-1/2"						NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 2"						NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 3"						NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 3/4"						NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 3/8"						NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE NO. 004						NA	NA	NA	NA	NA	NA	0.10 U	0.10 UJ	0.10 U	1.85
	SIEVE NO. 010						NA	NA	NA	NA	NA	NA	0.10 U	0.10 UJ	0.10 U	1.2
	SIEVE NO. 020						NA	NA	NA	NA	NA	NA	NA	NA	NA	0.35
	SIEVE NO. 040						NA	NA	NA	NA	NA	NA	0.70	0.10 UJ	0.10 U	0.95
	SIEVE NO. 060						NA	NA	NA	NA	NA	NA	NA	NA	NA	0.8
	SIEVE NO. 080						NA	NA	NA	NA	NA	NA	NA	NA	NA	1.45
	SIEVE NO. 100						NA	NA	NA	NA	NA	NA	13	0.30 J	0.40	0.75
	SIEVE NO. 200						NA	NA	NA	NA	NA	NA	NA	NA	NA	6.25
	TOTAL SOLIDS						31	33	31	26	23	20	41	29 J	32	35
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON						NA	NA	NA	NA	NA	NA	39000	57600 J	44600	70500
MISCELLANEOUS PARAMETERS (S.U.)	PH						NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE						NA	NA	NA	NA	NA	NA	0.973 J	3.07 J	23.9 J	NA
	CHROMIUM						NA	NA	NA	NA	NA	NA	0.112	0.133 J	0.182	NA
	COPPER						NA	NA	NA	NA	NA	NA	0.448	0.459 J	0.521	NA
	LEAD						NA	NA	NA	NA	NA	NA	1.69	0.733 J	0.751	NA
	NICKEL						NA	NA	NA	NA	NA	NA	0.174	0.145 J	0.188	NA
	TOTAL SEM-AVS						NA	NA	NA	NA	NA	NA	3.601	0.44	-20.118	NA
	ZINC						NA	NA	NA	NA	NA	NA	2.15	2.04 J	2.14	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)			500			NA	NA	NA	NA	NA	NA	NA	NA	NA	665
	GASOLINE RANGE ORGANICS						NA	NA	NA	NA	NA	NA	NA	NA	NA	12 J

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SUMMARY OF ANALYTICAL RESULTS: DEEP WATER SEDIMENT SAMPLES
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	SAMPLE ID						DA-SD-119-0424	DA-SD121-LOCDEPTHMAX	DA-SD125-00.5-LOCDEPTHMAX	DA-SD-125-0424
	LOCATION ID						DA-SW/SD119	DA-SW/SD121	DA-SW/SD125	DA-SW/SD125
	TOP DEPTH						0.33	0	0	0.33
	BOTTOM DEPTH						2	0.5	0.5	2
	SAMPLE DATE						08/21/08	05/21/08	05/21/08	08/21/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL				
VOLATILES (UG/KG)	1,2,4-TRICHLOROBENZENE					9200	12 UJ	260 U	12 U	13 UJ
	2-BUTANONE	2.8E+07	1500	1E+07		270	200	1300 UJ	130	190
	ACETONE	6.1E+07	4400	7800000		9	670	740 J	460 J	650
	BTEX						14 U	300 U	14 U	15 U
	CARBON DISULFIDE	670000	270			0.85	13	260 U	12 U	7 J
	CIS-1,2-DICHLOROETHENE	780000	110	630000	1700	400	12 U	260 U	12 U	13 U
	DICHLORODIFLUOROMETHANE						24 UJ	530 U	25 U	26 UJ
	TOLUENE	5000000	1700	190000	32000	670	12 U	260 U	12 U	13 U
	TOTAL 1,2-DICHLOROETHENE	700000	99			400	12 U	260 U	12 U	13 U
	TOTAL CHLORINATED ETHENES						15 U	330 U	15 U	16 U
	TOTAL CHLORINATED VOCS						16 UJ	340 U	16 U	17 UJ
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	900	123000		20.2	8.2 J	12 J	13 J	11 J
	ACENAPHTHENE	3400000	27000	43000		290	18 J	22 J	19 J	27 J
	ACENAPHTHYLENE	3400000	27000	23000		160	13 J	21 J	24 J	19 J
	ANTHRACENE	1.7E+07	450000	35000		57.2	40 J	67	68	47 J
	BENZO(A)ANTHRACENE	150	14	900		108	270	660 J	720 J	340
	BENZO(A)PYRENE	15	4.6	400	240000	150	270	990 J	1300 J	360
	BENZO(B)FLUORANTHENE	150	47	900		1800	350	1100	1800 J	430
	BENZO(G,H,I)PERYLENE	1700000	150000	800		170	180	740 J	730 J	180
	BENZO(K)FLUORANTHENE	1500	460	900		240	240	780 J	810 J	350
	BENZOIC ACID	2.4E+08	33000			65	1900 UJ	2600 UR	2600 UR	2200 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	1600	46000		750	310 J	850 J	1000 J	310 J
	CHRYSENE	15000	1400	400		166	350	1200	1400 J	460
	DIBENZO(A,H)ANTHRACENE	15	15	400		33	56	150 J	140 J	74
	DIETHYL PHTHALATE					630	780 U	1000 U	1000 U	870 U
	FLUORANTHENE	2300000	210000	20000		423	600	2200	2600 J	960
	FLUORENE	2300000	33000	28000		77.4	28 J	42 J	42 J	48 J
	HIGH MOLECULAR WEIGHT PAHS					193	3046	10660 J	12620 J	4074
	INDENO(1,2,3-CD)PYRENE	150	160	900		200	170	740 J	720 J	200
	LOW MOLECULAR WEIGHT PAHS					76.4	367.2 J	1010.2 J	976 J	462 J
	NAPHTHALENE	3900	0.55	54000	800	176	47 U	6.2 J	63 U	53 U
	PHENANTHRENE	1700000	150000	40000		204	260	840	810 J	310
	PYRENE	1700000	150000	13000		195	560	2100	2400 J	720
	TOTAL PAHS					1610	3413.2 J	11670.2 J	13596 J	4536 J

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	SAMPLE ID						DA-SD-119-0424	DA-SD121-LOCDEPTHMAX	DA-SD125-00.5-LOCDEPTHMAX	DA-SD-125-0424
	LOCATION ID						DA-SW/SD119	DA-SW/SD121	DA-SW/SD125	DA-SW/SD125
	TOP DEPTH						0.33	0	0	0.33
	BOTTOM DEPTH						2	0.5	0.5	2
	SAMPLE DATE						08/21/08	05/21/08	05/21/08	08/21/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL				
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000	86			4.88	22	100 J	170 J	78
	4,4'-DDE	1400	60			3.16	56	320	430	160
	4,4'-DDT	1700	87			4.16	20 J	66 J	77 J	28 UJ
	ALPHA-CHLORDANE	1600	33	500	1400	3.24	15 J	120	180 J	42
	AROCLOR-1254	1100	5.1	10000	10000	59.8	200	54 U	53 U	45 U
	AROCLOR-1260	220	14	10000	10000	59.8	40 UJ	160	170	410 J
	AROCLOR-1268	220	14	10000	10000	59.8	40 U	54 U	53 U	45 U
	DIELDRIN	30	0.09	40		120	11	86	140	29
	GAMMA-CHLORDANE	1600	33	500		3.24	12	93	130	35
	TOTAL AROCLOR	240		10000	10000	59.8	200 J	160	170	410 J
	TOTAL DDD/DDE/DDT					5.28	98 J	486 J	677 J	238 J
METALS (MG/KG)	ALUMINUM	77000	55000			25500	18000	29300	32400	26500
	ARSENIC	0.39	0.0013	7		9.79	18.8	21.8	22.5	19.4
	BARIUM	15000	300	5500	9999999	48	59.3	91	107	127
	BERYLLIUM	160	58	0.4	9999999		0.46 J	1	1.1	0.66 J
	CADMIUM	70	1.4	39	9999999	0.99	1.1 J	0.8 J	0.46 J	1.5 J
	CALCIUM						1560	2970	2910	2070
	CHROMIUM	230	2.1	390	9999999	43.4	21	38.2	40.4	28.8
	COBALT	23	0.49			50	35.9	43.1	37.3	73.1
	COPPER	3100	51	3100		31.6	27.4	51.7 J	50.9 J	37.9
	IRON	55000	640			20000	28700	50500	51100	34400
	LEAD	400		150	9999999	35.8	149	224 J	167 J	216
	MAGNESIUM						3330	5020	5340	4410
	MANGANESE	1800	57	390		460	255	658	666	397
	MERCURY	23	0.57	23	9999999	0.18	0.2	0.27	0.28	0.25
	MOLYBDENUM	390	3.7				0.9 J	3.3	3.4	1.4 J
	NICKEL	1600	48	1000	9999999	22.7	25	39.6	40.9	36.7
	POTASSIUM						794	1350 J	1540 J	1300
	SILVER	390	1.6	200		0.5	0.78 J	0.16 UJ	0.15 UJ	1 J
	SODIUM						149 J	196 J	256 J	202 J
	VANADIUM	390	180	550		57	31.5	50.8	54.1	51.3
	ZINC	23000	680	6000		121	149	276	255	206

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FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD-119-0424 / DA-SW/SD119 / 0.33 / 2 / 08/21/08 / NORMAL	DA-SD121-LOCDEPTHMAX / DA-SW/SD121 / 0 / 0.5 / 05/21/08 / NORMAL	DA-SD125-00.5-LOCDEPTHMAX / DA-SW/SD125 / 0 / 0.5 / 05/21/08 / NORMAL	DA-SD-125-0424 / DA-SW/SD125 / 0.33 / 2 / 08/21/08 / NORMAL
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM						NA	6.8	9.6	NA
	HYDROMETER-12.9UM						NA	18.8	27.2	NA
	HYDROMETER-21.5UM						NA	22.2	13.4	NA
	HYDROMETER-3.4UM						NA	8.6	9.6	NA
	HYDROMETER-32.8UM						NA	17.8	8.4	NA
	HYDROMETER-6.6UM						NA	8.6	11.5	NA
	HYDROMETER-9.1UM						NA	12.3	15.4	NA
	PERCENT CLAY						NA	17.4	23.4	NA
	PERCENT COARSE SAND						NA	0	0	NA
	PERCENT COARSE SILT						NA	NA	NA	NA
	PERCENT FINE SAND						NA	2.3	0.7	NA
	PERCENT FINE SILT						NA	NA	NA	NA
	PERCENT GRAVEL						NA	0	0	NA
	PERCENT MEDIUM SAND						NA	0.5	0.1	NA
	PERCENT MEDIUM SILT						NA	NA	NA	NA
	PERCENT SAND						NA	NA	NA	NA
	PERCENT SILT						NA	79.7	75.9	NA
	SIEVE 1"						NA	0.0	0.0	NA
	SIEVE 1-1/2"						NA	0.0	0.0	NA
	SIEVE 2"						NA	0.0	0.0	NA
	SIEVE 3"						NA	0.0	0.0	NA
	SIEVE 3/4"						NA	0.0	0.0	NA
	SIEVE 3/8"						NA	0.0	0.0	NA
	SIEVE NO. 004						NA	0.0	0.0	NA
	SIEVE NO. 010						NA	0.0	0.0	NA
	SIEVE NO. 020						NA	0.2	0.0	NA
	SIEVE NO. 040						NA	0.3	0.1	NA
	SIEVE NO. 060						NA	0.2	0.1	NA
	SIEVE NO. 080						NA	0.4	0.1	NA
	SIEVE NO. 100						NA	0.2	0.1	NA
	SIEVE NO. 200						NA	1.5	0.3	NA
	TOTAL SOLIDS						NA	32	31	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON						NA	63000	56000	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH						NA	6.6	6.5	NA
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE						NA	NA	NA	NA
	CHROMIUM						NA	NA	NA	NA
	COPPER						NA	NA	NA	NA
	LEAD						NA	NA	NA	NA
	NICKEL						NA	NA	NA	NA
	TOTAL SEM-AVS						NA	NA	NA	NA
	ZINC						NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)			500			820	760	640 J	910
	GASOLINE RANGE ORGANICS						9.4 U	16 UJ	16 UJ	14 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: SEDIMENT REFERENCE SAMPLES
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	SAMPLE ID						DA-SD-RP03-0006	DA-SD-RP05-0006	DA-SD-RP01-0006	DA-SD-RP02-0006	DA-SD-RP04-0006
	LOCATION ID						DA-SD-RP03	DA-SD-RP05	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04
	TOP DEPTH						0	0	0	0	0
	BOTTOM DEPTH	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						05/22/08	05/22/08	05/22/08	05/22/08	05/22/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/KG)	2-BUTANONE	28000000	1500	10000000		270	340 J	25 U	49 J	160	28 U
	4-ISOPROPYLTOLUENE						22 UJ	5 U	8 UJ	16 UJ	4 J
	ACETONE	61000000	4400	7800000		9	1400 J	25 U	260 J	720 J	28 U
	CARBON DISULFIDE	670000	270			0.85	10 J	5 U	8 UJ	5 J	6 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	900	123000		20.2	41 U	8 J	32 U	56 U	10 J
	ACENAPHTHENE	3400000	27000	43000		290	41 U	13 J	32 U	56 U	14 J
	ACENAPHTHYLENE	3400000	27000	23000		160	33 J	41	20 J	21 J	95
	ANTHRACENE	17000000	450000	35000		57.2	12 J	86	32 U	56 U	130
	BENZO(A)ANTHRACENE	150	14	900		108	150 J	460	110 J	130 J	710
	BENZO(A)PYRENE	15	4.6	400	240000	150	200	420	150	120	690
	BENZO(B)FLUORANTHENE	150	47	900		1800	430	360 J	320	250	580
	BENZO(G,H,I)PERYLENE	1700000	150000	800		170	120	160	100	85	310
	BENZO(K)FLUORANTHENE	1500	460	900		240	99	230	71	68	330
	CHRYSENE	15000	1400	400		166	140	450	120 J	120 J	690
	DIBENZO(A,H)ANTHRACENE	15	15	400		33	37 J	70	27 J	24 J	130
	FLUORANTHENE	2300000	210000	20000		423	190	940	140	200	1300
	FLUORENE	2300000	33000	28000		77.4	3.5 J	30	32 U	8.6 J	39
	HIGH MOLECULAR WEIGHT PAHS					193	1676 J	4020 J	1328 J	1318 J	6240
	INDENO(1,2,3-CD)PYRENE	150	160	900		200	130	160	100	81	300
	LOW MOLECULAR WEIGHT PAHS					76.4	92.5 J	461.3 J	58 J	117.6 J	721.7 J
	NAPHTHALENE	3900	0.55	54000	800	176	41 U	3.3 J	32 U	56 U	3.7 J
	PHENANTHRENE	1700000	150000	40000		204	44	280 J	38	88	430 J
	PYRENE	1700000	150000	13000		195	180 J	770	190	240	1200
	TOTAL PAHS					1610	1768.5 J	4481.3 J	1386 J	1435.6 J	6961.7 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000	86			4.88	6.6 J	4.1 UJ	5.3 U	7.4 J	4.6 U
	4,4'-DDE	1400	60			3.16	17	1.4 J	7.6	39	1.6 J
	4,4'-DDT	1700	87			4.16	6.4 J	4.1 UJ	3.2 J	9.2 J	4.6 U
	TOTAL DDD/DDE/DDT					5.28	30 J	1.4 J	10.8 J	55.6 J	1.6 J
METALS (MG/KG)	ALUMINUM	77000	55000			25500	9090	7800	8010	13500	6960
	ANTIMONY	31	0.66	10	9999999	3	0.36 J	0.12 U	0.12 J	0.35 J	0.25 U
	ARSENIC	0.39	0.0013	7		9.79	12.2	4.1 U	3.8 U	10.8 U	7.1 U
	BARIUM	15000	300	5500	9999999	48	44.7	14.1	22.7	44.3	17.3
	BERYLLIUM	160	58	0.4	9999999		0.4 J	0.26 J	0.28 J	0.6 J	0.51
	CADMIUM	70	1.4	39	9999999	0.99	1.1 J	0.22 UJ	0.66 J	1.4 J	0.1 UJ
	CALCIUM						2730	992	1050	2120	864
	CHROMIUM	230	2.1	390	9999999	43.4	14.2	10.6	10.6	17	4.4
	COBALT	23	0.49			50	11.4	6.4	8.2	11.7	4.7 J
	COPPER	3100	51	3100		31.6	116	7.9	34	65.1	28.3
	IRON	55000	640			20000	24000	16800	14900	22600	29200
	LEAD	400		150	9999999	35.8	39.3	8.4	20.1	74.4	5 J
	MAGNESIUM						2580	2860	2740	2970	907
	MANGANESE	1800	57	390		460	530	174	166	331	352
	MERCURY	23	0.57	23	9999999	0.18	0.07	0.01 U	0.02 J	0.08 J	0.01 U
	MOLYBDENUM	390	3.7				1.1 J	0.17 J	0.16 U	0.56 J	0.43 J
	NICKEL	1600	48	1000	9999999	22.7	18.3	14.5	13.8	21.9	8.5 J
	POTASSIUM						707	254	413	829	289 J
	SILVER	390	1.6	200		0.5	0.68 J	0.04 UJ	0.29 J	0.36 UJ	0.16 UJ
	SODIUM						139	42.8 J	68.9 J	182	53.8 J
	VANADIUM	390	180	550		57	19	11.3	11.9	29.5	6.8
	ZINC	23000	680	6000		121	200	53.4	119	221	72.6

SUMMARY OF ANALYTICAL RESULTS: SEDIMENT REFERENCE SAMPLES
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	SAMPLE ID	ORNLSLDCR	ORNLSLPOG	RIDEMDCR	RIDEMPOG	ECOSL	DA-SD-RP03-0006	DA-SD-RP05-0006	DA-SD-RP01-0006	DA-SD-RP02-0006	DA-SD-RP04-0006
	LOCATION ID						DA-SD-RP03	DA-SD-RP05	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04
	TOP DEPTH						0	0	0	0	0
	BOTTOM DEPTH						0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE						05/22/08	05/22/08	05/22/08	05/22/08	05/22/08
	SAMPLE CODE						NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER										
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM						1.1	0.8	.5	1.0	.2
	HYDROMETER-12.9UM						2.2	1.0	2.0	3.9	1.4
	HYDROMETER-21.5UM						11.2	1.0	3.0	5.8	0.5
	HYDROMETER-3.4UM						2.2	0.5	2.0	3.9	0.5
	HYDROMETER-32.8UM						29.3	0.2	15.0	58.0	6.6
	HYDROMETER-6.6UM						2.2	0.5	1.0	1.9	0.5
	HYDROMETER-9.1UM						0.0	0.0	1.0	1.9	0.0
	PERCENT CLAY						4.9	2.1	4.1	8.1	1
	PERCENT COARSE SAND						3	14.6	6.3	0.2	6.7
	PERCENT FINE SAND						34	29.6	46.6	17.6	30.8
	PERCENT GRAVEL						1.6	22	2	0.4	31.9
	PERCENT MEDIUM SAND						11.6	28.9	19	2.1	20.5
	PERCENT SILT						44.9	2.7	22	71.7	9
	SIEVE 1"						0.0	0.0	0.0	0.0	0.0
	SIEVE 1-1/2"						0.0	0.0	0.0	0.0	0.0
	SIEVE 2"						0.0	0.0	0.0	0.0	0.0
	SIEVE 3"						0.0	0.0	0.0	0.0	0.0
	SIEVE 3/4"						0.0	0.0	0.0	0.0	11.7
	SIEVE 3/8"						0.0	10.4	0.0	0.0	15.2
	SIEVE NO. 004						1.6	11.7	2.0	.4	5.0
	SIEVE NO. 010						3.0	14.6	6.3	.2	6.7
	SIEVE NO. 020						3.8	11.0	7.7	.1	7.6
	SIEVE NO. 040						7.7	17.9	11.4	2.0	12.9
	SIEVE NO. 060						5.3	13.5	11.1	1.5	11.4
	SIEVE NO. 080						9.0	7.8	11.4	2.9	8.8
	SIEVE NO. 100						3.4	2.1	4.0	1.1	2.6
	SIEVE NO. 200						16.3	6.3	20.0	12.2	8.0
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON						75000	16000	16000	44000	18000
MISCELLANEOUS PARAMETERS (S.U.)	PH						6.5	6.5	6.4	6.4	6.9
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)			500			660	81	220	610	100

TABLE 4-23 **DRAFT FINAL**

SUMMARY OF ANALYTICAL RESULTS: EARTHWORM TISSUE SAMPLES - DRY WEIGHT
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608-AVG	DA-EWDRY-SB153-080708
	LOCATION ID	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134	DA-SB153
FRACTION (UNITS)	SAMPLE DATE	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08	08/07/08
PESTICIDES/PCBS (UG/KG)	4,4'-DDE	6.69	49.5 J	2.4 U	4.14	14.7	6.75	12.2 UJ	4.51 J	7.62	7.38	4.48
	ALPHA-CHLORDANE	2.32 U	2.38 U	2.4 U	2.38 U	5.72	3.03	2.38 U	2.38 U	2.26 U	3.25 J	ND
	AROCLOR-1254	93.1 U	95 U	96.2 U	95 U	248	95 U	95 U	95 U	90 U	93.1 U	ND
	AROCLOR-1260	93.1 U	477	96.2 U	731	93.1 U	95 U	415	95 U	90 U	93.1 U	445
	AROCLOR-1268	93.1 U	95 U	96.2 U	95 U	204	95 U	95 U	95 U	90 U	93.1 U	ND
	DIELDRIN	28.8	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U	2.38 U	2.38 U	2.26 U	2.32 U	ND
	TOTAL AROCLOR	93.8 U	477	93.8 U	731	451	93.8 U	415	93.8 U	87.5 U	93.8 U	445
	TOTAL DDD/DDE/DDT	6.69	49.5 J	2.38 U	4.14 J	14.7	6.75	5.69 UJ	4.51 J	7.62	7.38	4.48
METALS (MG/KG)	ALUMINUM	8120 J	14600 J	18800 J	1090 J	14100 J	10800 J	8620 J	11400 J	6620 J	15900 J	8500 J
	ANTIMONY	0.165 J	0.0919 J	0.0944 J	0.085 J	0.669 J	0.0744 J	0.258 J	0.204 J	0.107 J	0.0988 J	0.115 J
	ARSENIC	8.62	25.3	40.9	4.28	19.1	7.31	20.9	17.2	16.7	17.8	26.7
	BARIUM	57.9 J	77.5 J	73.1 J	21.1 J	59.8 J	70 J	41.9 J	106 J	61.1 J	82.5 J	53.1 J
	BERYLLIUM	0.401	0.578	0.501	0.0925 U	0.512	0.875	0.376	0.391	0.236 J	0.511	0.304 J
	CADMIUM	28.4	18.5	4.62 J	213	28	26.5	838	9.75	13.6	3.5 J	10.2
	CHROMIUM	51.1	256	119	12.6	41.2	231	92.5	302	22.3	139	20.6
	COBALT	12.9	25.1	30.7	10	18.9	12.2	11.6	12.2	9.75	12.9	13
	COPPER	36.1	60.4	47.6	12.1	45.9	34.6	60.1	44.1	41.6	40.8	31.9
	IRON	17800	31800	53600	2020	27800	19900	18500	23200	13700	27900	21800
	LEAD	39.4	111	21.5	881	77.5	152	111	32.1	23.3	53.2	21.1
	MANGANESE	449	756	781	51.6	404	379	333	382	246	518	518
	MERCURY	0.186	0.416	0.209	0.622	0.23	0.136	0.546	0.192	1.96	0.178	0.266
	MOLYBDENUM	3.91	14.3	9.69	1.15	3	14.8	6.31	19.3	1.8	8.5	1.36
	NICKEL	41.1	151	93.1	7.31	35.5	126	72.5	171	19.2	90.6	25.1
	SELENIUM	2.19	2.66	1.84	21.1	2.97	2.26	11.1	2.03	1.98	2.42	1.99
	SILVER	0.236 J	1.59 J	0.199 J	0.286 J	0.397 J	0.367 J	0.244 J	0.37 J	0.256 J	0.775 J	0.149 J
	VANADIUM	18.6	30.9	31	2.55 J	29.2	23.3	18.2	22.5	12.8	38.9	15.7
	ZINC	263	301	178	694	229	172	1850	161	243	168	200
MISCELLANEOUS PARAMETERS (%)	LIPIDS	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.756	0.625 U	0.625 U	0.625 U	ND

ND - Not detected

SUMMARY OF ANALYTICAL RESULTS: WHOLE BODY FISH TISSUE SAMPLES - WET WEIGHT
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID	DA-FT-ET01-BGW-081208	DA-FT-ET02-BGW-081208
	LOCATION ID	DA-FT-ET01	DA-FT-ET02
	TOP DEPTH		
	BOTTOM DEPTH		
	SAMPLE DATE	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER	TBD	TBD
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	36.5	53.8
	4,4'-DDE	638	740
	ALPHA-CHLORDANE	17.9	19
	AROCLOR-1254	513	403
	AROCLOR-1260	342	277
	DIELDRIN	22.9	36.9
	GAMMA-CHLORDANE	6.91	8.86
	TOTAL AROCLOR	855	680
	TOTAL DDD/DDE/DDT	674.5 J	793.8 J
METALS (MG/KG)	ALUMINUM	106	98.5
	ARSENIC	0.377	0.251
	BARIUM	3.64	3.09
	CADMIUM	0.0862	0.0824
	CALCIUM	19000	19300
	CHROMIUM	2.98 J	3.04 J
	COBALT	0.596	0.382
	COPPER	0.892	0.869
	IRON	357	304
	LEAD	1.32	1.08
	MAGNESIUM	586	591
	MANGANESE	173	96.1
	MERCURY	0.0313	0.0362
	MOLYBDENUM	0.428	0.508
	NICKEL	2.3 J	2.28 J
	POTASSIUM	2600	2680
	SELENIUM	0.617	0.591
	SODIUM	1240	1230
	VANADIUM	0.252 J	0.222 J
	ZINC	33.7	37.1
MISCELLANEOUS PARAMETERS (%)	LIPIDS	1.86	1.94

TABLE 4-25

SUMMARY OF ANALYTICAL RESULTS: FILLET FISH TISSUE SAMPLES - DRY WEIGHT
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208-AVG
	LOCATION ID	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03
	TOP DEPTH					
	BOTTOM DEPTH					
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	AVG
FRACTION (UNITS)	PARAMETER	TBD	TBD	TBD	TBD	TBD
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	24.2	77.2	96	333 J	49.2
	4,4'-DDE	988	848	1050	2610	744
	4,4'-DDT	60 UJ	40.4 UJ	43.2 UJ	82.8 J	32.6 UJ
	ALDRIN	1.59 U	5.32	6.12 J	6.2 J	5.6 J
	ALPHA-CHLORDANE	8.48	82.4	96.8	232	55.2
	AROCLOR-1254	692 J	374	492	1780	412 J
	AROCLOR-1260	400	256	263	832	238
	DIELDRIN	25.1	47.2	35	161	33.8
	GAMMA-CHLORDANE	4.4 J	39.6	47.2	55.2	26.9
	TOTAL AROCLOR	1090 J	631	755	2620	650 J
	TOTAL DDD/DDE/DDT	1010 J	925 J	1140 J	3020 J	793 J
METALS (MG/KG)	ALUMINUM	5.96 J	3.55 J	3.29 J	3.64 J	5.16 J
	ARSENIC	0.496	0.114 J	0.201 J	0.56	0.202 J
	BARIUM	0.984	0.174 J	0.088 J	0.186 J	0.102 J
	CALCIUM	12500	492 J	387 J	1010	408 J
	CHROMIUM	16.8 J	2.12 J	7.24 J	8.4 J	4.2 J
	COBALT	0.338	0.0928 J	0.135 J	0.088 J	0.112 J
	COPPER	1.38	1.18	1.49	1.57	1.3
	IRON	152	27.2 J	52.4	48.4	40.8 J
	LEAD	0.142	0.0318 J	0.0206 J	0.0202 J	0.0265 J
	MAGNESIUM	1180	1170	1060	1000	1070
	MANGANESE	20.1	1.71	1.47	1.89	1.5
	MERCURY	0.448	0.0624	0.102	0.404	0.094
	MOLYBDENUM	1.3	0.118 J	0.264	0.46	0.289 J
	NICKEL	9.44 J	0.672 J	3.41 J	4.36 J	2.05 J
	POTASSIUM	14600	18100	17900	17000	17800
	SELENIUM	1.7	0.852	0.956	2.45	1.15
	SODIUM	2180	1470	1560	1530	1550
	VANADIUM	0.0544 UJ	0.0544 UJ	0.0508 UJ	0.054 UJ	0.0576 J
	ZINC	67.2	20.9	24.7	37.2	19.5

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

SUMMARY OF ANALYTICAL RESULTS: FILLET FISH TISSUE SAMPLES - DRY WEIGHT
REMEDIAL INVESTIGATION REPORT
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

	SAMPLE ID	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208-AVG
	LOCATION ID	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03
	TOP DEPTH					
	BOTTOM DEPTH					
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	AVG
FRACTION (UNITS)	PARAMETER	TBD	TBD	TBD	TBD	TBD
MISCELLANEOUS PARAMETERS (%)	LIPIDS	2.86	3.52	3.26	6.92	2.84

SCREENING CRITERIA FOR SOIL AND SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 3

CAS No.	Parameter	ORNL Regional Screening Levels[1]		Rhode Island Department of Environmental Management[2]	
		Direct Contact Residential (mg/kg)	Protection of Groundwater (mg/kg)	Direct Contact Residential (mg/kg)	Protection of Groundwater (mg/kg)
Volatile Organic Compounds					
71-55-6	1,1,1-Trichloroethane	900 N	3.3	540	11
75.34-3	1,1-Dichloroethane	3.4 C	0.0007	920	NA
120-82-1	1,2,4-Trichlorobenzene	87 N	0.013	96	140
95-63-6	1,2,4-Trimethylbenzene	67 N	0.024	NA	NA
108-67-8	1,3,5-Trimethylbenzene	47 N	0.02	NA	NA
106-46-7	1,4-Dichlorobenzene	2.6 C	0.00046	27	NA
78-93-3	2-Butanone	28,000 N	1.5	10,000	NA
99-87-6	4-Isopropyltoluene	NA	NA	NA	NA
67-64-1	Acetone	61,000 N	4.4	7,800	NA
71-43-2	Benzene	1.1 C	0.00023	2.5	0.2
75-15-0	Carbon Disulfide	670 N	0.27	NA	NA
67-66-3	Chloroform	0.3 C	0.000055	1.2	NA
75-00-3	Chloroethane	15,000 N	6	NA	NA
156-59-2	cis-1,2-Dichloroethene	780 N	0.11	630	1.7
540-59-0	Total 1,2-Dichloroethene	700 N	0.099	NA	NA
75-71-8	Dichlorodifluoromethane	190 N	0.61	NA	NA
100-41-4	Ethylbenzene	5.7 C	0.0019	71	27
98-82-8	Isopropylbenzene	2,200 N	1.3	NA	NA
--	m+p-Xylenes	4,500 N[3]	1.6 [3]	NA	NA
75-09-2	Methylene Chloride	11 C	0.0012	45	NA
91-20-3	Naphthalene	3.9 C	0.00055	54	0.8
104-51-8	N-Butylbenzene	NA	NA	NA	NA
103-65-1	N-Propylbenzene	NA	NA	NA	NA
95-47-6	o-Xylene	5,300 N	1.6	NA	NA
135-98-8	sec-Butylbenzene	NA	NA	NA	NA
98-06-6	Tert-Butylbenzene	NA	NA	NA	NA
127-18-4	Tetrachloroethene	0.57 C	0.000052	12	0.1
108-88-3	Toluene	5,000 N	1.7	190	32
79-01-6	Trichloroethene	2.8 C	0.00061	13	0.2
75-01-4	Vinyl Chloride	0.06 C	0.0000056	0.02	0.3
1330-20-7	Total Xylenes	600 N	0.23	110	540
Semivolatile Organic Compounds					
92-52-4	1,1-Biphenyl	3,900 N	23	NA	NA
105-67-9	2,4-Dimethylphenol	1,200 N	1.2	NA	NA
51-28-5	2,4-Dinitrophenol	120 N	0.068	160	NA
91-57-6	2-Methylnaphthalene	310 N	0.9	123	NA
91-94-1	3,3'-Dichlorobenzidine	1.1 C	0.0023	1.4	NA
--	3&4-Methylphenol	310 N[4]	0.19 [4]	NA	NA
534-52-1	4,6-Dinitro-2-Methylphenol	6.1 N	0.0051	NA	NA
100-01-6	4-Nitroaniline	180 N[5]	0.00097	NA	NA
100-02-7	4-Nitrophenol	NA	NA	NA	NA
83-32-9	Acenaphthene	3,400 N	27	43	NA
208-96-8	Acenaphthylene	3,400 N[6]	27 [6]	23	NA
120-12-7	Anthracene	17,000 N	450	35	NA
56-55-3	Benzo(a)anthracene	0.15 C	0.014	0.9	NA
50-32-8	Benzo(a)pyrene	0.015 C	0.0046	0.4	240
--	Benzo(a)pyrene Equivalents	0.015 C	0.0046	0.4	NA
205-99-2	Benzo(b)fluoranthene	0.15 C	0.047	0.9	NA
191-24-2	Benzo(g,h,i)perylene	1,700 N[7]	150 [7]	0.8	NA
207-08-9	Benzo(k)fluoranthene	1.5 C	0.46	0.9	NA
100-52-7	Benzaldehyde	7,800	0.97	NA	NA
65-85-0	Benzoic Acid	240,000 N	33	NA	NA
100-51-6	Benzyl Alcohol	31,000 N	4.2	NA	NA
117-81-7	Bis(2-ethylhexyl)phthalate	35 C	1.6	46	NA
85-68-7	Butyl Benzyl Phthalate	260 N	0.67	NA	NA
86-74-8	Carbazole	NA	NA	NA	NA

SCREENING CRITERIA FOR SOIL AND SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	ORNL Regional Screening Levels[1]		Rhode Island Department of Environmental Management[2]	
		Direct Contact Residential (mg/kg)	Protection of Groundwater (mg/kg)	Direct Contact Residential (mg/kg)	Protection of Groundwater (mg/kg)
218-01-9	Chrysene	15 C	1.4	0.4	NA
84-74-2	di-n-Butyl Phthalate	6,100 N	11	NA	NA
53-70-3	Dibenzo(a,h)anthracene	0.015 C	0.015	0.4	NA
132-64-9	Dibenzofuran	NA	NA	NA	NA
84-66-2	Diethyl Phthalate	49,000 N	13	340	NA
206-44-0	Fluoranthene	2,300 N	210	20	NA
86-73-7	Fluorene	2,300 N	33	28	NA
118-74-1	Hexachlorobenzene	0.3 C	0.00029	0.4	NA
193-39-5	Indeno(1,2,3-cd)pyrene	0.15 C	0.16	0.9	NA
91-20-3	Naphthalene	3.9 C	0.00055	54	0.8
86-30-6	N-Nitrosodiphenylamine	99 C	0.17	NA	NA
87-86-5	Pentachlorophenol	3 C	0.0039	5.3	7.1
85-01-8	Phenanthrene	1,700 N[7]	150 [7]	40	NA
108-95-2	Phenol	18,000 N	8.1	6,000	NA
129-00-0	Pyrene	1,700 N	150	13	NA
Pesticides/PCBs					
72-54-8	4,4'-DDD	2 C	0.086	NA	NA
72-55-9	4,4'-DDE	1.4 C	0.06	NA	NA
50-29-3	4,4'-DDT	1.7 C	0.087	NA	NA
309-00-2	Aldrin	0.029 C	0.00084	NA	NA
5103-71-9	alpha-Chlordane	1.6 C[8]	0.033 [8]	0.5 [8]	1.4 [8]
12672-29-6	Aroclor-1248	0.22 C	0.003	10 [9]	10 [9]
11097-69-1	Aroclor-1254	1.1 N[5]	0.0051	10 [9]	10 [9]
11096-82-5	Aroclor-1260	0.22 C	0.014	10 [9]	10 [9]
11100-14-4	Aroclor-1268	0.22 C[10]	0.014 [10]	10 [9]	10 [9]
60-57-1	Dieldrin	0.03 C	0.00009	0.04	NA
33213-65-9	Endosulfan II	370 N[11]	9.7 [11]	NA	NA
1031-07-8	Endosulfan Sulfate	370 N[11]	9.7 [11]	NA	NA
72-20-8	Endrin	18 N	0.23	NA	NA
7421-93-4	Endrin Aldehyde	18 N[12]	0.23 [12]	NA	NA
53494-70-5	Endrin Ketone	18 N[12]	0.23 [12]	NA	NA
58-89-9	gamma-BHC (Lindane)	0.52 C	0.00043	NA	NA
5103-74-2	gamma-Chlordane	1.6 C[8]	0.033 [8]	0.5 [8]	NA
76-44-8	Heptachlor	0.11 C	0.0016	NA	NA
--	Total Aroclor	0.24 C[13]	NA	10	10
--	Total PCB Congeners	0.24 C[13]	NA	10	10
8001-35-2	Toxaphene	0.44 C	0.012	NA	NA
Inorganics					
7429-90-5	Aluminum	77,000 N	55,000	NA	NA
7440-36-0	Antimony	31 N	0.66	10	[14]
7440-38-2	Arsenic	0.39 C	0.0013	7	NA
7440-39-3	Barium	15,000 N	300	5,500	[14]
7440-41-7	Beryllium	160 N	58	0.4	[14]
7440-43-9	Cadmium	70 N	1.4	39	[14]
7440-70-2	Calcium	NA	NA	NA	NA
7440-47-3	Chromium	230 N[5,15]	2.1 [15]	390 [15]	[14]
7440-48-4	Cobalt	23 N	0.49	NA	NA
7440-50-8	Copper	3,100 N	51	3,100	NA
7439-89-6	Iron	55,000 N	640	NA	NA
7439-92-1	Lead	400	NA	150	[14]
7439-95-4	Magnesium	NA	NA	NA	NA
7439-96-5	Manganese	1,800 N	57	390	NA
7439-97-6	Mercury	23 N	0.57	23	[14]
7439-98-7	Molybdenum	390 N	3.7	NA	NA
7440-02-0	Nickel	1,600 N	48	1,000	[14]

SCREENING CRITERIA FOR SOIL AND SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	ORNL Regional Screening Levels[1]		Rhode Island Department of Environmental Management[2]	
		Direct Contact Residential (mg/kg)	Protection of Groundwater (mg/kg)	Direct Contact Residential (mg/kg)	Protection of Groundwater (mg/kg)
7440-09-7	Potassium	NA	NA	NA	NA
7782-49-2	Selenium	390 N	0.95	390	(14)
7440-22-4	Silver	390 N	1.6	200	NA
7440-23-5	Sodium	NA	NA	NA	NA
7440-28-0	Thallium	5.1 N	0.17	5.5	(14)
7440-62-2	Vanadium	390 N	180	550	NA
7440-66-6	Zinc	23,000 N	680	6,000	NA
Petroleum Hydrocarbons					
--	Extractable Petroleum Hydrocarbons	NA	NA	500	500
--	Gasoline Range Organics	NA	NA	NA	NA
--	TPH (C09-C36)	NA	NA	500	500
--	Diesel Range Organics	NA	NA	NA	NA
--	Gasoline Range Organics	NA	NA	NA	NA

Notes:

1 - Oak Ridge National Laboratory Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.
[Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].

2 - Rhode Island Department of Environmental Management (RIDEM), DEM-DSR-01-93, February 2004.

3 - Value is for m-xylene.

4 - Value is for 4-methylphenol.

5 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.

6 - Value is for acenaphthene.

7 - Value is for pyrene.

8 - Value is for chlordane.

9 - Value is for total PCBs.

10 - Value is for Aroclor-1260.

11 - Value is for Endosulfan.

12 - Value is for Endrin.

13 - Value is for high risk polychlorinated biphenyls.

14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.

15 - Value is for hexavalent chromium.

N - Noncarcinogenic.

C - Carcinogenic.

SCREENING CRITERIA FOR GROUNDWATER AND SURFACE WATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	ORNL Regional Screening Level[1] Tap Water (ug/L)	USEPA MCL[2] (ug/L)	RIDEM GA Groundwater Objective[3] (ug/L)	USEPA Groundwater Volatilization Criteria[4] (ug/L)
Volatile Organic Compounds					
71-55-6	1,1,1-Trichloroethane	9,100 N	200	200	3,100 N
79-00-5	1,1,2-Trichloroethane	0.24 C	5	5	4.1 C[5]
75-34-3	1,1-Dichloroethane	2.4 C	NA	NA	2,200 N
75-35-4	1,1-Dichloroethene	340 N	7	7	190 N
95-63-6	1,2,4-Trimethylbenzene	15 N	NA	NA	24 N
108-67-8	1,3,5-Trimethylbenzene	12 N	NA	NA	25 N
106-46-7	1,4-Dichlorobenzene	0.43 C	75	75	8,200 N
103-65-1	4-Isopropyltoluene	NA	NA	NA	NA
78-93-3	2-Butanone	7,100 N	NA	NA	440,000 N
67-64-1	Acetone	22,000 N	NA	NA	220,000 N
71-43-2	Benzene	0.41 C	5	5	1.4 C[5]
74-83-9	Bromomethane	8.7 N	NA	NA	20 N
75-15-0	Carbon Disulfide	1,000 N	NA	NA	560 N
56-23-5	Carbon Tetrachloride	0.2 C	5	5	0.13 C[5]
75-00-3	Chloroethane	21,000 N	NA	NA	28,000 N
67-66-3	Chloroform	0.19 C	80	NA	0.71 C[5]
74-87-3	Chloromethane	1.8 C	NA	NA	6.7 C
156-59-2	cis-1,2-Dichloroethene	370 N	70	70	210 N
100-41-4	Ethylbenzene	1.5 C	700	700	6.91 N[5]
98-82-8	Isopropylbenzene	680 N	NA	NA	8.4 N
74-82-8	Methane	NA	NA	NA	NA
--	m+p-Xylenes	NA	10,000 [6]	10,000 [6]	NA
104-51-8	N-Butylbenzene	NA	NA	NA	260 N
103-65-1	N-Propylbenzene	NA	NA	NA	320 N
95-47-6	o-Xylene	1,400 N	10,000 [6]	10,000 [6]	33,000 N
135-98-8	sec-Butylbenzene	NA	NA	NA	250 N
98-06-6	Tert-Butylbenzene	NA	NA	NA	290 N
127-18-4	Tetrachloroethene	0.11 C	5	5	1.1 C[5]
108-88-3	Toluene	2,300 N	1,000	1,000	1,500 N
540-59-0	Total 1,2-Dichloroethene	330 N	NA	NA	NA
1330-20-7	Total Xylenes	200 N	10,000	10,000	22,000 N[7]
156-60-5	trans-1,2-Dichloroethene	110 N	100	100	180 N
79-01-6	Trichloroethene	1.7 C	5	5	0.053 C[5]
75-01-4	Vinyl Chloride	0.016 C	2	2	0.25 C[5]
Semivolatile Organic Compounds					
207-08-9	Benzo(k)fluoranthene	0.029 C	NA	NA	NA
100-51-6	Benzyl Alcohol	18,000 N	NA	NA	NA
117-81-7	Bis(2-ethylhexyl)phthalate	4.8 C	6	6	NA
84-74-2	di-n-Butyl Phthalate	3,700 N	NA	NA	NA
85-01-8	Phenanthrene	1,100 N[8]	NA	NA	NA
Pesticides/PCBs					
72-55-9	4,4'-DDE	0.2 C	NA	NA	29 C
50-29-3	4,4'-DDT	0.2 C	NA	NA	NA
60-57-1	Dieldrin	0.0042 C	NA	NA	0.86 C
Inorganics					
7429-90-5	Aluminum	37,000 N	50 to 200 [9]	NA	NA
7440-36-0	Antimony	15 N	6	6	NA
7440-38-2	Arsenic	0.045 C	10	NA	NA
7440-39-3	Barium	7,300 N	2,000	2,000	NA
7440-41-7	Beryllium	73 N	4	4	NA
7440-70-2	Calcium	NA	NA	NA	NA
7440-47-3	Chromium	110 N[10]	100	100	NA
7440-48-4	Cobalt	11 N	NA	NA	NA
7440-50-8	Copper	1,500 N	1,300 [11]	NA	NA
7439-89-6	Iron	26,000 N	300 [9]	NA	NA

SCREENING CRITERIA FOR GROUNDWATER AND SURFACE WATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 2 OF 2

CAS No.	Parameter	ORNL Regional Screening Level[1] Tap Water	USEPA MCL[2]	RIDEM GA Groundwater Objective[3]	USEPA Groundwater Volatilization Criteria[4]
7439-92-1	Lead	NA	15 [11]	15	NA
7439-95-4	Magnesium	NA	NA	NA	NA
7439-96-5	Manganese	880 N	50 [9]	NA	NA
7439-97-6	Mercury	11 N	2	2	0.68 N
7439-98-7	Molybdenum	180 N	NA	NA	NA
7440-02-0	Nickel	730 N	NA	100	NA
7440-09-7	Potassium	NA	NA	NA	NA
7782-49-2	Selenium	180 N	50	50	NA
7440-22-4	Silver	180 N	100 [9]	NA	NA
7440-23-5	Sodium	NA	NA	NA	NA
7440-28-0	Thallium	2.4 N	2	2	NA
7440-62-2	Vanadium	180 N	NA	NA	NA
7440-66-6	Zinc	11,000 N	5,000 [9]	NA	NA
Miscellaneous Parameters					
--	Ammonia-N	NA	NA	NA	NA
--	Nitrate-N	58,000 N	10,000	NA	NA
--	Nitrite-N	3,700 N	1,000	NA	NA
--	Orthophosphate-P	NA	NA	NA	NA
14808-79-8	Sulfate	NA	250,000 [9]	NA	NA
18496-25-8	Sulfide	NA	NA	NA	NA
--	Total Organic Carbon	NA	NA	NA	NA
Petroleum Hydrocarbons					
--	Gasoline Range Organics	NA	NA	NA	NA
--	TPH (C09-C36)	NA	NA	NA	NA

Notes:

1 - Oak Ridge National Laboratory Regional (ORNL) Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008. [Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].
2 - 2006 Edition of the Drinking Water Standards and Health Advisories (USEPA, August 2006).
3 - RIDEM, Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, DEM-DSR-01-93 (February 200
4 - Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, EPA530-F-02-052 (November 2002).
Values are from Table 2c and correspond to a target cancer risk level of 1E-6 or HI =1 and an attenuation factor of 0.001.
5 - The value presented in Table 2c of the draft vapor intrusion guidance is based on the MCL. USEPA Region I requires the screening criteria for vapor intrusion to be risk-based. Therefore, the value from Table 2a adjusted for a 1E-6 cancer risk level is presented here.
6 - Value is for total xylenes.
7 - Value is for p-xylenes.
8 - Value is for pyrene.
9 - Secondary MCL.
10 - Value is for hexavalent chromium.
11 - The MCL for this parameter is actually a treatment technique. The SDWA action level (at the tap) has been presented.

SCREENING CRITERIA FOR FISH TISSUE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	Risk-Based Concentration[1] (mg/kg)
Pesticides/PCBs		
72-54-8	4,4'-DDD	0.0131 C
72-55-9	4,4'-DDE	0.00928 C
50-29-3	4,4'-DDT	0.00928 C
309-00-2	Aldrin	0.000186 C
5103-71-9	alpha-Chlordane	0.00901 C[2]
11097-69-1	Aroclor-1254	0.00158 C
11096-82-5	Aroclor-1260	0.00158 C
--	Total Aroclors/PCBs	0.00158 C
60-57-1	Dieldrin	0.000197 C
1031-07-8	Endosulfan Sulfate	8.11 N[3]
5103-74-2	gamma-Chlordane	0.00901 C[2]
Metals		
7429-90-5	Aluminum	1350 N
7440-38-2	Arsenic	0.0021 C
7440-39-3	Barium	270 N
7440-43-9	Cadmium	1.35 N
7440-70-2	Calcium	NA
7440-47-3	Chromium	4.06 N[4]
7440-48-4	Cobalt	0.406 N
7440-50-8	Copper	54.1 N
7439-89-6	Iron	946 N
7439-92-1	Lead	NA
7439-95-4	Magnesium	NA
7439-96-5	Manganese	189 N
7439-97-6	Mercury	0.135 N[5]
7439-98-7	Molybdenum	6.76 N
7440-02-0	Nickel	27 N
7440-09-7	Potassium	NA
7782-49-2	Selenium	6.76 N
7440-23-5	Sodium	NA
7440-62-2	Vanadium	6.81 N
7440-66-6	Zinc	406 N

Notes:
1 - USEPA Region 3 Fish Tissue Screening Levels, May 2008.
2 - Value is for chlordane.
3 - Value is for endosulfan.
4 - Value is for hexavalent chromium.
5 - Value is for methyl mercury.
C - Carcinogenic.
N - Noncarcinogenic.

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - DIRECT CONTACT - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Surface Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	1 J	1,600	UG/KG	DA-S-TP01-0001-01	4/74	0.19 - 590	1,600	Yes	6,700 N	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	860 J	860 J	UG/KG	DA-S-TP01-0001-01	1/74	0.16 - 590	860	Yes	4,700 N	NA	No	BSL
	78-93-3	2-Butanone	2.8 J	12 J	UG/KG	DA-MW118B-0001-LOCDEPTHMAX	3/74	0.24 - 1200	12	Yes	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	8	290	UG/KG	DA-S-SB03-0102-01	5/74	0.2 - 9.5	290	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.9	7,900 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	48/74	4 - 2200	7,900	Yes	6,100,000 N	7,800,000	No	BSL
	71-43-2	Benzene	2 J	2 J	UG/KG	DA-B106B-0002	1/74	0.17 - 120	2	Yes	1,100 C	2,500	No	BSL
	--	m+p-Xylenes	0.79 J	350	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	350	Yes	450,000 N[8]	NA	No	BSL
	75-09-2	Methylene Chloride	3 J	3 J	UG/KG	DA-SB141-0001-LOCDEPTHMAX	1/74	4.2 - 1200	3	Yes	11,000 C	45,000	No	BSL
	104-51-8	N-Butylbenzene	190	260	UG/KG	DA-S-TP01-0001-01	2/74	0.23 - 9.5	260	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	300	UG/KG	DA-S-TP01-0001-01	2/74	0.21 - 120	300	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	230	230	UG/KG	DA-S-TP01-0001-01	1/74	0.36 - 120	230	Yes	530,000 N	NA	No	BSL
	135-98-8	sec-Butylbenzene	6 J	6 J	UG/KG	DA-SS-B124B-0103-072108	1/74	0.2 - 160	6	Yes	NA	NA	No	NTX
	108-88-3	Toluene	4 J	4 J	UG/KG	DA-B106B-0002	1/74	0.18 - 180	4	Yes	500,000 N	190,000	No	BSL
	1330-20-7	Total Xylenes	0.79	580	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	580	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	4 J	8.5 J	UG/KG	DA-SB135-0001-LOCDEPTHMAX	3/74	0.22 - 130	8.5	Yes	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	660	660	UG/KG	DA-SB127-0001-LOCDEPTHMAX	1/55	345 - 720	660	Yes	390,000 N	NA	No	BSL
	91-57-6	2-Methylnaphthalene	3 J	2,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	40/74	22 - 4300	2,400	Yes	31,000 N	123,000	No	BSL
	91-94-1	3,3'-Dichlorobenzidine	110 J	110 J	UG/KG	DA-S-TP12-0001-01	1/73	98 - 27000	110	Yes	1,100 C	1,400	No	BSL
	83-32-9	Acenaphthene	2.4 J	9,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	57/74	22 - 2700	9,500	Yes	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	2.05 J	290 J	UG/KG	DA-S-TP12A-0001-01	39/74	21 - 2700	290	Yes	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	3.6 J	13,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	21 - 2700	13,000	Yes	1,700,000 N	35,000	No	BSL
	56-55-3	**Benzo(a)anthracene**	15 J	20,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	20,000	Yes	**150 C**	**900**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	18 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	17,000	Yes	**15 C**	**400**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	24.5	15,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	15,000	Yes	**150 C**	**900**	**Yes**	ASL
	191-24-2	**Benzo(g,h,i)perylene**	12 J	7,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	22 - 2700	7,400	Yes	170,000 N[10]	**800**	**Yes**	ASL
	207-08-9	**Benzo(k)fluoranthene**	13 J	12,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/74	22 - 2700	12,000	Yes	**1,500 C**	**900**	**Yes**	ASL
	65-85-0	Benzoic Acid	520 J	5,900 J	UG/KG	DA-S-TP09-0001-01	10/73	220 - 27000	5,900	Yes	24,000,000 N	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	280 J	4,500 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	13/73	110 - 5400	4,500	Yes	35,000 C	46,000	No	BSL
	85-68-7	Butyl Benzyl Phthalate	270 J	270 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	1/73	100 - 2700	270	Yes	26,000 N	NA	No	BSL
	86-74-8	Carbazole	160 J	7,300	UG/KG	DA-SB127-0001-LOCDEPTHMAX	15/73	73 - 2700	7,300	Yes	NA	NA	No	NTX
	218-01-9	**Chrysene**	13 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	81 - 2700	17,000	Yes	**15,000 C**	**400**	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	5.4 J	3,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	48/74	22 - 2700	3,500	Yes	**15 C**	**400**	**Yes**	ASL
	132-64-9	Dibenzofuran	200 J	4,700	UG/KG	DA-SB127-0001-LOCDEPTHMAX	6/73	120 - 2700	4,700	Yes	NA	NA	No	NTX
	206-44-0	**Fluoranthene**	22 J	45,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	66 - 2700	45,000	Yes	230,000 N	**20,000**	**Yes**	ASL
	86-73-7	Fluorene	2.3 J	5,900 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	51/74	22 - 2700	5,900	Yes	230,000 N	28,000	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	15	9,200	UG/KG	DA-SB127-0001-LOCDEPTHMAX	61/74	22 - 3800	9,200	Yes	**150 C**	**900**	**Yes**	ASL
	91-20-3	**Naphthalene**	2.3 J	11,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	45/74	3.4 - 560	11,000	Yes	**3,900 C**	54,000	**Yes**	ASL
	86-30-6	N-Nitrosodiphenylamine	400 J	400 J	UG/KG	DA-SB146-0001-LOCDEPTHMAX	1/73	97 - 1700	400	Yes	99,000 C	NA	No	BSL
	85-01-8	**Phenanthrene**	12 J	48,000 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	23 - 2700	48,000	Yes	170,000 N[10]	**40,000**	**Yes**	ASL
	129-00-0	**Pyrene**	16 J	50,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	50,000	Yes	170,000 N	**13,000**	**Yes**	ASL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	2.1 J	5.2 J	UG/KG	DA-SS149-011708	4/74	1.03 - 215	5.2	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	1.1 J	216	UG/KG	DA-S-TP07-0001-01	31/74	0.92 - 215	216	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1.2 J	184 J	UG/KG	DA-S-TP01-0001-01	26/74	1.26 - 215	184	Yes	1,700 C	NA	No	BSL
	5103-71-9	alpha-Chlordane	3.2 J	235	UG/KG	DA-S-TP07-0001-01	3/74	0.575 - 108	235	Yes	1,600 C[11]	500 [11]	No	BSL
	11097-69-1	**Aroclor-1254**	152 J	5,220 J	UG/KG	DA-S-TP07-0001-01	2/74	18 - 56.8	5,220	Yes	**110 N**[13]	10,000 [12]	**Yes**	ASL
	11096-82-5	**Aroclor-1260**	26 J	350 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	32/74	12.1 - 56.8	350	Yes	**220 C**	10,000 [12]	**Yes**	ASL
	11100-14-4	**Aroclor-1268**	134	620	UG/KG	DA-MW110B-0001-LOCDEPTHMAX	9/74	18 - 56.8	620	Yes	**220 C**[14]	10,000 [12]	**Yes**	ASL
	60-57-1	Dieldrin	1.3 J	23	UG/KG	DA-SS149-011708	3/74	0.804 - 215	23	Yes	30 C	40	No	BSL
	72-20-8	Endrin	2.4 J	2.4 J	UG/KG	DA-SB143-0001-LOCDEPTHMAX	1/74	0.92 - 215	2.4	Yes	1,800 N	NA	No	BSL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - DIRECT CONTACT - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	5103-74-2	gamma-Chlordane	3.2	10	UG/KG	DA-SS149-011708	2/74	0.575 - 108	10	Yes	1,600 C[11]	500 [11]	No	BSL
	76-44-8	Heptachlor	1.2 J	1.7 J	UG/KG	DA-MW115B-0001-LOCDEPTHMAX	2/74	0.69 - 108	1.7	Yes	110 C	NA	No	BSL
	--	**Total Aroclor**	26 J	5,220 J	UG/KG	DA-S-TP07-0001-01	34/74	18 - 57	5,220	Yes	**220 C**[15]	10,000	**Yes**	ASL
	Metals													
	7429-90-5	**Aluminum**	1,800	20,700	MG/KG	DA-SS148-011708	72/72	-	20,700	Yes	**7,700 N**	NA	**Yes**	ASL
	7440-36-0	**Antimony**	0.19 J	5.5 J	MG/KG	DA-S-TP10-0001-01	5/72	0.04 - 1.1	5.5	Yes	**3.1 N**	10	**Yes**	ASL
	7440-38-2	**Arsenic**	0.29	90	MG/KG	DA-S-TP13-0001-01	72/72	-	90	Yes	**0.39 C**	**7**	**Yes**	ASL
	7440-39-3	Barium	7.4	42.8	MG/KG	DA-SB145-0001-LOCDEPTHMAX	72/72	-	42.8	No	1,500 N	5,500	No	BSL, BKG
	7440-41-7	**Beryllium**	0.21 J	0.74 J	MG/KG	DA-SS148-011708	72/72	0.15 - 0.15	0.74	Yes	16 N	**0.4**	**Yes**	ASL
	7440-43-9	**Cadmium**	0.09	11	MG/KG	DA-S-TP01-0001-01	38/72	0.01 - 0.3	11	Yes	**7 N**	39	**Yes**	ASL
	7440-70-2	Calcium	39	8,940	MG/KG	DA-MW105B-0001-LOCDEPTHMAX	72/72	-	8,940	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	1 J	64 J	MG/KG	DA-S-TP10-0001-01	72/72	-	64	Yes	**23 N**[13,16]	390 [16]	**Yes**	ASL
	7440-48-4	**Cobalt**	0.82 J	218	MG/KG	DA-SS149-011708	72/72	-	218	Yes	**2.3 N**	NA	**Yes**	ASL
	7440-50-8	**Copper**	6.7	560	MG/KG	DA-S-TP10-0001-01	71/72	2.3 - 2.3	560	Yes	**310 N**	3,100	**Yes**	ASL
	7439-89-6	**Iron**	5,270	43,700	MG/KG	DA-SS149-011708	72/72	-	43,700	Yes	**5,500 N**	NA	**Yes**	ASL
	7439-92-1	**Lead**	4.2	2,870	MG/KG	DA-SS149-011708	72/72	-	2,870	Yes	**400**	**150**	**Yes**	ASL
	7439-95-4	Magnesium	407	6,240	MG/KG	DA-SB118-0002	72/72	-	6,240	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	79.8 J	2,020	MG/KG	DA-SS149-011708	72/72	-	2,020	Yes	**180 N**	**390**	**Yes**	ASL
	7439-97-6	Mercury	0.00821 J	2	MG/KG	DA-SB133-0001-LOCDEPTHMAX	67/72	0.00724 - 0.02	2	No	2.3 N	23	No	BSL, BKG
	7439-98-7	Molybdenum	0.22 J	7.6	MG/KG	DA-SS149-011708	46/72	0.1 - 0.72	7.6	Yes	39 N	NA	No	BSL
	7440-02-0	Nickel	0.98 J	38.5	MG/KG	DA-SB118-0002	72/72	-	38.5	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	125	886	MG/KG	DA-SB109-0001-LOCDEPTHMAX	72/72	92 - 92	886	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.19 J	0.67 J	MG/KG	DA-SB131-0001-LOCDEPTHMAX	8/72	0.1 - 0.91	0.67	Yes	39 N	390	No	BSL
	7440-22-4	Silver	0.16 J	2	MG/KG	DA-MW105B-0001-LOCDEPTHMAX, DA-S-TP01-0001-01	21/72	0.03 - 0.57	2	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	30 J	306	MG/KG	DA-SB146-0001-LOCDEPTHMAX	37/72	17 - 78.3	306	Yes	NA	NA	No	NUT
	7440-28-0	Thallium	0.3 J	0.3 J	MG/KG	DA-S-SB03-0102-01	1/72	0.02 - 0.97	0.3	Yes	0.51 N	5.5	No	BSL
	7440-62-2	**Vanadium**	1.5 J	47.2	MG/KG	DA-SB139-0001-LOCDEPTHMAX	72/72	-	47.2	No	**39 N**	550	**Yes**	ASL, BKG
	7440-66-6	Zinc	13.8	663	MG/KG	DA-SB122-0001-LOCDEPTHMAX	72/72	-	663	Yes	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	11,000	1,600,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/73	9500 - 62000	1,600,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.56 J	60	MG/KG	DA-SB122-0001-LOCDEPTHMAX	15/74	2.5 - 8.6	60	Yes	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - DIRECT CONTACT - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for Chlordane.
12 - Value is for total PCBs.
13 - Ten percent of noncarcinogenic screening level is less than the carcinogenic screening level, therefore the noncarcinogenic value is presented.
14 - Value is for Aroclor-1260.
15 - Value is for high risk polychlorinated biphenyls.
16 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-MW103B-0001-LOCDEPTHMAX
DA-MW104B-0001-LOCDEPTHMAX
DA-MW105B-0001-LOCDEPTHMAX
DA-B106B-0002
DA-MW110B-0001-LOCDEPTHMAX
DA-MW111B-0001-LOCDEPTHMAX
DA-MW112B-0001-LOCDEPTHMAX
DA-MW113B-0001-LOCDEPTHMAX
DA-MW114B-0001-LOCDEPTHMAX
DA-MW115B-0001-LOCDEPTHMAX
DA-MW116B-0001-LOCDEPTHMAX
DA-MW117B-0001-LOCDEPTHMAX
DA-MW118B-0001-LOCDEPTHMAX
DA-MW119B-0001-LOCDEPTHMAX
DA-MW120B-0001-LOCDEPTHMAX
DA-SS-B124B-0103-072108
DA-S-SB03-0102-01
DA-S-SB07-0102-01
DA-SB102B-0001-LOCDEPTHMAX
DA-SS103-011708
DA-SB103-0103
DA-SB104-0001-LOCDEPTHMAX
DA-SB105-0001-LOCDEPTHMAX
DA-SB106-0001-LOCDEPTHMAX
DA-SB107-0001-LOCDEPTHMAX
DA-SB107-0103
DA-SB108-0001-LOCDEPTHMAX
DA-SB109-0001-LOCDEPTHMAX
DA-SB110-0001-LOCDEPTHMAX
DA-SB118-0002
DA-SB121-0001-LOCDEPTHMAX
DA-SB122-0001-LOCDEPTHMAX
DA-SB123-0001-LOCDEPTHMAX
DA-SB124-0001-LOCDEPTHMAX
DA-SB125-0001-LOCDEPTHMAX
DA-SB126-0001-LOCDEPTHMAX
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DA-SB131-0001-LOCDEPTHMAX
DA-SB132-0001-LOCDEPTHMAX
DA-SB133-0001-LOCDEPTHMAX
DA-SB133-0102
DA-SB134-0001-LOCDEPTHMAX
DA-SB135-0001-LOCDEPTHMAX
DA-SB136-0001-LOCDEPTHMAX
DA-SB137-0001-LOCDEPTHMAX
DA-SB138-0001-LOCDEPTHMAX
DA-SB139-0001-LOCDEPTHMAX
DA-SB140-0001-LOCDEPTHMAX
DA-SB141-0001-LOCDEPTHMAX
DA-SB142-0001-LOCDEPTHMAX
DA-SB143-0001-LOCDEPTHMAX
DA-SB144-0001-LOCDEPTHMAX
DA-SB145-0001-LOCDEPTHMAX
DA-SB146-0001-LOCDEPTHMAX
DA-SS147-011708-AVG
DA-SS148-011708
DA-SS149-011708
DA-S-TP01-0001-01
DA-S-TP05-0001-01
DA-S-TP06-0001-01
DA-S-TP07-0001-01
DA-S-TP08-0001-01
DA-S-TP09-0001-01
DA-S-TP09-0102-01-AVG
DA-S-TP10-0001-01
DA-S-TP10-0102-01
DA-S-TP11-0001-01
DA-S-TP12-0001-01
DA-S-TP12-0102-01
DA-S-TP12A-0001-01
DA-S-TP12B-0001-01
DA-S-TP13-0001-01
DA-S-TP15-0001-01

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Surface Soil	**Volatile Organic Compounds**													
	95-63-6	**1,2,4-Trimethylbenzene**	1 J	1,600	UG/KG	DA-S-TP01-0001-01	4/74	0.19 - 590	1,600	Yes	**24**	NA	**Yes**	ASL
	108-67-8	**1,3,5-Trimethylbenzene**	860 J	860 J	UG/KG	DA-S-TP01-0001-01	1/74	0.16 - 590	860	Yes	**20**	NA	**Yes**	ASL
	78-93-3	2-Butanone	2.8 J	12 J	UG/KG	DA-MW118B-0001-LOCDEPTHMAX	3/74	0.24 - 1200	12	Yes	1,500	NA	No	BSL
	99-87-6	4-Isopropyltoluene	8	290	UG/KG	DA-S-SB03-0102-01	5/74	0.2 - 9.5	290	Yes	NA	NA	No	NTX
	67-64-1	**Acetone**	9.9	7,900 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	48/74	4 - 2200	7,900	Yes	**4,400**	NA	**Yes**	ASL
	71-43-2	**Benzene**	2 J	2 J	UG/KG	DA-B106B-0002	1/74	0.17 - 120	2	Yes	**0.23**	200	**Yes**	ASL
	--	m+p-Xylenes	0.79 J	350	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	350	Yes	1,600 [8]	NA	No	BSL
	75-09-2	**Methylene Chloride**	3 J	3 J	UG/KG	DA-SB141-0001-LOCDEPTHMAX	1/74	4.2 - 1200	3	Yes	**1.2**	NA	**Yes**	ASL
	104-51-8	N-Butylbenzene	190	260	UG/KG	DA-S-TP01-0001-01	2/74	0.23 - 9.5	260	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	300	UG/KG	DA-S-TP01-0001-01	2/74	0.21 - 120	300	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	230	230	UG/KG	DA-S-TP01-0001-01	1/74	0.36 - 120	230	Yes	1,600	NA	No	BSL
	135-98-8	sec-Butylbenzene	6 J	6 J	UG/KG	DA-SS-B124B-0103-072108	1/74	0.2 - 160	6	Yes	NA	NA	No	NTX
	108-88-3	Toluene	4 J	4 J	UG/KG	DA-B106B-0002	1/74	0.18 - 180	4	Yes	1,700	32,000	No	BSL
	1330-20-7	**Total Xylenes**	0.79	580	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	580	Yes	**230**	540,000	**Yes**	ASL
	79-01-6	**Trichloroethene**	4 J	8.5 J	UG/KG	DA-SB135-0001-LOCDEPTHMAX	3/74	0.22 - 130	8.5	Yes	**0.61**	200	**Yes**	ASL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	660	660	UG/KG	DA-SB127-0001-LOCDEPTHMAX	1/55	345 - 720	660	Yes	23,000	NA	No	BSL
	91-57-6	**2-Methylnaphthalene**	3 J	2,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	40/74	22 - 4300	2,400	Yes	**900**	NA	**Yes**	ASL
	91-94-1	**3,3'-Dichlorobenzidine**	110 J	110 J	UG/KG	DA-S-TP12-0001-01	1/73	98 - 27000	110	Yes	**2.3**	NA	**Yes**	ASL
	83-32-9	Acenaphthene	2.4 J	9,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	57/74	22 - 2700	9,500	Yes	27,000	NA	No	BSL
	208-96-8	Acenaphthylene	2.05 J	290 J	UG/KG	DA-S-TP12A-0001-01	39/74	21 - 2700	290	Yes	27,000 [9]	NA	No	BSL
	120-12-7	Anthracene	3.6 J	13,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	21 - 2700	13,000	Yes	450,000	NA	No	BSL
	56-55-3	**Benzo(a)anthracene**	15 J	20,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	20,000	Yes	**14**	NA	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	18 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	17,000	Yes	**4.6**	240,000	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	24.5	15,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	15,000	Yes	**47**	NA	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	12 J	7,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	22 - 2700	7,400	Yes	150,000 [10]	NA	No	BSL
	207-08-9	**Benzo(k)fluoranthene**	13 J	12,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/74	22 - 2700	12,000	Yes	**460**	NA	**Yes**	ASL
	65-85-0	Benzoic Acid	520 J	5,900 J	UG/KG	DA-S-TP09-0001-01	10/73	220 - 27000	5,900	Yes	33,000	NA	No	BSL
	117-81-7	**Bis(2-ethylhexyl)phthalate**	280 J	4,500 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	13/73	110 - 5400	4,500	Yes	**1,600**	NA	**Yes**	ASL
	85-68-7	Butyl Benzyl Phthalate	270 J	270 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	1/73	100 - 2700	270	Yes	670	NA	No	BSL
	86-74-8	Carbazole	160 J	7,300	UG/KG	DA-SB127-0001-LOCDEPTHMAX	15/73	73 - 2700	7,300	Yes	NA	NA	No	NTX
	218-01-9	**Chrysene**	13 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	81 - 2700	17,000	Yes	**1,400**	NA	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	5.4 J	3,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	48/74	22 - 2700	3,500	Yes	**15**	NA	**Yes**	ASL
	132-64-9	Dibenzofuran	200 J	4,700	UG/KG	DA-SB127-0001-LOCDEPTHMAX	6/73	120 - 2700	4,700	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	22 J	45,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	66 - 2700	45,000	Yes	210,000	NA	No	BSL
	86-73-7	Fluorene	2.3 J	5,900 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	51/74	22 - 2700	5,900	Yes	33,000	NA	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	15	9,200	UG/KG	DA-SB127-0001-LOCDEPTHMAX	61/74	22 - 3800	9,200	Yes	**160**	NA	**Yes**	ASL
	91-20-3	**Naphthalene**	2.3 J	11,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	45/74	3.4 - 560	11,000	Yes	**0.55**	**800**	**Yes**	ASL
	86-30-6	**N-Nitrosodiphenylamine**	400 J	400 J	UG/KG	DA-SB146-0001-LOCDEPTHMAX	1/73	97 - 1700	400	Yes	**170**	NA	**Yes**	ASL
	85-01-8	Phenanthrene	12 J	48,000 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	23 - 2700	48,000	Yes	150,000 [10]	NA	No	BSL
	129-00-0	Pyrene	16 J	50,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	50,000	Yes	150,000	NA	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	2.1 J	5.2 J	UG/KG	DA-SS149-011708	4/74	1.03 - 215	5.2	Yes	86	NA	No	BSL
	72-55-9	**4,4'-DDE**	1.1 J	216	UG/KG	DA-S-TP07-0001-01	31/74	0.92 - 215	216	Yes	**60**	NA	**Yes**	ASL
	50-29-3	**4,4'-DDT**	1.2 J	184 J	UG/KG	DA-S-TP01-0001-01	26/74	1.26 - 215	184	Yes	**87**	NA	**Yes**	ASL
	5103-71-9	**alpha-Chlordane**	3.2 J	235	UG/KG	DA-S-TP07-0001-01	3/74	0.575 - 108	235	Yes	**33** [11]	1,400 [11]	**Yes**	ASL
	11097-69-1	**Aroclor-1254**	152 J	5,220 J	UG/KG	DA-S-TP07-0001-01	2/74	18 - 56.8	5,220	Yes	**5.1**	10,000 [12]	**Yes**	ASL
	11096-82-5	**Aroclor-1260**	26 J	350 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	32/74	12.1 - 56.8	350	Yes	**14**	10,000 [12]	**Yes**	ASL
	11100-14-4	**Aroclor-1268**	134	620	UG/KG	DA-MW110B-0001-LOCDEPTHMAX	9/74	18 - 56.8	620	Yes	**14** [13]	10,000 [12]	**Yes**	ASL
	60-57-1	**Dieldrin**	1.3 J	23	UG/KG	DA-SS149-011708	3/74	0.804 - 215	23	Yes	**0.09**	NA	**Yes**	ASL
	72-20-8	Endrin	2.4 J	2.4 J	UG/KG	DA-SB143-0001-LOCDEPTHMAX	1/74	0.92 - 215	2.4	Yes	230	NA	No	BSL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	5103-74-2	gamma-Chlordane	3.2	10	UG/KG	DA-SS149-011708	2/74	0.575 - 108	10	Yes	33 [11]	1,400 [11]	No	BSL
	76-44-8	**Heptachlor**	1.2 J	1.7 J	UG/KG	DA-MW115B-0001-LOCDEPTHMAX	2/74	0.69 - 108	1.7	Yes	**1.6**	NA	**Yes**	ASL
	--	Total Aroclor	26 J	5,220 J	UG/KG	DA-S-TP07-0001-01	34/74	18 - 57	5,220	Yes	NA	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	1,800	20,700	MG/KG	DA-SS148-011708	72/72	-	20,700	Yes	55,000	NA	No	BSL
	7440-36-0	**Antimony**	0.19 J	5.5 J	MG/KG	DA-S-TP10-0001-01	5/72	0.04 - 1.1	5.5	Yes	**0.66**	[14]	**Yes**	ASL
	7440-38-2	**Arsenic**	0.29	90	MG/KG	DA-S-TP13-0001-01	72/72	-	90	Yes	**0.0013**	NA	**Yes**	ASL
	7440-39-3	Barium	7.4	42.8	MG/KG	DA-SB145-0001-LOCDEPTHMAX	72/72	-	42.8	No	300	[14]	No	BSL, BKG
	7440-41-7	Beryllium	0.21 J	0.74 J	MG/KG	DA-SS148-011708	72/72	0.15 - 0.15	0.74	Yes	58	[14]	No	BSL
	7440-43-9	**Cadmium**	0.09	11	MG/KG	DA-S-TP01-0001-01	38/72	0.01 - 0.3	11	Yes	**1.4**	[14]	**Yes**	ASL
	7440-70-2	Calcium	39	8,940	MG/KG	DA-MW105B-0001-LOCDEPTHMAX	72/72	-	8,940	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	1 J	64 J	MG/KG	DA-S-TP10-0001-01	72/72	-	64	Yes	**2.1** [15]	[14]	**Yes**	ASL
	7440-48-4	**Cobalt**	0.82 J	218	MG/KG	DA-SS149-011708	72/72	-	218	Yes	**0.49**	NA	**Yes**	ASL
	7440-50-8	**Copper**	6.7	560	MG/KG	DA-S-TP10-0001-01	71/72	2.3 - 2.3	560	Yes	**51**	NA	**Yes**	ASL
	7439-89-6	**Iron**	5,270	43,700	MG/KG	DA-SS149-011708	72/72	-	43,700	Yes	**640**	NA	**Yes**	ASL
	7439-92-1	Lead	4.2	2,870	MG/KG	DA-SS149-011708	72/72	-	2,870	Yes	NA	[14]	No	NTX
	7439-95-4	Magnesium	407	6,240	MG/KG	DA-SB118-0002	72/72	-	6,240	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	79.8 J	2,020	MG/KG	DA-SS149-011708	72/72	-	2,020	Yes	**57**	NA	**Yes**	ASL
	7439-97-6	**Mercury**	0.00821 J	2	MG/KG	DA-SB133-0001-LOCDEPTHMAX	67/72	0.00724 - 0.02	2	No	**0.57**	[14]	**Yes**	ASL, BKG
	7439-98-7	**Molybdenum**	0.22 J	7.6	MG/KG	DA-SS149-011708	46/72	0.1 - 0.72	7.6	Yes	**3.7**	NA	**Yes**	ASL
	7440-02-0	Nickel	0.98 J	38.5	MG/KG	DA-SB118-0002	72/72	-	38.5	Yes	48	[14]	No	BSL
	7440-09-7	Potassium	125	886	MG/KG	DA-SB109-0001-LOCDEPTHMAX	72/72	92 - 92	886	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.19 J	0.67 J	MG/KG	DA-SB131-0001-LOCDEPTHMAX	8/72	0.1 - 0.91	0.67	Yes	0.95	[14]	No	BSL
	7440-22-4	**Silver**	0.16 J	2	MG/KG	DA-MW105B-0001-LOCDEPTHMAX, DA-S-TP01-0001-01	21/72	0.03 - 0.57	2	Yes	**1.6**	NA	**Yes**	ASL
	7440-23-5	Sodium	30 J	306	MG/KG	DA-SB146-0001-LOCDEPTHMAX	37/72	17 - 78.3	306	Yes	NA	NA	No	NUT
	7440-28-0	**Thallium**	0.3 J	0.3 J	MG/KG	DA-S-SB03-0102-01	1/72	0.02 - 0.97	0.3	Yes	**0.17**	[14]	**Yes**	ASL
	7440-62-2	Vanadium	1.5 J	47.2	MG/KG	DA-SB139-0001-LOCDEPTHMAX	72/72	-	47.2	No	180	NA	No	BSL, BKG
	7440-66-6	Zinc	13.8	663	MG/KG	DA-SB122-0001-LOCDEPTHMAX	72/72	-	663	Yes	680	NA	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	11,000	1,600,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/73	9500 - 62000	1,600,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.56 J	60	MG/KG	DA-SB122-0001-LOCDEPTHMAX	15/74	2.5 - 8.6	60	Yes	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for Chlordane.
12 - Value is for total PCBs.
13 - Value is for Aroclor-1260.
14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
15 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-MW103B-0001-LOCDEPTHMAX
DA-MW104B-0001-LOCDEPTHMAX
DA-MW105B-0001-LOCDEPTHMAX
DA-B106B-0002
DA-MW110B-0001-LOCDEPTHMAX
DA-MW111B-0001-LOCDEPTHMAX
DA-MW112B-0001-LOCDEPTHMAX
DA-MW113B-0001-LOCDEPTHMAX
DA-MW114B-0001-LOCDEPTHMAX
DA-MW115B-0001-LOCDEPTHMAX
DA-MW116B-0001-LOCDEPTHMAX
DA-MW117B-0001-LOCDEPTHMAX
DA-MW118B-0001-LOCDEPTHMAX
DA-MW119B-0001-LOCDEPTHMAX
DA-MW120B-0001-LOCDEPTHMAX
DA-SS-B124B-0103-072108
DA-S-SB03-0102-01
DA-S-SB07-0102-01
DA-SB102B-0001-LOCDEPTHMAX
DA-SS103-011708
DA-SB103-0103
DA-SB104-0001-LOCDEPTHMAX
DA-SB105-0001-LOCDEPTHMAX
DA-SB106-0001-LOCDEPTHMAX
DA-SB107-0001-LOCDEPTHMAX
DA-SB107-0103
DA-SB108-0001-LOCDEPTHMAX
DA-SB109-0001-LOCDEPTHMAX
DA-SB110-0001-LOCDEPTHMAX
DA-SB118-0002
DA-SB121-0001-LOCDEPTHMAX
DA-SB122-0001-LOCDEPTHMAX
DA-SB123-0001-LOCDEPTHMAX
DA-SB124-0001-LOCDEPTHMAX
DA-SB125-0001-LOCDEPTHMAX
DA-SB126-0001-LOCDEPTHMAX
DA-SB127-0001-LOCDEPTHMAX
DA-SB128-0001-LOCDEPTHMAX
DA-SB129-0001-LOCDEPTHMAX
DA-SB130-0001-LOCDEPTHMAX
DA-SB131-0001-LOCDEPTHMAX
DA-SB132-0001-LOCDEPTHMAX
DA-SB133-0001-LOCDEPTHMAX
DA-SB133-0102
DA-SB134-0001-LOCDEPTHMAX
DA-SB135-0001-LOCDEPTHMAX
DA-SB136-0001-LOCDEPTHMAX
DA-SB137-0001-LOCDEPTHMAX
DA-SB138-0001-LOCDEPTHMAX
DA-SB139-0001-LOCDEPTHMAX
DA-SB140-0001-LOCDEPTHMAX
DA-SB141-0001-LOCDEPTHMAX
DA-SB142-0001-LOCDEPTHMAX
DA-SB143-0001-LOCDEPTHMAX
DA-SB144-0001-LOCDEPTHMAX
DA-SB145-0001-LOCDEPTHMAX
DA-SB146-0001-LOCDEPTHMAX
DA-SS147-011708-AVG
DA-SS148-011708
DA-SS149-011708
DA-S-TP01-0001-01
DA-S-TP05-0001-01
DA-S-TP06-0001-01
DA-S-TP07-0001-01
DA-S-TP08-0001-01
DA-S-TP09-0001-01
DA-S-TP09-0102-01-AVG
DA-S-TP10-0001-01
DA-S-TP10-0102-01
DA-S-TP11-0001-01
DA-S-TP12-0001-01
DA-S-TP12-0102-01
DA-S-TP12A-0001-01
DA-S-TP12B-0001-01
DA-S-TP13-0001-01
DA-S-TP15-0001-01

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - DIRECT CONTACT - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Subsurface Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	1.1 J	46	UG/KG	DA-B110B-1012	2/65	0.23 - 900	46	Yes	6,700 N	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	20	20	UG/KG	DA-B110B-1012	1/65	0.2 - 960	20	Yes	4,700 N	NA	No	BSL
	78-93-3	2-Butanone	5.1 J	7.9	UG/KG	DA-S-SB03-0304-01	2/65	0.29 - 5900	7.9	Yes	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	2.7	11	UG/KG	DA-B110B-1012	2/65	0.24 - 1200	11	Yes	NA	NA	No	NTX
	67-64-1	Acetone	8	1,000 J	UG/KG	DA-B110B-1012	30/65	4.8 - 5300	1,000	Yes	6,100,000 N	7,800,000	No	BSL
	75-15-0	Carbon Disulfide	2.4 J	2.4 J	UG/KG	DA-S-SB03-0607-01	1/65	0.31 - 970	2.4	Yes	67,000 N	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.28 - 650	1.3	Yes	78,000 N	630,000	No	BSL
	--	m+p-Xylenes	0.78 J	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	450,000 N[8]	NA	No	BSL
	75-09-2	Methylene Chloride	2 J	670 J	UG/KG	DA-S-TP15A-0506-01	2/65	5.1 - 1300	670	Yes	11,000 C	45,000	No	BSL
	104-51-8	N-Butylbenzene	1.8	1.8	UG/KG	DA-S-SB03-0607-01	1/65	0.28 - 1400	1.8	Yes	NA	NA	No	NTX
	135-98-8	sec-Butylbenzene	1.4	4 J	UG/KG	DA-B110B-1012	3/65	0.24 - 1400	4	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.93 J	1.2 J	UG/KG	DA-S-SB03-0304-01	2/65	0.25 - 1000	1.2	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.64 J	11	UG/KG	DA-SB-TP103-0506	12/65	0.24 - 1500	11	Yes	570 C	12,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.26 - 920	1.3	Yes	70,000 N	NA	No	BSL
	1330-20-7	Total Xylenes	0.78	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	1.7	30	UG/KG	DA-SB-TP103-0506	7/65	0.27 - 1200	30	Yes	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	170 J	8,300 J	UG/KG	DA-SB110-0810	4/40	350 - 400	8,300	Yes	390,000 N	NA	No	BSL
	105-67-9	2,4-Dimethylphenol	390	390	UG/KG	DA-SB127-0204	1/64	350 - 270000	390	Yes	120,000 N	NA	No	BSL
	51-28-5	2,4-Dinitrophenol	310 J	310 J	UG/KG	DA-S-TP14-0910-01	1/65	140 - 74000	310	Yes	12,000 N	160,000	No	BSL
	91-57-6	2-Methylnaphthalene	5.6 J	23,000 J	UG/KG	DA-SB110-0810	27/65	21 - 110000	23,000	Yes	31,000 N	123,000	No	BSL
	--	3&4-Methylphenol	740	2,200 J	UG/KG	DA-SB110-0810	2/65	180 - 95000	2,200	Yes	31,000 N[9]	NA	No	BSL
	91-94-1	3,3'-Dichlorobenzidine	220 J	220 J	UG/KG	DA-S-TP14-0910-01	1/65	99 - 53000	220	Yes	1,100 C	1,400	No	BSL
	534-52-1	4,6-Dinitro-2-Methylphenol	260 J	260 J	UG/KG	DA-S-TP14-0910-01	1/65	110 - 61000	260	Yes	610 N	NA	No	BSL
	100-01-6	4-Nitroaniline	420 J	420 J	UG/KG	DA-S-TP14-0910-01	1/65	180 - 99000	420	Yes	18,000 N[10]	NA	No	BSL
	100-02-7	4-Nitrophenol	520 J	520 J	UG/KG	DA-S-TP14-0910-01	1/65	230 - 120000	520	Yes	NA	NA	No	NTX
	83-32-9	**Acenaphthene**	2.1 J	480,000	UG/KG	DA-S-TP15A-0506-01	39/65	21 - 620	480,000	Yes	**340,000 N**	**43,000**	**Yes**	ASL
	208-96-8	Acenaphthylene	1.9 J	3,500 J	UG/KG	DA-S-TP08-0708-01	9/65	21 - 45000	3,500	Yes	340,000 N[11]	23,000	No	BSL
	120-12-7	**Anthracene**	2.9 J	970,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	970,000	Yes	1,700,000 N	**35,000**	**Yes**	ASL
	56-55-3	**Benzo(a)anthracene**	3.2 J	1,900,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,900,000	Yes	**150 C**	**900**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	6.2 J	1,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	1,500,000	Yes	**15 C**	**400**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	7.2 J	1,300,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,300,000	Yes	**150 C**	**900**	**Yes**	ASL
	191-24-2	**Benzo(g,h,i)perylene**	8.5 J	830,000	UG/KG	DA-S-TP15A-0506-01	42/65	21 - 620	830,000	Yes	**170,000 N**[12]	**800**	**Yes**	ASL
	207-08-9	**Benzo(k)fluoranthene**	7.3 J	1,200,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,200,000	Yes	**1,500 C**	**900**	**Yes**	ASL
	65-85-0	Benzoic Acid	440 J	2,300 J	UG/KG	DA-S-TP14-0910-01	3/65	220 - 120000	2,300	Yes	24,000,000 N	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	240 J	1,900	UG/KG	DA-SB105-0406	14/65	110 - 58000	1,900	Yes	35,000 C	46,000	No	BSL
	86-74-8	Carbazole	92 J	490,000	UG/KG	DA-S-TP15A-0506-01	26/65	74 - 620	490,000	Yes	NA	NA	No	NTX
	218-01-9	**Chrysene**	3.3 J	1,700,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,700,000	Yes	**15,000 C**	**400**	**Yes**	ASL
	84-74-2	di-n-Butyl Phthalate	120 J	120 J	UG/KG	DA-S-TP15A-0506-01	1/65	74 - 40000	120	Yes	610 N	NA	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	4.5 J	330,000	UG/KG	DA-S-TP15A-0506-01	35/65	21 - 620	330,000	Yes	**15 C**	**400**	**Yes**	ASL
	132-64-9	Dibenzofuran	230 J	250,000 J	UG/KG	DA-S-MW04B-1416-01	17/65	120 - 620	250,000	Yes	NA	NA	No	NTX
	206-44-0	**Fluoranthene**	4.8 J	4,600,000	UG/KG	DA-S-TP15A-0506-01	46/65	21 - 620	4,600,000	Yes	**230,000 N**	**20,000**	**Yes**	ASL
	86-73-7	Fluorene	2.8 J	480,000	UG/KG	DA-S-TP15A-0506-01	37/65	21 - 620	480,000	Yes	**230,000 N**	**28,000**	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	10 J	850,000	UG/KG	DA-S-TP15A-0506-01	40/65	21 - 860	850,000	Yes	**150 C**	**900**	**Yes**	ASL
	91-20-3	**Naphthalene**	8.8 J	220,000 J	UG/KG	DA-S-TP15A-0506-01	33/65	3.7 - 23	220,000	Yes	**3,900 C**	**54,000**	**Yes**	ASL
	87-86-5	Pentachlorophenol	410 J	410 J	UG/KG	DA-S-TP06-0304-01	1/65	380 - 200000	410	Yes	3,000 C	5,300	No	BSL
	85-01-8	**Phenanthrene**	15 J	3,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	3,500,000	Yes	**170,000 N**[12]	**40,000**	**Yes**	ASL
	108-95-2	Phenol	380 J	380 J	UG/KG	DA-SB127-0204	1/65	100 - 56000	380	Yes	1,800,000 N	6,000,000	No	BSL
	129-00-0	**Pyrene**	18 J	3,600,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	3,600,000	Yes	**170,000 N**	**13,000**	**Yes**	ASL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - DIRECT CONTACT - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	3.1 J	3.1 J	UG/KG	DA-SB106-0608	1/65	1.01 - 410	3.1	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	0.92 J	2.1 J	UG/KG	DA-B112B-0608	3/65	0.889 - 193	2.1	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1.7 J	347 J	UG/KG	DA-S-TP07-0304-01	9/65	1.24 - 386	347	Yes	1,700 C	NA	No	BSL
	5103-71-9	alpha-Chlordane	15 J	15 J	UG/KG	DA-B119B-0204	1/65	0.562 - 144	15	Yes	1,600 C[13]	500 [13]	No	BSL
	12672-29-6	**Aroclor-1248**	132 J	2,190 J	UG/KG	DA-S-TP07-0910-01	2/65	18 - 229	2,190	Yes	**220 C**	10,000 [14]	**Yes**	ASL
	11097-69-1	Aroclor-1254	40	44.5 J	UG/KG	DA-S-TP15A-0910-01	2/65	18 - 229	44.5	Yes	110 N[5]	10,000 [14]	No	BSL
	11096-82-5	**Aroclor-1260**	19	1,100 J	UG/KG	DA-SB-TP103-0506	6/65	12.2 - 129	1,100	Yes	**220 C**	10,000 [14]	**Yes**	ASL
	11100-14-4	**Aroclor-1268**	27.4 J	4,060 J	UG/KG	DA-B104B-0406-AVG	10/65	18 - 229	4,060	Yes	**220 C**[15]	10,000 [14]	**Yes**	ASL
	33213-65-9	Endosulfan Sulfate	2 J	2 J	UG/KG	DA-SB129-0406	1/65	1.01 - 265	2	Yes	37,000 N[16]	NA	No	BSL
	72-20-8	Endrin Aldehyde	1.2 J	1.2 J	UG/KG	DA-SB133-0810	1/65	1.44 - 313	1.2	Yes	1,800 N[17]	NA	No	BSL
	5103-74-2	gamma-Chlordane	20	20	UG/KG	DA-B119B-0204	1/65	0.556 - 120	20	Yes	1,600 C[13]	500 [13]	No	BSL
	76-44-8	Heptachlor	1.28 J	52 J	UG/KG	DA-SB110-0810	6/65	0.667 - 144	52	Yes	110 C	NA	No	BSL
	--	**Total Aroclor**	19	4,060 J	UG/KG	DA-B104B-0406-AVG	16/65	18 - 220	4,060	Yes	**220 C**[18]	10,000	**Yes**	ASL
	Metals													
	7429-90-5	**Aluminum**	4,450	27,200	MG/KG	DA-SB139-1012	65/65	-	27,200	Yes	**7,700 N**	NA	**Yes**	ASL
	7440-36-0	**Antimony**	0.26	6.2	MG/KG	DA-S-TP07-0910-01	7/65	0.04 - 2.2	6.2	Yes	**3.1 N**	10	**Yes**	ASL
	7440-38-2	**Arsenic**	2.7 J	40	MG/KG	DA-S-TP13-0203-01	65/65	-	40	Yes	**0.39 C**	**7**	**Yes**	ASL
	7440-39-3	Barium	6.9	653	MG/KG	DA-SB106-0608	65/65	-	653	Yes	1,500 N	5,500	No	BSL
	7440-41-7	**Beryllium**	0.21 J	2.5	MG/KG	DA-S-TP15A-0203-01	65/65	-	2.5	No	16 N	**0.4**	**Yes**	ASL, BKG
	7440-43-9	**Cadmium**	0.17	8.8	MG/KG	DA-SB132-0406	24/65	0.01 - 0.32	8.8	Yes	**7 N**	39	**Yes**	ASL
	7440-70-2	Calcium	70	53,000 J	MG/KG	DA-S-TP15A-0203-01	65/65	-	53,000	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	2.6	98.2	MG/KG	DA-SB106-0608	65/65	-	98.2	Yes	**23 N**[10,19]	390 [19]	**Yes**	ASL
	7440-48-4	**Cobalt**	3.4 J	35.6	MG/KG	DA-SB106-0608	65/65	-	35.6	Yes	**2.3 N**	NA	**Yes**	ASL
	7440-50-8	**Copper**	2.1	2,600	MG/KG	DA-S-TP07-0910-01	65/65	-	2,600	Yes	**310 N**	3,100	**Yes**	ASL
	7439-89-6	**Iron**	3,800	134,000	MG/KG	DA-SB106-0608	65/65	-	134,000	Yes	**5,500 N**	NA	**Yes**	ASL
	7439-92-1	**Lead**	6.2	4,650	MG/KG	DA-SB106-0608	65/65	-	4,650	Yes	**400**	**150**	**Yes**	ASL
	7439-95-4	Magnesium	1,160	24,000	MG/KG	DA-S-TP15A-0203-01	65/65	-	24,000	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	180	3,300	MG/KG	DA-S-SB03-0304-01	65/65	-	3,300	No	**180 N**	**390**	**Yes**	ASL, BKG
	7439-97-6	Mercury	0.0088 J	0.22	MG/KG	DA-B105B-0204	43/65	0.007 - 0.02	0.22	Yes	2.3 N	23	No	BSL
	7439-98-7	**Molybdenum**	0.12 J	58.8	MG/KG	DA-SB106-0608	43/65	0.02 - 0.41	58.8	Yes	**39 N**	NA	**Yes**	ASL
	7440-02-0	Nickel	4.4	102	MG/KG	DA-SB106-0608	65/65	-	102	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	81	3,400	MG/KG	DA-S-TP15A-0506-01	65/65	-	3,400	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.32 J	0.36 J	MG/KG	DA-S-TP15A-0506-01	2/65	0.11 - 2.63	0.36	No	39 N	390	No	BSL, BKG
	7440-22-4	Silver	0.12	2.5	MG/KG	DA-S-TP07-0910-01	21/65	0.031 - 1.9	2.5	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	24.7 J	1,500	MG/KG	DA-S-TP15A-0506-01	35/65	16 - 119	1,500	No	NA	NA	No	NUT, BKG
	7440-28-0	**Thallium**	0.06 J	0.89 J	MG/KG	DA-S-TP05-0607-01	2/65	0.01 - 0.89	0.89	No	**0.51 N**	5.5	**Yes**	ASL, BKG
	7440-62-2	**Vanadium**	6.1	53.8 J	MG/KG	DA-SB135-1214	65/65	-	53.8	Yes	**39 N**	550	**Yes**	ASL
	7440-66-6	**Zinc**	30	9,840	MG/KG	DA-B110B-1012	65/65	-	9,840	Yes	**2,300 N**	**6,000**	**Yes**	ASL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	2,300 J	63,000,000	UG/KG	DA-S-TP15A-0506-01	52/63	5700 - 62000	63,000,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.79 J	51	MG/KG	DA-S-TP15A-0203-01	23/65	0.86 - 8.75	51	Yes	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - DIRECT CONTACT - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Above Background Concentration?(4)	Screening Toxicity Value(5)	Screening Toxicity Value(6)	COPC Flag	Rationale for Contaminant Deletion or Selection(7)

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for 4-methylphenol.
10 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.
11 - Value is for acenaphthene.
12 - Value is for pyrene.
13 - Value is for Chlordane.
14 - Value is for total PCBs.
15 - Value is for Aroclor-1260.
16 - Value is for Endosulfan.
17 - Value is for Endrin.
18 - Value is for high risk polychlorinated biphenyls.
19 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-B103B-0810	DA-SB125-0810	DA-S-TP06-0304-01
DA-B104B-0406-AVG	DA-SB126-1013	DA-S-TP06-0910-01
DA-B104B-1012	DA-SB127-0204	DA-S-TP07-0304-01
DA-B105B-0204	DA-SB128-0810-AVG	DA-S-TP07-0910-01
DA-B106B-0406	DA-SB129-0406	DA-S-TP08-0304-01-AVG
DA-B110B-1012	DA-SB130-1011.5	DA-S-TP08-0708-01
DA-B111B-0406	DA-SB131-0406	DA-S-TP11-0203-01-AVG
DA-B112B-0608	DA-SB132-0406	DA-S-TP11-0304-01
DA-B113B-0608	DA-SB133-0810	DA-S-TP12-0203-01
DA-B114B-0204	DA-SB134-0405	DA-S-TP13-0203-01
DA-B116B-0305	DA-SB135-1214	DA-S-TP13-0405-01
DA-B118B-0608	DA-SB136-0810	DA-S-TP14-0910-01
DA-B119B-0204	DA-SB137-0406	DA-S-TP15-0203-01
DA-B120B-0204	DA-SB138-0406-AVG	DA-S-TP15-0506-01
DA-SB104-0608	DA-SB139-0406	DA-S-TP15A-0203-01
DA-SB105-0406	DA-SB139-1012	DA-S-TP15A-0506-01
DA-SB106-0608	DA-SB-TP103-0506	DA-S-TP15A-0910-01
DA-SB108-0204	DA-S-MW04B-0810-01	
DA-SB109-0204	DA-S-MW04B-1416-01	
DA-SB110-0810	DA-S-SB03-0304-01	
DA-SB118-0406	DA-S-SB03-0607-01	
DA-SB121-0406	DA-S-TP01-0304-01	
DA-SB122-0407	DA-S-TP01-0607-01	
DA-SB123-0508	DA-S-TP05-0607-01	
DA-SB124-0608	DA-S-TP05-0910-01-AVG	

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Subsurface Soil	**Volatile Organic Compounds**													
	95-63-6	**1,2,4-Trimethylbenzene**	1.1 J	46	UG/KG	DA-B110B-1012	2/65	0.23 - 900	46	Yes	**24**	NA	**Yes**	ASL
	108-67-8	1,3,5-Trimethylbenzene	20	20	UG/KG	DA-B110B-1012	1/65	0.2 - 960	20	Yes	20	NA	No	BSL
	78-93-3	2-Butanone	5.1 J	7.9	UG/KG	DA-S-SB03-0304-01	2/65	0.29 - 5900	7.9	Yes	1,500	NA	No	BSL
	99-87-6	4-Isopropyltoluene	2.7	11	UG/KG	DA-B110B-1012	2/65	0.24 - 1200	11	Yes	NA	NA	No	NTX
	67-64-1	Acetone	8	1,000 J	UG/KG	DA-B110B-1012	30/65	4.8 - 5300	1,000	Yes	4,400	NA	No	BSL
	75-15-0	Carbon Disulfide	2.4 J	2.4 J	UG/KG	DA-S-SB03-0607-01	1/65	0.31 - 970	2.4	Yes	270	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.28 - 650	1.3	Yes	110	1,700	No	BSL
	--	m+p-Xylenes	0.78 J	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	1,600 [8]	NA	No	BSL
	75-09-2	**Methylene Chloride**	2 J	670 J	UG/KG	DA-S-TP15A-0506-01	2/65	5.1 - 1300	670	Yes	**1.2**	NA	**Yes**	ASL
	104-51-8	N-Butylbenzene	1.8	1.8	UG/KG	DA-S-SB03-0607-01	1/65	0.28 - 1400	1.8	Yes	NA	NA	No	NTX
	135-98-8	sec-Butylbenzene	1.4	4 J	UG/KG	DA-B110B-1012	3/65	0.24 - 1400	4	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.93 J	1.2 J	UG/KG	DA-S-SB03-0304-01	2/65	0.25 - 1000	1.2	Yes	NA	NA	No	NTX
	127-18-4	**Tetrachloroethene**	0.64 J	11	UG/KG	DA-SB-TP103-0506	12/65	0.24 - 1500	11	Yes	**0.052**	100	**Yes**	ASL
	540-59-0	Total 1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.26 - 920	1.3	Yes	99	NA	No	BSL
	1330-20-7	Total Xylenes	0.78	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	230	540,000	No	BSL
	79-01-6	**Trichloroethene**	1.7	30	UG/KG	DA-SB-TP103-0506	7/65	0.27 - 1200	30	Yes	**0.61**	200	**Yes**	ASL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	170 J	8,300 J	UG/KG	DA-SB110-0810	4/40	350 - 400	8,300	Yes	23,000	NA	No	BSL
	105-67-9	2,4-Dimethylphenol	390	390	UG/KG	DA-SB127-0204	1/64	350 - 270000	390	Yes	1,200	NA	No	BSL
	51-28-5	**2,4-Dinitrophenol**	310 J	310 J	UG/KG	DA-S-TP14-0910-01	1/65	140 - 74000	310	Yes	**68**	NA	**Yes**	ASL
	91-57-6	**2-Methylnaphthalene**	5.6 J	23,000 J	UG/KG	DA-SB110-0810	27/65	21 - 110000	23,000	Yes	**900**	NA	**Yes**	ASL
	--	**3&4-Methylphenol**	740	2,200 J	UG/KG	DA-SB110-0810	2/65	180 - 95000	2,200	Yes	**190** [9]	NA	**Yes**	ASL
	91-94-1	**3,3'-Dichlorobenzidine**	220 J	220 J	UG/KG	DA-S-TP14-0910-01	1/65	99 - 53000	220	Yes	**2.3**	NA	**Yes**	ASL
	534-52-1	**4,6-Dinitro-2-Methylphenol**	260 J	260 J	UG/KG	DA-S-TP14-0910-01	1/65	110 - 61000	260	Yes	**5.1**	NA	**Yes**	ASL
	100-01-6	**4-Nitroaniline**	420 J	420 J	UG/KG	DA-S-TP14-0910-01	1/65	180 - 99000	420	Yes	**0.97**	NA	**Yes**	ASL
	100-02-7	4-Nitrophenol	520 J	520 J	UG/KG	DA-S-TP14-0910-01	1/65	230 - 120000	520	Yes	NA	NA	No	NTX
	83-32-9	**Acenaphthene**	2.1 J	480,000	UG/KG	DA-S-TP15A-0506-01	39/65	21 - 620	480,000	Yes	**27,000**	NA	**Yes**	ASL
	208-96-8	Acenaphthylene	1.9 J	3,500 J	UG/KG	DA-S-TP08-0708-01	9/65	21 - 45000	3,500	Yes	27,000 [10]	NA	No	BSL
	120-12-7	**Anthracene**	2.9 J	970,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	970,000	Yes	**450,000**	NA	**Yes**	ASL
	56-55-3	**Benzo(a)anthracene**	3.2 J	1,900,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,900,000	Yes	**14**	NA	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	6.2 J	1,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	1,500,000	Yes	**4.6**	**240,000**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	7.2 J	1,300,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,300,000	Yes	**47**	NA	**Yes**	ASL
	191-24-2	**Benzo(g,h,i)perylene**	8.5 J	830,000	UG/KG	DA-S-TP15A-0506-01	42/65	21 - 620	830,000	Yes	**150,000** [11]	NA	**Yes**	ASL
	207-08-9	**Benzo(k)fluoranthene**	7.3 J	1,200,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,200,000	Yes	**460**	NA	**Yes**	ASL
	65-85-0	Benzoic Acid	440 J	2,300 J	UG/KG	DA-S-TP14-0910-01	3/65	220 - 120000	2,300	Yes	33,000	NA	No	BSL
	117-81-7	**Bis(2-ethylhexyl)phthalate**	240 J	1,900	UG/KG	DA-SB105-0406	14/65	110 - 58000	1,900	Yes	**1,600**	NA	**Yes**	ASL
	86-74-8	Carbazole	92 J	490,000	UG/KG	DA-S-TP15A-0506-01	26/65	74 - 620	490,000	Yes	NA	NA	No	NTX
	218-01-9	**Chrysene**	3.3 J	1,700,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,700,000	Yes	**1,400**	NA	**Yes**	ASL
	84-74-2	di-n-Butyl Phthalate	120 J	120 J	UG/KG	DA-S-TP15A-0506-01	1/65	74 - 40000	120	Yes	11,000	NA	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	4.5 J	330,000	UG/KG	DA-S-TP15A-0506-01	35/65	21 - 620	330,000	Yes	**15**	NA	**Yes**	ASL
	132-64-9	Dibenzofuran	230 J	250,000 J	UG/KG	DA-S-MW04B-1416-01	17/65	120 - 620	250,000	Yes	NA	NA	No	NTX
	206-44-0	**Fluoranthene**	4.8 J	4,600,000	UG/KG	DA-S-TP15A-0506-01	46/65	21 - 620	4,600,000	Yes	**210,000**	NA	**Yes**	ASL
	86-73-7	**Fluorene**	2.8 J	480,000	UG/KG	DA-S-TP15A-0506-01	37/65	21 - 620	480,000	Yes	**33,000**	NA	**Yes**	ASL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	10 J	850,000	UG/KG	DA-S-TP15A-0506-01	40/65	21 - 860	850,000	Yes	**160**	NA	**Yes**	ASL
	91-20-3	**Naphthalene**	8.8 J	220,000 J	UG/KG	DA-S-TP15A-0506-01	33/65	3.7 - 23	220,000	Yes	**0.55**	**800**	**Yes**	ASL
	87-86-5	**Pentachlorophenol**	410 J	410 J	UG/KG	DA-S-TP06-0304-01	1/65	380 - 200000	410	Yes	**3.9**	7,100	**Yes**	ASL
	85-01-8	**Phenanthrene**	15 J	3,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	3,500,000	Yes	**150,000** [11]	NA	**Yes**	ASL
	108-95-2	Phenol	380 J	380 J	UG/KG	DA-SB127-0204	1/65	100 - 56000	380	Yes	8,100	NA	No	BSL
	129-00-0	**Pyrene**	18 J	3,600,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	3,600,000	Yes	**150,000**	NA	**Yes**	ASL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - EXPOSED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	3.1 J	3.1 J	UG/KG	DA-SB106-0608	1/65	1.01 - 410	3.1	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	0.92 J	2.1 J	UG/KG	DA-B112B-0608	3/65	0.889 - 193	2.1	Yes	60	NA	No	BSL
	50-29-3	**4,4'-DDT**	1.7 J	347 J	UG/KG	DA-S-TP07-0304-01	9/65	1.24 - 386	347	Yes	**87**	NA	**Yes**	ASL
	5103-71-9	alpha-Chlordane	15 J	15 J	UG/KG	DA-B119B-0204	1/65	0.562 - 144	15	Yes	33 [12]	1,400 [12]	No	BSL
	12672-29-6	**Aroclor-1248**	132 J	2,190 J	UG/KG	DA-S-TP07-0910-01	2/65	18 - 229	2,190	Yes	**3**	10,000 [13]	**Yes**	ASL
	11097-69-1	**Aroclor-1254**	40	44.5 J	UG/KG	DA-S-TP15A-0910-01	2/65	18 - 229	44.5	Yes	**5.1**	10,000 [13]	**Yes**	ASL
	11096-82-5	**Aroclor-1260**	19	1,100 J	UG/KG	DA-SB-TP103-0506	6/65	12.2 - 129	1,100	Yes	**14**	10,000 [13]	**Yes**	ASL
	11100-14-4	**Aroclor-1268**	27.4 J	4,060 J	UG/KG	DA-B104B-0406-AVG	10/65	18 - 229	4,060	Yes	**14** [14]	10,000 [13]	**Yes**	ASL
	1031-07-8	Endosulfan Sulfate	2 J	2 J	UG/KG	DA-SB129-0406	1/65	1.01 - 265	2	Yes	9,700 [15]	NA	No	BSL
	7421-93-4	Endrin Aldehyde	1.2 J	1.2 J	UG/KG	DA-SB133-0810	1/65	1.44 - 313	1.2	Yes	230 [16]	NA	No	BSL
	5103-74-2	gamma-Chlordane	20	20	UG/KG	DA-B119B-0204	1/65	0.556 - 120	20	Yes	33 [12]	1,400 [12]	No	BSL
	76-44-8	**Heptachlor**	1.28 J	52 J	UG/KG	DA-SB110-0810	6/65	0.667 - 144	52	Yes	**1.6**	NA	**Yes**	ASL
	--	Total Aroclor	19	4,060 J	UG/KG	DA-B104B-0406-AVG	16/65	18 - 220	4,060	Yes	NA	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	4,450	27,200	MG/KG	DA-SB139-1012	65/65	-	27,200	Yes	55,000	NA	No	BSL
	7440-36-0	**Antimony**	0.26	6.2	MG/KG	DA-S-TP07-0910-01	7/65	0.04 - 2.2	6.2	Yes	**0.66**	[17]	**Yes**	ASL
	7440-38-2	**Arsenic**	2.7 J	40	MG/KG	DA-S-TP13-0203-01	65/65	-	40	Yes	**0.0013**	NA	**Yes**	ASL
	7440-39-3	**Barium**	6.9	653	MG/KG	DA-SB106-0608	65/65	-	653	Yes	**300**	[17]	**Yes**	ASL
	7440-41-7	Beryllium	0.21 J	2.5	MG/KG	DA-S-TP15A-0203-01	65/65	-	2.5	No	58	[17]	No	BSL, BKG
	7440-43-9	**Cadmium**	0.17	8.8	MG/KG	DA-SB132-0406	24/65	0.01 - 0.32	8.8	Yes	**1.4**	[17]	**Yes**	ASL
	7440-70-2	Calcium	70	53,000 J	MG/KG	DA-S-TP15A-0203-01	65/65	-	53,000	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	2.6	98.2	MG/KG	DA-SB106-0608	65/65	-	98.2	Yes	**2.1** [18]	[17]	**Yes**	ASL
	7440-48-4	**Cobalt**	3.4 J	35.6	MG/KG	DA-SB106-0608	65/65	-	35.6	Yes	**0.49**	NA	**Yes**	ASL
	7440-50-8	**Copper**	2.1	2,600	MG/KG	DA-S-TP07-0910-01	65/65	-	2,600	Yes	**51**	NA	**Yes**	ASL
	7439-89-6	**Iron**	3,800	134,000	MG/KG	DA-SB106-0608	65/65	-	134,000	Yes	**640**	NA	**Yes**	ASL
	7439-92-1	Lead	6.2	4,650	MG/KG	DA-SB106-0608	65/65	-	4,650	Yes	NA	[17]	No	NTX
	7439-95-4	Magnesium	1,160	24,000	MG/KG	DA-S-TP15A-0203-01	65/65	-	24,000	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	180	3,300	MG/KG	DA-S-SB03-0304-01	65/65	-	3,300	No	**57**	NA	**Yes**	ASL, BKG
	7439-97-6	Mercury	0.0088 J	0.22	MG/KG	DA-B105B-0204	43/65	0.007 - 0.02	0.22	Yes	0.57	[17]	No	BSL
	7439-98-7	**Molybdenum**	0.12 J	58.8	MG/KG	DA-SB106-0608	43/65	0.02 - 0.41	58.8	Yes	**3.7**	NA	**Yes**	ASL
	7440-02-0	**Nickel**	4.4	102	MG/KG	DA-SB106-0608	65/65	-	102	Yes	**48**	[17]	**Yes**	ASL
	7440-09-7	Potassium	81	3,400	MG/KG	DA-S-TP15A-0506-01	65/65	-	3,400	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.32 J	0.36 J	MG/KG	DA-S-TP15A-0506-01	2/65	0.11 - 2.63	0.36	No	0.95	[17]	No	BSL, BKG
	7440-22-4	**Silver**	0.12	2.5	MG/KG	DA-S-TP07-0910-01	21/65	0.031 - 1.9	2.5	Yes	**1.6**	NA	**Yes**	ASL
	7440-23-5	Sodium	24.7 J	1,500	MG/KG	DA-S-TP15A-0506-01	35/65	16 - 119	1,500	No	NA	NA	No	NUT, BKG
	7440-28-0	**Thallium**	0.06 J	0.89 J	MG/KG	DA-S-TP05-0607-01	2/65	0.01 - 0.89	0.89	No	**0.17**	[17]	**Yes**	ASL, BKG
	7440-62-2	Vanadium	6.1	53.8 J	MG/KG	DA-SB135-1214	65/65	-	53.8	Yes	180	NA	No	BSL
	7440-66-6	**Zinc**	30	9,840	MG/KG	DA-B110B-1012	65/65	-	9,840	Yes	**680**	NA	**Yes**	ASL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	2,300 J	63,000,000	UG/KG	DA-S-TP15A-0506-01	52/63	5700 - 62000	63,000,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.79 J	51	MG/KG	DA-S-TP15A-0203-01	23/65	0.86 - 8.75	51	Yes	NA	NA	No	NTX

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for 4-methylphenol.
10 - Value is for acenaphthene.
11 - Value is for pyrene.
12 - Value is for Chlordane.
13 - Value is for total PCBs.
14 - Value is for Aroclor-1260.
15 - Value is for Endosulfan.
16 - Value is for Endrin.
17 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
18 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-B103B-0810	DA-SB126-1013	DA-S-TP07-0304-01
DA-B104B-0406-AVG	DA-SB127-0204	DA-S-TP07-0910-01
DA-B104B-1012	DA-SB128-0810-AVG	DA-S-TP08-0304-01-AVG
DA-B105B-0204	DA-SB129-0406	DA-S-TP08-0708-01
DA-B106B-0406	DA-SB130-1011.5	DA-S-TP11-0203-01-AVG
DA-B110B-1012	DA-SB131-0406	DA-S-TP11-0304-01
DA-B111B-0406	DA-SB132-0406	DA-S-TP12-0203-01
DA-B112B-0608	DA-SB133-0810	DA-S-TP13-0203-01
DA-B113B-0608	DA-SB134-0405	DA-S-TP13-0405-01
DA-B114B-0204	DA-SB135-1214	DA-S-TP14-0910-01
DA-B116B-0305	DA-SB136-0810	DA-S-TP15-0203-01
DA-B118B-0608	DA-SB137-0406	DA-S-TP15-0506-01
DA-B119B-0204	DA-SB138-0406-AVG	DA-S-TP15A-0203-01
DA-B120B-0204	DA-SB139-0406	DA-S-TP15A-0506-01
DA-SB104-0608	DA-SB139-1012	DA-S-TP15A-0910-01
DA-SB105-0406	DA-SB-TP103-0506	
DA-SB106-0608	DA-S-MW04B-0810-01	
DA-SB108-0204	DA-S-MW04B-1416-01	
DA-SB109-0204	DA-S-SB03-0304-01	
DA-SB110-0810	DA-S-SB03-0607-01	
DA-SB118-0406	DA-S-TP01-0304-01	
DA-SB121-0406	DA-S-TP01-0607-01	
DA-SB122-0407	DA-S-TP05-0607-01	
DA-SB123-0508	DA-S-TP05-0910-01-AVG	
DA-SB124-0608	DA-S-TP06-0304-01	
DA-SB125-0810	DA-S-TP06-0910-01	

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - DIRECT CONTACT - PAVED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Surface Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	8 J	8 J	UG/KG	DA-SB100-0002	1/27	0.19 - 7	8	Yes	6,700 N	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	5 J	5 J	UG/KG	DA-SB100-0002	1/27	0.16 - 7	5	Yes	4,700 N	NA	No	BSL
	78-93-3	2-Butanone	1.8 J	31 J	UG/KG	DA-SS-B126B-0103-072208	8/27	0.24 - 36	31	Yes	2,800,000 N	10,000,000	No	BSL
	67-64-1	Acetone	8 J	610	UG/KG	DA-SB150-0002	18/27	4 - 1600	610	Yes	6,100,000 N	7,800,000	No	BSL
	75-15-0	Carbon Disulfide	0.95 J	2	UG/KG	DA-SS-B126B-0103-072208, DA-SB150-0002	3/27	0.26 - 7.6	2	Yes	67,000 N	NA	No	BSL
	67-66-3	Chloroform	0.76 J	0.76 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	0.76	Yes	300 C	1,200	No	BSL
	100-41-4	Ethylbenzene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.21 - 6	2	Yes	5,700 C	71,000	No	BSL
	--	m+p-Xylenes	0.61 J	9 J	UG/KG	DA-SB102-0002	2/27	0.45 - 12	9	Yes	450,000 N[8]	NA	No	BSL
	95-47-6	o-Xylene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.36 - 6	2	Yes	530,000 N	NA	No	BSL
	135-98-8	sec-Butylbenzene	0.97	1.75 J	UG/KG	DA-SS-B125B-0103-072108-AVG	2/27	0.2 - 7	1.75	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	1.1 J	1.1 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	1.1	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	2.4	2.4	UG/KG	DA-S-SB02-0102-01	1/27	0.2 - 7	2.4	Yes	570 C	12,000	No	BSL
	1330-20-7	Total Xylenes	0.61	11 J	UG/KG	DA-SB102-0002	2/27	0.45 - 9	11	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	3 J	3 J	UG/KG	DA-B101B-0002	1/27	0.22 - 7	3	Yes	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	91-57-6	2-Methylnaphthalene	6.6 J	390	UG/KG	DA-SB116-0002	14/27	22 - 4300	390	Yes	31,000 N	123,000	No	BSL
	83-32-9	Acenaphthene	1.8 J	890	UG/KG	DA-B108B-0002	15/27	22 - 2700	890	Yes	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	3.1 J	38	UG/KG	DA-SB102-0002	4/27	21 - 2700	38	Yes	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	3.1 J	2,000	UG/KG	DA-B109B-0002	18/27	21 - 2700	2,000	Yes	1,700,000 N	35,000	No	BSL
	56-55-3	**Benzo(a)anthracene**	2.6 J	5,600 J	UG/KG	DA-B109B-0002	24/27	23 - 2700	5,600	Yes	**150 C**	**900**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	7.3 J	4,800 J	UG/KG	DA-B109B-0002	25/27	86 - 2700	4,800	Yes	**15 C**	**400**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	14 J	5,700 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	5,700	Yes	**150 C**	**900**	**Yes**	ASL
	191-24-2	**Benzo(g,h,i)perylene**	3 J	2,000 J	UG/KG	DA-B109B-0002	21/27	22 - 2700	2,000	Yes	170,000 N[10]	**800**	**Yes**	ASL
	207-08-9	**Benzo(k)fluoranthene**	6.8 J	3,900 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	3,900	Yes	**1,500 C**	**900**	**Yes**	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-0102-01, DA-S-SB08-0102-01	2/27	345 - 5400	410	Yes	35,000 C	46,000	No	BSL
	86-74-8	Carbazole	300 J	800	UG/KG	DA-B109B-0002	3/27	73 - 2700	800	Yes	NA	NA	No	NTX
	218-01-9	**Chrysene**	2.8 J	5,700 J	UG/KG	DA-B109B-0002	25/27	85 - 2700	5,700	Yes	15,000 C	**400**	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	10 J	760	UG/KG	DA-B109B-0002	14/27	22 - 2700	760	Yes	**15 C**	**400**	**Yes**	ASL
	132-64-9	Dibenzofuran	270 J	350 J	UG/KG	DA-B109B-0002	2/27	120 - 2700	350	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	4.4 J	10,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	10,000	Yes	230,000 N	20,000	No	BSL
	86-73-7	Fluorene	3.8 J	870	UG/KG	DA-B109B-0002	13/27	22 - 2700	870	Yes	230,000 N	28,000	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	8.25 J	2,200 J	UG/KG	DA-B109B-0002	19/27	22 - 3800	2,200	Yes	**150 C**	**900**	**Yes**	ASL
	91-20-3	Naphthalene	2.9 J	340 J	UG/KG	DA-B108B-0002	11/27	3 - 110	340	Yes	3,900 C	54,000	No	BSL
	85-01-8	Phenanthrene	4.6 J	8,500	UG/KG	DA-B109B-0002	25/27	23 - 2700	8,500	Yes	170,000 N[10]	40,000	No	BSL
	129-00-0	Pyrene	3.3 J	13,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	13,000	Yes	170,000 N	13,000	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.2 J	2.7 J	UG/KG	DA-SB150-0002	4/25	3.45 - 215	2.7	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	0.96 J	7.2	UG/KG	DA-SB113-0002	6/25	3.45 - 215	7.2	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1.3 J	6.7	UG/KG	DA-SB113-0002	6/25	3.45 - 215	6.7	Yes	1,700 C	NA	No	BSL
	12672-29-6	Aroclor-1248	43	43	UG/KG	DA-SB114-0002	1/25	18 - 56.8	43	Yes	220 C	10,000 [11]	No	BSL
	11096-82-5	Aroclor-1260	28 J	44	UG/KG	DA-SB111-0002	2/25	12.1 - 56.8	44	Yes	220 C	10,000 [11]	No	BSL
	11100-14-4	Aroclor-1268	94.1	117	UG/KG	DA-S-SB06-0515-01	2/25	18 - 56.8	117	Yes	220 C[12]	10,000 [11]	No	BSL
	33213-65-9	Endosulfan II	0.98 J	2.6 J	UG/KG	DA-SB100-0002	2/25	3.45 - 215	2.6	Yes	37,000 N[13]	NA	No	BSL
	--	Total Aroclor	28 J	117	UG/KG	DA-S-SB06-0515-01	5/25	18 - 57	117	Yes	220 C[14]	10,000	No	BSL
	Metals													
	7429-90-5	**Aluminum**	4,100	19,500	MG/KG	DA-B101B-0002	25/25	-	19,500	Yes	**7,700 N**	NA	**Yes**	ASL
	7440-38-2	**Arsenic**	1.7	41 J	MG/KG	DA-S-SB04-0102-01	25/25	-	41	Yes	**0.39 C**	**7**	**Yes**	ASL
	7440-39-3	Barium	10	36.5	MG/KG	DA-SB100-0002	25/25	-	36.5	No	1,500 N	5,500	No	BSL

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7440-41-7	**Beryllium**	0.21 J	0.57	MG/KG	DA-SB114-0002	24/25	0.15 - 0.15	0.57	Yes	16 N	**0.4**	**Yes**	ASL
	7440-43-9	Cadmium	0.14 J	0.77 J	MG/KG	DA-SB112-0002	8/25	0.01 - 0.14	0.77	Yes	7 N	39	No	BSL
	7440-70-2	Calcium	330	2,480 J	MG/KG	DA-B101B-0002	25/25	-	2,480	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	5.6 J	24.2 J	MG/KG	DA-B101B-0002	25/25	-	24.2	Yes	**23 N**[15,16]	390 [16]	**Yes**	ASL
	7440-48-4	**Cobalt**	2.7	28	MG/KG	DA-SB102-0002	25/25	-	28	Yes	**2.3 N**	NA	**Yes**	ASL
	7440-50-8	Copper	8	26	MG/KG	DA-S-SB01-0102-01	25/25	-	26	Yes	310 N	3,100	No	BSL
	7439-89-6	**Iron**	8,540	38,900	MG/KG	DA-B101B-0002	25/25	-	38,900	Yes	**5,500 N**	NA	**Yes**	ASL
	7439-92-1	Lead	7.3	54.8	MG/KG	DA-SB114-0002	25/25	-	54.8	Yes	400	150	No	BSL
	7439-95-4	Magnesium	920	6,020 J	MG/KG	DA-B101B-0002	25/25	-	6,020	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	150	827	MG/KG	DA-B101B-0002	25/25	-	827	Yes	**180 N**	**390**	**Yes**	ASL
	7439-97-6	Mercury	0.01 J	0.05	MG/KG	DA-SB101-0002	10/25	0.00724 - 0.02	0.05	No	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.168 J	1.2 J	MG/KG	DA-SB102-0002	20/25	0.39 - 0.7	1.2	Yes	39 N	NA	No	BSL
	7440-02-0	Nickel	7.4	34.2	MG/KG	DA-B101B-0002	25/25	-	34.2	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	130	1,200	MG/KG	DA-SB119-0002	24/25	92 - 92	1,200	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.64 J	0.64 J	MG/KG	DA-SB101-0002	1/25	0.1 - 0.68	0.64	Yes	39 N	390	No	BSL
	7440-22-4	Silver	0.034 J	0.82	MG/KG	DA-S-SB02-0102-01	12/25	0.03 - 0.17	0.82	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	33.4 J	307	MG/KG	DA-SB100-0002	14/25	26 - 78.3	307	Yes	NA	NA	No	NUT
	7440-28-0	Thallium	0.18 J	0.38	MG/KG	DA-S-SB04-0102-01	3/25	0.02 - 0.16	0.38	Yes	0.51 N	5.5	No	BSL
	7440-62-2	Vanadium	8.2	38	MG/KG	DA-SB119-0002	25/25	-	38	No	39 N	550	No	BSL
	7440-66-6	Zinc	27.5	94.7	MG/KG	DA-SB102-0002	25/25	-	94.7	Yes	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	23,000 J	2,200,000	UG/KG	DA-SB100-0002	27/27	-	2,200,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.58 J	130	MG/KG	DA-SB101-0002	5/27	0.74 - 3.4	130	Yes	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - DIRECT CONTACT - PAVED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[(1)]	Maximum Concentration[(1)]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[(2)]	Concentration Used for Screening[(3)]	Above Background Concentration?[(4)]	Screening Toxicity Value[(5)]	Screening Toxicity Value[(6)]	COPC Flag	Rationale for Contaminant Deletion or Selection[(7)]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Value is for Aroclor-1260.
13 - Value is for Endosulfan.
14 - Value is for high risk polychlorinated biphenyls.
15 - Ten percent of noncarcinogenic screening level is less than the carcinogenic screening level, therefore the noncarcinogenic value is presented.
16 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples
DA-B100B-0002-AVG
DA-B101B-0002
DA-B107B-0002
DA-B108B-0002
DA-B109B-0002
DA-SS-B125B-0103-072108-AVG
DA-SS-B126B-0103-072208
DA-S-SB01-0102-01
DA-S-SB02-0102-01
DA-S-SB04-0102-01
DA-S-SB05-0102-01
DA-S-SB06-0515-01
DA-S-SB08-0102-01
DA-SB100-0002
DA-SB101-0002
DA-SB102-0002
DA-SB111-0002
DA-SB112-0002
DA-SB113-0002
DA-SB114-0002
DA-SB115-0002
DA-SB116-0002
DA-SB117-0002
DA-SB119-0002
DA-SB120-0002
DA-SB150-0002
DA-SB151-0002

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - PAVED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Surface Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	8 J	8 J	UG/KG	DA-SB100-0002	1/27	0.19 - 7	8	Yes	24	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	5 J	5 J	UG/KG	DA-SB100-0002	1/27	0.16 - 7	5	Yes	20	NA	No	BSL
	78-93-3	2-Butanone	1.8 J	31 J	UG/KG	DA-SS-B126B-0103-072208	8/27	0.24 - 36	31	Yes	1,500	NA	No	BSL
	67-64-1	Acetone	8 J	610	UG/KG	DA-SB150-0002	18/27	4 - 1600	610	Yes	4,400	NA	No	BSL
	75-15-0	Carbon Disulfide	0.95 J	2	UG/KG	DA-SS-B126B-0103-072208, DA-SB150-0002	3/27	0.26 - 7.6	2	Yes	270	NA	No	BSL
	67-66-3	**Chloroform**	0.76 J	0.76 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	0.76	Yes	**0.055**	NA	**Yes**	ASL
	100-41-4	**Ethylbenzene**	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.21 - 6	2	Yes	**1.9**	27,000	**Yes**	ASL
	--	m+p-Xylenes	0.61 J	9 J	UG/KG	DA-SB102-0002	2/27	0.45 - 12	9	Yes	1,600 [8]	NA	No	BSL
	95-47-6	o-Xylene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.36 - 6	2	Yes	1,600	NA	No	BSL
	135-98-8	sec-Butylbenzene	0.97	1.75 J	UG/KG	DA-SS-B125B-0103-072108-AVG	2/27	0.2 - 7	1.75	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	1.1 J	1.1 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	1.1	Yes	NA	NA	No	NTX
	127-18-4	**Tetrachloroethene**	2.4	2.4	UG/KG	DA-S-SB02-0102-01	1/27	0.2 - 7	2.4	Yes	**0.052**	100	**Yes**	ASL
	1330-20-7	Total Xylenes	0.61	11 J	UG/KG	DA-SB102-0002	2/27	0.45 - 9	11	Yes	230	540,000	No	BSL
	79-01-6	**Trichloroethene**	3 J	3 J	UG/KG	DA-B101B-0002	1/27	0.22 - 7	3	Yes	**0.61**	200	**Yes**	ASL
	Semivolatile Organic Compounds													
	91-57-6	2-Methylnaphthalene	6.6 J	390	UG/KG	DA-SB116-0002	14/27	22 - 4300	390	Yes	900	NA	No	BSL
	83-32-9	Acenaphthene	1.8 J	890	UG/KG	DA-B108B-0002	15/27	22 - 2700	890	Yes	27,000	NA	No	BSL
	208-96-8	Acenaphthylene	3.1 J	38	UG/KG	DA-SB102-0002	4/27	21 - 2700	38	Yes	27,000 [9]	NA	No	BSL
	120-12-7	Anthracene	3.1 J	2,000	UG/KG	DA-B109B-0002	18/27	21 - 2700	2,000	Yes	450,000	NA	No	BSL
	56-55-3	**Benzo(a)anthracene**	2.6 J	5,600 J	UG/KG	DA-B109B-0002	24/27	23 - 2700	5,600	Yes	**14**	NA	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	7.3 J	4,800 J	UG/KG	DA-B109B-0002	25/27	86 - 2700	4,800	Yes	**4.6**	240,000	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	14 J	5,700 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	5,700	Yes	**47**	NA	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	3 J	2,000 J	UG/KG	DA-B109B-0002	21/27	22 - 2700	2,000	Yes	150,000 [10]	NA	No	BSL
	207-08-9	**Benzo(k)fluoranthene**	6.8 J	3,900 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	3,900	Yes	**460**	NA	**Yes**	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-0102-01, DA-S-SB08-0102-01	2/27	345 - 5400	410	Yes	1,600	NA	No	BSL
	86-74-8	Carbazole	300 J	800	UG/KG	DA-B109B-0002	3/27	73 - 2700	800	Yes	NA	NA	No	NTX
	218-01-9	**Chrysene**	2.8 J	5,700 J	UG/KG	DA-B109B-0002	25/27	85 - 2700	5,700	Yes	**1,400**	NA	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	10 J	760	UG/KG	DA-B109B-0002	14/27	22 - 2700	760	Yes	**15**	NA	**Yes**	ASL
	132-64-9	Dibenzofuran	270 J	350 J	UG/KG	DA-B109B-0002	2/27	120 - 2700	350	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	4.4 J	10,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	10,000	Yes	210,000	NA	No	BSL
	86-73-7	Fluorene	3.8 J	870	UG/KG	DA-B109B-0002	13/27	22 - 2700	870	Yes	33,000	NA	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	8.25 J	2,200 J	UG/KG	DA-B109B-0002	19/27	22 - 3800	2,200	Yes	**160**	NA	**Yes**	ASL
	91-20-3	**Naphthalene**	2.9 J	340 J	UG/KG	DA-B108B-0002	11/27	3 - 110	340	Yes	**0.55**	800	**Yes**	ASL
	85-01-8	Phenanthrene	4.6 J	8,500	UG/KG	DA-B109B-0002	25/27	23 - 2700	8,500	Yes	150,000 [10]	NA	No	BSL
	129-00-0	Pyrene	3.3 J	13,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	13,000	Yes	150,000	NA	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.2 J	2.7 J	UG/KG	DA-SB150-0002	4/25	3.45 - 215	2.7	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	0.96 J	7.2	UG/KG	DA-SB113-0002	6/25	3.45 - 215	7.2	Yes	60	NA	No	BSL
	50-29-3	4,4'-DDT	1.3 J	6.7	UG/KG	DA-SB113-0002	6/25	3.45 - 215	6.7	Yes	87	NA	No	BSL
	12672-29-6	**Aroclor-1248**	43	43	UG/KG	DA-SB114-0002	1/25	18 - 56.8	43	Yes	**3**	10,000 [11]	**Yes**	ASL
	11096-82-5	**Aroclor-1260**	28 J	44	UG/KG	DA-SB111-0002	2/25	12.1 - 56.8	44	Yes	**14**	10,000 [11]	**Yes**	ASL
	11100-14-4	**Aroclor-1268**	94.1	117	UG/KG	DA-S-SB06-0515-01	2/25	18 - 56.8	117	Yes	**14** [12]	10,000 [11]	**Yes**	ASL
	33213-65-9	Endosulfan II	0.98 J	2.6 J	UG/KG	DA-SB100-0002	2/25	3.45 - 215	2.6	Yes	9,700 [13]	NA	No	BSL
	--	Total Aroclor	28 J	117	UG/KG	DA-S-SB06-0515-01	5/25	18 - 57	117	Yes	NA	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	4,100	19,500	MG/KG	DA-B101B-0002	25/25	-	19,500	Yes	55,000	NA	No	BSL
	7440-38-2	**Arsenic**	1.7	41 J	MG/KG	DA-S-SB04-0102-01	25/25	-	41	Yes	**0.0013**	NA	**Yes**	ASL
	7440-39-3	Barium	10	36.5	MG/KG	DA-SB100-0002	25/25	-	36.5	No	300	[14]	No	BSL, BKG
	7440-41-7	Beryllium	0.21 J	0.57	MG/KG	DA-SB114-0002	24/25	0.15 - 0.15	0.57	Yes	58	[14]	No	BSL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - PAVED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7440-43-9	Cadmium	0.14 J	0.77 J	MG/KG	DA-SB112-0002	8/25	0.01 - 0.14	0.77	Yes	1.4	[14]	No	BSL
	7440-70-2	Calcium	330	2,480 J	MG/KG	DA-B101B-0002	25/25	-	2,480	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	5.6 J	24.2 J	MG/KG	DA-B101B-0002	25/25	-	24.2	Yes	**2.1** [15]	[14]	**Yes**	ASL
	7440-48-4	**Cobalt**	2.7	28	MG/KG	DA-SB102-0002	25/25	-	28	Yes	**0.49**	NA	**Yes**	ASL
	7440-50-8	Copper	8	26	MG/KG	DA-S-SB01-0102-01	25/25	-	26	Yes	51	NA	No	BSL
	7439-89-6	**Iron**	8,540	38,900	MG/KG	DA-B101B-0002	25/25	-	38,900	Yes	**640**	NA	**Yes**	ASL
	7439-92-1	Lead	7.3	54.8	MG/KG	DA-SB114-0002	25/25	-	54.8	Yes	NA	[14]	No	NTX
	7439-95-4	Magnesium	920	6,020 J	MG/KG	DA-B101B-0002	25/25	-	6,020	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	150	827	MG/KG	DA-B101B-0002	25/25	-	827	Yes	**57**	NA	**Yes**	ASL
	7439-97-6	Mercury	0.01 J	0.05	MG/KG	DA-SB101-0002	10/25	0.00724 - 0.02	0.05	No	0.57	[14]	No	BSL, BKG
	7439-98-7	Molybdenum	0.168 J	1.2 J	MG/KG	DA-SB102-0002	20/25	0.39 - 0.7	1.2	Yes	3.7	NA	No	BSL
	7440-02-0	Nickel	7.4	34.2	MG/KG	DA-B101B-0002	25/25	-	34.2	Yes	48	[14]	No	BSL
	7440-09-7	Potassium	130	1,200	MG/KG	DA-SB119-0002	24/25	92 - 92	1,200	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.64 J	0.64 J	MG/KG	DA-SB101-0002	1/25	0.1 - 0.68	0.64	Yes	0.95	[14]	No	BSL
	7440-22-4	Silver	0.034 J	0.82	MG/KG	DA-S-SB02-0102-01	12/25	0.03 - 0.17	0.82	Yes	1.6	NA	No	BSL
	7440-23-5	Sodium	33.4 J	307	MG/KG	DA-SB100-0002	14/25	26 - 78.3	307	Yes	NA	NA	No	NUT
	7440-28-0	**Thallium**	0.18 J	0.38	MG/KG	DA-S-SB04-0102-01	3/25	0.02 - 0.16	0.38	Yes	**0.17**	[14]	**Yes**	ASL
	7440-62-2	Vanadium	8.2	38	MG/KG	DA-SB119-0002	25/25	-	38	No	180	NA	No	BSL, BKG
	7440-66-6	Zinc	27.5	94.7	MG/KG	DA-SB102-0002	25/25	-	94.7	Yes	680	NA	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	23,000 J	2,200,000	UG/KG	DA-SB100-0002	27/27	-	2,200,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.58 J	130	MG/KG	DA-SB101-0002	5/27	0.74 - 3.4	130	Yes	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL - MIGRATION FROM SOIL TO GROUNDWATER - PAVED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Above Background Concentration?(4)	Screening Toxicity Value(5)	Screening Toxicity Value(6)	COPC Flag	Rationale for Contaminant Deletion or Selection(7)

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Value is for Aroclor-1260.
13 - Value is for Endosulfan.
14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
15 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
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DA-S-SB05-0102-01
DA-S-SB06-0515-01
DA-S-SB08-0102-01
DA-SB100-0002
DA-SB101-0002
DA-SB102-0002
DA-SB111-0002
DA-SB112-0002
DA-SB113-0002
DA-SB114-0002
DA-SB115-0002
DA-SB116-0002
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DA-SB119-0002
DA-SB120-0002
DA-SB150-0002
DA-SB151-0002

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - DIRECT CONTACT - PAVED AREA
SITE 08, NAVAL DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Subsurface Soil	**Volatile Organic Compounds**													
	95-63-6	**1,2,4-Trimethylbenzene**	2.25 J	17,000	UG/KG	DA-S-SB04-2535-01	3/31	0.22 - 230	17,000	Yes	**6,700 N**	NA	**Yes**	ASL
	108-67-8	**1,3,5-Trimethylbenzene**	74 J	7,500 J	UG/KG	DA-SB116-0204	2/31	0.19 - 560	7,500	Yes	**4,700 N**	NA	**Yes**	ASL
	78-93-3	2-Butanone	2.8 J	48	UG/KG	DA-B100B-0608	9/31	0.32 - 3400	48	Yes	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	2.5	6,400	UG/KG	DA-S-SB04-2535-01	4/31	0.23 - 6	6,400	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.2	900 J	UG/KG	DA-SB112-0608-AVG	25/31	8 - 3100	900	Yes	6,100,000 N	7,800,000	No	BSL
	75-15-0	Carbon Disulfide	0.93 J	4 J	UG/KG	DA-B107B-0608	7/31	0.3 - 570	4	Yes	67,000 N	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.27 - 380	2	Yes	78,000 N	630,000	No	BSL
	100-41-4	Ethylbenzene	0.82	1,600	UG/KG	DA-S-SB04-2535-01	3/31	0.25 - 6	1,600	Yes	5,700 C	71,000	No	BSL
	98-82-8	Isopropylbenzene	0.58 J	2,800	UG/KG	DA-S-SB04-2535-01	6/31	0.27 - 6	2,800	Yes	220,000 N	NA	No	BSL
	--	m+p-Xylenes	0.61 J	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	450,000 N[8]	NA	No	BSL
	75-09-2	Methylene Chloride	2 J	2 J	UG/KG	DA-SB120-0406	1/31	5 - 760	2	Yes	11,000 C	45,000	No	BSL
	104-51-8	N-Butylbenzene	5 J	8,100	UG/KG	DA-S-SB04-2535-01	5/31	0.27 - 6	8,100	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	6,100	UG/KG	DA-S-SB04-2535-01	5/31	0.24 - 6	6,100	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	0.575	1.4	UG/KG	DA-S-SB05-0304-01	3/31	0.42 - 630	1.4	Yes	530,000 N	NA	No	BSL
	135-98-8	sec-Butylbenzene	1.1 J	4,700	UG/KG	DA-S-SB04-2535-01	10/31	0.24 - 6	4,700	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.54 J	110 J	UG/KG	DA-SB116-0204	6/31	0.24 - 600	110	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.64 J	0.64 J	UG/KG	DA-S-SB02-5565-01	1/31	0.24 - 890	0.64	Yes	570 C	12,000	No	BSL
	108-88-3	Toluene	2 J	2 J	UG/KG	DA-B108B-0406	1/31	0.21 - 650	2	Yes	500,000 N	190,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.24 - 540	2	Yes	70,000 N	NA	No	BSL
	1330-20-7	Total Xylenes	0.61	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	2 J	2 J	UG/KG	DA-B101B-0406	1/31	0.26 - 700	2	Yes	2,800 C	13,000	No	BSL
	75-01-4	Vinyl Chloride	3 J	3 J	UG/KG	DA-B109B-0204	1/31	0.4 - 560	3	Yes	60 C	20	No	BSL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	310 J	310 J	UG/KG	DA-SB116-0204	1/21	360 - 1800	310	Yes	390,000 N	NA	No	BSL
	91-57-6	2-Methylnaphthalene	3.5 J	2,600 J	UG/KG	DA-SB116-0204	12/31	22 - 4900	2,600	Yes	31,000 N	123,000	No	BSL
	83-32-9	Acenaphthene	2.6 J	65.5 J	UG/KG	DA-SB112-0608-AVG	12/31	22 - 3000	65.5	Yes	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	5.2 J	670 J	UG/KG	DA-SB112-0608-AVG	2/31	22 - 3000	670	Yes	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	7.8 J	730 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	730	Yes	1,700,000 N	35,000	No	BSL
	56-55-3	**Benzo(a)anthracene**	5.4 J	7,700	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	7,700	Yes	**150 C**	**900**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	5.6 J	5,700	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,700	Yes	**15 C**	**400**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	12.2 J	6,500	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	6,500	Yes	**150 C**	**900**	**Yes**	ASL
	191-24-2	**Benzo(g,h,i)perylene**	3.4 J	1,350 J	UG/KG	DA-SB112-0608-AVG	16/31	22 - 3000	1,350	Yes	170,000 N[10]	**800**	**Yes**	ASL
	207-08-9	**Benzo(k)fluoranthene**	5.4 J	5,350	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,350	Yes	**1,500 C**	**900**	**Yes**	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-5575-01, DA-S-SB05-0203-01	2/31	110 - 6100	410	Yes	35,000 C	46,000	No	BSL
	218-01-9	**Chrysene**	3.3 J	7,550	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	7,550	Yes	15,000 C	**400**	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	6.9 J	700 J	UG/KG	DA-SB112-0608-AVG	7/31	22 - 3000	700	Yes	**15 C**	**400**	**Yes**	ASL
	206-44-0	Fluoranthene	5 J	11,500	UG/KG	DA-SB112-0608-AVG	19/31	22 - 620	11,500	Yes	230,000 N	20,000	No	BSL
	86-73-7	Fluorene	2.9 J	170 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	170	Yes	230,000 N	28,000	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	9 J	2,750	UG/KG	DA-SB112-0608-AVG	14/31	22 - 4300	2,750	Yes	**150 C**	**900**	**Yes**	ASL
	91-20-3	Naphthalene	2.4 J	125 J	UG/KG	DA-S-SB04-0910-01-AVG	8/30	3.4 - 84	125	Yes	3,900 C	54,000	No	BSL
	85-01-8	Phenanthrene	4.8 J	3,100	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	3,100	Yes	170,000 N[10]	40,000	No	BSL
	129-00-0	Pyrene	11.2 J	11,500	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	11,500	Yes	170,000 N	13,000	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.4 J	9.2 J	UG/KG	DA-SB112-0608-AVG	3/29	1.93 - 244	9.2	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	1.03 J	1.03 J	UG/KG	DA-SB113-0406-AVG	1/29	0.909 - 244	1.03	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1 J	1 J	UG/KG	DA-B101B-0406	1/29	1.82 - 244	1	Yes	1,700 C	NA	No	BSL
	11096-82-5	**Aroclor-1260**	1,500	1,500	UG/KG	DA-SB111-0204	1/29	12.5 - 305	1,500	Yes	**220 C**	10,000 [11]	**Yes**	ASL
	76-44-8	Heptachlor	1.12 J	1.12 J	UG/KG	DA-SB112-0608-AVG	1/29	0.682 - 122	1.12	Yes	110 C	NA	No	BSL
	--	**Total Aroclor**	1,500	1,500	UG/KG	DA-SB111-0204	1/29	18 - 300	1,500	Yes	**220 C**[12]	10,000	**Yes**	ASL
	8001-35-2	Toxaphene	45.9 J	45.9 J	UG/KG	DA-S-SB02-0304-01	1/29	36 - 4640	45.9	Yes	440 C	NA	No	BSL

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NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	Metals													
	7429-90-5	**Aluminum**	3,800	20,700	MG/KG	DA-B100B-0608	29/29	-	20,700	Yes	**7,700 N**	NA	**Yes**	ASL
	7440-36-0	Antimony	0.472 J	0.472 J	MG/KG	DA-SB113-0406-AVG	1/29	0.05 - 0.5	0.472	Yes	3.1 N	10	No	BSL
	7440-38-2	**Arsenic**	2.25 J	122 J	MG/KG	DA-SB113-0406-AVG	29/29	-	122	Yes	**0.39 C**	**7**	**Yes**	ASL
	7440-39-3	Barium	8.5	55.8	MG/KG	DA-SB116-0204	29/29	-	55.8	Yes	1,500 N	5,500	No	BSL
	7440-41-7	**Beryllium**	0.2 J	0.76	MG/KG	DA-SB113-0406-AVG	28/29	0.26 - 0.26	0.76	No	16 N	**0.4**	**Yes**	ASL, BKG
	7440-43-9	Cadmium	0.18 J	0.41 J	MG/KG	DA-SB111-0204	3/29	0.01 - 0.18	0.41	Yes	7 N	39	No	BSL
	7440-70-2	Calcium	160	9,620 J	MG/KG	DA-SB111-0204	29/29	-	9,620	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	6.8	103	MG/KG	DA-SB111-0204	29/29	-	103	Yes	**23 N**[13,14]	390 [14]	**Yes**	ASL
	7440-48-4	**Cobalt**	5.7	21.5	MG/KG	DA-SB102-0305	29/29	-	21.5	Yes	**2.3 N**	NA	**Yes**	ASL
	7440-50-8	Copper	7.8	26.4	MG/KG	DA-SB111-0204	29/29	-	26.4	Yes	310 N	3,100	No	BSL
	7439-89-6	**Iron**	13,000	40,000	MG/KG	DA-B100B-0608	29/29	-	40,000	Yes	**5,500 N**	NA	**Yes**	ASL
	7439-92-1	**Lead**	6.9	159	MG/KG	DA-SB111-0204	29/29	-	159	Yes	400	**150**	**Yes**	ASL
	7439-95-4	Magnesium	960	7,120	MG/KG	DA-SB101-0608-AVG	29/29	-	7,120	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	171	2,820	MG/KG	DA-SB102-0305	29/29	-	2,820	No	**180 N**	**390**	**Yes**	ASL, BKG
	7439-97-6	Mercury	0.00808	0.12	MG/KG	DA-B109B-0204	10/29	0.00749 - 0.04	0.12	Yes	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.185 J	1.56 J	MG/KG	DA-SB113-0406-AVG	21/29	0.025 - 0.49	1.56	Yes	39 N	NA	No	BSL
	7440-02-0	Nickel	8	36.4	MG/KG	DA-SB101-0608-AVG	29/29	-	36.4	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	120	1,080 J	MG/KG	DA-B101B-0406	29/29	-	1,080	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.598 J	1 J	MG/KG	DA-SB119-0204	4/29	0.11 - 0.77	1	No	39 N	390	No	BSL, BKG
	7440-22-4	Silver	0.034 J	0.61 J	MG/KG	DA-SB111-0204	12/29	0.032 - 0.26	0.61	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	28.9 J	156	MG/KG	DA-SB100-0204	15/29	25.5 - 76.2	156	No	NA	NA	No	NUT, BKG
	7440-28-0	Thallium	0.2 J	0.28 J	MG/KG	DA-S-SB01-0809-01	4/29	0.01 - 0.8	0.28	No	0.51 N	5.5	No	BSL, BKG
	7440-62-2	Vanadium	9.4	29.4	MG/KG	DA-B109B-0204	29/29	-	29.4	Yes	39 N	550	No	BSL
	7440-66-6	Zinc	23 J	81.2	MG/KG	DA-SB111-0204	29/29	-	81.2	Yes	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	2,700 J	1,900,000	UG/KG	DA-SB116-0204	22/31	8550 - 89000	1,900,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.39 J	920	MG/KG	DA-S-SB04-2535-01	9/31	0.58 - 7.4	920	Yes	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - DIRECT CONTACT - PAVED AREA
SITE 08, NAGED DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Above Background Concentration?(4)	Screening Toxicity Value(5)	Screening Toxicity Value(6)	COPC Flag	Rationale for Contaminant Deletion or Selection(7)

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Value is for high risk polychlorinated biphenyls.
13 - Ten percent of noncarcinogenic screening level is less than the carcinogenic screening level, therefore the noncarcinogenic value is presented.
14 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-B100B-0608	DA-SB120-0406
DA-B101B-0406	DA-SB150-0204
DA-B107B-0608	DA-SB151-0406-AVG
DA-B108B-0406	DA-SO-B126B-0608-072208
DA-B109B-0204	DA-S-SB01-0809-01
DA-SB100-0204	DA-S-SB01-5575-01
DA-SB101-0608-AVG	DA-S-SB02-0304-01
DA-SB102-0305	DA-S-SB02-5565-01
DA-SB111-0204	DA-S-SB04-0910-01-AVG
DA-SB112-0608-AVG	DA-S-SB04-2535-01
DA-SB113-0406-AVG	DA-S-SB05-0203-01
DA-SB114-0406	DA-S-SB05-0304-01
DA-SB115-0204	DA-S-SB06-2535-01
DA-SB116-0204	DA-S-SB08-0607-01-AVG
DA-SB117-0810	DA-SS-B125B-0304-072108
DA-SB119-0204	

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Subsurface Soil	**Volatile Organic Compounds**													
	95-63-6	**1,2,4-Trimethylbenzene**	2.25 J	17,000	UG/KG	DA-S-SB04-2535-01	3/31	0.22 - 230	17,000	Yes	**24**	NA	**Yes**	ASL
	108-67-8	**1,3,5-Trimethylbenzene**	74 J	7,500 J	UG/KG	DA-SB116-0204	2/31	0.19 - 560	7,500	Yes	**20**	NA	**Yes**	ASL
	78-93-3	2-Butanone	2.8 J	48	UG/KG	DA-B100B-0608	9/31	0.32 - 3400	48	Yes	1,500	NA	No	BSL
	99-87-6	4-Isopropyltoluene	2.5	6,400	UG/KG	DA-S-SB04-2535-01	4/31	0.23 - 6	6,400	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.2	900 J	UG/KG	DA-SB112-0608-AVG	25/31	8 - 3100	900	Yes	4,400	NA	No	BSL
	75-15-0	Carbon Disulfide	0.93 J	4 J	UG/KG	DA-B107B-0608	7/31	0.3 - 570	4	Yes	270	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.27 - 380	2	Yes	110	1,700	No	BSL
	100-41-4	**Ethylbenzene**	0.82	1,600	UG/KG	DA-S-SB04-2535-01	3/31	0.25 - 6	1,600	Yes	**1.9**	27,000	**Yes**	ASL
	98-82-8	**Isopropylbenzene**	0.58 J	2,800	UG/KG	DA-S-SB04-2535-01	6/31	0.27 - 6	2,800	Yes	**1,300**	NA	**Yes**	ASL
	--	m+p-Xylenes	0.61 J	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	1,600 [8]	NA	No	BSL
	75-09-2	**Methylene Chloride**	2 J	2 J	UG/KG	DA-SB120-0406	1/31	5 - 760	2	Yes	**1.2**	NA	**Yes**	ASL
	104-51-8	N-Butylbenzene	5 J	8,100	UG/KG	DA-S-SB04-2535-01	5/31	0.27 - 6	8,100	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	6,100	UG/KG	DA-S-SB04-2535-01	5/31	0.24 - 6	6,100	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	0.575	1.4	UG/KG	DA-S-SB05-0304-01	3/31	0.42 - 630	1.4	Yes	1,600	NA	No	BSL
	135-98-8	sec-Butylbenzene	1.1 J	4,700	UG/KG	DA-S-SB04-2535-01	10/31	0.24 - 6	4,700	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.54 J	110 J	UG/KG	DA-SB116-0204	6/31	0.24 - 600	110	Yes	NA	NA	No	NTX
	127-18-4	**Tetrachloroethene**	0.64 J	0.64 J	UG/KG	DA-S-SB02-5565-01	1/31	0.24 - 890	0.64	Yes	**0.052**	100	**Yes**	ASL
	108-88-3	Toluene	2 J	2 J	UG/KG	DA-B108B-0406	1/31	0.21 - 650	2	Yes	1,700	32,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.24 - 540	2	Yes	99	NA	No	BSL
	1330-20-7	Total Xylenes	0.61	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	230	540,000	No	BSL
	79-01-6	**Trichloroethene**	2 J	2 J	UG/KG	DA-B101B-0406	1/31	0.26 - 700	2	Yes	**0.61**	200	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	3 J	3 J	UG/KG	DA-B109B-0204	1/31	0.4 - 560	3	Yes	**0.0056**	300	**Yes**	ASL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	310 J	310 J	UG/KG	DA-SB116-0204	1/21	360 - 1800	310	Yes	23,000	NA	No	BSL
	91-57-6	**2-Methylnaphthalene**	3.5 J	2,600 J	UG/KG	DA-SB116-0204	12/31	22 - 4900	2,600	Yes	**900**	NA	**Yes**	ASL
	83-32-9	Acenaphthene	2.6 J	65.5 J	UG/KG	DA-SB112-0608-AVG	12/31	22 - 3000	65.5	Yes	27,000	NA	No	BSL
	208-96-8	Acenaphthylene	5.2 J	670 J	UG/KG	DA-SB112-0608-AVG	2/31	22 - 3000	670	Yes	27,000 [9]	NA	No	BSL
	120-12-7	Anthracene	7.8 J	730 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	730	Yes	450,000	NA	No	BSL
	56-55-3	**Benzo(a)anthracene**	5.4 J	7,700	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	7,700	Yes	**14**	NA	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	5.6 J	5,700	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,700	Yes	**4.6**	240,000	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	12.2 J	6,500	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	6,500	Yes	**47**	NA	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	3.4 J	1,350 J	UG/KG	DA-SB112-0608-AVG	16/31	22 - 3000	1,350	Yes	150,000 [10]	NA	No	BSL
	207-08-9	**Benzo(k)fluoranthene**	5.4 J	5,350	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,350	Yes	**460**	NA	**Yes**	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-5575-01, DA-S-SB05-0203-01	2/31	110 - 6100	410	Yes	1,600	NA	No	BSL
	218-01-9	**Chrysene**	3.3 J	7,550	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	7,550	Yes	**1,400**	NA	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	6.9 J	700 J	UG/KG	DA-SB112-0608-AVG	7/31	22 - 3000	700	Yes	**15**	NA	**Yes**	ASL
	206-44-0	Fluoranthene	5 J	11,500	UG/KG	DA-SB112-0608-AVG	19/31	22 - 620	11,500	Yes	210,000	NA	No	BSL
	86-73-7	Fluorene	2.9 J	170 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	170	Yes	33,000	NA	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	9 J	2,750	UG/KG	DA-SB112-0608-AVG	14/31	22 - 4300	2,750	Yes	**160**	NA	**Yes**	ASL
	91-20-3	**Naphthalene**	2.4 J	125 J	UG/KG	DA-S-SB04-0910-01-AVG	8/30	3.4 - 84	125	Yes	**0.55**	800	**Yes**	ASL
	85-01-8	Phenanthrene	4.8 J	3,100	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	3,100	Yes	150,000 [10]	NA	No	BSL
	129-00-0	Pyrene	11.2 J	11,500	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	11,500	Yes	150,000	NA	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.4 J	9.2 J	UG/KG	DA-SB112-0608-AVG	3/29	1.93 - 244	9.2	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	1.03 J	1.03 J	UG/KG	DA-SB113-0406-AVG	1/29	0.909 - 244	1.03	Yes	60	NA	No	BSL
	50-29-3	4,4'-DDT	1 J	1 J	UG/KG	DA-B101B-0406	1/29	1.82 - 244	1	Yes	87	NA	No	BSL
	11096-82-5	**Aroclor-1260**	1,500	1,500	UG/KG	DA-SB111-0204	1/29	12.5 - 305	1,500	Yes	**14**	10,000 [11]	**Yes**	ASL
	76-44-8	Heptachlor	1.12 J	1.12 J	UG/KG	DA-SB112-0608-AVG	1/29	0.682 - 122	1.12	Yes	1.6	NA	No	BSL
	--	Total Aroclor	1,500	1,500	UG/KG	DA-SB111-0204	1/29	18 - 300	1,500	Yes	NA	10,000	No	BSL
	8001-35-2	**Toxaphene**	45.9 J	45.9 J	UG/KG	DA-S-SB02-0304-01	1/29	36 - 4640	45.9	Yes	**12**	NA	**Yes**	ASL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SUBSURFACE SOIL - MIGRATION FROM SOIL - PAVED AREA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	Metals													
	7429-90-5	Aluminum	3,800	20,700	MG/KG	DA-B100B-0608	29/29	-	20,700	Yes	55,000	NA	No	BSL
	7440-36-0	Antimony	0.472 J	0.472 J	MG/KG	DA-SB113-0406-AVG	1/29	0.05 - 0.5	0.472	Yes	0.66	(12)	No	BSL
	7440-38-2	**Arsenic**	2.25 J	122 J	MG/KG	DA-SB113-0406-AVG	29/29	-	122	Yes	**0.0013**	NA	**Yes**	ASL
	7440-39-3	Barium	8.5	55.8	MG/KG	DA-SB116-0204	29/29	-	55.8	Yes	300	(12)	No	BSL
	7440-41-7	Beryllium	0.2 J	0.76	MG/KG	DA-SB113-0406-AVG	28/29	0.26 - 0.26	0.76	No	58	(12)	No	BSL, BKG
	7440-43-9	Cadmium	0.18 J	0.41 J	MG/KG	DA-SB111-0204	3/29	0.01 - 0.18	0.41	Yes	1.4	(12)	No	BSL
	7440-70-2	Calcium	160	9,620 J	MG/KG	DA-SB111-0204	29/29	-	9,620	Yes	NA	NA	No	NUT
	7440-47-3	**Chromium**	6.8	103	MG/KG	DA-SB111-0204	29/29	-	103	Yes	**2.1** [13]	(12)	**Yes**	ASL
	7440-48-4	**Cobalt**	5.7	21.5	MG/KG	DA-SB102-0305	29/29	-	21.5	Yes	**0.49**	NA	**Yes**	ASL
	7440-50-8	Copper	7.8	26.4	MG/KG	DA-SB111-0204	29/29	-	26.4	Yes	51	NA	No	BSL
	7439-89-6	**Iron**	13,000	40,000	MG/KG	DA-B100B-0608	29/29	-	40,000	Yes	**640**	NA	**Yes**	ASL
	7439-92-1	Lead	6.9	159	MG/KG	DA-SB111-0204	29/29	-	159	Yes	NA	(12)	No	NTX
	7439-95-4	Magnesium	960	7,120	MG/KG	DA-SB101-0608-AVG	29/29	-	7,120	Yes	NA	NA	No	NUT
	7439-96-5	**Manganese**	171	2,820	MG/KG	DA-SB102-0305	29/29	-	2,820	No	**57**	NA	**Yes**	ASL, BKG
	7439-97-6	Mercury	0.00808	0.12	MG/KG	DA-B109B-0204	10/29	0.00749 - 0.04	0.12	Yes	0.57	(12)	No	BSL
	7439-98-7	Molybdenum	0.185 J	1.56 J	MG/KG	DA-SB113-0406-AVG	21/29	0.025 - 0.49	1.56	Yes	3.7	NA	No	BSL
	7440-02-0	Nickel	8	36.4	MG/KG	DA-SB101-0608-AVG	29/29	-	36.4	Yes	48	(12)	No	BSL
	7440-09-7	Potassium	120	1,080 J	MG/KG	DA-B101B-0406	29/29	-	1,080	Yes	NA	NA	No	NUT
	7782-49-2	**Selenium**	0.598 J	1 J	MG/KG	DA-SB119-0204	4/29	0.11 - 0.77	1	No	**0.95**	(12)	**Yes**	ASL, BKG
	7440-22-4	Silver	0.034 J	0.61 J	MG/KG	DA-SB111-0204	12/29	0.032 - 0.26	0.61	Yes	1.6	NA	No	BSL
	7440-23-5	Sodium	28.9 J	156	MG/KG	DA-SB100-0204	15/29	25.5 - 76.2	156	No	NA	NA	No	NUT
	7440-28-0	**Thallium**	0.2 J	0.28 J	MG/KG	DA-S-SB01-0809-01	4/29	0.01 - 0.8	0.28	No	**0.17**	(12)	**Yes**	ASL, BKG
	7440-62-2	Vanadium	9.4	29.4	MG/KG	DA-B109B-0204	29/29	-	29.4	Yes	180	NA	No	BSL
	7440-66-6	Zinc	23 J	81.2	MG/KG	DA-SB111-0204	29/29	-	81.2	Yes	680	NA	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	2,700 J	1,900,000	UG/KG	DA-SB116-0204	22/31	8550 - 89000	1,900,000	Yes	NA	**500,000**	**Yes**	ASL
	--	Gasoline Range Organics	0.39 J	920	MG/KG	DA-S-SB04-2535-01	9/31	0.58 - 7.4	920	Yes	NA	NA	No	NTX

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Above Background Concentration?(4)	Screening Toxicity Value(5)	Screening Toxicity Value(6)	COPC Flag	Rationale for Contaminant Deletion or Selection(7)

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
13 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples
DA-B100B-0608
DA-B101B-0406
DA-B107B-0608
DA-B108B-0406
DA-B109B-0204
DA-SB100-0204
DA-SB101-0608-AVG
DA-SB102-0305
DA-SB111-0204
DA-SB112-0608-AVG
DA-SB113-0406-AVG
DA-SB114-0406
DA-SB115-0204
DA-SB116-0204
DA-SB117-0810
DA-SB119-0204
DA-SB120-0406
DA-SB150-0204
DA-SB151-0406-AVG
DA-SO-B126B-0608-072208
DA-S-SB01-0809-01
DA-S-SB01-5575-01
DA-S-SB02-0304-01
DA-S-SB02-5565-01
DA-S-SB04-0910-01-AVG
DA-S-SB04-2535-01
DA-S-SB05-0203-01
DA-S-SB05-0304-01
DA-S-SB06-2535-01
DA-S-SB08-0607-01-AVG
DA-SS-B125B-0304-072108

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - OVERBURDEN BEDROCK INTERFACE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Overburden-Bedrock Interface	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	1	1	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	1	260 - 260	910 N	200 200	EPA-MCL RIDEM	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	0.4 J	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	0.4	380 - 380	2.4 C	NA NA	NA NA	No	BSL
	67-64-1	Acetone	2.25 J	8	UG/L	DA-MW103S-2008LOCMAX	2/4	5 - 5	8	9 - 10	2,200 N	NA NA	NA NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	1 - 1	37 N	70 70	EPA-MCL RIDEM	No	BSL
	127-18-4	**Tetrachloroethene**	0.5 J	2	UG/L	DA-MW123-2008LOCMAX	2/4	1 - 1	2	2 - 2	**0.11 C**	5 5	EPA-MCL RIDEM	**Yes**	ASL
	540-59-0	Total 1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	1 - 1	33 N	NA NA	NA NA	No	BSL
	79-01-6	Trichloroethene	0.9 J	0.9 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.9	0.4 - 0.9	1.7 C	5 5	EPA-MCL RIDEM	No	BSL
	Semivolatile Organic Compounds														
	100-51-6	Benzyl Alcohol	110	110	UG/L	DA-MW123-2008LOCMAX	1/4	20 - 24	110	NA	1,800 N	NA NA	NA NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	4.8 C	6 6	EPA-MCL RIDEM	No	BSL
	85-01-8	Phenanthrene	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	110 N[7]	NA NA	NA NA	No	BSL
	Pesticides/PCBs														
	60-57-1	**Dieldrin**	0.0108 J	0.0108 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.02 - 0.024	0.0108	NA	**0.0042 C**	NA NA	NA NA	**Yes**	ASL
	Metals														
	7429-90-5	**Aluminum**	3,420	564,000	UG/L	DA-MW103S-2008LOCMAX	2/4	31.6 - 31.7	564,000	336 - 336	**3,700 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7440-38-2	**Arsenic**	2.7 J	503 J	UG/L	DA-MW103S-2008LOCMAX	2/4	1.69 - 1.69	503	5.8 - 7.7	**0.045 C**	**10** NA	**EPA-MCL** NA	**Yes**	ASL
	7440-39-3	**Barium**	9.5 J	1,390	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,390	9.6 - 80.8	**730 N**	2,000 2,000	EPA-MCL RIDEM	**Yes**	ASL
	7440-41-7	**Beryllium**	17.8 J	17.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.13 - 0.13	17.8	NA	**7.3 N**	**4** **4**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	7440-70-2	Calcium	26,200	226,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	226,000	20300 - 53900	NA	NA NA	NA NA	No	NUT
	7440-47-3	**Chromium**	5.2 J	868	UG/L	DA-MW103S-2008LOCMAX	2/4	0.52 - 0.57	868	NA	**11 N**[8]	**100** **100**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	7440-48-4	**Cobalt**	3.7 J	637	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 1.15	637	7.7 - 14.5	**1.1 N**	NA NA	NA NA	**Yes**	ASL
	7440-50-8	**Copper**	6.5 J	1,440	UG/L	DA-MW103S-2008LOCMAX	2/4	0.75 - 0.76	1,440	NA	**150 N**	**1,300** NA	**EPA-MCL** NA	**Yes**	ASL
	7439-89-6	**Iron**	19.4 J	1,210,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,210,000	3120 - 12200	**2,600 N**	**300** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-92-1	**Lead**	3.6 J	1,890	UG/L	DA-MW103S-2008LOCMAX	2/4	0.97 - 0.97	1,890	1.7 - 1.7	NA	**15** **15**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	7439-95-4	Magnesium	6,210	195,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	195,000	6090 - 10500	NA	NA NA	NA NA	No	NUT
	7439-96-5	**Manganese**	0.972 J	13,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	13,800	535 - 5280	**88 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - OVERBURDEN BEDROCK INTERFACE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7439-97-6	**Mercury**	1.9	1.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.03 - 0.03	1.9	NA	**1.1 N**	2 2	EPA-MCL RIDEM	**Yes**	ASL
	7439-98-7	**Molybdenum**	4.45 J	20.3 J	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.52	20.3	NA	**18 N**	NA NA	NA NA	**Yes**	ASL
	7440-02-0	**Nickel**	6.5 J	1,160	UG/L	DA-MW103S-2008LOCMAX	2/4	0.53 - 0.87	1,160	8.1 - 8.1	**73 N**	NA **100**	NA **RIDEM**	**Yes**	ASL
	7440-09-7	Potassium	1,300	41,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	41,800	2040 - 14500	NA	NA NA	NA NA	No	NUT
	7782-49-2	Selenium	13.8 J	13.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.96 - 0.96	13.8	NA	18 N	50 50	EPA-MCL RIDEM	No	BSL
	7440-23-5	Sodium	10,300	56,400	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,400	NA	NA	NA NA	NA NA	No	NUT
	7440-62-2	**Vanadium**	3.8 J	832	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.38	832	NA	**18 N**	NA NA	NA NA	**Yes**	ASL
	7440-66-6	**Zinc**	22.6 J	3,990	UG/L	DA-MW103S-2008LOCMAX	2/4	3.4 - 7.2	3,990	NA	**1,100 N**	5,000 NA	EPA-SMCL NA	**Yes**	ASL
	Dissolved Metals														
	7429-90-5	**Aluminum**	181 J	5,900	UG/L	DA-MW103S-2008LOCMAX	2/4	14.6 - 14.6	5,900	NA	**3,700 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7440-38-2	**Arsenic**	20.2	20.2	UG/L	DA-MW103S-2008LOCMAX	1/4	1.69 - 1.69	20.2	4.3 - 5.8	**0.045 C**	**10** NA	**EPA-MCL** NA	**Yes**	ASL
	7440-39-3	Barium	9.2	90.7	UG/L	DA-MW103S-2008LOCMAX	4/4	-	90.7	7.9 - 76	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	25,800	143,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	143,000	20700 - 52100	NA	NA NA	NA NA	No	NUT
	7440-48-4	**Cobalt**	6.8 J	6.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.27 - 1.01	6.8	7 - 12.3	**1.1 N**	NA NA	NA NA	**Yes**	ASL
	7440-50-8	Copper	19 J	19 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.75 - 1.55	19	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	**Iron**	7.1 J	38,200	UG/L	DA-MW103S-2008LOCMAX	4/4	-	38,200	2420 - 10600	**2,600 N**	**300** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-92-1	**Lead**	19.9	19.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.97 - 0.97	19.9	2.2 - 2.2	NA	**15** **15**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	7439-95-4	Magnesium	6,360	14,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	14,800	6120 - 10600	NA	NA NA	NA NA	No	NUT
	7439-96-5	**Manganese**	240	1,910	UG/L	DA-MW103S-2008LOCMAX	3/4	1.09 - 1.09	1,910	519 - 5400	**88 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-98-7	Molybdenum	2.3 J	4.45 J	UG/L	DA-MW122-2008LOCMAX	2/4	0.3 - 0.3	4.45	NA	18 N	NA NA	NA NA	No	BSL
	7440-02-0	Nickel	10.6 J	10.6 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.42 - 1.1	10.6	7.5 - 7.5	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	1,260	24,300	UG/L	DA-MW103S-2008LOCMAX	4/4	-	24,300	2010 - 13400	NA	NA NA	NA NA	No	NUT
	7440-22-4	Silver	0.352 J	0.352 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.29 - 1.8	0.352	0.42 - 0.42	18 N	100 NA	EPA-SMCL NA	No	BSL
	7440-23-5	Sodium	10,500	56,000	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,000	12200 - 60400	NA	NA NA	NA NA	No	NUT
	7440-62-2	Vanadium	7.5 J	7.5 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.38 - 0.47	7.5	NA	18 N	NA NA	NA NA	No	BSL
	7440-66-6	Zinc	41	41	UG/L	DA-MW103S-2008LOCMAX	1/4	4.2 - 7.65	41	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - OVERBURDEN BEDROCK INTERFACE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Range of Background Concentrations(4)	Screening Toxicity Value(5)	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(6)
	Miscellaneous Parameters														
	--	Ammonia-N	0.084 J	1.8	MG/L	DA-MW103S-2008LOCMAX	2/4	0.1 - 0.1	1.8	0.042 - 2.1	NA	NA NA	NA NA	No	NTX
		Methane	4.9 J	150	UG/L	DA-MW103S-2008LOCMAX	3/4	10 - 10	150	1.8 - 3.2	NA	NA NA	NA NA	No	NTX
	--	Nitrate-N	0.34	2.7	MG/L	DA-MW112S-2008LOCMAX	3/4	0.05 - 0.05	2.7	NA	5.8 N	10 NA	EPA-MCL NA	No	BSL
	--	Nitrite-N	0.014 J	0.014 J	MG/L	DA-MW123-2008LOCMAX	1/4	0.05 - 0.1	0.014	NA	0.37 N	1 NA	EPA-MCL NA	No	BSL
	--	Orthophosphate-P	0.032 J	0.049 J	MG/L	DA-MW123-2008LOCMAX	4/4	-	0.049	0.019 - 0.019	NA	NA NA	NA NA	No	NTX
	14808-79-8	Sulfate	24	46	MG/L	DA-MW103S-2008LOCMAX	4/4	-	46	9.5 - 34	NA	250 NA	EPA-SMCL NA	No	BSL
	18496-25-8	Sulfide	1 J	1.4	MG/L	DA-MW112S-2008LOCMAX	2/4	1 - 1	1.4	NA	NA	NA NA	NA NA	No	NTX
	--	Total Organic Carbon	1.1	14	MG/L	DA-MW103S-2008LOCMAX	4/4	-	14	NA	NA	NA NA	NA NA	No	NTX
	Petroleum Hydrocarbons														
	--	TPH (C09-C36)	220	220	UG/L	DA-MW103S-2008LOCMAX	1/4	81 - 82	220	58 - 570	NA	NA NA	NA NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10. to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for pyrene.
8 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-MW103S-2008LOCMAX
DA-MW112S-2008LOCMAX
DA-MW122-2008LOCMAX
DA-MW123-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
EPA-MCL = US Environmental Protection Agency Maximum Contaminant Level (USEPA, 2006)
EPA-SMCL = US Environmental Protection Agency Secondary Maximum Contaminant Level (USEPA, 2006)
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Polychlorinated Biphenyl
RIDEM = Rhode Island Department of Environmental Management GA Groundwater Objective (February, 2004).

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION - OVERBURDEN BEDROCK INTERFACE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Overburden-Bedrock Interface	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	1	1	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	1	NA	3,100 N	NA	NA	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	0.4 J	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	0.4	NA	2,200 N	NA	NA	No	BSL
	67-64-1	Acetone	2.25 J	8	UG/L	DA-MW103S-2008LOCMAX	2/4	5 - 5	8	NA	220,000 N	NA	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	NA	210 N	NA	NA	No	BSL
	127-18-4	**Tetrachloroethene**	0.5 J	2	UG/L	DA-MW123-2008LOCMAX	2/4	1 - 1	2	NA	**0.55 C[7]**	NA	NA	**Yes**	ASL
	540-59-0	Total 1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	NA	NA	NA	NA	No	NTX
	79-01-6	Trichloroethene	0.9 J	0.9 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.9	NA	2.89 C[7]	NA	NA	No	BSL
	Semivolatile Organic Compounds														
	100-51-6	Benzyl Alcohol	110	110	UG/L	DA-MW123-2008LOCMAX	1/4	20 - 24	110	NA	NA	NA	NA	No	NTX
	117-81-7	Bis(2-ethylhexyl)phthalate	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	NA	NA	NA	No	NTX
	85-01-8	Phenanthrene	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	NA	NA	NA	No	NTX
	Pesticides/PCBs														
	60-57-1	Dieldrin	0.0108 J	0.0108 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.02 - 0.024	0.0108	NA	0.86 C	NA	NA	No	BSL
	Metals														
	7429-90-5	Aluminum	3,420	564,000	UG/L	DA-MW103S-2008LOCMAX	2/4	31.6 - 31.7	564,000	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	2.7 J	503 J	UG/L	DA-MW103S-2008LOCMAX	2/4	1.69 - 1.69	503	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	9.5 J	1,390	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,390	NA	NA	NA	NA	No	NTX
	7440-41-7	Beryllium	17.8 J	17.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.13 - 0.13	17.8	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	26,200	226,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	226,000	NA	NA	NA	NA	No	NUT
	7440-47-3	Chromium	5.2 J	868	UG/L	DA-MW103S-2008LOCMAX	2/4	0.52 - 0.57	868	NA	NA	NA	NA	No	NTX
	7440-48-4	Cobalt	3.7 J	637	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 1.15	637	NA	NA	NA	NA	No	NTX
	7440-50-8	Copper	6.5 J	1,440	UG/L	DA-MW103S-2008LOCMAX	2/4	0.75 - 0.76	1,440	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	19.4 J	1,210,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,210,000	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	3.6 J	1,890	UG/L	DA-MW103S-2008LOCMAX	2/4	0.97 - 0.97	1,890	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	6,210	195,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	195,000	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	0.972 J	13,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	13,800	NA	NA	NA	NA	No	NTX
	7439-97-6	Mercury	1.9	1.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.03 - 0.03	1.9	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	4.45 J	20.3 J	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.52	20.3	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	6.5 J	1,160	UG/L	DA-MW103S-2008LOCMAX	2/4	0.53 - 0.87	1,160	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	1,300	41,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	41,800	NA	NA	NA	NA	No	NUT
	7782-49-2	Selenium	13.8 J	13.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.96 - 0.96	13.8	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	10,300	56,400	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,400	NA	NA	NA	NA	No	NUT
	7440-62-2	Vanadium	3.8 J	832	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.38	832	NA	NA	NA	NA	No	NTX
	7440-66-6	Zinc	22.6 J	3,990	UG/L	DA-MW103S-2008LOCMAX	2/4	3.4 - 7.2	3,990	NA	NA	NA	NA	No	NTX
	Dissolved Metals														
	7429-90-5	Aluminum	181 J	5,900	UG/L	DA-MW103S-2008LOCMAX	2/4	14.6 - 14.6	5,900	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	20.2	20.2	UG/L	DA-MW103S-2008LOCMAX	1/4	1.69 - 1.69	20.2	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	9.2	90.7	UG/L	DA-MW103S-2008LOCMAX	4/4	-	90.7	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	25,800	143,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	143,000	NA	NA	NA	NA	No	NUT
	7440-48-4	Cobalt	6.8 J	6.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.27 - 1.01	6.8	NA	NA	NA	NA	No	NTX
	7440-50-8	Copper	19 J	19 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.75 - 1.55	19	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	7.1 J	38,200	UG/L	DA-MW103S-2008LOCMAX	4/4	-	38,200	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	19.9	19.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.97 - 0.97	19.9	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	6,360	14,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	14,800	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	240	1,910	UG/L	DA-MW103S-2008LOCMAX	3/4	1.09 - 1.09	1,910	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	2.3 J	4.45 J	UG/L	DA-MW122-2008LOCMAX	2/4	0.3 - 0.3	4.45	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	10.6 J	10.6 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.42 - 1.1	10.6	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	1,260	24,300	UG/L	DA-MW103S-2008LOCMAX	4/4	-	24,300	NA	NA	NA	NA	No	NUT
	7440-22-4	Silver	0.352 J	0.352 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.29 - 1.8	0.352	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	10,500	56,000	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,000	NA	NA	NA	NA	No	NUT
	7440-62-2	Vanadium	7.5 J	7.5 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.38 - 0.47	7.5	NA	NA	NA	NA	No	NTX
	7440-66-6	Zinc	41	41	UG/L	DA-MW103S-2008LOCMAX	1/4	4.2 - 7.65	41	NA	NA	NA	NA	No	NTX
	Miscellaneous Parameters														
	--	Ammonia-N	0.084 J	1.8	MG/L	DA-MW103S-2008LOCMAX	2/4	0.1 - 0.1	1.8	NA	NA	NA	NA	No	NTX
		Methane	4.9 J	150	UG/L	DA-MW103S-2008LOCMAX	3/4	10 - 10	150	NA	NA	NA	NA	No	NTX
	--	Nitrate-N	0.34	2.7	MG/L	DA-MW112S-2008LOCMAX	3/4	0.05 - 0.05	2.7	NA	NA	NA	NA	No	NTX
	--	Nitrite-N	0.014 J	0.014 J	MG/L	DA-MW123-2008LOCMAX	1/4	0.05 - 0.1	0.014	NA	NA	NA	NA	No	NTX
	--	Orthophosphate-P	0.032 J	0.049 J	MG/L	DA-MW123-2008LOCMAX	4/4	-	0.049	NA	NA	NA	NA	No	NTX
	14808-79-8	Sulfate	24	46	MG/L	DA-MW103S-2008LOCMAX	4/4	-	46	NA	NA	NA	NA	No	NTX
	18496-25-8	Sulfide	1 J	1.4	MG/L	DA-MW112S-2008LOCMAX	2/4	1 - 1	1.4	NA	NA	NA	NA	No	NTX
	--	Total Organic Carbon	1.1	14	MG/L	DA-MW103S-2008LOCMAX	4/4	-	14	NA	NA	NA	NA	No	NTX
	Petroleum Hydrocarbons														
	--	TPH (C09-C36)	220	220	UG/L	DA-MW103S-2008LOCMAX	1/4	81 - 82	220	NA	NA	NA	NA	No	NTX

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION - OVERBURDEN BEDROCK INTERFACE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for groundwater.
5 - Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. November 2002. EPA530-F-02-052.
Values are from Table 2c and correspond to a target cancer risk level of 1E-6 or HI =1 and an attenuation factor of 0.001.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level
and is statistically determined to be greater than site background.
7 - The value presented in Table 2c of the draft vapor intrusion guidance is based on the MCL. USEPA Region I requires the
screening criteria for vapor intrusion to be risk-based. Therefore, the value from Table 2a adjusted for a 1E-6 cancer risk
level is presented here.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-MW103S-2008LOCMAX
DA-MW112S-2008LOCMAX
DA-MW122-2008LOCMAX
DA-MW123-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Polychlorinated Biphenyl

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - BEDROCK GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Bedrock	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	0.4 J	4	UG/L	DA-MW104B-2008LOCMAX	5/24	1 - 50	4	NA	910 N	200 200	EPA-MCL RIDEM	No	BSL
	75-34-3	**1,1-Dichloroethane**	0.4 J	310	UG/L	DA-MW100B-2008LOCMAX	14/24	1 - 1	310	NA	**2.4 C**	NA NA	NA NA	**Yes**	ASL
	75-35-4	1,1-Dichloroethene	0.5 J	7	UG/L	DA-MW104B-2008LOCMAX	7/24	1 - 50	7	NA	34 N	7 7	EPA-MCL RIDEM	No	BSL
	95-63-6	**1,2,4-Trimethylbenzene**	0.3 J	810	UG/L	DA-MW100B-2008LOCMAX	2/24	1 - 1	810	NA	**1.5 N**	NA NA	NA NA	**Yes**	ASL
	108-67-8	**1,3,5-Trimethylbenzene**	290	290	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	290	NA	**1.2 N**	NA NA	NA NA	**Yes**	ASL
	106-46-7	1,4-Dichlorobenzene	0.3 J	0.3 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 9	0.3	NA	0.43 C	75 75	EPA-MCL RIDEM	No	BSL
	103-65-1	4-Isopropyltoluene	110	110	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	110	NA	NA	NA NA	NA NA	No	NTX
	67-64-1	Acetone	3 J	13 J	UG/L	DA-MW110B-2008LOCMAX	6/24	5 - 250	13	NA	2,200 N	NA NA	NA NA	No	BSL
	71-43-2	Benzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	0.41 C	5 5	EPA-MCL RIDEM	No	BSL
	74-83-9	**Bromomethane**	2	2	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	2	NA	**0.87 N**	NA NA	NA NA	**Yes**	ASL
	75-15-0	Carbon Disulfide	0.6 J	0.6 J	UG/L	DA-MW109B-2008LOCMAX	1/24	1 - 50	0.6	NA	100 N	NA NA	NA NA	No	BSL
	56-23-5	**Carbon Tetrachloride**	2	2	UG/L	DA-MW03B-2008LOCMAX	1/24	1 - 50	2	NA	**0.2 C**	5 5	EPA-MCL RIDEM	**Yes**	ASL
	75-00-3	Chloroethane	1 J	130	UG/L	DA-MW100B-2008LOCMAX	2/24	2 - 2	130	NA	2,100 N	NA NA	NA NA	No	BSL
	67-66-3	**Chloroform**	1	7	UG/L	DA-MW126B-2008LOCMAX	2/24	1 - 50	7	NA	**0.19 C**	80 NA	EPA-MCL NA	**Yes**	ASL
	74-87-3	**Chloromethane**	16	16	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	16	NA	**1.8 C**	NA NA	NA NA	**Yes**	ASL
	156-59-2	cis-1,2-Dichloroethene	0.3 J	26	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	26	NA	37 N	70 70	EPA-MCL RIDEM	No	BSL
	100-41-4	**Ethylbenzene**	58	58	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	58	NA	**1.5 C**	700 700	EPA-MCL RIDEM	**Yes**	ASL
	98-82-8	**Isopropylbenzene**	94	94	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	94	NA	**68 N**	NA NA	NA NA	**Yes**	ASL
	--	m+p-Xylenes	60 J	60 J	UG/L	DA-MW100B-2008LOCMAX	1/24	2 - 2	60	NA	NA	10,000 10,000	EPA-MCL[7] RIDEM[7]	No	BSL
	104-51-8	N-Butylbenzene	98	98	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	98	NA	NA	NA NA	NA NA	No	NTX
	103-65-1	N-Propylbenzene	140	140	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	140	NA	NA	NA NA	NA NA	No	NTX
	95-47-6	o-Xylene	37 J	37 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	37	NA	140 N	10,000 10,000	EPA-MCL[7] RIDEM[7]	No	BSL
	135-98-8	sec-Butylbenzene	0.4 J	84	UG/L	DA-MW100B-2008LOCMAX	3/24	1 - 1	84	NA	NA	NA NA	NA NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	NA	NA NA	NA NA	No	NTX
	127-18-4	**Tetrachloroethene**	0.5	12	UG/L	DA-MW125B-2008LOCMAX	8/24	1 - 50	12	NA	**0.11 C**	**5** **5**	**EPA-MCL** **RIDEM**	**Yes**	ASL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - BEDROCK GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	108-88-3	Toluene	0.6 J	41	UG/L	DA-MW109B-2008LOCMAX	7/24	1 - 50	41	NA	230 N	1,000 1,000	EPA-MCL RIDEM	No	BSL
	540-59-0	Total 1,2-Dichloroethene	0.3 J	29	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	29	NA	33 N	NA NA	NA NA	No	BSL
	1330-20-7	**Total Xylenes**	97 J	97 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1.5 - 1.5	97	NA	**20 N**	10,000 10,000	EPA-MCL RIDEM	**Yes**	ASL
	156-60-5	trans-1,2-Dichloroethene	3	3	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	3	NA	11 N	100 100	EPA-MCL RIDEM	No	BSL
	79-01-6	**Trichloroethene**	2	730	UG/L	DA-MW117B-2008LOCMAX	12/24	1 - 50	730	NA	**1.7 C**	**5** **5**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	0.3 J	19	UG/L	DA-MW124B-2008LOCMAX	8/24	2 - 100	19	NA	**0.016 C**	**2** **2**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	Semivolatile Organic Compounds														
	207-08-9	**Benzo(k)fluoranthene**	4 J	4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	4	NA	**0.29 C**	NA NA	NA NA	**Yes**	ASL
	84-74-2	di-n-Butyl Phthalate	5 J	5 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	5	NA	370 N	NA NA	NA NA	No	BSL
	Metals														
	7429-90-5	**Aluminum**	31.4 J	1,950	UG/L	DA-MW102B-2008LOCMAX	13/20	14.6 - 129	1,950	NA	3,700 N	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7440-36-0	Antimony	1.2 J	1.2 J	UG/L	DA-MW119B-2008LOCMAX	1/20	0.78 - 1.9	1.2	NA	1.5 N	6 6	EPA-MCL RIDEM	No	BSL
	7440-38-2	**Arsenic**	2.2 J	17.8	UG/L	DA-MW116B-2008LOCMAX	12/20	1.69 - 12.4	17.8	NA	**0.045 C**	**10** NA	**EPA-MCL** NA	**Yes**	ASL
	7440-39-3	Barium	3.4 J	25.9 J	UG/L	DA-MW02B-2008LOCMAX	15/20	1.2 - 6.5	25.9	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	12,100	57,000	UG/L	DA-MW102B-2008LOCMAX	20/20	-	57,000	NA	NA	NA NA	NA NA	No	NUT
	7440-47-3	Chromium	2.4	5.6 J	UG/L	DA-MW102B-2008LOCMAX	4/20	0.41 - 3.3	5.6	NA	11 N[8]	100 100	EPA-MCL RIDEM	No	BSL
	7440-48-4	**Cobalt**	0.98 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	5/20	0.31 - 2.9	15.6	NA	**1.1 N**	NA NA	NA NA	**Yes**	ASL
	7440-50-8	Copper	0.89 J	17.3 J	UG/L	DA-MW102B-2008LOCMAX	5/20	0.75 - 7.7	17.3	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	**Iron**	937	26,700	UG/L	DA-MW02B-2008LOCMAX	18/20	9.2 - 76.3	26,700	NA	**2,600 N**	**300** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-92-1	Lead	1.1	3.5 J	UG/L	DA-MW102B-2008LOCMAX	7/20	0.97 - 0.97	3.5	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	1,850	13,800	UG/L	DA-MW108B-2008LOCMAX	20/20	-	13,800	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	**Manganese**	56	8,370	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,370	NA	**88 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-98-7	Molybdenum	1.4 J	3.8 J	UG/L	DA-MW109B-2008LOCMAX	3/20	0.3 - 1.5	3.8	NA	18 N	NA NA	NA NA	No	BSL
	7440-02-0	Nickel	0.335 J	10 J	UG/L	DA-MW117B-2008LOCMAX	14/20	0.42 - 2.05	10	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	722 J	3,600	UG/L	DA-MW103B-2008LOCMAX	10/20	637 - 848	3,600	NA	NA	NA NA	NA NA	No	NUT
	7782-49-2	Selenium	1.7 J	1.7 J	UG/L	DA-MW04B-2008LOCMAX	1/20	0.96 - 0.96	1.7	NA	18 N	50 50	EPA-MCL RIDEM	No	BSL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - BEDROCK GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7440-22-4	Silver	0.392 J	0.392 J	UG/L	DA-MW108B-2008LOCMAX	1/20	0.29 - 0.89	0.392	NA	18 N	100 NA	EPA-SMCL NA	No	BSL
	7440-23-5	Sodium	8,680	38,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	38,200	NA	NA	NA NA	NA NA	No	NUT
	7440-28-0	**Thallium**	2.3 J	2.3 J	UG/L	DA-MW119B-2008LOCMAX	1/20	1.64 - 1.64	2.3	NA	**0.24 N**	**2** **2**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	7440-62-2	Vanadium	1.5 J	1.5 J	UG/L	DA-MW115B-2008LOCMAX	1/20	0.38 - 2	1.5	NA	18 N	NA NA	NA NA	No	BSL
	7440-66-6	Zinc	4.4 J	23.8 J	UG/L	DA-MW104B-2008LOCMAX	8/20	4.7 - 11.1	23.8	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Dissolved Metals														
	7429-90-5	**Aluminum**	22.1 J	186 J	UG/L	DA-MW102B-2008LOCMAX	2/20	14.6 - 117	186	NA	3,700 N	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7440-38-2	**Arsenic**	1.37 J	18.4	UG/L	DA-MW116B-2008LOCMAX	11/20	1.69 - 12.4	18.4	NA	**0.045 C**	**10** NA	**EPA-MCL** NA	**Yes**	ASL
	7440-39-3	Barium	3.1 J	25.6	UG/L	DA-MW02B-2008LOCMAX	12/20	0.59 - 2.4	25.6	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	12,200	55,100	UG/L	DA-MW102B-2008LOCMAX	20/20	-	55,100	NA	NA	NA NA	NA NA	No	NUT
	7440-48-4	**Cobalt**	1 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	4/20	0.28 - 2.6	15.6	NA	**1.1 N**	NA NA	NA NA	**Yes**	ASL
	7439-89-6	**Iron**	774	26,600	UG/L	DA-MW02B-2008LOCMAX	15/20	9 - 65.6	26,600	NA	**2,600 N**	**300** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-92-1	Lead	0.732 J	1.8 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.97 - 0.97	1.8	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	1,870	13,400	UG/L	DA-MW108B-2008LOCMAX DA-MW109B-2008LOCMAX	20/20	-	13,400	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	**Manganese**	53.5	8,220	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,220	NA	**88 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-98-7	Molybdenum	1.3 J	2.25 J	UG/L	DA-MW108B-2008LOCMAX	3/20	0.3 - 0.95	2.25	NA	18 N	NA NA	NA NA	No	BSL
	7440-02-0	Nickel	0.76 J	4.9 J	UG/L	DA-MW116B-2008LOCMAX	7/20	0.42 - 2.1	4.9	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	685 J	3,710	UG/L	DA-MW103B-2008LOCMAX	10/20	618 - 836	3,710	NA	NA	NA NA	NA NA	No	NUT
	7440-22-4	Silver	0.238 J	0.61 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.29 - 0.73	0.61	NA	18 N	100 NA	EPA-SMCL NA	No	BSL
	7440-23-5	Sodium	8,930	37,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	37,200	NA	NA	NA NA	NA NA	No	NUT
	7440-66-6	Zinc	4.6 J	16.3 J	UG/L	DA-MW104B-2008LOCMAX	4/20	4.3 - 11.4	16.3	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Miscellaneous Parameters														
	--	Ammonia-N	0.04 J	3	MG/L	DA-MW02B-2008LOCMAX	5/20	0.1 - 0.1	3	NA	NA	NA NA	NA NA	No	NTX
		Methane	1.3 J	2,300		DA-MW119B-2008LOCMAX	13/20	10 - 10	2,300	NA	NA	NA NA	NA NA	No	NTX
	--	Nitrate-N	0.048 J	1.7	MG/L	DA-MW111B-2008LOCMAX	8/20	0.05 - 0.05	1.7	NA	5.8 N	10 NA	EPA-MCL NA	No	BSL
	--	Nitrite-N	0.0064 J	0.037 J	MG/L	DA-MW104B-2008LOCMAX	2/20	0.05 - 0.05	0.037	NA	0.37 N	1 NA	EPA-MCL NA	No	BSL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - BEDROCK GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Above Background Concentration?(4)	Screening Toxicity Value(5)	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(6)
	--	Orthophosphate-P	0.016 J	0.12	MG/L	DA-MW114B-2008LOCMAX DA-MW119B-2008LOCMAX	19/20	0.05 - 0.05	0.12	NA	NA	NA NA	NA NA	No	NTX
	14808-79-8	Sulfate	5	44	MG/L	DA-MW107B-2008LOCMAX	20/20	-	44	NA	NA	250 NA	EPA-SMCL NA	No	BSL
	18496-25-8	Sulfide	0.8 J	3.1	MG/L	DA-MW115B-2008LOCMAX DA-MW119B-2008LOCMAX	6/20	1 - 1	3.1	NA	NA	NA NA	NA NA	No	NTX
	--	Total Organic Carbon	0.28	5	MG/L	DA-MW02B-2008LOCMAX	20/20	-	5	NA	NA	NA NA	NA NA	No	NTX
	Petroleum Hydrocarbons														
	--	Gasoline Range Organics	19	180	UG/L	DA-MW117B-2008LOCMAX	5/23	10 - 47	180	NA	NA	NA NA	NA NA	No	NTX
	--	TPH (C09-C36)	47.5 J	1,300 J	UG/L	DA-MW124B-2008LOCMAX	11/23	75 - 85	1,300	NA	NA	NA NA	NA NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for groundwater.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for total xylenes.
8 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

DA-MW02B-2008LOCMAX	DA-MW111B-2008LOCMAX
DA-MW03B-2008LOCMAX	DA-MW112B-2008LOCMAX
DA-MW04B-2008LOCMAX	DA-MW113B-2008LOCMAX
DA-MW100B-2008LOCMAX	DA-MW114B-2008LOCMAX
DA-MW102B-2008LOCMAX	DA-MW115B-2008LOCMAX
DA-MW103B-2008LOCMAX	DA-MW116B-2008LOCMAX
DA-MW104B-2008LOCMAX	DA-MW117B-2008LOCMAX
DA-MW105B-2008LOCMAX	DA-MW118B-2008LOCMAX
DA-MW107B-2008LOCMAX	DA-MW119B-2008LOCMAX
DA-MW108B-2008LOCMAX	DA-MW124B-2008LOCMAX
DA-MW109B-2008LOCMAX	DA-MW125B-2008LOCMAX
DA-MW110B-2008LOCMAX	DA-MW126B-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
EPA-MCL = US Environmental Protection Agency Maximum Contaminant Level (USEPA, 2006)
EPA-SMCL = US Environmental Protection Agency Secondary Maximum Contaminant Level (USEPA, 2006)
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Polychlorinated Biphenyl
RIDEM = Rhode Island Department of Environmental Management GA Groundwater Objective (February, 2004).

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION - BEDROCK GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Bedrock	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	0.4 J	4	UG/L	DA-MW104B-2008LOCMAX	5/24	1 - 50	4	NA	3,100 N	NA	NA	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	310	UG/L	DA-MW100B-2008LOCMAX	14/24	1 - 1	310	NA	2,200 N	NA	NA	No	BSL
	75-35-4	1,1-Dichloroethene	0.5 J	7	UG/L	DA-MW104B-2008LOCMAX	7/24	1 - 50	7	NA	190 N	NA	NA	No	BSL
	95-63-6	**1,2,4-Trimethylbenzene**	0.3 J	810	UG/L	DA-MW100B-2008LOCMAX	2/24	1 - 1	810	NA	**24 N**	NA	NA	**Yes**	ASL
	108-67-8	**1,3,5-Trimethylbenzene**	290	290	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	290	NA	**25 N**	NA	NA	**Yes**	ASL
	106-46-7	1,4-Dichlorobenzene	0.3 J	0.3 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 9	0.3	NA	8,200 N	NA	NA	No	BSL
	103-65-1	4-Isopropyltoluene	110	110	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	110	NA	NA	NA	NA	No	NTX
	67-64-1	Acetone	3 J	13 J	UG/L	DA-MW110B-2008LOCMAX	6/24	5 - 250	13	NA	220,000 N	NA	NA	No	BSL
	71-43-2	Benzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	1.4 C[7]	NA	NA	No	BSL
	74-83-9	Bromomethane	2	2	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	2	NA	20 N	NA	NA	No	BSL
	75-15-0	Carbon Disulfide	0.6 J	0.6 J	UG/L	DA-MW109B-2008LOCMAX	1/24	1 - 50	0.6	NA	560 N	NA	NA	No	BSL
	56-23-5	**Carbon Tetrachloride**	2	2	UG/L	DA-MW03B-2008LOCMAX	1/24	1 - 50	2	NA	**0.13 C[7]**	NA	NA	**Yes**	ASL
	75-00-3	Chloroethane	1 J	130	UG/L	DA-MW100B-2008LOCMAX	2/24	2 - 2	130	NA	28,000 N	NA	NA	No	BSL
	67-66-3	**Chloroform**	1	7	UG/L	DA-MW126B-2008LOCMAX	2/24	1 - 50	7	NA	**0.71 C[7]**	NA	NA	**Yes**	ASL
	74-87-3	**Chloromethane**	16	16	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	16	NA	**6.7 C**	NA	NA	**Yes**	ASL
	156-59-2	cis-1,2-Dichloroethene	0.3 J	26	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	26	NA	210 N	NA	NA	No	BSL
	100-41-4	**Ethylbenzene**	58	58	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	58	NA	**3.04 N[7]**	NA	NA	**Yes**	ASL
	98-82-8	**Isopropylbenzene**	94	94	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	94	NA	**8.4 N**	NA	NA	**Yes**	ASL
	--	m+p-Xylenes	60 J	60 J	UG/L	DA-MW100B-2008LOCMAX	1/24	2 - 2	60	NA	NA	NA	NA	No	NTX
	104-51-8	N-Butylbenzene	98	98	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	98	NA	260 N	NA	NA	No	BSL
	103-65-1	N-Propylbenzene	140	140	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	140	NA	320 N	NA	NA	No	BSL
	95-47-6	o-Xylene	37 J	37 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	37	NA	33,000 N	NA	NA	No	BSL
	135-98-8	sec-Butylbenzene	0.4 J	84	UG/L	DA-MW100B-2008LOCMAX	3/24	1 - 1	84	NA	250 N	NA	NA	No	BSL
	98-06-6	Tert-Butylbenzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	290 N	NA	NA	No	BSL
	127-18-4	**Tetrachloroethene**	0.5	12	UG/L	DA-MW125B-2008LOCMAX	8/24	1 - 50	12	NA	**0.55 C[7]**	NA	NA	**Yes**	ASL
	108-88-3	Toluene	0.6 J	41	UG/L	DA-MW109B-2008LOCMAX	7/24	1 - 50	41	NA	1,500 N	NA	NA	No	BSL
	540-59-0	Total 1,2-Dichloroethene	0.3 J	29	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	29	NA	NA	NA	NA	No	NTX
	1330-20-7	Total Xylenes	97 J	97 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1.5 - 1.5	97	NA	22,000 N[8]	NA	NA	No	BSL
	156-60-5	trans-1,2-Dichloroethene	3	3	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	3	NA	180 N	NA	NA	No	BSL
	79-01-6	**Trichloroethene**	2	730	UG/L	DA-MW117B-2008LOCMAX	12/24	1 - 50	730	NA	**2.89 C[7]**	NA	NA	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	0.3 J	19	UG/L	DA-MW124B-2008LOCMAX	8/24	2 - 100	19	NA	**0.32 C[7]**	NA	NA	**Yes**	ASL
	Semivolatile Organic Compounds														
	207-08-9	Benzo(k)fluoranthene	4 J	4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	4	NA	NA	NA	NA	No	BSL
	84-74-2	di-n-Butyl Phthalate	5 J	5 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	5	NA	NA	NA	NA	No	BSL
	Metals														
	7429-90-5	Aluminum	31.4 J	1,950	UG/L	DA-MW102B-2008LOCMAX	13/20	14.6 - 129	1,950	NA	NA	NA	NA	No	NTX
	7440-36-0	Antimony	1.2 J	1.2 J	UG/L	DA-MW119B-2008LOCMAX	1/20	0.78 - 1.9	1.2	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	2.2 J	17.8	UG/L	DA-MW116B-2008LOCMAX	12/20	1.69 - 12.4	17.8	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	3.4 J	25.9 J	UG/L	DA-MW02B-2008LOCMAX	15/20	1.2 - 6.5	25.9	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	12,100	57,000	UG/L	DA-MW102B-2008LOCMAX	20/20	-	57,000	NA	NA	NA	NA	No	NUT
	7440-47-3	Chromium	2.4	5.6 J	UG/L	DA-MW102B-2008LOCMAX	4/20	0.41 - 3.3	5.6	NA	NA	NA	NA	No	NTX
	7440-48-4	Cobalt	0.98 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	5/20	0.31 - 2.9	15.6	NA	NA	NA	NA	No	NTX
	7440-50-8	Copper	0.89 J	17.3 J	UG/L	DA-MW102B-2008LOCMAX	5/20	0.75 - 7.7	17.3	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	937	26,700	UG/L	DA-MW02B-2008LOCMAX	18/20	9.2 - 76.3	26,700	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	1.1	3.5 J	UG/L	DA-MW102B-2008LOCMAX	7/20	0.97 - 0.97	3.5	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	1,850	13,800	UG/L	DA-MW108B-2008LOCMAX	20/20	-	13,800	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	56	8,370	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,370	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	1.4 J	3.8 J	UG/L	DA-MW109B-2008LOCMAX	3/20	0.3 - 1.5	3.8	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	0.335 J	10 J	UG/L	DA-MW117B-2008LOCMAX	14/20	0.42 - 2.05	10	NA	NA	NA	NA	No	NTX

Exposure Point	CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Above Background Concentration?(4)	Screening Toxicity Value(5)	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(6)
	7440-09-7	Potassium	722 J	3,600	UG/L	DA-MW103B-2008LOCMAX	10/20	637 - 848	3,600	NA	NA	NA	NA	No	NUT
	7782-49-2	Selenium	1.7 J	1.7 J	UG/L	DA-MW04B-2008LOCMAX	1/20	0.96 - 0.96	1.7	NA	NA	NA	NA	No	NTX
	7440-22-4	Silver	0.392 J	0.392 J	UG/L	DA-MW108B-2008LOCMAX	1/20	0.29 - 0.89	0.392	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	8,680	38,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	38,200	NA	NA	NA	NA	No	NUT
	7440-28-0	Thallium	2.3 J	2.3 J	UG/L	DA-MW119B-2008LOCMAX	1/20	1.64 - 1.64	2.3	NA	NA	NA	NA	No	NTX
	7440-62-2	Vanadium	1.5 J	1.5 J	UG/L	DA-MW115B-2008LOCMAX	1/20	0.38 - 2	1.5	NA	NA	NA	NA	No	NTX
	7440-66-6	Zinc	4.4 J	23.8 J	UG/L	DA-MW104B-2008LOCMAX	8/20	4.7 - 11.1	23.8	NA	NA	NA	NA	No	NTX
	Dissolved Metals														
	7429-90-5	Aluminum	22.1 J	186 J	UG/L	DA-MW102B-2008LOCMAX	2/20	14.6 - 117	186	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	1.37 J	18.4	UG/L	DA-MW116B-2008LOCMAX	11/20	1.69 - 12.4	18.4	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	3.1 J	25.6	UG/L	DA-MW02B-2008LOCMAX	12/20	0.59 - 2.4	25.6	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	12,200	55,100	UG/L	DA-MW102B-2008LOCMAX	20/20	-	55,100	NA	NA	NA	NA	No	NUT
	7440-48-4	Cobalt	1 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	4/20	0.28 - 2.6	15.6	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	774	26,600	UG/L	DA-MW02B-2008LOCMAX	15/20	9 - 65.6	26,600	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	0.732 J	1.8 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.97 - 0.97	1.8	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	1,870	13,400	UG/L	DA-MW108B-2008LOCMAX	20/20	-	13,400	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	53.5	8,220	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,220	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	1.3 J	2.25 J	UG/L	DA-MW108B-2008LOCMAX	3/20	0.3 - 0.95	2.25	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	0.76 J	4.9 J	UG/L	DA-MW116B-2008LOCMAX	7/20	0.42 - 2.1	4.9	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	685 J	3,710	UG/L	DA-MW103B-2008LOCMAX	10/20	618 - 836	3,710	NA	NA	NA	NA	No	NUT
	7440-22-4	Silver	0.238 J	0.61 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.29 - 0.73	0.61	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	8,930	37,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	37,200	NA	NA	NA	NA	No	NUT
	7440-66-6	Zinc	4.6 J	16.3 J	UG/L	DA-MW104B-2008LOCMAX	4/20	4.3 - 11.4	16.3	NA	NA	NA	NA	No	NTX
	Miscellaneous Parameters														
	--	Ammonia-N	0.04 J	3	MG/L	DA-MW02B-2008LOCMAX	5/20	0.1 - 0.1	3	NA	NA	NA	NA	No	NTX
	--	Methane	1.3 J	2,300		DA-MW119B-2008LOCMAX	13/20	10 - 10	2,300	NA	NA	NA	NA	No	NTX
	--	Nitrate-N	0.048 J	1.7	MG/L	DA-MW111B-2008LOCMAX	8/20	0.05 - 0.05	1.7	NA	NA	NA	NA	No	NTX
	--	Nitrite-N	0.0064 J	0.037 J	MG/L	DA-MW104B-2008LOCMAX	2/20	0.05 - 0.05	0.037	NA	NA	NA	NA	No	NTX
	--	Orthophosphate-P	0.016 J	0.12	MG/L	DA-MW114B-2008LOCMAX	19/20	0.05 - 0.05	0.12	NA	NA	NA	NA	No	NTX
	14808-79-8	Sulfate	5	44	MG/L	DA-MW107B-2008LOCMAX	20/20	-	44	NA	NA	NA	NA	No	NTX
	18496-25-8	Sulfide	0.8 J	3.1	MG/L	DA-MW115B-2008LOCMAX	6/20	1 - 1	3.1	NA	NA	NA	NA	No	NTX
	Petroleum Hydrocarbons														
	--	Gasoline Range Organics	19	180	UG/L	DA-MW117B-2008LOCMAX	5/23	10 - 47	180	NA	NA	NA	NA	No	NTX
	--	TPH (C09-C36)	47.5 J	1,300 J	UG/L	DA-MW124B-2008LOCMAX	11/23	75 - 85	1,300	NA	NA	NA	NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for groundwater.
5 - Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. November 2002. EPA530-F-02-052. Values are from Table 2c and correspond to a target cancer risk level of 1E-6 or HI =1 and an attenuation factor of 0.001.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - The value presented in Table 2c of the draft vapor intrusion guidance is based on the MCL. USEPA Region I requires the screening criteria for vapor intrusion to be risk-based. Therefore, the value from Table 2a adjusted for a 1E-6 cancer risk level is presented here.
8 - Value is for p-xylenes.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Polychlorinated Biphenyl

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION - BEDROCK GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Associated Samples									BSL = Below COPC Screening Level						
DA-MW02B-2008LOCMAX			DA-MW114B-2008LOCMAX						NUT = Essential nutrient						
DA-MW03B-2008LOCMAX			DA-MW115B-2008LOCMAX						NTX = No toxicity criteria						
DA-MW04B-2008LOCMAX			DA-MW116B-2008LOCMAX												
DA-MW100B-2008LOCMAX			DA-MW117B-2008LOCMAX												
DA-MW102B-2008LOCMAX			DA-MW118B-2008LOCMAX												
DA-MW103B-2008LOCMAX			DA-MW119B-2008LOCMAX												
DA-MW104B-2008LOCMAX			DA-MW124B-2008LOCMAX												
DA-MW105B-2008LOCMAX			DA-MW125B-2008LOCMAX												
DA-MW107B-2008LOCMAX			DA-MW126B-2008LOCMAX												
DA-MW108B-2008LOCMAX															
DA-MW109B-2008LOCMAX															
DA-MW110B-2008LOCMAX															
DA-MW111B-2008LOCMAX															
DA-MW112B-2008LOCMAX															
DA-MW113B-2008LOCMAX															

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - SURFACE WATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Surface Water	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	0.92 J	2.4 J	UG/L	DA-A-SW02-01-AVG	4/16	0.25 - 1	2.4	NA	910 N	200 200	EPA-MCL RIDEM	No	BSL
	75-34-3	1,1-Dichloroethane	0.7 J	1.6 J	UG/L	DA-A-SW02-01-AVG	4/16	0.19 - 1	1.6	NA	2.4 C	NA NA	NA NA	No	BSL
	67-64-1	Acetone	3 J	7	UG/L	DA-SW114-0508 DA-SW-117-082108	4/16	1.5 - 5	7	NA	2,200 N	NA NA	NA NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.6 J	0.6 J	UG/L	DA-SW-117-082108	1/16	0.18 - 1	0.6	NA	37 N	70 70	EPA-MCL RIDEM	No	BSL
	540-59-0	Total 1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-SW112-LOCDEPTHMAX	1/16	0.31 - 1	0.4	NA	33 N	NA NA	NA NA	No	BSL
	108-88-3	Toluene	0.6 J	0.6 J	UG/L	DA-SW-117-082108	1/16	0.26 - 1	0.6	NA	230 N	1,000 1,000	EPA-MCL RIDEM	No	BSL
	79-01-6	Trichloroethene	0.4 J	0.4 J	UG/L	DA-SW-117-082108	1/16	0.34 - 1	0.4	NA	1.7 C	5 5	EPA-MCL RIDEM	No	BSL
	Semivolatile Organic Compounds														
	117-81-7	Bis(2-ethylhexyl)phthalate	3.6 J	3.9 J	UG/L	DA-A-SW03-01	4/16	3.8 - 10	3.9	NA	4.8 C	6 6	EPA-MCL RIDEM	No	BSL
	Pesticides/PCBs														
	72-55-9	4,4'-DDE	0.0139 J	0.0139 J	UG/L	DA-A-SW02-01-AVG	1/16	0.003 - 0.01	0.0139	NA	0.2 C	NA NA	NA NA	No	BSL
	50-29-3	4,4'-DDT	0.0045	0.017925 J	UG/L	DA-A-SW02-01-AVG	4/16	0.002 - 0.01	0.017925	NA	0.2 C	NA NA	NA NA	No	BSL
	60-57-1	**Dieldrin**	0.0033 J	0.0218 J	UG/L	DA-A-SW02-01-AVG	11/16	0.003 - 0.01	0.0218	NA	**0.0042 C**	NA NA	NA NA	**Yes**	ASL
	Metals														
	7429-90-5	**Aluminum**	36 J	350	UG/L	DA-A-SW03-01	4/16	19 - 261	350	NA	3,700 N	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7440-36-0	Antimony	1.1 J	1.1 J	UG/L	DA-SW106-LOCDEPTHMAX	1/16	0.87 - 4.5	1.1	NA	1.5 N	6 6	EPA-MCL RIDEM	No	BSL
	7440-38-2	**Arsenic**	1.235 J	4.9 J	UG/L	DA-SW-117-082108	5/16	1.3 - 5.2	4.9	NA	**0.045 C**	10 NA	NA NA	**Yes**	ASL
	7440-39-3	Barium	3.7	13.8	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	13.8	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	20,200	36,500	UG/L	DA-A-SW02-01-AVG	16/16	-	36,500	NA	NA	NA NA	NA NA	No	NUT
	7440-48-4	**Cobalt**	0.26 J	2.5	UG/L	DA-A-SW03-01	12/16	0.26 - 1	2.5	NA	**1.1 N**	NA NA	NA NA	**Yes**	ASL
	7440-50-8	Copper	1.8 J	3.2 J	UG/L	DA-A-SW06-01	10/16	0.6 - 2.5	3.2	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	**Iron**	70.6 J	1,180	UG/L	DA-SW-117-082108	15/16	138 - 138	1,180	NA	2,600 N	**300** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-92-1	Lead	0.96 J	11.3	UG/L	DA-A-SW03-01	5/16	0.8 - 5.5	11.3	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	4,850 J	9,200	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	9,200	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	**Manganese**	17	352	UG/L	DA-SW-117-082108	16/16	-	352	NA	**88 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-97-6	Mercury	0.009 J	0.018 J	UG/L	DA-A-SW03-01	3/16	0.012 - 0.02	0.018	NA	1.1 N	2 2	EPA-MCL RIDEM	No	BSL
	7439-98-7	**Molybdenum**	3.35 J	81	UG/L	DA-A-SW03-01	6/16	0.2 - 3.7	81	NA	**18 N**	NA NA	NA NA	**Yes**	ASL

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - SURFACE WATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7440-02-0	Nickel	0.79 J	3.44 J	UG/L	DA-A-SW03-01	13/16	1.1 - 2.1	3.44	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	2,800	4,900	UG/L	DA-A-SW06-01	16/16	-	4,900	NA	NA	NA NA	NA NA	No	NUT
	7440-23-5	Sodium	13,800	57,600	UG/L	DA-SW111-LOCDEPTHMAX	16/16	-	57,600	NA	NA	NA NA	NA NA	No	NUT
	7440-28-0	**Thallium**	3.53 J	3.53 J	UG/L	DA-A-SW04-01	1/16	0.3 - 3.2	3.53	NA	**0.24 N**	**2** **2**	**EPA-MCL** **RIDEM**	**Yes**	ASL
	7440-62-2	Vanadium	0.49 J	0.57 J	UG/L	DA-SW114-0508	2/16	0.29 - 1.6	0.57	NA	18 N	NA NA	NA NA	No	BSL
	7440-66-6	Zinc	6.4 J	17.6 J	UG/L	DA-SW-01-LOCDEPTHMAX	9/16	4.6 - 7.8	17.6	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Dissolved Metals														
	7429-90-5	**Aluminum**	37 J	370	UG/L	DA-A-SW03-01	3/16	17.8 - 97	370	NA	3,700 N	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7440-38-2	**Arsenic**	3 J	3 J	UG/L	DA-SW-117-082108	1/16	1.3 - 5.2	3	NA	**0.045 C**	10 NA	EPA-MCL NA	**Yes**	ASL
	7440-39-3	Barium	3.4	14.1	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	14.1	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	20,600	36,000	UG/L	DA-A-SW02-01-AVG	16/16	-	36,000	NA	NA	NA NA	NA NA	No	NUT
	7440-47-3	Chromium	1.2 J	1.2 J	UG/L	DA-A-SW03-01	1/16	0.28 - 1.2	1.2	NA	11 N[7]	100 100	EPA-MCL RIDEM	No	BSL
	7440-48-4	**Cobalt**	0.29 J	2.6	UG/L	DA-A-SW03-01	9/16	0.25 - 1	2.6	NA	**1.1 N**	NA NA	NA NA	**Yes**	ASL
	7440-50-8	Copper	1.1 J	4.2 J	UG/L	DA-SW-01-LOCDEPTHMAX	10/16	0.78 - 2.5	4.2	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	**Iron**	51.6 J	720	UG/L	DA-A-SW03-01	11/16	15.3 - 45.4	720	NA	2,600 N	**300** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-92-1	Lead	1 J	12.4	UG/L	DA-A-SW03-01	4/16	0.8 - 3.82	12.4	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	4,760 J	9,300	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	9,300	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	**Manganese**	17	211	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	211	NA	**88 N**	**50** NA	**EPA-SMCL** NA	**Yes**	ASL
	7439-97-6	Mercury	0.01 J	0.012 J	UG/L	DA-A-SW06-01	2/16	0.012 - 0.02	0.012	NA	1.1 N	2 2	EPA-MCL RIDEM	No	BSL
	7439-98-7	**Molybdenum**	3.15 J	78	UG/L	DA-A-SW03-01	6/16	0.2 - 3.6	78	NA	**18 N**	NA NA	NA NA	**Yes**	ASL
	7440-02-0	Nickel	0.53 J	7.045 J	UG/L	DA-A-SW02-01-AVG	14/16	1.1 - 1.4	7.045	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	2,600	4,600	UG/L	DA-A-SW03-01 DA-A-SW06-01	16/16	-	4,600	NA	NA	NA NA	NA NA	No	NUT
	7440-23-5	Sodium	13,000	59,000	UG/L	DA-SW112-LOCDEPTHMAX	16/16	-	59,000	NA	NA	NA NA	NA NA	No	NUT
	7440-66-6	Zinc	9.2	17.3 J	UG/L	DA-SW111-LOCDEPTHMAX	7/16	4.6 - 7.45	17.3	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Notes:
1 - Sample and duplicate are averaged and considered as one sample when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for surface water.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 21, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-A-SW02-01-AVG
DA-A-SW03-01
DA-A-SW04-01
DA-A-SW05-01
DA-A-SW06-01
DA-A-SW07-01
DA-A-SW08-01
DA-A-SW09-01
DA-SW-01-LOCDEPTHMAX
DA-SW-117-082108
DA-SW106-LOCDEPTHMAX
DA-SW107-LOCDEPTHMAX
DA-SW108-LOCDEPTHMAX
DA-SW110-LOCDEPTHMAX
DA-SW111-LOCDEPTHMAX
DA-SW112-LOCDEPTHMAX
DA-SW114-0508
DA-SW116-0508-AVG
DA-SW119-0508
DA-SW121-0508
DA-SW125-0508
DA-SW133-LOCDEPTHMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
EPA-MCL = US Environmental Protection Agency Maximum Contaminant Level (USEPA, 2006)
EPA-SMCL = US Environmental Protection Agency Secondary Maximum Contaminant Level (USEPA, 2006)
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Polychlorinated Biphenyl
RIDEM = Rhode Island Department of Environmental Management GA Groundwater Objective (February, 2004).

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 08	**Volatile Organic Compounds**													
	71-55-6	1,1,1-Trichloroethane	0.95	5 J	UG/KG	DA-SD133-LOCDEPTHMAX	7/22	0.36 - 12	5	NA	90,000 N	540,000	No	BSL
	75.34-3	1,1-Dichloroethane	0.71 J	0.71 J	UG/KG	DA-S-SD02-01	1/22	0.32 - 12	0.71	NA	3,400 C	920,000	No	BSL
	120-82-1	1,2,4-Trichlorobenzene	4 J	4 J	UG/KG	DA-SD114-LOCDEPTHMAX	1/22	0.25 - 12	4	NA	8,700 N	96,000	No	BSL
	78-93-3	2-Butanone	7 J	69 J	UG/KG	DA-S-SD07-01	4/22	0.31 - 59	69	NA	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	0.79 J	18	UG/KG	DA-SD111-LOCDEPTHMAX	2/22	0.26 - 12	18	NA	NA	NA	No	NTX
	67-64-1	Acetone	13 J	180 J	UG/KG	DA-S-SD07-01	10/22	5.2 - 37	180	NA	6,100,000 N	7,800,000	No	BSL
	75-00-3	Chloroethane	1.6 J	1.6 J	UG/KG	DA-S-SD01-01	1/22	0.23 - 23	1.6	NA	1,500,000 N	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	4 J	4 J	UG/KG	DA-SD114-LOCDEPTHMAX	1/22	0.3 - 12	4	NA	78,000 N	630,000	No	BSL
	75-71-8	Dichlorodifluoromethane	2.4 J	66 J	UG/KG	DA-S-SD01-01	4/22	0.42 - 23	66	NA	19,000 N	NA	No	BSL
	--	m+p-Xylenes	2.2 J	2.2 J	UG/KG	DA-S-SD01-01	1/22	0.58 - 23	2.2	NA	450,000 N[8]	NA	No	BSL
	127-18-4	Tetrachloroethene	3 J	33 J	UG/KG	DA-SD114-LOCDEPTHMAX	3/22	0.26 - 12	33	NA	570 C	12,000	No	BSL
	108-88-3	Toluene	38 J	38 J		DA-S-SD07-01	1/22	0.23 - 12	38	NA	500000 N	190,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	4 J	4 J	UG/KG	DA-SD114-LOCDEPTHMAX	1/22	0.28 - 12	4	NA	70,000 N	NA	No	BSL
	1330-20-7	Total Xylenes	2.2	2.2	UG/KG	DA-S-SD01-01	1/22	0.58 - 18	2.2	NA	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	2 J	39 J	UG/KG	DA-SD114-LOCDEPTHMAX	4/22	0.29 - 12	39	NA	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	91-57-6	2-Methylnaphthalene	3.1 J	200	UG/KG	DA-SD111-LOCDEPTHMAX	9/22	22 - 460	200	NA	31,000 N	123,000	No	BSL
	83-32-9	Acenaphthene	3.9 J	1,000	UG/KG	DA-SD111-LOCDEPTHMAX	14/22	22 - 140	1,000	NA	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	1.8 J	17 J	UG/KG	DA-SD112-LOCDEPTHMAX	11/22	22 - 180	17	NA	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	12 J	2,000	UG/KG	DA-SD111-LOCDEPTHMAX, DA-S-SD03-01	16/22	22 - 140	2,000	NA	1,700,000 N	35,000	No	BSL
	56-55-3	**Benzo(a)anthracene**	16 J	3,400	UG/KG	DA-S-SD03-01	19/22	96 - 430	3,400	NA	**150 C**	**900**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	15 J	2,600	UG/KG	DA-S-SD03-01	18/22	99 - 360	2,600	NA	**15 C**	**400**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	27	2,300	UG/KG	DA-S-SD03-01	16/22	120 - 700	2,300	NA	**150 C**	**900**	**Yes**	ASL
	191-24-2	**Benzo(g,h,i)perylene**	10 J	1,900	UG/KG	DA-S-SD03-01	18/22	140 - 270	1,900	NA	170,000 N[10]	**800**	**Yes**	ASL
	207-08-9	**Benzo(k)fluoranthene**	2.8 J	2,300	UG/KG	DA-SD111-LOCDEPTHMAX, DA-S-SD03-01	20/22	93 - 310	2,300	NA	**1,500 C**	**900**	**Yes**	ASL
	65-85-0	Benzoic Acid	760 J	1,900 J	UG/KG	DA-SD-129-082108, DA-S-SD07-01	8/12	300 - 2500	1,900	NA	24,000,000 N	NA	No	BSL
	100-51-6	Benzyl Alcohol	400 J	400 J	UG/KG	DA-S-SD01-01	1/22	230 - 2000	400	NA	3,100,000 N	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	470 J	1200 J	UG/KG	DA-S-SD07-01	7/22	370 - 980	1200	NA	35,000 C	46,000	No	BSL
	86-74-8	Carbazole	1,300	1,300	UG/KG	DA-SD111-LOCDEPTHMAX, DA-S-SD03-01	2/22	92 - 1000	1,300	NA	NA	NA	No	NTX
	218-01-9	**Chrysene**	8.7 J	3,300	UG/KG	DA-S-SD03-01	20/22	98 - 420	3,300	NA	15,000 C	**400**	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	11 J	640 J	UG/KG	DA-S-SD03-01	15/22	23 - 300	640	NA	**15 C**	**400**	**Yes**	ASL
	132-64-9	Dibenzofuran	550 J	580	UG/KG	DA-SD111-LOCDEPTHMAX	2/22	23 - 1000	580	NA	NA	NA	No	NTX
	84-66-2	Diethyl Phthalate	420 J	1000 J	UG/KG	DA-S-SD07-01	2/22	83 - 1000	1000	NA	4,900,000 N	340,000	No	BSL
	84-74-2	di-n-Butyl Phthalate	100 J	100 J	UG/KG	DA-S-SD03-01	1/22	93 - 1000	100	NA	610,000 N	NA	No	BSL
	206-44-0	Fluoranthene	24	8,500	UG/KG	DA-S-SD03-01	21/22	80 - 80	8,500	NA	230,000 N	20,000	No	BSL
	86-73-7	Fluorene	4.2 J	1,300	UG/KG	DA-SD111-LOCDEPTHMAX	14/22	22 - 140	1,300	NA	230,000 N	28,000	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	9.5 J	1,700	UG/KG	DA-S-SD03-01	17/22	190 - 270	1,700	NA	**150 C**	**900**	**Yes**	ASL
	91-20-3	Naphthalene	4.6 J	200	UG/KG	DA-SD111-LOCDEPTHMAX	8/22	3.9 - 61	200	NA	3,900 C	54,000	No	BSL
	85-01-8	Phenanthrene	11 J	8,000	UG/KG	DA-S-SD03-01	19/22	80 - 550	8,000	NA	170,000 N[10]	40,000	No	BSL
	129-00-0	Pyrene	21 J	7,000	UG/KG	DA-S-SD03-01	20/22	87 - 820	7,000	NA	170,000 N	13,000	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	4.7 J	56 J	UG/KG	DA-SD116-LOCDEPTHMAX	13/22	3.9 - 69.1	56	NA	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	2.2 J	140	UG/KG	DA-SD-117-082108	15/22	3.9 - 77.2	140	NA	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	5.4 J	47 J	UG/KG	DA-SD116-LOCDEPTHMAX	8/22	3.9 - 65	47	NA	1,700 C	NA	No	BSL
	5103-71-9	alpha-Chlordane	4.5 J	53	UG/KG	DA-SD-117-082108	12/22	2 - 24.4	53	NA	1,600 C[11]	500 [11]	No	BSL
	11096-82-5	**Aroclor-1260**	35	550	UG/KG	DA-SD116-LOCDEPTHMAX	13/22	19 - 52	550	NA	**220 C**	10,000 [12]	**Yes**	ASL
	11100-14-4	Aroclor-1268	64.4 J	2480	UG/KG	DA-S-SD07-01	2/22	19 - 63.7	2480	NA	**220 C**	10,000 [12]	No	BSL
	60-57-1	**Dieldrin**	2.2 J	66	UG/KG	DA-SD-131-082108	15/22	3.9 - 19.4	66	NA	**30 C**	**40**	**Yes**	ASL
	5103-74-2	gamma-Chlordane	3.3	37	UG/KG	DA-SD-117-082108	11/22	2 - 20.3	37	NA	1,600 C[11]	500 [11]	No	BSL

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SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	--	**Total Aroclor**	35	2930 J	UG/KG	DA-S-SD07-01	13/22	19 - 60	2930	NA	**240 C**	10,000	**Yes**	ASL
	Metals													
	7429-90-5	**Aluminum**	5,000	21,100	MG/KG	DA-SD-117-082108	22/22	- - -	21,100	NA	**7,700 N**	NA	**Yes**	ASL
	7440-38-2	**Arsenic**	9.4	18	MG/KG	DA-S-SD01-01, DA-S-SD07-01	22/22	- - -	18	NA	**0.39 C**	**7**	**Yes**	ASL
	7440-39-3	Barium	17	81.4	MG/KG	DA-SD-117-082108	22/22	- - -	81.4	NA	1,500 N	5,500	No	BSL
	7440-41-7	**Beryllium**	0.29	0.71	MG/KG	DA-SD134-0006	22/22	- - -	0.71	NA	16 N	**0.4**	**Yes**	ASL
	7440-43-9	Cadmium	0.17 J	2.4 J	MG/KG	DA-S-SD06-01	16/22	0.01 - 0.43	2.4	NA	7 N	39	No	BSL
	7440-70-2	Calcium	710	7,040	MG/KG	DA-SD-130-082108	22/22	- - -	7,040	NA	NA	NA	No	NUT
	7440-47-3	**Chromium**	6.5	27.7	MG/KG	DA-SD-117-082108	22/22	- - -	27.7	NA	**23 N**[15,16]	390 [16]	**Yes**	ASL
	7440-48-4	**Cobalt**	8.1	204	MG/KG	DA-SD133-LOCDEPTHMAX	22/22	- - -	204	NA	**2.3 N**	NA	**Yes**	ASL
	7440-50-8	Copper	9.1	52	MG/KG	DA-S-SD06-01	22/22	- - -	52	NA	310 N	3,100	No	BSL
	7439-89-6	**Iron**	14,000	42,800	MG/KG	DA-SD133-LOCDEPTHMAX	22/22	- - -	42,800	NA	**5,500 N**	NA	**Yes**	ASL
	7439-92-1	**Lead**	14	27,200	MG/KG	DA-SD100-071207	33/33	- - -	27,200	NA	**400**	**150**	**Yes**	ASL
	7439-95-4	Magnesium	1,000	4,000	MG/KG	DA-SD-129-082108	22/22	- - -	4,000	NA	NA	NA	No	NUT
	7439-96-5	**Manganese**	137	2,800	MG/KG	DA-S-SD07-01	22/22	- - -	2,800	NA	**180 N**	**390**	**Yes**	ASL
	7439-97-6	Mercury	0.02 J	0.24	MG/KG	DA-SD116-LOCDEPTHMAX	21/22	0.01 - 0.01	0.24	NA	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.44 J	7.5	MG/KG	DA-SD133-LOCDEPTHMAX	21/22	0.21 - 0.21	7.5	NA	39 N	NA	No	BSL
	7440-02-0	Nickel	11	31.3	MG/KG	DA-SD-117-082108	22/22	- - -	31.3	NA	160 N	1,000	No	BSL
	7440-09-7	Potassium	150	1,260	MG/KG	DA-SD-117-082108	21/22	83 - 83	1,260	NA	NA	NA	No	NUT
	7782-49-2	Selenium	0.48 J	0.92 J	MG/KG	DA-SD112-LOCDEPTHMAX	2/22	0.069 - 0.56	0.92	NA	39 N	390	No	BSL
	7440-22-4	Silver	0.16 J	4.8 J	MG/KG	DA-S-SD03-01	19/22	0.06 - 0.09	4.8	NA	39 N	200	No	BSL
	7440-23-5	Sodium	64.3 J	289	MG/KG	DA-SD-117-082108	11/22	24.8 - 130	289	NA	NA	NA	No	NUT
	7440-62-2	**Vanadium**	12	40.5	MG/KG	DA-SD116-LOCDEPTHMAX	22/22	- - -	40.5	NA	**39 N**	550	**Yes**	ASL
	7440-66-6	Zinc	36	228	MG/KG	DA-SD-117-082108	22/22	- - -	228	NA	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	**Extractable Petroleum Hydrocarbons**	53	1800	MG/KG	DA-SD116-LOCDEPTHMAX	15/15	- - -	1800	NA	NA	**500**	**Yes**	ASL
	--	Gasoline Range Organics	4	4	MG/KG	DA-SD-131-082108	1/15	3.1 - 10	4	NA	NA	NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for sediment.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for chlordane.
12 - Value is for total PCBs.
13 - Value is for Aroclor-1260.
14 - Value is for high risk polychlorinated biphenyls.
15 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.
16 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

DA-SD100-071207	DA-SD-117-082108
DA-SD101-071207	DA-SD118-071107
DA-SD102-071207-AVG	DA-SD-128-082108
DA-SD103-071107	DA-SD-129-082108

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
DA-SD104-071107		DA-SD-130-082108												
DA-SD105-071107		DA-SD-131-082108												
DA-SD106-LOCDEPTHMAX		DA-SD132-071207												
DA-SD107-LOCDEPTHMAX		DA-SD133-LOCDEPTHMAX												
DA-SD108-LOCDEPTHMAX		DA-SD134-0006												
DA-SD109-071107		DA-S-SD01-01												
DA-SD110-LOCDEPTHMAX		DA-S-SD02-01-AVG												
DA-SD111-LOCDEPTHMAX		DA-S-SD03-01												
DA-SD112-LOCDEPTHMAX		DA-S-SD04-01												
DA-SD113-071107		DA-S-SD05-01												
DA-SD114-LOCDEPTHMAX		DA-S-SD06-01												
DA-SD115-071107		DA-S-SD07-01												
DA-SD116-LOCDEPTHMAX														

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Fish Tissue	**Pesticides/PCBs**														
	72-54-8	4,4'-DDD	6.06	83.3 J	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	6.06	NA	13.1 C	NA	NA	No	BSL
	72-55-9	**4,4'-DDE**	186	652	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	186	NA	**9.28 C**	NA	NA	**Yes**	ASL
	50-29-3	**4,4'-DDT**	20.7 J	20.7 J	ug/kg	DA-FT-ET02-WPF-081208	1/5	8.14 - 15	20.7	NA	**9.28 C**	NA	NA	**Yes**	ASL
	309-00-2	**Aldrin**	1.33	1.55 J	ug/kg	DA-FT-ET02-WPF-081208	4/5	0.398 - 0.398	1.33	NA	**0.186 C**	NA	NA	**Yes**	ASL
	5103-71-9	alpha-Chlordane	2.12	58.1	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	2.12	NA	9.01 C[7]	NA	NA	No	BSL
	11097-69-1	**Aroclor-1254**	93.6	446	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	93.6	NA	**1.58 C**	NA	NA	**Yes**	ASL
	11096-82-5	**Aroclor-1260**	59.6	208	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	59.6	NA	**1.58 C**	NA	NA	**Yes**	ASL
	60-57-1	**Dieldrin**	6.27	40.3	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	6.27	NA	**0.197 C**	NA	NA	**Yes**	ASL
	5103-74-2	gamma-Chlordane	1.1 J	13.8	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	1.1	NA	9.01 C[7]	NA	NA	No	BSL
	1336-36-3	**Total Aroclor**	157.7	654	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	157.7	NA	**1.58 C**	NA	NA	**Yes**	ASL
	Metals														
	7429-90-5	Aluminum	0.822 J	1.49 J	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.822	NA	135 N	NA	NA	No	BSL
	7440-38-2	**Arsenic**	0.001144 J	0.0056	mg/kg	DA-FT-ET02-WPF-081208	5/5	-	0.0056	NA	**0.0021 C**	NA	NA	**Yes**	ASL
	7440-39-3	Barium	0.022 J	0.246	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.022	NA	27 N	NA	NA	No	BSL
	7440-70-2	Calcium	96.8 J	3,120	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	96.8	NA	NA	NA	NA	No	NTX
	7440-47-3	**Chromium**	0.529 J	4.19 J	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.529	NA	**0.406 N**[8]	NA	NA	**Yes**	ASL
	7440-48-4	Cobalt	0.022 J	0.0845	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.022	NA	0.0406 N	NA	NA	No	BSL
	7440-50-8	Copper	0.295	0.392	mg/kg	DA-FT-ET02-WPF-081208	5/5	-	0.295	NA	5.41 N	NA	NA	No	BSL
	7439-89-6	Iron	6.8 J	38	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	6.8	NA	94.6 N	NA	NA	No	BSL
	7439-92-1	Lead	0.00504 J	0.0354	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.00504	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	250	295	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	250	NA	NA	NA	NA	No	NTX
	7439-96-5	Manganese	0.368	5.03	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.368	NA	18.9 N	NA	NA	No	BSL
	7439-97-6	**Mercury**	0.0156	0.112	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.0156	NA	**0.0135 N**[9]	NA	NA	**Yes**	ASL
	7439-98-7	Molybdenum	0.0295 J	0.324	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.0295	NA	0.676 N	NA	NA	No	BSL
	7440-02-0	Nickel	0.168 J	2.36 J	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.168	NA	2.7 N	NA	NA	No	BSL
	7440-09-7	Potassium	3,660	4,530	mg/kg	DA-FT-ET01-BHF-081208	5/5	-	3,660	NA	NA	NA	NA	No	NTX
	7782-49-2	Selenium	0.213	0.612	mg/kg	DA-FT-ET02-WPF-081208	5/5	-	0.213	NA	0.676 N	NA	NA	No	BSL
	7440-23-5	Sodium	368	544	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	368	NA	NA	NA	NA	No	NTX
	7440-62-2	Vanadium	0.0144 J	0.0144 J	mg/kg	DA-FT-ET03-BHF-081208-AVG	1/5	0.0127 - 0.0136	0.0144	NA	0.681 N	NA	NA	No	BSL
	7440-66-6	Zinc	4.88	16.8	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	4.88	NA	40.6 N	NA	NA	No	BSL

Notes:
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3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for fish tissue.
5 - The USEPA Region 3 Fish Tissue Screening Levels are presented. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (USEPA Region III, May, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for chlordane.
8 - Value is for hexavalent chromium.
9 - Value is for methyl mercury.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-FT-ET01-BGF-081208 DA-FT-ET02-WPF-081208
DA-FT-ET01-BHF-081208 DA-FT-ET03-BHF-081208-AVG
DA-FT-ET02-BHF-081208

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 6-19

CHEMICALS RETAINED AS COPCS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETON, RHODE ISLAND

Parameter	Exposed Area				Paved Area				Groundwater				Surface Water	Sediment	Fish Fillets
	Surface Soil		Subsurface Soil		Surface Soil		Subsurface Soil		Overburden		Bedrock				
	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Vapor Intrusion	Direct Contact	Vapor Intrusion			
Volatile Organic Compounds															
1,1-Dichloroethane											X				
1,2,4-Trimethylbenzene		X		X			X	X			X	X			
1,3,5-Trimethylbenzene		X					X	X			X	X			
Acetone		X													
Benzene		X													
Bromomethane											X				
Carbon Tetrachloride											X	X			
Chloroform						X					X	X			
Chloromethane											X	X			
Ethylbenzene						X		X			X	X			
Isopropylbenzene								X			X	X			
Methylene Chloride		X		X				X							
Tetrachloroethene				X		X		X	X	X	X	X			
Total Xylenes		X									X				
Trichloroethene		X		X		X		X			X	X			
Vinyl Chloride								X			X	X			
Semivolatile Organic Compounds															
2,4-Dimethylphenol															
2,4-Dinitrophenol				X											
2-Methylnaphthalene		X		X				X							
3&4-Methylphenol				X											
3,3'-Dichlorobenzidine		X		X											
4,6-Dinitro-2-Methylphenol				X											
4-Nitroaniline				X											
Acenaphthene			X	X											
Anthracene			X	X											
Benzo(a)anthracene	X	X	X	X	X	X	X	X						X	
Benzo(a)pyrene	X	X	X	X	X	X	X	X						X	
Benzo(b)fluoranthene	X	X	X	X	X	X	X	X			X			X	
Benzo(g,h,i)perylene	X		X	X	X		X							X	
Benzo(k)fluoranthene	X	X	X	X	X	X	X	X						X	
Bis(2-ethylhexyl)phthalate		X		X											
Chrysene	X	X	X	X	X	X	X	X						X	
Dibenzo(a,h)anthracene	X	X	X	X	X	X	X	X						X	
Fluoranthene	X		X	X											
Fluorene				X											
Indeno(1,2,3-cd)pyrene	X	X	X	X	X	X	X	X						X	
Naphthalene	X	X	X	X		X		X							
N-Nitrosodiphenylamine		X													
Penatchlorophenol				X											
Phenanthrene	X		X	X											
Pyrene	X		X	X											

TABLE 6-19

CHEMICALS RETAINED AS COPCS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETON, RHODE ISLAND

Parameter	Exposed Area				Paved Area				Groundwater				Surface Water	Sediment	Fish Fillets
	Surface Soil		Subsurface Soil		Surface Soil		Subsurface Soil		Overburden		Bedrock				
	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Vapor Intrusion	Direct Contact	Vapor Intrusion			
Pesticides/PCBs															
4,4'-DDE		X													X
4,4'-DDT		X		X											X
Aldrin															X
alpha-Chlordane		X													
Aroclor-1248			X	X		X									
Aroclor-1254	X	X		X											X
Aroclor-1260	X	X	X	X		X	X	X						X	X
Aroclor-1268	X	X	X	X		X									
Dieldrin		X							X				X	X	X
Heptachlor		X		X											
Total Aroclor	X		X				X							X	X
Toxaphene								X							
Inorganics															
Aluminum	X		X		X		X		X		X		X	X	
Antimony	X	X	X	X											
Arsenic	X	X	X	X	X	X	X	X	X		X		X	X	X
Barium				X					X						
Beryllium	X		X,B		X		X,B		X					X	
Cadmium	X	X	X	X											
Chromium	X	X	X	X	X	X	X	X	X					X	X
Cobalt	X	X	X	X	X	X	X	X	X		X		X	X	
Copper	X	X	X	X					X						
Iron	X		X	X	X	X	X	X	X		X		X	X	
Lead	X		X				X		X					X	
Manganese	X	X	X,B	X,B	X	X	X,B	X,B	X		X		X	X	
Mercury		X,B							X						X
Molybdenum		X	X	X					X				X		
Nickel				X					X						
Selenium								X,B							
Silver		X		X											
Thallium		X	X,B	X,B		X		X,B			X		X		
Vanadium	X,B		X						X					X	
Zinc			X	X					X						
Petroleum Hydrocarbons															
Extractable Petroleum Hydrocarbons			X	X	X	X								X	
TPH (C09-C36)	X	X	X	X	X	X	X	X						X	

Notes:
X - Chemical was retained as a COPC.
B - Concentrations of chemical are within background levels.

SELECTION OF EXPOSURE PATHWAYS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 3

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Soil	Surface Soil	Site 08	Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Industrial workers may contact surface soil during normal work activities.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Trespassers may contact surface soil while at the site.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may contact surface soil while at the site.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational users may contact surface soil while at the site.
		Air	Site 08	Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to fugitive dust and volatile emissions during work activities.
				Trespassers	Adolescents	Inhalation	Quant	Adolescent trespassers may be exposed to fugitive dust and volatile emissions while at the site.
				Recreational Users	Child	Inhalation	Quant	Child recreational users may be exposed to fugitive dust and volatile emissions while at the site.
					Adult	Inhalation	Quant	Adult recreational users may be exposed to fugitive dust and volatile emissions while at the site.
	Subsurface Soil	Subsurface Soil	Site 08	Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adolescent trespassers is considered unlikely at the site this scenario is included to aid in future risk management
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by child recreational users is considered unlikely at the site this scenario is included to aid in future risk management
					Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adult recreational users is considered unlikely at the site this scenario is included to aid in future risk management
		Air	Site 08	Industrial Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Trespassers	Adolescents	Inhalation	Quant	Although exposures to subsurface soil by adolescent trespassers is considered unlikely at the site this scenario is included to aid in future risk management
				Recreational Users	Child	Inhalation	Quant	Although exposures to subsurface soil by child recreational users is considered unlikely at the site this scenario is included to aid in future risk management
					Adult	Inhalation	Quant	Although exposures to subsurface soil by adult recreational users is considered unlikely at the site this scenario is included to aid in future risk management
Current/Future	Groundwater	Groundwater	Site 08	Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to have contact with groundwater.
				Trespassers	Adolescents	Ingestion Dermal	None None	Adolescent trespassers are not expected to be exposed to groundwater.
				Recreational Users	Child	Ingestion Dermal	None None	Child recreational user are not expected to be exposed to groundwater.
					Adult	Ingestion Dermal	None None	Adult recreational user are not expected to be exposed to groundwater.
		Air	Site 08	Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to COPCs that have volatilized from groundwater.
				Trespassers	Adolescents	Inhalation	None	Adolescent Trespassers are not expected to be exposed to COPCs that have volatilized from groundwater.

SELECTION OF EXPOSURE PATHWAYS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 2 OF 3

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Groundwater	Air	Site 08	Recreational Users	Child	Inhalation	None	Child recreational user are not expected to be exposed to COPCs that have volatilized from groundwater.
					Adult	Inhalation	None	Adult recreational user are not expected to be exposed to COPCs that have volatilized from groundwater.
			Vapor Intrusion	Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to COPCs that have volatilized from groundwater and migrated through building foundations into indoor air
	Surface Water	Surface Water	Site 08	Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to be exposed to surface water.
				Trespassers	Adolescents	Ingestion Dermal	None Quant	Adolescent trespassers may have dermal contact with surface water.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may contact surface water.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational users may contact surface water.
		Fish	Site 08	Recreational Users	Child	Ingestion	Quant	Ingestion of fish from the pond is possible.
					Adult	Ingestion	Quant	Ingestion of fish from the pond is possible.
	Sediment	Sediment	Site 08	Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to be exposed to sediment.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Adolescent trespassers may contact sediment.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may contact sediment.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational users may contact sediment.
Future	Surface Soil	Surface Soil	Site 08	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with surface soil during excavation activities.
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 08	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions during construction activities.
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Subsurface Soil	Subsurface Soil	Site 08	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	

SELECTION OF EXPOSURE PATHWAYS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 3 OF 3

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Subsurface Soil	Air	Site 08	Construction Workers	Adult	Inhalation	Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Groundwater	Groundwater	Site 08	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with ground water during excavation activities.
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 08	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to COPCs that have volatilized from groundwater during excavation activities.
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
			Vapor Intrusion	Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Surface Water	Surface Water	Site 08	Construction Workers	Adult	Ingestion Dermal	None None	Construction workers are not expected to be exposed to surface water.
				Residents	Child	Ingestion Dermal	None None	Child and adult residents are not expected to be exposed to surface water at Site 08. If they are exposed to surface water then exposures are expected to be similar to those of the child and adult recreational users.
					Adult	Ingestion Dermal	None None	
	Sediment	Sediment	Site 08	Construction Workers	Adult	Ingestion Dermal	None None	Construction workers are not expected to be exposed to sediment.
				Residents	Child	Ingestion Dermal	None None	Child and adult residents are not expected to be exposed to sediment at Site 08. If they are exposed to sediment then exposures are expected to be similar to those of the child and adult recreational users.
					Adult	Ingestion Dermal	None None	

Notes:
Quant - Quantitative.

TABLE 6-21

RECEPTORS AND EXPOSURE ROUTES FOR QUANTITATIVE EVALUATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Receptors	Exposure Routes
Industrial Worker (current/future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Inhalation of vapors intruding into a building from the groundwater
Adolescent Trespassers (7 to 18 years) (current/future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Surface water dermal contact • Sediment incidental ingestion • Sediment dermal contact
Small Child (0 to 6 years) and Adult Recreational Users (current/future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Surface water dermal contact • Sediment incidental ingestion • Sediment dermal contact • Ingestion of fish
Construction Workers (future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Groundwater incidental ingestion (during excavation) • Groundwater dermal contact (during excavation) • Groundwater inhalation of volatile organics (during excavation)
Hypothetical Residents (Children/Adult) (future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Direct ingestion of groundwater • Groundwater dermal contact (showering/bathing) • Inhalation of volatiles in groundwater (showering/bathing) • Inhalation of vapors intruding into a building from the groundwater

EXPOSURE POINT CONCENTRATIONS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Exposed Area		Paved Area		Groundwater	Surface Water	Sediment	Fish Fillets
	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	(ug/L)	(ug/L)	(mg/kg)	(mg/kg)
Volatile Organic Compounds								
1,1-Dichloroethane	NA	NA	NA		310[9]	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	NA	2.4[5]	810[9]	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	3.6[13]	290[9]	NA	NA	NA
Bromomethane	NA	NA	NA	NA	2[9]	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	2[9]	NA	NA	NA
Chloroform	NA	NA	NA	NA	7[9]	NA	NA	NA
Chloromethane	NA	NA	NA	NA	16[9]	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	58[9]	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	94[9]	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	12[9]	NA	NA	NA
Total Xylenes	NA	NA	NA	NA	97[9]	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	730[9]	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	19[9]	NA	NA	NA
Semivolatile Organic Compounds								
Acenaphthene	NA	76.6[1]	NA	NA	NA	NA	NA	NA
Anthracene	NA	153[1]	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	3.22[1]	302[1]	2.69[13]	2.8[5]	NA	NA	1.37[6]	NA
Benzo(a)pyrene	2.44[1]	243[1]	2.32[13]	1.4[1]	NA	NA	1.13[6]	NA
Benzo(b)fluoranthene	2.55[1]	210[1]	2.75[13]	1.59[1]	4[9]	NA	1.06[6]	NA
Benzo(g,h,i)perylene	0.96[2]	134[1]	0.551[1]	0.52[13]	NA	NA	0.764[6]	NA
Benzo(k)fluoranthene	1.88[1]	199[1]	1.1[1]	1.3[1]	NA	NA	1.01[6]	NA
Chrysene	2.87[1]	269[1]	1.5[1]	2.75[13]	NA	NA	1.38[6]	NA
Dibenzo(a,h)anthracene	0.4[2]	52.7[1]	0.141[3]	0.108[3]	NA	NA	0.14[3]	NA
Fluoranthene	7.3[1]	723[1]	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1.1[2]	138[1]	1.12[13]	0.317[3]	NA	NA	0.677[13]	NA
Naphthalene	1.2[1]	35.1[1]	NA	NA	NA	NA	NA	NA
Phenanthrene	6.66[1]	563[1]	NA	NA	NA	NA	NA	NA
Pyrene	7.1[1]	569[1]	NA	NA	NA	NA	NA	NA
Pesticides/PCBs								
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	0.648[4]
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	0.021[12]
Aldrin	NA	NA	NA	NA	NA	NA	NA	0.002[5]
Dieldrin	NA	NA	NA	NA	0.0108[9]	0.013[14]	0.027[14]	0.039[10]
Total Aroclor	0.332[3]	0.535[2]	NA	1.5[12]	NA	NA	0.456[3]	0.608[10]

EXPOSURE POINT CONCENTRATIONS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Exposed Area		Paved Area		Groundwater	Surface Water	Sediment	Fish Fillets
	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	(ug/L)	(ug/L)	(mg/kg)	(mg/kg)
Inorganics								
Aluminum	12256(4)	13532(4)	10938(4)	12570(4)	564000(9)	96.7(5)	13411(4)	NA
Antimony	0.436(5)	0.574(5)	NA	NA	1.2(9)	NA	NA	NA
Arsenic	23.9(6)	17.7(4)	18.6(4)	35(6)	503(9)	2.7(14)	15.2(4)	0.005(4)
Barium	NA	NA	NA	NA	1390(9)	NA	NA	NA
Beryllium	0.434(4)	0.518(8)	0.395(5)	0.47(2)	17.8(9)	NA	0.48(8)	NA
Cadmium	1.51	0.907(3)	NA	NA	NA	NA	NA	NA
Chromium	20.5(6)	19.6(9)	15.4(4)	24.3(8)	868(9)	NA	18.8(4)	3.27(4)
Cobalt	27.1(6)	16.1(7)	12.9(4)	13.5(4)	637(9)	1.1(14)	88.1(10)	NA
Copper	47.4(3)	235(6)	NA	NA	1440(9)	NA	NA	NA
Iron	27468(4)	41374(6)	26054(4)	29083(4)	1210000(9)	612(2)	27909(4)	NA
Lead	73.1(7)	190(7)	NA	18(7)	1890(9)	NA	1797(7)	NA
Manganese	436(4)	835(6)	418(10)	1100(6)	13800(9)	156(4)	1301(4)	NA
Mercury	NA	NA	NA	NA	1.9(9)	NA	NA	0.1(4)
Molybdenum	NA	3.1(3)	NA	NA	20.3(9)	67.2(14)	NA	NA
Nickel	NA	NA	NA	NA	1160(9)	NA	NA	NA
Thallium	NA	0.15(2)	NA	NA	2.3(9)	3.53(12)	NA	NA
Vanadium	22.3(4)	21.2(10)	NA	NA	832(9)	NA	27.2(3)	NA
Zinc	NA	888(11)	NA	NA	3990(9)	NA	NA	NA

Notes:
NA - Not applicable. Not a COPC for this media.

1 - 97.5% KM (Chebyshev) UCL.
2 - 95% KM (Chebyshev) UCL.
3 - 95% KM (BCA) UCL.
4 - Student-t UCL.
5 - 95% KM(T) UCL.
6 - 95% Chebyshev(Mean, Std) UCL.
7 - Arithmetic Mean.
8 - 95% Modified t UCL.
9 - H-UCL.
10 - Approximate Gamma 95% UCL.
11 - 97.5% Chebyshev(Mean, Std) UCL.
12 - Maximum detected concentration.
13 - 99% KM(Chebyshev) UCL.
14 - 95% KM(Percentile Bootstrap).
RAGS Part D tables for the exposure point concentrations are included in Appendix H.1.

SUMMARY OF EXPOSURE INPUT PARAMETERS
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 4

Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident
All Exposures							
ED (years)	1[1]	25[2,17]	12[3]	6[2]	24[2]	6[2,17]	24[2,17]
BW (kg)	70[2]	70[2,17]	50[2]	15[2]	70[2]	15[2,17]	70[2,17]
AT_n (days)	365[4]	9,125[4,17]	4,380[4]	2,190[4]	8,760[4]	2,190[4,17]	8,760[4,17]
AT_c (days)	25,550[4]	25,550[4,17]	25,550[4]	25,550[4]	25,550[4]	25,550[4,17]	25,550[4,17]
Incidental Ingestion/Dermal Contact with Soil							
C_{soil} (mg/kg)	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]
IR (mg/day)	330[2]	100[2]	100[2]	200[2]	100[2]	200[2,17]	100[2,17]
EF-Soil (days/year)	130[1]	250[6,17]	48[7]	48[7]	48[7]	350[8,17]	350[8,17]
FI (unitless)	1	1	1	1	1	1	1
SA (cm^2/day)	3,300[6]	3,300[6]	4,050[9]	2,800[6]	5,700[6]	2,800[6]	5,700[6]
AF (mg/cm^2)	0.3[6]	0.2[6]	0.4[6]	0.2[6]	0.07[6]	0.2[6]	0.07[6]
ABS (unitless)	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]
CF (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil							
C_{air} (mg/m^3)	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]
ET (hours/day)	8[1]	8[11]	8[7]	8[7]	8[7]	24	24
EF-Soil (days/year)	130[1]	250[6]	48[7]	48[7]	48[7]	350[8,17]	350[8,17]
PEF (m^3/kg)	1.4E+06[10]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]
Ingestion/Dermal Contact with Groundwater							
C_{gw} (µg/L)	Maximun	NA	NA	NA	NA	Maximun	Maximun
IR_{gw} (L/day)	0.05[13]	NA	NA	NA	NA	1.29[2]	2.0[2]
EF (days/year)	130[1]	NA	NA	NA	NA	350[8]	350[8]
ET (hours/day) and t_{event} (hours/event)	8[1]	NA	NA	NA	NA	1.0[6]	0.58[6]
EV (events/day)	1[13]	NA	NA	NA	NA	1[13]	1[13]
A (cm^2/day)	3,300[6]	NA	NA	NA	NA	6,600[6]	18,000[6]

SUMMARY OF EXPOSURE INPUT PARAMETERS
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident
Kp (cm/hour), t* (hour/event), τ (hour), and B (unitless)	chemical-specific[6]	NA	NA	NA	NA	chemical-specific[6]	chemical-specific[6]
Inhalation of Volatile Emissions from Groundwater							
C_{air} (mg/m^3)	calculated[14]	NA	NA	NA	NA	NA	NA
ET (hours/day)	8[1]	NA	NA	NA	NA	NA	NA
EF (days/year)	130[1]	NA	NA	NA	NA	NA	NA
Dermal Contact with Surface Water							
C_{sw} (µg/L)	NA	NA	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	NA	NA
EF (days/year)	NA	NA	48[7]	48[7]	48[7]	NA	NA
ET (hours/day) and t_{event} (hours/event)	NA	NA	1[13]	1[13]	1[13]	NA	NA
EV (events/day)	NA	NA	1[13]	1[13]	1[13]	NA	NA
A (cm^2/day)	NA	NA	4,050[9]	2,800[6]	6,880[15]	NA	NA
K_p (cm/hour)	NA	NA	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	NA	NA
t* (hour/event), τ (hour), and B (unitless)	NA	NA	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	NA	NA
CF (L/cm^3)	NA	NA	1E-03	1E-03	1E-03	NA	NA
Incidental Ingestion/Dermal Contact with Sediment							
C_{sed} (mg/kg)	NA	NA	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	NA	NA
IR (mg/day)	NA	NA	100[2]	200[2]	100[2]	NA	NA
EF-Sediment (days/year)	NA	NA	48[7]	48[7]	48[7]	NA	NA
FI (unitless)	NA	NA	1	1	1	NA	NA
SA (cm^2/day)	NA	NA	4,050[9]	2,800[6]	6,880[15]	NA	NA
AF (mg/cm^2)	NA	NA	1[6]	0.2[6]	0.07[6]	NA	NA
ABS (unitless)	NA	NA	chemical-specific[6]	chemical-specific[6]	chemical-specific[6]	NA	NA
CF (kg/mg)	NA	NA	1E-06	1E-06	1E-06	NA	NA

SUMMARY OF EXPOSURE INPUT PARAMETERS
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident
Ingestion of Fish							
C_{fish} (mg/kg)	NA	NA	NA	Maximum or 95% UCL[5]	Maximum or 95% UCL[5]	NA	NA
IR (kg/meal)	NA	NA	NA	0.00433[16]	0.013[16]	NA	NA
FI (unitless)	NA	NA	NA	1	1	NA	NA
EF (meals/year)	NA	NA	NA	350[2]	350[2]	NA	NA

Notes:

A	Skin surface area available for contact	ED	Exposure duration
ABS	Absorption factor	EF	Exposure frequency
AF	Soil-to-skin adherence factor	ET	Exposure time
AT_c	Averaging time for carcinogenic effects	EV	Event frequency
AT_n	Averaging time for noncarcinogenic effects	FI	Fraction ingested from contaminated source
B	Bunge Model partitioning coefficient	InhR	Inhalation rate
BW	Body weight	IR	Ingestion rate (soil or groundwater)
CF	Conversion factor	K_p	Permeability coefficient from water through skin
CR	Contact rate	SA	Skin surface area available for contact
$C_{soil/sed}$	Exposure concentration for soil/sediment	PEF	Particulate emission factor
$C_{gw/sw}$	Exposure concentration for groundwater/surface water	τ	Lag time
C_{air}	Exposure concentration for air	t*	Time it takes to reach steady-state conditions
C_{fish}	Exposure concentration for fish	t_{event}	Duration of event

1 - Assumes a 26 week construction project over a course of one year.
2 - USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
3 - Adolescent ages 7 to 18 years old.
4 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
5 - USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
6 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PA/540/R/99/005.
7 - Assumes 4 days a week for 12 weeks.
8 - Although USEPA Region 1 Risk Update No. 2 August 1994 recommends an exposure frequency of 150 days/year, this RI will follow national guidance per USEPA Region I direction September 28, 2006.
9 - Assumes 31 percent of the average total surface area of 1.31 m2 for females and males, ages 7 through 17 years (USEPA, 1997).
10 - USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9365.4-24.

SUMMARY OF EXPOSURE INPUT PARAMETERS
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident

11 - Length of a typical work day.
12 - USEPA, 2008: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

13 - Professional judgment.
14 - VDEQ September 2004. Virginia Department of Environmental Quality (VDEQ, online -http://www.deq.state.va.us/brownfieldweb/vrp.html).
15 - Assumes 38 percent of the total body surface area.
16 - Adult fish ingestion rates represent the 90th percentile ingestion rates for recreational freshwater anglers (all waters, all household consumers sharing catch) reported in the E.S. Ebert et al., “Estimating Consumption of Freshwater Fish among Maine Anglers.” North American Journal of Fisheries Management 13: 737-745, 1993.
17 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.

SUMMARY OF EXPOSURE INPUT PARAMETERS
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident
All Exposures							
ED (years)	1[1]	9[2]	6[2]	2[2]	7[2]	2[2]	7[2]
BW (kg)	70[2]	70[2]	50[2]	15[2]	70[2]	15[2]	70[2]
AT_n (days)	365[3]	3,285[3]	2,190[3]	730[3]	2,555[3]	730[3]	2,555[3]
AT_c (days)	25,550[3]	25,550[3]	25,550[3]	25,550[3]	25,550[3]	25,550[3]	25,550[3]
Incidental Ingestion/Dermal Contact with Soil							
C_{soil} (mg/kg)	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]
IR (mg/day)	330[2]	50[2]	50[2]	100[2]	50[2]	100[2]	50[2]
EF-Soil (days/year)	52[1]	219[5]	24[6]	24[6]	24[6]	234[7]	234[7]
FI (unitless)	1	1	1	1	1	1	1
SA (cm^2/day)	3,300[8]	3,300[8]	4,050[9]	2,800[8]	5,700[8]	2,800[8]	5,700[8]
AF (mg/cm^2)	0.1[8]	0.02[8]	0.04[8]	0.04[8]	0.01[8]	0.01[8]	0.04[8]
ABS (unitless)	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]
CF (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil							
C_{air} (mg/m^3)	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]
ET (hours/day)	8[1]	8[11]	4[6]	4[6]	4[6]	24	24
EF-Soil (days/year)	52[1]	219[5]	24[6]	24[6]	24[6]	234[7]	234[7]
PEF (m^3/kg)	1.4E+06[10]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]	1.1E+10[12]
Ingestion/Dermal Contact with Groundwater							
C_{gw} (µg/L)	Average	NA	NA	NA	NA	Average	Average
IR_{gw} (L/day)	0.025[13]	NA	NA	NA	NA	0.74[2]	1.4[2]
EF (days/year)	52[1]	NA	NA	NA	NA	234[7]	234[7]
ET (hours/day) and t_{event} (hours/event)	4[1]	NA	NA	NA	NA	0.33[8]	0.25[8]
EV (events/day)	1[13]	NA	NA	NA	NA	1[13]	1[13]
A (cm^2/day)	3,300[8]	NA	NA	NA	NA	6,600[8]	18,000[8]

SUMMARY OF EXPOSURE INPUT PARAMETERS
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident
Kp (cm/hour), t* (hour/event), τ (hour), and B (unitless)	chemical-specific[8]	NA	NA	NA	NA	chemical-specific[8]	chemical-specific[8]
Inhalation of Volatile Emissions from Groundwater							
C_{air} (mg/m^3)	calculated[14]	NA	NA	NA	NA	NA	NA
ET (hours/day)	4[1]	NA	NA	NA	NA	NA	NA
EF (days/year)	52[1]	NA	NA	NA	NA	NA	NA
Dermal Contact with Surface Water							
C_{sw} (µg/L)	NA	NA	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	NA	NA
EF (days/year)	NA	NA	24[6]	24[6]	24[6]	NA	NA
ET (hours/day) and t_{event} (hours/event)	NA	NA	0.5[13]	0.5[13]	0.5[13]	NA	NA
EV (events/day)	NA	NA	1[13]	1[13]	1[13]	NA	NA
A (cm^2/day)	NA	NA	4,050[9]	2,800[8]	6,880[15]	NA	NA
K_p (cm/hour)	NA	NA	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	NA	NA
t* (hour/event), τ (hour), and B (unitless)	NA	NA	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	NA	NA
CF (L/cm^3)	NA	NA	1E-03	1E-03	1E-03	NA	NA
Incidental Ingestion/Dermal Contact with Sediment							
C_{sed} (mg/kg)	NA	NA	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	NA	NA
IR (mg/day)	NA	NA	50[2]	100[2]	50[2]	NA	NA
EF-Sediment (days/year)	NA	NA	24[6]	24[6]	24[6]	NA	NA
FI (unitless)	NA	NA	1	1	1	NA	NA
SA (cm^2/day)	NA	NA	4,050[9]	2,800[8]	6,880[15]	NA	NA
AF (mg/cm^2)	NA	NA	0.2[8]	0.01[8]	0.04[8]	NA	NA
ABS (unitless)	NA	NA	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	NA	NA
CF (kg/mg)	NA	NA	1E-06	1E-06	1E-06	NA	NA

SUMMARY OF EXPOSURE INPUT PARAMETERS
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident
Ingestion of Fish							
C_{fish} (mg/kg)	NA	NA	NA	Maximum or 95% UCL[4]	Maximum or 95% UCL[4]	NA	NA
IR (kg/meal)	NA	NA	NA	0.00213[16]	0.0064[16]	NA	NA
FI (unitless)	NA	NA	NA	1	1	NA	NA
EF (meals/year)	NA	NA	NA	350[2]	350[2]	NA	NA

Notes:

A	Skin surface area available for contact	ED	Exposure duration
ABS	Absorption factor	EF	Exposure frequency
AF	Soil-to-skin adherence factor	ET	Exposure time
AT_c	Averaging time for carcinogenic effects	EV	Event frequency
AT_n	Averaging time for noncarcinogenic effects	FI	Fraction ingested from contaminated source
B	Bunge Model partitioning coefficient	InhR	Inhalation rate
BW	Body weight	IR	Ingestion rate (soil or groundwater)
CF	Conversion factor	K_p	Permeability coefficient from water through skin
CR	Contact rate	SA	Skin surface area available for contact
$C_{soil/sed}$	Exposure concentration for soil/sediment	PEF	Particulate emission factor
$C_{gw/sw}$	Exposure concentration for groundwater/surface water	τ	Lag time
C_{air}	Exposure concentration for air	t*	Time it takes to reach steady-state conditions
C_{fish}	Exposure concentration for fish	t_{event}	Duration of event

1 - Assumes two days a week over a 26 week construction project.
2 - USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
3 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
4 - USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
5 - USEPA November, 1993. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.
6 - Assumes 2 days a week for 12 weeks.
7 - Although USEPA Region 1 Risk Update No. 2 August 1994 recommends an exposure frequency of 150 days/year, this RI will follow national guidance per USEPA Region I direction September 28, 2006.
8 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PA/540/R/99/005.
9 - Assumes 31 percent of the average total surface area of 1.31 m2 for females and males, ages 7 through 17 years (USEPA, 1997).

SUMMARY OF EXPOSURE INPUT PARAMETERS
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Exposure Parameter	Construction Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	Child Resident	Adult Resident

10 - USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9365.4-24.
11 - Length of a typical work day.
12 - USEPA, 2008: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

13 - Professional judgment.
14 - VDEQ September 2004. Virginia Department of Environmental Quality (VDEQ, online -http://www.deq.state.va.us/brownfieldweb/vrp.html).
15 - Assumes 38 percent of the total body surface area.
16 - Adult fish ingestion rates represent the 90th percentile ingestion rates for recreational freshwater anglers (all waters, all household consumers sharing catch) reported in the E.S. Ebert et al., “Estimating Consumption of Freshwater Fish among Maine Anglers,” North American Journal of Fisheries Management 13: 737-745, 1993.

INTERMEDIATE VARIABLES FOR CALCULATING DA(EVENT)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
			Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Volatile Organic Compounds												
1,1-Dichloroethane	Groundwater	NA	1	6.7E-03	cm/hr	(1)	hr	3.8E-01	hr	9.2E-01	hr	2.6E-02
1,2,4-Trimethylbenzene	Soil, Groundwater	0	1	8.4E-02	cm/hr	(1)	hr	4.9E-01	hr	1.2E+00	hr	3.5E-01
1,3,5-Trimethylbenzene	Soil, Groundwater	0	1	6.1E-02	cm/hr	(1)	hr	4.9E-01	hr	1.2E+00	hr	2.6E-01
Bromomethane	Groundwater	NA	1	2.8E-03	cm/hr	(1)	hr	3.6E-01	hr	8.7E-01	hr	1.1E-02
Carbon Tetrachloride	Groundwater	NA	1	1.6E-02	cm/hr	(1)	hr	7.8E-01	hr	1.9E+00	hr	7.8E-02
Chloroform	Groundwater	NA	1	6.8E-03	cm/hr	(1)	hr	5.0E-01	hr	1.2E+00	hr	2.9E-02
Chloromethane	Groundwater	NA	1	3.3E-03	cm/hr	(1)	hr	2.0E-01	hr	4.9E-01	hr	9.0E-03
Ethylbenzene	Groundwater	NA	1	4.9E-02	cm/hr	(1)	hr	4.2E-01	hr	1.0E+00	hr	2.0E-01
Isopropylbenzene	Groundwater	NA	1	8.8E-02	cm/hr	(1)	hr	4.9E-01	hr	1.2E+00	hr	3.7E-01
Tetrachloroethene	Groundwater	NA	1	3.3E-02	cm/hr	(1)	hr	9.1E-01	hr	2.2E+00	hr	1.7E-01
Total Xylenes	Groundwater	NA	1	4.6E-02	cm/hr	(1)	hr	4.1E-01	hr	9.9E-01	hr	1.8E-01
Trichloroethene	Groundwater	NA	1	1.2E-02	cm/hr	(1)	hr	5.8E-01	hr	1.4E+00	hr	5.1E-02
Vinyl Chloride	Groundwater	NA	1	5.6E-03	cm/hr	(1)	hr	2.4E-01	hr	5.7E-01	hr	1.7E-02
Semivolatile Organic Compounds												
Acenaphthene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	Soil, Groundwater, Sediment	0.13	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)
Benzo(g,h,i)perylene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Soil	0.13	1	4.7E-02	cm/hr	(1)	hr	5.6E-01	hr	1.3E+00	hr	2.0E-01
Phenanthrene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs												
Dieldrin	Groundwater, Surface Water, Sediment	0.1										
Total Aroclors	Soil, Sediment	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

INTERMEDIATE VARIABLES FOR CALCULATING DA(EVENT)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
			Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Inorganics												
Aluminum	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Antimony	Soil	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	Soil, Groundwater, Surface Water, Sediment	0.03	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Barium	Groundwater	NA	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Beryllium	Soil, Groundwater, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Cadmium	Soil	0.001	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Chromium	Soil, Groundwater, Sediment	0	1	2.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Cobalt	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Copper	Soil, Groundwater	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Iron	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Lead	Soil, Groundwater, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Manganese	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Mercury	Groundwater	NA	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Molybdenum	Soil, Groundwater, Surface Water	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Nickel	Groundwater	NA	1	2.0E-04	cm/hr	NA	NA	NA	NA	NA	NA	NA
Thallium	Soil, Groundwater, Surface Water	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Vanadium	Soil, Groundwater, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Zinc	Soil, Groundwater	0	1	6.0E-04	cm/hr	NA	NA	NA	NA	NA	NA	NA

Notes:
All values from EPA's Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004.
1 - T(event) is 8 hrs for RME and 2 hrs for CTE for the construction worker, 1 hr for RME and 0.5 hrs for and recreational users and adolescent trespassers, and 0.33 hrs for RME and 0.25 hr for CTE for hypothetical residents.
2 - RAGS Part E recommends not attempting to quantify risk because contaminants are outside the effective predictive domain of the model.
FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water
T(event) = Event Duration
Tau = Lag Time
T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis
NA = Not applicable.

CHEMICAL PROPERTIES FOR
VOLATILIZATION FROM SOIL/GROUNDWATER TO OUTDOOR AIR MODELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Molecular Weight (g/mole)	Organic Carbon Partition Coefficient (cm^3/g)	Air Diffusivity (cm^2/sec)	Water Diffusivity (cm^2/sec)	Solubility Limit (mg/L)	Henry's Law Constant	
						(Dimensionless)	(atm-m^3/mol)
1,1-Dichloroethane	9.90E+01	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03
1,2,4-Trimethylbenzene	1.20E+02	3.72E+03	6.44E-02	7.92E-06	5.70E+01	2.53E-01	6.16E-03
1,3,5-Trimethylbenzene	1.20E+02	1.62E+03	6.02E-02	8.67E-06	4.82E+01	3.60E-01	8.77E-03
Bromomethane	9.50E+01	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.56E-01	6.24E-03
Carbon Tetrachloride	1.54E+02	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.25E+00	3.05E-02
Chloroform	1.19E+02	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03
Chloromethane	5.05E+01	3.50E+01	1.26E-01	6.50E-06	5.33E+03	3.62E-01	8.82E-03
Ethylbenzene	1.06E+02	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.23E-01	7.88E-03
Tetrachloroethene	1.66E+02	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.54E-01	1.84E-02
Total Xylenes	1.06E+02	3.74E+02	7.14E-02	9.34E-06	1.61E+02	2.15E-01	5.25E-03
Trichloroethene	1.31E+02	1.66E+02	7.90E-02	9.10E-06	1.10E+03	4.22E-01	1.03E-02
Vinyl Chloride	6.25E+01	1.86E+01	1.06E-01	1.23E-05	2.76E+03	1.11E+00	2.71E-02
Acenaphthene	1.54E+02	7.08E+03	4.21E-02	7.69E-06	4.24E+00	6.36E-03	1.55E-04
Anthracene	1.78E+02	2.95E+04	3.24E-02	7.74E-06	4.34E-02	2.67E-03	6.51E-05
Naphthalene	1.28E+02	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.83E-04
Phenanthrene	1.78E+02	4.80E+03	2.72E-02	7.24E-06	1.15E+00	3.92E-02	9.55E-04

Source:
USEPA 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

INPUT PARAMETERS FOR CALCULATION OF
THE VOLATILIZATION FROM SOIL TO OUTDOOR AIR MODELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Definition	Value	Reference
Q/C	Inverse of mean concentration at center of source (g/m^2-s per kg/m^3).	73.95045	USEPA, 2009
T	Exposure interval (seconds).	9.5E+08	USEPA, 2002
pb	Dry soil bulk density (g/cm^3).	1.5	USEPA, 2002
ps	Soil particle density (g/cm^3).	2.65	USEPA, 2002
θw	Water-filled soil porosity (L_{pore}/L_{soil}).	0.15	USEPA, 2002
n	Total soil porosity (L_{pore}/L_{soil}).	0.434	USEPA, 2002
Di	Diffusivity in air (cm^2/sec).	Chemical specific	USEPA, 2002
H'	Dimensionless Henry's Law Constant.	Chemical specific	USEPA, 2002
S	Solubility limit (mg/L)	Chemical specific	USEPA, 2002
Dw	Diffusivity in water (cm^2/sec).	Chemical specific	USEPA, 2002
Koc	Soil organic carbon partition coefficient (cm^3/g).	Chemical specific	USEPA, 2002
foc	Fraction organic carbon in soil (g/g).	0.029	Site-specific value

Notes:
Chemical specific values are presented in Table 6-26.
USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.
USEPA, 2009: Soil Screening Guidance calculation Internet site at http://rais.ornl.gov/epa/ssl1.shtml.
Site-specific values for Hartford, Connecticut.

NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds										
1,1-Dichloroethane	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Kidney, CNS	3000/1	PPRTV	9/27/2006
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	Chronic	5.0E-02	mg/kg/day	1	5.0E-02	mg/kg/day	Body Weight, Kidney, Liver	3000/1	PPRTV	8/2003
Bromomethane	Chronic	1.4E-03	mg/kg/day	1	1.4E-03	mg/kg/day	GS	1000/1	IRIS	2/2/2009
Carbon Tetrachloride	Chronic	7.0E-04	mg/kg/day	1	7.0E-04	mg/kg/day	Liver	1000/1	IRIS	2/2/2009
Chloroform	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	100/1	IRIS	2/2/2009
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	Chronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver, Kidney	1000/1	IRIS	2/2/2009
Isopropylbenzene	Chronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Kidney	1000/1	IRIS	2/2/2009
Tetrachloroethene	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	1000/1	IRIS	2/2/2009
Total Xylenes	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Body Weight	1000/1	IRIS	2/2/2009
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	Chronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Liver	30/1	IRIS	2/2/2009
Semivolatile Organic Compounds										
Acenaphthene	Chronic	6.0E-02	mg/kg/day	1	6.0E-02	mg/kg/day	Blood	3000/1	IRIS	2/2/2009
Anthracene	Chronic	3.0E-01	mg/kg/day	1	3.0E-01	mg/kg/day	None Reported	3000/1	IRIS	2/2/2009
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene[3]	Chronic	3.0E-02	mg/kg/day	1	3.0E-02	mg/kg/day	Kidney	3000/1	IRIS	2/2/2009
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	Chronic	4.0E-02	mg/kg/day	1	4.0E-02	mg/kg/day	Liver	3000/1	IRIS	2/2/2009
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Chronic	2.0E-02	mg/kg/day	1	2.0E-02	mg/kg/day	Body Weight	3000/1	IRIS	2/2/2009
Phenanthrene[3]	Chronic	3.0E-02	mg/kg/day	1	3.0E-02	mg/kg/day	Kidney	3000/1	IRIS	2/2/2009
Pyrene	Chronic	3.0E-02	mg/kg/day	1	3.0E-02	mg/kg/day	Kidney	3000/1	IRIS	2/2/2009
Pesticides/PCBs										
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	Chronic	5.0E-04	mg/kg/day	1	5.0E-04	mg/kg/day	Liver	100/1	IRIS	2/2/2009
Aldrin	Chronic	3.0E-05	mg/kg/day	1	3.0E-05	mg/kg/day	Liver	1000/1	IRIS	2/2/2009
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	Chronic	2.0E-05	mg/kg/day	1	2.0E-05	mg/kg/day	Immune	300/1	IRIS	2/2/2009
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	Chronic	5.0E-05	mg/kg/day	1	5.0E-05	mg/kg/day	Liver	100/1	IRIS	2/2/2009
Inorganics										
Aluminum	Chronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	CNS	100	PPRTV	10/23/2006
Antimony										
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, CVS	3/1	IRIS	2/2/2009
Barium	Chronic	2.0E-01	mg/kg/day	0.07	1.4E-02	mg/kg/day	Kidney	300/1	IRIS	2/2/2009
Beryllium	Chronic	2.0E-03	mg/kg/day	0.007	1.4E-05	mg/kg/day	GS	300/1	IRIS	2/2/2009
Cadmium[4]	Chronic	5.0E-04	mg/kg/day	0.05	2.5E-05	mg/kg/day	Kidney	10/1	IRIS	2/2/2009
Chromium[5]	Chronic	3.0E-03	mg/kg/day	0.025	7.5E-05	mg/kg/day	Fetotoxicity, GS, Bone	300/3	IRIS	2/2/2009
Cobalt	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Blood	NA	ORNL	9/12/2008

NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Inorganics (continued)										
Copper	Chronic	4.0E-02	mg/kg/day	1	4.0E-02	mg/kg/day	GS	NA	HEAST	7/1997
Iron	Chronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	GS	1.5	PPRTV	9/11/2006
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (soil)[6]	Chronic	7.0E-02	mg/kg/day	0.04	2.8E-03	mg/kg/day	CNS	1/1	IRIS	2/2/2009
Manganese (water)[6]	Chronic	2.4E-02	mg/kg/day	0.04	9.6E-04	mg/kg/day	CNS	1/3	IRIS	2/2/2009
Mercury[7]	Chronic	3.0E-04	mg/kg/day	0.07	2.1E-05	mg/kg/day	Autoimmune	1000/1	IRIS	2/2/2009
Methyl Mercury	Chronic	1.0E-04	mg/kg/day	1	1.0E-04	mg/kg/day	CNS	10/1	IRIS	2/2/2009
Molybdenum	Chronic	5.0E-03	mg/kg/day	1	5.0E-03	mg/kg/day	Gout	30/1	IRIS	2/2/2009
Nickel	Chronic	2.0E-02	mg/kg/day	0.04	8.0E-04	mg/kg/day	Body Weight	300/1	IRIS	2/2/2009
Thallium	Chronic	6.5E-05	mg/kg/day	1	6.5E-05	mg/kg/day	Blood	3000/1	ORNL	9/12/2008
Vanadium	Chronic	5.0E-03	mg/kg/day	0.026	1.3E-04	mg/kg/day	Kidney	300	ORNL	9/12/2008
Zinc	Chronic	3.0E-01	mg/kg/day	1	3.0E-01	mg/kg/day	Blood	3/1	IRIS	2/2/2009

Notes:
1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.
3 - Values are for pyrene.
4 - Values are for cadmium - water.
5 - Values are for hexavalent chromium.
6 - Adjusted IRIS value in accordance with USEPA Region I Risk Update Number 4, November 1996.
7 - Values are for mercuric chloride.

Definitions:
CNS = Central Nervous System
CVS = Cardiovascular system
GS = Gastrointestinal
HEAST = Health Effects Assessment Summary Tables
IRIS = Integrated Risk Information System
NA = Not Available.
ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.

NON-CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds									
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	Chronic	7.0E-03	mg/m3	2.0E-03	(mg/kg/day)	Blood	3000/1	PPRTV	6/11/2007
1,3,5-Trimethylbenzene	Chronic	6.0E-03	mg/m3	1.7E-03	(mg/kg/day)	CNS	3000/1	PPRTV	8/2003
Bromomethane	Chronic	5.0E-03	mg/m3	1.4E-03	(mg/kg/day)	Respiratory	100/1	IRIS	2/2/2009
Carbon Tetrachloride	Chronic	1.9E-01	mg/m3	5.4E-02	(mg/kg/day)	Liver	NA	ATSDR	9/12/2008
Chloroform	Chronic	9.8E-02	mg/m3	2.8E-02	(mg/kg/day)	Liver	NA	ATSDR	9/12/2008
Chloromethane	Chronic	9.0E-02	mg/m3	2.6E-02	(mg/kg/day)	CNS	1000/1	IRIS	2/2/2009
Ethylbenzene	Chronic	1.0E+00	mg/m3	2.9E-01	(mg/kg/day)	Developmental	300/1	IRIS	2/2/2009
Isopropylbenzene	Chronic	4.0E-01	mg/m3	1.1E-01	(mg/kg/day)	Kidney	1000/1	IRIS	2/2/2009
Tetrachloroethene	Chronic	2.7E-01	mg/m3	7.7E-02	(mg/kg/day)	Liver	NA	ORNL	9/12/2008
Total Xylenes	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	CNS	300/1	IRIS	2/2/2009
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Liver	30/1	IRIS	2/2/2009
Semivolatile Organic Compounds									
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene[3]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Chronic	3.0E-03	mg/m^3	8.6E-04	(mg/kg/day)	Respiratory	3000/1	IRIS	2/2/2009
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs									
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA

NON-CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 2 OF 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[(1)]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Pesticides/PCBs (continued)									
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics									
Aluminum	Chronic	5.0E-03	mg/m3	1.4E-03	(mg/kg/day)	CNS	300	PPRTV	10/23/2006
Arsenic	Chronic	3.00E-05	mg/m3	8.6E-06	(mg/kg/day)	NA	NA	ORNL	9/12/2008
Barium	Chronic	5.0E-04	mg/m3	1.4E-04	(mg/kg/day)	Fetotoxicity	1000/1	HEAST	9/97
Beryllium	Chronic	2.0E-05	mg/m3	5.7E-06	(mg/kg/day)	Respiratory	10/1	IRIS	2/2/2009
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	300/1	IRIS	2/2/2009
Cobalt	Chronic	6.0E-06	mg/m^3	1.7E-06	(mg/kg/day)	Respiratory	NA	ORNL	9/12/2008
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	(mg/kg/day)	CNS	1000/1	IRIS	2/2/2009
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 - Extrapolated RfD = RfC *$20m^3$/day / 70 kg.

Definitions:

CNS = Central Nervous System

HEAST= Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

NA = Not Applicable

ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.

CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 3

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds								
1,1-Dichloroethane	5.7E-03	$(mg/kg/day)^{-1}$	1	5.7E-03	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	ORNL	9/12/2008
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Carbon Tetrachloride	1.3E-01	$(mg/kg/day)^{-1}$	1	1.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	
Chloroform	3.1E-02	$(mg/kg/day)^{-1}$	1	3.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	ORNL	9/12/2008
Chloromethane	1.3E-02	$(mg/kg/day)^{-1}$	1	1.3E-02	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	HEAST	7/1997
Ethylbenzene	1.1E-02	$(mg/kg/day)^{-1}$	1	1.1E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Isopropylbenzene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Tetrachloroethene	5.4E-01	$(mg/kg/day)^{-1}$	1	5.4E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	1.3E-02	$(mg/kg/day)^{-1}$	1	1.3E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Vinyl Chloride (early life)	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Vinyl Chloride (adult)	7.2E-01	$(mg/kg/day)^{-1}$	1	7.2E-01	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Semivolatile Organic Compounds								
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(a)anthracene[3]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(a)pyrene[3]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Benzo(b)fluoranthene[3]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(k)fluoranthene[3]	7.3E-02	$(mg/kg/day)^{-1}$	1	7.3E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Chrysene[3]	7.3E-03	$(mg/kg/day)^{-1}$	1	7.3E-03	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dibenzo(a,h)anthracene[3]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Fluoranthene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Indeno(1,2,3-cd)pyrene[3]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Naphthalene	NA	NA	NA	NA	NA	C / Inadequate data of carcinogenicity in humans	IRIS	2/2/2009
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009

CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Pesticides/PCBs								
4,4'-DDE	3.4E-01	$(mg/kg/day)^{-1}$	1	3.4E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
4,4'-DDT	3.4E-01	$(mg/kg/day)^{-1}$	1	3.4E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aldrin	1.7E+01	$(mg/kg/day)^{-1}$	1	1.7E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aroclor-1248	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1254	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1260	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1268	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Dieldrin	1.6E+01	$(mg/kg/day)^{-1}$	1	1.6E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Inorganics								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A	IRIS	2/2/2009
Barium	NA	NA	NA	NA	NA	D (Not classifiable as to human carcinogenicity)	IRIS	2/2/2009
Beryllium	NA	NA	NA	NA	NA	B1 / Probable human carcinogen	IRIS	2/2/2009
Cadmium	NA	NA	NA	NA	NA	B1 / Probable human carcinogen	IRIS	2/2/2009
Chromium	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	B2 / Probable human carcinogen	IRIS	2/2/2009
Manganese	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Mercury	NA	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Methyl Mercury	NA	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009

CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)

Notes:

1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral Absorption Efficiency for Dermal.

3 - The carcinogenic PAHs are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

HEAST = Health Effects Assessment Summary Tables.

IRIS = Integrated Risk Information System.

NA = Not Available.

ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.

USEPA(1) = USEPA, Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993, EPA/600/R-93/089.

USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds							
1,1-Dichloroethane	1.6E-06	$(ug/m^3)^{-1}$	5.6E-03	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	ORNL	9/12/2008
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Carbon Tetrachloride	1.5E-05	$(ug/m^3)^{-1}$	5.3E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Chloromethane	1.8E-06	$(ug/m^3)^{-1}$	6.3E-03	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	HEAST	7/1997
Ethylbenzene	2.5E-06	$(ug/m^3)^{-1}$	8.8E-03	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Isopropylbenzene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Tetrachloroethene	5.9E-06	$(ug/m^3)^{-1}$	2.1E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Total Xylenes	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	2.0E-06	$(ug/m^3)^{-1}$	7.0E-03	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Vinyl Chloride (early life)	8.8E-06	$(ug/m^3)^{-1}$	3.1E-02	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Vinyl Chloride (adult)	4.4E-06	$(ug/m^3)^{-1}$	1.5E-02	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Semivolatile Organic Compounds							
Acenaphthene	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(a)anthracene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Benzo(a)pyrene[2]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Benzo(b)fluoranthene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Benzo(g,h,i)perylene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(k)fluoranthene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Chrysene[2]	1.1E-05	$(ug/m^3)^{-1}$	3.9E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Dibenzo(a,h)anthracene[2]	1.2E-03	$(ug/m^3)^{-1}$	4.2E+00	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Fluoranthene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Indeno(1,2,3-cd)pyrene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Naphthalene	3.4E-05	$(ug/m3)^{-1}$	1.2E-01	$(mg/kg/day)^{-1}$	C/ Possible Human Carcinogen	ORNL	9/12/2008

CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Semivolatile Organic Compounds (continued)							
Phenanthrene	NA	NA	NA	NA	NA	NA	9/12/2008
Pyrene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Pesticides/PCBs							
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	9.7E-05	$(ug/m3)^{-1}$	3.4E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aldrin	4.9E-03	$(ug/m3)^{-1}$	1.7E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aroclor-1248	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1254	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1260	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1268	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Dieldrin	4.6E-03	$(ug/m3)^{-1}$	1.6E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Inorganics							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	2/2/2009
Barium	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Beryllium	2.4E-03	$(ug/m^3)^{-1}$	8.4E+00	$(mg/kg/day)^{-1}$	Carcinogenic potential cannot be determined (Oral route)	IRIS	2/2/2009
Cadmium	1.8E-03	$(ug/m^3)^{-1}$	6.3E+00	$(mg/kg/day)^{-1}$	B1 / Probable human carcinogen	IRIS	2/2/2009
Chromium	1.2E-02	$(ug/m^3)^{-1}$	4.2E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	2/2/2009
Cobalt	9.0E-03	$(ug/m^3)^{-1}$	3.2E+01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Copper	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	B2 / Probable human carcinogen	IRIS	2/2/2009
Manganese	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Mercury	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Methyl Mercury	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Molybdenum	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA

CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Inorganics (continued)							
Thallium	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009

Notes:

1 - Inhalation CSF = Unit Risk * 70 kg / 20m^3/day.

2 - The carcinogenic PAHs are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Definitions:

IRIS = Integrated Risk Information System.

NA = Not Available.

ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, July 7, 2008.

USEPA(1) = OSWER Directive No.9285.7-75.

USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Construction Workers	Surface Soil - Exposed Area	Incidental Ingestion	1E-06	- -	- -	- -	0.4	- -
		Dermal Contact	3E-07	- -	- -	- -	0.01	- -
		Inhalation	7E-07	- -	- -	- -	1	- -
		Total	3E-06	- -	- -	- -	2	Target Organ HIs ≤ 1
	Subsurface Soil - Exposed Area	Incidental Ingestion	6E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	0.5	- -
		Dermal Contact	2E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Dibenzo(a,h)anthracene	0.05	- -
		Inhalation	1E-06	- -	- -	- -	2	Aluminum, ***Manganese***
		Total	9E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	2	Aluminum, ***Manganese***
	Surface Soil - Paved Area	Incidental Ingestion	1E-06	- -	- -	- -	0.3	- -
		Dermal Contact	3E-07	- -	- -	- -	0.009	- -
		Inhalation	5E-07	- -	- -	- -	1	- -
		Total	2E-06	- -	- -	- -	1	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	2E-06	- -	- -	- -	0.4	- -
		Dermal Contact	3E-07	- -	- -	- -	0.02	- -
		Inhalation	7E-07	- -	- -	- -	2	Aluminum, ***Manganese***
		Total	3E-06	- -	- -	Arsenic	3	Aluminum, ***Manganese***
	Groundwater	Incidental Ingestion	3E-06	- -	- -	Arsenic	2	Target Organ HIs ≤ 1
		Dermal Contact	3E-06	- -	- -	- -	7	Beryllium, Chromium, Iron, Manganese
		Inhalation	1E-07	- -	- -	- -	0.7	- -
		Total	5E-06	- -	- -	Arsenic	10	Aluminum, Beryllium, Chromium, Iron, Manganese
Total Exposed Area Surface Soil and Groundwater			8E-06				11	
Total Exposed Area Subsurface Soil and Groundwater			1E-04				12	
Total Paved Area Surface Soil and Groundwater			7E-06				11	
Total Paved Area Subsurface Soil and Groundwater			8E-06				12	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Industrial Workers	Surface Soil - Exposed Area	Incidental Ingestion	2E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.2	- -
		Dermal Contact	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.02	- -
		Inhalation	3E-08	- -	- -	- -	0.0003	- -
		Total	3E-05	- -	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene, Arsenic	0.3	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	9E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	0.3	- -
		Dermal Contact	8E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	0.07	- -
		Inhalation	8E-07	- -	- -	- -	0.0005	- -
		Total	2E-03	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	0.3	- -
	Surface Soil - Paved Area	Incidental Ingestion	2E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.2	- -
		Dermal Contact	9E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.01	- -
		Inhalation	3E-09	- -	- -	- -	0.0003	- -
		Total	3E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.2	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	2E-05	- -	Arsenic	Benzo(a)pyrene	0.2	- -
		Dermal Contact	9E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.02	- -
		Inhalation	4E-09	- -	- -	- -	0.01	- -
		Total	3E-05	- -	Arsenic	Benzo(a)pyrene, Total Aroclors	0.3	- -

SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Adolescent Trespassers	Surface Soil - Exposed Area	Incidental Ingestion	5E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.06	- -
		Dermal Contact	8E-06	- -	- -	Benzo(a)pyrene	0.01	- -
		Inhalation	3E-09	- -	- -	- -	0.00007	- -
		Total	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.08	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	4E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene	0.08	- -
		Dermal Contact	8E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene,, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene	0.04	- -
		Inhalation	7E-08	- -	- -	- -	0.00009	- -
		Total	1E-03	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene,, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	0.1	- -
	Surface Soil - Paved Area	Incidental Ingestion	4E-06	- -	- -	Benzo(a)pyrene	0.04	- -
		Dermal Contact	7E-06	- -	- -	Benzo(a)pyrene	0.008	- -
		Inhalation	3E-10	- -	- -	- -	0.00005	- -
		Total	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.05	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	4E-06	- -	- -	Arsenic	0.06	- -
		Dermal Contact	6E-06	- -	- -	Benzo(a)pyrene	0.01	- -
		Inhalation	4E-10	- -	- -	- -	0.001	- -
		Total	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.08	- -
	Surface Water	Dermal Contact	5E-08	- -	- -	- -	0.002	- -
	Sediment	Incidental Ingestion	3E-06	- -	- -	- -	0.1	- -
		Dermal Contact	1E-05	- -	- -	Benzo(a)pyrene	0.02	- -
		Total	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.1	- -
Total Exposed Area Surface Soil, Surface Water and Sediment			3E-05				0.2	
Total Exposed Area Subsurface Soil, Surface Water and Sediment			1E-03				0	
Total Paved Area Surface Soil, Surface Water and Sediment			2E-05				0.2	
Total Paved Area Subsurface Soil, Surface Water and Sediment			2E-05				0.2	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Child Recreational Users	Surface Soil - Exposed Area	Incidental Ingestion	3E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Arsenic	0.4	- -
		Dermal Contact	8E-06	- -	- -	Benzo(a)pyrene	0.01	- -
		Inhalation	1E-09	- -	- -	- -	0.00007	- -
		Total	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic	0.4	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	2E-03	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Chrysene, Arsenic	0.5	- -
		Dermal Contact	8E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	0.05	- -
		Inhalation	4E-08	- -	- -	- -	0.00009	- -
		Total	3E-03	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene	Chrysene, Arsenic	0.6	- -
	Surface Soil - Paved Area	Incidental Ingestion	2E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Arsenic	0.3	- -
		Dermal Contact	7E-06	- -	- -	Benzo(a)pyrene	0.009	- -
		Inhalation	1E-10	- -	- -	- -	0.00005	- -
		Total	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Arsenic	0.3	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	2E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	0.4	- -
		Dermal Contact	5E-06	- -	- -	Benzo(a)pyrene	0.02	- -
		Inhalation	2E-10	- -	- -	- -	0.001	- -
		Total	3E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	0.4	- -
	Surface Water	Dermal Contact	5E-08	- -	- -	- -	0.008	- -
	Sediment	Incidental Ingestion	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.8	- -
		Dermal Contact	4E-06	- -	- -	Benzo(a)pyrene	0.008	- -
		Total	2E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.8	- -
	Fish	Ingestion	5E-05	- -	Total Aroclors	4,4'-DDE, Dieldrin	0.8	- -
Total Exposed Area Surface Soil, Surface Water, Sediment, and Fish			1E-04				2	
Total Exposed Area Subsurface Soil, Surface Water, Sediment and Fish			3E-03				2	
Total Paved Area Surface Soil, Surface Water, Sediment and Fish			1E-04				2	
Total Paved Area Subsurface Soil, Surface Water, Sediment and Fish			1E-04				2	

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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Adult Recreational Users	Surface Soil - Exposed Area	Incidental Ingestion	5E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.05	- -
		Dermal Contact	2E-06	- -	- -	- -	0.002	- -
		Inhalation	6E-09				0.00007	- -
		Total	7E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.05	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	3E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Arsenic	0.05	- -
		Dermal Contact	2E-04	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	0.01	- -
		Inhalation	1E-07	- -	- -	- -	0.00009	- -
		Total	5E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	0.06	- -
	Surface Soil - Paved Area	Incidental Ingestion	4E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.03	- -
		Dermal Contact	2E-06	- -	- -	- -	0.001	- -
		Inhalation	5E-10	- -	- -	- -	0.00005	- -
		Total	6E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.03	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	5E-06	- -	- -	Arsenic	0.04	- -
		Dermal Contact	1E-06	- -	- -	- -	0.003	- -
		Inhalation	8E-10	- -	- -	- -	0.001	- -
		Total	7E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.05	- -
	Surface Water	Dermal Contact	1E-07	- -	- -	- -	0.003	- -
	Sediment	Incidental Ingestion	3E-06	- -	- -	- -	0.08	- -
		Dermal Contact	1E-06	- -	- -	- -	0.001	- -
		Total	4E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.08	- -
	Fish	Ingestion	1E-04		Total Aroclors, Dieldrin	Aldrin, 4,4'-DDE	0.5	- -
Total Exposed Area Surface Soil, Surface Water, Sediment, and Fish			2E-04				1	
Total Exposed Area Subsurface Soil, Surface Water, Sediment and Fish			6E-04				1	
Total Paved Area Surface Soil, Surface Water, Sediment and Fish			2E-04				1	
Total Paved Area Subsurface Soil, Surface Water, Sediment and Fish			2E-04				1	

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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Lifelong Recreational Users (Child and Adult)	Surface Soil - Exposed Area	Incidental Ingestion	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic	NA	- -
		Dermal Contact	1E-05	- -	- -	Benzo(a)pyrene	NA	- -
		Inhalation	7E-09	- -	- -	- -	NA	- -
		Total	4E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic	NA	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	2E-03	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Chrysene, Arsenic	NA	- -
		Dermal Contact	9E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	NA	- -
		Inhalation	2E-07	- -	- -	- -	NA	- -
		Total	3E-03	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene	Chrysene, Arsenic	NA	- -
	Surface Soil - Paved Area	Incidental Ingestion	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Arsenic	NA	- -
		Dermal Contact	9E-06	- -	- -	Benzo(a)pyrene	NA	- -
		Inhalation	7E-10	- -	- -	- -	NA	
		Total	4E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Arsenic	NA	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	3E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	NA	- -
		Dermal Contact	6E-06	- -	- -	Benzo(a)pyrene	NA	- -
		Inhalation	1E-09	- -	- -	- -	NA	- -
		Total	3E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	NA	- -
	Surface Water	Dermal Contact	2E-07	- -	- -	- -	NA	- -
	Sediment	Incidental Ingestion	2E-05	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
		Dermal Contact	5E-06	- -	- -	Benzo(a)pyrene	NA	- -
		Total	2E-05	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
	Fish	Ingestion	2E-04	- -	Total Aroclors, 4,4'-DDE, Dieldrin	Aldrin	NA	- -
Total Exposed Area Surface Soil, Surface Water, Sediment, and Fish			3E-04				NA	
Total Exposed Area Subsurface Soil, Surface Water, Sediment and Fish			4E-03				NA	
Total Paved Area Surface Soil, Surface Water, Sediment and Fish			3E-04				NA	
Total Paved Area Subsurface Soil, Surface Water, Sediment and Fish			2E-04				NA	

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REASONABLE MAXIMUM EXPOSURES
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Child Residents	Surface Soil - Exposed Area	Incidental Ingestion	2E-04	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene, Arsenic	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	3	Target Organs HI ≤ 1
		Dermal Contact	6E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Arsenic	0.09	- -
		Inhalation	3E-08	- -	- -	- -	0.001	- -
		Total	3E-04	- -	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Arsenic	Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	3	Target Organs HI ≤ 1
	Subsurface Soil - Exposed Area	Incidental Ingestion	2E-02	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	Chrysene	4	- -
		Dermal Contact	6E-03	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	Chrysene, Arsenic	0.4	- -
		Inhalation	8E-07	- -	- -	- -	0.002	- -
		Total	2E-02	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Chrysene, Arsenic	Total Aroclors	4	Target Organs HI ≤ 1
	Surface Soil - Paved Area	Incidental Ingestion	2E-04	- -	Benzo(a)pyrene, Arsenic	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	2	Target Organs HI ≤ 1
		Dermal Contact	5E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Arsenic	0.07	- -
		Inhalation	3E-09	- -	- -	- -	0.001	- -
		Total	2E-04	- -	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Arsenic	Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	2	Target Organs HI ≤ 1
	Subsurface Soil - Paved Area	Incidental Ingestion	1E-04	- -	Benzo(a)pyrene, Arsenic	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Total Aroclors	3	Target Organs HI ≤ 1
		Dermal Contact	4E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic	0.1	- -
		Inhalation	4E-09	- -	- -	- -	0.03	
		Total	2E-04	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Total Aroclors	3	Arsenic

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REASONABLE MAXIMUM EXPOSURES
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Child Residents	Groundwater	Ingestion	6E-03	Vinyl Chloride, Arsenic	PCE, TCE	1,1-DCA, Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene, Benzo(b)fluoranthene	655	1,1-DCA, 1,3,5-Trimethylbenzene, Bromomethane, Carbon Tetrachloride, PCE, Vinyl Chloride, Aluminum, Antimony, Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Manganese, Nickel, Thallium, Vanadium, Zinc
		Dermal Contact	7E-05	- -	PCE, Arsenic	Ethylbenzene, TCE, Vinyl Chloride	22	1,3,5-Trimethylbenzene, Chromium, Manganese, Zinc
		Inhalation	4E-04	Vinyl Chloride	PCE, TCE	1,1-DCA, Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene	2	Target Organs HI ≤ 1
		Total	7E-03	TCE, Vinyl Chloride, Arsenic	1,1-DCA, PCE	Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene, Benzo(b)fluoranthene, Dieldrin	679	1,1-DCA, 1,3,5-Trimethylbenzene, Bromomethane, Carbon Tetrachloride, Chloroform, Ethyl Benzene, Isopropylbenzene, PCE, Vinyl Chloride, Total Xylenes Aluminum, Antimony, Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Manganese, Nickel, Thallium, Vanadium, Zinc
Total Exposed Area Surface Soil and Groundwater			8E-03				682	
Total Exposed Area Subsurface Soil and Groundwater			3E-02				683	
Total Paved Area Surface Soil and Groundwater			7E-03				681	
Total Paved Area Subsurface Soil and Groundwater			7E-03				682	

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REASONABLE MAXIMUM EXPOSURES
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Adult Residents	Surface Soil - Exposed Area	Incidental Ingestion	4E-05	- -	Benzo(a)pyrene, Arsenic	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	0.3	- -
		Dermal Contact	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.01	- -
		Inhalation	1E-07	- -	- -	- -	0.001	- -
		Total	5E-05	- -	Benzo(a)pyrene, Arsenic	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	0.4	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	2E-03	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Chrysene, Arsenic	0.4	- -
		Dermal Contact	1E-03	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	0.06	- -
		Inhalation	3E-06	- -	- -	Naphthalene	0.002	- -
		Total	3E-03	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene	Chrysene, Arsenic, Naphthalene	0.5	- -
	Surface Soil - Paved Area	Incidental Ingestion	3E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Arsenic	0.2	- -
		Dermal Contact	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.01	- -
		Inhalation	1E-08	- -	- -	- -	0.001	- -
		Total	4E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Arsenic	0.2	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	4E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	0.3	- -
		Dermal Contact	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	0.02	- -
		Inhalation	2E-08	- -	- -	- -	0.03	- -
		Total	5E-05	- -	Arsenic	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Total Aroclors	0.4	- -

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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Adult Residents	Groundwater	Ingestion	8E-03	Vinyl Chloride, Arsenic	1,1-DCA, PCE, TCE	Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene, Benzo(b)fluoranthene, Dieldrin	200	1,3,5-Trimethylbenzene, Vinyl Chloride, Aluminum, Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Iron, Manganese, Nickel, Thallium, Vanadium, Zinc
		Dermal Contact	1E-04	- -	PCE, Arsenic	Ethylbenzene, TCE, Vinyl Chloride	8	Beryllium, Chromium, Iron, Manganese
		Inhalation	4E-04	Vinyl Chloride	1,1-DCA, PCE, TCE	Carbon Tetrachloride, Chloroform, Chloromethane, Ethyl Benzene	0.6	--
		Total	8E-03	PCE, TCE, Vinyl Chloride, Arsenic	1,1-DCA, Ethylbenzene	Carbon Tetrachloride, Chloroform, Chloromethane, Benzo(b)fluoranthene, Dieldrin	209	1,3,5-Trimethylbenzene, Vinyl Chloride, Aluminum, Arsenic, Barium, Beryllium, Carbon Tetrachloride, Chromium, Cobalt, Copper, Iron, Manganese, Nickel, Thallium, Vanadium, Zinc
Total Exposed Area Surface Soil and Groundwater			2E-04				209	
Total Exposed Area Subsurface Soil and Groundwater			1E-02				209	
Total Paved Area Surface Soil and Groundwater			8E-03				209	
Total Paved Area Subsurface Soil and Groundwater			8E-03				209	

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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Lifelong Residents (Child and Adult)	Surface Soil - Exposed Area	Incidental Ingestion	2E-04	- -	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Arsenic	Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	NA	- -
		Dermal Contact	7E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Arsenic	NA	- -
		Inhalation	2E-07	- -	- -	- -	NA	- -
		Total	3E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic	Indeno(1,2,3-cd)pyrene	NA	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	2E-02	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	Chrysene, Total Aroclors	NA	- -
		Dermal Contact	7E-03	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	Chrysene, Arsenic	NA	- -
		Inhalation	4E-06	- -	- -	Naphthalene	NA	- -
		Total	2E-02	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Chrysene, Arsenic	Naphthalene, Total Aroclors	NA	- -
	Surface Soil - Paved Area	Incidental Ingestion	2E-04	- -	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Arsenic	Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	NA	- -
		Dermal Contact	6E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Arsenic	NA	- -
		Inhalation	1E-08	- -	- -	- -	NA	- -
		Total	3E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Arsenic	Indeno(1,2,3-cd)pyrene,	NA	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	2E-04	- -	Benzo(a)pyrene, Arsenic	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Total Aroclors	NA	- -
		Dermal Contact	5E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Total Aroclors, Arsenic	NA	- -
		Inhalation	2E-08	- -	- -	- -	NA	- -
		Total	2E-04	- -	Benzo(a)anthracene, Benzo(a)pyrene, Arsenic	Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Total Aroclors	NA	- -

SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Lifelong Residents (Child and Adult)	Groundwater	Ingestion	1E-02	TCE, Vinyl Chloride, Arsenic	1,1-DCA, PCE, Benzo(b)fluoranthene	Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene, Dieldrin	NA	- -
		Dermal Contact	2E-04	- -	PCE, TCE, Vinyl Chloride, Arsenic	1,1-DCA, Ethylbenzene, Dieldrin	NA	- -
		Inhalation	8E-04	TCE, Vinyl Chloride	1,1-DCA, PCE	Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene	NA	- -
		Total	1E-02	TCE, Vinyl Chloride, Arsenic	1,1-DCA, PCE, Benzo(b)fluoranthene	Carbon Tetrachloride, Chloroform, Chloromethane, Ethylbenzene, Dieldrin	NA	- -
Total Exposed Area Surface Soil and Groundwater			3E-04				NA	
Total Exposed Area Subsurface Soil and Groundwater			4E-02				NA	
Total Paved Area Surface Soil and Groundwater			1E-02				NA	
Total Paved Area Subsurface Soil and Groundwater			1E-02				NA	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Future Construction Workers	Surface Soil - Exposed Area	Incidental Ingestion	6E-07	- -	- -	- -	0.2	- -
		Dermal Contact	4E-08	- -	- -	- -	0.002	- -
		Inhalation	3E-07	- -	- -	- -	0.6	- -
		Total	9E-07	- -	- -	- -	0.7	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	0.2	- -
		Dermal Contact	3E-06	- -	Benzo(a)pyrene	Benzo(a)anthracene, Dibenzo(a,h)anthracene	0.007	- -
		Inhalation	4E-07	- -	- -	- -	0.8	- -
		Total	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	1	- -
	Surface Soil - Paved Area	Incidental Ingestion	5E-07	- -	- -	- -	0.1	- -
		Dermal Contact	4E-08	- -	- -	- -	0.001	- -
		Inhalation	2E-07	- -	- -	- -	0.5	- -
		Total	7E-07	- -	- -	- -	0.6	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	7E-07	- -	- -	- -	0.2	- -
		Dermal Contact	4E-08	- -	- -	- -	0.002	- -
		Inhalation	3E-07	- -	- -	- -	1	- -
		Total	1E-06	- -	- -	- -	1	- -
	Groundwater	Incidental Ingestion	6E-07	- -	- -	- -	0.4	- -
		Dermal Contact	6E-07	- -	- -	- -	1	- -
		Inhalation	3E-08	- -	- -	- -	0.1	
		Total	1E-06	- -	- -	- -	2	- -
Total Exposed Area Surface Soil and Groundwater			2E-06				3	
Total Exposed Area Subsurface Soil and Groundwater			3E-05				3	
Total Paved Area Surface Soil and Groundwater			2E-06				2	
Total Paved Area Subsurface Soil and Groundwater			2E-06				3	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Industrial Workers	Surface Soil - Exposed Area	Incidental Ingestion	3E-06	- -	- -	Arsenic	0.1	- -
		Dermal Contact	3E-07	- -	- -	- -	0.001	- -
		Inhalation	9E-09				0.0003	
		Total	4E-06	- -	- -	Arsenic	0.1	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	1E-04	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	0.1	- -
		Dermal Contact	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Dibenzo(a,h)anthracene	0.006	- -
		Inhalation	2E-07	- -	- -	- -	0.0004	
		Total	2E-04	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene, Arsenic	0.1	- -
	Surface Soil - Paved Area	Incidental Ingestion	3E-06	- -	- -	Arsenic	0.07	- -
		Dermal Contact	3E-07	- -	- -	- -	0.001	- -
		Inhalation	9E-10	- -	- -	- -	0.0002	
		Total	3E-06	- -	- -	Arsenic	0.07	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	4E-06	- -	- -	Arsenic	0.1	- -
		Dermal Contact	3E-07	- -	- -	- -	0.002	- -
		Inhalation	1E-09	- -	- -	- -	0.01	
		Total	4E-06	- -	- -	Arsenic	0.1	- -

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Adolescent Trespassers	Surface Soil - Exposed Area	Incidental Ingestion	4E-07	- -	- -	- -	0.02	- -
		Dermal Contact	8E-08	- -	- -	- -	0.0005	- -
		Inhalation	7E-10	- -	- -	- -	0.00002	
		Total	4E-07	- -	- -	- -	0.02	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	2E-05	- -	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.02	- -
		Dermal Contact	6E-06	- -	- -	Benzo(a)pyrene	0.002	- -
		Inhalation	2E-08	- -	- -	- -	0.00002	
		Total	2E-05	- -	- -	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.02	- -
	Surface Soil - Paved Area	Incidental Ingestion	3E-07	- -	- -	- -	0.01	- -
		Dermal Contact	7E-08	- -	- -	- -	0.0004	- -
		Inhalation	7E-11	- -	- -	- -	0.00001	
		Total	4E-07	- -	- -	- -	0.01	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	4E-07	- -	- -	- -	0.02	- -
		Dermal Contact	7E-08	- -	- -	- -	0.0007	- -
		Inhalation	1E-10	- -	- -	- -	0.000	
		Total	5E-07	- -	- -	- -	0.02	- -
	Surface Water	Dermal Contact	8E-09	- -	- -	- -	0.0006	- -
	Sediment	Incidental Ingestion	2E-07	- -	- -	- -	0.03	- -
		Dermal Contact	1E-06	- -	- -	- -	0.008	- -
		Total	1E-06	- -	- -	- -	0.04	- -
Total Exposed Area Surface Soil, Surface Water and Sediment			2E-06				0.05	
Total Exposed Area Subsurface Soil, Surface Water and Sediment			2E-05				0.06	
Total Paved Area Surface Soil, Surface Water and Sediment			2E-06				0.05	
Total Paved Area Subsurface Soil, Surface Water and Sediment			2E-06				0.05	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Child Recreational Users	Surface Soil - Exposed Area	Incidental Ingestion	8E-07	- -	- -	- -	0.1	- -
		Dermal Contact	4E-07	- -	- -	- -	0.003	- -
		Inhalation	1E-10	- -	- -	- -	0.00002	
		Total	1E-06	- -	- -	- -	0.1	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	0.1	- -
		Dermal Contact	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	0.01	- -
		Inhalation	3E-09	- -	- -	- -	0.00002	
		Total	6E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	0.1	- -
	Surface Soil - Paved Area	Incidental Ingestion	6E-07	- -	- -	- -	0.07	- -
		Dermal Contact	3E-07	- -	- -	- -	0.002	- -
		Inhalation	1E-11	- -	- -	- -	0.00001	
		Total	1E-06	- -	- -	- -	0.07	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	9E-07	- -	- -	- -	0.1	- -
		Dermal Contact	3E-07	- -	- -	- -	0.004	- -
		Inhalation	2E-11	- -	- -	- -	0.000	
		Total	1E-06	- -	- -	- -	0.1	- -
	Surface Water	Dermal Contact	6E-09	- -	- -	- -	0.001	- -
	Sediment	Incidental Ingestion	4E-07	- -	- -	- -	0.2	- -
		Dermal Contact	3E-08	- -	- -	- -	0.0008	- -
		Total	5E-07	- -	- -	- -	0.2	- -
	Fish	Ingestion	2E-06	- -	- -	- -	0.08	- -
Total Exposed Area Surface Soil, Surface Water, Sediment, and Fish			4E-06				0.4	
Total Exposed Area Subsurface Soil, Surface Water, Sediment and Fish			7E-05				0.4	
Total Paved Area Surface Soil, Surface Water, Sediment and Fish			3E-06				0.3	
Total Paved Area Subsurface Soil, Surface Water, Sediment and Fish			4E-06				0.4	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Adult Recreational Users	Surface Soil - Exposed Area	Incidental Ingestion	3E-07	- -	- -	- -	0.01	- -
		Dermal Contact	2E-08	- -	- -	- -	0.0001	- -
		Inhalation	4E-10				0.00002	
		Total	3E-07	- -	- -	- -	0.01	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	1E-05	- -	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.01	- -
		Dermal Contact	2E-06	- -	- -	- -	0.0005	- -
		Inhalation	1E-08	- -	- -	- -	0.00002	
		Total	1E-05	- -	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.01	- -
	Surface Soil - Paved Area	Incidental Ingestion	2E-07	- -	- -	- -	0.008	- -
		Dermal Contact	2E-08	- -	- -	- -	0.0001	- -
		Inhalation	4E-11				0.00001	
		Total	3E-07	- -	- -	- -	0.008	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	3E-07	- -	- -	- -	0.01	- -
		Dermal Contact	2E-08	- -	- -	- -	0.0002	- -
		Inhalation	6E-11				0.000	
		Total	3E-07	- -	- -	- -	0.01	- -
	Surface Water	Dermal Contact	1E-08	- -	- -	- -	0.0007	- -
	Sediment	Incidental Ingestion	2E-07	- -	- -	- -	0.02	- -
		Dermal Contact	6E-08	- -	- -	- -	0.0004	- -
		Total	2E-07	- -	- -	- -	0.02	- -
	Fish	Ingestion	2E-05	- -	- -	4,4'-DDE, Dieldrin, Total Aroclors	0.2	- -
Total Exposed Area Surface Soil, Surface Water, Sediment, and Fish			2E-05				0.3	
Total Exposed Area Subsurface Soil, Surface Water, Sediment and Fish			3E-05				0.3	
Total Paved Area Surface Soil, Surface Water, Sediment and Fish			2E-05				0.3	
Total Paved Area Subsurface Soil, Surface Water, Sediment and Fish			2E-05				0.3	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Lifelong Recreational Users (Child and Adult)	Surface Soil - Exposed Area	Incidental Ingestion	1E-06	- -	- -	- -	NA	- -
		Dermal Contact	4E-07	- -	- -	- -	NA	- -
		Inhalation	5E-10	- -	- -	- -	NA	
		Total	1E-06	- -	- -	- -	NA	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	5E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene	NA	- -
		Dermal Contact	3E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene	NA	- -
		Inhalation	1E-08	- -	- -	- -	NA	
		Total	8E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene	NA	- -
	Surface Soil - Paved Area	Incidental Ingestion	9E-07	- -	- -	- -	NA	- -
		Dermal Contact	9E-07	- -	- -	- -	NA	- -
		Inhalation	4E-07	- -	- -	- -	NA	
		Total	5E-11				NA	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	1E-06	- -	- -	- -	NA	- -
		Dermal Contact	1E-06	- -	- -	- -	NA	- -
		Inhalation	4E-07	- -	- -	- -	NA	
		Total	2E-06				NA	- -
	Surface Water	Dermal Contact	2E-08	- -	- -	- -	NA	- -
	Sediment	Incidental Ingestion	6E-07	- -	- -	- -	NA	- -
		Dermal Contact	9E-08	- -	- -	- -	NA	- -
		Total	7E-07	- -	- -	- -	NA	- -
	Fish	Ingestion	2E-05	- -	- -	Total Aroclors, 4,4'-DDE, Dieldrin	NA	- -
Total Exposed Area Surface Soil, Surface Water, Sediment, and Fish			2E-05				NA	
Total Exposed Area Subsurface Soil, Surface Water, Sediment and Fish			1E-04				NA	
Total Paved Area Surface Soil, Surface Water, Sediment and Fish			2E-05				NA	
Total Paved Area Subsurface Soil, Surface Water, Sediment and Fish			2E-05				NA	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Child Residents	Surface Soil - Exposed Area	Incidental Ingestion	8E-06	- -	- -	Benzo(a)pyrene, Arsenic	1	- -
		Dermal Contact	6E-07	- -	- -	- -	0.01	- -
		Inhalation	7E-09				0.001	
		Total	8E-06	- -	- -	Benzo(a)pyrene, Arsenic	1	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	3E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Arsenic	1	- -
		Dermal Contact	5E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	0.05	- -
		Inhalation	2E-07	- -	- -	- -	0.001	
		Total	4E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Arsenic	1	- -
	Surface Soil - Paved Area	Incidental Ingestion	6E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.7	- -
		Dermal Contact	5E-07	- -	- -	- -	0.009	- -
		Inhalation	6E-10	- -	- -	- -	0.0008	
		Total	7E-06	- -	- -	Benzo(a)pyrene, Arsenic	0.7	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	9E-06	- -	- -	Arsenic	1	- -
		Dermal Contact	5E-07	- -	- -	- -	0.02	- -
		Inhalation	9E-10	- -	- -	- -	0.02	
		Total	9E-06	- -	- -	Arsenic	1	- -
	Groundwater	Ingestion	1E-03	- -	Arsenic	PCE, Vinyl Chloride	346	Aluminum, Arsenic, Cobalt, Iron, Manganese
		Dermal Contact	1E-05	- -	- -	- -	8	- -
		Inhalation	6E-05	- -	- -	PCE, Vinyl Chloride	1	- -
		Total	1E-03	- -	Arsenic	PCE, Vinyl Chloride	355	Aluminum, Arsenic, Cobalt, Iron, Manganese
Total Exposed Area Surface Soil and Groundwater			2E-03				356	
Total Exposed Area Subsurface Soil and Groundwater			2E-03				356	
Total Paved Area Surface Soil and Groundwater			1E-03				355	
Total Paved Area Subsurface Soil and Groundwater			1E-03				356	

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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Adult Residents	Surface Soil - Exposed Area	Incidental Ingestion	3E-06	- -	- -	Arsenic	0.1	- -
		Dermal Contact	2E-07	- -	- -	- -	0.001	- -
		Inhalation	2E-08	- -	- -	- -	0.001	- -
		Total	3E-06	- -	- -	Arsenic	0.1	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	1E-04	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	0.1	- -
		Dermal Contact	2E-05	- -	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.005	- -
		Inhalation	6E-07	- -	- -	- -	0.001	- -
		Total	1E-04	- -	Benzo(a)pyrene, Dibenzo(a,h)anthracene	Benzo(a)anthracene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene	0.1	- -
	Surface Soil - Paved Area	Incidental Ingestion	2E-06	- -	- -	- -	0.08	- -
		Dermal Contact	2E-07	- -	- -	- -	0.001	- -
		Inhalation	2E-09	- -	- -	- -	0.0008	- -
		Total	3E-06	- -	- -	- -	0.08	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	3E-06	- -	- -	Arsenic	0.1	- -
		Dermal Contact	2E-07	- -	- -	- -	0.002	- -
		Inhalation	3E-09	- -	- -	- -	0.02	- -
		Total	3E-06	- -	- -	Arsenic	0.1	- -
	Groundwater	Ingestion	1E-03	- -	Arsenic	PCE, Vinyl Chloride	129	Arsenic, Cobalt, Manganese
		Dermal Contact	2E-05	- -	- -	- -	3	- -
		Inhalation	8E-05	- -	- -	PCE, Vinyl Chloride	0.4	- -
		Total	2E-03	- -	Arsenic, Vinyl Chloride	PCE, TCE	133	Arsenic, Cobalt, Manganese
Total Exposed Area Surface Soil and Groundwater			3E-05				133	
Total Exposed Area Subsurface Soil and Groundwater			2E-03				133	
Total Paved Area Surface Soil and Groundwater			2E-03				133	
Total Paved Area Subsurface Soil and Groundwater			2E-03				133	

SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Hypothetical Lifelong Residents (Child and Adult)	Surface Soil - Exposed Area	Incidental Ingestion	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
		Dermal Contact	9E-07	- -	- -	- -	NA	- -
		Inhalation	3E-08	- -	- -	- -	NA	- -
		Total	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
	Subsurface Soil - Exposed Area	Incidental Ingestion	4E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	NA	- -
		Dermal Contact	7E-05	- -	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	NA	- -
		Inhalation	8E-07	- -	- -	- -	NA	- -
		Total	5E-04	Benzo(a)pyrene	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene, Arsenic	NA	- -
	Surface Soil - Paved Area	Incidental Ingestion	9E-06	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
		Dermal Contact	7E-07	- -	- -	- -	NA	- -
		Inhalation	3E-09	- -	- -	- -	NA	- -
		Total	9E-06	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
	Subsurface Soil - Paved Area	Incidental Ingestion	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
		Dermal Contact	7E-07	- -	- -	- -	NA	- -
		Inhalation	4E-09	- -	- -	- -	NA	- -
		Total	1E-05	- -	- -	Benzo(a)pyrene, Arsenic	NA	- -
	Groundwater	Ingestion	3E-03	- -	Arsenic, Vinyl Chloride	PCE	NA	- -
		Dermal Contact	3E-05	- -	- -	PCE	NA	- -
		Inhalation	1E-04	- -	Vinyl Chloride	PCE	NA	- -
		Total	3E-03	- -	Arsenic, Vinyl Chloride	PCE	NA	- -
Total Exposed Area Surface Soil and Groundwater			1E-05				NA	
Total Exposed Area Subsurface Soil and Groundwater			3E-03				NA	
Total Paved Area Surface Soil and Groundwater			3E-03				NA	
Total Paved Area Subsurface Soil and Groundwater			3E-03				NA	

**COMPARISON OF CANCER RISKS AND HAZARD INDICES -
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Receptor	Media	Cancer Risks		Hazard Indices	
		Including All Chemicals	Excluding Chemicals Present at Background Levels	Including All Chemicals	Excluding Chemicals Present at Background Levels
Construction Workers	**Exposed Area**				
	Surface Soil	3E-06	3E-06	2(1)	2(1)
	Subsurface Soil	9E-05	9E-05	2	1
	Paved Area				
	Surface Soil	2E-06	2E-06	1	1
	Subsurface Soil	3E-06	3E-06	3	0.9
Industrial Workers	**Exposed Area**				
	Surface Soil	3E-05	3E-05	0.3	0.3
	Subsurface Soil	2E-03	2E-03	0.3	0.3
	Paved Area				
	Surface Soil	3E-05	3E-05	0.2	0.2
	Subsurface Soil	3E-05	3E-05	0.3	0.3
Adolescent Trespassers	**Exposed Area**				
	Surface Soil	1E-05	1E-05	0.08	0.07
	Subsurface Soil	1E-03	1E-03	0.1	0.1
	Paved Area				
	Surface Soil	1E-05	1E-05	0.05	0.05
	Subsurface Soil	1E-05	1E-05	0.08	0.08
Child Recreational Users	**Exposed Area**				
	Surface Soil	3E-05	3E-05	0.4	0.4
	Subsurface Soil	3E-03	3E-03	0.6	0.5
	Paved Area				
	Surface Soil	3E-05	3E-05	0.3	0.3
	Subsurface Soil	3E-05	3E-05	0.4	0.4
Adult Recreational Users	**Exposed Area**				
	Surface Soil	7E-06	7E-06	0.05	0.05
	Subsurface Soil	5E-04	5E-04	0.06	0.06
	Paved Area				
	Surface Soil	6E-06	6E-06	0.03	0.03
	Subsurface Soil	7E-06	7E-06	0.05	0.05
Lifelong Recreational Users	**Exposed Area**				
	Surface Soil	4E-05	4E-05	NA	NA
	Subsurface Soil	3E-03	3E-03	NA	NA
	Paved Area				
	Surface Soil	4E-05	4E-05	NA	NA
	Subsurface Soil	3E-05	3E-05	NA	NA
Child Residents	**Exposed Area**				
	Surface Soil	3E-04	3E-04	3(1)	3(1)
	Subsurface Soil	2E-02	2E-02	4(1)	4(1)
	Paved Area				
	Surface Soil	2E-04	2E-04	2(1)	2(1)
	Subsurface Soil	2E-04	2E-04	3	3

**COMPARISON OF CANCER RISKS AND HAZARD INDICES -
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 2 OF 2**

Receptor	Media	Cancer Risks		Hazard Indices	
		Including All Chemicals	Excluding Chemicals Present at Background Levels	Including All Chemicals	Excluding Chemicals Present at Background Levels
Adult Residents	**Exposed Area**				
	Surface Soil	5E-05	5E-05	0.4	0.3
	Subsurface Soil	3E-03	3E-03	0.5	0.4
	Paved Area				
	Surface Soil	4E-05	4E-05	0.2	0.2
	Subsurface Soil	5E-05	5E-05	0.4	0.4
Lifelong Residents	**Exposed Area**				
	Surface Soil	3E-04	3E-04	NA	NA
	Subsurface Soil	2E-02	2E-02	NA	NA
	Paved Area				
	Surface Soil	3E-04	3E-04	NA	NA
	Subsurface Soil	2E-04	2E-04	NA	NA

Notes:
No COPCs - No carcinogenic COPCs were identified for groundwater.
NA - Not applicable.
1 - Hazard index for individual target organs were less than or equal to 1.

BUILDING 179 GROUNDWATER DATA
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Maximum Detected Concentration			ORNL Regional Screening Level[1]	USEPA MCL[2]	RIDEM GA Groundwater Objective[3]	USEPA Groundwater Volatilization Criteria[4]
	Building 179	Site 8					
		Overburden	Bedrock	Tap Water			
Volatile Organic Compounds (ug/L)							
Chloroethane	73 J	ND	130	21,000 N	NA	NA	28,000 N
Acetone	390 JB	8	13 J	22,000 N	NA	NA	220,000 N
1,1-Dichloroethene	310 J	ND	7	340 N	7	7	190 N
Methylene Chloride	230 J	ND	ND	4.8 C	5	5	6.7 C
1,1-Dichloroethane	1400	0.04 J	310	2.4 C	NA	NA	2,200 N
2-Butanone	210 EB	ND	ND	7,100 N	NA	NA	440000 N
cis-1,2-Dichloroethene	2 J	0.04 J	26	370 N	70	70	210 N
1,1,1-Trichloroethane	23000 E	1	4	9,100 N	200	200	3,100 N
Trichloroethene	2 J	0.9 J	730	1.7 C	5	5	0.053 C[5]
2-Hexanone	160 JB	ND	ND	NA	NA	NA	NA
Tetrachloroethane	9	2	12	0.11 C	5	5	1.1 C[5]
Total Xylenes	1 J	ND	97 J	200 N	10,000	10,000	22,000 N[6]
sec-Butylbenzene	1 J	ND	84	NA	NA	NA	250 N
tert-Butylbenzene	1 J	ND	0.4 J	NA	NA	NA	290 N
4-Isopropyltoluene	1 J	ND	110	NA	NA	NA	NA
1,3-Dichlorobenzene	1 J	ND	ND	NA	NA	NA	830 N
1,4-Dichlorobenzene	1 J	ND	ND	0.43 C	75	75	8,200 N
n-Butylbenzene	1 J	ND	98	NA	NA	600	260 N
1,2-Dichlorobenzene	1 J	ND	ND	370 N	600	600	830 N
1,2,4-Trichlorobenzene	120 J	ND	ND	8.2 N	70	70	3,400 N
Hexachlorobutadiene	3 J	ND	ND	0.042 C	NA	NA	NA
Naphthalene	220 JB	ND	ND	0.14 C	NA	20	150 N
1,2,3-Trichlorobenzene	150 J	ND	ND	NA	NA	NA	NA
Semivolatile Organic Compounds (ug/L)							
Phenol	4 J	ND	ND	11,000 N	NA	NA	NA
2-Methylphenol	2 J	ND	ND	1,800 N	NA	NA	NA
4-Methylphenol	19	ND	ND	180 N	NA	NA	NA
Naphthalene	2 J	ND	ND	0.14 C	NA	20	150 N
Diethylphthalate	2 J	ND	ND	29,000 N	NA	NA	NA
di-n-butylphthalate	2 J	ND	5 J	3,700 N	NA	NA	NA
Bis(2-ethylhexyl)phthalate	140 E	3 J	ND	4.8 C	6	6	NA

Notes:
1 - Oak Ridge National Laboratory Regional (ORNL) Screening Levels for Chemical Contaminants at Superfund Sites,September 12, 2008.
[Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].
2 - 2006 Edition of the Drinking Water Standards and Health Advisories (USEPA, August 2006).
3 - RIDEM, DEM-DSR-01-93, February 2004.
4 - Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. November 2002. EPA530-F-02-052.
Values are from Table 2c and correspond to a target cancer risk level of 1E-6 or HI =1 and an attenuation factor of 0.001.
5 - The value presented in Table 2c of the draft vapor intrusion guidance is based on the MCL. USEPA Region I requires thescreening criteria for vapor intrusion to be risk-based.
Therefore, the value from Table 2a adjusted for a 1E-6 cancer risk level is presented here.
6 - Value is for p-xylenes.
ND - Not detected.
NA - Not available.
E - Indicates concentration exceeds calibration range.
B - Indicates the analyte is found in blank samples as well as the sample.
J - Estimated concentration.

COMPARISON OF SEPTEMBER 2008 AND APRIL 2009 SOIL RSLs
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	ORNL Regional Screening Levels[1]			
		Direct Contact Residential (mg/kg)		Protection of Groundwater (mg/kg)	
		September 2008	April 2009	September 2008	April 2009
Volatile Organic Compounds					
71-55-6	1,1,1-Trichloroethane	900 N	9,000 N	3.3	3.3
75-34-3	1,1-Dichloroethane	3.4 C	3.4 C	0.0007	0.0007
120-82-1	1,2,4-Trichlorobenzene	87 N	87 N	0.013	0.013
95-63-6	1,2,4-Trimethylbenzene	67 N	67 N	0.024	0.024
108-67-8	1,3,5-Trimethylbenzene	47 N	47 N	0.02	0.02
106-46-7	1,4-Dichlorobenzene	2.6 C	2.6 C	0.00046	0.00046
78-93-3	2-Butanone	28,000 N	28,000 N	1.5	1.5
99-87-6	4-Isopropyltoluene	NA	NA	NA	NA
67-64-1	Acetone	61,000 N	61,000 N	4.4	4.4
71-43-2	Benzene	1.1 C	1.1 C	0.00023	0.00023
75-15-0	Carbon Disulfide	670 N	670 N	0.27	0.27
67-66-3	Chloroform	0.3 C	0.3 C	0.000055	0.000055
75-00-3	Chloroethane	15,000 N	15,000 N	6	6
156-59-2	cis-1,2-Dichloroethene	780 N	780 N	0.11	0.11
540-59-0	Total 1,2-Dichloroethene	700 N	700 N	0.099	0.099
75-71-8	Dichlorodifluoromethane	190 N	190 N	0.61	0.61
100-41-4	Ethylbenzene	5.7 C	5.7 C	0.0019	0.0019
98-82-8	Isopropylbenzene	2,200 N	2,200 N	1.3	1.3
--	m+p-Xylenes	4,500 N[2]	4,500 N[2]	1.6 [2]	1.6 [2]
75-09-2	Methylene Chloride	11 C	11 C	0.0012	0.0012
91-20-3	Naphthalene	3.9 C	3.9 C	0.00055	0.00055
104-51-8	N-Butylbenzene	NA	NA	NA	NA
103-65-1	N-Propylbenzene	NA	NA	NA	NA
95-47-6	o-Xylene	5,300 N	5,300 N	1.6	1.6
135-98-8	sec-Butylbenzene	NA	NA	NA	NA
98-06-6	Tert-Butylbenzene	NA	NA	NA	NA
127-18-4	Tetrachloroethene	0.57 C	0.57 C	0.000052	0.000052
108-88-3	Toluene	5,000 N	5,000 N	1.7	1.7
79-01-6	Trichloroethene	2.8 C	2.8 C	0.00061	0.00061
75-01-4	Vinyl Chloride	0.06 C	0.06 C	0.0000056	0.0000056
1330-20-7	Total Xylenes	600 N	600 N	0.23	0.23
Semivolatile Organic Compounds					
92-52-4	1,1-Biphenyl	3,900 N	3,900 N	23	23
105-67-9	2,4-Dimethylphenol	1,200 N	1,200 N	1.2	1.2
51-28-5	2,4-Dinitrophenol	120 N	120 N	0.068	0.068
91-57-6	2-Methylnaphthalene	310 N	310 N	0.9	0.9
91-94-1	3,3'-Dichlorobenzidine	1.1 C	1.1 C	0.0023	0.0023
--	3&4-Methylphenol	310 N[3]	310 N[3]	0.19 [3]	0.19 [3]
534-52-1	4,6-Dinitro-2-Methylphenol	6.1 N	6.1 N	0.0051	0.0051
100-01-6	4-Nitroaniline	180 N[4]	24 C	0.00097	0.001
100-02-7	4-Nitrophenol	NA	NA	NA	NA
83-32-9	Acenaphthene	3,400 N	3,400 N	27	27
208-96-8	Acenaphthylene	3,400 N[5]	3,400 N[5]	27 [5]	27 [5]
120-12-7	Anthracene	17,000 N	17,000 N	450	450
56-55-3	Benzo(a)anthracene	0.15 C	0.15 C	0.014	0.014
50-32-8	Benzo(a)pyrene	0.015 C	0.015 C	0.0046	0.0046
--	Benzo(a)pyrene Equivalents	0.015 C	0.015 C	0.0046	0.0046
205-99-2	Benzo(b)fluoranthene	0.15 C	0.15 C	0.047	0.047
191-24-2	Benzo(g,h,i)perylene	1,700 N[6]	1,700 N[6]	150 [6]	150 [6]
207-08-9	Benzo(k)fluoranthene	1.5 C	1.5 C	0.46	0.46
100-52-7	Benzaldehyde	7,800	7,800 N	0.97	0.97
65-85-0	Benzoic Acid	240,000 N	240,000 N	33	33
100-51-6	Benzyl Alcohol	31,000 N	31,000 N	4.2	4.2

COMPARISON OF SEPTEMBER 2008 AND APRIL 2009 SOIL RSLs
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	ORNL Regional Screening Levels[1]			
		Direct Contact Residential (mg/kg)		Protection of Groundwater (mg/kg)	
117-81-7	Bis(2-ethylhexyl)phthalate	35 C	35 C	1.6	1.6
85-68-7	Butyl Benzyl Phthalate	260 N	260 C	0.67	0.67
86-74-8	Carbazole	NA	NA	NA	NA
218-01-9	Chrysene	15 C	15 C	1.4	1.4
84-74-2	di-n-Butyl Phthalate	6,100 N	6,100 N	11	11
53-70-3	Dibenzo(a,h)anthracene	0.015 C	0.015 C	0.015	0.015
132-64-9	Dibenzofuran	NA	NA	NA	NA
84-66-2	Diethyl Phthalate	49,000 N	49,000 N	13	13
206-44-0	Fluoranthene	2,300 N	2,300 N	210	210
86-73-7	Fluorene	2,300 N	2,300 N	33	33
118-74-1	Hexachlorobenzene	0.3 C	0.3 C	0.00029	0.00029
193-39-5	Indeno(1,2,3-cd)pyrene	0.15 C	0.15 C	0.16	0.16
91-20-3	Naphthalene	3.9 C	3.9 C	0.00055	0.00055
86-30-6	N-Nitrosodiphenylamine	99 C	99 C	0.17	0.17
87-86-5	Pentachlorophenol	3 C	3 C	0.0039	0.0039
85-01-8	Phenanthrene	1,700 N[6]	1,700 N[6]	150 [6]	150 [6]
108-95-2	Phenol	18,000 N	18,000 N	8.1	8.1
129-00-0	Pyrene	1,700 N	1,700 N	150	150
Pesticides/PCBs					
72-54-8	4,4'-DDD	2 C	2 C	0.086	0.086
72-55-9	4,4'-DDE	1.4 C	1.4 C	0.06	0.06
50-29-3	4,4'-DDT	1.7 C	1.7 C	0.087	0.087
309-00-2	Aldrin	0.029 C	0.029 C	0.00084	0.00084
5103-71-9	alpha-Chlordane	1.6 C[7]	1.6 C[7]	0.033 [7]	0.033 [7]
12672-29-6	Aroclor-1248	0.22 C	0.22 C	0.003	0.003
11097-69-1	Aroclor-1254	1.1 N[4]	1.1 N[4]	0.0051	0.0051
11096-82-5	Aroclor-1260	0.22 C	0.22 C	0.014	0.014
11100-14-4	Aroclor-1268	0.22 C[8]	0.22 C[8]	0.014 [8]	0.014 [8]
60-57-1	Dieldrin	0.03 C	0.03 C	0.00009	0.00009
33213-65-9	Endosulfan II	370 N[9]	370 N[9]	9.7 [9]	9.7 [9]
1031-07-8	Endosulfan Sulfate	370 N[9]	370 N[9]	9.7 [9]	9.7 [9]
72-20-8	Endrin	18 N	18 N	0.23	0.23
7421-93-4	Endrin Aldehyde	18 N[10]	18 N[10]	0.23 [10]	0.23 [10]
53494-70-5	Endrin Ketone	18 N[10]	18 N[10]	0.23 [10]	0.23 [10]
58-89-9	gamma-BHC (Lindane)	0.52 C	0.52 C	0.00043	0.00043
5103-74-2	gamma-Chlordane	1.6 C[7]	1.6 C[7]	0.033 [7]	0.033 [7]
76-44-8	Heptachlor	0.11 C	0.11 C	0.0016	0.0016
--	Total Aroclor	0.24 C[11]	0.22 C[11]	NA	NA
--	Total PCB Congeners	0.24 C[11]	0.22 C[11]	NA	NA
8001-35-2	Toxaphene	0.44 C	0.44 C	0.012	0.012
Inorganics					
7429-90-5	Aluminum	77,000 N	77,000 N	55,000	55000
7440-36-0	Antimony	31 N	31 N	0.66	0.66
7440-38-2	Arsenic	0.39 C	0.39 C	0.0013	0.0013
7440-39-3	Barium	15,000 N	15,000 N	300	300
7440-41-7	Beryllium	160 N	160 N	58	58
7440-43-9	Cadmium	70 N	70 N	1.4	1.4
7440-70-2	Calcium	NA	NA	NA	NA
7440-47-3	Chromium	230 N[4,12]	230 N[4,12]	2.1 [12]	2.1 [12]
7440-48-4	Cobalt	23 N	23 N	0.49	0.49
7440-50-8	Copper	3,100 N	3,100 N	51	51
7439-89-6	Iron	55,000 N	55,000 N	640	640
7439-92-1	Lead	400	400	NA	NA
7439-95-4	Magnesium	NA	NA	NA	NA

COMPARISON OF SEPTEMBER 2008 AND APRIL 2009 SOIL RSLs
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

CAS No.	Parameter	ORNL Regional Screening Levels[1]			
		Direct Contact Residential (mg/kg)		Protection of Groundwater (mg/kg)	
7439-96-5	Manganese	1,800 N	1,800 N	57	57
7439-97-6	Mercury	23 N[13]	23 N[13]	0.57 [13]	0.57 [13]
7439-98-7	Molybdenum	390 N	390 N	3.7	3.7
7440-02-0	Nickel	1,600 N	1,500 N	48	48
7440-09-7	Potassium	NA	NA	NA	NA
7782-49-2	Selenium	390 N	390 N	0.95	0.95
7440-22-4	Silver	390 N	390 N	1.6	1.6
7440-23-5	Sodium	NA	NA	NA	NA
7440-28-0	Thallium	5.1 N	5.1 N	0.17	0.17
7440-62-2	Vanadium	390 N	390 N	180	180
7440-66-6	Zinc	23,000 N	23,000 N	680	680
Petroleum Hydrocarbons					
--	Extractable Petroleum Hydrocarbons	NA	NA	NA	NA
--	Gasoline Range Organics	NA	NA	NA	NA
--	TPH (C09-C36)	NA	NA	NA	NA
--	Diesel Range Organics	NA	NA	NA	NA
--	Gasoline Range Organics	NA	NA	NA	NA

Notes:

1 - Oak Ridge National Laboratory Regional Screening Levels for Chemical Contaminants at Superfund Sites
[Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].
2 - Value is for m-xylene.
3 - Value is for 4-methylphenol.
4 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.
5 - Value is for acenaphthene.
6 - Value is for pyrene.
7 - Value is for chlordane.
8 - Value is for Aroclor-1260.
9 - Value is for Endosulfan.
10 - Value is for Endrin.
11 - Value is for high risk polychlorinated biphenyls.
12 - Value is for hexavalent chromium.
13 - Value is for mercury, inorganic salts.
N - Noncarcinogenic.
C - Carcinogenic.
Shading indicates criteria that has changed from September 2008 to April 2009.

COMPARISON OF SEPTEMBER 2008 AND APRIL 2009 GROUNDWATER RSLs
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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CAS No.	Parameter	ORNL Regional Screening Level[1] Tap Water (ug/L)	
		September 2008	April 2009
Volatile Organic Compounds			
71-55-6	1,1,1-Trichloroethane	9,100 N	9,100 N
79-00-5	1,1,2-Trichloroethane	0.24 C	0.24 C
75-34-3	1,1-Dichloroethane	2.4 C	2.4 C
75-35-4	1,1-Dichloroethene	340 N	340 N
95-63-6	1,2,4-Trimethylbenzene	15 N	15 N
108-67-8	1,3,5-Trimethylbenzene	12 N	12 N
106-46-7	1,4-Dichlorobenzene	0.43 C	0.43 C
103-65-1	4-Isopropyltoluene	NA	NA
78-93-3	2-Butanone	7,100 N	7,100 N
67-64-1	Acetone	22,000 N	22,000 N
71-43-2	Benzene	0.41 C	0.41 C
74-83-9	Bromomethane	8.7 N	8.7 N
75-15-0	Carbon Disulfide	1,000 N	1,000 N
56-23-5	Carbon Tetrachloride	0.2 C	0.2 C
75-00-3	Chloroethane	21,000 N	21,000 N
67-66-3	Chloroform	0.19 C	0.19 C
74-87-3	Chloromethane	1.8 C	190 N
156-59-2	cis-1,2-Dichloroethene	370 N	370 N
100-41-4	Ethylbenzene	1.5 C	1.5 C
98-82-8	Isopropylbenzene	680 N	680 N
74-82-8	Methane	NA	NA
--	m+p-Xylenes	NA	NA
104-51-8	N-Butylbenzene	NA	NA
103-65-1	N-Propylbenzene	NA	NA
95-47-6	o-Xylene	1,400 N	1,400 N
135-98-8	sec-Butylbenzene	NA	NA
98-06-6	Tert-Butylbenzene	NA	NA
127-18-4	Tetrachloroethene	0.11 C	0.11 C
108-88-3	Toluene	2,300 N	2,300 N
540-59-0	Total 1,2-Dichloroethene	330 N	330 N
1330-20-7	Total Xylenes	200 N	200 N
156-60-5	trans-1,2-Dichloroethene	110 N	110 N
79-01-6	Trichloroethene	1.7 C	1.7 C
75-01-4	Vinyl Chloride	0.016 C	0.016 C
Semivolatile Organic Compounds			
207-08-9	Benzo(k)fluoranthene	0.029 C	0.29 C
100-51-6	Benzyl Alcohol	18,000 N	18,000 N
117-81-7	Bis(2-ethylhexyl)phthalate	4.8 C	4.8 C
84-74-2	di-n-Butyl Phthalate	3,700 N	3,700 N
85-01-8	Phenanthrene	1,100 N[2]	1,100 N[2]
Pesticides/PCBs			
72-55-9	4,4'-DDE	0.2 C	0.2 C
50-29-3	4,4'-DDT	0.2 C	0.2 C

COMPARISON OF SEPTEMBER 2008 AND APRIL 2009 GROUNDWATER RSLs
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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CAS No.	Parameter	ORNL Regional Screening Level[1] Tap Water (ug/L)	
		September 2008	April 2009
60-57-1	Dieldrin	0.0042 C	0.0042 C
Inorganics			
7429-90-5	Aluminum	37,000 N	37,000 N
7440-36-0	Antimony	15 N	15 N
7440-38-2	Arsenic	0.045 C	0.045 C
7440-39-3	Barium	7,300 N	7,300 N
7440-41-7	Beryllium	73 N	73 N
7440-70-2	Calcium	NA	NA
7440-47-3	Chromium	110 N[3]	110 N[3]
7440-48-4	Cobalt	11 N	11 N
7440-50-8	Copper	1,500 N	1,500 N
7439-89-6	Iron	26,000 N	26,000 N
7439-92-1	Lead	NA	NA
7439-95-4	Magnesium	NA	NA
7439-96-5	Manganese	880 N	880 N
7439-97-6	Mercury	11 N	11 N
7439-98-7	Molybdenum	180 N	180 N
7440-02-0	Nickel	730 N	730 N
7440-09-7	Potassium	NA	NA
7782-49-2	Selenium	180 N	180 N
7440-22-4	Silver	180 N	180 N
7440-23-5	Sodium	NA	NA
7440-28-0	Thallium	2.4 N	2.4 N
7440-62-2	Vanadium	180 N	180 N
7440-66-6	Zinc	11,000 N	11,000 N
Miscellaneous Parameters			
--	Ammonia-N	NA	NA
--	Nitrate-N	58,000 N	58,000 N
--	Nitrite-N	3,700 N	3,700 N
--	Orthophosphate-P	NA	NA
14808-79-8	Sulfate	NA	NA
18496-25-8	Sulfide	NA	NA
--	Total Organic Carbon	NA	NA
Petroleum Hydrocarbons			
--	Gasoline Range Organics	NA	NA
--	TPH (C09-C36)	NA	NA

Notes:

1 - Oak Ridge National Laboratory Regional (ORNL) Screening Levels for Chemical Contaminants at Superfund Sites
[Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].

2 - Value is for pyrene.

3 - Value is for hexavalent chromium.

N - Noncarcinogenic.

C - Carcinogenic.

Shading indictes criteria that has changed from September 2008 to April 2009.

CHEMICALS RETAINED AS CHEMICALS OF CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical	Receptor								
	Construction Workers	Industrial Workers	Adolescent Trespassers	Child Recreational Users	Adult Recreational Users	Lifelong Recreational Users	Child Residents	Adult Residents	Lifelong Residents
Surface Soil									
Exposed Area									
Carcinogenic PAHs		X		X		X	X	X	X
Arsenic		X		X		X	X	X	X
Paved Area									
Carcinogenic PAHs		X		X		X	X	X	X
Arsenic		X		X		X	X	X	X
Subsurface Soil									
Exposed Area									
Carcinogenic PAHs	X	X	X	X	X	X	X	X	X
Naphthalene		X						X	X
Total Aroclors							X		X
Arsenic		X	X	X	X	X	X	X	X
Paved Area									
Carcinogenic PAHs		X		X		X	X	X	X
Total Aroclors							X	X	X
Arsenic		X		X		X	X	X	X
Groundwater									
1,1-Dichloroethane							X	X	X
1,3,5,-Trimethybenzene							X	X	
Bromomethane							X	X	
Carbon Tetrachloride							X	X	X
Chloroform							X	X	X
Chloromethane							X	X	X
Ethylbenzene							X	X	X
Tetrachloroethene							X	X	X
Trichloroethene							X	X	X
Vinyl Chloride							X	X	X
Benzo(b)fluoranthene							X	X	X
Dieldrin							X	X	X
Aluminum	X						X	X	
Antimony							X		

CHEMICALS RETAINED AS CHEMICALS OF CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical	Receptor								
	Construction Workers	Industrial Workers	Adolescent Trespassers	Child Recreational Users	Adult Recreational Users	Lifelong Recreational Users	Child Residents	Adult Residents	Lifelong Residents
Groundwater (Continued)									
Arsenic							X	X	X
Barium							X	X	
Beryllium	X						X	X	
Chromium	X						X	X	
Cobalt							X	X	
Copper							X	X	
Iron	X						X	X	
Lead							X	X	X
Manganese	X						X	X	
Nickel							X	X	
Thallium							X	X	
Vanadium							X	X	
Zinc							X	X	
Surface Water									
No COCs identified for surface water.									
Sediment									
Carcinogenic PAHs				X		X			
Arsenic				X		X			
Fish Tissue									
4,4'-DDE				X	X	X			
Total Aroclors				X	X	X			
Aldrin					X	X			
Dieldrin				X	X	X			

REMEDIAL GOAL OPTIONS - SOIL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	ORNL RSL[1] (mg/kg)	RIDEM Direct Contact Criteria[2] (mg/kg)	Target Cancer Risk Level			Hazard Index = 1 (mg/kg)
			10^{-6} (mg/kg)	10^{-5} (mg/kg)	10^{-4} (mg/kg)	
CONSTRUCTION WORKERS						
Benzo(a)anthracene	NA	7.8	41.0	410	4,100	NA
Benzo(a)pyrene	NA	0.8	4.10	41	410	NA
Benzo(b)fluoranthene	NA	7.8	41.0	410	4,100	NA
Dibenzo(a,h)anthracene	NA	0.8	4.10	41	410	NA
Indeno(1,2,3-cd)pyrene	NA	7.8	41.0	410	4,100	NA
INDUSTRIAL WORKERS						
Benzo(a)anthracene	2.1	7.8	2.1	21	210	NA
Benzo(a)pyrene	0.21	0.8	0.21	2.1	21	NA
Benzo(b)fluoranthene	2.1	7.8	2.1	21	210	NA
Benzo(k)fluoranthene	21	78	21	210	2,100	NA
Chrysene	210	780	211	2,110	21,100	NA
Dibenzo(a,h)anthracene	0.21	0.8	0.21	2.1	21	NA
Indeno(1,2,3-cd)pyrene	2.1	7.8	2.1	21	210	NA
Total Aroclors	0.74	10	0.74	7.4	74	NA
Arsenic	1.6	7	1.6	16	160	256
ADOLESCENT TRESPASSERS						
Benzo(a)anthracene	NA	NA	3.3	33	330	NA
Benzo(a)pyrene	NA	NA	0.33	3.3	33	NA
Benzo(b)fluoranthene	NA	NA	3.3	33	330	NA
Benzo(k)fluoranthene	NA	NA	33	330	3,300	NA
Dibenzo(a,h)anthracene	NA	NA	0.33	3.3	33	NA
Indeno(1,2,3-cd)pyrene	NA	NA	10	100	1,000	NA
Arsenic	NA	NA	1.6	16	160	768
CHILD RECREATIONAL USERS						
Benzo(a)anthracene	NA	NA	1.3	13	130	NA
Benzo(a)pyrene	NA	NA	0.13	1.3	13	NA
Benzo(b)fluoranthene	NA	NA	1.3	13	130	NA
Benzo(k)fluoranthene	NA	NA	13	130	1,300	NA
Chrysene	NA	NA	125	1,250	12,500	NA
Dibenzo(a,h)anthracene	NA	NA	0.13	1.3	13	NA
Indeno(1,2,3-cd)pyrene	NA	NA	1.3	13	130	NA
Arsenic	NA	NA	4.1	41	410	158
ADULT RECREATIONAL USERS						
Benzo(a)anthracene	NA	NA	7.6	76	760	NA
Benzo(a)pyrene	NA	NA	0.76	7.6	76	NA
Benzo(b)fluoranthene	NA	NA	7.6	76	760	NA
Benzo(k)fluoranthene	NA	NA	76	760	7,600	NA
Dibenzo(a,h)anthracene	NA	NA	0.76	7.6	76	NA
Indeno(1,2,3-cd)pyrene	NA	NA	7.6	76	760	NA
Arsenic	NA	NA	9.2	92	920	1,426

REMEDIAL GOAL OPTIONS - SOIL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

LIFELONG RECREATIONAL USERS						
Benzo(a)anthracene	NA	0.9	1.1	11	110	NA
Benzo(a)pyrene	NA	0.4	0.11	1.1	11	NA
Benzo(b)fluoranthene	NA	0.9	1.1	11	110	NA
Benzo(k)fluoranthene	NA	0.9	11	110	1,100	NA
Chrysene	NA	0.4	108	1,080	10,800	NA
Dibenzo(a,h)anthracene	NA	0.4	0.11	1.1	11	NA
Indeno(1,2,3-cd)pyrene	NA	0.9	1.1	11	110	NA
Arsenic	NA	7	2.8	28	280	NA
HYPOTHETICAL CHILD RESIDENTS						
Benzo(a)anthracene	NA	NA	0.170	1.7	17	NA
Benzo(a)pyrene	NA	NA	0.017	0.17	1.7	NA
Benzo(b)fluoranthene	NA	NA	0.170	1.7	17	NA
Benzo(k)fluoranthene	NA	NA	1.70	17	170	NA
Chrysene	NA	NA	17.0	170	1,700	NA
Dibenzo(a,h)anthracene	NA	NA	0.017	0.17	1.7	NA
Indeno(1,2,3-cd)pyrene	NA	NA	0.170	1.7	17	NA
Total Aroclors	NA	NA	0.328	3.28	32.8	NA
Arsenic	NA	NA	0.560	5.6	56	22
HYPOTHETICAL ADULT RESIDENTS						
Benzo(a)anthracene	NA	NA	1	10	100	NA
Benzo(a)pyrene	NA	NA	0.1	1	10	NA
Benzo(b)fluoranthene	NA	NA	1	10	100	NA
Benzo(k)fluoranthene	NA	NA	10	100	1,000	NA
Chrysene	NA	NA	105	1,050	10,500	NA
Dibenzo(a,h)anthracene	NA	NA	0.1	1	10	NA
Indeno(1,2,3-cd)pyrene	NA	NA	1	10	100	NA
Total Aroclors	NA	NA	0.68	6.8	68	NA
Naphthalene	NA	NA	5.3	53	530	9,600
Arsenic	NA	NA	1.3	13	130	195
HYPOTHETICAL LIFELONG RESIDENTS						
Benzo(a)anthracene	0.15	0.9	0.150	1.5	15	NA
Benzo(a)pyrene	0.015	0.4	0.015	0.15	1.5	NA
Benzo(b)fluoranthene	0.15	0.9	0.150	1.5	15	NA
Benzo(k)fluoranthene	1.5	0.9	1.50	15	150	NA
Chrysene	15	0.4	15.0	150	1,500	NA
Dibenzo(a,h)anthracene	0.015	0.4	0.015	0.15	1.5	NA
Indeno(1,2,3-cd)pyrene	0.15	0.9	0.150	1.5	15	NA
Naphthalene	3.9	54	4.20	42	420	NA
Total Aroclors	0.22	10	0.221	2.21	22.1	NA
Arsenic	0.39	7	0.400	4	40	NA

Notes:
NA = Not applicable.
1 - Oak Ridge National Laboratory Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008. [Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].
2 - RIDEM, DEM-DSR-01-93, February 2004.

REMEDIAL GOAL OPTIONS - GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	ORNL RSL[1] Tap Water (ug/L)	RIDEM GA Groundwater Objective[2] (ug/L)	USEPA MCL[3] (ug/L)	Target Cancer Risk Level			Hazard Index = 1 (ug/L)
				10^{-6} (ug/L)	10^{-5} (ug/L)	10^{-4} (ug/L)	
CONSTRUCTION WORKERS							
Aluminum	NA	NA	NA	NA	NA	NA	2572493
Beryllium	NA	4	4	NA	NA	NA	103
Chromium	NA	100	100	NA	NA	NA	273
Iron	NA	NA	NA	NA	NA	NA	1800745
Manganese	NA	NA	NA	NA	NA	NA	6644
HYPOTHETICAL CHILD RESIDENTS							
1,1-Dichloroethane	NA	NA	NA	22	220	2200	2116
1,3,5,-Trimethybenzene	NA	NA	NA	NA	NA	NA	359
Bromomethane	NA	NA	NA	NA	NA	NA	15
Carbon Tetrachloride	NA	5	5	0.85	8.5	85	6.6
Chloroform	NA	NA	80	4	40	400	105
Chloromethane	NA	NA	NA	10	100	1000	NA
Ethylbenzene	NA	700	700	8.3	83	830	789
Tetrachloroethene	NA	5	5	0.17	1.7	17	79.0
Trichloroethene	NA	5	5	9	90	900	NA
Vinyl Chloride	NA	2	2	0.08	0.8	8	32
Benzo(k)fluoranthene	NA	NA	NA	0.034	0.34	3.4	NA
Dieldrin	NA	NA	NA	0.005	0.05	0.5	0.38
Aluminum	NA	NA	NA	NA	NA	NA	11121
Antimony	NA	6	6	NA	NA	NA	4.3
Arsenic	NA	NA	10	0.09	0.9	9	3.3
Barium	NA	2000	2000	NA	NA	NA	2094
Beryllium	NA	4	4	NA	NA	NA	13
Chromium	NA	100	100	NA	NA	NA	24
Cobalt	NA	NA	NA	NA	NA	NA	3.3
Copper	NA	NA	1300	NA	NA	NA	445
Iron	NA	NA	NA	NA	NA	NA	7785
Lead	NA	15	15	15			
Manganese	NA	NA	NA	NA	NA	NA	240
Nickel	NA	100	NA	NA	NA	NA	218
Thallium	NA	2	2	NA	NA	NA	0.72
Vanadium	NA	NA	NA	NA	NA	NA	47
Zinc	NA	NA	NA	NA	NA	NA	3343
HYPOTHETICAL ADULT RESIDENTS							
1,1-Dichloroethane	NA	NA	NA	17	170	1700	6765
1,3,5,-Trimethybenzene	NA	NA	NA	NA	NA	NA	1008
Bromomethane	NA	NA	NA	NA	NA	NA	49
Carbon Tetrachloride	NA	5	5	0.64	6.4	64	20
Chloroform	NA	NA	80	3.2	32	320	334
Chloromethane	NA	NA	NA	8	80	800	NA
Ethylbenzene	NA	700	700	6	60	600	2275
Tetrachloroethene	NA	5	5	0.12	1.2	12	228
Trichloroethene	NA	5	5	7	70	700	NA
Vinyl Chloride	NA	2	2	0.07	0.7	7	104
Benzo(k)fluoranthene	NA	NA	NA	0.08	0.8	8	NA
Dieldrin	NA	NA	NA	0.004	0.04	0.4	NA
Aluminum	NA	NA	NA	NA	NA	NA	1.1
Arsenic	NA	NA	10	0.07	0.7	7	36310
Barium	NA	2000	2000	NA	NA	NA	6793

REMEDIAL GOAL OPTIONS - GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical	ORNL RSL[1] Tap Water (ug/L)	RIDEM GA Groundwater Objective[2] (ug/L)	USEPA MCL[3] (ug/L)	Target Cancer Risk Level			Hazard Index = 1 (ug/L)
				10^{-6} (ug/L)	10^{-5} (ug/L)	10^{-4} (ug/L)	
HYPOTHETICAL ADULT RESIDENTS (Continued)							
Beryllium	NA	4	4	NA	NA	NA	42
Chromium	NA	100	100	NA	NA	NA	77
Cobalt	NA	NA	NA	NA	NA	NA	11
Copper	NA	NA	1300	NA	NA	NA	1452
Iron	NA	NA	NA	NA	NA	NA	25417
Lead	NA	15	15	15			
Manganese	NA	NA	NA	NA	NA	NA	775
Nickel	NA	100	NA	NA	NA	NA	711
Thallium	NA	2	2	NA	NA	NA	2.4
Vanadium	NA	NA	NA	NA	NA	NA	152
Zinc	NA	NA	NA	NA	NA	NA	10916
HYPOTHETICAL LIFELONG RESIDENTS							
Carbon Tetrachloride	0.2	5	5	0.37	3.7	37	NA
Chloroform	0.19	NA	80	1.8	18	180	NA
Chloromethane	1.8	NA	NA	4.4	44	440	NA
Ethylbenzene	1.5	700	700	3.5	35	350	NA
Tetrachloroethene	0.11	5	5	0.07	0.7	7	NA
Trichloroethene	1.7	5	5	4	40	400	NA
Vinyl Chloride	0.016	2	2	0.04	0.4	4	NA
Benzo(k)fluoranthene	0.029	NA	NA	0.024	0.24	2.4	NA
Dieldrin	0.0042	NA	NA	0.002	0.02	0.2	NA
Arsenic	0.045	NA	10	0.04	0.4	4	NA
Lead	15	15	15	15			

Notes:
NA = Not applicable.
1 - Oak Ridge National Laboratory Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008. [Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0].
2 - RIDEM, DEM-DSR-01-93, February 2004.
3 - USEPA Primary Drinking Water Standard (USEPA, August 2006).

REMEDIAL GOAL OPTIONS - SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	RIDEM[1] Direct Contact Criteria (mg/kg)	Target Cancer Risk Level			Hazard Index = 1 (mg/kg)
		10^{-6} (mg/kg)	10^{-5} (mg/kg)	10^{-4} (mg/kg)	
CHILD RECREATIONAL USERS					
Benzo(a)pyrene	0.4	0.13	1.3	13	NA
Arsenic	7	4.1	41	410	NA
LIFELONG RECREATIONAL USERS					
Benzo(a)pyrene	0.4	0.11	1.1	11	NA
Arsenic	7	2.8	28	280	NA

Notes:
NA = Not applicable.
1 - RIDEM, DEM-DSR-01-93, February 2004. Residential value for soil is presented.

REMEDIAL GOAL OPTIONS - FISH TISSUE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	USEPA Region III	Target Cancer Risk Level			Hazard Index = 1
	Risk-Based Concentration[(1)] (mg/kg)	10^{-6} (mg/kg)	10^{-5} (mg/kg)	10^{-4} (mg/kg)	(mg/kg)
CHILD RECREATIONAL USERS					
4,4'-DDE	NA	0.044	0.44	4.4	NA
Dieldrin	NA	0.0009	0.009	0.09	0.06
Total Aroclors	NA	0.007	0.07	0.7	NA
ADULT RECREATIONAL USERS					
4,4'-DDE	0.00928	0.014	0.14	1.4	NA
Aldrin	0.000186	0.0003	0.003	0.03	0.05
Dieldrin	0.000197	0.0003	0.003	0.03	0.08
Total Aroclors	0.00158	0.002	0.02	0.2	NA
LIFELONG RECREATIONAL USERS					
4,4'-DDE	0.00928	0.010	0.1	1	NA
Aldrin	0.000186	0.0002	0.002	0.02	NA
Dieldrin	0.000197	0.0002	0.002	0.02	NA
Total Aroclors	0.00158	0.002	0.02	0.2	NA

Notes:
NA = Not applicable.
1 - USEPA Region 3 Fish Tissue Screening Levels, May 2008.

TABLE 7-1

ASSESSMENT ENDPOINTS AND MEASURES OF EFFECTS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Assessment Endpoint	Measures of Effect
Adverse effects on the survival, reproduction, and growth of soil invertebrates	• Survival, growth, and reproduction of soil invertebrates were evaluated by comparing the measured concentrations of chemicals in the surface soil to invertebrate soil screening levels. • Survival of soil invertebrates was evaluated by conducting 14-day earthworm toxicity tests with survival as the endpoint.
Adverse effects on the survival, reproduction, and growth of terrestrial vegetation	• Survival, growth, and reproduction of terrestrial plants were evaluated by comparing the measured concentrations of chemicals in the surface soil to soil screening levels (based on plants). • Because the site is heavily vegetated and the contamination appears to be sporadic across the site, site-specific studies for plants were not conducted as part of the BERA. However, visual observations of the plant community and areas of stressed vegetation were documented and used in a lines-of-evidence approach to evaluate the assessment endpoint for plants.
Adverse effects on the survival and reproduction of insectivorous birds and mammals	• Survival and reproduction of birds and mammals were evaluated by comparing the average ingested dose from contaminants in the surface soil, surface water, and invertebrates collected from the soil to No Observed Adverse Effects Levels (NOAELs) and Lowest Observed Adverse Effects Levels (LOAELs).
Adverse effects on the survival and reproduction of piscivorous birds and mammals	• Survival and reproduction of birds and mammals were evaluated by comparing the average ingested dose from contaminants in the sediment, surface water, and fish collected from the NUWC Pond to No Observed Adverse Effects Levels (NOAELs) and Lowest Observed Adverse Effects Levels (LOAELs).
Adverse effects on the survival, reproduction, and growth of benthic invertebrates	• Survival, growth, and reproduction of benthic macroinvertebrates were evaluated by comparing the measured concentrations of chemicals in the sediment to sediment screening values. • Survival and growth of sediment invertebrates were evaluated by conducting 28-day amphipod toxicity tests with survival and growth as the endpoints.
Adverse effects on the survival, reproduction, and growth of aquatic organisms	• Survival, growth, and reproduction of aquatic organisms were evaluated by comparing the measured concentrations of chemicals in the surface water to surface water screening levels.

ECOLOGICAL SURFACE WATER SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Ecological Screening Level	Source of Screening Level
VOCs (ug/L)		
1,1,1-TRICHLOROETHANE	11	SCV
1,1-DICHLOROETHANE	47	SCV
1,1-DICHLOROETHENE	25	SCV
ACETONE	1500	SCV
BTEX	NA	NA
CARBON TETRACHLORIDE	30	RIDEM
CHLOROFORM	32	RIDEM
CIS-1,2-DICHLOROETHENE	590	SCV
TETRACHLOROETHENE	5.3	RIDEM
TOLUENE	14	RIDEM
TOTAL 1,2-DICHLOROETHENE	590	SCV
TOTAL CHLORINATED ETHENES	NA	NA
TOTAL CHLORINATED VOCS	NA	NA
TRICHLOROETHENE	43	RIDEM
VINYL CHLORIDE	NA	NA
SVOCs (ug/L)		
BIS(2-ETHYLHEXYL)PHTHALATE	12	RIDEM
Pesticides (ug/L)		
4,4'-DDE	0.011	SCV
4,4'-DDT	0.001	NRWQC
DIELDRIN	0.056	NRWQC
TOTAL DDD/DDE/DDT	0.001	NRWQC
Total Metals (ug/L)		
ALUMINUM	87	NRWQC
ANTIMONY	10	RIDEM
ARSENIC	150	NRWQC
BARIUM	4	SCV
CALCIUM	NA	NA
CHROMIUM	11	NRWQC
COBALT	23	SCV
COPPER	9	NRWQC
IRON	1000	NRWQC
LEAD	2.5	NRWQC
MAGNESIUM	NA	NA
MANGANESE	120	SCV
MERCURY	0.77	NRWQC
MOLYBDENUM	370	SCV
NICKEL	52	NRWQC
POTASSIUM	NA	NA
SODIUM	NA	NA
THALLIUM	1	RIDEM
VANADIUM	20	SCV
ZINC	120	NRWQC

Screening Level Sources and Order of Preference:

1. NRWQC - National Recommended Water Quality Criteria (USEPA, 2006)
2. RIDEM - Rhode Island Department of Environmental Management (RIDEM, 2004)
3. SCV - Secondary Chronic Values (Suter and Tsao, 1996)

NA - Not available

ECOLOGICAL SEDIMENT SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Ecological Screening Level	Source of Screening Level
VOLATILES (UG/KG)		
1,1,1-TRICHLOROETHANE	170	EPA SQB
1,1-DICHLOROETHANE	27	SCV
1,2,4-TRICHLOROBENZENE	9200	EPA SQB
1,4-DICHLOROBENZENE	350	EPA SQB
2-BUTANONE	270	SCV
4-ISOPROPYLTOLUENE	NA	NA
ACETONE	9	SCV
BTEX	NA	NA
CARBON DISULFIDE	0.85	SCV
CHLOROETHANE	NA	NA
CIS-1,2-DICHLOROETHENE	400	SCV
DICHLORODIFLUOROMETHANE	NA	NA
M+P-XYLENES	4	NOAA
TETRACHLOROETHENE	530	EPA SQB
TOLUENE	670	EPA SQB
TOTAL 1,2-DICHLOROETHENE	400	SCV
TOTAL CHLORINATED ETHENES	NA	NA
TOTAL CHLORINATED VOCS	NA	NA
TOTAL XYLENES	4	NOAA
TRICHLOROETHENE	1600	EPA SQB
SEMIVOLATILES (UG/KG)		
2-METHYLNAPHTHALENE[1]	20.2	NOAA
ACENAPHTHENE[1]	290	NOAA
ACENAPHTHYLENE[1]	160	NOAA
ANTHRACENE[1]	57.2	TEC
BENZALDEHYDE	NA	NA
BENZO(A)ANTHRACENE[2]	108	TEC
BENZO(A)PYRENE[2]	150	TEC
BENZO(B)FLUORANTHENE[2]	1800	NOAA
BENZO(G,H,I)PERYLENE[2]	170	LEL
BENZO(K)FLUORANTHENE[2]	240	LEL
BENZOIC ACID	65	NOAA
BENZYL ALCOHOL	52	NOAA
BIS(2-ETHYLHEXYL)PHTHALATE	750	NOAA
BUTYL BENZYL PHTHALATE	11000	EPA SQB
CARBAZOLE	NA	NA
CHRYSENE[2]	166	TEC
DI-N-BUTYL PHTHALATE	11000	EPA SQB
DIBENZO(A,H)ANTHRACENE[2]	33	TEC
DIBENZOFURAN	2000	EPA SQB
DIETHYL PHTHALATE	630	EPA SQB
FLUORANTHENE[2]	423	TEC
FLUORENE[1]	77.4	TEC
HEXACHLOROBENZENE	20	LEL
HIGH MOLECULAR WEIGHT PAHS	193	NOAA
INDENO(1,2,3-CD)PYRENE[2]	200	LEL
LOW MOLECULAR WEIGHT PAHS	76.4	NOAA
NAPHTHALENE[1]	176	TEC
PHENANTHRENE[1]	204	TEC
PHENOL	48	NOAA
PYRENE[2]	195	TEC
TOTAL PAHS[3]	1610	TEC

ECOLOGICAL SEDIMENT SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Ecological Screening Level	Source of Screening Level
PESTICIDES/PCBS (UG/KG)		
4,4'-DDD	4.88	TEC
4,4'-DDE	3.16	TEC
4,4'-DDT	4.16	TEC
ALDRIN	2	LEL
ALPHA-CHLORDANE	3.24	TEC
AROCLOR-1254	59.8	TEC
AROCLOR-1260	59.8	TEC
AROCLOR-1268	59.8	TEC
DIELDRIN	120	EPA SQB
ENDOSULFAN SULFATE	14	EPA SQB
ENDRIN KETONE	54	EPA SQB
GAMMA-BHC (LINDANE)	2.37	TEC
GAMMA-CHLORDANE	3.24	TEC
TOTAL AROCLOR	59.8	TEC
TOTAL DDD/DDE/DDT	5.28	TEC
TOTAL DDT	5.28	TEC
TOTAL PCB CONGENERS	59.8	TEC
Metals (mg/kg)		
ALUMINUM	25500	NOAA
ANTIMONY	3	NOAA
ARSENIC	9.79	TEC
BARIUM	48	NOAA
BERYLLIUM	NA	NA
CADMIUM	0.99	TEC
CALCIUM	NA	NA
CHROMIUM	43.4	TEC
COBALT	50	LEL
COPPER	31.6	TEC
IRON	20000	LEL
LEAD	35.8	TEC
MAGNESIUM	NA	NA
MANGANESE	460	LEL
MERCURY	0.18	TEC
MOLYBDENUM	NA	NA
NICKEL	22.7	TEC
POTASSIUM	NA	NA
SELENIUM	1	NOAA
SILVER	0.5	LEL
SODIUM	NA	NA
VANADIUM	57	NOAA
ZINC	121	TEC
AVS/SEM (umol/g)		
ACID VOLATILE SULFIDE	NA	NA
CADMIUM	NA	NA
CHROMIUM	NA	NA
COPPER	NA	NA
LEAD	NA	NA
MERCURY	NA	NA
NICKEL	NA	NA
SEM	NA	NA
TOTAL SEM-AVS	NA	NA
ZINC	NA	NA

ECOLOGICAL SEDIMENT SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Ecological Screening Level	Source of Screening Level
MISCELLANEOUS PARAMETERS		
TOTAL ORGANIC CARBON	NA	NA
PH	NA	NA
GASOLINE RANGE ORGANICS	NA	NA
EXTRACTABLE TPH (C09-C36)	NA	NA

Screening Level Sources and Order of Preference:

1. TEC - Threshold Effects Concentration (MacDonald, et al., 2000)
2. LEL - Lowest Effects Level (Persaud, et al., 1993)
3. EPA SQB - U.S. Environmental Protection Agency Sediment Quality Benchmark (USEPA, 1996)
4. NOAA - National Oceanic and Atmospheric Administration (Buchman, 1999)
5. SCV - Secondary Chronic Value (Jones, et al., 1997)

Footnotes:

1 Low Molecular Weight PAH
2 High Molecular Weight PAH
3 Includes low and high molecular weight PAHs

NA - Not available

ECOLOGICAL SURFACE SOIL SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

PARAMETER	Ecological Screening Level	Source of Screening Level
VOLATILES (UG/KG)		
1,2,4-TRIMETHYLBENZENE	NA	NA
1,3,5-TRIMETHYLBENZENE	NA	NA
2-BUTANONE	NA	NA
4-ISOPROPYLTOLUENE	NA	NA
ACETONE	NA	NA
BENZENE	25000	CCME
BTEX	NA	NA
CARBON DISULFIDE	NA	NA
CHLOROFORM	20	TV
ETHYLBENZENE	55000	CCME
LOW MOLECULAR WEIGHT PAHS	NA	NA
M+P-XYLENES	65000	CCME
METHYLENE CHLORIDE	400	TV
NAPHTHALENE	29000	ECO-SSL
N-BUTYLBENZENE	NA	NA
N-PROPYLBENZENE	NA	NA
O-XYLENE	65000	CCME
SEC-BUTYLBENZENE	NA	NA
TERT-BUTYLBENZENE	NA	NA
TETRACHLOROETHENE	3800	CCME
TOLUENE	75000	CCME
TOTAL CHLORINATED ETHENES	NA	NA
TOTAL CHLORINATED VOCS	NA	NA
TOTAL PAHS	NA	NA
TOTAL XYLENES	65000	CCME
TRICHLOROETHENE	50	CCME
SEMIVOLATILES (UG/KG)		
1,1-BIPHENYL	60000	Reg 4/ORNL Plant
2-METHYLNAPHTHALENE[1]	29000	ECO-SSL
3,3'-DICHLOROBENZIDINE	NA	NA
ACENAPHTHENE[1]	29000	ECO-SSL
ACENAPHTHYLENE[1]	29000	ECO-SSL
ANTHRACENE[1]	29000	ECO-SSL
BENZO(A)ANTHRACENE[2]	1100	ECO-SSL
BENZO(A)PYRENE[2]	1100	ECO-SSL
BENZO(B)FLUORANTHENE[2]	1100	ECO-SSL
BENZO(G,H,I)PERYLENE[2]	1100	ECO-SSL
BENZO(K)FLUORANTHENE[2]	1100	ECO-SSL
BENZOIC ACID	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	100	TV
BUTYL BENZYL PHTHALATE	100	TV
CARBAZOLE	NA	NA
CHRYSENE[2]	1100	ECO-SSL
DIBENZO(A,H)ANTHRACENE[2]	1100	ECO-SSL
DIBENZOFURAN	NA	NA
FLUORANTHENE[2]	29000	ECO-SSL
FLUORENE[1]	29000	ECO-SSL
HIGH MOLECULAR WEIGHT PAHS	NA	NA
INDENO(1,2,3-CD)PYRENE[2]	1100	ECO-SSL
LOW MOLECULAR WEIGHT PAHS	NA	NA
NAPHTHALENE[1]	29000	ECO-SSL
N-NITROSODIPHENYLAMINE	20000	Reg 4/ORNL Invert
PHENANTHRENE[1]	29000	ECO-SSL
PYRENE[2]	1100	ECO-SSL
TOTAL PAHS[3]	NA	NA

ECOLOGICAL SURFACE SOIL SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

PARAMETER	Ecological Screening Level	Source of Screening Level
PESTICIDES/PCBS (UG/KG)		
4,4'-DDD	21	ECO-SSL
4,4'-DDE	21	ECO-SSL
4,4'-DDT	21	ECO-SSL
ALPHA-CHLORDANE	0.03	TV
AROCLOR-1248	33000	CCME
AROCLOR-1254	33000	CCME
AROCLOR-1260	33000	CCME
AROCLOR-1268	33000	CCME
DIELDRIN	4.9	ECO-SSL
ENDOSULFAN II	0.01	TV
ENDRIN	0.04	TV
GAMMA-CHLORDANE	0.03	TV
HEPTACHLOR	0.7	TV
TOTAL AROCLOR	1300	CCME
TOTAL DDD/DDE/DDT	21	ECO-SSL
TOTAL DDT	21	ECO-SSL
METALS (MG/KG)		
ALUMINUM	pH<5.5	ECO-SSL
ANTIMONY	0.27	ECO-SSL
ARSENIC	18	ECO-SSL
BARIUM	330	ECO-SSL
BERYLLIUM	21	ECO-SSL
CADMIUM	0.36	ECO-SSL
CALCIUM	NA	NA
CHROMIUM	26	ECO-SSL
COBALT	13	ECO-SSL
COPPER	28	ECO-SSL
IRON	pH<5, pH>8	ECO-SSL
LEAD	11	ECO-SSL
MAGNESIUM	NA	NA
MANGANESE	220	ECO-SSL
MERCURY	0.1	Reg 4/ORNL Invert
MOLYBDENUM	2	Reg 4/ORNL Plant
NICKEL	38	ECO-SSL
POTASSIUM	NA	NA
SELENIUM	0.52	ECO-SSL
SILVER	4.2	ECO-SSL
SODIUM	NA	NA
THALLIUM	1	Reg 4/ORNL Plant
VANADIUM	7.8	ECO-SSL
ZINC	46	ECO-SSL

ECOLOGICAL SURFACE SOIL SCREENING LEVELS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

PARAMETER	Ecological Screening Level	Source of Screening Level
MISCELLANEOUS PARAMETERS		
TOTAL ORGANIC CARBON	NA	NA
PH	NA	NA
EXTRACTABLE PETROLEUM HYDROCARBONS	NA	NA
GASOLINE RANGE ORGANICS	NA	NA
TPH (C09-C36)	NA	NA
DIESEL RANGE ORGANICS	NA	NA
GASOLINE RANGE ORGANICS	NA	NA

Screening Level Sources and Order of Preference:

1. Eco SSL - EPA Ecological Soil Screening Levels (U.S. EPA, 2003, 2005, 2006, 2007)
2. Region 4 - EPA Region IV Soil Screening Levels (U.S. EPA, 2001b) (Region 4 values that are based on the Dutch Target Value are used last in the order of preference.
3. CCME - Canadian Council and Minisiters of Environment (EC, 1999, 2001, 2004)

4a. ORNL Plant - Oak Ridge National Laboratory Plant Toxicological Bencmark (Efroymson, et al. 1997a)
4b. ORNL Invert - Oak Ridge National Laboratory Invertebrate Toxicological Bencmark (Efroymson, et al. 1997b)

5. TV - Target Value (MHSPE, 2000)

Footnotes:

1 Low Molecular Weight PAH
2 High Molecular Weight PAH
3 Includes low and high molecular weight PAHs

NA - Not available

EXPOSURE PARAMETERS FOR THE TERRESTRIAL WILDLIFE MODEL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Species/Exposure Inputs	Conservative Inputs		Average Inputs	
	Values	Units	Values	Units
American Robin				
Body Weight = BW	7.73E-02	kg	8.04E-02	kg
Food Ingestion Rate = If	1.25E-02	kg/day	1.19E-02	kg/day
Water Ingestion Rate = Iw	1.21E-02	L/day	1.13E-02	L/day
Soil Ingestion Rate - Is	2.05E-03	kg/day	7.60E-04	kg/day
Home Range = HR	Assume 100% on site		6.1E-01	acres
Short-Tailed Shrew				
Body Weight = BW	1.50E-02	kg	1.61E-02	kg
Food Ingestion Rate = If	1.60E-03	kg/day	1.43E-03	kg/day
Water Ingestion Rate = Iw	4.28E-03	L/day	3.60E-03	L/day
Soil Ingestion Rate - Is	4.80E-05	kg/day	1.29E-05	kg/day
Home Range = HR	Assume 100% on site		9.7E-01	acres
Great Blue Heron				
Body Weight = BW	2.20E+00	kg	2.31E+00	kg
Food Ingestion Rate = If	1.16E-01	kg/day	1.04E-01	kg/day
Water Ingestion Rate = Iw	1.16E-01	L/day	1.04E-01	L/day
Sediment Ingestion Rate - Is	3.83E-03	kg/day	3.43E-03	kg/day
Home Range = HR	Assume 100% on site		1.1E+01	acres
Mink				
Body Weight = BW	5.50E-01	kg	1.10E+00	kg
Food Ingestion Rate = If	6.07E-02	kg/day	4.50E-02	kg/day
Water Ingestion Rate = Iw	1.21E-01	L/day	7.31E-02	L/day
Sediment Ingestion Rate - Is	5.70E-03	kg/day	4.23E-03	kg/day
Home Range = HR	Assume 100% on site		3.5E+01	acres

Notes:
The food and soil/sediment ingestion rates are on a dry-weight basis.

The soil/sediment ingestion rates were calculated by multiplying the food ingestion rates by the following incidental soil/sediment ingestion rates:

Receptor	Conservative	Average	Source
American Robin	16.4%	6.4%	1, 3
Short-Tailed Shrew	3.0%	0.9%	1
Great Blue Heron	3.3%	3.3%	2, 4
Mink	9.4%	9.4%	2, 5

1 - USEPA (U.S. Environmental Protection Agency), 2007. Guidance for developing Ecological Soil Screening Levels. Office of Emergency and Remedial Response. February.
2 - Beyer, N., E. Connor, and S. Gerould. 1994. Estimates of Soil Ingestion by Wildlife. Journal of Wildlife Management. 58(2). pp. 375-382.
3 - Based on a American woodcock
4 - Based on a Mallard Duck
5 - Based on a Raccoon

SURFACE WATER ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
Volatile Organics (µg/L)												
1,1,1-TRICHLOROETHANE	4/22	0.92 J	2.4 J	DA-A-SW02-01-AVG	0.611	1.58	1.12	11	0	0.22	No	BSL
1,1-DICHLOROETHANE	4/22	0.7 J	1.6 J	DA-A-SW02-01-AVG	0.522	1.12	0.86	47	0	0.03	No	BSL
ACETONE	4/22	3 J	7 --	2 max samples	2.25	5.06	3.92	1500	0	0.005	No	BSL
BTEX	1/22	0.4 J	0.4 J	DA-SW112-LOCDEPTHMAX	0.384	0.4	0.56	NA	NA	NA	No	NSL*
CIS-1,2-DICHLOROETHENE	3/22	0.4 J	0.6 J	DA-SW-117-082108	0.332	0.5	0.53	590	0	0.001	No	BSL
TOLUENE	1/22	0.4 J	0.4 J	DA-SW112-LOCDEPTHMAX	0.354	0.4	0.51	14	0	0.03	No	BSL
TOTAL 1,2-DICHLOROETHENE	3/22	0.4 J	0.6 J	DA-SW-117-082108	0.349	0.5	0.52	590	0	0.001	No	BSL
TOTAL CHLORINATED ETHENES	4/22	0.6 J	1.5 J	DA-SW121-0508	0.506	1.08	0.85	NA	NA	NA	No	NSL*
TOTAL CHLORINATED VOCS	8/22	0.6 J	4 J	DA-A-SW02-01-AVG	0.988	1.89	1.89	NA	NA	NA	No	NSL*
TRICHLOROETHENE	4/22	0.4 J	1	DA-SW121-0508	0.401	0.7	0.62	43	0	0.02	No	BSL
Semivolatile Organics (µg/L)												
BIS(2-ETHYLHEXYL)PHTHALATE	7/22	3.6 J	5 J	DA-A-SW09-01	4.37	3.97	4.72	12	0	0.42	No	BSL
Pesticides/PCBs (µg/L)												
4,4'-DDE	1/22	0.0139 J	0.0139 J	DA-A-SW02-01-AVG	0.00434	0.0139	0.01	0.011	1	1.3	**Yes**	ASL
4,4'-DDT	6/22	0.0043 J	0.017925 J	DA-A-SW02-01-AVG	0.00425	0.00709	0.01	0.001	6	18	**Yes**	ASL
DIELDRIN	14/22	0.0033 J	0.0218 J	DA-A-SW02-01-AVG	0.00824	0.011	0.01	0.056	0	0.39	No	BSL
TOTAL DDD/DDE/DDT	6/22	0.0043 J	0.031825 J	DA-A-SW02-01-AVG	0.00539	0.0094	0.01	0.001	6	32	**Yes**	ASL
Total Inorganics (µg/L)												
ALUMINUM	6/22	36 J	3160	DA-SW125-0508	213	639	1621	87	3	36	**Yes**	ASL
ANTIMONY	1/22	1.1 J	1.1 J	DA-SW106-LOCDEPTHMAX	1.22	1.1	1.98	10	0	0.11	No	BSL
ARSENIC	7/22	1.235 J	4.9 J	DA-SW-117-082108	1.74	2.83	2.89	150	0	0.03	No	BSL
BARIUM	22/22	3.7	21.4	DA-SW125-0508	10.4	10.4	11.78	4.0	21	5.4	**Yes**	ASL
CALCIUM	22/22	18200	36500	DA-A-SW02-01-AVG	27100	27100	29704	NA	NA	NA	No	NUT
CHROMIUM	2/22	1.2 J	1.3 J	DA-A-SW08-01	0.546	1.25	0.73	11	0	0.12	No	BSL
COBALT	18/22	0.26 J	4.4 J	DA-SW125-0508	1.2	1.38	1.68	23	0	0.19	No	BSL
COPPER	15/22	1.8 J	14.2 J	DA-SW125-0508	2.58	3.37	5.15	9	1	1.6	**Yes**	ASL
IRON	21/22	70.6 J	5590	DA-SW125-0508	679	708	1078	1000	3	5.6	**Yes**	ASL
LEAD	8/22	0.96 J	21.5	DA-SW125-0508	2.93	6.51	4.7	2.5	6	8.6	**Yes**	ASL
MAGNESIUM	22/22	4850 J	9200	DA-SW-01-LOCDEPTHMAX	7280	7280	7816	NA	NA	NA	No	NUT
MANGANESE	22/22	17	600	DA-A-SW09-01	180	180	250	120	11	5.0	**Yes**	ASL
MERCURY	7/22	0.009 J	0.59	DA-SW121-0508	0.0437	0.118	0.3	0.77	0	0.77	No	BSL
MOLYBDENUM	10/22	2.4 J	81	DA-A-SW03-01	18.5	39.7	79	370	0	0.22	No	BSL
NICKEL	18/22	0.79 J	6.1 J	DA-SW125-0508	2.1	2.38	2.7	52	0	0.12	No	BSL
POTASSIUM	22/22	2800	4900	DA-A-SW06-01	3790	3790	4027	NA	NA	NA	No	NUT
SODIUM	22/22	13800	57600	DA-SW111-LOCDEPTHMAX	36500	36500	52583	NA	NA	NA	No	NUT
THALLIUM	1/22	3.53 J	3.53 J	DA-A-SW04-01	0.797	3.53	2.8	1.0	1	3.5	**Yes**	ASL
VANADIUM	5/22	0.49 J	5.3 J	DA-SW125-0508	0.756	1.68	1.7	20	0	0.27	No	BSL
ZINC	13/22	4.8 J	35.5	DA-SW125-0508	9.36	13.7	13	120	0	0.30	No	BSL
Filtered Inorganics (µg/L)												
ALUMINUM	4/22	37 J	370	DA-A-SW03-01	46.8	160	219	87	2	4.3	**Yes**	ASL
ANTIMONY	1/22	1.6 J	1.6 J	DA-SW125-0508	1.22	1.6	2.0	10	0	0.16	No	BSL
ARSENIC	4/22	2.43 J	3.04 J	DA-A-SW09-01	1.42	2.84	2.3	150	0	0.02	No	BSL
BARIUM	22/22	3.4	14.1	DA-SW-01-LOCDEPTHMAX	9.35	9.35	10	4.0	21	3.5	**Yes**	ASL
CALCIUM	22/22	18300	36000	DA-A-SW02-01-AVG	26800	26800	29294	NA	NA	NA	No	NUT
CHROMIUM	2/22	1.2 --	1.2 --	2 max samples	0.418	1.2	0.5	11	0	0.11	No	BSL
COBALT	15/22	0.29 J	2.8	DA-A-SW09-01	0.858	1.15	1.2	23	0	0.12	No	BSL
COPPER	14/22	1.1 J	4.2 J	DA-SW-01-LOCDEPTHMAX	2	2.6	2.4	9	0	0.47	No	BSL
IRON	16/22	51.6 J	980	DA-A-SW09-01	259	347	421	1000	0	0.98	No	BSL
LEAD	5/22	1 J	12.4	DA-A-SW03-01	1.37	3.47	3.7	2.5	1	5.0	**Yes**	ASL
MAGNESIUM	22/22	4760 J	9300	DA-SW-01-LOCDEPTHMAX	7140	7140	7686	NA	NA	NA	No	NUT
MANGANESE	22/22	17	670	DA-A-SW09-01	157	157	222	120	11	5.6	**Yes**	ASL
MERCURY	5/22	0.01 J	0.016 --	2 max samples	0.01	0.0134	0.01	0.77	0	0.02	No	BSL
MOLYBDENUM	9/22	3.15 J	78	DA-A-SW03-01	17.8	42.4	76	370	0	0.21	No	BSL
NICKEL	17/22	0.53 J	7.045 J	DA-A-SW02-01-AVG	1.92	2.29	2.5	52	0	0.14	No	BSL

SURFACE WATER ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
POTASSIUM	22/22	2600	4600 --	2 max samples	3750	3750	4002	NA	NA	NA	No	NUT
SODIUM	22/22	13000	59000	DA-SW112-LOCDEPTHMAX	36100	36100	52148	NA	NA	NA	No	NUT
VANADIUM	2/22	0.52 J	0.75 J	DA-SW121-0508	0.458	0.635	0.7	20	0	0.04	No	BSL
ZINC	8/22	4.8 J	17.3 J	DA-SW111-LOCDEPTHMAX	6.79	13.8	12	120	0	0.14	No	BSL

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4 - The hazard quotient is the maximum detected concentration divided by the screening level.
COPC = Chemical of Potenial Concern
NA = Not Available or Not Applicable.
TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.

Rationale Codes:
For Selection as a COPC or for Further Evaluation:
ASL = Above COPC Screening Level
BSL = Below COPC Screening Level
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NSL* = No screening level, but risks are accounted for by individual constituents.
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SEDIMENT ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 3

Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
Volatile Organics (µg/kg)												
1,1,1-TRICHLOROETHANE	7/26	1 J	5 J	DA-SD133-LOCDEPTHMAX	7.49	2.02	11.3	170	0	0.03	No	BSL
1,1-DICHLOROETHANE	1/26	0.435 J	0.435 J	DA-S-SD02-01-AVG	7.53	0.435	56.5	27	0	0.02	No	BSL
1,2,4-TRICHLOROBENZENE	2/26	4 J	6.2 J	DA-S-SD09-01	7.83	5.1	56.6	9200	0	0.001	No	BSL
2-BUTANONE	8/26	7 J	190	DA-SD119-00.5-LOCDEPTHMAX	52.1	61.9	304	270	0	0.70	No	BSL
4-ISOPROPYLTOLUENE	2/26	0.79 J	18	DA-SD111-LOCDEPTHMAX	8.12	9.4	57.2	NA	NA	NA	Yes	NSL
ACETONE	15/26	13 --	740 J	DA-SD121-LOCDEPTHMAX	99.2	165	242	9	15	82	Yes	ASL
BTEX	2/26	2.2	38 J	DA-S-SD07-01	10.1	20.1	67.6	NA	NA	NA	No	NSL*
CARBON DISULFIDE	2/26	2.7 J	5.5 J	DA-SD119-00.5-LOCDEPTHMAX	7.48	4.1	56.4	0.85	2	6.5	Yes	ASL
CHLOROETHANE	1/26	1.6 J	1.6 J	DA-SD-01-LOCDEPTHMAX	15.1	1.6	115	NA	NA	NA	Yes	NSL
CIS-1,2-DICHLOROETHENE	2/26	4 J	7.5 J	DA-SD119-00.5-LOCDEPTHMAX	7.46	5.75	56.4	400	0	0.02	No	BSL
DICHLORODIFLUOROMETHANE	6/26	5.4 J	66 J	DA-SD-01-LOCDEPTHMAX	20.2	22.5	121	NA	NA	NA	Yes	NSL
M+P-XYLENES	1/26	2.2 J	2.2 J	DA-SD-01-LOCDEPTHMAX	15.2	2.2	115	4	0	0.55	No	BSL
TETRACHLOROETHENE	3/26	3 J	33 J	DA-SD114-LOCDEPTHMAX	9.12	17	59.0	530	0	0.06	No	BSL
TOLUENE	1/26	38 J	38 J	DA-S-SD07-01	8.93	38	59.2	670	0	0.06	No	BSL
TOTAL 1,2-DICHLOROETHENE	2/26	4 J	7.5 J	DA-SD119-00.5-LOCDEPTHMAX	7.45	5.75	56.4	400	0	0.02	No	BSL
TOTAL CHLORINATED ETHENES	5/26	2 J	76 J	DA-SD114-LOCDEPTHMAX	13.5	25.9	36.0	NA	NA	NA	No	NSL*
TOTAL CHLORINATED VOCS	12/26	3 J	82 J	DA-SD114-LOCDEPTHMAX	19.8	24.2	43.7	NA	NA	NA	No	NSL*
TOTAL XYLENES	1/26	2.2	2.2	DA-SD-01-LOCDEPTHMAX	11.6	2.2	86.8	4	0	0.55	No	BSL
TRICHLOROETHENE	4/26	2 J	39 J	DA-SD114-LOCDEPTHMAX	9.65	16.8	24.3	1600	0	0.02	No	BSL
Semivolatile Organics (µg/kg)												
2-METHYLNAPHTHALENE	12/26	3.1 J	200	DA-SD111-LOCDEPTHMAX	75.2	25.4	267	20.2	1	9.9	Yes	ASL
ACENAPHTHENE	17/26	3.9 J	1000	DA-SD111-LOCDEPTHMAX	97.6	124	559	290	2	3.4	Yes	ASL
ACENAPHTHYLENE	14/26	1.8 J	24 J	DA-SD125-00.5-LOCDEPTHMAX	31.9	11.4	46	160	0	0.15	No	BSL
ANTHRACENE	19/26	17 J	2000 --	2 max samples	211	277	1243	57.2	13	35	Yes	ASL
BENZO(A)ANTHRACENE	23/26	16 J	3400	DA-S-SD03-01	579	641	866	108	20	31	Yes	ASL
BENZO(A)PYRENE	22/26	15 J	2600	DA-S-SD03-01	575	664	862	150	18	17	Yes	ASL
BENZO(B)FLUORANTHENE	20/26	27	2300	DA-S-SD03-01	648	792	938	1800	2	1.3	Yes	ASL
BENZO(G,H,I)PERYLENE	22/26	10 J	1900	DA-S-SD03-01	414	474	617	170	14	11	Yes	ASL
BENZO(K)FLUORANTHENE	24/26	2.8 J	2300 --	2 max samples	496	529	762	240	13	9.6	Yes	ASL
BENZOIC ACID	10/14	625 J	2700 J	DA-S-SD08-01	1290	1510	1620	65	10	42	Yes	ASL
BENZYL ALCOHOL	1/26	400 J	400 J	DA-SD-01-LOCDEPTHMAX	476	400	599	52	1	7.7	Yes	ASL
BIS(2-ETHYLHEXYL)PHTHALATE	11/26	470 J	2300 --	2 max samples	575	1000	1064	750	5	3.1	Yes	ASL
CARBAZOLE	2/26	1300 --	1300 --	2 max samples	314	1300	432	NA	NA	NA	Yes	NSL
CHRYSENE	24/26	8.7 J	3300	DA-S-SD03-01	717	766	1077	166	18	20	Yes	ASL
DI-N-BUTYL PHTHALATE	1/26	100 J	100 J	DA-S-SD03-01	227	100	292	11000	0	0.01	No	BSL
DIBENZO(A,H)ANTHRACENE	18/26	11 J	640 J	DA-S-SD03-01	115	114	158	33	14	19	Yes	ASL
DIBENZOFURAN	2/26	550 J	580	DA-SD111-LOCDEPTHMAX	267	565	344	2000	0	0.29	No	BSL
DIETHYL PHTHALATE	4/26	420 J	2000	DA-S-SD09-01	412	1260	804	630	3	3.2	Yes	ASL
FLUORANTHENE	25/26	24	8500	DA-S-SD03-01	1440	1490	2194	423	17	20	Yes	ASL
FLUORENE	17/26	4.2 J	1300	DA-SD111-LOCDEPTHMAX	121	159	720	77.4	2	17	Yes	ASL
HIGH MOLECULAR WEIGHT PAHS	25/26	134 J	33640 J	DA-S-SD03-01	6400	6650	9918	193	24	174	Yes	ASL
INDENO(1,2,3-CD)PYRENE	22/26	9.5 J	1700	DA-S-SD03-01	372	421	543	200	12	8.5	Yes	ASL
LOW MOLECULAR WEIGHT PAHS	23/26	12.8 J	11920 J	DA-S-SD03-01	1360	1530	3318	76.4	21	156	Yes	ASL
NAPHTHALENE	10/26	4.6 J	200	DA-SD111-LOCDEPTHMAX	22.4	41	110	176	1	1.1	Yes	ASL
PHENANTHRENE	23/26	11 J	8000	DA-S-SD03-01	942	1050	2510	204	16	39	Yes	ASL
PYRENE	23/26	21 J	7000	DA-S-SD03-01	1260	1360	1937	195	19	36	Yes	ASL
TOTAL PAHS	25/26	146.8 J	45560 J	DA-S-SD03-01	7750	8060	12239	1610	19	28	Yes	ASL

SEDIMENT ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
Pesticides/PCBs (µg/kg)												
4,4'-DDD	16/26	4.7 J	170 J	DA-SD125-00.5-LOCDEPTHMAX	32.5	40.3	47	4.88	15	35	Yes	ASL
4,4'-DDE	18/26	2.2 J	430	DA-SD125-00.5-LOCDEPTHMAX	64.7	85.2	104	3.16	17	136	Yes	ASL
4,4'-DDT	11/26	5.4 J	77 J	DA-SD125-00.5-LOCDEPTHMAX	21.5	31.6	31	4.16	11	19	Yes	ASL
ALPHA-CHLORDANE	15/26	4.5 J	180 J	DA-SD125-00.5-LOCDEPTHMAX	28.8	45.1	45	3.24	15	56	Yes	ASL
AROCLOR-1260	16/26	35	550	DA-SD116-LOCDEPTHMAX	113	173	171	59.8	12	9.2	Yes	ASL
AROCLOR-1268	2/26	64.4 J	2480	DA-S-SD07-01	117	1270	1058	59.8	2	41	Yes	ASL
DIELDRIN	18/26	2.2 J	140	DA-SD125-00.5-LOCDEPTHMAX	27.8	36.4	41	120	1	1.2	Yes	ASL
GAMMA-CHLORDANE	14/26	3.3	130	DA-SD125-00.5-LOCDEPTHMAX	21.2	34.8	33	3.24	14	40	Yes	ASL
TOTAL AROCLOR	16/26	35	2930 J	DA-S-SD07-01	214	332	381	59.8	12	49	Yes	ASL
TOTAL DDD/DDE/DDT	18/26	2.2 J	677 J	DA-SD125-00.5-LOCDEPTHMAX	104	140	168	5.28	17	128	Yes	ASL
Petroleum Hydrocarbons (mg/kg)												
GASOLINE RANGE ORGANICS	2/18	4	12 J	DA-SD119-00.5-LOCDEPTHMAX	3.99	8	5	NA	NA	NA	Yes	NSL
EXTRACTABLE TPH (C09-C36)	13/13	53	1800	DA-SD116-LOCDEPTHMAX	406	406	NA	NA	NA	NA	Yes	NSL
Inorganics (mg/kg)												
ALUMINUM	26/26	5000	32400	DA-SD125-00.5-LOCDEPTHMAX	14000	14000	16447	25500	2	1.3	Yes	ASL
ARSENIC	26/26	9.4	25	DA-S-SD09-01	15.7	15.7	17	9.79	25	2.6	Yes	ASL
BARIUM	26/26	17	107	DA-SD125-00.5-LOCDEPTHMAX	48.6	48.6	57	48	11	2.2	Yes	ASL
BERYLLIUM	26/26	0.29 --	1.1	DA-SD125-00.5-LOCDEPTHMAX	0.511	0.511	0.586	NA	NA	NA	Yes	NSL
CADMIUM	20/26	0.17 J	2.4 J	DA-S-SD06-01	0.794	1.01	0.994	0.99	9	2.4	Yes	ASL
CALCIUM	26/26	710	7040	DA-SD-130-082108	2210	2210	2610	NA	NA	NA	No	NUT
CHROMIUM	26/26	6.5	40.4	DA-SD125-00.5-LOCDEPTHMAX	19	19	22	43.4	0	0.93	No	BSL
COBALT	26/26	8.1	204	DA-SD133-LOCDEPTHMAX	58	58	79	50	9	4.1	Yes	ASL
COPPER	26/26	9.1	58 J	DA-S-SD08-01	34.4	34.4	39	31.6	13	1.8	Yes	ASL
IRON	26/26	14000 --	51100	DA-SD125-00.5-LOCDEPTHMAX	28900	28900	32163	20000	21	2.6	Yes	ASL
LEAD	43/43	14	27200	DA-SD100-071207	1410	1410	8531	35.8	39	760	Yes	ASL
MAGNESIUM	26/26	1000	5340	DA-SD125-00.5-LOCDEPTHMAX	3000	3000	3358	NA	NA	NA	No	NUT
MANGANESE	26/26	137	2800	DA-S-SD07-01	872	872	1164	460	18	6.1	Yes	ASL
MERCURY	25/26	0.02 --	0.33 J	DA-S-SD08-01	0.153	0.159	0.18	0.18	9	1.8	Yes	ASL
MOLYBDENUM	25/26	0.44 --	8.8	DA-S-SD09-01	3.2	3.33	4.0	NA	NA	NA	Yes	NSL
NICKEL	26/26	11	40.9	DA-SD125-00.5-LOCDEPTHMAX	23.9	23.9	26	22.7	14	1.8	Yes	ASL
POTASSIUM	25/26	150 --	1540 J	DA-SD125-00.5-LOCDEPTHMAX	578	600	746	NA	NA	NA	No	NUT
SELENIUM	2/26	0.48 J	0.92 J	DA-SD112-LOCDEPTHMAX	0.18	0.7	0.24	1	0	0.92	No	BSL
SILVER	21/26	0.16 J	4.8 J	DA-S-SD03-01	1.1	1.34	1.6	0.5	17	9.6	Yes	ASL
SODIUM	14/26	64.3 J	289	DA-SD-117-082108	100	152	135	NA	NA	NA	No	NUT
VANADIUM	26/26	12	54.1	DA-SD125-00.5-LOCDEPTHMAX	28	28	32	57	0	0.95	No	BSL
ZINC	26/26	36	276	DA-SD121-LOCDEPTHMAX	138	138	160	121	16	2.3	Yes	ASL
Acid Volatile Sulfides / Simultaneously Extracted Metals (umo/g)												
ACID VOLATILE SULFIDE	4/5	0.973 J	23.9 J	DA-S-SD09-01	6.02	7.52	145	NA	NA	NA	NA	NA
CADMIUM	1/9	0.012	0.012	DA-S-SD06-01	0.0043	0.012	0.007	NA	NA	NA	NA	NA
CHROMIUM	9/9	0.03	0.182	DA-S-SD09-01	0.0915	0.0915	0.12	NA	NA	NA	NA	NA
COPPER	9/9	0.075	0.521	DA-S-SD09-01	0.342	0.342	0.43	NA	NA	NA	NA	NA
LEAD	9/9	0.065	3.48	DA-S-SD06-01	1.49	1.49	2.28	NA	NA	NA	NA	NA
MERCURY	2/9	0.0058	0.0082	DA-SD-01-LOCDEPTHMAX	0.0051	0.007	0.006	NA	NA	NA	NA	NA
NICKEL	9/9	0.054	0.188	DA-S-SD09-01	0.128	0.128	0.15	NA	NA	NA	NA	NA
TOTAL SEM-AVS	9/9	-20.118	5.539	DA-S-SD06-01	0.0828	0.0828	4.01	NA	NA	NA	NA	NA
ZINC	9/9	0.246	2.15	DA-S-SD07-01	1.36	1.36	1.80	NA	NA	NA	NA	NA

SEDIMENT ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 3 OF 3

Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
Miscellaneous Parameters												
PERCENT CLAY (%)	21/21	0.6	23.4	DA-SD125-00.5-LOCDEPTHMAX	9.17	9.17	NA	NA	NA	NA	NA	NA
PERCENT COARSE SAND (%)	13/13	0 --	13	DA-SD110-LOCDEPTHMAX	5.71	5.71	NA	NA	NA	NA	NA	NA
PERCENT COARSE SILT (%)	9/9	5.7	24	DA-S-SD06-01	14.8	14.8	NA	NA	NA	NA	NA	NA
PERCENT FINE SAND (%)	13/13	0.3	35.4	DA-SD111-LOCDEPTHMAX	14.1	14.1	NA	NA	NA	NA	NA	NA
PERCENT FINE SILT (%)	9/9	4.8	27	DA-S-SD09-01	12.2	12.2	NA	NA	NA	NA	NA	NA
PERCENT GRAVEL (%)	13/13	0 --	85.8	DA-SD108-LOCDEPTHMAX	20.7	20.7	NA	NA	NA	NA	NA	NA
PERCENT MEDIUM SAND (%)	13/13	0.1	33.4	DA-SD107-LOCDEPTHMAX	12.1	12.1	NA	NA	NA	NA	NA	NA
PERCENT MEDIUM SILT (%)	9/9	10	38 --	2 max samples	22.1	22.1	NA	NA	NA	NA	NA	NA
PERCENT SAND (%)	9/9	15	68	DA-S-SD04-01	44.6	44.6	NA	NA	NA	NA	NA	NA
PERCENT SILT (%)	13/13	2.7	79.7	DA-SD121-LOCDEPTHMAX	36.5	36.5	NA	NA	NA	NA	NA	NA
PH (S.U.)	13/13	6.5	7.2 --	2 max samples	6.92	6.92	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	21/21	3700	96000	DA-SD110-LOCDEPTHMAX	37000	37000	NA	NA	NA	NA	NA	NA
TOTAL SOLIDS (%)	38/38	20	84	DA-SD108-LOCDEPTHMAX	54.4	54.4	NA	NA	NA	NA	NA	NA

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TOTAL AROCLOR = Sum of positive detections of individual Aroclors.

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SURFACE SOIL ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
Volatile Organics (µg/kg)												
1,2,4-TRIMETHYLBENZENE	4/74	1 J	1600	DA-S-TP01-0001-01	27.7	401	164	NA	NA	NA	Yes	NSL
1,3,5-TRIMETHYLBENZENE	1/74	860 J	860 J	DA-S-TP01-0001-01	17.7	860	94	NA	NA	NA	Yes	NSL
2-BUTANONE	3/74	2.8 J	12 J	DA-MW118B-LOCDEPTHMAX	23	6.93	79	NA	NA	NA	Yes	NSL
4-ISOPROPYLTOLUENE	5/74	8	290	DA-S-SB03-0102-01	10.7	129	44	NA	NA	NA	Yes	NSL
ACETONE	48/74	9.9	7900 J	DA-SB145-LOCDEPTHMAX	319	366	1024	NA	NA	NA	Yes	NSL
BENZENE	1/74	2 J	2 J	DA-B106B-0002	3.72	2	11	25000	0	0.0001	No	BSL
BTEX	4/74	0.79	580	DA-S-TP01-0001-01	11.2	147	60	NA	NA	NA	No	NSL*
M+P-XYLENES	3/74	0.79 J	350	DA-S-TP01-0001-01	9.79	117	39	65000	0	0.01	No	BSL
METHYLENE CHLORIDE	1/74	3 J	3 J	DA-SB141-LOCDEPTHMAX	20.1	3	55	400	0	0.01	No	BSL
N-BUTYLBENZENE	2/74	190	260	DA-S-TP01-0001-01	8.19	225	35	NA	NA	NA	Yes	NSL
N-PROPYLBENZENE	2/74	2 J	300	DA-S-TP01-0001-01	6.97	151	33	NA	NA	NA	Yes	NSL
O-XYLENE	1/74	230	230	DA-S-TP01-0001-01	6.05	230	26	65000	0	0.004	No	BSL
SEC-BUTYLBENZENE	1/74	6 J	6 J	DA-SS-B124B-0103-072108	4.05	6	12	NA	NA	NA	Yes	NSL
TOLUENE	1/74	4 J	4 J	DA-B106B-0002	4.15	4	13	75000	0	0.0001	No	BSL
TOTAL CHLORINATED ETHENES	3/74	4 J	8.5 J	DA-SB135-LOCDEPTHMAX	4.66	5.83	13	NA	NA	NA	No	NSL*
TOTAL CHLORINATED VOCS	4/74	3 J	8.5 J	DA-SB135-LOCDEPTHMAX	6.23	5.12	23	NA	NA	NA	No	NSL*
TOTAL XYLENES	3/74	0.79	580	DA-S-TP01-0001-01	11.9	194	61	65000	0	0.01	No	BSL
TRICHLOROETHENE	3/74	4 J	8.5 J	DA-SB135-LOCDEPTHMAX	3.91	5.83	11	50	0	0.170	No	BSL
Semivolatile Organics (µg/kg)												
1,1-BIPHENYL	1/55	660	660	DA-SB127-LOCDEPTHMAX	210	660	226	60000	0	0.01	No	BSL
2-METHYLNAPHTHALENE	40/74	3 J	2400 J	DA-SB127-LOCDEPTHMAX	92.5	104	300	29000	0	0.08	No	BSL
3,3'-DICHLOROBENZIDINE	1/73	110 J	110 J	DA-S-TP12-0001-01	207	110	367	NA	NA	NA	Yes	NSL
ACENAPHTHENE	57/74	2.4 J	9500	DA-SB127-LOCDEPTHMAX	293	364	432	29000	0	0.33	No	BSL
ACENAPHTHYLENE	39/74	2.05 J	290 J	DA-S-TP12A-0001-01	29.7	19.9	69	29000	0	0.01	No	BSL
ANTHRACENE	62/74	3.6 J	13000	DA-SB127-LOCDEPTHMAX	562	663	1784	29000	0	0.45	No	BSL
BENZO(A)ANTHRACENE	67/74	15 J	20000	DA-SB127-LOCDEPTHMAX	1220	1340	2430	1100	17	18	Yes	ASL
BENZO(A)PYRENE	64/74	18 J	17000	DA-SB127-LOCDEPTHMAX	883	1010	2472	1100	12	15	Yes	ASL
BENZO(B)FLUORANTHENE	64/74	24.5	15000	DA-SB127-LOCDEPTHMAX	981	1120	1708	1100	15	14	Yes	ASL
BENZO(G,H,I)PERYLENE	62/74	12 J	7400 J	DA-SB127-LOCDEPTHMAX	451	523	1193	1100	6	6.7	Yes	ASL
BENZO(K)FLUORANTHENE	65/74	13 J	12000	DA-SB127-LOCDEPTHMAX	726	817	1905	1100	10	11	Yes	ASL
BENZOIC ACID	10/73	520 J	5900 J	DA-S-TP09-0001-01	657	1740	1057	NA	NA	NA	Yes	NSL
BIS(2-ETHYLHEXYL)PHTHALATE	13/73	280 J	4500 J	DA-SB145-LOCDEPTHMAX	343	1080	698	100	13	45	Yes	ASL
BUTYL BENZYL PHTHALATE	1/73	270 J	270 J	DA-SB145-LOCDEPTHMAX	173	270	207	100	1	2.7	Yes	ASL
CARBAZOLE	15/73	160 J	7300	DA-SB127-LOCDEPTHMAX	357	1070	813	NA	NA	NA	Yes	NSL
CHRYSENE	67/74	13 J	17000	DA-SB127-LOCDEPTHMAX	1130	1240	2266	1100	18	15	Yes	ASL
DIBENZO(A,H)ANTHRACENE	48/74	5.4 J	3500	DA-SB127-LOCDEPTHMAX	185	244	510	1100	2	3.2	Yes	ASL
DIBENZOFURAN	6/73	200 J	4700	DA-SB127-LOCDEPTHMAX	255	1150	530	NA	NA	NA	Yes	NSL
FLUORANTHENE	67/74	22 J	45000	DA-SB127-LOCDEPTHMAX	2760	3040	7007	29000	1	1.6	Yes	ASL
FLUORENE	0	2.3 J	5900 J	DA-SB127-LOCDEPTHMAX	252	346	810	29000	0	0.20	No	BSL
HIGH MOLECULAR WEIGHT PAHS	67/74	66 J	193100 J	DA-SB127-LOCDEPTHMAX	11100	12300	37362	NA	NA	NA	Yes	NSL
INDENO(1,2,3-CD)PYRENE	61/74	15 --	9200	DA-SB127-LOCDEPTHMAX	517	599	1386	1100	8	8.4	Yes	ASL
LOW MOLECULAR WEIGHT PAHS	68/74	18.9 J	89800 J	DA-SB127-LOCDEPTHMAX	3560	3870	9339	NA	NA	NA	Yes	NSL
N-NITROSODIPHENYLAMINE	1/73	400 J	400 J	DA-SB146-LOCDEPTHMAX	182	400	236	20000	0	0.02	No	BSL
NAPHTHALENE	45/74	2.3 --	11000	DA-SB127-LOCDEPTHMAX	237	380	1171	29000	0	0.38	No	BSL
PHENANTHRENE	67/74	12 J	48000 J	DA-SB127-LOCDEPTHMAX	2190	2420	6741	29000	1	1.7	Yes	ASL
PYRENE	67/74	16 J	50000	DA-SB127-LOCDEPTHMAX	2460	2710	6069	1100	26	45	Yes	ASL
TOTAL PAHS	68/74	91.6 J	282900 J	DA-SB127-LOCDEPTHMAX	14700	15900	55236	NA	NA	NA	No	NSL*
Pesticides/PCBs (µg/kg)												
4,4'-DDD	4/74	2.1 J	5.2 J	DA-SS149-011708	5.7	3.75	12	21	0	0.25	No	BSL
4,4'-DDE	31/74	1.1 J	216	DA-S-TP07-0001-01	7.09	11.2	20	21	2	10	Yes	ASL
4,4'-DDT	26/74	1.2 J	184 J	DA-S-TP01-0001-01	9.54	15.5	26	21	3	8.8	Yes	ASL
ALPHA-CHLORDANE	3/74	3.2 J	235	DA-S-TP07-0001-01	5.45	84.7	25	0.03	3	7833	Yes	ASL
AROCLOR-1254	2/74	152 J	5220 J	DA-S-TP07-0001-01	83.2	2690	390	1300	1	4.02	Yes	ASL
AROCLOR-1260	32/74	26 J	350 J	DA-SB145-LOCDEPTHMAX	57	119	110	1300	0	0.27	No	BSL
AROCLOR-1268	9/74	134	620	DA-MW110B-LOCDEPTHMAX	54.6	369	149	1300	0	0.48	No	BSL
DIELDRIN	3/74	1.3 J	23	DA-SS149-011708	3.55	9.47	6.1	4.9	1	4.7	Yes	ASL
ENDRIN	1/74	2.4 J	2.4 J	DA-SB143-LOCDEPTHMAX	3.48	2.4	6.1	0.04	1	60	Yes	ASL
GAMMA-CHLORDANE	2/74	3.2	10	DA-SS149-011708	2.15	6.6	3.9	0.03	2	333	Yes	ASL
HEPTACHLOR	2/74	1.2 J	1.7 J	DA-MW115B-LOCDEPTHMAX	2.26	1.45	4.3	0.7	2	2.4	Yes	ASL
TOTAL AROCLOR	34/74	26 J	5220 J	DA-S-TP07-0001-01	175	368	625	1300	1	4.02	Yes	ASL
TOTAL DDD/DDE/DDT	34/74	1.8 J	216	DA-S-TP07-0001-01	13.3	22.5	38	21	7	10.3	Yes	ASL

SURFACE SOIL ANALYTICAL SUMMARY AND COPC SELECTION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	95% UCL	Ecological Screening Level	Number of Samples Greater than Screening Level	Hazard Quotient[4]	Retained as a COPC (yes/no)?	COPC Rationale
Petroleum Hydrocarbons (µg/kg)												
DIESEL RANGE ORGANICS	11/18	11000	430000	DA-S-TP07-0001-01	68300	94800	NA	NA	NA	NA	Yes	NSL
Petroleum Hydrocarbons (mg/kg)												
GASOLINE RANGE ORGANICS	15/74	0.56 J	60	DA-SB122-LOCDEPTHMAX	10.5	3.58	NA	NA	NA	NA	Yes	NSL
EXTRACTABLE TPH (C09-C36)	65/73	11 --	1600	DA-SB127-LOCDEPTHMAX	97.4	106	NA	NA	NA	NA	Yes	NSL
Inorganics (mg/kg)												
ALUMINUM	72/72	1800	20700	DA-SS148-011708	11600	11600	12258	pH<5.5	48	NA	Yes	ASL[5]
ANTIMONY	5/72	0.19 J	5.5 J	DA-S-TP10-0001-01	0.222	1.74	0.6	0.27	4	20	Yes	ASL
ARSENIC	72/72	0.29	90	DA-S-TP13-0001-01	17.8	17.8	24	18	31	5.0	Yes	ASL
BARIUM	72/72	7.4	42.8	DA-SB145-LOCDEPTHMAX	23.7	23.7	25	330	0	0.13	No	BSL
BERYLLIUM	72/72	0.21 J	0.74 J	DA-SS148-011708	0.415	0.415	0.43	21	0	0.04	No	BSL
CADMIUM	38/72	0.09 --	11	DA-S-TP01-0001-01	0.708	1.3	3	0.36	30	31	Yes	ASL
CALCIUM	72/72	39	8940	DA-MW105B-LOCDEPTHMAX	1000	1000	1578	NA	NA	NA	No	NUT
CHROMIUM	72/72	1 J	64 J	DA-S-TP10-0001-01	16.4	16.4	21	26	5	2.5	Yes	ASL
COBALT	72/72	0.82 J	218	DA-SS149-011708	14.6	14.6	27	13	23	17	Yes	ASL
COPPER	71/72	6.7	560	DA-S-TP10-0001-01	32.3	32.7	66	28	13	20	Yes	ASL
IRON	72/72	5270	43700	DA-SS149-011708	26000	26000	27471	5<pH<8	69	NA	No	BSL[5]
LEAD	72/72	4.2	2870	DA-SS149-011708	73.8	73.8	54	11	64	261	Yes	ASL
MAGNESIUM	72/72	407	6240	DA-SB118-0002	2920	2920	3101	NA	NA	NA	No	NUT
MANGANESE	72/72	79.8 J	2020	DA-SS149-011708	387	387	439	220	64	9.2	Yes	ASL
MERCURY	67/72	0.00821 J	2	DA-SB133-LOCDEPTHMAX	0.0764	0.0817	0.20	0.1	8	20	Yes	ASL
MOLYBDENUM	46/72	0.22 J	7.6	DA-SS149-011708	0.56	0.777	0.63	2	2	3.8	Yes	ASL
NICKEL	72/72	0.98 J	38.5	DA-SB118-0002	21.1	21.1	22	38	1	1.0	Yes	ASL
POTASSIUM	72/72	125	886	DA-SB109-LOCDEPTHMAX	436	436	533	NA	NA	NA	No	NUT
SELENIUM	8/72	0.19 J	0.67 J	DA-SB131-LOCDEPTHMAX	0.173	0.471	0.25	0.52	3	1.3	Yes	ASL
SILVER	21/72	0.16 J	2 --	2 max samples	0.282	0.801	0.61	4.2	0	0.48	No	BSL
SODIUM	37/72	30 J	306	DA-SB146-LOCDEPTHMAX	38.9	59.5	44	NA	NA	NA	No	NUT
THALLIUM	1/72	0.3 J	0.3 J	DA-S-SB03-0102-01	0.122	0.3	0.25	1	0	0.30	No	BSL
VANADIUM	72/72	1.5 J	47.2	DA-SB139-LOCDEPTHMAX	20.9	20.9	22	7.8	71	6.1	Yes	ASL
ZINC	72/72	13.8	663	DA-SB122-LOCDEPTHMAX	86.7	86.7	132	46	59	14.4	Yes	ASL
Miscellaneous Parameters												
PERCENT CLAY (%)	9/9	5.5	10.8	DA-SB134-LOCDEPTHMAX	7.76	7.76	NA	NA	NA	NA	NA	NA
PERCENT COARSE SAND (%)	9/9	5.7	16.2	DA-SB108-LOCDEPTHMAX	10.4	10.4	NA	NA	NA	NA	NA	NA
PERCENT FINE SAND (%)	9/9	14.8	23.3	DA-MW103B-LOCDEPTHMAX	18	18	NA	NA	NA	NA	NA	NA
PERCENT GRAVEL (%)	9/9	10.6	34.7	DA-SB133-LOCDEPTHMAX	23.7	23.7	NA	NA	NA	NA	NA	NA
PERCENT MEDIUM SAND (%)	9/9	11	19.4	DA-MW105B-LOCDEPTHMAX	14.6	14.6	NA	NA	NA	NA	NA	NA
PERCENT SILT (%)	9/9	13.8	45.1	DA-SB134-LOCDEPTHMAX	25.5	25.5	NA	NA	NA	NA	NA	NA
PH (S.U.)	9/9	5.1 --	5.6	DA-SB130-LOCDEPTHMAX	5.35	5.35	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	9/9	4900	76000	DA-SB133-LOCDEPTHMAX	28900	28900	NA	NA	NA	NA	NA	NA
TOTAL SOLIDS	70/70	72	96 --	2 max samples	86.7	86.7	NA	NA	NA	NA	NA	NA

1 - Sample and duplicate are considered as one sample when determining the minimum and maximum concentrations detected concentrations and frequency of detection.
2 - Average of all analytical results are calculated using half of the detection limit for nondetects.
3 - Average of positive analytical results only.
4 - The hazard quotient is the maximum detected concentration divided by the screening level.
5 - Eco SSL is based on the soil pH. The average soil pH is 5.35 for aluminum is selected as a COPC while iron is eliminated as a COPC.
COPC = Chemical of Potenial Concern
NA = Not Available or Not Applicable.
TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
TOTAL AROCLOR = Sum of positive detections of individual Aroclors.

Rationale Codes:
For Selection as a COPC or for Further Evaluation:
ASL = Above COPC Screening Level
BSL = Below COPC Screening Level
NSL = No Screening Level Available
NSL* = No screening level, but risks are accounted for by individual constituents.
NUT = Essential Nutrient

TERRESTRIAL FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
SOIL INSECTIVOROUS RECEPTORS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical	Soil Insectivorous Receptors Hazard Quotients			
	American Robin		Short-Tailed Shrew	
	NOAEL	LOAEL	NOAEL	LOAEL
Volatile Organics				
1,2,4-TRIMETHYLBENZENE	NV	NV	NV	NV
1,3,5-TRIMETHYLBENZENE	NV	NV	NV	NV
2-BUTANONE	NV	NV	2.2E-08	8.4E-09
4-ISOPROPYLTOLUENE	NV	NV	NV	NV
ACETONE	1.0E-02	1.0E-03	2.7E-03	5.5E-04
BENZENE	NV	NV	2.4E-07	2.4E-08
M+P-XYLENES	8.7E-05	8.7E-06	5.4E-04	4.3E-04
METHYLENE CHLORIDE	NV	NV	1.6E-06	1.9E-07
N-BUTYLBENZENE	NV	NV	NV	NV
N-PROPYLBENZENE	NV	NV	NV	NV
O-XYLENE	5.7E-05	5.7E-06	3.6E-04	2.9E-04
SEC-BUTYLBENZENE	NV	NV	NV	NV
TOLUENE	NV	NV	4.9E-06	4.9E-07
TOTAL XYLENES	1.4E-04	1.4E-05	9.0E-04	7.2E-04
TRICHLOROETHENE	NV	NV	4.5E-04	4.5E-05
Semivolatile Organics				
1,1-BIPHENYL	NV	NV	1.5E-02	1.5E-03
2-METHYLNAPHTHALENE	1.9E-01	1.9E-02	3.2E-03	5.9E-04
3,3'-DICHLOROBENZIDINE	NV	NV	NV	NV
ACENAPHTHENE	5.2E-01	5.2E-02	8.4E-03	1.5E-03
ACENAPHTHYLENE	1.9E-01	1.9E-02	3.8E-03	6.9E-04
ANTHRACENE	1.0E+00	1.0E-01	1.8E-02	3.4E-03
BENZO(A)ANTHRACENE	1.2E+00	1.2E-01	2.0E+00	3.2E-02
BENZO(A)PYRENE	8.6E-01	8.6E-02	1.4E+00	2.3E-02
BENZO(B)FLUORANTHENE	1.3E+00	1.3E-01	2.4E+00	3.9E-02
BENZO(G,H,I)PERYLENE	7.1E-01	7.1E-02	1.3E+00	2.2E-02
BENZO(K)FLUORANTHENE	1.0E+00	1.0E-01	1.9E+00	3.1E-02
BENZOIC ACID	NV	NV	NV	NV
BIS(2-ETHYLHEXYL)PHTHALATE	7.6E-01	7.6E-02	2.7E-02	2.7E-03
BUTYL BENZYL PHTHALATE	NV	NV	1.9E-03	6.3E-04
CARBAZOLE	6.9E-01	6.9E-02	1.3E+00	2.1E-02
CHRYSENE	1.3E+00	1.3E-01	2.4E+00	3.9E-02
DIBENZO(A,H)ANTHRACENE	2.7E-01	2.7E-02	5.0E-01	8.1E-03
DIBENZOFURAN	4.4E-01	4.4E-02	8.4E-01	1.3E-02
FLUORANTHENE	4.4E+00	4.4E-01	7.9E-02	1.5E-02
FLUORENE	1.7E+00	1.7E-01	3.2E-02	5.9E-03
INDENO(1,2,3-CD)PYRENE	8.6E-01	8.6E-02	1.6E+00	2.6E-02
N-NITROSODIPHENYLAMINE	NV	NV	NV	NV
NAPHTHALENE	1.5E+00	1.5E-01	2.8E-02	5.1E-03
PHENANTHRENE	2.9E+00	2.9E-01	4.9E-02	9.0E-03
PYRENE	3.1E+00	3.1E-01	5.5E+00	8.8E-02
Pesticides/PCBs				
4,4'-DDD	6.1E-04	4.9E-04	1.1E-04	6.1E-05
4,4'-DDE	6.0E-02	4.9E-02	4.1E-02	2.2E-02
4,4'-DDT	2.1E-02	1.7E-02	4.0E-03	2.2E-03
ALPHA-CHLORDANE	3.3E-03	6.7E-04	3.0E-04	1.5E-04
AROCLOR-1254	9.9E-01	9.9E-02	6.3E-01	6.3E-02
AROCLOR-1260	7.1E-01	7.1E-02	1.2E+00	1.2E-01
AROCLOR-1268	2.7E-01	2.7E-02	3.5E-01	3.5E-02
DIELDRIN	7.4E-02	6.6E-03	2.1E-01	2.5E-03
ENDRIN	6.1E-03	6.1E-04	8.3E-05	8.3E-06
GAMMA-CHLORDANE	1.2E-04	2.5E-05	7.0E-06	3.5E-06
HEPTACHLOR	NV	NV	5.4E-05	5.4E-06
TOTAL AROCLOR	1.4E+00	1.4E-01	1.4E+00	1.4E-01

TERRESTRIAL FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
SOIL INSECTIVOROUS RECEPTORS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Soil Insectivorous Receptors Hazard Quotients			
	American Robin		Short-Tailed Shrew	
	NOAEL	LOAEL	NOAEL	LOAEL
TOTAL DDD/DDE/DDT	6.0E-02	4.9E-02	4.1E-02	2.2E-02
Inorganics				
ALUMINUM	3.3E+01	3.3E+00	1.1E+03	1.1E+02
ANTIMONY	NV	NV	1.5E+00	3.2E-02
ARSENIC	4.0E+00	2.0E+00	4.5E+00	1.0E+00
BARIUM	8.8E-01	4.4E-01	2.2E-01	1.4E-01
BERYLLIUM	NV	NV	1.8E-01	1.4E-01
CADMIUM	9.2E+01	2.1E+01	1.2E+02	1.3E+01
CHROMIUM	1.9E+01	3.2E+00	1.3E+01	5.6E-01
COBALT	1.4E+00	5.8E-01	5.4E-01	2.1E-01
COPPER	6.1E+00	7.1E-01	1.4E+00	1.0E-01
IRON	9.8E+01	9.8E+00	1.2E+02	1.2E+01
LEAD	1.3E+02	4.9E+00	2.2E+01	5.5E-01
MANGANESE	1.0E+00	4.8E-01	1.7E+00	6.2E-01
MERCURY	5.8E+01	5.8E+00	6.7E+00	1.3E+00
MOLYBDENUM	NV	NV	NV	NV
NICKEL	4.3E+00	1.5E+00	1.1E+01	1.2E+00
SELENIUM	8.6E+00	4.3E+00	1.1E+01	6.8E+00
SILVER	1.5E-01	5.1E-03	2.9E-02	1.5E-03
THALLIUM	NV	NV	2.7E-01	2.7E-02
VANADIUM	2.2E+01	4.5E+00	1.0E+00	5.6E-01
ZINC	4.8E+00	1.8E+00	2.6E+00	6.7E-01

Cells are shaded if the hazard quotient is greater than 1.0
NV - No value could be calculated because toxicity data were not available
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level

TERRESTRIAL FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
PISCIVOROUS RECEPTORS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 2

Chemical	Piscivorous Receptor Hazard Quotients			
	Great Blue Heron		Mink	
	NOAEL	LOAEL	NOAEL	LOAEL
Volatile Organics				
1,1,1-TRICHLOROETHANE	NV	NV	5.8E-07	5.8E-08
1,1-DICHLOROETHANE	NV	NV	7.5E-07	7.5E-08
1,2,4-TRICHLOROBENZENE	NV	NV	4.3E-05	4.3E-06
2-BUTANONE	NV	NV	1.1E-06	4.3E-07
4-ISOPROPYLTOLUENE	NV	NV	NV	NV
ACETONE	8.2E-05	8.2E-06	9.2E-04	1.8E-04
CARBON DISULFIDE	NV	NV	4.5E-06	2.2E-06
CHLOROETHANE	NV	NV	NV	NV
CIS-1,2-DICHLOROETHENE	NV	NV	4.6E-06	4.6E-07
DICHLORODIFLUOROMETHANE	NV	NV	3.0E-07	3.0E-08
M+P-XYLENES	3.6E-08	3.6E-09	1.1E-05	8.8E-06
TETRACHLOROETHENE	NV	NV	2.4E-04	4.9E-05
TOLUENE	NV	NV	1.9E-05	1.9E-06
TOTAL 1,2-DICHLOROETHENE	NV	NV	4.6E-06	4.6E-07
TOTAL XYLENES	3.6E-08	3.6E-09	1.1E-05	8.8E-06
TRICHLOROETHENE	NV	NV	8.9E-04	8.9E-05
Semivolatile Organics				
2-METHYLNAPHTHALENE	1.7E-04	1.7E-05	3.2E-05	5.8E-06
ACENAPHTHENE	8.7E-04	8.7E-05	1.6E-04	2.9E-05
ACENAPHTHYLENE	2.1E-05	2.1E-06	3.8E-06	7.0E-07
ANTHRACENE	1.7E-03	1.7E-04	3.2E-04	5.8E-05
BENZO(A)ANTHRACENE	3.0E-03	3.0E-04	5.7E-02	9.2E-04
BENZO(A)PYRENE	2.3E-03	2.3E-04	4.4E-02	7.0E-04
BENZO(B)FLUORANTHENE	2.0E-03	2.0E-04	3.9E-02	6.2E-04
BENZO(G,H,I)PERYLENE	1.6E-03	1.6E-04	3.2E-02	5.1E-04
BENZO(K)FLUORANTHENE	2.0E-03	2.0E-04	3.9E-02	6.2E-04
BENZOIC ACID	NV	NV	NV	NV
BENZYL ALCOHOL	NV	NV	NV	NV
BIS(2-ETHYLHEXYL)PHTHALATE	3.8E-03	3.8E-04	1.4E-03	1.4E-04
CARBAZOLE	1.1E-03	1.1E-04	2.2E-02	3.5E-04
CHRYSENE	2.9E-03	2.9E-04	5.6E-02	8.9E-04
DI-N-BUTYL PHTHALATE	NV	NV	1.9E-06	5.7E-07
DIBENZO(A,H)ANTHRACENE	5.6E-04	5.6E-05	1.1E-02	1.7E-04
DIBENZOFURAN	5.0E-04	5.0E-05	9.8E-03	1.6E-04
DIETHYL PHTHALATE	NV	NV	4.5E-06	4.5E-07
FLUORANTHENE	7.4E-03	7.4E-04	1.3E-03	2.5E-04
FLUORENE	1.1E-03	1.1E-04	2.1E-04	3.8E-05
INDENO(1,2,3-CD)PYRENE	1.5E-03	1.5E-04	2.9E-02	4.6E-04
NAPHTHALENE	1.7E-04	1.7E-05	3.2E-05	5.8E-06
PHENANTHRENE	6.9E-03	6.9E-04	1.3E-03	2.3E-04
PYRENE	6.1E-03	6.1E-04	1.2E-01	1.9E-03

TERRESTRIAL FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
PISCIVOROUS RECEPTORS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Piscivorous Receptor Hazard Quotients			
	Great Blue Heron		Mink	
	NOAEL	LOAEL	NOAEL	LOAEL
Pesticides/PCBs				
4,4'-DDD	5.1E-02	4.1E-02	1.7E-01	9.3E-02
4,4'-DDE	6.9E-01	5.6E-01	2.3E+00	1.2E+00
4,4'-DDT	5.9E-04	4.8E-04	5.5E-03	2.9E-03
ALPHA-CHLORDANE	2.0E-03	4.0E-04	2.2E-03	1.1E-03
AROCLOR-1260	4.1E-01	4.1E-02	2.3E+00	2.3E-01
AROCLOR-1268	2.4E-02	2.4E-03	3.8E-01	3.8E-02
DIELDRIN	1.1E-01	1.0E-02	1.2E+00	1.4E-02
GAMMA-CHLORDANE	9.8E-04	2.0E-04	1.1E-03	5.7E-04
TOTAL AROCLOR	1.0E+00	1.0E-01	6.0E+00	6.0E-01
TOTAL DDD/DDE/DDT	7.4E-01	6.0E-01	2.4E+00	1.3E+00
Inorganics				
ALUMINUM	7.2E-01	7.2E-02	2.0E+02	2.0E+01
ARSENIC	5.5E-02	2.7E-02	4.1E-01	9.4E-02
BARIUM	4.6E-02	2.3E-02	5.3E-02	3.3E-02
BERYLLIUM	NV	NV	2.1E-02	1.7E-02
CADMIUM	1.5E-02	3.5E-03	8.2E-02	9.1E-03
CHROMIUM	2.7E-01	4.6E-02	7.3E-01	3.0E-02
COBALT	6.3E-02	2.6E-02	3.2E-01	1.3E-01
COPPER	7.1E-02	8.3E-03	1.7E-01	1.2E-02
IRON	1.6E+00	1.6E-01	1.4E+01	1.4E+00
LEAD	2.9E+01	1.1E+00	6.0E+01	1.5E+00
MANGANESE	2.3E-01	1.1E-01	2.0E+00	7.2E-01
MERCURY	1.3E+00	1.3E-01	6.1E-01	1.2E-01
MOLYBDENUM	NV	NV	NV	NV
NICKEL	8.3E-02	3.0E-02	8.5E-01	9.7E-02
SELENIUM	3.3E-01	1.6E-01	1.4E+00	8.5E-01
SILVER	4.1E-03	1.4E-04	8.3E-03	4.2E-04
VANADIUM	4.3E-01	8.7E-02	1.6E-01	8.7E-02
ZINC	1.3E-01	4.8E-02	2.5E-01	6.5E-02

Cells are shaded if the value is greater than 1.0
NV - No value could be calculated because toxicity data were not available
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level

SUMMARY OF ECOLOGICAL COPCS IN EACH MEDIA AFTER THE SCREENING STEP
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 2

Parameter	Surface Soil		Surface Water[1]	Sediment	
	Screening Table[1]	Food Chain[2]		Screening Table[1]	Food Chain[3]
VOLATILES					
1,2,4-TRIMETHYLBENZENE	X				
1,3,5-TRIMETHYLBENZENE	X				
2-BUTANONE	X				
4-ISOPROPYLTOLUENE	X			X	
ACETONE	X			X	
CARBON DISULFIDE				X	
CHLOROETHANE				X	
DICHLORODIFLUOROMETHANE				X	
N-BUTYLBENZENE	X				
N-PROPYLBENZENE	X				
SEC-BUTYLBENZENE	X				
SEMIVOLATILES					
2-METHYLNAPHTHALENE				X	
3,3'-DICHLOROBENZIDINE	X				
ACENAPHTHENE				X	
ANTHRACENE		X		X	
BENZO(A)ANTHRACENE	X	X		X	
BENZO(A)PYRENE	X	X		X	
BENZO(B)FLUORANTHENE	X	X		X	
BENZO(G,H,I)PERYLENE	X	X		X	
BENZO(K)FLUORANTHENE	X	X		X	
BENZOIC ACID	X			X	
BENZYL ALCOHOL				X	
BIS(2-ETHYLHEXYL)PHTHALATE	X			X	
BUTYL BENZYL PHTHALATE	X				
CARBAZOLE	X	X		X	
CHRYSENE	X	X		X	
DIBENZO(A,H)ANTHRACENE	X	X		X	
DIBENZOFURAN	X				
DIETHYL PHTHALATE				X	
FLUORANTHENE	X	X		X	

SUMMARY OF ECOLOGICAL COPCS IN EACH MEDIA AFTER THE SCREENING STEP
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Surface Soil			Sediment	
Parameter	**Screening Table[1]**	**Food Chain[2]**	**Surface Water[1]**	**Screening Table[1]**	**Food Chain[3]**
FLUORENE		X		X	
INDENO(1,2,3-CD)PYRENE	X	X		X	
NAPHTHALENE		X		X	
PHENANTHRENE	X	X		X	
PYRENE	X	X		X	
LOW MOLECULAR WEIGHT PAHS	X			X	
HIGH MOLECULAR WEIGHT PAHS	X			X	
TOTAL PAHS				X	
PESTICIDES/PCBS					
4,4'-DDD				X	
4,4'-DDE	X		X	X	X
4,4'-DDT	X		X	X	
ALPHA-CHLORDANE	X			X	
AROCLOR-1260		X		X	X
AROCLOR-1268				X	
DIELDRIN	X			X	X
ENDRIN	X				
GAMMA-CHLORDANE	X			X	
HEPTACHLOR	X				
TOTAL AROCLOR		X		X	X
TOTAL DDD/DDE/DDT	X		X	X	X
METALS					
ALUMINUM	X	X	X	X	X
ANTIMONY	X	X			
ARSENIC	X	X		X	
BARIUM			X	X	
BERYLLIUM				X	
CADMIUM	X	X		X	
CHROMIUM	X	X			
COBALT	X	X		X	
COPPER	X	X	X	X	
IRON		X	X	X	X
LEAD	X	X	X	X	X
MANGANESE	X	X	X	X	X
MERCURY	X	X		X	X
MOLYBDENUM	X			X	
NICKEL	X	X		X	
SELENIUM	X	X			X
SILVER				X	
THALLIUM			X		
VANADIUM	X	X			
ZINC	X	X		X	
PETROLEUM HYDROCARBONS					
GASOLINE RANGE ORGANICS	X			X	
EXTRACTABLE TPH (C09-C36)	X			X	

1 - Includes all COPCs in the screening table regardless of the reason the chemical was selected as a COPC.
2 - Includes all COPCs for the robin or shrew.
3 - Includes all COPCs for the mink or heron.

X - Chemical retained as COPC

TABLE 7-12

PLANT AND INVERTEBRATE RISK EVALUATION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Frequency of Detection	Maximum Detected Concentration	Ecological Screening Level	Plant Evaluation		Invertebrate Evaluation		Concentration Greater than Background Concentration[2]
				Screening Level[1]	Maximum Concentration Greater than Screening Level	Screening Level[1]	Maximum Concentration Greater than Screening Level	
Volatile Organics (µg/kg)								
1,2,4-TRIMETHYLBENZENE	4/74	1600	NA	--	--	--	--	NA
1,3,5-TRIMETHYLBENZENE	1/74	860 J	NA	--	--	--	--	NA
2-BUTANONE	3/74	12 J	NA	--	--	--	--	NA
4-ISOPROPYLTOLUENE	5/74	290	NA	--	--	--	--	NA
ACETONE	48/74	7900 J	NA	--	--	--	--	NA
N-BUTYLBENZENE	2/74	260	NA	--	--	--	--	NA
N-PROPYLBENZENE	2/74	300	NA	--	--	--	--	NA
SEC-BUTYLBENZENE	1/74	6 J	NA	--	--	--	--	NA
Semivolatile Organics (µg/kg)								
3,3'-DICHLOROBENZIDINE	1/73	110 J	NA	--	--	--	--	NA
BENZO(A)ANTHRACENE	67/74	20000	1100	--	--	18000	**Yes**	Yes
BENZO(A)PYRENE	64/74	17000	1100	--	--	18000	No	Yes
BENZO(B)FLUORANTHENE	64/74	15000	1100	--	--	18000	No	Yes
BENZO(G,H,I)PERYLENE	62/74	7400 J	1100	--	--	18000	No	Yes
BENZO(K)FLUORANTHENE	65/74	12000	1100	--	--	18000	No	Yes
BENZOIC ACID	10/73	5900 J	NA	--	--	--	--	NA
BIS(2-ETHYLHEXYL)PHTHALATE	13/73	4500 J	100	--	--	--	--	Yes
BUTYL BENZYL PHTHALATE	1/73	270 J	100	--	--	--	--	NA
CARBAZOLE	15/73	7300	NA	--	--	--	--	NA
CHRYSENE	67/74	17000	1100	--	--	18000	No	Yes
DIBENZO(A,H)ANTHRACENE	48/74	3500	1100	--	--	18000	No	NA
DIBENZOFURAN	6/73	4700	NA	--	--	--	No	NA
FLUORANTHENE	67/74	45000	29000	--	--	29000	**Yes**	Yes
HIGH MOLECULAR WEIGHT PAHS	67/74	193100 J	NA	--	--	18000	**Yes**	Yes
INDENO(1,2,3-CD)PYRENE	61/74	9200	1100	--	--	18000	No	Yes
LOW MOLECULAR WEIGHT PAHS	68/74	89800 J	NA	--	--	29000	**Yes**	Yes
PHENANTHRENE	67/74	48000 J	29000	--	--	29000	**Yes**	Yes
PYRENE	67/74	50000	1100	--	--	18000	**Yes**	Yes
Pesticides/PCBs (µg/kg)								NA
4,4'-DDE	31/74	216	21	12000	No	12000	No	
4,4'-DDT	26/74	184 J	21	12000	No	12000	No	Yes
ALPHA-CHLORDANE	3/74	235	0.03	40000	No	--	--	NA
AROCLOR-1254	2/74	5220 J	1300	--	--	--	--	NA
DIELDRIN	3/74	23	4.9	--	--	--	--	NA
ENDRIN	1/74	2.4 J	0.04	--	--	--	--	NA
GAMMA-CHLORDANE	2/74	10	0.03	--	--	--	--	NA
HEPTACHLOR	2/74	1.7 J	0.7	--	--	--	--	NA
TOTAL AROCLOR	34/74	5220 J	1300	40000	No	--	--	NA
TOTAL DDD/DDE/DDT	34/74	216	21	12000	No	12000	No	NA
Petroleum Hydrocarbons (mg/kg)								
EXTRACTABLE PETROLEUM HYDROCARBONS	2/2	38	NA	--	--	--	--	NA
GASOLINE RANGE ORGANICS	15/74	60	NA	--	--	--	--	NA
EXTRACTABLE TPH (C09-C36)	52/53	1600	NA	--	--	--	--	NA
Inorganics (mg/kg)								
ALUMINUM	72/72	20700	pH<5.5	50	**Yes**	--	--	Yes
ANTIMONY	5/72	5.5 J	0.27	5	**Yes**	78	No	NA
ARSENIC	72/72	90	18	18	**Yes**	60	**Yes**	Yes
CADMIUM	38/72	11	0.36	32	No	140	No	Yes
CHROMIUM	72/72	64 J	26	64	No	64	No	Yes
COBALT	72/72	218	13	13	**Yes**	--	--	Yes
COPPER	71/72	560	28	70	**Yes**	80	**Yes**	Yes
LEAD	72/72	2870	11	120	**Yes**	1700	**Yes**	Yes
MANGANESE	72/72	2020	220	220	**Yes**	450	**Yes**	Yes
MERCURY	67/72	2	0.1	12	No	12	No	No
MOLYBDENUM	46/72	7.6	2	2	**Yes**	--	--	NA
NICKEL	72/72	38.5	38	38	**Yes**	280	No	Yes
SELENIUM	8/72	0.67 J	0.52	0.52	**Yes**	4.1	No	NA
VANADIUM	72/72	47.2	7.8	130	No	130	No	No
ZINC	72/72	663	46	160	**Yes**	120	**Yes**	Yes

Cells are shaded if the maximum detected concentration is greater than the screening level.
-- = Screening Level Not Available
TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
TOTAL AROCLOR = Sum of positive detections of individual Aroclors.

1 - Source of screening levels are:
a. USEPA Ecological Soil Screening Levels
b. Canadian Soil Quality Guidelines for Plants and Invertebrates
c. Oak Ridge National Laboratory Benchmarks for Plants or Earthworms (Efroymson et al., 1997a, b)

2 - Background comparison is presented in Appendix F.
- Yes = Chemical concentrations in site samples are greater than background concentrations.
- No = Chemical concentrations in site samples are not greater than background concentrations.
- NA = It cannot be determined whether chemical concentrations in site samples are greater than background concentrations.

TABLE 7-13

SUMMARY OF *EISENIA FETIDA* GROWTH AND SURVIVAL RESULTS AND SOIL PARAMETERS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sample Number	Mean Survival	Mean Weight (mg)[1]	Soil Parameters[2]					
			pH (S.U.)	Grain Size (%)				TOC (%)
				Gravel	Sand	Silt	Clay	
Laboratory Control Sample								
Lab Control	100.0%	587	NA	NA	NA	NA	NA	NA
Reference Sample								
DA-SS152-011608	92.5%	368	4.53	4.5	28.5	60.4	6.6	5.00
Site Samples								
DA-SS104-011508	87.5%	354	5.21	23.9	37.4	30.7	7.9	2.85
DA-SS133-011508	92.5%	377	7.42	34.7	40.2	18.7	6.4	3.66
DA-SS127-011508	80.0%	291	7.73	31.3	43.9	18.4	6.4	0.87
DA-SS130-011508	87.5%	383	6.10	23.1	41.0	26.2	9.6	3.40
DA-SS103B-011508	87.5%	376	5.99	15.1	47.7	28.8	8.4	1.85
DA-SS108-011508	80.0%	266	6.73	15.9	50.4	25.7	8.0	1.04
DA-SS110B-011508	80.0%	300	6.07	27.2	43.5	22.4	6.8	2.82
DA-SS134-011508	85.0%	279	4.73	10.6	33.5	45.1	10.8	4.61
DA-SS105B-011608	97.5%	235	7.80	31.2	49.6	13.8	5.5	2.68
DA-SS153-011608	87.5%	265	6.02	17.3	47.2	25.0	10.5	3.19

Appendix I.6 presents the toxicity test laboratory report.

(1) - Wet weight
(2) - pH and TOC results are from the toxicity test laboratory.
Grain size results are from the analytical laboratory.

TOC - Total Organic Content

TABLE 7-14

SUMMARY OF *EISENIA FETIDA* TOXICITY TEST DATA - STATISTICAL COMPARISONS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Survival		Growth	
Sample Number	Mean Site Survival	Statistically Different Compared to: Reference SS152	Mean Growth (mg/worm)[(1)]	Statistically Different Compared to: Reference SS152
Laboratory Control Sample				
Lab Control	100.0%	-	587	-
Reference Sample				
DA-SS152-011608	92.5%	-	368	-
Site Samples				
DA-SS104-011508	87.5%	NO	354	NO
DA-SS133-011508	92.5%	NO	377	NO
DA-SS127-011508	80.0%	**YES**	291	NO
DA-SS130-011508	87.5%	NO	383	NO
DA-SS103B-011508	87.5%	NO	376	NO
DA-SS108-011508	80.0%	NO	266	NO
DA-SS110B-011508	80.0%	NO	300	NO
DA-SS134-011508	85.0%	NO	279	NO
DA-SS105B-011608	97.5%	NO	235	**YES**
DA-SS153-011608	87.5%	NO	265	**YES**

Appendix I.6 presents the complete laboratory report.

(1) - Wet weight

TABLE 7-15

RISK CLASSIFICATIONS BASED ON *EISENIA FETIDA* TOXICITY TEST RESULTS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Eisenia fetida			
	Survival		Growth	
Sample Number	Mean Survival (%)	Risk	Mean Growth (mg)[1]	Risk
Laboratory Control Sample				
Lab Control	100.0%	NA	587	NA
Reference Sample				
DA-SS152-011608	92.5%	NA	368	NA
Site Samples				
DA-SS104-011508	87.5%	no unacceptable site-related survival risk[3]	354	no unacceptable site-related growth risk[5]
DA-SS133-011508	92.5%	no unacceptable site-related survival risk[3]	377	no unacceptable site-related growth risk[5]
DA-SS127-011508	80.0%	potentially unacceptable site-related survival risk[4]	291	no unacceptable site-related growth risk[5]
DA-SS130-011508	87.5%	no unacceptable site-related survival risk[3]	383	no unacceptable site-related growth risk[5]
DA-SS103B-011508	87.5%	no unacceptable site-related survival risk[3]	376	no unacceptable site-related growth risk[5]
DA-SS108-011508	80.0%	no unacceptable site-related survival risk[3]	266	no unacceptable site-related growth risk[5]
DA-SS110B-011508	80.0%	no unacceptable site-related survival risk[3]	300	no unacceptable site-related growth risk[5]
DA-SS134-011508	85.0%	no unacceptable site-related survival risk[3]	279	no unacceptable site-related growth risk[5]
DA-SS105B-011608	97.5%	no unacceptable site-related survival risk[3]	235	potentially unacceptable site-related growth risk[6]
DA-SS153-011608	87.5%	no unacceptable site-related survival risk[3]	265	potentially unacceptable site-related growth risk[6]

Appendix I.6 presents the complete laboratory report.

NA - Not applicable
1 - Dry weight
2 - Ash-free dry weight
3 - Mean survival in sample is not statistically different than the mean survival in the reference samples.
4 - Mean survival in sample is statistically different than the mean survival in the reference sample. This sample was reclassified "no unacceptable site-related risk" for reasons presented in Section 7.4.2.2.
5 - Mean growth in sample is not statistically different than the mean growth in the reference samples.
6 - Mean growth in sample is statistically different than the mean growth in the reference sample.

SUMMARY OF *EISENIA FETIDA* TOXICITY TEST PLOTS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Survival Endpoint: Negative Regression (yes/no)	Survival Endpoint: R^2 Value	Growth Endpoint: Negative Regression (yes/no)	Growth Endpoint: R^2 Value	Location with Max. Conc.	Maximum Conc. in Sample	Comments
Inorganics (mg/kg)							
Aluminum	No	0.1555	No	0.0595	SB134	16900	
Arsenic	No	0.1287	Yes	0.0513	SB153	31.6	
Cobalt	No	0.1187	No	0.026	MW103B	27.7	
Copper	No	0.073	Yes	0.0787	SB133	41.2	
Iron	No	0.1718	Yes	0.0005	SB134	32100	
Lead	No	0.085	No	0.0009	MW103B	61.4	
Manganese	Yes	0.0215	Yes	0.1078	MW105B	416	Not significant. Manganese at MW105B (416 mg/kg) was only 7 mg/kg greater than non-toxic location (MW103B) and is lower than Eco SSL for invertebrates (450 mg/kg).
Molybdenum	No	0.1903	Yes	0.007	SB133	0.7	
Zinc	No	0.3294	Yes	0.0492	MW105B	152	Unlikely source of toxicity. Zinc at MW105B (152 mg/kg) was just slightly greater than Eco SSIL for invertebrates of 120 mg/kg and no dose-response relationship was observed.
Organics (ug/kg)							
Total DDx	Yes	0.0045	No	0.026	SB110B	24.6	
Total PCBs	Yes	0.0293	No	0.0543	SB110B	840	
LMW PAHs	Yes	0.1689	Yes	0.0226	SB127	89800	PAH concentration at SB127 was much greater than PAH concentration in other samples. Plots generated with and without sample from that location.
HMW PAHs	Yes	0.1612	Yes	0.0201	SB127	193100	
Total PAHs	Yes	0.1637	Yes	0.0209	SB127	282900	
Normalized Organics (ug/kg/TOC)							
Total DDx (normalized)	Yes	0.1886	No	0.0007	SB110B	8.2	
Total PCBs (normalized)	Yes	0.0396	No	0.0613	MW103B	389.5	
LMW PAHs (normalized)	Yes	0.1707	Yes	0.0252	SB127	10813	PAH concentration at SB127 was much greater than PAH concentration in other samples. Plots generated with and without sample from that location.
HMW PAHs (normalized)	Yes	0.1704	Yes	0.0246	SB127	232651	
Total PAHs (normalized)	Yes	0.1705	Yes	0.0248	SB127	340843	
Petroleum Hydrocarbons (mg/kg)							
EXTRACTABLE TPH (C0	Yes	0.1513	Yes	0.0307	SB127	1600	

SUMMARY OF SOIL INVERTEBRATE EVALUATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	NOEC[1]	Invertebrate Screening Level[2]
Inorganics (mg/kg)		
Aluminum	**16900[3]**	pH
Arsenic	31.6	**60[5]**
Cobalt	**27.7**	--
Copper	41.2	**80**
Iron	[4]	pH
Lead	61.4	**1700**
Manganese	416	**450**
Molybdenum	0.7	NA
Zinc	**152**	120
Organics (ug/kg)		
Total DDx	24.6	**12000[6]**
Total PCBs	840	**40000[6]**
LMW PAHs	**89800**	29000
HMW PAHs	**193100**	18000
Total PAHs	**282900**	NA
Petroleum Hydrocarbons (mg/kg)		
EXTRACTABLE TPH (C09-C36)	**1600**	NA

1 - No Observed Effects Concentration (NOEC) is the maximum concentration in the samples selected for toxicity testing (see Table 7-16).
2 - Source of Screening level is USEPA Ecological Soil Screening Level unless otherwise noted.
3 - Because the pH of the soil is lower than 5.5 S.U., aluminum may be bioavailable (see Table 7-8). Therefore, a NOEC was developed for aluminum.
4 - Because the pH of the soil is greater than 5.0 S.U., iron is not likely to be bioavailable (see Table 7-8). Therefore, a NOEC was not developed for iron.
5 - Oak Ridge National Laboratory Invertebrate Benchmark (Efroymson et al., 1997a).
6 - Canadian Soil Quality Guideline for plants and invertebrates (EC, 1999)

Shaded cells are the greater of the NOEC or invertebrate screening level

SEDIMENT RISK EVALUATION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 2

	Site Samples			Reference Pond/Stream			NUSC Sediment Background		
Parameter	Frequency of Detection	Maximum Detected Concentration	Average Concentration	Maximum Detected Concentration	Average Concentration	Site Concentration> Reference Concentration?	Maximum Detected Concentration	Average Concentration	Site Concentration> Background Concentration?
Volatile Organics (µg/kg)									
4-ISOPROPYLTOLUENE	2/26	18	8.12	4.0	5.9	Yes	NZ	NZ	NA
ACETONE	15/26	740	99.2	1400	481	**No**	NZ	NZ	NA
CARBON DISULFIDE	2/26	5.5	7.48	10	4.9	**No**	NZ	NZ	NA
CHLOROETHANE	1/26	1.6	15.1	NZ	NZ	NA	NZ	NZ	NA
DICHLORODIFLUOROMETHANE	6/26	66	20.2	NZ	NZ	NA	NZ	NZ	NA
Semivolatile Organics (µg/kg)									
2-METHYLNAPHTHALENE	12/26	200	75.2	10	16.5	Yes	40	15.4	Yes
ACENAPHTHENE	17/26	1000	97.6	14	18.3	Yes	130	37.5	Yes
ANTHRACENE	19/26	2000	211	130	54.4	Yes	680	153	Yes
BENZO(A)ANTHRACENE	23/26	3400	579	710	312	Yes	1900	785	**Yes/No[(1)]**
BENZO(A)PYRENE	22/26	2600	575	690	316	Yes	2500	994	**Yes/No[(1)]**
BENZO(B)FLUORANTHENE	20/26	2300	648	580	388	Yes	4300	1740	**No**
BENZO(G,H,I)PERYLENE	22/26	1900	414	310	155	Yes	2800	1090	**No**
BENZO(K)FLUORANTHENE	24/26	2300	496	330	160	Yes	1700	606	**Yes/No[(1)]**
BENZOIC ACID	10/14	2700	1290	NZ	NZ	NA	NZ	NZ	NA
BENZYL ALCOHOL	1/26	400	476	NZ	NZ	NA	NZ	NZ	NA
BIS(2-ETHYLHEXYL)PHTHALATE	11/26	2300	575	NZ	NZ	NA	5600	1260	**No**
CARBAZOLE	2/26	1300	314	NZ	NZ	NA	410	165	Yes
CHRYSENE	24/26	3300	717	690	304	Yes	3200	1330	**Yes/No[(1)]**
DIBENZO(A,H)ANTHRACENE	18/26	640	115	130	57.6	Yes	620	212	**Yes/No[(1)]**
DIETHYL PHTHALATE	4/26	2000	412	NZ	NZ	NA	NZ	NZ	NA
FLUORANTHENE	25/26	8500	1440	1300	554	Yes	4600	1870	**Yes/No[(1)]**
FLUORENE	17/26	1300	121	39	19.4	Yes	250	59.2	Yes
HIGH MOLECULAR WEIGHT PAHS	25/26	33640	6400	6240	2920	Yes	28120	11500	**Yes/No[(1)]**
INDENO(1,2,3-CD)PYRENE	22/26	1700	372	300	154	Yes	2100	822	**No**
LOW MOLECULAR WEIGHT PAHS	23/26	11920	1360	722	290	Yes	4044	1160	Yes
NAPHTHALENE	10/26	200	22.4	4	14.3	Yes	360	37.3	**No**
PHENANTHRENE	23/26	8000	942	430	176	Yes	2900	854	Yes
PYRENE	23/26	7000	1260	1200	516	Yes	4600	2020	**Yes/No[(1)]**
TOTAL PAHS	25/26	45560	7750	6962	3210	Yes	30269	12600	**Yes/No[(1)]**
Pesticides/PCBs (µg/kg)									
4,4'-DDD	16/26	170	32.5	7.4	4.2	Yes	63	22.6	Yes
4,4'-DDE	18/26	430	64.7	39	13.3	Yes	190	89.0	**Yes/No[(1)]**
4,4'-DDT	11/26	77	21.5	9.2	4.6	Yes	125	63.7	**No**
ALPHA-CHLORDANE	15/26	180	28.8	NZ	NZ	NA	110	40.2	**Yes/No[(1)]**
AROCLOR-1260	16/26	550	113	NZ	NZ	NA	89	51.2	Yes
AROCLOR-1268	2/26	2480	117	NZ	NZ	NA	NZ	NZ	Yes
DIELDRIN	18/26	140	27.8	NZ	NZ	NA	190	87.4	**No**
GAMMA-CHLORDANE	14/26	130	21.2	NZ	NZ	NA	84	27.9	**Yes/No[(1)]**
TOTAL AROCLOR	16/26	2930	214	NZ	NZ	NA	89	51.9	Yes
TOTAL DDD/DDE/DDT	18/26	677	104	56	19.9	Yes	344	175	**Yes/No[(1)]**

SEDIMENT RISK EVALUATION TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 2 OF 2

Parameter	Site Samples			Reference Pond/Stream			NUSC Sediment Background		
	Frequency of Detection	Maximum Detected Concentration	Average Concentration	Maximum Detected Concentration	Average Concentration	Site Concentration> Reference Concentration?	Maximum Detected Concentration	Average Concentration	Site Concentration> Background Concentration?
Petroleum Hydrocarbons (mg/kg)									
GASOLINE RANGE ORGANICS	2/18	12	3.99	NZ	NZ	NA	NZ	NZ	NA
EXTRACTABLE TPH (C09-C36)	13/13	1800	406	NZ	334	Yes	NZ	NZ	NA
Inorganics (mg/kg)								0.0	
ALUMINUM	26/26	32400	14000	13500	9070	Yes	19400	13300	Yes
ARSENIC	26/26	25	15.7	12	5.0	Yes	34	17.8	**No**
BARIUM	26/26	107	48.6	45	28.6	Yes	231	83.5	**No**
BERYLLIUM	26/26	1.1	0.51	0.6	0.41	Yes	NZ	NZ	NA
CADMIUM	20/26	2.4	0.79	1.4	0.66	Yes	0.2	0.4	Yes
COBALT	26/26	204	58	12	8.5	Yes	36	17.4	Yes
COPPER	26/26	58	34.4	116	50	**No**	1	0.3	Yes
IRON	26/26	51100	28900	29200	21500	Yes	42700	29500	**Yes/No[(1)]**
LEAD	43/43	27200	1410	74	29.4	Yes	297	91.9	Yes
MANGANESE	26/26	2800	872	530	311	Yes	9740	3020	**No**
MERCURY	25/26	0.33	0.153	0.1	0.04	Yes	NZ	NZ	NA
MOLYBDENUM	25/26	8.8	3.2	1.1	0.5	Yes	NZ	NZ	NA
NICKEL	26/26	40.9	23.9	22	15.4	Yes	50	24.0	**No**
SILVER	21/26	4.8	1.1	0.7	0.3	Yes	NZ	NZ	NA
ZINC	26/26	276	138	221	133	Yes	534	193	**No**

1 - The maximum site concentration exceeds the maximum reference concentration but the average site concentration does not exceed the average reference concentration.

TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
TOTAL AROCLOR = Sum of positive detections of individual Aroclors.
NZ - Not Analyzed or Not Detected
NA - Not Applicable

TABLE 7-19

SUMMARY OF *HYALELLA AZTECA* SURVIVAL AND GROWTH RESULTS AND WATER QUALITY PARAMETERS SITE 08, NUSC DISPOSAL AREA NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sample Number	Mean Survival	Mean Growth (mg)[1]	Ammonia (mg/L)		Minimum DO Concentration (mg/L)
			Day 0	day 28	
Laboratory Control Sample					
Lab Control	96.25%	0.325	<0.1	<0.1	6.78
Reference Pond Samples					
DA-SD-RP01-0006	85.00%	0.505	0.17	<0.1	3.55
DA-SD-RP02-0006	77.50%	0.338	0.77	0.19	5.36
DA-SD-RP03-0006	77.50%	0.499	0.96	<0.1	4.18
Site Pond Samples					
DA-SD119-0006	56.25%	0.251	0.6	<0.1	4.90
DA-SD-DUP02 (SD119)	67.50%	0.233	0.68	<0.1	3.73
DA-SD121-0006	15.00%	0.146	2.2	<0.1	1.17/7.27[2]
DA-SD125-0006	2.50%	0.310	1.3	<0.1	3.35/7.68[2]
Reference Stream Samples					
DA-SD-RP04-0006	82.50%	0.322	0.12	<0.1	6.34
DA-SD-RP05-0006	86.25%	0.333	<0.1	<0.1	6.63
Site Stream Samples					
DA-SD01-0006	85.00%	0.306	0.69	<0.1	6.35
DA-SD106-0006	91.25%	0.292	0.14	<0.1	6.29
DA-SD-DUP01 (SD106)	88.75%	0.306	0.14	<0.1	6.66
DA-SD107-0006	85.00%	0.369	0.95	0.72	4.81
DA-SD108-0006	40.00%	0.414	0.45	<0.1	6.07
DA-SD110-0006	60.00%	0.427	0.41	<0.1	7.22
DA-SD111-0006	82.50%	0.269	<0.1	<0.1	7.23
DA-SD112-0006	88.75%	0.249	0.19	<0.1	7.29
DA-SD114-0006	90.00%	0.344	0.23	<0.1	6.88
DA-SD116-0006	21.25%	0.265	<0.1	<0.1	6.68
DA-SD133-0006	76.25%	0.334	0.12	<0.1	6.56

Appendix I.6 presents the complete laboratory report.

(1) - Dry weight
(2) - Two lowest levels presented; the first level was measured at time 0 prior to addition of organisms, all chambers were aerated prior to addition of organisms due to the very low DO levels found in this chamber.
DO - Dissolved oxygen

TABLE 7-20

SUMMARY OF *HYALELLA AZTECA* TOXICITY TEST DATA - STATISTICAL COMPARISONS
POND SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Survival				Growth			
	Mean	Statistically Different Compared to:			Mean	Statistically Different Compared to:		
Sample Number	Site Survival	Reference RP01	Reference RP02	Reference RP03	Growth (mg)[1]	Reference RP01	Reference RP02	Reference RP03
Laboratory Control Sample								
Lab Control	96.25%	-	-	-	0.325	-	-	-
Reference Samples								
DA-SD-RP01-0006	85.00%	-	-	-	0.505	-	-	-
DA-SD-RP02-0006	77.50%	NO	-	-	0.338	NO	-	-
DA-SD-RP03-0006	77.50%	NO	NO	-	0.499	NO	NO	-
Site Samples								
DA-SD119-0006	56.25%	**YES**	**YES**	**YES**	0.251	**YES**	NO	**YES**
DA-SD-DUP02 (SD119)	67.50%	**YES**	NO	NO	0.233	**YES**	NO	**YES**
DA-SD121-0006	15.00%	**YES**	**YES**	**YES**	0.146	**YES**	NO	**YES**
DA-SD125-0006	2.50%	**YES**	**YES**	**YES**	0.310	**YES**	NO	**YES**

Appendix I.6 presents the complete laboratory report.

(1) - Dry weight

TABLE 7-21

SUMMARY OF *HYALELLA AZTECA* TOXICITY TEST DATA - STATISTICAL COMPARISONS
STREAM SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Survival			Growth		
	Mean	Statistically Different Compared to:		Mean	Statistically Different Compared to:	
Sample Number	Site Survival	Reference RP04	Reference RP05	Growth (mg)[1]	Reference RP04	Reference RP05
Laboratory Control Sample						
Lab Control	96.25%	-	-	0.325	-	-
Reference Samples						
DA-SD-RP04-0006	82.50%	-	-	0.322	-	-
DA-SD-RP05-0006	86.25%	NO	-	0.333	NO	-
Site Samples						
DA-SD01-0006	85.00%	NO	NO	0.306	NO	NO
DA-SD106-0006	91.25%	NO	NO	0.292	NO	NO
DA-SD-DUP01 (SD106)	88.75%	NO	NO	0.306	NO	NO
DA-SD107-0006	85.00%	NO	NO	0.369	NO	NO
DA-SD108-0006	40.00%	**YES**	**YES**	0.414	NO	NO
DA-SD110-0006	60.00%	**YES**	**YES**	0.427	NO	NO
DA-SD111-0006	82.50%	NO	NO	0.269	**YES**	**YES**
DA-SD112-0006	88.75%	NO	NO	0.249	**YES**	**YES**
DA-SD114-0006	90.00%	NO	NO	0.344	NO	NO
DA-SD116-0006	21.25%	**YES**	**YES**	0.265	NO	NO
DA-SD133-0006	76.25%	NO	**YES**	0.334	NO	NO

Appendix I.6 presents the complete laboratory report.

(1) - Dry weight

TABLE 7-22

RISK CLASSIFICATIONS BASED ON *HYALELLA AZTECA* TOXICITY TEST RESULTS
POND AND STREAM SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Survival		Growth	
Sample Number	Mean Survival (%)	Risk	Mean Growth (mg)[1]	Risk
Reference Pond Samples				
DA-SD-RP01-0006	85.00%	NA	0.505	NA
DA-SD-RP02-0006	77.50%	NA	0.338	NA
DA-SD-RP03-0006	77.50%	NA	0.499	NA
Site Pond Samples				
DA-SD119-0006	56.25%	potentially unacceptable site-related survival risk[2]	0.251	potentially unacceptable site-related growth risk[4]
DA-SD-DUP02 (SD119)	67.50%	potentially unacceptable site-related survival risk[2]	0.233	potentially unacceptable site-related growth risk[4]
DA-SD121-0006	15.00%	potentially unacceptable site-related survival risk[2]	0.146	potentially unacceptable site-related growth risk[4]
DA-SD125-0006	2.50%	potentially unacceptable site-related survival risk[2]	0.310	potentially unacceptable site-related growth risk[4]
Reference Stream Samples				
DA-SD-RP04-0006	82.50%	NA	0.322	NA
DA-SD-RP05-0006	86.25%	NA	0.333	NA
Site Stream Samples				
DA-SD01-0006	85.00%	no unacceptable site-related survival risk[3]	0.306	no unacceptable site-related growth risk[5]
DA-SD106-0006	91.25%	no unacceptable site-related survival risk[3]	0.292	no unacceptable site-related growth risk[5]
DA-SD-DUP01 (SD106)	88.75%	no unacceptable site-related survival risk[3]	0.306	no unacceptable site-related growth risk[5]
DA-SD107-0006	85.00%	no unacceptable site-related survival risk[3]	0.369	no unacceptable site-related growth risk[5]
DA-SD108-0006	40.00%	potentially unacceptable site-related survival risk[2]	0.414	no unacceptable site-related growth risk[5]
DA-SD110-0006	60.00%	potentially unacceptable site-related survival risk[2]	0.427	no unacceptable site-related growth risk[5]
DA-SD111-0006	82.50%	no unacceptable site-related survival risk[3]	0.269	potentially unacceptable site-related growth risk[4]
DA-SD112-0006	88.75%	no unacceptable site-related survival risk[3]	0.249	potentially unacceptable site-related growth risk[4]
DA-SD114-0006	90.00%	no unacceptable site-related survival risk[3]	0.344	no unacceptable site-related growth risk[5]
DA-SD116-0006	21.25%	potentially unacceptable site-related survival risk[2]	0.265	no unacceptable site-related growth risk[5]
DA-SD133-0006	76.25%	potentially unacceptable site-related survival risk[2]	0.334	no unacceptable site-related growth risk[5]

NA - Not applicable
1 - Dry weight
2 - Mean survival in sample is statistically different than mean survival in at least one of the reference samples
3 - Mean survival in sample is not statistically different than mean survival in any of the reference samples.
4 - Mean growth in sample is statistically different than mean growth in at least one of the reference samples
5 - Mean growth in sample is not statistically different than mean growth in any of the reference samples

SUMMARY OF *HYALELLA AZTECA* TOXICITY TEST PLOTS - POND SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Survival Endpoint		Growth Endpoint		Location with Maximum Concentration	Maximum Concentration in Sample
	Negative Regression (yes/no)	R^2 Value	Negative Regression (yes/no)	R^2 Value		
Inorganics (mg/kg)						
Aluminum	Yes	**0.97**	Yes	**0.63**	SD125	32400
Arsenic	Yes	**0.88**	Yes	0.58	SD125	22.5
Barium	Yes	**0.95**	Yes	0.56	SD125	107
Beryllium	Yes	**0.92**	Yes	**0.68**	SD125	1.1
Cadmium	No	0.37	No	0.01	RP02	1.4
Cobalt	Yes	**0.72**	Yes	**0.77**	SD121	43.1
Copper	No	0.07	No	0.16	RP03	116
Iron	Yes	**0.96**	Yes	**0.63**	SD125	51100
Lead	Yes	0.47	Yes	**0.81**	SD119	258
Manganese	Yes	**0.67**	Yes	0.25	SD125	666
Mercury	Yes	**0.88**	Yes	**0.72**	SD125	0.28
Molybdenum	Yes	**0.93**	Yes	0.59	SD125	3.4
Nickel	Yes	**0.96**	Yes	**0.67**	SD125	40.9
Silver	No	0.46	No	0.46	RP03	0.68
Zinc	Yes	**0.63**	Yes	**0.68**	SD121	276
Organics (ug/kg)						
Total DDx	Yes	**0.98**	Yes	0.47	SD125	677
Total Chlordane	Yes	**0.90**	No	0.14	SD125	310
Total PCBs	Yes	**0.91**	No	0.13	SD125	170
LMW PAHs	Yes	**0.74**	Yes	**0.71**	SD121	1010
HMW PAHs	Yes	**0.94**	Yes	0.57	SD125	12620
Total PAHs	Yes	**0.93**	Yes	0.58	SD125	13596
Normalized Organics (ug/kg/TOC)						
Total DDx (normalized)	Yes	**0.96**	Yes	0.38	SD125	120.9
Total Chlordane (normalized)	Yes	**0.86**	No	0.18	SD125	55.4
Total PCBs (normalized)	Yes	**0.88**	No	0.16	SD125	30.36
LMW PAHs (normalized)	Yes	**0.83**	Yes	**0.64**	SD125	174
HMW PAHs (normalized)	Yes	**0.87**	Yes	0.35	SD125	2254
Total PAHs (normalized)	Yes	**0.87**	Yes	0.38	SD125	2428
PEC-Qs (unitless)						
PEC-Q (with DDE)	Yes	**0.98**	Yes	0.58	SD125	1.88
PEC-Q (with DDx)	Yes	**0.84**	Yes	**0.74**	SD121	0.63
PEC-Q metals	Yes	**0.69**	Yes	**0.80**	SD121	0.67
Petroleum Hydrocarbons (mg/kg)						
EXTRACTABLE TPH (C09-C36)	Yes	0.30	Yes	0.47	SD121	760

SUMMARY OF *HYALELLA AZTECA* TOXICITY TEST PLOTS - STREAM SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Survival Endpoint		Growth Endpoint		Location with Maximum Concentration	Maximum Concentration in Sample
	Negative Regression (yes/no)	R^2 Value	Negative Regression (yes/no)	R^2 Value		
Inorganics (mg/kg)						
Aluminum	Yes	0.04	Yes	0.32	SD116	17800
Arsenic	Yes	0.03	No	0.07	SD107	15.7
Barium	Yes	0.16	Yes	0.27	SD116	63.9
Beryllium	Yes	0.005	Yes	0.38	SD01	0.71
Cadmium	Yes	0.13	Yes	0.13	SD116	1.2
Cobalt	No	0.0001	No	0.01	SD133	204
Copper	Yes	0.08	Yes	0.28	SD116	38.4
Iron	No	0.02	No	0.04	SD133	42800
Lead	Yes	0.003	Yes	0.07	SD111	1520
Manganese	No	0.04	No	0.01	SD133	2360
Mercury	Yes	0.08	Yes	0.44	SD116	0.24
Molybdenum	No	0.001	Yes	0.003	SD133	7.5
Nickel	Yes	0.02	Yes	0.03	SD133	24.4
Silver	Yes	0.002	Yes	0.38	SD111	3.8
Zinc	Yes	0.01	Yes	0.22	SD116	171
Organics (ug/kg)						
Total DDx	Yes	0.08	Yes	0.49	SD116	151
Total Chlordane	Yes	0.02	Yes	0.47	SD112	77
Total PCBs	Yes	0.17	Yes	0.33	SD116	550
LMW PAHs[(1)]	No	0.02	Yes	0.13	SD111	11600
HMW PAHs[(1)]	No	0.03	Yes	0.27	SD111	27060
Total PAHs[(1)]	No	0.02	Yes	0.22	SD111	38660
Normalized Organics (ug/kg/TOC)						
Total DDx (normalized)	Yes	0.03	Yes	0.38	SD01	27.5
Total Chlordane (normalized)	No	0.0001	Yes	0.33	SD01	13.75
Total PCBs (normalized)	Yes	0.34	Yes	0.02	SD116	100
LMW PAHs (normalized)[(1)]	No	0.02	Yes	0.11	SD111	6105
HMW PAHs (normalized)[(1)]	No	0.04	Yes	0.14	SD111	14242
Total PAHs (normalized)[(1)]	No	0.03	Yes	0.13	SD111	20347
PEC-Qs (unitless)						
PEC-Q (with DDE)	Yes	0.01	Yes	0.20	SD111	1.55
PEC-Q (with DDx)	Yes	0.01	Yes	0.12	SD111	1.51
PEC-Q metals	Yes	0.01	Yes	0.08	SD111	1.9
Petroleum Hydrocarbons (mg/kg)						
EXTRACTABLE TPH (C09C36)	Yes	0.35	Yes	0.23	SD116	1800

1 - Plots generated with and without sample SD111

SUMMARY OF *HYALELLA AZTECA* TOXICITY TEST PLOT EVALUATION - POND SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Dose-Response Relationships		Comments
	Survival	Growth	
Aluminum	Yes	No	Low survival not likely caused by aluminum because screening level is 25,500 mg/kg, which is not much lower than the maximum detected concentration. Also, range of concentrations between impacted and non-impacted samples is small.
Arsenic	Yes	No	Not likely contributor to low survival because range of concentrations between impacted and non-impacted samples is small.
Barium	Yes	No	Not likely contributor to low survival because range of concentrations between impacted and non-impacted samples is small.
Beryllium	Yes	No	Not likely contributor to low survival because range of concentrations between impacted and non-impacted samples is small.
Cadmium	No	No	
Cobalt	No	No	Not likely contributor to low survival because range of concentrations probably is small.
Copper	No	No	
Iron	Yes	No	Iron generally not considered toxic. Other chemicals are probably responsible for low survival.
Lead	No	No	Although R^2 value is high for growth, the dose-response relationship is not strong.
Manganese	No	No	
Mercury	Yes	No	Not likely contributor to low survival because range of concentrations is small.
Molybdenum	Yes	No	Not likely contributor to low survival because range of concentrations is small.
Nickel	Yes	No	Not likely contributor to low survival because range of concentrations between impacted and non-impacted samples is small.
Silver	No	No	
Zinc	No	No	
Total DDx	Yes	No	
Total DDx (normalized)	Yes	No	
Total Chlordane	Yes	No	
Total Chlordane (normalized)	Yes	No	
Total PCBs	Yes	No	Not likely contributor to low survival because range of concentration is small.
Total PCBs (normalized)	Yes	No	Not likely contributor to low survival because range of concentration is small.
LMW PAHs	No	No	Similar concentrations in three site samples.
LMW PAHs (normalized)	No	No	Similar concentrations in three site samples.
HMW PAHs	Yes	No	
HMW PAHs (normalized)	Yes	No	
Total PAHs	Yes	No	
Total PAHs (normalized)	Yes	No	
EXTRACTABLE TPH (C09-C36)	No	No	
EXTRACTABLE TPH (normalized)	No	No	
PEC-Q (with DDE)	Yes	No	
PEC-Q (with DDx)	Yes	No	
PEC-Q metals	No	No	

SUMMARY OF *HYALELLA AZTECA* TOXICITY TEST PLOTS - STREAM SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Dose-Response Relationships		Comments
	Survival	Growth	
Aluminum	No	No	
Arsenic	No	No	
Barium	No	No	
Beryllium	No	No	
Cadmium	No	No	
Cobalt	No	No	
Copper	No	No	
Iron	No	No	
Lead	No	No	
Manganese	No	No	
Mercury	No	No	
Molybdenum	No	No	
Nickel	No	No	
Silver	No	No	
Zinc	No	No	
Total DDx	No	Yes	SD116 had the greatest total DDx concentration but it did not have lower growth compared to the reference samples.
Total DDx (normalized)	No	No	
Total Chlordane	No	Yes	SD116 had very a similar total chlordane concentration as SD112 but it did not have lower growth compared to the reference samples.
Total Chlordane (normalized)	No	No	
Total PCBs	No	No	
Total PCBs (normalized)	Yes	No	Slight dose-response relationship for survival (two samples with highest concentrations had lowest survival) but poor regression line. Also, SD108 had a very low non-normalized PCB concentration.
LMW PAHs	No	Yes	Locations SD111 and SD112 had the greatest PAH concentration and the lowest growth compared to the reference station. The concentrations at SD112 will be the LOEC and concentrations at RP04 will be the NOEC.
HMW PAHs	No	Yes	
Total PAHs	No	Yes	
LMW PAHs (normalized)	No	No	
HMW PAHs (normalized)	No	No	
Total PAHs (normalized)	No	No	
EXTRACTABLE TPH (C09-C36)	No	No	
EXTRACTABLE TPH (normalized)	No	No	
PEC-Q (with DDE)	No	No	
PEC-Q (with DDx)	No	No	
PEC-Q metals	No	No	

TABLE 7-27

CALCULATION OF PEC-Qs FOR EACH SAMPLE SELECTED FOR TOXICITY TESTING
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Sample Concentrations (organics in ug/kg, metals in mg/kg)										
Sample ID	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Total PAHs	4,4'-DDE	Total PCBs	Total DDT
Pond Samples											
RP01	3.8 U	0.66 J	10.6	34	20.1	13.8	119	1386 J	7.6	NA	10.8 J
RP02	10.8 U	1.4 J	17	65.1	74.4	21.9	221	1435.6 J	39	NA	55.6 J
RP03	12.2	1.1 J	14.2	116	39.3	18.3	200	1768.5 J	17	NA	30 J
SD119	14.8	0.925 J	25.8	39.8 J	258 J	27.6	219 J	8788.8 J	170	150	250 J
SD121	21.8	0.8 J	38.2	51.7 J	224 J	39.6	276 J	11670.2 J	320	160	486 J
SD125	22.5	0.46 J	40.4	50.9 J	167 J	40.9	255 J	13596 J	430	170	677 J
Stream Samples											
RP04	7.1 U	0.1 UJ	4.4	28.3	5 J	8.5 J	72.6	6961.7 J	1.6 J	NA	1.6 J
RP05	4.1 U	0.22 UJ	10.6	7.9	8.4	14.5	53.4	4481.3 J	1.4 J	NA	1.4 J
SD114	10	0.7 J	19.3	24.1 J	288 J	20.4	140	3999 J	17	220	38 J
SD116	10.4	1.2 J	25.3	38.4 J	562 J	23.8	171	5402.2 J	48	550	151 J
SD108	14.8	0.01 UJ	11.6	18.6 J	9.4 J	16.7	47.3	146.8 J	3.9 U	35	3.9 UJ
SD110	12.1	0.17 UJ	16.5	22.4 J	799 J	22.3	98.9	1968.1 J	6.3	43	13.2 J
SD133	15.7	0.91 J	15.4	30.9 J	1000 J	24.4	130	550 J	12	19 U	26.7 J
SD111	13.2	0.16 UJ	16.3	33.6 J	1520 J	20.6	94	38660	12	68	20.9 J
SD107	15.7	0.02 UJ	13.8	20.3 J	14.3 J	21.4	73.4	1517 J	2.2 J	55	2.2 J
SD01	10.6	0.49 J	14.9	15.4 J	43.7 J	19.5	157	2709.9 J	31	67	66 J
SD112	9.4	0.14 UJ	21	31.6 J	376 J	21.7	95.5	8109.9 J	79	370	127 J
SD106	14.2	0.435 J	18.5	25.9 J	543 J	23.2	147	2586.9 J	45.5	50.5	79.7 J
PEC	**33**	**4.98**	**111**	**149**	**128**	**48.6**	**459**	**22800**	**31.3**	**676**	**572**

	PEC-Quotients											Mean PEC-Q (with DDE)	Mean PEC-Q (with total DDT)	Mean Metals PEC-Q
Sample ID	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Total PAHs	4,4'-DDE	Total PCBs	Total DDT			
Pond Samples														
RP01	0.12	0.13	0.10	0.23	0.16	0.28	0.26	0.06	0.24		0.02	0.18	0.15	0.18
RP02	0.33	0.28	0.15	0.44	0.58	0.45	0.48	0.06	**1.25**		0.10	0.45	0.32	0.39
RP03	0.37	0.22	0.13	0.78	0.31	0.38	0.44	0.08	0.54		0.05	0.36	0.31	0.37
SD119	0.45	0.19	0.23	0.27	**2.02**	0.57	0.48	0.39	**5.43**	0.22	0.44	**1.02**	0.52	0.60
SD121	0.66	0.16	0.34	0.35	**1.75**	0.81	0.60	0.51	**10.22**	0.24	0.85	**1.57**	0.63	0.67
SD125	0.68	0.09	0.36	0.34	**1.30**	0.84	0.56	0.60	**13.74**	0.25	**1.18**	**1.88**	0.62	0.60
Stream Samples														
RP04	0.22	0.02	0.04	0.19	0.04	0.17	0.16	0.31	0.05		0.00	0.13	0.13	0.12
RP05	0.12	0.04	0.10	0.05	0.07	0.30	0.12	0.20	0.04		0.00	0.12	0.11	0.11
SD114	0.30	0.14	0.17	0.16	**2.25**	0.42	0.31	0.18	0.54	0.33	0.07	0.48	0.43	0.54
SD116	0.32	0.24	0.23	0.26	**4.39**	0.49	0.37	0.24	**1.53**	0.81	0.26	0.89	0.76	0.90
SD108	0.45	0.00	0.10	0.12	0.07	0.34	0.10	0.01	0.12	0.05	0.01	0.14	0.13	0.17
SD110	0.37	0.03	0.15	0.15	**6.24**	0.46	0.22	0.09	0.20	0.06	0.02	0.80	0.78	**1.09**
SD133	0.48	0.18	0.14	0.21	**7.81**	0.50	0.28	0.02	0.38	0.03	0.05	**1.00**	0.97	**1.37**
SD111	0.40	0.03	0.15	0.23	**11.88**	0.42	0.20	**1.70**	0.38	0.10	0.04	**1.55**	**1.51**	**1.90**
SD107	0.48	0.00	0.12	0.14	0.11	0.44	0.16	0.07	0.07	0.08	0.00	0.17	0.16	0.21
SD01	0.32	0.10	0.13	0.10	0.34	0.40	0.34	0.12	0.99	0.10	0.12	0.30	0.21	0.25
SD112	0.28	0.03	0.19	0.21	**2.94**	0.45	0.21	0.36	**2.52**	0.55	0.22	0.77	0.54	0.62
SD106	0.43	0.09	0.17	0.17	**4.24**	0.48	0.32	0.11	**1.45**	0.07	0.14	0.75	0.62	0.84

Shaded cells are PEC-Q values greater than 1.0
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
PEC-Q - Probable Effects Concentration Quotient

OVERALL EVALUATION SUMMARY FOR SEDIMENT INVERTEBRATES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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	Evaluation of Endpoints						
	Sediment Chemistry			Toxicity Testing		Benthic Community	
	Mean PEC-Q[1]			Potentially Unacceptable Site-Related Risk		Potentially Impacted Station	
Sample ID	DDE	total DDx	Metals	Survival	Growth		Comments
Pond Samples							
RP01	0.18	0.15	0.18	---	---	---	
RP02	0.45	0.32	0.39	---	---	---	
RP03	0.36	0.31	0.37	---	---	---	
SD119	**1.02**	0.52	0.60	**Yes**	**Yes**	**Yes**	Based on impacts to all three endpoints, it appears that sediment invertebrates are being impacted in NUWC Pond. The impacts are likely caused by a combination of organic chemicals. Metals do not appear responsible for the observed toxicity.
SD121	**1.57**	0.63	0.67	**Yes**	**Yes**	**Yes**	
SD125	**1.88**	0.62	0.60	**Yes**	**Yes**	**Yes**	
Stream Samples							
RP04	0.13	0.13	0.12	---	---	---	
RP05	0.12	0.11	0.11	---	---	---	
RP06	NA	NA	NA	---	---	---	
SD106	0.75	0.62	0.84	No	No	**Yes**	Only one endpoint impacted. Relatively low chemical concentrations and based on the concentration plots, no chemicals could be identified as responsible for potential impacts.
SD107	0.17	0.16	0.21	No	No	No	
SD108	0.14	0.13	0.17	**Yes**	No	No	Upstream location on unnamed stream from the golf course. Low chemical concentrations and not likely impacted by site contaminants.
SD110	0.80	0.78	**1.09**	**Yes**	No	**Yes**	All three endpoints point to this location being impacted. However, based on the concentration plots, no chemicals could be identified as responsible for potential impacts.
SD111	**1.55**	**1.51**	**1.90**	No	**Yes**	No	Although two endpoints indicate that this location is being impacted, this location had one of the better benthic communities compared to the reference stations. This indicates that the low growth in the toxicity test sample may not be an good indicator of actual impacts to sediment invertebrates at this location.
SD112	0.77	0.54	0.62	No	**Yes**	**Yes**	Two endpoints indicate that this location is being impacted. This location also had the second greatest concentrations of PAHs in the samples selected for toxicity testing (see Section 7.4.3.2). PAHs and not likely the reason for the impacts to sediment invertebrates at this station for the following two reasons: 1) Higher PAH concentrations were found at SD111 but as discussed above, SD111 had one of the better benthic communities. 2) The next lowest PAH concentration was at RP04 which had the best benthic community. It is likely that if PAHs were responsible for the impacts at SD112, impacts would have been observed at RP04, which had just slightly lower PAH concentrations.

OVERALL EVALUATION SUMMARY FOR SEDIMENT INVERTEBRATES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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	Evaluation of Endpoints						
	Sediment Chemistry			Toxicity Testing		Benthic Community	
	Mean PEC-Q[1]			Potentially Unacceptable Site-Related Risk		Potentially Impacted Station	
Sample ID	DDE	total DDx	Metals	Survival	Growth		Comments
SD133	**1.00**	0.97	**1.37**	**Yes**	No	**Yes**	Station in Deerfield Creek just downstream of culvert pipe. Substrate is different than other locations, consisting mostly of bedrock with some small pockets of sediment. It is likely that the poorer benthic community at this location is due at least in part to the poorer habitat. Also, survival was just slightly lower than survival in one reference sample, and growth was not impacted versus either reference station so impacts from the toxicity test are marginal.
Wetland Stream Samples							
SD01	0.30	0.21	0.25	No	No	No	
SD114	0.48	0.43	0.54	No	No	**Yes**	Only one endpoint impacted. Relatively low chemical concentrations and based on the concentration plots, no chemicals could be identified are responsible for potential impacts.
SD116	0.89	0.76	0.90	**Yes**	No	No	Although several chemicals had their greatest concentration at this location, the mean PEC-Q was less than 1.0 and the benthic community was similar to that at the reference station. This indicates that the low survival in the toxicity test sample may not be a good indicator of actual impacts to sediment invertebrates at this location.

NA - Samples were not collected from reference stream location RP06 for chemical analysis or toxicity testing.
--- - Reference samples are not considered to be impacted because impacts are relative to reference stations.

DEVELOPMENT OF NOECS AND LOECS AT EACH SAMPLE SELECTED FOR TOXICITY TESTING
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Development of NOECs and LOECS based on Percent Survival or Growth

Sample ID	Sample Concentrations (organics in ug/kg, metals in mg/kg)													Mean PEC-Q (with DDE)	Mean PEC-Q (with total DDT)	Mean Metals PEC-Q
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	HMW PAHs	Total PAHs	4,4'-DDE	Total PCBs	Total DDT	Total Chlordane			
Pond Samples																
NON-TOXIC SAMPLES																
RP01	3.8 U	0.66 J	10.6	34	20.1	13.8	119	1328 J	1386 J	7.6	ND	10.8 J	ND	0.18	0.15	0.18
RP02	10.8 U	1.4 J	17	65.1	74.4	21.9	221	1318 J	1436 J	39	ND	**55.6 J**	ND	**0.45**	**0.32**	**0.39**
RP03	12.2	1.1 J	14.2	116	39.3	18.3	200	**1676** J	**1769** J	17	ND	30 J	ND	0.36	0.31	0.37
TOXIC SAMPLES																
SD119	14.8	0.925 J	25.8	39.8 J	258 J	27.6	219 J	**7790 J**	**8789 J**	170	**150**	**250 J**	**123**	**1.02**	**0.52**	**0.60**
SD121	21.8	0.8 J	38.2	51.7 J	224 J	39.6	276 J	10660 J	11670 J	320	160	486 J	213	1.57	0.63	0.67
SD125	22.5	0.46 J	40.4	50.9 J	167 J	40.9	255 J	12620 J	13596 J	430	170	677 J	310	1.88	0.62	**0.60**
Stream Samples																
NON-TOXIC SAMPLES																
RP04	7.1 U	0.1 UJ	4.4	28.3	5 J	8.5 J	72.6	**6240**	**6962 J**	1.6 J	NA	1.6 J	NA	0.13	0.13	0.12
RP05	4.1 U	0.22 UJ	10.6	7.9	8.4	14.5	53.4	4020 J	4481 J	1.4 J	NA	1.4 J	NA	0.12	0.11	0.11
SD114	10	0.7 J	19.3	24.1 J	288 J	20.4	140	3426 J	3999 J	17	**220**	38 J	37	0.48	0.43	0.54
SD107	15.7	0.02 UJ	13.8	20.3 J	14.3 J	21.4	73.4	1240 J	1517 J	2.2 J	55	2.2 J	2.5 U	0.17	0.16	0.21
SD01	10.6	0.49 J	14.9	15.4 J	43.7 J	19.5	157	2577 J	2710 J	31	67	66 J	33	0.30	0.21	0.25
SD106	14.2	0.435 J	18.5	25.9 J	**543 J**	23.2	147	2365 J	2587 J	45.5	50.5	79.7 J	35	0.75	0.62	0.84
TOXIC SAMPLES																
SD116	10.4	1.2 J	25.3	38.4 J	**562 J**	23.8	171	4688 J	5402 J	48	550	151 J	75	0.89	0.76	0.90
SD108	14.8	0.01 UJ	11.6	18.6 J	9.4 J	16.7	47.3	134 J	147 J	3.9 U	35	3.9 UJ	2 U	0.14	0.13	0.17
SD110	12.1	0.17 UJ	16.5	22.4 J	799 J	22.3	98.9	1535 J	1968 J	6.3	43	13.2 J	7.8	0.80	0.78	1.09
SD133	15.7	0.91 J	15.4	30.9 J	1000 J	24.4	130	522 J	550 J	12	19 U	26.7 J	11.6	1.00	0.97	1.37
SD111	13.2	0.16 UJ	16.3	33.6 J	1520 J	20.6	94	27060	38660	12	68	20.9 J	2.4 U	1.55	1.51	1.90
SD112	9.4	0.14 UJ	21	31.6 J	376 J	21.7	95.5	**7290 J**	**8110 J**	79	**370**	127 J	77	0.77	0.54	0.62

Bolded = Detected result with percent survival or growth statistically different compared to any of the reference samples.
Shaded Green = NOEC, greatest concentration in a non-toxic sample
Shaded Red = LOEC, lowest concentration in a toxic sample that is greater than the NOEC
HMW - High Molecular Weight
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
PEC-Q - Probable Effects Concentration Quotient

DEVELOPMENT OF NOECS AND LOECS AT EACH SAMPLE SELECTED FOR TOXICITY TESTING
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Development of NOECs and LOECS based on Percent Survival

Sample ID	Sample Concentrations (organics in ug/kg, metals in mg/kg)													Mean PEC-Q (with DDE)	Mean PEC-Q (with total DDT)	Mean Metals PEC-Q
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	HMW PAHs	Total PAHs	4,4'-DDE	Total PCBs	Total DDT	Total Chlordane			
Stream Samples																
NON-TOXIC SAMPLES																
RP04	7.1 U	0.1 UJ	4.4	28.3	5 J	8.5 J	72.6	6240	6962 J	1.6 J	NA	1.6 J	NA	0.13	0.13	0.12
RP05	4.1 U	0.22 UJ	10.6	7.9	8.4	14.5	53.4	4020 J	4481 J	1.4 J	NA	1.4 J	NA	0.12	0.11	0.11
SD114	10	0.7 J	19.3	24.1 J	288 J	20.4	140	3426 J	3999 J	17	220	38 J	37	0.48	0.43	0.54
SD111	13.2	0.16 UJ	16.3	33.6 J	1520 J	20.6	94	27060	38660	12	68	20.9 J	2.4 U	1.55	1.51	1.90
SD107	15.7	0.02 UJ	13.8	20.3 J	14.3 J	21.4	73.4	1240 J	1517 J	2.2 J	55	2.2 J	2.5 U	0.17	0.16	0.21
SD01	10.6	0.49 J	14.9	15.4 J	43.7 J	19.5	157	2577 J	2710 J	31	67	66 J	33	0.30	0.21	0.25
SD112	9.4	0.14 UJ	21	31.6 J	376 J	21.7	95.5	7290 J	8110 J	79	**370**	127 J	77	0.77	0.54	0.62
SD106	14.2	0.435 J	18.5	25.9 J	543 J	23.2	147	2365 J	2587 J	45.5	50.5	79.7 J	35	0.75	0.62	0.84
TOXIC SAMPLES																
SD116	10.4	1.2 J	25.3	38.4 J	562 J	23.8	171	4688 J	5402 J	48	**550**	151 J	75	0.89	0.76	0.90
SD108	14.8	0.01 UJ	11.6	18.6 J	9.4 J	16.7	47.3	134 J	147 J	3.9 U	35	3.9 UJ	2 U	0.14	0.13	0.17
SD110	12.1	0.17 UJ	16.5	22.4 J	799 J	22.3	98.9	1535 J	1968 J	6.3	43	13.2 J	7.8	0.80	0.78	1.09
SD133	15.7	0.91 J	15.4	30.9 J	1000 J	24.4	130	522 J	550 J	12	19 U	26.7 J	11.6	1.00	0.97	1.37

Bolded = Detected result with percent survival statistically different compared to any of the reference samples.
Shaded Green = NOEC, greatest concentration in a non-toxic sample
Shaded Red = LOEC, lowest concentration in a toxic sample that is greater than the NOEC
HMW - High Molecular Weight
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
PEC-Q - Probable Effects Concentration Quotient

DEVELOPMENT OF NOECS AND LOECS AT EACH SAMPLE SELECTED FOR TOXICITY TESTING
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Development of NOECs and LOECS based on Percent Growth

Sample ID	Sample Concentrations (organics in ug/kg, metals in mg/kg)													Mean PEC-Q (with DDE)	Mean PEC-Q (with total DDT)	Mean Metals PEC-Q
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	HMW PAHs	Total PAHs	4,4'-DDE	Total PCBs	Total DDT	Total Chlordane			
Stream Samples																
NON-TOXIC SAMPLES																
RP04	7.1 U	0.1 UJ	4.4	28.3	5 J	8.5 J	72.6	**6240**	**6962 J**	1.6 J	NA	1.6 J	NA	0.13	0.13	0.12
RP05	4.1 U	0.22 UJ	10.6	7.9	8.4	14.5	53.4	4020 J	4481 J	1.4 J	NA	1.4 J	NA	0.12	0.11	0.11
SD114	10	0.7 J	19.3	24.1 J	288 J	20.4	140	3426 J	3999 J	17	220	38 J	37	0.48	0.43	0.54
SD116	10.4	1.2 J	25.3	38.4 J	562 J	23.8	171	4688 J	5402 J	48	550	151 J	75	0.89	0.76	0.90
SD108	14.8	0.01 UJ	11.6	18.6 J	9.4 J	16.7	47.3	134 J	147 J	3.9 U	35	3.9 UJ	2 U	0.14	0.13	0.17
SD110	12.1	0.17 UJ	16.5	22.4 J	799 J	22.3	98.9	1535 J	1968 J	6.3	43	13.2 J	7.8	0.80	0.78	1.09
SD133	15.7	0.91 J	15.4	30.9 J	**1000 J**	24.4	130	522 J	550 J	12	19 U	26.7 J	11.6	1.00	0.97	1.37
SD107	15.7	0.02 UJ	13.8	20.3 J	14.3 J	21.4	73.4	1240 J	1517 J	2.2 J	55	2.2 J	2.5 U	0.17	0.16	0.21
SD01	10.6	0.49 J	14.9	15.4 J	43.7 J	19.5	157	2577 J	2710 J	31	67	66 J	33	0.30	0.21	0.25
SD106	14.2	0.435 J	18.5	25.9 J	543 J	23.2	147	2365 J	2587 J	45.5	50.5	79.7 J	35	0.75	0.62	0.84
TOXIC SAMPLES																
SD111	13.2	0.16 UJ	16.3	33.6 J	**1520 J**	20.6	94	27060	38660	12	68	20.9 J	2.4 U	1.55	1.51	1.90
SD112	9.4	0.14 UJ	21	31.6 J	376 J	21.7	95.5	**7290 J**	**8110 J**	79	370	127 J	77	0.77	0.54	0.62

Bolded = Detected result with percent growth statistically different compared to any of the reference samples.
Shaded Green = NOEC, greatest concentration in a non-toxic sample
Shaded Red = LOEC, lowest concentration in a toxic sample that is greater than the NOEC
HMW - High Molecular Weight
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
PEC-Q - Probable Effects Concentration Quotient

TABLE 7-30

NOEC AND LOEC VALUES FOR SEDIMENT INVERTEBRATES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Pond Samples		Stream Samples					
			Either Survival/Growth Impacted		Only Survival Impacted		Only Growth Impacted	
	NOEC[1]	LOEC[2]	NOEC[1]	LOEC[2]			NOEC[1]	LOEC[2]
Organics (ug/kg)								
Total DDx	55.6	250	NA	NA	NA	NA	NA	NA
Total Chlordane	ND	123	NA	NA	NA	NA	NA	NA
Total PCBs	ND	150	220	370	370	550	NA	NA
HMW PAHs	1676	7790	6240	7290	NA	NA	6240	7290
Total PAHs	1769	8789	6962	8110	NA	NA	6962	8110
Metals (mg/kg)								
Lead	NA	NA	543	562	NA	NA	1000	1520
PEC-Qs (unitless)								
PEC-Q (with DDE)	0.45	1.02	NA	NA	NA	NA	NA	NA
PEC-Q (with DDx)	0.32	0.52	NA	NA	NA	NA	NA	NA
PEC-Q metals	0.39	0.6	NA	NA	NA	NA	NA	NA

1 - Maximum concentration in three reference pond samples.
2 - Lowest concentration in three NUWC Pond samples.

NA - Not available
ND - Not Detected
NOEC - No Observed Effects Concentration
LOEC - Lowest Observed Effects Concentration
PEC-Q - Probable Effects Concentration Quotient

TABLE 7-31

SURFACE WATER RISK EVALUATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	Site Samples			Reference Pond/Stream		
Parameter	**Frequency of Detection**	**Maximum Detected Concentration**	**Average Concentration**	**Maximum Detected Concentration**	**Average Concentration**	**Site Concentration> Reference Concentration?(1)**
Pesticides (µg/L)						
4,4'-DDE	1/22	0.0139 J	0.00434	NA	NA	Yes
4,4'-DDT	6/22	0.017925 J	0.00425	NA	NA	Yes
TOTAL DDD/DDE/DDT	6/22	0.031825 J	0.00539	NA	NA	Yes
Total Inorganics (µg/L)						
ALUMINUM	6/22	3160	213	714	263	Yes/No(1)
BARIUM	22/22	21.4	10.4	17	8.98	Yes
COPPER	15/22	14.2 J	2.58	21.9	9.23	No
IRON	21/22	5590	679	2660	1380	Yes/No(1)
LEAD	8/22	21.5	2.93	5.7	2.97	Yes/No(1)
MANGANESE	22/22	600	180	144	105	Yes
THALLIUM	1/22	3.53 J	0.797	NA	NA	Yes
Filtered Inorganics (µg/L)						
ALUMINUM	4/22	370	46.8	NA	NA	Yes
BARIUM	22/22	14.1	9.35	8.4	6	Yes
LEAD	5/22	12.4	1.37	NA	NA	Yes
MANGANESE	22/22	670	157	103	66.1	Yes

1 - The maximum site concentration exceeds the maximum reference concentration but the average site concentration does not exceed the average reference concentration

NA = Not Available or Not Applicable.
TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.

TERRESTRIAL FOOD CHAIN MODEL - LESS CONSERVATIVE SCENARIO
SOIL INSECTIVOROUS RECEPTORS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Soil Insectivorous Receptors Hazard Quotients			
	American Robin		Short-Tailed Shrew	
	NOAEL	LOAEL	NOAEL	LOAEL
Semivolatile Organics				
ANTHRACENE	1.2E-01	1.2E-02	2.0E-03	3.8E-04
BENZO(A)ANTHRACENE	1.1E-01	1.1E-02	2.0E-01	3.1E-03
BENZO(A)PYRENE	9.6E-02	9.6E-03	1.7E-01	2.7E-03
BENZO(B)FLUORANTHENE	1.2E-01	1.2E-02	2.2E-01	3.6E-03
BENZO(G,H,I)PERYLENE	9.6E-02	9.6E-03	1.8E-01	2.8E-03
BENZO(K)FLUORANTHENE	1.4E-01	1.4E-02	2.5E-01	4.0E-03
CARBAZOLE	6.4E-02	6.4E-03	1.2E-01	1.9E-03
CHRYSENE	1.4E-01	1.4E-02	2.6E-01	4.2E-03
DIBENZO(A,H)ANTHRACENE	3.3E-02	3.3E-03	6.0E-02	9.5E-04
FLUORANTHENE	5.8E-01	5.8E-02	1.0E-02	1.9E-03
FLUORENE	2.0E-01	2.0E-02	3.7E-03	6.7E-04
INDENO(1,2,3-CD)PYRENE	1.1E-01	1.1E-02	2.0E-01	3.2E-03
NAPHTHALENE	1.4E-01	1.4E-02	2.4E-03	4.5E-04
PHENANTHRENE	3.3E-01	3.3E-02	5.5E-03	1.0E-03
PYRENE	3.0E-01	3.0E-02	5.4E-01	8.7E-03
Pesticides/PCBs				
AROCLOR-1260	4.5E-01	4.5E-02	7.1E-01	7.1E-02
TOTAL AROCLOR	4.6E-01	4.6E-02	6.9E-01	6.9E-02
Inorganics				
ALUMINUM	1.6E+01	1.6E+00	5.1E+02	5.1E+01
ANTIMONY	NV	NV	2.9E-01	6.3E-03
ARSENIC	1.3E+00	6.3E-01	1.5E+00	3.5E-01
CADMIUM	1.2E+01	2.7E+00	1.4E+01	1.5E+00
CHROMIUM	7.1E+00	1.2E+00	4.7E+00	1.9E-01
COBALT	3.4E-01	1.4E-01	1.9E-01	7.5E-02
COPPER	1.7E+00	2.0E-01	6.6E-01	4.7E-02
IRON	3.7E+01	3.7E+00	4.2E+01	4.2E+00
LEAD	1.4E+01	5.1E-01	2.8E+00	7.2E-02
MANGANESE	3.8E-01	1.8E-01	7.5E-01	2.7E-01
MERCURY	1.1E+01	1.1E+00	1.3E+00	2.6E-01
NICKEL	1.8E+00	6.5E-01	4.2E+00	4.9E-01
SELENIUM	1.9E+00	9.4E-01	2.3E+00	1.4E+00
VANADIUM	1.0E+01	2.1E+00	4.9E-01	2.6E-01
ZINC	9.7E-01	3.7E-01	5.0E-01	1.3E-01

Cells are shaded if the hazard quotient is greater than 1.0
The table only includes chemicals that had HQs greater than 1.0 in the conservative food chain model.
NV - No value could be calculated because toxicity data were not available
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level

TERRESTRIAL FOOD CHAIN MODEL - LESS CONSERVATIVE SCENARIO
PISCIVOROUS RECEPTORS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Piscivorous Receptor Hazard Quotients			
	Great Blue Heron		Mink	
	NOAEL	LOAEL	NOAEL	LOAEL
Pesticides/PCBs				
4,4'-DDE	5.5E-01	4.4E-01	7.7E-01	4.1E-01
AROCLOR-1260	3.1E-01	3.1E-02	7.5E-01	7.5E-02
DIELDRIN	7.7E-02	6.8E-03	3.4E-01	4.0E-03
TOTAL AROCLOR	7.7E-01	7.7E-02	1.9E+00	1.9E-01
TOTAL DDD/DDE/DDT	5.8E-01	4.7E-01	8.2E-01	4.4E-01
Inorganics				
ALUMINUM	3.9E-01	3.9E-02	4.1E+01	4.1E+00
IRON	1.1E+00	1.1E-01	3.5E+00	3.5E-01
LEAD	7.9E+00	2.9E-01	7.0E+00	1.8E-01
MANGANESE	1.4E-01	6.9E-02	5.1E-01	1.8E-01
MERCURY	9.9E-01	9.9E-02	1.9E-01	3.9E-02
SELENIUM	2.7E-01	1.4E-01	5.0E-01	3.0E-01

Cells are shaded if the value is greater than 1.0
The table only includes chemicals that had HQs greater than 1.0 in the conservative food chain model.
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level

TABLE 8-1
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR SOIL
REASONABLE MAXIMUM EXPOSURES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

	Receptor	Cancer Risks		Hazard Indices	
		Including All Chemicals	Excluding Chemicals Present at Background Levels	Including All Chemicals	Excluding Chemicals Present at Background Levels
Exposed Area Surface Soil					
Workers	Construction Workers	3E-06	3E-06	2(1)	2(1)
	Industrial Workers	3E-05	3E-05	0.3	0.3
Trespassers	Adolescent Trespassers	1E-05	1E-05	0.08	0.07
Recreational Users	Child Recreational Users	3E-05	3E-05	0.4	0.4
	Adult Recreational Users	7E-06	7E-06	0.05	0.05
	Lifelong Recreational Users	4E-05	4E-05	NA	NA
Residents	Child Residents	3E-04	3E-04	3(1)	3(1)
	Adult Residents	5E-05	5E-05	0.4	0.3
	Lifelong Residents	3E-04	3E-04	NA	NA
Exposed Area Subsurface Soil					
Workers	Construction Workers	9E-05	9E-05	2	1
	Industrial Workers	2E-03	2E-03	0.3	0.3
Trespassers	Adolescent Trespassers	1E-03	1E-03	0.1	0.1
Recreational Users	Child Recreational Users	3E-03	3E-03	0.6	0.5
	Adult Recreational Users	5E-04	5E-04	0.06	0.06
	Lifelong Recreational Users	3E-03	3E-03	NA	NA
Residents	Child Residents	2E-02	2E-02	4(1)	4(1)
	Adult Residents	3E-03	3E-03	0.5	0.4
	Lifelong Residents	2E-02	2E-02	NA	NA
Paved Area Surface Soil					
Workers	Construction Workers	2E-06	2E-06	1	1
	Industrial Workers	3E-05	3E-05	0.2	0.2
Trespassers	Adolescent Trespassers	1E-05	1E-05	0.05	0.05
Recreational Users	Child Recreational Users	3E-05	3E-05	0.3	0.3
	Adult Recreational Users	6E-06	6E-06	0.03	0.03
	Lifelong Recreational Users	4E-05	4E-05	NA	NA
Residents	Child Residents	2E-04	2E-04	2(1)	2(1)
	Adult Residents	4E-05	4E-05	0.2	0.2
	Lifelong Residents	3E-04	3E-04	NA	NA
Paved Area Subsurface Soil					
Workers	Construction Workers	3E-06	3E-06	3	0.9
	Industrial Workers	3E-05	3E-05	0.3	0.3
Trespassers	Adolescent Trespassers	1E-05	1E-05	0.08	0.08
Recreational Users	Child Recreational Users	3E-05	3E-05	0.4	0.4
	Adult Recreational Users	7E-06	7E-06	0.05	0.05
	Lifelong Recreational Users	3E-05	3E-05	NA	NA
Residents	Child Residents	2E-04	2E-04	3	3
	Adult Residents	5E-05	5E-05	0.4	0.4
	Lifelong Residents	2E-04	2E-04	NA	NA

Notes:
NA - Not applicable.
1 - Hazard index for individual target organs are less than or equal to 1.

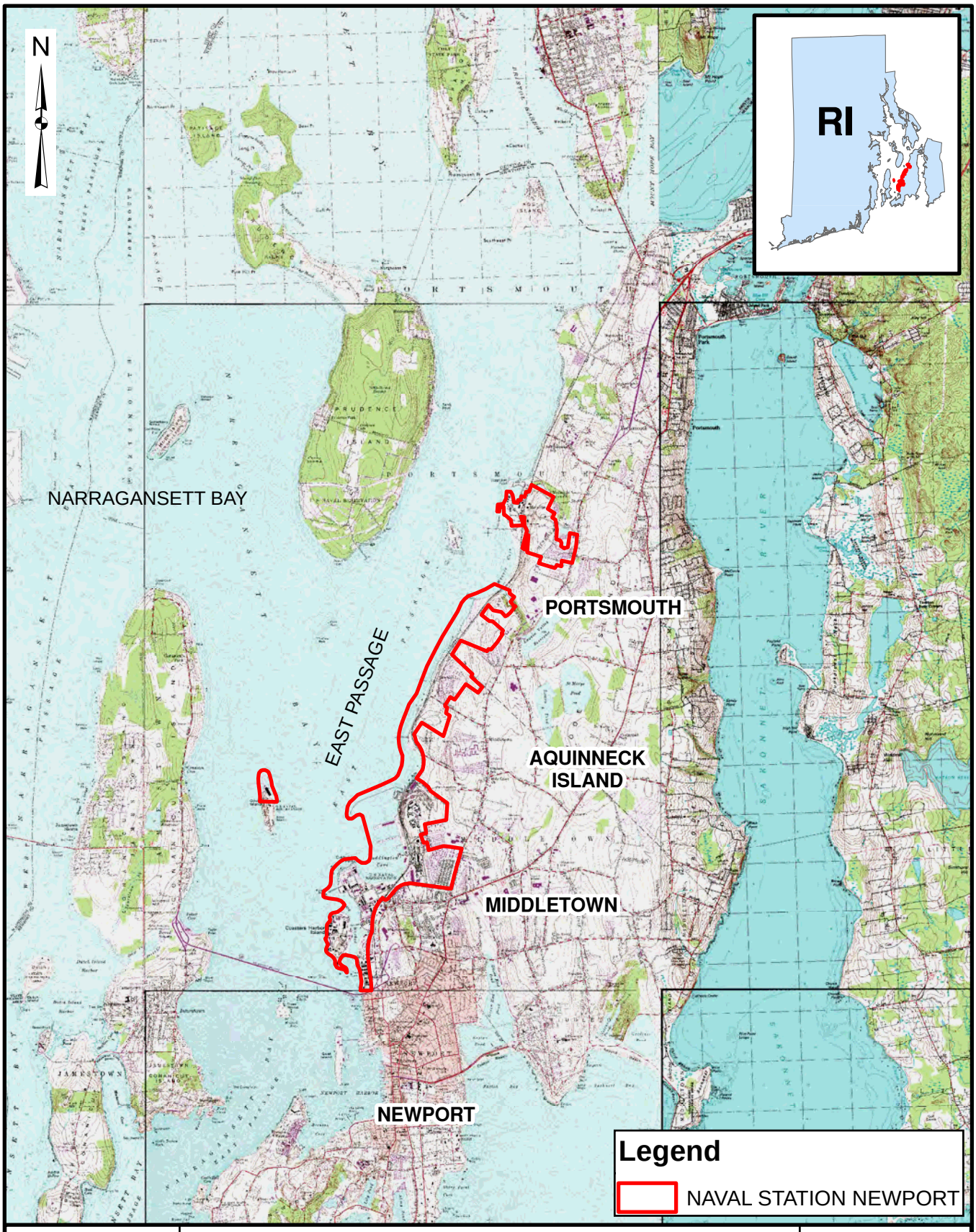
Yellow shading indicates exceedance of RIDEM acceptable risk (Cancer risk greater than 1E-5).

Tan shading indicates exceedance of RIDEM and USEPA acceptable risk.

Hazard index for individual target organs are greater than 1.

FIGURES

I:\02124\RI.DF\NUSC_NAVSTA.MXD DWM 11/20/09



Tetra Tech NUS, Inc.

NAVAL STATION NEWPORT VICINITY MAP
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SCALE	AS NOTED
FILE	\..\NUSC_NAVSTA.MXD
REV	0
DATE	11/20/09
FIGURE NUMBER	1-1

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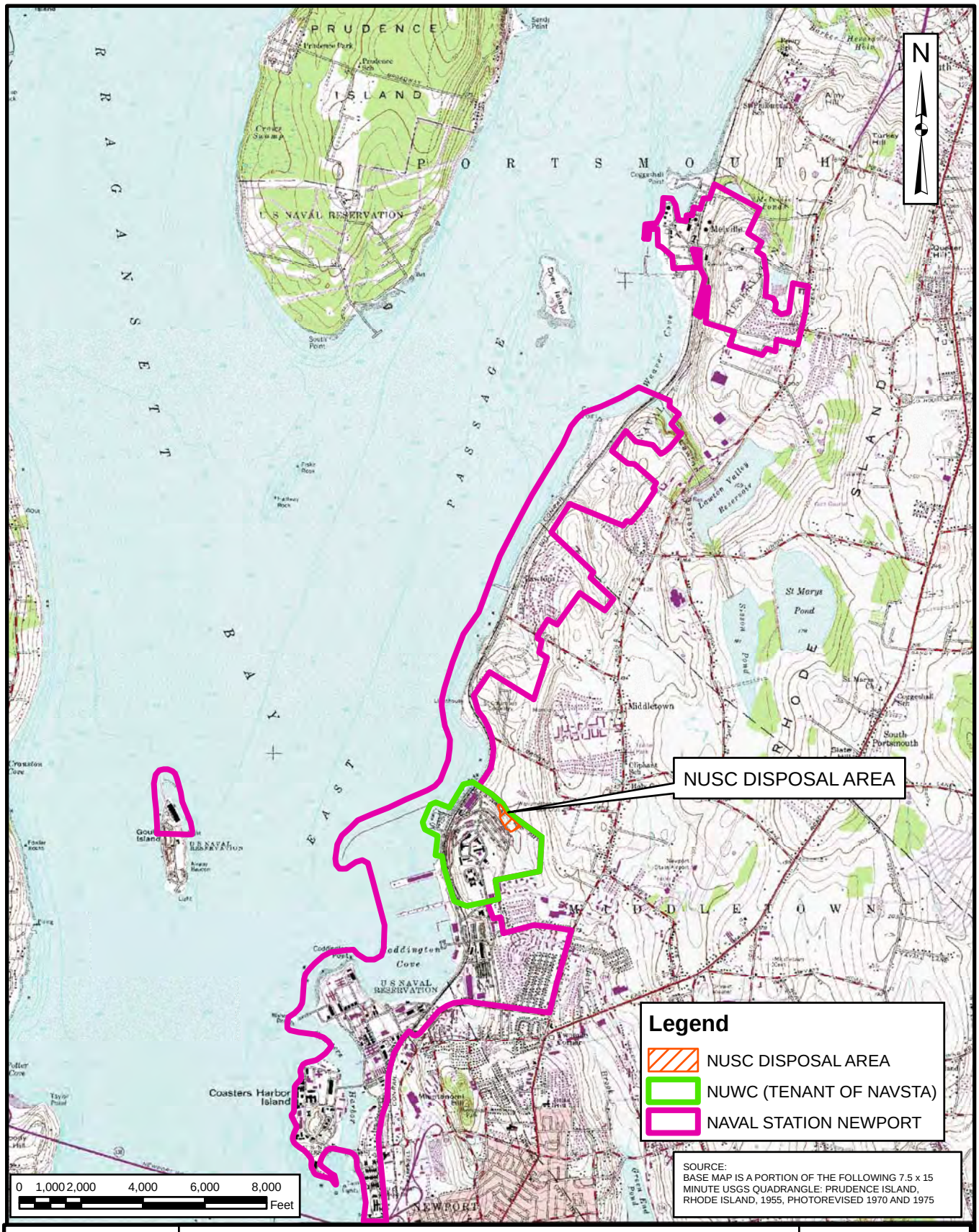

Tetra Tech NUS, Inc.

NAVAL UNDERSEA WARFARE CENTER (NUWC) LOCATION MAP
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SCALE	AS NOTED
FILE	\..\NUSC_LOCUS.MXD
REV	0
DATE	11/20/09
FIGURE NUMBER	1-2

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TETRA TECH NUS, INC.

NUSC DISPOSAL AREA SITE LOCATION
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SCALE	AS NOTED
FILE	\..\NUSC_SITE_LOC.DWG
REV	0
DATE	11/20/09
FIGURE NUMBER	1-3

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER
SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. GROUNDWATER MONITORING WELLS MW7 AND MW9 ASSOCIATED WITH BUILDING 179 ARE PART OF THE NUSC DISPOSAL AREA STUDY BUT ARE NOT SHOWN ON THE FIGURE.

9. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

10. GROUNDWATER CLASSIFICATION DELINEATION FROM RIGIS.

N

CONCRETE DAM
BLDG. 1273
APPROX. 970 FT. TO BLDG. 1310
OUTFALL B
PARKING LOT
C-278
BLDG. 1310 (Survey Plan: 1257)
W.E. 25.2
NUWC POND (DEERFIELD POND)
NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
WANUMETONOMY COLF COURSE
BLDG. 1257
OUTFALL C
C-279
INTERMITTENT STREAM (DRAINAGE DITCH)
SOUTH MEADOW
PAVED GATED STORAGE AREA
PAVED OPEN STORAGE AREA
CUNNINGHAM ST.
DEERFIELD CREEK
OUTFALL D
C-281
ASPHALT ROAD
GRAVEL RD.
BLDG 185 COMPLEX
BLDG 180
DECOMMISSIONED DRAIN PIPES
BLDG 178
BLDG 1302
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
PREVIOUS INTERCEPTOR TANK LOCATION
CONCRETE UNDERGROUND STORAGE TANK
PROPANE TANKS
BLDG 179
BLDG 1256
PNTS
TANK
BLDG 1301
BLDG 1180
GA
GA Groundwater Classification Area
GB
GB Groundwater Classification Area

LEGEND:

- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN–LINK FENCE
- ASPHALT PAVING

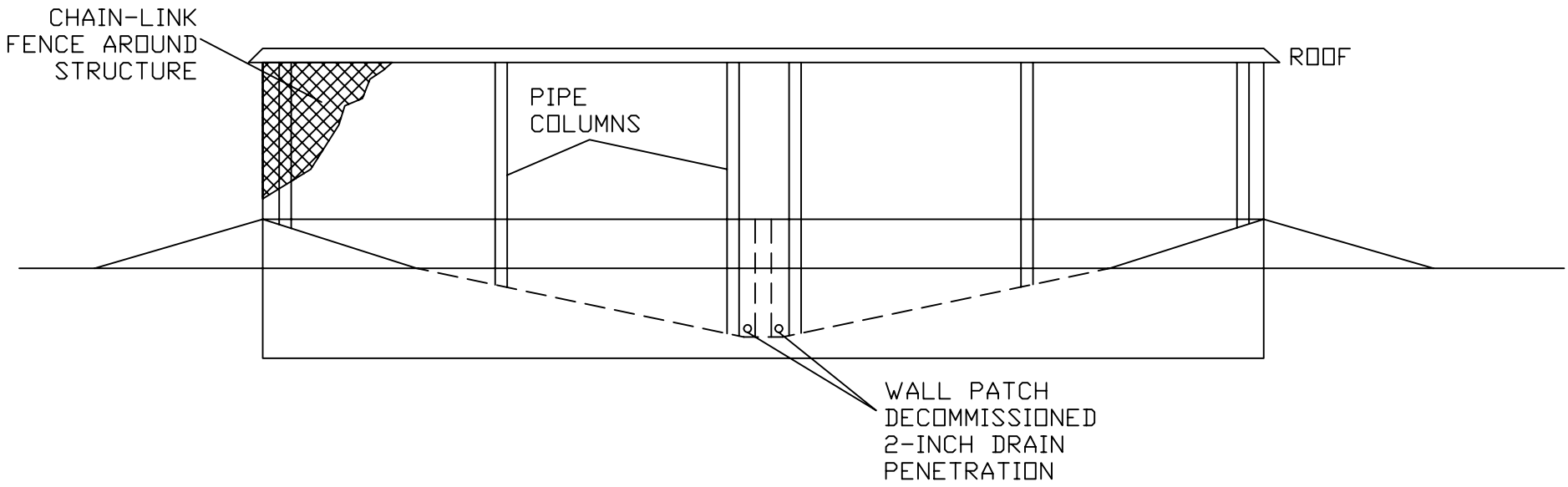
GRAPHIC SCALE
0′ 150′ 300′

SITE MAP
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

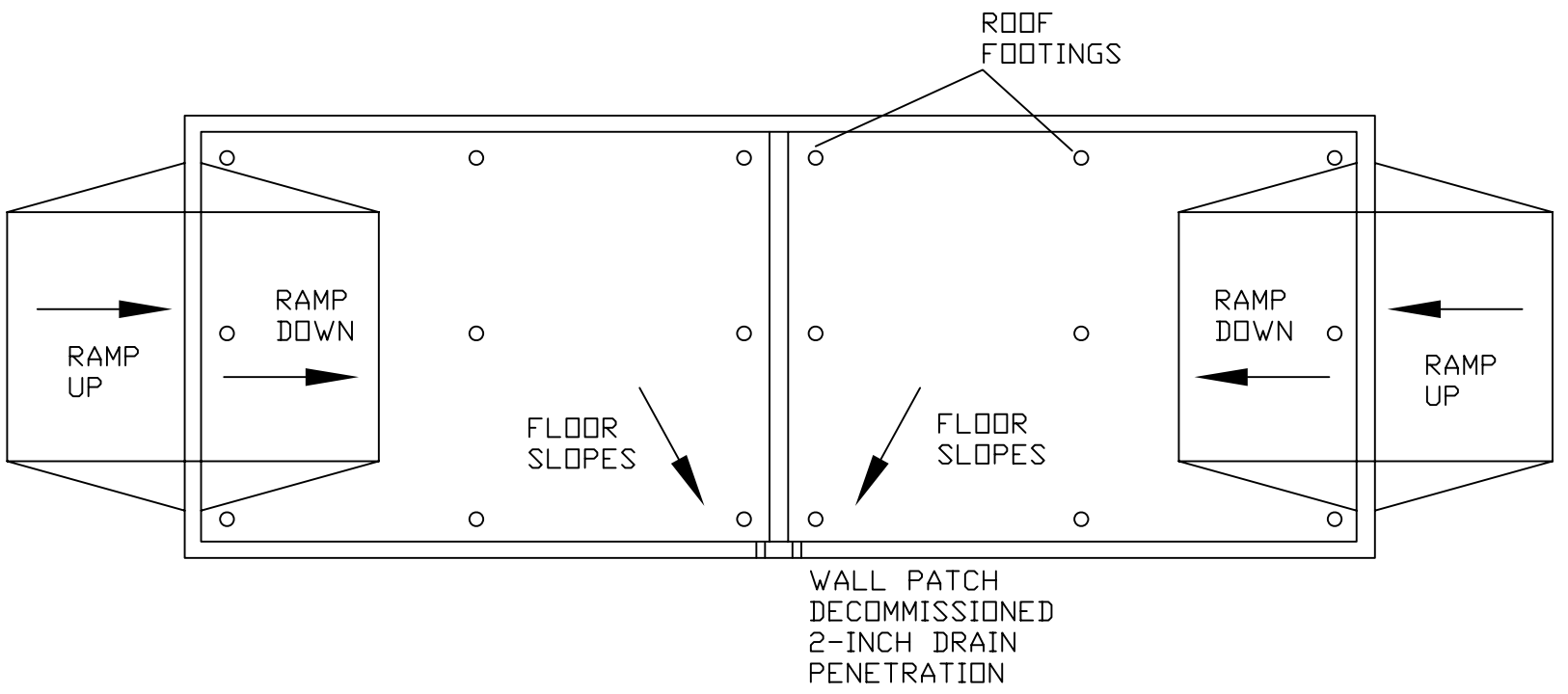
DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	D. SEIKEN	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_BASE_MAP.DWG

FIGURE 1–4

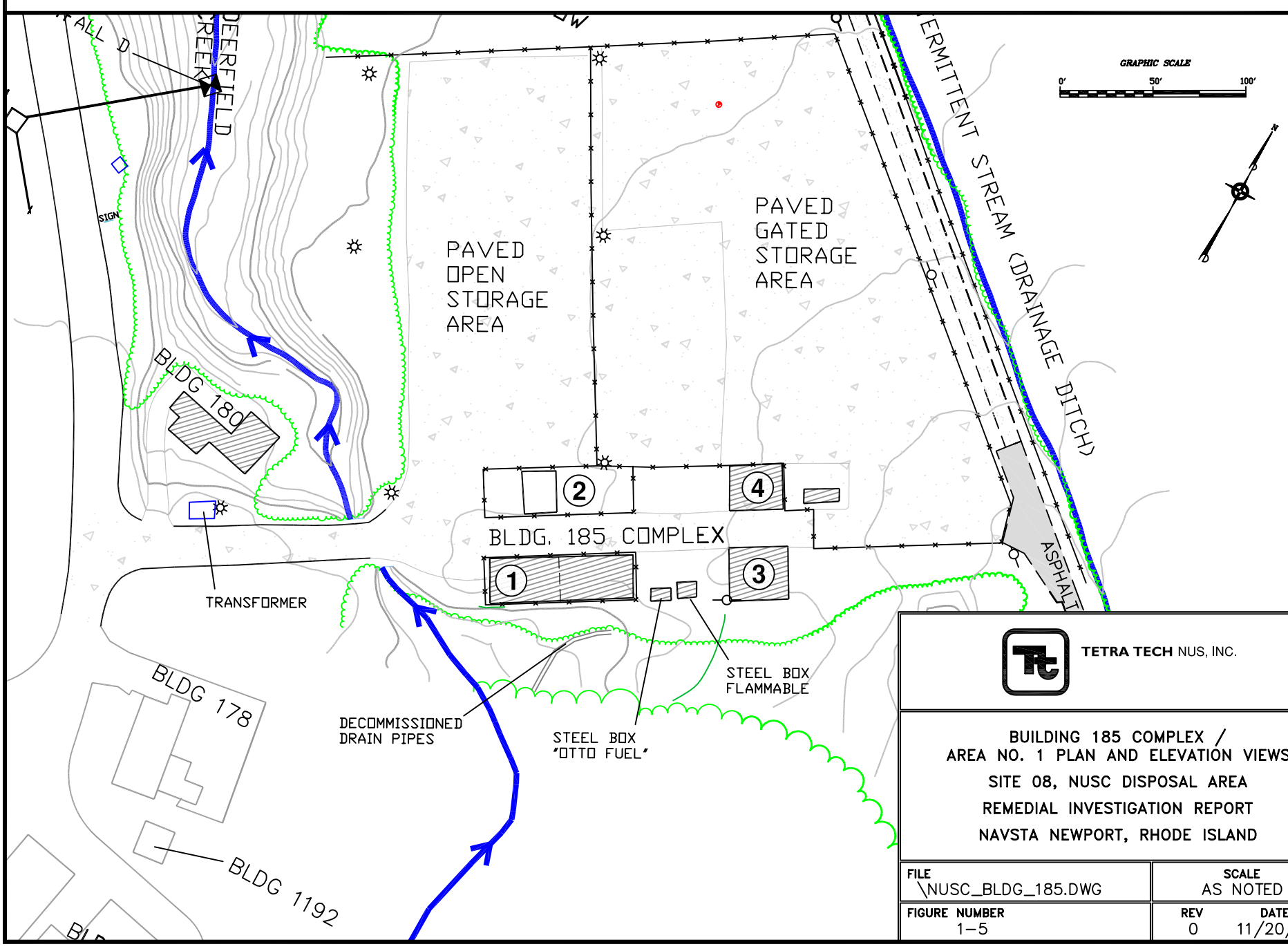
TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899



AREA NO. 1 SOUTH ELEVATION



AREA NO. 1 PLAN VIEW



TETRA TECH NUS, INC.

BUILDING 185 COMPLEX /
AREA NO. 1 PLAN AND ELEVATION VIEWS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\NUSC_BLDG_185.DWG	AS NOTED
FIGURE NUMBER 1-5	**REV** 0 **DATE** 11/20/09

NOTES AND REFERENCES

1. PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996. TOPOGRAPHY AT SOUTHERN EDGE OF SITE FROM LOUIS FEDERICI AND ASSOCIATES.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. LOCATIONS OF PHASE I & II EXCAVATION LIMITS, EXCAVATION LIMITS OF WORK AREA I (BURIED DRUM AREA), EXCAVATION LIMITS OF BURIED METAL CONTAINER AREA PHASE I & WORK AREA NO. 2, LOCATION OF RIP RAP AREA AND UTILITY POLE (BETWEEN BLDG. 180 & 185) LOCATION FROM A PLAN BY TN & ASSOCIATES, INC., "FIGURE 3, FINAL AS BUILT EXCAVATION LIMITS", IR SITE 08 – NUSC DISPOSAL AREA, NAVAL WARFARE CENTER MIDDLETOWN, RI, NO DATE.

9. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

10. STUDY AREA SCREENING EVALUATION FOR NUSC DISPOSAL AREA, TtNUS 2005.

N

CONCRETE DAM
BLDG. 1273
APPROX. 970 FT. TO BLDG. 110
OUTFALL B
PARKING LOT
C-278
W.E. 25.2
NUWC POND (DEERFIELD POND)
BLDG. 1310 (Survey Plan: 1257)
BLDG. 1257
OUTFALL C
C-279
CUNNINGHAM ST.
OUTFALL D
C-281
DEERFIELD CREEK
GRAVEL ROAD
NORTH MEADOW
UNNAMED STREAM
WANUMETONOMY GOLF COURSE
INTERMITTENT STREAM (DRAINAGE DITCH)
SOUTH MEADOW
PAVED OPEN STORAGE AREA
PAVED CATCH STORAGE AREA
ASPHALT ROAD
GRAVEL RD.
BLDG. 185 COMPLEX
BLDG 180
DECOMMISSIONED DRAIN PIPES
BLDG 178
BLDG 1192
BLDG 1302
BLDG 438
BLDG 127
BLDG 1303
PREVIOUS INTERCEPTOR TANK LOCATION
CONCRETE UNDERGROUND STORAGE TANK
DEERFIELD CREEK
BLDG 179
PROPANE TANKS
BLDG 1256
PNTS
TANK
BLDG 1301
BLDG 1180

LEGEND

- LIGHT POLE
- UTILITY POLE
- GROUND DISTURBANCE INDICATED ON 1951 AERIAL PHOTO
- GROUND DISTURBANCE INDICATED ON 1970 AERIAL PHOTO
- GROUND DISTURBANCE INDICATED ON 1988 AERIAL PHOTO
- FILL INDICATED ON 1951, 1963, AND 1965 AERIAL PHOTOS
- FILL INDICATED ON 1981 AERIAL PHOTOS (MOUNDED SOILS VISIBLE)
- POSSIBLE UNIMPROVED ROADWAYS
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN–LINK FENCE
- ASPHALT PAVING

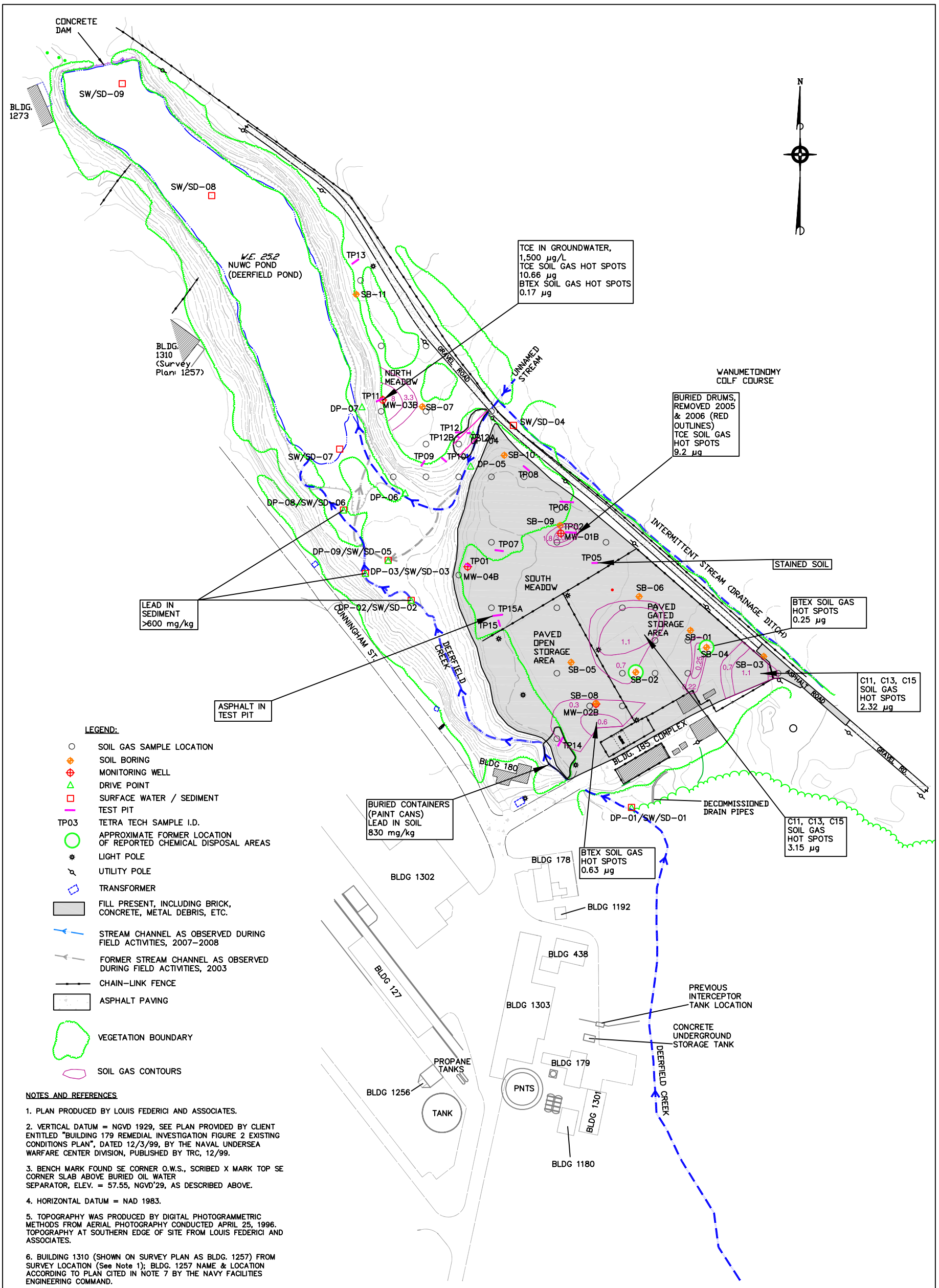
GRAPHIC SCALE
0′ 150′ 300′

FILL AREAS BASED ON AERIAL PHOTOS SITE 08, NUSC DISPOSAL AREA REMEDIAL INVESTIGATION REPORT NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	J. FORRELLI	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_FILL_AREAS.DWG

FIGURE 1–6

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899



NOTES AND REFERENCES

1. PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996. TOPOGRAPHY AT SOUTHERN EDGE OF SITE FROM LOUIS FEDERICI AND ASSOCIATES.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

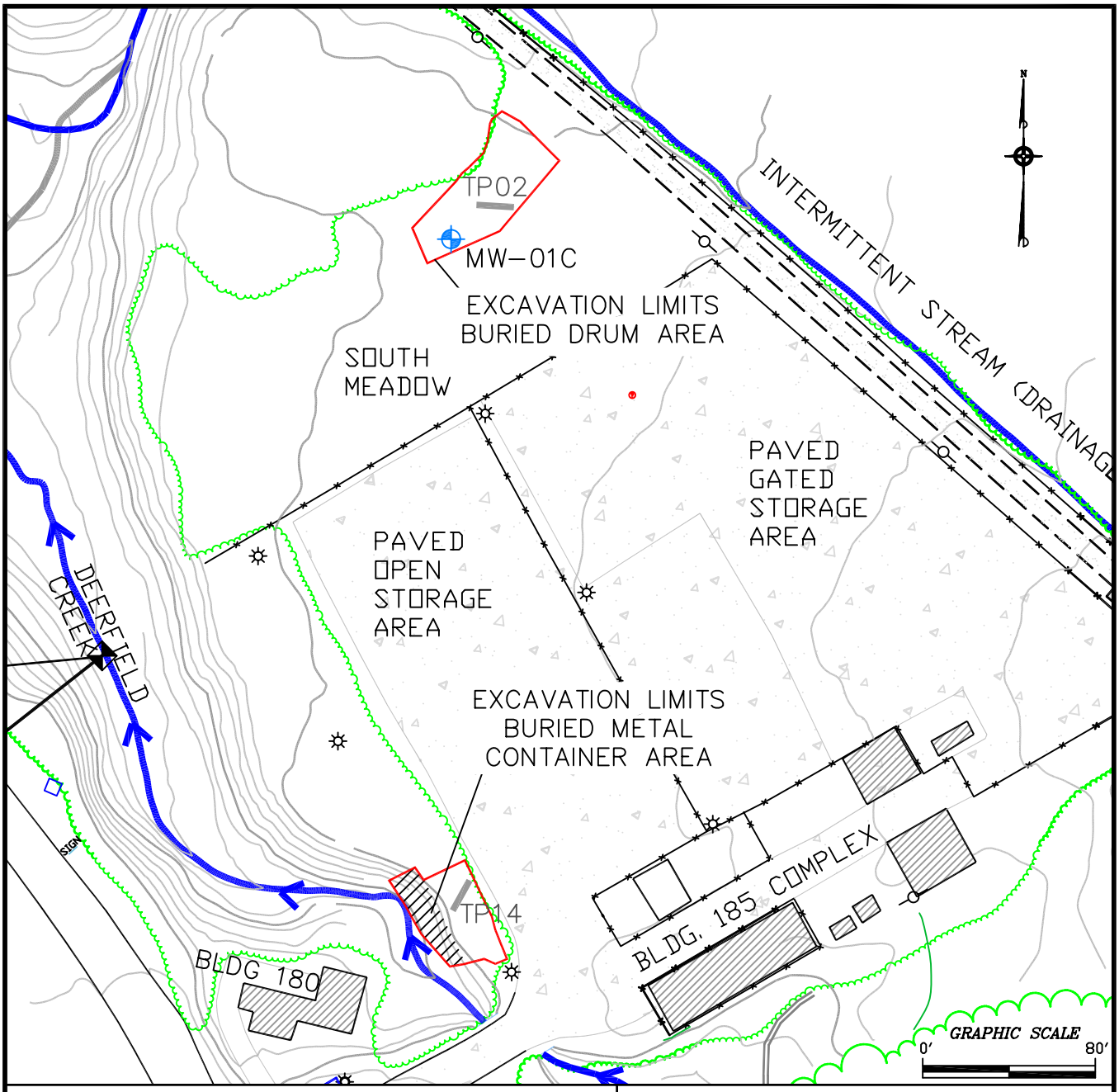
SASE EXPLORATION LOCATIONS AND FINDINGS SUMMARY SITE 08, NUSC DISPOSAL AREA REMEDIAL INVESTIGATION REPORT NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	J. FORRELLI	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_EXPL_LOCS.DWG

FIGURE 1–7

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899

ACAD: \02124\RI.DF\NUSC_EXCAV_AREAS.DWG 11/20/09 DWM



LEGEND:

- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN-LINK FENCE
- ASPHALT PAVING
- EXCAVATION LIMITS
- RIP RAP

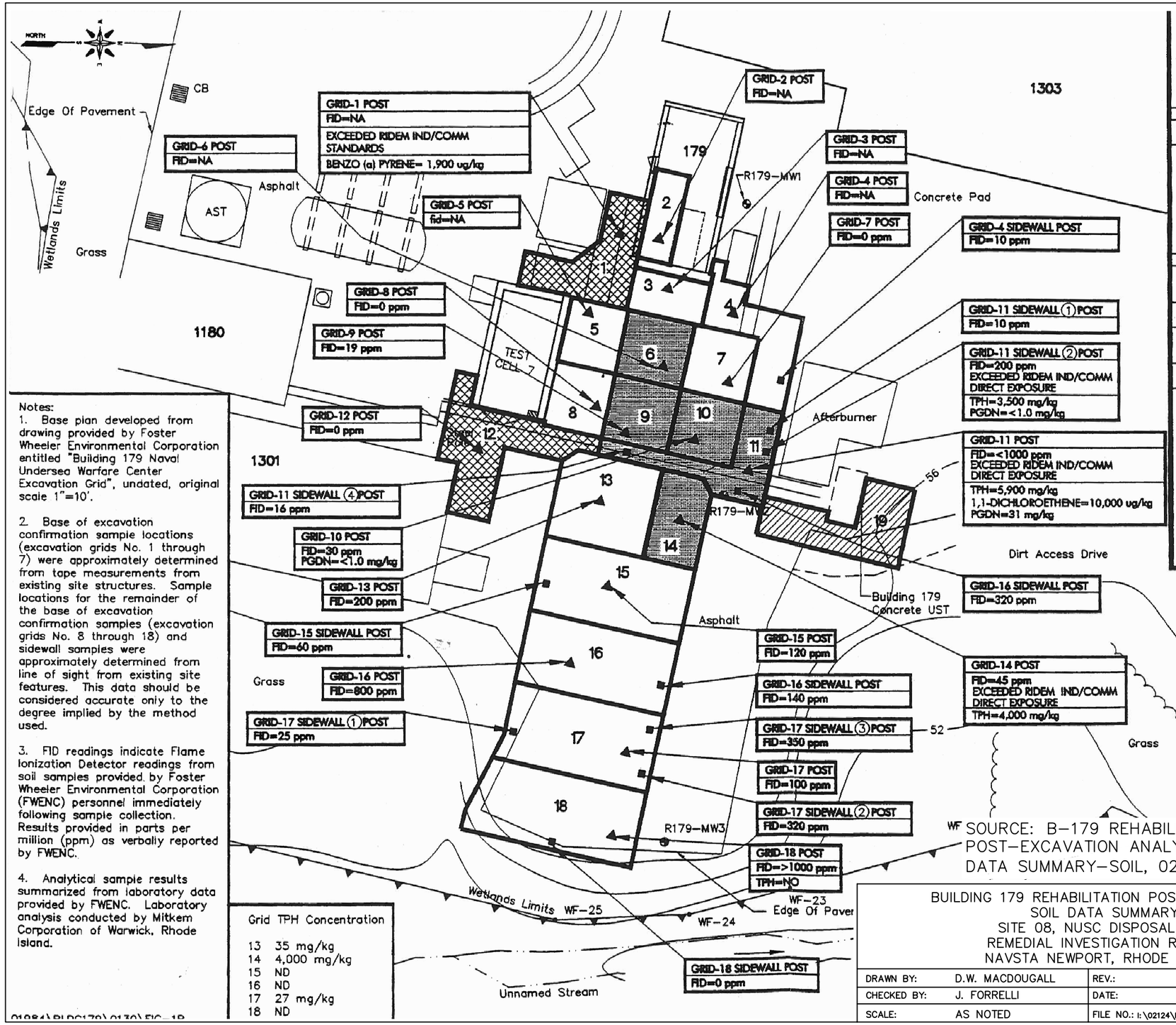
NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.
2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.
3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.
4. HORIZONTAL DATUM = NAD 1983.
5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996.
6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.
7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.
8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

TETRA TECH NUS, INC.

POST-SASE EXCAVATION AREAS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SCALE	AS NOTED
FILE	\..\NUSC_EXCAV_AREAS.DWG
REV	0
DATE	11/20/09
FIGURE NUMBER	1-8



Building 179 Post Excavation Soil FID Readings

GRID	Location	FID Reading
GRID 1.1	Floor	0.0 ppm
GRID 1.2	Floor	0.0 ppm
GRID 1.3	Floor	0.2 ppm
GRID 2	Floor	0.0 ppm
GRID 3.1	Floor	0.1 ppm
GRID 3.2	Floor	0.1 ppm
GRID 4.1	Sidewall	0.0 ppm
GRID 4.2	Sidewall	0.0 ppm
GRID 4.3	Sidewall	0.0 ppm
GRID 4.4	Sidewall	0.0 ppm
GRID 4.5	Sidewall	0.6 ppm
GRID 4.6	Sidewall	0.6 ppm
GRID 4.7	Sidewall	5.4 ppm
GRID 4.8	Sidewall	3.6 ppm
GRID 4.9	Floor	0.0 ppm
GRID 5	Floor	0.2 ppm
GRID 6.1	Floor	1.4 ppm
GRID 6.2	Floor	2.0 ppm
GRID 6.3	Floor	260 ppm
GRID 7.1	Floor	0.0 ppm
GRID 7.2	Floor	0.0 ppm
GRID 9.1	Floor	25 ppm
GRID 9.2	Floor	10 ppm
GRID 9.3	Floor	1.8 ppm
GRID 10.1	Floor	10 ppm
GRID 10.2	Floor	10 ppm
GRID 11.1	Sidewall	90 ppm
GRID 11.2	Sidewall	10 ppm
GRID 11.3	Sidewall	12 ppm
GRID 11.4	Sidewall	30 ppm
GRID 11.5	Sidewall	20 ppm
GRID 11.6	Sidewall	1 ppm
GRID 11.7	Sidewall	9 ppm
GRID 11.8	Sidewall	800 ppm
GRID 11.9	Sidewall	100 ppm
GRID 11.10	Sidewall	110 ppm
GRID 11.11	Floor	300 ppm
GRID 11.12	Floor	120 ppm
GRID 11.13	Floor	10 ppm
GRID 11.14	Floor	880 ppm

GRID	Location	FID Reading
GRID 12.1	Floor	0.0 ppm
GRID 12.2	Floor	1 ppm
GRID 13.1	Sidewall	1.4 ppm
GRID 13.2	Sidewall	1.8 ppm
GRID 13.3	Floor	120 ppm
GRID 13.4	Floor	180 ppm"
GRID 14.1	Floor	10 ppm
GRID 14.2	Floor	40 ppm
GRID 15.1	Sidewall	0.0 ppm
GRID 15.2	Floor	0.0 ppm
GRID 15.3	Floor	10 ppm
GRID 15.4	Floor	300 ppm
GRID 16.1	Sidewall	8 ppm
GRID 16.2	Sidewall	3.6 ppm
GRID 16.3	Floor	600 ppm
GRID 16.4	Floor	420 ppm
GRID 16.5	Floor	3 ppm
GRID 16/17?	Sidewall	2.8 ppm
GRID 16/17?	Sidewall	70 ppm
GRID 16/17?	Sidewall	0.0 ppm
GRID 16/17?	Sidewall	90 ppm
GRID 17.1	Sidewall	0.0 ppm
GRID 17.2	Sidewall	1.6 ppm
GRID 17.3	Sidewall	0.2 ppm
GRID 17.4	Sidewall	12 ppm
GRID 17.5	Sidewall	90 ppm
GRID 17.6	Sidewall	1.8 ppm
GRID 17.7	Sidewall	130 ppm
GRID 17.8	Floor	80 ppm
GRID 17.9	Floor	100 ppm
GRID 17/18?	Sidewall	80 ppm
GRID 18.1	Sidewall	1 ppm
GRID 18.2	Sidewall	0.0 ppm
GRID 18.3	Sidewall	0.0 ppm
GRID 18.4	Sidewall	0.0 ppm
GRID 18.5	Sidewall	0.0 ppm
GRID 18.6	Floor	200 ppm
GRID 18.7	Floor	700 ppm

Notes:
1. Base plan developed from drawing provided by Foster Wheeler Environmental Corporation entitled "Building 179 Naval Undersea Warfare Center Excavation Grid", undated, original scale 1"=10'.

2. Base of excavation confirmation sample locations (excavation grids No. 1 through 7) were approximately determined from tape measurements from existing site structures. Sample locations for the remainder of the base of excavation confirmation samples (excavation grids No. 8 through 18) and sidewall samples were approximately determined from line of sight from existing site features. This data should be considered accurate only to the degree implied by the method used.

3. FID readings indicate Flame Ionization Detector readings from soil samples provided by Foster Wheeler Environmental Corporation (FWENC) personnel immediately following sample collection. Results provided in parts per million (ppm) as verbally reported by FWENC.

4. Analytical sample results summarized from laboratory data provided by FWENC. Laboratory analysis conducted by Mitkem Corporation of Warwick, Rhode Island.

Grid TPH Concentration

13	35 mg/kg
14	4,000 mg/kg
15	ND
16	ND
17	27 mg/kg
18	ND

WF SOURCE: B-179 REHABILITATION POST-EXCAVATION ANALYTICAL DATA SUMMARY-SOIL, 02/98

LEGEND

- BASE OF EXCAVATION CONFIRMATION SAMPLE
- SIDEWALL CONFIRMATION SAMPLE
- EXCAVATION TO ELEVATION 53.0 NO FUTURE EXCAVATION PROPOSED
- EXCAVATION TO ELEVATION 50.50
- TO BE EXCAVATED TO ELEVATION 50.50 AT A LATER DATE

GRAPHIC SCALE
20' 0' 20' 40'
1=20'

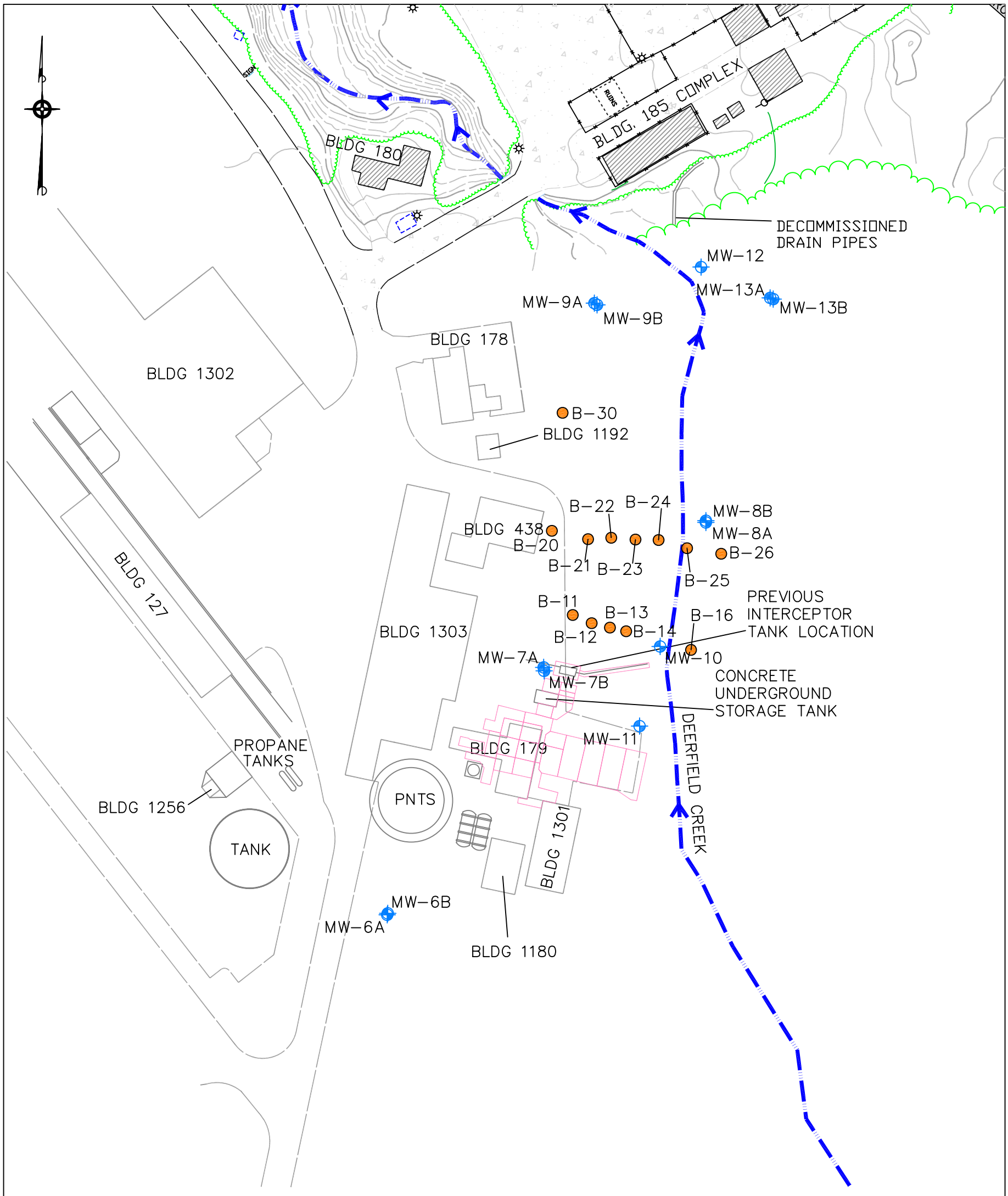
BUILDING 179 REHABILITATION POST-EXCAVATION
SOIL DATA SUMMARY
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	J. FORRELLI	DATE:	NOVEMBER 23, 2009
SCALE:	AS NOTED	FILE NO.:	I:\02124\RI.DF\NUSC_B-179_SOIL_SAMP.DWG

FIGURE 1-9

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

01984\RI.DG\179\0179\FIG_1R



NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER
SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

GRAPHIC SCALE

0′ 80′ 160′

LEGEND:

MW-10 — MONITORING WELL LOCATION (INSTALLED JULY-AUGUST 1999, TRC)

B-14 — SOIL BORING LOCATION (ADVANCED JULY 1999, TRC)

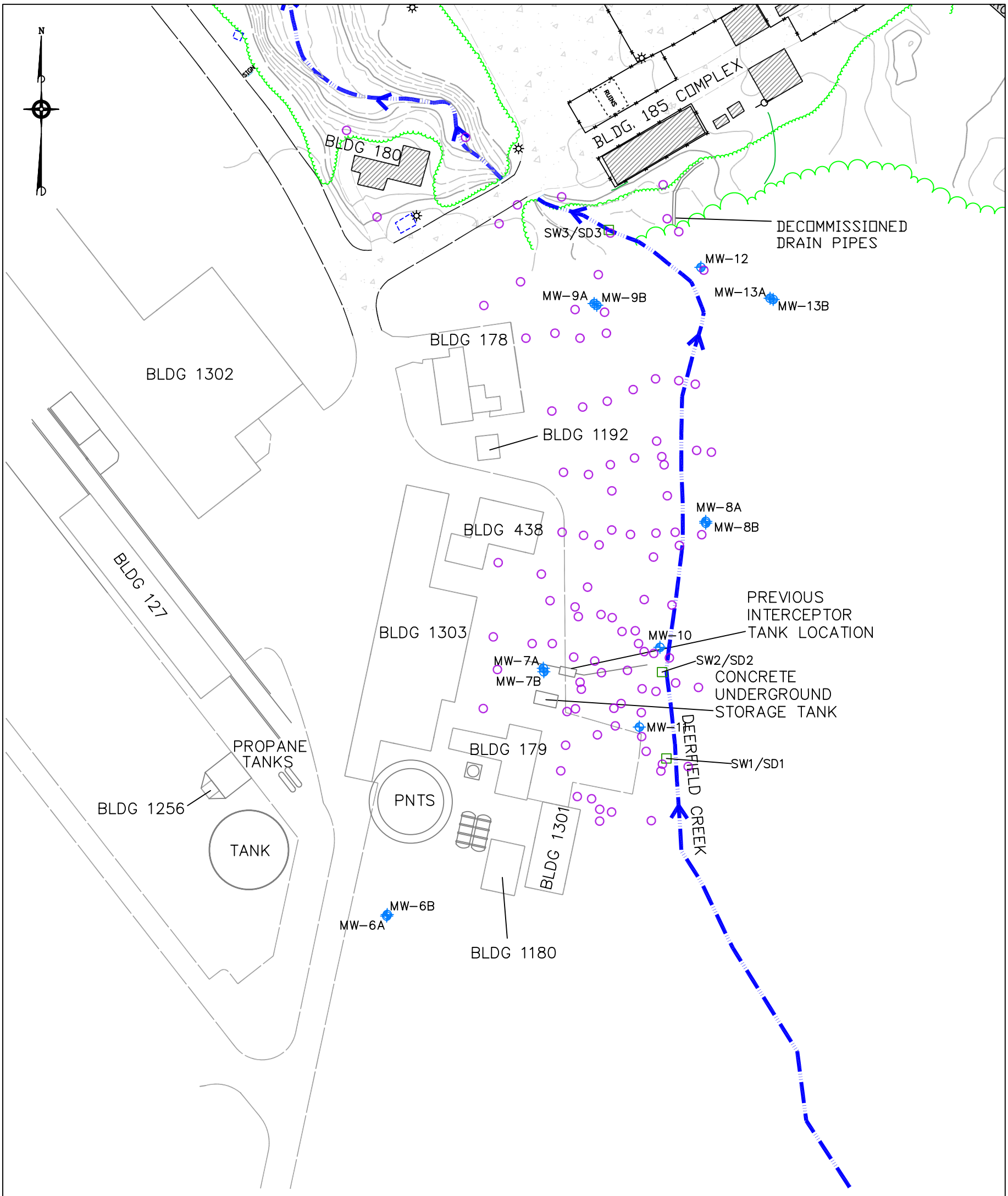
AREA OF SOIL EXCAVATION BY FOSTER WHEELER ENVIRONMENTAL CORPORATION

HISTORICAL SOIL SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	R. O'NEILL	DATE:	NOVEMBER 24, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_HIST_SOIL_SAMP_LOCS.DWG

FIGURE 1-10

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899



NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER
SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

GRAPHIC SCALE

0′ 80′ 160′

LEGEND:

MW-10 MONITORING WELL LOCATION (INSTALLED JULY–AUGUST 1999, TRC)

GEOPROBE LOCATION (INSTALLED JULY–AUGUST 1999, TRC)

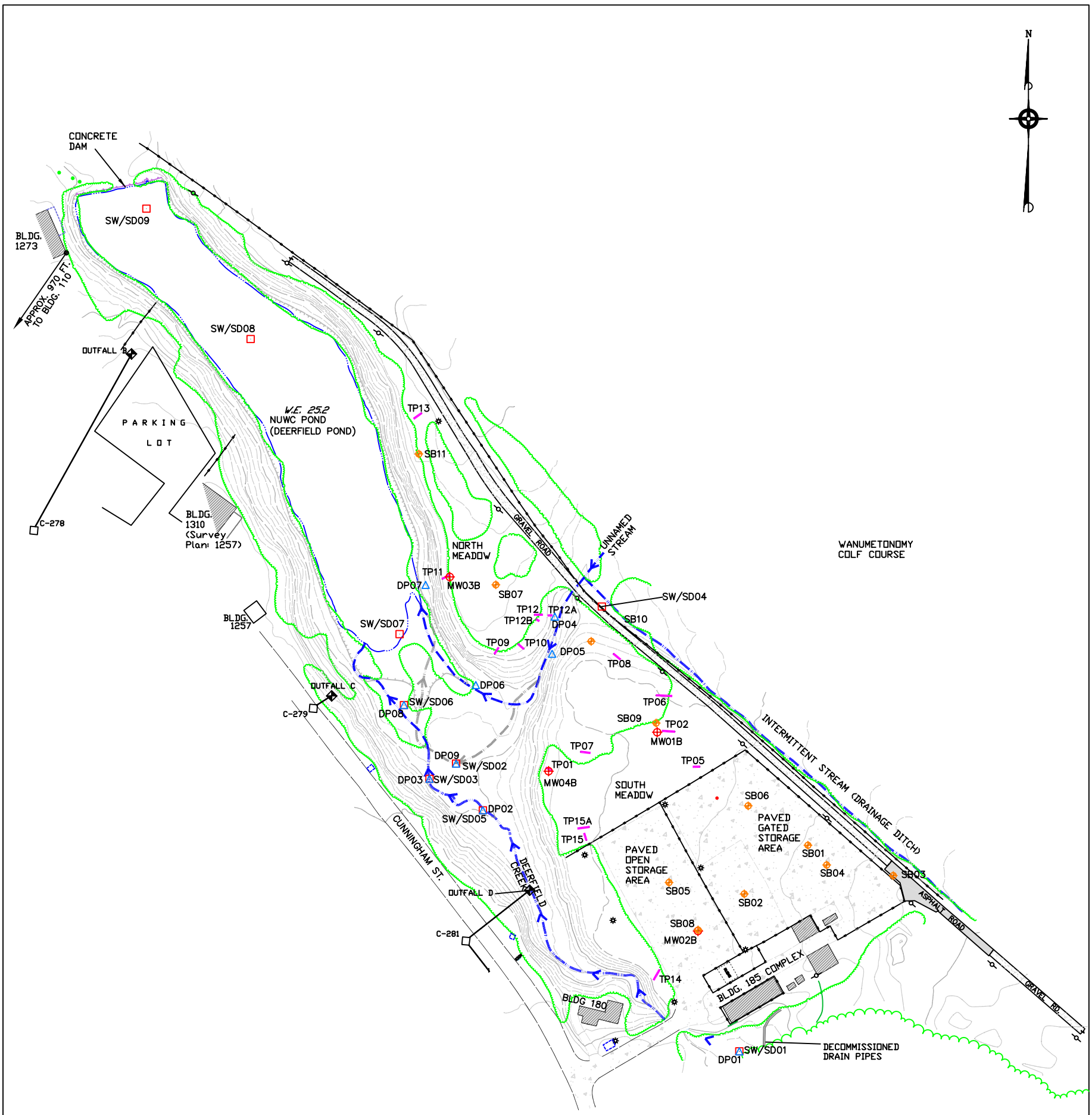
SW3/SD3 SURFACE WATER/SEDIMENT LOCATION (SAMPLED JULY–AUGUST 1999, TRC)

HISTORICAL GROUNDWATER AND SURFACE WATER SAMPLE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	R. O'NEILL	DATE:	NOVEMBER 24, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_HIST_GWSW_SAMP_LOCS.DWG

FIGURE 1–11

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899



LEGEND:

- SB–03 — SOIL BORING
- MW–04B — MONITORING WELL
- DP09 — DRIVE POINT
- TP03 — TEST PIT
- SW/SD01 — SURFACE WATER /SEDIMENT
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN–LINK FENCE
- ASPHALT PAVING

GRAPHIC SCALE

0′ 150′ 300′

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.
2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.
3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.
4. HORIZONTAL DATUM = NAD 1983.
5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.
6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.
7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.
8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

PRE–RI SAMPLING LOCATIONS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	D. SEIKEN	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_PRE–RI_SAMP_LOCS.DWG

FIGURE 2–1

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

9. DIFFUSION BAG SAMPLE DW11 WQS NOT SURVEYED. LOCATION IS TAKEN FROM FIELD NOTES. SOIL BORING SAMPLES SB-136 TO SB-140 ARE NOT SURVEYED.

N

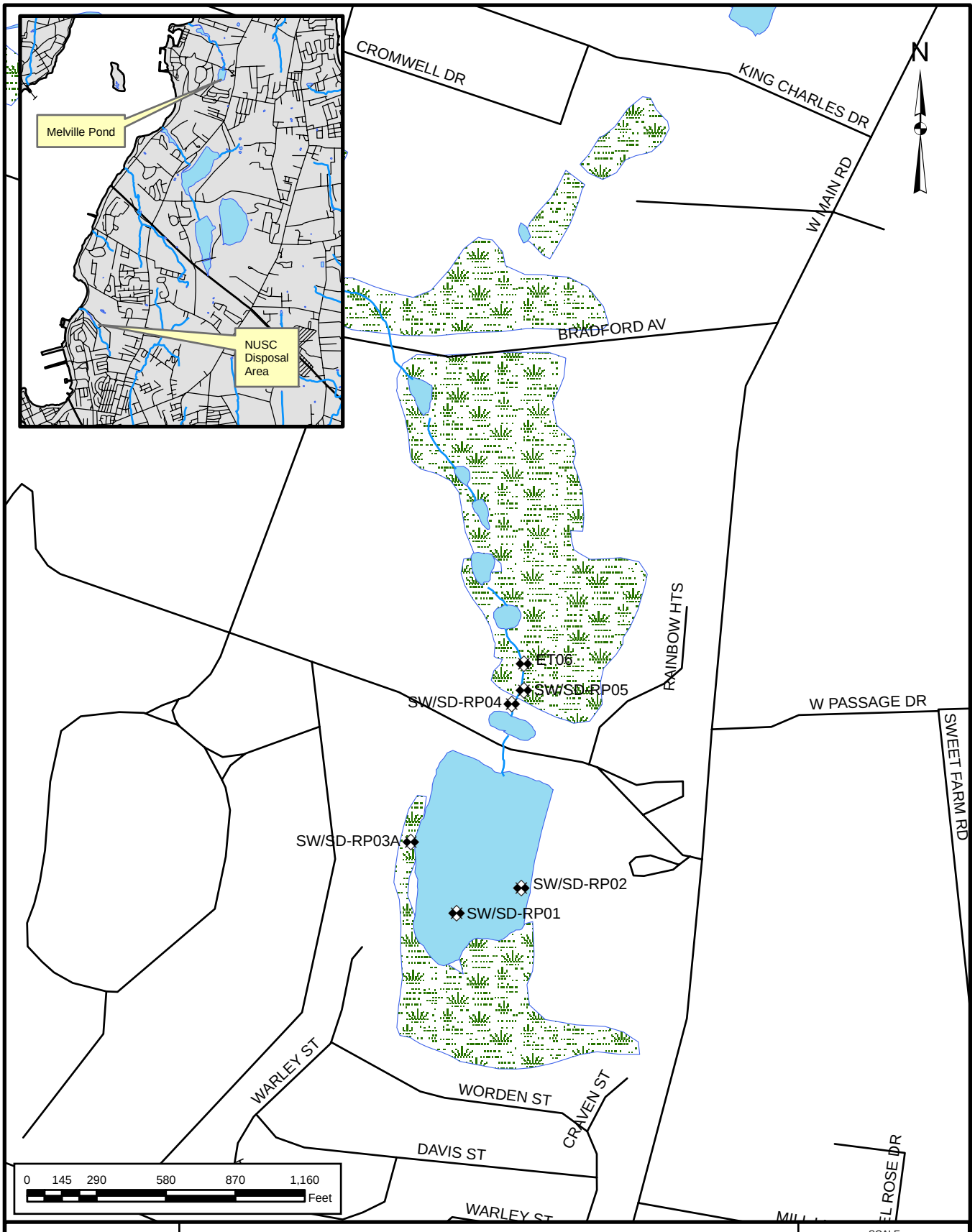
LEGEND

- MW-02B — MONITORING WELL LOCATION
- SB153 — DPT SOIL BORING LOCATION
- SB140 — HAND AUGER SOIL BORING LOCATION
- SW/SD102 — SURFACE WATER/SEDIMENT LOCATION
- SD-130 — SEDIMENT LOCATION
- DW10 — DIFFUSION BAG SAMPLE LOCATION
- TEST PITS (2008)
- SB-02 — SOIL BORING LOCATION
- TEST PITS (FROM SASE)
- SURFACE WATER/SEDIMENT LOCATIONS (FROM SASE)
- BENCH MARK
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007-2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN-LINK FENCE
- ASPHALT PAVING
- NUSC DISPOSAL AREA SITE BOUNDARY

GRAPHIC SCALE
60' 0' 60' 120'

DRAWN BY: D.W. MACDOUGALL	TITLE: NUSC SAMPLE LOCATIONS SITE 08, NUSC DISPOSAL AREA REMEDIAL INVESTIGATION REPORT NAVSTA NEWPORT, RHODE ISLAND		TETRA TECH NUS, INC.
PREPARED BY: R. CLEAVER	SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)		55 JONSPIN ROAD WILMINGTON, MASSACHUSETTS 01887 (978)658-7899
CHECKED BY: D. SEIKEN	SCALE: AS SHOWN	DATE: NOVEMBER 25, 2009	PROJ. NO: 02124
PROJECT MANAGER: D. SEIKEN	DRAWING NO: 2-2	ACFILE NAME: \02124\RI.DF\NUSC_SAMP_LOCS.DWG	REV: 0
PROGRAM MANAGER: J. TREPANOWSKI			

I:\021246RI.DF\NUSC_MELVILLE_POND_REF_SAMP.MXD DWM 11/20/09



Tetra Tech NUS, Inc.

MELVILLE POND REFERENCE LOCATIONS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SCALE	AS NOTED
FILE	\..\NUSC_MELVILLE_POND_REF_SAMP.MXD
REV	0
DATE	11/20/09
FIGURE NUMBER	2-3

LEGEND:

- FISH SAMPLE AREAS
- SW/SD102 SURFACE WATER/SEDIMENT LOCATION
- SD-130 SEDIMENT LOCATION
- SW/SD-01 SURFACE WATER/SEDIMENT LOCATIONS (FROM SASE)
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN-LINK FENCE
- ASPHALT PAVING

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

GRAPHIC SCALE

0′ 150′ 300′

RI SURFACE WATER / SEDIMENT / FISH SAMPLING LOCATIONS SITE 08, NUSC DISPOSAL AREA REMEDIAL INVESTIGATION REPORT NAVSTA NEWPORT, RHODE ISLAND

FIGURE 2-4

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	M. HORTON	DATE:	NOVEMBER 25, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_ET_SAMP.DWG

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER
SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

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8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

9. SOIL BORING SAMPLES SB-136 TO SB-140 ARE NOT SURVEYED.

N

WANUMETONOMY
GOLF COURSE

LEGEND:

- MW-02B — MONITORING WELL LOCATION
- SB153 — DPT SOIL BORING LOCATION
- SB140 — HAND AUGER SOIL BORING LOCATION
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007-2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN-LINK FENCE
- ASPHALT PAVING

GRAPHIC SCALE
0' 150' 300'

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	D. SEIKEN	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_SB&MW.DWG

RI SOIL BORINGS AND MONITORING WELL LOCATIONS SITE 08, NUSC DISPOSAL AREA REMEDIAL INVESTIGATION REPORT NAVSTA NEWPORT, RHODE ISLAND

FIGURE 2-5

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

EXPLANATION

EM-61 Metal Detector Readings
Differential Metallic Response in Millivolts

- -12000 to -25
- -25 to 50
- 50 to 100
- 100 to 200
- 200 to 400
- 400 to 12000

LEGEND:

- TEST PITS (2008)
- TEST PITS (FROM SASE)
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN–LINK FENCE
- ASPHALT PAVING
- DECEMBER 2007 EM SURVEY AREA
- DECEMBER 2007 GPR LINES
- JULY 2008 EM AND GPR SURVEY AREA

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

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4. HORIZONTAL DATUM = NAD 1983.

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8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

GRAPHIC SCALE
60' 0' 60' 120'

DRAWN BY: D.W. MACDOUGALL
PREPARED BY: D. SEIKEN
CHECKED BY: D. SEIKEN
PROJECT MANAGER: D. SEIKEN
PROGRAM MANAGER: J. TREPANOWSKI

TITLE: RI TEST PIT LOCATIONS AND EM RESULTS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)

SCALE:	DATE:	PROJ. NO:
AS SHOWN	NOVEMBER 20, 2009	02124
DRAWING NO: 2–6	ACFILE NAME: \02124\RI.DF\NUSC_TP&EM.DWG	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658–7899

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER
SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

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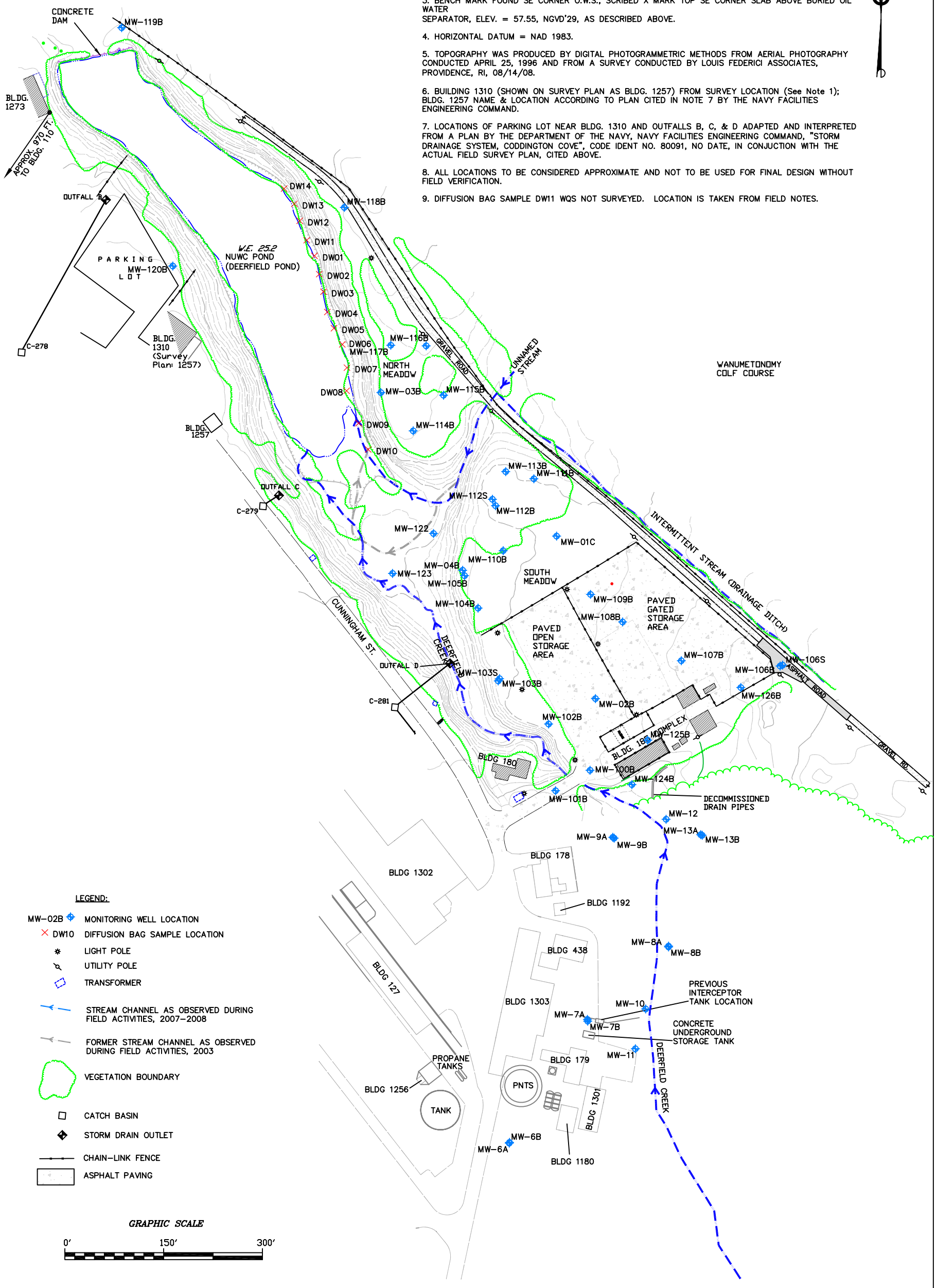
8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

9. DIFFUSION BAG SAMPLE DW11 WQS NOT SURVEYED. LOCATION IS TAKEN FROM FIELD NOTES.

N



LEGEND:

- MW-02B — MONITORING WELL LOCATION
- DW10 — DIFFUSION BAG SAMPLE LOCATION
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- CHAIN–LINK FENCE
- ASPHALT PAVING

GRAPHIC SCALE

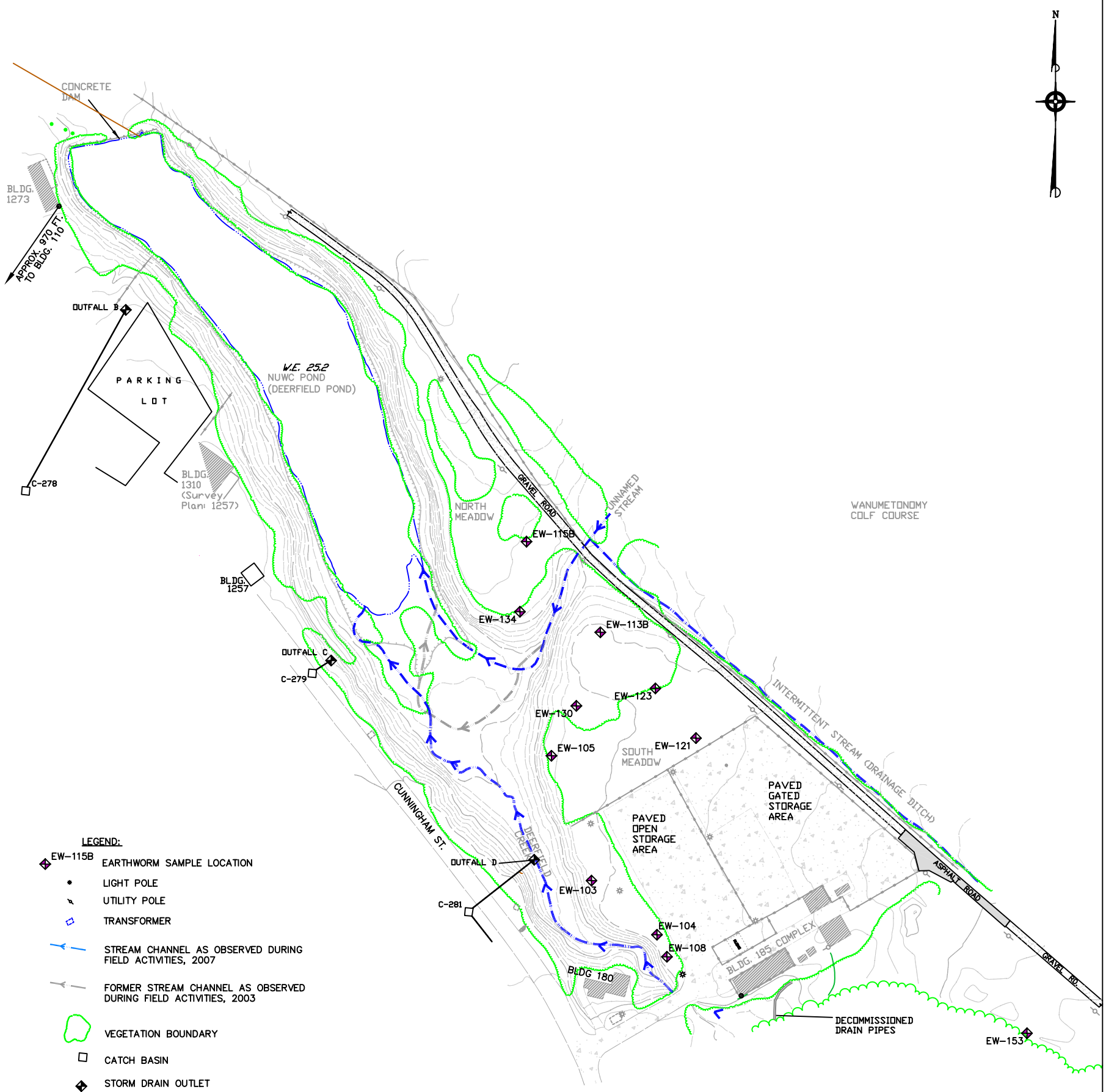
0′ 150′ 300′

RI GROUNDWATER SAMPLING LOCATIONS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	D. SEIKEN	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_GW_SAMP_LOCS.DWG

FIGURE 2–7

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899



LEGEND:

- EW-115B — EARTHWORM SAMPLE LOCATION
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN–LINK FENCE
- ASPHALT PAVING

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

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8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

9. SAMPLES WERE COLLECTED BETWEEN 08/06/08 AND 08/07/08.

GRAPHIC SCALE

0′ 150′ 300′

EARTHWORM SAMPLE LOCATION MAP
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	M. HORTON	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_EW_SAMP.DWG

FIGURE 2–8

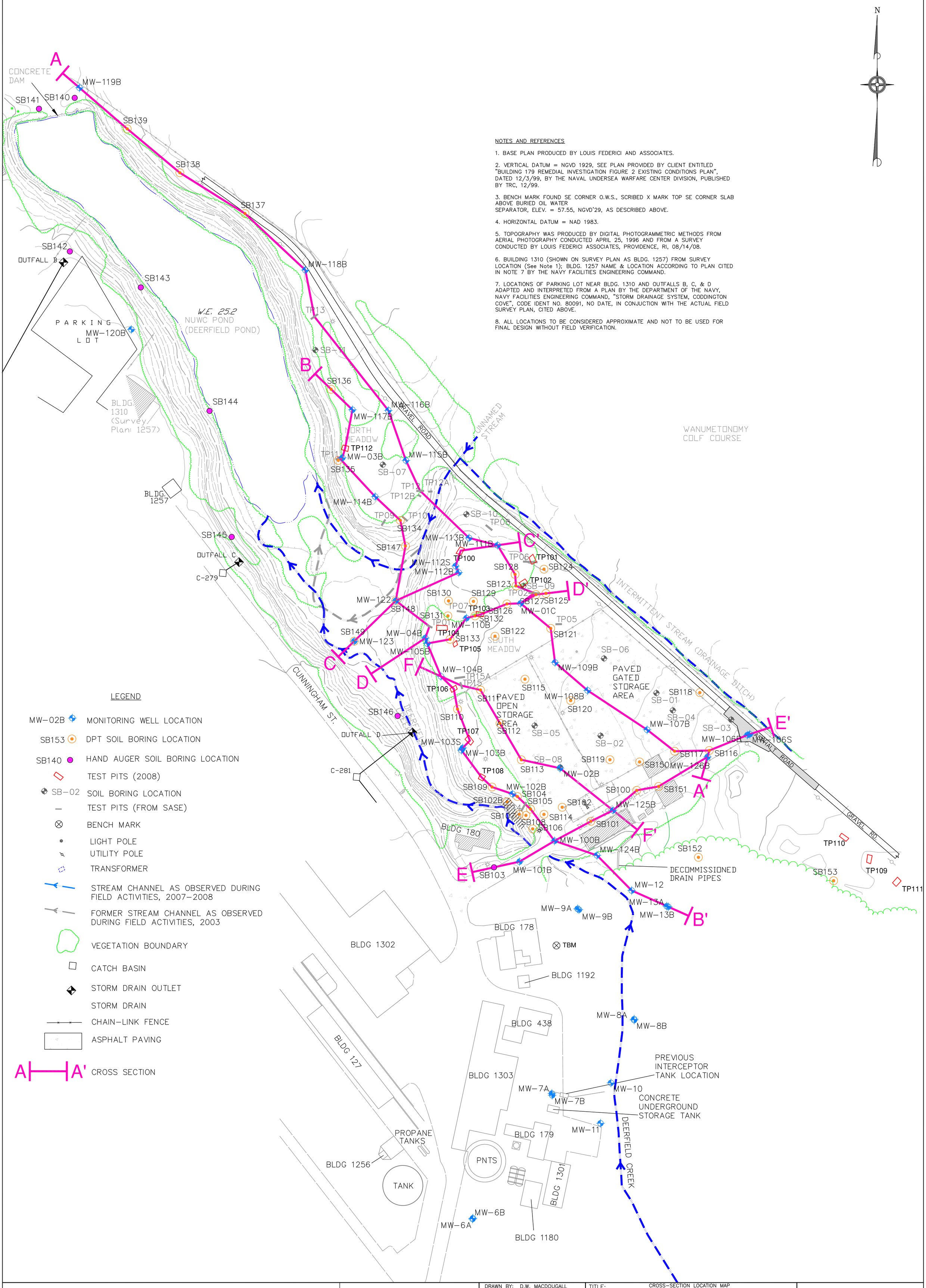
TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899

I:\02124\RI.DF\NUSC_SOIL_TYPE.MXD DWM 11/20/09

Tetra Tech NUS, Inc.

SOIL CLASSIFICATION
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SCALE	AS NOTED
FILE	\..\NUSC_SOIL_TYPE.MXD
REV	0
DATE	11/20/09
FIGURE NUMBER	3-1



NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

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4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

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8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

LEGEND

- MW-02B — MONITORING WELL LOCATION
- SB153 — DPT SOIL BORING LOCATION
- SB140 — HAND AUGER SOIL BORING LOCATION
- TEST PITS (2008)
- SB-02 — SOIL BORING LOCATION
- TEST PITS (FROM SASE)
- BENCH MARK
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN-LINK FENCE
- ASPHALT PAVING
- A — A' CROSS SECTION

GRAPHIC SCALE
60' 0' 60' 120'

DRAWN BY:	D.W. MACDOUGALL
PREPARED BY:	R. O'NEILL
CHECKED BY:	D. SEIKEN
PROJECT MANAGER:	D. SEIKEN
PROGRAM MANAGER:	J. TREPANOWSKI

TITLE: CROSS-SECTION LOCATION MAP
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)

SCALE:	DATE:	PROJ. NO:
AS SHOWN	NOVEMBER 18, 2009	02124
DRAWING NO: FIGURE 3-2	ACFILE NAME: \02124\RI.DF\NUSC_X-SECTION_LINES.DWG	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

ACAD: \02124\RI.DF\NUSC_X-SECTION_A-A'.DWG 11/20/09 DWM

NORTH MEADOW | SOUTH MEADOW | PAVED GATED STORAGE AREA

Northwest — A — A' — Southeast

ft NGVD

MW-119B, SB-139, SB-138, SB-137, MW-118B, TP-13, MW-116B, MW-115B, TP-12, UNNAMED STREAM, MW-113B, MW-111B, SB-128, SB-123, TP-02, MW-01C, Drum Removal Area, SB-121, MW-109B, MW-108B, MW-107B, SB-117, SB-116, MW-126B

(14.42) (23.34) (38.26) (38.26) (38.79) (40.02) (39.57) (43.93) (45.31) (48.72)

SAND
GRAVELLY SAND
SILTY GRAVEL
SILTY SAND
SILTY SAND WITH GRAVEL
FILL
BEDROCK

OPEN HOLE WELL OR BORING
MW-112B — SOIL BORING / WELL LOCATION ID
GROUND SURFACE
TOP OF OPEN HOLE
(23.34) WATER ELEVATION MEASURED ON SEPTEMBER 18, 2008
BOTTOM OF OPEN HOLE
BOTTOM OF BORING

SCREENED WELL
MW-112B — SOIL BORING / WELL LOCATION ID
GROUND SURFACE
TOP OF WELL SCREEN
BOTTOM OF WELL SCREEN
BOTTOM OF BORING

TP-100 — TEST PIT ID
GROUND SURFACE
BOTTOM OF TEST PIT

NOTES:
1. PLAN NOT TO BE USED FOR DESIGN.
2. ALL LOCATIONS AND CONTACTS ARE TO BE CONSIDERED APPROXIMATE.
3. HORIZONTAL DATUM IS BASED ON THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM NAD1983. VERTICAL DATUM IS BASED ON NGVD 1988.

GROUNDWATER ELEVATION (ESTIMATED) (SEPTEMBER 18, 2008)

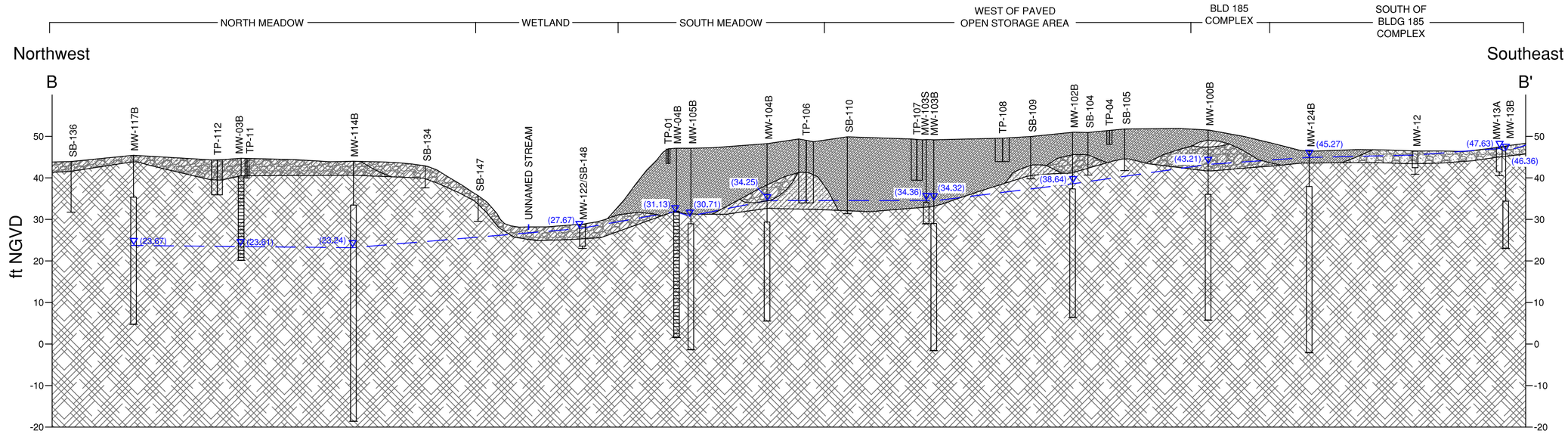
HORIZONTAL GRAPHIC SCALE
0' 60'

VERTICAL GRAPHIC SCALE
0' 20'

TETRA TECH NUS, INC.

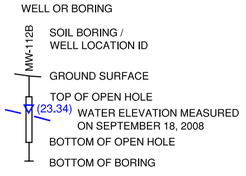
GEOLOGIC CROSS-SECTION A-A'
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_X-SECTION_A-A'.DWG	AS NOTED
FIGURE NUMBER 3-3	REV 0 / DATE 11/20/09

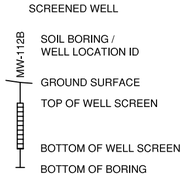


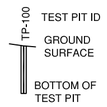
GRAVELLY SAND
SILTY GRAVEL
SILTY SAND
SILT
SILTY SAND WITH GRAVEL
FILL
BEDROCK

OPEN HOLE
WELL OR BORING



SCREENED WELL





NOTES:
1. PLAN NOT TO BE USED FOR DESIGN.
2. ALL LOCATIONS AND CONTACTS ARE TO BE CONSIDERED APPROXIMATE.
3. HORIZONTAL DATUM IS BASED ON THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM NAD1983. VERTICAL DATUM IS BASED ON NGVD 1988.

GROUNDWATER ELEVATION (ESTIMATED) (SEPTEMBER 18, 2008)

HORIZONTAL GRAPHIC SCALE

0' 60'

VERTICAL GRAPHIC SCALE

0' 20'

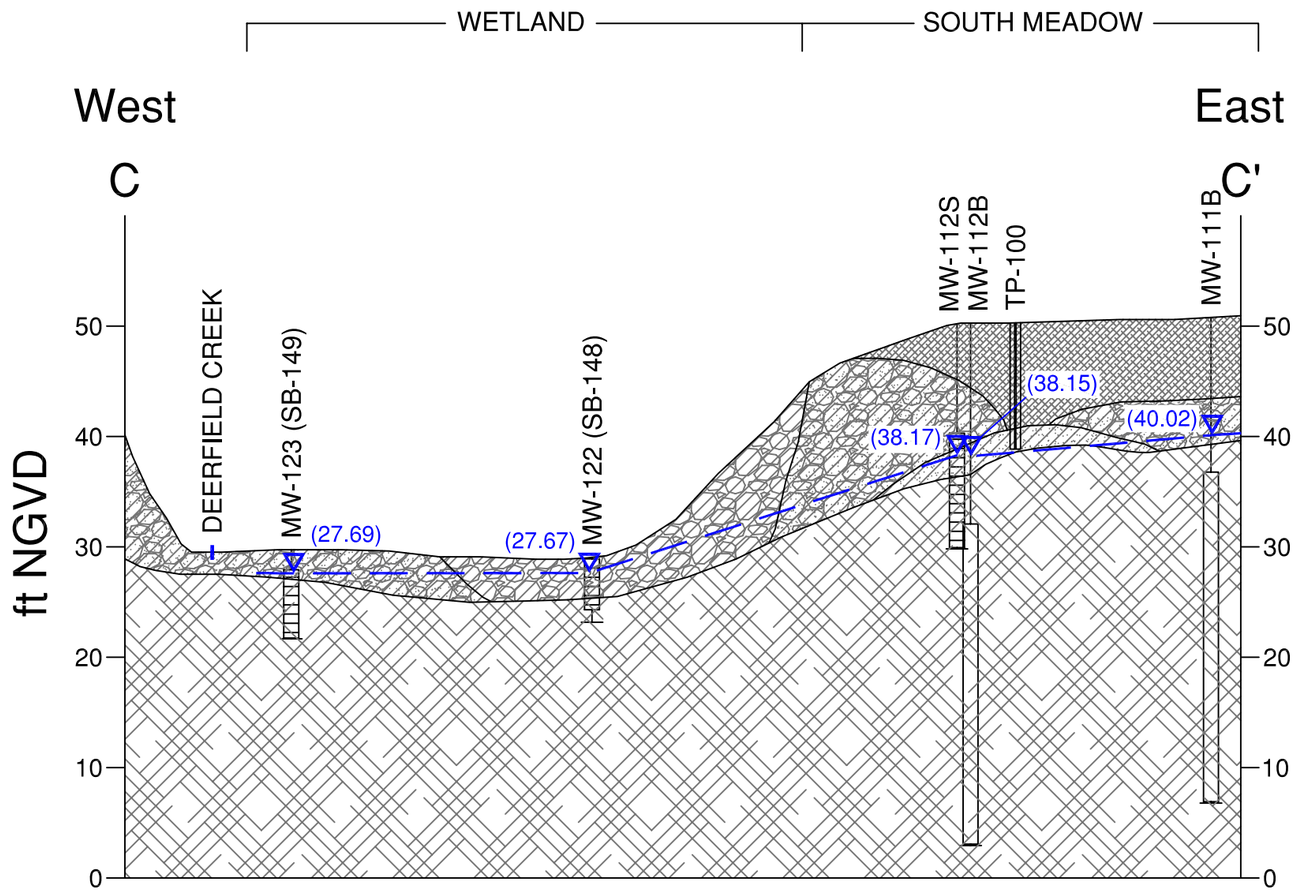
TETRA TECH NUS, INC.

GEOLOGIC CROSS-SECTION B-B'
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_X-SECTIONS_B-B'.DWG	AS NOTED
FIGURE NUMBER 3-4	**REV** 0 **DATE** 11/20/09

ACAD: \02124\RI.DF\NUSC_X-SECTIONS_B-B'.DWG 11/20/09 DWM

ACAD: \02124\RI.DF\NUSC_X-SECTION_C-C'.DWG 11/20/09 DWM



NOTES:
1. PLAN NOT TO BE USED FOR DESIGN.
2. ALL LOCATIONS AND CONTACTS ARE TO BE CONSIDERED APPROXIMATE.
3. HORIZONTAL DATUM IS BASED ON THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM NAD1983. VERTICAL DATUM IS BASED ON NGVD 1988.

GROUNDWATER ELEVATION (ESTIMATED) (SEPTEMBER 18, 2008)

HORIZONTAL GRAPHIC SCALE

0' 60'

VERTICAL GRAPHIC SCALE

0' 20'

GRAVELLY SAND
SILTY GRAVEL
SILTY SAND
SILTY SAND WITH GRAVEL
FILL
BEDROCK

OPEN HOLE WELL OR BORING

MW-112B — SOIL BORING / WELL LOCATION ID
GROUND SURFACE
TOP OF OPEN HOLE
(23.34) WATER ELEVATION MEASURED ON SEPTEMBER 18, 2008
BOTTOM OF OPEN HOLE
BOTTOM OF BORING

SCREENED WELL

MW-112B — SOIL BORING / WELL LOCATION ID
GROUND SURFACE
TOP OF WELL SCREEN
BOTTOM OF WELL SCREEN
BOTTOM OF BORING

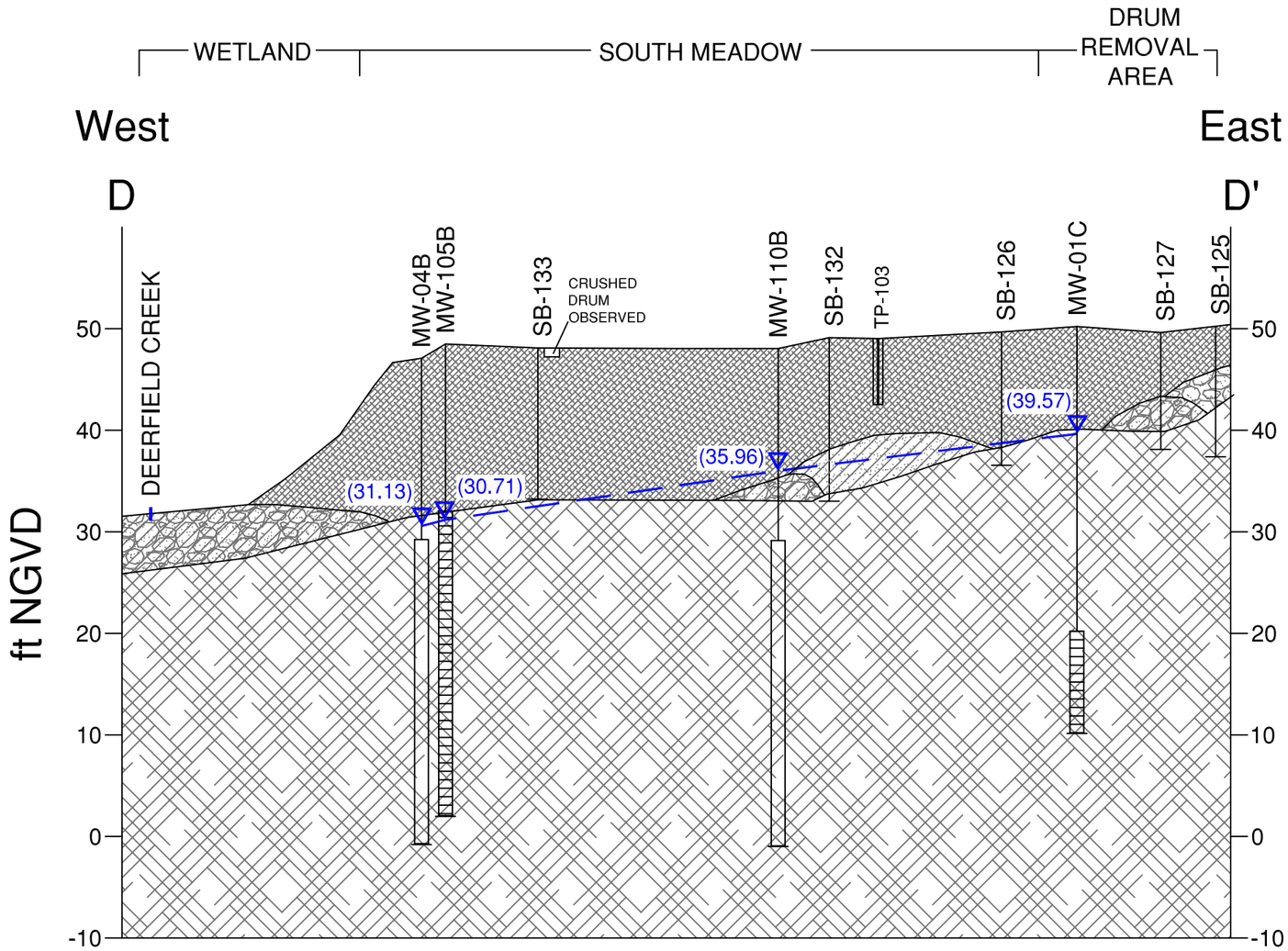
TP-100 — TEST PIT ID
GROUND SURFACE
BOTTOM OF TEST PIT

TETRA TECH NUS, INC.

GEOLOGIC CROSS-SECTION C-C'
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_X-SECTION_C-C'.DWG	AS NOTED
FIGURE NUMBER 3-5	REV 0 / DATE 11/20/09

ACAD: \02124\RI.DF\NUSC_X-SECTIONS_D-D'.DWG 11/20/09 DWM



NOTES:
1. PLAN NOT TO BE USED FOR DESIGN.
2. ALL LOCATIONS AND CONTACTS ARE TO BE CONSIDERED APPROXIMATE.
3. HORIZONTAL DATUM IS BASED ON THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM NAD1983. VERTICAL DATUM IS BASED ON NGVD 1988.

— — GROUNDWATER ELEVATION (ESTIMATED) (SEPTEMBER 18, 2008)

HORIZONTAL GRAPHIC SCALE

0' 60'

VERTICAL GRAPHIC SCALE

0' 20'

GRAVELLY SAND

SILTY SAND WITH GRAVEL

SILTY SAND

FILL

BEDROCK

OPEN HOLE WELL OR BORING

MW-112B — SOIL BORING / WELL LOCATION ID

GROUND SURFACE

TOP OF OPEN HOLE

(23.34) WATER ELEVATION MEASURED ON SEPTEMBER 18, 2008

BOTTOM OF OPEN HOLE

BOTTOM OF BORING

SCREENED WELL

MW-112B — SOIL BORING / WELL LOCATION ID

GROUND SURFACE

TOP OF WELL SCREEN

BOTTOM OF WELL SCREEN

BOTTOM OF BORING

TP-100 — TEST PIT ID

GROUND SURFACE

BOTTOM OF TEST PIT

TETRA TECH NUS, INC.

GEOLOGIC CROSS-SECTION D-D'
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_X-SECTIONS_D-D'.DWG	AS NOTED
FIGURE NUMBER 3-6	REV 0 / DATE 11/20/09

ACAD: \02124\RI.DF\NUSC_X-SECTIONS_E-E'.DWG 11/20/09 DWM

WEST OF BLDG. 185 COMPLEX | BUILDING 185 COMPLEX | PAVED GATED STORAGE AREA

West E

SB-103 | MW-101B | DEERFIELD CREEK CULVERT | MW-100B | SB-101 | MW-125B | SB-100 | SB-151 | MW-126B | SB-116 | MW-106B | MW-106S | E' East

(40.30) (43.21) (45.85) (55.82) (54.31)

ft NGVD

60 50 40 30 20 10 0 -10

NOTES:
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3. HORIZONTAL DATUM IS BASED ON THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM NAD1983. VERTICAL DATUM IS BASED ON NGVD 1988.

GROUNDWATER ELEVATION (ESTIMATED) (SEPTEMBER 18, 2008)

HORIZONTAL GRAPHIC SCALE

0' 60'

VERTICAL GRAPHIC SCALE

0' 20'

GRAVELLY SAND
SILTY GRAVEL
SILTY SAND
SILT
SILTY SAND WITH GRAVEL
FILL
BEDROCK

OPEN HOLE WELL OR BORING

MW-112B — SOIL BORING / WELL LOCATION ID
GROUND SURFACE
TOP OF OPEN HOLE
(23.34) WATER ELEVATION MEASURED ON SEPTEMBER 18, 2008
BOTTOM OF OPEN HOLE
BOTTOM OF BORING

SCREENED WELL

MW-112B — SOIL BORING / WELL LOCATION ID
GROUND SURFACE
TOP OF WELL SCREEN
BOTTOM OF WELL SCREEN
BOTTOM OF BORING

TP-100 — TEST PIT ID
GROUND SURFACE
BOTTOM OF TEST PIT

TETRA TECH NUS, INC.

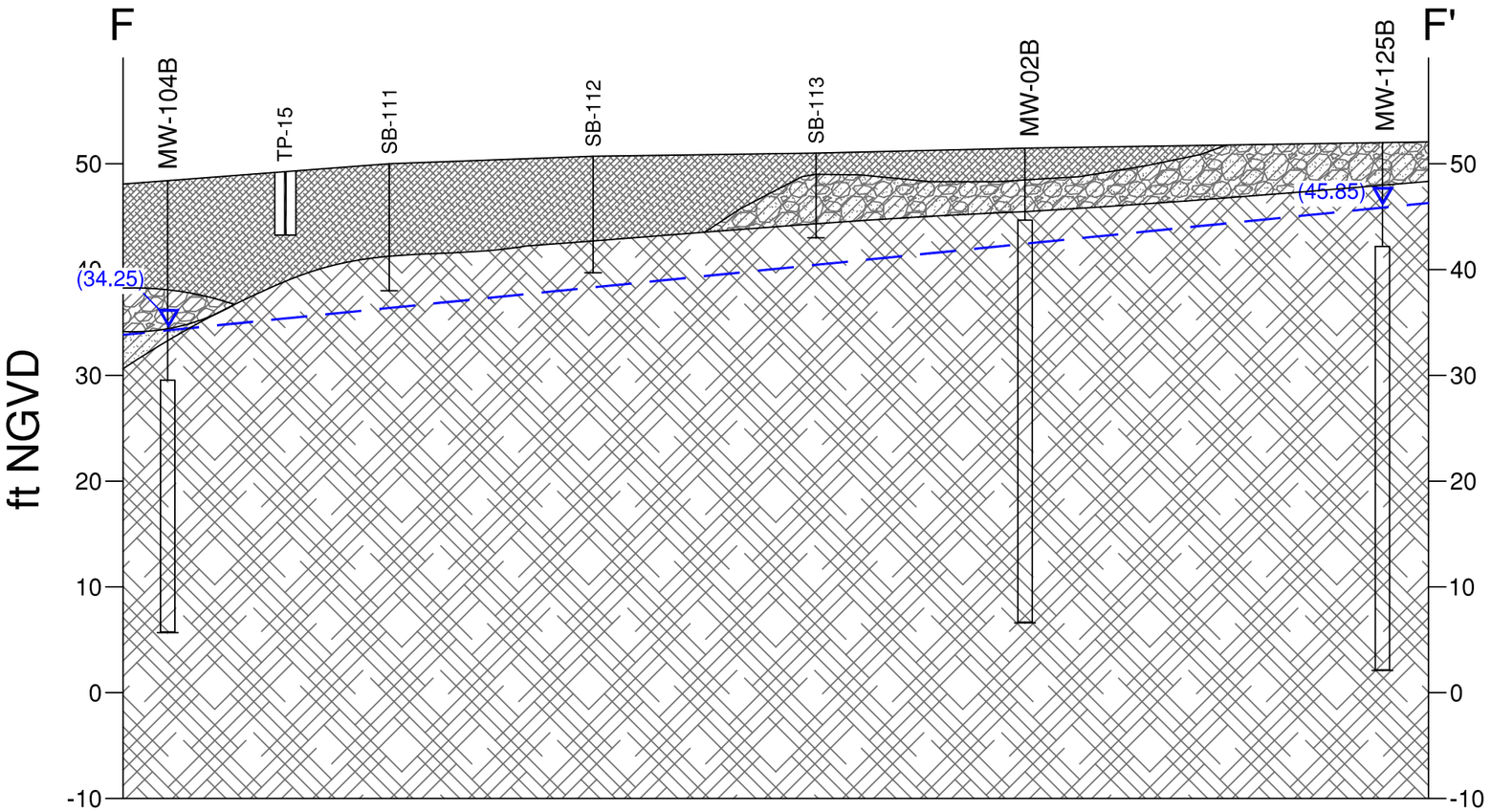
GEOLOGIC CROSS-SECTION E-E'
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_X-SECTIONS_E-E'.DWG	AS NOTED
FIGURE NUMBER 3-7	REV 0 — DATE 11/20/09

ACAD: \00816\0410\NUSC_X-SECTIONS_F-F'.DWG 11/20/09 DWM

SOUTH MEADOW | PAVED OPEN STORAGE AREA | BUILDING 185 COMPLEX

Northwest — Southeast



NOTES:
1. PLAN NOT TO BE USED FOR DESIGN.
2. ALL LOCATIONS AND CONTACTS ARE TO BE CONSIDERED APPROXIMATE.
3. HORIZONTAL DATUM IS BASED ON THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM NAD1983. VERTICAL DATUM IS BASED ON NGVD 1988.

GROUNDWATER ELEVATION (ESTIMATED) (SEPTEMBER 18, 2008)

HORIZONTAL GRAPHIC SCALE

0' 60'

VERTICAL GRAPHIC SCALE

0' 20'

SILTY GRAVEL

SILTY SAND WITH GRAVEL

SILTY SAND

FILL

BEDROCK

OPEN HOLE WELL OR BORING

MW-112B — SOIL BORING / WELL LOCATION ID

GROUND SURFACE

TOP OF OPEN HOLE

(23.34) WATER ELEVATION MEASURED ON SEPTEMBER 18, 2008

BOTTOM OF OPEN HOLE

BOTTOM OF BORING

SCREENED WELL

MW-112B — SOIL BORING / WELL LOCATION ID

GROUND SURFACE

TOP OF WELL SCREEN

BOTTOM OF WELL SCREEN

BOTTOM OF BORING

TP-100 — TEST PIT ID

GROUND SURFACE

BOTTOM OF TEST PIT

TETRA TECH NUS, INC.

GEOLOGIC CROSS-SECTION F-F'
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_X-SECTIONS_F-F'.DWG	AS NOTED
FIGURE NUMBER 3-8	REV 0 / DATE 11/20/09

NOTES AND REFERENCES

1. PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BYTHE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.

4. HORIZONTAL DATUM = NAD 1983.

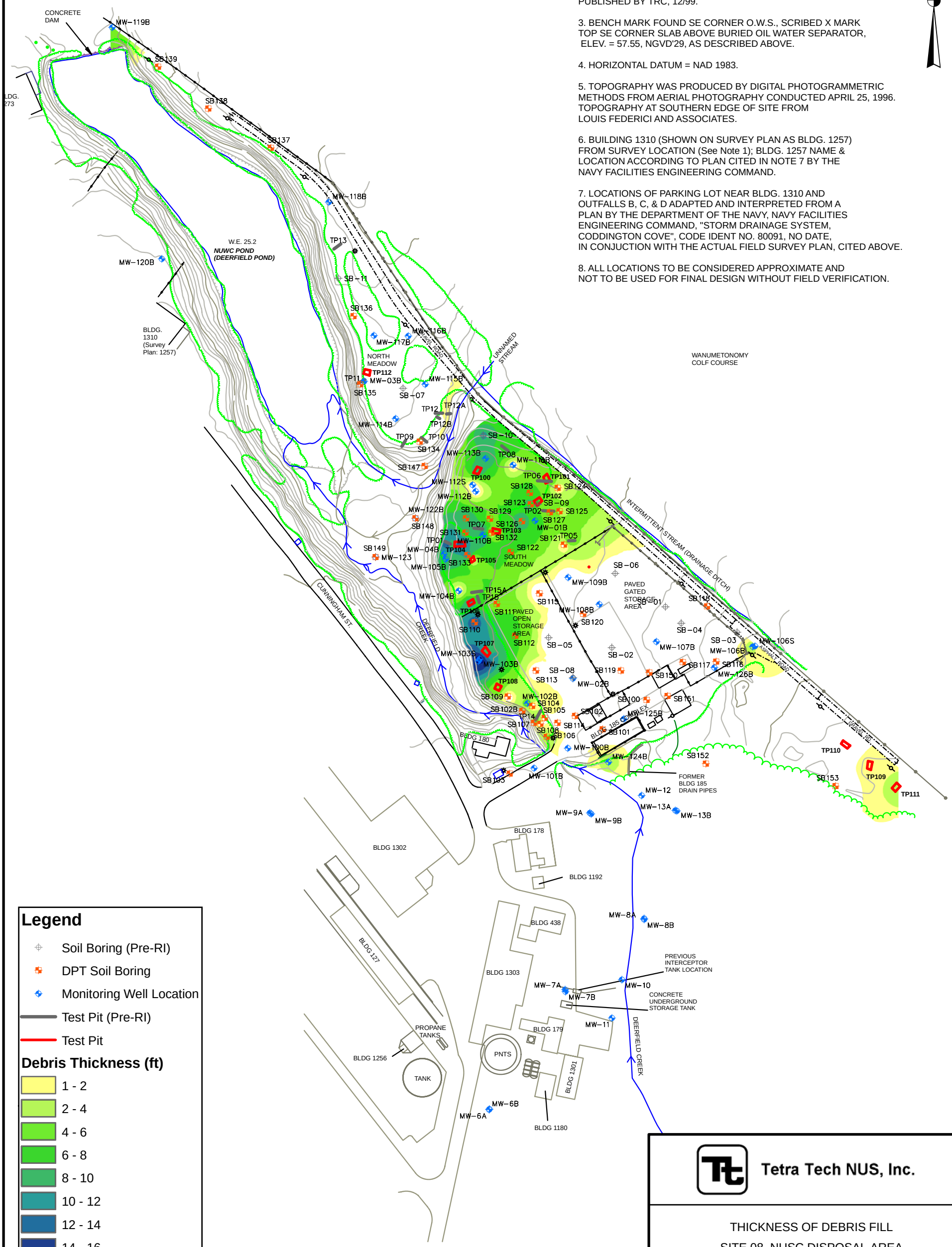
5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996. TOPOGRAPHY AT SOUTHERN EDGE OF SITE FROM LOUIS FEDERICI AND ASSOCIATES.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

N



Legend

- Soil Boring (Pre-RI)
- DPT Soil Boring
- Monitoring Well Location
- Test Pit (Pre-RI)
- Test Pit

Debris Thickness (ft)

- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12 - 14
- 14 - 16
- 16 - 18
- Zero

0 37.5 75 150 225 300 Feet

Tetra Tech NUS, Inc.

THICKNESS OF DEBRIS FILL
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_DEBRIS_THICKNESS.MXD	AS NOTED
FIGURE NUMBER 3-9	REV 0 / DATE 11/20/09

NOTES AND REFERENCES

1. PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BYTHE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

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8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

N

CONCRETE DAM
MW-119B
SB139
SB138
SB137
MW-118B
TP13
W.E. 25.2
NUWC POND (DEERFIELD POND)
MW-120B
SB-11
SB136
MW-116B
MW-117B
NORTH MEADOW
TP112
MW-03B
TP11
SB135
SB-07
MW-115B
TP12
TP12A
MW-114B
TP12B
TP09
TP10
SB134
SB-10
MW-113B
TP08
SB147
MW-110B
TP100
TP06
TP101
MW-112S
SB128
SB124
MW-112B
TP102
SB123
SB-09
MW-122B
SB130
SB129
TP02
SB125
SB148
TP07
SB126
SB127
MW-01B
SB131
TP103
SB132
SB121
TP05
TP01
MW-110B
SB149
MW-04B
TP104
SB122
MW-123
SB133
TP105
SOUTH MEADOW
MW-105B
SB-06
MW-109B
PAVED GATED STORAGE AREA
TP15A
TP15
SB115
SB-01
SB-18
MW-104B
TP106
SB111
PAVED OPEN STORAGE AREA
MW-108B
SB110
SB120
SB-04
TP107
SB112
SB-05
SB-03
MW-106S
MW-103S
MW-107B
MW-106B
SB-02
MW-103B
SB117
SB116
SB-08
SB119
SB150
MW-126B
TP108
SB113
MW-102B
SB109
SB104
SB100
SB151
SB102B
SB105
SB102
MW-125B
TP14
SB107
SB114
SB108
SB106
SB101
MW-100B
MW-124B
SB152
SB103
MW-101B
TP110
SB153
TP109
TP111
MW-12
MW-13A
MW-13B
MW-9A
MW-9B
BLDG 1302
BLDG 178
BLDG 1192
MW-8A
MW-8B
BLDG 438
BLDG 127
BLDG 1303
PREVIOUS INTERCEPTOR TANK LOCATION
MW-7A
MW-10
MW-7B
CONCRETE UNDERGROUND STORAGE TANK
MW-11
BLDG 179
PROPANE TANKS
PNTS
BLDG 1256
TANK
BLDG 1301
MW-6B
MW-6A
BLDG 1180
BLDG 1310 (Survey Plan: 1257)
MW-120B
CUNNINGHAM ST.
DEERFIELD CREEK
BLDG 180
BLDG 185
CONNEX
INTERMITTENT STREAM (DRAINAGE DITCH)
UNNAMED STREAM
WANUMETONOMY COLF COURSE
GRAVEL RD.
ASPHALT ROAD
DECOMMISSIONED DRAIN PIPES

Legend

- Soil Boring (Pre-RI)
- DPT Soil Boring
- Monitoring Well Location
- Test Pit (Pre-RI)
- Test Pit

Depth to Bedrock (ft BGS)

- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12

0 37.5 75 150 225 300 Feet

Tetra Tech NUS, Inc.

THICKNESS OF OVERBURDEN
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\..\NUSC_OB_DEPTH.MXD	AS NOTED
FIGURE NUMBER: 3-10	REV: 0 / DATE: 11/20/09

CONCRETE DAM

MW-119B 15.04

BLDG. 1273

APPROX. 970 FT. TO BLDG. 110

OUTFALL B

MW-118B 23.46

W.E. 25.2
NUWC POND
(DEERFIELD POND)

PARKING LOT

MW-120B 25.48

C-278

BLDG. 1310 (Survey Plan: 1257)

MW-117B 23.64

NORTH MEADOW

MW-03B 23.61

MW-116B 39.98

GRAVEL ROAD

UNNAMED STREAM

MW-115B 39.84

WANUMETONOMY GOLF COURSE

BLDG. 1257

MW-114B 23.98

OUTFALL C

C-279

MW-113B 39.25

MW-111B 40.42

MW-112S 38.47

MW-112B 38.46

MW-122 27.50

MW-01C 40.20

MW-110B 36.18

MW-04B 31.03

MW-123 27.79

MW-105B 30.58 34.12

SOUTH MEADOW

MW-104B

MW-109B 44.90

PAVED GATED STORAGE AREA

MW-108B 45.75

INTERMITTENT STREAM (DRAINAGE DITCH)

CUNNINGHAM ST.

PAVED OPEN STORAGE AREA

MW-107B 49.71

57.29 MW-106B

MW-106S

ASPHALT ROAD

DEERFIELD CREEK

OUTFALL D

MW-103S MW-103B

C-281

MW-02B 46.27

MW-126B

39.05 MW-102B

BLDG. 130 COMPLEX

RUINS

MW-125B

BLDG 180

43.02 MW-100B

MW-124B

MW-101B 40.46

DECOMMISSIONED DRAIN PIPES

MW-12

MW-9A

MW-13A

MW-13B

MW-9B 43.63

BLDG 178

TBM

BLDG 1192

BLDG 1302

MW-8A

MW-8B

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

MW-10

MW-7A

MW-7B 50.28

CONCRETE UNDERGROUND STORAGE TANK

MW-11

BLDG 179

PROPANE TANKS

PNTS

BLDG 1301

BLDG 1256

TANK

MW-6B

MW-6A

BLDG 1180

N

LEGEND:

- MW-102B / 39.82 — MONITORING WELL LOCATION AND ELEVATION OF GROUNDWATER IN WELL (05/13/08)
- 45 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE APPROXIMATE)
- BENCH MARK
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN-LINK FENCE
- ASPHALT PAVING

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.

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4. HORIZONTAL DATUM = NAD 1983.

5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

GRAPHIC SCALE
60' 0' 60' 120'

DRAWN BY:	D.W. MACDOUGALL
PREPARED BY:	R. O'NEILL
CHECKED BY:	D. SEIKEN
PROJECT MANAGER:	D. SEIKEN
PROGRAM MANAGER:	J. TREPANOWSKI

TITLE: POTENTIOMETRIC SURFACE ELEVATION CONTOURS – MAY 13, 2008
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)

SCALE:	DATE:	PROJ. NO:
AS SHOWN	NOVEMBER 20, 2009	02124

DRAWING NO:	ACFILE NAME:	REV:
3-11	\02124\RI.DF\NUSC_GW_CONT_051308.DWG	0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

CONCRETE DAM

MW-119B 14.42

BLDG. 1273

APPROX. 970 FT. TO BLDG. 110

OUTFALL B

MW-118B 23.34

W.E. 25.2
NUWC POND
(DEERFIELD POND)

PARKING LOT

MW-120B 24.96

C-278

BLDG. 1310 (Survey Plan: 1257)

MW-117B 23.67

MW-116B 38.26

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY GOLF COURSE

MW-03B 23.61

MW-115B 38.26

BLDG. 1257

MW-114B 23.24

MW-113B 38.79

MW-111B 40.02

OUTFALL C

C-279

MW-112S

MW-112B 38.15

27.67
MW-122

INTERMITTENT STREAM (DRAINAGE DITCH)

MW-01C 39.57

MW-110B 35.96

MW-04B

MW-123 27.69

MW-105B 30.71

SOUTH MEADOW

MW-104B 34.25

MW-109B 43.93

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

PAVED OPEN STORAGE AREA

MW-108B 45.31

DEERFIELD CREEK

OUTFALL D

MW-107B 48.72

MW-106B 55.82

MW-106S

ASPHALT ROAD

MW-103S

MW-103B 34.32

C-281

MW-02B

MW-126B

38.64
MW-102B

MW-125B 45.85

BLDG. 180 COMPLEX

RUINS

BLDG 180

MW-100B 43.21

MW-124B 45.27

GRAVEL RD.

MW-101B 40.30

DECOMMISSIONED DRAIN PIPES

MW-12

MW-13A

MW-13B 46.36

MW-9A

MW-9B 43.64

BLDG 178

TBM

BLDG 1302

BLDG 1192

MW-8A

MW-8B

BLDG 438

BLDG 127

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 1303

MW-10

MW-7A

MW-7B 50.12

CONCRETE UNDERGROUND STORAGE TANK

MW-11

DEERFIELD CREEK

BLDG 179

PROPANE TANKS

PNTS

BLDG 1301

BLDG 1256

TANK

MW-6B

MW-6A

BLDG 1180

N

LEGEND:

- MW-102B — MONITORING WELL LOCATION
- 45.39 — ELEVATION OF GROUNDWATER IN WELL (09/18/08)
- 45 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE APPROXIMATE)
- BENCH MARK
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN–LINK FENCE
- ASPHALT PAVING

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.

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5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.

6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.

7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.

8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

GRAPHIC SCALE
60' 0' 60' 120'

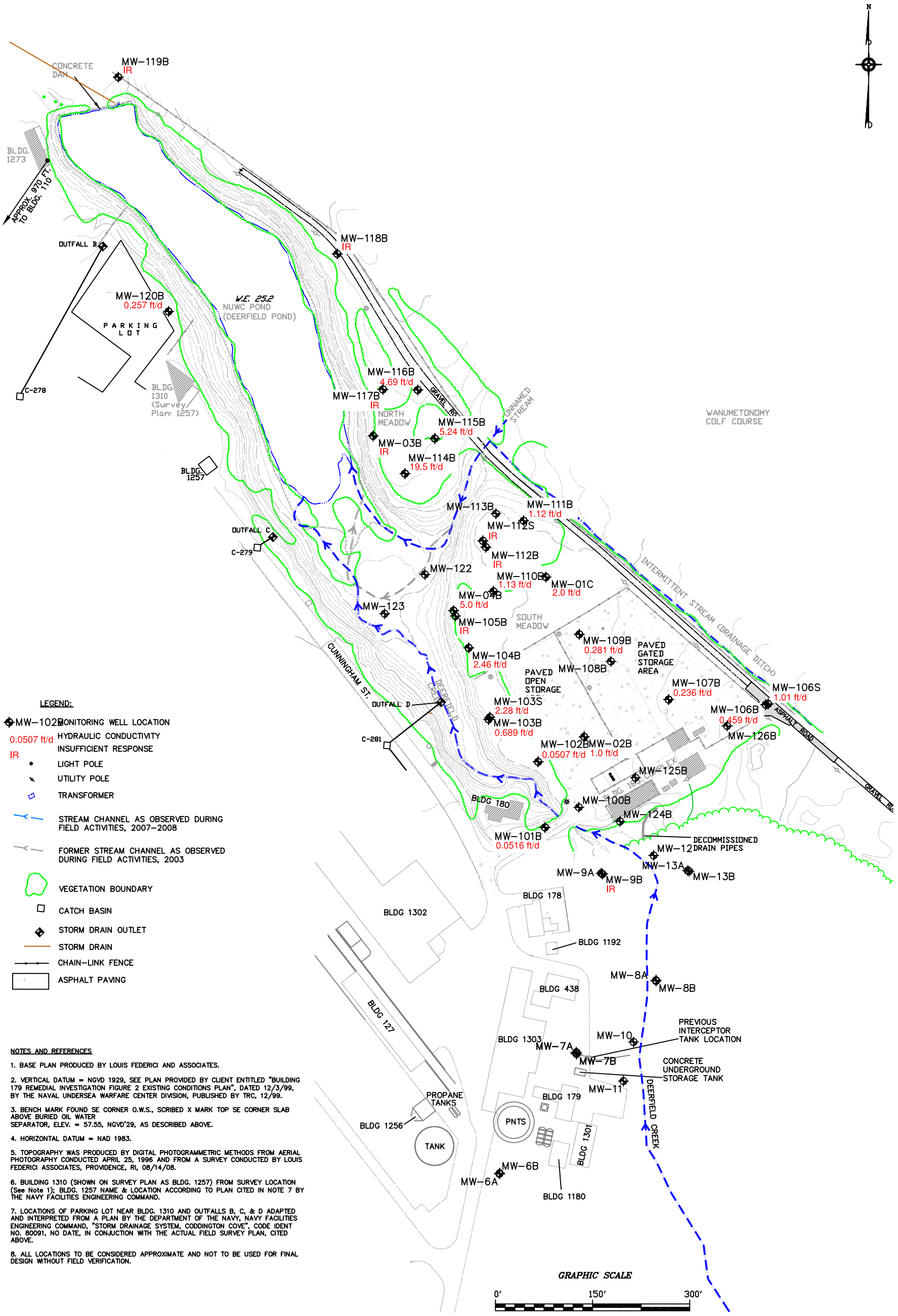
DRAWN BY: D.W. MACDOUGALL
PREPARED BY: R. O'NEILL
CHECKED BY: D. SEIKEN
PROJECT MANAGER: D. SEIKEN
PROGRAM MANAGER: J. TREPANOWSKI

TITLE: POTENTIOMETRIC SURFACE ELEVATION CONTOURS – SEPTEMBER 18, 2008
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)

SCALE:	DATE:	PROJ. NO:
AS SHOWN	NOVEMBER 20, 2009	02124
DRAWING NO: 3–12	ACFILE NAME: \02124\RI.DF\NUSC_GW_CONT_091808.DWG	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658–7899



LEGEND:

- MW–102B — MONITORING WELL LOCATION
- 0.0507 ft/d — HYDRAULIC CONDUCTIVITY
- IR — INSUFFICIENT RESPONSE
- LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007–2008
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- STORM DRAIN
- CHAIN–LINK FENCE
- ASPHALT PAVING

NOTES AND REFERENCES

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.
2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.
3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.
4. HORIZONTAL DATUM = NAD 1983.
5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996 AND FROM A SURVEY CONDUCTED BY LOUIS FEDERICI ASSOCIATES, PROVIDENCE, RI, 08/14/08.
6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.
7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.
8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.

SLUG TEST RESULTS
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	D. SEIKEN	DATE:	NOVEMBER 20, 2009
SCALE:	AS NOTED	FILE NO.:	\02124\RI.DF\NUSC_HYDR_COND.DWG

FIGURE 3–13

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658–7899

Project Location

Source: Digital Orthophotos of Rhode Island 2003-2004, 2005, Chas. H. Sells Inc Rhode Island Department of Transportation Rhode Island Geographic Informaiton System; Tetra Tech, 2008.

100 50 0 100 200

Feet

LEGEND

- **Project Boundary**
- **Open Water**
- **Braided/Poorly Defined Channel**
- **Upland**
- **Wetland**

FIGURE 3-14
DELINEATED WETLAND BOUNDARIES
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

Naval Station Newport

Prepared By: TETRA TECH, INC.

Date: 10/08

z:/projects/112G00816/maps/figurex.mxd

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_BENZO(A)ANTHRACENE.MXD 11/19/09 SP

N

CONCRETE DAM

SB140 57
MW119B 202 J
SB139 190
SB138 16 J
SB137 130
SB141 70
MW118B 26
TP-13 79 U
SB136 110
MW117B 47
MW116B 24
MW115B 46
SB142 310
SB143 110
W.E. 25.2
NUWC POND (DEERFIELD POND)
MW120B 77
SB134 130
TP-12 (0-1) 83 U
TP-12 (1-2) 81 U
TP-12B 150 J
TP-12A 810
MW113B 430
TP-08 1600
MW111B 1100
SB128 320
TP-06 170 J
SB124 210
SB123 10000
SB127 20000
SB125 1320 J
TP-05 590
SB121 1200
SB-06 200 J
MW108B 2200
SB-01 240 J
SB118 2600
SB-04 190 J
SB-03 560 U
MW106B 15 J
SB116 17 J
MW126B 2.6 J
SB117 16 J
SB150 37
SB151 33
SB100 1100
SB152 7.3J
SB153 340
SB144 22 J
SB-07 79 U
TP-11 88 U
SB135 38
MW114B 400
TP-09 (1-2) 82 U
TP-09 (0-1) 90 J
TP-10 (0-1) 1300 J
TP-10 (1-2) 120 J
SB145 2400
SB131 1100
SB148 450 J
SB147 38.5
MW110B 1600
TP-01 900
SB133(0-1) 3000
SB149 120
MW105B 4200
MW104B 840
TP-15 8100
SB111 23 U
SB146 210
SB110 2600
SB112 890
MW103B 980
SB109 630
SB104 1400
SB102B 760
SB107(0-1) 42
SB107 (1-3) 180 J
SB108 49
SB105 120
MW101B 46
SB106 200
SB114 69 J
MW100B 73.5 J
MW124B 52 J
SB101 76 J
MW125B 9.95 J
SB119 130 J
SB130 930
TP-07 580
SB129 1400
SB126 5100
SB133(1-2) 1100
SB132 870 J
SB122 680
MW112B 5000
SB115 240
SB120 1100
SB113 240
SB-02 83 U
MW107B 130 J
SB-05 2700 U
SB-08 280 J
SB102 470
MW109B 5600 J
SB134 130
BLDG. 1310 (Survey Plan: 1257)
NORTH MEADOW
SOUTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
INTERMITTENT STREAM (DRAINAGE DITCH)
PAVED GATED STORAGE AREA
PAVED OPEN STORAGE AREA
CUNNINGHAM ST
DEERFIELD EX
ASPHALT ROAD
BLDG 180
DECOMMISSIONED DRAIN PIPES
WANUMETONOMY COLF COURSE
BLDG 1302
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
BLDG 179
PROPANE TANKS
BLDG 1256
TANK
PNTS
BLDG 1301
BLDG 1180

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(a)anthracene is 150 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(a)anthracene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

BENZO(A)ANTHRACENE IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_BENZO(A)ANTHRACENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 1	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_BENZO(A)PYRENE.MXD 11/19/09 SP

N

SB140 45
MW119B 170 J
CONCRETE DAM
SB139 180 J
SB138 18 J
SB141 66
SB137 99
MW118B 22 J
TP-13 82 U
SB136 100
MW117B 47
MW116B 24
SB142 270
SB143 120
W.E. 25.2
NUWC POND (DEERFIELD POND)
MW120B 79
SB-07 82 U
MW115B 44
TP-12 (1-2) 84 U
TP-12 (0-1) 86 U
TP-12A 740
TP-12B 96 U
BLDG. 1310 (Survey Plan: 1257)
SB144 21 J
TP-11 91 U
NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
WANUMETONOMY COLF COURSE
SB135 41.5 J
MW113B 240
TP-08 840
MW114B 320
MW112B 2500
MW111B 1000
SB128 190
TP-09 (1-2) 85 U
TP-06 120 J
SB145 1800
TP-09 (0-1) 91 U
SB124 190
TP-10 (1-2) 89 J
SB126 3000
SB123 6100
SB134 99
TP-10 (0-1) 1100 J
SB147 45
SB127 17000
SB148 420
TP-07 460 J
SB129 1200
SB130 680
SB125 1060 J
INTERMITTENT STREAM (DRAINAGE DITCH)
TP-05 460 J
SB131 740
SB132 750 J
SB121 1000
SB-06 160 J
SB-01 160 J
SB-02 86 U
TP-01 730
MW109B 4800 J
SB149 140 J
SB122 420
SB118 2000
MW110B 1350
MW108B 1800
SB-04 130 J
MW105B 3700
SB133(0-1) 2100
PAVED GATED STORAGE AREA
SB120 860
SB133(1-2) 280
CUNNINGHAM ST.
SB115 200
MW107B 72
MW104B 750
DEERFIELD CREEK
PAVED OPEN STORAGE AREA
SB-03 560 U
TP-15 4800
SB-08 190 J
MW106B 23 U
SB146 230
SB114 89 J
SB116 20 J
SB111 16 J
SB102 500
MW126B 7.3 J
SB110 1600
BLDG 180
SB117 26
SB112 760
SB150 33
MW103B 920
SB151 38
SB-05 2700 U
MW100B 68.5 J
DECOMMISSIONED DRAIN PIPE
SB152 9.3J
SB153 260
SB113 170
SB100 960
SB109 380
BLDG 178
SB119 850 J
SB102B 530
BLDG 1302
MW125B 9.35 J
SB104 720
BLDG 1192
MW124B 53 J
SB107(0-1) 27
SB105 79
SB101 81 J
SB107(1-3) 240
MW101B 28
SB108 45 J
SB106 150
BLDG 438
BLDG 127
BLDG 1303
125 62.5 0 125 Feet
PROPANE TANKS
BLDG 179
BLDG 1256
PNTS
TANK
BLDG 1301
BLDG 1180

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(a)pyrene is 15 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(a)pyrene (µg/kg)

Result Is This Many Times Criterion

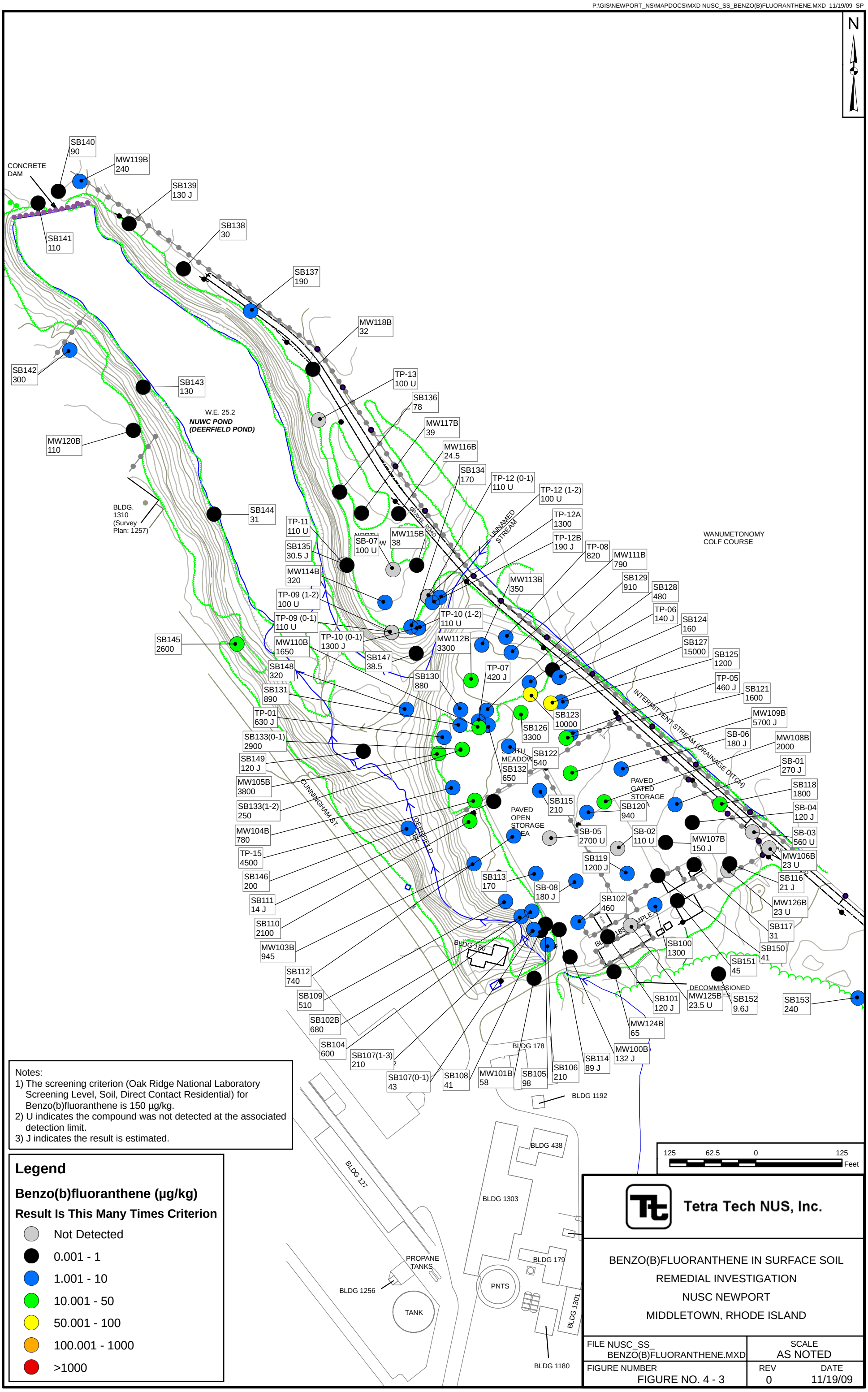
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BENZO(A)PYRENE IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_BENZO(A)PYRENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 2	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_BENZO(B)FLUORANTHENE.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(b)fluoranthene is 150 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(b)fluoranthene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BENZO(B)FLUORANTHENE IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE NUSC_SS_BENZO(B)FLUORANTHENE.MXD	SCALE AS NOTED	
FIGURE NUMBER FIGURE NO. 4 - 3	REV 0	DATE 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_BENZO(K)FLUORANTHENE.MXD 11/19/09 SP

N

SB140 29
MW119B 147 J
CONCRETE DAM
SB139 140 J
SB141 47
SB138 16 J
SB137 74
MW118B 17 J
TP-13 77 U
SB136 68 J
MW117B 29 J
MW116B 18 J
MW115B 31 J
SB134 66
TP-12 (1-2) 78 U
TP-12 (0-1) 80 U
TP-12A 1100
TP-12B 160 J
TP-10 (1-2) 86 J
TP-08 880
MW111B 800
SB128 110
TP-06 130 J
SB124 150 J
SB123 3800 J
SB127 12000
SB125 715 J
TP-05 470 J
SB121 680
MW109B 3900 J
SB-06 160 J
MW108B 1700
SB-01 290 J
SB118 2000
SB-04 130 J
SB-03 560 U
MW106B 23 U
SB116 11 J
MW126B 23 UJ
SB117 12 J
SB151 21 J
SB152 10 J
SB153 220
SB100 1200
SB119 340 J
MW125B 23.5 UJ
SB101 50 J
MW124B 40 J
SB102 550
MW100B 34.5 J
SB114 29 J
MW101B 19 J
SB106 73
SB108 25 J
SB105 44 J
SB107 (0-1) 13 J
SB107(1-3) 160
SB102B 290 J
SB104 580
SB109 210 J
MW103B 615
SB110 890 J
SB146 190
TP-15 4600
MW104B 750
MW105B 3700
SB149 110 J
SB131 810
SB148 340
SB145 2000
MW110B 1120
SB147 38
TP-10 (0-1) 1100 J
TP-09 (0-1) 86 U
TP-09 (1-2) 79 U
MW114B 290 J
SB135 32 J
TP-11 86 U
SB-07 77 U
SB144 22 J
MW120B 100
SB143 100
SB142 270
SB112 670
SB111 6.8 J
SB120 760
SB-05 2700 U
SB-08 200 J
SB-02 80 U
SB113 110
SB115 130
SB122 440
SB133(1-2) 280
SB133(0-1) 1200
TP-01 680 J
SB132 620
SB126 2900
SB130 350 J
TP-07 430 J
SB129 930
MW112B 2900
MW113B 120
SB-07 77 U
SB147 38
SB-08 200 J
SB-02 80 U
SB-05 2700 U
SB111 6.8 J
SB120 760
SB115 130
SB122 440
SB133(1-2) 280
SB133(0-1) 1200
TP-01 680 J
SB132 620
SB126 2900
SB130 350 J
TP-07 430 J
SB129 930
MW112B 2900
MW113B 120
SB-07 77 U
SB147 38

NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
WANUMETONOMY COLF COURSE
INTERMITTENT STREAM (DRAINAGE DITCH)
PAVED GATED STORAGE AREA
ASPHALT ROAD
DECOMMISSIONED DRAIN PIPES
CUNNINGHAM ST.
DEERFIELD CREEK
BLDG. 1310 (Survey Plan: 1257)
BLDG 180
BLDG 178
BLDG 1302
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
BLDG 179
PROPANE TANKS
BLDG 1256
TANK
PNTS
BLDG 1301
BLDG 1180

SW. 25.2
NUWC POND (DEERFIELD POND)

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(k)fluoranthene is 1500 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(k)fluoranthene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

PREVIOUS

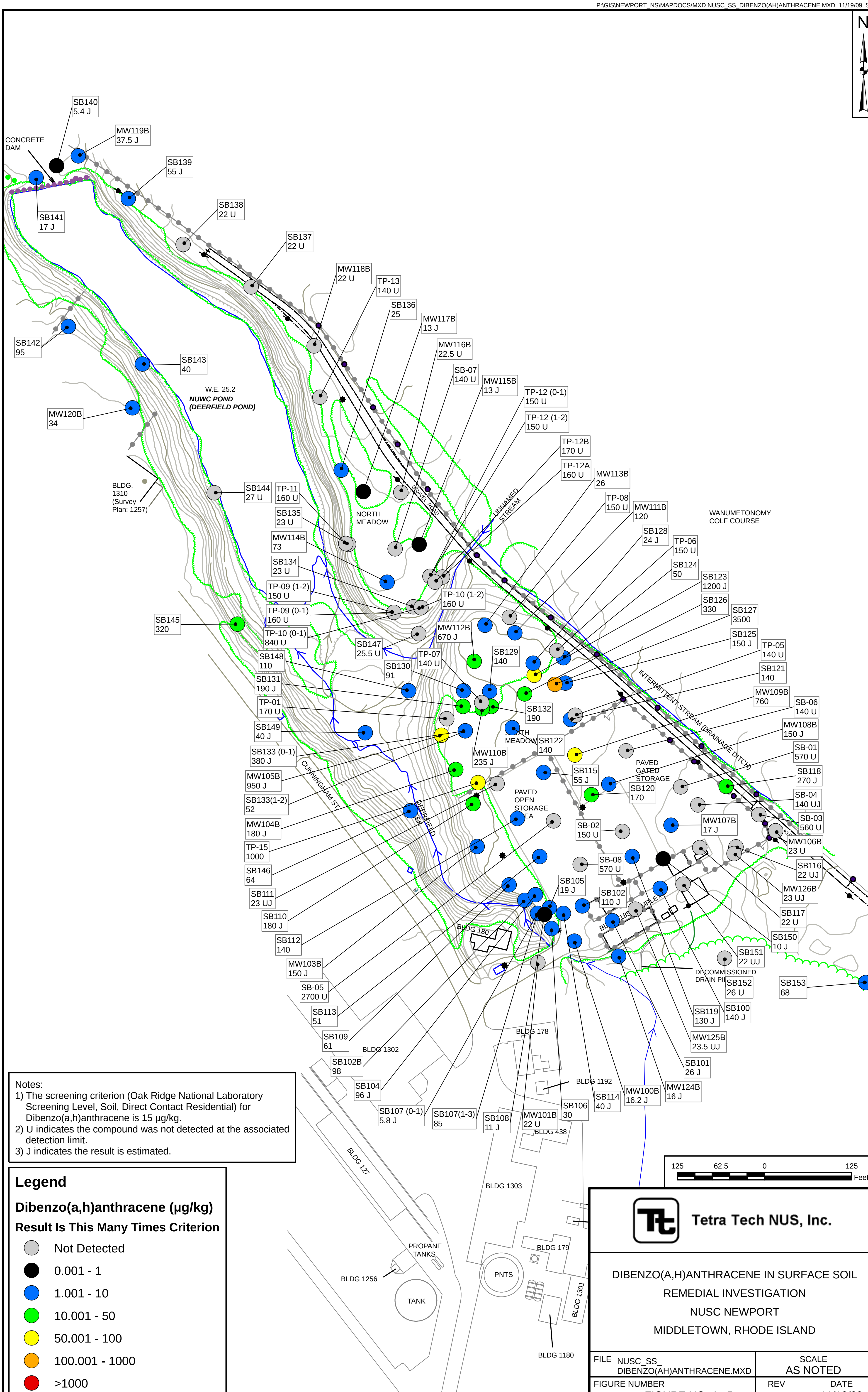
125 62.5 0 125 Feet

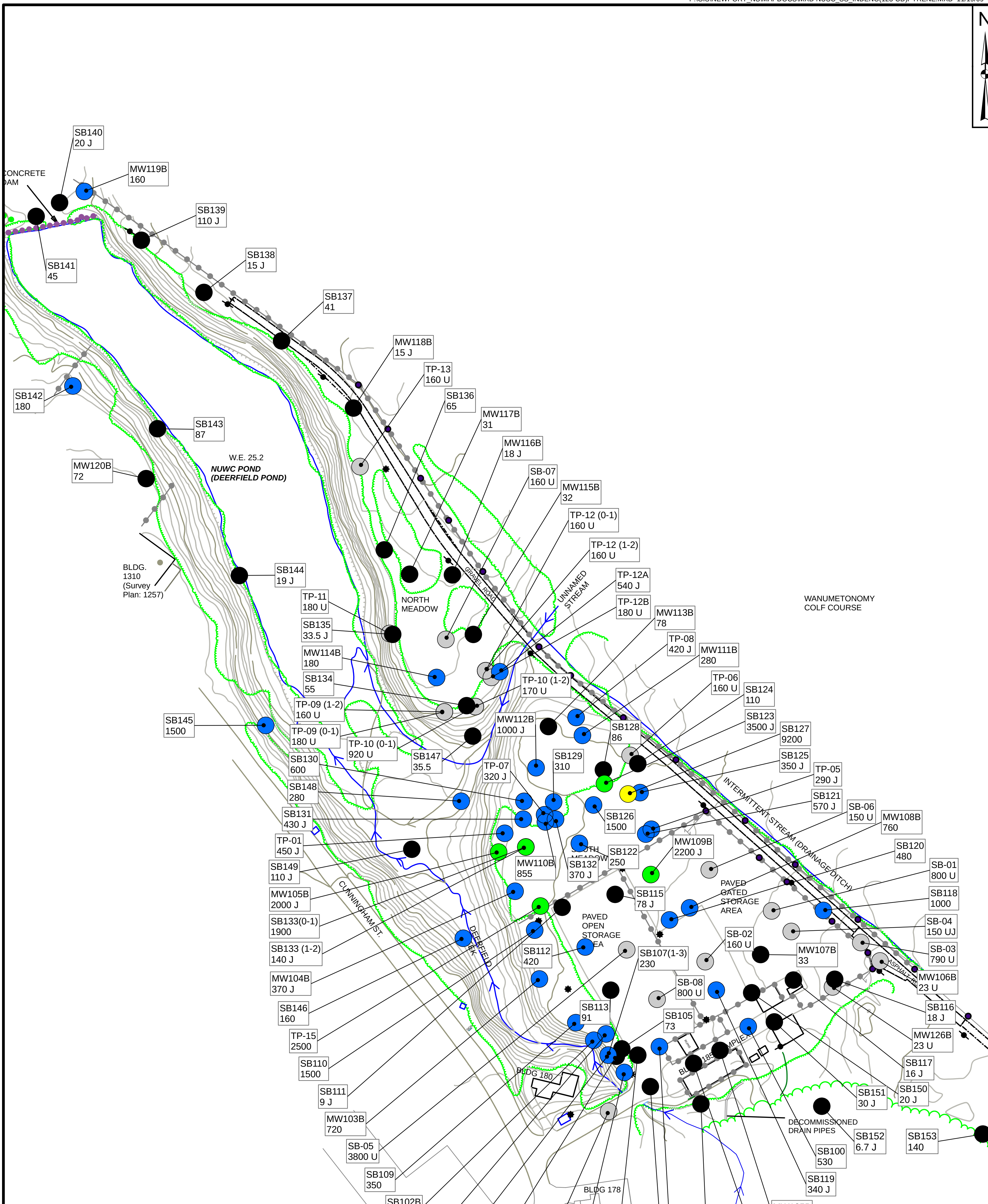
Tetra Tech NUS, Inc.

BENZO(K)FLUORANTHENE IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE NUSC_SS_BENZO(K)FLUORANTHENE.MXD	SCALE AS NOTED	
FIGURE NUMBER FIGURE NO. 4 - 4	REV 0	DATE 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_DIBENZO(AH)ANTHRACENE.MXD 11/19/09 SP





Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Indeno(1,2,3-cd)pyrene is 150 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Indeno(1,2,3-cd)pyrene (µg/kg)

Result Is This Many Times Criterion

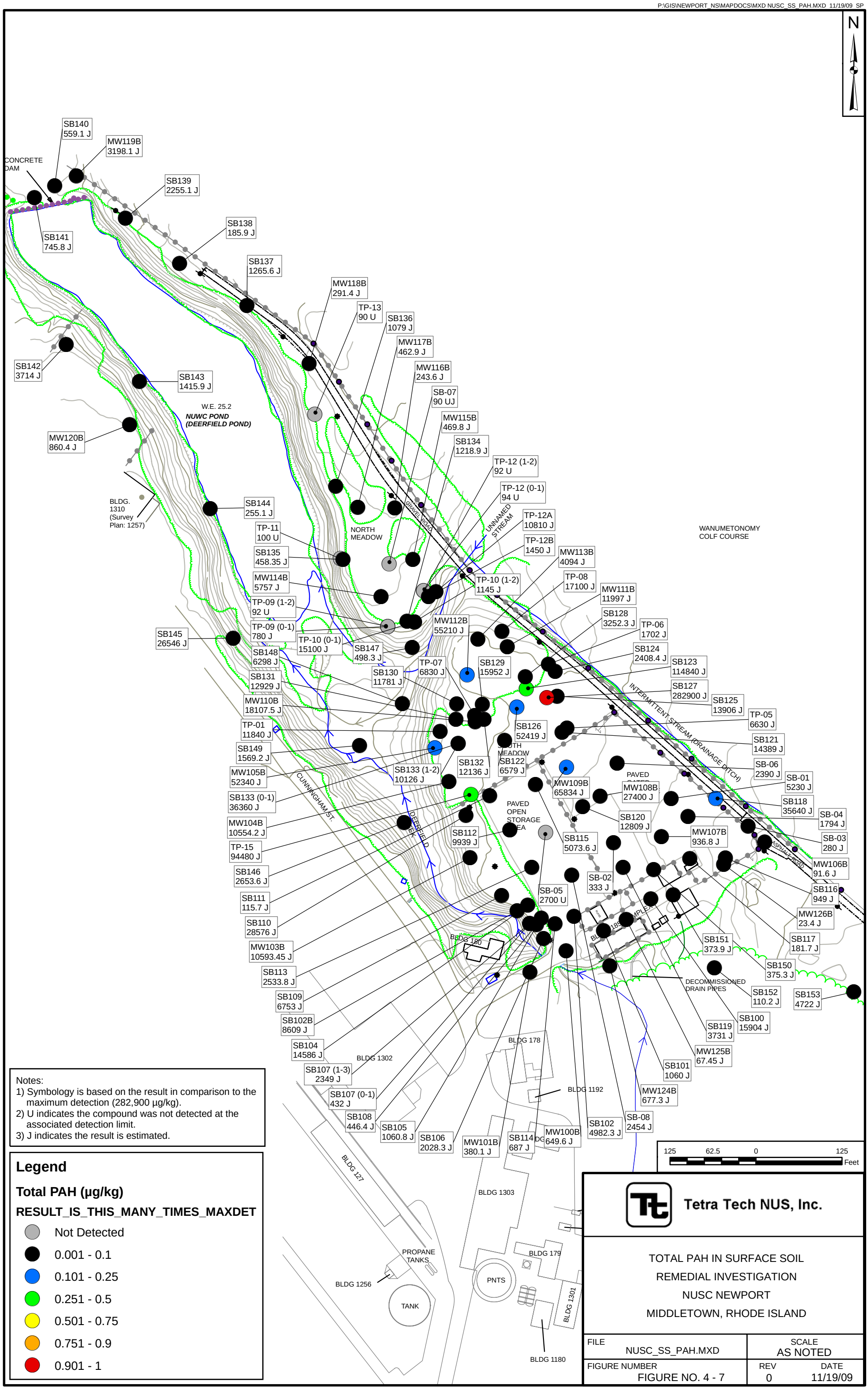
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

INDENO(1,2,3-CD)PYRENE IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE NUSC_SS_INDENO(123-CD)PYRENE.MXD		SCALE AS NOTED
FIGURE NUMBER FIGURE NO. 4 - 6	REV 0	DATE 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_PAH.MXD 11/19/09 SP



Notes:
1) Symbology is based on the result in comparison to the maximum detection (282,900 µg/kg).
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Total PAH (µg/kg)

RESULT_IS_THIS_MANY_TIMES_MAXDET

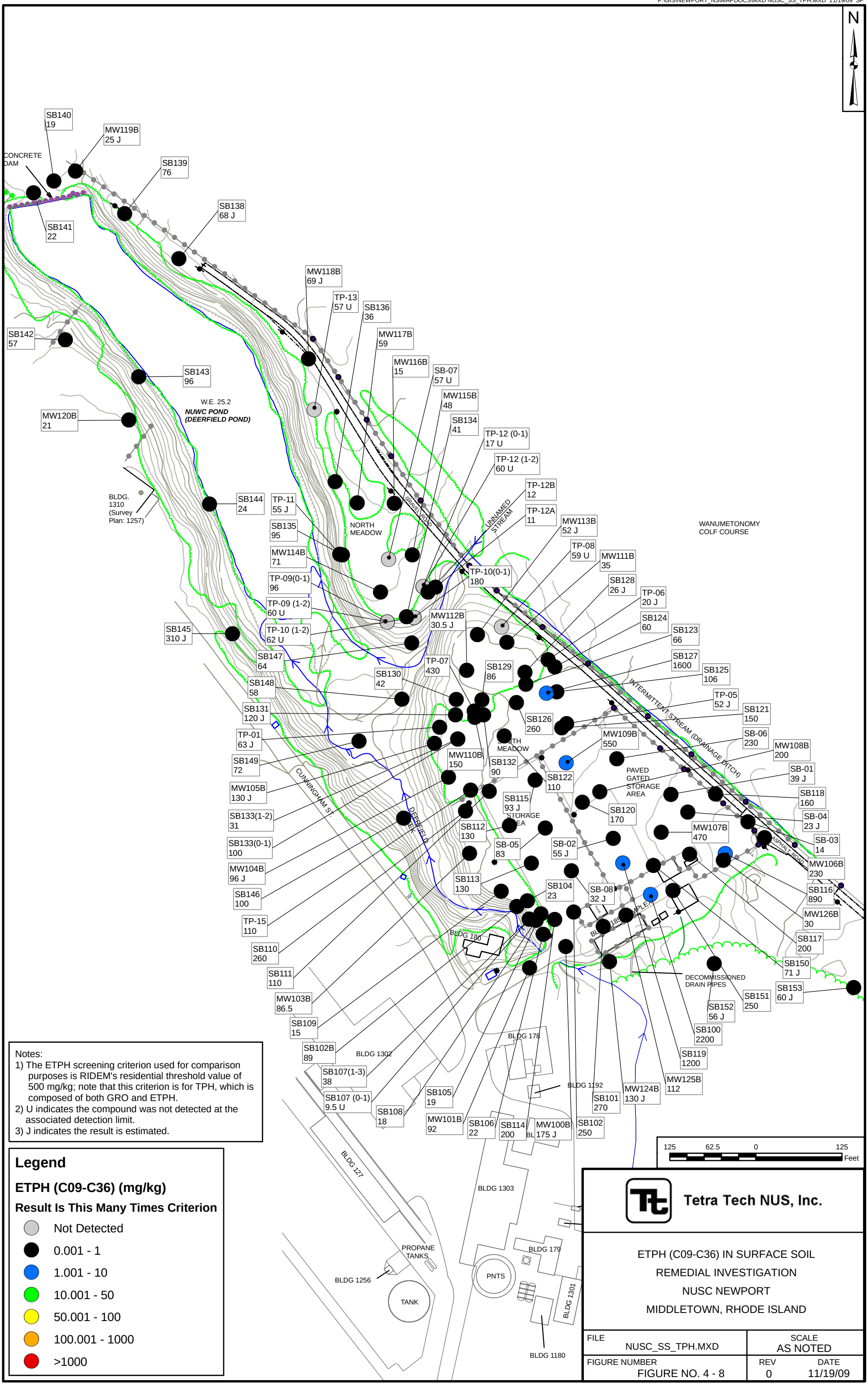
- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

Tetra Tech NUS, Inc.

TOTAL PAH IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_PAH.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 7	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_TPH.MXD 11/19/09 SP



Notes:
1) The ETPH screening criterion used for comparison purposes is RIDEM's residential threshold value of 500 mg/kg; note that this criterion is for TPH, which is composed of both GRO and ETPH.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

ETPH (C09-C36) (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ETPH (C09-C36) IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_TPH.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 8	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_AROCLOR-1260.MXD 11/19/09 SP

N

SB140 20 UJ
MW119B 80.5
CONCRETE DAM
SB139 74 J
SB141 20 UJ
SB138 22 UJ
MW118B 20 U
TP-13 12.6 U
SB136 20 U
MW117B 21 U
MW116B 20 U
SB-07 12.6 U
MW115B 21 UJ
TP-12 (1-2) 12.9 U
TP-12 (0-1) 13.2 U
TP-12A 115 J
TP-12B 14.9 U
MW113B 21 UJ
TP-08 12.9 U
MW111B 20 U
SB128 26 J
TP-06 13.1 U
SB124 70 J
SB123 110 J
SB127 19 U
SB125 44.5 J
TP-05 94.8
SB121 170 J
MW109B 18 UJ
SB-06 12.2 U
SB118 20 U
SB-01 56.8 UJ
SB-04 12.1 U
SB-03 56.2 UJ
MW106B 19 UJ
SB116 19 UJ
SB117 19 UJ
SB150 19 U
SB151 19 UJ
SB152 22 UJ
SB153 510 J
SB100 19 UJ
SB120 19 U
SB101 18 UJ
SB-08 56.8 UJ
SB102 20 UJ
MW100B 18 U
SB114 19 UJ
SB106 68
SB108 20 U
MW101B 19 U
SB103(1-3) 96
SB103 (0-1) 230 J
SB107 (0-1) 19 U
SB107 (1-3) 20 U
SB104 80
SB102B 22 U
MW103B 160 J
SB112 28 J
SB110 260
SB146 140
TP-15 12.6 U
MW104B 94 J
SB133(0-1) 130
SB133 (1-2) 19 U
MW105B 130
SB149 46
TP-01 15.3 U
SB131 81
SB148 74
SB130 170
SB147 22 UJ
TP-10 (1-2) 13.8 U
TP-09 (0-1) 14.1 U
SB145 350 J
TP-09 (1-2) 13.1 U
SB134 22 U
MW114B 21 U
SB135 32.2 J
TP-11 14.1 U
SB144 24 UJ
MW120B 21 UJ
SB143 68 J
SB142 250 J
SB141 20 UJ
SB109 20 U
SB113 18 U
SB105 20 U
SB119 18 UJ
SB-05 53.8 UJ
SB-02 13.2 U
MW107B 18 U
MW108B 18 U
SB115 19 U
SB122 51 J
SB111 44
SB132 67
SB126 21 U
SB129 120
TP-07 12.8 U
MW112B 21 UJ
TP-10(0-1) 117
SB130 170
MW110B 220

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

NORTH MEADOW

SOUTH MEADOW

WANUMETONOMY COLF COURSE

GRAVEL ROAD

UNNAMED STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

CUNNINGHAM ST.

DEERFIELD CREEK

PAVED

BLDG 180

BLDG 185 COMPLEX

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

BLDG 179

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Aroclor-1260 is 220 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Aroclor-1260 (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

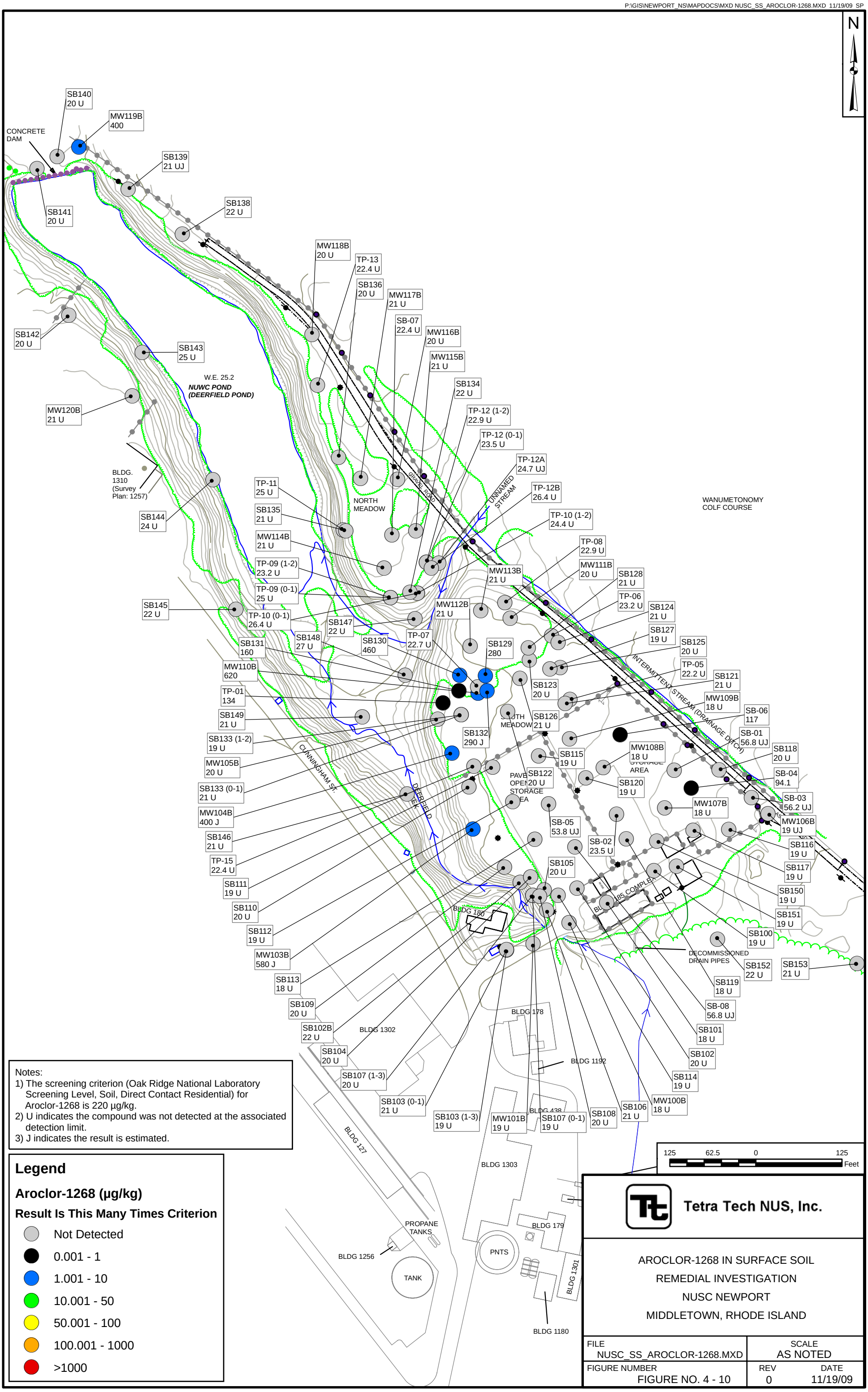
125 62.5 0 125 Feet

Tetra Tech NUS, Inc.

AROCLOR-1260 IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_AROCLOR-1260.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 9	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_AROCLOR-1268.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Aroclor-1268 is 220 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Aroclor-1268 (µg/kg)

Result Is This Many Times Criterion

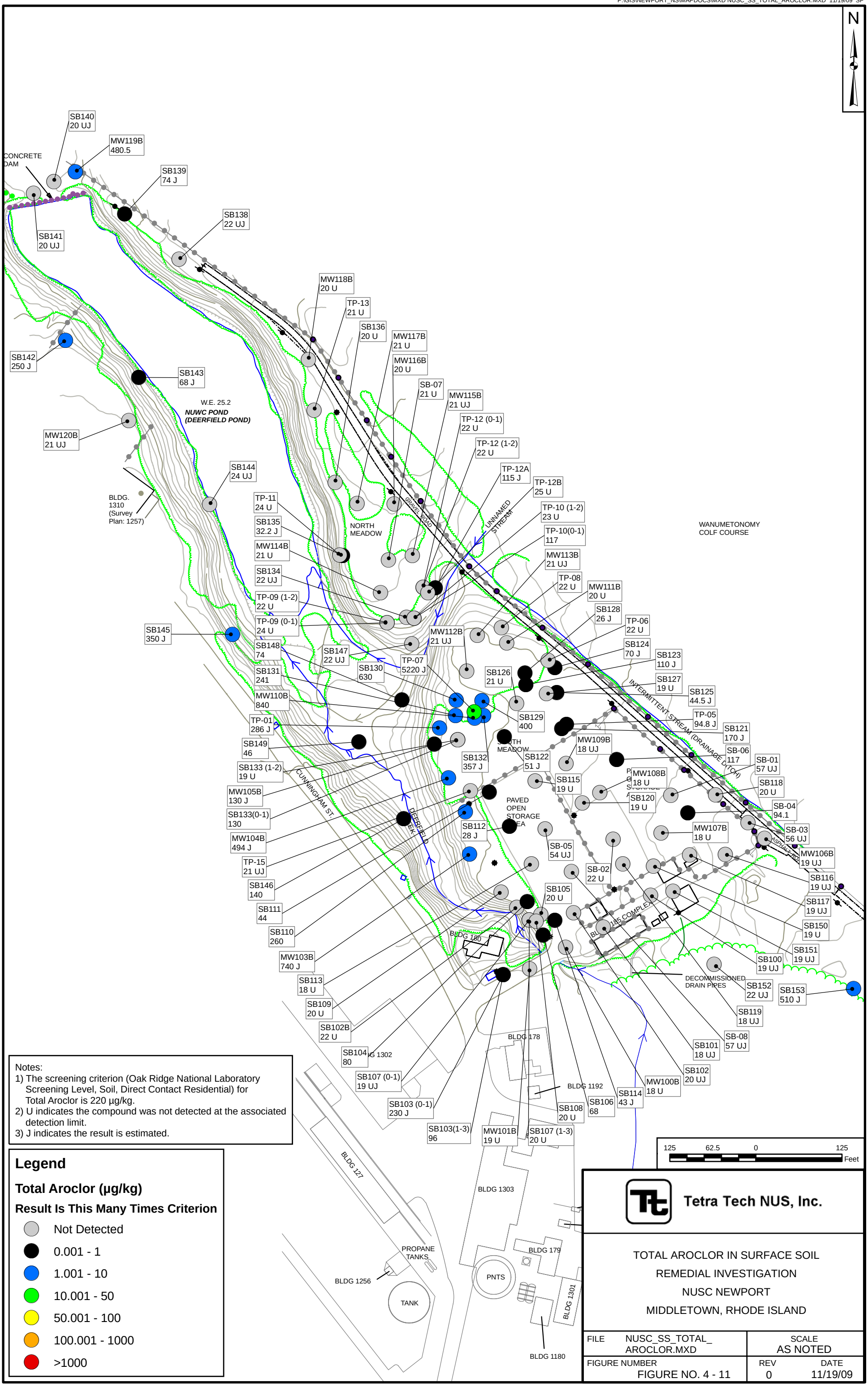
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

AROCLOR-1268 IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_AROCLOR-1268.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 10	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_TOTAL_AROCLOR.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Total Aroclor is 220 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Total Aroclor (µg/kg)

Result Is This Many Times Criterion

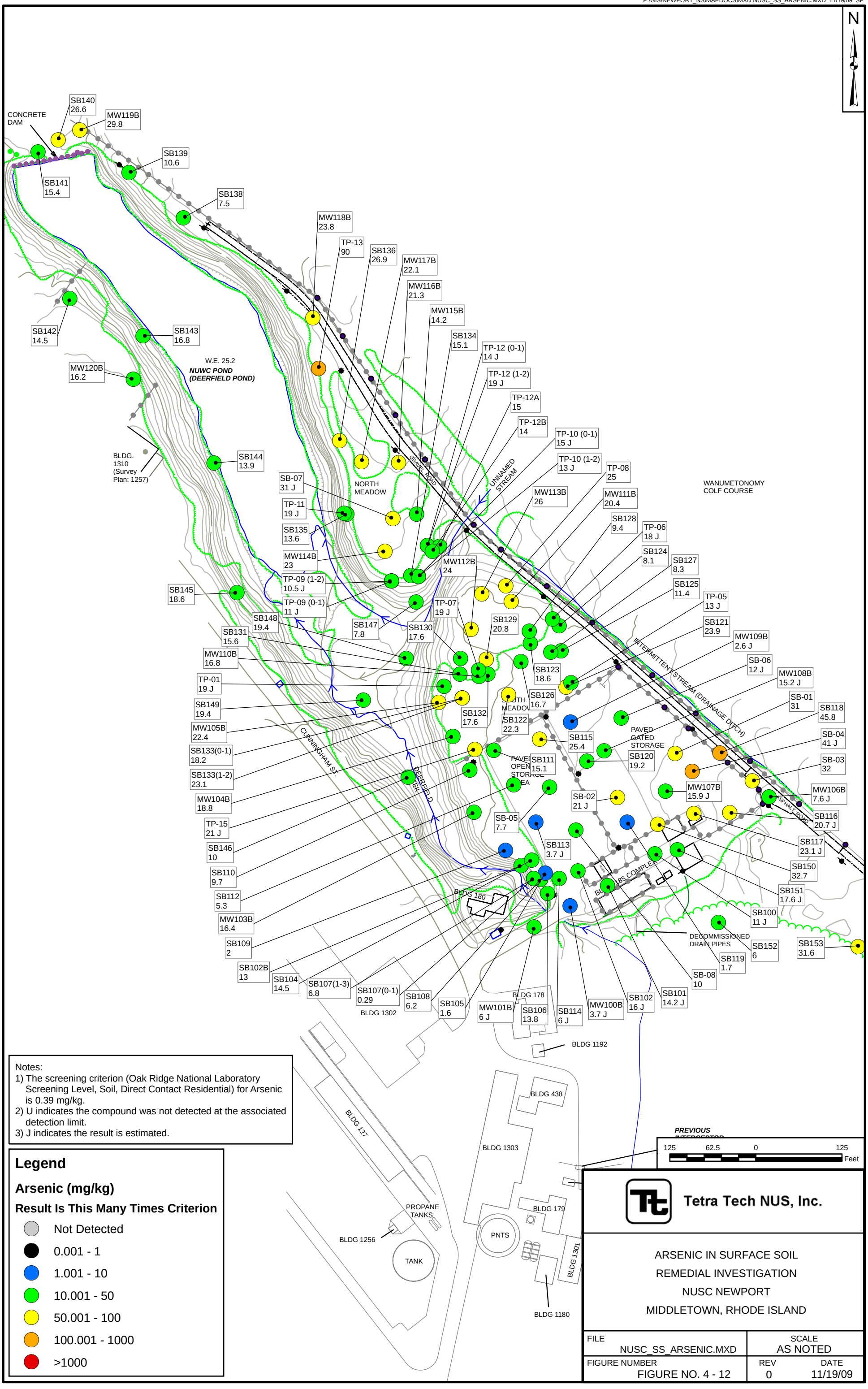
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

TOTAL AROCLOR IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_TOTAL_ AROCLOR.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 11	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SS_ARSENIC.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Arsenic is 0.39 mg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Arsenic (mg/kg)

Result Is This Many Times Criterion

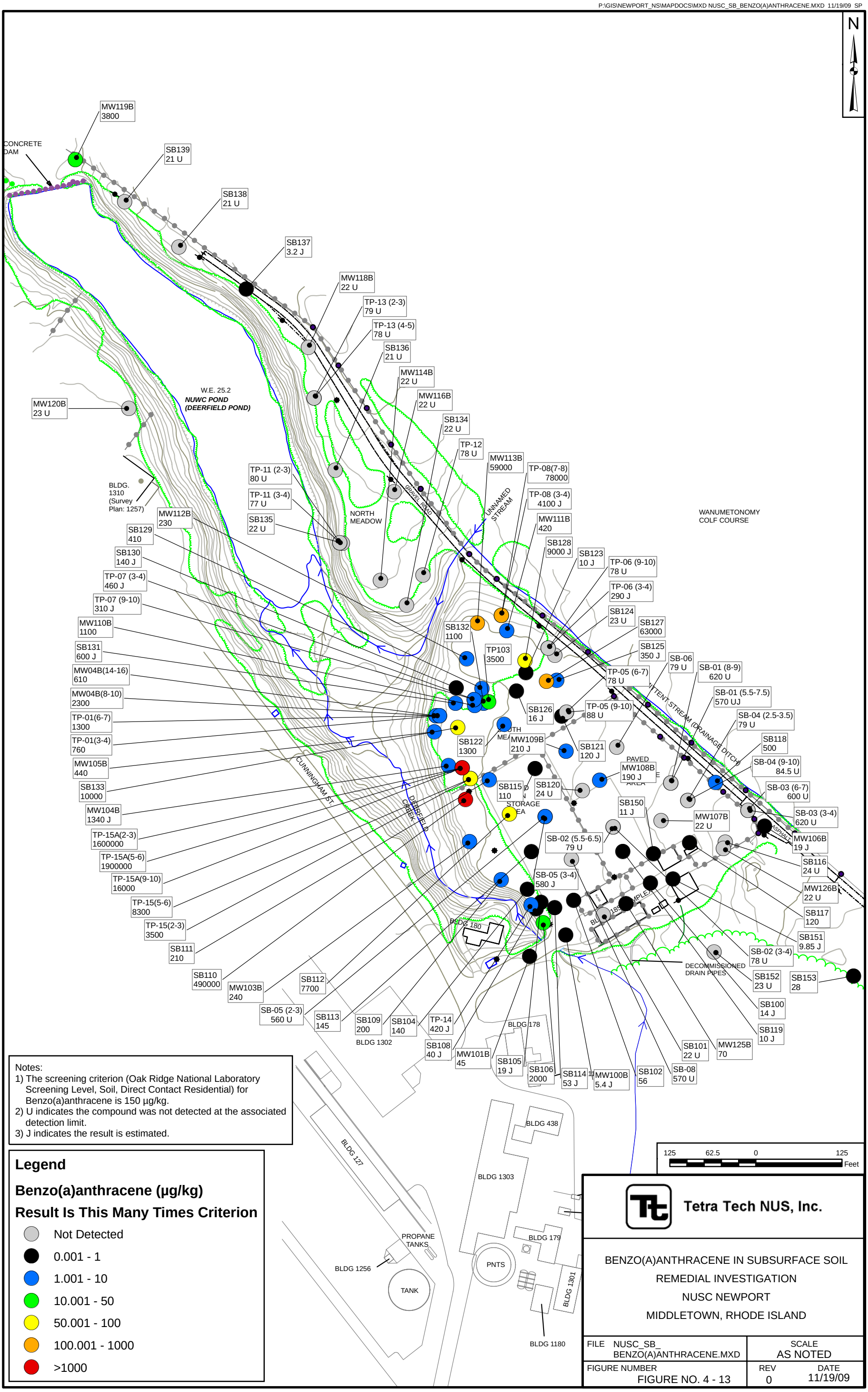
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ARSENIC IN SURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SS_ARSENIC.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 12	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_BENZO(A)ANTHRACENE.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(a)anthracene is 150 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(a)anthracene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

125 62.5 0 125 Feet

Tetra Tech NUS, Inc.

BENZO(A)ANTHRACENE IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_BENZO(A)ANTHRACENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 13	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_BENZO(A)PYRENE.MXD 11/19/09 SP

N

MW119B 3000
CONCRETE DAM
SB139 21 U
SB138 21 U
SB137 23 U
MW118B 22 U
TP-13 (2-3) 82 U
TP-13 (4-5) 80 U
SB136 21 U
MW114B 22 U
MW116B 22 U
SB134 22 U
TP-12 80 U
MW113B 30000
TP-08(3-4) 2400
TP-08(7-8) 56000
MW111B 370 J
SB128 6400
SB123 6.2 J
TP-06 (9-10) 81 U
TP-06 (3-4) 190 J
SB124 23 U
SB127 52000
SB125 280
SB-06 82 U
SB-01 (8-9) 620 U
SB-01 (5.5-7.5) 570 UJ
SB-04 (9-10) 87.5 U
SB118 300
SB-04 (2.5-3.5) 82 U
SB-03 (6-7) 600 U
SB-03 (3-4) 620 U
MW106B 20 J
SB116 24 U
MW126B 5.6 J
SB117 100
SB151 23.5 U
SB152 23 U
SB153 22 J
SB150 14 J
SB100 13 J
SB119 16 J
MW125B 84
SB-02 (3-4) 81 U
SB101 22 U
SB102 59
MW100B 25 U
SB114 70 J
SB106 1700
MW101B 29
SB108 72
TP-14 180 U
SB104 120
SB109 220
MW103B 190
SB111 190
SB110 440000
TP-15(2-3) 3000
TP-15(5-6) 6700
TP-15A(5-6) 1500000
TP-15A(9-10) 12000
TP-15A(2-3) 1300000
MW104B 805
SB122 1200
SB133 8600
MW105B 640 J
TP-01(3-4) 730
TP-01(6-7) 1200
MW04B(8-10) 1900
MW04B (14-16) 400 J
SB131 520 J
MW110B 1000
TP-07 (9-10) 270 J
TP-07 (3-4) 490 J
SB130 820
SB129 300
MW112B 160
SB135 22 U
TP-11 (3-4) 79 U
TP-11 (2-3) 83 U
MW120B 23 U
SB113 145
SB105 43
SB132 1100
TP103 4400
SB126 13 J
SB115 130
SB112 5700
SB120 24 U
SB-05 (3-4) 3000 U
SB-05 (2-3) 560 U
SB-08 570 U
MW109B 120
SB121 210 J
TP-05 (9-10) 91 U
TP-05 (6-7) 80 U
MW108B 110
SB-02 (5.5-6.5) 82 U
MW107B 22 U
W.E. 25.2
NUWC POND
(DEERFIELD POND)
NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
TENT STREAM (DRAINAGE DITCH)
CUNNINGHAM ST.
DEERFIELD CREEK
WANUMETONOMY COLF COURSE
BLDG. 1310 (Survey Plan: 1257)
BLDG 180
BLDG 178
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
BLDG 179
BLDG 1301
BLDG 1180
BLDG 1256
PROPANE TANKS
TANK
PNTS
DECOMMISSIONED DRAIN PIPE
STORAGE AREA

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(a)pyrene is 15 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(a)pyrene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

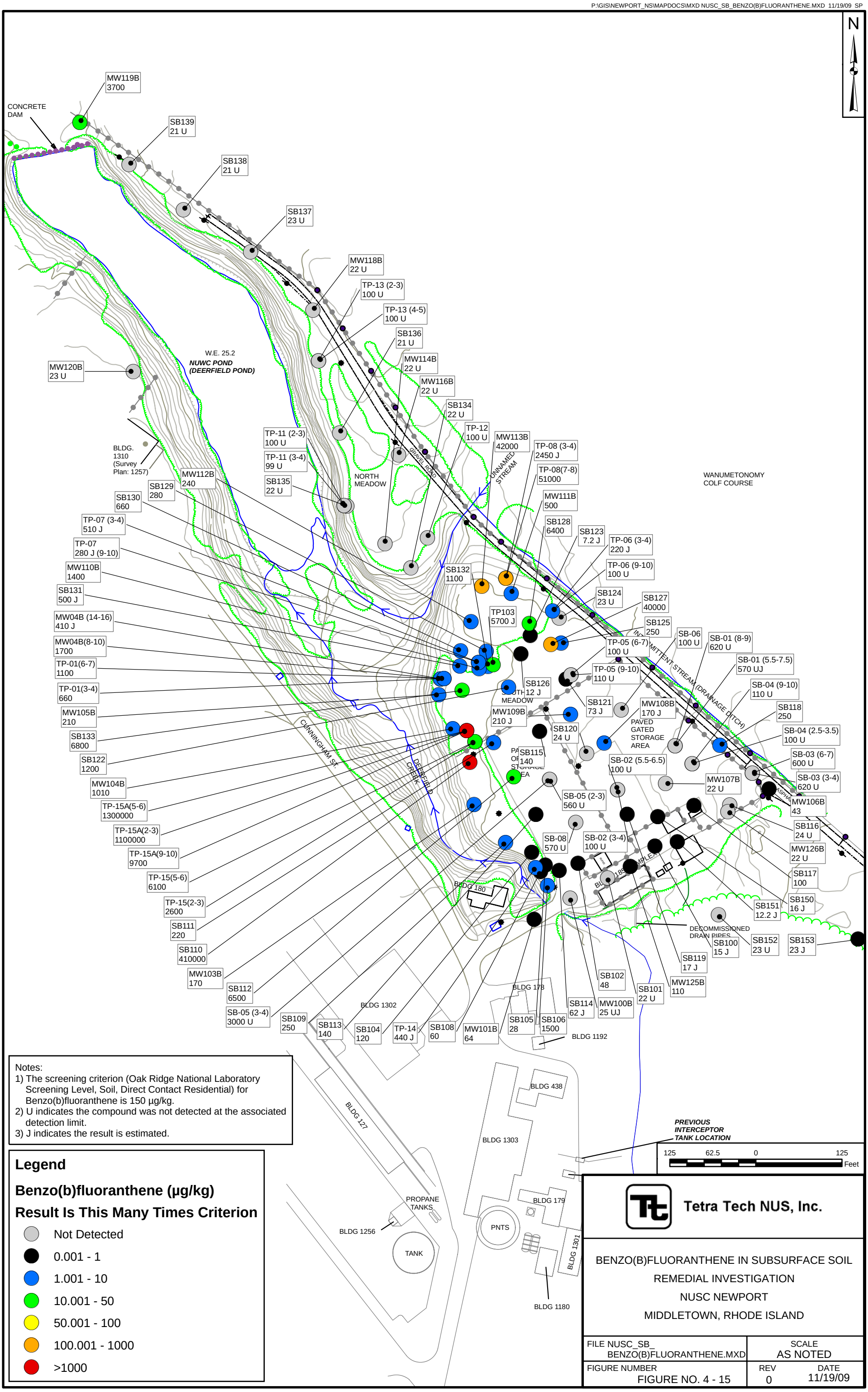
125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

BENZO(A)PYRENE IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_BENZO(A)PYRENE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 14	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_BENZO(B)FLUORANTHENE.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(b)fluoranthene is 150 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(b)fluoranthene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BENZO(B)FLUORANTHENE IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE NUSC_SB_BENZO(B)FLUORANTHENE.MXD	SCALE AS NOTED	
FIGURE NUMBER FIGURE NO. 4 - 15	REV 0	DATE 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_BENZO(K)FLUORANTHENE.MXD 11/19/09 SP

N

MW119B 1000
CONCRETE DAM
SB139 21 U
SB138 21 U
SB137 23 U
MW118B 22 U
TP-13 (2-3) 77 U
TP-13 (4-5) 75 U
SB136 21 U
MW114B 22 U
MW116B 22 U
SB134 22 U
TP-12 75 U
MW113B 16000
TP-08 (3-4) 2300 J
TP-08(7-8) 47000
MW111B 210
SB128 5800
SB123 7.3 J
TP-06 (9-10) 76 U
TP-06 (3-4) 210 J
SB124 23 U
SB127 46000
SB125 280
SB-06 77 U
SB-01 (8-9) 620 U
SB-01 (5.5-7.5) 570 UJ
SB-04 (9-10) 81.5 U
SB118 400
SB-04 (2.5-3.5) 77 U
SB-03 (3-4) 620 U
SB-03 (6-7) 600 U
MW106B 14 J
SB116 24 U
MW126B 22 UJ
SB117 55 J
SB150 10 J
SB151 8 J
SB152 23 U
SB153 23 J
SB100 7.7 J
SB119 5.4 J
MW125B 67 J
SB101 22 U
SB-08 570 U
SB102 29
SB106 1500
SB105 24
SB104 120
SB108 42
SB114 26 J
MW100B 25 U
MW101B 20 J
SB109 200
SB113 60.5 J
SB112 5350
MW103B 160
SB111 140
SB110 350000
TP-15(2-3) 2600
TP-15(5-6) 5600
TP-15A(2-3) 1100000
TP-15A(9-10) 10000
TP-15A(5-6) 1200000
MW104B 420
SB122 1200
SB133 7200
MW105B 180
SB131 430
MW110B 370 J
MW04B (14-16) 450 J
MW04B(8-10) 1600
TP-01(6-7) 1100
TP-01(3-4) 700
TP-07 (3-4) 440 J
TP-07 (9-10) 260 J
SB130 800
SB129 300
MW112B 75
MW120B 23 U
SB135 22 U
TP-11 (2-3) 78 U
TP-11 (3-4) 74 U
TP-14 400 J
SB132 770
TP103 3600
SB126 12 J
SB121 200 J
MW109B 74
MW108B 74
SB120 24 U
SB-05 (3-4) 3000 U
SB-02 (5.5-6.5) 77 U
SB-02 (3-4) 76 U
SB-05 (2-3) 560 U
MW107B 22 U
SB115 73
TP-05 (6-7) 75 U
TP-05 (9-10) 86 U
SB126 12 J
SB121 200 J
MW109B 74
MW108B 74
SB120 24 U
SB-05 (3-4) 3000 U
SB-02 (5.5-6.5) 77 U
SB-02 (3-4) 76 U
SB-05 (2-3) 560 U
MW107B 22 U
SB115 73

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

GRAVEL ROAD

UNNAMED STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

DEERFIELD CREEK

CUNNINGHAM ST.

ASPHALT

BLDG 180

BLDG 185

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

BLDG 179

PNTS

PROPANE TANKS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

DECOMMISSIONED DRAIN

WANUMETONOMY COLF COURSE

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Benzo(k)fluoranthene is 1500 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Benzo(k)fluoranthene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

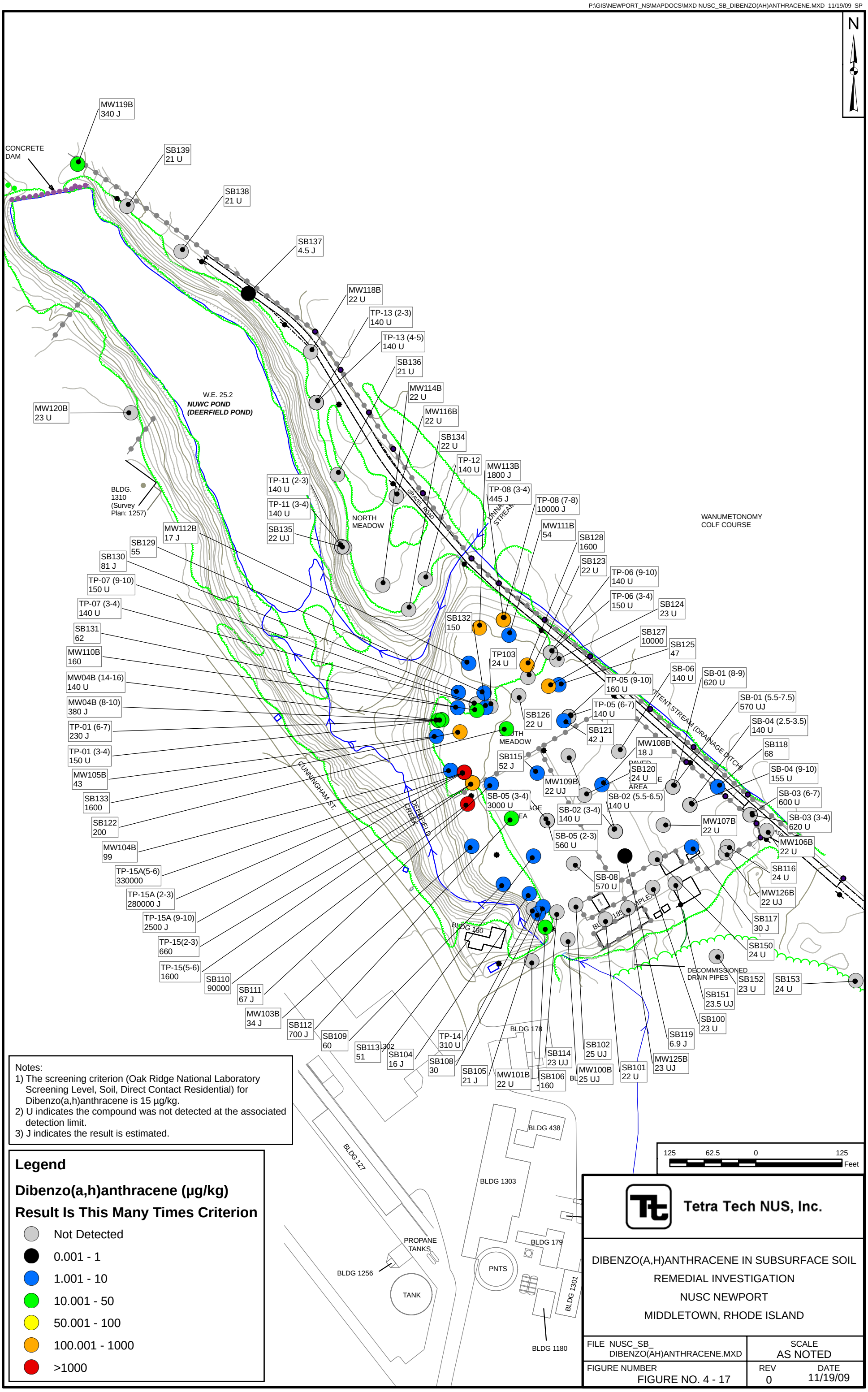
125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

BENZO(K)FLUORANTHENE IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE NUSC_SB_BENZO(K)FLUORANTHENE.MXD	SCALE AS NOTED	
FIGURE NUMBER FIGURE NO. 4 - 16	REV 0	DATE 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_DIBENZO(AH)ANTHRACENE.MXD 11/19/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Dibenzo(a,h)anthracene is 15 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dibenzo(a,h)anthracene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DIBENZO(A,H)ANTHRACENE IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_DIBENZO(AH)ANTHRACENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 17	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_INDENO(123-CD)PYRENE.MXD 11/19/09 SP

N

MW119B
1800

CONCRETE
DAM

SB139
21 U

SB138
21 U

SB137
10 J

MW118B
22 U

TP-13 (2-3)
160 U

TP-13 (4-5)
150 U

SB136
21 U

MW114B
22 U

MW116B
22 U

SB134
22 U

TP-12
150 U

MW113B
7000 J

TP-08(7-8)
30000

TP-08(3-4)
1250

MW111B
180

SB128
3150

SB123
22 U

TP-06 (3-4)
160 U

TP-06 (9-10)
160 U

SB124
23 UJ

SB127
30000

SB125
140 J

SB-06
160 U

SB-01 (8-9)
860 U

SB-01 (5.5-7.5)
800 UJ

SB-04 (2.5-3.5)
160 U

SB118
170

SB-04 (9-10)
165 U

SB-03 (6-7)
830 U

SB-03 (3-4)
860 U

MW106B
22 U

SB116
24 U

MW126B
22 U

SB117
64 J

SB150
17 J

SB151
23.5 UJ

SB-02 (5.5-6.5)
160 U

SB152
23 UJ

SB153
7.5 J

SB100
9 J

SB119
9.7 J

MW125B
63

SB101
22 U

SB102
33 J

SB-05 (2-3)
790 U

SB-05 (3-4)
4300 U

MW100B
25 U

SB114
30 J

SB106
1000

MW101B
16 J

SB108
100

SB105
71

TP-14
340 U

SB104
51 J

SB109
120

SB110
260000

SB111
90 J

MW103B
100 J

SB112
2750

SB113
67.5 J

TP-15(5-6)
4100

TP-15(2-3)
1800

TP-15A(5-6)
850000

TP-15A(9-10)
6700

TP-15A(2-3)
740000

MW104B
380

SB122
660

SB133
4300

MW105B
110

TP-01 (3-4)
460 J

TP-01 (6-7)
800 J

MW04B (14-16)
260 J

MW04B (8-10)
1200 J

MW110B
610

SB131
170

SB130
260

TP-07 (9-10)
200 J

TP-07 (3-4)
350 J

SB129
120

MW112B
73

TP-11 (2-3)
160 U

TP-11 (3-4)
150 U

SB135
22 UJ

SB132
570

TP103
5100

SB126
22 U

SB121
91 J

MW109B
52

SB120
24 U

SB115
64 J

SB-02 (3-4)
160 U

MW107B
22 U

SB-08
800 U

MW120B
23 U

BLDG.
1310
(Survey
Plan: 1257)

W.E. 25.2
NUWC POND
(DEERFIELD POND)

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST.

DEERFIELD
CREEK

BLDG 180

BLDG 1302

BLDG 178

BLDG 1192

BLDG 127

BLDG 1303

BLDG 179

BLDG 1301

BLDG 1180

PROPANE
TANKS

TANK

PNTS

DECOMMISSIONED
DRAIN PIPES

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Indeno(1,2,3-cd)pyrene is 150 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Indeno(1,2,3-cd)pyrene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

INDENO(1,2,3-CD)PYRENE IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_INDENO(123-CD)PYRENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 18	REV: 0 — DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_PAH.MXD 11/19/09 SP

N

MW119B 42620J
CONCRETE DAM
SB139 21 U
SB138 21 U
SB137 29.5 J
MW118B 5.6J
TP-13(2-3) 90U
TP-13(4-5) 88U
SB136 5.2 J
MW114B 4.8J
MW116B 22U
SB134 22 U
TP-12 88U
MW113B 745400J
TP-08(3-4) 49780J
TP-08(7-8) 1105100J
MW111B 5448.9J
SB128 105715 J
SB123 112.7 J
TP-06(3-4) 3124J
TP-06(9-10) 89U
SB124 23UJ
SB127 854600J
SB125 4484J
SB-06 90U
SB-01(8-9) 620U
SB-01(5.5-7.5) 570UJ
SB-04(9-10) 125J
SB-04(2.5-3.5) 95U
SB118 7160J
SB-03(3-4) 620U
SB-03(6-7) 600U
MW106B 191.9J
SB116 2860J
MW126B 9J
SB117 1113.9J
SB150 142.9J
SB119 129.5J
SB151 79.35J
SB100 162.2J
SB-152 23UJ
SB-153 366.8J
SB-08 570U
SB101 21.2J
SB102 507.3J
MW100B 20.4J
SB114 529.7J
SB106 22412J
SB105 365.6J
MW101B 382.3J
SB108 625.4J
TP-14 3700J
SB104 1640.4J
SB109 2606.8J
SB113 1460.05J
SB111 2239J
SB110 6311000J
TP-15(2-3) 41270J
TP-15(5-6) 103630J
TP-15A(2-3) 19780000J
TP-15A(5-6) 23460000J
TP-15A(9-10) 203700J
MW104B 17767.95J
SB122 17487
SB133 119600J
MW105B 5673.5J
TP-01(6-7) 17104J
TP-01(3-4) 9673J
MW04B (8-10) 28290 J
MW04B (14-16) 7414 J
MW110B 12840J
SB131 7368 J
SB130 12587 J
SB129 4876 J
MW112B 2144.4J
TP-07(3-4) 5980J
TP-07(9-10) 3568J
MW120B 23UJ
W.E. 25.2
NUWC POND (DEERFIELD POND)
BLDG. 1310 (Survey Plan: 1257)
TP-11(3-4) 87U
TP-11(2-3) 91U
SB135 22 UJ
NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
WANUMETONOMY COLF COURSE
SB132 12520
TP103 48440 J
TP-05(6-7) 88U
TP-05(9-10) 100U
SB126 215.1 J
SB121 3650.9 J
SOUTH MEADOW
MW109B 1767.8J
MW108B 1645J
SB115 1210J
SB120 3.3J
SB112 65399.5J
GATED STORAGE AREA
SB-02(5.5-6.5) 90U
SB-05(2-3) 560U
MW107B 10.3J
MW103B 2765J
SB-05(3-4) 3620J
SB-02(3-4) 89U
MW125B 859.3J
DECOMMISSIONED DRAIN PIPES
INTERMITTENT STREAM (DRAINAGE DITCH)
ASPHALT ROAD
CUNNINGHAM ST.
DEERFIELD CREEK
BLDG 180
BLDG 178
BLDG 1192
BLDG 438
BLDG 1303
BLDG 179
PNTS
BLDG 1301
BLDG 1180
BLDG 127
PROPANE TANKS
BLDG 1256
TANK

Notes:
1) Symbology is based on the result in comparison to the maximum detection (23460000 µg/kg)
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Total PAH (µg/kg)

RESULT_IS_THIS_MANY_TIMES_MAXDET

- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

125 62.5 0 125 Feet

Tetra Tech NUS, Inc.

TOTAL PAH IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_PAH.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 19	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_TPH.MXD 11/24/09 SP

N

MW119B 200
SB139 2.6 J
CONCRETE DAM
SB138 2.65 J
SB137 4.3 J
MW118B 2.3 J
TP-13 (2-3) 57 U
TP-13 (4-5) 56 U
SB136 6
MW114B 6
MW116B 3 J
SB134 4.3 J
TP-12 56 U
MW113B 2500
TP-08(7-8) 17
TP-08(3-4) 69.5
MW111B 30
SB128 545
SB123 2.6 J
TP-06 (3-4) 60 U
TP-06 (9-10) 57 U
SB124 5.7 U
SB127 1400
SB125 34
SB-06 57 U
SB-01 (5.5-7.5) 57 U
SB-01 (8-9) 62 U
SB-04(9-10) 310
SB-04(2.5-3.5) 300
SB118 31
SB-03 (6-7) 22 J
SB-03 (3-4) 62 U
MW106B 73
SB116 1900
MW126B 2.7 J
SB117 200
SB150 28 J
SB151 235
SB119 150
SB152 5.7 U
SB153 7.2 U
SB-02 (5.5-6.5) 37 J
MW125B 210
SB101 8.55 U
SB-08 57 U
SB102 89 U
SB-05 (2-3) 56 U
MW100B 23
SB114 160
SB106 220
MW101B 370
SB105 16
SB108 26
TP-14 380
SB104 22
SB113 220
SB109 190
MW103B 27
SB111 200
SB110 12000
TP-15(5-6) 230
TP-15(2-3) 150
TP-15A(2-3) 50000
TP-15A(9-10) 200
TP-15A(5-6) 63000
MW104B 55.5 J
SB133 490
MW105B 980
TP-01(3-4) 190
TP-01(6-7) 110
MW110B 170
SB131 39 J
TP-07(9-10) 120
TP-07(3-4) 140
SB130 94
SB129 260
MW112B 67
TP-11 (3-4) 56 U
TP-11 (2-3) 58 U
SB135 3.8 J
MW120B 3.8 J
SB132 150
TP103 260
SB126 200
SB115 160
SB122 530
SB121 2800
MW109B 180
SB120 9.4 U
MW108B 240
SB-02 (3-4) 57 U
MW107B 30
SB112 1180
SB-05(3-4) 13
TP-05 (9-10) 18 U
TP-05 (6-7) 16 U

W.E. 25.2
NUWC POND (DEERFIELD POND)
NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
WANUMETONOMY COLF COURSE
INTERMITTENT STREAM (DRAINAGE DITCH)
CUNNINGHAM ST.
DEERFIELD CREEK
PAVED OPEN STORAGE AREA
ASPHALT ROAD
DECOMMISSIONED DRAIN PIPES
BLDG. 1310 (Survey Plan: 1257)
BLDG 180
BLDG 178
BLDG 1302
BLDG 1192
BLDG 438
BLDG 1303
BLDG 127
BLDG 179
PNTS
PROPANE TANKS
TANK
BLDG 1256
BLDG 1301
BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The ETPH screening criterion used for comparison purposes is RIDEM's residential threshold value of 500 mg/kg; note that this criterion is for TPH, which is composed of both GRO and ETPH.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

ETPH (C09-C36) (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ETPH (C09-C36) IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_TPH.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 20	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_AROCLOR-1260.MXD 11/19/09 SP

N

MW119B 18 U
CONCRETE DAM
SB139 18 U
SB138 18 U
SB137 20 U
MW118B 19 U
TP-13 (2-3) 12.6 U
TP-13 (4-5) 12.4 U
SB136 45
MW114B 19 UJ
MW116B 19 UJ
SB134 19 U
TP-12 12.4 U
MW113B 19 UJ
TP-08 (3-4) 12.9 UJ
TP-08 (7-8) 129 U
MW111B 20 U
SB128 19 U
SB123 19 U
TP-06 (9-10) 12.5 U
TP-06 (3-4) 13.1 U
SB124 19 U
SB127 20 U
SB125 20 U
SB-06 12.6 U
SB-01 (8-9) 61.7 UJ
SB-01 (5.5-7.5) 56.8 UJ
SB-04 (9-10) 13.5 UJ
SB-04 (2.5-3.5) 12.6 U
SB118 20 U
SB-03 (6-7) 59.5 UJ
SB-03 (3-4) 61.7 UJ
MW106B 19 U
SB116 21 U
SB117 21 UJ
SB150 20 U
SB151 20 UJ
SB119 19 UJ
SB152 19 U
SB153 21 U
SB-02 (5.5-6.5) 12.6 U
SB101 18 UJ
SB-08 57.5 UJ
SB102 21 UJ
MW100B 21 U
SB114 19 UJ
SB-05 (9-10) 14.1 U
SB-05 (6-7) 12.4 U
SB-02 (3-4) 12.5 UJ
MW107B 18 UJ
SB120 20 U
MW108B 19 U
SB121 18 U
SB126 18 U
TP103 1100 J
SB132 19 U
SB-05 (3-4) 305 UJ
SB-05 (2-3) 56.2 UJ
SB109 20 U
SB113 19.5 UJ
SB104 21 UJ
TP-14 13.8 U
SB108 19
MW101B 19 U
SB105 20 U
SB106 20 U
MW109B 19 U
SB115 20 U
MW120B 19 U
W.E. 25.2
NUWC POND (DEERFIELD POND)
BLDG. 1310 (Survey Plan: 1257)
TP-11 (2-3) 12.8 U
TP-11 (3-4) 12.2 U
SB135 19 U
MW112B 20 U
SB129 20 U
SB130 20 U
TP-07(9-10) 502
TP-07 (3-4) 12.8 U
SB131 19 U
MW110B 260
MW04B (8-10) 12.9 U
MW04B (14-16) 12.5 U
TP-01 (3-4) 12.9 U
TP-01 (6-7) 12.8 U
MW105B 18 U
SB133 82
SB122 18 U
MW104B 57.5 UJ
TP-15A (2-3) 12.8 U
TP-15A (5-6) 13.1 U
TP-15A (9-10) 13.2 U
TP-15 (5-6) 12.9 U
TP-15 (2-3) 12.9 U
SB110 19 U
SB111 1500
MW103B 20 U
SB112 19 U
NORTH MEADOW
SOUTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
INTERMITTENT STREAM (DRAINAGE DITCH)
CUNNINGHAM ST.
DEERFIELD CREEK
PAVED OPEN STORAGE AREA
BLDG 180
BLDG 185 COMPLEX
BLDG 178
BLDG 1302
BLDG 1303
BLDG 127
BLDG 179
BLDG 1301
BLDG 1180
BLDG 1256
PROPANE TANKS
TANK
PNTS
DECOMMISSIONED DRAIN PIPES
WANUMETONOMY COLF COURSE

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Aroclor-1260 is 220 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Aroclor-1260 (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

AROCLOR-1260 IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_AROCLOR-1260.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 21	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_AROCLOR-1268.MXD 11/19/09 SP

N

MW119B 18 U
CONCRETE DAM
SB139 18 U
SB138 18 U
SB137 20 U
MW118B 19 U
TP-13 (2-3) 22.4 U
TP-13 (4-5) 21.9 U
SB136 18 U
MW114B 19 UJ
MW116B 19 U
SB134 19 U
TP-12 21.9 U
MW113B 19 U
TP-08 (3-4) 22.9 UJ
TP-08 (7-8) 229 U
MW111B 310
SB128 19 U
SB123 19 U
TP-06 (9-10) 22.2 U
TP-06 (3-4) 23.2 U
SB124 19 U
SB127 20 U
SB125 20 U
SB-06 22.4 U
SB-01 (8-9) 61.7 UJ
SB-01 (5.5-7.5) 56.8 UJ
SB-04 (9-10) 23.95 UJ
SB118 20 U
SB-04 (2.5-3.5) 22.4 U
SB-03 (6-7) 59.5 UJ
SB-03 (3-4) 61.7 UJ
MW106B 19 U
SB116 21 U
SB117 21 U
SB150 20 U
SB151 20 U
SB119 19 U
SB152 19 U
SB153 21 U
SB-02 (5.5-6.5) 22.4 U
SB101 18 U
SB-08 57.5 UJ
SB102 21 U
MW100B 21 U
SB114 19 U
SB106 20 U
SB105 20 U
MW101B 19 U
SB108 18 U
TP-14 24.4 U
SB104 21 U
SB113 19.5 U
SB109 20 U
SB-05 (3-4) 305 UJ
SB-05 (2-3) 56.2 UJ
SB-02 (3-4) 22.2 UJ
MW107B 18 UJ
SB115 20 U
SB120 20 U
MW108B 19 U
MW109B 19 U
SB126 18 U
SB121 18 U
TP-05 (9-10) 25 U
TP-05 (6-7) 21.9 U
TP103 1300 J
SB132 19 U
TP-11 (2-3) 22.7 U
TP-11 (3-4) 21.7 U
SB135 19 U
MW112B 79
SB129 150
SB130 20 U
TP-07 (9-10) 23.8 U
TP-07 (3-4) 54.4 J
SB131 19 U
MW110B 61
MW04B (8-10) 22.9 U
MW04B (14-16) 22.2 U
TP-01 (6-7) 27.4 J
TP-01(3-4) 96.7
MW105B 18 U
SB133 19 U
SB122 18 U
MW104B 4060 J
TP-15A (2-3) 22.7 U
TP-15A (5-6) 23.2 U
TP-15A (9-10) 23.5 U
TP-15 (5-6) 22.9 U
TP-15 (2-3) 22.9 U
SB110 19 U
SB111 200 U
MW103B 83
SB112 19 U
MW120B 19 U
SB-05 (3-4) 305 UJ

W.E. 25.2
NUWC POND (DEERFIELD POND)

NORTH MEADOW
SOUTH MEADOW
PAVED OPEN STORAGE AREA
PAVED OPEN STORAGE AREA
WANUMETONOMY COLF COURSE
GRAVEL ROAD
UNPAVED STRIP
TENT STREAM (DRAINAGE DITCH)
CUNNINGHAM ST.
DEERFIELD CREEK
BLDG. 1310 (Survey Plan: 1257)
BLDG 180
BLDG 185 COMPLEX
DECOMMISSIONED DRAIN PIPES
BLDG 178
BLDG 1302
BLDG 1303
BLDG 438
BLDG 127
BLDG 179
BLDG 1301
BLDG 1180
PROPANE TANKS
TANK
PNTS
BLDG 1256

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Aroclor-1268 is 220 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Aroclor-1268 (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

AROCLOR-1268 IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_AROCLOR-1268.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 22	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_TOTAL_AROCLOR.MXD 11/19/09 SP

N

MW119B
18 U

CONCRETE DAM

SB139
18 U

SB138
18 U

SB137
20 U

MW118B
19 U

TP-13 (2-3)
21 U

TP-13 (4-5)
21 U

SB136
45

MW114B
19 UJ

MW116B
19 UJ

SB134
19 U

TP-12
21 U

MW113B
19 UJ

TP-08 (3-4)
132 J

TP-08 (7-8)
220 U

MW111B
310

SB128
19 U

SB123
19 U

TP-06 (9-10)
21 U

TP-06 (3-4)
22 U

SB124
19 U

SB127
20 U

SB125
20 U

SB-06
21 U

SB-01 (5.5-7.5)
57 UJ

SB-01 (8-9)
62 UJ

SB-04 (9-10)
23 UJ

SB118
20 U

SB-04 (2.5-3.5)
21 U

SB-03 (6-7)
60 UJ

SB-03 (3-4)
62 UJ

MW106B
19 U

SB116
21 U

SB117
21 UJ

SB150
20 U

SB151
20 UJ

SB119
19 UJ

SB152
19 UJ

SB153
21 U

SB-02 (5.5-6.5)
21 U

SB101
18 UJ

SB102
21 UJ

SB-05 (2-3)
56 UJ

MW100B
21 U

SB114
19 UJ

SB106
20 U

SB105
20 U

MW101B
19 U

SB108
19

TP-14
23 U

SB104
21 UJ

SB113
20 UJ

SB109
20 U

SB-05 (3-4)
300 UJ

MW103B
123

SB112
19 U

SB111
1500

SB110
19 U

TP-15 (2-3)
22 UJ

TP-15 (5-6)
22 UJ

TP-15A (9-10)
44.5 J

TP-15A (5-6)
22 UJ

TP-15A (2-3)
21 UJ

MW104B
4060 J

SB122
18 U

SB133
82

MW105B
18 U

TP-01 (3-4)
96.7 J

TP-01 (6-7)
27.4 J

MW04B (14-16)
21 U

MW04B (8-10)
22 U

MW110B
321

SB131
19 U

SB130
20 U

SB129
150

MW112B
79

SB135
19 U

TP-11 (3-4)
21 U

TP-11 (2-3)
21 U

MW120B
19 U

SB115
20 U

SB126
18 U

SB121
18 U

MW109B
19 U

SB132
19 U

TP103
2400 J

SB131
19 U

SB-08
58 UJ

SB120
20 U

MW107B
18 UJ

SB-02 (3-4)
21 UJ

TP-05 (9-10)
24 UJ

TP-05 (6-7)
21 UJ

SB-02 (5.5-6.5)
21 U

W.E. 25.2
NUWC POND
(DEERFIELD POND)

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

MW108B
19 U

STORAGE AREA

WANUMETONOMY COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

UNNAMED STREAM

GRAVEL ROAD

GUNNINGHAM ST.

DEERFIELD CREEK

BLDG. 1310 (Survey Plan: 1257)

BLDG 180

BLDG 185 COMPLEX

DECOMMISSIONED

BLDG 178

BLDG 1302

BLDG 127

BLDG 1303

BLDG 179

BLDG 1301

BLDG 1256

PROPANE TANKS

TANK

PNTS

BLDG 1180

ASPHALT

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Total Aroclor is 220 µg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Total Aroclor (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

125 62.5 0 125
Feet

Tetra Tech NUS, Inc.

TOTAL AROCLOR IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_TOTAL_AROCLOR.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 23	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SB_ARSENIC.MXD 11/19/09 SP

N

MW119B 10.3
CONCRETE DAM
SB139 11.9
SB138 29.6
SB137 16.2
MW118B 20.1 J
TP-13(2-3) 40
TP-13(4-5) 23
SB136 7.9
MW116B 27.5
MW114B 6.6
TP-12 7 J
SB134 5.2
MW113B 22.8
TP-08(3-4) 23.5
TP-08(7-8) 24
MW111B 21.7
SB128 8.9
SB123 13.9
TP-06 (9-10) 20 J
TP-06 (3-4) 16 J
SB124 14.5
SB127 11.7
SB125 11.7
SB-06 18 J
SB-01(8-9) 16
SB-01(5.5-7.5) 18
SB118 11.4
SB-04 (2.5-3.5) 13 J
SB-04 (9-10) 24 J
SB-03(3-4) 35
SB-03(6-7) 30
MW106B 9.8 J
SB116 11.4
SB117 20 J
SB151 10.3 J
SB119 9.8
SB100 9.6 J
SB152 6
SB153 12.6
SB-02 (5.5-6.5) 7.4 J
SB-08 13.5
SB101 2.25 J
SB-05(3-4) 17
SB102 14.2 J
MW100B 14.4 J
SB114 11.8 J
SB105 20.2
SB106 26.3
SB108 2.9
MW101B 8.9 J
TP-14 12 J
SB104 9.4
SB113 122 J
SB-05(2-3) 33
SB109 14.5
SB112 13.3
MW103B 18.8
SB111 11.6
SB110 17
TP-15 (5-6) 17 J
TP-15 (2-3) 18 J
TP-15A (9-10) 16 J
TP-15A (2-3) 3.4 J
TP-15A (5-6) 2.7 J
MW104B 20.8
SB122 9.8
SB133 14.3
MW105B 10.8
TP-01 (6-7) 15 J
TP-01 (3-4) 19 J
MW04B (14-16) 21 J
MW04B (8-10) 16 J
MW110B 10.8
SB131 17.7
SB130 26.2
SB129 16.1
MW112B 16.6
SB135 4.5
TP-11 (3-4) 14 J
TP-11 (2-3) 15 J
MW120B 21.7
SB132 15.6
TP103 22.5
SB126 4.7
TP-05 (9-10) 14 J
TP-05 (6-7) 26 J
SB121 15.3
SB115 16.8
SB120 9.7
MW109B 28.6 J
MW108B 8.2 J
SB-02 (3-4) 11 J
MW107B 14.1 J
SB150 14.7
TP-07 (3-4) 16 J
TP-07 (9-10) 14 J

W.E. 25.2
NUWC POND (DEERFIELD POND)
NORTH MEADOW
GRAVEL ROAD
UNNAMED STREAM
WANUMETONOMY COLF COURSE
INTERMITTENT STREAM (DRAINAGE DITCH)
CUNNINGHAM ST.
DEERFIELD CREEK
PAVED OPEN STORAGE AREA
BLDG. 1310 (Survey Plan: 1257)
BLDG 1302
BLDG 178
BLDG 438
BLDG 1303
BLDG 179
BLDG 1256
BLDG 1180
PROPANE TANKS
TANK
PNTS
BLDG 1301
DECOMMISSIONED DRAIN PIPES

Notes:
1) The screening criterion (Oak Ridge National Laboratory Screening Level, Soil, Direct Contact Residential) for Arsenic is 0.39 mg/kg.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Arsenic (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

PREVIOUS

125 62.5 0 125 Feet

Tetra Tech NUS, Inc.

ARSENIC IN SUBSURFACE SOIL
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SB_ARSENIC.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 24	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_TETRACHLOROETHENE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 1 U

DW13 1 UJ

DW14 1 UJ

DW01 0.6 J

DW12 1 U

MW118B 1 U

MW120B 1 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

DW11 1 U

DW02 1 U

DW07 1 U

MW116B 1 U

DW03 1 U

DW04 1 U

MW117B 1 U

BLDG. 1310 (Survey Plan: 1257)

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

DW05 0.5 J

MW03B 1 U

MW115B 0.5 J

MW112S 0.5 J

DW08 1 U

DW06 0.9 J

DW10 2

MW113B 0.6 J

MW114B 1 U

MW111B 1 U

DW09 1 U

MW112B 1 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 1 U

MW04B 1 U

MW110B 7 J

SOUTH MEADOW

MW109B 5 J

MW123 2

MW105B 3

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

DEERFIELD CREEK

MW104B 0.5 J

PAVED OPEN STORAGE AREA

MW103S 1 U

MW108B 7

MW106S 1 U

MW02B 1 U

MW107B 1 U

MW126B 1 U

ASPHALT ROAD

MW102B 1 UJ

MW106B 1 U

MW103B 1 U

MW100B 50 U

DUPLEX

BLDG 185

BLDG 180

MW101B 1 U

MW125B 12

DECOMMISSIONED DRAIN PIPES

MW09B 1 U

MW13A 1 UJ

BLDG 178

BLDG 1302

MW124B 1 U

BLDG 1192

BLDG 438

BLDG 127

MW07A 2

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 2 J

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

BLDG 1301

TANK

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Tetrachloroethene is 0.11 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Tetrachloroethene (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

TETRACHLOROETHENE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE NUSC_GW_TETRACHLOROETHENE.MXD	SCALE AS NOTED	
FIGURE NUMBER FIGURE NO. 4 - 25	REV 0	DATE 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_TRICHLOROETHENE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 1 U

DW14 26 J

DW13 140

MW118B 18

DW12 190

DW11 140

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 1 U

DW02 220

DW04 200

DW01 350

DW03 99

DW06 160

MW117B 730

MW116B 1 U

BLDG. 1310 (Survey Plan: 1257)

DW05 300

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

MW03B 190

MW115B 1 U

DW07 13

DW08 1 U

MW114B 1 U

MW113B 1 UJ

DW10 3

DW09 1 U

MW112S 1 UJ

MW111B 1 U

MW122 1 U

MW04B 1 U

MW112B 1 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW123 0.9 J

MW105B 2

MW110B 3 J

SOUTH MEADOW

MW109B 2

PAVED GATED STORAGE AREA

MW104B 7

PAVED OPEN STORAGE AREA

MW108B 2

MW107B 1 U

MW106S 1 U

CUNNINGHAM ST.

DEERFIELD CREEK

MW103S 1 U

MW02B 1 U

MW126B 1 U

ASPHALT ROAD

MW103B 6

MW102B 11

MW106B 1 U

MW100B 50 U

BLDG 180

BLDG. 185

IPLEX

MW125B 4

MW101B 5

MW124B 16

DECOMMISSIONED DRAIN PIPES

MW13A 0.40 J

MW09B 0.5 J

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 0.9 J

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 4 J

BLDG 179

PROPANE TANKS

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Trichloroethene is 1.7 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Trichloroethene (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

TRICHLOROETHENE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_ TRICHLOROETHENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 26	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_CIS_12_DCE.MXD 1/19/09 SP

N

CONCRETE DAM

MW119B 1 U

DW13 27

DW12 26

DW14 68 J

MW118B 0.4 J

DW11 43

W.E. 25.2

NUWC POND (DEERFIELD POND)

DW02 37

DW04 4

MW120B 1 U

DW01 21

DW06 13

MW116B 1 U

BLDG. 1310 (Survey Plan: 1257)

DW03 1

GRAVEL ROAD

UNNAMED STREAM

DW05 5

NORTH MEADOW

MW117B 2

DW07 2

MW03B 1 J

MW115B 1 U

MW114B 1 U

DW08 3.5

DW10 2

MW113B 1 UJ

MW111B 1 U

DW09 0.6 J

MW112S 1 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW123 0.4 J

MW122 1 U

MW04B 0.6 J

MW112B 1 UJ

SOUTH MEADOW

MW109B 6

MW105B 3

MW110B 2 J

PAVED GATED STORAGE AREA

MW108B 9.5

CUNNINGHAM ST.

DEERFIELD CREEK

MW104B 8

PAVED OPEN STORAGE AREA

MW107B 1 U

MW106S 1 U

MW103S 1 U

MW02B 0.3 J

MW126B 1 U

ASPHALT ROAD

MW102B 3

MW103B 4

MW106B 1 U

BLDG 180

MW100B 50 U

BLDG. 185

MW125B 4

MW101B 0.4 J

DECOMMISSIONED DRAIN PIPES

MW09B 1 U

MW13A 1 U

BLDG 178

BLDG 1302

MW124B 26

BLDG 1192

BLDG 438

BLDG 127

MW07A 1

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 17

DEERFIELD

BLDG 1256

PNTS

MW07B 1 U

BLDG 1301

TANK

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) All concentrations below the Oak Ridge National Laboratory Regional Screening Level for Tap Water criterion of 370 µg/L.
2) Symbology is based on the result in comparison to the maximum detection (68 µg/L).
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

cis-1,2-Dichloroethene (µg/L)

Result Is This Many Times Maximum Detection

- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

Tetra Tech NUS, Inc.

cis-1,2-DICHLOROETHENE IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_CIS_12_DCE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 27	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_VINYL_CHLORIDE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 2 J

DW13 2 U

DW14 2 U

DW11 2 U

DW12 2 U

MW118B 2 U

MW120B 2 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

DW02 2 U

DW03 2 U

DW04 2 U

MW117B 2 U

MW116B 2 U

BLDG. 1310 (Survey Plan: 1257)

DW05 2 U

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

DW07 2 U

MW03B 2 U

MW115B 2 U

DW08 2 J

MW114B 2 U

MW113B 2 UJ

MW111B 2 U

DW10 2 U

DW09 2 U

MW112S 2 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW04B 2 U

MW122 2 U

MW112B 2 UJ

MW123 2 U

MW110B 2 UJ

SOUTH MEADOW

MW109B 0.6 J

MW104B 1 J

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW105B 0.6 J

DEERFIELD CREEK

MW103S 2 U

PAVED OPEN STORAGE AREA

MW108B 0.4 J

MW106S 2 U

MW02B 2 U

MW107B 2 U

MW126B 2 U

ASPHALT ROAD

MW103B 2 U

MW102B 0.4 J

MW106B 2 U

MW100B 100 U

BLDG 185

DUPLEX

BLDG 180

MW101B 6

MW125B 0.3 J

DECOMMISSIONED DRAIN PIPES

MW09B 2 U

MW13A 2 U

BLDG 178

BLDG 1302

MW124B 19

BLDG 1192

BLDG 438

BLDG 127

MW07A 2 U

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 0.8 J

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

BLDG 1301

TANK

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Vinyl Chloride is 0.016 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Vinyl Chloride (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

VINYL CHLORIDE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_VINYL_CHLORIDE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 28	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_1_1_1TRICHLOROETHANE.MXD 11/19/09 SP

N

CONCRETE DAM
MW119B 1 U
DW13 0.6 J
DW14 1 U
DW12 0.8 J
MW118B 1 U
DW11 0.7 J
W.E. 25.2
NUWC POND (DEERFIELD POND)
DW01 2
MW116B 1 U
MW120B 1 U
DW02 2
DW03 1 J
MW117B 1 U
DW04 2
DW05 2
BLDG. 1310 (Survey Plan: 1257)
GRAVEL ROAD
UNNAMED STREAM
NORTH MEADOW
WANUMETONOMY COLF COURSE
DW06 1
MW03B 2
MW115B 1 U
DW07 1 U
DW08 1 U
MW114B 1 U
MW113B 1 UJ
DW09 1 U
DW10 1 U
MW111B 1 U
MW112S 1 UJ
MW04B 0.4 J
INTERMITTENT STREAM (DRAINAGE DITCH)
MW112B 1 UJ
MW122 1
MW110B 1 UJ
SOUTH MEADOW
MW109B 1 U
MW123 1 U
MW105B 3
MW104B 4
PAVED GATED STORAGE AREA
CUNNINGHAM ST.
DEERFIELD CREEK
MW108B 1 U
PAVED OPEN STORAGE AREA
MW103S 1 U
MW107B 1 U
MW106S 1 U
MW126B 1 U
ASPHALT ROAD
MW02B 1 U
MW103B 1
MW102B 1 U
MW106B 1 U
COMPLEX
BLDG. 185
BLDG 180
MW100B 50 U
MW125B 1 U
MW101B 110
DECOMMISSIONED DRAIN PIPES
MW09B 76
MW13A 1 U
BLDG 178
BLDG 1302
MW124B 1 U
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
MW07A 260
PREVIOUS INTERCEPTOR TANK LOCATION
CONCRETE UNDERGROUND STORAGE TANK
DEERFIELD
PROPANE TANKS
BLDG 17
PNTS
BLDG 1256
MW07B 1600
BLDG 1301
TANK
BLDG 1180

125 62.5 0 125 Feet

Notes:
1) All concentrations below the Oak Ridge National Laboratory Regional Screening Level for Tap Water criterion of 9100 µg/L.
2) Symbology is based on the result in comparison to the maximum detection (1600 µg/L).
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

1,1,1-Trichloroethane (µg/L)

Result Is This Many Times Maximum Detection

- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

Tetra Tech NUS, Inc.

1,1,1-TRICHLOROETHANE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_1_1_1 TRICHLOROETHANE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 29	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_1-1DICHLOROETHANE.MXD 11/18/09 SP

N

CONCRETE DAM

MW119B 1 U

DW13 1

DW14 0.8 J

DW12 2

MW118B 1 U

DW02 2

DW11 1

MW120B 1 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW116B 1 U

DW01 3

DW03 0.8 J

DW04 1

DW06 2

MW117B 0.4 J

BLDG. 1310 (Survey Plan: 1257)

GRAVEL ROAD

UNNAMED STREAM

DW05 1

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 2

MW115B 0.8 J

MW112S 1 UJ

DW07 1

DW08 0.6 J

DW10 3

MW113B 1 UJ

MW114B 1 J

MW111B 1 U

DW09 1 U

MW112B 1 J

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 0.4 J

MW04B 23

MW110B 0.7 J

SOUTH MEADOW

MW109B 1 U

MW123 1 U

MW105B 100

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

DEERFIELD CREEK

MW104B 130

PAVED OPEN STORAGE AREA

MW108B 1 U

MW106S 1 U

MW103S 1 U

MW02B 1 U

MW107B 1 U

MW126B 1 U

ASPHALT ROAD

MW102B 2

MW106B 1 U

MW103B 19

MW100B 310

DUPLEX

BLDG 180

BLDG 185

MW101B 805

MW125B 0.5 J

DECOMMISSIONED DRAIN PIPES

MW09B 47

MW13A 1 U

BLDG 178

BLDG 1302

MW124B 18

BLDG 1192

BLDG 438

BLDG 127

MW07A 380

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 1000

BLDG 179

PROPANE TANKS

PNTS

BLDG 1256

TANK

BLDG 1301

DEERFIELD C

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for 1,1-Dichloroethane is 2.4 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

1,1-Dichloroethane (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

1,1-DICHLOROETHANE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOwN, RHODE ISLAND

FILE	SCALE
NUSC_GW_ 1-1DICHLOROETHANE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 30	REV: 0 / DATE: 11/18/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_CHLOROETHANE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 2 U

DW13 2 U

DW14 2 U

DW12 2 U

MW118B 2 U

DW11 2 U

DW01 2 U

MW120B 2 U

W.E. 25.2

NUWC POND (DEERFIELD POND)

DW04 2 U

DW02 2 U

MW117B 2 UJ

DW05 2 U

DW03 2 U

MW116B 2 UJ

BLDG. 1310 (Survey Plan: 1257)

DW06 2 U

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

DW07 2 U

MW03B 2 U

MW115B 2 U

DW08 2 U

DW10 2 U

MW114B 2 U

MW112S 2 UJ

MW113B 2 UJ

MW111B 2 U

DW09 2 U

MW112B 2 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 2 U

MW04B 2 U

MW110B 2 UJ

SOUTH MEADOW

MW109B 2 U

MW123 2 U

MW104B 2 U

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW105B 2 U

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

MW108B 2 U

MW103S 2 U

MW106S 2 U

MW126B 2 U

MW02B 2 U

MW107B 2 U

ASPHALT ROAD

MW103B 2 U

MW102B 2 U

MW106B 2 U

MW100B 130

BLDG 185

IPLEX

BLDG 180

MW101B 270

MW125B 2 U

DECOMMISSIONED DRAIN PIPES

MW09B 0.4 J

MW13A 2 U

BLDG 178

BLDG 1302

MW124B 1 J

BLDG 1192

BLDG 438

BLDG 127

MW07A 85

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 22 J

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

BLDG 1301

TANK

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Chloroethane is 21000 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Chloroethane (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CHLOROETHANE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_CHLOROETHANE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 31	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_1-1_DICHLOROETHENE.MXD 11/18/09 SP

N

CONCRETE DAM
MW119B 1 U
DW13 1 U
DW14 1 U
DW12 0.5 J
MW118B 1 U
DW11 0.5 J
W.E. 25.2
NUWC POND (DEERFIELD POND)
DW01 0.7 J
MW120B 1 U
DW02 0.6 J
DW03 1 U
MW116B 1 U
DW04 0.6 J
DW06 0.9 J
MW117B 1 J
BLDG. 1310 (Survey Plan: 1257)
GRAVEL ROAD
UNNAMED STREAM
DW05 0.9 J
NORTH MEADOW
WANUMETONOMY COLF COURSE
MW03B 0.5 J
MW115B 1 U
DW08 1 U
DW07 1 U
MW114B 1 U
MW112B 1 UJ
MW113B 1 UJ
DW09 1 U
MW111B 1 U
MW122 1 U
MW112S 1 UJ
MW110B 1 UJ
INTERMITTENT STREAM (DRAINAGE DITCH)
DW10 1 U
MW04B 1
SOUTH MEADOW
MW109B 1 U
MW123 1 U
MW105B 5
MW104B 7
PAVED GATED STORAGE AREA
MW108B 1 U
CUNNINGHAM ST.
DEERFIELD CREEK
PAVED OPEN STORAGE AREA
MW103S 1 U
MW107B 1 U
MW106S 1 U
MW126B 1 U
ASPHALT ROAD
MW02B 1 U
MW103B 1
MW102B 1 U
MW106B 1 U
COMPLEX
BLDG. 185
BLDG 180
MW100B 50 U
MW125B 1 U
MW101B 79
DECOMMISSIONED DRAIN PIPES
MW09B 14
MW13A 1 U
BLDG 178
BLDG 1302
MW124B 0.8 J
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
MW07A 4
PREVIOUS INTERCEPTOR TANK LOCATION
CONCRETE UNDERGROUND STORAGE TANK
DEERFIELD
PROPANE TANKS
BLDG 17
125 62.5 0 125 Feet
PNTS
BLDG 1256
MW07B 58 J
BLDG 1301
TANK
BLDG 1180

Notes:
1) All concentrations below the Oak Ridge National Laboratory Regional Screening Level for Tap Water criterion of 340 µg/L.
2) Symbology is based on the result in comparison to the maximum detection (79 µg/L).
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

1,1-Dichloroethene (µg/L)

Result Is This Many Times Maximum Detection

- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

Tetra Tech NUS, Inc.

1,1-DICHLOROETHENE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_1-1_ DICHLOROETHENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 32	REV: 0 / DATE: 11/18/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_CARBON_TETRACHLORIDE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 1 U

DW13 1 U

DW14 1 U

DW12 1 U

DW01 1 J

MW118B 1 U

MW120B 1 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

DW11 1 U

DW03 0.9 J

DW02 1

DW04 1

MW116B 1 UJ

DW06 1 U

BLDG. 1310 (Survey Plan: 1257)

DW05 1

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

MW03B 2

MW117B 1 UJ

MW115B 1 U

MW112S 1 UJ

DW07 1 U

DW08 1 U

MW113B 1 UJ

DW10 1 U

MW114B 1 U

MW111B 1 U

DW09 1 U

MW112B 1 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 1 U

MW04B 1 U

MW110B 1 UJ

SOUTH MEADOW

MW109B 1 U

MW123 1 U

CUNNINGHAM ST.

MW105B 1 U

PAVED GATED STORAGE AREA

MW104B 1 U

PAVED OPEN STORAGE AREA

MW103S 1 U

DEERFIELD CREEK

MW108B 1 U

MW106S 1 U

MW02B 1 U

MW107B 1 U

MW126B 1 U

ASPHALT ROAD

MW102B 1 U

MW106B 1 U

MW103B 1 U

MW100B 50 U

BLDG 180

BLDG 185

MW101B 1 U

MW125B 1 U

DECOMMISSIONED DRAIN PIPES

MW09B 1 U

MW13A 1 U

BLDG 178

BLDG 1302

MW124B 1 U

BLDG 1192

BLDG 438

BLDG 127

MW07A 1 U

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 1 U

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

BLDG 1301

TANK

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Carbon Tetrachloride is 0.2 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Carbon Tetrachloride (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CARBON TETRACHLORIDE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_CARBON_TETRACHLORIDE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 33	REV: 0 — DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_CHLOROFORM.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 1 U

DW14 1 U

DW13 0.3 J

DW12 1 U

MW118B 1 U

DW11 0.3 J

DW01 0.5 J

MW120B 1 U

W.E. 25.2

NUWC POND (DEERFIELD POND)

DW02 0.4 J

DW04 0.4 J

MW117B 1 U

DW03 1 U

DW05 0.5 J

MW116B 1 U

BLDG. 1310 (Survey Plan: 1257)

DW06 1 U

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

DW07 1 U

MW03B 1 U

MW115B 1 U

DW08 1 U

DW10 1 U

MW114B 1 U

MW112S 1 UJ

MW113B 1 UJ

MW111B 1 U

DW09 1 U

MW112B 1 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 1 U

MW04B 1 U

MW110B 1 UJ

SOUTH MEADOW

MW109B 1

MW123 1 U

MW104B 1 U

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW105B 1 U

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

MW108B 1 U

MW103S 1 U

MW106S 1 U

MW126B 7

MW02B 1 U

MW107B 1 U

ASPHALT ROAD

MW103B 1 U

MW102B 1 U

MW106B 1 U

MW100B 50 U

BLDG 185

IPLEX

BLDG 180

MW101B 1 U

MW125B 1 U

DECOMMISSIONED DRAIN PIPES

MW09B 1 U

MW13A 1 U

BLDG 178

BLDG 1302

MW124B 1 U

BLDG 1192

BLDG 438

BLDG 127

MW07A 1 U

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 1303

CONCRETE UNDERGROUND STORAGE TANK

MW07B 1 U

DEERFIELD C

PROPANE TANKS

BLDG 179

BLDG 1256

PNTS

BLDG 1301

TANK

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Chloroform is 0.19 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Chloroform (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CHLOROFORM IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_CHLOROFORM.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 34	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_CHLOROMETHANE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 2 U

DW14 7 J

DW13 2 U

DW12 2 U

MW118B 2 U

DW11 0.4 J

DW01 3

W.E. 25.2

NUWC POND (DEERFIELD POND)

MW120B 2 U

DW02 4

DW04 2 U

MW117B 2 U

DW05 2 U

MW116B 2 U

DW03 2 U

DW06 2 U

BLDG. 1310 (Survey Plan: 1257)

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

DW07 2 U

MW03B 2 U

MW115B 2 U

MW112S 2 UJ

DW08 2 U

DW10 2 U

MW114B 2 U

MW113B 2 UJ

MW111B 2 U

DW09 2 U

MW112B 2 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 2 U

MW04B 2 U

MW110B 2 UJ

SOUTH MEADOW

MW109B 2 U

MW123 2 U

MW104B 2 U

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW105B 2 UJ

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

MW108B 2 U

MW103S 2 U

MW106S 2 U

MW126B 16

MW02B 2 U

MW107B 2 U

ASPHALT ROAD

MW103B 2 U

MW102B 2 UJ

MW106B 2 U

MW100B 100 U

BLDG 185

IPLEX

BLDG 180

MW101B 4

MW125B 2 U

DECOMMISSIONED DRAIN PIPES

MW09B 2 U

MW13A 2 UJ

BLDG 178

BLDG 1302

MW124B 2 U

BLDG 1192

BLDG 438

BLDG 127

MW07A 2 U

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 2 U

BLDG 179

PROPANE TANKS

PNTS

BLDG 1256

TANK

BLDG 1301

DEERFIELD C

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Chloromethane is 1.8 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Chloromethane (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CHLOROMETHANE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_CHLOROMETHANE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 35	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_TOLUENE.MXD 11/19/09 SP

N

CONCRETE DAM
MW119B 1 U
DW13 1 U
DW14 1 U
DW12 1 U
MW118B 1 U
DW11 1 U
W.E. 25.2
NUWC POND (DEERFIELD POND)
DW01 0.3 J
MW116B 1 U
MW120B 1 U
DW02 1 U
DW03 0.6 J
MW117B 1 U
DW04 1 U
DW05 1 U
BLDG. 1310 (Survey Plan: 1257)
GRAVEL ROAD
UNNAMED STREAM
NORTH MEADOW
DW06 1 U
MW03B 1 U
MW115B 2
DW07 0.4 J
DW08 0.45 J
DW09 0.7 J
DW10 1 U
MW114B 14 J
MW113B 1 UJ
MW111B 1 U
MW04B 1 U
MW112S 1 UJ
MW122 1 U
MW110B 1 UJ
SOUTH MEADOW
MW109B 41
MW123 1 U
MW105B 1 U
MW112B 1 UJ
PAVED GATED STORAGE AREA
MW108B 0.6 J
MW104B 1 U
PAVED OPEN STORAGE AREA
MW107B 1 U
MW106S 1 U
CUNNINGHAM ST.
DEERFIELD CREEK
MW103S 1 U
MW02B 1 U
MW126B 4
ASPHALT ROAD
MW103B 1 U
MW102B 1 U
MW106B 1 U
MW100B 50 U
BLDG 180
BLDG. 185
MW125B 12
MW101B 1 U
DECOMMISSIONED DRAIN PIPES
MW09B 1 U
MW13A 1 U
BLDG 178
BLDG 1302
MW124B 18
BLDG 1192
BLDG 438
BLDG 127
BLDG 1303
MW07A 1 U
PREVIOUS INTERCEPTOR TANK LOCATION
CONCRETE UNDERGROUND STORAGE TANK
PROPANE TANKS
BLDG 17
DEERFIELD
BLDG 1256
PNTS
MW07B 2 J
BLDG 1301
TANK
BLDG 1180

WANUMETONOMY COLF COURSE

125 62.5 0 125
Feet

Notes:
1) Symbology is based on the result in comparison to the maximum detection (41 µg/L).
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Toluene (µg/L)

Result Is This Many Times Maximum Detection

- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

Tetra Tech NUS, Inc.

TOLUENE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_TOLUENE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 36	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_TPH.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 75 U

MW118B 79 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 75 U

BLDG. 1310 (Survey Plan: 1257)

MW117B 75 U

MW116B 75 U

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 79 U

MW115B 75 U

MW112S 82 U

MW114B 76 U

MW113B 49 J

MW111B 51 J

MW112B 47.5 J

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 82 U

MW04B 85 U

MW110B 77 UJ

SOUTH MEADOW

MW109B 52 J

MW123 81 U

MW105B 84 U

MW104B 69 J

PAVED GATED STORAGE AREA

MW108B 79.5 J

PAVED OPEN STORAGE AREA

MW107B 75 U

MW106S 75 U

CUNNINGHAM ST.

DEERFIELD CREEK

MW103S 220

MW02B 190

MW126B 360

ASPHALT ROAD

MW103B 83 U

MW102B 81

MW106B 75 U

BLDG 180

BLDG. 185

MW101B 70 J

MW125B 270

MW124B 1300 J

DECOMMISSIONED DRAIN PIPES

MW13A 58 J

MW09B 82 U

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

MW07A 570

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

DEERFIELD

PROPANE TANKS

BLDG 17

PNTS

MW07B 200

BLDG 1301

BLDG 1256

TANK

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) Symbology is based on the result in comparison to the maximum detection (1300 µg/L).
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

ETPH (C09-C36) (µg/L)

Result Is This Many Times Maximum Detection

- Not Detected
- 0.001 - 0.1
- 0.101 - 0.25
- 0.251 - 0.5
- 0.501 - 0.75
- 0.751 - 0.9
- 0.901 - 1

Tetra Tech NUS, Inc.

ETPH (C09-C36) IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_TPH.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 37	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_ARSENIC.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 12.4 U

MW118B 1.69 U

MW120B 6.6 UJ

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

MW117B 9.2

MW116B 17.8

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW115B 15.3

MW03B 1.69 U

MW114B 1.69 U

MW112S 2.7 J

MW113B 7.4 J

MW111B 1.69 U

MW112B 2.2 J

INTERMITTENT STREAM (DRAINAGE DITCH)

MW04B 2.5 J

MW110B 2.3 J

MW122 1.69 U

SOUTH MEADOW

MW109B 9.1

MW123 1.69 U

MW105B 3.9 J

CUNNINGHAM ST.

DEERFIELD CREEK

PAVED GATED STORAGE AREA

MW104B 1.69 U

PAVED OPEN STORAGE AREA

MW108B 4.3 J

MW103S 503 J

MW106S 7.7 J

ASPHALT ROAD

MW02B 17.2

MW107B 6.4 J

MW106B 8 J

MW102B 1.69 U

MW103B 1.69 U

BLDG. 185 COMPLEX

BLDG 180

MW101B 2.45 J

DECOMMISSIONED DRAIN PIPES

MW09B 1.69 U

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 5.8 J

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 34.4

BLDG 179

PROPANE TANKS

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Arsenic is 0.045 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Arsenic (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ARSENIC IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_ARSENIC.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 38	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_DISSOLVED_ARSENIC.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 12.4 U

MW118B 1.69 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 6 UJ

BLDG. 1310 (Survey Plan: 1257)

MW117B 9.2

MW116B 18.4

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 1.69 U

MW115B 14.1

MW114B 1.69 U

MW112S 1.69 U

MW113B 2.8 J

MW111B 1.69 U

MW112B 1.37 J

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 1.69 U

MW04B 1.69 U

MW110B 1.69 U

SOUTH MEADOW

MW109B 9.3

MW123 1.69 U

CUNNINGHAM ST.

MW105B 3.3 J

PAVED GATED STORAGE AREA

MW104B 2 J

PAVED OPEN STORAGE AREA

MW108B 5.25 J

MW103S 20.2

DEERFIELD CREEK

MW107B 6.1 J

MW106S 5.8 J

MW106B 4.5 J

ASPHALT ROAD

MW02B 16.4

MW102B 1.69 U

MW103B 1.69 U

BLDG 180

BLDG. 185 COMPLEX

MW101B 1.69 U

DECOMMISSIONED DRAIN PIPES

MW09B 1.69 U

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 4.3 J

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 24.7

BLDG 179

PROPANE TANKS

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Dissolved Arsenic is 0.045 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dissolved Arsenic (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DISSOLVED ARSENIC IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_DISSOLVED_ARSENIC.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 39	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_IRON.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 7670

MW118B 76.3 UJ

MW120B 17000

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

MW117B 2620

MW116B 8580

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 9.2 UJ

MW115B 17300

MW114B 9950

MW112S 6040

MW113B 10800

MW111B 2930

MW112B 1010

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 28.2 J

MW04B 1330

MW110B 8680

SOUTH MEADOW

MW109B 17200

MW123 19.4 J

CUNNINGHAM ST.

MW105B 937

PAVED GATED STORAGE AREA

MW104B 6740

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

MW108B 12600

MW103S 1210000

MW106S 3120

MW02B 26700

MW107B 7600

MW106B 9420

ASPHALT ROAD

MW102B 23200

BLDG. 185 COMPLEX

MW103B 5650

BLDG 180

MW101B 10200

DECOMMISSIONED DRAIN PIPES

MW09B 28300

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 12200

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 44800

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Iron is 26000 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Iron (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

IRON IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_IRON.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 40	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_MCL_DISSOLVED_IRON.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 7280

MW118B 9 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 15000

BLDG. 1310 (Survey Plan: 1257)

MW117B 2610

MW116B 8470

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 9 U

MW115B 5600

MW114B 3520

MW112S 288

MW113B 998

MW111B 774

MW112B 65.6 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 7.1 J

MW04B 23 UJ

MW110B 4950

SOUTH MEADOW

MW109B 10400

MW123 18.2 J

MW105B 18.3 UJ

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW104B 1960

PAVED OPEN STORAGE AREA

MW108B 8440

DEERFIELD CREEK

MW103S 38200

MW107B 4730

MW106S 2420

ASPHALT ROAD

MW106B 4340

MW02B 26600

MW102B 5320

MW103B 4360

BLDG 180

BLDG. 185 COMPLEX

MW101B 9 UJ

DECOMMISSIONED DRAIN PIPES

MW09B 556

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 10600

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 748

PROPANE TANKS

BLDG 179

DEERFIELD C

125 62.5 0 125 Feet

BLDG 1256

PNTS

BLDG 1301

TANK

BLDG 1180

Notes:
1) The screening criterion (EPA Maximum Contaminant Level) for Dissolved Iron is 300 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dissolved Iron (µg/L)

Result Is This Many Times EPA MCL

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- > 1000

Tetra Tech NUS, Inc.

DISSOLVED IRON IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_MCL_DISSOLVED_IRON.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 41	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_MANGANESE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 454

MW118B 496

MW120B 1620

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

MW117B 914

MW116B 1140

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 56

MW115B 711

MW114B 723

MW113B 1100

MW111B 56.6

MW112S 501

MW112B 1300

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 0.972 J

MW04B 1210

MW110B 2700

SOUTH MEADOW

MW109B 1700

MW123 904

MW105B 2550

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW104B 1750

PAVED OPEN STORAGE AREA

MW108B 1470

MW103S 13800

DEERFIELD CREEK

MW106S 535

MW02B 8370

MW107B 351

MW106B 448

ASPHALT ROAD

MW102B 3050

MW103B 2010

BLDG 180

BLDG. 185 COMPLEX

MW101B 248

DECOMMISSIONED DRAIN PIPES

MW09B 547

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 5280

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 1200

BLDG 179

PROPANE TANKS

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Manganese is 880 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Manganese (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

MANGANESE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_MANGANESE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 42	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_MCL_MANGANESE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 454

MW118B 496

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 1620

BLDG. 1310 (Survey Plan: 1257)

MW117B 914

MW116B 1140

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 56

MW115B 711

MW112S 501

MW114B 723

MW113B 1100

MW111B 56.6

MW112B 1300

MW122 0.972 J

MW04B 1210

MW110B 2700

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH MEADOW

MW109B 1700

MW123 904

MW105B 2550

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW104B 1750

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

MW108B 1470

MW103S 13800

MW107B 351

MW106S 535

MW106B 448

ASPHALT ROAD

MW02B 8370

MW102B 3050

MW103B 2010

BLDG 180

BLDG. 185 COMPLEX

MW101B 248

DECOMMISSIONED DRAIN PIPES

MW09B 547

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 5280

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 1200

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (EPA Maximum Contaminant Level) for Manganese is 50 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Manganese (µg/L)

Result Is This Many Times EPA MCL

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- > 1000

Tetra Tech NUS, Inc.

MANGANESE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_MCL_MANGANESE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 42	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_MCL_DISSOLVED_MANGANESE.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 439

MW118B 502

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 1570

BLDG. 1310 (Survey Plan: 1257)

MW117B 925

MW116B 1140

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 56.2

MW115B 684

MW114B 747

MW112S 240

MW113B 1070

MW111B 53.5

MW112B 1300

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 1.09 UJ

MW04B 1090

MW110B 2540

SOUTH MEADOW

MW109B 1740

MW123 978

MW105B 2140

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW104B 1750

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

MW108B 1440

MW103S 1910

MW107B 334

MW106S 519

ASPHALT ROAD

MW106B 384

MW02B 8220

MW102B 2860

MW103B 2040

BLDG 180

BLDG. 185 COMPLEX

MW101B 81.5

DECOMMISSIONED DRAIN PIPES

MW09B 385

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 5400

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 957

PROPANE TANKS

BLDG 179

DEERFIELD C

125 62.5 0 125 Feet

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

Notes:
1) The screening criterion (EPA Maximum Contaminant Level) for Dissolved Manganese is 50 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dissolved Manganese (µg/L)

Result Is This Many Times EPA MCL

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- > 1000

Tetra Tech NUS, Inc.

DISSOLVED MANGANESE IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_MCL_DISSOLVED_MANGANESE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 43	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_ALUMINUM.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B
31.4 J

MW118B
32.8 UJ

W.E. 25.2
NUWC POND
(DEERFIELD POND)

MW120B
415

BLDG. 1310 (Survey Plan: 1257)

MW117B
15 UJ

MW116B
84.6 UJ

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B
18.4 UJ

MW115B
952

MW114B
53.8 UJ

MW112S
3420

MW113B
275 J

MW111B
106 J

MW112B
426

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122
31.6 UJ

MW04B
140 J

MW110B
820

SOUTH MEADOW

MW109B
129 UJ

MW123
31.7 UJ

MW105B
193 J

CUNNINGHAM ST.

DEERFIELD CREEK

MW104B
784

PAVED OPEN STORAGE AREA

MW103S
564000

PAVED GATED STORAGE AREA

MW108B
539

MW107B
376

MW106S
336

MW106B
1210

ASPHALT ROAD

MW02B
14.6 U

MW102B
1950

MW103B
102 J

BLDG 180

BLDG. 185 COMPLEX

MW101B
4920

DECOMMISSIONED DRAIN PIPES

MW09B
38 UJ

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A
35.4 UJ

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 1303

CONCRETE UNDERGROUND STORAGE TANK

MW07B
1320

PROPANE TANKS

BLDG 179

DEERFIELD C

125 62.5 0 125 Feet

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

Notes:
1) The screening criterion (EPA Maximum Contaminant Level) for Aluminum is 50 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Aluminum (µg/L)

Result Is This Many Times EPA MCL

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- > 1000

Tetra Tech NUS, Inc.

ALUMINUM IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_ALUMINUM.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 44	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_DISSOLVED_ALUMINUM.MXD 11/19/09 SP

N

CONCRETE DAM

MW119B 22.1 J

MW118B 14.6 U

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW120B 17.6 J

BLDG. 1310 (Survey Plan: 1257)

MW117B 28.3 UJ

MW116B 17.4 UJ

GRAVEL ROAD

UNNAMED STREAM

NORTH MEADOW

WANUMETONOMY COLF COURSE

MW03B 15.8 UJ

MW115B 24.9 UJ

MW114B 14.6 U

MW112S 181 J

MW113B 24 UJ

MW111B 27.8 UJ

MW112B 27.4 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW04B 19.4 UJ

MW110B 47.9 UJ

MW122 14.6 U

SOUTH MEADOW

MW109B 14.6 U

MW123 14.6 U

MW105B 24.5 UJ

PAVED GATED STORAGE AREA

MW104B 33.8 UJ

MW108B 117 UJ

PAVED OPEN STORAGE AREA

MW103S 5900

MW107B 42.2 UJ

MW106S 21.5 UJ

ASPHALT ROAD

MW106B 28.2 UJ

CUNNINGHAM ST.

DEERFIELD CREEK

MW02B 14.6 U

MW102B 186 J

MW103B 19.7 UJ

BLDG 185 COMPLEX

BLDG 180

MW101B 27.2 UJ

DECOMMISSIONED DRAIN PIPES

MW09B 14.6 U

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

MW07A 19.4 UJ

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

MW07B 14.6 U

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (EPA Maximum Contaminant Level) for Dissolved Aluminum is 50 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dissolved Aluminum (µg/L)

Result Is This Many Times EPA MCL

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- > 1000

Tetra Tech NUS, Inc.

DISSOLVED ALUMINUM IN GROUNDWATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_GW_DISSOLVED_ALUMINUM.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 45	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_DIELDRIN.MXD 11/19/09 SP

N

CONCRETE DAM

SW125
0.0087 J

SW121
0.0082 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

SW119
0.0064 J

SW117
0.0033 J

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SW114
0.01 U

SW116
0.0105 J

SW112
0.011 J

SW111
0.0094 J

SW110
0.0105 J

SW106
0.009

SW108
0.01 U

SW107
0.01 U

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH MEADOW

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

CUNNINGHAM ST.

DEERFIELD CREEK

ASPHALT ROAD

SW133
0.01

BLDG 185 COMPLEX

BLDG 180

SW-01
0.013 J

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Dieldrin is 0.0042 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dieldrin (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DIELDRIN IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE	
NUSC_SW_DIELDRIN.MXD	AS NOTED	
FIGURE NUMBER	REV	DATE
FIGURE NO. 4 - 46	0	11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_MANGANESE.MXD 11/19/09 SP

N

CONCRETE DAM

SW125
253 J

SW121
187 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

SW119
193 J

SW117
352

SW114
86.8 J

SW116
30.8 J

SW112
110

SW111
109

SW110
162

SW106
165

SW108
78.5

SW107
74

SW133
193

SW-01
220

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST.

DEERFIELD CREEK

BLDG 185 COMPLEX

BLDG 180

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion for Manganese is 50 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Manganese (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

MANGANESE IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SW_MANGANESE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 47	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_BARIUM.MXD 11/19/09 SP

N

CONCRETE DAM

SW125
21.4

SW121
11

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG.
1310
(Survey
Plan: 1257)

SW119
11.1

SW117
10.9

SW114
8

SW116
10.3

SW112
12

SW111
11.9

SW110
13

SW106
12.7

SW108
6.7

SW107
6.8

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

ASPHALT ROAD

CUNNINGHAM ST.

DEERFIELD
CREEK

SW133
13.2

BLDG 185 COMPLEX

BLDG 180

SW-01
13.8

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 179

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (SCV)] for Barium is 4 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Barium (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BARIUM IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SW_BARIUM.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 48	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_IRON.MXD 11/19/09 SP

N

CONCRETE DAM

SW125
5590

SW121
1120

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG.
1310
(Survey
Plan: 1257)

SW119
977

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

SW117
1180

SW114
652

SW116
138 U

SW112
80.4 J

SW111
70.6 J

SW110
212

SW106
113

SW108
190

SW107
155

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST.

DEERFIELD
CREEK

ASPHALT ROAD

SW133
134

BLDG 180

BLDG. 185 COMPLEX

SW-01
310

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 179

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion for Iron is 300 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Iron (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

IRON IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SW_IRON.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 49	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_LEAD.MXD 11/19/09 SP

N

CONCRETE DAM

SW125 21.5

SW121 4.6 J

W.E. 25.2
NUWC POND (DEERFIELD POND)

SW119 4.2 J

BLDG. 1310 (Survey Plan: 1257)

SW117 5.5 UJ

SW114 4.3 J

SW116 2.3 J

SW112 0.96 J

SW111 0.91 U

SW110 2.9 J

SW106 0.91 U

SW108 0.91 U

SW107 0.91 U

SW133 0.91 U

SW-01 0.8 U

NORTH MEADOW

SOUTH MEADOW

WANUMETONOMY COLF COURSE

UNNAMED STREAM

GRAVEL ROAD

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST.

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

BLDG 180

BLDG. 185 COMPLEX

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion [Ecological Screening Level (NRWQC)] for Lead is 2.5 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Lead (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

LEAD IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SW_LEAD.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 50	0 / 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_DISSOLVED_MANGANESE.MXD 11/19/09 SP

N

CONCRETE DAM

SW125
163 J

SW121
134 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

SW119
127 J

SW117
85.4

SW114
50.8 J

SW116
26.8 J

SW112
112

SW111
106

SW110
132

SW106
161

SW108
71.2

SW107
64.4

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH MEADOW

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

CUNNINGHAM ST.

DEERFIELD CREEK

ASPHALT ROAD

SW133
194

BLDG 180

BLDG. 185 COMPLEX

SW-01
211

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion for Manganese is 50 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dissolved Manganese (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DISSOLVED MANGANESE IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SW_DISSOLVED_MANGANESE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 51	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SW_DISSOLVED_BARIUM.MXD 11/19/09 SP

N

CONCRETE DAM

SW125 9

SW121 9

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

SW119 9.3

SW117 7.4

SW114 6.9

SW116 10

SW112 12.4

SW111 11.5

SW110 12.8

SW106 13.1

SW108 6.8

SW107 6.9

SW133 13.9

SW-01 14.1

NORTH MEADOW

SOUTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

CUNNINGHAM ST.

DEERFIELD CREEK

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

ASPHALT ROAD

BLDG. 185 COMPLEX

BLDG 180

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

BLDG 179

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (SCV)] for Barium is 4 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Dissolved Barium (ug/L)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DISSOLVED BARIUM IN SURFACE WATER
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SW_DISSOLVED_BARIUM.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 52	REV: 0 / DATE: 11/19/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_BENZO(A)ANTHRACENE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
590 J

SD125-00.5-LOCDEPTHMAX
720 J

SD-125-0424
340

SD-08
680 J

SD121
660 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
705 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
270

SD117
520

SD114
500 J

SD116
440 J

SD-07
790 J

SD112
730 J

SD-06
430 UJ

SD111
3000

SD130
300

SD128
160

SD108
16 J

SD-04
96 U

SD107
170 J

SD129
320

SD110
200 J

SD-03
3400

SD-02
95 J

SD-05
100 U

SD131
150

SD106
230 J

SD133
45 J

SD-01
320 J

SD134

NORTH
MEADOW

SOUTH
MEADOW

PAVED
OPEN
STORAGE
AREA

PAVED
GATED
STORAGE
AREA

WANUMETONOMY
COLF COURSE

GRAVEL ROAD

UNNAMED
STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

CUNNINGHAM ST

DEERFIELD
CREEK

ASPHALT ROAD

BLDG 185 COMPLEX

BLDG 180

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater] for Benzo(a)anthracene is 14 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Benzo(a)anthracene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BENZO(A)ANTHRACENE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_BENZO(A)ANTHRACENE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 53	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_BENZO(A)PYRENE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
830 J

SD125-00.5-LOCDEPTHMAX
1300 J

SD-125-0424
360

SD-08
930 J

SD121
990 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
690 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
270

SD117
650

SD114
320 J

SD116
460 J

SD-07
810 J

SD112
670 J

SD-06
360 UJ

SD130
280

SD111
2500

SD110
120

SD-03
2600

SD129
420

SD128
160

SD107
100 J

SD108
15 J

SD-04
99 U

SD-02
100 U

SD-05
100 U

SD131
200

SD106
205 J

SD133
48

SD-01
310 J

SD134

NORTH
MEADOW

SOUTH
MEADOW

PAVED
OPEN
STORAGE
AREA

PAVED
GATED
STORAGE
AREA

WANUMETONOMY
COLF COURSE

GRAVEL ROAD

UNNAMED
STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST

DEERFIELD CREEK

BLDG 185 COMPLEX

BLDG 180

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 1303

BLDG 127

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater] for Benzo(a)pyrene is 4.6 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Benzo(a)pyrene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BENZO(A)PYRENE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE	
NUSC_SD_BENZO(A)PYRENE.MXD	AS NOTED	
FIGURE NUMBER	REV	DATE
FIGURE NO. 4 - 54	0	11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_BENZO(B)FLUORANTHENE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-125-0424
430

SD-09
1100 J

SD125-00.5-LOCDEPTHMAX
1800 J

SD-08
1200 J

SD121
1100

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
985 J

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424
350

SD117
760

SD114
630 U

SD116
700 U

SD-07
1000 J

SD112
920

SD-06
320 UJ

SD111
2000

SD130
310

SD128
170

SD108
27

SD-04
120 U

SD107
180 J

SD129
530

SD110
240

SD-03
2300

SD-02
130 U

SD-05
130 U

SD131
270

SD106
350 J

SD133
110

SD-01
490 J

SD134

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

WANUMETONOMY COLF COURSE

GRAVEL ROAD

UNNAMED STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST

DEERFIELD CREEK

BLDG 180

BLDG. 185 COMPLEX

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

BLDG 179

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater] for Benzo(b)fluoranthene is 47 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Benzo(b)fluoranthene (µg/kg)

Result Is This Many Times Criterion

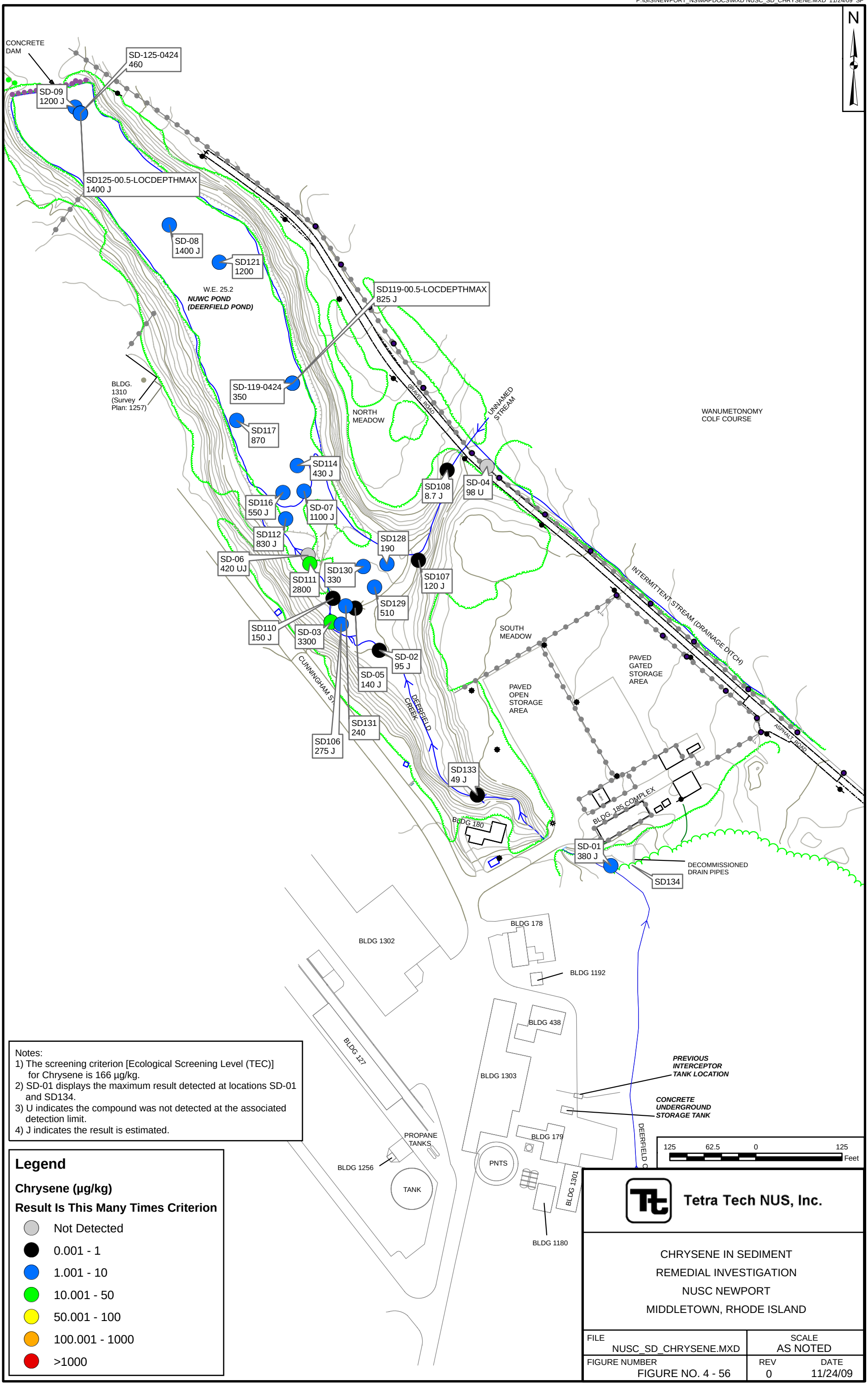
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BENZO(B)FLUORANTHENE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_BENZO(B)FLUORANTHENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 55	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_CHRYSENE.MXD 11/24/09 SP



Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Chrysene is 166 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Chrysene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CHRYSENE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_CHRYSENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 56	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_PHENANTHRENE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
740 J

SD125-00.5-LOCDEPTHMAX
810 J

SD-125-0424
310

SD-08
910 J

SD121
840

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
720 J

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424
260

SD117
520

SD114
420

SD116
520

SD-07
990 J

SD112
630

SD-06
550 UJ

SD130
360

SD111
6900

SD128
170

SD108
11 J

SD-04
80 U

SD107
180

SD129
300

SD110
300

SD-03
8000

SD-02
102 J

SD-05
84 U

SD131
130

SD106
175 J

SD133
28

SD-01
390 J

SD134

DECOMMISSIONED DRAIN PIPES

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

WANUMETONOMY COLF COURSE

GRAVEL ROAD

UNNAMED STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST

DEERFIELD CREEK

BLDG 180

BLDG. 185 COMPLEX

BLDG 1302

BLDG 178

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Phenanthrene is 204 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Phenanthrene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

PHENANTHRENE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_PHENANTHRENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 57	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_PYRENE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
1900

SD125-00.5-LOCDEPTHMAX
2400 J

SD-125-0424
720

SD-08
2000 UJ

SD121
2100

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
1550

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
560

SD117
1200

SD114
770

SD116
1100

SD-07
1700

SD112
1400

SD-06
820 UJ

SD111
6300

SD130
600

SD110
290

SD-03
7000

SD131
300

SD106
435

SD128
290

SD129
670

SD108
21 J

SD-04
87 U

SD107
270 J

SD-02
185 J

SD-05
170 J

SD133
78

SD-01
660 J

SD134

NORTH
MEADOW

SOUTH
MEADOW

PAVED
OPEN
STORAGE
AREA

PAVED
GATED
STORAGE
AREA

WANUMETONOMY
COLF COURSE

GRAVEL ROAD

UNNAMED
STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST

DEERFIELD CREEK

BLDG. 185 COMPLEX

BLDG 180

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

DEERFIELD C

BLDG 179

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Pyrene is 195 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Pyrene (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

PYRENE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_PYRENE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 58	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_TOTAL_PAHS.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
11040 J

SD-125-0424
4536 J

SD125-00.5-LOCDEPTHMAX
13596 J

SD-08
10500 J

SD121
11670.2 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
8788.8 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
3413.2 J

SD117
7783 J

SD114
3999 J

SD116
5402.2 J

SD-07
10900 J

SD112
8109.9 J

SD-06
920 J

SD130
3623.9 J

SD128
1889.4 J

SD111
38660

SD110
1968.1 J

SD-03
45560 J

SD-05
610 J

SD107
1517 J

SD129
4681.7 J

SD-02
761.5 J

SD106
2586.9 J

SD131
2283 J

SD108
146.8 J

SD-04
110 U

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST.

DEERFIELD
CREEK

ASPHALT ROAD

SD133
550 J

BLDG 180

BLDG. 185 COMPLEX

SD-01
3887 J

DECOMMISSIONED
DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Total PAHs is 1610 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Total PAHs (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

TOTAL PAHS IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_TOTAL_PAHS.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 59	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_ALPHA-CHLORDANE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
31.2 U

SD-125-0424
42

SD125-00.5-LOCDEPTHMAX
180 J

SD-08
34.5 UJ

SD121
120

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
72 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
15 J

SD117
53

SD114
20 J

SD116
39 J

SD-07
24.4 U

SD112
44 J

SD-06
16.7 U

SD111
2.4 U

SD130
2.6 U

SD128
6.8 J

SD108
2 U

SD-04
19.1 J

SD107
2.5 U

SD129
38 J

SD110
4.5 J

SD-03
14.7 U

SD-02
5.88 U

SD-05
5.88 U

SD131
34

SD106
20.5 J

SD133
6.8 J

SD-01
19 J

SD134

NORTH
MEADOW

SOUTH
MEADOW

PAVED
OPEN
STORAGE
AREA

PAVED
GATED
STORAGE
AREA

WANUMETONOMY
COLF COURSE

GRAVEL ROAD

UNNAMED
STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST

DEERFIELD
CREEK

BLDG 180

BLDG. 185 COMPLEX

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Alpha-Chlordane is 3.24 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Alpha-Chlordane (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ALPHA-CHLORDANE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_ALPHA-CHLORDANE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 60	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_GAMMA-CHLORDANE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
26 U

SD125-00.5-LOCDEPTHMAX
130

SD-125-0424
35

SD-08
28.7 UJ

SD121
93

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
51

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
12

SD117
37

SD114
17

SD116
36

SD-07
20.3 U

SD130
2.6 U

SD108
2 U

SD-04
4.63 U

SD-06
13.9 U

SD128
5.3

SD112
33

SD111
2.4 U

SD110
3.3

SD107
2.5 U

SD129
26

SD-03
12.2 U

SD-02
4.9 U

SD-05
4.9 U

SD131
23

SD106
14.5

SD133
4.8

SD-01
14

SD134

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

ASPHALT ROAD

BLDG. 185 COMPLEX

BLDG 180

DECOMMISSIONED
DRAIN PIPES

CUNNINGHAM ST

DEERFIELD CREEK

BLDG 1302

BLDG 178

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Gamma-chlordane is 3.24 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Gamma-chlordane (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

GAMMA-CHLORDANE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_GAMMA-CHLORDANE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 61	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_DIELDRIN.MXD 11/24/09 SP

N

CONCRETE DAM

SD-125-0424
29

SD-09
36.4 U

SD125-00.5-LOCDEPTHMAX
140

SD-08
40.2 UJ

SD121
86

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
43.5

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
11

SD117
30

SD114
6.3 U

SD116
7 U

SD-07
61.3 J

SD112
26

SD-06
19.4 U

SD130
11 J

SD111
11

SD131
66

SD-03
17.2 U

SD-05
14.4 J

SD-02
9.015 J

SD106
39

SD128
11

SD110
8

SD107
2.2 J

SD129
64

SD108
3.9 U

SD-04
6.48 U

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST.

DEERFIELD
CREEK

ASPHALT ROAD

SD133
11

BLDG 180

BLDG. 185 COMPLEX

SD-01
22

DECOMMISSIONED
DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Dieldrin is 0.09 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Dieldrin (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DIELDRIN IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_DIELDRIN.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 62	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_TOTAL_DDD_DDE_DDT.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
90 U

SD125-00.5-LOCDEPTHMAX
677 J

SD-125-0424
238 J

SD-08
79 UJ

SD121
486 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
250 J

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424
98 J

SD117
203 J

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SD114
38 J

SD116
151 J

SD-07
70 U

SD108
3.9 UJ

SD-04
13 U

SD112
127 J

SD-06
38 U

SD128
25.8 J

SD130
19.1 J

SD111
20.9 J

SD107
2.2 J

INTERMITTENT STREAM (DRAINAGE DITCH)

SD129
170 J

SD110
13.2 J

SD-03
34 U

SOUTH MEADOW

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

SD-02
8.66 J

CUNNINGHAM ST

SD-05
17 U

DEERFIELD CREEK

SD131
162 J

SD106
79.7 J

ASPHALT ROAD

SD133
26.7 J

BLDG 185 COMPLEX

BLDG 180

SD-01
66 J

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Total DDD/DDE/DDT is 5.28 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Total DDD/DDE/DDT (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

TOTAL DDD/DDE/DDT IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_TOTAL_DDD_DDE_DDT.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 63	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_AROCLOR-1260.MXD 11/24/09 SP

N

CONCRETE DAM

SD125-00.5-LOCDEPTHMAX 170

SD-09 57.3 U

SD-125-0424 410 J

SD-08 63.2 UJ

SD121 160

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

SD119-00.5-LOCDEPTHMAX 150

SD-119-0424 40 UJ

SD117 52 UJ

SD114 220

SD116 550

SD-07 450 J

SD112 370

SD-06 197

SD111 68

SD110 43

SD131 22 UJ

SD-03 100 J

SD106 50.5

SD130 86

SD128 22 UJ

SD129 22 UJ

SD-05 27 U

SD-02 27 U

SD108 35

SD107 55

SD-04 25.5 U

NORTH MEADOW

SOUTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

CUNNINGHAM ST.

DEERFIELD CREEK

ASPHALT ROAD

SD133 19 U

BLDG 180

BLDG. 185 COMPLEX

SD-01 67

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Aroclor-1260 is 14 µg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Aroclor-1260 (µg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

AROCLOR-1260 IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_AROCLOR-1260.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 64	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_ARSENIC.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
25

SD125-00.5-LOCDEPTHMAX
22.5

SD-125-0424
19.4

SD-08
23 J

SD121
21.8

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
14.8

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
18.8

SD117
15.8

SD114
10

SD116
10.4

SD-07
18

SD112
9.4

SD-06
17

SD130
13

SD111
13.2

SD110
12.1

SD-03
16

SD106
14.2

SD131
16.3

SD-05
16

SD-02
11

SD129
17.4

SD128
16.1

SD107
15.7

SD108
14.8

SD-04
12

SD133
15.7

SD-01
18

SD134

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST

DEERFIELD
CREEK

ASPHALT ROAD

BLDG 185 COMPLEX

BLDG 180

DECOMMISSIONED
DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Arsenic is 0.0013 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Arsenic (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ARSENIC IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_ARSENIC.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 65	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_BARIUM.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
82

SD125-00.5-LOCDEPTHMAX
107

SD-125-0424
127

SD-08
77 J

SD121
91

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
67.6

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424
59.3

SD117
81.4

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SD114
41.2

SD116
63.9

SD-07
67

SD108
25.8

SD-04
17

SD112
42.5

SD-06
47

SD128
18.1

SD130
54.6

SD111
23.8

SD107
22.3

INTERMITTENT STREAM (DRAINAGE DITCH)

SD129
67.6

SD110
20.7

SD-03
39

SOUTH MEADOW

SD-02
17.5

PAVED GATED STORAGE AREA

CUNNINGHAM ST

SD-05
22

PAVED OPEN STORAGE AREA

DEERFIELD CREEK

ASPHALT ROAD

SD131
49.6

SD106
43.3

SD133
34.6

BLDG 185 COMPLEX

BLDG 180

SD-01
41

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (NOAA)] for Barium is 48 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Barium (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BARIUM IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_BARIUM.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 66	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_BERYLLIUM.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
0.75

SD125-00.5-LOCDEPTHMAX
1.1

SD-125-0424
0.66 J

SD-08
0.71 J

SD121
1

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
0.71 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
0.46 J

SD117
0.55 J

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

SD114
0.56

SD116
0.7

SD-07
0.45

SD108
0.29

SD-04
0.35

SD112
0.65

SD-06
0.39

SD128
0.29 J

SD130
0.33 J

SD111
0.37

SD107
0.35 J

INTERMITTENT STREAM (DRAINAGE DITCH)

SD129
0.47 J

SD110
0.36

SD-03
0.34

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

SD-02
0.305

CUNNINGHAM ST

SD-05
0.35

PAVED
OPEN
STORAGE
AREA

DEERFIELD
CREEK

ASPHALT ROAD

SD131
0.38 J

SD106
0.45

SD133
0.36

BLDG 185 COMPLEX

BLDG 180

SD-01
0.71

DECOMMISSIONED
DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 179

DEERFIELD C

125 62.5 0 125
Feet

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

Notes:
1) The screening criterion (Rhode Island DEM Direct Contact Residential) for Beryllium is 0.4 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Beryllium (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

BERYLLIUM IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_BERYLLIUM.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 67	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_CADMIUM.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
0.97 J

SD125-00.5-LOCDEPTHMAX
0.46 J

SD-125-0424
1.5 J

SD-08
1.2 J

SD121
0.8 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
0.925 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
1.1 J

SD117
1.5 J

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

SD114
0.7 J

SD116
1.2 J

SD-07
1.3 J

SD108
0.01 UJ

SD-04
0.17 J

SD112
0.14 UJ

SD-06
2.4 J

SD130
1.5 J

SD128
0.43 UJ

SD111
0.16 UJ

SD107
0.02 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

SD110
0.17 UJ

SD-03
1.2 J

SD-05
0.48 J

SD129
1.4 J

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST.

SD-02
0.445 J

SD131
1.2 J

DEERFIELD
CREEK

ASPHALT ROAD

SD106
0.435 J

SD133
0.91 J

BLDG 180

BLDG. 185 COMPLEX

SD-01
0.98 J

DECOMMISSIONED
DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Cadmium is 0.99 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Cadmium (mg/kg)

Result Is This Many Times Criterion

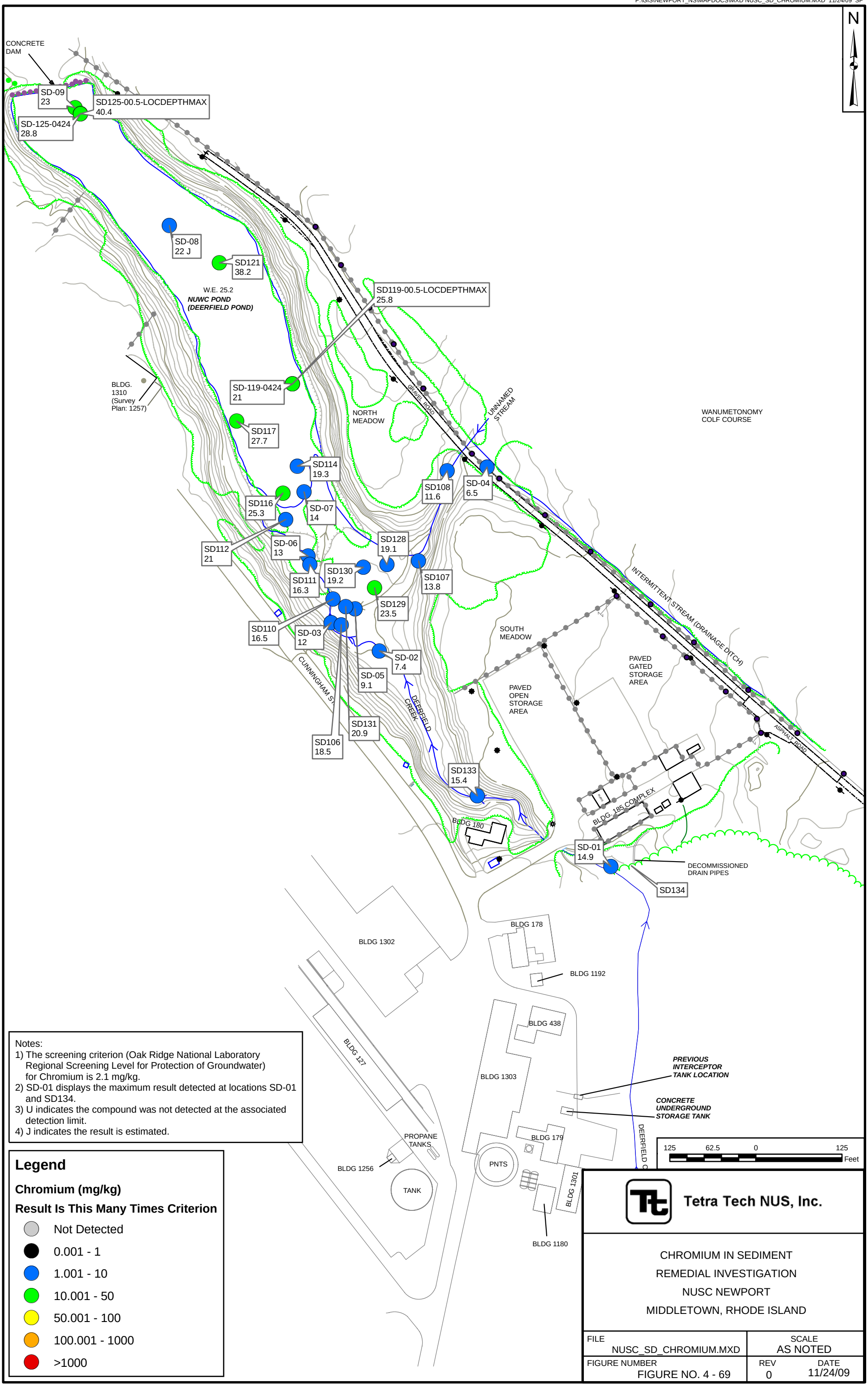
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CADMIUM IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_CADMIUM.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 68	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_CHROMIUM.MXD 11/24/09 SP



Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Chromium is 2.1 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Chromium (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

CHROMIUM IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_CHROMIUM.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 69	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_COBALT.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09 36

SD125-00.5-LOCDEPTHMAX 37.3

SD-125-0424 73.1

SD-08 35 J

SD121 43.1

W.E. 25.2
NUWC POND (DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX 39.8

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424 35.9

SD117 40.1

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SD114 23.8

SD-07 73

SD116 27.6

SD112 21.1

SD108 9.7

SD-04 8.1

SD128 14.4

SD-06 140

SD130 17.7

SD111 60.7

SD107 12.1

SD129 32

INTERMITTENT STREAM (DRAINAGE DITCH)

SD110 93.9

SD-03 160

SOUTH MEADOW

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

SD-02 175

SD-05 38

CUNNINGHAM ST

DEERFIELD CREEK

SD131 82.1

SD106 70.3

SD133 204

ASPHALT ROAD

BLDG 180

BLDG. 185 COMPLEX

SD-01 12

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Cobalt is 0.49 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Cobalt (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

COBALT IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_COBALT.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 70	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_COPPER.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
56

SD125-00.5-LOCDEPTHMAX
50.9 J

SD-125-0424
37.9

SD-08
58 J

SD121
51.7 J

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
39.8 J

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
27.4

SD117
47.8

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

SD114
24.1 J

SD116
38.4 J

SD-07
43

SD108
18.6 J

SD-04
9.1

SD112
31.6 J

SD-06
52

SD128
20.1

SD130
36.2

SD111
33.6 J

SD107
20.3 J

SD129
30.2

SD110
22.4 J

SD-03
40

SD-02
27.5

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

PAVED
OPEN
STORAGE
AREA

CUNNINGHAM ST

SD-05
21

DEERFIELD
CREEK

SD131
31.3

SD106
25.9 J

SD133
30.9 J

ASPHALT ROAD

BLDG 185 COMPLEX

BLDG 180

SD-01
33

DECOMMISSIONED
DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 179

DEERFIELD C

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Copper is 31.6 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Copper (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

COPPER IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_COPPER.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 4 - 71	REV: 0 / DATE: 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_IRON.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09 37000

SD125-00.5-LOCDEPTHMAX 51100

SD-125-0424 34400

SD-08 40000 J

SD121 50500

W.E. 25.2
NUWC POND (DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX 34200

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424 28700

SD117 33900

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SD114 19900

SD116 20900

SD-07 25000

SD108 23700

SD-04 14000

SD112 21200

SD-06 19000

SD128 29800

SD130 26400

SD111 26800

SD107 28800

SD129 30600

SD110 31100

SD-03 21000

SD-02 14000

SD-05 17000

CUNNINGHAM ST

DEERFIELD CREEK

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH MEADOW

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

ASPHALT ROAD

SD131 31400

SD106 30000

SD133 42800

BLDG 180

BLDG. 185 COMPLEX

SD-01 30500

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

TANK

PNTS

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Iron is 640 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Iron (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

IRON IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_IRON.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 72	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_LEAD.MXD 11/24/09 SP

N

CONCRETE DAM

SD125-00.5-LOCDEPTHMAX 167 J

SD-09 150

SD127 142

SD126 104

SD124 164

SD-125-0424 216

SD123 183

SD-08 180 J

SD122 176

SD121 224 J

W.E. 25.2
NUWC POND (DEERFIELD POND)

SD120 220

SD119-00.5-LOCDEPTHMAX 258 J

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424 149

SD118 187

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SD-07 350

SD117 264

SD114 288 J

SD115 106

SD129 137

SD108 23.5

SD-04 14

SD-06 770

SD116 562 J

SD113 77.9

SD112 508

SD109 25.4

SD111 1520 J

SD130 86

SD128 44.9

SD107 14.3 J

INTERMITTENT STREAM (DRAINAGE DITCH)

SD110 799 J

SD131 580

SD-05 130

SD105 314

SD-03 700

SOUTH MEADOW

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

SD-02 610

SD104 255

PAVED OPEN STORAGE AREA

DEERFIELD CREEK

SD133 15300

SD106 824

SD103 530

SD102 624

ASPHALT ROAD

SD101 458

SD100 27200

BLDG 185 COMPLEX

BLDG 180

SD132 5340

SD-01 76

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Lead is 35.8 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Lead (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

LEAD IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_LEAD.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 73	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_MANGANESE.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09 600

SD125-00.5-LOCDEPTHMAX 666

SD-125-0424 397

SD-08 580 J

SD121 658

W.E. 25.2
NUWC POND (DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX 338

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424 255

SD117 398

NORTH MEADOW

GRAVEL ROAD

UNNAMED STREAM

WANUMETONOMY COLF COURSE

SD114 177

SD-07 2800

SD116 137

SD112 147

SD-06 1000

SD111 269

SD130 632

SD108 394

SD-04 200

SD128 485

SD107 722

SD129 1300

SD110 733

SD-03 1700

SD-02 595

SD-05 730

SD131 2500

SD106 2040

CUNNINGHAM ST

DEERFIELD CREEK

INTERMITTENT STREAM (DRAINAGE DITCH)

SOUTH MEADOW

PAVED GATED STORAGE AREA

PAVED OPEN STORAGE AREA

ASPHALT ROAD

SD133 2360

BLDG 180

BLDG. 185 COMPLEX

SD-01 500

DECOMMISSIONED DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 179

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Protection of Groundwater) for Manganese is 57 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Manganese (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

MANGANESE IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_MANGANESE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 74	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_MERCURY.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
0.32

SD125-00.5-LOCDEPTHMAX
0.28

SD-125-0424
0.25

SD-08
0.33 J

SD121
0.27

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
0.22

BLDG.
1310
(Survey
Plan: 1257)

SD-119-0424
0.2

SD117
0.21

NORTH
MEADOW

GRAVEL ROAD

UNNAMED
STREAM

WANUMETONOMY
COLF COURSE

SD114
0.13

SD116
0.24

SD-07
0.22

SD108
0.01 U

SD-04
0.0639 J

SD112
0.17

SD-06
0.18

SD128
0.08

SD130
0.19

SD111
0.17

SD107
0.02 J

INTERMITTENT STREAM (DRAINAGE DITCH)

SD129
0.16

SD110
0.07

SD-03
0.088

SOUTH
MEADOW

PAVED
GATED
STORAGE
AREA

SD-02
0.1015

CUNNINGHAM ST

SD-05
0.097

PAVED
OPEN
STORAGE
AREA

DEERFIELD
CREEK

SD131
0.11

SD106
0.09

ASPHALT ROAD

SD133
0.02 J

BLDG 185 COMPLEX

BLDG 180

SD-01
0.143 J

DECOMMISSIONED
DRAIN PIPES

SD134

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

***PREVIOUS
INTERCEPTOR
TANK LOCATION***

***CONCRETE
UNDERGROUND
STORAGE TANK***

PROPANE
TANKS

BLDG 179

DEERFIELD C

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Mercury is 0.18 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Mercury (mg/kg)

Result Is This Many Times Criterion

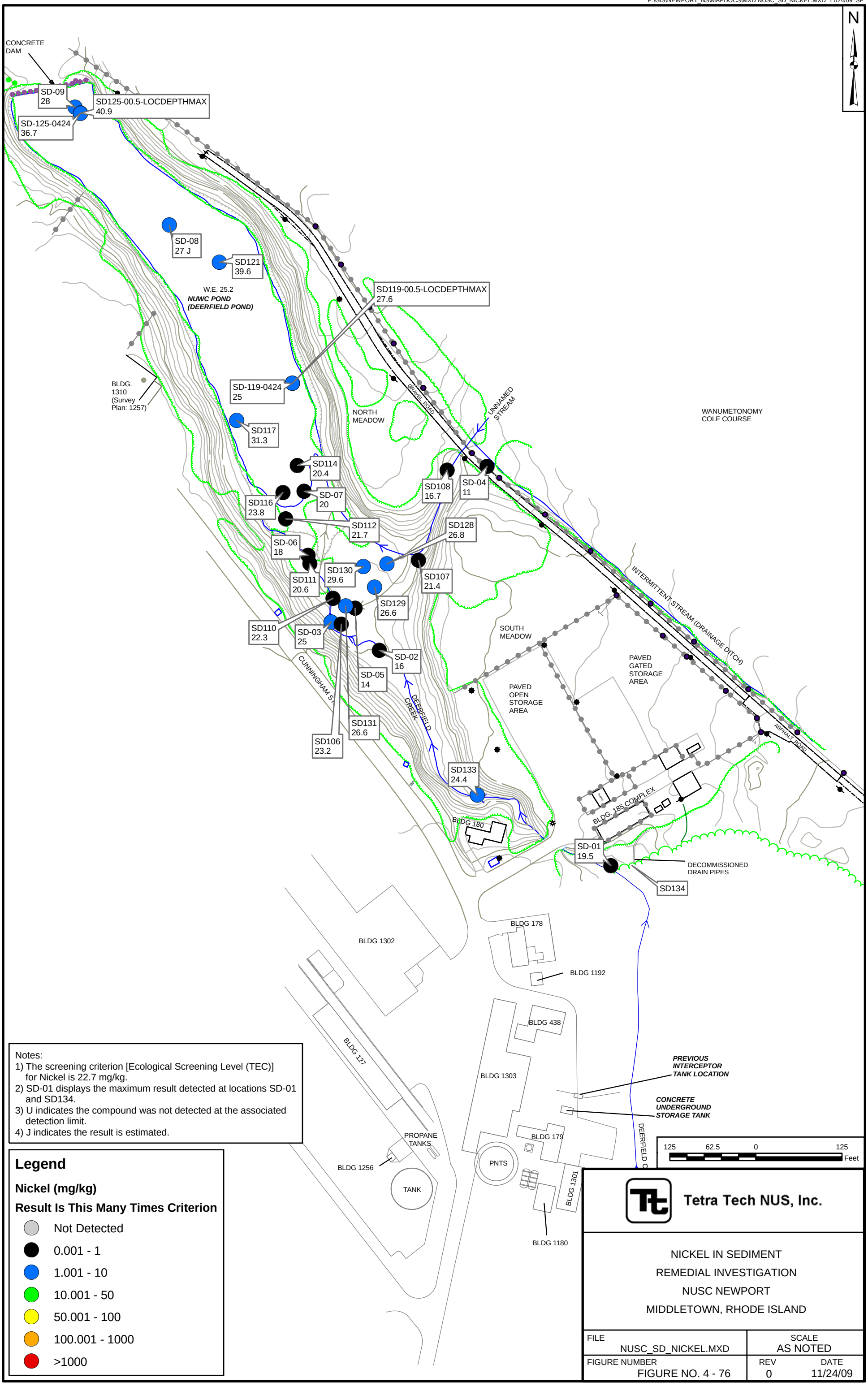
- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

MERCURY IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_MERCURY.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 75	0 / 11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_NICKEL.MXD 11/24/09 SP



Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Nickel is 22.7 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Nickel (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

NICKEL IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE	
NUSC_SD_NICKEL.MXD	AS NOTED	
FIGURE NUMBER	REV	DATE
FIGURE NO. 4 - 76	0	11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_SILVER.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09
0.53 J

SD125-00.5-LOCDEPTHMAX
0.15 UJ

SD-125-0424
1 J

SD-08
0.69 J

SD121
0.16 UJ

W.E. 25.2
NUWC POND
(DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX
0.27 UJ

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424
0.78 J

SD117
0.91 J

SD114
0.96 J

SD116
1.9 J

SD-07
1.4 J

SD112
2.2 J

SD-06
2.8 J

SD111
3.8 J

SD130
0.26 J

SD128
0.32 J

SD108
0.06 UJ

SD-04
0.16 J

SD107
0.08 UJ

SD129
0.51 J

SD-05
0.78 J

SD110
0.7 J

SD-03
4.8 J

SD-02
2 J

SD131
0.85 J

SD106
0.828 J

SD133
1.5 J

SD-01
0.24 J

SD134

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

WANUMETONOMY COLF COURSE

GRAVEL ROAD

UNNAMED STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST.

DEERFIELD CREEK

BLDG 180

BLDG. 185 COMPLEX

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

DEERFIELD C

125 62.5 0 125
Feet

Notes:
1) The screening criterion [Ecological Screening Level (LEL)] for Silver is 0.5 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Silver (mg/kg)

Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

SILVER IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE	
NUSC_SD_SILVER.MXD	AS NOTED	
FIGURE NUMBER	REV	DATE
FIGURE NO. 4 - 77	0	11/24/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_SD_ZINC.MXD 11/24/09 SP

N

CONCRETE DAM

SD-09 180

SD125-00.5-LOCDEPTHMAX 255

SD-125-0424 206

SD-08 200 J

SD121 276

W.E. 25.2
NUWC POND (DEERFIELD POND)

SD119-00.5-LOCDEPTHMAX 219

BLDG. 1310 (Survey Plan: 1257)

SD-119-0424 149

SD117 228

SD114 140

SD116 171

SD-07 180

SD112 95.5

SD-06 140

SD111 94

SD130 111

SD128 67.6

SD108 47.3

SD-04 36

SD107 73.4

SD129 139

SD110 98.9

SD-03 130

SD-02 64

SD-05 77

SD131 144

SD106 147

SD133 130

SD-01 157

SD134

NORTH MEADOW

SOUTH MEADOW

PAVED OPEN STORAGE AREA

PAVED GATED STORAGE AREA

WANUMETONOMY COLF COURSE

GRAVEL ROAD

UNNAMED STREAM

INTERMITTENT STREAM (DRAINAGE DITCH)

ASPHALT ROAD

CUNNINGHAM ST

DEERFIELD CREEK

BLDG 185 COMPLEX

BLDG 180

DECOMMISSIONED DRAIN PIPES

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

BLDG 127

BLDG 1303

PREVIOUS INTERCEPTOR TANK LOCATION

CONCRETE UNDERGROUND STORAGE TANK

PROPANE TANKS

BLDG 1256

TANK

PNTS

BLDG 179

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion [Ecological Screening Level (TEC)] for Zinc is 121 mg/kg.
2) SD-01 displays the maximum result detected at locations SD-01 and SD134.
3) U indicates the compound was not detected at the associated detection limit.
4) J indicates the result is estimated.

Legend

Zinc (mg/kg)

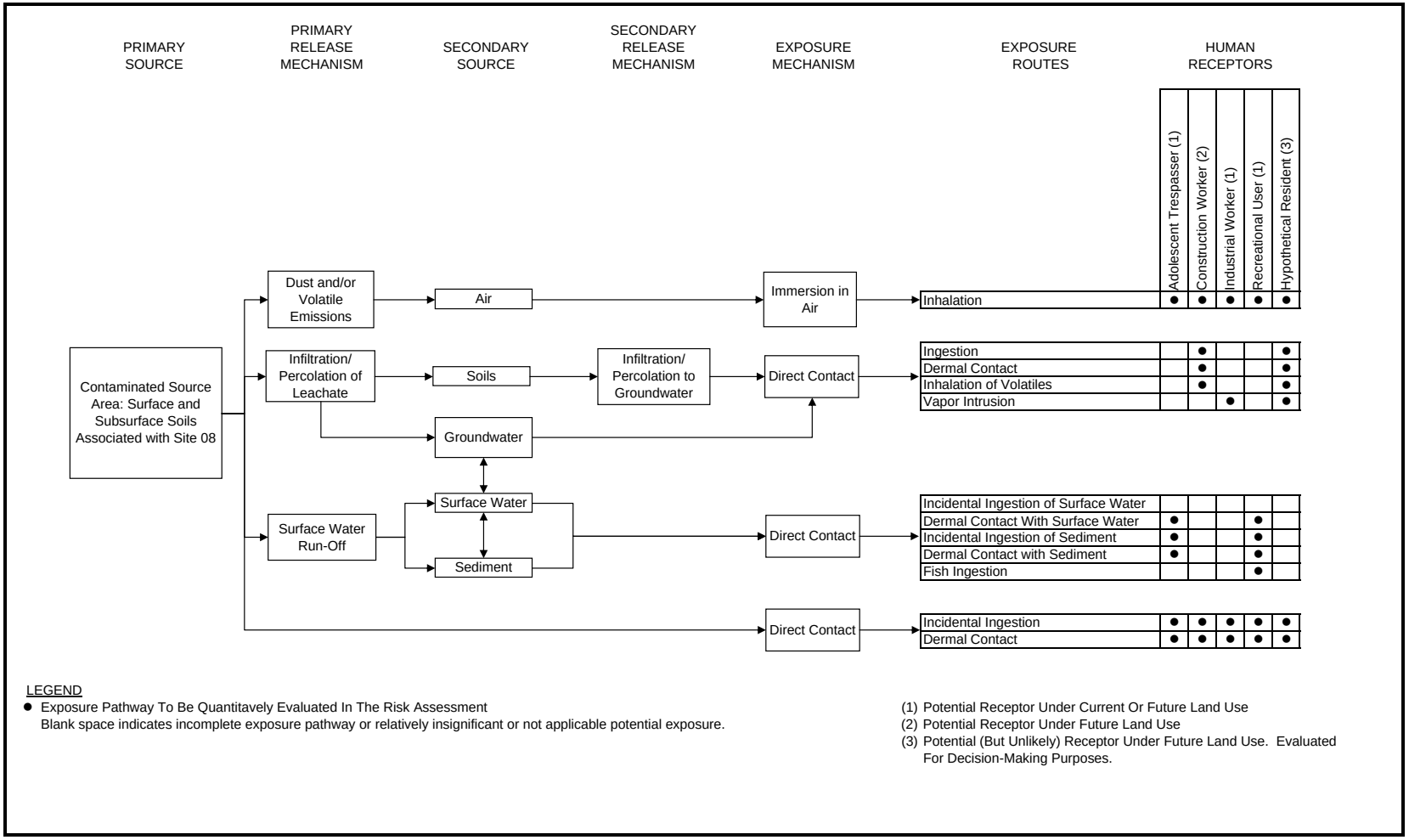
Result Is This Many Times Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

ZINC IN SEDIMENT
REMEDIAL INVESTIGATION
NUSC NEWPORT
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
NUSC_SD_ZINC.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4 - 78	0 / 11/24/09



LEGEND

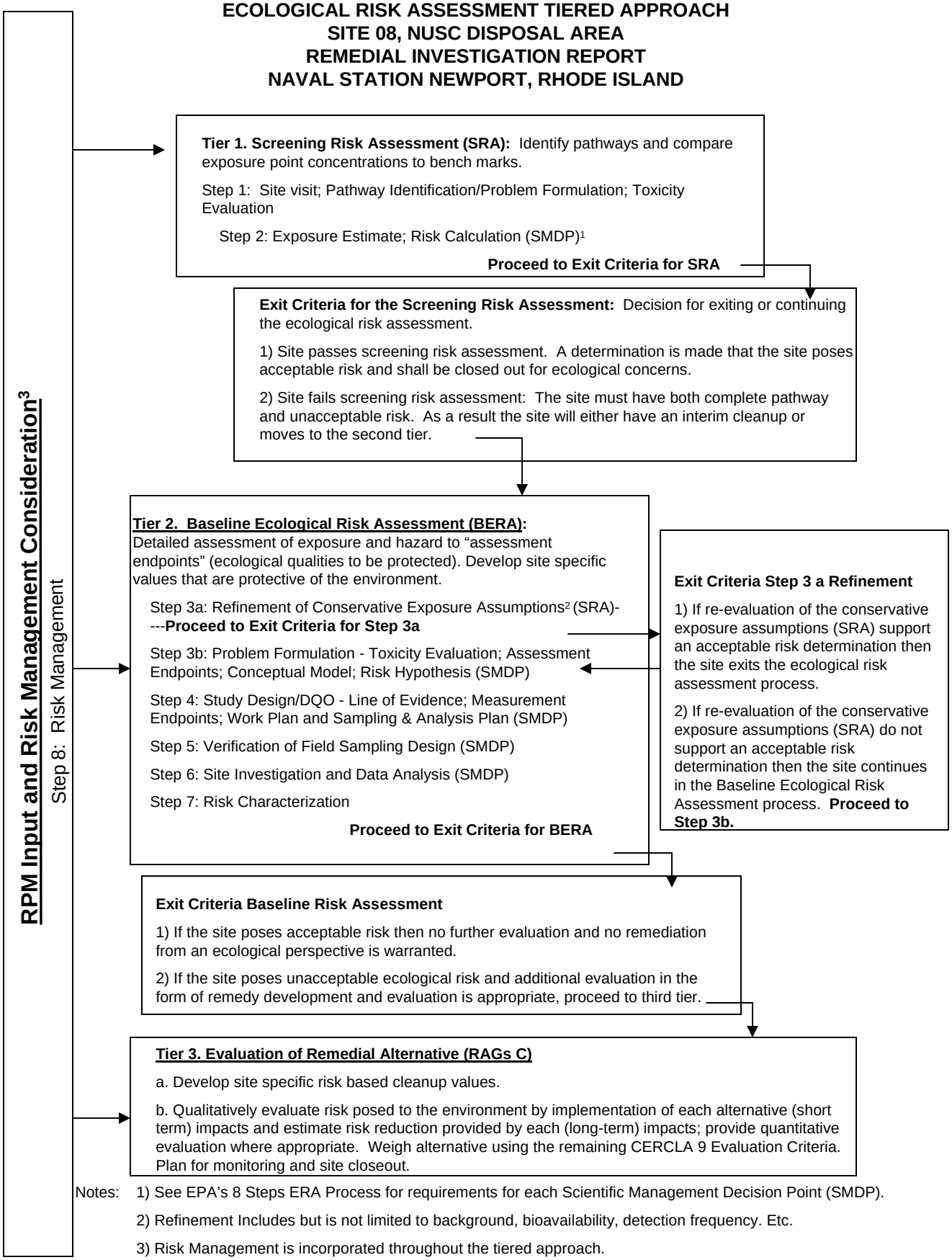
● Exposure Pathway To Be Quantitavely Evaluated In The Risk Assessment
Blank space indicates incomplete exposure pathway or relatively insignificant or not applicable potential exposure.

(1) Potential Receptor Under Current Or Future Land Use
(2) Potential Receptor Under Future Land Use
(3) Potential (But Unlikely) Receptor Under Future Land Use. Evaluated For Decision-Making Purposes.

FIGURE 6-1

HUMAN HEALTH CONCEPTUAL SITE MODEL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FIGURE 7-1
ECOLOGICAL RISK ASSESSMENT TIERED APPROACH
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVAL STATION NEWPORT, RHODE ISLAND

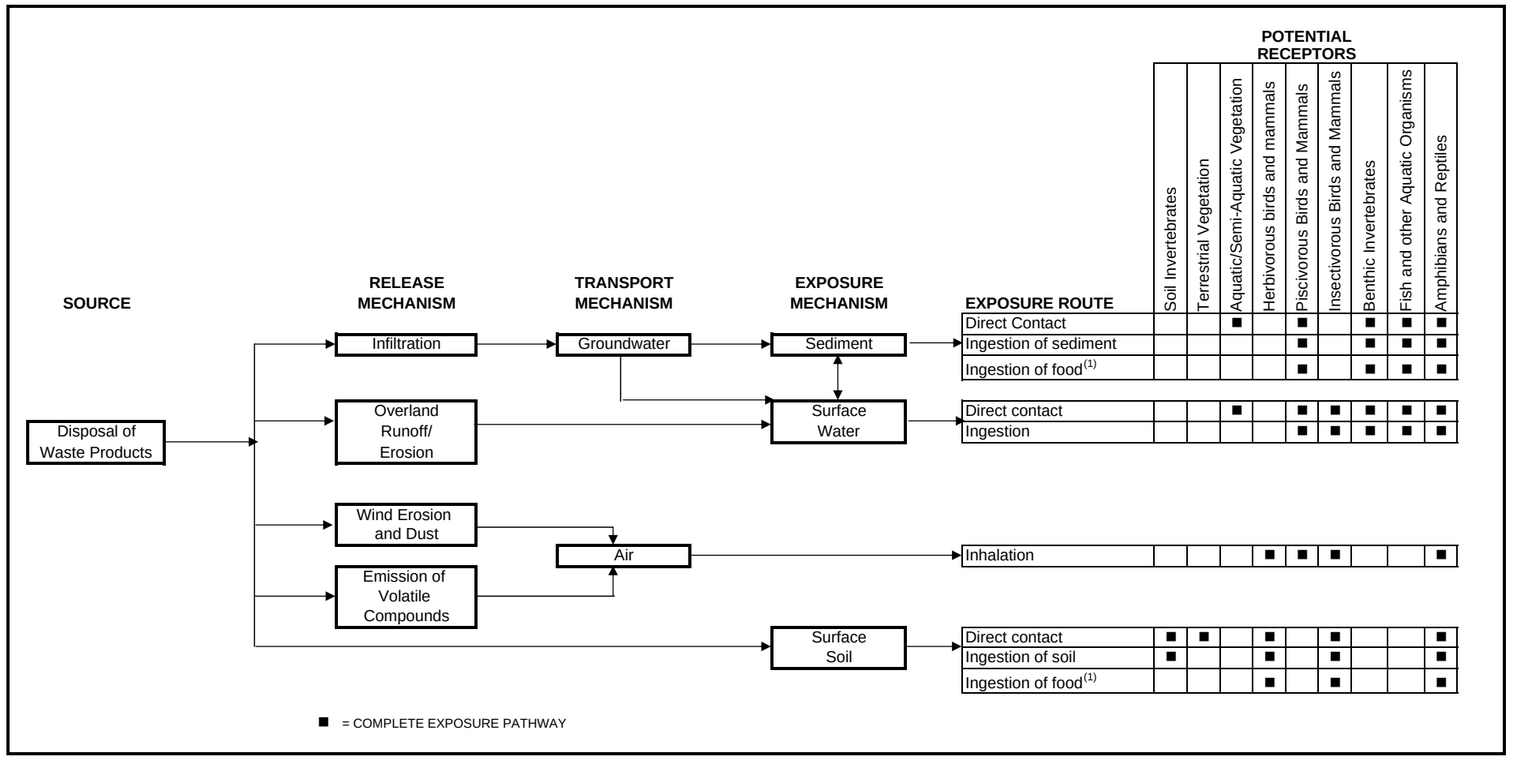


Notes: 1) See EPA's 8 Steps ERA Process for requirements for each Scientific Management Decision Point (SMDP).

2) Refinement Includes but is not limited to background, bioavailability, detection frequency. Etc.

3) Risk Management is incorporated throughout the tiered approach.

FIGURE 7-2
ECOLOGICAL CONCEPTUAL SITE MODEL
SITE 08 NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND



Blank space indicates incomplete exposure pathway or relatively insignificant, or not applicable, potential exposure.
(1) - Ingestion of food after the food (i.e., fish, plants, invertebrates) accumulates chemicals from the sediment or surface soil.

APPENDICES

APPENDICES

A PREVIOUS INVESTIGATIONS
- A.1 SASE Report Data: Boring Logs, Test Pit Logs, Analytical Results (TtNUS, 2005)
- A.2 Buried Drum and Container Removal Action (TN& Associates. Inc. 2006)
- A.3 Building 179 Concrete UST Remedial Investigation (TRC, 1992)
- A.4 Final Project Closure Report for Building 179 Tank Closures (FWEC, 1999)
- A.5 Final Project Close-Out Report for Building 179 Remediation (FWEC, 2000)

B SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS
- B.1 Soil Boring Logs (DPT Drilling)
- B.2 Soil Boring Logs (Conventional Drilling)
- B.3 Monitoring Well Construction Logs

C RI REPORTS/TECHNICAL MEMORANDA
- C.1 Metal Detection and Ground Penetrating Radar Surveys (NGS, January 2008)
- C.2 Borehole Geophysical Logging of Two Boreholes (NGS, May, 2008)
- C.3 Borehole Geophysical Logging of Six Boreholes (August, 2008)
- C.4 Metal Detection and Ground Penetrating Radar Surveys in the Paved Storage Areas (NGS, October, 2008)
- C.5 Building 185 Inspection Report (TtNUS, June 2008)
- C.6 Paved Open Storage Area Data Review (TtNUS, March 2009)
- C.7 Building 185 Summary (TtNUS, November 2009)

D FIELD MEASUREMENT AND DATA REDUCTION
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- D.2 Test Pit Logs and Photographs
- D.3 Surface Water, Sediment and Biota Sample Collection Summary Forms and Field Logs
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- H.2 Risks for Only Site-Related COPCs
- H.3 Samples Used in Calculation of EPCs
- H.4 ProUCL Outputs
- H.5 Sample Calculations
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- I.3 Food Chain Model
- I.4 Toxicity Tests Plots
- I.5 Correspondence
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- I.7 Toxicity Testing Laboratory Reports
- I.8 Benthic Macroinvertebrate Assessment

APPENDIX A

PREVIOUS INVESTIGATIONS

APPENDIX A.1

SASE REPORT DATA: BORING LOGS, TEST PIT LOGS, ANALYTICAL RESULTS (TtNUS, 2005)

TABLE 4-1
SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Sample Number			DA-A-SW01-01	DA-A-SW02-01	DA-A-SW-DUP01-01	DA-A-SW03-01	DA-A-SW04-01	DA-A-SW05-01
Sample Location			SW01	SW02	SW02	SW03	SW04	SW05
Date Sampled			7/31/2003	7/30/2003	7/30/2003	7/30/2003	7/31/2003	7/30/2003
Interval			0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0
QC Identifier			None	Field Dup. DA-A-SW02-01	Field Dup. DA-A-SW02-01	None	None	None
Criteria	AWQC_CCC Freshwater	MCL						
Volatile Organic Analysis (UG/L)								
1,1,1-Trichloroethane		200	--	2.4 J	2.4 J	1.5 J	--	1.5 J
1,1-Dichloroethane			--	1.6 J	1.6 J	1 J	--	1.2 J
Semivolatile Organic Analysis (UG/L)								
bis(2-Ethylhexyl)phthalate		6	--	3.8 J	3.8 J	3.9 J	--	3.6 J
Pesticide/PCB Analysis (UG/L)								
4,4'-DDE			--	0.014 J	0.0138 J	--	--	--
4,4'-DDT	0.001		--	--	0.0348 J	--	--	--
Dieldrin	0.056		0.013 J	0.0137 J	0.0299 J	0.0158 J	--	--
Total Metal Analysis (UG/L)								
Aluminum	87		36.0 J	--	--	350	42.0 J	--
Arsenic	150	10	--	1.67 J	--	2.17 J	1.77 J	--
Barium		2000	4.5	6.0	5.9	7.9	3.7	6.2
Calcium			32000	37000	36000	36000	23000	36000
Chromium	74	100	--	--	--	--	--	--
Cobalt			--	--	--	2.5	--	1.2 J
Copper	9	1300	--	--	--	2.6 J	--	--
Iron			310	120	140	650	150	210
Lead	2.5	15	--	--	--	11.3	--	--
Magnesium			9200	8600	8500	8500	8600	8400
Manganese			180	15.0	19.0	120	54.0	23.0
Mercury	0.77	2	--	--	0.012 J	0.018 J	--	--
Molybdenum			63.0	75.0	72.0	81.0	--	78.0
Nickel	52		2.67 J	--	2.41 J	3.44 J	2.65 J	--
Potassium			4100	4600	4400	4600	2800	4500
Sodium			39000 J	49000	48000	48000	14000 J	48000
Thallium		2	--	--	--	--	3.53 J	--
Zinc	120		--	--	--	8.5 J	--	--
Dissolved Metal Analysis (UG/L)								
Aluminum	87		54.0	--	--	370	37.0 J	--
Arsenic	150	10	--	--	--	--	--	--
Barium		2000	4.7	6.3	5.8	7.8	3.4	5.8
Calcium			32000	36000	36000	35000	22000	34000
Chromium	74	100	--	--	--	1.2 J	--	--
Cobalt			--	--	--	2.6	--	1.0 J
Copper	9	1300	4.2 J	--	--	2.8 J	--	--
Iron			350	130	180	720	150	180
Lead	2.5	15	--	--	--	12.4	--	--
Magnesium			9300	8400	8500	8100	8200	7900
Manganese			190	15.0	19.0	140	53.0	21.0
Mercury	0.77	2	--	--	0.014 J	--	--	--
Molybdenum			64.0	72.0	71.0	78.0	--	73.0
Nickel	52		2.55 J	2.29 J	11.8	3.16 J	2.36 J	2.62 J
Potassium			4200	4500	4400	4600	2600	4400
Sodium			40000	48000	47000	48000	13000	47000
Zinc	120		5.5 J	--	--	9.2	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
R - Rejected; NA - Not Analyzed

TABLE 4-1 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Sample Number			DA-A-SW06-01	DA-A-SW07-01	DA-A-SW08-01	DA-A-SW09-01
Sample Location			SW06	SW07	SW08	SW09
Date Sampled			7/29/2003	7/29/2003	7/29/2003	7/29/2003
Interval			0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0
QC Identifier			None	None	None	None
Criteria	AWQC_CCC Freshwater	MCL				
Volatile Organic Analysis (UG/L)						
1,1,1-Trichloroethane		200	0.92 J	--	--	--
1,1-Dichloroethane			0.7 J	--	--	--
Semivolatile Organic Analysis (UG/L)						
bis(2-Ethylhexyl)phthalate		6	3.8 J	3.8 J	3.9 J	5 J
Pesticide/PCB Analysis (UG/L)						
4,4'-DDE			--	--	--	--
4,4'-DDT	0.001		--	--	--	--
Dieldrin	0.056		0.0164 J	--	--	--
Total Metal Analysis (UG/L)						
Aluminum	87		--	--	--	190
Arsenic	150	10	3.09 J	--	3.8	2.86 J
Barium		2000	11.0	9.9	10.0	12.0
Calcium			31000	20000	20000	20000
Chromium	74	100	--	--	1.3 J	1.2 J
Cobalt			2.3	2.0	2.4	2.9
Copper	9	1300	3.2 J	--	2.5 J	2.8 J
Iron			260	850	870	970
Lead	2.5	15	--	--	--	--
Magnesium			7600	5400	5200	5400
Manganese			89.0	420	430	600
Mercury	0.77	2	0.012 J	0.013 J	--	0.015 J
Molybdenum			33.0	20.0	20.0	23.0
Nickel	52		2.65 J	2.91 J	3.76 J	3.87 J
Potassium			4900	4000	3900	4200
Sodium			44000	24000	23000	24000
Thallium		2	--	--	--	--
Zinc	120		6.4 J	4.8 J	--	5.6 J
Dissolved Metal Analysis (UG/L)						
Aluminum	87		--	--	--	180
Arsenic	150	10	--	2.43 J	2.88 J	3.04 J
Barium		2000	7.8	9.8	9.9	12.0
Calcium			28000	20000	19000	20000
Chromium	74	100	--	--	--	1.2 J
Cobalt			2.0	1.8 J	1.9 J	2.8
Copper	9	1300	2.9 J	--	--	2.6 J
Iron			240	820	850	980
Lead	2.5	15	--	--	--	--
Magnesium			6900	5400	5200	5200
Manganese			74.0	410	430	670
Mercury	0.77	2	0.012 J	0.013 J	0.016 J	0.016 J
Molybdenum			31.0	20.0	19.0	22.0
Nickel	52		2.5 J	2.42 J	2.9 J	3.83 J
Potassium			4600	4100	4100	4300
Sodium			41000	24000	24000	24000
Zinc	120		--	--	--	4.8 J

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-2
SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Sample Number			DA-S-SD01-01	DA-S-SD02-01	DA-S-SD-DUP01-01	DA-S-SD03-01	DA-S-SD04-01	DA-S-SD05-01	DA-S-SD06-01	DA-S-SD07-01	DA-S-SD08-01	DA-S-SD09-01
Sample Location			SD01	SD02	SD02	SD03	SD04	SD05	SD06	SD07	SD08	SD09
Date Sampled			7/31/2003	7/30/2003	7/30/2003	7/30/2003	7/31/2003	7/30/2003	7/29/2003	7/29/2003	7/29/2003	7/29/2003
Interval			0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
QC Identifier			None	Field Dup. DA-S-SD02-01	Field Dup. DA-S-SD02-01	None	None	None	None	None	None	None
Criteria	Region 9 PRG - Residential Soil (0_1*nc) 2002	Soil Direct Exposure Residential										
Volatile Organic Analysis (UG/KG)												
1,1,1-Trichloroethane	120000	540000	--	2.3	0.95	--	--	1.2	1.3	--	--	--
1,1-Dichloroethane	51000	920000	--	0.71 J	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	65000	96000	--	--	--	--	--	--	--	--	--	6.2 J
2-Butanone	730000	10000000	27 J	--	--	--	--	--	--	69 J	11 J	28 J
Acetone	160000	7800000	70 J	--	--	--	--	--	--	180 J	34 J	90 J
Carbon Disulfide	36000		--	--	--	--	--	--	--	--	--	2.7 J
Chloroethane	3000		1.6 J	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	9400		66 J	25 J	2.4 J	7.7 J	--	5.4 J	--	--	14 J	28 J
m&p-Xylene			2.2 J	--	--	--	--	--	--	--	--	--
p-Isopropyltoluene			--	--	--	--	0.79 J	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--	15	--	--	--
Toluene	52000	190000	--	--	--	--	--	--	--	38 J	--	--
Trichloroethene	53	13000	--	--	--	--	--	--	14	--	--	--
Semivolatile Organic Analysis (UG/KG)												
3-Methylphenol	310000		--	--	--	--	--	--	0.00 J	--	--	--
Acenaphthene	370000	43000	--	--	--	780	--	--	--	--	--	--
Anthracene	2200000	35000	87 J	--	--	2000	--	--	--	220 J	140 J	--
Benzo(a)anthracene	620	900	320 J	140 J	--	3400	--	--	--	790 J	680 J	590 J
Benzo(a)pyrene	62	400	310 J	--	--	2600	--	--	--	810 J	930 J	830 J
Benzo(b)fluoranthene	620	900	310 J	--	--	2300	--	--	--	1000 J	1200 J	1100 J
Benzo(g,h,i)perylene	230000	800	420 J	--	--	1900	--	--	--	760 J	940 J	830 J
Benzo(k)fluoranthene	6200	900	300 J	100 J	--	2300	--	100 J	--	790 J	1000 J	870 J
Benzoic acid	10000000		1500 J	--	1100 J	1100 J	980 J	1200 J	--	1900 J	2700 J	2400 J
Benzyl Alcohol	1800000		400 J	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	--	580 J	560 J	680 J	--	570 J	--	1200 J	2300 J	2300 J
Carbazole	24000		--	--	--	1300	--	--	--	--	--	--
Chrysene	62000	400	380 J	140 J	--	3300	--	140 J	--	1100 J	1400 J	1200 J
Dibenzo(a,h)anthracene	62	400	--	--	--	640 J	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	550 J	--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	420 J	--	--	--	1000 J	1600 J	2000

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND
PAGE 2 OF 3

Sample Number			DA-S-SD01-01	DA-S-SD02-01	DA-S-SD-DUP01-01	DA-S-SD03-01	DA-S-SD04-01	DA-S-SD05-01	DA-S-SD06-01	DA-S-SD07-01	DA-S-SD08-01	DA-S-SD09-01
Sample Location			SD01	SD02	SD02	SD03	SD04	SD05	SD06	SD07	SD08	SD09
Date Sampled			7/31/2003	7/30/2003	7/30/2003	7/30/2003	7/31/2003	7/30/2003	7/29/2003	7/29/2003	7/29/2003	7/29/2003
Interval			0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
QC Identifier			None	Field Dup. DA-S-SD02-01	Field Dup. DA-S-SD02-01	None	None	None	None	None	None	None
Criteria	Region 9 PRG - Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential										
Semivolatile Organic Analysis (UG/KG) (cont.)												
Di-n-Butylphthalate	610000		--	--	--	100 J	--	--	--	--	--	--
Fluoranthene	230000	20000	710 J	280 J	140 J	8500	--	200 J	920 J	2100	2500 J	2300
Fluorene	270000	28000	--	--	--	1000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	1700	--	--	--	640 J	800 J	680 J
Naphthalene	5600	54000	--	--	--	140 J	--	--	--	--	--	--
Phenanthrene	2200000	40000	390 J	120 J	84 J	8000	--	--	--	990 J	910 J	740 J
Pyrene	230000	13000	660 J	250 J	120 J	7000	--	170 J	--	1700	--	1900
Pesticide/PCB Analysis (UG/KG)												
4,4'-DDE	1700		--	--	13.4 J	--	--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	19.1 J	--	--	--	--	--
Aroclor-1260	220		--	--	--	100 J	--	--	197	450 J	--	--
Aroclor-1268	220		--	--	--	64.4 J	--	--	--	2480	--	--
Dieldrin	30	40	--	--	14.6 J	--	--	14.4 J	--	61.3 J	--	--
TAL Metal Analysis (MG/KG)												
Aluminum	7600		10000	6000	6000	7300	5000	7000	7700	11000	18000 J	20000
Arsenic	0.39	7	18.0	11.0	11.0	16.0	12.0	16.0	17.0	18.0	23.0 J	25.0
Barium	540	5500	41.0	17.0	18.0	39.0	17.0	22.0	47.0	67.0	77.0 J	82.0
Beryllium	15	0.4	0.46	0.30	0.31	0.34	0.35	0.35	0.39	0.45	0.71 J	0.75
Cadmium	3.7	39	0.98 J	0.43 J	0.46 J	1.2 J	0.17 J	0.48 J	2.4 J	1.3 J	1.2 J	0.97 J
Calcium			1600	1100	1100	1800	710	1500	2000	2700	2400 J	2400
Chromium	30	1400	13.0	7.4	7.4	12.0	6.5	9.1	13.0	14.0	22.0 J	23.0
Cobalt	900		12.0	170	180	160	8.1	38.0	140	73.0	35.0 J	36.0
Copper	310	3100	33.0	27.0	28.0	40.0	9.1	21.0	52.0	43.0	58.0 J	56.0
Iron	2300		19000	14000	14000	21000	14000	17000	19000	25000	40000 J	37000
Lead	400	150	76.0	590	630	700	14.0	130	770	350	180 J	150
Magnesium			2100	1200	1200	1700	1000	1600	1400	1900	3000 J	3200
Manganese	180	390	220	600	590	1700	200	730	1000	2800	580 J	600
Mercury	2.3	23	0.143 J	0.083	0.12	0.088	0.0639 J	0.097	0.18	0.22	0.33 J	0.32
Molybdenum	39000		5.9	3.2	3.2	6.4	--	3.1	3.4	6.4	3.7 J	8.8
Nickel	160	1000	19.0	16.0	16.0	25.0	11.0	14.0	18.0	20.0	27.0 J	28.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Sample Number			DA-S-SD01-01	DA-S-SD02-01	DA-S-SD-DUP01-01	DA-S-SD03-01	DA-S-SD04-01	DA-S-SD05-01	DA-S-SD06-01	DA-S-SD07-01	DA-S-SD08-01	DA-S-SD09-01
Sample Location			SD01	SD02	SD02	SD03	SD04	SD05	SD06	SD07	SD08	SD09
Date Sampled			7/31/2003	7/30/2003	7/30/2003	7/30/2003	7/31/2003	7/30/2003	7/29/2003	7/29/2003	7/29/2003	7/29/2003
Interval			0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
QC Identifier			None	Field Dup. DA-S-SD02-01	Field Dup. DA-S-SD02-01	None	None	None	None	None	None	None
Criteria	Region 9 PRG - Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential										
TAL Metal Analysis (MG/KG) (cont.)												
Potassium			200	150	150	250	--	150	210	260	610 J	690
Silver	39	200	0.24 J	1.9 J	2.1 J	4.8 J	0.16 J	0.78 J	2.8 J	1.4 J	0.69 J	0.53 J
Vanadium	55	550	25.0	12.0	12.0	18.0	13.0	15.0	23.0	24.0	38.0 J	40.0
Zinc	2300	6000	140	64.0	64.0	130	36.0	77.0	140	180	200 J	180
Acid Volatile Sulfides/Simultaneously Extracted Metals Analysis (UMO/G)												
Acid Volatile Sulfide			2.120	--	--	--	--	--	--	0.9730 J	3.0700 J	23.90 J
Cadmium	3.7	39	--	--	--	--	--	--	0.01200	--	--	--
Chromium	30	1400	0.06900	0.04800	0.04100	0.09100	0.03000	0.05800	0.1040	0.1120	0.1330 J	0.1820
Copper	310	3100	0.2940	0.2970	0.2840	0.3370	0.07500	0.1880	0.4640	0.4480	0.4590 J	0.5210
Lead	400	150	0.3290	3.0300	3.0300	2.650	0.06500	0.7260	3.480	1.690	0.7330 J	0.7510
Mercury	2.3	23	0.008200	--	--	--	0.005800	--	--	--	--	--
Nickel	160	1000	0.1140	0.1270	0.09600	0.1380	0.05400	0.08700	0.1390	0.1740	0.1450 J	0.1880
Zinc	2300	6000	1.590	0.5810	0.5320	1.340	0.2460	0.8750	1.340	2.150	2.0400 J	2.140
Miscellaneous Analysis (%)												
Percent Clay			7.0	6.1	6.4	3.9	2.5	3.0	2.5	5.2	11.0 J	14.0
PERCENT COARSE SILT			17.0	19.0	27.0	7.8	14.0	11.0	24.0	21.0	9.6 J	5.7
PERCENT FINE SILT			13.0	8.9	9.2	7.4	4.8	6.6	6.2	13.0	23.0 J	27.0
PERCENT MEDIUM SILT			20.0	21.0	19.0	14.0	10.0	16.0	18.0	25.0	38.0 J	38.0
Percent Sand			43.0	45.0	38.0	67.0	68.0	63.0	50.0	35.0	19.0 J	15.0
SIEVE NO. 004			0.40	--	1.3	17.0	36.0	23.0	0.60	--	--	--
SIEVE NO. 010			0.40	--	1.3	18.0	40.0	27.0	0.60	--	--	--
SIEVE NO. 040			5.1	2.5	2.3	33.0	48.0	38.0	2.8	0.70	--	--
SIEVE NO. 100			30.0	25.0	22.0	58.0	56.0	52.0	23.0	13.0	0.30 J	0.40
Total Organic Carbon			3.65	1.14	1.09	1.82	1.34	1.86	2.52	3.9	5.76 J	4.46
TOTAL SOLIDS			51.0	68.0	68.0	68.0	72.0	68.0	60.0	41.0	29.0 J	32.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED GATED STORAGE AREA					
Sample Number			DA-S-SB01-0102-01	DA-S-SB01-5575-01	DA-S-SB01-0809-01	DA-S-SB02-0102-01	DA-S-SB02-0304-01	DA-S-SB02-5565-01
Sample Location			SB01	SB01	SB01	SB02	SB02	SB02
Date Sampled			8/19/2003	8/19/2003	8/19/2003	8/18/2003	8/18/2003	8/18/2003
Interval			1.0-2.0	5.5-7.5	8.0-9.0	1.0-2.0	3.0-4.0	5.5-6.5
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	23	--	--	16	--	--
Acetone	160000	7800000	94 J	--	22 J	46	9.2	58
Carbon Disulfide	36000		0.95 J	--	1 J	--	--	--
Chloroform	360	1200	0.76 J	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	0.61 J	--	--	1.8
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	0.71 J
p-Isopropyltoluene			--	--	--	--	--	2.5
sec-Butylbenzene	22000		0.97	1.1 J	5.2	--	--	--
tert-Butylbenzene	39000		1.1 J	--	0.54 J	--	--	--
Tetrachloroethene	1500	12000	--	--	--	2.4	--	0.64 J
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	--	--	--	--	--	--
Benzo(a)anthracene	620	900	240 J	--	--	--	--	--
Benzo(a)pyrene	62	400	160 J	--	--	--	--	--
Benzo(b)fluoranthene	620	900	270 J	--	--	--	--	--
Benzo(g,h,i)perylene	230000	800	--	--	--	--	--	--
Benzo(k)fluoranthene	6200	900	290 J	--	--	--	--	--
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	410 J	410 J	--	--	--	--
Carbazole	24000		--	--	--	--	--	--
Chrysene	62000	400	550 J	--	--	--	--	--
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	1600	--	--	140 J	--	--
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED GATED STORAGE AREA					
Sample Number			DA-S-SB01-0102-01	DA-S-SB01-5575-01	DA-S-SB01-0809-01	DA-S-SB02-0102-01	DA-S-SB02-0304-01	DA-S-SB02-5565-01
Sample Location			SB01	SB01	SB01	SB02	SB02	SB02
Date Sampled			8/19/2003	8/19/2003	8/19/2003	8/18/2003	8/18/2003	8/18/2003
Interval			1.0-2.0	5.5-7.5	8.0-9.0	1.0-2.0	3.0-4.0	5.5-6.5
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1°nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	920	–	–	73 J	–	–
Pyrene	230000	13000	1200	–	–	120 J	–	–
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		–	–	–	–	–	–
4,4'-DDT	1700		–	–	–	–	–	–
alpha-Chlordane	1600		–	–	–	–	–	–
Aroclor-1248	220		–	–	–	–	–	–
Aroclor-1254	220		–	–	–	–	–	–
Aroclor-1260	220		–	–	–	–	–	–
Aroclor-1268	220		–	–	–	–	–	–
Toxaphene	440		–	–	–	–	45.9 J	–
Total Metal Analysis (MG/KG)								
Aluminum	7600		7200	8700	7600	5800	5300	5200
Antimony	3.1	10	–	–	–	–	–	–
Arsenic	0.39	7	31.0	18.0	16.0	21.0 J	11.0 J	7.4 J
Barium	540	5500	11.0	8.5	9.0	20.0	19.0	20.0
Beryllium	15	0.4	0.40	0.28	0.29	0.41	0.50	0.38
Cadmium	3.7	39	–	–	–	–	–	–
Calcium			790	1100	1000	930	590	810
Chromium	30	1400	10.0 J	13.0 J	11.0 J	8.7	6.8	9.4
Cobalt	900		15.0	12.0	12.0	8.4	15.0	8.6
Copper	310	3100	26.0	23.0	21.0	14.0	12.0	11.0
Iron	2300		30000	30000	26000	20000	16000	13000
Lead	400	150	11.0	8.8	7.6	22.0	7.9	9.0
Magnesium			2600 J	3100 J	2700 J	920	960	1200
Manganese	180	390	410	180	190	400	370	230
Mercury	2.3	23	–	–	–	0.0419	–	0.00808
Molybdenum	39000		0.57	0.53	0.68	–	–	0.96
Nickel	160	1000	24.0	24.0	23.0	10.0	8.0	10.0
Potassium			130	130	160	–	140	230
Selenium	39	390	–	–	–	–	–	–
Silver	39	200	0.046 J	–	–	0.82	–	–
Sodium			–	–	–	–	–	–
Thallium	0.52	5.5	0.18 J	0.20 J	0.28 J	0.32 J	–	–
Vanadium	55	550	16.0	13.0	12.0	17.0	14.0	12.0
Zinc	2300	6000	58.0 J	52.0 J	48.0 J	36.0 J	23.0 J	37.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	39000 J	–	–	55000 J	–	37000 J
Gasoline Range Organics		500000	730 J	1300 J	730 J	–	–	–
Miscellaneous Analysis (%)								
TOTAL SOLIDS			88.0	88.0	81.0	83.0	88.0	87.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED GATED STORAGE AREA					
Sample Number			DA-S-SB03-0102-01	DA-S-SB03-0304-01	DA-S-SB03-0607-01	DA-S-SB04-0102-01	DA-S-SB04-2535-01	DA-S-SB04-0910-01
Sample Location			SB03	SB03	SB03	SB04	SB04	SB04
Date Sampled			8/19/2003	8/19/2003	8/19/2003	8/18/2003	8/18/2003	8/18/2003
Interval			1.0-2.0	3.0-4.0	6.0-7.0	1.0-2.0	2.5-3.5	9.0-10.0
QC Identifier			None	None	None	None	None	Field Dup. DA-S-SB04-0910-01
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	17000	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	7.9	5.1 J	1.8 J	--	--
Acetone	160000	7800000	--	35 J	91 J	8.5	--	--
Carbon Disulfide	36000		--	--	2.4 J	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	1600	80 J
Isopropylbenzene	57000		--	--	--	--	2800	95 J
m&p-Xylene			--	--	1.4	--	--	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		190	--	1.8	--	8100	300 J
n-Propylbenzene	24000		--	--	--	--	6100	170 J
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			290	--	2.7	--	6400	--
sec-Butylbenzene	22000		--	1.8	1.4	--	4700	180 J
tert-Butylbenzene	39000		--	1.2 J	0.93 J	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	280 J	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	--	--	--	54 J	--	--
Benzo(a)anthracene	620	900	--	--	--	190 J	--	--
Benzo(a)pyrene	62	400	--	--	--	130 J	--	--
Benzo(b)fluoranthene	620	900	--	--	--	120 J	--	--
Benzo(g,h,i)perylene	230000	800	--	--	--	--	--	--
Benzo(k)fluoranthene	6200	900	--	--	--	130 J	--	--
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	400 J	450 J	--	--	--	--
Carbazole	24000		--	--	--	--	--	--
Chrysene	62000	400	--	--	--	180 J	--	--
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	--	--	--	390 J	--	--
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	120 J
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED GATED STORAGE AREA					
Sample Number			DA-S-SB03-0102-01	DA-S-SB03-0304-01	DA-S-SB03-0607-01	DA-S-SB04-0102-01	DA-S-SB04-2535-01	DA-S-SB04-0910-01
Sample Location			SB03	SB03	SB03	SB04	SB04	SB04
Date Sampled			8/19/2003	8/19/2003	8/19/2003	8/18/2003	8/18/2003	8/18/2003
Interval			1.0-2.0	3.0-4.0	6.0-7.0	1.0-2.0	2.5-3.5	9.0-10.0
QC Identifier			None	None	None	None	None	Field Dup. DA-S-SB04-0910-01
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	--	--	--	260 J	--	--
Pyrene	230000	13000	--	--	--	340 J	--	--
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	--	--	94.1	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		9500	9500	9200	5200	5300	3900
Antimony	3.1	10	--	--	--	--	--	--
Arsenic	0.39	7	32.0	35.0	30.0	41.0 J	13.0 J	24.0 J
Barium	540	5500	12.0	100	60.0	12.0	28.0	10.0
Beryllium	15	0.4	0.40	0.72	0.68	0.31	0.35	--
Cadmium	3.7	39	--	--	--	--	--	--
Calcium			690	830	740	810	430	380
Chromium	30	1400	13.0 J	12.0 J	13.0 J	7.7	9.5	7.5
Cobalt	900		16.0	34.0	16.0	18.0	14.0	14.0
Copper	310	3100	26.0	2.1	5.8	21.0	13.0	26.0
Iron	2300		29000	67000	43000	22000	20000	24000
Lead	400	150	15.0	16.0	13.0	12.0	7.2	7.0
Magnesium			3100 J	1400 J	1700 J	1600	1400	1400
Manganese	180	390	340	3300	1300	340	2000	280
Mercury	2.3	23	0.00821 J	0.0314 J	0.0136 J	--	--	--
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	24.0	7.5	8.6	18.0	17.0	22.0
Potassium			160	250	260	140	150	130
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	0.33	0.12	0.81	--	--
Sodium			--	--	--	--	--	--
Thallium	0.52	5.5	0.30 J	--	--	0.38	--	0.17 J
Vanadium	55	550	13.0	40.0	30.0	9.1	14.0	9.5
Zinc	2300	6000	54.0 J	30.0 J	30.0 J	39.0 J	34.0 J	42.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	14000	--	22000 J	23000 J	300000	250000
Gasoline Range Organics		500000	43000	1800 J	19000	--	920000	41000 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			89.0	81.0	84.0	91.0	87.0	80.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED GATED STORAGE AREA			PAVED OPEN STORAGE AREA		
Sample Number			DA-S-SB-DUP06-01	DA-S-SB06-0515-01	DA-S-SB06-2535-01	DA-S-SB05-0102-01	DA-S-SB05-0203-01	DA-S-SB05-0304-01
Sample Location			SB04	SB06	SB06	SB05	SB05	SB05
Date Sampled			8/18/2003	8/18/2003	8/18/2003	8/19/2003	8/19/2003	8/19/2003
Interval			9.0-10.0	0.5-1.5	2.5-3.5	1.0-2.0	2.0-3.0	3.0-4.0
QC Identifier			Field Dup. DA-S-SB04-0910-01	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	--	--
1,3,5-Trimethylbenzene	2100		120 J	--	--	--	--	--
2-Butanone	730000	10000000	--	--	2.8 J	--	10	13
Acetone	160000	7800000	--	--	25	--	33 J	140 J
Carbon Disulfide	36000		--	--	--	--	--	0.93 J
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	140 J	--	--	--	--	0.82
Isopropylbenzene	57000		210 J	--	--	--	--	0.58 J
m&p-Xylene			--	--	--	0.61 J	--	3.5
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		660 J	--	--	--	--	--
n-Propylbenzene	24000		390 J	--	--	--	--	--
o-Xylene			--	--	--	--	--	1.4
p-Isopropyltoluene			120	--	--	--	--	--
sec-Butylbenzene	22000		440 J	--	--	--	2	6.1
tert-Butylbenzene	39000		--	--	--	--	1 J	2.6 J
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	--	--	--	--	--	--
Benzo(a)anthracene	620	900	--	200 J	--	--	--	580 J
Benzo(a)pyrene	62	400	--	160 J	--	--	--	--
Benzo(b)fluoranthene	620	900	--	180 J	--	--	--	--
Benzo(g,h,i)perylene	230000	800	--	120 J	--	--	--	--
Benzo(k)fluoranthene	6200	900	--	160 J	--	--	--	--
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	--	--	--	--	410 J	--
Carbazole	24000		--	--	--	--	--	--
Chrysene	62000	400	--	300 J	--	--	--	600 J
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	--	540 J	--	--	--	1100 J
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	--
Naphthalene	5600	54000	130 J	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED GATED STORAGE AREA			PAVED OPEN STORAGE AREA		
Sample Number			DA-S-SB-DUP06-01	DA-S-SB06-0515-01	DA-S-SB06-2535-01	DA-S-SB05-0102-01	DA-S-SB05-0203-01	DA-S-SB05-0304-01
Sample Location			SB04	SB06	SB06	SB05	SB05	SB05
Date Sampled			8/18/2003	8/18/2003	8/18/2003	8/19/2003	8/19/2003	8/19/2003
Interval			9.0-10.0	0.5-1.5	2.5-3.5	1.0-2.0	2.0-3.0	3.0-4.0
QC Identifier			Field Dup. DA-S-SB04-0910-01	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	--	280 J	--	--	--	390 J
Pyrene	230000	13000	--	450 J	--	--	--	950 J
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	117	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		3700	4100	5400	4300	12000	9200
Antimony	3.1	10	--	--	--	--	--	--
Arsenic	0.39	7	24.0 J	12.0 J	18.0 J	7.7	33.0	17.0
Barium	540	5500	10.0	13.0	15.0	10.0	12.0	18.0
Beryllium	15	0.4	--	0.28	0.36	0.35	0.34	0.36
Cadmium	3.7	39	--	0.73 J	--	--	--	--
Calcium			510	1100	160	520	1900	2000
Chromium	30	1400	7.3	8.6	7.7	5.6 J	15.0 J	11.0 J
Cobalt	900		14.0	8.8	11.0	4.7	14.0	9.9
Copper	310	3100	23.0	18.0	14.0	9.0	26.0	19.0
Iron	2300		23000	17000	20000	10000	29000	22000
Lead	400	150	6.8	9.8	7.1	12.0	13.0	15.0
Magnesium			1300	1400	1100	1400 J	3900 J	2400 J
Manganese	180	390	390	390	480	150	370	440
Mercury	2.3	23	--	0.0161	0.0121	--	0.025	0.0377
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	22.0	12.0	11.0	7.4	23.0	16.0
Potassium			160	320	120	540	140	200
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	--	--	--	0.034 J	0.12
Sodium			--	--	--	73.0 J	--	--
Thallium	0.52	5.5	0.30 J	--	0.23 J	--	--	--
Vanadium	55	550	9.3	9.7	12.0	8.2	16.0	13.0
Zinc	2300	6000	40.0 J	39.0 J	29.0 J	28.0 J	48.0 J	46.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	370000	230000	--	83000	--	13000
Gasoline Range Organics		500000	130000 J	--	--	580 J	390 J	1400 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			83.0	90.0	87.0	93.0	89.0	82.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED OPEN STORAGE AREA					
Sample Number			DA-S-SB08-0102-01	DA-S-SB08-0607-01	DA-S-MW-DUP07-01	DA-S-TP14-0001-01	DA-S-TP14-0506-01	DA-S-TP14-0910-01
Sample Location			SB08	SB08	SB08	TP14	TP14	TP14
Date Sampled			8/19/2003	8/19/2003	8/19/2003	8/14/2003	8/14/2003	8/14/2003
Interval			1.0-2.0	6.0-7.0	6.0-7.0	0.0-1.0	5.0-6.0	9.0-10.0
QC Identifier			None	Field Dup. DA-S-SB08-0607-01	Field Dup. DA-S-SB08-0607-01	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	3 J	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	5.8 J	3.4 J	--	--	--
Acetone	160000	7800000	38 J	72 J	28 J	--	--	--
Carbon Disulfide	36000		--	1.2 J	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	1.8 J	--	--	--	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	0.79	--	--	--	--
p-Isopropyltoluene			--	--	--	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	310 J
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	220 J
4,6-Dinitro-2-methylphenol			--	--	--	--	--	260 J
4-Nitroaniline			--	--	--	--	--	420 J
4-Nitrophenol	49000		--	--	--	--	--	520 J
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	44 J	--	--	--	--	130 J
Benzo(a)anthracene	620	900	280 J	--	--	--	280 J	420 J
Benzo(a)pyrene	62	400	190 J	--	--	--	--	--
Benzo(b)fluoranthene	620	900	180 J	--	--	--	220 J	440 J
Benzo(g,h,i)perylene	230000	800	--	--	--	--	--	290 J
Benzo(k)fluoranthene	6200	900	200 J	--	--	--	230 J	400 J
Benzoic acid	10000000		--	--	--	--	--	2300 J
bis(2-Ethylhexyl)phthalate	35000	46000	410 J	--	--	430 J	1000 J	940 J
Carbazole	24000		--	--	--	--	--	--
Chrysene	62000	400	310 J	--	--	--	320 J	460 J
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	520 J	--	--	--	690 J	820 J
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			PAVED OPEN STORAGE AREA					
Sample Number			DA-S-SB08-0102-01	DA-S-SB08-0607-01	DA-S-MW-DUP07-01	DA-S-TP14-0001-01	DA-S-TP14-0506-01	DA-S-TP14-0910-01
Sample Location			SB08	SB08	SB08	TP14	TP14	TP14
Date Sampled			8/19/2003	8/19/2003	8/19/2003	8/14/2003	8/14/2003	8/14/2003
Interval			1.0-2.0	6.0-7.0	6.0-7.0	0.0-1.0	5.0-6.0	9.0-10.0
QC Identifier			None	Field Dup. DA-S-SB08-0607-01	Field Dup. DA-S-SB08-0607-01	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	280 J	--	--	--	440 J	--
Pyrene	230000	13000	450 J	--	--	--	590 J	740 J
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	55.2 J	--
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		7800	11000	11000	4600	9300	14000
Antimony	3 1	10	--	--	--	--	--	--
Arsenic	0 39	7	10 0	14 0	13 0	3 6 J	24 0 J	12 0 J
Barium	540	5500	14.0	18.0	17.0	14.0	30.0	21.0
Beryllium	15	0 4	0.36	0.38	0.37	--	0.36 J	0 41 J
Cadmium	3 7	39	--	--	--	0.33 J	5 4	3.5 J
Calcium			330	200	180	450 J	1200 J	750 J
Chromium	30	1400	19.0 J	22.0 J	22.0 J	4.7 J	20.0 J	14.0 J
Cobalt	900		8.6	13.0	13.0	3.6	30.0	13.0
Copper	310	3100	17.0	23.0	21.0	8.6	55.0	20.0
Iron	2300		18000	32000	32000	9800	38000	29000
Lead	400	150	15.0	9.7	9.4	24.0	830	46.0
Magnesium			2400 J	3500 J	3500 J	1700 J	3200 J	3000 J
Manganese	180	390	200	300	290	170	340	220
Mercury	2.3	23	0.0107 J	--	--	0.0090 J	0.090	0.036
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	14.0	21.0	21.0	5.2	25.0	19.0
Potassium			230	170	160	820	190	170
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	0.034 J	--	--	--	2.5	--
Sodium			--	--	--	--	--	--
Thallium	0 52	5.5	--	--	--	--	--	--
Vanadium	55	550	12.0	16.0	17.0	11.0	20.0	19.0
Zinc	2300	6000	33.0 J	46.0 J	46.0 J	26.0 J	120 J	57.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	32000 J	--	--	--	330000	380000
Gasoline Range Organics		500000	5500 J	470 J	570 J	1100 J	3800 J	1400 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			NA	NA	87.0	86.0	84.0	80.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-MW04B-0810-01	DA-S-MW04B-1416-01	DA-S-TP01-0001-01	DA-S-TP01-0304-01	DA-S-TP01-0607-01	DA-S-TP02-0001-01
Sample Location			MW04B	MW04B	TP01	TP01	TP01	TP02
Date Sampled			8/28/2003	8/28/2003	8/11/2003	8/11/2003	8/11/2003	8/13/2003
Interval			8.0-10.0	14.0-16.0	0.0-1.0	3.0-4.0	6.0-7.0	0.0-1.0
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	1600	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	860 J	--	--	--
2-Butanone	730000	10000000	--	--	--	--	--	--
Acetone	160000	7800000	--	--	--	--	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	1.3	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	350	0.96 J	--	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	780 J	--	--	--
n-Butylbenzene	24000		--	--	260	--	--	--
n-Propylbenzene	24000		--	--	300	--	--	--
o-Xylene			--	--	230	--	--	--
p-Isopropyltoluene			--	--	260	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	3.7	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	3.3	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	440 J	94 J	130 J	73 J	120 J	250 J
Acenaphthylene	5600	23000	--	--	--	--	94 J	--
Anthracene	2200000	35000	970 J	260 J	370 J	170 J	340 J	500 J
Benzo(a)anthracene	620	900	2300	610	900	760	1300	1800
Benzo(a)pyrene	62	400	1900	400 J	730	730	1200	1300
Benzo(b)fluoranthene	620	900	1700	410 J	630 J	660	1100	1400
Benzo(g,h,i)perylene	230000	800	1300	290 J	500 J	530 J	850	910
Benzo(k)fluoranthene	6200	900	1600	450 J	680 J	700	1100	1200
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	--	--	560 J	460 J	--	420 J
Carbazole	24000		760 J	140 J	220 J	160 J	260 J	430 J
Chrysene	62000	400	2200	600	910	910	1500	1600
Dibenzo(a,h)anthracene	62	400	380 J	--	--	--	230 J	290 J
Dibenzofuran	29000		340 J	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	120 J	--	--	--	--
Fluoranthene	230000	20000	5000	1500	2200	1900	3300	4200
Fluorene	270000	28000	520 J	140 J	160 J	80 J	170 J	270 J
Indeno(1,2,3-cd)pyrene	620	900	1200 J	260 J	450 J	460 J	800 J	850
Naphthalene	5600	54000	180 J	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-MW04B-0810-01	DA-S-MW04B-1416-01	DA-S-TP01-0001-01	DA-S-TP01-0304-01	DA-S-TP01-0607-01	DA-S-TP02-0001-01
Sample Location			MW04B	MW04B	TP01	TP01	TP01	TP02
Date Sampled			8/28/2003	8/28/2003	8/11/2003	8/11/2003	8/11/2003	8/13/2003
Interval			8.0-10.0	14.0-16.0	0.0-1.0	3.0-4.0	6.0-7.0	0.0-1.0
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	4400	1200	1600	1100	2200	2800
Pyrene	230000	13000	4200	1200	1800	1600	2800	3400
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	184 J	225 J	200	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	152 J	--	--	--
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	--	134	96.7	27.4 J	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		6500	6200	9100	7300	7300	6400 J
Antimony	3.1	10	0.37	0.26	1.3	--	--	1.2 J
Arsenic	0.39	7	16.0 J	21.0 J	19.0 J	19.0 J	15.0 J	16.0 J
Barium	540	5500	21.0	9.4	39.0	20.0	20.0	44.0
Beryllium	15	0.4	0.27	0.24	0.33	0.27	0.30	--
Cadmium	3.7	39	0.19	--	11.0	2.8 J	1.3 J	0.34 J
Calcium			7500 J	2700 J	1400 J	1400 J	1700 J	2700 J
Chromium	30	1400	9.7 J	11.0 J	26.0	11.0 J	9.8	9.0 J
Cobalt	900		9.1 J	17.0 J	17.0 J	12.0 J	13.0 J	16.0
Copper	310	3100	17.0 J	22.0 J	51.0	26.0	20.0	20.0
Iron	2300		15000	18000	21000	23000	16000	18000 J
Lead	400	150	17.0 J	24.0 J	120	36.0	37.0	50.0
Magnesium			1500	2000	2500	2300	2000	2100 J
Manganese	180	390	270	300	300	340	280	270
Mercury	2.3	23	0.0508	--	0.14 J	0.087 J	0.055 J	0.030
Molybdenum	39000		0.53	0.59	0.84	--	--	--
Nickel	160	1000	11.0 J	14.0 J	24.0	19.0	14.0	13.0
Potassium			180	140	300	260	190	160
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	0.20	2.0	1.1	--	0.37
Sodium			47.0	--	--	--	--	--
Thallium	0.52	5.5	--	--	--	--	--	--
Vanadium	55	550	12.0	11.0	18.0	15.0	17.0	15.0
Zinc	2300	6000	34.0 J	34.0 J	120	88.0	59.0	64.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	NA	NA	63000 J	190000	110000	59000
Gasoline Range Organics		500000	--	--	27000	1800 J	810 J	470 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			85.0	88.0	72.0	85.0	86.0	89.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP02-0102-01	DA-S-TP02-0203-01	DA-S-TP-DUP02-01	DA-S-TP02-0506-01	DA-S-TP05-0001-01	DA-S-TP05-0607-01
Sample Location			TP02	TP02	TP02	TP02	TP05	TP05
Date Sampled			8/13/2003	8/13/2003	8/13/2003	8/13/2003	8/11/2003	8/11/2003
Interval			1.0-2.0	2.0-3.0	2.0-3.0	5.0-6.0	0.0-1.0	6.0-7.0
QC Identifier			None	Field Dup. DA-S-TP02-0203-01	Field Dup. DA-S-TP02-0203-01	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	240 J	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	--	--	--	--	--
Acetone	160000	7800000	--	--	--	--	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	130 J	--	0.79 J	--
Methylene Chloride	9100	45000	--	1300 J	--	--	--	--
Naphthalene	5600	54000	1400000	94000 J	16000 J	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			--	--	160	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	90 J	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	510 J	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	390000 J	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	1400000	7600 J	9400 J	160 J	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	1300000	8800 J	12000 J	260 J	160 J	--
Benzo(a)anthracene	620	900	1700000	15000	20000	750 J	590	--
Benzo(a)pyrene	62	400	1400000	12000	15000	510 J	460 J	--
Benzo(b)fluoranthene	620	900	1200000	10000 J	13000 J	510 J	460 J	--
Benzo(g,h,i)perylene	230000	800	800000	7600 J	9000 J	370 J	330 J	--
Benzo(k)fluoranthene	6200	900	1100000	9900 J	13000 J	560 J	470 J	--
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	--	--	--	400 J	530 J	410 J
Carbazole	24000		770000	5300 J	7400 J	250 J	--	--
Chrysene	62000	400	1500000	14000	18000	720 J	610	--
Dibenzo(a,h)anthracene	62	400	210000 J	--	--	--	--	--
Dibenzofuran	29000		620000	--	3700 J	--	--	--
Diethylphthalate	4900000	340000	150000 J	--	--	180 J	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	4500000	37000	50000	1800 J	1300	--
Fluorene	270000	28000	920000	5400 J	7500 J	120 J	70 J	--
Indeno(1,2,3-cd)pyrene	620	900	820000	7400 J	9200 J	360 J	290 J	--
Naphthalene	5600	54000	1900000	4600 J	4600 J	180 J	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP02-0102-01	DA-S-TP02-0203-01	DA-S-TP-DUP02-01	DA-S-TP02-0506-01	DA-S-TP05-0001-01	DA-S-TP05-0607-01
Sample Location			TP02	TP02	TP02	TP02	TP05	TP05
Date Sampled			8/13/2003	8/13/2003	8/13/2003	8/13/2003	8/11/2003	8/11/2003
Interval			1.0-2.0	2.0-3.0	2.0-3.0	5.0-6.0	0.0-1.0	6.0-7.0
QC Identifier			None	Field Dup. DA-S-TP02-0203-01	Field Dup. DA-S-TP02-0203-01	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	4700000	34000	46000	1200 J	790	--
Pyrene	230000	13000	3600000	29000	39000	1400 J	1100	--
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	--	--	--	94.8	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		37.0 J	8200 J	9400 J	9000 J	7000	6700
Antimony	3.1	10	--	--	--	--	--	--
Arsenic	0.39	7	0.19 J	27.0 J	27.0 J	22.0 J	13.0 J	26.0 J
Barium	540	5500	--	15.0	16.0	18.0	17.0	22.0
Beryllium	15	0.4	--	0.31 J	0.33 J	0.31 J	0.34	0.32
Cadmium	3.7	39	--	0.28 J	--	--	0.92 J	0.17 J
Calcium			--	1300 J	2200 J	590 J	800 J	220 J
Chromium	30	1400	0.24 J	11.0 J	12.0 J	12.0 J	9.3 J	8.6 J
Cobalt	900		0.36	15.0	18.0	17.0	9.2 J	19.0 J
Copper	310	3100	0.64	22.0	26.0	26.0	24.0	31.0
Iron	2300		920 J	29000 J	35000 J	33000 J	24000	28000
Lead	400	150	1.8	16.0	17.0	12.0	22.0	9.6
Magnesium			21.0 J	2500 J	2900 J	3100 J	2200	2200
Manganese	180	390	4.6	420	420	670	380	2700
Mercury	2.3	23	--	0.022	0.022	--	0.084 J	0.0089 J
Molybdenum	39000		--	--	--	--	0.44	--
Nickel	160	1000	0.39	20.0	22.0	26.0	15.0	27.0
Potassium			--	130	160	170	240	150
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	--	--	--	--	--
Sodium			--	--	--	--	--	--
Thallium	0.52	5.5	--	--	--	--	--	0.89 J
Vanadium	55	550	--	14.0	16.0	15.0	14.0	12.0
Zinc	2300	6000	2.2 J	54.0 J	57.0 J	58.0 J	71.0	50.0
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	390,000,000	3,100,000 J	990000 J	46000 J	52000 J	--
Gasoline Range Organics		500000	100000	71000 J	16000 J	3400 J	560 J	1100 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			NA	88.0	88.0	89.0	88.0	89.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP05-0910-01	DA-S-TP-DUP01-01	DA-S-TP06-0001-01	DA-S-TP06-0304-01	DA-S-TP06-0910-01	DA-S-TP07-0001-01
Sample Location			TP05	TP05	TP06	TP06	TP06	TP07
Date Sampled			8/11/2003	8/11/2003	8/13/2003	8/13/2003	8/13/2003	8/12/2003
Interval			9.0-10.0	9.0-10.0	0.0-1.0	3.0-4.0	9.0-10.0	0.0-1.0
QC Identifier			Field Dup. DA-S-TP05-0910-01	Field Dup. DA-S-TP05-0910-01	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	--	--	--	--	--
Acetone	160000	7800000	--	--	--	--	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	--	--	--	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			--	--	--	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	0.64 J	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	110 J
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	--	--	52 J	94 J	--	270 J
Benzo(a)anthracene	620	900	--	--	170 J	290 J	--	580
Benzo(a)pyrene	62	400	--	--	120 J	190 J	--	460 J
Benzo(b)fluoranthene	620	900	--	--	140 J	220 J	--	420 J
Benzo(g,h,i)perylene	230000	800	--	--	--	130 J	--	370 J
Benzo(k)fluoranthene	6200	900	--	--	130 J	210 J	--	430 J
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	470 J	470 J	460 J	440 J	420 J	--
Carbazole	24000		--	--	--	--	--	160 J
Chrysene	62000	400	--	--	180 J	290 J	--	570 J
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	--	--	370 J	660 J	--	1200
Fluorene	270000	28000	--	--	--	--	--	100 J
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	320 J
Naphthalene	5600	54000	--	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	410 J	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP05-0910-01	DA-S-TP-DUP01-01	DA-S-TP06-0001-01	DA-S-TP06-0304-01	DA-S-TP06-0910-01	DA-S-TP07-0001-01
Sample Location			TP05	TP05	TP06	TP06	TP06	TP07
Date Sampled			8/11/2003	8/11/2003	8/13/2003	8/13/2003	8/13/2003	8/12/2003
Interval			9.0-10.0	9.0-10.0	0.0-1.0	3.0-4.0	9.0-10.0	0.0-1.0
QC Identifier			Field Dup. DA-S-TP05-0910-01	Field Dup. DA-S-TP05-0910-01	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	--	--	230 J	510 J	--	1000
Pyrene	230000	13000	--	--	310 J	530 J	--	1000
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	216
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	235
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	5220 J
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		12000	11000	9500	7600	7900	5400
Antimony	3.1	10	--	--	--	--	--	--
Arsenic	0.39	7	14.0 J	14.0 J	18.0 J	16.0 J	20.0 J	19.0 J
Barium	540	5500	12.0	11.0	17.0	17.0	12.0	26.0
Beryllium	15	0.4	0.25	0.25	0.23 J	0.31 J	0.28 J	0.26
Cadmium	3.7	39	0.21 J	0.16 J	--	--	--	0.20 J
Calcium			950 J	870 J	1400 J	960 J	630 J	1200 J
Chromium	30	1400	14.0 J	13.0 J	13.0 J	9.1 J	10.0 J	7.1 J
Cobalt	900		18.0 J	16.0 J	8.3	6.4	15.0	9.0 J
Copper	310	3100	28.0	25.0	19.0	12.0	28.0	17.0
Iron	2300		30000	29000	24000 J	16000	29000 J	14000
Lead	400	150	18.0	19.0	26.0	16.0	14.0	23.0
Magnesium			4200	3800	3200 J	1400 J	2700 J	1400
Manganese	180	390	660	590	240	180	920	240
Mercury	2.3	23	0.021 J	0.019 J	0.072	0.041	--	0.14 J
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	26.0	23.0	17.0	9.8	25.0	12.0
Potassium			120	130	180	170	240	170
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	--	--	--	0.50	--
Sodium			--	--	--	--	--	--
Thallium	0.52	5.5	--	--	--	--	--	--
Vanadium	55	550	16.0	16.0	18.0	14.0	13.0	13.0
Zinc	2300	6000	57.0	54.0	65.0 J	34.0 J	68.0 J	40.0
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	--	--	20000 J	--	--	430000
Gasoline Range Organics		500000	1200 J	710 J	1600 J	1400 J	790 J	750 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			78.0	78.0	84.0	84.0	88.0	86.0

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP07-0304-01	DA-S-TP07-0910-01	DA-S-TP08-0001-01	DA-S-TP08-0304-01	DA-S-TP-DUP05-01	DA-S-TP08-0708-01
Sample Location			TP07	TP07	TP08	TP08	TP08	TP08
Date Sampled			8/12/2003	8/12/2003	8/15/2003	8/15/2003	8/15/2003	8/15/2003
Interval			3.0-4.0	9.0-10.0	0.0-1.0	3.0-4.0	3.0-4.0	7.0-8.0
QC Identifier			None	None	None	Field Dup. DA-S-TP08-0304-01	Field Dup. DA-S-TP08-0304-01	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		–	–	–	–	–	–
1,3,5-Trimethylbenzene	2100		–	–	–	–	–	–
2-Butanone	730000	10000000	–	–	–	–	–	–
Acetone	160000	7800000	–	–	–	–	–	–
Carbon Disulfide	36000		–	–	–	–	–	–
Chloroform	360	1200	–	–	–	–	–	–
cis-1,2-Dichloroethene	4300		–	–	–	–	–	–
Ethylbenzene	8900	71000	–	–	–	–	–	–
Isopropylbenzene	57000		–	–	–	–	–	–
m&p-Xylene			–	–	–	–	–	–
Methylene Chloride	9100	45000	–	–	–	–	–	–
Naphthalene	5600	54000	–	–	–	–	–	–
n-Butylbenzene	24000		–	–	–	–	–	–
n-Propylbenzene	24000		–	–	–	–	–	–
o-Xylene			–	–	–	–	–	–
p-Isopropyltoluene			–	–	–	–	–	–
sec-Butylbenzene	22000		–	–	–	–	–	–
tert-Butylbenzene	39000		–	–	–	–	–	–
Tetrachloroethene	1500	12000	–	5.4	–	2.1 J	–	4.2
Toluene	52000	190000	–	–	–	–	–	–
Trichloroethene	53	13000	–	7.8	–	–	–	–
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	–	–	–	–	–	–
2,4-Dinitrophenol	12000	160000	–	–	–	–	–	–
2-Methylnaphthalene		123000	–	–	–	–	–	8600 J
3,3'-Dichlorobenzidine	1100	1400	–	–	–	–	–	–
4,6-Dinitro-2-methylphenol			–	–	–	–	–	–
4-Nitroaniline			–	–	–	–	–	–
4-Nitrophenol	49000		–	–	–	–	–	–
Acenaphthene	370000	43000	–	–	120 J	760 J	370 J	27000
Acenaphthylene	5600	23000	–	–	–	–	–	3500 J
Anthracene	2200000	35000	110 J	88 J	520 J	2600 J	1100 J	55000
Benzo(a)anthracene	620	900	460 J	310 J	1600	5700 J	2500 J	78000
Benzo(a)pyrene	62	400	490 J	270 J	840	2900	1900	56000
Benzo(b)fluoranthene	620	900	510 J	280 J	820	3100 J	1800 J	51000
Benzo(g,h,i)perylene	230000	800	400 J	220 J	420 J	1400	1100	33000
Benzo(k)fluoranthene	6200	900	440 J	260 J	880	2900 J	1700 J	47000
Benzoic acid	10000000		–	–	–	–	–	–
bis(2-Ethylhexyl)phthalate	35000	46000	450 J	–	–	–	–	–
Carbazole	24000		92 J	–	470 J	2000 J	670 J	34000
Chrysene	62000	400	570 J	330 J	1500	5600 J	2500 J	71000
Dibenzo(a,h)anthracene	62	400	–	–	–	520 J	370 J	10000 J
Dibenzofuran	29000		–	–	–	450 J	240 J	23000
Diethylphthalate	4900000	340000	–	–	–	–	–	–
Di-n-Butylphthalate	610000		–	–	–	–	–	–
Fluoranthene	230000	20000	1100 J	650	4100	16000 J	6100 J	200000
Fluorene	270000	28000	–	–	180 J	1000 J	520 J	45000
Indeno(1,2,3-cd)pyrene	620	900	350 J	200 J	420 J	1400	1100	30000
Naphthalene	5600	54000	–	–	–	170 J	150 J	20000
Pentachlorophenol	3000	5300	–	–	–	–	–	–

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP07-0304-01	DA-S-TP07-0910-01	DA-S-TP08-0001-01	DA-S-TP08-0304-01	DA-S-TP-DUP05-01	DA-S-TP08-0708-01
Sample Location			TP07	TP07	TP08	TP08	TP08	TP08
Date Sampled			8/12/2003	8/12/2003	8/15/2003	8/15/2003	8/15/2003	8/15/2003
Interval			3.0-4.0	9.0-10.0	0.0-1.0	3.0-4.0	3.0-4.0	7.0-8.0
QC Identifier			None	None	None	Field Dup. DA-S-TP08-0304-01	Field Dup. DA-S-TP08-0304-01	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	570 J	410 J	2400	12000 J	4500 J	220000
Pyrene	230000	13000	980 J	550 J	3300	13000 J	4800 J	150000
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		347 J	171 J	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	2190 J	--	117	147 J	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	502	--	--	--	--
Aroclor-1268	220		54.4 J	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		6100	5700	9400	8700	8100	8900
Antimony	3.1	10	--	6.2	--	--	--	--
Arsenic	0.39	7	16.0 J	14.0 J	25.0	24.0	23.0	24.0
Barium	540	5500	16.0	19.0	12.0	14.0	13.0	15.0
Beryllium	15	0.4	0.28	0.23	0.30	0.31	0.28	0.32
Cadmium	3.7	39	0.79 J	1.6 J	--	--	--	--
Calcium			720 J	2500 J	590	620	590	680
Chromium	30	1400	7.4	10.0	11.0 J	10.0 J	9.5 J	10.0 J
Cobalt	900		8.1 J	12.0 J	14.0	12.0	12.0	13.0
Copper	310	3100	19.0	2600	20.0	20.0	19.0	20.0
Iron	2300		14000	17000	26000	23000	22000	24000
Lead	400	150	24.0	400	9.7	12.0	11.0	36.0
Magnesium			1200	1400	2900	2400	2300	2400
Manganese	180	390	240	260	410	330	330	330
Mercury	2.3	23	0.045 J	0.13 J	--	0.0192	0.0116 J	0.0113 J
Molybdenum	39000		0.42	1.0	--	--	--	--
Nickel	160	1000	11.0	14.0	21.0	18.0	17.0	18.0
Potassium			130	88.0	180	160	150	160
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	2.5	--	--	--	--
Sodium			--	--	--	--	--	--
Thallium	0.52	5.5	--	--	--	--	--	--
Vanadium	55	550	13.0	10.0	14.0	14.0	13.0	16.0
Zinc	2300	6000	33.0	1200	46.0	42.0	41.0	42.0
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	140000	120000	--	69000	70000	17000
Gasoline Range Organics		500000	4900 J	9000	--	--	--	--
Miscellaneous Analysis (%)								
TOTAL SOLIDS			86.0	82.0	85.0	85.0	85.0	85.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP15-0001-01	DA-S-TP15-0203-01	DA-S-TP15-0506-01	DA-S-TP15A-0203-01	DA-S-TP15A-0506-01	DA-S-TP15A-0910-01
Sample Location			TP15	TP15	TP15	TP15A	TP15A	TP15A
Date Sampled			8/12/2003	8/12/2003	8/12/2003	8/12/2003	8/12/2003	8/12/2003
Interval			0.0-1.0	2.0-3.0	5.0-6.0	2.0-3.0	5.0-6.0	9.0-10.0
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	--	--	--	--	--
Acetone	160000	7800000	--	--	--	--	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	--	--	--	--
Methylene Chloride	9100	45000	--	--	--	--	670 J	--
Naphthalene	5600	54000	--	--	--	110000	59000	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			--	--	--	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	1.3	--	--	--	2
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	1.7	--	--	--	3.6
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	300 J	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	960	570 J	1900	390000	480000	3200
Acenaphthylene	5600	23000	--	--	120 J	--	--	--
Anthracene	2200000	35000	3200	1300	3600	790000	970000	8700
Benzo(a)anthracene	620	900	8100	3500	8300	1600000	1900000	16000
Benzo(a)pyrene	62	400	4800	3000	6700	1300000	1500000	12000
Benzo(b)fluoranthene	620	900	4500	2600	6100	1100000	1300000	9700
Benzo(g,h,i)perylene	230000	800	2400	1800	4100	720000	830000	6200
Benzo(k)fluoranthene	6200	900	4600	2600	5600	1100000	1200000	10000
Benzoic acid	10000000		--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	--	--	--	--	--	--
Carbazole	24000		2800	680	2200	420000	490000	6000
Chrysene	62000	400	7900	3300	7700	1400000	1700000	14000
Dibenzo(a,h)anthracene	62	400	1000	660	1600	280000 J	330000	2500 J
Dibenzofuran	29000		670	230 J	980	200000 J	250000 J	2500 J
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	21000	7900	20000	3800000	4600000	42000
Fluorene	270000	28000	1300	540 J	1800	390000	480000	4400
Indeno(1,2,3-cd)pyrene	620	900	2500	1800	4100	740000	850000	6700
Naphthalene	5600	54000	220 J	100 J	710	170000 J	220000 J	1300 J
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			SOUTH MEADOW					
Sample Number			DA-S-TP15-0001-01	DA-S-TP15-0203-01	DA-S-TP15-0506-01	DA-S-TP15A-0203-01	DA-S-TP15A-0506-01	DA-S-TP15A-0910-01
Sample Location			TP15	TP15	TP15	TP15A	TP15A	TP15A
Date Sampled			8/12/2003	8/12/2003	8/12/2003	8/12/2003	8/12/2003	8/12/2003
Interval			0.0-1.0	2.0-3.0	5.0-6.0	2.0-3.0	5.0-6.0	9.0-10.0
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	15000	5200	15000	3000000	3500000	34000
Pyrene	230000	13000	17000	6400	16000	3000000	3600000	33000
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	44.5 J
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		8000	8500	9100	17000	15000	6500
Antimony	3.1	10	--	--	--	--	--	1.3
Arsenic	0.39	7	21.0 J	18.0 J	17.0 J	3.4 J	2.7 J	16.0 J
Barium	540	5500	17.0	19.0	24.0	120	120	22.0
Beryllium	15	0.4	0.33	0.31	0.39	2.5	2.4	0.31
Cadmium	3.7	39	0.27 J	0.20 J	0.66 J	0.61 J	0.36 J	0.58 J
Calcium			600 J	1000 J	3400 J	53000 J	46000 J	1100 J
Chromium	30	1400	9.2 J	9.6 J	10.0 J	3.7	2.6	8.6 J
Cobalt	900		10.0 J	9.8 J	9.8 J	4.4 J	3.4 J	8.5 J
Copper	310	3100	18.0	19.0	23.0	13.0	11.0	26.0
Iron	2300		21000	20000	21000	4800	3800	17000
Lead	400	150	14.0	20.0	25.0	39.0	35.0	42.0
Magnesium			2200	2300	4000	24000	21000	1500
Manganese	180	390	310	280	340	770	770	280
Mercury	2.3	23	0.029 J	0.064 J	0.044 J	0.069 J	0.075 J	0.076 J
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	16.0	16.0	18.0	7.0	6.0	13.0
Potassium			180	160	280	3200	3400	140
Selenium	39	390	--	--	--	0.32 J	0.36 J	--
Silver	39	200	--	--	--	--	--	--
Sodium			--	--	--	1400	1500	--
Thallium	0.52	5.5	--	--	--	--	--	--
Vanadium	55	550	14.0	13.0	14.0	21.0	18.0	12.0
Zinc	2300	6000	48.0	45.0	87.0	57.0	51.0	73.0
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	110000	150000	230000	50,000,000	63,000,000	200000
Gasoline Range Organics		500000	700 J	6100 J	1900 J	51000	42000	4200 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			87.0	85.0	85.0	86.0	84.0	83.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			NORTH MEADOW					
Sample Number			DA-S-SB07-0102-01	DA-S-TP09-0001-01	DA-S-TP09-0102-01	DA-S-TP-DUP04-01	DA-S-TP10-0001-01	DA-S-TP10-0102-01
Sample Location			SB07	TP09	TP09	TP09	TP10	TP10
Date Sampled			8/18/2003	8/14/2003	8/14/2003	8/14/2003	8/14/2003	8/14/2003
Interval			1.0-2.0	0.0-1.0	1.0-2.0	1.0-2.0	0.0-1.0	1.0-2.0
QC Identifier			None	None	Field Dup. DA-S-TP09-0102-01	Field Dup. DA-S-TP09-0102-01	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	2.8 J	--	--	--	--
Acetone	160000	7800000	50	66 J	--	--	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	--	--	--	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			--	--	--	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	--	--	--	--	610 J	--
Benzo(a)anthracene	620	900	--	90 J	--	--	1300 J	120 J
Benzo(a)pyrene	62	400	--	--	--	--	1100 J	89 J
Benzo(b)fluoranthene	620	900	--	--	--	--	1300 J	--
Benzo(g,h,i)perylene	230000	800	--	--	--	--	890 J	--
Benzo(k)fluoranthene	6200	900	--	--	--	--	1100 J	86 J
Benzoic acid	10000000		--	5900 J	880 J	950 J	--	1100 J
bis(2-Ethylhexyl)phthalate	35000	46000	--	490 J	440 J	450 J	--	470 J
Carbazole	24000		--	--	--	--	480 J	--
Chrysene	62000	400	--	120 J	--	--	1500 J	130 J
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	--	230 J	--	--	2900 J	280 J
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			NORTH MEADOW					
Sample Number			DA-S-SB07-0102-01	DA-S-TP09-0001-01	DA-S-TP09-0102-01	DA-S-TP-DUP04-01	DA-S-TP10-0001-01	DA-S-TP10-0102-01
Sample Location			SB07	TP09	TP09	TP09	TP10	TP10
Date Sampled			8/18/2003	8/14/2003	8/14/2003	8/14/2003	8/14/2003	8/14/2003
Interval			1.0-2.0	0.0-1.0	1.0-2.0	1.0-2.0	0.0-1.0	1.0-2.0
QC Identifier			None	None	Field Dup. DA-S-TP09-0102-01	Field Dup. DA-S-TP09-0102-01	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	--	140 J	--	--	1900 J	220 J
Pyrene	230000	13000	--	200 J	--	--	2500 J	220 J
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	--	--	--	117	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		5400	8800	13000	12000	9200	11000
Antimony	3.1	10	--	--	--	--	5.5 J	--
Arsenic	0.39	7	31.0 J	11.0 J	11.0 J	10.0 J	15.0 J	13.0 J
Barium	540	5500	8.2	10.0	11.0	9.5	36.0	17.0
Beryllium	15	0.4	0.33	0.26 J	0.34 J	0.31 J	0.29 J	0.35 J
Cadmium	3.7	39	--	--	--	--	0.84 J	--
Calcium			45.0	280 J	240 J	300 J	2500 J	480 J
Chromium	30	1400	8.1	11.0 J	15.0 J	14.0 J	64.0 J	13.0 J
Cobalt	900		14.0	5.9	11.0	11.0	10.0	9.0
Copper	310	3100	24.0	16.0	20.0	19.0	560	20.0
Iron	2300		22000	23000 J	31000 J	29000 J	27000 J	25000 J
Lead	400	150	6.8	25.0	10.0	9.3	160	15.0
Magnesium			1400	2100 J	3800 J	3700 J	2900 J	2600 J
Manganese	180	390	310	140	220	210	360	210
Mercury	2.3	23	0.012	0.12	0.024	0.022	0.098	0.041
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	20.0	14.0	22.0	22.0	18.0	18.0
Potassium			140	130	140	110	270	150
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	0.35	--	--	--	--
Sodium			--	--	--	--	--	--
Thallium	0.52	5.5	--	--	--	--	--	--
Vanadium	55	550	9.8	19.0	18.0	16.0	29.0	20.0
Zinc	2300	6000	40.0 J	35.0 J	50.0 J	48.0 J	280 J	50.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	--	96000	--	--	180000	--
Gasoline Range Organics		500000	--	2300 J	940 J	970 J	1200 J	2900 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			87.0	78.0	84.0	84.0	74.0	80.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			NORTH MEADOW					
Sample Number			DA-S-TP11-0001-01	DA-S-TP11-0203-01	DA-S-TP-DUP03-01	DA-S-TP11-0304-01	DA-S-TP12-0001-01	DA-S-TP12-0102-01
Sample Location			TP11	TP11	TP11	TP11	TP12	TP12
Date Sampled			8/14/2003	8/14/2003	8/14/2003	8/14/2003	8/13/2003	8/13/2003
Interval			0.0-1.0	2.0-3.0	2.0-3.0	3.0-4.0	0.0-1.0	1.0-2.0
QC Identifier			None	Field Dup. DA-S-TP11-0203-01	Field Dup. DA-S-TP11-0203-01	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	--	--	--	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	--	--	--	--	--
Acetone	160000	7800000	--	--	--	--	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	--	--	--	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			--	--	--	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	110 J	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	--	--	--	--	--
Anthracene	2200000	35000	--	--	--	--	--	--
Benzo(a)anthracene	620	900	--	--	--	--	--	--
Benzo(a)pyrene	62	400	--	--	--	--	--	--
Benzo(b)fluoranthene	620	900	--	--	--	--	--	--
Benzo(g,h,i)perylene	230000	800	--	--	--	--	--	--
Benzo(k)fluoranthene	6200	900	--	--	--	--	--	--
Benzoic acid	10000000		1600 J	940 J	890 J	--	1100 J	--
bis(2-Ethylhexyl)phthalate	35000	46000	480 J	430 J	--	410 J	--	--
Carbazole	24000		--	--	--	--	--	--
Chrysene	62000	400	--	--	--	--	--	--
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	--	--	--	--	--	--
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			NORTH MEADOW					
Sample Number			DA-S-TP11-0001-01	DA-S-TP11-0203-01	DA-S-TP-DUP03-01	DA-S-TP11-0304-01	DA-S-TP12-0001-01	DA-S-TP12-0102-01
Sample Location			TP11	TP11	TP11	TP11	TP12	TP12
Date Sampled			8/14/2003	8/14/2003	8/14/2003	8/14/2003	8/13/2003	8/13/2003
Interval			0.0-1.0	2.0-3.0	2.0-3.0	3.0-4.0	0.0-1.0	1.0-2.0
QC Identifier			None	Field Dup. DA-S-TP11-0203-01	Field Dup. DA-S-TP11-0203-01	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	--	--	--	--	--	--
Pyrene	230000	13000	--	--	--	--	--	--
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	--	--	--	--	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		11000	13000	15000	17000	9500 J	8200
Antimony	3.1	10	--	--	--	--	--	--
Arsenic	0.39	7	19.0 J	14.0 J	16.0 J	14.0 J	14.0 J	19.0 J
Barium	540	5500	16.0	11.0	13.0	7.6 J	16.0	16.0
Beryllium	15	0.4	0.36 J	0.28 J	0.34 J	0.24 J	0.32 J	0.39 J
Cadmium	3.7	39	--	--	--	--	--	--
Calcium			120 J	940 J	840 J	1900 J	220 J	83.0 J
Chromium	30	1400	12.0 J	14.0 J	14.0 J	16.0 J	12.0 J	11.0 J
Cobalt	900		7.4	12.0	14.0	11.0	11.0	13.0
Copper	310	3100	18.0	19.0	21.0	18.0	20.0	24.0
Iron	2300		30000	36000	41000	42000	27000 J	27000
Lead	400	150	17.0	8.5	9.6	14.0	7.8	6.4
Magnesium			2300 J	4200 J	4600 J	6400 J	2600 J	2200 J
Manganese	180	390	190	300	320	280	260	300
Mercury	2.3	23	0.061	0.015 J	0.015 J	0.0088 J	0.028	0.011 J
Molybdenum	39000		--	--	--	1.0	--	--
Nickel	160	1000	17.0	21.0	24.0	21.0	19.0	21.0
Potassium			180	130	150	81.0	200	170
Selenium	39	390	--	--	--	--	--	--
Silver	39	200	--	--	--	--	--	--
Sodium			--	--	--	--	--	--
Thallium	0.52	5.5	--	--	--	--	--	--
Vanadium	55	550	24.0	24.0	27.0	22.0	15.0	15.0
Zinc	2300	6000	44.0 J	54.0 J	62.0 J	58.0 J	46.0 J	46.0 J
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	55000 J	--	--	--	--	--
Gasoline Range Organics		500000	1400 J	1900 J	2000 J	1000 J	5600 J	1700 J
Miscellaneous Analysis (%)								
TOTAL SOLIDS			78.0	86.0	86.0	90.0	83.0	85.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			NORTH MEADOW					
Sample Number			DA-S-TP12-0203-01	DA-S-TP12A-0001-01	DA-S-TP12B-0001-01	DA-S-TP13-0001-01	DA-S-TP13-0203-01	DA-S-TP13-0405-01
Sample Location			TP12	TP12A	TP12B	TP13	TP13	TP13
Date Sampled			8/13/2003	8/15/2003	8/15/2003	8/15/2003	8/15/2003	8/15/2003
Interval			2.0-3.0	0.0-1.0	0.0-1.0	0.0-1.0	2.0-3.0	4.0-5.0
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Volatile Organic Analysis (UG/KG)								
1,2,4-Trimethylbenzene	5200		--	--	1.4 J	1.2 J	1.1 J	--
1,3,5-Trimethylbenzene	2100		--	--	--	--	--	--
2-Butanone	730000	10000000	--	--	--	--	--	--
Acetone	160000	7800000	--	--	--	9.9	--	--
Carbon Disulfide	36000		--	--	--	--	--	--
Chloroform	360	1200	--	--	--	--	--	--
cis-1,2-Dichloroethene	4300		--	--	--	--	--	--
Ethylbenzene	8900	71000	--	--	--	--	--	--
Isopropylbenzene	57000		--	--	--	--	--	--
m&p-Xylene			--	--	--	0.89 J	0.78 J	--
Methylene Chloride	9100	45000	--	--	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
n-Butylbenzene	24000		--	--	--	--	--	--
n-Propylbenzene	24000		--	--	--	--	--	--
o-Xylene			--	--	--	--	--	--
p-Isopropyltoluene			--	--	--	--	--	--
sec-Butylbenzene	22000		--	--	--	--	--	--
tert-Butylbenzene	39000		--	--	--	--	--	--
Tetrachloroethene	1500	12000	--	--	--	--	--	--
Toluene	52000	190000	--	--	--	--	--	--
Trichloroethene	53	13000	--	--	--	--	--	--
Semivolatile Organic Analysis (UG/KG)								
2,4-Dimethylphenol	120000	1400000	--	--	--	--	--	--
2,4-Dinitrophenol	12000	160000	--	--	--	--	--	--
2-Methylnaphthalene		123000	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1100	1400	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol			--	--	--	--	--	--
4-Nitroaniline			--	--	--	--	--	--
4-Nitrophenol	49000		--	--	--	--	--	--
Acenaphthene	370000	43000	--	--	--	--	--	--
Acenaphthylene	5600	23000	--	290 J	--	--	--	--
Anthracene	2200000	35000	--	420 J	--	--	--	--
Benzo(a)anthracene	620	900	--	810	150 J	--	--	--
Benzo(a)pyrene	62	400	--	740	--	--	--	--
Benzo(b)fluoranthene	620	900	--	1300	190 J	--	--	--
Benzo(g,h,i)perylene	230000	600	--	510 J	--	--	--	--
Benzo(k)fluoranthene	6200	900	--	1100	160 J	--	--	--
Benzoic acid	10000000		--	1500 J	3100 J	--	--	--
bis(2-Ethylhexyl)phthalate	35000	46000	--	--	--	--	--	--
Carbazole	24000		--	410 J	--	--	--	--
Chrysene	62000	400	--	1300	200 J	--	--	--
Dibenzo(a,h)anthracene	62	400	--	--	--	--	--	--
Dibenzofuran	29000		--	--	--	--	--	--
Diethylphthalate	4900000	340000	--	--	--	--	--	--
Di-n-Butylphthalate	610000		--	--	--	--	--	--
Fluoranthene	230000	20000	--	1700	320 J	--	--	--
Fluorene	270000	28000	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	620	900	--	540 J	--	--	--	--
Naphthalene	5600	54000	--	--	--	--	--	--
Pentachlorophenol	3000	5300	--	--	--	--	--	--

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
SUMMARY OF ANALYTICAL RESULTS - SOIL
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Area			NORTH MEADOW					
Sample Number			DA-S-TP12-0203-01	DA-S-TP12A-0001-01	DA-S-TP12B-0001-01	DA-S-TP13-0001-01	DA-S-TP13-0203-01	DA-S-TP13-0405-01
Sample Location			TP12	TP12A	TP12B	TP13	TP13	TP13
Date Sampled			8/13/2003	8/15/2003	8/15/2003	8/15/2003	8/15/2003	8/15/2003
Interval			2.0-3.0	0.0-1.0	0.0-1.0	0.0-1.0	2.0-3.0	4.0-5.0
QC Identifier			None	None	None	None	None	None
Criteria	Region 9 PRG Residential Soil (0_1*nc)_2002	Soil Direct Exposure Residential						
Semivolatile Organic Analysis (UG/KG) (cont.)								
Phenanthrene	2200000	40000	--	300 J	140 J	--	--	--
Pyrene	230000	13000	--	1800	290 J	--	--	--
Pesticide/PCB Analysis (UG/KG)								
4,4'-DDE	1700		--	--	--	--	--	--
4,4'-DDT	1700		--	--	--	--	--	--
alpha-Chlordane	1600		--	--	--	--	--	--
Aroclor-1248	220		--	--	--	--	--	--
Aroclor-1254	220		--	--	--	--	--	--
Aroclor-1260	220		--	115 J	--	--	--	--
Aroclor-1268	220		--	--	--	--	--	--
Toxaphene	440		--	--	--	--	--	--
Total Metal Analysis (MG/KG)								
Aluminum	7600		10000	9000	10000	8700	7400	7400
Antimony	3 1	10	--	1.3	--	--	--	--
Arsenic	0 39	7	7 0 J	15 0	14 0	90 0	40 0	23 0
Barium	540	5500	6.9	19.0	28.0	13.0	11.0	12.0
Beryllium	15	0 4	0.26 J	0.30	0.38	0 42	0.39	0.36
Cadmium	3 7	39	--	--	--	--	--	--
Calcium			700 J	460	370	39.0	70.0	160
Chromium	30	1400	13.0 J	13.0	12.0	9.5 J	9.4 J	8.8 J
Cobalt	900		15.0	8.9	7.3	20.0	16.0	16.0
Copper	310	3100	28.0	24.0	18.0	30.0	29.0	24.0
Iron	2300		25000	24000	24000	28000	28000	25000
Lead	400	150	14.0	36.0	40.0	11.0	6.9	6.2
Magnesium			3900 J	2400	2000	2400	2300	2300
Manganese	180	390	400	310	240	410	390	400
Mercury	2.3	23	--	0.0426	0.0742	--	--	--
Molybdenum	39000		--	--	--	--	--	--
Nickel	160	1000	22.0	17.0	16.0	26.0	25.0	23.0
Potassium			120	170	170	150	190	180
Selenium	39	390	--	--	0.19 J	--	--	--
Silver	39	200	--	--	0.74	--	--	--
Sodium			--	--	--	--	--	--
Thallium	0 52	5.5	--	--	--	--	--	--
Vanadium	55	550	10.0	24.0	28.0	14.0	12.0	12.0
Zinc	2300	6000	51.0 J	72.0	68.0	59.0	52.0	46.0
Total Petroleum Hydrocarbon Analysis (UG/KG)								
Diesel Range Organics		500000	--	11000	12000	--	--	--
Gasoline Range Organics		500000	1400 J	--	--	--	--	--
Miscellaneous Analysis (%)								
TOTAL SOLIDS			89.0	79.0	74.0	87.0	87.0	89.0

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-5
SOIL BORINGS SAMPLE SUMMARY
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Soil Boring Number	Boring Depth (ft. bgs)	Depth of Fill (ft. bgs)	Sample Number	Sample Depth (ft. bgs)	FID Headspace (ppm)	Notes
SB01	14 (bedrock refusal)	Undetermined (possibly 0–2)	DA-S-SB01-0102-01 DA-S-SB01-5575-01 DA-S-SB01-0809-01	1-2 5.5-7.5 8-9	50.1 2.3 18	Bedrock at 11 ft. bgs
SB02	8.5 (bedrock refusal)	0-1	DA-S-SB02-0102-01 DA-S-SB02-0304-01 DA-S-SB02-5565-01	1-2 3-4 5.5-6.5	209.5 17.3 35.6	Bedrock at 7.5 ft. bgs
SB03	14 (bedrock refusal)	0-2.5	DA-S-SB03-0102-01 DA-S-SB03-0304-01 DA-S-SB03-0607-01	1-2 3-4 6-7	572.3 345.7 167.9	Bedrock at 13.5 ft. bgs Till at 8 ft. bgs
SB04	13 (bedrock refusal)	Undetermined (possibly 0-2.5)	DA-S-SB04-0102-01 DA-S-SB04-2535-01 DA-S-SB04-0910-01 DA-S-SB-DUP06-01	1-2 2.5-3.5 9-10 9-10	0 1021 237 n/a	Duplicate from the 9-10 ft. interval Strong odors at 3-4 ft. bgs Possible till at 11 ft. bgs Bedrock at 13 ft. bgs
SB05	5.5 (bedrock refusal)	Undetermined (possible 0-5.5)	DA-S-SB05-0102-01 DA-S-SB05-0203-01 DA-S-SB05-0304-01	1-2 2-3 3-4	0 5.7 9.7	Bedrock at 5.5 ft. bgs
SB06	7.5 (bedrock refusal)	2.5	DA-S-SB06-0515-01 DA-S-SB06-2535-01	0.5-1.5 2.5-3.5	0 19.3	Bedrock at 3.5 ft. bgs
SB07	10 (refusal)	None likely	DA-S-SB07-0102-01	1-2	0	Weathered bedrock at 2 ft. bgs
SB08	7.0 (bedrock refusal)	0-3	DA-S-SB08-0102-01 DA-S-SB08-0607-01 DA-S-SB-DUP07-01	1-2 6-7 6-7	0 2.5 n/a	Bedrock at 7.0 ft. bgs Till at 6.0 ft. bgs
MW04B	45	Undetermined (possibly 0-15)	DA-S-MW04B-0810-01 DA-S-MW04B-1416-01	8-10 14-16	2.8 1.0	Completed as bedrock monitoring well (MW04B) Bedrock encountered at 15 ft. bgs

ft. = feet
bgs = below ground surface
ppm = parts per million
n/a = not applicable

TABLE 4-6
SUMMARY OF ANALYTICAL RESULTS - GROUNDWATER
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Sample Number			DA-A-MW01B-01	DA-A-MW-DUP08-01	DA-A-MW02B-01	DA-A-MW03B-01	DA-A-MW04B-01
Sample Location			MW01B	MW01B	MW02B	MW03B	MW04B
Date Sampled			9/4/2003	9/4/2003	9/3/2003	9/5/2003	9/4/2003
Interval			0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0
QC Identifier			Field Dup. DA-A-MW01B-01	Field Dup. DA-A-MW01B-01	None	None	None
Criteria	GA Groundwater Objective	MCL					
Volatile Organic Analysis (UG/L)							
1,1,1-Trichloroethane	200	200	--	--	--	--	0.46 J
1,1-Dichloroethane			--	--	--	--	49
cis-1,2-Dichloroethene	70	70	2.1	2.3	0.61	--	6.4
Isopropylbenzene			--	--	0.33 J	--	--
sec-Butylbenzene			--	--	3.3	--	--
tert-Butylbenzene			--	--	0.97 J	--	--
Tetrachloroethene	5	5	1.9	2.5	--	--	8.4
Trichloroethene	5	5	1.3	1.6	0.42 J	1500	3.6
Vinyl Chloride	2	2	--	--	--	--	0.66 J
Total Metal Analysis (UG/L)							
Aluminum			97.0	57.0	29.0 J	29.0 J	21.0 J
Arsenic		10	--	--	26.1	--	--
Barium	2000	2000	12.0	9.9	30.0	9.1	--
Cadmium	5	5	10.2	7.9	--	--	--
Calcium			28000	23000	16000	22000	41000
Cobalt			--	--	9.6	--	--
Copper		1300	1.9 J	--	--	--	--
Iron			120	120	27000	--	--
Lead	15	15	--	5.88 J	--	--	--
Magnesium			7800	5900	2600	7800	11000
Manganese			110	110	8400	81.0	1200
Mercury	2	2	0.26	0.24	--	--	--
Molybdenum			--	--	--	--	1.3 J
Nickel	100		--	--	1.82 J	--	--
Potassium			1600	1500	2300	2300	--
Selenium	50	50	2.56 J	--	--	--	--
Sodium			10000	9600	6100	15000	12000
Zinc			4.0 J	2.5 J	8.1	3.3 J	3.3 J

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate; R - Rejected; NA - Not Analyzed

TABLE 4-6 (cont.)
SUMMARY OF ANALYTICAL RESULTS - GROUNDWATER
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Sample Number			DA-A-MW01B-01	DA-A-MW-DUP08-01	DA-A-MW02B-01	DA-A-MW03B-01	DA-A-MW04B-01
Sample Location			MW01B	MW01B	MW02B	MW03B	MW04B
Date Sampled			9/4/2003	9/4/2003	9/3/2003	9/5/2003	9/4/2003
Interval			0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0	0.0-0.0
QC Identifier			Field Dup. DA-A-MW01B-01	Field Dup. DA-A-MW01B-01	None	None	None
Criteria	GA Groundwater Objective	MCL					
Dissolved Metal Analysis (UG/L)							
Aluminum			--	22.0 J	24.0 J	--	20.0 J
Barium	2000	2000	160 J	630 J	23.0	9.0 J	--
Cadmium	5	5	9.55	7.45	--	--	--
Calcium			29000	29000	15000	22000	42000
Cobalt			--	--	8.6	--	--
Copper		1300	--	2.3 J	--	--	--
Iron			--	--	14000	--	--
Magnesium			7900	7900	2400	7700	12000
Manganese			150	160	8100	78.0	1200
Mercury	2	2	0.18	0.16	--	--	--
Nickel	100		1.93 J	--	--	--	--
Potassium			1700	1300	2200	2300	--
Sodium			11000 J	16000 J	5900	15000 J	13000 J
Zinc			33.0 J	260 J	7.0	--	3.3 J

Black Background = Criteria Exceeded; U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
R - Rejected; NA - Not Analyzed

DRILLING LOG FOR: NUSC Disposal Area SA-08

PROJECT NO.: N1888

LOGGED BY: K. Jaikut

DRILLED BY (Company/Driller): GeoSearch/EDI - B. Law

GRD. SURFACE ELEVATION:

TRANSCRIBED BY: KS

ELEVATION FROM:

BORING NO.: SB01

START DATE: 8-19-03

COMPLETION: DATE: 8-19-03

MON. WELL NO.: N/A

CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			NO sample 0-1' due to asphalt + road base nature				ASPHALT SURFACE = 6in		USED DEDICATED BIT TO PENETRATE ASPHALT.	
1				Fill soils likely	LOOSE	BROWN	GRAVEL - SAND - SILT MIXTURE. (F-C SAND, WELL GRADED, F to C (1/2-3/4") ANG. GRAV., ROCK FRAGS)	GM	ROAD BASE FILL 6-12in BGS	
2			DA-S-SB01-0102-01 (1-2') 8-19-03 @ 0840 hrs				SILTY GRAVEL - SOME SAND. (F-C SAND, WELL GRADED F to C (1/2-1") SUBANG. GRAVEL)	GM	LESS SAND THAN 0.5-1' MORE ROADBASE 1-2 (?)	Max FID = 74.9 ppm @ 2' (damp)
3		3'/5'			DENSE	GRAY BROWN	SILT - TR. FINE SAND (OXIDIZED SAND INTERVALS)	ML	WET @ 2' (LOCKED IN FINES)	HS (FID) 1-2' = 5D. 1 ppm
4				Silts / Sands / Gravels			SAND - SOME SILT - TR. GRAVEL. (Fine sand, poorly graded, fine. (< 3/8") subang. gravel - more oxidized zones; no visible bedding	SP	DRY @ 2.5' Possibly native soils	FID Scan = 2.4 ppm 2-8'
5					?	?	?	?	POOR / PARTIAL RECOVERY - SOIL MAY HAVE COMPRESSED IN THIS ACETATE SLEEVE	HS (FID) 2-3' = 145.1 ppm
6			DA-S-SB01-5575-01 (5.5-7.5') 8-19-03 @ 0915 hrs MS/MSD		DENSE	BROWN	GRAVEL - SOME SAND - SOME SILT (C. subang. gravel to 1 1/4 in, tr. f. gravel, SR 2 1/2", f-c sand, well graded, SiH, dk phyllite fragment	GM	Dry to 7.5'	NO FID READINGS 3-5' (NO material RECOVERED)
7										FID Scan 5.5-7.5 = 0ppm
8					DENSE	GRAY BROWN	SILT, possibly clay-sized particles	ML	Wetness due to fines (?)	HS = 2.3 (FID) ppm
										FID scan 0ppm HS 7.5-8' = 0ppm (FID)

TYPE OF DRILLING RIG: GeoProbe 6610 DT

METHOD OF ADVANCING BORING: DPT

METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves

METHOD OF ROCK CORING: N/A

GROUNDWATER LEVELS: Can't tell due to wetness associated w/ fines

OTHER OBSERVATIONS: No PID available - malfunction occurred 8/18/03 - requested replacement anticipate delivery by late AM.

Poly items - 3 sleeves for 4'

Tetra Tech NUS, Inc.

BORING NO.: SB01

PAGE: 1 OF 2

Three Rivers 0112

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: A18886
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: BJ
ELEVATION FROM:

BORING NO.: SB01
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8		5'/5'	DA-S-SB01-0809-01 (8-9') 8-19-03 @ 0950 hrs	Silt	Dense	Gray Brown	SILT, possibly clay-sized particles	ML	wetness due to fines (?)	FID scan 8-9' = 6.4 ppm
9										HS (8-9') = 18 ppm (FID)
			No samples for lab 9-11'	Till	Dense	Brown	GRAVEL - SOME SAND - SOME SILT (f-c gravel, angular, f-c sand, well graded, silt, rock frags)	GM	Possible, till - oxidized, unsorted	FID scan 9-11' = 0 ppm (FID)
10										HS = 0 ppm w/FID 9-11'
11										
		4'/5'	No samples for lab 11-14'	Rock	Loose	Gray	Phyllite - weathered bedrock crumbles w/finger pressure	Bedrock	Possible bedrock surface	FID scan 11-14' = 0 ppm (FID)
12										HS = 0 ppm (FID) 11-14'
13										
14							EOB @ ~14' bgs (refusal w/DPT)			
							Backfill w/ cuttings, followed by bent. chips + sand, patch asphalt			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Can't tell due to wetness associated w/fines
OTHER OBSERVATIONS: See p. 1 of 2

Tetra Tech NUS, Inc.

BORING NO.: SB01

Tinge Form 0019

NG LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N18856
LOGGED BY: K. Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDT - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: KJ
ELEVATION FROM:

BORING NO.: SB02
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No samples for lab 0-1' due to asphalt/roadbase nature	Fill material	—	Black	Asphalt surface ↓ ~6in	FIN.		
1					Loose	Brown (OK)	Roadbase material - granular asphalt, sand, gravel, silt	Fill		
2		4.5' / 5'	DA-S-SB02-0102-01 8-18-03 @ 1430 hrs (1-2')	Silts + Sands	Dense	Brown	SILTY SAND (f-m sand, poorly graded, organic roots	SM	Dry. Possibly native soil below 1' (?)	FID/PID scans=0ppm FID HS=209.5 ppm PID HS=0 PPM
3					Dense	Brown	SAND - SOME SILT - TR. GRAVEL (f-m sand, poorly graded, coarse gravel to 3/4in diam., subangular)	SM	Dry.	
4			DA-S-SB02-0304-01 8-18-03 @ 1455 hr (3-4')				- oxidized intervals (sand)			FID scan=14.9ppm PID scan=0ppm FID HS=17.3ppm PID HS=0ppm
5							- less silt, more oxidized intervals	SP ?	Partial recovery - possibly compressed soil	
					?	?	? (assume similar to above)			
6			DA-S-SB02-5565-01 8-18-03 @ 1505 hrs (5.5-6.5')		Dense	Brown	- Similar to material from 2-4.5' (much less silt)	SP	Dry.	FID/PID scan=110ppm PID scan=0 ppm FID HS=35.6ppm PID HS=0ppm
7				Till Layer (?) ~7.5'	Dense	Brown	GRAVEL - SOME SAND - SOME SILT (F-c angr. grav. up to 1.5" diam, f-c sand, well graded, silt)	GM	Possible start of till @ 6.5'. Dry.	FID/PID scan + HS=0ppm
8					Loose	Gray	Phyllite - weathered bedrock (crumbles w/ finger pressure)	Bedrock	Bedrock @ ~7.5' Dry.	FID/PID scan = 0 ppm in headspace

Poor Horiz. recovery 2.5' to 8.5'

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Dry to refusal (water in rock unit) not encountered
OTHER OBSERVATIONS: No man-made debris noted

Tetra Tech NUS, Inc.

BORING NO.: SB02
PAGE: 1 OF 2

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N1886
LOGGED BY: K. Walkut
DRILLED BY (Company/Driller): GeoSearch/EDI - B. Lowe
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VJ
ELEVATION FROM:

BORING NO.: SB02
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8		3.5/3.5'	NO samples for lab	Rock ↓	Loose ↓	Gray ↓	Phyllite - similar to above ↓	bedrock	Dry. Bedrock @ 8' continued	
8.5									No headspace @ 8.5'	
							EOB @ 8.5'. Refusal w/ DPT			
							Backfill using cuttings, then add bentonite chips/grout patch asphalt			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Dry to 8.5' (water in rock unit - not encountered)
OTHER OBSERVATIONS: No man-made debris viewed

Tetra Tech NUS, Inc.

BORING NO.: SB02

Tinus Form 0018

ING LOG FOR: NUSC Disposal Area SA-08

PROJECT NO.: N1885G

LOGGED BY: K. Jalkut

DRILLED BY (Company/Driller): GeoSearch/EDT - B. Law

GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VJ

ELEVATION FROM:

BORING NO.: SB03

START DATE: 8-19-03

COMPLETION: DATE: 8-19-03

MON. WELL NO.: N/A

CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No sample 0-1' due to asphalt + road base			Black	Asphalt surface.			
1				Fill	Loose	Tan-Brown	Mix of sand, silt, gravel & weathered rock frags (unoxidized surfaces) = Road base material	Fill	Dry. Road base.	
2			DA-S-SB03-0102-01 8-19-03 1040 hrs (1-2')		Loose-Med Dense	Brown	SAND - SOME SILT - SOME GRAVEL (f-m sand, poorly graded, fine subrounded to sub angular gravel to 1/2in, rock chips	SP / Fill	Still likely road base material or other fill. Slight petroleum odor	FID scan = 56.7 ppm 1-2' HS (FID) 1-2' = 572.3 ppm
3		4' / 5'		SAND-SILT MIX	Dense	Dk brown to orange brown	SANDY SILT (f. sand, poorly graded w/ oxidized intervals)	SM	Possibly native soil @ ~2.5'. Dry	HS (FID) 2-3' = 28.2 ppm
4			DA-S-SB03-0304-01 8-19-03 1045 hrs (3-4')	SILT	Dense	Gray-Black	SILT - much less f. sand than above	ML	Dry.	FID scan = 38.4 ppm (3-4') FID HS = 345.7 ppm (3-4')
5					(?)	(?)	(?) Assume similar to above (?)		Compressed soils - partial recovery	
6					Dense	Gray-Black	SILT - similar to material (3.5-4') above	ML	Dry.	FID scan = 0 ppm 5-6' HS (FID) = 0 ppm 5-6'
7		4' / 5'	DA-S-SB03-0607-01 8-19-03 1110 hrs (6-7')	SILT SAND MIX	Dense	Gray-Brown	SILT - SOME SAND - TR GRAVEL (f. sand, poorly graded, f. subrounded gravel to 1/4" (1 or 2 pieces)	SM-ML	NO olfactory evidence of odors. Dry.	FID scan = 162.2 ppm FID HS = 169.9 ppm (6-7')
8					Dense	Orange Brown	- Oxidized intervals in the f. sand			FID scan = 0 ppm 7-8' FID HS = 0 ppm 7-8'

TYPE OF DRILLING RIG: GeoProbe 6610 DT

METHOD OF ADVANCING BORING: DPT

METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves

METHOD OF ROCK CORING: N/A

GROUNDWATER LEVELS: Soil appears saturated @ ~10' bgs.

OTHER OBSERVATIONS: Note - No PID yet (waiting on delivery); no man-made debris observed

for liners 3 sleeves to 4'

Tetra Tech NUS, Inc.

BORING NO.: SB03

PAGE: 1 OF 2

Tetra Form NU18

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N1886
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: SB03
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8			No samples for lab	Till	Dense to v. Dense	Brown	SAND AND GRAVEL - SOME SILT (f-c sand, well graded, fine angular gravel to 1/2 in, c. gravel (ang.) to 1", silt, Mixture - all unsorted	GM	Possible fill - all unsorted weathered rock frags. Dry.	FID scan = 0ppm 8-9'
9										FID HS = 0ppm 8-9'
10							- assume material continues (?)		Partial recovery - Compressed coil	
11			No samples for lab				SAND AND GRAVEL - SOME SILT - similar material as at 8-9'		Till continues - Saturated @ 10'	FID scan = 0ppm 10-11' FID HS = 0ppm 10-11'
12							- more coarse angular gravel observed - more rock frags observed			FID scan 11-13.5' = 0 ppm FID HS 11-13.5' = 13.9ppm
13		4'					- no olfactory evidence of odors			
14				~13.5' Rock	Dense	Grey to greenish brown	BEDROCK CONTACT - Weathered, oxidized, crumbly metamorphic rock - appears to be phyllite	Rock	Rock @ ~13.5' Rock crumbles w/ finger pressure Partial recovery to 14' - Refusal w/ DPT @ ~14'	FID scan 13.5-14' = 0ppm FID HS on rock = 0 ppm
15							EOB @ 14' - backfill w/ cuttings, bent. chips, sand. Repair asphalt surface w/ cold patch.			
16										

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Soil appears saturated at ~10' bgs.
OTHER OBSERVATIONS: Note - No PID yet (awaiting delivery)

Tetra Tech NUS, Inc.

BORING NO.: SB03
PAGE: 2 OF 2

Tinus Form 0018

NG LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N1885
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): GeoSearch/EDT - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VK
ELEVATION FROM:

BORING NO.: SB04
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No sample for lab 0-1' - asphalt + roadbase mat.	Asphalt		Black	Asphalt surface	FILL	Use deluge bit to go thru asphalt - Dry. Roadbase material	FID/PID scan = 0 ppm
1				Fill Soils	Loose	Brown	Roadbase = Mix of f-c sand, vg, f-c org. gravel, silt, rock frags			
2			DA-S-SB04-0102-01 (1-2') 8-18-03 1525 hrs		Loose	Gray Brown	SAND AND GRAVEL - SOME SILT (similar to above w/ org. + suborg. gravel)	GM	Possible continuation of roadbase (?)	PID/FID HS = 0 ppm; PID/FID scan = 0 ppm
3		3.5'/5'	DA-S-SB04-2535-01 (2.5-3.5') 8-18-03 1530 hrs		Dense		SANDY SILT	SM	Possibly native soil Strong olfactory	PID Malfunction FID HS = 1021 ppm 2-3'
4				Silty Sand & Gravel	?		SILTY SAND		evidence of petroleum odors - visible sheen	FID scan = 282.8 FID HS = 222.6 ppm
5							?		Compacted soils - partial recovery only	
6					Dense	Gray Brown	SILT - TR GRAVEL	GM	Petro odors + sheen (olfactory evidence) Wet - possible @ 5-6'	NO FID/PID
7	50/3"	5.4'/5'			Dense	Gray Brown	GRAVEL - SOME SILT - SOME SAND (f-m sand, poorly graded, f-c org gravel, rock frags)	GM	Till like w/ exception of pg sands (?) Just coarse layer?	
							- similar to above w/ f-c sand			
8							SAND - f/c sand, well graded	SW	Strong petro odors - visible sheen	

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Water possible @ 5-6' interval
OTHER OBSERVATIONS: Heavy rain today. PID malfunctioned briefly. No FID/PID readings @ 5-9' (raining heavily). No man-made debris observed

Pay items 3 sleeves to 13'

Tetra Tech NUS, Inc.

BORING NO.: SB04

Tinie Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N1889b
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: [illegible]
ELEVATION FROM:

BORING NO.: SB04
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = (FID, (PPM))
8				Silt	Soft	Brown	SILT	ML	Fines holding water	
9										
			DA-S-SB04-0910-01 (9-10') 8-18-03 1600 hr	Sand	Loose	Brown	SAND - SOME SILT (f-m sand, poorly graded)	SM	Heavy rain still falling - check accuracy of readings Petro sheen + odors	NO FID/PID Scan
10			DUP06@ 1615 hr							FID HS = 237 PID HS = 337
	11-9-8-12		DA-S-SB04-SB-DUP06-01		Dense	Grey to orange brown	SAND - SOME GRAVEL (f-c sand, well graded, f-c subrounded gravel to 1")	SW SP GP		
11				Silt	Dense	Gray Brown	SILT		Petro odor + sheen	Am more FID/PID readings due to rain
		3'/3'		Till?	Dense	Brown-Gray to Orange Brown	GRAVEL - SAND - SILT MIXTURE (unsorted, dense, f-c sand, well graded, f-c angular gravels 1/2-1" rock frags)	GM	Likely top of fill unit	
12										
13										
				Rock	Dense	Gray-Black	Bedrock contact @ 13' - Weathered shale w/ oxidized intervals. Crumbles w/ finger pressure	Rock	Rock @ ~13' bgs Refusal w/ DPT @ ~13	
14										
									Backfill w/ cuttings bent. chips, sand, patch asphalt	
15										
16										

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Possible ▼ @ 5-6' bgs
OTHER OBSERVATIONS: Suspect corr. of FID/PID readings given rain. Odors were detectable (petroleum).

Tetra Tech NUS, Inc.

BORING NO.: SB04

Tinus Form 0018

RING LOG FOR: NUSC Disposal Area SA-08

PROJECT NO.: N1885

LOGGED BY: K. Jalkut

DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law

GRD. SURFACE ELEVATION:

TRANSCRIBED BY: KJ

ELEVATION FROM:

BORING NO.: SB05

START DATE: 8-19-03

COMPLETION: DATE: 8-19-03

MON. WELL NO.: N/A

CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = (FID, (PPM))
0							Asphalt = 3in = black surface			
					Loose	Brown	Roadbase = 3in = mix gravel, sand, silt, rock fragg		Dry.	
1				Fill Soils + debris	Loose	Brown	SAND - SOME GRAVEL - TR SILT (f-c sand, well graded, fgr subrounded-subang. gravel to 1"; charcoal-like material	SP / Fill		FID/PID scan = 0ppm
			DA-S-SB05-0102-01 8-19-03 1500 hr (1-2')						Frothy charcoal like pieces - a moist punky like fill	FID/PID HS = 0ppm
2									Dry	
		4'/5'	DA-S-SB05-0203-01 8-19-03 1530 hr (2-3')	BOULDER	Loose/ Broken	Gray	BOULDER - Weathered phyllite-crumbly		Boulder 2-2.7'	
3					Denser than above	Brown Gray	GRAVEL - SOME SAND (similar to 0-1' w/ more gravel) + rock frags	GP / FILL	PID HS = 5.7 ppm	FID/PID scan = 0ppm FID HS = 5.7 ppm
			DA-S-SB05-0304-01 8-19-03 1600 hr (3-4')						Dry PID HS = 2.5 ppm	NO FID/PID scan PID HS = 5 ppm (3-4')
4				Fill Soils + debris			- clinker material observed			
					?	?	? (Assume similar to above ?)		Partial recovery - compressed soil	
5		X								
				~5.5'			GRAVEL - SOME SAND + similar to 2.7'-4' w/ fill	GP / FILL	Dry.	FID/PID scan = 0 FID/PID HS = 0 (5-5.5')
6					Loose	Light Gray	Bedrock contact @ 5.5' - weathered phyllite - crumbles w/ finger pressure		Rock @ ~5.5' bgs	
		2.5'/3'								
7										
8										

TYPE OF DRILLING RIG: GeoProbe 6610 DT

METHOD OF ADVANCING BORING: DPT

METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves

METHOD OF ROCK CORING: N/A

GROUNDWATER LEVELS: Below rock

OTHER OBSERVATIONS: Fill materials observed to ~5.5' bgs - on top of shallow rock

Pay items - 2 sleeves to 8'

BACKFILL: BORING NO.: SB05 - Bent chips, sand, patch asphalt

Tetra Tech NUS, Inc.

PAGE: 1 OF 1

Tetra Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: A18856
LOGGED BY: K Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDI - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VJ
ELEVATION FROM:

BORING NO.: SB06 (MW05 (DPT))
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No sample 0-0.5' (asphalt) SB06 DA-S-MW05-0515-01				Asphalt - 6"		Asphalt surface	
1			(0.5-1.5') @ 1340hr	SILTY GRAVEL	loose	brown	SILTY GRAVEL - SOME SAND - f. subrounded gravel up to ½"; silt - f/c sand, well graded	GM - FILL	Damp. Partial road base material (?) Source = 0 ppm (FID/PID)	HS - 0.5-1.5' FID/PID = 0
2				SILT-SAND 11-11-03	dense	dk brown	SILT - SOME SAND - TR. GRAVEL - f. sand, poorly graded - c. gravel to ¾" - subround. / subang.	SM - FILL	Damp. Source = 0 ppm (FID/PID)	HS = 1.5-2.5' FID/PID = 0
3		3.5'/5'	SB06 DA-S-MW05-2535-01	SANDY SILT		brown	SANDY SILT - TR. GRAVEL - f. sand, poorly graded - f. gravel to ½" - subang. / subround.	SM-ML	Dry. Source = 0 ppm, (FID/PID)	HS = 2.5-3.5 FID = 0 / 19.3 PID = 0
4			(2.5-3.5') @ 1400hr	ROCK STARTS 3.5'	1	gray	POT: BEDROCK @ 3.5' - appears to be weathered phyllite - not much in sleeve	ROCK	Source = 0 ppm, FID/PID	NO HS reading @ 3.5'
5					1 ?	1 ?	(assumption)	?	Partial recovery - possibly due to compression	
6					dense	gray	BEDROCK - METAMORPHIC - PHYLLITE OR SLATE - - V. slight shine on cleavage surfaces - Fissile (breaks on bedding planes) - weathered / altered	ROCK	Appears dry Source = 0 ppm, FID/PID	HS = 5-6' FID - 22.6 PID - 0.
7		2½'/2.5'					- crumbles w/ finger pressure			
8							End of boring @ 7.5' - refusal w/ sleeve, backfill w/ cuttings, bent chips, sand, patch asphalt. No well installed at this location			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Not encountered. Silt + rock layers appear dry - below rock (?)
OTHER OBSERVATIONS: Location in "Sewage Storage Area" - reassigned pt. F330 - hit via soil gas for TPH compounds

[Pay items: 2 sleeves, 7.5' TP]

Tetra Tech NUS, Inc.

BORING NO.: MW05
PAGE: 1 OF 1

Note: HS = bar borehole washing. Used dedicated bit through asphalt.

Tetra Form 0018

ING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: A18886
LOGGED BY: K. Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: KJ
ELEVATION FROM:

BORING NO.: 4/24/03 MW07 S 1
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							Grass surface			
			3807 #1 DA-S-MW07-0102-01 8/18/03 1220 hrs (1-2')	Silt Sand Gravel	Loose	Dk brown	Root mat: 0-0.2' SILTY SAND - TR. GRAVEL (f-m sand, poorly graded, f. gravel to 1/4in, subangular	SM	Damp top soil possibly native soil over rock	FID/PID sam=0 FID HS=0 PID HS=0
1										
							- Similar to above w/ 1 interval of black, friable, weathered, phyllite cobble		Dry.	
2				cobble ~2'						
			No samples for lab		Loose	Gray Brown	Bedrock contact @ ~2' - weathered phyllite, crumbles w/ fingers pressure	Rock	Dry. Rock @ ~2'	
3		4.75'/5'								
							- SO weathered, assembles f-c sand			
4										
5					?	?	? - (assume similar to above)		compressed soil/weathered rock - partial recovery	
					Loose	Gray Brown	Bedrock continues @ 5'-10' weathered phyllite		Xtra sleeve for rock confirmation	
6										
7		5'/5'								
8										

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Below rock.
OTHER OBSERVATIONS: No man-made debris observed

Key items
2 sleeve @ 10'

Tetra Tech NUS, Inc.

BORING NO.: MW07 (DPT)
PAGE: 1 OF 2

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N0356
LOGGED BY: K. Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VJ
ELEVATION FROM:

BORING NO.: MW07 (DPT) 5807
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8			No samples to lab	Rock	Loose	Gray Brown	Weathered phyllite - crumbly			
9										
10							End of boring @ 10' - backfilled w/ bent chips + sand. No well installed at DPT location.			
11										
12										
13										
14										
15										
16										

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Below rock
OTHER OBSERVATIONS: No monitoring devices observed.

Tetra Tech NUS, Inc.

BORING NO.: MW07 (DPT)

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: 112056
LOGGED BY: K. Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDT - B. Low
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VJ
ELEVATION FROM:

BORING NO.: SB08 & MW02 (DPT)
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							Asphalt surface = 3in			
1			NO sample 0-1' due to roadbase material @ surface	Roadbase material	Loose	Gray-brown	Roadbase material - gravel, sand, silt asphalt (3in)			
					Loose	Red-Brown	SAND - SOME GRAVEL.	SW		
2			DA-S-MW02E002-01 (1-2') @ 1645 hr	Fill. Soils			- f/c sand, well graded - coarse, subrounded gravel to 3/4 in	FILL	Source = 0 w/ FID+PID (0.5-2')	HS 1-2' FID-0 PID-0
3		3.5/5'			dense	brown	SILTY SAND - SOME GRAVEL. Mostly f-c sand, well graded, silt. c. gravel to 1" - subrounded/subangular	SM-GM FILL	Damp (fine?) Source = oppm (2-3.5')	HS 2-2.7' FID-9.7 PID-0
					soft	brown	SANDY SILT - mostly silt, f sand, poorly graded	ML FILL(?)	wet (fines?)	
4				Sandy Silt Native?	1	1			Possibly native @ 3'	
					1?	1?		?	Partial recovery - Soil may have	
5					1	1	(?)		compressed in the acetate sleeve.	
					↓	↓			↓	
6			14 SB08 & DA-S-MW02-0607-01 (6-7') @ 1700 DA-S-MW-DUP07-01 (6-7') Duplicate		soft	brown	SANDY SILT - MOSTLY SILT, f. SAND, POORLY GRADED	SM-ML FILL(?)	Source = 0 ppm (5-6') FID+PID	HS 5-6' FID-5.6 PID-0
7		4'/4'		Till-like	dense	brown-red brn	SANDY GRAVEL - SOME SILT. F-C angular gravel to 1.5in, f/c sand, well graded, silt, unsorted	GM-Weathered	Till-like; dry Source = 0 FID/PID 6-7' Possibly native @ 6'	HS 6-7' FID-2.5 PID-0 MS/MSD
				Rock @ 7'	dense	light gray	PHYLLITE - BEDROCK - WEATHERED - crumbly w/ fresh pressure; metamorphic - slight sheen to cleavage surfaces - fissile; platy minerals aligned	ROCK	Bedrock Source = 0 7-9' FID/PID	HS 7-9' FID-0 PID-0
8										

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Possibly @ shallow depth - "4" (not sure if moisture content due to fines) Till/Rock appeared dry 6-9' bgs. (?)
OTHER OBSERVATIONS: Borehole location in "paved area" - end closest to Area 185 structures Near GH350/GH400 grid points. Note - HS = Jar Headspace readings

pay items: [2 sleeves 9 ft TD]

Tetra Tech NUS, Inc.

BORING NO.: MW02 PAGE: 1 OF 2

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N 8886
LOGGED BY: K Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDI - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: [illegible]
ELEVATION FROM:

BORING NO.: SB08 MW02 (DPT)
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8			no samples for lab analysis	Rock	dense	light gray	Bedrock - Similar to description 7-8'	Rock	Bedrock; dry	See p. 1&2
9							END OF DPT BORING @ 9' - REFUSAL w/ DPT			
							Backfill w/ bent. chips and cuttings patch asphalt. No well installed at DPT boring. Returned + installed a mont. well in a boring adjacent to DPT hole			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Possibly @ shallow depth - not sure if moisture content due to fines; TN/Rock appeared dry from 6-9' bgs (?)
OTHER OBSERVATIONS: Borehole location in "fenced area - grid closest to Area 185 structures. Near GH 350/GH400 grid points. Note - HS = Jar headspace readings

Tetra Tech NUS, Inc.

BORING NO.: MW02

PAGE: 2 OF 2

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: AL8856
LOGGED BY: K Jankut
DRILLED BY (Company/Driller): GeoSearch/EDI - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: VG
ELEVATION FROM:

BORING NO.: SB-09 MW01 (DPT)
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No samples for lab analysis	Fill Soil + debris	loose	brown	Former Shrub/grass surface - mow cleared SILTY SAND - Mostly F-M sand, poorly graded, silt, organic, roots, twigs	SM/FILL	Damp Topsoil/Rootmat	HS 0-0.5' PID 22.3 PID 5.7
1							- yellow-red bricks + concrete (0.5-1.3')		Source Scans Oppm PID/PID	HS 0.5-1.3' PID-0 PID-5.2
							- no visible debris (1.3-1.7')		(0-1.5')	HS 1.3-1.7' PID-24 PID-2.1
2							CONSTRUCTION DEBRIS / WEATHERED PHYLLITE		- Broken rock pieces	
		3'/5'				1ft	- Asphalt, tiles, unidentified green material (1.7-2.5')		Note- Acetate sleeve intact upon retrieval	HS 1.7-2.5 PID-17.8 PID-12.5
3						1ft	- Concrete (2.5-3')		Source Scans Oppm PID/PID (1.5-3')	HS 2.5-3 PID-17.3 PID-9.3
							?	?	Note- Partial recovery - Soil may have compressed - Size/nature of debris may have precluded recovery	
4				?			?			
5										
				Till-like	dense	brown-orange tan	SAND AND GRAVEL - SOME SILT	GM	TILL (?)	
6							- F/C sand, well graded, silt, f-c angular gravel ¼-1.5in		Source Scans Oppm PID/PID	HS 5-5.8' PID-0
		38'/5'					- Appears to be unsorted mixture		Possibly native soil @ 5 ft bgs.	PID-0
7							- No debris visible (5-10')			
9										

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Not encountered
OTHER OBSERVATIONS: Borehole location in vicinity of TP02 Near E400 grid point

[3 sleeves (sleeves) 13' TD]

Note: HS = Jar headspace readings

Tetra Tech NUS, Inc.

BORING NO.: MW01

PAGE: 1 OF 2

Tinus Form 0018

GB-10

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: A18856
LOGGED BY: K. Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: VJ
ELEVATION FROM:

BORING NO.: MW06 (DPT)
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No sample for lab analysis		loose	brown	Former shrub area - cleared SILTY SAND - SOME GRAVEL	SM	Topsoil; damp.	
1							- mostly f-sand, poorly graded - coarse subangular gravel to 3/4" - 1 piece plastic to .5in - black		(0-1') Source = 0 FID 0 PID	HS: 0-3' PID-0
2				Fill Soils	dense	brown	— f/m sand visible; still poorly graded - C. gravel to 1.25 in - subangl/subang. (more gravel than above)	SM/GM	(1-2') Source = 0 FID 0 PID	PID-0
3		3'/5'			dense	brown	- more silt than above - silt % increases (not sandy silt)		(2-3') Source = 0 FID 0 PID Damp to v. damp. (Fines ?)	
4				(?)			?	?	Note - partial recovery. No debris - soil may have compressed in acetate sleeve.	
5										
6					dense	brown	SAND AND GRAVEL - SOME SILT - f/m sand, poorly graded	GM	Dry. Source = 0 ppm FID/PID	HS 5-8.2 FID-0 PID-0
7		3.2'/5'				orange brown to brown	- f/c gravel, subrounded-subangular to 1" - oxidized interval (2in) - iron oxidation? - possibly clay-sized particles w/ shake test (material stays in suspension)			
8							- increased % of gravel - subangular			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Not encountered - possibly below rock (?)
OTHER OBSERVATIONS: Location in vicinity of TP08 - near grid pt D500

[Log items 3 sleeves 13' TD]

Tetra Tech NUS, Inc.

BORING NO.: MW06

PAGE: 1 OF 2

Tinus Form 0018

SB-10

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: A18856
LOGGED BY: K Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: KJ
ELEVATION FROM:

BORING NO.: MW06 (DPT)
START DATE: 8-19-03
COMPLETION: DATE: 8-19-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8		(see page 1)	NO samples for lab analysis	?			8-8.2' - similar to soil 5-8'		Source = 0ppm	
9					?	?		?	Note - partial recovery - possibly due to soil	
									compression or gravels (?) Acetate sleeve intact.	
10				Fill/soil/debris						
					—	—	DEBRIS & WEATHERED ROCK FRAGS - concrete / phyllite fragments	Fill		HS: 10-10.5 FID/PID = 0
11					dense	brown	SAND AND GRAVEL - SOME SILT	GM	Source = 0ppm FID/PID	HS 10.5-11.5 FID/PID = 0
		2.2'/3'					- similar to soil @ 5' - angular gravel to 1"; clinkers (?) - debris	Fill	clinkers = coal-like material (almost like charcoal briquette)	
12				Rock @ 11.5'		gray-blk to gray-brown to orange-brown	BEDROCK - WEATHERED/ALTERED - phyllite (oxidized portions) / fissile.	Rock	Source = 0 ppm FID/PID	HS 11.5-12.5 FID/PID = 0
									Note - partial recovery; per driller - refusal w/ sleeve @ 13' - bedrock.	
13							(assumption)	?		
							END OF BORING @ 13' - Refusal		Did not retrieve material 12.2-13 ft bgs.	
							- Backfill w/ bent. chips and sand - No well installed @ DPT location			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macro core system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Not encountered - possibly below rock
OTHER OBSERVATIONS: Location in vicinity of TP08 - near grid pt 3500

Tetra Tech NUS, Inc.

BORING NO.: MW06

Tinus Form 0018

SB-11

BORING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: N1886
LOGGED BY: K. Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDT - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: BJ
ELEVATION FROM:

BORING NO.: MW08
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No samples for lab-				Grass surface. Root mat 0-0.4'			
1		5'/5'		Silt Sand + Gravel	Loose	Brown	SILTY SAND - SOME GRAVEL (f-c sand, well graded, f-c subrounded gravel to 1")	SM	Organic topsoil. Dry. Likely native soils	FID/PID scan = 0ppm
2							rock			FID HS = 0 PID HS = 0
3					Loose - M. Dense		SAND AND GRAVEL - SOME SILT (f-c sand, well graded, f. gravel to ½" subround, less silt than above, more gravel.	GM	Dry.	FID/PID scan = 0 FID HS = 0 PID HS = 0
4										
5		4'/5'		Rock	Loose	Gray Black	Bedrock - weathered, broken, crumbly rock - phyllite (?) or slate (?) Fissile - resembles circular chips	Rock	Very degraded!	FID/PID scan = 0 FID HS = 0 PID HS = 0
6										
7										No additional HS readings
8										

Typed/Placed original field copy

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Below rock - not observed 0-15'
OTHER OBSERVATIONS: No samples for lab analysis due to proximity to TP13
No man-made debris observed.

Pay items: 3 sleeves - 15'

Tetra Tech NUS, Inc.

BORING NO.: MW08

PAGE: 1 OF 2

Tinus Form 0018

SB-11

ING LOG FOR: NUSC Disposal Area SA-08
PROJECT NO.: A1888
LOGGED BY: K Jaikut
DRILLED BY (Company/Driller): GeoSearch/EDE - B. Law
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW08
START DATE: 8-18-03
COMPLETION: DATE: 8-18-03
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
8			No samples for lab		Loose	Gray	Weathered rock - phyllite			
9										
							Assume similar rock type as above		Partial recovery 5-10' - compressed, degraded rock.	
10										
							Weathered phyllite continues - V. broken rock			
11										
12		4'/5'					- minimal evidence of oxidized surfaces (orange-like)			
13										
14										
							Assumption		Partial recovery 10-15'	
15										
							EOB@15' - Backfill w/rock chips, soil, bent chips, sand			
16							No well installed @ DPT location			

TYPE OF DRILLING RIG: GeoProbe 6610 DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Continuous-macrocore system - 5' acetate sleeves
METHOD OF ROCK CORING: N/A
GROUNDWATER LEVELS: Below rock - not observed 0-15'
OTHER OBSERVATIONS: No samples for lab analysis due to proximity to TP13

Tetra Tech NUS, Inc.

BORING NO.: MW08

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY: DJ
ELEVATION FROM:

BORING NO.: MW01B
START DATE: 8-21-03
COMPLETION: DATE: 8-22-03
MON. WELL NO.: MW01B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							Ground surface			
1			No samples for analysis – location close to TP02 from which soil samples were collected	Silt, Sand w/ debris		Brown			4in casing	
2						Gray-Brown	Cuttings appear to be similar to Silty SAND or Silt, Sand	SM		
3							– visible metal debris w/cuttings			
4										
5										
6							– visible metal debris – shrapping w/ cuttings pieces			
7										
8							– visible metal fragments w/ cuttings			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Using roller bit to advance through soil to top of rock.

4 1/4 ID augers
4in casing to 10'
Telescope 3in @ 10'–12'

Tetra Tech NUS, Inc.

BORING NO.: MW01 B

Tmus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/EcoSearch / D. Crawford
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: YA
ELEVATION FROM:

BORING NO.: MW01B
START DATE: 8-21-03
COMPLETION: DATE: 8-27-03
MON. WELL NO.: MW01B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8			No soil samples for lab analysis	Silt, Sand		Gray-Brown	- Cuttings resemble silt + sand		4in casing	
9							- No visible debris in cuttings			
10										
11				Bucket @ 10'		Pale Gray	Bedrock Surface - Telescope 3in casing + advance to seat casing @ 12'		Significant color change - wash out hole + tub prior to advance thru rock	
12							casing (3in) seated			
END 8/21 START 8/22		CORE 1	12-13' 2min 31sec		VERY BROKEN		SLATE / PHYLLITE • VERY WEATHERED. CRUMBLES W/ FINGER PRESSURE • FISSILE. SOME SHINYNESS EVIDENT • POSSIBLE EVIDENCE OF CRENULATIONS ? • MOST PIECES 1/4 IN THICK (CHIPS) • NO FRACTURES (DISTINCT) EVIDENT - ALL BROKEN ROCK • EVIDENCE OF IRON STAINING ON 90% OF PIECES		[CORE 1] PEN. = 3.5' RAN OUT OF STROKE REC. = 2.7' ROCK NO WATER LOSS (-1	
13		2.7 / 3.5	13-14' 2min 48sec						ROD (>2") = 0% 0 IN / 42" (NO PIECES > 4in)	
14			14-15' 1min 54sec						- SUDDEN DROP W/ BARREL - SOFT ZONE (?)	
15			15-15.5' 43 sec						LARGEST PIECES = 2IN (2 OF THEM)	
16		CORE 2	15.5-16.5' 2min 43 sec				SIMILAR ROCK AS IN CORE 1			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: NONE
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Using Series 10 Diamond (more suitable for dolomite or v. hard rock vs. weathered shale → phyllite)

Tetra Tech NUS, Inc.

BORING NO.: MW01B
PAGE: 2 OF 5

Tnus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: VB
ELEVATION FROM:

BORING NO.: MW01B
START DATE: 8-21-03
COMPLETION: DATE: 8-22-03
MON. WELL NO.: MW01B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
16		CORE 2 (INT.	15.5-16.5' SEE P. 2		VERY BROKEN	GRAY - DK GRAY	SLATE/PHYLLITE - WEATHERED • SIMILAR TO C-1		CORE 2 PEN=5 FT REC=4.5 FT	
17			16.5-17.5' = 2 MIN 34 SEC				• FISSILE - BREAKS ALONG BEDDING PLANES		NO WATER LOSS FOR C-2	
18		4.5'/5'	17.5-18.5' = 2 MIN 28 SEC				• HIGHER % OF PIECES APPROX 1-2 IN THICK VS. 1/4 IN THICK IN CORE 1		RQD = 0% 0 IN (>4 in length) 60 IN	
19			18.5-19.5'				• IRON STAINS ON MAJORITY OF PIECES • NO DISTINCT COLOR CHANGE FROM CORE 1		LARGEST PIECE = 3 IN (1 PIECE)	
20			= 2 MIN 15 SEC 19.5-20.5'							
21		CORE 3	= 2 MIN 4 SEC 20.5-21.5'		VERY BROKEN	GRAY - DK GRAY	SLATE/PHYLLITE - WEATHERED		CORE 3 PEN=5 FT REC=4.5 FT	
22		4.5'/5'	= 1 MIN 20 SEC 21.5-22.5'				• SIMILAR TO CORE 1 & CORE 2 • FISSILE • NEARLY HORIZONTAL BREAKS ALONG BEDDING PLANES - NO DISTINCT FRACTURES		RQD = 0% 0 IN (>4 in length) 60 IN	
23			= 1 MIN 52 SEC 22.5-23.5'				• LESS IRON STAINING THAN IN PREVIOUS RUNS		LARGEST PIECE = 3 IN (1 PIECE)	
24			= 2 MIN 24 SEC 23.5-24.5' = 3 MIN 44 SEC				• ROCK CHIPS COMPLETELY DEGRADED 23-24' - MUSH-LIKE		POSSIBLE WATER ZONE BASED ON DEGRADATION OF ROCK	

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: See p. 2

Tetra Tech NUS, Inc.

BORING NO.: MW01B
PAGE: 3 OF 5

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/EcoSearch / D. Crawford
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: VF
ELEVATION FROM:

BORING NO.: MW01B
START DATE: 8-21-03
COMPLETION: DATE: 8-22-03
MON. WELL NO.: MW01B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
24		CORE 3 (cont	SEE PAGE 3 24.5-25.5'		U. BROKEN	GRAY-DK GRAY	SLATE/PHYLLITE - SIMILAR TO PGS 1-3			
25							• AT 25' - COMPLETELY DEGRADED ROCK ALMOST SILT-LIKE		POSSIBLE WATER ZONE AT 25'	
			= 6 MIN 20 SEC (*)					*	WATER LOSS = 5 GALS 24.5-25.5'	
26		CORE 4	25.5-26.5'		V. BROKEN	DK GRAY	SLATE/PHYLLITE - SIMILAR TO RUNS 1-3 FOR ROCK TYPE		CLEAN OUT TUB PRIOR TO TOO MANY WEATHERED	CORE 4 RUN ROCK CHIPS
			= 4 min 26.5-27.5'				- MINIMAL ±IRON STAINING (25.5-26.5') AT TOP		CORE 4 PEN = 4.5' REC = 3.5'	
27									RQD = 0% (no pieces > 4 in L)	
		3.5'/4.5'	= 3 min 27.5-28.5'				• NO OTHER ±IRON STAINS EVIDENT BELOW 26.5' TO END OF CORE 4 RUN		0 in/54 in LARGEST PIECE = 2 in length	
28							• COMPLETELY DEGRADED @ 28'		POSSIBLE WATER ZONE @ 28' DUE TO DEGRADATION OF ROCK	
			= 5 min 5 sec 28.5'-29.5'				• SOME VISIBLE LOW ANGLE FRACS - N20° ALONG BEDDING		10-GALLON WATER LOSS	
29							• PIECES POSSIBLY MORE COMPETENT 29-30' (LONGER BUT STILL LESS THAN 2 in)		MORE COMPETENT ROCK AT END OF RUN - DIFFICULT TO CORE - JAMMING - ABOVE COMPETENT PART	
			= 5 min 13 sec 29.5-30.1'				• ACTUAL MEASUREMENT @ 30' mark OR EQUAL TO = 29'3" (confirmation to depth)			
30			9 min 22 sec		LESS BROKEN					
		CORE 5	30-30.5 = 2 min 18 sec		MORE COMPETENT	LIGHT GRAY	SLATE/PHYLLITE - Similar to RUNS 1-4 FOR ROCK TYPE		CORE 5: PEN = 5' REC = 5'	
31		5'/5'					• 2 pieces > 4 in length		RQD = 10 in/60 in x 100	
			30.5-31.5 = 2.5 min				• somewhat mottled coloration gray/white		= 16.6% OVERALL	
32							• Fissility is less pronounced in upper portion of core 5			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: (*) LONG CORING TIME BC WATER PRESSURE KEPT INCREASING - DRILLER PULLED UP DRILL STEM SEVERAL TIMES TO AVOID BLOWING HOSE. PRESSURE > 150 PSI

Tetra Tech NUS, Inc.

BORING NO.: MW01B
PAGE: 4 OF 5

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: KJalkut
DRILLED BY (Company/Driller): EDI/EcoSearch / D. Crawford
GRD. SURFACE ELEVATION:
TRANSCRIBED BY: VF
ELEVATION FROM:

BORING NO.: MW01B
START DATE: 8-21-03
COMPLETION: DATE: 8-22-03
MON. WELL NO.: MW01B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
32			31.5-32.5 = 3 MIN		MORE COMPETENT THAN ABOVE	LIGHT GRAY/WHT	SLATE/PHYLLITE		CORE 5 CONTINUED	
33							• several pieces ~3in in length • low angle break along bedding			
			32.5-33.5 = 3.5 min				• limited iron stains @ 33-33.5' 6 tsn core pieces			
34										
			33.5-34.5 = 4 MIN				• pitted nature observed - open, irregular shaped pits in rock - weathered out mineral (?) ¼-½ in diameter		Hit pits w/acid - no fizzing - not likely carbonate mineral (former)	
35							• fissility more evident on pitted pieces than above - more degraded at lower end.			
			34.5-35.5 = 4.5 MIN						Some iron stains 6 tsn pitted pieces	
36		CORE 6			MUCH MORE COMPETENT THAN ABOVE	LIGHT GRAY TO WHITE	SLATE / PHYLLITE		CORE 6	
			35.5-36.5 = 2 MIN				• pitted nature to rock from 35.5-36.5' and iron stains evident on degraded pitted pieces		PEN = 4.5' REC = 4.5' RQD = 37 in/54 in x 100 = 68.5%	
37		4.5' / 4.5'								
			36.5-37.5 = 3 MIN				• low angle to nearly horiz. break			
38							• limited visible fissility - more competent than previous runs			
			37.5-38.5 = 3 MIN							
39							• 1 piece exhibits iron stains @ ~39'. Piece more degraded than above and has a high angle fracture @ ~70°			
			38.5-39.5 = 3 MIN 20 SEC				• back to more competent rock			
40			39.5-40' = 3 MIN				• END OF BORING AT ~40'. BOTTOM OF HOLE MEASUREMENT AT 39.9' (~40')			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: See p. 2. Set 10 in well. See well construction log

Tetra Tech NUS, Inc.

BORING NO.: MW01B

Tinus Form 0018

'ING LOG FOR: NUSC Disposal Area
. . .OJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW02B
START DATE: 8-26-03
COMPLETION: DATE: 8-26-03
MON. WELL NO.: MW02B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							Asphalt surface			
			No samples for lab analysis				- Roadbase ↓		Dedicated bit through asphalt used	
1						Brown Gray	Silt & Sand size cuttings			
2							- Advance 3in casing			
3										
4										
5										
6						↓ Gray	↓ Color change		Washout borehole + mud hole prior to casing into rock	
				Rock @ ~6'						
7							- Seat 3in casing 2' into weathered rock			
8							↓			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: MW02B
PAGE: 1 OF 6

Tnus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/EcoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW02B
START DATE: 8-26-03
COMPLETION: DATE: 8-26-03
MON. WELL NO.: MW02B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8		CORE 1	8-9'= 1 min 54 sec		Weathered	Light Gray	SLATE / PHYLLITE		CORE 1 PEN = 3' REC = 2'	CORE 1 - 0ppm w/ FID
9							• Sheen to rock surface but no visible crenulations		RQD = 0% - 0in/36in x 100 = 0%	0ppm w/ PID
		2'/3'	9-10'= 2 min				• All surfaces exhibit iron stains		No pieces > 4in length - Grainy texture observed on pieces	
10							• ¼-½ in thickness to weathered chips			
			10-11'= 46 secs	Slate to Phyllite			• Fissile - mostly all horiz. breaks along bedding planes		Cemented sand grains - possibly schist-like (?)	
11							• Pieces crumble easily w/ finger pressure		Lost ~5 gals @ 10'	
		CORE 2	11-12'= 2min 30 sec				SLATE / PHYLLITE cont. - similar rock type as Core 1		CORE 2 Pen = 5' Rec = 5'	
12							• Fewer iron stains relative to Core 1			
			12-13'= 2min 38 sec				• More low angle fractures (~25°)		Per driller - lost ~10 gals 12-16'.	
13										
		5'/5'	13-14'= 2min 9 sec						RQD CORE 2 = 4.5in/60in x 100 = 7.5%	
14							Picking up a granular texture @ ~14' on phyllite surface			
			14-15'= 3min 46 sec	QUARTZ SCHIST (?) (Granular interval) PHYLLITE		Tan Brown	ROCK CHANGE TO QUARTZ SCHIST (?) - Grainy texture (metamorphosed sand interval ?)		1 piece > 4in in run	CORE 2 - 1.5 ppm w/ FID
15							- High angle fractures on schist pieces			0ppm w/ PID
			15-16'= 3min 12 sec				- Lose sign of phyllite w/ granular texture			Checked inst. status - working ok
16						Light Gray	SLATE / PHYLLITE evident @ bottom			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Rock change @ ~14' - phyllite to quartz schist (?) - or is this a precipitate? Sample may likely have mixed w/ mud prior to metamorphosis.

Tetra Tech NUS, Inc.

BORING NO.: MW02B
PAGE: 2 OF 6

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/EcoSearch / D. Crawford
GRD. SURFACE ELEVATION:
TRANSCRIBED BY:
ELEVATION FROM:
BORING NO.: MW02B
START DATE: 8-26-03
COMPLETION: DATE: 8-26-03
MON. WELL NO.: MW02B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = (FID, (PPM))
16		CORE 3	No samples for lab analysis		Weathered to Broken	Dark Gray	SLATE/PHYLLITE - similar to Core 1 + part of Core 2 run		CORE 3: PEN = 5' REC = 5'	
17			16-17' = 1 min 27 sec				• Shiny surface/sheen to rock surface		RQD = 0% On/Core	
18			17-18' = 3 min 10 sec				• Graphitic sheen ? Fresh surface is v. dark gray		%100 = 0% No pieces > 4 in length	
19		5'/5'	18-19' = 2 min 8 sec				• Few pieces show iron stains between chips on fracs • Fissile - chips ~ 1/4 - 1/2 in thick		Driller reports loss of ~ 10 gals 16-21'	
20			19-20' = 3 min 10 sec				• Horizontal to low angle fractures - along bedding • No granular texture noted as observed in Core Run 2.			
21			20-21' = 2 min 39 sec							
22		CORE 4	21-22' = 2 min 4 sec				SLATE/PHYLLITE - similar to above • Iron stains noted 21-22' between rock chips		CORE 4: PEN = 5' REC = 5' RQD = 0% On/Core	NO FID OR PID readings > 0 ppm over interval
23		5'/5'	22-23' = 2 min 57 sec				• Graphitic nature to fresh surface. - v. dark gray		%100% = 0% No pieces > 4 in length	
24			23-24' = 3 min 5 sec				• Seeing more oxidized surfaces @ ~ 23-25' • Fissile - breaks readily along bedding planes		Driller reports loss of 15 gals 21-26'	

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: MW02B

Ttnus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW02B
START DATE: 8-26-03
COMPLETION: DATE: 8-26-03
MON. WELL NO.: MW02B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = (FID, (PPM))
24		CORE 4 cont.	24-25': 2min 20 sec		Weathered to broken	Dark Gray	- No oxidized surfaces evident from 24-26 ft.			
25							- Horizontal to low angle fractures			
			25-26': 2min 15sec							
26										
		CORE 5	26-27': 1min 49sec			Light - DK Gray	SLATE/PHYLLITE		CORES: PEN: 5' REC: 4'7"	NO FID/PID readings > 0ppm over rock
27					Weathered		• Dark color noted on vi. fresh surface		RQD = 0% on/core	
			27-28': 2min 16 sec		Broken but not better/more competent than last		- graphitic sheen/shine		X100% = 0% No pieces > 4in length - high angle fractures	
28							• Though no pieces > 4 in length - rock seems more competent than prev. runs		@ 1-1.5' and @ 2.5' (45-60°)	
		4.7'/5'	28-29': 2min 20 sec				• Some undulations noted			
29					Non-seemingly		- Significantly degraded rock @ ~ 29-30'		Driller reports loss of ~10 gals along interval	
			29-30': 2min 40 sec				Slightly oxidized surfaces (iron stains)			
30							- Rock chip severely broken - all fragments about 1" long			
			30-31': 2min 19 sec							
31										
		CORE 6	31-32': 1min 47 sec		More competent than above	Light/DK Gray	SLATE/PHYLLITE		CORE 6 PEN: 5' REC: 5'	NO FID/PID readings > 0ppm over interval
32							• DK color noted on fresh surfaces			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: MW02B
PAGE: 4 OF 6

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDE/EcoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW02B
START DATE: 8-26-03
COMPLETION: DATE: 8-26-03
MON. WELL NO.: MW02B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
32		CORE 6 CONT.	32-33' = 1 min 40 sec		More compet. than above	Gray to DK Gray	SLATE / PHYLLITE CONT.		CORE 6 ROD = 17.5 in/60 in x 100% = ~29%	
33							- Graphitic sheen to rock surface			
		5'/5'	33-34' = 1 min 58 sec				- No crenulations observed. No significant iron stains		(4 pieces > 4 in length)	
34					Softer		- More weathered rock @ ~33-34'. Iron staining evident for this interval		Broken/soft rock @ ~33-34'	
			34-35' = 1 min 45 sec		More competent		- Fissile - horiz. fracs. along bedding		Driller reports overall loss of 10 gals in Core Run 6	
35							- Trace evidence of iron stains @ ~35'			
			35-36' = 1 min 50 sec							
36										
		CORE 7	36-37' = 2 min 34 sec		(completely weathering) w/ depth as expected	Lighter Gray	SLATE / PHYLLITE		CORE 7 PEN = 5' REC = 5'	FID/PID = 0 ppm other rock core
37							- Several broken pieces - grayed stain at top of run		ROD = 19 in/60 in	
		5'/5'	37-38' = 1 min 28 sec				- Less competent w/ depth. No obvious sheen or presence of crenulations		x 100% = ~32% (3 pieces > 4 in length)	
38							- Frac @ ~38-39' higher angle (~45°) - rest are nearly horiz.		Driller reports overall loss of 10 gals in Core Run 7	
			38-39' = 1 min 30 sec			Darker Gray	- Darker coloration - both outside/inside surfaces			
39										
			39-40' = 1 min 23 sec							
40										

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: MW02B
PAGE: 5 OF 6

Ttnus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW02B
START DATE: 8-26-03
COMPLETION: DATE: 8-26-03
MON. WELL NO.: MW02B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
40		CORE 4 CONT	40-41' = 1 min 36 sec			Dark Gray	SLATE/PHYLLITE CONT.			
41		↓				↓	- some iron stains evident at end of run			
		CORE B	41-42' = 1 min 30 sec		Most competent of all prev. runs		SLATE/ PHYLLITE		CORE B: PEN=5' REC=5'	
42							- slightly granular texture at top of run		RQD = 24in/60in x 100% = 40%	
			42-43' = 50 sec						(5 pieces > 4in long)	
43		5'/5'				Dark Gray	- Fissile in parts - horiz. breaks at times			FID/PID =
			43-44' = 1 min				- Dark coloration - inside/outside surfaces			0 ppm over rock
44							- Graphitic sheen/shine present			
			44-45' = 1 min 26 sec							
45										
			45-46' = 1 min 53 sec				- Higher angle fracs at bottom of run (~25°)		Checked actual TD - measured 44.8' bgs - country a little.	
46		↓	↓	↓	↓	↓	↓		↓	
							EOB @ 44.8' (actual)			
47							Install well - see well log			
48										

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: NX Wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: MW02B
PAGE: 6 OF 6

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW03B
START DATE: 8-27-03
COMPLETION: DATE: 8-27-03
MON. WELL NO.: MW03B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			-			Brown Gray	Ground surface		Drill area @ TP11 Approx. 6' north of soil gas hit	
1										
2							- Advance 3" casing			
3							- Silt, Sands in cuttings			
4										
5						Gray	bedrock @ ~4'- color change		Encountered weathered rock @ ~4' in TP11 Cleaned out tub. prior to seating casing	0 ppm w/ FID/PID - water in tub + BZ
6							- Rock very soft, weathered			
7							- Sealed 3" casing 4' into rock (4'-8')			
8										

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: Rollerbit used after attempts failed @ coring w/ NX wireline
GROUNDWATER LEVELS: ~18' per driller
OTHER OBSERVATIONS: Location about 15-20' above pond

Tetra Tech NUS, Inc.

BORING NO.: MW03B
PAGE: 1 OF 3

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: KJalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW03B
START DATE: 8-27-03
COMPLETION: DATE: 8-27-03
MON. WELL NO.: MW03B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8		0'/1'	8-9' = 2 min 49 sec w/multiple trys				- lost 50 gal water @ 8-9'		Problems w/ drilling - problems w/hose	
9							- multiple starts/stops			
							- lost 200 additional gals water 9-10' as soon as drilling started - no water recirculating		No recovered core 8-10' - potential fracture zone @ 9'	
10							Rollerbit through rock (weathered)		Switch to rollerbit @ 10' and advance rollerbit thru	
11						Gray to Gray-Brown			weathered rock	
12							- easy to advance thru w/ rollerbit		No retrievable core 10-24'	
13										
							- Shale-like with up V. soft weathered rock			
14										
15										
16										

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: Rollerbit after attempt failed @ coring w/ NX wireline
GROUNDWATER LEVELS: ~18' per driller
OTHER OBSERVATIONS: Location about 15-20' above pond

Tetra Tech NUS, Inc.

BORING NO.: MW03B

Tmus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW03B
START DATE: 8-27-03
COMPLETION: DATE: 8-27-03
MON. WELL NO.: MW03B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
16		N/A	N/A -			Gray to Gray-Brown			No retrievable core - used rollerbit to advance thru weathered rock for purposes of creating a cachile for subsequent installation of a well.	
17										
18							- Shale-like cuttings - degraded			
19							- possible water table per driller			
20										
21										
22							- Shale-like cuttings - degraded			
23										
24		↓	↓			↓	↓EOB @ 24'. Install well -	see	well log	

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA to initiate pilot hole; drive & wash to advance boring
METHOD OF SOIL SAMPLING: None
METHOD OF ROCK CORING: Rollerbit after attempts failed @ coring w/ NX wireline
GROUNDWATER LEVELS: ~18' per driller
OTHER OBSERVATIONS: Location about 15-20' above pond

Tetra Tech NUS, Inc.

BORING NO.: MW03B

Tmus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/Geosearch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW04B
START DATE: 8-27-03
COMPLETION: DATE: 8-29-03
MON. WELL NO.: MW04B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0			No samples for lab from 0-8'				Ground surface		Advance to 8' via 4 1/4" x 8in OD HSA	
1							Refer to test pit log TP01 for soil descriptions from 0-8'			
2										
3										
4										
5										
6										
7										
8 (END 8-27-03)										

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA 0-16' (4 1/4" x 8" OD HSA); 3 inch casing from 16'-18'; corebarred 18'-45'
METHOD OF SOIL SAMPLING: Continuous split-barrel in 2' intervals from 8-16' only. No samples 0-8'
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS: At top of rock or just below. No gw in OB materials noted
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: MW04B
PAGE: 1 OF 6

Tinus Form 0018

B\ 3 LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/Groesearch/D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW04B
START DATE: 8-27-03
COMPLETION: DATE: 8-29-03
MON. WELL NO.: MW04B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
8 (8-28-03)	4 4	0.6'/2'	DA-S-MW04B-0810-01 8-28-03 @ 0740 hrs (8-10')	Silty Sand, Gravel + Fill debris	Soft/Loose	Brown	SILTY SAND - SOME GRAVEL (f. sand, poorly graded, f to c subangular and	SM/FILL	Fines appear to hold water (wet)	FID Scan: 1.4 PID Scan: 0.6
9	7 9						subrounded gravel ½-1.25in diam.,			FID HS = 2.8 PID HS = 0.9
10							concrete)			
START 8-29-03	2		No samples for lab		Loose		- Similar to above w/ fine+med sand; more concrete			FID Scan = 0.0 PID Scan = 0.0
11	4	0.7'/2'								FID HS = 0.0 PID HS = 0.0
12	20 24									
13	8 6	0.6'/2'			Loose		- Similar to above		Poor recovery - fines are wet but sands are dry	FID Scan = 0.0 PID Scan = 0.0
14	14 16									FID HS = 0.0 PID HS = 0.8
15	7 11	1.5'/2'	DA-S-MW04B-0810-01 8-29-03 @ 0800 hrs (14-16')		Loose		- Similar to above w/ visible concrete (14-15')			FID Scan: 0.0 PID Scan: 0.2
16	16 42			Rock	Broken rock	Gray	WEATHERED BEDROCK - SHALE/SLATE ROCK - Degraded; crumbles easily w/ fingers pressure; iron stains brown pieces		Bedrock @ 15' Clean out + install 3" casing Wet (?)	FID HS = 0.0 PID HS = 1.0

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA 0-16' (4¼" x 8" OD HSA); 3 inch casing from 16'-18'; corebarred 18'-45'
METHOD OF SOIL SAMPLING: Continuous split-barred in 2' intervals from 8-16' only. No samples 0-8'
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Rig problems on 8/28/03. Broke CATHEAD. Left site after 1 sample collected to repair. Returned 8/29/03 w/ repaired rig + resumed work

Tetra Tech NUS, Inc.

BORING NO.: MW04B
PAGE: 2 OF 6

Tinus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jaikut
DRILLED BY (Company/Driller): EDI/Groseareh / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW04B
START DATE: 8-27-03
COMPLETION: DATE: 8-29-03
MON. WELL NO.: MW04B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING: TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
16					Chips	Gray	- Degraded rock cuttings in washwater - shale-like to slate-like		Install 3" casing 0-16'. Advance 3" casing to 18' to seat it in rock	
17										
18					Broken	Gray to Gray Brown	SLATE / PHYLLITE		Initiate CORE 1 @ 18'	FID/PID scan =
19		CORE 1 1.4'	18-19': 2 min	Shale/ phyllite			• Shiny surface to broken pieces • Iron stains visible btwn pieces (oxidized) • Nearly all horizontal breaks to low angle fractures • Bottom portion more degraded than top		Pen = 2' Rec = 1.4' RQD = 0% 0 in/24 in x 100% = 0 % No pieces > 4 in length (18-20')	0.0/0.0
20		2'	19-20': 2 min 32 sec							
21		CORE 2	20-21': 1 min 50 sec				SLATE / PHYLLITE - similar to Core • Near vertical fracture @ 20.75'-21'		CORE 2 Pen = 5' Rec = 4.8' RQD = 0% - similar to above. No pieces > 4 in length - Lost 30 gal H2O from 20-25'	
22		4.8'	21-22': 2 min 17 sec				• All surfaces w/ iron stains - oxidized btwn breaks too - dk red-brown • Small pits observed - vesicular-like			
23		5'	22-23': 2 min 1 sec	Pits			• Fissile • Small vertical frac 22.5'-23' • Strongly pitted - small circular to irregular shaped pits up to 1/2 in diam • Near vertical fracture @ 23.5 - 24.5'		- Pits do not react w/ acid - weathered out, non-calcareous mineral ?	FID/PID scan = 0.0/0.0
24			23'-24': 2 min 18 sec							

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA 0-16' (4 1/4" x 8" OD HSA); 3 inch casing from 16'-18'; corebarred 18'-45'
METHOD OF SOIL SAMPLING: Continuous split-barrel in 2' intervals from 8-16' only. No samples 0-8'
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Pitted texture starting @ ~22-23' - weathered out mineral (?)

Tetra Tech NUS, Inc.

BORING NO.: MW04B
PAGE: 3 OF 6

Tinus Form 0018

B LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jalkut
DRILLED BY (Company/Driller): EDI/Groserch / D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW04B
START DATE: 8-27-03
COMPLETION: DATE: 8-29-03
MON. WELL NO.: MW04B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
24		END CORE 2	24-25' = 2min 34 sec		Broken	Gray Brown	SLATE/PHYLLITE		- Unidentified brown stain or coloration (old oxidized surface ?)	
25							- Similar to Core 1 - soft, degraded rock, oxidized, crumbles w/ finger pressure			
26		CORE 3	25-26' = 1min 24 sec	mostly Slate/phyllite		Light Gray	SLATE PHYLLITE - similar to core runs 1+2		CORE 3 PEN=5' REC=5	FID/PID Stain =
							• weathered, degraded		ROD = 0% similar to runs 1+2. No pieces >4in length	0.0/0.0
27		5'	26-27' = 2min 7 sec				• oxidized surfaces brown (core breaks dk orange-brown (coloration)			
							• pieces < 1in thick to 2in thick			
28		5'	27-28' = 2min 16 sec	Slate/phyllite quartz Dschist	Pitted texture	Tan & Gray	• At 27' - Sm. vertical break; pitted, granular texture, cemented sands		Interval w/ Quartz schist? Foliated (?) Lens (?)	
							• Additional pitted texture, weathered, pits w/ oxidized coloration in them			
29			28-29' = 2min 41 sec				• Sm. vertical break along oxidized seam		No water loss during Core 3 run	
							• Additional breaks in coarser grain material - quartz schist (?)			
30			29-30' = 3min 4 sec	phyllite & quartz schist			• Most frac. along bedding - horiz.			
							• Additional pitted texture - weathered out mineral (?) - brown coloration blurs breaks			
31		CORE 4 5'	30-31' = 1Min 40 sec	QUARTZ SCHIST		Light Gray Tan-Brown	SLATE/PHYLLITE to ~30.5'		CORE 4: PEN=5' REC=5' ROD = ~38% 23in/160in x 100% = ~38% 1 piece approx. 4.5" in length; other total 23in for pieces >4in length	FID/PID Stain = 0.0/0.0
							QUARTZ SCHIST			
							• Foliated, granular texture			
							• Red-brown discoloration on grains - oxidized (?)			
							• Vertical break in sample @ ~31', sl. pitted			
32		5'	31-32' = 2min 6 sec				• DK brown coloration to vert. break			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA 0-16' (4¼" x 8" OD HSA); 3 inch casing from 16'-18'; coreburred 18'-~45'
METHOD OF SOIL SAMPLING: Continuous split-barrel in 2' intervals from 8-16' only. No samples 0-8'
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: At ~27' - possible interval of quartz schist in the phyllite to ~29' (can still make out remnants of phyllite too

Tetra Tech NUS, Inc.

BORING NO.: MW04B
PAGE: 4 OF 6

Tnus Form 0018

BORING LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K. Jalkut
DRILLED BY (Company/Driller): EDI/GeoSearch/D. Crawford
GRD. SURFACE ELEVATION:
TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW04B
START DATE: 8-27-03
COMPLETION: DATE: 8-29-03
MON. WELL NO.: MW04B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING: TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
32		CORE 4 (CONT.	32-33': 2min 20 sec	Quartz Schist		Gray to brown	QUARTZ SCHIST - Foliated (?)		CORE 4 CONT.	FID/PID Chem -
33							• No fissility visible		Lost ~10 gals overall in Core 4	0.0/0.0
			33-34': 1min 44 sec			Brown	• Vertical break ~33-33.5'			
34						Red-brown to brown	• Oxidized, vertical seams approx. 3" long - not connected to one another - weathered		Circular, swirly texture, too	
			34-35': 2min 40 sec				• Additional pitted texture - more elongated, weathered, not filled, red-brown			
35							• Low angle breaks @ bottom of run			
		CORE 5	35-36': 1min 7 sec				QUARTZ-SCHIST CONT.		CORE 5' PEN=5' REC=5' Rqd= 10in/60in x100 = 16=17%	NO FID/ PID Readings > 0.0/0.0 on rock
36							- similar to above -			
			36-37': 2min 38 sec				- dk black coloration on some of the granular pieces			
37		5'/5'					- weathered iron stains on weathered pieces			
							- Additional pit observed			
			37-38': 2min	Slate/ phyllite		Light Gray	SLATE / PHYLLITE @ ~37'			
38							- Fissile nature returns			
							- shiny surface visible			
			38-39': 2min 10sec		V. SOFT		- Some crenulations visible		Very degraded @ ~38' - mush-like - very soft rock.	
39							- Nearly horizontal breaks - along bedding			
			39-40': 2min				- Fewer iron stains btwn breaks (core)			
40							- Breaks occur w/ slight finger pressure			

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA 0-16' (4¼" x 8" OD HSA); 3 inch coring from 16'-18'; coreburred 18'-45' (MIX)
METHOD OF SOIL SAMPLING: Continuous split-barrel in 2' intervals from 8-16' only. No samples 0-8'
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Quartz Schist (?) extends from ~27' at start to about 39'+

Tetra Tech NUS, Inc.

BORING NO.: MW04B
PAGE: 5 OF 6

Tnus Form 0018

G LOG FOR: NUSC Disposal Area
PROJECT NO.: 8856
LOGGED BY: K Jaikut
DRILLED BY (Company/Driller): EDI/Geoscarch/D. Crawford
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW04B
START DATE: 8-27-03
COMPLETION: DATE: 8-29-03
MON. WELL NO.: MW04B
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
40		CORE 6			Broken	Light gray	SLATE/PHYLLITE		CORE 6 RUN=5'	NO FID/PID
			40-41': 1min 37 sec				- similar to rock @ "37'		REC = 3.8'	readings
41							- Minimal evidence of oxidation btwn		RQD = 0% (no pieces	>0.0/0.0
							core breaks		> 4in length)	over rock
42		3.3'/5'	41-42': 3min 51sec	slate/phyllite			- Fissile; nearly horiz. breaks			
							- Degraded rock			
43			42-43': 3min 37 sec				- Shiny surface			
44			43-44': 2min 7sec							
45			44-45': 3min 16 sec				EOB @ 45'. Install well. See well log for details.			
46										
47										
48										

TYPE OF DRILLING RIG: Mobile B-59
METHOD OF ADVANCING BORING: HSA 0-16' (4 1/4" x 8" OD HSA); 3 inch casing from 16'-18'; corebarred 18'-45'
METHOD OF SOIL SAMPLING: Continuous split-barrel in 2' intervals from 8-16' only. No samples 0-8'
METHOD OF ROCK CORING: NX wireline
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: See previous pages

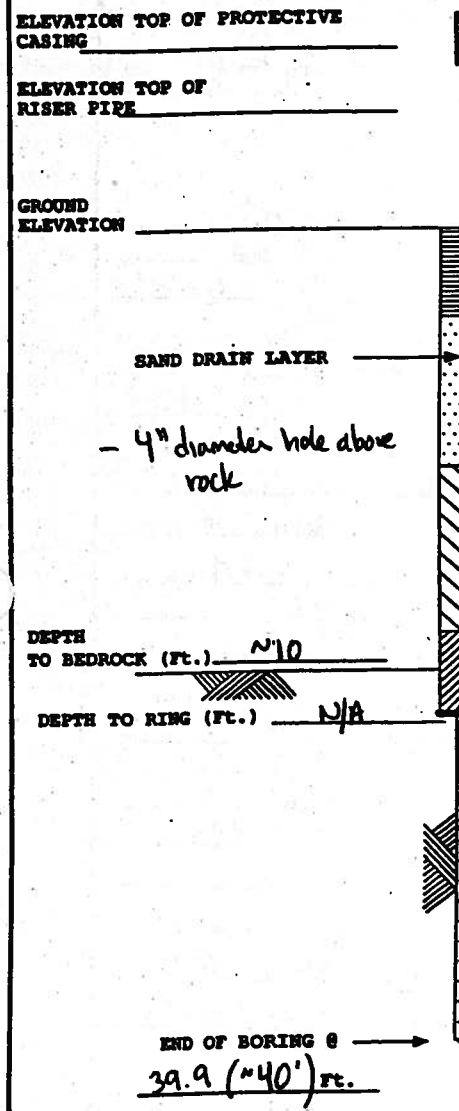
Tetra Tech NUS, Inc.

BORING NO.: MW04B
PAGE: 6 OF 6

Tmus Form 0018

BEDROCK MONITORING WELL CONSTRUCTION LOG — TETRA TECH NUS, INC.

PROJECT NAME: NUSC Disposal Area — PROJECT NO: 8856
PROJECT LOCATION: Newport, RI — WELL NO: MW01B
CLIENT: Navy — BORING NO: MW01B
CONTRACTOR: EDI/BedSearch — DRILLER: D. Crawford — BORING LOCATION: ~5 ft NW side of TP02 (test pit w/ backfilled drums)
LOGGED BY: K Jalkut — DATE: 8-22-03
CHECKED BY: — DATE:
PAGE: 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING	
ELEVATION TOP OF RISER PIPE	
GROUND ELEVATION	
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.98 Field meas.
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.~~50~~ by 8-22-03
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	<1' (not a pad)
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	~1
I.D. OF PROTECTIVE CASING (In.)	~4
TYPE OF PROTECTIVE CASING	Steel stick-up guard pipe
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	~2
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	~3.5
RISER PIPE (In.) I.D.: 1	O.D.: 1.3
TYPE OF RISER PIPE	Sched. 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite chips
DEPTH TOP OF SEAL (Ft.)	~8
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	~9.3
DEPTH TOP OF PERVIOUS SECTION (Ft.)	~10 (*)
DIAMETER OF BOREHOLE (In.)	~3in (2.9)
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 slots
PERVIOUS SECTION (In.) I.D.: 1	O.D.: 1.3
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	~20 US Sieve size (#2)
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.9 (~39')
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.9 (~40')

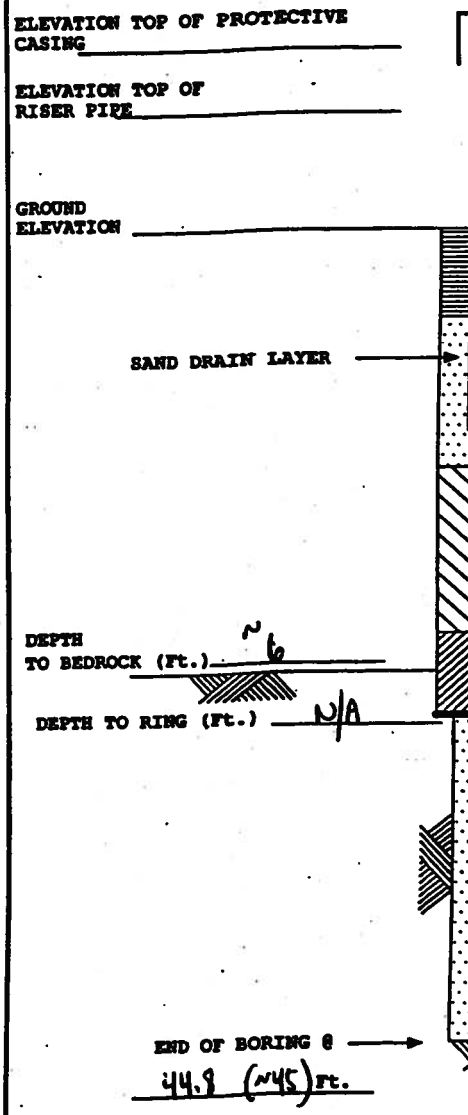
Notes: - Installed a 1' long sump below the pervious section
(*) - Brought sand filter pack up above OB/rock interface - it may settle to top of rock over time

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — TETRA TECH NUS, INC.

PROJECT NAME: NUSC Disposal Area — PROJECT NO: 8856
PROJECT LOCATION: Newport, RI — WELL NO: MW02B
CLIENT: Navy — BORING NO: MW02B
CONTRACTOR: EDI/GeoSearch — DRILLER: D. Crawford — BORING LOCATION:
LOGGED BY: K Jalkut — DATE: 8-26-03
CHECKED BY: — DATE:
PAGE: 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING	
ELEVATION TOP OF RISER PIPE	
GROUND ELEVATION	
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	N/A (Flush-mount)
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	N/A (Flush-mount)
	PVC top approx -0.24' below rim
TYPE OF SURFACE SEAL	cement
DIA. SURFACE SEAL BGS (In.)	1'x1' pad
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	~8.5in (0.7')
I.D. OF PROTECTIVE CASING (In.)	5 11/16
TYPE OF PROTECTIVE CASING	Flushmount - steel top w/ PVC collar
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	~10in (~.83')
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	~2
RISER PIPE (In.) I.D.: 1.0"	O.D.: 1.3'
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite Chips
DEPTH TOP OF SEAL (Ft.)	~3.5
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	~5.5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	6.8
DIAMETER OF BOREHOLE (In.)	~.3in (2.9in)
TYPE OF PERVIOUS SECTION	Sched. 40 PVC
TYPE OF OPENINGS	0.010 slots
PERVIOUS SECTION (In.) I.D.: 1	O.D.: 1.3
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	No. 2 sand (20 US Sieve)
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.) + sump	44.8 (~45')
DEPTH BOTTOM OF FILTER PACK (Ft.)	44.8 (~45')

Note - Top of rock @ ~6' bgs. Screen length approx. 38'. Small portion of screen near interface is not screened - riser only.
- Requested filter pack be installed approx. 0.5ft above interface - may settle over time.

GENERAL NOTE:

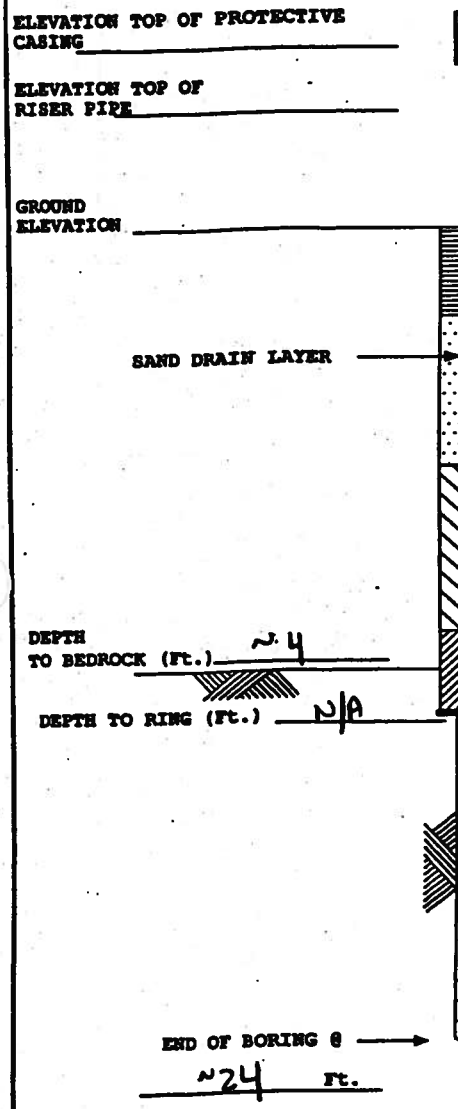
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — TETRA TECH NUS, INC.

PROJECT NAME: NUSC Disposal Area
PROJECT LOCATION: Newport, RI
CLIENT: Navy
CONTRACTOR: EDI/GeoSearch
DRILLER: D. Crawford
LOGGED BY: K. Jalkut
DATE: 8-27-03
CHECKED BY:
DATE:

PROJECT NO: 8856
WELL NO: MW03B
BORING NO: MW03B
BORING LOCATION: At test pit 11

PAGE: 1 OF 1



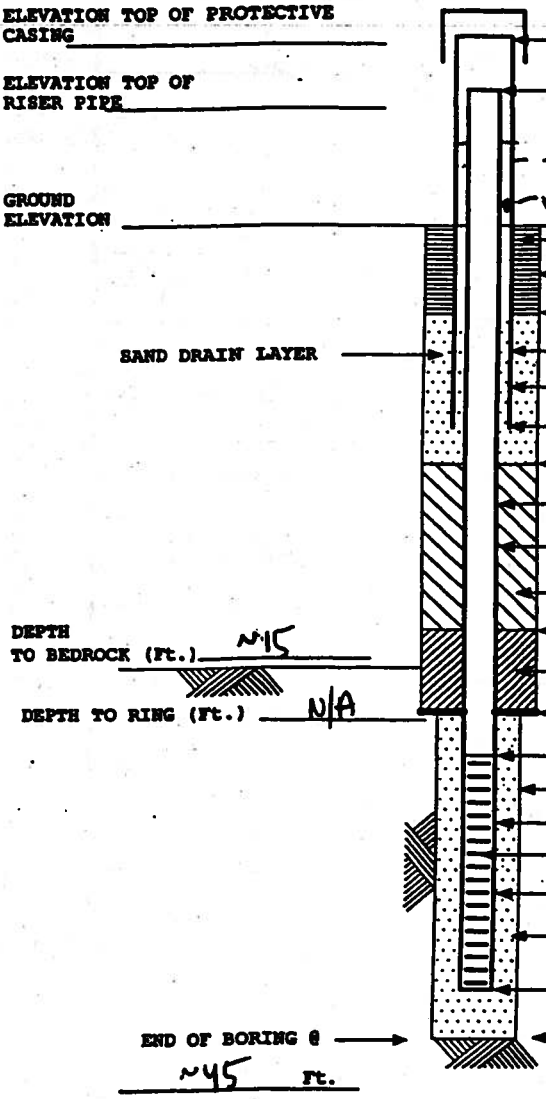
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	~3.5
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	~3.3
Sand layer	
weep hole	
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	~10 (not a pad)
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	~1
I.D. OF PROTECTIVE CASING (In.)	4
TYPE OF PROTECTIVE CASING	Steel Guard Pipe
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	~1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 1 O.D.: 1.3	
TYPE OF RISER PIPE	Sched. 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent. chips
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bent. chips
DEPTH BOTTOM OF SEAL (Ft.)	~3.5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	~4
DIAMETER OF BOREHOLE (In.)	~3
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 slots
PERVIOUS SECTION (In.) I.D.: 1 O.D.: 1.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	No. 2 sand (US Sieve Size 20)
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	~24
DEPTH BOTTOM OF FILTER PACK (Ft.)	~24

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — TETRA TECH NUS, INC.

PROJECT NAME: NUSC Disposal Area — PROJECT NO: 8856
PROJECT LOCATION: Newport RI — WELL NO: MW04B
CLIENT: Navy — BORING NO: MW04B
CONTRACTOR: EDI/Geosearch — DRILLER: D. Crawford — BORING LOCATION: At test pit TP01 location
LOGGED BY: K Jalkut — DATE: 8-29-03
CHECKED BY: — DATE:
PAGE: 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING	
ELEVATION TOP OF RISER PIPE	
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	~2'
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	~1.9
GROUND ELEVATION	
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	~10 (not a pad)
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	~1
I.D. OF PROTECTIVE CASING (In.)	4
TYPE OF PROTECTIVE CASING	Steel Guard Pipe
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	~3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.3
RISER PIPE (In.) I.D.: 1	O.D.: 1.3
TYPE OF RISER PIPE	Sched. 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent. chips
DEPTH TOP OF SEAL (Ft.)	~12.5
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	~14.5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	~15
DIAMETER OF BOREHOLE (In.)	~3
TYPE OF PERVIOUS SECTION	Sched. 40 PVC
TYPE OF OPENINGS	0.010 slots
PERVIOUS SECTION (In.) I.D.: 1	O.D.: 1.3
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	No. 2 sand (U.S. Sieve size 20)
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	~45'
DEPTH BOTTOM OF FILTER PACK (Ft.)	~45'

- Using bottom 3" of (non-slotted area) screen to serve as sump
- Brought filter pack up above interface

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

TABLE 4-4
TEST PIT EXCAVATION SUMMARY
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Test Pit Number and Date	Test Pit Description and Results[1]	Test Pit Length by Width (feet)	Test Pit Depth (feet bgs)	Depth of Fill (feet bgs)	Water Level Depth (ft bgs)	Sample Number	Sample Depth (ft bgs)	Headspace (ppm)	Notes
TP01 8/11/03	The test pit contained mixed fill throughout the entire depth. The excavated soils consisted of fill that included sand and gravel with brick, concrete, asphalt rubble, metal pipe and cable. Results: No visual or olfactory evidence contamination was observed throughout excavation.	8.5 by 3	6.75	0 – 6.75+	Not encountered	DA-S-TP01-0001-01	0-1	0.4	The excavation was terminated at 6.75 feet below ground surface (bgs) because of collapsing sidewalls.
						DA-S-TP01-0304-01	3-4	2.0	
						DA-S-TP01-0607-01	6-7	0.0	
TP02 8/13/03	The excavated material consisted of fill that included sand, gravel and cobbles with brick, concrete, metal drum debris. In addition, a crushed and corroded drums with a black, tar-like residue were removed from the excavation. The black residue was reported to have a petroleum odor. At RIDEMs request, a sample of the tar-like residue was collected for laboratory analyses. Results: Visual and olfactory evidence of petroleum contamination was present from the drum residue.	17 by 5	6	0 – 6+	Not encountered	DA-S-TP02-0001-01	0-1	1.2	The excavation was terminated at 6 feet below ground surface (bgs) because of concern for potential contaminant transfer to deeper soils or groundwater. Other drum carcasses were visible in the sidewalls and bottom of excavation but were not removed at this time.
						DA-S-TP02-0102-01 (tar-like substance)	1-2	0.0	
						DA-S-TP02-0203-01/ DA-S-TP-DUP02-01 (drum residue)	2-3	10.5	
						DA-S-TP02-0506-01	5-6	0.0	
TP03	Not Performed, replaced by soil borings								
TP04	Not Performed, replaced by soil borings								
TP05 8/11/03	The excavated soils consisted of sand, gravel, cobbles, and boulders with some concrete debris. A layer of stained soil was noted at 6.5 feet bgs. Results: A dark stained layer of soil was observed at 6.5 ft. bgs. No visual evidence of contamination was observed in groundwater entering the excavation. Samples were collected from three locations for organic vapor headspace screening.	9.5 by 4	10.5	0 – 6.5	10.2	DA-S-TP05-0001-01	0-1	0.0	The excavation was terminated at 10.5 feet after encountering groundwater.
						DA-S-TP05-0607-01	6-7	0.0	
						DA-S-TP05-0910-01 DA-S-TP-DUP01-01	9-10	0.0	
TP-06 8/13/03	The excavated soils consisted of silty sand and some gravel with brick, concrete, burlap, and asphalt/roofing tar paper. The fill debris did not extend deeper than 5 feet bgs at this location. Possible organic sheen on groundwater. Results: No visual or olfactory evidence of contamination was observed throughout excavation of the test pit	22 by 5	10	0 - 5	~10	DA-S-TP06-0001-01	0-1	0.0	The excavation was terminated at 10 feet below ground surface (bgs) after encountering bedrock.
						DA-S-TP06-0304-01	3-4	0.0	
						DA-S-TP06-0910-01	9-10		
TP-07 8/12/03	The excavated soils consisted of sand and gravel fill that included brick, cinder blocks, coal ash, concrete with rebar, metal debris, insulated pipe, and plastic. Black soil was observed mixed with brick and concrete which was included in 3-4 foot interval sample. Results: No visual evidence of contamination was observed.	15 by 5	10	0 – 10 +	Not encountered	DA-S-TP07-0001-01	0-1	5.6	The excavation was terminated at 10 feet below ground surface (bgs) due to sidewall collapse.
						DA-S-TP07-0304-01 (targeted soil around black layer)	3-4	0.0	
						DA-S-TP0-0910-01	9-10	0.0	

TABLE 4-4 (cont.)
TEST PIT EXCAVATION SUMMARY
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Test Pit Number and Date	Test Pit Description and Results[1]	Test Pit Length by Width (feet)	Test Pit Depth (feet bgs)	Depth of Fill (feet bgs)	Water Level Depth (ft bgs)	Sample Number	Sample Depth (ft bgs)	Headspace (ppm)	Notes
TP08 8/15/03	The excavated material consisted of sandy silt and gravel, concrete with rebar (concrete curbing), slag, and a material resembling tar paper. Results: Tar paper material was included in headspace jar for the 7-8 foot depth interval.	13 by 4	8	0 – 8+	Not encountered	DA-S-TP08-0001-01	0-1	0.0	The excavation was terminated at 8 feet bgs because of excavator refusal on layer of concrete curbing.
						DA-S-TP08-0304-01 DA-S-TP-DUP05-01	3-4	0.0	
						DA-S-TP08-0708-01	7-8	17	
TP09 8/14/03	The excavated soils consisted of sand and some silt. Native soil over shallow bedrock with no fill/debris observed. Results: No visual or olfactory evidence of contamination was observed.	11 by 3	3	N/A	Not encountered	DA-S-TP09-0001-01	0-1	0.0	The excavation was terminated at 3 feet bgs because bedrock was encountered.
						DA-S-TP09-0102-01/ DA-S-TP-DUP04-01	1-2	0.0	
TP10 8/14/03	The excavated soils contained fill debris from 0 to 0.5 feet bgs. Results: Native soils (till-dense sandy silt, some gravel) from 0.5 to bedrock refusal at 2.5 feet bgs.	11 by 3	3	0 – 0.5	Not encountered	DA-S-TP10-0001-01	0-1	8.1	The excavation was terminated at 2.5 feet bgs because bedrock was encountered.
						DA-S-TP10-0102-01	1-2	21.2	
TP11 8/14/03	Test pit soils appear to be native soils (sand with variable amounts of silt and gravel) with bedrock encountered at 4.5 feet bgs. Location of soil gas TCE hit. Results: No fill or debris observed.	12 by 3	4.5	N/A	Not encountered	DA-S-TP11-0001-01	0-1	2.6	The excavation was terminated at 4.5 feet bgs because bedrock was encountered.
						DA-S-TP11-0203-01 DA-S-TP-DUP03-01	2-3	0.0	
						DA-S-TP11-0304-01	3-4	0.0	
TP12 8/13/03	Test pit soils appear to be native (sand, silt, gravel, cobbles) with weathered bedrock encountered at 3 feet bgs (broken rock) and more competent bedrock at 6 feet bgs. Results: No fill or debris observed.	12 by 3.5	6	N/A	Not encountered	DA-S-TP12-0001-01	0-1	0.0	The excavation was terminated at 6 feet bgs because bedrock was encountered.
						DA-S-TP12-0102-01	1-2	0.0	
						DA-S-TP12-0203-01	2-3	0.0	
TP12A 8/15/03	Test pit soils consisted of a silty sand with man-made debris including, a steel frame/beam, aluminum sheet material, plastic, fiberglass panel, and metal wire. Test pit was conducted on hillside slope upon request of RIDEM onsite representative to investigate magnetic anomaly found using a Schonstedt Magnetic Locator. Bedrock was encountered at 2.5 feet bgs. Results: No visual or olfactory evidence of contamination was observed throughout excavation.	6 by 3	4	0 – 2.5	Not encountered	DA-S-TP12A-0001-01	0-1	0.0	The excavation was terminated at 4 feet bgs because bedrock was encountered.
TP12B 8/15/03	Test pit soils consisted of a fill of sand and silt with some gravel that contained a piece of steel pipe. Test pit was excavated upon request of RIDEM onsite representative to investigate magnetic anomaly found using a Schonstedt Magnetic Locator. Bedrock was encountered at 2.5 feet bgs. Results: No visual or olfactory evidence of contamination was observed throughout excavation.	5 by 3	2.5	0 – 0.5	Not encountered	DA-S-TP12B-0001-01	0-1	0.0	The excavation was terminated at 2.5 feet bgs because bedrock was encountered.
TP13 8/11/03	Test pit excavated soils consisted of sand and gravel with some boulders. No fill or debris observed. Appears to be native soil. Results: No visual or olfactory evidence of contamination was observed throughout excavation.	13.5 by 3	7	N/A	Not encountered	DA-S-TP13-0001-01	0-1	5.2	The excavation was terminated at 7 feet bgs because bedrock was encountered.
						DA-S-TP13-0203-01	2-3	0.0	
						DA-S-TP13-0405-01	4-5	4.1	

TABLE 4-4 (cont.)
TEST PIT EXCAVATION SUMMARY
STUDY AREA SCREENING EVALUATION
NUSC DISPOSAL AREA
NUWC, MIDDLETOWN, RHODE ISLAND

Test Pit Number and Date	Test Pit Description and Results[1]	Test Pit Length by Width (feet)	Test Pit Depth (feet bgs)	Depth of Fill (feet bgs)	Water Level Depth (ft bgs)	Sample Number	Sample Depth (ft bgs)	Headspace (ppm)	Notes
TP14 8/14/03	Test pit excavated soils consisted of sand with some silt and gravel. Debris was first encountered at 3 feet bgs and included corroded cans and circular mesh screens. Metal strapping, and concrete with rebar debris was observed 6-8 feet bgs. No debris was observed below 8 feet bgs. Results: A large number of open-ended cans (approximately 6 inches in length) were observed at 3 to 6 feet bgs. The cans appear to have been pressurized at one time and are associated with mesh screens. No visual or olfactory evidence of contamination was observed.	16.5 by 4.5	10.5	0 - 8	10.5	DA-S-TP14-0001-01	0-1	1.2	The excavation was terminated at 10.5 feet bgs after encountering groundwater on top of rock.
						DA-S-TP14-0506-01	5-6	1.8	
						DA-S-TP14-0910-01	9-10	2.1	
TP-15 8/12/03	Test pit excavated fill soils consisted of silty sand with a 5-gallon container that had a black tar-like residue, an empty 15-gallon poly container, and a rusted, empty 55-gallon drum carcass. All instrument screening for VOCs was 0 ppm for these objects. Other debris encountered included brick, concrete slabs (2-4 feet wide by 3 feet long), wood, metal pipe, nails, wire, and rubber hose. Results: All fill material. No visibly stained soils were observed.	10 by 6	6	0 – 6+	Not encountered	DA-S-TP15-0001-01	0-1	0.0	The excavation was terminated at 6 feet bgs because a massive concrete slab (>6 feet wide) was encountered and sidewalls were collapsing.
						DA-S-TP15-0203-01	2-3	0.0	
						DA-S-TP15-0506-01	5-6	0.0	
TP-15A 8/12/03	Test pit excavated fill consisted of silty sand and gravel containing debris which was present throughout the entire excavation. A black layer that was thought to be asphalt was observed at 3-6 feet bgs. At the request of RIDEM representative, this test pit was excavated perpendicular to TP15.	15 by 6	10	0 – 10+	Not encountered	DA-S-TP15A-0203-01	2-3	0.0	The excavation was terminated at 10 feet bgs because sidewalls were collapsing.
						DA-S-TP15A-0506-01 (black material)	5-6	0.0	
						DA-S-TP15A-0910-01	9-10	0.0	

(1) See test pit logs for details

TEST PIT LOG

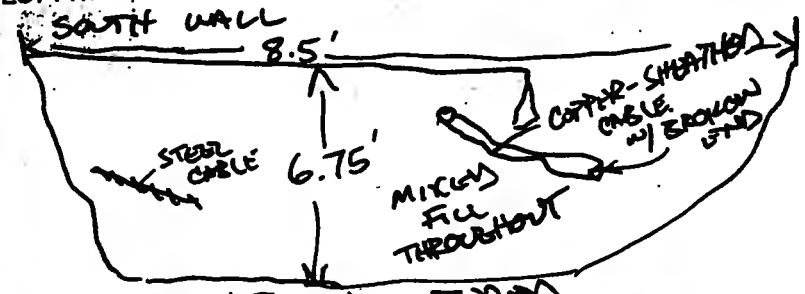
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI

TEST PIT No.: TP01
DATE: 8-11-03
TtNUS Representative: T. Jordan

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING Breathing Zone (ppm)	PID/FID READING Borehole (ppm)
0		GRASS/STUMP SURFACE				
1		FILL. MIXTURE OF SILT, F-C SAND, F-C GRAVEL, COBBLES & BOULDERS. MAN-MADE DEBRIS NOTED INC. BRICK, CONCRETE, ASPHALT RUBBLE, METAL PIPE, METAL CABLE (@ 4' BGS ON WEST END) AND A COPPER-SHEATHED	FILL	DA-S-TP01-0004-01 8-11-03 @ 1200	0.4	0.0
2						
3						
4						
5		STEEL OR ALUM. CABLE CROSSING THE EAST END @ 1.25' BGS.		DA-S-TP01-0304-01 8-11-03 @ 1140	2.0	
6		EOP @ 6.75' BGS.				
7		STOPPED EXCAVATION DUE TO				
		COLLAPSING SIDEWALLS.		DA-S-TP01-0607-01 8-11-03 @ 1130 BOTTOM SAMPLE.	0.0	0.0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: NOT ENCOUNTERED.
Pit Dimensions: Length: 8.5 Width: 3' Depth: 6.75'
Equipment Used: TAKEUCHI SM. EXC.

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: PHOTO'S PRIOR TO EXC., EACH WALL.

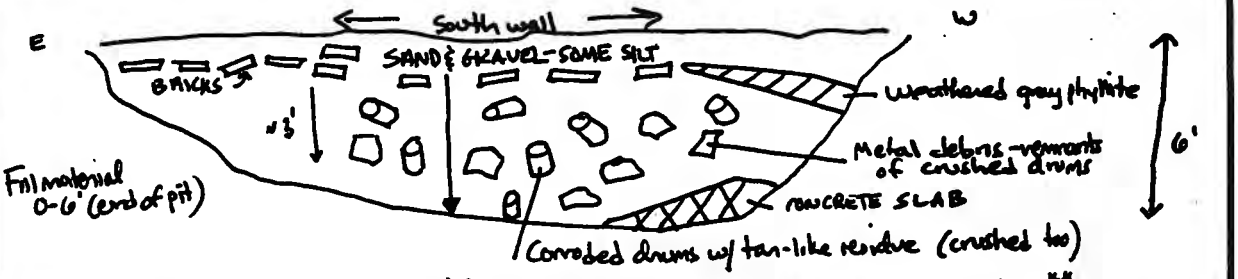
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08 TEST PIT No.: TP02
PROJECT NUMBER: N8856-0530 DATE: 8-13-03
LOCATION: Newport, RI TtNUS Representative: K Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — Source	PID/FID READING — Background
0		Grass / weeds @ surface				
1	SAND & GRAVEL - SOME SILT	SAND AND GRAVEL - SOME SILT. - Mixture of f-c sand, well graded; f & c subang to subrounded gravel ½-2 in, cobbles to 4 in, brown-gray to brown - Yellow + red bricks (east end to middle) - Weathered gray phyllite - broken (west end) - Corroded drums w/ tar-like residue, black - Metal debris - remnants of crushed drums	GM	DA-S-TP02-0001-01 (0-1') @ 1255 hr Fill DA-S-TP02-0102-01 (1-2') @ 1315 hr **	Source: 0 ppm BS: 0-1' PID: 4.2 ppm FID: 1.2 ppm	0 ppm
2	fewer gravels	GRAVELLY SAND - SOME SILT - Similar mixture to above w/ fewer f-c gravels - Cobbles to 3.25 in - Brown to dark brown - Corroded drums w/ tar-like residue (west end)	SM	DA-S-TP02-0203-01 (2-3') @ 1245 hr DA-S-TP-DUP02-01 (2-3') @ 1250 hr.	Source = 0 ppm BS (2-3'): PID = 1.1 ppm FID: 2.3 ppm	0 ppm
3	SAND & GRAVEL - SOME SILT	SAND AND GRAVEL - SOME SILT				
4	GRAVEL - SOME SILT	- Similar mixture to above (0-2'); more gravels than 2-3' - less coarse sand visible - mainly f-m sand - Visible drums w/ tar-like residue (west end); none on east end - More metal debris - remnants of crushed drums	GM		Source = 0 ppm	0 ppm
5						
6		- More fine gravel vs. f-c gravel @ 5'; damp, brown - More coarse sand (f-c sand) visible - F-c gravel up to 2 in; dk gray - Damp; Slabs of concrete @ 6' (west end)		DA-S-TP02-0506-01 (5-6') @ 1230 hr Concrete slab @ west end	Source: 0 ppm BS (5-6') FID/PID: 0 ppm	0 ppm

TEST PIT CROSS SECTION AND / OR PLAN VIEW NOT TO SCALE



Water Level Depth: Not encountered – did not want to drag tar-like residue to water **
Pit Dimensions: Length: 17' Width: 5' Depth: 6' (MAX) (west end) Equipment Used: Takeuchi TB175 excavator (small)

REMARKS: Drum source area – corroded drums visible in sidewalk + bottom – appear to extend N+S into sidewalls. Residue is tar-like inside drums – breaks off easily in chunks when not hot outside. ** (petroleum-like odor to residue)

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Excavation prior to digging; all walls – video; drum in excavator jaw

* Collected sample of tar at RIDEM's request + navy approval – sent to lab
** In increased temp, tar-like residue melts + spreads out (determined at later time)
*** w/ navy approval, did not delineate extent of drums or excavate to water table in rock material is brought down w/ excavation

OVER-PACK 1 DRUM W/ TAR-LIKE RESIDUE (~50% OF DRUM INTACT - 55 gal?)
CONTAINERIZE SOME REMNANTS OF DRUMS FOR ∫ AS IDW.

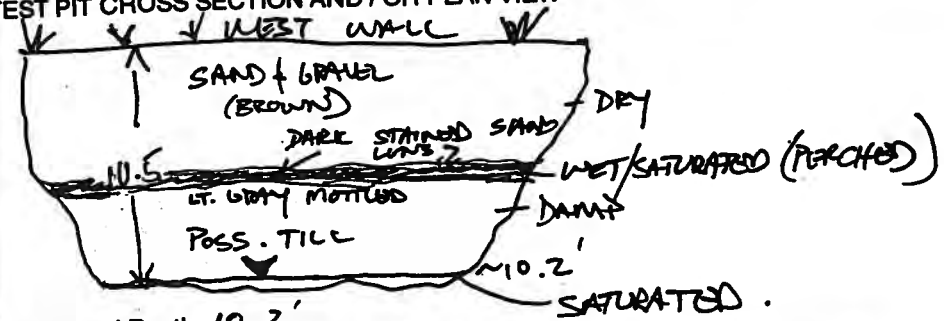
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP05
DATE: 8-11-03
TtNUS Representative: T. DORGAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Breathing Zone	PID/FID READING: Test Pit
0		GRASS SURFACE				
	BROWN/ GRAY	SAND & GRAVEL - MOSTLY F-C WELL GRADED SAND. SOME F-C GRAVEL, FEW COBBLES & TRACE ROUNDED BOULDERS.	SW	DA-S-TP05-0001-01 @ 1545	0.0	0.0
5	BLACK	TRACE CONCRETE SAND @ UPPER CONTACT WITH DARK BROWN-BLACK @ 6.5'	SP	DENSE. WET	0.0	0.0
	LT. GRAY MOTTLED W/ YELLOW ORANGE	POSS. TILL. DENSE MIXTURE OF CLAY, SILT, SAND, GRAVEL, TRACE COBBLES & BOULDERS	ML/SM	DA-S-TP05-0601-01 @ 1445		
10	EOPC 10.5'	END. EXCAVATION @ 10.5' WATER TABLE ENCOUNTERED @ ~10.2'	GS	DA-S-TP05-0910-01 @ 1515 & DA-S-TP-NDUP01-01 @ 1520	0.0	0.0
		NO SIGN OF CONTAMINATION NOTED ON GROUNDWATER ENTERING EXCAVATION. NO ODOR OR SHEEN NOTED.				

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: 10.2'
Pit Dimensions: Length: 9.5' Width: 3-4' Depth: 10.5'
Equipment Used: SM. EXCAVATOR

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.
PHOTO LOG: DIG. SIDES & VIDEO EACH SIDE SHOWN.

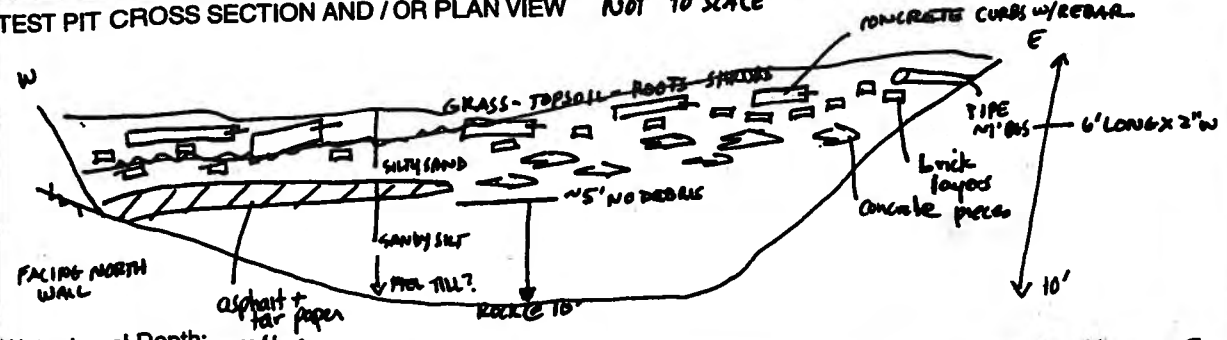
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP06
DATE: 8-13-03
TtNUS Representative: K. Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Source (Background)	PID/FID READING: Breathing Zone (ppm)
0		Grass/thick surface w/roots				
1	SILTY SAND	-SILTY SAND - Mostly f-m sand, poorly graded, brown, dry, organic roots - visible concrete curbs w/rebar - up to 5' long - brick layers (yellow, red, black) - concrete chunks - asphalt ? - (more coarse sand - more well graded - blackish/brownish/gray color)	SM FILL	DA-S-TP06-0001-01 (0-1') @ 1015 hr	Source: 0 HS-0-1' PID 5.2 FID 0	0
2						
3	coarser sand			DA-S-TP06-0304-01 (3-4') @ 1005 hr (MS/MSD)	Source: 0 PID - 5.6 FID - 0	
4	(gravels)	- f/m sand mostly; tr. gravel up to 2" - bricks - reddish orange color to soil	FILL		Source-0	0
5	SILTY SAND	- burlap (green)/asphalt ?/tar paper visible on south wall; asphalt/tar on north wall		NO VISIBLE DEBRIS 5-6'		
6						
7	~7'	SANDY SILT - mostly silt, f-c sand, brown	SM NATIVE ?	NO VISIBLE DEBRIS 6-7' POT. NATURAL SOIL @ 7' NO VISIBLE DEBRIS 7-10'	Source-0	0
8						
9	~9.5'	~~Possible FILL - UNSORTED~~ MIX OF SAND, SILT, C. GRAVEL, CLAY-SIZED PARTICLES, BROWN, WET @ 10', VISIBLE PHYLLITE @ 10'	SC	DA-S-TP06-0910-01 (9-10') @ 0950 hr	Source-0 HS-9-10' PID = 0 FID = 0	0
10						

TEST PIT CROSS SECTION AND / OR PLAN VIEW NOT TO SCALE



Water Level Depth: ~10' bgs
Pit Dimensions: Length: ~22' Width: ~4-5' Depth: ~10'
Equipment Used: Takeuchi TB 175 excavator (small)

REMARKS: - Possible organic sheen on groundwater - grayish, blocky, breaks apart + does not reform

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Area prior to excavation; possibly all but south wall (too unstable to get photo); video

Note - Piece of green burlap visible on south wall @ ~4' bgs
Color change from grayish/brownish/blackish to reddish-orange @ ~4' - coincides w/concrete/bricks
No visible petroleum sheen or odors on soils or water

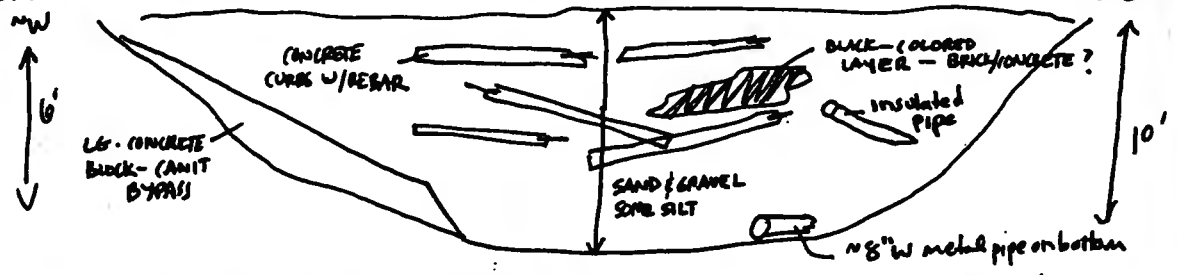
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP 07
DATE: 8-12-03
TtNUS Representative: K Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — BREATHING ZONE (ppm)	PID/FID READING — BZ (ppm)
0						
1	SAND & GRAVEL - SOME SILT	SAND AND GRAVEL - SOME SILT. - Mixture of f-c sand, well graded; f-c gravel, subrounded ½-3 in; construction rubble (concrete, brick, metal etc.), brown cobbles > 3"	GM/ FILL	DA-S-TP07-0001-01 (0-1') @ 1245 hr	Source=0 HS-0-1' FID-0 PID-0	0
2						
3	FILL?	- Similar to above w/subangular gravel		DA-S-TP07-0304-01 (3-4') @ 1230 hr	Source=0 HS 3-4' PID-0	0
4	DEBRIS	- Black concrete/brick - fireproof brick? - Clinkers ? - cobbles		(TARGETED SOIL AROUND BLACK LAYER)	PID-0	
5						0
6	SILTY SAND & GRAVEL	- Similar to above			Source-0	
7						
8		- Similar to above w/ debris incl. insulated pipe (3-4')			Source-0	0
9		- Similar to above w/ additional constr. debris, phyllite fragments - debris includes - fire proof bricks, cinder blocks, plastic, concrete w/rebar, 8" W pipe section		DA-S-TP07-0910-01 (9-10') @ 1140 hr DAMP BOTTOM	Source-0 HS 9-10' FID-0 PID-0	0
10						

TEST PIT CROSS SECTION AND / OR PLAN VIEW NOT TO SCALE



Water Level Depth: Not encountered - walls collapse @ 10' - material @ bottom is soft - close to water

Pit Dimensions: Length: ~15' Width: ~5' Depth: ~10' Equipment Used: Takeuchi TB175 excavator (small)

REMARKS: No petroleum-like stains visible. Black colored layer may be concrete/brick or clinkers

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Before excavation; all walls; video

P. Kulpa (CRIDEM) onsite w/ Navy personnel (K Manley) @ ~11:30 AM

Permission by P. Kulpa to back-fill once sampled.

TEST PIT LOG

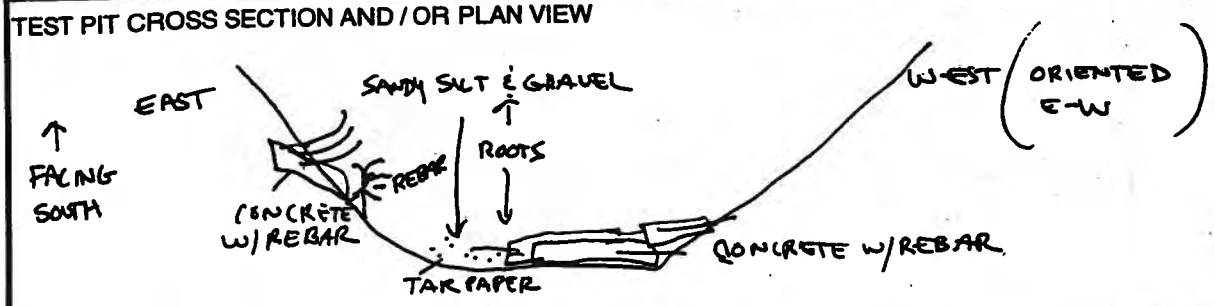
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI

TEST PIT No.: TP08
DATE: 8/15/03
TtNUS Representative: KJ/TD

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Breathing Zone	PID/FID READING: Borehole
1	SANDY SILT & GRAVEL	SANDY SILT & GRAVEL (FILL - DK BROWN F/C SAND, WG, ANGULAR GRAVELS F-C, COBBLES, DAMP, ROOTS	GM	MOUNDED SURFACE DA-S-TP08-0001-01 (0-1') @ 1150 FILL	Source = 0 HS = 0 PID 0 FID	0
2						
3		CONCRETE W/REBAR CURBING		DA-S-TP08-0304-01 (3-4') @ 1130 DA-S-DUP-05-01 @ 1140	Source = 0 HS = 0 PID 0 FID	0
4		— DAMP				
5						
6					Source = 0	0
7		CONCRETE W/REBAR / SANDY SILT & GRAVEL/FILL TAR PAPER LIKE SUBSTANCE W/FIBERS SLAG		DA-S-TP08-0708-01 @ 1115 hr	HS = 170 (PID)	
8				(7-8') V. MOIST	1.9 (FID) TAR LIKE PAPER IN NS JAR	

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: NOT ENCOUNTERED. BOTTOM BLOCKED BY CONCRETE CURBS W/REBAR (COULD NOT BYPASS)

Pit Dimensions: Length: 13 Width: 3-4 Depth: ~~5~~ 6.0' Equipment Used: Takeuchi TB 175

REMARKS: ALL FILL MATERIAL

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Pre excavation; all walls

PK + K. Marley onsite @ ~10. Offsite @ 1115.
TK requested Xtra pits @ TP09 based on hits by metal detector - Navy approve C' depth per PK - no Xtra silt fence needed per PK.

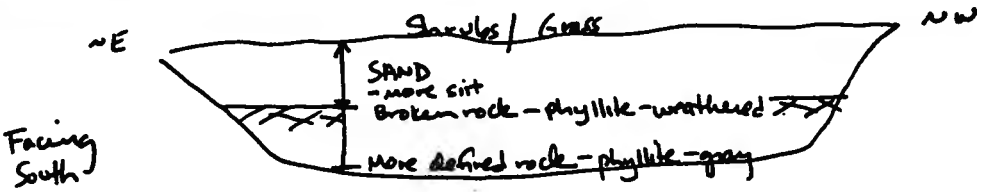
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP09
DATE: 8-14-03
TtNUS Representative: K Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Breathing Zone	PID/FID READING: BZ (BKGD)
0		Shrubs / Grass Surface - Roots				
0.5'	SAND	SAND - TR SILT - Mostly fine sand, poorly graded, loose, dk brown, dry, organic roots	SP	DA-S-TP09-0001-01 (0-1') @ 1410 hr	Source=0 HS-0-1' PID=0 PID=0	0
1	– more silt	SAND - SOME SILT - Similar to above w/ more silt, reddish brown	SM	DA-S-TP09-0102-01 (1-2') @ 1350 hr (45 by 8-14-03) DA-S-TP-DUP04-01 (1-2') @ 1350 hr	Source=0 HS-1-2' PID=0 PID=0	0
2	weathered rock	Broken rock - little to no soil - phyllite - crumbles w/ finger pressure	Broken Rock	No samples for lab → rock	0	0
3	Rock	– more definition to rock Phyllite - weathered - fissile - gray	Rock			
		End of Pit @ ~3'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW Not to scale



Water Level Depth: Beneath rock - not encountered
Pit Dimensions: Length: ~11 Width: ~3 Depth: ~3
Equipment Used: Takeuchi TB175 excavator (small)

REMARKS: All likely native soils. No debris observed. No stains or odors.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Prior to excavation, all walls; video

TEST PIT LOG

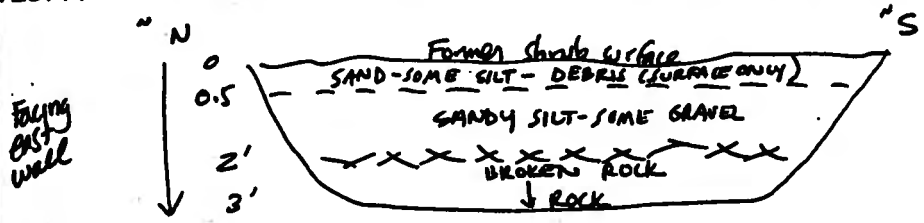
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI

TEST PIT No.: TP 10
DATE: 8-14-03
TtNUS Representative: K Jalkut T. Dorgan

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — Breathing Zone	PID/FID READING — Excavation
0		Former shrub surface - now cleared				
	Sand-Some Silt	Topsoil - SAND - SOME SILT. f-m sand, poorly graded, organic roots, dark brown, dry, fill debris (1 nail, plastic, metal strip, steel cable)	SM Fill 0-0.5'	DA-S-TP10-0001-01 (0-1') @ 1500hr	Source=0 HS-0-1' FID-0 PID-8.1	0
1	~1' Till?	SANDY SILT - SOME GRAVEL Mostly silt, tr. clay-sized particles, f. sand, poorly graded, f-C gravel up to 2in - subangular, yellow-brn dense	GM?	Potential native soil Till ?? DA-S-TP10-0102-01 (1-2') @ 1455hr	Source=0 HS 1-2' PID-0 PID-21.2	0 (?)*
2	~2' rock	Broken rock w/ little soil similar to 1-2'. Bedrock @ ~2.5' - Weathered, fissile, phyllite (more defined than @ 2')	ROCK	No sample for lab analysis	Source=0	0
3		End of pit @ ~3'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: Not encountered. Below rock @ end of pit ~3'
Pit Dimensions: Length: ~11 Width: ~3 Depth: ~3
Equipment Used: Takeuchi TB175 excavator → small

REMARKS: Shallow bedrock - weathered - 1st encountered @ ~2' bgs. More defined @ ~3' bgs. Shallow - surface debris 0-0.5'.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Pre-excavation; all walls - video too

* PID reading may not be real - instrument is very warm (direct sunlight concern).

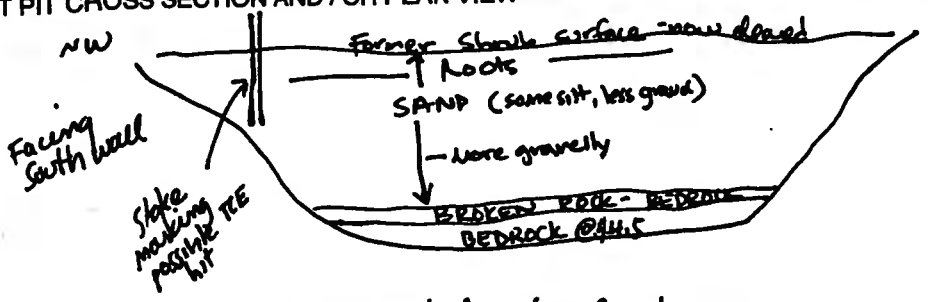
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP11
DATE: 8-14-03
TtNUS Representative: K. Wilkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — Soil/Waste (Ppm)	PID/FID READING — Air (Ppm)
0						
1	SAND - more silt than gravel	SAND - SOME SILT - TR. GRAVEL. Mostly fine, some med. sand, poorly graded, coarse subangular gravel to 1", loose, dk brown, organic roots	SP	Topsoil. DA-S-TP11-0001-01 (0-1') @ 0920 hr. No stains, debris, or odors. Potentially native soil	Source=0. HS 0-1' PID-2.6 FID-0	0
2	- more gravel than silt	SAND - SOME GRAVEL - TR. SILT. Mostly f-m sand, tr. coarse sand, poorly graded, subrounded & subangular coarse gravel up to 1.5 in, brown, dry, loose	SP	DA-S-TP11-0203-01 (2-3') @ 0910 hr. Potentially native soil	Source=0. HS 2-3' PID-NR* FID-0	0
3		- Similar to above (@ 2')	SP	DA-S-TP11-0304-01 (3-4') @ 0850 hr	HS 3-4' PID-NR*	
4	Bedrock	- visible rock fragments (broken rock). Bedrock @ 4' - Weathered, fissile phyllite. End of pit @ ~4.5'	ROCK	Bedrock 4-4.5'	PID-0. Source-0. HS @ 4' (rock) PID-NR* FID-0	0
5						

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: Not encountered - below top of rock
Pit Dimensions: Length: ~12 Width: ~3 Depth: ~4.5
Equipment Used: Takeuchi TB175 excavator (small)

REMARKS: Excavation directly under stake that marked a possible TCE hit w/ soil gas. Likely all native soils. Biased soil sample collection by collecting soil samples in vicinity of TCE hit from soil gas

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Excavation area, prior to digging; all walls - video too

* NR - Not recorded - not likely accurate - instrument in sun - too hot.

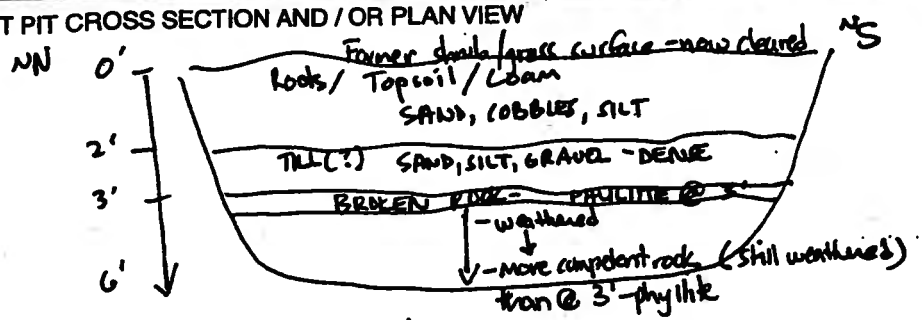
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP 12
DATE: 8-13-03
TtNUS Representative: K Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Breathing Zone	PID/FID READING: Borehole
0		Former shrub/grass surface - now cleared				
1	SAND, COBBLES, SILT	SAND - SOME COBBLES - SOME SILT - f-m sand, poorly graded, rounded to subrounded cobbles up to 4in, organic roots, dry, dense, dk brown to gray brown	GM	DA-S-TP12-0001-01 (0-1') @ 1525 hr Topsoil / Loam DA-S-TP12-0102-01 (1-2') @ 1515 hr	Source=0 HS 0-1' PID=0 FID=0 Source=0 HS 1-2' FID=0 PID=0	0 0
2	TILL?	SAND - SOME SILT - TR. GRAVEL - f-m sand, poorly graded, coarse, sub-angular gravel up to 2"; dk-gray to brown, dense	SM/TILL?	DA-S-TP12-0203-01 (2-3') @ 1505 hr	Source=0 HS (2-3') FID=0 PID=0	0
3	Bedrock @ ~3'	- Change in color to brown only Bedrock - weathered phyllite, soft, angular pieces (broken rock) up to 6" in length - fissile	ROCK	No soil samples for lab analysis 3-6' (end of pit)	Source=0 HS (3-6') FID=0 PID=0	0
4						
5						
6		- Similar to above but rock is more competent than above (EOP @ 6')				

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: Not encountered - below top of rock
Pit Dimensions: Length: ~12 Width: ~3.5 Depth: ~6
Equipment Used: Takeuchi TB175 excavator (small)

REMARKS: No debris observed - potentially all native soil. Possibly till above bedrock. Bedrock bedding mound on "plateau". No petroleum stains or odors found

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Prior to excavation; all walls - video too

TEST PIT LOG

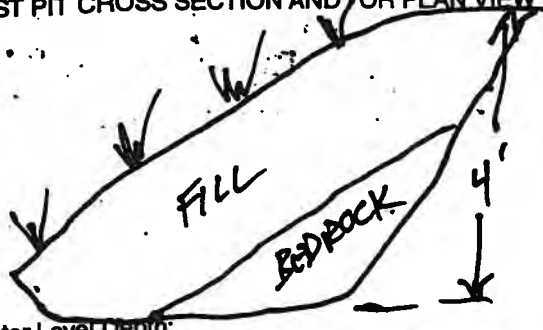
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI

TEST PIT No.: TP 12-A
DATE: 8-15-05
TtNUS Representative: T. DORGAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — Breathing Zone	PID/FID READING — Borehole
0		JUNCT @ GRADE SURFACE.				
2		FILL. SILTY, SAND. ABUNDANT MAN-MADE DEBRIS INC. STEEL FRAME/BEAM, ALUM. SHEET METAL, PLASTIC, FIBERGLASS PANEL & METAL WIRE.	SM FILL	DA-S-TP12A-0001-01 @ 1445	0 PID & FID	0
4	~2.5-3'	BEDROCK (SAPROLITIC) @ ~2.5-3' BGS. PHYLLITE/SHALE. LT. GRAY				
		EOT @ 4' BGS				

TEST PIT CROSS SECTION AND/OR PLAN VIEW — TP12 → (LOOKING SOUTH)



Water Level Depth:
Pit Dimensions: Length: 6' Width: 3' Depth: 4' MAX. Equipment Used: SM. EXCAVATOR

REMARKS: TEST PIT ADJED PEAK KULPA (RIDUM) REQUEST TO INVESTIGATE MAGNETIC ANOMALY HE FOUND USING A SCHONSTEDT MAG. LOCATOR LIKELY CAUSE BY 3' LONG STEEL FRAME & METAL WIRE.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: PHOTO OF PIT FROM ABOVE LOOKING EAST & OF STEEL FRAME.

TEST PIT LOG

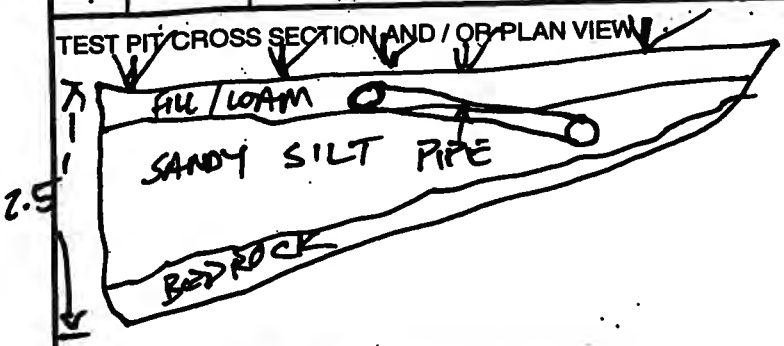
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI

TEST PIT No.: TP12-B
DATE: 8-15-03
TtNUS Representative: T. DORGAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — Breathing Zone	PID/FID READING — Borehole
0		SHOWINGS @ SURFACE				
	6"	UPPER 6": LOAM. SILTY, FINE POORLY GRADED SAND, ROOT FIBER & LEAF LITTER ABUNDANT. SANDY, SILT. MOSTLY SILT SOME F-C SAND, TRACE GRAVEL OVERLYING SAPROLITIC	SP	PIPE (2" DIAM) IN UPPER 6" BENT & BROKEN, PID & FID STEEL. ~4' LONG. DUP-S-TP12-B-0001-01 @ 1415	0	0
2		BEDROCK (PHYLLITE/SHALE) DEPTH TO BEDROCK VARIES, DUE TO SLOPE OF ROCK SURFACE, FROM 1.5-2.5.				
		EOP @ 2.5' BGS		NO VIS. OR OLFACTORY EVIDENCE OF CONTAMINATION FROM WITHIN THE PIPE OR SOILS.		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth:

Pit Dimensions: Length: 5' Width: 3' Depth: 2.5'

Equipment Used: SM. EXCAVATOR

REMARKS: TEST PIT ADDED PER PAUL KULTA (RIDEM) REQUEST TO INVESTIGATE MAGNETIC ANOMALY HE FOUND USING A SCHONSTEDT MAG. LOCATOR. MOST LIKELY CAUSED BY STEEL PIPE.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: 1 PHOTO OF TEST PIT & 1 OF PIPE.

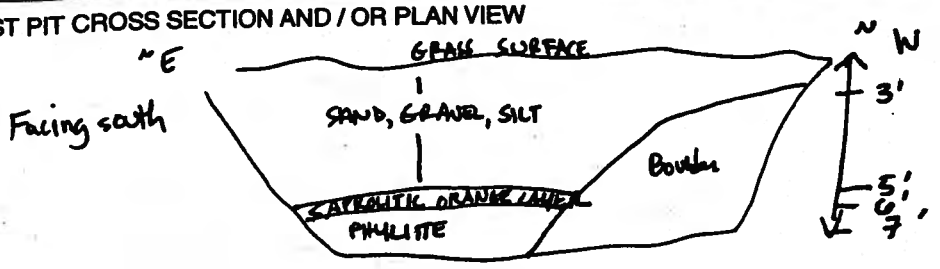
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP13
DATE: 8-15-03
TtNUS Representative: K. Valkut / T. Dorgan

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION — Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING — Breathing Zone	PID/FID READING — Excavation
0		Grass surface				
1	SAND & GRAVEL, SILT	SAND AND GRAVEL - SOME SILT - f-c sand, well graded, f-c gravel, subangular and subrounded up to 3 in, organic roots, dry, dk brown	GM	DA-S-TP13-0001-01 (0-1') @ 0930 hr	Source-0 HS-0-1' PID-1.1 FID-5.2	0
2						
3	sample	- Boulder @ south west end of pit (could not bypass)	Boulder	DA-S-TP13-0203-01 (2-3') @ 0935 hr	Source-0 HS-2-3' PID-0 FID-0	0
4				DA-S-TP13-0405-01 (4-5') @ 0940 hr (MS/MSD)	Source-0 HS 4-5' PID-0.9	0
5	Boulder @ 3-4' west end	Bedrock - saprolitic, decomposed metamorphic rock, fissile, orange	Rock		PID-4.1	
6		- Phyllik bedrock more discernable			Source-0 HS (6-7') PID-0 FID-0	0
7		End of pit @ ~7'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: Not encountered - water below top of rock
Pit Dimensions: Length: ~13.5 Width: ~3 Depth: ~7
Equipment Used: Takeuchi TB175 excavator (small)

REMARKS: Likely all native material. No debris observed. No petroleum staining or odors

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Prior to excavation, all walls, video tape

TEST PIT LOG

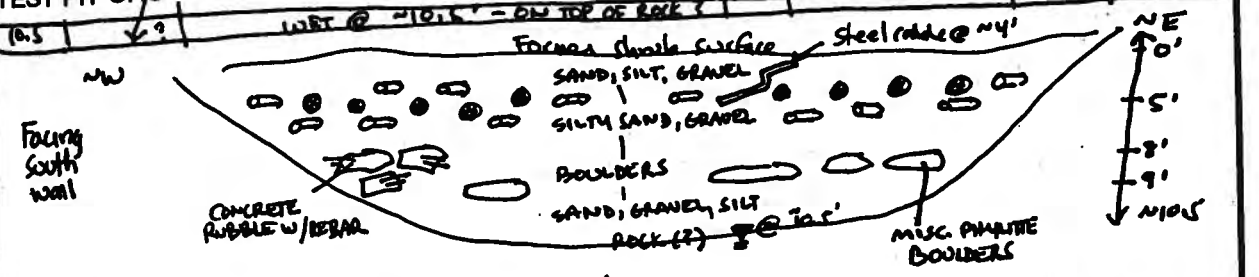
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI
TEST PIT No.: TP 14
DATE: 8-14-03
TtNUS Representative: K Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Soil Gas (Headspace)	PID/FID READING: Breathing Zone
0		Former ground surface – now covered				
1	SAND, SOME SILT, GRAVEL	SAND - SOME SILT - SOME GRAVEL - f/m sand, tr. c. sand, poorly graded - f to c gravel, sub rounded/subangular to 2" - roots, brown, damp	SP/GP FILL	DA-S-TP14-0001-01 (0-1') @ 1210 hr NO DEBRIS	Soil Gas=0 HS 0-1' PID-0 FID-1.2	0
2						
3	DEBRIS	— DEBRIS INCL. CORRODED CANS, CIRCULAR MESH SCREENS (~5" diam)		START OF DEBRIS @ ~3'		
4		— LONG STEEL CABLE				
5	SILT, SAND GRAVEL	SILTY SAND - SOME GRAVEL - f/m sand, tr. c. sand, poorly graded - f to c gravel, subrounded - subangular - gray brown	SM/GM FILL	DA-S-TP14-0506-01 (5-6') @ 1200 hr	Soil Gas-0 HS 5-6' PID-0 FID-1.8	0
6						
7	DEBRIS	— DEBRIS INCL. - CORRODED CANS, MORE CIRCULAR MESH SCREENS, METAL STRAPPING, CONCRETE RUBBLE W/ REBAR (FORMER WARS (?)) RED-BROWN CORRODED DEBRIS		DEBRIS ENDS @ ~8' at boulders	Soil Gas-0	0
8		— PHYLLITE BOULDERS - LOOSE	BOULDERS			
9	SAND, GRAVEL, SILT	SAND AND GRAVEL - SOME SILT. - F-C sand, well graded, f to c gravel up to 1.5 in - subrounded, red-brown, damp	SW/GW	DA-S-TP14-0910-01 (9-10') @ 1150 hr MS/MSD NO DEBRIS/STAINING	Soil Gas-0 HS 9-10' PID-0 FID-2.1	0
10	ROCK	ROCK (?) - HARD SURFACE				

TEST PIT CROSS SECTION AND / OR PLAN VIEW

10.5 ↓? WET @ ~10.5' = ON TOP OF ROCK ?



Water Level Depth: ~10.5' - possibly at top of rock
Pit Dimensions: Length: ~16.5' Width: ~4.5' Depth: ~10.5'
Equipment Used: Takeuchi TB 175 excavator (small)

REMARKS: Corroded cans may have been pressurized - rounded bottoms, approx. 6" length - found in large # open-ended 3'-6' bgs. Associated w/ some mesh screens. Likely all fill on top of rock (incl. loose boulders)

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Prior to excavation, all walk, cans in excavator bucket

- No oil or other stained soil observed. No odors w/olfactory sense
- Debris ends @ ~8' on west end (concrete rubble w/rebar) + 6' on east end (cans)

TEST PIT LOG

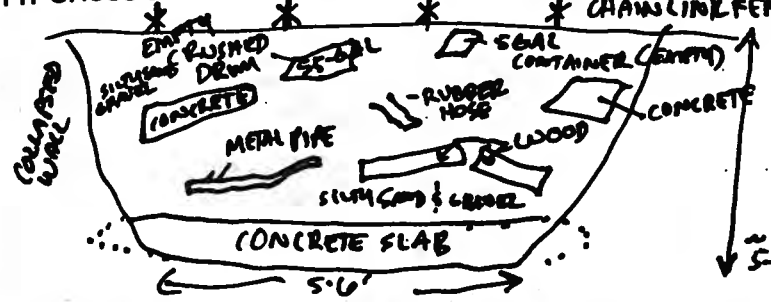
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08
PROJECT NUMBER: N8856-0530
LOCATION: Newport, RI

TEST PIT No.: TP015 (1 of 5)
DATE: 8-11-03 / 8/12/03
TtNUS Representative: T. DeAngelo

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Breathing Zone	PID/FID READING: Pit
0		(GENERALLY) GROUND SURFACE W/ GRASS AT SURFACE				
		ADJACENT PARKING LOT. 1ST EXC. BUCKET PULLS OUT AN OLD 5 GAL CONTAINER W/ BLACK TAR-LIKE RESIDUE. 0.0 PPM PID & FID. 2ND EXC. BUCKET REMOVES A WHITE POLYETHYLENE CONTAINER (~15 GAL CAPACITY) EMPTY, 0.0 PPM PID & FID. NO MARKINGS. 3RD EXC. BUCKET UNCOVERS A RUSTED 55 GAL. DRUM CARCASS (0.0 PPM PID & FID). ALSO, A PVC. PIPE SCREEN.				
2'		STOP EXC. TEMPORARILY. 0-1' - SILTY SAND & GRAVEL FILL - SIMILAR TO 2-3', @ 5'-6' - DRY, BROWN, DAMP. FILL: SILTY SAND & GRAVEL - F-C SAND, F/C GRAVEL, SUBROUNDED, BROWN, DAMP	ALL FILL	DA-S-TP15-0001 @ 1000 8/12/03	0	0
3'		RUBBER HOSE AT S. WALL - BLACK. BOULDERS - > 3'	GM		WELL GRADED	
3'		BRICK, CONCRETE SLABS 2-4' WIDE 3' LONG, WOOD DEBRIS, METAL PIPE ~4' LONG - 3" DIAM; NAILS, WIRE		DA-S-TP15-0203 @ 0950 8/12/03	0	0
4'		RUBBER? HOSE AT SOUTH END (WALL) BLACK				
5'-6'	FILL	MASONRY CONCRETE SLAB 5' WIDTH AT BOTTOM - CAN'T BYPASS - SIDEWALLS COLLAPSING - SILTY SAND & GRAVEL - F-C SAND, WELL GRADED, F/C GRAVELS - SUBROUNDED TO SUBANGULAR ID 4"	GM	DA-S-TP15-0506 @ 0940 8/12/03	0	0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: NOT ENCOUNTERED

Pit Dimensions: Length: 10' Width: ~5'-6' Depth: 5-6'

Equipment Used: TAKEUCHI EXC. TB175

REMARKS: CRUSHED DRUMS WERE EMPTY - NO FLUIDS OBSERVED. NO VISIBLY STAINED SOILS. ALL FILL MATERIAL

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: DIG. PHOTOS - NORTH, SOUTH, WEST WALLS - CAN'T GET PHOTO OF EAST WALL - UNSAFE TO ACCESS

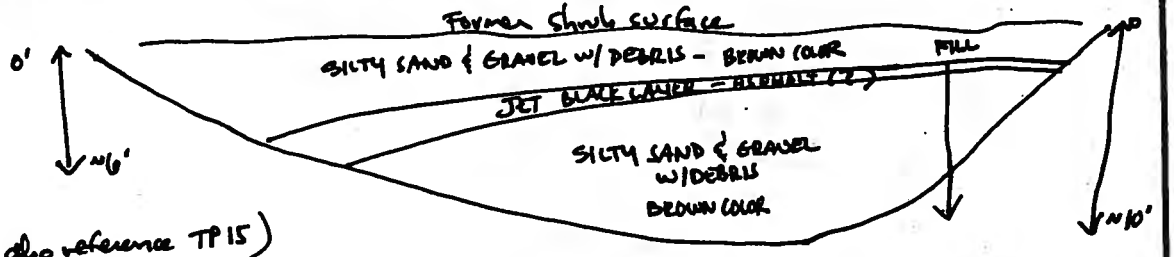
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area SA-08 TEST PIT No.: TP 15A
PROJECT NUMBER: N8856-0530 DATE: 8-12-03
LOCATION: Newport, RI TtNUS Representative: K. Jalkut

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, moisture, etc.)	USCS	Remarks/ Sample ID and Time	PID/FID READING: Breathing Zone	PID/FID READING: Test Pit
0		Former Shrub Surface - now cleared				
1–3	Silty Sand & Gravel Debris	SILTY SAND AND GRAVEL w/ DEBRIS - f/c sand, f/c gravel up to ~2.5 in, subrounded, subangular, bricks, concrete and w/ rebar; JET BLACK COLORED LAYER - MATERIAL MAY BE ASPHALT (?) - TBD	GM / FILL	No sample for lab from 0-1'. DA-S-TP15A-0103-01 (2-3') @ 1235 hr targeted soil above jet black material (Does have black material in it)	Source-0 HS 2-3' PID-0 FID-0	0
4–6	Jet black layer - asphalt?	– black layer on north wall at ~6' thick on west end; 3' thick on east end @ 8-12-03 (i.e. depth)	Black Layer	DA-S-TP15A-0506-01 (5-6') @ 1445 hr	Source-0 HS (5-6') PID-0 FID-0	0
7–8	Silty Sand & Gravel w/ debris	SILTY SAND AND GRAVEL – Similar to material from 0 to ~3'; – Brown coloration	GM / Fill		Source-0	0
9–10		– Construction debris, more metal encountered ~10' - hole collapsing		DA-S-TP15A-0910-01 (9-10') @ 1525 hr	Source-0 HS 9-10' PID-0 FID-0	0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



(Look also reference TP 15)

Water Level Depth: Not encountered

Pit Dimensions: Length: ~15' Width: ~4-6' Depth: ~6' (west end), ~10' (east end) Equipment Used: Takeuchi TB 175 excavator (small)

REMARKS: Likely all fill material. Test pit excavated perpendicular to TP15 - at RIDEM's request + Navy approval based on signals from RIDEM's metal detector.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths.

PHOTO LOG: Not prior to excavation - north, west, east walls only - access too difficult to shoot South wall

Note - Targeted soil above jet black layer for sample analysis per RIDEM request + Navy approval (K. Marley). Collected sample of jet-black colored material at RIDEM's request + navy approval (K. Marley / Ritchie Machado ??). Also collected sample of jet-black material for P. Kulpa - RIDEM - sample to be released when TEXASS results avail. for Navy. Sample being held in sample refrigerator @ K. Marley office until release to P. Kulpa.

APPENDIX A.2

BURIED DRUM AND CONTAINER REMOVAL ACTION (TN & ASSOCIATES, INC. 2006)

LIBRARY

FINAL
INTERIM REMEDIAL ACTION REPORT

LIMITED SOIL REMOVAL ACTION
DRUM DISPOSAL AREA,
PAINT CAN DISPOSAL AREA,
SITE 8 NUWC (FORMERLY NUSC) DISPOSAL SITE
MIDDLETOWN, RI

Prepared for:

Naval Facilities Engineering Command
NAVFAC Mid-Atlantic
9742 Maryland Ave.
Norfolk, VA 23511-3095

Prepared by:

T N & Associates, Inc.
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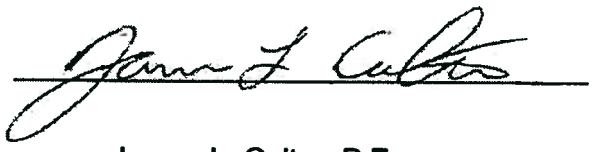
Raleigh, North Carolina 27604

TN &A T N & Associates, Inc.
Engineering and Science

DECEMBER 2006

STATEMENT OF ACCEPTANCE

I have reviewed the work conducted by T N & Associates under Navy contract N62472-01-D-0807, Contract Task Order 6, as outlined in the Draft Final Interim Remedial Action Completion Report for Installation Restoration (IR) Site 8, NUSC Disposal Area, Navy Undersea Warefare Center, Middletown, Rhode Island. The intent of this Interim Remedial Action was to only remove drums and paint cans that could be identified through visual observation either prior or during excavation activities along with any visibly stained soils and to backfill the excavations with certified clean fill to grade and to conduct site restoration activities that included the re-vegetation of the site with grass. Further, the intent of this project was not delineate, remove or confirm the presence of any and all contaminated soils that may be present on this site, and as such, confirmatory sampling was not conducted at the direction of the Navy. I have determined that the work outlined in this Completion Report does conform to the scope of work contained in the above-referenced contract number and that T N & Associates did properly implement those actions to the satisfaction of the Naval Facilities Engineering Command.

Signature: 

Name: James L. Colter, P.E.

Title: Remedial Project Manager

Date: 2 November 2006

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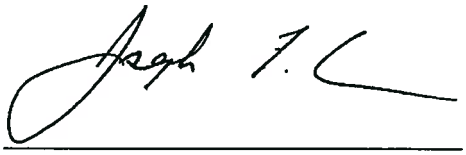
PROFESSIONAL REVIEW CERTIFICATION

This Remedial Action Completion Report was prepared using sound engineering principles and judgment under the direction of the undersigned professional engineer. If conditions are determined to exist that differ from those described, the undersigned should be notified to evaluate the effects, if any, of additional information on the report findings. This document was prepared based on the available assessment documents and the excavation and sampling conducted by TN & Associates, Inc. at the Naval Undersea Warfare Center, Middletown, Rhode Island. This document was prepared in accordance with Rhode Island Department of Environmental Management (RIDEM) directives and protocols, and should not be construed to apply to any other site.



Joseph T. Clifford, P.E.

Date December 15, 2006

1.0 INTRODUCTION

T N & Associates, Inc. (TN&A) performed removal activities at the Naval Undersea Warfare Center (NUWC) Disposal Area, formerly known as NUSC, Installation Restoration (IR) Site 08 in Middletown, Rhode Island.

The objective of this removal action was to remove soils, drums, and buried metal aerosol containers from the IR Site 08 – NUWC Disposal Area in accordance with Solicitation N62472-04-Q-EM52 dated 20 August 2004. Previously, two (2) designated source areas within the NUWC Disposal Area had been identified during a site investigation in August of 2003 by Tetra Tech NUS, Inc. These are the Buried Drum Area and the Buried Metal Container Area.

This work was performed by TN&A under contract to the United States Navy; Contract Number N62472-01-D-0807, Delivery Order 0006. All collection, preservation, transportation, chain-of-custody, and analysis activities were performed in accordance with United States Navy, United States Environmental Protection Agency, and the Rhode Island Department of Environmental Management (RIDEM) directives and protocols.

1.1 Site Description

The Solicitation states the following as the background for the site condition:

The NUWC is located in Middletown, Rhode Island immediately adjacent to Naval Station Newport. The NUWC Disposal Area occupies approximately 8 acres north of Building No. 185 and Cunningham Street. The Wanumetonomy Golf and Country Club borders the site to the north. Building No.185 consists of a series of four open-sided covered sheds with 2-foot high concrete berms. Building No.185 is considered the southeastern limit of the site. The sheds are used for storage of drummed oils and torpedo propellants (otto fuel). A small stream, identified as Deerfield Creek, and the surrounding wetlands make up the southwestern site boundary. The NUWC Disposal Area extends west-northwest to the small pond known as "Deerfield Pond" or "NUWC pond".

The upland portions were used as a fill area and storage areas since the Navy developed the site in the early 1950's. The site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the site. Elevations range from approximately 58 feet at the southeast corner of the disposal area to 25 feet, which was the measured elevation of the pond at the north end of the disposal area.

There is limited available historical information on the NUWC Disposal Area. The site is reported to have been used for disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time between the 1950's and 1988. A Study Area Screening Evaluation (SASE) for the NUWC Disposal Area was conducted in June-November 2003. The SASE found some areas where elevated VOCs were present and these, along with other target areas were investigated with a series of test pits, soil borings and groundwater monitoring wells.

Chlorinated solvents including (trichloroethene [TCE] and tetrachloroethene [PCE]) were found in groundwater at the north (down gradient) end of the site. TCE was also found in soil gas in the central portion of the site near buried drums (Buried Drum Area), although only low concentrations of TCE were detected in soils and groundwater in this area. During excavation of Test Pit 02, a corroded 55-gallon drum with a tar-like substance was removed and disposed of off-site. The drum

was located approximately six (6) feet below ground and two (2) additional drums were observed in the sidewalls of the test pit, but not removed.

Other findings of the SASE included a large number of buried deteriorated metal containers that are possible empty aerosol paint cans in the stream embankment in the south west portion of the site (Buried Metal Container Area), confirmed through test pit excavation (TP14) in this area. Elevated concentrations of lead were found co-located with these containers and in the stream sediments downstream as far as the NUWC Pond. The horizontal extent of the Buried Metal Container Area is unknown, but the vertical extent is anticipated to be less then 8 feet below ground surface.

The site was generally overgrown with grass, weeds, and scrub brush surrounding the asphalt parking lot storage area. Security patrolled regularly to inspect the site perimeter. The site is east of the walking trail along the Golf Course with no secondary fencing.

1.2 Project Scope

As described below, the original project scope was expanded to incorporate removal of additional contaminated materials. This necessitated two mobilizations to complete the work which we refer to as Phase 1 and Phase 2.

1.2.1 Phase 1

In the Buried Drum Area, the original scope of the project included excavation and removal of two buried drums; identification of additional unknown drums are buried within 15 feet of the recovered drum location; removal of up to eight more drums (for a total of ten drums removed); and removal and disposal of approximately eight tons of associated soil. The scope was modified to add 34 buried drums, 50 additional tons of soil, and four 15-foot test pits.

In the Buried Metal Container Area, the original scope of the project included removal and disposal of approximately 284 tons of soil/debris. This was modified to include an additional 100 cubic yards (CY) of soil/debris.

This phase addressed:

- Preparation and Submission of Site-Specific Plans including a Work Plan, Health and Safety Plan (HASP), Soil Erosion and Sediment Control Plan, and Quality Control Plan
- Mobilization
- Site preparation including clearing and grubbing
- Establishment of temporary support facilities including a small office trailer and portable sanitation units
- Utility location, identification, and dig permits
- Demarcation of the two excavation areas (buried drum and metal container areas)
- Construction of soil, drum, and debris staging areas
- Excavation of the Buried Drum Area to the dimensions required
    - Uncovering, removing, and over-packing drums encountered.
    - Removal and staging (in the soil, drum, and debris staging areas) of soils deemed "contaminated" via field screening.
- Excavation of the Buried Metal Container Area to the dimensions required
    - Excavation and staging (adjacent to the excavation) overlying "clean" soils.
    - Uncovering, removing, and staging buried metal debris and associated soils.

- Relocation of Utility Pole to facilitate excavation of additional materials
- Sampling and Analysis
    - Removed and over-packed drums were sampled for Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semivolatile organic compounds (SVOCs), TCLP Pesticides, TCLP Herbicides, TCLP Metals, total Polychlorinated Biphenyls (PCBs), Total Petroleum Hydrocarbons (TPH), total VOCs, and total metals.
    - Staged "contaminated" soils and debris stockpiles were sampled via collection of a 4-point composite sample. Samples were analyzed for TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, TCLP Metals, total PCBs, TPH, total VOCs, and total metals.
    - Proposed topsoil materials were sampled and analyzed for VOCs, SVOCs, Pesticides, PCBs, Metals, and cyanide in order to "certify" that the proposed materials are "clean" as compared to the RIDEM Direct Exposure Criteria for residential use soils.
- Load-out of soils
- Grading, Backfill, and Compaction
    - Backfill of the excavations with imported "certified clean" common fill.
    - Installation of demarcation barrier (filter fabric) between existing soils and imported certified clean backfill materials.
- Restoration
    - Topsoil Placement - excavation areas covered with a 6-inch thick layer of topsoil.
    - Seeding, Fertilizing, and Mulching - all disturbed areas restored with a grass seed mix closely matching the existing species.
- Demobilization of contractor personnel, equipment, materials and temporary facilities.

1.2.2 Phase 2

The identification of additional buried drums and contaminated soils in the Buried Drum Area resulted in a contract modification and remobilization (Phase 2). This modification added 2 roll-offs of buried drums and 100 tons of soil for transportation and disposal. In the second phase, personnel, equipment and temporary support facilities were remobilized to the site. An area measuring approximately 25 feet wide by 30 feet long and 6 feet in depth was excavated and drums and soils were removed. The drums and soils removed during excavation were hauled off site and disposed of properly. Clean fill and topsoil was obtained from the same source used in Phase 1 of the project and used to backfill and restore the area.

1.2.3 Remedial Action Completion Report

This Remedial Action Completion Report is the final closeout activity for the project. It includes all Post-Construction Deliverables as required per the Contract. Details of the remedial activities performed are provided in Section 2.0. Section 3.0 includes analytical results, and Section 4.0 presents conclusions and recommendations. Additional submittal information including sample results, waste bill of ladings/manifests, boring log, and project photographs are presented in the Appendices.

2.0 REMEDIAL ACTIVITIES

The purpose of this project was to remove, transport, and dispose of contaminated soils from two point sources at the NUWC identified by SASE (November 2003) and directed by the US Navy. The SASE document is the basis for the remedial action undertaken by TN&A.

2.1 Site Activities

TN&A's Dig Safe utility clearance was first established on June 2, 2005. Additional drums were discovered during the initial excavation so utility clearance was re-established on September 26, 2005 and February 21, 2006 for the additional removal activities.

TN&A and its excavation contractor, Maverick Construction Management Services, Inc. (Maverick) of Auburn, MA, mobilized to the site for Phase 1 in June 2005 and again for Phase 2 in February 2006. Maverick installed the erosion controls and built the soil staging areas. Erosion controls consisted of hay bale reinforced silt fence along the bottom of the slope in the metal container area. TN&A and Maverick also offset all the soil excavation stakes in order that excavation could proceed.

Air monitoring was conducted in accordance with the approved HASP using a hydrogen cyanide meter, combustible gas meter, and aerosol dust meter. This field screening equipment was used for monitoring personnel safety only. Personal Protective Equipment (PPE) was used as appropriate for each area of contamination in accordance with the approved Health and Safety Plan. This included Level B, C and D protection. No elevated readings were recorded during excavation activities within the breathing zone. Used PPE was added to the bulk waste stream and disposed. Equipment was decontaminated and rinseates were added back to the bulk waste prior to loadout.

The contaminated soils were segregated into stockpiles for waste characterization for each area. Excavated material was stockpiled on bermed containment areas lined with plastic sheeting. During Phase 1, all recovered drums were over-packed, and staged for disposal on bermed plastic sheeting containments. In Phase 2, the recovered drums were placed directly into a lined roll-off container. Additional details of the activities performed in each of the two remediation areas are provided below.

2.1.1 Buried Drum Area

Phase 1 - The original scope for the NUWC Buried Drum Area called for the removal of two known buried drums and for the Contractor to determine if there were more drums within fifteen feet of the initially discovered drum. The contractor was then to get rid of up to eight additional undiscovered drums. In this scope of work, five drums and approximately eight (8) tons of contaminated soil were removed. Drums were over-packed immediately after removal.

Drums were not encountered on the north, south, or west (opposite) sides of the original excavation. Additional drums were observed to be present in the eastern excavation area once the original limits were achieved. Therefore, the Contracting Officer (CO) requested that TN&A remove additional contaminated soil and/or drums remaining. During the month of October 2005, an additional 23 drums (total of 28 drums) and 45 tons of contaminated soil (total of 53.1 tons) were removed by modification to the contract.

Four 15-foot long test pits to a depth of at least 6 feet along with the soils in between the test pits were excavated to determine if additional drums were present. Test pits focused on the east side and continued until a visibly clean test pit was completed. Additional drums were located and removed during test pitting. A second modification to the contract was issued to remove the remaining drums discovered in the Phase 1 test pits (see Figure 1).

Phase 2 - In February 2006, excavation of the remaining area produced an additional 8 drums. The drums removed from this effort were placed in a lined roll-off container. A small quantity of contaminated soil was added to the roll-off container before its transport and disposal. The loaded roll-off container weighed 6.97 tons. An additional 52.82 tons of non hazardous soil was removed during Phase 2.

The excavated soils that were not visibly stained were placed back in the excavation and then overlain with a 6 mil plastic sheeting barrier. Certified clean fill was brought up to final grade from the demarcation barrier of the plastic sheeting. No confirmatory samples were required as part of the scope of work.

The size of the final excavation measured 25 feet wide by 60 feet long by 6 feet deep. The minimum excavation depth in the drum disposal area was 6 feet, with some locations as deep as 8 feet. Groundwater was not encountered in the excavations. No metal surveys were included. Waste disposal samples were collected as described below.

Photographs of the Buried Drum Area are found in Appendix A and include photos from all phases of work. Additional description of the excavated soils from the Buried Drum Area is provided in Appendix B.

2.1.2 Buried Metal Container Area

The original excavation area for the Buried Metal Container Area measured 34 feet wide by 30 feet long to a maximum depth of 8 feet. This scope included excavation of an estimated 240 tons of impacted soils and debris of which approximately 208 tons were transported off site for disposal.

All boundaries of the Buried Metal Container Area were inspected after the "planned excavation" was completed. Visible inspections confirmed that the excavation depth was adequate to achieve removal of visible paint cans and it was determined that test pits were not necessary. Additional buried metal containers were identified on the south side of the excavation. No paint cans were present on the north, south, or east sidewalls of the excavation.

The buried metal containers present on the southern side of the excavation area were in close proximity to an electrical power pole. Due to safety concerns related to potentially undermining the power pole, the CO was notified. The CO requested that TN&A relocate the power pole and remove additional contaminated soil. The Navy issued a contract modification to remove all feasible paint cans without undermining the roadway culvert entrance. TN&A subsequently removed the additional soil and debris. Approximately 28 tons were transported off site for disposal. All encountered metal containers within the limits, as outlined in Figure 2, were removed. Some paint cans remain on the south end of the excavation underneath the roadway culvert entrance.

Certified clean fill was brought up to final grade from the demarcation barrier of the plastic sheeting. No confirmatory samples were required as part of the scope of work.

The size of the final excavation measured 30 feet wide by 23 feet long by 8 feet deep. Groundwater was not encountered in the excavations. No metal surveys were included. Waste disposal samples were collected as described in Section 2.2 below.

The original and final excavation limits for the Buried Metal Container Area are shown in Figure 2 and photographs are provided in Appendix A. Additional description of the excavated soils from the Buried Metal Debris Area is provided in Appendix B.

2.2 Waste Disposal Sampling

As per the approved SAP, soil samples were collected for waste characterization and clean fill certification. Each is described below. Results are presented in Section 3.0. Final laboratory reports can be found in Appendix C.

2.2.1 Buried Drum Sampling

During Phase 1, over-packed drums were staged for disposal on bermed plastic sheeting containments. A disposal sample was collected by combining aliquots from the drums and mixing the sample thoroughly to create one composite material in accordance with the standard operating practice (SOP) TN SOP012B – Drum Sampling.

Sample Identification 08DRUM was placed in appropriate containers and sent under chain-of-custody (COC) via overnight courier to Mitkem Corporation (Mitkem), a Navy-approved, Connecticut-certified laboratory for analysis of volatile organic compounds (VOCs), total Polychlorinated Biphenyls (PCBs), Total Petroleum Hydrocarbon (TPH), Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP semivolatile organic compounds (SVOCs), TCLP Pesticides, TCLP Herbicides, and TCLP metals. Sampling and mixing utensils were decontaminated in accordance with the Sampling and Analysis Plan (SAP) prior to and after composite mixing.

Table 1 summarizes the waste characterization sample results for the over-packed drum sample. Laboratory analytical results for the sample can be found in Appendix C.

2.2.2 Contaminated Soils from Buried Drum Area

The contaminated soils for the Buried Drum Area were segregated into two stockpiles for waste characterization. All excavated material was stockpiled on bermed containment areas lined with plastic sheeting. A disposal sample was collected by obtaining a single grab sample from each segregated pile following SOP TNSOP006B – Surface Soil Sampling. Each excavation pile was divided into four quadrants and one 4-point composite sample was collected. Composite samples were collected from each stockpile and combined into one overall composite sample that was representative.

Sample identification NUWC08DRUMSOIL was placed in appropriate containers and sent under chain-of-custody (COC) via overnight courier to Mitkem for analysis of VOCs, total metals, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, TCLP metals, and reactivity. Sampling and mixing utensils were decontaminated in accordance with the SAP prior to and after composite mixing.

Additional analyses were required for disposal of the drums and associated debris during the second phase of work. Samples were collected and analyzed for corrosivity and ignitability. Samples were delivered directly to Mitkem. The sample identification number was NUSC-DRUM-02.

Table 1 summarizes the waste characterization sample results for the soil disposal sample. Laboratory analytical results for the sample can be found in Appendix C.

2.2.3 Buried Metal Container Area – Aerosol Cans

All screened and visually contaminated soil was placed into bermed plastic sheeting containment. A disposal sample was collected by obtaining a single grab sample from each segregated pile following SOP TNSOP006B – Surface Soil Sampling. Each excavation pile was divided into four quadrants and one 4-point composite sample was collected. Composite samples were collected from each stockpile and combined into one overall composite sample that was representative.

Sample identification NUWC08CONTAINER was placed in appropriate containers and sent under chain-of-custody (COC) via overnight courier to Mitkem for analysis of VOCs, total metals, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, and TCLP metals. Sampling and mixing utensils were decontaminated in accordance with the SAP prior to and after composite mixing.

Table 1 summarizes the waste characterization sample results for the soil disposal sample. Laboratory analytical results for the sample can be found in Appendix C.

2.2.4 Clean Fill Sampling

Topsoil was obtained from Construction Materials Quarries in Tiverton, RI and consisted of screened loam. The topsoil was tested for VOCs, SVOCs, Pesticides, PCBs, metals, and cyanide. The topsoil did not contain concentrations above the RIDEM Direct Exposure Criteria for residential use soils (see Table 2). The laboratory analytical results for the imported topsoil sample are provided in Appendix C.

Backfill material was imported from Construction Materials Quarries, Tiverton, RI and consisted of virgin bedrock formation aggregate. Virgin bedrock foundation is non-porous and is certified clean.

2.3 Site Restoration

At the conclusion of each excavation, prior to placement of certified clean backfill, the excavated areas were lined with 6 mil plastic sheeting. In both the Buried Metal Container Area and the Buried Drum Area, clean fill was backfilled and the areas restored to original grade. The amount of clean fill placed in the excavated areas was adequate to restore the original topography.

Backfill was placed in the excavated area and compacted utilizing the weight of the backhoe/loader. Clean topsoil was placed over the backfill material to finished grade. The immediate and surrounding disturbed areas were graded to surrounding contours, seeded with rye and fescue; slopes were covered with erosion control matting. Adjacent hard surfaces were swept clean.

Due to the steep slope, TN&A installed 4- to 8-inch riprap along the bottom (western edge) of the Buried Metal Debris Area restoration. The rip rap was placed on the slope only and does not extend

into the creek bed. The approximate limits are shown on Figure 2.
After establishment of grass, the silt fence was removed and the hay spread out. Pictures of the final restoration are included in Appendix A.

2.4 Waste Disposal Summary

TN&A contracted Capitol Environmental Services, Inc. to perform the transportation and disposal of the contaminated soils.

- *Phase 1* - There were a total of 28 drums from the Buried Drum Area that were disposed of by EQ Detroit in Detroit, Michigan and 236.28 tons of lead contaminated debris and soil from the Buried Metal Container Area disposed of at the Michigan Disposal Waste Treatment Plant in Belleville, Michigan. Capitol Environmental Services, Inc. used SRS National LLC from Southington, Connecticut to dispose of 53.1 tons of contaminated soil at Aggregate Industries located in Stoughton, Massachusetts from the Buried Drum Area.
- *Phase 2* - The 8 drums removed during the second phase of work were disposed of at Waste Management of New Hampshire-Turnkey Landfill located in Rochester, New Hampshire. In addition to the drums, contaminated soil was placed in the roll-off container and disposed of at the same facility. The combined weight of the drums and soil was 6.97 tons. A total of 52.82 tons of soil was disposed of during the second phase excavation at Aggregate Industries located in Stoughton, Massachusetts.

Transport Weigh Tickets and Hon-Hazardous Waste Manifests can be found in Appendix D.

The waste shipments included investigative-derived waste (IDW) and PPE generated during the excavation activities.

2.5 Waste Volume Summary

During Phase 1, under the original scope of work for the Buried Drum Area, a total of 5 drums were removed. However, once the initial excavation limits were reached, it was noted that drums were still in the excavation area. Therefore, an additional 23 drums (for a total of 28) and 35 cy (53.1 tons) of contaminated soil were removed from the Buried Drum Area. During the second phase of work, 8 additional drums (for a total of 36) and approximately 59.79 tons of additional soil (for a total of 112.89 tons) were removed from the Buried Drum Area. Excavated soils from the Buried Drum Area exhibiting visible staining were removed and disposed offsite along with the drum overpacks. Excavated soils from the Buried Drum Area not exhibiting visible staining were returned to the excavation as general fill.

For the Buried Metal Container Area, there was approximately 157 cy (236.28 tons) of soils and debris removed. All of the work in the Buried Metal Container Area was completed in Phase 1. All excavated materials from the Buried Metal Container Area were stockpiled, sampled for waste characterization, and subsequently disposed offsite.

Based upon certified weight tickets from the disposal facilities, a total of 349.17 tons of soil was removed from the impacted areas. Using the estimated density of 1.5 tons/cubic yard (cy) as provided in the Contract documents, this equates to an estimated 232 cy of soils disposed. This

volume is also consistent with the delivery tickets showing that 230 tons of backfill and 94 tons of topsoil were imported to fill the excavations.

2.6 Monitoring Well Replacement

Existing monitoring well MW-01B was located within the Buried Drum excavation area and could not be adequately protected. A replacement well was installed in the same location on June 15, 2006 by a licensed well-driller. The well location is shown on Figure 1. A copy of the completion result is provided in the Appendix E.

3.0 LABORATORY ANALYTICAL RESULTS

All samples collected at the NUWC Disposal Area were shipped via courier to Mitkem located in Warwick, Rhode Island. Mitkem is a Rhode Island and Navy-certified laboratory. Laboratory results are summarized below. The analytical laboratory reports can be found in Appendix C.

3.1 Waste Characterization Analytical Data

Mitkem analyzed three waste characterization samples (08DRUM, NUWC08DRUMSOIL, NUWC08CONTAINER) from the NUWC Disposal Area for VOCs, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, and TCLP metals. In addition, total metals were analyzed for both NUWCDRUMSOIL and NUWC08CONTAINER, and reactivity was analyzed for NUWCDRUMSOIL. A forth waste characterization sample, NUSC-DRUM-02, was collected during Phase 2 and analyzed for ignitability and corrosivity only.

Based on the data from the analyses (08DRUM and NUWC08DRUMSOIL) above and summarized in Table 1, the Buried Drum Area wastes (both drums and contaminated soils) were transported and disposed of as non-hazardous materials, and the waste profile was prepared for Aggregate Industries located in Stoughton, Massachusetts. Sample NUWC08CONTAINER contained high levels of lead and was disposed of as hazardous material at the Michigan Disposal Waste Treatment Plant in Belleville, Michigan. Copies of the laboratory results are located in Appendix C. As shown in Table 1, analytical data supported visual observations that the material from both the Buried Drum Area and the Buried Metal Container Area were tarlike and petroleum based.

Additional analyses were required during the second phase to dispose of the drums in a rolloff container at Waste Management of New Hampshire-Turnkey Landfill in Rochester, New Hampshire. The drums and debris were disposed of as non-hazardous waste based on the results of the analyses.

3.2 Topsoil Analytical Data

One topsoil sample (sample identification BACKFILL-01) was collected and analyzed for VOCs by SW-846 Method 8260B, SVOCs by SW-846 Method 8270C, Pesticides by SW-846 Method 8081A, PCBs by SW-846 Method 8082, metals by SW-846 Method 6010B/7471/7196, and cyanide by SW-846 Method 9012B. Results for the topsoil sample are presented in Table 2, and laboratory analytical reports can be found in Appendix C. The sample was hand delivered to Mitkem and was received cool and intact at the laboratory. Mitkem produced one sample delivery group (SDG), D1542. The validation summary of the sample is discussed below.

3.2.1 Volatile Organic Compounds

SDG D1542 consisted of 1 soil sample and 1 trip blank sample (water matrix) for VOC analyses.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

One trip blank (TB) and laboratory method blanks were used to determine blank contamination. Methylene chloride was detected in the trip blank at 1.7 µg/L, yielding an action limit of 8.5 µg/L. No action was taken to qualify for this deficiency. Naphthalene was also detected in the method

blank at 1.558 µg/kg, yielding an action limit of 7.79 µg/kg. Naphthalene was qualified as non-detect and flagged "U" for since the detection was below the action limit of 7.79 µg/kg.

Laboratory control sample (LCS) analyses were performed for each sample matrix (soil and aqueous). The soil LCS was within QC limits for all compounds. The aqueous LCS for chloroethane had a high LCS recovery at 119% where limits are 72-118%. However, the aqueous LCS only affected the trip blank sample, so no action was taken to qualify the deficiency.

3.2.2 Semivolatile Organic Compounds

SDG D1542 consisted of 1 soil sample for SVOC analysis.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

The method blank was non-detect for all compounds.

The LCS analysis was within QC limits.

3.2.3 Pesticides

SDG D1542 consisted of 1 soil sample for Pesticides analysis.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

The method blank was non-detect for all compounds.

The LCS analysis was within QC limits.

3.2.4 PCBs

SDG D1542 consisted of 1 soil sample for PCB analysis.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

The method blank was non-detect for all compounds.

The LCS analysis was within QC limits.

3.2.5 Metals

SDG D1542 consisted of 1 soil sample for metals analysis.

All samples were extracted and analyzed within holding time criteria.

The method blank was non-detect for all compounds.

The LCS recovery was low (78.8%) for selenium (limits 79.3-112%). Therefore, selenium in sample Backfill-01 was qualified as estimated and flagged "J", resulting in a "UJ" qualifier.

The matrix spike recoveries for antimony (36.3%), lead (137%), and selenium (72.1%) were outside QC limits (75-125%). Lead was qualified as estimated and flagged "J" due to high matrix spike recovery. Antimony was qualified as estimated and flagged "J", resulting in a "UJ" qualifier due to

low matrix spike recovery. Selenium was previously qualified as estimated and flagged "UJ" due to low LCS recovery, so no further action was taken.

4.0 CONCLUSIONS AND RECOMMENDATIONS

TN&A fulfilled the remediation objectives of this project through the removal and off-site disposal of approximately 349.17 tons of waste and debris, 28 over-packed drums and an additional 8 drums disposed of in a roll-off container.

TN&A collected and analyzed waste characterization samples for the parameters identified in the Contract documents. In addition, waste characterization samples were analyzed for total VOCs, ignitability, corrosivity, and/or total metals to meet disposal facility acceptance criteria. Waste classification information is provided in Table 1 Summary of Waste Disposal Data. The waste streams generated are as follows:

- The waste characterization results from the Buried Drum Area for the 105.92 tons of contaminated soil and 28 over-packed drums were characterized as "non-hazardous" and disposed of at Aggregate Industries in Stoughton, Massachusetts and EQ Detroit in Detroit, Michigan respectively.
- The 8 drums removed during the second phase of the project along with contaminated soil (total combined weight of 6.97 tons) were characterized as non-hazardous after samples were analyzed for ignitability and corrosivity and disposed of at Waste Management of New Hampshire-Turnkey Facility in Rochester, New Hampshire.
- The 236.28 tons of contaminated waste/debris from the Buried Metal Container Area was disposed of as "hazardous" at the Michigan Disposal Waste Treatment Plant in Belleville, Michigan.

Summary Volume of Waste Removed

Areas of Concern	Contaminated Waste Removed (tons)	Disposal Locations
Buried Drum Area	105.92	Aggregate Industries, Stoughton, MA
Buried Metal Container Area	236.28	Michigan Disposal Waste Treatment Plant, Belleville, MI

TN&A imported approximately 230 tons of backfill material and 94 tons of topsoil material meeting the standards for clean fill. The area was seeded and mulch was placed in the disturbed areas in accordance with the Contract specifications. Figure 3 presents the survey as-built excavation limits.

The final cost for completion of the remediation in these two areas was $314,396. All supporting documentation required in the Contract documents is provided in the Appendices. This includes Sampling and Analysis Plan (Appendix F) and Standard Operating Procedures (Appendix G) used.

Based on the above information, TN&A concludes that the remediation objectives of the approved scope for this project have been achieved and that the substantive requirements of the Contract have been met. The Navy acceptance letter in included in Appendix H.

Tables

Field Sample ID			08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
Location Descriptions:			Drum Contents[1]	Lead Contaminated Soil Pile[2]	Contaminated Soil Pile[3]	
Test Parameter	**Action Limit**	**Units**				
TCLP Volatile Organics (Zero Headspace SW846 Method 1311\8260)						
Vinyl Chloride (as D043)	0.2	mg/L	0.005 U	0.005 U	0.005 U	--
1,1-Dichloroethene (as D029)	0.7	mg/L	0.005 U	0.005 U	0.005 U	--
2-Butanone (MEK) (as D035)	200	mg/L	0.005 U	0.005 U	0.001	--
Chloroform (as D022)	6	mg/L	0.005 U	0.005 U	0.005 U	--
Carbon Tetrachloride (as D019)	0.5	mg/L	0.005 U	0.005 U	0.005 U	--
1,2-Dichloroethane (as D028)	0.5	mg/L	0.005 U	0.005 U	0.005 U	--
Benzene (as D018)	0.5	mg/L	0.002	0.001	0.005 U	--
Trichloroethene (as D040)	0.5	mg/L	0.005 U	0.005 U	0.005 U	--
Tetrachloroethene (as D039)	0.7	mg/L	0.005 U	0.005 U	0.005 U	--
Chlorobenzene (as D021)	100	mg/L	0.005 U	0.005 U	0.005 U	--
TCLP Semivolatile Organics (SW846 Method 1311\8270)						
1,4-Dichlorobenzene (as D027)	7.5	mg/L	0.033 U	0.033 U	0.033 U	--
o-Cresol (as D023)	200	mg/L	0.006	0.033 U	0.033 U	--
p-Cresol (as D025)	200	mg/L	0.016	0.033 U	0.007	--
Hexachloroethane (as D034)	3	mg/L	0.033 U	0.033 U	0.033 U	--
Nitrobenzene (as D036)	2	mg/L	0.033 U	0.033 U	0.033 U	--
Hexachloro-1,3-butadiene (as D033)	0.5	mg/L	0.033 U	0.033 U	0.033 U	--
2,4,6-Trichlorophenol (as D042)	2	mg/L	0.033 U	0.033 U	0.033 U	--
2,4,5-Trichlorophenol (as D041)	400	mg/L	0.067 U	0.067 U	0.067 U	--
2,4-Dinitrotoluene (as D030)	0.13	mg/L	0.033 U	0.033 U	0.033 U	--
Hexachlorobenzene (as D032)	0.13	mg/L	0.033 U	0.033 U	0.033 U	--
Pentachlorophenol (as D037)	100	mg/L	0.067 U	0.067 U	0.067 U	--
Pyridine (as D038)	5	mg/L	0.033 U	0.033 U	0.033 U	--

	Field Sample ID		08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
TCLP Pesticides (SW846 Method 1311\8081)						
Lindane (gamma-BHC) (as D013)	0.4	mg/L	0.00017 U	0.00017 U	0.00017 U	--
Heptachlor (& its Epoxide) (as D031)	0.008	mg/L	0.00017 U	0.00017 U	0.00017 U	--
Heptachlor	--	--	0.00017 U	0.00017 U	0.00017 U	--
Heptachlor epoxide	--	--	0.00017 U	0.00017 U	0.00017 U	--
Endrin (as D012)	0.02	mg/L	0.00033 U	0.00033 U	0.00033 U	--
Methoxychlor (as D014)	10	mg/L	0.0017 U	0.0017 U	0.0017 U	--
Toxaphene (as D015)	0.5	mg/L	0.017 U	0.017 U	0.017 U	--
Chlordane (as D020)	0.03	mg/L	0.0083 U	0.0083 U	0.0083 U	--
TCLP Herbicides (SW846 Method 1311\8151)						
2,4-D (as D016)	10	mg/L	0.0033 U	0.0033 U	0.0033 U	--
2,4,5-TP (Silvex) (as D017)	1	mg/L	0.00033 U	0.00033 U	0.00033 U	--
Total PCBs (SW846 Method 8082)						
Aroclor-1016	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1221	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1232	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1242	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1248	--	mg/Kg	0.150 JP	0.038 U	0.079 JP	--
Aroclor-1254	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1260	--	mg/Kg	0.350 U	0.180 P	0.360 U	--

			Field Sample ID	08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
TCLP Metals (SW846 Method 1311\6010 & 7470)							
Arsenic (as D004)	5	mg/L		0.016 U	0.016 U	0.016 U	--
Barium (as D005)	100	mg/L		0.0904 J	0.382 J	0.278 J	--
Cadmium (as D006)	1	mg/L		0.001 U	0.0967	0.0021 J	--
Chromium (as D007)	5	mg/L		0.005 J	0.0038 U	0.0038 U	--
Lead (as D008)	5	mg/L		0.700	**35,900**	0.015 J	--
Selenium (as D010)	0.2	mg/L		0.0098 U	0.0198 J	0.0253 J	--
Silver (as D011)	1	mg/L		0.0771	0.054 J	0.0597 J	--
Mercury (as D009)	5	mg/L		0.000069 U	0.000069 U	0.000067 U	--
Total Petroleum Hydrocarbons (CT EPTH)							
TPH	--	mg/Kg		110,000	65	29,000	--
Reactivity, Ignitabiltiy, Corrosivity (SW846 Chapter 7)							
Ingnitability	> 140°F	°F		--	--	NR	*pass
Corrosivity	<12 and >2	pH unit		--	--	NR	*pass
Cyanide Reactivity	Unreactive	mg/Kg		--	--	pass	--
Sulfide Reactivity	Unreactive	mg/Kg		--	--	pass	--

	Field Sample ID		08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
Total Metals (SW846 Method 6010 & 7470) - detects only						
Aluminum	--	mg/Kg	--	11,000	12,000	--
Antimony	--	mg/Kg	--	1.1	11 U	--
Arsenic	--	mg/Kg	--	16	24	--
Barium	--	mg/Kg	--	30	63	--
Beryllium	--	mg/Kg	--	0.44	0.92 U	--
Cadmium	--	mg/Kg	--	6	0.92 U	--
Calcium	--	mg/Kg	--	1,400	1,800	--
Chromium	--	mg/Kg	--	18	15	--
Cobalt	--	mg/Kg	--	62	14	--
Copper	--	mg/Kg	--	49	27	--
Iron	--	mg/Kg	--	35,000	29,000	--
Lead	--	mg/Kg	--	1,500	32	--
Magnesium	--	mg/Kg	--	2,400	3,500	--
Manganese	--	mg/Kg	--	420	400	--
Nickel	--	mg/Kg	--	21	22	--
Potassium	--	mg/Kg	--	220	920 U	--
Silver	--	mg/Kg	--	2.1	1.8 U	--
Sodium	--	mg/Kg	--	66	920 U	--
Vanadium	--	mg/Kg	--	19	19	--
Zinc	--	mg/Kg	--	100	86	--
Mercury	--	mg/Kg	--	0.077	0.10 U	--

	Field Sample ID		08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
Total Volatile Organics (SW846 Method 5035\8260) - detects only						
Methylene Chloride	--	µg/Kg	270 U	320 U	110	--
Naphthalene	--	µg/Kg	45,000	25,000	280 U	--
Toluene	--	µg/Kg	81	320 U	280 U	--
Ethylbenzene	--	µg/Kg	97	320 U	280 U	--
m+p Xylene	--	µg/Kg	57	320 U	280 U	--
Total Xylene	--	µg/Kg	57	320 U	280 U	--

NOTES

Action limits based on guidelines set forth in 40 CFR 261.4

[U] - Constituent was not detected at a concentration greater than the laboratory report limit.

[J] - The result is an estimate.

[P] - Two column precision is greater than 40% relative percentage difference. The result is an estimate.

* Ignitability and corrosivity were sampled as sample ID NUSCDRUM02 at a later date from the same area the NUWC08DRUMSOIL sample was collected.

[NR] - Not reported due to laboratory testing reporting error.

[--] Analyses or regulatory limits are not specified.

mg/L: milligram per liter (ppm)

µg/Kg: microgram per kilogram (ppb)

mg/Kg: milligram per kilogram (ppm)

Location Descriptions:

[1] 08 Drum = roofing tar drum contents for disposal

[2] NUWC08CONTAINER = contaminated soil with lead from the aerosol container area for disposal

[3] NUWC08DRUMSOIL = contaminated soil from leaking roofing tar drums for disposal

Table 2
Summary of Topsoil Data
(Newport Remedial Action)

Test Parameter	Action Limit*	Units	Field Sample ID: Topsoil 1
Volatile Organics (SW846 Method 8260)			
Acetone	7800	mg/Kg	0.029
Benzene	2.5	mg/Kg	0.0031 U
Bromodichloromethane	10	mg/Kg	0.0031 U
Bromoform	81	mg/Kg	0.0031 U
Bromomethane	0.8	mg/Kg	0.0031 U
Carbon Tetrachloride	1.5	mg/Kg	0.0031 U
Chlorobenzene	210	mg/Kg	0.0031 U
Chloroform	1.2	mg/Kg	0.0031 U
Dibromochloromethane	7.6	mg/Kg	0.0031 U
1,2-Dibromo-3-chloropropane (DBCP)	0.5	mg/Kg	0.0031 U
1,1-Dichloroethane	920	mg/Kg	0.0031 U
1,2-Dichloroethane	0.9	mg/Kg	0.0031 U
1,1-Dichloroethene	0.2	mg/Kg	0.0031 U
Cis-1,2-Dichloroethene	630	mg/Kg	0.0031 U
Trans-1,2-Dichloroethene	1100	mg/Kg	0.0031 U
1,2-Dichlropropane	1.9	mg/Kg	0.0031 U
Ethylbenzene	71	mg/Kg	0.0031 U
Ethylene dibromide (EDB)	0.01	mg/Kg	0.0031 U
Isopropyl benzene	27	mg/Kg	0.0031 U
Methyl ethyl ketone	10000	mg/Kg	0.0031 U
Methyl isobutyl ketone	1200	mg/Kg	0.0031 U
Methyl tertiary-butyl ether (MTBE)	390	mg/Kg	0.0031 U
Methylene chloride	45	mg/Kg	0.0085
Naphthalene	54	mg/Kg	0.0035 U
Styrene	13	mg/Kg	0.0031 U
1,1,1,2-Tetrachloroethane	2.2	mg/Kg	0.0031 U
1,1,2,2-Tetrachloroethane	1.3	mg/Kg	0.0031 U
Tetrachloroethene	12	mg/Kg	0.0031 U
Toluene	190	mg/Kg	0.0031 U
1,1,1-Trichloroethane	540	mg/Kg	0.0031 U
1,1,2-Trichloroethane	3.6	mg/Kg	0.0031 U
1,2,4-Trichlorobenzene	96	mg/Kg	0.00079 J
Trichloroethene	13	mg/Kg	0.0031 U
Vinyl Chloride	0.02	mg/Kg	0.0031 U
Xylenes (total)	110	mg/Kg	0.0031 U
m,p-Xylene	--	--	0.0031 U
o-Xylene	--	--	0.0031 U
Semivolatile Organics (SW846 Method 8270)			
Acenaphthene	43	mg/Kg	0.380 U
Acenaphthylene	23	mg/Kg	0.380 U
Anthracene	35	mg/Kg	0.380 U
Benzo(a)anthracene	0.9	mg/Kg	0.170 J
Benzo(a)pyrene	0.4	mg/Kg	0.097 J
Benzo(b)fluoranthene	0.9	mg/Kg	0.120 J
Benzo(g,h,i)perylene	0.8	mg/Kg	0.380 U
Benzo(k)fluoranthene	0.9	mg/Kg	0.380 U

Table 2
Summary of Topsoil Data
(Newport Remedial Action)

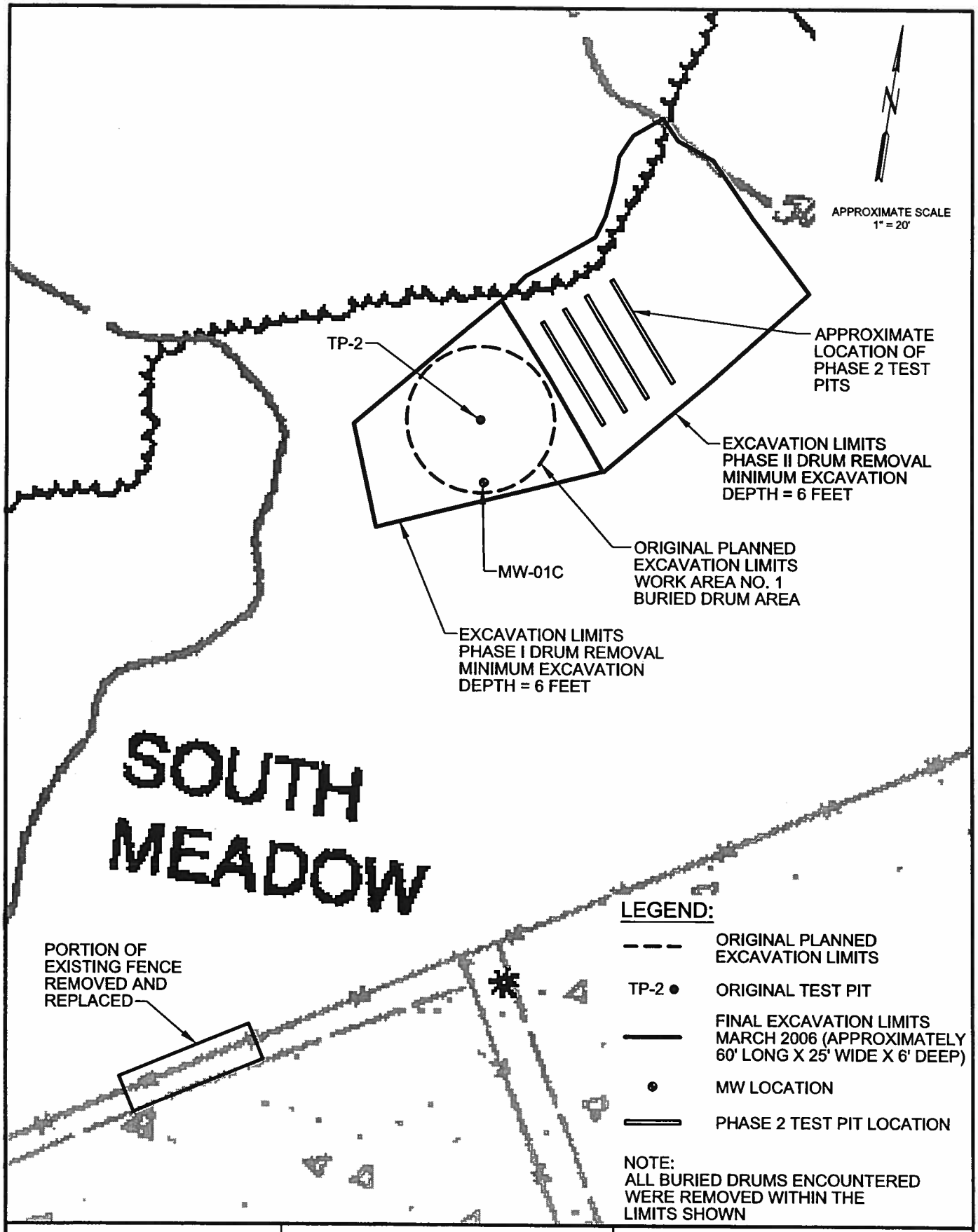
Test Parameter	Action Limit*	Units	Field Sample ID: Topsoil 1
1,1-Biphenyl	0.8	mg/Kg	0.380 U
Bis(2-ethylhexyl)phthalate	46	mg/Kg	0.170 J
Bis(2-chloroethyl)ether	0.6	mg/Kg	0.380 U
Bis(2-chloroisopropyl)ether	9.1	mg/Kg	0.380 U
4-Chloroaniline	310	mg/Kg	0.380 U
2-Chlorophenol	50	mg/Kg	0.380 U
Chrysene	0.4	mg/Kg	0.140 J
Dibenzo(a,h)anthracenea	0.4	mg/Kg	0.380 U
1,2-Dichlorobenzene (o-DCB)	510	mg/Kg	0.380 U
1,3- Dichlorobenzene (m-DCB)	430	mg/Kg	0.380 U
1,4-Dichlorobenzene (p-DCB)	27	mg/Kg	0.380 U
3,3-Dichlorobenzidine	1.4	mg/Kg	0.380 U
2,4-Dichlorophenol	30	mg/Kg	0.380 U
Diethyl phthalate	340	mg/Kg	0.380 U
2,4-Dimethyl phenol	1400	mg/Kg	0.380 U
Dimethyl phthalate	1900	mg/Kg	0.380 U
2,4-Dinitrophenol	160	mg/Kg	0.770 U
2,4-Dinitrotoluene	0.9	mg/Kg	0.380 U
Fluoranthene	20	mg/Kg	0.280 J
Fluorene	28	mg/Kg	0.380 U
Hexachlorobenzene	0.4	mg/Kg	0.380 U
Hexachlorobutadiene	8.2	mg/Kg	0.380 U
Hexachloroethane	46	mg/Kg	0.380 U
Indeno(1,2,3-cd)pyrene	0.9	mg/Kg	0.380 U
2-Methyl naphthalene	123	mg/Kg	0.380 U
Naphthalene	54	mg/Kg	0.380 U
Pentachlorophenol	5.3	mg/Kg	0.770 U
Phenanthrene	40	mg/Kg	0.180 J
Phenol	6000	mg/Kg	0.380 U
Pyrene	13	mg/Kg	0.270 J
1,2,4-Trichlorobenzene	96	mg/Kg	0.380 U
2,4,5-Trichlorophenol	330	mg/Kg	0.770 U
2,4,6-Trichlorophenol	58	mg/Kg	0.380 U
Pesticides (SW846 Method 8081)			
Chlordane	0.5	mg/Kg	0.002 U
alpha-Chlordane	--	--	0.002 U
gamma-Chlordane	--	--	0.002 U
Dieldrin	0.04	mg/Kg	0.0038 U
PCBs (SW846 Method 8082)			
Polychlorinated biphenyls (PCBs)[a]	10	mg/Kg	0.038 U
Aroclor-1016	--	--	0.038 U
Aroclor-1221	--	--	0.038 U
Aroclor-1232	--	--	0.038 U
Aroclor-1242	--	--	0.038 U
Aroclor-1248	--	--	0.038 U
Aroclor-1254	--	--	0.038 U
Aroclor-1260	--	--	0.038 U

Table 2
Summary of Topsoil Data
(Newport Remedial Action)

Test Parameter	Action Limit*	Units	Field Sample ID: Topsoil 1
Metals (SW846 Method 6010 & 7471)[b]			
Antimony	10	mg/Kg	1.0 UJ
Arsenic	7	mg/Kg	2.7
Barium	5500	mg/Kg	21
Beryllium	0.4	mg/Kg	0.26 U
Cadmium	39	mg/Kg	0.26 U
Chromium III (Trivalent)	1400	mg/Kg	--
Chromium VI (Hexavalent)	390	mg/Kg	4.65 U
Chromium (total)[c]	--	--	5.8
Copper	3100	mg/Kg	8.3
Lead[d]	150	mg/Kg	23 J
Manganese	390	mg/Kg	210
Mercury	23	mg/Kg	0.08
Nickel	1000	mg/Kg	5.3
Selenium	390	mg/Kg	1.6 UJ
Silver	200	mg/Kg	1.6 U
Thallium	5.5	mg/Kg	2.3
Vanadium	550	mg/Kg	9.3
Zinc	6000	mg/Kg	31
Cyanide (SW846 Method 9014)			
Cyanide	200	mg/Kg	0.99 U

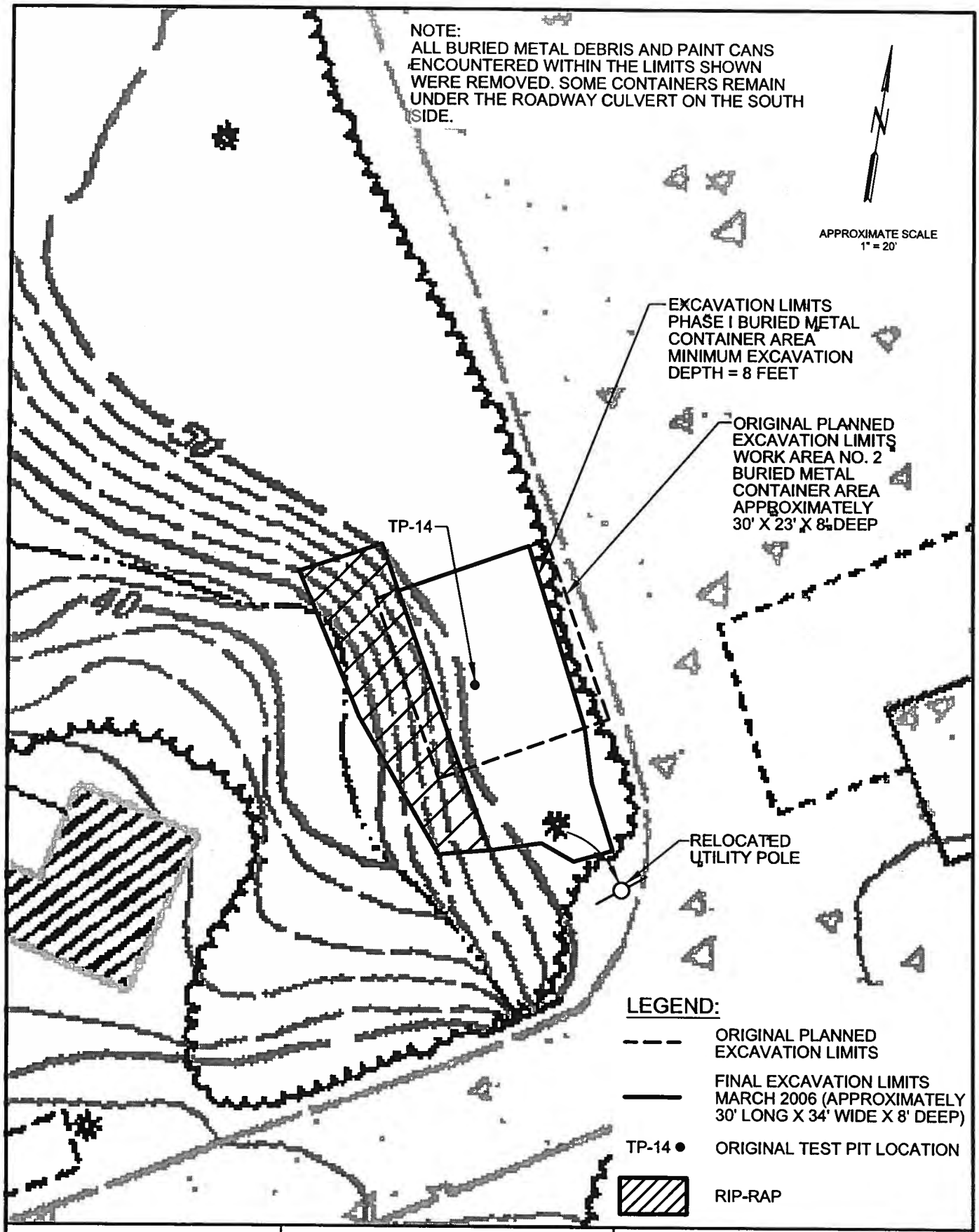
Notes:
RIDEM Rhode Island Separtment of Environmental Management
RSDEC Residential Soil Direct Exposure Criterion
* Action limits are based on the Rhode Island RSDEC
a) Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)
b) Background Levels of Priority Pollutant Metals in Rhode Island Soils, T. O'Connor, RIDEM
c) Total chromium will be tested. If the total concentrations are less then the trivalent and hexavalent standards, then the sample is considered to be absent of the trivalent and hexavalent chromium at the RIDEM RSDEC criterion.
d) Direct exposure criteria for Lead consistent with the Rhode Island Department of Health Rules and Regulations for Lead Poisoning Prevention [R23-24.6-PCB], as amended.
[--] Analyses or regulatory limits are not specified.
mg/Kg: milligram per kilogram (ppm)

Figures



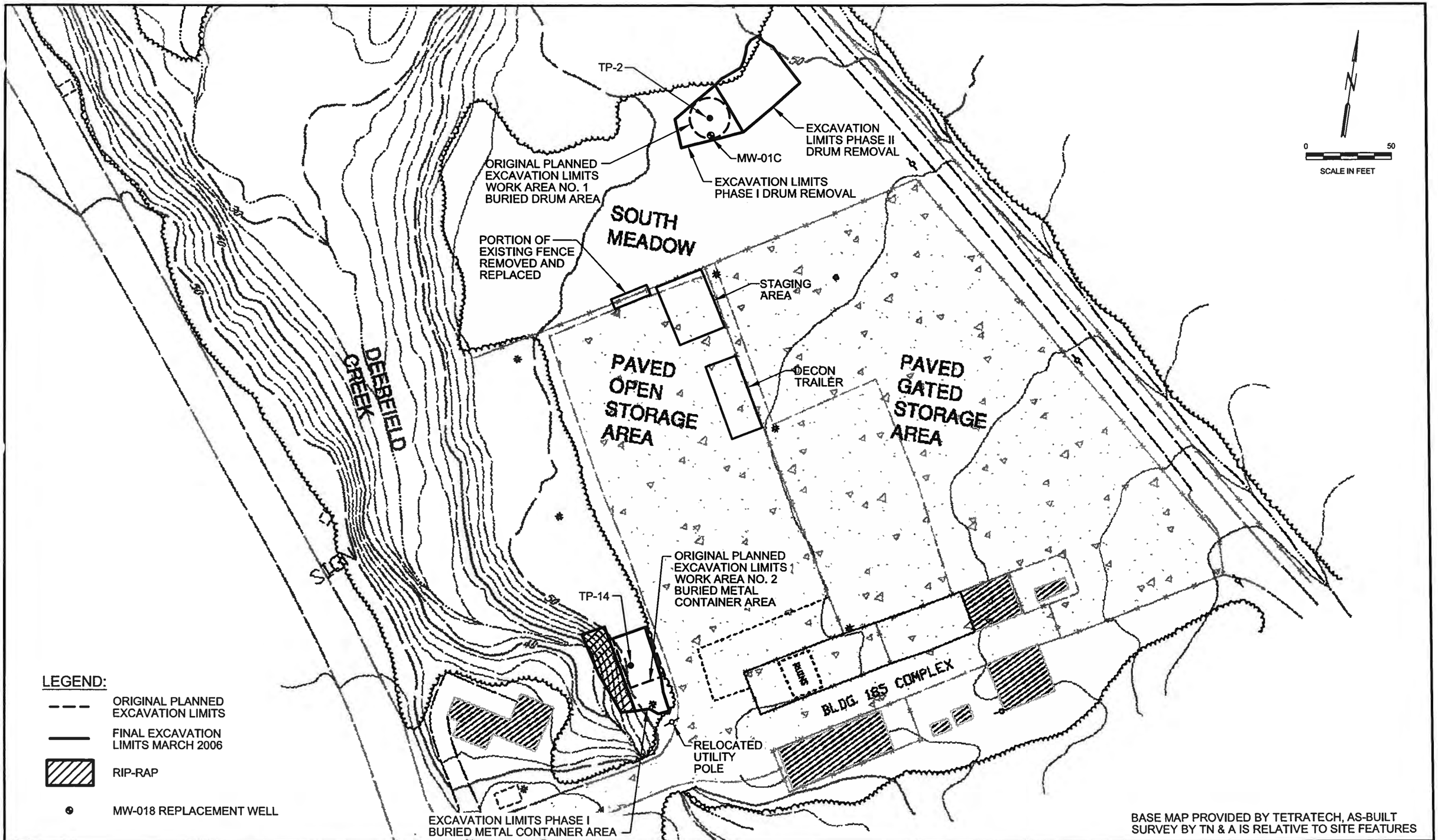
TN & Associates, Inc. Engineering and Science	FIGURE 1 BURIED DRUM AREA	IR SITE 08 - NUSC DISPOSAL AREA NAVAL WARFARE CENTER MIDDLETON, RI

FILE NAME: BURIED_DRUM_AREA.DWG



TN & Associates, Inc. Engineering and Science	FIGURE 2 BURIED METAL CONTAINER AREA	IR SITE 08 - NUSC DISPOSAL AREA NAVAL WARFARE CENTER MIDDLETON, RI

FILE NAME: BURIED_METAL_CONTAINER_AREA.DWG



TN & A T N & Associates, Inc. Engineering and Science

FIGURE 3
FINAL AS-BUILT EXCAVATION LIMITS

IR SITE 08 - NUSC DISPOSAL AREA
NAVAL WARFARE CENTER
MIDDLETOWN, RI

FILE NAME: FIGURE_3 WORK AREA LAYOUT.DWG

Appendix A

Site Photographs

Clearing drum area facing north

Buried drum facing east slope 5'

Over packing drum facing east

Drum Area - Test pit 20 feet facing south

Drum area post-excavation facing south

Clearing container area facing west

Container area mod 2 facing east

Excavation container area facing east

Container excavation facing east

Container Area - Utility pole relocated

Rip Rap slope along creek looking southwest

Rip Rap slope along creek looking northwest

Appendix B

Soil Excavation Logs

TN & Associates, Inc.
Engineering and Science

Buried Drum Area Excavation Log

Location ID: (TP-02 Area)

Project: NUSU Disposal Area (IR Site 08)		Sheet: 1 of 1	
Project #:2004120		Logged by: JJ	Checked by:
Client: Naval Facilities Engineering Command EFA North East		Purpose: Removal	
Contractor: Maverick Construction		Start Date: 6-17-05	End Date: 6-20-05
Crew Chief:		Method: excavator	
Location: NUSU Newport, RI		Easting:	Northing:
¼ of: ¼ of section: T. R.		City: Newport	County:
Elevations:	Surface: level		
Water Depth:	at excavation: NA	at Completion:	Measurement Date: 6-20-05
Number/Type of Samples: NA		Total Depth (ft):	Excavation Diameter(ft):

Sample Number	Sample Length	Recovery	Depth	Time	Graphic Log	Material Description	USCS	Breathing zone ppm	PID ppm	Test	Comments	Elevation
		0				Sand/gravel vegative peat	GM	0	0		Topsoil	
		1										
		2				Gravel/sand/some silt Concrete chucks/pieces	SM	0	0		Drums Pieces + Tar Pockets	
		3										
		4				Gravel some silt 2-6" Bolders	GM	0	0		Drums Pieces + Tar pockets	
		5										
		6										
		7				Fill Sandy/gravel	GM	0	0		fill material	No visible Tar present

* Stock pile sampled by NUSC TTNUS ok to put back into excavation as fill

* Between 6-7' depth NO drums or Tar present in large quantity small pieces or chips during excavation, put all excavated non visiblity stained soil with Tar as fill and added dense grade [illegible] to ground surface

TN & Associates, Inc.
Engineering and Science

Buried Metal Cont Area **Excavation Log**
Location ID: (TP-14 Area)

Project: NUSU Disposal Area (IR Site 08)			Sheet: 1 of 1	
Project #:2004120			Logged by: JJ	Checked by:
Client: Naval Facilities Engineering Command EFA North East			Purpose: Removal	
Contractor: Maverick Construction			Start Date: 6-24-05	End Date: 6-24-05
Crew Chief:			Method: excavator	
Location: NUSU Newport, RI			Easting:	Northing:
¼ of: ¼ of section: T. R.			City: Newport	County:
Elevations:	Surface: level			
Water Depth:	at excavation: NA	at Completion:	Measurement Date: 6-24-05	
Number/Type of Samples: NA		Total Depth (ft):	Excavation Diameter(ft):	

Sample Number	Sample Length	Recovery	Depth	Time	Graphic Log	Material Description	USCS	Breathing zone ppm	PID ppm	Test	Comments	Elevation
		1				Sand/silt/some gravel	SP				concrete	
		2				concrete debris	SP	0	0		debris	
		3										
		4				silty/Sand/Poorly graded	SM				concrete	
		5					SM	0	0		debris	
		6										
		7				Sand/Gravel/Some silt	metal				metal	
		8				Circular mesh, corroded cans	no soil				container layer	
		9				Sand/gravel fill	SP				no Debris	

Appendix A

Site Photographs

Clearing drum area facing north

Buried drum facing east slope 5'

Over packing drum facing east

Drum Area - Test pit 20 feet facing south

Drum area post-excavation facing south

Clearing container area facing west

Container area mod 2 facing east

Excavation container area facing east

Container excavation facing east

Container Area - Utility pole relocated

Monitoring well MW-01B looking east

Monitoring well MW-01B looking west

Rip Rap slope along creek looking southwest

Rip Rap slope along creek looking northwest

Appendix B

Soil Excavation Logs

TN & Associates, Inc.
Engineering and Science

Buried Drum Area Excavation Log

Location ID: (TP-02 Area)

Project: NUSU Disposal Area (IR Site 08)		Sheet: 1 of 1	
Project #:2004120		Logged by: JJ	Checked by:
Client: Naval Facilities Engineering Command EFA North East		Purpose: Removal	
Contractor: Maverick Construction		Start Date: 6-17-05	End Date: 6-20-05
Crew Chief:		Method: excavator	
Location: NUSU Newport, RI		Easting:	Northing:
¼ of: ¼ of section: T. R.		City: Newport	County:
Elevations:	Surface: level		
Water Depth:	at excavation: NA	at Completion:	Measurement Date: 6-20-05
Number/Type of Samples: NA		Total Depth (ft):	Excavation Diameter(ft):

Sample Number	Sample Length	Recovery	Depth	Time	Graphic Log	Material Description	USCS	Breathing zone ppm	PID ppm	Test	Comments	Elevation
		0				Sand/gravel vegative peat	SM	0	0		Topsoil	
		1										
		2				Gravel/sand/some silt Concrete chucks/pieces	SM	0	0		Drums Pieces + Tar Packets	
		3										
		4				Gravel some silt 2"-6" Bolders	SM	0	0		Drums pieces + Tar pockets	
		5										
		6										
		7				fill Sandy/gravel	SM	0	0		fill material	No visible Tar present

* Stock file sampled by NUSC TTNUS ok to put back into excavation as fill

* Between 6-7' depth NO drums or tar present in large quantity small pieces or chips during excavation, put all excavated non visibly stained soil with tar as fill and added dense grade [illegible] to ground surface

TN & Associates, Inc.
Engineering and Science

Buried Metal Cont Area **Excavation Log**
Location ID: (TP-14 Area)

Project: NUSU Disposal Area (IR Site 08)			Sheet: 1 of 1		
Project #:2004120			Logged by: JJ	Checked by:	
Client: Naval Facilities Engineering Command ERA North East			Purpose: Removal		
Contractor: Maverick Construction			Start Date: 6-24-05	End Date: 6-24-05	
Crew Chief:			Method: excavator		
Location: NUSU Newport, RI			Easting:	Northing:	
¼ of: ¼ of section: T. R.			City: Newport	County:	
Elevations:	Surface: level				
Water Depth:	at excavation: NA	at Completion:	Measurement Date: 6-24-05		
Number/Type of Samples: NA		Total Depth (ft):	Excavation Diameter(ft):		

Sample Number	Sample Length	Recovery	Depth	Time	Graphic Log	Material Description	USCS	Breathing zone ppm	PID ppm	Test	Comments	Elevation
		1				Sand/silt/some gravel	sf				Concrete	
		2				Concrete debris	sf	0	0		debris	
		3										
		4				silty/Sand/Poorly graded	sm				Concrete	
		5					sm	0	0		debris	
		6										
		7				Sand/Gravel/Some silt Circular mesh, corroded cans	metal w/soil				metal container layer	
		8										
		9				Sand/gravel fill	sw/fill				no Debris	

Appendix C

Laboratory Analytical Reports

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2G9254

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: not dec. _____ Date Analyzed: 07/01/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	5	U
75-35-4	1,1-Dichloroethene	5	U
78-93-3	2-Butanone	5	U
67-66-3	Chloroform	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	2	J
79-01-6	Trichloroethene	5	U
127-18-4	Tetrachloroethene	5	U
108-90-7	Chlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2G9256

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: not dec. _____ Date Analyzed: 07/01/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	5	U
75-35-4	1,1-Dichloroethene	5	U
78-93-3	2-Butanone	5	U
67-66-3	Chloroform	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	1	J
79-01-6	Trichloroethene	5	U
127-18-4	Tetrachloroethene	5	U
108-90-7	Chlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2G9255

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: not dec. _____ Date Analyzed: 07/01/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	5	U
75-35-4	1,1-Dichloroethene	5	U
78-93-3	2-Butanone	1	J
67-66-3	Chloroform	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
127-18-4	Tetrachloroethene	5	U
108-90-7	Chlorobenzene	5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: S1E4890

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/29/05

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/01/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	33	U
95-48-7	2-Methylphenol	6	J
106-44-5	4-Methylphenol	16	J
67-72-1	Hexachloroethane	33	U
98-95-3	Nitrobenzene	33	U
87-68-3	Hexachlorobutadiene	33	U
88-06-2	2,4,6-Trichlorophenol	33	U
95-95-4	2,4,5-Trichlorophenol	67	U
121-14-2	2,4-Dinitrotoluene	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	67	U
110-86-1	Pyridine	33	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: S1E4887

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/29/05

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/01/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	33	U
95-48-7	2-Methylphenol	33	U
106-44-5	4-Methylphenol	33	U
67-72-1	Hexachloroethane	33	U
98-95-3	Nitrobenzene	33	U
87-68-3	Hexachlorobutadiene	33	U
88-06-2	2,4,6-Trichlorophenol	33	U
95-95-4	2,4,5-Trichlorophenol	67	U
121-14-2	2,4-Dinitrotoluene	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	67	U
110-86-1	Pyridine	33	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: S1E4888

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/29/05

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/01/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	33	U
95-48-7	2-Methylphenol	33	U
106-44-5	4-Methylphenol	7	J
67-72-1	Hexachloroethane	33	U
98-95-3	Nitrobenzene	33	U
87-68-3	Hexachlorobutadiene	33	U
88-06-2	2,4,6-Trichlorophenol	33	U
95-95-4	2,4,5-Trichlorophenol	67	U
121-14-2	2,4-Dinitrotoluene	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	67	U
110-86-1	Pyridine	33	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E1F0682F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
58-89-9	gamma-BHC (Lindane)	0.17	U
76-44-8	Heptachlor	0.17	U
1024-57-3	Heptachlor epoxide	0.17	U
72-20-8	Endrin	0.33	U
72-43-5	Methoxychlor	1.7	U
8001-35-2	Toxaphene	17	U
12789-03-6	Chlordane (technical)	8.3	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E1F0674F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
58-89-9	gamma-BHC (Lindane)	0.17	U
76-44-8	Heptachlor	0.17	U
1024-57-3	Heptachlor epoxide	0.17	U
72-20-8	Endrin	0.33	U
72-43-5	Methoxychlor	1.7	U
8001-35-2	Toxaphene	17	U
12789-03-6	Chlordane (technical)	8.3	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E1F0673F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
58-89-9	gamma-BHC (Lindane)	0.17	U
76-44-8	Heptachlor	0.17	U
1024-57-3	Heptachlor epoxide	0.17	U
72-20-8	Endrin	0.33	U
72-43-5	Methoxychlor	1.7	U
8001-35-2	Toxaphene	17	U
12789-03-6	Chlordane (technical)	8.3	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E4C6727F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7	2,4-D	3.3	U
93-72-1	2,4,5-TP (Silvex)	0.33	U

FORM I HERB

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E4C6723F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7	2,4-D	3.3	U
93-72-1	2,4,5-TP (Silvex)	0.33	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E4C6722F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7	2,4-D	3.3	U
93-72-1	2,4,5-TP (Silvex)	0.33	U

FORM I HERB

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2E6508F

% Moisture: 5 decanted: (Y/N) N Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/06/05

Concentrated Extract Volume: 100000(uL) Date Analyzed: 07/06/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	350	U
11104-28-2	Aroclor-1221	350	U
11141-16-5	Aroclor-1232	350	U
53469-21-9	Aroclor-1242	350	U
12672-29-6	Aroclor-1248	150	JP
11097-69-1	Aroclor-1254	350	U
11096-82-5	Aroclor-1260	350	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03B

Sample wt/vol: 30.1 (g/mL) G Lab File ID: E2E6480F

% Moisture: 14 decanted: (Y/N) N Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/05

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 07/05/05

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	38	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	180	P

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-02B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2E6509F

% Moisture: 9 decanted: (Y/N) N Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/06/05

Concentrated Extract Volume: 100000(uL) Date Analyzed: 07/06/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	360	U
11141-16-5	Aroclor-1232	360	U
53469-21-9	Aroclor-1242	360	U
12672-29-6	Aroclor-1248	79	JP
11097-69-1	Aroclor-1254	360	U
11096-82-5	Aroclor-1260	360	U

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

08DRUM

Lab Name: Mitkem Corporation Contract:

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0743

Matrix (soil/water): SOIL Lab Sample ID: D0743-01

Level (low/med): MED Date Received: 06/24/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16	U		P
7440-39-3	Barium	90.4	B	J	P
7440-43-9	Cadmium	1.0	U		P
7440-47-3	Chromium	5.0	B	J	P
7439-92-1	Lead	700			P
7782-49-2	Selenium	9.8	U		P
7440-22-4	Silver	77.1	B	J	P
7439-97-6	Mercury	0.069	U		CV

Comments:

TCLP Metals

FORM I - IN SW846

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

NUWC08DRUMSOIL

Lab Name: Mitkem Corporation Contract:

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0743

Matrix (soil/water): SOIL Lab Sample ID: D0743-02

Level (low/med): MED Date Received: 06/24/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16	U		P
7440-39-3	Barium	278	~~B~~ J		P
7440-43-9	Cadmium	2.1	~~B~~ J		P
7440-47-3	Chromium	3.8	U		P
7439-92-1	Lead	15.0	~~B~~ J		P
7782-49-2	Selenium	25.3	~~B~~ J		P
7440-22-4	Silver	59.7	~~B~~ J		P
7439-97-6	Mercury	0.067	U		CV

Comments:

TCLP Metals

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

NUWC08CONTAINER

Lab Name: Mitkem Corporation Contract:

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0743

Matrix (soil/water): SOIL Lab Sample ID: D0743-03

Level (low/med): MED Date Received: 06/24/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16	U		P
7440-39-3	Barium	382	~~B~~ J		P
7440-43-9	Cadmium	96.7			P
7440-47-3	Chromium	3.8	U		P
7439-92-1	Lead	35900			P
7782-49-2	Selenium	19.8	~~B~~ J		P
7440-22-4	Silver	54.0	~~B~~ J		P
7439-97-6	Mercury	0.069	U		CV

Comments:

TCLP Metals

FORM I - IN SW846

0113

Mitkem Corporation

Date: *14-Jul-05*

Client: TN & Associates, Inc.
Client Sample ID: 08DRUM
Lab ID: D0743-01

Project: Middletown, RI
Collection Date: 06/24/05 08:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				TPH_S			
Extractable Total Petroleum Hydrocarbon	110000		13000	mg/Kg	10	07/06/2005 21:32	18892
Surr: para-Terphenyl	0	S	64.7-104	%REC	10	07/06/2005 21:32	18892

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *14-Jul-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08DRUMSOIL
Lab ID: D0743-02

Project: Middletown, RI
Collection Date: 06/24/05 09:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				TPH_S			
Extractable Total Petroleum Hydrocarbon	29000		6600	mg/Kg	5	07/06/2005 20:53	18892
Surr: para-Terphenyl	0	S	64.7-104	%REC	5	07/06/2005 20:53	18892

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *14-Jul-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08CONTAINER
Lab ID: D0743-03

Project: Middletown, RI
Collection Date: 06/24/05 10:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				TPH_S			
Extractable Total Petroleum Hydrocarbon	65		14	mg/Kg	1	07/08/2005 15:09	18928
Surr: para-Terphenyl	77.8		64.7-104	%REC	1	07/08/2005 15:09	18928

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

MITKEM CORPORATION

Analysis Report: Sulfide Reactivity

Client: TN & Associates, Inc.
Matrix: Soil

Analysis Method: SW-846 7.3.4
Units in: mg/kg
Analysis Date: 7/22/05

Lab ID	Client ID	Result
D0840-01A	NUWC08DRUMSOIL	ND

Reporting Limit: 2.5

	Results	Date Analyzed
Method Blank	ND	7/22/05
	%Recovery	Date Analyzed
Laboratory Control Sample	99	7/22/05
	%RPD	Date Analyzed
Duplicate Sample	0	7/22/05
	%Recovery	Date Analyzed
Matrix Spike	95.35	7/22/05

ND=Not Detected

Subcontracted-RIAL
D0840-Sulfide Reactivity

MITKEM CORPORATION

Analysis Report: Cyanide Reactivity

Client: TN & Associates, Inc.
Matrix: Soil

Analysis Method: SW-846 7.3.3
Units in: mg/kg
Analysis Date: 7/22/05

Lab ID	Client ID	Result
D0840-01A	NUWC08DRUMSOIL	ND

Reporting Limit: 0.10

	Results	Date Analyzed
Method Blank	ND	7/22/05
	%Recovery	Date Analyzed
Laboratory Control Sample	106	7/22/05
	%RPD	Date Analyzed
Duplicate Sample	0	7/22/05
	%Recovery	Date Analyzed
Matrix Spike	110	7/22/05

ND=Not Detected

Subcontracted-RIAL
D0840-Reactive Cyanide

Mitkem Corporation

Date: *12-Aug-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08DRUMCONTAINER
Lab ID: D0879-02

Project: Middletown, RI
Collection Date: 06/24/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				**SW6010B_S**			
Aluminum	11000		9.9	mg/Kg	1	08/02/2005 10:46	19282
Antimony	1.1		0.99	mg/Kg	1	08/02/2005 10:46	19282
Arsenic	16		0.99	mg/Kg	1	08/02/2005 10:46	19282
Barium	30		9.9	mg/Kg	1	08/02/2005 10:46	19282
Beryllium	0.44		0.30	mg/Kg	1	08/02/2005 10:46	19282
Cadmium	6.0		0.30	mg/Kg	1	08/02/2005 10:46	19282
Calcium	1400		30	mg/Kg	1	08/02/2005 10:46	19282
Chromium	18		0.99	mg/Kg	1	08/02/2005 10:46	19282
Cobalt	62		2.5	mg/Kg	1	08/02/2005 10:46	19282
Copper	49		1.5	mg/Kg	1	08/02/2005 10:46	19282
Iron	35000		30	mg/Kg	3	08/02/2005 12:47	19282
Lead	1500		0.50	mg/Kg	1	08/02/2005 10:46	19282
Magnesium	2400		25	mg/Kg	1	08/02/2005 10:46	19282
Manganese	420		2.5	mg/Kg	1	08/02/2005 10:46	19282
Nickel	21		2.5	mg/Kg	1	08/02/2005 10:46	19282
Potassium	220		50	mg/Kg	1	08/02/2005 10:24	19282
Selenium	ND		1.5	mg/Kg	1	08/02/2005 10:46	19282
Silver	2.1		1.5	mg/Kg	1	08/02/2005 10:46	19282
Sodium	66		50	mg/Kg	1	08/02/2005 11:37	19282
Thallium	ND		0.99	mg/Kg	1	08/02/2005 10:46	19282
Vanadium	19		2.5	mg/Kg	1	08/02/2005 10:46	19282
Zinc	100		2.5	mg/Kg	1	08/02/2005 10:46	19282
MERCURY BY FIA				**SW7471A**			
Mercury	0.077	H	0.036	mg/Kg	1	08/01/2005 13:54	19284

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *12-Aug-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08DRUMSOIL
Lab ID: D0879-01

Project: Middletown, RI
Collection Date: 06/24/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
ILM 4.1 MERCURY ANALYSIS				ILM4.1_HG_S			
Mercury	ND		0.10	mg/Kg	1	08/11/2005 11:23	19440
ILM 4.1 ICP METALS ANALYSIS				ILM4.1_ICP_S			
Aluminum	12000		37	mg/Kg	1	08/10/2005 21:15	19438
Antimony	ND		11	mg/Kg	1	08/10/2005 21:15	19438
Arsenic	24		1.8	mg/Kg	1	08/10/2005 21:15	19438
Barium	63		37	mg/Kg	1	08/10/2005 21:15	19438
Beryllium	ND		0.92	mg/Kg	1	08/10/2005 21:15	19438
Cadmium	ND		0.92	mg/Kg	1	08/10/2005 21:15	19438
Calcium	1800		920	mg/Kg	1	08/10/2005 21:15	19438
Chromium	15		1.8	mg/Kg	1	08/10/2005 21:15	19438
Cobalt	14		9.2	mg/Kg	1	08/10/2005 21:15	19438
Copper	27		4.6	mg/Kg	1	08/10/2005 21:15	19438
Iron	29000		18	mg/Kg	1	08/10/2005 21:15	19438
Lead	32		0.55	mg/Kg	1	08/10/2005 21:15	19438
Magnesium	3500		920	mg/Kg	1	08/10/2005 21:15	19438
Manganese	400		2.8	mg/Kg	1	08/10/2005 21:15	19438
Nickel	22		7.4	mg/Kg	1	08/10/2005 21:15	19438
Potassium	ND		920	mg/Kg	1	08/11/2005 10:35	19438
Selenium	ND		0.92	mg/Kg	1	08/11/2005 11:20	19438
Silver	ND		1.8	mg/Kg	1	08/10/2005 21:15	19438
Sodium	ND		920	mg/Kg	1	08/11/2005 15:46	19438
Thallium	ND		1.8	mg/Kg	1	08/10/2005 21:15	19438
Vanadium	19		9.2	mg/Kg	1	08/10/2005 21:15	19438
Zinc	86		3.7	mg/Kg	1	08/10/2005 21:15	19438

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9241

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	270	U
74-87-3	Chloromethane	270	U
75-01-4	Vinyl Chloride	270	U
74-83-9	Bromomethane	270	U
75-00-3	Chloroethane	270	U
75-69-4	Trichlorofluoromethane	270	U
75-35-4	1,1-Dichloroethene	270	U
67-64-1	Acetone	270	U
74-88-4	Iodomethane	270	U
75-15-0	Carbon Disulfide	270	U
75-09-2	Methylene Chloride	270	U
156-60-5	trans-1,2-Dichloroethene	270	U
1634-04-4	Methyl tert-butyl ether	270	U
75-34-3	1,1-Dichloroethane	270	U
108-05-4	Vinyl acetate	270	U
78-93-3	2-Butanone	270	U
156-59-2	cis-1,2-Dichloroethene	270	U
590-20-7	2,2-Dichloropropane	270	U
74-97-5	Bromochloromethane	270	U
67-66-3	Chloroform	270	U
71-55-6	1,1,1-Trichloroethane	270	U
563-58-6	1,1-Dichloropropene	270	U
56-23-5	Carbon Tetrachloride	270	U
107-06-2	1,2-Dichloroethane	270	U
71-43-2	Benzene	270	U
79-01-6	Trichloroethene	270	U
78-87-5	1,2-Dichloropropane	270	U
74-95-3	Dibromomethane	270	U
75-27-4	Bromodichloromethane	270	U
10061-01-5	cis-1,3-Dichloropropene	270	U
108-10-1	4-Methyl-2-pentanone	270	U
108-88-3	Toluene	81	J
10061-02-6	trans-1,3-Dichloropropene	270	U
79-00-5	1,1,2-Trichloroethane	270	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9241

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	270	U
127-18-4	Tetrachloroethene	270	U
591-78-6	2-Hexanone	270	U
124-48-1	Dibromochloromethane	270	U
106-93-4	1,2-Dibromoethane	270	U
108-90-7	Chlorobenzene	270	U
630-20-6	1,1,1,2-Tetrachloroethane	270	U
100-41-4	Ethylbenzene	97	J
----------	m,p-Xylene	57	J
95-47-6	o-Xylene	270	U
1330-20-7	Xylene (Total)	57	J
100-42-5	Styrene	270	U
75-25-2	Bromoform	270	U
98-82-8	Isopropylbenzene	270	U
79-34-5	1,1,2,2-Tetrachloroethane	270	U
108-86-1	Bromobenzene	270	U
96-18-4	1,2,3-Trichloropropane	270	U
103-65-1	n-Propylbenzene	270	U
95-49-8	2-Chlorotoluene	270	U
108-67-8	1,3,5-Trimethylbenzene	270	U
106-43-4	4-Chlorotoluene	270	U
98-06-6	tert-Butylbenzene	270	U
95-63-6	1,2,4-Trimethylbenzene	270	U
135-98-8	sec-Butylbenzene	270	U
99-87-6	4-Isopropyltoluene	270	U
541-73-1	1,3-Dichlorobenzene	270	U
106-46-7	1,4-Dichlorobenzene	270	U
104-51-8	n-Butylbenzene	270	U
95-50-1	1,2-Dichlorobenzene	270	U
96-12-8	1,2-Dibromo-3-chloropropane	270	U
120-82-1	1,2,4-Trichlorobenzene	270	U
87-68-3	Hexachlorobutadiene	270	U
91-20-3	Naphthalene	50000	E
87-61-6	1,2,3-Trichlorobenzene	270	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUMDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9267

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	2700	U
74-87-3	Chloromethane	2700	U
75-01-4	Vinyl Chloride	2700	U
74-83-9	Bromomethane	2700	U
75-00-3	Chloroethane	2700	U
75-69-4	Trichlorofluoromethane	2700	U
75-35-4	1,1-Dichloroethene	2700	U
67-64-1	Acetone	2700	U
74-88-4	Iodomethane	2700	U
75-15-0	Carbon Disulfide	2700	U
75-09-2	Methylene Chloride	900	DJB
156-60-5	trans-1,2-Dichloroethene	2700	U
1634-04-4	Methyl tert-butyl ether	2700	U
75-34-3	1,1-Dichloroethane	2700	U
108-05-4	Vinyl acetate	2700	U
78-93-3	2-Butanone	2700	U
156-59-2	cis-1,2-Dichloroethene	2700	U
590-20-7	2,2-Dichloropropane	2700	U
74-97-5	Bromochloromethane	2700	U
67-66-3	Chloroform	2700	U
71-55-6	1,1,1-Trichloroethane	2700	U
563-58-6	1,1-Dichloropropene	2700	U
56-23-5	Carbon Tetrachloride	2700	U
107-06-2	1,2-Dichloroethane	2700	U
71-43-2	Benzene	2700	U
79-01-6	Trichloroethene	2700	U
78-87-5	1,2-Dichloropropane	2700	U
74-95-3	Dibromomethane	2700	U
75-27-4	Bromodichloromethane	2700	U
10061-01-5	cis-1,3-Dichloropropene	2700	U
108-10-1	4-Methyl-2-pentanone	2700	U
108-88-3	Toluene	2700	U
10061-02-6	trans-1,3-Dichloropropene	2700	U
79-00-5	1,1,2-Trichloroethane	2700	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUMDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9267

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	2700	U
127-18-4	Tetrachloroethene	2700	U
591-78-6	2-Hexanone	2700	U
124-48-1	Dibromochloromethane	2700	U
106-93-4	1,2-Dibromoethane	2700	U
108-90-7	Chlorobenzene	2700	U
630-20-6	1,1,1,2-Tetrachloroethane	2700	U
100-41-4	Ethylbenzene	2700	U
----------	m,p-Xylene	2700	U
95-47-6	o-Xylene	2700	U
1330-20-7	Xylene (Total)	2700	U
100-42-5	Styrene	2700	U
75-25-2	Bromoform	2700	U
98-82-8	Isopropylbenzene	2700	U
79-34-5	1,1,2,2-Tetrachloroethane	2700	U
108-86-1	Bromobenzene	2700	U
96-18-4	1,2,3-Trichloropropane	2700	U
103-65-1	n-Propylbenzene	2700	U
95-49-8	2-Chlorotoluene	2700	U
108-67-8	1,3,5-Trimethylbenzene	2700	U
106-43-4	4-Chlorotoluene	2700	U
98-06-6	tert-Butylbenzene	2700	U
95-63-6	1,2,4-Trimethylbenzene	2700	U
135-98-8	sec-Butylbenzene	2700	U
99-87-6	4-Isopropyltoluene	2700	U
541-73-1	1,3-Dichlorobenzene	2700	U
106-46-7	1,4-Dichlorobenzene	2700	U
104-51-8	n-Butylbenzene	2700	U
95-50-1	1,2-Dichlorobenzene	2700	U
96-12-8	1,2-Dibromo-3-chloropropane	2700	U
120-82-1	1,2,4-Trichlorobenzene	2700	U
87-68-3	Hexachlorobutadiene	2700	U
91-20-3	Naphthalene	45000	D
87-61-6	1,2,3-Trichlorobenzene	2700	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUW08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9243

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	320	U
74-87-3	Chloromethane	320	U
75-01-4	Vinyl Chloride	320	U
74-83-9	Bromomethane	320	U
75-00-3	Chloroethane	320	U
75-69-4	Trichlorofluoromethane	320	U
75-35-4	1,1-Dichloroethene	320	U
67-64-1	Acetone	320	U
74-88-4	Iodomethane	320	U
75-15-0	Carbon Disulfide	320	U
75-09-2	Methylene Chloride	320	U
156-60-5	trans-1,2-Dichloroethene	320	U
1634-04-4	Methyl tert-butyl ether	320	U
75-34-3	1,1-Dichloroethane	320	U
108-05-4	Vinyl acetate	320	U
78-93-3	2-Butanone	320	U
156-59-2	cis-1,2-Dichloroethene	320	U
590-20-7	2,2-Dichloropropane	320	U
74-97-5	Bromochloromethane	320	U
67-66-3	Chloroform	320	U
71-55-6	1,1,1-Trichloroethane	320	U
563-58-6	1,1-Dichloropropene	320	U
56-23-5	Carbon Tetrachloride	320	U
107-06-2	1,2-Dichloroethane	320	U
71-43-2	Benzene	320	U
79-01-6	Trichloroethene	320	U
78-87-5	1,2-Dichloropropane	320	U
74-95-3	Dibromomethane	320	U
75-27-4	Bromodichloromethane	320	U
10061-01-5	cis-1,3-Dichloropropene	320	U
108-10-1	4-Methyl-2-pentanone	320	U
108-88-3	Toluene	320	U
10061-02-6	trans-1,3-Dichloropropene	320	U
79-00-5	1,1,2-Trichloroethane	320	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUW08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9243

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	320	U
127-18-4	Tetrachloroethene	320	U
591-78-6	2-Hexanone	320	U
124-48-1	Dibromochloromethane	320	U
106-93-4	1,2-Dibromoethane	320	U
108-90-7	Chlorobenzene	320	U
630-20-6	1,1,1,2-Tetrachloroethane	320	U
100-41-4	Ethylbenzene	320	U
----------	m,p-Xylene	320	U
95-47-6	o-Xylene	320	U
1330-20-7	Xylene (Total)	320	U
100-42-5	Styrene	320	U
75-25-2	Bromoform	320	U
98-82-8	Isopropylbenzene	320	U
79-34-5	1,1,2,2-Tetrachloroethane	320	U
108-86-1	Bromobenzene	320	U
96-18-4	1,2,3-Trichloropropane	320	U
103-65-1	n-Propylbenzene	320	U
95-49-8	2-Chlorotoluene	320	U
108-67-8	1,3,5-Trimethylbenzene	320	U
106-43-4	4-Chlorotoluene	320	U
98-06-6	tert-Butylbenzene	320	U
95-63-6	1,2,4-Trimethylbenzene	320	U
135-98-8	sec-Butylbenzene	320	U
99-87-6	4-Isopropyltoluene	320	U
541-73-1	1,3-Dichlorobenzene	320	U
106-46-7	1,4-Dichlorobenzene	320	U
104-51-8	n-Butylbenzene	320	U
95-50-1	1,2-Dichlorobenzene	320	U
96-12-8	1,2-Dibromo-3-chloropropane	320	U
120-82-1	1,2,4-Trichlorobenzene	320	U
87-68-3	Hexachlorobutadiene	320	U
91-20-3	Naphthalene	28000	E
87-61-6	1,2,3-Trichlorobenzene	320	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08CO
NTAINERDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9268

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	1600	U
74-87-3	Chloromethane	1600	U
75-01-4	Vinyl Chloride	1600	U
74-83-9	Bromomethane	1600	U
75-00-3	Chloroethane	1600	U
75-69-4	Trichlorofluoromethane	1600	U
75-35-4	1,1-Dichloroethene	1600	U
67-64-1	Acetone	1600	U
74-88-4	Iodomethane	1600	U
75-15-0	Carbon Disulfide	1600	U
75-09-2	Methylene Chloride	360	DJB
156-60-5	trans-1,2-Dichloroethene	1600	U
1634-04-4	Methyl tert-butyl ether	1600	U
75-34-3	1,1-Dichloroethane	1600	U
108-05-4	Vinyl acetate	1600	U
78-93-3	2-Butanone	1600	U
156-59-2	cis-1,2-Dichloroethene	1600	U
590-20-7	2,2-Dichloropropane	1600	U
74-97-5	Bromochloromethane	1600	U
67-66-3	Chloroform	1600	U
71-55-6	1,1,1-Trichloroethane	1600	U
563-58-6	1,1-Dichloropropene	1600	U
56-23-5	Carbon Tetrachloride	1600	U
107-06-2	1,2-Dichloroethane	1600	U
71-43-2	Benzene	1600	U
79-01-6	Trichloroethene	1600	U
78-87-5	1,2-Dichloropropane	1600	U
74-95-3	Dibromomethane	1600	U
75-27-4	Bromodichloromethane	1600	U
10061-01-5	cis-1,3-Dichloropropene	1600	U
108-10-1	4-Methyl-2-pentanone	1600	U
108-88-3	Toluene	1600	U
10061-02-6	trans-1,3-Dichloropropene	1600	U
79-00-5	1,1,2-Trichloroethane	1600	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
NUWC08CO NTAINERDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9268

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	1600	U
127-18-4	Tetrachloroethene	1600	U
591-78-6	2-Hexanone	1600	U
124-48-1	Dibromochloromethane	1600	U
106-93-4	1,2-Dibromoethane	1600	U
108-90-7	Chlorobenzene	1600	U
630-20-6	1,1,1,2-Tetrachloroethane	1600	U
100-41-4	Ethylbenzene	1600	U
----------	m,p-Xylene	1600	U
95-47-6	o-Xylene	1600	U
1330-20-7	Xylene (Total)	1600	U
100-42-5	Styrene	1600	U
75-25-2	Bromoform	1600	U
98-82-8	Isopropylbenzene	1600	U
79-34-5	1,1,2,2-Tetrachloroethane	1600	U
108-86-1	Bromobenzene	1600	U
96-18-4	1,2,3-Trichloropropane	1600	U
103-65-1	n-Propylbenzene	1600	U
95-49-8	2-Chlorotoluene	1600	U
108-67-8	1,3,5-Trimethylbenzene	1600	U
106-43-4	4-Chlorotoluene	1600	U
98-06-6	tert-Butylbenzene	1600	U
95-63-6	1,2,4-Trimethylbenzene	1600	U
135-98-8	sec-Butylbenzene	1600	U
99-87-6	4-Isopropyltoluene	1600	U
541-73-1	1,3-Dichlorobenzene	1600	U
106-46-7	1,4-Dichlorobenzene	1600	U
104-51-8	n-Butylbenzene	1600	U
95-50-1	1,2-Dichlorobenzene	1600	U
96-12-8	1,2-Dibromo-3-chloropropane	1600	U
120-82-1	1,2,4-Trichlorobenzene	1600	U
87-68-3	Hexachlorobutadiene	1600	U
91-20-3	Naphthalene	25000	D
87-61-6	1,2,3-Trichlorobenzene	1600	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-02C

Sample wt/vol: 5.3 (g/mL) G Lab File ID: V2G9266

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 9 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	280	U
74-87-3	Chloromethane	280	U
75-01-4	Vinyl Chloride	280	U
74-83-9	Bromomethane	280	U
75-00-3	Chloroethane	280	U
75-69-4	Trichlorofluoromethane	280	U
75-35-4	1,1-Dichloroethene	280	U
67-64-1	Acetone	280	U
74-88-4	Iodomethane	280	U
75-15-0	Carbon Disulfide	280	U
75-09-2	Methylene Chloride	110	JB
156-60-5	trans-1,2-Dichloroethene	280	U
1634-04-4	Methyl tert-butyl ether	280	U
75-34-3	1,1-Dichloroethane	280	U
108-05-4	Vinyl acetate	280	U
78-93-3	2-Butanone	280	U
156-59-2	cis-1,2-Dichloroethene	280	U
590-20-7	2,2-Dichloropropane	280	U
74-97-5	Bromochloromethane	280	U
67-66-3	Chloroform	280	U
71-55-6	1,1,1-Trichloroethane	280	U
563-58-6	1,1-Dichloropropene	280	U
56-23-5	Carbon Tetrachloride	280	U
107-06-2	1,2-Dichloroethane	280	U
71-43-2	Benzene	280	U
79-01-6	Trichloroethene	280	U
78-87-5	1,2-Dichloropropane	280	U
74-95-3	Dibromomethane	280	U
75-27-4	Bromodichloromethane	280	U
10061-01-5	cis-1,3-Dichloropropene	280	U
108-10-1	4-Methyl-2-pentanone	280	U
108-88-3	Toluene	280	U
10061-02-6	trans-1,3-Dichloropropene	280	U
79-00-5	1,1,2-Trichloroethane	280	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-02C

Sample wt/vol: 5.3 (g/mL) G Lab File ID: V2G9266

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 9 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	280	U
127-18-4	Tetrachloroethene	280	U
591-78-6	2-Hexanone	280	U
124-48-1	Dibromochloromethane	280	U
106-93-4	1,2-Dibromoethane	280	U
108-90-7	Chlorobenzene	280	U
630-20-6	1,1,1,2-Tetrachloroethane	280	U
100-41-4	Ethylbenzene	280	U
----------	m,p-Xylene	280	U
95-47-6	o-Xylene	280	U
1330-20-7	Xylene (Total)	280	U
100-42-5	Styrene	280	U
75-25-2	Bromoform	280	U
98-82-8	Isopropylbenzene	280	U
79-34-5	1,1,2,2-Tetrachloroethane	280	U
108-86-1	Bromobenzene	280	U
96-18-4	1,2,3-Trichloropropane	280	U
103-65-1	n-Propylbenzene	280	U
95-49-8	2-Chlorotoluene	280	U
108-67-8	1,3,5-Trimethylbenzene	280	U
106-43-4	4-Chlorotoluene	280	U
98-06-6	tert-Butylbenzene	280	U
95-63-6	1,2,4-Trimethylbenzene	280	U
135-98-8	sec-Butylbenzene	280	U
99-87-6	4-Isopropyltoluene	280	U
541-73-1	1,3-Dichlorobenzene	280	U
106-46-7	1,4-Dichlorobenzene	280	U
104-51-8	n-Butylbenzene	280	U
95-50-1	1,2-Dichlorobenzene	280	U
96-12-8	1,2-Dibromo-3-chloropropane	280	U
120-82-1	1,2,4-Trichlorobenzene	280	U
87-68-3	Hexachlorobutadiene	280	U
91-20-3	Naphthalene	280	U
87-61-6	1,2,3-Trichlorobenzene	280	U

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				SW8260B_LOW_S			
Dichlorodifluoromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Vinyl chloride	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromomethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Trichlorofluoromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1-Dichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Acetone	29		3.1	µg/Kg	1	12/22/2005 13:30	21527
Iodomethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Carbon disulfide	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Methylene chloride	6.5		3.1	µg/Kg	1	12/22/2005 13:30	21527
trans-1,2-Dichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Methyl tert-butyl ether	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1-Dichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Vinyl acetate	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2-Butanone	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
cis-1,2-Dichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2,2-Dichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromochloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chloroform	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1,1-Trichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1-Dichloropropene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Carbon tetrachloride	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Benzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Trichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Dibromomethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromodichloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
cis-1,3-Dichloropropene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
4-Methyl-2-pentanone	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Toluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
trans-1,3-Dichloropropene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1,2-Trichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,3-Dichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Tetrachloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2-Hexanone	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Dibromochloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dibromoethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

KSM 1/5/06

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS			SW8260B_LOW_S				
1,1,1,2-Tetrachloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Ethylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
m,p-Xylene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
o-Xylene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Xylene (Total)	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Styrene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromoform	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Isopropylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1,2,2-Tetrachloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,3-Trichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
n-Propylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2-Chlorotoluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,3,5-Trimethylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
4-Chlorotoluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
tert-Butylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,4-Trimethylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
sec-Butylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
4-Isopropyltoluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,3-Dichlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,4-Dichlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
n-Butylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dichlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dibromo-3-chloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,4-Trichlorobenzene	0.79	J	3.1	µg/Kg	1	12/22/2005 13:30	21527
Hexachlorobutadiene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,3-Trichlorobenzene	1.0	J	3.1	µg/Kg	1	12/22/2005 13:30	21527
Naphthalene	3.5	J U	3.1	µg/Kg	1	12/22/2005 13:30	21527
Surr: Dibromofluoromethane	111		82-130	%REC	1	12/22/2005 13:30	21527
Surr: 1,2-Dichloroethane-d4	121		80-129	%REC	1	12/22/2005 13:30	21527
Surr: Toluene-d8	109		25-158	%REC	1	12/22/2005 13:30	21527
Surr: Bromofluorobenzene	68.9		49-146	%REC	1	12/22/2005 13:30	21527

KSM 1/5/06

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: TB
Lab ID: D1542-02

Project: Newport Top Soil
Collection Date: 12/19/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
Dichlorodifluoromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Vinyl chloride	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromomethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Trichlorofluoromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1-Dichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Acetone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Iodomethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Carbon disulfide	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Methylene chloride	1.7	J	5.0	µg/L	1	12/20/2005 17:07	21488
trans-1,2-Dichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Methyl tert-butyl ether	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1-Dichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Vinyl acetate	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2-Butanone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
cis-1,2-Dichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2,2-Dichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromochloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chloroform	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1-Dichloropropene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Carbon tetrachloride	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Benzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Trichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Dibromomethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromodichloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
4-Methyl-2-pentanone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Toluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,3-Dichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Tetrachloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2-Hexanone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Dibromochloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dibromoethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

kam 1/5/06

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: TB
Lab ID: D1542-02

Project: Newport Top Soil
Collection Date: 12/19/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS			SW8260B_W				
1,1,1,2-Tetrachloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Ethylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
m,p-Xylene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
o-Xylene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Xylene (Total)	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Styrene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromoform	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Isopropylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,3-Trichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
n-Propylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2-Chlorotoluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,3,5-Trimethylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
4-Chlorotoluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
tert-Butylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,4-Trimethylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
sec-Butylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
4-Isopropyltoluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,3-Dichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,4-Dichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
n-Butylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dibromo-3-chloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Hexachlorobutadiene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,3-Trichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Naphthalene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Surr: Dibromofluoromethane	99.8		78-117	%REC	1	12/20/2005 17:07	21488
Surr: 1,2-Dichloroethane-d4	97.2		62-124	%REC	1	12/20/2005 17:07	21488
Surr: Toluene-d8	98.0		81-116	%REC	1	12/20/2005 17:07	21488
Surr: Bromofluorobenzene	86.8		74-128	%REC	1	12/20/2005 17:07	21488

KSM 1/5/06

Qualifiers:
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DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SVOA BY GC-MS				**SW8270C_S**			
Phenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Bis(2-chloroethyl)ether	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2-Chlorophenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
1,3-Dichlorobenzene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
1,4-Dichlorobenzene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
1,2-Dichlorobenzene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2-Methylphenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,2'-oxybis(1-Chloropropane)	ND		360	µg/Kg	1	12/27/2005 12:40	21508
4-Methylphenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
N-Nitroso-di-n-propylamine	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Hexachloroethane	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Nitrobenzene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Isophorone	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2-Nitrophenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dimethylphenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dichlorophenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
1,2,4-Trichlorobenzene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Naphthalene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
4-Chloroaniline	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Bis(2-chloroethoxy)methane	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Hexachlorobutadiene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
4-Chloro-3-methylphenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2-Methylnaphthalene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Hexachlorocyclopentadiene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,4,6-Trichlorophenol	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,4,6-Trichlorophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
2-Chloronaphthalene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2-Nitroaniline	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Dimethylphthalate	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Acenaphthylene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,6-Dinitrotoluene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
3-Nitroaniline	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Acenaphthene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dinitrophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
4-Nitrophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Dibenzofuran	ND		360	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dinitrotoluene	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Diethylphthalate	ND		360	µg/Kg	1	12/27/2005 12:40	21508
4-Chlorophenyl-phenylether	ND		360	µg/Kg	1	12/27/2005 12:40	21508
Fluorene	ND		360	µg/Kg	1	12/27/2005 12:40	21508

Qualifiers:
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J - Analyte detected below quantitation limits
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KSM 1/5/06

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SVOA BY GC-MS			SW8270C_S				
4-Nitroaniline	ND		770	µg/Kg	1	12/27/2005 12:40	21508
4,6-Dinitro-2-methylphenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
N-Nitrosodiphenylamine	ND		380	µg/Kg	1	12/27/2005 12:40	21508
4-Bromophenyl-phenylether	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Hexachlorobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Pentachlorophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Phenanthrene	180	J	380	µg/Kg	1	12/27/2005 12:40	21508
Anthracene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Carbazole	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Di-n-butylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Fluoranthene	260	J	380	µg/Kg	1	12/27/2005 12:40	21508
Pyrene	270	J	380	µg/Kg	1	12/27/2005 12:40	21508
Butylbenzylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
3,3'-Dichlorobenzidine	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(a)anthracene	170	J	380	µg/Kg	1	12/27/2005 12:40	21508
Chrysene	140	J	380	µg/Kg	1	12/27/2005 12:40	21508
Bis(2-ethylhexyl)phthalate	170	J	380	µg/Kg	1	12/27/2005 12:40	21508
Di-n-octylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(b)fluoranthene	120	J	380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(k)fluoranthene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(a)pyrene	97	J	380	µg/Kg	1	12/27/2005 12:40	21508
Indeno(1,2,3-cd)pyrene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Dibenzo(a,h)anthracene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(g,h,i)perylene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Surr: Nitrobenzene-d5	83.1		46-102	%REC	1	12/27/2005 12:40	21508
Surr: 2-Fluorobiphenyl	79.1		52-107	%REC	1	12/27/2005 12:40	21508
Surr: Terphenyl-d14	95.7		41-132	%REC	1	12/27/2005 12:40	21508
Surr: Phenol-d5	77.0		45-99	%REC	1	12/27/2005 12:40	21508
Surr: 2-Fluorophenol	77.3		44-95	%REC	1	12/27/2005 12:40	21508
Surr: 2,4,6-Tribromophenol	94.7		50-111	%REC	1	12/27/2005 12:40	21508

RSM 1/5/06

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R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *29-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
ORGANOCHLORINE PESTICIDES BY GC-ECD				SW8081A_S			
alpha-BHC	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
beta-BHC	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
delta-BHC	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
gamma-BHC (Lindane)	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
Heptachlor	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
Aldrin	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
Heptachlor epoxide	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
Endosulfan I	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
Dieldrin	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
4,4'-DDE	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
Endrin	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
Endosulfan II	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
4,4'-DDD	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
Endosulfan sulfate	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
4,4'-DDT	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
Methoxychlor	ND		20	µg/Kg	1	12/23/2005 17:45	21506
Endrin ketone	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
Endrin aldehyde	ND		3.8	µg/Kg	1	12/23/2005 17:45	21506
alpha-Chlordane	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
gamma-Chlordane	ND		2.0	µg/Kg	1	12/23/2005 17:45	21506
Toxaphene	ND		200	µg/Kg	1	12/23/2005 17:45	21506
Surr: Tetrachloro-m-xylene	66.8		18-153	%REC	1	12/23/2005 17:45	21506
Surr: Decachlorobiphenyl	78.3		46-140	%REC	1	12/23/2005 17:45	21506

FSM 1/5/06

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R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *29-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
PCB BY GC-ECD				SW8082_S			
Aroclor-1016	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1221	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1232	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1242	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1248	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1254	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1260	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Surr: Tetrachloro-m-xylene	71.7		42-147	%REC	1	12/23/2005 16:56	21505
Surr: Decachlorobiphenyl	76.3		29-155	%REC	1	12/23/2005 16:56	21505

KSM 1/5/06

Qualifiers:
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DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *05-Jan-06*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				SW6010B_S			
Antimony	~~ND~~ 1.0 UJ		1.0	mg/Kg	1	12/28/2005 11:47	21540
Arsenic	2.7		1.0	mg/Kg	1	12/27/2005 11:11	21540
Barium	21		10	mg/Kg	1	12/27/2005 11:11	21540
Beryllium	ND		0.26	mg/Kg	1	12/27/2005 11:11	21540
Cadmium	ND		0.26	mg/Kg	1	12/27/2005 11:11	21540
Chromium	5.8		1.0	mg/Kg	1	12/27/2005 11:11	21540
Copper	8.3		1.6	mg/Kg	1	12/27/2005 11:11	21540
Lead	23	J	0.52	mg/Kg	1	12/27/2005 11:11	21540
Manganese	210		2.6	mg/Kg	1	12/27/2005 11:11	21540
Nickel	5.3		2.6	mg/Kg	1	12/27/2005 11:11	21540
Selenium	~~ND~~ 1.6 UJ		1.6	mg/Kg	1	12/27/2005 11:11	21540
Silver	ND		1.6	mg/Kg	1	12/27/2005 11:11	21540
Thallium	2.2		1.0	mg/Kg	1	12/27/2005 11:11	21540
Vanadium	9.3		2.6	mg/Kg	1	12/27/2005 11:11	21540
Zinc	31		2.6	mg/Kg	1	12/27/2005 11:11	21540
MERCURY BY FIA				SW7471A			
Mercury	0.080		0.038	mg/Kg	1	12/29/2005 14:57	21638

BSM 1/5/06

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

0040A

Mitkem Corporation

Date: *28-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
CR+ BY COLORIMETRIC METHOD				SW7196A_S			
Chromium, Hexavalent	ND		4.85	mg/Kg	1	12/23/2005 14:00	21586
TOTAL CYANIDE				SW9012B_S			
Cyanide	ND		0.99	mg/Kg	1	12/28/2005 12:17	21619

KSM 1/5/06

Qualifiers:

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DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

07/Mar/06 17:24

WorkOrder: E0240

Client ID: TNA_GA
Project: Middletown, RI
Location:
Comments: Fax results to 610-431-9583 by 9:00am one week from receipt

Case:
SDG:
PO: 2004126

Report Level: LEVEL 3
EDD: CLF
HC Due: 03/14/06
Fax Due: 03/08/06

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Lab Test Comments	Iold	MS	SEL	Storage
E0240-01A	NUSC-DRUM-02	03/07/06 09:00	03/07/06	Soil	PMoist		☐	☐	☐	A4
					SW1010_S		☐	☐	☐	A4
					SW9045C_S		☐	☐	☐	A4

Client Rep: Agnes R Ng

Mitkem Corporation

Date: *08-Mar-06*

Client: TN & Associates, Inc.
Client Sample ID: NUSC-DRUM-02
Lab ID: E0240-01

Project: Middletown, RI
Collection Date: 03/07/06 9:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
FLASHPOINT BY PENSKY-MARTENS CLOSED-CUP METHOD				**SW1010_S**			
ignitability	No flash at 140.		200	°F	1	03/07/2006 12:00	R14980
SOIL AND WASTE PH				**SW9045C_S**			
pH	7.5		1.0	S.U.	1	03/07/2006 12:00	R14981

Qualifiers:

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J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Appendix D

Transport Weight Tickets and Hazardous and Non-Hazardous Waste Manifests

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: RI1170024243
Manifest Document No.:
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8A)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1701
5. Transporter 1 Company Name: Freehold Cartage, Inc.
6. US EPA ID Number: NJD054126164
7. Transporter 2 Company Name:
8. US EPA ID Number:
9. Designated Facility Name and Site Address
EQ Detroit, Inc.
1923 Frederick Street
Detroit, MI 48211
10. US EPA ID Number: MID980991566

[redacted]

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER). HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	Non RCRA, Non DOT Regulated Waste Solid, N.O.S., None, None (Roofing Tar)	024	DM	014800	LB
b.					
c.					
d.					

[redacted]

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-005
Emergency Contact: Capitol Environmental (302) 652-8999
ADD CAUSE

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date Month Day Year
Renee Lavoie	Renee Lavoie	08 22 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year
Ray Carvalho	Ray Carvalho	08 22 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date Month Day Year
Latandria Jones	Latandria Jones	

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88) TRANSPORTER COPY EQP 5110 Rev. 11/03

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994 as amended.

*Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No: R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No.: 00060
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1781

A. State Manifest Document Number: MI 9570006
B. State Generator's ID:

5. Transporter 1 Company Name: Freehold Cartage, Inc.
6. US EPA ID Number: M J D 0 5 4 1 2 6 1 8 4
C. State Transporter's ID: 163047 07
D. Transporter's Phone:

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
EQ Detroit, Inc.
1923 Frederick Street
Detroit, MI 48211
10. US EPA ID Number: M I D 9 8 0 0 9 1 5 6 8
G. State Facility's ID:
H. Facility's Phone:

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER)	12 Containers No.	Type	13 Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Non RCRA, Non DOT Regulated Waste Solid, N.O.S., None, None (Roofing Tar)	004	DM	02000	P	
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: [illegible]

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

NOV 10 '05

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0007-DO-008
Emergency Contact: Capitol Environmental, (302) 652-4000
Job# CAN-2838

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: MARK J. RIELLY
Signature: M J Rielly
Date: Month 10 Day 21 Year 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: RAY CIANCIULLO
Signature: Ray Cianciullo
Date: Month 10 Day 31 Year 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: LaTandra Jones
Signature: LaTandra Jones
Date: Month 11 Day 1 Year 05

GENERATOR
TRANSPORTER
FACILITY

EQF-8110
Rev. 11/02

PA Form 8700-22 (Rev. 9/88)

TRUE COPY

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended. 311-4

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Form Approved. OMB No. 2050-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50055
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N6N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

5. Transporter 1 Company Name
US Bulk
6. US EPA ID Number

7. Transporter 2 Company Name
8. US EPA ID Number
PAD987347515

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number
M I D 0 0 0 7 2 4 8 3 1

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	1	DT	5.00	TNS
b.						
c.						
d.						

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0607-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999
Job# CAN-BI-01

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lavoie | Signature | Month Day Year: 09-1-05 | Date

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Brian Carnes | Signature | Month Day Year: 09/2/05 | Date

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year | Date

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Andrew Dotkin | Signature | Month Day Year: 09/2/05 | Date

GENERATOR — TRANSPORTER — FACILITY

EPA Form 8700-22 (Rev. 9/88) TRANSPORTER COPY EQP-5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 384999
EQ Account #: 2011
Manifest / BOL: MI9531465
Transporter: USBULK
Date: 09/21/2005
Time In: 3:37 PM
Time Out: 5:38 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	22.830 TONS
	RI1170024243 NAVAL STATION NEWPORT	
	Gross: 78,780 **Tare:** 33,120 **Net:** 45,660	

NO SALVAGING ON PREMISES

DEQ WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type

Form Approved: OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50056
2. Page 1 of 1
Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N66)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number MI 9531466
B. State Generator's ID
C. State Transporter's ID UNKNOWN
D. Transporter's Phone
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone

5. Transporter 1 Company Name
Di-Page-STS-Inc. USBUCK FJC.
6. US EPA ID Number
MID 9 9 2 2 9 9 3
7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number
MID 0 0 0 7 2 4 6 3 1

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).

	HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Codes
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	22	TN	
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: [illegible] 8989171

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract N62472-01-D-0807-DO-006
Emergency Contact: Capital Environmental, (800) 862-8989
John Calhoun

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Denise Lavoie
Signature:
Date: Month Day Year 10 20 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Donald Jones
Signature:
Date: Month Day Year 10 20 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name:
Signature:
Date: Month Day Year 10 21 05

GENERATOR
TRANSPORTER
DESIGNATED FACILITY

Rev. 10/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 384986
EQ Account #: 2011
Manifest / BOL: MI9531466
Transporter: USBULK
Date: 09/21/2005
Time In: 1:39 PM
Time Out: 4:47 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	23.200 TONS
	RI1170024243 NAVAL STATION NEWPORT Gross: 80,300 Tare: 33,900 Net: 46,400	

NO SALVAGING ON PREMISES

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

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Form Approved. OMB No. 2050-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50057
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1701

5. Transporter 1 Company Name
Eagle ETC, Inc. U.S. Bulk

6. US EPA ID Number
LAD 987 047 515

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111

10. US EPA ID Number
M I D 0 0 0 7 2 4 8 3 1

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER). HM			12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	~22 TONS	TNS
b.						
c.						

GENERATION

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0007-DO-006
Emergency Contact: Capitol Environmental, (302) 652-6999
Job# CAN-RI-01

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lavoie
Signature: Unreadable
Month Day Year: 09/30/05

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Leisa A. Cowell
Signature: Leisa A. Cowell
Date: 09/30/05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date:

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Eric Botkin
Signature: Eric Botkin
Date: 09/30/05

Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP5110
Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 384998
EQ Account #: 2011
Manifest / BOL: MI9531464
Transporter: USBULK
Date: 09/21/2005
Time In: 3:29 PM
Time Out: 5:27 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	24.310 TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 82,740 **Tare:** 34,120 **Net:** 48,620	

NO SALVAGING ON PREMISES

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

239859

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50038
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

5. Transporter 1 Company Name
Page ETC, Inc.
6. US EPA ID Number
N Y D 9 8 6 9 6 9 9 4 7

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number
M I D 0 0 0 7 2 4 8 3 1

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER). HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	22	TN
b.						
c.						
d.						

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0007-DO-006
Emergency Contact: Capital Environmental (302) 652-8999
Lead CAN-FILL

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lavoie
Signature: Renee Lavoie
Date: Month Day Year: 09 21 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Ronald Brochu
Signature:
Date: Month Day Year: 09 21 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Lance Hall
Signature:
Date: Month Day Year: 09 21 05

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

GENERATOR
TRANSPORTER
FACILITY

EPA Form 8700-22 (Rev. 9/88)
TRANSPORTER COPY
EQP-5110
Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385074
EQ Account #: 2011
Manifest / BOL: MI9531467
Transporter: PAGE
Date: 09/22/2005
Time In: 3:04 PM
Time Out: 4:16 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	31.770 TONS
	RI1170024243 NAVAL STATION NEWPORT	
	Gross: 96,760 **Tare:** 33,220 **Net:** 63,540	

NO SALVAGING ON PREMISES

...ERIALS DIVISION
...EPARTMENT OF
...NMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

79100

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50059
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N0N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1791

5. Transporter 1 Company Name: Page ETC, Inc. US BULK
6. US EPA ID Number: [illegible]

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

[redacted]

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	022	T
b.						
c.						
d.						

[redacted]

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999
Job# CAN...

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lavoie | Signature: Renee Lavoie (RI) | Date Month Day Year: 09 21 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: [illegible] | Signature: [illegible] | Date Month Day Year: 09 21 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Lori Bee | Signature: [illegible] | Date Month Day Year: 09 22 05

Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP 5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385071
EQ Account #: 2011
Manifest / BOL: MI9531468
Transporter: USBULK
Date: 09/22/2005
Time In: 2:07 PM
Time Out: 3:21 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	23.720 TONS
	RI1170024243 NAVAL STATION NEWPORT Gross: 79,100 Tare: 31,660 Net: 47,440	

NO SALVAGING ON PREMISES

DEQ

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

and Part ... amended.

Failure to file may subject you to c... nal and/or civil penalties under Se... 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3 — Manifest Document No. 50010
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N6N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1791

5. Transporter 1 Company Name: ~~US Bulk Transport, Inc.~~ New England Disposal Tech. Inc. — 6. US EPA ID Number: MAD[illegible]

7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111

10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

A. State Manifest Document Number: MI 9531470
B. State Generator's ID
C. State Transporter's ID [illegible]
D. Transporter's Phone [illegible]
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone [illegible]

	HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER).	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	01	DT	22	T	D008
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: 081206MAP ERG171

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999
Job# CAN-RI-III -

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Renee Lavoie	Renee Lavoie	09	[illegible]	05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
William Stoddard	William Stoddard	09	[illegible]	05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Addie Botkin	Addie Botkin	09	[illegible]	05

GENERATOR / TRANSPORTER / FACILITY

IN CASE OF EMERGENCY OR SPILL, CONTACT THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TSDF COPY

EQP 5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385152
EQ Account #: 2011
Manifest / BOL: MI9531470
Transporter: NEDT
Date: 09/23/2005
Time In: 1:20 PM
Time Out: 3:15 PM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL RI1170024243 NAVAL STATION NEWPORT	22.390	TONS

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 22069
2. Page 1 of 1
Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N6N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number MI 9531468
B. State Generator's ID
C. State Transporter's ID
D. Transporter's Phone
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone

5. Transporter 1 Company Name NEW ENGLAND DISPOSAL TECH INC
6. US EPA ID Number
7. Transporter 2 Company Name
8. US EPA ID Number
9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number M I D 0 0 0 7 2 4 8 3 1

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	01	DT	22	T	
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: 091[illegible] 1[illegible]171

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0607-DO-006
Emergency Contact: Capitol Environmental, (302) 652-6666
Job# CAN-N-M

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR: If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lavoie
Signature: Renee Lavoie
Date: Month 09 Day 12 Year 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Carl Hall
Signature: Carl Hall
Date: Month 09 Day 14 Year 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name
Signature
Date: Month Day Year

TSDF COPY

EQP 5171 (Rev. 7/03)

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385153
EQ Account #: 2011
Manifest / BOL: MI9531469
Transporter: NEDT
Date: 09/23/2005
Time In: 1:27 PM
Time Out: 2:52 PM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL RI1170024243 NAVAL STATION NEWPORT	21.770	TONS

DEQ

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

239861

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended. 10475

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3	Manifest Document No. 5008	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1791

5. Transporter 1 Company Name: US Bulk Transport Inc. | 6. US EPA ID Number: P A D 0 8 7 4 7 6 4 7 6

7. Transporter 2 Company Name | 8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111

10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER).			12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	01	DT	22 FST	T
b.						
c.						
d.						

15. Special Handling Instructions and Additional Information
Contract# N624722-01-D-0007-DO-006
Emergency Contact: Capitol Environmental, (302) 652-6999

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Peter LaVoie | Signature | Date: Month Day Year 09 19 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Brian Schieble | Signature | Date: Month Day Year 09 19 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Ad Edotkin | Signature | Date: Month Day Year 09 23 05

GENERATOR
TRANSPORTER
FACILITY

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP 5110
Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385169
EQ Account #: 2011
Manifest / BOL: MI9531471
Transporter: PAGE
Date: 09/23/2005
Time In: 4:39 PM
Time Out: 5:24 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	14.090 TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 56,360 **Tare:** 28,180 **Net:** 28,180	

NO SALVAGING ON PREMISES

DEQ

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

2398600

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ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No.: 50023
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791 NYD 986969947

5. Transporter 1 Company Name: ~~JJ UG Bulk Transport, Inc.~~ PALE ETC Inc
6. US EPA ID Number: ~~PAD067347845~~

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number: MID000724831

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER). HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 6, NA3077, III (Lead)	001	DT	22 EST	T
b.						
c.						
d.						

15. Special Handling Instructions and Additional Information
Contract# N624722-01-D-0807-DO-008
Emergency Contact: Capitol Environmental, (302) 652-8999
~~Job# CAN-218~~

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR: If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
Renee Lavoie	Renee Lavoie	09/22/05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
JOHN Schieble	John Schieble	09/22/05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
Lori Kay		09/23/05

GENERATOR
TRANSPORTER
FACILITY

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706, OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385170
EQ Account #: 2011
Manifest / BOL: MI9531472
Transporter: PAGE
Date: 09/23/2005
Time In: 4:51 PM
Time Out: 5:28 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	24.050 TONS
	RI1170024243 NAVAL STATION NEWPORT	
	Gross: 79,040 Tare: 30,940 Net: 48,100	

NO SALVAGING ON PREMISES

DEQ WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

402

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 121 of Act 451, 1994, as amended.
Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

85260

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3 — Manifest Document No. 500/05	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Naval Station Newport (Environmental Dept. Code N8N), One Simonpietri Dr., Newport, RI 02841	A. State Manifest Document Number: MI 8531473
4. Generator's Phone: (401) 841-1791	B. State Generator's ID
5. Transporter 1 Company Name: US Bulk Transport, Inc. — 6. US EPA ID Number: P A D 9 8 7 3 4 7 5 1 5	C. State Transporter's ID
	D. Transporter's Phone
7. Transporter 2 Company Name — 8. US EPA ID Number	E. State Transporter's ID
	F. Transporter's Phone
9. Designated Facility Name and Site Address: Michigan Disposal Waste Treatment Plant, 49350 N. I-94 Service Drive, Belleville, MI 48111 — 10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1	G. State Facility's ID
	H. Facility's Phone

HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	001	DT	EST 25	T	
b.				78.15		
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: [illegible]

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
MARK J. RIELLY	[signature]	1/9/21/05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Jeff Marsh	[signature]	10/24/05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space
Change Bk per Billing [illegible]

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)
Addie Botkin	[signature]	10/24/05

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY

EPA Form 8700-22 (Rev. 9/88) TSDF COPY EQP 5110 Rev 11/05

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 387038
EQ Account #: 2011
Manifest / BOL: MI9531473
Transporter: USBULK
Date: 10/24/2005
Time In: 7:31 AM
Time Out: 11:24 AM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	28.150	TONS
	RI1170024243 NAVAL STATION NEWPORT		

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

Tracking Number

J. Load Information

Note: Make additional copies of this page as necessary.

Load#: 1

Signature of transporter: Harry [illegible]

Receiving facility: Aggerate DJM

Date received: 10-21-05 Time received: 2:10 pm

Date of shipment: 10-21-05 Time of shipment: 12:30 pm

Truck/Tractor registration: 23022-A

Trailer registration:

Load size (cubic yards/tons): 3690184 25.39

Load#:

Signature of transporter:

Receiving facility:

Date received: Time received:

Date of shipment: Time of shipment:

Truck/Tractor registration:

Trailer registration:

Load size (cubic yards/tons):

Load#:

Signature of transporter:

Receiving facility:

Date received: Time received:

Date of shipment: Time of shipment:

Truck/Tractor registration:

Trailer registration:

Load size (cubic yards/tons):

K. Log Sheet Volume Information

Total volume this page (cubic yards/tons):

Total carried forward (cubic yards/tons):

Total carried forward and this page (cubic yards/tons):

Page _____ of _____

A

Drock 109

T- 25,500
G-

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3640184

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCK NO.	TRUCK NO.
Scale 1	10/21/2005	2:10:	670600	DROCK1

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO.	PROJECT NO.	LOADS	ACCUM. AMOUNT
999990		410	Pick		311	35350	1	25.34

CUSTOMER NAME

CASH SLS/STOUGHTON

CASH SALES STOUGHTON
STOUGHTON, MA

JOB NAME/DIRECTIONS

SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY	UNIT	PRICE	AMOUNT	TX	MEASURE TIME	POUNDS	TONS
RECY SOIL OIL MIX	25.34	Ton			GROSS		75180	38.09
	TRUCKING RATE		0.00	0.00	TARE		25500*	12.75*
	TAX INDEX		0.0000%	0.00	NET		50680	25.34

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHMASTER

Our business is greatly valued.

Received by

Driver: FOB HAULER

CUSTOMER COPY

CONTROL

RECEIVED

3/00) A1-25

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Capt Enviromental DATE: 10-21-05
JOB: Naval Base
FROM: Newport RI
TO:
TRANSPORTER: Orech TRUCK# 109
DESCRIPTION:

TIME IN: 800
TIME OUT: 1200 4 hrs waiting
TOTAL HOURS/ TONS / YARDS: to get load
RECEIVED BY:

Nº 000443 THANK YOU

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

Tracking Number

J. Load Information

Note: Make additional copies of this page as necessary.

Load#: 1

Signature of transporter: [signature] DSM Nanosource

Date received: 10-21-05 Time received: 2:13 PM

Receiving facility: DSM Nanosource

Date of shipment: 10/21/05 Time of shipment: 12:05

Truck/Tractor registration: 780054-CT Trailer registration: 3640185

Load size (cubic yards/tons): 20.95

Load#: _____

Signature of transporter

Receiving facility

Date received Time received

Date of shipment Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

Load#: _____

Signature of transporter

Receiving facility

Date received Time received

Date of shipment Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

K. Log Sheet Volume Information

Total volume this page (cubic yards/tons)

Total carried forward (cubic yards/tons)

Total carried forward and this page (cubic yards/tons)

Page _____ of _____

25,600

SRS- 888

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3640185

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCK ID	TRUCK NO
Scale 1	10/21/2005	2:13:	670600	GRS888

CUSTOMER #	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO	PROJECT NO	LOADS	ACCUM AMOUNT
999998		410	Pick		311	35350	2	46.29

CUSTOMER NAME	2ND NAME/DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

	PLANNED	UNIT PRICE	AMOUNT		TAG #	POUNDS	TONS
RECY SOIL OIL MIX	20.95 Ton					67500	33.75
	TRUCKING RATE	0.00	0.00	TARE		25600*	12.80*
	TAX MAEX	0.0000%	0.00	NET		41900	20.95

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHTMASTER
			TOMMY

Our business is greatly valued.

Received by:

Driver:
FOB HAULER

Waiting time in excess of 1/2 hour will be charged at current rates.

3/00) AI-25

CUSTOMER COPY

CONTROL NO. 1596147

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Crystal Env. DATE: 10/21/05
JOB: Newport Naval Base
FROM: Newport, R.I.
TO: Stoughton, MA
TRANSPORTER: S.R.S TRUCK# #888
DESCRIPTION:

~~8:00 Am~~

Demurrage Time

TIME IN: 8:00 Am
TIME OUT: 12:00 Noon
TOTAL HOURS/ TONS / YARDS:
RECEIVED BY: X

No. 000487 THANK YOU

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

Tracking Number

Naval Station Newport RI

J. Load Information

Note: Make additional copies of this page as necessary.

Load#: 1

DJM — Signature of transporter

Aggregate — Receiving facility

10-21-05 — Date received

2:15pm — Time received

10-21-05 — Date of shipment

1230 — Time of shipment

37871A — Truck/Tractor registration

38 40186 — Trailer registration

Load size (cubic yards/tons) 6.81

Load#: _____

Signature of transporter

Receiving facility

Date received

Time received

Date of shipment

Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

Load#: _____

Signature of transporter

Receiving facility

Date received

Time received

Date of shipment

Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

K. Log Sheet Volume Information

Total volume this page (cubic yards/tons)

Total carried forward (cubic yards/tons)

Total carried forward and this page (cubic yards/tons)

Page _____ of _____

SRS - 777

AGGREGATE INDUSTRIES

(781) 344-2211 TICKET NO. 3640186

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCK NO.
Scale 1	10/21/2005	2:15:	670600	SR8777

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALES TYPE	ZONE	PLANT NO.	PRODUCT NO.	LOADS	ACCUM. AMOUNT
999990		410	Pick		311	35350	3	53.10

CUSTOMER NAME	JOB NAME / DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY / UNIT	PRICE	AMOUNT		MEGAGRAMS	POUNDS	TONS
RECY SOIL OIL MIX:	6.81 Ton					39120	19.56
	TRUCKING RATE	0.00	0.00	TARE		25500#	12.75*
	TAX MAEX	0.0000%	0.00	NET		13620	6.81

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHMASTER
			TOMMY

Purchaser is responsible for any property damage when delivery is made beyond the curb line.

our business is greatly valued.

Received by:

Driver: FOB HAULER

Waiting time in excess of 1/4 hour will be charged at current rates.

3(00) AI-25

CUSTOMER COPY

CONTROL NO. 1596148

830

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: RI1170024243
Manifest Document No.:
2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Station Newport
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

Site: NUWC IR
Same BLDG-185

5. Transporter 1 Company Name: NEW ENGLAND DISPOSAL TECH
6. US EPA ID Number: MAR000504860
A. Transporter's Phone: 508 756 1339

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address
Turnkey Landfill
97 Rochester Neck Road
Rochester, NH 03839
10. US EPA ID Number: NOT REQUIRED
C. Facility's Phone: 603 330-2165

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Non RCRA, Non DOT Regulated Solid, N.O.S., (Asphalt Roofing Tar contaminated Soil)	1	CM	20	Y
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
App# 68023

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Job# CAN-BHIL-
Emergency Contact: Capitol Environmental Services, Inc. 302 652-8999

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
MARK J. RIELLY	Mark Rielly	10	31	06

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
KEVIN CORR	Kevin Corr	10	31	06

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[signature]	11	3	06

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL - RETURN TO GENERATOR

WASTE MANAGEMENT

WASTE MANAGEMENT OF NEW HAMPSHIRE, INC. TICKET: 357105
90 ROCHESTER NECK RD, ROCHESTER, NH DATE: 03/21/2006
PH: 603-330-2134 FAX 603-330-2139 TIME: 15:03 - 15:52
M - F 8:00am - 3:30pm Sat 8 - 11:30

CUSTOMER: 1428 / CAPITOL ENVIRONMENTAL SERVICES INC P.O.:
GENERATOR: 0866 / NAVAL STATION - NEWPORT GROSS: 56460 LBS
PROFILE #: 58023 TARE: 42520 LBS
TRUCK: 830 LICENSE: NET: 13940 LBS
ROUTE: NA / Non App MANIFEST:
COMMENT:
PROFILE DESCRIPTION: ROOFING TAR CONT SOIL

WASTE	NET/TONS	UNIT
22 / SPW - CONTAMINATED SOIL	6.97	T
FUELSUR / FUEL SURCHARGE		U

IN: Christina KapoOUT: Christina Kapos B: NHROCH04PC
OUT-OF-STATE SOLID WASTE TRANSPORTER DECLARATION: I certify under penalty of perjury that the information provided is true and correct to the best of my knowledge and belief.

TO THE BEST OF MY KNOWLEDGE THIS TRUCK CONTAINS NO HAZARDOUS OR UNACCEPTABLE WASTE DRIVER:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge mate not subject to managment under sec. 310 CMR 40.0035 nor manifestin under 310 CMR 30.000

Load Information

	Load # 1	Load # 2
Sign. of Transporter	Gary	Gary
Receiving Facility	Aggregate Ind	Aggregate Ind
Date Received	3-6	3-6
Time Received	1045	200
Date of Shipment	3-6	3-6
Time of Shipment	935	1245
Truck Registration	23022-A	23022-A
Trailer Registration	—	—
Load Size (Cubic Yrd/Tons)	26.17	26.65

	Load # _____	Load # _____
Sign. of Transporter		
Receiving Facility		
Date Received		
Time Received		
Date of Shipment		
Time of Shipment		
Truck Registration		
Trailer Registration		
Load Size (Cubic Yrd/Tons)		

Log Sheet Volume Information

4/6

TOTAL VOLUME PAGE (cubic yards/tons) _____

TOTAL CARRIED FORWARD (cubic yards/tons) _____

TOTAL CARRIED FORWARD THIS PAGE (cubic yards/tons) _____

AGGREGATE INDUSTRIES

(781) 344-2211

3850973

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

Scale 1

DATE	TIME	TICKET NO.	TRUCK NO.
3/6/2006	10:38	670600	DROCK1

CUSTOMER #	PURCHASE ORDER NO.	PRODUCT CODE	SALES TYPE	ZONE	PRINT	SCALE NO.	LOAD #	CUMULATIVE
999998		410	Picku		311	35350	1	26.17

CASH SLS/STOUGHTON

CASH SALES STOUGHTON
STOUGHTON, MA

SOIL/NEWPORT-NAVAL STA

DESCRIPTION	QUANTITY	PRICE	AMOUNT		GROSS/TARE/NET		
BEDY SOIL OIL MIX:	26.17 Ton			GROSS	77040	38.92	
	TRUCKING RATE	0.00	0.00	TARE	23500*	12.75*	
1 Tickets Total Sold: Total Paid: Amount Due:	TAX MAEX 0	0000%	0.00	NET	53340	26.17	
	TOTAL DUE						

ARRIVE	DEPART	WAITING TIME	WEIGHTMASTER
			TOMMY

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Received by

Driver:
FOB HAULER

CUSTOMER COPY

(3/00) AI-25

CONTROL NO. 1730706

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3650973

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

Scale 1

SCALE MASTER	DATE	TIME	TICKET NO.	TRUCK NO.
	3/6/2006	10:30	670600	DROCK1

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	UNIT	PROJECT NO.	LOAD	ACCUM AMOUNT
999998		410	Picku		311	35350	1	26.17

CUSTOMER NAME AND ADDRESS	JOB NAME AND LOCATION
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY	UNIT PRICE	AMOUNT		MEASURE	GROSS	TARE	NET
SEDY SOIL OIL MIX:	26.17 Ton			GROSS		77040		38.92
	TRUCKING RATE	0.00	0.00	TARE		25500*		12.75*
# Tickets Total Sold: Total Paid: Amount Due:	TAX MAEX 0.0000%		0.00	NET		52340		26.17
	TOTAL DUE							

SALESPERSON	SHIPPING	WEIGHMASTER	VERIFIED BY
			TOMMY

Your business is greatly valued.

Received by:

Driver:
FOB HAULER

CUSTOMER COPY

CONTROL NO. 1730706

(3/00) AI-25

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3651004

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCK NO.
Scale 1	3/6/2006	1:47	670600	DRUCK 3

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	[illegible]	PROJECT NO.	LOADS	ACCUM AMOUNT
999998		410	Picku		311	35350	2	52.82

CUSTOMER NAME	JOB NAME / DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY / UNIT	PRICE	AMOUNT		[illegible]	POUNDS	TONS
RECY SOIL OIL MIX: 2 Tickets Total Sold: Total Paid: Amount Due:	26.65 Ton			GROSS		78800	39.40
	TRUCKING RATE	0.00	0.00	TARE		25500*	12.75*
	TAX MAEX	0.0000%	0.00	NET		53300	26.65
	TOTAL DUE						

[illegible]

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHMASTER
			TOMMY

Your business is greatly valued.

Received by: [signature]

Driver: FOB HAULER

[illegible]

(3/00) AI-25

CUSTOMER COPY

CONTROL NO. 1730737

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Capitol Env DATE: 3-6-06

JOB: Naval Station

FROM: Newport RI

TO: Stoughton Mass

TRANSPORTER: Droch TRUCK# 109

DESCRIPTION:

wait time

TIME IN: 700

TIME OUT: 930

TOTAL HOURS/ TONS / YARDS: 2 1/2 hrs

RECEIVED BY: Christie INSP

No. 000449 THANK YOU

Appendix E
MW-01B Monitoring Well Completion Log

CLIENT: TN ASSOCIATES
PROJECT NAME: US NAVAL BASE
LOCATION: NEWPORT, RI
DRILLER: S. Ramsdell
INSPECTOR: D. Eisentrout
DATE START: 6-15-06
DATE FINISH: 6-15-06

NEW ENGLAND BORING CONTRACTORS OF CT., INC.
129 KRIEGER LANE
GLASTONBURY, CT 06033
(860) 633-4649 – (413) 733-1232
FAX (860) 657-8046

	Casing	Sampler	Core Barrel
TYPE	HW		NQ2
SIZE I.D	4"		2"
HAMMER WT.			
HAMMER FALL			

BORING No. MW-01 C
SHEET 1 OF 1
ARCHITECT/ ENGINEER
FILE NO. TN ASSOCIATES
SURFACE ELEV.
LINE & STATION
OFFSET

SAMPLE No.	DEPTH RANGE IN FEET	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	18-24	REC.	CASING BLOWS/ CORING TIMES PER FT.	FIELD CLASSIFICATION AND REMARKS	Well Cons.	Installation Details
								Grey Brown Fine-Med. Sand, Some Fine-Coarse Gravel, Some Silt (FILL)		Road Way Box 32.5' of 1" PVC Riser
								19 Highly Weathered Grey Shale		
								15 Bedrock - Grey Shale Run 1 - Cored 15-20' Recovery 51" Run 2 - Cored 20-25' Recovery 60" Run 3 - Cored 25-30' Recovery 60" Run 4 - Cored 30-35' Recovery 60" Run 5 - Cored 35-40' Recovery 60" Run 6 - Cored 40-41' Recovery 12"		3' Bentonite Chip Seal 10' of 1", .010 slot PVC screen
								41 End of Boring @ 41' Water @ 10'		1' PVC sump Bottom of Well @ 41'

NOTES: 1) The stratification lines represent the approximate boundary between soil types. Transitions may be gradual.

2) Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. Fluctuations in the level of groundwater may occur due to factors other than those present at the time measurements were made.

REMARKS:

Appendix F

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN
(FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN)

INSTALLATION RESTORATION SITE 08 – NUSC DISPOSAL AREA
NAVAL UNDERSEA WARFARE CENTER
MIDDLETOWN, RHODE ISLAND

Contract Number N62472-01-D-0807
Task Order 0006

Prepared for:

U.S. Department of the Navy
EFA Northeast
Naval Facilities Engineering Command
10 Industrial Highway
Lester, Pennsylvania 19113-2090

May 2005

Prepared by:

T N & Associates, Inc.
6404 Falls of the Neuse Road, STE 102
Raleigh, North Carolina 27615
(919) 981-6444

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ACRONYMS AND ABBREVIATIONS

A2LA	American Association for Laboratory Accreditation
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, xylenes
°C	Degrees Celsius
c.y.	Cubic yard
CAP	Corrective Action Plan
CBCPH	Construction Battalion Center Port Hueneme
cc	Cubic centimeter
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
cm/sec	Centimeters per second
COPC	Chemicals of potential concern
CPR	Cardiopulmonary resuscitation
CTO	Contract task order
DHS	Department of Health Services
DQA	Data quality assessment
DON	Department of the Navy
DQO	Data quality objective
DTW	Depth to water
EDD	Electronic data deliverable
EE/CA	Engineering evaluation/cost analysis
ELAP	Environmental Laboratory Accreditation Program
EMAC	Environmental Multiple Award Contract
EPA	U.S. Environmental Protection Agency
FS	Feasibility study
FSP	Field sampling plan
FTL	Field team leader
GC/MS	Gas chromatograph/mass spectrometer
HSP	Health and safety plan
ID	Identification
IDL	Instrument detection limit
IDW	Investigation-derived waste
IR	Installation restoration
IRP	Installation Restoration Program
IWL	Industrial wastewater line
IWTP	Industrial wastewater treatment plant
LARWQCB	Los Angeles Regional Water Quality Control Board
LCS	Laboratory control spike
LIMS	Laboratory information management system

ACRONYMS AND ABBREVIATIONS (Continued)

MCAWW	Methods for Chemical Analysis of Water and Waste
MDL	Method detection limit
MTBE	Methyl tert-butyl ether
MS	Matrix spike
MSD	Matrix spike duplicate
MSR	Monthly status report
NAS	Naval Air Station
NCTC	Naval Construction Training Center
NEDTS	Navy Environmental Data Transfer Standards
NEX	Naval Exchange
NFESC	Naval Facilities Engineering Service Center
OD	Outer diameter
OHSC	On-site health and safety coordinator
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, completeness, and comparability
PE	Performance evaluation
PPE	Personal protective equipment
PRRL	Project-required reporting limit
QA	Quality assurance
QA/QC	Quality assurance and quality control
QAO	Quality assurance officer
QAPP	Quality assurance project plan
QC	Quality control
QCSR	Quality control summary report
RAOs	Remedial Action Objectives
RI	Remedial investigation
RPD	Relative percent difference
RPM	Remedial project manager
SDG	Sample delivery group
SI	Site inspection
SOP	Standard operating procedure
SOW	Statement of work
SQL	Sample quantitation limit
SWDIV	Naval Facilities Engineering Command Southwest Division
TN&A	T N & Associates, Inc.
TSA	Technical systems audit
UST	Underground storage tank
VOCs	Volatile organic compounds

1.0 PROJECT DESCRIPTION AND MANAGEMENT

T N & Associates Inc. (TN&A) has received delivery order (DO) 0006 from the Department of the Navy, Engineering Field Activity (EFA), Northeast, Naval Facilities Engineering Command, under the Environmental Multiple Award Contract (EMAC), Contract No. N62472-01-D-0807. TN&A has prepared this Sampling and Analysis Plan (SAP) consisting of Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) under DO 0006 for the excavation, transportation, and disposal of contaminated soils and debris at the Installation Restoration Site 08, NUSC Disposal Area of the Navel Undersea Warfare Center located in Middletown, Rhode Island.

Table 1 demonstrates how this SAP addresses all QAPP elements currently required by the U.S. Environmental Protection Agency (EPA) QA/R-5 guidance document (EPA 2001).

1.1 PROBLEM DEFINITION AND BACKGROUND

This section describes the following:

- Purpose of the Investigation (Section 1.1.1)
- Facility Background (Section 1.1.2)
- Project Site Background (Section 1.1.3)
- Principal Decision Makers (Section 1.1.4)
- Technical or Regulatory Standards (Section 1.1.5)

1.1.1 Purpose of the Remedial Action

TN&A is subcontracted to provide for the excavation, transportation, and disposal activities of contaminated soil and drum removal actions at Installation Restoration Site 08, the NUSC Disposal Area. Two potential contamination source areas named the Buried Drum Area and the Buried Metal Container Area within the NUSC Disposal Area will be excavated and removed from the site, and the removal areas will be graded and seeded. This removal action will include:

- Excavation of the areas, segregating the drums, soil and soil/debris into no larger than 50-cubic yard stockpiles or smaller of like materials,
- Characterization of each drum and stockpile,
- Loading, transportation, and disposal of each drum and stockpile,
- Site Cleanup and Site Restoration.

1.1.1.1 Buried Drum Area

A corroded 55-gallon drum containing a tar-like substance was removed and disposed of off site from Test Pit 02 (TP02). The drum was located approximately 6 feet below the ground surface. Two additional drums were observed in the test pit but not removed. The total number of drums remaining is unknown. TCE was also found in soil gas at this area, although only low concentrations of TCE were detected in soils and groundwater in this area.

1.1.1.2 Buried Metal Container Area

A large number of what appear to be deteriorated aerosol paint cans and related debris in the stream embankment in the south west portion of the site, confirmed through test pit 14 (TP14) excavations in this area. Elevated concentrations of lead were found co-located with these containers. The horizontal extent of the buried metal containers is unknown, but the vertical extent is anticipated to be less than 8 feet below ground surface.

1.1.2 Facility Background

The Naval Undersea Warfare Center (NUWC) is located in Middletown, Rhode Island adjacent to the Naval Station Newport. The facility is involved with under sea warfare systems, specifically torpedoes, among other things. The NUSC storage area has been used to store used oils and materials generated during the testing of torpedo engines and propellant systems.

1.1.3 Project Site Background

The NUSC Disposal Area occupies approximately 8 acres north of Building 185 and Cunningham Street. The Wanumetonomy Golf & Country Club borders the site to the north. Building No. 185, consisting of a series of four open-sided, covered sheds, with 2-foot concrete berms are considered the southeastern extent of the site. These sheds are used for the storage of drummed oils and torpedo propellants. A small stream, termed Deerfield Creek, and the surrounding wetlands make up the southwestern site boundary. The NUSC Disposal Area extends west-northwest to the small pond known as "Deerfield Pond" or "NUWC Pond." Major transportation routes are State Routes 138 and 114, west and north.

The uplands portions were used as a fill area and storage areas since the Navy developed the area in the early 1950's. Currently there is a secured storage area and open storage area (both paved – approximately 2.3 acres) as well as open fields (1.6 acres) and brush covered areas (4.2 acres). The storage areas are used by NUWC for the temporary storage of large equipment.

Site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the site. Elevations range from approximately 58 feet at the southeast corner of the study area to 25 feet, which were the measured elevations for the pond water at the north end of the study area.

There is limited available historical information on the NUSC Disposal Area. The site is reported to have been used for the disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time between the 1950's and 1988. Possible chemical hazards may include VOCs and heavy metals from paint residues, as well as methane produced from the natural decomposition of organic materials.

A Study Area Screening Evaluation (SASE) for the NUSC Disposal Area was conducted in June-November 2003. The SASE found some areas where elevated VOCs were present, and these, along with other target areas were investigated with a series of test pits, soil borings, and groundwater monitoring wells. Chlorinated solvents trichloroethene (TCE) and tetrachloroethene (PCE) were found in groundwater at the north (downgradient) end of the site. TCE was also found in soil gas in the central portion of the site, near buried drums (Buried Drum Area), although only low concentrations of TCE were detected in soils and groundwater in this area.

Other findings included a large number of buried deteriorated metal containers that are possibly empty aerosol paint cans in the stream embankment in the south west portion of the site (Buried Metal Container Area), confirmed through test pit excavation in this area. Elevated concentrations of lead were found co-located with these containers and in the stream sediments downstream as far as the NUWC pond.

Additional information for the NUSC Disposal Area including its history, investigation activities, soil samples, cross sections, investigation findings, limited chemical analysis of soils, and other pertinent information is described in the Study Area Screening Evaluation Report, (TtNUS, April 2004).

1.1.4 Principal Decision Makers

Principal decision makers are the Navy, regulatory agencies, and disposal facilities operators. Data will be used to obtain the data necessary to determine how to safely and efficiently package, transport and properly dispose of the wastes.

1.1.5 Technical or Regulatory Standards

Specific regulatory action levels established at NUSC Disposal Area include the Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for residential use soils (DEM DSR-01-93) and the Maximum Concentration of Contaminants for Toxicity Characteristics (40 CFR §261.24).

Project-required reporting limits (PRRLs) were compared to the regulator action limits to assure that PRRLs are sufficiently low to meet this project DQOs. The list of regulatory action levels and the laboratory Project Detection Limits (PDLs) are listed for RIDEM Direct Exposure Criteria (Table 2) and for the Maximum Concentration of Contaminants (Table 3).

1.2 PROJECT DESCRIPTION

As stated in Section 1.1.1, the objectives of field activities at NUSC Disposal Area are to excavate and remove contaminated soils and drums from the site. In order to meet these objectives, the major work activities and technical approaches are described in Section 3.0 of the project Work Plan.

1.3 QUALITY OBJECTIVES AND CRITERIA

The following sections present the data quality objectives (DQOs) and quality assurance (QA) objectives identified for the proposed field activities at NUSC Disposal Area.

1.3.1 Data Quality Objectives

Data Quality Objectives (DQOs) are statements that specify the quantity and quality of the data required to support project decisions. DQOs were developed for this project using the seven-step process listed in *Data Quality Objectives Process for Hazardous Waste Site Investigations* (EPA, 2000). The DQOs are presented in Table 4. The QC procedures as well as the associated field sampling procedures for this project will be focused on achieving these DQOs in a timely, cost-effective, and safe manner. Deviations from the DQOs will require defining the cause or causes for noncompliance and will initiate the process of determining whether additional sampling and analyses will be required to attain project goals.

1.3.2 Project Quality Assurance Objectives

All analytical results will be evaluated in accordance with precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters to ensure the attainment of project specific DQOs. Of these PARCC parameters, precision and accuracy will be evaluated quantitatively through the

collection of the quality control (QC) samples listed in Table 5. Precision and accuracy goals for these QC samples are listed in the subcontract laboratory Quality Assurance Plan, which can be furnished under separate cover, if required. The subsections below detail the objectives relating to each of the PARCC parameters.

1.3.2.1 Precision

Precision is a measure of the reproducibility among a set of replicate results or the agreement among repeat observations made under the same conditions. *Analytical* precision is the measurement of the variability associated with duplicate or replicate analyses. *Total* precision is the measurement of the variability associated with the entire sampling and analysis process. It is determined by analysis of duplicate field samples and measures variability introduced by both the laboratory and field operations. Field duplicate samples and matrix duplicate spiked samples will be analyzed to assess field and analytical precision. The precision measurement is determined using the relative percent difference (RPD) between the duplicate sample results. The RPD is calculated according to the following formula:

where: A = first duplicate concentration
B = second duplicate concentration

$$RPD = \frac{|A-B|}{(A+B)/2} \times 100\%$$

For this project the parameters evaluated to assess precision are duplicate samples, and matrix spike/matrix spike duplicate (MS/MSD) samples.

For this project, project-specific field duplicates and MS/MSD samples will be not collected for the backfill, excavated soil, and drum contents media. The laboratory QAPP presents precision goals for required analyses based on %RPD for extraction batch MS/MSD. The precision acceptability limits for duplicate samples are 35% RPD for all soil analyses.

1.3.2.2 Accuracy

Accuracy is the degree of agreement between an analytical measurement and a reference accepted as a true value. A program of sample spiking will be conducted to evaluate laboratory accuracy. This program consists of the MS and MSD samples, laboratory control spikes (LCS) or blank spikes, and surrogate standards. The results of the spiked samples are used to calculate the percent recovery for evaluating accuracy according to the following formula:

where S = Percent Recovery $= \frac{S-C}{T} \times 100$ Measured spike sample concentration

C = Sample concentration
T = True or actual concentration of the spike

MS and MSD samples will be prepared and analyzed at a frequency of 5 % for samples. LCS or spike blanks are also analyzed at a frequency of 5%, when MS and MSD samples are not available. Surrogate standards are added to every sample analyzed for organic constituents.

The laboratory Quality Assurance plan presents accuracy goals for the samples based on the percent recovery of matrix spike, laboratory control, and surrogate spike samples. Results that fall outside the accuracy goals will be further evaluated on the basis of other QC samples.

1.3.2.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent. For this project, representative data will be obtained through careful selection of sampling locations and analytical parameters. Representative data will also be obtained through proper collection and handling of samples to avoid interference and minimize contamination.

Representativeness of data will also be ensured through established field and laboratory procedures and their consistent application. To aid in evaluating of the representativeness of the sample results, field and laboratory blank samples, and background samples will be evaluated for the presence of contaminants. Data determined to be non-representative, by comparison with existing data, will be used only if accompanied by appropriate qualifiers and limits of uncertainty.

1.3.2.4 Completeness

Completeness is a measure of the percentage of project-specific data that are valid. Valid data are obtained when samples are collected and analyzed in accordance with QC procedures outlined in this SAP, and when none of the QC criteria that affect data usability are exceeded. When all data validation is

completed, the percent completeness value will be calculated by dividing the number of useable sample results by the total number of sample results planned for this investigation.

As discussed further in Section 4.2, completeness will also be evaluated as part of the data quality assessment process (EPA, 2000c). This evaluation will help determine whether any limitations are associated with the decisions to be made based on the data collected.

1.3.2.5 Comparability

Comparability expresses the confidence with which one data set can be compared with another. Comparability of data will be achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data. Analytical methods selected for each of the project sites are consistent with the methods used during previous projects at these sites.

1.3.2.6 Detection and Quantitation Limits

The method detection limit (MDL) is the minimum concentration of an analyte that can be reliably distinguished from background noise for a specific analytical method. The quantitation limit represents the lowest concentration of an analyte that can be accurately and reproducibly quantified in a given sample matrix. PRRLs are contractually specified maximum quantitation limits for a sample matrix and are typically several times the MDL to allow for matrix effects. PRRLs are set liberally to establish minimum criteria for laboratory performance; actual laboratory quantitation limits may be substantially lower.

Tables 2 and 3 contain a comparison of the PRRLs for the selected analytical methods in comparison to the previous detection limits (PDLs). The purpose of this comparison is to show that the selected analytical methods, and associated PRRLs, are capable of quantifying contaminants of potential concern at or below the applicable action level. In comparing the PRRLs to PDLs, however, it is important to note that actual laboratory quantitation limits may be lower than PRRLs and that estimates of analyte concentrations down to MDLs can typically be provided in order to allow comparisons to screening levels that are below PRRLs.

Analytical results may be reported as estimated values if concentrations are less than PRRLs, but greater than MDLs. The MDL for each analyte will be listed as the detection limit in the laboratory's electronic data deliverable (EDD). This procedure is being adopted to help ensure that effective comparisons of analyte results to regulatory limits can be performed for certain compounds where the PRRL is near or below the regulatory limit and to ensure that subsequent evaluations of the data will not be biased by high-value nondetect results.

1.4 PROJECT ORGANIZATION

Section 2.0 of the project Work Plan presents the responsibilities and contact information for key personnel involved in removal actions at NUSC Disposal Area. In some cases, more than one responsibility has been assigned to a person. Additionally, project chemistry responsibilities are shown in Table 6.

1.5 SPECIAL TRAINING AND CERTIFICATION

This section outlines the training and certification required to complete the activities described in this SAP. The following sections describe the requirements for TN&A and subcontractor personnel working on site.

1.5.1 Field Work Training

Field team members will be adequately trained in field methods and sampling procedures outlined in this plan and following TN&A's SOP (Appendix A of the project Work Plan). Specifically, field team members will have training in the following field activities:

- Soil and waste material sampling, sample handling, packaging, and shipping,
- Use of related field equipment, and
- Handling of IDW.

Training will be provided by the field team leader that is required to have a minimum of 3 years of direct field experience with groundwater sampling, sample handling, sample packaging and sample shipping, field equipment operation, and handling of hazardous and non-hazardous waste.

1.5.2 Health and Safety Training

TN&A personnel who work at hazardous waste project sites are required to meet the Occupational Safety and Health Administration (OSHA) training requirements defined in Title 29 Code of Federal Regulations

(29 CFR §1910.120(e)). These requirements are: (1) 40 hours of formal off-site instruction; (2) a minimum of 3 days of actual on-site field experience under the supervision of a trained and experienced field supervisor; and (3) 8 hours of annual refresher training.

Field personnel who directly supervise employees engaged in hazardous waste operations also receive at least 8 additional hours of specialized supervisor training. The supervisor training covers EMAC health and safety program requirements, training requirements, personal protective equipment (PPE) requirements, spill containment program, and health-hazard monitoring procedures and techniques. At least one member of every TN&A field team will maintain current certification in the American Red Cross "Multimedia First Aid" and "Cardiopulmonary Resuscitation (CPR) Modular," or equivalent.

Copies of TN&A's health and safety training records, including course completion certifications for the initial and refresher health and safety training, specialized supervisor training, and first aid and CPR training, are maintained in project files and will be included in the Health and Safety Plan, which will be onsite at all times while work is being done.

Before work begins at a specific hazardous waste project site, TN&A personnel are required to undergo site-specific training that thoroughly covers the following areas:

- Names of personnel and alternates responsible for health and safety at a hazardous waste project site,
- Health and safety hazards present on site,
- Selection of the appropriate personal protection levels,
- Correct use of PPE,
- Work practices to minimize risks from hazards,
- Safe use of engineering controls and equipment on site,
- Medical surveillance requirements, including recognition of symptoms and signs that might indicate overexposure to hazardous substances, and
- Contents of the basewide health and safety plan (HSP).

1.6 DOCUMENTS AND RECORDS

Documentation is critical for evaluating the success of any environmental data collection activity. The following sections discuss the requirements for documenting field activities and for preparing laboratory data packages.

1.6.1 Field Logbook

Complete and accurate documentation is essential to demonstrate that field measurement and sampling procedures are carried out as described in the SAP. Field personnel will use permanently bound field logbooks with sequentially numbered pages to record and document field activities. The logbook will list the contract name and number, the DO number, the project name and number, the site name and location, and the names of subcontractors, the service client, and the project manager. At a minimum, the following information will be recorded in the field logbook:

- Name and affiliation of all on-site personnel or visitors,
- Weather conditions during the field activity,
- Summary of daily activities and significant events,
- Information regarding sample collection including collection date and time, sample ID, sample location, sample matrix (e.g., water or soil), sample type (e.g., regular, duplicate, blank, grab, composite), and sampling depth,
- Notes of conversations with coordinating officials,
- References to other field logbooks or forms that contain specific information,
- Discussions of problems encountered and their resolution,
- Discussions of deviations from the SAP or other governing documents, and
- Description of all photographs taken.

Changes or corrections will be made by crossing out the item with a single line, initiating by the person performing the correction, and dating the correction. The original item, although erroneous, will remain legible beneath the cross-out. The new information will be written above the crossed-out item. Corrections will be written clearly and legibly with indelible ink.

1.6.2 Summary Data Package

Laboratory subcontractors will prepare summary data packages in accordance with the instructions provided in the EPA Contract Laboratory Program (CLP) statements of work (SOW) (EPA, 1999a, 2000a). The summary data package will consist of a case narrative, copies of all associated chain-of-custody forms, sample results, and quality assurance and quality control (QA/QC) summaries. The case narrative will provide the following information:

- Subcontractor name, project name, CTO number, project order number, sample delivery group (SDG) number, and a table that cross-references client and laboratory sample identification numbers (ID)

- Detailed documentation of all sample shipping and receiving, preparation, analytical, and quality deficiencies, including analyses performed without an American Association for Laboratory Accreditation (A2LA)-certified standard
- Thorough explanation of all instances of manual integration
- Carbon ranges for TPH for all samples, as needed
- Copies of all associated nonconformance and corrective action forms that will describe the nature of the deficiency and the corrective action taken
- Copies of all associated sample receipt notices

Additional summary data package requirements are outlined in Table 7. The laboratory subcontractor will provide TN&A with two copies of the summary data package within 21 calendar days after they receive the samples.

1.6.3 Full Data Package

Full data package are not anticipated for this effort.

1.6.4 Electronic Data Deliverables Format

EDDs are required for all analytical results. An automated laboratory information management system (LIMS) must be used to produce the EDD. Manual creation of the deliverable (data entry by hand) is unacceptable. The laboratory will verify EDDs internally before they are issued. The EDD will correspond exactly to the hard-copy data. No duplicate data will be submitted. Results that should be provided in all EDDs are as follows:

- Target analyte results for each sample and associated analytical methods requested on the chain-of-custody form,
- Method and instrument blanks and preparation and calibration blank results reported for the SDG,
- Percent recoveries for the spike compounds in the MS, MSDs, blank spikes, or LCSs, and
- Matrix duplicate results reported for the SDG.

Electronic and hard copy data must be retained for a minimum of 3 and 7 years, respectively, after final data have been submitted. The subcontractor will use an electronic storage device capable of recording data for long-term, off-line storage. Raw data will be retained on an electronic data archival system.

2.0 DATA GENERATION AND ACQUISITION

This section describes the requirements for the following:

- Sampling Process Design (Section 2.1)
- Sample Collection Methodology (Section 2.2)
- Sample Handling and Custody (Section 2.3)
- Analytical Methods (Section 2.4)
- Quality Control (Section 2.5)
- Equipment Testing, Inspection, and Maintenance (Section 2.6)
- Instrument Calibration and Frequency (Section 2.7)
- Inspection and Acceptance of Supplies and Consumables (Section 2.8)
- Non-Direct Measurements (Section 2.9)
- Data Management (Section 2.10)

2.1 SAMPLING PROCESS DESIGN

The following subsections present the proposed sample locations and planned chemical analyses. Sample IDs, estimated sample depth, and rationale for selecting sampling locations are presented in Table 8. The proposed analyses, analytical methods, and QC samples for samples collected at all the project sites are summarized Table 9.

2.1.1 Clean Fill and Topsoil

All fill and topsoil materials brought to the site must be "certified" to be clean and free from contamination exceeding the RIDEM Direct Exposure Criteria for residential use soils (DEM DSR-01-93, amended February 2004, Section 8.02). The latest version of the RIDEM Direct Exposure Criteria (February 2004) can be located in Appendix B of the project Work Plan. In addition, offsite soils shall not contain more than 100 ppm total petroleum hydrocarbons and less than 10 ppm of the sum of benzene, toluene, ethylbenzene and xylenes. Analytical results will be submitted to the Navy Representative prior to use as a backfill or topsoil.

2.1.2 Drums

Drums removed from the "Buried Drum Area" that contain material will be individually sampled to obtain the data necessary to determine how to safely and efficiently package, transport and properly dispose of the wastes. Liquid contents or solid and semi-solid materials will be tested for hazardous

characteristics and other disposal facility specific requirements. Analytical results will be submitted with waste characteristic profiles to an approved facility for ultimate disposal.

2.1.3 Soils and Debris

Soils and debris samples will be collected from materials staged in piles not exceeding 50 cubic yards. The goal of the soil and debris characterization and analysis is to obtain the data necessary to determine how to safely and efficiently package, transport and properly dispose of the wastes. Analytical results will be submitted with waste characteristic profiles to an approved facility for ultimate disposal.

2.2 SAMPLE COLLECTION METHODOLOGY

This section describes the procedures for sample collection, including sampling methods and equipment, sample preservation requirements, decontamination procedures, and management of investigation derived waste.

The appropriate sample containers, holding times, and preservation methods associated with VOC analysis method are listed in Table 10. The analytes, reporting limits, and screening levels required for groundwater samples are listed in Tables 2 and 3.

2.2.1 Clean Fill and Topsoil

A single grab sample will be collected from each source of backfill material following TNA SOP006B Surface Soil Sampling.

The material will be collected using a clean stainless-steel spoon and placed into a stainless steel mixing bowl. The contents will be mixed and transferred to the laboratory supplied sampling containers. VOC samples will be collected directly into EnCore™ sampling devices.

2.2.2 Drum Sampling

Drums removed from the "Buried Drum Area" that contain material will be sampled individually following TNA SOP012B Drum Sampling (Work Plan Appendix A).

2.2.2.1 Solid Waste

Sample aliquots of compatible drummed material should be taken from several locations and depths from within several drums, using the appropriate tools. Any solid drummed waste that is not compatible will be sampled separately with other compatible material. These compatible samples should then be placed into

a decontaminated stainless steel bowl, and homogenized using stainless steel spoons and/or trowels. Transfer the homogenized material to the appropriate sampling containers/jars supplied by the laboratory. The sources of each homogenized soil sample will be recorded in the field logbook.

2.2.2.2 Liquid Waste

Liquid samples will be composites generated by inserting a drum thief or COLIWASA tube into each drum and obtaining a representative sample of the drummed liquid. The representative sample is obtained by allowing both ends of the drum thief or COLIWASA to be open when inserting into the drum. Using a gloved hand, place thumb over up end of tube and withdraw, discharge tube contents to appropriate sample containers. Liquid wastes that are deemed compatible will be sampled together. Volatile organic compound samples will be collected first. For these samples it is important to limit volatilization while collecting sample aliquots, so these samples should be added to a clean screw top container. The lid of the container should only be removed when sample aliquot is being added to the jar and then replaced while collecting additional sample. All of the other compatible composite samples will then be homogenized in a decontaminated stainless steel bowl with a stainless steel spoon or trowel. The homogenized sample will then be evenly distributed into the appropriate sampling containers and/or jars as supplied by the laboratory. The sources of each composite sample will be recorded in the field logbook.

2.2.3 Soil and Debris Sampling

A single grab sample will be collected from each segregated pile following TNA SOP006B Surface Soil Sampling. In addition to the SOP procedures, each 50-yd excavation pile will be divided into 4 quadrants and one 4-point composite sample will be collected from each stockpile. Composite samples will be collected from each quadrant and one overall composite sample, representative of the stockpile, will be prepared from the individual quadrant samples.

The material will be collected using a clean stainless-steel spoon and placed into a stainless steel mixing bowl. The contents will be mixed and transferred to the laboratory supplied sampling containers. VOC samples will be collected directly into EnCore™ sampling devices.

2.2.4 Decontamination

Decontamination of the sampling equipment will follow general practices described in Section 3.1.5 of the project Work Plan.

2.2.5 Sample Containers and Holding Times

The type of sample containers to be used for VOC analysis, the sample volumes required, the preservation requirements, and the maximum holding times for sample extraction and analysis are presented in Table 10.

2.3 SAMPLE HANDLING AND CUSTODY

The following subsections describe sample handling procedures, including sample identification and labeling, documentation, chain-of-custody, and shipping.

2.3.1 Sample Identification

Each sample collected will be given unique sample identification (ID). The sample ID is project specific and a record of all sample IDs will be kept with the field records and recorded on a chain of custody form. The labeling scheme for sample identification will remain consistent with previous sampling events and will consist of site number and a sequential sample number (i.e., Site08-25). Sample IDs are listed in Table 8.

2.3.2 Sample Labels

A sample label will be affixed to all sample containers. The label will be completed with the following information written in indelible ink:

- Project name and location
- Sample identification number
- Date and time of sample collection
- Preservative used
- Sample collector's initials
- Analysis required

After labeling, each sample will be placed in a cooler that contains ice to maintain the sample temperature at 4±2 degrees Celsius (°C).

2.3.3 Sample Documentation

Documentation during sampling is essential to ensure proper sample identification. TN&A personnel will adhere to the following general guidelines for maintaining field documentation:

- Documentation will be completed in permanent black ink

- All entries will be legible
- Errors will be corrected by crossing out with a single line and then dating and initialing the lineout
- Any serialized documents will be maintained at TN&A and referenced in the site logbook
- Unused portions of pages will be crossed out, and each page will be signed and dated

Section 1.6.1 provides additional information on how TN&A will use logbooks to document field activities. The TN&A field team leader (FTL) is responsible for ensuring that sampling activities are properly documented.

2.3.4 Chain of Custody

TN&A will use standard sample custody procedures to maintain and document sample integrity during collection, transportation, storage, and analysis. A sample will be considered to be in custody if one of the following statements applies:

- It is in a person's physical possession or view.
- It is in a secure area with restricted access.
- It is placed in a container and secured with an official seal such that the sample cannot be reached without breaking the seal.

Chain-of-custody procedures provide an accurate written record that traces the possession of individual samples from the time of collection in the field to the time of acceptance at the laboratory. The chain-of-custody record also will be used to document all samples collected and the analysis requested. The field personnel will record the following information on the chain-of-custody record:

- Project name and number
- Sampling location
- Name and signature of sampler
- Destination of samples (laboratory name)
- Sample identification number
- Date and time of collection
- Number and type of containers filled
- Analysis requested

- Preservatives used (if applicable)
- Filtering (if applicable)
- Sample designation (grab or composite)
- Signatures of individuals involved in custody transfer, including the date and time of transfer
- Airbill number (if applicable)
- Project contact and phone number

Unused lines on the chain-of-custody record will be crossed out. Chain-of-custody records that are initiated in the field will be signed by field personnel and the airbill number will be recorded. The record will be placed in a waterproof plastic bag and taped to the inside of the shipping container used to transport the samples. Signed airbills will serve as evidence of custody transfer between field personnel and the courier, and between the courier and the laboratory. Copies of the chain-of-custody record and the airbill will be retained and filed by field personnel before the containers are shipped.

Laboratory chain of custody begins with sample receipt and continues until samples are discarded. Laboratories analyzing samples on the EMAC contract must follow custody procedures at least as stringent as are required by the EPA CLP SOWs (EPA 1999a, 2000a). The laboratory should designate a specific individual as the sample custodian. The custodian will receive all incoming samples, sign the accompanying custody forms, and retain copies of the forms as permanent records. The laboratory sample custodian will record all pertinent information concerning the samples, including the persons delivering the samples, the date and time received, sample condition at the time of receipt (sealed, unsealed, or broken container; temperature; or other relevant remarks), the sample identification numbers, and any unique laboratory identification numbers for the samples. This information should be entered into a computerized LIMS. Once the sample transfer process is complete, the custodian is responsible for maintaining internal logbooks, tracking reports, and other records necessary to maintain custody throughout sample preparation and analysis.

The laboratory will provide a secure storage area for all samples. Access to this area will be restricted to authorized personnel. The custodian will ensure that samples requiring special handling, including samples that are heat- or light-sensitive, radioactive, or have other unusual physical characteristics, will be properly stored and maintained prior to analysis.

2.3.5 Sample Shipment

The following procedures will be implemented when shipping groundwater and water samples (field blanks) collected during this project:

- The cooler will be filled with bubble wrap, sample bottles, and packing material. Sufficient packing material will be used to prevent sample containers from breaking during shipment. Enough ice will be added to maintain the sample temperature at 4±2°C.
- The chain-of-custody records will be placed inside a plastic bag. The bag will be sealed and taped to the inside of the cooler lid. The air bill, if required, will be filled out before the samples are handed over to the carrier. The laboratory will be notified if the sampler suspects that the sample contains any substance that would require laboratory personnel to take safety precautions.
- The cooler will be closed and taped shut with strapping tape around both ends. If the cooler has a drain, it will be taped shut both inside and outside of the cooler.
- Signed and dated custody seals will be placed on the front and side of each cooler. Wide clear tape will be placed over the seals to prevent accidental breakage.
- The chain-of-custody record will be transported within the taped sealed cooler. When the cooler is received at the analytical laboratory, laboratory personnel will open the cooler and sign the chain-of-custody record to document transfer of samples.

Multiple coolers may be sent in one shipment to the laboratory. The outside of the coolers will be marked to indicate the number of coolers in the shipment.

2.4 ANALYTICAL METHODS

Table 10 presents the analytical methods that will be used to analyze samples collected during the field activities at NUSC Disposal Area, and the laboratory Quality Assurance pland presents the project QA objectives and control limits for sample analyses established as part of the DQO process (Section 1.3). Tables 2 and 3 presents the individual target analytes required for this investigation and their associated PRRLs. The analytical laboratories will attempt to achieve the PRRLs for all the investigative samples collected. If problems occur in achieving the PRRLs, the laboratories will contact the TN&A project chemist immediately and other alternatives will be pursued (such as analyzing an undiluted aliquot and allowing nontarget compound peaks to go off-scale) to achieve acceptable reporting limits. In addition, results below the reporting limit but above the MDL will be reported with appropriate flags to indicate the greater uncertainty associated with these values.

2.4.1 Project Analytical Requirements

The analytical method selected for the CBCPH investigation is a standard EPA method that is described

in TN&A's laboratory SOW (TN&A, 2004). Proposed method SW 846 8260B for analyzing VOCs is from EPA's SW-846 "Test Methods for Evaluating Solid Waste" (EPA, 1996).

This SAP documents project-specific QC requirements for the selected analytical method. Sample volume, preservation, and holding time requirements are specified in Table 10.

2.5 QUALITY CONTROL

TN&A will assess the quality of field data through regular collection and analysis of field QC samples. Laboratory QC samples will also be analyzed in accordance with referenced analytical method protocols to ensure that laboratory procedures and analyses are conducted properly and that the quality of the data is known.

2.5.1 Field Quality Control Samples

QC samples are collected in the field and analyzed to check sampling and analytical precision, accuracy, and representativeness. The following section discusses the types and purposes of field QC samples that will be collected for this project. Table 5 provides a summary of the types and frequency of collection of field QC samples.

2.5.1.1 Field Duplicates

Field duplicate samples are collected at the same time and from the same source and then submitted as separate samples to the laboratory for analysis. The main purpose of field duplicate analysis is to measure the consistency of field sampling procedures; however, the results are also affected by precision of the laboratory operations. Field duplicates will be collected at a frequency of 10 percent for groundwater samples. Both samples will be assigned a unique sample identification number that is blind to the laboratory.

2.5.1.2 Matrix Spike and Matrix Spike Duplicates

MS/MSD samples require the collection of an additional volume of material for laboratory spiking and analysis. MS/MSD samples will be collected at a frequency of 5 percent. Matrix spike samples measure the efficiency of all the steps in the analytical method in recovering target analytes from an environmental matrix. The percent recoveries will be calculated for each of the spiked analytes and used to evaluate analytical accuracy. The RPD between spiked samples will be calculated to evaluate precision.

2.5.1.3 Trip Blanks

Contamination can be introduced from many external sources during collection of field samples. A trip blank is intended to assess potential external sources of contamination introduced during sample shipping and handling procedures and if cross-contamination in the form of volatile organic migration occurs between the collected samples. Trip blanks are applicable field QC blanks for analyses of volatile organics, which for this project include VOCs (by SW 846 Method 8260B).

Trip blanks are prepared by the laboratory using analytically certified, organic-free, high performance liquid chromatography-grade water or equivalent. Trip blanks are shipped to the field site and remain unopened. These blanks are packed and sealed in the manner described for the environmental samples. A separate sample number and station number will be assigned to each sample, and it will be submitted blind to the laboratory. A minimum of one trip blank with every shipment of groundwater samples for VOCs analyses will be submitted to the laboratory for analysis.

If any contaminant is present in the blank samples above the MDL, the result for associated field samples that contain the same contaminant will be qualified as potentially not detected if the concentration of the field sample is less than five times the concentration found in the blank. The same criterion applies to the presence of the following common laboratory contaminants when they are present in the associated field sample at less than 10 times the concentration found in the blank sample: methylene chloride, acetone, 2-butanone, and phthalate esters.

2.5.1.4 Equipment Rinsate Samples

Equipment rinsate samples demonstrate whether decontamination procedures are effective in removing contaminants from the field sampling equipment. The presence of contamination in equipment rinsate samples indicates that cleaning procedures were not effective, allowing for the possibility of cross-contamination. Equipment rinsate samples will be collected at a frequency of once per sampling day per sampling equipment. An equipment rinsate is a sample collected after a sampling device is subjected to standard decontamination procedures. Water will be poured over or through the sampling equipment into a sample container and sent to the laboratory for analysis. Analytically certified, organic-free, high performance liquid chromatography-grade water or equivalent will be used for organic parameters; deionized or distilled water will be used for inorganic parameters.

Equipment rinsate samples will be sent blind to the laboratory. During data validation, the results for the equipment rinsate samples will be used to qualify data or to evaluate the levels of analytes in the field

samples collected on the same day.

2.5.1.5 Source Blank Samples

Source-water blanks will be used to assess the potential for sample contamination from the source water. One source-water blank from each water source will be collected and analyzed for the target analytes.

2.5.2 Laboratory Quality Control Samples

Laboratory QC samples are prepared and analyzed at the laboratory to evaluate the effectiveness of sample preparation and analysis and to assess analytical precision and accuracy. The types of laboratory QC samples that will be used for this project are discussed in the following sections. Table 5 presents the required frequencies for laboratory QC samples.

2.5.2.1 Method Blanks

Method blanks are prepared to evaluate whether contamination is originating from the reagents used in sample handling, preparation, or analysis. They are critical in distinguishing between low-level field contamination and laboratory contamination. A method blank consists of laboratory analyte-free water and all of the reagents used in the analytical procedure. It is prepared for every analysis in the same manner as a field sample and is processed through all of the analytical steps. Method blanks will be prepared at the frequency prescribed in the individual analytical method or at a rate of 5 percent of the total samples if a frequency is not prescribed in the method.

2.5.2.2 Laboratory Control Samples or Blank Spikes

A laboratory control sample (LCS), or blank spike, originates in the laboratory as deionized or distilled water that has been spiked with standard reference materials of a known concentration. A LCS is analyzed to verify the accuracy of the calibration standards. These internal QC samples are also used to evaluate laboratory accuracy in the presence of matrix interference for field samples. LCSs are processed through the same analytical procedure as field samples. LCSs will be analyzed at the frequency prescribed in the analytical method or at a rate of 5 percent of the total samples if a frequency is not prescribed in the method. If percent recovery results for the LCS or blank spike are outside of the established goals, laboratory-specific protocols will be followed to gauge the usability of the data.

2.5.2.3 Surrogate Standards

Surrogates are chemical compounds with properties that mimic analytes of interest, but that are unlikely

to be found in environmental samples. Surrogates will be added to all field and quality control samples analyzed for organic compounds. The surrogate standard measures the efficiency the analytical method in recovering the target analytes from an environmental sample matrix. Percent recoveries for surrogate compounds are evaluated using laboratory control limits. Surrogate standards provide an indication of laboratory accuracy and matrix effects for every field and QC sample that is analyzed for volatile and extractable organic constituents. Surrogate compounds are used in the analysis of VOCs to monitor purge efficiency and analytical performance, whereas surrogates are used in the analysis of extractable organic compounds to monitor the extraction process and analytical performance.

Factors such as matrix interference and high concentrations of analytes may affect surrogate recoveries. The effects of the sample matrix are frequently outside the control of the laboratory and may present unique problems. Laboratory personnel are required to re-extract (when applicable) and re-analyze samples when associated surrogates are outside of control limits. Data from both analyses of the samples in question are reported.

During validation, data will be qualified as estimated for any result that fails to meet surrogate criteria. SVOC data will be qualified as estimated if two or more surrogates from each fraction (base/neutral and acid) are outside the control limits. The tables in the laboratory's Quality Assurance Plan provide the guidelines for surrogate recovery for analyses that are planned for this project.

2.5.2.4 Internal Standards

Similarly to the surrogate standard, internal standard is a chemical compound unlikely to be found in environmental samples that is added to each field and QC sample as a reference compounds for sample quantification. Internal standard procedures are used for the analysis of volatile organics and extractables organics using gas chromatography/mass spectrometry (GC/MS) and also can be used for other GC and high-performance liquid chromatography (HPLC) analytical methods. The purpose of applying internal standard analysis is to quantify target compounds and ensure that the analytical instrumentation sensitivity and response are stable during the analytical run. An internal standard is used to evaluate the efficiency of the sample introduction process and monitors the efficiency of the analytical procedure for each sample matrix encountered. Internal standards are also used in the analysis of organic compounds by GC to monitor retention-time shifts. Validation of internal standards data will be based on EPA protocols presented in guidelines for evaluating organic analyses (EPA 1999b).

2.6 EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE

This section outlines the testing, inspection, and maintenance procedures that will be used to keep both field and laboratory equipment in good working condition.

2.6.1 Maintenance of Field Equipment

Preventive maintenance for most field equipment is carried out in accordance with procedures and schedules recommended in (1) the equipment manufacturer's literature or operating manual, or (2) SOPs that describe equipment operation associated with particular applications of the instrument. However, more stringent testing, inspection, and maintenance procedures and schedules may be required when field equipment is used to make critical measurements.

A field instrument that is out of order will be segregated, clearly marked, and not used until it is repaired. The field team leader will be notified of equipment malfunctions so that prompt service can be completed quickly or substitute equipment can be obtained. When equipment condition is suspect, unscheduled testing, inspection, and maintenance should be conducted. Any significant problems with field equipment will be reported in the daily field QC report.

2.6.2 Maintenance of Laboratory Equipment

Subcontractor laboratories will prepare and follow a maintenance schedule for each instrument used to analyze samples collected from CBCPH. All instruments will be serviced at scheduled intervals necessary to optimize factory specifications. Routine preventive maintenance and major repairs will be documented in a maintenance logbook.

An inventory of items to be kept ready for use in case of instrument failure will be maintained and restocked as needed. The list will identify equipment parts subject to frequent failure, parts that have a limited lifetime of optimum performance, and parts that cannot be obtained in a timely manner.

The laboratory's QA plan and written SOPs will describe specific preventive maintenance procedures for equipment maintained by the laboratory. These documents identify the personnel responsible for major, preventive, and daily maintenance procedures, the frequency and type of maintenance performed, and procedures for documenting maintenance activities.

Laboratory equipment malfunctions will require immediate corrective action. Actions should be documented in laboratory logbooks. No other formal documentation is required unless data quality is adversely affected or further corrective action is necessary. On-the-spot corrective actions will be taken as necessary in accordance with the procedures described in the laboratory QA plan and SOPs.

2.7 INSTRUMENT CALIBRATION AND FREQUENCY

The following sections discuss calibration procedures that will be followed to ensure the accuracy of measurements made using field and laboratory equipment.

2.7.1 Calibration of Field Equipment

Field equipment will be calibrated at the beginning of the field effort and at prescribed intervals. The calibration frequency depends on the type and stability of equipment, the intended use of the equipment, and the recommendation of the manufacturer. Detailed calibration procedures for field equipment are available from the specific manufacturers' instruction manuals, and general guidelines are included in TN&A's SOPs. All calibration information will be recorded in a field logbook or on field forms. A label that specifies the scheduled date of the next calibration will be attached to the field equipment. If this type of identification is not feasible, equipment calibration records will be readily available for reference.

2.7.2 Calibration of Laboratory Equipment

Laboratory equipment calibration procedures and frequencies will follow the requirements in the reference method in Section 2.4.2 of this SAP. Qualified analysts will calibrate laboratory equipment and document the procedures and results in a logbook.

The laboratory will obtain calibration standards from the EPA repository or commercial vendors for both inorganic and organic compounds and analytes. Stock solutions for surrogate parameters and other inorganic mixes will be made from reagent-grade chemicals or as specified in the analytical method. Stock standards will also be used to make intermediate standards that will be used to prepare calibration standards. Special attention will be paid to expiration dating, proper labeling, proper refrigeration, and freedom from contamination. Documentation on receipt, mixing, and use of standards will be recorded in the appropriate laboratory logbook. Logbooks must be permanently bound. Additional specific handling and documentation requirements for the use of standards may be provided in subcontractor laboratory QA plans.

2.8 INSPECTION AND ACCEPTANCE OF SUPPLIES AND CONSUMABLES

TN&A project manager have primary responsibility for identifying the types and quantities of supplies and consumables needed to complete EMAC projects and are also responsible for determining acceptance criteria for these items.

Supplies and consumables can be received either at a TN&A's office or at a work site. When supplies are received at an office, the project manager or field team leader will sort them according to vendor, check packing slips against purchase orders, and inspect the condition of all supplies before they are accepted for use on a project. If an item does not meet the acceptance criteria, deficiencies will be noted on the packing slip and purchase order and the item will then be returned to the vendor for replacement or repair.

Procedures for receiving supplies and consumables in the field are similar. When supplies are received, the TN&A project manager or field team leader will inspect all items against the acceptance criteria. Any deficiencies or problems will be noted in the field logbook, and deficient items will be returned for immediate replacement.

Analytical laboratories are required to provide certified clean containers for all analyses. These containers must meet EPA standards described in "Specifications and Guidance for Obtaining Contaminant-Free Sampling Containers" (EPA 1992).

2.9 NON-DIRECT MEASUREMENTS

No data for project implementation or decision-making were obtained from non-direct measurement sources.

2.10 DATA MANAGEMENT

Field and analytical data collected from this project and other environmental investigations at CBCPH project sites are critical to site characterization and monitoring efforts and implementation of remedial actions to protect human health and the environment. An information management system is necessary to ensure efficient access so that decisions based on the data can be made in a timely manner.

After the field and laboratory data reports are reviewed and validated, the data will be entered into TN&A's database for CBCPH. The database contains data for (1) summarizing observations on contamination and geologic conditions, (2) preparing reports and graphics, and (3) transmitting in an electronic format compatible with NEDTS. The following sections describe TN&A's data tracking procedures, data pathways, and overall data management strategy for CBCPH project sites.

2.10.1 Data-Tracking Procedures

All data that are generated in support of the EMAC program at CBCPH are tracked through a database created by TN&A. Information related to the receipt and delivery of samples, project order fulfillment,

and invoicing for laboratory and validation tasks is stored in the TN&A's database.

2.10.2 Data Pathways

Data are generated from three primary pathways at CBCPH - data derived from field activities, laboratory analytical data, and validated data. Data from all three pathways must be entered into the CBCPH database. To evaluate whether the data have been accurately loaded into the database in a timely manner, data pathways must be established and well documented.

Data generated during field activities are recorded using field forms and/or field log books. These forms and/or log books are reviewed for completeness and accuracy by field team leader. Data from the field forms, including the chain-of-custody form, are entered into a database.

Data generated during laboratory analysis are recorded in hardcopy and in EDDs after the samples have been analyzed. The laboratory will send the hardcopy and EDDs records to the project chemist. The project chemist reviews the data deliverable for completeness, accuracy, and format. After the format has been approved, the electronic data are manipulated and downloaded into the CBCPH database. TN&A's data entry personnel will then update database with the total number of samples received and number of days required to receive the data.

After validation, the project chemist reviews the data for accuracy. TN&A will then update the CBCPH database with the appropriate data qualifiers. The associated laboratory and data validation costs are also updated.

2.10.3 Data Management Strategy

TN&A's short- and mid-term data management strategies require that the database for CBCPH be updated per each data delivery. The data consist of chemical and field data entered into a MS Access database. The database can be used to generate reports. All electronic data from this database will be transmitted in a format compatible with NEDTS.

To satisfy long-term data management goals, the data will be loaded into the database for storage, further manipulation, and retrieval after the off-site laboratory and field reports are reviewed and validated. The database will be used to provide data for chemical and geologic analysis and for preparing reports and tabular and/or graphic representations of the data. Additional data acquired from field activities is recorded on field forms and/or in log books that are reviewed for completeness and accuracy by the field

team leader. Hard copies of forms, data, and chain-of-custody forms are filed in a secure storage area according to project number. Laboratory data packages and reports will be archived at TN&A or Navy offices. Laboratories that generated the data will archive hard-copy data for a minimum of 5 years.

3.0 ASSESSMENT AND OVERSIGHT

This section describes the field and laboratory assessments that may be conducted during this project, the individuals responsible for conducting assessments, corrective actions that may be implemented in response to assessment results, and how quality-related issues will be reported to TN&A and Navy management.

3.1 ASSESSMENT AND RESPONSE ACTIONS

Environmental data collection using will be overseen by the assessment and audit activities described below. Any problems encountered during an assessment of field investigation or laboratory activities will require appropriate corrective action to ensure that the problems are resolved. This section describes field and laboratory assessments that may be completed and corrective action procedures to address problems identified during an assessment.

3.1.1 Field Assessments

TN&A can schedule field assessments at any time to support data quality and encourage continuous improvement in the systems that support environmental data collection. TN&A procedures for conducting field assessments are documented using checklist developed for the project.

Technical systems audits (TSA) are the type of field assessment most frequently conducted. TN&A personnel conducting TSAs use personnel interviews, direct observations, and reviews of project-specific documentation to evaluate and document whether procedures specified in the approved SAP are being implemented. The following specific items may be observed during the TSA:

- Availability of project plans such as the SAP and HSP
- Documentation of personnel qualifications and training
- Sample collection, identification, preservation, handling, and shipping procedures
- Sampling equipment decontamination
- Equipment calibration and maintenance

- Completeness of logbooks and other field records (including nonconformance documentation)
- Health and safety procedures

During the TSA, the lead TN&A assessor verbally communicates any significant deficiencies to the FTL for immediate correction. These and all other observations and comments are documented in a draft TSA report. The draft TSA report is issued to the TN&A project manager, TN&A engineer lead, and FTL in electronic (e-mail) format within 7 days after the TSA is completed. Project teams are required to respond to the draft report within 3 days, and a final TSA report is issued within 7 days after the project team responds.

The Navy QA officer may also independently conduct a field assessment of any TN&A project. Items reviewed by the Navy QA officer during a field assessment would be similar to those described above.

3.1.2 Laboratory Assessments

The laboratory selected to perform the analyses must have successfully completed the NFESC laboratory evaluation process and must maintain that status throughout the project. To determine the status of the laboratory, a laboratory QA plan review, performance evaluation sample analysis, and data package review may be conducted. TN&A will not perform on-site audits or visits unless deemed necessary by the DON.

TN&A's Laboratory oversight will consist of monitoring laboratory performance and reviewing the preliminary report and hardcopy data packages. The information that may be obtained from the data packages consists of the following:

- Correctness of chain-of-custody procedures
- Adherence to method or QAPP holding times
- Adequacy of method detection limits and reporting limits
- Correctness of spiking levels, frequency, and recovery
- Accuracy of analytical operations based on the LCS.

Oversight findings will be included in the quality control summary report for the project (see Section 3.2.3).

3.1.3 Field Corrective Action Procedures

Field corrective action procedures will depend on the type and severity of the finding. TN&A classifies assessment findings as either deficiencies or observations. Deficiencies are findings that may have a significant impact on data quality and that will require corrective action. Observations are findings that do not directly affect data quality, but are suggestions for consideration and review.

As described in Section 3.1.1, project teams are required to respond to deficiencies identified in TSA reports. The project manager, project lead engineer, FTL, and project chemist will meet to discuss the deficiencies and the appropriate steps to resolve each deficiency by:

- Determining when and how the problem developed
- Assigning responsibility for problem investigation and documentation
- Selecting the corrective action to eliminate the problem
- Developing a schedule for completing the corrective action
- Assigning responsibility for implementing the corrective action
- Documenting and verifying that the corrective action has eliminated the problem
- Notifying the Navy of the problem and the corrective action taken

In responding to the TSA report, the project team will include a brief description of each deficiency, the proposed corrective action, the individual responsible for determining and implementing the corrective action, and the completion dates for each corrective action.

The TN&A program QA manager is responsible for reviewing proposed corrective actions and verifying that they have been effectively implemented. The program QA manager can require data acquisition to be limited or discontinued until the corrective action is complete and a deficiency is eliminated. The program QA manager can also request the reanalysis of any or all data acquired since the system was last in control.

3.1.4 Laboratory Corrective Action Procedures

Internal laboratory procedures for corrective action and descriptions of out-of-control situations that require corrective action are contained in laboratory QA plans. At a minimum, corrective action will be

implemented when any of the following three conditions occurs: control limits are exceeded, method QC requirements are not met, or sample-holding times are exceeded. The laboratory will report out-of-control situations to the TN&A project chemist within 2 working days after they are identified. In addition, the laboratory project manager will prepare and submit a corrective action report to the TN&A project chemist. This report will identify the out-of-control situation and the steps that the laboratory has taken to rectify it.

3.2 REPORTS TO MANAGEMENT

Effective management of environmental data collection requires (1) timely assessment and review of all activities and (2) open communication, interaction, and feedback among all project participants. TN&A will use the reports described below to address any project-specific quality issues and to facilitate timely communication of these issues.

3.2.1 Daily Progress Reports

TN&A will prepare a daily progress report to summarize activities throughout the field investigation. This report will describe sampling and field measurements, equipment used, TN&A and subcontractor personnel on site, QA/QC and health and safety activities, problems encountered, corrective actions taken, deviations from the SAP, and explanations for the deviations. The daily progress report is prepared by the field team leader and submitted to the project manager and to the Navy RPM, if requested. The content of the daily reports will be summarized and included in the final report submitted for the field investigation.

3.2.2 Project Monthly Status Report

The TN&A project manager will prepare a monthly status report (MSR) to be submitted to the Navy RPM. Monthly status reports address project-specific quality issues and facilitate their timely communication. The MSR will provide the following quality-related information:

- Project status
- Instrument, equipment, or procedural problems that affect quality and recommended solutions
- Objectives from the previous report that were achieved
- Objectives from the previous report that were not achieved
- Work planned for the next month

If appropriate, TN&A will obtain similar information from subcontractors participating in the project and will incorporate the information within the MSR.

3.2.3 Quality Control Summary Report

TN&A will prepare a QC summary report (QCSR) that will be submitted to the Navy RPM with the final report for the field investigation. Data collected during the field efforts will be reconciled with the project DQOs by preparing summary tables, charts, figures, or performing other types of data analyses that facilitate direct comparison of data collected through the entire extent of the project. Comparisons will be made on a parameter-specific basis, concentrating on the contaminants of concern. Comparisons also will facilitate an analysis of contaminant concentration trends through time and space.

4.0 DATA VALIDATION AND USABILITY

This section describes the procedures that are planned to review, verify, and validate field and laboratory data. This section also discusses procedures for verifying that the data are sufficient to meet DQOs for the project.

4.1 DATA REVIEW, VERIFICATION, AND VALIDATION

Validation and verification of the data generated during field and laboratory activities are essential to obtaining data of defensible and acceptable quality. Verification and validation methods for field and laboratory activities are presented below.

4.1.1 Field Data Verification

Project team personnel will verify field data through reviews of data sets to identify inconsistencies or anomalous values. Any inconsistencies discovered will be resolved as soon as possible by seeking clarification from field personnel responsible for data collection. All field personnel will be responsible for following the sampling and documentation procedures described in this SAP so that defensible and justifiable data are obtained.

Data values that are significantly different from the population are called "outliers." A systematic effort will be made to identify any outliers or errors before field personnel report the data. Outliers can result from improper sampling or measurement methodology, data transcription errors, calculation errors, or natural causes. Outliers that result from errors found during data verification will be identified and corrected; outliers that cannot be attributed to errors in sampling, measurement, transcription, or calculation will be clearly identified in project reports.

4.1.2 Laboratory Data Verification

Laboratory personnel will verify analytical data at the time of analysis and reporting and through subsequent reviews of the raw data for any non-conformances to the requirements of the analytical method. Laboratory personnel will make a systematic effort to identify any outliers or errors before they report the data. Outliers that result from errors found during data verification will be identified and corrected; outliers that cannot be attributed to errors in analysis, transcription, or calculation will be clearly identified in the case narrative section of the analytical data package.

4.1.3 Laboratory Data Validation

An independent third-party contractor will validate all laboratory data in accordance with current EPA national functional guidelines (EPA 2002a, 1999b). The data validation strategy will be consistent with Navy guidelines. For this project, 90 percent of the data will undergo cursory validation and 10 percent of the data will undergo full validation. Requirements for cursory and full validation are listed below.

4.1.3.1 Cursory Data Validation

Cursory validation will be completed for 90% of the summary data packages for analysis of groundwater samples. The data reviewer is required to notify TN&A and request any missing information needed from the laboratory. Elimination of the data from the review process is not allowed. All data will be qualified as necessary in accordance with established criteria. The content of the data summary packages is described in Section 1.6.2 and Table 7.

4.1.3.2 Full Data Validation

Full validation is not anticipated for samples collected for this effort.

4.1.3.3 Data Validation Criteria

Table 11 lists the QC criteria that will be reviewed for cursory data validation. The data validation criteria selected from Table 11 will be consistent with the project-specific analytical methods listed in Section 2.4.2.

4.2 RECONCILIATION WITH USER REQUIREMENTS

After environmental data have been reviewed, verified, and validated in accordance with the procedures described in Section 4.1, the data must be further evaluated to determine whether DQOs have been met. To the extent possible, TN&A will follow EPA's data quality assessment (DQA) process to verify that the type, quality, and quantity of data collected are appropriate for their intended use. DQA methods and procedures are outlined in EPA's "Guidance for Data Quality Assessment, Practical Methods for Data Analysis" (EPA, 2000c). The DQA process consists of five steps: (1) review the DQOs and sampling design; (2) conduct a preliminary data review; (3) select a statistical test; (4) verify the assumptions of the statistical test; and (5) draw conclusions from the data.

When the five-step DQA process is not completely followed because the DQOs are qualitative in nature, TN&A will systematically assess data quality and data usability. This assessment will consist of:

- A review of the sampling design and sampling methods to verify that these were implemented as planned and are adequate to support project objectives

- A review of project-specific data quality indicators for precision, accuracy, representativeness, completeness, comparability, and quantitation limits (defined in Section 1.3.2) to determine whether acceptance criteria have been met
- A review of project-specific DQOs to determine whether they have been achieved by the data collected
- An evaluation of any limitations associated with the decisions to be made based on the data collected. For example, if data completeness is only 90 percent compared to a project-specific completeness objective of 95 percent, the data may still be usable to support a decision, but at a lower level of confidence.

The QCSR (see Section 3.2.3) and final report for the project will discuss any potential impacts of these reviews on data usability and will clearly define any limitations associated with the data.

5.0 REFERENCES

U.S. Environmental Protection Agency (EPA). 1992. "Specifications and Guidance for Obtaining Contaminant-Free Sampling Containers." OSWER Directive No. 9240.0-05A. April.

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EPA. 2000a. "U.S. EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration." Document Number ILM04.1. January.

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EPA. 2002a. "National Functional Guidelines for Inorganic Data Review." Office of Emergency and Remedial Response. Washington, DC. EPA-540/R-01/008. July.

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TABLES

Table 1

EPA QA/R-5 QAPP Elements
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

U.S. EPA QA/R-5 QAPP ELEMENT		CORRESPONDING TN&A SAP SECTION	
A1	Title and Approval Sheet	Title and Approval Sheet	
A2	Table of Contents	Table of Contents	
A3	Distribution List	Distribution List	
A4	Project/Task Organization	1.4	Project Organization
A5	Problem Definition/Background	1.1	Problem Definition and Background
A6	Project/Task Description	1.2	Project Description
A7	Quality Objectives and Criteria	1.3	Quality Objectives and Criteria
A8	Special Training/Certification	1.5	Special Training and Certification
A9	Documents and Records	1.6	Documents and Records
B1	Sampling Process Design	2.1	Sampling Process Design
B2	Sampling Methods	2.2	Sample Collection Methodology
B3	Sample Handling and Custody	2.3	Sample Handling and Custody
B4	Analytical Methods	2.4	Analytical Methods
B5	Quality Control	2.5	Quality Control
B6	Instrument/Equipment Testing, Inspection, and Maintenance	2.6	Equipment Testing, Inspection, and Maintenance
B7	Instrument/Equipment Calibration and Frequency	2.7	Instrument Calibration and Frequency
B8	Inspection/Acceptance of Supplies and Consumables	2.8	Inspection and Acceptance of Supplies and Consumables
B9	Non-direct Measurements	2.9	Non-Direct Measurements
B10	Data Management	2.10	Data Management
C1	Assessment and Response Actions	3.1	Assessment and Response Actions
C2	Reports to Management	3.2	Reports to Management
D1	Data Review, Verification, and Validation	4.1	Data Review, Verification, and Validation
D2	Validation and Verification Methods		
D3	Reconciliation with User Requirements	4.2	Reconciliation with User Requirements

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Volatile Organics (SW846 Method 8260)					
Acetone	7800	mg/Kg	RIDEM RSDEC	0.005	0.0017
Benzene	2.5	mg/Kg	RIDEM RSDEC	0.005	0.00034
Bromodichloromethane	10	mg/Kg	RIDEM RSDEC	0.005	0.00067
Bromoform	81	mg/Kg	RIDEM RSDEC	0.005	0.0024
Bromomethane	0.8	mg/Kg	RIDEM RSDEC	0.005	0.0013
Carbon Tetrachloride	1.5	mg/Kg	RIDEM RSDEC	0.005	0.00072
Chlorobenzene	210	mg/Kg	RIDEM RSDEC	0.005	0.00037
Chloroform	1.2	mg/Kg	RIDEM RSDEC	0.005	0.0004
Dibromochloromethane	7.6	mg/Kg	RIDEM RSDEC	0.005	0.00064
1,2-Dibromo-3-chloropropane (DBCP)	0.5	mg/Kg	RIDEM RSDEC	0.005	0.0017
1,1-Dichloroethane	920	mg/Kg	RIDEM RSDEC	0.005	0.0003
1,2-Dichloroethane	0.9	mg/Kg	RIDEM RSDEC	0.005	0.00057
1,1-Dichloroethene	0.2	mg/Kg	RIDEM RSDEC	0.005	0.0015
Cis-1,2-Dichloroethene	630	mg/Kg	RIDEM RSDEC	0.005	0.00047
Trans-1,2-Dichloroethene	1100	mg/Kg	RIDEM RSDEC	0.005	0.00066
1,2-Dichlropropane	1.9	mg/Kg	RIDEM RSDEC	0.005	0.0006
Ethylbenzene	71	mg/Kg	RIDEM RSDEC	0.005	0.00067
Ethylene dibromide (EDB)	0.01	mg/Kg	RIDEM RSDEC	0.005	0.00042
Isopropyl benzene	27	mg/Kg	RIDEM RSDEC	0.005	0.0003
Methyl ethyl ketone	10000	mg/Kg	RIDEM RSDEC	0.005	0.0015
Methyl isobutyl ketone	1200	mg/Kg	RIDEM RSDEC	0.005	0.0051
Methyl tertiary-butyl ether (MTBE)	390	mg/Kg	RIDEM RSDEC	0.005	0.00043
Methylene chloride	45	mg/Kg	RIDEM RSDEC	0.005	0.00082
Styrene	13	mg/Kg	RIDEM RSDEC	0.005	0.0005
1,1,1,2-Tetrachloroethane	2.2	mg/Kg	RIDEM RSDEC	0.005	0.00053
1,1,2,2-Tetrachloroethane	1.3	mg/Kg	RIDEM RSDEC	0.005	0.00093
Tetrachloroethene	12	mg/Kg	RIDEM RSDEC	0.005	0.00064
Toluene	190	mg/Kg	RIDEM RSDEC	0.005	0.00032
1,1,1-Trichloroethane	540	mg/Kg	RIDEM RSDEC	0.005	0.00035
1,1,2-Trichloroethane	3.6	mg/Kg	RIDEM RSDEC	0.005	0.00068
Trichloroethene	13	mg/Kg	RIDEM RSDEC	0.005	0.00086
Vinyl Chloride	0.02	mg/Kg	RIDEM RSDEC	0.005	0.00095
Xylenes (total)	110	mg/Kg	RIDEM RSDEC	--	--
m,p-Xylene	--	--	--	0.005	0.00066
o-Xylene	--	--	--	0.005	0.00044

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Semivolatile Organics (SW846 Method 8270)					
Acenaphthene	43	mg/Kg	RIDEM RSDEC	0.33	0.035
Acenaphthylene	23	mg/Kg	RIDEM RSDEC	0.33	0.035
Anthracene	35	mg/Kg	RIDEM RSDEC	0.33	0.056
Benzo(a)anthracene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.06
Benzo(a)pyrene	0.4	mg/Kg	RIDEM RSDEC	0.33	0.048
Benzo(b)fluoranthene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.064
Benzo(g,h,i)perylene	0.8	mg/Kg	RIDEM RSDEC	0.33	0.083
Benzo(k)fluoranthene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.045
1,1-Biphenyl	0.8	mg/Kg	RIDEM RSDEC	0.33	0.039
Bis(2-ethylhexyl)phthalate	46	mg/Kg	RIDEM RSDEC	0.33	0.05
Bis(2-chloroethyl)ether	0.6	mg/Kg	RIDEM RSDEC	0.33	0.047
Bis(2-chloroisopropyl)ether	9.1	mg/Kg	RIDEM RSDEC	0.33	0.036
4-Chloroaniline	310	mg/Kg	RIDEM RSDEC	0.33	0.029
2-Chlorophenol	50	mg/Kg	RIDEM RSDEC	0.33	0.04
Chrysene	0.4	mg/Kg	RIDEM RSDEC	0.33	0.059
Dibenzo(a,h)anthracenea	0.4	mg/Kg	RIDEM RSDEC	0.33	0.067
1,2-Dichlorobenzene (o-DCB)	510	mg/Kg	RIDEM RSDEC	0.33	0.046
1,3- Dichlorobenzene (m-DCB)	430	mg/Kg	RIDEM RSDEC	0.33	0.041
1,4-Dichlorobenzene (p-DCB)	27	mg/Kg	RIDEM RSDEC	0.33	0.048
3,3-Dichlorobenzidine	1.4	mg/Kg	RIDEM RSDEC	0.33	0.053
2,4-Dichlorophenol	30	mg/Kg	RIDEM RSDEC	0.33	0.036
Diethyl phthalate	340	mg/Kg	RIDEM RSDEC	0.33	0.048
2,4-Dimethyl phenol	1400	mg/Kg	RIDEM RSDEC	0.33	0.054
Dimethyl phthalate	1900	mg/Kg	RIDEM RSDEC	0.33	0.038
2,4-Dinitrophenol	160	mg/Kg	RIDEM RSDEC	0.67	0.11
2,4-Dinitrotoluene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.044
Fluoranthene	20	mg/Kg	RIDEM RSDEC	0.33	0.047
Fluorene	28	mg/Kg	RIDEM RSDEC	0.33	0.036
Hexachlorobenzene	0.4	mg/Kg	RIDEM RSDEC	0.33	0.043
Hexachlorobutadiene	8.2	mg/Kg	RIDEM RSDEC	0.33	0.056
Hexachloroethane	46	mg/Kg	RIDEM RSDEC	0.33	0.053
Indeno(1,2,3-cd)pyrene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.069
2-Methyl naphthalene	123	mg/Kg	RIDEM RSDEC	0.33	0.045
Naphthalene	54	mg/Kg	RIDEM RSDEC	0.33	0.042
Pentachlorophenol	5.3	mg/Kg	RIDEM RSDEC	0.67	0.064
Phenanthrene	40	mg/Kg	RIDEM RSDEC	0.33	0.044
Phenol	6000	mg/Kg	RIDEM RSDEC	0.33	0.047
Pyrene	13	mg/Kg	RIDEM RSDEC	0.33	0.049
1,2,4-Trichlorobenzene	96	mg/Kg	RIDEM RSDEC	0.33	0.054
2,4,5-Trichlorophenol	330	mg/Kg	RIDEM RSDEC	0.67	0.056
2,4,6-Trichlorophenol	58	mg/Kg	RIDEM RSDEC	0.33	0.026

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
OC Pesticides (SW846 Method 8081)					
Chlordane	0.5	mg/Kg	RIDEM RSDEC	--	--
alpha-Chlordane	--	--	--	0.0017	0.00047
gamma-Chlordane	--	--	--	0.0017	0.00039
Dieldrin	0.04	mg/Kg	RIDEM RSDEC	0.0033	0.00046
PCBs (SW846 Method 8082)					
Polychlorinated biphenyls (PCBs)[a]	10	mg/Kg	RIDEM RSDEC	--	--
Aroclor-1016	--	--	--	0.033	0.0037
Aroclor-1221	--	--	--	0.033	0.0027
Aroclor-1232	--	--	--	0.033	0.0016
Aroclor-1242	--	--	--	0.033	0.0026
Aroclor-1248	--	--	--	0.033	0.0013
Aroclor-1254	--	--	--	0.033	0.0026
Aroclor-1260	--	--	--	0.033	0.0035
Metals (SW846 Method 6010 & 7471) [b]					
Antimony	10	mg/Kg	RIDEM RSDEC	1	0.056
Arsenicc	7	mg/Kg	RIDEM RSDEC	1	0.076
Barium	5500	mg/Kg	RIDEM RSDEC	10	0.13
Berylliumc	0.4	mg/Kg	RIDEM RSDEC	0.25	0.0061
Cadmium	39	mg/Kg	RIDEM RSDEC	0.25	0.0055
Chromium III (Trivalent)	1400	mg/Kg	RIDEM RSDEC	Note (c)	Note (c)
Chromium VI (Hexavalent)	390	mg/Kg	RIDEM RSDEC	Note (c)	Note (c)
Chromium (total)	--	--	--	1	0.014
Copper	3100	mg/Kg	RIDEM RSDEC	1.5	0.21
Lead[d]	150	mg/Kg	RIDEM RSDEC	0.5	0.041
Manganese	390	mg/Kg	RIDEM RSDEC	25	0.81
Mercury	23	mg/Kg	RIDEM RSDEC	0.033	0.007
Nickel	1000	mg/Kg	RIDEM RSDEC	2.5	0.026
Selenium	390	mg/Kg	RIDEM RSDEC	1.5	0.067
Silver	200	mg/Kg	RIDEM RSDEC	1.5	0.019
Thallium	5.5	mg/Kg	RIDEM RSDEC	1	0.079
Vanadium	550	mg/Kg	RIDEM RSDEC	2.5	0.021
Zinc	6000	mg/Kg	RIDEM RSDEC	2.5	0.056
Cyanide (SW846 Method 9014)					
Cyanide	200	mg/Kg	RIDEM RSDEC	0.12	1

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL

Footnotes:

a) Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)

b) Background Levels of Priority Pollutant Metals in Rhode Island Soils, T. O'Connor, RIDEM

c) Total chromium will be tested. If the total concentrations are less then the trivalenet and hexavalent standards, then the sample is considered to absent of the trivalent and hexavalent chromium at the RIDEM RSDEC criterion.

d) Direct exposure criteria for Lead consistent with the Rhode Island Department of Health Rules and Regulations for Lead Poisoning Prevention [R23-24.6-PCB], as amended.

Acronyms:

RIDEM Rhode Island Dept. of Environmental Management
RSDEC Residential Soil Direct Exposure Criterion.
RL Reporting Limit
MDL Method Detection Limit

Table 3

Waste Disposal Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Volatile Organics (Zero Headspace SW846 Method 1311\8260)					
Benzene (as D018)	0.5	mg/L	TCLP Rule	5	0.5
Carbon Tetrachloride (as D019)	0.5	mg/L	TCLP Rule	5	0.56
Chlorobenzene (as D021)	100	mg/L	TCLP Rule	5	0.53
Chloroform (as D022)	6	mg/L	TCLP Rule	5	0.35
1,2-Dichloroethane (as D028)	0.5	mg/L	TCLP Rule	5	0.45
1,1-Dichloroethene (as D029)	0.7	mg/L	TCLP Rule	5	0.76
2-Butanone (MEK) (as D035)	200	mg/L	TCLP Rule	5	1.2
Tetrachloroethene (as D039)	0.7	mg/L	TCLP Rule	5	0.52
Trichloroethene (as D040)	0.5	mg/L	TCLP Rule	5	0.5
Vinyl Chloride (as D043)	0.2	mg/L	TCLP Rule	5	0.51
Semivolatile Organics (SW846 Method 1311\8270) [a]					
o-Cresol (as D023)	200	mg/L	TCLP Rule	0.03	0.001
m-Cresol (as D024)	200	mg/L	TCLP Rule	0.03	0.00078
p-Cresol (as D025)	200	mg/L	TCLP Rule	0.03 [b]	0.00078
Total Cresol # (as D026)	200	mg/L	TCLP Rule	0.03	0.001
Pentachlorophenol (as D037)	100	mg/L	TCLP Rule	0.06	0.00043
2,4,5-Trichlorophenol (as D041)	400	mg/L	TCLP Rule	0.06	0.0012
2,4,6-Trichlorophenol (as D042)	2	mg/L	TCLP Rule	0.03	0.00087
1,4-Dichlorobenzene (as D027)	7.5	mg/L	TCLP Rule	0.03	0.00043
2,4-Dinitrotoluene (as D030)	0.13	mg/L	TCLP Rule	0.03	0.00032
Hexachlorobenzene (as D032)	0.13	mg/L	TCLP Rule	0.03	0.00027
Hexachloro-1,3-butadiene (as D033)	0.5	mg/L	TCLP Rule	0.03	0.00067
Hexachloroethane (as D034)	3	mg/L	TCLP Rule	0.03	0.00081
Nitrobenzene (as D036)	2	mg/L	TCLP Rule	0.03	0.00071
Pyridine (as D038)	5	mg/L	TCLP Rule	0.03	0.0032
Pesticides (SW846 Method 1311\8081) [a]					
Chlordane (as D020)	0.03	mg/L	TCLP Rule	0.0075	0.00047
Endrin (as D012)	0.02	mg/L	TCLP Rule	0.0003	0.000018
Heptachlor (& its Epoxide) (as D031)	0.008	mg/L	TCLP Rule	--	--
Heptachlor	--	--	--	0.00015	0.000007
Heptachlor epoxide	--	--	--	0.00015	0.0000079
Lindane (gamma-BHC) (as D013)	0.4	mg/L	TCLP Rule	0.00015	0.0000068
Methoxychlor (as D014)	10	mg/L	TCLP Rule	0.0015	0.00013
Toxaphene (as D015)	0.5	mg/L	TCLP Rule	0.015	0.00041
Herbicides (SW846 Method 1311\8151) [a]					
2,4-D (as D016)	10	mg/L	TCLP Rule	0.003	0.0001
2,4,5-TP (Silvex) (as D017)	1	mg/L	TCLP Rule	0.0003	0.00001

Table 3

Waste Disposal Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Metals (SW846 Method 1311\6010 & 7470)[a]					
Arsenic (as D004)	5	mg/L	TCLP Rule	0.2	1.6
Barium (as D005)	100	mg/L	TCLP Rule	2	2.1
Cadmium (as D006)	1	mg/L	TCLP Rule	0.05	0.1
Chromium (as D007)	5	mg/L	TCLP Rule	0.2	0.38
Lead (as D008)	5	mg/L	TCLP Rule	0.1	0.46
Mercury (as D009)	0.2	mg/L	TCLP Rule	0.002	0.047
Selenium (as D010)	1	mg/L	TCLP Rule	0.3	0.98
Silver (as D011)	5	mg/L	TCLP Rule	0.3	0.91
Total Petroleum Hydrocarbons (SW846 Method 8015M)					
TPH	100	mg/Kg	RIDEM RSDEC	12	0.12
PCBs (SW846 Method 8082)					
Polychlorinated biphenyls (PCBs)[c]	10	mg/Kg	RIDEM RSDEC	--	--
Aroclor-1016	--	--	--	0.033	0.0037
Aroclor-1221	--	--	--	0.033	0.0027
Aroclor-1232	--	--	--	0.033	0.0016
Aroclor-1242	--	--	--	0.033	0.0026
Aroclor-1248	--	--	--	0.033	0.0013
Aroclor-1254	--	--	--	0.033	0.0026
Aroclor-1260	--	--	--	0.033	0.0035

Footnotes:

a) RLs are adjusted for pre-analysis dilutions; whereas MDL are not. Laboratory planned dilutions are SVOC (1:3), Pesticides (1:3), Herbicides (1:3), Metals (1:10)

b) p-Cresol and m-Cresol coelute and are reported as the sum of the isomers.

c) Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)

Acronyms:

RIDEM Rhode Island Dept. of Environmental Management
RSDEC Residential Soil Direct Exposure Criterion.
RL Reporting Limit
MDL Method Detection Limit

Table 4

Data Quality Objectives
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

STEP 1: State the Problem

- In the Buried Drum Area, a corroded 55-gallon drum containing a tar-like substance was removed and disposed of off site from Test Pit 02 (TP02). The drum was located approximately 6 feet below the ground surface. Two additional drums were observed in the test pit but not removed. The total number of drums remaining is unknown. TCE was also found in soil gas at this area, although only low concentrations of TCE were detected in soils and groundwater in this area.
- In the Buried Metal Container Area a large number of what appear to be deteriorated aerosol paint cans and related debris in the stream embankment in the south west portion of the site, confirmed through test pit 14 (TP14) excavations in this area. Elevated concentrations of lead were found co-located with these containers. The horizontal extent of the buried metal containers is unknown, but the vertical extent is anticipated to be less than 8 feet below ground surface.

STEP 2: Identify the Decisions

- Is the content of buried drums considered to be a contaminated or hazardous material?
- Is the excavated soil material contaminated requiring offsite disposal or can it be used to backfill the excavation holes?
- If offsite disposal is needed, what are the hazardous characteristics of the material and what disposal options will be used for final disposal of the contaminated material?
- Is offsite backfill material absent of contaminants?

STEP 3: Identify Inputs to the Decisions

- Field observations such as visual inspection, monitoring with a PID, and olfactory (from a distance) sufficient will be used to consider an excavated material to be contaminated or hazardous?
- Offsite laboratory results will document whether an excavated material to be contaminated or hazardous?
- Offsite laboratory results will document whether offsite fill material is certified to be absent regulated constituents?

STEP 4: Define Study Boundaries

- Soils will be carefully removed from within the predetermined limits.
- Temporal boundaries extend through the period of performance.

STEP 5: Develop Decision Rules

- Soil materials and drum contents exhibiting hazardous characteristics will be transported for final disposal at a RCRA Subtitle C landfill.
- Soil materials and drum contents exhibiting the presence of contamination but not hazardous characteristics will be transported for final disposal at a RCRA Subtitle D landfill.
- Backfill materials the can be certified to contain less that the Rhode Island Direct Exposure Limit for residential soils can be used as backfilling the excavation holes.

Table 4

Data Quality Objectives
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

STEP 6: Specify Tolerable Limsts on Decision Errors

- Null Hypothesis: Analytical results for regulated constituents in excavated soils or drum contents indicate the contaminant concentration levels and establish the presence of a hazard characteristic.

  Alternative Hypothesis: Analytical results for regulated constituents in excavated soils or drum contents indicate the contaminant concentration levels and establish the absence of a hazard characteristic.
- False Positive Decision Error (Type I Error): Analytical results indicate the presence of a regulated material when, in reality, the material is not regulated.
- False Negative Decision Error (Type II Error): Analytical results indicate the absence of a regulated material when, in reality, the material is not regulated.
- Decision Error Limits: For the excavated soil and drum contents data, the consequence of making a false negative decision error is more severe than a false positive decision error. The false negative decision error would result in the improper disposal of regulated material. A false positive decision error would increase the cost of final disposal.
- Statistically-derived error limits are not quantifiable because a judgmental sampling design will be used. However, procedures of review, verification, and validation of the data (Section 4.1) are sufficiently stringent that misidentifying the contaminant containment at concentrations that would impact disposal decisions is unlikely.

STEP 7: Optimize the Sampling Design

- Analytical data will be reviewed, verified, and validated following procedures described in Section 4.1. Concentration levels will be compared to regulator levels to determine whether regulatory action levels have been exceeded
- Sample collection described in Section 2.0 will satisfy the DQOs specified in the proceeding 6 steps.

Table 5

Quality Control Samples For Precision And Accuracy
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

QC TYPE	Precision	Accuracy	Frequency
Field QC	Field duplicate RPD MS/MSD RPD	Trip Blank Equipment Rinsate Source Blank	Field Duplicate = none anticipated Trip Blank = 1/cooler with samples for VOCs analysis Equipment Rinsate = none anticipated Source Blank = none anticipated
Laboratory QC	MS/MSD RPD Field Duplicate RPD	MS/MSD %R Method Blanks LCS or Blank Spikes Surrogate Standards %R Internal Standards %R	MS/MSD = 1/20 samples (Batch QC) Method Blank = 1/20 samples LCS or Blank Spikes = 1/20 samples Field duplicate = none anticipated Surrogate = every sample Internal Standard = every sample

Footnotes:

%R	Percent recovery
LCS	Laboratory control sample
MS/MSD	Matrix spike/matrix spike duplicate
RPD	Relative percent difference

Table 6

Key Personnel
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Name	Organization	Role	Responsibilities	Contact Information
Christopher Ohland	TN&A	Project Chemist & Database Manager	Responsible for defining analytical requirements and developing SAP May conduct laboratory evaluations Coordinates with laboratory project manager on analytical requirements, delivery schedules, and logistics Coordinates independent validation of laboratory data Reviews laboratory data and validation reports before release to project team Prepares and supports report preparation Responsible for developing, monitoring, and maintaining project database under guidance of project manager	TN&A, Raleigh NC cohland@tnainc.com (919) 981-6444
Ben Dodge	Mitkem	Laboratory Project Manager	Responsible for delivering analytical services that meet SAP requirements Reviews SAP to understand analytical requirements Works with TN&A project chemist to confirm sample delivery schedules Reviews laboratory data package before delivery to TN&A	Mitchem Corp, Warwick RI ben.dodge@mitken.com (401) 732-3400

Table 7

Requirements For Summary Data Packages
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Requirements for Summary Data Packages – Organic Analysis	Requirements for Summary Data Packages – Inorganic Analysis
Section I Case Narrative	**Section I Case Narrative**
1. Case narrative	1. Case narrative
2. Copies of nonconformance and corrective action forms	2. Copies of nonconformance and corrective action forms
3. Chain-of-custody forms	3. Chain-of-custody forms
4. Copies of sample receipt notices	4. Copies of sample receipt notices
5. Internal tracking documents, as applicable	5. Internal tracking documents, as applicable
Section II Sample Results - Form I for the following:	**Section II Sample Results - Form I for the following:**
1. Environmental samples	1. Environmental samples
2. Tentatively identified compounds (TIC) (VOC and SVOC only)	
Section III QA/QC Summaries - Forms II through XI for the following:	**Section III QA/QC Summaries - Forms II through XIV for the following:**
1. System monitoring compound and surrogate recoveries (Form II)	1. Initial and continuing calibration verifications (Form II)
2. MS and MSD recoveries and RPDs (Forms I and III)	2. PRRL standard (Form II)
3. Blank spike or LCS recoveries (Forms I and III-Z)	3. Detection limit standard (Form II-Z)
4. Method blanks (Forms I and IV)	4. Method blanks, continuing calibration blanks, and preparation blanks (Form III)
5. Performance check (Form V)	5. Inductively coupled plasma (ICP) interference-check samples (Form IV)
6. Initial calibrations with retention time information (Form VI)	6. MS and post-digestion spikes (Forms V and V-Z)
7. Continuing calibrations with retention time information (Form VII)	7. Sample duplicates (Form VI)
8. Internal standard areas and retention times (Form VIII)	8. LCSs (Form VII)
9. Analytical sequence (Forms VIII-D and VIII-Z)	9. Method of standard additions (Form VIII)
10. Matrix-specific method detection limit (MDL) (Form XI-Z)	10. ICP serial dilution (Form IX)
	11. IDL (Form X)
	12. ICP interelement correction factors (Form XI)
	13. ICP linear working range (Form XII)

Table 8

Proposed Samples, Rationale, And Analysis
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Sample IDs / Well IDs	Laboratory Analysis	Rationale
BACKFILL-01	VOC, SVOC, OC Pesticides, PCBs, TPH, Metals, Cyanide,	Certify "Clean" backfill materials
BACKFILL-XX, where XX is a sequential number	VOC, SVOC, OC Pesticides, PCBs, TPH, Metals, Cyanide,	Certify "Clean" backfill materials
EXSOIL-01	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-02	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-03	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-04	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-05	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-06	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-XX, where XX is a sequential number	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-01	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-02	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-03	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-04	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-05	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-06	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-07	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-08	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-09	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-10	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-XX, where XX is a sequential number	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal

Table 9

Summary of Field And QC Sample Analysis
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group	Matrix	Field Samples	Trip Blank	Equipment Rinsate	Duplicates (at 10%)	Total Number of Samples	MS/MSD (at 5%)[a]
Clean Fill Material	Solid	1	0	0	0	1	Batch QC
Drum Contents	Solid	10	0	0	0	10	Batch QC
Excavated Soil and Debris	Solid	6	0	0	0	6	Batch QC
	TOTAL	**17**	**0**	**0**	**0**	**17**	**0**

Notes:

[a] Matrix spike and matrix spike duplicate are not considered additional samples.

Table 10

Sample Container, Holding Time, and Preservative Requirements
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Parameter	Method Number	Sample Container	Sample Volume	Preserve	Holding Time
Waste Characterization Analyses (Soil and Liquid Waste)					
TCLP VOC	1311/5035, 8260B	1 2 oz glass jar with Teflon lining	25 g	4°C	14 days TCLP, then 7 day analysis
TCLP SVOC TCLP Pest TCLP Herb	1311/3550B, 8270C 1311/3550B, 8081A 1311/3550B, 8081A	1- 8 oz glass jar with Teflon lining	100 g	4°C	14 days TCLP, then Extraction within 14 days Analysis within 40 days
TCLP Metals TCLP Hg	1311/3050B, 6010B 1311/7471A	1 – 4 oz glass jar with Teflon lining	100 g	4°C	14 days TCLP, then 180 days, 28 days (Hg)
PCBs	3550B, 8082	Amber glass jar with Teflon lining	30gram	4°C	Extraction within 14 days Analysis within 40 days
TPH	3550B, 8015M	Amber glass jar with Teflon lining	30gram	4°C	Extraction within 14 days Analysis within 40 days
Cyanide	9012	Amber glass jar with Teflon lining	1g	4°C	14 days
Clean Fill Material (Soil)					
VOC	5035, 8260B	3 – Encore (or equivalent)	5.0gram ± 0.5	4°C, unpreserved	48 hours
SVOC OC Pesticides PCBs TPH	3550B, 8270C 3550B, 8081A 3550B, 8082 3550B, 8015M	1 – 8 oz glass jar with Teflon lining	30gram 30gram 30gram 30gram	4°C	Extraction within 14 days Analysis within 40 days
Metals Mercury	3050B, 6010B 7471A	1 – 4 oz glass jar with Teflon lining	10g	4°C	180 days, 28 days
Cyanide	9012	Combine with metals container	1g	4°C	14 days

Table 11 Data Validation Criteria IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI
Cursory Data Validation Criteria
Method compliance Holding times Calibration Blanks Surrogate recovery Matrix spike and matrix spike duplicate recovery Laboratory control sample or blank spike Internal standard performance (organics) Interference Checks (metals) Field duplicate sample analysis Other laboratory QC specified by the method Overall assessment of data for an SDG

Appendix G

Standard Operating Procedures

STANDARD OPERATING PRACTICE TNFLD006B

Sampling of Surface Soils and Other Surficial Materials

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STANDARD OPERATING PRACTICE TNFLD006B

Sampling of Surface Soils and Other Surficial Materials

1.0 OBJECTIVE

The objective of this Standard Operating Practice (SOP) is to define the techniques and requirements for collecting grab surface-soil and other surficial material samples.

2.0 BACKGROUND

Surface soil is usually referred to as the soil extending from the ground surface to a depth of approximately 1 foot (ft) below land surface. For human health risk assessment purposes (soil ingestion, inhalation of particulates), surface soil samples are typically collected from the upper six inches of soil. The project Sampling and Analysis Plan (SAP) or comparable document should specify the depth at which surface soil samples are to be collected.

Surface-soil samples are collected to determine the type(s) and level(s) of contamination, to define the area affected by contaminants, and to determine background concentrations. These samples may be collected as part of an investigative plan, site-specific sampling plan, and/or as a screening method for "hot spots" that may require more extensive sampling. Surface-soil samples will be collected at trench or pit sites after the excavation is completed and in conjunction with the subsurface-soil sampling.

Sediment(s) and sludge(s) exposed by evaporation, stream rerouting, etc., will be sampled by procedures stated in this document. Wipe samples to determine potential contamination on nonporous surfaces (e.g., floors, walls, and equipment) also will be described in this procedure.

3.0 SAMPLING EQUIPMENT

3.1 REQUIRED EQUIPMENT

Equipment necessary for sampling surface soils and other surficial materials includes:

- site-specific SAP,
- field logbook,
- indelible (waterproof) ink pen, blue or black,
- indelible (waterproof) markers,
- sample tags/labels and the appropriate forms/documentation (including chain-of-custody forms) as described in TN&A Standard Operating Practice (SOP) 010C,
- appropriate sample containers,
- insulated cooler,

- latex gloves,
- plastic zip-top bags and waterproof sealing tape,
- decontamination equipment (e.g., rinse bottles and pressurized spray tanks) and supplies [e.g., American Society for Testing Materials (ASTM) Type II organic-free water, Alconox®, etc.] SOP 011A,
- protective clothing and gear,
- Health and Safety Plan,
- security seals,and
- ice.

3.2 OPTIONAL EQUIPMENT (DEPENDENT ON SAMPLING MEDIA)

Optional equipment for sampling surface soils and other surficial materials includes:

- appropriate equipment and meters for obtaining field measurements as specified in the site-specific SAP,
- linear measuring device (e.g., tape measure),
- sampling device (e.g., bucket auger, slide-hammer sampling assembly, or trier); [if sampling for volatile organic compounds (VOCs), the sampling device can be Teflon®-lined or constructed of stainless steel, brass, or mild steel. When sampling for metals, the construction material of the sampling device must be stainless steel or Teflon lined],
- stainless steel, brass, Lexan® or Teflon inserts for the auger,
- plastic end caps for the sleeves, aluminum foil, and Teflon or silicon tape,
- stainless steel and/or Teflon-lined pans, trays, or bowls,
- stainless steel and/or Teflon-lined scoops, shovels, trowels, spoons, or spatulas,
- sampling template, marking pencil, or masking tape for wipe-sample area delineation,
- stainless steel tweezers or forceps,
- individual, sterile gauze pads made of cotton or filter paper,and
- solvent, if necessary, to mobilize contaminants for wipe sample (see the site-specific SAP for the appropriate solvent).

4.0 PROCEDURES

4.1 PREPARATION

The following steps must be adhered to when preparing for sample collection.

1. Personnel will be appropriately attired in protective clothing and equipment as required by the site-specific Health and Safety Plan.
2. Spread plastic sheeting on a portable table or level ground surface near the sampling area (if possible), and place decontaminated sampling equipment, sampling containers, and cooler on it. This area will form a clean work space for sample preparation, storage, and documentation. If equipment is to be decontaminated in the field, place another plastic sheet

on the ground for decontamination equipment and supplies. This will serve as a decontamination area for sampling equipment after sampling is completed.

3. Record all information in the field logbook. Document all deviations from procedure(s) and rationale for changes in the field logbook and on additional forms, as required by the SAP.

4.2 COLLECTION OF SAMPLES

4.2.1 Collection of Surface-Soil, Sediment, and Sludge Samples for Nonvolatile Organic Compounds or Inorganic Analyses

1. Follow the sampling pattern outlined in the site-specific SAP. When known or suspected contamination exists (e.g., spill area or dumping site), attempt to collect samples from the least-contaminated to the most-contaminated locations.
2. Change gloves when necessary and use decontaminated equipment at each site to minimize cross-contamination.
3. Label each container with the appropriate information.
4. Carefully remove or excavate loose debris and exposed material from the top 1 to 2 centimeters (cm) or to the desired sampling depth.
5. Using a clean scoop, trowel, shovel, bucket auger, or trier, place sufficient material into a clean stainless steel or Pyrex® bowl or tray and thoroughly mix the sample with a clean spoon or spatula.
6. Fill the sample container(s) directly from the tray or bowl with the spatula or spoon; remove stones, twigs, grass, etc., from the sample by hand (gloved) or forceps.
7. If the sample is water saturated, carefully decant the water from the container(s) with minimal disturbance to the sample.
8. Immediately wipe any dirt and grit from the threads of sample containers with the gloved hand. Secure and seal the Teflon-lined cap.
9. Rinse the outside of the filled sample container(s) and wipe dry.
10. Wrap the container in bubble pack (if necessary) and seal it into zip-top or other resealable plastic bag.
11. Samples for nonvolatile organics or inorganics can also be collected using liners following the procedures described in Section 4.2.2.
12. Place the sample in the cooler and cool to 4°± 2°C Celsius (C). Refer to SOP 010C for the proper shipping procedures.
13. Collect appropriate location, sample-depth, and/or field measurements and record these data in the field logbook.

4.2.2 Collection of Sludge, Surface-Soil and Sediment Samples for Volatile Organic Compounds Analysis

1. Follow steps 1 through 5 from Section 4.2.1.
2. Assemble a clean slide-hammer sampling assembly, hand auger, or sludge sampler with a stainless steel, brass, or Teflon liner. The type and material of the liner will be specified in the SAP.
3. Collect the sample by advancing the slide hammer, auger, or sampler into the subsurface.
4. Withdraw the slide hammer, auger, or sampler from the subsurface and extract the sleeve.
5. If the sample is water saturated, carefully decant the water from the sleeve with minimal disturbance to the sample.
6. Place a Teflon or aluminum foil (shiny side away from sample) patch around the ends and the plastic caps on the sleeve; wipe any excess dirt from the cap/sleeve area and secure the caps with inert tape (e.g., silicon or Teflon).
7. Wipe the sleeve or insert clean with a deionized water-moistened towel.
8. Seal the sleeve into a zip-top or other sealable plastic bag.
9. Place the sample in the cooler and cool to 4°± 2°C. Refer to SOP 010C for the proper shipping procedures.
10. Collect appropriate location, sample-depth, and/or field measurements and record these data in the field logbook.
11. Backfill the sample hole.
12. If samples cannot be obtained by sleeved augers or samplers (after reasonable effort), these samples will be collected by the method described in Section 4.2.1. When this procedure is necessary, the VOC sample will be collected first. The sample will be directly transferred into the sample container with a spatula. Note: Do not composite or homogenize the VOC sample.

The requirements outlined also apply to any other specified sample that can be degraded by aeration.

4.2.3 Collection and Homogenization of Composite Samples

Composite samples consist of a series of discrete grab samples that are mixed together to characterize the average composition of a given material. The discrete samples used to make up a composite sample are of equal volume and are collected in an identical fashion. A composite sample of surface soil, sediment or other surficial material is generally an areal composite. Areal composites are composed from grab samples of equal volume collected in an identical manner. The site-specific SAP should specify the basis (random grid, targeted, etc.) for collection of the grab samples.

It is important that a composite sample be truly representative if the various sample locations making up the composite. Therefore, proper homogenization techniques should be followed to

generate a composite sample. In addition, the equipment used to composite the sample must not affect the sample quality. A stainless steel bowl and stainless steel or Teflon® or PFTE spoon, properly decontaminated (SOP 011A), are typically used for field compositing of soil samples.

The following steps must be followed when compositing surface soil, sludge, and sediment samples:

1. Determine where composite sample(s) will be obtained as indicated in the site-specific SAP.
2. VOCs—and in some cases, semivolatile organic compounds—must be collected and contained immediately as stand-alone samples and, therefore, cannot be composited.
3. Collect a minimum of three equal-volume samples from the specified sample location. The volume of each sample must be at least the amount required for a single sample.
4. Place the samples in an appropriate mixing tray or bowl.
5. Divide the soil in the sample tray or bowl into quarters. Each quarter is mixed, then all quarters are mixed into the center of the pan. Follow this procedure several times until the sample is adequately mixed. If a round bowl is used, stir the material in a circular fashion and occasionally turn the material over. The extent of mixing will depend on the nature of the material and should be done to achieve a consistent physical appearance prior to filling sample containers.
6. Once mixing is completed, divide the sample material in half and fill containers by scooping sample material alternately from each half. Transfer subsamples of the composited sample into the appropriate sample containers. Seal, wipe clean, and label sample containers. Use the same care in handling these samples as that used for other samples from the site.

4.2.4 Collection of Wipe Samples for Nonporous Surfaces

1. Place wipe-collection pads into a wide-mouth reservoir jar using gloved hands. If a solvent will be used on the pads, saturate them with the solvent before placement into the jar. Wipe sampling may not be appropriate if the surface to be sampled is soluble in the solvent used (e.g., a painted surface).
2. Collect an equipment blank as necessary by submitting a clean or solvent-saturated pad for analysis.
3. Locate the area to be sampled and either measure and mark it using a non-interfering device (e.g., pencil or masking tape) or temporarily secure a pre-measured template over the area.
4. With gloved hands, select a pad from the reservoir jar with stainless steel tweezers or forceps and draw the pad lightly over the sample area with straight, even strokes. Change the wiping direction by 90° and repeat the pattern until confidant that the entire surface has been covered. Use new pads as necessary, and ensure the pad does not touch any surface outside the sampling area. If a single surface does not provide a sufficient sample, smaller areas of equal size from the same general location may be sampled and composited into one sample.
5. Place the gauze pad into a sample container. If solvent is used, a Teflon-lined lid will be used with the cap of the container.

6. Label each container with the appropriate information. Wrap the container(s) in bubble pack (if necessary) and seal it into zip-top or other sealable plastic bag.
7. Pack the sample in the cooler and cool to 4°± 2°C. Complete and attach the chain-of-custody forms and security seals to the cooler as detailed in SOP 010C.

5.0 RESTRICTIONS/LIMITATIONS

None.

6.0 REFERENCES

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STANDARD OPERATING PROCEDURE TNFLD012B
DRUMMED WASTE SAMPLING

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STANDARD OPERATING PROCEDURE

DRUMMED WASTE SAMPLING

1.0 INTRODUCTION

The objective of this SOP is to describe procedural guidelines for the sampling wastes in drums. Waste characterization analyses will be performed on composite/representative samples from all waste streams (solid and liquid) containerized in drums.

The wastes shall be initially characterized through the use of existing information (preliminary assessments, manifests, Material Safety Data Sheets (MSDS)), previous test results, knowledge of the waste generation process, other relevant records, client knowledge, and best professional judgment. Based on this initial characterization, the wastes will be properly assessed, re-containerized and managed, as discussed below. If no information is available, the drummed waste will not be directly sampled by TN&A until proper procedures have been identified.

2.0 OBJECTIVE

The objective of drum sampling is to determine which wastes pose an immediate threat to human health or the environment, and to remove those wastes from the site. All drum sampling and waste management procedures will comply with federal, state and local laws and regulations.

3.0 DRUMMED WASTE SAMPLING PROCEDURES

Prior to sampling any waste stored in drums, an initial determination of the type of waste will be made. The type and number of drums, condition of drums, associated labeling, volume of waste, and drum storage location will be recorded and evaluated prior to any sampling activities. Volatiles within the breathing zone should also be monitored for. This information will also be used to determine the appropriate level of PPE and tools required to complete the sampling event.

- Vent the drum slowly until internal atmosphere is equalized with ambient air pressure,
- Perform real-time monitoring of air quality while opening and/or venting the drum. Real time monitoring may include VOCs, LEL, O_2, CO, and H_2S monitoring depending on the information discovered during the initial characterization,
- Perform real-time monitoring during sampling and whenever the drum bung or lid has been removed,
- Visually inspect the inside and outside of the container and contained material,
- Measure pH of liquid contained in the drum.

All monitoring information, visual inspections, generation dates/locations and labeling information will be recorded on a drum worksheet. The wastes stored in drums will be grouped into two types, solid and liquid.

3.1 SOLID WASTE

Sample aliquots of compatible drummed material should be taken from several locations and depths from within several drums, using the appropriate tools. Any solid drummed waste that is not compatible will be sampled separately with other compatible material. These compatible samples should then be placed into a decontaminated stainless steel bowl, and homogenized using stainless steel spoons and/or trowels. Transfer the homogenized material to the appropriate sampling containers/jars supplied by the laboratory. The sources of each homogenized soil sample will be recorded in the field logbook.

3.2 LIQUID WASTE

Liquid samples will be composited by inserting a drum thief or COLIWASA tube into each drum and obtaining a representative sample of the drummed liquid. The representative sample is obtained by allowing both ends of the drum thief or COLIWASA to be open when inserting into the drum. Using a gloved hand, place thumb over up end of tube and withdraw, discharge tube contents to appropriate sample containers. Liquid wastes that are deemed compatible will be sampled together. Volatile organic compound samples will be collected first. For these samples it is important to limit volatilization while collecting sample aliquots, so these samples should be composited in a clean screw top container. The lid of the container should only be removed when sample aliquot is being added to the jar and then replaced while collecting additional sample. All of the other compatible composite samples will then be homogenized in a decontaminated stainless steel bowl with a stainless steel spoon or trowel. The homogenized sample will then be evenly distributed into the appropriate sampling containers and/or jars as supplied by the laboratory. The sources of each composite sample will be recorded in the field logbook.

4.0 WASTE CHARACTERIZATION

Waste characterization analyses will be performed on representative samples collected from each of the compatible waste types, and strict chain of custody (COC) procedures will be followed for all waste characterization samples. Solid and liquid drum samples for waste characterization analysis will be documented on COC forms separate from the project samples. The drum samples will be stored and shipped on ice in coolers under COC protocol to the analytical laboratory. The TN&A Project Manager (PM) will notify the client regarding the waste characterization test results within 10 days of receipt of the test results.

A self adhesive, weather resistant, white background label material shall be used to label each drum. The size shall be at least 6 x 6 inches. The words "Test Pending", sample code, date filled, contact name, and telephone number shall be written on the label. For RCRA hazardous and non-hazardous waste, drums shall be labeled in accordance with local, state, and federal regulatory hazardous waste management requirements. Any shipping of hazardous waste that is necessary will be further discussed in the project work plan.

5.0 TRAINING

TN&A employees and subcontractors who perform tasks referenced in the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120, are required to attend training prior to engaging in hazardous waste operations. Certification of training of the subcontractor personnel must be made available to the Project Manager prior to field activities. In addition, all operations regarding identification, storage, transportation, and disposal of waste shall be accomplished in a safe manner as per OSHA 29 CFR 1910 and the Site Safety and Health Plan.

6.0 REFERENCES

AFDTC/EM, *Standard Operating Procedures for Investigation Derived Materials,* August 1, 1996.

AFDTC/EMC 32-5, AFI 32-70-42, *Hazardous Waste Management Plan,* July 1995.

U.S. Environmental Protection Agency, *Management of Investigation-Derived Waste During Site Investigations*, EPA/540/G-91/009, May 1991.

U.S. Environmental Protection Agency, *Guide to Management of Investigation-Derived Wastes*, EPA Publication 9345.3-03FS, January 1992

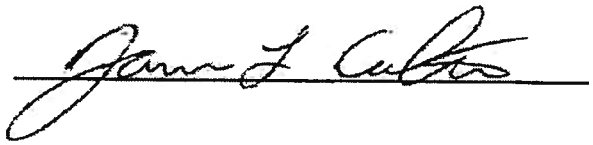
U.S. Environmental Protection Agency, *Test Methods for Evaluating Solid Waste,* EPA Publication, SW-846, November 1986

Appendix H

Navy Acceptance Letter

STATEMENT OF ACCEPTANCE

I have reviewed the work conducted by T N & Associates under Navy contract N62472-01-D-0807, Contract Task Order 6, as outlined in the Draft Final Interim Remedial Action Completion Report for Installation Restoration (IR) Site 8, NUSC Disposal Area, Navy Undersea Warefare Center, Middletown, Rhode Island. The intent of this Interim Remedial Action was to only remove drums and paint cans that could be identified through visual observation either prior or during excavation activities along with any visibly stained soils and to backfill the excavations with certified clean fill to grade and to conduct site restoration activities that included the re-vegetation of the site with grass. Further, the intent of this project was not delineate, remove or confirm the presence of any and all contaminated soils that may be present on this site, and as such, confirmatory sampling was not conducted at the direction of the Navy. I have determined that the work outlined in this Completion Report does conform to the scope of work contained in the above-referenced contract number and that T N & Associates did properly implement those actions to the satisfaction of the Naval Facilities Engineering Command.

Signature: 

Name: James L. Colter, P.E.

Title: Remedial Project Manager

Date: 2 November 2006

APPENDIX A.3

BUILDING 179 CONCRETE UST REMEDIAL INVESTIGATION (TRC, 1992)

Naval Station Newport
ELDN 10500
Environmental Protection Department

BUILDING 179 CONCRETE UST REMEDIAL INVESTIGATION

Prepared for

NAVSEA
NEWPORT
Undersea Warfare Center Division

U.S. Department of the Navy
Naval Undersea Warfare Center Division, Newport
1176 Howell Street
Newport, Rhode Island

Prepared by ***TRC Environmental Corporation***

December 1999

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EXECUTIVE SUMMARY

Regulatory Background

The Naval Undersea Warfare Center (NUWC) Division, Newport identified soil and groundwater contamination in August 1995 during a Closure Assessment program conducted to remove an unused concrete underground storage tank (CUST) from the Rhode Island Department of Environmental Management's (RIDEM) list of registered tanks. As a result, RIDEM instructed NUWC Division, Newport to perform a remedial investigation (RI) in accordance with Section 8.0 of RIDEM's Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases, 31 March 1993, hereinafter the RIDEM Remediation Regulations. In response to this requirement, TRC Environmental Corporation (TRC), under contract to NUWC Division, Newport, prepared a Remedial Investigation Work Plan (October 1996) to assess the nature and extent of contamination identified near the CUST.

Objectives

In accordance with Section 7.00 of RIDEM's 31 March 1993 (amended August 1996) Remediation Regulations, the objectives of the remedial investigation are to:

> *"...determine the nature and extent of the contaminated-site and the actual and potential impacts of the release. Remedial alternatives shall be considered and data generated during the Site Investigation must be in such a form and substance as to aid in the selection of a remedy for the contaminated-site that is protective of both human health and the environment."*

Site History and Operations

Building 179 was constructed in 1961 and is located on the eastern portion of the NUWC Division, Newport facility in Middletown, Rhode Island. The CUST was constructed to support torpedo test activities at the time of construction of B-179. The CUST is a concrete structure with outside dimensions of approximately 17 feet long, nine feet wide, and eight feet deep with a base and sidewalls constructed of reinforced concrete approximately eight inches thick. The CUST contains two compartments. The smaller of the two compartments was used to capture materials such as water, oil, and small quantities of cleaning fluids, torpedo fuel (Otto fuel) and combustion by-products that were historically discharged to it via floor drains from Building 179. The larger

compartment was used as a "quench" tank for combustion gasses produced from torpedo test activities. Stainless steel tanks were placed inside each of the two CUST compartments in 1992 to support test activities until the winter of 1995 when a torpedo test failure necessitated a curtailment of activities at the building.

In order to achieve full operational capability in support of torpedo testing, NUWC Division, Newport reconstructed Building 179 over the 1996 to 1999 timeframe. To support the reconstruction process TRC installed a series of soil borings and monitoring wells to identify the nature and extent of contamination likely to be encountered during construction. Soil and ground water samples were collected and quantitatively analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), cyanide, total petroleum hydrocarbons (TPH), and for propylene glycol dinitrate (PGDN), a component of torpedo fuel.

Analytical results from the reconstruction sampling and analysis program indicated the presence of 1,1,1-trichloroethane in site ground water at concentrations in excess of RIDEM's GA ground water cleanup standards. In addition, TPH was detected in site soil at concentrations exceeding RIDEM's standards for residential direct contact, industrial/commercial direct contact, and GA and GB ground water leachability criteria. Based on this pre-construction characterization data, TRC prepared a conceptual design for the bulk excavation of soil and the installation of wells within the building footprint to allow future access to ground water without impacting NUWC Division, Newport's operational mission. The conceptual design served as the basis for NORTNAVENGCOM to task Foster Wheeler Environmental Corporation (FWENC) with soil excavation and tank closure work statements to further support the reconstruction effort.

FWENC, under contract to NORTNAVENGCOM, removed a total of 220 tons of concrete flooring and 2,138 tons of soil within the limits of disturbance of the reconstruction project. Approximately 63% of the concrete (139 tons) and 93% of the soil (1,978 tons) was classified by NUWC Division, Newport as hazardous waste and properly transported and disposed off-site by FWENC. After the soil was excavated, yet prior to building reconstruction, FWENC installed a high density polyethylene liner and concrete pad at the base of the excavation, immediately over

competent bedrock, to limit migration of any contaminant vapors into the newly reconstructed B-179. As part of the pre-reconstruction process FWENC also emptied, cleaned, and closed the CUST in place in December 1998, by backfilling the tank with a concrete-like mixture and capping the CUST with a concrete cover which extends approximately six-inches above grade. The aggressive soil excavation program undertaken by FWENC included excavation to the top of competent bedrock underneath the building and resulted in the removal of the majority of overburden soil contamination identified on-site.

Remedial Investigation Field Explorations

TRC completed the remedial investigation in two phases. Phase I consisted of a focused program of ground water sampling through the use of Geoprobe™ methodologies to rapidly assess the nature and extent of overburden ground water contamination. This approach was supplemented through the use of both seismic and topographical surveys to obtain an approximate understanding of groundwater contamination and to allow adequate data for siting permanent groundwater monitoring wells. Phase II activities included the installation, sampling, and analysis of bedrock and overburden monitoring walls, the completion of in-situ hydraulic testing in the monitoring wells and the collection and analysis of subsurface soil, surface water, and sediment samples.

During the Phase I exploration program a total of 84 ground water samples were collected from 105 individual Geoprobe™ exploration points. Ground water samples were analyzed in the field for the presence of select VOCs using a portable gas chromatograph calibrated to detect the primary contaminants of concern (e.g., chlorinated VOCs). To confirm field analytical results a series of duplicate ground water samples were sent to a quantitative laboratory for analysis using EPA Method 8260 analytical procedures. Prior to the installation of site borings and permanent monitoring wells approximately 1,565 feet of seismic refraction lines were completed to assist in the definition of subsurface conditions and the depth to bedrock.

During the Phase II exploration program a total of 14 soil borings, eight overburden ground water monitoring well borings and five bedrock monitoring wells were installed. Soil conditions

were geologically logged and soil samples were screened for the presence of volatile organic compounds using field instrumentation. Bedrock cores were collected from each bedrock monitoring well installation. In addition, in-situ hydraulic conductivity tests were conducted at five of the eight overburden monitoring wells as well as at each of the five bedrock monitoring wells. Depth to water information was obtained from a series of measurements at each of the on-site monitoring wells, and a limited assessment of bedrock conditions was completed through a bedrock strike and dip assessment on three bedrock outcrops in the vicinity of the CUST. Together with previous investigation efforts a total of 32 soil borings, 11 overburden ground water monitoring wells and five bedrock monitoring wells have been installed to assess the nature and extent of contamination identified near the CUST.

A total of 25 soil samples, 13 ground water samples, and five surface water/sediment sample pairs were analyzed for VOCs, SVOCs, cyanide, and TPH. Soil samples collected for VOC analysis were collected using pre-packaged EnCore Samplers to reduce the loss of VOCs. In addition, soil samples collected from the screened interval of overburden monitoring wells were subject to grain size analysis as well as analysis for total organic carbon. Quality assurance and quality control samples including trip blanks, duplicates, and field blank samples were prepared to assess data quality.

Ground Water Flow

Based on a series of depth to ground water measurements overburden ground water flows in a north northeasterly direction toward the unnamed stream east of the CUST. This flow pattern is consistent with site topography and observations of ground water depth conducted during the Geoprobe™ exploration program. Ground water flow patterns in the bedrock generally mirror, although in a more subdued manner, those observed for overburden ground water flow. However, bedrock ground water patterns are based on data obtained from a limited number (five) of bedrock monitoring points. To assess the impact subsurface utility lines may have on overburden ground water flow conditions the depth of a representative utility line was compared to depth to water data. The results indicate limited potential for preferential ground water flow along this utility line.

Contaminant Distribution

In general, the primary group of contaminants identified on-site during the remedial investigation is chlorinated VOCs. This is consistent with site history and operations that indicate historic use and storage of chlorinated solvents at the CUST associated with B-179.

Laboratory analysis of soil samples collected during the remedial investigation indicated the presence of VOCs, SVOCs, TPH, and cyanide. However none of these constituents exceeded RIDEM standards for residential direct exposure criteria, class GA ground water leachability criteria, or EPA's residential direct exposure criteria. However, limited overburden soil data is available in the immediate vicinity of the afterburner and 6,000-gallon above ground storage tank adjacent to B-179.

Analysis of ground water samples indicated the presence of VOCs, SVOCs, TPH, and cyanide. According to RIDEM's Remediation Regulations, concentrations of hazardous substances which pose a threat to human health and the environment include concentrations of hazardous substances in excess of the remedial objectives listed in Section 8.02 for soil and Section 8.03 for ground water. Available data suggests site ground water is contaminated with the following constituents above Rhode Island Class GA Ground Water Objectives:

-1,1,1 trichloroethane
- tetrachloroethene,
- 1,1-dichloroethene,
- total cyanide.
- methylene chloride,
- trichloroethene,
- 1,2,4-trichlorbenzene, and

Analytical results of particular significance are the contaminant grouping of 1,1,1-trichloroethane, 1,1-dichloroethane, and chloroethane. Such a pairing is consistent with available literature that suggests the 1,1-dichloroethane and chloroethane are typical breakdown or degradation products of 1,1,1-trichloroethane.

Initial evaluation of the pattern of ground water contamination above RIDEM standards indicates a generally higher concentration of exceedances near the CUST, as expected. However, it should be noted that some of the ground water constituents that exceed standards, such as

trichloroethene, and methylene chloride are either not considered a primary contaminant of concern (trichloroethene), or have low standards (both trichloroethene and methylene chloride). As such, the significance of contaminant concentrations exceeding RIDEM standards tend to be skewed toward compounds with relative low standards rather than being illustrative of contaminant migration patterns.

The uniform overburden ground water VOC data observed during the Geoprobe™ exploration program are consistent with ground water impacts derived from a single contaminant source. The two exceptions to this pattern are the detection of BTEX constituents at the outfall of the interceptor tank and the presence of tetrachloroethene in ground water north of and across the unnamed stream from the subject site. The presence of the BTEX constituents is consistent with the possible discharge of oily constituents from the former interceptor outfall pipe while the detection of tetrachloroethene appears to represent a contaminant source separate from the CUST.

The highest concentrations of total VOC's detected in ground water were present in the monitoring well cluster adjacent to the CUST. Of the total VOC's detected at this location, 89% is attributable to 1,1,1-trichloroethane, a primary constituent of concern. This concentration is approximately 0.5% of the solubility of the pure material in distilled water of 4,400,000 ppb. However, the solubility of 1,1,1-trichloroethane in natural waters is anticipated to be somewhat, if not significantly, less than that reported for distilled water. For this reason the concentration of 1,1,1-trichloroethane observed at the MW-7A and 7B cluster appears to be approaching the solubility limit of 1,1,1-trichloroethane in natural waters, but nonetheless remain well below the published pure water equilibrium concentration. Ground water data does not indicate the presence of non-aqueous phase liquids. This information is consistent with field measurements that did not indicate the presence of any free phase materials in monitoring wells located near the CUST.

For bedrock ground water, total VOC concentrations ranged from 10 ppb to 25,980 ppb. The highest total VOC concentration detected on-site was present at the bedrock monitoring well

(MW-7B) located immediately adjacent to the CUST. In general, elevated concentrations of VOC's were present in bedrock ground water at MW-7B with significantly lesser concentrations observed at other bedrock monitoring wells.

Sampling and analysis of three surface water/sediment-sampling pairs from the unnamed stream east of the CUST indicated the presence of VOC's, SVOCs, TPH, and total cyanide. Surface water samples collected as part of the Phase II remedial investigation indicated a variety of VOCs; however, none of the individual VOCs exceeded available comparison criteria. TPH was not detected in site surface water although total cyanide was present at concentrations ranging from 3.7 ug/l to 6.3 ug/l. The total cyanide concentration at the sample location east of the CUST exceeded the NOAA critical continuous concentration (CCC) value of 5.2 ppb. The CCC is the highest level for a four-day average exposure not to be exceeded more than once every three years. This standard is used for comparative purposes in the absence of specific RIDEM surface water criteria and was extracted from NOAA's September 1999 Screening Quick Reference Tables.

Sediment samples collected during the remedial investigation indicated a variety of VOCs and SVOCs as well as TPH and cyanide. With the exception of xylene in the sample furthest downstream from the CUST, each VOC was either present in the laboratory blank or was qualified by the laboratory as a compound analyzed and determined to be present in the sample at an estimated concentration which is less than the specified minimum detection limit but is greater than zero. SVOCs present in the sediment samples at concentrations above at least one of the NOAA standards included pyrene, benzo (a) anthracene, and chrysene. TPH was detected in the sample collected from the upstream location approximately 90 feet east of the CUST at the highest concentration of the three samples collected (280 ppm). Total cyanide concentrations followed a similar pattern where the upstream sample indicated the highest contamination (1.2 ppm) of the three sediment samples.

Remedial Alternatives

In accordance with Section 7.04 of the RIDEM Remediation Regulations a series of remedial alternatives have been developed for application to the observed ground water impacts at the subject site. A total of four remedial alternatives other than the no action/natural attenuation alternative are summarized below:

Alternative Number 1 – Monitored Natural Attenuation
This remedial alternative proposes natural attenuation of ground water contamination in both the bedrock and overburden aquifers. Natural attenuation would be monitored through a focused program of ground water sample collection and analysis from a network of new and existing monitoring wells. The net present value of this alternative has been estimated to be approximately $650,000.

Alternative Number 2 – Permeable Reaction Wall
This alternative addresses overburden ground water contamination through the installation of a permeable reactive barrier installed in the path of the contaminated ground water. This reaction wall would be coupled with strategically placed monitoring wells, induced pumping of overburden ground water near source areas, and long-term monitoring to assess effectiveness. The net present value of this alternative has been estimated to be approximately $420,000.

Alternative Number 3 – Enhanced Natural Attenuation/Bioremediation
This alternative proposes bioremediation of chlorinated VOCs observed in overburden ground water through use of either specialty designed bacterial cultures, or nutrient augmented natural bioremediation. This alternative also includes long-term monitoring of the overburden aquifer. The net present value of this alternative has been estimated to be approximately $550,000.

Alternative Number 4 – Ground Water Pump and Treat
This alternative proposes conventional pump and treat technology to address overburden ground water contamination. Extraction wells would be strategically located within the overburden aquifer to affect ground water removal. Ground water would then be treated in process equipment such as air stripping and carbon adsorption to remove aquifer contaminants prior to injection or infiltration of treated ground water back into the overburden aquifer. The net present value of this alternative has been estimated to be approximately $1,100,000.

Given the nature of site contamination and the desire to propose a comprehensive, cost effective remedial alternative that addresses the both overburden and bedrock groundwater contamination, designation of a preferred remedy designation will be deferred pending completion of a comprehensive remedial investigation.

1.0 INTRODUCTION

This report has been prepared in response to evidence that a release of hazardous constituents has occurred in the vicinity of a concrete underground storage tank (CUST) located adjacent to Building 179 at the Naval Undersea Warfare Center Division, Newport (NUWC Division, Newport) in Newport, Rhode Island. The identification of soil and groundwater contamination in the vicinity of the CUST was first observed in August 1995 during the performance of a Closure Assessment on the CUST. The Closure Assessment was performed as a result of a 9 March 1995 letter from the Rhode Island Department of Environmental Management (RIDEM) in response to NUWC Division, Newport's request to remove the subject CUST from the list of registered underground storage tanks. As a result of the August 1995 Closure Assessment, the RIDEM instructed NUWC Division, Newport, by letter dated 4 October 1995, to perform a Remedial Investigation (RI) at the subject CUST in accordance with Section 8.0 of the Rules and Regulations for the Investigation and Remediation of Hazardous Materials Released, DEM DSR, 31 March 1993, hereinafter referred to as the RIDEM Remediation Regulations. In response to this requirement, TRC Environmental Corporation (TRC), under contract to NUWC Division, Newport, prepared a Remedial Investigation Work Plan to assess the nature and extent of contamination resulting from the CUST. Remedial Investigation activities were documented in an October 1996 Building 179 Concrete UST Remedial Investigation Work Plan. Copies of the 9 March 1995 and 4 October 1995 letters are provided with background information in Appendix A.

An overview of the site and a summary of investigation objectives are provided in Section 1.0. Background information including a summary of site history and operations, regulatory history, previous environmental investigations, regional environmental conditions, and waste characteristics are provided in Section 2.0. Remedial Investigation activities including subsurface explorations, hydrogeologic evaluation, and environmental sampling are provided in Section 3.0. Investigation findings with regard to geology, hydrogeology and contaminant distribution are summarized in Section 4. Section 5.0 provides an overview of potential remedial alternatives and provides a preliminary evaluation of the alternatives with respect to compliance with risk management standards, technical feasibility, regulatory compliance, and cost. Lastly,

in accordance with Section 7.04 of RIDEM's Remediation Regulations a preferred remedial alternative is proposed in Section 5.0. References are provided in Section 6.0.

1.1 Site Description

Building 179 is located east of Cunningham Street in the eastern portion of the NUWC Division, Newport facility in Newport, Rhode Island. Building 179 is located approximately 800 feet east of NUWC Division, Newport's property line. A heavily vegetated, low-lying freshwater wetland is located immediately to the east of Building 179 and support areas. A site locus plan is provided as Figure 1.

Building 179 along with surrounding Buildings 438, 1180, 1301, and 1303 form a significant portion of the Propulsion Test Facility (PTF) at NUWC Division Newport. The PTF supports the Navy through the testing, research and development for torpedo propulsion systems. Building 179 was formerly used to test torpedo propulsion systems. However, a (24 February 1995) torpedo test failure resulted in damage to Building 179 and materially reduced the operational capacity of the building. Following this event, NUWC Division, Newport reconstructed and repaired Building 179 during the 1996 to 1999 timeframe to bring the facility back to its full operational capability.

A concrete UST associated with former torpedo testing operations at Building 179 is located approximately 20 feet north of the northeast corner of Building 179. The area in the vicinity of the subject CUST can be characterized as heavily developed with a variety of both above and below grade process structures to support PTF testing functions. Adjacent to the CUST is a crushed stone roadway (located to the east), an open paved area (located to the north and south), and above ground process equipment (located immediately to the west of the tank). As previously noted, a freshwater wetland area is located east of the subject CUST. A stream is present within the wetland area approximately 85 feet from the CUST. The limits of this freshwater wetland have been previously delineated and approved pursuant to a Preliminary Determination Application (91-0247D) submitted to the RIDEM Division of Freshwater Wetlands for the construction of the Building 1301 High Energy Chamber located just south of Building 179. In general, topographic relief in the area immediately surrounding the

subject UST is relatively flat. However, a downward slope with topographic relief on the order of six to eight feet is located along the wetland side of the former concrete UST. Site features are shown on Figure 2.

1.2 Investigation Objectives

In accordance with Section 7.00 of RIDEM's 31 March 1993 (amended August 1996) Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (DEM-DSR-01-93), hereinafter the RIDEM Remediation Regulations, the objectives of the Remedial Investigation are to:

> *"...determine the nature and extent of the contaminated-site and the actual and potential impacts of the release. Remedial alternatives shall be considered and data generated during the Site Investigation must be in such a form and substance as to aid in the selection of a remedy for the contaminated-site that is protective of both human health and the environment."*

The report summarizes investigation activities undertaken to identify the nature and extent of contamination resulting from a release of hazardous materials in the vicinity of the concrete underground storage tank located adjacent to Building 179, and discusses the actual and potential impacts of the release. TRC undertook the investigation in accordance with the October 1996 Building 179 Concrete UST Remedial Investigation Work Plan, as amended by discussion with RIDEM.

2.0 BACKGROUND INFORMATION

2.1 Site History and Operations

Building 179 was constructed in 1961 and is located on the eastern portion of the NUWC Division, Newport facility in Middletown, Rhode Island. Prior to this time the area of the facility occupied by B-179 appeared to be undeveloped farmland. At the time of the construction of Building 179, the subject CUST was constructed to support torpedo test activities within Building 179. Stainless steel tanks were placed inside the CUST in 1992 to support Building 179 test activities until the winter of 1995 when a torpedo test failure necessitated a curtailment of activities at the building. In order to achieve full operational capability in support of torpedo testing, NUWC Division, Newport reconstructed Building 179 over the 1996 to 1999 timeframe. As a part of the reconstruction process, the CUST was emptied, cleaned, filled with sand and closed in place during December 1998. Additional information on the CUST closure-in-place is provided in Section 2.3.3.

The CUST is a concrete structure with outside dimensions of approximately 17 feet long, nine feet wide, and eight feet deep. The CUST is divided into two separate compartments. The larger of the two compartments has an inside dimension of approximately 12 feet long and eight feet wide, while the smaller compartment has an inside dimension of approximately three feet long and eight feet wide. The base and sidewalls of the tank are constructed of reinforced concrete approximately eight inches thick. The smaller compartment was used to capture materials such as oil, water, and small quantities of cleaning fluids, torpedo fuel (Otto fuel) and combustion by-products that were historically discharged to it via floor drains from Building 179. The larger compartment was used as a "quench" tank for combustion gasses produced from torpedo tests conducted within Building 179. When used, the larger compartment in the concrete UST (e.g., the "quench" tank) was filled with water and served to absorb water soluble exhaust gasses such as hydrogen cyanide (HCN) and ammonia (NH_3) produced from torpedo exhaust emissions. Prior to abandonment, the concrete UST held two stainless steel tanks placed inside the concrete UST during 1992, at which time the concrete UST was cleaned. The smaller of the two stainless steel tanks had a nominal capacity of approximately 500 gallons while the larger tank had a nominal capacity of 1,500 gallons. A concrete wall separated the two stainless steel tanks. The

smaller of the two stainless steel tanks had served to temporarily store fluids produced inside Building 179 test cells. The larger of the two stainless steel tanks served as a quench tank for torpedo tests conducted within Building 179. The tank contents were pumped to a 6,000-gallon aboveground hazardous waste storage tank at the conclusion of each test. Since materials were present in the stainless steel tanks for the duration of a torpedo test only, each of these tanks was classified as a process flow-through tank by the Rhode Island Department of Environmental Management (RIDEM) as documented in a 9 March 1995 letter in accordance with RIDEM regulation DEM-DWM-UST05-93. A copy of the 9 March 1995 letter is provided with background information in Appendix A.

2.2 Regulatory History

The identification of soil and ground water contamination in the vicinity of the CUST was first observed in August 1995 during Closure Assessment soil sampling and monitoring well installation activities. The Closure Assessment was performed as a result of the aforementioned 9 March 1995 letter from the RIDEM in response to NUWC Division, Newport's request to remove the subject CUST from the list of registered underground storage tanks. The Closure Assessment is discussed in Section 2.3.1 1995 Closure Assessment. As a result of the August 1995 Closure Assessment, the RIDEM instructed NUWC Division, Newport, by letter dated 4 October 1995, to perform a Remedial Investigation (RI) at the subject CUST in accordance with Section 8.0 of the Rules and Regulations for the Investigation and Remediation of Hazardous Materials Released, DEM DSR, 31 March 1993. In response to this requirement, TRC Environmental Corporation (TRC), under contract to NUWC Division, Newport, prepared a Remedial Investigation Work Plan in October 1996 to assess the nature and extent of contamination resulting from the CUST.

Prior to initiation of remedial investigation activities outlined in the October 1996 Work Plan, a series of soil and ground water samples were collected to support the reconstruction of B-179. Information on the soil and ground water characterization activities conducted to support the reconstruction of the building are described in Section 2.3.2. B-179 remediation activities including soil excavation, off-site disposal, and tank closure were conducted at the same time as

the B-179 Remedial Investigation. B-179 remediation and tank closure activities are described in Section 2.3.3.

2.3 Previous Environmental Investigations

2.3.1 1995 Closure Assessment

As a result of a request by NUWC Division, Newport to remove the Building 179 CUST from RIDEM's list of registered underground storage tanks, RIDEM required NUWC Division, Newport to conduct a Closure Assessment by letter dated 9 March 1995 (see Appendix A). The Environmental Compliance Group, Inc. (TECG) was retained by NUWC Division, Newport to conduct a Closure Assessment at the subject UST in June 1995.

The Closure Assessment was prepared by TECG in accordance with the July 1992 RIDEM Closure Assessment Guidelines and in accordance with TECG's Work Plan as approved by Mr. T. Epstein of RIDEM's UST Section in a letter dated 7 June 1995. The scope of the Closure Assessment included an evaluation of site conditions, installation of four soil borings and three ground water monitoring wells, collection and laboratory analysis of soil and ground water samples, and the preparation of a Closure Assessment Report.

Following evaluation of existing site conditions TECG installed four soil borings (B-1, B-2, B-3, and B-4) using standard hollow stem auger drilling techniques immediately to the north, east and south of the concrete UST. Borings were installed within approximately five feet of the edge of the concrete UST. Standard two-foot split spoon soil samples were collected from three of the four borings at five-foot intervals. Continuous split spoon samples were collected from the fourth boring (B-4). Following completion of the borings, three-overburden ground water monitoring wells (MW-1, MW-2, and MW-3) were installed in three of the borings. Two-inch diameter PVC monitoring wells were installed with ten-foot screened intervals established from two to 12 feet below ground surface. Boring logs indicate that the lower two feet of each of the three monitoring wells penetrated medium dense weathered bedrock. The locations of the three monitoring wells and four soil borings installed by TECG are shown on Figure 3.

A total of three soil samples were collected on 21 June 1995 from the 10 to 12 foot depth at boring locations B-1, B-2, and B-3. These samples were analyzed for volatile organic compounds (VOCs), cyanide, and cadmium by IEA Laboratory, Inc. of Billerica, Massachusetts. Soil samples were also analyzed for propylene glycol dinitrate (PGDN) a component of Otto fuel, by the Indian Head Division of the Naval Surface Warfare Center (NSWC) at Indian Head Maryland.

Three ground water samples were collected from MW-1, MW-2, and MW-3 on 12 July 1995 and analyzed for the same constituents as the soil samples by the same set of laboratories. During ground water sampling, TECG personnel observed evidence of ground water contamination (odor and yellow coloration) at MW-2. Following completion of the TECG report, additional confirmatory ground water sampling was conducted on 18 August, 25 August, and 5 October 1995. A tabular summary of ground water data is provided with background information in Appendix A.

Total VOCs less than 0.7 parts per million (ppm) were detected in the soil sample from boring B-2. VOCs detected in soil boring B-2 included the aromatic compounds 1,2,4-trimethylbenzene, n-butylbenzene, 1,3,5-trimethylbenzene, methylene chloride, and p-isopropylbenzene. Only trace quantities of methylene chloride (less than 15 parts per billion or ppb) were detected in the remaining two soil boring samples. Cadmium, cyanide and PGDN were not detected in the soil samples. A tabular summary of the soil data is provided with background information in Appendix A.

A number of chlorinated VOCs were detected in ground water at each monitoring well. Total VOC concentrations ranged from 10.4 ppm at MW-3 (18 August 1995) to 333 ppm at MW-2 (12 July 1995). In general, the elevated concentration of chlorinated VOCs detected at MW-2 is consistent with observations of discoloration and odor observed at this well.

TECG concluded the following in its August 1995 Closure Assessment report:

> *"Based upon the results of sampling and analysis, there is evidence that a release has occurred in the vicinity of the concrete pits. Results of this Closure Assessment suggest that both soil and groundwater contamination are present at the site. Sample data indicates that groundwater contamination appears to be more of a concern than soil contamination."*

The RIDEM responded to TECG's August 1995 Closure Assessment report by letter dated 4 October 1995, a copy of which is provided with background information in Appendix A. In summary, RIDEM agreed with TECG and requested additional investigation as well as the abandonment of the three monitoring wells on-site. Following receipt of the 4 October 1995 letter, NUWC Division, Newport initiated a contractual agreement to abandon the three TECG monitoring wells to alleviate the concern expressed by RIDEM in comment 1 in the 4 October 1995 letter. While the premise for the comment has not been validated (e.g., "...that well installation has opened a clear path for contaminants through the (potentially) impermeable clay layer...") NUWC Division, Newport selected abandonment in accordance with Section 9.0 of RIDEM's Rules and Regulations for GROUNDWATER QUALITY, July 1993, as a means of averting potential cross contamination concerns. Monitoring well abandonment was conducted on 21 November 1995 and was observed by a RIDEM staff member.

2.3.2 Building 179 Reconstruction

As indicated above NUWC Division, Newport reconstructed B-179 concurrent with the B-179 Remedial Investigation. To assess existing conditions and plan for the proper handling and management of impacted soils and water NUWC Division, Newport tasked TRC Environmental Corporation (TRC) with identification of the nature and types of contamination likely to be encountered during the B-179 reconstruction process. To achieve this objective TRC installed a series of five soil borings and three monitoring wells within the area to be affected by the reconstruction process. Reconstruction monitoring wells R179-MW1, R179-MW2, and R179-MW3, and soil borings R179-B1 through R179-B5 were installed in accordance with Standard Operating Procedures (SOPs) provided in Appendix B of the B-179 Remedial Investigation Work Plan. These explorations were conducted to assess subsurface soil characteristics and the nature of soil contamination prior to the initiation of building reconstruction activities. The

location of the reconstruction borings and monitoring wells are shown on Figure 3. Laboratory data sheets, chain-of-custody records, soil boring logs, and a tabular summary of analytical data from the November 1995 exploration program is provided with background information in Appendix A.

Continuous 2-foot split-spoon samples were collected from each soil boring. A single sample from R179-B1, and one soil sample from each boring which generally exhibited the greatest potential contamination was quantitatively analyzed for contaminants of concern identified in the October 1996 Work Plan. Contaminants of concern included volatile organic compounds (EPA Method 8260), total petroleum hydrocarbons (TPH) (EPA Method 418.1), cyanide (EPA Method SW-846 9010) and propylene glycol dinitrate (PGDN), a component of Otto Fuel II.

Total VOCs detected in soil boring R179–B1 and monitoring well boring R179-MW2 ranged from 46.7 to 293 parts per million (ppm), TPH ranged from 3,600 to 8,400 mg/kg at these two locations. 1,1,1-Trichloroethane comprised the majority of the VOCs detected in the soil samples. The remaining soil samples contained total VOC concentrations ranging from non-detect to 0.27 ppm and TPH concentrations ranging from 11 to 87 ppm.

Three ground water samples were collected from the three newly installed wells (R179-MW1, R179-MW2 and R179-MW3) on 17 November 1995 and analyzed for the same constituents as the soil samples. The results of the ground water analyses indicate that only monitoring well R179-MW2 contained detectable concentrations of VOCs. As indicated on Figure 3, monitoring well R179-MW2 is located off the northeastern corner of B-179. 1,1,1-Trichloroethane and 1,1-dichloroethane were detected in monitoring well R179-MW2 at concentrations of 72 and 6.5 ppm, respectively. TPH was detected in each of the wells at concentrations ranging from 0.38 to 91 ppm. Cyanide and PGDN were also detected in monitoring well R179-MW2 at concentrations of 0.4 ppm and 116 ppm, respectively. In general, the elevated concentrations of VOCs and TPH detected at monitoring well R179-MW2 are consistent with observations of soil discoloration and odor observed during sampling. The detection of 1,1,1-trichloroethane in monitoring well R179-MW2 exceeds the Class GB groundwater objective of 3.1 ppm as well as the GA objective of 0.2 ppm established by RIDEM's Remediation Regulations.

A second exploratory investigation was performed by TRC in April 1996 to evaluate the soil characteristics directly beneath Building 179. The sub-slab exploratory investigation included the completion of nine soil borings (R179-B6 through R179-B14) through the floor of Building 179 and the selection of one soil sample from each soil boring for laboratory analysis. The soil borings were located adjacent to former floor drains in order to investigate the impact that these drains may have had on surrounding soils. Each soil sample was submitted for quantitative analysis of VOCs, SVOCs, cyanide, TPH, and PGDN. An exploration location figure, laboratory data sheets, chain-of-custody records, soil boring logs, and a tabular summary of analytical data from the April 1996 subslab investigation is provided with background information in Appendix A.

The results indicated that VOCs were detected in soil samples collected from three of the boring locations. Acetone, 1,1,1-trichloroethane, ethylbenzene, and total xylene was detected in at least one of the five samples. While none of the VOCs, SVOC, or cyanide are present at concentrations exceeding the State of Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Materials and Releases for soils present within Class GB ground water areas, 1,1,1-trichloroethane was detected at concentrations exceeding the limit established at 40 CFR 268 for hazardous wastes which are restricted from land disposal. A brief discussion of NUWC Division, Newport's hazardous waste determination relative to site soil is provided in Section 2.5. In addition, TPH was detected at concentrations ranging from 20 to 7,500 ppm. The highest concentrations of TPH exceed the RIDEM Remediation Regulation standards for residential direct contact (500 ppm), industrial/commercial direct contact (2,500 ppm) as well as class GA and Class GB ground water leachability criteria of 500 and 2,500 ppm respectively. RIDEM Remediation Regulation standards are discussed in further detail in Section 4 with respect to contaminant concentrations detected on-site.

2.3.3 Building 179 Remediation and Tank Closures

Following completion of preliminary investigations discussed above, Foster Wheeler Environmental Corporation (FWENC), under contract to the Naval Facilities Engineering Command, Northern Division (NAVFAC NORTHDIV), conducted a program of soil excavation and tank closure activities to allow the reconstruction of B-179. A portion of the FWENC

reports summarizing these work activities is provided in Appendix A. A brief summary of the reports is provided below.

Building 179 Remediation

Remedial activities conducted by FWENC in accordance with an approved 18 July 1997 Work Plan included; concrete slab demolition and removal, in-situ characterization of soils to be excavated, railroad track removal, treatment of ground water produced from construction dewatering, soil excavation, post-excavation soil sampling, CUST closure-in-place, transportation and disposal of wastes, and site restoration. These activities were initiated by FWENC following partial demolition of B-179 by the NUWC Division, Newport demolition contractor.

FWENC removed a total of 220.27 tons of concrete floor slab from B-179. Of this total, 139.2 tons was classified as RCRA Waste Code F002 due to the presence of 1,1,1 trichloroethane and was disposed as hazardous waste at the Wayne Landfill in Belleville, Michigan. The remaining 81.03 tons of concrete was disposed as a non-hazardous waste at the Bardon Trimont Landfill in Stoughton, Massachusetts, and at the Fall River Landfill in Fall River Massachusetts.

FWENC pre-characterized soil underneath B-179 prior to excavation through the collection and analysis of a series of geoprobe samples. Following characterization, FWENC excavated a total of 2,138.34 tons of soil from excavation grids numbered 1 through 19 as indicated on Figure 3. Of this total, 160.13 tons of soil were classified as non-hazardous and were disposed at the Fall River Landfill in Fall River Massachusetts. The remaining 1,978.21 tons of soil were shipped to Stablex Canada, Inc. in Quebec Canada and to Wayne Disposal in Michigan.

During soil excavation construction dewatering wastewater was routed to an on-site water treatment system prior to disposal into the City of Newport sanitary sewer system. Filter media from the treatment system was disposed at the Ensco Incorporated facility in El Dorado, Arkansas. Project documentation to support this work is available from NORTHDIV NAVFAC Remedial Action Contract N62472-94-D-0398 Delivery Order 013C as indicated on the Draft

Project Close-Out Report for Building 179 Remediation at Naval Undersea Warfare Center (NUWC) Newport, Rhode Island provided with background information in Appendix A.

Tank Removal and Closure

The objectives of this portion of FWENC's work included: in-place closure of the CUST, soil removal adjacent to the CUST, removal of an interceptor tank associated with the CUST, disposal of waste generated and restoration of the affected areas. As stated in the report provided in Appendix A, FWENC documented the in-place closure of the CUST and the removal of the interceptor tank in accordance with RIDEM Regulation DEM-DWM-UST05-93, Section 15.10.

On January 12, 1998 FWENC removed the two stainless steel tanks inside the CUST. The tanks were recycled for their stainless steel content by NUWC Division, Newport. After removal of the stainless steel tanks the concrete UST was cleaned using a 3,000-psi steam cleaner. Concrete chip samples were collected from each wall and the floor of the tank prior to closure-in-place. Closure-in-place was completed by the use of a flowable fill comprised of sand, gravel, water, cement and a plasticizing agent to increase flowability. After closure with the flowable fill, the CUST was capped with a 3,000-psi concrete slab reinforced with a wire mesh.

Additional soil excavation was conducted by FWENC immediately adjacent to the CUST. A total of 115.12 tons of soil were excavated from the north, south, and eastern edges of the CUST to a depth of approximately 9.5 feet below ground surface. During closure activities a concrete interceptor tank was identified adjacent to the CUST and appeared to be connected to the CUST. FWENC removed 1,100 gallons of fluid and sludge from the tank, cleaned the tank interior with a 3,000-psi steam cleaner and removed another 100 gallons of decontamination rinse water prior to removal and disposal of the interceptor tank and associated piping. FWENC removed 87.55 tons of soil and debris during the interceptor tank removal. Project documentation to support this work is available from NORTHDIV NAVFAC Remedial Action Contract N62472-94-D-0398 Delivery Order 013C as indicated on the Final Project Closure Report for Building 179 Tank Closures at Naval Undersea Warfare Center (NUWC) Division, Newport, Rhode Island provided with background information in Appendix A.

2.4 · Regional Environmental Setting

2.4.1 Geologic Setting

Regional geology for the NUWC Division, Newport portion of the Newport Naval Complex is presented below as obtained from the McAllister Point Landfill Remedial Investigation report. The McAllister Point Landfill is located a little over one half-mile north-northwest of the B-179 project site at NUWC Division, Newport. Much of the regional information within the McAllister Point landfill Remedial Investigation report was obtained from an Initial Assessment Study (IAS) report, and is referenced as such with page numbers that follow the excerpts. Note that the discussion, as extracted, refers to the Naval Education and Training Center (NETC), the former name of Naval Station Newport (NSN) and the Naval Undersea Systems Center (NUSC), the former name of NUWC Division, Newport.

Regional Geology

NETC is located at the southeastern end of the Narragansett Basin. This basin is a complex synclinal mass of Pennsylvanian aged sedimentary rocks and is the most prominent geologic feature in eastern Rhode Island and adjacent Massachusetts. Narragansett Basin is an ancient north to south trending structural basin originating near Hanover, Massachusetts. The basin has a length of approximately 55 miles and varies from 15 to 25 miles wide. The western margin of the basin is in the western portion of Providence, Rhode Island, and the eastern margin runs through Fall River, Massachusetts. Exposures of older rocks on Conanicut Island and in the vicinity of Newport suggest that the southern extent of the basin is near the mouth of Narragansett Bay.

The rocks of the Narragansett Basin are non-marine sedimentary rocks of Pennsylvanian age. The rocks are chiefly conglomerates, sandstones, shales, and anthracite. Total thickness of the strata in the Narragansett Basin has been estimated at 12,000 feet. Both vertical and lateral irregularities in the lithologic character of the rock are present within the basin. Many folds and some faults occur throughout the basin, but the character and amount of the folding and faulting are not clearly known. The sedimentary rocks of the basin are believed to have been deposited in a lowland area which was surrounded by an upland area of considerable relief. The presence of coal beds within the basin also indicates that there were fairly extensive swampy areas…

The bedrock of the Narragansett Basin has been divided into the following five units: the Rhode Island Formation, Dighton Conglomerate, Wansulta Formation, Pondville Conglomerate, and Felsite at Diamond Hill. AT NETC and most of the surrounding area, the bedrock is entirely of the Rhode Island Formation, and thus, only this unit will be examined in detail…

The Rhode Island Formation is the most extensive and thickest of the Pennsylvania formations in Rhode Island. The vast majority of the Narragansett Basin is underlain by this formation. Included within the Rhode Island Formation are fine to coarse conglomerate, sandstone, lithic graywacke, graywacke, arkose, shale and a small amount of meta-anthracite and anthracite. Most of the rock is gray, dark gray, and greenish, but the shale and anthracite are often black. Crossbedding and irregular, discontinuous bedding is characteristic of the formation. Rocks of the Rhode Island Formation, which are in the northern portions of the basin, are strong and indurated but are not metamorphosed. However, those rocks in the southern portion of the basin, such as the NETC, are metamorphosed, and these rocks contain quartz-mica schist, feldspathic quartzite, garnet-staurolite schist, and some quartz-mica-sillimanite schist. The beds of meta-anthracite and anthracite are mostly thin, but many areas within basin have been mined. Vein quartz, fibrous quartz, and pyrite are commonly associated with these coal layers, and the ash content is high.

Within the Rhode Island Formation, there are a few areas of thick conglomerates. These conglomerate layers are gray to greenish in color and are mostly very coarse. These conglomerates consist of pebbles, cobbles, and boulders (up to several feet long), interbedded with sandstone and graywacke. The stones are predominantly quartzite and have been elongated as a result of tectonic forces in the southern portion of the basin. These thick conglomerate layers are more resistant to erosion than are the surrounding rocks and thus, are topographically higher. Coasters Harbor Island is mostly covered with this conglomerate material.

Throughout the Narragansett Basin, the Pennsylvanian rocks are underlain by pre-Pennsylvanian igneous and metamorphic rocks such as Bulgarmarch granite, Metacom granite gneiss, porphyritic granite and slate and quartzite. For the most part, these basement rocks are deeply buried beneath the Pennsylvanian rocks. However, these older rocks occur north of NETC in the Bristol area and south of NETC in the Fort Adams and Newport Neck areas and on the southern tip of Conanicut Island. Rose Island and Goat Island also have older metamorphic rocks of slate and quartzite.

Overlying the Pennsylvanian rocks of the Narragansett Basin are surficial deposits of Pleistocene sediments. These Pleistocene sediments owe their origin to the Wisconsin glaciation which covered the area with ice several thousand feet thick. As the glaciers receded some 10,000 to 12,000 years ago, they deposited unconsolidated glacial materials of variable thicknesses throughout the Narragansett Basin area. The unconsolidated glacial material ranges from 1 to 150 feet thick, being thicker in the valleys and thinner in the uplands. The glacial material consists of till, sand, gravel, and silt. These glacial deposits were derived from shale, sandstone, conglomerate, and in a few places, coal. The glacial materials serve as the parent materials for the soils in the area. Areas where sand and gravel were deposited serve as important regional mineral sources. . . .
(IAS, pp. 5-18, 5-21)

Much of the geologic information contained in this section was obtained from Geological Survey Bulletin 1295 (Quinn, 1971). . . .
(IAS, pg. 5-21)

Site Geology

The following site-specific geology was extracted from the Building 179 Soil Remediation Conceptual Design report, August 1996.

As described above, a total of 18 soil borings and three monitoring well borings have been installed in the area of Building 179. In general, three subsurface geologic units were encountered in each boring. These units included a surficial sandy fill underlain by dense glacial till followed by weathered shale bedrock. The surficial unit consisted of loose to medium dense brown sandy fill, with variable quantities of silt and gravel. This unit was encountered in each boring to a depth of approximately two feet below ground surface. The presence of this surficial fill material is generally consistent with observations of surface topography in the area of interest. The sandy fill material is underlain by a dense grey silt with variable quantities of sand, clay, and gravel to a depth of approximately ten feet below ground surface. This material may be classified as till. Till is generally characterized by a poorly sorted mixture of clay to gravel size particles bound within a relatively tight matrix. The geology within the vicinity of the concrete UST as described above is generally consistent with other soil borings conducted in the general vicinity. The thickness of weathered bedrock and depth to competent bedrock is not known at this time.
(B-179 Soil Remediation Conceptual Design pg. 10-11)

2.4.2 Hydrologic Setting

Regional surface water and ground water hydrology for the NUWC Division, Newport portion of the Newport Naval Complex is presented below as extracted from the McAllister Point Landfill Remedial Investigation report. Much of the regional information in the McAllister Point Landfill Remedial Investigation report was obtained from an Initial Assessment Study (IAS) report, and is referenced as such with page numbers that follow the excerpts.

Regional Surface Water Hydrology

NETC is located within the Narragansett Bay Drainage Basin. This drainage basin covers an area of 1,850 square miles, 1,030 square miles of which are in Massachusetts and 820 square miles of which are in Rhode Island. All surface water drainage from the basin is into Narragansett Bay. Three major rivers, the Taunton, Blackstone, and Pawtucket, as well as the Providence River and a number of smaller rivers and streams, drain into Narragansett Bay. Discharge from Narragansett Bay is into the Atlantic Ocean between Point Judith and Sakonnet Point in Rhode Island.

Throughout NETC, the surface drainage is westward toward Narragansett Bay with the exception of one area in Tank Farm #2 which drains eastward into Melville Reservoir. Surface drainage at NETC is provided by the Melville Ponds, Normans Brook, Lawton Brook and Reservoir, Gomes Brook, a stream and pond in the northeastern portion of NUSC, and a stream discharging into Coasters Harbor... All these streams discharge into Narragansett Bay.

The Melville Ponds have been disposed of by GSA and are now part of the Melville Public Fishing Area.

While these streams and ponds receive drainage from many of the areas within NETC, a substantial portion of the NETC area drains directly into Narragansett Bay or infiltrates into the soil before reaching a stream or body of water. Direct runoff into Narragansett Bay would especially occur following thunderstorms. . . .

(IAS, pp. 5-26, 5-28)

The potential for pollutant migration by surface drainage at NETC is greatly increased by its proximity to Narragansett Bay. Many of the waste disposal areas, such as the McAllister Point landfill, Melville North disposal site and Gould Island disposal site, are located right along the shoreline of Narragansett Bay. Surface drainage from these areas is directly into the bay. The NETC area is frequently subjected to thunderstorms during which intense periods of rainfall are common. Surface drainage into the bay would be greatest following these thunderstorms.

Pollutants from these portions of NETC drain into the Melville Ponds, Normans Brook, Lawton, Brook, Gomes Brook, and the NUSC stream and would also migrate off-site. All of the streams discharge directly into Narragansett Bay.

(IAS, pg. 5-34)

Site Surface Water Hydrology

Surface water present in the vicinity of the concrete UST consists of an unnamed stream located, at its closest point, approximately 80 feet east of the concrete UST. This stream is surrounded by low-lying areas, delineated in select sections as freshwater wetlands, to the southeast, east, and northeast of the concrete UST. On the northeast and north side of Building 179, the wetland system surrounding the stream organizes into a more distinctive channel until it flows into a man-made pond further north and topographically downgradient of the site within the NUWC Division, Newport fence-line. Several storm-water outlets originating from NUWC Division, Newport and adjacent properties feed the unnamed stream and associated wetland system.

Regional Hydrogeology

The regional ground water hydrology for NETC Newport is presented below. Much of the regional information was obtained from the IAS report, and is referenced as such with page numbers that follow the excerpts.

> Many areas on Aquidneck Island, on which NETC is located, obtain their water supply from wells. Areas relying on ground water are mostly north of the Middletown area, but there are wells throughout the entire island. Most ground water is used for domestic needs, although some is used by small industries and businesses.
>
> Ground water on Aquidneck Island is obtained from the unconsolidated glacial deposits of till and outwash and from the underlying Pennsylvanian bedrock. Throughout the area, depth to ground water ranges from less than one foot to about 30 feet, depending upon the topographic location, time of year, and character of subsurface deposits. The average depth to the ground water is around 14 feet on Aquidneck Island and moves from areas of high elevations to Narragansett Bay or the Sakonnet River.
>
> Seasonal water level fluctuations are common in the area. These fluctuations range from less than 5 feet to as much as 20 feet on the hills. In the valleys and lowland areas, the fluctuations are generally less than 5 feet. During the late spring and summer, the water table usually declines as a result of evaporation and the uptake of water by plants, and rises during autumn and following winter thaws.
>
> The unconsolidated glacial deposits range in thickness from less than one foot near the rock exposures to about 50 feet throughout Aquidneck Island. Most of the glacial deposits are till, but isolated outwash areas occur. In the NETC area, the glacial deposits are till with a thickness of less than 20 feet. Wells completed in the till are usually dug and range in depth from less than 10 feet to as much as 75 feet. The average depth for these wells is about 20 feet. These dug wells are usually 2 to 3 feet in diameter and are usually dug down to the top of the bedrock.
>
> The yield of till wells varies considerably depending upon the type and thickness of the water-bearing deposits penetrated. Yields range from less than one to as much as 120 gallons per minute. Under normal weather conditions, till wells yield a few hundred gallons of water per day and are adequate for domestic supplies. The large diameter of dug wells also provides substantial water storage area between periods of use. Each foot of water in a 3-foot diameter well represents storage of 53 gallons. However, these wells are subject to going dry during seasonal or unusual droughts.
>
> Bedrock wells in the area range from 14 to 1,300 feet in depth. The average depth for these bedrock wells is 135 feet. Yields from bedrock wells range from less than one to as much as 55 gallons per minute. Most wells yield less than 10 gallons per minute. The yields vary considerably in the bedrock over short distances because the joints and fractures which transmit water to the wells occur intermittently. Joints and fractures are

most numerous and widest near the top of the bedrock and become fewer and narrower with depth. Bedrock wells seldom go dry, but yields can be extremely low if not enough fractures and joints occur in the area of the well.

The chemical characteristics of the ground water are similar throughout the area, and the water is generally satisfactory for most ordinary uses. Most ground water in the area is soft or only moderately hard, with ground water from till generally containing less mineral matter and being softer than ground water from bedrock. Areas where the ground water has high iron content are scattered throughout the area, being most numerous around Newport and Middletown and the northern part of Portsmouth. Wells which have a high iron content usually penetrate only rocks of Pennsylvanian age.

In scattered locations near the shoreline, over-pumping has led to salt water intrusion in some wells. Bedrock wells are not as easily contaminated with salt water as are till wells, but the chance of contamination increases as the depth of the well below sea level increases.

No wells were identified within the boundaries of NETC other than on Gould Island, although there are numerous wells in close proximity. These wells are upgradient of NETC. . . .

(IAS, pp. 5-31 to 5-34)

The ground water at NETC is very shallow, being less than 10 feet below the surface in most areas. This shallow depth makes ground water contamination at NETC very possible. Those pollutants which do find their way into the ground water would migrate to the west and discharge into Narragansett Bay. NETC extends along the western shoreline of Aquidneck Island, and the ground water only has to migrate a short distance before discharging into Narragansett Bay.

The soils occurring at NETC have permeabilities which are moderate to moderately rapid, and they do not restrict the vertical movement of water. The glacial till, from which these soils were derived, is generally less permeable than the overlying soils but does not represent a barrier to the vertical migration of water. Therefore, it is possible that any contaminant transported in this water could contaminate the ground water. There are also isolated areas where the bedrock occurs at the surface. Contamination is possible in these areas through the cracks and fissures which commonly occur in the bedrock.

(IAS, pg. 5-34)

Site Hydrogeology

The following information was extracted from the B-179 Concrete UST Remedial Investigation Work Plan.

Groundwater was encountered in each of three monitoring wells (MW-1, MW-2, and MW-3) in July 1995 at depths ranging from 6.8 to seven feet below the top of the PVC casing. Based on a lack of elevation information and the close proximity of the monitoring wells, the direction of groundwater flow in the immediate vicinity of the subject UST could not be confirmed. However, based on inferences drawn from groundwater contaminant concentrations, and taking into consideration surface topography and drainage patterns in the area of interest, groundwater is inferred to flow to the east towards discharge at or near the stream in the wetland area to the east of the subject UST.

In order to estimate the potential extent of groundwater impact resulting from the subject UST, a form of Darcy's law may be employed along with estimates of porosity and hydraulic conductivity to estimate groundwater flow velocity as follows:

$$v = Ki/n$$

where	v	=	average groundwater flow rate (ft/day)
	i	=	hydraulic gradient (unitless or ft/ft)
	n	=	effective porosity (unitless)
	K	=	hydraulic conductivity (ft/day)

The hydraulic conductivity of the till unit is estimated to be on the order of 0.3 to 1.6 feet per day. Based on available topographic information the hydraulic gradient in the area of the tank is estimated to be on the order of 0.01 ft/ft to 0.025 ft/ft. Based on available information, the effective porosity defined as the ratio of void spaces to total soil volume is estimated to be 0.34 (34 percent) for the till unit (Groundwater Hydrology, 1980; USGS Report 91-481).

Using the values above, the average groundwater flow rate is conservatively estimated to flow at an average rate of approximately 0.01 to 0.12 feet per day (3 to 43 ft/yr) at the site. However, flow rates may vary in localized areas due to both natural variations in subsurface soils and due to the influence of manmade features such as fill material and subsurface structures and pipelines.

Area Water Use

The following information was extracted from the McAllister Point Landfill Remedial Investigation report.

Public water in the City of Newport and Town of Middletown is supplied and managed by the Newport Water Department. The Town of Portsmouth purchases water from the Newport Water Department but operates its own distribution system. Approximately two thirds of Portsmouth is serviced by public water with the remaining one-third supplied water from private water wells. While no specific records exist as to private well use in the information reviewed, in general, the majority of private wells are reportedly located on the eastern portion of Aquidneck Island (Personal Communication, Town of Portsmouth, 1992).

The Newport Water Department receives its water supply from a series of seven surface water reservoirs located on Aquidneck Island and two surface water reservoirs (Tiverton and Fall River) on the mainland. The seven surface water reservoirs on Aquidneck Island are:

1. Lawton Valley Reservoir,
2. St. Marys Pond,
3. Sisson Pond,
4. Easton North Pond,
5. Easton South Pond,
6. Paradise or Nelsons Pond, and
7. Gardners Pond.

Each of these reservoirs is supplied water via rainfall and runoff and is not augmented by ground water supply wells. The Newport Water Department stated that the safe yield of the reservoir system is approximately 11 to 13 million gallons per day (MGD). Water use in 1991 was 7.07 MGD, and adequate capacity reportedly exists for projected water usage on Aquidneck Island for the next ten to twenty years, or more (Personal Communication, Newport Water Department, 1992)...

The Prudence Island Utilities Company supplies ground water to approximately 800 people on Prudence Island, Portsmouth, located east and off-shore of the Melville area.

The locations of known public ground water supply wells and surface water reservoirs within the NETC Newport vicinity are shown on Figure 3-10. The locations of ground water supply wells were obtained from the February, 1992 RIDEM Ground Water Section Facilities Inventory map for the Prudence Island quadrangle (USGS). The map shows the locations of known public ground water supply wells, in addition to known or suspected sources of ground water contamination. RIDEM Ground Water Section personnel indicated that the location of the supply wells within the Prudence Island Quadrangle had been field verified by RIDEM personnel.

Private wells are reported to withdraw water from till, bedrock, and stratified-drift aquifers. Of these aquifers, bedrock is considered the most reliable source of ground water, and well yields are commonly sufficient for domestic supplies (Johnston, U.S.G.S., undated).

The location, depth, and yield of private bedrock wells in the Newport and Prudence Island Quadrangles are shown on Figures 3-15 and 3-16 as obtained from the IAS report. The IAS report indicated that bedrock wells in the area range from approximately 14 to 1,300 feet deep. Well yields from 55 gallons per minute (GPM) to less than 1 GPM are reported in the IAS report.

2.4.3 Ground Water Classification

RIDEM has classified ground water quality for the majority of the property occupied by NUWC Division, Newport at Newport, Rhode Island as class GB. RIDEM also has classified a portion of the northeastern part of the NUWC Division, Newport property as class GA. In general, the distinction between the GB and GA designated ground water areas appears to relate to land use whereby developed areas, such as the B-179 vicinity, are classified GB, where undeveloped areas, such as the adjacent unnamed stream/wetland zone, are classified GA. Based on the developed nature of the property surrounding the concrete UST this area appears to fall within the Class GB ground water designation. In accordance with RIDEM Rules and Regulations for Groundwater Quality, Regulation 12-100-006, August 1996, ground water classified GA and GB are defined as:

GA *"Groundwater classified GA shall be those groundwater resources which the Director has designated to be suitable for public or private drinking water use without treatment and which are not described in Rule 9.01(a)(1)-(3).*

GB *"Groundwater classified GB shall be those groundwater resources which the Director has designated not suitable for public or private drinking water use. Groundwater located beneath the following areas may be classified GB:*

(1) Highly urbanized areas of the state with dense concentrations of industrial and commercial activity;

(2) The permanent waste disposal area at sites of the following facilities:

(i) *Inactive landfills and inactive land disposal sites for solid waste, hazardous waste, and/or sewage sludge;*

(ii) *Active sites for the land disposal of sewage sludge, unless such disposal site is associated with a licensed solid waste landfill;*

(3) *The area immediately surrounding the permanent waste disposal area, which the Director has determined is not suitable for public or private drinking water use, at the following inactive and active facilities: landfills, land disposal sites for solid waste, hazardous waste, and sewage sludge.*

2.4.4 Ecological Setting

The following information was extracted from the McAllister Point Landfill remedial Investigation report.

> The southern portion of the base is heavily industrial with machine shops and other support facility operations. The north portion of the base is divided in land usage between residential, vacant (held for expansion), tank farms, and storage-fueling facilities (industrial). There are no land areas on NETC which have not been disturbed at some time during base operations. . . .
>
> Southern Rhode Island has relatively few forests of mature climax successional stage. Fires, logging, and the agricultural conversion of forest land prior to the Civil War have greatly reduced the extent of climax forest acreage. The predominant forest vegetation in southern Rhode Island is that of abandoned fields in early successional stages, and forests of immature hardwoods. Pure stands of mature softwoods are the least abundant. . . .
>
> The upland vegetation within the NETC is restricted primarily to perennial weeds and grasses. The majority of trees is located near residences, drainageways and around the tank farms. The upland vegetation of NETC reflects complete management (mowing) or recent disturbance of the area.
>
> The habitats available for lowland vegetation on the NETC are located on the waterfront along Narragansett Bay and surrounding the small impoundments and their drainage further inland. Those areas located on the waterfront are comprised of borrow pits along the railroad tracks and abandoned disposal areas where excavation has created depressions.
>
> The largest of these depressions is the Melville North landfill. This area was excavated during landfill operations and depressions were created. These depressions support a limited diversity of wetland flora including reeds and various shrub and grass species. Borrow pits can be found along the railroad tracks which parallel the shoreline extending from McAllister Point northward to the Melville North landfill. These are individually less than one acre in size and contain similar wetland species with a lack of diversity.

All lowlands on NETC have been artificially created and are in a disturbed condition. The potential for maintaining diversified floral species within the lowlands of NETC is poor. This area did not previously contain these habitats, and sills and drainage are not conducive to their successional development.

The fauna of the region have been affected by similar disturbances (clearing, excavation, construction) which led to the impoverishment of the flora. Field studies have indicated impoverished fauna, particularly of herptile and mammal types. Widespread habitat destruction over a period of several hundred years has caused emigration or elimination of many species. As a result, the present regional fauna consist primarily of species of wide distribution and ecological tolerances, high adaptability, and nonrestrictive habitat requirements.

No large animals such as deer, turkey, or cougar are known within the boundaries of NETC. However, red fox, raccoon, rabbit, and gray squirrel are present in the woodlands.

Mammalian forms expected to be found on base include: the Eastern chipmunk, New England cottontail rabbit, white-footed mouse, short tailed shrew, gray squirrel, and red squirrel. Several of these species inhabit the few remaining wooded areas on base slated to be excessed.

Various herptiles occupy NETC habitats. Common ones include the red backed salamander, American toad, wood frog, eastern gartersnake, northern black racer and the wood turtle.

Common herptiles of the wet areas include the American toad, spring peeper, bullfrog and northern watersnake (Natrix sipedon), along with the snapping turtle.

Avian species which may be found within the NETC upland habitats include the bobolink, meadowlark, chimney swift, kingbird, eastern phoebe (Sayorius phoebe), barn shallow, red-tailed hawk and kestrel.

In addition, game birds, such as the ring-necked pheasant, bobwhite quail and the mourning dove, are highly dependent on the plant communities on the base.
(IAS, pp. 5-37 to 5-39)

2.5 Waste Characteristics

Information available at the time of the Remedial Investigation suggest the following are the primary constituents of concern at the CUST, presented in order of decreasing concentration detected on-site:

- 1,1,1 trichloroethane (310 ppm),
- oil constituents (108 ppm),
- methylene chloride (23 ppm),
- chloroethane (20.8 ppm), and
- chloromethane (6.3 ppm).

Additionally, other constituents including carbon disulfide, 1,1 dichloroethane, cadmium, cyanide, and PGDN were found at lower concentrations in site soil and/or ground water.

NUWC Division, Newport's key decisions in the classification of soil excavated during the B-179 reconstruction effort are summarized below:

Non Hazardous Soil: Soil which contains trace quantities of petroleum based constituents such as semi-volatile organic compounds, naphthalene, toluene, xylenes, and trimethylbenzene which would be consistent with historic small quantity spills of fuel oils or petroleum based lubricants. Soil which contained trace quantities of acetone was determined to be non-hazardous based on NUWC Division, Newport's employee interviews and record searches which revealed no evidence that acetone was used for its solvent properties at B-179. Additionally, concentrations of acetone detected in excavated soil were well below the RIDEM Residential Direct Exposure Limit of 7,800 parts per million.

Spent Solvent Impacted (F002) Soil: Based on the historic use of 1,1,1-trichloroethane as a degreasing fluid at B-179, the detection of any quantity of this constituent renders the soil an F002 hazardous waste consistent with EPA's Mixture and Derived-From Rules and Contained-In policy.

Reactive (D003) Soil: Consistent with past practice and broad Naval policy it is NUWC Division Newport's decision that soil containing propylene glycol dinitrate (PGDN) be classified as a reactive (D003) waste material even though analytical test data generated by Foster Wheeler Environmental Corporation's sampling (reactive cyanides - SW846 Method 7.3.3.2 and reactive sulfides - SW846 Method 7.3.4.2) indicated no detectable reactivity.

Spent Solvent Impacted (F005) Soil: Based on the presence of methyl ethyl ketone which may have resulted from spills of this spent solvent which was historically used in small quantities for its solvent properties at B-179. Therefore, the detection of any quantity of this constituent renders the soil an F005 hazardous waste consistent with EPA's Mixture and Derived-From Rules and Contained-In policy.

Properties of one of the primary constituents of concern; 1,1,1-trichloroethane include:

Drinking Water Standards
MCLG (maximum contaminant level goal): 0.2 mg/L
MCL (maximum contaminant level): 0.2 mg/L

Health Effects Summary
Acute: EPA has found that 1,1,1-trichloroethane has the potential to cause damage to the liver, nervous system and circulatory system from acute exposures above the MCL.

Drinking water levels which are considered "safe" for short-term exposures: For a 10-kg (22lb.) child consuming 1 liter per day, a one-day exposure of 100 mg/L; up to a 7-year exposure to 40 mg/L.

Chronic: 1,1,1-trichloroethane has the potential to cause liver, nervous system and circulatory system damage from a lifetime exposure at levels above the MCL.

Cancer: There is inadequate evidence to state whether or not 1,1,1-trichloroethane has the potential to cause cancer from exposures in drinking water.

Environmental Fate
1,1,1-Trichloroethane has a high Henry's Law constant (8X10-3 atm-cu m/mole) and will volatilize rapidly from water and soil with diffusion through the liquid phase controlling volatilization from water. Half-life for evaporation from water obtained from laboratory systems range from a fraction of an hour to several hours. Various estimates of volatilization half-lives range from 5.1-10.6 days for ponds, 3-29 hr for rivers, and 3.8-12 days for lakes.

The adsorption of 1,1,1-trichloroethane to soil is proportional to the organic carbon content of the soil. The mineral content of the soil is not a contributing factor. 1,1,1-Trichloroethane is adsorbed strongly to peat moss, less strongly to clay, very slightly to dolomite limestone and not at all to sand. It has a low adsorption to silt loam (Koc = 183). From the fact that it is not retained in the soil during bank infiltration, and that it is frequently found in groundwater in high concentrations, one can safely conclude that it is not adsorbed strongly by soils, especially subsurface soils. Based upon experimental measurement, the mean Koc range of 1,1,1-trichloroethane in a silty clay soil and sandy loam soil is 81-89.

There is no or very slow degradation in soils. No degradation has been observed in subsurface soils in 27 weeks. However in loamy sand, slow degradation has been observed under acclimated conditions. Slow degradation may occur in water under anaerobic or aerated conditions; degradation may take several weeks and acclimation is important. No degradation in river water has been found. 1,1,1-Trichloroethane degraded to vinylidene chloride as a first step in its biotransformation in microcosms containing aquifer water and sediment collected from uncontaminated sites in the

Everglades. Considerable degradation occurred within two weeks. Field evidence of biodegradation in aquifers indicates a half-life of 231 days.

1,1,1-Trichloroethane has been shown to undergo biotransformation by a reductive dechlorination to 1,1-dichloroethane and chloroethane under methanogenic conditions. Laboratory reactors have demonstrated that 1,1,1-trichloroethane can be biodegraded under anaerobic simulations; it was suggested that in-situ anaerobic biodegradation may be a viable alternative for clean-up for various contaminated soil and groundwater sites.

Hydrolysis is not a significant degradation process having a half-life of approximately 6 months. The product of hydrolysis is vinylidene chloride. Direct photolysis is not important in the troposphere, but is in the stratosphere, and leads to the chemical's rapid degradation. Photodegradation is not observed in water.

The (bioacummulation concentration factor) BCF in bluegill sunfish in a 28 day test was 8.9. This indicates that 1,1,1-trichloroethane has little tendency to bioconcentrate in fish. Although the amount of experimental data for 1,1,1-trichloroethane is limited, confidence in this result is increased because values of BCFs in related compounds are similar.

Chemical/Physical Properties
CAS Number: 71-55-6
Color/ Form/Odor: Colorless liquid with sweet, chloroform-like odor
M.P.: -30.4 C B.P.: 74.1 C
Vapor Pressure: 127 mm Hg at 25 C
Octanol/Water Partition (Kow): Log Kow = 2.49
Density/Specific Gravity: 1.34 at 20 C
Solubility: Soluble in water; 4.4 g/L of water at 20 C;
Soil sorption coefficient: Koc is 81 in silty clay, 89 in sandy loam.
Odor/Taste Thresholds: N/A
Bioconcentration Factor: Low; 8.9 in fish

(EPA Office of Ground Water and Drinking Water Technical Fact Sheet)

3.0 REMEDIAL INVESTIGATION ACTIVITIES

3.1 Introduction

In general, remedial investigation activities were conducted in accordance with the October 1996 Building 179 Concrete UST Remedial Investigation Work Plan, as modified and expanded through discussion and correspondence with RIDEM. To achieve investigation objectives, namely, "...to assess the nature and extent of contamination in the vicinity of the concrete underground storage tank located adjacent to Building 179 at NUWC Division, Newport" work activities were completed in two separate phases. Phase I included a focused program of ground water sampling and analysis through the deployment of Geoprobe™ ground water sampling methodologies as well as completion of both seismic and topographical surveys. Phase I Geoprobe™ explorations were separated into phase IA and phase IB. Phase IA explorations were confined to the area of the former concrete UST and Building 179, and phase IB explorations were expanded to further assess the nature and extent of overburden ground water contamination. Phase II activities included the installation, sampling, and analysis of bedrock and overburden monitoring wells, the collection and analysis of vadose zone soil samples, the completion of in-situ permeability testing and collection and analysis of surface water and sediment samples.

A brief summary of remedial investigation activities is provided below. Topographic survey information is provided in Section 3.2. Geoprobe™ explorations are described in Section 3.3. Seismic survey information is provided in Section 3.4. Subsurface explorations, including soil boring and monitoring well installation information is provided in Section 3.5. Hydrogeologic evaluation information is provided in Section 3.6 and environmental sampling of soil, ground water, surface water, and sediment is described in Section 3.7.

3.2 Topographic Survey

Following completion of site exploration activities, SAI Survey Company (SAI), of Jamestown, Rhode Island conducted a survey of key site features and site topography in September 1999. Survey data was referenced to the Rhode Island State Plan Coordinate System; horizontally, NAD '27, vertically NGVD '29 with conversion formula to US Navy mean low water datum.

In addition to the site topographic survey, SAI re-established the limits of the freshwater wetland located east of Building 179. This wetland delineation was originally established and approved by the RIDEM Division of Freshwater Wetlands pursuant to Preliminary Determination Application No. 91-0247D. The re-establishment of the wetland boundary provided a visual demarcation of the adjacent resource area during site exploration activities.

3.3 Geoprobe™ Survey

Two separate Geoprobe™ surveys (phase IA and IB) were conducted at the site to aid in assessing the nature and extent of ground water contamination of VOCs, the primary contaminant identified in ground water adjacent to the concrete UST. Geoprobe™ surveys utilize a narrow-diameter (1.5-inch diameter) metal rod that is hydraulically advanced below the water table to extract samples of ground water for subsequent on-site and off-site quantitative analysis. This type of assessment allows for rapid collection and analysis of ground water samples to quickly and efficiently delineate the nature and extent of contaminated ground water. For both the phase IA and IB survey one set of ground water samples was analyzed for the presence of VOCs in an on-site mobile laboratory utilizing gas chromatographic analytical techniques. A second smaller subset series of duplicate samples were stored in coolers for quantitative off-site laboratory analysis to verify on-site data results. Both phase IA and IB Geoprobe™ surveys were conducted to assess the nature and extent of overburden ground water contamination originating near the concrete UST. Soil samples were not collected during the Geoprobe™ surveys.

During both phase IA and phase IB Geoprobe™ surveys on-site quantitative analysis was monitored under the quality assurance supervision of an experienced chemist. The temperature, pH, conductivity, and dissolved oxygen content of each ground water sample were measured in the field. Results of the mobile laboratory analysis were used to "fine tune" the placement of monitoring well sampling locations conducted in Phase II as necessary to delineate the nature and extent of ground water contamination in the area of interest.

During the phase IA explorations a series of 34 individual Geoprobe™ explorations (GP-01 through GP-38) were installed between 3 and 6 December 1996. 28 Representative ground water samples were collected from the 34 exploration locations during this field exploration program. Sufficient water to collect a representative ground water sample was unavailable at six Geoprobe™ locations. Ground water samples were quantitatively analyzed for the presence of chlorinated and aromatic volatile organic compounds (VOCs) in an on-site laboratory using gas chromatographic (GC) analytical techniques. Analyte concentrations in ground water samples were quantified on-site using a modified EPA Method 8020 to benzene, toluene, ethyl benzene, and xylenes, and to the following suite of chlorinated VOCs using a modified EPA Method 8010:

- 1,1 dichloroethene,
- 1,1 dichloroethane,
- 1,1,1 trichloroethane,
- 1,1,2 trichloroethane,
- methylene chloride,
- cis 1,2 dichloroethene,
- carbon tetrachloride,
- tetrachloroethene,
- trans 1,2 dichloroethene, and
- trichloroethene.

In addition to the on-site analysis, the ground water samples were analyzed for pH, conductivity, turbidity, dissolved oxygen and temperature immediately upon collection. Six duplicate ground water samples were also sent to a State of Rhode Island approved laboratory for quantitative analysis by EPA Method 8260 to verify the on-site GC results. As indicated in the approved work plan duplicate samples were selected to represent high, median and low VOC concentrations as determined by on-site analysis. Phase IA Geoprobe™ exploration locations and results are shown on Figure 4.

In response to RIDEM comments of 17 April 1998, a second phase of Geoprobe explorations (phase IB) was conducted to further define the nature and extent of overburden ground water contamination identified during Phase IA. In general, the phase IB exploration locations were selected to further refine the extent of overburden ground water contamination to the north

and northeast of the previously identified ground water impacts in an attempt to define the "outer edge' of the overburden ground water plume. However, additional Geoprobe explorations were also installed to address specific comments provided by RIDEM. During the phase IB explorations a series of 71 individual Geoprobe™ explorations (GP-10A through GP-160) were installed between 28 September and 2 October 1998. A total of 56 ground water samples were collected from Geoprobe locations that yielded ground water. Once again, samples were analyzed for the presence of chlorinated and aromatic VOCs in an on-site laboratory using GC analytical techniques in addition to the field analysis for pH, conductivity, turbidity, dissolved oxygen and temperature. Analyte concentrations in ground water samples were quantified on-site to the following suite of VOCs:

- vinyl chloride,
- cis 1,2 dichloroethene,
- benzene,
- toluene,
- ethyl benzene,
- total xylenes,
- 1,1 dichloroethene,
- trans 1,2 dichloroethene,
- carbon tetrachloride,
- 1,1,2 trichloroethane,
- tetrachloroethene,
- methylene chloride,
- 1,1 dichloroethane,
- 1,1,1 trichloroethane, and
- trichloroethene.

Consistent with phase IA procedures seven duplicate ground water samples were also sent to a State of Rhode Island approved laboratory for quantitative analysis by EPA Method 8260 to verify the accuracy of on-site GC results. Duplicate samples were selected to represent high, median, and low concentrations of VOCs detected on-site. Phase IB Geoprobe™ exploration locations and results are shown on Figure 4.

In summary, a total of 84 representative ground water samples were collected from 105 separate Geoprobe™ explorations on-site, and a total of 13 duplicate ground water samples were sent to a state of Rhode Island certified analytical laboratory for quality assurance/quality control verification of on-site gas chromatographic analyses.

3.4 Seismic Survey

The seismic refraction survey was completed to profile the bedrock surface below the site and to assess subsurface conditions prior to the installation of site borings and monitoring wells. The information produced by the survey assisted in identifying subsurface lithology and depth to bedrock. Geophysical Applications Inc., of Foxboro, Massachusetts completed the seismic refraction survey in July 1999.

As indicated in the work plan a seismic refraction survey method is a means of determining the depths to a refracting horizon and the thickness of major seismic discontinuities overlying any high-velocity refracting horizons. Interpretations can be made from travel time curves showing the measurement of the time required for a compressional seismic wave to travel from the source point to a series of vibration sensitive monitoring devices (geophones). Geophones are used to record seismic energy generated mechanically. The measurements allow distinctions to be calculated between various densities of subsurface material making it possible to determine the elevation and contour of overburden and bedrock material.

During the B-179 seismic survey energy was generated with a truck-mounted DigiPulse model EWG-1 weight drop device, by sledge hammer blows on pavement or on an aluminum impact plate, and with a Betsy firing rod on soft ground. The firing rod used 12-gauge shotgun blanks, fired approximately 2 feet below ground surface. Prior to firing the rod shot, a pilot hole was driven with a steel bar and sledge hammer into the ground.

Seismic spread cables with a five to 10-foot geophone spacing were used and refraction data was obtained with a digital seismic acquisition system. Refraction seismograms were recorded using an ABEM model Terraloc Mark 6 seismograph. The seismograph is a microprocessor-controlled instrument that records digital data on magnetic tape for playback

and processing, and develops hard copy records printed in the field to assure duplicate, permanent storage of the seismograms.

Direct and refracted arrival times were measured at each geophone using the seismographs built-in software, and transferred to a personal computer for modeling and interpretation. Seismic cross sections were modeled along each traverse using SIPT2 interpretation software. The SIPT2 software utilizes a ray-tracing algorithm, resulting in layer depth calculations below each geophone (i.e. at the 5 or 10-foot intervals along each traverse). Each interpreted cross section was correlated with available borings or monitoring wells. Typical depth accuracy is ±10 percent or ±3 feet, which ever is greater. Ground elevation differences between shot points were measured with a Pentax 10-second electronic theodolite.

Seven seismic refraction lines, covering a total of 1,565 feet, were used to profile the bedrock topography and provide a full range of coverage at the site. As indicated on Figure 7, the main line (Seismic Line 1) was oriented in a north-south direction running from the west side of Building 1301 to the east side of Building 438. Two other lines (Seismic Lines 3 and 5) run generally parallel and west of the main line. Lines 2 and 4 are oriented in an east-west direction and intersect the main line (Line 1) and Seismic Line 3. Lines 6 and 7, also generally oriented in an east-west direction, intersect Line 5.

3.5 Subsurface Explorations

Phase II subsurface investigations included the installation of soil borings as well as bedrock and overburden monitoring wells. Information on the soil boring program is provided in Section 3.5.1 and information on the monitoring well installation program is provided in Section 3.5.2.

3.5.1 Soil Borings

A subsurface soil investigation was conducted at the site by drilling and sampling soil borings to characterize subsurface soil quality and to further define geologic conditions at the site. During the soil boring program a total of 14 test borings (B10 through B16, B20 through B26, and B30) were installed and sampled across the site to characterize subsurface conditions. In addition, soil samples were collected from eight monitoring well borings (MW-6, MW-7, MW-8, MW-9,

MW-10, MW-11, MW-12, and MW-13). The location of the soil borings and monitoring wells is provided on Figure 7.

Soil borings were installed by B.L. Myers Inc., personnel, of Belchertown, Massachusetts using standard 6.25-inch inside diameter hollow stem auger drilling techniques between 14 and 20 July 1999. In general, soil borings were completed in two separate east to west transects north of the concrete UST in the inferred downgradient direction of overburden ground water flow. The first series of soil borings (B-10 through B-15; where B-15 was further developed into overburden monitoring well MW-10), was located, at its closest point, approximately 60 feet north of the concrete UST. The second line of soil borings (B-20 through B-26) was located, at its closest point, approximately 120 feet north of the concrete UST. Each soil boring transect originated at the westernmost limit of the site, as bounded by NUWC Division, Newport Buildings 1303 and 438, and terminated to the east of the unnamed stream. The first line of soil borings spanned a distance of approximately 115 linear feet in an east west orientation while the second transect spanned a distance of approximately 130 linear feet in the same orientation. The first and second transects are offset by approximately 60 to 80 feet. Each of the soil boring transects was installed to assess depth to weathered bedrock, competent bedrock, and to assess subsurface soil contaminant conditions downgradient of the concrete UST. The relatively closely spaced soil borings (approximately 20 to 30 feet apart) were also installed to assist in development of a relatively thorough understanding of subsurface conditions at the area on-site which may be utilized for any ground water treatment or remediation program.

Soil boring B-30 was located immediately east of a subsurface utility line originating east of Building 178. This boring was installed to assess the potential presence of soil contamination adjacent to the aforementioned utility line.

As indicated in the approved work plan split spoon soil boring samples were collected at continuous two-foot intervals from each soil boring to the top of competent bedrock, defined as the depth at which split-spoon refusal is encountered. Split-spoon refusal is defined as less than six inches of penetration for 100 blows with a 140-pound hammer falling 30 inches in conformance with ASTM 1586-84 standards. Standard penetration tests [ASTM D1586-84

(1984)] were conducted for every 2.0-foot sampling interval. The physical characteristics of each soil sample was geologically logged in accordance with the Burmister soil classification system and recorded on boring logs and in a field notebook. General observations included a description of odors, staining, and fill material. Soil samples submitted for laboratory analyses were transferred from the split spoon to the sample container with a dedicated stainless-steel spoon. Split spoon soil samples were also monitored for the presence of total VOC vapors with an 11.7 electron volt (eV) photoionization detector. Field observations and geologic information are summarized on the soil boring logs provided in Appendix E. Soil boring drill cuttings were containerized (30 gallon drums) and managed by the NUWC Division, Newport Environmental Division Hazardous Waste Program as indicated in Section 2.5.

3.5.2 Monitoring Wells

Overburden and bedrock ground water monitoring wells were installed to provide hydrogeologic information on the aquifer characteristics, assess ground water flow direction, and assess site ground water quality. The locations of the monitoring wells are shown on Figures 7 and 8.

Monitoring well borings and well installations were completed by B.L. Myers Inc., personnel, of Belchertown, Massachusetts using a combination of 6.25-inch inside diameter hollow stem auger drilling techniques for overburden conditions and drive and wash drilling procedures for bedrock well installations between 15 July and 3 August 1999. In general, an overburden and bedrock well were installed at each monitoring well cluster to assess vertical ground water flow conditions as well as assess overburden and bedrock ground water quality.

Based, in part, upon the results of the phase IA and IB Geoprobe™ explorations and the seismic survey, ground water monitoring well cluster MW-6A/B was located hydraulically up-gradient of the concrete UST to assess "background" soil and ground water conditions. Monitoring well pair MW-7A/B was located adjacent to the concrete UST to assess contaminant conditions at or immediately adjacent to the contaminant source area. Monitoring well pair MW-8A/B is located approximately 170 feet northeast of the concrete UST on the opposite side of the unnamed stream. This monitoring well pair was located on the opposite side of the stream to further verify Geoprobe™ findings of little to no overburden contamination on this side of the stream as well

as to assess hydrologic conditions in both overburden and bedrock. Monitoring well pair MW-9A/B is located approximately 290 feet north of the concrete UST in the inferred downgradient direction on the same side of the stream as the concrete UST. Monitoring well MW-10 is located approximately 85 feet east northeast of the concrete UST in a location topographically lower than the concrete UST in the inferred downgradient direction. MW-10 was also located in an area indicating high concentrations of VOCs in overburden ground water as determined during the Geoprobe™ portion of the remedial investigation. MW-11 is located approximately 60 feet east of the concrete UST in an area of the site where little overburden VOC ground water contamination was indicated by the Geoprobe™ surveys. MW-11 was located in this area to verify the extent of overburden ground water contamination to the east of the concrete UST. MW-12 is located approximately 350 feet north of the concrete UST on the other side of the unnamed stream. This well was installed to assess overburden ground water conditions remote from the concrete UST in an area of the site anticipated to have few impacts from VOC contamination observed in site ground water. Monitoring well cluster MW-13A/B is located near MW-12 approximately 350 feet northeast of the concrete UST. This well cluster was installed to assess ground water conditions in an area of the site anticipated to show little to no impacts from the concrete UST. Bedrock monitoring wells MW-9B and MW-13B were also installed to assess upper bedrock conditions remote from the concrete UST.

To install the monitoring wells vegetation was cleared within the previously defined wetland area to provide access to exploration locations. Impacts to wetlands were minimized and all disturbed areas were stabilized following completion of activities as required by RIDEM's Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, as amended in1994 and again in 1998.

Consistent with procedures outlined in the approved work plan the method employed in the construction of the monitoring wells included advancement of boreholes for overburden wells using standard hollow-stem auger drilling techniques. Split spoon samples were collected continuously at 2.0-foot intervals to the top of competent bedrock. Based on concerns regarding cross contamination of the overburden and bedrock aquifers the overburden monitoring wells

were installed with a screened interval set immediately above the top of a degraded bedrock geologic unit observed on-site. The depth of this geologic unit was determined in the field through a combination of information including drilling resistance, split spoon sampler penetration resistance, and most importantly physical observation of split spoon geologic material. In general, visual observation of the last split spoon sampler (e.g., the sampler which exceeded 100 blows for a six-inch penetration) offered a relatively clear visual distinction between overburden soil (soil and shale fragments) and the degraded bedrock geologic unit. This visual distinction was most evident through observation of the structure and "fabric" of degraded bedrock within the split spoon sampler. The degraded bedrock geologic unit is described further in Section 4.1. The overburden monitoring wells were installed in accordance with the procedures provided in the approved work plan and were constructed as indicated on the boring logs provided in Appendix E.

Bedrock monitoring wells were installed using drive and wash drilling procedures and a six-inch steel casing established a minimum of five feet into competent bedrock as indicated on the figure included with the SOP in the approved work plan. This precaution is used to seal the overburden from the bedrock aquifer to avoid cross contamination between the confined and unconfined aquifers. In general each bedrock monitoring well borehole was advanced fifteen feet into competent bedrock using 4-inch diameter double-tube, rock core barrels. A total of 19-feet of rock coring was conducted at MW-6B. Additional bedrock coring was performed at this upgradient location to assess bedrock conditions prior to installation of all the rest of the bedrock wells at and downgradient of the contaminant source. Once the bedrock cores were retrieved and opened, a description of the bedrock was recorded in a field notebook. The bedrock cores were placed in core boxes. Consistent with the procedures described in Section 3.5.1 monitoring well drill cuttings were containerized and managed by the NUWC Division, Newport Environmental Division Hazardous Waste Program as indicated in Section 2.5.

Following installation monitoring wells were developed in order to accomplish the following:

- establish a good hydraulic connection between the well screen and the surrounding aquifer,
- settle the sandpack and formation from drilling, and
- Remove any fine particulate material (silt) from the water column and sandpack.

Ground water was removed from site monitoring wells and measured for pH, conductivity, temperature, and turbidity for each volume of well water removed until the values stabilized to within 10 percent of each other. Well development measurements were performed using a Horiba U10 Water Checker and are provided in Appendix F.

3.6 Hydrogeologic Evaluation

In-situ hydraulic conductivity testing, ground water elevations, and grain-size analyses were performed to assess hydrogeologic conditions at the subject site. Each of these activities is described below.

In-Situ Hydraulic Conductivity Testing

A series of slug tests or in-situ hydraulic conductivity tests were performed using site monitoring wells to estimate the hydraulic conductivity of the aquifer material surrounding the screen of a piezometer (tested well). The in-situ hydraulic conductivity tests (e.g., slug tests) were performed between August 27 and September 3, 1999 at the subject site. The tests were conducted at five of the eight shallow unconsolidated monitoring wells (MW-7A, MW-10, MW-11, MW-12 and MW-13A) and at each of five bedrock wells (MW-6B, MW-7B, MW-8B, MW-9B and MW-13B). In-situ hydraulic conductivity testing was not completed at overburden monitoring wells MW-6A, MW-8A and MW-9A due to insufficient amount of water in the well.

Prior to initiation of in-situ hydraulic conductivity testing the background (static) water level was measured in the monitoring well to the nearest 0.01-foot using an electronic water level indicator. The background water level data were primarily used to determine the amount of water level change during the slug test. Since the slug test data were recorded using a pressure transducer equipped with an internal data logger, the background water level measurement data served to verify the transducer's initial pressure or water level measurement. The background water level data were also used to evaluate any other hydraulic factors such as precipitation (heavy thunderstorm/rainfalls during the slug test at well MW-8B) effect, and potential tidal effects.

Water level changes were measured and recorded by using an In-Situ Troll-4000 transducer, which is a fully submersible probe/data logger designed to simultaneously monitor water level and temperature. The transducer was first placed in the well and water level readings recorded during the placement of the slug into the tested well. All slug tests were conducted after the water levels fully recovered to their background (static) levels except at well MW-9B due to its slow recovery (water level was not recovered after more than 24 hours).

During the slug tests, the change of water level was recorded using the transducer with a logarithmic frequency data logging. The logarithmic frequency data logging was programmed to start from 0.005-minute interval and increase up to 10-minute. For example, the water level was recorded every 0.005 minute (0.3 seconds) for the first 0.1 minute (6 seconds) and then increased the recording interval to 0.0058, 0.0062, 0.0065, ..., 9.3900, 9.9467 minute and, finally up to a 10 minute interval for the remaining recording period.

Slug tests were performed using ¾-inch diameter and 5- or 10-foot long PVC pipes filled with silica sand. A single PVC pipe slug was used during the slug test in the 2-inch diameter shallow monitoring wells, MW-7A, MW-10, MW-11, MW-12 and MW-13A, as well as slow recharge bedrock wells, MW-6B and MW-9B. Three PVC pipe slugs bundled together were used during the slug test in other bedrock wells, MW-7B, MW-8B and MW-13B, to produce sufficient water level changes.

To provide quality assurance and quality control (QA/QC) during the data acquisition, a repetitive slug in and slug out test was performed at well MW-8B.

Ground Water Elevation Measurements

Depth to water measurements were performed in each of the newly installed monitoring wells at the site. Measurements were performed using a Solinst electronic water level measurement instrument. Measurements were performed on 22 October, 22 November and 13 December 1999 in a total of eight overburden and five bedrock monitoring wells.

Depth to water measurements were also conducted at each of the Geoprobe™ exploration locations during both phase IA and IB. However, given the low hydraulic conductivity of site soils (till, silt, etc.), the limited screen area on each Geoprobe™ steel microwell, and the slow recharge of the Geoprobe™ wells data generated were generally erratic and not helpful in understanding hydraulic gradients at the site.

Grain-Size Analysis

GeoTesting Express, Inc. of Boxborough, Massachusetts performed grain size distribution analyses on select soil samples collected from within the screened interval of each monitoring well. Information obtained from the grain-size analyses is used in conjunction with empirical correlation to provide data on hydraulic conductivity of site soils. A total of eight soil samples, one from MW-6 through MW-13 was subjected to grain-size distribution analysis. The analysis was conducted using ASTM D 422 standards using both sieve and hydrometer procedures.

Bedrock Strike and Dip Survey

To provide data on surface bedrock fractures strike and dip a limited survey of available bedrock outcrops was conducted near the concrete UST at NUWC Division, Newport. A total of three separate bedrock outcrops were identified at distances ranging from 75 to approximately 400 feet north northwest of the concrete UST. At each location a Brunton compass was used to collect strike and dip measurements of identified bedrock fractures or bedrock bedding planes. Data collected from the survey is provided in Appendix F.

3.7 Environmental Sampling

The phase II investigation included the collection and analysis of site soil, ground water, surface water, and sediment.

3.7.1 Soil

Each of the split spoon soil samples collected during the subsurface exploration program was screened for the presence of VOCs using a model 1000 Foxboro Toxic Vapor Analyzer (TVA), a flame and photoionization detector. Consistent with the approved work plan the

TVA was calibrated in the field using standard calibration gases as well as on-site background conditions (ambient air). In general, field screening for VOCs was conducted in accordance with the SOPs provided in the approved work plan. In this procedure a representative soil sample was collected from the split-spoon soil sampler immediately upon opening and transferred to pre-cleaned glass sample containers using dedicated stainless steel spoons, covered with aluminum foil, and allowed to equilibrate for approximately one-half hour. The TVA probe was then inserted through the foil and the resulting data recorded in a field book and on the soil boring logs.

A total of 25 soil samples were quantitatively analyzed for:

- volatile organic compounds (VOCs) using EPA Method 5035 extraction techniques followed by analysis using EPA Method 8260,
- semi-volatile organic compounds (SVOCs) using EPA Contract Laboratory Program (CLP) methodologies,
- cyanide using EPA Contract Laboratory Program (CLP) methodologies,
- total petroleum hydrocarbon (TPH) using EPA Method 8010M gas chromatographic techniques, and
- TPH using EPA Method 8015M infrared analytical techniques.

One soil sample was collected from each soil boring (B-10 through B-16, B-20 through B-26 and B-30) and each monitoring well boring location (MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13) for quantitative analysis. This sample was generally selected from the depth of greatest observed potential contamination (i.e., highest FID reading). Alternately, if the field screening did not indicate evidence of VOC contamination, the soil sample selected for analysis was collected from the sampling interval just above degraded bedrock. In addition, a second soil sample was collected and quantitatively analyzed from B-16, MW-7B, and MW-11B. Each of these three additional samples was collected from degraded bedrock to assess contaminant conditions within this geologic unit. Soil samples were quantitatively analyzed by Mitkem Corporation of Warwick, Rhode Island and Severn Trent Laboratories of Monroe, Connecticut.

A single subsurface soil sample was collected from within the screened interval of each well location and analyzed for total organic carbon (TOC) to assess contaminant migration potential. These samples were also subjected to grain size analysis to further assist in defining geologic conditions on-site.

Soil samples analyzed for VOCs were collected using pre-packaged EnCore Samplers to reduce the loss of VOCs. This method of sampling is preferable for VOC analysis in soil due to the fact that the soil is sealed in a headspace free state preventing the inadvertent release of volatile compounds between sample collection and laboratory analysis.

3.7.2 Ground Water

Prior to the collection of ground water samples from site monitoring wells the wells were purged of three well volumes consistent with the SOPs provided in the approved work plan. Ground water samples were collected using dedicated polyethylene tubing and an ISCO6700 Portable Sampler. Ground water quality parameters of pH, conductivity, turbidity, dissolved oxygen and temperature were measured using the Horiba U10 Water Checker at the time of ground water sampling and are provided in Appendix F. In two of the bedrock monitoring wells (MW6B and MW9B) and one overburden monitoring well (MW8A), well development was hampered due to a slow recharge times.

A total of 13 ground water samples collected from each of the eight overburden and five bedrock monitoring wells were quantitatively analyzed for:

- Target analyte list (TAL) volatile organic compounds (VOCs) using EPA Method 8260,
- semi-volatile organic compounds (SVOCs) using EPA Contract Laboratory Program (CLP) methodologies,
- cyanide using EPA Contract Laboratory Program (CLP) methodologies,
- total petroleum hydrocarbon (TPH) using EPA Method 8010M gas chromatographic techniques, and
- TPH using EPA Method 8015M infrared analytical techniques.

Prior to collection of ground water samples the presence of light and dense non-aqueous phase materials was assessed in each well using a decontaminated Horiba Oil/Water Interface probe.

None of the monitoring wells, including MW-7A and MW-7B indicated the presence of non-aqueous phase liquids nor did any well indicate the presence of oily films or sheens during ground water sampling. For this reason analysis for separate phase liquids was not conducted on-site.

3.7.3 Surface Water and Sediment

Five surface water samples (SW-86, SW-95, SW-96, SW-104, SW-150) were screened for the presence of VOCs during the phase IB Geoprobe™ survey at the site using on-site GC techniques. These five samples were collected from the unnamed stream near geoprobe points GP-86, GP-95, GP-96, GP-104, and GP-150.

A total of three surface water and sediment sample pairs were collected from the unnamed stream at the site. Each of the surface water sediment pairs was analyzed for the same constituents of concern as the soil and ground water samples collected at the site. The first surface water/sediment sampling pair (SW1/SD1) was located immediately east of the concrete UST at a location hydraulically upgradient of the inferred overburden ground water flow direction. The second sampling pair was located within the unnamed stream at the former location of an outfall pipe. The outfall pipe formerly discharged from an interceptor tank that appeared to have historically been connected to the concrete UST. The third sampling pair was collected approximately 350 feet downstream of the concrete UST in the unnamed stream.

3.8 Quality Assurance/Quality Control Sampling

Consistent with the approved work plan a series of blind duplicate samples, field blanks, and trip blank samples were collected, prepared, and/or used to assess data quality from the remedial investigation. Specific quality assurance/quality control (QA/QC) samples collected during the investigation included:

- 13 Duplicate ground water samples were quantitatively analyzed for VOCs using EPA Method 8260 to verify quality assurance of the field GC analysis of 84 Geoprobe™ ground water samples collected on-site.
- Three duplicate soil samples (B-20, B-26, and MW-7B) were quantitatively analyzed for the same parameters as the accompanying soil samples to verify quality assurance of laboratory results from the 25 soil samples collected at the site.

- Two duplicate ground water samples (MW-10 and MW-12) were quantitatively analyzed for the same parameters as the accompanying ground water samples to verify quality assurance of laboratory results from the 13 ground water samples collected at the site.
- A single duplicate surface water (SW2) and sediment (SD2) sample was quantitatively analyzed for the same parameters as the accompanying surface water sediment pair to verify quality assurance of laboratory results from the 3 surface water/sediment sample pairs collected at the site.
- Three field blank samples (MW-FB1, MW-FB2, and SD-FB) were quantitatively analyzed for the same parameters as the accompanying samples to assess the effectiveness of equipment decontamination procedures on sample integrity.
- Four trip blanks (TB, TB-1, TB-2, and TB-3) were quantitatively analyzed for VOCs to evaluate the effect of ambient conditions and sample shipment methods on sample integrity and to ensure proper sample container preparation and handling techniques.

4.0 DATA EVALUATION

4.1 Geology

Soil boring and monitoring well installation activities completed during the remedial investigation as well as previous subsurface investigations conducted in the vicinity of the concrete UST provided information on the site geology.

A total of 14 soil borings, eight overburden ground water monitoring well borings and five bedrock ground water monitoring wells were completed during the remedial investigation at the subject site. Previous subsurface investigation activities conducted in the vicinity of the concrete UST included the completion of four soil borings with the subsequent installation of three overburden ground water monitoring wells during the 1995 Closure Assessment. Additionally, five soil borings and three monitoring wells were completed in November 1995 and nine soil borings were completed in April 1996 to support soil and ground water characterization for the B-179 reconstruction project. The locations of the remedial investigation soil borings and monitoring wells are shown on Figures 7 and 8 with the accompanying boring logs included in Appendix E. The locations of the Closure Assessment and the November 1995 subsurface explorations are provided on Figure 3 with the soil boring logs provided as background information in Appendix A. The location and boring logs from the nine soil borings completed through the floor slab of Building 179 in April 1996 are provided with background information in Appendix A as these borings represent soil which was subsequently excavated and disposed off-site in support of the B-179 reconstruction project. Using the information from the remedial investigation and previous subsurface explorations conducted in the vicinity of the concrete UST the following conceptual understanding of site geology was developed.

Overburden

Four separate geologic units were encountered on-site. These geologic units consist of:

- artificial fill,
- peat/loam,
- silt and sand, and
- glacial till.

Site observations indicate that with the exception of the artificial fill unit and silty sand unit, overburden materials present in the vicinity of the concrete UST consist of a variable mixture of silt, sand, shale bedrock fragments, and gravel. In general, overburden thickness ranges from approximately three feet at MW-9A and MW-12 to approximately nine feet at MW-11. Additional information on overburden thickness, or depth to bedrock is provided in the discussion of site bedrock conditions. A brief description of each of the aforementioned geologic units is provided below.

The artificial fill unit was encountered in five site borings (B-10, B-11, B-20, MW-7 and MW-11) at a thickness ranging from approximately one foot at B-20 to approximately seven feet at B-11. In general, this unit is distinguished from the underlying natural materials by color since the artificial fill unit consists of a brown sand and gravel matrix with variable quantities of silt where natural materials tend toward an olive/gray coloration. Previous site investigations reported the presence of a loose to medium dense brown sandy fill, with variable quantities of silt and gravel which was encountered in each boring to a depth of approximately two feet below ground surface. The artificial fill unit was generally encountered in the developed portions of the site where artificial materials may have been placed on top of natural soils to allow for development of buildings, roadways, and other manmade structures in what may have originally been a low lying area. In particular, site observations indicate the presence of concrete debris near a change in topography adjacent to B-11 where the greatest thickness of artificial fill was encountered. Such observations would be consistent with historic fill placement within natural low-lying areas of the site.

A peat/loam geologic unit was encountered in five of the monitoring well borings (MW-6B, MW-8B, MW-10, MW-12, and MW-13B) and eleven soil borings (B-12, B-13, B-14, B-16, B-20, B-22, B-23, B-24, B-25, B-26, and B-30) at a thickness ranging from several inches to approximately 1 foot at MW-12. In general, this unit consists of either a soft dark brown fibrous peat or a dark brown silty loam material. This unit was encountered in soil borings conducted in the wetland area of the site as well as in grassy landscaped areas. Observations of a peat/loam geologic unit would be consistent with natural degradation of vegetation within wetland areas as well as the placement of loam within landscape/grassy areas of the site.

Additionally, the limited thickness of this unit would be consistent with the historic use of this area as farmland.

The silt and sand geologic unit was encountered in nearly all of the soil borings completed on-site. This unit generally consisted of a medium dense to dense brown to gray silt with variable quantities of fine sand. This unit was generally encountered underneath the surficial fill or peat/loam unit and on top of the till unit observed on-site. Based on previous site borings this unit appears to be most prevalent in the area near the concrete UST where boring logs (Closure Assessment) reported encountering a soft to very stiff gray clay with some silt and trace quantities of medium gravel. While clay was not encountered during the remedial investigation the silt and sand unit was encountered at depths ranging from near ground surface at MW-9A to approximately five feet at MW-7A. The thickness of this unit varied between approximately one foot to a maximum of approximately six feet at MW-6A. Grain size analysis indicates the soil type present within the screened interval of monitoring wells MW-6A, MW-7A, and MW-12 consisted of a silty sand material that is consistent with the geologic description of the silt and sand unit. Grain-size distribution analysis is provided in Appendix F.

The final geologic unit encountered on site consists of a heterogeneous mixture of silt, sand, shale fragments, and gravel. Given the relatively limited overburden thickness and the gradual transition between this unit and the underlying degraded bedrock this geologic unit has been characterized as a till material. This unit was encountered in the majority of site borings directly above degraded bedrock. Till is generally characterized by a poorly sorted mixture of clay to gravel size particles bound within a relatively tight matrix. This unit was encountered at depths ranging from one (MW-9B) to approximately seven feet (MW-11) below ground surface with a thickness ranging from approximately one foot (MW-12) to four feet (MW-13A). Grain-size distribution analysis indicates the soil type present within the screened interval of monitoring wells MW-8A and MW-10 consisted of stone fragments, gravel and sand and that present in monitoring wells MW-9A and MW-13A consisted of a silty gravel and sand. Grain-size distribution analysis is provided in Appendix F.

Bedrock

Both competent and weathered bedrock was encountered on-site. As noted above, site overburden ranges from approximately three to nine feet thick on-site. Data produced from the seismic survey indicated an overburden thickness on the order of five feet at the intersection of seismic lines one and six (near B-30) and approximately 10 to 13 feet at the southern portion of seismic line one, the southern end of seismic line five, and the eastern portion of seismic line four. The shallower depth to bedrock data is generally consistent with soil exploration data that demonstrated a depth to bedrock of approximately five feet near B-30. The deeper depths to bedrock do not correlate as well with site boring data which indicate a depth to the top of degraded bedrock of approximately five feet at B-14 and MW-10. However, the seismic data may reflect an inherent weakness of the technique whereby a sharper seismic refraction would occur from competent bedrock as opposed to the more subtle refraction from the top of the "softer" degraded bedrock that is the geologic unit noted on the soil boring logs. Seismic survey data and results are provided in Appendix D.

The data from seismic survey lines 1, 3 and 5 show a nearly level bedrock surface with a very modest gradient from the south toward the north. Seismic Lines 2, 4, 6 and 7 indicate that the bedrock has a somewhat greater downward slope from the west to the east in a manner reflective of site surface topography. The bedrock elevations on the site range from approximately 50 feet at the southwestern corner to 40 feet at a northeastern point directly adjacent to the stream channel. In general, the bedrock follows the contours of the ground surface except for minor variations in surface topography. The bedrock has a gradual slope toward the wetland and stream allowing drainage to this area along the eastern border of the site. In general, the seismic survey indicates no dramatic bedrock topographic features. However, the mid point of seismic line one, which passes through the concrete UST indicates a slight (one to two foot) change in bedrock topography that may act to retard movement of dense non-aqueous phase materials in the overburden. However, the data to support this hypothesis is not compelling and may be reflective of the soil/degraded bedrock excavation conducted in the vicinity of the concrete UST in support of the B-179 reconstruction as opposed to a natural geologic feature. Nonetheless the survey confirms the conceptual understanding that the bedrock has a relatively smooth gradation and slopes in an overall

downward direction toward the unnamed stream and Narragansett Bay. The seismic survey findings are also supported by observations of the depth to refusal encountered during the phase IA and IB Geoprobe™ investigation. During the Geoprobe™ survey the general observation was made that probe locations installed along the western periphery of the site (as bounded by building B-1303), were shallower and generally did not yield adequate ground water to collect a representative sample. Based on the shallow depth of degraded bedrock it is hypothesized that Geoprobe refusal in most cases would correspond to the top of the degraded bedrock.

Degraded bedrock encountered in site borings is characterized as severely weathered shale bedrock, which transitions to more competent shale. The degraded bedrock geologic unit was encountered in virtually all the soil and monitoring well borings conducted for the remedial investigation. Weathered or degraded bedrock was encountered at depths ranging from 2.5 (B-26) to nine feet (MW-11) below ground surface with a thickness ranging between one (several locations) and five feet (MW-11) before split spoon refusal was encountered. The average thickness of the degraded bedrock unit encountered on-site in the 22 soil and monitoring well borings conducted was 2.2 feet. Site observations indicate little auger resistance during penetration of the degraded bedrock geologic unit. In addition, site observations indicate that split-spoon samples of the degraded bedrock yield a material that clearly has a "rock-like" fabric and composition, yet is easily crumbled with hand pressure to form a loose material with a soil-like texture.

Consistent with the approved work plan, bedrock cores were obtained from bedrock monitoring wells completed on-site. Fifteen-foot rock cores were obtained from monitoring well borings MW-7B, MW-8B, MW-9B, and MW-13B while an approximately 19-foot rock core was obtained from MW-6B.

In general, bedrock cores obtained from MW-6B, MW-7B, MW-8B, and MW-9B were light gray to gray in color with dark gray speckles and streaks. The appearance of the bedrock core extracted from MW-13B was somewhat different from the four cores. Although the core was gray in color, it appeared to be darker in color and may represent a different type of shale

material. A small (approximately 1') section at a depth of roughly 13' was observed to be made up of a sedimentary conglomerate composed of a series of medium sized pebbles "cemented" together. With the exception of MW-9B, a white quartzite intrusion was observed in each of the cores at varying sections along the length of the core. This quartzite intrusion was observed to be both horizontal and vertical in nature. Bedrock core descriptions and photographs are provided in Appendix E.

In general, observations of bedrock core integrity indicated that bedrock from MW-7B, MW-8B, MW-9B, and MW-13B were less competent in the upper two to four feet of rock and became more competent with depth. It was observed that the uppermost portion of these four rock cores had many coarse fractures with iron staining prevalent within these fractures. Although these rock cores became more competent after two to four feet, fractures and iron staining were observed at deeper depths, but were not as abundant as the upper portions of the cores. The fractures observed in these bedrock cores ran in both horizontal and vertical tracks. The bedrock core from MW-6B did not exhibit the same fracture characteristics as the other four rock cores. It was observed that this core contained numerous fractures at deeper depths with iron staining present in a majority of these breaks. The fractures were observed to be in both horizontal and vertical orientations and there appeared to be a greater number of vertical fractures present in this rock core than in any of the other four bedrock cores collected on-site.

Surficial Bedrock Fracture Analysis

Three separate bedrock outcrop/exposures in the vicinity of the concrete UST were evaluated for the presence of fractures and bedding planes. Each of the three bedrock exposures were located within the bed of the unnamed stream on-site. Bedrock exposures were located between 400 and 500 feet downstream of the concrete UST. Two of the outcrops indicated the presence of bedrock fractures with the third showing good evidence of bedrock bedding plane exposure. The range of the fractures' strike and dip is provided below:

Fracture Strike	53^0 to 110^0 N, 260^0 to 307^0 W
Fracture Dip	75^0 to 78^0 NE and 77^0 N

The bedding plane exposure of the outcrop located approximately 500-feet from the concrete UST indicated:

Bedding Plane Strike	75^0 N, 285^0 W
Bedding Plane Dip	5^0 SW

This limited data suggests the presence of a bedrock-bedding plane dipping rather shallowly in a southwesterly direction contrary to the northeasterly flow of ground water. However, fractures observed in the bedrock dip rather steeply in the same general direction as the flow of ground water. A memorandum describing results of the surficial bedrock fracture analysis of the three outcrop sites is provided in Appendix F.

4.2 Hydrogeology

A conceptual understanding of site hydrogeology was developed based on an evaluation of the following information presented in this section; ground water flow patterns, horizontal hydraulic gradients, vertical hydraulic gradients, in-situ hydraulic conductivity testing, grain-size analysis, and calculation of ground water flow velocities.

Ground Water Flow Patterns

Depth to ground water measurements were collected in each of the eight overburden and five bedrock monitoring wells during October, November, and December 1999. This data along with topographic elevation data was used to develop ground water elevations presented in Table 3 and illustrated on Figure 8.

Representative overburden and bedrock ground water contours from the October 1999 measurement event are shown on Figure 8. As indicated, overburden ground water flows in a north northeasterly direction towards the unnamed stream and ultimately to Narragansett Bay. This flow pattern is consistent with site topography and observations of ground water depth during the Phase 1A and 1B Geoprobe™ exploration program. During the initial Phase 1A and 1B ground water survey, explorations located to the west of the concrete UST generally

encountered refusal at a shallow depth and in most cases did not encounter ground water. In addition, Geoprobe™ points installed immediately north of the concrete UST encountered no ground water prior to refusal. Bedrock ground water contours produced from the five bedrock wells on-site generally follows a flow pattern consistent with overburden ground water and also generally mirrors site topography

In general, data from each of the three ground water elevation measurement events is similar demonstrating a consistent flow gradient from the concrete UST toward the unnamed stream and associated wetland area. However, flow rates may vary in localized areas due to both natural variations in subsurface soils and due to the influence of manmade features such as fill material and subsurface structures. More specifically, to address the potential that the four-inch diameter drain line originating approximately 15-feet west of the concrete UST may influence overburden ground water flow conditions, the depth of the utility line was compared to available ground water elevation data. Data available from a 1990 as-built drawing (NUSC Drawing 90-33, sheet 5 of 16, 9 July 1990) indicates that the central low point is located at SMH #8 (DMH No. 2 on the referenced drawing). Based on the topographic information and the drain invert elevation referenced on the drawing, the base of the drainpipe is at elevation 53.5, or approximately 3.5 feet below ground surface. A single round of depth to water data obtained in October 1998 from Geoprobe™ explorations closest to this point (GP-100A, GP-110A and GP-120A as illustrated on Figure 6) indicate a depth to water ranging from 4.8 to 5.9 feet below ground surface or approximately 1.3 to 2.4 feet below the adjacent drain invert. These data indicate limited potential for preferential ground water flow along this utility line.

Horizontal Hydraulic Gradients

Horizontal hydraulic gradients were determined during the remedial investigation from water level measurements at the site. Horizontal gradients are used, along with the aquifer hydraulic conductivity and effective porosity, in determining horizontal ground water flow velocities, and hence the rate at which an aquifer may transport contaminant solutes. Horizontal gradients were calculated for the overburden ground water flow, as well as the bedrock ground water flow across the site. The horizontal gradient represents the change in head, measured in feet, per

horizontal foot of travel through the medium. Horizontal gradients were calculated using the ground water contour map (Figure 8) generated for the site.

Average horizontal hydraulic gradients for shallow ground water flow ranged from 0.005 ft/ft in the area of the concrete UST to 0.023 ft/ft near the unnamed stream. Average horizontal hydraulic gradients for the bedrock ground water ranged from 0.001 ft/ft in the two bedrock monitoring wells on the east side of the unnamed stream (MW-8B and MW-13B) to 0.013 ft/ft between the concrete UST and the northern end of the site (MW-7B and MW-9B). Gradients for both overburden and bedrock ground water were generally higher nearer the unnamed stream and the far northern edge of the site, due to the downward topographic slope in these areas.

Vertical Hydraulic Gradients

Vertical hydraulic gradients were determined at each of the four sets of overburden/bedrock monitoring wells constructed during the remedial investigation. Vertical hydraulic gradients are used to evaluate vertical contaminant migration potential through an aquifer. A positive hydraulic gradient indicates an upward flow, and a negative gradient indicates a downward flow. An upward flow would tend to retard contaminant transport down through an aquifer, whereas a downward vertical gradient provides a means by which contamination could migrate toward the bottom of the aquifer. Table 4 provides a summary of the calculated vertical hydraulic gradients.

Review of data presented on Table 4 indicates consistent vertical gradients over the three measurement events. For each of the three measurement dates a consistent downward, or negative, hydraulic gradient was observed at monitoring wells MW-6A/6B and MW-7A/7B and a consistent upward, or positive gradient was observed at monitoring well pairs MW-8A/8B and MW-13A/13B. The observed downward vertical gradient in MW-6A/6B ranged from -0.16 ft to –0.18 ft while a somewhat stronger downward gradient was observed at MW-7A/7B ranging from –0.55 to –0.60 ft. This downward gradient indicates that ground water from above the bedrock surface (in the fill or overburden) would tend to flow downward into the bedrock at these two locations. On the other hand a consistent positive, or upward hydraulic gradient was observed at the MW-8A/8B and MW-13A/13B monitoring well pairs. At these two locations the

observed upward vertical gradient ranged from 0.37 ft to 0.93 ft. At these locations flow of overburden ground water into the bedrock aquifer would be limited by the upward gradient.

In-Situ Hydraulic Conductivity Data

In–situ hydraulic conductivity test data was evaluated using theoretical methods developed by Hvorslev for determining the hydraulic conductivity of the bedrock (confined) aquifer, and another method, developed by Bouwer-Rice, was used for calculating the hydraulic conductivity of the overburden (unconfined) aquifer. Both methods are widely applied, may be used with both slug-in and slug-out data, and are calculated through a commercially available computer program; "AquiferTest" developed by Waterloo Hydrogeologic, Inc. of Waterloo, Ontario, Canada.

The hydraulic conductivity K is calculated in the Hvorslev method based on the relationship:

$$K = r^2 \ln(L/R)/2LT_L$$

Where: r is the radius of the well,
L is the screen length,
R is the radius of the well bore-hole,
the term T_L is the time lag when h/ho = 0.37.

The basic assumptions used for the Hvorslev method are:

- Non-leaky confined aquifer of "apparently" infinite extent;
- Homogeneous, isotropic or anisotropic aquifer of uniform thickness;
- Water table is horizontal prior to the test;
- Instantaneous injection/withdrawal of a volume of water resulting in an instantaneous change in head;
- Inertia of water column and non-linear well losses are negligible;
- Fully or partially penetrating well;
- The well is considered to be of an infinitesimal width;
- Flow is horizontal toward/away from the well.

The data required in the Hvorslev method are:

- Water level drawdown/recovery vs. time at a tested well;
- The data recording should begin from time zero onward (non-zero value of the initial water displacement ho).

The hydraulic conductivity K is calculated in the Bouwer-Rice method based on the relationship:

$$K = [r^2 \ln(Rcont/R)/2L] [\ln(h/ho)] / t$$

Where;

r is well radius,
R is well bore hole radius,
Rcont is contributing radial distance over which the difference in head, ho, is dissipated in the aquifer,
L is the length of the well screen, and
h is water displacement in the well as a function of time t.

The basic assumptions for the Bouwer-Rice method are:

- Unconfined aquifer of "apparently" infinite extent;
- Homogeneous, isotropic aquifer of uniform thickness;
- Water table is horizontal prior to the test;
- Instantaneous injection/withdrawal of a volume of water resulting in an instantaneous change in head;
- Inertia of water column and non-linear well losses are negligible;
- Fully or partially penetrating well;
- The well storage is not negligible, thus it is taken into account;
- The flow to the well is in a steady state.

The data required in the Bouwer-Rice method are:

- Water level drawdown/recovery vs. time at a tested well;
- The data recording should begin from time zero onward (non-zero value of the initial water displacement ho).

Slug-in test data were analyzed using Bouwer-Rice method for shallow overburden monitoring wells; MW-7A, MW-10, MW-11, MW-12 and MW-13A. Four of five slug-out test data from the same shallow unconsolidated wells, MW-7A, MW-10, MW-11 and MW-12, were also analyzed using the Bouwer-Rice method. The slug-out data from MW-13A was not analyzed due to its poor quality.

Both slug in and slug out test data collected from all five bedrock (confined) aquifer wells, MW-6B, MW-7B, MW-8B, MW-9B and MW-13B, were analyzed using the Hvorslev method.

The background water level data collected from monitoring well MW-6B was reviewed to assess the potential effect from a heavy rainfall event. Review of the data indicated no significant water level changes in the confined bedrock aquifer that may be contributed by a short period of a heavy thunderstorm. The background water level data collected from well MW-6B was also reviewed to evaluate the possible influences from local tidal effects. During the slug test period from 27 August to 3 September 1999, the minimum tidal change was 3.13 feet while the maximum change was reported to be 4.75 feet. Background elevations conducted at MW-8B from 27 August to 31 August 1999 indicated negligible changes in elevation and therefore no data correction was performed on any slug test data to address tidal influence.

Field data produced from the in-situ hydraulic conductivity testing including data logger information as well as the accompanying water level changes versus time hydrograph are provided in Appendix F. The results for the in-situ hydraulic conductivity tests are summarized on Tables 5A (overburden) and 5B (bedrock).

The hydraulic conductivity values determined from the slug-out tests for the shallow unconsolidated (unconfined) aquifer range from 0.173 to 4.061 feet/day with an average value of 1.62 feet/day while the hydraulic conductivity values determined from the slug-in tests range from 0.356 to 3.182 feet/day with an average value of 1.48 feet/day. These values are well fitted in the typical hydraulic conductivity value range for the glacial till materials in the published literatures (Freeze and Cherry, Domenico and Schwartz).

The slug-out tests indicated a bedrock aquifer hydraulic conductivity ranging from 0.004 to 1.413 feet/day with an average value of 0.50 feet/day, while the slug-in tests indicated values ranging from 0.004 to 1.159 feet/day with an average value of 0.47 feet/day. The average hydraulic conductivity value for the bedrock aquifer does not include the data from the repetitive tests conducted at well MW-8B. These values are well fitted in the typical hydraulic conductivity value range for the sedimentary shale in the published literatures (Freeze and Cherry, Domenico and Schwartz).

Grain-Size Analysis

Grain size distribution analyses were performed on a series of eight soil samples collected within the screened interval of each overburden monitoring well boring. The grain-size analysis was conducted to assess soil hydraulic conductivity and may be used to compare to in-situ testing results. The results of the grain size analyses were used in conjunction with standard penetration N-values, to estimate soil hydraulic conductivity using the Kozeny-Carmen empirical relationship:

$$K = 470\ (e^3/1+e)(D_{10})^2$$

Where: K = hydraulic conductivity (cm/sec)
e = soil void ration (unitless), and
D_{10} = grain size for which 10 percent of the soil is finer by weight (cm)

Results of the empirical calculation of hydraulic conductivity are summarized on Table 5A along with the in-situ hydraulic conductivity test results for the overburden monitoring wells. In general, results of the empirical analysis indicate a hydraulic conductivity (0.014 ft/day average) of the overburden which is substantially lower than that generated from in-situ testing procedures (1.55 ft/day). Grain size analysis data and Kozeny-Carmen calculations are provided in Appendix F.

Average Linear Velocities

The average linear velocity of site ground water in the overburden may be calculated using a form of Darcy's law along with estimates of porosity and hydraulic conductivity as follows:

$$v = Ki/n$$

where
v = average groundwater flow rate (ft/day)
i = hydraulic gradient (unitless or ft/ft)
n = effective porosity (unitless)
K = hydraulic conductivity (ft/day)

Overburden

The average hydraulic conductivity of overburden soils is estimated to be on the order of 1.5 feet per day based on in-situ hydraulic conductivity testing and 0.014 feet per day based on empirical analysis of grain size data. The October 1999 ground water measurements illustrated on Figure 8 indicate a hydraulic gradient ranging from 0.005 ft/ft to 0.023 ft/ft. Assuming an effective porosity of 0.34 (34 percent) (Groundwater Hydrology, 1980; USGS Report 91-481) an overburden ground water flow velocity between 0.015 and 0.7 ft/day is calculated from in-situ testing and a flow velocity of less than 0.002 ft/day is predicted from grain-size analysis data. It is important to note that the calculated average linear velocity values are lower than the "true microscopic velocities" because water particles must travel along irregular paths that are longer than the linear paths represented by the calculated average linear velocities (Freeze and Cherry, 1979).

Bedrock

For purposes of comparison with overburden ground water flow velocities an estimate of bedrock ground water flow velocity has been developed. The average hydraulic conductivity of bedrock is estimated to be on the order of 0.5 feet per day based on in-situ hydraulic conductivity testing. The October 1999 ground water measurements indicate a bedrock hydraulic gradient that ranges from 0.001 ft/ft to 0.013 ft/ft. Literature suggests an average porosity of shale bedrock ranging from 1% up to 10%. Therefore, using an estimated porosity on the lower end of the range, 4%, an average linear groundwater velocity of 0.01 ft/day to 0.16 ft/day is calculated for ground water flow in the bedrock aquifer. However, ground water flow within bedrock aquifers may be substantially more complex than flow within porous media and is dependant upon the nature, location, size, and orientation of the fractures.

Site Specific Observations

Site observations during the soil boring program indicated the presence of thin, discontinuous sand lenses just above the degraded bedrock geologic unit in a number of soil borings. Observations of the somewhat erratic nature of saturated soil in the split spoon samples indicated areas of the sampler with these thin sand lenses tended to be wet where other areas of the sampler indicating a higher percentage of silt and/or till were dry. The sand lenses

were a subtle feature of the site geology and were generally no more than ¼ to ½-inch in thickness. It is anticipated that during periods of low water tables this geologic feature may represent a significant flow pathway for the movement of overburden ground water generated from precipitation events. However, no specific testing or evaluation of this hypothesis was conducted during this remedial investigation.

4.3 Contaminant Distribution

Analytical results from the remedial investigation program are described in Section 4.3.1 for soil, in Section 4.3.2 for ground water, and in Section 4.3.3 for surface water and sediment. Sample locations are shown on Figures 4 through 7.

Soil results are compared to RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (e.g., Remediation Regulations), as amended August 1996. Specifically, soil results are compared to residential direct exposure criteria and class GA ground water leachability criteria. Soil analytical results are also compared to EPA risk-based standards for residential exposure for those constituents for which RIDEM has not established a standard. Residential direct exposure criteria are used strictly for comparison purposes in this evaluation since numeric criteria have not been established by RIDEM for direct contact with soil in a commercial/industrial area. Similarly, RIDEM's class GA leachability criteria are used to evaluate soil contaminant concentrations since it would be impractical to evaluate soil contaminant concentrations against a qualitative GB standard as discussed below.

Ground water contaminant levels were compared to both Class GA and class GB ground water objectives as established within the RIDEM Remediation Regulations as well as EPA maximum contaminant levels (MCLs) established under the Safe Drinking Water Act and EPA's risk based concentrations. Comparison to both GA and GB standards is provided in Section 4.3.2. Comparison of site ground water contaminants to these human health based ground water criteria was conducted to assess the potential impacts of the release on human health consistent with investigation objectives stated in Section 1.2. RIDEM has proposed class GB standards as both quantitative standards within Table 4 of RIDEM's Remediation Regulations as well as the qualitative standards established at Section 8.03(A)(ii) as follows:

ii. General Requirements for GB Groundwater Objectives:

The GB Groundwater Objectives shall be applied in the restoration of the State's groundwater resources which are not for use as current or potential sources of drinking water. GB Groundwater Objectives shall be based on the potential for volatile organic compounds found or suspected in GB areas to volatilize from the groundwater and migrate to indoor air. These GB Groundwater Objectives are based on controlling the threat to human health from the inhalation of these hazardous substances.

The GB Groundwater Objectives shall be applied to the restoration of groundwater in GB Areas under the control of the performing party, provided that the Department determines that the following conditions apply to the contaminated groundwater:

1. *The extent and nature of the groundwater contamination does not pose a substantial likelihood of exceeding a surrounding GA Groundwater Objective;*

2. *The extent and nature of the groundwater contamination does not pose a substantial likelihood of adversely affecting current uses of groundwater, surface water resources or surrounding properties as they exist at the time that the site investigation work is conducted (i.e., adverse off-site impacts are eliminated or effectively mitigated);*

3. *The groundwater of concern is not located in a designated buffer zone around a licensed solid waste management facility and specific exceedances are acknowledged as part of the operating permit; and*

4. *The groundwater of concern does not pose a significant threat to the classification and/or actual and potential uses of the surface water bodies in the vicinity of the contaminated-site consistent with the policies and regulations of the Division of Water Resources, or to human health and the environment.*

Surface water data was compared to National Oceanographic and Atmospheric Administration (NOAA) freshwater acute criteria maximum concentration (CMC) and freshwater chronic criteria continuous concentration (CCC) levels. The CMC is the highest level for a one-hour exposure not to be exceeded more than once every three years while the CCC is the highest level for a four-day average exposure not to be exceeded more than once every three years. Each of these standards are used for comparative purposes in the absence of specific RIDEM surface

water criteria and were extracted from NOAA's September 1999, Screening Quick Reference Tables (SQUIRTs).

Sediment data was compared to NOAA threshold effects level (TEL), probable effects level (PEL), and upper effects level (UEL) criteria. In accordance with NOAA SQUIRTs:

> *"Screening with conservative, lower-threshold values (e.g., TELs) ensures, with a high degree of confidence, that any contaminant sources eliminated from future consideration pose no potential threat. Conversely it does not necessarily predict toxicity. Upper thresholds (e.g., PELs) identify compounds which are probably elevated to toxic levels."*

4.3.1 Soil Contaminant Distribution

The primary class of contaminant detected during the remedial investigation soil sampling and analytical program was VOCs. However, SVOCs, TPH, and cyanide were also detected in variable quantities in select soil samples.

As indicated on Table 6, total VOC concentrations detected in the 25 soil samples analyzed during the remedial investigation ranged from non-detectable up to 265.6 ug/kg or parts per billion (ppb). No individual VOC concentrations exceeded RIDEM residential direct exposure criteria, RIDEM's GA leachability criteria, or EPA's residential direct exposure criteria. In most cases soil samples indicated VOC concentrations on the order of two to five orders of magnitude below comparative standards. However, eight soil samples indicated a total VOC concentration greater than 20 ug/kg and four of these indicated a VOC concentration greater than 100 ug/kg. Two of the four samples containing greater than 100 ppb VOCs were collected from monitoring well boring MW-7B, located in undisturbed soil immediately adjacent to the concrete UST. The samples from MW-7B were collected at depths of 6.5 to 8.5 and 10.5 to 11.25 feet below ground surface, both below the ground water table (5.2 to 6.3 feet below ground surface) observed at this location. The remaining two samples (MW-11-S4 and B-13-S4) were located approximately 65 feet to the east and northeast of the concrete UST. Each of these soil samples were collected at a depth of six to eight feet below ground surface, a depth that is also within, or below, the fluctuation of the ground water table. Therefore, samples collected from these locations may be indicative of

ground water transported contamination, as opposed to source material. VOCs detected in the soil samples included acetone, 1,1,1-trichloroethane, 1,1-dichloroethane, and chloroethane. These VOCs represent constituents of concern, or in the case of 1,1-dichloroethane, a likely breakdown, or daughter product of the natural degradation of 1,1,1-tricholoroethane.

Soil analytical data are generally consistent with field instrument readings of VOC vapor concentrations recorded during the soil exploration program. Field instrument readings of VOC concentrations are provided on the boring logs included in Appendix E. Specifically, monitoring well cluster MW-7A/7B indicated the highest soil vapor VOC concentration of 98 field screening units (approximately equivalent to ppm corrected to an isobutylene in air standard) from a sample collected from 6.5 to 8.5 feet below ground surface. This result was obtained from the split-spoon sample that spanned the observed water table at this location. The second highest field screening result was obtained from soil boring B-13 which indicated a total of 76.2 field screening units at a depth of six to eight feet below ground surface. Soil samples collected at MW-11 indicated the third highest field screening concentration of 71 field-screening units at a depth of six to seven feet below ground surface.

As noted on Tables 7 and 8 no SVOCs, TPH, or total cyanide detected in site soil samples exceeded RIDEM residential direct exposure criteria, RIDEM's GA leachability criteria, or EPA's residential direct exposure criteria. In most cases SVOC concentrations detected in site soil were approximately one to four orders of magnitude below evaluation criterion. Total SVOC concentrations ranged from non-detectable to 1,679 ppb. Of the 25 soil samples analyzed for SVOCs, eight exceed a total SVOC concentration of 100 ppb. These eight samples were collected from monitoring well borings MW-6A/B, MW-7A/B, MW-11, MW-13, and soil borings B-15 (converted into MW-10), B-16, and B-26. Each of the soil samples collected from the monitoring well borings were collected at depths below the observed water table. Of the four samples collected from soil borings two (B16-S4 and B16-S5) appear to have been collected at a depth below the inferred ground water table. The remaining two samples were collected at a depths of four to six feet below ground surface (B15-S3) and two to four feet below ground surface (B26-S2). Individual SVOCs detected above 100 ppb included di-n-butyl phthalate, bis (2-ethylhexyl) phthalate, flouranthene, phenanthrene, and

pyrene. The analytical laboratory in some instances qualified these constituents with a "J" qualifier indicating;

> "...the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero."

SVOCs detected in site soil samples are not among the primary constituents of concern identified on-site from historic operational practices at B-179 and the concrete UST.

As indicated on Table 8, TPH concentrations in site soil samples ranged from non-detectable to 77 mg/kg or ppm. RIDEM's residential direct exposure criteria and GA leachability criteria for TPH is 500 ppm, approximately six times higher than that detected in site soil. Of the 25 soil samples collected during the remedial investigation only three indicated detectable concentrations of TPH. These samples were collected from B-15 (converted into MW-10), B-16 and MW-7B. B-15 and B-16 are located approximately 10 to 20 feet from the former outfall of the site interceptor tank removed by FWENC. TPH data are generally consistent with Phase IB ground water exploration data that indicated the presence of benzene (3.5 ppb), toluene (66 ppb), ethylbenzene (35 ppb), and total xylenes (140 ppb) at GP-95 near the interceptor outfall. GP-95 was the only location that indicated the presence of BTEX (benzene, toluene, and xylene) constituents in site ground water. Site observations during the Phase IB geoprobe explorations also indicate the presence of discolored (black) soil/sediment near the outfall.

Total cyanide concentrations ranged from non-detectable to 1.5 mg/kg or ppm, approximately two orders of magnitude lower than RIDEM's 200 ppm direct exposure criteria, and just less than the 2.4 ppm GA leachability criteria. The soil sample indicating the highest concentration of total cyanide was collected from MW-13, the exploration most remote from site development and approximately 340 feet north-northeast of the concrete UST.

4.3.2 Ground Water Contaminant Distribution

The primary class of contaminant detected during the remedial investigation ground water sampling and analytical program was VOCs. However, SVOCs, TPH, and cyanide were also detected in variable quantities in site ground water.

Ground Water pH

Ground water quality physical parameter (pH, conductivity, turbidity, dissolved oxygen, and temperature) data from the Phase IA and IB Geoprobe™ exploration program is summarized on Tables 1A and 1B. Ground water quality physical parameter data from the monitoring well sampling event is provided in Appendix F. As indicated on Tables 1A and 1B, ground water samples collected from the Geoprobe™ exploration program indicated pH values ranging from 5.3 standard units or S.U. (GP-20) to 7.0 S.U. (GP-100). As indicated in the Appendix F data, site monitoring wells indicated pH values ranging from 6.3 S.U. (MW-12) to 11.6 S.U. (MW-6B). With the exception of the pH values encountered at MW-13B (9.4 S.U.) and MW-6B (11.6 S.U.), these values are within the range typically associated with natural ground waters in New England. The elevated pH values at MW-6B and MW-13B may be at least partially attributable to intrusion of the cement-bentonite grout used to seal overburden material from the underlying bedrock stratum during the well installation program. Removal of this material through an aggressive program of well development at MW-6B was limited by the poor recharge capacity of the well. In general, elevated pH values would be anticipated to affect solubility and concentrations of dissolved inorganic constituents, but have a less pronounced effect on organic compound analysis.

Overburden Ground Water VOC Contamination

Results from the field analysis of ground water samples collected during the Phase 1A and 1B Geoprobe™ explorations are summarized on Tables 2A and 2B and Figures 5 and 6. Phase 1A Geoprobe™ data indicated total VOC concentrations ranging from non-detectable to 4,048 ppb, while Phase IB data indicated total VOCs ranged from 6.1 to 2,034 ppb. Of the six individual VOCs quantified during the Phase 1A field analytical program the primary constituents encountered were 1,1,1-trichloroethane and 1, 1 dichloroethane, with less

frequent detections of 1,1-dichloroethene. Similarly, the three VOCs detected at the highest frequency during the Phase 1B field analytical program included:

- 1,1,1-trichloroethane,
- 1, 1 dichloroethane, and
- methylene chloride.

Initial inspection of the data presented on Tables 2A and 2B indicate a relatively consistent suite of VOCs was detected in a rather consistent concentration pattern during both Phase 1A and 1B ground water sampling programs. Particularly noticeable is the contaminant pair of 1,1,1-trichloroethane and 1,1-dichloroethane. Such a pairing is consistent with available literature that suggests that 1,1-dichloroethane, along with 1,1-dichloroethene and chloroethane, is a typical breakdown or degradation products of 1,1,1-trichloroethane. As illustrated on the bar graphs provided on Figures 5 and 6 the presence of a higher concentration of 1,1-dichloroethane compared to 1,1,1-trichloroethane may be indicative of an "old" spill that has weathered or degraded the parent spill material into other "daughter", or breakdown constituents.

The relatively uniform VOC data observed during the Phase 1A and 1B Geoprobe™ exploration program would be consistent with ground water impacts deriving from a single contaminant source. The two exceptions to this pattern were the detection of BTEX constituents at GP-95 during the Phase 1A exploration program and the detection of tetrachloroethene at three locations (GP-134, GP-148 and GP-148A) during the Phase 1B program. As indicated in Section 4.3.1, the detection of BTEX constituents at GP-95 may be attributable to the discolored (black) soil/sediment observed near this location, potentially originating from the former interceptor tank outfall pipe located less than 10-feet south of GP-95. The second exception to the generally consistent pattern of VOCs was the presence of tetrachloroethene in ground water at GP-134, GP-148 and GP-148A. the detection of this constituent appears to represent a unique chemical "signature" as compared to the remainder of the Geoprobe™ ground water data generated on-site. Two 2-1/4-inch diameter galvanized pipes were observed in the general area of these Geoprobe™ locations and may represent a contaminant source separate from the concrete UST.

As shown on Tables 2A and 2B the five VOCs that exceeded established ground water standards in either the Phase 1A or Phase 1B program included:

Geoprobe™ Exploration Ground water Data

Constituent	Standard	Highest Detection	No. Exceedances
1,1,1-Trichloroethane	200 ppb (MCL)	788 ppb	2/84
1,1 Dichloroethene	7 ppb (MCL)	29.2 ppb	2/84
Trichloroethene	5 ppb (MCL)	42 ppb	11/84
Tetrachloroethene	5 ppb (MCL)	50 ppb	3/84
Methylene Chloride	5 ppb (MCL)	160 ppb	31/84

*MCL indicates federal Maximum Contaminant Level which is the same at the RIDEM Class GA Ground Water Objective.

In total, 39 individual Geoprobe™ explorations exceeded at least one ground water standard. These exceedances are illustrated on Figure 4 as shaded locations. Initial evaluation of the pattern of exceedances does not show any obvious data trends other than a generally higher concentration of exceedances nearer the concrete UST. However, it should be noted that some of the constituents that exceed standards, such as trichloroethene, and methylene chloride are either not considered primary contaminants of concern (trichloroethene), or have low standards (both trichloroethene and methylene chloride). As such, the shaded ground water exceedances locations shown on Figure 4 tend to be skewed toward exceedances of compounds with relatively low standards rather than being illustrative of contaminant migration patterns.

As illustrated on Figure 5 ground water impacts nearest the concrete UST separate into two distinct ground water plumes. The first of the plumes is centered on the concrete UST and the second is offset approximately 40 feet northeast, or downgradient of the first plume. The divide between the Phase 1A plumes may reflect the limited number of successful Geoprobe™ explorations conducted in this zone due to limited overburden ground water. Alternatively, this divide may represent site-specific hydrogeologic differences that would

have preferentially promoted contaminant movement in this zone. Such a difference would likely be due to changes in geologic material, although this is not evident from the indirect data provided by the seismic survey.

The ground water contamination illustrated on Figure 6 is presented in the form of bar graphs that illustrate the relative concentration of key VOC contaminants. Phase 1B ground water data did not lend itself to a contouring presentation as shown on Figure 5 for the Phase 1A data. Similar to the data provided on Figure 4, the shaded overall ground water exceedances from the Phase1B Geoprobe data does not illustrate any obvious contaminant trends other than a generally higher concentration of exceedances nearer the concrete UST.

As indicated on Table 9 and shown on Figure 7, total VOC concentrations detected in the 12 ground water samples collected during the Phase II remedial investigation program ranged from 9 ppb to 25,980 ppb. Five individual VOC's exceeded at least one of the comparison criteria as indicated below:

Ground Water Monitoring Wells

Constituent	Standard	Highest Detection	No. Exceedances
1,1,1-Trichloroethane	200 ppb (MCL)	23,000 ppb	3/12
1,1 Dichloroethene	7 ppb (MCL)	310 ppb	3/12
1,2,4 Trichlorobenzene	70 ppb (MCL)	120 ppb	1/12
Tetrachloroethene	5 ppb (MCL)	9 ppb	2/12
Methylene Chloride	5 ppb (MCL)	230 ppb	2/12

*MCL indicates federal Maximum Contaminant Level which is the same at the RIDEM Class GA Ground Water Objective.

As anticipated, the highest concentration of VOCs was detected at the MW-7A/B monitoring well cluster located immediately north of the concrete UST. Of the total 25,980 ppb total VOCs detected in MW-7B, 23,000ppb or 89% is attributable to 1,1,1-trichloroethane, a primary constituent of concern. This concentration is approximately 0.5% of the solubility of the pure material in distilled water of 4,400,000 ppb. These concentrations appear to be

approaching the solubility limit of 1,1,1-trichloroethane in natural waters, but nonetheless remain well below published pure water equilibrium concentrations. As such, ground water data does not indicate the presence of non-aqueous phase liquids. This information is consistent with field measurements that did not indicate the presence of any free phase materials in MW-7A or MW-7B.

Overburden ground water total VOC concentrations ranged from 9 ppb (MW-10 and MW-11) to 4,656 ppb (MW-7A). The highest total VOC concentration was detected at MW-7A immediately north of the concrete UST. Ground water VOC concentrations in MW-7A and MW-12 exceeded at least one ground water standard. VOC's that exceeded standards at MW-7A included 1,1-dichloroethane, methylene chloride, and 1,1,1-trichloroethane. These VOCs exceeded ground water standards by factors ranging from 11-fold (1,1-dichloroethane) to 18-fold (1,1,1-trichloroethane). The single VOC that exceeded standards at MW-12 was tetrachloroethene that exceeded the MCL by a factor of nearly 2-fold.

In general, with the exception of the significantly impacted ground water quality at MW-7A and the 425 ppb total VOCs detected at MW-6A, relatively low concentrations of total VOCs (9 to 25 ppb) were detected in overburden ground water monitoring wells. The presence of 9 ppb tetrachloroethene at MW-12 is generally consistent with Phase 1B Geoprobe findings that indicated the presence of this contaminant at a location remote from the concrete UST. The 425 ppb total VOC ground water contamination identified at MW-6A is primarily composed of acetone and 2-butanone. The acetone (210 ppb) and 2-butanone (210 ppb) detected in MW-6A contributes 98.8% of the total VOC concentration observed at MW-6A. Both these compounds are also present in the laboratory blanks associated with the sample, indicating the possible presence of laboratory-induced contamination. Low concentrations (less than 10 ppb) of other VOCs detected in overburden ground water at MW-6A, MW-8A, MW-10, MW-11, and MW-13A were present at concentrations below available ground water standards.

Bedrock Ground Water VOC Contamination

Bedrock ground water total VOC concentrations ranged from 10 ppb (MW-8B) to 25,980 ppb (MW-7B). The highest total VOC concentration detected on-site was present at MW-7B.

Ground water VOC concentrations in MW-7B, MW-9B, and MW-13B exceeded at least one ground water standard. VOC's that exceeded standards at MW-7B included 1,1-dichloroethane, methylene chloride, 1,1,1-trichloroethane, and 1,2,4-trichlorobenzene. These VOCs exceeded ground water standards by factors ranging from 1.7-fold (1,2,4-trichlorobenzene) to 115-fold (1,1,1-trichloroethane). VOCs exceeding standards at MW-9B included 1,1-dichloroethane and 1,1,1-trichloroethane that exceeded standards by factors of 2-fold and 1.25-fold respectively. The single VOC that exceeded standards at MW-13B was tetrachloroethene that was present at a concentration equal to the federal MCL and RIDEM class GA ground water objective of 5 ppb.

In general, elevated concentrations of VOCs were present in bedrock ground water at MW-7B with significantly lesser concentrations observed at MW-9B located approximately 280 feet north northeast of the concrete UST. As indicated on Figure 7, the relative ratio of 1,1,1-trichloroethane to 1,1-dicholorethane at MW-7B is approximately 16:1, while the same ratio at MW-9B is on the order of 2:1. The relative difference in source (1,1,1-trichloroethane) versus breakdown product (1,1-dicholorethane) ratio may be indicative of contaminant "weathering" or natural biodegradation of the source material.

Total SVOC concentrations detected in site monitoring wells ranged from non-detectable at several locations to 163 ppb at MW-6A. The single SVOC detected in site ground water above 100 ppb was bis (2-ethylhexyl) phthalate. Based on the lack of readily available ground water criteria for the specific SVOC constituents detected in site ground water no SVOCs, except bis (2-ethylhexyl) phthalate, exceeded any of the ground water comparison criteria provided on Table 10. Bis (2-ethylhexyl) phthalate was detected at concentrations ranging from non-detectable to 140 ppb. Five monitoring wells (MW-6A, MW-6B, MW-8B, MW-9B, and MW-13B) exceeded the EPA risk based concentration of 4.8 ppb established for bis (2-ethylhexyl) phthalate. No significant trends in contaminant distribution were observed with regard to SVOC contamination of either overburden or bedrock ground water quality. As indicated in Section 4.3.1, SVOCs are not among the primary constituents of concern identified on-site from historic operational practices at B-179 and the concrete UST.

As indicated on Table 11, of the twelve ground water monitoring well samples analyzed for TPH, only ground water from MW-7B indicated the presence of detectable concentrations of TPH at 400 ug/l or ppb, a concentration equal to the laboratory detection limit. Total cyanide was detected in four overburden monitoring wells at concentrations ranging from 1.1 to 612 ppb. Total cyanide present in MW-7A exceeded the RIDEM class GA ground water objective of 200 ppb by a factor of 3-fold.

4.3.3 Surface Water and Sediment Contaminant Distribution

Sampling and analysis of three surface water/sediment sampling pairs indicated the presence of VOCs, SVOCs, TPH, and total cyanide. Surface water analytical data is summarized on Tables 12 through 15 while sediment data is summarized on Tables 16 through 18.

Select surface water samples (five locations) collected and analyzed in the field for VOCs during the Phase 1B Geoprobe™ exploration program indicated the presence of 1,1,1-trichloroethane, 1,1-dichloroethane, and methylene chloride. 1,1,1-trichloroethane was detected in four of the five surface waters at concentrations ranging from 9.6 to 200 ppb. 1,1-dichloroethane was detected in three of the five samples at concentration ranging from 5.9 to 230 ppb and methylene chloride was observed in one sample at a concentration of 120 ppb. Individual surface water samples were collected from the unnamed stream adjacent to the associated Geoprobe™ location (e.g., SW-86 is located in the stream nearest GP-86). The surface water sample collected upstream of the apparent influence of the concrete UST (SW-86) did not indicate the presence of VOCs. Surface water samples collected near the former interceptor tank outfall pipe showed the highest concentrations of 1,1,1-trichloroethane. The downstream surface water sample SW-150 also indicated the presence of 1,1,1-trichlorethane at 14 ppb. None of the samples exceeded standards provided on Table 12.

Surface water samples collected as part of the Phase II remedial investigation (179-SW1 through R179 SW3) indicated a variety of VOCs. Total VOCs in these samples ranged from 5 ppb (R179-SW1) to 50 ppb (R179-SW3). None of the individual VOCs exceeded available comparison criteria provided on Table 13. A single SVOC (bis (2-ethylhexyl) phthalate) was detected in site surface water (R179-SW3) at 2 ppb. However, no comparison criteria are

available to assess the relative degree of impact due to this constituent. TPH was not detected in site surface water although total cyanide was present at concentrations ranging from 3.7 ug/l (R179-SW3) to 6.3 ug/l (R179-SW1). The total cyanide concentration at R179-SW1 exceeded the NOAA critical continuous concentration (CCC) value of 5.2 ppb. TheCCC is the highest level for a four-day average exposure not to be exceeded more than once every three years. This standard is used for comparative purposes in the absence of specific RIDEM surface water criteria and was extracted from NOAA's September 1999, Screening Quick Reference Tables (SQUIRTs).

As indicated on Table 16, sediment samples collected as part of the Phase II remedial investigation (179-SD1 through R179 SD3) indicated a variety of VOCs. Total VOCs in these samples ranged from 64 ppb (R179-SD1) to 110 ppb (R179-SD2). With the single exception of the presence of xylene in 179-SD3, each VOC was either present in the laboratory blank or was qualified with a "J" indicating:

> "...the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero."

As indicated on Table 17 a wide range of SVOCs were present in each of the sediment samples. Total SVOC concentrations ranged from 4,814 ppb in 179-SD3 to 11,910 ppb in 179-SD1. Three individual SVOC constituents (pyrene, benzo(a) anthracene, and chrysene) exceeded at least one of the NOAA standards provided on Table 17. As noted on Table 18 TPH was detected at concentrations ranging from 79 mg/kg or ppm (179-SD2) to 280 ppm (179-SD1). Once again, sample 179-SD1 collected from the upstream location approximately 90 feet east of the concrete UST indicated the highest concentrations of the three samples collected on-site. Total cyanide detections followed a similar pattern where 179-SD1 indicated the highest contamination (1.2 ppm) of the three sediment samples.

4.4 Quality Assurance/Quality Control

Phase 1A and 1B Geoprobe™ data quality assurance/quality control data is summarized on Tables 19A and 19B. A total of six duplicate samples were collected during the Phase 1A

program (Table 19A). Seven duplicate samples were collected during the Phase 1B program (Table 19B). As indicated on the aforementioned tables the relative percent difference between field gas chromatographic analysis and laboratory analysis varied between a low of 12% (GP-35 and GP-35 Dup) and a high of 184% (GP-11 and GP-11 Dup). In general, quantitative laboratory data from both the Phase 1A and 1B program indicated a consistently higher concentration of VOCs than that obtained from the on-site analysis. Additionally, the laboratory data detected a wider range of VOC compounds as compared to the limited number of VOCs quantified for the field analytical program. However, the relative proportion of key VOC compounds (e.g., 1,1,1-trichloroethane and 1,1-dichloroethane) was relatively consistent between on-site analysis and the off-site laboratory analysis.

Soil duplicate data is summarized on Table 20, ground water (2 samples) duplicate data is summarized on Table 21, and surface water (1 sample) and sediment (1 sample) duplicate data is summarized on Tables 22 and 23. The relative percent difference (RPD) between total constituent analysis for the sample and its duplicate (e.g., total VOCs for the sample are compared to total VOCs for the duplicate sample) are provided on Tables 20 through 23. RPD's are calculated as follows:

RPD = (absolute difference between two reported values/average of the two values)*100

For instance:

Table 23 – Total cyanide values: 179-SW2 = 4.3
179-SW21 = 6.1

RPD = [(6.1-4.3)/(6.1+4.3/2)]*100 = (1.8/5.2)/100 = 34.6 or 35%

The relative percent difference ranges for each media across all analytes is summarized below:

Media	RPD – Low	RPD High
Soil	0% (both ND)	174%
Ground Water	0% (both ND)	157%
Surface Water	0% (both ND)	35%
Sediment	5%	81%

Field blank and trip blank data is summarized on Table 24. As indicated no SVOCs, TPH or total cyanide was detected in the two field blanks collected during the Phase II remedial investigation. Total VOC concentrations in the three field blanks ranged from 9 ppb (SD-FB) to 17 ppb (MW-FB1). Total VOCs in the field blanks were comprised of two individual VOCs; acetone and methylene chloride. These same two VOCs along with 2-butanone, and 4-methyl-2-pentanone were also detected in the four trip blanks collected during the Phase II remedial investigation.

Acetone, 2-butanone, and methylene chloride are considered common laboratory contaminants in accordance with EPA's Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual. As such the guidance states:

"...if the blank contains detectable levels of common laboratory contaminants, then the sample results should be considered as positive results only if the concentrations in the sample exceed ten times the maximum amount detected in any blank."

Acetone was detected at up to 10 ppb in the field blanks and at up to 130 ppb in the trip blanks. Analytical results for soil, ground water, surface water, and sediment data do not indicate the presence of any acetone at a concentration that exceeds ten-times the blank concentration (1,300 ppb). Therefore, in accordance with EPA Risk Assessment guidance the presence of acetone in environmental media may be disregarded for purposes of risk assessment calculations.

2-Butanone was detected in a single trip blank at 31 ppb. Similar to acetone, 2-butanone was not present in any media samples at a concentration that exceeded ten-times the trip blank concentration (310 ppb).

Methylene chloride was detected in the field and trip blanks at up to 7 ppb. A single ground water sample (MW-7B) indicated the presence of methylene chloride at a concentration (230 ppb) that exceeded ten times the blank concentration. In addition, analytical results provided in Appendix G and summarized on the tables qualify the methylene chloride results as "J", or "B", or "JB" which indicates:

> *J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value which is less than the specified minimum detection limit but is greater than zero.*
>
> *B – This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.*

As noted above, analytical data generated during the Phase II ground water monitoring well sampling indicated the presence of methylene chloride in MW-7B at concentrations of environmental concern. Field screening conducted during the Phase IA Geoprobe exploration program did not indicate the presence of methylene chloride. However, field screening conducted during the Phase IB Geoprobe exploration program indicated methylene chloride in 19 out of 26 ground water samples at an average concentration of 40 ppb and a maximum concentration of 160 ppb. Quantitative laboratory analysis of a subset of the Phase IB samples also indicated the presence of methylene chloride at concentrations up to 19 ppb. Given the elevated concentration of methylene chloride detected at MW-7B immediately adjacent to the CUST, and the widespread detection of lower concentrations of methylene chloride, its presence cannot, at this time, be solely attributed to laboratory-induced contamination.

4.5 Recommendations for Additional Investigation

To fully achieve project objectives stated in Section 1.2 further investigation and analysis of the following areas is recommended.

1. Additional bedrock investigation and analysis is recommended to determine the extent of bedrock contamination identified at MW-7B immediately adjacent to the CUST. As noted in Section 4.3.2, MW-7B exhibited 23,000 ppb 1,1,1-trichloroethane, with a total VOC concentration of 25,980 ppb. Of the remaining four bedrock monitoring wells MW-9B exhibited the highest concentration of 1,1,1-trichloroethane at 250 ppb, with a total VOC concentration of 424 ppb.

   Investigation and analysis of bedrock conditions may include the installation of additional bedrock monitoring wells and the completion of down-hole geophysical logging and hydraulic testing to assess bedrock fracture conditions and zones of highest permeability. In addition, further characterization of the degraded bedrock zone may be useful to assess the influence this zone may have with respect to implementation and effectiveness of any remedial alternative proposed for site restoration. However, caution in execution of this investigatory program would be warranted given the nature of site contaminants and the potential presence of non-aqueous phase liquids.

2. Additional ground water sampling and elevation data is recommended to determine the nature and extent of contamination on-site due to fluctuating ground water conditions. Given the relatively flat hydraulic gradient observed at the site additional depth to water data would provide insight into seasonal flow conditions. Additional ground water sampling and laboratory analysis may provide further data on the nature of site contamination and assist in the identification of contaminants of concern.

3. Insufficient information exists at this time to make a clear, documented determination as to the applicability of the conditions established in Section 8.03(A)(ii) of RIDEM's Remediation Regulations. Lacking this determination RIDEM requires application of standards specified at Section 8.03(A)(iii)(2) of the Remediation Regulations. This section of the regulations requires use of a Method 2 or Method 3 approach for the development of standards for constituents that do not have existing numeric criteria. For this reason, further data analysis and risk assessment is recommended.

4. It is recommended that an assessment of the significance of the tetrachloroethene detected near Geoprobe points GP-134 and GP-148 be completed to assess the impacts, if any, on the B-179 Concrete UST Remedial Investigation.

5.0 REMEDIAL ALTERNATIVES

5.1 Introduction

In accordance with Section 7.04 of the RIDEM Remediation Regulations a series of remedial alternatives have been developed for application to the observed ground water impacts at the subject site. A total of four remedial alternatives other than the no action/natural attenuation alternative are summarized below:

Alternative Number 1 – Monitored Natural Attenuation
This remedial alternative proposes natural attenuation of ground water contamination in both the bedrock and overburden aquifers. Natural attenuation would be monitored through a focused program of ground water sample collection and analysis from a network of new and existing monitoring wells

Alternative Number 2 – Permeable Reaction Wall
This alternative addresses overburden ground water contamination through the installation of a permeable reactive barrier installed in the path of the contaminated ground water. This reaction wall would be coupled with strategically placed monitoring wells, induced pumping of overburden ground water near source areas, and long-term monitoring to assess effectiveness.

Alternative Number 3 – Enhanced Natural Attenuation/Bioremediation
This alternative proposes bioremediation of chlorinated VOCs observed in overburden ground water through use of either specialty designed bacterial cultures, or nutrient augmented natural bioremediation. This alternative also includes long-term monitoring of the overburden aquifer.

Alternative Number 4 – Ground Water Pump and Treat
This alternative proposes conventional pump and treat technology to address overburden ground water contamination. Extraction wells would be strategically located within the overburden aquifer to affect ground water removal. Ground water would then be treated in process equipment such as air stripping and carbon adsorption to remove aquifer contaminants prior to injection or infiltration of treated ground water back into the overburden aquifer.

A brief discussion and evaluation of each of the above alternatives is provided in Sections 5.2 through 5.5. As each alternative is described, select alternative variations are presented and a brief comparative analysis is conducted among these options against the evaluation criteria required pursuant to Section 7.04 of the RIDEM Remediation Regulations. In addition, each

alternative is supported by relevant data contained in the report, is consistent with the current and reasonably foreseeable land usage, and documents the following:

- Compliance with Section 8 (RISK MANAGEMENT),
- Technical feasibility of the preferred remedial alternative,
- Compliance with State and local laws or other public concerns, and
- The ability of the performing party to perform the preferred remedial alternative.

Due to the limited data generated from this RI, as well as the generally complex nature of bedrock flow systems; sufficient data has not been obtained to recommend a technically supportable remedial alternative that addresses the ground water impacts identified in the bedrock aquifer at MW-7B. As indicated in Section 4.0, further exploration of the bedrock system is recommended. Natural attenuation processes will continue within the bedrock aquifer system until further site-specific data on the nature and extent of contamination may be determined. For these reasons the remedial alternatives proposed in this section exclusively address overburden ground water contamination identified on-site. As indicated in Section 5.6 a comprehensive bedrock/overburden ground water remedial alternative has not been proposed at this point pending further investigation of the nature of bedrock groundwater contamination.

As indicated in Section 4.0, no soil contamination was identified above either Rhode Island Residential Direct Exposure or Leachability Criteria or EPA Risk-Based Standards during the RI. This is partially due to the focus of the RI on identification of the nature and extent of ground water contamination. Nonetheless, information available within FWENC's Final Project Closure Report for Building 179 Tank Closures at Naval Undersea Warfare Center (NUWC) Division Newport, Rhode Island, October 1999 indicates the presence of contaminated soil adjacent and/or potentially underneath the afterburner and 6,000-gallon above ground storage tank. This statement is based on a single sample collected from the northern sidewall of excavation grid 11 which indicated the presence of 3,500 ppm TPH. However, it should be noted that FWENC aggressively excavated impacted soil to the top of competent bedrock in the area surrounding the concrete UST and directly underneath and

surrounding B-179. Therefore, residual contamination, if any, may be present either within the upper fractured bedrock system or in soil/degraded bedrock underneath the wide array of subgrade utilities as well as the above grade afterburner and 6,000-gallon AST. However, as noted, no specific data was produced as a result of this RI to quantify the nature and extent of this soil contamination. For this reason, none of the alternatives directly address soil remediation. However, it is anticipated that residual soil contamination in this area may produce ground water that exceeds Rhode Island GA Ground water Objectives. Therefore, several options propose treatment of impacted ground water under and adjacent to these structures as a means of achieving site remediation.

According to Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, those concentrations of hazardous substances which pose a threat to human health and the environment include concentrations of hazardous substances in excess of the remedial objectives listed in Section 8.02 for soil and Section 8.03 for ground water. Available data suggests site ground water is contaminated with the following constituents above Rhode Island Class GA Ground Water Objectives identified in Section 4.0:

- methylene chloride,
- trichloroethene,
- 1,1,1-trichloroethane,
- total cyanide.
- tetrachloroethene,
- 1,1-dichloroethene,
- 1,2,4-trichlorbenzene, and

5.2 Description of Remedial Alternatives

The description of alternatives presented below addresses criteria provided in Section 7.04 of the RIDEM Remediation Regulations. Specifically, evaluation criteria include; technical feasibility, compliance with State and local laws or other public concerns, and the ability of the performing party to perform the preferred remedial alternative. The last evaluation criterion is addressed through development and presentation of preliminary cost estimates.

5.2.1 Alternative Number 1 – Monitored Natural Attenuation

As required by Section 7.04 of RIDEM's Remediation Regulations "This section must contain a minimum of two remedial alternatives other than the no-action/natural attenuation alternative...". Alternative Number 1 is intended as the no-action/natural attenuation alternative. This alternative employs natural attenuation, an alternative involving no remedial response activities for impacted soil and ground water at the site. No removal or treatment of contaminated surface or subsurface soil or ground water is proposed. This alternative relies on natural processes to degrade and reduce concentrations of constituents of concern to acceptable concentrations. The natural process that makes the largest contribution to contaminant reduction is biodegradation where constituents of concern are diminished by microbial metabolism.

> *The plume will expand until it reaches steady state where the rate of the contaminant contributed from the source is balanced with the rate of natural attenuation. At steady state the plume stabilizes. When the source is depleted to the point that the rate of natural attenuation exceeds the source input the result will be a shrinking of the plume. (Standard Guide)*

As indicated in Section 4.0, additional ground water monitoring wells would need to be installed to monitor the effectiveness of this alternative. Installation of an additional three to five wells is proposed to aid in monitoring overburden conditions to determine the overall natural attenuation of the plume. Monitoring for performance of natural attenuation should continue for as long as the contaminants of concern remain above the required clean-up levels. A quarterly monitoring program of ground water from site monitoring wells would be performed under this alternative to assess the effectiveness of natural attenuation of the contaminants in the overburden aquifer. The 13 existing monitoring wells and 5 proposed wells would be sampled and analyzed for the contaminants of interest on the site including chlorinated VOCs such as 1,1,1-trichloroethane, 1,1-dichlorethane, methylene chloride, 1,1-dichloroethene, tetrachloroethene, trichloroethene, as well as SVOCs, TPH, and total cyanide.

This method would provide no active reduction in the toxicity, mobility or volume of contaminants in site soil or ground water. It would also provide no direct participatory protection of human health or the environment. However, natural attenuation may be appropriate for this site due to the removal of a majority of the source of contamination when soil from Building 179 was excavated and disposed off-site is considered along with the lack of an down gradient overburden drinking water supply. The Newport Water Department receives its water supply from a series of seven surface water reservoirs located on Aquidneck Island and two surface water reservoirs (Tiverton and Fall River) on the mainland. Each of these is supplied water via rainfall and is not augmented by ground water supply wells. Private wells are reported to withdraw water from till, bedrock, and stratified-drift aquifers. Of these aquifers, bedrock is considered the most reliable source of ground water. No drinking water surface reservoirs are present in the vicinity of the site and no private residences are located topographically down gradient of the site. The expected direction of overburden ground water flow would provide a degree of protection of human health based on the limitation of potential exposures due to direct contact with overburden ground water.

5.2.2 Alternative Number 2 – Permeable Reaction Wall

This alternative involves treatment of the overburden aquifer through construction of a passive in situ permeable reactive barrier. This barrier would consist of a treatment zone of reactive material chosen to degrade or immobilize contaminants of concern as ground water flows through it. In its simplest form it is a trench filled with porous reactive material and placed in the path of a ground water contaminated plume. The barrier would be constructed from the ground surface to an impermeable lower barrier such as competent bedrock. The existing degraded bedrock would be scraped away and the barrier placed directly on the competent bedrock, interlocking with the bedrock, to prevent water from flowing under the barrier and to prevent any wicking action by providing a uniform barrier from the ground surface to impenetrable bedrock.

> *"As the plume passes through the reactive material, the target contaminants are degraded to potentially nontoxic compounds. Several variations of this simple configuration are possible depending*

on individual site characteristics. One common variation is the funnel and gate system, which combines permeable (gate) with impermeable (funnel) sections of the barrier to capture increased flow and better distribute the contaminant loading on the reactive material. A simple gate could consist of a reactive cell or trench filled with the reactive medium (e.g., granular iron). The gate also could be divided into a reactive cell and other components. For example, pea gravel sections could be installed along the up-gradient and down-gradient edges of the reactive cell to improve porosity and mixing of the influent and effluent through the gate." (Permeable Reactive Wall Remediation)

The barrier could be composed of granular zero-valent iron, a strong reducing agent or other reactive and/or bioactive media. A capture zone estimate is based on ground water velocity, porosity and dimensions of the reactive cell and aquifer. The barrier can be installed as a permanent, semi-permanent, or replaceable component placed across the flow path of the contaminant plume. A funnel-and-gate system may be appropriate for the B-179 ground water application where an impermeable structure (the funnel) is used to alter flow patterns and direct ground water flow to the reactive material (the gate).

This alternative includes installation of a series of approximately five monitoring wells placed in the direct vicinity of the reactive wall. Three down gradient wells would be installed to ensure contaminant removal, to check contaminant breakthrough, to monitor for the presence of by-products, and to inspect the change in ground water velocity and pressure due to the permeability of the reactive material. Two monitoring wells would be installed up-gradient to assess the performance of the reaction wall.

Treatment of the overburden aquifer would also include an active pumping component to withdraw and transfer any impacted ground water present in the vicinity of the afterburner, abandoned-in-place concrete UST and other structures over to an infiltration system near the reactive barrier. A series of three extraction wells would be located along the northern side of the afterburner, the 6,000-gallon aboveground storage tank, and the former CUST in order to draw impacted ground water into the wells and provide ground water/contaminant removal from under these structures. This method is preferable to soil removal due to the structural problems associated with soil removal under the afterburner, the abandoned in-place concrete

UST, and the 6,000-gallon AST. However, the placement of extraction wells would need to be carefully evaluated due to the wide array of subsurface utility systems in this area. In addition, structural considerations and operational impacts on the existing uses of this area would need to be carefully considered prior to placement.

Extracted ground water from the afterburner, the abandoned in-place concrete UST, and the 6,000-gallon AST would be directed to an infiltration trench in order to reintroduce the water to the water table up-gradient of the permeable barrier. The extraction wells would serve the additional function of drawing ground water contamination away from Building 179.

This alternative would introduce five strategically placed monitoring wells as discussed in Section 5.2.1 to monitor the contaminants in the overburden aquifer on a periodic basis.

There are two components to the permeable barrier alternative that should be considered during the design phase of the remediation project. The first is the hydrologic component, which involves an evaluation of transportation of the ground water to the permeable barrier. The second component is the treatment aspect of the design which requires an evaluation of the content and size of the reactive barrier needed to reduce the contaminants of concern to below the Rhode Island GA ground water objectives or, if unavailable, to below appropriate EPA or other health-based standards. These components of the design will require an evaluation of the shape, orientation and thickness of the permeable barrier

5.2.3 Alternative Number 3 – Enhanced Natural Attenuation/Bioremediation

This alternative proposes treatment of the overburden aquifer using either natural or enhanced bio-remediation. Enhanced biodegradation may be accomplished through the addition of anaerobic or aerobic bacteria and an associated nutrient or oxygen source.

Butane-utilizing bacteria may be used to affect anaerobic biodegradation since the butane bacteria are generally less susceptible to the toxic effects of elevated chlorinated compound concentrations as compared to methane or propane. This process utilizes the ability of

anaerobic bacteria to degrade chlorinated compounds. In general, anaerobic bacteria decompose compounds that are resistant to attack by aerobic bacteria. The introduction of butane bio-stimulation is highly effective at biodegradation of methylene chloride, 1,1,1-trichloroethane, and 1,1-dichloroethane as well as 1,1-dichlorethene. Augmentation of naturally occurring bacteria with bacterial cultures designed to degrade specific organic contaminants can be incorporated, if required. Prior to implementation, a treatability study would be necessary to define the nutrient and supplemental bacteria requirements of the site. The addition of the nutrient blend is commonly accomplished through injection to ground water in a trench system. This trench system would be placed just at or below the observed water table. If bacterial supplementation were required, periodic inoculation of the ground water with the bacterial cultures would be required to maintain interactions between the bacteria and organic contaminants of concern.

Degradation of the constituents of concern can also be accomplished by providing aerobic subsurface conditions which involves injection of a nutrient and an oxygen source to promote growth of the naturally occurring bacterial cultures on-site. The four types of oxides generally used in this process are hydrogen peroxide (H_2O_2), potassium permanganate ($KMnO_4$), and ozone or dissolved oxygen. Enrichment with dissolved oxygen is reported to stimulate biological processes. This process can be used for remediation of ground water, sediment, and soils and for a variety of soil types including silt. It has been shown to be effective in treatment of VOC's including dichloroethene, trichloroethene, tetrachloroethene, SVOC's and BTEX compounds. This method of remediation favors rapid treatment time to months as opposed to years, significantly reducing the cost of remediation. However, the technology is limited by the physical properties of the aquifer materials whereby low permeability materials are less amenable to treatment since the material restricts fluid movement.

5.2.4 Alternative 4 - Ground Water Pump and Treat

This alternative enlists conventional pump and treat technology for remediation of the overburden aquifer. The first component of this alternative involves ground water extraction. Based on a preliminary evaluation of extraction options, an interceptor drain appears to be the

most effective means of ground water extraction. The final extraction method would be determined through actual design efforts. Extraction of ground water could be accomplished through the installation of an interceptor drain established above bedrock. An extraction trench is proposed due to the relatively low permeability (less than about 5 feet per day) of site overburden soil. Extraction wells or well points would have narrow "cones of influence" in this setting. In addition, frequent pump shut-offs due to well drying would hinder an attempt to maintain an effective, consistent capture zone. Therefore, a larger number of wells or points would be needed for complete extraction. These factors generally favor extraction from a trench over wells or well points.

The conventional pump and treat system would employ air-stripping towers to reduce the contaminants to below Rhode Island GA ground water objectives and below EPA standards for the constituents of concern at the site. The pump and treat method involves ground water extraction followed by treatment in a series of process units designed to remove constituents of concern. Typical processes used to separate contaminants from ground water include air stripping and carbon adsorption. In air stripping contaminated water is generally directed downward over a high surface area media, and a countercurrent airsteam selectively removes contaminants depending on the physical properties of the contaminants. In general, this technology is most appropriate for VOCs with high Henry's law constants. The process could be accomplished using either a packed column or tray air stripper. The resultant differences in the volatility of the organic contaminant and water allow the preferential separation of the VOCs from the water stream. The tray air stripper has the advantage over packed column stripper of being simpler to install and maintain. The final air stripper configuration would be determined during the final design. In addition, water treatment may also be required to reduce the deleterious effects of inorganic fouling of the treatment system.

Additional water treatment may be accomplished through liquid or vapor phase activated carbon. The wastewater generated from the air stripping unit would be treated by the passage of the contaminated water through activated carbon adsorption beds, either in a series or a parallel configuration. The carbon selects organic material from the waste stream by

adsorption onto active pore spaces within the carbon structure. After the active carbon adsorption sites are filled or physically blocked by the presence of silt, microbial film, or precipitate organic material, the carbon is typically replaced with fresh carbon. Inorganic pre-treatment would reduce the physical clogging of the carbon pore space thereby lengthening the life of the carbon. Spent carbon is then transported off-site for regeneration to remove the adsorbed contaminant.

5.3 Technical Feasibility

The technical feasibility of each alternative is discussed in terms of meeting the objectives of the remediation effort and the reliability of the proposed method to remove contaminants to below Rhode Island GA Ground Water Objectives, or if unavailable, EPA or equivalent health-based standards.

5.3.1 Alternative Number 1 – Monitored Natural Attenuation

The no action/natural attenuation alternative requires no implementation. The implementation of this alternative does not limit the future implementation of additional remedial actions. The no action/natural attenuation alternative would require the installation of an estimated three to five monitoring wells, periodic sample collection, analysis, and analytical reporting of results from the exiting overburden and bedrock monitoring wells.

The no action/natural attenuation alternative would provide no active reduction in the toxicity, mobility, or volume of ground water contamination. It would also provide no direct protection of human health or the environment. Ground water contamination would be allowed to remain on the site with potential long-term reduction due to natural biodegradation and attenuation processes. This alternative would not be effective in reducing ground water contaminants below applicable standards in a short period of time. Given the 30 or so year period between the soil contamination event and the present time, natural attenuation processes may have reduced site contaminants to some degree, but have not effectively reduced concentrations below RIDEM Class GA ground water standards. Additionally, natural attenuation processes may result in the continued transformation of site contaminants

to more toxic daughter products such as the potential that low levels of trichloroethene may biodegrade to vinyl chloride. In addition, the specific hydrologic and geochemical conditions that favor biodegradation of chlorinated compounds are not often found in natural conditions. This alternative has some other disadvantages including, time frame to achieve remediation objectives and the continued need for long term monitoring.

While monitored natural attenuation may not be effective in achieving ground water remediation goals in the short term, overburden ground water impacts to human health appear to be minimal. Therefore, the long-term ground water monitoring program may be used to monitor the effectiveness of natural attenuation and if conditions arise which indicate a public health or ecological threat, action may be taken at that time. Given the removal of the highly impacted source material during the B-179 soil removal activity by FWENC, natural attenuation processes may accelerate as contaminant loading to the aquifer has been eliminated and/or dramatically reduced.

5.3.2 Alternative Number 2 – Permeable Reaction Wall

This alternative would be moderately easy to implement. The technology was developed to provide an alternative that reduces the toxicity, mobility and volume of the contaminated ground water on site and is a practical alternative to more aggressive treatment techniques. This alternative would require excavation and construction of a permeable reactive barrier to an estimated depth of between 5 and 10 feet over an approximate 240-foot length between Building 438 and the unnamed stream. Construction of the reactive barrier could be accomplished using relatively common earth working equipment. However, excavation in close proximity to roads, adjacent building foundations, and the plethora of underground utilities would complicate the excavation effort. The reactive barrier would be oriented in an east-west direction down gradient from the former concrete UST, the interceptor tank, and the 6,000-gallon AST. Available information suggests that a zero-valent iron media, a strong reducing agent, is effective in degradation of 1,1,1-trichloroethane, trichloroethene, 1,1-dichloroethane, and c-1,2 dichloroethene. However, given the relatively new status of this technology and the variability of effectiveness reported in the literature for the specific

contaminants of concern identified at the B-179 project site, pilot scale testing and further analysis would be required to effectively design and implement a reactive wall treatment alternative at the site.

5.3.3 Alternative Number 3 – Enhanced Natural Attenuation/Bioremediation

This alternative would be relatively easy to implement. The design of this treatment type is based on the contaminant concentration and subsurface conditions. Once the volume and composition of the site-specific treatment had been determined, the method of delivery of the oxidants to contaminated ground water would be the most cumbersome concern.

> *"The oxidant can be injected through a well or injector head directly into the subsurface, mixed with a catalyst and injected, or combined with an extract from the site and then injected or recirculated. In the case of hydrogen peroxide, stabilizers may be needed because of the compounds volatility." (In Situ Remediation Technology)*

The installation of approximately 10 injection wells would be evaluated for size, adequate cone of influence, determination of appropriate location, and target depths of contaminants based on water table elevations. The application may involve introduction of an oxygen source such as H_2O_2, an iron catalyst, and an acid to control pH.

5.3.4 Alternative Number 4 – Ground Water Pump and Treat

Ground water collection via an extraction trench is expected to be effective in achieving the desired extraction. Ground water extraction using an interceptor drain system should provide a continuous collection zone over the length of the drain. Given the likely high differences in permeability of the trench backfill (crushed stone) and low permeability native soil, drainage of ground water into the trench should be effective.

The traditional pump and treat method although relatively simple to implement, can be ineffective due to the failure of this type of system to treat adsorbed-phase contamination within the soil matrix. In addition, the extracted contaminants must be disposed of separately and they require considerable investment over a long period of time. A more effective

system, reflected by the scientific trend in this direction, is treatment of soil and ground water in place. The long-term effectiveness of this treatment system is anticipated to be good based on the flexibility of the system to accommodate varying contaminant loads, since the activated carbon stabilizes the biological system from upsets or toxic shocking. In general, pilot testing of the selected treatment technology would be required to assess removal efficiency for the particular mixture of contaminants present in site ground water.

5.4 Compliance with State and Local Laws

In general, each of the alternatives could be readily implemented and attain compliance with applicable state and local laws. However, given the nature of the site at a federal facility, select local ordinances may not be applicable to the project. In addition to the requirements described below, the selected remedy would require review by the NUWC Division, Newport Environmental Review Board (ERB). The ERB is NUWC Division, Newport's method of screening site activities to determine compliance with applicable environmental regulations and Naval policy. A brief description of likely state and local regulations applicable to each alternative is provided below.

5.4.1 Alternative Number 1 – Monitored Natural Attenuation

Implementation of this alternative would require installation of additional monitoring wells at the site. Installation of wells would likely be subject to the exclusion to RIDEM Wetland regulations Pursuant to Section 6.10 of RIDEM's Rules and regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act:

> *"The following monitoring and research activities are permitted in accordance with Rule 6.01 without written authorization from the Department provided that there is no permanent loss of wetland, and that any soil disturbance is stabilized and the area is allowed to revert to its natural condition.*
>
> *A. Installing ground water monitoring wells to determine the depth to the water table or the extent of subsurface contaminants;..."*

During installation and sampling of monitoring wells, investigation derived waste would be generated, classified by the NUWC Division, Newport Environmental Division and be properly

disposed of in accordance with state and federal regulations (RCRA) and RIDEM's Policy Memo 95-01 "Guidelines for the Management of Investigation Derived Wastes".

5.4.2 Alternative Number 2 – Permeable Reaction Wall

In addition to the requirements described in Section 5.4.1 above, installation of the permeable barrier will likely require a wetlands permit from the Rhode Island DEM for work within a 50-foot perimeter wetland. In addition, a general storm water permit for construction activities may be required with the adoption of recent EPA Phase II Regulations and their expected implementation by the RIDEM. Additionally, coordination with local utility services supplier (Naval Station Newport) would be necessary for any excavation effort at the site.

5.4.3 Alternative Number 3 – Enhanced Natural Attenuation/Bioremediation

In addition to the requirements described in Section 5.4.1 above, the underground injection of biodegradation enhancing bacteria, nutrients, or oxidants into the overburden aquifer would likely require the filing of request for an order of approval from the Rhode Island DEM.

5.4.4 Alternative Number 4 – Ground Water Pump and Treat

In addition to the requirements described in Section 5.4.1 above, the pump and treat alternative proposed to remediate the overburden aquifer may require evaluation as to the need for a wetland permit through the preparation and filing of a preliminary determination of applicability or PDA with RIDEM. Such a permit may be necessary due to either the removal of potential recharge water to the wetland or due to the proximity of the system components to the 50-foot perimeter wetland. A discharge permit from the City of Newport may be necessary to release the resulting water from the carbon filters into the sewer system. Treatment of the air stripper residual gas could be required to comply with Rhode Island air pollution regulations.

5.5 Ability of Performing Party to Perform the Preferred Remedial Alternative

As required in Section 7.04 of the RIDEM Remediation Regulations the ability of the performing party to perform the preferred remedial alternative is addressed in this section. This criterion is addressed through development and presentation of preliminary cost estimates.

5.5.1 Alternative Number 1 – Monitored Natural Attenuation

The cost estimate includes elements relating to:

- preparation of a submittal to RIDEM describing the location of proposed monitoring wells, rationale for well location, and proposed well installation methods and procedures (Engineering/Design/Permitting) and
- preparation of a site plan indicating final location of monitoring wells, soil boring logs, and any other site-specific data produced from the well installation. (Engineering Report).

Capital Costs

- Engineering/Design/Permitting (Lump Sum) $15,000
- Engineering Report $10,000
- Installation of 5 bedrock monitoring wells @$2000/ea $10,000

Total..... $35,000

Operations and Maintenance (O&M) Costs

- Yearly cost to sample 5 bedrock and 8 overburden monitoring wells four times per year $10,000
- Yearly analytical costs $24,000
- Yearly engineering report $10,000

Total..... $44,000/yr

Net Present Value (NPV) = Capital Costs + NPV O&M Costs over 30 years. Note that NPV is calculated assuming a 6% interest escalation.

Alternative 1 - Monitored Natural Attenuation NPV = $647,000

5.5.2 Alternative Number 2 – Permeable Reaction Wall

Capital Costs

- Engineering/Design/Permitting (Lump Sum) $50,000
- Engineering Report $10,000
- Installation of infiltration trench ..... $ 8,000
- Installation of 6 foot wide treatment wall 10 feet deep..... $80,000
- Installation of 5 overburden monitoring wells..... $ 4,000

Total..... $152,000

Operation and Maintenance Costs

- Yearly cost to sample 5 overburden wells quarterly ..... $ 4,000
- Yearly analytical costs ..... $ 9,000
- Yearly engineering report ..... $ 6,000

Total..... $19,000/yr

Alternative 2 – Permeable Reaction Wall NPV = $416,000

5.5.3 Alternative Number 3 – Enhanced Natural Attenuation/Bioremediation

Capital Costs

- Engineering/Design/Permitting (Lump Sum) $20,000
- Engineering Report $25,000
- Installation of 10 injection and monitoring wells @2000..... $20,000

Total..... $65,000

Operations and Maintenance Costs

- Yearly sampling of 10 overburden monitoring wells four times per year ..... $ 7,500
- Yearly analytical costs $18,000
- Yearly engineering report ..... $ 9,500

Total..... $35,000/yr

Alternative 3 – Enhanced Natural Attenuation /Bioremediation NPV = $551,000

5.5.4 Alternative Number 4 – Ground Water Pump and Treat

Capital Costs

- Monitoring for design parameters ..... $ 40,000
- Ground water modeling ..... $ 30,000
- Design and install equipment $500,000
- Design Report ..... $ 30,000

Total..... $600,000

Operation and Maintenance Costs

- Yearly sampling of 10 monitoring wells four times per year ..... $ 7,500
- Analytical costs $18,000
- Yearly engineering report ..... $ 9,500

Total..... $35,000/yr

Alternative 4 – Ground Water Pump and Treat
NPV = $1,087,000

5.6 Preferred Remedy

As indicated in Section 4.5 additional investigation is recommended to fully define the nature and extent of contamination within the bedrock aquifer at the site. Given the nature of site contamination and the desire to propose a comprehensive, cost effective remedial alternative that addresses the both overburden and bedrock groundwater contamination, designation of a preferred remedy designation will be deferred pending completion of a comprehensive remedial investigation.

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Petroleum Hydrocarbons (TPH), Total Cyanide, and Total Organic Carbon (TOC) Compounds

Table 21 *Duplicate Samples - Groundwater Data – Volatile Organic Compounds, Semi-Volatile Organic Compounds, Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds*

Table 22 *Duplicate Samples – Sediment Data - Volatile Organic Compounds, Semi-Volatile Organic Compounds, Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds*

Table 23 *Duplicate Samples – Surface Water Data - Volatile Organic Compounds, Semi-Volatile Organic Compounds, Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds*

Table 24 *Field Blank and Trip Blank Data*

Table 1A

Phase IA Geoprobe Groundwater Physical Parameters

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Geoprobe Number	pH (Standard Units)	Conductivity (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (Degrees C)
GP-01	*	*	*	*	*
GP-02	*	*	*	*	*
GP-03	6.20	0.210	520	12.7	20.0
GP-04	*	*	*	*	*
GP-05	6.22	0.470	141	13.2	10.8
GP-06	*	*	*	*	*
GP-07	6.24	0.434	150	11.29	6.3
GP-08	6.67	0.423	4.35	13.91	2.7
GP-09	6.57	0.470	226	13.23	3.4
GP-10	6.84	1.010	136	11.03	6.6
GP-11	6.46	0.278	>999	10.92	7.4
GP-12	6.25	0.486	>999	12.74	8.2
GP-13	6.77	0.428	143	12.05	9.2
GP-14	6.24	0.548	1.16	12.16	7.3
GP-15	--	--	--	--	--
GP-16	6.72	0.195	109	13.71	10.7
GP-17	5.88	0.208	110	10.83	8.6
GP-18	6.31	0.057	97	10.95	8.2
GP-19	6.08	1.600	107	12.09	5.5
GP-20	5.31	3.370	85	11.33	7.3
GP-21	6.55	0.485	100	10.54	8.2
GP-22	*	*	*	*	*
GP-23	6.36	0.662	111	9.95	8.0
GP-24	*	*	*	*	*
GP-25	*	*	*	*	*
GP-26	6.41	0.526	103	10.34	8.1
GP-27	6.53	0.777	>999	10.78	8.0
GP-28	6.52	0.506	157	10.04	9.4
GP-29	6.61	4.520	158	10.31	9.3
GP-30	*	*	*	*	*
GP-31	*	*	*	*	*
GP-32	6.74	0.465	119	10.52	9.3
GP-33	6.35	0.481	121	11.04	9.1
GP-34	6.48	0.374	119	11.89	7.6
GP-35	5.87	0.169	118	11.28	8.0
GP-36	6.21	0.550	111	12.14	6.5
GP-37	6.14	0.286	>999	14.27	7.7
GP-38	5.67	0.097	140	14.26	7.2

Note:

1. "*" indicates Geoprobe location was dry.
2. "–" indicates No Field Measurements were taken. This was the result of not having sufficient water to extract from the Geoprobe well.
3. ">999" indicates the turbidity exceeded the ability of the field measurement equipment. Field measurements were taken using a Horiba U10 Water Checker Meter.

Table 1B
Phase IB Geoprobe Groundwater Physical Parameters
Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Geoprobe Number	pH (Standard Units)	Conductivity (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (Degrees C)
GP-10A	–	–	–	–	–
GP-29A	6.11	0.587	571	0.0	19.7
GP-29B	6.01	0.627	999	0.0	20.8
GP-31A	–	–	–	–	–
GP-32A	5.64	0.544	999	-0.01	22.7
GP-32B	*	*	*	*	*
GP-53	–	–	–	–	–
GP-54	–	–	–	–	–
GP-55	–	–	–	–	–
GP-61	–	–	–	–	–
GP-62A	–	–	–	–	–
GP-62	–	–	–	–	–
GP-63	–	–	–	–	–
GP-70	5.68	0.669	999	4.53	16.9
GP-80	–	–	–	–	–
GP-81	5.62	0.605	999	-0.01	19.6
GP-82	6.09	0.554	459	4.72	15.9
GP-85	5.26	0.793	676	4.4	15.5
GP-86	5.61	0.668	522	5.03	15.9
GP-87	–	–	–	–	–
GP-88	–	–	–	–	–
GP-90A	5.88	0.0	999	-0.01	21.4
GP-90	5.58	0.0	999	-0.01	19.2
GP-91	–	–	–	–	–
GP-92	5.63	0.512	672	-0.01	18.3
GP-93	6.06	0.485	876	-0.01	20.3
GP-94	5.94	0.603	604	0.0	19.4
GP-95	–	–	–	–	–
GP-96	5.45	0.01	624	4.88	17.6
GP-100A	5.96	0.581	648	-0.01	22.9
GP-100	6.98	0.035	769	0	22.9
GP-101	–	–	–	–	–
GP-102	5.96	0.0	752	0.0	21.4
GP-103	6.15	0.514	999	-0.01	21
GP-104	6.56	0.24	901	0.1	24.1
GP-110A	5.9	0.0	999	0.0	21.0
GP-110	*	*	*	*	*
GP-111	6.15	0.0	885	0.0	20.3
GP-112	6.47	0.512	650	-0.01	19.9
GP-113	5.50	0.467	999	-0.01	19.4
GP-114	5.90	0.295	848	-0.01	20.7
GP-115	5.99	0.292	999	-0.01	20.1
GP-120A	6.42	0.327	999	9.1	17
GP-120	*	*	*	*	*
GP-121	*	*	*	*	*
GP-122	6.08	0.444	587	-0.01	20.1
GP-123	6.18	0.411	999	-0.01	18.7
GP-124	5.91	0.471	999	0.0	18.1
GP-125	5.59	0.0	999	4.58	20.6
GP-130A	610	0.0	608	-0.01	21.8
GP-130	6.3	0.393	497	-0.01	19.0
GP-131	5.94	0.502	648	-0.01	20.2
GP-132	*	*	*	*	*
GP-134	6.32	0.288	433	0.01	15.8
GP-136	–	–	–	–	–
GP-137	6.48	0.303	17	9.64	16.3
GP-140A	–	–	–	–	–
GP-140	–	–	–	–	–
GP-142	*	*	*	*	*
GP-147A	6.38	0.492	221	10.09	15.8
GP-147B	6.56	0.456	18	10.14	15.6
GP-148A	6.4	0.236	498	10.29	16.4
GP-148	6.13	0.257	456	10.7	16.8
GP-150A	–	–	–	–	–
GP-150	6.28	0	625	10.55	19.8
GP-151	6.42	0.244	456	10.35	18.8
GP-152	5.99	0.197	552	9.78	19.6
GP-160A	–	–	–	–	–
GP-160B	6.49	0.281	498	11.07	17.4
GP-160C	–	–	–	–	–
GP-160	–	–	–	–	–

Note:
1. "*" indicates Geoprobe location was dry.
2. "- -" indicates No Field Measurements were taken. This was the result of not having sufficient water to extract from the Geoprobe well.
3. Field measurements were taken using a Horiba U10 Water Checker Meter.

Phase IA Geoprobe Groundwater Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Analyte	1,1 DCE	CH2CL2	t-1,2 DCE	1,1 DCA	c-1,2 DCE	1,1,1 TCA	CCL4	TCE	1,1,2 TCA	PCE	Total VOCs
Detection Limit	2.5 ug/L	2.5 ug/L	2.5 ug/L	2.5 ug/L	2.5 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	
Geoprobe Location											
GP-03	--	--	--	199.00	--	118.00	--	--	--	--	317.00
GP-05	--	--	--	253.00	--	166.00	--	--	--	--	419.00
GP-07 (10)	--	--	--	41.20	--	17.90	--	--	--	--	59.10
GP-08	--	--	--	--	--	20.00	--	--	--	--	20.00
GP-09	--	--	--	--	--	2.40	--	--	--	--	2.40
GP-10	--	--	--	--	--	0.31	--	--	--	--	0.31
GP-11 (10)	--	--	--	--	--	0.29	--	--	--	--	0.29
GP-12	--	--	--	31.50	--	15.20	--	--	--	--	46.70
GP-13	--	--	--	--	--	--	--	--	--	--	ND
GP-13D	--	--	--	--	--	--	--	--	--	--	ND
GP-14	--	--	--	--	--	0.59	--	--	--	--	0.59
GP-15	--	--	4.40	--	--	--	--	--	--	--	4.40
GP-16	--	--	--	48.00	--	31.00	--	--	--	--	79.00
GP-17	--	--	--	242.00	--	163.00	--	--	--	--	405.00
GP-18	--	--	--	--	--	1.01	--	--	--	--	1.01
GP-18D	--	--	--	--	--	0.77	--	--	--	--	0.77
GP-19	29.20	--	--	2.14	50.90	1.61	--	--	0.39	--	84.24
GP-20	--	--	--	--	--	79.20	--	--	--	--	79.20
GP-21	4.05	--	--	9.91	--	0.77	--	--	--	--	14.73
GP-26	--	--	--	--	--	235.00	--	--	--	--	235.00
GP-27 (10)	--	--	--	3,260.00	--	788.00	--	--	--	--	4,048.00
GP-28	--	--	--	142.00	--	15.70	--	--	--	--	157.70
GP-29	--	--	--	17.50	--	0.42	--	--	--	--	17.92
GP-29D	--	--	--	24.60	2.93	0.66	--	--	--	--	28.19
GP-32	--	--	--	--	--	17.30	--	--	--	--	17.30
GP-33	--	--	--	17.70	--	0.40	--	--	--	--	18.10
GP-34 (10)	--	--	--	348.00	--	163.00	--	--	--	--	511.00
GP-35 (10)	--	--	--	57.10	--	33.00	--	--	--	--	90.10
GP-36 (10)	--	--	--	--	--	1.52	--	--	--	--	1.52
GP-37	--	--	--	105.00	25.90	62.30	--	--	--	--	193.20
GP-38	--	--	--	39.90	--	22.10	--	--	--	--	62.00
GA Groundwater Objectives(5)	7.00	NA	100.00	NA	70.00	200.00	5.00	5.00	5.00	5.00	
EPA Maximum Contaminant Level (6)	7.00	5.00	100.00	NA	70.00	200.00	5.00	5.00	5.00	5.00	
EPA Risk-Based Concentrations(7)	0.44	4.10	120.00	800.00	611.00	540.00	0.16	1.60	0.19	1.10	

Notes:

1. 1,1 DCE = 1,1-dichloroethene; CH2CL2 = methylene chloride; t-1,2 DCE = trans-1,2-dichloroethene; 1,1 DCA = 1,1-dichloroethane; c-1,2 DCE = cis-1,2-dichloroethene; TCE = trichloroethene; 1,1,1 TCA = 1,1,1-trichloroethane; CCL4 = carbon tetrachloride; 1,1,2 TCA = 1,1,2-trichloroethane; PCE = tetrachloroethene
2. "- -" indicates the analyte not detected above the specified reporting limit.
3. "D" indicates a field duplicate sample e.g., GP-13D is a duplicate of sample GP-13.
4. Samples analyzed by Target Environmental Services, Inc. in a mobile on-site laboratory using EPA Method 8010M.
5. Extracted from August 1996 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
6. Extracted from EPA Office of Groundwater and Drinking Water, Current Drinking Water Standards.
7. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
8. "NA" indicates not available.
9. Boxed area indicates results exceed RIDEM's GA Groundwater Objectives or EPA's Maximum Contaminant Levels.
10. Duplicates of these samples were sent to Milkem Corporation as part of the QA/QC.

Table 2B
Phase IB Geoprobe Groundwater Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation Phase II

Analyte	1,1 DCE	CH2CL2	1,1 DCA	1,1,1 TCA	TCE	PCE	BNZ	TLN	EBNZ	TXYL	Total VOCs
Detection Limit	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	1.0 ug/L	2.0 ug/L	4.0 ug/L	4.0 ug/L	
Geoprobe Location											
GP-32A	--	10.00	16.00	49.00	--	--	--	--	--	--	75.00
GP-32B	--	4.00	21.00	20.00	--	--	--	--	--	--	45.00
GP-61	--	74.00	200.00	88.00	--	--	--	--	--	--	340.00
GP-62A	--	11.00	20.00	28.00	--	--	--	--	--	--	59.00
GP-80	-	97.00	140.00	98.00	--	--	--	--	--	--	335.00
GP-81	--	29.00	75.00	70.00	--	--	--	--	--	--	174.00
GP-82	--	43.00	110.00	110.00	--	--	--	--	--	--	263.00
GP-85(8)	--	7.10	14.00	--	--	--	--	--	--	--	21.10
GP-90	--	60.00	100.00	100.00	--	--	--	--	--	--	260.00
GP-90A	--	75.00	130.00	120.00	5.8	--	--	--	--	--	330.80
GP-91	--	6.10	--	--	--	--	--	--	--	--	8.10
GP-92	--	82.00	120.00	92.00	5.1	--	--	--	--	--	299.80
GP-93	--	--	18.00	9.60	--	--	--	--	--	--	25.60
GP-94	--	27.00	60.00	52.00	--	--	--	--	--	--	139.00
GP-95	--	21.00	96.00	73.00	--	--	3.5	66.0	35.0	140.0	2,034.50
GP-100A(8)	--	180.00	200.00	180.00	7.4	--	--	--	--	--	547.40
GP-100A(D)	--	150.00	180.00	150.00	6.4	--	--	--	--	--	488.40
GP-100A(D)	--	100.00	180.00	120.00	--	--	--	--	--	--	400.00
GP-101	--	--	6.20	8.40	--	--	--	--	--	--	14.60
GP-102	7.30	--	55.00	41.00	--	--	--	--	--	--	103.30
GP-103	--	--	20.00	10.00	--	--	--	--	--	--	30.00
GP-110A	--	68.00	160.00	130.00	6.40	--	--	--	--	--	364.40
GP-110	--	--	--	22.00	--	--	--	--	--	--	22.00
GP-111	--	8.3	58.0	58.0	--	--	--	--	--	--	124.30
GP-112	--	4.30	44.00	33.00	--	--	--	--	--	--	81.30
GP-113	--	13.00	39.00	46.00	--	--	--	--	--	--	98.00
GA Groundwater Objectives(6)	7.00	NA	NA	200.00	5.00	5.00	5.00	1,000.00	700.00	10,000.00	
EPA Maximum Contaminant Level (7)	7.00	5.00	NA	200.00	5.00	5.00	5.00	1,000.00	700.00	10,000.00	
EPA Risk-Besed Concentrations(8)	0.44	4.10	800.00	540.00	1.60	1.10	0.38	750.00	1,300.00	12,000.00	

Notes:

1. 1,1 DCE = 1,1-dichloroethene CH2CL2 = methylene chloride 1,1 DCA = 1,1-dichloroethane 1,1,1 TCA = 1,1,1-trichloroethane
   TCE = trichloroethene PCE = tetrachloroethene BNZ = Benzene TLN = Toluene
   EBNZ = Ethyl Benzene TXYL = Total Xylenes
2. Geoprobe installation by Mykrowaters, Inc. from September 28 to October 2, 1998.
3. Sample analyzed by Mykrowaters, Inc. in a mobile on-site laboratory using SRI 8610 Gas Chromatograph.
4. "--" indicates the analyte not detected at or above the specified detection limit.
5. "(D)" indicates a field duplicate sample e.g., GP122D is a duplicate of sample GP-122.
6. Extracted from August 1998 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
7. Extracted from EPA Office of Groundwater and Drinking Water, Current Drinking Water Standards.
8. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
9. "NA" indicates not available.
10. Boxed area indicates results exceed RIDEM's GA Grour Objective or EPA's Maximum Contaminant Levels.
11. Duplicates of these samples were sent to Mitkem Corporation as part of the QA/QC.

Table 2B Cont.
Phase IB Geoprobe Groundwater Data - Volatile Organic Compounds
Naval Undersea Warfare Center Division, Newport

Building 179 Remedial Investigation Phase II

Analyte	1,1 DCE	CH2CL2	1,1 DCA	1,1,1 TCA	TCE	PCE	BNZ	TLN	EBNZ	TXYL	Total VOCs
Detection Limit	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	1.0 ug/L	2.0 ug/L	4.0 ug/L	4.0 ug/L	
Geoprobe Location											
GP-120A	--	15.0	95.0	67.0	--	--	--	--	--	--	197.00
GP-120	--	--	12.0	--	--	--	--	--	--	--	12.00
GP-121	--	--	33.0	22.0	--	--	--	--	--	--	55.00
GP-122	--	21.0	97.0	92.0	4.6	--	--	--	--	--	214.80
GP-122(D)	--	--	25.0	22.0	--	--	--	--	--	--	47.00
GP-123	--	8.7	52.0	42.0	--	--	--	--	--	--	102.70
GP-124	--	13.0	29.0	31.0	--	--	--	--	--	--	73.00
GP-130(8)	--	56.0	120.0	120.0	5.2	--	--	--	--	--	301.20
GP-130(D)	--	76.0	130.0	130.0	9.5	--	--	--	--	--	345.50
GP-130A	--	7.7	21.0	12.0	--	--	--	--	--	--	40.70
GP-131	--	42.0	120.0	110.0	4.8	--	--	--	--	--	276.80
GP-132	--	--	36.0	23.0	--	--	--	--	--	--	59.00
GP-134	--	--	--	--	4.5	41.0	--	--	--	--	45.50
GP-137	--	7.8	79.0	40.0	--	--					126.60
GP-142	--	--	5.0	5.7	--	--	--	--	--	--	10.70
GP-147	--	9.2	52.0	43.0	--	--	--	--	--	--	104.20
GP-148A	--	--	--	--	--	9.4	--	--	--	--	9.40
GP-148	--	--	--	--	9.6	50.0	--	--	--	--	59.60
GP-150(8)	--	97.0	170.0	140.0	8.7	--	--	--	--	--	415.70
GP-150(D)	--	110.0	160.0	140.0	9.7	--	--	--	--	--	419.70
GP-152	--	--	--	--	42.0	--	--	--	--	--	42.00
GA Groundwater Objectives(6)	7.00	NA	NA	200.00	5.00	5.00	5.00	1000	700.00	10,000	
EPA Maximum Contaminant Level (7)	7.00	5.00	NA	200.00	5.00	5.00	5.00	1,000.00	700.00	10,000.00	
EPA Risk-Based Concentrations(8)	0.44	4.10	800.00	540.00	1.60	1.10	0.38	750.00	1,300.00	12,000.00	

Notes:

1. 1,1 DCE = 1,1-dichloroethene CH2CL2 = methylene chloride 1,1 DCA = 1,1-dichloroethane 1,1,1 TCA = 1,1,1-trichloroethane
   TCE = trichloroethene PCE = tetrachloroethene BNZ = Benzene TLN = Toluene
   EBNZ = Ethyl Benzene TXYL = Total Xylenes
2. Geoprobe installation by Mykrowaters, Inc. from September 28 to October 2, 1998.
3. Sample analyzed by Mykrowaters, Inc. in a mobile on-site laboratory using SRI 8610 Gas Chromatograph.
4. "--" indicates the analyte not detected at or above the specified detection limit.
5. "(D)" indicates a field duplicate sample e.g., GP122D is a duplicate of sample GP-122.
6. Extracted from August 1996 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
7. Extracted from EPA Office of Groundwater and Drinking Water, Current Drinking Water Standards.
8. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
9. "NA" indicates not available.
10. Boxed area indicates results exceed RIDEM's GA Groundwater Objective or EPA's Maximum Contaminant Levels.
11. Duplicates of these samples were sent to Mitkem Corporation as part of the QA/QC.

Table 3
Groundwater Elevation Data

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Location	Reference Elevation Top Of PVC	Measurement Dates		
		10/22/99	11/22/99	12/13/99
MW-6A	62.51	53.18	52.36	52.64
MW-6B	62.60	53.00	52.20	52.46
MW-7A	56.29	51.63	50.55	50.83
MW-7B	56.24	51.03	49.99	50.28
MW-8A	53.06	48.25	48.12	48.13
MW-8B	53.69	48.96	48.56	48.72
MW-9A	53.80	Dry	46.68	47.11
MW-9B	53.33	47.33	46.05	46.48
MW-10	53.86	50.11	49.72	49.83
MW-11	59.56	51.74	51.05	51.29
MW-12	49.17	46.04	45.99	45.99
MW-13A	50.91	47.81	47.59	47.70
MW-13B	51.08	48.74	47.96	48.34

Notes:

1. Survey conducted by SAI Surveying Company of Jamestown, Rhode Island, November 1999.
2. Groundwater elevations referenced to National Geodetic Vertical Datum of 1929 (NGVD'29).
3. Depth to water measurements conducted by TRC Environmental Corp. personnel on various dates.

Table 4
Vertical Hydraulic Gradients

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Well Cluster	Measurement Dates		
	10/22/99	11/22/99	12/13/99
	Vertical Hydraulic Gradient*		
MW-6B **MW-6A**	-0.18 Down	-0.16 Down	-0.18 Down
MW-7B **MW-7A**	-0.60 Down	-0.56 Down	-0.55 Down
MW-8B **MW-8A**	0.71 Up	0.44 Up	0.59 Up
MW-13B **MW-13B**	0.93 Up	0.37 Up	0.64 Up

Notes:

1. "*" Vertical Hydraulic Gradients calculated by subtracting bedrock groundwater elevations from overburden groundwater elevations.

Table 5A
Hydraulic Conductivity Testing
Overburden Wells

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Well #	Hydraulic Conductivity for the Soil		
	K(ft/min)	K(ft/day)	Remarks
MW-6A	6.46E-07	0.001	Grain Size Analysis
MW-7A	1.39E-06	0.002	Grain Size Analysis
MW-7A	2.59E-04	0.373	BOUWER-RICE's, slug in
MW-7A	1.20E-04	0.173	BOUWER-RICE's, slug out
MW-8A	3.47E-05	0.050	Grain Size Analysis
MW-9A	1.22E-05	0.018	Grain Size Analysis
MW-10	1.22E-05	0.018	Grain Size Analysis
MW-10	2.21E-03	3.182	BOUWER-RICE's, slug in
MW-10	1.29E-03	1.858	BOUWER-RICE's, slug out
MW-11	5.87E-06	0.008	Grain Size Analysis
MW-11	2.47E-04	0.356	BOUWER-RICE's, slug in
MW-11	2.72E-04	0.392	BOUWER-RICE's, slug out
MW-12	6.44E-06	0.009	Grain Size Analysis
MW-12	9.64E-04	1.388	BOUWER-RICE's, slug in
MW-12	2.82E-03	4.061	BOUWER-RICE's, slug out
MW-13A	3.52E-06	0.005	Grain Size Analysis
MW-13A	1.47E-03	2.117	BOUWER-RICE's, slug out
Avg. Unconsolidated	9.62E-06	0.014	Grain Size Analysis
Avg. Unconsolidated	1.03E-03	1.483	BOUWER-RICE's, slug in
Avg. Unconsolidated	1.13E-03	1.621	BOUWER-RICE's, slug out
Min Unconsolidated	6.46E-07	0.001	Grain Size Analysis
Min Unconsolidated	2.47E-04	0.356	BOUWER-RICE's, slug in
Min Unconsolidated	1.20E-04	0.173	BOUWER-RICE's, slug out
Max Unconsolidated	3.47E-05	0.050	Grain Size Analysis
Max Unconsolidated	2.21E-03	3.182	BOUWER-RICE's, slug in
Max Unconsolidated	2.82E-03	4.061	BOUWER-RICE's, slug out

Notes:

1. The slug test data were analyzed using Waterloo Hydrogeologic's "Aquifer Test" program.
2. The BOUWER-RICE is one of the theoretical methods for analyzing unconfined aquifer slug test data.
3. Avg. Unconsolidated is an average conductivity value calculated from shallow well slug tests.
4. Grain Size Analysis data determined from emperical calculation based on ASTM D422 testing.

Table 5B
Hydraulic Conductivity Testing
Bedrock Wells

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Well #	Hydraulic Conductivity for the Bedrock		
	K(ft/min)	K(ft/day)	Remarks
MW-6B	8.53E-06	0.012	HVORSLEV's, slug in
MW-6B	1.40E-05	0.020	HVORSLEV's, slug out
MW-7B	4.51E-04	0.649	HVORSLEV's, slug in
MW-7B	3.83E-04	0.552	HVORSLEV's, slug out
MW-8B	3.77E-04	0.543	HVORSLEV's, slug in
	3.12E-04	0.449	HVORSLEV's, slug in 2
MW-8B	3.70E-04	0.533	HVORSLEV's, slug out
	3.52E-04	0.507	HVORSLEV's, slug out 2
MW-9B	3.01E-06	0.004	HVORSLEV's, slug in
MW-9B	3.09E-06	0.004	HVORSLEV's, slug out
MW-13B	8.05E-04	1.159	HVORSLEV's, slug in
MW-13B	9.81E-04	1.413	HVORSLEV's, slug out
Avg. Bedrock	3.29E-04	0.474	HVORSLEV's, slug in
Avg. Bedrock	3.50E-04	0.504	HVORSLEV's, slug out
Min Bedrock	3.01E-06	0.004	HVORSLEV's, slug in
Min Bedrock	3.09E-06	0.004	HVORSLEV's, slug out
Max Bedrock	8.05E-04	1.159	HVORSLEV's, slug in
Max Bedrock	9.81E-04	1.413	HVORSLEV's, slug out

Notes:

1. The slug test data were analyzed using Waterloo Hydrogeologic's "Aquifer Test" program.
2. The HVORSLEV is one of the theoretical methods for analyzing confined aquifer slug test data.
3. Avg. bedrock is an average conductivity value calculated from bedrock well slug tests.
4. Slug in test was performed twice in well MW-8B as field QA/QC.

Table 6
Soil Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	MW6-S4	MW7B-S6	MW7B-S4	MW8B-S3	MW9-S2	MW11-S4	MW11-S5	MW12-S2-B9	MW13B-S3-B8	RIDEM Standards(3)		EPA Standards(4)
Sample Depth		6-8'	11-13'	9-11'	4-6'	2-4'	6-8'	8-10'	2-4'	4-6'	Direct Exposure Criteria	Leachability Criteria	Risk-Based Standards
Sample Date		7/15/99	7/21/99	7/21/99	7/20/99	7/28/99	7/22/99	7/22/99	7/14/99	8/3/99	Residential	GA Leachability	Residential
VOCs/Method 8260													
Chloroethane	ug/kg	--	4 J		--	--	--	--	--	--	NA	NA	220,000
Methylene Chloride	ug/kg	--	0.4 J	1 JB	2 J	--	--	--	0.5 J	2 JB	45,000	NA	85,000
Acetone	ug/kg	49	--	--	34	--	94	--	--	--	7,800,000	NA	7,800,000
Carbon Disulfide	ug/kg	--	2 J	--	--	--	3 J	0.3 J	--	--	NA	NA	7,800,000
1,1-Dichloroethene	ug/kg	--	3 J	1 J	--	--	--	--	--	--	200	NA	1,100
1,1-Dichloroethane	ug/kg	--	53	28	--	--	--	--	--	--	920,000	NA	7,800,000
cis-1,2-Dichloroethene	ug/kg	--	0.6 J	--	--	--	--	--	--	--	630,000	NA	780,000
1,1,1-Trichloroethane	ug/kg	--	140	120	--	--	1 J	--	--	--	540,000	11,000	1,600,000
Trichloroethene	ug/kg	--	3 J	--	--	--	--	--	0.7 J	--	13,000	200	580,000
Benzene	ug/kg	1 J	0.2 JB	--	0.2 JB	--	--	--	--	--	2,500	200	22,000
Tetrachloroethene	ug/kg	--	2 J	1 J	--	--	--	--	17	--	12,000	100	12,000
Toluene	ug/kg	1 J	0.5 JB	0.7 J	--	--	3 J	--	--	--	190,000	32,000	16,000,000
Ethylbenzene	ug/kg	0.5 J	0.3 J	--	--	--	--	--	--	--	71,000	27,000	7,800,000
Styrene	ug/kg	--	0.2 J	--	--	--	--	--	--	--	13,000	2,900	16,000,000
Xylene	ug/kg	0.6 J	5	6	--	--	--	--	--	--	110,000	540,000	160,000,000
TOTALS	ug/kg	52.1	214.2	157.7	36.2	0	101	0.3	18.2	2			

Sample ID	UNITS	B10-S4	B11-S4	B12-S4	B13-S4	B14-S3	B15-S3	B16-S4	B16-S5	RIDEM Standards(3)		EPA Standards(4)
Sample Depth		7-9'	6-8'	6-8'	6-8'	4-6'	4-6'	6-8'	8-8.6'	Direct Exposure Criteria	Leachability Criteria	Risk-Based Standards
Sample Date		7/15/99	7/15/99	7/15/99	7/19/99	7/19/99	7/20/99	7/20/99	7/20/99	Residential	A Leachabilit	Residential
VOCs/Method 8260												
Chloroethane	ug/kg	--	--	3 J	220	2 J	--	--	--	NA	NA	220,000
Methylene Chloride	ug/kg	0.8 JB	1 JB	0.5 JB	2 JB	0.4 JB	2 J	--	--	45,000	NA	85,000
Acetone	ug/kg	--	--	--	--	18	--	--	--	7,800,000	NA	7,800,000
Carbon Disulfide	ug/kg	--	--	0.4 J	--	0.3 J	--	--	--	NA	NA	7,800,000
1,1-Dichloroethene	ug/kg	--	--	--	2 J	--	--	--	--	200	NA	1,100
1,1-Dichloroethane	ug/kg	0.9 J	--	9	24	1 J	--	--	--	920,000	NA	7,800,000
1,1,1-Trichloroethane	ug/kg	8	--	6	17	--	--	--	--	540,000	11,000	1,600,000
Trichloroethene	ug/kg	--	--	0.2 J	0.3 J	--	--	--	--	13,000	200	580,000
Benzene	ug/kg	--	0.2 J	0.2 J	0.3 J	--	0.9 JB	0.6 J	0.3 JB	2,500	200	22,000
Toluene	ug/kg	--	0.4 J	--	--	--	1 JB	0.4 J	--	190,000	32,000	16,000,000
Styrene	ug/kg	--	--	--	--	--	0.4 J	--	--	13,000	2,900	16,000,000
Xylene	ug/kg	--	--	--	--	--	0.4 J	--	--	110,000	540,000	160,000,000
TOTALS	ug/kg	9.7	1.6	19.3	265.6	21.7	4.7	1	0.3			

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Severn Trant Laboratories of Monroe, Connecticut.
3. Extracted from August 1996 RIDEM Division of Site Remediation Rula and Regulations for the Investigation and Remediation of Hazardous Material Releases.
4. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
5. "NA" indicates not available.
6. J - Indicates that the compound was analyzed for and determined to be present in t[illegible]mple. The mass spectrum of the compound meets the identification criteria of the method. The concentrati[illegible] listed is an estimated value, which is less than the specified minimum detection lin[illegible] greater then zero.
7. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

Table 6 Cont.
Soil Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	B20-S3	B21-S3	B22-S3	B23-S2	B23-S3*	B24-S2	B25-S2	B26-S2	B30-S3*	B30-S3	RIDEM Standards(3)		EPA Standards(4)
Sample Depth		5-7'	4-6'	4-6'	2-4'	4-6'	2-2.9'	2-4'	2-4'	4-6'	4-6'	Direct Exposure Criteria	Leachability Criteria	Risk-Based Standards
Sample Date		7/14/99	7/14/99	7/15/99	7/15/99	7/14/99	7/19/99	7/20/99	7/20/99	7/14/99	7/14/99	Residential	GA Leachability	Industrial
VOCs / Method 8260														
Dichlorodifluoromethane	ug/kg	NC	NC	NC	NC	1 J	NC	NC	NC	1 J	NC	NA	NA	16,000,000
Methylene Chloride	ug/kg	8 JB	2 JB	2 JB	2 JB	2 J	--	0.4 JB	--	2 J	3 JB	45,000	NA	85,000
Acetone	ug/kg	--	--	4 J	--	--	--	--	52	--	--	7,800,000	NA	7,800,000
1,1-Dichloroethane	ug/kg	--	6	2 J	--	--	--	--	--	--	--	920,000	NA	7,800,000
1,1,1-Trichloroethane	ug/kg	--	6	--	--	--	--	--	--	--	--	540,000	11,000	1,600,000
Benzene	ug/kg	--	--	--	--	--	0.6 J	0.4 J	0.8 JB	--	--	2,500	200	22,000
Toluene	ug/kg	--	--	--	--	--	--	--	1 JB	--	--	190,000	32,000	16,000,000
Xylene	ug/kg	--	--	--	--	--	--	--	--	--	--	110,000	540,000	160,000,000
TOTALS	ug/kg	8	14	8	2	3	0.6	0.8	53.8	3	3			

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Severn Trent Laboretories of Monroe, Connecticut.
3. Extracted from August 1996 RIDEM Division of Site Remediation Rule and Regulations for the Investigation and Remediation of Hazardous Material Releases.
4. Extrected from October 27, 1999 EPA Region III Risk-Based Concentretion (RBC) Table.
4. "NC" indicates analysis not conducted.
5. "*" Samples analyzed by Miltkem Corporation of Warwick, Rhode Island.
6. "NA" indicates nat available.
7. J - Indicates that the compound was analyzed for end determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greeter than zero.
8. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

Table 7
Soil Data - Semi-Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	MW6-S4	MW7B-S6	MW7B-S4	MW8B-S3	MW9-S2	MW11-S4	MW11-S5	MW12-S2-B9	MW13B-S3-B8	RIDEM Standards(5)		EPA Standards(6)
Sample Depth		6-8'	10.5-11.25'	6.5-6.5'	4-5.3'	2-4'	6-8'	8-10'	2-4'	4-5.4'	Direct Exposure Criteria	Leachablity Criteria	Risk-Based Standards
Sample Date		7/15/99	7/21/99	7/21/99	7/20/99	7/28/99	7/22/99	7/22/99	7/14/99	8/3/99	Residential	GA Leachability	Residential
SVOC/Method OLM03.1													
Naphthalene	ug/kg	--	--	42 J	--	--	--	--	--	--	54,000	800	1,600,000
Diethylphthalate	ug/kg	--	--	--	--	--	--	--	--	58 J	340,000	NA	63,000,000
Phenanthrene	ug/kg	81 J	--	--	--	--	59 J	--	--	--	40,000	NA	NA
Di-n-butylphthalate	ug/kg	--	71 J	1,800	--	--	--	--	--	--	NA	NA	NA
Fluoranthene	ug/kg	120 J	--	--	--	--	83 J	--	--	--	20,000	NA	3,100,000
Pyrene	ug/kg	77 J	--	--	--	--	55 J	--	--	--	13,000	NA	2,300,000
Benzo (a) anthracene	ug/kg	43 J	--	--	--	--	--	--	--	--	900	NA	870
Chrysene	ug/kg	54 J	--	--	--	--	--	--	--	--	400	NA	87,000
bis (2-Ethylhexyl) phthalate	ug/kg	42 J	46 J	37 J	43 J	--	61 J	80 J	--	82 JB	46,000	NA	46,000
Benzo (b) fluoranthene	ug/kg	69 J	--	--	--	--	47 J	--	--	--	900	NA	870
Benzo (a) pyrene	ug/kg	44 J	--	--	--	--	--	--	--	--	400	240,000	87
TOTALS	ug/kg	530	117	1,879	43	0	305	80	0	120			

Sample ID	UNITS	B10-S4	B11-S4	B12-S4	B13-S4	B14-S3	B15-S3	B16-S4	B16-S5	B20-S3	RIDEM Standards(5)		EPA Standards(6)
Sample Depth		7-9'	6-8'	6-8'	6-8'	4-6'	4-6'	6-8'	8-8.6'	5-7'	Direct Exposure Criteria	Leachability Criteria	Risk-Based Standards
Sample Date		7/15/99	7/15/99	7/15/99	7/19/99	7/19/99	7/20/99	7/20/99	7/20/99	7/14/99	Residential	GA Leachability	Residential
SVOC/Method OLM03.1													
Fluoranthene	ug/kg	--	--	--	--	--	88 J	--	--	--	20,000	NA	3,100,000
Pyrene	ug/kg	--	--	--	--	--	54 J	--	--	--	13,000	NA	2,300,000
bis (2-Ethylhexyl) phthalate	ug/kg	--	--	--	57 J	47 J	81 J	470	260 J	--	46,000	NA	48,000
TOTALS	ug/kg	0	0	0	57	47	201	470	260	0			

Notes:

1. "--" Indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Corporation of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater then zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
5. Extracted from August 1998 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
6. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
7. "NA" Indicates Not Available.

Table 7 Cont.
Soil Data - Semi-Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	B21-S3	B22-S3	B23-S3	B24-S2	B25-S2	B26-S2	B30-S3	RIDEM Standards(5)		EPA Standards(6)
Sample Depth		4-6'	4-6'	4-6'	2-2.9'	2-4'	2-4'	4-6'	Direct Exposure Criteria	Leachability Criteria	Risk-Based Standards
Sample Date		7/14/99	7/15/99	7/15/99	7/19/99	7/20/99	7/20/99	7/14/99	Residential	GA Leachability	Residential
SVOCs (Method OLM03.1)											
Acenaphthene	ug/kg	--	--	--	--	--	38 J	--	43,000	NA	4,700,000
Phenanthrene	ug/kg	--	--	--	--	--	200 J	--	40,000	800	NA
Anthracene	ug/kg	--	--	--	--	--	49 J	--	35,000	NA	23,000,000
Fluoranthene	ug/kg	--	--	--	--	--	190 J	--	20,000	NA	3,100,000
Pyrene	ug/kg	--	--	--	--	--	130 J	--	13,000	NA	2,300,000
Benzo (a) anthracene	ug/kg	--	--	--	--	--	65 J	--	900	NA	870
Chrysene	ug/kg	--	--	--	--	--	76 J	--	400	NA	87,000
bis (2-Ethylhexyl) phthalate	ug/kg	36 J	--	--	44 J	55 J	80 J	42 J	46,000	NA	46,000
Benzo (b) fluoranthene	ug/kg	--	--	--	--	--	89 J	--	900	NA	870
Benzo (k) fluoranthena	ug/kg	--	--	--	--	--	47 J	--	900	NA	8,700
Benzo (a) pyrene	ug/kg	--	--	--	--	--	71 J	--	400	240,00	87
Indeno (1,2,3-cd) pyrene	ug/kg	--	--	--	--	--	41 J	--	900	NA	870
Benzo (g,h,i) perylene	ug/kg	--	--	--	--	--	38 J	--	800	NA	NA
TOTALS	ug/kg	36	0	0	44	55	1,114	42			

Notes:

1. "--" Indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Corporation of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
5. Extracted from August 1996 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
6. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
7. "NA" Indicates Not Available.

Table 8
Soil Data - Total Petroleum Hydrocarbons (TPH), Total Cyanide, and Total Organic Carbon (TOC) Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	Sample Depth	Sample Date	Units	Analytes		
				TPH Method 8100M/8015M	Total Cyanide Method ILM04.0	TOC Method 415.1
B10-S4	7-9'	7/15/99	mg/kg	--	--	NC
B11-S4	6-8'	7/15/99	mg/kg	--	--	NC
B12-S4	6-8'	7/15/99	mg/kg	--	--	NC
B13-S4	6-8'	7/19/99	mg/kg	--	--	NC
B14-S3	4-6'	7/19/99	mg/kg	--	--	NC
B15-S3	4-6'	7/20/99	mg/kg	26	.46C	0.32
B16-S4	6-8'	7/50/99	mg/kg	24	--	NC
B16-S5	8-10'	7/20/99	mg/kg	--	--	NC
B20-S3	5-7'	7/14/99	mg/kg	--	--	NC
B21-S3	4-6'	7/14/99	mg/kg	--	--	NC
B22-S3	4-6'	7/15/99	mg/kg	--	--	NC
B23-S3	4-6'	7/15/99	mg/kg	--	--	NC
B24-S2	2-4'	7/19/99	mg/kg	--	--	NC
B25-S2	2-4'	7/20/99	mg/kg	--	0.94C	NC
B26-S2	2-4'	7/20/99	mg/kg	--	--	NC
B30-S3	4-6'	7/14/99	mg/kg	--	--	NC
MW6-S4	6-8'	7/15/99	mg/kg	--	--	0.31
MW7B-S4	9-11'	7/21/99	mg/kg	--	--	--
MW7B-S6	11-13'	7/21/99	mg/kg	77	0.47C	--
MW8B-S3	4-6'	7/20/99	mg/kg	--	0.12B	0.41
MW9-S2	2-4'	7/28/99	mg/kg	--	--	0.26
MW11-S4	6-8'	7/22/99	mg/kg	--	--	2.54
MW11-S5	8-10'	7/22/99	mg/kg	--	--	0.17
MW12-S2-B9	2-4'	7/14/99	mg/kg	--	--	--
MW13B-S3-B8	4-6'	8/3/99	mg/kg	--	1.5C	0.19

RIDEM Standards(7)	Direct Exposure Criteria	Residential (mg/kg)	500	200	NA
	Leachability Criteria	GA Leachability (mg/kg)	500	2.4	NA
EPA Standards (8)	Risk-Based Concentrations	Residential (mg/kg)	NA	1,600	NA

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. "NC" indicates analysis not conducted.
4. "NA" indicates not available.
5. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
6. C - Confirmed by GC/MS.
7. Extracted from August 1996 RIDEM Division of Site Remediation Rule and Regulations for the Investigation and Remediation of Hazardous Material Releases.
8. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.

Table 9
Groundwater Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	MW-6A*	MW-6B*	MW-7A	MW-7B	MW-8A	MW-8B	MW-9B	MW-10	MW-11	MW-12	MW-13A	MW-13B	RIDEM Standards(4)		EPA Standards (5)	EPA Standards(6
Sample Date		8/27/99	8/27/99	8/24/99	8/24/99	8/25/99	8/25/99	8/27/99	7/14/99	8/3/99	8/25/99	8/25/99	8/25/99	GA Groundwater Objective	GB Groundwater Objective	Maximum Contaminant Levels	Risk-Based Concentrations
VOC's/Method 8260B																	
Chloroethane	ug/l	--	--	73 J	--	--	--	4 J	--	--	--	--	--	NA	NA	NA	4
Acetone	ug/l	210 EB	9 B	65 JB	390 JB	5	8 B	12	7 B	7 B	8 B	8 B	8 B	NA	NA	NA	610
1,1-Dichloroethene	ug/l	--	--	76 J	310 J	--	--	16	--	--	--	--	--	7	7	7	0.044
Methylene Chloride	ug/l	2 J	--	62 J	230 J	--	2 J	--	2 J	2 J	2 J	3 J	2 J	NA	NA	5	4.1
1,1-Dichloroethane	ug/l	1 J	--	780	1,400	--	--	140	--	--	--	--	--	NA	NA	NA	800
2-Butanone	ug/l	210 EB	5	--	--	3 J	--	--	--	--	2 J	--	--	NA	NA	NA	NA
cis-1,2-Dichloroethene	ug/l	--	--	--	--	--	--	--	--	--	2 J	--	2 J	70	2,400	70	611
1,1,1-Trichloroethane	ug/l	2 J	--	3,600	23,000 E	--	--	250 E	--	--	--	--	--	200	3,100	200	540
Trichloroethene	ug/l	--	--	--	--	--	--	2 J	--	--	2 J	--	--	NA	NA	5	1.6
2-Hexanone	ug/l	--	--	--	160 JB	--	--	--	--	--	--	--	--	NA	NA	NA	1,500
Tetrachloroethene	ug/l	--	--	--	--	--	--	--	--	--	9	--	5	5	150	5	1.1
Xylene (Total)	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	10,000	NA	10,000	12,000
tert-Butylbenzene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	61
sec-Butylbenzene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	61
4-Isopropyltoluene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	5.5
1,4-Dichlorobenzene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	.47
n-Butylbenzene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	61
1,2-Dichlorobenzene	ug/l	--	1 J	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	550
1,2,4-Trichlorobenzene	ug/l	--	2 J	--	120 J	1 JB	--	--	--	--	--	--	--	NA	NA	70	190
Hexachlorobutadiene	ug/l	--	3 J	--	--	1 JB	--	--	--	--	--	--	--	NA	NA	NA	.86
Napthalene	ug/l	--	3 JB	--	220 JB	1 JB	--	--	--	--	--	--	--	NA	NA	NA	6.5
1,2,3-Trichlorobenzene	ug/l	--	3 J	--	150 J	2 JB	--	--	--	--	--	--	--	NA	NA	NA	NA
TOTALS	ug/l	425	33	4,656	25,980	13	10	424	9	9	25	11	17				

Notes:

1. "--" Indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. "*" Laboratory results mislabel Sample ID as MW-GA and MW-GB. Chain of Custody labels Sample ID as MW-6A and MW-6B.
4. Extracted from August 1996 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
5. Extracted from EPA Office of Groundwater and Drinking Water, Current Drinking Water Standards.
6. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
7. "NA" indicates Not Available.
8. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value which is less than the specified minimum detection limit but is greater than zero.
9. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
10. E - Indicates that it exceeds calibration curve range.
11. Boxed area indicates results exceed RIDEM's GA Groundwater Objectives.

Table 10
Groundwater Data - Semi-Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	MW-6A*	MW-6B*	MW-7A	MW-7B	MW-8A	MW-8B	MW-9B	MW-10	MW-11	MW-12	MW-13A	MW-13B	RIDEM Standards(4)		EPA Standards (5)	EPA Standards(5)
Sample Date		8/27/99	8/27/99	8/24/99	8/24/99	8/25/99	8/25/99	8/27/99	8/24/99	8/3/99	8/25/99	8/25/99	8/25/99	GA Groundwater Objective	GB Groundwater Objective	Maximum Contaminant Levels	Risk-Based Concentrations
SVOC's/Method OLM03.1																	
Phenol	ug/l	4 J	--	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	22,000
2-Methylphenol	ug/l	--	--	--	--	2 J	--	--	--	--	--	--	--	NA	NA	NA	1,800
4-Methylphenol	ug/l	19	--	--	--	--	--	--	--	--	--	--	--	NA	NA	NA	180
Naphthalene	ug/l	--	--	--	2 J	--	--	--	--	--	--	--	--	20	NA	NA	7
Diethylphthalate	ug/l	--	--	--	--	--	--	2 J	--	--	--	--	--	NA	NA	NA	29,000
Di-n-butylphthalate	ug/l	--	1 J	--	2 J	--	--	--	--	--	--	--	--	NA	NA	NA	NA
bis (2-Ethylhexyl) phthalate	ug/l	140 E	31	1 J	4 J	--	70	66	--	--	--	1 J	22	NA	NA	NA	4.8
TOTALS	ug/l	163	32	1	8	2	70	68	0	0	0	1	22				

Notes:

1. "--" Indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. "*" Laboratory results mislabel Sample ID as MW-GA and MW-GB. Chain of Custody labels Sample ID as MW-6A and MW-6B.
4. Extracted from August 1996 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
5. Extracted from EPA Office of Groundwater and Drinking Water, Current Drinking Water Standards.
6. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
7. "NA" indicates Not Available.
8. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
9. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
10. E - Indicates that it exceeds calibration curve range.
11. Shaded area indicates results exceed regulatory limits.

Table 11
Groundwater Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	Sample Date	Units	Analytes	
			TPH Method 8100M/8015M	Total Cyanide Method ILM04.0
MW-6A	8/27/99	ug/l	--	2.1B
MW-6B	8/27/99	ug/l	--	--
MW-7A	8/24/99	ug/l	--	612
MW-7B	8/24/99	ug/l	400	--
MW-8A	8/25/99	ug/l	--	--
MW-8B	8/25/99	ug/l	--	--
MW-9B	8/27/99	ug/l	--	
MW-10	8/24/99	ug/l	--	11.8
MW-11	8/24/99	ug/l	--	--
MW-12	8/25/99	ug/l	--	--
MW-13A	8/25/99	ug/l	--	1.1B
MW-13B	8/25/99	ug/l	--	--
RIDEM Standards (4)		GA Groundwater Objective (ug/l)	NA	200
		GB Groundwater Objective (ug/l)	NA	NA
EPA Standards (5)		Maximum Contaminant Level	NA	200
EPA Standards (6)		Risk-Based Concentrations(ug/l)	NA	730

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
4. Extracted from August 1996 RIDEM Division of Site Remediation Rule and Regulations for the Investigation and Remediation of Hazardous Material Releases.
5. Extracted from EPA Office of Groundwater and Drinking Water, Current Drinking Water Standards.
6. Extracted from October 27, 1999 EPA Region III Risk-Based Concentration (RBC) Table.
7. "NA" indicates Not Available.
8. Boxed area indicates results exceed RIDEM's GA Groundwater Objectives.

Table 12
Phase IB On-Site Laboratory Surface Water Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Analyte	1,1 DCE	CH2CL2	t-1,2 DCE	1,1 DCA	c-1,2 DCE	1,1,1 TCA	CCL4	TCE	1,1,2 TCA	PCE	BNZ	TLN	EBNZ	TXYL	Total VOCs
Detection Limit	4.0 ug/L	4.0 ug/L	2.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	4.0 ug/L	1.0 ug/L	2.0 ug/L	4.0 ug/L	4.0 ug/L	
SW-86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00
SW-95	--	--	--	8.4	--	20.0	--	--	--	--	--	--	--	--	28.40
SW-96	--	120.0	--	230.0	--	200.0	--	--	--	--	--	--	--	--	550.00
SW-104	--	--	--	--	--	9.6	--	--	--	--	--	--	--	--	9.60
SW-150	--	--	--	5.9	--	14.0	--	--	--	--	--	--	--	--	19.90
NOAA Criteria Maximum Concentration (CMC) (4)	NA	11,000	11,600	NA	11,600	11,600	35,200	NA	18,000	5,280	5,300	17,500	32,000	NA	
NOAA Criteria Continuous Concentration (CCC) (4)	NA	NA	NA	NA	NA	NA	NA	NA	9,400	840	NA	NA	NA	NA	

Notes:

1. 1,1 DCE = 1,1-dichloroethene; CH2CL2 = methylene chloride; t-1,2 DCE = Trans-1,2 dichloroethene; 1,1 DCA = 1,1-dichlorethane; c-1,2 DCE = cis-1,2-dichloroethene; TCE = trichloroethane; 1,1,1 TCA = 1,1,1-trichlorethane; CCL4 = carbon tetrachloride; 1,1,2 TCA = 1,1,2-trichloroethane; PCE = tetrachloroethene; BNZ = benzene; TLN = toluene; EBNZ = ethyl benzene; TXYL = total xylenes
2. "--" indicates the analyte not detected at or above the specified detection limit.
3. Samples analyzed by Mykrowaters, Inc. in a mobile on-site laboratory using SRI 8610 Gas Chromatograph, during Phase IB Geoprobe installation, 13 October, 1998.
4. Extracted from September 1999, NOAA Screening Quick Reference Tables (SQuiRTs).

Table 13
Surface Water Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	179-SW1	179-SW2	179-SW3	NOAA Standards (5)	
Sample Date		8/31/99	8/31/99	8/31/99	Criteria Maximum Concentration (CMC)	Criteria Continuous Concentration (CCC)
VOC's/Method 8260B						
Chloroethane	ug/l	--	--	2 J	NA	NA
Acetone	ug/l	5	8 B	9 B	NA	NA
Methylene Chloride	ug/l	--	1 JB	1 JB	11,000	NA
1,1-Dichloroethane	ug/l	--	--	18	NA	NA
2-Butanone	ug/l	--	--	3 J	NA	NA
cis-1,2-Dichloroethene	ug/l	--	--	2 J	11,600	NA
1,1,1-Trichloroethane	ug/l	--	--	14	18,000	NA
Trichloroethene	ug/l	--	--	1 J	45,000	21,900
TOTALS	ug/l	5	9	50		

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
5. Extracted from September 1999, NOAA Screening Quick Reference Tables (SQuiRTs).
6. "NA" indicates Not Available.
7. "-" indicates no criteria recommendation.

Table 14
Surface Water Data - Semi-Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	Units	179-SW1	179-SW2	179-SW3	NOAA Standards (4)	
Sample Date		8/31/99	8/31/99	8/31/99	Criteria Maximum Concentration (CMC)	Criteria Continuous Concentration (CCC)
SVOC's/Method OLM03.1						
bis (2-Ethylhexyl) phthalate	ug/l	--	--	2 J	NA	NA
TOTALS	ug/l	0	0	2		

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than than zero.
4. Extracted from September 1999, NOAA Screening Quick Reference Tables (SQuiRTs).

Table 15
Surface Water Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	Units	Sample Date	Analytes	
			TPH Method 8100M/8015M	Total Cyanide Method ILM04.0
179-SW1	ug/l	8/31/99	--	6.3B
179-SW2	ug/l	8/31/99	--	4.3B
179-SW3	ug/l	8/31/99	--	3.7B
NOAA Standards (4)		Criteria Maximum Concentration (CMC)	NA	22
		Criteria Continuous Concentration (CCC)	NA	5.2

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
4. Extracted from September 1999, NOAA Screening Quick Reference Tables (SQuiRTs).
5. Boxed area indicates results exceed NOAA SQuiRT Standards.
6. "NA" indicates Not Available.

Table 16
Sediment Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	179-SD1	179-SD2	179-SD3	NOAA Standards (5)		
Sample Date		8/31/99	8/31/99	8/31/99	Threshold Effects Level (TEL)	Probable Effects Level (PEL)	Upper Effects Threshold (UEL)
VOC's/Method 8260B							
Acetone	ug/kg	52 B	84 B	25 B	NA	NA	NA
Methylene Chloride	ug/kg	--	4 JB	24 B	NA	NA	NA
2-Butanone	ug/kg	12 JB	22 B	6 JB	NA	NA	NA
Ethylbenzene	ug/kg	--	--	7 J	NA	NA	NA
Xylene (Total)	ug/kg	--	--	12	NA	NA	NA
TOTALS	ug/kg	64	110	74			

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
5. Extracted from September 1999, NOAA Screening Quick Reference Tables.
6. "NA" indicates Not Available.

Table 17
Sediment Data - Semi-Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	179-SD1	179-SD2	179-SD3	NOAA Standards (5)		
Sample Date		8/31/99	8/31/99	8/31/99	Threshold Effects Level (TEL)	Probable Effects Level (PEL)	Upper Effects Threshold (UEL)
SVOC's/Method/QLM03.1							
Naphthalene	ug/kg	160 J	100 J	61 J	NA	NA	600
Acenaphthene	ug/kg	--	69 J	62 J	NA	NA	290
Fluorene	ug/kg	--	91 J	85 J	NA	NA	300
Phenanthrene	ug/kg	1,100 J	720	520 J	41.9	NA	800
Anthracene	ug/kg	130 J	110 J	88 J	NA	NA	260
Carbazole	ug/kg	240 J	140 J	88 J	NA	NA	NA
Fluoranthene	ug/kg	2,100	1,200	440 J	111	2,355	1,500
Pyrene	ug/kg	1,600	990	850	53	875	1,000
Benzo (a) anthracene	ug/kg	640 J	410 J	380 J	31.7	385	500
Chrysene	ug/kg	1,100 J	600 J	390 J	57.1	862	800
bis (2-Ethylhexyl) phthalate	ug/kg	750 BJ	360 BJ	180 BJ	NA	NA	NA
Benzo (b) fluoranthene	ug/kg	1,500	820	530 J	NA	NA	NA
Benzo (k) fluoranthene	ug/kg	610 J	350 J	270 J	NA	NA	13,400
Benzo (a) pyrene	ug/kg	700 J	440 J	350 J	31.9	782	700
Indeno (1,2,3-cd) pyrene	ug/kg	590 J	280 J	240 J	NA	NA	330
Dibenzo (a,h) anthracene	ug/kg	120 J	76 J	--	NA	NA	100
Benzo (g,h,I) perylene	ug/kg	570 J	260 J	280 J	NA	NA	300
TOTALS	ug/kg	11,910	7,016	4,814			

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
5. Extracted from September 1999, NOAA Screening Quick Reference Tables (SQuiRTs).
6. Boxed area indicates results exceed NOAA SQuiRT Standards, Probable Effects Level.
7. "NA" indicates Not Available.

Table 18
Sediment Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	Units	Sample Date	Analytes	
			TPH Method 8100M/8015M	Total Cyanide Method ILM04.0
179-SD1	mg/kg	8/31/99	280	1.2B
179-SD2	mg/kg	8/31/99	79	0.37B
179-SD3	mg/kg	8/31/99	93	0.20B
NOAA Standards (4)		Threshold Effects Level (TEL)	NA	NA
		Probable Effects Level (PEL)	NA	NA
		Upper Effects Threshold (UEL)	NA	NA

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
4. Extracted from September 1999, NOAA Screening Quick Reference Tables (SQuiRTs).

Table 19A
Duplicate Samples
Phase IA Geoprobe Groundwater Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Geoprobe Location Sample Date	Units	GP-07 12/4/96	GP-07 Dup 12/4/96	GP-11 12/4/96	GP-11 Dup 12/4/96	GP-27 12/5/96	GP-27 Dup 12/5/96	GP-34 12/5/96	GP-34 Dup 12/5/96	GP-34 Dup 12/5/96	GP-35 12/5/96	GP-35 Dup 12/5/96	GP-36 12/6/96	GP-36 Dup 12/6/96
VOCs/Method 8260														
Vinyl Chloride	ug/l	--	--	--	--	--	51	--	--	--	--	--	--	--
Chloroethane	ug/l	--	130	--	--	--	7,600 (D)	--	330 (D)	320	--	--	--	--
1,1 Dichloroethene	ug/l	--	7	--	--	--	130	--	7	8	--	--	--	--
Acetone	ug/l	--	14	--	7	--	8	--	7	6	--	5	--	--
1,1 Dichloroethane	ug/l	41.2	110	--	--	3,260	4,800 (D)	348	150	150	57.1	52	--	--
cis 1,2 Dichloroethene	ug/l	--	13	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	ug/l	--	--	--	--	--	9	--	--	--	--	--	--	--
1,1,1 Trichloroethane	ug/l	17.9	61	0.29	--	788	940 (D)	163	180	180	33	45	1.52	--
Benzene	ug/l	--	--	--	--	--	6	--	--	--	--	--	--	--
1,2 Dichloroethane	ug/l	--	--	--	--	--	6	--	--	--	--	--	--	--
Toluene	ug/l	--	--	--	--	--	9	--	--	--	--	--	--	--
Xylene	ug/l	--	--	--	--	--	15	--	--	--	--	--	--	--
1,2,4 Trimethylbenzene	ug/l	--	--	--	--	--	7	--	--	--	--	--	--	--
Total VOCs	ug/l	59.1	335	0.29	7	4,048	13,581	511	674	664	90.1	102	1.52	0
Relative Percent Difference (5)	%	-	140%	-	184%	-	108%	-	27%	26%	-	12%	-	-

Note:

1. Reporting limit 2.50 ug/L, except for 1,1,1 TCA (0.25 ug/L) and Benzene, Xylene, and Toluene (10.0 ug/L).
2. Sample analyzed by Mitkem of Warwick, Rhode Island. Duplicate of GP-34 was sent as GP-40. Reporting limit 5.0 ug/L.
3. "- -" indicates the analyte not detected above the specified reporting limit.
4. "D" indicates diluted sample.
5. Relative Percent Difference equation: RPD = (Absolute difference between two reported values divided by the average)100

Table 19B
Duplicate Samples
Phase IB Geoprobe Groundwater Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport

Building 179 Remedial Investigation

Analyte	CLE	VCL	ACE	MEK	1,1 DCE	CH2CL2	t-1,2 DCE	1,1 DCA	c-1,2 DCE	1,1,1 TCA	CCL4	TCE	1,1,2 TCA	PCE	BNZ	TLN	EBNZ	TXYL	Total VOCs	Relative Percent Difference (5)
Detection Limit	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L	5.0 ug/L		
Geoprobe Location																				
GP-63	*	*	*	*	--	--	*	--	*	--	*	--	*	--	--	--	--	--	0.0	
GP-63 Dup	--	--	11.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.0	-
GP-85	*	*	*	*	--	7.1	*	14.0	*	--	*	--	*	--	--	--	--	--	21.1	
GP-85 Dup	--	--	12.0	--	--	17.0	--	--	--	--	--	--	--	--	--	--	--	--	29.0	32%
GP-100A	*	*	*	*	--	160.0	*	200.0	*	180.0	*	7.4	*	--	--	--	--	--	547.4	
GP-100A Dup	470.0	10.0	10.0	--	41.0	16.0	--	590.0	--	760.0	--	--	--	--	--	--	--	--	1,897.0	59%
GP-115	*	*	*	*	--	--	*	--	*	--	*	--	*	--	--	--	--	--	0.0	
GP-115 Dup	--	--	10.0	--	--	16.0	--	--	--	--	--	--	--	--	--	--	--	--	26.0	-
GP-125	*	*	*	*	--	--	*	--	*	--	*	--	*	--	--	--	--	--	0.0	
GP-125 Dup	--	--	11.0	5.0	--	19.0	--	--	--	--	--	--	--	--	--	--	--	--	35.0	-
GP-130	*	*	*	*	--	56.0	*	120.0	*	120.0	*	5.2	*	--	--	--	--	--	301.2	
GP-130 Dup	54.0	--	10.0	--	18.0	16.0	--	330.0	--	500.0	--	--	--	--	--	--	--	--	928.0	102%
GP-150	*	*	*	*	--	97.0	*	170.0	*	140.0	*	8.7	*	--	--	--	--	--	415.7	
GP-150 Dup	94.0	--	14.0	--	12.0	--	--	310.0	--	380.0	--	--	--	--	--	--	--	--	810.0	64%

Notes:

1. 1,1 DCE = 1,1-dichloroethene; CH2CL2 = methylene chloride; t-1,2 DCE = Trans-1,2 dichloroethene; 1,1 DCA = 1,1-dichlorethane; c-1,2 DCE = cis-1,2-dichloroethene
   TCE = trichloroethane; 1,1,1 TCA = 1,1,1-trichlorethane; CCL4 = carbon tetrachloride; 1,1,2 TCA = 1,1,2-trichloroathane; PCE = tetrachloroethene
   BNZ = benzene; TLN = toluene; EBNZ = ethyl benzene; TXYL = total xylenes
   MEK = Methyl Ethyl Ketone; CLE = Chloroethane; VCL = Vinyl Chloride; ACE = Acetone
2. "--" Indicates the enelyte not detected at or above the specified detection limit.
3. "*" Indicates the on-site laboratory (Mykrowaters, Inc) did not analyze for this analyte.
3. Samples analyzed by Mitkem Corporation using EPA Method 8260.
4. Extracted from August 1996 RIDEM Division of Site Remediation Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.
5. "NA" Indicates not available.
5. Relative Percent Difference equation: RPD = (Absolute difference between two reported velues divided by the average)100

Table 20
Duplicate Samples
Soil Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID	UNITS	B20-S3	B201-S3	B26-S2	B261-S2	MW7B-S4	MW71B-S4
Sample Depth		7-9'	7-9'	2-4'	2-4'	6.5-8.5'	6.5-8.5'
Sample Date		7/15/99	7/15/99	7/20/99	7/20/99	7/21/99	7/21/99
VOCs/Method 8260							
Methylene Chloride	ug/kg	8 JB	2 JB	–	–	1 JB	–
Acetone	ug/kg	–	–	52	54		–
Carbon Disulfide	ug/kg	–	–	–	0.6 J		–
1,1-Dichloroethene	ug/kg	–	–	–	–	1 J	1 J
1,1-Dichloroethane	ug/kg	–	1 JB	–	–	28	6
1,1,1-Trichloroethane	ug/kg	–	–	–	–	120	42
Benzene	ug/kg	–	0.3 J	0.8 JB	1 JB		0.3 JB
Tetrachloroethene	ug/kg	–	–	1 JB	–	1 J	0.7 J
Toluene	ug/kg	–	–	–	2 JB	0.7 J	0.8 JB
Xylene		–	–	–	–	6	4 J
TOTALS	ug/kg	8	3.3	53.8	57.6	157.7	50.8
Relative Percent Difference(5)	%		83 %		7 %		100 %

Soil Data - Semi-Volatile Organic Compounds

Sample ID	UNITS	B20-S3	B201-S3	B26-S2	B261-S2	MW7B-S4	MW71B-S4
Sample Depth		5-7'	5-7'	2-4'	2-4'	6.5-8.5'	6.5-8.5'
Sample Date		7/14/99	7/14/99	7/20/99	7/20/99	7/21/99	7/21/99
SVOCs/Method OLM03.1							
Acenaphthene		–	–	38 J	–	–	–
Phenanthrene		–	–	200 J	–	–	–
Anthracene		–	–	49 J	–	–	–
Fluoranthene		–	–	190 J	–	–	–
Pyrene		–	–	130 J	–	–	–
Benzo (a) anthracene		–	–	65 J	–	–	–
Chrysene		–	–	76 J	–	–	–
Benzo (b) fluoranthene		–	–	89 J	–	–	–
Benso (k) fluoranthene		–	–	47 J	–	–	–
Benzo (a) pyrene		–	–	71 J	–	–	–
Indeno (1,2,3-cd) pyrene		–	–	41 J	–	–	–
Naphthalene	ug/kg	–	–	–	–	42 J	–
Di-n-butylphthalate	ug/kg	–	–	–	–	1,600	640
bis (2-Ethylhexyl) phthalate	ug/kg	–	–	80 J	76 J	37 J	37 J
Benzo (g,h,i) perylene		–	–	38 J	–	–	–
TOTALS	ug/kg	0	0	1114	76	1679	677
Relative Percent Difference(5)	%		0 %		174 %		85 %

Soil Data - Total Petroleum Hydrocarbons (TPH), Total Cyanide, and Total Organic Carbon (TOC) Compounds

mple ID	UNITS	B20-S3	B201-S3	RPD(5)	B26-S2	B261-S2	RPD(5)	MW7B-S4	MW71B-S4	RPD(5)
mple Depth		5-7'	5-7'		2-4'	2-4'		6.5-8.5'	6.5-8.5'	
mple Date		7/14/99	7/14/99		7/20/99	7/20/99		7/21/99	7/21/99	
H/Method 8100M/8015M	mg/kg	–	–	0%	–	23	200%	–	–	0%
al Cyanide/Method ILM04	mg/kg	–	–	0%	–	–	0%	–	–	0%
C/Method 415.1	mg/kg	NC	NC	NC	NC	NC	NC	–	–	0%

tes:

1. "–" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Severn Trent Laboratories of Monroe, Connecticut.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. "NC" indicates analysis not conducted.
5. Relative Percent Difference equation: RPD = (Absolute difference between two reported values divided by the average)100

Table 21
Duplicate Samples
Groundwater Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID Sample Date	UNITS	MW-12 8/25/99	MW-121 8/25/99	MW-10 8/27/99	MW-101 8/27/99
VOCs/Method 8260B					
Acetone	ug/l	8 B	7 B	7 B	5
Methylene Chloride	ug/l	2 J	2 J	2 J	--
1,1-Dichloroethane	ug/l	--	--	--	2 J
2-Butanone	ug/l	2 J	--	--	
cis-1,2-Dichloroethene	ug/l	2 J	2 J	--	--
Trichloroethene	ug/l	2 J	2 J	--	--
Tetrachloroethene	ug/l	9	--	--	
1,1,1-Trichloroethane	ug/l	--	13	--	2 J
TOTALS	ug/l	25	26	9	9
Relative Percent Difference(5)	%		4 %		0 %

Groundwater Data - Semi-Volatile Organic Compounds

Sample ID Sample Date	UNITS	MW-12 8/25/99	MW-121 8/25/99	MW-10 8/27/99	MW-101 8/27/99
SVOCs/Method OLM03.1					
	ug/l	--	--	--	--
TOTALS	ug/l	0	0	0	0
Relative Percent Difference(5)	%		0 %		0 %

Groundwater Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Sample ID Sample Date	UNITS	MW-12 8/25/99	MW-121 8/25/99	RPD(5)	MW-10 8/27/99	MW-101 8/27/99	RPD(5)
TPH/Method 8100M/8015M	ug/l	--	--	0%	--	--	0%
Total Cyanide/Method ILM04.0	ug/l	--	--	0%	11.8	98.6	157%

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
5. Relative Percent Difference equation = RPD = (Absolute difference between two reported values divided by the average)100

Table 22
Duplicate Sample
Sediment Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID Sample Date	UNITS	179-SD2 8/31/99	179-SD21 9/2/99
VOCs/Method 8260B			
Acetone	ug/kg	84 B	190 B
Methylene Chloride	ug/kg	4 JB	6 JB
2-Butanone	ug/kg	22 B	53 B
Toluene	ug/kg	--	10 J
TOTALS	ug/kg	110	259
Relative Percent Difference (5)	%	-	81 %

Sediment Data - Semi-Volatile Organic Compounds

Sample ID Sample Date	UNITS	179-SD2 8/31	179-SD21 9/2
SVOCs/Method OLM03.1			
Naphthalene	ug/l	100 J	--
Acenaphthene	ug/l	69 J	--
Fluorene	ug/l	91 J	--
Phenanthrene	ug/kg	720	560 J
Anthracene	ug/kg	110 J	79 J
Carbazole	ug/kg	140 J	110 J
Fluoranthene	ug/kg	1,200	800
Pyrene	ug/kg	990	1,100
Benzo (a) anthracene	ug/kg	410 J	450 J
Chrysene	ug/kg	600 J	680 J
bis (2-Ethylhexyl) phthalate	ug/kg	360 BJ	480 J
Benzo (b) fluoranthene	ug/kg	820	1,100
Benzo (k) fluoranthene	ug/kg	350 J	470 J
Benzo (a) pyrene	ug/kg	440 J	590 J
Indeno (1,2,3-cd) pyrene	ug/kg	280 J	460 J
Dibenzo (a,h) anthracene	ug/kg	76 J	99 J
Benzo (g,h,i) perylene	ug/kg	260 J	410 J
TOTALS	ug/kg	7,016	7,388
Relative Percent Difference (5)	%	-	5 %

Sediment Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Sample ID Sample Date	UNITS	179-SD2 8/31/99	179-SD21 9/2/99	RPD (5)
TPH/Method 8100M/8015M	ug/kg	79	157	66 %
VOCs/Method 8260B	ug/kg	.0.37 B	.40 B	8 %

Notes:

1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
5. Relative Percent Difference equation: RPD = (Absolute difference between two reported values divided by the average)100

Table 23
Duplicate Sample
Surface Water Data - Volatile Organic Compounds

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID Sample Date	UNITS	179-SW2 8/31/99	179-SW21 9/2/99
VOC's/Method 8260B			
Acetone	ug/l	8 B	5
Methylene Chloride	ug/l	1 JB	3 J
2-Butanone	ug/l	--	--
Toluene	ug/l	--	--
TOTALS	ug/l	9	8
Relative Percent Difference (5)	%	-	12 %

Surface Water Data - Semi-Volatile Organic Compounds

Sample ID Sample Date	UNITS	179-SW2 8/31/99	179-SW21 9/2/99
SVOC's/Method OLM03.1			
	ug/l	--	--
TOTALS	ug/l	0	0
Relative Percent Difference (5)	%	-	0 %

Surface Water Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Sample ID Sample Date	UNITS	179-SW2 8/31/99	179-SW21 9/2/99	RPD (5)
TPH/Method 8100M/8015M	ug/l	--	--	0 %
Total Cyanide/Method ILM04.0	ug/l	4.3 B	6.1 B	35 %

Notes:
1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical, of Warwick, Rhode Island.
3. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
4. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.
5. Relative Percent Difference equation: RPD = (Absolute difference between two reported values divided by the average)100

Table 24
Field Blank and Trip Blank Data

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

Sample ID Sample Date	UNITS	MW-FB1 8/24/99	MW-FB2 8/25/99	SD-FB 9/2/99	TB1 . 8/24/99	TB2 8/25/99	TB3 8/27/99	TB 8/31/99
VOCs/Method 8260B SW-846								
Acetone	ug/l	10 B	8	5	6 B	8	130 B	4 JB
Methylene Chloride	ug/l	7	4 J	4 J	3 J	4 J	2 J	3 JB
2-Butanone	ug/l	--	--	--	--	--	31	--
4-Methyl-2-pentanone	ug/l	--	--	--	--	--	2 J	--
TOTALS	ug/l	17	12	9	9	12	165	7

Groundwater Data - Semi-Volatile Organic Compounds

Sample ID Sample Date	UNITS	MW-FB1 8/24/99	MW-FB2 8/25/99
SVOCs/Method OLM03.1	ug/l	--	--
TOTALS	ug/l	0	0

Groundwater Data - Total Petroleum Hydrocarbons (TPH), and Total Cyanide Compounds

Sample ID Sample Date	UNITS	MW-FB1 8/24/99	MW-FB2 8/25/99
TPH/Method 8100M/8015M	ug/l	--	--
Total Cyanide/Method ILM04.0	ug/l	--	--

Notes:

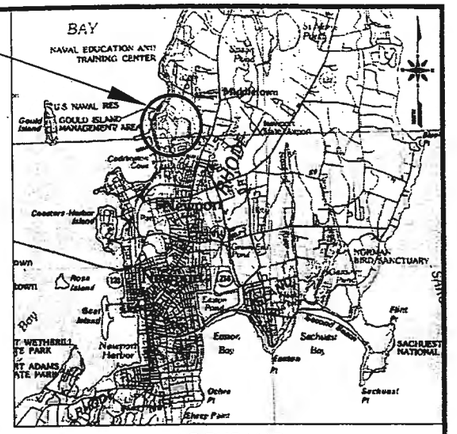
1. "--" indicates the analyte not detected above the specified reporting limit.
2. Samples analyzed by Mitkem Analytical of Warwick, Rhode Island.
3. Trip Blanks analyzed for VOC content only.
4. J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
5. B - Indicates that the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

FIGURES

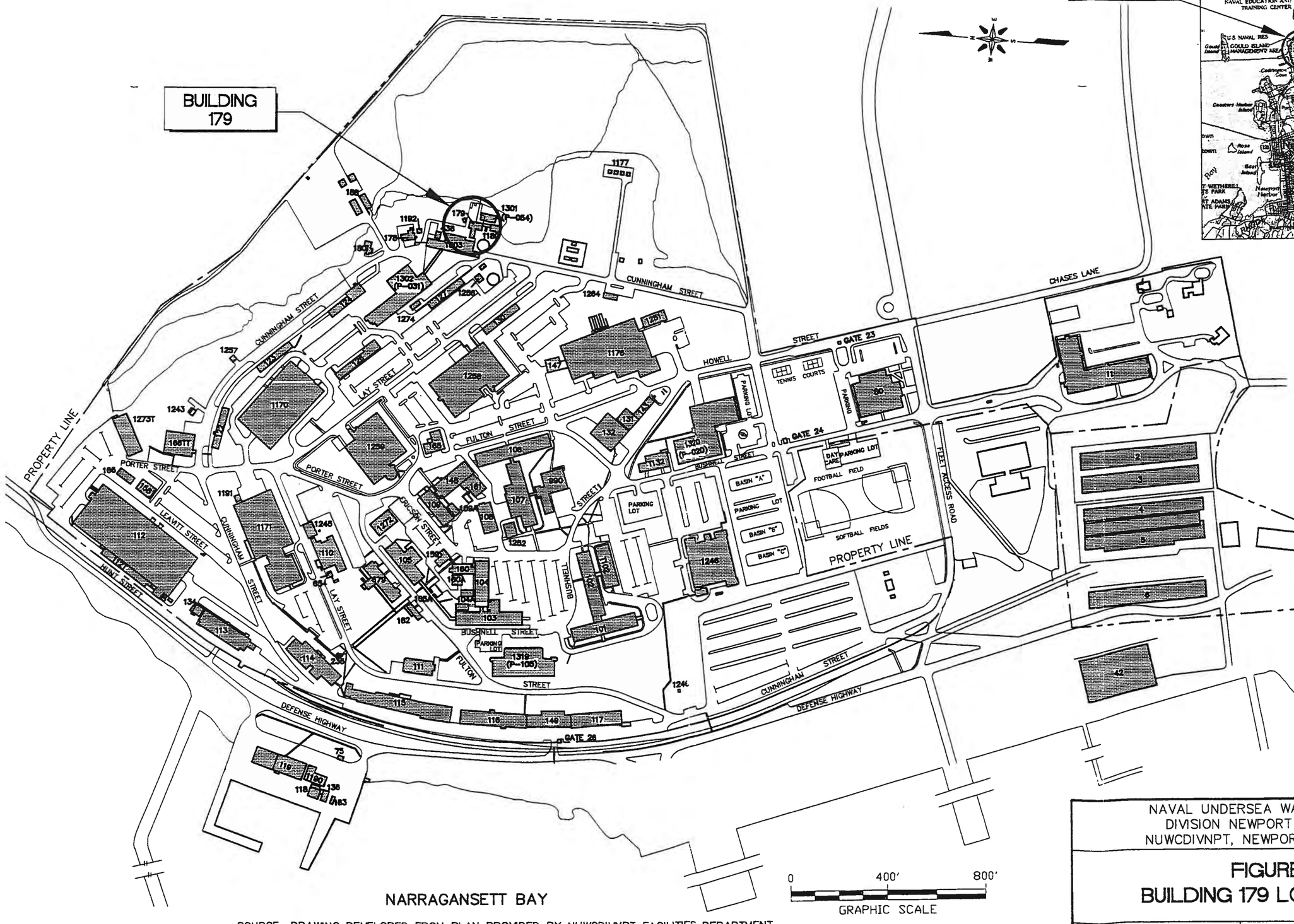
Figure 1 *Building 179 Locus Plan*
Figure 2 *Existing Conditions Plan*
Figure 3 *Site Plan – Previous Investigations*
Figure 4 *Phase 1 (A and B) Geoprobe™ Locations and Total VOC Data*
Figure 5 *Phase 1A Geoprobe™ Groundwater Field Analytical Summary*
Figure 6 *Phase 1B Geoprobe™ Groundwater Field Analytical Summary*
Figure 7 *Phase II Exploration Location and Analytical Summary*
Figure 8 *Phase II – Overburden and Bedrock Groundwater Contours*

BUILDING 179

SITE LOCATION



LOCUS MAP
SCALE: 1"=2.5 Miles



SOURCE: DRAWING DEVELOPED FROM PLAN PROVIDED BY NUWCDIVNPT FACILITIES DEPARTMENT

NAVAL UNDERSEA WARFARE CENTER
DIVISION NEWPORT (NUWCDIVNPT)
NUWCDIVNPT, NEWPORT, RHODE ISLAND

FIGURE 1.
BUILDING 179 LOCUS PLAN

Date: 12/99 | Drawing No. 01984-0030-00060

\00000\F1-00000

RI NAD-83

SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87-50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVIL EXISTING SITE PLAN", SHT. 7 OF 127, (91-42), AUTOCAD XREF FILE 9525C1.dwg.

2-1/4" OUTFALL (ABANDONED)
INVERT: 46.45

2-1/4" OUTFALL (ABANDONED)
INVERT: 46.45

CONC. HEADWALL
TOP ELEV: 48.65

APPROXIMATE DRAINAGE LOCATION

DMH
RIM=51.67 NGVD'29

2.5" VENT PIPE

36" R.C.P.
INVERT: 42.76

HEADWALL

36" R.C.P.
INVERT: 42.44

LEDGE

BENCHMARK
ELEV = 57.55 NGVD'29
SE corner O.W.S., Scribed X mark top SE corner of conc. slab above buried Oil Water Separator

TRANSFORMER

PAD

18" RISER TUBES

4" DW

O.W.S

F.W.S

H2O TANK

SMH #6

SMH #5

4" DW

4" DW

PREVIOUS INTERCEPTOR PIPE LOCATION (REMOVED)
OUTFALL TOP
ELEV: 50.27

36" APPLE
20' CROWN

PREVIOUS INTERCEPTOR TANK LOCATION (REMOVED)

VALVE

V.C. DRAIN PIPE

18" RISER TUBES

AFTERBENNER

4" CAST IRON PIPE

500 GAL. O/W.S. (TANK B-1)

R.R. TRACK

3/4" GA

1,500 GAL. DOUBLE WALL CONTAINMENT

F.W.S

U/G ELECT. DUCT

U/G ELECT. DUCT

6" WATER LINE

6" W.G.

4" CON. PIPE

CONCRETE PAD

FORMER 8"-CI. DRAIN TO BROOK

6,000 GAL. STEEL HAZARDOUS WASTE AST

6"ø CONC. FILLED STL. POSTS 36"H SPACED 5' O.C.

CONC. PAD WITH RAILS

CUST

12" P.V.C CULVERT
OUTFALL
ELEV: 53.17

FORMER DILUTION PITS PLUG W/CONC. (REMOVED)

CB

12" RCP

12" RCP

CB

185
180
178
1192
438
ADDITION
1303
179
1301
1180

LEGEND

- EXISTING BUILDING
- EXISTING PAVEMENT EDGE
- EXISTING CENTER OF STREAM
- EXISTING STREAM EDGE
- EXISTING TREELINE
- EXISTING CONTOUR
- DIRECTION OF FLOW
- O.W.S OIL WATER SEPARATOR
- F.W.S FUEL WATER SEPARATOR
- EXISTING UTILITIES
- REMOVED UTILITIES
- INACTIVE UTILITIES
- DILUTION PITS (REMOVED)
- FLOOR DRAIN (REMOVED)

NOTE:

1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI, SEPTEMBER 1999, JOB NO. 9909-10A. DRAWING NAME: NUWC-179, ORIGINAL SCALE 1"=30'.

\01984\BLDG179\0640A\FIG-2

SYMBOL	DESCRIPTION	DATE	APPROVED BY

REVISIONS

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

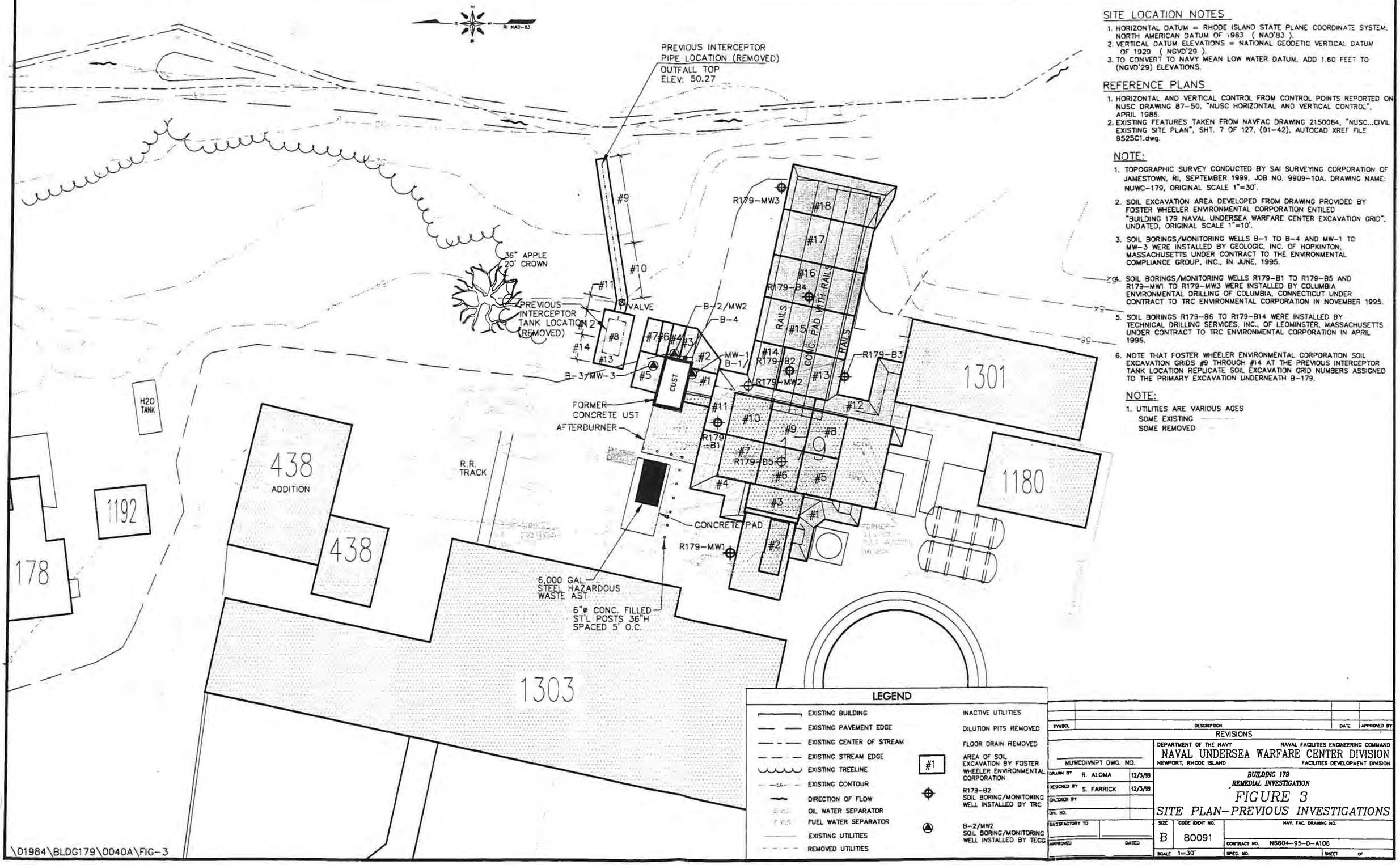
NUWCDIVNPT DWG. NO.		
DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. HD.		
SATISFACTORY TO		
APPROVED	DATED	

BUILDING 179
REMEDIAL INVESTIGATION

FIGURE 2

EXISTING CONDITIONS PLAN

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
D	80091	
SCALE 1=20'		CONTRACT NO. N6604-95-D-A108
		SPEC. NO. — SHEET OF



SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87-50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVIL EXISTING SITE PLAN", SHT. 7 OF 127, (91-42), AUTOCAD XREF FILE 9525C1.dwg.

NOTE:

1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI, SEPTEMBER 1999, JOB NO. 9909-10A. DRAWING NAME: NUWC-179, ORIGINAL SCALE 1"=30'.
2. SOIL EXCAVATION AREA DEVELOPED FROM DRAWING PROVIDED BY FOSTER WHEELER ENVIRONMENTAL CORPORATION ENTILED "BUILDING 179 NAVAL UNDERSEA WARFARE CENTER EXCAVATION GRID", UNDATED, ORIGINAL SCALE 1"=10'.
3. SOIL BORINGS/MONITORING WELLS B-1 TO B-4 AND MW-1 TO MW-3 WERE INSTALLED BY GEOLOGIC, INC. OF HOPKINTON, MASSACHUSETTS UNDER CONTRACT TO THE ENVIRONMENTAL COMPLIANCE GROUP, INC., IN JUNE, 1995.
4. SOIL BORINGS/MONITORING WELLS R179-B1 TO R179-B5 AND R179-MW1 TO R179-MW3 WERE INSTALLED BY COLUMBIA ENVIRONMENTAL DRILLING OF COLUMBIA, CONNECTICUT UNDER CONTRACT TO TRC ENVIRONMENTAL CORPORATION IN NOVEMBER 1995.
5. SOIL BORINGS R179-B6 TO R179-B14 WERE INSTALLED BY TECHNICAL DRILLING SERVICES, INC., OF LEOMINSTER, MASSACHUSETTS UNDER CONTRACT TO TRC ENVIRONMENTAL CORPORATION IN APRIL 1996.
6. NOTE THAT FOSTER WHEELER ENVIRONMENTAL CORPORATION SOIL EXCAVATION GRIDS #9 THROUGH #14 AT THE PREVIOUS INTERCEPTOR TANK LOCATION REPLICATE SOIL EXCAVATION GRID NUMBERS ASSIGNED TO THE PRIMARY EXCAVATION UNDERNEATH B-179.

NOTE:

1. UTILITIES ARE VARIOUS AGES
   SOME EXISTING
   SOME REMOVED

LEGEND

- EXISTING BUILDING
- EXISTING PAVEMENT EDGE
- EXISTING CENTER OF STREAM
- EXISTING STREAM EDGE
- EXISTING TREELINE
- EXISTING CONTOUR
- DIRECTION OF FLOW
- OIL WATER SEPARATOR
- FUEL WATER SEPARATOR
- EXISTING UTILITIES
- REMOVED UTILITIES
- INACTIVE UTILITIES
- DILUTION PITS REMOVED
- FLOOR DRAIN REMOVED
- #1 AREA OF SOIL EXCAVATION BY FOSTER WHEELER ENVIRONMENTAL CORPORATION
- R179-B2 SOIL BORING/MONITORING WELL INSTALLED BY TRC
- B-2/MW2 SOIL BORING/MONITORING WELL INSTALLED BY TECC

SYMBOL	DESCRIPTION	DATE	APPROVED BY

REVISIONS

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

NUWCDIVNPT DWG. NO.

DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. NO.		
SATISFACTORY TO		
APPROVED		DATED

BUILDING 179
REMEDIAL INVESTIGATION

FIGURE 3

SITE PLAN-PREVIOUS INVESTIGATIONS

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
B	80091	

CONTRACT NO. N6604-95-D-A108
SCALE 1=30' — SPEC. NO. — SHEET OF

\01984\BLDG179\0040A\FIG-3

SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87–50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVIL EXISTING SITE PLAN", SHT. 7 OF 127, (91–42), AUTOCAD XREF FILE 9525C1.dwg.

LEGEND

EXISTING BUILDING	PHASE A GEOPROBE SAMPLE LOCATION (DECEMBER,1996)	GP–101 / 15	GEOPROBE LOCATION TOTAL VOLATILE ORGANIC COMPOUND (VOC) CONCENTRATION IN ug/L OR ppb
EXISTING PAVEMENT EDGE	PHASE 1B GEOPROBE SAMPLE LOCATION (SEPTEMBER, OCTOBER, 1998)	GP–60A / 331	EXCEEDS RIDEM GA GROUNDWATER OBJECTIVE
EXISTING CENTER OF STREAM	EXISTING UTILITIES		
EXISTING STREAM EDGE	REMOVED UTILITIES		
EXISTING TREELINE	INACTIVE UTILITIES		
—56— EXISTING CONTOUR	DILUTION PITS (REMOVED)		
DIRECTION OF FLOW	FLOOR DRAIN (REMOVED)		
O.W.S OIL WATER SEPARATOR			
F.W.S FUEL WATER SEPARATOR			

NOTE:

1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI, SEPTEMBER 1999, JOB NO. 9909–10A. DRAWING NAME: NUWC–179, ORIGINAL SCALE 1"=30'.
2. PHASE 1A GEOPROBE EXPLORATIONS CONDUCTED BY TARGET ENVIRONNENTAL SERVICES, INC. BETWEEN 3 AND 6 DECEMBER, 1996, OBSERVED BY TRC.
3. PHASE 1B GEOPROBE EXPLORATIONS CONDUCTED BY MICROWATERS, INC. OF CONCORD, MASSACHUSETTS BETWEEN 28 SEPTEMBER AND 2 OCTOBER, 1998, OBSERVED BY TRC.

\01984\BLDG179\0040A\FIG–4

SYMBOL	DESCRIPTION	DATE	APPROVED BY

REVISIONS

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

NAVAL UNDERSEA WARFARE CENTER DIVISION

NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

NUWCDIVNPT DWG. NO.

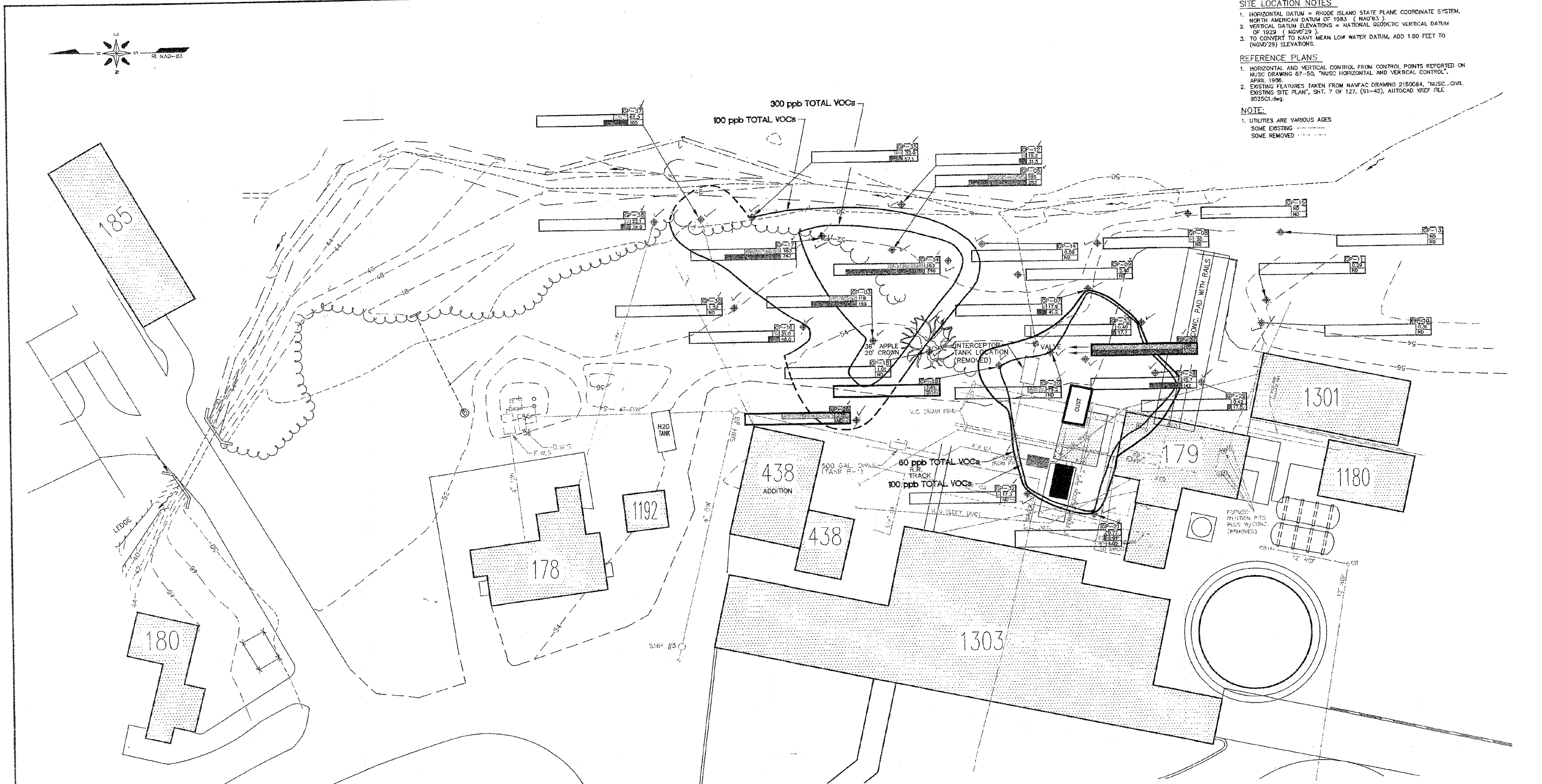
DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. HD.		
SATISFACTORY TO		
APPROVED	DATED	

BUILDING 179
REMEDIAL INVESTIGATION

FIGURE 4

PHASE 1 (A AND B) GEOPROBE LOCATIONS AND TOTAL VOC DATA

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
D	80091	CONTRACT NO. N5604–95–D–A108
SCALE 1=20'		SPEC. NO. — SHEET OF



SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87-50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVIL EXISTING SITE PLAN", SHT. 7 OF 127, (91-42), AUTOCAD XREF FILE 9525C1.dwg.

NOTE:

1. UTILITIES ARE VARIOUS AGES
   SOME EXISTING
   SOME REMOVED

LEGEND

- EXISTING BUILDING
- EXISTING PAVEMENT EDGE
- EXISTING CENTER OF STREAM
- EXISTING STREAM EDGE
- EXISTING TREELINE
- EXISTING CONTOUR
- DIRECTION OF FLOW
- O.W.S — OIL WATER SEPARATOR
- F.W.S — FUEL WATER SEPARATOR
- EXISTING UTILITIES
- REMOVED UTILITIES
- INACTIVE UTILITIES
- DILUTION PITS (REMOVED)
- FLOOR DRAIN (REMOVED)
- PHASE 1A GEOPROBE SAMPLE LOCATION (DECEMBER,1996)

GP-27
788 — CONCENTRATION OF 1,1 DCA=DICHLOROETHANE
3,280 — CONCENTRATION OF 1,1,1 TCA=TRICHLOROETHANE

EXCEEDS RIDEM GA GROUNDWATER OBJECTIVE

NOTE:

1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI, SEPTEMBER 1999, JOB NO. 9909-10A. DRAWING NAME: NUWC-179, ORIGINAL SCALE 1"=30'.
2. PHASE 1A GEOPROBE EXPLORATIONS CONDUCTED BY TARGET ENVIRONMENTAL SERVICES, INC. BETWEEN 3 AND 6 DECEMBER, 1996, OBSERVED BY TRC.

\01984\BLDG179\0040A\FIG-5

SYMBOL	DESCRIPTION	DATE	APPROVED BY

REVISIONS

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

NUWCDIVNPT DWG. NO.

DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. HD.		
SATISFACTORY TO		
APPROVED		DATED

BUILDING 179
REMEDIAL INVESTIGATION
FIGURE 5
PHASE 1A GEOPROBE GROUNDWATER FIELD ANALYTICAL SUMMARY

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
D	80091	CONTRACT NO. N6604-95-D-A108
SCALE 1=20'		SPEC. NO. — SHEET OF

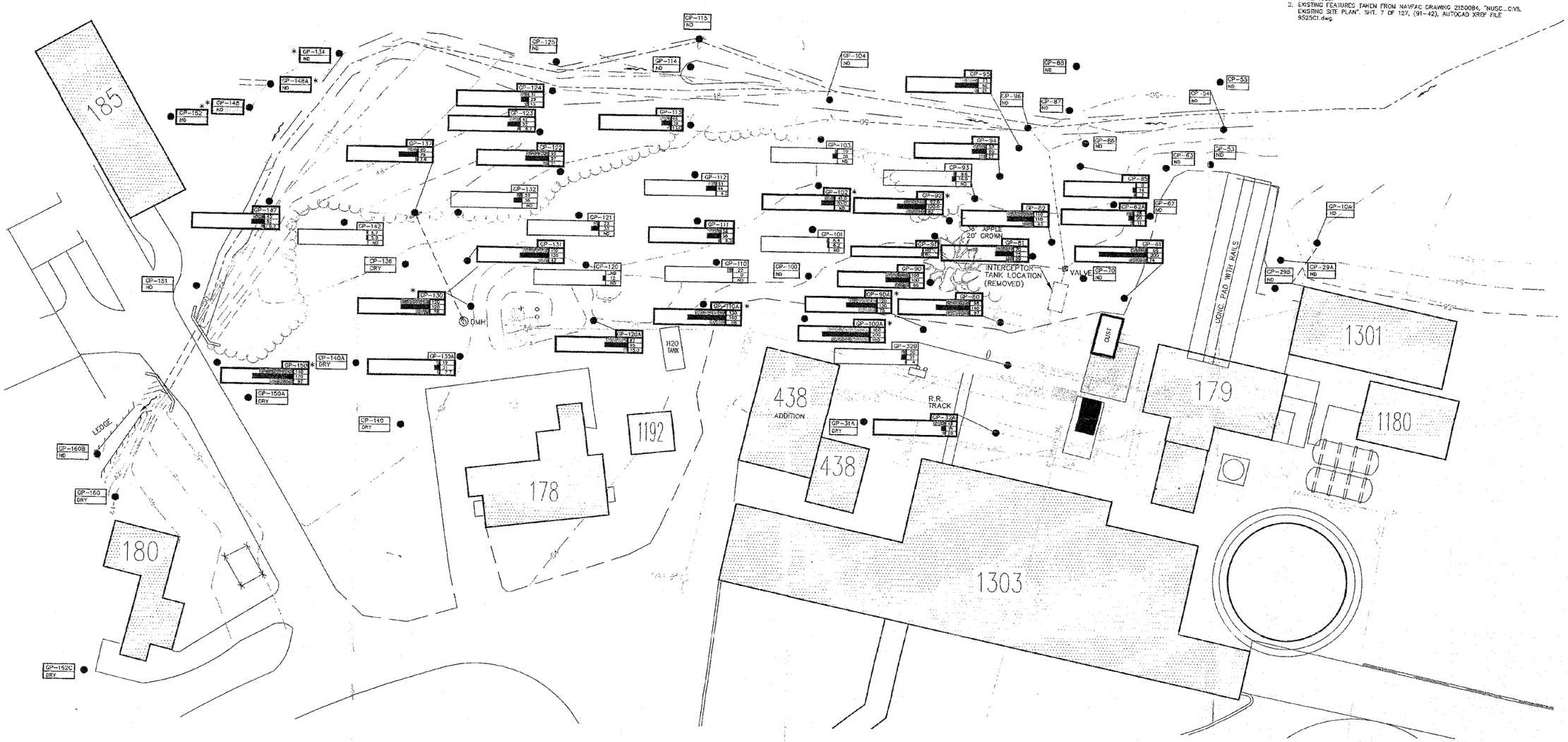
RI NAD-83

SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87-50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVL EXISTING SITE PLAN", SHT. 7 OF 127, (91-42), AUTOCAD XREF FILE 9525C1.dwg.



NOTE:

1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI, SEPTEMBER 1999. JOB NO. 9909-10A. DRAWING NAME: NUWC-179, ORIGINAL SCALE 1"=30'.
2. PHASE 1B GEOPROBE EXPLORATIONS CONDUCTED BY MICROWATERS, INC. OF CONCORD, MASSACHUSETTS BETWEEN 28 SEPTEMBER AND 2 OCTOBER, 1998, OBSERVED BY TRC.
3. "*" EXCEEDS A RIDEM GA GROUNDWATER OBJECTIVE WHICH IS NOT IDENTIFIED IN LEGEND.

\01984\BLDG179\0040A\FIG-6

LEGEND

- EXISTING BUILDING
- EXISTING PAVEMENT EDGE
- EXISTING CENTER OF STREAM
- EXISTING STREAM EDGE
- EXISTING TREELINE
- 30 EXISTING CONTOUR
- DIRECTION OF FLOW
- OIL WATER SEPARATOR
- FUEL WATER SEPARATOR
- EXISTING UTILITIES
- REMOVED UTILITIES
- INACTIVE UTILITIES
- PHASE 1B GEOPROBE SAMPLE LOCATION (SEPTEMBER, OCTOBER, 1998)

GP-100: 100 / 200 / 100 — CONCENTRATION OF METHYLENE CHLORIDE; CONCENTRATION OF 1,1 DCA (DICHLOROETHANE) ug/L; CONCENTRATION OF 1,1,1 TCA (TRICHLOROETHANE) ug/L

GP-92: 90.0 / 250.0 / 2.0 — EXCEEDS RIDEM GA GROUNDWATER OBJECTIVE

SYMBOL	DESCRIPTION	DATE	APPROVED BY
	REVISIONS		

NUWCDIVNPT DWG. NO.

DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. HD.		
SATISFACTORY TO		
APPROVED		DATED

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

BUILDING 179
REMEDIAL INVESTIGATION
FIGURE 6
PHASE 1B GEOPROBE GROUNDWATER FIELD ANALYTICAL SUMMARY

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
D	80091	
SCALE 1=20'	CONTRACT NO. N6604-95-D-A108	
	SPEC. NO.	SHEET OF

SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87-50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVIL EXISTING SITE PLAN", SHT. 7 OF 127, (91-42), AUTOCAD XREF FILE 05250I.dwg.

N RI NAD-83

N 164,500

N 164,000

E 381,500

MW-13A TOTAL VOC'S 11 | MW-13B * TOTAL VOC'S 37

MW-8A TOTAL VOC'S 13 | MW-8B TOTAL VOC's 10

MW-12 * TOTAL VOC'S 25

MW-10 TOTAL VOC's 9

MW-9A TOTAL VOC's DRY

MW-9B TOTAL VOC's 424

MW-7B TOTAL VOC's 25,980

MW-7A TOTAL VOC's 4,656

MW-11 TOTAL VOC's 9

MW-6B TOTAL VOC's 33

MW-6A TOTAL VOC's 425

SW3	SD3
TOTAL VOC's	TOTAL VOC's
50	74

SW2	SD2
TOTAL VOC's	TOTAL VOC's
9	110

SW1	SD1
TOTAL VOC's	TOTAL VOC's
5	64

B-26 B-25 B-24 B-23 B-22 B-21 B-20 B-30 B-16 B-14 B-13 B-12 B-11 B-10

S-2258 S-2153 S-2152 S-2149 S-2151 S-2299 S-2297 S-2296 S-2294 S-2295 S-2285

SEISMIC LINE 1 SEISMIC LINE 2 SEISMIC LINE 3 SEISMIC LINE 4 SEISMIC LINE 5 SEISMIC LINE 6 SEISMIC LINE 7

36" APPLE 20' CROWN

PREVIOUS INTERCEPTOR TANK LOCATION (REMOVED)

VALVE

CONC. PAD WITH RAILS

CUST.

H2O TANK

LEDGE

185 180 178 1192 438 ADDITION 438 1303 179 1301 1180

NOTES:

1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI, SEPTEMBER 1999, JOB NO. 9909-10A. DRAWING NAME: NUWC-179. ORIGINAL SCALE 1"=30'.
2. SOIL BORING AND MONITORING WELLS INSTALLED BY B.L. MYERS, INC. OF BELCHERTOWN, MA BETWEEN JULY 14, 1999 AND AUG 12, 1999, OBSERVED BY TRC.
3. "*" EXCEEDS A RIDEM GA GROUNDWATER OBJECTIVE WHICH IS NOT IDENTIFIED IN LEGEND.

LEGEND

- EXISTING BUILDING
- EXISTING PAVEMENT EDGE
- EXISTING CENTER OF STREAM
- EXISTING STREAM EDGE
- EXISTING TREELINE
- EXISTING CONTOUR
- SEISMIC LINES
- DIRECTION OF FLOW
- OIL WATER SEPARATOR
- FUEL WATER SEPARATOR
- SURFACE WATER SAMPLE
- SEISMIC
- TEST BORING
- MONITORING WELL
- EXISTING UTILITIES
- REMOVED UTILITIES
- INACTIVE UTILITIES
- DILUTION PITS (REMOVED)
- FLOOR DRAIN (REMOVED)

MW-6B TOTAL VOC's 424 — EXCEEDS RIDEM GA GROUNDWATER OBJECTIVE

1 INCH = 100 ug/l

MW-7A TOTAL VOC's 4,656

- CONCENTRATION OF 1,1,1 TCA-TRICHLOROETHANE
- CONCENTRATION OF 1,1 DCA-DICHLOROETHANE
- CONCENTRATION OF CA-CHLOROETHANE
- CONCENTRATION OF CH2 CL2 -METHYLENE CHLORIDE

SYMBOL	DESCRIPTION	DATE	APPROVED BY
	REVISIONS		

NUWCDIVNPT DWG. NO.

DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. HD.		
SATISFACTORY TO		
APPROVED		DATED

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

NAVAL UNDERSEA WARFARE CENTER DIVISION

NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

BUILDING 179

REMEDIAL INVESTIGATION

FIGURE 7

PHASE II EXPLORATION LOCATIONS AND ANALYTICAL SUMMARY

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
D	80091	
SCALE 1=20'	CONTRACT NO. N6604-95-D-A108	
	SPEC. NO.	SHEET OF

\01984\BLDG179\0040A\FIG-7

SITE LOCATION NOTES

1. HORIZONTAL DATUM = RHODE ISLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD'83).
2. VERTICAL DATUM ELEVATIONS = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD'29).
3. TO CONVERT TO NAVY MEAN LOW WATER DATUM, ADD 1.60 FEET TO (NGVD'29) ELEVATIONS.

REFERENCE PLANS

1. HORIZONTAL AND VERTICAL CONTROL FROM CONTROL POINTS REPORTED ON NUSC DRAWING 87-50, "NUSC HORIZONTAL AND VERTICAL CONTROL", APRIL 1986.
2. EXISTING FEATURES TAKEN FROM NAVFAC DRAWING 2150084, "NUSC...CIVIL EXISTING SITE PLAN", SHT. 7 OF 127, (91-42), AUTOCAD XREF FILE 9525C1.dwg.

RI NAD-83

2-1/4" OUTFALL (ABANDONED)
INVERT: 46.45

2-1/4" OUTFALL (ABANDONED)
INVERT: 46.45

CONC. HEADWALL
TOP ELEV: 48.65

DMH
RIM=51.67 NGVD'29

APPROXIMATE LOCATION OF TANK

36" R.C.P.
INVERT: 42.78

HEADWALL

36" R.C.P.
INVERT: 42.44

LEDGE

BENCHMARK
ELEV = 57.55 NGVD'29
SE corner O.W.S., Scribed X mark top SE corner of conc. slab above buried Oil Water Separator

TRANSFORMER

MW-13A MW-13B MW-12 MW-8A MW-8B MW-10 MW-11 MW-9A MW-9B MW-7A MW-7B

185 180 178 1192 438 ADDITION 438 1303 179 1301 1180

H2O TANK

R.R. TRACK

AFTERBURNER

VALVE
PREVIOUS INTERCEPTOR/ TANK LOCATION (REMOVED)

36" APPLE
20' CROWN

CONC. PAD WITH HOLES

CONCRETE PAD

6,000 GAL. STEEL HAZARDOUS WASTE AST
6"ø CONC. FILLED STL. POSTS 36"H. SPACED 5' O.C.

47 48 49 50 51 52 53

LEGEND

- EXISTING BUILDING
- EXISTING PAVEMENT EDGE
- EXISTING CENTER OF STREAM
- EXISTING STREAM EDGE
- EXISTING TREELINE
- EXISTING CONTOUR
- OIL WATER SEPARATOR
- FUEL WATER SEPARATOR
- DIRECTION OF FLOW
- OVERBURDEN GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- BEDROCK GROUNDWATER CONTOUR
- MONITORING WELL
- EXISTING UTILITIES
- REMOVED UTILITIES
- INACTIVE UTILITIES

NOTE:
1. TOPOGRAPHIC SURVEY CONDUCTED BY SAI SURVEYING CORPORATION OF JAMESTOWN, RI SEPTEMBER 1999, JOB NO. 9909-10A. DRAWING NAME: NUWC-179, ORIGINAL SCALE 1"=30'.

\01984\BLDG179\0040A\FIG-8

SYMBOL	DESCRIPTION	DATE	APPROVED BY
	REVISIONS		

NUWCDIVNPT DWG. NO.

DRAWN BY	R. ALOMA	12/3/99
DESIGNED BY	S. FARRICK	12/3/99
CHECKED BY		
DIV. HD		
SATISFACTORY TO		
APPROVED		DATED

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND — FACILITIES DEVELOPMENT DIVISION

BUILDING 179
REMEDIAL INVESTIGATION
FIGURE 8
PHASE II - OVERBURDEN AND BEDROCK GROUNDWATER CONTOURS

SIZE	CODE IDENT NO.	NAV. FAC. DRAWING NO.
D	80091	
SCALE 1"=20'	CONTRACT NO. N6604-95-D-A105	
	SPEC. NO.	SHEET OF

Naval Station Newport
ELDN 10500
Environmental Protection Department

BUILDING 179 CONCRETE UST
REMEDIAL INVESTIGATION REPORT

Prepared For:

U.S. Department of the Navy
Naval Undersea Warfare Center Division, Newport
1176 Howell Street
Newport, Rhode Island

December 1999

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- RIDEM 4 October, 1995 Letter
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- Foster Wheeler Environmental Corporation Final Project Closure Report for Building 179 Tank Closures
- B-179 Rehabilitation Figure – Post-Excavation Analytical Soil Data Summary

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- Phase IA GeoProbe Investigation Data
- Phase IA GeoProbe Investigation Data – QA/QC Data

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- Phase IB GeoProbe Investigation Data
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- Geophysical Applications, Inc. Seismic Refraction Survey Report

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- Geotesting Express, Inc. Grain Size Analysis
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- Groundwater Analytical Data
- Surface Water and Sediment Analytical Data

APPENDIX A
Background Information

- RIDEM 9 March, 1995 Letter
- RIDEM 4 October, 1995 Letter
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- Closure Assessment – Analytical Data Summary
- Foster Wheeler Environmental Corporation Draft Project Close-Out Report for Building 179 Remediation
- Foster Wheeler Environmental Corporation Final Project Closure Report for Building 179 Tank Closures
- B-179 Rehabilitation Figure – Post-Excavation Analytical Soil Data Summary

RIDEM 9 March, 1995 Letter

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
Division of Waste Management
UNDERGROUND STORAGE TANK SECTION
291 Promenade Street
Providence, RI 02908 - 5767
(401) 277-2797 ext. 7521

March 9, 1995

Richard Machado
Department of the Navy
Naval Undersea Warfare Center Division
1176 Howell Street
Newport, RI 02841-1708

Re: Closure Assessment
Building 179
RI DEM UST Facility ID #02539

Dear Mr. Machado:

On July 25, 1994, I spoke to you regarding the submission of a closure assessment for the two concrete tank pits (tanks #001 and #002) located at Building 179. The pits were modified by placing stainless-steel double-wall continuously-monitored tanks into them.

The tanks are part of a flow through process and therefore are considered exempt from registration requirements, in accordance with Section 5.03(A)(5) of the RI DEM UST Regulations. However, since the tanks have been registered previously, there is a legal obligation to perform a closure assessment in order to give a definitive answer as to whether or not a loss of product has ever occurred.

Please satisfy the above requirement by conducting a site investigation in the area of the concrete tank pits and submitting a Closure Assessment within the next ninety (90) days. Assessments must be performed in accordance with RI DEM guidelines.

Kindly direct your correspondence and any questions/comments to the attention of the undersigned.

Sincerely,

Gregory Yekhtikian

Gregory Yekhtikian, Sanitary Engineer
Underground Storage Tank Section

GY/gy

cc: Thomas A. Epstein, RI DEM

RIDEM 4 October, 1995 Letter

Steve

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
DIVISION OF SITE REMEDIATION
291 Promenade Street
Providence, R.I. 02908-5767

4 October, 1995

J. J. Vickers
Department of the Navy
Naval Undersea Warfare Center Division
1176 Howell Street
Newport, R.I. 02841-1708

RE: Closure Assessment Report for Building 179 and Notification of Suspected Release, 552E (RM) N/105.

Dear Mr. Vickers:

The Rhode Island Department of Environmental Management, Division of Site Remediation (RIDEM) is in receipt of the above referenced report, dated 11 August 1995, and concurs with the NUWC recommendation that further site investigation is warranted. In consideration of the information provided it has been determined that a remedial investigation (RI), in accordance with Section 8.0 of the Rules and Regulations for the Investigation and Remediation of Hazardous Materials Released, DEM DSR, 31 March 1993 must be performed. A copy of said regulations is attached. Please submit a work plan delineating the strategy for conducting the RI to RIDEM within forty-five days after receipt of this notification.

As noted above, the Division reviewed the report submittal and has attached comments generated as a result of that review. These comments should be addressed within the RI that will be prepared for this site.

Please be advised that the RI requirements described in the attached comments are not be regarded as inclusive and that the work plan must meet all other requirements as outlined in section 8 of the above referenced regulations.

UST Closure Assessment
Building 179 Concrete Pit
Naval Undersea Warfare Center
RIDEM UST Facility ID #02539

RIDEM Division of Site Remediation Comments:

1. The well construction described on page 9 of the report indicates that the annular space between the boring hole and the well was filled with clean sand all the way through the clay to the "weathered bedrock". As was communicated to you before, this might have opened a clear path for contaminants through the (potentially) impermeable clay layer, all the way to the bedrock. Methods for well construction to safeguard against the penetration of contaminants (especially sinkers/DNAPLs) into deeper aquifers, may have been warranted. Please take prompt steps to address and correct this problem.

   Please be advised that if an immediate removal action is found to be warranted, such action may be conducted prior to performing the full Remedial Investigation.

2. The submittal recommends that a soil gas survey be conducted at the site. The Division concurs with the proposal to conduct a phased investigation. The sections of the work plan related to geophysical techniques and soil gas surveys, may be submitted for approval prior to submitting the complete work plan.

3. The RI should characterize the "weathered" bedrock. More specifically, information on average values of its vertical and horizontal hydraulic conductivity should be provided.

4. The RI should also provide more information on the clay layer. Specifically, the RI should give an idea about the approximate average vertical and horizontal hydraulic conductivity of the clay layer. The RI should also provide an estimate of the percentage of granular material (gravel, sand and silt), which is indicated to be mixed with the clay, as well as the impact of the granular materials on the average conductivity and flow patterns through the clay layer matrix. It was also noted that the blow count for clay in the saturated zone indicates medium stiff to stiff clay (6 to 10 blows per 6" penetration). This result is consistent with dry clay. Saturated clay is known to be generally plastic, exhibiting the well known consolidation phenomena when subjected to long-term stress. Please check and explain and discuss the properties of the clay layer in proper detail in the RI.

5. The RI should include sampling the un-named stream and the low-lying marshy areas and any other "Sensitive Receptor" in the vicinity of the immediate site.

6. A map showing the groundwater contours shall be included in the RI. The map must extend to cover NUSC Disposal Site No. 8 unless it can be shown conclusively from existing records that the said disposal site is downgradient or hydrologically isolated

November 1995, Subsurface Investigation Data

SOIL - ANALYTICAL RESULTS

Building 179 Reconstruction - Soil Borings

Sample ID	Soil Borings						Monitoring Well Borings		
	B1-S3	R179-B1	B2-S3	B3-S3	B4-S1	B5-S3	MW1-S1	MW2-S3	MW3-S1
Depth (feet below ground surface)	4 to 6	Undetermined	4 to 6	4 to 6	0 to 2	6 to 8	0 to 2	4 to 6	0 to 2
	Results reported in mg/kg or ppm								
n-Butylbenzene		22.0	0.087					7.3	
sec-Butylbenzene			0.012					7.3	
4-isopropyltoluene	5.3		0.032				0.0056	10	
Napthalene	2.5		0.019					10	
n-Propylbenzene	2.8	6.3	0.014						
1,1,1-Trichloroethane	8.1	130.0			0.025	0.100	0.009	110	0.0084
1,2,4-Trimethylbenzene	16.0	36.0	0.094			0.035		64	
1,3,5-Trimethylbenzene	7.4	16.0						31	
1,1-Dichloroethane						0.086		31	
o-Xylene	2.8	6.6	0.007					10	
m, p-Xylenes	1.8	10.0	0.008					12	
Total Volatile Organic Compounds	46.7	226.9	0.27	ND	0.03	0.22	0.015	292.600	0.008
Total Petroleum Hydrocarbons	1,000	8,400	37	11	16	17	87	3,600	45
Cyanide	ND	NA	ND	ND	ND	ND	ND	ND	ND
PGDN	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

1. Soil samples collected during boring program by TRC Environmental Corporation on 13 and 14 November 1995.
2. Sample designation as follows (example B1-S3):
   B1 indicates boring R179-B1.
   S3 indicates the third soil sample collected at a depth of 4 to 6 feet below ground surface at this location.
3. Samples (VOCs, TPH, Cyanide) analyzed by Laboratory Resources, Inc. of Brooklyn, Connecticut.
   Samples (PGDN) analyzed by the Indian Head Division of the Naval Surface Warfare Center at Indian Head, Maryland.
4. Volatile Organic Compounds (VOCs) analyzed by EPA Method 8260.
5. Total Petroleum Hydrocarbons (TPH) analyzed by EPA Method 418.1.
6. Cyanide analyzed by EPA Method SW-846 9010.
7. PGDN = Propylene Glycol Dinitrate (component of Otto Fuel II) analyzed by IHDNSWC Procedure 3330.63.
8. "NA" indicates this analyte was not analyzed for in this sample.
9. "TBD" indicates NUWCDIVNPT is awaiting analytical results for this sample.

GROUND WATER - ANALYTICAL RESULTS

Building 179 Reconstruction - Soil Borings

Sample ID	Monitoring Wells		
	R179-MW1	R179-MW2	R179-MW3
Date	17 Nov 95	17 Nov 95	17 Nov 95
	Results reported in mg/l or parts per million		
1,1,1-Trichlroethane		72.000	
1,1-Dichlroethane		6.500	
Total Volatile Organic Compounds	ND	78.500	ND
Total Petroleum Hydrocarbons	0.44	91	0.38
Cyanide	ND	0.40	ND
PGDN	<0.2	116	<0.2

Notes:

1. Ground water samples collected by TRC Environmental Corporation on 17 November 1995.
2. Samples (VOCs, TPH, Cyanide) analyzed by Laboratory Resources, Inc. of Brooklyn, Connecticut. Samples (PGDN) analyzed by the Indian Head Division of the Naval Surface Warfare Center at Indi
3. Volatile Organic Compounds (VOCs) analyzed by EPA Method 8260.
4. Total Petroleum Hydrocarbons (TPH) analyzed by EPA Method 418.1.
5. Cyanide analyzed by EPA Method 335.3
6. PGDN = Propylene Glycol Dinitrate (component of Otto Fuel II) analyzed by IHDNSWC Procedur
7. "NA" indicates this analyte was not analyzed for in this sample.
8. "ND" indicates this analyte was not detected in this sample.
9. "TBD" indicates NUWCDIVNPT is awaiting analytical results for this sample.

APPENDIX A
B-179 RECONSTRUCTION ANALYTICAL DATA

- Soil Analytical Data
- Ground Water Analytical Data

Soil Analytical Data

Laboratory Resources, Inc.
New England Division

Route 205 - Regional Building
Brooklyn, CT 06234
Telephone: 203-774-6814 Fax: 203-774-2689

ANALYTICAL DATA REPORT

Report Number: E511196
Project: NUWC-Newport

prepared for:

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095

Attn: Steve Farrick

Receive Date: 11/14/95
Report Date: 11/21/95

T.F. McCommas
Quality Assurance Manager

Robert Laferriere
Laboratory Director

Connecticut Department of Health Services PH-0465
Maine Department of Environmental Protection TBD
Massachusetts Department of Environmental Quality CT008
New Hampshire Department of Health Services 202093-A,B
New York Department of Health 11549
Rhode Island Department of Health A44 0022

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW-2-S3

Date Collected: 11/13/95
Date Received: 11/14/95

Matrix: Soil
Percent Moisture: 11.8%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.40 U	0.40	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	3600	51	mg/kg	11/15/95	TS	11/16/95	TS	5

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW-2-S3

Date Collected: 11/13/95
Date Received: 11/14/95
Date Extracted: By:
Date Analyzed: 11/16/95 By: WV

Matrix: Soil
Percent Moisture: 11.8%
Sample Weight/Volume:
Dilution Factor: 1000
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2353

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	28000	U	28000
107-13-1	Acrylonitrile	28000	U	28000
71-43-2	Benzene	5700	U	5700
108-86-1	Bromobenzene	5700	U	5700
74-97-5	Bromochloromethane	5700	U	5700
75-27-4	Bromodichloromethane	5700	U	5700
75-25-2	Bromoform	5700	U	5700
74-83-9	Bromomethane	11000	U	11000
104-51-8	n-Butylbenzene	5700	U	5700
135-98-8	sec-Butylbenzene	7300		5700
98-06-6	tert-Butylbenzene	5700	U	5700
56-23-5	Carbon tetrachloride	5700	U	5700
108-90-7	Chlorobenzene	5700	U	5700
75-00-3	Chloroethane	11000	U	11000
67-66-3	Chloroform	5700	U	5700
74-87-3	Chloromethane	11000	U	11000
95-49-8	2-Chlorotoluene	5700	U	5700
106-43-4	4-Chlorotoluene	5700	U	5700
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5700	U	5700
124-48-1	Dibromochloromethane	5700	U	5700
106-93-4	1,2-Dibromoethane (EDB)	5700	U	5700
74-95-3	Dibromomethane	5700	U	5700
95-50-1	1,2-Dichlorobenzene	5700	U	5700
541-73-1	1,3-Dichlorobenzene	5700	U	5700
106-46-7	1,4-Dichlorobenzene	11000	U	11000
75-71-8	Dichlorodifluoromethane	5700	U	5700
75-34-3	1,1-Dichloroethane	5700	U	5700
107-06-2	1,2-Dichloroethane	5700	U	5700
75-35-4	1,1-Dichloroethene	5700	U	5700
156-59-4	cis-1,2-Dichloroethene	5700	U	5700
156-60-5	trans-1,2-Dichloroethene	5700	U	5700
78-87-5	1,2-Dichloropropane	5700	U	5700
142-28-9	1,3-Dichloropropane	5700	U	5700
590-20-7	2,2-Dichloropropane	5700	U	5700
563-58-6	1,1-Dichloropropene	5700	U	5700
10061-01-5	cis-1,3-Dichloropropene	5700	U	5700
10061-02-6	trans-1,3-Dichloropropene	5700	U	5700
100-41-4	Ethylbenzene	5700	U	5700
87-68-3	Hexachlorobutadiene	5700	U	5700
98-82-8	Isopropylbenzene	7300		5700
99-87-6	4-Isopropyltoluene	5700	U	5700
1634-04-4	Methyl tert-butyl ether (MTBE)			

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW-2-S3

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5700	U	5700
91-20-3	Naphthalene	10000		5700
103-65-1	n-Propylbenzene	10000		5700
100-42-5	Styrene	5700	U	5700
96-18-4	1,2,3-Trichloropropane	5700	U	5700
630-20-6	1,1,1,2-Tetrachloroethane	5700	U	5700
79-34-5	1,1,2,2-Tetrachloroethane	5700	U	5700
127-18-4	Tetrachloroethene	5700	U	5700
108-88-3	Toluene	5700	U	5700
87-61-6	1,2,3-Trichlorobenzene	5700	U	5700
120-82-1	1,2,4-Trichlorobenzene	5700	U	5700
71-55-6	1,1,1-Trichloroethane	110000		5700
79-00-5	1,1,2-Trichloroethane	5700	U	5700
79-01-6	Trichloroethene (TCE)	5700	U	5700
75-69-4	Trichlorofluoromethane	11000	U	11000
95-63-6	1,2,4-Trimethylbenzene	64000		5700
108-67-8	1,3,5-Trimethylbenzene	31000		5700
75-01-4	Vinyl chloride	11000	U	11000
95-47-6	o-Xylene	10000		5700
	m,p-Xylenes	12000		5700

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B-1-S3

Date Collected: 11/13/95
Date Received: 11/14/95

Matrix: Soil
Percent Moisture: 13.6%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.43 U	0.43	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	1000	11	mg/kg	11/15/95	TS	11/16/95	TS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B-1-S3

Date Collected: 11/13/95
Date Received: 11/14/95
Date Extracted: By:
Date Analyzed: 11/17/95 By: WV

Matrix: Soil
Percent Moisture: 13.6%
Sample Weight/Volume:
Dilution Factor: 200
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: BG395

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	5800	U	5800
107-13-1	Acrylonitrile	5800	U	5800
71-43-2	Benzene	1200	U	1200
108-86-1	Bromobenzene	1200	U	1200
74-97-5	Bromochloromethane	1200	U	1200
75-27-4	Bromodichloromethane	1200	U	1200
75-25-2	Bromoform	1200	U	1200
74-83-9	Bromomethane	2300	U	2300
104-51-8	n-Butylbenzene	1200	U	1200
135-98-8	sec-Butylbenzene	1200	U	1200
98-06-6	tert-Butylbenzene	1200	U	1200
56-23-5	Carbon tetrachloride	1200	U	1200
108-90-7	Chlorobenzene	1200	U	1200
75-00-3	Chloroethane	2300	U	2300
67-66-3	Chloroform	1200	U	1200
74-87-3	Chloromethane	2300	U	2300
95-49-8	2-Chlorotoluene	1200	U	1200
106-43-4	4-Chlorotoluene	1200	U	1200
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1200	U	1200
124-48-1	Dibromochloromethane	1200	U	1200
106-93-4	1,2-Dibromoethane (EDB)	1200	U	1200
74-95-3	Dibromomethane	1200	U	1200
95-50-1	1,2-Dichlorobenzene	1200	U	1200
541-73-1	1,3-Dichlorobenzene	1200	U	1200
106-46-7	1,4-Dichlorobenzene	1200	U	1200
75-71-8	Dichlorodifluoromethane	2300	U	2300
75-34-3	1,1-Dichloroethane	1200	U	1200
107-06-2	1,2-Dichloroethane	1200	U	1200
75-35-4	1,1-Dichloroethene	1200	U	1200
156-59-4	cis-1,2-Dichloroethene	1200	U	1200
156-60-5	trans-1,2-Dichloroethene	1200	U	1200
78-87-5	1,2-Dichloropropane	1200	U	1200
142-28-9	1,3-Dichloropropane	1200	U	1200
590-20-7	2,2-Dichloropropane	1200	U	1200
563-58-6	1,1-Dichloropropene	1200	U	1200
10061-01-5	cis-1,3-Dichloropropene	1200	U	1200
10061-02-6	trans-1,3-Dichloropropene	1200	U	1200
100-41-4	Ethylbenzene	1200	U	1200
87-68-3	Hexachlorobutadiene	1200	U	1200
98-82-8	Isopropylbenzene	1200	U	1200
99-87-6	4-Isopropyltoluene	5300		1200

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B-1-S3

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	1200	U	1200
91-20-3	Naphthalene	2500		1200
103-65-1	n-Propylbenzene	2800		1200
100-42-5	Styrene	1200	U	1200
96-18-4	1,2,3-Trichloropropane	1200	U	1200
630-20-6	1,1,1,2-Tetrachloroethane	1200	U	1200
79-34-5	1,1,2,2-Tetrachloroethane	1200	U	1200
127-18-4	Tetrachloroethene	1200	U	1200
108-88-3	Toluene	1200	U	1200
87-61-6	1,2,3-Trichlorobenzene	1200	U	1200
120-82-1	1,2,4-Trichlorobenzene	1200	U	1200
71-55-6	1,1,1-Trichloroethane	8100		1200
79-00-5	1,1,2-Trichloroethane	1200	U	1200
79-01-6	Trichloroethene (TCE)	1200	U	1200
75-69-4	Trichlorofluoromethane	2300	U	2300
95-63-6	1,2,4-Trimethylbenzene	16000		1200
108-67-8	1,3,5-Trimethylbenzene	7400		1200
75-01-4	Vinyl chloride	2300	U	2300
95-47-6	o-Xylene	2800		1200
	m,p-Xylenes	1800		1200

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B4-S1

Date Collected: 11/13/95
Date Received: 11/14/95

Matrix: Soil
Percent Moisture: 10.1%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.39 U	0.39	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	16	10	mg/kg	11/15/95	TS	11/16/95	TS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B4-S1

Date Collected: 11/13/95
Date Received: 11/14/95
Date Extracted: By:
Date Analyzed: 11/15/95 By: RAW

Matrix: Soil
Percent Moisture: 10.1%
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2335

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	28	U	28
107-13-1	Acrylonitrile	28	U	28
71-43-2	Benzene	5.6	U	5.6
108-86-1	Bromobenzene	5.6	U	5.6
74-97-5	Bromochloromethane	5.6	U	5.6
75-27-4	Bromodichloromethane	5.6	U	5.6
75-25-2	Bromoform	5.6	U	5.6
74-83-9	Bromomethane	11	U	11
104-51-8	n-Butylbenzene	5.6	U	5.6
135-98-8	sec-Butylbenzene	5.6	U	5.6
98-06-6	tert-Butylbenzene	5.6	U	5.6
56-23-5	Carbon tetrachloride	5.6	U	5.6
108-90-7	Chlorobenzene	5.6	U	5.6
75-00-3	Chloroethane	11	U	11
67-66-3	Chloroform	5.6	U	5.6
74-87-3	Chloromethane	11	U	11
95-49-8	2-Chlorotoluene	5.6	U	5.6
106-43-4	4-Chlorotoluene	5.6	U	5.6
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.6	U	5.6
124-48-1	Dibromochloromethane	5.6	U	5.6
106-93-4	1,2-Dibromoethane (EDB)	5.6	U	5.6
74-95-3	Dibromomethane	5.6	U	5.6
95-50-1	1,2-Dichlorobenzene	5.6	U	5.6
541-73-1	1,3-Dichlorobenzene	5.6	U	5.6
106-46-7	1,4-Dichlorobenzene	5.6	U	5.6
75-71-8	Dichlorodifluoromethane	11	U	11
75-34-3	1,1-Dichloroethane	5.6	U	5.6
107-06-2	1,2-Dichloroethane	5.6	U	5.6
75-35-4	1,1-Dichloroethene	5.6	U	5.6
156-59-4	cis-1,2-Dichloroethene	5.6	U	5.6
156-60-5	trans-1,2-Dichloroethene	5.6	U	5.6
78-87-5	1,2-Dichloropropane	5.6	U	5.6
142-28-9	1,3-Dichloropropane	5.6	U	5.6
590-20-7	2,2-Dichloropropane	5.6	U	5.6
563-58-6	1,1-Dichloropropene	5.6	U	5.6
10061-01-5	cis-1,3-Dichloropropene	5.6	U	5.6
10061-02-6	trans-1,3-Dichloropropene	5.6	U	5.6
100-41-4	Ethylbenzene	5.6	U	5.6
87-68-3	Hexachlorobutadiene	5.6	U	5.6
98-82-8	Isopropylbenzene	5.6	U	5.6
99-87-6	4-Isopropyltoluene	5.6	U	5.6
1634-04-4	Methyl tert-butyl ether (MTBE)	5.6	U	5.6

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B4-S1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.6	U	5.6
91-20-3	Naphthalene	5.6	U	5.6
103-65-1	n-Propylbenzene	5.6	U	5.6
100-42-5	Styrene	5.6	U	5.6
96-18-4	1,2,3-Trichloropropane	5.6	U	5.6
630-20-6	1,1,1,2-Tetrachloroethane	5.6	U	5.6
79-34-5	1,1,2,2-Tetrachloroethane	5.6	U	5.6
127-18-4	Tetrachloroethene	5.6	U	5.6
108-88-3	Toluene	5.6	U	5.6
87-61-6	1,2,3-Trichlorobenzene	5.6	U	5.6
120-82-1	1,2,4-Trichlorobenzene	5.6	U	5.6
71-55-6	1,1,1-Trichloroethane	25		5.6
79-00-5	1,1,2-Trichloroethane	5.6	U	5.6
79-01-6	Trichloroethene (TCE)	5.6	U	5.6
75-69-4	Trichlorofluoromethane	11	U	11
95-63-6	1,2,4-Trimethylbenzene	5.6	U	5.6
108-67-8	1,3,5-Trimethylbenzene	5.6	U	5.6
75-01-4	Vinyl chloride	11	U	11
95-47-6	o-Xylene	5.6	U	5.6
	m,p-Xylenes	5.6	U	5.6

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW-1-S1

Date Collected: 11/13/95
Date Received: 11/14/95

Matrix: Soil
Percent Moisture: 4.2%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.38 U	0.38	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	87	9.1	mg/kg	11/15/95	TS	11/16/95	TS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW-1-S1

Date Collected: 11/13/95
Date Received: 11/14/95
Date Extracted: By:
Date Analyzed: 11/15/95 By: RAW

Matrix: Soil
Percent Moisture: 4.2%
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2336

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	26	U	26
107-13-1	Acrylonitrile	26	U	26
71-43-2	Benzene	5.2	U	5.2
108-86-1	Bromobenzene	5.2	U	5.2
74-97-5	Bromochloromethane	5.2	U	5.2
75-27-4	Bromodichloromethane	5.2	U	5.2
75-25-2	Bromoform	5.2	U	5.2
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.2	U	5.2
135-98-8	sec-Butylbenzene	5.2	U	5.2
98-06-6	tert-Butylbenzene	5.2	U	5.2
56-23-5	Carbon tetrachloride	5.2	U	5.2
108-90-7	Chlorobenzene	5.2	U	5.2
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.2	U	5.2
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.2	U	5.2
106-43-4	4-Chlorotoluene	5.2	U	5.2
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.2	U	5.2
124-48-1	Dibromochloromethane	5.2	U	5.2
106-93-4	1,2-Dibromoethane (EDB)	5.2	U	5.2
74-95-3	Dibromomethane	5.2	U	5.2
95-50-1	1,2-Dichlorobenzene	5.2	U	5.2
541-73-1	1,3-Dichlorobenzene	5.2	U	5.2
106-46-7	1,4-Dichlorobenzene	5.2	U	5.2
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.2	U	5.2
107-06-2	1,2-Dichloroethane	5.2	U	5.2
75-35-4	1,1-Dichloroethene	5.2	U	5.2
156-59-4	cis-1,2-Dichloroethene	5.2	U	5.2
156-60-5	trans-1,2-Dichloroethene	5.2	U	5.2
78-87-5	1,2-Dichloropropane	5.2	U	5.2
142-28-9	1,3-Dichloropropane	5.2	U	5.2
590-20-7	2,2-Dichloropropane	5.2	U	5.2
563-58-6	1,1-Dichloropropene	5.2	U	5.2
10061-01-5	cis-1,3-Dichloropropene	5.2	U	5.2
10061-02-6	trans-1,3-Dichloropropene	5.2	U	5.2
100-41-4	Ethylbenzene	5.2	U	5.2
87-68-3	Hexachlorobutadiene	5.2	U	5.2
98-82-8	Isopropylbenzene	5.2	U	5.2
99-87-6	4-Isopropyltoluene	5.2	U	5.2
1634-04-4	Methyl tert-butyl ether (MTBE)	5.2	U	5.2

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW-1-S1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.2	U	5.2
91-20-3	Naphthalene	5.6		5.2
103-65-1	n-Propylbenzene	5.2	U	5.2
100-42-5	Styrene	5.2	U	5.2
96-18-4	1,2,3-Trichloropropane	5.2	U	5.2
630-20-6	1,1,1,2-Tetrachloroethane	5.2	U	5.2
79-34-5	1,1,2,2-Tetrachloroethane	5.2	U	5.2
127-18-4	Tetrachloroethene	5.2	U	5.2
108-88-3	Toluene	5.2	U	5.2
87-61-6	1,2,3-Trichlorobenzene	5.2	U	5.2
120-82-1	1,2,4-Trichlorobenzene	5.2	U	5.2
71-55-6	1,1,1-Trichloroethane	9.0		5.2
79-00-5	1,1,2-Trichloroethane	5.2	U	5.2
79-01-6	Trichloroethene (TCE)	5.2	U	5.2
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.2	U	5.2
108-67-8	1,3,5-Trimethylbenzene	5.2	U	5.2
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.2	U	5.2
	m,p-Xylenes	5.2	U	5.2

ENERAL CHEMISTRY ANALYSIS DATA SHEET

: Laboratory Resources, Inc.
New England
t No: E511196
e No: 5

cted: 11/13/95
ved: 11/14/95

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B-2-S3

Matrix: Soil
Percent Moisture: 15.1%
Units in Dry Weight

	Result	QL	Units	Started Date	By	Completed Date	By	Dilution
otal, by SW-846 9010								
	0.40 U	0.40	mg/kg	11/17/95	EB	11/20/95	EB	
) by EPA 418.1 (soil modification)								
	37	11	mg/kg	11/15/95	TS	11/16/95	TS	

ons, Total
le

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 5

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B-2-S3

Date Collected: 11/13/95
Date Received: 11/14/95
Date Extracted: By:
Date Analyzed: 11/17/95 By: WV

Matrix: Soil
Percent Moisture: 15.1%
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9211

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	29	U	29
107-13-1	Acrylonitrile	29	U	29
71-43-2	Benzene	5.9	U	5.9
108-86-1	Bromobenzene	5.9	U	5.9
74-97-5	Bromochloromethane	5.9	U	5.9
75-27-4	Bromodichloromethane	5.9	U	5.9
75-25-2	Bromoform	5.9	U	5.9
74-83-9	Bromomethane	12	U	12
104-51-8	n-Butylbenzene	87		5.9
135-98-8	sec-Butylbenzene	12		5.9
98-06-6	tert-Butylbenzene	5.9	U	5.9
56-23-5	Carbon tetrachloride	5.9	U	5.9
108-90-7	Chlorobenzene	5.9	U	5.9
75-00-3	Chloroethane	12	U	12
67-66-3	Chloroform	5.9	U	5.9
74-87-3	Chloromethane	12	U	12
95-49-8	2-Chlorotoluene	5.9	U	5.9
106-43-4	4-Chlorotoluene	5.9	U	5.9
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.9	U	5.9
124-48-1	Dibromochloromethane	5.9	U	5.9
106-93-4	1,2-Dibromoethane (EDB)	5.9	U	5.9
74-95-3	Dibromomethane	5.9	U	5.9
95-50-1	1,2-Dichlorobenzene	5.9	U	5.9
541-73-1	1,3-Dichlorobenzene	5.9	U	5.9
106-46-7	1,4-Dichlorobenzene	5.9	U	5.9
75-71-8	Dichlorodifluoromethane	12	U	12
75-34-3	1,1-Dichloroethane	5.9	U	5.9
107-06-2	1,2-Dichloroethane	5.9	U	5.9
75-35-4	1,1-Dichloroethene	5.9	U	5.9
156-59-4	cis-1,2-Dichloroethene	5.9	U	5.9
156-60-5	trans-1,2-Dichloroethene	5.9	U	5.9
78-87-5	1,2-Dichloropropane	5.9	U	5.9
142-28-9	1,3-Dichloropropane	5.9	U	5.9
590-20-7	2,2-Dichloropropane	5.9	U	5.9
563-58-6	1,1-Dichloropropene	5.9	U	5.9
10061-01-5	cis-1,3-Dichloropropene	5.9	U	5.9
10061-02-6	trans-1,3-Dichloropropene	5.9	U	5.9
100-41-4	Ethylbenzene	5.9	U	5.9
87-68-3	Hexachlorobutadiene	5.9	U	5.9
98-82-8	Isopropylbenzene	5.9	U	5.9
99-87-6	4-Isopropyltoluene	32		5.9
1634-04-4	Methyl tert-butyl ether (MTBE)	5.9	U	5.9

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 5

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B-2-S3

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.9	U	5.9
91-20-3	Naphthalene	19		5.9
103-65-1	n-Propylbenzene	14		5.9
100-42-5	Styrene	5.9	U	5.9
96-18-4	1,2,3-Trichloropropane	5.9	U	5.9
630-20-6	1,1,1,2-Tetrachloroethane	5.9	U	5.9
79-34-5	1,1,2,2-Tetrachloroethane	5.9	U	5.9
127-18-4	Tetrachloroethene	5.9	U	5.9
108-88-3	Toluene	5.9	U	5.9
87-61-6	1,2,3-Trichlorobenzene	5.9	U	5.9
120-82-1	1,2,4-Trichlorobenzene	5.9	U	5.9
71-55-6	1,1,1-Trichloroethane	5.9	U	5.9
79-00-5	1,1,2-Trichloroethane	5.9	U	5.9
79-01-6	Trichloroethene (TCE)	5.9	U	5.9
75-69-4	Trichlorofluoromethane	12	U	12
95-63-6	1,2,4-Trimethylbenzene	94		5.9
108-67-8	1,3,5-Trimethylbenzene	5.9	U	5.9
75-01-4	Vinyl chloride	12	U	12
95-47-6	o-Xylene	7.2		5.9
	m,p-Xylenes	8.2		5.9

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 6

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: Trip Blank

Date Collected: 11/13/95
Date Received: 11/14/95
Date Extracted: By:
Date Analyzed: 11/15/95 By: WV

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: BG365

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	25	U	25
107-13-1	Acrylonitrile	25	U	25
71-43-2	Benzene	5.0	U	5.0
108-86-1	Bromobenzene	5.0	U	5.0
74-97-5	Bromochloromethane	5.0	U	5.0
75-27-4	Bromodichloromethane	5.0	U	5.0
75-25-2	Bromoform	5.0	U	5.0
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.0	U	5.0
135-98-8	sec-Butylbenzene	5.0	U	5.0
98-06-6	tert-Butylbenzene	5.0	U	5.0
56-23-5	Carbon tetrachloride	5.0	U	5.0
108-90-7	Chlorobenzene	5.0	U	5.0
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.0	U	5.0
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.0	U	5.0
106-43-4	4-Chlorotoluene	5.0	U	5.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0
124-48-1	Dibromochloromethane	5.0	U	5.0
106-93-4	1,2-Dibromoethane (EDB)	5.0	U	5.0
74-95-3	Dibromomethane	5.0	U	5.0
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.0	U	5.0
107-06-2	1,2-Dichloroethane	5.0	U	5.0
75-35-4	1,1-Dichloroethene	5.0	U	5.0
156-59-4	cis-1,2-Dichloroethene	5.0	U	5.0
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0
78-87-5	1,2-Dichloropropane	5.0	U	5.0
142-28-9	1,3-Dichloropropane	5.0	U	5.0
590-20-7	2,2-Dichloropropane	5.0	U	5.0
563-58-6	1,1-Dichloropropene	5.0	U	5.0
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0
100-41-4	Ethylbenzene	5.0	U	5.0
87-68-3	Hexachlorobutadiene	5.0	U	5.0
98-82-8	Isopropylbenzene	5.0	U	5.0
99-87-6	4-Isopropyltoluene	5.0	U	5.0
1634-04-4	Methyl tert-butyl ether (MTBE)	5.0	U	5.0

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511196
LRI Sample No: 6

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: Trip Blank

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.0	U	5.0
91-20-3	Naphthalene	5.0	U	5.0
103-65-1	n-Propylbenzene	5.0	U	5.0
100-42-5	Styrene	5.0	U	5.0
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0
127-18-4	Tetrachloroethene	5.0	U	5.0
108-88-3	Toluene	5.0	U	5.0
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0
71-55-6	1,1,1-Trichloroethane	5.0	U	5.0
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0
79-01-6	Trichloroethene (TCE)	5.0	U	5.0
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0
108-67-8	1,3,5-Trimethylbenzene	5.0	U	5.0
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.0	U	5.0
	m,p-Xylenes	5.0	U	5.0

LRI QUOTE #

Laboratory Resources INC
CHAIN OF CUSTODY

PAGE 1 OF 1

CUSTOMER INFORMATION

CUSTOMER: TRC Environmental Corp.
ADDRESS: 5 Waterside Crossing
Windsor, CT 06095
TELEPHONE: (203) 289-8631
FAX: (203) 298-6399

PROJECT INFORMATION

PROJECT: Building 179 Reconstruction
PROJECT LOCATION: Newport STATE: RI
PROJECT MANAGER: Steven Farrick
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
NAME: TRC
TELEPHONE: (401) 841-3370
FAX: (401) 841-4747

BILLING INFORMATION

BILL TO: TRC
ADDRESS: 5 Waterside Crossing
Windsor, CT 06095
ATTENTION: S. Farrick
TELEPHONE: 203-289-8631
PO #:

LAB ID CODE	SAMPLE IDENTIFICATION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE: COMPOSITE	SAMPLE TYPE: GRAB	SAMPLE MATRIX	# OF BOTTLES	ANALYSIS: 8260 VOC	ANALYSIS: CYANIDE	ANALYSIS: TPH	PRESERVATIVES: H2SO4	PRESERVATIVES: HCL	PRESERVATIVES: HNO3	PRESERVATIVES: NAOH	PRESERVATIVES: NON-PRES
	B3-S3	14 NOV	1500		SS.	SOIL	3	✓	✓	✓					
	B5-S3	14 NOV	1000		SS	SOIL	3	✓	✓	✓					
	MW3-S1	14 NOV	1400		SS	SOIL	3	✓	✓	✓					
	R179-B1	13 NOV	1030		SS	SOIL	2	✓		✓					
	R179-TB2	15 NOV	ORIG			AQ.	2	✓				X			

TURNAROUND (INDICATE IN CALENDAR DAYS): 5 FAX _____ HARD COPY _____ DELIV. PKG.
NAME OF LAB PERSONNEL CONFIRMING:
DELIVERABLES / (CIRCLE ONE): DATA DATA/QC RED/DELIV NJ/CLP I NJ/CLP II
~~NJ/REGL~~ ~~NY/ASP~~ CLP OTHER

SAMPLER / AFFILIATION:	TRC	DATE: 15 NOV 95
RECEIVED / AFFILIATION:		TIME: 1050
RELINQUISHED / AFFILIATION:		DATE:
RECEIVED / AFFILIATION:		TIME:
RELINQUISHED / AFFILIATION:		DATE:

☐ RETURN TO CLIENT FOR DISPOSAL ☐ LAB DISPOSAL
KNOWN HAZARD (FLAMMABLE, EXPLOSIVE, TOXIC)
☐ YES ☐ NO (IF YES EXPLAIN UNDER COMMENTS)

LAB USE CONDITIONS OF BOTTLES AND COOLER AT RECEIPT:
☑ COMPLIANT ☐ NOT COMPLIANT (IF NOT EXPLAIN UNDER CO

COMMENTS
LIMITED SAMPLE VOLUME FOR SAMPLE R179-B1 - WE AS NECESS
ANALYSIS.

CHAIN OF CUSTODY

CUSTOMER INFORMATION

CUSTOMER: TRC ENVIRONMENTAL CORP
ADDRESS: 5 WATERSIDE CROSSING
WINDSOR CT 06095
TELEPHONE: (203) 289-8631
FAX: (203) 298-6399

PROJECT INFORMATION

PROJECT: BUILDING 179 RECONSTRUCTION
PROJECT LOCATION: NEWPORT STATE: RI
PROJECT MANAGER: STEVE FARRICK
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
NAME: TRC
TELEPHONE: (401) 841-3370
FAX: (1101) 841-4747

BILLING INFORMATION

BILL TO: TRC
ADDRESS: 5 WATERSIDE CROSSING
WINDSOR CT 06095
ATTENTION:
TELEPHONE:
PO #:

LAB ID CODE	SAMPLE IDENTIFICATION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE: COMPOSITE	SAMPLE TYPE: GRAB	SAMPLE MATRIX	# OF BOTTLES	ANALYSIS: VOC	ANALYSIS: TPH/CN	PRESERVATIVES: H2SO4	PRESERVATIVES: HCL	PRESERVATIVES: HNO3	PRESERVATIVES: NAOH	PRESERVATIVES: NON-PRES
	MW-2 - S3	13 NOV	0800		X	SOIL	3 (4)	✓	✓					
	B-1 MW-1 - S3	13 NOV	0800		X	SOIL	3	✓	✓					
	B4 - S1	13 NOV	0800		X	SOIL	3	✓	✓					
	MW-1 - S1	13 NOV	0800		X	SOIL	3	✓	✓					
	B-2 - S3	13 NOV	0800		X	SOIL	3	✓	✓					
	T Trip Blank	13 NOV	(illegible)		X	AQ.	2	✓			X			

TURNAROUND (INDICATE IN CALENDAR DAYS): _____ FAX _____ HARD COPY _____ DELIV. PKG.
NAME OF LAB PERSONNEL CONFIRMING:
DELIVERABLES / (CIRCLE ONE): DATA DATA/QC RED/DELIV NJ/CLP I NJ/CLP II
NJ/REGL NY/ASP CLP OTHER

SAMPLER / AFFILIATION:	EBW	
RECEIVED / AFFILIATION:	[illegible]	DATE: 11-14-95 TIME: 1025
RELINQUISHED / AFFILIATION:	[illegible]	DATE: 11-14-95 TIME: 1430
RECEIVED / AFFILIATION:		DATE:
RELINQUISHED / AFFILIATION:		TIME:
RECEIVED / AFFILIATION:		

☐ RETURN TO CLIENT FOR DISPOSAL ☐ LAB DISPOSAL
KNOWN HAZARD (FLAMMABLE, EXPLOSIVE, TOXIC)
☐ YES ☐ NO (IF YES EXPLAIN UNDER COMMENTS)

LAB USE CONDITIONS OF BOTTLES AND COOLER AT RECEIPT:
☐ COMPLIANT ☐ NOT COMPLIANT (IF NOT EXPLAIN UNDER COMMENTS)
COMMENTS: Extra sample submitted - not on COC
Discard sample per Tom G. 11/15/95 JW)
R179-B1
VOCs by 8260 (11/15/95 JW)

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

Laboratory Resources, Inc.
New England Division

Route 205 - Regional Building
Brooklyn, CT 06234
Telephone: 203-774-6814 Fax: 203-774-2689

ANALYTICAL DATA REPORT

Report Number: E511230
Project: NUWC-Newport

prepared for:

Naval Undersea Warfare Center
Div. Newport Bldg 11 Code 52E
1176 Howell St.
Newport, RI 02841-1708

Attn: TRC Environmental

Receive Date: 11/15/95
Report Date: 11/22/95

for T.F. McCommas
Quality Assurance Manager

Robert Laferriere
Laboratory Director

Connecticut Department of Health Services PH-0465
Maine Department of Environmental Protection TBD
Massachusetts Department of Environmental Quality CT008
New Hampshire Department of Health Services 202093-A,B
New York Department of Health 11549
Rhode Island Department of Health A44 0022

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B3-S3

Date Collected: 11/14/95
Date Received: 11/15/95

Matrix: Soil
Percent Moisture: 13.8%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	By	Completed Date	By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.44 U	0.44	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	11	11	mg/kg	11/20/95	TS	11/21/95	JS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B3-S3

Date Collected: 11/14/95
Date Received: 11/15/95
Date Extracted: By:
Date Analyzed: 11/17/95 By: WV

Matrix: Soil
Percent Moisture: 13.8%
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9208

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	29	U	29
107-13-1	Acrylonitrile	29	U	29
71-43-2	Benzene	5.8	U	5.8
108-86-1	Bromobenzene	5.8	U	5.8
74-97-5	Bromochloromethane	5.8	U	5.8
75-27-4	Bromodichloromethane	5.8	U	5.8
75-25-2	Bromoform	5.8	U	5.8
74-83-9	Bromomethane	12	U	12
104-51-8	n-Butylbenzene	5.8	U	5.8
135-98-8	sec-Butylbenzene	5.8	U	5.8
98-06-6	tert-Butylbenzene	5.8	U	5.8
56-23-5	Carbon tetrachloride	5.8	U	5.8
108-90-7	Chlorobenzene	5.8	U	5.8
75-00-3	Chloroethane	12	U	12
67-66-3	Chloroform	5.8	U	5.8
74-87-3	Chloromethane	12	U	12
95-49-8	2-Chlorotoluene	5.8	U	5.8
106-43-4	4-Chlorotoluene	5.8	U	5.8
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.8	U	5.8
124-48-1	Dibromochloromethane	5.8	U	5.8
106-93-4	1,2-Dibromoethane (EDB)	5.8	U	5.8
74-95-3	Dibromomethane	5.8	U	5.8
95-50-1	1,2-Dichlorobenzene	5.8	U	5.8
541-73-1	1,3-Dichlorobenzene	5.8	U	5.8
106-46-7	1,4-Dichlorobenzene	5.8	U	5.8
75-71-8	Dichlorodifluoromethane	12	U	12
75-34-3	1,1-Dichloroethane	5.8	U	5.8
107-06-2	1,2-Dichloroethane	5.8	U	5.8
75-35-4	1,1-Dichloroethene	5.8	U	5.8
156-59-4	cis-1,2-Dichloroethene	5.8	U	5.8
156-60-5	trans-1,2-Dichloroethene	5.8	U	5.8
78-87-5	1,2-Dichloropropane	5.8	U	5.8
142-28-9	1,3-Dichloropropane	5.8	U	5.8
590-20-7	2,2-Dichloropropane	5.8	U	5.8
563-58-6	1,1-Dichloropropene	5.8	U	5.8
10061-01-5	cis-1,3-Dichloropropene	5.8	U	5.8
10061-02-6	trans-1,3-Dichloropropene	5.8	U	5.8
100-41-4	Ethylbenzene	5.8	U	5.8
87-68-3	Hexachlorobutadiene	5.8	U	5.8
98-82-8	Isopropylbenzene	5.8	U	5.8
99-87-6	4-Isopropyltoluene	5.8	U	5.8
1634-04-4	Methyl tert-butyl ether (MTBE)	5.8	U	5.8

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B3-S3

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.8	U	5.8
91-20-3	Naphthalene	5.8	U	5.8
103-65-1	n-Propylbenzene	5.8	U	5.8
100-42-5	Styrene	5.8	U	5.8
96-18-4	1,2,3-Trichloropropane	5.8	U	5.8
630-20-6	1,1,1,2-Tetrachloroethane	5.8	U	5.8
79-34-5	1,1,2,2-Tetrachloroethane	5.8	U	5.8
127-18-4	Tetrachloroethene	5.8	U	5.8
108-88-3	Toluene	5.8	U	5.8
87-61-6	1,2,3-Trichlorobenzene	5.8	U	5.8
120-82-1	1,2,4-Trichlorobenzene	5.8	U	5.8
71-55-6	1,1,1-Trichloroethane	5.8	U	5.8
79-00-5	1,1,2-Trichloroethane	5.8	U	5.8
79-01-6	Trichloroethene (TCE)	5.8	U	5.8
75-69-4	Trichlorofluoromethane	12	U	12
95-63-6	1,2,4-Trimethylbenzene	5.8	U	5.8
108-67-8	1,3,5-Trimethylbenzene	5.8	U	5.8
75-01-4	Vinyl chloride	12	U	12
95-47-6	o-Xylene	5.8	U	5.8
	m,p-Xylenes	5.8	U	5.8

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B5-S3

Date Collected: 11/14/95
Date Received: 11/15/95

Matrix: Soil
Percent Moisture: 12.6%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.45 U	0.45	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	17	11	mg/kg	11/20/95	TS	11/21/95	JS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B5-S3

Date Collected: 11/14/95
Date Received: 11/15/95
Date Extracted: By:
Date Analyzed: 11/17/95 By: WV

Matrix: Soil
Percent Moisture: 12.6%
Sample Weight/Volume:
Dilution Factor: 5
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9209

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	140	U	140
107-13-1	Acrylonitrile	140	U	140
71-43-2	Benzene	29	U	29
108-86-1	Bromobenzene	29	U	29
74-97-5	Bromochloromethane	29	U	29
75-27-4	Bromodichloromethane	29	U	29
75-25-2	Bromoform	29	U	29
74-83-9	Bromomethane	57	U	57
104-51-8	n-Butylbenzene	29	U	29
135-98-8	sec-Butylbenzene	29	U	29
98-06-6	tert-Butylbenzene	29	U	29
56-23-5	Carbon tetrachloride	29	U	29
108-90-7	Chlorobenzene	29	U	29
75-00-3	Chloroethane	57	U	57
67-66-3	Chloroform	29	U	29
74-87-3	Chloromethane	57	U	57
95-49-8	2-Chlorotoluene	29	U	29
106-43-4	4-Chlorotoluene	29	U	29
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	29	U	29
124-48-1	Dibromochloromethane	29	U	29
106-93-4	1,2-Dibromoethane (EDB)	29	U	29
74-95-3	Dibromomethane	29	U	29
95-50-1	1,2-Dichlorobenzene	29	U	29
541-73-1	1,3-Dichlorobenzene	29	U	29
106-46-7	1,4-Dichlorobenzene	29	U	29
75-71-8	Dichlorodifluoromethane	57	U	57
75-34-3	1,1-Dichloroethane	86		29
107-06-2	1,2-Dichloroethane	29	U	29
75-35-4	1,1-Dichloroethene	29	U	29
156-59-4	cis-1,2-Dichloroethene	29	U	29
156-60-5	trans-1,2-Dichloroethene	29	U	29
78-87-5	1,2-Dichloropropane	29	U	29
142-28-9	1,3-Dichloropropane	29	U	29
590-20-7	2,2-Dichloropropane	29	U	29
563-58-6	1,1-Dichloropropene	29	U	29
10061-01-5	cis-1,3-Dichloropropene	29	U	29
10061-02-6	trans-1,3-Dichloropropene	29	U	29
100-41-4	Ethylbenzene	29	U	29
87-68-3	Hexachlorobutadiene	29	U	29
98-82-8	Isopropylbenzene	29	U	29
99-87-6	4-Isopropyltoluene	29	U	29

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: B5-S3

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	29	U	29
91-20-3	Naphthalene	29	U	29
103-65-1	n-Propylbenzene	29	U	29
100-42-5	Styrene	29	U	29
96-18-4	1,2,3-Trichloropropane	29	U	29
630-20-6	1,1,1,2-Tetrachloroethane	29	U	29
79-34-5	1,1,2,2-Tetrachloroethane	29	U	29
127-18-4	Tetrachloroethene	29	U	29
108-88-3	Toluene	29	U	29
87-61-6	1,2,3-Trichlorobenzene	29	U	29
120-82-1	1,2,4-Trichlorobenzene	29	U	29
71-55-6	1,1,1-Trichloroethane	100		29
79-00-5	1,1,2-Trichloroethane	29	U	29
79-01-6	Trichloroethene (TCE)	29	U	29
75-69-4	Trichlorofluoromethane	57	U	57
95-63-6	1,2,4-Trimethylbenzene	35		29
108-67-8	1,3,5-Trimethylbenzene	29	U	29
75-01-4	Vinyl chloride	57	U	57
95-47-6	o-Xylene	29	U	29
	m,p-Xylenes	29	U	29

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW3-S1

Date Collected: 11/14/95
Date Received: 11/15/95

Matrix: Soil
Percent Moisture: 14.5%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by SW-846 9010								
Cyanide	0.45 U	0.45	mg/kg	11/17/95	EB	11/20/95	EB	
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	45	11	mg/kg	11/20/95	TS	11/21/95	JS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW3-S1

Date Collected: 11/14/95
Date Received: 11/15/95
Date Extracted: By:
Date Analyzed: 11/17/95 By: WV

Matrix: Soil
Percent Moisture: 14.5%
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9210

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	29	U	29
107-13-1	Acrylonitrile	29	U	29
71-43-2	Benzene	5.8	U	5.8
108-86-1	Bromobenzene	5.8	U	5.8
74-97-5	Bromochloromethane	5.8	U	5.8
75-27-4	Bromodichloromethane	5.8	U	5.8
75-25-2	Bromoform	5.8	U	5.8
74-83-9	Bromomethane	12	U	12
104-51-8	n-Butylbenzene	5.8	U	5.8
135-98-8	sec-Butylbenzene	5.8	U	5.8
98-06-6	tert-Butylbenzene	5.8	U	5.8
56-23-5	Carbon tetrachloride	5.8	U	5.8
108-90-7	Chlorobenzene	5.8	U	5.8
75-00-3	Chloroethane	12	U	12
67-66-3	Chloroform	5.8	U	5.8
74-87-3	Chloromethane	12	U	12
95-49-8	2-Chlorotoluene	5.8	U	5.8
106-43-4	4-Chlorotoluene	5.8	U	5.8
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.8	U	5.8
124-48-1	Dibromochloromethane	5.8	U	5.8
106-93-4	1,2-Dibromoethane (EDB)	5.8	U	5.8
74-95-3	Dibromomethane	5.8	U	5.8
95-50-1	1,2-Dichlorobenzene	5.8	U	5.8
541-73-1	1,3-Dichlorobenzene	5.8	U	5.8
106-46-7	1,4-Dichlorobenzene	5.8	U	5.8
75-71-8	Dichlorodifluoromethane	12	U	12
75-34-3	1,1-Dichloroethane	5.8	U	5.8
107-06-2	1,2-Dichloroethane	5.8	U	5.8
75-35-4	1,1-Dichloroethene	5.8	U	5.8
156-59-4	cis-1,2-Dichloroethene	5.8	U	5.8
156-60-5	trans-1,2-Dichloroethene	5.8	U	5.8
78-87-5	1,2-Dichloropropane	5.8	U	5.8
142-28-9	1,3-Dichloropropane	5.8	U	5.8
590-20-7	2,2-Dichloropropane	5.8	U	5.8
563-58-6	1,1-Dichloropropene	5.8	U	5.8
10061-01-5	cis-1,3-Dichloropropene	5.8	U	5.8
10061-02-6	trans-1,3-Dichloropropene	5.8	U	5.8
100-41-4	Ethylbenzene	5.8	U	5.8
87-68-3	Hexachlorobutadiene	5.8	U	5.8
98-82-8	Isopropylbenzene	5.8	U	5.8
99-87-6	4-Isopropyltoluene	5.8	U	5.8
1634-04-4	Methyl tert-butyl ether (MTBE)	5.8	U	5.8

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: MW3-S1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.8	U	5.8
91-20-3	Naphthalene	5.8	U	5.8
103-65-1	n-Propylbenzene	5.8	U	5.8
100-42-5	Styrene	5.8	U	5.8
96-18-4	1,2,3-Trichloropropane	5.8	U	5.8
630-20-6	1,1,1,2-Tetrachloroethane	5.8	U	5.8
79-34-5	1,1,2,2-Tetrachloroethane	5.8	U	5.8
127-18-4	Tetrachloroethene	5.8	U	5.8
108-88-3	Toluene	5.8	U	5.8
87-61-6	1,2,3-Trichlorobenzene	5.8	U	5.8
120-82-1	1,2,4-Trichlorobenzene	5.8	U	5.8
71-55-6	1,1,1-Trichloroethane	8.4		5.8
79-00-5	1,1,2-Trichloroethane	5.8	U	5.8
79-01-6	Trichloroethene (TCE)	5.8	U	5.8
75-69-4	Trichlorofluoromethane	12	U	12
95-63-6	1,2,4-Trimethylbenzene	5.8	U	5.8
108-67-8	1,3,5-Trimethylbenzene	5.8	U	5.8
75-01-4	Vinyl chloride	12	U	12
95-47-6	o-Xylene	5.8	U	5.8
	m,p-Xylenes	5.8	U	5.8

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-B1

Date Collected: 11/14/95
Date Received: 11/15/95

Matrix: Soil
Percent Moisture: 14.1%
Units in Dry Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
PHC (TPH) by EPA 418.1 (soil modification)								
Petroleum Hydrocarbons, Total Recoverable	8400	280	mg/kg	11/20/95	TS	11/21/95	JS	25

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-B1

Date Collected: 11/14/95
Date Received: 11/15/95
Date Extracted: By:
Date Analyzed: 11/21/95 By: WV

Method: 8260
Level: LOW
GC Column:
Units: ug/kg (Dry Weight)

Matrix: Soil
Percent Moisture: 14.1%
Sample Weight/Volume:
Dilution Factor: 1000
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9227

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	29000	U	29000
107-13-1	Acrylonitrile	29000	U	29000
71-43-2	Benzene	5800	U	5800
108-86-1	Bromobenzene	5800	U	5800
74-97-5	Bromochloromethane	5800	U	5800
75-27-4	Bromodichloromethane	5800	U	5800
75-25-2	Bromoform	5800	U	5800
74-83-9	Bromomethane	12000	U	12000
104-51-8	n-Butylbenzene	22000		5800
135-98-8	sec-Butylbenzene	5800	U	5800
98-06-6	tert-Butylbenzene	5800	U	5800
56-23-5	Carbon tetrachloride	5800	U	5800
108-90-7	Chlorobenzene	5800	U	5800
75-00-3	Chloroethane	12000	U	12000
67-66-3	Chloroform	5800	U	5800
74-87-3	Chloromethane	12000	U	12000
95-49-8	2-Chlorotoluene	5800	U	5800
106-43-4	4-Chlorotoluene	5800	U	5800
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5800	U	5800
124-48-1	Dibromochloromethane	5800	U	5800
106-93-4	1,2-Dibromoethane (EDB)	5800	U	5800
74-95-3	Dibromomethane	5800	U	5800
95-50-1	1,2-Dichlorobenzene	5800	U	5800
541-73-1	1,3-Dichlorobenzene	5800	U	5800
106-46-7	1,4-Dichlorobenzene	5800	U	5800
75-71-8	Dichlorodifluoromethane	12000	U	12000
75-34-3	1,1-Dichloroethane	5800	U	5800
107-06-2	1,2-Dichloroethane	5800	U	5800
75-35-4	1,1-Dichloroethene	5800	U	5800
156-59-4	cis-1,2-Dichloroethene	5800	U	5800
156-60-5	trans-1,2-Dichloroethene	5800	U	5800
78-87-5	1,2-Dichloropropane	5800	U	5800
142-28-9	1,3-Dichloropropane	5800	U	5800
590-20-7	2,2-Dichloropropane	5800	U	5800
563-58-6	1,1-Dichloropropene	5800	U	5800
10061-01-5	cis-1,3-Dichloropropene	5800	U	5800
10061-02-6	trans-1,3-Dichloropropene	5800	U	5800
100-41-4	Ethylbenzene	5800	U	5800
87-68-3	Hexachlorobutadiene	5800	U	5800
98-82-8	Isopropylbenzene	5800	U	5800
99-87-6	4-Isopropyltoluene	5800	U	5800

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-B1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5800	U	5800
91-20-3	Naphthalene	5800	U	5800
103-65-1	n-Propylbenzene	6300		5800
100-42-5	Styrene	5800	U	5800
96-18-4	1,2,3-Trichloropropane	5800	U	5800
630-20-6	1,1,1,2-Tetrachloroethane	5800	U	5800
79-34-5	1,1,2,2-Tetrachloroethane	5800	U	5800
127-18-4	Tetrachloroethene	5800	U	5800
108-88-3	Toluene	5800	U	5800
87-61-6	1,2,3-Trichlorobenzene	5800	U	5800
120-82-1	1,2,4-Trichlorobenzene	5800	U	5800
71-55-6	1,1,1-Trichloroethane	130000		5800
79-00-5	1,1,2-Trichloroethane	5800	U	5800
79-01-6	Trichloroethene (TCE)	5800	U	5800
75-69-4	Trichlorofluoromethane	12000	U	12000
95-63-6	1,2,4-Trimethylbenzene	36000		5800
108-67-8	1,3,5-Trimethylbenzene	16000		5800
75-01-4	Vinyl chloride	12000	U	12000
95-47-6	o-Xylene	6600		5800
	m,p-Xylenes	10000		5800

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 5

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-TB2

Date Collected: 11/15/95
Date Received: 11/15/95
Date Extracted: By:
Date Analyzed: 11/21/95 By: WV

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9222

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	25	U	25
107-13-1	Acrylonitrile	25	U	25
71-43-2	Benzene	5.0	U	5.0
108-86-1	Bromobenzene	5.0	U	5.0
74-97-5	Bromochloromethane	5.0	U	5.0
75-27-4	Bromodichloromethane	5.0	U	5.0
75-25-2	Bromoform	5.0	U	5.0
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.0	U	5.0
135-98-8	sec-Butylbenzene	5.0	U	5.0
98-06-6	tert-Butylbenzene	5.0	U	5.0
56-23-5	Carbon tetrachloride	5.0	U	5.0
108-90-7	Chlorobenzene	5.0	U	5.0
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.0	U	5.0
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.0	U	5.0
106-43-4	4-Chlorotoluene	5.0	U	5.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0
124-48-1	Dibromochloromethane	5.0	U	5.0
106-93-4	1,2-Dibromoethane (EDB)	5.0	U	5.0
74-95-3	Dibromomethane	5.0	U	5.0
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.0	U	5.0
107-06-2	1,2-Dichloroethane	5.0	U	5.0
75-35-4	1,1-Dichloroethene	5.0	U	5.0
156-59-4	cis-1,2-Dichloroethene	5.0	U	5.0
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0
78-87-5	1,2-Dichloropropane	5.0	U	5.0
142-28-9	1,3-Dichloropropane	5.0	U	5.0
590-20-7	2,2-Dichloropropane	5.0	U	5.0
563-58-6	1,1-Dichloropropene	5.0	U	5.0
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0
100-41-4	Ethylbenzene	5.0	U	5.0
87-68-3	Hexachlorobutadiene	5.0	U	5.0
98-82-8	Isopropylbenzene	5.0	U	5.0
99-87-6	4-Isopropyltoluene	5.0	U	5.0
1634-04-4	Methyl tert-butyl ether (MTBE)	5.0	U	5.0

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511230
LRI Sample No: 5

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-TB2

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.0	U	5.0
91-20-3	Naphthalene	5.0	U	5.0
103-65-1	n-Propylbenzene	5.0	U	5.0
100-42-5	Styrene	5.0	U	5.0
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0
127-18-4	Tetrachloroethene	5.0	U	5.0
108-88-3	Toluene	5.0	U	5.0
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0
71-55-6	1,1,1-Trichloroethane	5.0	U	5.0
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0
79-01-6	Trichloroethene (TCE)	5.0	U	5.0
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0
108-67-8	1,3,5-Trimethylbenzene	5.0	U	5.0
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.0	U	5.0
	m,p-Xylenes	5.0	U	5.0

CHAIN OF CUSTODY

CUSTOMER INFORMATION

CUSTOMER: TRC Environmental Corp.
ADDRESS: 5 Waterside Crossing
Windsor, CT 06095
TELEPHONE: (213) 289-8631
FAX: (203) 298-6399

PROJECT INFORMATION

PROJECT: Building 179 Reconstruction
PROJECT LOCATION: Newport STATE: RI
PROJECT MANAGER: Steve Farrick
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
NAME: TRC
TELEPHONE: (401) 841-3370
FAX: (401) 841-4747

BILLING INFORMATION

BILL TO: TRC
ADDRESS: 5 Waterside Crossing
Windsor, CT 06095
ATTENTION: S Farrick
TELEPHONE: 203-289-8631
PO #:

LAB ID CODE	SAMPLE IDENTIFICATION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE: COMPOSITE	SAMPLE TYPE: GRAB	SAMPLE MATRIX	# OF BOTTLES	ANALYSIS: 8260 VOC	ANALYSIS: CYANIDE	ANALYSIS: TPH	PRESERVATIVES: H2SO4	PRESERVATIVES: HCL	PRESERVATIVES: HNO3	PRESERVATIVES: NAOH	PRESERVATIVES: NON-PRES
	B3-S3	14 NOV	1500		SS	SOIL	3	✓	✓	✓					
	B5-S3	14 NOV	1000		SS	SOIL	3	✓	✓	✓					
	MW3-S1	14 NOV	1400		SS	SOIL	3	✓	✓	✓					
	R179-B1	13 NOV	1030		SS	SOIL	2	✓		✓					
	R179-TB2	15 NOV	0745			AQ.	2	✓				X			

TURNAROUND (INDICATE IN CALENDAR DAYS): 5 FAX _____ HARD COPY _____ DELIV. PKG.
NAME OF LAB PERSONNEL CONFIRMING:
DELIVERABLES / (CIRCLE ONE): DATA DATA/QC RED/DELIV NJ/CLP I NJ/CLP II
NJ/REGL NY/ASP GLP OTHER _____

SAMPLER / AFFILIATION:		DATE: 15 NOV 95
RECEIVED / AFFILIATION:	TRC	TIME: 1250
RELINQUISHED / AFFILIATION:	TRC	DATE: 15-NOV-95
RECEIVED / AFFILIATION:		TIME: 1415
RELINQUISHED / AFFILIATION:		DATE:
RECEIVED / AFFILIATION:		TIME:

☐ RETURN TO CLIENT FOR DISPOSAL ☐ LAB DISPOSAL
KNOWN HAZARD (FLAMMABLE, EXPLOSIVE, TOXIC)
☐ YES ☐ NO (IF YES EXPLAIN UNDER COMMENTS)
LAB USE: CONDITIONS OF BOTTLES AND COOLER AT RECEIPT:
☐ COMPLIANT ☐ NOT COMPLIANT (IF NOT EXPLAIN UNDER COMMENTS)
COMMENTS: LIMITED SAMPLE VOLUME FOR SAMPLE R179-B1 - USE AS NECESSARY FOR ANALYSIS

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

Ground Water Analytical Data

Laboratory Resources, Inc.
New England Division

Route 205 - Regional Building
Brooklyn, CT 06234
Telephone: 203-774-6814 Fax: 203-774-2689

ANALYTICAL DATA REPORT

Report Number: E511269
Project: NUWC-Newport

prepared for:

Naval Undersea Warfare Center
Div. Newport Bldg 11 Code 52E
1176 Howell St.
Newport, RI 02841-1708

Attn: TRC Environmental

Receive Date: 11/20/95
Report Date: 11/27/95

T.F. McCommas
Quality Assurance Manager

for Robert Laferriere
Laboratory Director

Connecticut Department of Health Services PH-0465
Maine Department of Environmental Protection TBD
Massachusetts Department of Environmental Quality CT008
New Hampshire Department of Health Services 202093-A,B
New York Department of Health 11549
Rhode Island Department of Health A44 0022

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW3

Date Collected: 11/17/95
Date Received: 11/20/95

Matrix: Water
Percent Moisture: N/A
Units in Wet Weight

Parameter	Result	QL	Units	Started Date	By	Completed Date	By	Dilution
Cyanide, Total, by EPA 335.3								
Cyanide	0.020 U	0.020	mg/L	11/27/95	TS	11/27/95	TS	
PHC (TPH) by EPA 418.1								
Petroleum Hydrocarbons, Total Recoverable	0.38	0.22	mg/L	11/22/95	TS	11/22/95	JS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW3

Date Collected: 11/17/95
Date Received: 11/20/95
Date Extracted: By:
Date Analyzed: 11/24/95 By: RAW

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor:
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2394

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	25	U	25
107-13-1	Acrylonitrile	25	U	25
71-43-2	Benzene	5.0	U	5.0
108-86-1	Bromobenzene	5.0	U	5.0
74-97-5	Bromochloromethane	5.0	U	5.0
75-27-4	Bromodichloromethane	5.0	U	5.0
75-25-2	Bromoform	5.0	U	5.0
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.0	U	5.0
135-98-8	sec-Butylbenzene	5.0	U	5.0
98-06-6	tert-Butylbenzene	5.0	U	5.0
56-23-5	Carbon tetrachloride	5.0	U	5.0
108-90-7	Chlorobenzene	5.0	U	5.0
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.0	U	5.0
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.0	U	5.0
106-43-4	4-Chlorotoluene	5.0	U	5.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0
124-48-1	Dibromochloromethane	5.0	U	5.0
106-93-4	1,2-Dibromoethane (EDB)	5.0	U	5.0
74-95-3	Dibromomethane	5.0	U	5.0
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.0	U	5.0
107-06-2	1,2-Dichloroethane	5.0	U	5.0
75-35-4	1,1-Dichloroethene	5.0	U	5.0
156-59-4	cis-1,2-Dichloroethene	5.0	U	5.0
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0
78-87-5	1,2-Dichloropropane	5.0	U	5.0
142-28-9	1,3-Dichloropropane	5.0	U	5.0
590-20-7	2,2-Dichloropropane	5.0	U	5.0
563-58-6	1,1-Dichloropropene	5.0	U	5.0
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0
100-41-4	Ethylbenzene	5.0	U	5.0
87-68-3	Hexachlorobutadiene	5.0	U	5.0
98-82-8	Isopropylbenzene	5.0	U	5.0
99-87-6	4-Isopropyltoluene	5.0	U	5.0
1634-04-4	Methyl tert-butyl ether (MTBE)	5.0	U	5.0

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 1

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW3

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.0	U	5.0
91-20-3	Naphthalene	5.0	U	5.0
103-65-1	n-Propylbenzene	5.0	U	5.0
100-42-5	Styrene	5.0	U	5.0
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0
127-18-4	Tetrachloroethene	5.0	U	5.0
108-88-3	Toluene	5.0	U	5.0
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0
71-55-6	1,1,1-Trichloroethane	5.0	U	5.0
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0
79-01-6	Trichloroethene (TCE)	5.0	U	5.0
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0
108-67-8	1,3,5-Trimethylbenzene	5.0	U	5.0
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.0	U	5.0
	m,p-Xylenes	5.0	U	5.0

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW1

Date Collected: 11/17/95
Date Received: 11/20/95

Matrix: Water
Percent Moisture: N/A
Units in Wet Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by EPA 335.3								
Cyanide	0.020 U	0.020	mg/L	11/27/95	TS	11/27/95	TS	
PHC (TPH) by EPA 418.1								
Petroleum Hydrocarbons, Total Recoverable	0.44	0.22	mg/L	11/22/95	TS	11/22/95	JS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW1

Date Collected: 11/17/95
Date Received: 11/20/95
Date Extracted: By:
Date Analyzed: 11/24/95 By: RAW

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor:
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2395

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	25	U	25
107-13-1	Acrylonitrile	25	U	25
71-43-2	Benzene	5.0	U	5.0
108-86-1	Bromobenzene	5.0	U	5.0
74-97-5	Bromochloromethane	5.0	U	5.0
75-27-4	Bromodichloromethane	5.0	U	5.0
75-25-2	Bromoform	5.0	U	5.0
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.0	U	5.0
135-98-8	sec-Butylbenzene	5.0	U	5.0
98-06-6	tert-Butylbenzene	5.0	U	5.0
56-23-5	Carbon tetrachloride	5.0	U	5.0
108-90-7	Chlorobenzene	5.0	U	5.0
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.0	U	5.0
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.0	U	5.0
106-43-4	4-Chlorotoluene	5.0	U	5.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0
124-48-1	Dibromochloromethane	5.0	U	5.0
106-93-4	1,2-Dibromoethane (EDB)	5.0	U	5.0
74-95-3	Dibromomethane	5.0	U	5.0
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.0	U	5.0
107-06-2	1,2-Dichloroethane	5.0	U	5.0
75-35-4	1,1-Dichloroethene	5.0	U	5.0
156-59-4	cis-1,2-Dichloroethene	5.0	U	5.0
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0
78-87-5	1,2-Dichloropropane	5.0	U	5.0
142-28-9	1,3-Dichloropropane	5.0	U	5.0
590-20-7	2,2-Dichloropropane	5.0	U	5.0
563-58-6	1,1-Dichloropropene	5.0	U	5.0
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0
100-41-4	Ethylbenzene	5.0	U	5.0
87-68-3	Hexachlorobutadiene	5.0	U	5.0
98-82-8	Isopropylbenzene	5.0	U	5.0
99-87-6	4-Isopropyltoluene	5.0	U	5.0
1634-04-4	Methyl tert-butyl ether (MTBE)	5.0	U	5.0

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: EB-1

Date Collected: 11/17/95
Date Received: 11/20/95

Matrix: Water
Percent Moisture: N/A
Units in Wet Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by EPA 335.3								
Cyanide	0.020 U	0.020	mg/L	11/27/95	TS	11/27/95	TS	
PHC (TPH) by EPA 418.1								
Petroleum Hydrocarbons, Total Recoverable	0.22	0.22	mg/L	11/22/95	TS	11/22/95	JS	

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: EB-1

Date Collected: 11/17/95
Date Received: 11/20/95
Date Extracted: By:
Date Analyzed: 11/24/95 By: RAW

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor:
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2396

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	25	U	25
107-13-1	Acrylonitrile	25	U	25
71-43-2	Benzene	5.0	U	5.0
108-86-1	Bromobenzene	5.0	U	5.0
74-97-5	Bromochloromethane	5.0	U	5.0
75-27-4	Bromodichloromethane	5.0	U	5.0
75-25-2	Bromoform	5.0	U	5.0
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.0	U	5.0
135-98-8	sec-Butylbenzene	5.0	U	5.0
98-06-6	tert-Butylbenzene	5.0	U	5.0
56-23-5	Carbon tetrachloride	5.0	U	5.0
108-90-7	Chlorobenzene	5.0	U	5.0
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.0	U	5.0
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.0	U	5.0
106-43-4	4-Chlorotoluene	5.0	U	5.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0
124-48-1	Dibromochloromethane	5.0	U	5.0
106-93-4	1,2-Dibromoethane (EDB)	5.0	U	5.0
74-95-3	Dibromomethane	5.0	U	5.0
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.0	U	5.0
107-06-2	1,2-Dichloroethane	5.0	U	5.0
75-35-4	1,1-Dichloroethene	5.0	U	5.0
156-59-4	cis-1,2-Dichloroethene	5.0	U	5.0
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0
78-87-5	1,2-Dichloropropane	5.0	U	5.0
142-28-9	1,3-Dichloropropane	5.0	U	5.0
590-20-7	2,2-Dichloropropane	5.0	U	5.0
563-58-6	1,1-Dichloropropene	5.0	U	5.0
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0
100-41-4	Ethylbenzene	5.0	U	5.0
87-68-3	Hexachlorobutadiene	5.0	U	5.0
98-82-8	Isopropylbenzene	5.0	U	5.0
99-87-6	4-Isopropyltoluene	5.0	U	5.0
1634-04-4	Methyl tert-butyl ether (MTBE)	5.0	U	5.0

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 3

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: EB-1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.0	U	5.0
91-20-3	Naphthalene	5.0	U	5.0
103-65-1	n-Propylbenzene	5.0	U	5.0
100-42-5	Styrene	5.0	U	5.0
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0
127-18-4	Tetrachloroethene	5.0	U	5.0
108-88-3	Toluene	5.0	U	5.0
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0
71-55-6	1,1,1-Trichloroethane	5.0	U	5.0
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0
79-01-6	Trichloroethene (TCE)	5.0	U	5.0
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0
108-67-8	1,3,5-Trimethylbenzene	5.0	U	5.0
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.0	U	5.0
	m,p-Xylenes	5.0	U	5.0

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 2

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.0	U	5.0
91-20-3	Naphthalene	5.0	U	5.0
103-65-1	n-Propylbenzene	5.0	U	5.0
100-42-5	Styrene	5.0	U	5.0
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0
127-18-4	Tetrachloroethene	5.0	U	5.0
108-88-3	Toluene	5.0	U	5.0
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0
71-55-6	1,1,1-Trichloroethane	5.0	U	5.0
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0
79-01-6	Trichloroethene (TCE)	5.0	U	5.0
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0
108-67-8	1,3,5-Trimethylbenzene	5.0	U	5.0
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.0	U	5.0
	m,p-Xylenes	5.0	U	5.0

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW2

Date Collected: 11/17/95
Date Received: 11/20/95

Matrix: Water
Percent Moisture: N/A
Units in Wet Weight

Parameter	Result	QL	Units	Started Date	Started By	Completed Date	Completed By	Dilution
Cyanide, Total, by EPA 335.3								
Cyanide	0.40	0.020	mg/L	11/27/95	TS	11/27/95	TS	
PHC (TPH) by EPA 418.1								
Petroleum Hydrocarbons, Total Recoverable	91	5.4	mg/L	11/22/95	TS	11/22/95	JS	25

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW2

Date Collected: 11/17/95
Date Received: 11/20/95
Date Extracted: By:
Date Analyzed: 11/27/95 By: RAW

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor: 500
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: C2404

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	12000	U	12000
107-13-1	Acrylonitrile	12000	U	12000
71-43-2	Benzene	2500	U	2500
108-86-1	Bromobenzene	2500	U	2500
74-97-5	Bromochloromethane	2500	U	2500
75-27-4	Bromodichloromethane	2500	U	2500
75-25-2	Bromoform	2500	U	2500
74-83-9	Bromomethane	5000	U	5000
104-51-8	n-Butylbenzene	2500	U	2500
135-98-8	sec-Butylbenzene	2500	U	2500
98-06-6	tert-Butylbenzene	2500	U	2500
56-23-5	Carbon tetrachloride	2500	U	2500
108-90-7	Chlorobenzene	2500	U	2500
75-00-3	Chloroethane	5000	U	5000
67-66-3	Chloroform	2500	U	2500
74-87-3	Chloromethane	5000	U	5000
95-49-8	2-Chlorotoluene	2500	U	2500
106-43-4	4-Chlorotoluene	2500	U	2500
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500
124-48-1	Dibromochloromethane	2500	U	2500
106-93-4	1,2-Dibromoethane (EDB)	2500	U	2500
74-95-3	Dibromomethane	2500	U	2500
95-50-1	1,2-Dichlorobenzene	2500	U	2500
541-73-1	1,3-Dichlorobenzene	2500	U	2500
106-46-7	1,4-Dichlorobenzene	2500	U	2500
75-71-8	Dichlorodifluoromethane	5000	U	5000
75-34-3	1,1-Dichloroethane	6500		2500
107-06-2	1,2-Dichloroethane	2500	U	2500
75-35-4	1,1-Dichloroethene	2500	U	2500
156-59-4	cis-1,2-Dichloroethene	2500	U	2500
156-60-5	trans-1,2-Dichloroethene	2500	U	2500
78-87-5	1,2-Dichloropropane	2500	U	2500
142-28-9	1,3-Dichloropropane	2500	U	2500
590-20-7	2,2-Dichloropropane	2500	U	2500
563-58-6	1,1-Dichloropropene	2500	U	2500
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500
100-41-4	Ethylbenzene	2500	U	2500
87-68-3	Hexachlorobutadiene	2500	U	2500
98-82-8	Isopropylbenzene	2500	U	2500
99-87-6	4-Isopropyltoluene	2500	U	2500
1634-04-4	Methyl tert-butyl ether (MTBE)	2500	U	2500

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 4

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: R179-MW2

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	2500	U	2500
91-20-3	Naphthalene	2500	U	2500
103-65-1	n-Propylbenzene	2500	U	2500
100-42-5	Styrene	2500	U	2500
96-18-4	1,2,3-Trichloropropane	2500	U	2500
630-20-6	1,1,1,2-Tetrachloroethane	2500	U	2500
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500
127-18-4	Tetrachloroethene	2500	U	2500
108-88-3	Toluene	2500	U	2500
87-61-6	1,2,3-Trichlorobenzene	2500	U	2500
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500
71-55-6	1,1,1-Trichloroethane	72000		2500
79-00-5	1,1,2-Trichloroethane	2500	U	2500
79-01-6	Trichloroethene (TCE)	2500	U	2500
75-69-4	Trichlorofluoromethane	5000	U	5000
95-63-6	1,2,4-Trimethylbenzene	2500	U	2500
108-67-8	1,3,5-Trimethylbenzene	2500	U	2500
75-01-4	Vinyl chloride	5000	U	5000
95-47-6	o-Xylene	2500	U	2500
	m,p-Xylenes	2500	U	2500

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 5

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: TB-1

Date Collected: 11/17/95
Date Received: 11/20/95
Date Extracted: By:
Date Analyzed: 11/21/95 By: WV

Matrix: Water
Percent Moisture: N/A
Sample Weight/Volume:
Dilution Factor: 1
Soil Extract Volume:
Soil Aliquot Volume:
Lab Data File: H9231

Method: 8260
Level: LOW
GC Column:
Units: ug/L (Wet Weight)

CAS No.	Parameter	Result	Qual	QL
107-02-8	Acrolein	25	U	25
107-13-1	Acrylonitrile	25	U	25
71-43-2	Benzene	5.0	U	5.0
108-86-1	Bromobenzene	5.0	U	5.0
74-97-5	Bromochloromethane	5.0	U	5.0
75-27-4	Bromodichloromethane	5.0	U	5.0
75-25-2	Bromoform	5.0	U	5.0
74-83-9	Bromomethane	10	U	10
104-51-8	n-Butylbenzene	5.0	U	5.0
135-98-8	sec-Butylbenzene	5.0	U	5.0
98-06-6	tert-Butylbenzene	5.0	U	5.0
56-23-5	Carbon tetrachloride	5.0	U	5.0
108-90-7	Chlorobenzene	5.0	U	5.0
75-00-3	Chloroethane	10	U	10
67-66-3	Chloroform	5.0	U	5.0
74-87-3	Chloromethane	10	U	10
95-49-8	2-Chlorotoluene	5.0	U	5.0
106-43-4	4-Chlorotoluene	5.0	U	5.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0
124-48-1	Dibromochloromethane	5.0	U	5.0
106-93-4	1,2-Dibromoethane (EDB)	5.0	U	5.0
74-95-3	Dibromomethane	5.0	U	5.0
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0
75-71-8	Dichlorodifluoromethane	10	U	10
75-34-3	1,1-Dichloroethane	5.0	U	5.0
107-06-2	1,2-Dichloroethane	5.0	U	5.0
75-35-4	1,1-Dichloroethene	5.0	U	5.0
156-59-4	cis-1,2-Dichloroethene	5.0	U	5.0
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0
78-87-5	1,2-Dichloropropane	5.0	U	5.0
142-28-9	1,3-Dichloropropane	5.0	U	5.0
590-20-7	2,2-Dichloropropane	5.0	U	5.0
563-58-6	1,1-Dichloropropene	5.0	U	5.0
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0
100-41-4	Ethylbenzene	5.0	U	5.0
87-68-3	Hexachlorobutadiene	5.0	U	5.0
98-82-8	Isopropylbenzene	5.0	U	5.0
99-87-6	4-Isopropyltoluene	5.0	U	5.0
1634-04-4	Methyl tert-butyl ether (MTBE)	5.0	U	5.0

VOLATILE ORGANIC ANALYSIS DATA SHEET

Laboratory: Laboratory Resources, Inc.
Division: New England
LRI Report No: E511269
LRI Sample No: 5

Customer: TRC Environmental
Location: Newport, RI
Project: NUWC-Newport
Sample Description: TB-1

Method: 8260

CAS No.	Parameter	Result	Qual	QL
75-09-2	Methylene chloride	5.0	U	5.0
91-20-3	Naphthalene	5.0	U	5.0
103-65-1	n-Propylbenzene	5.0	U	5.0
100-42-5	Styrene	5.0	U	5.0
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0
127-18-4	Tetrachloroethene	5.0	U	5.0
108-88-3	Toluene	5.0	U	5.0
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0
71-55-6	1,1,1-Trichloroethane	5.0	U	5.0
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0
79-01-6	Trichloroethene (TCE)	5.0	U	5.0
75-69-4	Trichlorofluoromethane	10	U	10
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0
108-67-8	1,3,5-Trimethylbenzene	5.0	U	5.0
75-01-4	Vinyl chloride	10	U	10
95-47-6	o-Xylene	5.0	U	5.0
	m,p-Xylenes	5.0	U	5.0

Laboratory Resources Inc.

CHAIN OF CUSTODY

QUOTE #: ______ PAGE 1 OF 1

CUSTOMER INFORMATION	
CUSTOMER:	TRC Environmental Corp.
ADDRESS:	5 Waterside Crossing Windsor CT 06095
TELEPHONE:	(203) 289-8631
FAX:	(203) 298-6399

PROJECT INFORMATION	
PROJECT:	Building 179 Reconstruction
PROJECT LOCATION:	Newport
STATE:	RI
PROJECT MANAGER:	Steve Farrick
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL: NAME:	TRC
TELEPHONE:	401-841-3310
FAX:	401-841-4747

BILLING INFORMATION	
BILL TO:	TRC
ADDRESS:	5 Waterside Crossing Windsor, CT 06095
ATTENTION:	
TELEPHONE:	(203) 289-8631
PO #:	

LAB ID CODE	SAMPLE IDENTIFICATION	DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE MATRIX	# OF BOTTLES	Analysis 1	Analysis 2	Analysis 3	H2SO4	HCL	HN03	NAOH	NON-PRES
	R179 MW5	11-17-95	1230		✓	Groundwater	5	✓	✓	✓	x				
	R179 MW1	11-17-95	1350		✓	Groundwater	5	✓	✓	✓	x				
	F.B. -1	11-17-95	1130		✓	Aq.	5	✓	✓	✓	x	x			
	T.B. -1	11-17-95	1430		✓	Aq.	2	✓				x			
	R179-MW2	11-17-95	1630		x	Groundwater	5	✓	✓	✓	x	x		x	
	R179-MW2	11-18-95	1030		x		1		✓		x				

TURNAROUND (INDICATE IN CALENDAR DAYS): ____ FAX ____ HARD COPY ____ DELIV. PKG.

NAME OF LAB PERSONNEL CONFIRMING: ______

DELIVERABLES / (CIRCLE ONE): DATA DATA/QC RED/DELIV NJ/CLP I NJ/CLP II NJ/REGL NY/ASP CLP OTHER ______

SAMPLER / AFFILIATION:	[illegible]	DATE:	11-20-95
RECEIVED / AFFILIATION:	[illegible signature]	TIME:	1415
RELINQUISHED / AFFILIATION:	[illegible signature]	DATE:	11-20-95
RECEIVED / AFFILIATION:		TIME:	1230
RELINQUISHED / AFFILIATION:		DATE:	

☐ RETURN TO CLIENT FOR DISPOSAL ☐ LAB DISPOSAL

KNOWN HAZARD (FLAMMABLE, EXPLOSIVE, TOXIC) ☐ YES ☐ NO (IF YES EXPLAIN UNDER COMMENTS)

LAB USE CONDITIONS OF BOTTLES AND COOLER AT RECEIPT:

☐ COMPLIANT ☐ NOT COMPLIANT (IF NOT EXPLAIN UNDER COMMENTS)

COMMENTS: Run 418.1 for R179-MW2 on sample bottle collected on 11/17/95. (no 418.1 on 11/18/95 Run)

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling	CLIENT:	NUWC	BORING No.	B179-MW1
DRILLER:	Gene Levesque	PROJECT NAME:	Building 179		
INSPECTOR:	S. Parrick	LOCATION:	Building 179	SHEET	1 of 1
TYPE:	S. Spoon	WATER LEVEL:	@TIME:		
I.D/O.D.:	2" OD	START DATE:	November 13, 1995		
HAMMER Wt.:	140 lb	END DATE:	November 14, 1995		
HAMMER FALL:	30 Inch				
OTHER:	4.25 ID HSA				

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION
	0.0-0.2					Asphalt.
S-1	0.2-2.2	13 8	12 8	10	2.5	Brown, medium dense, fine to coarse SAND, some Gravel, trace Silt, FILL
S-2	2.2-4.2	4 17	2 24	14	ND	Light to Olive, medium dense, SILT, trace (-) fine Sand, iron oxide staining observed
S-3	4.2-6.2	9 22	13 23	19	ND	Grey, medium dense, SILT, trace (-) fine to coarse Sand, iron oxide staining observed; 0-6" Wet.
S-4	6.2-8.2	14 27	23 32	14	3.1	Grey, dense, SILT and SHALE fragments, slight iron staining
S-5	8.2-10.2	6 10	6 11	15	0.8	Grey, medium dense, SILT, little Shale fragments, trace (+) fine to coarse Sand
S-6	10.2-12.2	5 9	8 29	16	0.4	Grey to Silver Grey, medium dense, SHALE fragments, some Silt, rock structure intact

LITHOLOGY (Feet): 0.0, 2.2, 8.0, 12.2

MONITORING WELL CONSTRUCTION (Feet): 1' Cutbox; Bentonite Seal; 3'; 4'; 5'; 2" PVC Well Screen; 10'

LITHOLOGY LEGEND: SAND; SILT; DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

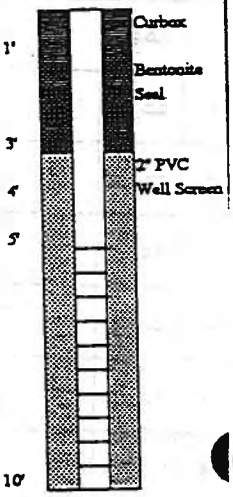
TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling	CLIENT:	NUWC
DRILLER:	Gene Levesque	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
ID/O.D.:	2" OD	START DATE:	November 13, 1995
HAMMER Wt.:	140 lb	END DATE:	November 14, 1995
HAMMER FALL:	30 Inch	BORING No.	B179-MW2
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION
S-1	0.0-2.0	12 19	16 12	14	2.8	0-6" Brown, dense, fine to coarse SAND, some (+) Gravel, FILL 6-14" Grey SILT, some gravel, little (-) fine to coarse Sand.
S-2	2.0-4.0	10 4	5 7	19	60	Dark Grey, loose, organic SILT, little peat fibers/organic matter, trace fine to coarse Sand, slight organic and solvent odor.
S-3	4.0-6.0	3 12	5 18		168	Grey, medium, SILT and GRAVEL, little (-) fine to coarse Sand, some iron staining, solvent odor and sheen/yellow discoloration of partings
S-4	6.0-8.0	10 15	16 17	18	185	Grey to Black, medium dense, SILT and GRAVEL, little (-) fine to coarse Sand, some Shale partings, slight solvent odor/iron staining.
S-5	8.0-10.0	4 11	10 15	19	91	0-11" Dark Grey, medium dense, SILT, trace fine to coarse Sand 11-19" Silver Grey SILT, little (-) shale.
S-6	10.0-12.0	6 27	17 34	19	49	Dark Grey, dense, SHALE, little (+) SILT, wet

LITHOLOGY (Feet)

MONITORING WELL CONSTRUCTION (Feet)



LITHOLOGY LEGEND:

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling
DRILLER:	Gene Levesque
INSPECTOR:	S. Parrick
TYPE:	S. Spoon
I.D/O.D.:	2" OD
HAMMER Wt.:	140 lb
HAMMER FALL:	30 Inch
OTHER:	4.25 ID HSA

CLIENT:	NUWC
PROJECT NAME:	Building 179
LOCATION:	Building 179
WATER LEVEL:	@TIME:
START DATE:	November 13, 1995
END DATE:	November 14, 1995

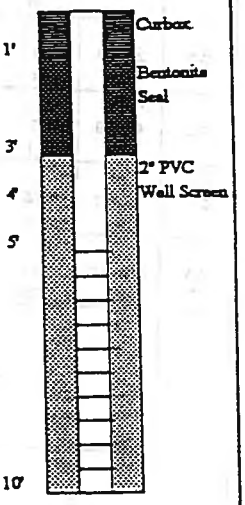
BORING No. B179-MW3

SHEET 1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION
S-1	0.0-2.0	4 5	4 5	10	ND	0-10" Brown to Grey Brown, loose, SILT and GRAVEL, little fine to coarse Sand
S-2	2.0-4.0	5 4	5 4	18	ND	Dark Grey, loose, SILT, trace organic fibers/peat.
S-3	4.0-6.0	3 4	5 5	17	ND	Dark Grey to Brown, loose, SILT, little fine to medium Sand, trace organics
S-4	6.0-8.0	7 9	7 10	14	ND	Dark Grey, medium dense, SILT, little Gravel, trace fine to coarse Sand, some iron staining.
S-5	8.0-10.0	12 12	18 20	14	ND	Grey, medium dense, SILT, some (+) Gravel, little (-) fine to coarse Sand
S-6	10.0-12.0	4 25	23 23	4	0.2	Dark Grey to Brown, dense, SILT and GRAVEL, rock like structure

LITHOLOGY (Feet)

MONITORING WELL CONSTRUCTION (Feet)



LITHOLOGY LEGEND: SILT

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling	CLIENT:	NUWC	BORING No.	B179-B1
DRILLER:	Gene Levesque	PROJECT NAME:	Building 179		
INSPECTOR:	S. Farrick	LOCATION:	Building 179	SHEET	1 of 1
TYPE:	S. Spoon	WATER LEVEL:	@TIME:		
I.D./O.D.:	2" OD	START DATE:	November 13, 1995		
HAMMER Wt.:	140 lb	END DATE:	November 14, 1995		
HAMMER FALL:	30 Inch				
OTHER:	4.25 ID HSA				

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
S-1	0.0-2.0	11 / 18 / 19 / 14	16	5.2	0-8" Brown to Red Brown, medium dense, fine to coarse SAND, little (-) Gravel, trace SILT. FILL; 8-15" Grey, medium dense, SILT, some (-) fine Gravel.	0.0	Not Installed
S-2	2.0-4.0	7 / 4 / 4 / 6	4	220	Grey, loose, SILT, some (+) fine Gravel, trace fine Sand, odorous		
S-3	4.0-6.0	5 / 11 / 10 / 18	13	170	Dark Grey, medium dense, SILT, little Gravel, trace (-) fine Sand, odorous/sheen observed.		
S-4	6.0-8.0	16 / 19 / 15 / 19	19	220	Grey, dense, SILT and SHALE, some fine to coarse Sand, iron staining on soil, shale partings observed		
S-5	8.0-10.0	44 / 26 / 30 / 21	22	180	Light Grey, very dense, SHALE bedrock; 0-6" Shale-Bedding fractures; 9-19" SHALE, some (+) Silt, trace fine to coarse Sand.	6.0	
						10.0	

LITHOLOGY LEGEND: SILT; DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling	CLIENT:	NUWC	BORING No.	B179-B2
DRILLER:	Gene Levesque	PROJECT NAME:	Building 179		
INSPECTOR:	S. Farrick	LOCATION:	Building 179	SHEET	1 of 1
TYPE:	S. Spoon	WATER LEVEL:	@TIME:		
I.D/O.D.:	2" OD	START DATE:	November 13, 1995		
HAMMER Wt.:	140 lb	END DATE:	November 14, 1995		
HAMMER FALL:	30 Inch				
OTHER:	4.25 ID HSA				

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
S-1	0.0-2.0	11 16	13 15	20	5.6	0-8" Brown, medium dense, fine to coarse SAND and GRAVEL. 8-20" Grey fine to coarse SAND, some (-) Silt.	0.0	Not Installed
S-2	2.0-4.0	11 18	16 22	20	19	0-8" Light Brown, medium dense, fine to coarse SAND, some Gravel, little (-) Silt. 8-20" Grey SILT, trace (-) fine Sand.		
S-3	4.0-6.0	12 20	19 17	20	190	Grey, dense, SILT, trace (+) fine to coarse Sand, slight solvent-like odor		
S-4	6.0-8.0	7 10	8 10	21	145	Dark Grey, dense, SILT and GRAVEL, trace fine to coarse Sand/heavy iron staining at partings.		
S-5	8.0-10.0	9 9	8 12	19	136	Grey, medium dense, SILT and GRAVEL, Shale fragments observed Recovery = 7777	6.0	
S-6	10.0-12.0	9 11	9 15	22	4.9	0-12" Dark Grey, medium dense, SILT and GRAVEL. 12-22" Grey/Silver SILT, with strong horizontal partings.		
S-7	12.0-14.0	14 33	19 27	24	7.9	Orange-Brown, very dense, GRAVEL, fabric of bedrock, some (-) Silt, Wet.	12.0	

LITHOLOGY LEGEND: SAND; SAND and GRAVEL FILL

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling	CLIENT:	NUWC	BORING No.	B179-B3
DRILLER:	Gene Levesque	PROJECT NAME:	Building 179		
INSPECTOR:	S. Farrick	LOCATION:	Building 179	SHEET	1 of 1
TYPE:	S. Spoon	WATER LEVEL:	@TIME:		
I.D/O.D.:	2" OD	START DATE:	November 13, 1995		
HAMMER Wt.:	140 lb	END DATE:	November 14, 1995		
HAMMER FALL:	30 Inch				
OTHER:	4.25 ID HSA				

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
S-1	0.0-2.0	10 12	12 11	14	0.4	0-4" Brown, medium dense, fine to coarse SAND, some SIlt, little Gravel 4-14" Grey SILT and GRAVEL, trace fine to coarse Sand.	0.0	Not Installed
S-2	2.0-4.0	12 27	14 27	18	0.4	Grey, dense, SILT, some iron staining evident.	1.0 2.0	
S-3	4.0-6.0	8 17	15 16	24	0.6	Grey, medium dense, SILT, some Gravel		
S-4	6.0-8.0	15 14	16 15	24	ND	Grey, medium dense, SILT, some iron staining		
S-5	8.0-10.0	18 13	18 12	16	ND	Grey with Brown mottling, medium dense, SILT, some Gravel, little (-) fine to coarse Sand		
S-6	10.0-12.0	7 8	9 15	14	ND	0-10" Grey, medium dense, SILT, some fine Gravel 10-14" SHALE	12.0	

LITHOLOGY LEGEND: SAND, GRAVEL, SILT

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Columbia Environmental Drilling	CLIENT:	NUWC	BORING No.	B179-B4
DRILLER:	Gene Levesque	PROJECT NAME:	Building 179		
INSPECTOR:	S. Farrick	LOCATION:	Building 179	SHEET	1 of 1
TYPE:	S. Spoon	WATER LEVEL:	@TIME:		
I.D./O.D.:	2" OD	START DATE:	November 13, 1995		
HAMMER Wt.:	140 lb	END DATE:	November 14, 1995		
HAMMER FALL:	30 Inch				
OTHER:	4.25 ID HSA				

APLE BER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-0.2					Asphalt	0.0	Not Installed
S-1	0.2-2.2	18 11	15 17	15	6.4	2-6" Brown, fine to coarse SAND, some Gravel, trace Silt; 6-12" Grey SILT, little Gravel, trace (+) fine to coarse Sand.		
S-2	2.2-4.2	19 10	13 10	18	2	0-14" Grey to Grey Black, dense, SILT, little fine Gravel 14-24" Dark Brown, dense, SILT, trace fine Sand.		
S-3	4.2-6.2	11 21	24 22	16	3.4	0-8" Grey SILT, little Gravel 8-14" Grey SILT and SHALE fragments.	2.0	
S-4	6.2-8.2	19 20	24 18	16	1.8	Grey, dense, fine to coarse SAND, Shale fragment, some Gravel		
S-5	8.2-10.2	10 12	12 14	20	2.7	Light Grey, medium dense, SILT and GRAVEL, little (+) fine to coarse Sand		
S-6	10.2-12.2	11 26	24 32	18	2.4	Light Grey to Light Brown, very dense, fine to coarse SAND, trace Gravel, trace Shale fragments.	12.2	

LITHOLOGY LEGEND: SAND, SILT

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: Columbia Environmental Drilling
DRILLER: Gene Levesque
INSPECTOR: S. Fenick
TYPE:
ID/O.D.:
HAMMER Wt.:
HAMMER FALL:
OTHER: Geoprobe

CLIENT: NUWC
PROJECT NAME: Building 179
LOCATION: Building 179
WATER LEVEL: @TIME:
START DATE: November 13, 1995
END DATE: November 14, 1995

BORING No. B179-B5
SHEET 1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
S-1	0.0-2.0		3	0.7	Brown GRAVEL, some fine to coarse Sand, little (+) Silt, Wet	0.0	Not Installed
S-2	2.0-4.0		4	156	Dark Grey SILT, little fine to coarse Gravel, trace (+) fine Sand	2.0	
S-3	4.0-6.0		234	55	Dark Grey SILT, some Gravel, trace (+) fine to coarse Sand, odorous		
S-4	6.0-8.0		24	82	0-17" Grey SILT, some fine Gravel, little (+) fine to coarse Sand 17-24" decidurous SHALE.	6.0 8.0	

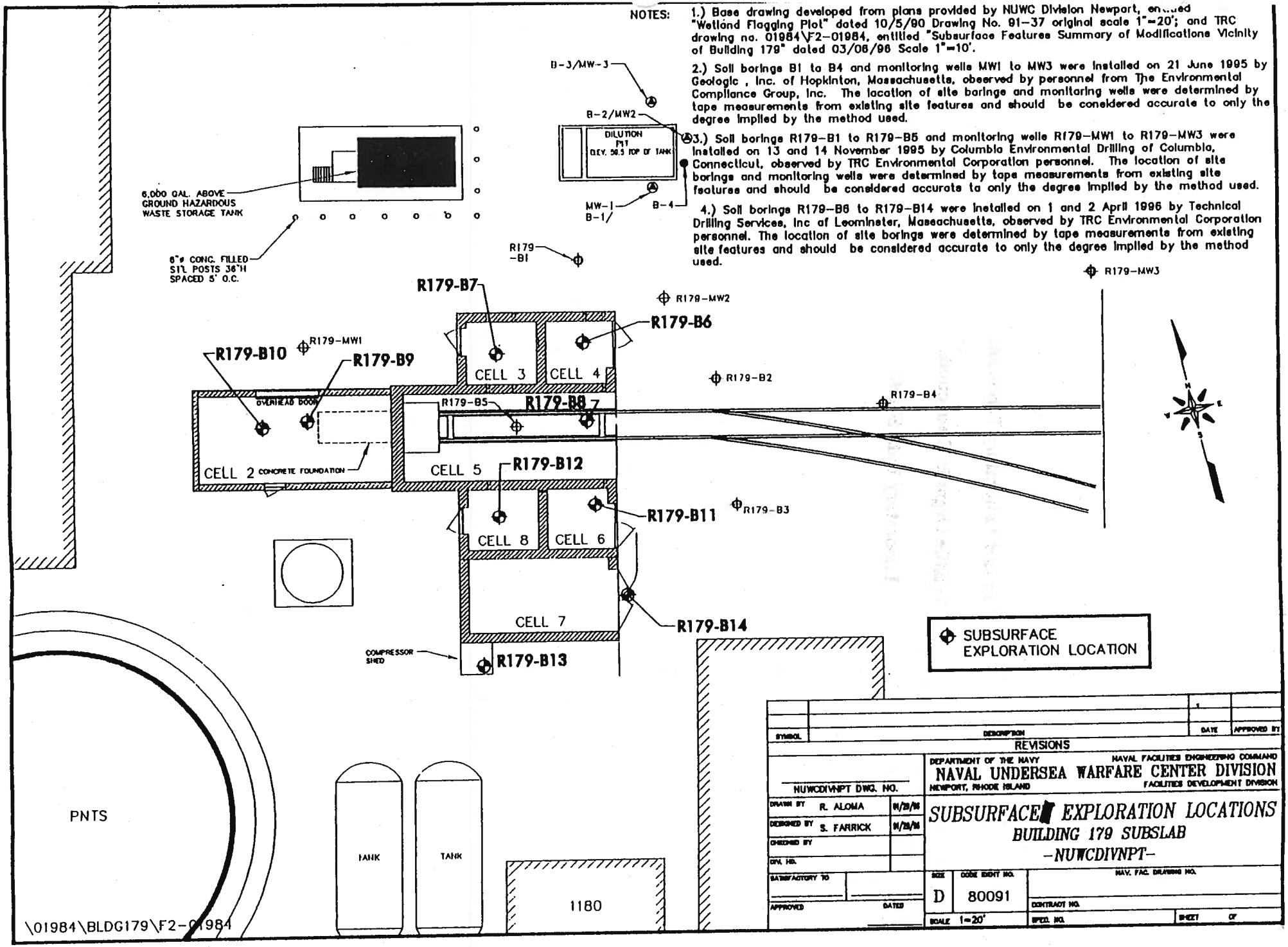
NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

LITHOLOGY LEGEND:

GRAVEL
SILT
DEGRADED/WEATHERED SHALE

April 1996, Subslab Investigation Data


NOTES:
1.) Base drawing developed from plans provided by NUWC Division Newport, entitled "Wetland Flagging Plat" dated 10/5/90 Drawing No. 91-37 original scale 1"=20'; and TRC drawing no. 01984\F2-01984, entitled "Subsurface Features Summary of Modifications Vicinity of Building 179" dated 03/06/96 Scale 1"=10'.
2.) Soil borings B1 to B4 and monitoring wells MW1 to MW3 were installed on 21 June 1995 by Geologic , Inc. of Hopkinton, Massachusetts, observed by personnel from The Environmental Compliance Group, Inc. The location of site borings and monitoring wells were determined by tape measurements from existing site features and should be considered accurate to only the degree implied by the method used.
3.) Soil borings R179-B1 to R179-B5 and monitoring wells R179-MW1 to R179-MW3 were installed on 13 and 14 November 1995 by Columbia Environmental Drilling of Columbia, Connecticut, observed by TRC Environmental Corporation personnel. The location of site borings and monitoring wells were determined by tape measurements from existing site features and should be considered accurate to only the degree implied by the method used.
4.) Soil borings R179-B6 to R179-B14 were installed on 1 and 2 April 1996 by Technical Drilling Services, Inc of Leominster, Massachusetts, observed by TRC Environmental Corporation personnel. The location of site borings were determined by tape measurements from existing site features and should be considered accurate to only the degree implied by the method used.
B-3/MW-3
B-2/MW2
DILUTION PIT
B-4
MW-1
B-1/
6,000 GAL. ABOVE GROUND HAZARDOUS WASTE STORAGE TANK
6"ø CONC. FILLED STL POSTS 36"H SPACED 5' O.C.
R179-B1
R179-MW3
R179-B7
R179-MW2
R179-B6
R179-B10
R179-MW1
R179-B9
CELL 3
CELL 4
R179-B2
R179-B4
OVERHEAD DOOR
R179-B5
R179-B8
CELL 2 CONCRETE FOUNDATION
CELL 5
R179-B12
R179-B11
R179-B3
CELL 8
CELL 6
CELL 7
R179-B14
COMPRESSOR SHED
R179-B13
SUBSURFACE EXPLORATION LOCATION
PNTS
TANK
TANK
1180
\01984\BLDG179\F2-01984
REVISIONS
SYMBOL
DESCRIPTION
DATE
APPROVED BY
NUWCDIVNPT DWG. NO.
DRAWN BY R. ALOMA 11/29/96
DESIGNED BY S. FARRICK 11/29/96
CHECKED BY
QTY. NO.
SATISFACTORY TO
APPROVED
DATED
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND
FACILITIES DEVELOPMENT DIVISION
SUBSURFACE EXPLORATION LOCATIONS
BUILDING 179 SUBSLAB
-NUWCDIVNPT-
SIZE D
CODE IDENT NO. 80091
NAV. FAC. DRAWING NO.
CONTRACT NO.
SCALE 1=20'
SPEC. NO.
SHEET OF

Contract Laboratory Prrogram

Volatile Organic Compounds

Laboratory Data Sheets

TABLE 1
Building 179 Subslab Soil Investigation

Analytical Data Summary

May 14, 1996

Sample Location Lab I.D. Sample Date Dilution Factor	B6-S3 C0253-01 4-1-96 1.0	B61-S3 C0253-02 4-1-96 1.0 Duplicate of B6-S3	B7-S2 C0253-03 4-1-96 1.0	B8-S2 C0253-04 4-1-96 1.0	B9-S1 C0253-05 4-2-96 1.0	B10-S2 C0253-06 4-2-96 1.0	B11-S3 C0253-07 4-1-96 1.0	B12-S2 C0253-08 4-2-96 1.0	B13-S3 C0253-09 4-2-96 1.0	B14-S3 C0253-10 4-2-96 1.0	RIDEM Draft GB Leachability Criteria (mg/kg)	RIDEM Draft Industrial/ Commercial Direct Exposure Criteria (mg/kg)	Federal Land Ban Disposal Limits (mg/kg)
CLP VOCs (mg/kg)													
Acetone	--	--	0.021	--	--	--	--	--	0.13	--	NS	10,000	160
1,1,1 Trichloroethane	42(E), 24(D) *	31(E), 86(D) *	--	19	--	--	--	--	--	--	160	10,000	6
Ethylbenzene	1.7	2.2	--	--	--	--	--	--	--	--	62	10,000	10
Xylene (Total)	20	25	--	5.5	--	--	--	--	--	--	NS	10,000	30
CLP SVOCs (mg/kg)													
Naphthalene	3.1(E), 3(D)*	0.98	--	--	--	--	--	--	--	--	NS	10,000	NS
Butylbenzylphthalate	--	--	--	--	--	24(E), 14(D)*	--	--	--	--	NS	NS	NS
Di-n-butylphthalate	--	--	--	--	--	0.71	--	--	--	--	NS	NS	NS
CLP Inorganics (mg/kg)													
Cyanide	18.9	9.8	--	--	--	--	--	--	--	--	NS	10,000	590
Total Petroleum Hydrocarbons (mg/kg)													
TPH (Method 418.1)	7,300	3,700	690	3,600	270	--	54	100	--	--	2,500	2,500	NS
TPH (ID by GC)	4,300	1,700	620	700	50	--	30	60	30	20	2,500	2,500	NS
PGDN (mg/kg)	81	--	--	5.6	--	--	--	--	--	--	NS	NS	NS

Notes:

1. Results reported in mg/kg (milligrams per kilogram) and are approximately equivalent to parts per million or ppm.
2. * The "E" in parenthesis following the results indicates that the analyte exceeded the instrument calibration range.
   The "D" in parantheses indicates that the analyte concentration is obtained by a subsequent diluted sample.
3. "--" indicates analyte not detected.
4. "NS" indicates no standard is presently available.
5. Shaded analytes indicate exceedences of standards.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B6-S3

b Name: MITKEM Contract:

ab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

atrix: (soil/water) SOIL Lab Sample ID: C0253-01

ample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2408

evel: (low/med) MED Date Received: 04/02/96

Moisture: not dec. 20 Date Analyzed: 04/12/96

C Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

oil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1600	U
74-83-9	Bromomethane	1600	U
75-01-4	Vinyl Chloride	1600	U
75-00-3	Chloroethane	1600	U
75-09-2	Methylene Chloride	1600	U
67-64-1	Acetone	1600	U
75-15-0	Carbon Disulfide	1600	U
75-35-4	1,1-Dichloroethene	400	J
75-34-3	1,1-Dichloroethane	1600	U
540-59-0	1,2-Dichloroethene (total)	1600	U
67-66-3	Chloroform	1600	U
107-06-2	1,2-Dichloroethane	1600	U
78-93-3	2-Butanone	1600	U
71-55-6	1,1,1-Trichloroethane	42000	E
56-23-5	Carbon Tetrachloride	1600	U
75-27-4	Bromodichloromethane	1600	U
78-87-5	1,2-Dichloropropane	1600	U
10061-01-5	cis-1,3-Dichloropropene	1600	U
79-01-6	Trichloroethene	1600	U
124-48-1	Dibromochloromethane	1600	U
79-00-5	1,1,2-Trichloroethane	1600	U
71-43-2	Benzene	1600	U
10061-02-6	trans-1,3-Dichloropropene	1600	U
75-25-2	Bromoform	1600	U
108-10-1	4-Methyl-2-Pentanone	1600	U
591-78-6	2-Hexanone	1600	U
127-18-4	Tetrachloroethene	1600	U
79-34-5	1,1,2,2-Tetrachloroethane	1600	U
108-88-3	Toluene	250	J
108-90-7	Chlorobenzene	1600	U
100-41-4	Ethylbenzene	1700	
100-42-5	Styrene	1600	U
1330-20-7	Xylene (total)	20000	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B6-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2408

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 20 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10 (mL) Soil Aliquot Volume: 100

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 30

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALKANE	10.46	15000	J
2.	4923777	CYCLOHEXANE, 1-ETHYL-2-METHY	11.58	14000	NJ
3.		ALKANE	11.83	21000	J
4.		UNKNOWN	11.92	17000	J
5.	1678928	CYCLOHEXANE, PROPYL-	12.01	39000	NJ
6.		ALKANE	12.25	20000	J
7.		ALKANE	12.52	23000	J
8.		UNKNOWN	12.64	30000	J
9.		ALKYLBENZENE	12.88	50000	J
10.		ALKANE	13.02	90000	J
11.		ALKYLBENZENE	13.30	37000	J
12.		ALKANE	13.44	20000	J
13.		ALKYLBENZENE	13.55	63000	J
14.		ALKANE	13.67	12000	J
15.		ALKYLBENZENE	13.75	22000	J
16.		ALKANE	13.87	33000	J
17.	138863	LIMONENE	13.95	71000	NJ
18.		ALKANE	14.02	13000	J
19.		ALKANE	14.08	13000	J
20.		ALKYLBENZENE	14.16	75000	J
21.		ALKYLBENZENE	14.48	32000	J
22.		ALKYLBENZENE	14.57	47000	J
23.		ALKANE	14.74	47000	J
24.		ALKYLBENZENE	14.85	17000	J
25.		ALKYLBENZENE	14.97	10000	J
26.		ALKYLBENZENE	15.01	20000	J
27.		ALKYLBENZENE	15.12	16000	J
28.		ALKYLBENZENE	15.31	17000	J
29.		UNKNOWN	15.51	13000	J
30.		ALKYLBENZENE	15.78	13000	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B6-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01DL

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2423

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 20 Date Analyzed: 04/15/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1600	U
74-83-9	Bromomethane	1600	U
75-01-4	Vinyl Chloride	1600	U
75-00-3	Chloroethane	1600	U
75-09-2	Methylene Chloride	1600	U
67-64-1	Acetone	1600	U
75-15-0	Carbon Disulfide	330	DJ
75-35-4	1,1-Dichloroethene	1600	U
75-34-3	1,1-Dichloroethane	1600	U
540-59-0	1,2-Dichloroethene (total)	1600	U
67-66-3	Chloroform	1600	U
107-06-2	1,2-Dichloroethane	1600	U
78-93-3	2-Butanone	24000	D
71-55-6	1,1,1-Trichloroethane	1600	U
56-23-5	Carbon Tetrachloride	1600	U
75-27-4	Bromodichloromethane	1600	U
78-87-5	1,2-Dichloropropane	1600	U
10061-01-5	cis-1,3-Dichloropropene	1600	U
79-01-6	Trichloroethene	1600	U
124-48-1	Dibromochloromethane	1600	U
79-00-5	1,1,2-Trichloroethane	1600	U
71-43-2	Benzene	1600	U
10061-02-6	trans-1,3-Dichloropropene	1600	U
75-25-2	Bromoform	1600	U
108-10-1	4-Methyl-2-Pentanone	1600	U
591-78-6	2-Hexanone	1600	U
127-18-4	Tetrachloroethene	1600	U
79-34-5	1,1,2,2-Tetrachloroethane	1600	U
108-88-3	Toluene	1600	U
108-90-7	Chlorobenzene	880	DJ
100-41-4	Ethylbenzene	1600	U
100-42-5	Styrene	10000	D
1330-20-7	Xylene (total)		

000025

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B6-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01DL

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2423

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 20 Date Analyzed: 04/15/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 30

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALKANE	10.42	10000	JD
2.		ALKANE	10.59	5700	JD
3.		UNKNOWN	11.56	11000	JD
4.		ALKANE	11.80	12000	JD
5.		UNKNOWN	11.88	11000	JD
6.	1678928	CYCLOHEXANE, PROPYL-	11.99	27000	NJD
7.		ALKANE	12.22	12000	JD
8.		ALKANE	12.49	13000	JD
9.		UNKNOWN	12.61	18000	JD
10.		ALKYLBENZENE	12.74	6500	JD
11.		ALKYLBENZENE	12.86	31000	JD
12.		ALKANE	12.99	61000	JD
13.		ALKYLBENZENE	13.27	21000	JD
14.		ALKANE	13.40	8900	JD
15.		ALKYLBENZENE	13.52	42000	JD
16.		ALKYLBENZENE	13.73	8400	JD
17.	138863	LIMONENE	13.92	80000	NJD
18.		ALKANE	13.99	7200	JD
19.		ALKYLBENZENE	14.13	39000	JD
20.		ALKYLBENZENE	14.45	18000	JD
21.		ALKYLBENZENE	14.54	31000	JD
22.		ALKANE	14.72	22000	JD
23.		ALKYLBENZENE	14.81	8700	JD
24.		ALKYLBENZENE	14.94	6400	JD
25.		ALKYLBENZENE	14.99	9900	JD
26.		ALKYLBENZENE	15.09	9400	JD
27.		ALKYLBENZENE	15.28	11000	JD
28.		ALKYLBENZENE	15.43	6000	JD
29.		UNKNOWN	15.49	7900	JD
30.		ALKYLBENZENE	15.75	7000	JD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B61-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2409

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 17 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10 (mL) Soil Aliquot Volume: 100 (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500	U
74-83-9	Bromomethane	1500	U
75-01-4	Vinyl Chloride	1500	U
75-00-3	Chloroethane	1500	U
75-09-2	Methylene Chloride	1500	U
67-64-1	Acetone	1500	U
75-15-0	Carbon Disulfide	1500	U
75-35-4	1,1-Dichloroethene	370	J
75-34-3	1,1-Dichloroethane	1500	U
540-59-0	1,2-Dichloroethene (total)	1500	U
67-66-3	Chloroform	1500	U
107-06-2	1,2-Dichloroethane	1500	U
78-93-3	2-Butanone	1500	U
71-55-6	1,1,1-Trichloroethane	31000	E
56-23-5	Carbon Tetrachloride	1500	U
75-27-4	Bromodichloromethane	1500	U
78-87-5	1,2-Dichloropropane	1500	U
10061-01-5	cis-1,3-Dichloropropene	1500	U
79-01-6	Trichloroethene	1500	U
124-48-1	Dibromochloromethane	1500	U
79-00-5	1,1,2-Trichloroethane	1500	U
71-43-2	Benzene	1500	U
10061-02-6	trans-1,3-Dichloropropene	1500	U
75-25-2	Bromoform	1500	U
108-10-1	4-Methyl-2-Pentanone	1500	U
591-78-6	2-Hexanone	1500	U
127-18-4	Tetrachloroethene	1500	U
79-34-5	1,1,2,2-Tetrachloroethane	270	J
108-88-3	Toluene	1500	U
108-90-7	Chlorobenzene	2200	
100-41-4	Ethylbenzene	1500	U
100-42-5	Styrene	25000	
1330-20-7	Xylene (total)		

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B61-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2409

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 17 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 30

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALKANE	10.45	20000	J
2.		UNKNOWN	11.59	16000	J
3.		ALKANE	11.84	29000	J
4.		UNKNOWN	11.92	15000	J
5.	1678928	CYCLOHEXANE, PROPYL-	12.02	46000	NJ
6.		ALKANE	12.26	25000	J
7.		ALKANE	12.53	31000	J
8.		UNKNOWN	12.65	40000	J
9.		ALKYLBENZENE	12.89	58000	J
10.		ALKANE	13.05	100000	J
11.		ALKYLBENZENE	13.31	38000	J
12.		ALKANE	13.46	35000	J
13.		ALKYLBENZENE	13.57	71000	J
14.		ALKANE	13.69	22000	J
15.		UNKNOWN	13.77	29000	J
16.		ALKANE	13.87	54000	J
17.	138863	LIMONENE	13.96	53000	NJ
18.		ALKANE	14.04	26000	J
19.		ALKANE	14.10	20000	J
20.		ALKYLBENZENE	14.16	110000	J
21.		ALKYLBENZENE	14.49	42000	J
22.		ALKYLBENZENE	14.58	53000	J
23.		ALKANE	14.76	62000	J
24.		ALKYLBENZENE	14.85	28000	J
25.		ALKYLBENZENE	14.98	17000	J
26.		UNKNOWN	15.03	28000	J
27.		ALKYLBENZENE	15.13	22000	J
28.		ALKYLBENZENE	15.32	21000	J
29.		UNKNOWN	15.53	19000	J
30.		ALKANE	15.93	21000	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B61-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02DL

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2425

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 17 Date Analyzed: 04/15/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10 (mL) Soil Aliquot Volume: 100 (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500	U
74-83-9	Bromomethane	1500	U
75-01-4	Vinyl Chloride	1500	U
75-00-3	Chloroethane	1500	U
75-09-2	Methylene Chloride	1500	U
67-64-1	Acetone	1500	U
75-15-0	Carbon Disulfide	1500	U
75-35-4	1,1-Dichloroethene	1500	U
75-34-3	1,1-Dichloroethane	1500	U
540-59-0	1,2-Dichloroethene (total)	1500	U
67-66-3	Chloroform	1500	U
107-06-2	1,2-Dichloroethane	1500	U
78-93-3	2-Butanone	1500	U
71-55-6	1,1,1-Trichloroethane	8600	D
56-23-5	Carbon Tetrachloride	1500	U
75-27-4	Bromodichloromethane	1500	U
78-87-5	1,2-Dichloropropane	1500	U
10061-01-5	cis-1,3-Dichloropropene	1500	U
79-01-6	Trichloroethene	1500	U
124-48-1	Dibromochloromethane	1500	U
79-00-5	1,1,2-Trichloroethane	1500	U
71-43-2	Benzene	1500	U
10061-02-6	trans-1,3-Dichloropropene	1500	U
75-25-2	Bromoform	1500	U
108-10-1	4-Methyl-2-Pentanone	1500	U
591-78-6	2-Hexanone	1500	U
127-18-4	Tetrachloroethene	1500	U
79-34-5	1,1,2,2-Tetrachloroethane	1500	U
108-88-3	Toluene	1500	U
108-90-7	Chlorobenzene	1500	U
100-41-4	Ethylbenzene	570	DJ
100-42-5	Styrene	1500	U
1330-20-7	Xylene (total)	6900	D

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B61-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02DL

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2425

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 17 Date Analyzed: 04/15/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(

Number TICs found: 30 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	3073663	CYCLOHEXANE, 1,1,3-TRIMETHYL	10.12	4400	NJD
2.		UNKNOWN	10.43	10000	JD
3.		ALKANE	10.59	5600	JD
4.		ALKANE	11.56	13000	JD
5.		ALKANE	11.80	8600	JD
6.		UNKNOWN	11.90	8700	JD
7.	1678928	CYCLOHEXANE, PROPYL-	11.99	24000	NJD
8.		ALKANE	12.22	8200	JD
9.		ALKANE	12.49	8200	JD
10.		UNKNOWN	12.62	11000	JD
11.		ALKYLBENZENE	12.87	24000	JD
12.		ALKYLBENZENE	12.99	43000	JD
13.		ALKYLBENZENE	13.27	14000	JD
14.		ALKYLBENZENE	13.52	28000	JD
15.		UNKNOWN	13.72	4500	JD
16.	138863	LIMONENE	13.91	37000	NJD
17.		ALKYLBENZENE	14.14	14000	JD
18.		ALKYLBENZENE	14.45	12000	JD
19.		ALKYLBENZENE	14.54	25000	JD
20.		ALKANE	14.71	8800	JD
21.		ALKYLBENZENE	14.81	5800	JD
22.		ALKYLBENZENE	14.94	4800	JD
23.		ALKYLBENZENE	14.98	6100	JD
24.		ALKYLBENZENE	15.10	6700	JD
25.		ALKYLBENZENE	15.28	8200	JD
26.		ALKYLBENZENE	15.43	4000	JD
27.		UNKNOWN	15.49	6700	JD
28.		ALKYLBENZENE	15.68	3500	JD
29.		ALKYLBENZENE	15.75	5000	JD
30.		ALKYLBENZENE	16.38	4000	JD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B7-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V2A2391

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: not dec. 11 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	2	J
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	21	
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	5	J
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	J
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B8-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-04

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2410

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 14 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1400	U
74-83-9	Bromomethane	1400	U
75-01-4	Vinyl Chloride	1400	U
75-00-3	Chloroethane	1400	U
75-09-2	Methylene Chloride	1400	U
67-64-1	Acetone	1400	U
75-15-0	Carbon Disulfide	160	J
75-35-4	1,1-Dichloroethene	170	J
75-34-3	1,1-Dichloroethane	1400	U
540-59-0	1,2-Dichloroethene (total)	1400	U
67-66-3	Chloroform	1400	U
107-06-2	1,2-Dichloroethane	1400	U
78-93-3	2-Butanone	19000	
71-55-6	1,1,1-Trichloroethane	1400	U
56-23-5	Carbon Tetrachloride	1400	U
75-27-4	Bromodichloromethane	1400	U
78-87-5	1,2-Dichloropropane	1400	U
10061-01-5	cis-1,3-Dichloropropene	1400	U
79-01-6	Trichloroethene	1400	U
124-48-1	Dibromochloromethane	1400	U
79-00-5	1,1,2-Trichloroethane	1400	U
71-43-2	Benzene	1400	U
10061-02-6	trans-1,3-Dichloropropene	1400	U
75-25-2	Bromoform	1400	U
108-10-1	4-Methyl-2-Pentanone	1400	U
591-78-6	2-Hexanone	1400	U
127-18-4	Tetrachloroethene	1400	U
79-34-5	1,1,2,2-Tetrachloroethane	1400	U
108-88-3	Toluene	1400	U
108-90-7	Chlorobenzene	260	J
100-41-4	Ethylbenzene	1400	U
100-42-5	Styrene	5500	
1330-20-7	Xylene (total)		

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B8-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-04

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2410

Level: (low/med) MED Date Received: 04/02/96

% Moisture: not dec. 14 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL

Number TICs found: 30 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALKANE	10.46	14000	J
2.		ALKANE	11.22	8000	J
3.		ALKANE	11.58	12000	J
4.		ALKANE	11.83	13000	J
5.		UNKNOWN	11.93	10000	J
6.	1678928	CYCLOHEXANE, PROPYL-	12.02	26000	NJ
7.		ALKANE	12.25	12000	J
8.		ALKANE	12.52	15000	J
9.		UNKNOWN	12.64	29000	J
10.		ALKYLBENZENE	12.89	16000	J
11.		ALKYLBENZENE	13.02	76000	J
12.		UNKNOWN	13.33	32000	J
13.		ALKANE	13.44	15000	J
14.		ALKYLBENZENE	13.55	20000	J
15.		ALKANE	13.76	9400	J
16.		ALKANE	13.85	38000	J
17.		ALKANE	14.03	10000	J
18.		ALKYLBENZENE	14.15	17000	J
19.		ALKANE	14.23	30000	J
20.		ALKYLBENZENE	14.48	15000	J
21.	493027	NAPHTHALENE, DECAHYDRO-, TRA	14.58	29000	NJ
22.		ALKANE	14.75	35000	J
23.		ALKYLBENZENE	14.84	12000	J
24.		ALKYLBENZENE	15.02	16000	J
25.		ALKYLBENZENE	15.12	10000	J
26.		ALKYLBENZENE	15.32	9000	J
27.		ALKYLBENZENE	15.45	7500	J
28.		UNKNOWN	15.52	9800	J
29.		ALKYLBENZENE	15.78	9500	J
30.		ALKANE	15.93	14000	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B9-S1

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V2A2384

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: not dec. 10 Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	2	J
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-06

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2385

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: not dec. _____ Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-07

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2386

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: not dec. _____ Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	2	J
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	1	J
1330-20-7	Xylene (total)		

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-08

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2387

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: not dec. _____ Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

000017

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-09

Sample wt/vol: 4.0 (g/mL) G Lab File ID: V2A2388

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: not dec. _____ Date Analyzed: 04/12/96

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(u

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	13	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)		

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B14-S3

b Name: MITKEM Contract:

ab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

atrix: (soil/water) SOIL Lab Sample ID: C0253-10

ample wt/vol: 5.0 (g/mL) G Lab File ID: V2A2389

evel: (low/med) LOW Date Received: 04/02/96

Moisture: not dec. 11 Date Analyzed: 04/12/96

C Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

oil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

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Contract Laboratory Program

Semivolatile Organic Compounds

Laboratory Data Sheets

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B6-S3

b Name: MITKEM Contract:

b Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

trix: (soil/water) SOIL Lab Sample ID: C0253-01

mple wt/vol: 30.3 (g/mL) G Lab File ID: C253-01

vel: (low/med) LOW Date Received: 04/02/96

Moisture: 10 decanted: (Y/N) Y Date Extracted: 04/04/96

ncentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

jection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	3100	E
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	130	J
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	910	U
95-95-4	2,4,5-Trichlorophenol	360	U
91-58-7	2-Chloronaphthalene	910	U
88-74-4	2-Nitroaniline	360	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	910	U
99-09-2	3-Nitroaniline	360	U
83-32-9	Acenaphthene		

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B6-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-01

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 10 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	98	J
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	630	B
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B6-S3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-01

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 10 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.90	310	NAJB
2.		UNKNOWN	7.09	400	JB
3.		UNKNOWN	7.29	200	J
4.		UNKNOWN	7.79	1200	J
5.		C3-BENZENE	7.89	1700	J
6.	464175	BICYCLO[2.2.1]HEPT-2-ENE, 1,	9.04	5300	NJ
7.		UNKNOWN	9.30	3300	J
8.		C4-BENZENE	9.69	110	J
9.		UNKNOWN	10.02	270	J
10.		UNKNOWN	10.11	280	J
11.		UNKNOWN	10.24	350	J
12.		C4-BENZENE	10.29	190	J
13.		UNKNOWN	10.33	180	J
14.		UNKNOWN	10.44	160	J
15.		C5-BENZENE	10.52	210	J
16.		UNKNOWN	10.65	220	J
17.		UNKNOWN	10.85	130	J
18.	119755	BENZENAMINE, 2-NITRO-N-PHENY	19.30	730	NJ
19.		DECANEDIOIC ACID, DIBUTYL ES	20.54	1100	J
20.		DECANEDIOIC ACID, DIBUTYL ES	20.76	14000	J
21.		UNKNOWN	21.36	2300	J
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B61-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C253-02

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 9 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	47	J
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	220	BJ
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B7-S2

) Name: MITKEM Contract:

b Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

trix: (soil/water) SOIL Lab Sample ID: C0253-03

mple wt/vol: 30.3 (g/mL) G Lab File ID: C253-03

vel: (low/med) LOW Date Received: 04/02/96

Moisture: 17 decanted: (Y/N) Y Date Extracted: 04/04/96

ncentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

ijection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	990	U
95-95-4	2,4,5-Trichlorophenol	390	U
91-58-7	2-Chloronaphthalene	990	U
88-74-4	2-Nitroaniline	390	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	990	U
99-09-2	3-Nitroaniline	390	U
83-32-9	Acenaphthene		

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B6-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01DL

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-01A

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 10 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	730	U
111-44-4	bis(2-Chloroethyl)ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
95-50-1	1,2-Dichlorobenzene	730	U
95-48-7	2-Methylphenol	730	U
108-60-1	2,2'-oxybis(1-Chloropropane)	730	U
106-44-5	4-Methylphenol	730	U
621-64-7	N-Nitroso-di-n-propylamine	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
111-91-1	bis(2-Chloroethoxy)methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
120-82-1	1,2,4-Trichlorobenzene	3000	D
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	730	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-methylphenol	130	DJ
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	1800	U
95-95-4	2,4,5-Trichlorophenol	730	U
91-58-7	2-Chloronaphthalene	1800	U
88-74-4	2-Nitroaniline	730	U
131-11-3	Dimethylphthalate	730	U
208-96-8	Acenaphthylene	730	U
606-20-2	2,6-Dinitrotoluene	1800	U
99-09-2	3-Nitroaniline	730	U
83-32-9	Acenaphthene		

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B6-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01DL

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-01A

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 10 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	730	U
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
7005-72-3	4-Chlorophenyl-phenylether	730	U
86-73-7	Fluorene	730	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	730	U
101-55-3	4-Bromophenyl-phenylether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
86-74-8	Carbazole	730	U
84-74-2	Di-n-butylphthalate	88	DJ
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
91-94-1	3,3'-Dichlorobenzidine	730	U
56-55-3	Benzo(a)anthracene	730	U
218-01-9	Chrysene	730	U
117-81-7	bis(2-Ethylhexyl)phthalate	540	DJB
117-84-0	Di-n-octylphthalate	730	U
205-99-2	Benzo(b)fluoranthene	730	U
207-08-9	Benzo(k)fluoranthene	730	U
50-32-8	Benzo(a)pyrene	730	U
193-39-5	Indeno(1,2,3-cd)pyrene	730	U
53-70-3	Dibenz(a,h)anthracene	730	U
191-24-2	Benzo(g,h,i)perylene	730	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B6-S3DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-01DL

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-01A

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 10 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 24

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.89	550	NAJBD
2.		UNKNOWN	6.25	160	JD
3.		UNKNOWN	7.08	800	JBD
4.		C3-BENZENE	7.27	400	JD
5.		C3-BENZENE	7.87	2500	JD
6.		B3-BENZENE	8.17	830	JD
7.		C4-BENZENE	8.65	1500	JD
8.	138863	LIMONENE	9.00	14000	NJD
9.		C4-BENZENE	9.20	660	JD
10.		C4-BENZENE	9.31	1800	JD
11.		UNKNOWN	9.48	3300	JD
12.		C4-BENZENE	9.66	330	JD
13.		UNKNOWN	9.96	450	JD
14.		UNKNOWN	10.08	340	JD
15.		UNKNOWN	10.21	460	JD
16.		C4-BENZENE	10.25	200	JD
17.		UNKNOWN	10.40	370	JD
18.		C4-BENZENE	10.49	510	JD
19.		UNKNOWN	10.82	240	JD
20.		UNKNOWN	11.05	170	JD
21.	119755	BENZENAMINE, 2-NITRO-N-PHENY	19.28	1500	NJD
22.	109433	DECANEDIOIC ACID, DIBUTYL ES	20.71	28000	NJD
23.		UNKNOWN	21.35	3300	JD
24.		UNKNOWN	22.06	2100	JD
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B61-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C253-02

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 9 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	980	
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	53	J
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	910	U
95-95-4	2,4,5-Trichlorophenol	360	U
91-58-7	2-Chloronaphthalene	910	U
88-74-4	2-Nitroaniline	360	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	910	U
99-09-2	3-Nitroaniline	360	U
83-32-9	Acenaphthene		

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B61-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C253-02

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 9 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/18/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	47	J
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	220	JB
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B7-S2

ab Name: MITKEM Contract:

ab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

atrix: (soil/water) SOIL Lab Sample ID: C0253-03

ample wt/vol: 30.3 (g/mL) G Lab File ID: C253-03

evel: (low/med) LOW Date Received: 04/02/96

Moisture: 17 decanted: (Y/N) Y Date Extracted:04/04/96

oncentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

njection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	990	U
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	990	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	58	JB
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B7-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-03

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-03

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 17 decanted: (Y/N) Y Date Extracted:04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1708312	FURAN, 2,5-DIHYDRO-3-METHYL-	3.13	170	NJ
2.	626937	2-HEXANOL	4.60	360	NJ
3.		UNKNOWN	5.55	360	JB
4.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.98	7700	NAJB
5.		UNKNOWN	7.14	220	JB
6.		UNKNOWN	20.05	160	J
7.		UNKNOWN	24.86	280	JB
8.		UNKNOWN	27.34	330	J
9.		UNKNOWN	28.11	160	J
10.		UNKNOWN	29.14	180	J
11.					
12.					
13.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B8-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-04

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-04

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	940	U
95-95-4	2,4,5-Trichlorophenol	380	U
91-58-7	2-Chloronaphthalene	940	U
88-74-4	2-Nitroaniline	380	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	940	U
99-09-2	3-Nitroaniline	380	U
83-32-9	Acenaphthene	380	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B8-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-04

Sample wt/vol: 30.3 (g/mL) G Lab File ID: C253-04

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	44	J
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	39	JB
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B8-S2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: MITKEM Contract:

ab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

atrix: (soil/water) SOIL Lab Sample ID: C0253-04

ample wt/vol: 30.3 (g/mL) G Lab File ID: C253-04

evel: (low/med) LOW Date Received: 04/02/96

Moisture: 13 decanted: (Y/N) Y Date Extracted:04/04/96

oncentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

njection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 7.7

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.08	160	J
2.		UNKNOWN	5.46	240	JB
3.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.91	5400	NAJB
4.		UNKNOWN	7.07	160	JB
5.		UNKNOWN	7.77	250	J
6.		UNKNOWN	7.87	77	J
7.		UNKNOWN	9.89	140	J
8.		UNKNOWN	10.09	120	J
9.		UNKNOWN	10.38	150	J
10.		UNKNOWN	10.63	160	J
11.		UNKNOWN	20.36	160	JB
12.		UNKNOWN	22.25	79	JB
13.		UNKNOWN	24.01	170	JB
14.		UNKNOWN	24.75	230	JB
15.					
16.					
17.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B9-S1

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-05A

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 16 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/19/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	980	U
95-95-4	2,4,5-Trichlorophenol	390	U
91-58-7	2-Chloronaphthalene	980	U
88-74-4	2-Nitroaniline	390	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	980	U
99-09-2	3-Nitroaniline	390	U
83-32-9	Acenaphthene	390	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B9-S1

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-05A

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 16 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B9-S1

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-05A

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 16 decanted: (Y/N) Y Date Extracted:04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.09	110	J
2.	3102338	3-PENTEN-2-ONE, (E)-	3.25	190	NJ
3.		UNKNOWN	3.41	260	J
4.		UNKNOWN	5.08	580	J
5.		UNKNOWN	5.47	360	JB
6.		UNKNOWN	5.58	470	JB
7.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.92	7200	NAJB
8.		UNKNOWN	6.99	130	J
9.		UNKNOWN	7.08	230	JB
10.		UNKNOWN	24.75	300	JB
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10-S2

b Name: MITKEM Contract:

b Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

trix: (soil/water) SOIL Lab Sample ID: C0253-06

mple wt/vol: 30.1 (g/mL) G Lab File ID: C253-06

vel: (low/med) LOW Date Received: 04/02/96

Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

ncentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

jection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	950	U
83-32-9	Acenaphthene	380	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: C253-06

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/17/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	710	
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	24000	E
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	150	JB
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B10-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: C253-06

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/17/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

Number TICs found: 6 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	5.54	330	J
2.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.98	6300	NAJB
3.		UNKNOWN	7.15	200	J
4.		UNKNOWN	9.93	160	J
5.		UNKNOWN	19.50	420	J
6.		UNKNOWN	24.84	460	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10-S2DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-06DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: C253-06C

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1900	U
111-44-4	bis(2-Chloroethyl)ether	1900	U
95-57-8	2-Chlorophenol	1900	U
541-73-1	1,3-Dichlorobenzene	1900	U
106-46-7	1,4-Dichlorobenzene	1900	U
95-50-1	1,2-Dichlorobenzene	1900	U
95-48-7	2-Methylphenol	1900	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1900	U
106-44-5	4-Methylphenol	1900	U
621-64-7	N-Nitroso-di-n-propylamine	1900	U
67-72-1	Hexachloroethane	1900	U
98-95-3	Nitrobenzene	1900	U
78-59-1	Isophorone	1900	U
88-75-5	2-Nitrophenol	1900	U
105-67-9	2,4-Dimethylphenol	1900	U
111-91-1	bis(2-Chloroethoxy)methane	1900	U
120-83-2	2,4-Dichlorophenol	1900	U
120-82-1	1,2,4-Trichlorobenzene	1900	U
91-20-3	Naphthalene	1900	U
106-47-8	4-Chloroaniline	1900	U
87-68-3	Hexachlorobutadiene	1900	U
59-50-7	4-Chloro-3-methylphenol	1900	U
91-57-6	2-Methylnaphthalene	1900	U
77-47-4	Hexachlorocyclopentadiene	1900	U
88-06-2	2,4,6-Trichlorophenol	4800	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	4800	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	1900	U
208-96-8	Acenaphthylene	1900	U
606-20-2	2,6-Dinitrotoluene	4800	U
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene		

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10-S2DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-06DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: C253-06C

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	4800	U
100-02-7	4-Nitrophenol	4800	U
132-64-9	Dibenzofuran	1900	U
121-14-2	2,4-Dinitrotoluene	1900	U
84-66-2	Diethylphthalate	1900	U
7005-72-3	4-Chlorophenyl-phenylether	1900	U
86-73-7	Fluorene	1900	U
100-01-6	4-Nitroaniline	4800	U
534-52-1	4,6-Dinitro-2-methylphenol	4800	U
86-30-6	N-Nitrosodiphenylamine (1)	1900	U
101-55-3	4-Bromophenyl-phenylether	1900	U
118-74-1	Hexachlorobenzene	1900	U
87-86-5	Pentachlorophenol	4800	U
85-01-8	Phenanthrene	1900	U
120-12-7	Anthracene	1900	U
86-74-8	Carbazole	1900	U
84-74-2	Di-n-butylphthalate	680	DJ
206-44-0	Fluoranthene	1900	U
129-00-0	Pyrene	1900	U
85-68-7	Butylbenzylphthalate	14000	D
91-94-1	3,3'-Dichlorobenzidine	1900	U
56-55-3	Benzo(a)anthracene	1900	U
218-01-9	Chrysene	1900	U
117-81-7	bis(2-Ethylhexyl)phthalate	1900	U
117-84-0	Di-n-octylphthalate	1900	U
205-99-2	Benzo(b)fluoranthene	1900	U
207-08-9	Benzo(k)fluoranthene	1900	U
50-32-8	Benzo(a)pyrene	1900	U
193-39-5	Indeno(1,2,3-cd)pyrene	1900	U
53-70-3	Dibenz(a,h)anthracene	1900	U
191-24-2	Benzo(g,h,i)perylene	1900	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B10-S2DL

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-06DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: C253-06C

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 2

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.87	5600	NAJD
2.		UNKNOWN	19.41	390	JD
3.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C253-07

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 14 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/18/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	960	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	960	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	960	U
83-32-9	Acenaphthene	380	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C253-07

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 14 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/18/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	960	U
100-02-7	4-Nitrophenol	960	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	960	U
534-52-1	4,6-Dinitro-2-methylphenol	960	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	960	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	50	J
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B11-S3

b Name: MITKEM Contract:

b Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

trix: (soil/water) SOIL Lab Sample ID: C0253-07

mple wt/vol: 30.0 (g/mL) G Lab File ID: C253-07

vel: (low/med) LOW Date Received: 04/02/96

Moisture: 14 decanted: (Y/N) Y Date Extracted: 04/04/96

ncentrated Extract Volume: 500 (uL) Date Analyzed: 04/18/96

jection Volume: 2.0 (uL) Dilution Factor: 1.0

C Cleanup: (Y/N) Y pH: 8.5

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	110827	CYCLOHEXANE	3.09	200	NJ
2.		UNKNOWN	5.46	360	JB
3.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.90	6500	NAJB
4.		UNKNOWN	7.07	200	JB
5.		UNKNOWN	24.76	100	JB
6.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-08

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-08

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/18/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	940	U
95-95-4	2,4,5-Trichlorophenol	370	U
91-58-7	2-Chloronaphthalene	940	U
88-74-4	2-Nitroaniline	370	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	940	U
99-09-2	3-Nitroaniline	370	U
83-32-9	Acenaphthene	370	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-08

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-08

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	40	J
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	370	U
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenz(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B12-S2

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-08

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-08

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 13 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/18/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.09	150	J
2.		UNKNOWN	5.46	430	JB
3.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.90	8400	NAJB
4.		UNKNOWN	7.07	240	JB
5.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13-S3

ab Name: MITKEM Contract:

ab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

atrix: (soil/water) SOIL Lab Sample ID: C0253-09

ample wt/vol: 30.5 (g/mL) G Lab File ID: C253-09

evel: (low/med) LOW Date Received: 04/02/96

Moisture: 19 decanted: (Y/N) Y Date Extracted: 04/04/96

oncentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

njection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 8.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-09

Sample wt/vol: 30.5 (g/mL) G Lab File ID: C253-09

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 19 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/17/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B13-S3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name: MITKEM Contract:

b Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

trix: (soil/water) SOIL Lab Sample ID: C0253-09

mple wt/vol: 30.5 (g/mL) G Lab File ID: C253-09

vel: (low/med) LOW Date Received: 04/02/96

Moisture: 19 decanted: (Y/N) Y Date Extracted: 04/04/96

ncentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

jection Volume: 2.0(uL) Dilution Factor: 1.0

C Cleanup: (Y/N) Y pH: 8.7

Number TICs found: 12 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.16	160	J
2.	108214	ACETIC ACID, 1-METHYLETHYL E	5.55	460	NJ
3.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.98	8000	NAJB
4.		UNKNOWN	7.15	260	JB
5.	138863	LIMONENE	8.95	86	NJ
6.	4337659	HEXANEDIOIC ACID, MONO(2-ETH	22.26	400	NJ
7.		UNKNOWN	24.29	85	J
8.		UNKNOWN	24.84	230	JB
9.		UNKNOWN	25.15	200	J
10.		UNKNOWN	25.54	540	J
11.		UNKNOWN	29.67	250	J
12.		UNKNOWN	29.93	380	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B14-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-10

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-10

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 9 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/17/96

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	900	U
95-95-4	2,4,5-Trichlorophenol	360	U
91-58-7	2-Chloronaphthalene	900	U
88-74-4	2-Nitroaniline	360	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	900	U
99-09-2	3-Nitroaniline	360	U
83-32-9	Acenaphthene	360	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B14-S3

b Name: MITKEM Contract:

b Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

trix: (soil/water) SOIL Lab Sample ID: C0253-10

mple wt/vol: 30.4 (g/mL) G Lab File ID: C253-10

vel: (low/med) LOW Date Received: 04/02/96

Moisture: 9 decanted: (Y/N) Y Date Extracted: 04/04/96

ncentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

jection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	900	U
100-02-7	4-Nitrophenol	900	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	900	U
534-52-1	4,6-Dinitro-2-methylphenol	900	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	900	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	61	J
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	360	U
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B14-S3

Lab Name: MITKEM Contract:

Lab Code: MITKEM Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix: (soil/water) SOIL Lab Sample ID: C0253-10

Sample wt/vol: 30.4 (g/mL) G Lab File ID: C253-10

Level: (low/med) LOW Date Received: 04/02/96

% Moisture: 9 decanted: (Y/N) Y Date Extracted: 04/04/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/17/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.15	190	J
2.		UNKNOWN	5.54	360	JB
3.	123422	2-PENTANONE, 4-HYDROXY-4-MET	5.97	6100	NAJB
4.		UNKNOWN	7.15	200	JB
5.		UNKNOWN	24.84	470	JB
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Contract Laboratory Program

Inorganics

Laboratory Data Sheets

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B6-S3

Lab Name: MITKEM Contract:

Lab Code: Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix (soil/water): SOIL Lab Sample ID: C0253-01

Level (low/med): LOW Date Received: 04/02/96

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	18.9			C

Color Before: BROWN Clarity Before: Texture: MED

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B61-S3

Name: MITKEM Contract:

Code: Case No.: 01984 SAS No.: SDG No.: B6-S3

:ix (soil/water): SOIL Lab Sample ID: C0253-02

:l (low/med): LOW Date Received: 04/02/96

)lids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	9.8			C

.or Before: BLACK Clarity Before: Texture: FINE

.or After: COLORLESS Clarity After: CLEAR Artifacts:

ments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B7-S2

Lab Name: MITKEM Contract: _____

Lab Code: _____ Case No.: 01984_ SAS No.: _____ SDG No.: B6-S3_

Matrix (soil/water): SOIL_ Lab Sample ID: C0253-03

Level (low/med): LOW__ Date Received: 04/02/96

% Solids: _83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_		_		NR
7440-36-0	Antimony_		_		NR
7440-38-2	Arsenic__		_		NR
7440-39-3	Barium___		_		NR
7440-41-7	Beryllium		_		NR
7440-43-9	Cadmium__		_		NR
7440-70-2	Calcium__		_		NR
7440-47-3	Chromium_		_		NR
7440-48-4	Cobalt___		_		NR
7440-50-8	Copper___		_		NR
7439-89-6	Iron_____		_		NR
7439-92-1	Lead_____		_		NR
7439-95-4	Magnesium		_		NR
7439-96-5	Manganese		_		NR
7439-97-6	Mercury__		_		NR
7440-02-0	Nickel___		_		NR
7440-09-7	Potassium		_		NR
7782-49-2	Selenium_		_		NR
7440-22-4	Silver___		_		NR
7440-23-5	Sodium___		_		NR
7440-28-0	Thallium_		_		NR
7440-62-2	Vanadium_		_		NR
7440-66-6	Zinc_____		_		NR
_____	Cyanide__	1.1	U		C_
_____	_____	_____	_	_____	___

Color Before: GREY_____ Clarity Before: _____ Texture: MED___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B8-S2

Name: MITKEM Contract: _____

Code: _____ Case No.: 01984_ SAS No.: _____ SDG No.: B6-S3_

rix (soil/water): SOIL_ Lab Sample ID: C0253-04

el (low/med): LOW__ Date Received: 04/02/96

olids: 87.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

lor Before: GREY Clarity Before: _____ Texture: FINE

lor After: COLOLRES Clarity After: CLEAR Artifacts: _____

mments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B9-S1

Lab Name: MITKEM Contract: _____

Lab Code: _____ Case No.: 01984 SAS No.: _____ SDG No.: B6-S3

Matrix (soil/water): SOIL Lab Sample ID: C0253-05

Level (low/med): LOW Date Received: 04/02/96

% Solids: 84.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: BROWN Clarity Before: _____ Texture: MED

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B10-S2

Name: MITKEM Contract:

Code: Case No.: 01984 SAS No.: SDG No.: B6-S3

ix (soil/water): SOIL Lab Sample ID: C0253-06

l (low/med): LOW Date Received: 04/02/96

lids: 87.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

or Before: BROWN Clarity Before: Texture: FINE

or After: COLORLESS Clarity After: CLEAR Artifacts:

ments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B11-S3

Lab Name: MITKEM Contract:

Lab Code: Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix (soil/water): SOIL Lab Sample ID: C0253-07

Level (low/med): LOW Date Received: 04/02/96

% Solids: 86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: BLACK Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B12-S2

Name: MITKEM Contract: _____

Code: _____ Case No.: 01984_ SAS No.: _____ SDG No.: B6-S3_

Matrix (soil/water): SOIL_ Lab Sample ID: C0253-08

Level (low/med): LOW__ Date Received: 04/02/96

Solids: _87.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.98	U		C

Color Before: GREY Clarity Before: _____ Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B13-S3

Lab Name: MITKEM Contract:

Lab Code: Case No.: 01984 SAS No.: SDG No.: B6-S3

Matrix (soil/water): SOIL Lab Sample ID: C0253-09

Level (low/med): LOW Date Received: 04/02/96

% Solids: 81.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.1	U		C

Color Before: BLACK Clarity Before: Texture: MED

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B14-S3

Name: MITKEM Contract:

Code: Case No.: 01984 SAS No.: SDG No.: B6-S3

ix (soil/water): SOIL Lab Sample ID: C0253-10

l (low/med): LOW Date Received: 04/02/96

lids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.95	U		C

or Before: BLACK Clarity Before: Texture: FINE

or After: COLORLESS Clarity After: CLEAR Artifacts:

ments:

Total Petroleum Hydrocarbons - Method 418.1

Laboratory Data Sheets

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 418.1
Matrix: Soil
Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	Analysis Date
C0253-01	B6-S3	7,500	33	90	4/15/96
C0253-02	B61-S3	3,700	660	91	4/15/96
C0253-03	B7-S2	690	36	83	4/15/96
C0253-04	B8-S2	3,600	34	87	4/15/96
C0253-05	B9-S1	270	36	84	4/15/96
C0253-06	B10-S2	ND	34	87	4/15/96
C0253-07	B11-S3	54	35	86	4/15/96
C0253-08	B12-S2	100	34	87	4/15/96
C0253-09	B13-S3	ND	37	81	4/15/96
C0253-10	B14-S3	ND	33	91	4/15/96

QA/QC				
Method Blank				
I0411-B1	ND		30	4/15/96
Lab Control Spike (% Recovery)				
I0411-LCS1	99			4/15/96
Sample Matrix Spike				
C0253-04MS	5,000 *			4/15/96
Sample Duplicate				
C0253-04 Dup	2,600 *			4/15/96

* The matrix spike recovery could not be accurately determined due to the high TPH concentration in the unspiked sample versus the amount of the spike (170 mg/kg). The reported values could be evaluated as sample replicates.

000003

Data Qualifiers:

J	Detected below the Reporting Limit
B	The analyte was detected in the associated Method Blank
D	The analyte concentration is obtained from a diluted analysis
E	The analyte concentration exceeded the calibration range

Total Petroleum Hydrocarbons
Identification by Gas Chromatograph

Laboratory Data Sheets

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Fuel ID by GC
Matrix: Soil
Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
C0253-01	B6-S3	4,500	93	90	124	4/15/96
C0253-02	B61-S3	1,700	18	91	132	4/12/96
C0253-03	B7-S2	620	20	83	127	4/12/96
C0253-04	B8-S2	700	19	87	107	4/13/96
C0253-05	B9-S1	50	20	84	100	4/13/96
C0253-06	B10-S2	ND	19	87	73	4/13/96
C0253-07	B11-S3	30	19	86	100	4/13/96
C0253-08	B12-S2	60	19	87	92	4/13/96
C0253-09	B13-S3	30	20	81	103	4/13/96
C0253-10	B14-S3	20	18	91	92	4/13/96
QA/QC						
Method Blank F0404-B4		ND	17		79	4/12/96
Lab Control Sample (% Recovery) F0404-LCS4		95	17		95	4/12/96

ND = Not detected

The sample chromatograms for B6-S3, B61-S3 and B8-S2 resembled that of mineral spirits.
The sample chromatograms for B7-S2, B9-S1, B12-S2 and B13-S3 exhibited peaks eluting in the high boiling range such as lubricating oil.
The sample chromatograms for B11-S3 and B14-S3 could not be matched with any fuel oil.

000005

C0253-FUEL_ID.

Data Qualifiers:

J	Detected below the Reporting Limit
B	The analyte was detected in the associated Method Blank
D	The analyte concentration is obtained from a diluted analysis
E	The analyte concentration exceeded the calibration range

Propylene Glycol Dinitrate

Analytical Data

NEWPORT SOIL SAMPLES REC'D 4/5/96

Ref #	sample id	sample typ	pgdn (mg/kg	2ndpa (mg/kg)	dbs (mg/kg)	
200002701	b9-s1 4/2/96 1200	soil	< 1.0	< 0.5		
200002702	b7-s2 4/1/96 1130	soil	< 1.0	< 0.5		
200002703	b8-s2 4/1/96 1020	soil	5.6	0.68		CELLS
200002704	b10-s2 4/2/96 1125	soil	< 1.0	< 0.5		
200002705	b12-s24/2/96 1020	soil	< 1.0	< 0.5		
200002706	b6-s3 4/2/96 0730	soil	81	35		CELL4
200002707	b11-s3 4/1/96 1435	soil	< 1.0	< 0.5		
200002708	b13-s3 4/1/96 1520	soil	< 1.0	< 0.5		
200002709	b14-s3 4/2/96 0900	soil	< 1.0	< 0.5		

BLDG [redacted] 179

SOB - SLAB INVESTIGATION

SOIL SAMPLES. (4/4/96)

MITKEM CORPORATION
175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
1232 East Broadway Road • Suite 210 • Tempe, Arizona 85282
(602) 303-9535 • Fax (602) 921-2883

CHAIN-OF-CUSTODY RECORD

INVOICE TO		REPORT TO		
COMPANY TRC Environmental Corporation	PHONE (203) 289-8631	COMPANY TRC	PHONE 401-641-6676	LAB REFERENCE #:
NAME Steve Farrick	FAX --	NAME Steve Farrick	FAX 401-641-4747	
ADDRESS 5 Waterside Crossing		ADDRESS		TURNAROUND TIME:
CITY/ST/ZIP Windsor CT 06095		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
	01784-0050 -0060	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES: CLP VOC's; CLP Aqueous; CLP Pesticide; TPH 418.1; TPH-GC Fingerprint	COMMENTS
BA-S2	9-1-96 1020		X		X			3 (Each)	✓ ✓ ✓ ✓	*MS/MSD
BL-S3	9-1-96 0930		X		X			2	✓ ✓ ✓ ✓	
BL1-S3	9-1-96 0930		X		X			2	✓ ✓ ✓ ✓	
B10-S2	9-2-96 1035		X		X			2	✓ ✓ ✓ ✓	
B11-S3	9-1-96 1135		X		X			2	✓ ✓ ✓ ✓	
B13-S3	9-1-96 1520		X		X			2	✓ ✓ ✓ ✓	
B12-S2	9-2-96 1020		X		X			2	✓ ✓ ✓ ✓	
B14-S3	9-2-96 0900		X		X			2	✓ ✓ ✓ ✓	
B9-S1	9-2-96 1200		X		X			2	✓ ✓ ✓ ✓	
B7-S2	9-1-96 1110		X		X			2	✓ - ✓ ✓	
EB-1	9-2-96 1000		X	X				6	✓ ✓ ✓ ✓	
TB-1	9-2-96 0810		X	X				2	✓	

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1st	Elizabeth B. Wright	9-2-96 /	[signature]	9/2/96 17:30
2nd		/		/
3rd		/		/

ADDITIONAL REMARKS:

COOLER TEMP:

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

PROJECT NO.: 1084-0030-00060

PROJECT NAME: NUWC 179 Reconnaissance

SAMPLERS: (Signature) Elizabeth B. Wright

(Printed) ELIZABETH B. WRIGHT

PARAMETERS: NO. OF CONTAINERS; PCDN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	PCDN	REMARKS
B6-S3	4.1.96	0930		X	B6-S3	1	✓	Soil Associated
B7-S2	4.1.96	1130		X	B7-S2	1	✓	
B8-S2	4.1.96	1020		X	B8-S2	1	✓	
B9-S1	4.2.96	1200		X	B9-S1	1	✓	
B10-S2	4.2.96	1125		X	B10-S2	1	✓	
B11-S3	4.1.96	1435		X	B11-S3	1	✓	
B12-S2	4.2.96	1020		X	B12-S2	1	✓	
B13-S3	4.1.96	1520		X	B13-S2	1	✓	
B14-S3	4.2.96	0900		X	B14-S3	1	✓	
					0800 4.3.96			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Elizabeth B. Wright	4.3.96 1555				
(Printed)		(Printed)	(Printed)		(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
(Printed)		(Printed)			

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink)

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: Technical Drilling Services
DRILLER: Steve Bliss
INSPECTOR: S. Farrick
TYPE: S. Spoon
I.D/O.D.: 3" OD
HAMMER Wt.: 300 lb
HAMMER FALL: 30 Inch
OTHER: 4.25 ID HSA

CLIENT: NUWC
PROJECT NAME: Building 179
LOCATION: Building 179
WATER LEVEL: @TIME:
START DATE: April 1, 1996
END DATE: April 1, 1996

BORING No. B179-B6
SHEET 1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-1.6				Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	1.6-3.6	1 / 0 / 2 / 1	1	4	Dark Brown, very loose, fine to coarse SAND, some Gravel, trace Silt.	1.6	
S-2	3.6-5.6	3 / 2 / 1 / 1	8	210	Olive Grey to Brown, very loose, fine to coarse SAND, some (-) Silt, little Gravel. Wet, Yellowish		
S-3	5.6-7.6	6 / 14 / 21 / 21	22	100 /200	Upper 10" Olive Grey to Brown, loose, SILT and fine to medium SAND, trace Gravel. Lower 12" Brown, loose, fine to coarse SAND, trace (+) Gravel.		
S-4	7.6-9.6	14 / 36 / 37 / 51	24	50 /210	Upper 12" Yellow to Brown, very dense, fine to coarse SAND and SILT, yellowish. Lower 12" Olive Green/Grey, very dense, SHALE, some Shale fragments, little Silt.	8.5	
						9.6	

LITHOLOGY LEGEND:
- CONCRETE
- SAND
- DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services	CLIENT:	NUWC
DRILLER:	Steve Bliss	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
I.D/O.D.:	3" OD	START DATE:	April 1, 1996
HAMMER Wt.:	300 lb	END DATE:	April 1, 1996
HAMMER FALL:	30 Inch	BORING No.	B179-B7
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-2.0					Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	2.0-4.0			8	3	Upper 4" Brown, very loose, fine to coarse SAND and SILT, some Gravel, trace (+)Silt. Lower 4" Brown to Olive, very loose, fine to coarse SAND and SILT, some Gravel.	2.0	
S-2	4.0-6.0	5 5	3 6	17	5	Brown to Grey Brown,loose, fine to coarse SAND, some (+) Gravel, little Silt. Upper 6" Some Organic Matter in and odorous		
S-3	6.0-8.0			18	3	Greybrown SILT and GRAVEL, some fine to coarse Sand.	6.0	
S-4	8.0-10.0	21 23	37 17	24	2.5 /4	Grey, SHALE Fragments, some Silt, little fine to coarse Shale Fragments. Iron-oxide staining, Wet.	8.0	
							10.0	

LITHOLOGY LEGEND:
- CONCRETE
- SAND
- SILT
- DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services	CLIENT:	NUWC
DRILLER:	Steve Bliss	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
I.D./O.D.:	3" OD	START DATE:	April 1, 1996
HAMMER Wt.:	300 lb	END DATE:	April 1, 1996
HAMMER FALL:	30 Inch	BORING No.	B179-B8
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-2.0					Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	2.0-4.0	1 1	1 1	2	5 /10	Brown, very loose, GRAVEL and fine to coarse SAND, little SILT. Wet	2.0	
S-2	4.0-6.0	1 19	3 17	18	50 /180	Upper 10" Brown to Olive, medium dense, fine to coarse SAND, little Gravel, some SILT. Lower 2" Grey, medium dense, SILT, little Gravel.		
S-3	6.0-8.0	9 17	10 16	16	15 /190	Upper 10" Brown to Olive, medium dense, fine to coarse SAND, little Gravel, some SILT. Lower 4" Grey, medium dense, SILT and GRAVEL, trace fine to coarse Sand.		
S-4	8.0-10.0	13 17	17 37	20	30 /175	Brown to Olive, medium dense, degraded SHALE, some (-) SILT, large to small Shale fragments.	8.0	
							10.0	

LITHOLOGY LEGEND:
- CONCRETE
- SAND
- DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

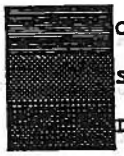
BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services	CLIENT:	NUWC
DRILLER:	Steve Bliss	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
I.D/O.D.:	3" OD	START DATE:	April 2, 1996
HAMMER Wt.:	300 lb	END DATE:	April 2, 1996
HAMMER FALL:	24 Inch	BORING No.	B179-B9
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-0.5					Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	0.5-2.5	2 1	3 3	17	ND	Brown to Grey Brown, very loose, SILT and GRAVEL, little fine to coarse Sand, little Shale fragments. Damp.	0.5	
S-2	2.5-4.5	4 8	4 10	18	ND	Grey,loose, SILT, trace fine to coarse Sand, some (+) Gravel. Wet.		
S-3	4.5-6.5	55 35	41 30	24	ND	Brown to Olive, very dense, SILT and GRAVEL, little fine to coarse Sand.		
S-4	6.5-8.5	36 47	44 40	20	ND	Upper 21" Brown, very dense, SILT, some Gravel, little fine to coarse Sand, Shale frag. Lower 3" Grey, very dense, SHALE fragments.	6.5	
							8.5	

LITHOLOGY LEGEND:



CONCRETE

SILT

DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services	CLIENT:	NUWC
DRILLER:	Steve Bliss	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
I.D/O.D.:	3" OD	START DATE:	April 2, 1996
HAMMER Wt.:	300 lb	END DATE:	April 2, 1996
HAMMER FALL:	24 Inch	BORING No.	B179-B10
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-0.5					Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	0.5-2.5	2 2	1 3	11	ND	Upper 3" Brown, very loose, fine to coarse SAND, little Gravel, trace Silt. Lower 8" Brown to Olive, very loose, SILT, some Gravel, little fine to coarse Sand.	0.5	
S-2	2.5-4.5	14 35	24 37	18	ND	Upper 10" Brown, very dense, fine to coarse SAND and GRAVEL, little (-) Silt. Lower 8" Grey to Iron-oxide, very dense, SILT and SHALE fragments.		
						Re-set with electric hammer.		
S-3	4.5-6.5	Jack Hammer			ND	Brown to Grey, SILT, some Gravel, little fine to coarse Sand.		
S-4	6.5-8.5	Jack Hammer			ND	Brown to Grey, SILT, little Gravel, trace fine to coarse Shale fragments. Iron-oxide staining.	8.5	
S-5	8.5-9.2	Jack Hammer		2	ND	Grey to Olive, SHALE fragments, some Silt.	9.2	

LITHOLOGY LEGEND:
- CONCRETE
- SILT
- DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services
DRILLER:	Steve Bliss
INSPECTOR:	S. Farrick
TYPE:	S. Spoon
I.D./O.D.:	3" OD
HAMMER Wt.:	300 lb
HAMMER FALL:	30 Inch
OTHER:	4.25 ID HSA

CLIENT:	NUWC
PROJECT NAME:	Building 179
LOCATION:	Building 179
WATER LEVEL:	@TIME:
START DATE:	April 1, 1996
END DATE:	April 1, 1996

BORING No. **B179-B11**

SHEET 1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-2.5				Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	2.5-4.5	3 / 6 / 3 / 7	4	1	Brown to Olive, loose, wet SILT, little fine to coarse Sand, some (+) Gravel.	2.5	
S-2	4.5-6.5	3 / 17 / 21 / 16	7	2	Dark Grey, dense, SILT, little Gravel, trace (+) fine to coarse Sand. Wet.		
S-3	6.5-8.5	14 / 13 / 18 / 19	10	5 /6	Grey, dense, SILT, some (+) Gravel, little (-) fine to coarse Sand. Iron-oxide staining.		
S-4	8.5-10.5	5 / 17 / 3 / 21	6	2 /20	Grey, SILT, some (+) Gravel, trace fine to coarse Sand, Shale fragments.	10.5	

LITHOLOGY LEGEND: CONCRETE; SILT

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp.- The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services	CLIENT:	NUWC
DRILLER:	Steve Bliss	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
ID/O.D.:	3" OD	START DATE:	April 2, 1996
HAMMER WT.:	300 lb	END DATE:	April 2, 1996
HAMMER FALL:	30 Inch	BORING No.	B179-B12
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-2.0				Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	2.0-4.0	2 / 3 / 3 / 2	4	0.5	Upper 2" Brown, loose, fine to coarse SAND, some Gravel, trace Silt. Lower 2" Brown, loose, SHALE fragments, some Silt, little fine to coarse Sand.	2.0	
S-2	4.0-6.0	3 / 7 / 3 / 4	18	ND	Grey to Olive Brown, loose, SILT, little Gravel, little fine to coarse Sand. Iron-oxide staining.		
S-3	6.0-8.0	4 / 27 / 19 / 31	18	ND	Brown to Grey, dense, SILT and GRAVEL, some Gravel, little (+) fine to coarse Sand. Iron-oxide staining. Wet.	8.0	
S-4	8.0-10.0	32 / 37 / 44 / 35	24	ND	Upper 8"Grey, very dense, SHALE fragments. Lower 16" Brown to Grey, very dense, SILT and GRAVEL, some fine to coarse Sand.	10.0	

LITHOLOGY LEGEND:
- CONCRETE
- SILT
- DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services
DRILLER:	Steve Bliss
INSPECTOR:	S. Farrick
TYPE:	S. Spoon
I.D./O.D.:	3" OD
HAMMER Wt.:	
HAMMER FALL:	
OTHER:	Jack Hammer

CLIENT:	NUWC
PROJECT NAME:	Building 179
LOCATION:	Building 179
WATER LEVEL:	@TIME:
START DATE:	April 1, 1996
END DATE:	April 1, 1996

BORING No. B179-B13

SHEET 1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
	0.0-0.5				Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	0.5-2.5		12	ND	Upper 8" Grey to White, SILT, little Gravel, trace fine to coarse Sand. Iron-oxide staining.	0.5	
S-2	2.5-4.5		20	ND	Upper 14" Grey to Brown, fine to coarse SHALE and SILT. Lower 6" Grey, SILT, little Peat, trace fine to coarse Sand		
S-3	4.5-6.5		21	ND	Grey to Olive to Black, SILT, little fine to coarse Sand, trace Gravel.		
S-4	6.5-8.5		20	ND	Upper 20" Grey, SILT, some fine Gravel, trace fine to coarse Sand, some iron-oxide. Lower 4" Grey, Degraded SHALE fragments, some Silt.	8.0 8.5	

LITHOLOGY LEGEND:

CONCRETE

SILT

DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR:	Technical Drilling Services	CLIENT:	NUWC
DRILLER:	Steve Bliss	PROJECT NAME:	Building 179
INSPECTOR:	S. Farrick	LOCATION:	Building 179
TYPE:	S. Spoon	WATER LEVEL:	@TIME:
ID/O.D.:	3" OD	START DATE:	April 2, 1996
HAMMER Wt.:	300 lb	END DATE:	April 2, 1996
HAMMER FALL:	30 Inch	BORING No.	B179-B14
OTHER:	4.25 ID HSA	SHEET	1 of 1

SAMPLE NUMBER	DEPTH (Feet)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD TEST (1)	SOIL DESCRIPTION	LITHOLOGY (Feet)	MONITORING WELL CONSTRUCTION (Feet)
						Concrete, hole drilled through the floor.	0.0	Not Installed
S-1	0.0-2.0	7 4	5 7	14	2	Upper 2" Black, loose, Degraded BLACKTOP and GRAVEL. Lower 12" Brown, loose, fine SAND, some (-) Gravel, little Silt.		
S-2	2.0-4.0	7 8	7 23	21	ND	Upper 8" Brown, medium dense, fine to coarse GRAVEL, little Silt. Lower 13" Grey, medium dense, SILT, some Gravel, little fine to coarse Sand. Fragments, Iron-oxide staining.		
S-3	4.2-6.2	28 36	42 32	21	ND	Brown to Grey Brown, very dense, SILT, little fine to coarse Sand, some Quartz. Iron-oxide staining.		
S-4	6.2-8.2	13 16	16 16	20	0.5	Grey to Brown, medium dense, SILT, little Gravel, little fine to coarse Sand. Wet.		
S-5	8.2-10.2	28 14	32 16	24	0.5 /2	Upper 10" Brown, dense, SILT and SHALE fragments, some (-) fine to coarse Sand. Lower 14" Grey, dense, SHALE.	8.2 10.2	

LITHOLOGY LEGEND: SILT; DEGRADED/WEATHERED SHALE

NOTES

1. Soil samples were screened in the field for the presence of VOCs using an Hnu Model PI-101 Photoanalyzer equipped with an 11.7 eV lamp. The results are reported in Hnu Units.
2. A "ND" indicates No Detection.
3. Depth reported in feet below the surface of the ground.

Closure Assessment – Analytical Data Summary

TABLE 1

BUILDING 179 CONCRETE UST INVESTIGATION
SOIL ANALYTICAL RESULTS

Sample ID	Depth (feet below surface)	PID Reading (ppm)	Total Cyanide (ppm)	Total Cadmium (ppm)	PGDN (ppm)	Volatile Organic Compounds (ppm)	
B-1	0 - 1	0	NA	NA	NA		NA
	5 - 7	0.6	NA	NA	ND		NA
	10 - 12	72	ND	ND	ND	Methylene Chloride	0.015B
	10 - 12	310	NA	NA	NA		NA
B-2	0 -1	3	NA	NA	NA		NA
	5 - 7	2	NA	NA	NA		NA
	10 - 12	4	NA	NA	NA		NA
	10 - 12	135	ND	ND	ND	n-Butylbenzene	0.19
						p-Isopropyltoluene	0.056
						1,2,4-Trimethylbenzene	0.31
						1,3,5-Trimethylbenzene	0.074
						Methylene Chloride	0.061B
B-3	0 - 1	7,500	NA	NA	NA		NA
	5 - 7	28	NA	NA	NA		NA
	10 - 12	45	NA	NA	NA		NA
	10 - 12	45	ND	ND	ND	Methylene Chloride	0.012B
B-4	0 - 2	12	NA	NA	NA		NA
	2 - 4	26	NA	NA	NA		NA
	4 - 6	10	NA	NA	NA		NA
	6 - 8	5	NA	NA	NA		NA
	8 - 10	4	NA	NA	NA		NA
	10 - 12	0	NA	NA	NA		NA
	10 - 12	0	NA	NA	NA		NA
LABORATORY DETECTION LIMITS:			0.88 ppm	1.0 ppm	1.0 ppm	Detection limits vary	

NOTES:

1. Soil samples collected by the Environmental Compliance Group, Inc. on 21 June 1995
2. PID Indicates field analysis for the presence of vapor phase VOCs using a portable photo ionization detector (PID).
3. PGDN = Propylene Glycol Dinitrate (component of Otto fuel II)
4. ND = Not detected
5. NA = Not analyzed
6. ppm = Parts per million, mg/l
7. B = Compound Identified in Blank Sample

TABLE 2
BUILDING 179 CONCRETE UST INVESTIGATION
GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-1				MW-2				MW-3			
Date	12 JULY 95	18 AUG 95	25 AUG 95	5 OCT 95	12 JULY 95	18 AUG 95	25 AUG 95	5 OCT 95	12 JULY 95	18 AUG 95	25 AUG 95	5 OCT 95
Total Cyanide (ppm)	0.018	0.01	0.02	0.01	ND	ND	0.03	0.02	ND	0.01	0.02	0.02
PGDN (ppm)	ND	0.06		ND	0.47	0.06		0.36	ND	ND		ND
Flashpoint (degrees F)				>150				>150				>150
Volatile Organic Compounds (ppm)												
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND
Chloroethane	15	23.5	20.8	14	ND	11	ND	10	ND	5.0	5.75	4.5
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	6.3	ND	ND	ND
1,1-Dichloroethane	3.5	ND	ND	2.4	ND	ND	ND	ND	4.6	3	2.85	4.6
Methylene Chloride	1.80 B	ND	ND	ND	23.0 B	ND	ND	7.3	0.63 B	ND	0.25	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	310	97	164	140	3.0	2.4	2.75	3.1
Total VOCs	20.3	23.5	20.8	16.4	333	108	164	157.3	15.73	10.4	11.6	12.2
Semi-Volatile Organic Compounds												
4-Methylphenol				0.031				5 J				ND
Naphthalene				ND				0.039				8J
Di-n-butylphthalate				ND				0.021				ND
Total SVOCs				0.031				0.06				ND
Petroleum Constituents (ppm)												
Probable Mineral Spirits				ND				93				ND
Inderminate Mineral Spirits				0.44				ND				0.19
Indeterminate No. 6 Fuel Oil				0.91				ND				0.73
Indeterminate Lubricating Oil				ND				24				ND
Metal Constituents (ppm)												
Arsenic				0.0695				0.025				0.0766
Chromium				0.0228				0.0225				0.0194
Cadmium	ND	0.01	ND		ND	ND	ND		ND	0.01	ND	
Copper				0.0342				0.0359				0.0331
Lead				0.0073				0.0149				0.0092
Mercury				ND				0.0001 B				ND
Nickel				0.0339				0.0354				0.0299 B
Selenium				0.0015 B				0.0096 B				ND
Silver				0.002 B				ND				ND
Zinc				0.0676				0.0746				0.0761

1. Blanks indicate that this compound was not analyzed for this event.
2. PGDN = propylene glycol dinitrate (torpedo fuel)
3. ND = Not detected
4. ppm = parts per million, mg/l
5. B = Compound identified in Blank Sample
6. Probable = Denotes similarity between chromatographs and one or more commercial materials
7. Indeterminate = Indicates that significant difference exists between sample and commercial products

87. Estimated concentration below the detection limit.

Geo Logic, INC.
EARTH EXPLORATION SERVICES
ELM STREET HOPKINTON, MASSACHUSETTS 01748
(508) 435-5543

CLIENT Environmental Compliance
PROJECT Naval Undersea Warfare Ctr.
LOCATION Middleton, Rhode Island

Boring # MW-1
Page 1 of 1

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	--
SIZE	4-1/4"	3"	--
HAMMER	--	300#	--
FALL	--	30"	--

Surface El: _____
Station _____

Ground water

Date	Depth

GLI File # 95107
Driller J. Galvin
Consultant K. DiMuccio
Date Start/Finish 6/21/95

Depth	Casing Blows/ft	Sample No.	Sample Depth	Sample Pen.	Sample Rec.	Sample Blows/6"	Strata Change	Sample Description
		S1	0.5'-2.5'	24"	24"	3-2	0.5	ASPHALT
						3-4		S1 Loose sandy FILL with some silty clay
		S2	5'-7'	24"	24"	2-2		S2 Medium stiff gray CLAY with some silt, trace medium gravel
						6-10		
		S3	10'-12'	24"	24"	9-8		S3 Medium dense weathered BEDROCK
						11-13		Bottom of exploration @ 12.0'
								Observation well installed @ 12.0'

Proportions Used:

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35 to 50%

Cohesive Consistency (Blows/Ft.)

0-2	Very Soft	9-15	Stiff
3-4	Soft	16-30	V-Stiff
5-8	M-Stiff	31+	Hard

Cohesionless Density

0-10	Loose
10-30	M-Dense
30-50	Dense
50+	V-Dense

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks

Geo Logic, INC.
EARTH EXPLORATION SERVICES
86 ELM STREET HOPKINTON, MASSACHUSETTS 01748 (508) 435-5543

CLIENT Environmental Compliance
PROJECT Naval Undersea Warfare Ctr.
LOCATION Middleton, Rhode Island

Boring # MW-2
Page 1 - of - 1

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	--
SIZE	4-1/4"	3"	--
HAMMER	--	300#	--
FALL	--	30"	--

Surface El: ____
Station ____

Ground water

Date	Depth

GLI File # 95107
Driller J. Galvin
Consultant K. DiMuccio
Date Start/Finish 6/21/95

Depth	Cas bl/ ft	Sample No.	Sample Depth	Pen.	Rec.	Blows/6"	Strata Change	Sample Description
		S1	0'-2'	24"	24"	2-6		S1 Medium dense brown SAND, fill some medium gravel
						7-6		
5'		S2	5'-7'	24"	24"	3-6		S2 Stiff gray CLAY, some silt, till, medium gravel
						6-10		
10'		S3	10'-12'	24"	24"	5-7		S3 Medium dense weathered BEDROCK
						13-30		Bottom of exploration @ 12.0'
								Observation well installed @ 12.0'
15'								
20'								
25'								
30'								

Proportions Used:

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35 to 50%

Cohesive Consistency (Blows/Ft.)

0-2	Very Soft	9-15	Stiff
3-4	Soft	16-30	V-Stiff
5-8	M-Stiff	31+	Hard

Cohesionless Density

0-10	Loose
10-30	M-Dense
30-50	Dense
50+	V-Dense

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks

eo Logic, INC.
RTH
PLORATION
RVICES
A STREET
HOPKINTON, MASSACHUSETTS 01748
(508) 435-5543

CLIENT Environmental Compliance
PROJECT Naval Undersea Warfare Ctr.
LOCATION Middleton, Rhode Island

Boring # MW-3
Page 1 - of - 1

	CASING	SAMPLER	CORE BARREL
PE	HSA	SS	--
ZE	4-1/4"	3"	--
AMMER	--	300#	--
ALL	--	30"	--

Surface El:
Station
Ground water

Date	Depth

GLI File # 95107
Driller J. Galvin
Consultant K. DiMuccio
Date Start/Finish 6/21/95

lh	Cas bl/ ft	Sample No.	Depth	Pen.	Rec.	Blows/6"	Strata Change	Sample Description
		S1	0.5'-2.5'	24"	24"	2-3	0.5	ASPHALT
						3-3		S1 Loose sandy FILL, some gray silt
		S2	5'-7'	24"	24"	2-1		S2 Soft gray CLAY, some medium gravel
						2-2		
		S3	10'-12'	24"	24"	7-9		S3 Medium dense weathered BEDROCK
						11-11		Bottom of exploration @ 12.0'
								Observation well installed @ 12.0'

Proportions Used:

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35 to 50%

Cohesive Consistency (Blows/Ft.)

0-2	Very Soft	9-15	Stiff
3-4	Soft	16-30	V-Stiff
5-8	M-Stiff	31+	Hard

Cohesionless Density

0-10	Loose
10-30	M-Dense
30-50	Dense
50+	V-Dense

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks

Geo Logic, INC.
EARTH EXPLORATION SERVICES
86 ELM STREET
HOPKINTON, MASSACHUSETTS 01748
(508) 435-5543

CLIENT Environmental Compliance
PROJECT Naval Undersea Warfare Ctr.
LOCATION Middleton, Rhode Island

Boring # B-4

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	--
SIZE	4-1/4"	3"	--
HAMMER	--	140#	--
FALL	--	30"	--

Surface El: ____
Station ____

Ground water

Date	Depth

GLI File # 95107
Driller J. Galvin
Consultant K. DiMuccio
Date Start/Finish 6/21/95

Depth	Casbl/ft	Sample No.	Sample Depth	Pen.	Rec.	Blows/6"	Strata Change	Sample Description
		S1	0'-2'	24"	4"	12-14		S1 Medium dense FILL, brown sand, medium gravel
						16-16		
		S2	2'-4'	24"	3"	8-7		S2 Very stiff gray CLAY, some silt, trace medium gravel
						13-10		
		S3	4'-6'	24"	3"	2-4		S3 Very stiff gray CLAY, some silt, trace medium gravel
5'						7-7		
		S4	6'-8'	24"	24"	2-1		S4 Very stiff gray CLAY, some silt, trace medium gravel
						1-2		
		S5	8'-10'	24"	24"	7-11		S5 Very stiff gray CLAY, some silt, trace medium gravel
						17-18		
10'		S6	10'-12'	24"	24"	13-19		S6 Very dense weathered BEDROCK
						31-60		Bottom of exploration at 12.0'
15'								
20'								
25'								
30'								

Proportions Used:

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35 to 50%

Cohesive Consistency (Blows/Ft.)

0-2	Very Soft	9-15	Stiff
3-4	Soft	16-30	V-Stiff
5-8	M-Stiff	31+	Hard

Cohesionless Density

0-10	Loose
10-30	M-Dense
30-50	Dense
50+	V-Dense

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks

Foster Wheeler Environmental Corporation
Draft Project Close-Out Report for
Building 179 Remediation

DRAFT
PROJECT CLOSE-OUT REPORT
FOR
BUILDING 179 REMEDIATION
AT
NAVAL UNDERWATER WARFARE CENTER (NUWC)
NEWPORT, RHODE ISLAND

Issued:

October 1999

Prepared for:

Naval Facilities Engineering Command
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REMEDIAL ACTION CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. O13C

Prepared By:
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PROJECT CLOSE-OUT REPORT
FOR
BUILDING 179 REMEDIATION
NAVAL UNDERWATER WARFARE CENTER (NUWC)
NEWPORT, RHODE ISLAND

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1.0 INTRODUCTION/PROJECT OBJECTIVES

Foster Wheeler Environmental Corporation (Foster Wheeler) was contracted by the Northern Division, Naval Facilities Engineering Command (Navy) to complete Remedial Activities, prior to the Building 179 reconstruction at the Naval Undersea Warfare Center (NUWC) located in Middletown, Rhode Island. Remedial activities included: concrete demolition, in-situ characterization of soils, railroad track removal, treatment of ground water, soil excavation, post-excavation sampling, concrete underground storage tank (CUST) closure, the transportation and disposal of wastes generated, and site restoration. This Project Close-out Report is being submitted to summarize the above-mentioned remedial activities. This report will provide the documentation and figure requirements specified in sections 5.1 and 5.2 of the Building 179 Reconstruction Incidental Cleanup Work plan dated July 18, 1997 for Delivery Order No. 013 (Foster Wheeler's Delivery Order 13C) under Remedial Action Contract No. N62472-94-R-0398.

1.1 Project Location and Description

The Naval Underwater Warfare Center (NUWC) is located in the towns of Newport, Middletown, and Portsmouth, Rhode Island, approximately 25 miles southeast of Providence. Building 179 is situated in the eastern portion of NUWC, in Middletown (Figure 1).

Building 179 is located east of Cunningham Street along the easterly edge of the NUWC Division Facilities (Figure 2). Building 179 along with surrounding Buildings 438, 1180, 1301, and 1303 form a significant portion of the Propulsion Test Facility (PTF) at NUWCDIVNPT. The PTF supported the Navy in testing, research, and development of torpedo propulsion systems.

The area in the vicinity of Building 179 has been characterized as heavily developed with a variety of both above and below grade process structures to support PTF testing functions. In the immediate vicinity of the building is a crushed stone roadway to the east, an open paved area to the north and south, and aboveground process equipment located adjacent to and west of the building.

In addition, a heavily vegetated, freshwater wetland area is located east of Building 179 and support areas. A stream is present within the wetland area, located approximately 85 feet from Building 179. The limits of this freshwater wetland were delineated and included in the Preliminary Determination Application submitted to the RIDEM Division of Freshwater Wetlands for the Building 179 reconstruction project.

Topographic relief in the area immediately surrounding the building is relatively flat. However, a downward slope with topographic relief of between six and eight feet is located along the wetland side of the building.

Building 179 was constructed in 1961 on property owned by the Navy. At the time of the construction of Building 179, the subject, concrete underground storage tank (CUST) was

constructed to support torpedo test activities within the Building. In 1992, stainless steel tanks were placed inside the CUST to further support the Building's torpedo testing activities. On February 24, 1995, a torpedo test failure resulted in damage to Building 179 and materially reduced the operational capacity of the building. Since that time, limited test activities resumed at the neighboring buildings and continued through the period of reconstruction.

1.2 Historic Environmental Conditions

Previous environmental investigations have determined that soils in the vicinity of Building 179 have been impacted by historic facility operations.

In November 1995, TRC Environmental (TRC) was tasked by NUWC Division to conduct an evaluation of soil and ground water conditions surrounding Building 179. This investigation was conducted to determine whether contamination would be encountered within the area, which may be disturbed as a result of the reconstruction of Building 179. The initial scope of the investigation involved the installation of five soil borings and three groundwater, monitoring wells outside the perimeter of the Building 179 footprint. Results of this investigation revealed VOC and TPH detection's, with 1,1,1-Trichloroethane comprising of the majority of the VOC detection's in soils. Groundwater sample analysis indicated detection's for 1,1,1-Trichloroethane, 1,1-dichloroethane, TPH, Cyanide, and PGDN. A second exploratory investigation was performed by TRC in April 1996 to inspect the soil characteristics directly beneath Building 179. The sub-slab investigation included nine borings through the floor of the Building 179 and one soil sample from each boring for laboratory analyses. The results indicated that VOCs, namely acetone, 1,1,1-trichloroethane, ethylbenzene, and total xylene were detected.

The following summary best describes the compounds and areas of concern based on previous investigations. Specifically, Otto Fuel (torpedo fuel), and chlorinated solvent contaminated soils were identified beneath and to the northeast of the building. The main component of Otto fuel is PGDN. The area around Test Cell 4 or beneath the northeast corner of Building 179 exhibited the highest concentrations of soils containing 1,1,1-trichloroethane, which exceeded the hazardous waste land ban disposal limits.

1.3 Project Objectives

The objectives of this project included: the in-place characterization of the soils to be removed to allow reconstruction; the removal of the concrete slabs and foundation walls; the removal of soils within the footprint of the building reconstruction; the closure of the CUST; restoration of areas up to the new construction limits, and the restoration of areas outside of the new construction limits.

Figure 1

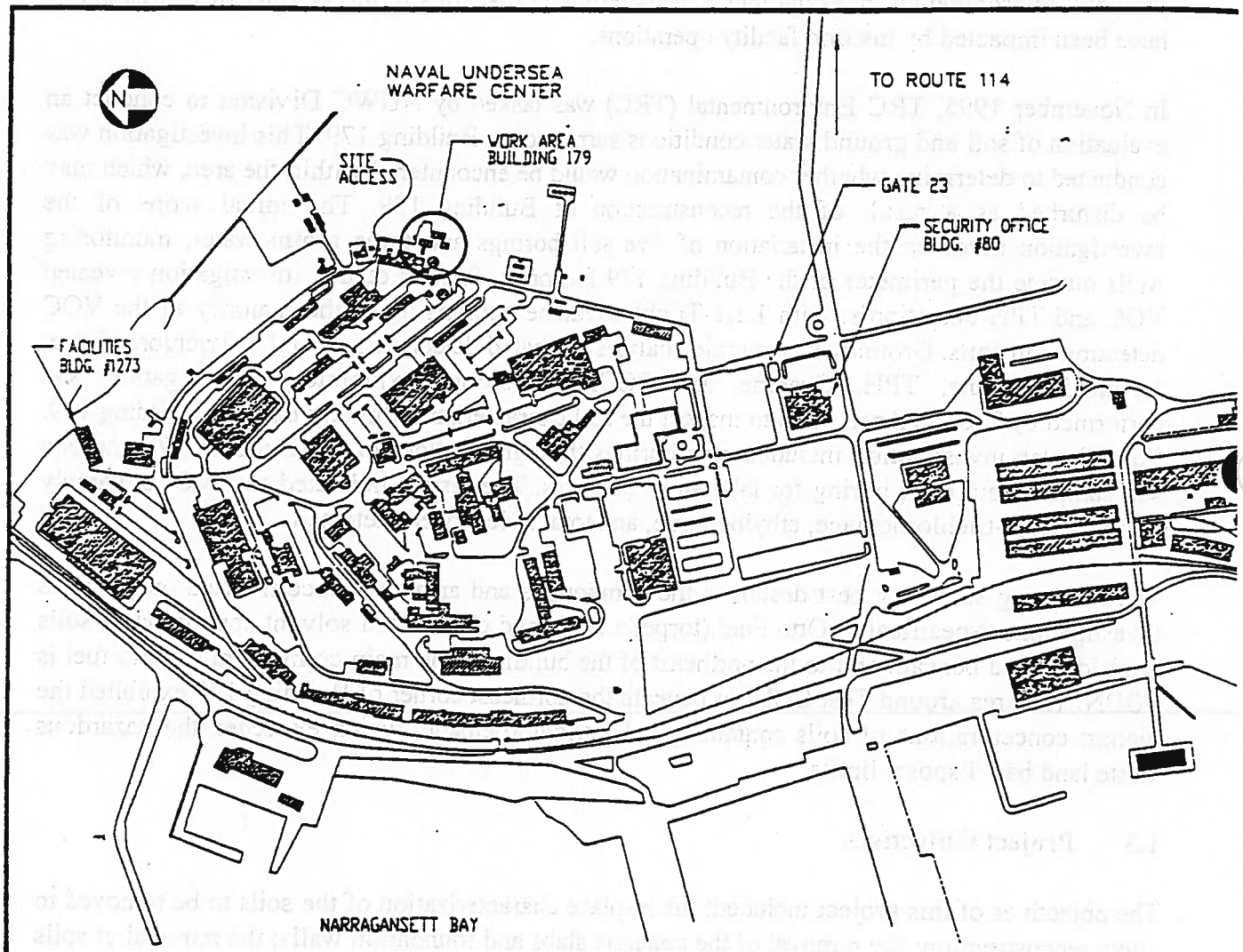
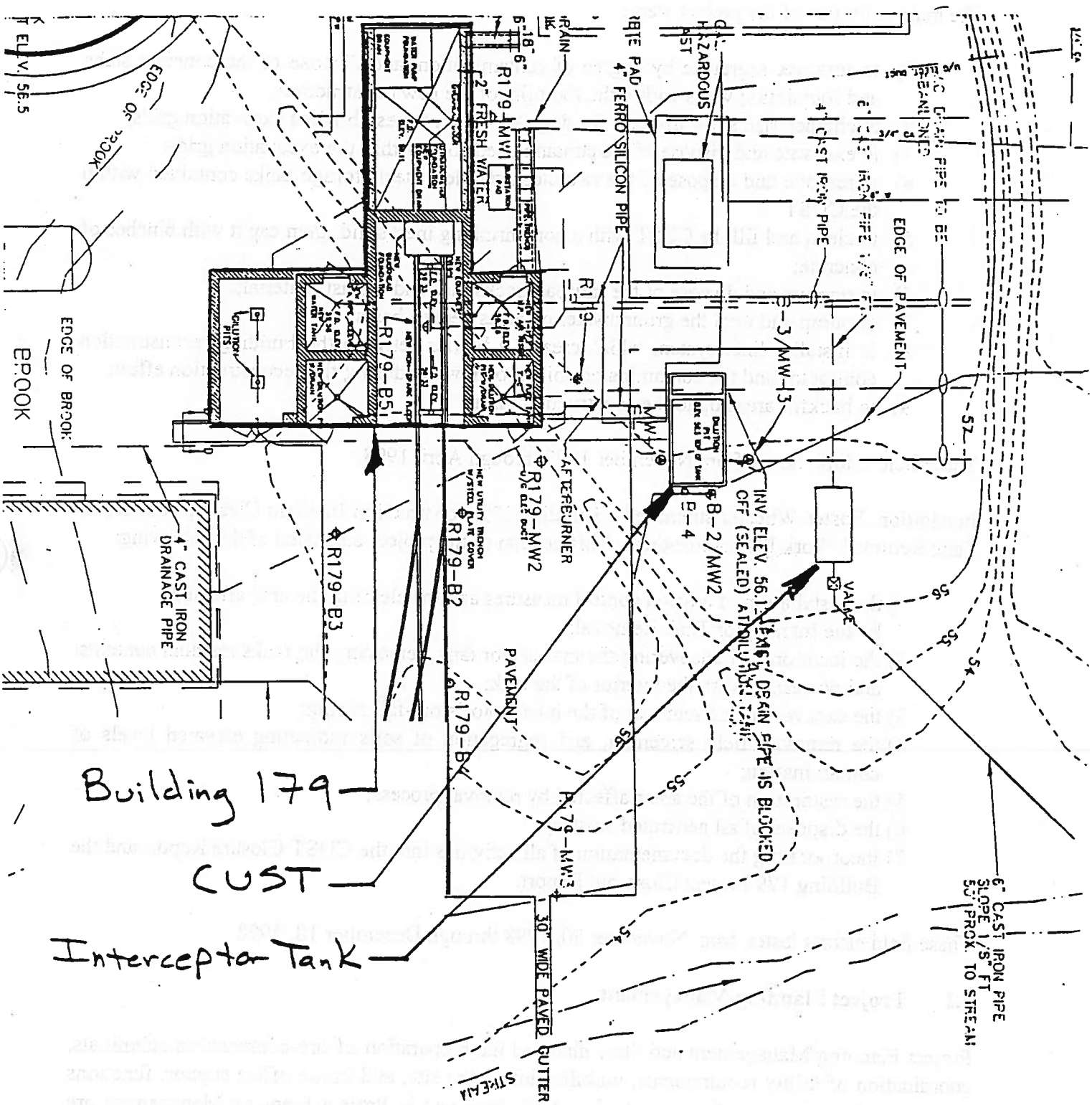

NAVAL UNDERSEA
WARFARE CENTER
TO ROUTE 114
WORK AREA
BUILDING 179
SITE
ACCESS
GATE 23
SECURITY OFFICE
BLDG. #80
FACILITIES
BLDG. #1273
NARRAGANSETT BAY
LOCATION MAP
NOT TO SC

Figure 2


Building 179
CUST
Interceptor Tank
EDGE OF BROOK
BROOK
EDGE OF PAVEMENT
4" CAST IRON DRAINAGE PIPE
R179-B1
R179-B2
R179-B3
R179-MW1
R179-MW2
B-2/MW2
B-3/MW-13
B-4
AFTERBURNER
2" FRESH WATER
4" FERRO SILICON PIPE
HAZARDOUS
VALVE
PAVEMENT
30" WIDE PAVED GUTTER
STREAM
6" CAST IRON PIPE
SLOPE 1/8" FT
50' PROX. TO STREAM

2.0 PROJECT ACTIVITIES

The main activities of the project were:

1) to remove, segregate by degree of contamination, and dispose of the concrete slabs and foundation walls within the footprint of the new construction;
2) to characterize soils, in-place for disposal within the established excavation grids;
3) to excavate and dispose of the contaminated soils within the excavation grids;
4) to remove and dispose of the two clean stainless steel storage tanks contained within the CUST;
5) to clean and fill the CUST with a non-shrinking inert solid, then cap it with 6inches of concrete;
6) to remove and dispose of the railroad tracks, ties and ballast materials;
7) to pump and treat the groundwater on an as needed basis;
8) to install a liner system which created a barrier between the building reconstruction contractor and the contaminated soils/groundwater during the reconstruction effort;
9) to backfill areas up to the construction limits.

These field efforts lasted from November 1997 through April 1998.

In addition, Foster Wheeler submitted a Building 179 Construction Incident Cleanup Interceptor Tank Removal Work Plan Addendum. This portion of the project consisted of the following:

1) the installation of erosion control measures and the clearing the area affected by the Interceptor Tank Removal;
2) the location and uncovering the interceptor tank, removing the tanks residual contents, and powering wash the interior of the tank;
3) the excavation and removal of the interceptor's out-fall piping;
4) the removal, field screening, and segregation of soils indicating elevated levels of contamination;
5) the restoration of the areas affected by removal process;
6) the disposal of all generated wastes;
7) incorporating the documentation of all activities into the CUST Closure Report and the Building 179 Project Close-out Report.

These field efforts lasted from November 30, 1998 through December 18, 1998.

2.1 Project Planning/Management

Project Planning/Management activities included the preparation of pre-construction submittals, coordination of utility requirements, mobilization to the site, and home office support functions during the time period of the project. The tasks involved in Project Planning/Management are described below.

2.1.1 Pre-Construction Submittals

Foster Wheeler prepared and submitted the following pre-construction documents to the Navy.

Final Work Plan
The Final Work Plan (for Building 179) describing Foster Wheeler's approach to project execution was issued on July 18, 1997, to the Naval Facilities Engineering Command. This Work Plan included the site description, project organization, permitting requirements, site preparation approach, soil removal activities, and site restoration. The Work Plan Addendum for the removal of the Interceptor Tank was issued November 25, 1998.

Final Health and Safety Plan (HASP)
The final HASP (for Building 179) included Foster Wheeler's approach to ensuring the health and safety of its employees and others during the project. The Final HASP for the project was submitted on August 7, 1997 to the Naval Facilities Engineering Command.

2.1.2 Home Office Support

Foster Wheeler's Langhorne, Pennsylvania office provided home office support throughout the duration of the project. Home office support included procurement and subcontract agreement support along with the preparation of the required financial, technical, and monthly progress reports.

2.2 Permit and Report Preparation and Submission

2.2.1 Wetlands Permit

A wetlands permit was not required. The RIDEM Wetland division was notified by NUWC on the relationship of the project's boundaries to the delineated wetlands. FWENC was required to submit Drawing C-1SR and detail drawing C-4SR depicting the placement of the soil erosion control measures to protect the wetlands. Appendix A contains Drawings C-1SR and detail drawing C-4SR. No other submittal was required.

2.2.2 Dig Safe Permit

Foster Wheeler obtained the dig safe permits from the NUWC prior to any excavation activities. On October 21, 1997 and December 15, 1997 approval was received for initial concrete and soil removal for Grid Numbers 1 through 18. On October 21, 1998, and November 16, 1998 for Grid Number 19, and November 21, 1998 for work to be completed at the Interceptor Tank and associated piping. Utilities were marked-out prior to excavation activities.

2.2.3 Water Treatment Discharge Permit

The NUWC Facility submitted to the City of Newport Utilities Department, a letter seeking approval to discharge treated waters to the Publicly Owned Treatment Works (POTW). Foster Wheeler was granted approval to discharge treated water on December 17, 1997.

2.2.4 Project Close-out Report

This Project Close-out Report has been prepared in accordance with NAVFAC guidelines. The report includes a summary of activities completed, location and quantities of soil and wastes removed, analytical results, and disposal data. The CUST and Interceptor Tank closure is a stand-alone document that was transmitted under separate cover and the transmittal form and cover page found in Appendix B of this report.

2.3 Mobilization and Site Preparedness

2.3.1 Mobilization

Mobilization began on November 3, 1997, with the placement of the support area shower trailer and the installation of the Water Treatment System. Foster Wheeler left these Facilities in place for the duration of the project.

2.3.2 Dust Control

Potable water was available to be used as a dust control measure. Moist conditions prevailed and dust control was not necessary.

2.3.3 Soil Erosion and Sediment Control

An Erosion Control Plan was submitted to the Navy within the Building 179 Work Plan for approval prior to the start of any excavation activities. Erosion and sediment controls were installed to the limits as designated on the Building 179 Naval Undersea Warfare Center, Excavation Site Plan drawing, C-1SR. Control measures consisted of placing a 2-foot silt fence filter fabric, buried 4 inches, and augmented with hay bales. Erosion and sediment controls were installed prior to the start of any activities and were inspected on a daily basis.

Foster Wheeler installed a stabilized construction apron at the entrance to the removal area. This apron was removed with the excavation of Grid 19 and the removal of the Interceptor Tank. The existing paved roadways were used to move the containerized wastes to an adjacent paved area for temporary staging prior to shipment.

The soil erosion and sediment controls were maintained throughout the duration of the project. As areas were stabilized control measures were removed. All have been removed with the exception of those, which protect the area disturbed during the Interceptor Tank removal. These will be left in-place until sufficient vegetation has been established to prevent damage.

2.3.4 Spill and Discharge Control

Foster Wheeler began activities at Building 179 on November 3, 1997. The last field activity was completed on December 11, 1998. The Spill and Discharge Control Plan was outlined in Section 4.1.4 of the Work Plan. No spills or accidental discharges occurred during Building 179 activities.

2.3.5 Security

Site security was provided via fencing critical work areas in the Building 179 area with a 4-foot high fence. Barrier tape was placed to identify the outer perimeter of the entire work area; various signs identified all work areas for the potential hazards present. Visible fencing was used to indicate exclusion, support and contamination reduction zones.

2.3.6 Temporary Facilities

A temporary, personnel decontamination trailer was placed on the north side of Building 179, adjacent to the concrete vault and was closed in-place. A temporary 100 amp electrical service and potable water source for the trailer was provided by the NUWC facility. All decontamination water was directed to and contained in the temporary aboveground storage tank and pumped through the water treatment system. Toilet facilities consisted of two portable toilets staged in the clean zone. All other office-support equipment was staged at the Tank Farm No. 4/Tank Farm No. 5 site.

2.3.7 Equipment Decontamination Facilities

Foster Wheeler constructed temporary decontamination pads. The pads were constructed of polyethylene sheeting for water collection and the containment of contaminated residuals. All waters were treated through the water treatment system prior to discharge. The temporary decontamination pads and the contained contaminated residuals were disposed of with the soils generated during this project.

2.4 Concrete Slab/Foundation Demolition and Removal

Prior to the remediation efforts, the damaged portion of Building 179 was removed down the concrete slab (floor). This work was accomplished prior to the mobilization of Foster Wheeler. Foster Wheeler removed the remaining concrete floors to gain access for the in-place characterization of the soils to be removed to support the reconstruction effort.

The concrete slab and foundation walls were cut along the limits of removal. Portions of the building floor surface exhibited staining. The top surface areas, which were stained were identified and segregated during the removal process. The concrete foundations were removed during the excavation of the soils. An excavator with a hydraulic hammer attachment was used to demolish the concrete slab and foundation walls into landfill acceptable sizes. The removed concrete was staged in roll-off containers and sampled for the parameters and protocol specified

in Section 2.9.1 (Concrete Waste Disposal Characterization). A total of 220.27 tons of concrete was generated during the removal process. Refer to Section 3.1 for concrete disposal information.

2.5 Soil Removal

Prior to any soil removal, the analytical results from the in-place soil characterization effort was posted on the original Excavation Grid Plan drawing. (Appendix D) 19 Excavation Grids were excavated on an individual basis and care was taken not to mix grids of different soil classification. Soils were excavated and placed directly in DOT approved lined 30-cubic yard roll-off containers.

A 1 foot vertical to 1 foot horizontal slope was maintained at the base of existing structures and on the side walls of the excavations. This was done to prevent the potential undermining of existing structures and to provide a safe side wall condition for the purpose of entry.

Some moist soil conditions were encountered. To ensure that the soils would pass the paint filter test conditions were remedied by stabilizing the soils with Portland Cement prior to removal.

Throughout the excavation soils were field screened visually, screened olfactory for odors, and monitored for Volatile Organic Compounds (VOCs) with a FID for evidence of contamination. For those areas characterized as Land Ban, field screening was not an issue. However, for the soils designated as F002 (below Land Ban criteria) and Non hazardous soils the excavated soils were segregated using the following criteria: non-hazardous soils (less than 3 ppm) were segregated into roll-off containers. Soils greater than 10 ppm were designated F002 but below the Land Ban criteria. Segregated soil containers were then sampled as described in Section 2.9.3 Segregated Soil Waste Characterization.

A total of 1978.21 tons of soil was removed from grids 1 – 19.

2.6 Water Treatment

The Water Treatment System (WTS) consisted of a 20,000 gallon influent tank, one bag filter unit, one 1,800 lb. activated carbon filter vessel, one 18,00 lb. anthracite/bentonite clay filter vessel, and one 20,000 gallon treated water storage tank. The system discharged to an adjacent catch basin, which led to the POTW.

Water from within the excavation was pumped with electrical float activated submersible pumps, to a 20,000 gallon frac tank for storage prior to treatment. Sampling began on February 25, 1998 in accordance with the Enclosure (1) Building 179 Rehabilitation Project document - Water Discharge Requirements dated February 24, 1998. As specified in this document, Foster Wheeler collected five well spaced grab samples from the sample port on the WTS during the initial thirteen hour period of treatment and relinquished these samples to R.I. Analytical Services for VOC (EPA Method 8260) and TPH (EPA Method 8015). One representative aliquot was also collected from hourly grab samples until the contents of the 20,000 gallon influent frac tank was

processed through the WTS. The processed water directed to a 20,000 gallon frac tank for storage until analytical results were submitted and discharge was approved. Daily samples were collected and analyzed for pH, VOC (EPA Method 8260), and TPH (EPA Method 8015). The discharge rate was restricted to 25 gallons per minute (GPM) as set forth by NUWC.

The discharging of treated waters began on March 7, 1998 and was completed on December 14, 1998. During the duration of the project, approximately 224,333 gallons of water was treated through the WTS and discharged to the POTW, Newport, RI. Appendix C contains the POTW Appendix C (Industrial User Self-Monitoring Report).

Upon completion of the project the water treatment system was decontaminated and demobilized. The filter media was removed and placed into a roll-off container along with the secondary containment liner. All sediments, contained in the influent tank, were placed in drums, as was the residual wash water. These wastes were characterized as specified in Section 2.9.4 of this document.

2.7 Railroad Track and Railroad Tie Removal

The railroad tracks located east of Building 179 were removed during this field effort. An Excavator was used to remove and load the rails and ties. The railroad ties were loaded out with the dirt from the area for disposal. The steel ties were removed and inspected for cleanliness. Any residual dirt was removed from the rails. The steel was sent for metal recycling.

2.8 Concrete Underground Storage Tank (CUST) Closure

Foster Wheeler has prepared a Tank Closure Report summarizing the activities associated with the CUST closure. The report was written to satisfy the Rhode Island Department of Environmental Management (RIDEM) Regulation DEM-DWM-UST05-93 Section 15.10, as detailed by the July 1992 RIDEM guidance document entitled: Department of Environmental Management UST Closure Assessment Guidelines. The report was designed to read as a stand-alone document and provides the documentation and figure requirements specified in sections 5.1 and 5.2 of the Building 179 Reconstruction Incidental Cleanup Work plan dated July 18, 1997. The report summarizes all work completed. See Appendix B (Project Closure Report for Building 179 Tank Closures).

2.9 Waste Disposal Characterization

2.9.1 Concrete Waste Disposal Characterization

The concrete waste generated was initially segregated into rolloffs based on the presence of visual staining.

For each roll-off, a discrete concrete chip sample was collected for every 5 cubic yards of concrete. These samples were combined to produce one composite sample per roll-off container. These samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260,

Semi-Volatile Compounds (SVOCs) by EPA Method 8270, total cyanide, and Total Petroleum Hydrocarbons. In addition, a TCLP extraction for VOCs, SVOCs, and metals was performed on each composite sample. Based on the initial data, Foster Wheeler instructed the laboratory as to which TCLP extractions to analyze for further classification. Additional waste disposal characterization parameters included ignitability, reactivity, corrosivity, RCRA 8 metals, and paint filter.

2.9.2 In-Place Characterization of Soils

After the removal of concrete, the underlying soils were divided into a grid system according to Foster Wheeler Site layout and Sampling Grid Plan drawing. A Geoprobe Sampler was used to collect between 4 and 5 soil samples from each of the 19 excavation grids. Borings were taken from the ground surface to the bottom of the designated excavation depth.

As part of the characterization of the soils, all field samples were screened using a Flame-Ionization Detector (FID). In each grid, if all of the samples taken indicated a FID reading of less than 3 ppm, one composite sample was submitted for laboratory analysis. In the instance that FID readings greater than 3 ppm were observed, the sample with the highest reading was submitted for laboratory analysis. Samples were sent to Mitkem Corporation in Warick, Rhode Island and analyzed for the following: VOCs by EPA Method 8260, SVOCs by EPA Method 8270, total cyanide, and TPH. A TCLP extraction for VOCs, SVOCs, and metals was also performed. Lastly, waste disposal acceptance parameters included ignitability, reactivity, corrosivity, total RCRA metals, and a paint filter test were performed on the samples.

2.9.3 Segregated Soil Waste Characterization

Soils which, were segregated and staged in roll-off containers were characterized as follows: Samples were collected from areas of obvious contamination or from four randomly spaced locations within the roll-off container. Each discrete soil sample was placed in laboratory supplied bottleware and analyzed as the above reference In-Place Characterization of soils were.

2.10 Post Excavation Sampling and Analysis

After soils were removed to the excavation limits post excavation samples were collected to confirm that the appropriate remedial objectives were met. Post Excvavation samples were collected on February 2 and 3, 1998 from the floor and sidewalls of the excavations, the results are shown on Appendix H.

The samples were field screened for VOC's via jar head-space analysis utilizing the Foxboro OVA 128 (FID) to verify that the area has been successfully cleaned prior to sampling. Soil samples were collected within a twelve-inch circle of the sample location, using a decontaminated stainless steel trowel and placed in a decontaminated stainless steel bowl for homogenization. Before homogenization, the aliquot specified for VOC (USEPA method 8260) analysis was placed into the appropriate bottleware and the remainder of the sample thoroughly mixed and placed in laboratory bottleware designated for TPH (USEPA method 418.1), SVOCs

(USEPA method 8270), and total cyanide (USEPA method SW-846-9010) on a 72-hour turnaround. 23 samples were collected from locations within the excavation exhibiting possible discoloration due to possible "dye staining" and relinquished to NUWC personnel to be analyzed for PGDN by Indian Head Division of the Naval Surface Warfare Center at Indian Head, Maryland. The results from these samples revealed no PGDN at these locations.

2.11 Site Restoration

Once the extent of the excavation was completed and the post-excavation analytical results were obtained, the areas outside the reconstruction effort were backfilled up to existing grade. Two well casings were placed within the footprint of the Building reconstruction area. These casings were used as dewatering points during the restoration period. Crushed 1.5 inch stone was placed into the excavation within one foot of reconstruction sub-grade. A woven textile separation fabric was installed over the stone bed and one foot of clean backfill material (see Appendix E), was placed and compacted to restore subgrade for railroad track installation. The final lift within the railroad track area consisted of approximately 4-inches of crushed stone. Area was then turned over to the re-construction Contractor.

Post liner installation real time air monitoring was performed by Foster Wheeler using Tenax tubes and a 50-60 cc/min SKC Aircheck sampling pumps to sample for PGDN. The pumps were placed on top of the liner in cells 5 and 10 the first day and 7 and 9 on the second for approximately eight hours each day to achieve a total sample air volume of 20 to 30 liters. During this Time Weighted Average air sampling event real time air monitoring was conducted with the Foxboro 128 organic vapor analyzer to monitor for VOCs every fifteen (15) minutes. In addition detector tubes were used to monitor for 1,1,1 trichloroethylene once every hour. Data Chem laboratories was used to analyze the Tenex tubes for PGDN. Results from Data Chem laboratories revealed no PGDN contamination above or in the vicinity of the Post Excavation Liner.

During construction of Building 179, Foster Wheeler provided full time air monitoring using the Foxboro 128 organic vapor analyzer to monitor for volatiles every fifteen minutes. This monitoring continued until the Building footings were installed and construction personnel were no longer in contact with the separation fabric. No exceedences were recorded during the above activities.

3.0 Waste Disposal

3.1 Concrete Disposal

139.20 tons of concrete exhibited 1,1,1-trichloroethane concentrations greater than 6 ppb. This waste was classified as RCRA F002 Hazardous Waste Concrete and was disposed of at Wayne Disposal Incorporated, Belleville Michigan. In addition, 81.03 tons of concrete was disposed of as non-hazardous waste at Bardon Trimount, Stougton Massachusetts and Fall River Landfill in Massachusetts.

3.2 Soil Disposal

There were two waste classifications, for the soils removed from excavation grids 1-19, Hazardous and Non-hazardous. From girds 1-19 a total of 160.13 tons of Non-hazardous soils were shipped to the Fall River Landfill in Massachusetts. A total of 1978.21 tons of Hazardous soils were shipped to Stablex Canada Inc., Quebec and Wayne Disposal in Michigan, for disposal.

3.3 Water Treatment Derived Waste Disposal

The filter media was disposed of at the Ensco Incorporated facility in El Dorado, Arkansas. A total of 1.12 tons of media was disposed of.

The drummed waste was disposed of at the Ensco Incorporated facility in El Dorado Arkansas.

4.0 DOCUMENTATION

Documentation of operations, record keeping, photographic evidence of work performed, and analytical results are, provided in this Project Close-out Report. Appendix F contains disposal documentation, Appendix H contains Analytical Results and Appendix G of this report is the photographic log recording the activities, which took place at Building 179 Remediation. Photographs documented the existing conditions prior to work, during activities, and during restoration. Photograph location, date, and description of the activity recorded is included in the photo documentation log.

5.0 CONCLUSION

All activities pertaining to the Building 179 Remediation have been completed in accordance with the Final Work Plan and all applicable permits, and Federal, State, and Local regulations. The Building 179 Remediation for which Foster Wheeler Environmental was contracted by the Northern Division, Naval Facilities Engineering Command is complete.

This Project Close-out Report satisfies the post-construction submittal requirements included in the Statement of Services for Delivery Order No. 013B (Foster Wheeler's Delivery Order No. 13C) under Remedial Action Contract No. N62472-94-D-0398.

Foster Wheeler Environmental Corporation
Final Project Closure Report for
Building 179 Tank Closures

FINAL
PROJECT CLOSURE REPORT
FOR
BUILDING 179 TANK CLOSURES
AT
NAVAL UNDERSEA WARFARE CENTER (NUWC) DIVISION
NEWPORT, RHODE ISLAND

Issued:

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REMEDIAL ACTION CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. O13C

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PROJECT CLOSURE REPORT
FOR
BUILDING 179 TANK CLOSURES
NAVAL UNDERSEA WARFARE CENTER (NUWC) DIVISION NEWPORT
NEWPORT, RHODE ISLAND

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1.0 INTRODUCTION/PROJECT OBJECTIVES

Foster Wheeler Environmental Corporation (Foster Wheeler) was contracted by the Northern Division, Naval Facilities Engineering Command (Navy) to complete remedial activities prior to Building 179 reconstruction at the Naval Undersea Warfare Center (NUWC) Division, Newport facility located in Middletown, Rhode Island. Remedial activities included: concrete demolition, soil excavation, post-excavation sampling, in-situ characterization of contaminated soils, concrete underground storage tank (CUST) closure, railroad track removal, transportation and disposal of generated wastes, interceptor tank removal, and site restoration. This Tank Closure Report is being submitted to summarize the activities associated with the closure of the CUST and an associated interceptor tank.

1.1 Project Location and Description

The NUWC Division, Newport facility is located in the towns of Middletown, Rhode Island, approximately 25 miles southeast of Providence (Figure 1). Building 179 is located east of Cunningham Street along the easterly edge of the NUWC Division, Newport facility (Figure 1).

The area in the vicinity of Building 179 is characterized as heavily developed with a variety of process structures to support testing functions. In the immediate vicinity of the building is a crushed stone roadway to the east, an open paved area to the north and south, and aboveground process equipment located adjacent to and west of the building.

In addition, a heavily vegetated, freshwater wetland area is located east of Building 179 and support areas. A stream is present within the wetland area, located approximately 85 feet from Building 179. Note that the limits of this freshwater wetland have been delineated and included in the Preliminary Determination Application submitted by NUWC Division, Newport to the RIDEM Division of Freshwater Wetlands for the Building 179 reconstruction project.

Topographic relief in the area immediately surrounding the building is relatively flat. However, a downward slope with topographic relief of between six and eight feet is located along the wetland side of the building.

Building 179 was constructed in 1961 on property owned by the Navy. At the time of construction of Building 179, the subject CUST was constructed to support torpedo test activities within the Building. In 1992, stainless steel tanks were placed inside the CUST to further support the Building's torpedo testing activities. On February 24, 1995, a torpedo test failure resulted in damage to Building 179 and materially reduced the operational capacity of the building.

1.2 Historic Environmental Conditions

The CUST is located approximately 20 feet north of the northeast corner of Building 179. The CUST is seventeen feet long, nine feet wide and nine feet deep and is divided into two separate compartments. The larger of the two compartments has inside dimensions of twelve feet long and eight feet wide, while the smaller compartment has inside dimensions of three feet long and eight feet wide. The base and side walls of the tank are constructed of reinforced concrete eight-inches thick. The CUST was constructed in the early 1960's and was used to support torpedo propulsion test activities at Building 179.

Oils, water, cleaning fluid, torpedo fuel (Otto fuel) and combustion-by-products were discharged via floor drains in Building 179 to the smaller compartment of the CUST. Water soluble exhaust gases resulting from the torpedo emissions were then "quenched" in water in the larger compartment of the CUST.

In 1992, the CUST was cleaned and two separate field fabricated double-walled stainless steel tanks were placed inside the larger compartment of the CUST separated by a concrete wall. The smaller of the two tanks had a nominal capacity of 500 gallons while the larger had a nominal capacity of 1,500 gallons. The smaller tank served as containment for fluids produced inside Building 179. The larger tank served as a "quench" tank for the torpedo tests conducted within Building 179. The contents from this tank were pumped into a 6,000-gallon above-ground hazardous waste storage tank at the conclusion of each test.

On February 24, 1995, a torpedo test failure resulted in damage to Building 179 and materially reduced the operational capacity of the building. Since that time, limited test activities resumed at the adjacent buildings and continued through the period of reconstruction.

As a precursor to the Building 179 reconstruction activities, several reconstruction monitoring wells and borings were installed within the area to define existing soil and groundwater conditions. As a result of a request by NUWC Division, Newport to remove the subject CUST from RIDEM's list of USTs, RIDEM required NUWC Division, Newport to conduct a Closure Assessment by letter dated 9 March 1995.

The Environmental Compliance Group, Inc. (TECG) was retained by NUWC Division, Newport in June 1995 to evaluate existing site conditions, install several groundwater monitoring wells and soil borings, and collect and analyze soil and groundwater samples in support of the aforementioned Closure Assessment Report. As a result of the Closure Assessment TECG concluded that a release has occurred in the vicinity of the concrete pits. Both soil and groundwater contamination is present at the site. Sample data indicated that groundwater contamination appeared to be more of a concern than soil contamination (TECG Closure Report, August 1995).

In November 1995, TRC Environmental (TRC) was tasked by NUWC Division, Newport to conduct an evaluation of soil and groundwater conditions surrounding Building 179.

This investigation was conducted to determine whether contamination would be encountered within the area which may be disturbed as a result of the reconstruction of Building 179. The initial scope of the investigation involved the installation of five soil borings and three groundwater monitoring wells outside the perimeter of the Building 179 footprint. Results of this investigation indicated the presence of VOC and TPH, with 1,1,1-Trichloroethane comprising the majority of the VOC detected in soils. Groundwater sample analysis indicated detection's for 1,1,1-Trichloroethane, 1,1-dichloroethane, TPH, Cyanide and propylene glycol dinitrate (PGDN). A second exploratory investigation was performed by TRC in April 1996 to inspect the soil characteristics directly beneath Building 179. The sub-slab investigation included nine borings through the floor of the Building 179 and one soil sample from each soil boring for laboratory analyses. The results indicated that VOCs, namely acetone, 1,1,1-trichloroethane, ethylbenzene, and total xylene were detected.

Based on the investigations conducted in 1995 and 1996 TRC, under contract to NUWC Division, Newport prepared a project design to address the remediation of soils which would be disturbed in order to affect repairs to B-179. TRC's design efforts were documented in environmental project specifications and project drawings C-2 and C-1SR through C-4SR.

The following summary best describes the compounds and areas of concern based on previous investigations. Specifically, Otto fuel (torpedo fuel), and chlorinated solvent contaminated soils were identified beneath and to the northeast of the building. The main component of Otto fuel is propylene glycol dinitrate (PGDN). The area around Test Cell 4 or beneath the north east corner of Building 179 exhibited the highest concentrations of soils containing 1,1,1-trichloroethane which exceeded the hazardous waste land ban disposal limits.

1.3 Project Objectives

The objectives of this project included: in-place CUST closure, soil removal adjacent to the CUST, removal of the Interceptor Tank, disposal of wastes generated and restoration of the affected areas. The objective of this closure report is to document the in-place closure of the CUST and the removal of the associated Interceptor Tank in accordance with RIDEM Regulation DEM-DWM-UST05-93, Section 15.10.

Figure 1

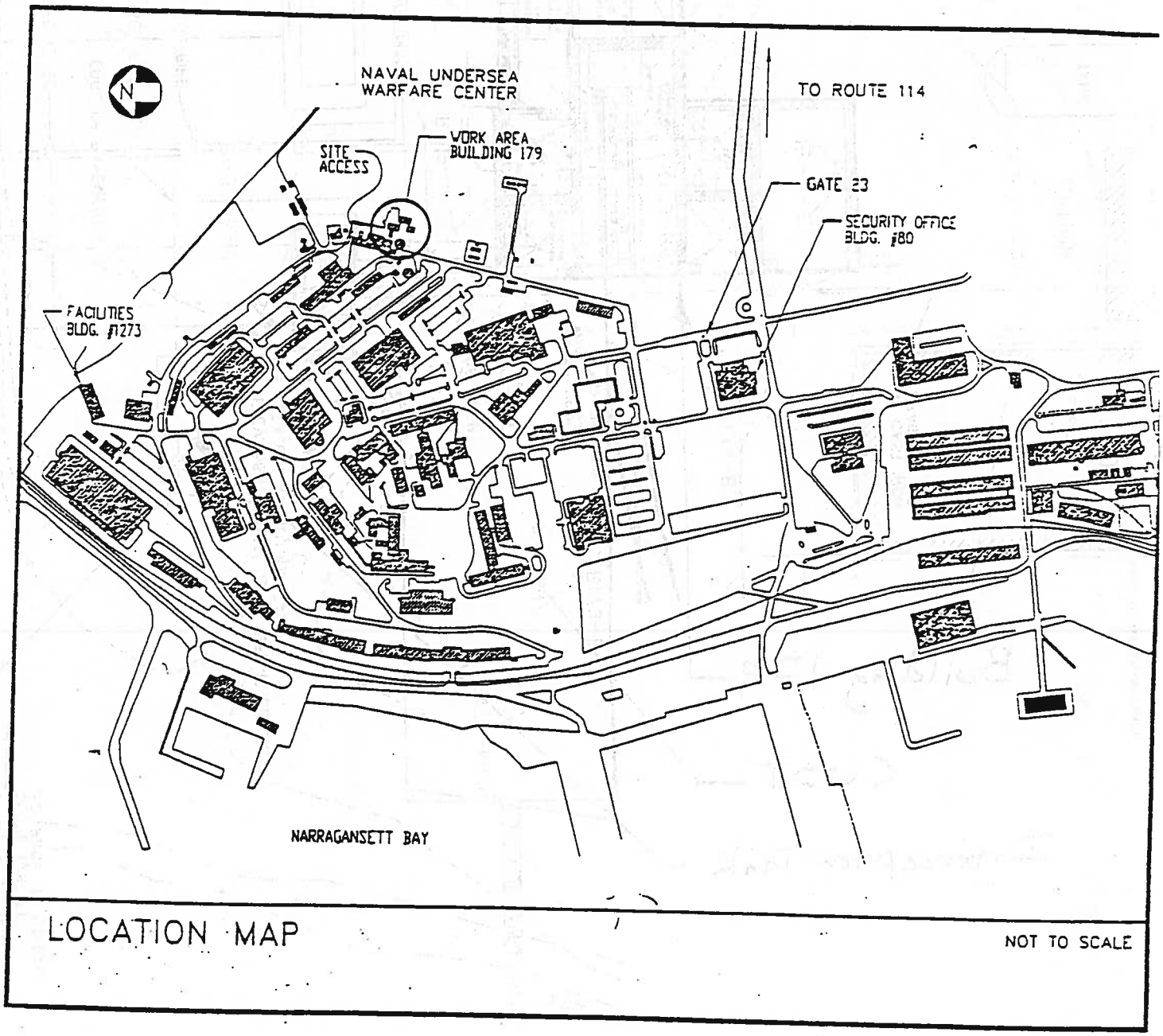
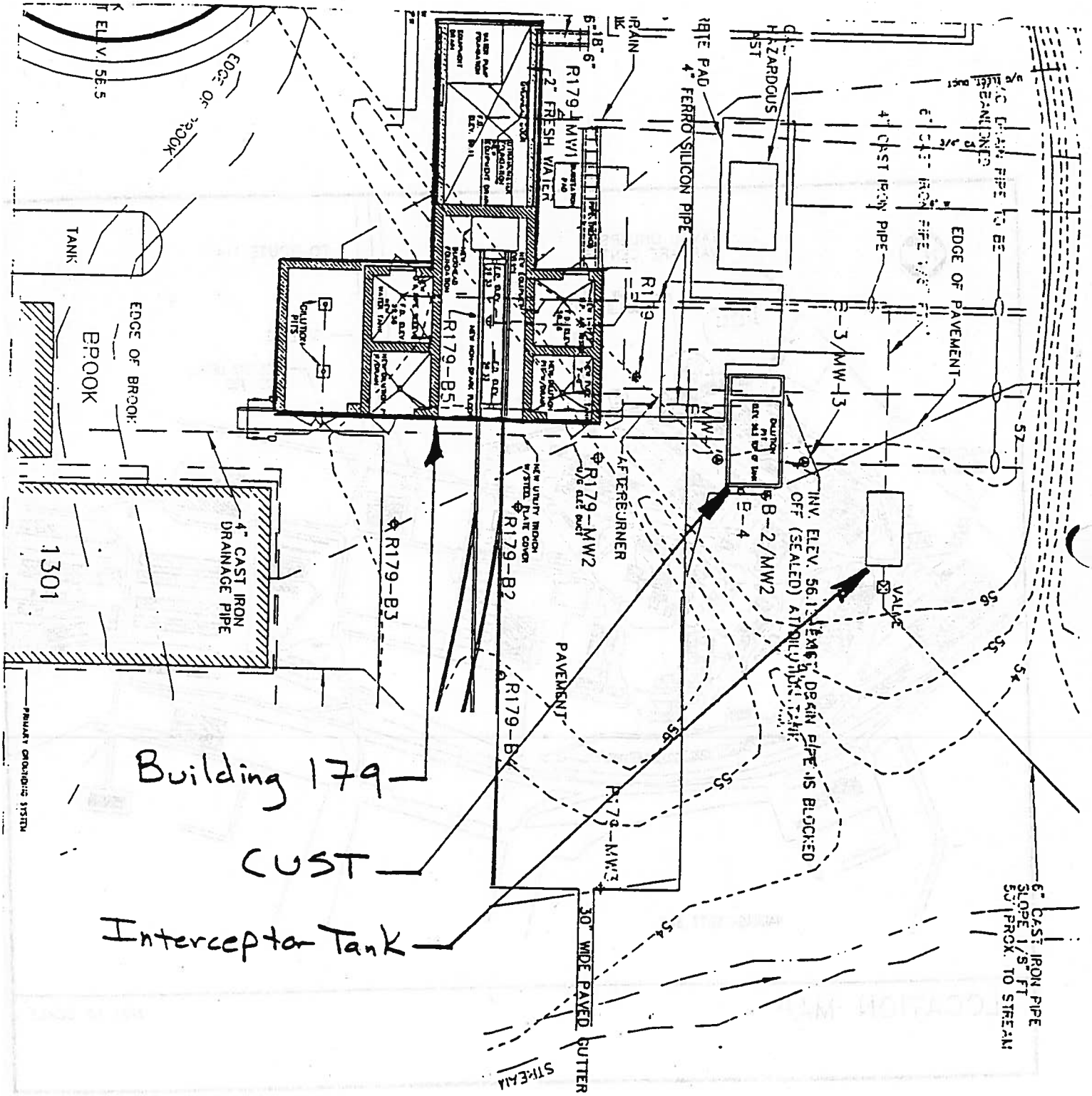

NAVAL UNDERSEA
WARFARE CENTER
TO ROUTE 114
SITE
ACCESS
WORK AREA
BUILDING 179
GATE 23
SECURITY OFFICE
BLDG. #80
FACILITIES
BLDG. #1273
NARRAGANSETT BAY
LOCATION MAP
NOT TO SCALE

Figure 2


EDGE OF PAVEMENT
4" CAST IRON PIPE
HAZARDOUS WASTE
4" FERRO SILICON PIPE
2" FRESH WATER
R179-MW1
R179-B5
R179-B3
R179-B2
R179-B4
R179-MW2
R179-MW3
B-3/MW-3
B-2/MW2
B-4
AFTERBURNER
INV. ELEV. 56.1
VALVE
6" CAST IRON PIPE SLOPE 1/8" FT
30" WIDE PAVED GUTTER
4" CAST IRON DRAINAGE PIPE
EDGE OF BROOK
BROOK
TANK
1301
PAVEMENT
Building 179
CUST
Interceptor Tank

2.0 PROJECT ACTIVITIES

The main activities of the project were:

1) to remove and dispose of the two clean stainless steel vaulted storage tanks;
2) to clean the interior of the CUST;
3) to collect confirmatory concrete chip samples from the CUST walls and floor;
4) to fill the concrete vault with Flowable Fill, a non-shrinking inert solid;
5) to re-establish excavation dewatering, water treatment operations, and sampling to accomplish removal of groundwater infiltration;
6) to install soil erosion control measures and clear the area to be affected by the removal process;
7) to locate and clean interceptor tank, remove residual contents, and power wash the interior;
8) to excavate and remove interceptor tank and associated out-fall piping;
9) to field screen and remove contaminated soils adjacent to the CUST and Interceptor Tank;
10) to conduct confirmatory and waste characterization sampling as indicted in Building 179 Work Plan and Work Plan Addendum;
11) to pump and treat the groundwater on an as needed basis;

These field efforts lasted from November 30, 1998 through December 18, 1998.

2.1 Project Planning/Management

Project Planning/Management activities included the preparation of pre-construction submittals, coordination of utility requirements, mobilization to the site, and home office support functions during the time period of the project. The tasks involved in Project Planning/Management are described below.

2.1.1 Pre-Construction Submittals

Foster Wheeler prepared and submitted the following pre-construction documents to the Navy.

Final Work Plan

The Final Work Plan (for Building 179) describing Foster Wheeler's approach to project execution was issued on July 18, 1997, to the Naval Facilities Engineering Command. This Work Plan included the site description, project organization, permitting requirements, site preparation approach, soil removal activities, and site restoration. As applied to this Closure Report, the Final Work Plan describes the entire CUST removal process and associated sampling and waste disposal requirements. Foster Wheeler issued the revised Final Interceptor Tank Removal Work Plan Addendum on November 25, 1998, to the Naval Facilities Engineering Command. This addendum describes the tank and associated

pipe removal process, soil excavation and post excavation sampling, transportation and disposal of generated wastes, and site restoration.

Final Health and Safety Plan (HASP)
The final HASP (for Building 179) included Foster Wheeler's approach to ensuring the health and safety of its employees and others during the project. The Final HASP for the project was submitted on August 7, 1997 to the Naval Facilities Engineering Command.

2.1.2 Home Office Support

Foster Wheeler's Langhorne, Pennsylvania office provided home office support throughout the duration of the project. Home office support included procurement and subcontract agreement support along with the preparation of the required financial, technical, and monthly progress reports.

2.2 Permit and Report Preparation Submission

2.2.1 Wetlands Permit

NUWC Division, Newport submitted application No. 97-0129 to the Rhode Island Department of Environmental Management (RIDEM), Office of Water Resources/Permitting Section, Freshwater Wetlands Program for an Insignificant Alteration to wetlands incident to the B-179 Reconstruction project. This application was approved, with conditions, by RIDEM on 18 April 1997. A copy of RIDEM's approval is provided in Appendix K. As required by permit conditions, FWENC was required to submit Drawing C-1SR and detail drawing C-4SR depicting the placement of the soil erosion control measures placed to protect the wetlands. See Appendix A.

2.2.2 Dig Safe Permits

Foster Wheeler obtained the following dig safe permits from Naval Station Newport (formerly Naval Education and Training Center or NETC) (cleared/approved): October 21, 1997 and December 15, 1997 for initial concrete and soil removal applied to Grid Numbers 1 through 18; on October 21, 1998, and November 16, 1998 for Grid Number 19, and November 21, 1998 for work to be completed at the Interceptor Tank and associated piping. Utilities were marked-out prior to excavation activities.

2.2.3 Water Treatment Discharge Approval

NUWC Division, Newport obtained approval from the City of Newport Utilities Department for the discharge of treated groundwater as documented by letters of authorization dated 29 January 1997 and 4 February 1997. Copies of these letters of authorization as well as treatment discharge sampling and analysis procedures are provided in Appendix J.

2.2.4 Preparation of Project Closure Report

This Assessment has been written by Foster Wheeler Environmental Corporation to satisfy the Rhode Island Department of Environmental Management (RIDEM) Regulation DEM-DWM-UST05-93 Section 15.10, as detailed by the July 1992 RIDEM guidance document entitled: Department of Environmental Management UST Closure Assessment Guidelines. This report was prepared at the request of the United States Navy, Northern Division (NORTHDIV) of the Naval Facilities Engineering Command (NAVFAC) under Delivery Order No. 0013C of the Remedial Action Contract N62472-94-D-0398. This report is designed to read as a stand-alone document and to provide documentation and figure requirements specified in sections 5.1 and 5.2 of the Building 179 Reconstruction Incidental Cleanup Work plan dated July 18, 1997. .

2.3 Mobilization and Site Preparedness

2.3.1 Mobilization

The mobilization for this activity began on November 30, 1998 with the installation of erosion fencing around the CUST proposed excavation and set-up of the decontamination pad and exclusion zones. The decontamination trailer was prepared for this field effort during the initial start-up phase of the water treatment system. The support zone was placed on the newly constructed asphalt pad area just east of Building 179. All materials and health and safety equipment needed to successfully complete the remediation activities were staged in this area.

2.3.2 Water Treatment

The existing carbon filtration units and 20,000 gallon capacity influent frac tank was supplemented with another 20,000 gallon effluent frac tank in November 1998. Re-circulation of waters collected in the secondary containment and Building 179 waters from previous excavation dewatering commenced on November 13, 1998. On November 17, 1998, Foster Wheeler re-established the Building 179 water treatment start-up sampling and water discharge requirements as set forth in Enclosure (1) of the letter to Commander, NETC from Commander, NUWC dated February 24, 1998. Enclosure (1) briefly set forth the sampling and testing procedures which satisfy the requirements for discharge to the Newport Publicly Owned Treatment Works (POTW). A copy of this letter is provided in Appendix J.

As specified in the aforementioned document, Foster Wheeler collected five well spaced grab samples from the sample port on the WTS during the initial thirteen hour period of excavation dewatering and relinquished these samples to R.I. Analytical Services for VOC (EPA Method 8260) and TPH (EPA Method 8015) analysis. One representative aliquot was also collected from hourly grab samples until the contents of the 20,000 gallon effluent frac tank was processed through the WTS. The processed water was recirculated back to the Influent tank. Waters were contained until discharge was approved. Each day of

operation would require a grab sample for VOC (EPA method 8260) and TPH (EPA Method 8015). The recirculation and discharge rate was restricted to 25 gallons per minute (GPM) as set forth by NUWC, Newport RI, to ensure optimum filtration by the filtration units.

During the remediation effort conducted at Building 179, water was discharged via the storm sewer shown on Drawing C-1SR on November 30, 1998, December 1, 1998, December 2, 1998, December 3, 1998, December 11, 1998, and December 14, 1998. Refer to Appendix C for POTW Appendix C (Industrial User Self-Monitoring Report).

2.3.3 Dust Control

Potable water was available to be used as a dust control measure. Moist conditions prevailed and dust control was not necessary.

2.3.4 Soil Erosion and Sediment Control Plan

An Erosion Control Plan was submitted to the Navy within the Building 179 Work plan for approval prior to the start of any excavation activities. Erosion and sediment controls were installed to the limits as designated on the Building 179 Naval Undersea Warfare Center, Excavation Site Plan drawing, C-1SR. Control measures consisted of placing a 2-foot minimum silt fence filter fabric, buried 4-inches, and augmented with hay bales. Erosion and sediment controls were installed prior to the start of any activities and were inspected on a daily basis. A silt fence remained in place at the close of the Interceptor Tank site restoration area as a temporary barrier until vegetation has been established. A Geotextile fabric (Mirafi X-Series Woven Polypropylene Geotextile) was installed in the grave of the Interceptor Tank and associated piping during the restoration effort to separate, confine, and stabilize the base materials while allowing uniform groundwater filtration.

Foster Wheeler used the existing paved roadways to move the containerized wastes to an adjacent paved area for temporary staging prior to shipment. Foster Wheeler installed and maintained the erosion and sediment control measures throughout the duration of the project.

2.3.5 Spill and Discharge Control Plan

Foster Wheeler began activities at Building 179 on November 3, 1997. The last field activity was completed on December 18, 1998. The Spill and Discharge Control Plan was outlined in Section 4.1.4 of the Work plan. No spills or accidental discharges occurred during Building 179 activities.

2.3.6 Security

Site security was provided via fencing critical work areas in the Building 179 area with a 4-foot high fence. Barrier tape was placed to identify the outer perimeter of the entire work

area; various signs identified all work areas for the potential hazards present. Visible fencing was used to indicate exclusion, support and contamination reduction zones.

2.3.7 Temporary Facilities Preparation

A temporary personnel decontamination trailer was placed on the north side of Building 179. A temporary 100 amp electrical service and potable water source for the trailer was provided by the NUWC facility. All decontamination water was contained in the temporary above-ground storage frac tanks and pumped through the water treatment system. Toilet facilities consisted of two portable toilets staged in the clean zone. All other office-support equipment was staged at the Tank Farm No. 5 Project Site.

2.3.8 Equipment Decontamination Facilities

Foster Wheeler constructed temporary decontamination pads as needed. The pads were constructed of polyethylene sheeting for water collection and the containment of contaminated residuals. The temporary decon pads were constructed adjacent to the work areas. Waste waters collected in the decon pads were pumped to the WTS and subsequently discharged to the POTW. The temporary decontamination pads and the contained contaminated residuals were disposed of with the soils generated during this project.

2.3.9 Photographic/Video Documentation

Foster Wheeler was responsible for providing still photographs of the remediation field activities in the Tank Closure and Close-Out Reports. NUCW Division, Newport was responsible for making a video record of the field activities. These video records accurately recorded the steps taken to physically clean, inspect, and fill the CUST in-place. Video recording was also conducted to document field procedures associated with the Interceptor Tank closure activities.

2.4 Stainless Steel Tank Removal

In early January 1998, the two, previously cleaned, stainless steel tanks located within the concrete tank vault were inspected by Foster Wheeler personnel prior to their removal from the vault. On January 12, 1998, the tanks were removed and prepared for receipt to the Navy recycling facility. Ventilation holes approximately 3 ft-squared were cut into both ends of each tank and the interior air was monitored for VOCs and for explosive limits using the Foxboro OVA 128 flame ionization device for organic vapor analysis and the MSA Passport combustible gas indicator, respectively. Once the atmosphere inside the tanks met the requirements specified in the approved Health and Safety Plan, the removal operation proceeded. Foster Wheeler relinquished the tanks to the Navy to be recycled.

2.5 Cleaning and Closure of Concrete Underground Storage Tank (CUST)

2.5.1 CUST Cleaning

On November 30, 1998, Foster Wheeler inspected the CUST for its structural integrity prior to the commencement of tank cleaning activities. Approximately 5100 gallons of storm water was collected in the CUST between the completion of the removal of the stainless steel tanks and when Foster Wheeler returned to commence closure activities. This water was pumped to the WTS for treatment prior to discharge to POTW in accordance with the City of Newport Utility Department's letters of authorizations dated 29 January 1997 and 4 February 1997. A thin black sheen was noted floating on the bottom 6 inches of waters being pumped to WTS. A slight petroleum odor was also noted and the confined space was monitored with the Foxboro OVA 128 Organic Vapor Analyzer and the MSA Passport Combustible Gas Indicator (see Section E, Air Monitoring). There weren't any exceedences detected.

Once all tank water was removed, a 3,000 pounds/square inch (psi) steam cleaner was used to steam clean the tank's walls and floor. Twelve - 55 gallon drums of waste water and sludge was generated and stored at the temporary drum staging in the designated area southwest of Building 179. On December 2, 1998, the tank cleaning was visually inspected and photo-documented (See Appendix H for the inspection and photo-documentation of tank closure activities).

2.5.2 Concrete Chip Sampling

Once the CUST was visually verified "clean" by both NUWC personnel and Foster Wheeler, one sample location for each wall and the floor were located based on visual and olfactory evidence of potential contamination and location measurements taped and logged on the site field map (see Appendix I, Field Sketch 01 - Sample Point Locations and Elevations). Four wall concrete chip samples designated B179CUST-W1 through B179CUST-W4 and one floor concrete chip sample designated B179CUST-F1 were collected using an electric hand drill and decontaminated drill bit and analyzed for VOCs (EPA Method 8260), SVOCs (EPA Method 8270), Total Cyanide and Total Petroleum Hydrocarbons (EPA Method 8015). Results indicated the presence of VOCs and SVOCs in all samples. Analytical data from the concrete chip sampling of the Building 179 CUST is summarized in Appendix B.

2.5.3 CUST Closure

On December 2, 1998, the CUST was closed in place by filling the tank with a non-shrinking solid (flowable fill material). The flowable fill material was composed of sand, gravel, water, cement and a plastisizing agent to increase flowability. The material was allowed to cure for 9 days. On December 11, 1998, the CUST was capped with a 3,000 psi concrete slab reinforced with a 6" on center wire mat.

2.6 Contaminated Soil Characterization and Removal

2.6.1 Grid 19 Excavation and Soils Removal

Prior to any soil removal, Foster Wheeler received the analytical results from the soil pre-characterization effort and posted these results on the original Grid Plan drawing. Based on the results, the soils were excavated and stored in DOT approved lined 30-cubic yard roll-off containers. Roll-off containers were stored in an asphalt parking area proximate to the project site. FWENC labeled the roll-off consistent with NUWC Division, Newport waste classification. Both FWENC and NUWC Division Newport Environmental Division personnel conducted required inspections prior to off-site transport and disposal. As a confirmatory measure to the initial soil characterization, soils were field screened with an FID along with using visual and olfactory senses to search for evidence of contamination.

Eight - 30 cu-yd roll off containers were used to containerize soils excavated from the Grid 19 soil removal. The removal exposed the north, south and east exterior walls of the CUST. Soils were removed to a depth of 9.5 feet below ground surface, exposing the bottom of the CUST. The amount of soil removed from Grid 19 was 115.12 tons.

Real-time air monitoring using the OVA 128 (FID) and the MSA Passport (CGI) was implemented during all aspects of the excavation to screen the excavation and breathing zone for hazardous atmospheres.

2.6.2 Soil Waste Characterization

The waste characterization soil samples were analyzed for the following constituents of concern: VOCs by EPA Method 8260, SVOCs by EPA Method 8270, total cyanide, and TPH. Lastly, waste disposal acceptance parameters included ignitability, reactivity, corrosivity, metals, and a paint filter test were performed on the samples.

NUWC Division, Newport classified soil as hazardous waste based on evaluation of analytical results. A summary of NUWC Division, Newport's waste classification is provided in Appendix L.

2.6.3 Water Removal

During the soil excavation, approximately 800 gallons of water from the excavation, as determined by accumulator meter readings, was directed to the Water Treatment System (WTS) for treatment prior to discharge to the POTW, Newport, RI.

2.6.4 Post-Excavation Sampling and Analysis

After soils were removed, post excavation samples were collected. Post Excavation samples were collected from the floor and sidewalls of the exterior excavations (see Field

Sketch 02, Appendix I and Figure 3). Due to elevated detection of VOC within the excavation limits, level B air-supplied respirators and associated PPE were worn by entrants to screen the sample locations with the Foxboro OVA 28 (FID) and to collect the individual samples (see Appendix D Post Excavation Real Time Air Monitoring).

Eleven soil samples, nine wall samples, and two floor samples, were collected within a twelve-inch circle of the sample location using a decontaminated stainless steel trowel and placed in a decontaminated stainless steel bowl for homogenization. Consistent with EPA Method 5035, representative samples of soil were collected from the excavation using Encore samplers prior to analysis for VOCs. The other portion of the sample was homogenized and placed in laboratory bottleware designated for TPH (USEPA method 8015), SVOCs (USEPA method 8270), and total cyanide (USEPA method SW-846-9010) on a 72-hour turnaround. The VOC samples collected in accordance with EPA Method 5035/8260 were shipped via Federal Express to Severn Trent Laboratories on a 3 - 4 week turnaround. Method 5035 is a preparation and extraction method which was requested by RIDEM.

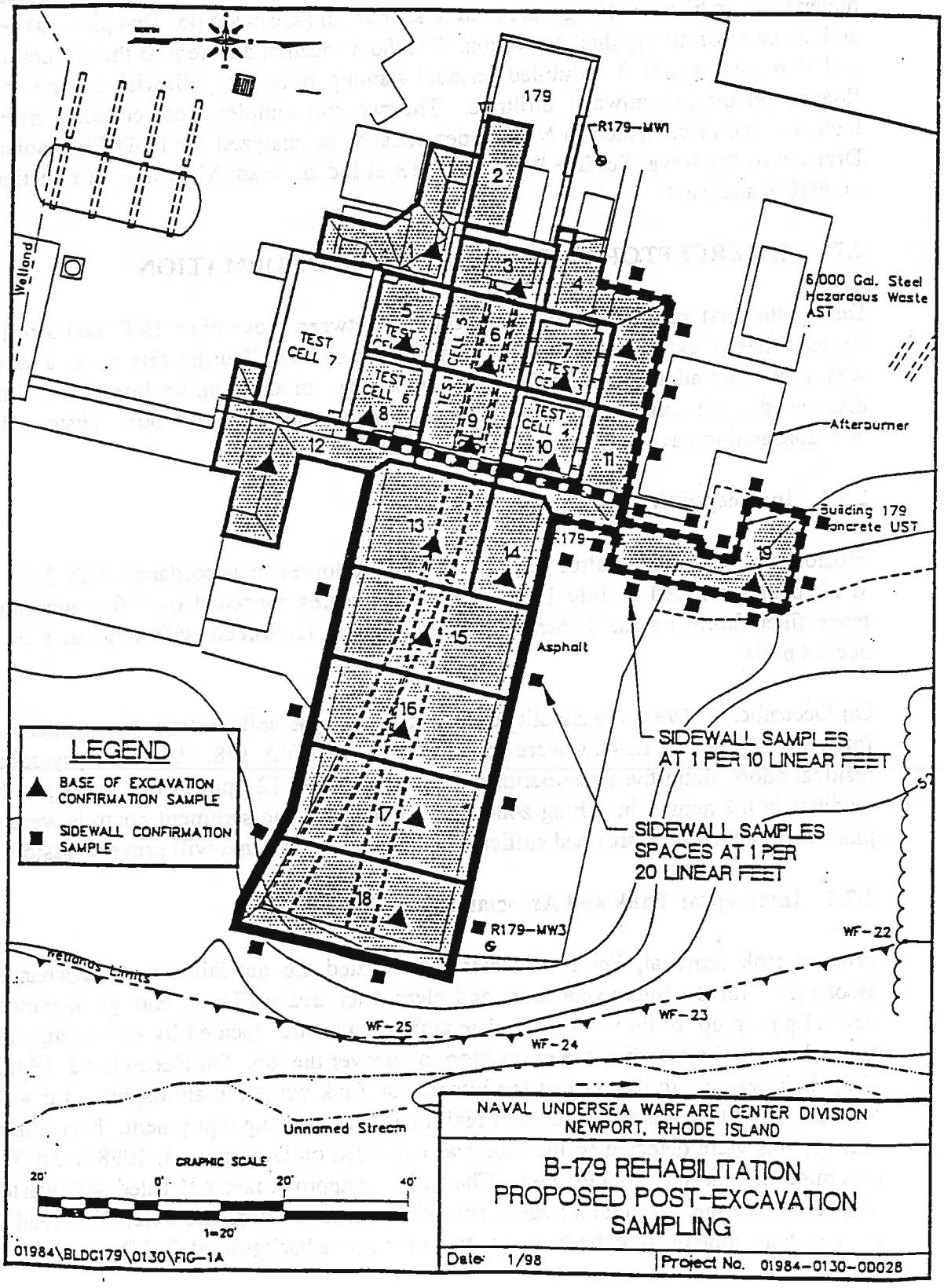
All eleven samples exhibited the VOCs, primarily Acetone and 2-Butanone. There were no exceedances of the RIDEM Industrial/Commercial Direct Exposure Criteria.

Laboratory results revealed exceedences of the RIDEM Industrial/Commercial Standard for Total Petroleum Hydrocarbon (TPH) in locations G19-W4 and G19-W6 with levels of 3,300 mg/kg and 4700 mg/kg respectively. There were no detection's for Total Cyanide.

One aqueous sample was collected on December 3, 1998 from the yellowish colored fluid entering the excavation from below the base of the CUST. This fluid appeared to be floating on the groundwater infiltrating from the same location and pooling in the base of the excavation. The sample was designated G19-AQ and analyzed for VOCs (EPA Method 8260). On December 4, 1998, another aqueous sample designated G19-AQ2 was collected from the same location at the request of Paul Kulpa, RIDEM , and analyzed for VOC (8260), TPH (USEPA method 8015), SVOCs (USEPA method 8270), and total cyanide (USEPA method SW-846-9010).

Sample G19-AQ exhibited a 1,1,1 Trichloroethane concentration of 14 mg/l. This concentration exceeded the RIDEM "GA" Groundwater Standard of .2 mg/l. Sample G19-AQ2 exhibited exceedences for VOCs, Total Cyanide and SVOCs. Concentrations for 1,1-Dichloroethane and 1,1,1 Trichloroethane were 3.0 mg/L and 31.0 mg/l respectively.

FIGURE 3 BUILDING 179/CUST



Two soil samples exhibiting OVA readings in the 500 to 700 PPM range were collected from the same locations as G19-W4 and G19-F1(see Appendix I, Field Sketch 02) and designated for PGDN analysis. The wall locations which exhibited the highest concentrations of VOCs were located in the northwest corner of the excavation. The material was a black bedding sand used to support an asbestos pipe. This pipe was removed and disposed of during this excavation. The floor location adjacent to the northeast corner and floor of the CUST exhibited residual staining from the yellowish colored globules floating on the groundwater infiltrate. The two soil samples were collected from these locations and relinquished to NUWC personnel to be analyzed for PGDN by Indian Head Division of the Naval Surface Warfare Center at Indian Head, Maryland (see Section 2.8.1 on PGDN analysis).

2.7 INTERCEPTOR TANK BACKGROUND INFORMATION

During the first phase of work that occurred between November 1997 and April 1998, Foster Wheeler excavated soil from Grids #1 through 18. During this work, a valve box was discovered adjacent to the Grid #19 work area. In addition, an Interceptor Tank was discovered to be connected to the piping associated with the valve box. Historically, the tank appeared to have been connected to the CUST.

2.7.1 Interceptor Tank Erosion Control

Erosion and sediment control procedures were followed in accordance with the original Work plan submitted in July 1997. Control measures consisted of 2 foot minimum silt fence filter fabric buried 4 inches underground and reinforced with hay bales on an as needed basis.

On December 2, 1998, during silt fence installation, the soils within the perimeter of the Interceptor Tank silt fencing were screened with the OVA 128. Black clayey soils with residual odors along the fence perimeter registered 10 to 12 ppm in headspace jars but no readings in the actual breathing zone. The soil erosion and sediment controls were left in place until the restored area had sufficient vegetative growth that will prevent erosion.

2.7.2 Interceptor Tank and Associated Pipe Removal

Prior to tank removal, Foster Wheeler first located the out-fall from a discharge pipe associated with the interceptor tank, and cleared an area sufficient enough to remove the out-fall piping up to the valve box. The tank top was then located by excavating down to the tank top and expanding the excavation to uncover the top. On December 3, 1998, a 2ft X 2ft hole was cut in the roof of the Interceptor Tank while the atmosphere was screened with the OVA 128 and MSA Passport real time air monitoring equipment. No combustible atmospheres were detected so the hole was expanded on December 4, 1998 to 3ft X 3ft to accommodate entrance into the tank. The tank was approximately ¾ filled with wastewater and bottom sludge. Though a hydrocarbon odor emanated from the hole, OVA readings in the breathing zone outside the tank registered not above background (NAB).

Approximately 1,100 gallons of Interceptor Tank fluid, bottom sludge's and residual product were removed using a vacuum truck equipped with a drum loading device. The materials were stored in 55-gallon drums at temporary drum staging designated by the Navy. One aqueous sample was collected from a drum containing the Interceptor Tank fluid and designated sample B179-IT-AQ for VOC8260, Mineral Spirits 8015M, TPH 8015, SVOC 8270, Total cyanide 9010 and PGDN. Throughout drumming operations, the maximum reading with the OVA within the Interceptor Tank was 20 ppm, which exceeded the action level of 15 ppm as dictated by the Foster Wheeler Building 179 Site Health and Safety Plan, dated August 7, 1997.

On December 7, 1998, Foster Wheeler continued to remove bottom sludge's from the tank and a 3,000 (psi) steam cleaner was used to power wash the interior of the tank. During this activity, 30 ppm was recorded by the OVA 128 in the entrance hole to the Interceptor Tank. One confirmatory sludge sample was collected and designated IT-SLG-01 for Petroleum Compounds 8100, Total Cyanide, VOCs, Mineral Spirits 8015M and also PGDN. Approximately 100 gallons of waste cleaning water was generated.

The Interceptor Tank was inspected and confirmed to have one inlet coming from the direction of the CUST and one out-fall pipeline extending approximately 50 feet into the wetlands area. The CUST was structurally sound and had no visual signs of cracking.

On December 7, 1998, after the completion of tank cleaning activities, tank excavation activities began. A Komatsu PC 150 excavator was used to excavate and remove the pipe and soils. The excavation began at the pipe out-fall approximately 52 feet east of the Interceptor Tank location. The pipeline was constructed of 6" cast iron pipes with bell connections. They were 10 foot sections assembled for an overall length of 52 feet. During the pipe excavation, no fluids or product were noted within the pipe interiors nor were there any apparent cracks or fractures in the pipe outer casings. The soils within the pipe grave did not exhibit staining or unusual odor. During the excavation process, a Flame Ionization Detector (FID) was used for field screening to monitor for total Volatile Organic Compounds (VOCs). The OVA 128 did not measure any VOCs above background within the breathing zone of the excavation. The pipe grave was approximately 3 to 4 feet below ground surface and 4 feet wide (see Field Sketch 03 - Building 179 Interceptor Tank Elevation Area and Sample Point Locations/Elevations).

Upon completion of the out-fall pipe removal, confirmatory samples were collected in areas of the soils exhibiting olfactory, visual, and instrument verified VOC detection's with the OVA. Refer to Section 2.7.3, Post Excavation Sampling for Interceptor Tank and Piping.

Once the pipe had been removed, excavation to remove the tank began. Soils were removed from the top and sides of the tank. Then, the tank was crushed within the excavation and placed into the pipe roll off for waste disposal characterization. A plume of a black ink-like substance entered the tank grave from the southeast corner wall of the excavation and coalesced with groundwater infiltration. At the time of post-excavation

sampling of the tank grave walls and floor, approximately 1 foot of groundwater had collected in the base of the tank grave. The water was removed and pumped to the WTS for treatment prior to discharge to the POTW.

One 87.55 tons of soil and debris were generated during the removal of the interceptor tank.

2.7.3 Post Excavation Sampling for Interceptor Tank and Piping

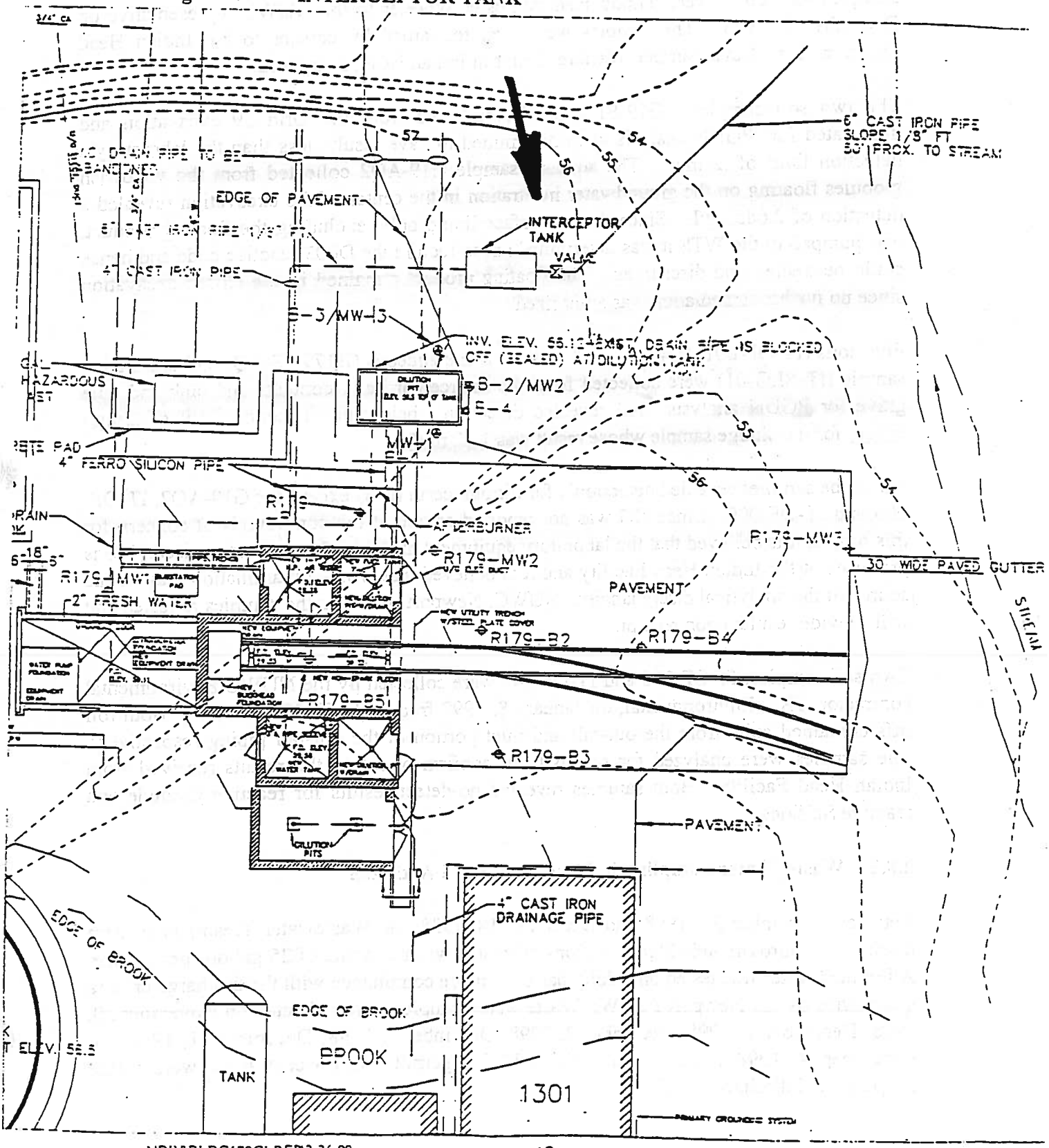
Following the soil removal, post-excavation samples were collected from the tank piping removal and the tank removal excavations (see Figure 4). Field screening was conducted using a Century OVA 128 (FID with 11.2 ev lamp) at a frequency of four from the base of the tank grave, one per five feet of sidewall at a lower third of the excavation and one per five feet of piping. Samples were collected one per fifteen feet of piping (samples IT-OF-001 through 004), two from underneath the 2,000 gallon interceptor tank (samples IT-OF-008 and 009), and three from the perimeter of the tank grave at a frequency of one per sidewall from the midpoint elevation of the tank (samples IT-OF-005 through IT-OF-007).

OVA readings at the sample locations within the pipe trench ranged form non-detect to 8 ppm while samples collected from the perimeter of the tank grave ranged from 20 ppm to 120 ppm, the highest reading was on the western perimeter sidewall sample. Samples 008 and 009 were collected from the bucket of the excavator. The bucket soils were taken at a depth 2 feet below the grave floor due to the inability to collect these samples without cross-contaminating with the groundwater in the grave bottom. Sample 008 was collected from the center of the grave floor while sample 009 was collected from the southeast portion of the grave where the ink-colored plume entered with the groundwater.

Nine samples (IT-OF-001 through IT-OF-009) were collected for VOCs by EPA Method 5035/8260, mineral spirits by EPA Method 8015 (M), petroleum compounds by EPA Method 8100 for polycyclic aromatic hydrocarbons (PAHs), and for total cyanide by EPA Method 9010.

Please note that samples IT-OF-001, IT-OF-004, IT-OF-006 and IT-OF-008 were also analyzed for propylene glycol dinitrate (PGDN) in order to determine potential Otto fuel contamination in the tank area. Refer to Section 2.8.1 for PGDN Analysis.

Figure 4 INTERCEPTOR TANK



2.8 Waste Disposal Classification

2.8.1 PGDN Analysis

Samples for PGDN were relinquished by Foster Wheeler to the NUWC representative on December 8, 1998. The samples were then forwarded by courier to the Indian Head Division of the Naval Surface Warfare Center in Indian Head, Maryland.

The two soil samples , G19-F1 and W4, collected from the Grid 19 excavation and designated for PGDN analysis were determined to have results less than the laboratory's detection limit of .2 mg/l. The aqueous sample G19-AQ2 collected from the yellowish globules floating on the groundwater infiltration in the center of the excavation revealed a detection of 2.685mg/L. Since the subsurface liquid only, excluding the floating product, was pumped to the WTS it was determined not to require the D003 reactive code and hence could be treated and discharged. The floating product remained in the closed excavation since no further remediation was authorized.

Five soils (IT-OF-001, 004, 006, 008 and 009), one aqueous (B179-IT-AQ) and one sludge sample (IT-SLG-01) were collected from the Interceptor Tank contents and tank and pipe grave for PGDN analysis. All revealed detection's below the detection limit of .2mg/l except for the sludge sample whose result was 1.52 mg/l.

All of the samples revealed detection's for nitroglycerin (NG) except for G19-AQ2, IT-OF-006 and IT-OF-009. Since NG was not reported as one of the compounds of concern for this project it is believed that the laboratory equipment may have been compromised. NG is produced at the Indian Head Facility and it is believed that cross-contamination may be the source of the analytical discrepancies. NUWC, Newport is having the samples re-tested and will provide results upon receipt.

Two soil samples, IT-OF-276 and IT-OF-347 were collected by the NUWC Environmental contractor, TRC Environmental, on January 8, 1999 from roll offs 276 and 347. Both roll offs contained soils from the out-fall and inlet portion of the out-fall piping respectively. The samples were analyzed for reactivity to confirm or refute the results received from Indian Head Facility. Both samples revealed no-detect results for reactive Cyanide and reactive Sulfides.

2.8.2 Waste Water Sampling in Support of Field Activities

Between November 30, 1998 and December 18, 1998, the Wastewater Treatment System discharged approximately 30,660 gallons of treated water at a rate of 25 gallons per minute. All treated water was tested on a daily basis to ensure compliance with the discharge criteria established by the Newport POTW. Waste water samples were collected on November 30, 1998, December 1, 1998, December 2, 1998, December 3, 1998, December 11, 1998 and December 14, 1998 in accordance with the POTW permit. All concentrations were within the permitted discharge levels.

2.8.3 Waste Disposal Sampling

All wastes generated during the Interceptor Tank removal were sampled for waste characterization. On December 15, 1998, eight samples designated IT-WC-001 through IT-WC-008 were collected from the six roll off containers, one sample for each roll off, and two of the 23 - 55 gallon drums containing the IT wastewater's and sludge's. The waste characterization samples were analyzed for VOC 8260, SVOC 8270, TPH 8015, Total Cyanide, Ignitability, Reactivity, Corrosivity, Paint Filter and RCRA 8 Metals. The sludge samples exhibited 1,1,1 - trichloroethane concentrations of 10,000 ppm and 15,000 ppm respectively. This waste was classified as D003 class hazardous waste and transported to the Stablex facility in Blainville, Canada. The soils in the roll off containers were disposed of as F002/F005 class hazardous waste and transported to the EQ facility in Michigan for disposal.

2.8.4 Water Treatment System Derived Wastes

As part of the Water Treatment System (WTS) several derived waste streams were generated. They included Personal Protective Equipment (PPE), Filter bags, and sediments from the cleaning of the WTS aboveground influent tank.

2.9 Waste Disposal

All excavated soil, water treatment filter media, tank cleaning waters and sludge's were disposed as hazardous waste in accordance with all applicable permits and Federal, State, and Local regulations. All transporters and disposal facilities were approved by the Navy and Foster Wheeler in accordance with Foster Wheeler Environmental Corporation Regulatory Compliance Procedures.

2.9.1 Excavated Soil Disposal

As discussed in Section 2.8 Waste Disposal Classification, samples were taken to classify the soils removed. All soils were classified as hazardous waste EPA Waste Code: D003, F002, F005.

There was a total of 115.12 tons of soil disposed of from Grid 19 and a total of 87.55 tons of soil and debris disposed of from the removal of the Interceptor. All soils were disposed of at the Stablex Canada Incorporated facility, Blainville Quebec. (refer to Appendix F for disposal documentation)

2.9.2 Water Treatment System Derived Wastes Disposal

As part of the water treatment system several derived wastes streams were generated. They included Personnel protective Equipment (PPE), filter bags, filter media, and sediments from the cleaning of the system.

The filter media, filter bags and PPE from the Water Treatment System were classified the same as the soils. There was a total of 5.15 tons of waste disposed of at the Stablex Canada Incorporated facility in Blainville Quebec. (refer to Appendix F for disposal documentation)

The sediments from the cleaning of the system prior to demobilization were drummed. A total of 36 drums were generated. They were classified as liquid hazardous waste and sent to ENSCO, Inc. of El Dorado, AR for disposal.

2.9.3 Tank Cleaning Derived Wastes Disposal

During the cleaning of the CUST and the interceptor tank waste water as well as bottom sludge's were generated. A total of 12 drums were generated during the cleaning of the CUST and a total of 15 drums were generated during the cleaning of the interceptor tank. They were classified as liquid hazardous waste and sent to General Chemical Corp. of Framingham, MA for disposal. (refer to Appendix G for disposal documentation)

2.10 Site Restoration

Upon the completion of the post excavation sampling, the effected areas were restored. The interceptor tank grave and out-fall pipe excavation was lined with separation fabric. The tank grave was backfilled in compacted lifts up to within 6" of existing grade. The area then had 6" of 1.5" stone placed up to existing grade. The out-fall pipe excavation was backfilled and compacted. Then 6" of top soil was placed on the disturbed areas. The area was then seeded and mulched. Soil erosion control enhancements in the form of hay bails to slow surface runoff were put in-place. See Appendic E for clean soil certification.

3.0 DOCUMENTATION

Documentation of operations, record keeping, photographic evidence of work performed and analytical results are provided in this Tank Closure Report.

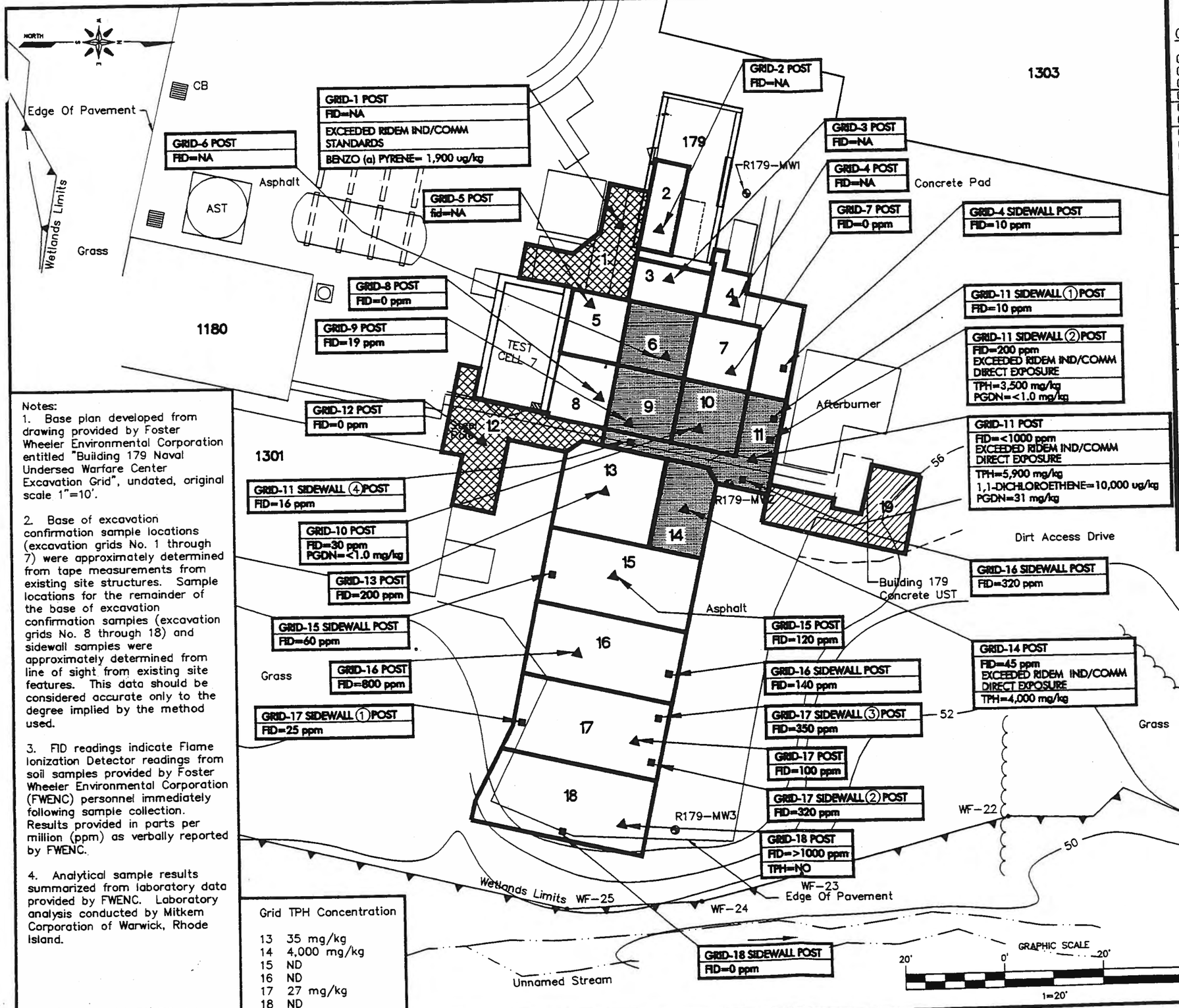
Appendix H of this report in a photographic log recording the activities that took place at Building 179. Photographs documented the existing conditions prior to work, during activities, and during restoration. Photograph location, date, and description of the activity recorded is included in the photo documentation log.

4.0 CONCLUSION

The CUST has been closed in place and the Interceptor has been removed in accordance with RIDEM UST regulations.

Contaminated soils have been removed, but post-excavation sampling indicates residual contamination exceeding GA and GB Leachability Criteria. Results are below Industrial/Commercial Direct Exposure Criteria, except for isolated exceedances for TPH and benzo(a) pyrene. Further assessment of soil and groundwater is warranted.

B-179 Rehabilitation Figure
Post-Excavation Analytical Soil Data Summary



Building 179 Post Excavation Soil FID Readings

GRID	Location	FID Reading
GRID 1.1	Floor	0.0 ppm
GRID 1.2	Floor	0.0 ppm
GRID 1.3	Floor	0.2 ppm
GRID 2	Floor	0.0 ppm
GRID 3.1	Floor	0.1 ppm
GRID 3.2	Floor	0.1 ppm
GRID 4.1	Sidewall	0.0 ppm
GRID 4.2	Sidewall	0.0 ppm
GRID 4.3	Sidewall	0.0 ppm
GRID 4.4	Sidewall	0.0 ppm
GRID 4.5	Sidewall	0.6 ppm
GRID 4.6	Sidewall	0.6 ppm
GRID 4.7	Sidewall	5.4 ppm
GRID 4.8	Sidewall	3.6 ppm
GRID 4.9	Floor	0.0 ppm
GRID 5	Floor	0.2 ppm
GRID 6.1	Floor	1.4 ppm
GRID 6.2	Floor	2.0 ppm
GRID 6.3	Floor	260 ppm
GRID 7.1	Floor	0.0 ppm
GRID 7.2	Floor	0.0 ppm
GRID 9.1	Floor	25 ppm
GRID 9.2	Floor	10 ppm
GRID 9.3	Floor	1.8 ppm
GRID 10.1	Floor	10 ppm
GRID 10.2	Floor	10 ppm
GRID 11.1	Sidewall	90 ppm
GRID 11.2	Sidewall	10 ppm
GRID 11.3	Sidewall	12 ppm
GRID 11.4	Sidewall	30 ppm
GRID 11.5	Sidewall	20 ppm
GRID 11.6	Sidewall	1 ppm
GRID 11.7	Sidewall	9 ppm
GRID 11.8	Sidewall	800 ppm
GRID 11.9	Sidewall	100 ppm
GRID 11.10	Sidewall	110 ppm
GRID 11.11	Floor	300 ppm
GRID 11.12	Floor	120 ppm
GRID 11.13	Floor	10 ppm
GRID 11.14	Floor	880 ppm
GRID 12.1	Floor	0.0 ppm
GRID 12.2	Floor	1 ppm
GRID 13.1	Sidewall	1.4 ppm
GRID 13.2	Sidewall	1.8 ppm
GRID 13.3	Floor	120 ppm
GRID 13.4	Floor	180 ppm
GRID 14.1	Floor	10 ppm
GRID 14.2	Floor	40 ppm
GRID 15.1	Sidewall	0.0 ppm
GRID 15.2	Floor	0.0 ppm
GRID 15.3	Floor	10 ppm
GRID 15.4	Floor	300 ppm
GRID 16.1	Sidewall	8 ppm
GRID 16.2	Sidewall	3.6 ppm
GRID 16.3	Floor	600 ppm
GRID 16.4	Floor	420 ppm
GRID 16.5	Floor	3 ppm
GRID 16/17?	Sidewall	2.8 ppm
GRID 16/17?	Sidewall	70 ppm
GRID 16/17?	Sidewall	0.0 ppm
GRID 16/17?	Sidewall	90 ppm
GRID 17.1	Sidewall	0.0 ppm
GRID 17.2	Sidewall	1.6 ppm
GRID 17.3	Sidewall	0.2 ppm
GRID 17.4	Sidewall	12 ppm
GRID 17.5	Sidewall	90 ppm
GRID 17.6	Sidewall	1.8 ppm
GRID 17.7	Sidewall	130 ppm
GRID 17.8	Floor	80 ppm
GRID 17.9	Floor	100 ppm
GRID 17/18?	Sidewall	80 ppm
GRID 18.1	Sidewall	1 ppm
GRID 18.2	Sidewall	0.0 ppm
GRID 18.3	Sidewall	0.0 ppm
GRID 18.4	Sidewall	0.0 ppm
GRID 18.5	Sidewall	0.0 ppm
GRID 18.6	Floor	200 ppm
GRID 18.7	Floor	700 ppm

Notes:
1. Base plan developed from drawing provided by Foster Wheeler Environmental Corporation entitled "Building 179 Naval Undersea Warfare Center Excavation Grid", undated, original scale 1"=10'.

2. Base of excavation confirmation sample locations (excavation grids No. 1 through 7) were approximately determined from tape measurements from existing site structures. Sample locations for the remainder of the base of excavation confirmation samples (excavation grids No. 8 through 18) and sidewall samples were approximately determined from line of sight from existing site features. This data should be considered accurate only to the degree implied by the method used.

3. FID readings indicate Flame Ionization Detector readings from soil samples provided by Foster Wheeler Environmental Corporation (FWENC) personnel immediately following sample collection. Results provided in parts per million (ppm) as verbally reported by FWENC.

4. Analytical sample results summarized from laboratory data provided by FWENC. Laboratory analysis conducted by Mitkem Corporation of Warwick, Rhode Island.

Grid TPH Concentration

13	35 mg/kg
14	4,000 mg/kg
15	ND
16	ND
17	27 mg/kg
18	ND

LEGEND

- ▲ BASE OF EXCAVATION CONFIRMATION SAMPLE
- ■ SIDEWALL CONFIRMATION SAMPLE
- EXCAVATION TO ELEVATION 53.0 NO FUTURE EXCAVATION PROPOSED
- EXCAVATION TO ELEVATION 50.50
- TO BE EXCAVATED TO ELEVATION 50.50 AT A LATER DATE

NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND

B-179 REHABILITATION POST-EXCAVATION ANALYTICAL DATA SUMMARY-SOIL

Date: 2/98

Project No. 01984-0130-00028

01984\BLDG179\0130\FIG-1B

APPENDIX B
Phase IA Geoprobe™ Investigation

- Phase IA Geoprobe™ Investigation Data
- Phase IA Geoprobe™ Investigation Data – QA/QC Data

Phase IA Geoprobe™ Investigation Data

TARGET ENVIRONMENTAL SERVICES, INC.

December 27, 1996

Liz Wright
TRC ENVIRONMENTAL
5 Waterside Crossing
Windsor, CT 06095

Dear Liz Wright:

Enclosed please find one (1) copy of the data produced by **TARGET** at the NUWC DIVISION site in Newport, RI. This data package includes final data tables, sample chain of custody documentation and final invoice.

If you have any questions or if I can be of further assistance, please give me a call at (410) 992-3089. We appreciate the opportunity to provide our services to you on this project.

Sincerely,

TARGET ENVIRONMENTAL SERVICES, INC.

Timothy W. Niblett
Vice President

TWN/csm
TRC003V

Enclosure

9180 RUMSEY ROAD, COLUMBIA , MD 21045 (410) 992-6622 FAX (410) 9920347

TARGET Jobcode TRC003V

TABLE 1

ANALYTE CONCENTRATIONS IN WATER VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
REPORTING LIMIT		10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L
GP-03	12/4/96	ND	ND	ND	ND	ND
GP-05	12/4/96	ND	ND	ND	ND	ND
GP-07	12/4/96	ND	ND	ND	ND	ND
GP-08	12/4/96	ND	ND	ND	ND	ND
GP-09	12/4/96	ND	ND	ND	ND	ND
GP-10	12/4/96	ND	ND	ND	ND	ND
GP-11	12/4/96	ND	ND	ND	ND	ND
GP-12	12/5/96	ND	ND	ND	ND	ND
GP-13	12/4/96	ND	ND	ND	ND	ND
GP-14	12/4/96	ND	ND	ND	ND	ND
GP-15	12/4/96	ND	ND	ND	ND	ND
GP-16	12/4/96	ND	ND	ND	ND	ND
GP-17	12/6/96	ND	ND	ND	ND	ND
GP-18	12/5/96	ND	ND	ND	ND	ND
GP-19	12/5/96	ND	ND	ND	ND	ND
GP-20	12/5/96	ND	ND	ND	ND	ND
GP-21	12/5/96	ND	ND	ND	ND	ND
GP-26	12/5/96	ND	ND	ND	ND	ND
GP-27	12/5/96	ND	ND	ND	ND	ND
GP-28	12/5/96	ND	ND	ND	ND	461
GP-29	12/5/96	ND	ND	ND	ND	69.7
GP-32	12/5/96	ND	ND	ND	ND	ND
GP-33	12/5/96	ND	ND	ND	ND	ND
GP-34	12/6/96	ND	ND	ND	ND	ND
GP-35	12/5/96	ND	ND	ND	ND	ND
GP-36	12/6/96	ND	ND	ND	ND	ND
GP-37	12/6/96	ND	ND	ND	ND	ND
GP-38	12/6/96	ND	ND	ND	ND	ND

** CALCULATED USING THE SUM OF THE AREAS OF ALL INTEGRATED CHROMATOGRAM PEAKS AND THE INSTRUMENT RESPONSE FACTOR FOR TOLUENE*

"ND" INDICATES NO ANALYTE DETECTED AT THE DETECTION LIMITS

Analyst: JIM PHILLIPS
Reviewed by: _____

TARGET Jobcode TRC003V

QA/QC TABLE 1

ANALYTE CONCENTRATIONS IN WATER VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
REPORTING LIMIT		10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L
METHOD BLANKS						
BLANK GP-15	12/4/96	ND	ND	ND	ND	ND
BLANK GP-27	12/5/96	ND	ND	ND	ND	ND
BLANK GP-36	12/6/96	ND	ND	ND	ND	ND
ANALYSIS OF DUPLICATE SAMPLES						
GP-13	12/4/96	ND	ND	ND	ND	ND
GP-13 DUP	12/4/96	ND	ND	ND	ND	ND
GP-18	12/5/96	ND	ND	ND	ND	ND
GP-18 DUP	12/6/96	ND	ND	ND	ND	ND
GP-29	12/5/96	ND	ND	ND	ND	69.7
GP-29 DUP	12/6/96	ND	ND	ND	ND	127

** CALCULATED USING THE SUM OF THE AREAS OF ALL INTEGRATED CHROMATOGRAM PEAKS AND THE INSTRUMENT RESPONSE FACTOR FOR TOLUENE*

"ND" INDICATES NO ANALYTE DETECTED AT THE REPORTING LIMIT

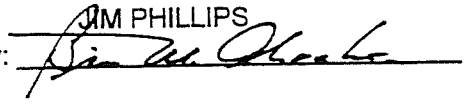
Analyst: JM PHILLIPS
Reviewed by: 

TABLE 2

ANALYTE CONCENTRATIONS IN WATER VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	DIL*	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	111TCA	CCl4*	TCE	112TCA	PCE
REPORTING LIMIT			2.50 ug/L	2.50 ug/L	2.50 ug/L	2.50 ug/L	2.50 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L
GP-03	12/4/96	40	ND	ND	ND	199	ND	118	ND	ND	ND	ND
GP-05	12/4/96	40	ND	ND	ND	253	ND	166	ND	ND	ND	ND
GP-07	12/4/96	8	ND	ND	ND	41.2	ND	17.9	ND	ND	ND	ND
GP-08	12/4/96	80	ND	ND	ND	ND	ND	20.0	ND	ND	ND	ND
GP-09	12/4/96	8	ND	ND	ND	ND	ND	2.40	ND	ND	ND	ND
GP-10	12/4/96	1	ND	ND	ND	ND	ND	0.31	ND	ND	ND	ND
GP-11	12/4/96	1	ND	ND	ND	ND	ND	0.29	ND	ND	ND	ND
GP-12	12/5/96	8	ND	ND	ND	31.5	ND	15.2	ND	ND	ND	ND
GP-13	12/4/96	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GP-14	12/4/96	1	ND	ND	ND	ND	ND	0.59	ND	ND	ND	ND
GP-15	12/4/96	1	ND	ND	4.40	ND	ND	ND	ND	ND	ND	ND
GP-16	12/4/96	10	ND	ND	ND	48.0	ND	31.0	ND	ND	ND	ND
GP-17	12/6/96	40	ND	ND	ND	242	ND	163	ND	ND	ND	ND
GP-18	12/5/96	1	ND	ND	ND	ND	ND	1.01	ND	ND	ND	ND
GP-19	12/5/96	1	29.2	ND	ND	2.14	50.9	1.61	ND	ND	0.39	ND
GP-20	12/5/96	40	ND	ND	ND	ND	ND	79.2	ND	ND	ND	ND
GP-21	12/5/96	1	4.05	ND	ND	9.91	ND	0.77	ND	ND	ND	ND
GP-26	12/5/96	120	ND	ND	ND	ND	ND	235	ND	ND	ND	ND
GP-27	12/5/96	120	ND	ND	ND	3260	ND	788	ND	ND	ND	ND
GP-28	12/5/96	8	ND	ND	ND	142	ND	15.7	ND	ND	ND	ND
GP-29	12/5/96	1	ND	ND	ND	17.5	ND	0.42	ND	ND	ND	ND
GP-32	12/5/96	8	ND	ND	ND	ND	ND	17.3	ND	ND	ND	ND
GP-33	12/5/96	1	ND	ND	ND	17.7	ND	0.40	ND	ND	ND	ND
GP-34	12/6/96	120	ND	ND	ND	348	ND	163	ND	ND	ND	ND
GP-35	12/5/96	8	ND	ND	ND	57.1	ND	33.0	ND	ND	ND	ND
GP-36	12/6/96	8	ND	ND	ND	ND	ND	1.52	ND	ND	ND	ND
GP-37	12/6/96	8	ND	ND	ND	105	25.9	62.3	ND	ND	ND	ND
GP-38	12/6/96	8	ND	ND	ND	39.9	ND	22.1	ND	ND	ND	ND

"ND" INDICATES NO ANALYTE DETECTED AT OR ABOVE THE REPORTING LIMIT

11DCE = 1,1-dichloroethene
11DCA = 1,1-dichloroethane
111TCA = 1,1,1-trichloroethane
112TCA = 1,1,2-trichloroethane
CH2Cl2 = methylene chloride
c12DCE = cis-1,2-dichloroethene
CCl4 = carbon tetrachloride
PCE = tetrachloroethene
t12DCE = trans-1,2-dichloroethene
TCE = trichloroethene

** 11DCE/TCTFA and CCl4/12DCA are co-eluting pairs and are reported in concentrations of 11DCE and CCl4, respectively.*

Analyst: JIM PHILLIPS
Reviewed by: _____

QA/QC TABLE 2

ANALYTE CONCENTRATIONS IN WATER VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	111TCA	CCl4*	TCE	112TCA	PCE
REPORTING LIMIT		2.50 ug/L	2.50 ug/L	2.50 ug/L	2.50 ug/L	2.50 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L
METHOD BLANKS											
BLANK GP-15	12/4/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BLANK GP-27	12/5/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BLANK GP-36	12/6/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANALYSIS OF DUPLICATE SAMPLES											
GP-13	12/4/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GP-13 DUP	12/4/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GP-18	12/5/96	ND	ND	ND	ND	ND	1.01	ND	ND	ND	ND
GP-18 DUP	12/6/96	ND	ND	ND	ND	ND	0.77	ND	ND	ND	ND
GP-29	12/5/96	ND	ND	ND	17.5	ND	0.42	ND	ND	ND	ND
GP-29 DUP	12/6/96	ND	ND	ND	24.6	2.93	0.66	ND	ND	ND	ND

"ND" INDICATES NO ANALYTE DETECTED AT OR ABOVE THE REPORTING LIMITS

11DCE = 1,1-dichloroethene
11DCA = 1,1-dichloroethane
111TCA = 1,1,1-trichloroethane
112TCA = 1,1,2-trichloroethane
CH2Cl2 = methylene chloride
c12DCE = cis-1,2-dichloroethene
CCl4 = carbon tetrachloride
t12DCE = trans-1,2-dichloroethene
TCE = trichloroethene
PCE = tetrachloroethene
** 11DCE/TCTFA and CCl4/12DCA are co-elu*

Analyst: JIM PHILLIPS
Reviewed by: _____

TABLE 3

ANALYTE CONCENTRATIONS IN WATER VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	DIL*	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	111TCA	CCl4*	TCE	112TCA	PCE
REPORTING LIMIT			2.50 ug/L	2.50 ug/L	2.50 ug/L	2.50 ug/L	2.50 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L	0.25 ug/L
GP-03	12/3/96	1	5.35	ND	ND	57.9	12.7	70.8	ND	0.25	ND	ND
GP-05	12/3/96	1	8.57	ND	ND	61.5	2.92	85.7	ND	0.53	ND	ND
GP-07	12/3/96	1	2.69	ND	ND	26.1	11.5	9.20	ND	0.23	ND	ND
GP-12	12/4/96	1	ND	ND	ND	16.1	ND	9.78	ND	ND	ND	ND
GP-20	12/5/96	1	20.5	ND	ND	33.1	28.1	68.5	ND	ND	ND	ND
GP-26	12/5/96	1	28.1	ND	2.88	62.9	16.9	118	ND	2.91	ND	0.27
GP-27	12/5/96	1	63.5	ND	ND	564	12.6	160	ND	0.42	0.88	ND
GP-28	12/5/96	1	4.28	ND	ND	63.4	2.70	13.1	ND	0.29	0.34	ND
GP-32	12/5/96	1	5.16	ND	ND	7.30	14.9	9.37	ND	ND	ND	ND
GP-34	12/6/96	8	ND	ND	ND	146	ND	135	ND	ND	ND	ND

"ND" INDICATES NO ANALYTE DETECTED AT OR ABOVE THE REPORTING LIMIT

11DCE = 1,1-dichloroethene
11DCA = 1,1-dichloroethane
111TCA = 1,1,1-trichloroethane
112TCA = 1,1,2-trichloroethane
CH2Cl2 = methylene chloride
c12DCE = cis-1,2-dichloroethene
CCl4 = carbon tetrachloride
PCE = tetrachloroethene
t12DCE = trans-1,2-dichloroethene
TCE = trichloroethene

** 11DCE/TCTFA and CCl4/12DCA are co-eluting pairs and are reported in concentrations of 11DCE and CCl4, respectively.*

Analyst: JIM PHILLIPS
Reviewed by:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: TRC0003V

CLIENT: TRC ENVIRONMENTAL
ADDRESS: 5 WATERSIDE CROSSING WINDSOR CT 06095
PHONE: 401 841 3370 FAX: 401 841 4747
CLIENT PROJECT #: _____ PROJECT MANAGER: _____

DATE: 12/3/96 PAGE 1 OF 1
P.O.# : _____
LOCATION: NUWC DIVISION NEWPORT R.I.
COLLECTOR: Randy Beaud DATE OF COLLECTION: 12/3/96

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PNA 610/8100 (g & d)	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GP-03			H2O	40 ml VOA	X	X															N		2	
GP-05			↓	↓	↓	↓															↓		2	
GP-07			↓	↓	↓	↓															↓		2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:00 Am 12/3/96	[signature]	6:00pm 12/3/96
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:
3 SAMPLES

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: [illegible]

CLIENT: [illegible] ENVIRONMENTAL

ADDRESS: 5 WATERSIDE CROSSING WINDSOR CT 06095

PHONE: (01) 841 8370 FAX: (01) 841 0147

CLIENT PROJECT #: _____ PROJECT MANAGER: _____

DATE: 12/4/96 PAGE 1 OF 1

P.O.# : _____

LOCATION: NEW BRITAIN - NEWPORT CT

COLLECTOR: RANDY BRAND DATE OF COLLECTION: 12/4/96

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GP-06				40ml VOA	X	X																N		2	
GP-07																								2	
GP-10																									
GP-11																								2	
GP-14																								2	
GP-15																								2	
GP-16																								2	
GP-18																								1	
GP-1.																								2	
GP-17																								2	
GP-18																								2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	12/4/96	[signature]	12/4/96 5:00pm
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	

LABORATORY NOTES:

11 samples

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: 7K0225V

CLIENT: TEC ENVIRONMENTAL

ADDRESS: 5 WATERSIDE CROSSING WINDSOR CT 06095

PHONE: (401 688 3370 FAX: (401 841 4764

CLIENT PROJECT #: _____ PROJECT MANAGER: _____

DATE: 12/5/96 PAGE 1 OF 1

P.O.# : _____

LOCATION: NAVAL UNDERSEA WARFARE NEWPORT, R.I.

COLLECTOR: LARRY BRAND DATE OF COLLECTION: 12/4/96

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GP-25			H2O	40ml VOA	X	X															N		2	
GP-26																							2	
GP-27																							2	
GP-28																							2	
GP-29																							2	
GP-32																							2	
GP-33																							2	
GP-34																							2	
GP-35																							2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	5:00pm 12/5/96	[signature]	12/5/96 5:10pm
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

Phase IA Geoprobe™ Investigation Data
QA/QC Data

MITKEM CORPORATION

December 31, 1996

TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095

Attn: Mr. Steve Farrick

RE: Lab Project # C1464

Dear Mr. Farrick:

Enclosed is the Data Report of the required analysis for the sample associated with the Project. If you have any questions regarding this Report please call either Kin Chiu or me.

We appreciate your business.

Sincerely,

Anjana K. Saini

Anjana K. Saini
QA/QC Officer

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755 • (401) 732-3400 • Fax (401) 732-3499
1232 East Broadway, Suite 210 • Tempe, Arizona 85282 • (602) 303-9535 • Fax (602) 921-2883
email: mitkem19@mail.idt.net

MITKEM CORPORATION

Client:. TRC Environmental Corp.

Client Project: NA

Lab Project: C1464

Date Samples Received: 12/7/96

Project Narrative

This data package included the analysis result for nine (9) aqueous samples that were received from TRC Environmental Corp. on December 7, 1996. Analyses were performed per specification in the Chain of Custody. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

All of the analyses were performed according to method requirement. No unusual observation was made for the analysis.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Anjana K. Saini

Anjana K. Saini, PhD
QA/QC Director

Data Qualifiers:

J This flag indicates an estimated value due to either
- the compound was detected at below the Reporting Limit, or
- estimated concentration for Tentatively Identified Compound

B This flag indicates the analyte was also detected in the associated Method Blank

D This flag indicates the analyte concentration was obtained from a diluted analysis

E This flag indicates the analyte concentration exceeded the Calibration Range

P This flag is used for Pesticides/PCB/Herbicide analyte when there is a greater than 50% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. The lower of the two values is reported in the Analysis Report.

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-07
Lab ID: C1464-01
Analysis: Method 8260

Analysis Date: 12/17/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	130	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	7	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	14	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	110	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	13	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	61	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: B-179-GP-07
Lab ID: C1464-01

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	91%
Toluene-d8	97%
4-Bromofluorobenzene	100%

ND = Not detected

QC Batch: V1B1217A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-11
Lab ID: C1464-02
Analysis: Method 8260

Analysis Date: 12/17/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	7	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: B-179-GP-11
Lab ID: C1464-02

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	91%
Toluene-d8	97%
4-Bromofluorobenzene	100%

ND = Not detected

QC Batch: V1B1217A

006

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-27
Lab ID: C1464-03
Analysis: Method 8260

Analysis Date: 12/18/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	51	5
Bromomethane	ND	5
Chloroethane	7,600 D	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	130	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	8	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	4,800 D	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	9	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	940 D	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	6	5
1,2-Dichloroethane	6	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	9	5

MITKEM CORPORATION

Client ID: B-179-GP-27
Lab ID: C1464-03

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	15	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	7	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	93%
Toluene-d8	99%
4-Bromofluorobenzene	101%

009

ND = Not detected

QC Batch: V1B1217A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-34
Lab ID: C1464-04
Analysis: Method 8260

Analysis Date: 12/18/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	330 D	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	7	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	7	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	150	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	180	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: B-179-GP-34
Lab ID: C1464-04

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	91%
Toluene-d8	98%
4-Bromofluorobenzene	102%

010

ND = Not detected

QC Batch: V1B1217A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-35
Lab ID: C1464-05
Analysis: Method 8260

Analysis Date: 12/18/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	5	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	52	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	45	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: B-179-GP-35
Lab ID: C1464-05

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	92%
Toluene-d8	99%
4-Bromofluorobenzene	98%

012

ND = Not detected

QC Batch: V1B1218A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-36
Lab ID: C1464-06
Analysis: Method 8260

Analysis Date: 12/18/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

013

MITKEM CORPORATION

Client ID: B-179-GP-36
Lab ID: C1464-06

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Surrogate Recovery:		
1,2-Dichloroethane-d4	92%	
Toluene-d8	98%	
4-Bromofluorobenzene	99%	

014

ND = Not detected

QC Batch: V1B1218A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: B-179-GP-40
Lab ID: C1464-07
Analysis: Method 8260

Analysis Date: 12/18/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	320	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	8	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	6	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	150	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	180	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

015

MITKEM CORPORATION

Client ID: B-179-GP-40
Lab ID: C1464-07

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Surrogate Recovery:		
1,2-Dichloroethane-d4	90%	
Toluene-d8	98%	
4-Bromofluorobenzene	101%	

016

ND = Not detected

QC Batch: V1B1217A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: EB-1
Lab ID: C1464-08
Analysis: Method 8260

Analysis Date: 12/17/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

017

MITKEM CORPORATION

Client ID: EB-1
Lab ID: C1464-08

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	90%
Toluene-d8	98%
4-Bromofluorobenzene	89%

ND = Not detected

QC Batch: V1B1217A

019

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: Trip Blank
Lab ID: C1464-09
Analysis: Method 8260

Analysis Date: 12/17/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	8	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

019

MITKEM CORPORATION

Client ID: Trip Blank
Lab ID: C1464-09

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	91%
Toluene-d8	97%
4-Bromofluorobenzene	98%

020

ND = Not detected

QC Batch: V1B1217A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID:
Lab ID: Method Blank, V1B1217A
Analysis: Method 8260

Analysis Date: 12/17/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

021

MITKEM CORPORATION

Client ID:
Lab ID: Method Blank, V1B1217A

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	91%
Toluene-d8	97%
4-Bromofluorobenzene	98%

ND = Not detected

022

QC Batch: V1B1217A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID:
Lab ID: Method Blank, V1B1218A
Analysis: Method 8260

Analysis Date: 12/18/96
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

023

MITKEM CORPORATION

Client ID:
Lab ID: Method Blank, V1B1218A

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5

Surrogate Recovery:	
1,2-Dichloroethane-d4	86%
Toluene-d8	96%
4-Bromofluorobenzene	97%

024

ND = Not detected

QC Batch: V1B1218A

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID:
Lab ID: Lab Control Sample, V1B1217A
Analysis: Method 8260

Analysis Date: 12/17/96
Matrix: Aqueous

Analyte	% Recovery
Dichlorodifluoromethane	NS
Chloromethane	97
Vinyl chloride	92
Bromomethane	118
Chloroethane	105
Trichlorofluoromethane	NS
1,1-Dichloroethene	91
Carbon disulfide	119
Iodomethane	NS
Acetone	97
Methylene chloride	91
trans-1,2-Dichloroethene	97
1,1-Dichloroethane	96
Vinyl acetate	127
2,2-Dichloropropane	NS
cis-1,2-Dichloroethene	103
Methyl ethyl ketone	103
Bromochloromethane	NS
Chloroform	102
1,1,1-Trichloroethane	100
Carbon tetrachloride	99
1,1-Dichloropropene	NS
Benzene	100
1,2-Dichloroethane	102
Trichloroethene	100
1,2-Dichloropropane	102
Dibromomethane	NS
Bromodichloromethane	106
2-Chloroethyl vinyl ether	NS
cis-1,3-Dichloropropene	105
4-Methyl-2-pentanone	103
Toluene	101

025

MITKEM CORPORATION

Client ID:
Lab ID: Lab Control Sample, V1B1217A

Analyte	% Recovery
trans-1,3-Dichloropropene	106
1,1,2-Trichloroethane	106
Tetrachloroethene	103
1,3-Dichloropropane	103
2-Hexanone	109
Dibromochloromethane	109
1,2-Dibromoethane (EDB)	NS
Chlorobenzene	101
1,1,1,2-Tetrachloroethane	NS
Ethylbenzene	105
Xylenes, total	103
Styrene	107
Bromoform	106
Isopropylbenzene	NS
Bromobenzene	NS
1,1,2,2-Tetrachloroethane	106
1,2,3-Trichloropropane	NS
n-Propylbenzene	NS
2-Chlorotoluene	NS
4-Chlorotoluene	NS
1,3,5-Trimethylbenzene	NS
tert-Butylbenzene	NS
1,2,4-Trimethylbenzene	NS
sec-Butylbenzene	NS
1,3-Dichlorobenzene	NS
4-Isopropyltoluene	NS
1,4-Dichlorobenzene	NS
1,2-Dichlorobenzene	NS
n-Butylbenzene	NS
1,2-Dibromo-3-chloropropane	NS
1,2,4-Trichlorobenzene	NS
Hexachlorobutadiene	NS
1,2,3-Trichlorobenzene	NS
MTBE	NS

QC Batch: V1B1217A

NS = Not spiked

026

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Matrix Spike Summary

Client: TRC Environmental Corp.
Client ID: B-179-GP-07
Lab ID for Matrix Spike: C1464-01 MS
Lab ID for Matrix Spike Duplicate: C1464-01 MSD
Analysis: Method 8260

Matrix: Aqueous

Analysis Date for Matrix Spike: 12/17/96
Analysis Date for Matrix Spike Duplicate: 12/17/96

	% Recovery		
Analyte	Matrix Spike	Matrix Spike Dup.	% RPD
1,1-Dichloroethene	85	88	3
Benzene	95	98	3
Trichloroethene	94	99	5
Toluene	97	99	2
Chlorobenzene	98	99	1

QC Batch: V1B1217A

027

MITKEM CORPORATION

Lab Project #: **C1464**
Client Name: **TRC Environmental Corporation**
Client Project #: **NA**
Client PO #:
Project Name: **NA**
Date Due: **12/17/96**
Total Price: **$** -
Deliverables Req'd: **NA**
Case Completed: **YES**

Logged In By: MS
Reviewed By: KL
Date: 12/7/96 Time: 13:25

Lab ID	Client ID	Matrix	Analysis	Price	Sampled	Received	Comments
-01	B-179-GP-07	AQ	8260		12/4/96	12/7/96	
-02	B-179-GP-11	AQ	8260		12/4/96	12/7/96	
-03	B-179-GP-27	AQ	8260		12/5/96	12/7/96	
-04	B-179-GP-34	AQ	8260		12/5/96	12/7/96	
-05	B-179-GP-35	AQ	8260		12/5/96	12/7/96	
-06	B-179-GP-36	AQ	8260		12/6/96	12/7/96	
-07	B-179-GP-40	AQ	8260		12/5/96	12/7/96	
-08	EB-1	AQ	8260		12/6/96	12/7/96	
-09	Trip Blank	AQ	8260		12/6/96	12/7/96	

2 Cases VOC Vials W/HCL

4 Cases 1 Liter Amber

028

MITKEM CORPORATION

ab ID	Client ID	Matrix	Analysis	Price	Sampled	Received	Comments							
					TPH	IR	BNA	Herb	P/P	Wet	Met	V-GC	V-MS	Sub
OTES:					0	0	0	0	0	0	0	0	19 (14)	0

RIGINAL REPORT GOES TO:
RC Environmental Corporation
Waterside Crossing
Vindsor, CT 06095
TT: Steve Farrick
hone: 841-3370
ax: 841-4747

INVOICE GOES TO:
same

MITKEM CORPORATION
175 Metro Center Boulevard ● Warwick, Rhode Island 02886-1755
(401) 732-3400 ● Fax (401) 732-3499
1232 East Broadway Road, Suite 210 ● Tempe, Arizona 85282
(602 303-9535 ● Fax (602) 921-2883

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY TRC ENVIR. CORP	PHONE 401 841 3370	COMPANY TRC	PHONE 841 3370	LAB REFERENCE #:
NAME TRAICO CARBELLI	FAX 841447	NAME STEVE TARRICH	FAX 841-4747	
ADDRESS 5 WATERSIDE CROSSING		ADDRESS		TURNAROUND TIME:
CITY/ST/ZIP WINDSOR, CT 06095		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	8260 VOC	COMMENTS
B-177-GP-01	4 DEC 96 1355		X	X				2	X	ALL SAMPLES
B-177-GP-11	4 DEC 96 0935		X	X				2	X	MUST BE
B-177-GP-27	5 DEC 96 1040		X	X				2	X	ANALYZED PRIOR
B-177-GP-34	5 DEC 96 1430		X	X				2	X	TO 12 DEC 96
B-177-GP-35	5 DEC 96 1450		X	X				2	X	AT 0935.
B-177-GP-36	6 DEC 96 0815		X	X				2	X	
B-177-GP-40	5 DEC 96 1200		X	X				2	X	
EB-1	6 DEC 96 1220		X	X				2	X	
TRIP BLANK	1			X				2	X	

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1st	[signature]	6 DEC 96 1345	[signature]	12/7/96 1102
2nd		/		/
3rd		/		/

ADDITIONAL REMARKS:

COOLER TEMP:

MITKEM CORPORATION

Sample Condition Form

Received By: MS	Date: 12/7/96	MITKEM Project #: C1464
Client Project Description/Number:		Client: TRC

Condition:		Lab ID	Client ID	Remarks
1) Custody Seal(s)	(Present)/Absent	C1464-01	B-179-GI-01	
	(Intact)/Broken	-02	-11	
		-03	-27	
2) Custody Seal Number(s)	NA	-04	-34	
		-05	-35	
		-06	-36	
3) Chain-of-Custody Record(s)	(Present)/Absent	-07	-40	
		-08	EB-1	
4) Cooler Temperature	4°C	-09	TripBlank	
Coolant Condition	ice			
5) Airbill(s)	(Present)/Absent			
Airbill Number(s)	~~7723216944~~00			
6) Sample Bottles	(Intact)			
	Broken			
	Leaking			
7) Date Received	12/7/96			
8) Time Received	11:00			
				C31
9) Project Due Date	12/17/96			

Last Page of Data Report

APPENDIX C
Phase IB Geoprobe™ Investigation

- Phase IB Geoprobe™ Investigation Data
- Phase IB Geoprobe™ Investigation Data – QA/QC Data

Phase IB Geoprobe™ Investigation Data

MyKroWaters

November 10, 1998

TRC Environmental Corporation
Attn: Mr. Steve Farrick
5 Waterside Crossing
Windsor, CT 06095
401-832-5881
401-832-4747 Fax

Project #: 971017
Project Name: TRC - Newport

Dear Mr. Farrick,

MyKroWaters, Inc. was retained on September 28 - October 2 and October 12 - 13 by TRC Environmental Corporation to install mykrowells and perform On-Site Gas Chromatograph Analysis.

Please find attached Mykrowell Logs and the Rapid Installation Capabilities. In addition, there are tables that contain the results of the On-Site Gas Chromatograph Analysis. The On-Site Laboratory Standard Operating Procedures are also provided at the end of the report.

We enjoyed working with TRC Environmental Corporation and look forward to future work together.

Should you have any questions or comments concerning this report or any other matters, please do not hesitate to contact us at 800-588-8680. We look forward to hearing from you.

Sincerely,

Deborah R. Farnsworth,
President

Table 1
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
9/28/98
(concentrations in ppb)

Compound	GP-104	GP-100	GP-101	GP-102	GP-103	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	7.3	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethane	BDL	BDL	6.2	55	20	4
1,1,1-Trichloroethane	BDL	BDL	8.4	41	10	4
Trichloroethene	BDL	BDL	BDL	BDL	BDL	4

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 2
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
9/29/98
(concentrations in ppb)

Compound	GP-111	GP-112	GP-115	GP-114	GP-113	GP-123	GP-122	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	8.3	4.3	BDL	BDL	13	8.7	21	4
1,1-Dichloroethane	58	44	BDL	BDL	39	52	97	4
1,1,1-Trichloroethane	58	33	BDL	BDL	46	42	92	4
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	4.8	4

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 4
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/1/98
(concentrations in ppb)

Compound	GP-91	GP-29A	GP-29B	GP-90A	GP-115	GP-32A	GP-130A	GP-110A	GP-120A	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	BDL	BDL	BDL	75	BDL	10	7.7	68	15	4
1,1-Dichloroethane	6.1	BDL	BDL	130	BDL	16	21	160	95	4
1,1,1-Trichloroethane	BDL	BDL	BDL	120	BDL	49	12	130	87	4
Trichloroethene	BDL	BDL	BDL	5.8	BDL	BDL	BDL	6.4	BDL	4

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 5
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/2/98
(concentrations in ppb)

Compound	GP-100A	GP-130	GP-125	GP-137	GP-95	GP-96	GP-86	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	3.5	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	66	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	35	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	140	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	150	76	BDL	7.6	21	BDL	BDL	4
1,1-Dichloroethane	180	130	BDL	79	96	BDL	BDL	4
1,1,1-Trichloroethane	150	130	BDL	40	73	BDL	BDL	4
Trichloroethene	6.4	9.5	BDL	BDL	BDL	BDL	BDL	4
Total BTEX/Petroleum	BDL	BDL	BDL	BDL	1600	BDL	BDL	

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 5-continued
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/2/98
(concentrations in ppb)

Compound	GP-85	GP-80	GP-82	Detection Limit
Vinyl chloride	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	4
Methylene chloride	7.1	97	43	4
1,1-Dichloroethane	14	140	110	4
1,1,1-Trichloroethane	BDL	98	110	4
Trichloroethene	BDL	BDL	BDL	4
Total BTEX/Petroleum	BDL	BDL	BDL	

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 6
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/12/98
(concentrations in ppb)

Compound	GP-120	GP-121	GP-32B	GP-110	GP-132	GP-142	GP-122	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	BDL	BDL	4.0	BDL	BDL	BDL	BDL	4
1,1-Dichloroethane	12	33	21	BDL	36	5.0	25	4
1,1,1-Trichloroethane	BDL	22	20	22	23	5.7	22	4
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 6-continued
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/12/98
(concentrations in ppb)

Compound	GP-150	GP-147	GP-151	GP-10A	GP-88	GP-87	GP-148	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	50	4
Methylene chloride	97	9.2	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethane	170	52	BDL	BDL	BDL	BDL	BDL	4
1,1,1-Trichloroethane	140	43	BDL	BDL	BDL	BDL	BDL	4
Trichloroethene	8.7	BDL	BDL	BDL	BDL	BDL	9.6	4

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 7
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/13/98
(concentrations in ppb)

Compound	GP-160B	GP-150	GP-100A	GP-152	SW-95	SW-104	SW-96	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	BDL	110	100	BDL	BDL	BDL	120	4
1,1-Dichloroethane	BDL	160	180	BDL	8.4	BDL	230	4
1,1,1-Trichloroethane	BDL	140	120	BDL	20	9.6	200	4
Trichloroethene	BDL	9.7	BDL	42	BDL	BDL	BDL	4

Note: 1. BDL indicates target analyte not present above method detection limit.

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-32B
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 3
Screen Slot Width: 0.015"	Tubing: 12' (10/12)
Water Level: 6.3' BGS (10/12)	Vials:
Refusal: Yes, at 8.3' BGS	Bailers: 1 (10/12)

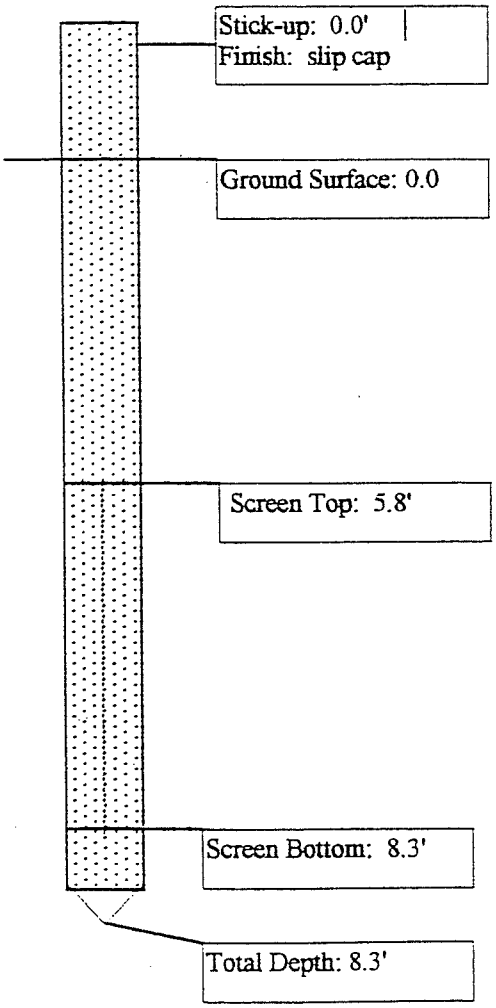
Well development: Inertial Bailer

Sampling Intervals:

S1 - 5.8'-8.3' brown fine grain sand,
high turbidity

Comments:
well was dry on 10/1
cut off 2.0' of riser pipe
sampled and analyzed on 10/12

Total Riser: 5.8'
Screen: 1 x 2.5'
Collars: 1
Finish: slip cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-32A
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

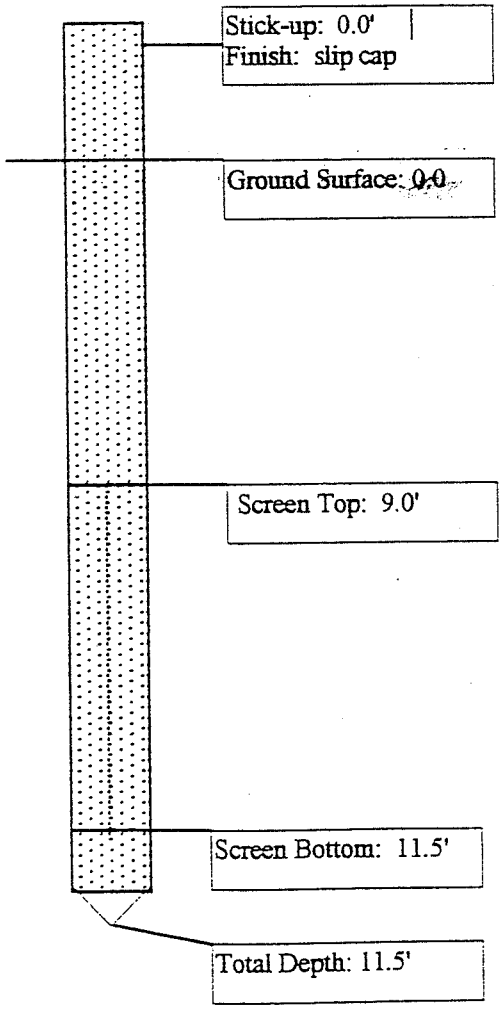
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 2
Screen Slot Width: 0.015"	Tubing: 15'
Water Level: 4.3' BGS	Vials:
Refusal: Yes, at 11.5' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - 9.0'-11.5' light brown fine grain
sand, moderate turbidity



Comments:

cut off 1.5' of riser pipe

Total Riser: 9.0'
Screen: 1 x 2.5'
Collars: 1
Finish: slip cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-31A
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

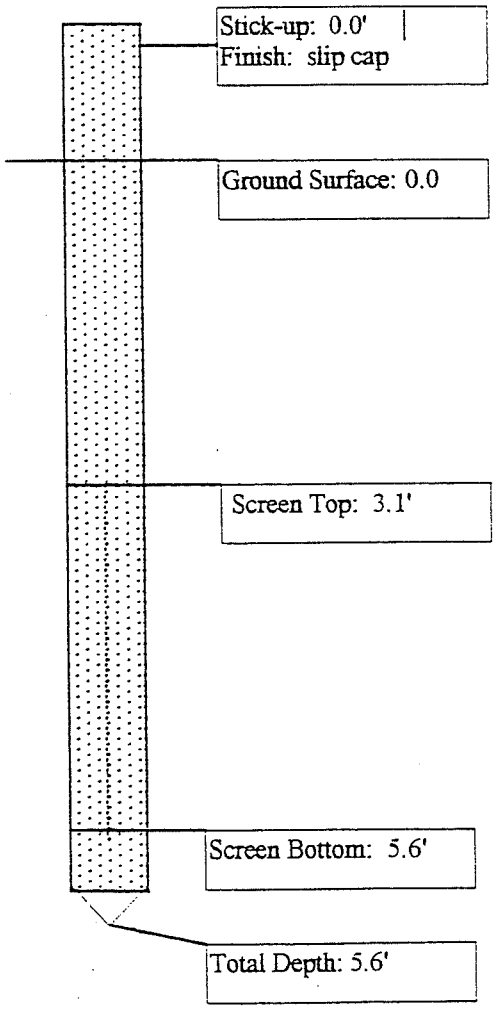
Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8' (10/12)
Water Level: well was dry	Vials:
Refusal: Yes, at 5.6' BGS	Bailers: 1 (10/12)

Well development: Inertial Bailer

Sampling Intervals:

Comments:
well was dry on 10/1 and 10/12
cut off 7.4' of riser pipe

Total Riser: 3.1'
Screen: 1 x 2.5'
Collars: 1
Finish: slip cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-29B
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 16'
Water Level: 5.9' BGS	Vials:
Refusal: Yes, at 13.25' BGS	Bailers: 1

Well development: Inertial Bailer

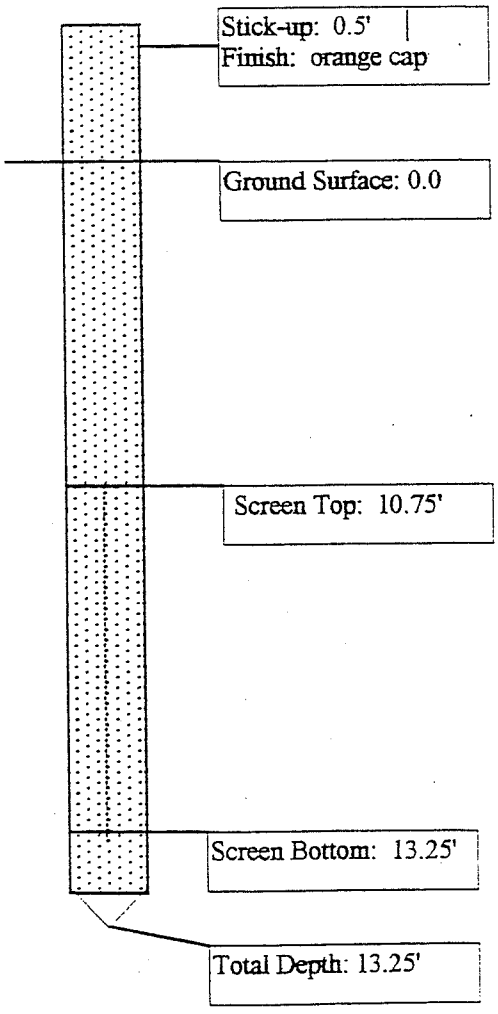
Sampling Intervals:

S1 - 10.75'-13.25' brown fine grain
sand, moderate turbidity

Comments:

cut off 3.75' of riser pipe

Total Riser: 11.25'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-29A
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 15'
Water Level: 5.74' BGS	Vials:
Refusal: Yes, at 12.4' BGS	Bailers: 1

Well development: Inertial Bailer

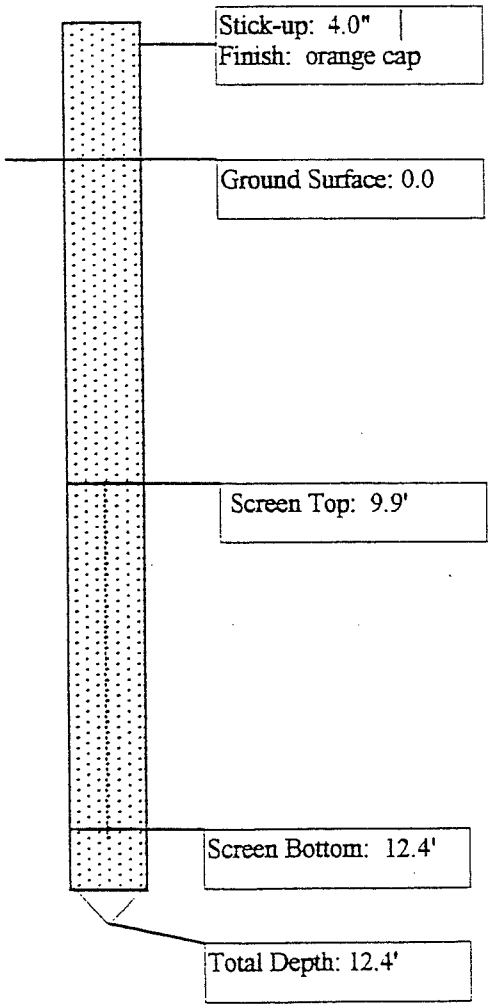
Sampling Intervals:

S1 - 9.9'-12.4' greyish brown silty sand,
high turbidity

Comments:

cut off 0.3' of riser pipe

Total Riser: 10.2'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

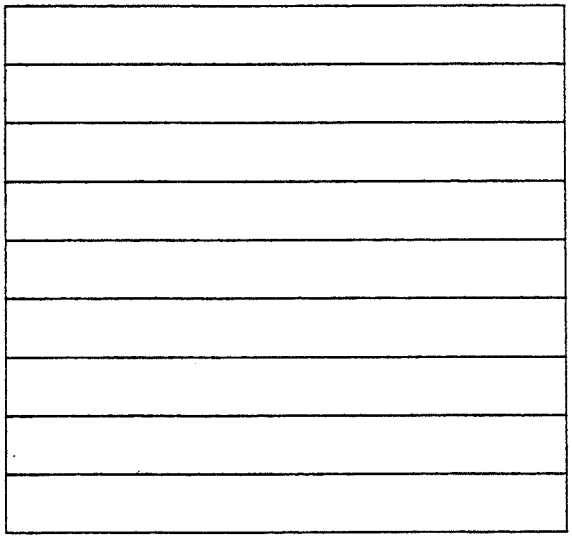
Well ID: GP-142
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

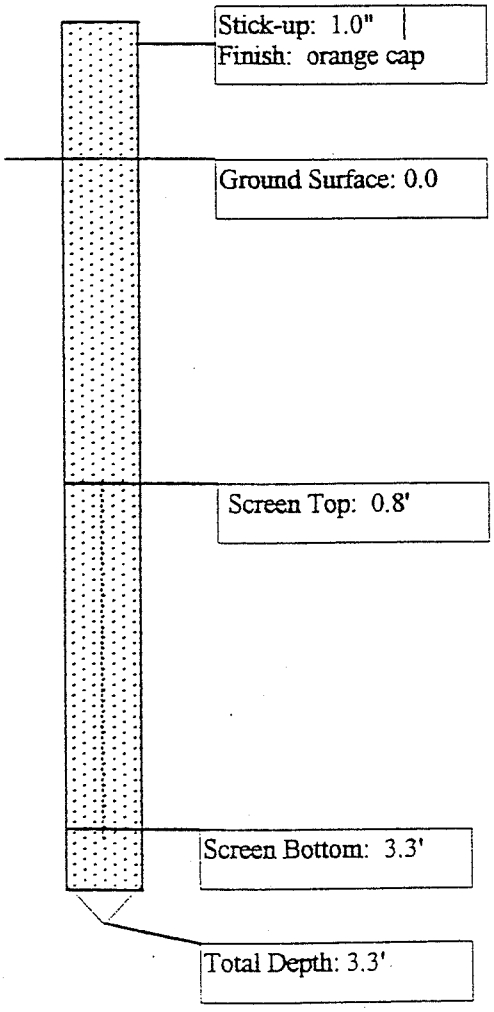
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 6' (10/12)
Water Level: 2.5' BGS	Vials:
Refusal: Yes, at 3.3' BGS	Bailers: 1 (10/12)

Well development: Inertial Bailer

Sampling Intervals:





Comments:

cut off 10'1" of riser pipe
sampled and analyzed on 10/12

Total Riser: 0.9'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-141
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing:
Water Level:	Vials:
Refusal: Yes, at 3.4' BGS	Bailers:

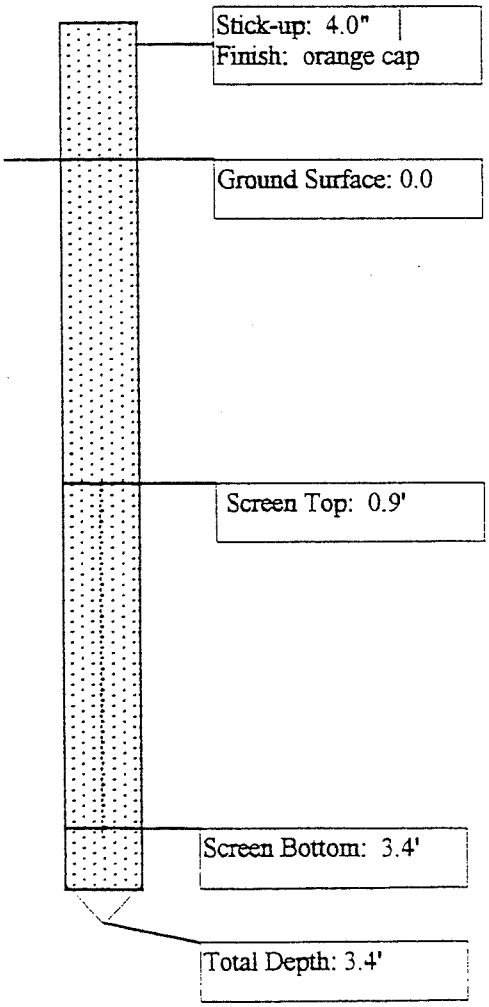
Well development: Inertial Bailer

Sampling Intervals:

Comments:

pulled and abandoned

Total Riser:
Screen:
Collars:
Finish:



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-130A
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 13'
Water Level: well was muddy	Vials:
Refusal: Yes, at 11.75' BGS	Bailers: 1

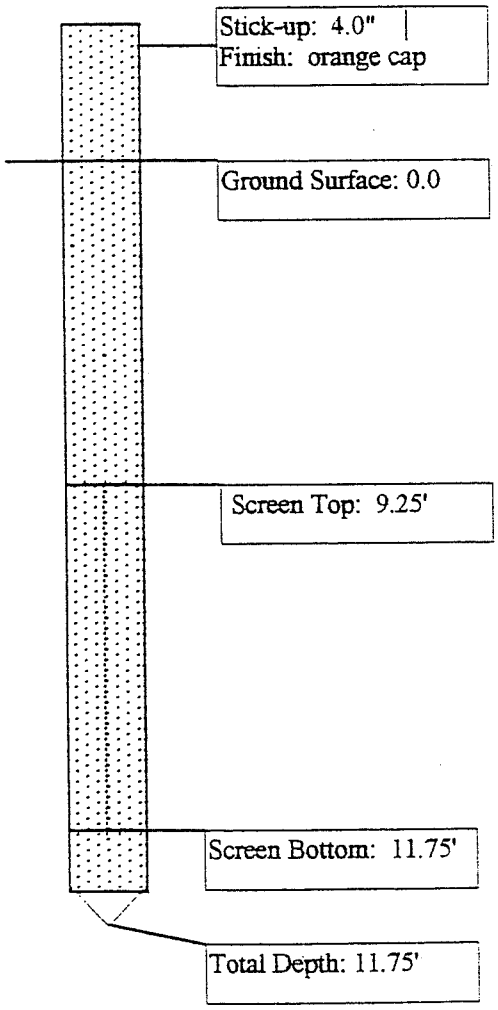
Well development: Inertial Bailer

Sampling Intervals:

Comments:

cut off 1.0' of riser pipe
sampled and analyzed on 10/01

Total Riser: 9.55'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-124
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

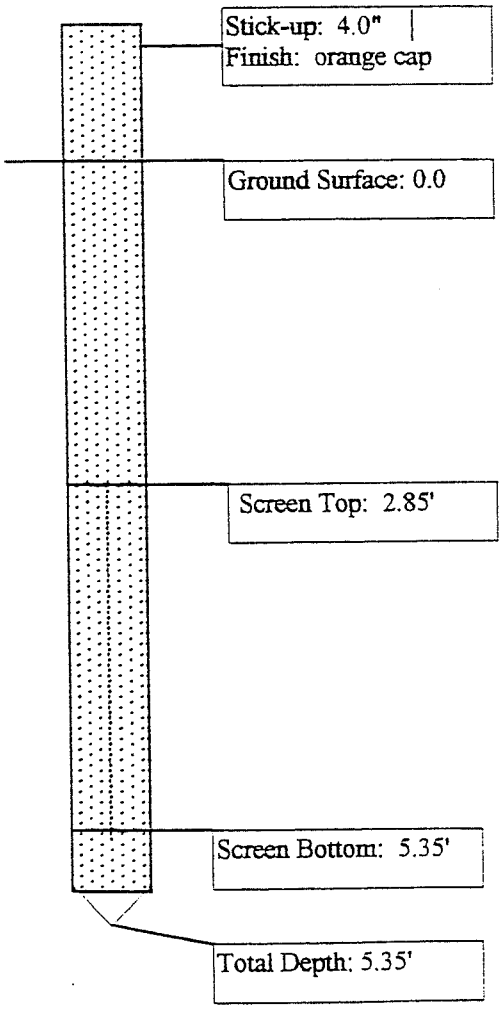
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 1.2' BGS	Vials:
Refusal: Yes, at 5.35' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - 2.85'-5.35' greyish brown silty
sand, high turbidity



Comments:

cut off 3.1' of riser pipe

Total Riser: 3.15'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-100A
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 12' + 12' (10/13)
Water Level: 4.8' BGS	Vials:
Refusal: Yes, at 9.75' BGS	Bailers: 1 + 1 (10/13)

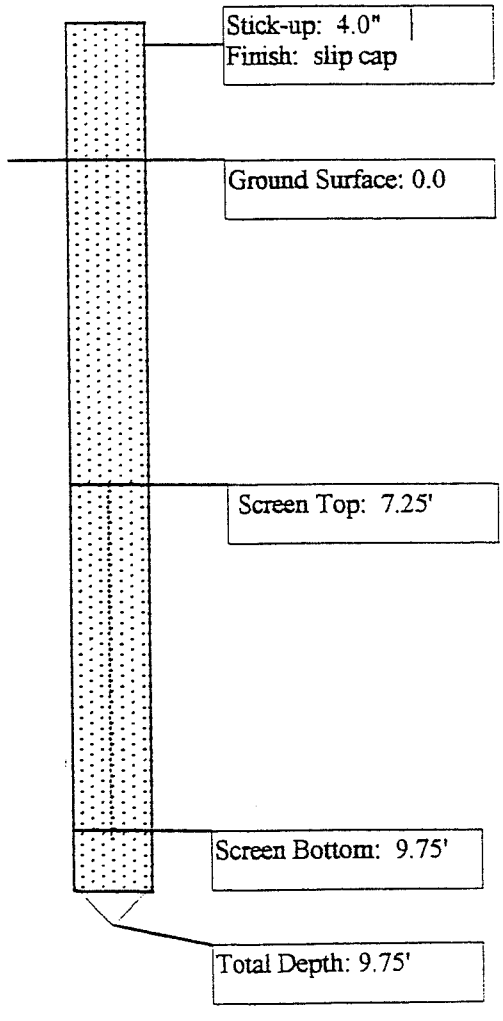
Well development: Inertial Bailer

Sampling Intervals:

S1 - 7.25'-9.75' brown fine grain sand,
high turbidity

Comments:
cut off 3.25' of riser pipe
sampled and analyzed on 9/30
resampled and analyzed on 10/13

Total Riser: 7.25'
Screen: 1 x 2.5'
Collars: 1
Finish: slip cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-94
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 12'
Water Level: 2.9' BGS	Vials:
Refusal: Yes, at 8.25' BGS	Bailers: 1

Well development: Inertial Bailer

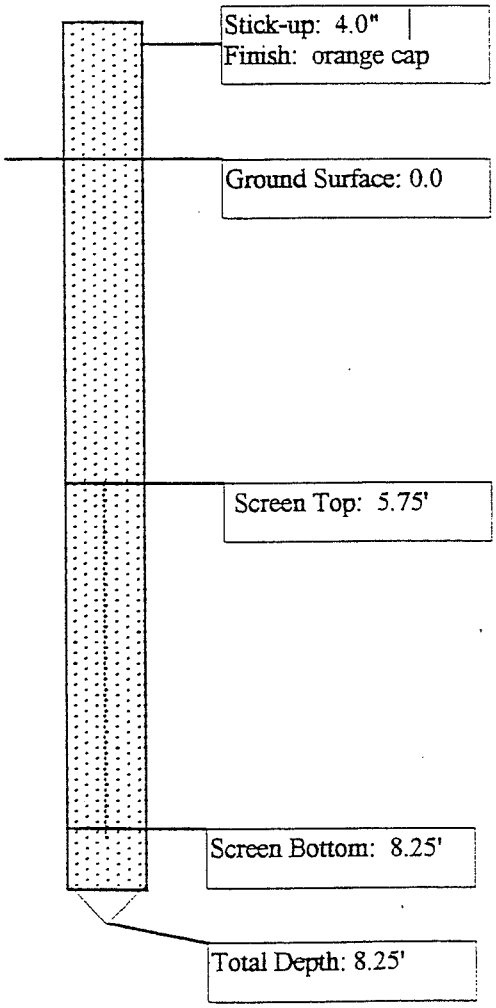
Sampling Intervals:

S1 - 5.75'-8.25' brown fine grain sand,
moderate turbidity

Comments:

cut off 4.4 ' of riser pipe

Total Riser: 6.05'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-93
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

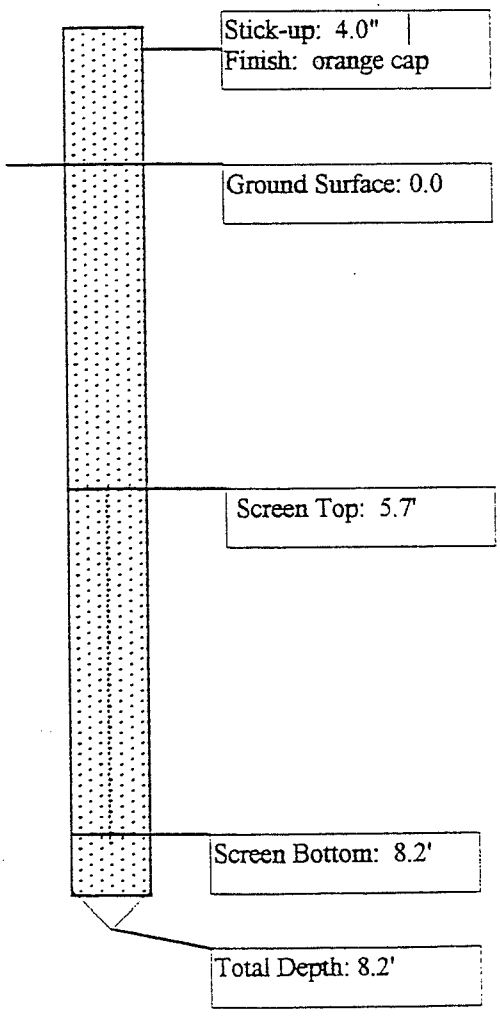
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 11'
Water Level: 6.2' BGS	Vials:
Refusal: Yes, at 8.2' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - 5.7'-8.2' brown fine grain sand,
moderate turbidity



Comments:

cut off 4.5 ' of riser pipe

Total Riser: 6.0'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-92
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 12'
Water Level: 4.0' BGS	Vials:
Refusal: Yes, at 9.0' BGS	Bailers: 1

Well development: Inertial Bailer

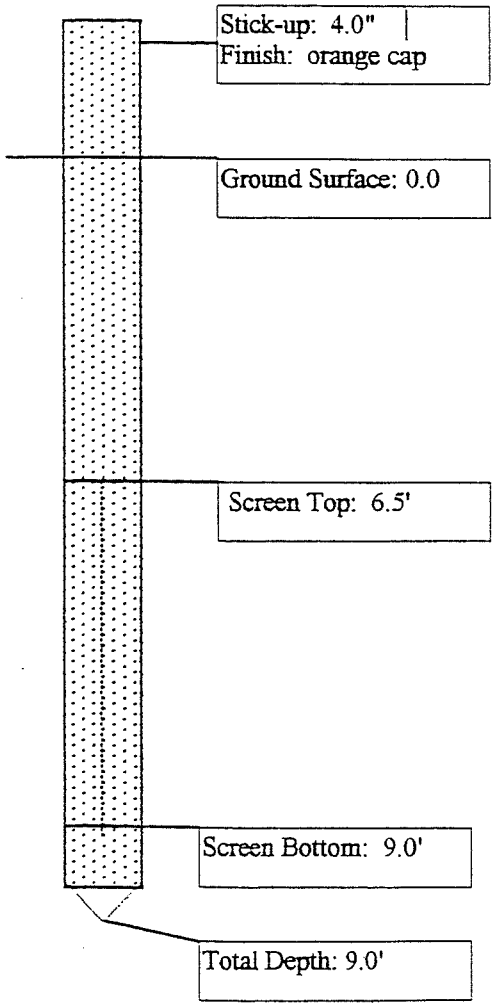
Sampling Intervals:

S1 - 6.5'-9.0' greyish brown silty sand, high turbidity

Comments:

cut off 0.8' of riser pipe

Total Riser: 6.8'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-91
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

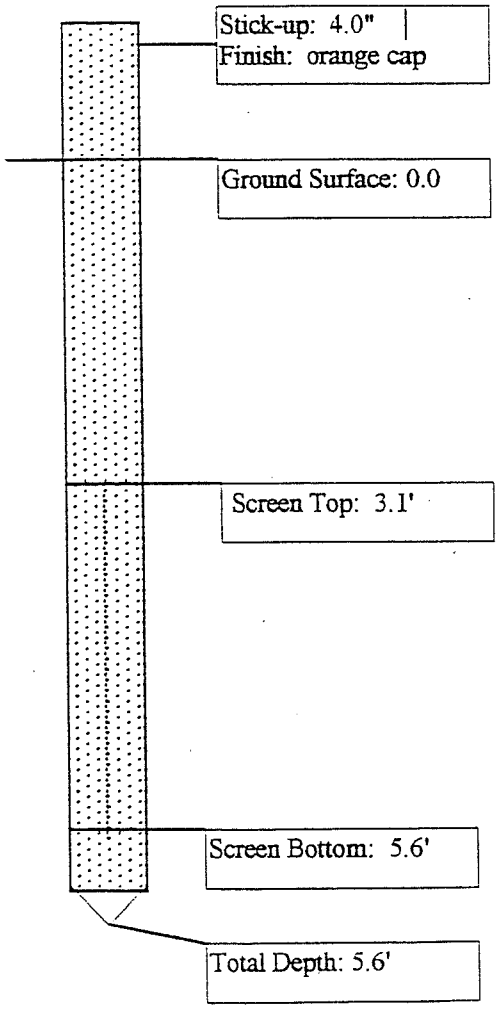
Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level:	Vials:
Refusal: Yes, at 5.6' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

Comments:

Total Riser: 3.4'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-90
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10'
Water Level: 4.7' BGS	Vials:
Refusal: Yes, at 8.3' BGS	Bailers: 1

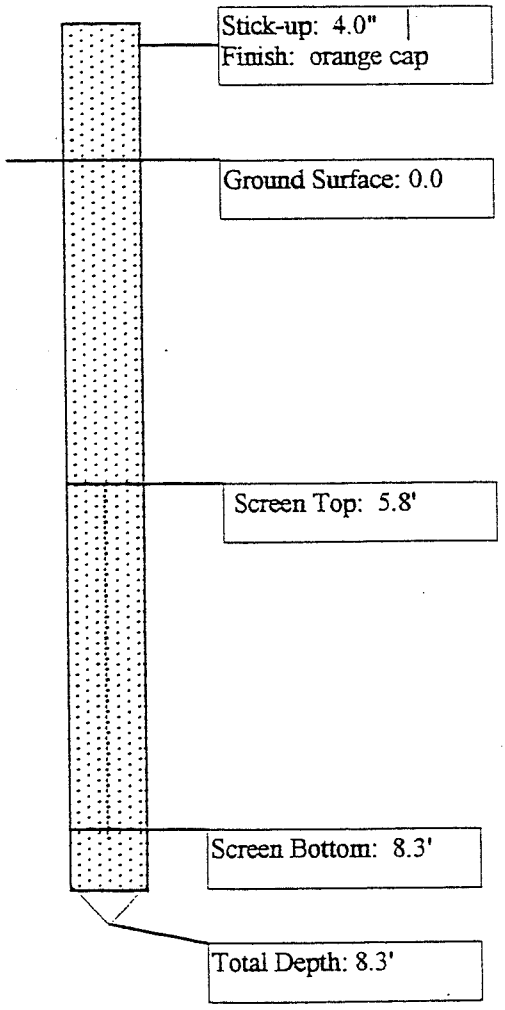
Well development: Inertial Bailer

Sampling Intervals:

S1 - 5.8'-8.3' greyish brown silty sand,
high turbidity

Comments:

Total Riser: 6.1'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-81
Installation Date: 9/30/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 11'
Water Level: 3.0' BGS	Vials:
Refusal: Yes, at 8.6' BGS	Bailers: 1

Well development: Inertial Bailer

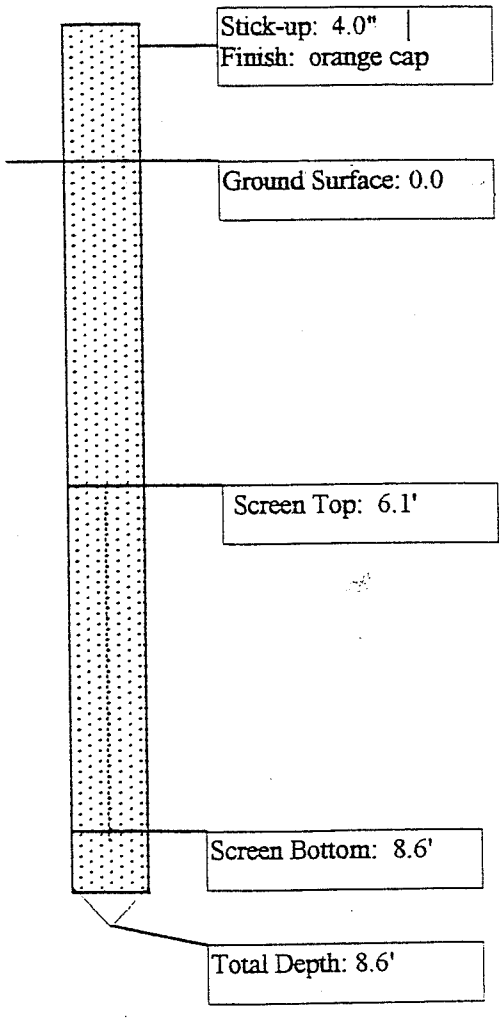
Sampling Intervals:

S1 - 6.1'-8.6' greyish brown silty sand,
high turbidity

Comments:

cut off 7.0' of riser pipe

Total Riser: 6.4'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-132
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

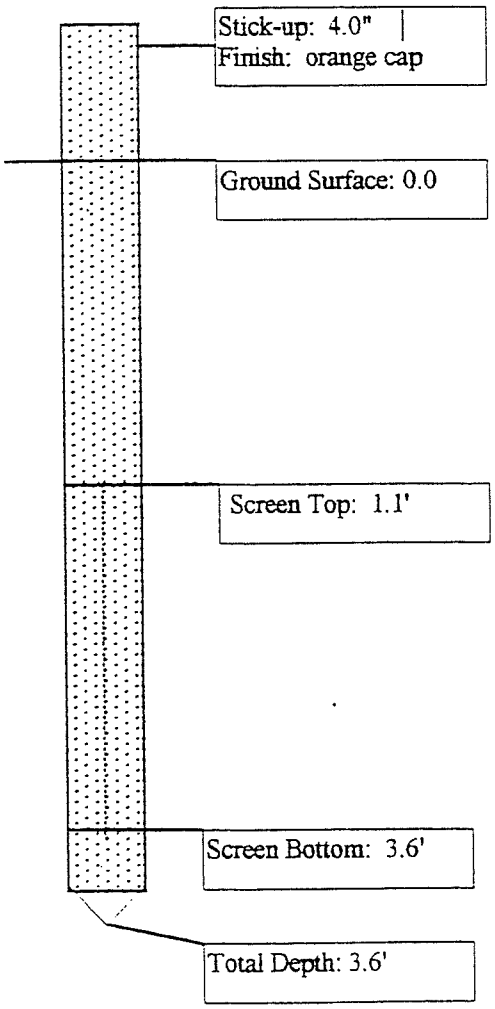
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 6' (9/30) + 6' (10/12) + 8' (10/12)
Water Level: 2.2' BGS (10/12)	Vials:
Refusal: Yes, at 3.6' BGS	Bailers: 1 (9/30) + 2 (10/12)

Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.1'-3.6' brown fine grain sand,
moderate turbidity



Comments:
cut off 6.65' of riser pipe
well was dry on 9/30
sample collected and analyzed on 10/12

Total Riser: 1.4'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-131
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 7' (9/30)
Water Level: 2.9' BGS	Vials:
Refusal: Yes, at 5.4' BGS	Bailers: 1 (9/30)

Well development: Inertial Bailer

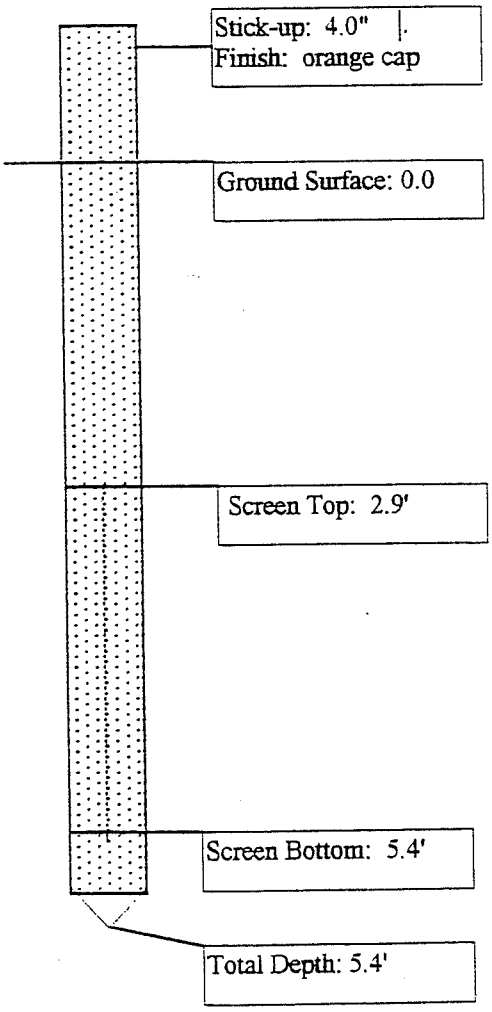
Sampling Intervals:

S1 - 2.9'-5.4' brown silty sand, high
turbidity

Comments:

cut off 7.3' of riser pipe

Total Riser: 3.2'
Screen: 1 x 2.5'
Collars: 1
Finish:



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-130
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

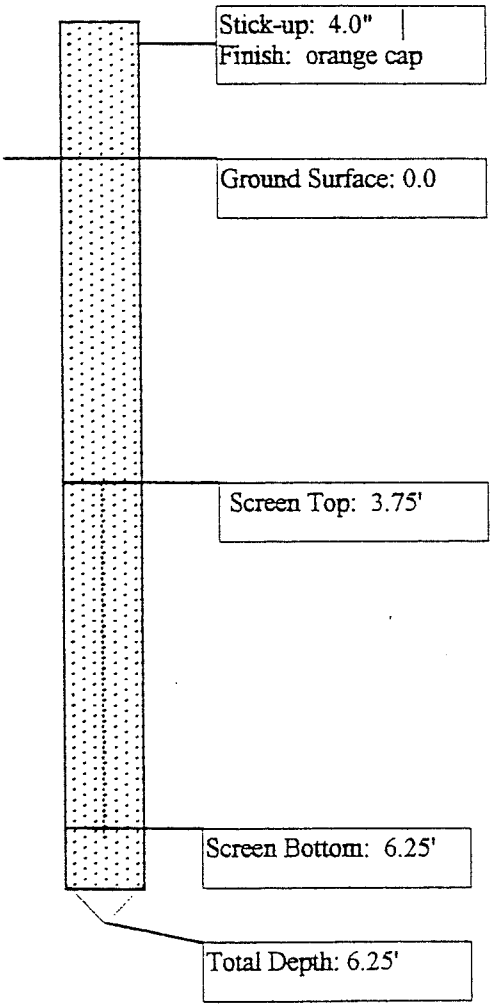
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8' (9/30)
Water Level: 4.0' BGS	Vials:
Refusal: Yes, at 6.25' BGS	Bailers: 1 (9/30)

Well development: Inertial Bailer

Sampling Intervals:

S1 - 3.75'-6.25' brown silty sand, high turbidity



Comments:
sample collected and analyzed on 9/30

Total Riser: 4.05'
Screen: 1 x 2.5'
Collars: 1
Finish:

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-123
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 12'
Water Level: 0.9' BGS	Vials:
Refusal: Yes, at 8.25' BGS	Bailers: 1

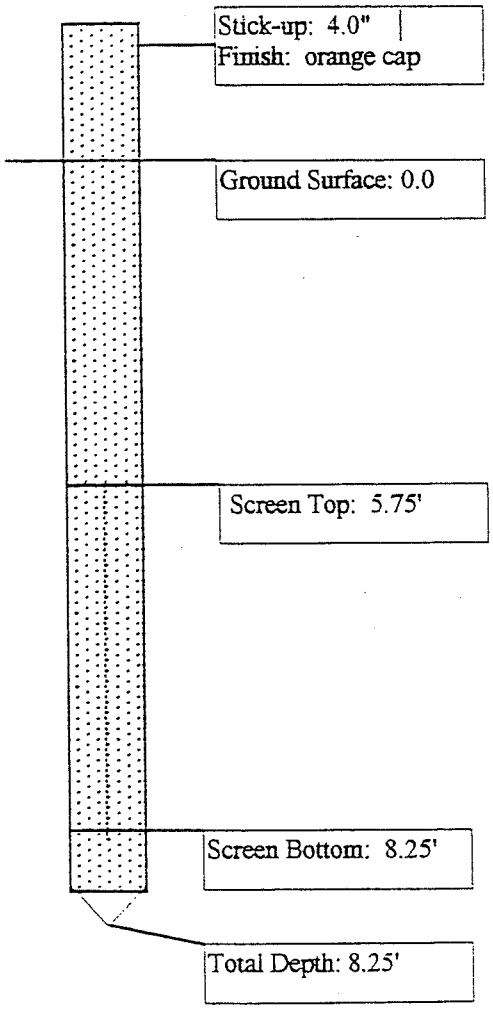
Well development: Inertial Bailer

Sampling Intervals:

S1 - 5.75'-8.25' grey silty sand, high
turbidity

Comments:

Total Riser: 6.05'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-122
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8' + 8' (10/12)
Water Level: 2.8' BGS	Vials:
Refusal: Yes, at 4.1' BGS	Bailers: 1 + 1 (10/12)

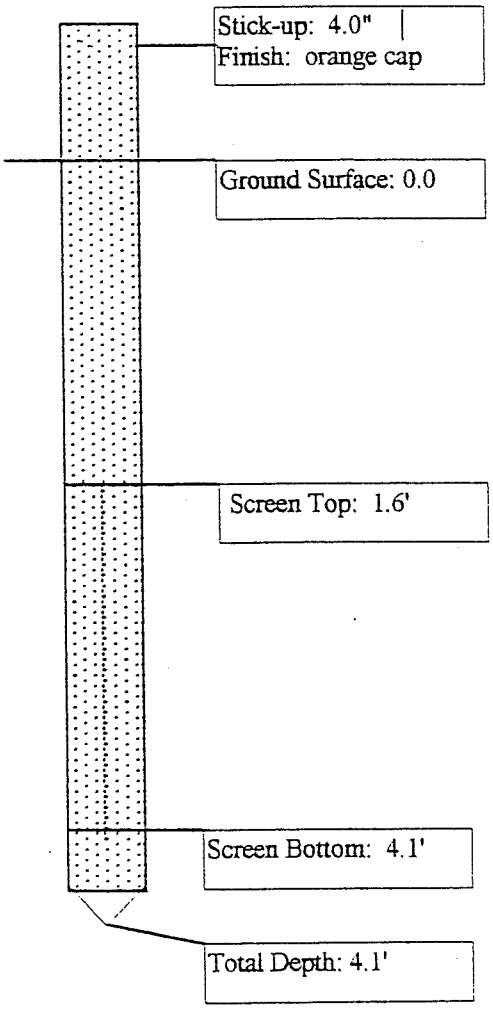
Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.5'-4.0' brown fine grain sand,
moderate turbidity

Comments:
cut off 3.7' of riser pipe

Total Riser: 1.9'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-121
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8' + 8' (10/12)
Water Level: well was dry	Vials:
Refusal: Yes, at 4.25' BGS	Bailers: 1 + 1 (10/12)

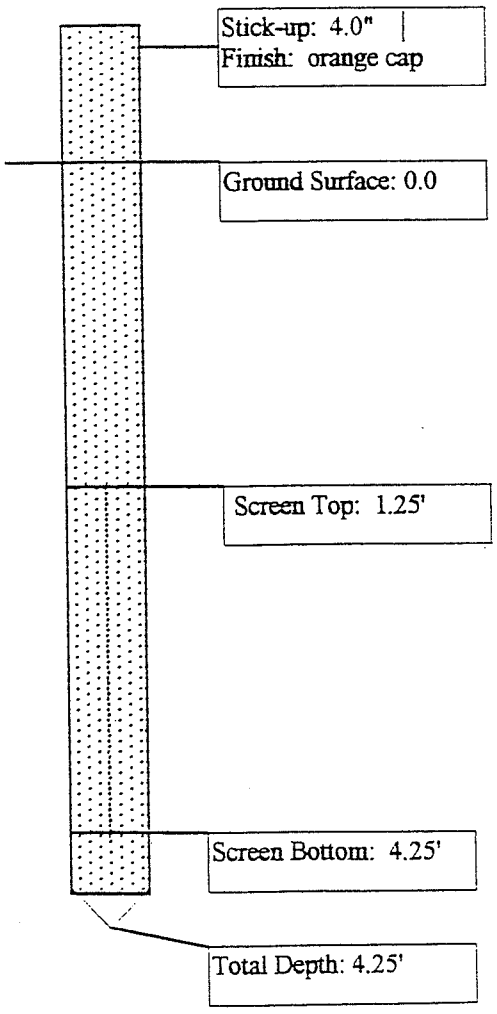
Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.25'-4.25' brown fine grain sand,
moderate turbidity

Comments:
cut off 3.25' of riser pipe
well was dry on 9/29 and 9/30
water level: 2.0' BGS on 10/12

Total Riser: 1.5'
Screen: 1 x 3.0'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-120
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8' (9/30) + 8' (10/12)
Water Level: well was dry	Vials:
Refusal: Yes, at 3.9' BGS	Bailers: 1 (9/30) + 1 (10/12)

Well development: Inertial Bailer

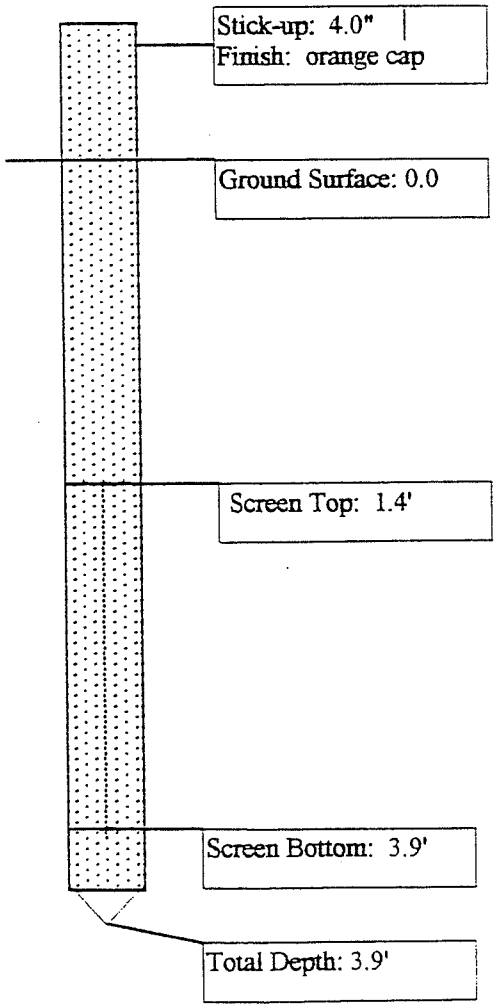
Sampling Intervals:

S1 - 1.4'-3.9' brown fine grain sand,
moderate turbidity

Comments:

well was dry on 9/29 and 9/30
water level: 2.2' BGS on 10/12

Total Riser: 1.7'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-115
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

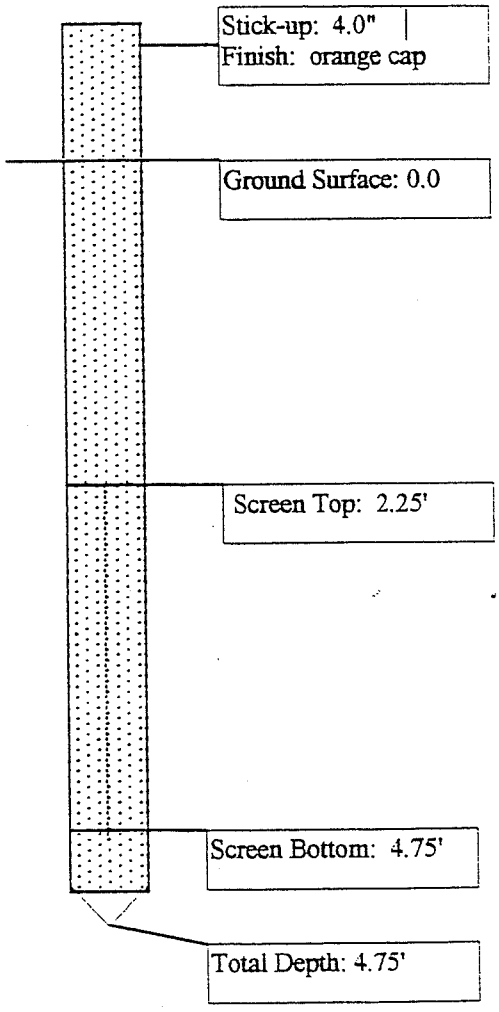
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 18'
Water Level: 0.45' BGS	Vials:
Refusal: Yes, at 4.75' BGS	Bailers: 2

Well development: Inertial Bailer

Sampling Intervals:

S1 - 2.25'-4.75' grey silty sand



Comments:

cut off 4.95' of riser pipe

Total Riser: 2.55'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-114
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

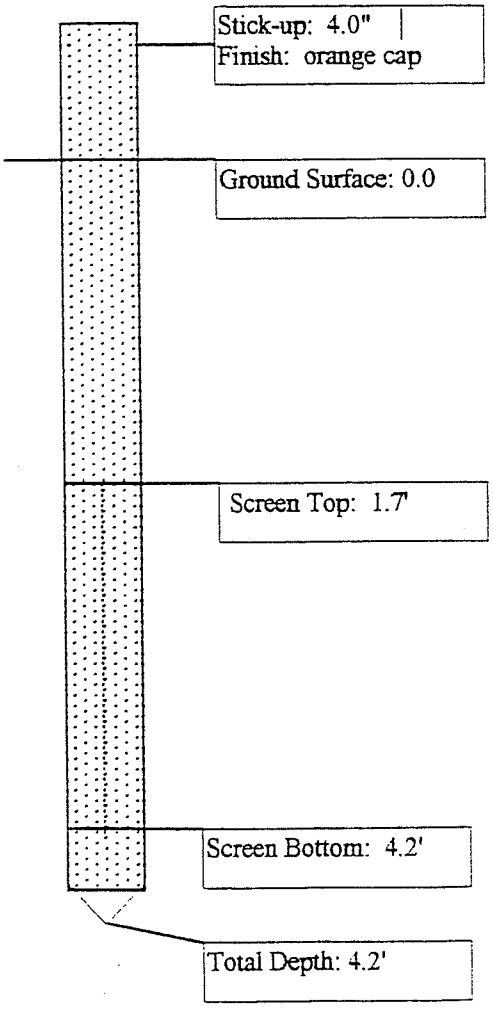
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 1.15' BGS	Vials:
Refusal: Yes, at 4.2' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.7'-4.2' dark brown fine grain
sand, moderate turbidity



Comments:

cut off 5.5' of riser pipe

Total Riser: 2.0'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-113
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 2.4' BGS	Vials:
Refusal: Yes, at 3.8' BGS	Bailers: 1

Well development: Inertial Bailer

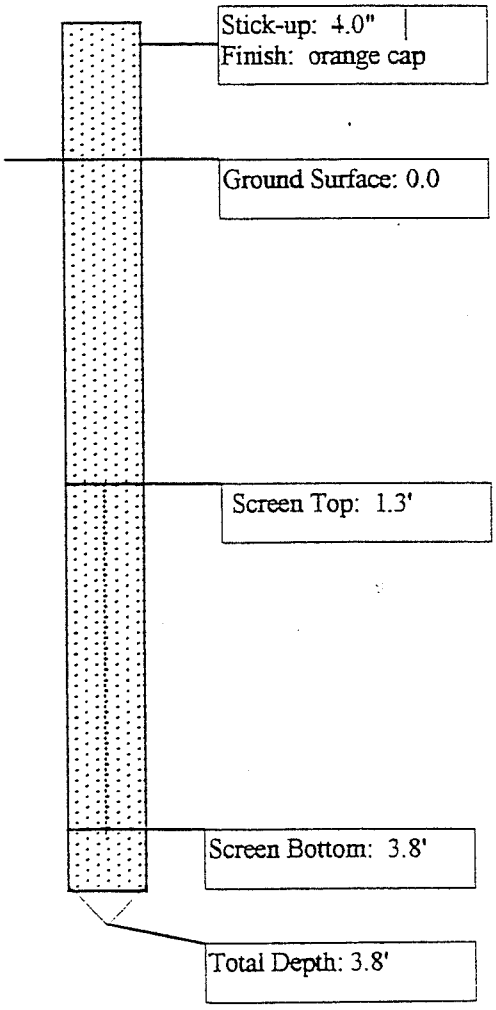
Sampling Intervals:

S1 - 1.3'-3.8' reddish brown fine grain
sand, moderate turbidity

Comments:

cut off 5.0' of riser pipe

Total Riser: 1.6'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-110
Installation Date: 9/29/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8' (9/30) + 7' (10/12)
Water Level: well was dry	Vials:
Refusal: Yes, at 3.75'	Bailers: 1 (9/30) + 1 (10/12)

Well development: Inertial Bailer

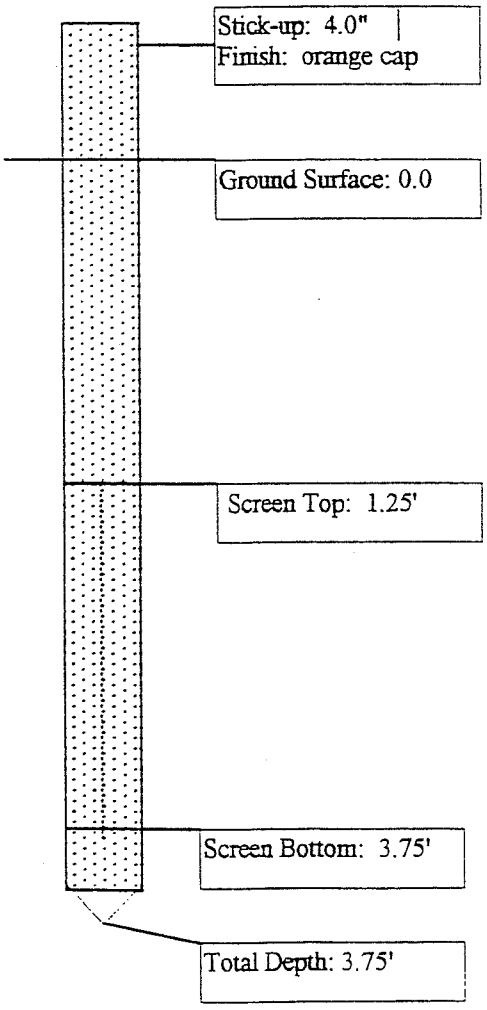
Sampling Intervals:

S1 - 1.25'-3.75' brown fine grain sand,
moderate turbidity

Comments:

well was dry on 9/29 and 9/30
water level: 2.8' BGS on 10/12

Total Riser: 1.55'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-112
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 2.5' BGS	Vials:
Refusal: Yes, at 4.4'	Bailers: 1

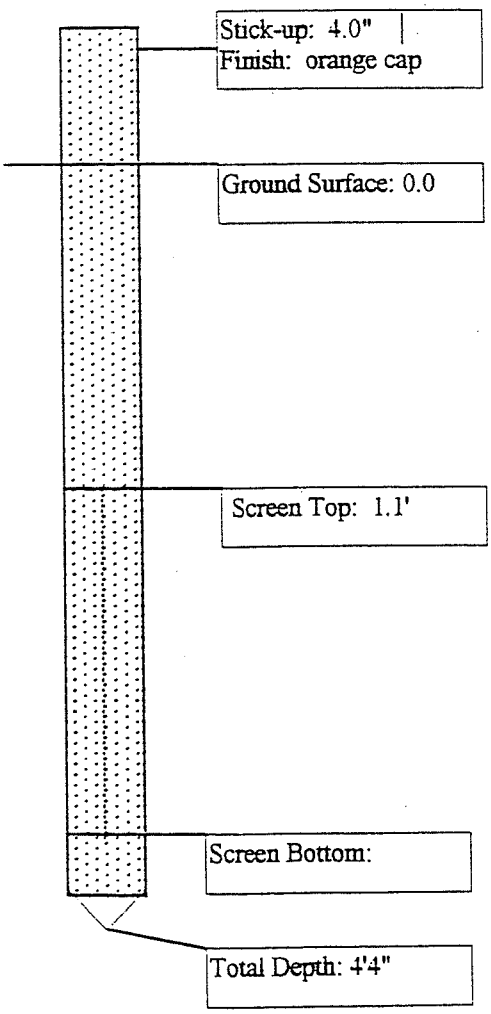
Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.1'-4.3' brown fine grain sand,
moderate turbidity

Comments:

Total Riser: 2.2'
Screen: 1 x 2.6'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-111
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 11
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 3.1' BGS	Vials:
Refusal: Yes, at 4.2'	Bailers: 1

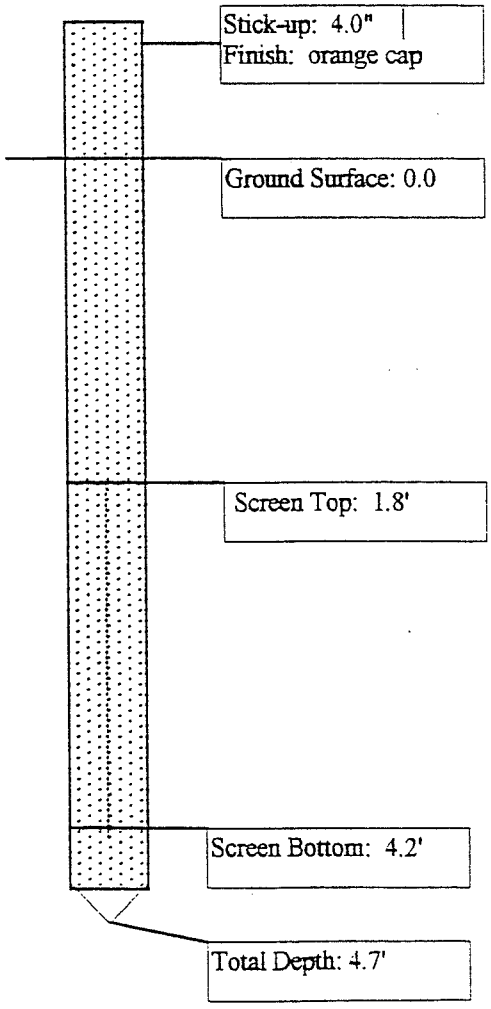
Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.8'-4.2' brown fine grain sand,
high turbidity

Comments: refused at 4.0, lost screen and 7" of riser pulled out, tried again in same spot. Put a 6' piece of riser onto 2.6' of screen

Total Riser: 2.0'
Screen: 1 x 2.6'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-104
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 2
Screen Slot Width: 0.015"	Tubing: 7'
Water Level: 0.8' BGS	Vials: 3
Refusal: Yes, at 2.9'	Bailers: 1

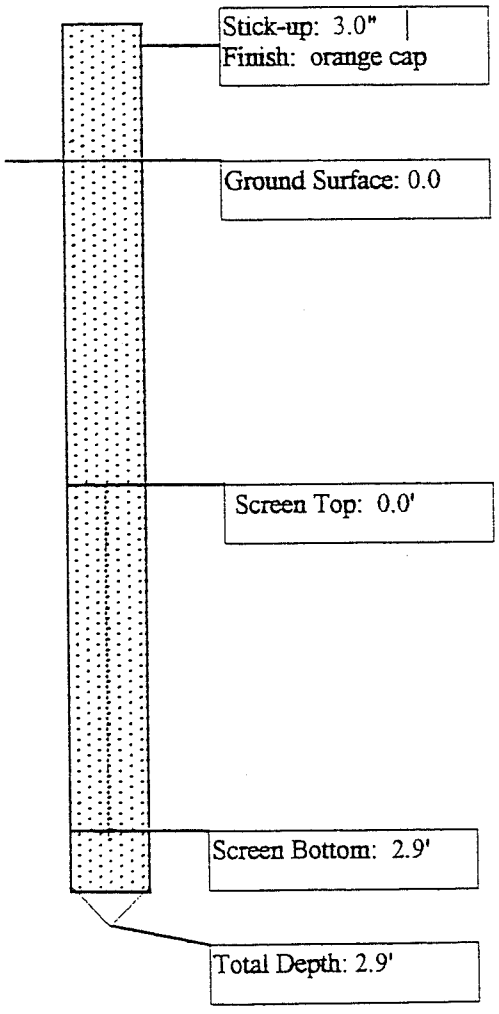
Well development: Inertial Bailer

Sampling Intervals:

S1 - no purge, took sample right away,
dark brown, high turbidity, no odor

Comments:

Total Riser: 0.0'
Screen: 1 x 3.0'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-103
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 9'
Water Level:	Vials: 3
Refusal: Yes, at 7.6'	Bailers: 1

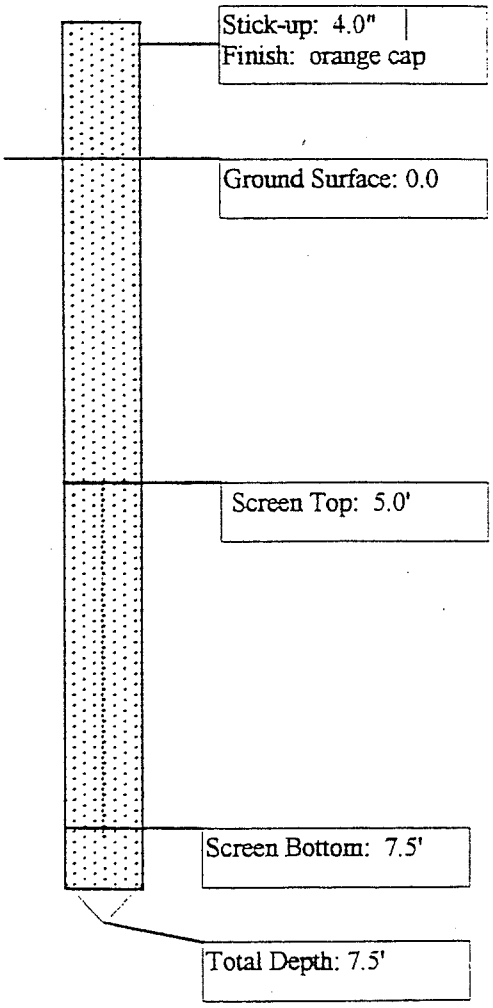
Well development: Inertial Bailer

Sampling Intervals:

S1 - did not purge, took sample right
away, light brown, mod turbidity, no
odor

Comments:

Total Riser: 5.0'
Screen: 1 x 2.6'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-102
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 7'
Water Level: 3.9' BGS	Vials: 2
Refusal: Yes, at 5.1'	Bailers: 1

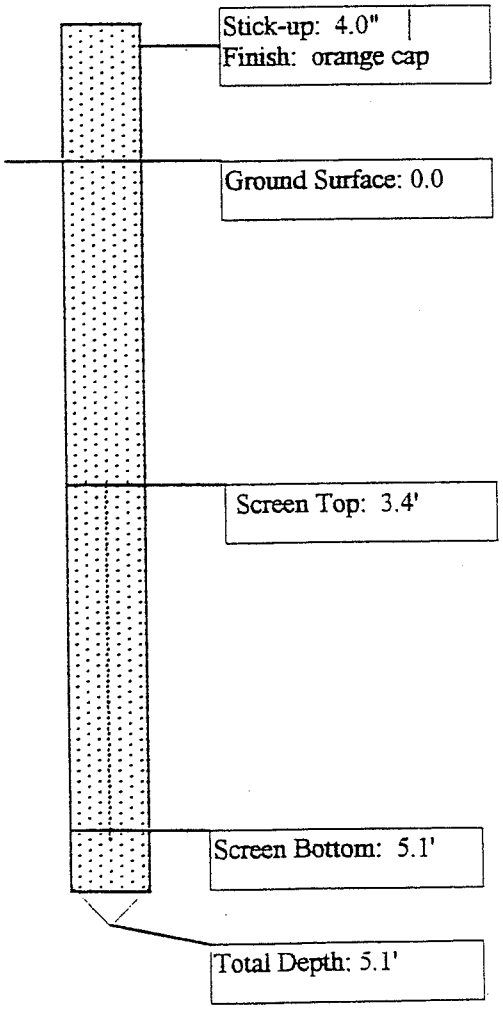
Well development: Inertial Bailer

Sampling Intervals:

S1 - med brown, moderate turbidity,
no odor

Comments:

Total Riser: 3.4'
Screen: 1 x 2.6'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-101
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 7'
Water Level: 5.3' BGS	Vials: 1
Refusal: Yes	Bailers: 1

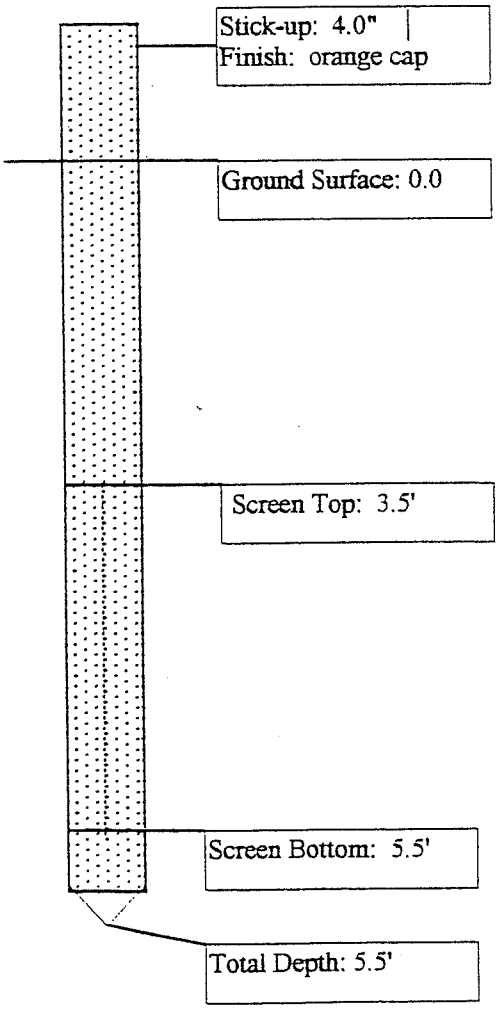
Well development: Inertial Bailer

Sampling Intervals:

S1 - med brown, high turbidity - took
sample right away, did not purge
no odor

Comments:

Total Riser: 2.0'
Screen: 1 x 2.6'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-100
Installation Date: 9/28/98
MKW Personnel: JC/JR
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 7'
Water Level: 3.6' BGS	Vials: 1
Refusal:	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - did not purge, took sample right
away, dark brown, high turbidity (no
odor)

Comments:

Total Riser: 2.0'
Screen: 1 x 2.6'
Collars: 1
Finish: orange cap

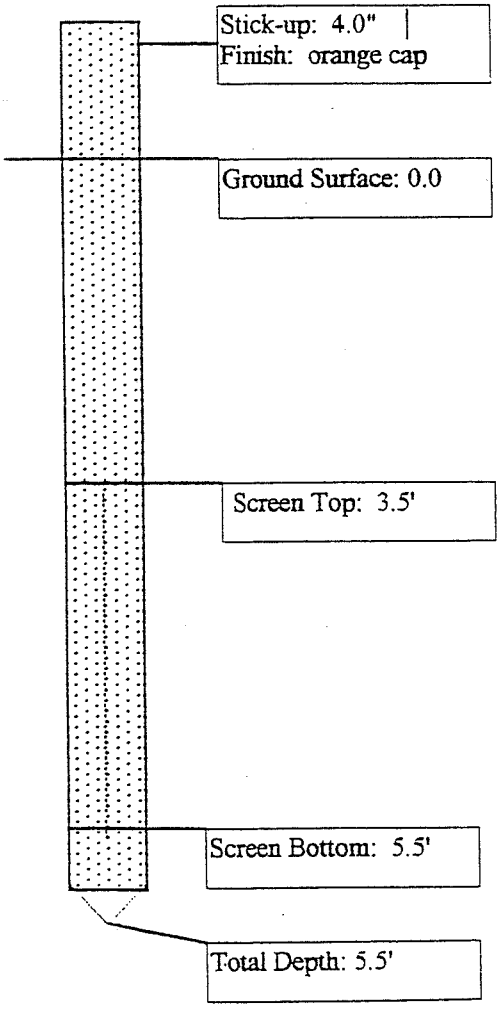


Table 7-continued
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/13/98
(concentrations in ppb)

Compound	GP-62A	GP-55	GP-53	GP-54	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	4
Methylene chloride	11	BDL	BDL	BDL	4
1,1-Dichloroethane	20	BDL	BDL	BDL	4
1,1,1-Trichloroethane	28	BDL	BDL	BDL	4
Trichloroethene	BDL	BDL	BDL	BDL	4

Note: 1. BDL indicates target analyte not present above method detection limit.

Table 7-continued
Field GC Analysis for Volatile Organic Compounds
Groundwater Samples
Project # 971017
10/13/98
(concentrations in ppb)

Compound	SW-86	SW-150	GP-61	GP-148A	GP-134	GP-62	GP-63	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	9.4	41	BDL	BDL	4
Methylene chloride	BDL	BDL	74	BDL	BDL	BDL	BDL	4
1,1-Dichloroethane	BDL	5.9	200	BDL	BDL	BDL	BDL	4
1,1,1-Trichloroethane	BDL	14	66	BDL	BDL	BDL	BDL	4
Trichloroethene	BDL	BDL	BDL	BDL	4.5	BDL	BDL	4

Note: 1. BDL indicates target analyte not present above method detection limit.

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-90A
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 15'
Water Level: 4.8' BGS	Vials:
Refusal: Yes, at 11.3' BGS	Bailers: 1

Well development: Inertial Bailer

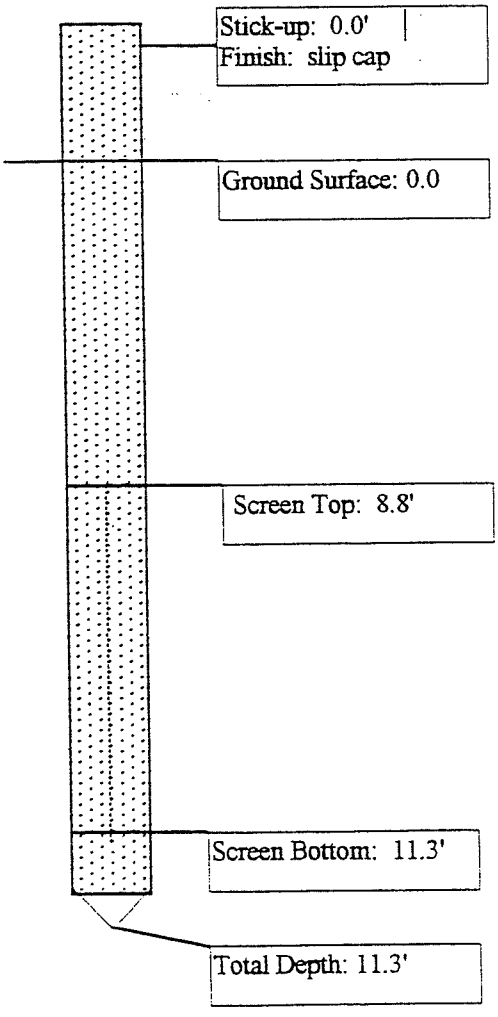
Sampling Intervals:

S1 - 8.8'-11.3' brown fine grain sand,
moderate turbidity

Comments:

cut off 1.6' of riser pipe

Total Riser: 8.8'
Screen: 1 x 2.5'
Collars: 1
Finish: slip cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-110A
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10'
Water Level: 5.95' BGS	Vials:
Refusal: Yes, at 6.7' BGS	Bailers: 1

Well development: Inertial Bailer

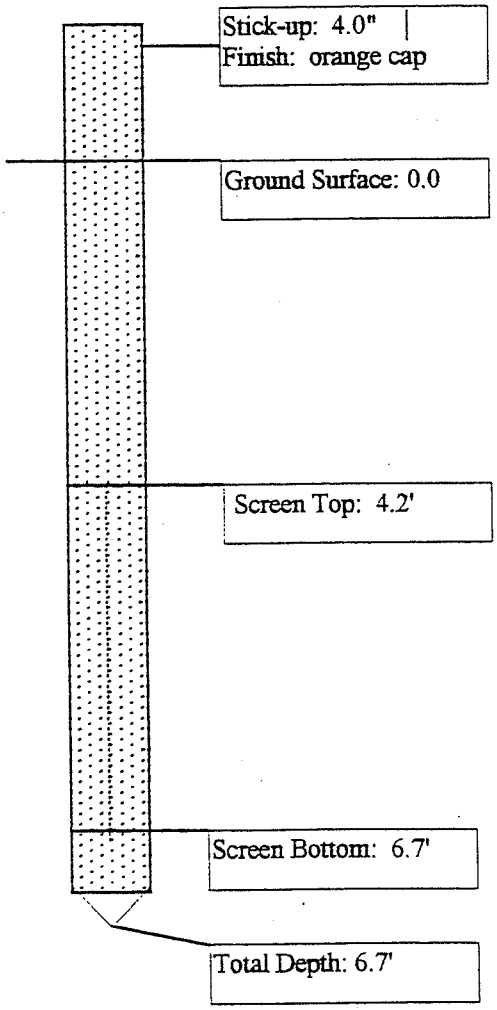
Sampling Intervals:

S1 - 4.2'-6.7' brown fine grain sand,
moderate turbidity

Comments:

cut off 4.0' of riser pipe

Total Riser: same
Screen:
Collars:
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-120A
Installation Date: 10/1/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 4.9' BGS	Vials:
Refusal: Yes, at 5.95' BGS	Bailers: 1

Well development: Inertial Bailer

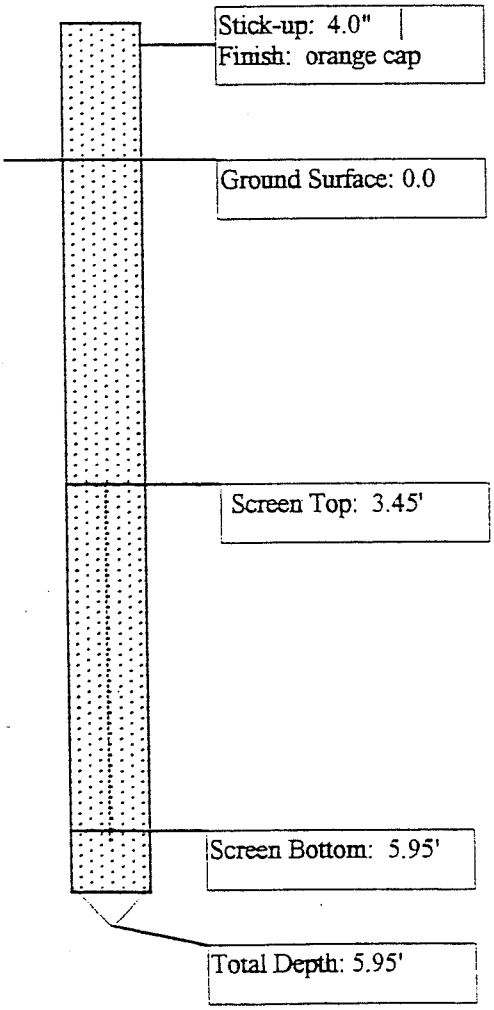
Sampling Intervals:

S1 - 3.45'-5.95' brown silty sand,
high turbidity

Comments:

cut off 6.75' of riser pipe

Total Riser: 3.75
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-70
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 15'
Water Level: well was dry (10/2)	Vials:
Refusal: Yes, 11.3' BGS	Bailers: 1

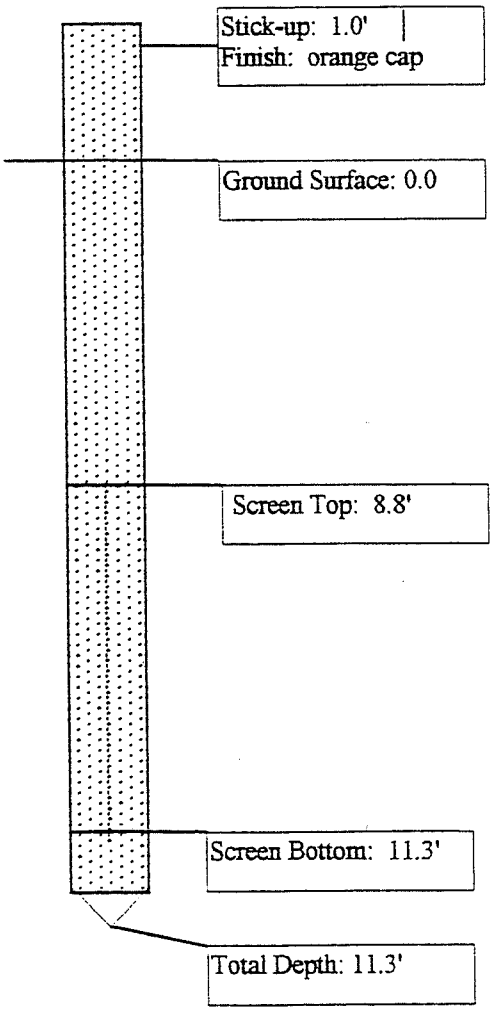
Well development: Inertial Bailer

Sampling Intervals:

Comments:

cut off 1.6' of riser pipe

Total Riser: 9.8'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-80
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 15'
Water Level: 2.9' BGS	Vials:
Refusal: Yes, 12.0' BGS	Bailers: 1

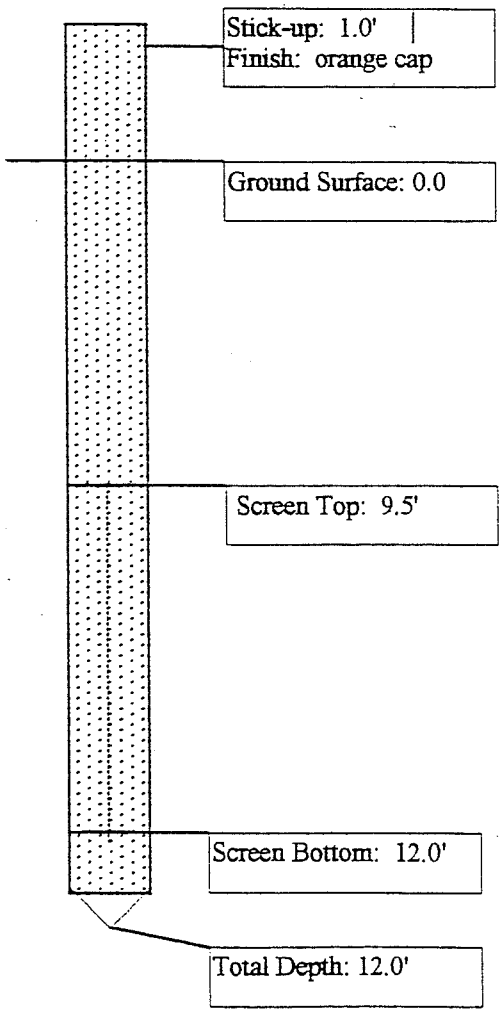
Well development: Inertial Bailer

Sampling Intervals:

S1 - 9.5'-12.0' brown fine grain sand,
moderate turbidity

Comments:

Total Riser: 10.5'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-82
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 15'
Water Level: 3.8' BGS	Vials:
Refusal: Yes, 10.1' BGS	Bailers: 1

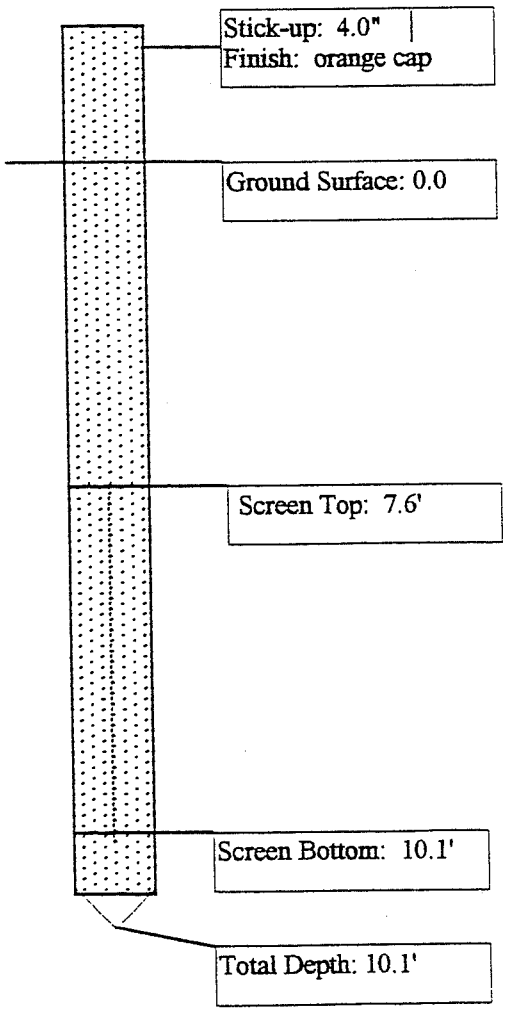
Well development: Inertial Bailer

Sampling Intervals:

Comments:

cut off 3.25' of pipe

Total Riser: 7.9'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-85
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10'
Water Level: 1.4' BGS	Vials:
Refusal: Yes, 7.3' BGS	Bailers: 1

Well development: Inertial Bailer

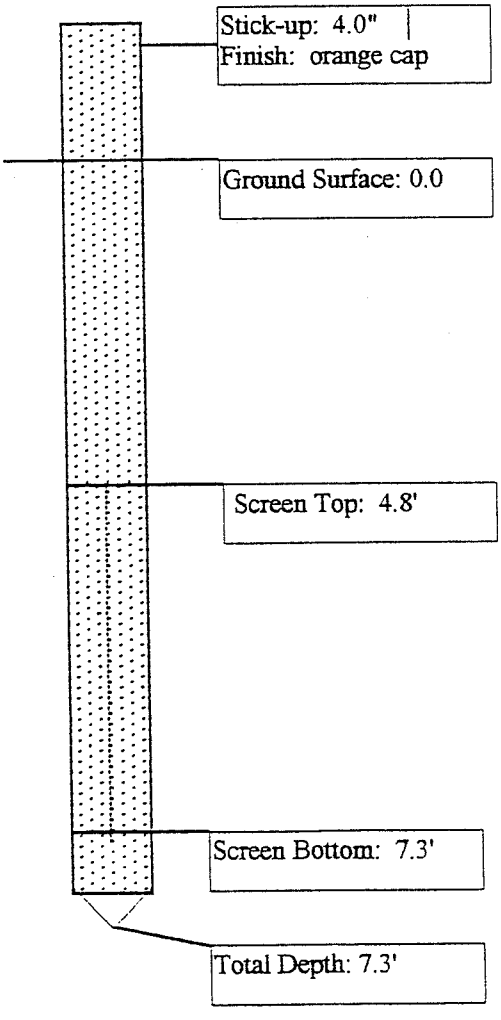
Sampling Intervals:

S1 - 4.8'-7.3' brown fine grain sand,
high turbidity

Comments:

cut off 0.3' of riser pipe

Total Riser: 5.1'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-86
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10'
Water Level: 0.7 ' BGS	Vials:
Refusal: Yes, 6.5' BGS	Bailers: 1

Well development: Inertial Bailer

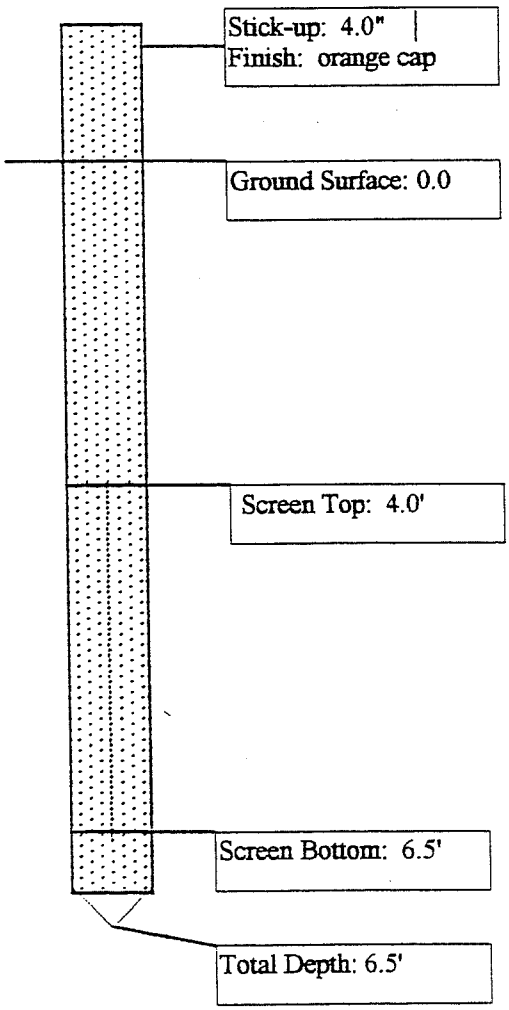
Sampling Intervals:

S1 - 4.0'-6.5' brown fine grain sand,
high turbidity

<u>Comments:</u>

cut off 2.7' of riser pipe

Total Riser: 4.3'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-95
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 2
Screen Slot Width: 0.015"	Tubing: 8.0'
Water Level: 2.0' BGS	Vials:
Refusal: Yes, 5.8' BGS	Bailers: 1

Well development: Inertial Bailer

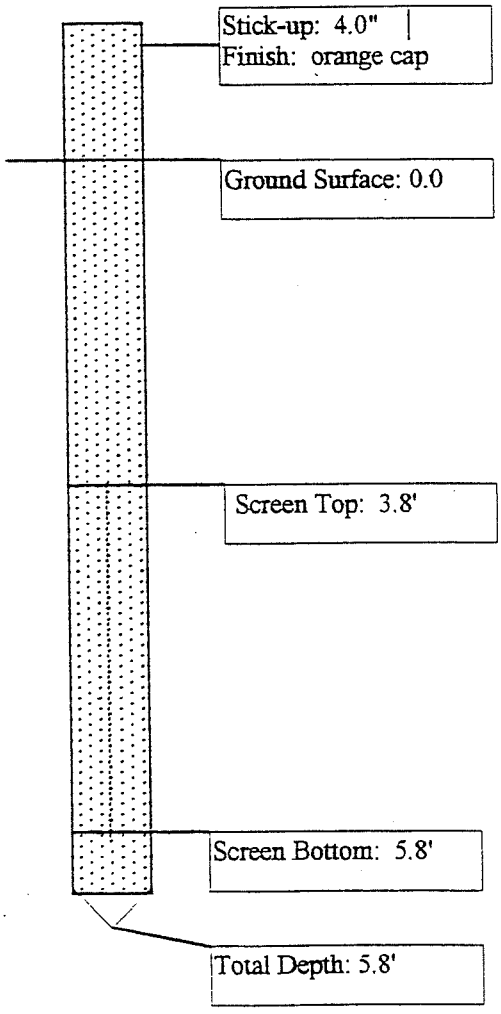
Sampling Intervals:

S1 - 3.8'-5.8' greyish black silty sand,
strong solvent odor, sheen on the water

Comments:

cut off 3.25' of riser pipe

Total Riser: 4.1'
Screen: 1 x 2.0'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-96
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10.0'
Water Level: 0.8' BGS	Vials:
Refusal: Yes, 7.0' BGS	Bailers: 1

Well development: Inertial Bailer

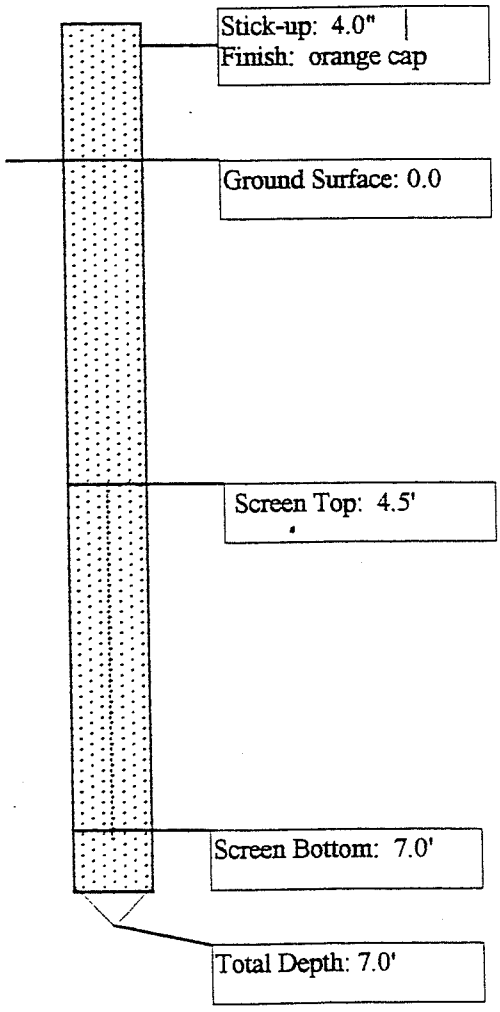
Sampling Intervals:

S1 - 4.5'-7.0' brown fine grain sand,
high turbidity

Comments:

cut off 1.5' of riser pipe

Total Riser: 4.8'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-125
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8.0'
Water Level: 0.3' BGS	Vials:
Refusal: Yes, 4.8' BGS	Bailers: 1

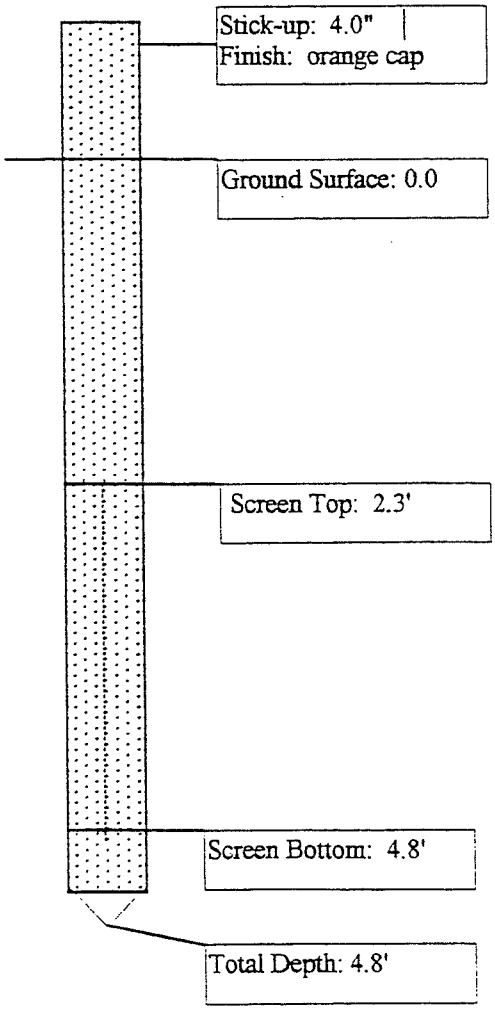
Well development: Inertial Bailer

Sampling Intervals:

Comments:

cut off 1.65' of riser pipe

Total Riser: 2.6'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-137
Installation Date: 10/2/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 5.0'
Water Level: 0.85' BGS	Vials:
Refusal: Yes, 2.0' BGS	Bailers: 1

Well development: Inertial Bailer

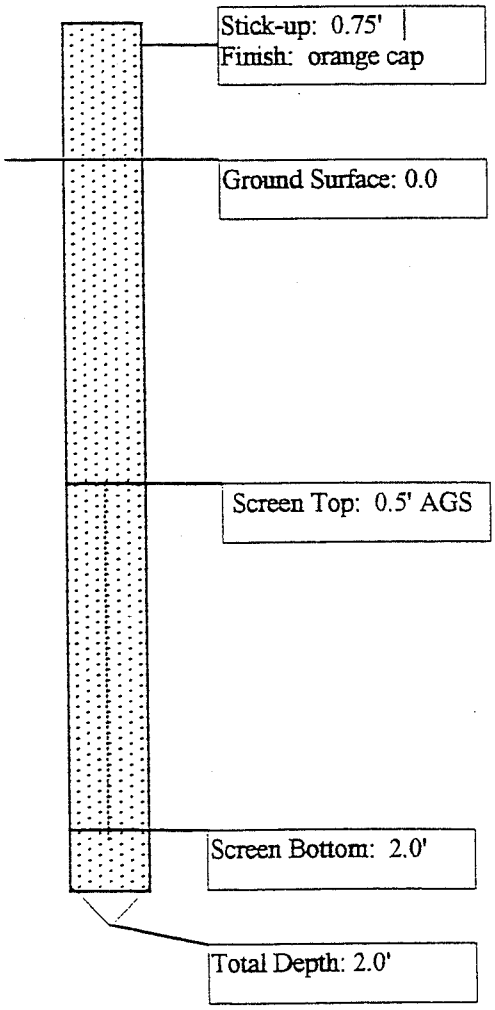
Sampling Intervals:

S1 - 0.0'-2.0' greyish brown silty sand,
high turbidity, petroleum odor

Comments:

cut off 9.75' of riser pipe

Total Riser: 0.25'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-10A
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 12'
Water Level: 1.1' BGS	Vials:
Refusal: Yes, 8.7' BGS	Bailers: 1

Well development: Inertial Bailer

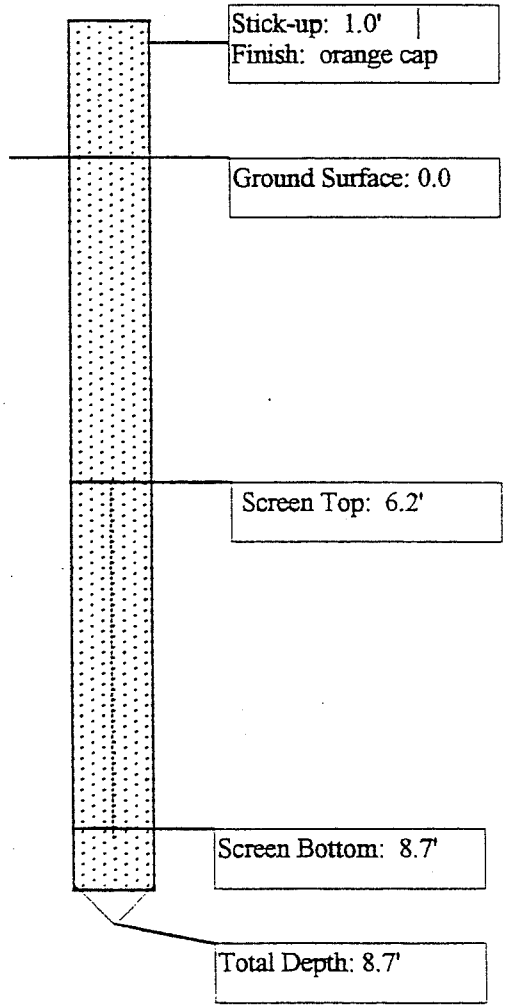
Sampling Intervals:

S1 - 6.2'-8.7' brown fine grain sand,
high turbidity

Comments:

cut off 4.9' of riser pipe

Total Riser: 7.2'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-87
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 0.1' BGS	Vials:
Refusal: Yes, 5.1' BGS	Bailers: 1

Well development: Inertial Bailer

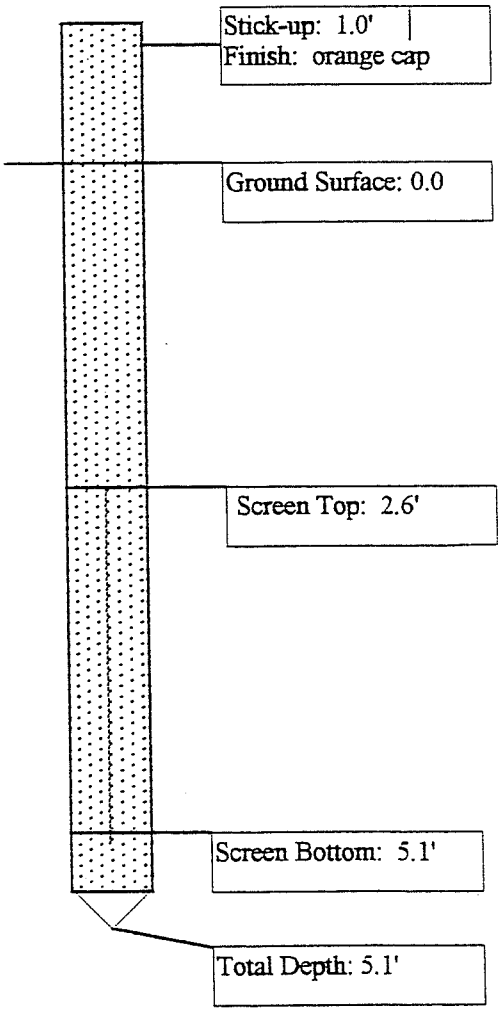
Sampling Intervals:

S1 - 2.6'-5.1' grayish brown, silty sand,
high turbidity

Comments:

cut off 4.9' of riser pipe

Total Riser: 3.6'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-88
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 12'
Water Level: 1.1' BGS	Vials:
Refusal: Yes, 8.25' BGS	Bailers: 1

Well development: Inertial Bailer

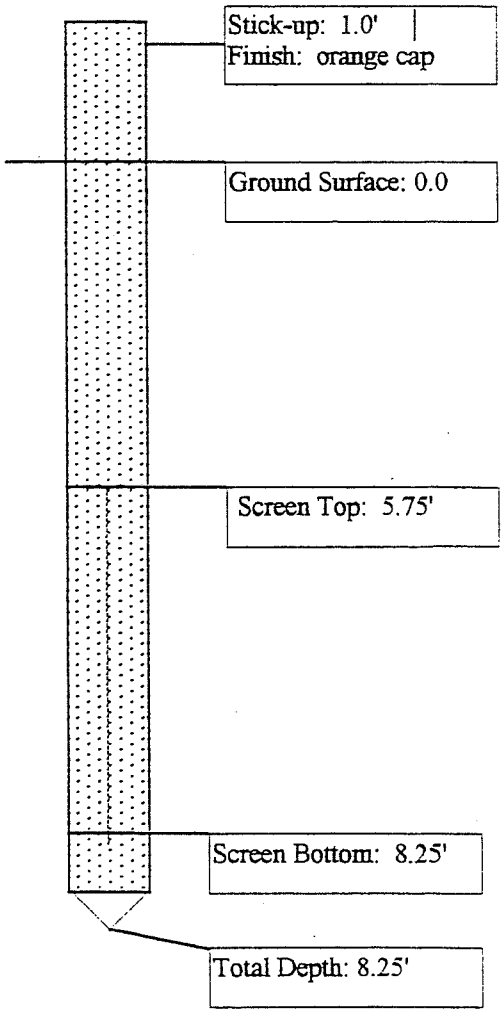
Sampling Intervals:

S1 - 5.75'-8.25' brown fine grain sand,
moderate turbidity

Comments:

cut off 4.75' of riser pipe

Total Riser: 6.75'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-140
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: well was dry (10/12/98)	Vials:
Refusal: Yes, 4.8' BGS	Bailers: 1

Well development: Inertial Bailer

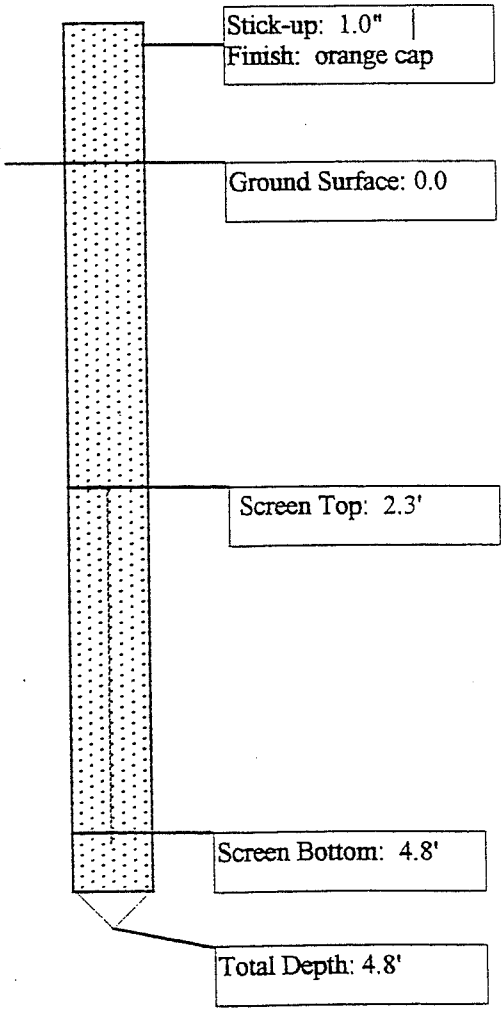
Sampling Intervals:

S1 - 2.3'-4.8' brown fine grain sand,
high turbidity

Comments:

cut off 6.8' of riser pipe

Total Riser: 2.4'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-140A
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 6'
Water Level: well was dry (10/12/98)	Vials:
Refusal: Yes, 3.9' BGS	Bailers: 1

Well development: Inertial Bailer

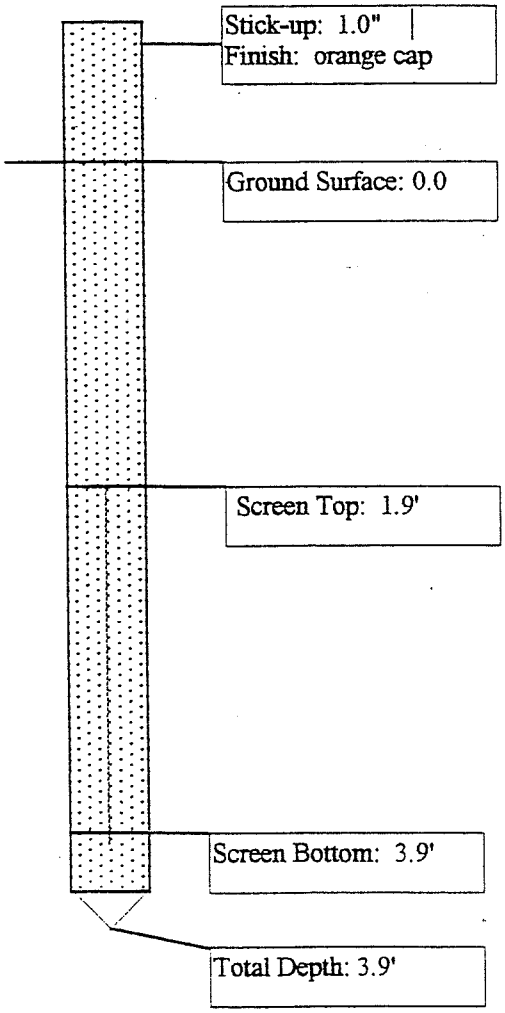
Sampling Intervals:

S1 - 1.9'-3.9' brown fine grain sand,
high turbidity

Comments:

cut off 9.1' of riser pipe

Total Riser: 2.0'
Screen: 1 x 2.0'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-147
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 4'
Water Level: 0.6' BGS	Vials:
Refusal: Yes, 2.2' BGS	Bailers: 1

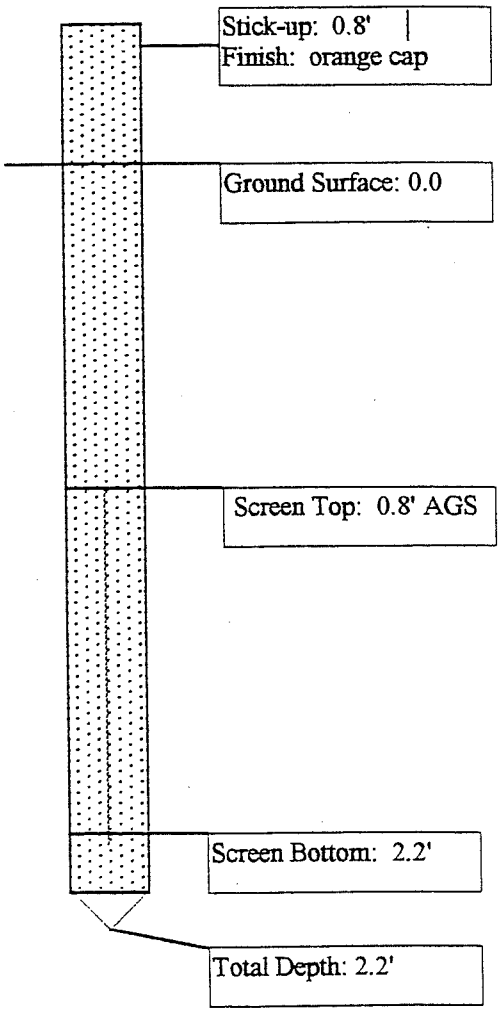
Well development: Inertial Bailer

Sampling Intervals:

S1 - 0.8' AGS-2.2' brownish gray silty
sand, high turbidity

Comments:

Total Riser: 0'
Screen: 1 x 3.0'
Collars: 0
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-148
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 6'
Water Level: 0.6' BGS	Vials:
Refusal: Yes, 3.5' BGS	Bailers: 1

Well development: Inertial Bailer

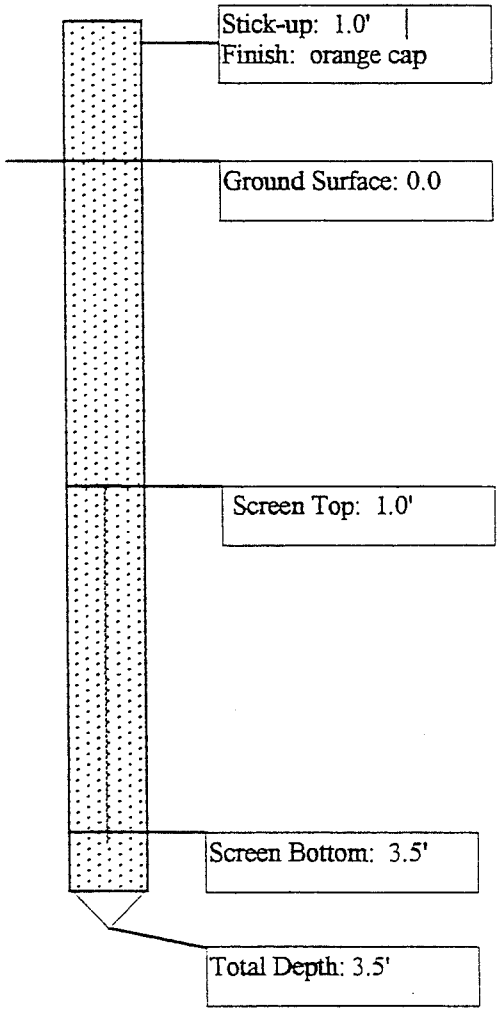
Sampling Intervals:

S1 - 1.0'-3.5' grayish brown silty sand,
high turbidity

Comments:

cut off 3.0' of riser pipe

Total Riser: 2.0'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-150
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 11'
Water Level: 3.2' BGS	Vials:
Refusal: Yes, 8.75' BGS	Bailers: 1

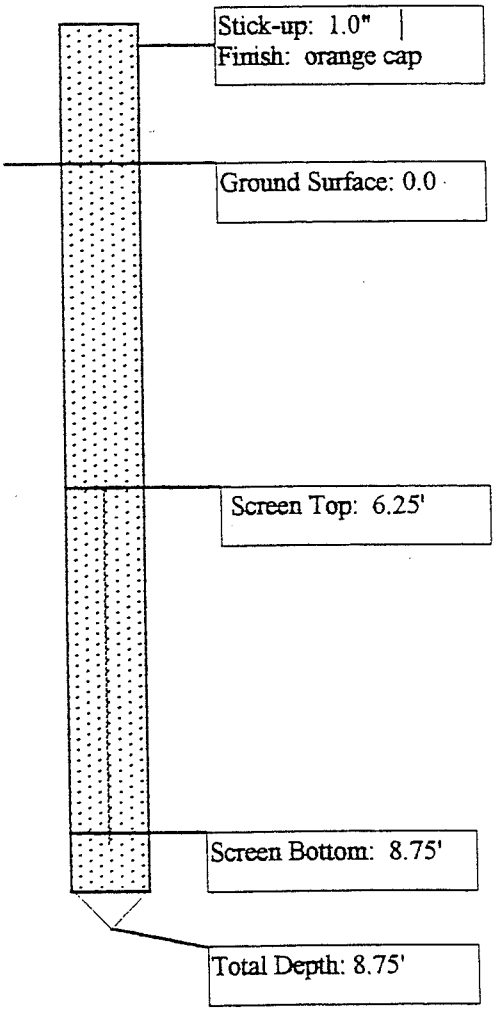
Well development: Inertial Bailer

Sampling Intervals:

S1 - 6.25'-8.75' brown fine grain sand,
high turbidity

Comments:
cut off 6.2' of riser pipe
sampled and analyzed on 10/12
resampled and analyzed on 10/13

Total Riser: 6.35'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-150A
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

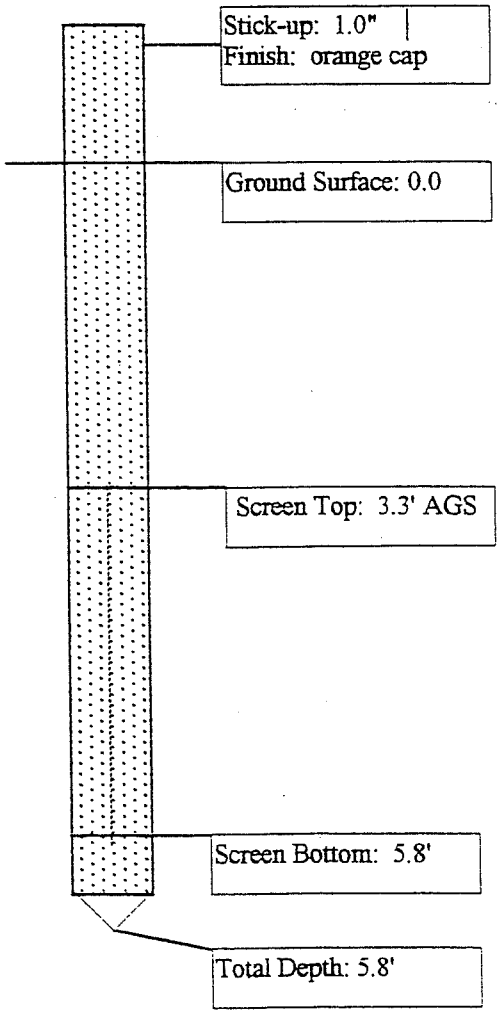
Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 2
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: well was dry (10/12/98)	Vials:
Refusal: Yes, 5.8' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

Comments: pulled out and discarded 3' screen
and 6.8' of riser pipe
cut off 7.1' of riser pipe

Total Riser: 10.2'
Screen: 1 x 3.0', 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-151
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

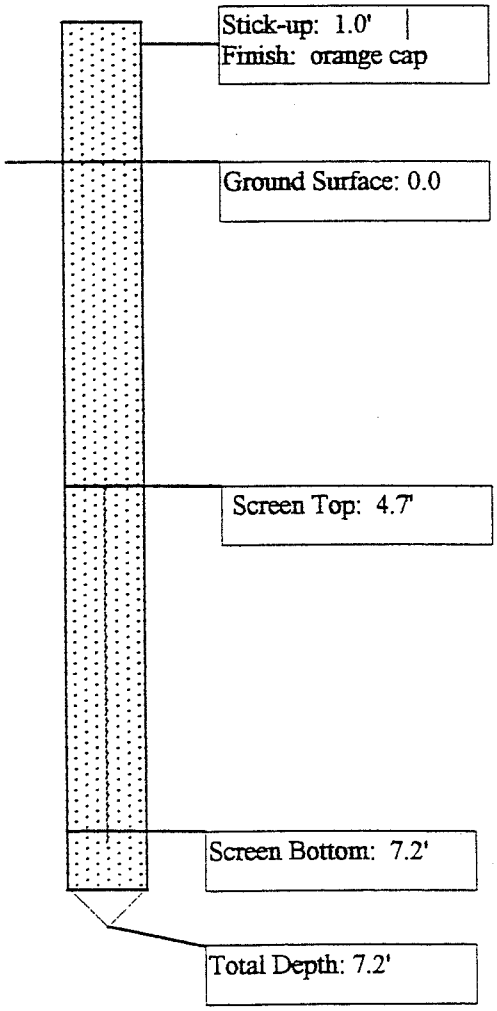
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10'
Water Level: 5.0' BGS	Vials:
Refusal: Yes, 7.2' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - 4.7'-7.2' brown fine grain sand,
high turbidity



Comments:

cut off 5.8' of riser pipe

Total Riser: 5.7'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-160
Installation Date: 10/12/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

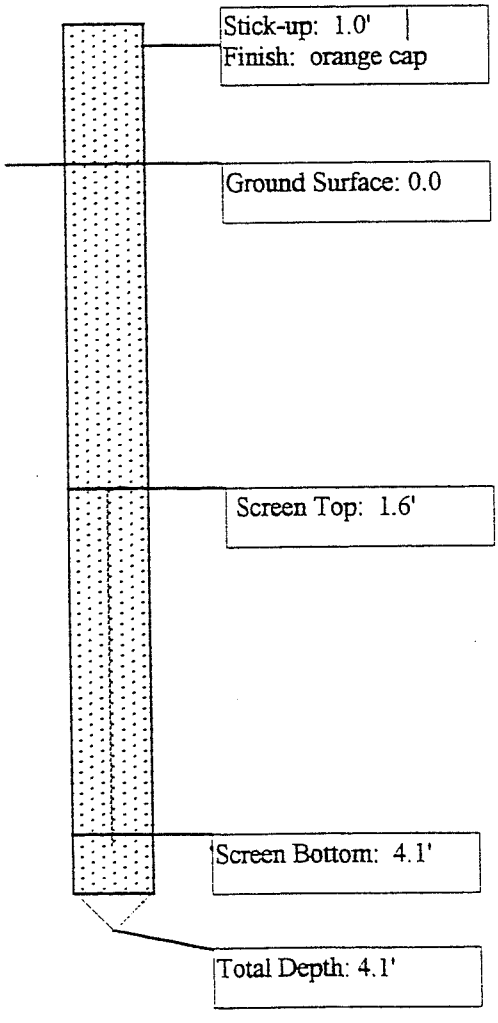
Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 6'
Water Level: well was dry (10/13/98)	Vials:
Refusal: Yes, 4.1' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

Comments:

Total Riser: 2.6'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-53
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

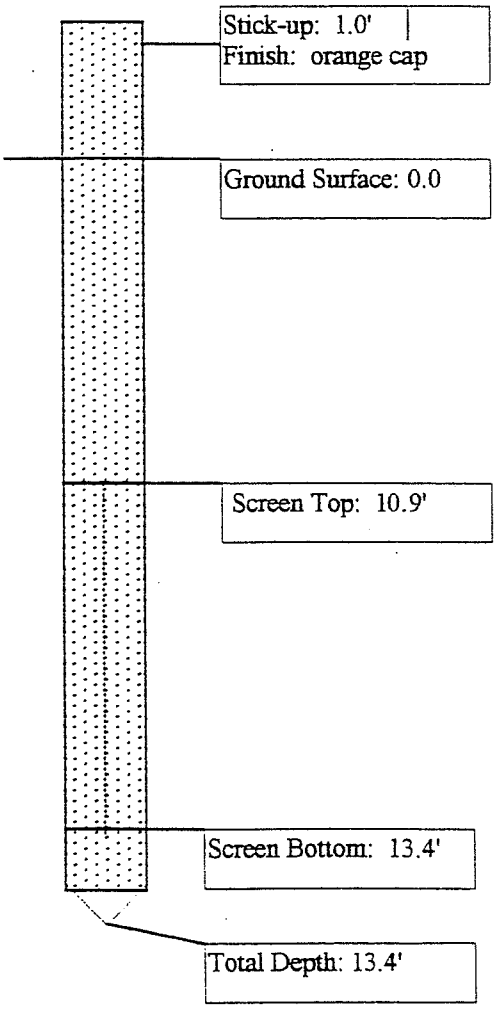
Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 16'
Water Level: 7.0' BGS	Vials:
Refusal: Yes, 13.4' BGS	Bailers: 1

Well development: Inertial Bailer

Sampling Intervals:

S1 - 10.9'-13.4' greyish brown silt,
high turbidity (very muddy)



Comments:

cut off 4.6' of riser pipe

Total Riser: 11.9'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap

MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-54
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 9'
Water Level: 0.8' AGS	Vials:
Refusal: Yes, 6.1' BGS	Bailers: 1

Well development: Inertial Bailer

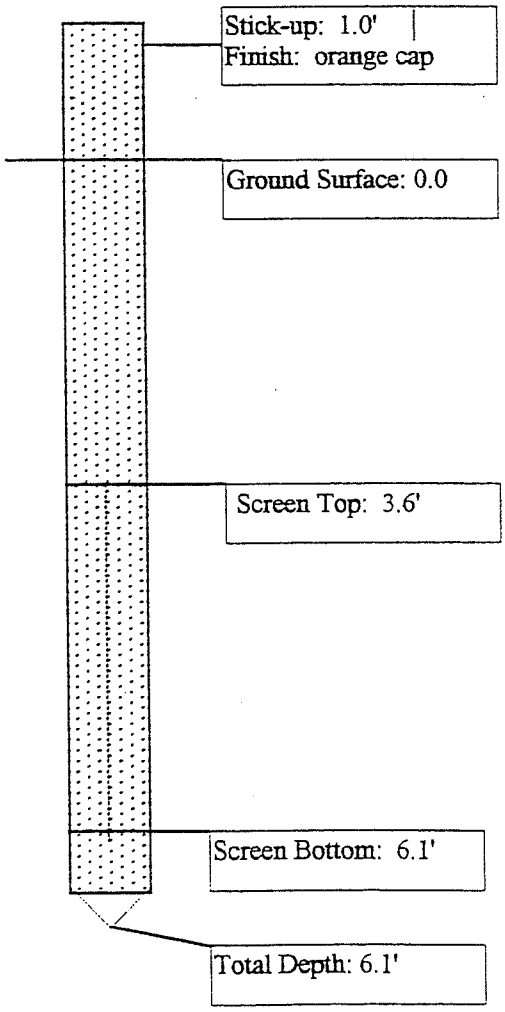
Sampling Intervals:

S1 - 3.6'-6.1' brown fine grain sand,
high turbidity

Comments:

cut off 1.9' of riser pipe

Total Riser: 4.6'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-55
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 9'
Water Level: 0.5' BGS	Vials:
Refusal: Yes, 6.5' BGS	Bailers: 1

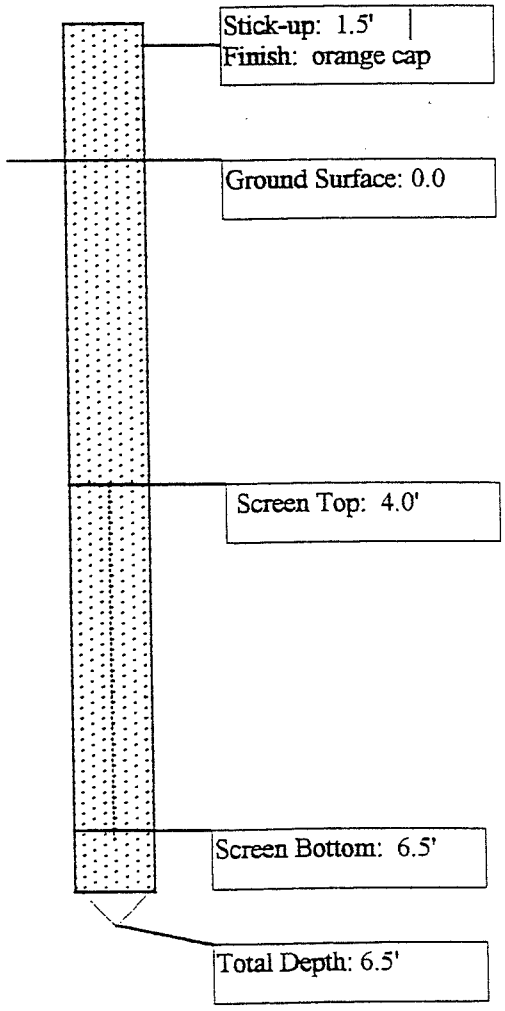
Well development: Inertial Bailer

Sampling Intervals:

S1 - 4.0'-6.5' brown fine grain sand,
high turbidity

Comments:

Total Riser: 5.5'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-61
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 20'
Water Level: 6.2' BGS	Vials:
Refusal: Yes, 14.0' BGS	Bailers: 1

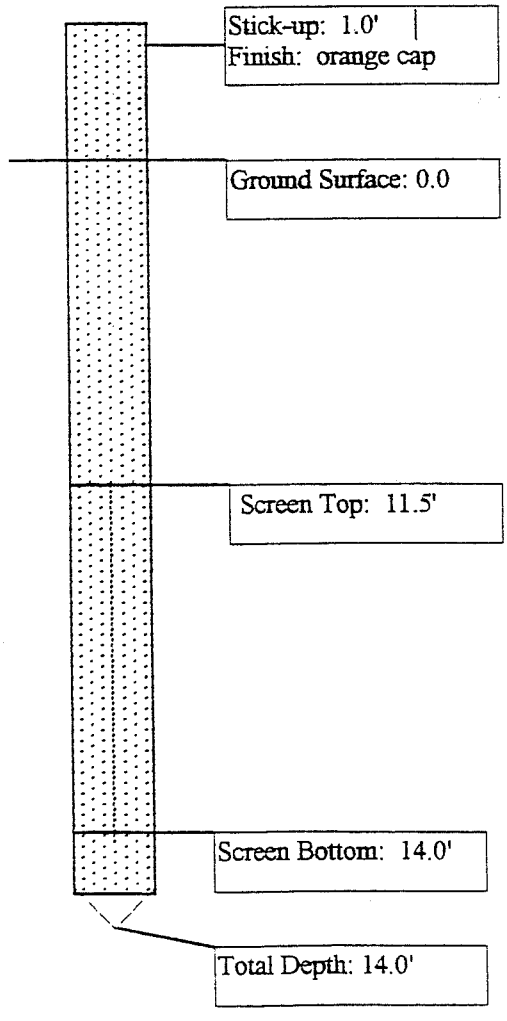
Well development: Inertial Bailer

Sampling Intervals:

S1 - 11.5'-14.0 brown silty sand,
high turbidity

Comments:

Total Riser: 12.5'
Screen: 1 x 2.5'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-62
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 16'
Water Level: 5.8' BGS	Vials:
Refusal: Yes, 13.25' BGS	Bailers: 1

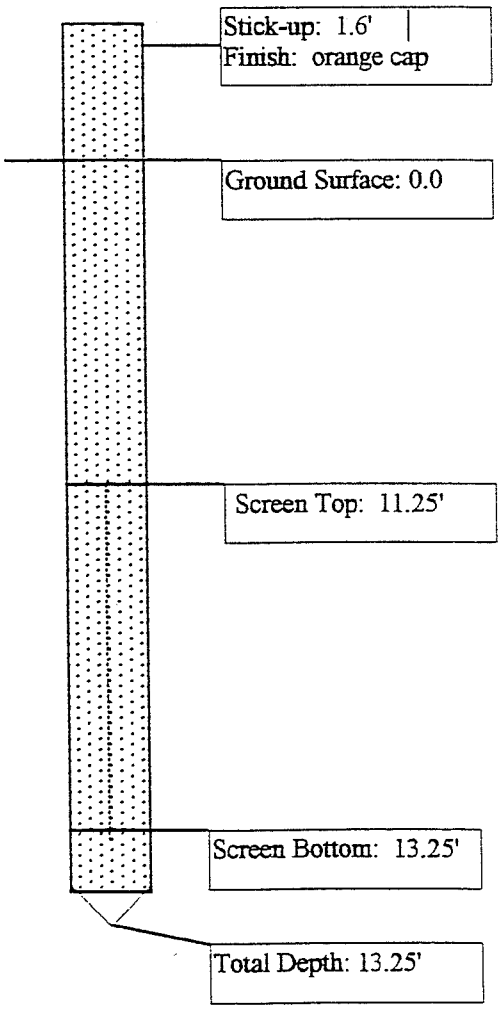
Well development: Inertial Bailer

Sampling Intervals:

S1 - 11.25'-13.25' brown fine grain
sand, high turbidity

Comments:

Total Riser: 12.85'
Screen: 1 x 2.0'
Collars: 2
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-62A
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 10'
Water Level: 2.85' BGS	Vials:
Refusal: Yes, 7.25' BGS	Bailers: 1

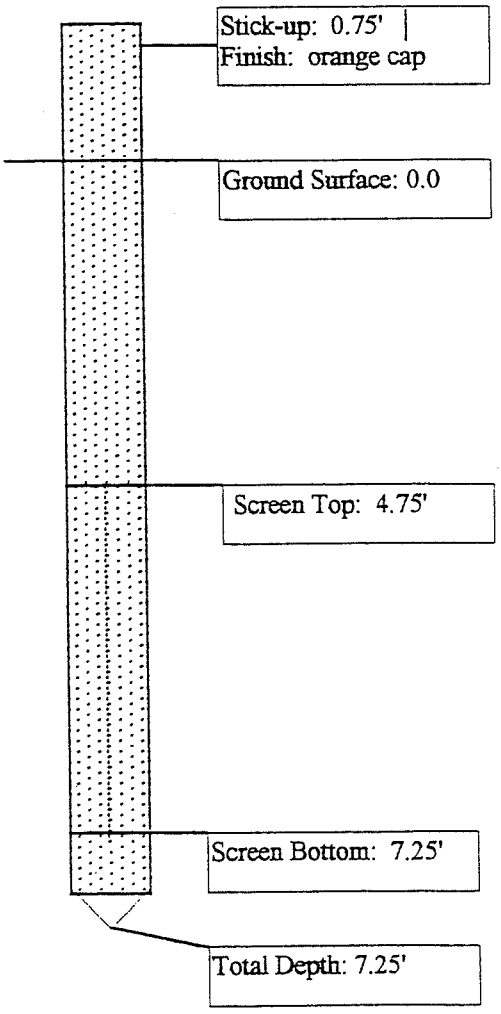
Well development: Inertial Bailer

Sampling Intervals:

S1 - 4.75'-7.25' grayish brown silty sand, high turbidity

Comments:

Total Riser: 5.5'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-63
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 16'
Water Level: 5.1' BGS	Vials:
Refusal: Yes, 11.6' BGS	Bailers: 1

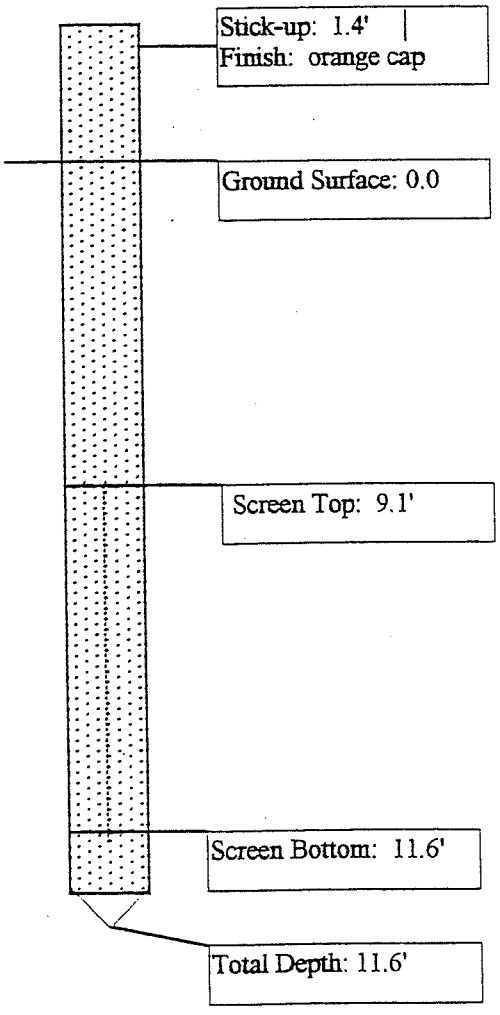
Well development: Inertial Bailer

Sampling Intervals:

S1 - 9.1'-11.6' grayish brown silty
sand, high turbidity

Comments:

Total Riser: 10.5'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-134
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 0.0'	Vials:
Refusal: Yes, 5.5' BGS	Bailers: 1

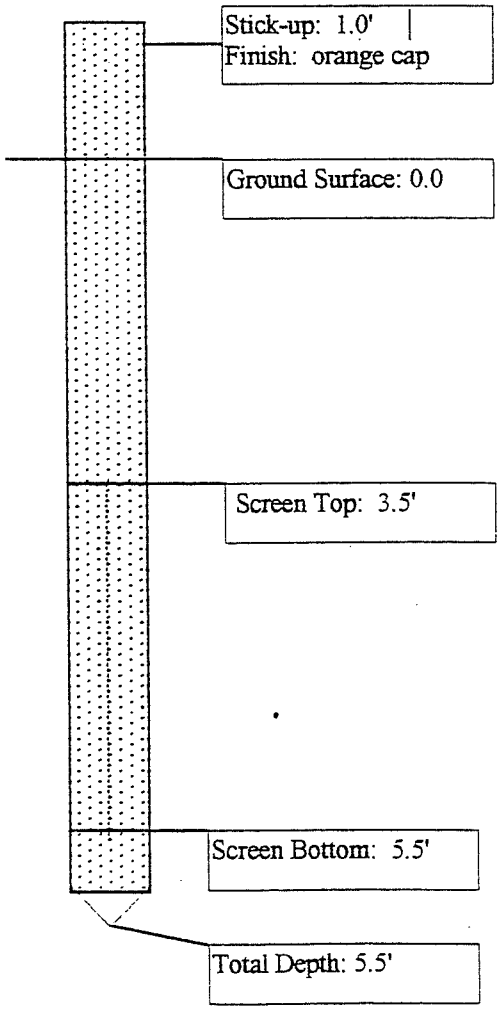
Well development: Inertial Bailer

Sampling Intervals:

S1 - 3.5'-5.5' grayish brown fine grain
sand, high turbidity

Comments:

Total Riser: 4.5'
Screen: 1 x 2.0'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-148A
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 4'
Water Level: 0.0'	Vials:
Refusal: Yes, 2.4' BGS	Bailers: 1

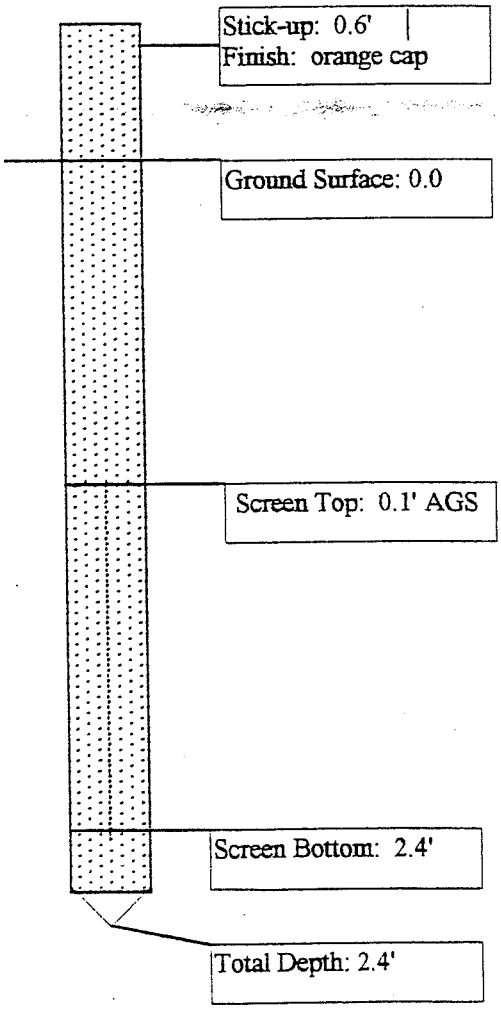
Well development: Inertial Bailer

Sampling Intervals:

S1 - 0.1'(AGS)-2.4'(BGS) brown fine
grain sand, high turbidity

Comments:

Total Riser: 0.6'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-152
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing: 8'
Water Level: 0.5' BGS	Vials:
Refusal: Yes, 5.75' BGS	Bailers: 1

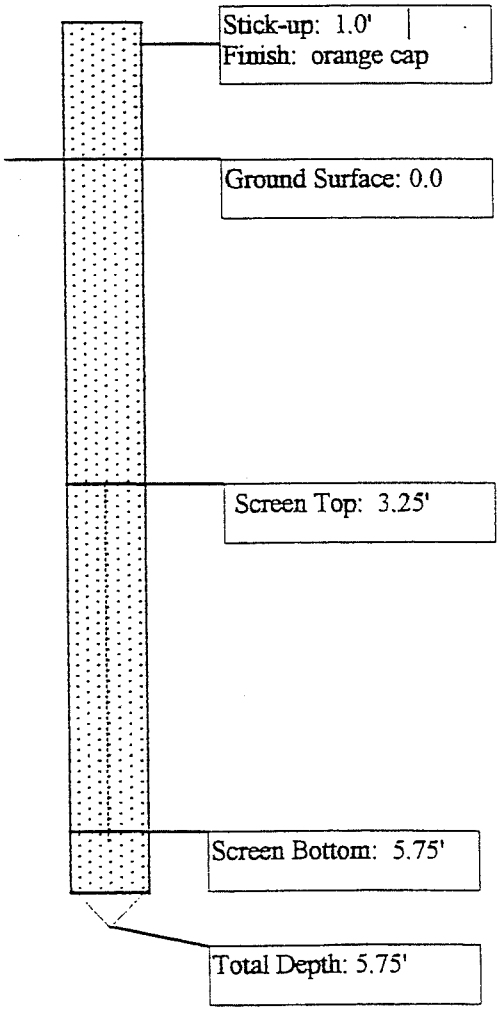
Well development: Inertial Bailer

Sampling Intervals:

Comments:

cut off 5.5' of riser pipe

Total Riser: 4.25'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-160B
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 5
Screen Slot Width: 0.015"	Tubing: 4'
Water Level: 0.5' BGS	Vials:
Refusal: Yes, 1.1' BGS	Bailers: 1

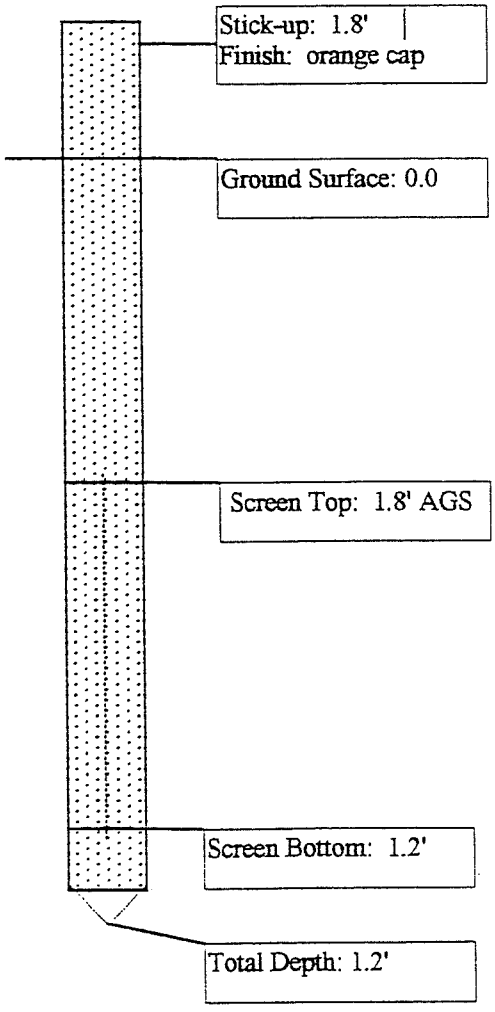
Well development: Inertial Bailer

Sampling Intervals:

S1 - 1.8'(AGS)-1.2'(BGS) brown fine
grain sand, moderate turbidity

Comments:

Total Riser: 0
Screen: 1 x 3.0'
Collars: 0
Finish: orange cap



MyKroWaters, Inc.
P.O. Box 1088
Concord, MA 01742
MKW Project #: 971017

Well ID: GP-162C
Installation Date: 10/13/98
MKW Personnel: JC/SS
Equipment: 6WDX6 Vibratory Drill

Client: TRC
Site Location: NUWC - B179, Newport Naval Base, Newport, RI
Well Location:

Pipe I.D.: 0.62" Pipe O.D.: 0.82"	Points: 1
Screen Slot Width: 0.015"	Tubing:
Water Level: well was dry (10/13/98)	Vials:
Refusal: Yes, 4.75' BGS	Bailers:

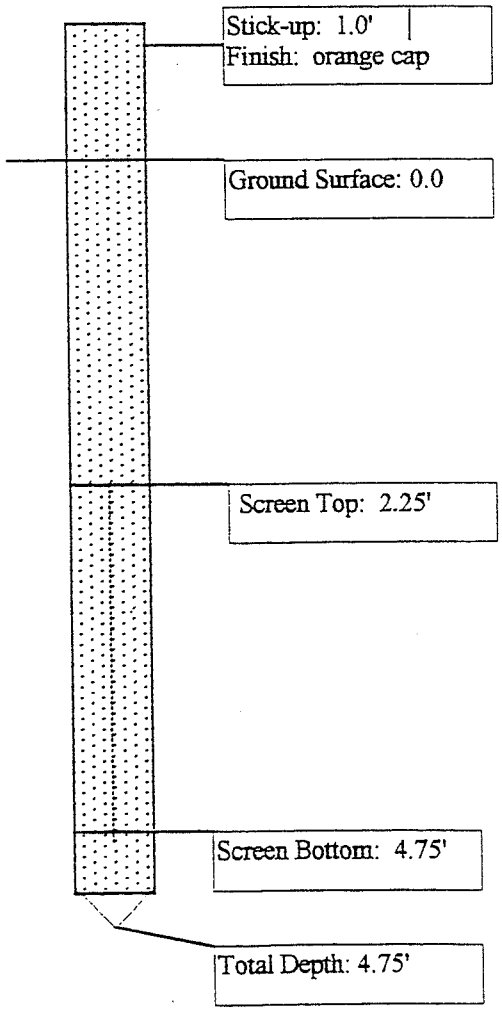
Well development: Inertial Bailer

Sampling Intervals:

Comments:

cut off 7.25' of riser pipe

Total Riser: 3.25'
Screen: 1 x 2.5'
Collars: 1
Finish: orange cap



Rapid Installation Capabilities

I. Introduction

MyKroWaters, Inc., provides rapid installations of small diameter point (SDP) systems as the most effective method to determine site conditions for assessment and remediation. SDP's are utilized for:

- Mykro-monitoring wells (mykrowells)
- Soil vapor surveys
- Air sparging points
- Vacuum pressure monitoring points
- Heat injection points
- Soil sampling

SDP's are installed rapidly in unconsolidated formations using vibratory drilling techniques. Rapid identification, delineation, and remediation of contaminated soil and groundwater have become essential for environmental programs. Other drilling and sampling techniques are slow, expensive, and do not produce sufficient density of site data for adequate remedial design and often require multiple mobilizations. The SDP system in conjunction with field gas chromatography gives rapid on-site analysis of groundwater, soil and air. MyKroWaters, Inc. employs highly experienced teams which specialize in these specific technologies. These environmental service teams consist of hydrogeologists, environmental chemists, geologists, and remediation specialists uniquely capable of utilizing small diameter point system technology in complex hydrogeologic/chemical conditions both, effectively and efficiently.

Vibratory Drilling Technical Description

The vibratory drilling method utilizes an electric, pneumatic or hydraulically powered impact driver to vibrate and advance installation materials downward. Well screen and riser materials usually consist of steel or stainless steel. The internal diameter of a SDP well ranges from 0.62 to 1.0 inch (ID). The outer diameter of a SDP well ranges from 0.82 to 1.31 inches. Sections may be any length up to 21 feet. To advance the SDP below 21 feet, a riser pipe is positioned and the connections are hydraulically crimped using external water tight collars.

Powered hammers operate at 1,000 to 12,000 cycles per minute. Vibration mobilizes soil particles around the casing. Standard penetration resistance of 40 blows per foot range from five to ten feet per minute. Depths of penetration may attain more than 100 feet; often 250 feet of pipe can be installed per day. This technique does not use drilling water, or produce soil cuttings, and installations are not affected by "running sand".

Equipment for driving installations range from hand-held rotary-impact hammers to more powerful drivers mounted on a small drilling machine. Drilling machines that are mounted on ATV's have exceptional mobility in rough terrain and in soft ground or wetland areas.

Mykrowell Description

All pipe materials are steam cleaned prior to installation. The pipe being driven is well pipe which eliminates decontamination between location. The leading section is slotted screen which can be designed for any screen interval. Mykrowells typical screen length is five or ten foot sections with a hardened drive point. Vertically slotted screens consist of paired slots ranging from 0.010 to 0.020 an inch in width along the long axis of the pipe. The screen slots are on opposite sides and are off-set for continuous screening. Due to their small diameter, the wells have a small casing storage capacity. Wells can be developed and sampled quickly with reduced purge water. Typical well yields are approximately one gallon per minute.

Mykrowell Sampling

Before well development and sampling, a water level will be collected and recorded at each well location. Due to their small diameter, the wells have a small casing storage capacity. Wells can be developed and sampled quickly with reduced purge water. Once three times the standing well volume is evacuated (1/2 gallon for every 10 feet of standing water), a representative sample can be collected. Samples can be obtained with a peristaltic pump or inertia bailer utilizing polyethylene tubing. All bailers and tubing are only used once.

Soil Vapor Sampling (Lost Point Method)

Solid lengths of riser pipe are driven into the formation until the hardened drive-point reaches the bottom of the required soil vapor sampling interval. The riser is then retracted upwards, creating a void (below the point) of desirable length. A small diameter rod is lowered down the inside of the riser pipe, forcing the drive-point out of position and into the bottom of the created void. A one-hole stopper is used to create a surface seal; quarter inch tubing is inserted through the stopper, some distance down the riser. At the far end of the tubing a peristaltic pump is positioned to provide the desired suction. An in-line "T" is used as a sampling port for soil vapor. All samples are taken after a uniform time interval has elapsed.

One-site Groundwater Sample Screening

Representative groundwater samples are analyzed in the field by gas chromatography. results from each successive sampling location are used to determine where the next location should be installed. Vertical profile information is obtained by sequential sampling as the point is driven into the subsurface. Therefore the vertical and horizontal

extent of contaminants in the groundwater can be defined on-site, in real-time; and permanent monitoring or remediation points can be readily determined and installed. Additional groundwater samples can be collected for comprehensive laboratory analysis.

Soil Sampling Capabilities

Soil sampling utilizes an electric, pneumatic, or hydraulically-powered impact driver to vibrate and advance installation materials downward. Soil sampling is accomplished by vibrating a three-foot open end sampler into the ground. Extensions are connected when sampling below three feet. Soil cores are encased in PETG plastic acetate (or stainless steel) measuring 20 to 36 inches long and approximately 1" (ID). A closed "sliding piston soil sampler" is driven to the top of a designated sampling horizon, the pistons stop pin is removed, and the sampler advanced through the zone of interest. In the process, a two foot long (1.25"OD) soil core is collected. The entire string of tools is then retrieved from the ground and the soil boring, captured in a liner and removed for logging and analysis. Soil boring locations can be backfilled with clean sand and capped with concrete. All sampling equipment for soil sampling, drive rods, and probes are decontaminated after each sampling point by washing with soapy distilled water and rinsing with distilled water. After washing, all external surfaces are wiped with clean paper towels. Plastic tubing is used only once and discarded.

Advantages to the Small Diameter Point System Methods

- Low cost and reduced installation time
- Rapid availability to multiple sites
- Access to difficult terrain
- Multiple and repeat sampling
- Immediate sampling and analytical results
- Reduce need for subsequent field mobilization to fill data gaps
- No drill cuttings and small volumes of purge water produced
- No decontamination of drilling equipment is necessary
- Dedicated installations per day, increased radius of influence for sparging
- Numerous installations per day, increased radius of influence for sparging
- Steel monitoring wells easily convert to heat injection points for rapid remediation
- Vacuum Monitoring at numerous locations for vapor extraction systems

The small diameter point system technique is an extremely powerful tool for rapid quantitative determination of the extent and source of contaminants in the subsurface, as well as an efficient method in remediation activities.

On-Site Laboratory Standard Operating Procedures

This Standard Operating Procedure (SOP) describes the instrumentation, protocols and methodology used by MyKroWaters, Inc. personnel in the operation of it's mobile laboratory.

I. Instrumentation

MyKroWaters, Inc., utilizes a SRI 8610 Gas Chromatograph (GC) equipped with multiple detectors, a Photo Ionization Detector (PID), a Dry-Electrolytic Conductivity Detector (ELCD), and a Flame Ionization Detector (FID), a heated oven capable of temperature programming and a 30 meter megabore analytical column with a diameter of 0.53 mm. A four channel "Peaksimple II" Data System Software package for Windows, loaded in a portable computer, is used to collect, integrate and store the resulting chromatographic data.

The PID is extremely sensitive to aromatic molecules with detection limits in the one to four part per billion (ppb) range for water, 10 to 40 ppb range for soil and one part per million (ppm) range for soil vapor samples. MyKroWaters utilizes the PID to look for compounds such as methyl tertiary butyl ether (MTBE), benzene, toluene, ethyl benzene, xylene (BTEX), and tetrachloroethene (PCE) and its breakdown products.

The ELCD is specific for the detection of halogenated compounds, such as chlorinated compounds, polychlorinated biphenyls (PCBs), and pesticides. Detection limits for chlorinated compounds such as 1,2-dichloroethane and 1,1,1-trichloroethane are in the low ppb range for water samples. Detection limits for PCBs and pesticides are in the 1 ppm range for soils.

The FID is a general purpose detector used to detect a wide range of compounds including individual petrochemicals as well as petroleum mixtures (i.e. - gasoline, fuel oils, etc.). Detection limits are in the ppb/ppm range for individual constituents and the ppm range for mixtures.

II. Sample Collection

All samples are collected in a manner consistent with the analytes that are to be determined. Samples for field analysis are chosen based upon project objectives.

Volatiles:

Samples for VOC analysis are collected with special attention to minimize sample disturbance and associated volatilization. All samples are placed in 40 ml pre-cleaned VOA vials. Either a peristaltic pump or inertial is used for sampling and purging water samples. An inertial pump/bailer technique exerts little to no vacuum on a sample and therefore preserves the integrity of analytes sensitive to volatilization. Soil samples for volatiles analysis are collected from cores using a small diameter coring tool that minimizes sample exposure to air. Additional information regarding collection of samples for volatile analysis is located in the volatiles Field Analysis Methods.

Other Organic Parameters:

Water samples for Extractable or Total Petroleum Hydrocarbons (EPH or TPH) and Polychlorinated Biphenyls (PCBs) are collected in glass containers using an inertial or peristaltic pump or bailer, and extracted with hexane. Soil samples for EPH, TPH or PCBs are collected using a small coring device to minimize volatilization of analytes and extracted with hexane. Samples are analyzed using a flame ionization detector installed on a SRI 8610 Gas Chromatograph as specified under sample preparation and analysis.

III. Sample Handling/Documentation

Once a sample of groundwater or soil is collected by field personnel, it is immediately placed in the appropriate container and labeled using a permanent marker with the location, depth, date and time of day. The field technician is also responsible for entering the date, sample location and depth, soil type, soil moisture (qualitative), water silt content and other pertinent observations in field logs.

Samples are signed in on a Field Chain of Custody as soon as they are transferred to the on-site laboratory. Within minutes of securing the field sample, it is in the sole custody of the gas chromatography (GC) analyst. It is the analyst's responsibility to verify sample identification and commence with sample preparation for analysis.

Upon completion of sample analysis, target compound concentrations for a specific location are compiled on a field data sheet by the GC analyst. The GC analyst is responsible for interpreting each chromatogram and reporting results to field personnel for real-time decision making. A hard copy is generated of each chromatogram, including site details and integration results. All computerized chromatographic data is archived on diskette for later reference.

The GC analyst documents each **chromatogram** with the following information:

- sample identification
- sample depth
- date, time of analysis and operator
- site location and client
- column phase and length
- column temperature parameters and detector channel

A daily field **run** log is also maintained by the GC analyst to document the following site information:

- date, time of analysis and operator
- client, site location and project #
- carrier gas pressure
- column temperature parameters and detector channel
- column type, length and diameter
- weather conditions
- sample ID numbers and depth
- compound identification and concentration
- comments and observations

IV. Quality Assurance/ Quality Control

The procedures outlined in this section summarize MyKroWaters overall QA/QC program used in the collection and analysis of environmental samples.

A) Sampling Equipment Decontamination

All sampling equipment for soil sampling, drive rods and probes are decontaminated after each sampling point by washing with soapy distilled water and rinsing with distilled water. After washing, all internal surfaces are flushed with ambient air and external surfaces wiped with clean paper towels. Drive rods and well screens for mykrowells are dedicated to each location and only used once for each location and do not necessitate decontamination. Prior to sample collection all bailers and check valves are rinsed with methanol followed by distilled water. Well sampling equipment is dedicated to each sample location and discarded after use.

B) On-Site Laboratory

MyKroWaters On-Site Environmental Laboratory is situated in an area upwind of contaminated vapor sources and maintained in a stable, temperature-controlled environment.

C) Analytical Procedures

To establish and maintain the ability to generate data with accuracy and precision, the following protocols are followed by MyKroWaters personnel.

1. **Materials**. All sampling containers are used only once then disposed of in a safe and appropriate manner. Sample preparation equipment is decontaminated between each use with an appropriate solvent. All spatulas are cleaned with soapy water and rinsed with an appropriate solvent. All solvents used for extraction are pesticide residue grade.

2. **Start-Up Procedure**. At the beginning of each day's operation of the Gas Chromatograph, start-up recommendations of the manufacturer along with MyKroWaters' internal procedures are followed. These procedures include careful cleaning of the photoionization detector lamp window, visual inspection of column, leak testing of connections, checking and setting gas flow rates, setting column temperature and integration parameters and replacing the injector port septum.

3. **Blanks**. In order to check for contamination in the system, reagent and sample blanks are run during the course of each work day. An extraction blank is prepared with each set of samples at a frequency of one blank per twenty field samples. Syringe blanks are run intermittently, where necessary, to verify system cleanliness.

4. **Instrument Calibration.** All working standards are prepared from certified standards. Standards are prepared every six months, or more frequently as needed. Standards for volatiles analysis are prepared on a daily basis. Single point calibration is used in the case of analytes determined by PID and ELCD detectors because response is linear over a wide concentration range. Parameters that are to be determined by FID utilize a multi (usually three) point initial calibration curve. The initial calibration must demonstrate a r value of .990 to be considered acceptable. A continuing calibration is run on a daily basis. The percent difference from the expected value for the continuing calibration should be

no greater than 30 percent. Deviations greater than 30 percent require re-analysis of the continuing calibration standard or a new initial calibration.

5. **Sample Analysis.** Upon delivery of the sample to the field lab, and subsequent to the start up procedures as described in Items 1, 2, 3 and 4 above, the GC analyst immediately records in the daily field log all pertinent information. Samples are cooled at 4° C if their anticipated period between sampling and preparation or analysis is greater than two hours.

6. **Duplicate Sample Analysis.** Duplicate samples are run at the discretion of the analyst to check reproducibility of the screening run. Generally, a minimum of one duplicate every ten samples is analyzed or one sample per day. Duplicate samples are considered acceptable if the % difference between duplicate analyses is less than or equal to 25%.

7. **Internal/Surrogate/Matrix Spike Recovery.** Internal standard recoveries are considered acceptable (where applicable) if the % recovery is greater than 50% and less than 200%. Surrogate percent recoveries for soil samples are considered acceptable (where applicable) if the % recovery is greater than 75% and less than 125%. matix spike recoveries are considered acceptable (where applicable) if between 75% and 125%.

8. **Water and Soil Samples.** Water or soil samples that are not immediately prepared for analysis, are stored at 4°C.

9. **External QC Testing.** To ensure that the analytical capability is maintained and to detect any significant changes that may have occurred in accuracy and precision of the methods used, quality control samples are periodically analyzed at three to six month intervals. These samples are obtained from a chemical standards vendor such as Supelco. In addition, MyKroWaters periodically sends samples to independent laboratories for confirmatory analysis.

10. **GC and General Equipment Maintenance.** Periodic in-house maintenance is conducted of the GC such as analytical column, injection port and detector decontamination, column replacement, etc. All maintenance activities are documented in MyKroWaters' Instrument Log. Periodic in-house inspection and maintenance of the refrigerator are routinely performed. Balances used by MyKroWaters are checked for accuracy and certified by an independent firm on an annual basis.

D. Corrective Actions

In the event that an analytical system exceeds the quality control criteria, corrective action must be taken to bring the system into control prior to sample analysis. A broad array of activities are classified as corrective actions. All corrective actions are noted in the GC Run Log or the Corrective Action Logbook. Typical corrective actions are noted below.

1. **Blanks** - In the event that a blank contains target analytes at a concentration greater than the reporting limit, the blank is re-analyzed. If the re-analysis eliminates the contamination, sample analysis may resume. If re-analysis of the blank still indicates contamination the associated samples must be re-extracted and re-analyzed.

2. **Calibrations** - In the event that a continuing calibration standard does not meet the % difference criteria, routine instrument maintenance may be performed and/ or the standard must be re-analyzed. If re-analysis corrects the condition, sample analysis may proceed. If the condition persists, a new initial calibration must be performed.

3. **% Recovery** - If internal and/or surrogate standard recoveries exceed control limits the sample must be re-analyzed and/or re-extracted. If re-analysis of the sample corrects the condition the results from the second analysis are reported. If the condition persists, results from both analyses are reported and the sample is considered to exhibit a matrix effect.

Appendix A.
Field Analysis Method
Aqueous Samples for Volatile Organic Compounds (VOCs)

The following procedures outline the method utilized by MyKroWaters to conduct on-site field screening of groundwater for volatile organic compounds. Prior to analysis, the groundwater samples are collected into pre-cleaned 40 ml vials using either a peristaltic pump or inertial. An inertial pump/bailer technique is employed since this collection method exerts little to no vacuum on the sample and therefore preserves the integrity of analytes sensitive to volatilization.

Samples are analyzed on a portable GC equipped with a Photoionization Detector (PID) and/or a Dry-Electrolytic Conductivity Detector (ELCD). Analyte identification is made by comparison with known standards. The following table summarizes analytes commonly detected using this method. This method can be used to detect a wide range of additional components.

Common Analytes:

Compound	Detection Limit (PPB)
Vinyl Chloride	1
trans-1,2-Dichloroethene	2
cis-1,2-Dichloroethene	4
1,2-Dichloroethane	1
Benzene	1
Trichloroethene	4
1,1,1-Trichloroethane	4
Toluene	2
Tetrachloroethene (PCE)	4
Ethyl Benzene	4
meta & para-Xylene	4
ortho-Xylene	4
Tetrahydrofuran	10

Equipment and Supplies:

- 40 mL VOA vials
- 5 mL disposable syringes
- De-ionized water
- Activated carbon
- 10 mL glass syringes
- 250 uL glass syringes
- Traceable VOC standards

Instrumentation:

SRI Instruments Model 8610 Gas Chromatograph equipped with a 30 meter x 0.53 mm wide bore stainless steel column and dual detectors, a Photoionization Detector (PID) and/or a Dry-Electrolytic Conductivity Detector (ELCD).

Sample Preparation:

A groundwater sample is prepared by evacuating 10 mL of the sample utilizing a 10 mL glass syringe. A 5 mL syringe packed with activated carbon is inserted into the sample vial at the same time that the 10 ml of sample is removed, allowing filtered air to enter the vial. After allowing time for equilibration the sample is ready for analysis.

Analytical Conditions:

Helium carrier gas @ 8 psi,
Air reactor gas @ 2 PSI (ELCD only),
GC oven starting temp. 80 degrees C, Hold for 5.0 minutes
Ramp @ 7 degrees C/minute to 120 degrees C (~6 minutes)
Hold for 35 minutes

Sample Analysis:

Analyte identification is made using comparison with known standards. A standard is prepared by filling a clean 40 ml VOA vial with deionized water and, as with the sample vial, evacuating 10 ml of the water using the same process described above. A known quantity of a traceable VOC standard is then injected into the vial. After equilibration, 250 uL of the headspace from the vial is injected on to the GC column. Instrument response is checked to verify performance.

Once the standard is analyzed, a quantity of the headspace from the sample vial is injected onto the column. The retention times are used to determine the presence of the compounds of interest. Concentration is calculated on an external standard basis by comparing the response of the sample to the response of the standard.

Appendix B.
Field Analysis Method
Soils and Sediments for Volatile Organic Compounds (VOCs)

The following procedures outline the method utilized by MyKroWaters to conduct on-site field screening of soils and sediments for volatile organic compounds. Soil samples are collected from borings using a small scale coring device to minimize loss of volatile components. The collected samples are analyzed on a portable GC equipped with a Photoionization Detector (PID) and/or Dry-Electrolytic Conductivity Detector (ELCD). Identification of analytes is made by comparison with known standards. The following table summarizes analytes commonly detected using this method. This method can be used to detect a wide range of additional components.

Common Analytes:

Compound	Detection Limit (PPB)
Vinyl Chloride	40
trans-1,2-Dichloroethene	20
cis-1,2-Dichloroethene	40
1,2-Dichloroethane	10
Benzene	10
Trichloroethene	40
1,1,1-Trichloroethane	40
Toluene	20
Tetrachloroethene (PCE)	40
Ethyl Benzene	40
meta & para-Xylene	40
ortho-Xylene	40
Tetrahydrofuran	100

Equipment and Supplies:

- 40 mL VOA vials
- 5 mL disposable syringes
- De-ionized water
- Activated carbon
- 10 mL glass syringes
- 250 uL glass syringes
- Traceable VOC standards

Instrumentation:

SRI Instruments Model 8610 Gas Chromatograph equipped with a 30 meter x 0.53 mm wide bore stainless steel column and dual detectors, a Photoionization Detector (PID) and/or a Dry-Electrolytic Conductivity Detector (ELCD).

Sample Preparation:

A pre-cleaned, empty 40 ml VOA vial is filled with deionized water and then sealed with a Teflon faced cap. Ten mL of the deionized water is evacuated utilizing a 10 mL glass syringe. A 5 mL syringe packed with activated carbon is also inserted into the vial at the same time as the 10 mL syringe to allow filtered air into the vial. Once the water is removed, the vial is tared. A portion of the collected soil sample is collected using a disposable 5 mL syringe as a small coring device. The sample portion is then added to the VOA vial and the vial is sealed and weighed to determine the sample amount. The vial, containing the deionized water and the sample, is agitated to ensure release of volatile components. After allowing time for equilibration, the sample is ready for analysis.

Analytical Conditions:

Helium carrier gas @ 8 psi,
Air reactor gas @ 2 PSI (ELCD only),
GC oven starting temp. 80 degrees C, Hold for 5.0 minutes
Ramp @ 7 degrees C/minute to 120 degrees C (~6 minutes)
Hold for 35 minutes

Sample Analysis:

Analyte identification is made using comparison with known standards. A standard is prepared by filling a clean 40 ml VOA vial with deionized water and, as with the sample vial, evacuating 10 ml of the water using the same process described above. A known quantity of a traceable VOC standard is then injected into the vial. After equilibration, 250 uL of the headspace from the vial is injected on to the GC column. Instrument response is checked to verify performance.

Once the standard is analyzed, a quantity of the headspace from the sample vial is injected onto the column. The retention times are used to determine the presence of the compounds of interest. Concentration is calculated on an external standard basis by comparing the response of the sample to the response of the standard.

Appendix C.
Field Analysis Method
Soil Vapor and Air for Volatile Organic Compounds (VOCs)

The following procedures outline the method utilized by MyKroWaters to conduct on-site field screening of soil vapor and air for volatile organic compounds. Air samples are collected using a gas tight syringe. Soil vapor samples are collected using a peristaltic pump and dedicated tubing. The collected samples are analyzed on a portable GC equipped with a Photoionization Detector (PID) and/or Dry-Electrolytic Conductivity Detector (ELCD). Identification of analytes is made by comparison with known standards. The following table summarizes analytes commonly detected using this method. This method can be used to detect a wide range of additional components.

Common Analytes:

Compound	Detection Limit (PPM)
MTBE	2
Vinyl Chloride	2
trans-1,2-Dichloroethene	1
cis-1,2-Dichloroethene	2
1,2-Dichloroethane	1
Benzene	1
Trichloroethene	2
1,1,1-Trichloroethane	2
Toluene	1
Tetrachloroethene (PCE)	2
Ethyl Benzene	2
Total Xylenes	2

Equipment and Supplies:

- 40 mL VOA vials
- 250 uL glass syringes
- Traceable VOC standards

Instrumentation:

SRI Instruments Model 8610 Gas Chromatograph equipped with a 30 meter x 0.53 mm wide bore stainless steel column and dual detectors, a Photoionization Detector (PID) and/or a Dry-Electrolytic Conductivity Detector (ELCD).

Sample Preparation:

Air samples are collected and analyzed directly with no sample preparation. Soil vapor samples are collected after allowing for sufficient time to evacuate the tubing and soil vapor point used for sample collection. No further sample preparation is performed.

Analytical Conditions:

Helium carrier gas @ 8 psi,
Air reactor gas @ 2 PSI (ELCD only),
GC oven starting temp. 80 degrees C, Hold for 5.0 minutes
Ramp @ 7 degrees C/minute to 120 degrees C (~6 minutes)

Sample Analysis:

Analyte identification is made using comparison with known standards. A known quantity of a traceable VOC standard is then injected on to the GC column. Instrument response is checked to verify performance.

Once the standard is analyzed, samples are collected and injected onto the column. The retention times are used to determine the presence of the compounds of interest. Concentration is calculated on an external standard basis by comparing the response of the sample to the response of the standard.

Appendix D.
Field Analysis Method
Soils and Sediments for Total Petroleum Hydrocarbons (TPH)

The following procedures outline the method utilized by MyKroWaters to conduct on-site field screening of soils and sediments for total petroleum hydrocarbons. The method is based on a small scale extraction process using distilled water, methanol and hexane. The sample is analyzed on a portable GC equipped with a Flame Ionization Detector (FID). Identification is made by comparison with known standards.

Analytes:

Compound	Detection Limit (PPM)
Jet Fuel	400
Kerosene	400
Diesel Fuel	400
#2,#4 Fuel Oils	400

Equipment and Supplies:

- Pesticide residue grade hexane
- Pesticide residue grade methanol
- De-ionized water
- 2 mL glass vial w/Teflon faced septa
- 10 uL glass syringe
- Traceable Petroleum standards

Instrumentation:

SRI Instruments Model 8610 Gas Chromatograph (GC) equipped with a 30 meter x 0.53 mm wide bore stainless steel column and a Flame Ionization Detector (FID).

Sample Preparation:

A pre-determined amount of sample is weighed into a 2 mL glass vial. 100 uL of deioinzed water, 400 uL of methanol and 500 uL of hexane are added in the vial and introduced to the sample. The vial is agitated for at least twenty seconds. The contents of the vial are allowed to settle, and the phases separate. The top layer (hexane) is now ready for analysis.

Analytical Conditions:

Hydrogen carrier gas @ 8 psi,
Air detector gas @ 150 ml/min,
Hydrogen detector gas @ 50 ml/min,
GC oven starting temp. 60 degrees C, Hold for 0.5 minutes
Ramp @ 7 degrees C/minute to 260 degrees C (28.6 minutes)
Hold for 15 minutes

Sample Analysis:

Identification of analytes is made by comparison with known standards. To do this, a quantity (1 to 2 uL) of a traceable petroleum standard is injected onto the GC column. Instrument response is checked to verify performance. A portion of the prepared sample is then injected onto the column and the retention times and elution profile are used to determine the presence of petroleum hydrocarbons. Concentration is calculated on an external standard basis by comparing the response of the sample to the response of the standard.

Appendix E.
Field Analysis Method
Soils and Sediments for Polychlorinated Biphenyls (PCBs)

The following procedures outline the method utilized by MyKroWaters to conduct on-site field screening of soils and sediments for polychlorinated biphenyls. The method is based on a small scale extraction process using distilled water, methanol and hexane. The sample is analyzed on a portable GC equipped with a dry-electrolytic conductivity detector (DELCD). Identification is made by comparison with known standards.

Analytes:

Compound	Detection Limit (PPM)
Aroclor 1016	1.0
Aroclor 1221	1.0
Aroclor 1242	1.0
Aroclor 1248	1.0
Aroclor 1254	1.0
Aroclor 1260	1.0
Aroclor 1262	1.0

Equipment and Supplies:

- Pesticide residue grade hexane
- Pesticide residue grade methanol
- De-ionized water
- 2 mL glass vial w/Teflon faced septa
- 10 uL glass syringe
- Traceable PCB standards

Instrumentation:

SRI Instruments Model 8610 gas Chromatograph equipped with a 30 meter x 0.53 mm wide bore stainless steel column and a dry-electrolytic conductivity detector (ELCD).

Sample Preparation:

A pre-determined amount of the sample is weighed into a 2 mL glass vial. 100 uL of deionized water, 400 uL of methanol and 500 uL of hexane are added to the vial and introduced to the sample. The vial is then agitated for at least twenty seconds. and the contents are allowed to settle. The phases then separate. The top layer (hexane) is now ready for analysis.

Analytical Conditions:

Helium carrier gas @ 8 psi, Air reactor gas @ 2 PSI
GC oven starting temp. 200 degrees C, Hold for 0.5 minutes
Ramp @ 5 degrees C/minute to 240 degrees C (4 minutes)
Hold for 35 minutes

Sample Analysis:

Analyte identification is made by comparison with known standards. A quantity (1 to 2 uL) of a traceable PCB standard is injected onto the GC column. Instrument response is checked to verify performance. A quantity of the sample is then injected onto the column and the retention times and elution profile are used to determine the presence of PCBs. Concentration is calculated on an external standard basis by comparing the response of the sample to the response of the standard

Phase IB Geoprobe™ Investigation Data
QA/QC Data

MyKrowaters, Inc.
PO Box 1088
Concord, MA 01742
800-588-8880
978-369-4241 (FAX)

MyKroWaters, Inc.

Fax

To: TRC – Ellen Peoples **From:** Tom Keefe

Phone: 401 832 5882 **Pages:** 1

Fax: 401-832-4747 **Date:** 01/04/00

Re: Newport, RI **CC:**

☐ **Urgent** ☒ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments**

Deborah Farnsworth asked me to review the analytical data for the Newport, RI project. My review of the data determined that blank analyses were conducted in accordance with MyKroWaters' Standard Operating Procedures.

- A blank run was conducted at the beginning of each day to remove any contaminants in the GC column.
- A Method Blank was run each day to assure that there was no cross contamination introduced by the sample preparation or analytical procedures.
- Syringe blanks were run to assure that cross contamination did not occur between samples.

If you have any further questions, please don't hesitate to call me at 978 369 3037.

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Table 1
Field GC Analysis for Volatile Organic Compounds
Method Blank Analyses
NUWCDIV - Newport, RI
Project # 971017
(concentrations in ppb)

Method Blank Date	9/28/98	9/29/98	9/30/98	10/1/98	10/2/98	10/1?/98	10/13/98	Detection Limit
Vinyl chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Ethyl benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Total xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
trans-1,2-Dchloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
Carbon tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Methylene chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4

Note: 1. BDL indicate target analyte not present above method detection limit

MITKEM CORPORATION

October 15, 1998

TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project #: NUWC/NETC
Lab Project #: E1655

Dear Mr. Farrick:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler
Laboratory Operations Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755 • (401) 732-3400 • Fax (401) 732-3499

MITKEM CORPORATION

Client: TRC Environmental Corp.

Client Project: NUWC/NETC

Lab Project: E1655

Date samples received: 10/5/98

Project Narrative

This data report includes the analysis results for five (5) aqueous samples that were received from TRC Environmental Corp. on October 5, 1998. Analyses were performed per specification in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and laboratory sample ID.

All of the analyses were performed according to method specifications. No unusual occurrences were noted during sample analysis.

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Edward A. Lawler
Laboratory Operations Manager

Data Flag/Qualifiers:

J This flag indicates an estimated value due to either
- the compound was detected at below the Reporting Limit, or
- estimated concentration for Tentatively Identified Compound

B For organic analyses, this flag indicates the analyte was also detected in the associated Method Blank. The B flag has an alternative meaning for CLP-type metals analyses, indicating a "trace" concentration below the normal reporting limit and above the detection limit.

D This flag indicates the analyte concentration was obtained from a diluted analysis

E This flag indicates the analyte concentration exceeded the Calibration Range

P This flag is used for Pesticides/PCB/Herbicide analyte when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. The lower of the two values is reported in the Analysis Report.

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-85
Lab ID: E1655-01
Analysis: Method 8260

Analysis Date: 10/14/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	12	5
Methylene chloride	17	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: GP-85 Lab ID: E1655-01

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1014A

Surrogate Recovery:	
1,2-Dichloroethane-d4	90%
Toluene-d8	93%
Bromofluorobenzene	91%

ND = Not Detected

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-100A
Lab ID: E1655-02
Analysis: Method 8260

Analysis Date: 10/14/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	10	5
Bromomethane	ND	5
Chloroethane	470 D	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	41	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	10	5
Methylene chloride	16	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	590 D	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	760 D	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: GP-100A

Lab ID: E1655-02

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1014A

Surrogate Recovery:	
1,2-Dichloroethane-d4	91%
Toluene-d8	92%
Bromofluorobenzene	90%

ND = Not Detected

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-130
Lab ID: E1655-03
Analysis: Method 8260

Analysis Date: 10/14/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	54	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	18	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	10	5
Methylene chloride	16	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	330 D	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	500 D	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: GP-130 Lab ID: E1655-03

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1014A

Surrogate Recovery:	
1,2-Dichloroethane-d4	93%
Toluene-d8	93%
Bromofluorobenzene	93%

ND = Not Detected

00

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-125
Lab ID: E1655-04
Analysis: Method 8260

Analysis Date: 10/14/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	11	5
Methylene chloride	19	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	5	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: GP-125

Lab ID: E1655-04

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1014A

Surrogate Recovery:	
1,2-Dichloroethane-d4	92%
Toluene-d8	93%
Bromofluorobenzene	91%

ND = Not Detected

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-115
Lab ID: E1655-05
Analysis: Method 8260

Analysis Date: 10/14/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	10	5
Methylene chloride	16	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID: GP-115

Lab ID: E1655-05

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1014A

Surrogate Recovery:	
1,2-Dichloroethane-d4	92%
Toluene-d8	92%
Bromofluorobenzene	92%

ND = Not Detected

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID:
Lab ID: Method Blank, V5B1014A
Analysis: Method 8260

Analysis Date: 10/14/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

MITKEM CORPORATION

Client ID:

Lab ID: Method Blank, V5B1014A

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1014A

Surrogate Recovery:	
1,2-Dichloroethane-d4	90%
Toluene-d8	93%
Bromofluorobenzene	90%

ND = Not Detected

Lab Workorder: 51655 R1

Client: TRC Environmental Corporation
Lab Workorder ID: N/A
Client Proj ID:
Client PO #: 28941-01948-SC003
Project / Profile Name: NUWC/NETC
Date Due: 10/13/98
Customer Service: PAS
Del Req'd:
Completed?:
Profile Notes: Fax results to Brian Sullivan @ 832-4747
Project Notes: R1: Due date change.

Logged In By: AJ
Reviewed By: PAS

Date Opened: 10/06/98 13:41
Date Closed:

Project Status: WP

Lab ID	Client ID	Matrix	Analysis Code	Collected	Received	Due	Notes
51655001	GP-85	W	8260W	10/02/98 15:31	10/05/98	10/13/98	
51655002	GP-100A	W	8260W	10/02/98 09:23	10/05/98	10/13/98	
51655003	GP-130	W	8260W	10/02/98 09:42	10/05/98	10/13/98	
51655004	GP-125	W	8260W	10/02/98 11:47	10/05/98	10/13/98	
51655005	GP-115	W	8260W	10/01/98 12:49	10/05/98	10/13/98	

INVOICE GOES TO:

Accounts Payable
TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT, 06095
W: 860-289-8631

REPORT GOES TO:

Steve Farrick
TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT, 06095
W: 203-289-8631
F: 203-298-6399

TRC Environmental Consultants, Inc

CHAIN OF CUSTODY RECORD

21655

PAGE 1 of 1

PROJECT NO.	PROJECT NAME
	B-179 REMEDIATION - GEOPROBE DUPLICATES

SAMPLERS: (Signature) Brian Sull

(Printed) BRIAN SULLIVAN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	PARAMETERS: VOC - 8260	REMARKS
GP-85	10/2/98	1531		X	AQUEOUS	3		5 DAY TURN AROUND REQUESTED
GP-100A	10/2/98	0923		X				
GP-130	10/2/98	0942		X				
GP-125	10/2/98	1147		X				
GP-115	10/1/98	1249		X				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Brian Sull (Printed)	10/5/98 1220	(Signature) (Printed)
(Signature) (Printed)		

STEVE FARRICK
TRC ENV. CORP.
6 WATERSIDE CROSSING
WINDSOR, CT 06095

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

MITKEM CORPORATION

Sample Condition Form

Page

Received By: AB	Reviewed By: BFH	Date: 10/5/98	MITKEM Project: E1655
Client Project: -		Client: TRC	

Condition:		Sample ID Lab	Sample ID Client	Preservation (pH) HNO_3	Preservation (pH) H_2SO_4	Preservation (pH) HCl	Preservation (pH) NaOH	Comments/Remark Corrective Action*
		01	6P-85					
1) Custody Seal(s)	Present/Absent	02	-10A					
	Coolers/Bottles	03	-130					
	Intact/Broken	04	-125					
		05	↓ -115					
2) Custody Seal Number(s)	N/A							
3) Chain-of-Custody	Present/Absent							
4) Cooler Temperature	5°C							
Coolant Condition								
5) Airbill(s)	Present/Absent							
Airbill Number(s)								
6) Sample Bottles	Intact							
	Broken							
	Leaking							
7) Date Received	10/5/98							
8) Time Received	1330							
9) Project Due Date								

* See Sample Condition Notification/Corrective Action Form yes / no

Last Page of Data Report

MITKEM CORPORATION

October 23, 1998

TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project #: B179 Geoprobe Dupe
Lab Project #: E1712

Dear Mr. Farrick:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Kin S. Chiu
Technical Director

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755 • (401) 732-3400 • Fax (401) 732-3499
email: mitkem@worldnet.att.net

MITKEM CORPORATION

Client: TRC Environmental Corporation

Client Project: B179 Geoprobe Dupe

Lab Project: E1712

Date samples received: 10/14/98

Project Narrative

This data report includes the analysis results for two (2) aqueous samples that were received from TRC Environmental Corporation on October 14, 1998. Analyses were performed per specification in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and laboratory sample ID.

All of the analyses were performed according to method specifications. No unusual occurrences were noted during sample analysis.

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Edward A. Lawler
Laboratory Operations Manager

Data Flag/Qualifiers:

J This flag indicates an estimated value due to either
- the compound was detected at below the Reporting Limit, or
- estimated concentration for Tentatively Identified Compound

B For organic analyses, this flag indicates the analyte was also detected in the associated Method Blank. The B flag has an alternative meaning for CLP-type metals analyses, indicating a "trace" concentration below the normal reporting limit and above the detection limit.

D This flag indicates the analyte concentration was obtained from a diluted analysis

E This flag indicates the analyte concentration exceeded the Calibration Range

P This flag is used for Pesticides/PCB/Herbicide analyte when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. The lower of the two values is reported in the Analysis Report.

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-63
Lab ID: E1712-01
Analysis: Method 8260

Analysis Date: 10/19/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	11	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

Client ID: GP-63

MITKEM CORPORATION

Lab ID: E1712-01

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1019A

Surrogate Recovery:	
1,2-Dichloroethane-d4	102%
Toluene-d8	102%
Bromofluorobenzene	98%

ND = Not Detected

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID: GP-150
Lab ID: E1712-02
Analysis: Method 8260

Analysis Date: 10/19/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	94	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	12	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	14	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	310 D	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	380 D	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

Client ID: GP-150

MITKEM CORPORATION

Lab ID: E1712-02

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1019A

Surrogate Recovery:	
1,2-Dichloroethane-d4	98%
Toluene-d8	100%
Bromofluorobenzene	96%

ND = Not Detected

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Client: TRC Environmental Corp.
Client ID:
Lab ID: Method Blank, V5B1019A
Analysis: Method 8260

Analysis Date: 10/19/98
Matrix: Aqueous
Concentration in: ug/L
Dilution: 1

Analyte	Results	Reporting Limits
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5

Client ID:

MITKEM CORPORATION

Lab ID: Method Blank, V5B1019A

Analyte	Results	Reporting Limits
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V5B1019A

Surrogate Recovery:	
1,2-Dichloroethane-d4	102%
Toluene-d8	100%
Bromofluorobenzene	94%

ND = Not Detected

Lab Workorder **51712** R0

Client: **TRC Environmental Corporation**
Lab Workorder ID: **B-179 Geoprobe Dupe**
Client Proj ID:
Client PO #:
Project / Profile Name: **NUWC/NETC**
Date Due: **10/21/98**
Customer Service: **PAS**
Del Req'd:
Completed?:
Profile Notes: **Fax results to Brian Sullivan @ 832-4747**

Logged In By: MAM
Reviewed By: _____

Date Opened: **10/15/98 10:20**
Date Closed:

Project Status: **WP**

Lab ID	Client ID	Matrix	Analysis Code	Collected	Received	Due	Notes
51712001	GP-63	W	8260W	10/13/98 12:00	10/14/98	10/21/98	
51712002	GP-150	W	8260W	10/13/98 12:00	10/14/98	10/21/98	

INVOICE GOES TO:

Accounts Payable
TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT, 06095
W: 860-289-8631

REPORT GOES TO:

Steve Farrick
TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT, 06095
W: 203-289-8631
F : 203-298-6399

009

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@worldnet.att.net

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY: TRC ENVIRONMENTAL CORP.	PHONE: 401-832-5866	COMPANY: SAME	PHONE:	LAB PROJECT #: E1712
NAME: STEVE FARRICK	FAX: 401-832-4747	NAME:	FAX:	
ADDRESS: 5 WATERSIDE CROSSING		ADDRESS:		TURNAROUND TIME: 5 DAY
CITY/ST/ZIP: WINDSOR, CT 06095		CITY/ST/ZIP:		

CLIENT PROJECT NAME: B-179 GEOPROBE DUPE

CLIENT PROJECT #:

CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC 8260	COMMENTS
GP-63	10/13/98'		X	X			01	3	X	
GP-150	10/13/98'		X	X			02	3	X	
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									

REQUESTED ANALYSES

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	Brian Sull	10/14/98' 1530	Arthur Reynolds	10/14/98' 1530
2		/		/
3		/		/

ADDITIONAL REMARKS: UPON COMPLETION, PLEASE FAX RESULTS TO # ABOVE. FINAL REPORT TO WINDSOR.

COOLER TEMP: 5°C

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

APPENDIX D
Seismic Refraction Survey

- Geophysical Applications, Inc. Seismic Refraction Survey Report

Geophysical Applications, Inc.
Seismic Refraction Survey Report

GEOPHYSICAL APPLICATIONS

INCORPORATED

Seismic Refraction Survey Report
Building 179
Naval Undersea Warfare Center
Newport, Rhode Island

Prepared for
TRC ENVIRONMENTAL CORPORATION
September 1999

GEOPHYSICAL
APPLICATIONS
INCORPORATED

September 27, 1999

Ms. Ellen Peoples
Mr. Brian Sullivan
TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

Subject: Seismic Refraction Survey Report
Building 179, Naval Undersea Warfare Center
Newport, Rhode Island

Dear Ms. Peoples and Mr. Sullivan:

Geophysical Applications has performed seismic refraction profiling to help characterize subsurface conditions near Building 179. The primary objective of this survey was to measure bedrock depths and elevations along a series of traverses to help TRC to determine the direction of groundwater flow.

METHODS OF INVESTIGATION

Survey Control

Geophysical Applications located the survey traverses using taped distance measurements referenced to nearby buildings, roads and other semi-permanent surface features.

Vertical survey control was performed using an electronic theodolite. Elevations were measured at seismic impact points and selected geophones. Those elevation measurements were adjusted to the project's datum elevation by referencing microwell GP32A's elevation of 56.79 feet, supplied by TRC.

Seismic Refraction Profiling

Refraction data were acquired using an ABEM Terraloc Mark 6 seismograph with 5 or 10-foot geophone spacings. Seismic energy was generated with either a truck-mounted DigiPulse model EWG-1 weight-drop device, a sledge hammer, or a Betsy® firing rod.

The EWG uses a thick rubber band to accelerate a 90-pound hammer onto an aluminum impact plate, thereby producing stronger seismic signals than a free-falling weight. The EWG was utilized wherever vehicle access was possible.

Seismic energy was also generated with sledge-hammer blows on an aluminum impact plate placed on the ground surface. Sledge hammer blows were used on pavement wherever vehicle access was not possible.

The firing rod was utilized once at Line 7, Station 0+00. The firing rod initiates a 450- to 550-grain blank shotgun shell 1 or 2 feet below ground surface, in a pilot hole pre-drilled with a steel bar and a sledge hammer.

125 Washington Street • Suite Two • Foxboro • MA • 02035
508-543-1388 • FAX 508-543-1019

Seismograph recording was triggered by either a geophone adjacent to the impact plate, or a geophone mounted on the firing rod.

Interference from wind noise was minimized by using 30-hertz geophones, with high-pass filters set to 12 hertz. Geophones were coupled to the ground surface with spike bases on soft ground, and tripod bases on pavement or hard ground. Small sand bags were placed on tripod-base geophones to enhance the physical coupling between those geophones and the ground surface.

Refraction seismograms were recorded using 0.25 millisecond sampling intervals, with record lengths of 128 or 256 milliseconds. Seismograms were stored on the ABEM's internal hard drive, and also on floppy diskette for backup data storage.

Seismic source points were located at approximately 80-foot intervals along each 24-channel geophone spread. Additional source points ("offset shots") were placed up to 50 feet beyond geophone array endpoints, where permitted by site conditions (Lines 1 and 6, high stations only), to help profile strata near the seismic spread end points. Up to five source points were occupied along each geophone array to provide reversed seismic profiles.

Depending upon signal-propagation conditions, up to eighteen seismograms were stacked at each source point to enhance recorded data quality. Each source point on unpaved areas was marked with a pink stake flag, labeled with the seismic line number and impact station. Paved areas were marked using pink spray paint. All stake flags were left in place at the survey's conclusion per TRC's request.

Refraction data analysis was performed by picking first-arrival times with Rimrock Geophysics' ASIPIK program, followed by modeling with Rimrock Geophysics' SIPT2 delay-time interpretation software. This software uses a ray-tracing algorithm, in which calculated layer thicknesses beneath each geophone are varied to obtain good agreement between observed and modeled arrival times.

The SIPT2-generated computer models were spot-checked using layer depths manually calculated with the crossover-distance technique. Refraction interpretations were also compared to logs for several nearby borings.

Seismic interpretations were refined to obtain agreement in calculated bedrock depths within ± two feet at traverse intersections.

SURVEY LIMITATIONS

Seismic velocity values shown on the cross sections were calculated over 24-channel geophone arrays, and therefore represent averaged subsurface conditions.

The seismic refraction technique only detects materials exhibiting increasing velocities with depth. For example, low-velocity weathered bedrock cannot be detected beneath a higher-velocity layer.

Dashed lines on the seismic cross sections represent layers where refractor elevations have greater than normal uncertainties, due primarily to: a) highly-irregular refractor surfaces, b) abrupt lateral decreases in seismic velocity, or c) interference from nearby buildings or buried utility structures. Actual refractor elevations may differ from the dashed-line inferences shown on the attached cross sections.

Seismic survey depth calculations are typically accurate within ± 10% (or ± 3 feet, whichever is larger).

RESULTS

Figure 1 shows seismic traverse positions from this survey with respect to nearby features. Borings B-10 through B-12 and B-20-22 were correlated with the refraction models during data analysis.

Similar velocity values were observed along most traverses. A near-surface low-velocity layer (1,500 to 2,000 ft/sec) is interpreted to represent unsaturated, unconsolidated deposits, including backfill materials. Borings located along Line 1 identify this material as dense silt containing some sand and rock fragments

The lowermost layer shown on each cross section (12,000 to 15,500 ft/sec) is judged to represent bedrock. Borings identified the shallowest bedrock surface as a dense, gray, weathered shale, easily crumpled with finger pressure. Competent sedimentary rocks usually exhibit compressional velocity values greater than 12,000 ft/sec. Note that although average bedrock seismic velocities were at least 12,000 ft/sec, localized fractures or weathering occur naturally throughout New England.

Borings B-10 through B-12 and B-20-22 are indicated on the attached cross section for Line 1, including notations describing where weathered shale was observed.

Deeply-weathered bedrock is indicated on some geologic boring logs. The lowermost interpreted surface on each of the attached seismic cross sections is located where the SIPT2 refraction-modeling software calculated that 12,000 ft/sec (or greater, on some cross sections) bedrock was located.

* * * * *

We appreciate this opportunity to provide geophysical services to TRC, and we welcome any questions regarding this report.

Sincerely,
GEOPHYSICAL APPLICATIONS, INC.

M. Blackey

Mark E. Blackey
Principal and Geophysicist

99290 - 99290.rpt

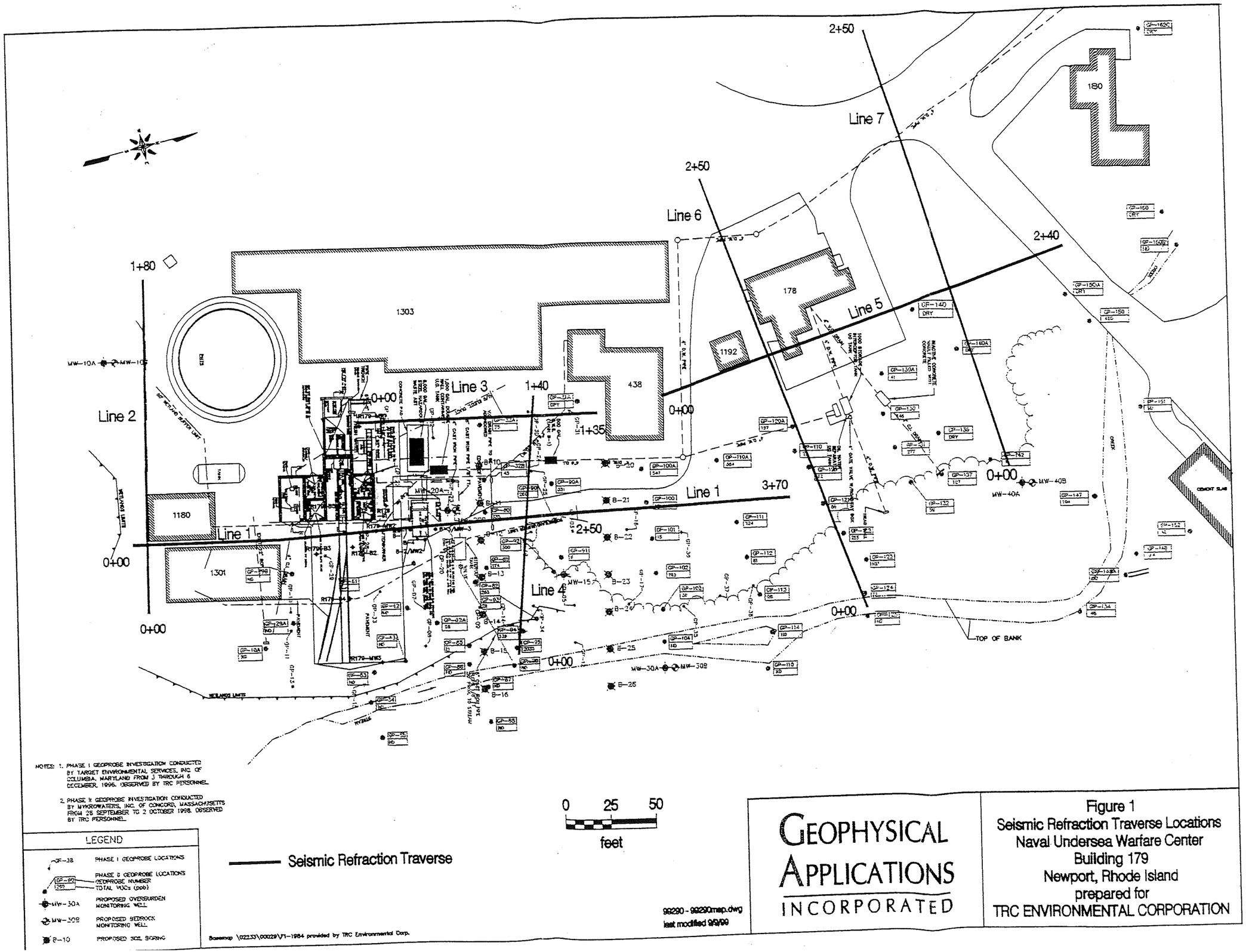
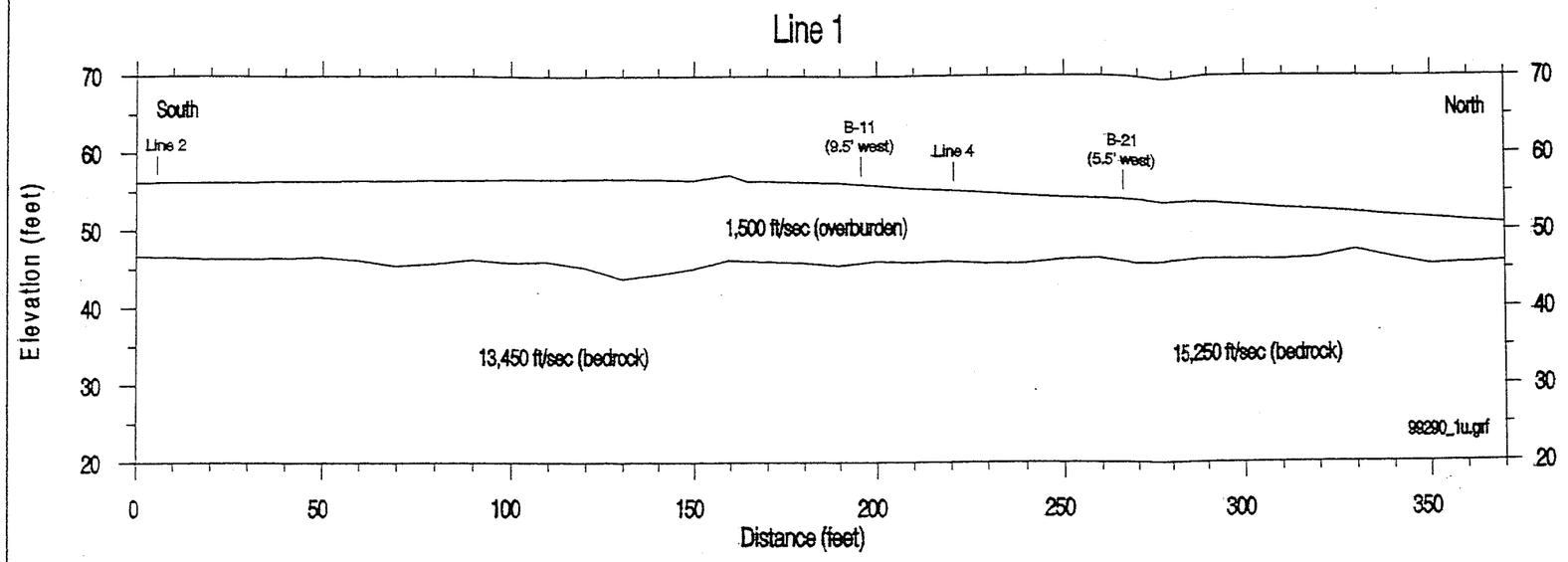
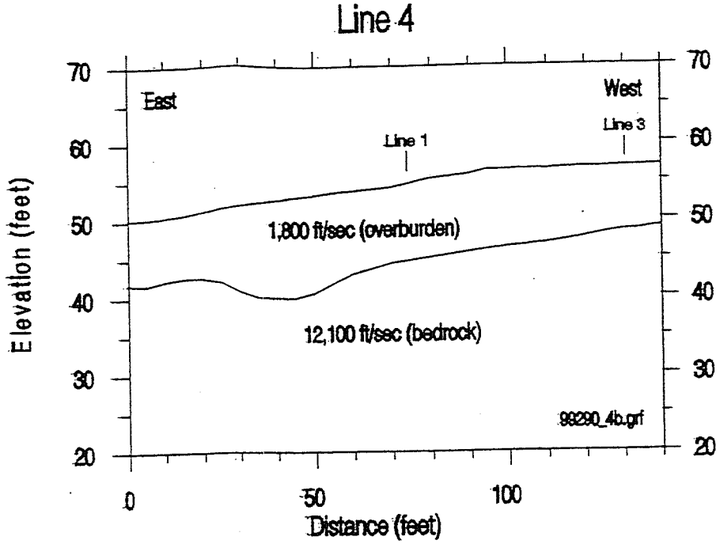
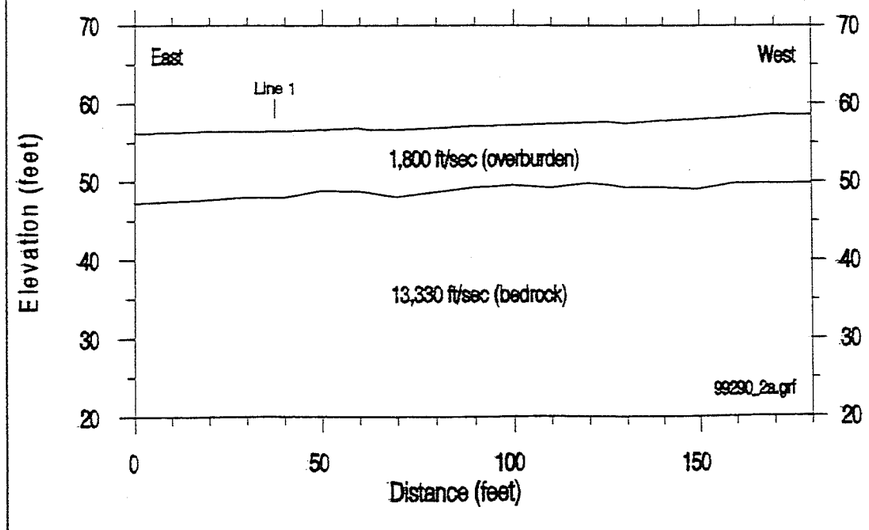
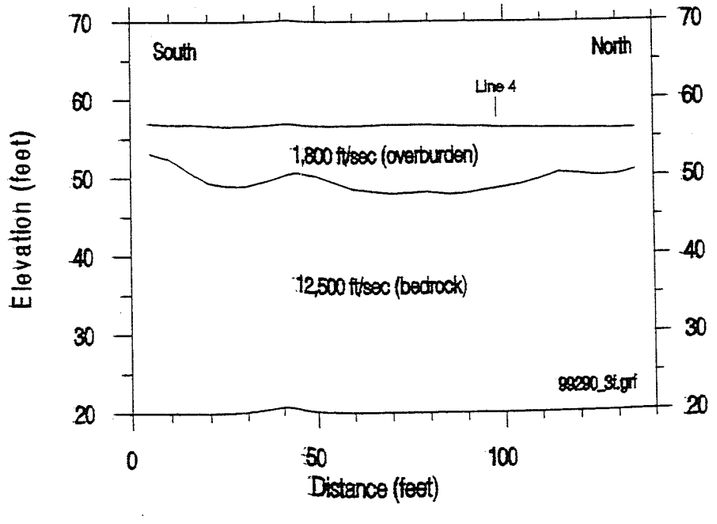


Figure 1
Seismic Refraction Traverse Locations
Naval Undersea Warfare Center
Building 179
Newport, Rhode Island
prepared for
TRC ENVIRONMENTAL CORPORATION









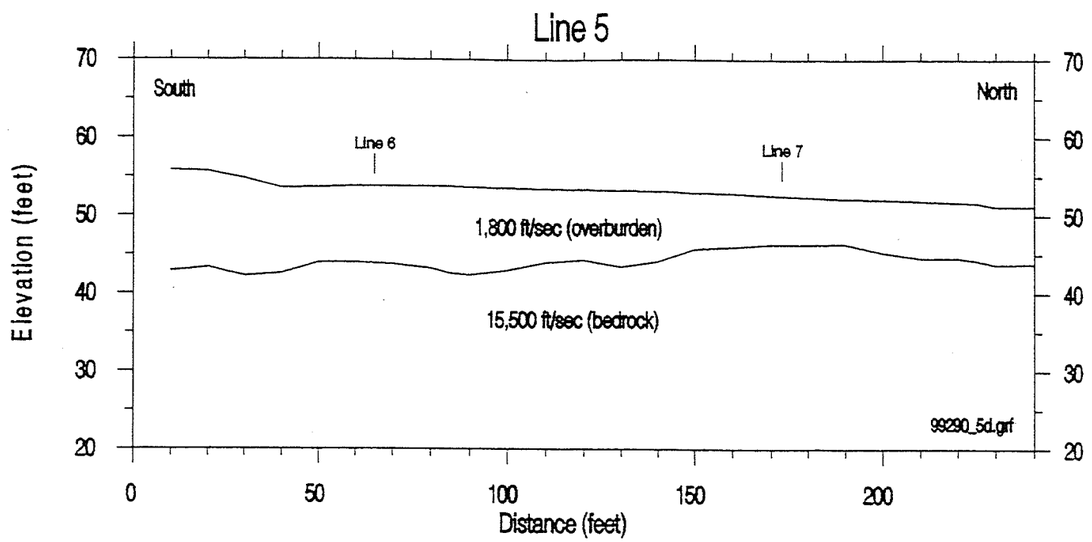
Notes:

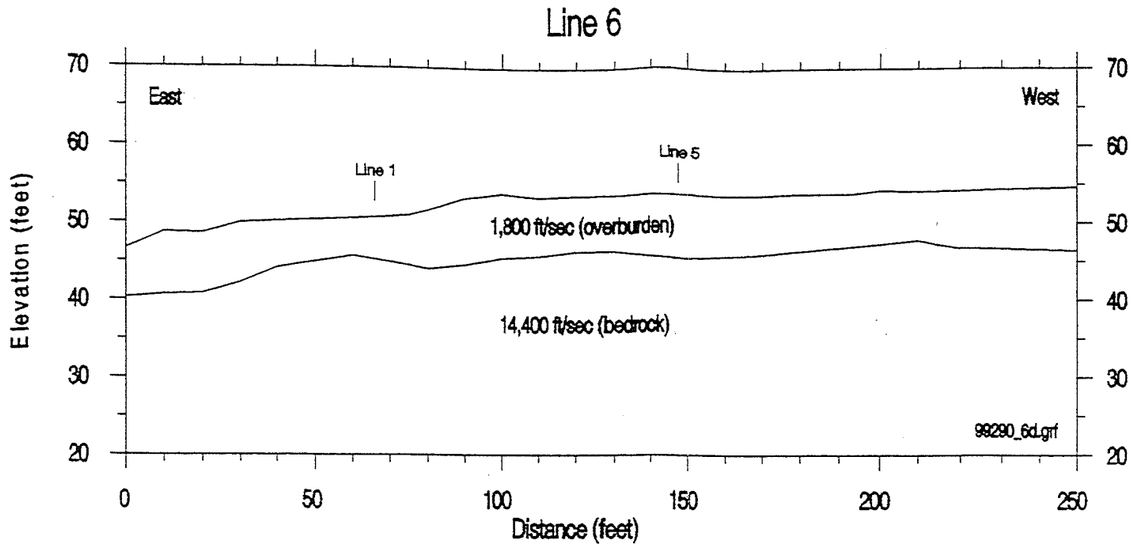
1) Horizontal scale: 1 inch = 40 feet
   Vertical scale: 1 inch = 20 feet
   Vertical exaggeration = 2:1
2) Seismic compressional velocity values are in units of feet per second (ft/sec)
3) Ground elevations were referenced to microwell GP32A, elevation 56.79 feet

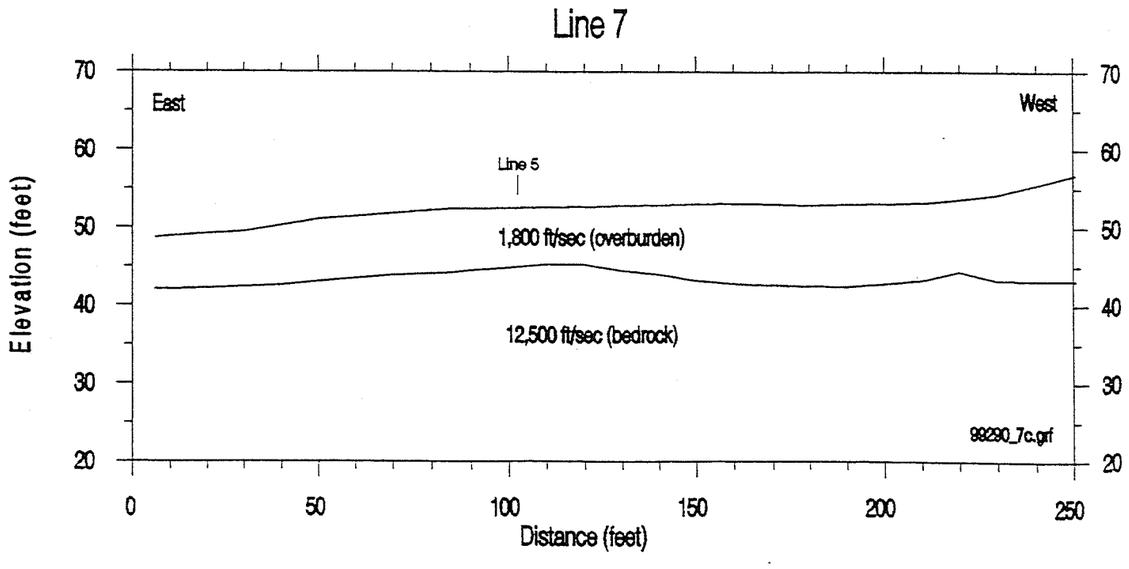
99290 - 99290cs1.dwg
last modified 9/27/99

GEOPHYSICAL APPLICATIONS
INCORPORATED

Figure 2
Seismic Cross Sections - Lines 1 through 4
Naval Undersea Warfare Center
Building 179
Newport, Rhode Island
prepared for
TRC ENVIRONMENTAL CORPORATION







Notes:

1) Horizontal scale: 1 inch = 40 feet
   Vertical scale: 1 inch = 20 feet
   Vertical exaggeration = 2:1
2) Seismic compressional velocity values are in units of feet per second (ft/sec)
3) Ground elevations were referenced to microwell GP32A, elevation 56.79 feet

99290 - 99290xs2.dwg
last modified 9/27/99

GEOPHYSICAL APPLICATIONS INCORPORATED

Figure 3
Seismic Cross Sections - Lines 5 through 7
Naval Undersea Warfare Center
Building 179
Newport, Rhode Island
prepared for
TRC ENVIRONMENTAL CORPORATION

APPENDIX E
Monitoring Well and Soil Boring Installation

- Soil Boring Logs
- Monitoring Well Bedrock Core Photographs

Soil Boring Logs

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

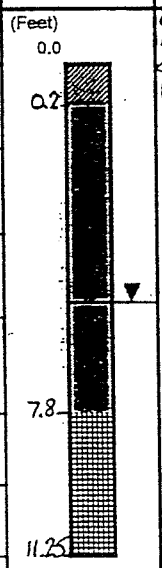
DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

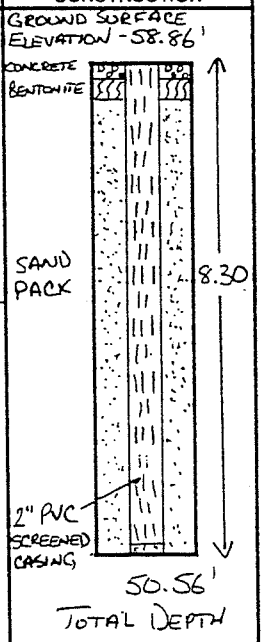
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 8.5' @ 0.10 hrs.
START DATE: 7/15/99
END DATE: 7/15/99

BORING No. **MW-6A**

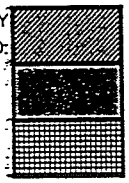
SHEET 1 OF 1

MPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION
Background Reading					3.4	
S-1	0-2	5 / 10	10 / 9	16	3.4	Top 2", soft, brown, organic silt; bottom 14", medium, brown, SILT, some fine SAND and GRAVEL
S-2	2-4	12 / 21	19 / 26	18	3.5	Dense, brown, SILT, little fine SAND, trace SHALE fragments
S-3	4-6	4 / 19	9 / 21	14	3.5	Dense, brown, SILT, little fine SAND and GRAVEL, dry
S-4	6-8	22 / 26	24 / 41	14	3.4	Dense, brown, SILT, some SAND, little GRAVEL and SHALE fragments; bottom 2", weathered SHALE, dry
S-5	8-10	17 / 18	17 / 27	5	3.4	Dense, gray, weathered SHALE, dry
S-6	10-11.25	12 / 66	15 / 100/3"	16	**	Very dense, gray, weathered SHALE, wet
						* SOIL BORING DESCRIPTION EXTRACTED FROM MW-6B LOCATED APPROXIMATELY 2' FROM MW-6A





NOTES: 1. "**" Indicates reading not taken.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.



BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

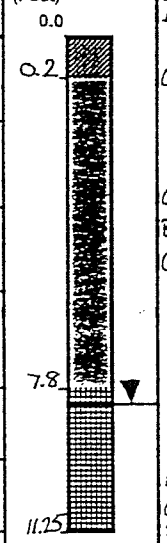
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 8.5' @ 0.10 hrs.
START DATE: 7/15/99
END DATE: 7/15/99

BORING No. MW-6B

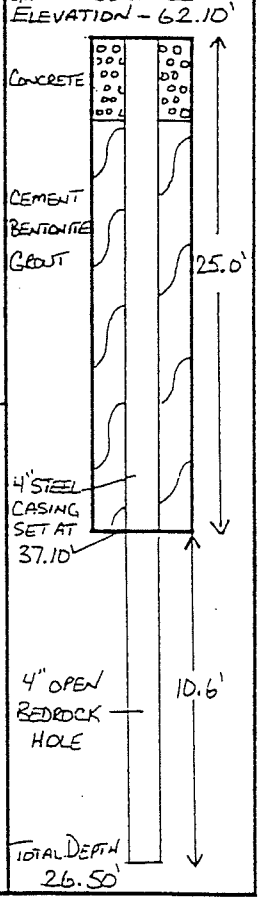
SHEET 1 OF 1

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION
		Background Reading			3.4	
S-1	0-2	5 / 10	10 / 9	16	3.4	Top 2", soft, brown, organic silt; bottom 14", medium, brown, SILT, some fine SAND and GRAVEL
S-2	2-4	12 / 21	19 / 26	18	3.5	Dense, brown, SILT, little fine SAND, trace SHALE fragments
S-3	4-6	4 / 19	9 / 21	14	3.5	Dense, brown, SILT, little fine SAND and GRAVEL, dry
S-4	6-8	22 / 26	24 / 41	14	3.4	Dense, brown, SILT, some SAND, little GRAVEL and SHALE fragments; bottom 2", weathered SHALE, dry
S-5	8-10	17 / 18	17 / 27	5	3.4	Dense, gray, weathered SHALE, dry
S-6	10-11.25	12 / 66	15 / 100/3"	16	---	Very dense, gray, weathered SHALE, wet

LITHOLOGY

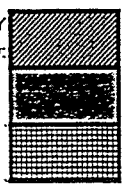


MONITORING WELL CONSTRUCTION



TES:
1. "---" Indicates reading not taken.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



PEAT/LOAM
SILT & SAND
WEATHERED ROCK

SHEET NO. 1 OF 2

PROJECT NO.

DATE 12/16/99

BY B. SULLIVAN

CHK'D

TRC

SUBJECT MW-6B 7'-55'

↑ UNCONSOLIDATED

TOTAL DEPTH 7'

O AT BEDROCK

TRY LOOSE DEBRIS

ARGER LOOSE DEER'S

THIN WHITE STREAK →

- 0-0.9- LOOSE SOFT (EASILY CRUMBLED BY FINGER PRESSURE) MATERIAL SMALL BITS OF ROCK / .9 - 1.8 LOOSE PIECES OF ROCK, SOME SOFT SOME HOT / 1.8 - 2.7' SOLID ROCK CORE PIECES APPROX 1" - 3" THICK ALL PIECES (6) HAVE IRON STAINING
- 2.7' - 3.55' BROKEN PIECES OF ROCK. SLIGHT STAINING OBSERVED ON SOME PIECES / 3.7' - 3.83' BROKEN ROCK WITH SLIGHT STAINING / 3.9E - 4.0E IRON STAINING BETWEEN CORE PIECES / 4.13' SLIGHT STAINING BETWEEN CORE PIECES / VERTICAL IRON STAINING + ROUGH EDGE OF ROCK
- SEVERAL CORE PIECES FROM 4.24' - 5.0' IRON STAINING ALSO OBSERVED BETWEEN SOME OF THESE PIECES / 6.6 - 7.7' SEVERAL THIN REDDISH IRON STAINED PIECES OF ROCK STAINING ALSO PRESENT ON THE SIDES OF CORE PIECES / SLIGHT STAINING BETWEEN
- CORE PIECES @ 7.93 / 8.9E - 9.1 BETWEEN CORE SECTIONS OF CORE / 9.15' IRON STAINING BETWEEN PIECES / 10.1 IRON STAINING BETWEEN SECTIONS / 10.32 IRON STAINING BETWEEN SECTIONS / 10.5 VERY THIN WHITE STREAK (VERTICAL) TO 10.76' / THIN WHITE VERTICAL STREAKING CONTINUOUS FROM 11.0 - 14.38' / 11.53 - 11.9 VERTICAL FRACTURES WITH IRON STAINING & SMALL SECTIONS OF WHITE ROUGH ROCK / 12.7 - 13.17 VERTICAL WHITE ROUGH FRACTURES WITH VERY SLIGHT STAINING / 14.2 - 14.27 SMALL WHITE ROUGH FRACTURE W/O STAINING OBSERVED

SHEET NO. 1 OF 2

PROJECT NO.

DATE 12/6/99

BY B. SULLIVAN

CHK'D

TRC

SUBJECT MW-6B CONT

↑ UNCONSOLIDATED

TOTAL DEPTH

@ AT BEDROCK

15 - 16.85' - 17.18', THIN, SOFT/REWORKED PIECES OF ROCK, N/O STAINING OBSERVED / 17.36' - 17.56' VERTICAL & ANGULAR FRACTURE WITH IRON STAINING / 17.65 - 17.73' SOME IRON STAINING BETWEEN CORE PIECES / 17.75 - 18.05' VERTICAL FRACTURES WITH IRON STAINING / 1 SECTION OF CORE @ 17.93 IS SPLIT WITH STAINING BETWEEN ⓔ / SEVERAL NON-SHEAR FRACTURES ALONG REMAINING CORE N/O STAINING (18.0 - 20.9') - 20.9' SOME IRON STAINING BETWEEN CORE PIECES

16

17

18

19

20

21

7

8

9

10

11

12

13

14

15

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

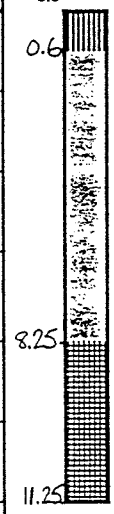
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 8.6' @ 0.10 hrs.
START DATE: 7/21/99
END DATE: 7/21/99

BORING No. MW-7A

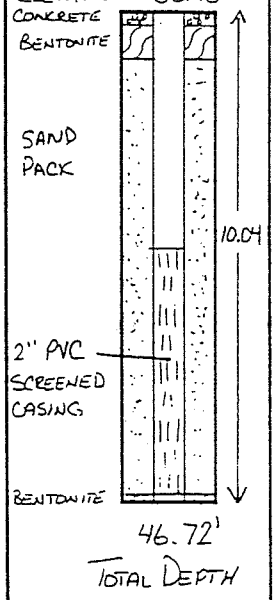
SHEET 1 OF 1

MPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (3)	SOIL DESCRIPTION
			Background Reading			
S-1	0.5'-2.5	6 / 8	7 / 4	16	Top 8" - 11.5 / Bottom 7" - 88.1	Top 7", loose, brown, GRAVEL and ROCK; bottom 7", medium, brown, SILT, trace fine SAND
S-2	2.5-4.5	3 / 8	6 / 17	13	60	Medium, brown, SILT, little fine SAND and GRAVEL
S-3	4.5-6.5	20 / 24	24 / 20	21	24	Dense, grayish brown, SILT, little (+) fine SAND, trace GRAVEL, dry
-4	6.5-8.5	20 / 21	15 / 22	21	98	Dense, grayish brown, SILT, some SAND, GRAVEL and ROCK fragments; bottom 2", weathered SHALE, dry
S-5	8.5-10.5	2 / 17	13 / 24	14	Top 7" - 10.8 / Bottom 7" - 6.9	Dense, gray, weathered SHALE, moist, brittle
S-6	10.5-11.25	73	100/3"	8	7.1	Dense, gray, weathered SHALE, wet, brittle

LITHOLOGY

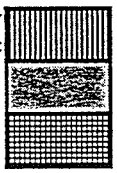


MONITORING WELL CONSTRUCTION



TES:
1. "" Top 0.5' was pavement.
2. "" Indicates reading not taken.
3. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



FILL
SILT & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

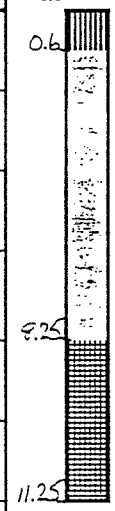
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 8.6' @ 0.10 hrs.
START DATE: 7/21/99
END DATE: 7/21/99

BORING No. MW-7B

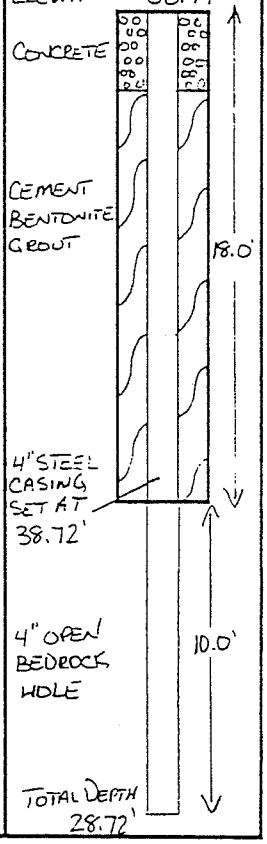
SHEET 1 OF 1

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (3)	SOIL DESCRIPTION
			Background Reading --			
S-1	0.5'-2.5	6 / 8	7 / 4	16	Top 8" - 11.5 / Bottom 7" - 88.1	Top 7", loose, brown, GRAVEL and ROCK; bottom 7", medium, brown, SILT, trace fine SAND
S-2	2.5-4.5	3 / 8	6 / 17	13	60	Medium, brown, SILT, little fine SAND and GRAVEL
S-3	4.5-6.5	20 / 24	24 / 20	21	24	Dense, grayish brown, SILT, little (+) fine SAND, trace GRAVEL, dry
S-4	6.5-8.5	20 / 21	15 / 22	21	98	Dense, grayish brown, SILT, some SAND, GRAVEL and ROCK fragments; bottom 2", weathered SHALE, dry
S-5	8.5-10.5	2 / 17	13 / 24	14	Top 7" - 10.8 / Bottom 7" - 6.9	Dense, gray, weathered SHALE, moist, brittle
S-6	10.5-11.25	73	100/3"	8	7.1	Dense, gray, weathered SHALE, wet, brittle

LITHOLOGY

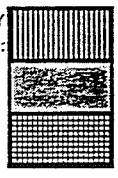


MONITORING WELL CONSTRUCTION



TES:
1. "--" Top 0.5' was pavement.
2. "---" Indicates reading not taken.
3. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibraled to an isobutylene in air standard.

LITHOLOGY LEGEND:



FILL
SILT & SAND
WEATHERED ROCK

SHEET NO. 1 OF 1

PROJECT NO.

DATE 12/6/99

BY B SULLIVAN

CHK'D

TRC

SUBJECT MW-7B 13'-28'

↑ UNCONSOLIDATED - 13' ↑

TOTAL DEPTH 13'

0 AT BEDROCK

TOP 2' FRACTURED - LESS BELOW

- VARIOUS FRACTURES FROM 0'-2' WITH IRON STAINING / AT .25' - 1.0 SOME WITH IRON STAIN
- IRON STAINING FRACTURES 0.5' - 1.5' / 1.6-2.0' DISCRETE WHITE STREAKS IN ROCK
- 1.5' - 2.9' BROKEN ROCK WHITE / IRON STAINING
- ORIENTED 2.5' & 2.9' / FR 2.9' - 3.0' IRON STAINING
- FR @ DEG 3.3' TRACE IRON STAINING ON BOTH SIDES OF FRACTURE
- APPROX 3.40' TO 3.50' ORIENTED WHITE STREAKS DISCONTINUOUS THROUGH CORE
- TO 3.76 WHITE DISCONTINUOUS WHITE STREAKS APPROX 70°
- 5.0 BROKEN - NO FRACTURE IRON STAINING
- ROUND 6.0 - 6.5 FRACTURE WITH WHITE MATERIAL WHITE LINES ACROSS
- 7 - NO STAINING OR WHITE - CHECK FOR DISCRETE WHITE REMAINS
- 12.7' OBSERVED SOME IRON STAINING BETWEEN IRON CORES

WHITE STREAKS

WHITE COLOR

WHITE STREAKS

NEW 3' MATERIAL CORE

-3'

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No measurement
START DATE: 7/21/99
END DATE: 7/21/99

BORING No. MW-8A

SHEET 1 OF 1

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading ***					(Feet) 0.0	GROUND SURFACE ELEVATION - 50.02'
S-1	0-2	3 / 6	3 / 15	7	0.2	Top 1", medium, brown, organic SILT; brown, SILT, trace (+) fine SAND	0.1 / 2.0	CONCRETE BOTTOMS; SAND PACK
S-2	2-4	19 / 53	26 / 80	8	0.2	Very dense, light brown, GRAVEL and course SAND, trace SILT, ROCK fragments at top 2", SHALE fragments in spoon tip		2" PVC SCREENED CASING; 46'
S-3	4-5.3	15 / 100/4"	37	14	Top 8" - 0.4 / Bottom 8" - 0.6	Top 8", dense, gray, SILT and GRAVEL, little fine SAND, wet; bottom 6", dense, gray, weathered SHALE	4.8 / 5.3	45.35' TOTAL DEPTH
						* SOIL BORING DESCRIPTION EXTRACTED FROM MW-8B, LOCATED APPROXIMATELY 2' FROM MW-8A		

NOTES:
1. "***" Indicates reading not taken.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT/LOAM
- SILT & SAND
- GRAVEL & SAND
- WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No measurement
START DATE: 7/21/99
END DATE: 7/21/99

BORING No. MW-8B

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading					(Feet) 0.0	GROUND SURFACE ELEVATION - 42.59
1	0-2	3 / 6	3 / 15	7	0.2	Top 1", medium, brown, organic SILT; brown, SILT, trace (+) fine SAND	0.1 / 2.0	CONCRETE
2	2-4	19 / 53	26 / 80	8	0.2	Very dense, light brown, GRAVEL and course SAND, trace SILT, ROCK fragments at top 2", SHALE fragments in spoon tip		CEMENT BENTONITE GROUT
	4-5.3	15 / 100/4"	37	14	Top 8" - 0.4 / Bottom 8" - 0.6	Top 8", dense, gray, SILT and GRAVEL, little fine SAND, wet; bottom 6", dense, gray, weathered SHALE	4.8 / 5.3	16.5'
								4" STEEL CASING SET AT 26.50'
								10.75'
								4" OPEN BEDROCK HOLE
								TOTAL DEPTH 26.50

* SEE ATTACHED BEDROCK CORE DESCRIPTION

NOTES:
1. "----" Indicates reading not taken.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT/LOAM
- SILT & SAND
- GRAVEL & SAND
- WEATHERED ROCK

SHEET NO. 1 OF 1

PROJECT NO.

DATE 12/6/99

BY B. SULLIVAN

CHK'D

TRC

SUBJECT MW-8B 11.5'-26.5'

↑ UNCONSOLIDATED

TOTAL DEPTH 11.5'

O AT BEDROCK

BECOMES MORE COMPETENT AT 3.2'

GRAY WITH D. GRAY STREAKS SOME WHITE PORTIONS IN CORES

- MANY BROKEN SECTIONS OF CORE, VERY FEW APPEAR TO BE SHEAR BREAKS / IRON STAINING PRESENT IN ALMOST ALL BREAKS FROM 0 - 2.70' / VERTICAL FRACTURE @ 1.95 - 2.10 WITH IRON STAINING OBSERVED
- 2.75 - 3.20, IRON STAINING BETWEEN CORE PIECES & ROUGH WHITE, IRON STAINED PORTIONS THAT APPEAR TO BE VERTICAL (ON THE SIDES/EDGE) OF CORE PIECES

- 7.75, IRON STAINING OBSERVED BETWEEN CORE PIECES

- 8.10 - 8.25, IRON STAINING OBSERVED ON EDGE OF CORE
- 9.95 - 4.05 ROCK CORES SPLIT DOWN MIDDLE WITH WHITE PORTION OBSERVED TO HAVE IRON STAINING / 9.30 - (.4') SECTION IS WHITE HORIZONTAL LAYER / 9.75 - 9.90 PREDOMINANTLY ALL WHITE CORE PIECE
- REMAINING SECTIONS HAVE MANY BROKEN SECTIONS THAT DO NOT APPEAR TO HAVE SHEER BREAKS BUT RATHER ROUGH, ROUNDED BREAKS WITH NO IRON STAINING

- 13.8 - 13.9 - WHITE PORTION OF CORE, SLIGHTLY @ DIAGONAL

26.5'

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No measurement
START DATE: 7/16/99
END DATE: 7/16/99

BORING No. **MW-9A**

SHEET 1 OF 1

APLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading **					(Feet) 0.0	GROUND SURFACE ELEVATION – 49.89
-1	0-2	4 / 17	10 / 14	3	–	Loose, brown, SILT, some fine SAND, little SHALE fragments	1.0	CONCRETE / BENTONITE
-2	2-4	16 / 26	20 / 31	22	0.2	Top 16", medium, brown, SILT, little fine SAND and GRAVEL; bottom 6", weathered SHALE, easily crumpled by finger pressure	3.5	SAND PACK; 2.68
-3	4-6	56 / 100	76 / 100/3"	14	–	Very dense, gray, weathered SHALE	5.75	2" PVC SCREENED CASING; 47.21' TOTAL DEPTH
						* SOIL BORING DESCRIPTION EXTRACTED FROM MW-9B, LOCATED APPROXIMATELY 2' FROM MW-9A		

ES:
1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.
2. "**" Indicates reading not taken.
3. "–" Indicates Non-Detect

LITHOLOGY LEGEND:
- SILT & SAND
- SILT, GRAVEL & SAND
- WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No measurement
START DATE: 7/16/99
END DATE: 7/16/99

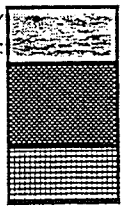
BORING No. MW-9B

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 5" 0 TO 6 / 12 TO 18	6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading					(Feet) 0.0	GROUND SURFACE ELEVATION 49.79'
-1	0-2	4 / 17	10 / 14	3	–	Loose, brown, SILT, some fine SAND, little SHALE fragments	1.0	CONCRETE
-2	2-4	16 / 26	20 / 31	22	0.2	Top 16", medium, brown, SILT, little fine SAND and GRAVEL; bottom 6", weathered SHALE, easily crumpled by finger pressure	3.5	CEMENT BENTONITE GROUT
-3	4-6	56 / 100	76 / 100/3"	14	–	Very dense, gray, weathered SHALE	5.75	10.0'
								4" STEEL CASING SET AT 39.79'
								4" OPEN BEDROCK HOLE 11.41'
								28.38' TOTAL DEPTH

* SEE ATTACHED BEDROCK CORE DESCRIPTION

S:
1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.
2. "****" Indicates reading not taken.
3. "–" Indicates Non-Detect

LITHOLOGY LEGEND:

SILT & SAND
SILT, GRAVEL & SAND
WEATHERED ROCK

SHEET NO. 1 OF 1

PROJECT NO.

DATE 12/6/99

BY B. SULLIVAN

CHK'D

IRC

SUBJECT MW-9B 8'-23'

↑ UNCONSOLIDATED

JTAL EPTH 8

O AT BEDROCK

GRAY WITH SOME DARK GRAY STREAKS, NO WHITE PORTIONS

- FIRST 5.0' CORING IS BROKEN IN SEVERAL PLACES WITH IRON STAINING OBSERVED IN ~90% OF BROKEN PIECES

ECOMES MORE
OMPETENT AT

-5.0 - 7.5 - HAS MANY SHEAR BREAKS BUT IRON STAINING IS PRESENT IN MANY ALL SECTIONS

-7.55 - 9-65, VERY THIN CORE PIECES, BRITTLE ROCK, NO STAINING OBSERVED

-10.0 - IRON STAINING OBSERVED BETWEEN CORE PIECES/ 10.1 - 10.40 - LARGE ROCK DEBRIS WITH IRON STAINING PRESENT

- REMAINING PORTIONS HAVE SHEAR BREAKS WITH NO IRON STAINING OBSERVED

23'

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 3.0 @ 0.10 hrs / 1.7' @ 0.5 hrs
START DATE: 7/20/99
END DATE: 7/20/99

BORING No. MW-10

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
					Background Reading 4.0		(Feet) 0.0	GROUND SURFACE ELEVATION - 50.23'
1	0-2	1 / 6	2 / 6	16	Top 12" - 4.0 / Bottom 4" - 5.3	Top 1", soft, dark brown fibrous PEAT; middle 11", very loose, dark brown, SILT, trace fine SAND; bottom 4", medium, gray, SILT, little (+) fine to medium SAND, little GRAVEL, iron staining, dry	0.1 / 2.0	CONCRETE / BENTONITE / SAND PACK / 2" PVC SCREEN / CASING / 45.63' TOTAL DEPTH
2	2-4	5 / 15	9 / 17	12	4.8	1-2" from top, medium, fine to medium SAND lens; Top 1", olive gray to gray, SILT, little fine to medium SAND, little GRAVEL, SHALE fragments, iron staining, wet at SAND lens		
3	4-6	15 / 17	14 / 32	22	Top 5" - 4.2 / Bottom 17" - 4.7	Top 5", medium, brown, SILT and GRAVEL, little fine to medium SAND, wet; bottom 17", gray, SHALE fragments, dry	4.4	
4	6-6.3	100/4" /		4	4.9	Very dense, gray, SHALE fragments, dry	6.3	

S: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT / LOAM
- SILT & SAND
- GRAVEL & SAND
- WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

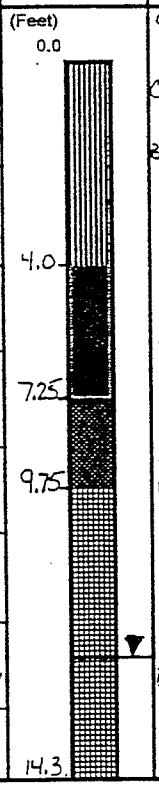
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 13.2' @ 0.10 hrs.
START DATE: 7/22/99
END DATE: 7/22/99

BORING No. **MW-11**

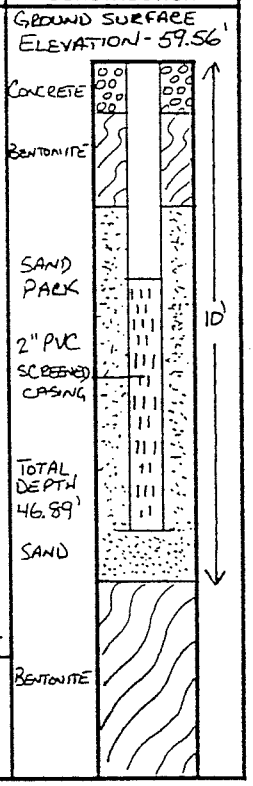
SHEET 1 OF 1

E	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION
				Background Reading -0.2	
	0-2	3 / 4 / 4 / 3	14	-0.3	Loose, grayish brown to brown, course SAND and GRAVEL, little ROCK fragments
	2-4	2 / 2 / 3 / 2	9	-0.2	Loose, brown, fine to medium SAND, some SILT, little GRAVEL, trace ROCK fragments, moist
	4-6	1 / 2 / 5 / 5	15	44.5	Loose, top 2", olive, SILT, trace fine SAND, bottom 13", dark gray, SILT, trace fine SAND, moist
	6-8	19 / 24 / 18 / 25	24	Top 15" - 71.0 / Bottom 9" - 4.6	Top 15", dense, olive gray, SILT, trace fine SAND, moist; bottom 9", gray, fine to course SAND, some GRAVEL, moist
	8-10	10 / 13 / 42 / 70	15	1.3	Top 12", medium, brown, fine to course SAND, some GRAVEL, moist; bottom 3", degraded SHALE fragments
	10-12	12 / 15 / 16 / 41	14	2.6	Top 2", dense, SHALE fragments; middle 9", gray, SILT, some fine to medium SAND and GRAVEL; bottom 3", gray, weathered SHALE, dry
	12-14	50 / 41 / 34 / 42	16	11.4	Top 6", dense, gray, weathered SHALE, wet; bottom 10", degraded SHALE, easily crumpled by finger pressure, dry
	14-14.3	100/4" /	4	1.4	Very dense, gray, weathered SHALE

LITHOLOGY

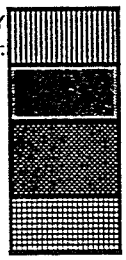


MONITORING WELL CONSTRUCTION



S: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



FILL
SILT & SAND
SILT, GRAVEL & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Kevin Bonacum
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

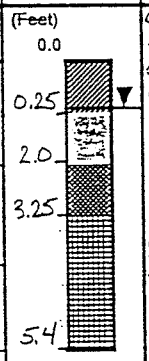
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 0.8' @ 0.50 hrs.
START DATE: 7/28/99
END DATE: 7/28/99

BORING No. MW-12

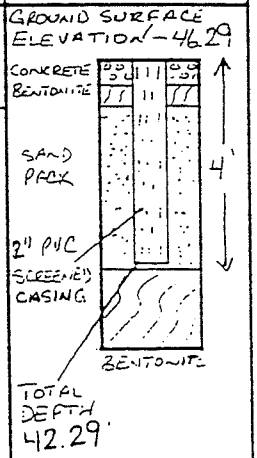
SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION
		Background Reading 0.0			
1	0-2	1 / 6 / 5 / 12	6	0.4	Top 3", soft, brown, fibrous PEAT; middle 18", loose, brown, SILT, little (-) fine SAND; bottom 3", fine to course SAND and GRAVEL, trace ROCK fragments, moist
2	2-4	12 / 10 / 13 / 9	10	Top 3" - 0.9 Bottom 9" - 1.4	Top 3", loose, fine to course SAND and GRAVEL, wet; bottom 9", gray, degraded SHALE, some SHALE, easily crumpled by finger pressure, wet
3	4-5.4	9 / 10 / 100/5"	14	0.0	Very dense, gray, weathered SHALE

LITHOLOGY

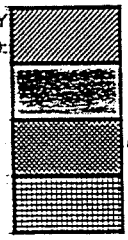


MONITORING WELL CONSTRUCTION



S: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



PEAT/LOAM
SILT & SAND
GRAVEL & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Kevin Bonacum
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

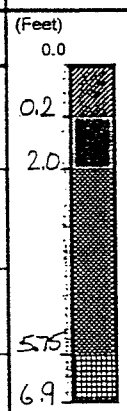
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No Measurement
START DATE: 8/3/99
END DATE: 8/3/99

BORING No. MW-13A

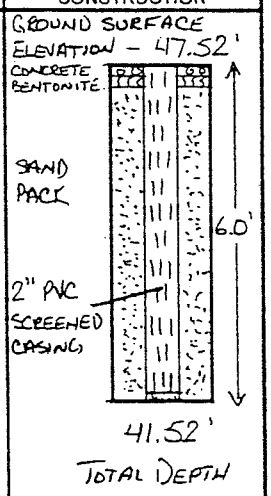
SHEET 1 OF 1

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION
		Background Reading 0.0				
-1	0-2	1 / 5	1 / 7	13	0.0	Top 2", very soft to soft, dark brown to black fibrous PEAT; middle 7", loose, olive gray to gray, SILT, some fine to medium SAND; Bottom 4", loose, olive gray to gray, SAND and GRAVEL, some ROCK fragments
-2	2-4	17 / 18	18 / 20	16	Top 8" - 0.2 / Bottom 8" - 0.2	Top 8", dense, olive, fine to course SAND, some GRAVEL, little ROCK fragments, wet; bottom 8", gray, degraded SHALE, easily crumpled by finger pressure, ROCK in spoon tip, dry
3	4-6	9 / 15	13 / 19	10	Top 2" - 0.0 / Bottom 8" - 0.8	Dense, gray, degraded SHALE, easily broken by finger pressure, bottom 3", fine to course SAND and GRAVEL, wet with iron staining
-4	6-6.9	11 /	100/4" /	6	0.8	Very dense, gray, GRAVEL and weathered SHALE
						* SOIL BORING DESCRIPTION EXTRACTED FROM MW-13B, LOCATED APPROXIMATELY 2' FROM MW-13A

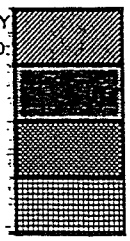
LITHOLOGY



MONITORING WELL CONSTRUCTION



NOTES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.



BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Kevin Bonacum
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No Measurement
START DATE: 8/3/99
END DATE: 8/3/99

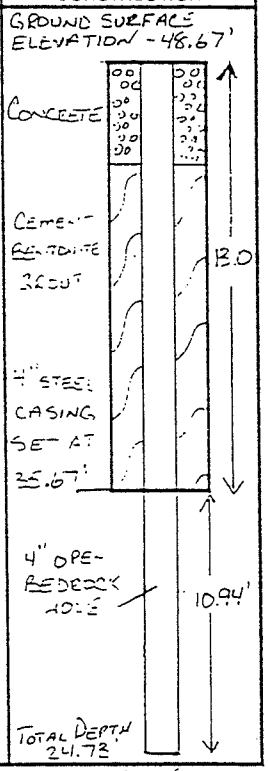
BORING No. MW-13B

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION
		Background Reading 0.0				
1	0-2	1 / 5	1 / 7	13	0.0	Top 2", very soft to soft, dark brown to black fibrous PEAT; middle 7", loose, olive gray to gray, SILT, some fine to medium SAND; Bottom 4", loose, olive gray to gray, SAND and GRAVEL, some ROCK fragments
2	2-4	17 / 18	18 / 20	16	Top 8" - 0.2 / Bottom 8" - 0.2	Top 8", dense, olive, fine to course SAND, some GRAVEL, little ROCK fragments, wet; bottom 8", gray, degraded SHALE, easily crumpled by finger pressure, ROCK in spoon tip, dry
3	4-6	9 / 15	13 / 19	10	Top 2" - 0.0 / Bottom 8" - 0.8	Dense, gray, degraded SHALE, easily broken by finger pressure, bottom 3", fine to course SAND and GRAVEL, wet with iron staining
4	6-6.9	11 /	100/4" /	6	0.8	Very dense, gray, GRAVEL and weathered SHALE

LITHOLOGY: (Feet) 0.0; 0.2; 2.0; 5.75; 6.9

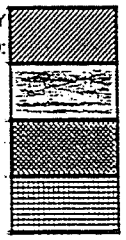
MONITORING WELL CONSTRUCTION



* SEE ATTACHED BEDROCK CORE DESCRIPTION

S: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



PEAT/LOAM
SILT & SAND
GRAVEL & SAND
WEATHERED ROCK

SHEET NO. 1 OF 1

PROJECT NO.

DATE 12/6/99

BY B. SULLIVAN

CHK'D

TRC

SUBJECT MW-13B 8'-23'

↑ UNCONSOLIDATED

GRAY SPECKLED LITHOLOGY & D. GRAY STREAKS + SPECKLE.

TOTAL DEPTH 8'

O AT BEDROCK

- 0.45, IRON STAINING BETWEEN CORE PIECES / BREAKS BETWEEN CORE PIECES ARE NOT SHEER BUT ROUGH FEATURED F/M 0.5' - 2.05' / IRON STAINING PRESENT @ 2.15, 2.25, 2.50 /

- 3.6' HAS VERTICAL FRACTURING WITH IRON STAINING ON/ 3.65 - 3.87, SOFT BRITTLE ROCK SLIGHT STAINING /

- 4.5' HAS SMALL WHITE SPOTS IN BREAK WITH NO STAINING OBSERVED / 4.90' IRON STAINING OBSERVED BETWEEN CORE PIECES

- 5.65' - 6.25' CORE PIECE IS COMPRISED OF ROCKS "CEMENTED" TOGETHER / 6.40 - 6.75', SOME HORIZONTAL & VERTICAL WHITE STREAKING / 6.75' - 7.20' DARK GRAY CORE / 7.38' CORE IS SPLIT IN THE CENTER & HAS IRON STAINING / 7.50 - 7.60 HAS FAIRLY LARGE BLACK & WHITE SPECKLED AREA / 8.20 IRON STAINING OBSERVED BETWEEN CORE PIECES / 8.90 - 9.10 SOFT, BRITTLE ROCK NO STAINING / 9.45 - 9.95 LIGHT SPECKLED CORE PIECES. N/O STAINING / 10.0 - 10.6' ROUGH BREAKS BETWEEN CORE PIECES, N/O STAINING

BECOMES VERY COMPETENT AT 10.5'

- 12.65, WHITE VERTICAL STREAKS UP TO 13.0'

WHITE STREAKS

- 14.17 IRON STAINING OBSERVED BETWEEN ROCK CORE PIECES

23'

BORING/WELL LOG

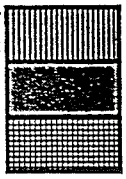
TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.	CLIENT: NUWC	BORING No.	B-10
DRILLER: Mike Martin	PROJECT NAME: B-179 Remedial Investigation		
INSPECTOR: Brian Sullivan	LOCATION: Building 179		
TYPE: SS	WATER LEVEL: 7.9' @ .10 hrs.	SHEET	1 OF 1
I.D.: 2"	START DATE: 7/15/99		
HAMMER Wt.: 140 lbs.	END DATE: 7/15/99		
HAMMER FALL: 30"			
OTHER: HSA 6.25" Auger			

APLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6	6 TO 12 / 12 TO 18	18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
						Background Reading 4.2		(Feet) 0.0	No well constructed
S-1	1"-3	7	22		12	5.1	Dense, brown, SILT and SAND, little SHALE fragments and GRAVEL		
		29	21						
S-2	3-5	8	6		8	4.8	Medium, brown, SILT and SAND, some SHALE and GRAVEL fragments		
		7	13						
S-3	5-7	21	24		18	4.3	Dense, gray, SILT, little (+) fine SAND, trace ROCK fragments	5.0	
		29	25						
4	7-9	27	23		14	4.6	Dense, gray, SILT, little (+) fine SAND; bottom 2", GRAVEL and SHALE fragments, dry	8.8 ▼	
		23	21						
S-5	9-9.5	30	100/<1"		4	4.3	Very dense, gray, weathered ROCK, wet	9.5	

TES:
1. "" Top 1.0' was pavement.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



FILL
SILT & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 2.9' @ .10 hrs.
START DATE: 7/15/99
END DATE: 7/15/99

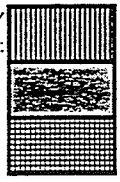
BORING No. B-11

SHEET 1 OF 1

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
			Background Reading 4.1				(Feet) 0.0	No well constructed
S-1	0-2	4 / 8	6 / 6	4	4.2	Loose, brown, ROCK, SAND and GRAVEL, moist		
S-2	2-4	3 / 3	3 / 4	1	4.2	Loose, brown, course SAND and GRAVEL, wet		
S-3	4-6	8 / 5	4 / 3	<1	4.1	Loose, brown, course SAND and GRAVEL, wet		
S-4	6-8	4 / 6	5 / 13	12	4.1	Top 8", loose, brown, SAND and GRAVEL, wet bottom 4", dense, gray, SILT, little (+) fine SAND, SHALE and GRAVEL fragments, wet	7.7	
S-5	8-8.8	20 /	100/3" /	7	4.7	Very dense, gray, weathered SHALE, some GRAVEL, wet	8.0 / 8.8	

OTES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



FILL
SILT & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 6.3' @ .10 hrs.
START DATE: 7/15/99
END DATE: 7/15/99

BORING No. B-12

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 6 TO 12 / 12 TO 18 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading 4.2				(Feet) 0.0	No well constructed
1	0-2	2 / 2 / 2 / 5	16	4.1	Top 2", dark brown, fibrous PEAT; bottom 14", loose, dark brown, SILT, little very fine SAND, moist	0.2	
2	2-4	11 / 14 / 17 / 21	18	Top 8" - 4.1 Bottom 8" - 4.1	Medium, olive gray to gray, SILT, little fine SAND; bottom 2", trace GRAVEL, middle 7", trace SHALE fragments		
3	4-6	13 / 14 / 22 / 12	16	4.2	Medium, gray, SILT, some (+) fine SAND; bottom 3", SHALE fragments, easily crumpled by finger pressure		
4	6-8	14 / 16 / 21 / 26	17	4.7	Dense, gray, SILT, little fine SAND, ROCK fragments; bottom 3", SHALE fragments	7.75	
5	8-9.25	16 / 27 / 100/3"	15	4.2	Very dense, gray, weathered SHALE, wet	9.25	

ES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND: PEAT/LOAM; SILT & SAND; WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 5.0' @ .10 hrs.
START DATE: 7/19/99
END DATE: 7/19/99

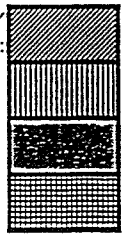
BORING No. B-13

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading 0.75					(Feet) 0.0	No well constructed
	0-2	2 / 2	3 / 2	9	1.2	Top 2-3", soft, dark brown, fine grained PEAT; bottom 7", loose, dark brown, SILT, trace fine SAND, trace GRAVEL	0.25	
	2-4	2 / 45	3 / 66	4	0.9	Top 2", loose, brown, fine to medium SAND, some (-) GRAVEL, iron staining; bottom 2", dense, gray, SHALE fragments, dry, ROCK at spoon tip	3.8	
	4-6	22 / 11	13 / 14	12	4.7	Dense, olive gray to gray, SILT, some fine to medium SAND and SHALE fragments; bottom 2", wet, iron staining		
	6-8	15 / 10	24 / 18	12	76.2	Top 10", dense, gray, SHALE fragments; bottom 2", medium, SILT and fine SAND, wet	7.8	
	8-9.1	11 / 100/2"	51 /	10	56.2	Very dense, gray, weathered SHALE, wet	9.1	

S: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



PEAT/LOAM
FILL
SILT & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No Measurement
START DATE: 7/19/99
END DATE: 7/19/99

BORING No. B-14

SHEET 1 OF 1

IPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading **					(Feet) 0.0	No well constructed
-1	0-2	2 / 5	3 / 6	4	8.0	Top 2", soft, dark brown, fibrous PEAT; bottom 2", loose, dark brown, SILT, little (+) fine to medium SAND	0.2	
-2	2-4	5 / 19	15 / 19	16	2.7	Dense, gray, SILT, some fine to medium SAND; bottom 8", SHALE fragments, iron staining, wet		
3	4-6	13 / 12	10 / 29	15	9.4	Dense, gray, SILT, some SHALE fragments; bottom 4", weathered SHALE, iron staining	5.7	
-4	6-6.6	37 / 10	100/2"	8	6.4	Very dense, gray, weathered ROCK, wet	6.6	

TES: 1. "**" Indicates reading was not taken.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT/LOAM
- SILT & SAND
- WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 6.8' @ .10 hrs.
START DATE: 7/20/99
END DATE: 7/20/99

BORING No. B-16

SHEET 1 OF 1

LE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading 3.8					(Feet) 0.0	No well constructed
	0-2	6 / 2	3 / 2	10	3.8	Top 2", stiff, brown to dark brown, fine grained PEAT; loose, brown, SILT, trace ROCK fragments	0.2	
	2-4	10 / 13	20 / 16	11	4.0	Medium, olive gray to gray, SILT, some fine to medium SAND, trace SHALE fragments, iron staining, ROCK in spoon tip,		
	4-6	11 / 21	15 / 21	18	Top 9" - 6.2 / Bottom 9" - 3.8	Top 9", dense, olive, SILT, trace fine SAND, trace (-) GRAVEL; bottom 9", gray, SILT, some SHALE fragments, trace fine SAND, dry		
	6-8	17 / 65	40 / 80	21	Top 5" - 3.9 / Bottom 16" - 3.8	Top 5", dense, olive, SILT, trace fine SAND, trace (-) GRAVEL, moist, bottom 15", gray, weathered SHALE, dry	6.75	
	8-8.6	60	100/2"	8	4.2	Very dense, gray, weathered SHALE, wet	8.6	

NOTES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT/LOAM
- SILT & SAND
- WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No Water
START DATE: 7/14/99
END DATE: 7/14/99

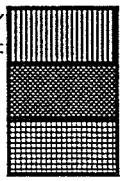
BORING No. B-20

SHEET 1 OF 1

MPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading 3.8					(Feet) 0.0	No well constructed
-1	1"-3	15 / 27	24 / 30	14	5.4	Top 10", Dense, brown, sand and gravel; bottom 3", dense, gray, SILT, little SHALE fragments, trace (+) fine SAND	0.8	
-2	3-5	9 / 30	15 / 31	18	4.2	Dense, olive gray, SILT, little GRAVEL, little (-) fine to medium SAND, little SHALE fragments, dry		
-3	5-7	15 / 26	19 / 30	18	Top 10" - 3.8 / Bottom 8" - 4.0	Top 10", dense, brown, SILT, little (-) SHALE fragment, little fine to medium SAND, wet; bottom 8", gray SHALE, easily crumpled by finger pressure	6.3	
-4	7-8.5	100/<6"		12	3.8	Dense, gray, weathered SHALE, easily crumpled by finge pressure; bottom 1", medium SHALE pieces, dry	8.5	

ES: 1. "" Top 1.0' was pavement.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



FILL
SILT, GRAVEL & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: 8-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 6.65' @ 0 hrs.
START DATE: 7/14/99
END DATE: 7/14/99

BORING No. B-21

SHEET 1 OF 1

IPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (2)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
Background Reading 3.8							(Feet) 0.0	No well constructed
-1	0-2	3 / 5	6 / 8	16	3.7	Top 2", soft, brown, fibrous PEAT, loose, light brown, SILT, little fine SAND, trace GRAVEL and ROCK fragments.	0.2	
-2	2-4	8 / 51	30 / 39	14	Top 7" - 3.8 / Bottom 7" - 3.8	Dense, brown, SILT, some fine SAND, little GRAVEL and ROCK fragments		
-3	4-6	30 / 40	30 / 36	23	4.1	Top 6", dense, brown, SILT with little fine SAND and GRAVEL, trace ROCK fragments: bottom 17", gray, weathered SHALE, easily crumpled by finger pressure	4.6	
-4	6-6.3	100/4"		2	3.8	Dense, gray, SILT, little GRAVEL and SHALE fragments, trace fine SAND		
-5"	7-7.4	100/5"		2	4.4	Dense, gray to olive gray, SILT and SHALE fragments, some fine to medium SAND, wet	7.4	

ES: 1. "" Auger to 7' after 6' Split Spoon Refusal.
2. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT/LOAM
- SILT & SAND
- SILT, GRAVEL & SAND

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

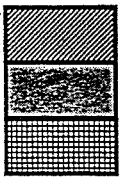
CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: No Water
START DATE: 7/14/99
END DATE: 7/14/99

BORING No. B-22

SHEET 1 OF 1

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
					Background Reading 3.4		(Feet) 0.0	No well constructed
1	0-2	2 / 5	3 / 6	18	3.5	Top 2-3", very soft, brown, fine grained PEAT; bottom 16" loose, olive, SILT, little fine SAND, trace GRAVEL	0.25	
2	2-4	16 / 27	25 / 36	19	3.5	Very dense, gray to olive, SILT, little fine SAND, little ROCK fragments, trace SHALE fragments		
3	4-6	16 / 20	16 / 45	24	Top 20" - 3.7 Middle 2" - 3.5 Bottom 2" - 4.1	Top 20", dense, brown, SILT, some SHALE fragments, little (-) GRAVEL; bottom 4", gray SHALE fragments	5.7	
4	6-6.7	90	100/2"	6	3.8	Very dense, gray, weathered SHALE, easily crumpled by finger pressure, wet in top 3"	6.7	

NOTES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.



BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 4.4' @ 0.05
START DATE: 7/14/99
END DATE: 7/14/99

BORING No. B-23

SHEET 1 OF 1

MPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
Background Reading 3.8							(Feet) 0.0	No well constructed
-1	0-2	4 / 5	4 / 5	12	3.8	Top 2", soft, organic SILT; bottom 10", brown, SILT, little fine SAND, trace GRAVEL	0.2	
-2	2-4	16 / 19	19 / 24	20	3.8	Dense, brown, SILT, some (-) fine SAND, trace ROCK fragments and GRAVEL		
3	4-6	13 / 33	21 / 19	16	3.8	Top 8-10", dense, brown, SILT, some fine SAND; bottom 6", loose, weathered SHALE, easily crumpled by finger pressure	5.5	
-4	6-8	14 / 51	24 / 100/6"	18	3.8	Top 8", dense, dark brown, SILT and weathered SHALE; bottom 10", gray, weathered SHALE, easily crumpled by finger pressure	8.0	

ES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
PEAT/LOAM
SILT & SAND
WEATHERED ROCK

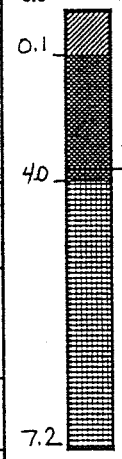
BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

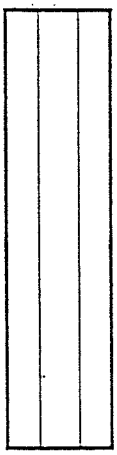
DRILLING CONTRACTOR: S.L. Myers Bros. Inc.	CLIENT: NUWC		
DRILLER: Mike Martin	PROJECT NAME: B-179 Remedial Investigation	BORING No.	B-24
INSPECTOR: Brian Sullivan	LOCATION: Building 179		
TYPE: SS	WATER LEVEL: 3.6' @ 0.10 hrs.		
I.D.: 2"	START DATE: 7/14/99	SHEET 1 OF 1	
HAMMER Wt.: 140 lbs.	END DATE: 7/14/99		
HAMMER FALL: 30"			
OTHER: HSA 6.25" Auger			

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS.(3)	SOIL DESCRIPTION
					Background Reading --	
S-1	0-2	2 / 4	2 / 20	2	0.3	Top 1", soft, dark brown, fine grained PEAT; loose, brown, SILT, little GRAVEL, little (-) fine SAND
S-2	2-2.9	22 /	100/5" /	10	0.7	Very dense, gray, SILT, little GRAVEL, little fine to medium SAND, iron staining
S-3"	4-4.3	100/4" /	/	1	0.3	Very dense, gray, SHALE, powdered SHALE and SHALE fragments, dry
S-4"	5-5.9	100/6" /	/	3	4.2	Very dense, olive, SILT, some SHALE fragments, weathered SHALE, wet, exhibits ROCK like structure, ROCK fragments in spoon tip,
S-5"	6-7.2	70 / 100/2"	110 /	12	10.3	Very dense, gray, weathered SHALE, wet
		/	/			
		/	/			
		/	/			

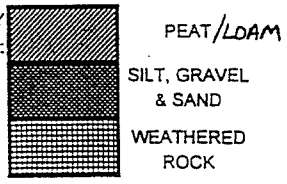
LITHOLOGY



MONITORING WELL CONSTRUCTION



NOTES:
1. "----" Indicates reading not taken.
2. "--" Auger down to next split spoon depth after initial split spoon refusal.
3. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.



BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 2.3' @ 0.10 hrs.
START DATE: 7/20/99
END DATE: 7/20/99

BORING No. B-25

SHEET 1 OF 1

SAMPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
					Background Reading 3.7		(Feet) 0.0	No well constructed
-1	0-2	2 / 3	2 / 5	14	3.9	Top 3", soft, dark brown, fibrous PEAT; bottom 11", loose, dark brown, SILT, little (-) fine SAND	0.25	
-2	2-4	15 / 25	23 / 26	21	Top 6" - 3.7 Bottom 15" - 4.6	Top 6", dense, dark brown, SILT, little fine to medium SAND, wet; middle 11", brown, medium SAND, some SHALE and GRAVEL fragments; bottom 4", gray, weathered SHALE, iron staining	3.7	
3	4-6	36 / 41	39 / 43	18	4.1	Very dense, gray, weathered SHALE, wet		
-4	6-6.4	100/5"		4	4.2	Very dense, gray, weathered SHALE, wet	6.4	

ES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:

PEAT/LOAM
SILT & SAND
WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.	CLIENT: NUWC		
DRILLER: Mike Martin	PROJECT NAME: B-179 Remedial Investigation	BORING No.	B-26
INSPECTOR: Brian Sullivan	LOCATION: Building 179		
TYPE: SS	WATER LEVEL: 2.8' @ 0.10 hrs.		
I.D.: 2"	START DATE: 7/20/99	SHEET 1 OF 1	
HAMMER Wt.: 140 lbs.	END DATE: 7/20/99		
HAMMER FALL: 30"			
OTHER: HSA 6.25" Auger			

PLE	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
		Background Reading 4.6					(Feet) 0.0	No well constructed
1	0-2	1 / 18	6 / 20	8	4.8	Top 2", medium, dark brown, fibrous PEAT; bottom 6", dense, dark brown, SILT, little (-) fine to medium SAND; bottom 1", ROCK fragments	0.2	
2	2-4	29 / 44	33 / 21	22	Top 6" - 5.8 / Bottom 16" - 4.6	Top 6", dense, olive, SILT, little (+) fine to medium SAND, trace GRAVEL; bottom 16", gray, weathered SHALE	2.7	
3	4-4.7	80	100/2"	6	5.3	Very dense, gray, weathered SHALE	4.7	

ES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:
- PEAT / LOAM
- SILT & SAND
- WEATHERED ROCK

BORING/WELL LOG

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095

DRILLING CONTRACTOR: B.L. Myers Bros. Inc.
DRILLER: Mike Martin
INSPECTOR: Brian Sullivan
TYPE: SS
I.D.: 2"
HAMMER Wt.: 140 lbs.
HAMMER FALL: 30"
OTHER: HSA 6.25" Auger

CLIENT: NUWC
PROJECT NAME: B-179 Remedial Investigation
LOCATION: Building 179
WATER LEVEL: 8.6' @ 0.10 hrs.
START DATE: 7/14/99
END DATE: 7/14/99

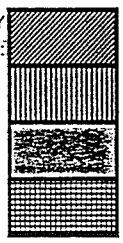
BORING No. B-30

SHEET 1 OF 1

IPLE #	DEPTH (FEET)	BLOW COUNT PER 6" 0 TO 6 / 12 TO 18	BLOW COUNT PER 6" 6 TO 12 / 18 TO 24	RECOVERY (Inches)	FIELD Hnu RESULTS (1)	SOIL DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION
			Background Reading 3.4				(Feet) 0.0	No well constructed
-1	0-2	5 / 19	15 / 12	19	Top 10" - 3.7 / Bottom 3" - 3.4	Top 2", loose, organic matter and grass, some SILT, middle 10", light brown, medium SAND, little (-) SHALE fragments, trace SILT, bottom 3", dark brown, SILT and SHALE fragments, wet	0.2 / 1.75	
-2	2-4	5 / 5	5 / 13	16	11.0	Loose, gray, SILT, trace fine SAND, moist		
3	4-6	20 / 49	36 / 45	21	Top 9" - 3.6 / Bottom 13" - 3.8	Top 9", dense, gray, SILT, little SHALE fragments, trace ( ) fine SAND; bottom 13", loose, gray, weathered SHALE, wet	4.9	
-4	6-8	40 / 45	40 / 70	18	3.7	Dense, gray, weathered SHALE, easily crumpled by finge pressure, dry		
-5	8-8.3	100/4"		4	3.4	Very dense, gray, weathered SHALE	8.3	

ES: 1. Field screening of soil samples was conducted using an Hnu Model PI-101 Photo Ionization Detector equipped with an 11.7 ev source. Results reported in Hnu units calibrated to an isobutylene in air standard.

LITHOLOGY LEGEND:



PEAT / LOAM
FILL
SILT & SAND
WEATHERED ROCK

Monitoring Well Bedrock Core Photographs

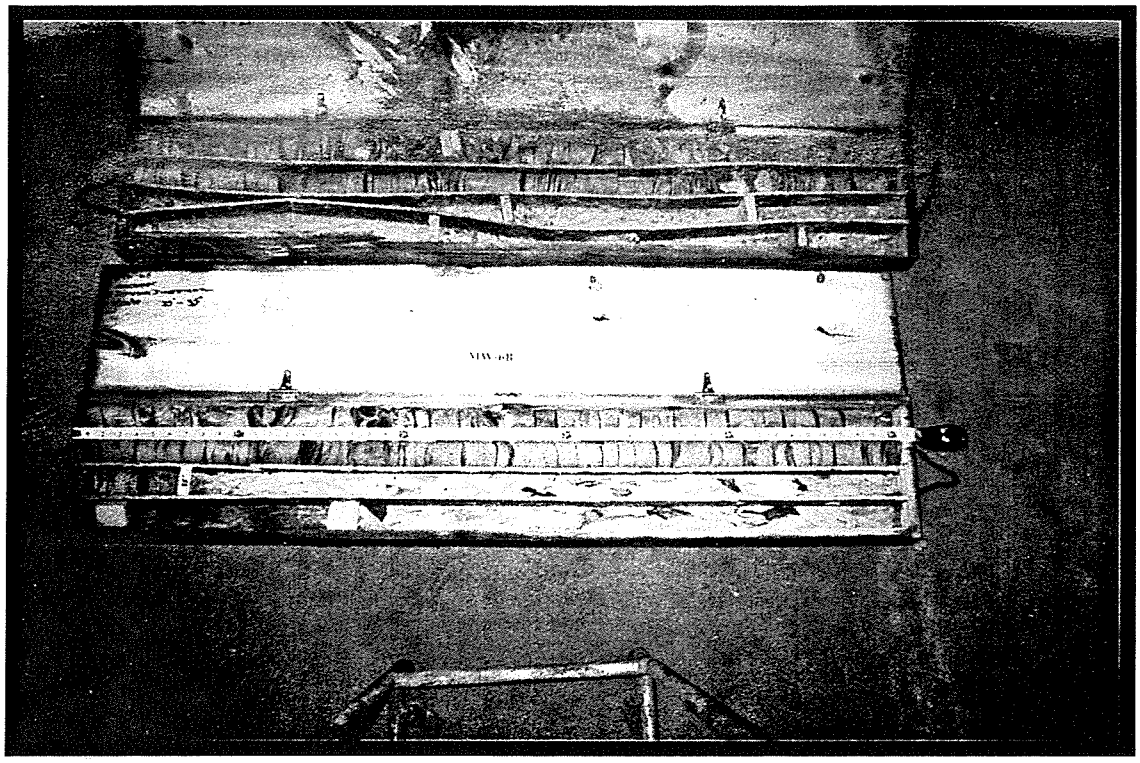


PHOTO 1
Bedrock core MW-6B.

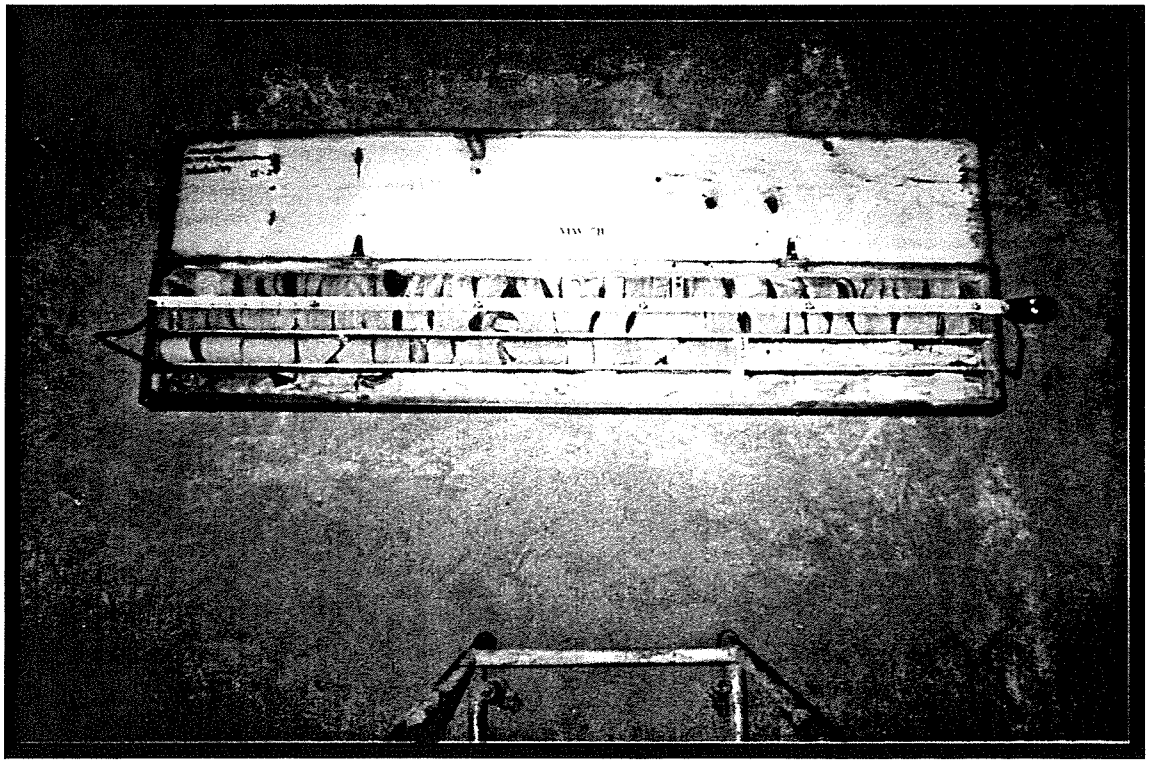


PHOTO 2
Bedrock core MW-7B.

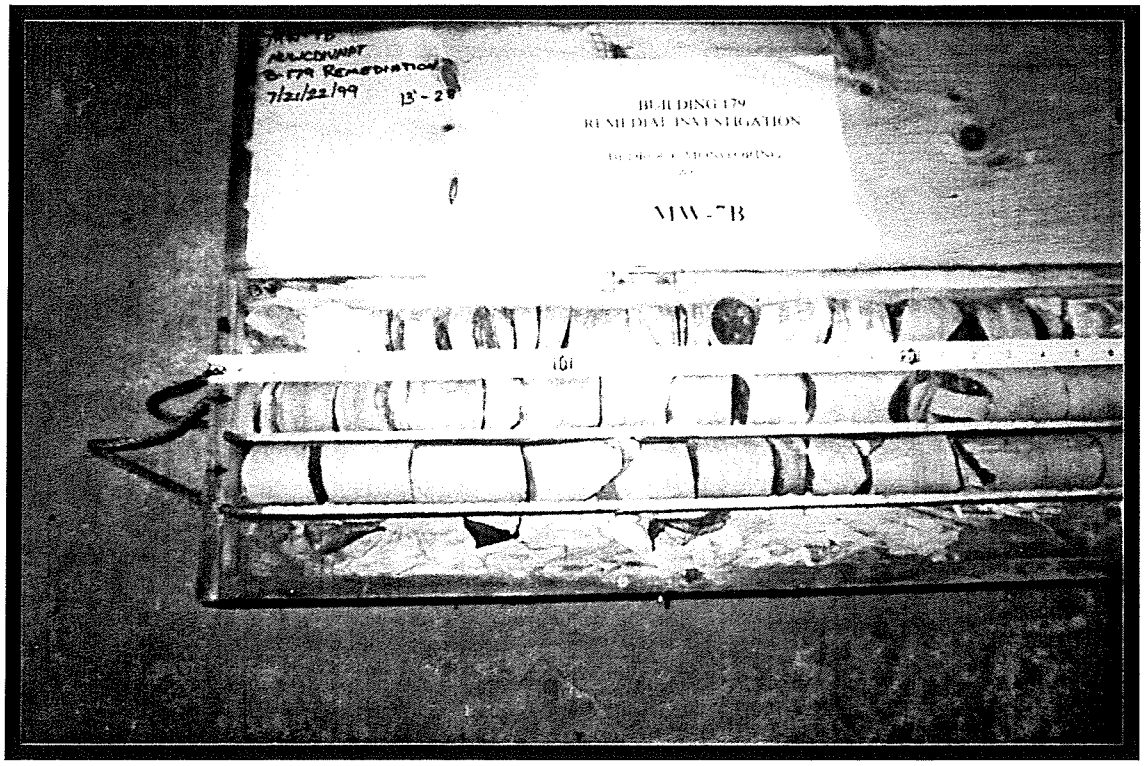


PHOTO 3
Bedrock core MW-7B left.

PHOTO 4
Bedrock core MW-7B middle left.

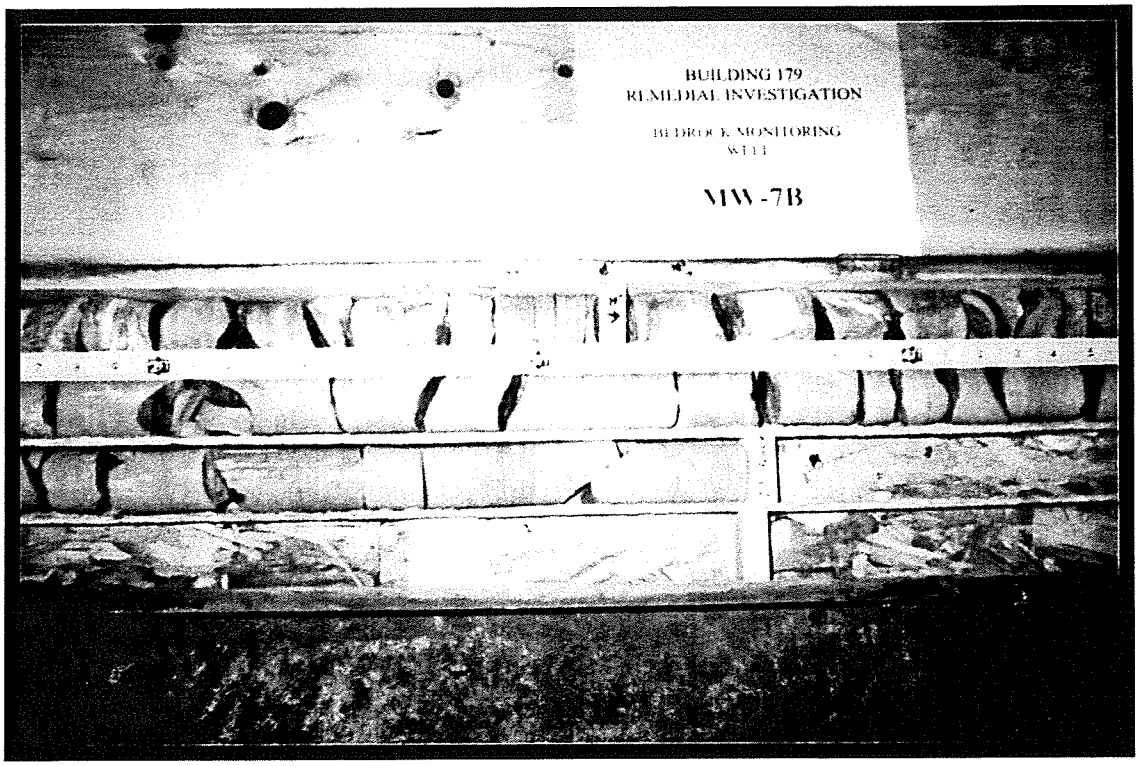


PHOTO 5
Bedrock core MW-7B middle right.

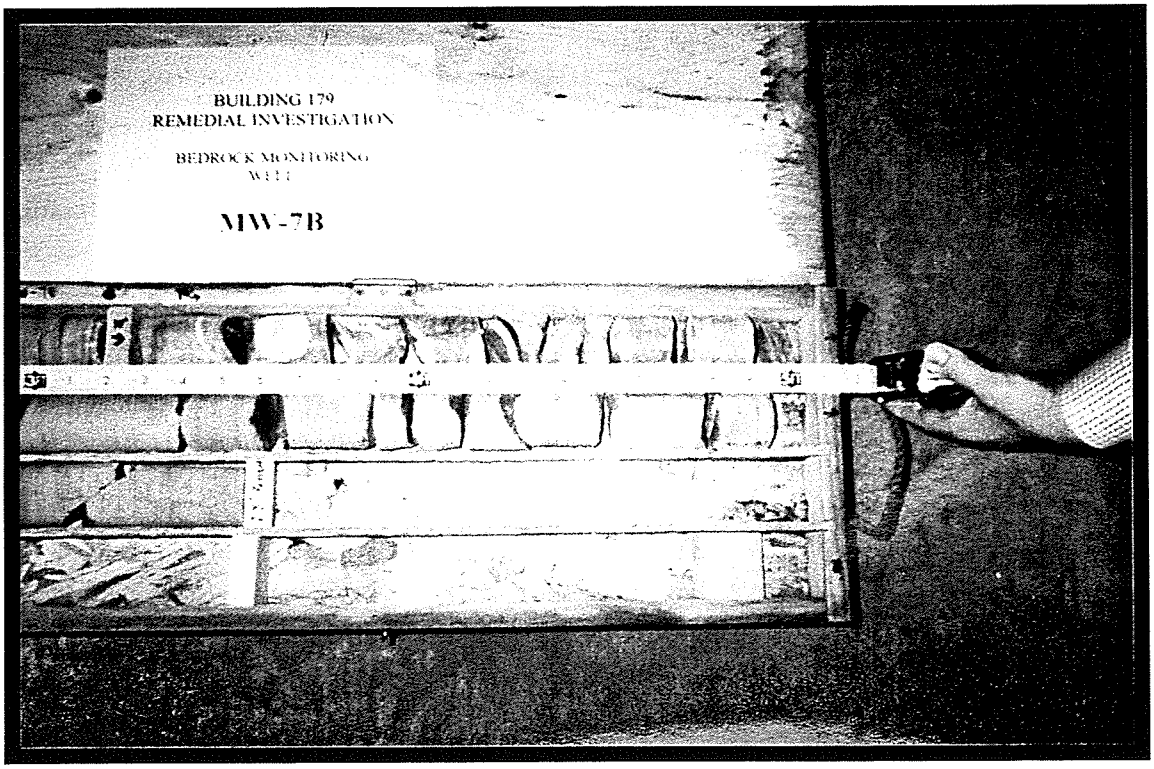


PHOTO 6
Bedrock core MW-7B right.

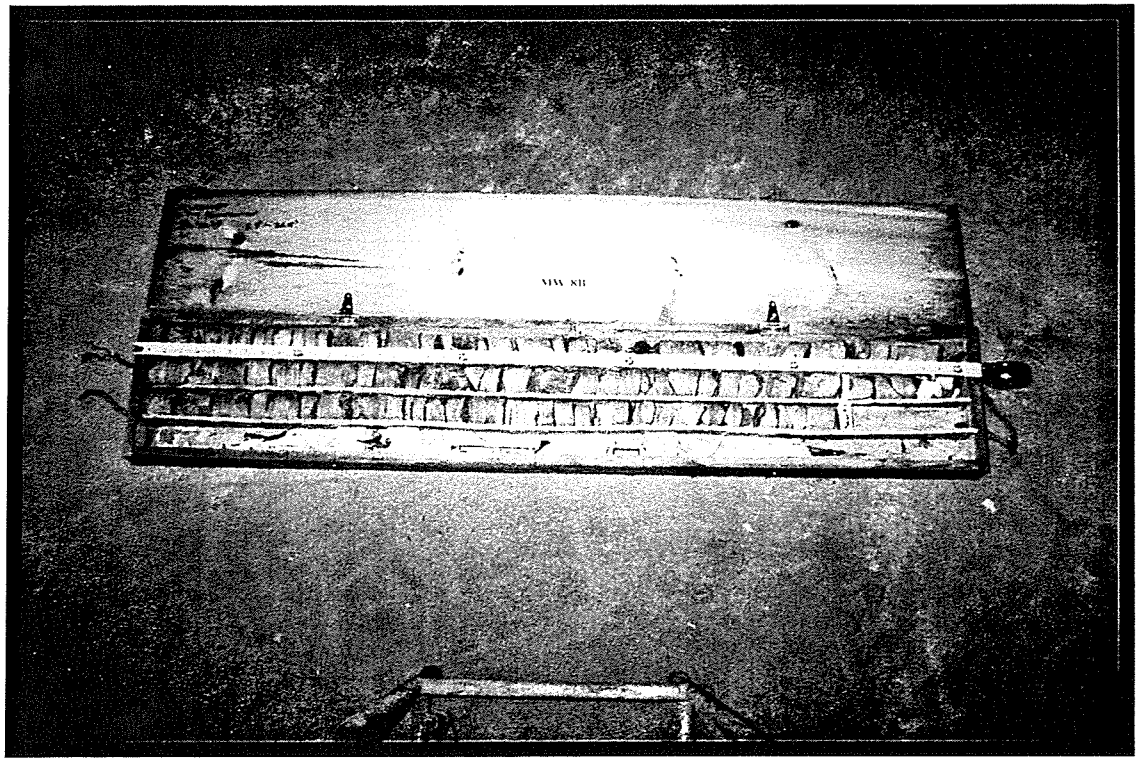


PHOTO 7
Bedrock core MW-8B.

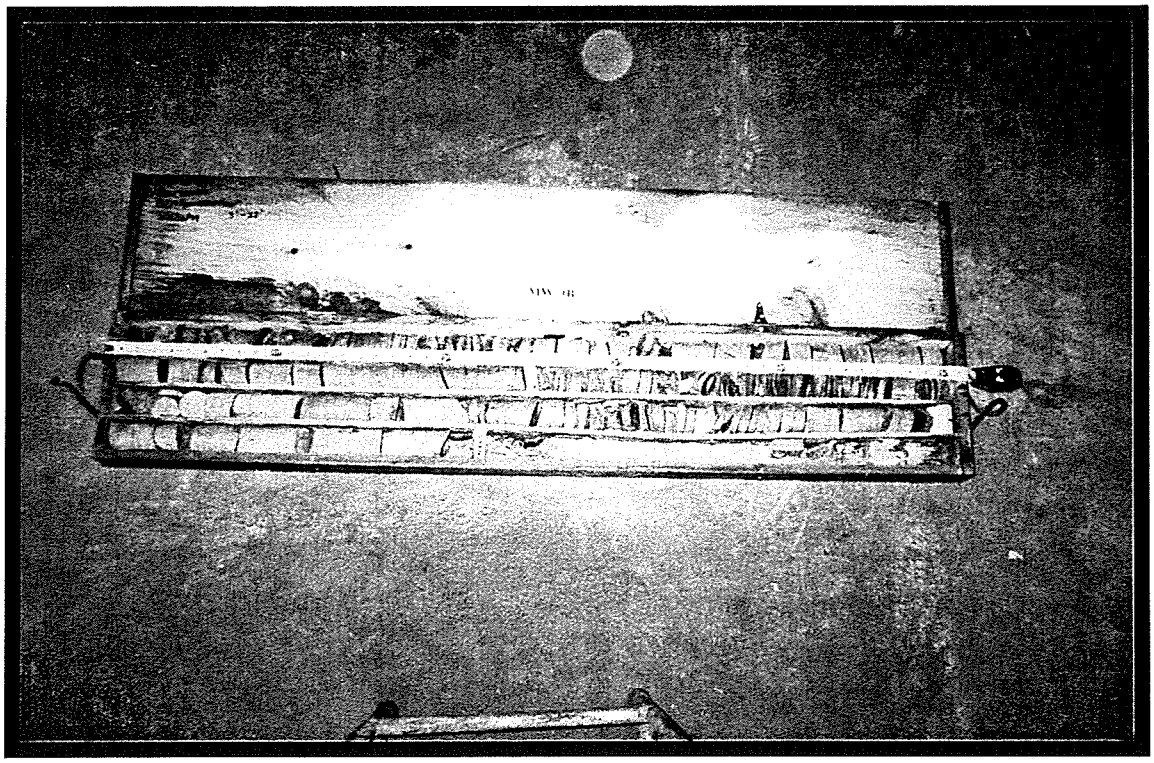


PHOTO 8
Bedrock core MW-9B.

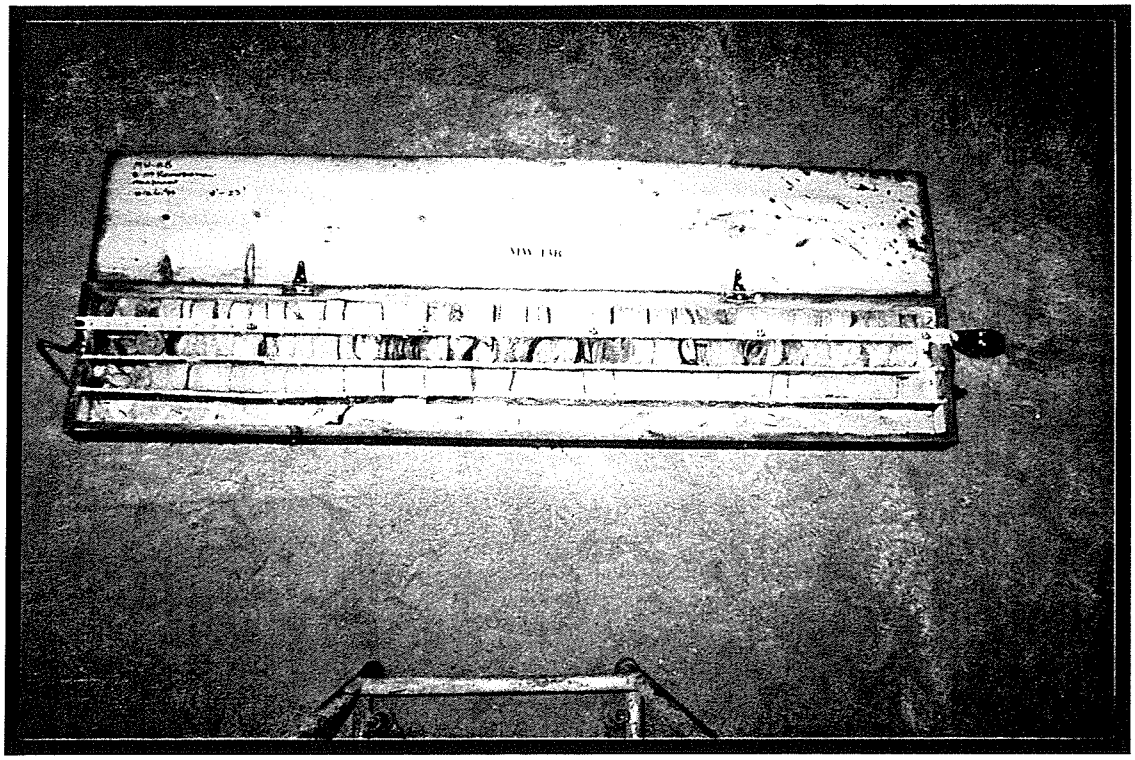


PHOTO 9
Bedrock core MW-13B.

APPENDIX F
Hydrogeologic Data

- Monitoring Well Development Field Data
- Geotesting Express, Inc. Grain Size Analysis
- TRC Environmental Corporation Hydraulic Conductivity Calculations
- TRC Environmental Corporation In-Situ Hydraulic Conductivity Data
- TRC Environmental Corporation Bedrock Fracture Analysis

Monitoring Well Development Field Data

Monitoring Well Development Physical Parameters[1]

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

MW ID [Date]	Volume #	Volume (Gallons)	pH (Standard Units)	Conductivity (uS/cm)	Turbidity[2] (NTU)	Temperature (Degrees C)
MW-6A	1	0.1	6.10	0.000	999	22.1
[8/17/99]	2	0.1	6.26	0.000	641	23.2
	3	0.1	6.27	0.000	536	23.3
	4	0.1	6.24	0.000	608	23.7
	5	0.1	6.27	0.485	886	23.9
	6	0.1	6.25	0.000	999	23.4
	7	0.1	6.22	0.000	657	22.7
	8	0.1	6.21	0.000	702	22.2
	9	0.1	6.19	0.000	672	21.8
MW-6B[3]	1	8.0	11.90	1.680	687	19.1
[8/17/19/99]	2	17.0	12.67	3.700	540	14.8
MW-7A	1	0.4	6.87	1.270	**	20.7
[8/20/99]	2	0.4	6.75	1.330	**	20.9
	3	0.4	6.65	1.300	**	20.7
	4	0.4	6.72	1.350	**	20.4
	5	0.4	6.70	1.280	**	20.5
MW-7B	1	15.0	12.21	1.780	**	14.6
[8/20/99]	2	15.0	9.66	0.645	**	14.4
	3	15.0	8.61	0.723	**	13.8
	4	15.0	7.59	0.786	**	13.7
	5	15.0	7.28	0.787	**	13.6
	6	15.0	7.24	0.785	**	13.5
MW-8A[4]	1	0.3	7.67	0.574	999	20.3
[8/18/99]	2	0.3	7.19	0.597	602	19.8
	3	0.3	6.99	0.536	540	19.8
	4	0.3	6.98	0.523	780	19.8
	5	0.3	6.82	0.485	642	19.8
MW-8B	1	16.0	11.83	0.665	790	17.2
[8/18/20/99]	2	16.0	8.49	0.235	10	14.6
	3	16.0	8.37	0.244	518	14.8
	4	16.0	8.25	0.242	10	14.1
	5	16.0	9.27	0.293	**	12.9
	6	16.0	8.95	0.326	**	12.9
	7	16.0	8.54	0.351	**	12.3
	8	16.0	7.69	0.338	**	12.1
	9	16.0	7.55	0.341	**	11.9
MW-9A	–	–	–	–	–	–
[8/18/99]						
MW-9B[3]	1	6.0	12.02	0.739	905	18.6
[8/18/19/99]	2	8.0	10.29	0.305	886	15.5
MW-10	1	0.5	7.51	0.428	687	21.5
[8/17/99]	2	0.5	7.11	0.445	456	20.9
	3	0.5	6.87	0.463	456	20.6
	4	0.5	6.81	0.473	478	20.4
	5	0.5	6.83	0.483	498	20.5
	6	0.5	6.85	0.499	456	20.4
MW-11	1	0.5	7.87	0.000	608	20.8
[8/17/99]	2	0.5	7.35	0.000	730	20.0
	3	0.5	7.16	0.000	786	19.6
	4	0.5	7.15	0.576	764	19.3
	5	0.5	6.97	0.574	999	19.1
	6	0.5	6.97	0.577	999	18.8
	7	0.5	6.96	0.578	999	18.7

Monitoring Well Development Physical Parameters[1] Cont.

Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

MW ID [Date]	Volume #	Volume (Gallons)	pH (Standard Units)	Conductivity (uS/cm)	Turbidity[2] (NTU)	Temperature (Degrees C)
MW-12	1	0.5	7.21	0.292	999	20.4
[8/19/99]	2	0.5	6.87	0.269	999	19.8
	3	0.5	6.81	0.276	999	20.0
	4	0.5	6.67	0.225	999	20.1
	5	0.5	6.66	0.217	999	20.2
	6	0.5	6.67	0.213	999	20.2
	7	0.5	6.61	0.216	999	20.0
MW-13A	1	0.5	8.46	0.271	999	19.0
[8/19/99]	2	0.5	7.82	0.259	999	19.3
	3	0.5	7.60	0.240	999	19.6
	4	0.5	7.19	0.239	999	19.6
	5	0.5	7.11	0.235	999	19.7
MW-13B	1	14.0	12.34	0.097	10	12.5
[8/19/20/99]	2	14.0	11.19	0.272	10	12.2
	3	14.0	10.35	0.256	10	12.0
	4	14.0	9.96	0.254	10	12.0
	5	14.0	9.75	0.250	10	12.1
	6	14.0	10.26	0.336	738	12.5
	7	14.0	9.47	0.364	10	12.2
	8	14.0	9.10	0.368	10	12.0
	9	14.0	9.00	0.371	""	12.1
	10	14.0	8.83	0.370	""	12.0
	11	14.0	8.74	0.370	""	12.0

Note:

1. Chemical parameters measured using a Horiba U10 Water Checker.
2. Turbidity could not be calibrated due to faulty sensor.
3. MW-6B and MW-9B wells exhibited a very slow recharge resulting in poor well development.
4. MW-8A well did not recharge sufficient groundwater after volume 6.
5. "" Parameter was not measured due to instrument error.
6. "--" Indicates Dry Well

Monitoring Well Sampling Physical Parameters[1]

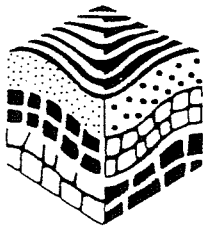
Naval Undersea Warfare Center Division, Newport
Building 179 Remedial Investigation

MW ID [Date]	Volume #	Volume (Gallons)	pH (Standard Units)	Conductivity (uS/cm)	Turbidity[2] (NTU)	Temperature (Degrees C)
MW-6A	1	0.1	6.17	0.950	**	21.3
[8/24/99]	2	0.1	6.43	0.930	**	21.0
	3	0.1	6.36	0.900	**	21.0
MW-6B[3]	1	17.0	12.26	1.780	**	14.9
[8/24/27/99]	2	17.0	11.59	1.160	**	14.4
MW-7A	1	0.4	6.64	0.892	**	21.6
[8/24/99]	2	0.4	6.60	0.909	**	21.8
	3	0.4	6.61	0.946	**	22.0
	4	0.4	6.61	0.938	**	22.0
MW-7B	1	15.0	8.34	0.616	**	15.0
[8/24/99]	2	15.0	7.53	2.560	**	14.3
	3	15.0	7.35	2.020	**	14.1
	4	15.0	7.33	2.040	**	14.2
	5	15.0	7.31	1.950	**	14.6
MW-8A	1	0.3	7.11	0.721	**	20.4
[8/25/99]	2	0.3	6.64	0.718	**	20.0
	3	0.3	6.36	0.736	**	20.4
	4	0.3	6.40	0.720	**	20.5
MW-8B	1	16.0	9.31	0.289	**	13.3
[8/25/99]	2	16.0	8.06	0.303	**	13.3
	3	16.0	7.67	0.321	**	13.0
	4	16.0	7.31	0.349	**	12.5
	5	16.0	7.30	0.357	**	12.6
MW-9A	–	–	–	–	–	–
[8/25/99]						
MW-9B[3]	1	11.0	9.42	0.654	**	16.3
[8/25/29/99]	2	11.0	7.45	0.776	**	14.5
MW-10	1	0.5	6.60	0.786	**	21.5
[8/24/29/99]	2	0.5	6.65	0.804	**	20.7
	3	0.5	6.55	0.788	**	20.1
	4	0.5	6.56	0.765	**	20.1
Duplicate	5	0.5	6.67	0.774	**	19.0
MW-11	1	0.5	6.77	0.861	**	21.4
[8/17/99]	2	0.5	6.73	0.822	**	20.2
	3	0.5	6.74	0.833	**	19.7
	4	0.5	6.73	0.830	**	19.7
MW-12	1	0.5	7.15	0.391	**	20.5
[8/25/27/99]	2	0.5	6.71	0.364	**	19.7
	3	0.5	6.49	0.319	**	19.6
	4	0.5	6.34	0.318	**	19.4
Duplicate	5	0.5	6.53	0.320	**	19.3
MW-13A	1	0.5	7.49	0.353	**	19.9
[8/25/99]	2	0.5	7.06	0.353	**	19.8
	3	0.5	6.87	0.350	**	20.2
	4	0.5	6.69	0.350	**	20.0
MW-13B	1	14.0	10.84	0.344	**	13.7
[8/25/99]	2	14.0	9.90	0.371	**	13.6
	3	14.0	9.72	0.372	**	13.5
	4	14.0	9.54	0.371	**	13.1
	5	14.0	9.41	0.372	**	13.2

Note:

1. Chemical parameters measured using a Horiba U10 Water Checker.
2. Turbidity could not be calibrated due to faulty sensor.
3. Due to time constraints and limited groundwater recharge, well could not be properly developed before collecting groundwater samples.
4. "**" Parameter was not measured due to instrument error.
5. "–" Indicates Dry Well
6. Shaded area indicates parameters for samples collected, including duplicate samples as noted.

Geotesting Express, Inc.
Grain Size Analysis



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September 3, 1999

Mr. Steve Farrick
TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095

RE: NUWCDIVNPT Bldg. 179 Remediation (GTX-2491)

Dear Mr. Farrick:

Enclosed are the test results you requested for the above referenced project. Eight soil samples were delivered to our laboratory on August 24, 1999. A copy of the chain of custody form that accompanied these samples is located at the end of this report.

GeoTesting Express performed the following test on each of the received samples:

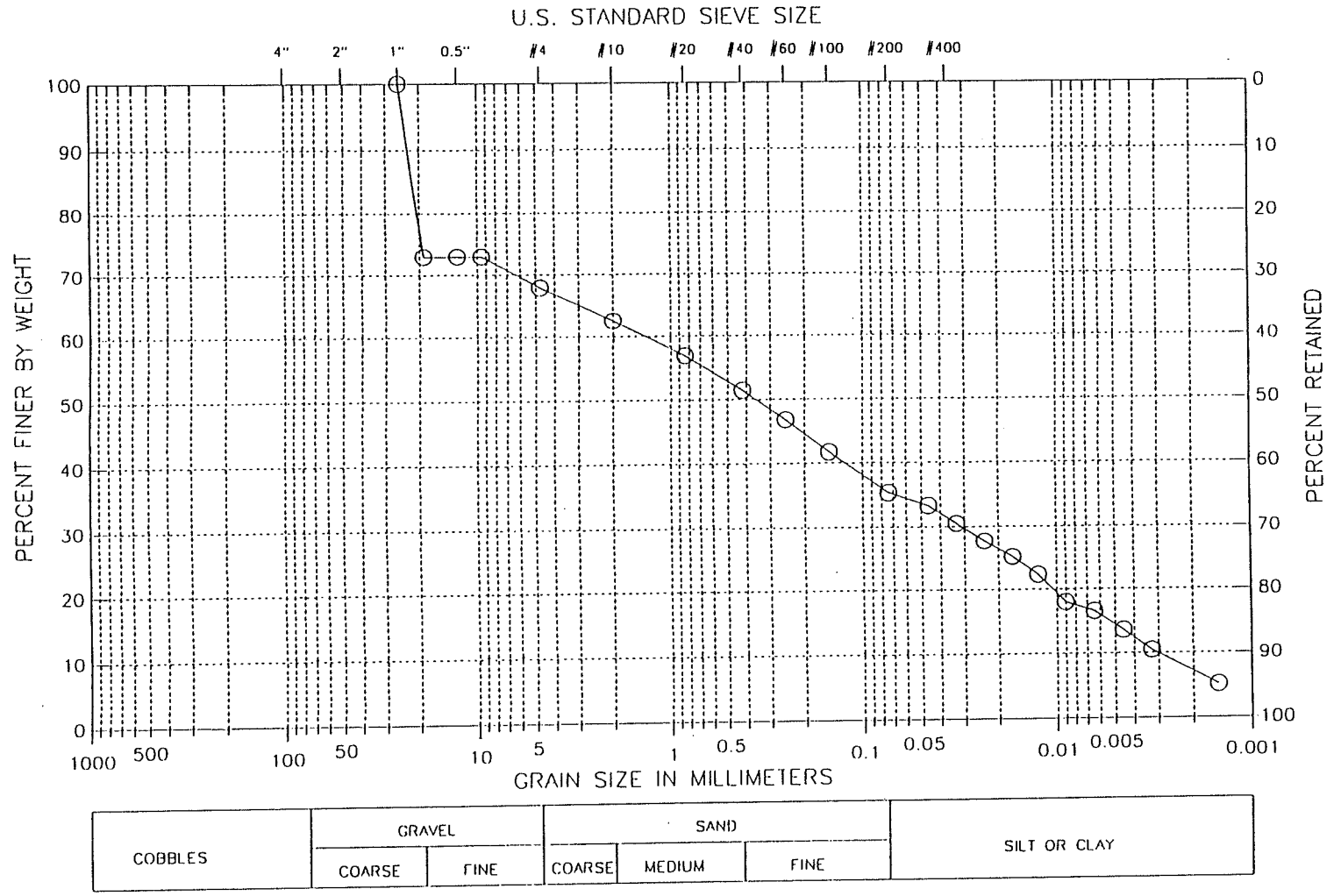
Grain size analysis (ASTM D 422) including both sieve and hydrometer

The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty days and will then be discarded unless otherwise notified by you. Please call me directly if you have any questions or require additional information. Thank you for once again allowing GeoTesting Express the opportunity to provide your firm with physical properties testing of soiis. We look forward to working with you again on future projects.

Respectfully yours;

Gary T. Torosian
Laboratory Manager

	Boring No. : --- Sample No.: MW-6-GS Test Method ASTM D 422 Filename : MW6	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Visual Description :
Moist, olive gray silty sand with gravel

Remarks :
Screen 3-8 ft, S3

Figure 1

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GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-6-GS
Location : Newport, RI
Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422
Filename : MW6
Elevation : ---
Tested by : cch
Checked by : gtt
Soil Description : Moist, olive gray silty sand with gravel
Remarks : Screen 3-8 ft, S3

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 44.02 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	29.00	20.50	23.44	0.046	33	0.046
2.00	27.00	20.50	21.44	0.033	31	0.033
4.00	25.00	20.50	19.44	0.024	28	0.024
8.00	23.00	20.80	17.66	0.017	25	0.017
15.00	21.00	20.80	15.66	0.013	22	0.013
30.00	18.00	20.80	12.66	0.009	18	0.009
60.00	17.00	20.80	11.66	0.006	17	0.006
121.00	14.50	21.50	9.57	0.005	14	0.005
240.00	12.00	22.00	7.35	0.003	10	0.003
1250.00	10.00	19.30	3.58	0.001	5	0.001

FINE SIEVE SET

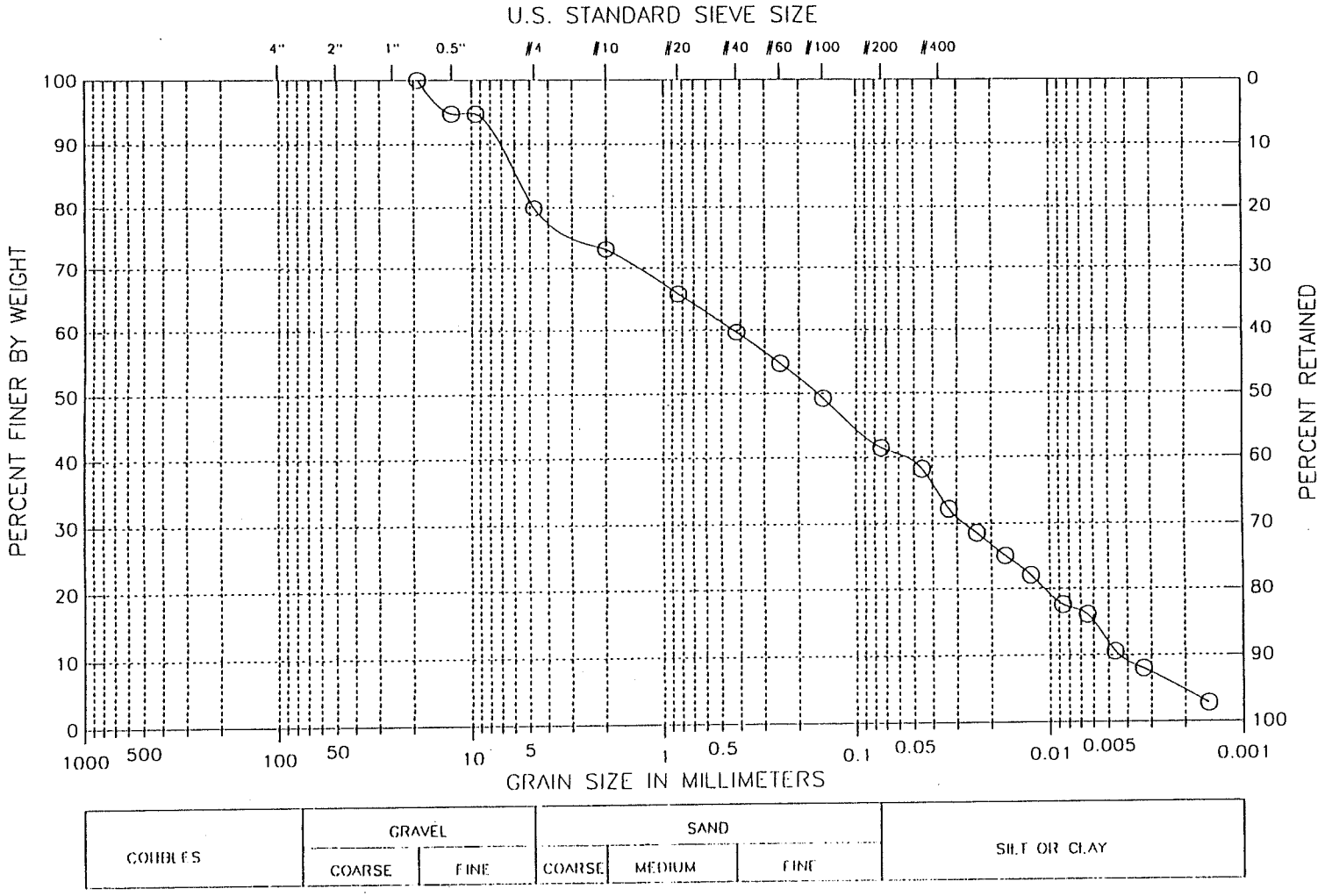
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
1"	1.012	25.70	0.00	0.00	100
0.75"	0.748	19.00	19.04	19.04	73
0.5"	0.500	12.70	0.00	19.04	73
0.375"	0.374	9.51	0.00	19.04	73
#4	0.187	4.75	3.53	22.57	68
#10	0.079	2.00	3.80	26.37	63
#20	0.033	0.84	3.98	30.35	57
#40	0.017	0.42	3.84	34.19	51
#60	0.010	0.25	3.32	37.51	47
#100	0.006	0.15	3.54	41.05	42
#200	0.003	0.07	4.45	45.50	35
Pan			24.89	70.39	0

Total Dry Weight of Sample = 79.29

D85 : 21.7364 mm
D60 : 1.3558 mm
D50 : 0.3590 mm
D30 : 0.0312 mm
D15 : 0.0053 mm
D10 : 0.0030 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-4(0)
AASHTO Group Name : Silty Soils

	Boring No. : --- Sample No.: MW-7-GS Test Method ASTM D 422 Filename : MW7	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Locotion: Newport, RI Date : Fri Sep 03 1999



Classificolion :

Remarks :
Screen 4.5-9.5 ft, S4

Visual Description :
Moist, olive gray silty sond with gravel

Figure 2

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GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-7-GS
Location : Newport, RI
Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422
Filename : MW7
Elevation : ---
Tested by : cch
Checked by : gtt
Soil Description : Moist, olive gray silty sand with gravel
Remarks : Screen 4.5-9.5 ft, S4

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 49.09 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	31.00	20.80	25.66	0.045	38	0.045
2.00	27.00	20.80	21.66	0.033	32	0.033
4.00	24.50	20.80	19.16	0.024	29	0.024
8.00	22.00	21.00	16.80	0.017	25	0.017
15.00	20.00	21.00	14.80	0.013	22	0.013
33.00	17.00	21.00	11.80	0.009	18	0.009
60.00	16.00	21.00	10.80	0.006	16	0.006
120.00	12.00	21.50	7.07	0.005	11	0.005
240.00	10.00	22.00	5.35	0.003	8	0.003
1240.00	8.50	19.00	1.86	0.002	3	0.002

FINE SIEVE SET

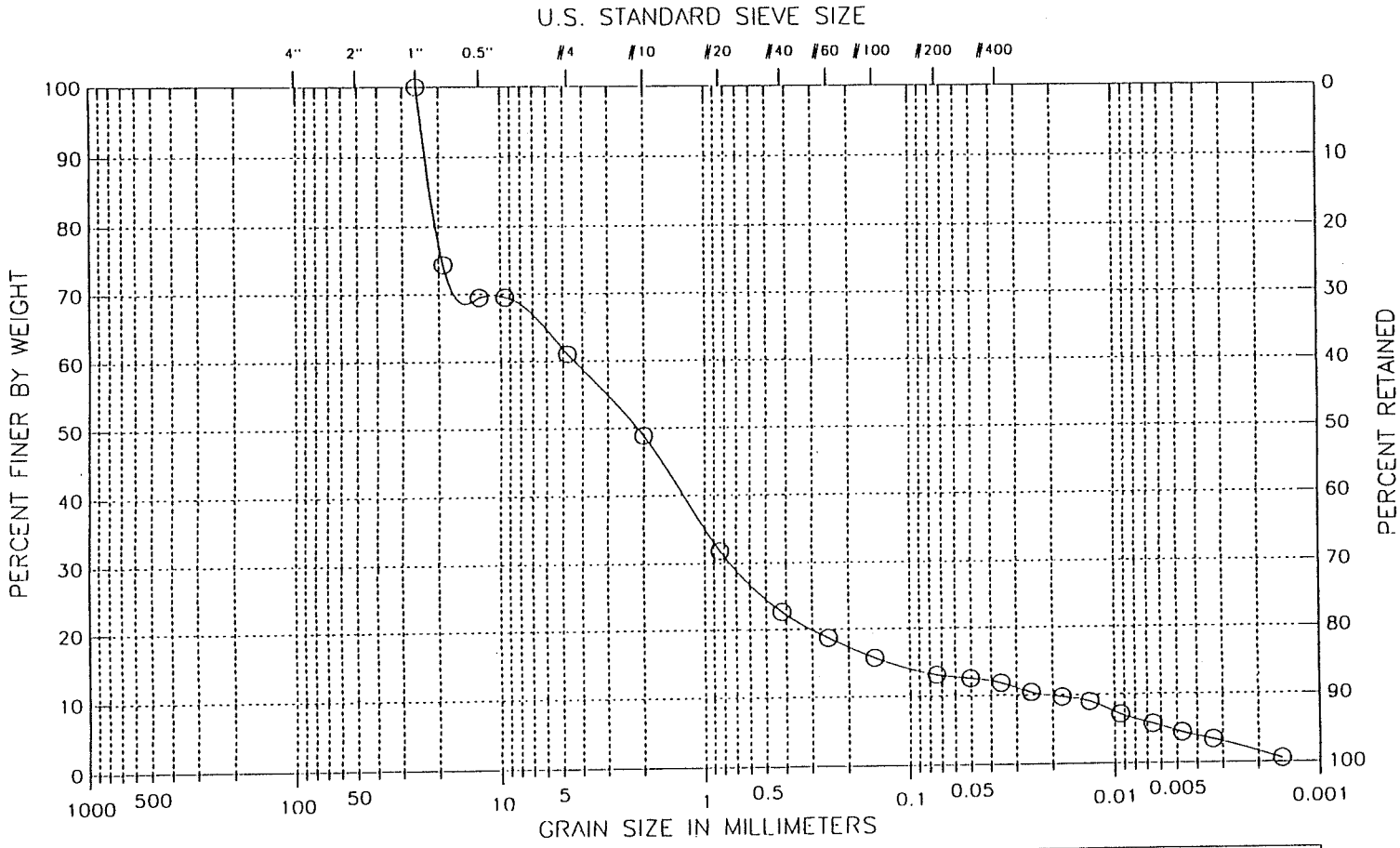
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.75"	0.748	19.00	0.00	0.00	100
0.5"	0.500	12.70	3.56	3.56	95
0.375"	0.374	9.51	0.00	3.56	95
#4	0.187	4.75	9.97	13.53	80
#10	0.079	2.00	4.60	18.13	73
#20	0.033	0.84	4.89	23.02	66
#40	0.017	0.42	4.13	27.15	60
#60	0.010	0.25	3.36	30.51	55
#100	0.006	0.15	3.62	34.13	49
#200	0.003	0.07	5.24	39.37	41
Pan			27.85	67.22	0

Total Dry Weight of Sample = 76.52

D85 : 6.0385 mm
D60 : 0.4389 mm
D50 : 0.1605 mm
D30 : 0.0270 mm
D15 : 0.0060 mm
D10 : 0.0043 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-4(0)
AASHTO Group Name : Silty Soils

	Boring No. : --- Sample No.: MW-8-GS Test Method ASTM D 422 Filename : MW8	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Visual Description :
Moist, olive gray silty sand with gravel

Remarks :
Screen 0-4.5 ft, S2

Figure 3

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GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-8-GS
Location : Newport, RI
Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422
Filename : MW8
Elevation : ---
Tested by : cch
Checked by : gtt
Soil Description : Moist, olive gray silty sand with gravel
Remarks : Screen 0-4.5 ft, S2

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 34.35 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	14.00	21.00	8.80	0.050	13	0.050
2.00	13.50	21.00	8.30	0.036	12	0.036
4.00	12.50	21.00	7.30	0.025	10	0.025
8.00	12.00	21.00	6.80	0.018	10	0.018
15.00	11.50	21.00	6.30	0.013	9	0.013
30.00	10.00	21.30	4.96	0.009	7	0.009
62.00	9.00	21.30	3.96	0.007	6	0.007
120.00	8.00	21.50	3.07	0.005	4	0.005
240.00	7.00	22.00	2.35	0.003	3	0.003
1230.00	7.00	19.00	0.36	0.002	1	0.002

FINE SIEVE SET

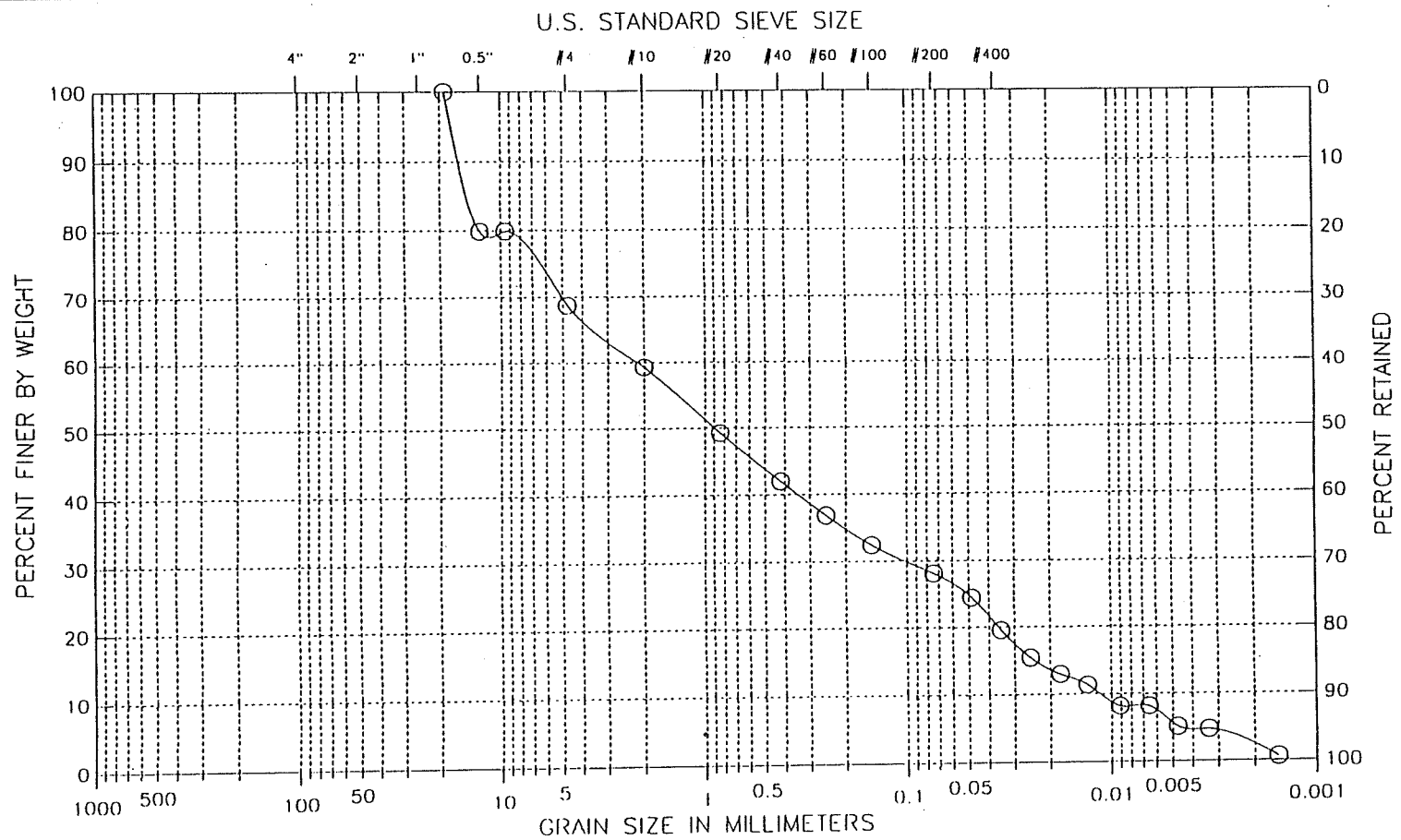
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
1"	1.012	25.70	0.00	0.00	100
0.75"	0.748	19.00	18.04	18.04	74
0.5"	0.500	12.70	3.41	21.45	69
0.375"	0.374	9.51	0.01	21.46	69
#4	0.187	4.75	5.93	27.39	61
#10	0.079	2.00	8.58	35.97	49
#20	0.033	0.84	11.95	47.92	32
#40	0.017	0.42	6.52	54.44	23
#60	0.010	0.25	2.74	57.18	19
#100	0.006	0.15	2.10	59.28	16
#200	0.003	0.07	1.82	61.10	13
Pan			9.22	70.32	0

Total Dry Weight of Sample = 79.18

D85 : 21.5393 mm
D60 : 4.4094 mm
D50 : 2.1702 mm
D30 : 0.7320 mm
D15 : 0.1233 mm
D10 : 0.0210 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-a(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

	Boring No. : --- Sample No.: MW-9-GS Test Method ASTM D 422 Filename : MW9	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Visual Description :
Moist, olive yellow silty sand with gravel

Remarks :
Screen 0-3.67 ft, S2

Figure 4

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GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-9-GS
Location : Newport, RI
Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422
Filename : MW9
Elevation : ---
Tested by : cch
Checked by : gtt
Soil Description : Moist, olive yellow silty sand with gravel
Remarks : Screen 0-3.67 ft, S2

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 36.37 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	20.00	21.30	14.96	0.048	24	0.048
2.00	17.00	21.30	11.96	0.035	20	0.035
4.00	14.50	21.30	9.46	0.025	15	0.025
8.00	13.00	21.30	7.96	0.018	13	0.018
15.00	12.00	21.30	6.96	0.013	11	0.013
32.00	10.00	21.30	4.96	0.009	8	0.009
62.00	10.00	21.30	4.96	0.007	8	0.007
120.00	8.00	21.50	3.07	0.005	5	0.005
240.00	7.50	22.00	2.85	0.003	5	0.003
1220.00	7.00	19.00	0.36	0.002	1	0.002

FINE SIEVE SET

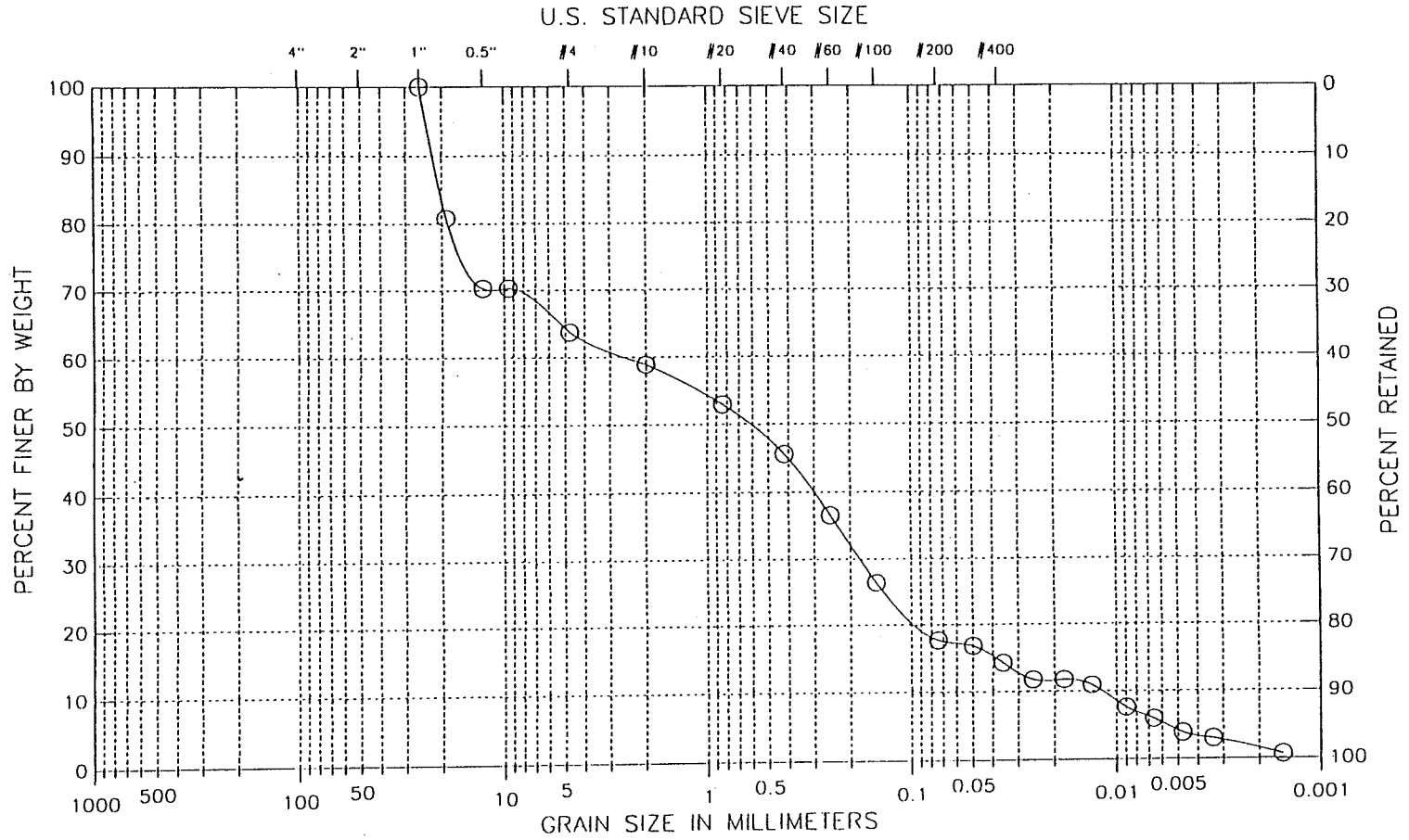
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.75"	0.748	19.00	0.00	0.00	100
0.5"	0.500	12.70	12.35	12.35	80
0.375"	0.374	9.51	0.00	12.35	80
#4	0.187	4.75	6.83	19.18	69
#10	0.079	2.00	5.80	24.98	59
#20	0.033	0.84	6.17	31.15	49
#40	0.017	0.42	4.47	35.62	42
#60	0.010	0.25	3.10	38.72	37
#100	0.006	0.15	2.74	41.46	32
#200	0.003	0.07	2.67	44.13	28
Pan			17.22	61.35	0

Total Dry Weight of Sample = 70.59

D85 : 14.0731 mm
D60 : 2.1356 mm
D50 : 0.8990 mm
D30 : 0.1010 mm
D15 : 0.0236 mm
D10 : 0.0113 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-2-4(0)
AASHTO Group Name : Silty Gravel and Sand

	Boring No. : --- Sample No.: MW-10-GS Test Method ASTM D 422 Filename : MW10	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Visual Description :
Moist, olive gray silty sand with gravel

Remarks :
Screen 0-4.5 ft, S2

Figure 5

GeoTesting Express • Boxborough, MA • (978) 635-0424 • Fax (978) 635-0266

GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-10-GS
Location : Newport, RI
Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422
Filename : MW10
Elevation : ---
Tested by : cch
Checked by : gtt
Soil Description : Moist, olive gray silty sand with gravel
Remarks : Screen 0-4.5 ft, S2

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 34.88 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	15.00	21.30	9.96	0.050	17	0.050
2.00	13.50	21.30	8.46	0.036	14	0.036
4.00	12.00	21.30	6.96	0.025	12	0.025
8.00	12.00	21.30	6.96	0.018	12	0.018
15.00	11.50	21.30	6.46	0.013	11	0.013
33.00	9.50	21.30	4.46	0.009	8	0.009
62.00	8.50	21.30	3.46	0.007	6	0.007
120.00	7.00	21.80	2.24	0.005	4	0.005
240.00	6.50	21.80	1.74	0.003	3	0.003
1210.00	6.30	20.00	0.38	0.002	1	0.002

FINE SIEVE SET

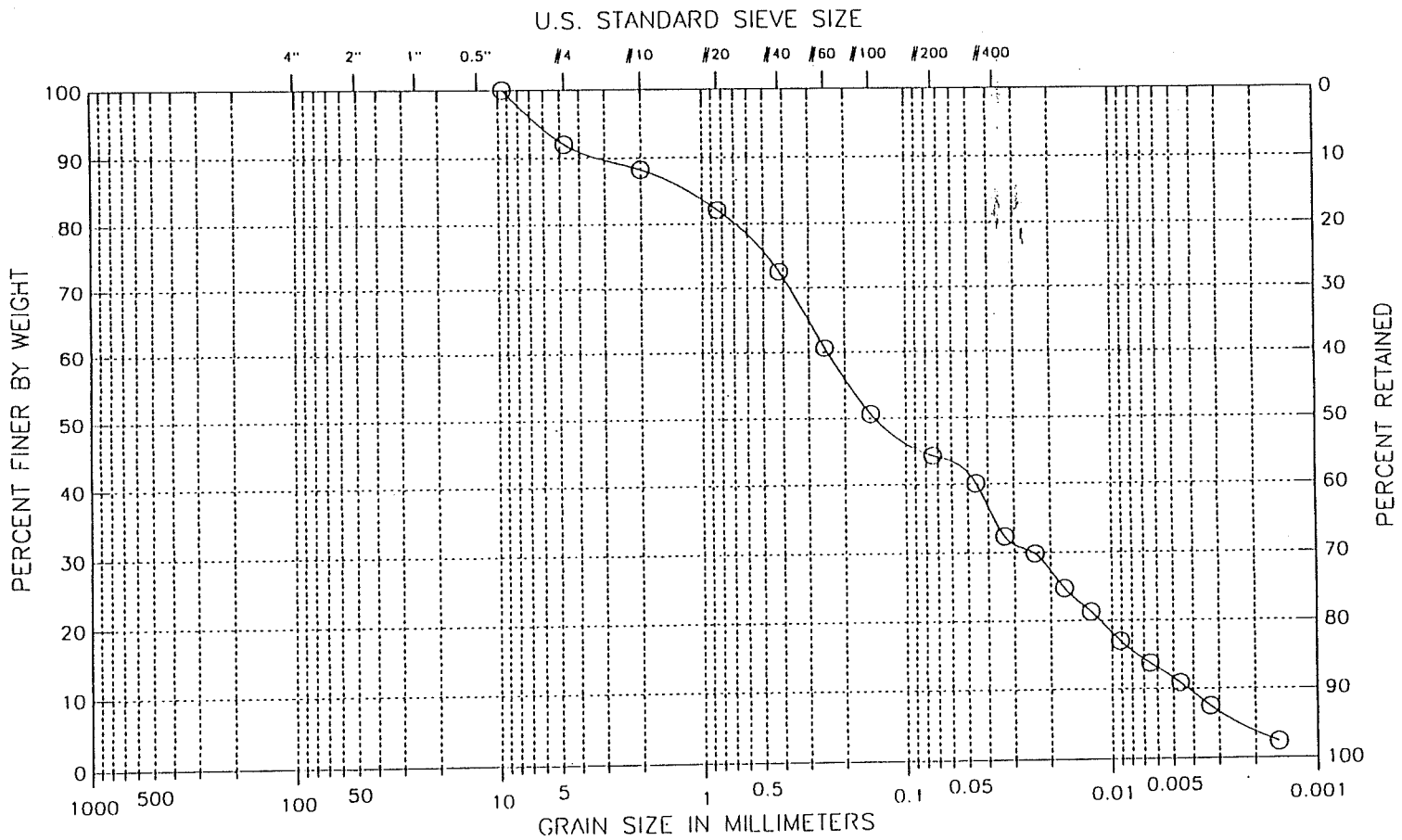
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
1"	1.012	25.70	0.00	0.00	100
0.75"	0.748	19.00	11.38	11.38	81
0.5"	0.500	12.70	6.23	17.61	70
0.375"	0.374	9.51	0.00	17.61	70
#4	0.187	4.75	3.87	21.48	64
#10	0.079	2.00	2.91	24.39	59
#20	0.033	0.84	3.53	27.92	53
#40	0.017	0.42	4.38	32.30	46
#60	0.010	0.25	5.28	37.58	37
#100	0.006	0.15	6.07	43.65	26
#200	0.003	0.07	5.14	48.79	18
Pan			10.48	59.27	0

Total Dry Weight of Sample = 68.5

D85 : 20.2979 mm
D60 : 2.4495 mm
D50 : 0.6408 mm
D30 : 0.1791 mm
D15 : 0.0391 mm
D10 : 0.0119 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

	Boring No. : --- Sample No.: MW-11-GS Test Method ASTM D 422 Filename : MW11	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Visual Description :
Moist, olive gray silty sand

Remarks :
Screen 4.5-9.5 ft, S4

Figure 6

GeoTesting Express • Boxborough, MA • (978) 635-0424 • Fax (978) 635-0266

GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-11-GS
Location : Newport, RI
Soil Description : Moist, olive gray silty sand
Remarks : Screen 4.5-9.5 ft, S4

Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422

Filename : MW11
Elevation : ---
Tested by : cch
Checked by : gtt

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 51.75 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	28.50	21.30	23.46	0.046	40	0.046
2.00	24.00	21.30	18.96	0.033	32	0.033
4.00	22.50	21.30	17.46	0.024	30	0.024
8.00	19.50	21.30	14.46	0.017	25	0.017
15.00	17.50	21.30	12.46	0.013	21	0.013
30.00	15.00	21.30	9.96	0.009	17	0.009
60.00	13.00	21.50	8.07	0.007	14	0.007
120.00	11.00	22.00	6.35	0.005	11	0.005
240.00	9.00	22.00	4.35	0.003	7	0.003
1200.00	8.00	19.00	1.36	0.002	2	0.002

FINE SIEVE SET

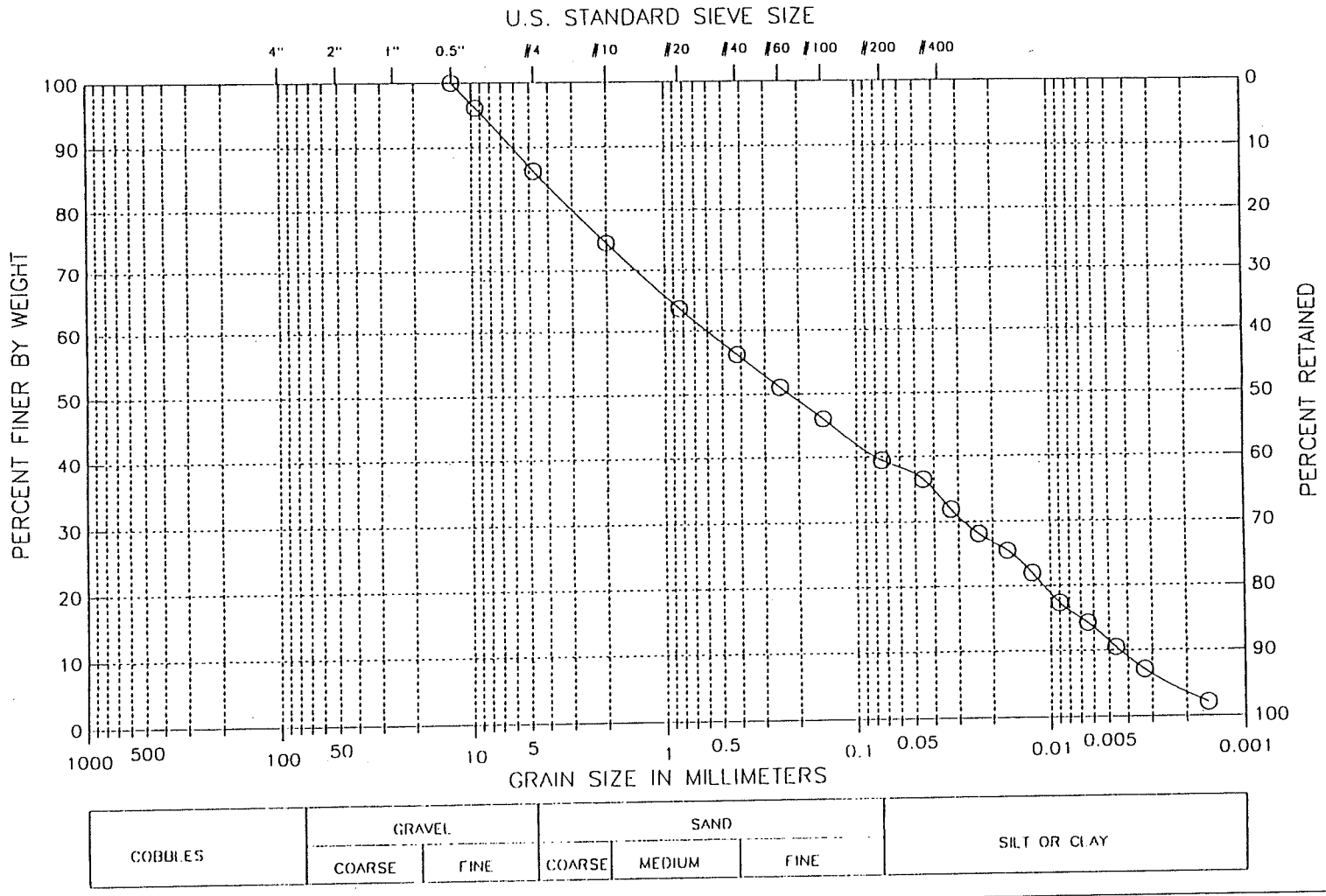
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.375"	0.374	9.51	0.00	0.00	100
#4	0.187	4.75	4.67	4.67	92
#10	0.079	2.00	2.22	6.89	88
#20	0.033	0.84	3.59	10.48	82
#40	0.017	0.42	5.66	16.14	72
#60	0.010	0.25	6.95	23.09	61
#100	0.006	0.15	5.88	28.97	51
#200	0.003	0.07	3.71	32.68	44
Pan			25.96	58.64	0

Total Dry Weight of Sample = 67.86

D85 : 1.2626 mm
D60 : 0.2421 mm
D50 : 0.1395 mm
D30 : 0.0244 mm
D15 : 0.0074 mm
D10 : 0.0043 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-4(0)
AASHTO Group Name : Silty Soils

	Boring No. : --- Sample No.: MW-12-GS Test Method ASTM D 422 Filename : MW12	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Visual Description :
Moist, olive gray silty sand

Remarks :
Screen 0-3.5 ft, S2

Figure 7

GeoTesting Express • Boxborough, MA • (978) 635-0424 • Fax (978) 635-0266

GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-12-GS
Location : Newport, RI
Soil Description : Moist, olive gray silty sand
Remarks : Screen 0-3.5 ft, S2

Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422

Filename : MW12
Elevation : ---
Tested by : cch
Checked by : gtt

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 48.8 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	28.50	22.00	23.85	0.045	36	0.045
2.00	25.50	22.00	20.85	0.033	32	0.033
4.00	23.00	22.00	18.35	0.024	28	0.024
8.00	21.00	22.50	16.62	0.017	25	0.017
15.00	19.00	22.00	14.35	0.012	22	0.012
30.00	16.00	22.00	11.35	0.009	17	0.009
60.00	14.00	22.00	9.35	0.006	14	0.006
120.00	11.50	22.00	6.85	0.005	10	0.005
240.00	9.00	22.50	4.62	0.003	7	0.003
1190.00	8.00	19.00	1.36	0.002	2	0.002

FINE SIEVE SET

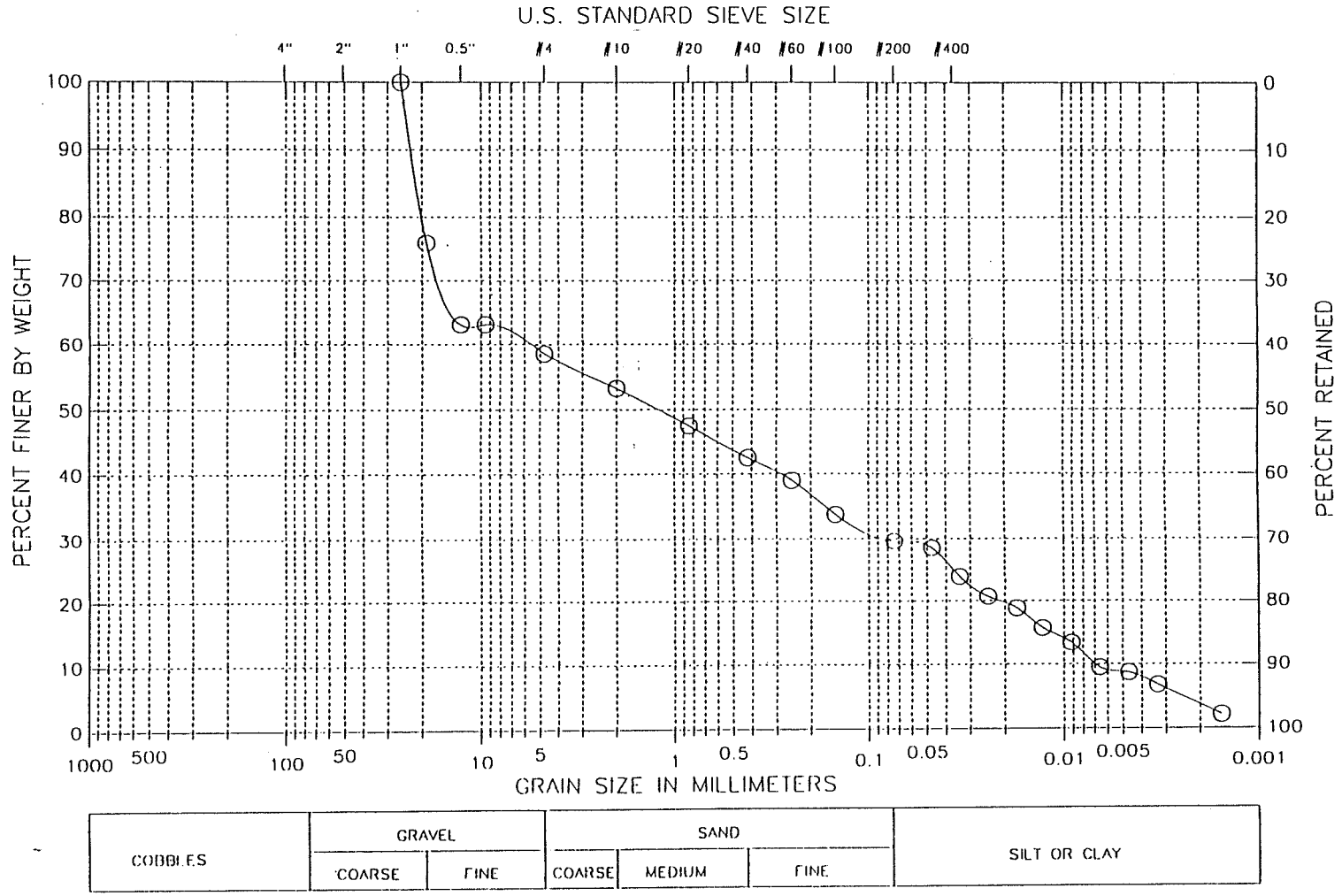
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.5"	0.500	12.70	0.00	0.00	100
0.375"	0.374	9.51	2.55	2.55	96
#4	0.187	4.75	6.37	8.92	86
#10	0.079	2.00	7.72	16.64	75
#20	0.033	0.84	7.13	23.77	64
#40	0.017	0.42	4.92	28.69	56
#60	0.010	0.25	3.37	32.06	51
#100	0.006	0.15	3.30	35.36	46
#200	0.003	0.07	4.27	39.63	39
Pan			25.81	65.44	0

Total Dry Weight of Sample = 74.74

D85 : 4.2963 mm
D60 : 0.5989 mm
D50 : 0.2254 mm
D30 : 0.0278 mm
D15 : 0.0069 mm
D10 : 0.0044 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-4(0)
AASHTO Group Name : Silty Soils

	Boring No. : --- Sample No.: MW-13-GS Test Method ASTM D 422 Filename : MW13	Project : NUWCDIVNPT Bldg. 179 Remediation Project No.: GTX-2491 Location: Newport, RI Date : Fri Sep 03 1999



Classification :

Remarks :
Screen 0-5.5 ft, S3

Visual Description :
Moist, olive gray silty sand with gravel

Figure 8

GeoTesting Express • Boxborough, MA • (978) 635-0424 • Fax (978) 635-0266

GEOTECHNICAL LABORATORY TEST DATA

Project : NUWCDIVNPT Bldg. 179 Remediation
Project No. : GTX-2491
Boring No. : ---
Sample No. : MW-13-GS
Location : Newport, RI
Depth : ---
Test Date : 08/31/99
Test Method : ASTM D 422
Filename : MW13
Elevation : ---
Tested by : cch
Checked by : gtt
Soil Description : Moist, olive gray silty sand with gravel
Remarks : Screen 0-5.5 ft, S3

HYDROMETER

Hydrometer ID : 87130
Weight of air-dried soil = 34.16 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	23.00	21.80	18.24	0.047	28	0.047
2.00	20.00	21.80	15.24	0.034	24	0.034
4.00	18.00	21.80	13.24	0.024	21	0.024
8.00	17.00	21.50	12.07	0.017	19	0.017
15.00	15.00	21.50	10.07	0.013	16	0.013
30.00	13.50	21.50	8.57	0.009	13	0.009
60.00	11.00	21.50	6.07	0.007	9	0.007
120.00	10.50	21.50	5.57	0.005	9	0.005
240.00	9.00	22.00	4.35	0.003	7	0.003
1180.00	8.00	19.00	1.36	0.002	2	0.002

FINE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
1"	1.012	25.70	0.00	0.00	100
0.75"	0.748	19.00	15.45	15.45	76
0.5"	0.500	12.70	8.21	23.66	63
0.375"	0.374	9.51	0.00	23.66	63
#4	0.187	4.75	2.97	26.63	58
#10	0.079	2.00	3.36	29.99	53
#20	0.033	0.84	3.74	33.73	47
#40	0.017	0.42	3.18	36.91	42
#60	0.010	0.25	2.22	39.13	39
#100	0.006	0.15	3.36	42.49	34
#200	0.003	0.07	2.67	45.16	30
Pan			18.99	64.15	0

Total Dry Weight of Sample = 73.35

D85 : 21.2928 mm
D60 : 5.9588 mm
D50 : 1.2339 mm
D30 : 0.0791 mm
D15 : 0.0116 mm
D10 : 0.0069 mm

Soil Classification
ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-2-4(0)
AASHTO Group Name : Silty Gravel and Sand

PROJECT NO.	PROJECT NAME	PARAMETERS
01984-0040-00010	NUWCDIVNPT BUILDING 179 REMEDIATION Newport, RI	

SAMPLERS: (Signature) Ellen M. Peoples (Printed) ELLEN M. PEOPLES

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	GRAIN SIZE ANALYSIS	REMARKS
MW-6-GS	8/20/99				B-179	1	✓	SCREEN 3'-8' S3
MW-7-GS						1	✓	SCREEN 4.5'-9.5' S4
MW-8-GS						1	✓	SCREEN 0'-4.5' S2
MW-9-GS						1	✓	SCREEN 0'-3'8" S2
MW-10-GS						1	✓	SCREEN 0'-4.5' S2
MW-11-GS						1	✓	SCREEN 4.5'-9.5' S4
MW-12-GS						1	✓	SCREEN 0'-3.5' S2
MW-13-GS						1	✓	SCREEN 0'-5.6' S3

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Ellen M. Peoples	8/23/99	FED EX			
(Printed) ELLEN M PEOPLES		(Printed)	(Printed)		(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) G.T. Tom IGR	Date / Time 8/24/99	Remarks	
(Printed)		(Printed)			

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

TRC Environmental Corporation
Hydraulic Conductivity Calculations

SHEET NO. ____ OF ____

PROJECT NO. 01984-0040-00010

DATE 12/16/99

BY EMP

CHK'D MLD

IRC

SUBJECT GRAIN SIZE ANALYSIS
HYDRAULIC CONDUCTIVITY

MONITORING WELL: MW-6B

SAMPLE(S): S-3

AVERAGE BLOW COUNT/FT (N): 28 CT/FT

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ≈ 90%

D_{10} FROM GRAIN SIZE GRAPH: 0.003 mm = 0.0003 cm

SOIL VOID RATIO (e): 0.85 to 0.14

$$e = 0.85 - (0.85 - 0.14)\,0.90 = 0.211$$

$$K_m = 470 \frac{e^3}{1+e} (D_{10})^2 = \frac{470\,(0.211)^3}{1+0.211} (0.0003)^2 = 3.28 \times 10^{-7} \text{ cm/sec}$$

$$= \boxed{9.30 \times 10^{-4} \text{ ft/day}} \checkmark$$

SHEET NO. _____ OF _____

PROJECT NO. 01984-0040-0001

DATE 12/16/99

BY EMP

CHK'D MLD

TRC

SUBJECT _____

MONITORING WELL: MW-7B

SAMPLE(S): S-4

AVERAGE BLOW COUNT/FT (N): 36 CT/FT

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ~ 90%

D_{10} FROM GRAIN SIZE GRAPH: 0.0044 mm = 0.00044 cm

SOIL VOID RATIO (e): 0.85 to 0.14

$$e = 0.85 - (0.85 - 0.14)\,0.90 = 0.211$$

$$K_m = 470\,\frac{e^3}{1+e}\,(D_{10})^2 = \frac{470\,(0.211)^3}{1.211}\,(0.00044\ cm)^2 = 7.06 \times 10^{-7}\ cm/sec$$

$$= \boxed{2.00 \times 10^{-3}\ ft/day}$$

SHEET NO. _____ OF _____

PROJECT NO. 01984-0040-00010

DATE 12/16/99

BY EMP

CHK'D MLD

IRC

SUBJECT _____

MONITORING WELL: MW-8B

SAMPLE(S): S-2

AVERAGE BLOW COUNT/FT (N): 79

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ≈ 90%

D_{10} FROM GRAIN SIZE GRAPH: 0.022 mm = 0.0022 cm

SOIL VOID RATIO (e): 0.85 to 0.14

$e = 0.85 - (0.85 - 0.14)\,0.90 = 0.211$

$$k_m = 470\,\frac{e^3}{1+e}\,(D_{10})^2 = \frac{470\,(0.211)^3}{1.211}\,(0.0022\ cm)^2 = 1.76 \times 10^{-5}\ cm/sec$$

$$= \boxed{4.99 \times 10^{-2}\ ft/day}$$

SHEET NO. _____ OF _____

PROJECT NO. 01984-0040-000

DATE 12/16/99

BY EMP

CHK'D MLD

TRC

SUBJECT _____

MONITORING WELL: MW-9B

SAMPLE(S): S-2

AVERAGE BLOW COUNT/FT (N): 46 CT/FT

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ~ 90 %

D_{10} FROM GRAIN SIZE GRAPH: 0.013 mm = 0.0013 cm

SOIL VOID RATIO (e): 0.85 to 0.14

$e = 0.85 - (0.85 - 0.14)\,0.90 = 0.211$

$$K_m = 470\,\frac{e^3}{1+e}\,(D_{10})^2 = \frac{470\,(0.211)^3}{1.211}\,(0.0013)^2 = 6.16 \times 10^{-6}\ \text{cm/sec}$$

$$= \boxed{1.75 \times 10^{-2}\ \text{ft/day}}$$

SHEET NO. _____ OF _____

PROJECT NO. 01984-0070-0010

DATE 12/16/99

BY FMP

CHK'D TMLD

TRC

SUBJECT _____

MONITORING WELL: MW-10

SAMPLE(S): S-2

AVERAGE BLOW COUNT/FT (N): 24 CT/FT

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ≈ 90 %

D_{10} FROM GRAIN SIZE GRAPH: 0.013 mm = 0.0013 cm

SOIL VOID RATIO (e): 0.85 to 0.14

$$e = 0.85 - (0.85 - 0.14)\,0.90 = 0.211$$

$$K_m = 470 \frac{e^3}{1+e} (D_{10})^2 = \frac{470\,(0.211)^3 (0.0013)^2}{1.211} = 6.16 \times 10^{-6} \text{ cm/sec}$$

$$= \boxed{1.75 \times 10^{-2} \text{ ft/day}}$$

SHEET NO. _____ OF _____

PROJECT NO. 01984-0040-0001

DATE 12/16/99

BY EMP

CHK'D MLD

TRC

SUBJECT _____

MONITORING WELL: MW-11

SAMPLE(S): S-4

AVERAGE BLOW COUNT/FT (N): 42 CT/FT

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ≈ 90 %

D_{10} FROM GRAIN SIZE GRAPH: 0.0043 mm = 0.00043 cm

SOIL VOID RATIO (e): 0.90 to 0.30

$e = 0.90 - (0.90 - 0.30)\,0.90 = 0.36$

$$k_m = 470 \frac{e^3}{1+e} (D_{10})^2 = \frac{470 (0.36)^3 (0.00043)^2}{1.36} = 2.98 \times 10^{-6} \text{ cm/sec}$$

$$= \boxed{8.45 \times 10^{-3} \text{ ft/day}}$$

SHEET NO. _____ OF _____

PROJECT NO. 01984-004000010

DATE 12/16/99

BY EMP

CHK'D MLD

IRC

SUBJECT _____

MONITORING WELL: MW-12

SAMPLE(S): S-2

AVERAGE BLOW COUNT/FT (N): 23 CT/FT

ASSUME OVERBURDEN PRESSURE: 1.2 KIPS/FT^2

RELATIVE DENSITY: ≈ 90 %

D_{10} FROM GRAIN SIZE GRAPH: 0.0045 mm = 0.00045 cm

SOIL VOID RATIO (e): 0.90 to 0.30

$e = 0.90 - (0.90-0.30)0.90 = 0.36$

$$K_m = \frac{470\ e^3}{1+e}(D_{10})^2 = \frac{470\ (0.36)^3\ (0.00045)^2}{1.36} = 3.27 \times 10^{-6}\ cm/sec$$

$$= 9.27 \times 10^{-3}\ ft/day$$

SHEET NO. ____ OF ____

PROJECT NO. 01984-0040-0001

DATE 12/16/99

BY EMP

CHK'D MLD

TRC

SUBJECT _____

MONITORING WELL: MW-13B

SAMPLE(S): S-3

AVERAGE BLOW COUNT/FT (N): 28 CT/FT

ASSUME OVERBURDEN PRESSURE: 12 KIPS/FT^2

RELATIVE DENSITY: ≈ 90%

D_{10} FROM GRAIN SIZE GRAPH: 0.007 mm = 0.0007 cm

SOIL VOID RATIO (e): 0.85 to 0.14

$e = 0.85 - (0.85 - 0.14)\,0.90 = 0.211$

$$K_m = 470 \frac{e^3}{1+e} (D_{10})^2 = \frac{470 (0.211)^3 (0.0007)^2}{1.211} = 1.79 \times 10^{-6} \text{ cm/sec}$$

$$= \boxed{5.07 \times 10^{-3} \text{ ft/day.}}$$

TRC Environmental Corporation
In-Situ Hydraulic Conductivity Data

SLUG OUT TEST DATA ANALYSIS RESULTS

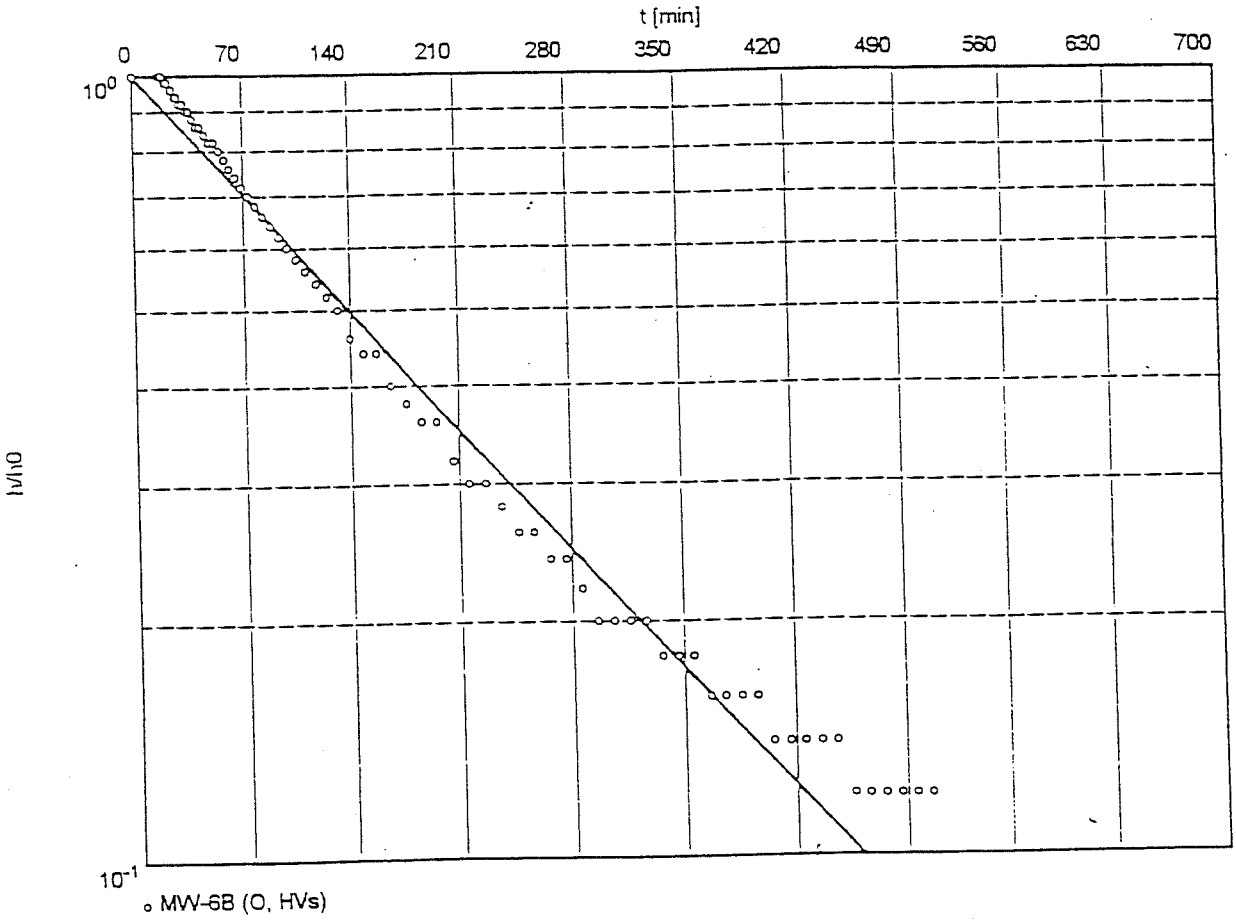
TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
HVORSLEV's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-6B	



Hydraulic conductivity [ft/min]: 1.40×10^{-5}

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
HVORSLEV's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-6B	MW-6B (O, HVs)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	0.50	0.50
2	0.09	0.56	0.56
3	0.18	0.56	0.56
4	0.28	0.56	0.56
5	0.39	0.56	0.56
6	0.49	0.56	0.56
7	0.61	0.56	0.56
8	0.74	0.56	0.56
9	0.87	0.56	0.56
10	1.01	0.56	0.56
11	1.16	0.56	0.56
12	1.31	0.55	0.55
13	1.48	0.55	0.55
14	1.66	0.55	0.55
15	1.84	0.55	0.55
16	2.04	0.55	0.55
17	2.25	0.55	0.55
18	2.47	0.55	0.55
19	2.71	0.55	0.55
20	2.96	0.55	0.55
21	3.22	0.55	0.55
22	3.50	0.54	0.54
23	3.80	0.54	0.54
24	4.11	0.54	0.54
25	4.44	0.54	0.54
26	4.79	0.54	0.54
27	5.17	0.54	0.54
28	5.56	0.54	0.54
29	5.98	0.54	0.54
30	6.42	0.54	0.54
31	6.89	0.53	0.53
32	7.39	0.53	0.53
33	7.92	0.53	0.53
34	8.48	0.53	0.53
35	9.07	0.52	0.52
36	9.70	0.52	0.52
37	10.36	0.52	0.52
38	11.06	0.52	0.52
39	11.81	0.51	0.51
40	12.60	0.51	0.51
41	13.43	0.51	0.51
42	14.32	0.51	0.51
43	15.26	0.51	0.51
44	16.25	0.50	0.50
45	17.30	0.50	0.50
46	18.42	0.50	0.50
47	19.60	0.49	0.49
48	20.85	0.49	0.49
49	22.18	0.49	0.49

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
HVORSLEV's method

Date: 12/10/99 Page: 1

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-6B	MW-6B (O, HVs)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
51	25.07	0.48	0.48
52	26.64	0.47	0.47
53	28.31	0.47	0.47
54	30.08	0.46	0.46
55	31.95	0.46	0.46
56	33.94	0.45	0.45
57	36.04	0.45	0.45
58	38.27	0.44	0.44
59	40.63	0.43	0.43
60	43.12	0.43	0.43
61	45.77	0.42	0.42
62	48.57	0.41	0.41
63	51.54	0.41	0.41
64	54.69	0.40	0.40
65	58.02	0.39	0.39
66	61.55	0.38	0.38
67	65.29	0.37	0.37
68	69.24	0.36	0.36
69	73.44	0.35	0.35
70	77.88	0.34	0.34
71	82.59	0.33	0.33
72	87.57	0.32	0.32
73	92.85	0.31	0.31
74	98.45	0.30	0.30
75	104.37	0.29	0.29
76	110.65	0.28	0.28
77	117.30	0.27	0.27
78	124.34	0.26	0.26
79	131.79	0.25	0.25
80	139.70	0.23	0.23
81	148.06	0.22	0.22
82	156.93	0.22	0.22
83	166.32	0.20	0.20
84	176.26	0.19	0.19
85	186.26	0.18	0.18
86	196.26	0.18	0.18
87	206.26	0.16	0.16
88	216.26	0.15	0.15
89	226.26	0.15	0.15
90	236.26	0.14	0.14
91	246.26	0.13	0.13
92	256.27	0.13	0.13
93	266.27	0.12	0.12
94	276.27	0.12	0.12
95	286.27	0.11	0.11
96	296.27	0.10	0.10
97	306.27	0.10	0.10
98	316.27	0.10	0.10
99	326.27	0.10	0.10
100	336.27	0.09	0.09

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/10/99	Page: 4
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

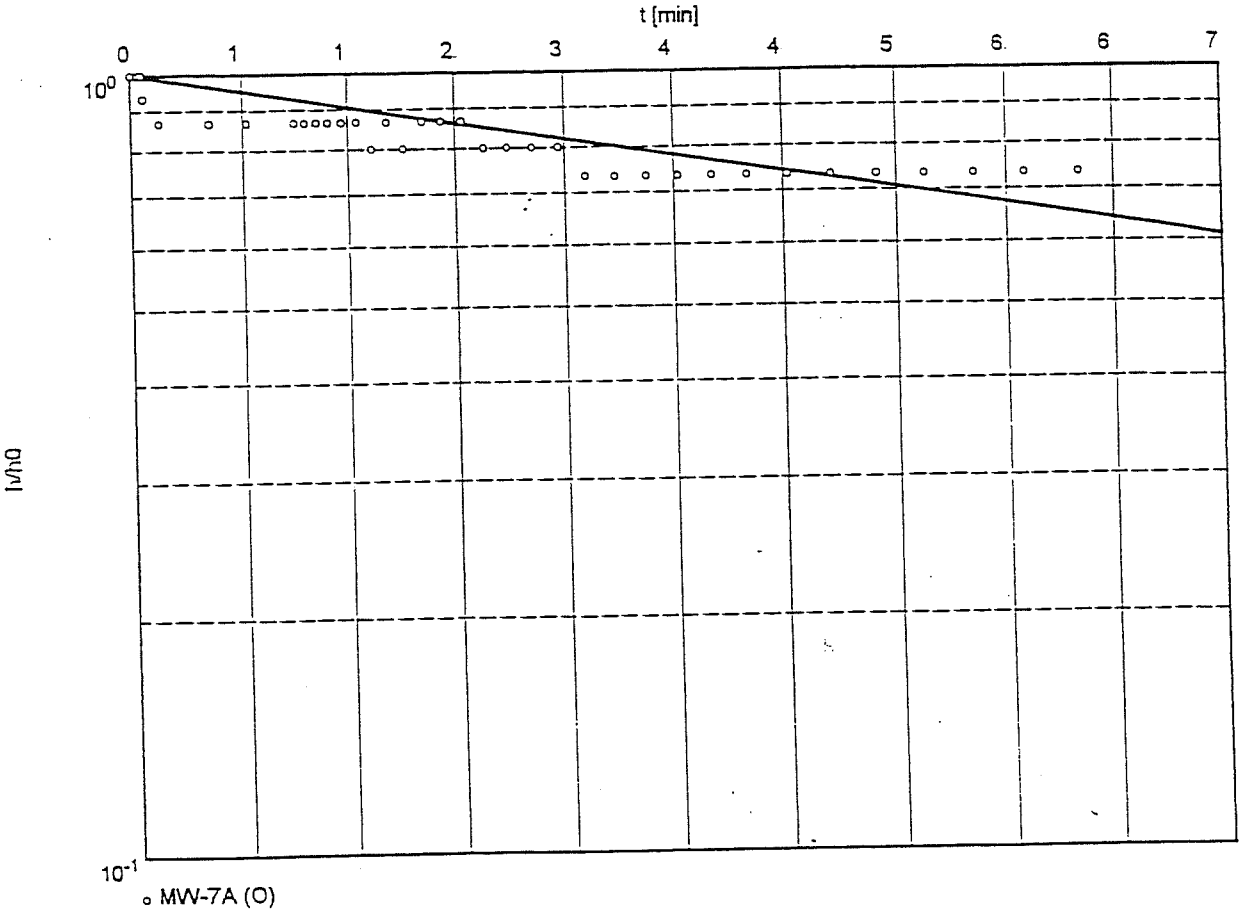
Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-6B	MW-6B (O, HVs)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
101	346.27	0.09	0.09
102	356.27	0.09	0.09
103	366.27	0.08	0.08
104	376.27	0.08	0.08
105	386.27	0.08	0.08
106	396.27	0.08	0.08
107	406.27	0.07	0.07
108	416.27	0.07	0.07
109	426.27	0.07	0.07
110	436.27	0.07	0.07
111	446.27	0.07	0.07
112	456.27	0.06	0.06
113	466.27	0.06	0.06
114	476.27	0.06	0.06
115	486.27	0.06	0.06
116	496.27	0.06	0.06
117	506.27	0.06	0.06

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/10/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-7A (O)	



Hydraulic conductivity [ft/min]: 1.20×10^{-4}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/10/99	Page 2
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

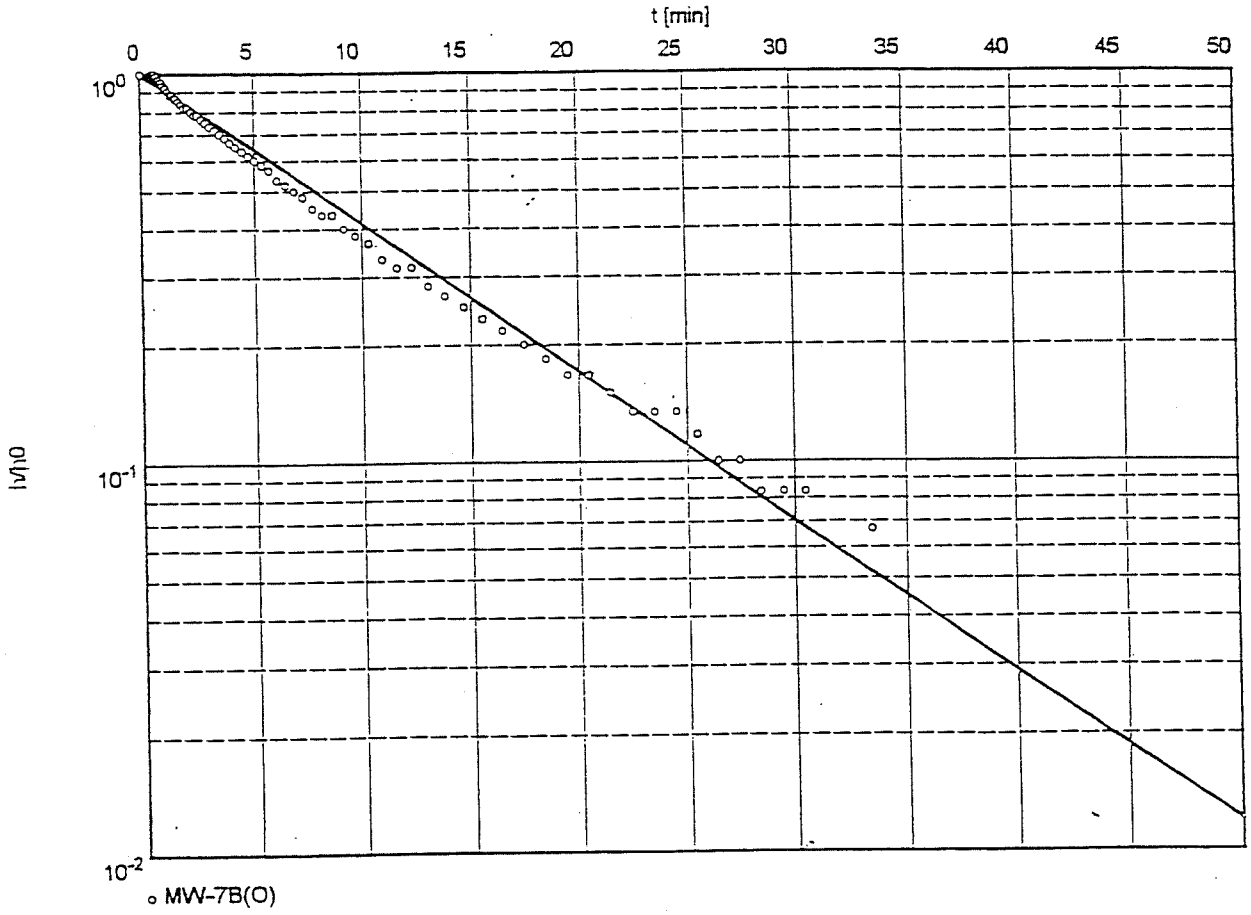
Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-7A (O)	MW-7A (O)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	0.15	0.15
2	0.01	0.17	0.17
3	0.02	0.17	0.17
4	0.04	0.16	0.16
5	0.05	0.15	0.15
6	0.07	0.15	0.15
7	0.08	0.14	0.14
8	0.18	0.13	0.13
9	0.50	0.13	0.13
10	0.73	0.13	0.13
11	1.04	0.13	0.13
12	1.11	0.13	0.13
13	1.19	0.13	0.13
14	1.27	0.13	0.13
15	1.36	0.13	0.13
16	1.46	0.13	0.13
17	1.56	0.12	0.12
18	1.66	0.13	0.13
19	1.77	0.12	0.12
20	1.89	0.13	0.13
21	2.01	0.13	0.13
22	2.14	0.13	0.13
23	2.28	0.12	0.12
24	2.43	0.12	0.12
25	2.59	0.12	0.12
26	2.76	0.12	0.12
27	2.93	0.11	0.11
28	3.12	0.11	0.11
29	3.32	0.11	0.11
30	3.53	0.11	0.11
31	3.75	0.11	0.11
32	3.98	0.11	0.11
33	4.23	0.11	0.11
34	4.50	0.11	0.11
35	4.78	0.11	0.11
36	5.07	0.11	0.11
37	5.39	0.11	0.11
38	5.72	0.11	0.11
39	6.07	0.11	0.11

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method		Project: B-179 Remedial Investigation Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-7B (O)	



Hydraulic conductivity [ft/min]: 3.83×10^{-4}

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
HVORSLEV's method

Date: 12/10/99 | Page 2

Project: B-17 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-7B (O)	MW-7B(O)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	0.60	0.60
2	0.01	0.72	0.72
3	0.03	0.67	0.67
4	0.05	0.68	0.68
5	0.06	0.68	0.68
6	0.08	0.68	0.68
7	0.10	0.67	0.67
8	0.12	0.66	0.66
9	0.14	0.66	0.66
10	0.16	0.65	0.65
11	0.18	0.65	0.65
12	0.21	0.65	0.65
13	0.23	0.64	0.64
14	0.26	0.63	0.63
15	0.29	0.63	0.63
16	0.32	0.63	0.63
17	0.35	0.62	0.62
18	0.39	0.62	0.62
19	0.42	0.61	0.61
20	0.46	0.61	0.61
21	0.50	0.60	0.60
22	0.55	0.60	0.60
23	0.59	0.60	0.60
24	0.64	0.60	0.60
25	0.69	0.59	0.59
26	0.75	0.58	0.58
27	0.81	0.58	0.58
28	0.87	0.57	0.57
29	0.93	0.57	0.57
30	1.00	0.56	0.56
31	1.08	0.55	0.55
32	1.15	0.55	0.55
33	1.24	0.54	0.54
34	1.33	0.53	0.53
35	1.42	0.53	0.53
36	1.52	0.52	0.52
37	1.62	0.52	0.52
38	1.73	0.51	0.51
39	1.85	0.50	0.50
40	1.97	0.49	0.49
41	2.11	0.49	0.49
42	2.25	0.48	0.48
43	2.39	0.47	0.47
44	2.55	0.47	0.47
45	2.72	0.46	0.46
46	2.89	0.45	0.45
47	3.08	0.44	0.44
48	3.28	0.43	0.43
49	3.49	0.42	0.42

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
HVORSLEV's methods

Date: 12/10/99 | Page 3

Project: B-179 Remedial Investigation

Evaluated by: ZZ

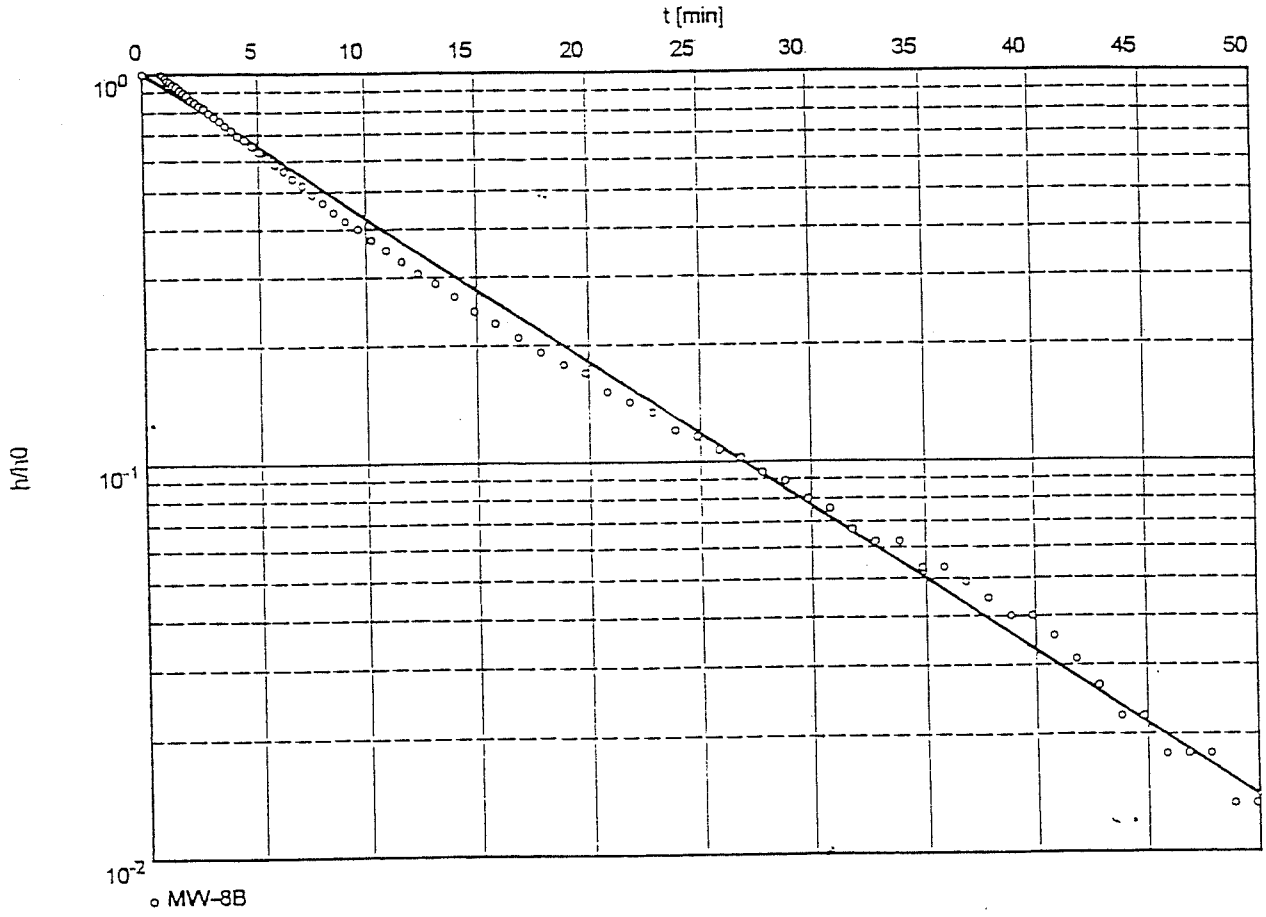
Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-7B (O)	MW-7B(O)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
51	3.95	0.40	0.40
52	4.19	0.39	0.39
53	4.46	0.38	0.38
54	4.74	0.37	0.37
55	5.03	0.36	0.36
56	5.35	0.35	0.35
57	5.68	0.34	0.34
58	6.03	0.32	0.32
59	6.40	0.31	0.31
60	6.80	0.30	0.30
61	7.22	0.29	0.29
62	7.66	0.27	0.27
63	8.13	0.26	0.26
64	8.63	0.26	0.26
65	9.16	0.24	0.24
66	9.71	0.23	0.23
67	10.31	0.22	0.22
68	10.93	0.20	0.20
69	11.60	0.19	0.19
70	12.30	0.19	0.19
71	13.04	0.17	0.17
72	13.83	0.16	0.16
73	14.67	0.15	0.15
74	15.56	0.14	0.14
75	16.49	0.13	0.13
76	17.49	0.12	0.12
77	18.49	0.11	0.11
78	19.49	0.10	0.10
79	20.49	0.10	0.10
80	21.49	0.09	0.09
81	22.49	0.08	0.08
82	23.49	0.08	0.08
83	24.49	0.08	0.08
84	25.49	0.07	0.07
85	26.49	0.06	0.06
86	27.49	0.06	0.06
87	28.49	0.05	0.05
88	29.49	0.05	0.05
89	30.49	0.05	0.05
90	33.49	0.04	0.04

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method		Date: 12/9/99 Page: 1
			Project: B-179 Remedial Investigation
			Evaluated by: ZZ

Slug Test No. Slug Out Test (1)	Test conducted on: 8/27/99
MW-8B	



Hydraulic conductivity [ft/min]: 3.70×10^{-4}

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
HVORSLEV's method

Date: 12/9/99 | Page: 2

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test (1)	Test conducted on: 8/27/99
MW-8B	MW-8B

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	2.25	2.25
2	0.05	2.46	2.46
3	0.11	2.43	2.43
4	0.16	2.41	2.41
5	0.23	2.39	2.39
6	0.29	2.38	2.38
7	0.36	2.35	2.35
8	0.43	2.33	2.33
9	0.51	2.31	2.31
10	0.60	2.29	2.29
11	0.69	2.26	2.26
12	0.78	2.24	2.24
13	0.88	2.22	2.22
14	0.98	2.19	2.19
15	1.09	2.16	2.16
16	1.21	2.14	2.14
17	1.33	2.11	2.11
18	1.47	2.08	2.08
19	1.60	2.04	2.04
20	1.75	2.01	2.01
21	1.91	1.98	1.98
22	2.08	1.93	1.93
23	2.25	1.90	1.90
24	2.44	1.86	1.86
25	2.64	1.83	1.83
26	2.85	1.78	1.78
27	3.07	1.74	1.74
28	3.31	1.70	1.70
29	3.55	1.66	1.66
30	3.82	1.61	1.61
31	4.10	1.56	1.56
32	4.39	1.52	1.52
33	4.71	1.47	1.47
34	5.04	1.42	1.42
35	5.39	1.37	1.37
36	5.76	1.32	1.32
37	6.16	1.27	1.27
38	6.58	1.21	1.21
39	7.02	1.16	1.16
40	7.49	1.10	1.10
41	7.99	1.05	1.05
42	8.51	0.99	0.99
43	9.07	0.94	0.94
44	9.66	0.90	0.90
45	10.29	0.84	0.84
46	10.96	0.79	0.79
47	11.66	0.74	0.74
48	12.40	0.69	0.69
49	13.19	0.65	0.65
50	14.03	0.60	0.60

TRC Environmental
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slug/bail test analysis
HVORSLEV's method

Date: 12/9/99 | Page: 3

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test (1)	Test conducted on: 8/27/99
MW-8B	MW-8B

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
51	14.91	0.55	0.55	
52	15.85	0.51	0.51	
53	16.85	0.47	0.47	
54	17.85	0.43	0.43	
55	18.85	0.40	0.40	
56	19.85	0.38	0.38	
57	20.85	0.34	0.34	
58	21.85	0.32	0.32	
59	22.85	0.30	0.30	
60	23.85	0.27	0.27	
61	24.85	0.26	0.26	
62	25.85	0.24	0.24	
63	26.85	0.23	0.23	
64	27.85	0.21	0.21	
65	28.85	0.20	0.20	
66	29.85	0.18	0.18	
67	30.85	0.17	0.17	
68	31.85	0.15	0.15	
69	32.85	0.14	0.14	
70	33.85	0.14	0.14	
71	34.85	0.12	0.12	
72	35.85	0.12	0.12	
73	36.85	0.11	0.11	
74	37.85	0.10	0.10	
75	38.85	0.09	0.09	
76	39.85	0.09	0.09	
77	40.85	0.08	0.08	
78	41.85	0.07	0.07	
79	42.85	0.06	0.06	
80	43.85	0.05	0.05	
81	44.85	0.05	0.05	
82	45.85	0.04	0.04	
83	46.85	0.04	0.04	
84	47.85	0.04	0.04	
85	48.85	0.03	0.03	
86	49.85	0.03	0.03	

TRC Environmental
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Windsor, CT 06095
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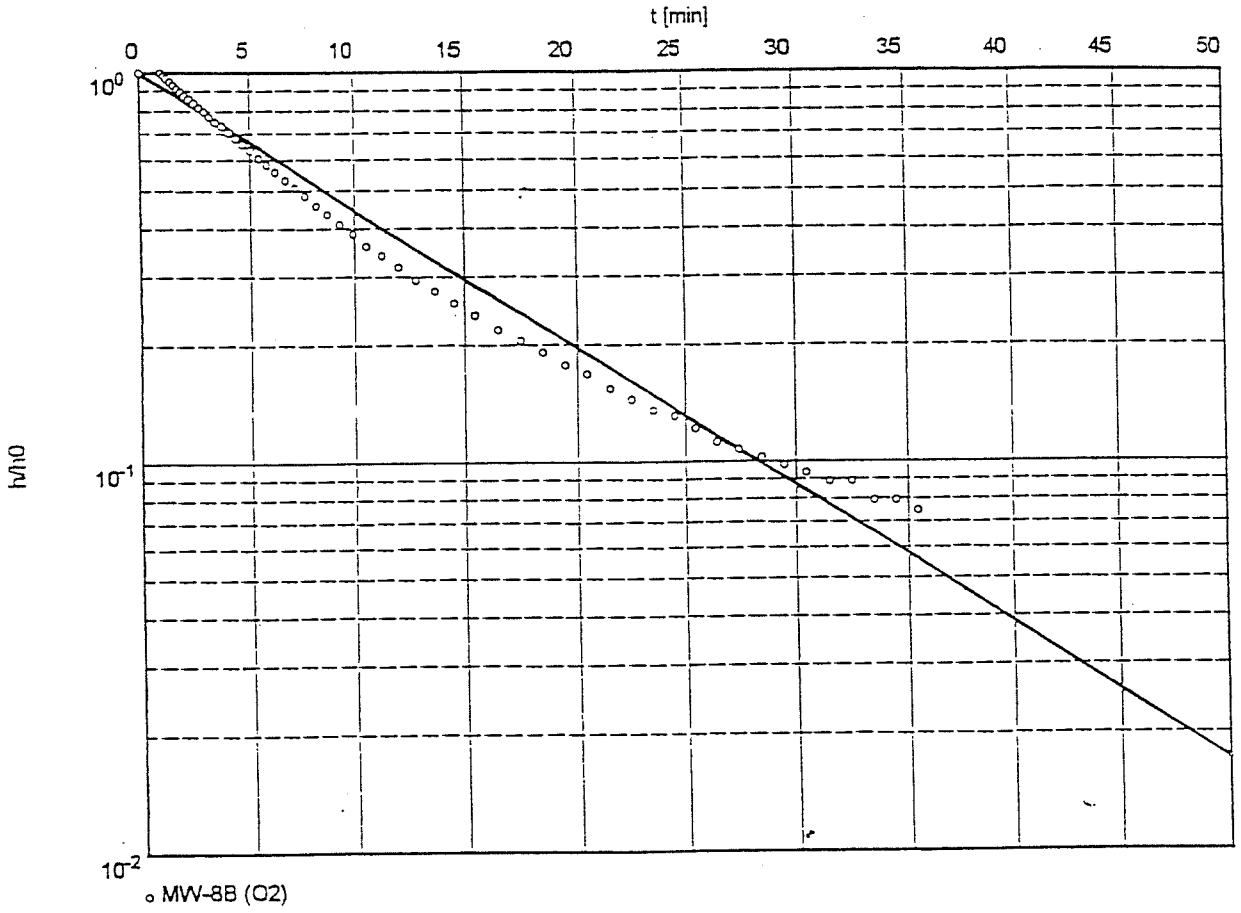
slug/bail test analysis
HVORSLEV's method

Date: 12/10/1999 | Page: 1

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test (2)	Test conducted on: 8/27/99
MW-8B (O2)	



Hydraulic conductivity [ft/min]: 3.52×10^{-4}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis: HVORSLEV's method	Date: 12/10/1999	Page: 2
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test (2)	Test conducted on: 8/27/99
MW-8B (O2)	MW-8B (O2)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
1	0.00	2.15	2.15	
2	0.07	2.40	2.40	
3	0.15	2.37	2.37	
4	0.23	2.34	2.34	
5	0.32	2.31	2.31	
6	0.42	2.29	2.29	
7	0.52	2.26	2.26	
8	0.62	2.24	2.24	
9	0.73	2.20	2.20	
10	0.85	2.17	2.17	
11	0.97	2.15	2.15	
12	1.10	2.11	2.11	
13	1.24	2.08	2.08	
14	1.39	2.04	2.04	
15	1.55	2.00	2.00	
16	1.72	1.96	1.96	
17	1.89	1.92	1.92	
18	2.08	1.88	1.88	
19	2.28	1.84	1.84	
20	2.49	1.80	1.80	
21	2.71	1.75	1.75	
22	2.94	1.71	1.71	
23	3.19	1.66	1.66	
24	3.46	1.61	1.61	
25	3.74	1.57	1.57	
26	4.03	1.51	1.51	
27	4.35	1.46	1.46	
28	4.68	1.41	1.41	
29	5.03	1.36	1.36	
30	5.40	1.30	1.30	
31	5.80	1.25	1.25	
32	6.21	1.20	1.20	
33	6.66	1.14	1.14	
34	7.13	1.09	1.09	
35	7.63	1.04	1.04	
36	8.15	0.98	0.98	
37	8.71	0.93	0.93	
38	9.30	0.88	0.88	
39	9.93	0.83	0.83	
40	10.59	0.77	0.77	
41	11.30	0.73	0.73	
42	12.04	0.68	0.68	
43	12.83	0.63	0.63	
44	13.67	0.59	0.59	
45	14.55	0.55	0.55	
46	15.49	0.51	0.51	
47	16.48	0.47	0.47	
48	17.48	0.44	0.44	

TRC Environmental
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slug/bail test analysis
HVORSLEV's method

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Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test (2)	Test conducted on: 8/27/99
MW-8B (O2)	MW-8B (O2)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
51	20.48	0.36	0.36	
52	21.48	0.33	0.33	
53	22.48	0.31	0.31	
54	23.48	0.29	0.29	
55	24.48	0.28	0.28	
56	25.48	0.26	0.26	
57	26.48	0.24	0.24	
58	27.48	0.23	0.23	
59	28.48	0.22	0.22	
60	29.48	0.21	0.21	
61	30.48	0.20	0.20	
62	31.48	0.19	0.19	
63	32.48	0.19	0.19	
64	33.48	0.17	0.17	
65	34.48	0.17	0.17	
66	35.48	0.16	0.16	

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slug/bail test analysis:
HVORSLEV's method

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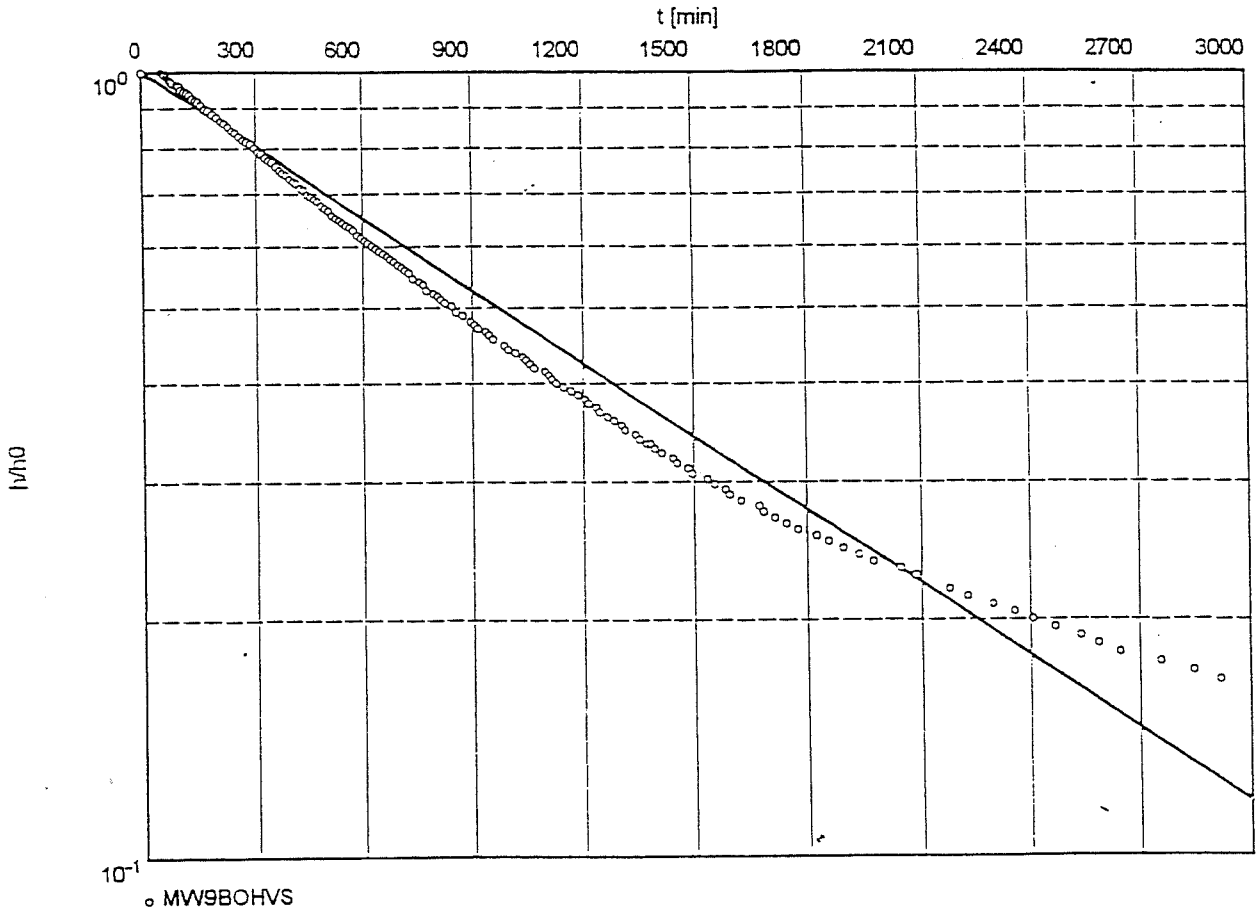
Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-98	



Hydraulic conductivity [ft/min]: 3.09×10^{-6}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/13/99 Page: 2 Project: B-179 Remedial Investigation Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-9B	MW9BOHVS

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	2.15	2.15
2	0.09	2.26	2.26
3	1.48	2.26	2.26
4	1.66	2.25	2.25
5	3.50	2.25	2.25
6	5.17	2.24	2.24
7	7.39	2.24	2.24
8	9.07	2.23	2.23
9	14.32	2.22	2.22
10	18.42	2.21	2.21
11	23.58	2.20	2.20
12	30.08	2.19	2.19
13	33.94	2.18	2.18
14	38.27	2.17	2.17
15	43.12	2.16	2.16
16	48.57	2.15	2.15
17	54.69	2.14	2.14
18	58.02	2.13	2.13
19	65.29	2.12	2.12
20	69.24	2.11	2.11
21	73.44	2.10	2.10
22	77.88	2.09	2.09
23	82.59	2.08	2.08
24	92.85	2.07	2.07
25	98.45	2.06	2.06
26	104.37	2.04	2.04
27	110.65	2.03	2.03
28	117.30	2.02	2.02
29	124.34	2.01	2.01
30	131.79	1.99	1.99
31	139.70	1.98	1.98
32	148.06	1.97	1.97
33	156.93	1.95	1.95
34	166.32	1.93	1.93
35	176.26	1.92	1.92
36	186.26	1.90	1.90
37	196.26	1.88	1.88
38	206.26	1.86	1.86
39	216.26	1.85	1.85
40	226.26	1.83	1.83
41	236.26	1.81	1.81
42	246.26	1.80	1.80
43	256.27	1.78	1.78
44	266.27	1.76	1.76
45	276.27	1.75	1.75
46	286.27	1.74	1.74
47	296.27	1.72	1.72
48	306.27	1.70	1.70
49	316.27	1.69	1.69
50	326.27	1.67	1.67

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/13/99	Page 3
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-9B	MW9BOHVS

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
51	336.27	1.66	1.66	
52	346.27	1.65	1.65	
53	356.27	1.63	1.63	
54	366.27	1.61	1.61	
55	376.27	1.60	1.60	
56	386.27	1.59	1.59	
57	396.27	1.57	1.57	
58	406.27	1.56	1.56	
59	416.27	1.55	1.55	
60	426.27	1.53	1.53	
61	436.27	1.52	1.52	
62	446.27	1.50	1.50	
63	456.27	1.49	1.49	
64	466.27	1.48	1.48	
65	476.27	1.47	1.47	
66	486.27	1.45	1.45	
67	496.27	1.44	1.44	
68	506.27	1.43	1.43	
69	516.26	1.41	1.41	
70	526.26	1.40	1.40	
71	536.26	1.39	1.39	
72	546.26	1.38	1.38	
73	556.26	1.37	1.37	
74	566.26	1.36	1.36	
75	576.26	1.35	1.35	
76	586.26	1.33	1.33	
77	596.26	1.32	1.32	
78	606.26	1.31	1.31	
79	616.26	1.30	1.30	
80	626.26	1.29	1.29	
81	636.26	1.28	1.28	
82	646.26	1.27	1.27	
83	656.26	1.26	1.26	
84	666.26	1.25	1.25	
85	676.26	1.24	1.24	
86	686.26	1.23	1.23	
87	696.26	1.22	1.22	
88	706.26	1.21	1.21	
89	716.26	1.20	1.20	
90	726.26	1.19	1.19	
91	736.26	1.17	1.17	
92	756.26	1.16	1.16	
93	766.26	1.15	1.15	
94	776.26	1.13	1.13	
95	796.26	1.12	1.12	
96	806.26	1.11	1.11	
97	816.26	1.10	1.10	
98	826.26	1.09	1.09	
99	846.26	1.08	1.08	

IRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/13/99	Page: 4
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-9B	MW9BOHVS

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
101	876.26	1.05	1.05
102	896.26	1.03	1.03
103	906.26	1.02	1.02
104	916.26	1.01	1.01
105	936.26	1.00	1.00
106	946.26	0.99	0.99
107	956.26	0.98	0.98
108	986.26	0.96	0.96
109	996.26	0.95	0.95
110	1016.26	0.94	0.94
111	1036.27	0.93	0.93
112	1046.27	0.92	0.92
113	1056.27	0.91	0.91
114	1066.27	0.90	0.90
115	1096.27	0.89	0.89
116	1106.27	0.88	0.88
117	1116.27	0.87	0.87
118	1126.27	0.86	0.86
119	1146.27	0.85	0.85
120	1166.27	0.84	0.84
121	1186.27	0.83	0.83
122	1206.27	0.82	0.82
123	1216.27	0.81	0.81
124	1236.27	0.80	0.80
125	1246.27	0.79	0.79
126	1266.27	0.78	0.78
127	1286.27	0.77	0.77
128	1306.27	0.76	0.76
129	1316.27	0.75	0.75
130	1346.27	0.74	0.74
131	1356.27	0.73	0.73
132	1376.27	0.72	0.72
133	1386.27	0.72	0.72
134	1396.27	0.71	0.71
135	1416.27	0.70	0.70
136	1446.27	0.69	0.69
137	1456.27	0.68	0.68
138	1486.27	0.67	0.67
139	1496.27	0.66	0.66
140	1536.27	0.65	0.65
141	1556.27	0.64	0.64
142	1586.27	0.63	0.63
143	1596.27	0.62	0.62
144	1626.27	0.61	0.61
145	1676.27	0.60	0.60
146	1686.27	0.59	0.59
147	1716.27	0.58	0.58
148	1746.27	0.57	0.57
149	1776.27	0.56	0.56
150	1826.27	0.55	0.55

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/13/99	Page: 5
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 9/1/99
MW-9B	MW9BOHVS

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
151	1856.27	0.54	0.54	
152	1896.27	0.53	0.53	
153	1936.27	0.52	0.52	
154	1976.27	0.51	0.51	
155	2046.27	0.50	0.50	
156	2086.27	0.49	0.49	
157	2176.27	0.47	0.47	
158	2226.27	0.46	0.46	
159	2296.27	0.45	0.45	
160	2356.27	0.44	0.44	
161	2406.27	0.43	0.43	
162	2466.27	0.42	0.42	
163	2536.27	0.41	0.41	
164	2586.27	0.40	0.40	
165	2646.27	0.39	0.39	
166	2756.27	0.38	0.38	
167	2846.27	0.37	0.37	
168	2916.27	0.36	0.36	

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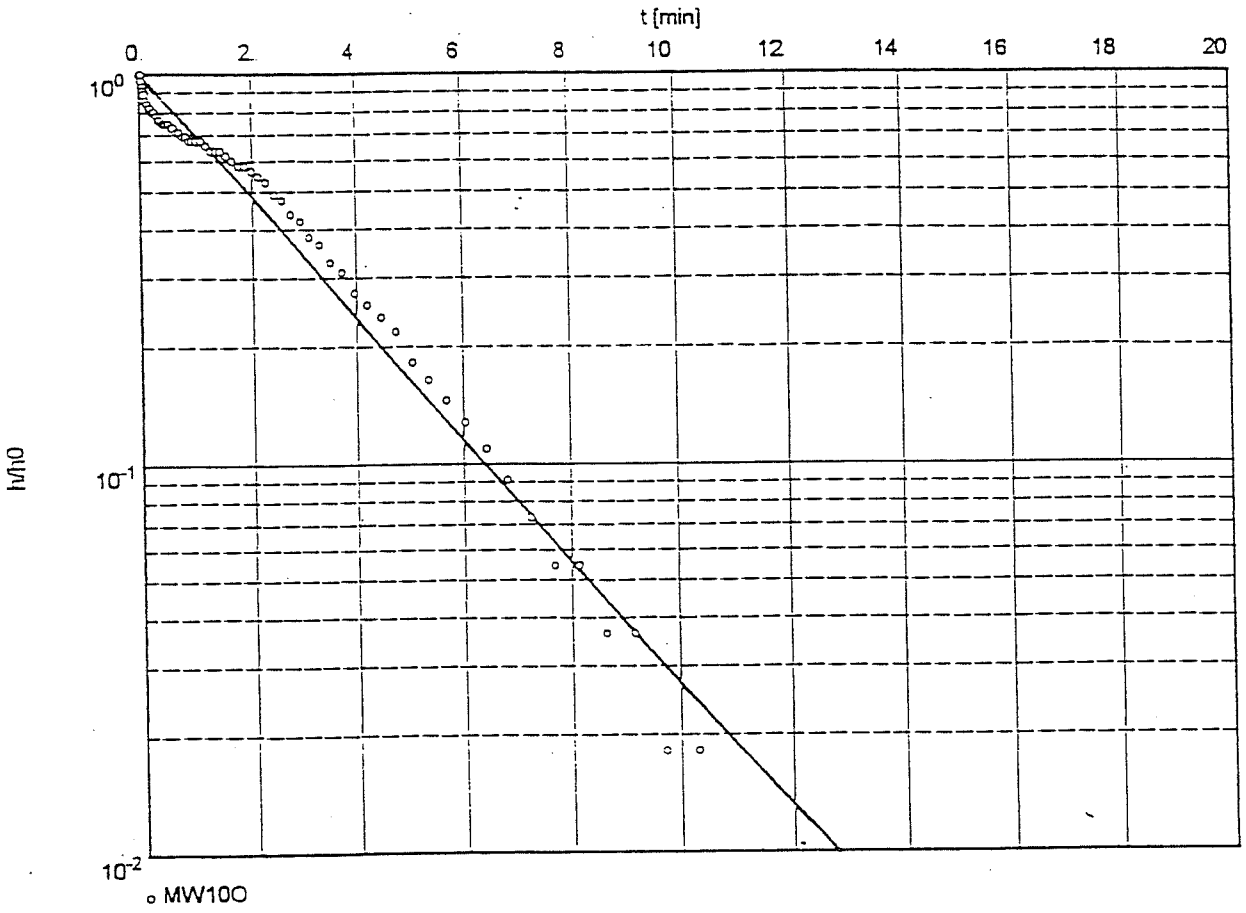
slug/bail test analysis
BOUWER-RICE's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug Out Test	Test conducted on: 8/30/99
MW-10	



Hydraulic conductivity [ft/min]: 1.29×10^{-3}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/13/99	Page: 2
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		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 8/30/99
MW-10	MW100

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	0.55	0.55	
2	0.01	0.57	0.57	
3	0.03	0.55	0.55	
4	0.04	0.53	0.53	
5	0.06	0.51	0.51	
6	0.07	0.50	0.50	
7	0.09	0.49	0.49	
8	0.11	0.47	0.47	
9	0.13	0.47	0.47	
10	0.15	0.46	0.46	
11	0.17	0.45	0.45	
12	0.20	0.45	0.45	
13	0.22	0.44	0.44	
14	0.25	0.44	0.44	
15	0.27	0.44	0.44	
16	0.30	0.43	0.43	
17	0.33	0.42	0.42	
18	0.36	0.42	0.42	
19	0.40	0.41	0.41	
20	0.43	0.41	0.41	
21	0.47	0.41	0.41	
22	0.52	0.41	0.41	
23	0.56	0.40	0.40	
24	0.60	0.40	0.40	
25	0.65	0.39	0.39	
26	0.70	0.39	0.39	
27	0.76	0.38	0.38	
28	0.82	0.38	0.38	
29	0.88	0.37	0.37	
30	0.94	0.37	0.37	
31	1.01	0.37	0.37	
32	1.09	0.37	0.37	
33	1.17	0.36	0.36	
34	1.25	0.35	0.35	
35	1.34	0.35	0.35	
36	1.43	0.35	0.35	
37	1.53	0.34	0.34	
38	1.64	0.33	0.33	
39	1.75	0.32	0.32	
40	1.86	0.32	0.32	
41	1.99	0.31	0.31	
42	2.12	0.30	0.30	
43	2.26	0.29	0.29	
44	2.41	0.27	0.27	
45	2.56	0.26	0.26	
46	2.73	0.24	0.24	
47	2.91	0.23	0.23	
48	3.09	0.21	0.21	
49	3.29	0.20	0.20	

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slug/bail test analysis
BOUWER-RICE's method

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Evaluated by: ZZ

Slug Test No. Slug Out Test | Test conducted on: 8/30/99

MW-10 | MW100

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
51	3.72	0.17	0.17
52	3.96	0.15	0.15
53	4.21	0.14	0.14
54	4.47	0.13	0.13
55	4.75	0.12	0.12
56	5.05	0.10	0.10
57	5.36	0.09	0.09
58	5.69	0.08	0.08
59	6.04	0.07	0.07
60	6.42	0.06	0.06
61	6.81	0.05	0.05
62	7.23	0.04	0.04
63	7.67	0.03	0.03
64	8.14	0.03	0.03
65	8.64	0.02	0.02
66	9.17	0.02	0.02
67	9.73	0.01	0.01
68	10.32	0.01	0.01

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/13/99	Page: 1
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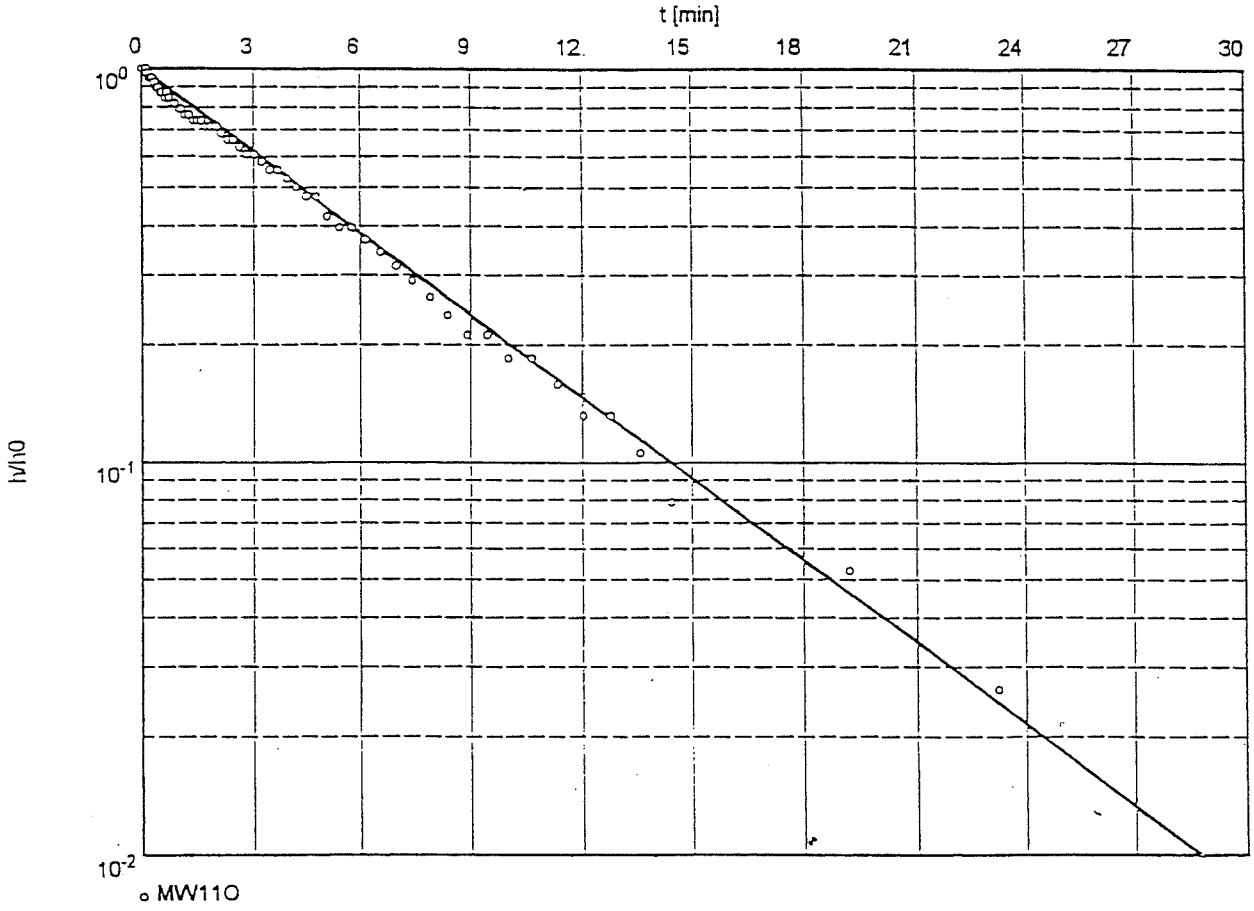
Slug Test No. Slug Out Test	Test conducted on: 8/30/99
MW-11	



Hydraulic conductivity [ft/min]: 2.72×10^{-4}

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slug/bail test analysis
BOUWER-RICE's method

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Slug Test No: Slug Out Test

Test conducted on: 8/30/99

MW-11

MW11O

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	0.38	0.38
2	0.03	0.44	0.44
3	0.06	0.40	0.40
4	0.09	0.38	0.38
5	0.12	0.38	0.38
6	0.16	0.37	0.37
7	0.20	0.36	0.36
8	0.24	0.36	0.36
9	0.28	0.36	0.36
10	0.33	0.35	0.35
11	0.38	0.34	0.34
12	0.43	0.34	0.34
13	0.49	0.33	0.33
14	0.55	0.33	0.33
15	0.61	0.32	0.32
16	0.67	0.33	0.33
17	0.74	0.32	0.32
18	0.81	0.31	0.31
19	0.89	0.31	0.31
20	0.98	0.30	0.30
21	1.06	0.30	0.30
22	1.16	0.29	0.29
23	1.26	0.29	0.29
24	1.36	0.28	0.28
25	1.47	0.28	0.28
26	1.59	0.28	0.28
27	1.71	0.27	0.27
28	1.84	0.27	0.27
29	1.98	0.27	0.27
30	2.13	0.26	0.26
31	2.29	0.25	0.25
32	2.46	0.25	0.25
33	2.63	0.24	0.24
34	2.82	0.23	0.23
35	3.02	0.23	0.23
36	3.23	0.22	0.22
37	3.45	0.21	0.21
38	3.69	0.21	0.21
39	3.93	0.20	0.20
40	4.20	0.19	0.19
41	4.48	0.18	0.18
42	4.77	0.18	0.18
43	5.09	0.16	0.16
44	5.42	0.15	0.15
45	5.77	0.15	0.15
46	6.14	0.14	0.14
47	6.54	0.13	0.13
48	6.96	0.12	0.12
49	7.40	0.11	0.11
50	7.87	0.10	0.10

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/13/99	Page: 3
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 8/30/99
MW-11	MW11O

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	8.37	0.09	0.09	
52	8.90	0.08	0.08	
53	9.45	0.08	0.08	
54	10.04	0.07	0.07	
55	10.67	0.07	0.07	
56	11.34	0.06	0.06	
57	12.04	0.05	0.05	
58	12.78	0.05	0.05	
59	13.57	0.04	0.04	
60	14.41	0.03	0.03	
61	19.23	0.02	0.02	
62	23.23	0.01	0.01	

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/13/99	Page: 1
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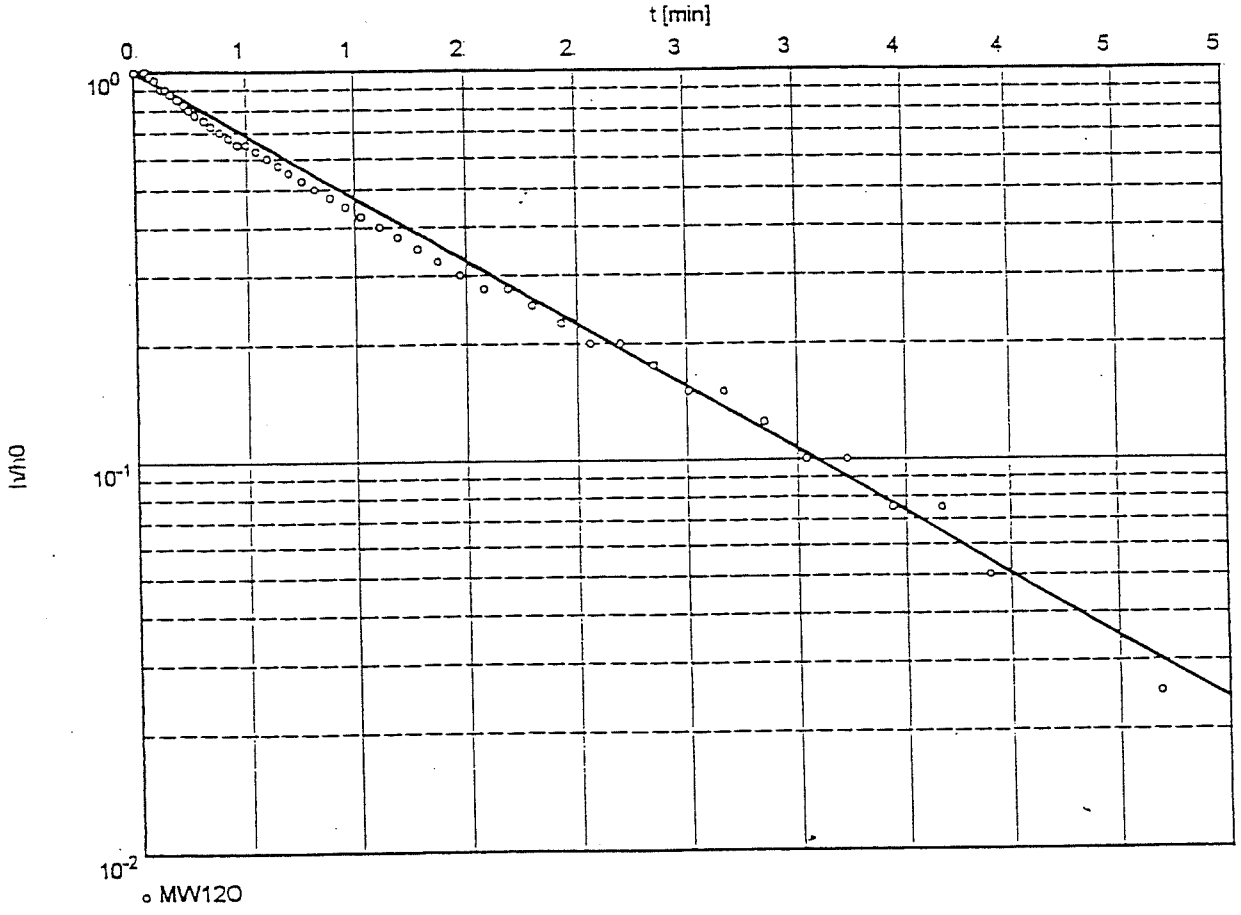
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 8/30/99
MW-12	



Hydraulic conductivity [ft/min]: 2.82×10^{-3}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/13/99	Page: 2
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

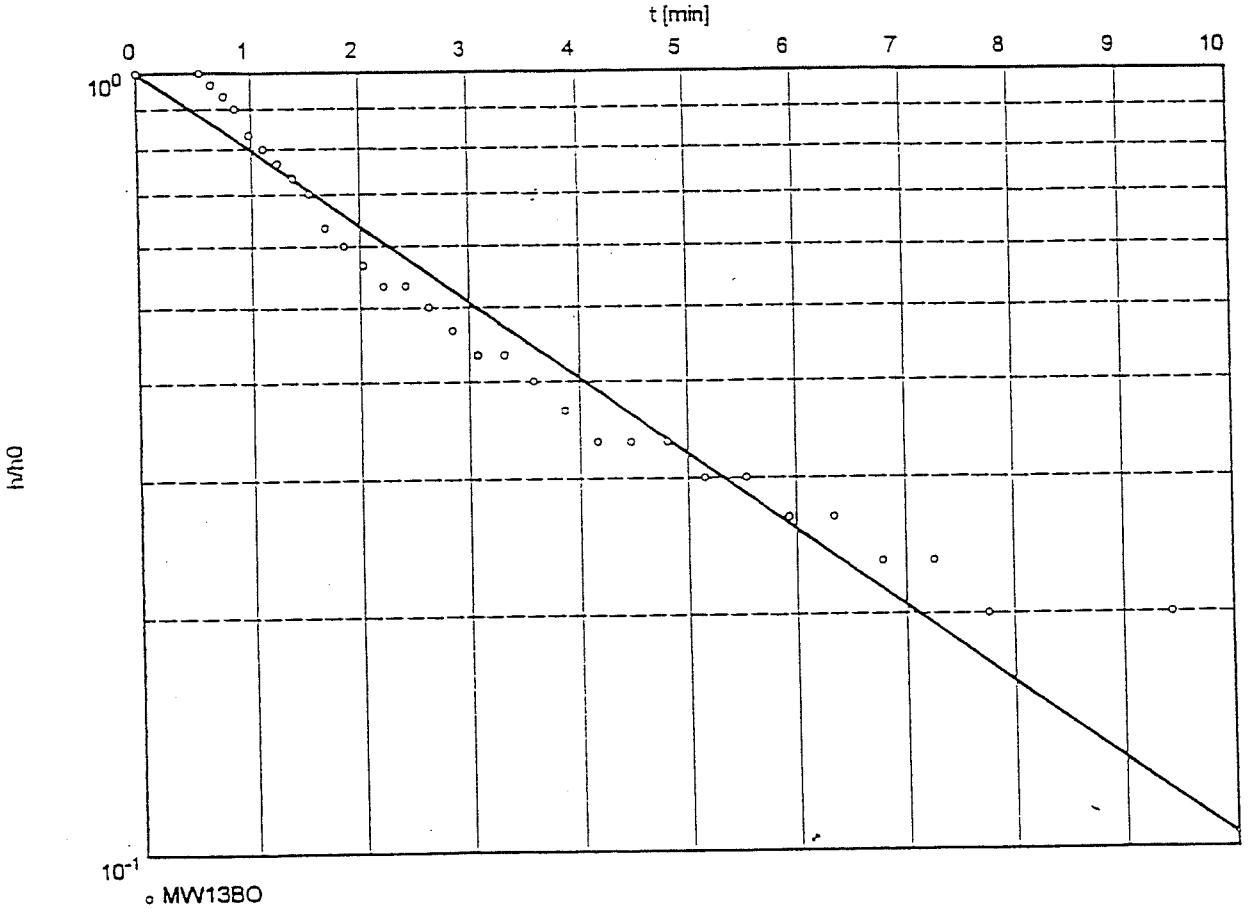
Slug Test No. Slug Out Test	Test conducted on: 8/30/99
MW-12	MW120

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	0.40	0.40	
2	0.02	0.44	0.44	
3	0.03	0.41	0.41	
4	0.05	0.40	0.40	
5	0.07	0.39	0.39	
6	0.09	0.38	0.38	
7	0.12	0.36	0.36	
8	0.14	0.36	0.36	
9	0.16	0.35	0.35	
10	0.19	0.34	0.34	
11	0.22	0.33	0.33	
12	0.24	0.32	0.32	
13	0.27	0.31	0.31	
14	0.31	0.30	0.30	
15	0.34	0.29	0.29	
16	0.38	0.28	0.28	
17	0.42	0.27	0.27	
18	0.46	0.26	0.26	
19	0.50	0.26	0.26	
20	0.55	0.25	0.25	
21	0.60	0.24	0.24	
22	0.65	0.23	0.23	
23	0.70	0.22	0.22	
24	0.76	0.21	0.21	
25	0.82	0.20	0.20	
26	0.89	0.19	0.19	
27	0.96	0.18	0.18	
28	1.03	0.17	0.17	
29	1.11	0.16	0.16	
30	1.19	0.15	0.15	
31	1.28	0.14	0.14	
32	1.37	0.13	0.13	
33	1.47	0.12	0.12	
34	1.58	0.11	0.11	
35	1.69	0.11	0.11	
36	1.80	0.10	0.10	
37	1.93	0.09	0.09	
38	2.06	0.08	0.08	
39	2.20	0.08	0.08	
40	2.35	0.07	0.07	
41	2.51	0.06	0.06	
42	2.67	0.06	0.06	
43	2.85	0.05	0.05	
44	3.04	0.04	0.04	
45	3.23	0.04	0.04	
46	3.44	0.03	0.03	
47	3.67	0.03	0.03	
48	3.90	0.02	0.02	
49	4.69	0.01	0.01	

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/13/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-13B	



Hydraulic conductivity [ft/min]: 9.81×10^{-4}

TRC Environmental
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(860)289-8631

Slug/bail test analysis
HVORSLEV's method

Project: B-179 Remedial Investigation

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Slug Test No. Slug Out Test	Test conducted on: 8/31/99
MW-13B	MW13BO

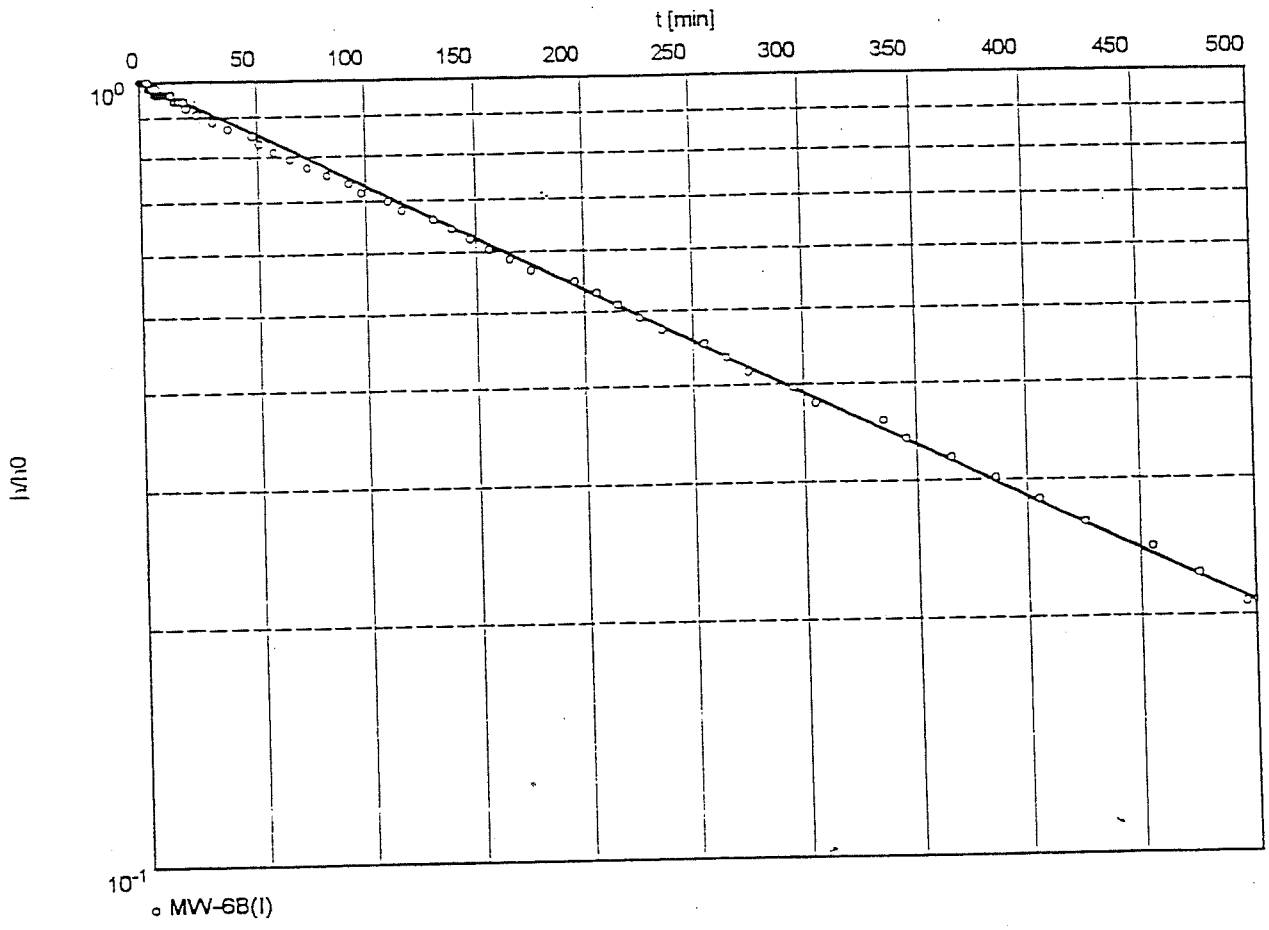
Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	0.30	0.30
2	0.07	0.36	0.36
3	0.13	0.36	0.36
4	0.21	0.35	0.35
5	0.29	0.34	0.34
6	0.37	0.33	0.33
7	0.46	0.31	0.31
8	0.55	0.30	0.30
9	0.65	0.29	0.29
10	0.76	0.28	0.28
11	0.86	0.27	0.27
12	0.98	0.25	0.25
13	1.11	0.24	0.24
14	1.24	0.23	0.23
15	1.38	0.22	0.22
16	1.53	0.21	0.21
17	1.68	0.19	0.19
18	1.85	0.18	0.18
19	2.03	0.17	0.17
20	2.21	0.16	0.16
21	2.41	0.16	0.16
22	2.62	0.15	0.15
23	2.84	0.14	0.14
24	3.08	0.13	0.13
25	3.33	0.13	0.13
26	3.59	0.12	0.12
27	3.87	0.11	0.11
28	4.17	0.10	0.10
29	4.48	0.10	0.10
30	4.81	0.10	0.10
31	5.16	0.09	0.09
32	5.54	0.09	0.09
33	5.93	0.08	0.08
34	6.35	0.08	0.08
35	6.79	0.07	0.07
36	7.26	0.07	0.07
37	7.76	0.06	0.06
38	9.44	0.06	0.06

SLUG IN TEST DATA ANALYSIS RESULTS

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/15/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-6B	



Hydraulic conductivity [ft/min]: 8.53×10^{-6}

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slug/bail test analysis
HVORSLEV's method

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Slug Test No. Slug In Test

Test conducted on: 8/31/99

MW-6B

MW-6B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	0.53	0.53
2	0.13	0.56	0.56
3	0.27	0.55	0.55
4	0.42	0.53	0.53
5	0.58	0.53	0.53
6	0.74	0.58	0.58
7	0.92	0.54	0.54
8	1.11	0.53	0.53
9	1.31	0.53	0.53
10	1.51	0.53	0.53
11	1.74	0.53	0.53
12	1.97	0.53	0.53
13	2.22	0.53	0.53
14	2.48	0.53	0.53
15	2.76	0.53	0.53
16	3.06	0.53	0.53
17	3.37	0.53	0.53
18	3.71	0.53	0.53
19	4.06	0.52	0.52
20	4.43	0.52	0.52
21	4.82	0.52	0.52
22	5.24	0.52	0.52
23	5.69	0.52	0.52
24	6.16	0.52	0.52
25	6.65	0.51	0.51
26	7.18	0.52	0.52
27	7.74	0.51	0.51
28	8.33	0.51	0.51
29	8.96	0.51	0.51
30	9.62	0.51	0.51
31	10.32	0.51	0.51
32	11.07	0.51	0.51
33	11.86	0.51	0.51
34	12.70	0.51	0.51
35	13.58	0.51	0.51
36	14.52	0.50	0.50
37	15.51	0.50	0.50
38	16.57	0.50	0.50
39	17.68	0.50	0.50
40	18.86	0.50	0.50
41	20.11	0.49	0.49
42	24.33	0.48	0.48
43	31.22	0.47	0.47
44	37.53	0.46	0.46
45	47.84	0.45	0.45
46	50.80	0.44	0.44
47	57.28	0.43	0.43
48	64.55	0.42	0.42
49	72.70	0.41	0.41
50	81.85	0.40	0.40

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slug/bail test analysis
HVORSLEV's method

Date: 12/15/99 | Page 3

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-6B	MW-6B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
51	92.12	0.39	0.39
52	97.71	0.38	0.38
53	109.91	0.37	0.37
54	116.56	0.36	0.36
55	131.06	0.35	0.35
56	138.96	0.34	0.34
57	147.33	0.33	0.33
58	156.19	0.32	0.32
59	165.58	0.31	0.31
60	175.53	0.30	0.30
61	195.53	0.29	0.29
62	205.53	0.28	0.28
63	215.53	0.27	0.27
64	225.53	0.26	0.26
65	235.53	0.25	0.25
66	255.53	0.24	0.24
67	265.53	0.23	0.23
68	275.53	0.22	0.22
69	295.53	0.21	0.21
70	305.53	0.20	0.20
71	335.53	0.19	0.19
72	345.53	0.18	0.18
73	365.53	0.17	0.17
74	385.53	0.16	0.16
75	405.53	0.15	0.15
76	425.53	0.14	0.14
77	455.53	0.13	0.13
78	475.53	0.12	0.12
79	495.53	0.11	0.11

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slug/bail test analysis
HVORSLEV's method

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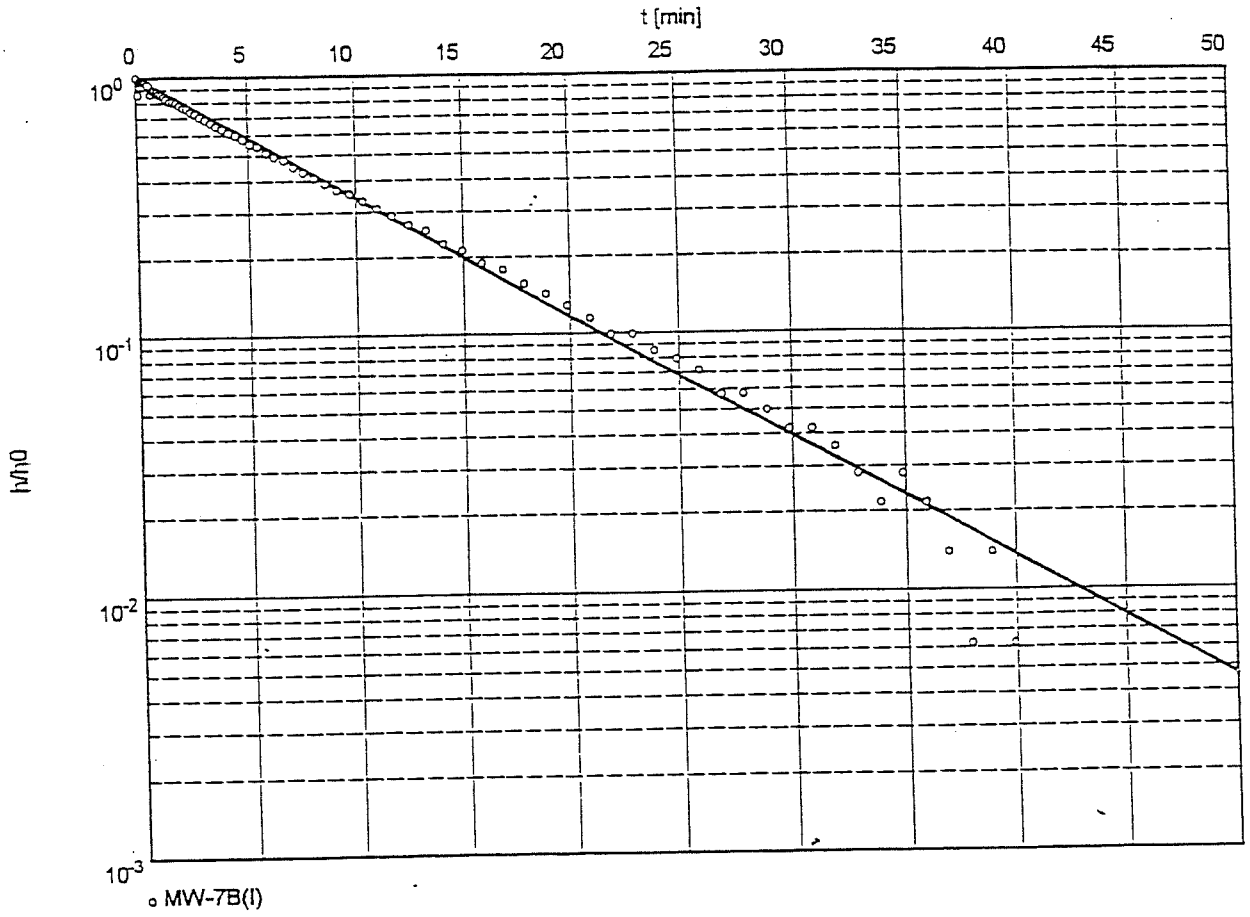
Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/331/99
MW-7B	



Hydraulic conductivity [ft/min]: 4.51×10^{-4}

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slug/bail test analysis
HVORSLEV's method

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Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/331/99
MW-7B	MW-7B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
1	0.00	0.65	0.65	
2	0.10	0.56	0.56	
3	0.15	0.62	0.62	
4	0.21	0.63	0.63	
5	0.28	0.63	0.63	
6	0.34	0.63	0.63	
7	0.41	0.62	0.62	
8	0.48	0.61	0.61	
9	0.56	0.60	0.60	
10	0.65	0.56	0.56	
11	0.73	0.58	0.58	
12	0.83	0.57	0.57	
13	0.93	0.57	0.57	
14	1.03	0.56	0.56	
15	1.14	0.55	0.55	
16	1.26	0.54	0.54	
17	1.38	0.53	0.53	
18	1.51	0.52	0.52	
19	1.65	0.52	0.52	
20	1.80	0.51	0.51	
21	1.96	0.50	0.50	
22	2.13	0.49	0.49	
23	2.30	0.49	0.49	
24	2.49	0.47	0.47	
25	2.69	0.47	0.47	
26	2.90	0.45	0.45	
27	3.12	0.44	0.44	
28	3.35	0.43	0.43	
29	3.60	0.42	0.42	
30	3.87	0.41	0.41	
31	4.14	0.39	0.39	
32	4.44	0.39	0.39	
33	4.75	0.37	0.37	
34	5.09	0.36	0.36	
35	5.44	0.35	0.35	
36	5.81	0.33	0.33	
37	6.21	0.32	0.32	
38	6.63	0.31	0.31	
39	7.07	0.29	0.29	
40	7.54	0.28	0.28	
41	8.04	0.26	0.26	
42	8.56	0.25	0.25	
43	9.12	0.23	0.23	
44	9.71	0.23	0.23	
45	10.34	0.21	0.21	
46	11.00	0.20	0.20	
47	11.71	0.19	0.19	
48	12.45	0.17	0.17	
49	13.24	0.16	0.16	

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slug/bail test analysis
HVORSLEV's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/331/99
MW-7B	MW-7B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
51	14.96	0.14	0.14
52	15.90	0.12	0.12
53	16.89	0.12	0.12
54	17.89	0.10	0.10
55	18.89	0.09	0.09
56	19.89	0.08	0.08
57	20.89	0.07	0.07
58	21.89	0.06	0.06
59	22.89	0.06	0.06
60	23.89	0.06	0.06
61	24.89	0.05	0.05
62	25.89	0.05	0.05
63	26.89	0.04	0.04
64	27.89	0.04	0.04
65	28.89	0.03	0.03
66	29.89	0.03	0.03
67	30.89	0.03	0.03
68	31.89	0.02	0.02
69	32.90	0.02	0.02
70	33.90	0.01	0.01
71	34.90	0.02	0.02
72	35.90	0.01	0.01
73	36.90	0.01	0.01
74	37.90	0.00	0.00
75	38.90	0.01	0.01
76	39.90	0.00	0.00
77	40.90	0.00	0.00

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/15/99	Page: 1
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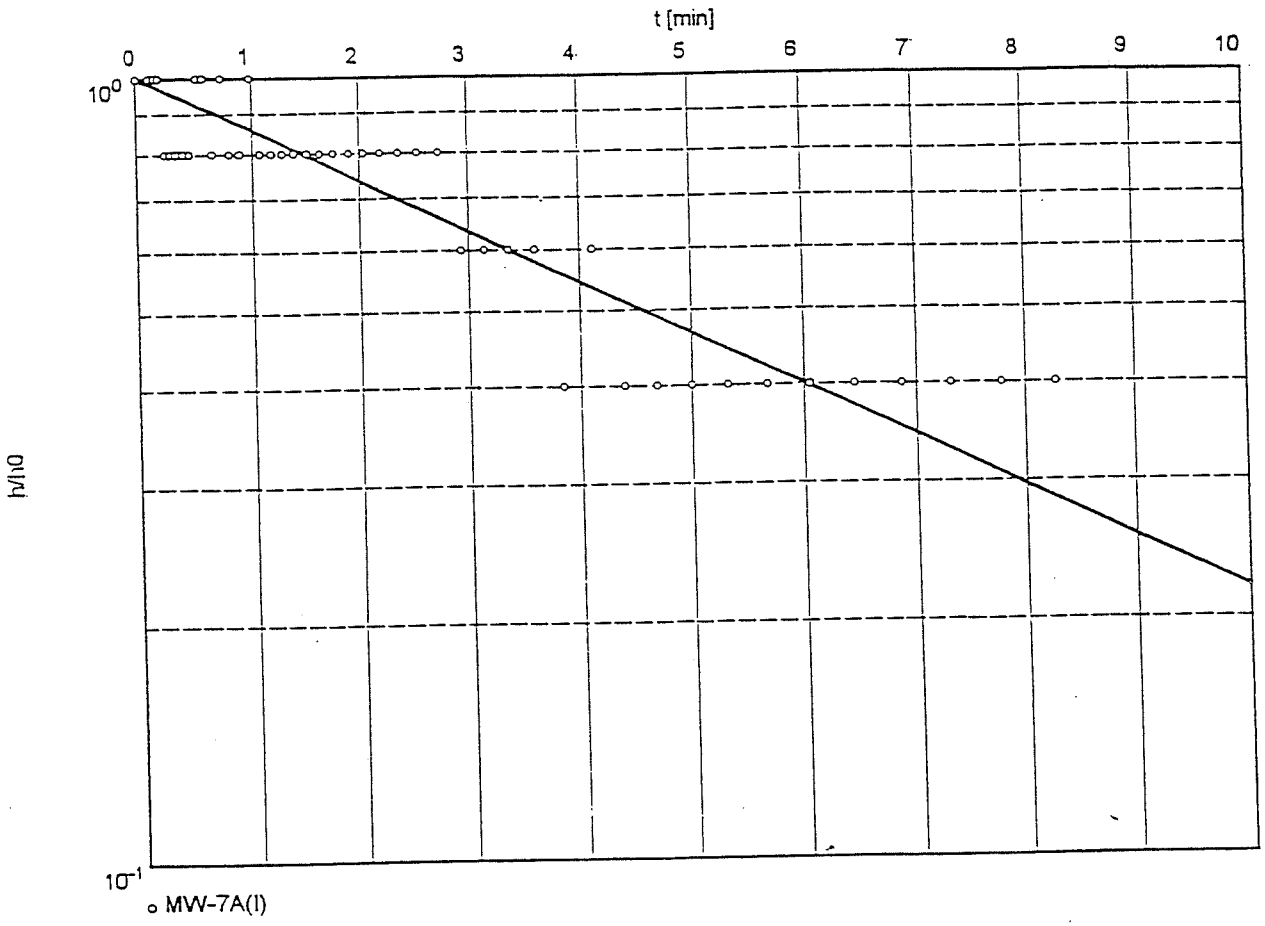
		Evaluated by: ZZ	

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-7A	



Hydraulic conductivity [ft/min]: 2.59×10^{-4}

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
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slug/bail test analysis
BOUWER-RICE's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug In Test

Test conducted on: 8/31/99

MW-7A

MW-7A(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	0.05	0.05
2	0.04	0.07	0.07
3	0.07	0.06	0.06
4	0.11	0.05	0.05
5	0.15	0.05	0.05
6	0.19	0.05	0.05
7	0.24	0.04	0.04
8	0.29	0.04	0.04
9	0.34	0.04	0.04
10	0.40	0.04	0.04
11	0.45	0.04	0.04
12	0.52	0.05	0.05
13	0.58	0.05	0.05
14	0.65	0.04	0.04
15	0.73	0.05	0.05
16	0.80	0.04	0.04
17	0.89	0.04	0.04
18	0.98	0.05	0.05
19	1.07	0.04	0.04
20	1.17	0.04	0.04
21	1.27	0.04	0.04
22	1.38	0.04	0.04
23	1.50	0.04	0.04
24	1.62	0.04	0.04
25	1.75	0.04	0.04
26	1.90	0.04	0.04
27	2.04	0.04	0.04
28	2.20	0.04	0.04
29	2.37	0.04	0.04
30	2.54	0.04	0.04
31	2.73	0.04	0.04
32	2.93	0.03	0.03
33	3.14	0.03	0.03
34	3.36	0.03	0.03
35	3.60	0.03	0.03
36	3.84	0.02	0.02
37	4.11	0.03	0.03
38	4.39	0.02	0.02
39	4.68	0.02	0.02
40	5.00	0.02	0.02
41	5.33	0.02	0.02
42	5.68	0.02	0.02
43	6.05	0.02	0.02
44	6.45	0.02	0.02
45	6.87	0.02	0.02
46	7.31	0.02	0.02
47	7.78	0.02	0.02
48	8.28	0.02	0.02

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slug/bail test analysis
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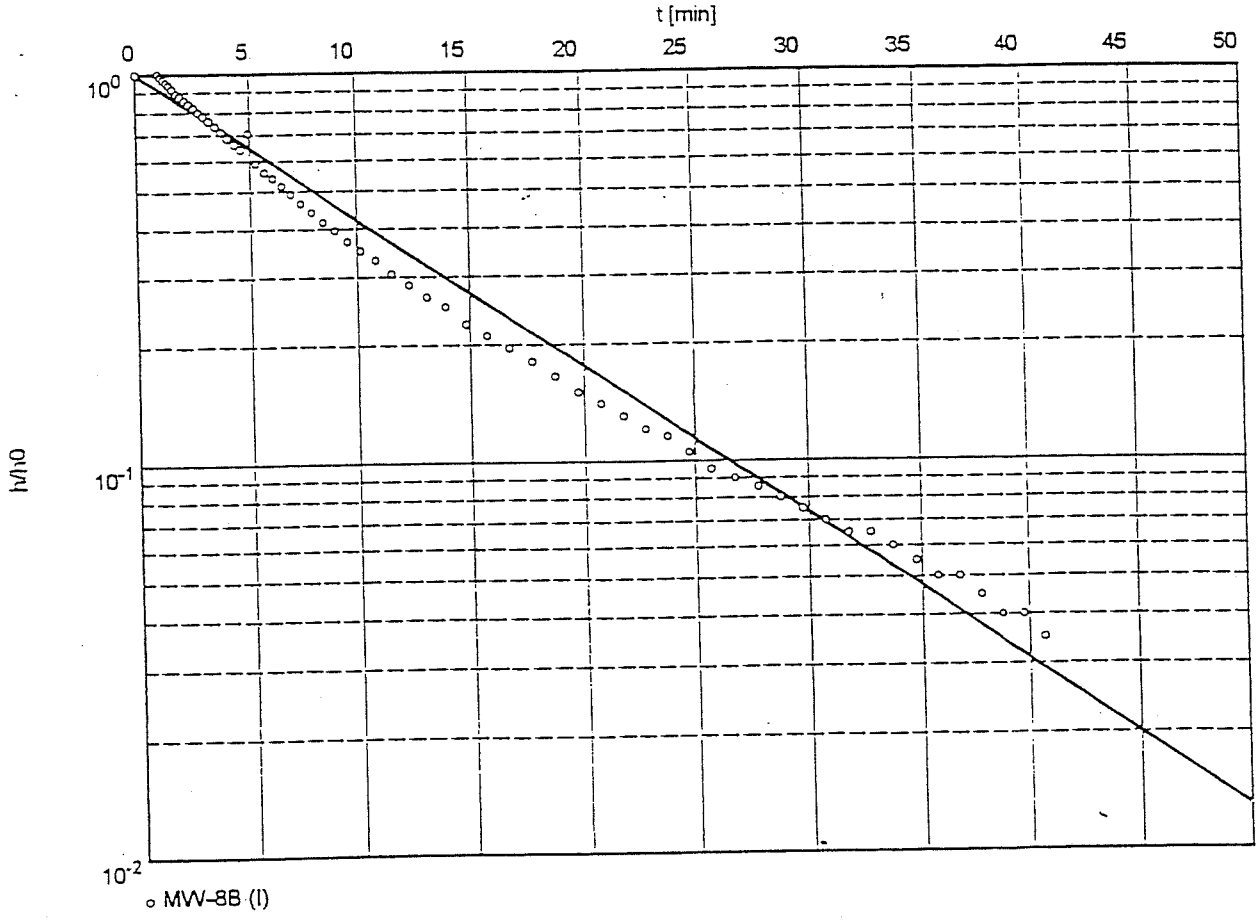
Evaluated by: ZZ

Slug Test No. Slug In (1)	Test conducted on: 8/27/99
MW-8B (I)	



Hydraulic conductivity [ft/min]: 3.77×10^{-4}

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slug/bail test analysis
HVORSLEV's method

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Evaluated by: ZZ

Slug Test No: Slug In (1)

Test conducted on: 8/27/99

MW-8B (I)

MW-8B (I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	2.00	2.00
2	0.06	2.24	2.24
3	0.12	2.25	2.25
4	0.18	2.23	2.23
5	0.26	2.20	2.20
6	0.33	2.17	2.17
7	0.41	2.15	2.15
8	0.49	2.13	2.13
9	0.58	2.10	2.10
10	0.67	2.07	2.07
11	0.77	2.05	2.05
12	0.88	2.03	2.03
13	0.98	2.00	2.00
14	1.10	1.96	1.96
15	1.23	1.93	1.93
16	1.36	1.90	1.90
17	1.50	1.87	1.87
18	1.65	1.83	1.83
19	1.80	1.78	1.78
20	1.97	1.75	1.75
21	2.15	1.71	1.71
22	2.33	1.68	1.68
23	2.53	1.64	1.64
24	2.74	1.60	1.60
25	2.96	1.56	1.56
26	3.20	1.52	1.52
27	3.45	1.47	1.47
28	3.71	1.42	1.42
29	3.99	1.37	1.37
30	4.29	1.32	1.32
31	4.60	1.28	1.28
32	4.93	1.41	1.41
33	5.28	1.18	1.18
34	5.66	1.12	1.12
35	6.05	1.08	1.08
36	6.47	1.03	1.03
37	6.91	0.98	0.98
38	7.38	0.93	0.93
39	7.88	0.88	0.88
40	8.41	0.83	0.83
41	8.97	0.79	0.79
42	9.56	0.74	0.74
43	10.18	0.70	0.70
44	10.85	0.66	0.66
45	11.55	0.61	0.61
46	12.30	0.57	0.57
47	13.09	0.53	0.53
48	13.92	0.50	0.50
49	14.81	0.45	0.45
50	15.75	0.42	0.42

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/10/99	Page: 3
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

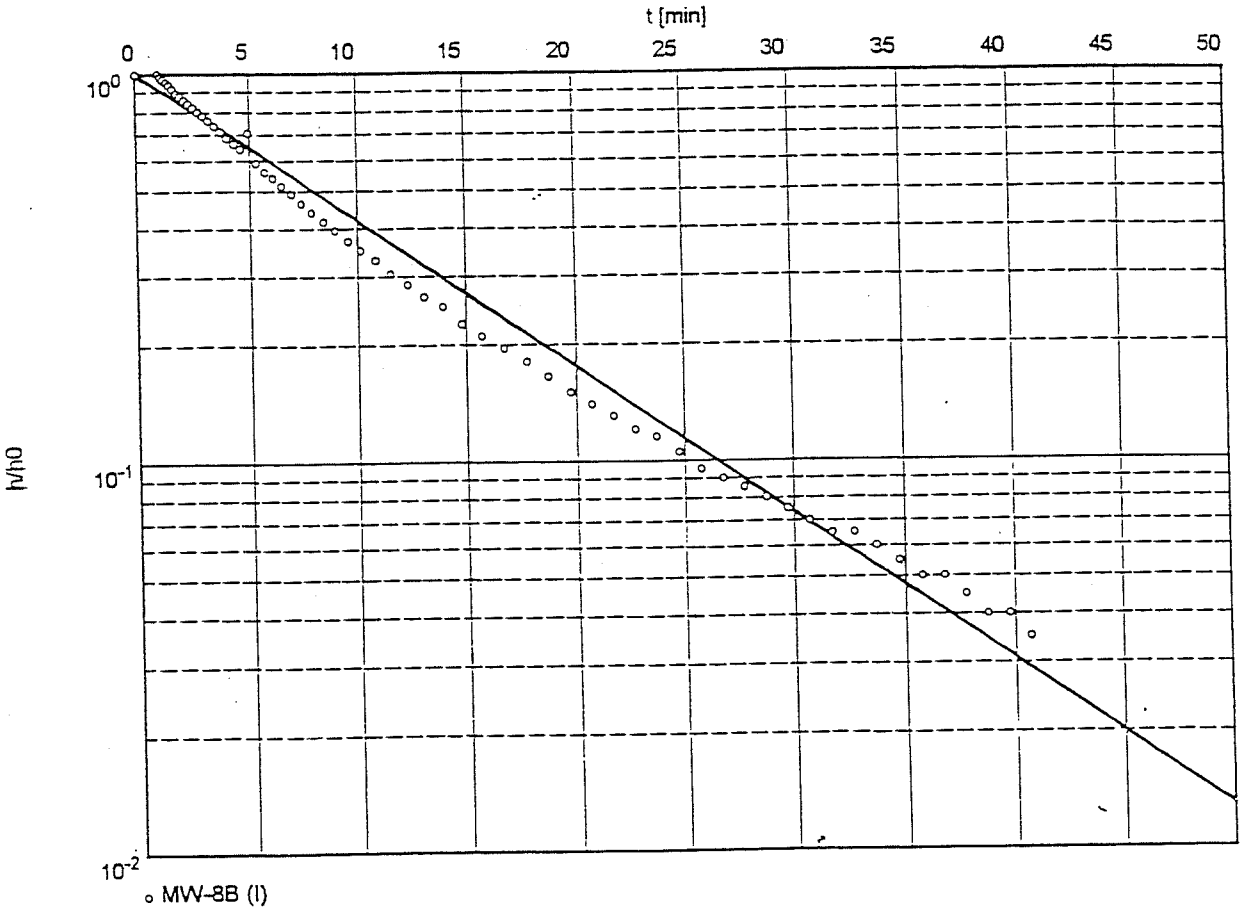
Slug Test No. Slug In (1)	Test conducted on: 8/27/99
MW-8B (I)	MW-8B (I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterievel [ft]
51	16.74	0.39	0.39
52	17.74	0.36	0.36
53	18.74	0.33	0.33
54	19.74	0.30	0.30
55	20.74	0.28	0.28
56	21.74	0.26	0.26
57	22.74	0.24	0.24
58	23.74	0.23	0.23
59	24.74	0.21	0.21
60	25.74	0.19	0.19
61	26.74	0.18	0.18
62	27.74	0.17	0.17
63	28.74	0.16	0.16
64	29.74	0.15	0.15
65	30.74	0.14	0.14
66	31.74	0.13	0.13
67	32.74	0.13	0.13
68	33.74	0.12	0.12
69	34.74	0.11	0.11
70	35.74	0.10	0.10
71	36.74	0.10	0.10
72	37.74	0.09	0.09
73	38.74	0.08	0.08
74	39.74	0.08	0.08
75	40.74	0.07	0.07

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/10/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In (1)	Test conducted on: 8/27/99
MW-8B (I)	



Hydraulic conductivity [ft/min]: 2.51×10^{-4}

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slug/bail test analysis
BOUWER-RICE's method

Date: 12/10/99 | Page: 2

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Evaluated by: ZZ

Slug Test No. Slug In (1)	Test conducted on: 8/27/99
MW-8B (I)	MW-8B (I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	2.00	2.00
2	0.06	2.24	2.24
3	0.12	2.25	2.25
4	0.18	2.23	2.23
5	0.26	2.20	2.20
6	0.33	2.17	2.17
7	0.41	2.15	2.15
8	0.49	2.13	2.13
9	0.58	2.10	2.10
10	0.67	2.07	2.07
11	0.77	2.05	2.05
12	0.88	2.03	2.03
13	0.98	2.00	2.00
14	1.10	1.96	1.96
15	1.23	1.93	1.93
16	1.36	1.90	1.90
17	1.50	1.87	1.87
18	1.65	1.83	1.83
19	1.80	1.78	1.78
20	1.97	1.75	1.75
21	2.15	1.71	1.71
22	2.33	1.68	1.68
23	2.53	1.64	1.64
24	2.74	1.60	1.60
25	2.96	1.56	1.56
26	3.20	1.52	1.52
27	3.45	1.47	1.47
28	3.71	1.42	1.42
29	3.99	1.37	1.37
30	4.29	1.32	1.32
31	4.60	1.28	1.28
32	4.93	1.41	1.41
33	5.28	1.18	1.18
34	5.66	1.12	1.12
35	6.05	1.08	1.08
36	6.47	1.03	1.03
37	6.91	0.98	0.98
38	7.38	0.93	0.93
39	7.88	0.88	0.88
40	8.41	0.83	0.83
41	8.97	0.79	0.79
42	9.56	0.74	0.74
43	10.18	0.70	0.70
44	10.85	0.66	0.66
45	11.55	0.61	0.61
46	12.30	0.57	0.57
47	13.09	0.53	0.53
48	13.92	0.50	0.50
49	14.81	0.45	0.45

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slug/bail test analysis
BOUWER-RICE's method

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Project: B-179 Remedial Investigation

Evaluated by: ZZ

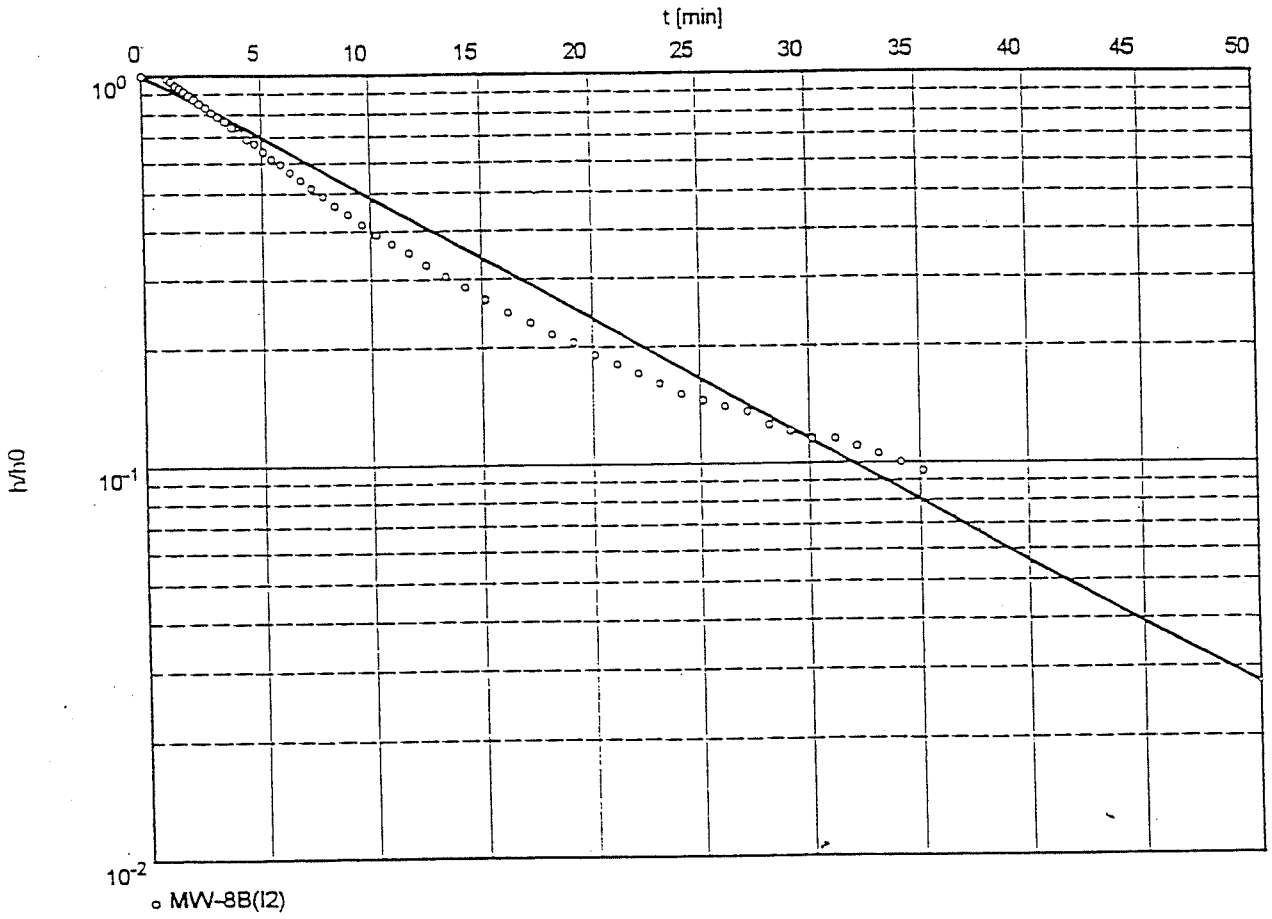
Slug Test No. Slug In (1)	Test conducted on: 8/27/99
MW-8B (I)	MW-8B (I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
51	16.74	0.39	0.39
52	17.74	0.36	0.36
53	18.74	0.33	0.33
54	19.74	0.30	0.30
55	20.74	0.28	0.28
56	21.74	0.26	0.26
57	22.74	0.24	0.24
58	23.74	0.23	0.23
59	24.74	0.21	0.21
60	25.74	0.19	0.19
61	26.74	0.18	0.18
62	27.74	0.17	0.17
63	28.74	0.16	0.16
64	29.74	0.15	0.15
65	30.74	0.14	0.14
66	31.74	0.13	0.13
67	32.74	0.13	0.13
68	33.74	0.12	0.12
69	34.74	0.11	0.11
70	35.74	0.10	0.10
71	36.74	0.10	0.10
72	37.74	0.09	0.09
73	38.74	0.08	0.08
74	39.74	0.08	0.08
75	40.74	0.07	0.07

IRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/10/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In Test (2)	Test conducted on: 8/27/99
MW-8B (I2)	



Hydraulic conductivity [ft/min]: 3.12×10^{-4}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Project: B-179 Remedial Investigation Evaluated by: ZZ

Slug Test No. Slug In Test (2)	Test conducted on: 8/27/99
MW-8B (I2)	MW-8B(I2)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	2.00	2.00
2	1.07	1.96	1.96
3	1.23	1.93	1.93
4	1.39	1.89	1.89
5	1.57	1.86	1.86
6	1.75	1.82	1.82
7	1.95	1.78	1.78
8	2.16	1.74	1.74
9	2.38	1.70	1.70
10	2.62	1.66	1.66
11	2.87	1.61	1.61
12	3.13	1.57	1.57
13	3.41	1.53	1.53
14	3.71	1.48	1.48
15	4.02	1.43	1.43
16	4.35	1.38	1.38
17	4.71	1.34	1.34
18	5.08	1.28	1.28
19	5.47	1.23	1.23
20	5.89	1.19	1.19
21	6.33	1.13	1.13
22	6.81	1.08	1.08
23	7.30	1.03	1.03
24	7.83	0.98	0.98
25	8.39	0.93	0.93
26	8.98	0.88	0.88
27	9.61	0.83	0.83
28	10.27	0.78	0.78
29	10.97	0.74	0.74
30	11.72	0.70	0.70
31	12.51	0.65	0.65
32	13.35	0.61	0.61
33	14.23	0.57	0.57
34	15.17	0.53	0.53
35	16.16	0.49	0.49
36	17.16	0.46	0.46
37	18.16	0.43	0.43
38	19.16	0.41	0.41
39	20.16	0.38	0.38
40	21.16	0.36	0.36
41	22.16	0.34	0.34
42	23.16	0.32	0.32
43	24.16	0.30	0.30
44	25.16	0.29	0.29
45	26.16	0.28	0.28
46	27.16	0.27	0.27
47	28.16	0.25	0.25
48	29.16	0.24	0.24
49	30.16	0.23	0.23
50	31.16	0.23	0.23

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/10/99	Page: 33
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

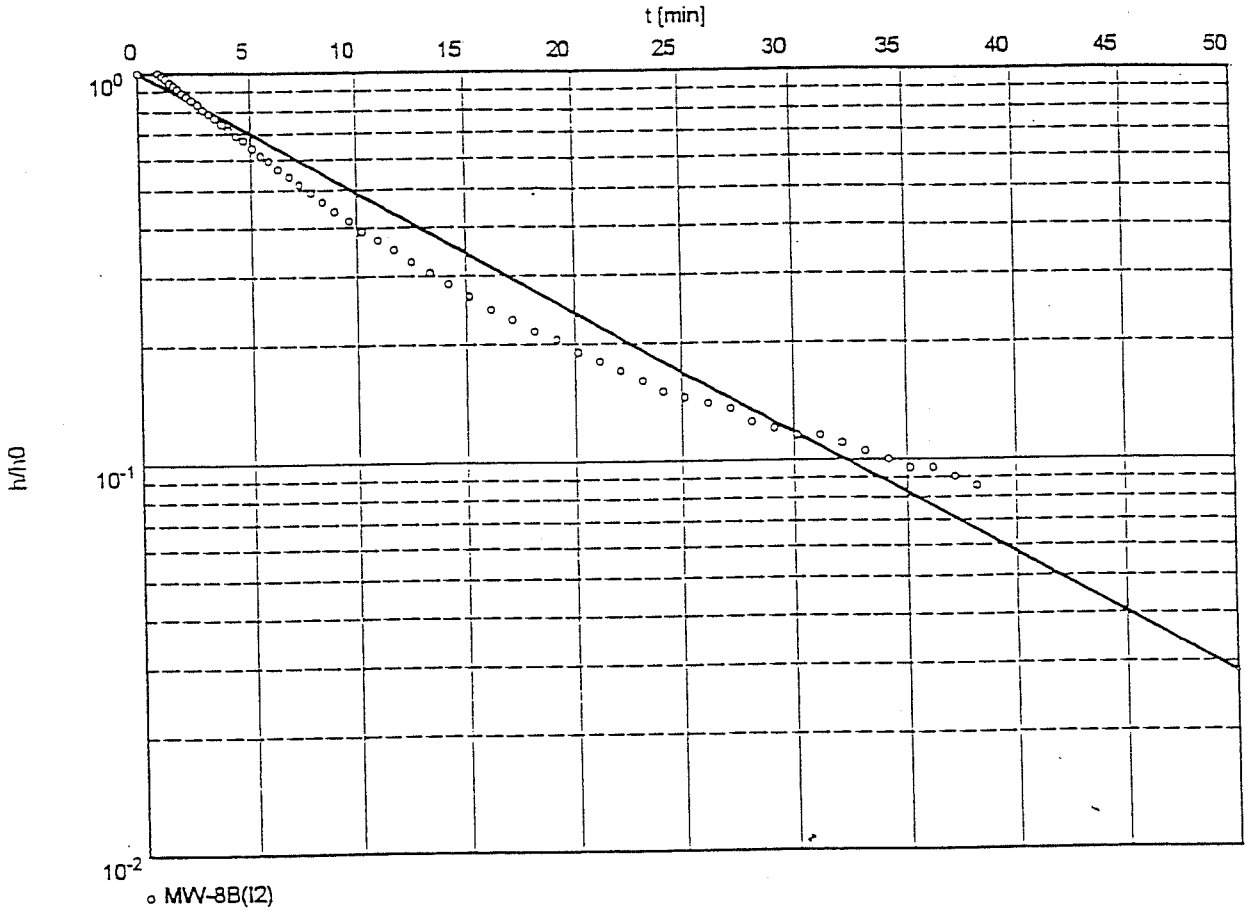
Slug Test No. Slug In Test (2)	Test conducted on: 8/27/99
MW-8B (I2)	MW-8B(I2)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
51	32.16	0.22	0.22
52	33.16	0.21	0.21
53	34.16	0.20	0.20
54	35.16	0.19	0.19

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/10/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In (2)	Test conducted on: 8/27/99
MW-8B (I2)	



Hydraulic conductivity [ft/min]: 2.06×10^{-4}

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slug/bail test analysis
BOUWER-RICE's method

Date: 12/10/99 Page: 2

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Evaluated by: ZZ

Slug Test No. Slug In (2)	Test conducted on: 8/27/99
MW-8B (I2)	MW-8B(I2)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	2.00	2.00
2	0.09	2.20	2.20
3	0.19	2.17	2.17
4	0.30	2.15	2.15
5	0.41	2.12	2.12
6	0.52	2.09	2.09
7	0.65	2.06	2.06
8	0.78	2.03	2.03
9	0.92	2.00	2.00
10	1.07	1.96	1.96
11	1.23	1.93	1.93
12	1.39	1.89	1.89
13	1.57	1.86	1.86
14	1.75	1.82	1.82
15	1.95	1.78	1.78
16	2.16	1.74	1.74
17	2.38	1.70	1.70
18	2.62	1.66	1.66
19	2.87	1.61	1.61
20	3.13	1.57	1.57
21	3.41	1.53	1.53
22	3.71	1.48	1.48
23	4.02	1.43	1.43
24	4.35	1.38	1.38
25	4.71	1.34	1.34
26	5.08	1.28	1.28
27	5.47	1.23	1.23
28	5.89	1.19	1.19
29	6.33	1.13	1.13
30	6.81	1.08	1.08
31	7.30	1.03	1.03
32	7.83	0.98	0.98
33	8.39	0.93	0.93
34	8.98	0.88	0.88
35	9.61	0.83	0.83
36	10.27	0.78	0.78
37	10.97	0.74	0.74
38	11.72	0.70	0.70
39	12.51	0.65	0.65
40	13.35	0.61	0.61
41	14.23	0.57	0.57
42	15.17	0.53	0.53
43	16.16	0.49	0.49
44	17.16	0.46	0.46
45	18.16	0.43	0.43
46	19.16	0.41	0.41
47	20.16	0.38	0.38
48	21.16	0.36	0.36
49	22.16	0.34	0.34

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BOUWER-RICE's method

Date: 12/10/99 Pages:

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Evaluated by: ZZ

Slug Test No. Slug In (2)	Test conducted on: 8/27/99
MW-8B (I2)	MW-8B(I2)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
51	24.16	0.30	0.30
52	25.16	0.29	0.29
53	26.16	0.28	0.28
54	27.16	0.27	0.27
55	28.16	0.25	0.25
56	29.16	0.24	0.24
57	30.16	0.23	0.23
58	31.16	0.23	0.23
59	32.16	0.22	0.22
60	33.16	0.21	0.21
61	34.16	0.20	0.20
62	35.16	0.19	0.19
63	36.16	0.19	0.19
64	37.16	0.18	0.18
65	38.16	0.17	0.17

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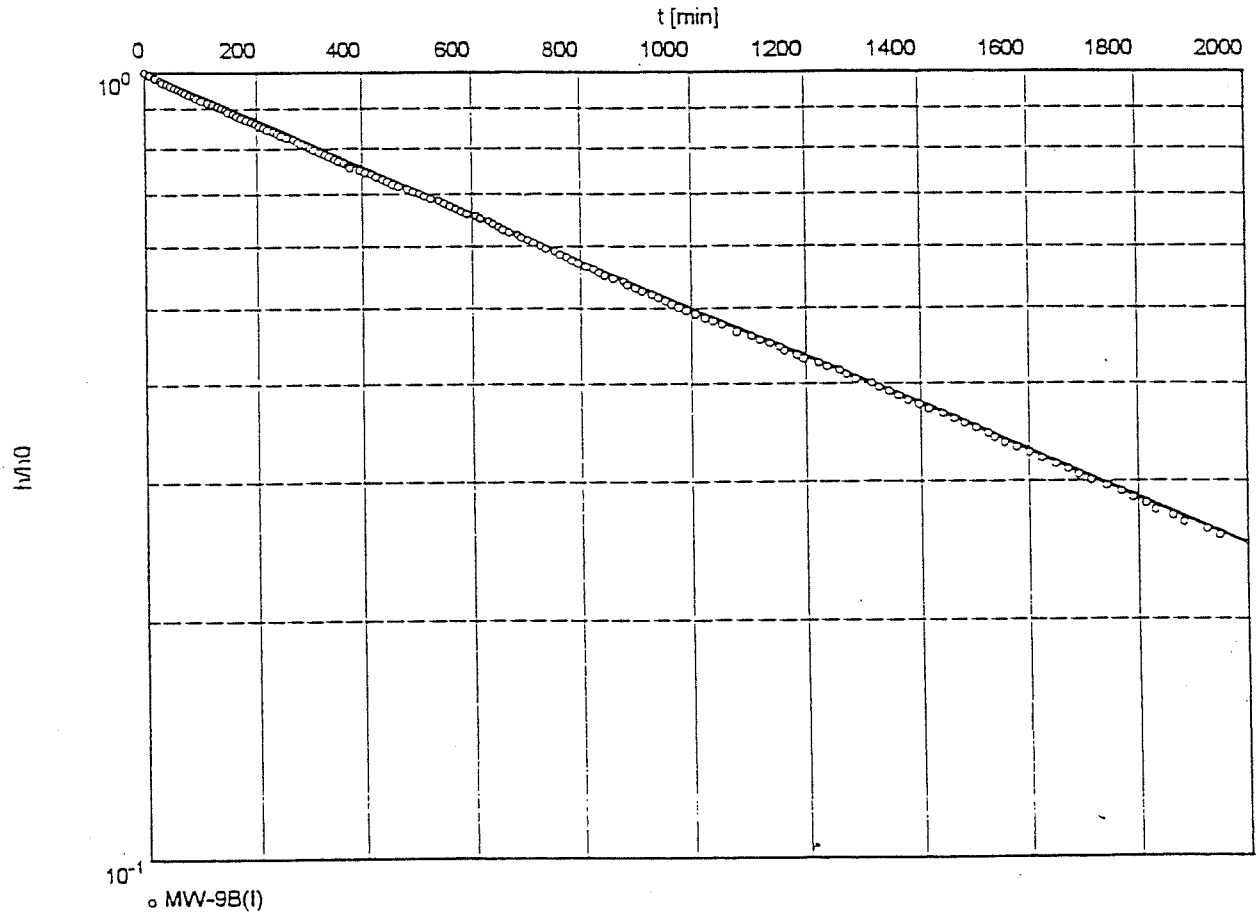
Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-9B(I)	



Hydraulic conductivity [ft/min]: 3.01×10^{-5}

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slug/bail test analysis
HVORSLEV's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-9B(I)	MW-9B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	2.00	2.00
2	8.77	1.99	1.99
3	10.55	1.98	1.98
4	18.10	1.97	1.97
5	20.10	1.96	1.96
6	28.10	1.95	1.95
7	32.10	1.94	1.94
8	40.10	1.93	1.93
9	46.10	1.92	1.92
10	54.10	1.91	1.91
11	61.10	1.90	1.90
12	66.10	1.89	1.89
13	72.10	1.88	1.88
14	80.10	1.87	1.87
15	88.10	1.86	1.86
16	92.10	1.85	1.85
17	100.10	1.84	1.84
18	112.10	1.83	1.83
19	122.10	1.82	1.82
20	130.10	1.81	1.81
21	137.10	1.80	1.80
22	144.10	1.79	1.79
23	149.10	1.78	1.78
24	158.10	1.77	1.77
25	164.10	1.76	1.76
26	172.10	1.75	1.75
27	181.10	1.74	1.74
28	190.10	1.73	1.73
29	197.10	1.72	1.72
30	205.10	1.71	1.71
31	213.10	1.70	1.70
32	220.10	1.69	1.69
33	232.10	1.68	1.68
34	239.10	1.67	1.67
35	245.10	1.66	1.66
36	255.10	1.65	1.65
37	270.10	1.64	1.64
38	277.10	1.63	1.63
39	284.10	1.62	1.62
40	294.10	1.61	1.61
41	301.10	1.60	1.60
42	307.10	1.59	1.59
43	319.10	1.58	1.58
44	330.10	1.57	1.57
45	338.10	1.56	1.56
46	348.10	1.55	1.55
47	355.10	1.54	1.54
48	366.10	1.53	1.53
49	374.10	1.52	1.52
50	378.10	1.51	1.51

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/13/99	Page: 38
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-9B(I)	MW-9B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]	
51	396.10	1.50	1.50	
52	406.10	1.49	1.49	
53	417.10	1.48	1.48	
54	426.10	1.47	1.47	
55	439.10	1.46	1.46	
56	447.10	1.45	1.45	
57	456.10	1.44	1.44	
58	466.10	1.43	1.43	
59	483.10	1.42	1.42	
60	492.10	1.41	1.41	
61	504.10	1.40	1.40	
62	512.10	1.39	1.39	
63	524.10	1.38	1.38	
64	540.10	1.37	1.37	
65	549.10	1.36	1.36	
66	559.10	1.35	1.35	
67	569.10	1.34	1.34	
68	580.10	1.33	1.33	
69	591.10	1.32	1.32	
70	608.10	1.31	1.31	
71	615.10	1.30	1.30	
72	632.10	1.29	1.29	
73	640.10	1.28	1.28	
74	650.10	1.27	1.27	
75	657.10	1.26	1.26	
76	669.10	1.25	1.25	
77	686.10	1.24	1.24	
78	692.10	1.23	1.23	
79	704.10	1.22	1.22	
80	714.10	1.21	1.21	
81	727.10	1.20	1.20	
82	737.10	1.19	1.19	
83	754.10	1.18	1.18	
84	763.10	1.17	1.17	
85	774.10	1.16	1.16	
86	784.10	1.15	1.15	
87	795.10	1.14	1.14	
88	811.10	1.13	1.13	
89	823.10	1.12	1.12	
90	833.10	1.11	1.11	
91	843.10	1.10	1.10	
92	859.10	1.09	1.09	
93	878.10	1.08	1.08	
94	884.10	1.07	1.07	
95	899.10	1.06	1.06	
96	911.10	1.05	1.05	
97	928.10	1.04	1.04	
98	940.10	1.03	1.03	
99	954.10	1.02	1.02	

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slug/bail test analysis
HVORSLEV's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

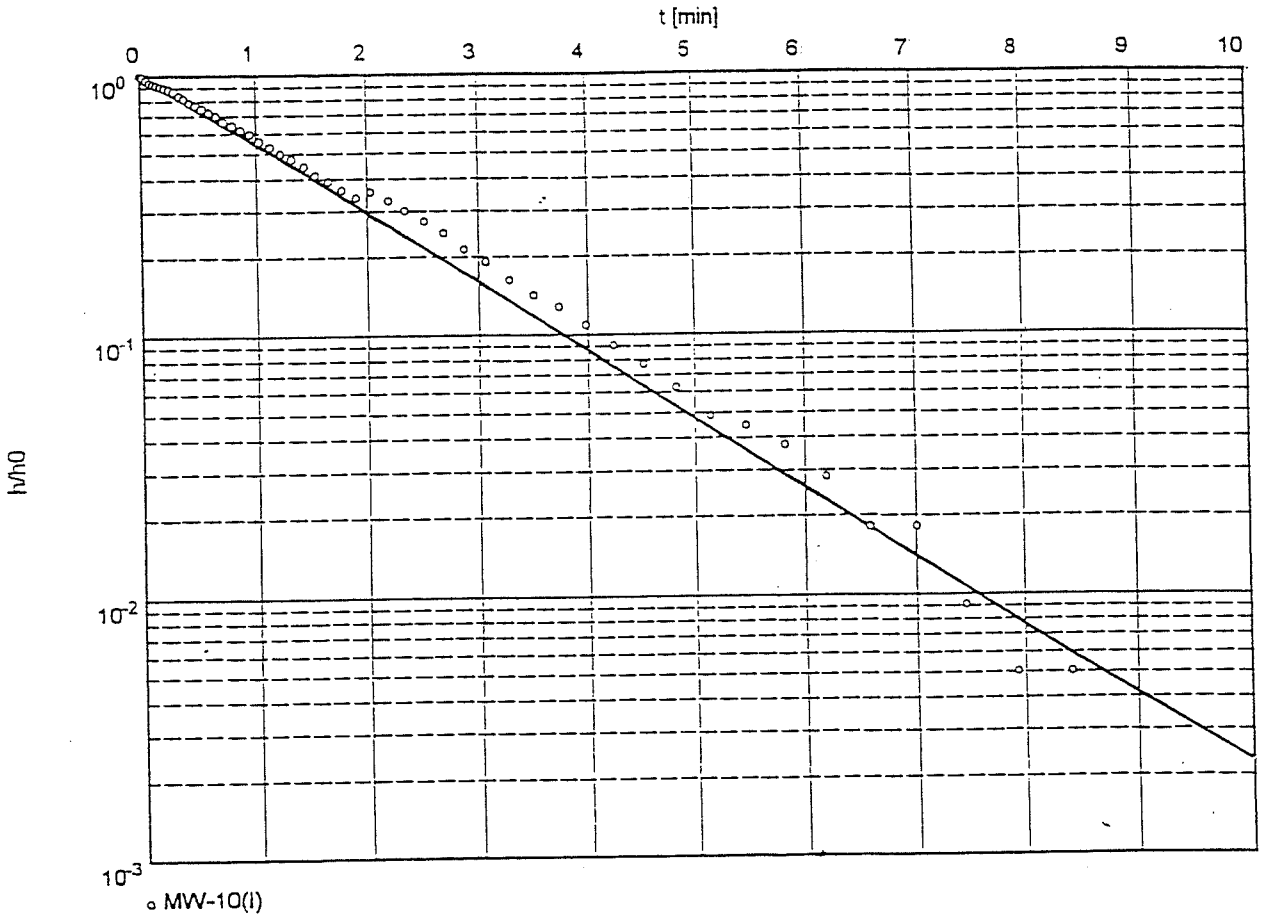
Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-9B(I)	MW-9B(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
101	978.10	1.00	1.00
102	991.10	0.99	0.99
103	1008.10	0.98	0.98
104	1024.10	0.97	0.97
105	1039.10	0.96	0.96
106	1055.10	0.95	0.95
107	1081.10	0.93	0.93
108	1106.10	0.92	0.92
109	1122.10	0.91	0.91
110	1138.10	0.90	0.90
111	1155.10	0.89	0.89
112	1164.10	0.88	0.88
113	1186.10	0.87	0.87
114	1196.10	0.86	0.86
115	1223.10	0.85	0.85
116	1239.10	0.84	0.84
117	1259.10	0.83	0.83
118	1272.10	0.82	0.82
119	1289.10	0.81	0.81
120	1316.10	0.80	0.80
121	1329.10	0.79	0.79
122	1346.10	0.78	0.78
123	1361.10	0.77	0.77
124	1378.10	0.76	0.76
125	1398.10	0.75	0.75
126	1414.10	0.74	0.74
127	1440.10	0.73	0.73
128	1459.10	0.72	0.72
129	1478.10	0.71	0.71
130	1500.10	0.70	0.70
131	1523.10	0.69	0.69
132	1534.10	0.68	0.68
133	1554.10	0.67	0.67
134	1576.10	0.66	0.66
135	1600.10	0.65	0.65
136	1625.10	0.64	0.64
137	1650.10	0.63	0.63
138	1672.10	0.62	0.62
139	1692.10	0.61	0.61
140	1714.10	0.60	0.60
141	1743.10	0.59	0.59
142	1769.10	0.58	0.58
143	1791.10	0.57	0.57
144	1814.10	0.56	0.56
145	1832.10	0.55	0.55
146	1863.10	0.54	0.54
147	1883.10	0.53	0.53
148	1925.10	0.52	0.52
149	1947.10	0.51	0.51

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/15/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-10	



Hydraulic conductivity [ft/min]: 2.21×10^{-3}

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slug/bail test analysis
BOUWER-RICE's method

Date: 12/15/99 Page 2

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Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-10	MW-10(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	0.99	0.99
2	0.03	0.98	0.98
3	0.05	0.95	0.95
4	0.08	0.93	0.93
5	0.11	0.92	0.92
6	0.14	0.91	0.91
7	0.18	0.90	0.90
8	0.21	0.89	0.89
9	0.25	0.88	0.88
10	0.29	0.86	0.86
11	0.34	0.83	0.83
12	0.38	0.81	0.81
13	0.43	0.78	0.78
14	0.48	0.76	0.76
15	0.54	0.74	0.74
16	0.60	0.72	0.72
17	0.66	0.69	0.69
18	0.72	0.66	0.66
19	0.79	0.64	0.64
20	0.87	0.61	0.61
21	0.94	0.59	0.59
22	1.03	0.55	0.55
23	1.12	0.53	0.53
24	1.21	0.50	0.50
25	1.31	0.47	0.47
26	1.41	0.44	0.44
27	1.52	0.41	0.41
28	1.64	0.39	0.39
29	1.76	0.36	0.36
30	1.90	0.33	0.33
31	2.04	0.35	0.35
32	2.19	0.32	0.32
33	2.34	0.30	0.30
34	2.51	0.27	0.27
35	2.69	0.24	0.24
36	2.87	0.21	0.21
37	3.07	0.19	0.19
38	3.28	0.16	0.16
39	3.50	0.14	0.14
40	3.74	0.13	0.13
41	3.99	0.11	0.11
42	4.25	0.09	0.09
43	4.53	0.08	0.08
44	4.82	0.06	0.06
45	5.14	0.05	0.05
46	5.47	0.04	0.04
47	5.82	0.04	0.04
48	6.19	0.03	0.03
49	6.59	0.02	0.02
50	7.01	0.02	0.02

5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

BOUWER-RICE's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-10	MW-10(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	7.45	0.01	0.01	
52	7.92	0.01	0.01	
53	8.42	0.01	0.01	

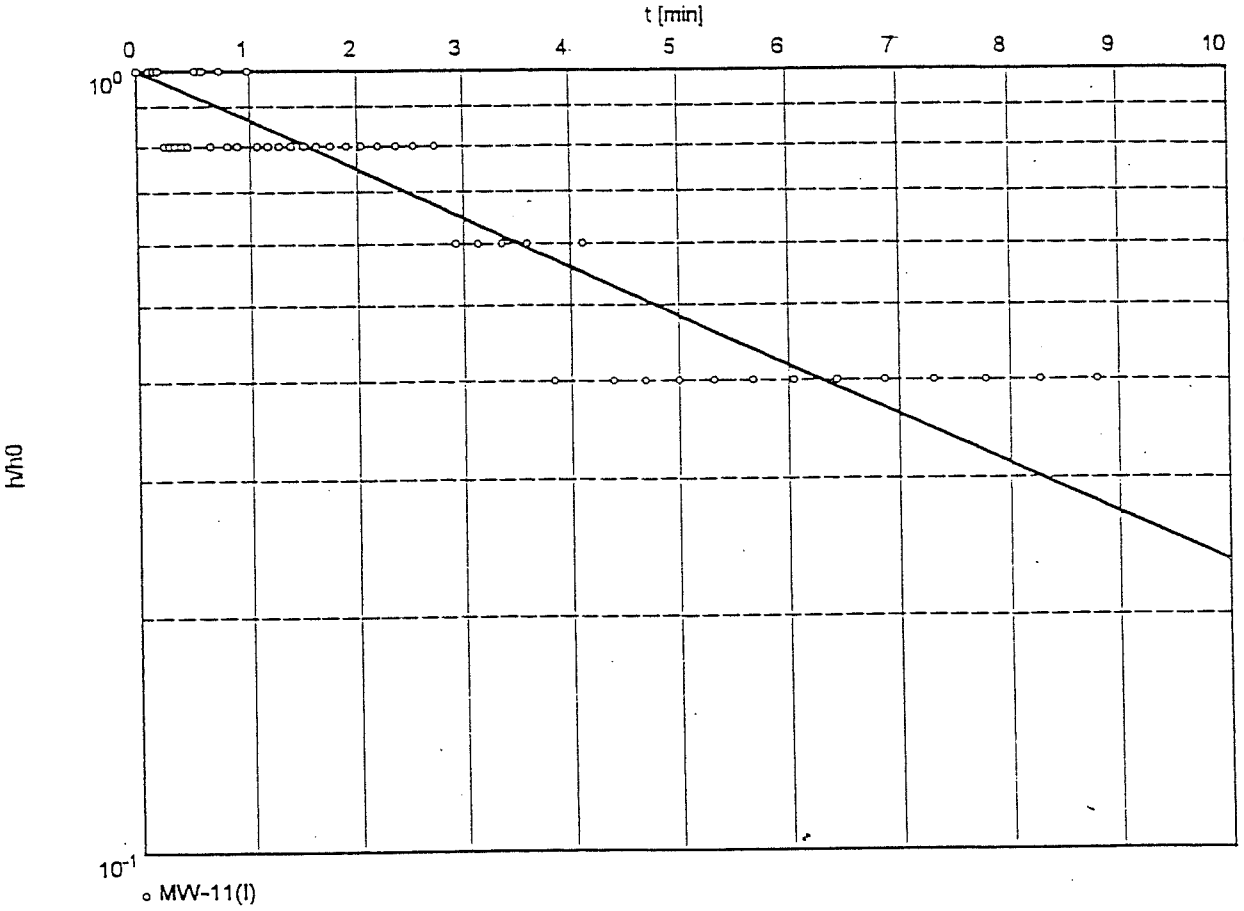
TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

Slug test analysis
BOUWER-RICE's method

Project: B-179 Remedial Investigation

Evaluated by: ZZ

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-11	



Hydraulic conductivity [ft/min]: 2.47×10^{-4}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/15/99	Page: 2
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

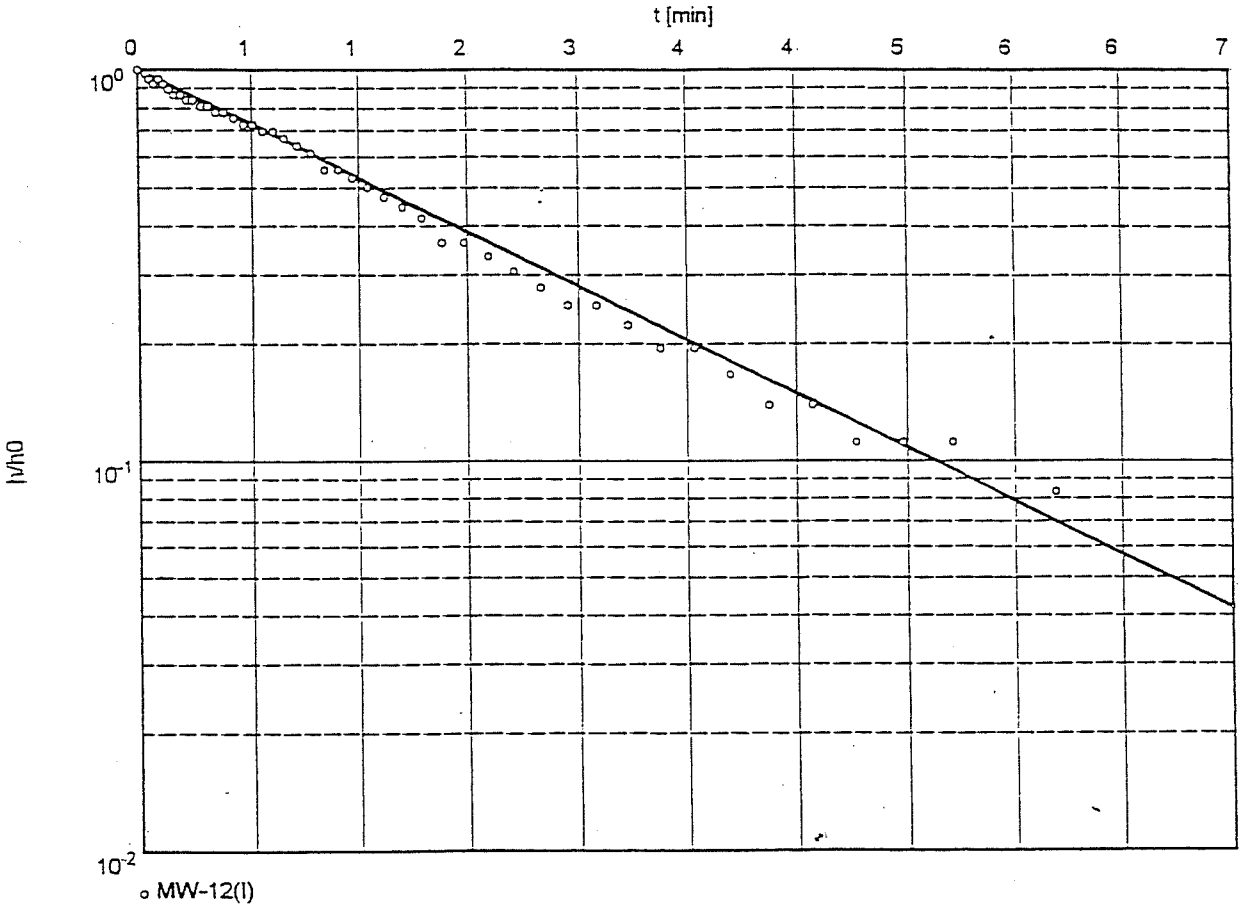
Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-11	MW-11(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	0.05	0.05	
2	0.04	0.07	0.07	
3	0.07	0.06	0.06	
4	0.11	0.05	0.05	
5	0.15	0.05	0.05	
6	0.19	0.05	0.05	
7	0.24	0.04	0.04	
8	0.29	0.04	0.04	
9	0.34	0.04	0.04	
10	0.40	0.04	0.04	
11	0.45	0.04	0.04	
12	0.52	0.05	0.05	
13	0.58	0.05	0.05	
14	0.65	0.04	0.04	
15	0.73	0.05	0.05	
16	0.80	0.04	0.04	
17	0.89	0.04	0.04	
18	0.98	0.05	0.05	
19	1.07	0.04	0.04	
20	1.17	0.04	0.04	
21	1.27	0.04	0.04	
22	1.38	0.04	0.04	
23	1.50	0.04	0.04	
24	1.62	0.04	0.04	
25	1.75	0.04	0.04	
26	1.90	0.04	0.04	
27	2.04	0.04	0.04	
28	2.20	0.04	0.04	
29	2.37	0.04	0.04	
30	2.54	0.04	0.04	
31	2.73	0.04	0.04	
32	2.93	0.03	0.03	
33	3.14	0.03	0.03	
34	3.36	0.03	0.03	
35	3.60	0.03	0.03	
36	3.84	0.02	0.02	
37	4.11	0.03	0.03	
38	4.39	0.02	0.02	
39	4.68	0.02	0.02	
40	5.00	0.02	0.02	
41	5.33	0.02	0.02	
42	5.68	0.02	0.02	
43	6.05	0.02	0.02	
44	6.45	0.02	0.02	
45	6.87	0.02	0.02	
46	7.31	0.02	0.02	
47	7.78	0.02	0.02	
48	8.28	0.02	0.02	
49	8.80	0.02	0.02	

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/15/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-12	



Hydraulic conductivity [ft/min]: 9.64×10^{-4}

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/15/99	Page 2
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

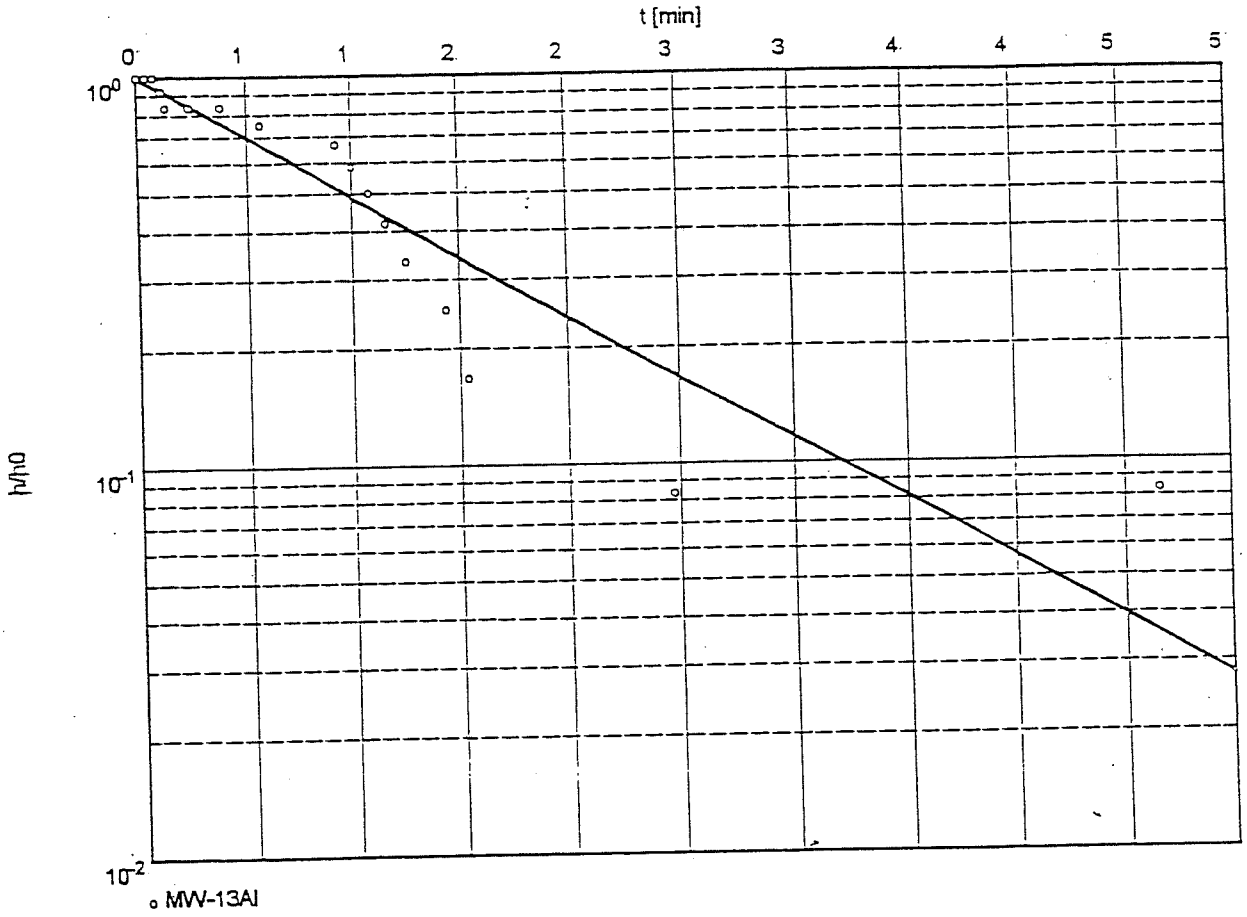
Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-12	MW-12(I)

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	0.36	0.36
2	0.05	0.35	0.35
3	0.07	0.34	0.34
4	0.10	0.33	0.33
5	0.13	0.34	0.34
6	0.16	0.33	0.33
7	0.19	0.32	0.32
8	0.22	0.31	0.31
9	0.26	0.31	0.31
10	0.30	0.30	0.30
11	0.34	0.30	0.30
12	0.39	0.29	0.29
13	0.43	0.29	0.29
14	0.48	0.28	0.28
15	0.53	0.28	0.28
16	0.59	0.27	0.27
17	0.65	0.26	0.26
18	0.71	0.26	0.26
19	0.77	0.25	0.25
20	0.84	0.25	0.25
21	0.91	0.24	0.24
22	0.99	0.23	0.23
23	1.08	0.22	0.22
24	1.17	0.20	0.20
25	1.26	0.20	0.20
26	1.36	0.19	0.19
27	1.46	0.18	0.18
28	1.57	0.17	0.17
29	1.69	0.16	0.16
30	1.81	0.15	0.15
31	1.94	0.13	0.13
32	2.08	0.13	0.13
33	2.23	0.12	0.12
34	2.39	0.11	0.11
35	2.56	0.10	0.10
36	2.73	0.09	0.09
37	2.92	0.09	0.09
38	3.12	0.08	0.08
39	3.33	0.07	0.07
40	3.55	0.07	0.07
41	3.78	0.06	0.06
42	4.03	0.05	0.05
43	4.30	0.05	0.05
44	4.58	0.04	0.04
45	4.87	0.04	0.04
46	5.19	0.04	0.04
47	5.87	0.03	0.03

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis BOUWER-RICE's method	Date: 12/10/99	Page: 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-13A	



Hydraulic conductivity [ft/min]: 1.47×10^{-3}

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

slug/bail test analysis
BOUWER-RICE's method

Date: 12/16/99 | Page: 21

Project: B-179 Remedial Investigation

Evaluated by: ZZ

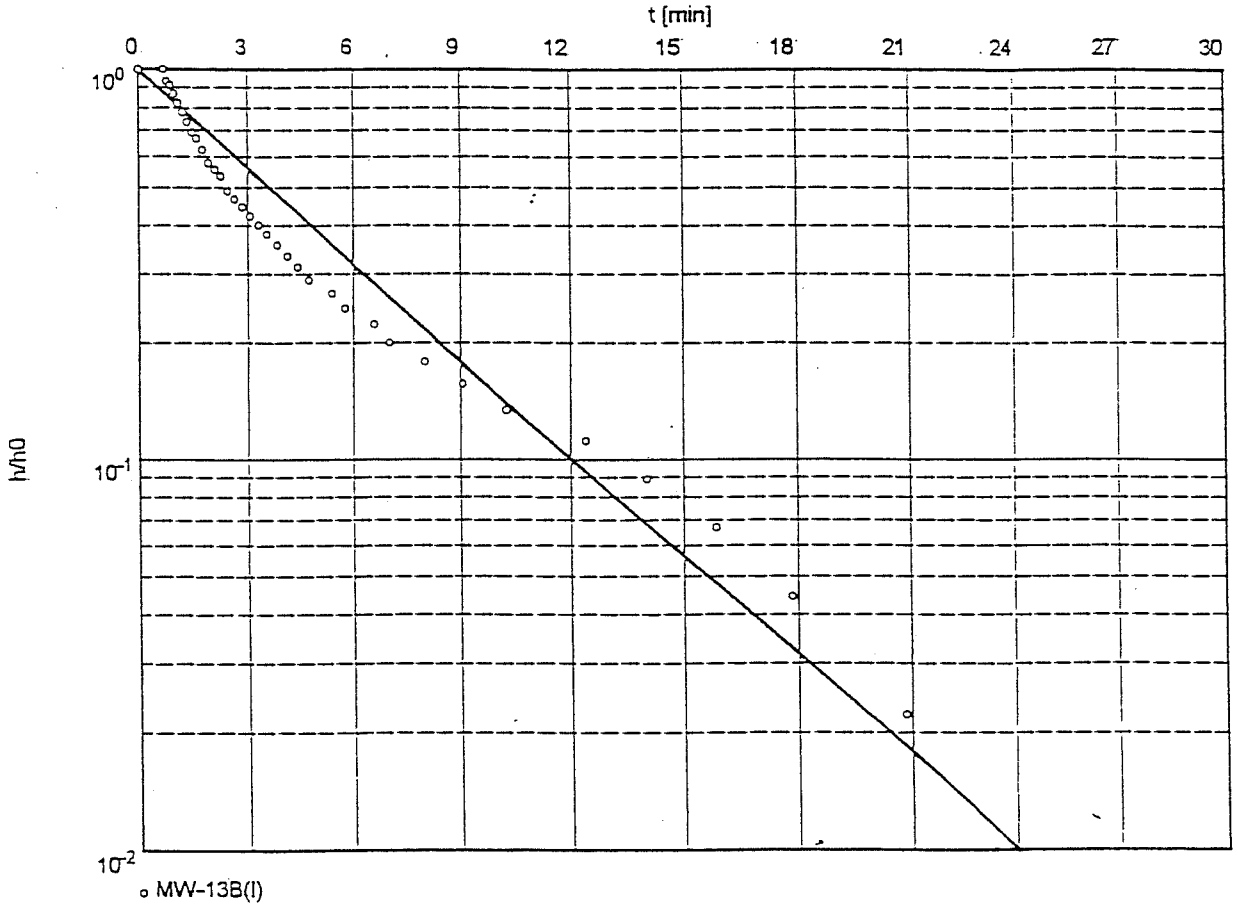
Slug Test No. Slug In Test	Test conducted on: 8/31/99
MW-13A	MW-13AI

Static water level: 0.00 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	0.12	0.12
2	0.04	0.12	0.12
3	0.08	0.12	0.12
4	0.11	0.11	0.11
5	0.13	0.10	0.10
6	0.24	0.10	0.10
7	0.38	0.10	0.10
8	0.56	0.09	0.09
9	0.92	0.08	0.08
10	1.00	0.07	0.07
11	1.08	0.06	0.06
12	1.16	0.05	0.05
13	1.25	0.04	0.04
14	1.44	0.03	0.03
15	1.54	0.02	0.02
16	2.47	0.01	0.01
17	4.66	0.01	0.01

TRC Environmental 5 Waterside Crossing Windsor, CT 06095 (860)289-8631	slug/bail test analysis HVORSLEV's method	Date: 12/16/99	Page 1
		Project: B-179 Remedial Investigation	
		Evaluated by: ZZ	

Slug Test No. Slut In Test	Test conducted on: 8/31/99
MW-13B	



Hydraulic conductivity [ft/min]: 8.05×10^{-4}

TRC Environmental
5 Waterside Crossing
Windsor, CT 06095
(860)289-8631

Slug/bail test analysis
HVORSLEV's method

Date: 12/16/99 | Page: 2

Project: B-179 Remedial Investigation

Evaluated by: ZZ

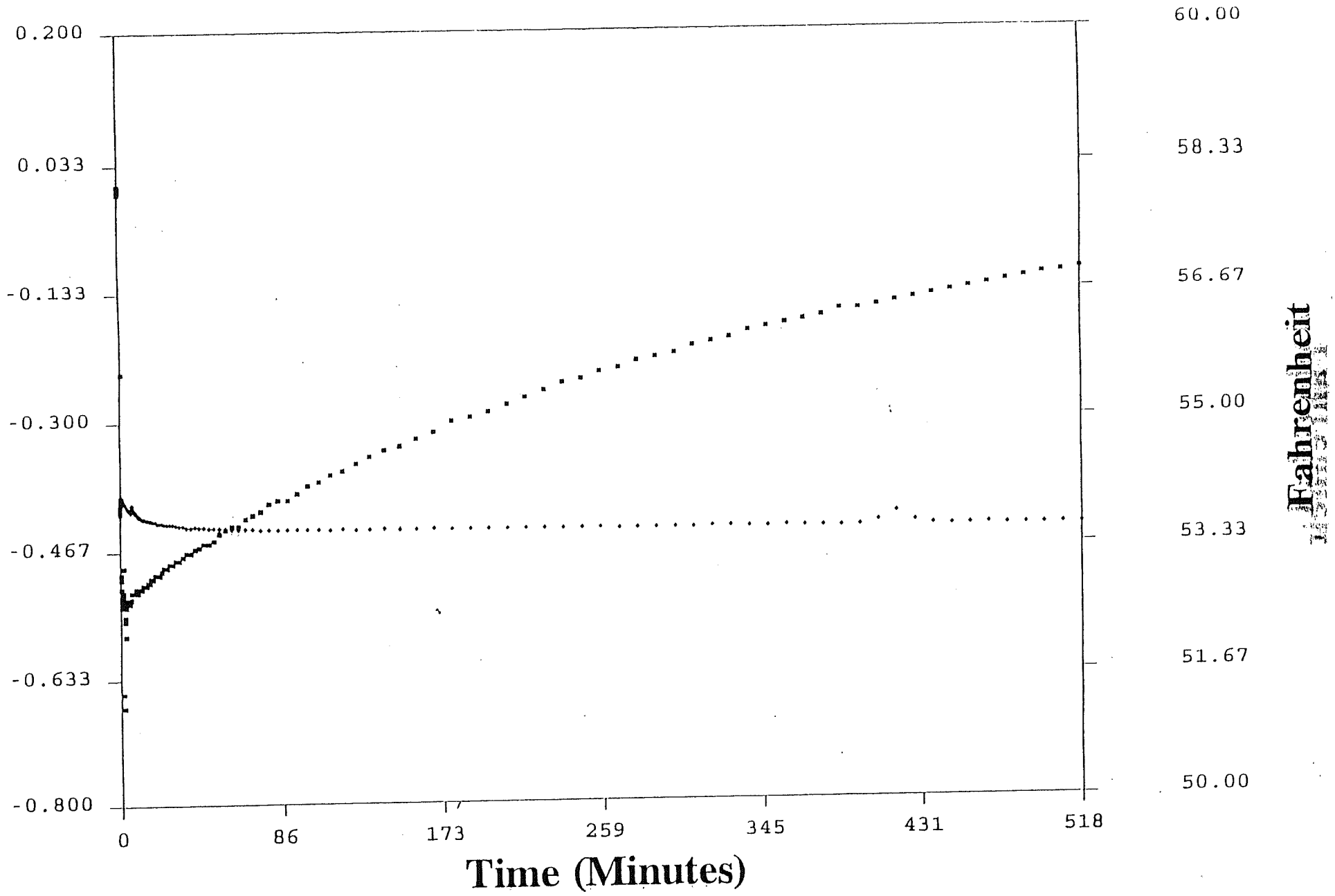
Slug Test No. Slut In Test	Test conducted on: 8/31/99
MW-13B	MW-13B(I)

Static water level: 0.00 ft below datum

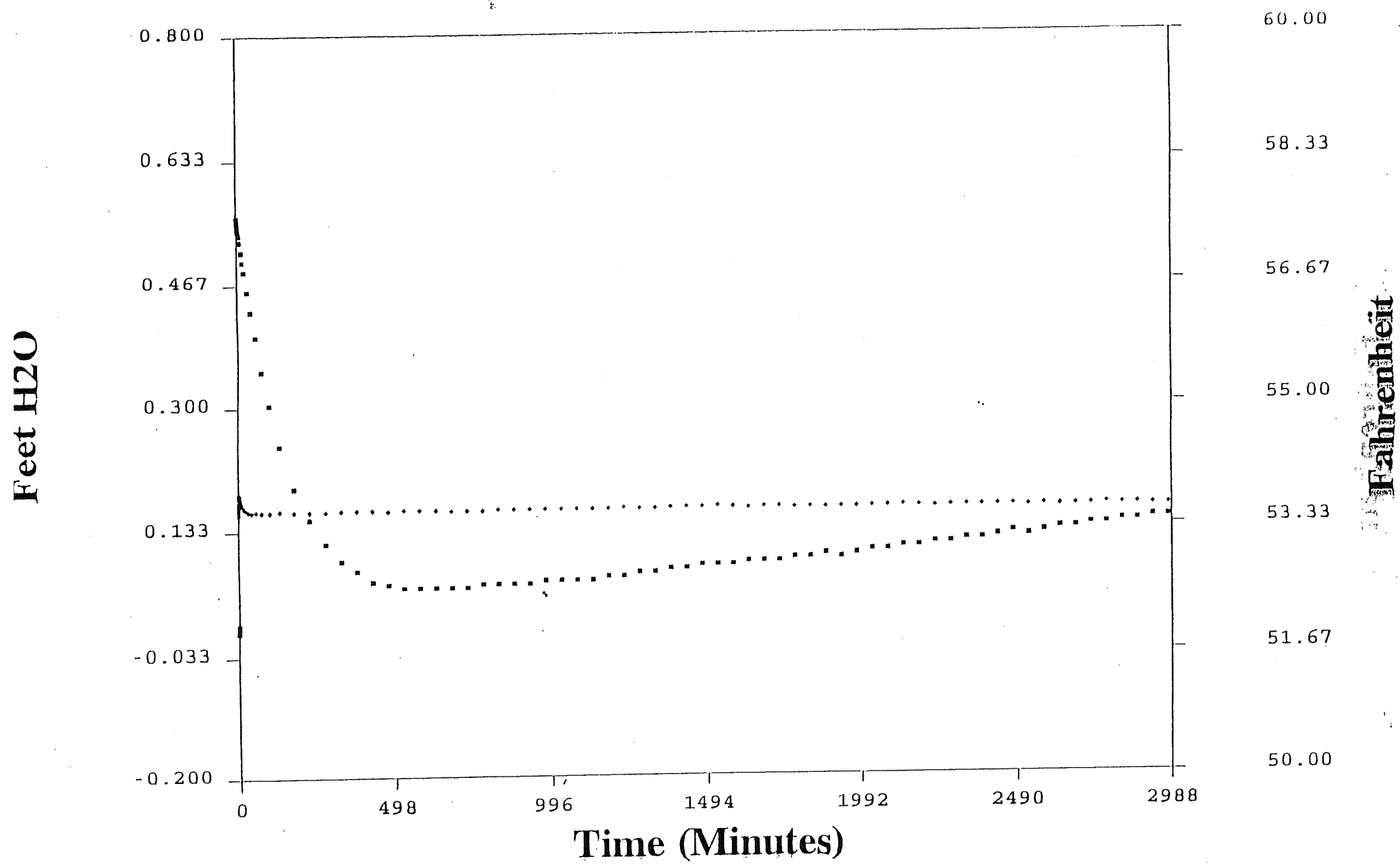
	Pumping test duration [min]	Water level [ft]	Change in Waterlevel [ft]
1	0.00	0.45	0.45
2	0.05	0.62	0.62
3	0.11	0.60	0.60
4	0.16	0.58	0.58
5	0.23	0.57	0.57
6	0.29	0.55	0.55
7	0.36	0.52	0.52
8	0.43	0.51	0.51
9	0.51	0.48	0.48
10	0.60	0.46	0.46
11	0.69	0.45	0.45
12	0.78	0.42	0.42
13	0.88	0.41	0.41
14	0.98	0.39	0.39
15	1.09	0.37	0.37
16	1.21	0.35	0.35
17	1.33	0.33	0.33
18	1.47	0.31	0.31
19	1.60	0.30	0.30
20	1.75	0.28	0.28
21	1.91	0.26	0.26
22	2.08	0.25	0.25
23	2.25	0.24	0.24
24	2.44	0.22	0.22
25	2.64	0.21	0.21
26	2.85	0.20	0.20
27	3.07	0.19	0.19
28	3.31	0.18	0.18
29	3.55	0.17	0.17
30	3.82	0.16	0.16
31	4.10	0.15	0.15
32	4.39	0.14	0.14
33	4.71	0.13	0.13
34	5.39	0.12	0.12
35	5.76	0.11	0.11
36	6.58	0.10	0.10
37	7.02	0.09	0.09
38	7.99	0.08	0.08
39	9.07	0.07	0.07
40	10.29	0.06	0.06
41	12.40	0.05	0.05
42	14.03	0.04	0.04
43	15.85	0.03	0.03
44	17.85	0.02	0.02
45	20.85	0.01	0.01

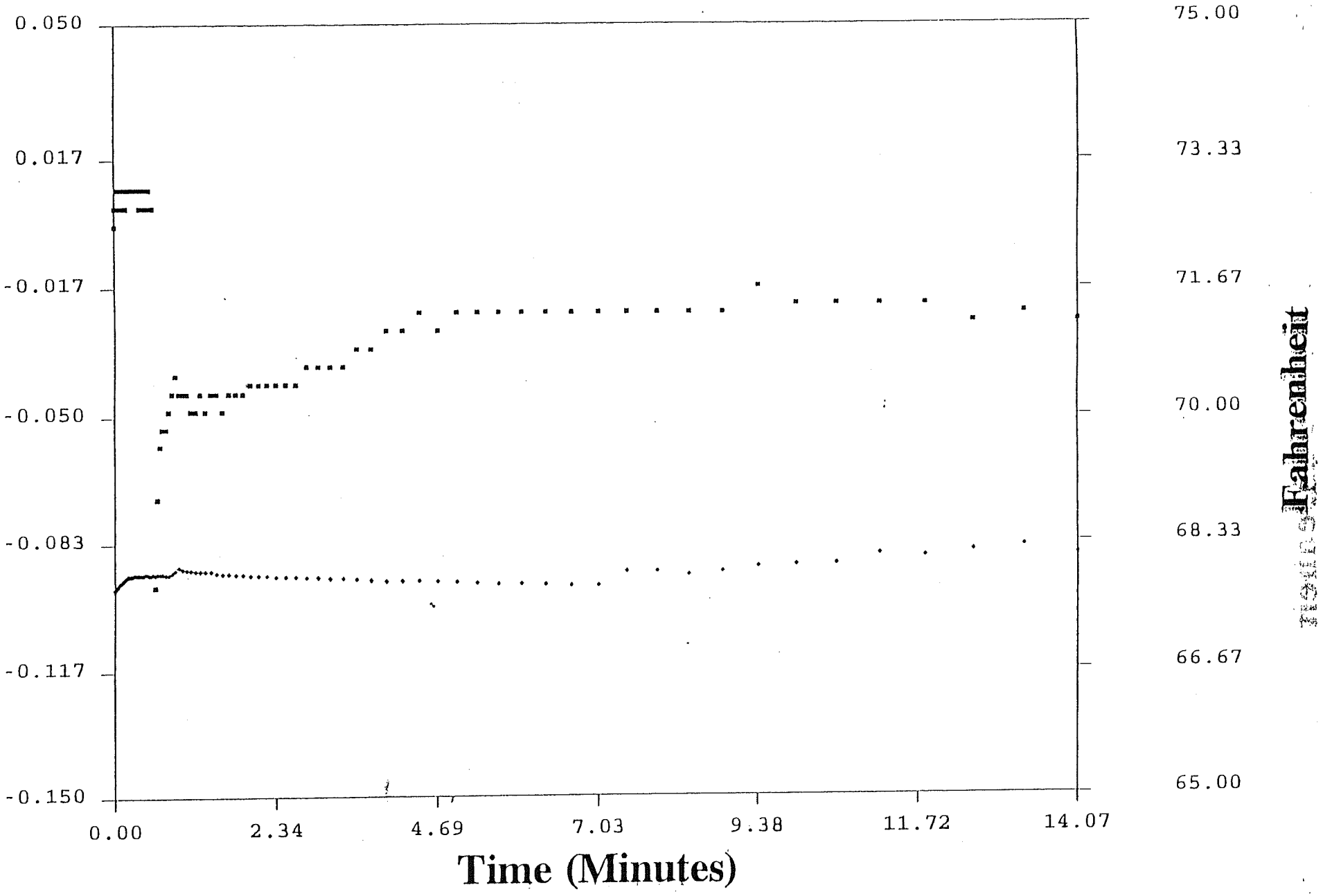
APPENDIX D

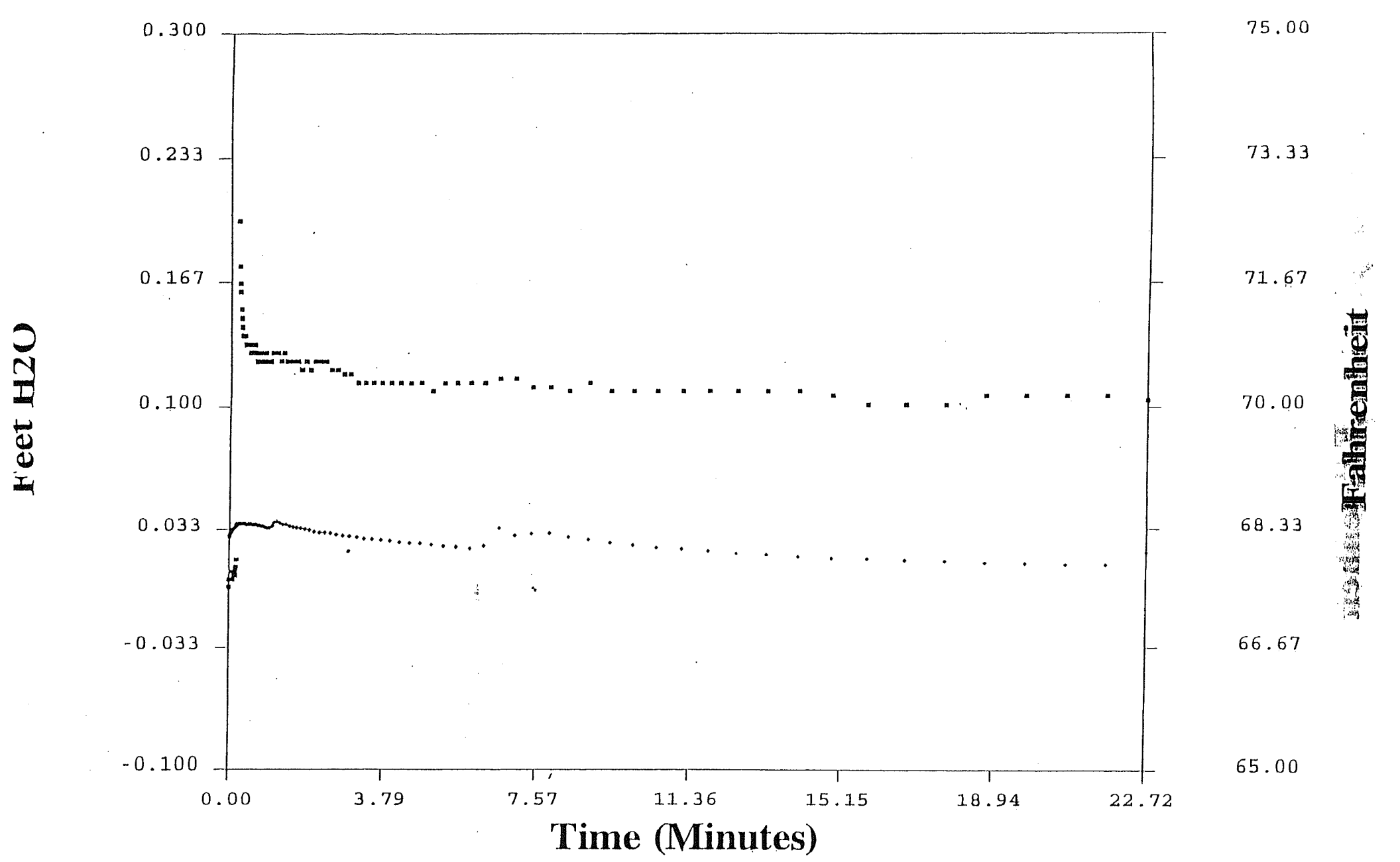
SLUG TEST HYDROGRAPHS

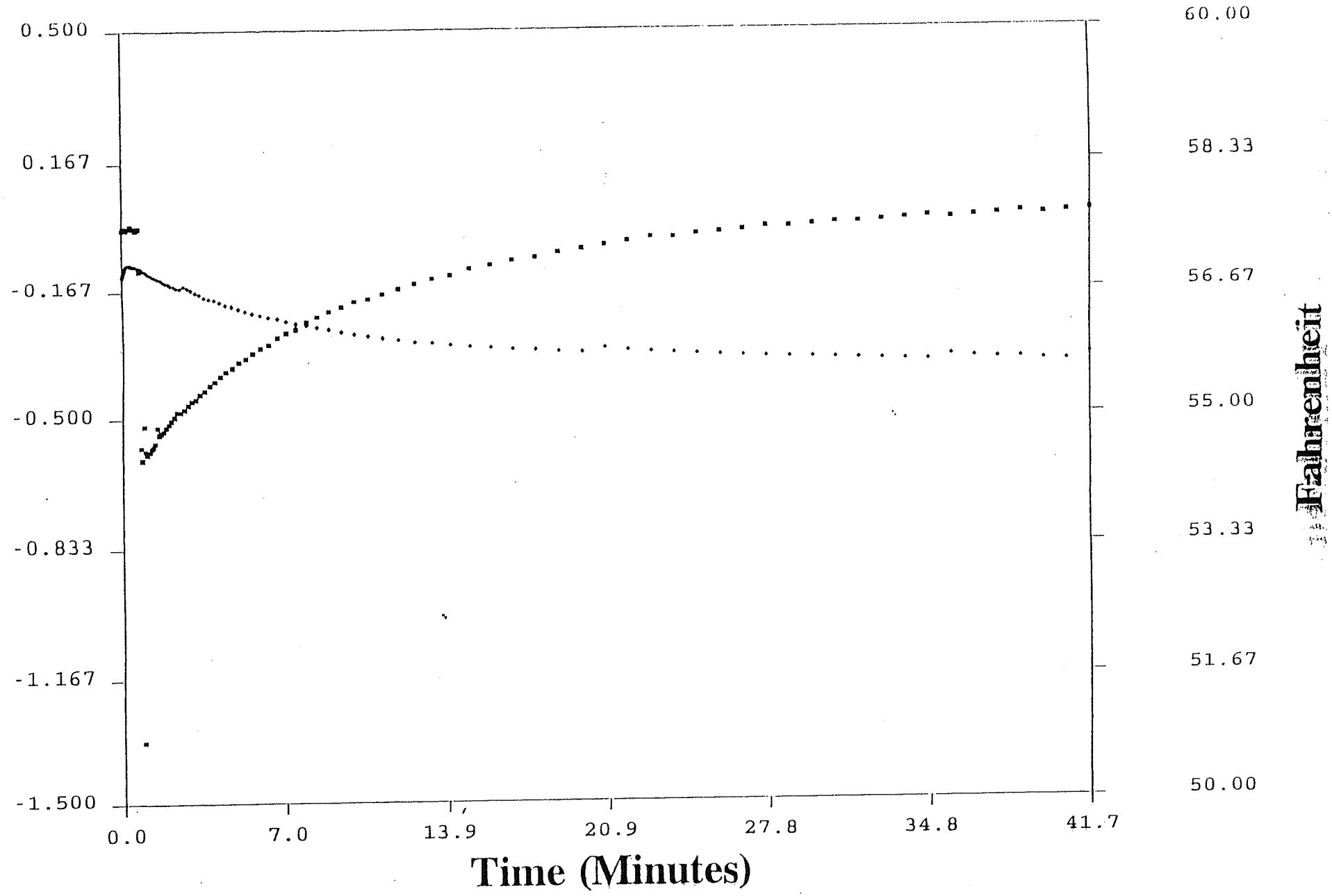

0.200
0.033
-0.133
-0.300
-0.467
-0.633
-0.800
60.00
58.33
56.67
55.00
53.33
51.67
50.00
Fahrenheit
0
86
173
259
345
431
518
Time (Minutes)
. [2] - Water Level
. [1] - OnBoard Temp

MW-6B (Slug Out)

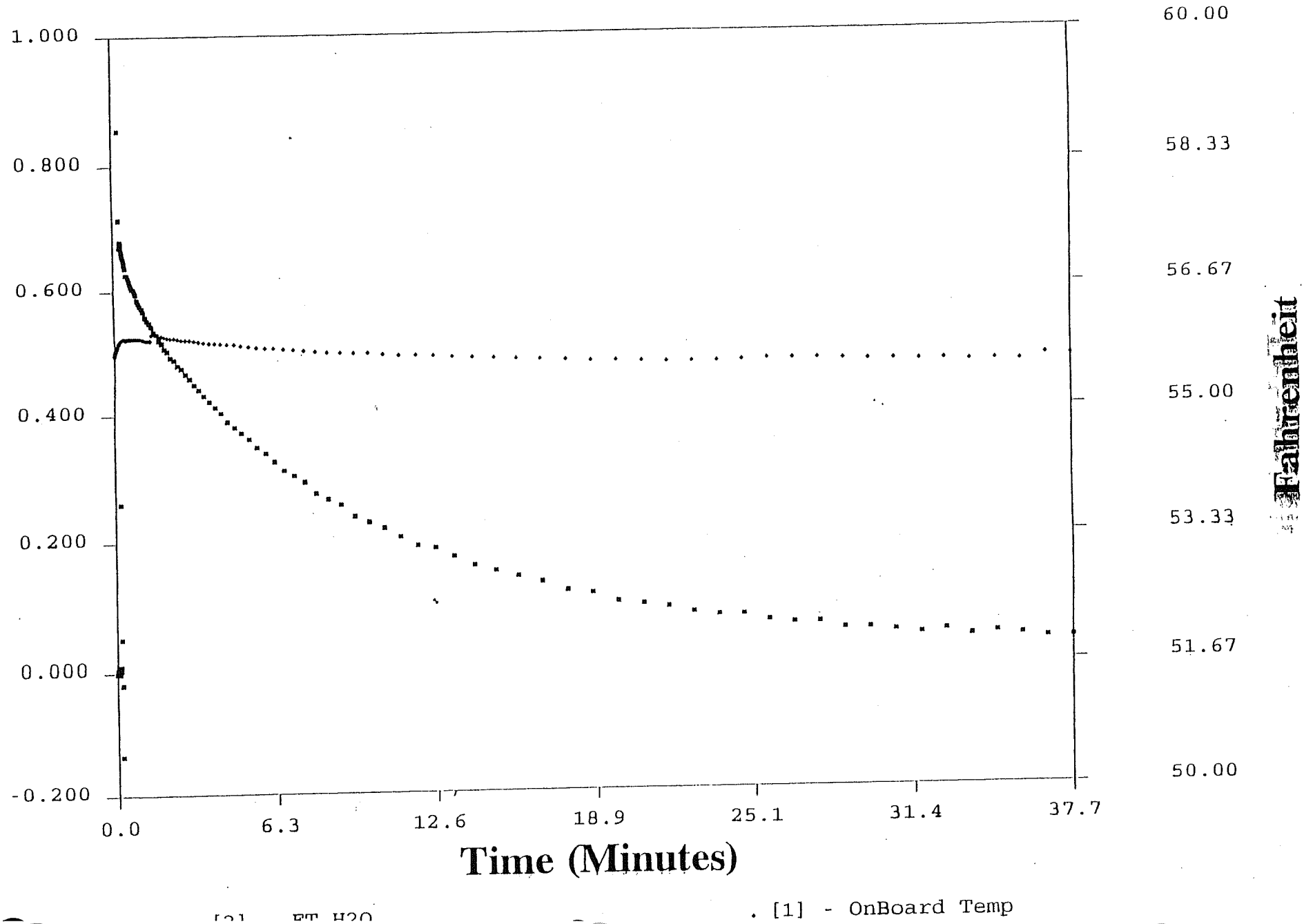


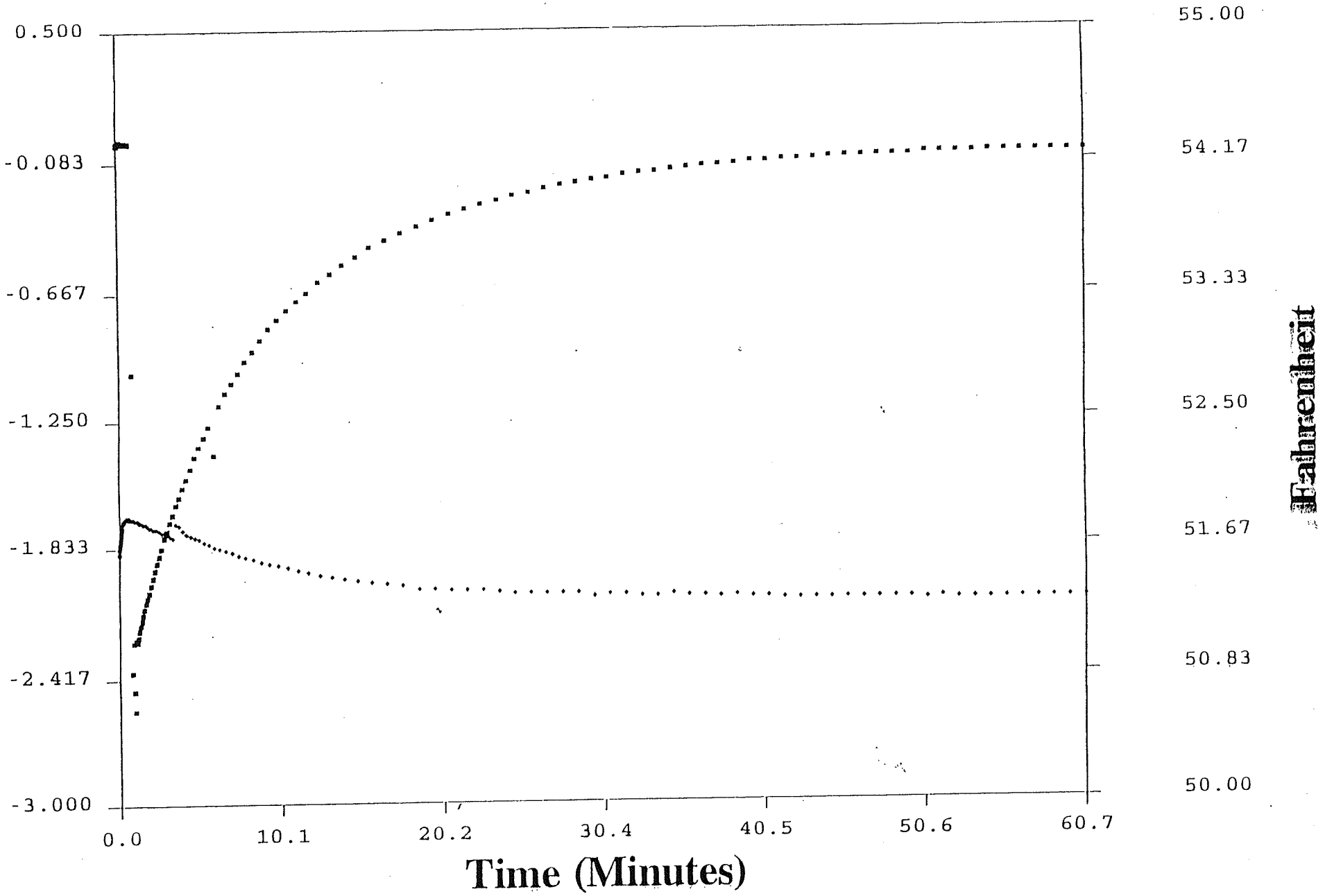

0.050
0.017
-0.017
-0.050
-0.083
-0.117
-0.150
75.00
73.33
71.67
70.00
68.33
66.67
65.00
0.00
2.34
4.69
7.03
9.38
11.72
14.07
Time (Minutes)
Fahrenheit
. [2] - FT H2O
. [1] - OnBoard Temp


0.300
0.233
0.167
0.100
0.033
-0.033
-0.100
Feet H2O
75.00
73.33
71.67
70.00
68.33
66.67
65.00
Fahrenheit
0.00
3.79
7.57
11.36
15.15
18.94
22.72
Time (Minutes)
[2] - FT H2O
[1] - OnBoard Temp

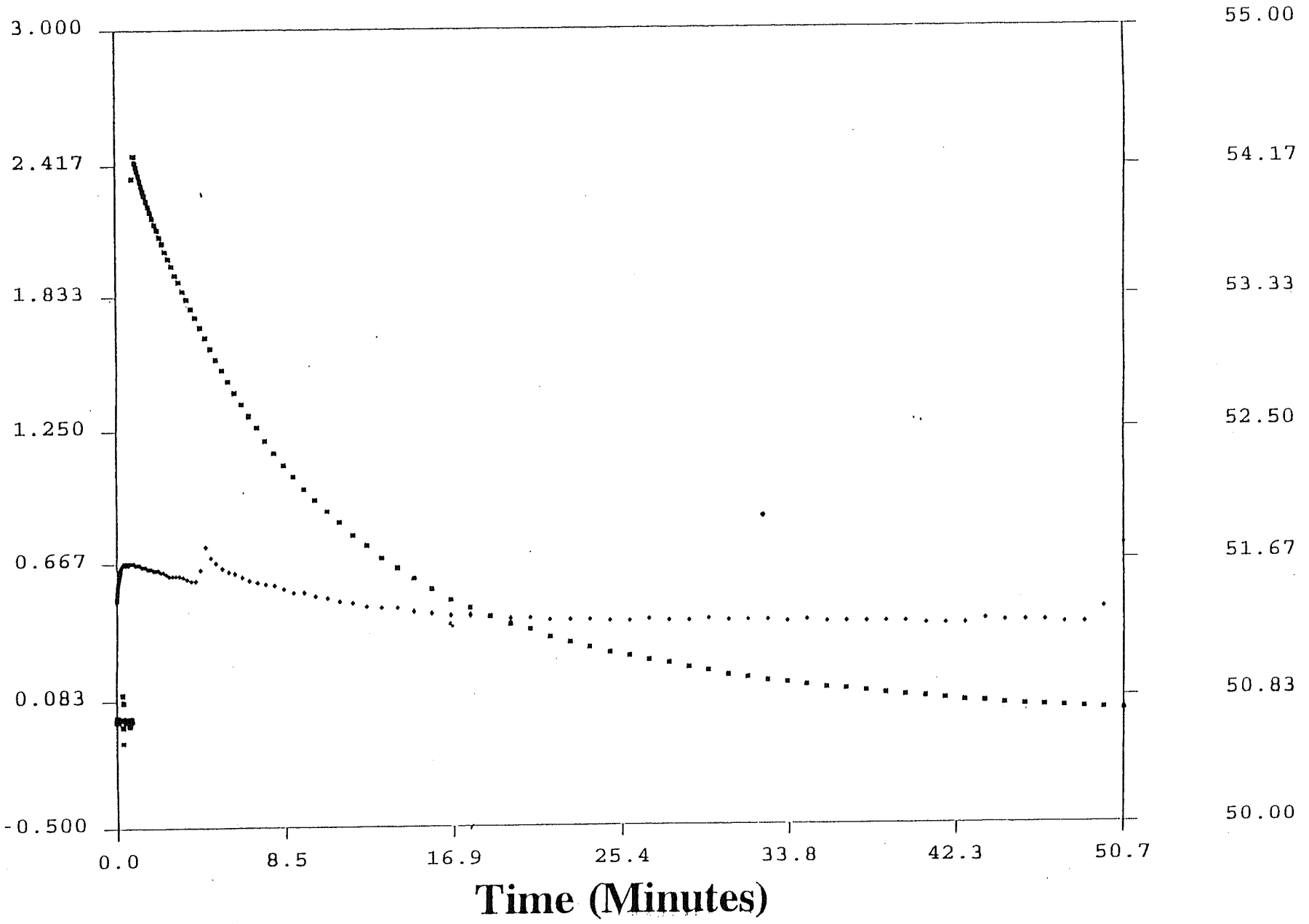

0.500
0.167
-0.167
-0.500
-0.833
-1.167
-1.500
60.00
58.33
56.67
55.00
53.33
51.67
50.00
Fahrenheit
0.0
7.0
13.9
20.9
27.8
34.8
41.7
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

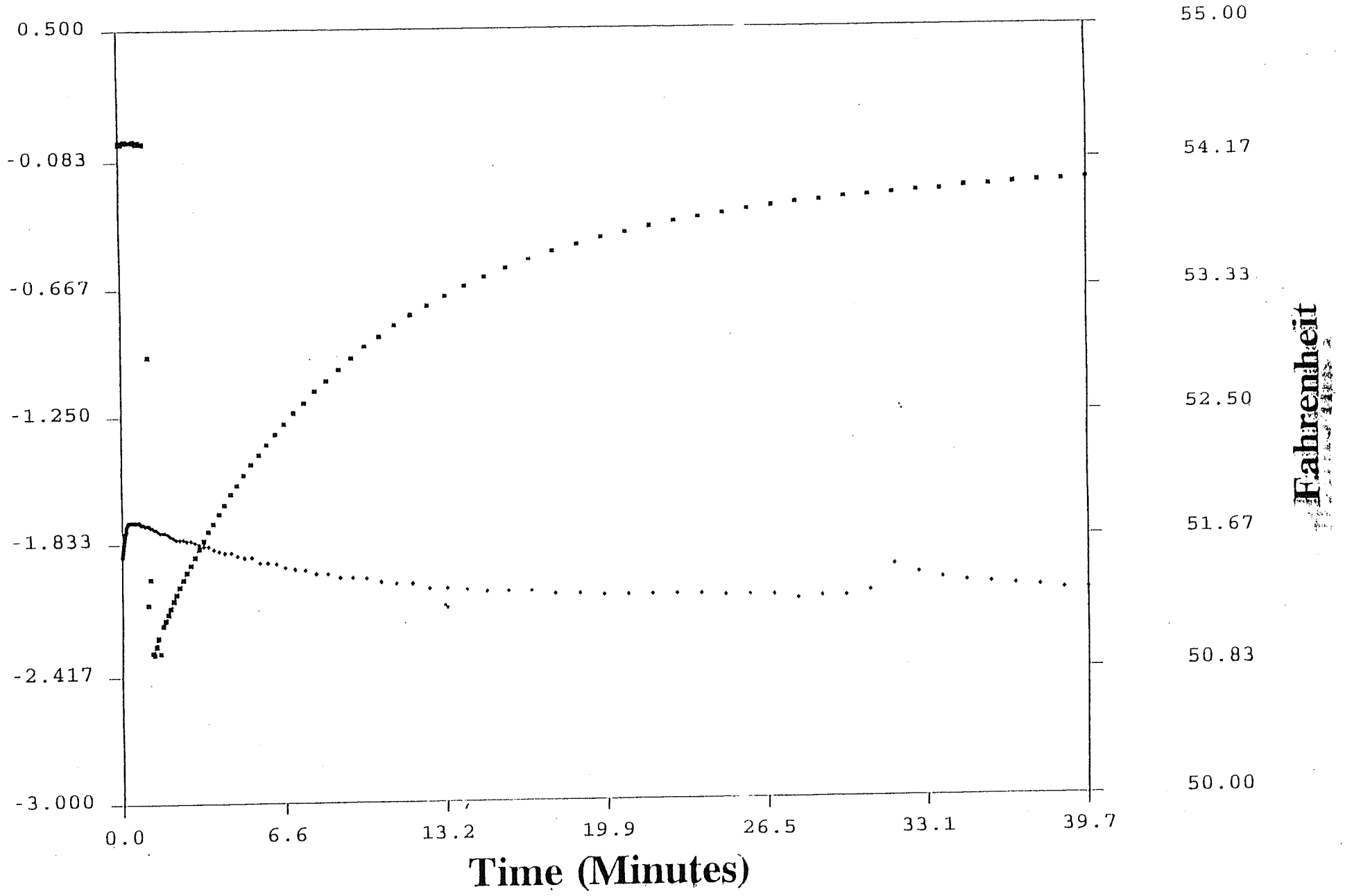
MW-7B (Slug Out)



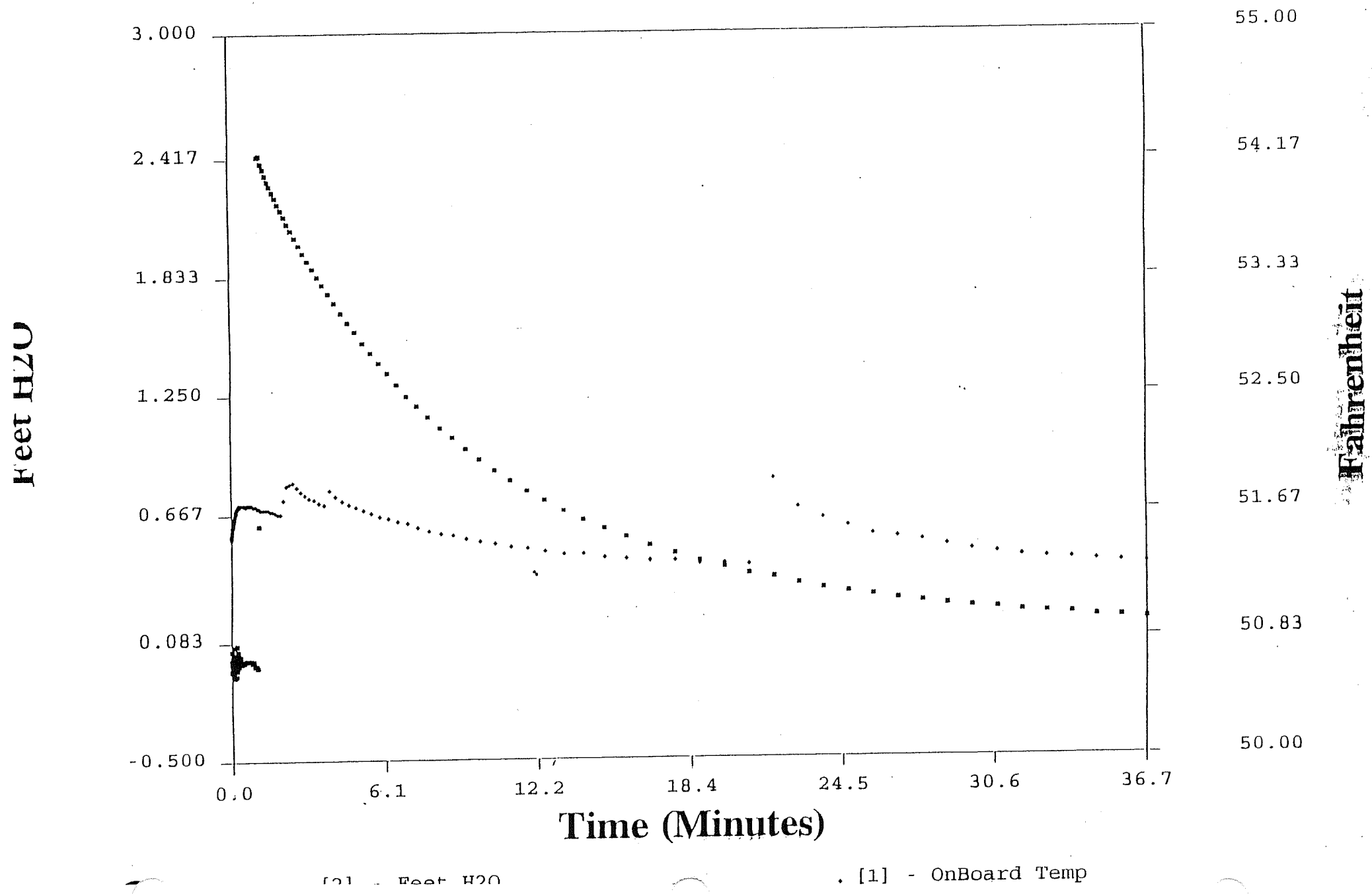

0.500
-0.083
-0.667
-1.250
-1.833
-2.417
-3.000
55.00
54.17
53.33
52.50
51.67
50.83
50.00
Fahrenheit
0.0
10.1
20.2
30.4
40.5
50.6
60.7
Time (Minutes)
. [2] - Feet H2O
. [1] - OnBoard Temp

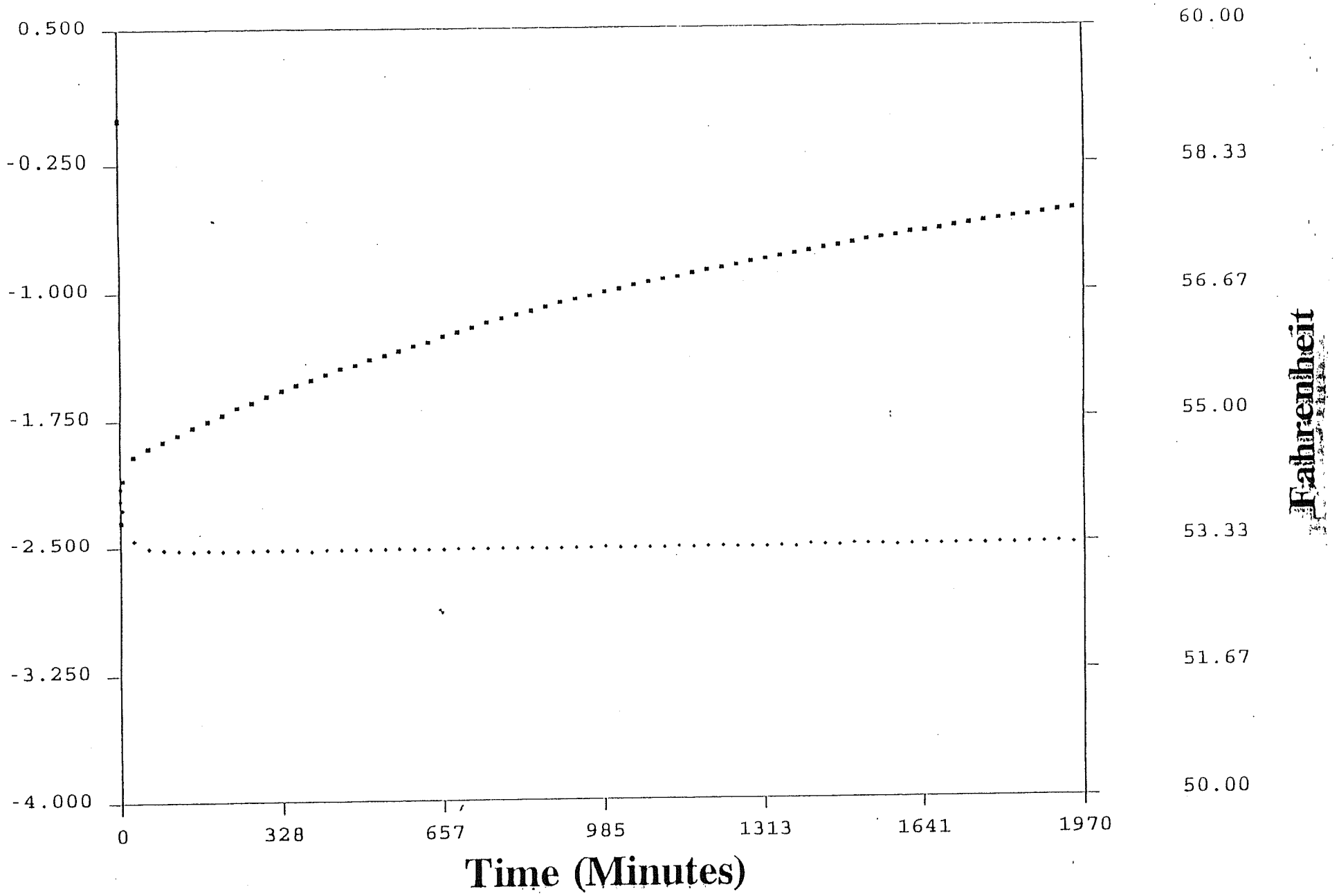
MW-8B(SlugOut1)



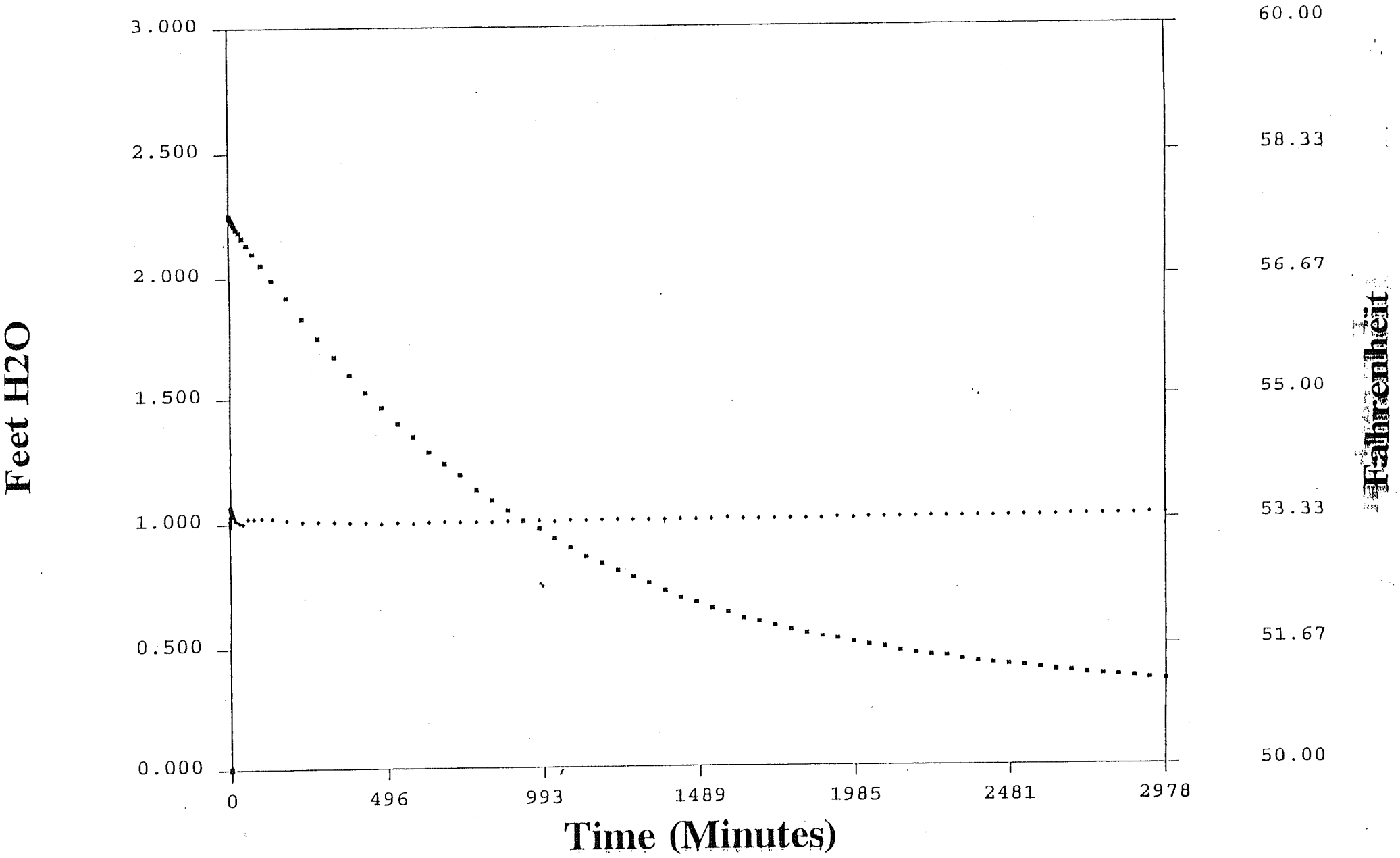

0.500
-0.083
-0.667
-1.250
-1.833
-2.417
-3.000
55.00
54.17
53.33
52.50
51.67
50.83
50.00
Fahrenheit
0.0
6.6
13.2
19.9
26.5
33.1
39.7
Time (Minutes)
. [2] - Feet H2O
. [1] - OnBoard Temp

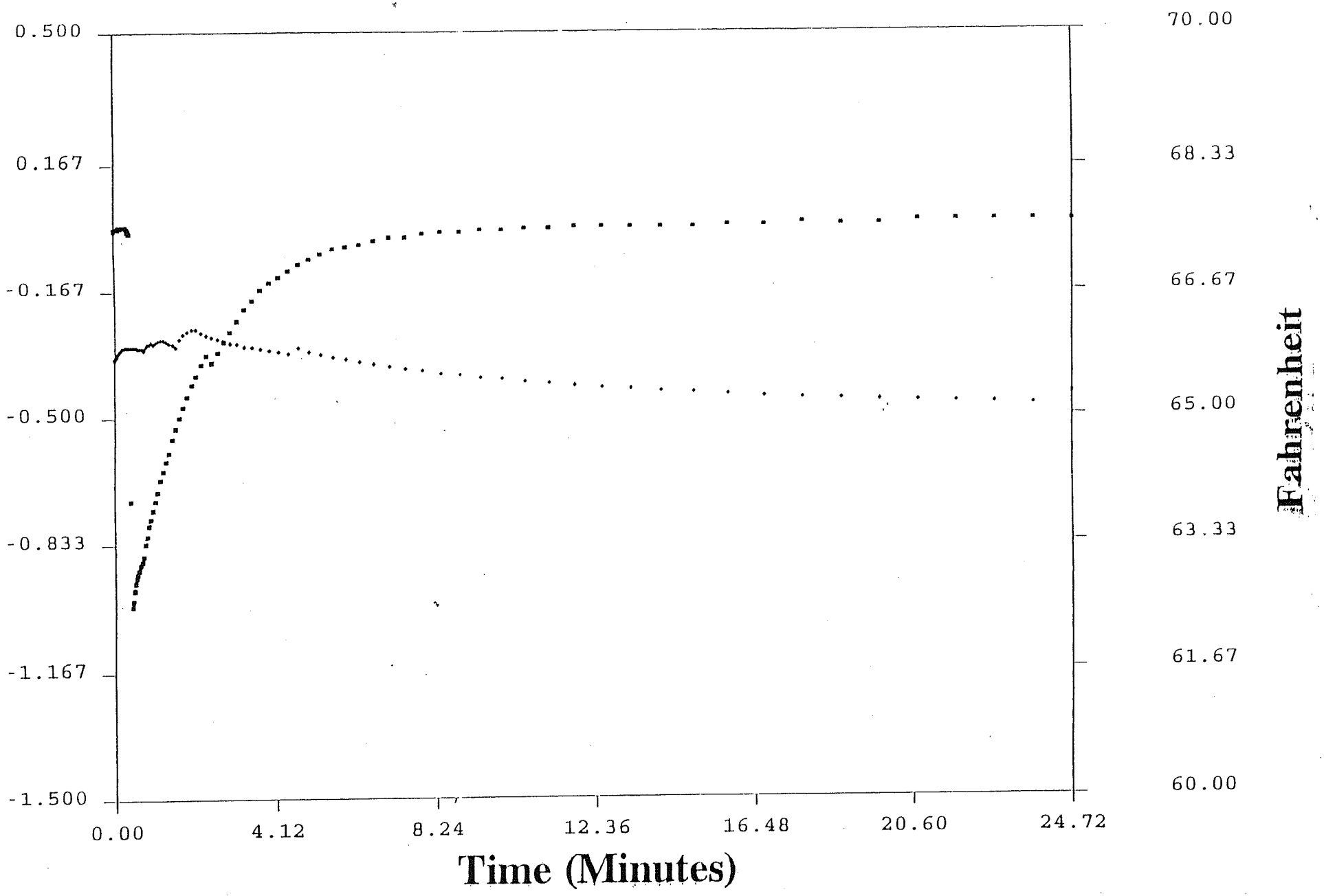
MW-8B(SlugOut2)



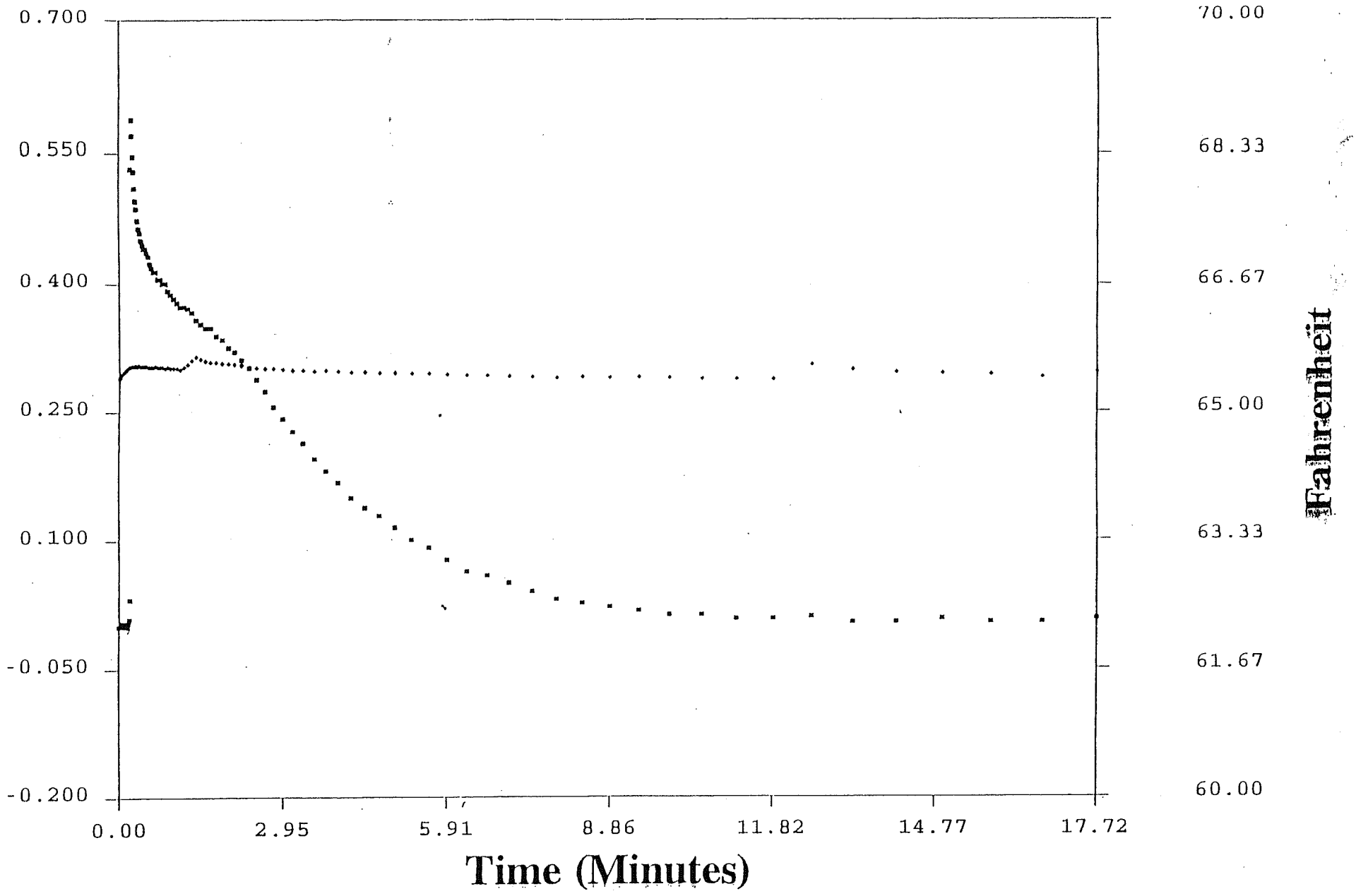

0.500
-0.250
-1.000
-1.750
-2.500
-3.250
-4.000
60.00
58.33
56.67
55.00
53.33
51.67
50.00
Fahrenheit
0
328
657
985
1313
1641
1970
Time (Minutes)
. [2] - Feet H2O
. [1] - OnBoard Temp

MW-9B (Slug Out)

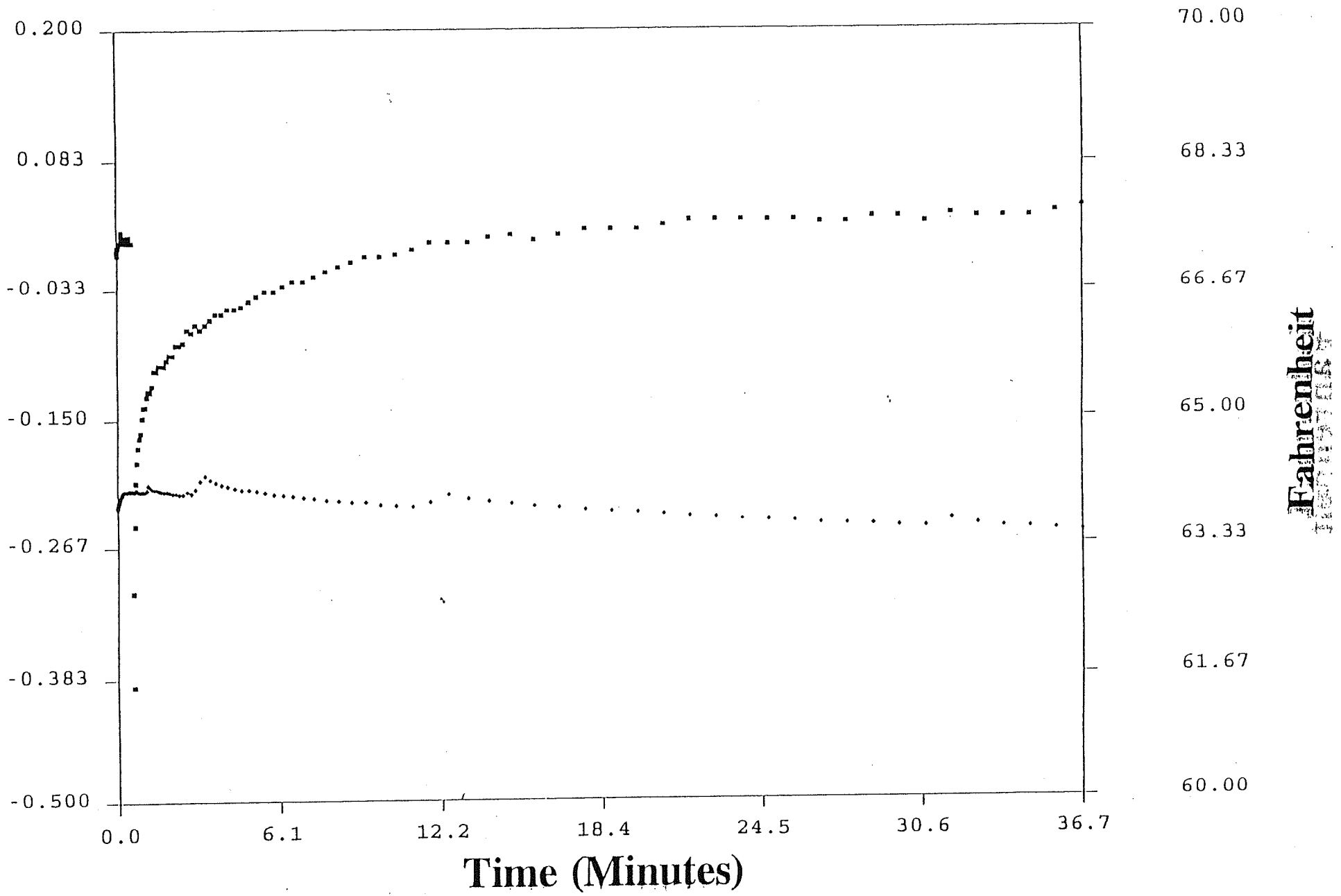



0.500
0.167
-0.167
-0.500
-0.833
-1.167
-1.500
70.00
68.33
66.67
65.00
63.33
61.67
60.00
Fahrenheit
0.00
4.12
8.24
12.36
16.48
20.60
24.72
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

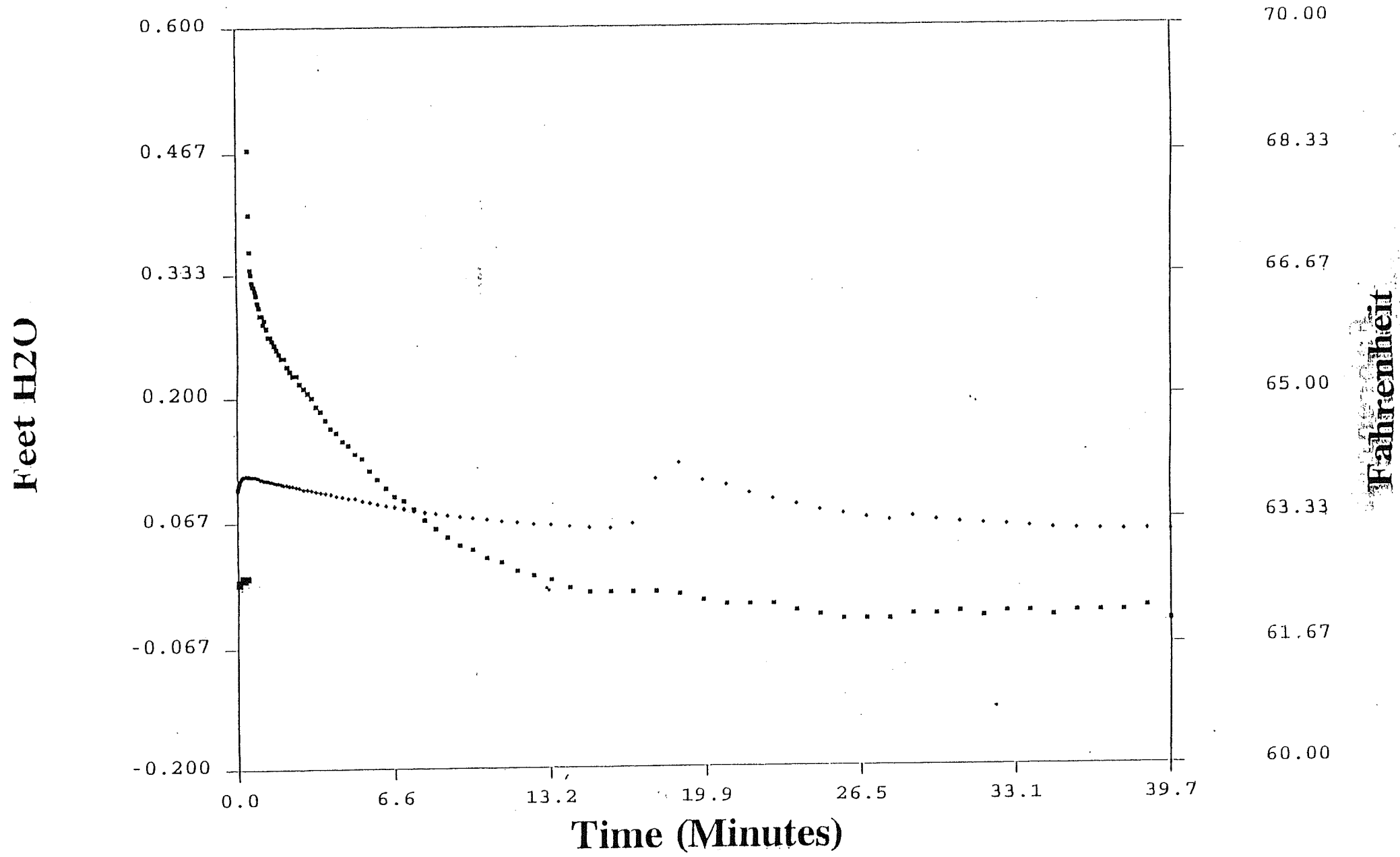
MW-10 (Slug Out)

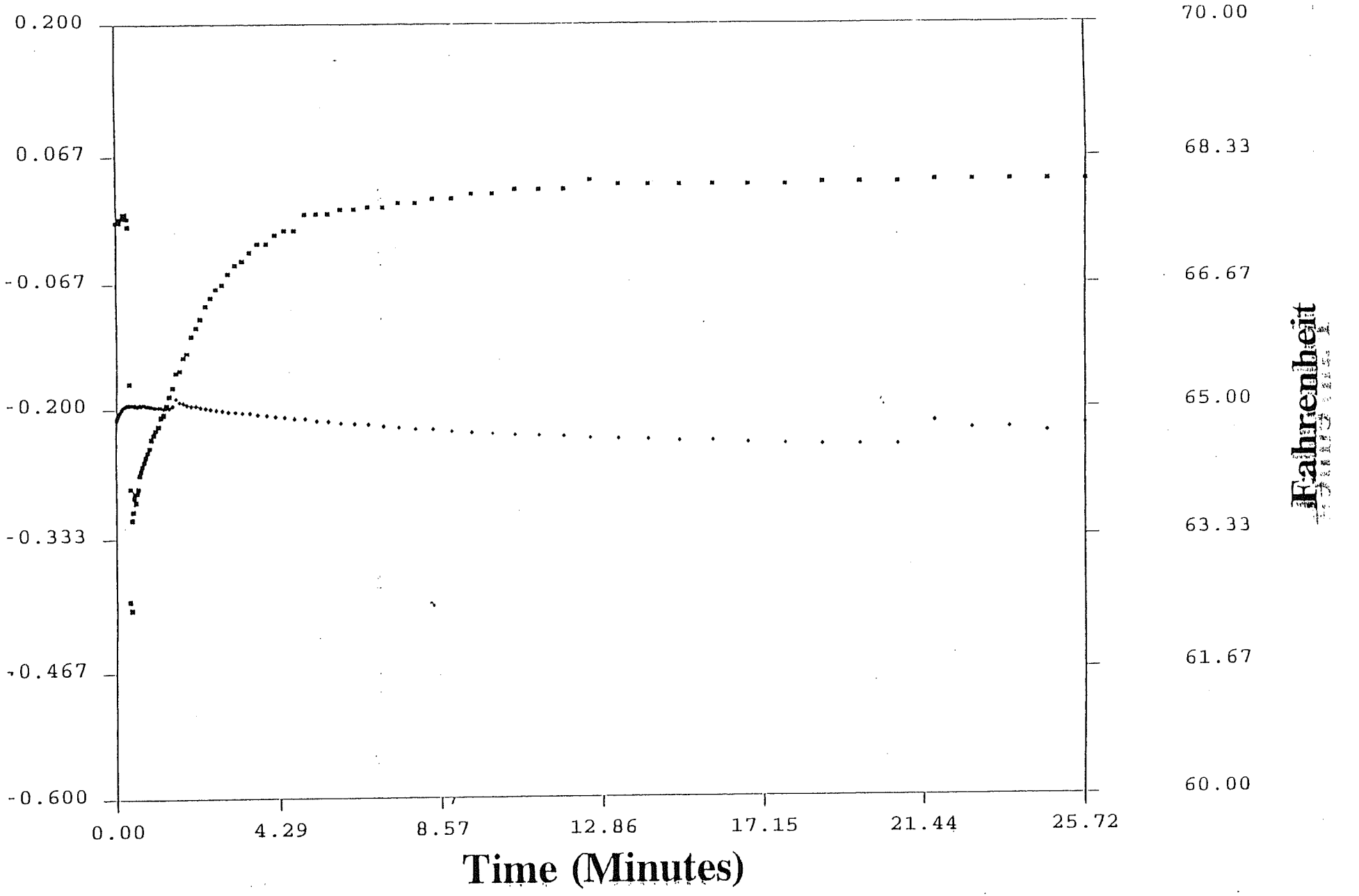


MW-11 (Slug In)

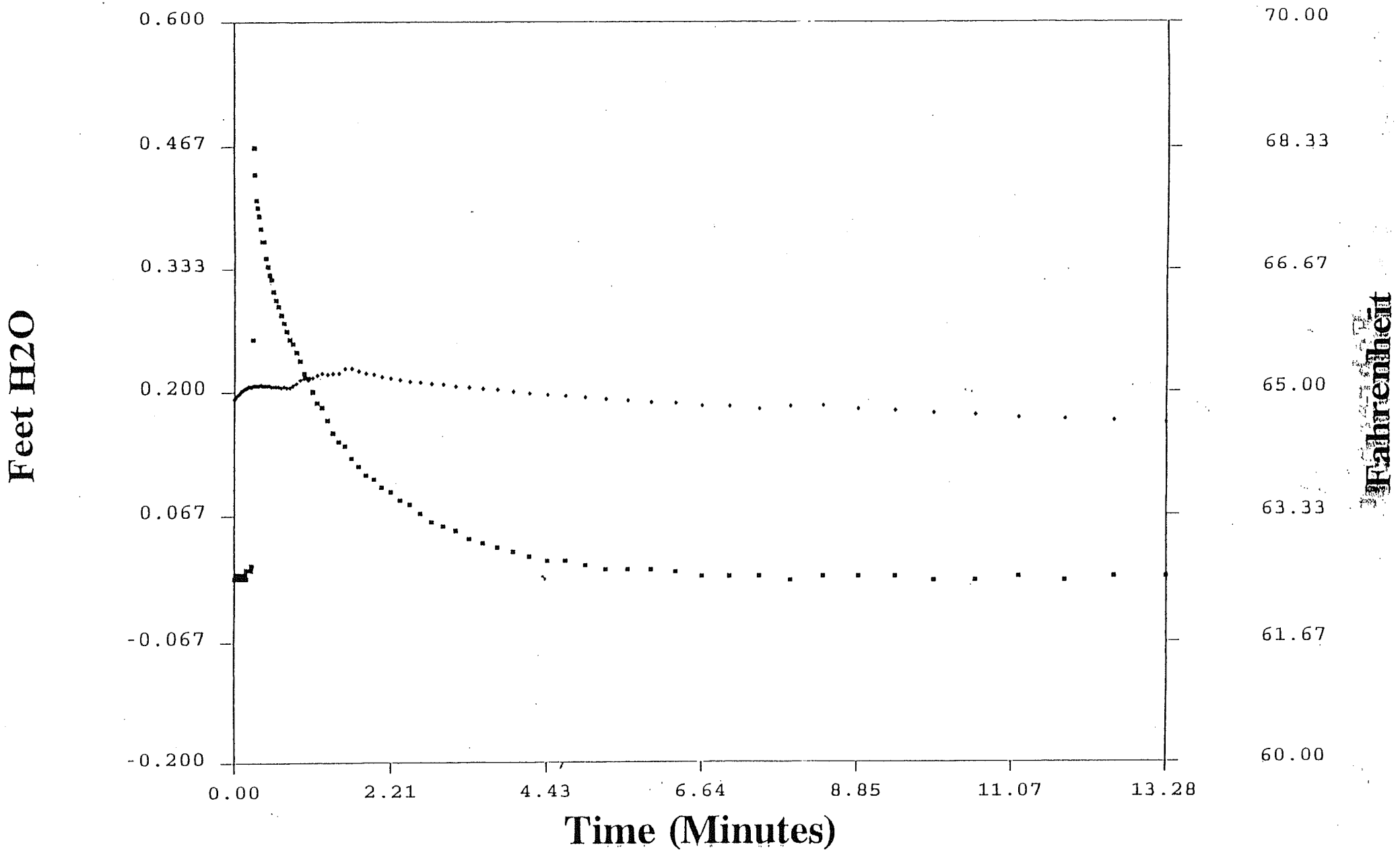

0.200
0.083
-0.033
-0.150
-0.267
-0.383
-0.500
70.00
68.33
66.67
65.00
63.33
61.67
60.00
Fahrenheit
0.0
6.1
12.2
18.4
24.5
30.6
36.7
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

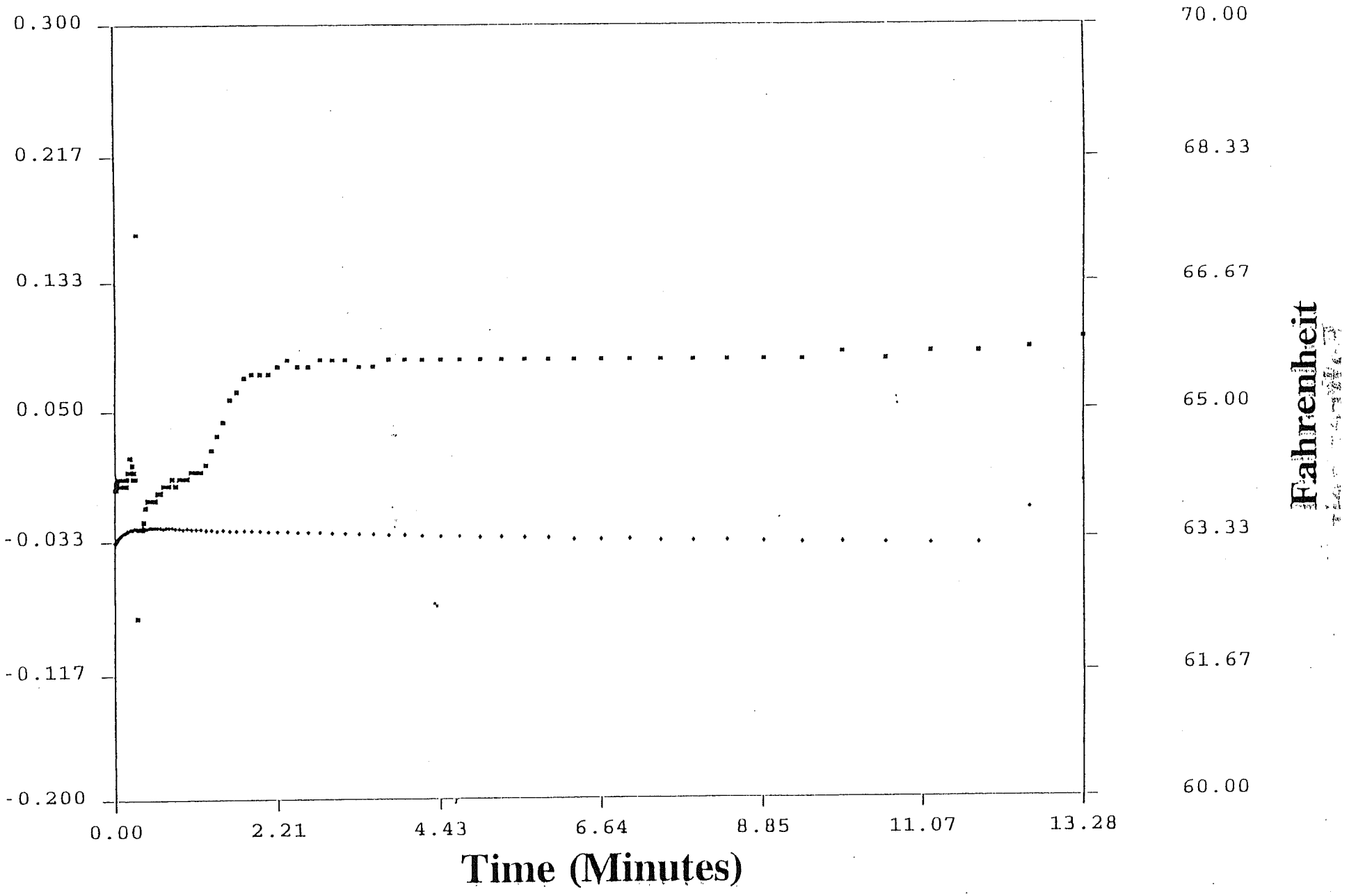
MW-11 (Slug Out)



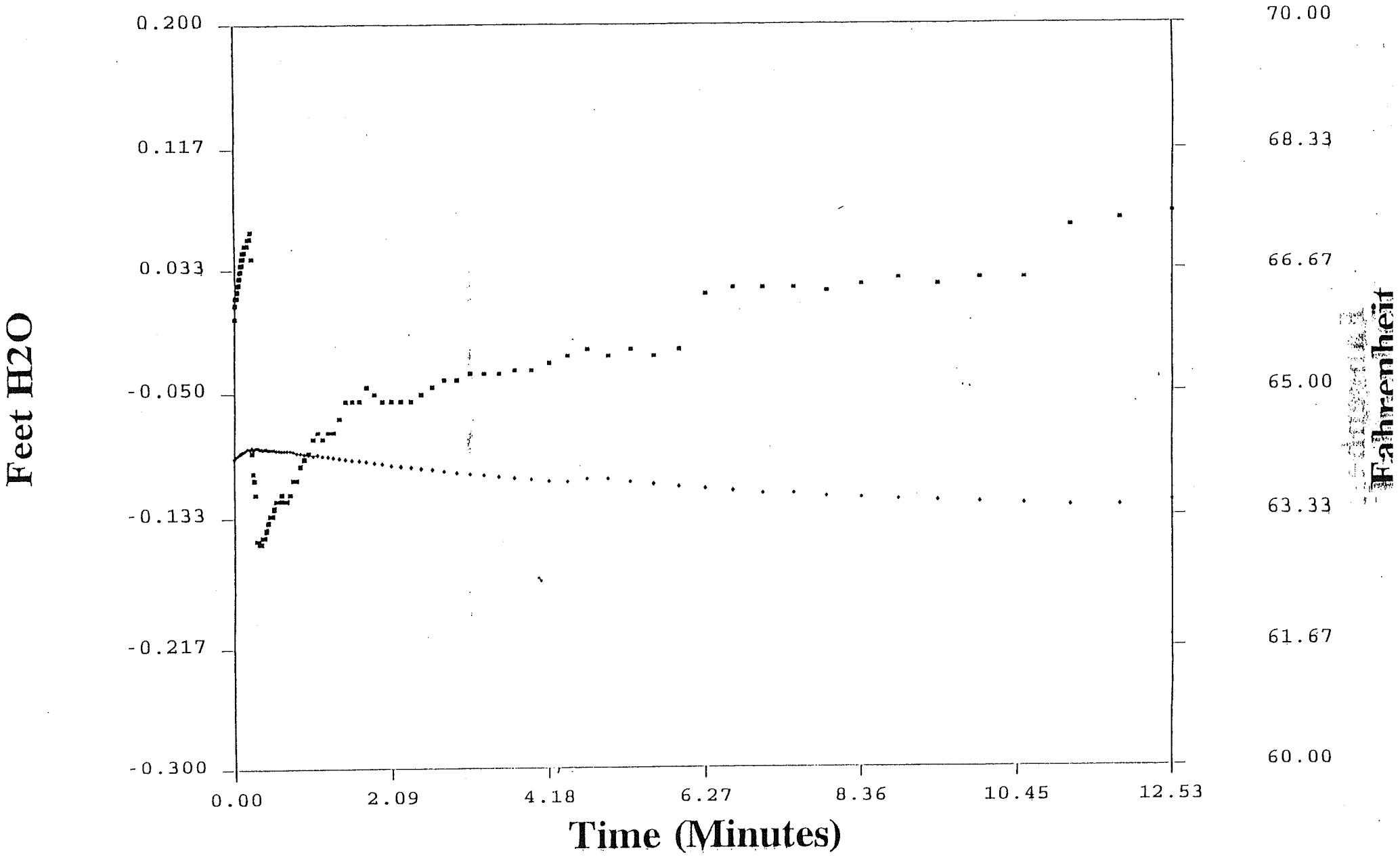

0.200
0.067
-0.067
-0.200
-0.333
-0.467
-0.600
70.00
68.33
66.67
65.00
63.33
61.67
60.00
Fahrenheit
0.00
4.29
8.57
12.86
17.15
21.44
25.72
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

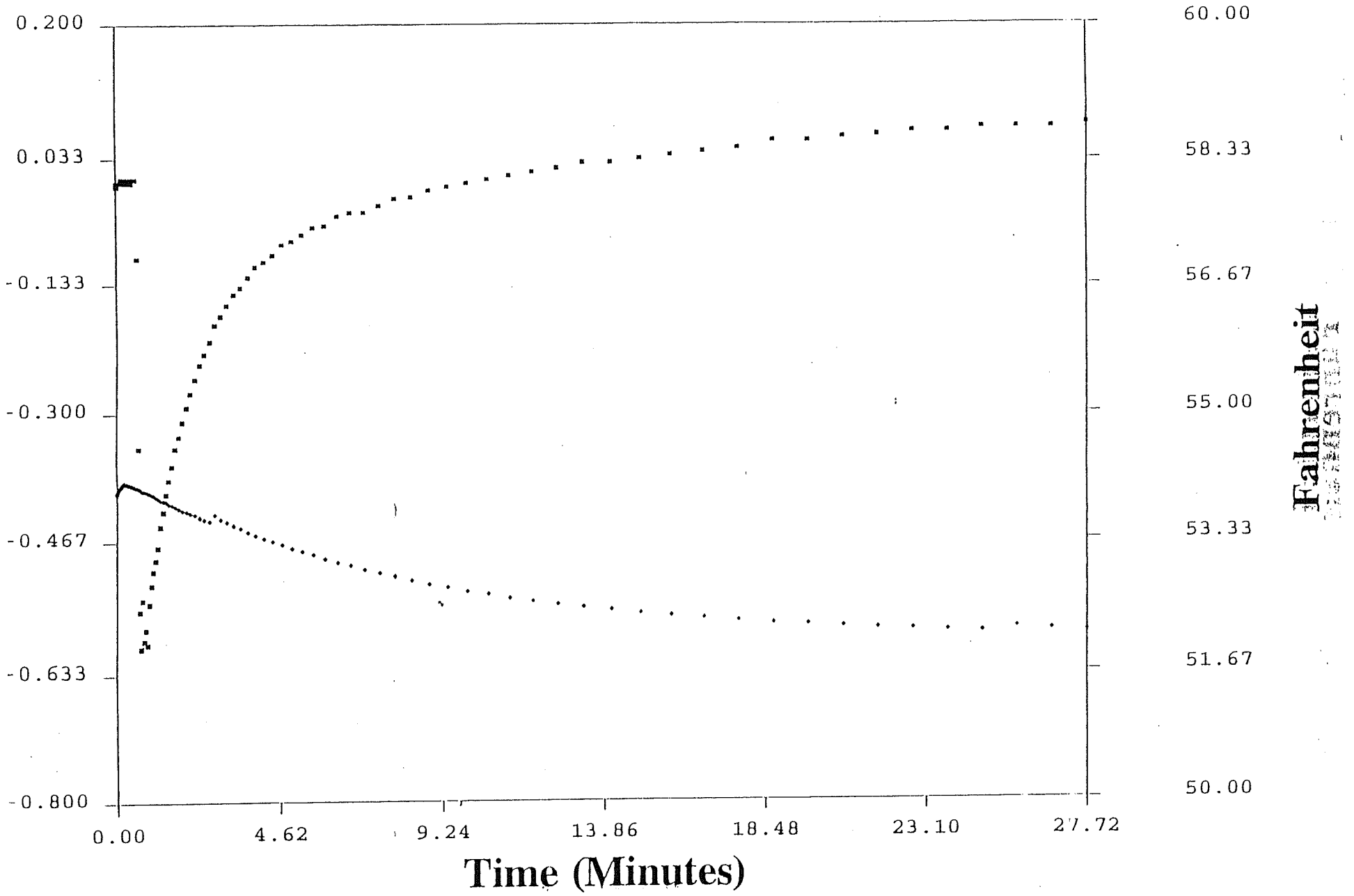
MW-12 (Slug Out)



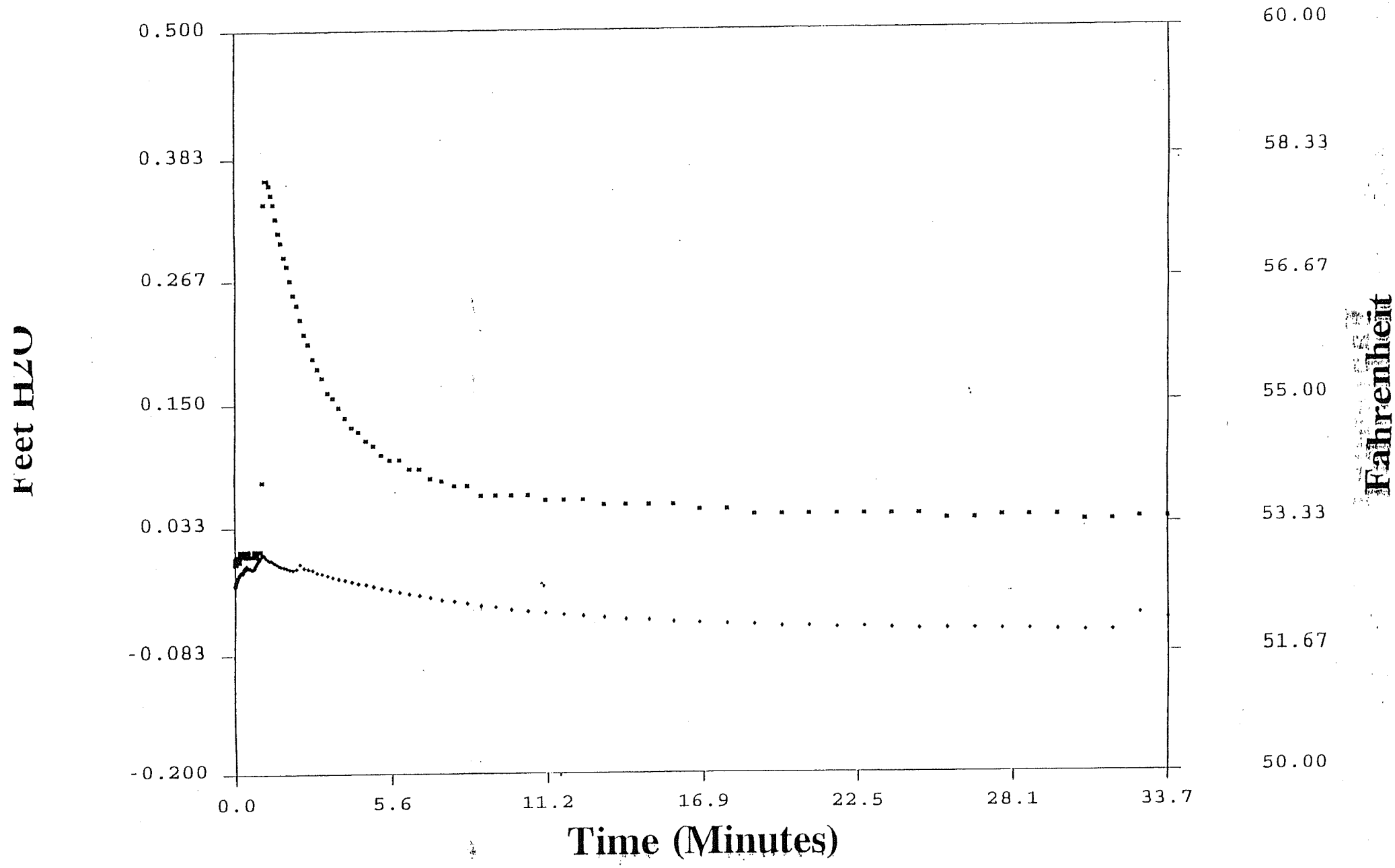

0.300
0.217
0.133
0.050
-0.033
-0.117
-0.200
70.00
68.33
66.67
65.00
63.33
61.67
60.00
Fahrenheit
0.00
2.21
4.43
6.64
8.85
11.07
13.28
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

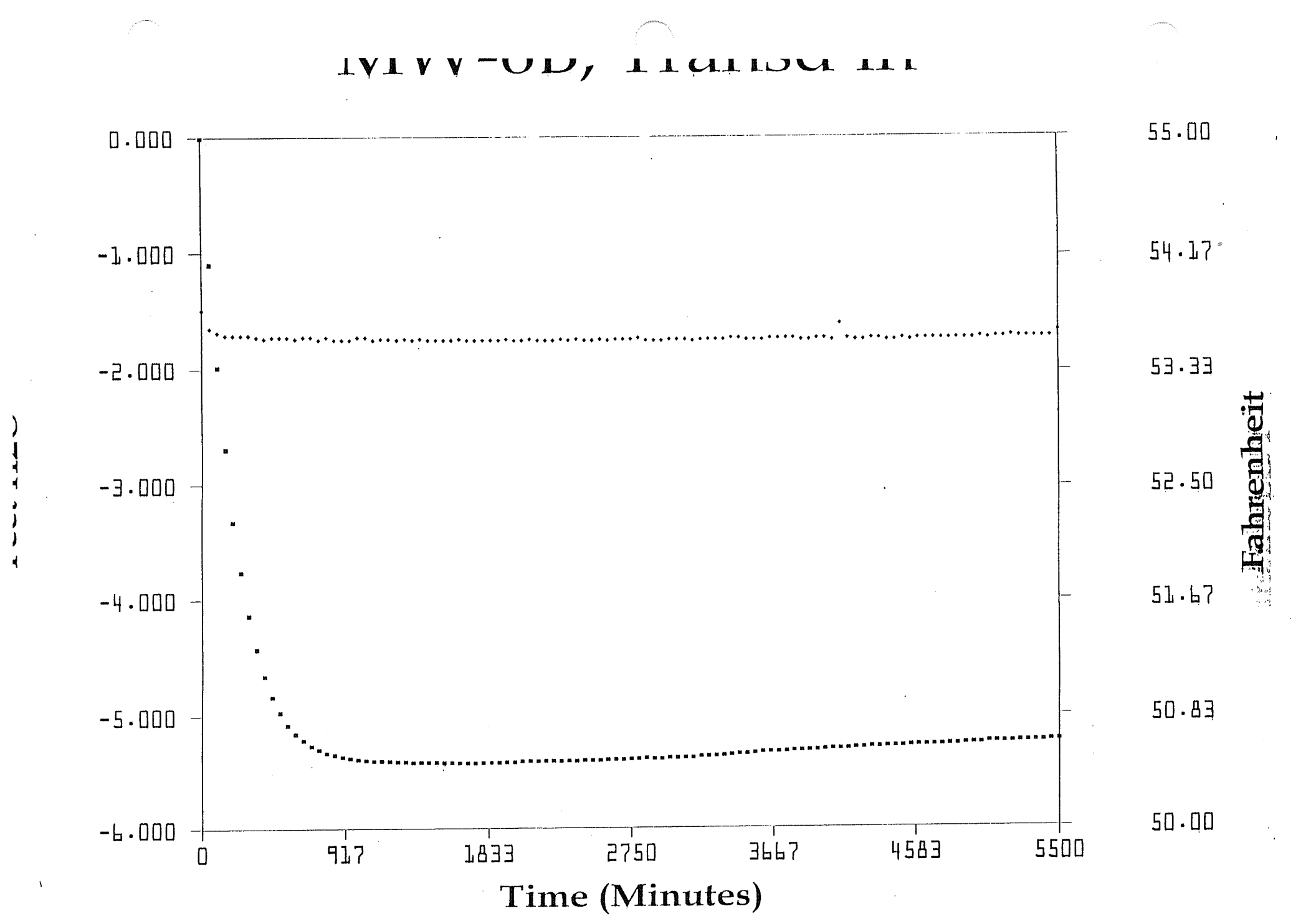
MW-13A(SlugOut)



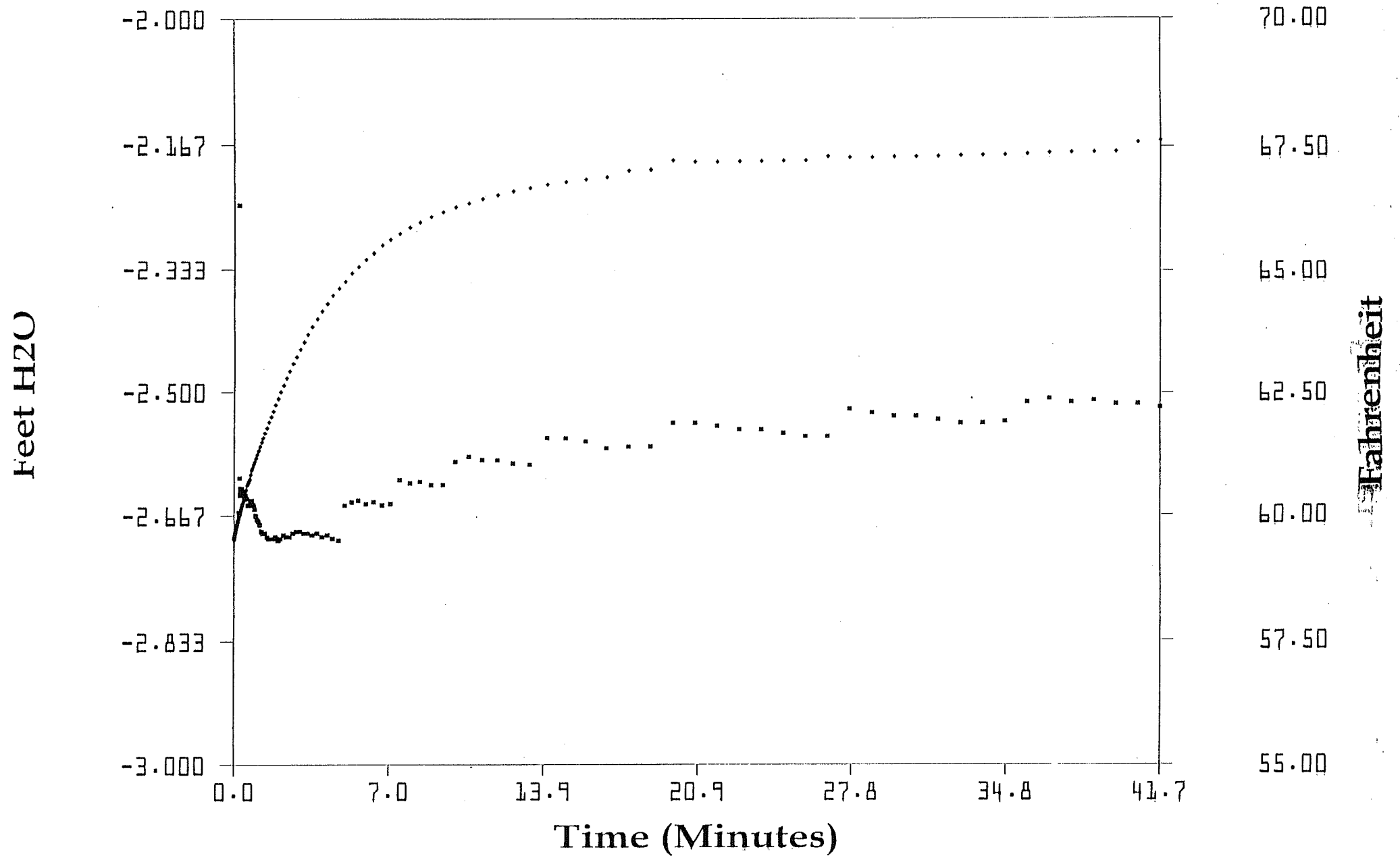

0.200
0.033
-0.133
-0.300
-0.467
-0.633
-0.800
60.00
58.33
56.67
55.00
53.33
51.67
50.00
Fahrenheit
0.00
4.62
9.24
13.86
18.48
23.10
27.72
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

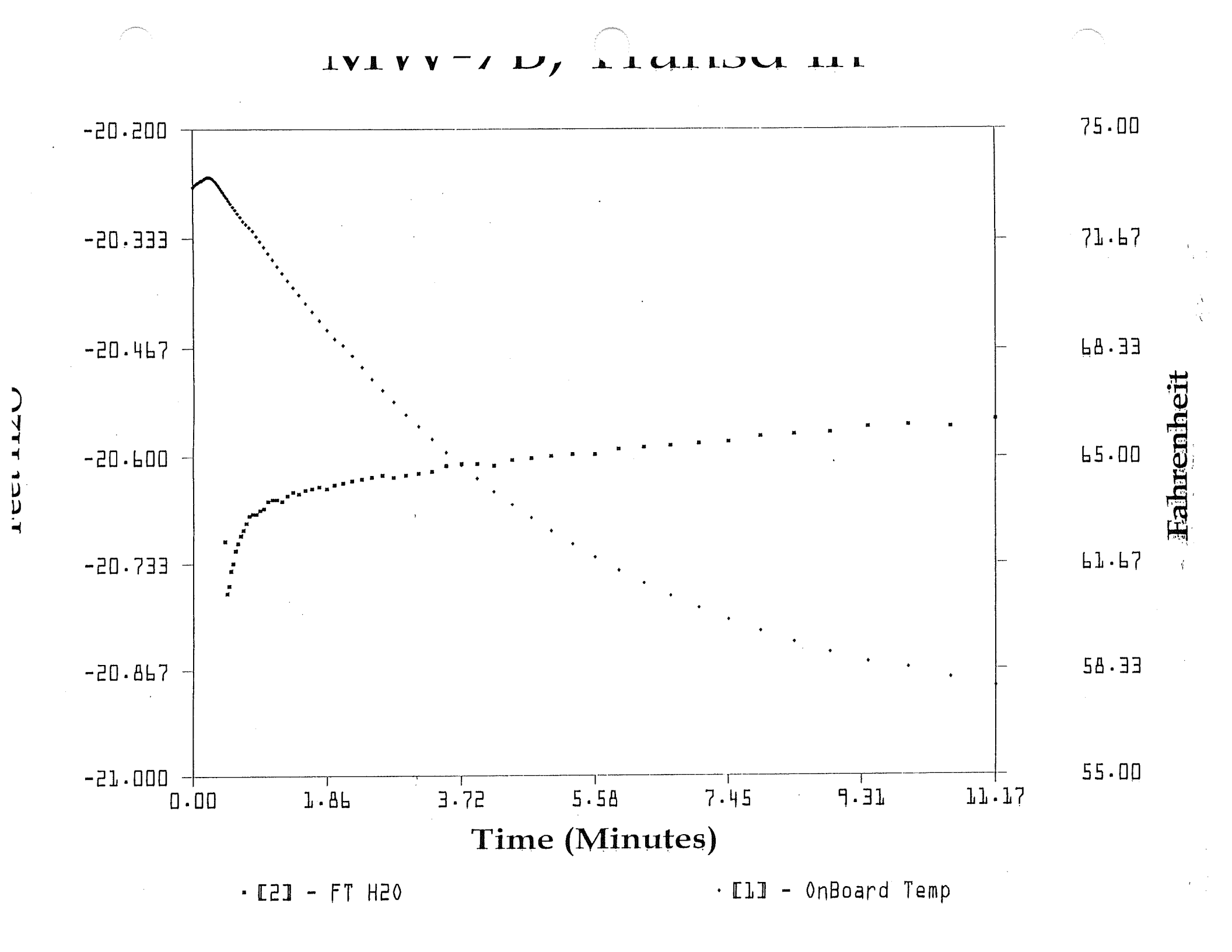
MW-13B(SlugOut)



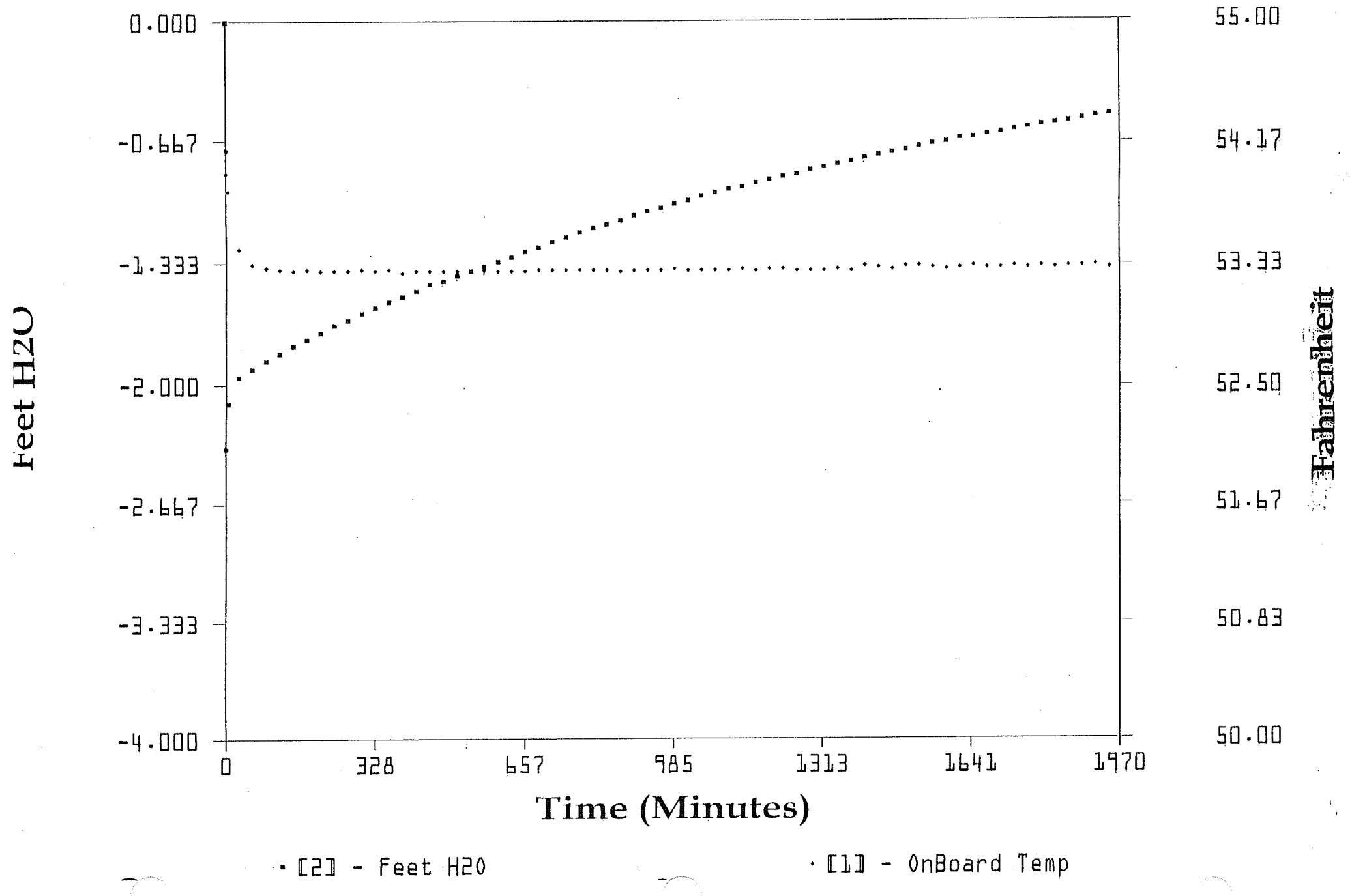

0.000
-1.000
-2.000
-3.000
-4.000
-5.000
-6.000
55.00
54.17
53.33
52.50
51.67
50.83
50.00
Fahrenheit
0
917
1833
2750
3667
4583
5500
Time (Minutes)
[2] - Water Level
[1] - OnBoard Temp

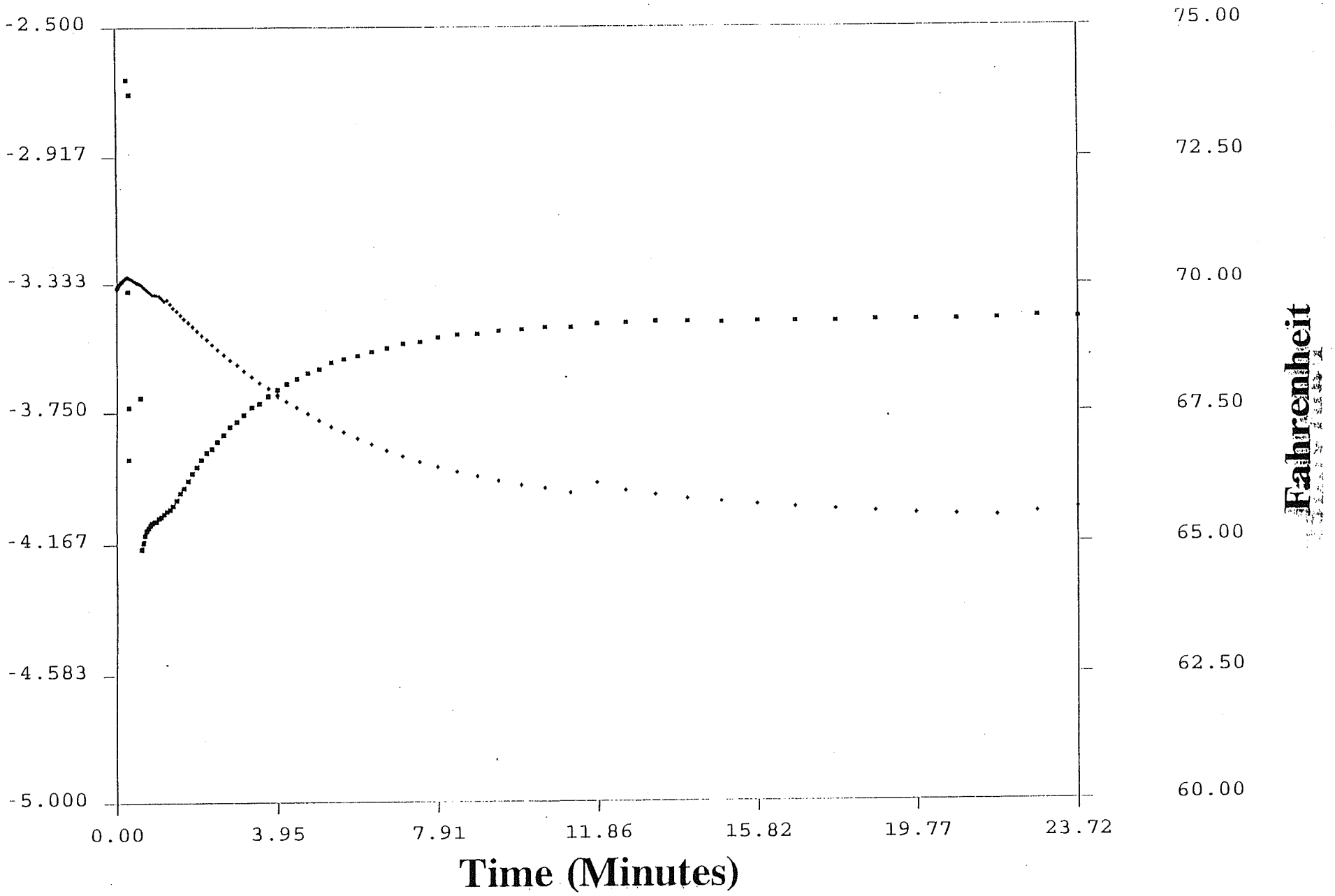
MW-7A, Transd in



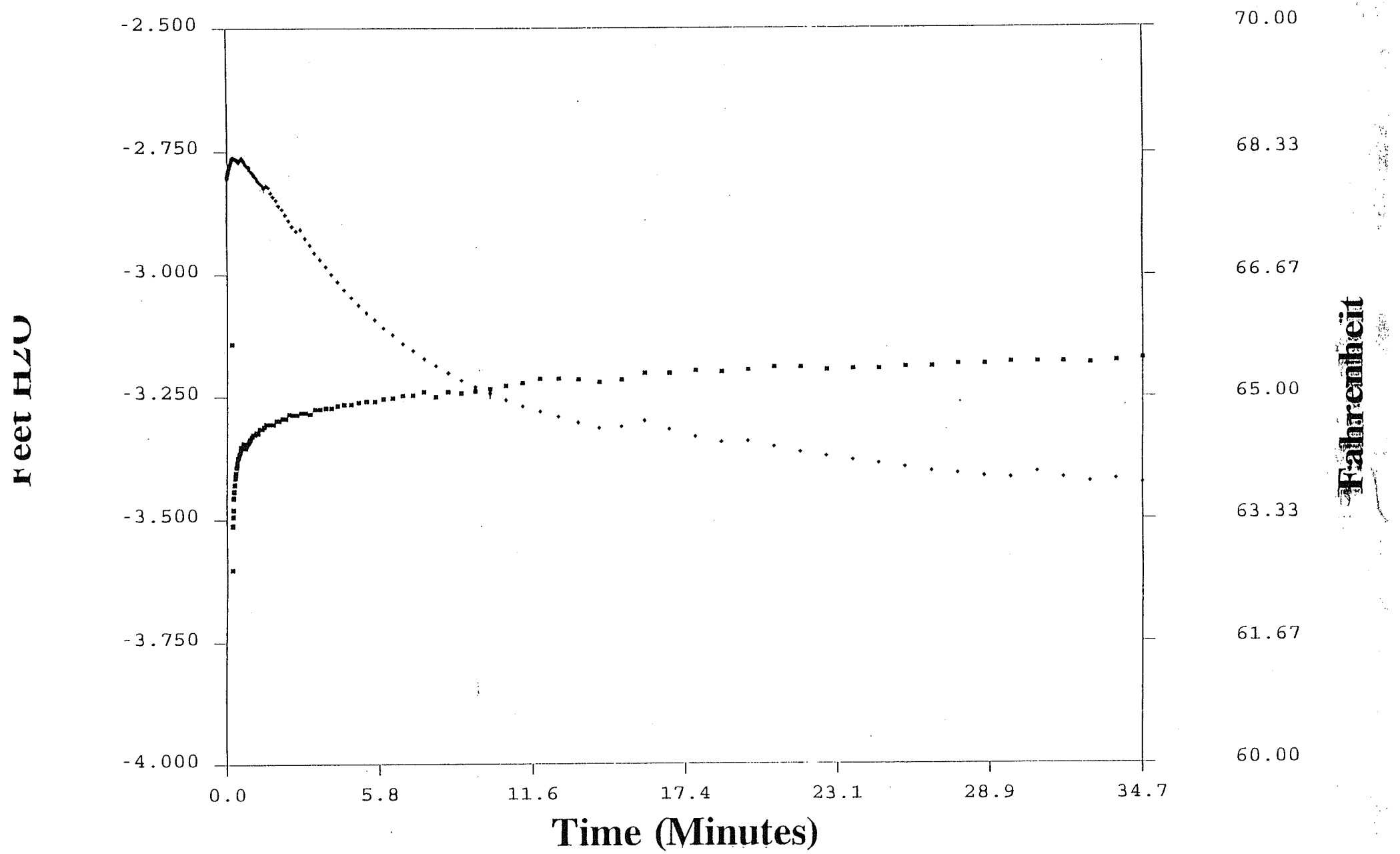

-20.200
-20.333
-20.467
-20.600
-20.733
-20.867
-21.000
75.00
71.67
68.33
65.00
61.67
58.33
55.00
Fahrenheit
0.00
1.86
3.72
5.58
7.45
9.31
11.17
Time (Minutes)
[2] - FT H2O
[1] - OnBoard Temp

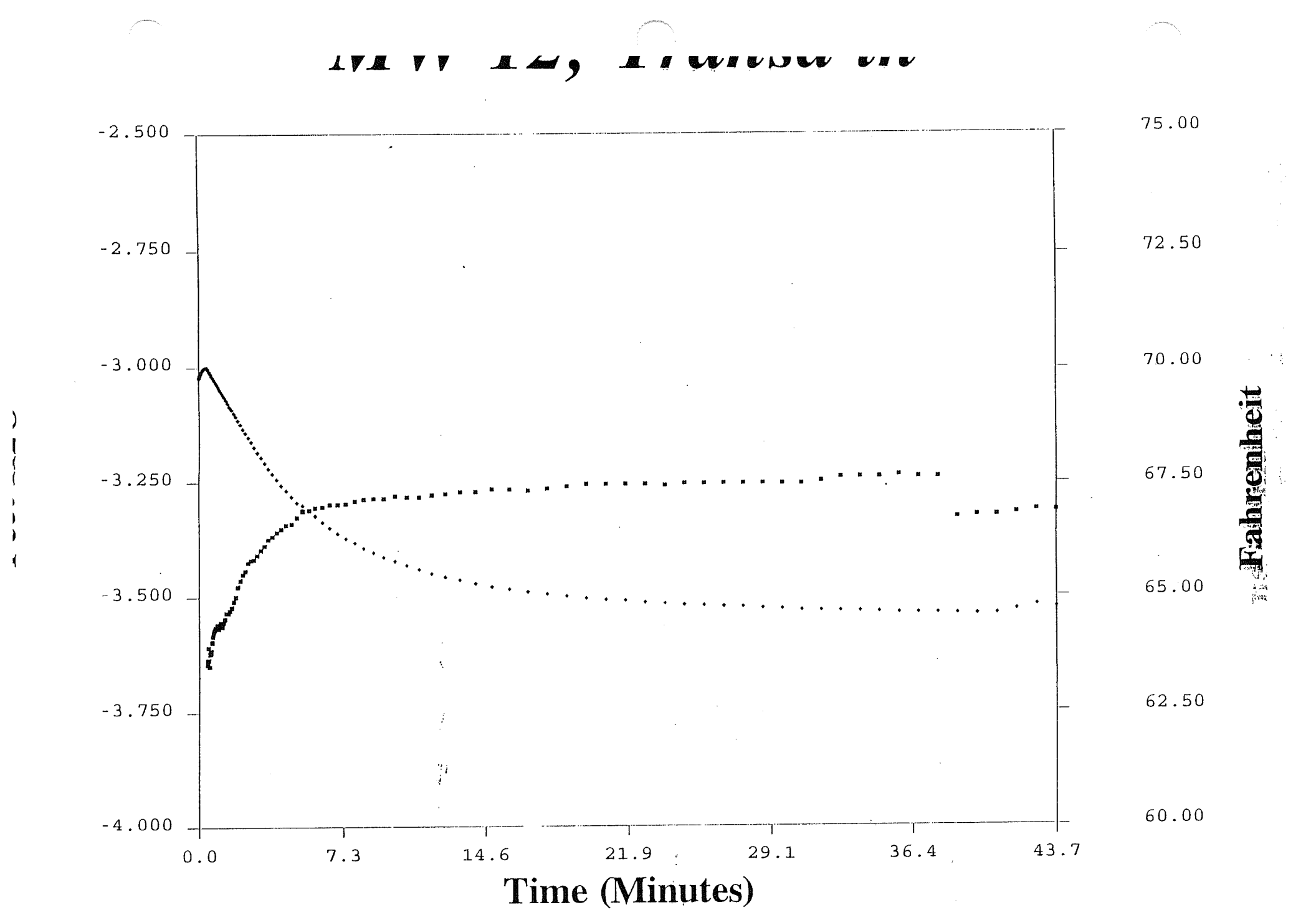
MW-9B, Transd in



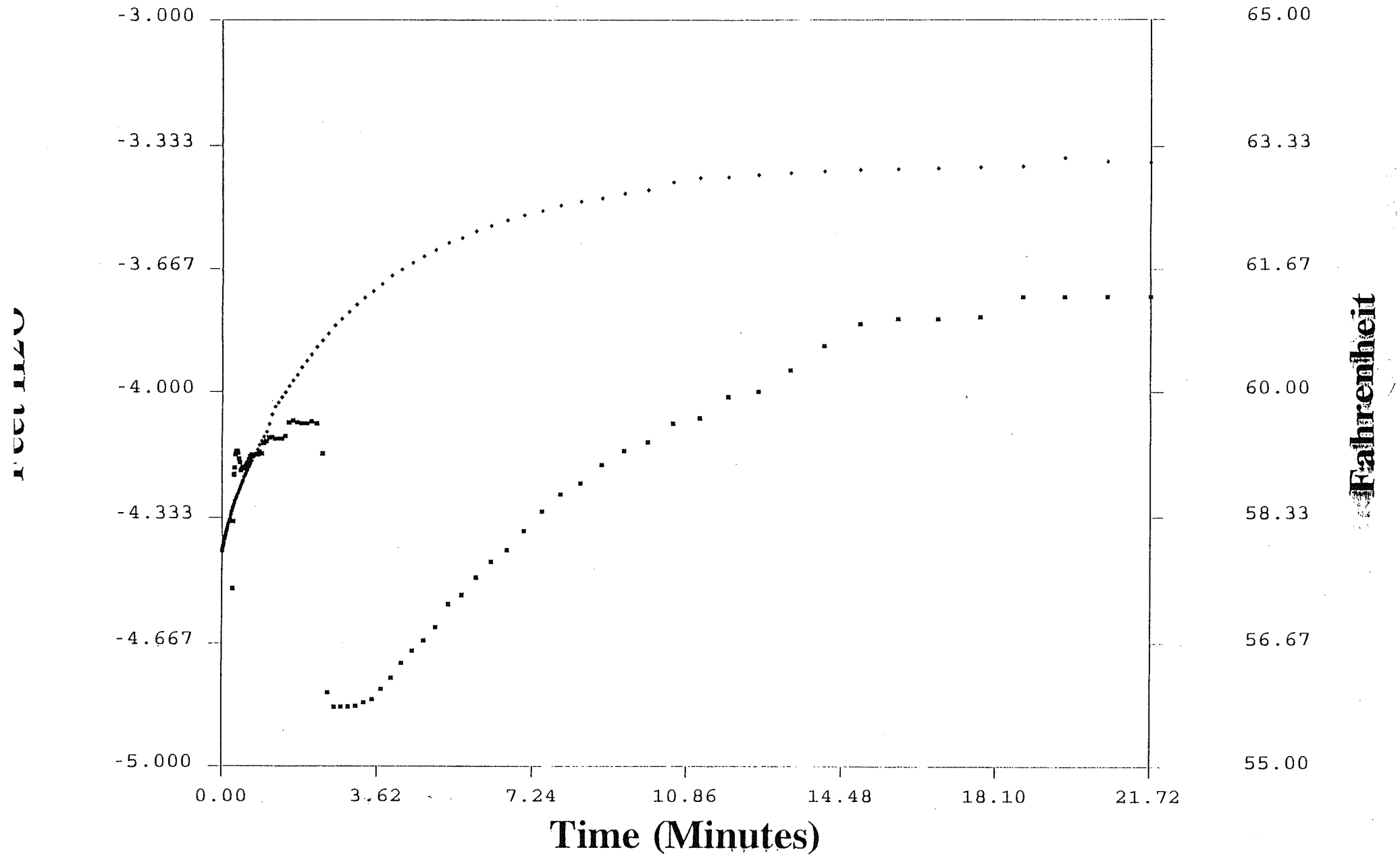

-2.500
-2.917
-3.333
-3.750
-4.167
-4.583
-5.000
75.00
72.50
70.00
67.50
65.00
62.50
60.00
Fahrenheit
0.00
3.95
7.91
11.86
15.82
19.77
23.72
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

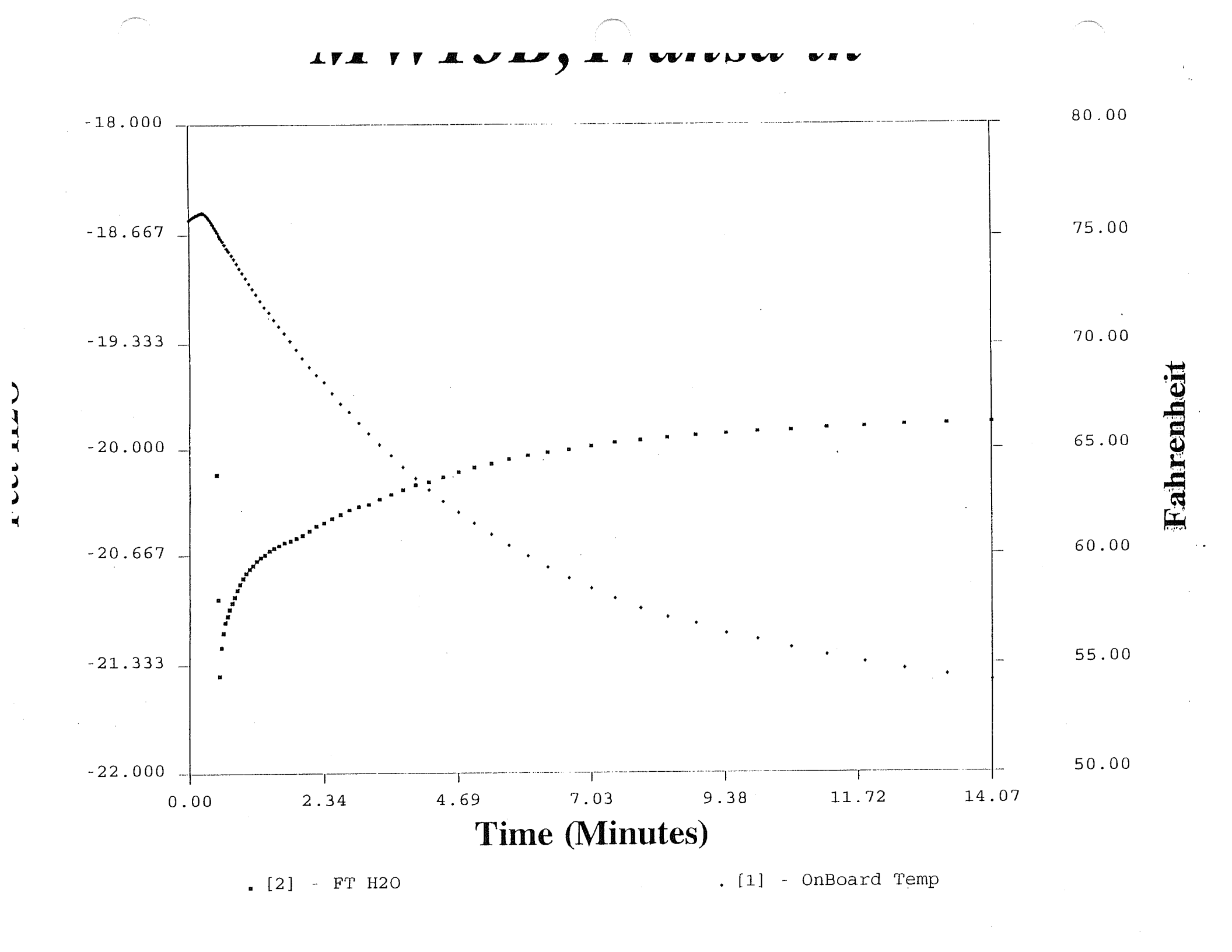
MW-11, Transd in




-2.500
-2.750
-3.000
-3.250
-3.500
-3.750
-4.000
75.00
72.50
70.00
67.50
65.00
62.50
60.00
Fahrenheit
0.0
7.3
14.6
21.9
29.1
36.4
43.7
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

MW13A, Transd in




-18.000
-18.667
-19.333
-20.000
-20.667
-21.333
-22.000
80.00
75.00
70.00
65.00
60.00
55.00
50.00
Fahrenheit
0.00
2.34
4.69
7.03
9.38
11.72
14.07
Time (Minutes)
. [2] - FT H2O
. [1] - OnBoard Temp

Tidal Data at Newport, Narragansett Bay, RI,

Station ID	Date	Time	WL(ft)	dH(ft, b)	dH(ft, f)	TY
8452660	8/26/99	5:48	2.04		-3.71	L
8452660	8/26/99	12:12	5.75	3.71	3.79	H
8452660	8/26/99	17:42	1.96	-3.79	-4.18	LL
8452660	8/27/99	0:24	6.14	4.18	4.23	H
8452660	8/27/99	6:36	1.91	-4.23	-4.26	LL
8452660	8/27/99	12:48	6.17	4.26	4.21	HH
8452660	8/27/99	18:24	1.96	-4.21	-4.33	L
8452660	8/28/99	1:18	6.29	4.33	4.35	H
8452660	8/28/99	7:00	1.94	-4.35	-4.37	LL
8452660	8/28/99	13:24	6.31	4.37	4.29	HH
8452660	8/28/99	19:06	2.02	-4.29	-4.25	L
8452660	8/29/99	1:48	6.27	4.25	4.54	HH
8452660	8/29/99	7:48	1.73	-4.54	-4.46	LL
8452660	8/29/99	14:12	6.19	4.46	4.32	H
8452660	8/29/99	19:54	1.87	-4.32	-4.09	L
8452660	8/30/99	2:18	5.96	4.09	4.4	H
8452660	8/30/99	7:54	1.56	-4.4	-4.75	LL
8452660	8/30/99	15:12	6.31	4.75	4.41	HH
8452660	8/30/99	20:54	1.9	-4.41	-4.23	L
8452660	8/31/99	3:24	6.13	4.23	4.22	H
8452660	8/31/99	8:48	1.91	-4.22	-4.55	LL
8452660	8/31/99	15:48	6.46	4.55	4.16	HH
8452660	8/31/99	21:30	2.3	-4.16	-3.55	L
8452660	9/1/99	4:18	5.85	3.55	3.99	H
8452660	9/1/99	9:30	1.86	-3.99	-4.25	LL
8452660	9/1/99	16:36	6.11	4.25	3.64	HH
8452660	9/1/99	22:48	2.47	-3.64	-3.34	L
8452660	9/2/99	5:12	5.81	3.34	3.69	H
8452660	9/2/99	10:24	2.12	-3.69	-3.81	LL
8452660	9/2/99	17:42	5.93	3.81	3.51	HH
8452660	9/2/99	23:48	2.42	-3.51	-3.13	L
8452660	9/3/99	6:06	5.55	3.13	3.29	H
8452660	9/3/99	11:24	2.26	-3.29	-3.84	LL
8452660	9/3/99	18:42	6.1	3.84	3.53	HH
8452660	9/4/99	1:30	2.57	-3.53	-2.84	L
8452660	9/4/99	7:06	5.41	2.84	3.06	H
8452660	9/4/99	12:36	2.35	-3.06	-3.79	LL
8452660	9/4/99	19:48	6.14	3.79		HH

Notes:

The high-low water levels are retrived from NOAA CO-OPS's database.
WL(ft): water level in feet above the datum
dH(ft, b): backward water level difference in feet.
dH(ft, f): foreward water level difference in feet.
H: high water; HH: higher high water; L: low water; LL: lower low water.

TRC Environmental Corporation
Bedrock Fracture Analysis

Memorandum

To: Steve Farrick
From: Larry Butlien
Re: NUWC - Newport Bedrock Fracture Analysis
Date: December 10, 1998

On December 9, 1998, representatives from TRC performed a bedrock fracture analysis survey at NUWC - Newport in the vicinity of Building 179. The findings of the survey are summarized below:

- A total of 3 different bedrock outcrops / exposures were identified in the unnamed stream bed which flows adjacent to Building 179. No other bedrock outcroppings were identified within the NUWC - Newport property line.
- The first bedrock outcrop (Site 1) is located on the immediate downstream side of the culvert which directs stream flow under the access road to Building 185. This location is approximately 400 feet north of the Building 179 UST (1,1,1-TCA source area).
- The second bedrock outcrop (Site 2) is located approximately 75 feet downstream of Site 1. Site 2 is a bedrock "exposure" within the stream bed. This location is approximately 450 feet north-northwest of the 1,1,1-TCA source area.
- The third bedrock outcrop (Site 3) is located approximately 75 feet downstream of Site 2. Site 3 is located on the western stream bank. This location is approximately 500 feet north-northwest of the 1,1,1-TCA source area.
- At each site, a Brunton compass was used to collect strike and dip measurements of identified bedrock fractures or bedrock bedding planes. Numerous photographs were taken at each site to document findings.

A summary of the fracture or bedding strike and dip measurements follows:

Site 1
Fracture - only one major fracture identified
Strike - North 70° West (290°)
Dip - 78° Northeast

Site 2
2 major fracture sets (FS) identified

FS - A
Strike - North 110° West (260°)
Dip - 77° North

FS - B
Strike - North 53° West (307°)
Dip - 75° Northeast

Site 3
No major fractures identified, good bedding plane exposure

Strike - North 75^0 West (285^0)
Dip - 5^0 Southwest

APPENDIX G
Analytical Data

- Soil Analytical Data
- Groundwater Analytical Data
- Surface Water and Sediment Analytical Data

Soil
Analytical Data

Committed To *Your* Success

Severn Trent Laboratories
200 Monroe Turnpike
Monroe, Connecticut 06468

Tel: (203) 261-4458
Fax: (203) 261-5346
www.stl-inc.com

August 05, 1999

Mr. Steve Farrick
TRC ENVIRONMENTAL CORP.
Naval Undersea Warfare Ctr. Div.,Newport
1176 Howell St.-Bldg. #11(Code 551)
Newport, RI 02841

Dear Mr. Farrick :

Please find enclosed the analytical results of 17 sample(s) received at our laboratory on July 15-21, 1999. This report contains sections addressing the following information at a minimum:

- sample summary
- analytical methodology
- state certifications
- definition of data qualifiers and terminology
- analytical results
- chain-of-custody

STL Report #7099-1676A	
Project ID: B-179 REMEDIATION	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 261-4458 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

Jeffrey C. Curran
Laboratory Manager

JCC

7099-1676A

TRC ENVIRONMENTAL CORP.

Case Narrative

Volatile Organics - Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5035B/8260B. The instrumentation used was a Tekmar Model 2000 Concentrator/Archon 51/4552 autosampler interfaced with a Hewlett-Packard Model 5971A GC/MS/DS.

Sample B-10 5-4 was originally analyzed on 07/21/99 with the compound, 1,1,2,2-tetrachloroethane, out of criteria in the initial calibration curve. The sample was then analyzed on 07/27/99 with a surrogate out of criteria. There were no vials remaining for further analysis. Both samples were reported.

Samples B-22 S-3, B-21 S-3, B-30 S-3 and B-20 S-3 were analzyed on 07/15/99 with results exhibiting suppression of internal standard areas. These samples only had one encore vial sent for analysis except for sample B-22 S-3 which had two vials with one analysis being a leaker. The analyses with the internal standard area out of criteria was reported.

Sample B-23 S-2 was reported with wet weight since total solids were not supplied for this sample.

TABLE VO-1.0
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

lient Sample I.D.	Method Blank	B-11 S-4	B-10 S-4 RE	Quant. Limits with no Dilution
ab Sample I.D.	VBLKLI	991676A-09	991676A-10RE	
ethod Blank I.D.	VBLKLI	VBLKLI	VBLKLI	
uant. Factor	1.00	0.846	0.908	
hloromethane	U	U	U	10
romomethane	U	U	U	10
inyl Chloride	U	U	U	10
hloroethane	U	U	U	10
ethylene Chloride	.9J	1JB	2JB	5.0
cetone	U	U	U	10
arbon Disulfide	U	U	U	5.0
inyl Acetate	U	U	U	10
,1-Dichloroethene	U	U	U	5.0
,1-Dichloroethane	U	U	1J	5.0
is-1,2-Dichloroethene	U	U	U	5.0
rans-1,2-Dichloroethene	U	U	U	5.0
hloroform	.3J	U	U	5.0
,2-Dichloroethane	U	U	U	5.0
-Butanone	U	U	U	10
,1,1-Trichloroethane	U	U	U	5.0
arbon Tetrachloride	U	U	U	5.0
romodichloromethane	U	U	U	5.0
,2-Dichloropropane	U	U	U	5.0
is-1,3-Dichloropropene	U	U	U	5.0
richloroethene	U	U	U	5.0
ibromochloromethane	U	U	U	5.0
,1,2-Trichloroethane	U	U	U	5.0
enzene	U	.2J	.3J	5.0
rans-1,3-Dichloropropene	U	U	U	5.0
romoform	U	U	U	5.0
-Methyl-2-Pentanone	U	U	U	10
-Hexanone	U	U	U	10
etrachloroethene	U	U	U	5.0
oluene	U	.4J	U	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
hlorobenzene	U	U	U	5.0
thylbenzene	U	U	U	5.0
tyrene	U	U	U	5.0
ylene (total)	U	U	U	5.0
Date Received		07/16/99	07/16/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/26/99	07/27/99	07/27/99	

ee Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.1
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	B-12 S-4	MW-6 S-4		Quant. Limits with no Dilution
Lab Sample I.D.	991676A-11	991676A-12		
Method Blank I.D.	VBLKLI	VBLKLI		
Quant. Factor	0.815	0.879		
Chloromethane	U	U		10
Bromomethane	U	U		10
Vinyl Chloride	U	U		10
Chloroethane	3J	U		10
Methylene Chloride	.5JB	U		5.0
Acetone	U	49		10
Carbon Disulfide	.4J	U		5.0
Vinyl Acetate	U	U		10
1,1-Dichloroethene	U	U		5.0
1,1-Dichloroethane	9	U		5.0
cis-1,2-Dichloroethene	U	U		5.0
trans-1,2-Dichloroethene	U	U		5.0
Chloroform	U	U		5.0
1,2-Dichloroethane	U	U		5.0
2-Butanone	U	U		10
1,1,1-Trichloroethane	6	U		5.0
Carbon Tetrachloride	U	U		5.0
Bromodichloromethane	U	U		5.0
1,2-Dichloropropane	U	U		5.0
cis-1,3-Dichloropropene	U	U		5.0
Trichloroethene	.2J	U		5.0
Dibromochloromethane	U	U		5.0
1,1,2-Trichloroethane	U	U		5.0
Benzene	.2J	1J		5.0
trans-1,3-Dichloropropene	U	U		5.0
Bromoform	U	U		5.0
4-Methyl-2-Pentanone	U	U		10
2-Hexanone	U	U		10
Tetrachloroethene	U	U		5.0
Toluene	U	1J		5.0
1,1,2,2-Tetrachloroethane	U	U		5.0
Chlorobenzene	U	U		5.0
Ethylbenzene	U	.5J		5.0
Styrene	U	U		5.0
Xylene (total)	U	.6J		5.0
Date Received	07/16/99	07/16/99		
Date Extracted	N/A	N/A		
Date Analyzed	07/27/99	07/27/99		

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.2
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Lient Sample I.D.	Method Blank	B-30 S-3	B-20 S-3	Quant. Limits with no Dilution
ab Sample I.D.	VBLKNP	991676A-01	991676A-03	
ethod Blank I.D.	VBLKNP	VBLKNP	VBLKNP	
uant. Factor	1.00	1.42	3.07	
hloromethane	U	U	U	10
romomethane	U	U	U	10
inyl Chloride	U	U	U	10
hloroethane	U	U	U	10
ethylene Chloride	.8J	3JB	8JB	5.0
cetone	U	U	U	10
arbon Disulfide	.4J	U	U	5.0
inyl Acetate	U	U	U	10
,1-Dichloroethene	U	U	U	5.0
,1-Dichloroethane	U	U	U	5.0
is-1,2-Dichloroethene	U	U	U	5.0
rans-1,2-Dichloroethene	U	U	U	5.0
hloroform	U	U	U	5.0
,2-Dichloroethane	U	U	U	5.0
-Butanone	U	U	U	10
,1,1-Trichloroethane	U	U	U	5.0
arbon Tetrachloride	U	U	U	5.0
romodichloromethane	U	U	U	5.0
,2-Dichloropropane	U	U	U	5.0
is-1,3-Dichloropropene	U	U	U	5.0
richloroethene	U	U	U	5.0
ibromochloromethane	U	U	U	5.0
,1,2-Trichloroethane	U	U	U	5.0
enzene	U	U	U	5.0
rans-1,3-Dichloropropene	U	U	U	5.0
romoform	U	U	U	5.0
-Methyl-2-Pentanone	U	U	U	10
-Hexanone	U	U	U	10
etrachloroethene	U	U	U	5.0
oluene	U	U	U	5.0
,1,2,2-Tetrachloroethane	U	U	U	5.0
hlorobenzene	U	U	U	5.0
thylbenzene	U	U	U	5.0
tyrene	U	U	U	5.0
ylene (total)	U	U	U	5.0
Date Received		07/15/99	07/15/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/15/99	07/15/99	07/15/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.3
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	B-21 S-3	B-22 S-3	B-23 S-2	Quant. Limits with no Dilutio
Lab Sample I.D.	991676A-05	991676A-07	991676A-08	
Method Blank I.D.	VBLKNP	VBLKNP	VBLKNP	
Quant. Factor	0.826	0.900	1.05	
Chloromethane	U	U	U	10
Bromomethane	U	U	U	10
Vinyl Chloride	U	U	U	10
Chloroethane	U	U	U	10
Methylene Chloride	2JB	2JB	2JB	5.0
Acetone	U	4J	U	10
Carbon Disulfide	U	U	U	5.0
Vinyl Acetate	U	U	U	10
1,1-Dichloroethene	U	U	U	5.0
1,1-Dichloroethane	6	2J	U	5.0
cis-1,2-Dichloroethene	U	U	U	5.0
trans-1,2-Dichloroethene	U	U	U	5.0
Chloroform	U	U	U	5.0
1,2-Dichloroethane	U	U	U	5.0
2-Butanone	U	U	U	10
1,1,1-Trichloroethane	6	U	U	5.0
Carbon Tetrachloride	U	U	U	5.0
Bromodichloromethane	U	U	U	5.0
1,2-Dichloropropane	U	U	U	5.0
cis-1,3-Dichloropropene	U	U	U	5.0
Trichloroethene	U	U	U	5.0
Dibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
Benzene	U	U	U	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	U	U	U	5.0
Toluene	U	U	U	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	U	U	5.0
Styrene	U	U	U	5.0
Xylene (total)	U	U	U	5.0
Date Received	07/15/99	07/15/99	07/15/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/15/99	07/15/99	07/15/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.4
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

lient Sample I.D.	Method Blank	B13-S4	B14-S3	Quant. Limits with no Dilution
ab Sample I.D.	VBLKLK	991676A-13	991676A-14	
ethod Blank I.D.	VBLKLK	VBLKLK	VBLKLK	
uant. Factor	1.00	1.11	0.974	
hloromethane	U	U	U	10
romomethane	U	U	U	10
inyl Chloride	U	U	U	10
hloroethane	U	220	2J	10
ethylene Chloride	3J	2JB	.4JB	5.0
cetone	U	U	18	10
arbon Disulfide	U	U	.3J	5.0
inyl Acetate	U	U	U	10
,1-Dichloroethene	U	2J	U	5.0
,1-Dichloroethane	U	24	1J	5.0
is-1,2-Dichloroethene	U	U	U	5.0
rans-1,2-Dichloroethene	U	U	U	5.0
hloroform	U	U	U	5.0
,2-Dichloroethane	U	U	U	5.0
-Butanone	U	U	U	10
,1,1-Trichloroethane	U	17	U	5.0
arbon Tetrachloride	U	U	U	5.0
romodichloromethane	U	U	U	5.0
,2-Dichloropropane	U	U	U	5.0
is-1,3-Dichloropropene	U	U	U	5.0
richloroethene	U	.3J	U	5.0
ibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
enzene	U	.3J	U	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	U	U	U	5.0
Toluene	U	U	U	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	U	U	5.0
Styrene	U	U	U	5.0
Xylene (total)	U	U	U	5.0
Date Received		07/21/99	07/21/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/27/99	07/28/99	07/28/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.5
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	B16-S4	B24-S2	B25-S2	Quant. Limits with no Dilutio
Lab Sample I.D.	991676A-16	991676A-17	991676A-18	
Method Blank I.D.	VBLKLK	VBLKLK	VBLKLK	
Quant. Factor	1.05	1.03	0.961	
Chloromethane	U	U	U	10
Bromomethane	U	U	U	10
Vinyl Chloride	U	U	U	10
Chloroethane	U	U	U	10
Methylene Chloride	U	U	.4JB	5.0
Acetone	U	U	U	10
Carbon Disulfide	U	U	U	5.0
Vinyl Acetate	U	U	U	10
1,1-Dichloroethene	U	U	U	5.0
1,1-Dichloroethane	U	U	U	5.0
cis-1,2-Dichloroethene	U	U	U	5.0
trans-1,2-Dichloroethene	U	U	U	5.0
Chloroform	U	U	U	5.0
1,2-Dichloroethane	U	U	U	5.0
2-Butanone	U	U	U	10
1,1,1-Trichloroethane	U	U	U	5.0
Carbon Tetrachloride	U	U	U	5.0
Bromodichloromethane	U	U	U	5.0
1,2-Dichloropropane	U	U	U	5.0
cis-1,3-Dichloropropene	U	U	U	5.0
Trichloroethene	U	U	U	5.0
Dibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
Benzene	.6J	.6J	.4J	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	U	U	U	5.0
Toluene	.4J	U	U	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	U	U	5.0
Styrene	U	U	U	5.0
Xylene (total)	U	U	U	5.0
Date Received	07/21/99	07/21/99	07/21/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/28/99	07/28/99	07/28/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.6
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

lient Sample I.D.	Method Blank	B15-S3	B26-S2	Quant. Limits with no Dilution
ab Sample I.D.	VBLKLL	991676A-15	991676A-19	
ethod Blank I.D.	VBLKLL	VBLKLL	VBLKLL	
uant. Factor	1.00	1.93	1.53	
hloromethane	U	U	U	10
romomethane	U	U	U	10
inyl Chloride	U	U	U	10
hloroethane	U	U	U	10
ethylene Chloride	U	2J	U	5.0
cetone	U	U	52	10
arbon Disulfide	U	U	U	5.0
inyl Acetate	U	U	U	10
,1-Dichloroethene	U	U	U	5.0
,1-Dichloroethane	U	U	U	5.0
is-1,2-Dichloroethene	U	U	U	5.0
rans-1,2-Dichloroethene	U	U	U	5.0
hloroform	.7J	U	U	5.0
,2-Dichloroethane	U	U	U	5.0
-Butanone	U	U	U	10
,1,1-Trichloroethane	U	U	U	5.0
arbon Tetrachloride	U	U	U	5.0
romodichloromethane	U	U	U	5.0
1,2-Dichloropropane	U	U	U	5.0
is-1,3-Dichloropropene	U	U	U	5.0
richloroethene	U	U	U	5.0
ibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
Benzene	.5J	.9JB	.8JB	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	U	U	U	5.0
Toluene	.7J	1JB	1JB	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	U	U	5.0
Styrene	U	.4J	U	5.0
Xylene (total)	U	.4J	U	5.0
Date Received		07/21/99	07/21/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/28/99	07/28/99	07/28/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.7
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	B261-S2			Quant. Limits with no Dilutio
Lab Sample I.D.	991676A-20			
Method Blank I.D.	VBLKLL			
Quant. Factor	1.43			
Chloromethane	U			10
Bromomethane	U			10
Vinyl Chloride	U			10
Chloroethane	U			10
Methylene Chloride	U			5.0
Acetone	54			10
Carbon Disulfide	.6J			5.0
Vinyl Acetate	U			10
1,1-Dichloroethene	U			5.0
1,1-Dichloroethane	U			5.0
cis-1,2-Dichloroethene	U			5.0
trans-1,2-Dichloroethene	U			5.0
Chloroform	U			5.0
1,2-Dichloroethane	U			5.0
2-Butanone	U			10
1,1,1-Trichloroethane	U			5.0
Carbon Tetrachloride	U			5.0
Bromodichloromethane	U			5.0
1,2-Dichloropropane	U			5.0
cis-1,3-Dichloropropene	U			5.0
Trichloroethene	U			5.0
Dibromochloromethane	U			5.0
1,1,2-Trichloroethane	U			5.0
Benzene	1JB			5.0
trans-1,3-Dichloropropene	U			5.0
Bromoform	U			5.0
4-Methyl-2-Pentanone	U			10
2-Hexanone	U			10
Tetrachloroethene	U			5.0
Toluene	2JB			5.0
1,1,2,2-Tetrachloroethane	U			5.0
Chlorobenzene	U			5.0
Ethylbenzene	U			5.0
Styrene	U			5.0
Xylene (total)	U			5.0
Date Received	07/21/99			
Date Extracted	N/A			
Date Analyzed	07/28/99			

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

Soil

TABLE VO-1.8
7099-1676A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

lient Sample I.D.	Method Blank	B-10 S-4		Quant. Limits with no Dilution
ab Sample I.D.	VBLKN7	991676A-10		
ethod Blank I.D.	VBLKN7	VBLKN7		
uant. Factor	1.00	0.902		
hloromethane	U	U		10
romomethane	U	U		10
inyl Chloride	U	U		10
hloroethane	U	U		10
ethylene Chloride	1J	.8JB		5.0
cetone	U	U		10
arbon Disulfide	U	U		5.0
inyl Acetate	U	U		10
,1-Dichloroethene	U	U		5.0
,1-Dichloroethane	U	.9J		5.0
is-1,2-Dichloroethene	U	U		5.0
rans-1,2-Dichloroethene	U	U		5.0
hloroform	U	U		5.0
,2-Dichloroethane	U	U		5.0
-Butanone	U	U		10
,1,1-Trichloroethane	U	8		5.0
arbon Tetrachloride	U	U		5.0
romodichloromethane	U	U		5.0
,2-Dichloropropane	U	U		5.0
is-1,3-Dichloropropene	U	U		5.0
richloroethene	U	U		5.0
ibromochloromethane	U	U		5.0
,1,2-Trichloroethane	U	U		5.0
enzene	U	U		5.0
rans-1,3-Dichloropropene	U	U		5.0
romoform	U	U		5.0
-Methyl-2-Pentanone	U	U		10
-Hexanone	U	U		10
etrachloroethene	U	U		5.0
oluene	U	U		5.0
1,1,2,2-Tetrachloroethane	U	U		5.0
hlorobenzene	U	U		5.0
thylbenzene	U	U		5.0
Styrene	U	U		5.0
Xylene (total)	U	U		5.0
Date Received		07/16/99		
Date Extracted	N/A	N/A		
Date Analyzed	07/20/99	07/21/99		

ee Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

Address: 5 WATERSIDE CROSSING
WINDSOR, CT 06095

Project Manager: STEVE FARRICK
Work ID: B-179 REMEDIATION

Phone: 401-832-5881 Fax: 401-832-4747 Contact: STEVE FARRICK

Requested Turn Around Time
15 Business Day X Rush
10 Business Day Other

Regulatory Classification - Please Specify
NPDES Drinking Water MCP Other
RCRA MCP GW1 Other

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)
UPON COMPLETION, PLEASE FAX RESULTS TO 832-4747, FINAL REPORT TO WINDSOR
PLEASE CALL IF ANY PROBLEMS OR QUESTIONS ARRISE.

Sample Type Codes
WW-Wellwater W-Wastewater SW-Surfacewater LW-Labwater
RW-Raw Water GW-Groundwater PW-Public Water SO-Soil
S-Solid SL-Sludge O-Oil A-Air Z-Other

Sample ID (Use one line per container; For volatiles-one line/analysis)	Sample Type	Date Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: Na2S2O3	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH<2	NaOH to pH>12	Other	4° C	pH	Volatiles 8021	Semivolatiles	PCB & Pesticides	Metals	Cyanide	TCLP	Oil & Grease	Total Pet. Hyd.(TPH)	General Chemistry	Bacteriological	Other
B-30 S-3 01 02	SO	7/14-7/15/99 1900-0630	X		2								X		4										
B-20 S-3 03 04	SO	7/14-7/15 1410-0635	X		2								X		X										
B-21 S-3 05 06	SO	7/14-7/15 1420-0640	X		2								X		X										
B-22 S-3 07	SO	7/15/99 0645	X		2								X		X										
B-23 S-2 08	SO	7/15/99 0648	X		2								X		X										

PASSED RAD SCREEN

Sampled by (print): BRIAN SULLIVAN Signature: Brian Sullivan

Relinquished by: Brian Sullivan Date: 7/15/99 Time: 0650
Received by: TO FEDEX FOR SAMEDAY DELIVERY Date: Time:

Relinquished by: Date: Time:
Received by: Date: 7/15/99 Time: 12:30

Method of shipment:
Laboratory: TLET

Cooler #:
Temp. @ receipt: 4°C
Preservation pH checked
By: Date:

Page 1 of 1

White = Lab file Yellow = Report copy Pink = Office use only Green = Customer copy

Committed to Your Success

nt: TRC Environmental Corp. Job#: 7099-169T16KeA

ss: 5 Waterside Crossing Project Manager: Steve Fabrick

Windsor, CT 06095 Work ID:

ne: 401-832-5866 Fax: 401-832-4747 Contact: Steve Fabrick

Job#	Quote#	PO#

Shaded areas for office use

Analysis Requested

Check analysis and specify method and analytes in comments section.

For example:
- 500-series for drinking water
- 600-series for waste water
- 8000-series for haz/solid waste

Use comments section to further define.

Comments (Special Instructions)

Upon completion, please fax results to 832-4747 Final Report to Windsor. Please call if any problems or questions arise.

PASSED RAD SCREEN

Requested Turn Around Time

ness Day X Rush

ness Day Other

Regulatory Classification - Please Specify

NPDES Drinking Water MCP Other

RCRA MCP GW1 Other

Type Codes

ellwater W-Wastewater SW-Surfacewater LW-Labwater

w Water GW-Groundwater PW-Public Water SO-Soil

St.-Sludge O-Oil A-Air Z-Other

Sample ID (Use one line per container; for volatiles-one line/analysis)	Sample Type	Date Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: Na2S2O3	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH<2	NaOH to pH>12	Other	4° C	pH	Volatiles 8021	Semivolatiles	PCB & Pesticides	Metals	Cyanide	TCLP	Oil & Grease	Total Pet. Hyd.(TPH)	General Chemistry	Bacteriological	Other
11 S-4 09	SO	7/15/99 1115	X		2								X		X										
10 S-4 10 02	SO	7/15/99 1200	X		2								X		X										
12 S-4 11 03	SO	7/15/99 1030	X		2								X		X										
1-6 S-4 12 04	SO	7/15/99 1400	X		2								X		X										

Signature: Brian Sullivan

led by (print): Brian Sullivan

quished by: Brian Sullivan Date: 7/15/99 Time: 1550

Received by: To Fedex For Overnight Delivery Date: Time:

quished by Date: Time:

Received by: Date: 7/16/99 Time: 10 30

od of shipment

Laboratory: STL-CT

Cooler #

Temp. @ receipt: 4°C

Preservation pH checked

By: Date:

White = Lab file Yellow = Report copy Pink = Office use only Green = Customer copy

CHAIN OF CUSTODY RECORD

№ 1093

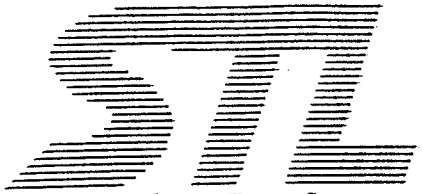
PROJECT NO.	PROJECT NAME		PARAMETERS
984-0040	NUWC - B179	7099-1676A	

SAMPLERS: (Signature) Dan Sull (Printed) B. SULLIVAN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	EXTRACTION BY EPA 5035	ANALYSIS BY EPA 8260	REMARKS
B13-S4	7/19/99			X	NUWC - B.179				* SEE NOTE
B14-S3	7/19/99			X					* SEE NOTE
B15-S3	7/20/99			X					
B16-S4	7/20/99			X					
B24-S2	7/19/99			X					* SEE NOTE
B25-S2	7/20/99			X					
B26-S2	7/20/99			X					
B261-S2	7/20/99			X					
B16-S5	7/20/99			X					

PASSED RAD SCREEN 4C

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Allan M. Pearsall (Printed)	7/20/99 5:34 PM	TO FED EX TRACKING # 805305960688 (Printed)	(Printed)		(Printed)
Relinquished by: (Signature) (Printed)	Date / Time	Received for Laboratory by: (Signature) (Printed)	Date / Time 7/21/99 10:30	Remarks * NOTE: PRESERVE BY 12:00 NOON, WEDNESDAY, JULY 21, 1999 UPON COMPLETION PLEASE FAX RESULTS TO (401) 832-4747. FINAL REPORT TO WINDSOR PLEASE CALL IF ANY PROBLEMS OR QUESTIONS A	



Committed To *Your* Success

Severn Trent Laboratories
200 Monroe Turnpike
Monroe CT 06468

Tel: (203) 261-4458
Fax: (203) 268-5346

August 04, 1999

Mr. Steve Farrick
TRC ENVIRONMENTAL CORP.
Naval Undersea Warfare Ctr. Div.,Newport
1176 Howell St.-Bldg. #11(Code 551)
Newport, RI 02841

Dear Mr. Farrick :

Please find enclosed the analytical results of 7 sample(s) received at our laboratory on July 21-23, 1999. This report contains sections addressing the following information at a minimum:

- sample summary
- analytical methodology
- state certifications
- definition of data qualifiers and terminology
- analytical results
- chain-of-custody

STL Report #7099-1676B	
Project ID: B-179 REMEDIATION	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 261-4458 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

Jeffrey C. Curran
Laboratory Manager

JCC

7099-1676B

TRC ENVIRONMENTAL CORP.

Case Narrative

Volatile Organics - Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5035B/8260B. The instrumentation used was a Tekmar Model 2000 Concentrator/Archon 51 autosampler interfaced with a Hewlett-Packard Model 5971A GC/MS/DS.

No problems were encountered.

TABLE VO-1.0 Soil
7099-1676B
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	B16-S5	MW8B-S3	Quant. Limits with no Dilution
Lab Sample I.D.	VBLKLL	991676B-01	991676B-03	
Method Blank I.D.	VBLKLL	VBLKLL	VBLKLL	
Quant. Factor	1.00	0.915	1.05	
Chloromethane	U	U	U	10
Bromomethane	U	U	U	10
Vinyl Chloride	U	U	U	10
Chloroethane	U	U	U	10
Methylene Chloride	U	U	2J	5.0
Acetone	U	U	34	10
Carbon Disulfide	U	U	U	5.0
Vinyl Acetate	U	U	U	10
1,1-Dichloroethene	U	U	U	5.0
1,1-Dichloroethane	U	U	U	5.0
cis-1,2-Dichloroethene	U	U	U	5.0
trans-1,2-Dichloroethene	U	U	U	5.0
Chloroform	.7J	U	U	5.0
1,2-Dichloroethane	U	U	U	5.0
2-Butanone	U	U	U	10
1,1,1-Trichloroethane	U	U	U	5.0
Carbon Tetrachloride	U	U	U	5.0
Bromodichloromethane	U	U	U	5.0
1,2-Dichloropropane	U	U	U	5.0
cis-1,3-Dichloropropene	U	U	U	5.0
Trichloroethene	U	U	U	5.0
Dibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
Benzene	.5J	.3JB	.2JB	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	U	U	U	5.0
Toluene	.7J	U	U	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	U	U	5.0
Styrene	U	U	U	5.0
Xylene (total)	U	U	U	5.0
Date Received		07/21/99	07/22/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/28/99	07/28/99	07/28/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.1
7099-1676B
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	MW71B-S4	MW7B-S6	MW11-S5	Quant. Limits with no Dilution
Lab Sample I.D.	991676B-04	991676B-05	991676B-07	
Method Blank I.D.	VBLKLL	VBLKLL	VBLKLL	
Quant. Factor	1.04	0.879	0.829	
Chloromethane	U	U	U	10
Bromomethane	U	U	U	10
Vinyl Chloride	U	U	U	10
Chloroethane	U	4J	U	10
Methylene Chloride	U	.4J	U	5.0
Acetone	U	U	U	10
Carbon Disulfide	U	2J	.3J	5.0
Vinyl Acetate	U	U	U	10
1,1-Dichloroethene	1J	3J	U	5.0
1,1-Dichloroethane	6	53	U	5.0
cis-1,2-Dichloroethene	U	.6J	U	5.0
trans-1,2-Dichloroethene	U	U	U	5.0
Chloroform	U	U	U	5.0
1,2-Dichloroethane	U	U	U	5.0
2-Butanone	U	U	U	10
1,1,1-Trichloroethane	42	140	U	5.0
Carbon Tetrachloride	U	U	U	5.0
Bromodichloromethane	U	U	U	5.0
1,2-Dichloropropane	U	U	U	5.0
cis-1,3-Dichloropropene	U	U	U	5.0
Trichloroethene	U	3J	U	5.0
Dibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
Benzene	.3JB	.2JB	U	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	.7J	2J	U	5.0
Toluene	.8JB	.5JB	U	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	.3J	U	5.0
Styrene	U	.2J	U	5.0
Xylene (total)	4J	5	U	5.0
Date Received	07/23/99	07/23/99	07/23/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/28/99	07/28/99	07/28/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

Soil

TABLE VO-1.2
7099-1676B
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	MW7B-S4	MW11-S4	Quant. Limits with no Dilution
Lab Sample I.D.	VBLKLN	991676B-02	991676B-06	
Method Blank I.D.	VBLKLN	VBLKLN	VBLKLN	
Quant. Factor	1.00	1.21	1.72	
Chloromethane	U	U	U	10
Bromomethane	U	U	U	10
Vinyl Chloride	U	U	U	10
Chloroethane	U	U	U	10
Methylene Chloride	.6J	1JB	U	5.0
Acetone	U	U	94	10
Carbon Disulfide	U	U	3J	5.0
Vinyl Acetate	U	U	U	10
1,1-Dichloroethene	U	1J	U	5.0
1,1-Dichloroethane	U	28	U	5.0
cis-1,2-Dichloroethene	U	U	U	5.0
trans-1,2-Dichloroethene	U	U	U	5.0
Chloroform	.5J	U	U	5.0
1,2-Dichloroethane	U	U	U	5.0
2-Butanone	U	U	U	10
1,1,1-Trichloroethane	U	120	1J	5.0
Carbon Tetrachloride	U	U	U	5.0
Bromodichloromethane	U	U	U	5.0
1,2-Dichloropropane	U	U	U	5.0
cis-1,3-Dichloropropene	U	U	U	5.0
Trichloroethene	U	U	U	5.0
Dibromochloromethane	U	U	U	5.0
1,1,2-Trichloroethane	U	U	U	5.0
Benzene	U	U	U	5.0
trans-1,3-Dichloropropene	U	U	U	5.0
Bromoform	U	U	U	5.0
4-Methyl-2-Pentanone	U	U	U	10
2-Hexanone	U	U	U	10
Tetrachloroethene	U	1J	U	5.0
Toluene	U	.7J	3J	5.0
1,1,2,2-Tetrachloroethane	U	U	U	5.0
Chlorobenzene	U	U	U	5.0
Ethylbenzene	U	U	U	5.0
Styrene	U	U	U	5.0
Xylene (total)	U	6	U	5.0
Date Received		07/22/99	07/23/99	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	07/29/99	07/29/99	07/29/99	

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TRC

CHAIN OF CUSTODY RECORD

№ 1093

PROJECT NO.	PROJECT NAME
0984-0040	NUWC - B179. 7099-1676B

SAMPLERS: (Signature) Dan Sull (Printed) B. SULLIVAN

PARAMETERS: NO. OF CONTAINERS; EXTRACTION BY EPA 8035; ANALYSIS BY EPA 8260

	FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB SOIL	STATION LOCATION	REMARKS
3	B13-S4	7/19/99			X	NUWC – B.179	* SEE NOTE
4	B14-S3	7/19/99			X		* SEE NOTE
5	B15-S3	7/20/99			X		
6	B16-S4	7/20/99			X		
7	B24-S2	7/19/99			X		* SEE NOTE
8	B25-S2	7/20/99			X		
9	B26-S2	7/20/99			X		
10	B261-S2	7/20/99			X		
11	B16-S5	7/20/99			X		

PASSED RAD SCREEN 4C

Relinquished by: (Signature) / (Printed)	Date / Time	Received by: (Signature) / (Printed)
Allen M. Peapples	7/20/99 5:34 PM	TO FED EX. TRACKING #805305960688
Relinquished by: (Signature) / (Printed)	Date / Time	Received for Laboratory by: (Signature) / (Printed)
		R Martin

Relinquished by: (Signature) / (Printed)	Date / Time	Received by: (Signature) / (Printed)

Date / Time: 7/21/99 10:30

Remarks: * NOTE: PRESERVE BY 12:00 NOON, WEDNESDAY, JULY 21, 1999

UPON COMPLETION PLEASE FAX RESULTS TO (401) 832-4747. FINAL REPORT TO WINDSOR. PLEASE CALL IF ANY PROBLEMS OR QUESTIONS.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	REMARKS
01984-0040	NUWC B-179 7099-1676B		

SAMPLERS: (Signature) Steven C. Farrick (Printed) S. FARRICK

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO OF CONTAINERS	EXTRACTION BY EPA 5035	ANALYSIS BY EPA 8260	REMARKS
MW7B-S4	7/21	1100		✓	NUWC B-179 02	2	X		
MW8B-S3	7/21	1530		✓	03	2	X		

PASSED RAD SCREEN
3°C

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Steven C. Farrick	7/21/89 1650	TO FED EX TRACKING NO 8053059 61445			
(Printed) STEVEN P. FARRICK		(Printed)	(Printed)		(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
(Printed)		(Printed) K Martin		UPON COMPLETION PLEASE FAX RESULTS TO 401-832-4747. FINAL REPORT TO WINDSOR. PLEASE CALL B. SULLIVAN 401-832-5866 OR S. FARRICK 401-832-5081 WITH ANY QUESTIONS	

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Committed To *Your* Success

August 04, 1999

Severn Trent Laboratories
200 Monroe Turnpike
Monroe CT 06468

Tel: (203) 261-4458
Fax: (203) 268-5346

Mr. Steve Farrick
TRC ENVIRONMENTAL CORP.
Naval Undersea Warfare Ctr. Div.,Newport
1176 Howell St.-Bldg. #11(Code 551)
Newport, RI 02841

Dear Mr. Farrick :

Please find enclosed the analytical results of 1 sample(s) received at our laboratory on July 29, 1999. This report contains sections addressing the following information at a minimum:

- sample summary
- analytical methodology
- state certifications
- definition of data qualifiers and terminology
- analytical results
- chain-of-custody

STL Report #7099-1812A	
Project ID: B-179 REMEDIATION	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 261-4458 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

Marshall C. Curran for

Jeffrey C. Curran
Laboratory Manager

JCC

7099-1812A

TRC ENVIRONMENTAL CORP.

Case Narrative

Volatile Organics - Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5035B/8260B. The instrumentation used was a Tekmar Model 2000 Concentrator/Archon 51 autosampler interfaced with a Hewlett-Packard Model 5971A GC/MS/DS.

No problems were encountered.

TABLE VO-1.0 Soil
7099-1812A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	MW12-S2-B9		Quant. Limits with no Dilution
Lab Sample I.D.	VBLKLN	991812A-01		
Method Blank I.D.	VBLKLN	VBLKLN		
Quant. Factor	1.00	0.906		
Chloromethane	U	U		10
Bromomethane	U	U		10
Vinyl Chloride	U	U		10
Chloroethane	U	U		10
Methylene Chloride	.6J	.5J		5.0
Acetone	U	U		10
Carbon Disulfide	U	U		5.0
Vinyl Acetate	U	U		10
1,1-Dichloroethene	U	U		5.0
1,1-Dichloroethane	U	U		5.0
cis-1,2-Dichloroethene	U	U		5.0
trans-1,2-Dichloroethene	U	U		5.0
Chloroform	.5J	U		5.0
1,2-Dichloroethane	U	U		5.0
2-Butanone	U	U		10
1,1,1-Trichloroethane	U	U		5.0
Carbon Tetrachloride	U	U		5.0
Bromodichloromethane	U	U		5.0
1,2-Dichloropropane	U	U		5.0
cis-1,3-Dichloropropene	U	U		5.0
Trichloroethene	U	.7J		5.0
Dibromochloromethane	U	U		5.0
1,1,2-Trichloroethane	U	U		5.0
Benzene	U	U		5.0
trans-1,3-Dichloropropene	U	U		5.0
Bromoform	U	U		5.0
4-Methyl-2-Pentanone	U	U		10
2-Hexanone	U	U		10
Tetrachloroethene	U	17		5.0
Toluene	U	U		5.0
1,1,2,2-Tetrachloroethane	U	U		5.0
Chlorobenzene	U	U		5.0
Ethylbenzene	U	U		5.0
Styrene	U	U		5.0
Xylene (total)	U	U		5.0
Date Received		07/29/99		
Date Extracted	N/A	N/A		
Date Analyzed	07/29/99	07/29/99		

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

CHAIN OF CUSTODY RECORD

No 1054

OJECT NO.	PROJECT NAME
00010 84-0040 -	NUWC - B-179 7099-181ZA

MPLERS: (Signature) Susan Sullivan

(Printed) BRIAN SULLIVAN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB SOIL	STATION LOCATION	NO. OF CONTAINERS ENCORE SAMPLERS	PARAMETERS: EXTRACTION BY EPA 5035	PARAMETERS: ANALYSIS BY EPA 8260	REMARKS
W12-S2-B9	7/28/99			X	NUWC B-179 01	2		A	

PASSED RAD SCREEN 4°C

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Susan Sullivan	7/28/99 1500	TO FEDEX FOR DELIVERY TRACKING No. 805305961397
(Printed) BRIAN SULLIVAN		(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)
(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
(Printed)		(Printed)

Date / Time	Remarks
7/29/99 10:30	UPON COMPLETION, PLEASE FAX RESULTS TO 401-832-4747. FINAL REPORT TO WINDSOR. PLEASE CALL B. SULLIVAN 401-832-5866 OR S. FARRICK 401-832-6881 WITH ANY QUESTIONS.

stribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Committed To *Your* Success

August 18, 1999

Severn Trent Laboratories
200 Monroe Turnpike
Monroe, Connecticut 06468

Tel: (203) 261-4458
Fax: (203) 261-5346
www.stl-inc.com

Mr. Steve Farrick
TRC ENVIRONMENTAL CORP.
Naval Undersea Warfare Ctr. Div.,Newport
1176 Howell St.-Bldg. #11(Code 551)
Newport, RI 02841

Dear Mr. Farrick :

Please find enclosed the analytical results of 1 sample(s) received at our laboratory on August 5, 1999. This report contains sections addressing the following information at a minimum:

- sample summary
- analytical methodology
- state certifications
- definition of data qualifiers and terminology
- analytical results
- chain-of-custody

STL Report #7099-1874A	
Project ID: B-179 REMEDIATION	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 261-4458 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

Marsha K. Curran for

Jeffrey C. Curran
Laboratory Manager

JCC

7099-1874A

TRC ENVIRONMENTAL CORP.

Case Narrative

Volatile Organics - Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5035B/8260B. The instrumentation used was a Tekmar Model 2000 Concentrator/Archon 4552 autosampler interfaced with a Hewlett-Packard Model 5971A GC/MS/DS.

No problems were encountered.

TABLE VO-1.0
7099-1874A
TRC ENVIRONMENTAL CORP.
TCL VOLATILE ORGANICS

Soi

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	MW13B-S3-B8		Quant. Limits with nc Dilutic
Lab Sample I.D.	VBLKN1	991874A-01		
Method Blank I.D.	VBLKN1	VBLKN1		
Quant. Factor	1.00	0.874		
Chloromethane	U	U		10
Bromomethane	U	U		10
Vinyl Chloride	U	U		10
Chloroethane	U	U		10
Methylene Chloride	.8J	2JB		5.0
Acetone	U	U		10
Carbon Disulfide	U	U		5.0
Vinyl Acetate	U	U		10
1,1-Dichloroethene	U	U		5.0
1,1-Dichloroethane	U	U		5.0
cis-1,2-Dichloroethene	U	U		5.0
trans-1,2-Dichloroethene	U	U		5.0
Chloroform	U	U		5.0
1,2-Dichloroethane	U	U		5.0
2-Butanone	U	U		10
1,1,1-Trichloroethane	U	U		5.0
Carbon Tetrachloride	U	U		5.0
Bromodichloromethane	U	U		5.0
1,2-Dichloropropane	U	U		5.0
cis-1,3-Dichloropropene	U	U		5.0
Trichloroethene	U	U		5.0
Dibromochloromethane	U	U		5.0
1,1,2-Trichloroethane	U	U		5.0
Benzene	U	U		5.0
trans-1,3-Dichloropropene	U	U		5.0
Bromoform	U	U		5.0
4-Methyl-2-Pentanone	U	U		10
2-Hexanone	U	U		10
Tetrachloroethene	U	U		5.0
Toluene	U	U		5.0
1,1,2,2-Tetrachloroethane	U	U		5.0
Chlorobenzene	U	U		5.0
Ethylbenzene	U	U		5.0
Styrene	U	U		5.0
Xylene (total)	U	U		5.0
Date Received		08/05/99		
Date Extracted	N/A	N/A		
Date Analyzed	08/08/99	08/08/99		

See Appendix for qualifier definitions
Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

ORGANICS APPENDIX

:ates that the compound was analyzed for but not detected.

:ates that the compound was analyzed for and determined to be present
e sample. The mass spectrum of the compound meets the identification
ria of the method. The concentration listed is an estimated value,
is less than the specified minimum detection limit but is greater
zero.

flag is used when the analyte is found in the blanks as well as the
. It indicates possible sample contamination and warns the data
o use caution when applying the results of this analyte.

tes that the compound was analyzed for but not requested as an
e. Value will not be listed on tabular result sheet.

ted due to surrogate outliers.

spike compound.

be separated.

oses to azobenzene. Measured and calibrated as azobenzene.

lag indicates that a TIC is a suspected aldol condensation product.

tes that it exceeds calibration curve range.

lag identifies all compounds identified in an analysis at a second-
lution factor.

med by GC/MS.

nd present in TCLP blank

lag is used for a pesticide/aroclor target analyte when there is a
r than 25 percent difference for detected concentrations between the
columns (see Form X).

TRC

CHAIN OF CUSTODY RECORD

№ 1095

Page 1 of 1

PROJECT NO.	PROJECT NAME
1954-0010 (cont'd)	NUWC - B179 7099-874A

SAMPLERS: (Signature) Brian Sullivan (Printed) BRIAN SULLIVAN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB SOIL	STATION LOCATION	NO. OF CONTAINERS	PARAMETERS: EXTRACTION BY EPA 5035	PARAMETERS: ANALYSIS BY EPA 8260	REMARKS
1W13B-S3-B8	8/3/99			X	NUWC - B.179 01		X		* SEE NOTE

PASSED RAD SCREEN

PASSED RAD SCREEN

PPC

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Brian Sullivan (Printed) BRIAN SULLIVAN	8/4/99 1230	TO FEDEX TRACKING No. 805305961386 (Printed)	(Printed)		(Printed)
Relinquished by: (Signature) (Printed)	Date / Time	Received for Laboratory by: (Signature) (Printed)	Date / Time 8/5/99 1030		

Remarks * NOTE: PRESERVE BY 12:00 NOON, THURSDAY, AUGUST 5, 1999.

UPON COMPLETION PLEASE FAX RESULTS TO 401-832-4747. FINAL REPORT TO WINDSOR. PLEASE CALL IF ANY PROBLEMS OR QUESTIONS ARR E.

MITKEM CORPORATION

September 15, 1999

TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project: 01984-0040-00010
Lab Project #: 61415 and 61446

Dear Mr. Farrick:

Enclosed please find the data report of the required analysis for the sample associated with the above referenced project. I have also enclosed the analysis results of the volatile samples that were not included in a previous package. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Kin Chiu

Kin Chiu
Technical Director

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 or (401) 738-1580 • email: mitkem@mitkem.com

Analytical Data Package for TRC Environmental Corporation

Client Project: NUWC B.179, # 01984-0040

Mitkem Project ID: 61446

September 15, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s NUWC project. Under this deliverable, analysis results are presented for one soil sample that was received on August 4, 1999. Analyses were performed per specifications in the project's contract and the chain of custody forms.

The following samples are submitted in this data package:

Client ID	Truncated ID	Lab ID	Analysis
MW-13B-S3-B8	MW13BS3B8	61446001	S, P, C, T

S = Semivolatile Organics (OLM03.1)
P = Petroleum Hydrocarbons (Method 8100M/8015M)
C = Cyanide (ILM04.0)
T = TOC (Method 415.1)

The analyses were performed according to SW846 and USEPA CLP methods as listed above. The analysis results for semivolatile organics and cyanide are presented in CLP format. The analysis results for petroleum hydrocarbons are presented with the sample chromatograms and calibration information.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Semivolatile analysis:

GC column: 30 m x 0.25 mm id (0.5 um) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limits

Sample analysis: no unusual observation was made for the analyses.

3. Total Petroleum Hydrocarbons Analysis:

No unusual observation was made for the analysis.

4. Cyanide Analysis:

The cyanide samples were distilled using midi-distill (Kontes). The resultant distillates were analyzed using a Lachet Model 8000 autoanalyzer.

No unusual observation was made for the analyses.

5. TOC Analysis:

TOC analysis was performed by a sub-contract laboratory.

No unusual observation was noted for the analyses.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
9/15/99

Sample Transmittal Documentation

MITKEM CORPORATION

Analysis Report: Total Organic Carbon

Client: TRC Environmental Corporation
Analysis: Method 415.1
Matrix: Soil

Units: %

Lab ID	Client ID	Result	Reporting Limit	Analysis Date
61446001	MW-13B-S3-B8	0.19	0.10	8/18/99

Subcontracted

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M / 8015M
Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61446001	MW-13B-S3-B8	ND	11	98	89	8/6/99
QA/QC						
Method Blank						
F0805-BS1		ND	13		98	8/6/99
Lab Control Sample (% Recovery)						
F0805-LS1		88			96	8/6/99

ND = Not Detected

The samples were quantitated using diesel fuel as standard.

61446-TPH

00 - 13

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWI3BS3B8

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61446

Matrix: (soil/water) SOIL Lab Sample ID: 61446001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A9358

Level: (low/med) LOW Date Received: 08/04/99

% Moisture: 2 decanted: (Y/N) N Date Extracted: 08/05/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/24/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(-2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethyphenol	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	820	U
95-95-4	2,4,5-Trichlorophenol	330	U
91-58-7	2-Chloronaphthalene	820	U
88-74-4	2-Nitroaniline	330	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	820	U
99-09-2	3-Nitroaniline	330	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13BS3B8

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61446

Matrix: (soil/water) SOIL Lab Sample ID: 61446001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A9358

Level: (low/med) LOW Date Received: 08/04/99

% Moisture: 2 decanted: (Y/N) N Date Extracted: 08/05/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/24/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	820	U
100-02-7	4-Nitrophenol	820	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	58	J
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	820	U
534-52-1	4,6-Dinitro-2-methylphenol	820	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	820	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	62	JB
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

OLM03.0 IF EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW13BS3B8

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61446

Matrix: (soil/water) SOIL Lab Sample ID: 61446001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A9358

Level: (low/med) LOW Date Received: 08/04/99

% Moisture: 2 decanted: (Y/N) N Date Extracted: 08/05/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/24/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.48	88	JB
2.		UNKNOWN	4.67	160	JB
3.		UNKNOWN	4.85	93	J
4.		UNKNOWN	5.09	250	JB
5.	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	5.24	78	NJB
6.		UNKNOWN	5.57	230	JB
7.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6.03	6500	ANJB
8.		UNKNOWN	7.13	150	JB
9.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	7.25	120	NJB
10.		UNKNOWN	8.53	370	JB
11.		UNKNOWN	17.94	190	JB
12.		UNKNOWN	25.10	73	J
13.		UNKNOWN	32.86	140	J
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Analytical Data Package for TRC Environmental Corporation

Client Project: NUWC B.179, # 01984-0040

Mitkem Project ID: 61413

September 15, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s NUWC project. Under this deliverable, analysis results are presented for two soil samples that were received on July 28, 1999. Analyses were performed per specifications in the project's contract and the chain of custody forms.

The following samples are submitted in this data package:

Client ID	Truncated ID	Lab ID	Analysis
MW9-S2	MW9S2	61413001	S, P, C, T
MW12-S2-B9	MW12S2B9	61413002	S, P, C, T

S = Semivolatile Organics (OLM03.1)
P = Petroleum Hydrocarbons (Method 8100M/8015M)
C = Cyanide (ILM04.0)
T = TOC (Method 415.1)

The analyses were performed according to SW846 and USEPA CLP methods as listed above. The analysis results for semivolatile organics and cyanide are presented in CLP format. The analysis results for petroleum hydrocarbons are presented with the sample chromatograms and calibration information.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Semivolatile analysis:

GC column: 30 m x 0.25 mm id (0.5 um) DB-5MS capillary column

Surrogate recovery: the method blank that was prepared on August 2, 1999 (SBLK2B) exhibited low surrogate recoveries. The associated samples were re-extracted on August 20, 1999 (SBLK2H as the new extraction blank) with recoveries that were within the QC limits. Both sets of data (initial extraction and re-extraction) are presented in the package.

Sample analysis: due to laboratory problems, the two samples were re-extracted as discussed above. As a result of limited sample availability, the laboratory was only able to extract 21.6 gram for MW12S2B9. Please also note that for the initial extraction of the same sample with the non-compliant blank, twice the normal amount of internal standards were added to the sample extracts. The spike recovery and sample concentrations were adjusted accordingly. No other unusual observation was made for the analyses.

3. Total Petroleum Hydrocarbons Analysis:

No unusual observation was made for the analysis.

4. Cyanide Analysis:

The cyanide samples were distilled using midi-distill (Kontes). The resultant distillates were analyzed using a Lachet Model 8000 autoanalyzer.

No unusual observation was made for the analyses.

5. TOC Analysis:

TOC analysis was performed by a sub-contract laboratory.

No unusual observation was noted for the analyses.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
9/15/99

MITKEM CORPORATION

Analysis Report: Total Organic Carbon

Client: TRC Environmental Corporation
Analysis: Method 415.1
Matrix: Soil

Units: %

Lab ID	Client ID	Result	Reporting Limit	Analysis Date
61413001	MW9-S2	0.26	0.11	8/6/99
61413002	MW12-S2-B9	ND	0.11	8/6/99

ND = Not Detected

0066

Subcontracted
61413-TOC

R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Mitkem Corporation
Attn: Data Reporting
175 Metro Center Blvd.
Warwick, RI 02886-1755

Date Received: 7/29/99
Date Reported: 8/10/99
P.O. #:
Work Order #: 9907-06924

SCRIPTION: PROJECT #61413 (TWO SOIL SAMPLES)

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ject sample(s) has/have been analyzed by our laboratory with the attached results.

erence: All parameters were analyzed by U.S. EPA approved methodologies. The specific methodologies are listed in the methods column of the Certificate Of Analysis.

ou have any questions regarding this work, or if we may be of further assistance, please contact us.

proved by:

les E. Mich
ce President

Michael J. Hebert
Quality Control Coordinator

· Chain of Custody

0011

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M / 8015M
Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61413001	MW9-S2	ND	14	93	100	8/2/99
61413002	MW12-S2-B9	ND	15	90	103	8/2/99
QA/QC						
Method Blank						
F0730-BS1		ND	13		101	8/2/99
Lab Control Sample (% Recovery)						
F0730-LS1		92			103	8/2/99

ND = Not Detected

The samples were quantitated using diesel fuel as standard.

61413-TPH

0013

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW12S2B9

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61413

Matrix: (soil/water) SOIL Lab Sample ID: 61413002

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A9251

Level: (low/med) LOW Date Received: 07/28/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 08/02/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/19/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	900	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	900	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	900	U
83-32-9	Acenaphthene	360	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWI2S2B9

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61413

Matrix: (soil/water) SOIL Lab Sample ID: 61413002

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A9251

Level: (low/med) LOW Date Received: 07/28/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 08/02/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/19/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	900	U
100-02-7	4-Nitrophenol	900	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	900	U
534-52-1	4,6-Dinitro-2-methylphenol	900	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	900	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	360	U
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW12S2B9

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61413

Matrix: (soil/water) SOIL Lab Sample ID: 61413002

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A9251

Level: (low/med) LOW Date Received: 07/28/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 08/02/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/19/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6.25	6300	ANJB
2.		UNKNOWN	8.83	390	JB
3.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW9S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61413

Matrix: (soil/water) SOIL Lab Sample ID: 61413001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A9250

Level: (low/med) LOW Date Received: 07/28/99

% Moisture: 7 decanted: (Y/N) N Date Extracted: 08/02/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/19/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	890	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	360	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW9S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61413

Matrix: (soil/water) SOIL Lab Sample ID: 61413001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A9250

Level: (low/med) LOW Date Received: 07/28/99

% Moisture: 7 decanted: (Y/N) N Date Extracted: 08/02/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/19/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	890	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	360	U
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

IF EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW9S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61413

Matrix: (soil/water) SOIL Lab Sample ID: 61413001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A9250

Level: (low/med) LOW Date Received: 07/28/99

% Moisture: 7 decanted: (Y/N) N Date Extracted: 08/02/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/19/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.1

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.68	140	J
2.		UNKNOWN	5.35	170	J
3.		UNKNOWN	5.81	140	J
4.		UNKNOWN	5.90	100	J
5.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6.27	4600	ANJB
6.		UNKNOWN ALDOL CONDENSATE	7.43	82	JA
7.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	7.55	94	NJ
8.		UNKNOWN	8.83	200	JB
9.		UNKNOWN	16.98	84	J
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
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19.					
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21.					
22.					
23.					
24.					
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30.					

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW12S2B9

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61413__

Matrix (soil/water): SOIL___ Lab Sample ID: 61413002_____

Level (low/med): MED____ Date Received: 07/28/99_

% Solids: 90.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.054	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

_____

_____

_____

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW9S2

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM_ Case No.: SAS No.: SDG No.: 61413__

Matrix (soil/water): SOIL Lab Sample ID: 61413001

Level (low/med): MED Date Received: 07/28/99

% Solids: 93.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.053	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Analytical Data Package for TRC Environmental Corporation

Client Project: NUWC B.179, # 01984-0040

Mitkem Project ID: 61335

Revised

September 14, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s NUWC project. Under this deliverable, analysis results are presented for the volatile organic analyses of two soil samples that were received on July 16, 1999. Analyses were performed per specifications in the project's contract and the chain of custody forms. Please note that the chain of custody information and the rest of the analytical data were submitted in an earlier package and are not included here.

The following samples are submitted in this data package:

Client ID	Truncated ID	Lab ID	Analysis
B30-S3	B30S3	61335002	V
B23-S3	B23S3	61335003	V

V = Semivolatile Organics (Method 8260B)

The analyses were performed according to SW846 Method 8260B and presented in CLP-like format.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Volatile analysis:

The samples were received in the encore vials. Upon receipt, the laboratory weighed out 5 gram aliquots of the soil and preserved them with acidified water. The aqueous fractions were then analyzed.

Since the aqueous sample extracts were analyzed, the calibration, method blank and lab control sample were all analyzed as aqueous samples.

Due to a laboratory oversight, the two soil samples were analyzed one day out of the holding time.

Surrogate recovery: recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits

Sample analysis: No unusual observation was made for the analysis.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin S. Chiu
Technical Director
9/15/99

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B23S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B3552

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: not dec. 12 Date Analyzed: 07/29/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	1	J
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-69-4	Trichlorofluoromethane	6	U
67-64-1	Acetone	6	U
75-35-4	1,1-Dichloroethene	6	U
74-88-4	Iodomethane	6	U
75-15-0	Carbon Disulfide	6	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	6	U
156-60-5	trans-1,2-Dichloroethene	6	U
108-05-4	Vinyl acetate	6	U
75-34-3	1,1-Dichloroethane	6	U
78-93-3	2-Butanone	6	U
156-59-2	cis-1,2-Dichloroethene	6	U
590-20-7	2,2-Dichloropropane	6	U
74-97-5	Bromochloromethane	6	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	6	U
563-58-6	1,1-Dichloropropene	6	U
56-23-5	Carbon Tetrachloride	6	U
107-06-2	1,2-Dichloroethane	6	U
71-43-2	Benzene	6	U
79-01-6	Trichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
74-95-3	Dibromomethane	6	U
75-27-4	Bromodichloromethane	6	U
110-75-8	2-Chloroethyl vinyl ether	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
108-10-1	4-Methyl-2-pentanone	6	U
108-88-3	Toluene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B23S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B3552

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: not dec. 12 Date Analyzed: 07/29/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-00-5	1,1,2-Trichloroethane	6	U
142-28-9	1,3-Dichloropropane	6	U
591-78-6	2-Hexanone	6	U
127-18-4	Tetrachloroethene	6	U
124-48-1	Dibromochloromethane	6	U
106-93-4	1,2-Dibromoethane	6	U
108-90-7	Chlorobenzene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
100-41-4	Ethylbenzene	6	U
1330-20-7	Xylene (Total)	6	U
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
98-82-8	Isopropylbenzene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
96-18-4	1,2,3-Trichloropropane	6	U
108-86-1	Bromobenzene	6	U
103-65-1	n-Propylbenzene	6	U
95-49-8	2-Chlorotoluene	6	U
108-67-8	1,3,5-Trimethylbenzene	6	U
106-43-4	4-Chlorotoluene	6	U
98-06-6	tert-Butylbenzene	6	U
95-63-6	1,2,4-Trimethylbenzene	6	U
135-98-8	sec-Butylbenzene	6	U
99-87-6	4-Isopropyltoluene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
104-51-8	n-Butylbenzene	6	U
95-50-1	1,2-Dichlorobenzene	6	U
96-12-8	1,2-Dibromo-3-chloropropane	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
87-68-3	Hexachlorobutadiene	6	U
91-20-3	Naphthalene	6	U
87-61-6	1,2,3-Trichlorobenzene	6	U

IE

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B23S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B3552

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: not dec. 12 Date Analyzed: 07/29/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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30.					

EPA SAMPLE NO.

B30S3

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B3551

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: not dec. 9 Date Analyzed: 07/29/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	1	J
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: B30S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B3551

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: not dec. 9 Date Analyzed: 07/29/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

IE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B30S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B3551

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: not dec. 9 Date Analyzed: 07/29/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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MITKEM CORPORATION

August 20, 1999

TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project: NUWC Bldg 179, # 01984-0040
Lab Project #: 61335, 61358 and 61379

Dear Mr: Farrick:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Kin Chiu

Kin Chiu
Technical Director

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 or (401) 738-1580 • email: mitkem@mitkem.com

* Data Package Summary *

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s NUWC project. Under this deliverable, analysis results are presented for nine soil samples that were received on July 21, 1999. Analyses were performed per specifications in the project's contract and the chain of custody forms.

The following samples are submitted in this data package:

Client ID	Truncated ID	Lab ID	Analysis
B13-S4	B13S4	61358001	S, P, C
B14-S3	B14S3	61358002	S, P, C
B15-S3	B15S3	61358003	S, P, C, T
B16-S4	B16S4	61358004	S, P, C
B24-S2	B24S2	61358005	S, P, C
B25-S2	B25S2	61358006	S, P, C
B26-S2	B26S2	61358007	S, P, C
B261-S2	B261S2	61358008	S, P, C
B16-S5	B16S5	61358009	S, P, C

S = Semivolatile Organics (OLM03.1)
P = Petroleum Hydrocarbons (Method 8100M/8015M)
C = Cyanide (ILM04.0)
T = TOC (Method 415.1)

The analyses were performed according to SW846 and USEPA CLP methods as listed above. The analysis results for semivolatile organics and cyanide are presented in CLP format. The analysis results for petroleum hydrocarbons are presented with the sample chromatograms and calibration information. The analysis results for TOC are presented with the supporting data.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Semivolatile analysis:

GC column: 30 m x 0.25 mm id (0.5 um film thickness) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limits

Sample analysis: duplicate matrix spikes were performed B13S4. Pentachlorophenol was recovered out of the advisory limits in both spikes.
Alkanes were determined as tentatively identified compounds and are included in the narrative per SOW requirement.
Due to limited sample availability, the laboratory was only able to extract 22.9 gram of B15S3 and up to 9 gram of B16S5. In addition, there was no sample left for pH determination for B15S3. No other unusual observation was made for the analyses

3. Petroleum Hydrocarbon Analysis:

Surrogate recovery: recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits

Sample analysis: No unusual observation was made for the analyses.

4. Cyanide Analysis:

Lab control sample: spike recovery was within the QC limits

Sample analysis: No unusual observation was made for the analyses.

5. TOC Analysis:

The analysis was performed by a sub-contract laboratory. No unusual observation was noted by the sub-contract laboratory.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
8/20/99

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M / 8015M
Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61358001	B13-S4	ND	16	85	100	7/28/99
61358002	B14-S3	ND	16	84	97	7/28/99
61358003	B15-S3	26	15	88	103	7/28/99
61358004	B16-S4	24	16	80	95	7/28/99
61358005	B24-S2	ND	15	90	96	7/29/99
61358006	B25-S2	ND	15	88	94	7/29/99
61358007	B26-S2	ND	15	87	90	7/29/99
61358008	B261-S2	23	16	80	93	7/29/99
61358009	B16-S5	ND	15	89	100	7/29/99
QA/QC						
Method Blank F0726-BS1		ND	13	100	102	7/28/99
Lab Control Sample (% Recovery) F0726-LS1		87		100	101	7/28/99

ND = Not Detected

The samples were quantitated using diesel fuel as standard.

Samples B15-S3, B16-S4 and B261-S2 exhibited resolved and unresolved peaks in the retention time range for a typical motor oil.

MITKEM CORPORATION

Analysis Report: Total Organic Carbon

Client: TRC Environmental Corporation
Analysis: 415.1
Matrix: Soil

Units: %
Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	Analysis Date
61358003	B15-S3	0.32	0.16	8/4/99

Subcontracted
61358-TOC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B13S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8975

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 15 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(-2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethyphenol	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	950	U
83-32-9	Acenaphthene	380	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B13S4

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8975

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 15 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	57	J
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenzo(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B13S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8975

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 15 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.64	140	JB
2.		UNKNOWN	5.06	86	J
3.		UNKNOWN	6.02	330	JB
4.		UNKNOWN	11.75	610	JB
5.		UNKNOWN	13.90	100	JB
6.		UNKNOWN	15.06	210	J
7.		UNKNOWN	20.53	84	JB
8.		UNKNOWN	21.42	2100	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B14S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358002

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8978

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 16 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(-2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethyphenol	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	970	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	970	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	970	U
83-32-9	Acenaphthene	390	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B14S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358002

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8978

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 16 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	970	U
100-02-7	4-Nitrophenol	970	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	970	U
534-52-1	4,6-Dinitro-2-methylphenol	970	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	970	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	47	J
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenzo(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B14S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358002

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8978

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 16 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	130	JB
2.		UNKNOWN	6.02	370	JB
3.		UNKNOWN	6.31	78	J
4.		UNKNOWN	15.05	180	J
5.		UNKNOWN	21.42	2900	J
6.		UNKNOWN	21.93	200	JB
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B15S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358003

Sample wt/vol: 22.9 (g/mL) G Lab File ID: S2A8979

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	500	U
111-44-4	bis(-2-Chloroethyl)Ether	500	U
95-57-8	2-Chlorophenol	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
95-50-1	1,2-Dichlorobenzene	500	U
95-48-7	2-Methylphenol	500	U
108-60-1	2,2'-oxybis(1-Chloropropane)	500	U
106-44-5	4-Methylphenol	500	U
621-64-7	N-Nitroso-di-n-propylamine	500	U
67-72-1	Hexachloroethane	500	U
98-95-3	Nitrobenzene	500	U
78-59-1	Isophorone	500	U
88-75-5	2-Nitrophenol	500	U
105-67-9	2,4-Dimethyphenol	500	U
120-83-2	2,4-Dichlorophenol	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
91-20-3	Naphthalene	500	U
106-47-8	4-Chloroaniline	500	U
111-91-1	bis(2-Chloroethoxy)methane	500	U
87-68-3	Hexachlorobutadiene	500	U
59-50-7	4-Chloro-3-methylphenol	500	U
91-57-6	2-Methylnaphthalene	500	U
77-47-4	Hexachlorocyclopentadiene	500	U
88-06-2	2,4,6-Trichlorophenol	500	U
95-95-4	2,4,5-Trichlorophenol	1200	U
91-58-7	2-Chloronaphthalene	500	U
88-74-4	2-Nitroaniline	1200	U
131-11-3	Dimethylphthalate	500	U
208-96-8	Acenaphthylene	500	U
606-20-2	2,6-Dinitrotoluene	500	U
99-09-2	3-Nitroaniline	1200	U
83-32-9	Acenaphthene	500	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B15S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358003

Sample wt/vol: 22.9 (g/mL) G Lab File ID: S2A8979

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1200	U
100-02-7	4-Nitrophenol	1200	U
132-64-9	Dibenzofuran	500	U
121-14-2	2,4-Dinitrotoluene	500	U
84-66-2	Diethylphthalate	500	U
7005-72-3	4-Chlorophenyl-phenylether	500	U
86-73-7	Fluorene	500	U
100-01-6	4-Nitroaniline	1200	U
534-52-1	4,6-Dinitro-2-methylphenol	1200	U
86-30-6	N-Nitrosodiphenylamine (1)	500	U
101-55-3	4-Bromophenyl-phenylether	500	U
118-74-1	Hexachlorobenzene	500	U
87-86-5	Pentachlorophenol	1200	U
85-01-8	Phenanthrene	500	U
120-12-7	Anthracene	500	U
86-74-8	Carbazole	500	U
84-74-2	Di-n-butylphthalate	500	U
206-44-0	Fluoranthene	66	J
129-00-0	Pyrene	54	J
85-68-7	Butylbenzylphthalate	500	U
91-94-1	3,3'-Dichlorobenzidine	500	U
56-55-3	Benzo(a)anthracene	500	U
218-01-9	Chrysene	500	U
117-81-7	bis(2-Ethylhexyl)phthalate	81	J
117-84-0	Di-n-octylphthalate	500	U
205-99-2	Benzo(b)fluoranthene	500	U
207-08-9	Benzo(k)fluoranthene	500	U
50-32-8	Benzo(a)pyrene	500	U
193-39-5	Indeno(1,2,3-cd)pyrene	500	U
53-70-3	Dibenzo(a,h)anthracene	500	U
191-24-2	Benzo(g,h,i)perylene	500	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B15S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358003

Sample wt/vol: 22.9 (g/mL) G Lab File ID: S2A8979

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

Number TICs found: 16

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	250	JB
2.		UNKNOWN	6.02	360	JB
3.	65-85-0	BENZOIC ACID	8.12	100	NJ
4.		UNKNOWN	11.74	200	JB
5.		UNKNOWN	13.90	110	JB
6.		UNKNOWN	14.45	200	J
7.		UNKNOWN	19.16	110	J
8.		UNKNOWN	19.74	140	J
9.		UNKNOWN	20.16	360	J
10.		UNKNOWN	20.53	270	JB
11.		UNKNOWN	21.35	770	J
12.		UNKNOWN	21.47	400	J
13.		UNKNOWN	21.94	280	JB
14.		UNKNOWN	22.30	320	J
15.	124-25-4	TETRADECANAL	23.44	200	NJ
16.		UNKNOWN	25.49	240	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B16S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358004

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8980

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(-2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethyphenol	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B16S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358004

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8980

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	470	
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenzo(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

(1) - Cannot be separated from Diphenylamine

IE

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B16S4

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358004

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8980

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

Number TICs found: 23

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	120	JB
2.		UNKNOWN	6.02	340	JB
3.		UNKNOWN	11.74	99	JB
4.	57-10-3	HEXADECANOIC ACID	16.23	400	NJ
5.		UNKNOWN	17.64	590	J
6.		UNKNOWN ORGANIC ACID	17.81	180	J
7.		UNKNOWN	19.74	130	J
8.		UNKNOWN	20.16	600	J
9.		UNKNOWN	20.65	110	J
10.		UNKNOWN HYDROCARBON	20.84	160	J
11.		UNKNOWN	21.07	100	J
12.		UNKNOWN	21.46	560	J
13.		UNKNOWN	21.94	87	JB
14.		UNKNOWN ALDEHYDE	22.30	170	J
15.		UNKNOWN	22.75	110	J
16.		UNKNOWN ALDEHYDE	23.45	190	J
17.		UNKNOWN	24.63	160	J
18.		UNKNOWN ALDEHYDE	24.83	330	J
19.		UNKNOWN	25.40	140	J
20.		UNKNOWN	25.49	940	J
21.		UNKNOWN	25.95	290	J
22.		UNKNOWN	26.05	180	J
23.		UNKNOWN	26.38	350	J
24.					
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B16S5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358009

Sample wt/vol: 9.0 (g/mL) G Lab File ID: S2A8985

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1200	U
111-44-4	bis(-2-Chloroethyl)Ether	1200	U
95-57-8	2-Chlorophenol	1200	U
541-73-1	1,3-Dichlorobenzene	1200	U
106-46-7	1,4-Dichlorobenzene	1200	U
95-50-1	1,2-Dichlorobenzene	1200	U
95-48-7	2-Methylphenol	1200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1200	U
106-44-5	4-Methylphenol	1200	U
621-64-7	N-Nitroso-di-n-propylamine	1200	U
67-72-1	Hexachloroethane	1200	U
98-95-3	Nitrobenzene	1200	U
78-59-1	Isophorone	1200	U
88-75-5	2-Nitrophenol	1200	U
105-67-9	2,4-Dimethyphenol	1200	U
120-83-2	2,4-Dichlorophenol	1200	U
120-82-1	1,2,4-Trichlorobenzene	1200	U
91-20-3	Naphthalene	1200	U
106-47-8	4-Chloroaniline	1200	U
111-91-1	bis(2-Chloroethoxy)methane	1200	U
87-68-3	Hexachlorobutadiene	1200	U
59-50-7	4-Chloro-3-methylphenol	1200	U
91-57-6	2-Methylnaphthalene	1200	U
77-47-4	Hexachlorocyclopentadiene	1200	U
88-06-2	2,4,6-Trichlorophenol	1200	U
95-95-4	2,4,5-Trichlorophenol	3100	U
91-58-7	2-Chloronaphthalene	1200	U
88-74-4	2-Nitroaniline	3100	U
131-11-3	Dimethylphthalate	1200	U
208-96-8	Acenaphthylene	1200	U
606-20-2	2,6-Dinitrotoluene	1200	U
99-09-2	3-Nitroaniline	3100	U
83-32-9	Acenaphthene	1200	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B16S5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358009

Sample wt/vol: 9.0 (g/mL) G Lab File ID: S2A8985

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	3100	U
100-02-7	4-Nitrophenol	3100	U
132-64-9	Dibenzofuran	1200	U
121-14-2	2,4-Dinitrotoluene	1200	U
84-66-2	Diethylphthalate	1200	U
7005-72-3	4-Chlorophenyl-phenylether	1200	U
86-73-7	Fluorene	1200	U
100-01-6	4-Nitroaniline	3100	U
534-52-1	4,6-Dinitro-2-methylphenol	3100	U
86-30-6	N-Nitrosodiphenylamine (1)	1200	U
101-55-3	4-Bromophenyl-phenylether	1200	U
118-74-1	Hexachlorobenzene	1200	U
87-86-5	Pentachlorophenol	3100	U
85-01-8	Phenanthrene	1200	U
120-12-7	Anthracene	1200	U
86-74-8	Carbazole	1200	U
84-74-2	Di-n-butylphthalate	1200	U
206-44-0	Fluoranthene	1200	U
129-00-0	Pyrene	1200	U
85-68-7	Butylbenzylphthalate	1200	U
91-94-1	3,3'-Dichlorobenzidine	1200	U
56-55-3	Benzo(a)anthracene	1200	U
218-01-9	Chrysene	1200	U
117-81-7	bis(2-Ethylhexyl)phthalate	260	J
117-84-0	Di-n-octylphthalate	1200	U
205-99-2	Benzo(b)fluoranthene	1200	U
207-08-9	Benzo(k)fluoranthene	1200	U
50-32-8	Benzo(a)pyrene	1200	U
193-39-5	Indeno(1,2,3-cd)pyrene	1200	U
53-70-3	Dibenzo(a,h)anthracene	1200	U
191-24-2	Benzo(g,h,i)perylene	1200	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B16S5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358009

Sample wt/vol: 9.0 (g/mL) G Lab File ID: S2A8985

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	420	JB
2.		UNKNOWN	6.02	1100	JB
3.		UNKNOWN	6.30	260	J
4.		UNKNOWN	15.05	460	J
5.		UNKNOWN	21.29	310	J
6.		UNKNOWN	21.94	550	JB
7.		UNKNOWN	25.58	250	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B24S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358005

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8981

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	920	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	920	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	920	U
83-32-9	Acenaphthene	370	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B24S2

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358005

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8981

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	920	U
534-52-1	4,6-Dinitro-2-methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	920	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	44	J
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B24S2

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358005

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8981

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	140	JB
2.		UNKNOWN	6.01	130	JB
3.		UNKNOWN	15.05	80	J
4.		UNKNOWN	21.39	97	J
5.		UNKNOWN	21.94	150	JB
6.					
7.					
8.					
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B25S2

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358006

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8982

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	920	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	920	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	920	U
83-32-9	Acenaphthene	370	U

B25S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358006

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8982

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	920	U
534-52-1	4,6-Dinitro-2-methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	920	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	55	J
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B25S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358006

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8982

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	120	JB
2.		UNKNOWN	6.02	140	JB
3.		UNKNOWN	15.05	160	J
4.		UNKNOWN	21.32	310	J
5.		UNKNOWN	21.93	260	JB
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B261S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358008

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8984

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410	U
111-44-4	bis(-2-Chloroethyl)Ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethyphenol	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	1000	U
95-95-4	2,4,5-Trichlorophenol	410	U
91-58-7	2-Chloronaphthalene	1000	U
88-74-4	2-Nitroaniline	410	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	1000	U
99-09-2	3-Nitroaniline	410	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B261S2

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358008

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8984

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
86-73-7	Fluorene	410	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	410	U
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	410	U
206-44-0	Fluoranthene	410	U
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	410	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	76	J
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo(b)fluoranthene	410	U
207-08-9	Benzo(k)fluoranthene	410	U
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenzo(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B261S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358008

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8984

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4

Number TICs found: 22

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	140	JB
2.		UNKNOWN	6.02	390	JB
3.		UNKNOWN	11.55	130	J
4.		UNKNOWN	14.49	110	J
5.		UNKNOWN	15.05	92	J
6.		UNKNOWN	15.36	120	J
7.		UNKNOWN	15.73	150	J
8.		UNKNOWN ORGANIC ACID	16.22	250	J
9.		UNKNOWN	20.16	160	J
10.		UNKNOWN	21.19	190	J
11.		UNKNOWN	21.46	340	J
12.		UNKNOWN ESTER	21.64	170	J
13.		UNKNOWN	21.94	200	JB
14.		UNKNOWN	22.15	200	J
15.		UNKNOWN ALDEHYDE	22.29	170	J
16.		UNKNOWN ESTER	22.82	150	J
17.		UNKNOWN	23.44	140	J
18.	7390-81-0	OXIRANE, HEXADECYL-	24.83	230	NJ
19.		UNKNOWN	25.47	410	J
20.	5945-53-9	D:C-FRIEDOOLEANAN-3-ONE	26.03	100	NJ
21.		UNKNOWN	26.36	360	J
22.	1058-61-3	STIGMAST-4-EN-3-ONE	26.74	530	NJ
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B26S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358007

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8983

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	38	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B26S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358007

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8983

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	200	J
120-12-7	Anthracene	49	J
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	190	J
129-00-0	Pyrene	130	J
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	65	J
218-01-9	Chrysene	76	J
117-81-7	bis(2-Ethylhexyl)phthalate	80	J
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	89	J
207-08-9	Benzo(k)fluoranthene	47	J
50-32-8	Benzo(a)pyrene	71	J
193-39-5	Indeno(1,2,3-cd)pyrene	41	J
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	38	J

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B26S2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix: (soil/water) SOIL Lab Sample ID: 61358007

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8983

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	150	JB
2.		UNKNOWN	6.02	310	JB
3.		UNKNOWN ORGANIC ACID	16.22	170	J
4.		UNKNOWN	20.16	180	J
5.		UNKNOWN	21.06	91	J
6.		UNKNOWN ESTER	21.65	140	J
7.		UNKNOWN	21.94	150	JB
8.		UNKNOWN PAH	22.06	190	J
9.		UNKNOWN	22.15	100	J
10.		UNKNOWN ALDEHYDE	22.30	170	J
11.		UNKNOWN ESTER	22.82	190	J
12.		UNKNOWN ALDEHYDE	23.44	200	J
13.		UNKNOWN	24.82	210	J
14.		UNKNOWN	25.47	450	J
15.		UNKNOWN	25.90	80	J
16.		UNKNOWN	26.36	310	J
17.		UNKNOWN	26.73	160	J
18.					
19.					
20.					
21.					
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23.					
24.					
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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13S4

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix (soil/water): SOIL Lab Sample ID: 61358001

Level (low/med): MED Date Received: 07/21/99

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.095	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B14S3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix (soil/water): SOIL Lab Sample ID: 61358002

Level (low/med): MED Date Received: 07/21/99

% Solids: 87.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.088	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B15S3

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61358__

Matrix (soil/water): SOIL___ Lab Sample ID: 61358003_____

Level (low/med): MED____ Date Received: 07/21/99_

% Solids: 88.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.46			C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B16S5

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix (soil/water): SOIL Lab Sample ID: 61358009

Level (low/med): MED Date Received: 07/21/99

% Solids: 88.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.086	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B24S2

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61358

Matrix (soil/water): SOIL Lab Sample ID: 61358005

Level (low/med): MED Date Received: 07/21/99

% Solids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.10	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B25S2

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61358__

Matrix (soil/water): SOIL___ Lab Sample ID: 61358006_____

Level (low/med): MED____ Date Received: 07/21/99_

% Solids: 90.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.94			C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B261S2

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61358__

Matrix (soil/water): SOIL___ Lab Sample ID: 61358008_____

Level (low/med): MED____ Date Received: 07/21/99_

% Solids: 80.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.095	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B26S2

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61358__

Matrix (soil/water): SOIL___ Lab Sample ID: 61358007_____

Level (low/med): MED____ Date Received: 07/21/99_

% Solids: 89.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.086	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

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MITKEM CORPORATION

* Data Package Summary *

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s NUWC project. Under this deliverable, analysis results are presented for six soil samples that were received on July 23, 1999. Analyses were performed per specifications in the project's contract and the chain of custody forms.

The following samples are submitted in this data package:

Client ID	Truncated ID	Lab ID	Analysis
MW71B-S4	MW71BS4	61379001	S, P, C, T
MW7B-S4	MW7BS4	61379002	S, P, C, T
MW7B-S6	MW7BS6	61379003	S, P, C, T
MW8B-S3	MW8BS3	61379004	S, P, C, T
MW11-S4	MW11S4	61379005	S, P, C, T
MW11-S5	MW11S5	61379006	S, P, C, T

S = Semivolatile Organics (OLM03.1)
P = Petroleum Hydrocarbons (Method 8100M/8015M)
C = Cyanide (ILM04.0)
T = TOC (Method 415.1)

The analyses were performed according to SW846 and USEPA CLP methods as listed above. The analysis results for semivolatile organics and cyanide are presented in CLP format. The analysis results for petroleum hydrocarbons are presented with the sample chromatograms and calibration information. The analysis results for TOC are presented with the supporting data.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Semivolatile analysis:

GC column: 30 m x 0.25 mm id (0.5 um film thickness) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limits

Sample analysis: duplicate matrix spikes were not performed for this batch of samples. Alkanes were determined as tentatively identified compounds and are included in the narrative per SOW requirement. Due to limited sample availability, there was no sample left for pH determination for MW71BS4 and MW8BS3. No other unusual observation was made for the analyses

3. Petroleum Hydrocarbon Analysis:

Surrogate recovery: recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits

Sample analysis: No unusual observation was made for the analyses.

4. Cyanide Analysis:

Lab control sample: spike recoveries were within the QC limits

Sample analysis: No unusual observation was made for the analyses.

5. TOC Analysis:

The analysis was performed by a sub-contract laboratory. No unusual observation was noted by the sub-contract laboratory.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
8/20/99

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M / 8015M
Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61379001	MW71B-S4	ND	15	90	92	7/29/99
61379002	MW7B-S4	77	15	88	103	7/29/99
61379003	MW7B-S6	ND	14	92	105	7/29/99
61379004	MW8B-S3	ND	15	86	99	7/29/99
61379005	MW11-S4	ND	18	72	98	7/29/99
61379006	MW11-S5	ND	15	89	107	7/29/99
QA/QC						
Method Blank						
F0726BS1		ND	13		102	7/28/99
Lab Control Sample (% Recovery)						
F0726-LS1		87			101	7/28/99

ND = Not Detected

The samples were quantitated using diesel fuel as standard.

Sample MW7B-S4 exhibited resolved and unresolved peaks in the retention time range for a typical mineral spirit/paint thinner and motor oil.

MITKEM CORPORATION

Analysis Report: Total Organic Carbon

Client: TRC Environmental Corporation
Analysis: Method 415.1
Matrix: Soil

Units: %
Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	Analysis Date
61379001	MW71B-S4	ND	0.16	8/4/99
61379002	MW7B-S4	ND	0.16	8/4/99
61379003	MW7B-S6	ND	0.16	8/4/99
61379004	MW8B-S3	0.41	0.16	8/4/99
61379005	MW11-S4	2.54	0.16	8/4/99
61379006	MW11-S5	0.17	0.16	8/4/99

ND = Not Detected

Subcontracted
61379-TOC

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW11S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379005

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2A8958

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 28 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	460	U
111-44-4	bis(-2-Chloroethyl)Ether	460	U
95-57-8	2-Chlorophenol	460	U
541-73-1	1,3-Dichlorobenzene	460	U
106-46-7	1,4-Dichlorobenzene	460	U
95-50-1	1,2-Dichlorobenzene	460	U
95-48-7	2-Methylphenol	460	U
108-60-1	2,2'-oxybis(1-Chloropropane)	460	U
106-44-5	4-Methylphenol	460	U
621-64-7	N-Nitroso-di-n-propylamine	460	U
67-72-1	Hexachloroethane	460	U
98-95-3	Nitrobenzene	460	U
78-59-1	Isophorone	460	U
88-75-5	2-Nitrophenol	460	U
105-67-9	2,4-Dimethyphenol	460	U
120-83-2	2,4-Dichlorophenol	460	U
120-82-1	1,2,4-Trichlorobenzene	460	U
91-20-3	Naphthalene	460	U
106-47-8	4-Chloroaniline	460	U
111-91-1	bis(2-Chloroethoxy)methane	460	U
87-68-3	Hexachlorobutadiene	460	U
59-50-7	4-Chloro-3-methylphenol	460	U
91-57-6	2-Methylnaphthalene	460	U
77-47-4	Hexachlorocyclopentadiene	460	U
88-06-2	2,4,6-Trichlorophenol	460	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	460	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	460	U
208-96-8	Acenaphthylene	460	U
606-20-2	2,6-Dinitrotoluene	460	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	460	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379005

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2A8958

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 28 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	460	U
121-14-2	2,4-Dinitrotoluene	460	U
84-66-2	Diethylphthalate	460	U
7005-72-3	4-Chlorophenyl-phenylether	460	U
86-73-7	Fluorene	460	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	460	U
101-55-3	4-Bromophenyl-phenylether	460	U
118-74-1	Hexachlorobenzene	460	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	59	J
120-12-7	Anthracene	460	U
86-74-8	Carbazole	460	U
84-74-2	Di-n-butylphthalate	460	U
206-44-0	Fluoranthene	83	J
129-00-0	Pyrene	55	J
85-68-7	Butylbenzylphthalate	460	U
91-94-1	3,3'-Dichlorobenzidine	460	U
56-55-3	Benzo(a)anthracene	460	U
218-01-9	Chrysene	460	U
117-81-7	bis(2-Ethylhexyl)phthalate	61	J
117-84-0	Di-n-octylphthalate	460	U
205-99-2	Benzo(b)fluoranthene	47	J
207-08-9	Benzo(k)fluoranthene	460	U
50-32-8	Benzo(a)pyrene	460	U
193-39-5	Indeno(1,2,3-cd)pyrene	460	U
53-70-3	Dibenzo(a,h)anthracene	460	U
191-24-2	Benzo(g,h,i)perylene	460	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW11S4

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379005

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2A8958

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 28 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

Number TICs found: 25

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.42	180	J
2.		UNKNOWN	5.80	430	JB
3.		UNKNOWN	11.99	310	J
4.		UNKNOWN	14.47	300	J
5.		UNKNOWN	14.78	620	J
6.		UNKNOWN ORGANIC ACID	14.88	150	J
7.		UNKNOWN	15.01	220	J
8.		UNKNOWN ORGANIC ACID	15.11	170	J
9.		UNKNOWN	15.33	760	J
10.		UNKNOWN ORGANIC ACID	15.81	360	J
11.		UNKNOWN ORGANIC ACID	15.89	360	J
12.		UNKNOWN ORGANIC ACID	15.99	1200	J
13.	10544-50-0	SULFUR, MOL. (S8)	16.95	2300	NJ
14.	112-80-1	OLEIC ACID	17.37	290	NJ
15.		UNKNOWN	19.89	1100	J
16.		UNKNOWN	20.56	300	JB
17.		UNKNOWN	20.79	230	J
18.		UNKNOWN	21.19	1700	J
19.		UNKNOWN	21.39	430	J
20.		UNKNOWN	21.62	420	J
21.		UNKNOWN ALDEHYDE	22.02	970	J
22.		UNKNOWN	22.19	220	J
23.		UNKNOWN	22.39	2600	J
24.		UNKNOWN	24.52	390	J
25.		UNKNOWN	24.99	1900	J
26.					
27.					
28.					
29.					
30.					

IB

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11S5

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379006

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S2A8959

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	920	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	920	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	920	U
83-32-9	Acenaphthene	370	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11S5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379006

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S2A8959

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	920	U
534-52-1	4,6-Dinitro-2-methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	920	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	80	J
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

MW11S5

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379006

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S2A8959

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.35	85	J
2.		UNKNOWN	4.41	120	J
3.		UNKNOWN	5.78	190	J
4.		UNKNOWN	14.77	230	J
5.		UNKNOWN	21.66	150	J
6.		UNKNOWN	23.48	550	J
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW71BS4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8986

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	900	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	900	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	900	U
83-32-9	Acenaphthene	360	U

IC

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW71BS4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8986

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	900	U
100-02-7	4-Nitrophenol	900	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	900	U
534-52-1	4,6-Dinitro-2-methylphenol	900	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	900	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	640	
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	37	J
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW71BS4

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8986

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	900	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	900	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	900	U
83-32-9	Acenaphthene	360	U

IC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW71BS4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8986

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	900	U
100-02-7	4-Nitrophenol	900	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	900	U
534-52-1	4,6-Dinitro-2-methylphenol	900	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	900	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	640	
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	37	J
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1E

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW71BS4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8986

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 10 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	140	JB
2.		UNKNOWN	6.02	130	JB
3.		UNKNOWN	6.31	100	J
4.		UNKNOWN	15.05	170	J
5.		UNKNOWN	19.09	110	J
6.		UNKNOWN	19.77	110	J
7.		UNKNOWN	20.53	140	JB
8.		UNKNOWN	20.83	79	J
9.		UNKNOWN	21.32	490	J
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IB

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7BS4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379002

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S2A8987

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	42	J
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	370	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7BS4

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379002

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S2A8987

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	1600	
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	37	J
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: MW7BS4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379002

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S2A8987

Level: (low/med) LOW Date Received: 07/23/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/03/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.63	130	JB
2.		C3-BENZENE ISOMER	5.84	110	J
3.		UNKNOWN	6.03	350	JB
4.		UNKNOWN	6.31	120	J
5.		UNKNOWN	7.22	130	J
6.		UNKNOWN	7.74	99	J
7.		UNKNOWN	7.84	96	J
8.		UNKNOWN	15.05	210	J
9.		UNKNOWN	21.31	850	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7BS6

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379003

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8956

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	890	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	360	U

IC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7BS6

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379003

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8956

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	890	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	71	J
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	46	J
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW7BS6

Lab Name: `MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379003

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8956

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.41	100	J
2.		UNKNOWN	5.79	370	JB
3.		UNKNOWN	6.37	89	J
4.		UNKNOWN	6.99	72	J
5.		UNKNOWN	7.32	140	J
6.		UNKNOWN	14.77	220	J
7.	10544-50-0	SULFUR, MOL. (S8)	16.87	85	NJ
8.		UNKNOWN	22.02	94	JB
9.		UNKNOWN	23.48	450	J
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW8BS3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379004

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8957

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 14 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(-2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethyphenol	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	960	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	960	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	960	U
83-32-9	Acenaphthene	390	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8BS3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379004

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8957

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 14 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	960	U
100-02-7	4-Nitrophenol	960	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	960	U
534-52-1	4,6-Dinitro-2-methylphenol	960	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	960	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	43	J
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenzo(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW8BS3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix: (soil/water) SOIL Lab Sample ID: 61379004

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8957

Level: (low/med) LOW Date Received: 07/21/99

% Moisture: 14 decanted: (Y/N) N Date Extracted: 07/29/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.35	98	J
2.		UNKNOWN	4.41	160	J
3.		UNKNOWN	5.79	400	JB
4.		UNKNOWN	7.96	100	J
5.		UNKNOWN	14.77	330	J
6.		UNKNOWN ORGANIC ACID	15.96	88	J
7.		UNKNOWN HYDROCARBON	21.19	130	J
8.		UNKNOWN	21.87	89	JB
9.		UNKNOWN	23.98	86	J
10.		UNKNOWN	24.14	78	J
11.		UNKNOWN	24.23	400	J
12.		UNKNOWN	24.97	260	J
13.		UNKNOWN	25.08	170	J
14.		UNKNOWN	25.35	290	J
15.		UNKNOWN	25.48	180	J
16.		UNKNOWN	25.76	350	J
17.		UNKNOWN	26.11	95	J
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

02

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW71BS4

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61379__

Matrix (soil/water): SOIL___ Lab Sample ID: 61379001_____

Level (low/med): MED____ Date Received: 07/23/99_

% Solids: 90.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.045	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

_____

_____

_____

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7BS4

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix (soil/water): SOIL Lab Sample ID: 61379002

Level (low/med): MED Date Received: 07/23/99

% Solids: 88.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.046	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7BS6

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM_ Case No.: SAS No.: SDG No.: 61379__

Matrix (soil/water): SOIL Lab Sample ID: 61379003

Level (low/med): MED Date Received: 07/23/99

% Solids: 92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0,47			C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8BS3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix (soil/water): SOIL Lab Sample ID: 61379004

Level (low/med): MED Date Received: 07/23/99

% Solids: 86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.12	B		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

02

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11S4

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix (soil/water): SOIL Lab Sample ID: 61379005

Level (low/med): MED Date Received: 07/23/99

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.068	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11S5

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61379

Matrix (soil/water): SOIL Lab Sample ID: 61379006

Level (low/med): MED Date Received: 07/23/99

% Solids: 89.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.040	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MITKEM CORPORATION

* Data Package Summary *

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s NUWC project. Under this deliverable, analysis results are presented for ten soil samples that were received on July 16, 1999. Analyses were performed per specifications in the project's contract and the chain of custody forms.

The following samples are submitted in this data package:

Client ID	Truncated ID	Lab ID	Analysis
MW6-S4	MW6S4	61335001	S, P, C, T
B30-S3	B30S3	61335002	S, P, C
B23-S3	B23S3	61335003	S, P, C
B22-S3	B22S3	61335004	S, P, C
B21-S3	B21S3	61335005	S, P, C
B20-S3	B20S3	61335006	S, P, C
B12-S4	B12S4	61335007	S, P, C
B11-S4	B11S4	61335008	S, P, C
B10-S4	B10S4	61335009	S, P, C
B201-S3	B201S3	61335010	S, P, C

S = Semivolatile Organics (OLM03.1)
P = Petroleum Hydrocarbons (Method 8100M/8015M)
C = Cyanide (ILM04.0)
T = TOC (Method 415.1)

The analyses were performed according to SW846 and USEPA CLP methods as listed above. The analysis results for semivolatile organics and cyanide are presented in CLP format. The analysis results for petroleum hydrocarbons are presented with the sample chromatograms and calibration information. The analysis results for TOC are presented with the supporting data.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Semivolatile analysis:

GC column: 30 m x 0.25 mm id (0.5 um film thickness) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limits

Sample analysis: duplicate matrix spikes were not performed for this batch of samples. Alkanes were determined as tentatively identified compounds and are included in the narrative per SOW requirement.

3. Petroleum Hydrocarbon Analysis:

Surrogate recovery: recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits

Sample analysis: No unusual observation was made for the analyses.

4. Cyanide Analysis:

Lab control sample: spike recoveries were within the QC limits

Sample spike and duplicate: sample spike and duplicate were performed on B23S3. Spike recovery and duplicate RPD met the QC limit.

Sample analysis: No other unusual observation was made for the analyses.

5. TOC Analysis:

The analysis was performed by a sub-contract laboratory. No unusual observation was noted by the sub-contract laboratory.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin S. Chiu
Technical Director
8/20/99

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M / 8015M
Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61335001	MW6-S4	ND	15	89	100	7/29/99
61335002	B30-S3	ND	15	91	101	7/29/99
61335003	B23-S3	ND	15	88	107	7/29/99
61335004	B22-S3	ND	16	84	104	7/29/99
61335005	B21-S3	ND	14	92	106	7/29/99
61335006	B20-S3	ND	15	87	101	7/29/99
61335007	B12-S4	ND	15	88	106	7/29/99
61335008	B11-S4	ND	15	89	101	7/29/99
61335009	B10-S4	ND	15	89	104	7/29/99
61335010	B201-S3	ND	15	88	102	7/29/99
QA/QC						
Method Blank						
F0721-BS1		ND	13	100	110	7/21/99
Lab Control Sample (% Recovery)						
F0721-LS1		101		100	114	7/21/99

ND = Not Detected

The samples were quantitated using diesel fuel as standard.

MITKEM CORPORATION

Analysis Report: Total Organic Carbon

Client: TRC Environmental Corporation
Analysis: Method 415.1
Matrix: Soil

Units: %

Lab ID	Client ID	Result	Reporting Limit	Analysis Date
61335001	MW6-S4	0.31	0.10	7/30/99

Subcontracted
61335-TOC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B10S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335009

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8946

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	910	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	910	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	910	U
83-32-9	Acenaphthene	360	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B10S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335009

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8946

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	360	U
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: B10S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335009

Sample wt/vol: 30.9 (g/mL) G Lab File ID: S2A8946

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 6

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.91	27000	ANJB
2.		UNKNOWN	4.41	110	JB
3.		UNKNOWN	4.90	1500	JB
4.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	4.97	93	NJ
5.		UNKNOWN	15.31	120	JB
6.		UNKNOWN	22.90	730	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B11S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335008

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8960

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	370	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B11S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335008

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8960

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/04/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	370	U
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B11S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335008

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2A8960

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.44	740	JB
2.		UNKNOWN	11.50	340	J
3.		UNKNOWN	13.65	120	J
4.		UNKNOWN	14.78	91	J
5.		UNKNOWN	25.02	190	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B12S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335007

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A8944

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	920	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	920	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	920	U
83-32-9	Acenaphthene	370	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335007

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A8944

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	920	U
534-52-1	4,6-Dinitro-2-methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	920	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	370	U
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B12S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335007

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A8944

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.94	27000	ANJB
2.		UNKNOWN	4.42	130	JB
3.		UNKNOWN	4.81	76	J
4.		UNKNOWN	4.91	1600	JB
5.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	4.99	84	NJ
6.		UNKNOWN	15.32	96	JB
7.		UNKNOWN	22.20	74	J
8.		UNKNOWN	22.32	78	J
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EPA SAMPLE NO.

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B201S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335010

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8947

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	370	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B201S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335010

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8947

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	370	U
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B201S3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335010

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8947

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.92	28000	ANJB
2.		UNKNOWN	4.41	120	JB
3.		UNKNOWN	4.80	82	J
4.		UNKNOWN	4.90	1600	JB
5.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	4.98	110	NJ
6.		UNKNOWN	15.30	150	JB
7.		UNKNOWN	22.30	77	J
8.		UNKNOWN	25.73	98	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B20S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335006

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8943

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(-2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethyphenol	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	940	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	940	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene	380	U

IC EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B20S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335006

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8943

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenzo(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B20S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335006

Sample wt/vol: 30.6 (g/mL) G Lab File ID: S2A8943

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.92	28000	ANJB
2.		UNKNOWN	4.42	120	JB
3.		UNKNOWN	4.90	1600	JB
4.		UNKNOWN	15.31	94	JB
5.		UNKNOWN	22.20	80	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B21S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335005

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A8942

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(-2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethyphenol	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	880	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	880	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	880	U
83-32-9	Acenaphthene	350	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B21S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335005

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A8942

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	880	U
100-02-7	4-Nitrophenol	880	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	880	U
534-52-1	4,6-Dinitro-2-methylphenol	880	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	880	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	36	J
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenzo(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B21S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335005

Sample wt/vol: 30.8 (g/mL) G Lab File ID: S2A8942

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.93	27000	ANJB
2.		UNKNOWN	4.42	120	JB
3.		UNKNOWN	4.91	1600	JB
4.		UNKNOWN	15.31	93	JB
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B22S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335004

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2A8941

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 16 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(-2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethyphenol	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	390	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B22S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335004

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2A8941

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 16 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenzo(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B22S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335004

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2A8941

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 16 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.93	30000	ANJB
2.		UNKNOWN	4.42	140	JB
3.		UNKNOWN	4.91	1700	JB
4.		UNKNOWN	15.31	93	JB
5.	0-00-0	1-HEXACOSANAL	22.56	120	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B23S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335003

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8940

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	920	U
95-95-4	2,4,5-Trichlorophenol	370	U
91-58-7	2-Chloronaphthalene	920	U
88-74-4	2-Nitroaniline	370	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	920	U
99-09-2	3-Nitroaniline	370	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B23S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335003

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8940

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	920	U
534-52-1	4,6-Dinitro-2-methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	920	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	370	U
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

IF

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: B23S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335003

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2A8940

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.3

Number TICs found: 7

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.94	31000	ANJB
2.		UNKNOWN	4.43	140	JB
3.		UNKNOWN	4.91	1800	JB
4.		UNKNOWN	5.58	80	J
5.		UNKNOWN	13.98	100	J
6.		UNKNOWN	15.32	150	JB
7.		UNKNOWN	22.87	1800	J
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B30S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8939

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethyphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	900	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	900	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	900	U
83-32-9	Acenaphthene	360	U

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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B30S3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8939

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	900	U
100-02-7	4-Nitrophenol	900	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	900	U
534-52-1	4,6-Dinitro-2-methylphenol	900	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	900	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	42	J
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B30S3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2A8939

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.93	28000	ANJB
2.		UNKNOWN	4.42	130	JB
3.		UNKNOWN	4.91	1600	JB
4.		UNKNOWN	11.98	700	J
5.		UNKNOWN	14.14	150	J
6.		UNKNOWN	15.31	110	JB
7.		UNKNOWN	20.79	150	J
8.	85-60-9	PHENOL, 4,4'-BUTYLIDENEBIS[2	21.55	93	NJ
9.		UNKNOWN	22.20	100	J
10.		UNKNOWN ALCOHOL	22.55	80	J
11.		UNKNOWN	22.82	1200	J
12.		UNKNOWN	23.61	110	J
13.		UNKNOWN	23.72	140	J
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW6S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2A8938

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(-2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethyphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	940	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	940	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene	370	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW6S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2A8938

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	81	J
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	120	J
129-00-0	Pyrene	77	J
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	43	J
218-01-9	Chrysene	54	J
117-81-7	bis(2-Ethylhexyl)phthalate	42	J
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	69	J
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	44	J
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW6S4

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix: (soil/water) SOIL Lab Sample ID: 61335001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2A8938

Level: (low/med) LOW Date Received: 07/16/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/21/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/30/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.7

Number TICs found: 24

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.95	30000	ANJB
2.		UNKNOWN	4.43	140	JB
3.		UNKNOWN	4.91	1800	JB
4.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	4.99	110	NJ
5.		UNKNOWN	11.99	710	J
6.		UNKNOWN	14.14	220	J
7.		UNKNOWN	15.32	99	JB
8.	2091-29-4	9-HEXADECENOIC ACID	16.32	80	NJ
9.		UNKNOWN	16.41	330	J
10.	57-10-3	HEXADECANOIC ACID	16.51	1000	NJ
11.		UNKNOWN	16.83	110	J
12.		UNKNOWN ORGANIC ACID	17.94	3200	J
13.		UNKNOWN ORGANIC ACID	18.09	740	J
14.		UNKNOWN	20.79	110	J
15.		UNKNOWN	21.72	620	J
16.		UNKNOWN ALCOHOL	22.56	400	J
17.		UNKNOWN	22.92	1300	J
18.		UNKNOWN ALCOHOL	23.73	120	J
19.	57-88-5	CHOLESTEROL	24.35	80	NJ
20.		UNKNOWN	24.74	110	J
21.		UNKNOWN	25.24	110	J
22.		UNKNOWN	25.41	110	J
23.		UNKNOWN	25.98	190	J
24.		UNKNOWN	27.09	89	J
25.					
26.					
27.					
28.					
29.					
30.					

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10S4

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61335__

Matrix (soil/water): SOIL___ Lab Sample ID: 61335009_____

Level (low/med): MED____ Date Received: 07/16/99_

% Solids: 86.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.096	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11S4

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61335__

Matrix (soil/water): SOIL___ Lab Sample ID: 61335008_____

Level (low/med): MED____ Date Received: 07/16/99_

% Solids: 89.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.084	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S4

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61335__

Matrix (soil/water): SOIL___ Lab Sample ID: 61335007_____

Level (low/med): MED____ Date Received: 07/16/99_

% Solids: 90.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.11	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B201S3

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: 61335

Matrix (soil/water): SOIL Lab Sample ID: 61335010

Level (low/med): MED Date Received: 07/16/99

% Solids: 89.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.11	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B20S3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM_ Case No.: SAS No.: SDG No.: 61335

Matrix (soil/water): SOIL Lab Sample ID: 61335006

Level (low/med): MED Date Received: 07/16/99

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.092	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B21S3

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61335__

Matrix (soil/water): SOIL___ Lab Sample ID: 61335005_____

Level (low/med): MED____ Date Received: 07/16/99_

% Solids: 92.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.11	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B22S3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix (soil/water): SOIL Lab Sample ID: 61335004

Level (low/med): MED Date Received: 07/16/99

% Solids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.087	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B23S3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix (soil/water): SOIL Lab Sample ID: 61335003

Level (low/med): MED Date Received: 07/16/99

% Solids: 92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.10	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B30S3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM_ Case No.: SAS No.: SDG No.: 61335

Matrix (soil/water): SOIL Lab Sample ID: 61335002

Level (low/med): MED Date Received: 07/16/99

% Solids: 93.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.10	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW6S4

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61335

Matrix (soil/water): SOIL Lab Sample ID: 61335001

Level (low/med): MED Date Received: 07/16/99

% Solids: 92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.10	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

CORPORATION
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@worldnet.att.net

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY TRC ENVIRONMENTAL CORP.	PHONE (401) 832-5881	COMPANY TRC ENVIRONMENTAL	PHONE	LAB PROJECT #:
NAME STEVE FARRICK	FAX (401) 832-4747	NAME STEVE FARRICK	FAX	
ADDRESS C/O NAVAL UNDERSEA WARFARE CENTER BUILDING 11-CODE 551, 1176 HOWELL ST.		ADDRESS 5 WATERSIDE CROSSING		TURNAROUND TIME: STANDARD TAT
CITY/ST/ZIP NEWPORT, RI 02841-1708		CITY/ST/ZIP WINDSOR CT 06095		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
B-179	01984-0040	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	5035 VOC's by 8260	TAL SVOCs-CLP SOW	TCL Cyanide-CLP SOW	GC-TPH-M8100	514.1 TOC (Total Organic Carbon)	TPH-M8015	COMMENTS
MW6-S4	7/15/99				✓			2		✓	✓	✓	✓	✓	
B30-S3	7/14/99				✓			2	✓	✓	✓	✓		✓	low levels of VOC's expected
B23-S3	7/14/99				✓			2	✓	✓	✓	✓		✓	low levels of VOCs expected.
B22-S3	7/14/99				✓			1		✓	✓	✓		✓	
B21-S3	7/14/99				✓			1		✓	✓	✓		✓	
B20-S3	7/14/99				✓			1		✓	✓	✓		✓	
B12-S4	7/15/99				✓			1		✓	✓	✓		✓	
B11-S4	7/15/99				✓			1		✓	✓	✓		✓	
B10-S4	7/15/99				✓			1		✓	✓	✓		✓	
B201-S3	7/14/99				✓			1		✓	✓	✓		✓	

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	William Peoples	7/14/99 4:16pm	[illegible]	7/16/99 [illegible]
2		/		/
3		/		/

ADDITIONAL REMARKS: UPON COMPLETION, FAX RESULTS TO S. FARRICK @ (401)832-4747

COOLER TEMP

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@worldnet.att.net

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY TRC ENVIRONMENTAL CORP.	PHONE (401) 832-5881	COMPANY TRC ENVIRONMENTAL	PHONE	LAB PROJECT #:
NAME STEVE FARRICK	FAX (401) 832-4197	NAME STEVE FARRICK	FAX	
ADDRESS c/o NAVAL UNDERSEA WARFARE CENTER BUILDING 11 CODE 551, 1176 HOWELL ST		ADDRESS 5 WATERSIDE CROSSING		TURNAROUND TIME STANDARD TAT
CITY/ST/ZIP NEWPORT, RI 02841-1708		CITY/ST/ZIP WINDSOR, CT 06095		

CLIENT PROJECT NAME: NUWC - B.179
CLIENT PROJECT #: 01784-0040
CLIENT P.O.#:

REQUESTED ANALYSES: TAL SVOCs-CLP 90W; TCL Cyanide-ILM 4.0; GC-TPH-MOD; TPH-418.1; 9060 TOC (Total Organic Carbon)

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TAL SVOCs	TCL Cyanide	GC-TPH	TPH	TOC							COMMENTS
B13-S4	7/19/99				X			1	✓	✓	✓	✓								
B14-S3	7/19/99				X			1	✓	✓	✓	✓								
B15-S3	7/20/99				X			2	✓	✓	✓	✓	✓							
B16-S4	7/20/99				X			1	✓	✓	✓	✓								
B24-S2	7/19/99				X			1	✓	✓	✓	✓								
B25-S2	7/19/99				X			1	✓	✓	✓	✓								
B26-S2	7/20/99				X			1	✓	✓	✓	✓								
B261-S2	7/20/99				X			1	✓	✓	✓	✓								
B16-S5	7/19/99				X			1	✓	✓	✓	✓								
	/																			
	/									/										
	/																			

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	ELLEN M. PEOPLES	7/20/99 5:30pm	TO FEDEX TRACKING NO. 805305160677	/
2		/		/
3		/		/

ADDITIONAL REMARKS: UPON COMPLETION FAX RESULTS TO S. FARRICK @ (401) 832-4197

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CORPORATION
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email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY TRC ENVIRONMENTAL CORP	PHONE (401) 832-5881	COMPANY TRC ENVIRONMENTAL	PHONE	LAB PROJECT #:
NAME S. FARRICK	FAX (401) 832-4747	NAME STEVE FARRICK	FAX	
ADDRESS C/O NAVAL UNDERSEA WARFARE CENTER BUILDING 11-CODE 551, 1176 HOWELL ST.		ADDRESS 5 WATERSIDE CROSSING		TURNAROUND TIME: STANDARD TAT
CITY/ST/ZIP NEWPORT, RI 02841-1708		CITY/ST/ZIP WINDSOR, CT 06095		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NUWC-B179	01984-0040	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES: TAL SVOC's-CLP SOW	TCL Cyanide-CLP SOW	GC-TPH-M8100	TPH-M8100	514.1 TOC (TOTAL ORGANIC CARBON)	COMMENTS
MW71B-S4	7/21/99				X			2	✓	✓	✓	✓	✓	
MW7B-S4	7/21/99				X			2	✓	✓	✓	✓	✓	
MW7B-S6	7/21/99				X			2	✓	✓	✓	✓	✓	
MW8B-S3	7/21/99				X			2	✓	✓	✓	✓	✓	
MW11-S4	7/22/99				X			2	✓	✓	✓	✓	✓	
MW11-S5	7/22/99				X			2	✓	✓	✓	✓	✓	
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SF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
1	ELLEN M. PEOPLES	7/20/99 5:30pm	TO FEDEX FOR OVERNIGHT DELIVERY	/	UPON COMPLETION FAX RESULTS TO S. FARRICK @ (401) 832-4747	
2		/	TRACKING NO. 805305961412	/		
3		/		/		

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY: TRC ENVIRONMENTAL CORP	PHONE: (401) 832-5866	COMPANY: - SAME -	PHONE	LAB PROJECT #:
NAME: BRIAN SULLIVAN	FAX: (401) 832-4747	NAME	FAX	
ADDRESS: 5 WATERSIDE CROSSING		ADDRESS		TURNAROUND TIME: STANDARD TAT
CITY/ST/ZIP: WINDSOR, CT 06095		CITY/ST/ZIP		

CLIENT PROJECT NAME: NUWC - B-179

CLIENT PROJECT #: 01984-0040-0010

CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES: TAL SVOC's - CLP SOW	TCL CYANIDE - CLP SOW	GC-TPH - MS100	TPH - MS100	SVHL TOC (TOTAL ORGANIC CARBON)	COMMENTS
MW9-S2	7/28/99		X		X			2	X	X	X	X	X	
MW12-S2-B9	7/28/99		X		X			2	X	X	X	X	X	
	/													
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TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	Brian Sullivan	7/28/99 3:30	[signature]	7/29/99 3:30
2		/		/
3		/		/

ADDITIONAL REMARKS: UPON COMPLETION, PLEASE FAX RESULTS TO 401-832-4747. FINAL REPORT TO WINDSOR. PLEASE CALL IF ANY PROBLEMS OR QUESTIONS ARISE.

COOLER TEMP:

WHITE - LABORATORY COPY YELLOW - [illegible] PINK - CLIENT'S COPY

CORPORATION
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: lhltkem@worldnet.att.net

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY: TRC Environmental Corp	PHONE: (401) 832-5866	COMPANY: Same	PHONE	LAB PROJECT #:
NAME: Brian Sullivan	FAX: (401) 832-4747	NAME	FAX	
ADDRESS: 5 Waterside Crossing		ADDRESS		TURNAROUND TIME: STANDARD TAT
CITY/ST/ZIP: Windsor, CT 06095		CITY/ST/ZIP		

CLIENT PROJECT NAME: NWC B-179

CLIENT PROJECT #: 019841-0010-0000

CLIENT P.O.#:

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TAL SVOC's - CLP SOW	TCL CYANIDE - CLP SOW	GC-TPH - MSMD	TPH - MSMD	5 HALL TOC (TOTAL ORGANIC CARBON)	COMMENTS
MW-13B-S3-B8	8/3/99		X		X			2	X	X	X	X	X	
	/													
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TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	Brian Sullivan	8/4/99 13:15		
2		/		/
3		/		/

ADDITIONAL REMARKS: Upon completion, initial FAX results to 401-832-4747. Final report to Windsor. Please call if any problems or questions arise.

COOLER TEMP:

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

Groundwater
Analytical Data

MITKEM CORPORATION

September 22, 1999

TRC Environmental Corp.
5 Westside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project: 01984-0040-00010/ NUWC, Bldg 179
Lab Project #: 61624

Dear Mr. Farrick:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Kin Chiu

Kin Chiu
Technical Director

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 or (401) 738-1580 • email: mitkem@mitkem.com

MITKEM CORPORATION

* Data Package Summary *

for VOA
SVOA
Cyanide data

Analytical Data Package for TRC Environmental Corporation

Client Project: 01984-0040-0010/NUWC Bldg 179

Mitkem Project ID: 61624

September 22, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s project. Under this deliverable, analysis results are presented for nineteen aqueous samples that were received on August 25, 26 and 27, 1999, and logged in under Mitkem Project Number 61624. Analyses were performed per contract proposal and specifications in the chain of custody form.

The following samples are submitted in this data package:

Client ID	Truncated ID**	Lab ID	Analysis
MW-7B*	MW7B	61624001	V, S, TPH, CN
MW-7A*	MW7A	61624002	V, S, TPH, CN
MW-FB*	MWFB	61624003	V, S, TPH, CN
MW-11*	MW11	61624004	V, S, TPH, CN
MW-10*	MW10	61624005	V, S, TPH, CN
TB1	TB1	61624006	V
MW-13B	MW13B	61624007	V, S, TPH, CN
MW-13A	MW13A	61624008	V, S, TPH, CN
MW-12	MW12	61624009	V, S, TPH, CN
MW-121	MW121	61624010	V, S, TPH, CN
MW-8B	MW8B	61624011	V, S, TPH, CN
MW-8A	MW8A	61624012	V, S, TPH, CN
MW-FB25	MWFB25	61624013	V, S, TPH, CN
TB2	TB2	61624014	V
MW-9B	MW9B	61624015	V, S, TPH, CN
MW-101	MW101	61624016	V, S, TPH, CN
MW-GA	MWGA	61624017	V, S, TPH, CN
MW-GB	MWGB	61624018	V, S, TPH, CN
TB3	TB3	61624019	V

V = Volatile Organic (Method 8260B)
S = Semivolatile Organic (OLM03.2)
TPH = Petroleum hydrocarbons (Methods 8015M/8100)
CN = Cyanide (ILM04.0)

*These are listed as soil samples in the chain of custody but are in fact aqueous samples.

** Due to software limitations, the Client IDs are truncated in the data package.

The organics analyses were performed according to SW846 and USEPA CLP methods as listed above. The petroleum hydrocarbon data are presented in standard Mitkem format

with supporting raw data. The analysis results for the other analyses are reported in CLP (or CLP-like) format.

The following observation and/or deviations are observed for the following analyses:
1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Volatile Organic Analysis:

Surrogate recovery: surrogate recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits

Matrix spike: matrix spike was performed on MWGB. Spike recoveries were within the QC limit with the exception that 2-chloroethyl vinyl ether was not recovered. Please note that the analyte was not stable in acidic medium (sample was acid preserved). Please further note that a matrix spike duplicate was also performed but was not reported as the internal standard area counts were out for the spike duplicate.

Sample analysis: due to high analyte concentration, MW7A was analyzed at 25x dilution and sample MW7B was analyzed at 100x dilution. Three samples including MW7B, MW9B and MWGA were re-analyzed at dilution to ensure that all of the target analytes were determined within the instrument calibration range. Sample MW7A was re-analyzed to confirm that the trichloroethane concentration that was reported in the initial analysis was not affected by carry-over from the previous analysis (MW7B in which trichloroethane was determined to exceed the calibration range). Please note that the re-analysis for MW7A and the diluted analysis for MW7B was performed one day out of holding time. No other unusual observation was made for the analysis.

3. Semivolatile Organic Analysis:

GC column: 30 m x 0.25 mm id (0.5 mm id) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limit with the exception that phenol-d6 was not recovered in MW12. The initial extract was re-analyzed with similar findings. Due to limited sample availability, the laboratory was not able to perform re-extraction to validate matrix effect.

Sample analysis: due to limited sample availability, the laboratory was only able to extract 0.4L for MW101 and 0.55L for MWGA. For these two samples, the extract final

volumes were reduced to compensate for the reduced extraction volumes. Sample MWGA was re-analyzed at dilution to ensure that all of the target analytes were determined within the instrument calibration range. Alkanes were determined and included in the narrative per SOW requirement. No other unusual observation was made for the analyses.

4. Total Petroleum Hydrocarbon Analysis:

No unusual observation was made for the analyses.

5. Cyanide Analysis:

The samples were distilled using midi-distill (Kontes). The resultant distillates were analyzed using a Lachet Model 8000 autoanalyzer.

No unusual observation was made for the analyses.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
9/22/99

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5318

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	7	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5318

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5318

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW101

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624016

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5458

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	5	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	2	J
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	2	J
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW101

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624016

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5458

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW101

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624016

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5458

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5317

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	7	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5317

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW11

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5317

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW12

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5322

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	2	J
156-59-2	cis-1,2-Dichloroethene	2	J
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	2	J
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW12

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5322

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	9	
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW12

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5322

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW121

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624010

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5323

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	7	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	2	J
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	2	J
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW121

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624010

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5323

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	13	
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW121

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624010

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5323

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5321

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	3	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5321

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW13A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5321

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5320

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	2	J
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5320

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW13B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5320

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5315

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 25.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	120	U
74-87-3	Chloromethane	120	U
75-01-4	Vinyl Chloride	120	U
74-83-9	Bromomethane	120	U
75-00-3	Chloroethane	73	J
75-69-4	Trichlorofluoromethane	120	U
67-64-1	Acetone	65	JB
75-35-4	1,1-Dichloroethene	76	J
74-88-4	Iodomethane	120	U
75-15-0	Carbon Disulfide	120	U
75-09-2	Methylene Chloride	62	J
1634-04-4	Methyl tert-butyl ether	25	U
156-60-5	trans-1,2-Dichloroethene	120	U
108-05-4	Vinyl acetate	120	U
75-34-3	1,1-Dichloroethane	780	
78-93-3	2-Butanone	120	U
156-59-2	cis-1,2-Dichloroethene	120	U
590-20-7	2,2-Dichloropropane	120	U
74-97-5	Bromochloromethane	120	U
67-66-3	Chloroform	120	U
71-55-6	1,1,1-Trichloroethane	3600	
563-58-6	1,1-Dichloropropene	120	U
56-23-5	Carbon Tetrachloride	120	U
107-06-2	1,2-Dichloroethane	120	U
71-43-2	Benzene	120	U
79-01-6	Trichloroethene	120	U
78-87-5	1,2-Dichloropropane	120	U
74-95-3	Dibromomethane	120	U
75-27-4	Bromodichloromethane	120	U
110-75-8	2-Chloroethyl vinyl ether	120	U
10061-01-5	cis-1,3-Dichloropropene	120	U
108-10-1	4-Methyl-2-pentanone	120	U
108-88-3	Toluene	120	U
10061-02-6	trans-1,3-Dichloropropene	120	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5315

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 25.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	120	U
142-28-9	1,3-Dichloropropane	120	U
591-78-6	2-Hexanone	120	U
127-18-4	Tetrachloroethene	120	U
124-48-1	Dibromochloromethane	120	U
106-93-4	1,2-Dibromoethane	120	U
108-90-7	Chlorobenzene	120	U
630-20-6	1,1,1,2-Tetrachloroethane	120	U
100-41-4	Ethylbenzene	120	U
1330-20-7	Xylene (Total)	120	U
100-42-5	Styrene	120	U
75-25-2	Bromoform	120	U
98-82-8	Isopropylbenzene	120	U
79-34-5	1,1,2,2-Tetrachloroethane	120	U
96-18-4	1,2,3-Trichloropropane	120	U
108-86-1	Bromobenzene	120	U
103-65-1	n-Propylbenzene	120	U
95-49-8	2-Chlorotoluene	120	U
108-67-8	1,3,5-Trimethylbenzene	120	U
106-43-4	4-Chlorotoluene	120	U
98-06-6	tert-Butylbenzene	120	U
95-63-6	1,2,4-Trimethylbenzene	120	U
135-98-8	sec-Butylbenzene	120	U
99-87-6	4-Isopropyltoluene	120	U
541-73-1	1,3-Dichlorobenzene	120	U
106-46-7	1,4-Dichlorobenzene	120	U
104-51-8	n-Butylbenzene	120	U
95-50-1	1,2-Dichlorobenzene	120	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
120-82-1	1,2,4-Trichlorobenzene	120	U
87-68-3	Hexachlorobutadiene	120	U
91-20-3	Naphthalene	120	U
87-61-6	1,2,3-Trichlorobenzene	120	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW7A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5315

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 25.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5314

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	500	U
74-87-3	Chloromethane	500	U
75-01-4	Vinyl Chloride	500	U
74-83-9	Bromomethane	500	U
75-00-3	Chloroethane	500	U
75-69-4	Trichlorofluoromethane	500	U
67-64-1	Acetone	390	JB
75-35-4	1,1-Dichloroethene	310	J
74-88-4	Iodomethane	500	U
75-15-0	Carbon Disulfide	500	U
75-09-2	Methylene Chloride	230	J
1634-04-4	Methyl tert-butyl ether	100	U
156-60-5	trans-1,2-Dichloroethene	500	U
108-05-4	Vinyl acetate	500	U
75-34-3	1,1-Dichloroethane	1400	
78-93-3	2-Butanone	500	U
156-59-2	cis-1,2-Dichloroethene	500	U
590-20-7	2,2-Dichloropropane	500	U
74-97-5	Bromochloromethane	500	U
67-66-3	Chloroform	500	U
71-55-6	1,1,1-Trichloroethane	23000	E
563-58-6	1,1-Dichloropropene	500	U
56-23-5	Carbon Tetrachloride	500	U
107-06-2	1,2-Dichloroethane	500	U
71-43-2	Benzene	500	U
79-01-6	Trichloroethene	500	U
78-87-5	1,2-Dichloropropane	500	U
74-95-3	Dibromomethane	500	U
75-27-4	Bromodichloromethane	500	U
110-75-8	2-Chloroethyl vinyl ether	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
108-10-1	4-Methyl-2-pentanone	500	U
108-88-3	Toluene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5314

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	500	U
142-28-9	1,3-Dichloropropane	500	U
591-78-6	2-Hexanone	160	JB
127-18-4	Tetrachloroethene	500	U
124-48-1	Dibromochloromethane	500	U
106-93-4	1,2-Dibromoethane	500	U
108-90-7	Chlorobenzene	500	U
630-20-6	1,1,1,2-Tetrachloroethane	500	U
100-41-4	Ethylbenzene	500	U
1330-20-7	Xylene (Total)	500	U
100-42-5	Styrene	500	U
75-25-2	Bromoform	500	U
98-82-8	Isopropylbenzene	500	U
79-34-5	1,1,2,2-Tetrachloroethane	500	U
96-18-4	1,2,3-Trichloropropane	500	U
108-86-1	Bromobenzene	500	U
103-65-1	n-Propylbenzene	500	U
95-49-8	2-Chlorotoluene	500	U
108-67-8	1,3,5-Trimethylbenzene	500	U
106-43-4	4-Chlorotoluene	500	U
98-06-6	tert-Butylbenzene	500	U
95-63-6	1,2,4-Trimethylbenzene	500	U
135-98-8	sec-Butylbenzene	500	U
99-87-6	4-Isopropyltoluene	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
104-51-8	n-Butylbenzene	500	U
95-50-1	1,2-Dichlorobenzene	500	U
96-12-8	1,2-Dibromo-3-chloropropane	500	U
120-82-1	1,2,4-Trichlorobenzene	120	J
87-68-3	Hexachlorobutadiene	500	U
91-20-3	Naphthalene	220	JB
87-61-6	1,2,3-Trichlorobenzene	150	J

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW7B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5314

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624012

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5454

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	5	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	3	J
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624012

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5454

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	1	BJ
87-68-3	Hexachlorobutadiene	1	BJ
91-20-3	Naphthalene	1	BJ
87-61-6	1,2,3-Trichlorobenzene	2	BJ

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW8A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624012

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5454

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624011

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5324

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624011

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5324

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW8B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624011

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5324

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW9B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624015

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5457

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	4	J
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	12	
75-35-4	1,1-Dichloroethene	16	
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	140	
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	250	E
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	2	J
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW9B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624015

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5457

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

00 044

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW9B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624015

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5457

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	14.29	27	J
2.					
3.					
4.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5316

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	7	
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

00 049

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5316

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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EPA SAMPLE NO.

MWFB

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5316

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB25

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624013

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5455

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	4	J
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB25

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624013

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5455

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

IE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MWFB25

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624013

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5455

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MWGA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624017

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5326

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	210	EB
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	1	J
78-93-3	2-Butanone	210	E
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	2	J
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624017

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5326

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MWGA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624017

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5326

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624018

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5327

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	9	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624018

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5327

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	1	J
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	1	J
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	1	J
99-87-6	4-Isopropyltoluene	1	J
541-73-1	1,3-Dichlorobenzene	1	J
106-46-7	1,4-Dichlorobenzene	1	J
104-51-8	n-Butylbenzene	1	J
95-50-1	1,2-Dichlorobenzene	1	J
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	2	J
87-68-3	Hexachlorobutadiene	3	J
91-20-3	Naphthalene	3	JB
87-61-6	1,2,3-Trichlorobenzene	3	J

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MWGB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624018

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5327

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5319

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	6	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	3	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5319

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TB1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5319

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

TB2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624014

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5456

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	4	J
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624014

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5456

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec. _____ Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TB2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER

Lab Sample ID: 61624014

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: V2C5456

Level: (low/med) LOW

Date Received: 08/26/99

% Moisture: not dec. _____

Date Analyzed: 09/05/99

GC Column: DB-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624019

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5328

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	130	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	31	
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	2	J
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624019

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5328

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TB3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624019

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5328

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: not dec. _____ Date Analyzed: 09/07/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624005

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9487

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624005

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9487

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624005

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9487

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN ALCOHOL	6.59	3	J
2.		UNKNOWN ALCOHOL	10.64	4	J
3.		UNKNOWN ALCOHOL	12.69	12	J
4.					
5.					
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW101

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624016

Sample wt/vol: 400.0 (g/mL) ML Lab File ID: S2A9801

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	12	U
111-44-4	bis(-2-Chloroethyl)Ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-oxybis(1-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-di-n-propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethyphenol	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U
111-91-1	bis(2-Chloroethoxy)methane	12	U
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	31	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	31	U
131-11-3	Dimethylphthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	31	U
83-32-9	Acenaphthene	12	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW101

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624016

Sample wt/vol: 400.0 (g/mL) ML Lab File ID: S2A9801

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	31	U
100-02-7	4-Nitrophenol	31	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	31	U
534-52-1	4,6-Dinitro-2-methylphenol	31	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	31	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
86-74-8	Carbazole	12	U
84-74-2	Di-n-butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo(a)anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	bis(2-Ethylhexyl)phthalate	12	U
117-84-0	Di-n-octylphthalate	12	U
205-99-2	Benzo(b)fluoranthene	12	U
207-08-9	Benzo(k)fluoranthene	12	U
50-32-8	Benzo(a)pyrene	12	U
193-39-5	Indeno(1,2,3-cd)pyrene	12	U
53-70-3	Dibenzo(a,h)anthracene	12	U
191-24-2	Benzo(g,h,i)perylene	12	U

(1) - Cannot be separated from Diphenylamine

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1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW101

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624016

Sample wt/vol: 400.0 (g/mL) ML Lab File ID: S2A9801

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	112-34-5	ETHANOL, 2-(2-BUTOXYETHOXY)-	9.56	6	NJ
2.		UNKNOWN	11.62	13	J
3.		UNKNOWN	11.74	3	J
4.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624004

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9486

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624004

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9486

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

UU 1.85

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EPA SAMPLE NO.

MW11

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624004

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9486

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.42	2	J
2.		UNKNOWN	10.63	4	J
3.		UNKNOWN	12.69	16	J
4.					
5.					
6.					
7.					
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW12

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624009

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9490

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW12

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624009

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9490

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

MW12

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624009

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9490

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	127-18-4	TETRACHLOROETHYLENE	5.05	5	NJ
2.		UNKNOWN	7.67	26	J
3.		UNKNOWN	11.35	3	J
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW121

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624010

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9491

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW121

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624010

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9491

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1E

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW121

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624010

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9491

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	127-18-4	TETRACHLOROETHYLENE	5.05	5	NJ
2.		UNKNOWN	11.98	2	J
3.					
4.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624008

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9489

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

00193

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624008

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9489

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW13A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624008

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9489

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	872-50-4	2-PYRROLIDINONE, 1-METHYL-	8.61	6	NJ
2.		UNKNOWN ALCOHOL	10.64	3	J
3.		UNKNOWN	12.69	8	J
4.					
5.					
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW13B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624007

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9488

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

IC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624007

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9488

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	22	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

EDD# NET IF EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW13B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624007

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9488

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN ALCOHOL	6.58	4	J
2.		UNKNOWN ORGANIC ACID	7.56	2	J
3.		UNKNOWN ALCOHOL	10.64	6	J
4.		UNKNOWN	12.69	6	J
5.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9484

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/28/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW7A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9484

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/28/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW7A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9484

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/28/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.20	5	J
2.		UNKNOWN ALCOHOL	4.77	4	J
3.	127-18-4	TETRACHLOROETHYLENE	5.05	3	NJ
4.		UNKNOWN	5.62	2	J
5.		UNKNOWN	6.18	2	J
6.		UNKNOWN	6.43	2	J
7.		UNKNOWN	8.48	2	J
8.		UNKNOWN	9.17	3	J
9.		UNKNOWN	10.21	4	J
10.		UNKNOWN	11.00	2	J
11.		UNKNOWN	11.48	2	J
12.		UNKNOWN	12.69	15	J
13.		UNKNOWN	16.30	2	J
14.	314-40-9	BROMACIL	18.62	17	NJ
15.					
16.					
17.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9483

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/28/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	2	J
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

LC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9483

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/28/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	4	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

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1E

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW7B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9483

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/28/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 24

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	108-88-3	TOLUENE	4.41	32	NJ
2.	127-18-4	TETRACHLOROETHYLENE	5.05	3	NJ
3.	100-41-4	ETHYLBENZENE	5.96	2	NJ
4.		C2-BENZENE ISOMER	6.47	3	J
5.	103-65-1	BENZENE, PROPYL-	7.43	2	NJ
6.		C3-BENZENE ISOMER	7.54	9	J
7.		C3-BENZENE ISOMER	7.82	4	J
8.		C3-BENZENE ISOMER	8.06	12	J
9.		C4-BENZENE ISOMER	8.30	2	J
10.		UNKNOWN	8.48	22	J
11.		C4-BENZENE ISOMER	8.83	2	J
12.		UNKNOWN	8.87	5	J
13.		C4-BENZENE ISOMER	8.96	8	J
14.		C4-BENZENE ISOMER	9.10	2	J
15.		C4-BENZENE ISOMER	9.24	2	J
16.		C4-BENZENE ISOMER	9.28	2	J
17.		UNKNOWN	9.58	2	J
18.		C4-BENZENE ISOMER	10.31	4	J
19.		UNKNOWN	12.69	8	J
20.		UNKNOWN	18.15	12	J
21.		UNKNOWN	18.66	13	J
22.	109-43-3	DECANEDIOIC ACID, DIBUTYL ES	20.23	3	NJ
23.		UNKNOWN	24.93	3	J
24.		UNKNOWN	26.59	4	J
25.					
26.					
27.					
28.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

. MW8A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624012

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9493

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	2	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624012

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9493

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1E

EPA SAMPLE NO.

MW8A

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624012

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9493

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.46	2	J
2.	98-86-2	ACETOPHENONE	9.11	4	NJ
3.		UNKNOWN	10.63	11	J
4.	501-52-0	BENZENEPROPANOIC ACID	12.38	2	NJ
5.		UNKNOWN	12.69	12	J
6.		UNKNOWN	13.88	2	J
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624011

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9492

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624011

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9492

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	70	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

MW8B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624011

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9492

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	10.64	3	J
2.		UNKNOWN	12.69	2	J
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW9B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624015

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9798

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW9B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624015

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9798

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	2	J
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	66	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: MW9B

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624015

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9798

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	250-65-7	THIENO[3,4-B]THIOPHENE	9.76	2	NJ
2.	124-17-4	ETHANOL, 2-(2-BUTOXYETHOXY)-	11.61	11	NJ
3.		UNKNOWN	17.41	2	J
4.		UNKNOWN	19.74	3	J
5.		UNKNOWN PHTHALATE	23.94	4	J
6.		UNKNOWN PHTHALATE	24.09	2	J
7.		UNKNOWN PHTHALATE	24.30	4	J
8.		UNKNOWN PHTHALATE	24.50	13	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9485

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9485

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MWFB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9485

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.58	12	J
2.		UNKNOWN ORGANIC ACID	7.55	2	J
3.		UNKNOWN ALCOHOL	10.64	13	J
4.		UNKNOWN	12.70	12	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB25

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624013

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9494

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB25

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624013

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9494

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MWFB25

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624013

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9494

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/29/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.37	2	J
2.		UNKNOWN	4.82	8	J
3.	108-94-1	CYCLOHEXANONE	6.52	7	NJ
4.		UNKNOWN	6.58	15	J
5.	100-52-7	BENZALDEHYDE	7.58	4	NJ
6.	90-05-1	PHENOL, 2-METHOXY-	9.35	6	NJ
7.		UNKNOWN	9.56	16	J
8.		UNKNOWN	11.52	6	J
9.		UNKNOWN	12.75	4	J
10.	121-33-5	VANILLIN	13.26	2	NJ
11.		UNKNOWN	19.08	3	J
12.		UNKNOWN	19.70	15	J
13.		UNKNOWN	21.85	43	J
14.		UNKNOWN	24.57	9	J
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MWGA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624017

Sample wt/vol: 550.0 (g/mL) ML Lab File ID: S2A9800

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/31/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	4	J
111-44-4	bis(-2-Chloroethyl)Ether	9	U
95-57-8	2-Chlorophenol	9	U
541-73-1	1,3-Dichlorobenzene	9	U
106-46-7	1,4-Dichlorobenzene	9	U
95-50-1	1,2-Dichlorobenzene	9	U
95-48-7	2-Methylphenol	9	U
108-60-1	2,2'-oxybis(1-Chloropropane)	9	U
106-44-5	4-Methylphenol	19	
621-64-7	N-Nitroso-di-n-propylamine	9	U
67-72-1	Hexachloroethane	9	U
98-95-3	Nitrobenzene	9	U
78-59-1	Isophorone	9	U
88-75-5	2-Nitrophenol	9	U
105-67-9	2,4-Dimethyphenol	9	U
120-83-2	2,4-Dichlorophenol	9	U
120-82-1	1,2,4-Trichlorobenzene	9	U
91-20-3	Naphthalene	9	U
106-47-8	4-Chloroaniline	9	U
111-91-1	bis(2-Chloroethoxy)methane	9	U
87-68-3	Hexachlorobutadiene	9	U
59-50-7	4-Chloro-3-methylphenol	9	U
91-57-6	2-Methylnaphthalene	9	U
77-47-4	Hexachlorocyclopentadiene	9	U
88-06-2	2,4,6-Trichlorophenol	9	U
95-95-4	2,4,5-Trichlorophenol	23	U
91-58-7	2-Chloronaphthalene	9	U
88-74-4	2-Nitroaniline	23	U
131-11-3	Dimethylphthalate	9	U
208-96-8	Acenaphthylene	9	U
606-20-2	2,6-Dinitrotoluene	9	U
99-09-2	3-Nitroaniline	23	U
83-32-9	Acenaphthene	9	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624017

Sample wt/vol: 550.0 (g/mL) ML Lab File ID: S2A9800

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/31/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23	U
100-02-7	4-Nitrophenol	23	U
132-64-9	Dibenzofuran	9	U
121-14-2	2,4-Dinitrotoluene	9	U
84-66-2	Diethylphthalate	9	U
7005-72-3	4-Chlorophenyl-phenylether	9	U
86-73-7	Fluorene	9	U
100-01-6	4-Nitroaniline	23	U
534-52-1	4,6-Dinitro-2-methylphenol	23	U
86-30-6	N-Nitrosodiphenylamine (1)	9	U
101-55-3	4-Bromophenyl-phenylether	9	U
118-74-1	Hexachlorobenzene	9	U
87-86-5	Pentachlorophenol	23	U
85-01-8	Phenanthrene	9	U
120-12-7	Anthracene	9	U
86-74-8	Carbazole	9	U
84-74-2	Di-n-butylphthalate	9	U
206-44-0	Fluoranthene	9	U
129-00-0	Pyrene	9	U
85-68-7	Butylbenzylphthalate	9	U
91-94-1	3,3'-Dichlorobenzidine	9	U
56-55-3	Benzo(a)anthracene	9	U
218-01-9	Chrysene	9	U
117-81-7	bis(2-Ethylhexyl)phthalate	140	E
117-84-0	Di-n-octylphthalate	9	U
205-99-2	Benzo(b)fluoranthene	9	U
207-08-9	Benzo(k)fluoranthene	9	U
50-32-8	Benzo(a)pyrene	9	U
193-39-5	Indeno(1,2,3-cd)pyrene	9	U
53-70-3	Dibenzo(a,h)anthracene	9	U
191-24-2	Benzo(g,h,i)perylene	9	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

MWGA

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624017

Sample wt/vol: 550.0 (g/mL) ML Lab File ID: S2A9800

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 29

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.11	9	J
2.		UNKNOWN	4.29	5	J
3.	108-94-1	CYCLOHEXANONE	5.46	8	NJ
4.		UNKNOWN	5.68	4	J
5.		UNKNOWN	6.27	8	J
6.		UNKNOWN	6.32	5	J
7.	98-83-9	.ALPHA.-METHYLSTYRENE	6.78	14	NJ
8.	98-86-2	ACETOPHENONE	8.02	6	NJ
9.	65-85-0	BENZOIC ACID	9.46	6	NJ
10.	103-82-2	BENZENEACETIC ACID	10.34	2	NJ
11.		UNKNOWN ORGANIC ACID	10.56	3	J
12.	103-25-3	BENZENEPROPANOIC ACID, METHY	10.69	2	NJ
13.		UNKNOWN	10.93	7	J
14.	501-52-0	BENZENEPROPANOIC ACID	11.52	40	NJ
15.		UNKNOWN	11.64	32	J
16.		UNKNOWN ESTER	12.01	5	J
17.		UNKNOWN ESTER	13.39	3	J
18.		UNKNOWN	13.53	3	J
19.	120-40-1	DODECANAMIDE, N,N-BIS(2-HYDR	13.82	22	NJ
20.		UNKNOWN	13.95	3	J
21.		UNKNOWN	14.41	7	J
22.		UNKNOWN	15.60	2	J
23.		UNKNOWN	17.06	6	J
24.	57-10-3	HEXADECANOIC ACID	17.42	4	NJ
25.		UNKNOWN	17.68	3	J
26.	57-11-4	OCTADECANOIC ACID	19.01	9	NJ
27.		UNKNOWN	19.26	10	J
28.		UNKNOWN	20.37	8	J
29.		UNKNOWN	20.68	24	J
30.					

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624018

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9797

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624018

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9797

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/10/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	1	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	31	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MWGB

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix: (soil/water) WATER Lab Sample ID: 61624018

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9797

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.42	3	J
2.	124-17-4	ETHANOL, 2-(2-BUTOXYETHOXY)-	11.61	7	NJ
3.	128-37-0	BUTYLATED HYDROXYTOLUENE	13.25	2	NJ
4.	57-11-4	OCTADECANOIC ACID	19.03	6	NJ
5.		UNKNOWN	25.53	2	J
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7.					
8.					
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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW10

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: 61624__

Matrix (soil/water): WATER_ Lab Sample ID: 61624005_____

Level (low/med): MED____ Date Received: 08/25/99____

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	11.8			C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW101

.e: MITKEM_CORPORATION Contract:

e: MITKEM Case No.: SAS No.: SDG No.: 61624

;oil/water): WATER Lab Sample ID: 61624016

)w/med): MED Date Received: 08/27/99

i: .

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	98.6			C

Before: Clarity Before: Texture:

After: Clarity After: Artifacts:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW11

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: 61624__

Matrix (soil/water): WATER_ Lab Sample ID: 61624004_____

Level (low/med): MED____ Date Received: 08/25/99____

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW12

me: MITKEM_CORPORATION_____ Contract: _____

de: MITKEM Case No.: _____ SAS No.: _____ SDG No.: 61624__

(soil/water): WATER_ Lab Sample ID: 61624009_____

low/med): MED____ Date Received: 08/26/99___

is: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Before: _____ Clarity Before: _____ Texture: _____

After: _____ Clarity After: _____ Artifacts: _____

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW121

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix (soil/water): WATER Lab Sample ID: 61624010

Level (low/med): MED Date Received: 08/26/99

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13A

e: MITKEM_CORPORATION Contract:

: MITKEM Case No.: SAS No.: SDG No.: 61624

oil/water): WATER Lab Sample ID: 61624008

w/med): MED Date Received: 08/26/99

:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.1	B		C

Before: Clarity Before: Texture:

After: Clarity After: Artifacts:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW13B

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix (soil/water): WATER Lab Sample ID: 61624007

Level (low/med): MED Date Received: 08/26/99

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB

ume: MITKEM_CORPORATION Contract:

ode: MITKEM Case No.: SAS No.: SDG No.: 61624

(soil/water): WATER Lab Sample ID: 61624003

(low/med): MED Date Received: 08/25/99

ds:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Before: Clarity Before: Texture:

After: Clarity After: Artifacts:

nents:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGA

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: 61624__

Matrix (soil/water): WATER_ Lab Sample ID: 61624017_____

Level (low/med): MED____ Date Received: 08/27/99____

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	2.1	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWFB

ne: MITKEM_CORPORATION_____ Contract: _____

ie: MITKEM Case No.: _____ SAS No.: _____ SDG No.: 61624__

soil/water): WATER_ Lab Sample ID: 61624013_____

ow/med): LOW___ Date Received: _____

s: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U	N	C

Before: _____ Clarity Before: _____ Texture: _____

After: _____ Clarity After: _____ Artifacts: _____

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7A

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix (soil/water): WATER Lab Sample ID: 61624002

Level (low/med): MED Date Received: 08/25/99

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	612			C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW7B

ne: MITKEM_CORPORATION Contract:

le: MITKEM Case No.: SAS No.: SDG No.: 61624

soil/water): WATER Lab Sample ID: 61624001

ow/med): MED Date Received: 08/25/99

s:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Before: Clarity Before: Texture:

After: Clarity After: Artifacts:

ients:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWGB

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

Matrix (soil/water): WATER Lab Sample ID: 61624018

Level (low/med): MED Date Received: 08/27/99

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8A

me: MITKEM_CORPORATION Contract:

de: MITKEM Case No.: SAS No.: SDG No.: 61624

(soil/water): WATER Lab Sample ID: 61624012

low/med): MED Date Received: 08/26/99

ds:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U	N	C

r Before: Clarity Before: Texture:

r After: Clarity After: Artifacts:

ments:

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW8B

ab Name: MITKEM_CORPORATION Contract:

ab Code: MITKEM Case No.: SAS No.: SDG No.: 61624

atrix (soil/water): WATER Lab Sample ID: 61624011

evel (low/med): MED Date Received: 08/26/99

Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW9B

MITKEM_CORPORATION Contract:

MITKEM Case No.: SAS No.: SDG No.: 61624

il/water): WATER Lab Sample ID: 61624015

v/med): MED Date Received: 08/27/99

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.0	U		C

fore: Clarity Before: Texture:

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ts:

Analytical Data Package for TRC Environmental Corporation

Client Project: 01984-0040-0010/NUWC Bldg 179

Mitkem Project ID: 61624

September 22, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s project. Under this deliverable, analysis results are presented for nineteen aqueous samples that were received on August 25, 26 and 27, 1999, and logged in under Mitkem Project Number 61624. Analyses were performed per contract proposal and specifications in the chain of custody form.

The following samples are submitted in this data package:

Client ID	Truncated ID**	Lab ID	Analysis
MW-7B*	MW7B	61624001	V, S, TPH, CN
MW-7A*	MW7A	61624002	V, S, TPH, CN
MW-FB*	MWFB	61624003	V, S, TPH, CN
MW-11*	MW11	61624004	V, S, TPH, CN
MW-10*	MW10	61624005	V, S, TPH, CN
TB1	TB1	61624006	V
MW-13B	MW13B	61624007	V, S, TPH, CN
MW-13A	MW13A	61624008	V, S, TPH, CN
MW-12	MW12	61624009	V, S, TPH, CN
MW-121	MW121	61624010	V, S, TPH, CN
MW-8B	MW8B	61624011	V, S, TPH, CN
MW-8A	MW8A	61624012	V, S, TPH, CN
MW-FB25	MWFB25	61624013	V, S, TPH, CN
TB2	TB2	61624014	V
MW-9B	MW9B	61624015	V, S, TPH, CN
MW-101	MW101	61624016	V, S, TPH, CN
MW-GA	MWGA	61624017	V, S, TPH, CN
MW-GB	MWGB	61624018	V, S, TPH, CN
TB3	TB3	61624019	V

V = Volatile Organic (Method 8260B)
S = Semivolatile Organic (OLM03.2)
TPH = Petroleum hydrocarbons (Methods 8015M/8100)
CN = Cyanide (ILM04.0)

*These are listed as soil samples in the chain of custody but are in fact aqueous samples.

** Due to software limitations, the Client IDs are truncated in the data package.

The organics analyses were performed according to SW846 and USEPA CLP methods as listed above. The petroleum hydrocarbon data are presented in standard Mitkem format

with supporting raw data. The analysis results for the other analyses are reported in CLP (or CLP-like) format.

The following observation and/or deviations are observed for the following analyses:
1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Volatile Organic Analysis:

Surrogate recovery: surrogate recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits

Matrix spike: matrix spike was performed on MWGB. Spike recoveries were within the QC limit with the exception that 2-chloroethyl vinyl ether was not recovered. Please note that the analyte was not stable in acidic medium (sample was acid preserved). Please further note that a matrix spike duplicate was also performed but was not reported as the internal standard area counts were out for the spike duplicate.

Sample analysis: due to high analyte concentration, MW7A was analyzed at 25x dilution and sample MW7B was analyzed at 100x dilution. Three samples including MW7B, MW9B and MWGA were re-analyzed at dilution to ensure that all of the target analytes were determined within the instrument calibration range. Sample MW7A was re-analyzed to confirm that the trichloroethane concentration that was reported in the initial analysis was not affected by carry-over from the previous analysis (MW7B in which trichloroethane was determined to exceed the calibration range). Please note that the re-analysis for MW7A and the diluted analysis for MW7B was performed one day out of holding time. No other unusual observation was made for the analysis.

3. Semivolatile Organic Analysis:

GC column: 30 m x 0.25 mm id (0.5 mm id) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limit with the exception that phenol-d6 was not recovered in MW12. The initial extract was re-analyzed with similar findings. Due to limited sample availability, the laboratory was not able to perform re-extraction to validate matrix effect.

Sample analysis: due to limited sample availability, the laboratory was only able to extract 0.4L for MW101 and 0.55L for MWGA. For these two samples, the extract final

volumes were reduced to compensate for the reduced extraction volumes. Sample MWGA was re-analyzed at dilution to ensure that all of the target analytes were determined within the instrument calibration range. Alkanes were determined and included in the narrative per SOW requirement. No other unusual observation was made for the analyses.

4. Total Petroleum Hydrocarbon Analysis:

No unusual observation was made for the analyses.

5. Cyanide Analysis:

The samples were distilled using midi-distill (Kontes). The resultant distillates were analyzed using a Lachet Model 8000 autoanalyzer.

No unusual observation was made for the analyses.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
9/22/99

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M/8015M
Matrix: Aqueous

Concentration in: mg/L

Lab ID	Client ID	Result	Reporting Limit	p-Terphenyl Surrogate Recovery %	Analysis Date
61624001	MW-7B	0.4	0.4	80	8/27/99
61624002	MW-7A	ND	0.4	70	8/27/99
61624003	MW-FB	ND	0.4	61	8/27/99
61624004	MW-11	ND	0.4	68	8/27/99
61624005	MW-10	ND	0.4	70	8/27/99
61624007	MW-13B	ND	0.4	57	8/27/99
61624008	MW-13A	ND	0.4	55	8/27/99
61624009	MW-12	ND	0.4	54	8/27/99
QA/QC					
Method Blank					
F0826-BW1		ND	0.4	65	8/27/99
Lab Control Sample (% Recovery)					
F0826-LW1		92		66	8/27/99

ND = Not detected

The samples were quantitated using diesel as standard.

Fuel ID= 61624001 exhibited resolved and unresolved peaks within the retention time range of a typical gasoline fuel.

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corporation
Analysis: Method 8100M/8015M
Matrix: Aqueous

Concentration in: mg/L

Lab ID	Client ID	Result	Reporting Limit	p-Terphenyl Surrogate Recovery %	Analysis Date
61624010	MW-121	ND	0.4	60	8/27/99
61624011	MW-8B	ND	0.4	45	8/27/99
61624012	MW-8A	ND	0.4	30	8/27/99
61624013	MW-FB	ND	0.4	71	8/27/99
61624015	MW-9B	ND	0.4	106	8/31/99
61624016	MW-101	ND	0.5	100	8/31/99
61624017	MW-GA	ND	0.7	94	8/31/99
61624018	MW-GB	ND	0.4	52	8/31/99
QA/QC					
Method Blank					
F0831-BW1		ND	0.4	46	8/31/99
Lab Control Sample (% Recovery)					
F0831-LW1		74		58	8/31/99

ND = Not detected

The samples were quantitated using diesel as standard.

ORPORATION

Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		LAB PROJECT #:
ANY TRC ENVIRONMENTAL CORP.	PHONE (401) 832-5881	COMPANY TRC	PHONE	
STEVE FARRICK	FAX (401) 832-4747	NAME STEVE FARRICK	FAX	
ESS C/O NAVAL UNDERSEA WARFARE CENTER BUILDING 11 - CODE 551, 1176 HOWELL STREET		ADDRESS 5 WATERSIDE CROSSING		TURNAROUND TIME: STANDARD TAT
ST/ZIP NEWPORT, RI 02841		CITY/ST/ZIP WINDSOR CT 06095		

NT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
WC B.179	C1984-0640-00010	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TAL VOC's by 8260	TAL SVOC's - CLP SOW	TCL Cyanide - CLP SOW	GC-TPH - MA100	TPH - MA 815	COMMENTS
1-7B	8/24/99 1306		✓	✓	✓			5	X	X	X	X	X	
1-7A	1354		✓	✓	✓			5	X	X	X	X	X	
1-FB	1410		✓	✓	✓			5	X	X	X	X	X	
1-11	1451		✓	✓	✓			5	X	X	X	X	X	
1-10	1545		✓	✓	✓			5	X	X	X	X	X	
B								2	X	X	X	X	X	

RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
Brian Sulli	8/24/99 1620	Joseph Healy	8/25/99 11:30	UPON COMPLETION, FAX RESULTS TO S. FARRICK 401-832-4747	

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@worldnet.att.net

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY: TRC ENVIRONMENTAL CORP	PHONE: (401) 832-5881	COMPANY: TRC	PHONE:	LAB PROJECT #:
NAME: STEVE FARRICK	FAX: (401) 832-4747	NAME: STEVE FARRICK	FAX:	
ADDRESS: C/O NAVAL UNDERSEA WARFARE CENTER BUILDING 11 - CODE 551 1176 HOWELL ST		ADDRESS: 5 WATERSIDE CROSSING		TURNAROUND TIME: STANDARD
CITY/ST/ZIP: NEWPORT, RI 02841		CITY/ST/ZIP: WINDSOR, CT 06095		TAT

CLIENT PROJECT NAME: VUWC B-179

CLIENT PROJECT #: C1941-COMO-00010

CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES: TAL VOC's Pkg 6260	TAL SVOC's - CLP SOW	TCL CYANIDE - CLP SOW	BC-TPH-MS100	TPH-MS15	COMMENTS
wl-13B	8/25 1145		X	X				5	X	X	X	X	X	
wl-13A	8/25 1300		X	X				5	X	X	X	X	X	
wl-12	8/25 1350		X	X				5	X	X	X	X	X	
wl-121	8/25 1420		X	X				5	X	X	X	X	X	
wl-8B	8/25 1700		X	X				5	X	X	X	X	X	
wl-8A	8/25 1750		X	X				5	X	X	X	X	X	
wl-FB	8/25 1645		X	X				5	X	X	X	X	X	
TB	/							2	X					
	/													
	/													
	/													
	/													

RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
Brian Sullivan	8/25/99 1750	J J Healy	8/26/99 10:00	UPON COMPLETION, RELEASE FAX RESULTS TO S. FARRICK 401-832-4747	
	/		/		
	/		/		

WHITE: LAB LIBRARY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

CORPORATION
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		LAB PROJECT #:
COMPANY TRC ENVIRONMENTAL CORP.	PHONE	COMPANY TRC	PHONE	
NAME STEVE FARRICK	FAX	NAME STEVE FARRICK	FAX	
ADDRESS C/O NAVAL UNDERSEA WARFARE CENTER BUILDING 11 - CODE 551 1176 HOWELL ST		ADDRESS 5 WATERSIDE CROSSING		TURNAROUND TIME: STANDARD TAT
CITY/ST/ZIP NEWPORT, RI 02841		CITY/ST/ZIP WINDSOR, CT 06095		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TAL VOC's by 8260	TAL SVOC's - CLP SOW	TCL - CYANIDE - CLP SOW	GC - TPH - M8100	TPH - M8015	COMMENTS
MW-9B	8/27 /		X	X				5	X	X	X	X	X	
MW-101	/		X	X				5	X	X	X	X	X	
MW-6A	/		X	X				5	X	X	X	X	X	
MW-6B	/		X	X				5	X	X	X	X	X	
TB	/		X	X				2	X					
	/													
	/													
	/													
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	/													
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SF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
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ADDITIONAL REMARKS:
UPON COMPLETION, PLEASE FAX RESULTS TO S. FARRICK
401-832-4747

COOLER TEMP:

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

Surface Water and Sediment
Analytical Data

MITKEM CORPORATION

September 30, 1999

TRC Environmental Corp.
5 Westside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project: 01984-0040-00010/ NUWC, Bldg 179
Lab Project #: 61692

Dear Mr. Farrick:

Enclosed please find the TPH data report for Sample 179-SW21. These data were inadvertently omitted from the original data package that was sent to you on September 28, 1999. We apologize for any inconvenience this may have caused you and TRC Environmental Corp. If you have any questions regarding these data, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler
Laboratory Operations Manager

175 Metro Center Boulevard • Warwick. Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 or (401) 738-1580 • email: mitkem@...

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corp.
Analysis: Method 8100M/8015M
Matrix: Aqueous

Concentration in: mg/L

Lab ID	Client ID	Result	Reporting Limit	p-Terphenyl Surrogate Recovery %	Analysis Date
61692001	179-SW21	ND	0.4	74	9/8/99

QA/QC

Method Blank F0907-BW1	ND	0.4	42	9/8/99
Lab Control Sample (% Recovery) F0907-LW1	50		20	9/8/99

ND = Not detected

The samples were quantitated using diesel as standard.

006A

61692001

MITKEM CORPORATION

September 28, 1999

TRC Environmental Corp.
5 Westside Crossing
Windsor, CT 06095
Attn: Mr. Steve Farrick

RE: Client Project: 01984-0040-00010/ NUWC, Bldg 179
Lab Project #: 61692

Dear Mr. Farrick:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Kin Chiu

Kin Chiu
Technical Director

Analytical Data Package for TRC Environmental Corporation

Client Project: 01984-0040/NUWC Bldg 179

Mitkem Project ID: 61692

September 28, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s project. Under this deliverable, analysis results are presented for two aqueous and one soil samples that were received on September 2, 1999, and logged in under Mitkem Project Number 61692. Analyses were performed per contract proposal and specifications in the chain of custody form.

The following samples are submitted in this data package:

Client ID	Truncated ID**	Lab ID	Analysis
179-SW21	179SW21	61692001	V, S, TPH, CN
179-SD21	179SD21	61692002	V, S, TPH, CN
SD-FB	SDFB	61692003	V

V = Volatile Organic (Method 8260B)
S = Semivolatile Organic (OLM03.2)
TPH = Petroleum hydrocarbons (Methods 8015M/8100)
CN = Cyanide (ILM04.0)

** Due to software limitations, the Client IDs are truncated in the data package for the semivolatile and cyanide analyses.

The analyses were performed according to SW846 and USEPA CLP methods as listed above. The petroleum hydrocarbon data are presented in standard Mitkem format with supporting raw data. The analysis results for the other analyses are reported in CLP (or CLP-like) format.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Volatile Organic Analysis:

Surrogate recovery: surrogate recoveries were within the QC limits

Lab control sample: spike recoveries were within the QC limits with the exception that methylene chloride was recovered marginally low in the soil LCS.

Calibration: some analytes exceeded the QC limits in several of the calibration verifications. These calibrations were compliant since the mean response factors of all of the compounds in the standard met the method criteria.

Sample analysis: No unusual observation was made for the analysis.

3. Semivolatile Organic Analysis:

GC column: 30 m x 0.25 mm id (0.5 mm id) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limit.

Sample analysis: due to limited sample availability, the laboratory was only able to extract 0.84L for 179SW21. This resulted in elevated CRQL for the sample. No other unusual observation was made for the analyses.

4. Total Petroleum Hydrocarbon Analysis:

TPHs were determined in the three soil samples.

No unusual observation was made for the analyses.

5. Cyanide Analysis:

The samples were distilled using midi-distill (Kontes). The resultant distillates were analyzed using a Lachat Model 8000 autoanalyzer.

No unusual observation was made for the analyses.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
9/28/99

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corp.
Analysis: Method 8100M/8015M
Matrix: Aqueous

Concentration in: mg/L

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61692002	179-SD21	157	29	45	105	9/8/99

QA/QC

Method Blank					
F0907-BS1	ND	13		105	9/8/99
Lab Control Sample (% Recovery)					
F0907-LS1	71	13		90	9/8/99

ND = Not detected

The samples were quantitated using diesel as standard.

Sample exhibits resolved and unresolved peaks within the retention time range of a typical Motor Oil.

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SD21

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) SOIL Lab Sample ID: 61692002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B5460

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. 72 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	18	U
74-87-3	Chloromethane	18	U
75-01-4	Vinyl Chloride	18	U
74-83-9	Bromomethane	18	U
75-00-3	Chloroethane	18	U
75-69-4	Trichlorofluoromethane	18	U
67-64-1	Acetone	190	B
75-35-4	1,1-Dichloroethene	18	U
74-88-4	Iodomethane	18	U
75-15-0	Carbon Disulfide	18	U
75-09-2	Methylene Chloride	6	JB
1634-04-4	Methyl tert-butyl ether	18	U
156-60-5	trans-1,2-Dichloroethene	18	U
108-05-4	Vinyl acetate	18	U
75-34-3	1,1-Dichloroethane	18	U
78-93-3	2-Butanone	53	B
156-59-2	cis-1,2-Dichloroethene	18	U
590-20-7	2,2-Dichloropropane	18	U
74-97-5	Bromochloromethane	18	U
67-66-3	Chloroform	18	U
71-55-6	1,1,1-Trichloroethane	18	U
563-58-6	1,1-Dichloropropene	18	U
56-23-5	Carbon Tetrachloride	18	U
107-06-2	1,2-Dichloroethane	18	U
71-43-2	Benzene	18	U
79-01-6	Trichloroethene	18	U
78-87-5	1,2-Dichloropropane	18	U
74-95-3	Dibromomethane	18	U
75-27-4	Bromodichloromethane	18	U
110-75-8	2-Chloroethyl vinyl ether	18	U
10061-01-5	cis-1,3-Dichloropropene	18	U
108-10-1	4-Methyl-2-pentanone	18	U
108-88-3	Toluene	10	J
10061-02-6	trans-1,3-Dichloropropene	18	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SD21

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) SOIL Lab Sample ID: 61692002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B5460

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. 72 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-00-5	1,1,2-Trichloroethane	18	U
142-28-9	1,3-Dichloropropane	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	18	U
124-48-1	Dibromochloromethane	18	U
106-93-4	1,2-Dibromoethane	18	U
108-90-7	Chlorobenzene	18	U
630-20-6	1,1,1,2-Tetrachloroethane	18	U
100-41-4	Ethylbenzene	18	U
1330-20-7	Xylene (Total)	18	U
100-42-5	Styrene	18	U
75-25-2	Bromoform	18	U
98-82-8	Isopropylbenzene	18	U
79-34-5	1,1,2,2-Tetrachloroethane	18	U
96-18-4	1,2,3-Trichloropropane	18	U
108-86-1	Bromobenzene	18	U
103-65-1	n-Propylbenzene	18	U
95-49-8	2-Chlorotoluene	18	U
108-67-8	1,3,5-Trimethylbenzene	18	U
106-43-4	4-Chlorotoluene	18	U
98-06-6	tert-Butylbenzene	18	U
95-63-6	1,2,4-Trimethylbenzene	18	U
135-98-8	sec-Butylbenzene	18	U
99-87-6	4-Isopropyltoluene	18	U
541-73-1	1,3-Dichlorobenzene	18	U
106-46-7	1,4-Dichlorobenzene	18	U
104-51-8	n-Butylbenzene	18	U
95-50-1	1,2-Dichlorobenzene	18	U
96-12-8	1,2-Dibromo-3-chloropropane	18	U
120-82-1	1,2,4-Trichlorobenzene	18	U
87-68-3	Hexachlorobutadiene	18	U
91-20-3	Naphthalene	18	U
87-61-6	1,2,3-Trichlorobenzene	18	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SD21

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) SOIL Lab Sample ID: 61692002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5B5460

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. 72 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW21

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1C5767

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	5	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	3	J
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW21

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1C5767

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

179-SW21

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1C5767

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD21

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) SOIL Lab Sample ID: 61692002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2B0093

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: 55 decanted: (Y/N) N Date Extracted: 09/08/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	740	U
111-44-4	bis(-2-Chloroethyl)Ether	740	U
95-57-8	2-Chlorophenol	740	U
541-73-1	1,3-Dichlorobenzene	740	U
106-46-7	1,4-Dichlorobenzene	740	U
95-50-1	1,2-Dichlorobenzene	740	U
95-48-7	2-Methylphenol	740	U
108-60-1	2,2'-oxybis(1-Chloropropane)	740	U
106-44-5	4-Methylphenol	740	U
621-64-7	N-Nitroso-di-n-propylamine	740	U
67-72-1	Hexachloroethane	740	U
98-95-3	Nitrobenzene	740	U
78-59-1	Isophorone	740	U
88-75-5	2-Nitrophenol	740	U
105-67-9	2,4-Dimethyphenol	740	U
120-83-2	2,4-Dichlorophenol	740	U
120-82-1	1,2,4-Trichlorobenzene	740	U
91-20-3	Naphthalene	740	U
106-47-8	4-Chloroaniline	740	U
111-91-1	bis(2-Chloroethoxy)methane	740	U
87-68-3	Hexachlorobutadiene	740	U
59-50-7	4-Chloro-3-methylphenol	740	U
91-57-6	2-Methylnaphthalene	740	U
77-47-4	Hexachlorocyclopentadiene	740	U
88-06-2	2,4,6-Trichlorophenol	740	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	740	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	740	U
208-96-8	Acenaphthylene	740	U
606-20-2	2,6-Dinitrotoluene	740	U
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	740	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD21

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) SOIL Lab Sample ID: 61692002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2B0093

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: 55 decanted: (Y/N) N Date Extracted: 09/08/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	740	U
121-14-2	2,4-Dinitrotoluene	740	U
84-66-2	Diethylphthalate	740	U
7005-72-3	4-Chlorophenyl-phenylether	740	U
86-73-7	Fluorene	740	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	740	U
101-55-3	4-Bromophenyl-phenylether	740	U
118-74-1	Hexachlorobenzene	740	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	560	J
120-12-7	Anthracene	79	J
86-74-8	Carbazole	110	J-
84-74-2	Di-n-butylphthalate	740	U
206-44-0	Fluoranthene	800	
129-00-0	Pyrene	1100	
85-68-7	Butylbenzylphthalate	740	U
91-94-1	3,3'-Dichlorobenzidine	740	U
56-55-3	Benzo(a)anthracene	450	J
218-01-9	Chrysene	680	J
117-81-7	bis(2-Ethylhexyl)phthalate	480	J
117-84-0	Di-n-octylphthalate	740	U
205-99-2	Benzo(b)fluoranthene	1100	
207-08-9	Benzo(k)fluoranthene	470	J
50-32-8	Benzo(a)pyrene	590	J
193-39-5	Indeno(1,2,3-cd)pyrene	460	J
53-70-3	Dibenzo(a,h)anthracene	99	J
191-24-2	Benzo(g,h,i)perylene	410	J

(1) - Cannot be separated from Diphenylamine

IF

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

179SD21

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) SOIL Lab Sample ID: 61692002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2B0093

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: 55 decanted: (Y/N) N Date Extracted: 09/08/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

Number TICs found: 23

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.46	5800	JB
2.		UNKNOWN	11.44	1800	J
3.		UNKNOWN	11.91	1500	J
4.		UNKNOWN	13.58	1000	J
5.		UNKNOWN ORGANIC ACID	14.21	400	J
6.		UNKNOWN	15.79	970	J
7.	2091-29-4	9-HEXADECENOIC ACID	15.86	700	NJ
8.		UNKNOWN ORGANIC ACID	16.01	3300	J
9.		UNKNOWN ORGANIC ACID	17.33	2100	J
10.		UNKNOWN ORGANIC ACID	17.50	970	J
11.		UNKNOWN	18.82	560	J
12.		UNKNOWN	19.12	710	J
13.		UNKNOWN ORGANIC ACID	20.29	920	J
14.		UNKNOWN ORGANIC ACID	21.55	860	J
15.		OCTADECENAL ISOMER	21.95	940	J
16.		OCTADECENAL ISOMER	23.10	550	J
17.		UNKNOWN	23.57	3000	J
18.		UNKNOWN	24.91	3300	J
19.	559-70-6	.BETA.-AMYRIN	25.27	1000	NJ
20.		UNKNOWN	25.36	860	J
21.	638-95-9	.ALPHA.-AMYRIN	25.68	1800	NJ
22.	1058-61-3	STIGMAST-4-EN-3-ONE	25.99	1300	NJ
23.		UNKNOWN	26.26	1800	J
24.					
25.					
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1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

179SW21

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692001

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: S2A9802

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/07/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	12	U
111-44-4	bis(-2-Chloroethyl)Ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-oxybis(1-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-di-n-propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethyphenol	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U
111-91-1	bis(2-Chloroethoxy)methane	12	U
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	30	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	30	U
131-11-3	Dimethylphthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	30	U
83-32-9	Acenaphthene	12	U

IC

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

179SW21

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692001

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: S2A9802

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/07/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/10/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	30	U
100-02-7	4-Nitrophenol	30	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	30	U
534-52-1	4,6-Dinitro-2-methylphenol	30	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	30	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
86-74-8	Carbazole	12	U
84-74-2	Di-n-butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo(a)anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	bis(2-Ethylhexyl)phthalate	12	U
117-84-0	Di-n-octylphthalate	12	U
205-99-2	Benzo(b)fluoranthene	12	U
207-08-9	Benzo(k)fluoranthene	12	U
50-32-8	Benzo(a)pyrene	12	U
193-39-5	Indeno(1,2,3-cd)pyrene	12	U
53-70-3	Dibenzo(a,h)anthracene	12	U
191-24-2	Benzo(g,h,i)perylene	12	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179SW21

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692001

Sample wt/vol: 840.0 (g/mL) ML Lab File ID: S2A9802

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/07/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN ORGANIC ACID	17.41	3	J
2.		UNKNOWN	26.57	3	J
3.					
4.					
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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD21

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61692__

Matrix (soil/water): SOIL___ Lab Sample ID: 61692002_____

Level (low/med): MED____ Date Received: 09/02/99_

% Solids: 45.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.40	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW21

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61692__

Matrix (soil/water): WATER__ Lab Sample ID: 61692001_____

Level (low/med): MED____ Date Received: 09/02/99_

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	6.1	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

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_____

MITKEM CORPORATION

September 28, 1999

TRC Environmental Corporation
5 Waterside Crossing
Windsor, CT 06095
Attn: Mr. Brian Sullivan

RE: Client Project: 01984-0040/NUWC Bldg 179
Lab Project #: 61676

Dear Mr. Sullivan:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler
Laboratory Operations Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 or (401) 738-1580 • email: mitkem@mitkem.com

Analytical Data Package for TRC Environmental Corporation

Client Project: 01984-0040/NUWC Bldg 179

Mitkem Project ID: 61676

September 28, 1999

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to TRC Environmental Corp.'s project. Under this deliverable, analysis results are presented for four aqueous and three soil samples that were received on September 1 and 2, 1999, and logged in under Mitkem Project Number 61676. Analyses were performed per contract proposal and specifications in the chain of custody form.

The following samples are submitted in this data package:

Client ID	Truncated ID**	Lab ID	Analysis
179-SW1	179SW1	61676001	V, S, TPH, CN
179-SW2	179SW2	61676002	V, S, TPH, CN
179-SW3	179SW3	61676003	V, S, TPH, CN
179-SD1	179SD1	61676004	V, S, TPH, CN
179-SD2	179SD2	61676005	V, S, TPH, CN
179-SD3	179SD3	61676006	V, S, TPH, CN
TB	TB	61676007	V

V = Volatile Organic (Method 8260B)
S = Semivolatile Organic (OLM03.2)
TPH = Petroleum hydrocarbons (Methods 8015M/8100)
CN = Cyanide (ILM04.0)

** Due to software limitations, the Client IDs are truncated in the data package for the semivolatile and cyanide analyses.

The organics analyses were performed according to SW846 and USEPA CLP methods as listed above. The petroleum hydrocarbon data are presented in standard Mitkem format with supporting raw data. The analysis results for the other analyses are reported in CLP (or CLP-like) format.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

2. Volatile Organic Analysis:

Surrogate recovery: surrogate recoveries were within the QC limits with the exception that in the matrix spike duplicate of 179-SW1, two surrogates were out. The analysis was not repeated as the recoveries were within the limits for both the native sample as well as the matrix spike.

Lab control sample: spike recoveries were within the QC limits with the exception that methylene chloride was recovered marginally low in the soil LCS.

Matrix spike/matrix spike duplicate: duplicate matrix spikes were performed on 179-SW1. All of the analytes were recovered within the advisory QC limits with the exception of 2-chloroethyl vinyl ether. The compound is not stable in acidic medium such as the acid preserved samples.

Calibration: several analytes exceeded the QC limits in several of the calibration verifications. These calibrations were compliant since the mean response factors of all of the compounds in the standard met the method criteria.

Sample analysis: No unusual observation was made for the analysis.

3. Semivolatile Organic Analysis:

GC column: 30 m x 0.25 mm id (0.5 mm id) DB-5MS capillary column

Surrogate recovery: recoveries were within the QC limit with the exception that terphenyl-d14 was out in samples 179SW2 and 179SW3. These two analyses were compliant as the terphenyl-d14 recovery was greater than 10% for these two samples.

Sample analysis: due to limited sample availability, the laboratory was only able to extract 0.850L for 179SW2. This resulted in elevated CRQL for the sample. Alkanes were determined and included in the narrative per SOW requirement. No other unusual observation was made for the analyses.

4. Total Petroleum Hydrocarbon Analysis:

TPHs were determined in the three soil samples. Based on the sample chromatograms, these resembled coal tar samples that were highly weathered. Please note that many of these peaks were the recalcitrant PAH compounds that were determined in the semivolatile analysis.

No unusual observation was made for the analyses.

5. Cyanide Analysis:

The samples were distilled using midi-distill (Kontes). The resultant distillates were analyzed using a Lachat Model 8000 autoanalyzer.

No unusual observation was made for the analyses.

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kin Chiu

Kin S. Chiu
Technical Director
9/28/99

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corp.
Analysis: Method 8100M/8015M
Matrix: Aqueous

Concentration in: mg/L

Lab ID	Client ID	Result	Reporting Limit	p-Terphenyl Surrogate Recovery %	Analysis Date
61676001	179-SW1	ND	0.5	84	9/3/99
61676002	179-SW2	ND	0.5	116	9/3/99
61676003	179-SW3	ND	0.4	99	9/3/99
QA/QC					
Method Blank					
F0903-BW1		ND	0.4	48	9/3/99
Lab Control Sample (% Recovery)					
F0903-LW1		68		41	9/3/99

ND = Not detected

The samples were quantitated using diesel as standard.

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: TRC Environmental Corp.
Analysis: Method 8100M/8015M
Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting Limit	% Solid	p-Terphenyl Surrogate Recovery %	Analysis Date
61676004	179-SD1	280	46	29	98	9/7/99
61676005	179-SD2	79	28	48	96	9/7/99
61676006	179-SD3	93	24	54	109	9/7/99
QA/QC						
Method Blank						
F0901-BS1		ND	13		133	9/2/99
Lab Control Sample (% Recovery)						
F0901-LS1		89			115	9/2/99

ND = Not detected

The samples were quantitated using diesel as standard.

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: 179-SD1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676004

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V5B5447

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 68 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	15	U
74-87-3	Chloromethane	15	U
75-01-4	Vinyl Chloride	15	U
74-83-9	Bromomethane	15	U
75-00-3	Chloroethane	15	U
75-69-4	Trichlorofluoromethane	15	U
67-64-1	Acetone	52	B
75-35-4	1,1-Dichloroethene	15	U
74-88-4	Iodomethane	15	U
75-15-0	Carbon Disulfide	15	U
75-09-2	Methylene Chloride	15	U
1634-04-4	Methyl tert-butyl ether	15	U
156-60-5	trans-1,2-Dichloroethene	15	U
108-05-4	Vinyl acetate	15	U
75-34-3	1,1-Dichloroethane	15	U
78-93-3	2-Butanone	12	JB
156-59-2	cis-1,2-Dichloroethene	15	U
590-20-7	2,2-Dichloropropane	15	U
74-97-5	Bromochloromethane	15	U
67-66-3	Chloroform	15	U
71-55-6	1,1,1-Trichloroethane	15	U
563-58-6	1,1-Dichloropropene	15	U
56-23-5	Carbon Tetrachloride	15	U
107-06-2	1,2-Dichloroethane	15	U
71-43-2	Benzene	15	U
79-01-6	Trichloroethene	15	U
78-87-5	1,2-Dichloropropane	15	U
74-95-3	Dibromomethane	15	U
75-27-4	Bromodichloromethane	15	U
110-75-8	2-Chloroethyl vinyl ether	15	U
10061-01-5	cis-1,3-Dichloropropene	15	U
108-10-1	4-Methyl-2-pentanone	15	U
108-88-3	Toluene	15	U
10061-02-6	trans-1,3-Dichloropropene	15	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SD1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676004

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V5B5447

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 68 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-00-5	1,1,2-Trichloroethane	15	U
142-28-9	1,3-Dichloropropane	15	U
591-78-6	2-Hexanone	15	U
127-18-4	Tetrachloroethene	15	U
124-48-1	Dibromochloromethane	15	U
106-93-4	1,2-Dibromoethane	15	U
108-90-7	Chlorobenzene	15	U
630-20-6	1,1,1,2-Tetrachloroethane	15	U
100-41-4	Ethylbenzene	15	U
1330-20-7	Xylene (Total)	15	U
100-42-5	Styrene	15	U
75-25-2	Bromoform	15	U
98-82-8	Isopropylbenzene	15	U
79-34-5	1,1,2,2-Tetrachloroethane	15	U
96-18-4	1,2,3-Trichloropropane	15	U
108-86-1	Bromobenzene	15	U
103-65-1	n-Propylbenzene	15	U
95-49-8	2-Chlorotoluene	15	U
108-67-8	1,3,5-Trimethylbenzene	15	U
106-43-4	4-Chlorotoluene	15	U
98-06-6	tert-Butylbenzene	15	U
95-63-6	1,2,4-Trimethylbenzene	15	U
135-98-8	sec-Butylbenzene	15	U
99-87-6	4-Isopropyltoluene	15	U
541-73-1	1,3-Dichlorobenzene	15	U
106-46-7	1,4-Dichlorobenzene	15	U
104-51-8	n-Butylbenzene	15	U
95-50-1	1,2-Dichlorobenzene	15	U
96-12-8	1,2-Dibromo-3-chloropropane	15	U
120-82-1	1,2,4-Trichlorobenzene	15	U
87-68-3	Hexachlorobutadiene	15	U
91-20-3	Naphthalene	15	U
87-61-6	1,2,3-Trichlorobenzene	15	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SD1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676004

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V5B5447

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 68 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

179-SD2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676005

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V5B5459

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 65 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	14	U
74-87-3	Chloromethane	14	U
75-01-4	Vinyl Chloride	14	U
74-83-9	Bromomethane	14	U
75-00-3	Chloroethane	14	U
75-69-4	Trichlorofluoromethane	14	U
67-64-1	Acetone	84	B
75-35-4	1,1-Dichloroethene	14	U
74-88-4	Iodomethane	14	U
75-15-0	Carbon Disulfide	14	U
75-09-2	Methylene Chloride	4	JB
1634-04-4	Methyl tert-butyl ether	14	U
156-60-5	trans-1,2-Dichloroethene	14	U
108-05-4	Vinyl acetate	14	U
75-34-3	1,1-Dichloroethane	14	U
78-93-3	2-Butanone	22	B
156-59-2	cis-1,2-Dichloroethene	14	U
590-20-7	2,2-Dichloropropane	14	U
74-97-5	Bromochloromethane	14	U
67-66-3	Chloroform	14	U
71-55-6	1,1,1-Trichloroethane	14	U
563-58-6	1,1-Dichloropropene	14	U
56-23-5	Carbon Tetrachloride	14	U
107-06-2	1,2-Dichloroethane	14	U
71-43-2	Benzene	14	U
79-01-6	Trichloroethene	14	U
78-87-5	1,2-Dichloropropane	14	U
74-95-3	Dibromomethane	14	U
75-27-4	Bromodichloromethane	14	U
110-75-8	2-Chloroethyl vinyl ether	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
108-10-1	4-Methyl-2-pentanone	14	U
108-88-3	Toluene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SD2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676005

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V5B5459

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 65 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-00-5	1,1,2-Trichloroethane	14	U
142-28-9	1,3-Dichloropropane	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	14	U
124-48-1	Dibromochloromethane	14	U
106-93-4	1,2-Dibromoethane	14	U
108-90-7	Chlorobenzene	14	U
630-20-6	1,1,1,2-Tetrachloroethane	14	U
100-41-4	Ethylbenzene	14	U
1330-20-7	Xylene (Total)	14	U
100-42-5	Styrene	14	U
75-25-2	Bromoform	14	U
98-82-8	Isopropylbenzene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
96-18-4	1,2,3-Trichloropropane	14	U
108-86-1	Bromobenzene	14	U
103-65-1	n-Propylbenzene	14	U
95-49-8	2-Chlorotoluene	14	U
108-67-8	1,3,5-Trimethylbenzene	14	U
106-43-4	4-Chlorotoluene	14	U
98-06-6	tert-Butylbenzene	14	U
95-63-6	1,2,4-Trimethylbenzene	14	U
135-98-8	sec-Butylbenzene	14	U
99-87-6	4-Isopropyltoluene	14	U
541-73-1	1,3-Dichlorobenzene	14	U
106-46-7	1,4-Dichlorobenzene	14	U
104-51-8	n-Butylbenzene	14	U
95-50-1	1,2-Dichlorobenzene	14	U
96-12-8	1,2-Dibromo-3-chloropropane	14	U
120-82-1	1,2,4-Trichlorobenzene	14	U
87-68-3	Hexachlorobutadiene	14	U
91-20-3	Naphthalene	14	U
87-61-6	1,2,3-Trichlorobenzene	14	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SD2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676005

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V5B5459

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 65 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		C2-NAPHTHALENE ISOMER	18.44	21	J
2.		C2-NAPHTHALENE ISOMER	18.65	20	J
3.					
4.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676006

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5B5448

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 49 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	9	U
74-87-3	Chloromethane	9	U
75-01-4	Vinyl Chloride	9	U
74-83-9	Bromomethane	9	U
75-00-3	Chloroethane	9	U
75-69-4	Trichlorofluoromethane	9	U
67-64-1	Acetone	25	B
75-35-4	1,1-Dichloroethene	9	U
74-88-4	Iodomethane	9	U
75-15-0	Carbon Disulfide	9	U
75-09-2	Methylene Chloride	24	B
1634-04-4	Methyl tert-butyl ether	9	U
156-60-5	trans-1,2-Dichloroethene	9	U
108-05-4	Vinyl acetate	9	U
75-34-3	1,1-Dichloroethane	9	U
78-93-3	2-Butanone	6	JB
156-59-2	cis-1,2-Dichloroethene	9	U
590-20-7	2,2-Dichloropropane	9	U
74-97-5	Bromochloromethane	9	U
67-66-3	Chloroform	9	U
71-55-6	1,1,1-Trichloroethane	9	U
563-58-6	1,1-Dichloropropene	9	U
56-23-5	Carbon Tetrachloride	9	U
107-06-2	1,2-Dichloroethane	9	U
71-43-2	Benzene	9	U
79-01-6	Trichloroethene	9	U
78-87-5	1,2-Dichloropropane	9	U
74-95-3	Dibromomethane	9	U
75-27-4	Bromodichloromethane	9	U
110-75-8	2-Chloroethyl vinyl ether	9	U
10061-01-5	cis-1,3-Dichloropropene	9	U
108-10-1	4-Methyl-2-pentanone	9	U
108-88-3	Toluene	9	U
10061-02-6	trans-1,3-Dichloropropene	9	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676006

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5B5448

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 49 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-00-5	1,1,2-Trichloroethane	9	U
142-28-9	1,3-Dichloropropane	9	U
591-78-6	2-Hexanone	9	U
127-18-4	Tetrachloroethene	9	U
124-48-1	Dibromochloromethane	9	U
106-93-4	1,2-Dibromoethane	9	U
108-90-7	Chlorobenzene	9	U
630-20-6	1,1,1,2-Tetrachloroethane	9	U
100-41-4	Ethylbenzene	7	J
1330-20-7	Xylene (Total)	12	
100-42-5	Styrene	9	U
75-25-2	Bromoform	9	U
98-82-8	Isopropylbenzene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
96-18-4	1,2,3-Trichloropropane	9	U
108-86-1	Bromobenzene	9	U
103-65-1	n-Propylbenzene	9	U
95-49-8	2-Chlorotoluene	9	U
108-67-8	1,3,5-Trimethylbenzene	9	U
106-43-4	4-Chlorotoluene	9	U
98-06-6	tert-Butylbenzene	9	U
95-63-6	1,2,4-Trimethylbenzene	9	U
135-98-8	sec-Butylbenzene	9	U
99-87-6	4-Isopropyltoluene	9	U
541-73-1	1,3-Dichlorobenzene	9	U
106-46-7	1,4-Dichlorobenzene	9	U
104-51-8	n-Butylbenzene	9	U
95-50-1	1,2-Dichlorobenzene	9	U
96-12-8	1,2-Dibromo-3-chloropropane	9	U
120-82-1	1,2,4-Trichlorobenzene	9	U
87-68-3	Hexachlorobutadiene	9	U
91-20-3	Naphthalene	9	U
87-61-6	1,2,3-Trichlorobenzene	9	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676006

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5B5448

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. 49 Date Analyzed: 09/13/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	13.91	12	J
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5575

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	5	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5575

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SW1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2C5575

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5432

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	8	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	1	JB
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5432

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SW2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5432

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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28.					
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30.					

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5433

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	2	J
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	9	B
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	1	JB
1634-04-4	Methyl tert-butyl ether	1	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	18	
78-93-3	2-Butanone	3	J
156-59-2	cis-1,2-Dichloroethene	2	J
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	14	
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	1	J
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179-SW3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5433

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179-SW3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5B5433

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: not dec. _____ Date Analyzed: 09/10/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676004

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2B0088

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: 71 decanted: (Y/N) N Date Extracted: 09/03/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/22/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1100	U
111-44-4	bis(-2-Chloroethyl)Ether	1100	U
95-57-8	2-Chlorophenol	1100	U
541-73-1	1,3-Dichlorobenzene	1100	U
106-46-7	1,4-Dichlorobenzene	1100	U
95-50-1	1,2-Dichlorobenzene	1100	U
95-48-7	2-Methylphenol	1100	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1100	U
106-44-5	4-Methylphenol	1100	U
621-64-7	N-Nitroso-di-n-propylamine	1100	U
67-72-1	Hexachloroethane	1100	U
98-95-3	Nitrobenzene	1100	U
78-59-1	Isophorone	1100	U
88-75-5	2-Nitrophenol	1100	U
105-67-9	2,4-Dimethyphenol	1100	U
120-83-2	2,4-Dichlorophenol	1100	U
120-82-1	1,2,4-Trichlorobenzene	1100	U
91-20-3	Naphthalene	160	J
106-47-8	4-Chloroaniline	1100	U
111-91-1	bis(2-Chloroethoxy)methane	1100	U
87-68-3	Hexachlorobutadiene	1100	U
59-50-7	4-Chloro-3-methylphenol	1100	U
91-57-6	2-Methylnaphthalene	1100	U
77-47-4	Hexachlorocyclopentadiene	1100	U
88-06-2	2,4,6-Trichlorophenol	1100	U
95-95-4	2,4,5-Trichlorophenol	2800	U
91-58-7	2-Chloronaphthalene	1100	U
88-74-4	2-Nitroaniline	2800	U
131-11-3	Dimethylphthalate	1100	U
208-96-8	Acenaphthylene	1100	U
606-20-2	2,6-Dinitrotoluene	1100	U
99-09-2	3-Nitroaniline	2800	U
83-32-9	Acenaphthene	1100	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676004

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2B0088

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: 71 decanted: (Y/N) N Date Extracted: 09/03/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2800	U
100-02-7	4-Nitrophenol	2800	U
132-64-9	Dibenzofuran	1100	U
121-14-2	2,4-Dinitrotoluene	1100	U
84-66-2	Diethylphthalate	1100	U
7005-72-3	4-Chlorophenyl-phenylether	1100	U
86-73-7	Fluorene	1100	U
100-01-6	4-Nitroaniline	2800	U
534-52-1	4,6-Dinitro-2-methylphenol	2800	U
86-30-6	N-Nitrosodiphenylamine (1)	1100	U
101-55-3	4-Bromophenyl-phenylether	1100	U
118-74-1	Hexachlorobenzene	1100	U
87-86-5	Pentachlorophenol	2800	U
85-01-8	Phenanthrene	1100	J
120-12-7	Anthracene	130	J
86-74-8	Carbazole	240	J
84-74-2	Di-n-butylphthalate	1100	U
206-44-0	Fluoranthene	2100	
129-00-0	Pyrene	1600	
85-68-7	Butylbenzylphthalate	1100	U
91-94-1	3,3'-Dichlorobenzidine	1100	U
56-55-3	Benzo(a)anthracene	640	J
218-01-9	Chrysene	1100	J
117-81-7	bis(2-Ethylhexyl)phthalate	750	BJ
117-84-0	Di-n-octylphthalate	1100	U
205-99-2	Benzo(b)fluoranthene	1500	
207-08-9	Benzo(k)fluoranthene	610	J
50-32-8	Benzo(a)pyrene	700	J
193-39-5	Indeno(1,2,3-cd)pyrene	590	J
53-70-3	Dibenzo(a,h)anthracene	120	J
191-24-2	Benzo(g,h,i)perylene	570	J

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

179SD1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676004

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S2B0088

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: 71 decanted: (Y/N) N Date Extracted: 09/03/99

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/22/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.59	95000	ANJB
2.		UNKNOWN	4.32	740	JB
3.		UNKNOWN	4.45	8600	JB
4.		UNKNOWN	7.89	880	J
5.	872-05-9	1-DECENE	11.41	3400	NJ
6.	143-07-7	DODECANOIC ACID	12.31	860	NJ
7.		UNKNOWN	13.57	3500	J
8.		UNKNOWN ORGANIC ACID	14.19	770	J
9.		UNKNOWN	15.74	1000	J
10.		UNKNOWN ORGANIC ACID	15.94	2400	J
11.		UNKNOWN	17.30	1200	J
12.		UNKNOWN ORGANIC ACID	17.48	1300	J
13.		UNKNOWN	21.58	1600	JB
14.		UNKNOWN	23.21	570	J
15.		UNKNOWN	23.55	2800	J
16.	83-47-6	.GAMMA.-SITOSTEROL	24.86	4000	NJ
17.		UNKNOWN	25.23	1100	J
18.		UNKNOWN	25.31	1400	J
19.	638-95-9	.ALPHA.-AMYRIN	25.64	1600	NJ
20.	1058-61-3	STIGMAST-4-EN-3-ONE	25.92	580	NJ
21.					
22.					
23.					
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25.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2B0090

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: 46 decanted: (Y/N) N Date Extracted: 09/03/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	610	U
111-44-4	bis(-2-Chloroethyl)Ether	610	U
95-57-8	2-Chlorophenol	610	U
541-73-1	1,3-Dichlorobenzene	610	U
106-46-7	1,4-Dichlorobenzene	610	U
95-50-1	1,2-Dichlorobenzene	610	U
95-48-7	2-Methylphenol	610	U
108-60-1	2,2'-oxybis(1-Chloropropane)	610	U
106-44-5	4-Methylphenol	610	U
621-64-7	N-Nitroso-di-n-propylamine	610	U
67-72-1	Hexachloroethane	610	U
98-95-3	Nitrobenzene	610	U
78-59-1	Isophorone	610	U
88-75-5	2-Nitrophenol	610	U
105-67-9	2,4-Dimethyphenol	610	U
120-83-2	2,4-Dichlorophenol	610	U
120-82-1	1,2,4-Trichlorobenzene	610	U
91-20-3	Naphthalene	61	J
106-47-8	4-Chloroaniline	610	U
111-91-1	bis(2-Chloroethoxy)methane	610	U
87-68-3	Hexachlorobutadiene	610	U
59-50-7	4-Chloro-3-methylphenol	610	U
91-57-6	2-Methylnaphthalene	610	U
77-47-4	Hexachlorocyclopentadiene	610	U
88-06-2	2,4,6-Trichlorophenol	610	U
95-95-4	2,4,5-Trichlorophenol	1500	U
91-58-7	2-Chloronaphthalene	610	U
88-74-4	2-Nitroaniline	1500	U
131-11-3	Dimethylphthalate	610	U
208-96-8	Acenaphthylene	610	U
606-20-2	2,6-Dinitrotoluene	610	U
99-09-2	3-Nitroaniline	1500	U
83-32-9	Acenaphthene	62	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2B0090

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: 46 decanted: (Y/N) N Date Extracted: 09/03/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1500	U
100-02-7	4-Nitrophenol	1500	U
132-64-9	Dibenzofuran	610	U
121-14-2	2,4-Dinitrotoluene	610	U
84-66-2	Diethylphthalate	610	U
7005-72-3	4-Chlorophenyl-phenylether	610	U
86-73-7	Fluorene	85	J
100-01-6	4-Nitroaniline	1500	U
534-52-1	4,6-Dinitro-2-methylphenol	1500	U
86-30-6	N-Nitrosodiphenylamine (1)	610	U
101-55-3	4-Bromophenyl-phenylether	610	U
118-74-1	Hexachlorobenzene	610	U
87-86-5	Pentachlorophenol	1500	U
85-01-8	Phenanthrene	520	J
120-12-7	Anthracene	88	J
86-74-8	Carbazole	88	J
84-74-2	Di-n-butylphthalate	610	U
206-44-0	Fluoranthene	440	J
129-00-0	Pyrene	850	
85-68-7	Butylbenzylphthalate	610	U
91-94-1	3,3'-Dichlorobenzidine	610	U
56-55-3	Benzo(a)anthracene	380	J
218-01-9	Chrysene	390	J
117-81-7	bis(2-Ethylhexyl)phthalate	180	BJ
117-84-0	Di-n-octylphthalate	610	U
205-99-2	Benzo(b)fluoranthene	530	J
207-08-9	Benzo(k)fluoranthene	270	J
50-32-8	Benzo(a)pyrene	350	J
193-39-5	Indeno(1,2,3-cd)pyrene	240	J
53-70-3	Dibenzo(a,h)anthracene	610	U
191-24-2	Benzo(g,h,i)perylene	280	J

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

179SD3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) SOIL Lab Sample ID: 61676006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2B0090

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: 46 decanted: (Y/N) N Date Extracted: 09/03/99

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/22/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6

Number TICs found: 29

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3.58	57000	ANJB
2.		UNKNOWN	3.66	240	J
3.		UNKNOWN	3.97	420	JB
4.		UNKNOWN	4.45	4900	JB
5.		UNKNOWN	7.89	180	J
6.		UNKNOWN	11.42	2100	J
7.		UNKNOWN	11.90	1700	J
8.		UNKNOWN	13.57	1700	J
9.		UNKNOWN	14.09	250	J
10.		UNKNOWN ORGANIC ACID	14.17	190	J
11.		UNKNOWN	14.73	770	JB
12.		UNKNOWN	15.74	250	J
13.		UNKNOWN ORGANIC ACID	15.93	500	J
14.	84-65-1	9,10-ANTHRACENEDIONE	16.08	350	NJ
15.		UNKNOWN ORGANIC ACID	17.48	330	J
16.		UNKNOWN	19.26	2300	J
17.		UNKNOWN	19.55	570	J
18.		UNKNOWN	19.86	2200	J
19.		UNKNOWN ORGANIC ACID	20.29	780	J
20.		UNKNOWN	20.41	1600	J
21.		UNKNOWN	20.68	1100	J
22.		UNKNOWN	20.83	1900	J
23.		UNKNOWN	21.14	730	J
24.		UNKNOWN ORGANIC ACID	21.55	1300	J
25.	83-47-6	.GAMMA.-SITOSTEROL	24.90	610	NJ
26.		UNKNOWN	25.25	220	J
27.		UNKNOWN	25.35	380	J
28.	638-95-9	.ALPHA.-AMYRIN	25.66	380	NJ
29.	1058-61-3	STIGMAST-4-EN-3-ONE	25.97	680	NJ
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9842

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/12/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9842

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/12/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179SW1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9842

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/02/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/12/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	5.64	12	NJ
2.	621-29-4	BENZENE, 1-ISOCYANATO-3-METH	13.32	2	NJ
3.		UNKNOWN	24.72	4	J
4.		UNKNOWN	26.69	3	J
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

179SW2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676002

Sample wt/vol: 850.0 (g/mL) ML Lab File ID: S2A9799

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	12	U
111-44-4	bis(-2-Chloroethyl)Ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-oxybis(1-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-di-n-propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethyphenol	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U
111-91-1	bis(2-Chloroethoxy)methane	12	U
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	29	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	29	U
131-11-3	Dimethylphthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	29	U
83-32-9	Acenaphthene	12	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676002

Sample wt/vol: 850.0 (g/mL) ML Lab File ID: S2A9799

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	29	U
100-02-7	4-Nitrophenol	29	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	29	U
534-52-1	4,6-Dinitro-2-methylphenol	29	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	29	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
86-74-8	Carbazole	12	U
84-74-2	Di-n-butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo(a)anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	bis(2-Ethylhexyl)phthalate	12	U
117-84-0	Di-n-octylphthalate	12	U
205-99-2	Benzo(b)fluoranthene	12	U
207-08-9	Benzo(k)fluoranthene	12	U
50-32-8	Benzo(a)pyrene	12	U
193-39-5	Indeno(1,2,3-cd)pyrene	12	U
53-70-3	Dibenzo(a,h)anthracene	12	U
191-24-2	Benzo(g,h,i)perylene	12	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

179SW2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676002

Sample wt/vol: 850.0 (g/mL) ML Lab File ID: S2A9799

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.31	2	J
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

179SW3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9796

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethyphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9796

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

IF

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

179SW3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix: (soil/water) WATER Lab Sample ID: 61676003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2A9796

Level: (low/med) LOW Date Received: 09/01/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/10/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
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9.					
10.					
11.					
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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD1

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61676__

Matrix (soil/water): SOIL___ Lab Sample ID: 61676004_____

Level (low/med): MED____ Date Received: 09/01/99_

% Solids: 29.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	1.2	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD2

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61676__

Matrix (soil/water): SOIL___ Lab Sample ID: 61676005_____

Level (low/med): MED____ Date Received: 09/01/99_

% Solids: 48.0___

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.37	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SD3

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix (soil/water): SOIL Lab Sample ID: 61676006

Level (low/med): MED Date Received: 09/01/99

% Solids: 54.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.20	B		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW1

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61676__

Matrix (soil/water): WATER__ Lab Sample ID: 61676001_____

Level (low/med): MED____ Date Received: 09/01/99_

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	6.3	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

179SW3

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM_ Case No.: _____ SAS No.: _____ SDG No.: 61676__

Matrix (soil/water): WATER__ Lab Sample ID: 61676003_____

Level (low/med): MED____ Date Received: 09/01/99_

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	4.3	B		C

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

_____

_____

_____

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

I79SW2

Lab Name: MITKEM_CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 61676

Matrix (soil/water): WATER Lab Sample ID: 61676002

Level (low/med): MED Date Received: 09/01/99

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	3.7	B		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD-FB

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1C5768

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	5	
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	4	J
1634-04-4	Methyl tert-butyl ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
108-05-4	Vinyl acetate	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
110-75-8	2-Chloroethyl vinyl ether	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD-FB

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1C5768

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-00-5	1,1,2-Trichloroethane	5	U
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
108-86-1	Bromobenzene	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SD-FB

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 61692

Matrix: (soil/water) WATER Lab Sample ID: 61692003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1C5768

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/14/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	60-29-7	ETHER	3.91	1	NJ
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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26.					
27.					
28.					
29.					
30.					

CORPORATION

Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY: TRC Environmental Corp	PHONE:	COMPANY: TRC	PHONE:	LAB PROJECT #:
NAME: Steve Farrick	FAX:	NAME: Steve Farricik	FAX:	
ADDRESS: C/O Naval Undersea Warfare Center Building 11 - Code 551 1176 Howell St.		ADDRESS: 5 Waterside Crossing		TURNAROUND TIME: Standard
CITY/ST/ZIP: Newport, RI 02841		CITY/ST/ZIP: Windsor, CT 06095		TAT

CLIENT PROJECT NAME: NUWC B.179

CLIENT PROJECT #:

CLIENT P.O.#:

REQUESTED ANALYSES: TAL VOC's by 8260; TAL SVOC's - CLP SOW; TCL - Cyanide - CLP SOW; CSC - TPH - MA 1000; TPH - MA 1.3

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL/SEDIMENT	OTHER	LAB ID	# OF CONTAINERS	TAL VOC's by 8260	TAL SVOC's - CLP SOW	TCL - Cyanide - CLP SOW	CSC - TPH - MA 1000	TPH - MA 1.3	COMMENTS
79-SW1	8/2/99 1525		X	X				5	X	X	X	X	X	
79-SW2	1600		X	X				5	X	X	X	X	X	
79-SW3	1615		X	X				5	X	X	X	X	X	
79-SD1	1525		X		X			2	X	X	X	X	X	
79-SD2	1600		X		X			2	X	X	X	X	X	
79-SD3	1615		X		X			2	X	X	X	X	X	
TB								2	X					

F#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Brian Sill	8/3/99 1700		9/1/99 10:12	UPON COMPLETION, PLEASE FAX RESULTS TO S. FARRICK 401-832-4747	
		/		/		
		/		/		

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@worldnet.att.net

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICED TO		LAB PROJECT #:
COMPANY TRC Environmental Corp.	PHONE 401-832-5881	COMPANY TRC	PHONE	
NAME Steve Farrick	FAX 401-832-4747	NAME Steve Farrick	FAX	
ADDRESS C/O Naval Undersea Warfare Center Building 11 - Code 551 1176 Howell St.		ADDRESS 5 Waterside Crossing		TURNAROUND TIME: STANDARD TAT
CITY/ST/ZIP Newport, RI 02841		CITY/ST/ZIP Windsor, CT 06095		

CLIENT PROJECT NAME: NUWC B.179

CLIENT PROJECT #:

CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	~~SOIL~~ SEDIMENT	OTHER	LAB ID	# OF CONTAINERS	TAL SVOC's - CLP SOW	TAL VOC's By 8260	TCL Cyanide - CLP SOW	GC - TPH - MA 100	TPH - MA 65	COMMENTS
79-SW21	9/2/99 1200		X	X				5	X	X	X	X	X	
79-SD21	〃		X		X			2	X	X	X	X	X	
SD-FB	〃		X	X				2		X				
	〃													
	〃													
	〃													
	〃													
	〃													
	〃													
	〃													
	〃													

SF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	Brian Sullivan	9/2/99 1300	J. Hartley	9/2/97 13:00
2		〃		〃
3		〃		〃

ADDITIONAL REMARKS:
UPON COMPLETION, PLEASE FAX RESULTS TO S. FARRICK
401-832-4747

COOLER TEMP:

PINK: CLIENT'S COPY

APPENDIX A.4

FINAL PROJECT CLOSURE REPORT FOR BUILDING 179 TANK CLOSURES (FWEC, 1999)

CONTRACTOR DRAWINGS & INFORMATION SUBMITTAL
NORTHNAVFACENGCOM 4335/3 (Rev. 6/80)

Prepare in quintuplicate (original and 4 copies)
CONTROL NO. 40B

CONTRACT NO.	DELIVERY ORDER #	ACTIVITY LOCATION
N62472-94-D-0398	0013	NUWC Division, Newport, Rhode Island

PROJECT TITLE:
Building 179 Tanks Closures at NUWC

FROM:	DATE
Foster Wheeler Environmental Corp/ Program QCM: Mark Miller	October 12, 1999
TO:	DATE
NTR: T. Gibison (1 copy)	October 12, 1999

1. THE CONTRACTOR SUBMITTALS LISTED BELOW ARE FORWARDED FOR YOUR REVIEW AND RECOMMENDATIONS.
   (a) APPLY APPROPRIATE STAMP IMPRINT TO EACH SUBMITTAL AND INDICATE REVIEW COMMENTS, AS REQUIRED.
   (b) RETAIN ONE (1) COPY OF THIS TRANSMITTAL FORM AND RETURN REMAINING COPIES WITH REVIEWED SUBMITTALS TO ROICC.
2. THESE SUBMITTALS SHOULD BE RETURNED TO THIS OFFICE BY _____
3. _____

COPY TO:

[X] ROICC **R Krivinskas (1 copy)** [X] NAVFAC **B. Helland (2 copies)** [X] NUWC **R. Machado (4 copies)**

Mark Miller 10-12-99
SIGNATURE AND DATE

FROM: DESIGNER	DATE
TO: ROICC	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE RETURNED, WITH ACTION TAKEN AS INDICATED.
2. _____

COPY TO:

[ ] ROICC [ ] DESIGNER

SIGNATURE AND DATE

FROM: ROICC	DATE
TO: CONTRACTOR	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE APPROVED/DISAPPROVED AS SHOWN BELOW AND ON EACH STAMP IMPRINT.

COPY TO:
[ ] ROICC [ ] OTHER

FOR COMMANDING OFFICER, NORTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND — DATE

ITEM NO.	SUBMITTAL DESCRIPTION	PREPARED/ SUBMITTED BY	APPROVED	DISAPPROVED	REMARKS
40b	SD-18, Records; Final Project Closure Report for Building 179 Tank Closures	M Miller			

FINAL
PROJECT CLOSURE REPORT
FOR
BUILDING 179 TANK CLOSURES
AT
NAVAL UNDERSEA WARFARE CENTER (NUWC) DIVISION
NEWPORT, RHODE ISLAND

Issued:

October 1999

Prepared for:

Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113

Prepared by:

FOSTER WHEELER ENVIRONMENTAL CORPORATION
2300 Lincoln Highway
One Oxford Valley - Suite 200
Langhorne, PA 19047-1829

REMEDIAL ACTION CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. O13C

Prepared By:
Jon Cary
Site Manager
Foster Wheeler Env. Corp.
Newport, Rhode Island

Approved By:
Art Holcomb
Program Manager
Foster Wheeler Env. Corp.
Langhorne, Pennsylvania

PROJECT CLOSURE REPORT
FOR
BUILDING 179 TANK CLOSURES
NAVAL UNDER*SEA* WARFARE CENTER (NUWC) DIVISION NEWPORT
NEWPORT, RHODE ISLAND

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Appendix E Clean Soil Certification for Backfill Soil
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Appendix G Water Treatment Derived Waste Disposal Documentation
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Appendix I Field Logbook Notes and Field Sketches 01 - 04
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1.0 INTRODUCTION/PROJECT OBJECTIVES

Foster Wheeler Environmental Corporation (Foster Wheeler) was contracted by the Northern Division, Naval Facilities Engineering Command (Navy) to complete remedial activities prior to Building 179 reconstruction at the Naval Undersea Warfare Center (NUWC) Division, Newport facility located in Middletown, Rhode Island. Remedial activities included: concrete demolition, soil excavation, post-excavation sampling, in-situ characterization of contaminated soils, concrete underground storage tank (CUST) closure, railroad track removal, transportation and disposal of generated wastes, interceptor tank removal, and site restoration. This Tank Closure Report is being submitted to summarize the activities associated with the closure of the CUST and an associated interceptor tank.

1.1 Project Location and Description

The NUWC Division, Newport facility is located in the towns of Middletown, Rhode Island, approximately 25 miles southeast of Providence (Figure 1). Building 179 is located east of Cunningham Street along the easterly edge of the NUWC Division, Newport facility (Figure 1).

The area in the vicinity of Building 179 is characterized as heavily developed with a variety of process structures to support testing functions. In the immediate vicinity of the building is a crushed stone roadway to the east, an open paved area to the north and south, and aboveground process equipment located adjacent to and west of the building.

In addition, a heavily vegetated, freshwater wetland area is located east of Building 179 and support areas. A stream is present within the wetland area, located approximately 85 feet from Building 179. Note that the limits of this freshwater wetland have been delineated and included in the Preliminary Determination Application submitted by NUWC Division, Newport to the RIDEM Division of Freshwater Wetlands for the Building 179 reconstruction project.

Topographic relief in the area immediately surrounding the building is relatively flat. However, a downward slope with topographic relief of between six and eight feet is located along the wetland side of the building.

Building 179 was constructed in 1961 on property owned by the Navy. At the time of construction of Building 179, the subject CUST was constructed to support torpedo test activities within the Building. In 1992, stainless steel tanks were placed inside the CUST to further support the Building's torpedo testing activities. On February 24, 1995, a torpedo test failure resulted in damage to Building 179 and materially reduced the operational capacity of the building.

1.2 Historic Environmental Conditions

The CUST is located approximately 20 feet north of the northeast corner of Building 179. The CUST is seventeen feet long, nine feet wide and nine feet deep and is divided into two separate compartments. The larger of the two compartments has inside dimensions of twelve feet long and eight feet wide, while the smaller compartment has inside dimensions of three feet long and eight feet wide. The base and side walls of the tank are constructed of reinforced concrete eight-inches thick. The CUST was constructed in the early 1960's and was used to support torpedo propulsion test activities at Building 179.

Oils, water, cleaning fluid, torpedo fuel (Otto fuel) and combustion-by-products were discharged via floor drains in Building 179 to the smaller compartment of the CUST. Water soluble exhaust gases resulting from the torpedo emissions were then "quenched" in water in the larger compartment of the CUST.

In 1992, the CUST was cleaned and two separate field fabricated double-walled stainless steel tanks were placed inside the larger compartment of the CUST separated by a concrete wall. The smaller of the two tanks had a nominal capacity of 500 gallons while the larger had a nominal capacity of 1,500 gallons. The smaller tank served as containment for fluids produced inside Building 179. The larger tank served as a "quench" tank for the torpedo tests conducted within Building 179. The contents from this tank were pumped into a 6,000-gallon above-ground hazardous waste storage tank at the conclusion of each test.

On February 24, 1995, a torpedo test failure resulted in damage to Building 179 and materially reduced the operational capacity of the building. Since that time, limited test activities resumed at the adjacent buildings and continued through the period of reconstruction.

As a precursor to the Building 179 reconstruction activities, several reconstruction monitoring wells and borings were installed within the area to define existing soil and groundwater conditions. As a result of a request by NUWC Division, Newport to remove the subject CUST from RIDEM's list of USTs, RIDEM required NUWC Division, Newport to conduct a Closure Assessment by letter dated 9 March 1995.

The Environmental Compliance Group, Inc. (TECG) was retained by NUWC Division, Newport in June 1995 to evaluate existing site conditions, install several groundwater monitoring wells and soil borings, and collect and analyze soil and groundwater samples in support of the aforementioned Closure Assessment Report. As a result of the Closure Assessment TECG concluded that a release has occurred in the vicinity of the concrete pits. Both soil and groundwater contamination is present at the site. Sample data indicated that groundwater contamination appeared to be more of a concern than soil contamination (TECG Closure Report, August 1995).

In November 1995, TRC Environmental (TRC) was tasked by NUWC Division, Newport to conduct an evaluation of soil and groundwater conditions surrounding Building 179.

This investigation was conducted to determine whether contamination would be encountered within the area which may be disturbed as a result of the reconstruction of Building 179. The initial scope of the investigation involved the installation of five soil borings and three groundwater monitoring wells outside the perimeter of the Building 179 footprint. Results of this investigation indicated the presence of VOC and TPH, with 1,1,1-Trichloroethane comprising the majority of the VOC detected in soils. Groundwater sample analysis indicated detection's for 1,1,1-Trichloroethane, 1,1-dichloroethane, TPH, Cyanide and propylene glycol dinitrate (PGDN). A second exploratory investigation was performed by TRC in April 1996 to inspect the soil characteristics directly beneath Building 179. The sub-slab investigation included nine borings through the floor of the Building 179 and one soil sample from each soil boring for laboratory analyses. The results indicated that VOCs, namely acetone, 1,1,1-trichloroethane, ethylbenzene, and total xylene were detected.

Based on the investigations conducted in 1995 and 1996 TRC, under contract to NUWC Division, Newport prepared a project design to address the remediation of soils which would be disturbed in order to affect repairs to B-179. TRC's design efforts were documented in environmental project specifications and project drawings C-2 and C-1SR through C-4SR.

The following summary best describes the compounds and areas of concern based on previous investigations. Specifically, Otto fuel (torpedo fuel), and chlorinated solvent contaminated soils were identified beneath and to the northeast of the building. The main component of Otto fuel is propylene glycol dinitrate (PGDN). The area around Test Cell 4 or beneath the north east corner of Building 179 exhibited the highest concentrations of soils containing 1,1,1-trichloroethane which exceeded the hazardous waste land ban disposal limits.

1.3 Project Objectives

The objectives of this project included: in-place CUST closure, soil removal adjacent to the CUST, removal of the Interceptor Tank, disposal of wastes generated and restoration of the affected areas. The objective of this closure report is to document the in-place closure of the CUST and the removal of the associated Interceptor Tank in accordance with RIDEM Regulation DEM-DWM-UST05-93, Section 15.10.

Figure 1

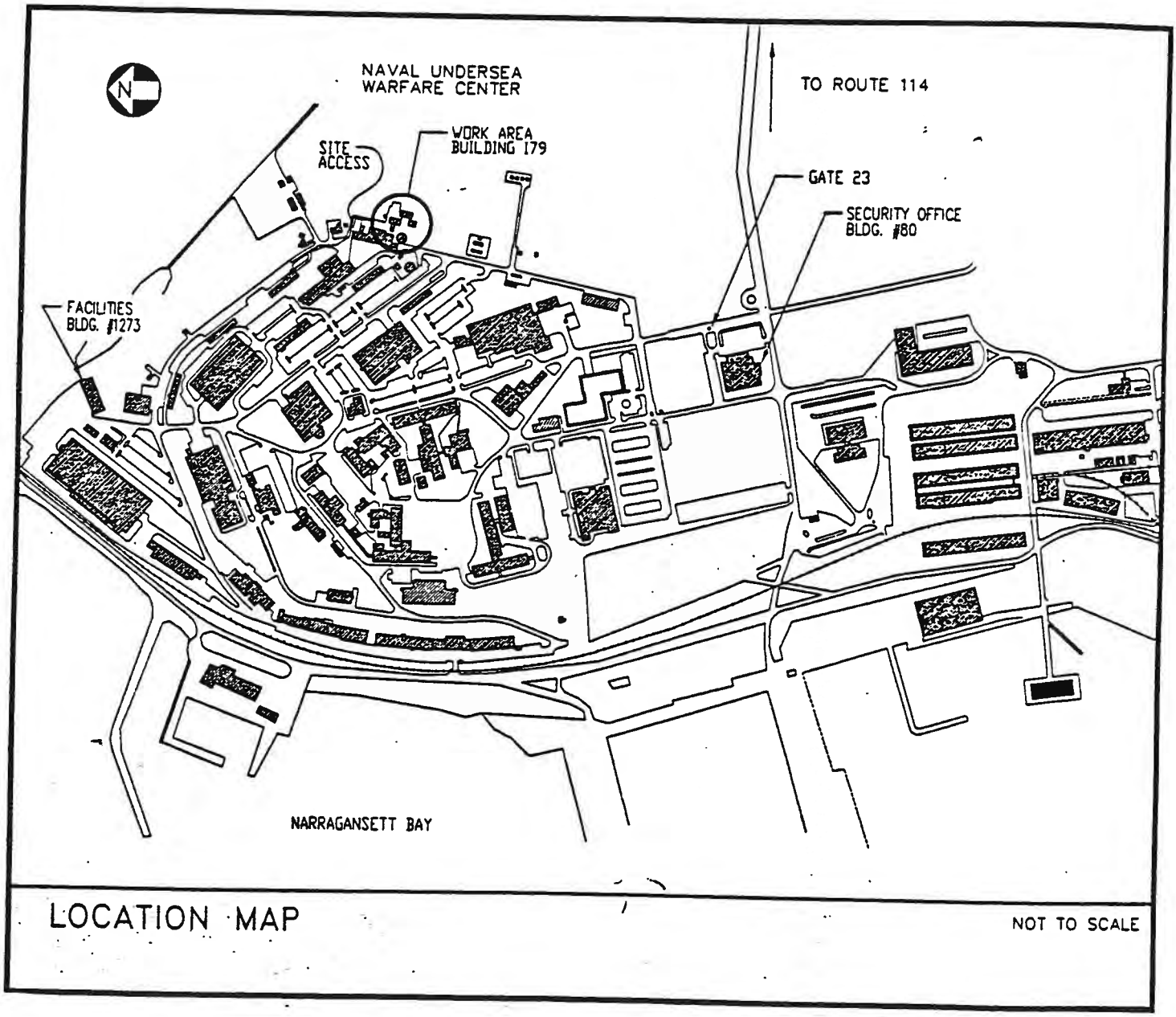
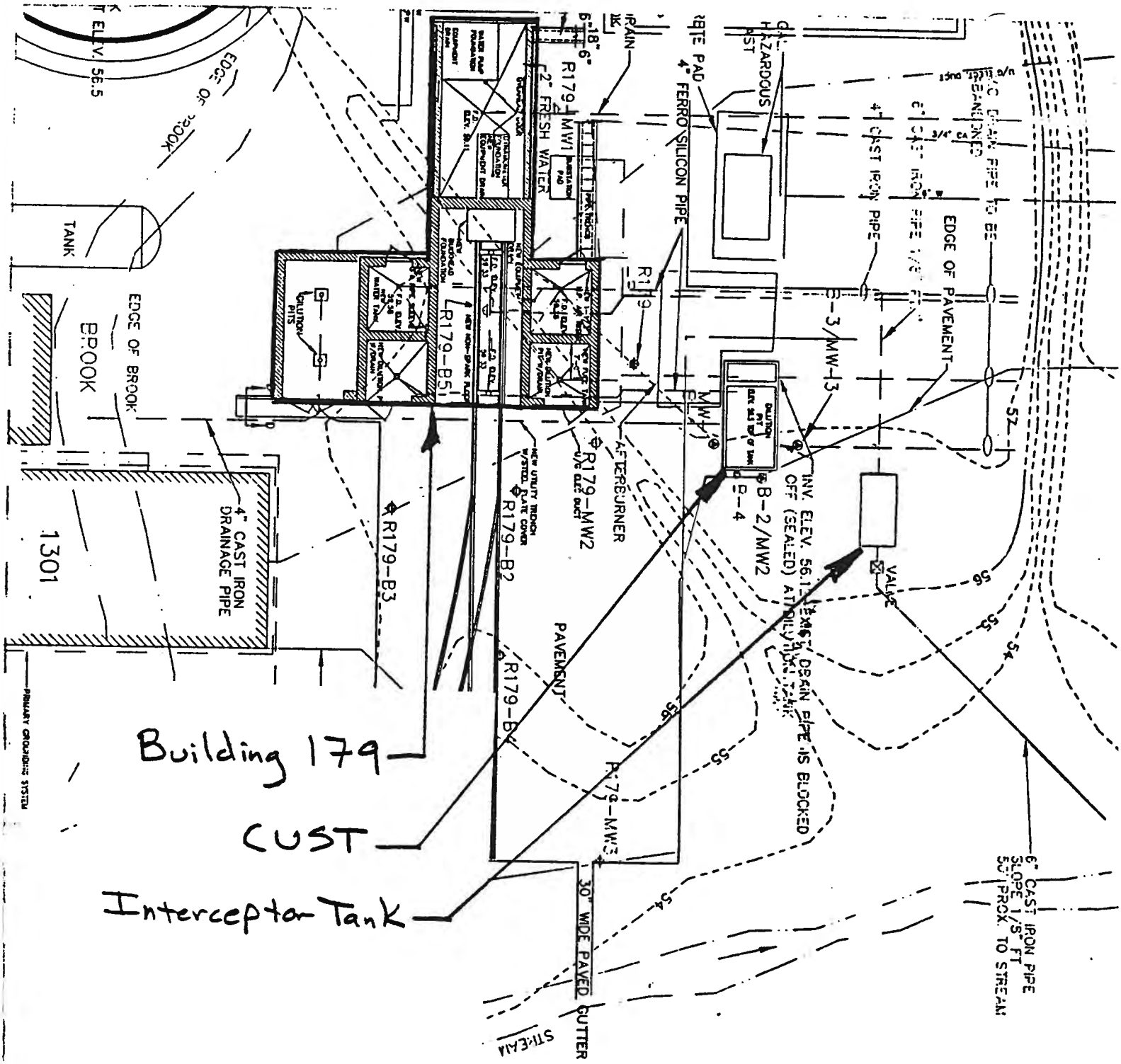

N
NAVAL UNDERSEA
WARFARE CENTER
TO ROUTE 114
SITE
ACCESS
WORK AREA
BUILDING 179
GATE 23
SECURITY OFFICE
BLDG. #80
FACILITIES
BLDG. #1273
NARRAGANSETT BAY
LOCATION MAP
NOT TO SCALE

Figure 2


Building 179
CUST
Interceptor Tank
EDGE OF BROOK
BROOK
TANK
1301
4" CAST IRON DRAINAGE PIPE
R179-B3
R179-B2
R179-B4
R179-MW3
R179-B5
R179-MW1
2" FRESH WATER
4" FERRO SILICON PIPE
EDGE OF PAVEMENT
4" CAST IRON PIPE
B-3/MW-3
B-2/MW2
B-4
R179-MW2
AFTERBURNER
VALVE
PAVEMENT
30" WIDE PAVED GUTTER
6" CAST IRON PIPE
SLOPE 1/8" FT
50' PROX TO STREAM
HAZARDOUS
PRIMARY GROUNDING SYSTEM

2.0 PROJECT ACTIVITIES

The main activities of the project were:

1) to remove and dispose of the two clean stainless steel vaulted storage tanks;
2) to clean the interior of the CUST;
3) to collect confirmatory concrete chip samples from the CUST walls and floor;
4) to fill the concrete vault with Flowable Fill, a non-shrinking inert solid;
5) to re-establish excavation dewatering, water treatment operations, and sampling to accomplish removal of groundwater infiltration;
6) to install soil erosion control measures and clear the area to be affected by the removal process;
7) to locate and clean interceptor tank, remove residual contents, and power wash the interior;
8) to excavate and remove interceptor tank and associated out-fall piping;
9) to field screen and remove contaminated soils adjacent to the CUST and Interceptor Tank;
10) to conduct confirmatory and waste characterization sampling as indicted in Building 179 Work Plan and Work Plan Addendum;
11) to pump and treat the groundwater on an as needed basis;

These field efforts lasted from November 30, 1998 through December 18, 1998.

2.1 Project Planning/Management

Project Planning/Management activities included the preparation of pre-construction submittals, coordination of utility requirements, mobilization to the site, and home office support functions during the time period of the project. The tasks involved in Project Planning/Management are described below.

2.1.1 Pre-Construction Submittals

Foster Wheeler prepared and submitted the following pre-construction documents to the Navy.

Final Work Plan

The Final Work Plan (for Building 179) describing Foster Wheeler's approach to project execution was issued on July 18, 1997, to the Naval Facilities Engineering Command. This Work Plan included the site description, project organization, permitting requirements, site preparation approach, soil removal activities, and site restoration. As applied to this Closure Report, the Final Work Plan describes the entire CUST removal process and associated sampling and waste disposal requirements. Foster Wheeler issued the revised Final Interceptor Tank Removal Work Plan Addendum on November 25, 1998, to the Naval Facilities Engineering Command. This addendum describes the tank and associated

pipe removal process, soil excavation and post excavation sampling, transportation and disposal of generated wastes, and site restoration.

Final Health and Safety Plan (HASP)
The final HASP (for Building 179) included Foster Wheeler's approach to ensuring the health and safety of its employees and others during the project. The Final HASP for the project was submitted on August 7, 1997 to the Naval Facilities Engineering Command.

2.1.2 Home Office Support

Foster Wheeler's Langhorne, Pennsylvania office provided home office support throughout the duration of the project. Home office support included procurement and subcontract agreement support along with the preparation of the required financial, technical, and monthly progress reports.

2.2 Permit and Report Preparation Submission

2.2.1 Wetlands Permit

NUWC Division, Newport submitted application No. 97-0129 to the Rhode Island Department of Environmental Management (RIDEM), Office of Water Resources/Permitting Section, Freshwater Wetlands Program for an Insignificant Alteration to wetlands incident to the B-179 Reconstruction project. This application was approved, with conditions, by RIDEM on 18 April 1997. A copy of RIDEM's approval is provided in Appendix K. As required by permit conditions, FWENC was required to submit Drawing C-1SR and detail drawing C-4SR depicting the placement of the soil erosion control measures placed to protect the wetlands. See Appendix A.

2.2.2 Dig Safe Permits

Foster Wheeler obtained the following dig safe permits from Naval Station Newport (formerly Naval Education and Training Center or NETC) (cleared/approved): October 21, 1997 and December 15, 1997 for initial concrete and soil removal applied to Grid Numbers 1 through 18; on October 21, 1998, and November 16, 1998 for Grid Number 19, and November 21, 1998 for work to be completed at the Interceptor Tank and associated piping. Utilities were marked-out prior to excavation activities.

2.2.3 Water Treatment Discharge Approval

NUWC Division, Newport obtained approval from the City of Newport Utilities Department for the discharge of treated groundwater as documented by letters of authorization dated 29 January 1997 and 4 February 1997. Copies of these letters of authorization as well as treatment discharge sampling and analysis procedures are provided in Appendix J.

2.2.4 Preparation of Project Closure Report

This Assessment has been written by Foster Wheeler Environmental Corporation to satisfy the Rhode Island Department of Environmental Management (RIDEM) Regulation DEM-DWM-UST05-93 Section 15.10, as detailed by the July 1992 RIDEM guidance document entitled: Department of Environmental Management UST Closure Assessment Guidelines. This report was prepared at the request of the United States Navy, Northern Division (NORTHDIV) of the Naval Facilities Engineering Command (NAVFAC) under Delivery Order No. 0013C of the Remedial Action Contract N62472-94-D-0398. This report is designed to read as a stand-alone document and to provide documentation and figure requirements specified in sections 5.1 and 5.2 of the Building 179 Reconstruction Incidental Cleanup Work plan dated July 18, 1997.

2.3 Mobilization and Site Preparedness

2.3.1 Mobilization

The mobilization for this activity began on November 30, 1998 with the installation of erosion fencing around the CUST proposed excavation and set-up of the decontamination pad and exclusion zones. The decontamination trailer was prepared for this field effort during the initial start-up phase of the water treatment system. The support zone was placed on the newly constructed asphalt pad area just east of Building 179. All materials and health and safety equipment needed to successfully complete the remediation activities were staged in this area.

2.3.2 Water Treatment

The existing carbon filtration units and 20,000 gallon capacity influent frac tank was supplemented with another 20,000 gallon effluent frac tank in November 1998. Re-circulation of waters collected in the secondary containment and Building 179 waters from previous excavation dewatering commenced on November 13, 1998. On November 17, 1998, Foster Wheeler re-established the Building 179 water treatment start-up sampling and water discharge requirements as set forth in Enclosure (1) of the letter to Commander, NETC from Commander, NUWC dated February 24, 1998. Enclosure (1) briefly set forth the sampling and testing procedures which satisfy the requirements for discharge to the Newport Publicly Owned Treatment Works (POTW). A copy of this letter is provided in Appendix J.

As specified in the aforementioned document, Foster Wheeler collected five well spaced grab samples from the sample port on the WTS during the initial thirteen hour period of excavation dewatering and relinquished these samples to R.I. Analytical Services for VOC (EPA Method 8260) and TPH (EPA Method 8015) analysis. One representative aliquot was also collected from hourly grab samples until the contents of the 20,000 gallon effluent frac tank was processed through the WTS. The processed water was recirculated back to the Influent tank. Waters were contained until discharge was approved. Each day of

2.5 Cleaning and Closure of Concrete Underground Storage Tank (CUST)

2.5.1 CUST Cleaning

On November 30, 1998, Foster Wheeler inspected the CUST for its structural integrity prior to the commencement of tank cleaning activities. Approximately 5100 gallons of storm water was collected in the CUST between the completion of the removal of the stainless steel tanks and when Foster Wheeler returned to commence closure activities. This water was pumped to the WTS for treatment prior to discharge to POTW in accordance with the City of Newport Utility Department's letters of authorizations dated 29 January 1997 and 4 February 1997. A thin black sheen was noted floating on the bottom 6 inches of waters being pumped to WTS. A slight petroleum odor was also noted and the confined space was monitored with the Foxboro OVA 128 Organic Vapor Analyzer and the MSA Passport Combustible Gas Indicator (see Section E, Air Monitoring). There weren't any exceedences detected.

Once all tank water was removed, a 3,000 pounds/square inch (psi) steam cleaner was used to steam clean the tank's walls and floor. Twelve - 55 gallon drums of waste water and sludge was generated and stored at the temporary drum staging in the designated area southwest of Building 179. On December 2, 1998, the tank cleaning was visually inspected and photo-documented (See Appendix H for the inspection and photo-documentation of tank closure activities).

2.5.2 Concrete Chip Sampling

Once the CUST was visually verified "clean" by both NUWC personnel and Foster Wheeler, one sample location for each wall and the floor were located based on visual and olfactory evidence of potential contamination and location measurements taped and logged on the site field map (see Appendix I, Field Sketch 01 - Sample Point Locations and Elevations). Four wall concrete chip samples designated B179CUST-W1 through B179CUST-W4 and one floor concrete chip sample designated B179CUST-F1 were collected using an electric hand drill and decontaminated drill bit and analyzed for VOCs (EPA Method 8260), SVOCs (EPA Method 8270), Total Cyanide and Total Petroleum Hydrocarbons (EPA Method 8015). Results indicated the presence of VOCs and SVOCs in all samples. Analytical data from the concrete chip sampling of the Building 179 CUST is summarized in Appendix B.

2.5.3 CUST Closure

On December 2, 1998, the CUST was closed in place by filling the tank with a non-shrinking solid (flowable fill material). The flowable fill material was composed of sand, gravel, water, cement and a plastisizing agent to increase flowability. The material was allowed to cure for 9 days. On December 11, 1998, the CUST was capped with a 3,000 psi concrete slab reinforced with a 6" on center wire mat.

Sketch 02, Appendix I and Figure 3). Due to elevated detection of VOC within the excavation limits, level B air-supplied respirators and associated PPE were worn by entrants to screen the sample locations with the Foxboro OVA 28 (FID) and to collect the individual samples (see Appendix D Post Excavation Real Time Air Monitoring).

Eleven soil samples, nine wall samples, and two floor samples, were collected within a twelve-inch circle of the sample location using a decontaminated stainless steel trowel and placed in a decontaminated stainless steel bowl for homogenization. Consistent with EPA Method 5035, representative samples of soil were collected from the excavation using Encore samplers prior to analysis for VOCs. The other portion of the sample was homogenized and placed in laboratory bottleware designated for TPH (USEPA method 8015), SVOCs (USEPA method 8270), and total cyanide (USEPA method SW-846-9010) on a 72-hour turnaround. The VOC samples collected in accordance with EPA Method 5035/8260 were shipped via Federal Express to Severn Trent Laboratories on a 3 - 4 week turnaround. Method 5035 is a preparation and extraction method which was requested by RIDEM.

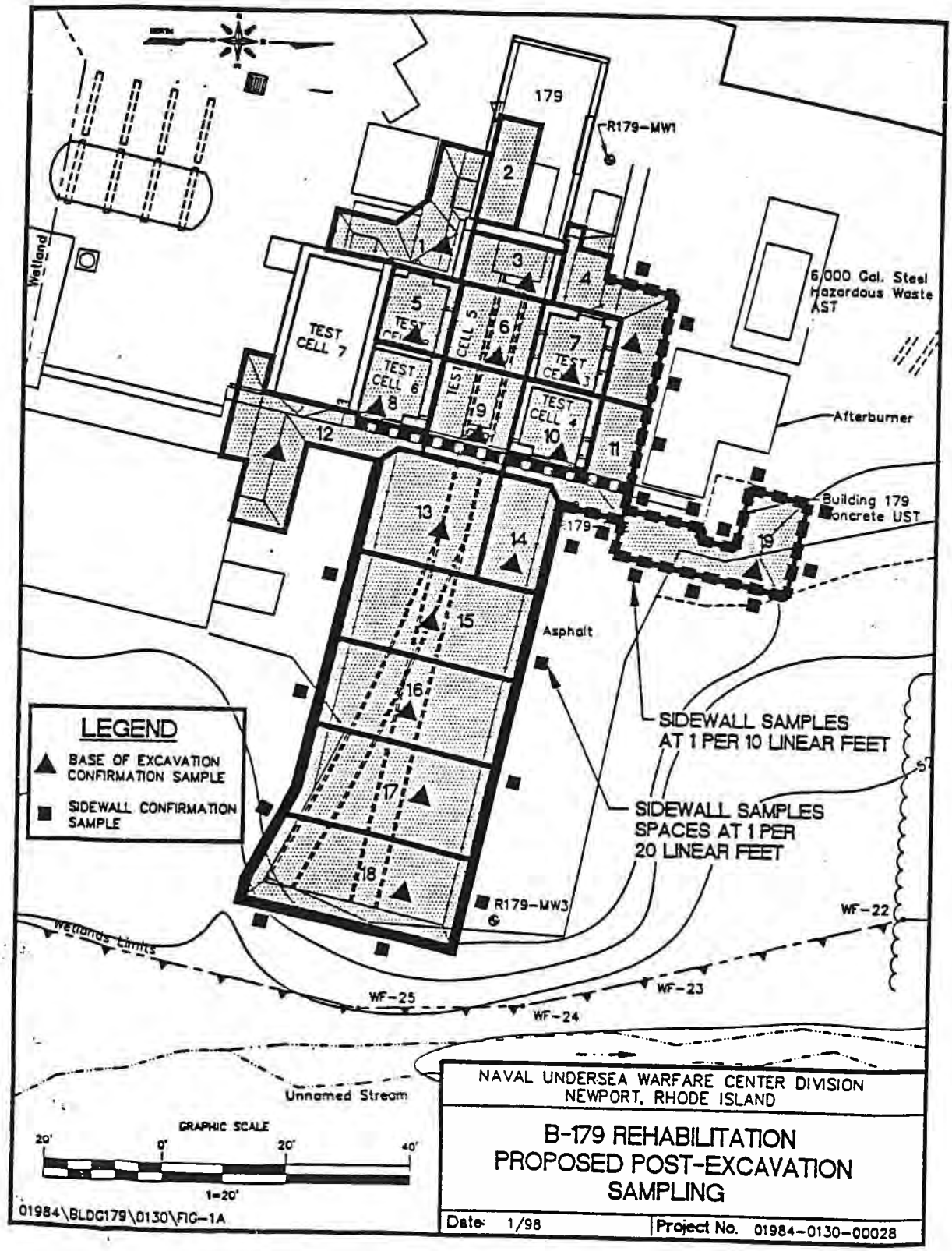
All eleven samples exhibited the VOCs, primarily Acetone and 2-Butanone. There were no exceedances of the RIDEM Industrial/Commercial Direct Exposure Criteria.

Laboratory results revealed exceedences of the RIDEM Industrial/Commercial Standard for Total Petroleum Hydrocarbon (TPH) in locations G19-W4 and G19-W6 with levels of 3,300 mg/kg and 4700 mg/kg respectively. There were no detection's for Total Cyanide.

One aqueous sample was collected on December 3, 1998 from the yellowish colored fluid entering the excavation from below the base of the CUST. This fluid appeared to be floating on the groundwater infiltrating from the same location and pooling in the base of the excavation. The sample was designated G19-AQ and analyzed for VOCs (EPA Method 8260). On December 4, 1998, another aqueous sample designated G19-AQ2 was collected from the same location at the request of Paul Kulpa, RIDEM , and analyzed for VOC (8260), TPH (USEPA method 8015), SVOCs (USEPA method 8270), and total cyanide (USEPA method SW-846-9010).

Sample G19-AQ exhibited a 1,1,1 Trichloroethane concentration of 14 mg/l. This concentration exceeded the RIDEM "GA" Groundwater Standard of .2 mg/l. Sample G19-AQ2 exhibited exceedences for VOCs, Total Cyanide and SVOCs. Concentrations for 1,1-Dichloroethane and 1,1,1 Trichloroethane were 3.0 mg/L and 31.0 mg/l respectively.

FIGURE 3 BUILDING 179/CUST



Two soil samples exhibiting OVA readings in the 500 to 700 PPM range were collected from the same locations as G19-W4 and G19-F1(see Appendix I, Field Sketch 02) and designated for PGDN analysis. The wall locations which exhibited the highest concentrations of VOCs were located in the northwest corner of the excavation. The material was a black bedding sand used to support an asbestos pipe. This pipe was removed and disposed of during this excavation. The floor location adjacent to the northeast corner and floor of the CUST exhibited residual staining from the yellowish colored globules floating on the groundwater infiltrate. The two soil samples were collected from these locations and relinquished to NUWC personnel to be analyzed for PGDN by Indian Head Division of the Naval Surface Warfare Center at Indian Head, Maryland (see Section 2.8.1 on PGDN analysis).

2.7 INTERCEPTOR TANK BACKGROUND INFORMATION

During the first phase of work that occurred between November 1997 and April 1998, Foster Wheeler excavated soil from Grids #1 through 18. During this work, a valve box was discovered adjacent to the Grid #19 work area. In addition, an Interceptor Tank was discovered to be connected to the piping associated with the valve box. Historically, the tank appeared to have been connected to the CUST.

2.7.1 Interceptor Tank Erosion Control

Erosion and sediment control procedures were followed in accordance with the original Work plan submitted in July 1997. Control measures consisted of 2 foot minimum silt fence filter fabric buried 4 inches underground and reinforced with hay bales on an as needed basis.

On December 2, 1998, during silt fence installation, the soils within the perimeter of the Interceptor Tank silt fencing were screened with the OVA 128. Black clayey soils with residual odors along the fence perimeter registered 10 to 12 ppm in headspace jars but no readings in the actual breathing zone. The soil erosion and sediment controls were left in place until the restored area had sufficient vegetative growth that will prevent erosion.

2.7.2 Interceptor Tank and Associated Pipe Removal

Prior to tank removal, Foster Wheeler first located the out-fall from a discharge pipe associated with the interceptor tank, and cleared an area sufficient enough to remove the out-fall piping up to the valve box. The tank top was then located by excavating down to the tank top and expanding the excavation to uncover the top. On December 3, 1998, a 2ft X 2ft hole was cut in the roof of the Interceptor Tank while the atmosphere was screened with the OVA 128 and MSA Passport real time air monitoring equipment. No combustible atmospheres were detected so the hole was expanded on December 4, 1998 to 3ft X 3ft to accommodate entrance into the tank. The tank was approximately ¾ filled with wastewater and bottom sludge. Though a hydrocarbon odor emanated from the hole, OVA readings in the breathing zone outside the tank registered not above background (NAB).

Approximately 1,100 gallons of Interceptor Tank fluid, bottom sludge's and residual product were removed using a vacuum truck equipped with a drum loading device. The materials were stored in 55-gallon drums at temporary drum staging designated by the Navy. One aqueous sample was collected from a drum containing the Interceptor Tank fluid and designated sample B179-IT-AQ for VOC8260, Mineral Spirits 8015M, TPH 8015, SVOC 8270, Total cyanide 9010 and PGDN. Throughout drumming operations, the maximum reading with the OVA within the Interceptor Tank was 20 ppm, which exceeded the action level of 15 ppm as dictated by the Foster Wheeler Building 179 Site Health and Safety Plan, dated August 7, 1997.

On December 7, 1998, Foster Wheeler continued to remove bottom sludge's from the tank and a 3,000 (psi) steam cleaner was used to power wash the interior of the tank. During this activity, 30 ppm was recorded by the OVA 128 in the entrance hole to the Interceptor Tank. One confirmatory sludge sample was collected and designated IT-SLG-01 for Petroleum Compounds 8100, Total Cyanide, VOCs, Mineral Spirits 8015M and also PGDN. Approximately 100 gallons of waste cleaning water was generated.

The Interceptor Tank was inspected and confirmed to have one inlet coming from the direction of the CUST and one out-fall pipeline extending approximately 50 feet into the wetlands area. The CUST was structurally sound and had no visual signs of cracking.

On December 7, 1998, after the completion of tank cleaning activities, tank excavation activities began. A Komatsu PC 150 excavator was used to excavate and remove the pipe and soils. The excavation began at the pipe out-fall approximately 52 feet east of the Interceptor Tank location. The pipeline was constructed of 6" cast iron pipes with bell connections. They were 10 foot sections assembled for an overall length of 52 feet. During the pipe excavation, no fluids or product were noted within the pipe interiors nor were there any apparent cracks or fractures in the pipe outer casings. The soils within the pipe grave did not exhibit staining or unusual odor. During the excavation process, a Flame Ionization Detector (FID) was used for field screening to monitor for total Volatile Organic Compounds (VOCs). The OVA 128 did not measure any VOCs above background within the breathing zone of the excavation. The pipe grave was approximately 3 to 4 feet below ground surface and 4 feet wide (see Field Sketch 03 - Building 179 Interceptor Tank Elevation Area and Sample Point Locations/Elevations).

Upon completion of the out-fall pipe removal, confirmatory samples were collected in areas of the soils exhibiting olfactory, visual, and instrument verified VOC detection's with the OVA. Refer to Section 2.7.3, Post Excavation Sampling for Interceptor Tank and Piping.

Once the pipe had been removed, excavation to remove the tank began. Soils were removed from the top and sides of the tank. Then, the tank was crushed within the excavation and placed into the pipe roll off for waste disposal characterization. A plume of a black ink-like substance entered the tank grave from the southeast corner wall of the excavation and coalesced with groundwater infiltration. At the time of post-excavation

sampling of the tank grave walls and floor, approximately 1 foot of groundwater had collected in the base of the tank grave. The water was removed and pumped to the WTS for treatment prior to discharge to the POTW.

One 87.55 tons of soil and debris were generated during the removal of the interceptor tank.

2.7.3 Post Excavation Sampling for Interceptor Tank and Piping

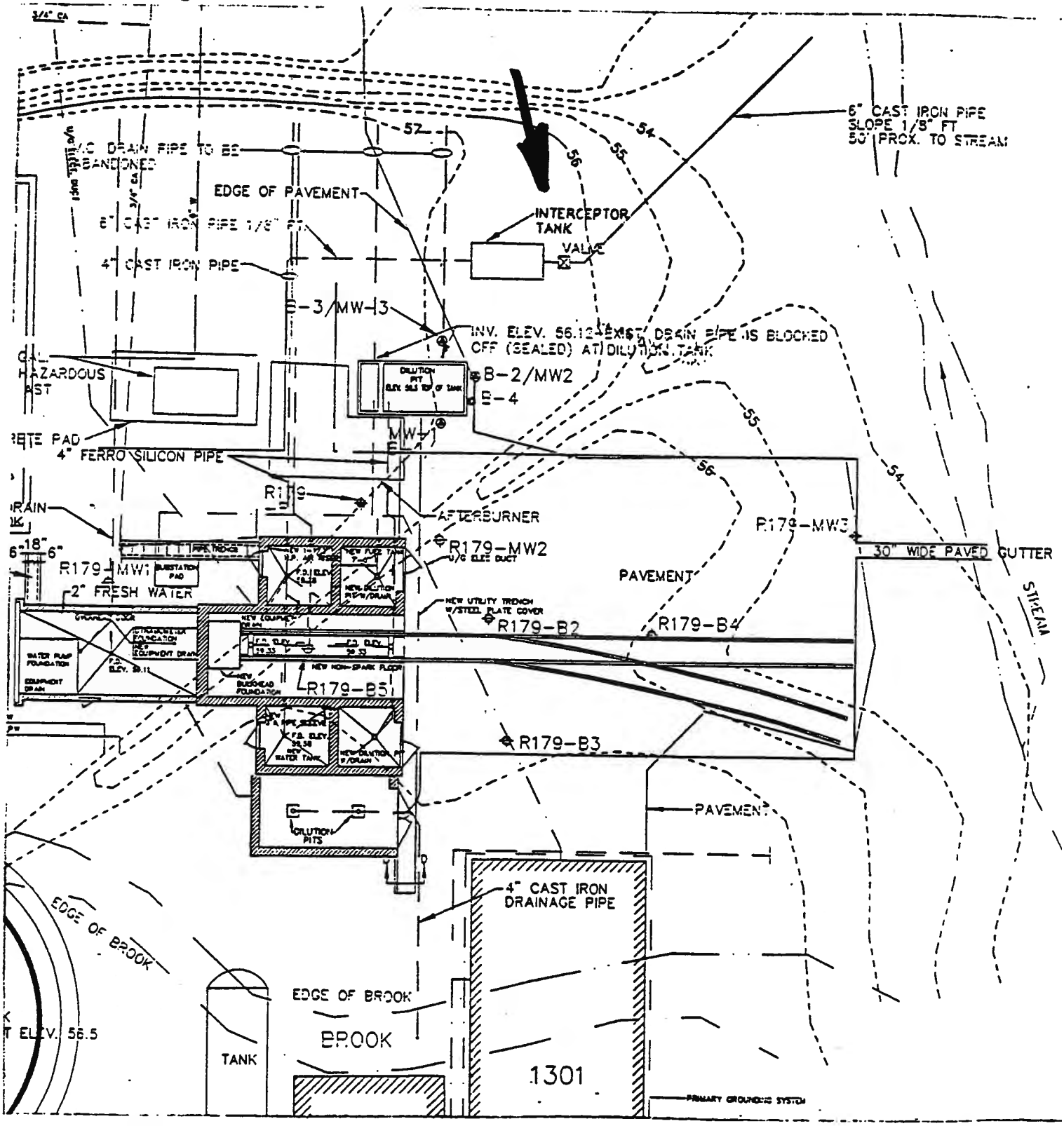
Following the soil removal, post-excavation samples were collected from the tank piping removal and the tank removal excavations (see Figure 4). Field screening was conducted using a Century OVA 128 (FID with 11.2 ev lamp) at a frequency of four from the base of the tank grave, one per five feet of sidewall at a lower third of the excavation and one per five feet of piping. Samples were collected one per fifteen feet of piping (samples IT-OF-001 through 004), two from underneath the 2,000 gallon interceptor tank (samples IT-OF-008 and 009), and three from the perimeter of the tank grave at a frequency of one per sidewall from the midpoint elevation of the tank (samples IT-OF-005 through IT-OF-007).

OVA readings at the sample locations within the pipe trench ranged form non-detect to 8 ppm while samples collected from the perimeter of the tank grave ranged from 20 ppm to 120 ppm, the highest reading was on the western perimeter sidewall sample. Samples 008 and 009 were collected from the bucket of the excavator. The bucket soils were taken at a depth 2 feet below the grave floor due to the inability to collect these samples without cross-contaminating with the groundwater in the grave bottom. Sample 008 was collected from the center of the grave floor while sample 009 was collected from the southeast portion of the grave where the ink-colored plume entered with the groundwater.

Nine samples (IT-OF-001 through IT-OF-009) were collected for VOCs by EPA Method 5035/8260, mineral spirits by EPA Method 8015 (M), petroleum compounds by EPA Method 8100 for polycyclic aromatic hydrocarbons (PAHs), and for total cyanide by EPA Method 9010.

Please note that samples IT-OF-001, IT-OF-004, IT-OF-006 and IT-OF-008 were also analyzed for propylene glycol dinitrate (PGDN) in order to determine potential Otto fuel contamination in the tank area. Refer to Section 2.8.1 for PGDN Analysis.

Figure 4 INTERCEPTOR TANK



2.8 Waste Disposal Classification

2.8.1 PGDN Analysis

Samples for PGDN were relinquished by Foster Wheeler to the NUWC representative on December 8, 1998. The samples were then forwarded by courier to the Indian Head Division of the Naval Surface Warfare Center in Indian Head, Maryland.

The two soil samples , G19-F1 and W4, collected from the Grid 19 excavation and designated for PGDN analysis were determined to have results less than the laboratory's detection limit of .2 mg/l. The aqueous sample G19-AQ2 collected from the yellowish globules floating on the groundwater infiltration in the center of the excavation revealed a detection of 2.685mg/L. Since the subsurface liquid only, excluding the floating product, was pumped to the WTS it was determined not to require the D003 reactive code and hence could be treated and discharged. The floating product remained in the closed excavation since no further remediation was authorized.

Five soils (IT-OF-001, 004, 006, 008 and 009), one aqueous (B179-IT-AQ) and one sludge sample (IT-SLG-01) were collected from the Interceptor Tank contents and tank and pipe grave for PGDN analysis. All revealed detection's below the detection limit of .2mg/l except for the sludge sample whose result was 1.52 mg/l.

All of the samples revealed detection's for nitroglycerin (NG) except for G19-AQ2, IT-OF-006 and IT-OF-009. Since NG was not reported as one of the compounds of concern for this project it is believed that the laboratory equipment may have been compromised. NG is produced at the Indian Head Facility and it is believed that cross-contamination may be the source of the analytical discrepancies. NUWC, Newport is having the samples re-tested and will provide results upon receipt.

Two soil samples, IT-OF-276 and IT-OF-347 were collected by the NUWC Environmental contractor, TRC Environmental, on January 8, 1999 from roll offs 276 and 347. Both roll offs contained soils from the out-fall and inlet portion of the out-fall piping respectively. The samples were analyzed for reactivity to confirm or refute the results received from Indian Head Facility. Both samples revealed no-detect results for reactive Cyanide and reactive Sulfides.

2.8.2 Waste Water Sampling in Support of Field Activities

Between November 30, 1998 and December 18, 1998, the Wastewater Treatment System discharged approximately 30,660 gallons of treated water at a rate of 25 gallons per minute. All treated water was tested on a daily basis to ensure compliance with the discharge criteria established by the Newport POTW. Waste water samples were collected on November 30, 1998, December 1, 1998, December 2, 1998, December 3, 1998, December 11, 1998 and December 14, 1998 in accordance with the POTW permit. All concentrations were within the permitted discharge levels.

2.8.3 Waste Disposal Sampling

All wastes generated during the Interceptor Tank removal were sampled for waste characterization. On December 15, 1998, eight samples designated IT-WC-001 through IT-WC-008 were collected from the six roll off containers, one sample for each roll off, and two of the 23 - 55 gallon drums containing the IT wastewater's and sludge's. The waste characterization samples were analyzed for VOC 8260, SVOC 8270, TPH 8015, Total Cyanide, Ignitability, Reactivity, Corrosivity, Paint Filter and RCRA 8 Metals. The sludge samples exhibited 1,1,1 - trichloroethane concentrations of 10,000 ppm and 15,000 ppm respectively. This waste was classified as D003 class hazardous waste and transported to the Stablex facility in Blainville, Canada. The soils in the roll off containers were disposed of as F002/F005 class hazardous waste and transported to the EQ facility in Michigan for disposal.

2.8.4 Water Treatment System Derived Wastes

As part of the Water Treatment System (WTS) several derived waste streams were generated. They included Personal Protective Equipment (PPE), Filter bags, and sediments from the cleaning of the WTS aboveground influent tank.

2.9 Waste Disposal

All excavated soil, water treatment filter media, tank cleaning waters and sludge's were disposed as hazardous waste in accordance with all applicable permits and Federal, State, and Local regulations. All transporters and disposal facilities were approved by the Navy and Foster Wheeler in accordance with Foster Wheeler Environmental Corporation Regulatory Compliance Procedures.

2.9.1 Excavated Soil Disposal

As discussed in Section 2.8 Waste Disposal Classification, samples were taken to classify the soils removed. All soils were classified as hazardous waste EPA Waste Code: D003, F002, F005.

There was a total of 115.12 tons of soil disposed of from Grid 19 and a total of 87.55 tons of soil and debris disposed of from the removal of the Interceptor. All soils were disposed of at the Stablex Canada Incorporated facility, Blainville Quebec. (refer to Appendix F for disposal documentation)

2.9.2 Water Treatment System Derived Wastes Disposal

As part of the water treatment system several derived wastes streams were generated. They included Personnel protective Equipment (PPE), filter bags, filter media, and sediments from the cleaning of the system.

The filter media, filter bags and PPE from the Water Treatment System were classified the same as the soils. There was a total of 5.15 tons of waste disposed of at the Stablex Canada Incorporated facility in Blainville Quebec. (refer to Appendix F for disposal documentation)

The sediments from the cleaning of the system prior to demobilization were drummed. A total of 36 drums were generated. They were classified as liquid hazardous waste and sent to ENSCO, Inc. of El Dorado, AR for disposal.

2.9.3 Tank Cleaning Derived Wastes Disposal

During the cleaning of the CUST and the interceptor tank waste water as well as bottom sludge's were generated. A total of 12 drums were generated during the cleaning of the CUST and a total of 15 drums were generated during the cleaning of the interceptor tank. They were classified as liquid hazardous waste and sent to General Chemical Corp. of Framingham, MA for disposal. (refer to Appendix G for disposal documentation)

2.10 Site Restoration

Upon the completion of the post excavation sampling, the effected areas were restored. The interceptor tank grave and out-fall pipe excavation was lined with separation fabric. The tank grave was backfilled in compacted lifts up to within 6" of existing grade. The area then had 6" of 1.5" stone placed up to existing grade. The out-fall pipe excavation was backfilled and compacted. Then 6" of top soil was placed on the disturbed areas. The area was then seeded and mulched. Soil erosion control enhancements in the form of hay bails to slow surface runoff were put in-place. See Appendic E for clean soil certification.

3.0 DOCUMENTATION

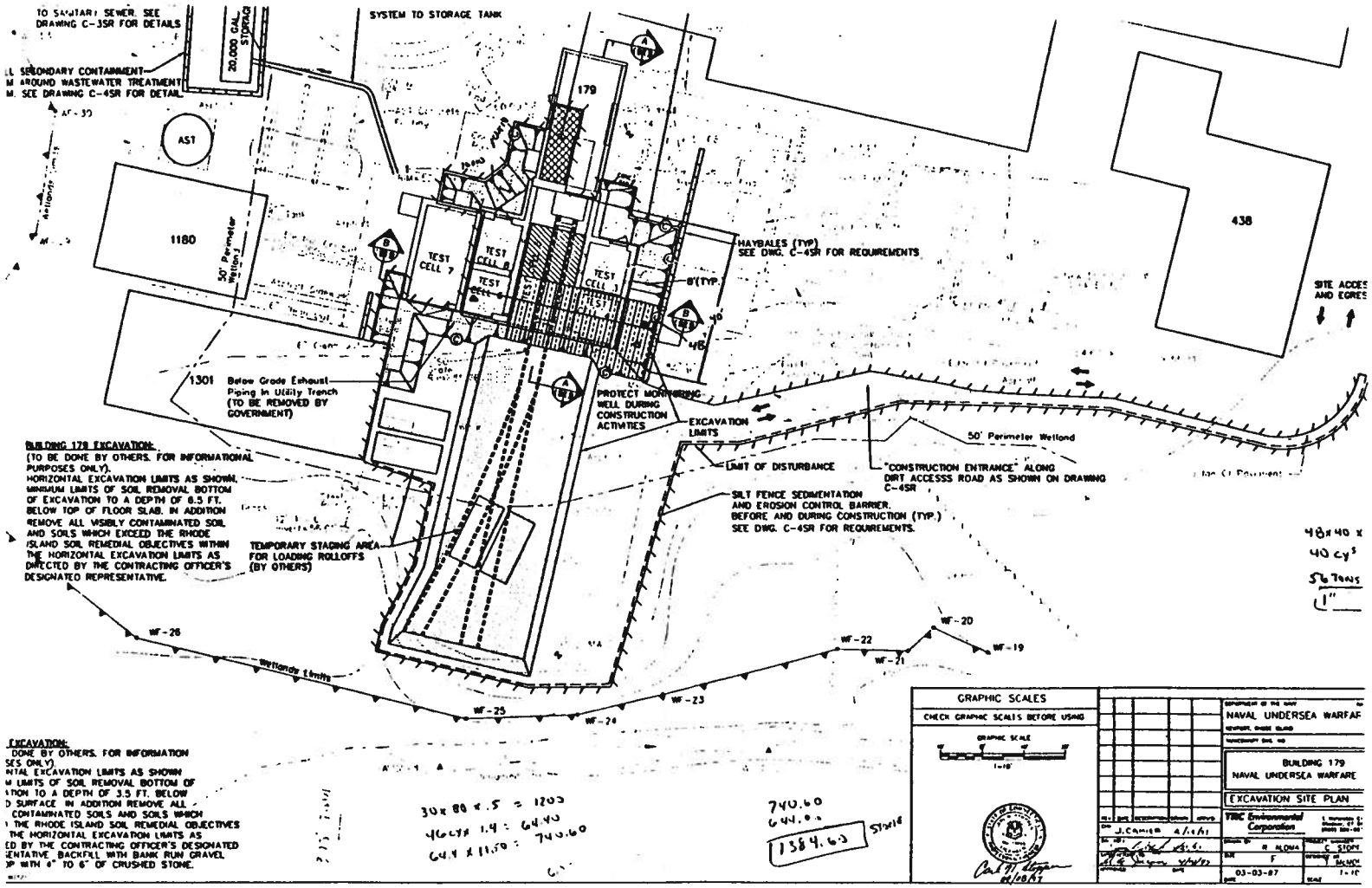
Documentation of operations, record keeping, photographic evidence of work performed and analytical results are provided in this Tank Closure Report.

Appendix H of this report in a photographic log recording the activities that took place at Building 179. Photographs documented the existing conditions prior to work, during activities, and during restoration. Photograph location, date, and description of the activity recorded is included in the photo documentation log.

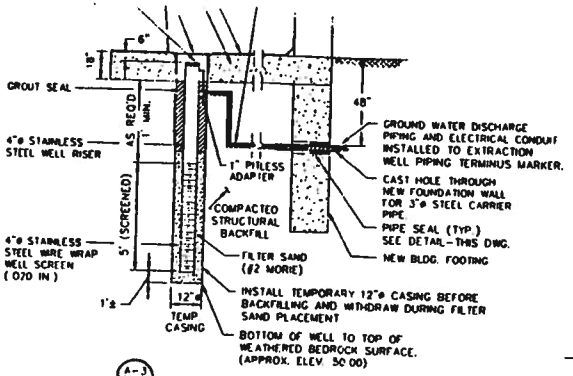
4.0 CONCLUSION

The CUST has been closed in place and the Interceptor has been removed in accordance with RIDEM UST regulations.

Contaminated soils have been removed, but post-excavation sampling indicates residual contamination exceeding GA and GB Leachability Criteria. Results are below Industrial/Commercial Direct Exposure Criteria, except for isolated exceedances for TPH and benzo(a) pyrene. Further assessment of soil and groundwater is warranted.


TO SANITARY SEWER. SEE DRAWING C-3SR FOR DETAILS
SYSTEM TO STORAGE TANK
20,000 GAL. STORAGE
SECONDARY CONTAINMENT AROUND WASTEWATER TREATMENT. SEE DRAWING C-4SR FOR DETAIL
AST
179
1180
438
50' Perimeter Wetland
TEST CELL 7
TEST CELL 8
TEST CELL 9
TEST CELL 1
HAYBALES (TYP) SEE DWG. C-4SR FOR REQUIREMENTS
8'(TYP.
SITE ACCES AND EGRES
1301
Below Grade Exhaust Piping in Utility Trench (TO BE REMOVED BY GOVERNMENT)
PROTECT MONITORING WELL DURING CONSTRUCTION ACTIVITIES
EXCAVATION LIMITS
50' Perimeter Wetland
LIMIT OF DISTURBANCE
"CONSTRUCTION ENTRANCE" ALONG DIRT ACCESSS ROAD AS SHOWN ON DRAWING C-4SR
SILT FENCE SEDIMENTATION AND EROSION CONTROL BARRIER. BEFORE AND DURING CONSTRUCTION (TYP.) SEE DWG. C-4SR FOR REQUIREMENTS.
BUILDING 179 EXCAVATION:
(TO BE DONE BY OTHERS. FOR INFORMATIONAL PURPOSES ONLY).
HORIZONTAL EXCAVATION LIMITS AS SHOWN.
MINIMUM LIMITS OF SOIL REMOVAL BOTTOM OF EXCAVATION TO A DEPTH OF 8.5 FT. BELOW TOP OF FLOOR SLAB. IN ADDITION REMOVE ALL VISIBLY CONTAMINATED SOIL AND SOILS WHICH EXCEED THE RHODE ISLAND SOIL REMEDIAL OBJECTIVES WITHIN THE HORIZONTAL EXCAVATION LIMITS AS DIRECTED BY THE CONTRACTING OFFICER'S DESIGNATED REPRESENTATIVE.
TEMPORARY STAGING AREA FOR LOADING ROLLOFFS (BY OTHERS)
WF-26
Wetlands Limits
WF-25
WF-24
WF-23
WF-22
WF-21
WF-20
WF-19
48x40 x 40 cy³
56 Tons
1"
EXCAVATION:
DONE BY OTHERS. FOR INFORMATION SES ONLY)
NTAL EXCAVATION LIMITS AS SHOWN
M LIMITS OF SOIL REMOVAL BOTTOM OF TION TO A DEPTH OF 3.5 FT. BELOW D SURFACE IN ADDITION REMOVE ALL CONTAMINATED SOILS AND SOILS WHICH THE RHODE ISLAND SOIL REMEDIAL OBJECTIVES THE HORIZONTAL EXCAVATION LIMITS AS ED BY THE CONTRACTING OFFICER'S DESIGNATED ENTATIVE BACKFILL WITH BANK RUN GRAVEL P WITH 4" TO 6" OF CRUSHED STONE.
30x80x.5 = 1200
46cy x 1.4 = 64.40
64.4 x 11.50 = 740.60
740.60
64.40
1384.63 Stone
GRAPHIC SCALES
CHECK GRAPHIC SCALES BEFORE USING
GRAPHIC SCALE
1"=10'
NAVAL UNDERSEA WARFAR
BUILDING 179
NAVAL UNDERSEA WARFARE
EXCAVATION SITE PLAN
TRC Environmental Corporation
J.CARTER 4/16/97
R. ALONA
C. STOPA
F
03-03-97
1"=10'

C-1SR

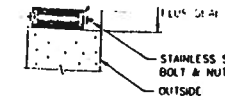


A-3 / T-6

SECTION 'A-3'

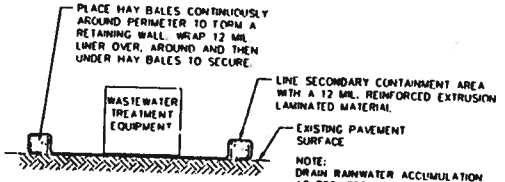
EXTRACTION WELL TYPICAL DETAIL

NTS



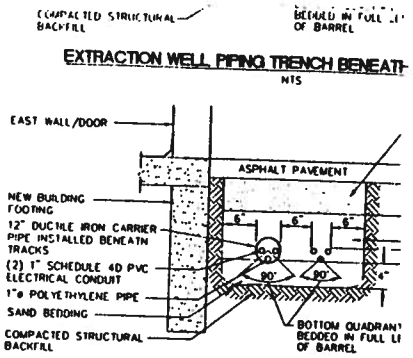
SLEEVE SEAL DETAIL

NTS



SECONDARY CONTAINMENT SYSTEM

NTS

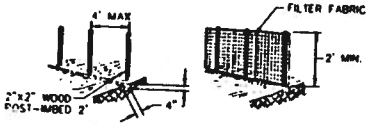


EXTRACTION WELL PIPING TRENCH BENEATH

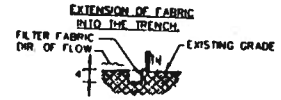
NTS

EXTRACTION WELL PIPING TRENCH EAST OF

NTS

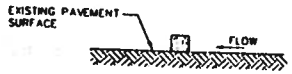


1. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. STAPLE FILTER FABRIC TO THE POSTS AND EXTEND INTO TRENCH.
3. BACKFILL AND COMPACT THE EXCAVATED SOIL INTO THE TRENCH.
4. SILT FENCE TO BE INSTALLED BY OTHERS. MAINTENANCE DURING CONSTRUCTION AND REMOVAL FOLLOWING CONSTRUCTION TO BE CONDUCTED UNDER THIS CONTRACT.

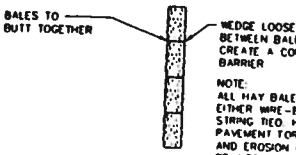


SILT FENCE

NTS



ELEVATION



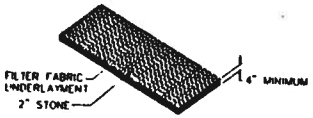
PLAN

NOTE:
ALL HAY BALES SHALL BE EITHER WIRE-BOUND OR STRING TIED. HAYBALES ON PAVEMENT FOR SEDIMENTATION AND EROSION CONTROL TO BE INSTALLED BY OTHERS. MAINTENANCE DURING CONSTRUCTION AND REMOVAL FOLLOWING CONSTRUCTION TO BE CONDUCTED UNDER THIS CONTRACT.

HAY BALES ON PAVEMENT

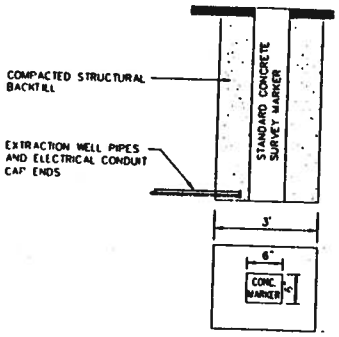
NTS

NOTE:
CONSTRUCTION ENTRANCE TO BE INSTALLED BY OTHERS. MAINTENANCE DURING CONSTRUCTION AND REMOVAL FOLLOWING CONSTRUCTION TO BE CONDUCTED UNDER THIS CONTRACT.



CONSTRUCTION ENTRANCE

NTS



EXTRACTION WELL PIPING TERM

NTS

GRAPHIC SCALES

CHECK GRAPHIC SCALES BEFORE USING

NAVAL UNDERSI

BURI

NAVAL UNDERSE

DETAILS

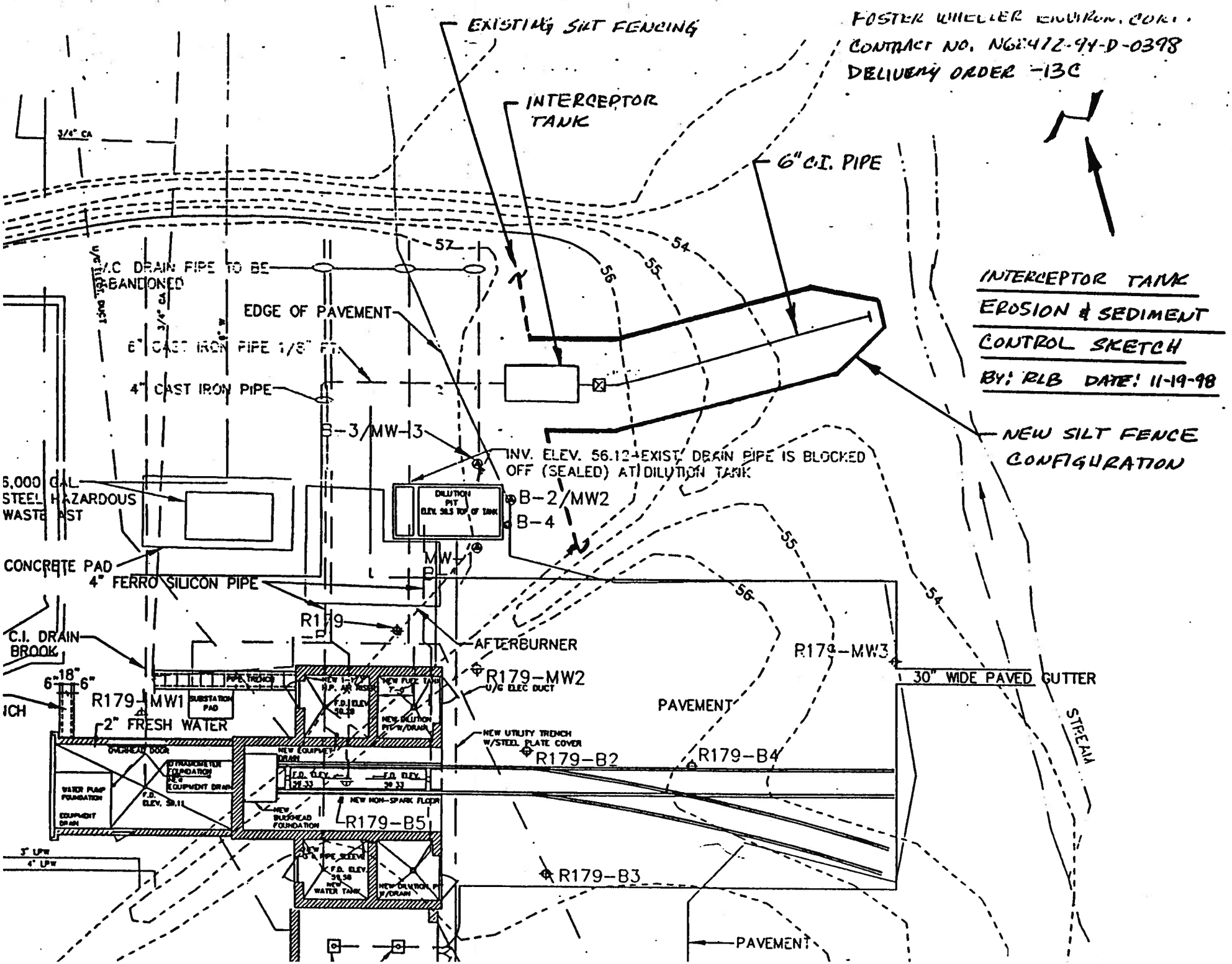
TRC Environmental Corporation

R ALOMA

F

3-01-97

C-452


EXISTING SILT FENCING
INTERCEPTOR TANK
6" C.I. PIPE
FOSTER WHEELER ENVIRON. CORP.
CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER -13C
INTERCEPTOR TANK
EROSION & SEDIMENT
CONTROL SKETCH
BY: RLB DATE: 11-19-98
NEW SILT FENCE CONFIGURATION
EDGE OF PAVEMENT
4" CAST IRON PIPE
B-3/MW-3
INV. ELEV. 56.12 EXIST. DRAIN PIPE IS BLOCKED OFF (SEALED) AT DILUTION TANK
B-2/MW2
B-4
CONCRETE PAD
4" FERRO SILICON PIPE
AFTERBURNER
R179-MW2
R179-MW3
30" WIDE PAVED GUTTER
PAVEMENT
STREAM
C.I. DRAIN
BROOK
R179-MW1
2" FRESH WATER
R179-B2
R179-B4
R179-B5
R179-B3
PAVEMENT

Base of Excavation - Post Excavation Samples

Analytical Data Summary
NUWC Division, Newport - B179 Rehabilitation Project

Sample ID	UNITS	179-GRID-1 POST	179-GRID-2 POST	179-GRID-3 POST	179-GRID-4 POST	179-GRID-5 POST	179-GRID-6 POST	179-GRID-7 POST	179-GRID-8 POST	179-GRID-9 POST	179-GRID-10 POST	179-GRID-11 POST	179-GRID-11 Duplicate	RIDEM Industrial/ Commercial Direct Exposure Criteria	RIDEM Residential Direct Exposure Criteria	GA Leachability Criteria	GB Leachability Criteria
TPH	mg/kg	82	220	-	-	-	1,200	-	-	630	230	6,900		2,500	500	500	2,500
Cyanide	mg/kg	-	-	-	-	-	39	-	-	86	-	-		10,000	200	2.4	NA
VOC's																	
Dilution		1	1	1	1	1	200	1	1	200	400	8260	5030/8260				
Toluene	ug/kg	-	-	-	-	-	-	-	-	-	-	10,000	1				
Naphthalene	ug/kg	7	-	-	-	-	2,900	6	6	1,300	7,500	-	610	10,000,000	190,000	32,000	54,000
Xylenes, total	ug/kg	-	-	-	-	-	5,800	-	8	16,000	-	-	6,600	10,000,000	54,000	NA	NA
1,2,4-Trimethylbenzene	ug/kg	-	-	-	-	6	18,000	45	20	29,000	43,000	120,000	22,000	10,000,000	110,000	540,000	NA
1,1,1-Trichloroethane	ug/kg	-	-	-	-	7	38,000	21	170	21,000	52,000	1,100,000	43,000 D	NA	NA	NA	NA
Acetone	ug/kg	-	-	-	-	-	-	-	-	-	-	-	270,000 D	10,000,000	540,000	11,000	160,000
4-Isopropyltoluene	ug/kg	-	-	-	-	-	2,900	8	-	4,000	5,700	-	5,700	10,000,000	7,800,000	NA	NA
1,1-Dichloroethane	ug/kg	-	-	-	-	-	-	-	52	-	-	-	2,300	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	-	-	-	-	-	-	-	-	-	-	-	10,000	10,000,000	920,000	NA	NA
Ethylbenzene	ug/kg	-	-	-	-	-	-	-	-	1,600	16,000	-	2,700	9,500	200	NA	NA
Isopropylbenzene	ug/kg	-	-	-	-	-	1,400	-	-	1,800	3,500	-	4,700	10,000,000	71,000	27,000	62,000
n-Propylbenzene	ug/kg	-	-	-	-	-	3,000	-	-	4,700	7,200	-	8,700	10,000,000	27,000	NA	NA
1,3,5-Trimethylbenzene	ug/kg	-	-	-	-	-	8,900	19	7	14,000	23,000	-	22,000 E	NA	NA	NA	NA
n-Butylbenzene	ug/kg	-	-	-	-	-	6,600	10	-	6,200	11,000	-	9,500	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	-	-	-	-	-	2,600	-	-	3,600	4,600	-	5,100	NA	NA	NA	NA
Chloroethane	ug/kg	-	-	-	-	-	-	-	6	-	-	-		NA	NA	NA	NA
SVOC's														NA	NA	NA	NA
Dilution		1	1	1	1	1	1	1	1	1	1	5					
Phenanthrene	ug/kg	4,600 D	440 J	-	-	-	-	-	-	-	140 J	-		10,000,000	40,000	NA	NA
Anthracene	ug/kg	1,200	94 J	-	-	-	-	-	-	-	-	-		10,000,000	35,000	NA	NA
Fluoranthene	ug/kg	4,700 D	440 J	-	-	-	-	-	-	-	140 J	-		10,000,000	20,000	NA	NA
Pyrene	ug/kg	3,800 D	290 J	-	-	-	-	-	-	-	98 J	-		10,000,000	13,000	NA	NA
Benzo(a)anthracene	ug/kg	2,500	160 J	-	-	-	-	-	-	-	62 J	-		7,800	900	NA	NA
Chrysene	ug/kg	2,500	190 J	-	-	-	-	-	-	-	58 J	-		780,000	400	NA	NA
Benzo(b)fluoranthene	ug/kg	2,600	190 J	-	-	-	-	-	-	-	45 J	-		7,800	900	NA	NA
Benzo(k)fluoranthene	ug/kg	980	100 J	-	-	-	-	-	-	-	-	-		78,000	900	NA	NA
Benzo(a)pyrene	ug/kg	1,900	140 J	-	-	-	-	-	-	-	40 J	-		800	400	240	NA
Indeno(1,2,3-cd)pyrene	ug/kg	770	60 J	-	-	-	-	-	-	-	-	-		7,800	900	NA	NA
Dibenz(a,h)anthracene	ug/kg	340 J	-	-	-	-	-	-	-	-	-	-		800	400	NA	NA
Benzo(g,h,i)perylene	ug/kg	760	56 J	-	-	-	-	-	-	-	-	-		10,000,000	800	NA	NA
Naphthalene	ug/kg	990	66 J	-	-	-	1,300	-	55 J	370 J	2,700 D	9,400		10,000,000	54,000	800	NA
2-Methylnaphthalene	ug/kg	340 J	-	-	-	-	79 J	-	-	-	57 J	820		10,000,000	123,000	NA	NA
Acenaphthylene	ug/kg	63 J	-	-	-	-	-	-	-	-	-	-		10,000,000	23,000	NA	NA
Acenaphthene	ug/kg	760	52 J	-	-	-	-	-	-	-	-	-		10,000,000	43,000	NA	NA
Dibenzofuran	ug/kg	590	45 J	-	-	-	-	-	-	-	-	-		NA	NA	NA	NA
Fluorene	ug/kg	1,100	72 J	-	-	-	-	-	-	-	-	-		10,000,000	28,000	NA	NA
Carbozole	ug/kg	780	-	-	-	-	-	-	-	-	-	-		NA	NA	NA	NA
Di-n-butylphthalate	ug/kg	-	63 J	-	-	-	-	-	-	-	-	-		NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	ug/kg	72 J	150 J	-	-	-	220 J	-	-	100 J	490	1,200 J		410,000	46,000	NA	NA
PGDN												2,500					
Propylene glycol dinitrate	mg/kg										-	31		-	-	-	-

Notes:

1. Analytical data summarized from laboratory data sheets (Mitkem Corporation) provided by Foster Wheeler Environmental Corporation.
2. "-" indicates not detected.
3. "NA" indicates Not Available
4. RIDEM Direct Exposure Criteria and Leachability Criteria extracted from DEM-DSR-01-93 "Remediation Regulations".
5. Shaded areas indicate exceedance of standard for Industrial/Commercial Direct Exposure Criteria.

Base of Excavation - Post Excavation Samples

Analytical Data Summary
NUWC Division, Newport - B179 Rehabilitation Project

Sample ID	UNITS	179-GRID-12 POST	179-GRID-13 POST	179-GRID-14 POST	179-GRID-15 POST	179-GRID-16 POST	179-GRID-17 POST	179-GRID-18 POST	RIDEM Industrial/ Commercial Direct Exposure Criteria	RIDEM Residential Direct Exposure Criteria	GA Leachability Criteria	GB Leachability Criteria
TPH	mg/kg	600	35	4,000	-	-	27	-	2,500	500	500	2,500
Cyanide	mg/kg	-	-	-	-	-	-	-		200	2.4	NA
VOC's												
Dilution		1	1	100	1	1	-	-				
Naphthalene	ug/kg	-	-	2,000	-	-	-	-	10,000,000	54,000	NA	NA
Xylenes, total	ug/kg	-	-	5,400	-	-	-	-	10,000,000	110,000	540,000	NA
1,2,4-Trimethylbenzene	ug/kg	-	-	24,000	-	-	-	-	NA	NA	NA	NA
1,1,1-Trichloroethane	ug/kg	-	-	6,100	-	17	9	9	10,000,000	540,000	11,000	160,000
Acetone	ug/kg	-	17	-	19	56	50	50	10,000,000	7,800,000	NA	NA
4-Isopropyltoluene	ug/kg	-	-	4,000	-	-	-	-	NA	NA	NA	NA
Ethylbenzene	ug/kg	-	-	1,200	-	-	-	-	10,000,000	71,000	27,000	62,000
Isopropylbenzene	ug/kg	-	-	1,800	-	-	-	-	10,000,000	27,000	NA	NA
n-Propylbenzene	ug/kg	-	-	4,700	-	-	-	-	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	-	-	10,000	-	-	-	-	NA	NA	NA	NA
n-Butylbenzene	ug/kg	-	-	10,000	-	-	-	-	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	-	-	4,500	-	-	-	-	NA	NA	NA	NA
Methylethylketone	ug/kg	-	-	-	-	17	13	19	10,000,000	10,000,000	NA	NA
SVOC's												
Dilution		1	1	1	1	1	1	1			NA	NA
Phenanthrene	ug/kg	230 J	-	-	-	-	73 J	65 J	10,000,000	40,000	NA	NA
Anthracene	ug/kg	54 J	-	-	-	-	-	-	10,000,000	35,000	NA	NA
Fluoranthene	ug/kg	500	-	-	-	-	67 J	120 J	10,000,000	20,000	NA	NA
Pyrene	ug/kg	920 J	-	-	-	-	74 J	200 J	10,000,000	13,000	NA	NA
Benzo(a)anthracene	ug/kg	240 J	-	-	-	-	-	-	7,800	900	NA	NA
Chrysene	ug/kg	200 J	-	-	-	-	-	-	780,000	400	NA	NA
Benzo(b)fluoranthene	ug/kg	210 J	-	-	-	-	-	-	7,800	900	NA	NA
Benzo(k)fluoranthene	ug/kg	120 J	-	-	-	-	-	47 J	78,000	900	NA	NA
Benzo(a)pyrene	ug/kg	160 J	-	-	-	-	-	-	800	400	240	NA
Naphthalene	ug/kg	-	-	650	-	-	-	-	10,000,000	54,000	800	NA
2-Methylnaphthalene	ug/kg	-	-	59 J	-	-	-	-	10,000,000	123,000	NA	NA
bis(2-Ethylhexyl)phthalate	ug/kg	390 J	-	330 J	-	-	-	-	410,000	46,000	NA	NA
PGDN												
Propylene glycol dinitrate	mg/kg								-	-	-	-

Notes:

1. Analytical data summarized from laboratory data sheets (Mitkem Corporation) provided by Foster Wheeler Environmental Corporation.
2. "-" indicates not detected.
3. "NA" indicates Not Available
4. RIDEM Direct Exposure Criteria and Leachability Criteria extracted from DEM-DSR-01-93 "Remediation Regulations".
5. Shaded areas indicate exceedance of standard for Industrial/Commercial Direct Exposure Criteria.

Base of Excavation - Post Excavation Samples

Analytical Data Summary
NUWC Division, Newport - B179 Rehabilitation Project

Sample ID	UNITS	179-GRID-4 SIDEWALL POST	179-GRID-4 SIDEWALL Duplicate	179-GRID-11 SIDEWALL1 POST	179-GRID-11 SIDEWALL2 POST	179-GRID-11 SIDEWALL POST DUP	179-GRID-11 SIDEWALL3 POST	179-GRID-11 SIDEWALL4 POST	179-GRID-15 SIDEWALL POST	179-GRID-16 SIDEWALL POST	179-GRID-18 SIDEWALL POST	179-GRID-17 SIDEWALL1 POST	179-GRID-17 SIDEWALL2 POST	179-GRID-17 SIDEWALL3 POST	RIDEM Industrial/ Commercial Direct Exposure Criteria	RIDEM Residential Direct Exposure Criteria	GA Leachability Criteria	GB Leachability Criteria
TPH	mg/kg	610		240	3,600	1,400	1,500	5,800	-	-	-	-	-	-	2,500	500	500	2,500
Cyanide	mg/kg	-		-	-	-	-	-	-	-	-	-	-	-	10,000	200	2.4	NA
VOC's		8260	5030/8260															
Dilution		200	1	1	1,000	500	200	200	1	1	1	1	1	1				
Toluene	ug/kg	-	-	10	-	-	-	4,700	-	-	-	-	-	-	10,000,000	190,000	32,000	54,000
Naphthalene	ug/kg	-	-	110	18,000	14,000	5,000	11,000	-	-	-	-	-	-	10,000,000	54,000	NA	NA
Xylenes, total	ug/kg	3,300	-	820 E	69,000	37,000	9,300	41,000	-	-	-	-	-	-	10,000,000	110,000	540,000	NA
1,2,4-Trimethyl	ug/kg	12,000	-	5,200 D	110,000	99,000	33,000	8,900	-	-	-	-	-	-	NA	NA	NA	NA
1,1,1-Trichloro	ug/kg	-	-	130	170,000	46,000	4,300	-	11	6	-	-	-	-	10,000,000	540,000	11,000	160,000
Acetone	ug/kg	-	-	18	-	-	-	4,400	49	42	9	8	7	-	10,000,000	7,800,000	NA	NA
4-Isopropyltolu	ug/kg	1,800	-	150	15,000	13,000	3,400	1,400	-	-	-	19	52	34	NA	NA	NA	NA
1,1-Dichloroet	ug/kg	-	-	17	-	-	-	3,000	-	-	-	-	-	-	10,000,000	920,000	NA	NA
Ethylbenzene	ug/kg	-	-	120	7,000	3,500	-	6,000	-	-	-	-	-	-	10,000,000	71,000	27,000	62,000
Isopropylbenz	ug/kg	-	-	310 E	12,000	7,000	1,400	21,000	-	-	-	-	-	-	10,000,000	27,000	NA	NA
n-Propylbenze	ug/kg	2,300	-	520 E	23,000	14,000	4,200	7,400	-	-	-	-	-	-	NA	NA	NA	NA
1,3,5-Trimethyl	ug/kg	5,400	-	2,600 D	57,000	45,000	15,000	4,000	-	-	-	-	-	-	NA	NA	NA	NA
n-Butylbenzen	ug/kg	4,100	-	300 E	32,000	26,000	8,200	7,400	-	-	-	-	-	-	NA	NA	NA	NA
sec-Butylbenz	ug/kg	2,100	-	180	14,000	9,900	3,100	4,000	-	-	-	-	-	-	NA	NA	NA	NA
Methylethylket	ug/kg	-	-	7	-	-	-	-	14	42	-	7	15	10	10,000,000	10,000,000	NA	NA
SVOC's																		
Dilution		1		1	1	1	1	1	1	1	1	1	1	1				
Fluoranthene	ug/kg	-		-	-	-	-	-	-	-	-	-	58 J	-	10,000,000	20,000	NA	NA
Pyrene	ug/kg	-		-	-	-	-	-	-	-	-	-	98 J	-	10,000,000	13,000	NA	NA
Naphthalene	ug/kg	120 J		-	2,100	3,200 D	2,800 D	1,500	-	-	-	-	-	-	10,000,000	54,000	800	NA
2-Methylnapht	ug/kg	-		-	-	53 J	130 J	81 J	-	-	-	-	-	-	10,000,000	123,000	NA	NA
Di-n-butylphth	ug/kg	-		-	54 J	64 J	69 J	-	-	-	-	-	-	-	NA	NA	NA	NA
bis(2-Ethylhex	ug/kg	89 J		-	510	690 J	640	300 J	-	-	-	-	-	-	410,000	46,000	NA	NA
PGDN																		
Propylene glyc	mg/kg										-	-			-	-	-	-

Notes:

1. Analytical data summarized from laboratory data sheets (Mitkem Corporation) provided by Foster Wheeler Environmental Corporation.
2. "-" indicates not detected.
3. "NA" indicates Not Available
4. RIDEM Direct Exposure Criteria and Leachability Criteria extracted from DEM-DSR-01-93 "Remediation Regulations".
5. Shaded areas indicate exceedance of standard for Industrial/Commercial Direct Exposure Criteria.

APPENDIX C

INDUSTRIAL USER SELF-MONITORING REPORT

Month: December Year 1998

NAME OF COMPANY Foster Wheeler Environmental Corporation

ADDRESS Bldg #179

SECTION I - WASTEWATER FLOW

A. Regulated Process Wastewater
1. Peak Flow N/A (GPD)
2. Average Flow N/A (GPD)
3. Duration of Flow N/A (hours/day)

B. Total Plant Wastewater
1. Peak Flow 11,040 (GPD)
2. Average Flow 11,040 (GPD)
3. Duration of Flow 8 (hours/day)

SECTION II - SAMPLE COLLECTION AND ANALYSIS INFORMATION

A. METALS

Person Collecting Samples: Andrew Prophete

Signature of Collector: Andrew Prophete

Data Collected: 12-11-98

Collection Time(s) 7:50

Type of Sample (check one) Aqueous

Hourly Grabs_____ Flow Proportioned Composite_____

Other Grab

If Other, Explain_____

Preservation Method: with ice <4°c

Analysis Date: 12-11-98 through 12-14-98

Foster Wheeler Environmental Corp. / Bldg #179

B. TTO

Person Collecting Samples: Andrew Prophete

Signature of Collector Andrew Prophete

Date Collected: 12-11-98

Collection Times: 7:50 AM

Analysis Date: 12-11-98 through 12-14-98

SECTION III - CERTIFICATION

I hereby certify that the samples collected are representative of this company's normal process wastewater.

Andrew Prophete
Signature of Authorized Company Representative

Andrew Prophete
Print Name of Authorized Company Representative

Geoscientist / Health and Safety Officer
Title

12/21/98
Date

LETTER OF TRANSMITTAL

FOSTER WHEELER ENVIRONMENTAL CORPORATION
470 Atlantic Avenue
Boston, MA 02210

TEL: (617) 457-8200
FAX: (617) 457-8498,8499

DATE 6-26-98	JOB NO. 1284-0013
ATTENTION CHARLIE PETERSON	
RE: NETC NEWPORT TANK FARM NO.5	
REMEDIAL ACTIONS	
NAVY RAC CONTRACT NO,	
N62472-94-D-0398 D.O. 0013	
LOT CNTL NO. 1284-0013-059	

(TOTAL OF 3 SHT'S)

TO: RESIDENT OFFICER IN
CHARGE OF CONSTRUCTION
NETC EDUCATION TRAINING CENTER
BLDG #1 SIMONPIETRI DRIVE
NEWPORT RI 02841-1712
ATTN: CHARLIE PETERSON ROB

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via _____ the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☑ BLDG #179

COPIES	DATE	NO.	DESCRIPTION
1	6-26-98	—	BLDG #179 (NUWC DWG M-1) SHOWING DOUBLE
			CONTAINMENT PIPE DISCONNECT/PLUG LOCATIONS
			(PT #1, 2 & 3)
1	6-26-98	—	PLUG (PT #1 & #2) REMOVED TO PERFORM
			AIR MONITORING (RESULTS ATTACHED)

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☑ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

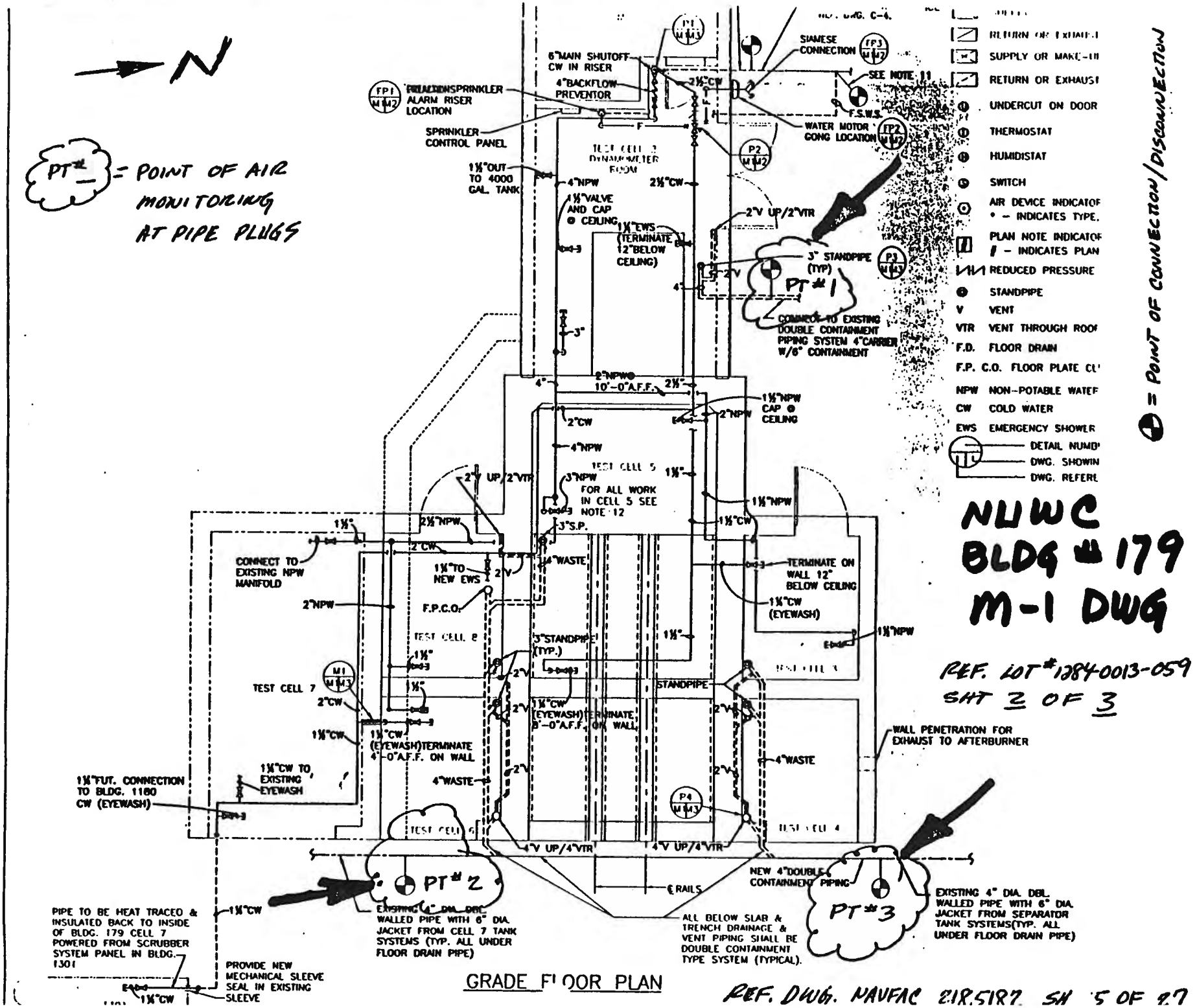
REMARKS ALL THREE DISTRIBUTIONS WERE FAXED ON 6/26/98

COPY TO B. GILLIGAN (ROICC)
R. JACQUES (NUWC)

SIGNED Kevin L. Beaumont (SOCM) 6/26/98

If enclosures are not as noted, kindly notify us at once

TRANSMITTED


N
PT = POINT OF AIR MONITORING AT PIPE PLUGS
= POINT OF CONNECTION/DISCONNECTION
6"MAIN SHUTOFF CW IN RISER
4"BACKFLOW PREVENTOR
PREACTION SPRINKLER ALARM RISER LOCATION
SPRINKLER CONTROL PANEL
SIAMESE CONNECTION
SEE NOTE 11
F.S.W.S.
WATER MOTOR GONG LOCATION
1½"OUT TO 4000 GAL. TANK
1½"VALVE AND CAP @ CEILING
1¼"EWS (TERMINATE 12"BELOW CEILING)
2"V UP/2"VTR
3" STANDPIPE (TYP)
PT #1
CONNECT TO EXISTING DOUBLE CONTAINMENT PIPING SYSTEM 4"CARRIER W/6" CONTAINMENT
2"NPW @ 10'-0"A.F.F.
1½"NPW CAP @ CEILING
2"CW
4"NPW
2"V UP/2"VTR
3"NPW
FOR ALL WORK IN CELL 5 SEE NOTE 12
3"S.P.
1½"NPW
1½"CW
CONNECT TO EXISTING NPW MANIFOLD
1¼"TO NEW EWS
4"WASTE
TERMINATE ON WALL 12" BELOW CEILING
1¼"CW (EYEWASH)
F.P.C.O.
2"NPW
3"STANDPIPE (TYP.)
STANDPIPE
TEST CELL 7
1¼"CW (EYEWASH) TERMINATE 4'-0"A.F.F. ON WALL
1¼"CW (EYEWASH) TERMINATE 5'-0"A.F.F. ON WALL
WALL PENETRATION FOR EXHAUST TO AFTERBURNER
1¼"FUT. CONNECTION TO BLDG. 1180 CW (EYEWASH)
1¼"CW TO EXISTING EYEWASH
4"V UP/4"VTR
PT #2
PT #3
EXISTING 4" DIA. DBL. WALLED PIPE WITH 6" DIA. JACKET FROM CELL 7 TANK SYSTEMS (TYP. ALL UNDER FLOOR DRAIN PIPE)
NEW 4"DOUBLE CONTAINMENT PIPING
EXISTING 4" DIA. DBL. WALLED PIPE WITH 6" DIA. JACKET FROM SEPARATOR TANK SYSTEMS(TYP. ALL UNDER FLOOR DRAIN PIPE)
ALL BELOW SLAB & TRENCH DRAINAGE & VENT PIPING SHALL BE DOUBLE CONTAINMENT TYPE SYSTEM (TYPICAL).
PIPE TO BE HEAT TRACED & INSULATED BACK TO INSIDE OF BLDG. 179 CELL 7 POWERED FROM SCRUBBER SYSTEM PANEL IN BLDG. 1301
PROVIDE NEW MECHANICAL SLEEVE SEAL IN EXISTING SLEEVE
RETURN OR EXHAUST
SUPPLY OR MAKE-UP
RETURN OR EXHAUST
UNDERCUT ON DOOR
THERMOSTAT
HUMIDISTAT
SWITCH
AIR DEVICE INDICATOR * - INDICATES TYPE.
PLAN NOTE INDICATOR # - INDICATES PLAN
REDUCED PRESSURE
STANDPIPE
V VENT
VTR VENT THROUGH ROOF
F.D. FLOOR DRAIN
F.P. C.O. FLOOR PLATE CL
NPW NON-POTABLE WATER
CW COLD WATER
EWS EMERGENCY SHOWER
DETAIL NUMB
DWG. SHOWIN
DWG. REFERE
NLWC BLDG #179 M-1 DWG
REF. LOT #1284-0013-059 SHT 2 OF 3
GRADE FLOOR PLAN
REF. DWG. NAVFAC 2.18.5187 SH 5 OF 27

6-26-98 FLUENC CONTRACT #284,C-94-C-0010 DWG #-

07:45 AM BLDG #179 RECORD MONITORING RESULTS FOR DOUBLE CONTAINMENT DRAINAGE PIPE

TEST(S) TO BE TAKEN	Permissible	PT1 0745	PT2	Time(s)						
			B101							
PERCENT OF OXYGEN	19.5% to 23.5%	20.8%	20.1%							
LOWER FLAMMABLE LIMIT	Under 10%	0%	0%							
CO		0	2ppm							
H_2S		0	0							
PID Volatile Organics		0	3.6ppm							

REMARKS:

GAS TESTER NAME & CHECK #	INSTRUMENT(S) USED	MODEL &/OR TYPE	SERIAL &/OR UNIT #

SUPERVISOR AUTHORIZATION - ALL CONDITIONS SATISFIED _____ DEPT/PHONE

Comments : - Pipe dry inside when plug was removed

- Plug replaced until Confirmation of Lock out / Tag out

REF. LOT #1284-0013-059

SHT 3 OF 3

NORTHDIV RAC INFORMATION SUBMITTAL

Prepare in quintuplicate (original and 4 copies)

CONTROL NO. 11

CONTRACT NO. N62472-D-0398	DELIVERY ORDER NO. 0013C	ACTIVITY LOCATION NETC NEWPORT, RI
PROJECT TITLE: NLWC BLDG #179		
FROM: FOSTER WHEELER ENVIRONMENTAL / SQCM R. BEAUREGARD		DATE 3-25-98
TO: LT C. PETERSON, ROICC		DATE 3-25-98

1 THE CONTRACTOR SUBMITTALS LISTED BELOW ARE FORWARDED FOR YOUR:

☐ APPROVAL, APPLY APPROPRIATE STAMP IMPRINT TO EACH SUBMITTAL, RETAIN ONE (1) COPY OF THIS TRANSMITTAL FORM.

☐ REVIEW & COMMENT, RETURN REVIEWED COMMENT COPIES.

☒ INFORMATION ONLY.

2. SUBMITTALS SHOULD BE RETURNED BY (DATE) _____ ☒ NO RETURN REQUIRED

RETURN TO: ☐ ROICC ☐ FOSTER WHEELER ENVIRONMENTAL ☐ OTHER _____

3. APPROVAL REQUIRED BY: ☐ NORTHDIV ☐ ROICC ☐ A/E ☐ OTHER _____

COPY TO: ☑ NLWC R. JACQUES

☑ ROICC C. PETERSON ☑ NORTHDIV J. McGRATH J. SHAFFER ☑ NETC/ENV. K. COYLE

SIGNATURE AND DATE Robert L. Beauregard 3/25/98

FROM APPROVING AUTHORITY (#3 ABOVE)	DATE
TO LT C. PETERSON, ROICC	DATE

1. THESE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE RETURNED, WITH ACTION TAKEN AS INDICATED.

2. _____

COPY TO:

☐ ROICC ☐ DESIGNER ☐ OTHER

SIGNATURE AND DATE

FROM LT C. PETERSON, ROICC	DATE
TO FOSTER WHEELER ENVIRONMENTAL CORPORATION CONTRACTOR	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE APPROVED/DISAPPROVED AS SHOWN BELOW AND ON EACH STAMP IMPRINT.

COPY TO:

☐ CONTRACTOR - FOSTER WHEELER ENVIRONMENTAL ☐ OTHER

FOR COMMANDING OFFICER, NORTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND — DATE

ITEM NO.	SUBMITTAL DESCRIPTION	PREPARED/SUBMITTED BY	APPROVED	DISAPPROVED	REMARKS
1	POST LINER (BLDG #179) INSTALLATION				
	AIR SAMPLING RECORDS (12 SHEETS)				

ND96-078
7/24/97

Foster Wheeler Environmental Corporation
Building 179

POST LINER INSTALLATION AIR SAMPLING - COMPLETED

Real time and area monitoring was conducted for two consecutive days beginning March 18, 1998. During the two days, real time monitoring was conducted using a Foxboro OVA 128 every 15 minutes. No real time reading of volatile organic compounds were found. In addition two(2) area sample pumps were set up and ran for eight hours each day. The samples were located in test cell 5(grid 6) and test cell 4 (grid 10) the first day and test cell 3(grid 7) and test cell 5(grid 9) the second day. SKC Aircheck personal sampling pumps were used. Tenax tubes were the sampling media used to test for PGDN. These samples were sent to Data Chem Laboratory in Salt Lake City, Utah for analyses. The laboratory analyses found no detectable amount of PGDN. Included as attachments:

- Sampling plan (1 sheet)
- Calibration log (2 sheets)
- FID readings 3/18 & 3/19 (4 sheets)
- Personal sampling pump calibration logs (2 sheets)
- Data Chem report (2 sheets)

Foster Wheeler Environmental Corporation

Building 179

POST LINER INSTALLATION AIR SAMPLING

Foster Wheeler Environmental Corporation will conduct Post Liner Installation Air Sampling. This sampling event will proceed immediately following liner installation at Building 179.

Time Weighted Average (TWA) air sampling for PGDN will be conducted for two (2) consecutive days. During the first day test cell 5 and 10 will be sampled. SKC Aircheck sampling pumps will be used and placed on top of the liner with the intake of the sample media remaining one (1) foot above the liner. The second day of air sampling will be conducted in the same manner except that Test Cells 9 and 7 will be the sampling location. The Time Weighted Average air sampling will be conducted for approximately eight (8) hours. The media used to sample PGDN is Tenax tubes. The sample pump will be calibrated between 50 - 60 cc/min. This will create a total sample air volume between 20 and 30 liters.

During the TWA air sampling real time air monitoring will be conducted for volatile organics using a Foxboro 128 organic vapor analyzer to monitor for volatile organics every fifteen (15) minutes. In addition detector tubes will be used to monitor for 1,1,1 trichloroethylene once every hour. Calibration and documentation will be conducted according to procedure HS 1-8 of the Foster Wheeler Environmental Health and Safety Program Manual.

Data Chem laboratories will be used to analyze the Tenax tubes for PGDN. The turnaround time for the PGDN samples will be 7 days using OHSA method 43 for analysis.

REAL TIME MONITORING DURING STANDEN CONSTRUCTION

During the construction of Building 179 one Health and Safety Officer will be present to conduct real time air monitoring using a Foxboro 128 organic vapor analyzer to monitor for volatile organics every fifteen minutes.

When readings are found other than outside sources (equipment exhaust etc.) the area will be evacuated and NUWC will be notified.

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Cal gas is methane in air | Delivery Order 13 | OVA 128: EBASCO 801 FWEC

Date	Bat.	Cal. Gas	Actual	*	Pre/Post	Initials	Comments
3/11/98	OK	X1 Elec.	Electronic	NA	Pre	SE	
		X10 100ppm	100				
		X100 100ppm	100				
[illegible]	[illegible]	X1 Elec.	Electronic	NA	Post	[illegible]	
		X10 100ppm	[illegible]				
		X100 100ppm	[illegible]				
3/12/98	OK	X1 Elec.	Electronic	NA	Pre	DD	
		X10 100ppm	100				
		X100 100ppm	100				
[illegible]	[illegible]	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	[illegible]				
		X100 100ppm	[illegible]				
3/13/98	OK	X1 Elec.	Electronic	NA	Pre	DD	
		X10 100ppm	100				
		X100 100ppm	100				
[illegible]	[illegible]	X1 Elec.	Electronic	NA	Post		MAG
		X10 100ppm	[illegible]				
		X100 100ppm	[illegible]				
3/12/98	S.C	X1 Elec.	Electronic	NA	Pre		BLDG. 179
		X10 100ppm	98		MAG		READINGS.
		X100 100ppm	100				
[illegible]	[illegible]	X1 Elec.	Electronic	NA	Post	[illegible]	
		X10 100ppm	[illegible]				
		X100 100ppm	[illegible]				
3/14/98	OK	X1 Elec.	Electronic	NA	Pre	SE	BUILDING 179
		X10 100ppm	98				
		X100 100ppm	100				
[illegible]	[illegible]	X1 Elec.	Electronic	NA	Post	[illegible]	
		X10 100ppm	[illegible]				
		X100 100ppm	[illegible]				
		X1 Elec.	Electronic	NA	Pre		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Post		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Pre		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Post		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Pre		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Post		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Pre		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Post		
		X10 100ppm					
		X100 100ppm					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Cal gas is methane in air — Delivery Order 13 — OVA 128: FW00276

Date	Bat.	Cal. Gas	Actual	*	Pre/Post	Initials	Comments
12/8/97	OK	X1 Elec.	Electronic	NA	Pre		B179
		X10 100ppm	90	✓			
		X100 100ppm	110	✓			
12/10/97	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	90	✓			
		X100 100ppm	100	✓			
12/9/97	OK	X1 Elec.	Electronic	NA	Pre		
		X10 100ppm	87	✓			
		X100 100ppm	800	✓			
12/9/97	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	93				
		X100 100ppm	100				
12/11/97	OK	X1 Elec.	Electronic	NA	Pre		
		X10 100ppm	97				
		X100 100ppm	100				
12/16/97	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	100				
		X100 100ppm	100				
12/17/97	OK	X1 Elec.	Electronic	NA	Pre		
		X10 100ppm	90	✓			
		X100 100ppm	100				
12/17/97	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	97				
		X100 100ppm	100				
12/11/97	OK	X1 Elec.	Electronic	NA	Pre		
		X10 100ppm	97				
		X100 100ppm	100				
12/18/98	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	90				
		X100 100ppm	100				
3/3/98	OK	X1 Elec.	Electronic	NA	Pre		
		X10 100ppm	100+	✓			
		X100 100ppm	96	✓			
03/18/98	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	100+	✓			
		X100 100ppm	115	✓			
3/17/98	OK	X1 Elec.	Electronic	NA	Pre		
		X10 100ppm	99	✓			
		X100 100ppm	110	✓			
3/5/98	OK	X1 Elec.	Electronic	NA	Post		
		X10 100ppm	99				
		X100 100ppm	100				
3/19/98	OK	X1 Elec.	Electronic	NA	Pre		Building 179
		X10 100ppm	98				
		X100 100ppm	100				
3/19/98	OK	X1 Elec.	Electronic	NA	Post		Building 179
		X10 100ppm	95				
		X100 100ppm	100				
		X1 Elec.	Electronic	NA	Pre		
		X10 100ppm					
		X100 100ppm					
		X1 Elec.	Electronic	NA	Post		
		X10 100ppm					
		X100 100ppm					

13

Scott Edw

BUILDING 179 3/19/98 FW HJS 14

BUILDING 179 - monitoring -

Weather - rain, cloudy, cool, temp 35.

AREA samples on @ 0730, off 1510

TIME	(ppm) OVA	TCE TUBE 1 per Hr
0730	∅	∅
0745	∅	
0800	∅	
0815	∅	
0830	∅	∅
0845	∅	
0900	∅	
0915	∅	
0930	∅	∅
0945	∅	
1000	∅	
1015	∅	
1030	∅	∅
1045	∅	
1100	∅	
1115	∅	
1130	∅	∅
1145	∅	
1200	∅	
1300	∅	
315	∅	

Scott Edw

15 H&S FOO 3/19/98 Building

Time	OV	Tubes	Tubes	LEL
1330	Ø		Ø	
1345	Ø			
1400	Ø			
141	Ø			
14	Ø		Ø	
4	Ø			
1	Ø			
15	Ø			
1	Ø		Ø	

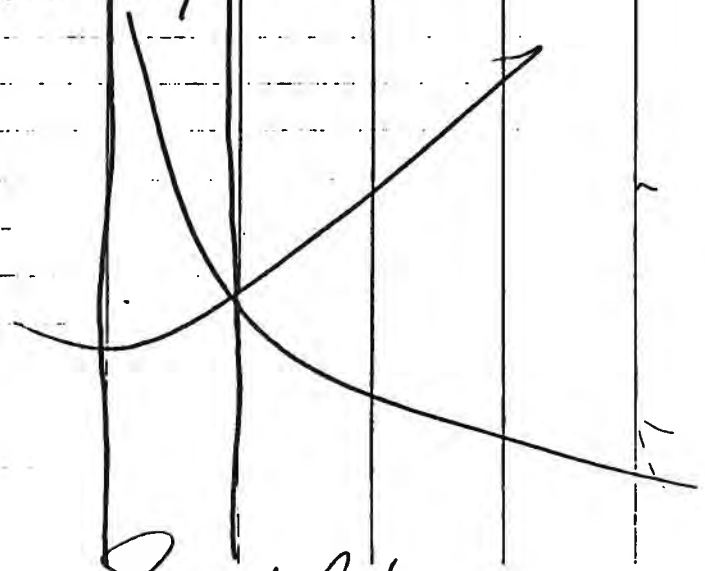
Sampling complete at building 179.

Scott E.

15 H+S FW 3/19/98 Building 179

Time	OVA	TCE tubes	1 per Hr
1330	Ø	Ø	
1345	Ø		
1400	Ø		
1415	Ø		
1430	Ø	Ø	
1445	Ø		
1500	Ø		
1515	Ø		
1530	Ø	Ø	

Sampling complete at building 179.



Scott Edwards

H+S D013 B-179 4/6/98 16

0630 CALIBRATE 2 OVA'S + FILL WITH HYDROGEN. FW173 + FW276

0700 ARRIVE AT BUILDING 179 STANDEN NOT ON SITE.

0715 TAKING READING IN TEST CELLS Ø ppm NO ODOR.

0800 NO STANDEN.

0900 I TALKED to Jim from STANDEN He REQUESTED A daily report (ORIGINAL) for THE monitoring.

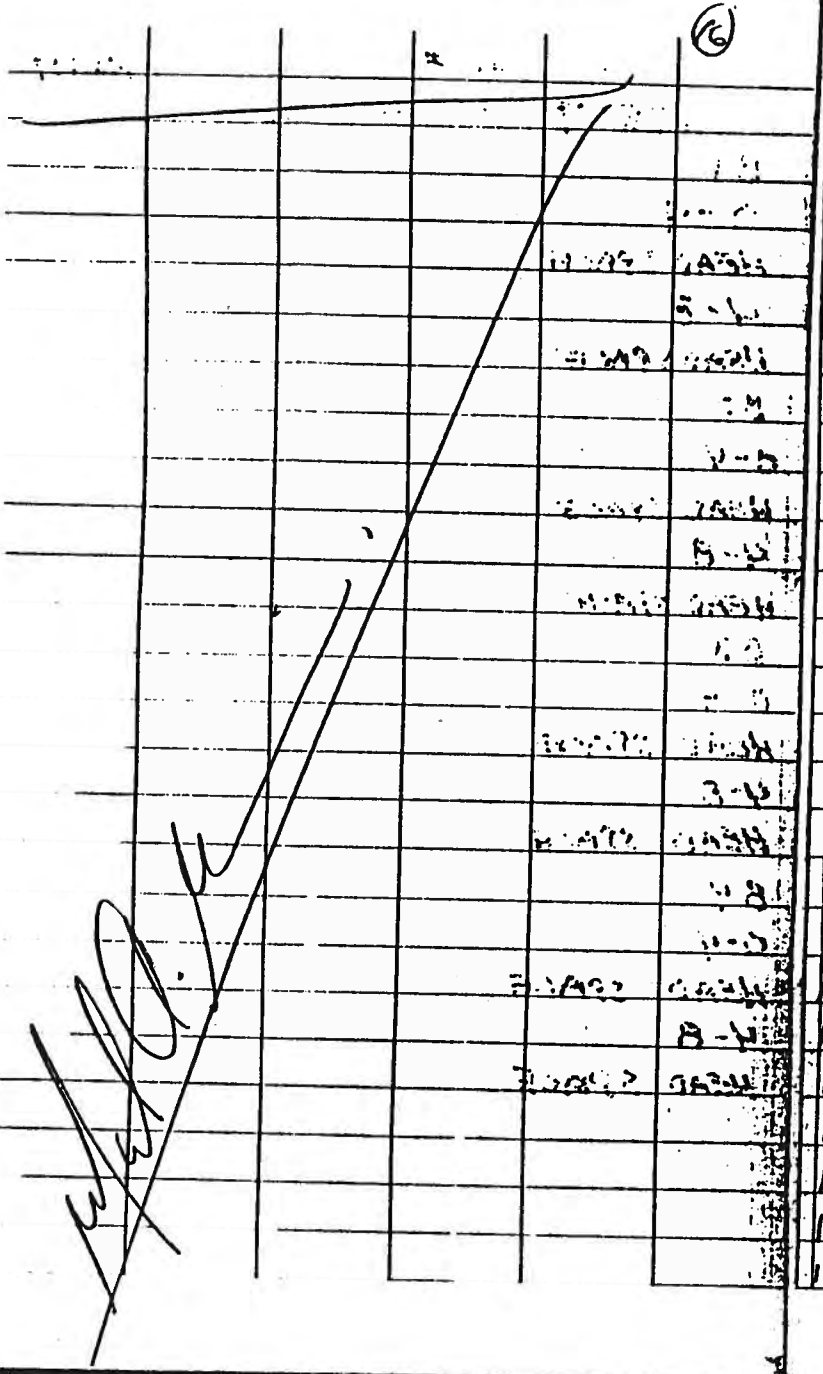
0915 READING taken IN TEST CELLS Ø ppm found.
Jim asked for WELLS (Sumps) to BE COVERED. I IN TURN ASKED Jim (Laborer) to COVER WELLS. Jim also stated only two MEN will be WORKING today.

0930 TEST CELLS (1 1/2 EXCAVATED Hole) CONCRETE COVER OVER TEST CELLS.

* Ø ppm ALL Readings are BZ (BREATHING ZONE) UNLESS OTHERWISE Stated.

0945 Ø ppm IN TEST CELLS OR OTHERWISE * Stated for all future readings.

Scott Edwards



(16)

(17)

HTS BUILDING 179

WED. 3-18-98

FID READINGS AT BUILDING 179
AFTER LINER HAS BEEN INSTALLED

0800	0	MAG
0815	0	MAG
0830	0	MAG
0845	0	MAG
0900	0	MAG
0915	0	MAG
0930	0	MAG
0945	0	MAG
1000	0	MAG
1015	0	MAG
1030	0	MAG
1045	0	MAG
1100	0	MAG
1115	0	MAG
1130	0	MAG
1145	0	MAG
1200	0	MAG
1215	0	MAG
1230	0	MAG
1245	0	MAG
1300	0	MAG
1315	0	MAG
1330	0	MAG

ab a

FWENC

17 HTS D013 B-179 4/6/98 4/6/98

* AGAIN ALL READINGS ARE IN BZ AND IN THE TEST CELLS UNLESS OTHERWISE STATED.

1000 Ø ppm OVA.

TIME	READING IN PPM WITH OVA 128 (FOXBORO)
1015	Ø
1030	Ø
1045	Ø
1100	Ø
1115	Ø
1130	Ø
1200	LUNCH
1230	Ø
1245	Ø
1300	Ø
1315	Ø
1330	Ø
1345	Ø
1400	Ø
1415	Ø
1430	Ø END of day
1445	no problems today
1500	
1515	
1530	

TIME	READINGS
1545	
1600	
1615	
1630	
1645	
1700	

Scott Edwards

FWENC.

HTS D013 B-179 4/7/98 18

WEATHER: CLEAR, CALM TO LIGHT WIND, 45-55°F.

0630 - CALIBRATED INSTRUMENTS.

OVA 128 SERIAL NUMBERS FW173 + FW276.

0700 ALL READINGS IN BZ AND INSIDE TEST CELLS UNLESS OTHERWISE STATED.

Ø ppm

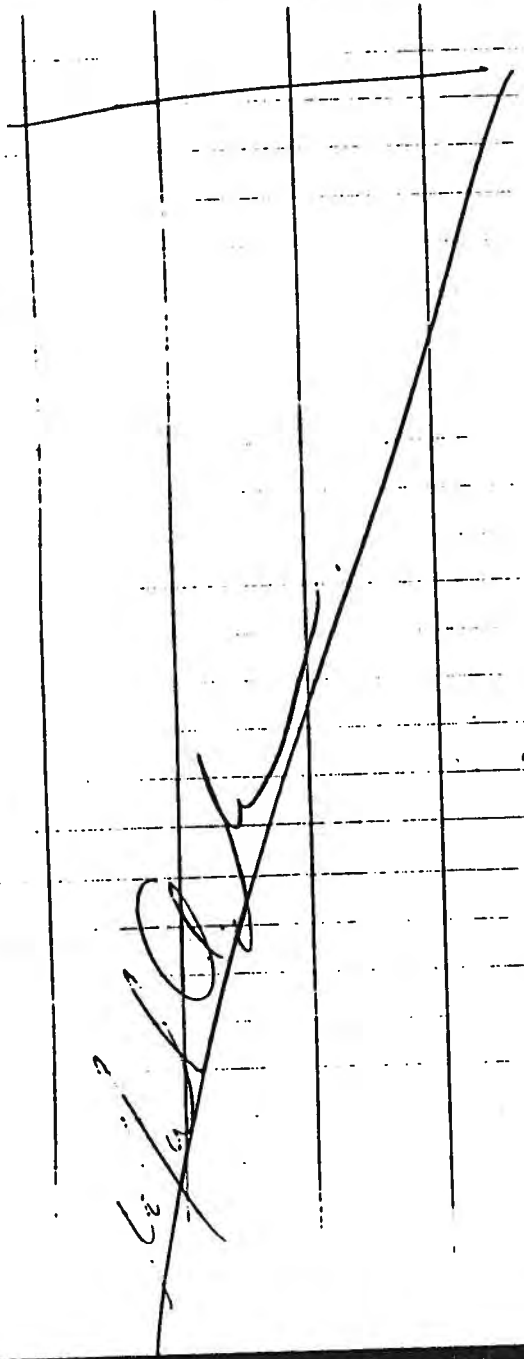
TIME	OVA READING ppm
0715	Ø
0730	Ø
0745	Ø
0800	Ø
0815	Ø
0830	Ø
0845	Ø
0900	Ø
0915	Ø
0930	Ø
0945	Ø
1000	Ø
1015	Ø
1030	Ø
1045	Ø
1100	Ø
1115	Ø
1130	Ø

ppm ↓

TIME	OVA READINGS ppm
1145	Ø
1200	LUNCH
1245	Ø
1300	Ø
1315	Ø
1330	Ø
1345	Ø
1400	Ø
1415	Ø
1430	Ø
1445	Ø
1500	Ø
1515	Ø
1630	Ø

NO problems today.

Scott Edwards



HTS BUILDING 179

1345	Ø	MAG
1400	Ø	MAG
1415	Ø	MAG
1430	Ø	MAG
1445	Ø	MAG
1500	Ø	MAG
1515	Ø	MAG
1530	Ø	MAG
1545	Ø	MAG
1600	Ø	MAG

There were NO READINGS DURING THIS PERIOD THE PUMPS WERE SET AND WILL BE SENT TO CHS. THERE WAS NO ODER IN THE AREA.

FWENC

19 H+S D013 BUILDING 179 4/8/98

WEATHER: CLEAR, CALM TO LIGHT WIND
SUNNY HIGH 50-55°F MAY GET CLOUDY
OVA 128 - FW173 + FW276
ALL READING ARE IN BZ AND INSIDE
TEST CELL UNLESS OTHERWISE STATED.

TIME	OVA READING ppm	TIME	OVA READING
0700	ϕ ppm	1145	ϕ
0715	ϕ	1200	LUNCH
0730	ϕ	1245	ϕ
0745	ϕ	1230	ϕ
0800	ϕ	1245	ϕ
0815	ϕ	1300	ϕ
0830	ϕ	1315	ϕ
0845	ϕ	1330	ϕ
0900	ϕ	1345	ϕ
0915	ϕ	1400	ϕ
0930	ϕ	1415	ϕ
0945	ϕ	1430	ϕ
1000	ϕ	1445	ϕ
1015	ϕ	1500	ϕ
1030	ϕ	1515	ϕ
1045	ϕ	1530	ϕ
1100	ϕ	1535	WORKERS LEFT SITE NO PROBLEMS
1115	ϕ		
1130	ϕ		

Scott Sherman

FWENC.

H+S D013 BUILDING 179 4/9/98 20

WEATHER: CLOUDY 40-45°F
MAY RAIN
OVA 128 FW173 & FW 276
ALL READINGS ARE IN BZ AND INSIDE
TEST CELL UNLESS OTHERWISE NOTED.

TIME	OVA READING PPM	TIME	OVA READING
0700	ϕ Ppm	1145	ϕ
0715	ϕ	1200	ϕ
0730	ϕ	1215	ϕ
0745	ϕ	1230	ϕ
0800	ϕ	1245	ϕ
0815	ϕ	1300	ϕ
0830	ϕ	1315	ϕ
0845	ϕ	1330	ϕ
0900	ϕ	1345	ϕ
0915	ϕ	1400	ϕ
0930	ϕ	1415	ϕ
0945	ϕ	1430	ϕ
1000	ϕ	1445	ϕ
1015	ϕ	1500	ϕ
1030	ϕ	1515	ϕ
1045	ϕ	1530	ϕ
1100	ϕ	1535	WORKER'S LEFT S. Tee
1115	ϕ		
1130	ϕ		NO Problems

21) H&S DO#13 BUILDING 179 4/10/98

WEATHER: RAIN, WINDY, TEMP 40°F

OVA 128 FW 173 & FW 276

ALL READINGS ARE IN BZ AND IN TEST CELL UNLESS OTHERWISE NOTED

TIME	OVA READINGS	TIME	OVA READINGS
SCOTT STANDEN DID NOT SHOW UP TODAY. I DON'T KNOW IF IT WAS BECAUSE OF THE WEATHER OR BECAUSE IT WAS GOOD FRIDAY. I TOLD ROGER B. THURSDAY WENT FINE THE SAFETY REPORT IS ON YOUR DESK. I GAVE JIM (STANDEN) THE SAFETY REPORT FOR WED. THANKS FOR YOUR HELP			

Frank P. Mazza

22) H&S DO#13 BUILDING 179 4/13/98

WEATHER: SUNNY, TEMP 45°F

OVA 128 FW 173 & FW 276

ALL READINGS ARE IN BZ AND IN TEST CELLS UNLESS OTHERWISE NOTED

TIME	OVA READING	TIME	OVA READING
0700	0	1200	0 DION'T BREAK FOR
0715	0	1215	0 LUNCH CREW
0730	0	1230	0 LEAVING EARLY
0745	0	1245	0
0800	0	1300	0
0815	0	1315	0
0830	0	1330	0
0845	0	1345	0
0900	0	1400	0
0915	0	1415	0
0930	0	1430	0
0945	0	1445	0
1000	0	1500	0
1015	0	1515	
1030	0	1530	
1045	0		
1100	0		
1115	0		
1130	0		
1145	0		

M. A. [illegible]

23) H&S DO #13 Building 179 4/14/98

Weather: Clear, Temp 45°

OVA 128 FW 173 & FW 276

All reading are in BZ unless otherwise noted.

Time	Reading		Time	Reading
0700	0		1200	0 CREW DID
0715	0		1215	0 NOT BREAK FOR
0730	0		1230	0 LUNCH. WILL BE
0745	0		1245	0 LEAVING EARLY
0800	0		1300	0
0815	0		1315	0
0830	0		1330	0
0845	0		1345	0
0900	0		1400	0
0915	0		1415	0
0930	0		1430	0
0945	0		1445	0
1000	0		1500	0
1015	0		1515	
1030	0		1530	
1045	0			
1100	0			
1115	0			
1130				
1145	0			

WORKERS LIFT SITE NO PROBLEMS

24) H&S DO #13 Building 179 4-15-98

Weather: Overcast, Temp 45°

OVA 128 FW 173 & FW 276

All reading are in BZ unless otherwise noted.

Time	Reading		Time	Reading
0700	0		1200	0 CREW DID NOT
0715	0		1215	0 BREAK FOR
0730	0		1230	0 Lunch. Will BE
0745	0		1245	0 LEAVING EARLY
0800	0		1300	0
0815	0		1315	0
0830	0		1330	0
0845	0		1345	0
0900	0		1400	0
0915	0		1415	0
0930	0		1430	0
0945	0		1445	0
1000	0		1500	0
1015	0		1515	0 WORKERS ON SITE. Getting
1030	0		1530	
1045	0		1545	Inspected.
1100	0		1600	Jim (Standain)
1115	0			present. (Roland)
1130	0			NO PROBLEMS
1145	0			

25) H&S DO13 BUILDING 179 4-16-88

Weather: Clear Temp 50°

OVA 128 FW 173 & FW 276

All readings are in BZ unless otherwise noted:

Time	Reading	Time	Reading
0700	0	1200	0 NO LUNCH
0715	0	1215	0 CREW
0730	0	1230	0 LEAVING
0745	0	1245	0 EARLY
0800	0	1300	0
0815	0	1315	0
0830	0	1330	0
0845	0	1345	0
0900	0	1400	0
0915	0	1415	0
0930	0	1430	0
0945	0	1445	0
1000	0	1500	0
1015	0	1515	0
1030	0	1530	WORKERS
1045	0	1545	LEFT SITE
1100	0		NO PROBLEMS
1115	0		
1130	0		
1145	0		

Mark A. [illegible]

26) H&S DO13 BUILDING 179 4-16-88

WEATHER: Clear TEMP 50°

OVA 128 FW 173 & FW 276

All readings are in BZ unless otherwise noted

0700 - Water on slab Jon Clary Mark Gonera inspected the cause of the water. The pump is working and the water is below the pad. The water is mainly on the outside of the forms this would lead me to believe that the water came from an outside source We moved the water around and took readings and got 0 in the BZ and also right at the water. Watched the pump to insure that it is working There is no problems. OK for subcontractor to work

Mark A. [illegible]

27) H&S D013 Building 179 4/17/98

Weather: Rain Cool 40°

OVA 128 FW 173 & FW276

All readings in the BZ

unless otherwise noted.

Pouring Concrete today.

Time	Reading	Time	Reading
0700	Ø	1145	Ø
0715	Ø	1200	Ø
0730	Ø	1215	Ø
0745	Ø	1230	Ø
0800	Ø	1245	Ø
0815	Ø	1300	Ø
0830	Ø	1315	Ø
0845	Ø	1330	Ø
0500	Ø	1345	Ø
0915	Ø	1400	Ø
0930	Ø	1415	
0945	Ø	1445	
1000	Ø	1500	
1015	Ø	1515	
1030	Ø	1530	
1045	Ø		
1100	Ø		
1115	Ø		
1130	Ø		

28) H&S D013 Building 179 4/20/98

Weather: Cloudy, RAIN

OVA 128 FW 173 & FW276

All readings in the BZ

unles other wise noted

Stripping Forms

Time	Reading	Time	Reading
0700	Ø	145	Ø
0715	Ø	1200	Ø
0730	Ø	1215	Ø
0745	Ø	1230	Ø
0800	Ø	1300	Ø
0815	Ø	1315	Ø
0830	Ø	1330	Ø
0845	Ø	1345	Ø
0500	Ø	1400	Ø
0915	Ø	1415	Ø
0930	Ø	1430	Ø
0945	Ø	1445	Ø
1000	Ø	1500	Ø
1015	Ø		
1030	Ø		
1045	Ø		
1100	Ø		
1115	Ø		
1130	Ø		

29) H&S DO13 Building 179 4-21-98

Weather: Sunny warm

OVA 128 FW 173 & FW 276

All readings in BZ

Unless otherwise noted

BACK FILLING. BACKHOE, TRUCK, PLATE COMPACTOR

TIME	READINGS		TIME	READINGS
0700	0		1145	0
0715	0		1200	0
0730	0		1215	0
0745	0		1230	0
0800	0		1245	0
0815			1500	0
0830			1515	0
0845			1330	0
0900			1345	0
0915			1400	0
0930			1415	0
0945			1430	0
1000	0		1445	0
1015	0		1500	0
1030	0		1515	0
1045	0		1530	0
1100	0		1545	0
1115	0		1600	0
1130	0			

NO WORK IN AREA.

PLATE COMPACTOR RUNNING

CUTTING LINER 1

Mowing in area

30) H&S DO13 Building 179 4-21-98

Weather: Sunny warm

OVA 128 FW 173 & 276

All readings in BZ (MAC)

Unless otherwise noted

TIME	READINGS
1615	0
1630	0
1645	0
1700	0
1715	0
1730	0
1745	0
1800	0
1815	0
1830	0
1845	0
1900	0
1915	0
1930	0
1945	0
2000	0

)HES D013 Building 1794/20198
Weather: Cloudy/ RAIN
OVA 128 FW173 FW276
All Readings in TLV BZ
Unless otherwise noted
Stripping Foam

TIME	Reading	TIME	Reading
0700	0	1145	0
0715	0	1200	0
0730	0	1215	0
0745	0	1230	0
0800	0	1300	0
0815	0	1315	0
0830	0	1330	0
0845	0	1345	0
0900	0	1400	0
0915	0	1415	0
0930	0	1430	0
0945	0	1445	0
1000	0	1500	0
1015	0		
1030	0		
1045	0		
1100	0		
1115	0		
1130	0		

31) H&S D013 Building 179 4-22-98

Weather: Clear warm

OVA 128 FW 173 & FW 276

All readings in BZ unless otherwise noted.

TIME	READING	TIME	READING
0700	V	1200	Ø
0715	NO WORK IN AREA	1215	Ø
0730		1230	1
0745		1245	1
0800		1300	Ø
0815	Ø	1315	Ø
0830	Ø	1330	Ø
0845	Ø	1345	Ø
0900	Ø	1400	Ø
0915	Ø	1415	Ø
0930	Ø	1430	Ø
0945	Ø	1445	Ø
1000	Ø	1500	Ø
1015	Ø	1515	Ø
1030	Ø	1530	Ø
1045	Ø		
1100	Ø		
1115	Ø		
1130	Ø		
1145	Ø		

FOSTER WHEELER ENVIRONMENTAL

Site: BLDG 179 Date: 03-18-98

PERSONNEL SAMPLING PUMP DATA

PRE-CALIBRATION

MEDIA	PUMP #	1st	2nd	3rd	Average
TENAX	FW00223	53.50	53.18	54.23	53.84 L/min
	FW00224	50.15	51.47	51.58	51.27 L/min
					L/min
					L/min
					L/min
					L/min

Calibrator Signature

POST-CALIBRATION

1st	2nd	3rd	Average
58.57	59.45	58.68	58.92 L/min
50.58	50.72	50.58	50.69 L/min
			L/min
			L/min
			L/min
			L/min

Avg. Flow
56.38 L/min
50.98 L/min
L/min
L/min
L/min
L/min

Calibrator Signature

PERSONNEL AIR SAMPLING DATA

MEDIA	SAMPLE #	TIME ON	TIME OFF	TOTAL MIN	PUMP #	AVG. FLOW	TOTAL VOL.
TENAX	3-18-9801	0800	1600	480	223	.05638 L/min	27.06 Lit
TENAX	3-18-9802	0800	1600	480	224	.05098 L/min	24.47 Lit
						L/min	Lit
						L/min	Lit
						L/min	Lit
						L/min	Lit

Personnel Information
Name: alta Samples
Title:

Description of Work
FW00223 - Cell #10
FW00224 - Cell #5

COMMENTS: TEST CELL # 5 AND TEST CELL #10
Both Pumps STARTED AT 0800 AND Shut Down AT 1600 HR (24HRS)

SAMPLES SENT FOR ANALYSIS NO (YES) If Yes, write the Date Sent: 3/19/98

Sample Collector: Signature: Date: 3/19/98

FOSTER WHEELER ENVIRONMENTAL

Site: BUILDING 179 Date: 3/19/98

PERSONNEL SAMPLING PUMP DATA

PRE-CALIBRATION

MEDIA	PUMP #	1st	2nd	3rd	Average
TENAX	223	57.36	53.85	53.10	54.77 L/min
TENAX	224	56.49	52.65	53.90	54.34 L/min
					L/min
					L/min
					L/min
					L/min

Scott Edmanson
Calibrator Signature

POST-CALIBRATION

1st	2nd	3rd	Average	
69.70	69.67	69.51	69.62	L/min
50.64	50.83	50.19	50.55	L/min
				L/min
				L/min
				L/min
				L/min

Avg. Flow	
62.15	L/min
52.40	L/min
	L/min
	L/min
	L/min
	L/min

Scott Edmanson
Calibrator Signature

PERSONNEL AIR SAMPLING DATA

MEDIA	SAMPLE #	TIME ON	TIME OFF	TOTAL MIN	PUMP #	AVG. FLOW	TOTAL VOL.
TENAX	31998001	0730	1510	460	FW223	.06279 L/min	28.60 Lit
TENAX	31998002	0730	1510	460	FW224	.05240 L/min	24.10 Lit
						L/min	Lit
						L/min	Lit
						L/min	Lit
						L/min	Lit

Personnel Information
Name: AREA Sampl
Title:

Description of Work
223 > area sampl-bldg
224 > bldg 9

COMMENTS: GRID 7+9 · airlink - SKC - pumps.

SAMPLES SENT FOR ANALYSIS NO (YES) If Yes, write the Date Sent: 3/19/98

Sample Collector: Scott Edmanson Signature: Scott Edmanson Date: 3/19/98

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 2
Part 1 of 1
03239814244550

Date MAR 2 3 1998
Laboratory Group Name 98I-0520-01
Account No. 07003

Foster Wheeler Environmental
Attention: Mark Gouveia
PO Box 4749.
Middletown, RI 02842

FAX (401) 842-6970
Telephone (401) 842-6960

Sampling Collection and Shipment

Sampling Site Building 179 Date of Collection March 18, 1998

Date Samples Received at Laboratory March 20, 1998

Analysis

Method of Analysis OSHA 43MOD

Date(s) of Analysis March 23, 1998

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	propylene glycol dinitrate ug/sample	propylene glycol dinitrate ppm	Volume Liter						
3-18-9801	98I03637	TUBE	ND	<0.00050	27.06						
3-18-9802	98I03638	TUBE	ND	<0.00060	24.47						
3199801	98I03639	TUBE	ND	<0.00052	28.6						
3199802	98I03640	TUBE	ND	<0.00061	24.1						
Limit of Detection			0.1								

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: Chin-Yun Chiang

Reviewer:

Laboratory Supervisor: Don Wickman for DCW

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547
Phone (801) 266-7700 Web Page: www.datachem.com
FAX (801) 268-9992 E-mail: lab@datachem.com

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-C
Page 2 of 2
03239813514590

Date MAR 2 3 1998

Laboratory Group Name 98I-0520-01

General Set Comments

OSHA method 43 was modified for analysis. Liquid standards were used for quantitation. Samples were sonicated 60 minutes in 2 mL of acetonitrile for desorption.

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PRECONSTRUCTION SUBMITTALS

ANALYTICAL RESULTS FROM NEW ENGLAND TESTING LABORATOY ON RICHMOND SAND AND GRAVEL SOURCE

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with Contract Number N62472-94-D-0398, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is ✓ approved for use, ____ approved for use subject to Government approval of proposed variation.

Certified by Submittal Reviewer [signature], Date 5/20/98
(Signature when applicable)

Approved by QC Manager [signature], Date 5/20/98
(Signature)

REPORT OF ANALYTICAL RESULTS

Case Number: I0428-08

Prepared for:

Foster-Wheeler Environmental Corp.
151 Marine Rd.
No. Kingstown, RI 02852
Attn: Peter Mooney

Report Date: MAY 8, 1998

Reviewed by:

Mark H. Bishop LS

Mark H. Bishop
Laboratory Director

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue, North Providence, Rhode Island 02904-5392
PROVIDENCE (401) 353-3420 TOLL FREE: 1-888-863-8522

SAMPLES SUBMITTED:

The following soil sample was submitted to New England Testing Laboratory on 28 APRIL 1998:

"Richmond Common"

1. Fill

The sample was assigned an internal identification code for laboratory information management purposes. The case number for this sample submission is:

I0428-08

ANALYSIS PERFORMED:

The following table details the analyses performed on the sample at the request of the client:

Sample	Analysis	Method
I0428-08:		
1. Fill	VOCs	8260B
	Semivolatiles	8270C
	Total Metals	6010B
	Arsenic	6010B
	Barium	6010B
	Cadmium	6010B
	Chromium	6010B
	Lead	6010B
	Mercury	7471A
	Selenium	7740
	Silver	6010B

Note: These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.

QUALITY ASSURANCE/CONTROL STATEMENTS

All samples were found to be properly preserved/cooled upon receipt. All analyses were performed within EPA designated holding-times. Procedure/calibration checks required by the designated protocols were within control limits.

ANALYTICAL RESULTS

Case No. 10428-08

Fill

Parameter	Result, mg/Kg*
Arsenic	<7.2
Barium	27
Cadmium	0.72
Chromium	<1.5
Lead	5.77
Mercury	<0.1
Selenium	<0.4
Silver	<0.7

*Dry Weight Basis

Sample: Fill

Case No. I0428-08
Date Analyzed: 5/5/98

Subject: Volatile Organic Compounds
Method: EPA 8260B
Level: Low

Compound	Concentration ug/Kg (ppb)	Reporting Limit
Acetone	N.D.	250
Benzene	N.D.	50
Bromochloromethane	N.D.	50
Bromodichloromethane	N.D.	50
Bromoform	N.D.	50
Bromomethane	N.D.	50
2-Butanone	N.D.	250
n-Butylbenzene	N.D.	50
sec-Butylbenzene	N.D.	50
tert-Butylbenzene	N.D.	50
Carbon disulfide	N.D.	50
Carbon tetrachloride	N.D.	50
Chlorobenzene	N.D.	50
Chlorodibromomethane	N.D.	50
Chloroethane	N.D.	50
Chloroform	N.D.	50
Chloromethane	N.D.	50
2-Chlorotoluene	N.D.	50
4-Chlorotoluene	N.D.	50
Dibromomethane	N.D.	50
1,2-Dibromo-3-chloropropane	N.D.	50
1,2-Dibromoethane	N.D.	50
1,2-Dichlorobenzene	N.D.	50
1,3-Dichlorobenzene	N.D.	50
1,4-Dichlorobenzene	N.D.	50
Dichlorodifluoromethane	N.D.	50
1,1-Dichloroethane	N.D.	50
1,2-Dichloroethane	N.D.	50
1,1-Dichloroethene	N.D.	50
cis-1,2-Dichloroethene	N.D.	50
trans-1,2-Dichloroethene	N.D.	50
1,2-Dichloropropane	N.D.	50
cis-1,3-Dichloropropene	N.D.	50
trans-1,3-Dichloropropene	N.D.	50
Ethylbenzene	N.D.	50
Ethyl methacrylate	N.D.	50
2-Hexanone	N.D.	50
Isopropylbenzene	N.D.	50
p-Isopropyltoluene	N.D.	50
Methylene chloride	N.D.	150
tert-Butylmethylether	N.D.	250

Sample: Fill

Case No. I0428-08

Compound	Concentration ug/Kg (ppb)	Reporting Limit
4-Methyl-2-pentanone	N.D.	250
Naphthalene	N.D.	100
n-Propylbenzene	N.D.	50
Styrene	N.D.	50
1,1,1,2-Tetrachloroethane	N.D.	50
1,1,2,2-Tetrachloroethane	N.D.	50
Tetrachloroethene	N.D.	50
Toluene	N.D.	50
1,2,3-Trichlorobenzene	N.D.	50
1,1,1-Trichloroethane	N.D.	50
1,1,2-Trichloroethane	N.D.	50
Trichloroethene	N.D.	50
Trichlorofluoromethane	N.D.	50
1,2,3-Trichloropropane	N.D.	50
1,2,4-Trimethylbenzene	N.D.	50
1,3,5-Trimethylbenzene	N.D.	50
Vinyl acetate	N.D.	500
Vinyl chloride	N.D.	50
Xylene, Total	N.D.	100

Surrogates:

Compound	% Recovery	Limits
Toluene d8	114	81-117
1,2-Dichloroethane d4	94	70-121
4 BFB	104	74-121

Sample: Fill
Date Sampled: 4/27/98

Case No. I0428-08
Date Extracted: 5/5/98
Date Analyzed: 5/7/98

Subject: Acid and Base/Neutral Extractable Compounds
Method: EPA 8270C
Level: Low

Base/Neutral Compounds	Concentration ug/Kg (ppb)	Reporting Limit
Acenaphthene	N.D.	330
Acenaphthylene	N.D.	500
Aniline	N.D.	660
Anthracene	N.D.	330
Benzidine	N.D.	20000
Benzo(a)anthracene	N.D.	330
Benzo(b)fluoranthene	N.D.	330
Benzo(k)fluoranthene	N.D.	330
Benzoic acid	N.D.	4950
Benzo(g,h,i)perylene	N.D.	330
Benzo(a)pyrene	N.D.	330
Biphenyl	N.D.	330
Bis(2-chloroethyl)ether	N.D.	330
Bis(2-chloroisopropyl)ether	N.D.	330
Bis(2-chloroethoxy)methane	N.D.	330
Bis(2-ethylhexyl)phthalate	N.D.	990
4-Bromophenyl phenyl ether	N.D.	330
Butyl benzyl phthalate	N.D.	330
4-Chloroaniline	N.D.	660
1-Chloronaphthalene	N.D.	330
2-Chloronaphthalene	N.D.	330
4-Chlorophenyl phenyl ether	N.D.	330
Chrysene	N.D.	330
Dibenz(a,j)acridine	N.D.	330
Dibenz(a,h)anthracene	N.D.	330
Dibenzofuran	N.D.	330
Di-n-butylphthalate	N.D.	330
1,2-Dichlorobenzene	N.D.	330
1,3-Dichlorobenzene	N.D.	330
1,4-Dichlorobenzene	N.D.	330
3,3'-Dichlorobenzidine	N.D.	1200
Diethyl phthalate	N.D.	330
7,12-Dimethylbenz(a)anthracene	N.D.	330
Dimethylphenethylamine	N.D.	660
Dimethyl phthalate	N.D.	330
2,4-Dinitrotoluene	N.D.	330
2,6-Dinitrotoluene	N.D.	330
Di(n)octyl phthalate	N.D.	330
1,2-Diphenylhydrazine	N.D.	330
Fluoranthene	N.D.	330
Fluorene	N.D.	330
Hexachlorobenzene	N.D.	330
Hexachlorobutadiene	N.D.	330

Sample: Fill

Case No. I0428-08

Base/Neutral Compounds	Concentration ug/Kg (ppb)	Reporting Limit
Hexachlorocyclopentadiene	N.D.	1650
Hexachloroethane	N.D.	330
Indeno(1,2,3-cd)pyrene	N.D.	330
Isophorone	N.D.	330
2-Methylnaphthalene	N.D.	330
Naphthalene	N.D.	330
2-Nitroaniline	N.D.	330
3-Nitroaniline	N.D.	330
4-Nitroaniline	N.D.	330
Nitrobenzene	N.D.	330
N-Nitrosodimethylamine	N.D.	990
N-Nitrosodiphenylamine	N.D.	660
N-Nitrosodi-n-propylamine	N.D.	330
Pentachlorobenzene	N.D.	330
Phenanthrene	N.D.	330
Pyrene	N.D.	330
Pyridine	N.D.	660
1,2,4-Trichlorobenzene	N.D.	330

Acid Compounds	Concentration ug/Kg (ppb)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	660
2-Chlorophenol	N.D.	660
2,4-Dichlorophenol	N.D.	660
2,4-Dimethylphenol	N.D.	3300
4,6-Dinitro-2-methylphenol	N.D.	1650
2,4-Dinitrophenol	N.D.	3300
2-Methylphenol	N.D.	330
4-Methylphenol	N.D.	330
2-Nitrophenol	N.D.	1650
4-Nitrophenol	N.D.	1650
Pentachlorophenol	N.D.	1650
Phenol	N.D.	660
2,4,5-Trichlorophenol	N.D.	660
2,4,6-Trichlorophenol	N.D.	660

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	77	23-120
2-Fluorobiphenyl	83	30-115
p-Terphenyl d14	110	18-137
Phenol d6	70	24-113
2,4,6-Tribromophenol	60	25-121
2-Fluorophenol	66	19-122

Geotextile fabric shall be placed at the base of the excavation prior to placing fill materials that complies with the following:

Pervious sheet of polyester, nylon, glass or polypropylene filaments woven, spun bonded, fused, or otherwise manufactured into a nonraveling fabric with uniform thickness and strength.

Grab tensile strength (ASTM D 4632) machine and transversed direction:	min. 80 lbs.
Grab elongation (ASTM D 4632) machine and transverse direction:	min. 15%
Puncture resistance (ASTM D 4833):	min. 25 lbs.
Mullen burst strength (ASTM D 3786):	min. 100 psi
Apparent opening size (ASTM D 4751):	greater than No. 30 US Std. Sieve

Fill materials shall be placed on undisturbed ground in a dewatered excavation. Frozen natural soils shall be removed prior to placement of fill materials, and replaced with fill materials as specified above. When below freezing temperatures are forecast during periods when the excavation is open, the excavation shall be protected from possibility of freezing to the maximum extent possible by placement of straw or other means to be determined by the contractor.

If you have any further questions on this issue, do not hesitate to contact me at (617) 348-2429.

Very truly yours,

Robert S. Cotta

Robert S. Cotta, P.E.
Principal Engineer

cc: Lt. Charlie Peterson - ROICC (by telecopy)
Mr. Roland Jacques - NUWC (by telecopy)

PSI Environmental Geotechnical Construction
Consulting • Engineering • Testing

RECEIVED
MAR 17 1998

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

RECEIVED
MAR 17 1998

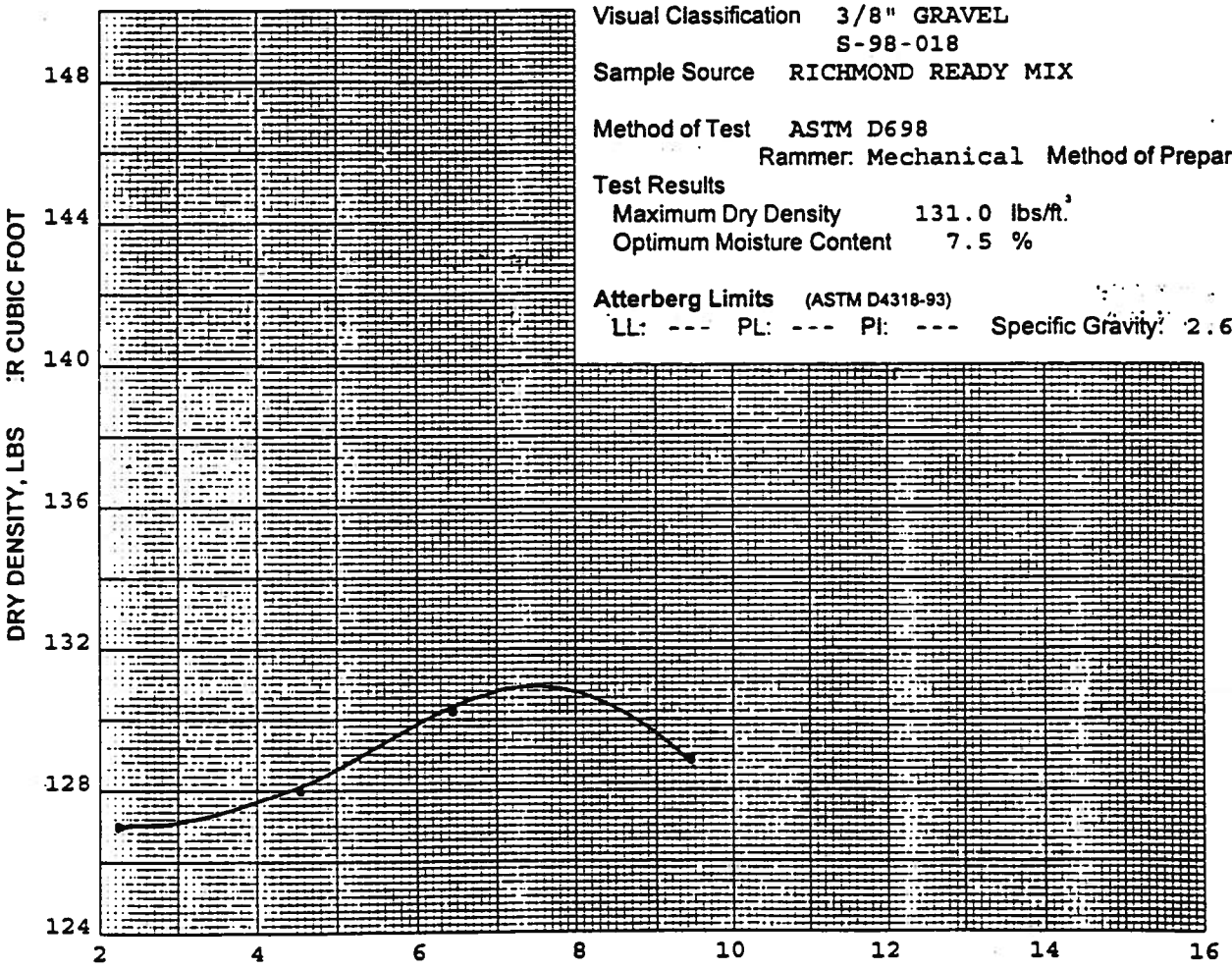
TESTED FOR: JON CAREY
FOSTER WHEELER ENVIRONMENTAL
PO BOX 4749
MIDDLETOWN, RI 02842

PROJECT: BLDG. 179

DATE: March 12, 1998

OUR REPORT NO.: 448-80020-1

TEST DATA



Visual Classification 3/8" GRAVEL
S-98-018

Sample Source RICHMOND READY MIX

Method of Test ASTM D698
Rammer: Mechanical Method of Preparation: Dry

Test Results
Maximum Dry Density 131.0 lbs/ft.³
Optimum Moisture Content 7.5 %

Atterberg Limits (ASTM D4318-93)
LL: --- PL: --- PI: --- Specific Gravity: 2.65 (estimate)

Grain Size Analysis
(ASTM C136-93 AND/OR C117

Sieve Size	Percent Passing
1/2"	100
3/8"	81
#4	46
#10	38
#20	28
#40	15
#60	6
#100	2
#200	0.7

REMARKS: AS RECEIVED MOISTURE CONTENT = 3.75%

Lab Tech: RICHARD ATKINSON

Respectfully submitted,
Professional Service Industries, Inc

REPORTS MAY NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION BY PROFESSIONAL SERVICE INDUSTRIES, INC

A-100-1 (2)F

Information To Build On

FOR REF. ONLY

NOTES: NH = NON-HAZARDOUS, H = HAZARDOUS

BLDG #179 FINAL PHASE REMEDIATION
- EXTENDED GRID #13→18 EXCAVATION
- GRID #19 EXCAVATION
- INTERCEPTION TANK/PIPING REMOVAL

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT ~~TANK FARM NO. 4~~ GRID #179 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398

DELIVERY ORDER NO. 13

ROLLOFF LOG

SHT 1 OF ___

WASTE CONTAINER (DRUM, ROLLOFF, TANKER, TRUCK) CONTROL LOG

ID NO.	ACCUM. START DATE	CONTENTS	SAMPLE TAKEN DATE	SAMPLE TAKEN SAMPLE NO.	DATE ANALYSIS RETURNED	WASTE CODING NH	WASTE CODING H	WASTE CODING CODE	MANIFEST NO.	DATE REMOVED	REMARKS
LOGANO #438	10-31-98	EXTENDED GRID #13→#18 EXCAVATION (SOIL) LIMITS (SOUTH OF RR TRACKS)					X	F002 F005 D003	83646 RI H0004015	12-30-98	STABLEX
LOGANO #445	10-31-98	D1770					X	F002 F005 D003	83645 RI H0004014	12-30-98	STABLEX
LOGANO #425	12-2-98	GRID #19/ZONE #1 SOIL EXCAVATION					X	F002 F005	83644 RI H0004472	12-30-98	STABLEX
LOGANO #461	12-2-98	GRID #19/ZONE #2 SOIL EXCAVATION					X	F002 F005	83642 RI H0004473	12-30-98	STABLEX
LOGANO #357	12-2-98	GRID #19/ZONE #3 SOIL EXCAVATION					X	F002 F005	83643 RI H0004474	12-30-98	STABLEX
LOGANO #390	12-2-98	GRID #19/ZONE #4 SOIL EXCAVATION					X	F002 F005	90061 RI H0004506	1-6-99	STABLEX
LOGANO #366	12-2-98	GRID #19/ZONE #5 SOIL EXCAVATION					X	F002 F005	90064 RI H0004515	1-6-99	STABLEX
LOGANO #374	12-2-98	GRID #19/ZONE #6 SOIL EXCAVATION					X	F002 F005	90062 RI H0004516	1-6-99	STABLEX
LOGANO #478	12-2-98	GRID #19/ZONE #7 SOIL EXCAVATION					X	F002 F005	90063 RI H0004517	1-6-99	STABLEX
LOGANO #293	12-3-98	INT. TANK/ZONE #8 STONE/SOIL ON TOP OF INTERCEPTION TANK					X	F002 F005	90353 RI H0004566	2-4-99	STABLEX

FOR REF. ONLY

NOTES: NH = NON-HAZARDOUS, H = HAZARDOUS

BLDG #179 FINAL PHASE REMEDIATION
- EXTENDED GRID #13 → #18 EXCAVATION
- GRID #19 EXCAVATION
- INTERCEPTOIL TANK/PIPING REMOVAL

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO. 4 (BLDG #179) REMEDIAL ACTIONS
NAVY RAC CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER NO. 13

WASTE CONTAINER (DRUM, ROLLOFF, TANKER, TRUCK) CONTROL LOG

ROLLOFF LOG

SHT 2 OF ___

ID NO.	ACCUM. START DATE	CONTENTS	SAMPLE TAKEN DATE	SAMPLE TAKEN SAMPLE NO.	DATE ANALYSIS RETURNED	WASTE CODING NH	WASTE CODING H	WASTE CODING CODE	MANIFEST NO.	DATE REMOVED	REMARKS
LOGANO #376	12-7-98	INT. TANK/PIPE TRENCH ZONE #9 SOIL EXCAVATION					X	F002 F005	90354 RIH0004567	2-4-99	STABLEX
LOGANO #331	12-7-98	INT TANK/PIPE TRENCH ZONE #10 SOIL EXCAVATION					X	F002 F005	90351 RIH0004564	2-4-99	STABLEX
LOGANO #347	12-8-98	INT. TANK/PIPE TRENCH ZONE #11 SOIL EXCAVATION					X	F002 F005	90352 RIH0004565	2-4-99	STABLEX
LOGANO #300	12-8-98	INTERCEPTOR TANK PERIMETER SOIL (ZONE #12) EXCAV.					X	F002 F005	90344 RIH0004519	2-3-99	HALF FULL STABLEX
LOGANO #333	12-8-98	CRUSHED INT. TANK (CONCRETE) PIPING, VALVE & SOIL / ZONE #13					X	F002 F005	90341 RIH0004513	2-3-99	STABLEX
LOGANO #432	12-8-98	INTERCEPTOR TANK PERIMETER SOIL (ZONE #14) EXCAV.					X	F002 F005	90343 RIH0004514	2-3-99	STABLEX
LOGANO #365	12-18-98	WATER TREATMENT SYSTEM LINER, DEBRIS & FILTRATION MEDIA					X	F002 F005	90342 RIH0004518	2-3-99	STABLEX

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SH1

BY R. BEAUREGARD DATE 12-14-98, 1-14-99, 1-22-99, 2-3-99, 2-4-99, 3-3-99

CHKD. BY _____ DATE _____

SHEET 1 OF _____

CLIENT NUWC

OFS NO. 1284-013 DEPT. NO. 6045

PROJECT BLDG. #179 GRID #19 & INTERCEPTOR TANK/PIPING EXCAVATION

SUBJECT ROLLOFF & DRUM ACCOUNTABILITY

NOTE #1: 28 DRUMS HAD FLUID REMOVED VIA VAC TRUCK ON 12-23-98, MANIFEST 83641 (FOO & DRUMS (28) ARE LABELLED "EMPTY".

NOTE #2: 36 DRUMS W/FLUID/SLUDGE WERE PICKED-UP/REMOVED ON 2-26-99 MANIFEST 99057/(AR 1020359). THERE WAS ONE(1) EXTRA DRUM FOR A TOTAL OF 64 DRUMS

ROLLOFF SUPPLIER NAME	ROLLOFF NO.	EXCAV ZONE	DATE ACCUM. STARTED	LINER IN PLACE Y/N	HAZ LABEL IN PLACE Y OR N	MANIFEST NUMBER	DEPARTURE DATE	REMARKS
LOGANO	428	13→18	10-31-98	Y	Y	83646	12-30-98	ORIGINAL TRACK AREA EXCAVATION (FOO2/FOO5/DOO
	445	13→18	10-31-98	Y	Y	83645	12-30-98	DITTO (FOO2/FOO5/OOO
	425	1	12-2-98	Y	Y	83644	12-30-98	(FOO2/FOO5)
	461	2		Y	Y	83642	12-30-98	(FOO2/FOO5)
	357	3		Y	Y	83643	12-30-98	(FOO2/FOO5)
	290	4		Y	Y	90061	1-6-99	(FOO2/FOO5)
	366	5		Y	Y	90064	1-6-99	(FOO2/FOO5)
	274	6		Y	Y	90062	1-6-99	OUR LINER (FOO2/FOO5)
	478	7		Y	Y	90063	1-6-99	(FOO2/FOO5)
	293	8	12-3-98	Y	Y	90353	2-4-99	STOVE ON INTERCEPTOR TK. & AREA (FOO2/FOO5)
	276	9	12-7-98	Y	Y	90354	2-4-99	(FOO2/FOO5)
	331	10	12-7-98	Y	Y	90351	2-4-99	(FOO2/FOO5)
	347	11	12-8-98	Y	Y	90352	2-4-99	(FOO2/FOO5)
	300	12		Y	Y	90344	2-3-99	HALF FULL (FOO2/FOO5)
	333	13		Y	Y	90341	2-3-99	(FOO2/FOO5)
	432	14		Y	Y	90343	2-3-99	(FOO2/FOO5)
	365	N/A	12-18-98	Y	Y	90342	2-3-99	WTS LINER DEBRIS & FILTRATION MEDIA (FOO2/FOO5)

DRUM COUNT	CONTENT DESCRIPTION	DATE ACCUM. STARTED	HAZ LABEL IN PLACE Y/N	MANIFEST NUMBER	DEPARTURE DATE	REMARKS (SEE NOTE #1 & #2)
8	CUST CLEANING FLUID	11-30-98	Y	VAC TRUCK #83641	12-23-98	(1540 GALLONS)
4	DITTO	12-1-98	Y	"		
12	INTERCEPTOR TANK FLUID	12-4-98	Y	99057	2-26-99	36 DRUMS W/FLUID/SLUDGE & 28 EMPTY DRUMS
6	DITTO	12-7-98	Y	(AR 1020359)		
2	INTERCEPTOR TK FLUID (WASHWATER & SLUDGE)	12-7-98	Y			
2+1	INTERCEPTOR TANK (FLUID & SLUDGE)	12-7-98	Y			(1) PARTIALLY FULL
12	FRAC TANK DECON FLUID	12-15-98	Y			SOME DRUMS W/SEDIMENT
11	SECONDARY CONTMT FLUID	12-17-98	Y			DITTO
5	FILTER MEDIA FLUID	12-21-98	Y			

EQ TANK DRUMS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33306

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law but may be required by state law
RI8170024790	83646K		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell St.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number RI H0004015

B. Generator/Site Address BLDG 179 1176howell st. NEWPORT R.I.

5. Transporter 1 Company Name LOGANO TRANSPORTATION CO., INC

6. US EPA ID Number CTD983896341

C. State Transporter ID/License Plate 013223Z - ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone 860-342-4989

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number 14364999 46

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR	a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (Propylene Glycol Dinitrate) ~~1,1,1 TRICHLOROETHYLENE/METHYL ETHYL KETONE~~ (1,1,1 Trichloroethane) 9, NA3077, PGIII, (F002)(F005)(D003) ER6171	001	CM	31740	P	F002 F005 D003
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Grids # 1-10 Roll OFF # 428

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls		12/30/98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
DAVID PERKINS		12/30/98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

TRANSPORTER

In the event of a spill, contact the National Response Center (U.S. Coast Guard) 1-800-424-8802. For Spills within Rhode Island, contact the R.I. Department of Environmental Management (401) 277-2797, 24 hour (401) 277-3070

Form 8700-22 (3-84)

Copy 1: Facility Mails To Destination Site

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33305

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. 18364 — 2. Page 1 of 4 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell st.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401) 841-3145

A. State Manifest Document Number: RI H0004014

B. Generator/Site Address: BLDG 179 1176 howell st. NEWPORT R.I.

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC — 6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 0023595-ME

7. Transporter 2 Company Name — 8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC) — 10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (Propylene Glycol Dinitrate) 1,1,1-TRICHLOROETHYLENE/METHYL ETHYL KETONE) (1,1,1 Trichloroethane) 9, NA3077, PGIII, (F002) (F005) (D003) ERG171	001	CM	31980	P	F002 F005 D003
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523 b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053 Roll-off # 445
Grid 1-10

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: John Ingalls — Signature — Date: Month 12 Day 30 Year 98

TRANSPORTER 17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: ROB RADCLIFFE — Signature — Date: Month 12 Day 30 Year 98

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY 19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 8700-22 (3-84)

Copy 1: Facility Copy to Department

...ENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33838

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0
Manifest Document No. 83644

2. Page 1 of 1 1

Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell St
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-841-3145

5. Transporter 1 Company Name LOGANO TRANSPORTATION 832
GENERAL CHEMICAL CORPORATION

6. US EPA ID Number C T D 0 5 3 8 9 0 3 4 1

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number 1 1 4 3 6 4 9 9 4 6

A. State Manifest Document Number RI H0004472

B. Generator/Site Address 1176 Howell St BLDG 179 Newport, RI

C. State Transporter ID/License Plate 2459-A CT 860/342-4989

D. Transporter's Phone 508-842-8000

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHYLENE/METHYL ETHYL KETONE) (1,1,1 Trichloroethane) 9, NA3077, PGIII, (F002) (F005) ER6171	1	CM	27,640	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Grid # 19 CAN# 425

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls	John Ingalls	12 30 98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
JAN MAGDZIK	Jan Magdzik	12 30 98

18 Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)

GENERATOR TRANSPORTER FACIL

In the event of a spill, contact the National Response Center U.S. Coast Guard 1-800-424-8802 for spills within Rhode Island, contact the R.I. Department of Environmental Management (401) 277-3070 (401) 277-2797 24 hour

EPA Form 8700-22 (3-84)

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33838

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 | Manifest Document No. 83642 | Page 1 of 1 | Information in the shaded areas is not required by Federal law, but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell St.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-841-3145

5. Transporter 1 Company Name LOGANO TRANSPORTATION GENERAL CHEMICAL CORPORATION

6. US EPA ID Number C T D 9 8 3 8 9 6 3 4 1
M A R 0 0 2 3 2 1 0 2 2

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number 1 1 4 3 6 4 9 9 4 6

A. State Manifest Document Number RI H0004473

B. Generator/Site Address 176 Howell St BLDG. 179 Newport, RI

C. State Transporter ID/License Plate

D. Transporter's Phone 860/342-4989

E. State Transporter ID/License Plate 25895 A-CT

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. ~~1,1,1 TRICHLOROETHYLENE~~/METHYL ETHYL KETONE (1,1 Trichloroethane) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	33200	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Grid #19
CAN # 461

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name John Logan | Signature | Date Month Day Year 12 30 98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name PAUL LAPORTE | Signature | Date Month Day Year 12 30 98

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name | Signature | Date Month Day Year

In the event of a spill, contact the National Response Center (U.S. Coast Guard 1-800-424-8802) for spills within Rhode Island, contact the R.I. Department of Environmental Management (401) 277-3070

EPA Form 8700-22 (3-84)

Copy 1: Facility Mails To Destination

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33838

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but may be required by state law
R I 8 1 7 0 0 2 4 7 9 0	83643		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell St.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-841-3145

5. Transporter 1 Company Name 7838
LOGANO TRANSPORTATION
~~GENERAL CHEMICAL CORPORATION~~

6. US EPA ID Number
C T D 9 8 3 8 9 6 3 4 1

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number
1 1 4 3 6 4 9 9 4 6

A. State Manifest Document Number
RI H0004474

B. Generator/Site Address
176 Howell St BLDG. 179
Newport, RI

C. State Transporter ID/License Plate
24070x/CT 860/342-4989

D. Transporter's Phone ~~508-822-5000~~

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. ~~(1,1,1-TRICHLOROETHYLENE~~/METHYL ETHYL KETONE (1,1,1-Trichloroethane) 9, NA3077, PGIII, (F002)(F005) ER6171	001	cm	47040	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Grid 19 CAN # 357

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls	John Ingalls	12 30 88

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Rich Gamberale	Rich Gamberale	12 30 88

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

Copy 1 [illegible]

In the event of a Spill, contact the National Response Center (U.S. Coast Guard) at (800) 424-8802 for Spills within Rhode Island, contact the R.I. Department of Environmental Management (401) 277-2797, 24 hour (401) 277-3070

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33912

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law but may be required by state law
R I 8 1 7 0 0 2 4 7 9 0	90061		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone ( ) 401-832-3145

A. State Manifest Document Number: RI H0004500

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC
6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4

C. State Transporter ID/License Plate: 00237970 ME

7. Transporter 2 Company Name
8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	001	CM	30000	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c. VT IS EST.
d. CAN# 290

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls	John Ingalls	01 06 89

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Kevin Lewis	Kevin Lewis	01 06 89

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

Copy 1: Facility Mail To Destination State

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33909

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 6 | Manifest Document No. 900641 | 2. Page 1 of 1

Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number RI H0004515

B. Generator/Site Address
1176 HOWELL ST. bldg.179
NEWPORT RI

4. Generator's Phone ( ) 401-832-3145

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC
6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4
C. State Transporter ID/License Plate: 002395 ME
D. Transporter's Phone 860-342-4989

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter ID/License Plate
F. Transporter's Phone

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6
G. Facility Mailing Address
H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	30,000	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth: # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053 CAN#366
Weight is Est.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations
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GENERATOR
Printed/Typed Name: John Ingalls | Signature | Date: Month 01 Day 06 Year 99

TRANSPORTER
17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Sam Laybac | Signature | Date: Month 01 Day 06 Year 99
18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

FACILITY
19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name | Signature | Date: Month Day Year

EPA Form 8700-22 (3-84)

Copy 1: Facility Mails To Destination State

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33911

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 | Manifest Document No. 90063 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law, but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone ( ) 401-832-3145

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC
6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

A. State Manifest Document Number: RI H0004517
B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI
C. State Transporter ID/License Plate: 1 002307 ME.
D. Transporter's Phone: 860-342-4989
E. State Transporter ID/License Plate:
F. Transporter's Phone:
G. Facility Mailing Address:
H. Facility's Phone: 450-430-9230

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9 , NA3077, PGIII, (F002)(F005) ERG171	001	CM	030,000*	P	F002 F00
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.
*Weight is estimated #478

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: John Ingalls | Signature | Date: Month Day Year 10/06/99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Bill Strickland | Signature | Date: Month Day Year 10/06/99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

19. Discrepancy Indication Space

Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in

Name | Signature | Date: Month Day Year

EPA Form (3-84)

Copy 1: Facility Mails To Destination State

...ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34369

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0	Manifest Document No. 903537	2. Page 1 of 1	Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number RI H0004566

B. Generator/Site Address 1176 HOWELL ST. BLDG. 17
NEWPORT, RI

C. State Transporter ID/License Plate

5. Transporter 1 Company Name: USA WASTE OF CT
6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

D. Transporter's Phone 860-342-4985

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Transporter ID/License Plate

F. Transporter's Phone

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt./Vol.	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLORDETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	001	CM	32000	B	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth# VT0077523

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Con # 293

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: Gerald R. Audet
Signature: Gerald R. Audet
Date: Month Day Year 02 04 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Kendall Knox
Signature: Kendall Knox
Date: Month Day Year 02 04 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name:
Signature:
Date: Month Day Year

EPA Form 8700-22 (3-84)

GENERATOR

In the event of a spill, contact the National Response Center (U.S. Coast Guard) 1-800-424-8802. For spills within Rhode Island, contact the R.I. Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34370

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RI8170024790 | Manifest Document No. 90354 | Page 1 of 1 | Information in the shaded areas is not required by Federal law but may be required by state law

GENERATOR

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number: RI H0004567

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI.

C. State Transporter ID/License Plate: 26657 A CT

D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate:

F. Transporter's Phone:

G. Facility Mailing Address:

H. Facility's Phone: 450-430-9230

5. Transporter 1 Company Name: USA WASTE OF CT
6. US EPA ID Number: CTD983896341

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 114364994 6

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	21180	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth# VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Cont # 276

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: Gerald R. Audet
Signature: Gerald R. Audet
Date: Month Day Year 10 21 04 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: STEVEN R CROTEAU SR
Signature:
Date: Month Day Year 10 21 04 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name:
Signature:
Date: Month Day Year

EPA Form 8700-22 (3-84)

In the event of a spill contact the National Response Center (U.S. Coast Guard) at (800) 424-8802 for spills within public lanes; (Department of Environmental Management (401) 277-2797, 24 hour (401) 277-3070

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34367

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0
Manifest Document No. 903518
2. Page 1 of 1
Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number RI H0004564

B. Generator/Site Address 1176 HOWELL ST. BLDG. 17 NEWPORT, RI

5. Transporter 1 Company Name
USA WASTE OF CT
6. US EPA ID Number C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate 023987-n

7. Transporter 2 Company Name
8. US EPA ID Number

D. Transporter's Phone 860-342-498

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number 1 1 4 3 6 4 9 9 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-923

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	28220	P	F002 FC
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
CON# 331

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shippi name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicabl international and national government regulations.
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Printed/Typed Name	Signature	Date (Month Day Year)
Gerald R. Audet	Gerald R. Audet	02 04 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
ROB RADCLIFFE	Rob Radcliffe	02 04 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

In the event of a spill, contact the National Response Center, U.S. Coast Guard 1 (800) 424-8802. For spills within Rhode Island, contact the R.I. Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

EPA Form 8700-22 (3-84)

...ENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34368

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RIB170024790 | Manifest Document No. 90352 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law, but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145)

5. Transporter 1 Company Name: USA WASTE OF CT
6. US EPA ID Number: CTD983896341

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 11143449944

A. State Manifest Document Number: RI H0004565
B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI
C. State Transporter ID/License Plate
D. Transporter's Phone: 860-342-4985
E. State Transporter ID/License Plate: 0239474 ME
F. Transporter's Phone
G. Facility Mailing Address
H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	30980	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
Can # 347

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
Gerald R. Audet	Gerald R. Audet	02 04 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
JERRY BEAUDOIN	Jerry Beaudoin	02 04 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

GENERATOR — TRANSPORTER — FACILITY

...Island, contact the RI Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

In the event of a spill, contact the national response center (U.S. Coast Guard) at (800) 424-8802. For spills within th...

Copy to Facility Upon Delivery

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34337

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0	Manifest Document No. 90344	2. Page 1 of 2

Information in the shaded areas is not required by Federal law but may be required by state law

GENERATOR

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number: RI H0004519

4. Generator's Phone (401-832-3145)

B. Generator/Site Address: 1176 Howell St. BLDG 179 Newport RI

5. Transporter 1 Company Name: USA waste OF CT Inc.

6. US EPA ID Number

C. State Transporter ID/License Plate: 023985 ME

~~7. Transporter 2 Company Name: EVANS TRANSPORTATION CO., INC~~

8. US EPA ID Number: CTD988886341

D. Transporter's Phone: ~~860-242-4989~~

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	1	CM	13120	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CAN #300

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Lyons — Signature — Date: Month Day Year 02 03 91

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Sam Koybal — Signature — Date: Month Day Year 02 03 91

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 3700-22 (3-34)

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33907

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. 19034

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number: RI H0004513

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI.

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC

6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 023984 ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 4 3 6 4 9 9 4 6

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	01	CM	19340	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth a.# VT0077523
b.
c.
d

K. Handling Codes for Wastes Listed Above	Interim	Final	Interim	Final
a.			c.	
b.			d.	

15. Special Handling Instructions and Additional Informa INFOTRAC 1-800-535-5053
CAN# 333

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Fregalls — Signature — Date: Month Day Year 02 03 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: NEAL LEVINE — Signature — Date: Month Day Year 02 03 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed Typed Name — Signature — Date: Month Day Year

GENERATOR
TRANSPORTER
FACILITY

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33908

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RIB170024790	Manifest Document No. 90343	2. Page 1 of 1	Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone ( ) 401-832-3145

5. Transporter 1 Company Name: U.S.D Waste of CT Inc
LOGANO TRANSPORTATION CO., INC — US EPA ID Number: CTD983896346

6. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC) — 10. US EPA ID Number: 11436449946

A. State Manifest Document Number: RI H0004514

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI.

C. State Transporter ID/License Plate: 0239488 MF

D. Transporter's Phone: 860-342-498

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-923(

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	1	CM	30260	P	F002 F0
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CAN # 4132

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Lucik — Signature — Date: Month Day Year 6 21 03 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: TED Lukasik — Signature — Date: Month Day Year 7 2 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 8700-22 (3-84)

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34336

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0	Manifest Document No. 10342	2. Page 1 of 1

Information in the shaded areas is not required by Federal law but may be required by state law.

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number: RI H0004518

4. Generator's Phone (401-832-3145)

B. Generator/Site Address: 1176 Howell St. Bldg 179 Newport RI

5. Transporter 1 Company Name: USA Waste of CT (xax) ~~OCEAN TRANSPORTATION CO., INC~~

6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 0239483/ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	1	CM	10300	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # a. VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CAN # 365

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: John Ingalls — Signature — Date: Month Day Year 02 10 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Kendall Knox — Signature: Kendall Knox — Date: Month Day Year 02 03 99

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Date: Month Day Year

GENERATOR

TRANSPORTER

FACILITY

In the event of a spill, contact the National Response Center, U.S. Coast Guard 1-800-424-8802. For spills within Rhode Island, contact the RI Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

EPA Form 8700-22 (3-84)

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SHT.

BY R.BEAUREGARD DATE 12-14-98, 1-14-99, 1-22-99, 2-3-99, 2-4-99, 3-3-99 SHEET 1 OF 1

CHKD. BY _____ DATE _____ OFS NO. 1284-013 DEPT. NO. CONST

CLIENT NJWC

PROJECT BLDG. #179 GRID #19 & INTERCEPTOR TANK/PIPING EXCAVATION

SUBJECT ROLLOFF & DRUM ACCOUNTABILITY

NOTE #1: 28 DRUMS HAD FLUID REMOVED VIA VAC TRUCK ON 12-23-98, MANIFEST 83641 (F002, & DRUMS (28) ARE LABELLED "EMPTY".

NOTE #2: 36 DRUMS W/FLUID/SLUDGE WERE PICKED-UP/REMOVED ON 2-26-99, MANIFEST 99057/(AR 1020354). THERE WAS ONE(1) EXTRA DRUM FOR A TOTAL OF 64 DRUMS

ROLLOFF SUPPLIER NAME	ROLLOFF NO.	EXCAV ZONE	DATE ACCUM. STARTED	LINER IN PLACE Y/N	HAZ LABEL IN PLACE Y/N	MANIFEST NUMBER	DEPARTURE DATE	REMARKS
LOGANO	428	13→18	10-31-98	Y	Y	83646	12-30-98	ORIGINAL TRACK AREA EXCAVATION (F002/F005/D003)
	445	13→18	10-31-98	Y	Y	83645	12-30-98	DITTO. (F002/F005/0003)
	425	1	12-2-98	Y	Y	83644	12-30-98	(F002/F005)
	461	2		Y	Y	83642	12-30-98	(F002/F005)
	357	3		Y	Y	83643	12-30-98	(F002/F005)
	290	4		Y	Y	90061	1-6-99	(F002/F005)
	366	5		Y	Y	90064	1-6-99	(F002/F005)
	274	6		Y	Y	90062	1-6-99	OUR LINER (F002/F005)
	478	7		Y	Y	90063	1-6-99	(F002/F005)
	293	8	12-3-98	Y	Y	90353	2-4-99	STOVE ON INTERCEPTOR TK. & AREA (F002/F005)
	276	9	12-7-98	Y	Y	90354	2-4-99	(F002/F005)
	331	10	12-7-98	Y	Y	90351	2-4-99	(F002/F005)
	347	11	12-8-98	Y	Y	90352	2-4-99	(F002/F005)
	300	12		Y	Y	90344	2-3-99	HALF FULL (F002/F005)
	333	13		Y	Y	90341	2-3-99	(F002/F005)
	432	14		Y	Y	90343	2-3-99	(F002/F005)
	365	N/A	12-18-98	Y	Y	90342	2-3-99	WTS LINER DEBRIS & FILTRATION MEDIA (F002/F005)

DRUM COUNT	CONTENT DESCRIPTION	DATE ACCUM. STARTED	HAZ LABEL IN PLACE Y/N	MANIFEST NUMBER	DEPARTURE DATE	REMARKS (SEE NOTE #1 & #2)
8	CUST CLEANING FLUID	11-30-98	Y	VAC TRUCK #83641	12-23-98	(1840 GALLONS)
4	DITTO	12-1-98	Y	&		
12	INTERCEPTOR TANK FLUID	12-4-98	Y	99057	2-26-99	36 DRUMS W/FLUID/SLUDGE & 28 EMPTY DRUMS
6	DITTO	12-7-98	Y	(AR 1020354)		
2	INTERCEPTOR TK FLUID (WASHWATER & SLUDGE)	12-7-98	Y			
2+1	INTERCEPTOR TANK (FLUID & SLUDGE)	12-7-98	Y			(1) PARTIALLY FULL
12	FRAC TANK DECON FLUID	12-15-98	Y			SOME DRUMS W/SEDIMENT
11	SECONDARY CNTMT FLUID	12-17-98	Y			DITTO
5	FILTER MEDIA FLUID	12-21-98	Y			

64 TOTAL DRUMS

FWENC 581D 10/96

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

357-018

GCC FILE # 33842

Please print or type. (Form designed for use on elite (12-pitch) type)

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded ar is not required by Federal la
	RI8170024790	83641		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell st.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone 401-841-3145 (24hr) 832

A. State Manifest Document Number: MA K 725059

B. State Gen. ID: Same

5. Transporter 1 Company Name: GENERAL CHEMICAL CORPORATION

6. US EPA ID Number: MAD019371079

C. State Trans. ID: 39485 MA

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone: 508-872-5000

9. Designated Facility Name and Site Address
GENERAL CHEMICAL CORPORATION
133 LELAND STREET
FRAMINGHAM MA 01702

10. US EPA ID Number: MAD019371079

E. State Trans. ID

F. Transporter's Phone

G. State Facility's ID: NOT REQUIRED

H. Facility's Phone: 508-872-5000

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. WASTE NO
a. RQ, HAZARDOUS WASTE LIQUID, n.o.s. (1-1-1 TRICHLOROETHANE/WATER) 9 , NA3082, PGIII, (F002)	201	TT	1840	G	F002
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a. CONTAINS WATER//1-1-1 TRICHLOROETHA
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a. S 1 0 P
b.
c.
d.

15. Special Handling Instructions and Additional Information
ERG# 171
INFOTRAC 1-800-535-5053 Emergency Call GC At 800 645 3300

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls	John Ingalls	12 23 98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials		
Printed/Typed Name: MARK CROWAN	Signature: Mark Crowan	Date: 12 23 98
18. Transporter 2 Acknowledgement of Receipt of Materials		
Printed/Typed Name	Signature	Date

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item19

Printed/Typed Name	Signature	Date (Month Day Year)

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

GENERATOR

Form Approved OMB No 2050-0039 Expires 9-30-96
EPA Form 8700-22 (Rev 9-88) Previous editions are obsolete.

STATE OF ARKANSAS

Department of Pollution Control and Ecology
P.O. Box 8913 Little Rock, Arkansas 72219-8913
Telephone 501-682-0744

GCC FILE # 34594

17-75-1

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-CC.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: R I 8 1 7 0 0 2 4 7 9 | Manifest Document No.: 999051[illegible]
2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER , ENV DIV 551 BLDG 11 (HW)
NEWPORT RI. 02841
401-832-3145

4. Generator's Phone ( )

A. State Manifest Document Number: AR- 1020359

B. State Generator's ID: 1176 HOWELL STREET BUILDING#179 NEWPORT, RI.

5. Transporter 1 Company Name: GENERAL CHEMICAL CORPORATION
6. US EPA ID Number: M A D 0 1 9 3 7 1 0 7 9

C. State Transporter's ID: 108 H. 5768

D. Transporter's Phone: 508-872-3000

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
ENSCO INC
AMERICAN ROAD
EL DORADO AR 71730
10. US EPA ID Number: A R D 0 6 9 7 4 8 1 9 2

G. State Facility's ID
H. Facility's Phone: 870-863-7173

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, WASTE TOXIC LIQUIDS, ORGANIC NOS (1,1-DICHLORDETHANE/ACETONE) 6.1, UN2810, PGII, (D003)(D029)	0.36	DM	Est. 1,620	P	D003 D029 F[illegible] F003 F005 D[illegible]
b.			Est.		
c.			Est.		
d.			Est.		

J. Additional Description for Materials Listed Above
a.Auth. # 779975

If no alternate TSDF, return to generator

K. Emergency Response Information:
I INFOTRAC 1-800-535-5053

15. Special Handling Instructions and Additional Information
a.ERG 153

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Ingalls | Signature | Month Day Yr: 07.22.69

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Carl Heskel | Signature | Month Day Yr: 07.26.69

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Yr

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name | Signature | Month Day Yr

Form 8 TREATMENT

(Rev 9-88) Previous edition is obsolete

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34336

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. 10342

2. Page 1 — Information in the shaded areas is not required by Federal law, but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number: RI H0004518

4. Generator's Phone (401-832-3145)

B. Generator/Site Address: 176 Howell St. Bldg 179 Newport RI

5. Transporter 1 Company Name: USA Waste of CT (XAX) ~~LOCKE TRANSPORTATION CO., INC~~

6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 0239483/ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

E. State Transporter ID/License Plate

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLORODETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	1	CM	10300	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CAN # 365

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Ingalls — Signature — Date: Month Day Year 10 21 03 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Kendall Knox — Signature: Kendall Knox — Date: Month Day Year 10 20 3 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 8700-22 (3-84)

APPENDIX H

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO.5 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 13

PHOTOGRAPHIC CONTROL LOG

ROLL #84
KODAK #400, 24 EXP.
#190798, NEG. #61529

PHOTOGRAPHER	DATE	TIME	FRAME NO.	SITE LOCATION	DIRECTION	ACTIVITY / COMMENTS
R. BEAUREGARD	11-24-98	10:30	1	BLDG. #6 (TP-14)	NE	EXCAVATION AREA
			2		N	DITTO
			3		N	DITTO
	11-30-98	11:35	4	BLDG. #179	W	CUST DEWATERING
		11:40	5		SW	VALVE ACCESS FOR OUTLET TO INTERCEPTOR TANK
		11:43	6		W	BOARD MARKS DISCH. PIPE END (OUTFA
		11:44	7		W	DITTO (W/WETLAND SITE
		11:50	8		S	AIR MONITORING IN CUST 1.5PPM NA
	12-1-98	2:25	9		S	CUST CLEANED & DRY
		2:25	10		E	DITTO
		2:27	11		W	DITTO
		2:30	12		N	DITTO
		2:55	13		E	CUST 179 W1 SAMPLE TAKEN
		3:12	14		E	DITTO AREA
		3:25	15		S	CUST 179 W2 SAMPLE AREA
		3:30	16		NW	CUST 179 W3 SAMPLE TAKEN
		3:40	17		SW	CUST 179 F1 SAMPLE AREA
		3:53	18		DOWN	CUST 179 W4 SAMPLE TAKEN
		4:00	19		DOWN	CUST 179 W4 LOADING SMPL INTO JA
		4:01	20		DOWN	CUST 179 F1 SAMPLE AREA
	12-2-98	8:07	21		DOWN/W	CUST 179 SHOWING DRY BASE (NO LEAKAGE)
		8:08	22		DOWN/E	CUST 179 SHOWING DRY BASE (AFTER 24 HR CLEANING)
		8:14	23		W	CUST 179 EXCAVATION AREA
			24		W	DITTO
			25		NW	DITTO
			26			
			27			
			28			
			29			
			30			
			31			
			32			
			33			
			34			
			35			
			36			
			37			

PCL 6-10-96

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO.5 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 13

PHOTOGRAPHIC CONTROL LOG

ROLL #85

KODAK #200 GOLD

190798 NEG. #61527

PHOTOGRAPHER	DATE	TIME	FRAME NO.	SITE LOCATION	DIRECTION	ACTIVITY / COMMENTS
R. BEAUREGARD	12-2-98	8:40	1	BLDG. #179	DOWN/S	CUST 179 SHOWING DRY CONDITIONS FROM 12-1-98 CLEANI
		8:40	2		DOWN/N	DITTO
		11:15	3		N	6" PIPE HIT @ 50.5 EL. APPRO
		11:20	4		NW	SHOWING 50.50 EL. GRADE
		2:30	5		W	EXCAVATED AREA (SOUTHSIDE OF CUST
		2:30	6		N	DITTO (EASTSIDE OF CUST
	↓	2:55	7		W	YELLOWISH FLUID INDICATING PRESN
	12-3-98	9:20	8		DOWN/W	AIR MONITORING PRIOR TO SAMPLI
		10:35	9		DOWN/N	GRID #19 W3 SAMPLING
		10:42	10		DOWN/E	GRID #19 W4 ENCLOSE SAMPLIN
		1:50	11		DOWN/E	PLACING FLOWABLE FILL INTO CU
	↓	2:05	12		DOWN/W	TAKEN FLUID (YELLOWISH) SAMPL
	12-4-98	9:45	13		N	CUST & PIPE TRENCH FILLED W/FLO
		9:46	14		DOWN/N	YELLOWISH/BROWNISH FLUID, WHITISH FLUID FROM FLOWABLE FIL
	↓	11:40	15		DOWN/N	DITTO PRIOR TO SAMPLING
	12-7-98	8:50	16		W	SLUDGE SAMPLE FROM INTERCEP. TK
		9:15	17		E	MOVING 12" SLUDGE DRUM
		9:15	18		E	WORKERS IN INTERCEP TK W/AIR RES
		11:05	19		DOWN/W	INTERCEP. TK CLEANED INTERIOR FLOO
		2:45	20		E	END OF OUTFALL PIPING W/2' DEEP EXC
	↓	3:55	21		W	OPEN TRENCH FROM OUTFALL PIPE REMO
↓	12-8-98	8:30	22		W	INTERCEP. TK OPENED TOP W/6" C.I. PIPIN
J. CAREY		10:00	23		N	EXCAVATING SOIL/CONC FROM INTERCEP.
		10:05	24		E	OUTFALL TRENCH EXCAVATION
↓	↓	11:06	25	↓	SW	GRID #19 EXCAVATION (EAST SIDE OF CUST) YELL FLU
			26			
			27			
			28			
			29			
			30			
			31			
			32			
			33			
			34			
			35			
			36			
			37			

PCL 6-10-96

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO. 5 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 13

PHOTOGRAPHIC CONTROL LOG

ROLL #86
KODAK #400, 24 EXP.
19031Z, NEG: 6/606

PHOTOGRAPHER	DATE	TIME	FRAME NO.	SITE LOCATION	DIRECTION	ACTIVITY / COMMENTS
J. CARY	12-8-98		1	BLDG #179	NW	INTERCEPTOR TANK AREA EXCAVATION
	12-9-98		2		SE	LINER, BACKFILL, COMPACTI WITHIN PIPE INTERCEPTOR TK. AR
			3		E	INTERCEPTOR TK. PIPE DISCH TRENCH LINER PRIOR TO BACKF
			4		SE	PSI PERFORMING COMPACTIO DENSITY TESTING (INT. TK. AR
			5		SE	DITTO
			6		SE	DITTO
			7			DITTO (@ WORK ARE
			8		E	BACKFILLING INTERCEPTOR TA PIPE TRENCH
R. BEAUCHEMIN	1-19-99	11:06	9	BLDG. #6	NE	3RD DIG (EXCAVATION LIMITS)
		11:06	10		NE	DITTO
		11:10	11		E	DITTO
	1-20-99	2:35	12	BLDG #6 DRY STORAGE	NE	3RD DIG EXCAVATION STAGE
		2:40	13		E	DITTO, SHOWING 40 MIL LIN
		2:41	14		NE	DITTO
		2:45	15	BLDG #6	E	3RD DIG EXCAVATION W/ WATER
		2:45	16		N	DITTO W/ STREAM DIVE (CLEAN BACKFI
		2:46	17		N	DITTO W/ ONE BACKFIL LOAD FOR DIK
		2:47	18		N	DITTO
J. CARY	2-3-99	AFTER 12:30	19	GOULDS ISLAND BLDG #35	W	PIPING ON 1ST FLOOR
			20		S	DITTO
			21		E	OUTSIDE AREA DEBRIS
			22	GOULDS ISLAND BLDG #32	S	EXISTING DEBRIS/CONDITION
			23			EXISTING CONDITIONS
			24			DITTO
			25			DITTO (WOOD FLOOR BUCKLIN
			26			
			27			
			28			
			29			
			30			
			31			
			32			
			33			
			34			
			35			
			36			
			37			

PCL 6-10-96

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SHT. 3

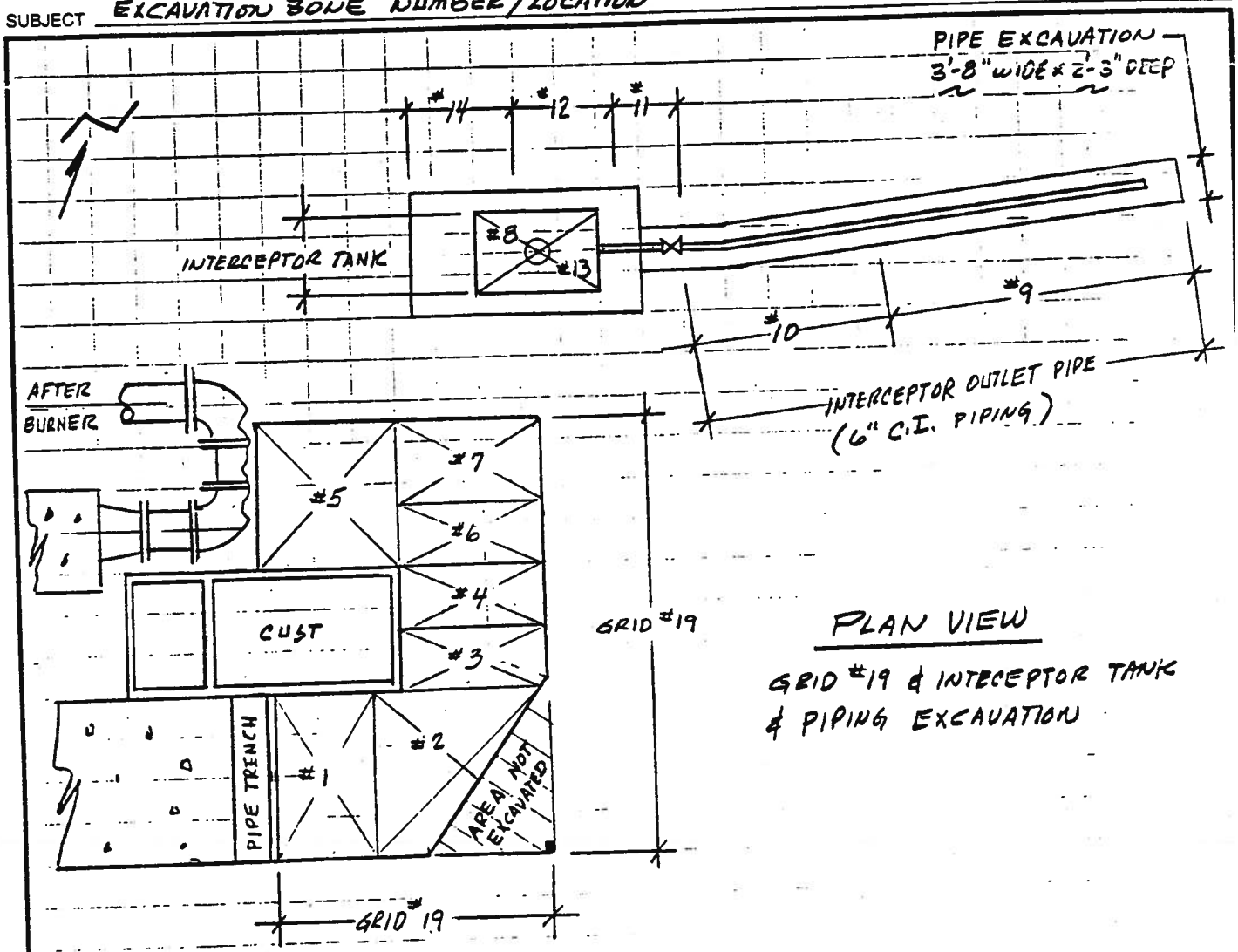
BY R. BEAUREGARD DATE 12-14-98 FSK-01 SHEET 1 OF 1

CHKD. BY _____ DATE _____ OFS NO. 1284-013 DEPT. NO. CONST.

CLIENT NUWC

PROJECT BLDG. #179 GRID #19 & INTERCEPTOR TANK/PIPING EXCAVATION

SUBJECT EXCAVATION ZONE NUMBER/LOCATION



PLAN VIEW

GRID #19 & INTERCEPTOR TANK & PIPING EXCAVATION

NOTES:

1- GRID #19 EXCAVATION ZONES #1 THRU #7, DEPTH 50.50' ELEV. MIN. (CONTENT, SOIL)

2- INTERCEPTOR TANK/PIPE

- EXCAVATION ZONE #8, TANK TOP COVER (CONTENT, 1½" STONE PRIMARILY W/SOIL)
- EXCAVATION ZONE #9, #10 & #11 PIPE TRENCH AREA (CONTENT, SOIL)
- EXCAVATION ZONE #12 INTERCEPTOR PERIMETER AREA (CONTENT SOIL)
- EXCAVATION ZONE #13 CRUSHED INTERCEPTOR TANK, PIPE & VALVE (CONTENT CONCRETE, C.I. PIPE & SOIL)
- EXCAVATION ZONE #14 INTERCEPTOR PERIMETER AREA (CONTENT, SOIL)

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SHT. 4

BY R. BEAUREGARD DATE 12-14-98 FSK-02 SHEET 1 OF 1

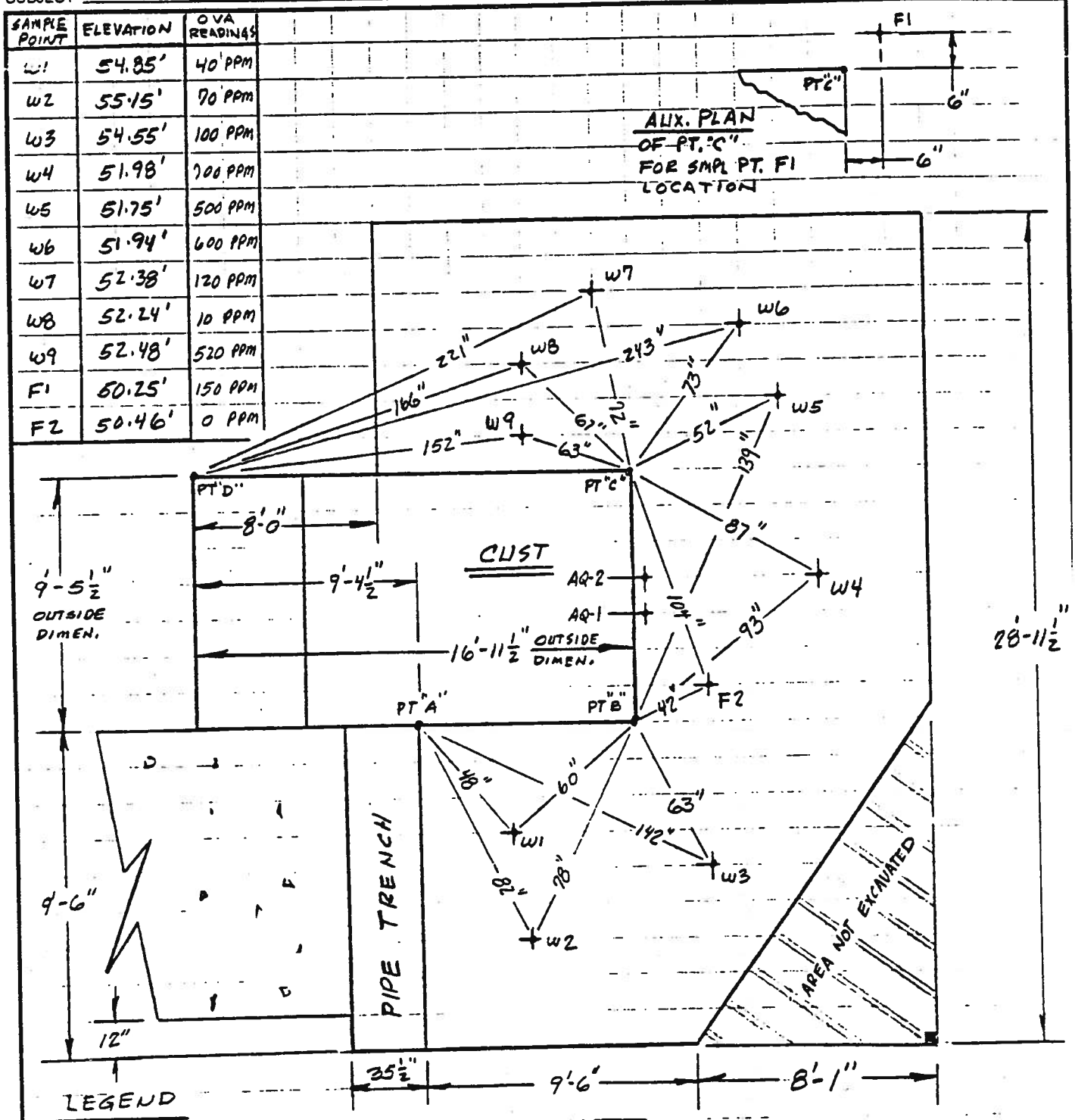
CHKD. BY _____ DATE _____ OFS NO. 1284-013 DEPT. NO. CONST.

CLIENT NUWC

PROJECT BLDG. #179 GRID #19 (CUST AREA)

SUBJECT SAMPLE POINT LOCATIONS & ELEVATIONS

SAMPLE POINT	ELEVATION	OVA READINGS
W1	54.85'	40 PPM
W2	55.15'	70 PPM
W3	54.55'	100 PPM
W4	51.98'	700 PPM
W5	51.75'	500 PPM
W6	51.94'	600 PPM
W7	52.38'	120 PPM
W8	52.24'	10 PPM
W9	52.48'	520 PPM
F1	50.25'	150 PPM
F2	50.46'	0 PPM



LEGEND

F = FLOOR SAMPLE

W = WALL SAMPLE

AQ = AQUEOUS (YELLOWISH FLUID)

PLAN VIEW

GRID #19

SAMPLE POINT LOCATIONS

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SHT. 5

BY R. BEAUREGARD DATE 12-15-98 FSK-03 SHEET 1 OF 1

CHKD. BY _____ DATE _____ OFS NO. 1284-13 DEPT. NO. CONST.

CLIENT NUWC

PROJECT BLDG # 179 CUST CONCRETE SAMPLES

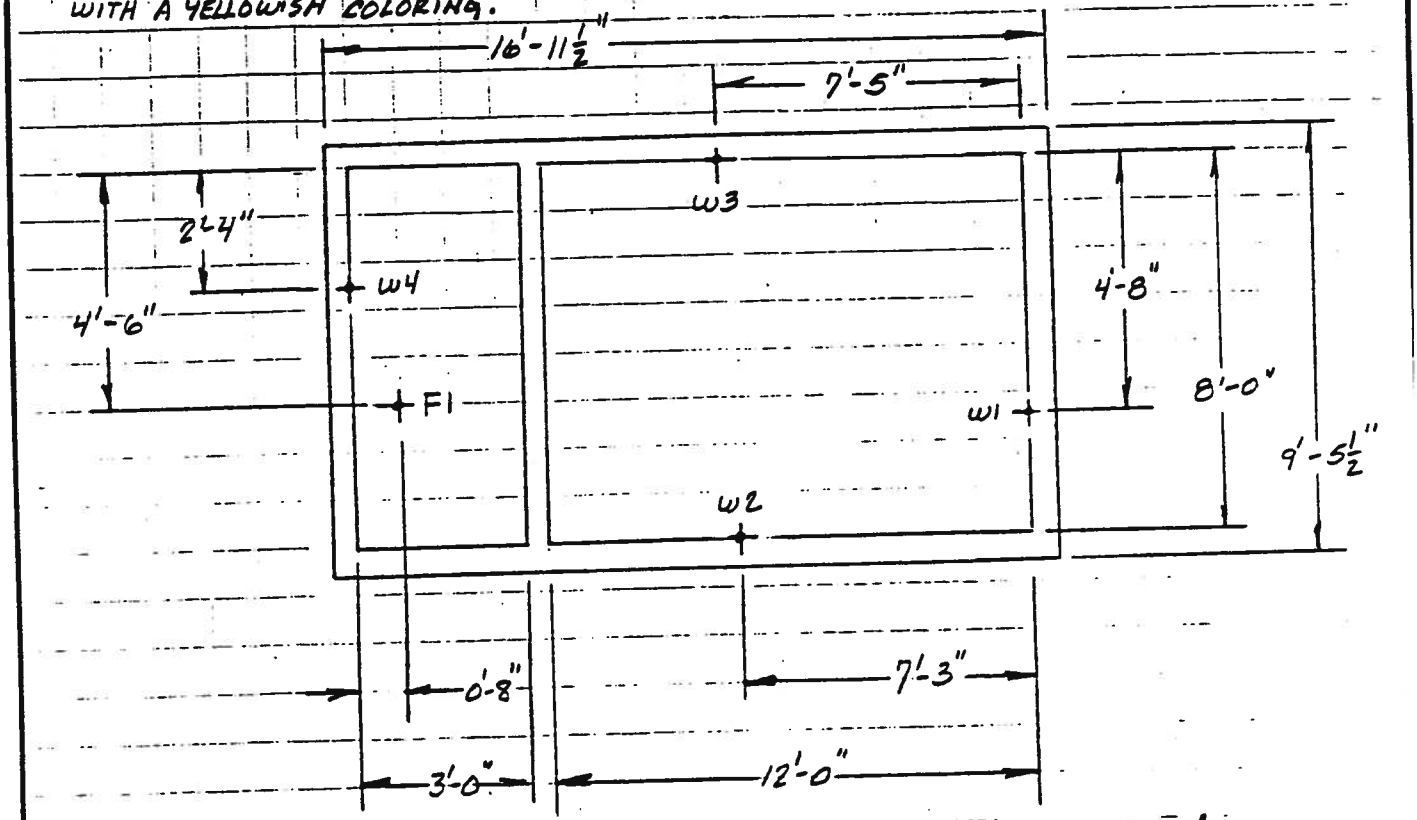
SUBJECT SAMPLE POINT LOCATIONS & ELEVATIONS

NOTES:

1- TOTAL WALL HEIGHT (INSIDE) OF CUST IS 8'-3".

2- SAMPLE LOCATIONS W1 THRU W4 CONCRETE SURFACE WAS SMOOTH & SOLID.

3- SAMPLE LOCATION F1 CONCRETE SURFACE WAS DISINTERGRATING (CRUMBLING) WITH A YELLOWISH COLORING.



PLAN VIEW

CUST

SAMPLE POINT LOCATIONS

SAMPLE POINT	SAMPLE TYPE	SAMPLE LOC. UP FROM BOTTOM (FLOOR) OF TK.
W1	WALL	10"
W2	WALL	10"
W3	WALL	10"
W4	WALL	9"
F1	FLOOR	ON THE FLOOR

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SHT. 6

BY R. BEAUREGARD DATE 12-15-98 FSK-04

CHKD. BY _____ DATE _____

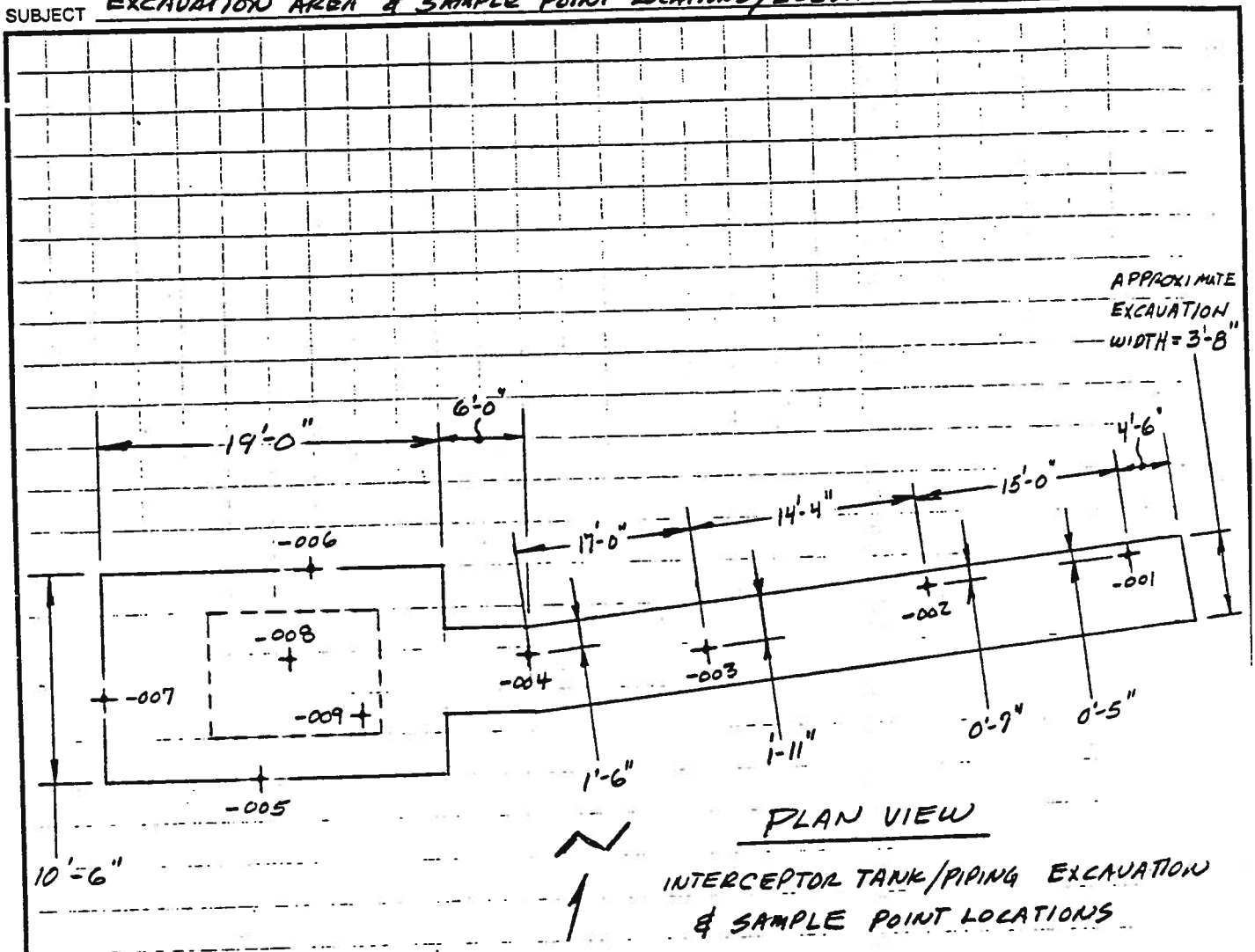
SHEET 1 OF 1

OFS NO. 1284-013 DEPT. NO. CONST.

CLIENT NUWC

PROJECT BLDG #179 INTERCEPTOR TANK & PIPE EXCAVATION

SUBJECT EXCAVATION AREA & SAMPLE POINT LOCATIONS/ELEVATIONS



PLAN VIEW

INTERCEPTOR TANK/PIPING EXCAVATION & SAMPLE POINT LOCATIONS

1

SAMPLE POINT	SMPL TYPE	ELEVATION	OVA READINGS	REMARKS
IT-OF-001	FLOOR	51.14'		
-002	FLOOR	51.75'	2 PPM	
-003	FLOOR	51.57'	8 PPM	
-004	FLOOR	51.71'		
-005	WALL	52.35'	72 TO 100 PPM	7'-11" WALL HT. 1'-7" FROM BOT.
-006	WALL	50.09'	20 PPM	7'-6" WALL HT. 10" FROM BOT.
-007	WALL	51.09'		
-008	FLOOR	49.76'		
-009	FLOOR	49.72'	75 PPM	

Tank Farm 5 / Bldg 179

11/25/98 — H&S Log — Day 3

15:50 Nathan Reynolds from Matthews picks up samples + COC.

17:00 N. Johnson and J. Little return from Bldg 6/TP14 from closing excavations w/ WS/blk fencing and barricades

17:30 A. Prophete discusses next week activities w/ Jon Cary. A. Prophete To call Severn Trent Labs to arrange for Encore Samplers and sample collection on Wednesday 12/2/98.

Andrew Prophete

Andrew Prophete 11/25/98

11/30/98 — H&S Log — Day 5

0630 Daily Briefing / H&S Briefing. Topic: PGDN and other VOCs we may encounter. Action levels, proper PPE, limit values.

0730 Craft to Building 179 to setup decon area, exclusion zone, support zone, etc. A. Prophete monitors activities for compliance.

0800 Prep / calibrate OVA # FW 00066, FW# (FW0067) and MSA Passport (CGI) for daily activities. See calibration log sheets for cal. readings and adjustments.

0910 Transport H&S supplies, supplied air bottles and hosing, Sampling equipment to B/79 support zone. Verify H and S precautions w/ Grey Corp., PASM, Pumping activities underway, to Frac Tank # 1 WTS.

Weather: Partly cloudy, 40° F

Andrew Prophete 11/30/98

11/30/98 HTRW Log Doi3

1100 Mob to site Bldg 179. Finish pumping CUST of Percolation and GW. A. Prophete prep OVA and Microtip to enter CUST.

1110 A. Prophete and J. Cambra don fall protection harnesses to enter tank.

1130 Navy Rep , on site and video recording CUST Closure. A. Prophete screening tank. see Air monitoring readings on page # 39)

1148 Petroleum odor, Andrew Prophete monitoring with OVA. A film is detected floating on the water. Bottom of tank is solid.

1155 A. Prophete climbs ladder out of Tank. Photos # 1 – 10 of roll # 10 taken of Pre entry tank condition. Cust is approximately

Andrew Prophete 11/30/98

11/30/98 HTRW Log Doi3

Air Monitoring B179
CUST Closure

Time	OVA(BZ) (VOC) ppm	LEL%	O_2%	CO ppm	H_2S ppm
1148	.5ppm	0.0ppm	20.8	0.0ppm	0.0ppm
1152	2.5ppm	0.0ppm	20.8	0.0ppm	0.0ppm
1155	2.5ppm	(In 6" dia pipe on floor-NE corner			
1350	.5ppm	(In CUST)			
1355	.5ppm	0.0	20.8	0.0	0.0
1400	5ppm	(In Cust BZ)			
1410	10ppm	(Bucket w/sludge from CUST)			
1426	6ppm	0.0ppm	20.8	0.0ppm	0.0ppm
1445	0.2ppm				
1510	0.0ppm				
1515	0.0ppm				
1530	.8ppm				
1545	0.0ppm				

Andrew Prophett 11/30/98

(41)

11/30/98

Tank Farm 5 / Bldg 119

HSI Coy D013

5ft wide x 10ft long by 9ft deep. Partition wall in western portion of Tank cuts tank in two sections one 8ft long and the other 2ft long. The Tank has observable black staining on all ~~walls of the inner tank~~ inner walls that has ~~partially~~ an oily feel to the touch. Noticeable petroleum odor while in the tank. Bottom of tank still has 3 inches of percalation / rain water w/ sheen on top of water. Mike Pierson on site and discussed draining wash waters for disposal characterization.

1350 A. Prophete enters CUST to screen for VOCs. Navy Personnel concerned about oily sheen and odor on water in CUST

1415 Joe Cambra enters tank Jeff little exists. Cleaning inner walls of tank.

1545 Finish Power wash operations weather: Partly Cloudy, 56°F

Andrew Prophete 11/30/98

11/30/98

1600

1635

Tank Farm 5 / Bldg 171 (41)

HSI Coy D015

for the day. Eight (8) - 55 gal drums filled w/ tank cleaning waters and stored w/ in Exclusion zone on 10mil Poly sheeting.

Site cleanup

Depart Site. Sample B179-EF-113098 Picked up by RI analytical courier — Day 1 dismissed

Andrew Prophete

Andrew Prophete 11/30/98

Tank Farm 5 (43)

HTS Log 12/1/98

0013

0630 Daily HIS Briefing, Craft Assignment Briefing. Topic: AHA review for cust cleaning Bldg 179. Discharge line Removal from TF5.

0710 A. Prophete calibrates OVA #FW0899 and MSA Respirt # FW00287 for todays CUST cleaning. Prep equipment for decoming/sampling equipment and utensils.

0745 0820 A. Prophete arrives at Bldg #179, Grid 19, CUST cleaning. Jeff Little in ~~tyvek~~ Saranex tyvek, outer + inner nitriles and overboots enters tank via extension ladder + DEI/Sala J. Little steam cleaning walls and floor of CUST w/ cleaning wand and Pressure washer rental from R and S Rental. Set up air monitoring equipment and R Johnson to monitor confined Space.

weather: Cloudy, rain 49°F

Andrew Prophete 12/1/98

12/1/98

(44) Tank Farm 5/Bldg 117

12/1/98 Sampling/HTS Log D013

0840 Loading 6 drums of containerized wash waters from cust and rain water in cust to drum staging area.

0855 A. Prophete informed by N. Johnson that MSA Pump malfunctioned and OVA not operating properly — needle fluctuating. Attempting to repair both problems.

0920 OVA operational and continue 15 min readings. MSA Passport requires new filter.

0950 A. Prophete collects DAY 2 Effluent sample from WTS for VOC 8260, TPH 8015 and pH. Will return to ~~5~~ (45) Tank Farm 5 supply to retrieve filters for MSA Passport. Designate Sample as BI79-EF-120198.

1015 Inspect cleaning ops at Grid 19 CUST, Building 179. Navy photographer/video recorder

Andrew Prophete 12/1/98

(45) Tank Farm 5/Bldg 179

12/1/98 Sampling/HTS Log D013

setting up equipment to film CUST closure activities. A. Prophete reminds crew to remove PPE before leaving exclusion zone. PPE and waste waters to be drummed and taken by (AP) to drum staging designated by NAVY.

1100 A. Prophete discusses recent Bldg #6/TP14 rel (AP) sampling results w/ Art Holcomb, Project (AP) Program Manager.

1120 A. Prophete and A. Holcomb visit Bldg #6/TP14 to inspect post activities and visualize contaminant plume migration

1145 A. Holcomb at Tank Farm 5 to review Bldg #6/TP14 work plans and associated materials to converse w/ Stephen Lawlor and Jon Cary.

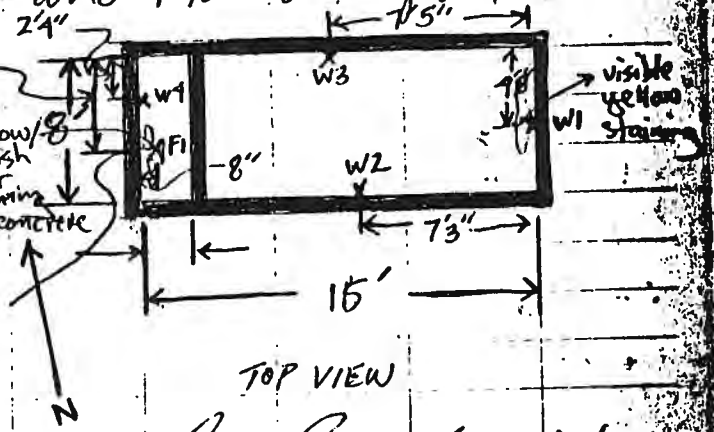
Andrew Prophete 12/1/98

12/1/98 sampling/HTS log D013

12:30 A. Prophete returns back to Bldg#179/Grid#19 Cust Closure. Prep sampling equipment and Power drill to collect 5- concrete-chip samples from walls and floor of cleaned CUST.

14:00 A. Prophete and N. Johnson prep decon area for sampling equipment.

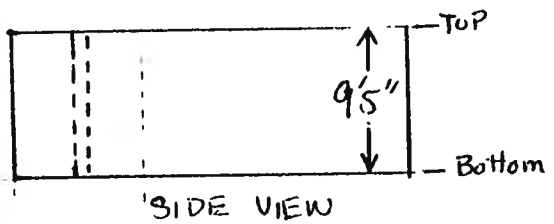
14:20 A. Prophete and N. Johnson access CUST via ladder and DBI/SALA fall protection and retrieval system. See sketch below and CUST inner walls and floor description.



TOP VIEW

Andrew Prophete 12/1/98

12/1/98 sampling/HTS log D013



SIDE VIEW

floor to 10" above floor – heavy black staining on walls, slightly oily feel to touch

10" to ≈5ft above floor – slight black staining in patches, dry and dull.

5' to 8'3" above floor (top of wall) – concrete wall visible, sporatic staining.

Floor of tank has concentrated staining in corners and crevices where wall meets floor, yellowish staining in some areas, crumbly to the touch and unusual odor when pieces broken.

1455 Three inch diameter hole, 1/4" to 1/2"

weather: Partly Cloudy, windy 58°F

Andrew Prophete 12/1/98

(40) Bldg 179 Sampling / HHS Log

12/1/98

deep chipped from Wall 1 (Northern) at 10" above floor and 4'8" from Northern (Eastern) Wall. Sample B179 CUST-W1 collected in 2-8oz amber jars for VOC 8260, SVOC 8270, Total Cyanide and TPH 8015.

1525 Sample B179 CUST-W2 collected from southern wall at 10" above floor and 7'3" from SE corner.

1530 Sample B179 CUST-W3 collected from eastern wall at 10" above floor and 7'5" from NE corner.

1553 Sample B179 CUST-W4 collected from Western wall, west of partition wall (Baffle) at 9" above floor and 2'4" from NW corner of tank. Visible yellowish brown staining on wall at this sample location and dark yellowish staining on floor immediately

Andrew Prophet 12/1/98

(41) Bldg 179 Sampling / HHS Log

12/1/98

below this wall location. Unusual residual odor noted, possibly PGDN dye coming from floor.

1601 Collect samples @ B179-CUST-F1 from floor, 8" from west wall, 4'6" from NW corner. Odor emitted from floor cuttings. Concrete chips exhibit yellowish staining throughout some pieces.

1620 Prep samples for courier collection from Mitkem. Note: Brian Sullivan, TRC, informed me that Mike Pierson, NOWC, did not want samples (concrete chip) collected for PGDN.

1645 Relinquish cooler w/ samples to James Henley, Mitkem. 5-samples in total for expedited 48 hr turnaround.

Andrew Prophet 12/1/98

(56) Bldg 179

12/1/98 Sampling / HTS log D013

1700 Clean up site from days activities. Close off exclusion zone w/ visible fencing and prep for tomorrows activities.

1740 A. Prophet departs tank Farm 5 site. Four (4) drums filled w/ CUST cleaning fluid. Moved to B179 drum staging area.

Andrew Prophet 12/1/98

(57) Tank Farm 5 / Bldg 179

12/2/98 HTS / Sampling D013

0630 Daily HTS Briefing and Craft assignments. Topic: watch for Slip/Trip/Fall hazards in freshly cleared area. Stay clear of heavy machinery. Prep OVA # 00099 and 00066 and MSA Passport # 00287 for field screening BTK Grid 19 Post Excavation and Interceptor tank removal. See Calibration log sheets.

0800 AT Bldg 179 Grid 19. CUST Cleaned and previously sampled. A. Prophet field screens sawcut wetlands area around interceptor tank w/in silt fencing. On perimeter of fencing is ~~stained~~ black clumpy soils w/ hydrocarbon odor. FID = 10-12 ppm in soils, NAB in Breathing Zone.

0815 Start excavation southern perimeter of CUST / Grid 19. See Air Monitoring log for weather: sunny 36°F

Andrew Prophet 12/2/98

(57) P.179 P.180

12/2/98 Sampling / HIS Log D013 . 12/2/98 Sampling Log

Excavation level
at 1S ppm then upgrade to level
B supplied air.

0904 Excavation down 2ft sloping
1:1 from Pipe trench wall (ap)
adjacent to afterburner.
Strong odor from excavator
bucket and freshly dug soils
0-2 ppm in BZ.

0910 Screen soils at 4ft bgs =
0-15ppm, not sustained

0912 Roll off # LOGANO425 filled to
weight capacity.

0920 Roll off # LOGANO461 placed
at excavation for filling

0926 Start excavating soils

0930 Depth of excavation = 5ft bgs.

0935 Depth of excavation = 7ft bgs
FID in BZ: 5-7 ppm.

0939 Repositioning rolloff for
Eastern portion cut.

0945 Depth of excavation = 1.5 bgs.
FID in BZ = 0-2 ppm, soils = 8.0 ppm

1005 Depth of excavation = 3ft bgs

Andrei Prophets 12/2/98

FID in BZ = 0-2 ppm
Second rolloff filled and sent
to drum staging.

1016 Third rolloff on site and
prepared for soils collection.

1020 Depth of eastern portion of
excavation = 6ft bgs. Visible
black staining on wall
of cut @ 2ft bgs. Trace (ap)
discoloration in soils at 2-4ft
bgs. Soil type = fine (ap) brown-
black sand, some gravels
subangular to rounded, trace
cobbles + concrete pieces, trace
silt. Silt fabric at
6" bgs.

1030 Depth of excavation 7.5ft
bgs. FID in BZ = 0-2 ppm.
Soils = 5-8 ppm.

1100 Fourth rolloff on site.
Continue excavation

1110 Hit abandoned pipe at 9ft bgs
Pipe believed to be part of old
saltwater extraction system. Ground-

Andrei Prophets 12/2/98

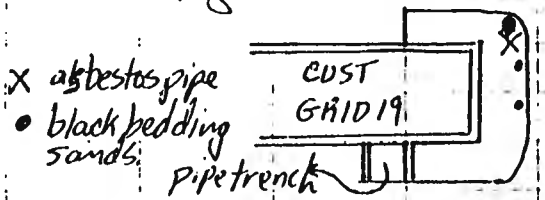
(54) B179

12/2/98 Sampling this log D013

water infiltration from pipe into excavation. Mixing soils w/ water to solidify.

1112 FID in BZ = 0-10 not sustained strong odor. FID in bucket - 1ppm asbestos pipe retrieved and double bagged for separate disposal.

1130 Soils in NE corner of excavation appear wet. Eastern portion of excavation shows visible black bedding sands, leaking fluid into excavation. black sands viewed in bucket to be bedding sand for pipe see figure:



1142 Noticable yellowish staining or liquid against cust wall at bottom of excavation

1150 Start excavating on western

Andrew Prophet 12/2/98

(55) B179

12/2/98 Sampling this log D013

edge of the cust as shown 0-6" bgs. "Clean" sand 6"-12" bgs. FID in BZ = 0.0 ppm.

1200 LUNCH

1300 Return from Lunch

1315 Collect effluent sample at B179 WTS. Designate B179-EF-120298. for VOC 8260, TPH 8015 and pH

1320 Excavation down 4ft bgs. FID in BZ = 0-2 ppm In bucket = 10 ppm No visible contamination

1335 Excavation down 7ft bgs. Slope 1:1 from boiler back to wetlands Black gritty soil (bedding sand) patches in excavated soils. Strong odor. 100 ppm peak in Bucket air space. 10 ppm sustained in BZ.

1342 Rolloff #5 full.

1359 Rolloff #6 at side. lining w/ 10 mil poly

1414 Start excavating soils. FID in BZ - 3ppm, In bucket - 40 ppm weather: sunny, 58°F

Andrew Prophet 12/2/98

B174 — Sampling / H+S Log — D013

12/2/98

1418 yellowish liquid in bottom of excavation near base of cust on ~~South~~ North west wall. Attempt to slope 1:1 against this wall from side near wetlands - not successful. Attempting to step 1:1.

1420 sloping 1:1 from center to Northern extent of excavation. Fid in BZ = 3-5 ppm. In ~~buckel~~ bedding on black gritty sand (possibly ~~Sand~~ for pipe). FID = 600 ppm

1435 Extracting piece of broken pipe from excavation. Some metal rods (rebar) in soils. water infiltration at base w/ yellowish color tint.

1440 Rolloff #6 filled. Designation LOGANO 274. Six inches of water on floor of excavation at base of eastern wall. Six inch diameter ~~extracting~~ submersible pump to pump ~~out~~ infiltration to frac tank #1 of WTS.

Andrew Bagheto 12/2/98

B179 — Sampling / H+S Log — D013

12/2/98

1550 Finish loading LOGANO 478 Rolloff #7. Continuing to cut grade on floor of excavation and expose base below CUST walls. Shrubs, trees and brushes removed from vicinity of Interceptor tank and associated piping location. Attempting to locate Interceptor tank piping (Inlet) from CUST. excavation.

1610 Review Post Excavation Sampling procedure and methodology w/ Nathaya Johnson, Sampling assistant and R. Beauregard, QC officer. Discuss same and verify w/ Ritchie Machado, Mike Pierson, Brian ~~Gill~~ Sullivan, and Steve Farrick throughout day.

1645 Site Cleanup, close excavation w/ visible fencing. Depart site.

Andrew Bagheto 12/2/98

(58) Tank Farm 5 / Bldg 179

12/3/98 H+S Log/Sampling log D013

0530 A. Prophete at TF5 to prep sampling / air monitoring equipment.

0630 Daily H+S and Assignment Briefing. Topic: Proper deconing of equipment used in EZ. Wash Hands and face Prior to eating or drinking. Wearing PPE outside EZ or CRZ is prohibited.

0700 Prep Air monitoring equipment and SCBA / hip units w/ cascade lines and cylinders.

0800 At Bldg 179, CUST Closure Site. Excavation around ~~tank~~ CUST emitting odors. Visible yellowish color & oil sheen on water in base of excavations. Soils on fringes of infiltration water exhibiting rainbow colored sheen when water pumped down. Lower Side set at 4.9' above base of new asphalt pad to gain exact depths w/in excavation. weather: partly cloudy, 44°F

Andrew Prophete 12/3/98

Bldg 179 (59)

12/3/98 H+S Log / Sampling log D013

0810 James McGuire and Brian Sullivan on site to Photo / record sampling event and log information for NAVY and RIDEM. Start filling Rolloff #9, Log no # 293 w/ soils to expose top of Interceptor tank, North of CUST Excavation.

0830 A. Prophete and N. Johnson don PPE + SCBA/hip units to enter excavation.

0915 A. Prophete screening areas in wall and floor of excavation for Post Ex. sampling.

Time	OVA (BZ)	OVA (Soils)	comments
	10 ppm	33 ppm	South end of excavation near pipe trench.
	5 ppm	80 ppm	approx location WB
	5-8 ppm	200 ppm	peak at approx. location WA. — black bedding sand. 6" of water infiltration on floor of excavation

Andrew Prophete 12/3/98

12/3/98 — Sampling / H+S Log — DO13

Time	OVA (Bz)	OVA (Soils)	Comments
	0 not sustained 10 ppm	200 ppm	NE Portion of excavation opposite East CUST wall
	0-2 ppm	10 ppm	fluid on floor of excavation at base of East CUST wall
	2-5 ppm	250 ppm	North portion of excavation adj to NE corner of cust
			On floor soils
1020 10			Collect Sample G19-W2 from Westwall adjacent to pipe trench locations Post ex. samples collected for TPH 8015m / 8100m for extractables, SVOC 8270, Total Cyanide 9010 and VOC method 5030a using Encore samplers and 8260. Samples collected and immediately placed in cooler on ice. OVA in soils vicinity = 70 ppm
1015			N. Johnson, attendant, deconing sampling utensils w/ DI water and Alconox detergent wash and DI water rinse. Decon procedure after each sample collection.

Andrea Prophet 12/3/98

12/3/98 — Sampling / H+S Log — DO13

Time	
1025	Collect sample G19-W1. See figure. OVA reading in soils = 40 ppm.
1035	Collect sample G19-W3. See figure. OVA in soils = 100 ppm. Sample collected on NE wall of excavation near base.
1115	Collect sample G19-W4. OVA in soils = 700 ppm. BZ = 0-10 ppm. Black gritty sand (bedding sand) exhibiting visible staining and sheen in liquid in hold (3-6" below surface) One (1) sample for PGDN collected from G19-W4 location.
1130	Collect sample G19-W5. OVA in soils = 500 ppm. Same soil type as G19-W4.
1145	Dispose of PPE and review activities w/ M. Pierson and B. Sullivan. Depths of sample locations and locations relative to CUST will be

Andrea Prophet 12/3/98

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12/3/98 Bldg #117 Sampling / HASLog D013

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12/3/98 Bldg 117 Sampling / HASLog D013

acquired water.

1240 Lunch

1330 Return to site.

1345 Don PPE + Level B supplied air ~~units~~ SCBA / hip units. Paul Kulpa, RIDEM, R. Machado, J. McGuire, and M. Pearson from NUWC 551 and Steve Farrick, Brian Sullivan, TRC on site. Paul Kulpa requests samples from yellowish liquid on floor of excavation to be collected for analysis.

1405 A. Prophet collects G19-AQ in 2 voa vials for VOC analysis from area adjacent to East wall of cust.

1420 A. Prophet and N Johnson collect sample G19-W6 from NE corner of excavation. OVA in Soils = 600ppm. Flowable fill being loaded into CUST opening. OVA in BZ = 0-20ppm not sustained.

Andrew Prophet 12/3/98

Andrew Prophet 12/3/98

(64)

Bldg #179

12/3/98 Sampling / HTS log D013

1437 Collect sample G19-W7 from North wall of excavation. OVA in soils = 120 ppm. in BZ = 0-7 ppm.

1450 Collect sample G19-W8 from NW wall adjacent to After burner piping. OVA in soils = 10 ppm. Difficult to locate detections w/ OVA in this area. No noticeable Staining. BZ = NAB (not above background) or 0-2 ppm.

1507 Collect sample G19-W9 from NW wall adj to North wall of cust. OVA in soils = 510 ppm.

1536 collect floor sample G19-F1 from floor soils near NE corner of cust. Floor near center of East wall of CUST where yellowish staining evident is approx 1 ft below water level. Soils near F1 sample location are saturated

weather: Partly Cloudy, 55°F

Andrew Prophets 12/3/98

12/3/98

@ 1545

1545

1600

@ 1645

1700

Bldg 179

Sampling / HTS log D013

(65)

12/3/98

and muddy w/ thin visible oily sheen. Sample #2 PGDN collected from sample location.

Collect sample # G19-F2 from floor near Eastern wall slope. No detect above background w/ OVA. Location is not in drainage pathway from leaking soils (G19-W9).

A. Prophets and N. Johnson exit excavation. Dispose of PPE and clean-up / fence-off EZ. Prep samples for Mitkem Pickup. G19 W1-F2 / 11 samples for TPH 8015/8100, SVOC 8270, Total CN 9010 and VOC 8260 for G19-A2 only.

A Prophets prep 11 samples--Encore 5gm and plastic VOC non-preserved bottle for Fed Ex shipment to

Andrew Prophets 12/3/98

(66) Bldg #179

12/3/98 Sampling/HTS Log D013

Severn Trent Laboratories — Priority overnight.

1800 Final Flowable Fill placement in CUST completed. Top of Interceptor Tank for reference/location purpose completed today. Top visible at approx elevation 57.00 per Dwg. Fluid calculated in Tank from 2ft x 2ft opening =

1830 FedEx pickup STL ~~Doc~~ Samples.

1900 A. Prophets departs Tank Farm 5 site.

Andrew Prophets

12/3/98

Tank Farm 5/Bldg 179 (67)

HTS Log/Sampling Log D013

12/4/98

0600 A. Prophets on site and discuss HTS issues w/ Jon Carr.

0630 HTS and Assignment briefing. Topic: Splash shields always worn when power washing. Full face respirators w/ combo cartridges can be worn in place of face shield, not for resp. protection. High viz vests to be worn at TF5 when ~~working~~ removing piping from crossroads.

0700 A. Prophets inspects Tank Farm 5 site activities

0730 Calibrate and Prep MSA Passport (CGI) and OVA (FID) for B179 site activities.

0825 At Building 179 CUST Closure/Interceptor Tank (IT) removal. Drums (55 gal) being off-loaded from truck to receive IT fluids. Setting up double diaphragm air operated pump w/ compressor

Weather: Partly Cloudy, 46°F

Andrew Prophets 12/4/98

12/4/98 H+S Log/Sampling Log D013

to pump intercepter Tank fluids to drums. Odor eminating from up in Tank. Screen opening w/ MSA Regart and OVA prior to cutting opening to 3ft X 3ft Access. No flammable atmosphere noted. O_2 = 20.8%, H_2S = 0.0 ppm, CO = 0.0 ppm, LEL = 0%. Action levels are O_2 < 19.5%, O_2 > 21.5%, H_2S > 5 ppm, CO > 25 ppm, LEL > 10%.

0925 Intercepter Tank = 3ft X 3ft OVA in IT Tank and BZ = 0.0 in BZ outside Tank 2.0 ppm in Tank

Time	OVA(BZ)	OVA(hole)	CGE			
928	0.0	2.0 ppm	O_2 = 20.8%	CO = 0 ppm	H_2S = 0 ppm	LEL 0
940	9.0	20 ppm	20.8	0	0	0
1000	1.2	12	20.8	0	0	0
1005	1.0	—	—	—	—	—

0957 Thin rainbow film on water

Andrew Brazhel 12/4/98

12/4/98 H+S Log/Sampling Log D013

in Tank. Strong odor.

0959 Finish filling drum # 1 w/ waste streams. Laborers Dan Furtado and Nathaniel Johnson in Saranex PPE w/ OB and OG and full face respirator w/ combo cartridge for splash protection. Plastic sheeting on floor for barrier between drums and natural ground and used for decon pad. D. Furtado and N. Johnson holding discharge hose from IT tank to drums in place w/ suction lid.

1005 Drum # 2 filled w/ Tank fluids. Screen drum w/ OVA = 1 ppm. Troubleshooting problems w/ pump seal and mechanisms.

1035 Four (drums) filled from IT. Collect Liquid Sample B119-IT-AQ from drum

Andrew Brazhel 12/4/98

(29) Bldg 161

12/4/98 Sampling / HTS Log D013

#4. OVA in headspace = 2 ppm. Sample collected for VOC 8260, Mineral spirits 8015M, Petroleum Compounds 8100, Total CN 9010, ~~SVOC 8270 and~~ as specified in work plan.

11:30 A. Fiorletto preps. to enter CUST excavation to require floor liquid samples for all parameters and collect vertical and horizontal distances to sample locations

11:40 Collect G19-AQ2 for VOC 8260, Mineral spirits 8015M, ~~Petroleum Compounds 8100~~, Total CN 9010, SVOC 8270 and TPH 8015 and PCDN liquid

11:45 12-Drums collected w/ ~~waters~~ from ~~FT~~ and labelled w/ haz waste labels.

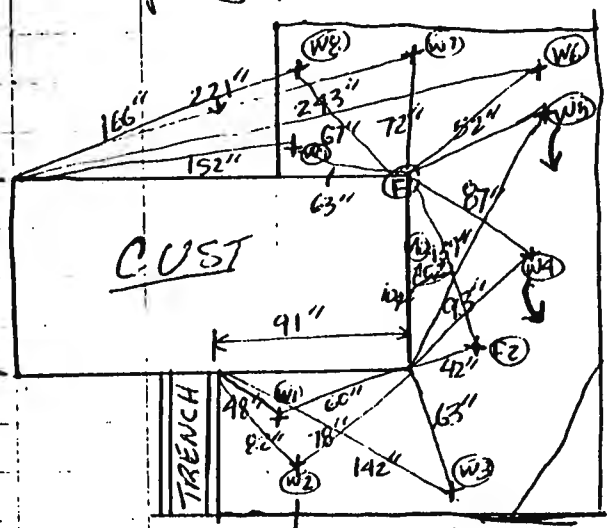
12:00 Bench Mark set w/ lazer to acquire sample locations in excavation = 3.92 ft or 59.33.

Andrew Fiorletto 12/4/98

Bldg 161 (1)

12/4/98 Sampling / HTS Log D013

1430 Finish collecting vertical and horizontal distances for sampling points, see below:



→ Post Excavation Sample locations

Sample ID	Depth (bgs)	Sample ID	Depth (bgs)
G19 W1	4.48	G19 W7	6.95
G19 W2	4.18	G19 W8	7.09
G19 W3	4.78	G19 W9	6.85
G19 W4	7.35	G19 F1	9.08
G19 W5	7.58	G19 F2	8.87
G19 W6	7.39	AQ/AQ2	

weather Partly Cloudy, 61°F

Andrew Fiorletto 12/4/98

(14) Tank Farm / Bldg 179

D013 HTS Log/Sampling Log 12/4/98

1500 Prep Samples for collection by MitKem. Trip blank included.

1530 Discuss future tasks w/ Jon Cary and Roger Beaureard. Compiling Results from Labs for Building #6 Expanded Area Excavation and B179 Startup Effluent WTS Sampling.

1645 Relinquish Samples to MitKem courier w/ COC.

1700 A. Prophete departs site.

Andrew Prophete

(15) Tank Farm / Bldg 179

12/7/98

0630 HTS Log/Sampling Log D013

HTS and Assignment briefing. Topic: Role of Attendant in CSE. Monitor, always in immediate area, aid in handling equipment and tools, keep taglines, airlines clear, check gauges. Clean and prep Baker Tank Farm 5 for removal. CSE required. Prep and calibrate MSA passport FW#00287 and OVA #FW00099. Prep sampling equipment and containers.

0700 At Bldg 179. Pumped interceptor Tank (IT) and exposed floor w/ sludge, thin film (rainbow colored) on sludge and concrete pieces in tank. Waste waters from tank contained in 18 - 55 gal drums total. Strong odor from w/in tank (IT). See air monitoring table. weather: Partly Cloudy, 52°F

0730 Andrew Prophete 12/7/98

(74)

Time	OVA(1) (Inside)	OVA(2) outside tank	CGI LEL	O_2	CO	H_2S	Comments
730	21 ppm	7 ppm	0	19.7	0	0	
800	20 ppm	5 ppm	0	19.7	0	0	
815	36 ppm	7 ppm	0	19.7	0	0	agitating sludge while removing to 5 gal bucket
830	38	10	0	19.7	0	0	
845	27	12	0	19.7	0	0	
900	40	8	0	19.8	0	0	
915							
920	50 ppm	—	—	—	—	—	In 5 gal bucket
925	100 ppm	10	0	19.7	0	1	~~5 gal bucket~~
925	750 ppm	—	—	—	—	—	5 gal bucket
1035	10 ppm	2 ppm	0	20.8	0	0	
1050	6 ppm	02 ppm	0	20.8	0	0	
1100	0 ppm	0	0	20.8	0	0	IT cleaned

Andrew Proplet 12/7/98

(75)

0800 (2nd) Danny Furtado, Laborer in Saranex tyvek, OG, nitries, OG, taped wrists and calves, air supplied breathing line from breathing tanks to S.B.F. / hip unit. DRI / SRLA fall protection system utilized w/ ladder to enter tank. Interceptor Tank dimensions = Nathaya Johnson, Laborer, is attendant.

0815 Danny Furtado passing buckets w/ sludge to N. Johnson in Saranex PPE w/ respirator and combo Cartridges for splash hazard only.

0910 Finish loading drum #2-1/2 full w/ sludges.

0913 Loading drum #2.

0920 Noticeable yellow staining in sludges and in bucket used to retrieve sludges.

0935 A. Proplet departs side for

Andrew Proplet 12/7/98

12/1/98

Tank Farm 5 to screen Frac Tank #2 for cleaning ops. Jeff Little to enter Frac Tank #2 w/ Hotsy pressure washer and clean Inner Tank. CSE Permit filled out by A. Prophet. J. Little donning Surgex/ PPE, OB, OG, face shield to assist Frac Truck #5 in removing sludge from tank. See CSE Permit for Air monitoring readings. No exceedences noted w/ CGI or VOC.

1020 Verbal and visual contact w/ entrant Manny Furtado is attendant. No Hazardous atmosphere noted. A. Prophet departs for Bldg 179 IT work.

1035 IT cleaning. 90% of sludges and cleaning waters removed. Floor of Tank exposed.

1105 IT cleaned. Final rinse. Baffles

Andrew Prophet 12/1/98

12/1/98

cleaned. One Inlet Pipeline entering IT and One outfall pipeline exiting towards wetland. Paul Kulpa, RIDEM, Mike Pierson, Brian Sullivan and on site discussing chasing pipeline and crushing tanks. OK'd tank clean.

1130 Collect Sludge sample from drum #1. Designate IT-SLG-01 for Petroleum Compounds 8100, Total CN, VOC 8260, Mineral Spirits 8015M. Also collect PGDN #4.

1310 Bob Krzwinscus, ROICC, on site and inspects cleaned IT w/ Jon Cary.

1325 Site clearing and cleanup. Prep excavator for pipe removal and IT crushing ops. Moving full drums to drum staging.

1340 Prep respirator + breathing

weather: Partly Cloudy, 67°F

Andrew Prophet 12/1/98

(6) Bldg 179 — Sampling / H&S Log Book

12/7/98

air for entrance into B179 excavation adj to cust. Nathaya Johnson to enter in Level B and acquire depths of sample locations relative to laser benchmark. see page (7) for measurements.

1420 Billy Lima, operator, in CAT track backhoe 416C removing outfall section of piping. Attempting to uncover piping from 2-ft below outfall section to middle section of pipe trench.

1500 Collect sample IT-OF-001 from outfall section of pipe. Soils wet from GW infiltration. Depth of sample point = 4'2-3". Width of trench = 38". OVA in soils location = . OVA in BZ = 0.0ppm Slight black discoloration of soils possible staining. No odor. IT-OF-001 collected for

Andrew Prophet 12/7/98

(7) Bldg 179 — Sampling / H&S Log Book

12/7/98

VOC 5030A/8260, Pet. Compounds 8100, Total Cn, Mineral Spirits 8015m.

1530 Pipe removed and crushed to place in rolloff # 276. #331, #347. Pipe appears intact w/no apparent staining in soils from leakage. Collect sample # IT-OF-002, 15ft SW from IT-OF-001 location. Depth of sample 002 = bgs. Width of trench = ~3'8". Elevation based on layer using Top of cust as benchmark @ 51.75' Layer pointer at 59.33+5.64=64.97

1605 Collect sample IT-OF-003, 15ft SW from IT-OF-002 location. Depth of sample 003 at 51.57'. Width of trench = ~3'8". OVA in sample location = 2ppm. OVA in BZ = 0.0 ppm.

1630 Prep samples for shipment and collection. Clean up

Andrew Prophet 12/7/98

(6)

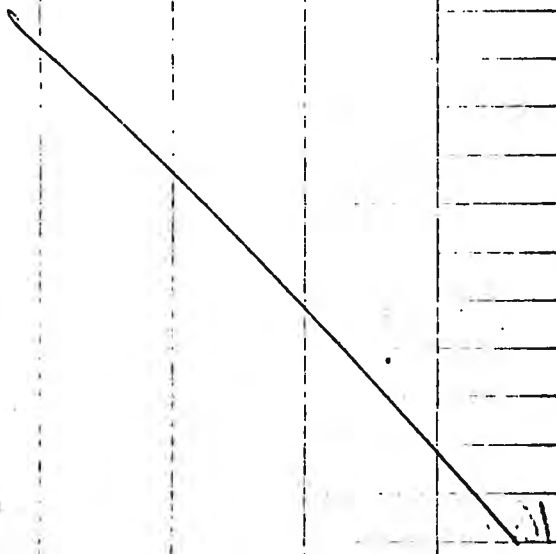
Bldg #179

12/7/98 Sampling / HTS log D013

Site, dispose of PPE.

1710 Relinquish IT SLG01, IT0E 0011 – 003 to MitKem Courier w/ 48 hr turnaround.

1730 Fed Ex VOC 5030 and 8260 to Severn Trent Laboratories w/ 3-4 week turnaround.



Andrew Prophets 12/7/98

Tank Farms / Bldg 179 (21)

12/8/98 HTS Log / Sampling Log D013

0600 A. Prophets discusses daily activities w/ Jon Cary.

0630 HTS and Assignment Briefing. Topic: Equipment decon prior to Storage. MSA Hi Air + Respirator Mask inspected and stored if not in use. Start cleanup @ Tank Bldg 179 side.

0700 Start removing pipe from center of trench to IT outfall.

0730 Rolloff #2 filled and taken to staging area.

0800 Rolloff #3 prep for soils collection. IT piping removed up to outlet from IT.

0850 Sample IT of 004 collated 17' from previous IT of 003 location. Screen area w/ OVA, 004 location = 8 ppm on floor. Depth of IT of 004 floor = 4'5".

Weather: Cloudy, Rain 40°F

Andrew Prophets 12/8/98

Bldg. 117

12/9/98

Sampling/IITS Log

D013

Width of trench = 3'9"

Sample collected for VOC 5030A/8260, Pet. compounds 8100, Total CN, Mineral Spirits 8015M. Elevation = 51.71'

0908 60% of IT removed and crushed. Placed in rolloff. Stained black residue observed on outer walls of concrete. IT tank dimensions approximately 12' long x 6' wide x 6' deep (see figure on page (83))

0930 Ink colored fluid entering tank grave from SE corner of ~~tank~~ wall. Approximately 6" of GW infiltration in floor of IT Grave. Noticeable sheen near edges of excavation

1025 IT Excavation approximately 19' long by 10'6" wide. Center of excavation = 7-8' bgs. Ink colored fluid no longer visibly entering excavation w/ GW infiltration.

Andrew Prophets 12/8/98

Interceptor Tank (IT) grave and Pipe Trench

Andrew Prophets 12/8/98

D013 Sampling / HTS Log 12/8/98

1040 Collect sample IT-OF-005 from midpoint of Southern Wall of excavation. Height from bottom of excavation = 1'4". Sample collected for VOC 5030A/8260, Petroleum Compounds 8100, Total CN, Mineral Spirits 8015M. OVA in sample location = 100 ppm.

1110 Screen wall location for sample IT-OF-006. Collect sample from Northern excavation wall, 10" above floor slop. OVA in BZ = 2-5 ppm. OVA in sample location = 20 ppm (near gw infiltration line).

1116 Using excavator hoe to remove soils from Eastern wall location. Approved by Mike Pierson to sample from bucket because wall not sloped and noticeable fractures in soils.

1120 Collect sample IT-OF-007 from bucket tip. Soils taken from

Andrew Prophet, 12/8/98

D013 Sampling / HTS Log 12/8/98

1124 approximately 2 ft w/in wall. Noticeable odor and black staining in soils. Screen w/ OVA = 75 ppm - 120 ppm, not sustained.

center of excavation, floor of IT grave, contains >1 ft of infiltration. Sediments too saturated to collect VOC 5030A. Authorized by Mike Pierson, NUWC environmental, to collect floor samples from bucket allowing free water to drain out of soils.

1130 Collect IT-OF-008 from bucket scoop in center of Tank grave. Approximate depth of sample = 2 ft bgs below floor of excavation. OVA in soils = 26 ppm. OVA in BZ = 1-2 ppm.

1150 Collect IT-OF-009 from bucket scoop in SE corner of tank grave floor. Approx.

Andrew Prophet 12/8/98

(86) Bldg #177

12/8/98 Sampling / H+S log D013

2ft bgs of excavation in area of ink colored fluid intrusion. OVA in soils = 5 ppm. OVA in BZ = 1-2 ppm, intermittent hits of 8-10 ppm.

1205 Relinquish samples for PCDN analysis to Brian Sullivan.

Collect Samples for PCDN = IT-001 (Sludge) IT-004, 006, 008, 009, Grid 19 AQ2, GA-N and ~~IT-AQ~~ IT-001 and GA-N.

1300 Clean up site. Dispose of trash/PPE and ensure drums + rolloffs have Haz Waste labels.

1440 Prep. samples for pickup by Mitkem Courier

1555 Pickup by Mitkem

1630 Pickup of VOC 5030A/8260 samples using encore samplers by fed Ex. Ship to Severn Trent Laboratories. Airbill # 805302949206

1700 depart site. Note. Elevations

Weather: Cloudy, rain 44°F

Andrew Prophets 12/8/98

(87) Bldg #177

12/8/98 Sampling / H+S log p013

of IT sample locations collected using laser. Known benchmark on newly formed concrete pad near Building 179. See page 83 for readings.

Andrew Prophets 12/8/98

(87)

12/10/98 HTS Log D013

0630 HTS and assignment briefing Topic: Decon tools and equipment used at B179 fieldwork. Review 8hr refresher points of interest w/craft. Stand clear of excavator swing area while backfilling and site restoration.

0700 Cleanup side Bldg 179 support zone / Backfill IT excavated area.

0800 A. Prapheb decons respirators and breathing air packs + accessories.

(19)

12/11/98 HTS Log D013

0630 HTS and Assignment briefing Topic: Leather gloves + OB and GG when pouring concrete at B179 and picking up wood debris TFS.

0750 Collect Bldg 179-EF-121198 Sample for VOC, TPH and pH. on 24 hr turnaround. Discharge = 25 gpm

0900 Continue inspection of water treatment Bldg 179. Site cleanup TFS. Prep OVA 128 # co179 and MSA passport # for Frac Tank Cleaning TFS. N. Johnson ~~cleaning~~ @ Packaging ~~air~~ @ respirators ~~and~~ equipment + breathing air tanks for crating.

1130 A. Prophete discussing Bldg #6 additional excavation ~~for~~ confirmatory sample results. Trouble shoot further solutions w/ Jon Cary.

Andrew Prophete 12/11/98

12/11/98 HTS Log/Bldg 179 D013

1300 Jeff Little continues to clean Frac Tank at WTS TFS. See CSE permit for air monitoring results.

1400 Finish concrete cap placement on CUST. Three (3) cu-yds of concrete from Richmond Redi mix poured ~~on~~ on steel mesh and formed to top of Tank. Forms left in place until concrete cures. Dimensions of cap = 6" thick X 16'11½" X 9'5½".

1430 Site restoration, cleanup Bldg 179 Support zone. Inspect Backfilled area, former IT grave and pipe grave for compliance.

1500 Continue debris removal and place in roll offs at Tank Farm 5. Separated into 3 piles metal, tires, and plastic and liners (high visibility fencing).

Andrew Prophett 12/11/98

12/14/98 HTS Log D013

0630 HTS and assignment Briefing Topic: Empty and clean craft/Break trailer. WTS – Discharge final water, collect sample, Crade HTS equipment TFS.

0700 Start dismantle WTS, Pulling form wood from around WTS filters, Craft warned to use SG and leather work gloves when pulling nails from wood. OB and OG when walking in containments.

0800 Chuck Bades, J. Melchior and M. Furtado cleaning Break (craft) trailer at TFS. Assembling crades.

1000 Inspect WTS storage location at TFS near Tank S1. Piping and equipment banded and stockpiled.

1100 Collect B179-EF-121498 from B179 WTS effluent discharge for VOC, TPH and PH.

1300 Cleaned and package HTS equipment for crate storage. Box paperwork for TF4 Tank closures located in Break trailer. Setup briefing area in WTS Building.

1330 RE analytical courier collects sample B179-EF-121498 for lab analysis.

1700 Depart site.

weather: AM: Partly cloudy, 38°F

Andrew Brophet

12/14/98 HTS Log D013

equipment for crate storage. Box paperwork for TF4 Tank closures located in Break trailer. Setup briefing area in WTS Building.
RE analytical courier collects sample B179-EF-121498 for lab analysis.
Depart site.

weather: AM: Partly cloudy, 38°F

Andrew Brophet

HTS Log/Sampling Log

12/15/98 Tank Farm 5 D013

0630 HTS and Daily Assignment Briefing. Topic: Proper PPE, resp. protection for frac tank cleaning, TFS grade and Inventory: Trailer Decon/removal prep at B179 and TFS

0700 J. Cambra and ~~D. Furtado~~ F. Kuras at WTS Bldg 179 to finish cleaning tank and prep for site removal. A. Prophete prep CSE Permit and inspect atmosphere w/ OVA FW# , MSA passport #A2CO # . See confined space permit for readings

0715 Stop Frac Tank entry and cleaning. J. Cambra to pump secondary containment fluids to 55-gallon drums w/ containment area. Dissassemble Filtration unit piping. Filter packs contain approx. 1000 gal of waste water

0855 A. Prophete and Jeff Little Prep to collect samples from

Weather: sunny, 26°F

Andrew Prophete

D013

HTS Log/BS179 Sampling

Interceptor Tank rolloffs and 55-gallon drums for waste characterization. Seven rolloffs: Six rolloffs w/ soils, one w/ concrete pieces of Interceptor tank and piping. 18-55 gal drums w/ IT fluid, 5-55gal drums w/ cleaning fluid and IT sludge

Time	Sample	Rolloff #
9:05	IT-WC-001	Logano 300
9.15	IT-WC-002	Logano 333
9:20	IT-WC-003	Logano 331
9:30	IT-WC-004	Logano 330
9:35	IT-WC-005	Logano 276
9:40	IT-WC-006	Logano 347
11:00	IT-WC-007	1-55 gal drum w/ IT fluid and sludge
11:15	IT-WC-008	1-55 gallon drum w/ IT sludge

Weather: sunny, 38°F

Andrew Prophete

Tank Farm S/B179

12/15/98 HTS Log D013

0940 Collected samples IT-WC-001 - IT-WC-006 from rolloffs w/ IT soils waste for VOC 8260, SVOC 8270, TPH, CN, Ignitability, corrosivity, reactivity, paint filter and RCRA 8 metals

1115 Finish collecting samples IT-WC-007 and IT-WC-008 for above analytical from 2 randomly selected drums w/ IT sludge/liquid waste.

1200 Break trailer at Tank Farm S being removed from site.

1380 ~~Finish~~ cleaning trailer at B179 WTS and pumping secondary waste haulers. Completed post cleaning activities of Bldg 179 CUST closure and IT removal area. IT area backfilled and covered w/straw and hay to promote vegetation growth. CUST filled w/concrete fill and top grouted.

1435 Transfer cooler w/ samples

Weather: sunny 62°F

Andrew Prophet

12/15/98 HTS log D013

IT-WC-001 - IT-WC-008 to Nathan Reynolds, Mitkem, for 48hr turnaround.

1540 Contact Mitkem about previous sample results and PCB/Pesticide contradictions. Ed Laylor, Mitkem, explains Methodology.

1700 Depart site.

Andrew Prophet

Tank Farm 5/Bldg 179

11/14/98 Hand Sludg D013

0600 A. Prophete on site w/ Jon carry to discuss remaining activities.

0630 Daily Briefing held in WTS Storage Building. Break Trailer removed offsite Topic: Proper PPE, don and take off procedures when Cleaning Frac Tank at B179 WTS. Calibrate OVA and MSA Passport.

0730 Joe Cambra, Standby Safety Person at B179 WTS Frac tank #1. Danny Furtado is entrant and will steam clean inner tank w/ power washer. Danny is wearing Saranex Tyvek, taped OG and OB, full face respirator w/ combo cartridges for splash protection, CSE permit furnished and checked by A. Prophete. See CSE Permit for air monitoring readings.

0930 Tank Cleaning complete, sludges + liquids pumped into 55-gallon drums and staged in secondary tank containment. 12- drums labeled w/ Haz Waste labels pending analysis.

1000 A. Prophete and D. Furtado disassembling filter tank cover and cleaning up loose debris. J. Cambra pumping secondary containment water from filter units to 55 gal drums.

1130 Inspect site activities at Tank Farm 5. Building crates for HTS equipment.

1200 Informed Ellie Federico to arrange for Aqueous sample collection of Frac Tank waste waters for disposal characterization.

1500 Depart Site.

weather: cloudy, 36°F

Andrew Prophete

Tank Farm 5/Bldg 179

12/16/98 fitness D013

drums and staged in secondary tank containment. 12- drums labeled w/ Haz Waste labels pending analysis.

A. Prophete and D. Furtado disassembling filter tank cover and cleaning up loose debris. J. Cambra pumping secondary containment water from filter units to 55 gal drums.

Inspect site activities at Tank Farm 5. Building crates for HTS equipment.

Informed Ellie Federico to arrange for Aqueous sample collection of Frac Tank waste waters for disposal characterization.

Depart Site.

weather: cloudy, 48°F

Andrew Prophete

Taur Farms

12/17/98 HHSLog D013

0630 Daily HHS and Assignment briefing. Topic: When grouting Slab at B/79, use Neoprene gloves and wash skin immediately if concrete comes in contact... Use nail gun for crating as guided in users manual and AHA.

0700 A. Prophete bumping Mitkem Final Analyticals from Bldg 6 and Cust Closure samples against RIDEM Exposure ~~Criteria~~ Limits to produce detection Table.

0930 A. Prophete and J. Cary at Bldg 179 WTS to oversee filtration puck removals from coal filters and clay filter container removal by HANDEX corp. Pumping waters released into secondary containment from loose valve on filtration unit into 55-gal drums. Handex to return another day to remove rest of filtration unit.

weather: cloudy, 33°F

Andrew Prophete 12/17/98

Tank Farms

12/17/98 HHSLog D013

1350 Jimmy Melchior, Manny Furtado and Chuck Bates disposing of various side debris into rolloffs & containers.

1400 A. Prophete inspects WTS for compliance. Storage crates labelled and nailed shut. Electric panel boxes scheduled for removal. J. Cary notified of need to contact Roy Co Electric and ensure electric is shut off.

1500 A. Prophete, J. Cary, E. Federico depart site.

A. Prophete

weather: cloudy, 48°F

Andrew Prophete 12/17/98

7.7.31.1

12/18/98 HTS Log DP13

0630 Daily HTS Briefing and Assignments. Topic: Relocate Drums from WTS to staging at BM (Drum Handling Procedures); remove Frac Tank and Filter Media. Shoring secondary containment.

0700 All field personnel; A. Prophete, M. Furtado, C. Bates, J. Melchior and J. Cambra, participate in side restoration Bldg 179. WTS. Remove drums from Bldg 179 WTS containment to drum staging area.

0720 Relocate filtration skid w/ units to access Rain for Rent Tank.

0751 Informed by Norm _____ NUWC, that torpedo testing will be conducted at 9AM. All activity in area to be stopped and FWENC personnell to leave by 8:30 A. Prophete informs crew.

0830 A. Prophete at Tank Farm 5 to pickup hay bails and plastic

weather: windy, sunny, 30°F

Andrew Prophete

12/18/98

0900

0930

1030

1230

Tank farm 5 / BM

HTS DP13

Meeting to build additional drum containment at NUWC drum staging.

General chemical rolloff on site and on site to remove frac tank.

On standby due to NUWC test.

Test over. Prep to move drums to access Frac Tank w/ Rig. A. Prophete and Chuck Bates taking drummed wastes to containment and storage. Check hoist cables and drum handler prior to use. Loaded 4 drums per load on bed of 3/4 Ton truck and transported to Storage.

J. Melchior and M. Furtado cutting up liner where frac tank was positioned, for disposal in Gen Chem rolloff.

Rolloff at drum staging

weather: windy, cloudy, 39°F

Andrew Prophete

Tank Farm 5/B179

12/18/98 HTS Log D015

awaiting Haz Waste label
Site restoration and cleanup
1430 Final drums staged at drum staging - 27-55 gallon drums total moved from B179 WTS containment to staging awaiting analyticals for disposal.
1500 Final craft laid-off. S. Meldrick, J. Campra, Chuck Bates and M. Furtado depart site. A. Prophet continues bumping Miran results against RIDEM exposure limits
1700 A. Prophet departs site.

Tank Farm 5/B179

12/21/98 HTS Log D013

0600 A. Prophet places Haz Waste label on Rolloff #365 w/ liner and coal filter packs and inspect drum containment. Place labels on drums w/ ~~labels~~ (ap) ~~facing inside~~ labels facing outward.
0630 Tank Farm 5 for daily briefing/update w/ Jon Cary. Topic: Proper PPE and access to Rolloffs to collect filter media sample.
0730 Continue to produce detection tables and prep for Bldg #6 PCB excavation work.
1100 Write sampling methodology and waste characterization plan for SAP Bldg #6.
1300 Review craft medical clearances and potential exposures from Bldg 179 field work. Must call Dr. Greeney at GMC to discuss

Andrew Prophet 12/21/98

Tank Farm > 1 B117

12/21/98 H+S log D013

Exit physicals. Spoke to Grey Goppi about expiration and he authorized calling Dr. Greeney and reviewing Air monitoring readings and Sampling results to persons exposure level.

Andrew Prophete 12/21/98

Tank Farm 5

12/22/98 H+S log D013

0630 J. Cary and A. Prophete discuss sample results and exceedences.

0710 A. Prophete assembles WTS transmittal and sample results for dates of discharge 12/1/98, 12/2/98, 12/4/98 and 12/14/98 to distribute to

0910 At NCWC Drum staging area to collect B179-WC-AQ from waste waders in 55-gal drums. waders are from B179 secondary containments from WTS. Sample will be analyzed for VOC 8260, SVOC 8270, reactivity, corrosivity, ignitability, TPH 8015, RCRA 8 metals and Total CN.

0930 collect sample B179-WC-CF from roll off #365 of the carbon filter media for waste.

Tank Farm 5

12/22/98 H+S Log D013

Characterization. Collected for VOC 8260, SVOC 8270, reactivity, ignitability, corrosivity, TPH 8015, RCRA 8 metals, Total CN.

1015 Check staging area for compliance and containers intact.

1045 Continue producing "hit table" (Detection Table) from final sample results.

1320 Fax IT-WC-007 and 008 results to Tim Burbank, Gen Chemical, for waste disposal characterization.

1345 fax B179-IT-AQ and ~~B179~~ G19-AQ2 results to Tim Burbank for waste characterization.

1400 Disregard and dispose of B179-WC-AQ collected today. Will classify all as G19-AQ2 results.

1700 Depart site. Note: Transfer sample B179-WC-CF to Mitkem courier at 15:15 Rush 48 hr turnaround.

Andrew Popcheb 12/22/98

DEPARTMENT OF THE NAVY
NAVAL UNDERSEA WARFARE CENTER DIVISION
1176 HOWELL STREET
NEWPORT RI 02841-1708

IN REPLY REFER TO
5090
Ser 7551/593

Mr. Roy B. Anderson, P.E.
Director, Utilities Department
City of Newport
Water Pollution Control Division
250 Connell Highway
Newport, RI 02840

Dear Mr. Anderson:

It is requested that the Naval Undersea Warfare Center Division, Newport be allowed to modify a discharge condition at the Building 179 groundwater remediation project.

At start up, the process is to be run for the purpose of collecting samples. Post-treatment effluent is to be run into a 20,000 gallon holding tank, and grab and composite samples will be taken during that time. This procedure has already been specified in your January 29, 1997 permission letter. Please note that once the samples have been collected, the system will be shut down pending your review of the analytical results for compliance with your written discharge authorization requirements.

For all pollutants being analyzed, we have requested two day turnaround at our contract laboratory. However, analysis for biological oxygen demand (BOD) must be run for a five day period. We ask that you approve the discharge from this process based on your review of the two day turnaround results and we will forward the BOD results to you as soon as they are completed.

If you have any questions or require additional information, please contact Mr. James McGuire, Naval Undersea Warfare Center Division, Newport (Code 551) at (401) 841-3370 x35873.

Sincerely,

J. F. SPANGENBERG
Head, Environmental and
Safety Department
By direction of the Commander

DEPARTMENT OF THE NAVY
NAVAL UNDERSEA WARFARE CENTER DIVISION
1176 HOWELL STREET
NEWPORT RI 02841-1708

IN REPLY REFER TO:
551:RM:bw
Ser 8551/96
24 Feb 98

From: Commander, Naval Undersea Warfare Center Division, Newport
To: Commander, Naval Education and Training Center, Newport
(LT C. Peterson, ROICC)

Subj: FORWARDING OF BUILDING 179 PROPOSED WATER TREATMENT REQUIREMENTS

Ref: (a) PHONCON (Code 551) M. Peirson/(Code 8131) R. Jacques/ (Foster-Wheeler) J. Carey of 24 Feb 98

Encl: (1) B-179 Rehabilitation Project-Water Discharge Requirements
(2) City of Newport correspondence of 29 January 1997 and 4 February 1997

1. As requested during reference (a), enclosure (1) is forwarded for your review and should you concur, forwarding as guidance to Foster-Wheeler.

2. Enclosure (1) briefly set forth the sampling and testing procedures which satisfy the expressed and implied requirements for discharge to the Newport Publicly Owned Treatment Works (POTW). Enclosure (2) is composed of correspondence from the Newport POTW setting forth the basic guidance concerning Building 179 discharge activities.

3. The information forwarded by this memorandum is intended to help ensure full and complete compliance with Newport POTW requirements.

4. Should there be questions concerning enclosure (1) or questions in general concerning this matter, please contact Messrs. Ritchie Machado or Michael Peirson at X13370 (X35870 or X35875).

Denise M. Crimmins
D. M. CRIMMINS

Copy to:
521 (P. Griffin)
8131 (R. Jacques)

ENCLOSURE (1)
B-179 Rehabilitation Project - Water Discharge Requirements

Initial Discharge Sampling:

1. Upon re-establishment of excavation dewatering an initial sample of effluent (from the treatment system) shall be analyzed for each of the following parameters in accordance with the City of Newport Utilities' Department 29 January 1997 authorization letter:

   - pH
   - Total Petroleum Hydrocarbons (EPA Method 8015)
   - Volatile Organic Compounds (EPA Method 8260)
   - Priority Pollutant Metals
   - Iron
   - Speciated Chromium
   - Gold
   - Cyanide
   - Fluoride
   - Phenols
   - Sulfides
   - Sulfates
   - Methylene Blue Active Substances MBAS)
   - Biological Oxygen Demand
   - Total Suspended Solids
   - Total Dissolved Solids

2. The initial sample shall be collected in accordance with sampling protocol specified in the 29 January 1997 approval letter from the City of Newport Utilities Department as follows:

   - Over the thirteen hour period specified in the 29 January 1997 City of Newport Utilities Department letter, five well spaced grab samples shall be collected for total petroleum hydrocarbon (EPA 8015) and volatile organic compound (EPA 8260) analysis. Samples shall be collected and preserved in accordance with EPA SW-846 sampling protocol.

- Hourly grab samples shall be collected until the 20,000 gallon tank is full. Grab samples shall be composited and a single representative aliquot collected for analysis of all parameters other than TPH and VOCs as specified in the City of Newport's 29 January 1997 authorization letter. These parameters are specified in No. 1 above.

3. The initial sample shall be collected upon establishment of a steady state discharge rate from the treatment system. Effluent from the treatment system shall be routed and held in the 20,000 gallon holding tank pending receipt of laboratory data. Discharge may begin at a rate of 25 gallons per minute upon receipt of analytical results which verify compliance with City of Newport Discharge Limitations. Discharge shall be from the 20,000-gallon holding tank to the City of Newport sanitary sewer manhole.

Operational Discharge Sampling:

1. A single representative sample of treatment system effluent shall be collected on each day of operation of the treatment system. This sample shall be collected as a grab sample and shall be analyzed for pH, TPH (EPA 8015), and VOCs (EPA 8260) on a 24-hour turn-around-time basis. Discharge of treatment system effluent shall be routed to the 20,000 gallon holding tank prior to discharge to the City of Newport sanitary sewer. Analytical results shall be compared to City of Newport discharge limitations. If these limitations are exceeded, the discharge shall be terminated immediately and not re-established until treatment system effluent has been verified as attaining discharge limitations.

Note:

A. Relief from any of the above requirements is available upon receipt of written authorization from the City of Newport Utilities Department.

THE CITY OF NEWPORT, RHODE ISLAND 02840

UTILITIES DEPARTMENT
CITY HALL

Roy E. Andersen, PE
Director

- Water Division, 847-0154
- Water Pollution Control Division, 846-2321
- Solid Waste Management Division, 846-2380
- FAX: 848-9903

January 29, 1997

Joann Spangenberg, Head
Environmental and Safety Division, Code 551
Naval Undersea Warfare Division, Newport
1176 Howell Street
Newport, Rhode Island 02841-1708

Dear Ms. Spangenberg:

The present letter concerns the groundwater remediation project that has been proposed for Building 179. Before the system is allowed to discharge on a continuous basis, the initial effluent results must be reviewed. Nevertheless, we are extending our permission to proceed with construction and sampling as specified on pages 3-4 of the proposal (dated July 30, 1996) by the TRC Environmental Corporation.

Since the groundwater itself has been shown to contain several toxicants of concern, there are firm requirements concerning sampling. The first step will be to start up the process and run 20,000 gallons of effluent into a holding tank. At the proposed flow rate of 25 gallons per minute, this will take roughly 13 hours. During that time, you should obtain at least five well-spaced grab samples. In addition, samples should be obtained hourly to form a final composite.

Preservation and testing will vary with the specified analysis. Each of the five grab samples will be placed immediately in a 35 ml preserved vial and refrigerated. In the contract laboratory, these should be composited and analyzed for volatile organic compounds. Similarly, five grabs should be obtained, preserved and refrigerated for total petroleum hydrocarbon (TPH) analysis. Each of the TPH grabs should be analyzed separately via the GC flame-ionization method. This will allow the lab to see any peaks corresponding to ottofuel (propylene glycol dinitrate).

The TRC report identifies additional parameters for testing. The specified analyses must at least be included in the preliminary screen. For example, the composite sample should be analyzed for; metals (as itemized), biochemical oxygen demand (BOD), total suspended solids (TSS), and total dissolved solids (TDS). All of the additional analytes (listed on page 4 of the report) should be obtained, preserved and tested via EPA guidelines.

It is our hope that requirements for follow-up testing will be much less onerous. Indeed, the only absolute requirement will the continuation of tests for metals, volatile organics and TPH (using flame ionization GC). Of course, your staff will need to include further monitoring for any parameters that show high values in the preliminary work.

As you know, final approval for any new discharge will be granted on a case-by-case basis. Nevertheless, the City continues to develop general guidelines to identify any toxicants of particular concern. For example, volatile organic compounds such as 1,1,1-trichloroethane and 1,1,-dichloroethane have been reported in the groundwater monitoring wells surrounding the site. Here, a target effluent value of 10 ppb (parts per billion) would be appropriate for treatment. Considering the proposed flow rate, we would also require the effluent TPH value to be less than 2 ppm.

Thanks very much for you kind attention to this matter. If you should have any further questions or concerns, please contact Matthew Hagerty at 846-2321.

Sincerely,

Roy B. Anderson, P. E.
Director of Utilities
City of Newport, Rhode Island

b179nwc/MGH
cc Matthew Hagerty and John Guilfoyle.

THE CITY OF NEWPORT, RHODE ISLAND 02840

UTILITIES DEPARTMENT
CITY HALL

Roy B. Anderson, PE
Director

- Water Division, *847-0154*
- Water Pollution Control Division, *846-2321*
- Solid Waste Management Division, *846-2380*
- FAX: *848-9903*

February 4, 1997

Joann Spangenberg, Head
Environmental and Safety Division, Code 551
1176 Howell Street
Newport, Rhode Island 02841-1708

Dear Ms. Spangenberg:

Thank you for your phone call this afternoon. As I understand the situation, our letter of January 29th requires some clarification with regard to the regulatory status of the Building 179 groundwater treatment project at NUWC.

Let me assure you that the proposed treatment system has been fully approved by Newport's WPC Division. The only stipulation here is that our final permission to tie into the sewer is contingent upon the acceptability of the initial sample results. If and when the data is approved by the City's pretreatment staff, you will immediately be notified via a simple phone call to begin treating the groundwater on a continuous basis. Of course, there will be a requirement for follow-up sampling.

It is also important to note that our request for initial sampling does not reflect any reservations about the proposed groundwater recovery project. Indeed, initial and continuous sampling is a basic requirement for virtually every important pretreatment agreement that we administer. Further, we make every effort to insure that the City's discharge requirements are appropriate and achievable through a well-planned engineering program.

Thanks very much for your understanding in this matter.

Sincerely,

Roy B. Anderson, P. E.
Director of Utilities
City of Newport, Rhode Island

nuwclar/MGH
cc Matthew Hagerty and John Guilfoyle.

Encl (2)

H2O
179 SOIL REM

TRC Environmental Corporation

MEMORANDUM

To: James McGuire, NUWCDIVNPT, Code 551, Water/Wastewater Program Manager

From: Franco Carrelli, TRC Environmental Corporation
Steve Farrick, TRC Environmental Corporation

Date: 30 July 1996

Re: Building 179 Construction Dewatering Permitting Issues

BACKGROUND

The July 1996 Building 179 Soil Remediation Conceptual Design report was prepared by TRC Environmental Corporation (TRC) pursuant to contract No. N66604-95-D-A108 with the Naval Undersea Warfare Center Division, Newport (NUWCDIVNPT) to addresses the environmental remediation of contaminated soils associated with the reconstruction of the Building 179 Test Facility. The conceptual design addresses the engineering approach, design and construction schedule, applicable design criteria, and the identification of any additional design necessary for the environmental remediation of the impacted soils. This design addresses the remediation of the soils which will be disturbed during the repair of Building 179. Impacted soils that may be located outside these limits will be addressed during the Concrete Underground Storage Tank (CUST) Remedial Investigation.

Based on TRC's evaluation of the depth of groundwater and the design reconstruction excavation depth of 8.5 feet, dewatering of the soil excavated during the Building 179 reconstruction process will be required. A discussion of the need for construction dewatering and the proposed dewatering treatment system is provided in the July 1996 Building 179 Soil Remediation Conceptual Design report. A brief description of the groundwater quality, regulatory requirements, and proposed dewatering treatment system is provided below. Additionally, the proposed schedule for discharge sampling is outlined. Following a review of the sampling plan by NUWCDIVNPT, a discussion of the proposed sampling plan with the City of Newport POTW is provided.

EXECUTIVE SUMMARY

Dewatering estimate outlined below is worst case scenario requiring a 45 day concrete pouring and curing operation.

Assumptions (dewatering):

- 25 gallons per minute (g.p.m.) pumping dewatering rate.
- Three month dewatering operation (90 days).
- Operation during phase one-12 hour dewatering.
- Operation during phase two, during the concrete pouring and curing operation, 24 hour dewatering.
- Operation during phase one conducted for 45 days.
- Operation during phase two conducted for 45 days.

Results (dewatering):

Total gallons dewatered	2.24 Mgal

Assumptions (transport):

- Distance from B179 NUWCDIVNPT facility to Tank Farm #5 4.5 miles.
- Tanker truck capacity of 5,000 gallons.
- Loading/unloading time for each tanker load is 3.0 hours.
- Travel time (round trip) from B179 to Tank Farm #5 is 30 minutes.

Results (transport):

Total number of trips	486 Trips

Construction Dewatering Groundwater Quality

An investigation conducted in November 1995 provided information on the ground water quality adjacent to Building 179. Samples were taken from three monitoring wells (B179-MW1 B179-MW2, and B179-MW3). The figure detailing the approximate location of the monitoring wells with respect to the Building 179 is provided as an attachment. The analyses of the samples indicated that groundwater located directly down gradient of Building 179 (B179-MW2) contained elevated concentrations of several contaminants. These contaminants include, in order of decreasing concentration:

- total petroleum hydrocarbons (TPH) (91 ppm)
- 1,1,1- trichloroethane (72 ppm)
- 1,1- dichloroethane (6.5 ppm)

Results from the remaining two monitoring wells indicated that no detectable concentrations of volatile organic compounds were present and TPH concentrations ranged from 0.38 to 0.44 ppm. The results of these analyses is provided on the attached tables 1, 2 and 3. Based on the analytical results and the City of Newport's TITLE FOUR Chapter 1040 "Sewers in General"of the Street, Utilities and Public Services Code, pretreatment of the wastewater generated during dewatering operations will be required to attain effluent standards summarized on Table 4.

Regulatory Requirements

> *"Chapter 1040.03 Building Sewers and Connection.*
> (c) No unauthorized person shall discharge or cause to be discharged any wastes into the public sewers without prior approval of the Director."
>
> "*Chapter 1040.06 Use of Public Sewers.*
> (f) No person shall discharge into or cause to be discharged any of the following described waters, liquids, or wastes into any public sewers:
> (2) Any waters or liquids containing toxics or poisonous solids, liquids or gases in sufficient quantity... to create a public nuisance or create any hazard in the receiving waters or in the waste treatment plant."

The list of parameters specifically sited in this regulation may be found in the attached Table 4. Testing for VOCs is not specifically required by the City of Newport POTW. However, since VOCs were discovered in groundwater adjacent to the proposed excavation

dewatering zone this analyte is included in the sampling plan. Additionally, propylene glycol dinitrate (PGDN), another analyte not specifically regulated in effluent under City of Newport code, was also detected in site ground water. Given the lack of available laboratory analysis for PGDN, TRC proposes monitoring for PGDN using TPH as a substitute for PGDN.

Construction Dewatering Treatment System

Required pretreatment of the wastewater may be achieved by a treatment train consisting of a modified bentonite clay filtering tank followed by a granular activated carbon adsorption unit. Each unit would be designed to handle a flow rate of 25 gallons per minute. The modified bentonite clay treatment system is expected to reduce TPH concentration below the maximum allowable concentration, 25 parts per million (ppm), established by the City of Newport. The VOCs detected in site ground water would be treated within the activated carbon adsorption tank.

Initially, the wastewater collected within the excavation would be pumped to a 20,000 gallon storage tank. The wastewater would then be pumped from the storage tank to the modified bentonite clay filtering tank. Following the bentonite filtering tank the wastewater would undergo treatment by the activated carbon adsorption unit. The treatment process would proceed at a flow rate of 25 gallons per minute. Following treatment, the water will be pumped to a nearby sanitary sewer manhole. Additionally, if high concentrations of suspended solids are detected in the wastewater, an in line bag filter will be used to remove the suspended solids before treatment by the bentonite clay filter unit.

Dewatering Wastewater Sampling Plan

To ensure that the treated wastewater meets the standards set by the receiving POTW, TRC proposes the following sampling plan.

Once the treatment train is in place and dewatering operations are ready to commence, dewatering and pretreatment will be initiated to facilitate sample gathering. A sample of the effluent from the treatment train would be taken for analyses of the parameters listed below. The discharge from this initial sampling will be routed back to the 20,000 gallon holding tank. While awaiting results of the initial analyses the water from the dewatering operations would be collected in the 20,000 gallon tank pending the results of the analyses. Once the analyses verifies that the treatment train effluent quality meets the standards set by the POTW, the dewatering, treatment and discharge of the wastewater as explained in the report would commence. Additionally, during dewatering and treatment operations the effluent will be

sampled once per week for the first month and monthly thereafter. Additionally, the sampling plan will be modified following return of the laboratory results from the first two sampling events. Any analyte not detected in the first two sampling events will not be sampled in subsequent sampling events. The cost for each of the first two sampling event, given standard turn times, is estimated at $550. The cost for subsequent sampling events will vary according to the number of analytes remaining in the sampling plan. This monitoring plan will be in effect for the entire dewatering period, which is estimated to be three months.

Treatment Train Effluent Sampling Parameters-Initial List:

- total petroleum hydrocarbons (TPH) or oil and grease
- total suspended solids (TSS)
- total dissolved solids (TDS)
- priority pollutant metals (13)
- iron
- tin
- speciated chromium
- gold
- cyanide
- fluoride
- biochemical oxygen demand (BOD)
- phenols
- sulfides
- sulfates
- methylene blue active substances (MBAS)

The following chemicals would be analyzed as part of the Volatile Organic Compound (VOC) suite of parameters.

- 1,1,1- trichloroethane
- 1,1- dichloroethane

Please contact Steve Farrick or Franco Carrelli at x16676 with any questions.

cc: S. Farrick

TABLE 1

BUILDING 179 CONCRETE UST INVESTIGATION
SOIL ANALYTICAL RESULTS

Sample ID	Depth (feet below surface)	PID Reading (ppm)	Total Cyanide (ppm)	Total Cadmium (ppm)	PGDN (ppm)	Volatile Organic Compounds (ppm)	
B-1	0 - 1	0	NA	NA	NA		NA
	5 - 7	0.6	NA	NA	ND		NA
	10 - 12	72	ND	ND	ND	Methylene Chloride	0.015B
	10 - 12	310	NA	NA	NA		NA
B-2	0 -1	3	NA	NA	NA		NA
	5 - 7	2	NA	NA	NA		NA
	10 - 12	4	NA	NA	NA		NA
	10 - 12	135	ND	ND	ND	n-Butylbenzene	0.19
						p-Isopropyltoluene	0.056
						1,2,4-Trimethylbenzene	0.31
						1,3,5-Trimethylbenzene	0.074
						Methylene Chloride	0.061B
B-3	0 - 1	7,500	NA	NA	NA		NA
	5 - 7	28	NA	NA	NA		NA
	10 - 12	45	NA	NA	NA		NA
	10 - 12	45	ND	ND	ND	Methylene Chloride	0.012B
B-4	0 - 2	12	NA	NA	NA		NA
	2 - 4	26	NA	NA	NA		NA
	4 - 6	10	NA	NA	NA		NA
	6 - 8	5	NA	NA	NA		NA
	8 - 10	4	NA	NA	NA		NA
	10 - 12	0	NA	NA	NA		NA
	10 - 12	0	NA	NA	NA		NA
LABORATORY DETECTION LIMITS:			0.88 ppm	1.0 ppm	1.0 ppm	Detection limits vary	

NOTES:

1. Soil samples collected by the Environmental Compliance Group, Inc. on 21 June 1995
2. PID indicates field analysis for the presence of vapor phase VOCs using a portable photo ionization detector (PID).
3. PGDN = Propylene Glycol Dinitrate (component of Otto fuel II)
4. ND = Not detected
5. NA = Not analyzed
6. ppm = Parts per million, mg/l
7. B = Compound identified in Blank Sample

TABLE 2

BUILDING 179 CONCRETE UST INVESTIGATION

GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-1				MW-2				MW-3			
Date	12 JULY 95	18 AUG 95	25 AUG 95	5 OCT 95	12 JULY 95	18 AUG 95	25 AUG 95	5 OCT 95	12 JULY 95	18 AUG 95	25 AUG 95	5 OCT 95
Total Cyanide (ppm)	0.016	0.01	0.02	0.01	ND	ND	0.03	0.02	ND	0.01	0.02	0.02
PGDN (ppm)	ND	0.00		ND	0.47	0.06		0.30	ND	ND		ND
Flashpoint (degrees F)				>150				>150				>150
Volatile Organic Compounds (ppm)												
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND
Chloroethane	15	23.5	20.8	14	ND	11	ND	10	ND	5.0	5.75	4.5
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	6.3	ND	ND	ND
1,1-Dichloroethane	3.5	ND	ND	2.4	ND	ND	ND	ND	4.6	3	2.05	4.6
Methylene Chloride	1.80 B	ND	ND	ND	23.0 B	ND	ND	7.3	0.63 B	ND	0.25	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	310	97	164	140	3.0	2.4	2.75	3.1
Total VOCs	20.3	23.5	20.8	16.4	333	108	164	157.3	15.73	10.4	11.6	12.2
Semi-Volatile Organic Compounds												
4-Methylphenol				0.031				5 J				ND
Naphthalene				ND				0.039				6J
Di-n-butylphthalate				ND				0.021				ND
Total SVOCs				0.031				0.06				ND
Petroleum Constituents (ppm)												
Probable Mineral Spirits				ND				93				ND
Indeterminate Mineral Spirits				0.44				ND				0.19
Indeterminate No. 6 Fuel Oil				0.91				ND				0.73
Indeterminate Lubricating Oil				ND				24				ND
Metal Constituents (ppm)												
Arsenic	ND	0.01	ND	0.0695	ND	ND	ND	0.025	ND	0.01	ND	0.0766
Chromium				0.0228				0.0225				0.0194
Cadmium												
Copper				0.0342				0.0359				0.0331
Lead				0.0073				0.0149				0.0092
Mercury				ND				0.0001 B				ND
Nickel				0.0339				0.0354				0.0299 B
Selenium				0.0015 B				0.0096 B				ND
Silver				0.002 B				ND				ND
Zinc				0.0676				0.0746				0.0761

1. Blanks indicate that this compound was not analyzed for this event.
2. PGDN = propylene glycol dinitrate (torpedo fuel)
3. ND = Not detected
4. ppm = parts per million, mg/l
5. B = Compound identified in Blank Sample
6. Probable = Denotes similarity between chromatographs and one or more commercial materials
7. Indeterminate = Indicates that significant difference exists between sample and commercial products
07. Estimated concentration below the detection limit.

TABLE 3
SOIL - ANALYTICAL RESULTS
Building 179 Reconstruction - Soil Borings

Sample ID	Soil Borings						Monitoring Well Borings		
	B1-S3	R179-B1	B2-S3	B3-S3	B4-S1	B5-S3	MW1-S1	MW2-S3	MW3-S1
Depth (feet below ground surface)	4 to 6	Undetermined	4 to 6	4 to 6	0 to 2	6 to 8	0 to 2	4 to 6	0 to 2
	Results reported in mg/kg or ppm								
n-Butylbenzene		22.0	0.087						
sec-Butylbenzene			0.012					7.3	
4-isopropyltoluene	5.3		0.032					7.3	
Napthalene	2.5		0.019				0.0056	10	
n-Propylbenzene	2.8	6.3	0.014					10	
1,1,1-Trichloroethane	8.1	130.0			0.025	0.100	0.009	110	0.0084
1,2,4-Trimethylbenzene	16.0	36.0	0.094			0.035		64	
1,3,5-Trimethylbenzene	7.4	16.0						31	
1,1-Dichloroethane						0.086		31	
o-Xylene	2.8	6.6	0.007					10	
m, p-Xylenes	1.8	10.0	0.008					12	
Total Volatile Organic Compounds	46.7	226.9	0.27	ND	0.03	0.22	0.015	292.600	0.008
Total Petroleum Hydrocarbons	1,000	8,400	37	11	16	17	87	3,600	45
Cyanide	ND	NA	ND	ND	ND	ND	ND	ND	ND
PGDN	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

1. Soil samples collected during boring program by TRC Environmental Corporation on 13 and 14 November 1995.
2. Sample designation as follows (example B1-S3):
   B1 indicates boring R179-B1.
   S3 indicates the third soil sample collected at a depth of 4 to 6 feet below ground surface at this location.
3. Samples (VOCs, TPH, Cyanide) analyzed by Laboratory Resources, Inc. of Bronklyn, Connecticut.
   Samples (PGDN) analyzed by the Indian Head Division of the Naval Surface Warfare Center at Indian Head, Maryland.
4. Volatile Organic Compounds (VOCs) analyzed by EPA Method 8260.
5. Total Petroleum Hydrocarbons (TPH) analyzed by EPA Method 418.1.
6. Cyanide analyzed by EPA Method SW-846 9010.
7. PGDN = Propylene Glycol Dinitrate (component of Otto Fuel II) analyzed by HDNSWC Procedure 3330.63.
8. "NA" indicates this analyte was not analyzed for in this sample.

TABLE 4
Newport, Rhode Island 1986 Sewer Use Ordinance
Analytical Requirements

Newport, RI Sewer Ordinance Requirement (1)	Substance	Newport POTW Limits (mg/L)	Analytical Method	Approximate Cost
1040.06(g)(2)	Oil and Grease	25.0	SM 431 Gravimetric	$40.00
1040.06(g)(3)	Floating Oil (MBAS)	0.0	5540 C	$20.00
	Priority Pollutants - Metals (3)	NA	EPA 6010	$140.00
1040.06(g)(6)	Metals (4)	NA	EPA 6010	$60.00
1040.06(g)(6)	Iron	15.0	EPA 3010	$15.00
1040.06(g)(6)	Tin	0.0	EPA 3010	$15.00
1040.06(g)(6)	Cyanide	0.0	EPA 9010	$25.00
1040.06(g)(6)	Flourides	5.0	SM413A	$20.00
1040.06(g)(6)	Phenols	1.0	420.1/9066	$20.00
	VOCs	NA	8260	$100.00
1040.06(g)(6)	Sulfides	100.0	376.1	$15.00
1040.06(g)(6)	Sulfates	500.0	4500-SO4 E	$15.00
1040.06(g)(10)(A)	TSS	255.0	SM 209C	$10.00
1040.06(g)(10)(A)	TDS	285.0	SM 2540C	$10.00
1040.06(g)(10)(C)	BOD	230.0	EPA 405.1	$15.00
	Field Parameters			
1040.06(f)(3) & (g)(9)	pH	5.5 < x < 10.0		
1040.06(g)(1)	Temperature	no > 104 F		
1040.06(g)(6)	Residual Chlorine		Field Test Kit	$5.00
			Total	$525.00

Notes:

(1) 1986 City of Newport Title Four - Utilities, Chapter 1040. "Sewers Generally" Regulation

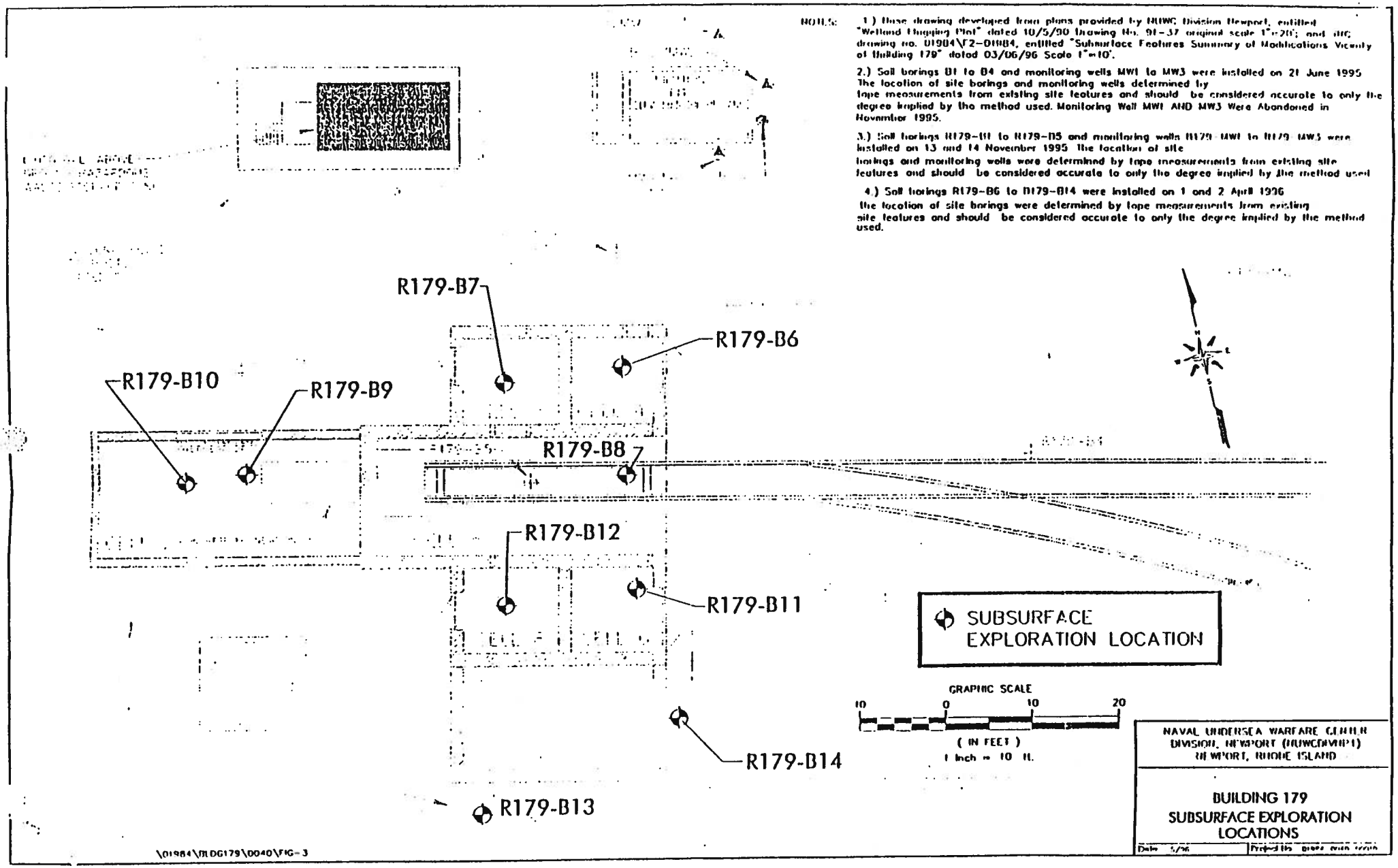
(2) Approximate Cost to Conduct Analysis Assuming Standard Turnaround Time

(3) Chapter 1040 requirement for "metals not specified above" assumed to be equivalent to the Priority Pollutants metals as follows:

- Antimony
- Arsenic
- Beryllium
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Selenium
- Silver
- Thallium
- Zinc

(4) Other metals required by Chapter 1040 which are not covered under PP metal analysis including:

- Speciated Chromium
- Gold



NOTES:

1.) Base drawing developed from plans provided by NUWC Division Newport, entitled "Wetland Mapping Plat" dated 10/5/90 Drawing No. 91-37 original scale 1"=20'; and NUWC drawing no. 01984\F2-01984, entitled "Subsurface Features Summary of Modifications Vicinity of Building 179" dated 03/06/96 Scale 1"=10'.

2.) Soil borings B1 to B4 and monitoring wells MW1 to MW3 were installed on 21 June 1995 The location of site borings and monitoring wells determined by tape measurements from existing site features and should be considered accurate to only the degree implied by the method used. Monitoring Well MW1 AND MW3 Were Abandoned in November 1995.

3.) Soil borings R179-B1 to R179-B5 and monitoring wells R179 MW1 to R179 MW3 were installed on 13 and 14 November 1995 The location of site borings and monitoring wells were determined by tape measurements from existing site features and should be considered accurate to only the degree implied by the method used

4.) Soil borings R179-B6 to R179-B14 were installed on 1 and 2 April 1996 the location of site borings were determined by tape measurements from existing site features and should be considered accurate to only the degree implied by the method used.

NAVAL UNDERSEA WARFARE CENTER DIVISION, NEWPORT (NUWCDIVNPT) NEWPORT, RHODE ISLAND

BUILDING 179 SUBSURFACE EXPLORATION LOCATIONS

Date 5/96 Project No. [illegible]

\01984\BLDG179\0040\FIG-3

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767 TDD 401-831-5508

April 18, 1997

Captain Stephen J. Logue
Naval Undersea Warfare Center Div. NPT.
1176 Howell Street
Newport, RI 02841-1708

Insignificant Alteration - Permit

RE: Application No. 97-0129 in reference to the location below:

approximately 100 feet east of Cunningham Street, U.S. Navy Utility Pole No. 2-2, approximately 3000 feet northeast of the intersection between West Main Road and the Naval Base Access Road, Assessor's Plat 102, Building 179, Middletown, R.I.

Dear Mr. Logue:

Kindly be advised that the Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Request for Preliminary Determination** application. This review included a site inspection of the above referenced property ("subject property") and an evaluation of the proposed building and asphalt lot rehabilitation and reconstruction as illustrated and detailed on site plans submitted with your application. These site plans were received on March 27, 1997.

Our observations of the subject property, review of the site plans and evaluation of the proposed project reveals that alterations of freshwater wetlands are proposed. However, pursuant to Rule 9.03 of the Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act (Rules), this project may be permitted as an **insignificant alteration** to freshwater wetlands under the following terms and conditions:

Terms and Conditions for Application No: 97-0129

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, Rhode Island General Laws (RIGL) Section 2-1-18 et seq.

2. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plan submitted with your application and received by the DEM on March 27, 1997. A copy of the site plan stamped approved by the DEM is enclosed. Changes or revisions to the project which would alter freshwater wetlands are not authorized without a permit from the DEM.

3. Where the terms and conditions of the permit conflict with the approved site plan, these terms and conditions shall be deemed to supersede the site plan.

4. You must notify this Program in writing immediately prior to the commencement of site alterations and upon completion of the project.

5. A copy of the stamped approved site plan and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plan must be made available for review by any DEM representative upon request.

6. Within ten (10) days of the receipt of this permit, you must record this permit in the land evidence records of the Town of Middletown and supply this Program with written documentation obtained from the Town showing this permit was recorded.

7. The effective date of this permit is the date this letter was issued. This permit expires four (4) years from the date of issue.

8. Any material utilized in this project must be clean and free of matter which could pollute any freshwater wetland.

9. Prior to commencement of site alterations, you shall erect or post a sign resistant to the weather and at least twelve (12) inches wide and eighteen (18) inches long, which boldly identifies the initials "DEM" and the application number of this permit. This sign must be maintained at the site in a conspicuous location until such time that the project is complete.

10. Temporary erosion and sediment controls detailed or described on the approved site plan shall be properly installed at the site prior to or commensurate with site alterations. Such controls shall be properly maintained, replaced, supplemented, or modified as necessary or as required by the Environmental Inspector or the DEM representative from the Office of Waste Management throughout the life of this project to minimize soil erosion and to prevent sediment from being deposited in any wetlands not subject to disturbance under this permit.

11. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls consisting of silt fence if used, must be removed.

12. You are responsible for the proper operation, maintenance and stability of any mitigative features, facilities, and systems of treatment and control which are installed or used in compliance with this permit to prevent harm to adjacent wetlands.

13. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plan in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

14. This Program has made a specific revision to the approved site plan. This revision is clearly marked in red on the approved plan. This project must take place in compliance with this revision. No permanent grade changes are approved as part of this permit.

Kindly note that this Preliminary Determination pursuant to Rule 9.03 is not equivalent to a determination of the type or extent of freshwater wetlands pursuant to Rule 9.02.

This permit is valid for the original applicant only and is not transferable to another person unless the new owner completes and submits an **Application for Permit Transfer** in accordance with Rule 9.08.

You are required to comply with the terms and conditions of this permit and to carry out this project in compliance with the Rules at all times. Failure to do so may result in an enforcement action by this Department.

In permitting the proposed alterations, the DEM assumes no responsibility for damages resulting from faulty design or construction.

This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

Please contact Sandra L. Bateman of this office (telephone: 401-277-6820) should you have any questions regarding this letter.

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources/Permitting Section
Freshwater Wetlands Program

MDW/SLB/mas

Enclosure: Approved site plan

xc: Russell Chateauneuf, Administrator, Permitting Section
John F. Maloney, Middletown Building Official
Johann F. Spangenberg
John P. Means
Thomas Fetherston
Beth A. Carlson

DRAFT

Table 1
B-179 Rehabilitation - Soil Disposal Classification
NUWCDIVNPT Newport, Rhode Island

Disposal Classification	Grid Numbers	Rationale/Disposal Method
Non-Hazardous	1, 2, 5	• Detection of low concentrations of petroleum-like constituents or detection of very low concentrations of acetone (Grid No. 5). Acetone was not known to have been used at the facility for its solvent properties. • Disposal in a Subtitle D Landfill
F002	3, 4, 6, 7, 8, 9	• Detection of 1,1,1 trichloroethane which may have resulted from spills of this spent solvent which was historically used for its solvent properties at this location. • Disposal in a Subtitle C Landfill
F002 & D003	10	• Detection of 1,1,1 trichloroethane = F002 classification for the rationale provided above for the F002 classification. Detection of propylene glycol dinitrate (PGDN) = D003 classification for consistency with Navy policy of classification of Otto Fuel II as a reactive waste. • Disposal in a Subtitle C Landfill
F005 & F002	13, 14, 15, 17, 18	• Detection of trace amounts of both methyl ethyl ketone (F005) and methylene chloride (F002) which may have resulted from spills of these spent solvents which were historically used in small quantities for their solvent properties at this location. • Disposal in a Subtitle C Landfill
F005	11, 12, 16, 19	Detection of trace quantities of methyl ethyl ketone which may have resulted from spills of this spent solvent which was historically used in small quantities for its solvent properties at this location. • Disposal in a Subtitle C Landfill

Notes:

1. Waste classification is based on analytical data (Mitkem Corporation) provided by Foster/Wheeler Environmental.

APPENDIX A.5

FINAL PROJECT CLOSE-OUT REPORT FOR BUILDING 179 REMEDIATION (FWEC, 2000)

Prepare in quintuplicate (original and 4 copies)

CONTRACTOR DRAWINGS & INFORMATION SUBMITTAL
NORTHNAVFACENGCOM 4335/3 (Rev. 6/80)

CONTROL NO. 41B

CONTRACT NO.	DELIVERY ORDER #	ACTIVITY LOCATION
N62472-94-D-0398	0013	NUWC Division, Newport, Rhode Island

PROJECT TITLE:
Building 179 Remediation at NUWC

FROM:	DATE
Foster Wheeler Environmental Corp/ Program QCM: Mark Miller	March 8, 2000
TO:	DATE
NTR: T. Gibison (1 copy)	March 8, 2000

1. THE CONTRACTOR SUBMITTALS LISTED BELOW ARE FORWARDED FOR YOUR REVIEW AND RECOMMENDATIONS.
(a) APPLY APPROPRIATE STAMP IMPRINT TO EACH SUBMITTAL AND INDICATE REVIEW COMMENTS, AS REQUIRED.
(b) RETAIN ONE (1) COPY OF THIS TRANSMITTAL FORM AND RETURN REMAINING COPIES WITH REVIEWED SUBMITTALS TO ROICC.
2. THESE SUBMITTALS SHOULD BE RETURNED TO THIS OFFICE BY _____
3. _____

Mark Miller MARCH 8, 2000

COPY TO:

[X] ROICC **R Krivinskas (1 copy)** [X] NAVFAC **B. Helland (2 copies)** [X] NUWC **R. Machado (4 copies)**

SIGNATURE AND DATE

FROM: DESIGNER	DATE
TO: ROICC	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE RETURNED, WITH ACTION TAKEN AS INDICATED.
2. _____

COPY TO:

[ ] ROICC [ ] DESIGNER

SIGNATURE AND DATE

FROM: ROICC	DATE
TO: CONTRACTOR	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE APPROVED/DISAPPROVED AS SHOWN BELOW AND ON EACH STAMP IMPRINT.

COPY TO:
[ ] ROICC [ ] OTHER

FOR COMMANDING OFFICER, NORTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND — DATE

ITEM NO.	SUBMITTAL DESCRIPTION	PREPARED/ SUBMITTED BY	APPROVED	DISAPPROVED	REMARKS
42b	SD-18, Records; Final Project Close-Out Report for Building 179 Remediation	M Miller			

FINAL
PROJECT CLOSE-OUT REPORT
FOR
BUILDING 179 REMEDIATION
AT THE
NAVAL UNDERSEA WARFARE CENTER (NUWC)
NEWPORT, RHODE ISLAND

Issued:

March 2000

Prepared for:

Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113

Prepared by:

FOSTER WHEELER ENVIRONMENTAL CORPORATION
2300 Lincoln Highway
One Oxford Valley - Suite 200
Langhorne, PA 19047-1829

REMEDIAL ACTION CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. O13C

Prepared By:
Jon Cary
Site Manager
Foster Wheeler Env. Corp.
Newport, Rhode Island

Approved By:
Art Holcomb
Program Manager
Foster Wheeler Env. Corp.
Langhorne, Pennsylvania

PROJECT CLOSE-OUT REPORT
FOR
BUILDING 179 REMEDIATION
NAVAL UNDERSEA WARFARE CENTER (NUWC)
NEWPORT, RHODE ISLAND

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Appendix B Project Closure Report for Building 179 Tank Closures
Appendix C POTW Appendix C (Industrial User Self-Monitoring Report)
Appendix D Excavation Grid Plan Drawing
Appendix E Clean Soil Certification for Backfill Soil
Appendix F Disposal Documentation
Appendix G Photographic Log
Appendix H Analytical Results
Appendix I Liner Plan and Section

1.0 INTRODUCTION/PROJECT OBJECTIVES

Foster Wheeler Environmental Corporation (Foster Wheeler) was contracted by the Northern Division, Naval Facilities Engineering Command (Navy) to complete Remedial Activities, prior to the Building 179 reconstruction at the Naval Undersea Warfare Center (NUWC) located in Middletown, Rhode Island. Remedial activities included: concrete demolition, in-situ characterization of soils, railroad track removal, treatment of ground water, soil excavation, post-excavation sampling, concrete underground storage tank (CUST) closure, the transportation and disposal of wastes generated, and site restoration. This Project Close-out Report is being submitted to summarize the above-mentioned remedial activities. This report will provide the documentation and figure requirements specified in sections 5.1 and 5.2 of the Building 179 Reconstruction Incidental Cleanup Work plan dated July 18, 1997 for Delivery Order No. 013 (Foster Wheeler's Delivery Order 13C) under Remedial Action Contract No. N62472-94-R-0398.

1.1 Project Location and Description

The Naval Undersea Warfare Center (NUWC) is located in the towns of Newport, Middletown, and Portsmouth, Rhode Island, approximately 25 miles southeast of Providence. Building 179 is situated in the eastern portion of NUWC, in Middletown (Figure 1).

Building 179 is located east of Cunningham Street along the easterly edge of the NUWC Division Facilities (Figure 2). Building 179 along with surrounding Buildings 438, 1180, 1301, and 1303 form a significant portion of the Propulsion Test Facility (PTF) at NUWCDIVNPT. The PTF supported the Navy in testing, research, and development of torpedo propulsion systems.

The area in the vicinity of Building 179 has been characterized as heavily developed with a variety of both above and below grade process structures to support PTF testing functions. In the immediate vicinity of the building is a crushed stone roadway to the east, an open paved area to the north and south, and aboveground process equipment located adjacent to and west of the building.

In addition, a heavily vegetated, freshwater wetland area is located east of Building 179 and support areas. A stream is present within the wetland area, located approximately 85 feet from Building 179. The limits of this freshwater wetland were delineated and included in the Preliminary Determination Application submitted to the RIDEM Division of Freshwater Wetlands for the Building 179 reconstruction project.

Topographic relief in the area immediately surrounding the building is relatively flat. However, a downward slope with topographic relief of between six and eight feet is located along the wetland side of the building.

Building 179 was constructed in 1961 on property owned by the Navy. At the time of the construction of Building 179, the subject, concrete underground storage tank (CUST) was constructed to support torpedo test activities within the Building. In 1992, stainless steel tanks were placed inside the CUST to further support the Building's torpedo testing activities. On February 24, 1995, a torpedo test failure resulted in damage to Building 179 and materially reduced the operational

capacity of the building. Since that time, limited test activities resumed at the neighboring buildings and continued through the period of reconstruction.

1.2 Historic Environmental Conditions

Previous environmental investigations have determined that soils in the vicinity of Building 179 have been impacted by historic facility operations.

In November 1995, TRC Environmental (TRC) was tasked by NUWC Division to conduct an evaluation of soil and ground water conditions surrounding Building 179. This investigation was conducted to determine whether contamination would be encountered within the area, which may be disturbed as a result of the reconstruction of Building 179. The initial scope of the investigation involved the installation of five soil borings and three groundwater, monitoring wells outside the perimeter of the Building 179 footprint. Results of this investigation revealed VOC and TPH detection's, with 1,1,1-Trichloroethane comprising of the majority of the VOC detection's in soils. Groundwater sample analysis indicated detection's for 1,1,1-Trichloroethane, 1,1-dichloroethane, TPH, Cyanide, and PGDN. A second exploratory investigation was performed by TRC in April 1996 to inspect the soil characteristics directly beneath Building 179. The sub-slab investigation included nine borings through the floor of the Building 179 and one soil sample from each boring for laboratory analyses. The results indicated that VOCs, namely acetone, 1,1,1-trichloroethane, ethylbenzene, and total xylene were detected.

The following summary best describes the compounds and areas of concern based on previous investigations. Specifically, Otto Fuel (torpedo fuel), and chlorinated solvent contaminated soils were identified beneath and to the northeast of the building. The main component of Otto fuel is PGDN. The area around Test Cell 4 or beneath the northeast corner of Building 179 exhibited the highest concentrations of soils containing 1,1,1-trichloroethane.

1.3 Project Objectives

The objectives of this project included: the in-place characterization of the soils to be removed to allow reconstruction; the removal of the concrete slabs and foundation walls; the removal of soils within the footprint of the building reconstruction; the closure of the CUST; restoration of areas up to the new construction limits, and the restoration of areas outside of the new construction limits.

FIGURE 1: SITE LOCATION MAP

FIGURE 2: SITE PLAN

2.0 PROJECT ACTIVITIES

The main activities of the project were:

1) to remove, segregate by degree of contamination, and dispose of the concrete slabs and foundation walls within the footprint of the new construction;
2) to characterize soils, in-place for disposal within the established excavation grids;
3) to excavate and dispose of the contaminated soils within the excavation grids;
4) to remove and dispose of the two clean stainless steel storage tanks contained within the CUST;
5) to clean and fill the CUST with a non-shrinking inert solid, then cap it with 6inches of concrete;
6) to remove and dispose of the railroad tracks, ties and ballast materials;
7) to pump and treat the groundwater on an as needed basis;
8) to install a liner system which created a barrier between the building reconstruction contractor and the contaminated soils/groundwater during the reconstruction effort;
9) to backfill areas up to the construction limits.

These field efforts lasted from November 1997 through April 1998.

In addition, Foster Wheeler submitted a Building 179 Construction Incident Cleanup Interceptor Tank Removal Work Plan Addendum. This portion of the project consisted of the following:

1) The installation of erosion control measures and the clearing the area affected by the Interceptor Tank Removal;
2) the location and uncovering the interceptor tank, removing the tanks residual contents, and powering wash the interior of the tank;
3) the excavation and removal of the interceptor's out-fall piping;
4) the removal, field screening, and segregation of soils indicating elevated levels of contamination;
5) the restoration of the areas affected by removal process;
6) the disposal of all generated wastes;
7) incorporating the documentation of all activities into the CUST Closure Report and the Building 179 Project Close-out Report.

These field efforts lasted from November 30, 1998 through December 18, 1998.

2.1 Project Planning/Management

Project Planning/Management activities included the preparation of pre-construction submittals, coordination of utility requirements, mobilization to the site, and home office support functions during the time period of the project. The tasks involved in Project Planning/Management are described below.

2.1.1 Pre-Construction Submittals

Foster Wheeler prepared and submitted the following pre-construction documents to the Navy.

Final Work Plan
The Final Work Plan (for Building 179) describing Foster Wheeler's approach to project execution was issued on July 18, 1997, to the Naval Facilities Engineering Command. This Work Plan included the site description, project organization, permitting requirements, site preparation approach, soil removal activities, and site restoration. The Work Plan Addendum for the removal of the Interceptor Tank was issued November 25, 1998.

Final Health and Safety Plan (HASP)
The final HASP (for Building 179) included Foster Wheeler's approach to ensuring the health and safety of its employees and others during the project. The Final HASP for the project was submitted on August 7, 1997 to the Naval Facilities Engineering Command.

2.1.2 Home Office Support

Foster Wheeler's Langhorne, Pennsylvania office provided home office support throughout the duration of the project. Home office support included procurement and subcontract agreement support along with the preparation of the required financial, technical, and monthly progress reports.

2.2 Permit and Report Preparation and Submission

2.2.1 Wetlands Permit

A wetlands permit was not required. The RIDEM Wetland division was notified by NUWC on the relationship of the project's boundaries to the delineated wetlands. FWENC was required to submit Drawing C-1SR and detail drawing C-4SR depicting the placement of the soil erosion control measures to protect the wetlands. Appendix A contains Drawings C-1SR and detail drawing C-4SR. No other submittal was required.

2.2.2 Dig Safe Permit

Foster Wheeler obtained the dig safe permits from the NUWC prior to any excavation activities. On October 21, 1997 and December 15, 1997 approval was received for initial concrete and soil removal for Grid Numbers 1 through 18. On October 21, 1998, and November 16, 1998 for Grid Number 19, and November 21, 1998 for work to be completed at the Interceptor Tank and associated piping. Utilities were marked-out prior to excavation activities.

2.2.3 Water Treatment Discharge Permit

The NUWC Facility submitted to the City of Newport Utilities Department, a letter seeking approval to discharge treated waters to the Publicly Owned Treatment Works (POTW). Foster Wheeler was granted approval to discharge treated water on December 17, 1997.

2.2.4 Project Close-out Report

This Project Close-out Report has been prepared in accordance with NAVFAC guidelines. The report includes a summary of activities completed, location and quantities of soil and wastes removed, analytical results, and disposal data. The CUST and Interceptor Tank closure is a stand-alone document that was transmitted under separate cover and the transmittal form and cover page found in Appendix B of this report.

2.3 Mobilization and Site Preparedness

2.3.1 Mobilization

Mobilization began on November 3, 1997, with the placement of the support area shower trailer and the installation of the Water Treatment System. Foster Wheeler left these Facilities in place for the duration of the project.

2.3.2 Dust Control

Potable water was available to be used as a dust control measure. Moist conditions prevailed and dust control was not necessary.

2.3.3 Soil Erosion and Sediment Control

An Erosion Control Plan was submitted to the Navy within the Building 179 Work Plan for approval prior to the start of any excavation activities. Erosion and sediment controls were installed to the limits as designated on the Building 179 Naval Undersea Warfare Center, Excavation Site Plan drawing, C-1SR. Control measures consisted of placing a 2-foot silt fence filter fabric, buried 4 inches, and augmented with hay bales. Erosion and sediment controls were installed prior to the start of any activities and were inspected on a daily basis.

Foster Wheeler installed a stabilized construction apron at the entrance to the removal area. This apron was removed with the excavation of Grid 19 and the removal of the Interceptor Tank. The existing paved roadways were used to move the containerized wastes to an adjacent paved area for temporary staging prior to shipment.

The soil erosion and sediment controls were maintained throughout the duration of the project. As areas were stabilized control measures were removed. All have been removed with the exception of those, which protect the area disturbed during the Interceptor Tank removal. These will be left in-place until sufficient vegetation has been established to prevent damage.

2.5 Soil Removal

Prior to any soil removal, the analytical results from the in-place soil characterization effort was posted on the original Excavation Grid Plan drawing. (Appendix D) 19 Excavation Grids were excavated on an individual basis and care was taken not to mix grids of different soil classification. Soils were excavated and placed directly in DOT approved lined 30-cubic yard roll-off containers.

A 1 foot vertical to 1 foot horizontal slope was maintained at the base of existing structures and on the side walls of the excavations. This was done to prevent the potential undermining of existing structures and to provide a safe side wall condition for the purpose of entry.

Some moist soil conditions were encountered. To ensure that the soils would pass the paint filter test conditions were remedied by stabilizing the soils with Portland Cement prior to removal.

Throughout the excavation soils were field screened visually and monitored for Volatile Organic Compounds (VOCs) with a FID for evidence of contamination. For those areas previously characterized as Land Ban, field screening was not an issue and this material was segregated in their own rolloffs. For soils designated as F002 (below the Universal Treatment Standard) and Non-Hazardous soils, they were segregated into their own respective roll-off containers. All segregated soil containers were then sampled as described in Section 2.9.3 Segregated Soil Waste Characterization.

A total of 1978.21 tons of soil was removed from grids 1 – 19.

2.6 Water Treatment

The Water Treatment System (WTS) consisted of a 20,000 gallon influent tank, one bag filter unit, one 1,800 lb. activated carbon filter vessel, one 1,800 lb. anthracite/bentonite clay filter vessel, and one 20,000 gallon treated water storage tank. The system discharged to an adjacent catch basin, which led to the POTW.

Water from within the excavation was pumped with electrical float activated submersible pumps, to a 20,000 gallon frac tank for storage prior to treatment. Sampling began on February 25, 1998 in accordance with the Enclosure (1) Building 179 Rehabilitation Project document - Water Discharge Requirements dated February 24, 1998. As specified in this document, Foster Wheeler collected five well spaced grab samples from the sample port on the WTS during the initial thirteen hour period of treatment and relinquished these samples to R.I. Analytical Services for VOC (EPA Method 8260) and TPH (EPA Method 8015). One representative aliquot was also collected from hourly grab samples until the contents of the 20,000 gallon influent frac tank was processed through the WTS. The processed water directed to a 20,000 gallon frac tank for storage until analytical results were submitted and discharge was approved. Daily samples were collected and analyzed for pH, VOC (EPA Method 8260), and TPH (EPA Method 8015). The discharge rate was restricted to 25 gallons per minute (GPM) as set forth by NUWC.

The discharging of treated waters began on March 7, 1998 and was completed on December 14, 1998. During the duration of the project, approximately 224,333 gallons of water was treated through the WTS and discharged to the POTW, Newport, RI. Appendix C contains the POTW Appendix C (Industrial User Self-Monitoring Report).

Upon completion of the project the water treatment system was decontaminated and demobilized. The filter media was removed and placed into a roll-off container along with the secondary containment liner. All sediments, contained in the influent tank, were placed in drums, as was the residual wash water. These wastes were characterized as specified in Section 2.9.4 of this document.

2.7 Railroad Track and Railroad Tie Removal

The railroad tracks located east of Building 179 were removed during this field effort. An Excavator was used to remove and load the rails and ties. The railroad ties were loaded out with the dirt from the area for disposal. The steel ties were removed and inspected for cleanliness. Any residual dirt was removed from the rails. The steel was sent for metal recycling.

2.8 Concrete Underground Storage Tank (CUST) Closure

Foster Wheeler has prepared a Tank Closure Report summarizing the activities associated with the CUST closure. The report was written to satisfy the Rhode Island Department of Environmental Management (RIDEM) Regulation DEM-DWM-UST05-93 Section 15.10, as detailed by the July 1992 RIDEM guidance document entitled: Department of Environmental Management UST Closure Assessment Guidelines. The report was designed to read as a stand-alone document and provides the documentation and figure requirements specified in sections 5.1 and 5.2 of the Building 179 Reconstruction Incidental Cleanup Work plan dated July 18, 1997. The report summarizes all work completed. See Appendix B (Project Closure Report for Building 179 Tank Closures).

2.9 Waste Disposal Characterization

2.9.1 Concrete Waste Disposal Characterization

The concrete waste generated was initially segregated into rolloffs based on the presence of visual staining.

For each roll-off, a discrete concrete chip sample was collected for every 5 cubic yards of concrete. These samples were combined to produce one composite sample per roll-off container. These samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260, Semi-Volatile Compounds (SVOCs) by EPA Method 8270, total cyanide, and Total Petroleum Hydrocarbons. In addition, a TCLP extraction for VOCs, SVOCs, and metals was performed on each composite sample. Based on the initial data, Foster Wheeler instructed the laboratory as to which TCLP extractions to analyze for further classification. Additional waste disposal characterization parameters included ignitability, reactivity, corrosivity, RCRA 8 metals, and paint filter.

2.9.2 In-Place Characterization of Soils

After the removal of concrete, the underlying soils were divided into a grid system according to Foster Wheeler Site layout and Sampling Grid Plan drawing. A Geoprobe Sampler was used to collect between 4 and 5 soil samples from each of the 19 excavation grids. Borings were taken from the ground surface to the bottom of the designated excavation depth.

As part of the characterization of the soils, all field samples were screened using a Flame-Ionization Detector (FID). In each grid, if all of the samples taken indicated a FID reading of less than 3 ppm, one composite sample was submitted for laboratory analysis. In the instance that FID readings greater than 3 ppm were observed, the sample with the highest reading was submitted for laboratory analysis. Samples were sent to Mitkem Corporation in Warick, Rhode Island and analyzed for the following: VOCs by EPA Method 8260, SVOCs by EPA Method 8270, total cyanide, and TPH. A TCLP extraction for VOCs, SVOCs, and metals was also performed. Lastly, waste disposal acceptance parameters included ignitability, reactivity, corrosivity, total RCRA metals, and a paint filter test were performed on the samples.

2.9.3 Segregated Soil Waste Characterization

Soils which, were segregated and staged in roll-off containers were characterized as follows: Samples were collected from areas of obvious contamination or from four randomly spaced locations within the roll-off container. Each discrete soil sample was placed in laboratory supplied bottleware and analyzed as the above reference In-Place Characterization of soils were.

2.10 Post Excavation Sampling and Analysis

After soils were removed to the excavation limits post excavation samples were collected to confirm that the appropriate remedial objectives were met. Post Excavation samples were collected on February 2 and 3, 1998 from the floor and sidewalls of the excavations, the results are shown on Appendix H.

The samples were field screened for VOC's via jar head-space analysis utilizing the Foxboro OVA 128 (FID) to verify that the area has been successfully cleaned prior to sampling. Soil samples were collected within a twelve-inch circle of the sample location, using a decontaminated stainless steel trowel and placed in a decontaminated stainless steel bowl for homogenization. Before homogenization, the aliquot specified for VOC (USEPA method 8260) analysis was placed into the appropriate bottleware and the remainder of the sample thoroughly mixed and placed in laboratory bottleware designated for TPH (USEPA method 418.1), SVOCs (USEPA method 8270), and total cyanide (USEPA method SW-846-9010) on a 72-hour turnaround. 23 samples were collected from locations within the excavation exhibiting possible discoloration due to possible "dye staining" and relinquished to NUWC personnel to be analyzed for PGDN by Indian Head Division of the Naval Surface Warfare Center at Indian Head, Maryland. The results from these samples revealed no PGDN at these locations.

2.11 Site Restoration

Once the extent of the excavation was completed and the post-excavation analytical results were obtained, the areas outside the reconstruction effort were backfilled up to existing grade. Crushed 1.5 inch stone was placed into the excavation within one foot of reconstruction sub-grade. A woven textile separation fabric was installed over the stone bed and one foot of clean backfill material (see Appendix E), was placed and compacted to restore subgrade for railroad track installation. The final lift within the railroad track area consisted of approximately 4-inches of crushed stone. Area was then turned over to the re-construction Contractor.

For restoration of the area within the footprint of the new building construction a liner system with two extraction wells were installed. The liner system provided a barrier to prevent the workers (constructing the new building) from coming into contact with the contaminated soil. The two extraction wells provide a means to remove and treat groundwater during reconstruction. If required, these wells can provide a means to collect and treat groundwater upon completion of the construction activities.

Restoration activities within the footprint of the foundation began with the installation of two 12-inch extraction well casings and placement of clean backfill. The extraction well casings were perforated from elevation 50.0 up to elevation 52.0 and surrounded with stone at these elevations. The two extraction well casings were extended up to the elevation of the top of the concrete floor for the new building. Backfill was placed in compacted lifts up to elevation 52.0. At elevation 52.0, the liner system was placed. The system consisted of a 40-mil HDPE liner with a 6oz non-woven fabric geocushion under and over the liner. The liner system extended up the sidewalls and was secured to the sidewalls of the existing foundation and the top of the sidewall slopes.

A 1-foot thick concrete slab was poured on top of the liner. This concrete slab was to provide a stable base from which the construction of the new building's foundation could proceed. The installation of the liner system was the extent restoration activity within the footprint of the new building reconstruction. See Appendix I for liner plan and section.

Post liner installation real time air monitoring was performed by Foster Wheeler using Tenex tubes and a 50-60 cc/min SKC Aircheck sampling pumps to sample for PGDN. The pumps were placed on top of the liner in cells 5 and 10 the first day and 7 and 9 on the second for approximately eight hours each day to achieve a total sample air volume of 20 to 30 liters. During this Time Weighted Average air sampling event real time air monitoring was conducted with the Foxboro 128 organic vapor analyzer to monitor for VOCs every fifteen (15) minutes. In addition detector tubes were used to monitor for 1,1,1 trichloroethylene once every hour. Data Chem laboratories was used to analyze the Tenex tubes for PGDN. Results from Data Chem laboratories revealed no PGDN contamination above or in the vicinity of the Post Excavation Liner.

During construction of Building 179, Foster Wheeler provided full time air monitoring using the Foxboro 128 organic vapor analyzer to monitor for volatiles every fifteen minutes. This monitoring

continued until the Building footings were installed and construction personnel were no longer in contact with the separation fabric. No exceedences were recorded during the above activities.

3.0 Waste Disposal

3.1 Concrete Disposal

139.20 tons of concrete exhibited 1,1,1-trichloroethane concentrations greater than 6 ppb (the laboratory detection limit for this compound. This waste was classified as RCRA F002 Hazardous Waste Concrete and was disposed of at Wayne Disposal Incorporated, Belleville Michigan. In addition, 81.03 tons of concrete was disposed of as non-hazardous waste at Bardon Trimount, Stougton Massachusetts and Fall River Landfill in Massachusetts.

3.2 Soil Disposal

There were two waste classifications, for the soils removed from excavation grids 1-19, Hazardous and Non-hazardous. From girds 1-19 a total of 160.13 tons of Non-hazardous soils were shipped to the Fall River Landfill in Massachusetts. A total of 1978.21 tons of Hazardous soils were shipped to Stablex Canada Inc., Quebec and Wayne Disposal in Michigan, for disposal.

3.3 Water Treatment Derived Waste Disposal

The filter media was disposed of at the Ensco Incorporated facility in El Dorado, Arkansas. A total of 1.12 tons of media was disposed of.

The drummed waste was disposed of at the Ensco Incorporated facility in El Dorado Arkansas.

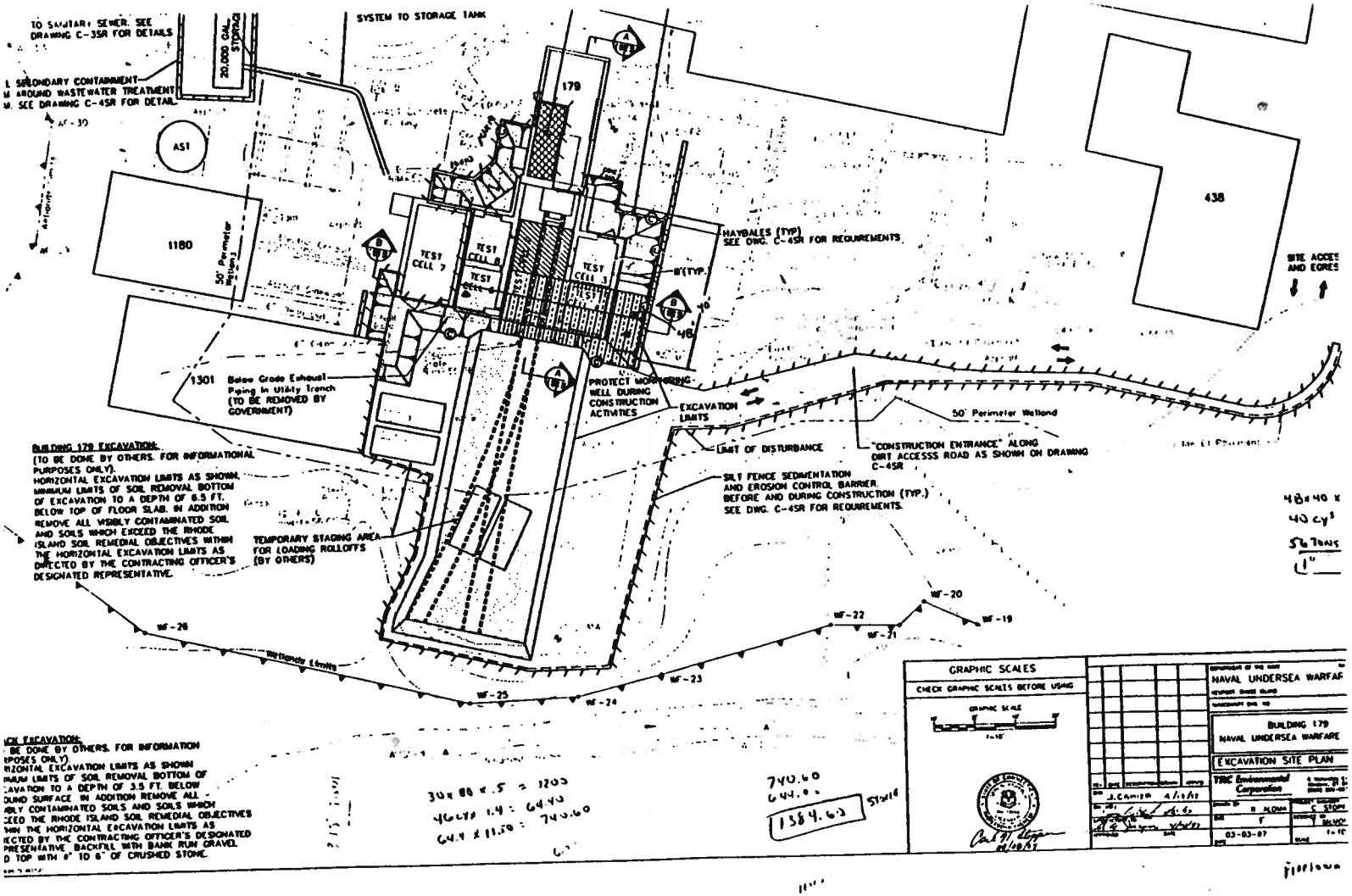
4.0 DOCUMENTATION

Documentation of operations, record keeping, photographic evidence of work performed, and analytical results are, provided in this Project Close-out Report. Appendix F contains disposal documentation, Appendix H contains Analytical Results and Appendix G of this report is the photographic log recording the activities, which took place at Building 179 Remediation. Photographs documented the existing conditions prior to work, during activities, and during restoration. Photograph location, date, and description of the activity recorded is included in the photo documentation log.

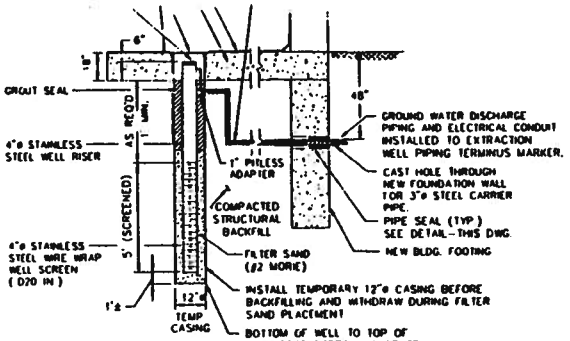
5.0 CONCLUSION

All activities pertaining to the Building 179 Remediation have been completed in accordance with the Final Work Plan and all applicable permits, and Federal, State, and Local regulations. The Building 179 Remediation for which Foster Wheeler Environmental was contracted by the Northern Division, Naval Facilities Engineering Command is complete.

This Project Close-out Report satisfies the post-construction submittal requirements included in the Statement of Services for Delivery Order No. 013B (Foster Wheeler's Delivery Order No. 13C) under Remedial Action Contract No. N62472-94-D-0398.

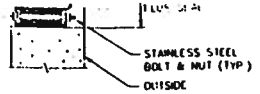

TO SANITARY SEWER. SEE DRAWING C-35R FOR DETAILS
SYSTEM TO STORAGE TANK
20,000 GAL STORAGE
SECONDARY CONTAINMENT AROUND WASTEWATER TREATMENT SEE DRAWING C-45R FOR DETAIL
AS1
179
1180
50' Perimeter Wetland
TEST CELL 1
TEST CELL 2
TEST CELL 3
HAYBALES (TYP) SEE DWG. C-45R FOR REQUIREMENTS.
438
SITE ACCESS AND EGRESS
1301
Below Grade Exhaust Piping in Utility Trench (TO BE REMOVED BY GOVERNMENT)
PROTECT MONITORING WELL DURING CONSTRUCTION ACTIVITIES
EXCAVATION LIMITS
50' Perimeter Wetland
LIMIT OF DISTURBANCE
"CONSTRUCTION ENTRANCE" ALONG DIRT ACCESSS ROAD AS SHOWN ON DRAWING C-45R
SILT FENCE SEDIMENTATION AND EROSION CONTROL BARRIER BEFORE AND DURING CONSTRUCTION (TYP.) SEE DWG. C-45R FOR REQUIREMENTS.
BUILDING 179 EXCAVATION:
(TO BE DONE BY OTHERS. FOR INFORMATIONAL PURPOSES ONLY).
HORIZONTAL EXCAVATION LIMITS AS SHOWN.
MINIMUM LIMITS OF SOIL REMOVAL BOTTOM OF EXCAVATION TO A DEPTH OF 6.5 FT. BELOW TOP OF FLOOR SLAB. IN ADDITION REMOVE ALL VISIBLY CONTAMINATED SOIL AND SOILS WHICH EXCEED THE RHODE ISLAND SOIL REMEDIAL OBJECTIVES WITHIN THE HORIZONTAL EXCAVATION LIMITS AS DIRECTED BY THE CONTRACTING OFFICER'S DESIGNATED REPRESENTATIVE.
TEMPORARY STAGING AREA FOR LOADING ROLLOFFS (BY OTHERS)
WF-26
WF-25
WF-24
WF-23
WF-22
WF-21
WF-20
WF-19
Wetlands Limits
GRAPHIC SCALES
CHECK GRAPHIC SCALES BEFORE USING
NAVAL UNDERSEA WARFAR
BUILDING 179
NAVAL UNDERSEA WARFARE
EXCAVATION SITE PLAN
TRC Environmental Corporation
03-03-97
30 x 80 x .5 = 1200
960 x 1.4 = 644.40
644 x 11.50 = 740.60
740.60
644.00
1384.60 Stone
48 x 40 x
40 cy
56 Tons
1"

C-1SR

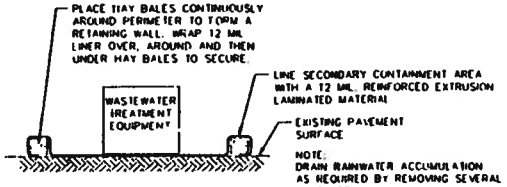


A-1 TYP

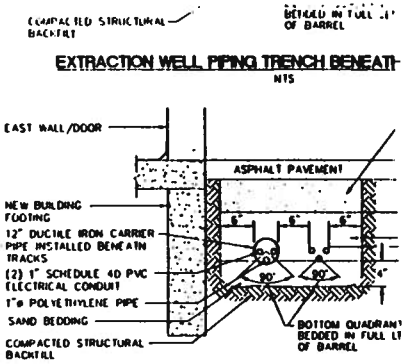
SECTION 'A-3'
EXTRACTION WELL TYPICAL DETAIL
NTS



SLEEVE SEAL DETAIL
NTS



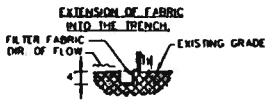
SECONDARY CONTAINMENT SYSTEM
NTS



EXTRACTION WELL PIPING TRENCH BENEATH
NTS

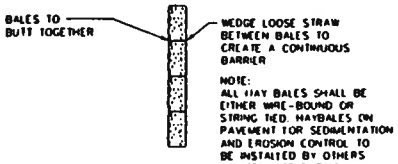
EXTRACTION WELL PIPING TRENCH EAST OF
NTS

1. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS
2. STAPLE FILTER FABRIC TO THE POSTS AND EXTEND INTO TRENCH.
3. BACKFILL AND COMPACT THE EXCAVATED SOIL INTO THE TRENCH.
4. SILT FENCE TO BE INSTALLED BY OTHERS. MAINTENANCE DURING CONSTRUCTION AND REMOVAL FOLLOWING CONSTRUCTION TO BE CONDUCTED UNDER THIS CONTRACT



SILT FENCE
NTS

ELEVATION

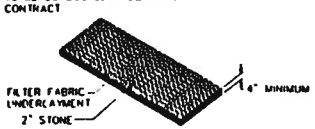


NOTE:
ALL HAY BALES SHALL BE EITHER WIRE-BOUND OR STRING TIED. HAYBALES ON PAVEMENT FOR SEDIMENTATION AND EROSION CONTROL TO BE INSTALLED BY OTHERS MAINTENANCE DURING CONSTRUCTION AND REMOVAL FOLLOWING CONSTRUCTION TO BE CONDUCTED UNDER THIS CONTRACT

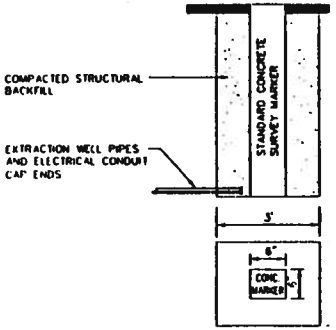
PLAN

HAY BALES ON PAVEMENT
NTS

NOTE:
CONSTRUCTION ENTRANCE TO BE INSTALLED BY OTHERS MAINTENANCE DURING CONSTRUCTION AND REMOVAL FOLLOWING CONSTRUCTION TO BE CONDUCTED UNDER THIS CONTRACT



CONSTRUCTION ENTRANCE
NTS



EXTRACTION WELL PIPING TERM
NTS

GRAPHIC SCALES
CHECK GRAPHIC SCALES BEFORE USING

NAVAL UNDERSI
BURI
NAVAL UNDERSE
DETAILS
TRC Environmental Corporation
J. Combs 4/12/95
R. ALOMA
3-01-97

C-452

CONTRACTOR DRAWINGS & INFORMATION SUBMITTAL
NORTHNAVFACENGCOM 4335/3 (Rev. 6/80)

Prepare in quintuplicate (original and 4 copies)
CONTROL NO. 40B

CONTRACT NO.	DELIVERY ORDER #	ACTIVITY LOCATION
N62472-94-D-0398	0013	NUWC Division, Newport, Rhode Island

PROJECT TITLE:
Building 179 Tanks Closures at NUWC

FROM:	DATE
Foster Wheeler Environmental Corp/ Program QCM: Mark Miller	October 12, 1999
TO:	DATE
NTR: T. Gibison (1 copy)	October 12, 1999

1. THE CONTRACTOR SUBMITTALS LISTED BELOW ARE FORWARDED FOR YOUR REVIEW AND RECOMMENDATIONS.
   (a) APPLY APPROPRIATE STAMP IMPRINT TO EACH SUBMITTAL AND INDICATE REVIEW COMMENTS, AS REQUIRED.
   (b) RETAIN ONE (1) COPY OF THIS TRANSMITTAL FORM AND RETURN REMAINING COPIES WITH REVIEWED SUBMITTALS TO ROICC.
2. THESE SUBMITTALS SHOULD BE RETURNED TO THIS OFFICE BY _____
3. _____

COPY TO:

[X] ROICC **R Krivinskas (1 copy)** [X] NAVFAC **B. Heiland (2 copies)** [X] NUWC **R. Machado (4 copies)**

Mark Miller 10-12-99
SIGNATURE AND DATE

FROM: DESIGNER	DATE
TO: ROICC	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE RETURNED, WITH ACTION TAKEN AS INDICATED.
2. _____

COPY TO:

[ ] ROICC [ ] DESIGNER

SIGNATURE AND DATE

FROM: ROICC	DATE
TO: CONTRACTOR	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE APPROVED/DISAPPROVED AS SHOWN BELOW AND ON EACH STAMP IMPRINT.

COPY TO:
[ ] ROICC [ ] OTHER

FOR COMMANDING OFFICER, NORTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND — DATE

ITEM NO.	SUBMITTAL DESCRIPTION	PREPARED/ SUBMITTED BY	APPROVED	DISAPPROVED	REMARKS
40b	SD-18, Records; Final Project Closure Report for Building 179 Tank Closures	M Miller			

FINAL
PROJECT CLOSURE REPORT
FOR
BUILDING 179 TANK CLOSURES
AT
NAVAL UNDERSEA WARFARE CENTER (NUWC) DIVISION
NEWPORT, RHODE ISLAND

Issued:

October 1999

Prepared for:

Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113

Prepared by:

FOSTER WHEELER ENVIRONMENTAL CORPORATION
2300 Lincoln Highway
One Oxford Valley - Suite 200
Langhorne, PA 19047-1829

REMEDIAL ACTION CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. O13C

Prepared By:
Jon Cary
Site Manager
Foster Wheeler Env. Corp.
Newport, Rhode Island

Approved By:
Art Holcomb
Program Manager
Foster Wheeler Env. Corp.
Langhorne, Pennsylvania

APPENDIX C

INDUSTRIAL USER SELF-MONITORING REPORT

Month: December Year 1998

NAME OF COMPANY Foster Wheeler Environmental Corporation

ADDRESS Bldg #179

SECTION I - WASTEWATER FLOW

A. Regulated Process Wastewater
1. Peak Flow N/A (GPD)
2. Average Flow N/A (GPD)
3. Duration of Flow N/A (hours/day)

B. Total Plant Wastewater
1. Peak Flow 11,040 (GPD)
2. Average Flow 11,040 (GPD)
3. Duration of Flow 8 (hours/day)

SECTION II - SAMPLE COLLECTION AND ANALYSIS INFORMATION

A. METALS

Person Collecting Samples: Andrew Prophete

Signature of Collector: Andrew Prophete

Data Collected: 12-11-98

Collection Time(s) 7:50

Type of Sample (check one) Aqueous

Hourly Grabs_____ Flow Proportioned Composite_____

Other Grab

If Other, Explain_____

Preservation Method: with ice <4°C

Analysis Date: 12-11-98 through 12-14-98

Foster Wheeler Environmental Corp. / Bldg #179

B. TTO

Person Collecting Samples: Andrew Prophete

Signature of Collector Andrew Prophete

Date Collected: 12-11-98

Collection Times: 7:50 AM

Analysis Date: 12-11-98 through 12-14-98

SECTION III - CERTIFICATION

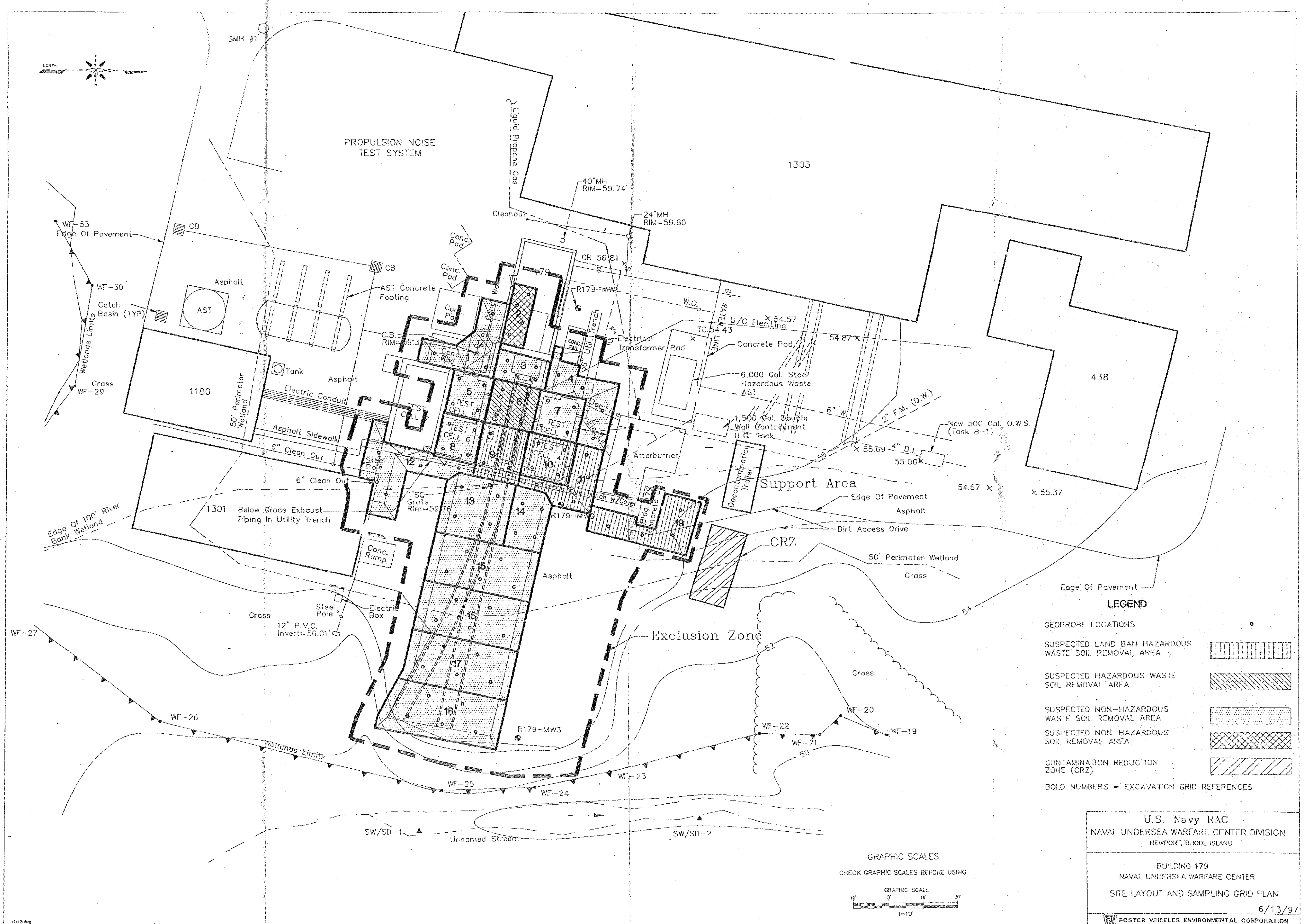
I hereby certify that the samples collected are representative of this company's normal process wastewater.

Andrew Prophete
Signature of Authorized Company Representative

Andrew Prophete
Print Name of Authorized Company Representative

Geoscientist / Health and Safety Officer
Title

12/21/98
Date


SMH #1
NORTH
PROPULSION NOISE TEST SYSTEM
Liquid Propane Gas
1303
438
40"MH RIM=59.74'
24"MH RIM=59.80
Cleanout
WF-53
Edge Of Pavement
CB
WF-30
Catch Basin (TYP)
Wetlands Limits
Grass
WF-29
Asphalt
AST
AST Concrete Footing
C.B. RIM=59.31
Tank
1180
50' Perimeter Wetland
Electric Conduit
Asphalt Sidewalk
6" Clean Out
1301
Below Grade Exhaust Piping In Utility Trench
Edge Of 100' River Bank Wetland
Conc. Pad
GR 56.81
R179-MW1
W.G.
6" WATER LINE
U/G Elec. Line
54.57
TC 54.43
54.87
Electrical Transformer Pad
Concrete Pad
6,000 Gal. Steel Hazardous Waste AST
1,500 Gal. Double Wall Containment U.G. Tank
2" F.M. (D.W.)
New 500 Gal. O.W.S. (Tank B-1)
55.69
4" D.I.
55.00
54.67
55.37
Util. Trench
Test Cell
Afterburner
Decontamination Trailer
Support Area
Edge Of Pavement
Asphalt
Steel Pole
1'SQ. Grate Rim=59.76
R179-MW2
Dirt Access Drive
CRZ
50' Perimeter Wetland
Grass
Conc. Ramp
Steel Pole
Electric Box
12" P.V.C. Invert=56.01'
Grass
WF-27
Exclusion Zone
Edge Of Pavement
54
52
50
Grass
WF-26
R179-MW3
WF-22
WF-21
WF-20
WF-19
Wetlands Limits
WF-25
WF-24
WF-23
SW/SD-1
Unnamed Stream
SW/SD-2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
LEGEND
GEOPROBE LOCATIONS
SUSPECTED LAND BAN HAZARDOUS WASTE SOIL REMOVAL AREA
SUSPECTED HAZARDOUS WASTE SOIL REMOVAL AREA
SUSPECTED NON-HAZARDOUS WASTE SOIL REMOVAL AREA
SUSPECTED NON-HAZARDOUS SOIL REMOVAL AREA
CONTAMINATION REDUCTION ZONE (CRZ)
BOLD NUMBERS = EXCAVATION GRID REFERENCES
GRAPHIC SCALES
CHECK GRAPHIC SCALES BEFORE USING
GRAPHIC SCALE
1=10'
U.S. Navy RAC
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND
BUILDING 179
NAVAL UNDERSEA WARFARE CENTER
SITE LAYOUT AND SAMPLING GRID PLAN
6/13/97
FOSTER WHEELER ENVIRONMENTAL CORPORATION

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PRECONSTRUCTION SUBMITTALS

ANALYTICAL RESULTS
FROM
NEW ENGLAND TESTING LABORATOY
ON
RICHMOND SAND AND GRAVEL SOURCE

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with Contract Number N62472-94-D-0398, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is ✓ approved for use, ____ approved for use subject to Government approval of proposed variation.

Certified by Submittal Reviewer _____, Date 5/20/98
(Signature when applicable)

Approved by QC Manager _____, Date 5/20/98
(Signature)

REPORT OF ANALYTICAL RESULTS

Case Number: I0428-08

Prepared for:

Foster-Wheeler Environmental Corp.
151 Marine Rd.
No. Kingstown, RI 02852
Attn: Peter Mooney

Report Date: MAY 8, 1998

Reviewed by:

Mark H. Bishop LS

Mark H. Bishop
Laboratory Director

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue, North Providence, Rhode Island 02904-5392
PROVIDENCE (401) 353-3420 TOLL FREE: 1-888-863-8522

SAMPLES SUBMITTED:

The following soil sample was submitted to New England Testing Laboratory on 28 APRIL 1998:

"Richmond Common"

1. Fill

The sample was assigned an internal identification code for laboratory information management purposes. The case number for this sample submission is:

I0428-08

ANALYSIS PERFORMED:

The following table details the analyses performed on the sample at the request of the client:

Sample	Analysis	Method
I0428-08:		
1. Fill	VOCs	8260B
	Semivolatiles	8270C
	Total Metals	6010B
	Arsenic	6010B
	Barium	6010B
	Cadmium	6010B
	Chromium	6010B
	Lead	6010B
	Mercury	7471A
	Selenium	7740
	Silver	6010B

Note: These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.

QUALITY ASSURANCE/CONTROL STATEMENTS

All samples were found to be properly preserved/cooled upon receipt. All analyses were performed within EPA designated holding-times. Procedure/calibration checks required by the designated protocols were within control limits.

ANALYTICAL RESULTS

Case No. I0428-08

Fill

Parameter	Result, mg/Kg*
Arsenic	<7.2
Barium	27
Cadmium	0.72
Chromium	<1.5
Lead	5.77
Mercury	<0.1
Selenium	<0.4
Silver	<0.7

*Dry Weight Basis

Sample: Fill

Case No. I0428-08
Date Analyzed: 5/5/98

Subject: Volatile Organic Compounds
Method: EPA 8260B
Level: Low

Compound	Concentration ug/Kg (ppb)	Reporting Limit
Acetone	N.D.	250
Benzene	N.D.	50
Bromochloromethane	N.D.	50
Bromodichloromethane	N.D.	50
Bromoform	N.D.	50
Bromomethane	N.D.	50
2-Butanone	N.D.	250
n-Butylbenzene	N.D.	50
sec-Butylbenzene	N.D.	50
tert-Butylbenzene	N.D.	50
Carbon disulfide	N.D.	50
Carbon tetrachloride	N.D.	50
Chlorobenzene	N.D.	50
Chlorodibromomethane	N.D.	50
Chloroethane	N.D.	50
Chloroform	N.D.	50
Chloromethane	N.D.	50
2-Chlorotoluene	N.D.	50
4-Chlorotoluene	N.D.	50
Dibromomethane	N.D.	50
1,2-Dibromo-3-chloropropane	N.D.	50
1,2-Dibromoethane	N.D.	50
1,2-Dichlorobenzene	N.D.	50
1,3-Dichlorobenzene	N.D.	50
1,4-Dichlorobenzene	N.D.	50
Dichlorodifluoromethane	N.D.	50
1,1-Dichloroethane	N.D.	50
1,2-Dichloroethane	N.D.	50
1,1-Dichloroethene	N.D.	50
cis-1,2-Dichloroethene	N.D.	50
trans-1,2-Dichloroethene	N.D.	50
1,2-Dichloropropane	N.D.	50
cis-1,3-Dichloropropene	N.D.	50
trans-1,3-Dichloropropene	N.D.	50
Ethylbenzene	N.D.	50
Ethyl methacrylate	N.D.	50
2-Hexanone	N.D.	50
Isopropylbenzene	N.D.	50
p-Isopropyltoluene	N.D.	50
Methylene chloride	N.D.	150
tert-Butylmethylether	N.D.	250

Sample: Fill

Case No. I0428-08

Compound	Concentration ug/Kg (ppb)	Reporting Limit
4-Methyl-2-pentanone	N.D.	250
Naphthalene	N.D.	100
n-Propylbenzene	N.D.	50
Styrene	N.D.	50
1,1,1,2-Tetrachloroethane	N.D.	50
1,1,2,2-Tetrachloroethane	N.D.	50
Tetrachloroethene	N.D.	50
Toluene	N.D.	50
1,2,3-Trichlorobenzene	N.D.	50
1,1,1-Trichloroethane	N.D.	50
1,1,2-Trichloroethane	N.D.	50
Trichloroethene	N.D.	50
Trichlorofluoromethane	N.D.	50
1,2,3-Trichloropropane	N.D.	50
1,2,4-Trimethylbenzene	N.D.	50
1,3,5-Trimethylbenzene	N.D.	50
Vinyl acetate	N.D.	500
Vinyl chloride	N.D.	50
Xylene, Total	N.D.	100

Surrogates:

Compound	% Recovery	Limits
Toluene d8	114	81-117
1,2-Dichloroethane d4	94	70-121
4 BFB	104	74-121

Sample: Fill
Date Sampled: 4/27/98

Case No. 10428-08
Date Extracted: 5/5/98
Date Analyzed: 5/7/98

Subject: Acid and Base/Neutral Extractable Compounds
Method: EPA 8270C
Level: Low

Base/Neutral Compounds	Concentration ug/Kg (ppb)	Reporting Limit
Acenaphthene	N.D.	330
Acenaphthylene	N.D.	500
Aniline	N.D.	660
Anthracene	N.D.	330
Benzidine	N.D.	20000
Benzo(a)anthracene	N.D.	330
Benzo(b)fluoranthene	N.D.	330
Benzo(k)fluoranthene	N.D.	330
Benzoic acid	N.D.	4950
Benzo(g,h,i)perylene	N.D.	330
Benzo(a)pyrene	N.D.	330
Biphenyl	N.D.	330
Bis(2-chloroethyl)ether	N.D.	330
Bis(2-chloroisopropyl)ether	N.D.	330
Bis(2-chloroethoxy)methane	N.D.	330
Bis(2-ethylhexyl)phthalate	N.D.	990
4-Bromophenyl phenyl ether	N.D.	330
Butyl benzyl phthalate	N.D.	330
4-Chloroaniline	N.D.	660
1-Chloronaphthalene	N.D.	330
2-Chloronaphthalene	N.D.	330
4-Chlorophenyl phenyl ether	N.D.	330
Chrysene	N.D.	330
Dibenz(a,j)acridine	N.D.	330
Dibenz(a,h)anthracene	N.D.	330
Dibenzofuran	N.D.	330
Di-n-butylphthalate	N.D.	330
1,2-Dichlorobenzene	N.D.	330
1,3-Dichlorobenzene	N.D.	330
1,4-Dichlorobenzene	N.D.	330
3,3'-Dichlorobenzidine	N.D.	1200
Diethyl phthalate	N.D.	330
7,12-Dimethylbenz(a)anthracene	N.D.	330
Dimethylphenethylamine	N.D.	660
Dimethyl phthalate	N.D.	330
2,4-Dinitrotoluene	N.D.	330
2,6-Dinitrotoluene	N.D.	330
Di(n)octyl phthalate	N.D.	330
1,2-Diphenylhydrazine	N.D.	330
Fluoranthene	N.D.	330
Fluorene	N.D.	330
Hexachlorobenzene	N.D.	330
Hexachlorobutadiene	N.D.	330

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PURCHASE REQUISITIO

Page 1 of 1

This Document will serve as: ☒ Requisition Only ☐ Field Purchase Order ☐ Supplement

1284-13-2259

REQ No. TF0365 Purchase Order No. 2259 Supplement No: Original No:

SHIP TO: (Address) Foster Wheeler Environmental Corp. 4000T Defense Highway Portsmouth, RI 02871 Attn:	PROJECT NUMBER Contract No.: 1284	Delivery Order No.: C013	Proj. Codes: 2001	Task No.: 00000	GENERAL LEDGER NO: 537.2
INVOICE TO: (Address) Foster Wheeler Environmental Corp. P.O. Box 4749 Middletown, RI 02842 Attn: Accounts Payable	Requisitioner's Name: MARK GRAVOIS Date: 2-23-98 Requisitioner's Dept Code: CO				APPROVAL(S): To Solicit: [illegible] 2-23-9 To Purchase: [illegible] 3/30/9 Delivery - Req'd No Later Than:

☐ Statement of Work Attached ☐ Insurance Requirement Attached
☐ Special Terms/Conditions Attached ☐ Site H&S Plan Summary Attached
☐ Supplier Quotes Attached ☐ List of Req'd Deliverables Attached

Type of Client (Check One): Federal ☒ Commercial ☐ Overhead ☐

Federal Government Property? Yes ☐ No ☒

Recommended Sources:

Estimated Requisition Amount: $

Allowed Variance (Complete One) $/%:

Special Approvals:

Item	Description of Supplies or Services	Qty	U/M	Unit Price	Total Price
	Shaded Areas to be Completed by Procurement Dept. Only				
1.	BACKFILL TO MEET FOLLOWING SPEC.	245	TONS	9.75	2388.7
	SIEVE SIZE — PERCENT PASSING BY WEIGHT				
	2½ INCHES — 100				
	NO. 4 — 40-75				
	NO. 10 — 20-50				
	NO. 40 — 5-30				
	NO. 100 — 0-10				
	NO. 200 — 0-5				
	BLDG. 179 HAS TO BE DEL. 10 WHEELER SPECIAL REMARKS (ATTACHMENTS/COMMENTS)			ESTIMATED SHIPPING COST:	
				ESTIMATED TAXES	
				GRAND TOTAL	2388.7

Promised Delivery Date: Award Date:

SOURCE/SELLER: Richmond Sand & Gravel

Contact:
Phone No:
FAX No:
SELLER'S SIGNATURES:

FOB TERMS: FOB DESTINATION
OTHER:

BUSINESS CLASS (Circle One): Large SB SDB WOB

Confirming Order (Circle One): YES NO
If Yes, Confirmed with:

REQUISITIONER'S PRIORITY:

DPAS RATING, IF APPLICABLE

AFCEL NUMBER, IF APPLICABLE

SHIP VIA	Payment Terms: Net 30/Other	PURCHASE AUTHORIZED BY: (Date)

Manual PR 11/96 (JVH 1/31) Distribution: Requisitioner, Procurement, Project Manager

ICF KAISER
ICF KAISER ENGINEERS AND CONSTRUCTORS

ICF Kaiser Engineers, Inc.
50 Milk Street, Suite 801
Boston, MA 02109-5002
617/348-2400 Fax 617/348-2401

February 18, 1998

Naval Undersea Warfare Center
Building 1273
1176 Howell Street
Newport, RI 02841-1708

Attn: Mr. Patrick Griffin

Re: Contract No. N62472-95-B-1852, A/E Services for Rehabilitation to Building 179, Project "D".

Dear Patrick:

As requested at our meeting of February 17, 1998, I am providing the following information regarding suitable backfill material, testing, and geotextile fabric for use in the backfill of the remediation excavation at Building 179.

Fill material in the excavation shall be in accordance with the following:

Sieve Size	Percent Passing by Weight
2 1/2 inches	100
No. 4	40-75
No. 10	20-50
No. 40	5-30
No. 100	0-10
No. 200	0-5

Fill material shall be placed in maximum eight inch lifts.

Material shall be tested to comply with the following:

At 0.1 inch penetration, the bearing ratio shall be 95 percent at 95 percent ASTM D1557 maximum density as determined in accordance with ASTM D1883 for a laboratory soaking period of not less than 4 days. Density tests shall be conducted at randomly selected locations using ASTM D1556. Contracting Officer shall select at random two locations in each compacted layer. The average of these two tests shall equal or exceed the specified density. Moisture content of the soil material in place shall be tested using ASTM D1557 at every location where in-place density is tested.

Environmental
Geotechnical
Construction
Consulting • Engineering • Testing

RECEIVED
MAR 17 1998

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

RECEIVED
MAR 17 1998

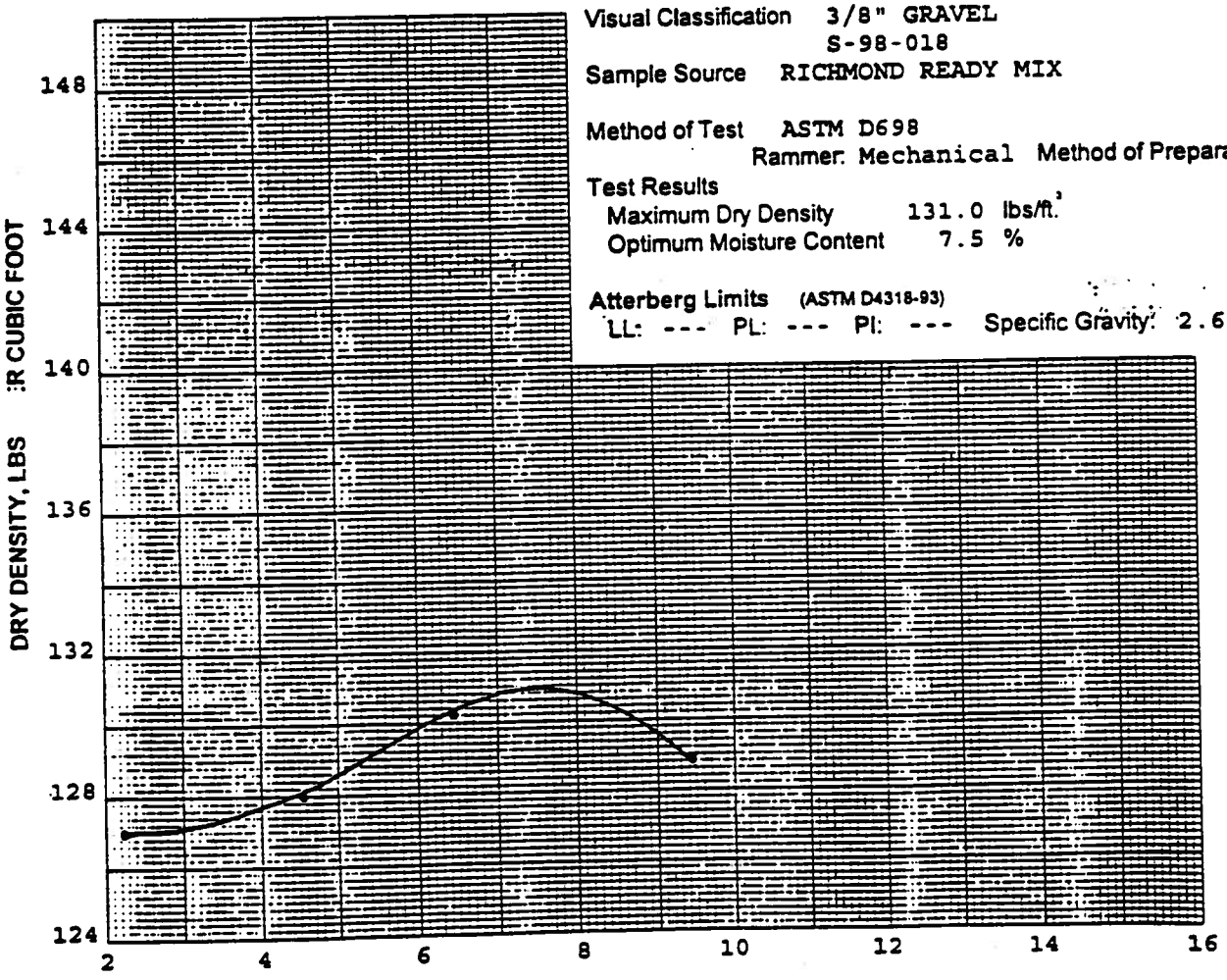
TESTED FOR: JON CAREY
FOSTER WHEELER ENVIRONMENTAL
PO BOX 4749
MIDDLETOWN, RI 02842

PROJECT: BLDG. 179

DATE: March 12, 1998

OUR REPORT NO.: 448-80020-1

TEST DATA



Visual Classification 3/8" GRAVEL
S-98-018

Sample Source RICHMOND READY MIX

Method of Test ASTM D698
Rammer: Mechanical Method of Preparation: Dry

Test Results
Maximum Dry Density 131.0 lbs/ft.³
Optimum Moisture Content 7.5 %

Atterberg Limits (ASTM D4318-93)
LL: --- PL: --- PI: --- Specific Gravity: 2.65 (estimate)

Grain Size Analysis
(ASTM C136-93 AND/OR C117

Sieve Size	Percer Passir
1/2"	100
3/8"	81
#4	46
#10	38
#20	28
#40	15
#60	6
#100	2
#200	0.7

REMARKS: AS RECEIVED MOISTURE CONTENT = 3.75%

Lab Tech: RICHARD ATKINSON

Respectfully submitted,
Professional Service Industries, In

REPORTS MAY NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION BY PROFESSIONAL SERVICE INDUSTRIES, INC

Information To Build On

PSI • 120 Pershing Street • East Providence, RI 02914 • Phone 401/438-7320 • Fax 401/438-7329

FOR NFE. ONLY

NOTES: NH = NON-HAZARDOUS, H = HAZARDOUS

BLDG #179 FINAL PHASE REMEDIATION
- EXTENDED GRID #13→18 EXCAVATION
- GRID #19 EXCAVATION
- INTERCEPTOR TANK/PIPING REMOVAL

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT ~~TANK FARM NO. 4~~ BLDG #179 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398

DELIVERY ORDER NO. 13

WASTE CONTAINER (DRUM, ROLLOFF, TANKER, TRUCK) CONTROL LOG

ROLLOFF LOG

SHT 1 OF ___

ID NO.	ACCUM. START DATE	CONTENTS	SAMPLE TAKEN DATE	SAMPLE NO.	DATE ANALYSIS RETURNED	WASTE CODING NH	WASTE CODING H	WASTE CODING CODE	MANIFEST NO.	DATE REMOVED	REMARKS
LOGANO #438	10-31-98	EXTENDED GRID #13→18 EXCAVATION (SOIL) 1 UNITS (SOUTH OF RR TRACKS)					X	F002 F005 D003	83646 RI H0004015	12-30-98	STABLEX
LOGANO #445	10-31-98	DITTO					X	F002 F005 D003	83645 RI H0004014	12-30-98	STABLEX
LOGANO #425	12-1-98	GRID #19/ZONE #1 SOIL EXCAVATION					X	F002 F005	83644 RI H0004472	12-30-98	STABLEX
LOGANO #461	12-1-98	GRID #19/ZONE #2 SOIL EXCAVATION					X	F002 F005	83642 RI H0004473	12-30-98	STABLEX
LOGANO #357	12-1-98	GRID #19/ZONE #3 SOIL EXCAVATION					X	F002 F005	83643 RI H0004474	12-30-98	STABLEX
LOGANO #390	12-2-98	GRID #19/ZONE #4 SOIL EXCAVATION					X	F002 F005	90061 RI H0004506	1-6-99	STABLEX
LOGANO #366	12-2-98	GRID #19/ZONE #5 SOIL EXCAVATION					X	F002 F005	90064 RI H0004515	1-6-99	STABLEX
LOGANO #374	12-2-98	GRID #19/ZONE #6 SOIL EXCAVATION					X	F002 F005	90062 RI H0004516	1-6-99	STABLEX
LOGANO #478	12-2-98	GRID #19/ZONE #7 SOIL EXCAVATION					X	F002 F005	90063 RI H0004517	1-6-99	STABLEX
LOGANO #293	12-3-98	INT. TANK/ZONE #8 STONE/SOIL ON TOP OF INTERCEPTOR TANK					X	F002 F005	90353 RI H0004566	2-4-99	STABLEX

FOR REF. ONLY

NOTES: NH = NON-HAZARDOUS, H = HAZARDOUS

CLOG #179 FINAL PHASE REMEDIATION
- EXTENDED GRID #13 → #19 EXCAVATION
- GRID #19 EXCAVATION
- INTERCEPTOR TANK/PIPING REMOVAL

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT ~~TANK FARM NO. 4~~ CLOG #179 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398

DELIVERY ORDER NO. 13

WASTE CONTAINER (DRUM, ROLLOFF, TANKER, TRUCK) CONTROL LOG

ROLLOFF LOG

SHT 2 OF ___

ID NO.	ACCUM. START DATE	CONTENTS	SAMPLE TAKEN DATE	SAMPLE TAKEN SAMPLE NO.	DATE ANALYSIS RETURNED	WASTE CODING NH	WASTE CODING H	WASTE CODING CODE	MANIFEST NO.	DATE REMOVED	REMARKS
LOGANO #376	12-7-98	INT. TANK/PIPE TRENCH ZONE #9 SOIL EXCAVATION					X	F002 F005	90354 RIH0004567	2-4-99	STABLEX
LOGANO #331	12-7-98	INT TANK/PIPE TRENCH ZONE #10 SOIL EXCAVATION					X	F002 F005	90351 RIH0004564	2-4-99	STABLEX
LOGANO #347	12-8-98	INT. TANK/PIPE TRENCH ZONE #11 SOIL EXCAVATION					X	F002 F005	90352 RIH0004565	2-4-99	STABLEX
LOGANO #300	12-8-98	INTERCEPTOR TANK PERIMETER SOIL (ZONE #12) EXCAV.					X	F002 F005	90344 RIH0004519	2-3-99	HALF FULL STABLEX
LOGANO #333	12-8-98	CRUSHED INT. TANK (CONCRETE) PIPING, VALVE & SOIL ZONE #13					X	F002 F005	90341 RIH0004513	2-3-99	STABLEX
LOGANO #432	12-8-98	INTERCEPTOR TANK PERIMETER SOIL (ZONE #14) EXCAV.					X	F002 F005	90343 RIH0004514	2-3-99	STABLEX
LOGANO #365	12-18-98	WATER TREATMENT SYSTEM LINER, DEBRIS & FILTRATION MEDIA					X	F002 F005	90342 RIH0004518	2-3-99	STABLEX

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33305

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RI8170024790 Manifest Document No. 83645

2. Page 1 of 1

Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell St.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number RI H0004014

B. Generator/Site Address BLDG 179 1176 howell st. NEWPORT R.I.

4. Generator's Phone (401-841-3145

5. Transporter 1 Company Name 832
LOGAND TRANSPORTATION CO., INC

6. US EPA ID Number CTD983896341

C. State Transporter ID/License Plate 0023595-ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number 11436499466

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12 Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (Propylene Glycol Dinitrate) ~~TRICHLOROETHYLENE/METHYL ETHYL KETONE~~ (1,1,1 Trichloroethane) 9, NA3077, PGIII, (F002)(F005)(D003) ERG171	001	CM	31980	P	F002 F005 D003
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053 Roll-off # 445
Grids 1-10

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls		12 30 98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
ROB RADCLIFFE		12 30 98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

Copy to Facility Upon Delivery

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33838

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: R I 8 1 7 0 0 2 4 7 9 0
Manifest Document No.: 83644
2. Page 1 of 1 1
Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell St
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number: RI H0004472

B. Generator/Site Address: 1176 Howell St BLDG 179 Newport, RI

4. Generator's Phone: 401-841-3145

5. Transporter 1 Company Name: LOGANO TRANSPORTATION GENERAL CHEMICAL CORPORATION
6. US EPA ID Number: C T D 9 8 3 3 4 1 N A 8 8 X X X X 8 2 5

C. State Transporter ID/License Plate: 2459-A CT 860/342-4989

7. Transporter 2 Company Name
8. US EPA ID Number

D. Transporter's Phone: 508-822-5000

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

F. Transporter's Phone
G. Facility Mailing Address
H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHYLENE/METHYL ETHYL KETONE) (1,1,1 Trichloroethane) 9, NA3077, PGIII, (F002)(F005) ER6171	1	CM	27,640	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information
INFOTRAC 1-800-535-5053
Grid # 19
CAN# 425

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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GENERATOR

Printed/Typed Name: John Ingalls
Signature: John Ingalls
Date: Month 12 Day 30 Year 98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: JAN MAGDZIK
Signature: Jan Magdzik
Date: Month 12 Day 30 Year 98

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

FACIL

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name
Signature
Date: Month Day Year

In the event of a spill, contact the National Response Center (U.S. Coast Guard 1-800-424-8802) for spills within navy bases, contact the R.I. Department of Environmental Management (401, [illegible] 797, [illegible] (401) 277-3070

EPA Form 8700-22 (3-84)

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33838

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 | Manifest Document No. 83642 | Page 1 of 1 1

Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER 1176 Howell st.
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-841-3145

5. Transporter 1 Company Name ~~LOGANO TRANSPORTATION~~ BSC
~~GENERAL CHEMICAL CORPORATION~~

6. US EPA ID Number C T D 9 8 3 8 9 6 3 4 1
H A B 0 1 2 3 1 0 1 2 2

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number 1 1 4 3 6 4 9 9 4 6

A. State Manifest Document Number RI H0004473

B. Generator/Site Address 176 Howell St BLDG. 179 Newport, RI

C. State Transporter ID/License Plate

D. Transporter's Phone 860/342-4989 ~~508-872-5000~~

E. State Transporter ID/License Plate 25895-A-CT

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. ~~11,1,1 TRICHLOROETHYLENE~~/METHYL ETHYL KETONE (1,1 Trichloroethane) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	33200	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Grid #19 Can # 461

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Lagnese | Signature: John Lagnese | Date: Month 12 Day 30 Year 98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: PAUL LAPORTE | Signature: Paul LaPorte | Date: Month 12 Day 30 Year 98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name | Signature | Date: Month Day Year

GENERATOR

TRANSPORTER

FACILITY

In the event of a spill, contact the National Response Center. If a discharge occurs within Rhode Island, contact the Department of Environmental Management (401) 277-3070

EPA Form 8700-22 (3-84)

Copy 1: Facility Mails To Destination

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33909

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 | Manifest Document No. 00064 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number: RI H0004515

B. Generator/Site Address: 1176 HOWELL ST. bldg.179

4. Generator's Phone ( ) 401-832-3145

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC
6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1
C. State Transporter ID/License Plate: 002375 ME

7. Transporter 2 Company Name
8. US EPA ID Number
D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6
F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	001	CM	30,000	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth. # VT0077523
a. b. c. d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information NEUTRAL 1-800-535-5053 CAN#366
Weight is Est.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name	Signature	Date Month Day Year
John Logan		01 06 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year
SAM Roybal		01 06 99

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year

FACI

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date Month Day Year

EPA Form 8700-22 (3-84)

Copy 1: Facility Mails To Destination State

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33911

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RIB170024790 — Manifest Document No. 90063 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law, but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841
4. Generator's Phone ( ) 401-832-3145

A. State Manifest Document Number: RI H0004517
B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI

5. Transporter 1 Company Name: LOGANO TRANSPORTATION CO., INC
6. US EPA ID Number: CTD988896341
C. State Transporter ID/License Plate: 1 002360 7 ME.
D. Transporter's Phone: 860-342-4989

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter ID/License Plate
F. Transporter's Phone
G. Facility Mailing Address

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 11436499946
H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	001	CM	030000*	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c. *Weight is estimated
d. #478

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: John Ingalls — Signature — Date: Month Day Year 10/16/99

TRANSPORTER
17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Bill Strickland — Signature — Date: Month Day Year 10/10/99
18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in

Name — Signature — Date: Month Day Year

EPA Form (3-84)

Copy 1: Facility Mails To Destination State

Copy 1: Facility Mails to Destination State

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34369

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law but may be required by state law
R I 8 1 7 0 0 2 4 7 9 0	90353		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number RI H0004566

B. Generator/Site Address 1176 HOWELL ST. BLDG. 179 NEWPORT, RI

5. Transporter 1 Company Name USA WASTE OF CT

6. US EPA ID Number C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number 1 1 4 3 6 4 9 9 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLORDETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	001	CM	32000	B	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth# VT0077523
b
c.
d

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
Con # 293

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name	Signature	Date (Month Day Year)
Gerald R. Audet	Gerald R. Audet	02 10 4 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Kendall Knox	Kendall Knox	02 10 4 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

GENERATOR / TRANSPORTER / FACILITY

In the event of a spill, contact the National Response Center (U.S. Coast Guard) (800) 424-8802; for spills within Rhode Island contact the R.I. Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34370

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law but may be required by state law
R I 8 1 7 0 0 2 4 7 9 0	903547		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number RI H0004567

B. Generator/Site Address 1176 HOWELL ST. BLDG. 179 NEWPORT, RI

5. Transporter 1 Company Name	6. US EPA ID Number	C. State Transporter ID/License Plate
USA WASTE OF CT	C T D 9 8 3 8 9 6 3 4 1	26657 A CT

7. Transporter 2 Company Name	8. US EPA ID Number	D. Transporter's Phone 860-342-4989
		E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address	10. US EPA ID Number	F. Transporter's Phone
STABLEX CANADA INC 760 BOUL INDUSTRIAL BLAINVILLE (QUEBEC)	1 1 4 3 6 4 9 9 4 6	G. Facility Mailing Address H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	001	CM	21180	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above			
		Interim	Final	Interim	Final
Auth₂ # VT0077523	b.	a.		c.	
c.	d.	b.		d	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053 Con# 276

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name	Signature	Date (Month Day Year)
Gerald R. Audet	Gerald R. Audet	02 04 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
STEVEN R WOJCIK SR	Steven R Wojcik Sr	02 04 99

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

GENERATOR
TRANSPORTER
FACILITY

In the event of a spill contact the Rhode Island Emergency Management Agency (401) 277-3070 or the National Response Center, U.S. Coast Guard (800) 424-8802. For spills within Rhode Island, contact the Department of Environmental Management (401) 277-2797.

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34367

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. 190351 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number: RI H0004564

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI

5. Transporter 1 Company Name: USA WASTE OF CT — 6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 023948-ME

7. Transporter 2 Company Name — 8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC) — 10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	001	CM	28220	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth # VT0077523
b
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CONT 331

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Gerald R. Audet — Signature: Gerald R. Audet — Date: Month Day Year: 02 10 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ROB RADCLIFFE — Signature — Date: Month Day Year: 02 10 99

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 8700-22 (3-84)

GENERATOR — TRANSPORTER — FACILITY

In the event of a spill, contact the National Response Center, U.S. Coast Guard 1-800-424-8802. For spills within Rhode Island, contact the RI Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34368

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0	Manifest Document No. 90352	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number: RI H0004565

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI

C. State Transporter ID/License Plate:

D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate: 0239474 ME

F. Transporter's Phone:

G. Facility Mailing Address:

H. Facility's Phone: 450-430-9230

5. Transporter 1 Company Name: USA WASTE OF CT
6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)
10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9 , NA3077, PGIII, (F002)(F005) ERG171	001	CM	30980	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
Can # 347

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford

Printed/Typed Name	Signature	Date (Month Day Year)
Gerald R. Audet	Gerald R. Audet	02 04 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
JERRY BEAUDOIN	Jerry Beaudoin	02 04 99

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

GENERATOR

TRANSPORTER

FACILITY

In the event of spill, contact the R.I. Department of Environmental Management (401) 277-2797, 24 Hour (401) 277-3070

Copy to Facility Upon Delivery of Waste

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34337

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. 90344

2. Page 1 of 2 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number
RI H0004519

B. Generator/Site Address
1176 Howell St-Bldg 179
Newport, RI

4. Generator's Phone (401-832-3145

5. Transporter 1 Company Name
USA WASTE OF CT INC SR-LOGANO TRANSPORTATION CO., INC

6. US EPA ID Number
C T D 9 8 3 8 8 1 3 4 1

C. State Transporter ID/License Plate
0239485 ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number
1 1 4 2 6 4 8 8 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	1	CM	13120	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053 CAN #300

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Knights — Signature — Date: Month 02 Day 03 Year 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Sam Roybal — Signature — Date: Month 02 Day 03 Year 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 3700-22 (3-34)

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33907

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. 19034 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

A. State Manifest Document Number: RI H0004513

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI.

4. Generator's Phone (401-832-3145

5. Transporter 1 Company Name: LOCANO TRANSPORTATION CO., INC — 6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 023948 me

7. Transporter 2 Company Name — 8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 4 3 6 4 9 9 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	01	CM	19340	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Auth.# VT0077523
b
c.
d

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Informa: INFOTRAC 1-800-535-5053
CAN# 333

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Fragalis — Signature — Date: Month Day Year: 02 03 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: NEAL LEVINE — Signature — Date: Month Day Year: 02 03 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed Typed Name — Signature — Date: Month Day Year

GENERATOR

TRANSPORTER

FACILITY

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 33908

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but may be required by state law
RIR170024790	90343		

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone ( ) 401-832-3145

5. Transporter 1 Company Name — **6. US EPA ID Number**
~~LOGANO TRANSPORTATION CO., INC~~ U.S. B Waste OF CT INC — CTD988896344

7. Transporter 2 Company Name — **8. US EPA ID Number**

9. Designated Facility Name and Site Address — **10. US EPA ID Number**
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC) — 11436499446

State Manifest Document Number: RI H0004514

B. Generator/Site Address: 1176 HOWELL ST. BLDG. 179 NEWPORT, RI.

C. State Transporter ID/License Plate: 0239488 MF

D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate:

F. Transporter's Phone:

G. Facility Mailing Address:

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLIDS, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ER6171	1	CM	30260	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CAN # 4132

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
John Lucik	John Lucik	6 21 03 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
TED Lukasik	Ted Lukasik	7 13 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)

EPA Form 8700-22 (3-84)

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34336

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. H0342

2. Page 1 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401-832-3145

A. State Manifest Document Number
RI H0004518

B. Generator/Site Address 176 Howell St. Bldg 179 Newport RI

5. Transporter 1 Company Name
USA Waste of CT (xox)
~~LOCANO TRANSPORTATION CO., INC~~

6. US EPA ID Number
C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate
0239483/ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number
1 1 4 3 6 4 9 9 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	1	CM	10300	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information INFOTRAC 1-800-535-5053
CAN # 365

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name: John Ingalls — Signature — Date: Month Day Year 02103 9

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Kendall Knox — Signature — Date: Month Day Year 02039

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Date: Month Day Year

GENERATOR

TRANSPORTER

FACILITY

In the event ... spill, contact the National Response Center, U.S. Coast Guard 1-(800)-424-8802; for spills within R... Island, contact the R.I. Department of Environmental Management (401) 277-2797, 24 Hour (401)...-3070

EPA Form 8700-22 (3-84)

FOSTER WHEELER ENVIRONMENTAL CORPORATION IR-642 SHT. 2

BY B. BEAUREGARD DATE 12-14-98, 1-14-99, 1-22-99, 2-3-99, 2-4-99, 3-3-99 SHEET 1 OF 1

CHKD. BY _____ DATE _____ OFS NO. 1284-013 DEPT. NO. CONST.

CLIENT NUWC

PROJECT BLDG. #179 GRID #19 & INTERCEPTOR TANK/PIPING EXCAVATION

SUBJECT ROLLOFF & DRUM ACCOUNTABILITY

NOTE #1: 28 DRUMS HAD FLUID REMOVED VIA VAC TRUCK ON 12-23-98, MANIFEST 83641 (FOO2) & DRUMS (28) ARE LABELLED "EMPTY".

NOTE #2: 36 DRUMS W/FLUID/SLUDGE WERE PICKED-UP/REMOVED ON 2-26-99 MANIFEST 99057/(AR 1020359). THERE WAS ONE(1) EXTRA DRUM FOR A TOTAL OF 64 DRUMS

ROLLOFF SUPPLIER NAME	ROLLOFF NO.	EXCAV ZONE	DATE ACCUM. STARTED	LINER IN PLACE Y/N	HAZ LABEL IN PLACE Y/N	MANIFEST NUMBER	DEPARTURE DATE	REMARKS
LOGANO	428	13-18	10-31-98	Y	Y	83646	12-30-98	ORIGINAL TRACK AREA EXCAVATION (FOO2/FOO5/D003)
	445	13-18	10-31-98	Y	Y	83645	12-30-98	DITTO (FOO2/FOO5/0003)
	425	1	12-2-98	Y	Y	83644	12-30-98	(FOO2/FOO5)
	461	2		Y	Y	83642	12-30-98	(FOO2/FOO5)
	357	3		Y	Y	83643	12-30-98	(FOO2/FOO5)
	290	4		Y	Y	90061	1-6-99	(FOO2/FOO5)
	366	5		Y	Y	90064	1-6-99	(FOO2/FOO5)
	274	6		Y	Y	90062	1-6-99	OLD LINER (FOO2/FOO5)
	478	7		Y	Y	90063	1-6-99	(FOO2/FOO5)
	293	8	12-3-98	Y	Y	90353	2-4-99	SLOPE ON INTERCEPTOR TK. & AREA (FOO2/FOO5)
	276	9	12-7-98	Y	Y	90354	2-4-99	(FOO2/FOO5)
	331	10	12-7-98	Y	Y	90351	2-4-99	(FOO2/FOO5)
	347	11	12-8-98	Y	Y	90352	2-4-99	(FOO2/FOO5)
	300	12		Y	Y	90344	2-3-99	HALF FULL (FOO2/FOO5)
	333	13		Y	Y	90341	2-3-99	(FOO2/FOO5)
	432	14		Y	Y	90343	2-3-99	(FOO2/FOO5)
	365	N/A	12-18-98	Y	Y	90342	2-3-99	WTS LINER DEBRIS & FILTRATION MEDIA (FOO2/FOO5)

DRUM COUNT	CONTENT DESCRIPTION	DATE ACCUM. STARTED	HAZ LABEL IN PLACE Y/N	MANIFEST NUMBER	DEPARTURE DATE	REMARKS (SEE NOTE #1 & #2)
8	CUST CLEANING FLUID	11-30-98	Y	VAC TRUCK #83641	12-23-98	(1840 GALLONS)
4	DITTO	12-1-98	Y	&		
12	INTERCEPTOR TANK FLUID	12-4-98	Y	99057	2-26-99	36 DRUMS W/FLUID/SLUDGE & 28 EMPTY DRUMS
6	DITTO	12-7-98	Y	(AR 1020359)		
2	INTERCEPTOR TK. FLUID (WASHWATER & SLUDGE)	12-7-98	Y			
2+1	INTERCEPTOR TANK (FLUID & SLUDGE)	12-7-98	Y			(1) PARTIALLY FULL
12	FRAC TANK DECON FLUID	12-15-98	Y			SOME DRUMS W/SEDIMENT
11	SECONDARY CNTMT FLUID	12-17-98	Y			DITTO
5	FILTER MEDIA FLUID	12-21-98	Y			

63 TOTAL DRUMS

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

357-018

BCC FILE # 33842

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
	RI8170024790	83641		

3. Generator's Name and Mailing Address	A. State Manifest Document Number
NAVAL UNDERSEA WARFARE CENTER 1176 Howell st. ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841 4. Generator's Phone 401-841-3145 (24hr) 832	MA K 725059
	B. State Gen. ID Same
5. Transporter 1 Company Name GENERAL CHEMICAL CORPORATION	6. US EPA ID Number MAD019371079
	C. State Trans. ID 39485 MA
7. Transporter 2 Company Name	8. US EPA ID Number
	D. Transporter's Phone 508-872-5000
9. Designated Facility Name and Site Address GENERAL CHEMICAL CORPORATION 133 LELAND STREET FRAMINGHAM MA 01702	10. US EPA ID Number MAD019371079
	E. State Trans. ID
	F. Transporter's Phone
	G. State Facility's ID NOT REQUIRED
	H. Facility's Phone 508-872-5000

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol.	I. WASTE NO
a. RQ, HAZARDOUS WASTE LIQUID, n.o.s. (1-1-1 TRICHLOROETHANE/WATER) 9 , NA3082, PGIII, (F002)	001	TT	1840	G	F002
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)	K. Handling Codes for Wastes Listed Above
CONTAINS WATER//1-1-1 TRICHLOROETHA c. b. d.	a. S 0 P c. b. d.

15. Special Handling Instructions and Additional Information ERG# 171

INFOTRAC 1-800-535-5053 Emergency Call GC At 800 645 3300

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
John Ingalls	John Ingalls	12 23 98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials		Date
Printed/Typed Name MARK CROWLEY	Signature Mark Crowley	Month Day Year 12 23 98
18. Transporter 2 Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space		
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item19		Date
Printed/Typed Name	Signature	Month Day Year

GENERATOR

In case of emergency or spill, immediately call ...J National Response Center (800) 424-8802

Form Approved OMB No 2050-0039 Expires 9-30-96
EPA Form 8700-22 (Rev 9-88) Previous editions are obsolete.

MAR-24-1999 12:12 TRINITY GENERAL

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P.O. Box 8913 Little Rock, Arkansas 72219-8913
Telephone 501-682-0744
(Form designed for use on elite (12-pitch) typewriter.)

GCC FILE # 34594

Form Approved. OMB No. 2050-0039

Please print or type

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 | Manifest Document No. 990,511 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number AR- 1020359

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER , ENV DIV 551 BLDG 11 (HW)
NEWPORT RI. 02841
401-832-3145

B. State Generator's ID 1176 HOWELL STREET BUILDING#179 NEWPORT, RI.

4. Generator's Phone ( )

C. State Transporter's ID 1108 508-872-3000

5. Transporter 1 Company Name GENERAL CHEMICAL CORPORATION | 6. US EPA ID Number M A D 0 1 9 3 7 1 0 7 9

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
ENSCO INC
AMERICAN ROAD
EL DORADO AR 71730

10. US EPA ID Number A R D 0 6 9 7 4 8 1 9 2

G. State Facility's ID

H. Facility's Phone 870-863-7173

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, WASTE TOXIC LIQUIDS, ORGANIC NOS (1,1-DICHLORDETHANE/ACETONE) 6.1, UN2810, PGII, (D003)(D029)	036	DM	1,620 Est.	P	D003 D029 F003 F005
b.			Est.		
c.			Est.		
d.			Est.		

J. Additional Description for Materials Listed Above
a.Auth. # 779975

K. Emergency Response Information
1 INFOTRAC 1-800-535-5053

If no alternate TSDF, return to generator

15. Special Handling Instructions and Additional Information
a.ERG 153

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name John Ingalls | Signature | Month Day Year 03.22.99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name Carl Henkel | Signature | Month Day Year 03.22.99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name | Signature | Month Day Year

Form 8

TREATMENT/...

(Rev 9-88) Previous edition is obsolete

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Hazardous Waste Manifest Section
235 Promenade Street, Providence, RI 02908
(401) 277-2797

GCC FILE # 34336

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 8 1 7 0 0 2 4 7 9 0 — Manifest Document No. H0342

2. Page 1 — Information in the shaded areas is not required by Federal law but may be required by state law

3. Generator's Name and Mailing Address
NAVAL UNDERSEA WARFARE CENTER
ENV DIV 551 BLDG 11 (HW) NEWPORT RI. 02841

4. Generator's Phone (401) 832-3145

A. State Manifest Document Number: RI H0004518

B. Generator/Site Address: 1176 Howell St. Bldg 179 Newport, RI

5. Transporter 1 Company Name: USA Waste of CT (xax) ~~LOCANO TRANSPORTATION CO., INC~~

6. US EPA ID Number: C T D 9 8 3 8 9 6 3 4 1

C. State Transporter ID/License Plate: 0239483/ME

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone: 860-342-4989

E. State Transporter ID/License Plate

9. Designated Facility Name and Site Address
STABLEX CANADA INC
760 BOUL INDUSTRIAL
BLAINVILLE (QUEBEC)

10. US EPA ID Number: 1 1 4 3 6 4 9 9 4 6

F. Transporter's Phone

G. Facility Mailing Address

H. Facility's Phone: 450-430-9230

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. RQ, HAZARDOUS WASTE, SOLID, n.o.s. (1,1,1 TRICHLOROETHANE/METHYL ETHYL KETONE) 9, NA3077, PGIII, (F002)(F005) ERG171	1	CM	10300	P	F002 F005
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Auth. # VT0077523
b.
c.
d.

K. Handling Codes for Wastes Listed Above

Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information: INFOTRAC 1-800-535-5053
CAN # 365

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John Ingalls — Signature — Date: Month 02 Day 03 Year 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Kendall Knox — Signature — Date: Month 02 Day 03 Year 99

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Date: Month Day Year

EPA Form 8700-22 (3-84)

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO.5 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 13

PHOTOGRAPHIC CONTROL LOG

ROLL #84
KODAK #400, 24 EXP.
#190798, NEG. #61529

PHOTOGRAPHER	DATE	TIME	FRAME NO.	SITE LOCATION	DIRECTION	ACTIVITY / COMMENTS
R. BEAUREGARD	11-24-98	10:30	1	Bldg #8 (TP-14)	NE	EXCAVATION AREA
			2		N	DITTO
			3		N	DITTO
	11-30-98	11:35	4	BLDG. #179	W	CUST DEWATERING
		11:40	5		SW	VALVE ACCESS FOR OUTLET TO INTERCEPTOR TANK
		11:43	6		W	BOARD MARKS DISCH. PIPE END (OUTFLOW)
		11:44	7		W	DITTO (W/WETLAND STREAM
		11:50	8		S	AIR MONITORING IN CUST 1.5PPM MAX.
	12-1-98	2:25	9		S	CUST CLEANED & DRY
		2:25	10		E	DITTO
		2:27	11		W	DITTO
		2:30	12		N	DITTO
		2:55	13		E	CUST 179 W1 SAMPLE TAKEN
		3:12	14		E	DITTO AREA
		3:25	15		S	CUST 179 W2 SAMPLE AREA
		3:30	16		NW	CUST 179 W3 SAMPLE TAKEN
		3:40	17		SW	CUST 179 F1 SAMPLE AREA
		3:53	18		DOWN	CUST 179 W4 SAMPLE TAKEN
		4:00	19		DOWN	CUST 179 W4 LOADING SMPL INTO JAR
		4:01	20		DOWN	CUST 179 F1 SAMPLE AREA
	12-2-98	8:07	21		DOWN/W	CUST 179 SHOWING DRY BASE (NO LEAKAGE)
		8:08	22		DOWN/E	CUST 179 SHOWING DRY BASE (AFTER 24 HR CLEANING)
		8:14	23		W	CUST 179 EXCAVATION AREA
			24		W	DITTO
			25		NW	DITTO
			26			
			27			
			28			
			29			
			30			
			31			
			32			
			33			
			34			
			35			
			36			
			37			

PCL 6-10-96

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO.5 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 13

PHOTOGRAPHIC CONTROL LOG

ROLL #85
KODAK #200 GOLD
190798 NEG. #61527

PHOTOGRAPHER	DATE	TIME	FRAME NO.	SITE LOCATION	DIRECTION	ACTIVITY / COMMENTS
R. BEAUREGARD	12-2-98	8:40	1	BLDG. #179	DOWN/S	CUST 179 SHOWING DRY CLEVIS TRENCH FROM 12-1-98 CLEANING
		8:40	2		DOWN/N	DITTO
		11:15	3		N	6" PIPE HIT @ 50.5 EL. APPROX.
		11:20	4		NW	SHEETING 50.50 EL. GRADE
		2:30	5		W	EXCAVATED AREA (SOUTH SIDE OF CUST)
		2:30	6		N	DITTO (EAST SIDE OF CUST)
		2:55	7		W	YELLOWISH FLUID INDICATING RHDH DYE
	12-3-98	9:20	8		DOWN/W	AIR MONITORING PRIOR TO SAMPLING
		10:35	9		DOWN/N	GRID #19 W3 SAMPLING
		10:42	10		DOWN/E	GRID #19 W4 ENCLE SAMPLING
		1:50	11		DOWN/E	PLACING FLOWABLE FILL INTO CUST
		2:05	12		DOWN/W	TAKEN FLUID (YELLOWISH) SAMPLES
	12-4-98	9:45	13		N	CUST & PIPE TRENCH FILLED W/FLOWAC
		9:46	14		DOWN/N	YELLOWISH/BROWNISH FLUID, WHITISH FLUID FROM FLOWABLE FILL
		11:40	15		DOWN/N	DITTO PRIOR TO SAMPLING
	12-7-98	8:50	16		W	SLUDGE SAMPLE FROM INTERCEP. TNK
		9:15	17		E	MOVING 1ST SLUDGE DRUM
		9:15	18		E	WORKERS IN INTERCEP TK W/AIR RESP
		11:05	19		DOWN/W	INTERCEP. TK CLEANED INTERIOR FLOOR
		2:45	20		E	END OF OUTFALL PIPING W/2' DEEP EXCA
		3:55	21		W	OPEN TRENCH FROM OUTFALL PIPE REMOVA
	12-8-98	8:30	22		W	INTERCEP. TK OPENED TOP W/6" C.I. PIPIN
J. CAMY		10:00	23		N	EXCAVATING SOIL/CONC FROM INTERCEP.
		10:05	24		E	OUTFALL TRENCH EXCAVATION
		11:06	25		SW	GRID #19 EXCAVATION (EAST SIDE OF CUST) YELLOW FLUID
			26			
			27			
			28			
			29			
			30			
			31			
			32			
			33			
			34			
			35			
			36			
			37			

PCL 6-10-96

FOSTER WHEELER ENVIRONMENTAL CORPORATION

NETC NEWPORT TANK FARM NO. 5 REMEDIAL ACTIONS

NAVY RAC CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 13

PHOTOGRAPHIC CONTROL LOG

ROLL #86
KODAK #400, 24 EXP.
190312, NEG: 6/606

PHOTOGRAPHER	DATE	TIME	FRAME NO.	SITE LOCATION	DIRECTION	ACTIVITY / COMMENTS
J. CARY	12-8-98		1	BLDG #179	NW	INTERCEPTOR TANK AREA EXCAVATION
	12-9-98		2		SE	LINER, BACKFILL, COMPACTION WITHIN THE INTERCEPTOR TK. AREA
			3		E	INTERCEPTOR TK. PIPE DISCHARG TRENCH LINER PRIOR TO BACKFILL
			4		SE	PSI PERFORMING COMPACTION DENSITY TESTING (INT. TK. AREA)
			5		SE	DITTO
			6		SE	DITTO
			7			DITTO (@ WORK AREA)
			8		E	BACKFILLING INTERCEPTOR TANK PIPE TRENCH
R. BEAUCHEMIN	1-19-99	11:06	9	BLDG. #6	NE	3RD DIG (EXCAVATION LIMITS)
		11:06	10		NE	DITTO
		11:10	11		E	DITTO
	1-20-99	2:35	12	BLDG #6 DRY STORAGE	NE	3RD DIG EXCAVATION STAGE
		2:40	13		E	DITTO, SHOWING 40 MIL LINER
		2:41	14		NE	DITTO
		2:45	15	BLDG #6	E	3RD DIG EXCAVATION W/ WATER
		2:45	16		N	DITTO W/ STREAM DIKE (CLEAN BACKFILL)
		2:46	17		N	DITTO W/ ONE BACKFILL LOAD FOR DIKE
		2:47	18		N	DITTO
J. CARY	2-3-99	AFTER 12:30	19	GOULDS ISLAND BLDG #35	W	PIPING ON 1ST FLOOR
			20		S	DITTO
			21		E	OUTSIDE AREA DEBRIS
			22	GOULDS ISLAND BLDG #32	S	EXISTING DEBRIS/CONDITION
			23			EXISTING CONDITIONS
			24			DITTO
			25			DITTO (WOOD FLOOR BLOCKING)
			26			
			27			
			28			
			29			
			30			
			31			
			32			
			33			
			34			
			35			
			36			
			37			

PCL 6-10-96

APPENDIX H

Base of Excavation - Post Excavation Samples

Analytical Data Summary
NUWC Division, Newport - B179 Rehabilitation Project

Sample ID	UNITS	179-GRID-1 POST	179-GRID-2 POST	179-GRID-3 POST	179-GRID-4 POST	179-GRID-5 POST	179-GRID-6 POST	179-GRID-7 POST	179-GRID-8 POST	179-GRID-9 POST	179-GRID-10 POST	179-GRID-11 POST	179-GRID-11 Duplicate	RIDEM Industrial/ Commercial Direct Exposure Criteria	RIDEM Residential Direct Exposure Criteria	GA Leachability Criteria	GB Leachability Criteria
TPH	mg/kg	82	220	-	-	-	1,200	-	-	630	230	5,600		2,500	500	500	2,500
Cyanide	mg/kg	-	-	-	-	-	39	-	-	86	-	-		10,000	200	2.4	NA
VOC's												8260	5030/8260				
Dilution		1	1	1	1	1	200	1	1	200	400	10,000	1				
Toluene	ug/kg	-	-	-	-	-	-	-	-	-	-	-	610	10,000,000	190,000	32,000	54,000
Naphthalene	ug/kg	7	-	-	-	-	2,900	6	6	1,300	7,500	-	6,600	10,000,000	54,000	NA	NA
Xylenes, total	ug/kg	-	-	-	-	-	5,800	-	8	16,000	-	-	22,000	10,000,000	110,000	540,000	NA
1,2,4-Trimethylbenzene	ug/kg	-	-	-	-	6	18,000	45	20	29,000	43,000	120,000	43,000 D	NA	NA	NA	NA
1,1,1-Trichloroethane	ug/kg	-	-	-	-	7	38,000	21	170	21,000	52,000	1,100,000	270,000 D	10,000,000	540,000	11,000	160,000
Acetone	ug/kg	-	-	-	-	-	-	-	-	-	-	-		10,000,000	7,800,000	NA	NA
4-Isopropyltoluene	ug/kg	-	-	-	-	-	2,900	6	-	4,000	5,700	-	5,700	NA	NA	NA	NA
1,1-Dichloroethane	ug/kg	-	-	-	-	-	-	-	52	-	-	-	2,300	10,000,000	920,000	NA	NA
1,1-Dichloroethene	ug/kg	-	-	-	-	-	-	-	-	-	-	-	10,000	9,500	200	NA	NA
Ethylbenzene	ug/kg	-	-	-	-	-	-	-	-	1,600	16,000	-	2,700	10,000,000	71,000	27,000	62,000
Isopropylbenzene	ug/kg	-	-	-	-	-	1,400	-	-	1,800	3,500	-	4,700	10,000,000	27,000	NA	NA
n-Propylbenzene	ug/kg	-	-	-	-	-	3,000	-	-	4,700	7,200	-	8,700	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	-	-	-	-	-	8,900	19	7	14,000	23,000	-	22,000 E	NA	NA	NA	NA
n-Butylbenzene	ug/kg	-	-	-	-	-	6,600	10	-	6,200	11,000	-	9,500	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	-	-	-	-	-	2,600	-	-	3,600	4,600	-	5,100	NA	NA	NA	NA
Chloroethane	ug/kg	-	-	-	-	-	-	-	8	-	-	-		NA	NA	NA	NA
SVOC's																	
Dilution		1	1	1	1	1	1	1	1	1	1	5				NA	NA
Phenanthrene	ug/kg	4,600 D	440 J	-	-	-	-	-	-	-	140 J	-		10,000,000	40,000	NA	NA
Anthracene	ug/kg	1,200	94 J	-	-	-	-	-	-	-	-	-		10,000,000	35,000	NA	NA
Fluoranthene	ug/kg	4,700 D	440 J	-	-	-	-	-	-	-	140 J	-		10,000,000	20,000	NA	NA
Pyrene	ug/kg	3,800 D	290 J	-	-	-	-	-	-	-	98 J	-		10,000,000	13,000	NA	NA
Benzo(a)anthracene	ug/kg	2,500	160 J	-	-	-	-	-	-	-	62 J	-		7,800	900	NA	NA
Chrysene	ug/kg	2,500	190 J	-	-	-	-	-	-	-	58 J	-		780,000	400	NA	NA
Benzo(b)fluoranthene	ug/kg	2,600	190 J	-	-	-	-	-	-	-	45 J	-		7,800	900	NA	NA
Benzo(k)fluoranthene	ug/kg	980	100 J	-	-	-	-	-	-	-	-	-		78,000	900	NA	NA
Benzo(a)pyrene	ug/kg	1,300	140 J	-	-	-	-	-	-	-	40 J	-		800	400	240	NA
Indeno(1,2,3-cd)pyrene	ug/kg	770	60 J	-	-	-	-	-	-	-	-	-		7,800	900	NA	NA
Dibenz(a,h)anthracene	ug/kg	340 J	-	-	-	-	-	-	-	-	-	-		800	400	NA	NA
Benzo(g,h,i)perylene	ug/kg	760	56 J	-	-	-	-	-	-	-	-	-		10,000,000	800	NA	NA
Naphthalene	ug/kg	990	66 J	-	-	-	1,300	-	55 J	370 J	2,700 D	9,400		10,000,000	54,000	800	NA
2-Methylnaphthalene	ug/kg	340 J	-	-	-	-	79 J	-	-	-	57 J	820		10,000,000	123,000	NA	NA
Acenaphthylene	ug/kg	63 J	-	-	-	-	-	-	-	-	-	-		10,000,000	23,000	NA	NA
Acenaphthene	ug/kg	760	52 J	-	-	-	-	-	-	-	-	-		10,000,000	43,000	NA	NA
Dibenzofuran	ug/kg	590	45 J	-	-	-	-	-	-	-	-	-		NA	NA	NA	NA
Fluorene	ug/kg	1,100	72 J	-	-	-	-	-	-	-	-	-		10,000,000	28,000	NA	NA
Carbozole	ug/kg	780	-	-	-	-	-	-	-	-	-	-		NA	NA	NA	NA
Di-n-butylphthalate	ug/kg	-	63 J	-	-	-	-	-	-	-	-	1,200 J		NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	ug/kg	72 J	150 J	-	-	-	220 J	-	-	100 J	490	2,500		410,000	46,000	NA	NA
PGDN																	
Propylene glycol dinitrate	mg/kg										-	31		-	-	-	-

Notes:

1. Analytical data summarized from laboratory data sheets (Mitkem Corporation) provided by Foster Wheeler Environmental Corporation.
2. "-" Indicates not detected.
3. "NA" Indicates Not Available
4. RIDEM Direct Exposure Criteria and Leachability Criteria extracted from DEM-DSR-01-93 "Remediation Regulations".
5. Shaded areas indicate exceedance of standard for Industrial/Commercial Direct Exposure Criteria.

Base of Excavation - Post Excavation Samples

Analytical Data Summary
NUWC Division, Newport - B179 Rehabilitation Project

Sample ID	UNITS	179-GRID-12 POST	179-GRID-13 POST	179-GRID-14 POST	179-GRID-15 POST	179-GRID-16 POST	179-GRID-17 POST	179-GRID-18 POST	RIDEM Industrial/ Commercial Direct Exposure Criteria	RIDEM Residential Direct Exposure Criteria	GA Leachability Criteria	GB Leachability Criteria
TPH	mg/kg	600	35	4,000	-	-	27	-	2,500	500	500	2,500
Cyanide	mg/kg	-	-	-	-	-	-	-		200	2.4	NA
VOC's												
Dilution		1	1	100	1	1	-	-				
Naphthalene	ug/kg	-	-	2,000	-	-	-	-	10,000,000	54,000	NA	NA
Xylenes, total	ug/kg	-	-	5,400	-	-	-	-	10,000,000	110,000	540,000	NA
1,2,4-Trimethylbenzene	ug/kg	-	-	24,000	-	-	-	-	NA	NA	NA	NA
1,1,1-Trichloroethane	ug/kg	-	-	6,100	-	17	9	9	10,000,000	540,000	11,000	160,000
Acetone	ug/kg	-	17	-	19	56	50	50	10,000,000	7,800,000	NA	NA
4-Isopropyltoluene	ug/kg	-	-	4,000	-	-	-	-	NA	NA	NA	NA
Ethylbenzene	ug/kg	-	-	1,200	-	-	-	-	10,000,000	71,000	27,000	62,000
Isopropylbenzene	ug/kg	-	-	1,800	-	-	-	-	10,000,000	27,000	NA	NA
n-Propylbenzene	ug/kg	-	-	4,700	-	-	-	-	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	-	-	10,000	-	-	-	-	NA	NA	NA	NA
n-Butylbenzene	ug/kg	-	-	10,000	-	-	-	-	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	-	-	4,500	-	-	-	-	NA	NA	NA	NA
Methylethylketone	ug/kg	-	-	-	-	17	13	19	10,000,000	10,000,000	NA	NA
SVOC's												
Dilution		1	1	1	1	1	1	1			NA	NA
Phenanthrene	ug/kg	230 J	-	-	-	-	73 J	65 J	10,000,000	40,000	NA	NA
Anthracene	ug/kg	54 J	-	-	-	-	-	-	10,000,000	35,000	NA	NA
Fluoranthene	ug/kg	500	-	-	-	-	67 J	120 J	10,000,000	20,000	NA	NA
Pyrene	ug/kg	920 J	-	-	-	-	74 J	200 J	10,000,000	13,000	NA	NA
Benzo(a)anthracene	ug/kg	240 J	-	-	-	-	-	-	7,800	900	NA	NA
Chrysene	ug/kg	200 J	-	-	-	-	-	-	780,000	400	NA	NA
Benzo(b)fluoranthene	ug/kg	210 J	-	-	-	-	-	-	7,800	900	NA	NA
Benzo(k)fluoranthene	ug/kg	120 J	-	-	-	-	-	47 J	78,000	900	NA	NA
Benzo(a)pyrene	ug/kg	160 J	-	-	-	-	-	-	800	400	240	NA
Naphthalene	ug/kg	-	-	650	-	-	-	-	10,000,000	54,000	800	NA
2-Methylnaphthalene	ug/kg	-	-	59 J	-	-	-	-	10,000,000	123,000	NA	NA
bis(2-Ethylhexyl)phthalate	ug/kg	390 J	-	330 J	-	-	-	-	410,000	46,000	NA	NA
PGDN												
Propylene glycol dinitrate	mg/kg								-	-	-	-

Notes:

1. Analytical data summarized from laboratory data sheets (Mitkem Corporation) provided by Foster Wheeler Environmental Corporation.
2. "-" Indicates not detected.
3. "NA" indicates Not Available
4. RIDEM Direct Exposure Criteria and Leachability Criteria extracted from DEM-DSR-01-93 "Remediation Regulations".
5. Shaded areas indicate exceedance of standard for Industrial/Commercial Direct Exposure Criteria.

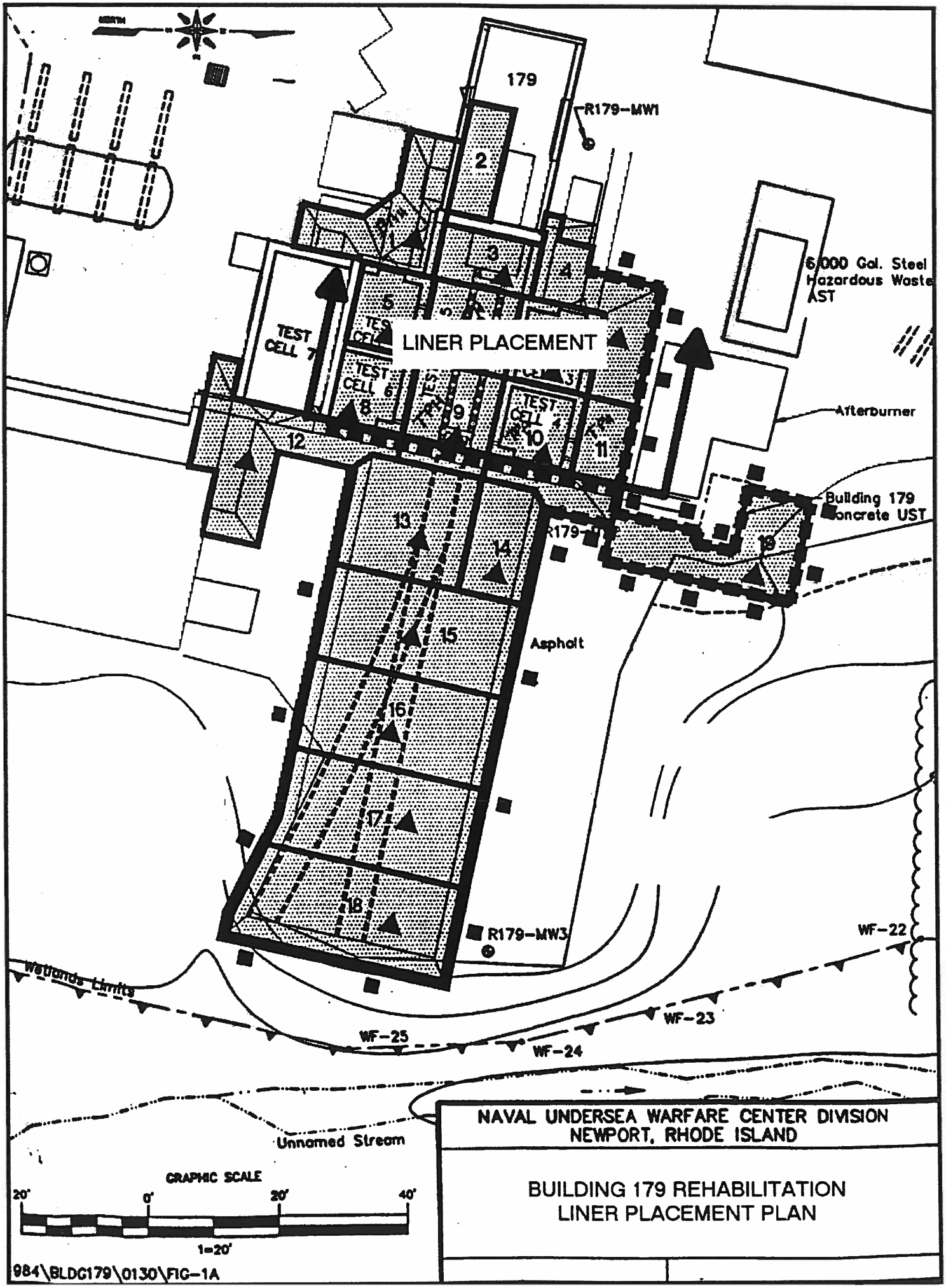
Base of Excavation - Post Excavation Samples

Analytical Data Summary
NUWC Division, Newport - B179 Rehabilitation Project

Sample ID	UNITS	179-GRID-4 SIDEWALL POST	179-GRID-4 SIDEWALL Duplicate	179-GRID-11 SIDEWALL1 POST	179-GRID-11 SIDEWALL2 POST	179-GRID-11 SIDEWALL POST DUP	179-GRID-11 SIDEWALL3 POST	179-GRID-11 SIDEWALL4 POST	179-GRID-15 SIDEWALL POST	179-GRID-16 SIDEWALL POST	179-GRID-18 SIDEWALL POST	179-GRID-17 SIDEWALL1 POST	179-GRID-17 SIDEWALL2 POST	179-GRID-17 SIDEWALL3 POST	RIDEM Industrial/ Commercial Direct Exposure Criteria	RIDEM Residential Direct Exposure Criteria	GA Leachability Criteria	GB Leachability Criteria
TPH	mg/kg	610		240	3,500	1,400	1,500	5,800	-	-	-	-	-	-	2,500	500	500	2,500
Cyanide	mg/kg	-		-	-	-	-	-	-	-	-	-	-	-	10,000	200	2.4	NA
VOC's		8260	5030/8260															
Dilution		200	1	1	1,000	500	200	200	1	1	1	1	1	1				
Toluene	ug/kg	-	-	10	-	-	-	4,700	-	-	-	-	-	-	10,000,000	190,000	32,000	54,000
Naphthalene	ug/kg	-	-	110	18,000	14,000	5,000	11,000	-	-	-	-	-	-	10,000,000	54,000	NA	NA
Xylenes, total	ug/kg	3,300	-	820 E	69,000	37,000	9,300	41,000	-	-	-	-	-	-	10,000,000	110,000	540,000	NA
1,2,4-Trimethyl	ug/kg	12,000	-	5,200 D	110,000	99,000	33,000	8,900	-	-	-	-	-	-	NA	NA	NA	NA
1,1,1-Trichloro	ug/kg	-	-	130	170,000	46,000	4,300	-	11	6	-	-	-	-	10,000,000	540,000	11,000	160,000
Acetone	ug/kg	-	-	18	-	-	-	4,400	49	42	9	8	7	-	10,000,000	7,800,000	NA	NA
4-Isopropyltolu	ug/kg	1,800	-	150	15,000	13,000	3,400	1,400	-	-	-	19	52	34	NA	NA	NA	NA
1,1-Dichloroet	ug/kg	-	-	17	-	-	-	3,000	-	-	-	-	-	-	10,000,000	920,000	NA	NA
Ethylbenzene	ug/kg	-	-	120	7,000	3,500	-	6,000	-	-	-	-	-	-	10,000,000	71,000	27,000	62,000
Isopropylbenz	ug/kg	-	-	310 E	12,000	7,000	1,400	21,000	-	-	-	-	-	-	10,000,000	27,000	NA	NA
n-Propylbenze	ug/kg	2,300	-	520 E	23,000	14,000	4,200	7,400	-	-	-	-	-	-	NA	NA	NA	NA
1,3,5-Trimethyl	ug/kg	5,400	-	2,600 D	57,000	45,000	15,000	4,000	-	-	-	-	-	-	NA	NA	NA	NA
n-Butylbenzen	ug/kg	4,100	-	300 E	32,000	26,000	8,200	7,400	-	-	-	-	-	-	NA	NA	NA	NA
sec-Butylbenz	ug/kg	2,100	-	180	14,000	9,900	3,100	4,000	-	-	-	-	-	-	NA	NA	NA	NA
Methylethylket	ug/kg	-	-	7	-	-	-	-	14	42	-	7	15	10	10,000,000	10,000,000	NA	NA
SVOC's																		
Dilution		1		1	1	1	1	1	1	1	1	1	1	1			NA	NA
Fluoranthene	ug/kg	-		-	-	-	-	-	-	-	-	-	58 J	-	10,000,000	20,000	NA	NA
Pyrene	ug/kg	-		-	-	-	-	-	-	-	-	-	98 J	-	10,000,000	13,000	NA	NA
Naphthalene	ug/kg	120 J		-	2,100	3,200 D	2,800 D	1,500	-	-	-	-	-	-	10,000,000	54,000	800	NA
2-Methylnapht	ug/kg	-		-	-	53 J	130 J	81 J	-	-	-	-	-	-	10,000,000	123,000	NA	NA
Di-n-butylphth	ug/kg	-		-	54 J	64 J	69 J	-	-	-	-	-	-	-	NA	NA	NA	NA
bis(2-Ethylhex	ug/kg	89 J		-	510	690 J	640	300 J	-	-	-	-	-	-	410,000	46,000	NA	NA
PGDN																		
Propylene glyc	mg/kg										-	-			-	-	-	-

Notes:

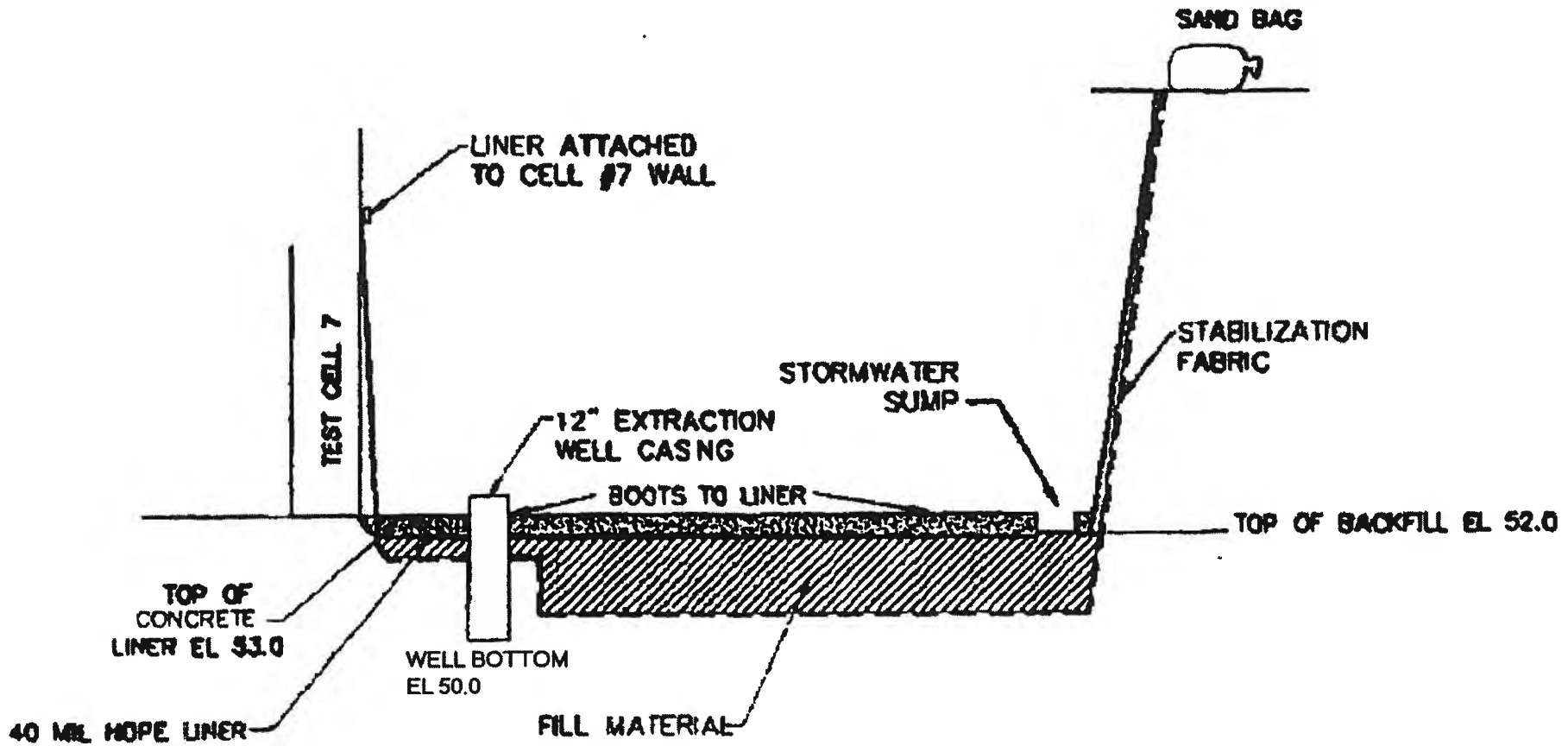
1. Analytical data summarized from laboratory data sheets (Mitkem Corporation) provided by Foster Wheeler Environmental Corporation.
2. "-" indicates not detected.
3. "NA" indicates Not Available
4. RIDEM Direct Exposure Criteria and Leachability Criteria extracted from DEM-DSR-01-93 "Remediation Regulations".
5. Shaded areas indicate exceedance of standard for Industrial/Commercial Direct Exposure Criteria.



NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND

BUILDING 179 REHABILITATION
LINER PLACEMENT PLAN

984\BLDG179\0130\FIG-1A



LINER SECTION

not to scale

NUWC - NEWPORT RI

BUILDING 179
REHABILITATION

FOSTER WHEELER ENVIRONMENTAL CORPORATION

APPENDIX B

SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS

APPENDIX B.1

SOIL BORING LOGS (DPT DRILLING)

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-100
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/3/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/3/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	52.7 ft NAVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1430 DA-SB-100-0002	SAND	Brownish gray FINE SAND Black from 5-7 in, gray from 7-18 in.	SP		49.3
		18"/24"						
2		2'-4'	1445 DA-SB-100-0204	SAND AND GRAVEL	0-12 in. Gray FINE SAND and FINE GRAVEL, little medium sand 12-24 in. Gray VERY FINE SAND	SP SP		3.8
		24"/24"						
4		4'-6'			0-8 in. Gray VERY FINE SAND 8-24 in. Gray FINE SAND and PLATY GRAVEL (Weathered Phyllite)	SP SP		1.0
		20"/24"		WTHR PHYLLITE				
6		6'-8'			Same as above	SP		1.2
		24"/24"			End of boring at 8 ft.			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-100	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-101
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/3/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/3/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	51.6 ft NAGV	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1335 DA-SB-101-0002	GRAVEL	Gray GRAVEL (phyllite) up to 1 in., and SILT	GM		10.7
		12"/24"						
2		2'-4'		SAND AND GRAVEL	0-5 in. Black MEDIUM SAND and GRAVEL 5-16 in., gray PLATY GRAVEL (phyllite) and VERY FINE SAND	SP GP		8.8
		16"/24"						
4		4'-6'		WTHR PHYLLITE	Weathered PHYLLITE	GW		7.6
		18"/24"						
6		6'-8'	1345 DA-SB-101-0608 Dup04		Same as above	GW		70.0
		18"/24"			7.9 ft bedrock, refusal End of boring at 7.9 ft.			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-101	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 51.6 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-102
START DATE: 3/3/08
COMPLETION: DATE: 3/3/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1240		0-1 in., Asphalt			1.7
			DA-SB-102-0002		Brown SILTY VERY FINE SAND, little coarse sand and fine angular gravel	SM		
		20"/24"						
2		2'-4'	1245 (3-5 FT)	SILTY SAND	No recovery		Sample collected above bedrock	
			DA-SB-102-0305					
		0"/24"						
4		4'-6'			0-8 in. brown FINE SAND and SILT, little fine gravel	SM		2.7
				WTHR PHYLLITE	8-16 in. gray PLATY PHYLLITE	GW		
		16"/24"			End of Boring at 6 ft.			
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-102

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-103
PROJECT NO.:	112G00933.0000.0211			START DATE:	4/14/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	4/14/08
DRILLED BY (Company/Driller):	GeoSearch / Jason Jalutkewicz			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	51.9 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2' 12"/24"		TOPSOIL	0-3 in. Brown top soil (silty very fine sand)		Sample collected for PCB only.	
				SAND/GRAVEL	3-12 in. Gray platy gravel, some fine to coarse sand and rock fragments			
	7							0.0
	9							
2	9	2'-4' 24"/24"		WTHR PHYLLITE				
	9				Gray weathered phyllite (crumbly) platy (up to 2 in.) interbedded with fine to medium			0.0
	8				Trace silt, dry			
4	8	4'-6' "24/24"						
	10							
	9				Same as above, harder at bottom			0.0
	14							
6	17	6'-6.5' 7"/7"						
	25/1 in.				End of boring at 6.5 ft			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	CME Model ATV Hollow Stem Auger Rig	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Hollow Stem Auger	S = Screening	
METHOD OF SOIL SAMPLING:	3 in. ID split spoon, 24 in. long driven 24 in. with 140 pound hammer	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-103	PAGE: 1 OF 1

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-104
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/28/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/28/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	50.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6”	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT’L CHG./ WELL PROF’L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0’-2’			Brown SILT and FINE SAND and rounded GRAVEL (up to 1 in.)	ML		0.1
		6”/24”						
2		2’-4’		FILL	Gray MEDIUM TO COARSE SAND, some silt and fine subangular gravel (up to ½ in.)	SM		0.1
		6”/24”						
4		4’-6’			Grayish brown FINE TO MEDIUM SAND, some subangular gravel (up to 1 in.)	SW		0.0
		20”/24”						
6		6’-8’	1538 DA-SB-104-0608	SILT	Grayish brown SILT, some fine sand and small phyllite fragments.	ML		0.1
		10”/24”						
8		8’-10’		WTHR PHYLLITE	Gray weathered PHYLLITE			0.1
		12”/24”			End of Boring at 10 ft.			
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25” Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-104

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-105
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/29/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/29/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	51.2 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown sub rounded GRAVEL (up to ¼ in.), and MEDIUM SAND	GP		0.2
		12"/24"						
2		2'-4'		FILL	Dark brown FINE SAND	SP		0.1
		12"/24"						
4		4'-6'	0915 DA-SB-105-0406		Dark brown FINE TO MEDIUM SAND	SP		1.3
		12"/24"						
6		6'-8'			0-10 in. same as above	SP		0.3
				WTHR PHYLLITE	10-12 in. gray blocky PHYLLITE	GW		
		12"/24"						
8		8'-10'		PHYLLITE	Gray platy PHYLLITE	GW		1.8
		18"/18"			9.5 ft refusal, end of boring.			
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-105	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 50.5 ft NGVD
ELEVATION FROM: Louis Fredrici Assoc.

BORING NO.: SB-106
START DATE: 2/29/08
COMPLETION: DATE: 2/29/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown SILTY FINE SAND	SM		0.7
		6"/24"						
2		2'-4'		FILL	Dark brown FINE TO MEDIUM SAND, some coarse sand to fine gravel up to ½ in.	SW		0.8
		12"/24"						
4		4'-6'	0950 (6-8 ft) DA-SB-106-0608		Same as above with brick and metal fragments	SW		0.3
		8"/24"						
6		6'-8'		WTHR PHYLLITE	Gray platy PHYLLITE	GW		7.1
		6"/24"			End of boring at 8 ft.			
8								
10								
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-106

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-107
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/29/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/29/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	45.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1130 (1-3 FT) DA-SB-107-0103	SAND	Brown FINE SAND, some medium to coarse sand and fine rounded gravel up to ¼ in.	SW		0.8
		7"/24"						
2		2'-3' 2"/12"			Same as above End of Boring at 3 ft.	SW		1.0
4								
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Hand held Geoprobe (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-107	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-108
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/29/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/29/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	50.0 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6”	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT’L CHG./ WELL PROF’L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0					Dark brown FINE TO MEDIUM SAND, some coarse sand to fine rounded gravel	SW		3.6
		0’-4’		FILL				
2		12”/48”	1045 DA-SB-108-0204					
4		4’-6’			0-10 in. same as above	SW		0.8
				WTHR PHYLLITE	10-11 in. light brown fine to coarse SAND and fine rounded gravel	GW		
		12”/24”			11-12 in. gray platy PHYLLITE End of boring at 6 ft.			
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25” Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	4 ft and 2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-108	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-109
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/28/08
LOGGED BY:	M. HORTON			COMPLETION: DATE:	2/28/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	49.7 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown FINE SANDY SILT	ML		0.2
		6"/24"						
2		2'-4'	1445 DA-SB-109-0204	FILL	0-12 in. Black/brown COARSE TO MEDIUM SAND 12-24 in. Brown SILT, some fine sand	SW ML		0.7
		12"/24"						
4		4'-6'			0-6 in. Black/brown COARSE SAND, some silt and fine gravel up to ½ in. 6-12 in. Brown SILT, some fine sand	GM ML		0.1
		12"/24"						
6		6'-8'		SILTY SAND	Brown FINE TO MEDIUM SAND, some silt	SM		0.3
		12"/24"						
8		8'-10'			0-12 in. Brown FINE TO MEDIUM SAND, some silt	SM		0.2
		24"/24"		WTHR PHYLLITE	12-24 in. weathered PHYLLITE (bedrock). End of boring at 10 ft.	GW		
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-109	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: M. HORTON
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 49.2 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-110
START DATE: 2/28/08
COMPLETION: DATE: 2/28/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
		0'-2'			Brown FINE TO MEDIUM SANDY SILT, some fine gravel up to 1 in.	ML		0.4
		10"/24"						
2		2'-4'			Gray SILTY COARSE SAND and QUARTZ FRAGMENTS up to 1 in.	GM		0.1
		14"/24"						
4		4'-6'			0-6 in. Brown FINE SANDY SILT 6-13 in. concrete layer	ML		32.3
		13"/24"						
6		6'-8'			Gray brown SILTY FINE SAND	SM		3.8
		14"/24"						
8		8'-10'	1330 DA-SB-110-0810	FILL	Same as above, refusal at 10 ft due to concrete, move and continue	SM		59.4
		4"/24"						
10		10'-12'			Brown FINE TO MEDIUM SANDY SILT, some subangular gravel up to 1 in.	ML		11.0
		16"/24"						
12		12'-14'			Black MEDIUM TO COARSE SAND-LIKE MATERIAL			12.2
		13"/24"						
14		14'-16			SAME AS ABOVE (resembles ground up asphalt)			0.7
		3"/24"						

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-110
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/28/08
LOGGED BY:	M. HORTON	COMPLETION: DATE:	2/28/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	49.2 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
16		16'-18'		WTHR PHYLLITE	WEATHERED PHYLLITE			
		3"/24"			End of boring/refusal at 18 ft.			
18								
20								
22								
24								
26								
28								
30								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Inner Diameter of Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-110	PAGE: 2 OF 2

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-111
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/5/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/5/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	50.0 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0				ASPHALT	0-1 in. ASPHALT, 1-12 in. brown/gray FINE SAND, some medium to coarse sand and fine	SW		62.0
			1115		Gravel up to 1 in., Concrete in shoe			
		0'-4'	DA-SB-111-0002					
2		12"/48"						300
			1120					
			DA-SB-111-0204					
4				FILL	Brown MEDIUM TO COARSE SAND	SW		9.0
		4'-6'						
		6"/24"						
6					0-3 in. black same as above	SW		40.0
		6'-8'			3-18 in. gray SUBANGULAR TO ANGULAR GRAVEL, blocky up to 1 ½ in, little sand	GW		
		18"/24"						
8					0-9 in. same as above	GW		6.3
		8'-10'			9-12 in. gray PLATY PHYLLITE			
		12"/24"		WTHR PHYLLITE				
10					0-4 in. olive gray PLATY WEATHERED PHYLLITE			6.1
		10'-12'			4-12 in. brown and gray PLATY PHYLLITE AND FINE SAND.			
		12"/24"			End of Boring at 12 ft.			
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 ft and 4 ft acetate sleeves
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-111

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-111
PROJECT NO.:	112G00933.0000.0211			START DATE:	3/5/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	3/5/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	50.0 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 50.7 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-112
START DATE: 3/5/08
COMPLETION: DATE: 3/5/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1010 DA-SB-112-0002	FILL	0-1 in. asphalt, 1-12 in Brown MEDIUM SAND, trace rounded gravel	SP		82.2
		12"/24"						
2		2'-4'			0-6 in. gray FINE SAND	SP		14.9
		20"/24"			6-9 in. gray FINE SAND and PLATY GRAVEL 9-15 in. Brown PLATY GRAVEL	SP GW		
4		4'-6'			15-16 in. black FINE GRAVEL Gray FINE SAND, little gravel and wood chunks	GP FILL		9.9
		16"/24"						
6		6'-8'	1015 (Dup06) DA-SB-112-0608		Black FINE GRAVEL AND FINE TO COARSE SAND, phyllite in shoe	SW		15.5
		13"/24"						
8		8'-10'		WTHR PHYLLITE	Gray FINE SAND, some block/platy gravel up to 1 in.			0.1
		12"/24"						
10		10'-11' 6"/12"			Same as above End of boring at 11 ft.			0.2
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-112

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 51.0 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-113
START DATE: 3/3/08
COMPLETION: DATE: 3/3/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1025 DA-SB-113-0002	FILL	0-1 in. asphalt 1-14 in. brown FINE TO MEDIUM SAND	SP		0.8
		14"/24"						
2		2'-4'		SILT SAND GRAVEL	Gray SILT, some medium sand and platy gravel up to 1 in.	ML		1.0
		10"/24"						
4		4'-6'	1030 (DUP03) DA-SB-113-0406	SAND GRAVEL	Gray FINE SAND and PLATY GRAVEL	SP		10.9
		17"/24"						
6		6'-8'			0-8 in. same as above	SP	Driller reports bedrock at 7 ft	0.6
				WTHR PHYLLITE	8-19 in. gray WEATHERED PHYLLITE			
		19"/24"			End of boring at 8 ft.			
8								
10								
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-113

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-113
PROJECT NO.:	112G00933.0000.0211			START DATE:	3/3/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	3/3/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	51.0 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 51.3 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-114
START DATE: 3/3/08
COMPLETION: DATE: 3/3/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	0945 DA-SB-114-0002		0-1 in. asphalt 1-15 in. brown FINE TO MEDIUM SAND, some silt, trace coarse sand	SW		1.9
		15"/24"						
2		2'-4'		Fill	Brown SILT and FINE SAND, trace coarse sand to fine rounded gravel	SM		1.3
		16"/24"						
4		4'-6'	0950 DA-SB-114-0406		Same as above	SM		2.7
		18"/24"						
6		6'-8'		WTHR PHYLLITE	Brown/gray PHYLLITE, some silt and fine sand. Phyllite in tip.	GW		0.2
		21"/24"			Refusal at 8 ft, end of boring.			
8								
10								
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-114

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-115
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/5/08
LOGGED BY:	R. CLARK	COMPLETION:	3/5/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	50.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
				FILL	0-1 in. asphalt			138
		0'2'	1330		1-7 in. brown FINE SAND, some platy gravel up to 1 in.	SP		
		12"/24"	DA-SB-115-0002		7-12 in. gray FINE SAND and PLATY GRAVEL (Phyllite) up to 1 in.	SP		
2		2'-4'	1335		Same as above	SP		97.6
		12"/24"	DA-SB-115-0204					
4		4'-6'		GRAVELLY SAND	Gray FINE TO MEDIUM SAND, little gravel (up to ¾ in.), wet.	SW		13.3
		8"/24"						
6		6'-8'			Dark gray MEDIUM TO COARSE SAND and PLATY GRAVEL (up to 1 in.), wet.	SW		21.2
		6"/24"			Refusal at 8 ft, end of boring.			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-115	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-116
PROJECT NO.:	112G00933.0000.0211			START DATE:	3/4/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	3/4/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	55.9 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1030 DA-SB-116-0002	FILL	0-1 in. asphalt 1-12 in. Brownish gray FINE TO MEDIUM SAND and GRAVEL up to 1 ½ in.	SW		238
		12"/24"						
2		2'-4'	1035 DA-SB-116-0204		0-4 in. gray same as above 4-8 in. WEATHERED ROCK/PLATY GRAVEL.	SW GW	FUEL OIL ODOR	2964
		20"/24"			8-20 in. gray FINE SAND, fuel oil odor	SP		
4		4'-6'		SAND	Gray FINE SAND, some weathered Phyllite, little medium sand	SP	FUEL OIL ODOR	2675
		14"/24"						
6		6'-8'			Gray FINE SAND	SP	FUEL OIL ODOR	19.0
		14"/24"						
8		8'-10'			0-17 in. same as above 17-24 in. Dark rusty brown FINE TO MEDIUM SAND, wet	SP SW		915
		24"/24"						
10		10'-12'			0-6 in. same as above	SW		14.0
				SAND AND GRAVEL	6-12 in. gray FINE SAND and PLATY GRAVEL	SP		
		18"/24"			12-18 in. gray PLATY GRAVEL (Phyllite) some fine sand 12 ft refusal, end of boring.			
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note: S = Screening HS = Headspace EOB = End of Boring	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push		
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-116	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-117
PROJECT NO.:	112G00933.0000.0211			START DATE:	3/4/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	3/4/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	54.3 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1130 DA-SB-117-0002	FILL	0-1 in. asphalt 1-10 in. Light brown MEDIUM TO COARSE SAND and FINE GRAVEL (up to ¾ in)	SW		1.8
		12"/24"			10-12 in. gray WEATHERED PLATY GRAVEL	GW		
2		2'-4'			0-3 in. same as above 3-12 in. gray FINE SAND wet	GW SP		1.8
		12"/24"						
4		4'-6'		GRAVELLY SAND	Gray FINE SAND, trace coarse sand to fine gravel, wet.	SP		2.4
		15"/24"						
6		6'-8'			Same as above	SP		2.5
		17"/24"						
8		8'-10'	1135 (MS/MSD) DA-SB-117-0810		Gray MEDIUM SAND, some coarse sand and fine rounded gravel	SP		6.4
		24"/24"						
10		10'-12'			0-8 in. same as above 8-12 in. same as above rust colored.	SP SP		0.5
		24"/24"		SAND	12-24 in. gray FINE SAND, Phyllite in shoe. End of boring at 12 ft.	SP		
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-117	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-118
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/4/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/4/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	54.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1300	FILL	0-10 in. Brown PLATY GRAVEL, some fine sand	GW		207
			DA-SB-118-0002		10-15 in. Dark gray PLATY GRAVEL	GW		
		20"/24"			15-20 in. Gray FINE SAND	SP		
2		2'-4'			Gray FINE SAND, mottled rust	SP		11.4
		24"/24"						
4		4'-6'	1305	SAND AND GRAVEL	0-20 in. Gray FINE SAND, mottle rust, weathered Phyllite from 12-13 in.	SP		68.3
			DA-SB-118-0406		20-24 in. Gray MEDIUM SAND	SP		
		24"/24"						
6		6'-8'			Same as above with little rounded to subangular gravel up to ½ in.	SP		49.8
		18"/24"						
8		8'-10'			Gray FINE SAND	SP		4.6
		12"/24"						
10		10'-12'		SAND	Gray FINE TO MEDIUM SAND, trace platy gravel	SW		21.7
		12"/24"						
12		12'-14'			0-11 in. same as above	SW		0.2
					11-24 in. Gray PLATY WEATHERED PHYLLITE with rust mottles	GW		
		24"/24"		WTHR PHYLLITE	Refusal at 14 ft., end of boring.			
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-118	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-119
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/4/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/4/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	52.0 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1450 DA-SB-119-0002	FILL	Black MEDIUM TO COARSE SAND and GRAVEL	SW		22.4
		6"/24"						
2		2'-4'	1455 DA-SB-119-0204		0-6 in. Olive gray FINE SAND 6-18 in. Brown FINE TO MEDIUM SAND, some silt	SP SW		12.5
		18"/24"						
4		4'-6'		SAND	Olive gray FINE SAND trace coarse sand	SP		11.0
		24"/24"						
6		6'-8'			Same as above, Phyllite in shoe.	SP		3.2
		24"/24"			Refusal at 8 ft., end of boring.			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-119	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-120
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/6/08
LOGGED BY:	M. HORTON	COMPLETION: DATE:	3/6/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	51.3 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	0855 DA-SB-120-0002		Brown SILTY FINE SAND, trace subrounded to subangular gravel up to ½ in.	SM		1.1
		12"/24"						
2		2'-4'		FILL	Brown FINE SAND, some silt and angular gravel up to 1 in.	SM		0.1
		12"/24"						
4		4'-6'	0910 DA-SB-120-0406		Brown FINE SAND, some silt and subangular gravel up to 1 in.	SM		0.6
		20"/24"						
6		6'-7'			0-5 in. brown FINE SAND, some silt.	SM		0.5
		10"/12"		WTHR PHYLLITE	5-10 in. gray VERY WEATHERED PHYLLITE			
					Refusal at 7 ft, end of boring.			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-120	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-121
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/26/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/26/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	50.6 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown SILTY FINE SAND, some gravel up to ½ in.	SM		7.6
		12"/24"						
2		2'-4'		FILL	Grayish brown FINE SAND, some angular gravel up to 1 in.	SP		4.6
		12"/24"						
4		4'-6'	1515 DA-SB-121-0406		Dark gray to black FINE GRAVEL up to ½ in, little medium to coarse sand	GP		13.6
		12"/24"						
6		6'-8'		GRAVELLY SILT	Gray SILT, little platy to blocky gravel up to ½ in.	ML		1.0
		24"/24"						
8		8'-10'			Gray SILT, little platy gravel (weathered Phyllite), Phyllite in tip	ML		0.5
		12"/24"		WTHR PHYLLITE	Refusal at 10 ft., end of boring.			
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter of Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-121	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-122
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/26/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/26/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	49.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0					0-12 in. Brown SILTY FINE SAND, little gravel	SM		34.1
					12-18 in. very dark brown to black FILL, medium sand and fine gravel			
		0'-4'			18-28 in. Gray WEATHERED PHYLLITE	GW		
					28-38 in. dark brown FINE TO COARSE SAND, concrete refusal, move and continue			
2								9.8
		38"/48"						
4					0-15 in. Gray GRAVEL and blocky CONCRETE			20.8
			1300 (4-7 ft)		15-24 in. Light gray FINE TO MEDIUM SAND, little coarse sand	SW		
			DA-SB-122-0407	FILL	24-30 in. light gray GRAVEL and CONCRETE and dust			
		4'-10'						
6								
								5.0
		30"/72"						
8								
10				SAND	0-16 in. gray MEDIUM TO COARSE SAND and FINE GRAVEL	SW		2.0
					16-43 in. gray FINE SAND with rust stringers	SP		
					43-50 in. light gray WEATHERED PHYLLITE			
		10'-15'						0.7
12				WTHR PHYLLITE				
		50"/60"						
14					Refusal 14.9 ft, end of boring.			

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	4, 5 and 6 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-122	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-123
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/25/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	49.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown SILTY FINE SAND and SUBROUNDED TO SUBANGULAR GRAVEL (up to ½ in).	SP		0.3
		8"/24"						
2		2'-4'			0-3 in. BRICK, CONCRETE 3-12 in. Dark brown GRAVEL AND FINE SAND	FILL GW		0.4
		12"/24"						
4		4'-5' 12"/12"			Dark brown SILTY FINE SAND, some gravel and brick fragments, dry	SM		0.5
		5'-10'	1515 (5-8 ft) DA-SB-123-0508	FILL	Same as above, low recovery	SM		
6								
								143
8		5"/60"						
10		10'-12.5'		WTHR PHYLLITE	Gray VERY WEATHERED PHYLLITE, platy and soft			0.5
		30"/30"						
12					Refusal 12 ½ ft, end of boring.			
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 5ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-123	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-124
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/27/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/27/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	49.0 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0					0-6 in. Brown FINE TO MEDIUM SAND, some angular to subangular gravel	SW		3.5
					6-42 in. Brown SILT	ML		
		0'-4'			42-48 in. gray brown medium SANDY SILT	ML		
2				FILL				0.3
		32"/48"						
4					0-12 in. same as above			0.4
					12-28 in. gray SANDY SILT, some Phyllite fragments	ML		
		4'-8'		SANDY SILT				
6					28-48 in. gray WEATHERED PHYLLITE			0.9
			1330 (6-8 ft)	WTHR				
		48'/48"	DA-SB-124-0608	PHYLLITE				
8					Gray WEATHERED PHYLLITE			0.5
		8'-11'						
10		36"/36"			End of boring at 11 ft.			
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-124	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 50.4 ft NVGD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-125
START DATE: 2/27/08
COMPLETION: DATE: 2/27/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		FILL	Brown FINE TO COARSE SAND and SILT, subrounded to angular gravel up to 1 in., Asphalt	SM		0.1
		12"/24"						
2		2'-4'			0-6 in. gray same as above 6-12 in. Brown FINE SAND, little rounded gravel up to 1 in., concrete in shoe.	SM SP		0.1
		12"/24"						
4		4'-6'		SAND AND GRAVEL	Light brown SUBANGULAR GRAVEL up to 1 in. and FINE SAND	GW		0.2
		24"/24"						
6		6'-8'			0-14 in. Rusty brown FINE SAND 14-21 in. Same as above	SP SP		0.3
		24"/24"			21-24 in. PLATY ANGULAR GRAVEL up to 1 ½ in. and FINE SAND	GW		
8		8'-10'	1500 DA-SB-125-0810	WTHR PHYLLITE	Gray PLATY GRAVEL weathered rock and fine silty sand	GM		0.7
		24"/24"						
10		10'-12'			Same as above	GM		0.1
		24"/24"						
12		12'-13'			Same as above	GM		
		12"/12"			Refusal 13 ft, end of boring.			
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-125

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-126
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/26/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/26/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	49.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0					0-10 in. Brown FILL silty fine sand and weathered Phyllite 10-26 in. Brown/dark gray FINE TO MEDIUM SAND and PLATY GRAVEL (shale), brick	SM		13.2
		0'-4'			And concrete fragments.			
2								1.6
		26"/48"						
4					Same as above	SM		2.5
		4'-6'						
		8"/24"		FILL				
6					Brown FINE TO MEDIUM SAND, some silt and subrounded to subangular gravel up to 1 in. Platy and blocky, concrete and brick fragments.	SM		1.4
		6'-8'						
		18"/24"						
8					Gray FINE TO MEDIUM SAND and SUBANGULAR GRAVEL up to 1 in., concrete. Refusal at 10 ft, move and continue.	SM		2.2
		8'-10'						
		24"/24"						
10					0-18 in. Brown fill as above	GW		988
		10'-13'	1045 DA-SB-126-1013					
					18-36 in. gray and tan WEATHERED PHYLLITE with some rock dust			
12		36"/36"		WTHR PHYLLITE	Refusal 13 ft			
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-126	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 49.9 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-127
START DATE: 2/27/08
COMPLETION: DATE: 2/27/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-4'	1415 DA-SB-127-0204	FILL	Brown FILL silt, little coarse sand and fine angular gravel up to 1 in., brick, asphalt fragments	FILL		5.4
2		30"/48"						9.8
4		4'-6' 18"/24"			0-5 in. same as above 5-14 in. Brown SILTY FINE SAND, little rounded gravel (milky quartz) 14-18 in. Gray PLATY GRAVEL and FINE TO MEDIUM SAND and SILT.	FILL SM GM		0.3
6		6'-8' 24"/24"		GRAVEL SAND AND SILT	Gray PLATY GRAVEL and FINE TO MEDIUM SAND and SILT	GM		0.6
8		8'-10' 17"/24"			Same as above	GM		0.7
10		10'-11.6' 19"/19"		WTHR PHYLLITE	Gray PLATY WEATHERED PHYLLITE and ROCK DUST. Refusal 11.6 ft, end of boring.			0.1
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 and 4 ft acetate sleeve
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-127

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 50.8 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-128
START DATE: 2/25/08
COMPLETION: DATE: 2/25/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown FINE TO MEDIUM SILTY SAND, little platy gravel up to 1 in.	SM		0.3
		6"/24"						
2		2'-4'			Gray/brown fine to medium silty sand, little fine platy gravel, brick at bottom	SM		0.1
		12"/24"						
4		4'-6'		FILL	Black MEDIUM TO COARSE SAND and FINE GRAVEL up to ½ in.	SW		0.8
		8"/24"						
6		6'-8'			Brown SILT and FINE SAND, trace fine platy gravel, damp	SM		0.2
		8"/24"						
8		8'-10'	1430 (DUP02) DA-SB-128-0810		Black MEDIUM TO COARSE SAND, fine gravel and brick fragments, bottom of fill			4.6
		12"/24"						
10		10'-11' 6"/12"		SILTY SAND	Brown VERY FINE SAND and SILT, little fine platy gravel Refusal 11 ft.	SM		0.2
					Refusal 11.8 ft second attempt, Phyllite in tip. End of boring.			0.0
12				PHYLLITE				
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeve
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 48.6 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-129
START DATE: 2/26/08
COMPLETION: DATE: 2/26/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0					0-6 in. WOOD CHIPS, 6-10 in. Brown SILTY FINE SAND			2.8
		0'-4'			10-13 in. GRAVEL (milky quartz) subangular up to 1 in.			
					13-22 in. Brown FINE SAND, little coarse sand and fine angular gravel	SW		
					22-33 in. Very dark brown to black PLATY GRAVEL, some silty fine sand	GM		
2								2.1
		33"/48"		FILL				
4					Dark brown subangular to subrounded platy and blocky GRAVEL, some concrete and			26.9
		4'-6'	0915		Dust, dry			
			DA-SB-129-0406					
		8"/24"			Refusal at 6 ft, 3 attempts. End of boring.			
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 and 4 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-129

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-130
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/25/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	48.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			0-3 in. wood chips 3-4 in. concrete			0.2
		12"/24"			4-12 in. brown SILT and FINE SAND (fill)	SM		
2		2'-4'			Brown fine sand and silt, little rounded to subangular gravel up to ½ in.	SM		0.1
		12"/24"						
4		4'-6'			Brown fine to medium sand, some silt and wood chips	SM		0.1
		12"/24"						
6		6'-8'			Same as above	SM		0.1
		12"/24"						
8		8'-10'		FILL	Same as above	SM		0.9
		18"/24"						
10		10'-11.5'	0945 DA-SB-130-1012		Same as above with concrete fragments	SM		7.5
		12"/18"			Refusal at 11 ½ ft on first run.			
12		13'-15'						
					No sample 13-15 ft			
14								
					0-22 in. same as above (fill)	GW		1.7

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-130

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-130
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/25/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	48.1 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6”	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT’L CHG./ WELL PROF’L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
16		15’-18.5’			22-27 in. gray PLATY GRAVEL	SM		
		42”/42”		TILL	27-30 in. Brownish gray FINE SAND AND SILT, wet	GM		
					30-38 in. Brown GRAVELLY FINE SAND (till), some medium sand and platy gravel.	GW		
18				WTHR PHYLLITE	38-42 in. gray PHYLLITE			
					Refusal at 18.5 ft on second run. End of boring.			
20								
22								
24								
26								
28								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25” Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-130	PAGE: 2 OF 2

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 47.6 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-131
START DATE: 2/25/08
COMPLETION: DATE: 2/25/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			0-4 in. mulch 4-7 in. GRAVEL (Phyllite)			0.2
		12"/24"			7-12 in. Brown FINE SAND AND SILT (FILL), some fine gravel			
2		2'-4'			0-10 in. same as above 10-15 in. VERY FINE GRAVEL (quartzite and concrete) up to ½ in (FILL).			102
		15"/24"						
4		4'-6'	1130 DA-SB-131-0406		Same as above			501
		12"/24"						
6		6'-8'			0-1 in. brown fine sand, some subangular gravel up to ½ in (FILL). 1-6 in. QUARTZITE and rock dust/concrete			322
		6"/24"		FILL				
8		8'-10'			0-5 in. Brown GRAVELLY FINE SAND (FILL) 5-10 in. QUARTZITE AND ROCK DUST/concrete			238
		10"/24"						
10		10'-12'			No recovery			---
		0"/24"						
12		12'-14'			Brown subangular gravel up to ½ in and fine to medium sand, some silt (FILL)			47
		24"/24"						
14		14'-16'			Brown fine to medium sand and subangular gravel up to 1 in., some silt and coarse Sand (FILL).			16.6
		12"/24"						

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 4 ft acetate sleeve
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 47.6 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-131
START DATE: 2/25/08
COMPLETION: DATE: 2/25/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
16		16'-17.9'			0-12 in. Brown FILL			1.2
				WTHR PHYLLITE	12-20 in. Gray PLATY PHYLLITE rusty at bottom 2 in.			
		20"/24"			Refusal at 17.9 ft, end of boring.			
18								
20								
22								
24								
26								
28								
30								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-131
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/25/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	47.6 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-132
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/25/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	48.8 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'			Brown SILTY FINE TO MEDIUM SAND, little fine platy gravel	SM		59.1
		12"/24"						
2		2'-4'			Brown GRAVELLY FINE SILTY SAND up to ½ in., platy. Refusal at 4 ft, move a few feet and continue.	SM		1.9
		8"/24"						
4		4'-8'	1300 DA-SB-132-0406	FILL	Brown fine to medium sand, little silt and gravel up to ½ in., dry (FILL)			6.6
6		15"/48"						---
8		8'-10'			Same as above (FILL)			3.6
		12"/24"						
10		10'-12'			Brown SILT AND VERY FINE SAND, trace platy gravel, wet.	SM		0.3
		18"/24"						
12		12'-14'		SILT	Very dark gray SILT, wet.	ML		2.3
		24"/24"						
14		14'-16'			0-16 in. Dark olive gray SILT 16-17 in. rust orange as above.	ML ML		0.9
		24"/24"		WTHR PHYLLITE	17-20 in. Very dark brown WEATHERED PHYLLITE 20-24 in. light brown platy fissile WEATHERED PHYLLITE. Refusal at 15.9 ft, end of	GW GW		

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-132	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-133
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/27/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/27/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	47.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6”	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT’L CHG./ WELL PROF’L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0’-2’	1610 DA-SB-133-0102		Brown Silty fine sand and blocky/platy gravel up to ½ in, cement in tip (FILL).	SW		3.1
		24”/24”						
2		2’-4’			No recovery			---
		0”/24”						
4		4’-6’			Same as above	SW		10.3
		6”/24”						
6		6’-8’			Brown fine sand, some silt and blocky gravel (FILL).	SW		0.8
		8”/24”		FILL				
8		8’-10’	1620 DA-SB-133-0810		Same as above	SW		79.1
		6”/24”						
10		10’-12’			0-3 in. broken concrete 3-12 in. Brown fine sand with brick fragments (FILL).	SW		9.1
		12”/24”						
12		12’-15’			Brown gravelly silty fine sand, concrete (FILL).	SW		3.7
14		24”/36”			Phyllite in tip. Refusal at 15 ft, end of boring.	GW		

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25” Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-133	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-134
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/22/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/22/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	42.3 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		SILT WITH GRAVEL	Brown SILT and gray PLATY GRAVEL	ML		0.3
		15"/24"						
2		2'-4'			0-7 in. same as above	GM		0.2
				WTHR PHYLLITE	7-15 in. Gray PLATY GRAVEL (weathered Phyllite) and SILT (rock dust)	GM		
		15"/24"						
4		4'-5' 12"/12"	1000 DA-SB-134-0405		Same as above. Refusal at 5 ft. Collected sample at bottom. End of boring.	GM		218
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-134	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-135
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/25/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	43.2 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		TOPSOIL	Brown SILT (topsoil)	ML		13.3
		16"/24"						
2		2'-4'			0-3 in. Tan SILTY FINE SAND, some gravel	SM		1.3
		13"/24"			3-13 in. WEATHERED PHYLLITE with rock dust and platy Phyllite	GW		
4		4'-6'			Tan and gray WEATHERED PHYLLITE with rock dust.	GW		6.7
		24"/24"						
6		6'-8'			Same as above	GW		4.8
		24"/24"						
8		8'-10'			Same as above	GW		78.8
		24"/24"		WTHR PHYLLITE				
10		10'-12'			0-12 in. same as above 12-24 in. tan harder PHYLLITE FRAGMENTS, still mostly weathered.	GW		41.1
		24"/24"						
12		12'-14'	1420 DA-SB-135-1214		Same as above	GW		246
		24"/24"						
14		14'-16'			Same as above, 0-5 in rusty, 8-12 in. very rusty.	GW		7.4
		24"/24"						

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-135

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-135
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/25/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/25/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	43.2 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
16		16'-18'		WTHR PHYLLITE	Tan WEATHERED PHYLLITE	GW		1.1
		24"/24"						
18		18'-20'			Same as above	GW		2.9
		24"/24"			End of boring at 20 ft.			
20								
22								
24								
26								
28								
30								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 ft acetate sleeve
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-136
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/22/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/22/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	44.1 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		SAND	Brown SILTY FINE SAND, little platy gravel up to 1 in., damp	SM		0.0
		20"/24"						
2		2'-4'		GRAVEL AND SILT	Gray PLATY GRAVEL (up to 1 in.) AND SILT, some fine to medium sand	GM		0.0
		18"/24"						
4		4'-6'			Gray PLATY FINE GRAVEL and SILT, some fine sand.	GM		0.2
		24"/24"						
6		6'-8'		WTHR PHYLLITE	Orange/brown WEATHERED ROCK (platy gravel up to ½ in.)	GW		0.0
		24"/24"						
8		8'-10'	0930 DA-SB-136-0810		0-21 in. same as above, more sandy than gravelly with Phyllite from 6-10 in. 21-24 in. Gray PLATY WEATHERED PHYLLITE	GW GW		1.2
		24"/24"						
10		10'-12'			Brown and gray VERY WEATHERED PHYLLITE and SILTY FINE SAND	GM		0.0
		24"/24"			End of boring at 12 ft.			
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-136

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-137
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/21/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/21/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	45.3 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		TOPSOIL	Brown TOPSOIL Silt, little fine sand, roots, organics, trace pea gravel.	SM		0.5
		24"/24"		SAND				
2		2'-4'			Brown FINE SAND trace medium to coarse sand, some silt, damp.	SM		0.0
		12"/24"						
4		4'-6'	1640 DA-SB-137-0406		0-6 in. Dark brown SILTY FINE SAND	SM		1.2
		24"/24"			6-24 in. Gray VERY FINE SAND/ROCK DUST, some angular gravel up to ½ in.	SP		
6		6'-8'			Bright yellow/brown FINE SAND and FINE TO MEDIUM subangular to angular GRAVEL Up to ½ in., little medium to coarse sand.	SW		0.0
		20"/24"						
8		8'-10'			Same as above with platy gravel at 12 in.	SW		0.2
		18"/24"		GRAVELLY SAND				
10		10'-12'			Same as above	SW		0.0
		18"/24"						
12		12'-15'			Grayish brown SILTY FINE TO MEDIUM SAND, trace angular gravel up to ½ in.	SM		0.8
14		8"/36"						
		15'-17'		SILTY SAND	0-12 IN. Brown FINE SAND AND SILT AND FINE TO MEDIUM PLATY GRAVEL up to 1			

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-137	PAGE: 1 OF 2

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 45.3 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-137
START DATE: 2/21/08
COMPLETION: DATE: 2/21/08
MON. WELL NO.: N/A
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
16		24"/24"		WITH GRAVEL	12-24 in. Gray PLATY GRAVEL up to 1 in., some rock dust.			
		17'-19'		Gravel Wthr	No recovery	SM GW		0.5
18		0"/24"		Bedrock				
					Refusal at 19.2 ft., end of boring.			
20								
22								
24								
26								
28								
30								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 2 and 4 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-138
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/21/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/21/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	43.3 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		SILT	0-12 in. Orange brown SILT, gravel at top	ML		32.5
					12-24 in. Gray PLATY GRAVEL AND FINE TO MEDIUM SAND, dry	GW		
		24"/24"						
2		2'-4'			Same as above (Phyllite) dry	GW		4.7
		8"/24"		SANDY GRAVEL				
4		4'-5' 12"/12"	1500 (DUP01) DA-SB-138-0405		Gray FINE TO COARSE SAND AND ROUNDED PLATY GRAVEL (quartzite and phyllite) Refusal at 5 ft, move and continue.	GW		13.4
		5'-6' 12"/12"			Same as above	GW		6.2
6		6'-8'			0-10 in. Gray and dark brown SUBANGULAR GRAVEL up to ½ in. and FINE TO MEDIUM SAND, dry	GW		0.0
		24"/24"		SANDY SILT WITH GRAVEL	10-24 in. Light yellow brown SILT AND VERY FINE SAND some platy gravel up to ½ in.	GM		
8		8'-10'			Same as above, less gravel	GM		0.0
		24"/24"						
10		10'-12'		WTHR PHYLLITE	Gray WEATHERED PHYLLITE breaks very easily, silty	ML		0.0
		24"/24"						
12		12'-14'			Brown, same as above.	ML		0.0
		24"/24"						
14					End of boring at 14 ft.			

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-138	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-139
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/21/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/21/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	38.7 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		SILTY SAND	Brown SILTY FINE SAND trace fine platy gravel, dry	SM		0.2
		24"/24"						
2		2'-4'			0-6 in. same as above	SM		0.0
		18"/24"		SILT	6-18 in. Gray SILT	ML		
4		4'-6'			Light brown SILT, little platy phyllite fragments up to 1 in.	ML		0.0
		24"/24"						
6		6'-8'			0-12 in. same as above	ML		0.0
		20"/24"			12-20 in. Gray PLATY PHYLLITE, dry	GW		
8		8'-10'		SILTY SAND (TILL)	Tan SILTY FINE SAND, little platy fine gravel up to ¼ in., dry (TILL)	SM		0.0
		24"/24"						
10		10'-12'	1250 (VOC from 10-11 ft) DA-SB-139-1011	SILTY GRAVEL (TILL)	Tan SILTY PLATY FINE GRAVEL up to ½ in., trace clay, dense, dry. (TILL)	GM	Rock in shoe	0.0
		24"/24"			End of boring at 12 ft.			
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods0	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-139	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-147
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/27/28
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/27/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	35.4 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		SILT	0-14 in. Brown SILT, little angular gravel up to 1 in.	ML		0.3
					14-18 in. Black platy METASHALE	GW		
		22"/24"		WTHR PHYLLITE	18-24 in. light gray PHYLLITE	GW		
2		2'-4'			Gray WEATHERED PHYLLITE	GW		0.0
		23"/24"			End of boring at 4 ft.			
4								
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	4 ft acetate sleeve	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-147	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI			BORING NO.:	SB-148
PROJECT NO.:	112G00933.0000.0211			START DATE:	2/27/08
LOGGED BY:	R. CLARK			COMPLETION: DATE:	2/27/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen			MON. WELL NO.:	MW122
GRD. SURFACE ELEVATION:	28.7 ft NGVD	ELEVATION FROM:	Louis Frederici Assoc.	CHECKED BY:	D. Seiken

DEPTH (FEET)	BLOWS PER 6”	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT’L CHG./ WELL PROF’L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0				SILT	0-6 in. Brown SILT (topsoil)	ML		0.0
					6-48 in. Brown SILTY PLATY GRAVEL (phyllite)	GM		
		0’-4’		SILTY GRAVEL				
2								0.0
		30”/48”						
4				PHYLLITE	Gray PHYLLITE	GW		0.2
		4’-6’			End of boring at 6 ft.			
		24”/24”						
6								
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25” Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:	Installed microwell (screened 0’-5’ with concrete surface seal)	BORING NO.: SB-148	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: NUSC Disposal Area Site 08 RI
PROJECT NO.: 112G00933.0000.0211
LOGGED BY: R. CLARK
DRILLED BY (Company/Driller): DRILEX / M Mellen
GRD. SURFACE ELEVATION: 29.8 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.

BORING NO.: SB-149
START DATE: 2/27/08
COMPLETION: DATE: 2/27/08
MON. WELL NO.: MW123
CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-4' 18"/48"		GRAVELLY SAND AND SILT	Brown GRAVELLY FINE SAND AND SILT	SP		7.2
2								
4		4'-8' 36"/48"			0-27 in. same as above	SP		0.3
				WTHR PHYLLITE	27-36 in. Gray WEATHERED PHYLLITE, little rust.			
6								0.1
					End of boring at 8 ft.			
8								
10								
12								
14								

TYPE OF DRILLING RIG: Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING: Direct Push
METHOD OF SOIL SAMPLING: 4 ft acetate sleeves
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING NO.: SB-149

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-150
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/5/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/5/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	52.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	1430	FILL	0-1 in. asphalt			54.3
			DA-SB-150-0002		1-6 in. Brown FINE TO MEDIUM SAND, little rounded gravel up to 1 ½ in.	SW		
		12"/24"			6-12 in. Gray FINE SAND, trace coarse sand and fine gravel	SP		
2		2'-4'	1435		0-4 in. same as above	SP		13.5
			DA-SB-150-0204		4-16 in. gray VERY FINE SAND with rust mottles, wet.	SP		
		16/24						
4		4'-6'			Gray FINE SAND, little platy gravel, rusty from 13-20 in.	SP		7.9
		24/24		SAND				
6		6'-8'			Same as above	SP		2.2
		24/24						
8		8'-11'			0-12 in. same as above	SP		2.2
				WTHR PHYLLITE	12-30 in. gray PLATY PHYLLITE, very weathered and soft.	GW		
10		30"/36"			End of boring at 11 ft.			
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-150	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-151
PROJECT NO.:	112G00933.0000.0211	START DATE:	3/4/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	3/4/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	53.6 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'	0900	FILL	0-1 in. asphalt			2.9
			DA-SB-151-0002		1-10 in. Brown FINE SAND	SP		
		10"/24"						
2		2'-4'		SAND	Gray FINE SAND, trace rounded gravel up to ½ in.	SP		1.1
		24"/24"						
4		4'-6'	0915 (DUP05)		0-9 in. Same as above	SP		2.9
			DA-SB-151-0406	GRAVEL	9-12 in. Black FINE GRAVELLY LAYER	GW		
		24"/24"						
6		6'-8'			0-7 in. same as above	GW		0.8
				WTHR PHYLLITE	7-24 in. gray WEATHERED PHYLLITE.	GW		
		24"/24"			End of boring at 8 ft			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-151	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-152
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/28/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/28/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	53.5 ft NGVD	ELEVATION FROM: Louis Frderici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-2'		SAND	Brown FINE SAND, some silt, little subrounded to subangular gravel up to ½ in.	SW		0.2
		12"/24"						
2		2'-4'	1145 (MS/MSD) DA-SB-152-0204		Same as above	SW		0.3
		18"/24"						
4		4'-6'			0-12 in. same as above	SW		0.0
				WTHR PHYLLITE	12-24 in. Gray WEATHERED PLATY GRAVEL (phyllite), some fine sand and silt	GM		
		24"/24"						
6		6'-8'			Same as above	GM		0.0
		24"/24"			Refusal 8 ft. end of boring.			
8								
10								
12								
14								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-152	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-153
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/28/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/28/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	62.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
0		0'-4'		SAND WITH SILT AND GRAVEL	Brown FINE SAND, some silt, little subrounded gravel up to 1 in.	SM		13.2
2		16"/48"	0900 DA-SB-153-0204		Same as above	SM		39.3
4		4'-6' 24"/24"			Grayish brown FINE SAND, some silt, little subangular gravel up to 1 in.	SM		2.0
6		6'-8' 24"/24"			Same as above	SM		1.3
8		8'-10' 15"/24"		SILT WITH SAND	Gray SILT and MEDIUM SAND, some coarse sand, dense.	ML		1.1
10		10'-12' 15"/24"			Same as above	ML		33.6
12		12'-14' 10"/24"		SAND WITH SILT AND GRAVEL	Gray FINE TO MEDIUM SAND and SILT, some coarse sand and fine angular gravel.	SM		0.8
14		14'-16' 10"/24"			Same as above	SM		12.5

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)
METHOD OF ADVANCING BORING:	Direct Push
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Note:
S = Screening
HS = Headspace
EOB = End of Boring

Tetra Tech NUS, Inc.

BORING LOG FOR:	NUSC Disposal Area Site 08 RI	BORING NO.:	SB-153
PROJECT NO.:	112G00933.0000.0211	START DATE:	2/28/08
LOGGED BY:	R. CLARK	COMPLETION: DATE:	2/28/08
DRILLED BY (Company/Driller):	DRILEX / M Mellen	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:	62.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D. Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	PID FIELD SCREENING DATA *METHOD* = [PID, (PPM)]
16		16'-17.5'			Same as above, phyllite in tip.	SM		2.6
		18"/18"			Refusal at 17 ½ ft.			
18								
20								
22								
24								
26								
28								
30								

TYPE OF DRILLING RIG:	Geoprobe 6620DT (3.25" Outer Diameter Rods)	Note:	*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct Push	S = Screening	
METHOD OF SOIL SAMPLING:	2 and 4 ft acetate sleeves	HS = Headspace	
METHOD OF ROCK CORING:	NA	EOB = End of Boring	
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-153	PAGE: 2 OF 2

TtNUS Form 0018

APPENDIX B.2

SOIL BORING LOGS (CONVENTIONAL DRILLING)

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B100B
PROJECT NO:	112G00933	START DATE:	3/19/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/20/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW100B
GRD. SURFACE ELEVATION:	51.3 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	44	0.7	S-1 0' - 2'	ASPHALT			0' - 0.33' Asphalt 0.33' -1.0' - Dry, Very Dense, Grey fine to coarse SAND and GRAVEL, little Silt	SP	* 2 crushed cobbles 8" recovery	2.5
1	46	2.0		FILL						
	52		11:15 DA-B100B-0002 (DUP-06)				1.0' - 2.0' - Dry, Dense, Light Brown SILT, some Gravel, little fine to coarse sand	ML		
2	43									
	31	1.3	S-2 2.0' - 4.0'	SILT			2.0' - 3.0' - Dry Dense, Light Brown SILT and weathered bedrock (phyllite)	ML		3.3
3	29	2.0								
	18			SANDY SILT WITH GRAVEL			3.0' - 9.5' - Dry, Dense, Light Brown SILT, little fine to coarse Sand, little Gravel, little weathered bedrock	ML		
4	20									
	12		S-3 4' - 6'				Same as above	ML		5.4
5	13									
	15									
6	8									
	8		S-4 6' - 8'				Same as above	ML		30.1
7	7									
	7		11:30 DA-B100B-0608							
8	9									

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B100B
LOGGED BY:	M. Alroy	START DATE:	3/19/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/20/2008
GRD. SURFACE ELEVATION:	51.3 ft NGVD	MON. WELL NO.:	MW100B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										6.6
9				SANDY SILT WITH GRAVEL						
		0.33'	S-5 9' -9.5'							
10		2.0		TOP OF BEDROCK ~ 9.5' (Phyllite)			Same as above	ML	REFUSAL ON BEDROCK	
11									Air hammered from 9.5' to 15' to install casing.	
12										
13										
14										
									* Grouted 4", schedule 40 black carbon steel casing to 15'	
15										
					15' - 16' 3 min					0.0
16									Continued to air hammer.	

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B100B
PROJECT NO:	112G00933			START DATE:	3/19/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/20/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW100B
GRD. SURFACE ELEVATION:	51.3 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				PHYLLITE	16' - 18' 3 min					
18							Encountered fracture at ~18'			
19					18' - 19' 1 min					
20					19' - 20' 1 min					
21					20' - 21' 1 min		Encountered fracture at ~21'			
22					21' - 23' 3 min				Rock cuttings becoming moist	
23							Encountered fracture at ~23'			
24					23' - 24' 1 min					

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B100B	PAGE: 3 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B100B
LOGGED BY:	M. Alroy	START DATE:	3/19/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/20/2008
GRD. SURFACE ELEVATION:	51.3 ft NGVD	MON. WELL NO.:	MW100B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25				PHYLLITE	24' - 25' 2 min		Encountered fracture at ~25'		Head Space on rock cuttings 25' - 30'	83.8
26					25' - 27' 2 min					
27										
28					27' - 29' 2 min					
29										
30					29' - 30' 1 min					
31					30' - 32' 2 min				Head Space on rock cuttings 30' - 35'	31.0
32							Encountered fracture at ~32'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B100B
LOGGED BY:	M. Alroy	START DATE:	3/19/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/20/2008
GRD. SURFACE ELEVATION:	51.3 ft NGVD	MON. WELL NO.:	MW100B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33				PHYLLITE	32' - 34' 2 min					
34										
35					34' - 35' 1 min				Head Space on rock cuttings 35' - 40'	12.1
36					35' - 36' 1 min					
37					36' - 38' 2 min		Encountered fracture at ~36.5'			
38										
39					38' - 39' 1 min					
40					39' - 40' 1 min					

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B100B	PAGE: 5 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B100B
LOGGED BY:	M. Alroy	START DATE:	3/19/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/20/2008
GRD. SURFACE ELEVATION:	51.3 ft NGVD	MON. WELL NO.:	MW100B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41				PHYLLITE	40' - 41' 1 min		Encountered fracture at 41' - 44'			
42					41' - 45' 2 min					
43										
44										
45										
							BOTTOM OF BORING 45.0'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B100B	PAGE: 6 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B101B
LOGGED BY:	M. Alroy	START DATE:	3/20/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/28/2008
GRD. SURFACE ELEVATION:	51.7 ft NGVD	MON. WELL NO.:	MW101B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	20	1.7	S-1	ASPHALT			0' - 0.35' Asphalt 0.35' - 2.0' - Dry, Dense, Grey SILT and fine to coarse Sand, little Gravel	ML	* several crushed cobbles in sample	15.1
1	33	2.0	0.35'-2.0'	FILL						
	46		11:15					ML		
2	47		DA-B101B-0002							
	30	1.0	S-2	SILT			2.0' - 6.0' - Dry, Medium Dense, Light Brown SILT, little Gravel, little fine to coarse sand			1.5
3	16	2.0	2.0'-4.0'							
	9									
4	10									
	8		S-3					ML		20.2
5	7		4.0'-6.0'				Same as above			
	6		11:30							
6	6		DA-B101B-0406							
	10		S-4					ML		1.9
7	9		6.0'-8.0'				6.0' - 7.5' - Dry, Loose, Brown SILT, trace fine to coarse Sand, trace Gravel		* weathered bedrock in spoon tip (Phyllite)	
	60/5"								Air hammered from 7.5' to 10' to install casing.	
8				PHYLLITE			7.5' - TOP OF BEDROCK			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B101B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/28/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW101B
GRD. SURFACE ELEVATION:	51.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9										
10					10' - 12' 4 min	Gray	Rock fragments appear to be Phyllite to bottom of borehole.		* Grouted 4", schedule 40 black carbon steel casing to 10'	
11									Began air rotary drilling at 10'	0.0
12				PHYLLITE						
13					12' - 16' 10 min		12' - 13' - Fracture encountered			0.0
14										
15										0.0
16										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B101B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/28/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW101B
GRD. SURFACE ELEVATION:	51.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				PHYLLITE			17' - Fracture encountered			0.0
18					17' - 18' 2 min					
19					18' - 19' 2 min					0.0
20					19' - 20' 2 min		20' - Fracture encountered			
21					20' - 21' 2 min					0.0
22					21' - 22' 2 min					
23					22' - 23' 2 min					0.0
24					23' - 24' 2 min					

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B101B
PROJECT NO:	112G00933			START DATE:	3/20/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/28/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW101B
GRD. SURFACE ELEVATION:	51.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25				PHYLLITE	24' - 25' 2 min					0.0
26					25' - 26' 2 min					
27					26' - 27' 2 min		27' - Fracture encountered			0.0
28					27' - 28' 2 min					
29					28' - 29' 2 min		29' - Fracture encountered			0.0
30					29' - 30' 1 min					
31					30' - 31' 2 min					0.0
32					31' - 32' 2 min		31.5' - Fracture encountered			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B101B
PROJECT NO:	112G00933			START DATE:	3/20/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/28/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW101B
GRD. SURFACE ELEVATION:	51.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33				PHYLLITE	32' - 33' 2 min					0.0
34					33' - 35' 4 min					
35							34.5' - Fracture encountered			0.0
36					35' - 36' 3 min					
37					36' - 38' 2 min					0.0
38										
39					38' - 39' 2 min					0.0
40					39' - 40' 2 min					

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B101B	PAGE: 5 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal							BORING NO.:	B101B	
PROJECT NO:	112G00933							START DATE:	3/20/2008	
LOGGED BY:	M. Alroy							COMPLETION DATE:	3/28/2008	
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard							MON. WELL NO.:	MW101B	
GRD. SURFACE ELEVATION:	51.7 ft NGVD				ELEVATION FROM: Louis Frederici Assoc.			CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41				PHYLLITE	40' - 41' 1 min		41' - Fracture encountered		Headspace on rock cuttings 40' - 45'	9.9 ppm
42					41' - 44' 2 min		- Drill cuttings appear to have mosture on them - Heavily fractured bedrock from 40' - 50'			
43							- Change in color fo drill cuttings from gray to brown			0.0
44										
45					44' - 45' 2 min					0.0
46					45' - 46' 2 min		- Groundwater encountered at ~ 46'			
47					46' - 47' 1 min					0.0
48					47' - 48' 2 min					

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B101B	PAGE: 6 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B101B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/28/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW101B
GRD. SURFACE ELEVATION:	51.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
49				PHYLLITE	48' -49' 2 min					
					49' - 50' 2 min					
50										
							BOTTOM OF BORING at 50'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B101B	PAGE: 7 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B102B
LOGGED BY:	M. Alroy	START DATE:	4/1/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	COMPLETION DATE:	4/7/2008
GRD. SURFACE ELEVATION:	50.8 ft NGVD	MON. WELL NO.:	MW102B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	16	0.5'	S-1				0 - 0.3' - TOPSOIL 0.3' - 0.7' - RIP RAP (GRAVEL) 0.7'- 1.0' - Dense, Dry, Gray/Rust SILT some Gravel, little fine to coarse Sand	ML	S-1 * POOR RECOVERY DUE TO ENCOUNTERING EMBANKMENT RIP/RAP BENEATH TOPSOIL	
1	21	2.0'	0'-2'							
	34						Dense, Dry, Gray/Rust SILT and BRICK DEBRIS, little fine to coarse Sand	ML	COBBLE FROM RIP RAP IN SPOON TIP	
2	37			FILL						
	21	1.0'	S-2				Same as above			1.3
3	16	2.0'	2' - 4'							
	18									
4	19									
	15	1.0'	S-3				Medium Dense, Dry, Brown SILT some Gravel, little fine to coarse Sand	ML		2.5
5	19	2.0'	4'-6'							
	21								* Crushed cobble at 5.5' and 6'	
6	24			SANDY SILT WITH GRAVEL						
	41	0	S-4				No recovery S-4			
7	50/4"	0.83'	6' - 8.83'							
8										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B102B	PAGE: 1 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal							BORING NO.:	B102B	
PROJECT NO:	112G00933							START DATE:	4/1/2008	
LOGGED BY:	M. Alroy							COMPLETION DATE:	4/7/2008	
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:	MW102B	
GRD. SURFACE ELEVATION:	50.8 ft NGVD					ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	22	2.0'	S-5	SANDY SILT WITH GRAVEL						0.5
9	23	2.0'	8.0' - 10.0'				Same as above			
	27									
10	26			WEATHERED PHYLLITE			9.5 ' - Weathered Phyllite			
11									Air hammered from 10' to 14' to install casing.	
12										
13										
14									* Grouted 4", schedule 40 black carbon steel casing to 14'	
15					14' - 16' 2 min		- Weathered Dry Phyllite		Rock cuttings observed 14' - 19'	0.0
16										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B102B	PAGE: 2 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B102B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW102B
GRD. SURFACE ELEVATION:	50.8 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				WEATHERED PHYLLITE	16' - 21' 2 min		- Weathered Dry Phyllite			
18										0.0
19										
20							- Dry, weathered phyllite		Rock cutting observed 19' - 21'	0.0
21										
22					21' - 26' 2 min					0.0
23										
24										0.0

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B102B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW102B
GRD. SURFACE ELEVATION:	50.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25							- Weathered Dry Phyllite			
26										0.0
27					26' - 31' 3 min					
28				WEATHERED PHYLLITE						0.0
29										
30							Rock Cuttings appear to be Phyllite to bottom of borehole		Rock cuttings observed 29' - 34'	0.0
31				PHYLLITE						
32					31' - 36' 3 min					0.0

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B102B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW102B
GRD. SURFACE ELEVATION:	50.8 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
							PHYLLITE			0.0
33										
34										
										0.0
35										
				PHYLLITE						
36										
					36' - 41' 3 min					0.0
37										
38										
										0.0
39										
40										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.	
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	BORING NO.: B102B	PAGE: 5 OF 6	

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B102B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW102B
GRD. SURFACE ELEVATION:	50.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
							PHYLLITE			0.0
41										
					41' - 44' 3 min					
42				PHYLLITE						
										0.0
43										
44										
							BOTTOM OF BORING AT 44'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B103B
PROJECT NO:	112G00933			START DATE:	4/1/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	5	2.0'	S-1	TOPSOIL			0' - 0.3' - Topsoil			0.4
			0' - 2.0'				0.3' - 13.8' Dry, Gray, SILT, some Gravel, little fine to coarse Sand trace asphalt	ML		
1	7	2.0'								
	7									
2	9									
	5	2.0'	S-2					ML		1.6
3	7	2.0'	2.0' - 4.0'				Same as above			
	9									
4	12									
	4	2.0'	S-3	FILL				ML		2.8
5	5	2.0'	4.0' - 6.0'				Same as above			
	5									
6	4									
	5	1.7'	S-4					ML		2.0
7	5	2.0'	6.0' - 8.0'				Same as above			
	7									
8	5									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B103B	PAGE: 1 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B103B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	6	0.5'	S-5							4.0
			8.0' - 10.0'					ML		
9	8	2.0'					Same as above			
	8		11:15							
			DA-B10B-0810							
10	10									
	3	1.25'	S-6							3.1
			10.0' - 12.0'					ML		
11	4	2.0'					Same as above			
	4									
12	4			FILL						
	4	1.8'	S-7							
			12.0' - 14.0'					ML		
13	5	2.0'					12.0 - 13.8' - Same as above			
	7						13.8' - 14.0' - Grey, Moist, Loose, SILT, little Gravel, little asphalt, little fine to coarse Sand	ML		2.1
14	8									
	3	1.0'	S-8							1.0
			14.0' - 16.0'					ML		
15	4	2.0'					Moist, Loose, Light Brown SILT, little fine to coarse Sand, little Gravel			
	5									
								ML		
16	5						Moist, Loose, Grey SILT, little Gravel, little asphalt, little fine to coarse Sand			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B103B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	22		S-9 16.0'-17.0'				Wet, Dense, weathered Phyllite			0.0
17	27									
	50/0"									
18									Air hammered from 17' to 20' to install casing.	
										0.0
19										
									* Grouted 4", schedule 40 black carbon steel casing to 20'	
20				WEATHERED PHYLLITE						
					20' - 22' 1 min		Drill cuttings indicate wet weathered Phyllite to bottom of boring		Continued air hammer drilling	0.0
21										
22										
					22' - 27' 3 min					0.0
23										
24										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B103B	PAGE: 3 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B103B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
25										
26										
										0.0
27										
					27' - 32' 4 min					
28				WEATHERED PHYLLITE						
										0.0
29										
30										
										0.0
31										
32										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.	
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	BORING NO.: B103B	PAGE: 4 OF 7	

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B103B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33				WEATHERED PHYLLITE	32' - 37' 4 min					0.0
34										
35										0.0
36										
37										0.0
38					37' - 40' 3 min					
39										0.0
40										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B103B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
41					40' - 43' 5 min					
42										
										0.0
43										
44				WEATHERED PHYLLITE						
										0.0
45										
					45' - 50' 3 min					
46										
										0.0
47										
48										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B103B	PAGE: 6 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B103B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW103B
GRD. SURFACE ELEVATION:	48.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
49				WEATHERED PHYLLITE						
50										
							BOTTOM OF BORING at 50' bgs			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	BORING NO.: B103B

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B103S (Overburden)
PROJECT NO:	112G00933			START DATE:	4/18/2008
LOGGED BY:	R. Clark			COMPLETION DATE:	4/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW103S
GRD. SURFACE ELEVATION:	48.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET) AUGER	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
2							See boring log B103B for overburden description from grade to 12 ft BGS.			
4										
6										
8										
10										
12										
14	35 32 17 10	0.1'		FILL			Concrete fragments with little medium sand	SW		
	5 7 9 9	1' 2					Loose brownish gray medium SAND, concrete fragments black wood for 5 inches	SM		

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:		
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B103S Overburden	PAGE: 1 OF 2

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B103S (Overburden)
PROJECT NO:	112G00933			START DATE:	4/18/2008
LOGGED BY:	R. Clark			COMPLETION DATE:	4/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW103S
GRD. SURFACE ELEVATION:	48.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17	4 62/4"	0.5' 0.9		FILL			16.0' - 16.9' - Silty fine to medium sand, damp wet wood fragments some gravel up to 1 inch. - No native material	SM		
19			no sample				End of boring at 16.9 ft.			
21										
23										
25										
27										
29										
31										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:		
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B103S Overburden	PAGE: 2 OF 2

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B104B
LOGGED BY:	M. Alroy	START DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	COMPLETION DATE:	4/15/2008
GRD. SURFACE ELEVATION:	48.40 NGVD	MON. WELL NO.:	MW104B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	8	1.0'	S-1				Dry, Loose, Brown SILT, some Gravel, little fine to coarse Sand	ML	* crushed concrete in spoon tip	5.5
1	8	2.0'	0' - 2.0'							
	9								* little crushed asphalt	
2	9									
	4	2.0'	S-2				Same as above	ML		0.8
3	5	2.0'	2.0' - 4.0'							
	8									
4	10			FILL						
	4	0.4'	S-3				Same as above	ML	* crushed concrete in tip of spoon	13.1
5	5	2.0'	4.0' - 6.0'							
	6									
6	6									
	4	1.6'	S-4				Same as above	ML		2.0
7	6	2.0'	6.0' - 8.0'							
	5									
8	5									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B104B
PROJECT NO:	112G00933	START DATE:	4/9/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW104B
GRD. SURFACE ELEVATION:	48.40 NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	3	1.2'	S-5	FILL			8.0' - 10.0' - Moist, loose, Gray, SILT, little Gravel, trace fine to coarse Sand	ML		4.6
9	4	2.0'	8.0' - 10.0'							
	4									
10	3									
	11	1.8'	S-6	SANDY SILT WITH GRAVEL			10.0' - 14.0' - Dry, Medium Dense, Brown, SILT some Gravel, little fine to coarse Sand	ML		3.5
11	17	2.0'	10.0' - 12.0'							
	22									
12	29									
	6	2.0'	S-7				Same as above	ML		5.6
13	6	2.0'	12.0' - 14.0'							
	6									
14	6									
	8	1.0'	S-8	SILT			14.0' - 16.0' - Moist, medium Dense, Brown SILT and weathered Phyllite trace fine to coarse Sand	ML		2.4
15	9	2.0'	14.0' - 16.0'							
	9									
16	8									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B104B
PROJECT NO:	112G00933	START DATE:	4/9/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW104B
GRD. SURFACE ELEVATION:	48.40 NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	17		S-9 16.0' - 18.0'	WEATHERED PHYLLITE			- WEATHERED PHYLLITE			0.7
17	19									
	19									
18	18									
									* Grouted 4", schedule 40 black carbon steel casing to 19'	
19										
		2.2'	CORE 1 19.0' - 22.0' RQD = 0%		3 min		- Top 6" - Brownish grey, highly weathered, soft, phyllite pieces < 2"			
20		3.0'								
					4 min		- Remainder of core run - grey phyllite, soft numerous (15) horizontal fractures all with iron staining			
21										
					5 min					
22										
		5.0'	CORE 2 22.0' - 27.0' RQD = 0%		3 min	grey	- Grey phyllite, soft, numerous horizontal fractures with iron staining			
23		5.0'								
					4 min					
24										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	Set casing 4/9 coring using HQ wireline core on 4/15/08 BORING NO.: B104B	PAGE: 3 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B104B
PROJECT NO:	112G00933	START DATE:	4/9/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW104B
GRD. SURFACE ELEVATION:	48.40 NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25			CORE 2 CONT'	WEATHERED PHYLLITE	4 min	grey				
26					5 min		- At ~25.0' - an 8" zone with numerous horizontal fractures intersecting two mid-angle fractures			
27					4 min		- At 26.5' - 27.0' - a zone of highly weathered, very soft brown rock			
28		5.0 5.0'	CORE 3 27.0' - 32.0' RQD = 0%		4 min		Grey, soft phyllite with numerous horizontal fractures with iron staining at ~27.5 - 28.0' an area of broken rock (smaller pieces)			
29					3 min					
30					4 min		~30.0' - a 3" zone where rock is more broken			
31					4 min		~30.5' - a 6" zone where phyllite is more broken and weathered			
32					4 min		31.0' - a 2" zone of conglomerate			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B104B
PROJECT NO:	112G00933	START DATE:	4/9/2008
LOGGED BY:	M. Alroy/D. Seiken	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW104B
GRD. SURFACE ELEVATION:	48.40 NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33		5.0' / 5.0'	CORE 4 32.0' - 37.0' RQD = 23%		2 min	grey	Grey, soft phyllite with numerous horizontal fractures with iron staining (fewer fractures than C3)			
34				WEATHERED PHYLLITE	3 min		33.5' - small broken pieces with iron staining			
35					2 min					
36				CONGLOMERATE	4 min		~35 to 36' - rock turns to conglemerate - like and a horizontal fracture with weathering and staining 36' - back into phyllite			
37				WEATHERED PHYLLITE	4 min		- At 36.5' - horizontal fracture with weathering and very soft and staining			
38		5.0 / 5.0'	CORE 5 37.0' - 42.0' RQD = 48%		2 min		Grey, soft phyllite Top 10" has numerous horizontal fractures without staining (about one fracture per inch)			
39					2 min					
40					3 min		~39.5 - a 1' zone of smaller broken pieces with one vertical fracture			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B104B	PAGE: 5 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B104B
PROJECT NO:	112G00933	START DATE:	4/9/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW104B
GRD. SURFACE ELEVATION:	48.40 NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41			CORE 5 CONT'	WEATHERED PHYLLITE	4 min	grey				
42					4 min		(fewer fractures bottom 18" of corehole has 4 horizontal fractures)			
43							Bottom of Boring at 42'			
44										
45										
46										
47										
48										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B105B
PROJECT NO:	112G00933			START DATE:	4/8/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW105B
GRD. SURFACE ELEVATION:	47.2 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	9	1.4'	S-1	TOPSOIL			0 - 0.3' - TOPSOIL			8.6
			0' - 2'							
1	8	2.0'					0.3' - 2.0' - Dry, Loose, SILT and GRAVEL Brown little fine to coarse Sand	ML		
	7									
2	7									
	9	1.8'	S-2				2.0' - 7.5' - Dry, Loose, SILT, little Gravel Brown little fine to coarse Sand trace asphalt	ML		3.1
3	7	2.0'	2' - 4'							
	8									
4	6									
	3		S-3	FILL			Same as above	ML		1.8
5	3		4'-6'							
	3									
6	3									
	3		S-4				Same as above	ML		1.5
7	4		6' - 8'							
	10						7.5' - 8.0' - Dry, Loose, Black, crushed asphalt			
8	12									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B105B	PAGE: 1 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B105B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW105B
GRD. SURFACE ELEVATION:	47.2 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	15	0.5	S-5				8.0' - 15.75' - Dry, Medium Dense, Brown SILT little Gravel, little fine to coarse Sand	ML		0.7
9	16	2.0'	8.0' - 10.0'						* crushed concrete in tip of spoon	
	16									
10	18									
	10	1.0'	S-6				Same as above	ML		0.0
11	17	2.0'	10.0' - 12.0'	FILL						
	24									
12	27									
	24	1.2'	S-7				Same as above	ML		1.6
13	19	2.0'	12.0' - 14.0'							
	21									
14	22									
									Started air hammer drilling 14.0' to 18.0' to set casing.	0.0
15				WEATHERED PHYLLITE						
							15.75' Rock fragments indicate dry, dense weathered phyllite to bottom of boring			
16										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B105B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW105B
GRD. SURFACE ELEVATION:	47.2 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				WEATHERED PHYLLITE						0.0
18					18' - 23' 2 min				* Grouted 4", schedule 40 black carbon steel casing to 18'	
19										0.0
20										
21										0.0
22										
23										0.0
24					23' - 28' 2 min					

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B105B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW105B
GRD. SURFACE ELEVATION:	47.2 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
25										
26										
										0.0
27										
28				WEATHERED PHYLLITE						
					28' - 33' 2 min					0.0
29										
30										
										0.0
31										
32										

TYPE OF DRILLING RIG:	Hollow Stem Auger Rig- HSA	Tetra Tech NUS, Inc.	
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B105B	PAGE: 4 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B105B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW105B
GRD. SURFACE ELEVATION:	47.2 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33				WEATHERED PHYLLITE						0.0
34					33' - 38' 5 min					
35										0.0
36										
37										0.0
38										
39					38' - 43' 5 min					0.0
40										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B105B	PAGE: 5 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B105B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW105B

GRD. SURFACE ELEVATION: 47.2 ft NGVD ELEVATION FROM: Louis Frederici Assoc. CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
41										
42										
										0.0
43										
					43' - 48' 4 min					
44				WEATHERED PHYLLITE						
										0.0
45										
46										
										0.0
47										
48							BOTTOM OF BORING AT 48.0'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING NO.: B105B

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B106B
LOGGED BY:	M. Alroy	START DATE:	3/19/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/27/2008
GRD. SURFACE ELEVATION:	57.8 ft NGVD	MON. WELL NO.:	MW106B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	8	1.0'	S-1	ASPHALT			0' - 0.35' - Asphalt			4.6
			0' - 2.0'				0.35' - 0.85' - Medium Dense, wet, light Brown fine to coarse SAND, little Gravel, little Silt	SW		
1	9	2.0'								
	12		12:45				0.85' - 2.0' - Medium Dense, Dry, Gray SILT, some Gravel, little fine to coarse Sand	ML		
2	21		DA-B106B-0002							
	21	1.3'	S-2	FILL			2.0' - 3.0' - Very Stiff, Dry Gray SILTY CLAY	CH		4.6
3	34	2.0'	2.0' - 4.0'				3.0' - 4.0' - Very Stiff Dry Gray Ashey SILT, little fine to coarse Sand trace Gravel	CL		
	28									
4	21									
	14	1.2'	S-3				4.0' - 12.0' Very Stiff Dry Gray SILT, little fine to coarse Sand trace Gravel	ML		8.9
5	8	2.0'	4.0' - 6.0'							
	30		13:30							
6	32		DA-B106B-0406	SILT						
	27	1.6'	S-4				Same as above	ML		2.0
7	31	2.0'	6.0' - 8.0'							
	24									
8	20									

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:	~13' below ground surface	
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD BORING NO.: B106B	PAGE: 1 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106B
PROJECT NO:	112G00933	START DATE:	3/19/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW106B
GRD. SURFACE ELEVATION:	57.8 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	38	0.0 2.0'	S-5 8.0' - 10.0'				No recovery S-5			
9	37									
	45				10' - 12' 4 min					
10	42			SILT						
	9	1.2' 2.0	S-6 10.0' - 12.0'				Same as S-3	ML		2.1
11	15									
	15								GW encountered at ~12 - 14'	
12	14									
	12	1.0' 2.0'	S-7 12.0' - 14.0'	SILT AND WEATHERED PHYLLITE	12' - 16' 10 min		12.0' - 14.0' - Wet, Very Dense, Gray/Brown SILT & fractured bedrock, little Gravel, little Sand		Potentially perched due to heavy rain.	
13	42									
	60									
14	75/5"									
	18	0.75' 2.0'	S-8 14.0' - 16.0'	WEATHERED PHYLLITE			14.0' - 16.0' - Weathered Phyllite and rock dust			1.9
15	24									
	39									
16	63									

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:	~13' below ground surface	
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD BORING NO.: B106B	PAGE: 2 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106B
PROJECT NO:	112G00933	START DATE:	3/19/2008/14:25
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW106B
GRD. SURFACE ELEVATION:	57.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17									Air hammered from 16.' to 20', to install casing. Competant rock encountered at 17'.	0.0
18				PHYLLITE						
19										0.0
20									* Grouted 4", schedule 40 black carbon steel casing to 20'	
21										0.0
22		CORE 1	CORE 1 21.0' - 25.0' 4.0'/4.0' RQD = 0%		21-22 4 min		- Phyllite, heavily foliated			
23					22' - 23' 2 min		- Vertical fracture with sand seam 22.7' to 23.5'			0.0
24					23' - 24' 3 min					

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:	~13' below ground surface	
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD BORING NO.: B106B	PAGE: 3 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106B
PROJECT NO:	112G00933	START DATE:	3/19/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW106B
GRD. SURFACE ELEVATION:	57.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25		CORE 1 CONT'	CORE 1 CONT'	PHYLLITE	24' - 25' 3 min					0.0
26		CORE 2	CORE 2 25.0' - 30.0' 5.0'/5.0' RQD = 39%		25' - 26' 4 min		-Vertical 2" fracture at 26.0'			
27					26' - 27' 4 min					0.0
28					27' - 28' 4 min					
29					28' - 29' 4 min					0.0
30					29' - 30' 4 min					
31		CORE 3	CORE 3 30.0' - 35.0' 4.6'/5.0' RQD = 0%		30' - 31' 5 min		- Phyllite - Drill breaks consistant with bedding planes			0.0
32					31' - 32' 4 min		- Heavily weathered sections located at approximately 31' - 35' - Evidence of water infiltration at extremely weathered portion at 35'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	~13' below ground surface
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106B
PROJECT NO:	112G00933	START DATE:	3/19/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW106B
GRD. SURFACE ELEVATION:	57.8 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 3 CONT'	CORE 3 CONT'		32' - 33' 2 min					0.0
33				PHYLLITE						
					33' - 34' 3 min					
34										
					34' - 35' 7 min					0.0
35										
		CORE 4	CORE 4 35.0' - 40.0' 4.5'/5.0' RQD = 10%		35' - 36' 6 min		Phyllite similar to CORE 3 - Weathered zone at ~36' with visible oxidation			
36										
					36' - 37' 3 min					0.0
37							- 45° fracture at approximately 37.5'			
					37' - 38' 3 min					
38							- Calcareous mineral deposit at ~38'			
					38' - 39' 4 min		- Weathered Phyllite from approximately 38.5' - 38.75', observed horizontal fracture oxidized iron staining in fracture and weathered zone			0.0
39										
					39' - 40' 6 min					
40										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	~13' below ground surface
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B106B
PROJECT NO:	112G00933			START DATE:	3/19/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW106B
GRD. SURFACE ELEVATION:	57.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41		CORE 5	CORE 5 40.0' - 45.0' 5.0'/5.0' RQD = 53%	PHYLLITE	40' - 41' 3 min		- Phyllite coarser grained than previous cores and more competant no visible fractures in CORE 5			0.0
42				CONGLOMERATE	41' - 42' 5 min		- Phyllite with large light grey irregular rounded shapes, possibly "phyllithic clasts" of size 0.5" to 3.0"			0.0
43				PHYLLITE	42' - 43' 8 min					
44					43' - 44' 6 min					0.0
45					44' - 45' 9 min					
46		CORE 6	CORE 6 45.0' - 50.0' 5.0'/5.0' RQD = 7%	CONGLOMERATE	45' - 46' 9 min		- Phyllite similar to CORE 5 - Observed irregular rounded shapes from 45 to 47.5'			0.0
47					46' - 47' 6 min					
48					47' - 48' 4 min					0.0

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:	~13' below ground surface	
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD BORING NO.: B106B	PAGE: 6 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106B
PROJECT NO:	112G00933	START DATE:	3/19/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW106B
GRD. SURFACE ELEVATION:	57.8 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 6 CONT'	CORE 6 CONT'	PHYLLITE	48' - 49' 7 min					0.0
49										
					49' - 50' 18 min					
50										
							BOTTOM OF BORING at 50' bgs			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD to 17'	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:	~13' below ground surface	
OTHER OBSERVATIONS::	AIR HAMMER DRILLED from 16' to 20' to set casing - 3.875" OD BORING NO.: B106B	PAGE: 7 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106S (Overburden)
PROJECT NO:	112G00933	START DATE:	4/18/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW106S
GRD. SURFACE ELEVATION:	57.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				ASPHALT			No samples collected.			
2				FILL			See boring log B106B for overburden description from grade to 20 ft BGS.			
4				TILL						
6										
8										
10										
12										
14				SILT AND WEATHERED PHYLLITE						

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:		
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B106S (Overburden)	PAGE: 1 OF 2

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B106S (Overburden)
PROJECT NO:	112G00933	START DATE:	4/18/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW106S
GRD. SURFACE ELEVATION:	57.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				WEATHERED PHYLLITE						
16										
18				PHYLLITE						
20							end of boring at 20 ft.			
22										
24										
26										
28										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.	
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:			
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B106S (Overburden)	PAGE: 2 OF 2

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B107B
PROJECT NO:	112G00933	START DATE:	3/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/26/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW107B
GRD. SURFACE ELEVATION:	53.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	41	0.5'	S-1	ASPHALT			0' - 0.35' Asphalt			0.0
			0' - 2'				0.35' - 2.35' - Dry, Moist Dense, Light Brown fine to coarse SAND and GRAVEL, little Silt	SW	* PUSHED EXTRA SPOON DUE TO POOR RECOVERY	
1	17	2.0'		FILL						
	11		10:45						S-1 Slight petroleum odor	
2	8		DA-B107B-0002							
	9	1.4'	S-2				2.0' - 4.0' - Wet, Loose, Gray SILT, little fine to medium Sand, trace Gravel	ML	S-2 Heavy petroleum odor	2.1
3	7	2.0'	2'.35 - 4.35'							
	6									
4	21			SANDY SILT						
	9	1.3'	S-3				4.0' - 6.0' - Dry, Dense, Gray, SILT, little fine to coarse Sand, trace Gravel	ML		2.7
5	33	2.0'	4'-6'							
	39									
6	28									
	53	1.5	S-4				6.0' - 8.0' - Dry, Dense, Gray SILT, little Gravel, little fine to coarse Sand	ML		3.7
7	33	2.0	6' - 8'	SANDY SILT WITH GRAVEL						
	30		11:10							
8	26		DA-B107B-0608							

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B107B
PROJECT NO:	112G00933			START DATE:	3/21/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/26/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW107B
GRD. SURFACE ELEVATION:	53.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	9	1.4'	S-5	SANDY SILT WITH GRAVEL			8.0' - 9.5' - Wet, Moist Dense, Gray SILT and fine to coarse SAND, little Gravel	ML		3.2
9	16	2.0	8' - 10'							
	27						9.5' - 10.0' - Weathered bedrock (phyllite)			
10	39			WEATHERED PHYLLITE						
									Air hammered from 10' to 15' to install casing.	
11										
12										
13										
14										
									* Grouted 4", schedule 40 black carbon steel casing to 15'	
15										
		CORE 1	CORE 1	PHYLLITE	15' - 16' 3 min		- Grey phyllite, medium grained - Horizontal Fracture at 15.2' with oxidized iron stains visable			0.0
16			16' - 20' 4.0'/4.0' RQD = 59%							

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B107B	PAGE: 2 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B107B
PROJECT NO:	112G00933	START DATE:	3/21/2008

LOGGED BY:	M. Alroy			COMPLETION DATE:	3/26/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW107B
GRD. SURFACE ELEVATION:	53.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 1 CONT'	CORE 1 CONT'							0.0
				PHYLLITE	16' - 17' 4 min					
17										
				CONGLOMERATE	17' - 18' 3 min		- Conglomerate with rounded irregular shapes up to 1.5" in size observed from 17.3' to 17.6'.			
18				PHYLLITE						
					18' - 19' 5 min		- Gray medium grained Phyllite with horizontal fractures with Fe staining			0.0
19										
					19' - 20' 3 min					
20										
		CORE 2	CORE 2 20' - 25' 5.0'/5.0' RQD = 0%		20' - 21' 5 min		- Phyllite same as above - At 20.5' Conglomerate with round irregular shapes up to 2" in size			0.0
				CONGLOMERATE						
21										
					21' - 22' 4 min		- From 21.5' to 22' some horizontal Fractures with oxidized iron staining visible			
22										
					22' - 23' 3 min		-Same as above			0.0
23										
					23' - 24' 3 min					
24										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B107B	PAGE: 3 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B107B
PROJECT NO:	112G00933	START DATE:	3/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/26/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW107B
GRD. SURFACE ELEVATION:	53.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 2 CONT'	CORE 2 CONT'		24' - 25' 4 min		- CORE 2 continued - Very fractured during drilling but no oxidized iron staining visible			0.0
25										
		CORE 3	CORE 3 25.0' - 27.5' 2.5'/2.5' RQD=0%	CONGLOMERATE	25' - 26' 14 min		- CORE 3 Same as above			
26										
					26' -28' 7 min					0.0
27										
		CORE 4	CORE 4 27.5' - 30.0' 2.5'/2.5' RQD = 52%	PHYLLITE	27.5' - 28' 2 min		- Gray medium grained Phyllite			0.0
28					28' - 29' 5 min					
29										
					29' - 30' 5 min					
30										
		CORE 5	CORE 5 30.0' - 34.5' 4.5'/4.5' RQD = 26%		30' - 31' 3 min		- Gray medium grained Phyllite			0.0
31										
					31' - 32' 5 min		- Small weathered section of phyllite less than 0.1" wide at 31.1' - 31.1' Phyllite similar to above but with irregular shapes and uneven bedding			
32										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B107B	PAGE: 4 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B107B
PROJECT NO:	112G00933	START DATE:	3/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/26/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW107B
GRD. SURFACE ELEVATION:	53.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 5 CONT'	CORE 5 CONT' 30.0' - 34.5' 4.5'/4.5' RDQ = 26%		32' - 33' 5 min		- (CORE 5 cont.) Foliation is at about a 45° angle - No oxidized iron staining visible			0.0
33										
					33' - 34' 4 min		- At 33.6' weathered phyllite until 33.9' - Phyllite similar to irregular area of this core			
34										
					34' - 34.5' 7 min					0.0
		CORE 6	CORE 6 34.5' - 39.5' 5.0'/5.0' RQD = 60%		34.5' - 35' 5 min		- Gray medium grained Phyllite			
35										
					35' - 36' 2 min		- NO FRACTURES with oxidated iron stains visible.			
36				PHYLLITE						
					36' - 37' 3 min					0.0
37										
					37' - 38' 3 min					
38										
					38' - 39.5' 8 min		- Phyllite foliation becomes a little irregular similar to middle of CORE 5			0.0
39										
					39.5' - 40' 3 min		- Gray medium gained Phyllite			
40		CORE 7	CORE 7 39.5' - 45.0'							

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B107B	PAGE: 5 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B107B
PROJECT NO:	112G00933	START DATE:	3/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/26/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW107B
GRD. SURFACE ELEVATION:	53.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 7 CONT'	CORE 7 CONT' 39.5' - 45.0' 5.0'/5.5' RQD = 40%		40' - 41' 2 min		- NO FRACTURES visible with oxidized iron staining			0.0
41										
					41' - 42' 3 min					
42										
					42' -43' 3 min					0.0
43				PHYLLITE						
					43' - 44' 3 min					
44										
					44' - 45' 3 min					0.0
45										
							BOTTOM OF BORING 45.0'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B107B	PAGE: 6 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B108B
PROJECT NO:	112G00933			START DATE:	3/21/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW108B
GRD. SURFACE ELEVATION:	51.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	30	1.5'	S-1	ASPHALT			0' - 0.35' - Asphalt			3.3
			0' - 2'	SAND WITH SILT AND GRAVEL			0.35' - 1.85' - Dry, Medium Dense, Light Brown fine to coarse SAND, some Gravel, little Silt	SW		
1	27	2.0'								
	22							ML		
2	24						1.85' - 2.35' - Dry, Medium Dense, Brown SILT, little Gravel, little fine to coarse Sand			
	26	1.4'	S-2							4.6
3	24	2.0'	2' - 4'	SILT WITH SAND AND GRAVEL			2.35' - 4.0' - Same as above	ML		
	17							ML		
4	11						4.0' - 4.5' - Dry, Medium Dense, Light Brown SILT and fine to coarse Sand, little Gravel			
	18	1.0	S-3							7.9
5	12	2.0'	4'-6'							
	14							ML		
6	16						4.5' - 6.0' - Dry, Medium Dense, Brown SILT, little fine to coarse Sand, trace Gravel			
	20	1.5'	S-4	SANDY SILT WITH GRAVEL						1.6
7	22	2.0'	6' - 8'				Same as above	ML		
	48									
8	20/5'									

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B108B	PAGE: 1 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B108B
PROJECT NO:	112G00933			START DATE:	3/21/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW108B
GRD. SURFACE ELEVATION:	51.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	21	1.2'	S-5 8' - 10'	GRAVELLY SILT WITH SAND			8.0' - 9.5' - Dense, Moist, Brown SILT and GRAVEL, little fine to coarse Sand	ML		4.1
9	26	2.0'								
	49								Air hammered from 9.5' to 15' to install casing.	
10	50/6"			TOP OF BEDROCK 9.5' (PHYLLITE)						
11										
12										
13										
14										
15									* Grouted 4", schedule 40 black carbon steel casing to 15'	
16		CORE 1	CORE 1 16.0'-20.0' 4.0'/4.0' RQD = 0%		15' - 16'		Phyllite - Horizontal fracture observed at 16.8' - Weathered zone at 16.8'-17.0' oxidation observed on fracture			0.0

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B108B	PAGE: 2 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B108B
PROJECT NO:	112G00933	START DATE:	3/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/25/2008

DRILLED BY (Company/Driller): Geo Search/Jon Bedard
GRD. SURFACE ELEVATION: 51.8 ft NGVD
ELEVATION FROM: Louis Frederici Assoc.
MON. WELL NO.: MW108B
CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 1 CONT'	CORE 1 CONT'				- Horizontal drill breaks are observed parallel to the bedding planes			0.0
17										
					17' - 18' 4 min		- 45° fracture observed from 17.5' - 18.0', 0.5' inch length, oxidation staining observed			
18										
					18' - 19' 3 min					0.0
19										
					19' - 20' 3 min					
20										
		CORE 2	CORE 2 20.0'-25.0' 5.0'/5.0' RQD = 8%	PHYLLITE	20' - 21' 5 min		- Phyllite - Horizontal fracture at 20.5' Iron stain visible - Horizontal Fracture at 21' Iron stain visible		- 75 gal of water used - All water recovered	0.0
21										
					21' - 22' 4 min		- At 21.5' phyllite becomes a little coarser grained			
22										
					22' - 23' 3 min					0.0
23							- Horizontal Fracture at 23' Iron stain visible			
					23' - 24' 3 min					
24							- 3 Horizontal Fractures from 23.5' to 24.0'			

TYPE OF DRILLING RIG: Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING: AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING: 3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING: HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:
OTHER OBSERVATIONS::

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B108B
LOGGED BY:	M. Alroy	START DATE:	3/21/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/25/2008
GRD. SURFACE ELEVATION:	51.8 ft NGVD	MON. WELL NO.:	MW108B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 2 CONT'	CORE 2 CONT'	PHYLLITE	24' - 25' 2 min		- Horizontal Fracture at 25' Iron Stain Visible			0.0
25										
		CORE 3	CORE 3 25.0' - 29.7' 4.0'/4.7' RQD = 0%		25' - 26' 6 min		- Horizontal Fractures with oxidized Iron staining obseved at 26.1', 26.2' and 26.3' - Weathered phyllite observed from 27.4' to 29.0' and 29.2' - 30.0'			
26										
					26' -27' 2 min					0.0
27										
					27' - 28' 4 min					
28										
					28' - 29' 8 min					0.0
29										
					29' - 30' 6 min					
30										
		CORE 4	CORE 4 29.7' - 35.0' 5.3'/5.3' RQD = 13%		30' - 31' 6 min		- Weathered phyllite observed at 30.7' - 30.8' and 32.1' - 33.2'			0.0
31										
					31' - 32' 4 min					
32										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B108B
LOGGED BY:	M. Alroy	START DATE:	3/21/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/25/2008
GRD. SURFACE ELEVATION:	51.8 ft NGVD	MON. WELL NO.:	MW108B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 4 CONT'	CORE 4 CONT' 5.3'/5.3' RQD = 13%	PHYLLITE	32' - 33' 3 min		- 45° fracture with oxidized rust staining observed at 32.6' - 33.4'			0.0
33										
					33' - 34' 3 min					
34										
					34' - 35' 4 min		- Near horizontal fracture with oxidized rust staining observed at 34.5'			0.0
35		CORE 5	CORE 5 35.0' - 40.0' 5.0'/5.0' RQD = 65%							
					35' - 36' 7 min		- Weathered Phyllite observed from 35.0' - 35.5' with vertical fracture with oxidized rust staining			
36										
					36' - 37' 3 min		- Horizontal fracture observed at 36.0' with oxidized rust staining - 45° fracture observed from 36.6' to 36.8' with oxidzed rust staining			0.0
37										
					37' - 38' 3 min		- Weathered phyllite and horizontal fracture observed at 37.2' with oxidized rust staining weathered thickness from 37.15' to 37.25'			
38										
					38' - 39' 3 min		- 45° fracture observed from 30.5' to 38.6' with oxidized rust staining			0.0
39										
					39' - 40' 6 min		- Horizontal fracture observed at 39.35' with oxidized rust staining			
40										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B108B
PROJECT NO:	112G00933			START DATE:	3/21/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	3/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard			MON. WELL NO.:	MW108B
GRD. SURFACE ELEVATION:	51.8 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 6	CORE 6 40.0' - 45.0' 5.0'/5.0' RQD = 45%		40' - 41' 6 min		- Phyllite			0.0
41										
					41' - 42' 3 min					
42										
				PHYLLITE	42' -43' 3 min		- Horizontal Fracture observed at 43.0' with oxidized rust staining - Near 45° Fracture observed at 43.2' with oxidized rust staining			0.0
43										
					43' - 44' 3 min		- Horizontal Fracture observed at 43.9' with oxidized rust staining - Near vertical Fracture from 44.2' to 44.7' with oxidized rust staining			
44										
					44' - 45' 3 min					0.0
45										
							BOTTOM OF BORING 45.0'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B108B	PAGE: 6 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B109B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW109B
GRD. SURFACE ELEVATION:	51.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	15	1.7	S-1	ASPHALT			0' - 0.35' Asphalt			3.6
			0' - 2'	SAND WITH SILT AND GRAVEL			0.35' -1.35' ' - Dry, Dense, Grey fine to coarse SAND and GRAVEL, little Silt	SW		
1	18	2.0								
	30		13:45 DA-B109B-0002 (MS/MSD)	SILT AND GRAVEL			1.35' - 2.0' - Dry, Dense Grey SILT and GRAVEL, little fine to coarse Sand	ML		
2	88									
	18	0.9	S-2				Dry, Dense, Grey SILT & GRAVEL, little fine to coarse Sand, signifigant pieces of fractured bedrock (phyllite)	ML		57
3	5	2.0	2' - 4'							
	14		14:00 DA-B109B-0204							
4	20									
	20	0.8	S-3	POORLY GRADED SAND WITH SILT AND GRAVEL			4.0' - 6.0' - Dry, Medium Dense, Light Brown fine to coarse SAND and GRAVEL, little silt	SM		24.3
5	19	2.0	4'-6'							
	17									
6	12									
	7	1.4	S-4	GRAVELY SILT WITH SAND			6.0' - 10.0 - Dry, Medium Dense, Brown SILT, little Gravel, little fine to coarse Sand	ML		1.4
7	7	2.0	6' - 8'							
	17									
8	22									

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B109B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW109B
GRD. SURFACE ELEVATION:	51.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	18		S-5 8' - 10'					ML		1.5
9	25			GRAVELY SILT WITH SAND			Same as above			
	27									
10	52									
				PHYLLITE					Air hammered from 10' to15' to install casing.	0.0
11										
12										
										0.0
13										
14										
									* Grouted 4", schedule 40 black carbon steel casing to 15'	0.0
15										
									ROLLER BIT TO 16' TO CLEAR ROCK AND BEGAN CORING	
16										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B109B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW109B
GRD. SURFACE ELEVATION:	51.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 1	CORE 1 16'-21' 4.85'/5.0' RQD = 7%				Phyllite - Shiny surface of rock at drill breaks - Rust/iron oxidation staining observed		USED ~ 100 gallons of water during first core run	0.0
17										
							- Most fractures were low angle and near horizontal fractures		Recovered all water used, no water lost	
18										
							- Pitting observed in core run (from 18.2' - 18.6' and 19.3' - 19.6') - Near vertical fracture observed			0.0
19										
							At 19.0', oxidation observed - Horizontal fracture observed at 20.4', oxidation observed			
20				PHYLLITE						
					16'-21' 17 min		- Drill breaks observed along bedding planes			0.0
21										
		CORE 2	CORE 2 21' - 25' 4.0'/4.0' RQD=7%		21' - 22' 5 min		Phyllite - Weathered rock observed at 21.5' - 21.6', 22.25' - 22.35'			
22										
					22' - 23' 3 min		- Near horizontal fracture located at 23.5', 23.6', 24.0' observed rust staining oxidation at rock			0.0
23										
					23' - 24' 2 min		- Near vertical fracture located at 24.4'			
24										

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B109B	PAGE: 3 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B109B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW109B
GRD. SURFACE ELEVATION:	51.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25		CORE 2	CONT' CORE 2	PHYLLITE	24' - 25' 3 min					0.0
26		CORE 3	CORE 3 25' - 30' 4.8' /5.0' RQD = 41%		25' - 26' 6 min		Phyllite Vertical fracture 1.75' long observed from 25'-26.75'-oxidation observed within fracture			
27					26' - 27' 3 min					0.0
28					27' - 28' 2 min		Near vertical fracture 0.75' in length with calcareous mineral deposit on the fracture plane observed from 27.5' - 28.2'			
29					28' - 29' 3 min					0.0
30					29' - 30' 2 min					
31		CORE 4	CORE 4 30' - 35' 5.0'/5.0' RQD = 84%		30' - 31' 4 min		Phyllite similar to CORE 3 some oxidation observed in Horizontal Horizontal Fractures at 31'		- Used 100 gal of water - All water used was recovered	0.0
32					31' - 32' 2 min		31' to 32' coarser grained phyllite-some oxidation observed in horizontal fractures			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGERS
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B109B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW109B
GRD. SURFACE ELEVATION:	51.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 4	CORE 4 CONT'	PHYLLITE	32' - 33' 3 min		Phyllite becomes gradually finer grained from 33' to 34'			0.0
33										
					33' - 34' 2 min					
34							Horizontal Fractures at 34'			
					34' - 35' 4 min		- Phyllite beginning to have minerals visible throughout core - Minerals are white and range from fine to 1/2 inch in diameter			0.0
35										
		CORE 5	CORE 5 35' - 40' 5.0'/5.0' RQD = 54%		35' - 36' 5 min		- Phyllite with some minerals similar to the end of CORE 4		- Used 100 gal of water - All water recovered	
36										
					36' - 37' 6 min					0.0
37										
					37' - 38' 4 min		- Around 37' phyllite become very finely grained again abruptly with visible sedimentary layers			
38										
					38' - 39' 3 min		Iron stains visible in horizontal fractures			0.0
39							Horizontal Fracture at 39'			
					39' - 40' 3 min		45 Fracture at 40'			
40							Horizontal Fracture at 40.2'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B109B	PAGE: 5 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B109B
PROJECT NO:	112G00933	START DATE:	3/20/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW109B
GRD. SURFACE ELEVATION:	51.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		CORE 6	CORE 6 40' - 45' 5.0'/5.0' RQD = 75%		40' - 41' 3 min		- Phyllite Iron Staining visible in Horizontal Fractures		- Used 100 gal of water - All water recovered	0.0
41										
					41' - 42' 4 min		Horizontal Fracture 41.5'			
42										
					42'-43' 2 min		- Phyllite layers become more metamorphosed. They appear to be cloudy (looks like marble)			0.0
43				PHYLLITE						
					43' - 44' 3 min		Iron Staining visible			
44										
					44' - 45' 2 min					0.0
45										
							BOTTOM OF BORING 45.0'			

TYPE OF DRILLING RIG:	Truck Mounted CME 75 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B110B
PROJECT NO:	112G00933	START DATE:	4/11/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW110B
GRD. SURFACE ELEVATION:	47.9 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0								
	4	24	0' - 2.0'	FILL	0 - 0.5' - Dark grayish Brown Silty Very Fine SAND 0.5' - 1.5' same asa above with asphalt from 9-10" with little sub-angular gravel (up to 1/2") dry	SW		9.1
1	5	24						
	6							
2	8							
	5	18	2.0' - 4.0'		Same as above with platy gravel (up to 2") asphalt at bottom, little medium to coarse SAND, dry	SW		3.4
3	7	24						
	6							
4	6							
	6	22	4.0' - 6.0'		0-4' - Brown Silty Very Fine Sand Brown and gray Very Fine SAND and SILT, some platy gravel (phyllite) little concrete fragments and medium to coarse Sand, dry	SM		9.7
5	6	24						
	5							
6	4							
	3	4	6.0' - 8.0'		Orange wood in shoe gravel (milky quartz) on top 1-4" brown Silty Very Fine SAND little platy, sub-angular gravel - same as above, damp	SM		2.2
7	2	24						
	3							
8	2							

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B110B
PROJECT NO:	112G00933			START DATE:	4/11/2008
LOGGED BY:	R. Clark			COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW110B
GRD. SURFACE ELEVATION:	47.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	2	8	8.0' - 10.0'		Concrete in shoe Brown Silty Very Fine Sand and gravel (A-platy) up to 1" wood fragements. Wet at bottom.			11.6
9	1	24				SM		
	1							
10	1							
	4	8	10.0' - 12.0'	FILL	Brown platy gravel (up to 2"), little Silt and Very Fine to Medium Sand, metal fragements - black fiberous material (roof tar paper)			104
12	17	244				GW		
	32		0905 DA-B110B-1012					
13	19							
	2	18	12.0' - 14.0'		0 - 3 "- Same as above. 3-14" Brown Silty Fine Sand, some medium to coarse sand, little fine angular gravel (up to 1/2"), wet. 14-18" Olive gray Silt and Very Fine to Fine SAND.			3.7
14	2	24				GW		
	2							
15	2			SILT AND GRAVEL	Olive gray Silt and Very Fine to Fine SAND.	GM	NATIVE	
	7	18	14.0' - 16.0'		Olive gray Silt some platy gravel (up to 2") and Fine Silty angular gravel (up to 1/2") little medium to coarse Sand, rusty; Weathered bedrock in shoe			0.1
16	12	24						
	14			WEATHERED PHYLLITE			* Grouted 4", schedule 40 black carbon steel casing to 19'	
17	19							

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B110B	PAGE: 2 OF 4

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B110B
PROJECT NO:	112G00933			START DATE:	4/11/2008
LOGGED BY:	R. Clark			COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW110B
GRD. SURFACE ELEVATION:	47.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	SAMP REC./ SAMP LENG. (ft/ft)	DEPTH MAT'L CHG./ WELL PROF'L	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
19								
			Run 1 19' - 21' Recovery 21"/24" = 88% RQD = 0%		Gray Phyllite. Horizontal fractures every $^1/_2$ to 1". Surfaces black and/or rusted. Vertical fracture 10 - 11"			
21								
			Run 2 21' - 26' Recovery 58"/60" = 97% RQD = 0%		Stopped at 1 $^1/_2$' and 2" Changed Rod Dark and medium gray phyllite - highly fractured in thin disks - $<^1/_4$" from 26-30" and 39 - 42", 43-45" only 3 pieces up to 2" at 48-50", 12-14" & 14-17"			
23								
25								
				WEATHERED PHYLLITE				
27			Run 3 26' - 31' Recovery 60"/60" = 100% RQD = 11%		Medium gray phyllite to 14" - then darker gray thin platy disks of phyllite to 23' - very rusty 15 - 19" One piece from 23 - 26" then becomes thin platy discs again- thin. Chunk (1") quartz at 27' rusty vertical fracture 37 - 43" lighter gray at 42" to 59" pieces chunk (1") quartz at 27" lighter gray at 42" to 59" pieces 1-2" think Dark gray at bottom			
29								
31								
			Run 4 31 '- 36' Recovery 58"/60" = 97% RQD = 30%		Medium gray platy disks of phyllite to $8^1/_2$", rock becomes light gray very fine grained phyllite. One piece from 8.5" - 13" broken from 18-20" then 3" pieces to 30" vertical fracture 28-29.5"			
33								

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B110B	PAGE: 3 OF 4

PROJECT NO:	112G00933	START DATE:	4/11/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW110B
GRD. SURFACE ELEVATION:	47.9 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	SAMP REC./ SAMP LENG. (ft/ft)	DEPTH MAT'L CHG./ WELL PROF'L	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
35			Run 4 31 - 36 ft Recovery 58"/60" = 97% RQD = 18/60 = 30%		broken pieces from 36 to 41 in. White veins from 41 to 42, 45, 47, holes at 47 in. One long piece of core at bottom from 50 to 58 in.			
37			Run 5 36' - 41' Recovery 60"/60" = 100% RQD = 100%		Gray platy phyllite to 22 in. Mostly thin discs 11-13 in: Chunks of quartz (up to 1 1/2 in.) 22-33 in. Brown metasandstone with white veins. 33-46 in. Gray Phyllite 46-53 in. sandstone as above. 53 - 60 in. light gray sandstone. iron staining throughout.			
39								
41								
			Run 6 41' - 46' Recovery 57"/60" = 95% RQD =16%	WEATHERED PHYLLITE	0-9 in. medium grained brown sandstone as above. 9 - bottom; medium gray phyllite pieces 1 to 3 in. thick, lighter gray at 17 in., rust on fractures. darker gray veins throughout. Angled fractures from 55 to 56 in.			
43								
45								
47			Run 7 46' - 49' Recovery 36"/36" = 100% RQD = 40%		light gray phyllite as above, broken top 4 in. then mostly 3 in. long pieces with rusted surfaces. vertical fracture from 26 to 28 in.			
49								
					end of boring at 49 ft			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B111B
PROJECT NO:	112G00933			START DATE:	4/8/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/10/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW111B
GRD. SURFACE ELEVATION:	50.6 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	3	1.5'	S-1	TOPSOIL			0 - 0.15' - TOPSOIL 0.15' - 8.0' - Dry Loose, brown, SILT, little fine to coarse Sand, little Gravel trace asphalt	SM		1.4
1	2	2.0'	0' - 2'							
	3									
2	3									
	3	1.6'	S-2				Same as above	SM		0.9
3	4	2.0'	2' - 4'							
	7									
4	9									
	4	1.9	S-3	FILL			Same as above	SM		2.4
5	5	2.0'	4'-6'							
	8		07:45							
6	9		DA-B111B-0406							
	6	0.6'	S-4				Same as above	SM	* Crushed cobble in tip	1.0
7	7	2.0'	6' - 8'							
	9									
8	9									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B111B	PAGE: 1 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B111B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/10/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW111B
GRD. SURFACE ELEVATION:	50.6 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	15	1.7	S-5				8.0' - 11.3' - Dry, Medium Dense, Brown SILT, some Gravel, little fine to coarse sand	ML		0.7
9	16	2.0'	8' - 10'							
	14			GRAVELY SILT WITH SAND						
10	13									
	19	2.0'	S-6				10'-11.3' Same as above	ML		0.0
11	23	2.0'	10' - 12'							
	24						11.3' - Dry, Medium Dense weathered Phyllite			
12	26									
13										
				WEATHERED PHYLLITE					* Grouted 4", schedule 40 black carbon steel casing to 14'	
14										
										0.0
15										
			CORE 1				Weathered Phyllite			
			15.0' - 18.0'				- Horizontal fractures every 0.025' with oxidation stains 15' - 18'			
16			3.0'/3.0' RQD = 0%							

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal							BORING NO.:	B111B	
PROJECT NO:	112G00933							START DATE:	4/8/2008	
LOGGED BY:	M. Alroy							COMPLETION DATE:	4/10/2008	
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:	MW111B	
GRD. SURFACE ELEVATION:	50.6 ft NGVD			ELEVATION FROM: Louis Frederici Assoc.				CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 1 CONT'							0.0
17										
18				WEATHERED PHYLLITE						
			CORE 2 18.0' - 23.0' 5.0'/5.0' RQD = 0%				- Phyllite similiar to CORE 1,a little less weathered and fractures with visible oxidized iron stains and little less Frequent (every 0.1') from 18' to			0.0
19										
20							- Dry, weathered phyllite			
										0.0
21										
22										
										0.0
23										
			CORE 3 23.0' - 28.0' 5.0'/5.0' RQD = 0%	PHYLLITE			- Phyllite similar to above but less Fractured - Fractures(Horizontal) from 23' to 25' about every 0.2' with oxidized iron			
24										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B111B	PAGE: 3 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B111B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/10/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW111B
GRD. SURFACE ELEVATION:	50.6 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 3 CONT'							0.0
25										
				PHYLLITE			- 25.6' to 25.9' area of weathered and Highly Fractured Phyllite with oxidized Iron Stains visible			
26										
							- 26' to 28' phyllite becomes coarser grained with horizontal Fractures about every 0.35', Oxidized Iron Stains visible			0.0
27										
28										
			CORE 4 28.0' - 33.0' 5.0'/5.0' RQD = 0.%				- Phyllite similar to above. - Horizontal Fracture with visible oxidized iron stains at 28.6'			0.0
29										
							- Horizontal Fracture at 29.0' with iron staining			
30										
							- Horizontal Fracture with iron staining 30'			0.0
31										
32										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B111B	PAGE: 4 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B111B
PROJECT NO:	112G00933			START DATE:	4/8/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/10/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW111B
GRD. SURFACE ELEVATION:	50.6 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33			CORE 4 CONT'	PHYLLITE			- Phyllite similar to above, Horizontal Fractures in highly Fractured/Weathered area 32.5' to 32.7', Oxidized Iron Stains visible			0.0
34			CORE 5 33.0' - 38.0' 5.0'/5.0' RQD = 0.%				- Phyllite similar to above. - Horizontal Fracture with oxidized Iron Staining visible at 33.5'			
35										0.0
36							- Phyllite is more weathered from 35' to 35.7' then back to how it is at top of core			
37							- 36.7 Phyllite becomes more weathered again until end of core. 38' no iron stains visible			0.0
38										
39			CORE 6 38.0' - 43.0' 5.0'/5.0' RQD = 60%				- Phyllite similar to CORE 5 38' to 39.9'			0.0
40							- Phyllite becomes coarser grained through the rest of the core - Various fractures from 40.6 to 40.7, iron staining			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B111B
PROJECT NO:	112G00933	START DATE:	4/8/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/10/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW111B
GRD. SURFACE ELEVATION:	50.6 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 6 CON'T							0.0
41										
				PHYLLITE			Weathered phyllite from 42.4' to 42.6'			
42										
			CORE 7 43.0' - 44.0' 1.0'/1.0' RQD = 0%				- Weathered phyllite similar to above - Near 45º Fracture from 43.3 to 43.6 oxidized iron staining visable			0.0
43										
44							END OF BORING AT 44'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B111B	PAGE: 6 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B112B
PROJECT NO:	112G00933	START DATE:	4/10/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/16/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW112B
GRD. SURFACE ELEVATION:	49.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	3	20	0' - 2.0'	FILL	- light brown very fine Silty Sand - same medium Sand and subangular, platy - angular, gravel (up to 2") damp			0.2
1	2	24				SM		
	2							
2	2							
	9	20	2.0' - 4.0'		0 - 12" - Same as above			0.5
3	17	24				SM		
	9			SAND AND GRAVEL	12 - 20" - gray platy GRAVELwith Brown Fine SAN and subangular blocky gravel up to $1^1/_2$" damp (gravel = quartzite and phyllite)			
4	8					SM		
	8	24	4.0' - 6.0'		Brown fine Silty Sand some subangular - subrounded blocky gravel up to 2" and platy gravel up to 1" little medium coarse sand			0.3
5	7	24				SM		
	6			SILTY SAND AND GRAVEL				
6	6							
	8	24	6.0' - 8.0'					0.8
7	3	24			Same as above	SM		
	3		15:30 DA-B112B-0608					
8	3							

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B112B
PROJECT NO:	112G00933	START DATE:	4/10/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/16/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW112B
GRD. SURFACE ELEVATION:	49.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	3	20	8.0' - 10.0'	SILTY SAND AND GRAVEL	Same as above - bottom 6" wet	GM		0.6
9	1	24						
	1							
10	1							
	WOR	14	10.0' - 12.0'	SILTY SAND	Brown very fine - fine Silty Sand little sub angular gravel up to 1" damp/wet	SM		0.6
11		24						
	1							
12	1							
	11	12	12.0' - 13.0'		0 - 6" - same as above, wet 6 - 12" - angular - subangular gravel up to 1" wet. Spoon refusal at 13 ft.			0.5
13	54	12		GRAVEL				
				WEATHERED PHYLLITE			Advancing air hammer to 16' - not competant rock, making water.	
14								
			13.0' - 16.0'					
15								
16								

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	WOR = Weight of Rod BORING NO.: B112B	PAGE: 2 OF 4

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B112B
LOGGED BY:	R. Clark	START DATE:	4/10/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	COMPLETION DATE:	4/16/2008
GRD. SURFACE ELEVATION:	49.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	MON. WELL NO.:	MW112B
		CHECKED BY:	D.Seiken

DEPTH (FEET)	SAMP REC./ SAMP LENG. (ft/ft)	DEPTH MAT'L CHG./ WELL PROF'L	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
18			HQ CORE				* Grouted 4", schedule 40 black carbon steel casing to 18', 1.5' into compitent rock.	
20			RUN 1 18'-22' lost 40 gallons Recovery 37"/42" 70% RQD = 0%	PHYLLITE	Top 5" - looks like gray gravel (up to 2" diam.) 5 - 13" - rusty brown/gray platy phyllite 13 - 37" light gray platy (horizontal fracture) phyllite 1/2 to 2" thick, rusty at 21-22"			
22								
24			RUN 2 22'-27' lost 40 gallons 22-24' Recovery 60"/60" 100% lost 200 gallons 24'-27' RQD = 9%		- Gray platy broken phyllite - rust on fractures. Mostly 1/4 - 2" pieces except one larger piece			
26					38.5' - 44" - Black from 21" - 23" and 35" - 36"			
28								
30					Unable to core due to water loss - switch to Air Hammer Small gray platy phyllite fragments brown matrix like silt		Water loss indicates large fracture zone	
32								

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B112B
PROJECT NO:	112G00933	START DATE:	4/10/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/16/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW112B
GRD. SURFACE ELEVATION:	49.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	SAMP REC./ SAMP LENG. (ft/ft)	DEPTH MAT'L CHG./ WELL	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
32					- Platy gray phyllite pieces up to $1^1/_2$" with brown rock dust			
33					Silty = clogging up hammer			
34								
35								
36								
37								
38					- Gray platy phyllite pieces up to 1/4" with gray rock dust			
39								
40								
41								
42								
43					Same as above - with brown rock dust one large piece 2" long			
44								
45								
46								
47					End of boring at 47 ft.			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B112B	PAGE: 4 OF 4

BORING LOG FOR:	Site 08 - NUSC Disposal		BORING NO.: B112S (Overburden)
PROJECT NO:	112G00933		START DATE: 4/18/2008
LOGGED BY:	R. Clark		COMPLETION DATE: 4/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz		MON. WELL NO.: MW112S
GRD. SURFACE ELEVATION:	50 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
2				FILL			No samples collected.			
4										
6							See boring log B112B for overburden description from grade to 20 ft BGS.			
8										
10				SAND AND GRAVEL						
12										
14				SILTY SAND AND GRAVEL						
16										
18										
20										
							Bottom of Boring 20'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:		
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B112S (Overburden)	PAGE: 1 OF 1

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B113B
PROJECT NO:	112G00933			START DATE:	4/10/2008
LOGGED BY:	R. Clark			COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller)	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW113B
GRD. SURFACE ELEVATION:	50 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6"	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	3	18	S - 1		0 - 6.0" - brown Silt, little blocky gravel, wood fragments			0.2
1	5	24	0' - 2'		6 - 9" - platy phyllite	ML		
	3				9 - 18" - grayish brown very fine Silty SAND little platy gravel, some blocky gravel up to (1.5") damp, and coarse sand (fill).			
2	4					SP		
	3	18	S - 2					0.1
3	5	24	2' - 4'					
	4							
4	4			FILL				
	4	24	S - 3		Same as above withplaty phyllite (up to 3"), gravel	SP		0.3
5	4	24	4' - 6'					
	5							
6	5							
	6	22	S - 4		Same as above with coal fragments throughout			1.1
7	8	24	6' - 8'		- top 8" some blocky rusty gravel (up to 2") damp	SP		
	9		13:40					
8	11		DA-B113B-0608					

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B113B
PROJECT NO:	112G00933	START DATE:	4/10/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller)	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW113B
GRD. SURFACE ELEVATION:	50 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		22	8' - 10'	FILL	0 - 18" - Same as above	SP		0.0
	3			SILT	18 - 22" - Dark brown damp Silt	ML		
		24						
9	4							
	6							
10	6							
			10' - 12'		0 - 6" - Same as above (0-18")	ML		0.2
	9	24		WEATHERED PHYLLITE	6 - 24" - gray phyllite very soft and platy			
11	12	24						
	14							
12	15							
			12' - 14'					
13								
14								
							* Grouted 4", schedule 40 black carbon steel casing to 14'.	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B113B
PROJECT NO:	112G00933	START DATE:	4/10/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller)	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW113B
GRD. SURFACE ELEVATION:	50 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
15			Run 1 - 14'-16' Recovery - 24"/24" = 100% RQD = 0%		Greenish gray weathered Phyllite fractured/broken every 0.5" to 1" Black or rusted on fractured surface			
17			Run 2 - 16'-21' Recovery - 54"/60" = 90% RQD = 0%		Same as above - grainular surfaces from 16.5'-20.5' - breaks easily Rusted Surfaces			
19								
21								
			Run 3 - 21'-24.5' Recovery - 30"/42" = 71% RQD = 0%	WEATHERED PHYLLITE	21' - 21.5" - Same as above 21.5' - 23.5' - medium gray phyllite broken with rusted surfaces. 6' - 8" large piece with interbedded quartz. Phyllite does not break easily. Rusted seams throughout.			
23								
25			Run 4 - 24.5' - 26' Recovery - 17"/18" = 94% RQD = 0%		Gray phyllite as above 24.5'-24.75" one piece 24.75' - 25.75' small broken pieces (< 2") 25.75 - 26' one piece then platy pieces <0.5"			
27			Run 5 - 26' - 31' Recovery - 57"/60" = 95% RQD = 0%		Gray phyllite as above rusty 26'-28.5 gray 28.5'-30' then brownish gray and rusty to bottom			
29								

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B113B
PROJECT NO:	112G00933			START DATE:	4/10/2008
LOGGED BY:	R. Clark			COMPLETION DATE:	4/15/2008
DRILLED BY (Company/Driller)	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW113B
GRD. SURFACE ELEVATION:	50 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	SAMP REC./ SAMP LENG. (ft/ft)	DEPTH MAT'L CHG./ WELL PROF'L	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
30								
31			Run 5 - Cont'					
			Run 6 - 31' - 36' Recovery 45"/60" = 75% RQD = 16%		horizontal fractures throughout - pieces 0.25" - 2" thick			
33					Same as above rust of fractures surfaces platy pieces up to 3" one large piece 34'-34.8" slightly darker gray			
35								
37			Run 7 - 36' - 41' Recovery 60"/60" = 100% RQD = 22%		Dark gray phyllite broken pieces 36'-36.75' horizontal fractures 36.75'-41" brownish color 36.8'-37.5' and 38.3'-39.5' otherwise gray. Large piece 37.7-38.3' and 40.7-41"			
39				WEATHERED PHYLLITE	Broken pieces 37'-38.7' and 38.8'-39.2' and 39.75'-40.25'			
41								
			Run 8 - 42' - 47' Recovery 60"/60" = 100% RQD = 11%		42'-42.3' as above 42.3'-44.5' medium gray phyllite platy. NO RUST. 44.5'-45' weathered rusty with white quartz with some interbedded phyllite.			
43					46.5' angled fracture 46.7'-46.9' large piece 45.8' - 46.3'			
45								
47					END OF BORING @ 46'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B113B	PAGE: 4 OF 4

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	7	2.0	S-1 0' - 2'	TOPSOIL			0' - 0.2' - TOPSOIL 0.2' - 2.0' - Gray, Dry, SILT, little Gravel, little fine to coarse sand			1.3
1	7	2.0		SANDY SILT				ML		
	8									
2	9						2.0' - 2.75' - Dry, Dense, Dry Grey SILT, little fine to coarse Sand, trace Gravel	ML		
	11	2.0	S-2 2' - 4'							0.3
3	33	2.0					2.75' - 4.0' - Dry, Dense, Grey, weathered Phyllite			
	47		09:45 DA-B114B-0204	WEATHERED PHYLLITE						
4	37								Aire hammered from 4' to 10' to install casing.	
										0.4
5										
			S-3 4' - 6'							
6							Weathered Phyllite			
										0.0
7									Fracture encountered at 6.0'.	
			S-4 7' - 8'							0.0
8							Weathered Phyllite		Fracture encountered at 7.5'.	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9				WEATHERED PHYLLITE						0.0
10									* Grouted 4", schedule 40 black carbon steel casing to 10'.	
11			CORE 1 10'-15' 4.0'/5.0' RQD = 0%		10'-11' 3 min		- Weathered Phyllite from 10' to 10.5' very fractured, fractures with oxidized iron staining visible		Lost approximately 15 gallons of water in first core.	0.0
12					11'-12' 2 min		- 10.5 ' to 11' more competent phyllite then back to the weathered			
13					12'-13' 3 min					0.0
14					13'-14' 2 min		- Fractures at 14.3 and 14.6 with oxidized iron staining visible			
15					14'-15' 3 min					0.0
16			CORE 2 15'-20' 5.0'/5.0' RQD= 0%		15'-16' 4 min		- Phyllite, very fractured from 15' to 17' with oxidized iron staining visible		Lost approximately 20 gallons of water in second core.	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal							BORING NO.:		B114B
PROJECT NO:	112G00933							START DATE:		3/31/2008
LOGGED BY:	M. Alroy							COMPLETION DATE:		4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:		MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD			ELEVATION FROM: Louis Frederici Assoc.				CHECKED BY:		D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17			CORE 2 CON'T		16' - 17' 3 min					0.0
18					17' - 18' 3 min		- Near vertical fracture from 17.1' to 17.3' - Section of weathered Phyllite from 17.3' to 17.6'			
19				WEATHERED PHYLLITE	18' - 19' 3 min					0.0
20					19' - 20' 3 min		- Weathered Phyllite at 18.9' with visible oxidixed iron staining until 20'			
21			CORE 3 20'-25' 5.0'/5.0' RQD = 0%		20' - 21' 5 min		- Weathered Phyllite at 20.8' until 21'. No fractures with iron stains visible		Lost approximately 50 gallons of water in third core.	0.0
22					21' - 22' 2 min					
23				PHYLLITE	22' - 23' 3 min		- Vertical Fracture from 22' to 22.4' - Fine grained Phyllite more competent less weathered			0.0
24					23' - 24' 2 min		- Vertical fracture from 22.9' to 23.6'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water	BORING NO.: B114B	PAGE: 3 OF 8

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 3 CONT		24' - 26' 2 min		- Fine grained Phyllite same as above but less weathered			0.0
25										
			CORE 4 25'-30' 5.0'/5.0' RQD = 8%				- Fractures at 25.3', 25.6' and 26', all with visible oxidation iron staining			
26										
					26' - 27' 3 min		- Vertical fracture at 21.1' to 21.2' to 28.1'			0.0
27										
					27' - 28' 3 min		- Weathered Phyllite from 27.5' to 28.1'			
28										
					28' - 29' 3 min		- 28.5' Fracture with oxidation iron stains			0.0
29										
					29' - 30' 3 min		- Horizontal fracture with oxidized irion stains at 29', 29.1' and 29.8'			
30										
			CORE 5 30' - 35' 5.0'/5.0' RQD = 0%		30' - 31' 2 min		- Phyllite becomes coarser grained at 30.5' and returns to the fine grained phyllite at 31.6'		Lost approximately 250 gallons of water in last 10' of coring.	0.0
31										
					31' - 32' 4 min					
32										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water	BORING NO.: B114B	PAGE: 4 OF 8

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	CHECKED BY:	D.Seiken
ELEVATION FROM: Louis Frederici Assoc.			

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33			CORE 5 CONT		32' - 33' 3 min		- Fine grained Phyllite, no fractures with oxidation iron stains visible			0.0
34					33' - 34' 3 min					
35					34' - 35' 3 min					0.0
36			CORE 6 35' - 40' 3.7'/5.0' RQD = 0%		35' - 37' 4 min		- Fine grained Phyllite from 35' to 36'			
37							- Phyllite becomes more coarse grained			0.0
38					37' - 38' 2 min		- Oxidized Iron Staining visible in a vertical fracture from 38.1 to 38.4			
39					38' - 39' 4 min					0.0
40			END OF CORING BEGINNING OF AIR HAMMER		39' - 40' 2 min				Switched to air hammer drilling due to excessive water loss.	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	DRILLING TIME	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41							- Pulverized grey phyllite, due to the nature of the rock and signifigant water in the bore hole, only a fine grey mud could be taken and recovered, no sample was taken			0.0
42										
43										0.0
44										
45										0.0
46							- Pulverized phyllite, very small chunks recovered with some calcurious minerals			
47										0.0
48										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water	BORING NO.: B114B	PAGE: 6 OF 8

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	CHECKED BY:	D.Seiken
	ELEVATION FROM: Louis Frederici Assoc.		

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	DRILLING TIME	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
49										0.0
50										
51							- Grey Phyllite sample that was recovered was a consistant sandy size			0.0
52										
53										0.0
54										
55										0.0
56							- Grey Phyllite, Recovered sample was chunks of phyllite as well as chunks (medium sized) of calcarious minerals			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B114B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/8/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW114B
GRD. SURFACE ELEVATION:	43.4 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	DRILLING TIME	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
57										
58										
										0.0
59										
60										
61										
							End of Boring at 61'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 39' to 61' due to loss of water	BORING NO.: B114B	PAGE: 8 OF 8

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B115B
PROJECT NO:	112G00933			START DATE:	3/31/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/3/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW115B
GRD. SURFACE ELEVATION:	43.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	4	2.0	S-1	TOPSOIL			0' - 0.3' - TOPSOIL			0.4
1	6	2.0	0' - 2'	SANDY SILT WITH GRAVEL			0.3' - 2.5' - Dry, Loose, Grey, SILT, little Gravel, little fine to coarse sand	ML		
2	8 / 12						Weathered Phyllite			
3	27 / 30/2"	0.67 / 0.67	S-2 2' - 2.67'	WEATHERED PHYLLITE			- Heavily foliated highly weathered Phyllite in tip, very soft rock flour		* Cobble/bedrock in tip of spoon	0.1
4									Air hammered from 2.67' to 9.5' to install casing.	
5							Weathered Phyllite			
6										
7							Weathered Phyllite			
8										

TYPE OF DRILLING RIG	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B115B	PAGE: 1 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B115B
PROJECT NO:	112G00933			START DATE:	3/31/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/3/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW115B
GRD. SURFACE ELEVATION:	43.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9										
10									* Grouted 4", schedule 40 black carbon steel casing to 9.5'.	0.0
11		4.35 5.0	Core 1 10'-15' RQD = 0%	WEATHERED PHYLLITE	10' - 12' 4 min		- Phyllite heavily foliated, weathered - horizontal fracture encountered at 10.4' with oxidation observed			
12							- additional horizontal fractures observed with oxidation observed at 10.6', 10.7', 10.8', 11.0', 11.25', 11.6' through 13.55' to 13.65'			0.0
13					12' -13' 2 min		- additional horizontal fractures observed with oxidation stains from 13.65' to 15.0' at 0.1' intervals			
14					13'-14' 1 min					0.0
15					14'-15' 2 min					
16		2.0 2.0	Core 2 15'-17' RQD = 0%		15'-16' 2 min		- Heavily fractured phyllite. Horizontal fractures about every 2 to 3" with visible oxidated Iron stains from 15' to 16.3'			0.0

TYPE OF DRILLING RIG	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B115B	PAGE: 2 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal							BORING NO.:	B115B	
PROJECT NO:	112G00933							START DATE:	3/31/2008	
LOGGED BY:	M. Alroy							COMPLETION DATE:	4/3/2008	
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:	MW115B	
GRD. SURFACE ELEVATION:	43.1 ft NGVD				ELEVATION FROM: Louis Frederici Assoc.			CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17			CORE 2 CONT		16'-17' 2 min		- Vertical fracture with oxidated iron staining from 16.3' to 16.7'		Core recovery poor suggesting highly fractured and weathered bedrock	0.0
18		0.9 5.0	CORE 3 17'-22' RQD = 0%		17'-18' 5 min		- Highly Fractured phyllite similar to core 1 & 2, Iron stains in Most Fractures, One Vertical Fracture about 0.1' long			
19					18' - 19' 3 min					0.0
20				HIGHLY FRACTURED AND WEATHERED PHYLLITE	19' - 20' 3 min					
21					20' - 21' 3 min					0.0
22					21' - 22' 3 min					
23		0.25 5.0	CORE 4 22'-27' RQD = 0%		22' - 23' 3 min		- One piece of Phyllite recovered, No oxidated iron staining visible			0.0
24					23' - 24' 3 min					

TYPE OF DRILLING RIG	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B115B	PAGE: 3 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B115B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/3/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW115B
GRD. SURFACE ELEVATION:	43.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25			CORE 4 CONT		24' - 25' 3 min					0.0
26					25' - 26' 3 min					
27					26' - 27' 3 min					0.0
28		0 5.0	CORE 5 27'-32' NO RECOVERY	HIGHLY FRACTURED AND WEATHERED PHYLLITE	27' - 28' 4 min		- NO RECOVERY			
29					28' - 29' 4 min					0.0
30					29' - 30' 3 min					
31					30' - 31' 2 min					0.0
32					31' - 32' 3 min					

TYPE OF DRILLING RIG	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B115B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/3/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW115B
GRD. SURFACE ELEVATION:	43.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33		0 5.0	CORE 6 32'-37' NO RECOVERY		32' - 33' 2 min		- NO RECOVERY			0.0
34					33' - 34' 2 min					
35					34'-35' 2 min					0.0
36				HIGHLY FRACTURED AND WEATHERED PHYLLITE	35' - 36' 2 min					
37					36' - 37' 4 min					0.0
38		0 3.0	CORE 7 37'-40' NO RECOVERY		37' - 38' 3 min		- NO RECOVERY			
39					38' - 39' 3 min					0.0
40					39' - 40' 5 min					

TYPE OF DRILLING RIG	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B115B	PAGE: 5 OF 6

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B115B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/3/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW115B
GRD. SURFACE ELEVATION:	43.1 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41		0.3 3.0	CORE 8 40'-43' RQD = 0%		40' - 41' 5 min		- A few pieces of PHYLLITE, None oxidized			
42					41' - 42' 4 min					
43					42' - 43' 3 min					0.0
44		5.0 5.0	CORE 9 43'-48' RQD = 0%		43' - 44' 2 min		- Fine to medium grained Phyllite, slightly weathered- Small vertical fracture about 0.1' long at 43.1', oxidized iron stains visible			
45				PHYLLITE	44' - 45' 1 min		- Horizontal Fractures at 43.7' with oxidized iron stains visible - Horizontal Fracture with Iron stains at 44.1'			0.0
46					45' - 46' 2 min		- Horizontal Fracture at 45.5' with oxidized iron staining			
47					46' - 47' 1 min					0.0
48			END OF BORING		47' - 48' 2 min					

TYPE OF DRILLING RIG	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B116B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW116B
GRD. SURFACE ELEVATION:	45.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	8	1.9	S-1 0' - 2'	TOPSOIL			0' - 0.2' - TOPSOIL Dry, Medium Dense, Grey, SILT, some Gravel, little fine to coarse sand			0.7
1	17	2.0						ML		
	21									
2	24									
	21	1.25	S-2 2' - 3.25'	SANDY SILT WITH GRAVEL			2'-2.5'-Same as a bove			0.2
3	19	1.25						ML		
	50/3"	1.4	S-3 3.25' - 5.25'				3.25' - 5.25' - Dry, Medium Dense, Light Brown, SILT, little fine to coarse Gravel, little fine to coarse sand		* shattered bedrock ("phyllite") in tip of spoon	0.4
4	21	2.0						Ml		
	23		08:15 DA-B116B-0305							
5	27									
	24		S-4 5.25' - 6.5'				Extremely weathered Phyllite			0.0
6	8									
	29			EXTREMELY WEATHERED PHYLLITE						
7	50/3"								Air hammerd from 6.5' to 10' to install casing.	
8										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B116B	PAGE: 1 OF 5

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B116B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW116B
GRD. SURFACE ELEVATION:	45.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9				EXTREMELY WEATHERED PHYLLITE					Encountered fracture at 9.0'.	0.0
10									* Grouted 4", schedule 40 black carbon steel casing to 10'.	
11		2.0 2.0	CORE 1 10'-12' RQD = 0%	WEATHERED AND FRACTURED PHYLLITE	10' - 11' 3 min		- Phyllite fine grained, heavily foliated - Horizontal fractures with visible oxidation staining from 10' - 12'			0.0
12					11' - 12' 5 min		- Fine grained Phyllite - Highly fractured horizontally and vertically, with oxidized staining from 12.0' - 13.4'			
13		5.0 5.0	CORE 2 12'-17' RQD = 0%		12' -13' 3 min					0.0
14					13'-14' 3 min		- Extremely weathered fine grained Phyllite at 13.4'			
15					14'-15' 2 min		- Horizontal fracture at 14.2' with oxidized staining - Vertical fracture observed from 14.2' to 14.3 with oxidized staining observed			0.0
16					15'-16' 3 min		- Near 45° fracture from 14.3' to 14.5' with oxidized staining - Horizontal fracture at 14.9' and 15.7' with oxidized staining			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B116B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW116B
GRD. SURFACE ELEVATION:	45.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				WEATHERED AND FRACTURED PHYLLITE	16'-17' 3 min		Near 45° fracture,visible oxidation stains at 15.9' - Coarser grained phyllite from 14.7' - 16'			0.0
18		5.0 / 5.0	CORE 3 12'-17' RQD = 26%		17'-18' 2 min		- Phyllite - Highly fractured area with visible oxidation stains 17.0' - 17.5'			
19					18' - 19' 4 min		- weathered phyllite from 18.8-19.1 and 17.8' to 18.1'			0.0
20					19' - 20' 3 min		- horizontal fracture at 20.5' with oxidized staining - coarser grained phyllite observed at 20.9'			
21					20' - 21' 3 min					0.0
22					21' - 22' 2 min					
23		1.5 / 5.0	CORE 4 22' - 27' RQD = 0%		22' - 23' 2 min		- coarse grained phyllite (possibly schist) to 27.8'			0.0
24					23' - 24' 3 min					

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B116B	PAGE: 3 OF 5

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B116B
PROJECT NO:	112G00933	START DATE:	4/1/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW116B
GRD. SURFACE ELEVATION:	45.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25					24' - 25' 3 min		Same as above			
26					25' - 26' 2 min					
27					26' - 27' 2 min					
28		4.0 5.0	CORE 5 27'-32' RQD=30%	WEATHERED AND FRACTURED PHYLLITE	27' - 29' 7 min		- Phyllite returns to fine grained			
29					29' - 32' 7 min		- 29.3 Highly weathered phyllite			
30										
31										
32										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B116B	PAGE: 4 OF 5

BORING LOG FOR:	Site 08 - NUSC Disposal			BORING NO.:	B116B
PROJECT NO:	112G00933			START DATE:	4/1/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW116B
GRD. SURFACE ELEVATION:	45.7 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33		0.0 5.0	CORE 6 32' - 37' RQD = 0%		32' - 33' 2 min		- NO RECOVERY			
34										
35					34'-35' 1 min					
36				WEATHERED AND FRACTURED PHYLLITE	35' - 36' 2 min					
37					36' - 37' 3 min					
38		1. 3.0	CORE 7 37' - 40' RQD = 43%		37' - 38' 6 min		- Weathered Phyllite - 37.0' to 37.5' small broken pieces of weathered phyllite			0.0
39				PHYLLITE	38' - 39' 2 min		- 37.5 to 40 Fine grained Phyllite no fractures, no staining			0.0
40					39' - 40' 4 min		BOTTOM OF BORING 40'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B116B

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B117B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW117B
GRD. SURFACE ELEVATION:	45 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
				TOPSOIL			0' - 0.25' - TOPSOIL			
	8	2.0	S-1	SANDY SILT			0.25' - 0.75' - Dry, Dark Gray, Medium Dense SILT, trace Gravel, trace fine to coarse sand			1.7
			0' - 2'							
1	12	2.0						ML		
				DECOMPOSED PHYLLITE						
	15						0.75' - 1.35' - Dry Gray, Medium Dense SILT, little Gravel (phyllite), little fine to coarse sand, decomposed Phyllite			
2	17							ML		
	11	2.0	S-2				1.35' - 2.0' - Dry, Tan, Dense, weathered Phyllite, tan in color due to heavy oxidation and degradation of rock			0.7
			2' - 4'							
3	20	2.0								
	24						2.0' - 2.5' - Dry, Tan weathered Phyllite, SILT and granular sand sized degraded particles		* shattered bedrock ("phyllite") in tip	
4	28									
				EXTREMELY WEATHERED PHYLLITE						
									Air hammered from 4' to 10' to install casing.	
5										
							- Extremely weathered Phyllite			
6										
7										
							- Extremely weathered Phyllite			
8										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B117B	PAGE: 1 OF 5

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B117B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW117B
GRD. SURFACE ELEVATION:	45 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9							- Extremely weathered Phyllite			
10									* Grouted 4", schedule 40 black carbon steel casing to 10'.	0.0
11		1.1 2.0	CORE 1 10'-12' RQD = 0%	EXTREMELY WEATHERED PHYLLITE	10' - 11' 2 min		- Extremely weathered Phyllite - Vertical fracture from 10.1 to 11.0 with oxidation stains			
12					11' - 12' 1 min		- horizontal fractures at 11.1 and 11.2' with oxidation stains			0.0
13		3.3 5.0	CORE 2 12'-17' RQD = 0%	WEATHERED AND FRACTURED PHYLLITE	12' -13' 2 min		- Extremely weathered phyllite to 12.2' - weathered phyllite from 12.2'-17.0' - vertical fracture from 12.2-12.8 with oxidation stains			
14					13'-14' 2 min		- vertical fracture with oxidation stains from 13.4 to 13.65' - horizontal fractures with oxidation stains 12.9', 13.1' ,13.3' ,13.6' ,14.3' ,14.5' ,15.0			0.0
15					14'-15' 1 min					
16					15'-16' 2 min					0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B117B

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B117B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW117B
GRD. SURFACE ELEVATION:	45 ft NGVD	CHECKED BY:	D.Seiken
	ELEVATION FROM: Louis Frederici Assoc.		

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17			CORE 2 CONT'	WEATHERED AND FRACTURED PHYLLITE	16'-17' 2 min					0.0
18		0.5 / 5.0	CORE 3 17' - 22' RQD = 0%		17'-18' 2 min		- extremely weathered phyllite oxidized staining on entire surface area of core			
19					18' - 19' 1 min					0.0
20					19' - 20' 1 min					
21					20' - 21' 3 min					0.0
22					21' - 22' 1 min					
23		4.2 / 5.0	CORE 4 22' - 26' RQD = 10%		22' - 23' 2 min		- extremely weathered phyllite from 22' to 22.4 with horizontal fractures every 0.05' with oxidation stains - horizontal fractures with oxidation stains between 23' and 24'.			0.0
24					23' - 24' 3 min		- phyllite becoming more a schist at 23.5' - vertical fracture with oxidation stains from 23.6 to 28.8'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B117B

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B117B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW117B
GRD. SURFACE ELEVATION:	45 ft NGVD	CHECKED BY:	D.Seiken
	ELEVATION FROM: Louis Frederici Assoc.		

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25				WEATHERED AND FRACTURED PHYLLITE	24' - 25' 12 min		6 horizontal fractures with iron staining between 25' and 26' -Vertical fracture from 25.3' - 25.7' with oxidation stains		Lost 450 gallons during this core 4 run	
26					25' - 26' 7 min					0.0
27									Switched to air hammer drilling at 26' due to excessive water loss.	
28										0.0
29					26' - 31' 2 min					
30										0.0
31										
32					31' - 36' 2 min					0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B117B	PAGE: 4 OF 5

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B117B
PROJECT NO:	112G00933	START DATE:	3/31/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/4/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW117B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
33										
34										
				WEATHERED AND FRACTURED PHYLLITE	31' - 36' 2 min					0.0
35										
							- Drill cuttings coming up as pasty mud to 36'			
36										
										0.0
37										
							- Drill cuttings becoming more granular resembeling competent Phyllite			
38										
				PHYLLITE	36' - 40' 2 min					0.0
39										
40							BOTTOM OF BORING 40'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B117B	PAGE: 5 OF 5

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B118B
LOGGED BY:	M. Alroy	START DATE:	3/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/27/2008
GRD. SURFACE ELEVATION:	47.7 ft NGVD	MON. WELL NO.:	MW118B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0							GROUND SURFACE			
				TOPSOIL			0' - 0.25' - TOPSOIL			
	8	1.8	S-1				0.25' - 2.0' - Medium Dense, Dry, Grey			
			0' - 2'				SILT little Gravel, little fine to coarse			
1	10	2.0					Sand	ML		0.0
	19									
2	25									
	27	2.0	S-2							
			2' - 4'				2.0' - 4.0' - Dense, Dry, Grey, SILT, little			
3	34	2.0					Gravel, little fine to coarse Sand	ML		2.4
	27									
4	38									
				SANDY SILT						
	27	1.7	S-3	WITH GRAVEL						
			4' - 6'				4.0' - 6.0' - Medium Dense, Grey sandy			
5	26	2.0					SILT, little Gravel	ML		1.7
	28									
6	30									
	36	1.8	S-4							
			6' - 8'				6.0' - 7.0' - Dense, Grey, Dry SILT little			
7	47	2.0					Gravel, little fine to coarse sand	ML		5.2
	47		14:00							
			DA-B118B-0608				7.0' - 8.0' - Dense, Dry, SILT little Gravel,			
8	45						little fine to coarse sand	ML		

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B118B	PAGE: 1 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B118B
LOGGED BY:	M. Alroy	START DATE:	3/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/27/2008
GRD. SURFACE ELEVATION:	47.7 ft NGVD	MON. WELL NO.:	MW118B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	16	1.2	S-4 8' - 10'				8.0'-8.5' Same as above 8.5' - 10.0 - Medium Dense, Dry, Light Brown SILT some weathered bedrock little fine to coarse sand			
9	20	2.0						ML		3.7
	29			SILT WITH SAND						
10	30									
			S-5 10' - 12'				10.0' - 11.75 - Medium Dense, Dry, Light Brown SILT some weathered bedrock little fine to coarse sand			
11								ML		2.8
12										
	29		S-6 12' - 12.95'				11.75' - 12.75 - Bedrock, highly weathered a oxidized Phyllite			
	120/3"									
13										
14				WEATHERED PHYLLITE					Air hammered from 12.75' to 18 to install casing'	
15										
16										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B118B
LOGGED BY:	M. Alroy	START DATE:	3/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/27/2008
GRD. SURFACE ELEVATION:	47.7 ft NGVD	MON. WELL NO.:	MW118B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17										
18									* Grouted 4", schedule 40 black carbon steel casing to 18'.	
19					18' - 19' 3 min		- Weathered Phyllite in Rock cuttings to 49.0'			
20				WEATHERED PHYLLITE	19' - 20' 2 min					
21										
22										
23					20' - 25' 3 min					
24									ENCOUNTERED WATER IN BEDROCK ZONE DURING AIR HAMMER DRILLING	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B118B
LOGGED BY:	M. Alroy	START DATE:	3/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/27/2008
GRD. SURFACE ELEVATION:	47.7 ft NGVD	MON. WELL NO.:	MW118B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25				WEATHERED PHYLLITE			Weathered Phyllite			
26					25' - 26' 1 min					
27					26' - 27' 1 min					
28					27' - 30' 2 min					
29										
30										
31					30' - 35' 4 min					
32										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B118B
LOGGED BY:	M. Alroy	START DATE:	3/18/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	COMPLETION DATE:	3/27/2008
GRD. SURFACE ELEVATION:	47.7 ft NGVD	MON. WELL NO.:	MW118B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33				WEATHERED PHYLLITE			Weathered Phyllite		32'-33' Drilling more difficult	
34										
35										
36										
37										
38					36' - 40' 4 min					
39										
40									39'-40 Drilling more difficult'	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: B118B	PAGE: 5 OF 7

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B118B
PROJECT NO:	112G00933	START DATE:	3/18/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW118B
GRD. SURFACE ELEVATION:	47.7 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41				WEATHERED PHYLLITE			Weathered Phyllite		*EXTREMELY FRACTURED ZONE CAUSED INCREASED DRILLING TIME TO CLEAR THE HOLE OF FRACTURED ROCK	
42										
43					40' - 45' 10 min					
44										
45										
46					45' - 49' 3 min					
47										
48										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B118B
PROJECT NO:	112G00933	START DATE:	3/18/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	3/27/2008
DRILLED BY (Company/Driller):	Geo Search/Jon Bedard	MON. WELL NO.:	MW118B
GRD. SURFACE ELEVATION:	47.7 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				WEATHERED PHYLLITE						0.0
49							Weathered Phyllite			
							BOTTOM OF BORING 49.0'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B119B
PROJECT NO:	112G00933	START DATE:	4/14/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW119B
GRD. SURFACE ELEVATION:	29 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0										
	3	23		TOPSOIL			0-5" topsoil - Brown silt			0.5
1	4	24	0' - 2'				5-23" Brown Silt and VERY FINE SAND Dense, some subangular Blocky and Platy gravel up to 1" Dry	SM		
	7									
2	7							SW		
	11	18					0-6" Brown FINE SAND and platy/blocky brick fragments angular gravel up to 1" dry.			2.5
3	14	24	2' - 4'							
	16		09:00 DA-B119B-0204	FILL			Fine to coarse gravel (angular-sub angular up to 2"), gray with rock dust			
4	10									
	4	15					0-8" Brown FINE SAND			0.7
5	9	24	4' - 6'				Concrete fragments up to 3" dry - Moved boring near fence at golf course			
	15						Continue from 4 to 6 ft.			
6	32							SW		
	4	20					0-16" Brown FINE SAND little platy gravel up to 1"		This sample (and subsequent samples) taken from reloacted boring which was moved east of original location due to apparent concrete slab.	0.3
4	6	24	4' - 6'	SAND AND GRAVEL				SW		
	9						16-20" gray gravel Blocky subangular - angular up to $1^1/_2$" dry			
6	20							GW		

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 23' to 45' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B119B
LOGGED BY:	R. Clark	START DATE:	4/14/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	COMPLETION DATE:	4/17/2008
GRD. SURFACE ELEVATION:	29 ft NGVD	MON. WELL NO.:	MW119B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (in/in)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	14	12	6' - 8'	SAND AND GRAVEL			gray angular - subangular blocky gravel up to 2" little fine to coarse SAND dry			1.4
8	17	24						GW		
	24									
9	12									
	5	14	8' - 10'				Brown FINE SAND little platy and blocky subangular gravel up to $^1/_2$" gravel in tip (quartzite)			0.5
10	7	24						SW		
	9									
11	10								weathered rock ~ 10.5 - 11'	
	5	24	10' - 12'	HIGHLY WEATHERED PHYLLITE			0 - 6" subangular - angular 6 - 2 Brown platy weathered rock rusty - crumbly			0.2
12	7	24						ML		
	9									
13	10									
	19	24	12' - 14'				weathered rock as above - more competant toward bottom			0.0
14	20	24							No sample	
	21								* Grouted 4", schedule 40 black carbon steel casing to 15'.	
15	20									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 23' to 45' due to loss of water	BORING NO.: B119B	PAGE: 2 OF 4

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B119B
PROJECT NO:	112G00933	START DATE:	4/14/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW119B
GRD. SURFACE ELEVATION:	29 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
16	3:10 / 2:40		RUN 1 15' - 20' Recovery 56"/60" RQD = 53%	HIGHLY WEATHERED & FRACTRUED PHYLLITE AND QUARTZITE			15' - 15.25' - gray platy phyllite broken pieces 15.25'-15.60' large piece phyllite 15.6' - bottom mix of fine grained light		No return on water, lost 60 gallons of water	
18	3:00 / 3:30						gray quartzite and phyllite broken from 16.75' - 17' black from 17.3' - 17.5' Silt filled fracture at 17.3' (where we started to loose water) Rusty veins at bottom			
20	3:30 / 2:30		RUN 2 20'-25' Recovery 59"/60" RQD = 45%				vertical fracture through broken zone 21.75' - 22' (fracture 21.7' and 21.9')		lost 70 gallons of water	
22	2:00 / 2:00						light gray fine quartzite rust along fractures at 21.25'", 21.7', 22', vertical 23' - 23.5, 23.6'. vertical 47-51, 54 long piece from 27-42			
24	2:05				Switch to air hammer due to waterloss - hole collapsed to 5 ft.					
26							cuttings - brown silt (rock flour) mostly platy fragments - some quartzite (blocky frag) up to 1"			
28	2:30									
30										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 23' to 45' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B119B
PROJECT NO:	112G00933	START DATE:	4/14/2008
LOGGED BY:	R. Clark	COMPLETION DATE:	4/17/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW119B
GRD. SURFACE ELEVATION:	29 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
31										
							Air Hammer cuttings - gray platy cuttings up to $^1/_2$" diameter			
33							Coarse SAND to pea gravel size up to $^1/_2$" diameter			
	2:15									
35									Mud tub full, removed 60 gallons	
37							Same as above			
				HIGHLY WEATHERED & FRACTRUED PHYLLITE AND QUARTZITE						
	2:00									
39										
							Same as above			
41										
	2:20									
43										
45			(lost 30 gallons)				End of Borign at 45'		Mud tub full, removed 60 gallons	
									Removed additional 60 gallons-Removed a total of 180 gallons, water brown and silty	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD and from 23' to 45' due to loss of water

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B120B
LOGGED BY:	M. Alroy	START DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	COMPLETION DATE:	4/9/2008
GRD. SURFACE ELEVATION:	45 ft NGVD	MON. WELL NO.:	MW120B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0							GROUND SURFACE			
	6	1.7	S-1	Graded Sand with Gravel & Silt			0-0.5' - Moist, Loose, fine to coarse SAND some Brown Gravel, little Silt	SM		0.6
1	8	2.0	0' - 2'	GRAVELLY SILT WITH SAND			0.5'-1.2' - Dry, Loose, Grey, SILT, little Gravel, little fine to coarse Sand	ML		
	9									
2	6						1.2' - 2.8' - Dry, Loose Brown/Rust SILT little Gravel, little fine to coarse Sand	ML		
	4	1.6	S-2							0.4
3	5	2.0	2' - 4'				Dry, Loose, Gray SILT some Gravel, little fine to coarse Sand	ML		
	8		13:07							
4	10		DA-B120B-0204							
	8	2.0	S-3							0.1
5	9	2.0	4' - 6'				4'-5.4' - Samea as above	ML		
	12									
6	13						5.4' - 6.0' - Dry, Medium Dense, Grey extremely weathered Phyllite			
	13	1.7	S-4	EXTREMELLY WEATHERED PHYLLITE						0.0
7	15	2.0	6' - 8'				6.0' - Dry, Medium Dense, Gray extremely weathered phyllite			
	16								Air hammered from at 8' to 10' to install casing.	
8	18									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal		
PROJECT NO:	112G00933	BORING NO.:	B120B
LOGGED BY:	M. Alroy	START DATE:	4/7/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	COMPLETION DATE:	4/9/2008
GRD. SURFACE ELEVATION:	45 ft NGVD	MON. WELL NO.:	MW120B
ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9										
10									* Grouted 4", schedule 40 black carbon steel casing to 10'.	
11					10' - 12' 1 min		- Rock cutting observed weathered Phyllite and Phyllite to 60'		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
12										
13				WEATHERED PHYLLITE			Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
14					12' - 17' 2 min					
15										
16										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B120B
PROJECT NO:	112G00933	START DATE:	4/7/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW120B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				WEATHERED PHYLLITE						
18					17' - 22' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
19										
20										
21										
22										
23					22' - 27' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
24										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B120B
PROJECT NO:	112G00933	START DATE:	4/7/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW120B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
25				WEATHERED PHYLLITE						
26										
27										
28					27' - 32' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
29										
30										
31										
32										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	BORING NO.: B120B

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B120B
PROJECT NO:	112G00933	START DATE:	4/7/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW120B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
33				WEATHERED PHYLLITE	32' - 37' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
34										
35										
36										
37										
38					37' - 40' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt (wet gray mud)	
39										
40										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.	
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: B120B	PAGE: 5 OF 8

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B120B
PROJECT NO:	112G00933	START DATE:	4/7/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW120B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
41				WEATHERED PHYLLITE	40' - 42' 1 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
42										
43					42' - 47' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
44										
45										
46										
47										
48					47' - 50' 2 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B120B
PROJECT NO:	112G00933	START DATE:	4/7/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW120B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
49										
50										
					50' - 52' 1 min		Weathered Phyllite		rock cuttings observed to have grain size of silt with trace mica (wet gray mud)	
51										
52				WEATHERED PHYLLITE						
					52' - 57' 3 min		- Fracture observed between 55' - 57'		indicated by driller	
53										
									angular phyllite rock cuttings	
54										
55										
56										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Site 08 - NUSC Disposal	BORING NO.:	B120B
PROJECT NO:	112G00933	START DATE:	4/7/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	4/9/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW120B
GRD. SURFACE ELEVATION:	45 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
										0.0
57										
					57' - 60' 3 min		Phyllite (less weathered and or harder)		angular phyllite rock cuttings	
58				PHYLLITE						
59										
60										
							BOTTOM OF BORING 60'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	AIR HAMMER DRILLING - 3.875" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B	BORING NO.:	B124B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/23/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW124B
GRD. SURFACE ELEVATION:	47.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0							GROUND SURFACE			
				TOPSOIL			0-0.25 - Topsoil			0.0
	6	1.8	S-1				Dry, Medium Dense Brown SILT			
			0'-2'				and fine to coarse SAND, little Gravel			
1	8	2.0						ML		
			12:30							
	9		DA-SS-124-0103-	FILL			2.25-2.75' - Moist, Brown SILT, little fine to			
			072108				coarse Sand, trace Gravel, trace fractured			
2	12						bedrock, trace metal sleg	ML		
										74.2
	6		S-2							
			2'-2.75'							
3	32/3"								petroleum odor	
				FRACTURED						
				PHYLLITE					Air hammered 2.75' to	
4							2.75-8.5' - Fractured Phyllite		8' to install casing.	
5										
6										
7										
									* Grouted 4", schedule	
8									40 black carbon steel casing to 8'.	

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B	BORING NO.:	B124B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/23/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW124B
GRD. SURFACE ELEVATION:	47.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9		2.0 / 2.5	RUN 1 8.5'-11.0' RQD = 0%	EXTREMELY WEATHERED AND FRACTURED PHYLLITE			Extremely weathered phyllite with horizontal fractures every 0.1' and a near vertical fracture with oxidation stains.		Near Vertical Fracutre 8.5'-9.5'	
10							Horizontal Fracture at 9.7', 9.8' and 10.0, 45° fracture at 10.1'			
11										
12		0.5 / 0.75	RUN 2 11.0' - 11.75' RQD = 0%				Near horizontal Fractures from 11' to 11.4' 45° fracture at 11.5' Near vertical Fractures from 11.8' to 11.9' horizontal fractures at 11.8, 11.9', 12.0'			
13		5.0 / 3.0	RUN 3 11.75' - 16.75' RQD = 20%				Near horizontal Fractures from 12.2' and 12.4'. 45° fracture at 12.5' Near 45° fracture at 12.8'.		Calcite deposits at Fractures with very little Iron staining	
14							Horizontal fractures at 13.2', 13.3', 13.6', 13.7' and 13.9'			
15							From 14.3' - 15.4' near horizontal fractures every 0.2' to 0.3'.			
16							45° fractures at 15.9', 16.1', 16.2' and 16.5'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B							BORING NO.:	B124B	
PROJECT NO:	112G00933.0212							START DATE:	7/22/2008	
LOGGED BY:	M. Alroy							COMPLETION DATE:	7/23/2008	
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:	MW124B	
GRD. SURFACE ELEVATION:	47.1 ft NGVD			ELEVATION FROM: Louis Frederici Assoc.				CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		5.0	RUN 4 16.75' - 21.75' RQD = 68%				Horizontal fracture at 16.9'			
17		5.0								
							Horizontal fracture at 17.3' and 17.4' Calcite deposits Near 45° at 17.7', iron staining			
18										
19										
							45° Fracture at 19', horizontal Fracture at 19.8'			
20				WEATHERED AND FRACTURED PHYLLITE						
21										
			RUN 5 21.75' - 26.75' RQD = 62%				Near horizontal fracture at 21.2' Near horizontal fracture at 21.5' heavy iron staining (0.2' long) vertical fracture 21.5-21.75'			
22										
							Near horizontal at 21.95 and 22.30, two horizontal Fractures and a near vertical fracture at 22.7' to 22.9''			
23										
							Horizontal Fracture with Iron staining at 23.4' Near Vertical Fracture at 24.2 - 24.4			
24										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B	BORING NO.:	B124B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/23/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW124B
GRD. SURFACE ELEVATION:	47.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			RUN 5 CONT'				Near horizontal fractures from 24.2 - 24.4 every 0.5' to 0.1'			
25										
							Near horizontal Fractures at 25.1' and 25.3' with Pyrite deposits, 45 fracture at 25.2' to 25.4', iron staining			
26							45° Fracture at 25.6'. Horizontal Fractures at 25.8', 26' and 26.5'			
		5.0	RUN 6 26.75 '- 31.75' RQD = 62%				Horizontal Fracture at 26.9', horizontal fracture at 28', with Iron Staining. Near horizontal fracture at 26.6. Horizontal fracture at 27.2			
27		5.0								
							45° Fracture and horizontal fracture at 27.4', horizontal fracture at 27.6'			
28				WEATHERED AND FRACTURED PHYLLITE			45° fracture at 28' and horizontal fracture - iron staining			
							Near horizontal fracture at 28.3' and 28.9' with pyrite deposits. Near horizontal fracture at 29.6'			
29										
30										
31										
		5.0	RUN 7 31.75'-36.75' RQD = 54%				Near horizontal fractures at 31.9', 32.1' and and 32.4' with Pyrite deposits and heavy calcite deposits			
32		5.0								

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B	BORING NO.:	B124B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/23/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW124B
GRD. SURFACE ELEVATION:	47.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			RUN 7 CONT'							
33							Horizontal fractures at 32.5' very weathered with horizontal and 45° fracture at 32.8' to 33.0'. Near 45° fracture at 33.2' and 33.4'			
							Near 45° fracture at 34.7' and 34.8' with pyrite deposits			
34							Horizontal Fractures at 34.0' and 34.7' (iron staining)			
							Near horizontal fractures at 35.3', 35.7', 35.9'			
35										
36				WEATHERED AND FRACTURED PHYLLITE			45° Fracture at 36.1'			
37		5.	RUN 8 36.75'-41.75' RQD = 60%							
							Near horizontal fracutre at 37.1' with iron staining			
38		5.0					Near 45° fracture at 37.3', 37.5', and 37.8'			
							Near horizontal fracutre at 38.5'			
39										
							Near 45° at 39.6'. Near vertical fracture at 39.8' to 40.0'			
40										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B	BORING NO.:	B124B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/23/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW124B
GRD. SURFACE ELEVATION:	47.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			RUN 8 CONT'				45° fracture at 40.2'. Horizontal fracture at 40.9'			
41				WEATHERED AND FRACTURED PHYLLITE						
		5.0	RUN 9 41.75'-46.75' RQD = 76%				Near 45° fracture at 41.2'.Vertical Fractures from 41.2' - 41.6' - Iron Staining			
42		5.0								
							Near 45° Fractures from 41.8 to 42.7' every 0.05' to 0.2' heavy iron staining			
43										
							42.7' to 45.7' Compitent Rock			
44										
							45.7' horizontal fracture with heavy Iron Staining. Near vertical fracture at 45.8'-45.9' and horizontal fracture at 45.9' - with iron staining			
45										
		5.0	RUN 10 46.75'-48.75' RQD = 60%	PHYLLITE			Near 45° Fractures at 46.5' and 46.7'			
46		5.0								
47										
							Horizontal Fractures at 47.6' calcite deposits and 48.2'			
48										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B124B	BORING NO.:	B124B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/23/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW124B
GRD. SURFACE ELEVATION:	47.1 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			RUN 10 CONT'	PHYLLITE			Near horizontal fracture at 48.4'			
49							48.75' END OF BORING			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	B125B	BORING NO.:	B125B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0							GROUND SURFACE			
				ASPHALT			0-0.3' - ASPHALT			
	9	2.0	S-1							
			0.3'-2.3'				0.3'-0.7' - Dry, Medium Dense, Dark Brown/			
1	9	2.0					Black Gravel fine to coarse sand trace silt	GM		17.3
			15:00							
	9		DA-SS-B125B-					SM		
			0103-072108				0.7'-2.3' - Dry, Medium Dense Brown fine to medium			
2	6		(DUP 05)	WELL			SAND and SILT		* Weathered bedrock in tip of spoon	
				GRADED SILT						
	6	2.0	S-2	AND SAND						
			2.3'-4.3'							
3	9	2.0					Same as above		Slight petroleum odor	25.0
			15:30							
	13		DA-SO-B125B-							
			0304-72108							
4	19									
	9	1.7	S-3							
			4.3'-6.0'							
5	15	1.7					4.0'-6.0' - extremely weathered bedrock			0.0
	27			EXTREMELY						
				WEATHERED						
6	32			AND						
				FRACTURED						0.0
				PHYLLITE						
7									Air hammered from 6' to 10' to install casing.	
8										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B125B

BORING LOG FOR:	B125B	BORING NO.:	B125B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
9				EXTREMELY WEATHERED AND FRACTURED PHYLLITE						0.0
10									* Grouted 4", schedule 40 black carbon steel casing to 10'.	0.0
11		0.65	CORE 1 10.5'-11.5' RQD = 0%				10.5'-11.5' - Extremely weathered Phyllite with horizont fractures through the run with oxidation stains		Fracture zone 10.5' - 11.5'	0.0
12		1.0	CORE 2 11.5'-16.5' RQD = 9%	WEATHERED AND FRACTURED PHYLLITE			11.5'-16.5' - Slightly weathered phyllite 11.5'-11.9' - 45° fracture and horizontal fractures along bedding planes with oxidation stain			0.0
13		4.6					Horizontal fractures every 0.2' to 0.3' from 11.9' to 13.3' from 13.9' to 16.5' every 0.25' to 0.3'			0.0
14		5.0					13.3'-13.9' - extremely weathered phyllite horizontal fractures with oxidation stains		Fracture zone 13.3' - 13.9'	0.0
15				PHYLLITE						0.0
16										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B125B	PAGE: 2 OF 7

BORING LOG FOR:	B125B	BORING NO.:	B125B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17		5.0	CORE 3 16.5'-21.5' RQD = 98%				16.5'-17.0' - Weathered Phyllite 17.0'-21.5' - Less weathered Phyllite			0.0
		5.0								
18										0.0
							18.5' - Observed near horizontal fracture with oxidation staining			
19										0.0
							19.5' - Observed 2 horizontal fractures spaced 0.05' apart with oxidation stains, extremely weathered			
20										0.0
				PHYLLITE						
21										0.0
22		5.0	CORE 4 21.5'-26.5' RQD = 98%				21.5'-21.7' - Weathered phyllite			0.0
		5.0								
23										0.0
							24'-24.2' - Observed 45° fracture with calcarious mineral deposit			
24										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B125B	PAGE: 3 OF 7

BORING LOG FOR:	B125B			BORING NO.:	B125B
PROJECT NO:	112G00933.0212			START DATE:	7/21/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 4 - CONT'				24.7' - Near 45° fracture with calcarious mineral deposi			
25							25.5' - Near horizontal fractrue with calcarious mineral deposit			0.0
26										0.0
		5.0	CORE 5 26.5'-31.5' RQD = 38%				27.0' - Near 45° fracture 27.2 and 27.4 - Horizontal fractures with oxidation staining and calcarious mineral deposits			
27		5.0								0.0
							27.6' - Near vertical fracture with oxidation stains and calcarious mineral deposit			
28										0.0
				PHYLLITE						
29										0.0
							29.0' - Near 45° fracture with calcarious mineral deposit 29.3' - Near vertical fracture with calcareous mineral deposit			
30										0.0
31										0.0
		5.0	CORE 6 31.5-36.5' RQD = 100%							
32		5.0								0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B125B

BORING LOG FOR:	B125B	BORING NO.:	B125B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 6 CONT'				32.5' - NEAR 45° fracture with weathered phyllite along fracture plane			
33										0.0
							33.7' - NEAR HORIZONTAL fracture with oxidation stains			
34										0.0
35										0.0
							34.9-36.5' - Near vertical fracture with calcareous mineral deposits and oxidation stains, extremely weathered phyllite			
36				PHYLLITE					34.9'-37.2' Weathered, fractured zone	0.0
		5.	CORE 7 36.5'-41.5' RQD = 41%				36.5-37.2 -Vertical fracture continued from CORE 6			
37		5.0								0.0
							37.2' - Horizontal fracture with oxidation stains			
38							37.5' - 37.7' - Near 45° fracture with oxidation stains			0.0
							38.5'-39.7' - Near 45° fracture with calcarious minerals			
39										0.0
40										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B125B	PAGE: 5 OF 7

BORING LOG FOR:	B125B	BORING NO.:	B125B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 7 CONT'				40' - Near horizontal fractures with oxidation stains			
41							40.5'-41' - Near 45° fracture with oxidation stains			0.0
		5.0	CORE 8 41.5'-46.5' RQD = 100%				41.2' - Horizontal fracture with oxidation stains			
42		5.0								0.0
							42.5' and 42.7' Horizontal fractures with oxidation stains; calcite intrusion filling old fracture			
43										0.0
							43.0' - Near horizontal fracture with slight oxidation stains			
44										0.0
							43.5', 44' and 45.5' - Calcite filled old fractures			
45										0.0
46										0.0
		4.0	CORE 9 46.5'-50.5' RQD = 100%				No visible fractures from 46.5'-50.5'			
47		4.0								0.0
48										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B125B	PAGE: 6 OF 7

BORING LOG FOR:	B125B	BORING NO.:	B125B
PROJECT NO:	112G00933.0212	START DATE:	7/21/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/24/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW125B
GRD. SURFACE ELEVATION:	52 ft NGVD ELEVATION FROM: Louis Frederici Assoc.	CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 9 CONT'							
49										
50										
							End of boring @ 50.5'			
51										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B125B	PAGE: 7 OF 7

BORING LOG FOR:	B126B	BORING NO.:	B126B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW126B
GRD. SURFACE ELEVATION:	55.9 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
0							GROUND SURFACE			
				ASPHALT			0-0.3' - ASPHALT			8.7
	7	1.7	S-1				0.3'-0.78' - Dry, Light Brown, Medium			
1	9	2.0	0.3-2.3	FILL			Dense fine to coarse SAND, some Gravel little silt	GP		
	6		10:00							
2	3		DA-SS-B126B-0103 72208				0.8'-2.3' - Dry, Gray, Medium Dense, SILT some fine to medium Sand, little Gravel	SM		
	9	1.2	S-2							5.8
3	19	1.25	2.3'-4.3'				2.3'-4.9' - Dry, Gray, Dense SILT, trace Gravel, trace fine to coarse Sand	SM		
	30/3"			SILT						
4										
	9	1.0	S-3				4.3'-4.9' same as above	ML		6.4
5	9	2.0	4.3'-6.3'				4.9'-9.1' - Dry, Gray extremely weathered bedrock flour			
	17		10:30							
6	13		DA-S0-B126B-0608 72208							
	21	2.0	S-4	EXTREMELY WEATHERED PHYLLITE						7.0
7	28	2.0	6.3'-8.3'							
	24									
8	30									

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD

Tetra Tech NUS, Inc.

BORING LOG FOR:	B126B	BORING NO.:	B126B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz	MON. WELL NO.:	MW126B
GRD. SURFACE ELEVATION:	55.9 ft NGVD	CHECKED BY:	D.Seiken

ELEVATION FROM: Louis Frederici Assoc.

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
	12	1.7	S-5							7.7
9	14	2.0	8.3'-10.3'						Slight petroleum odor	
	13						9.1' - Rock flour continued, encountered old fracture and sand seam			
10	16									
	8	1.75	S-6				9.1'-12.3' - Moist , grey extremely weathered bedrock flour			10.2
11	11	2.0	10.3'-12.3'						No odor observed	
	11									
12	13			EXTREMELY WEATHERED PHYLLITE						
	10	2.0	S-7				12.3'-14.3' - Wet, grey weathered Phyllite			
13	10	2.0	12.3'-14.3'						No headspace taken below groundwater table	
	17						Extremely weathered Phyllite		Air hammered from 14.3 ' to 20' to install casing.	
14	20									
15										
16										

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B126B

BORING LOG FOR:	B126B							BORING NO.:	B126B	
PROJECT NO:	112G00933.0212							START DATE:	7/22/2008	
LOGGED BY:	M. Alroy							COMPLETION DATE:	7/25/2008	
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:	MW126B	
GRD. SURFACE ELEVATION:	55.9 ft NGVD			ELEVATION FROM: Louis Frederici Assoc.				CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
17				EXTREMELY WEATHERED PHYLLITE						
18							Extremely weathered Phyllite			
19										
20									* Grouted 4", schedule 40 black carbon steel casing to 20'.	
21		0.25 1.0	CORE 1 20'-21' RQD = 0%				20'-22' - Extremely weathered Phyllite			
22										
23		3.6 5	CORE 2 21'-26' RQD = 11%	WEATHERED META-CONGLOMERATE			22.0-25.5' - Weathered Metaconglomerate			
24							Horizontal fractures with oxidation stains observed at 22.25', 22.7', 22.9', 23.2', 23.5', 24', 24.3' and 24.7'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B126B	PAGE: 3 OF 8

BORING LOG FOR:	B126B			BORING NO.:	B126B
PROJECT NO:	112G00933.0212			START DATE:	7/22/2008
LOGGED BY:	M. Alroy			COMPLETION DATE:	7/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz			MON. WELL NO.:	MW126B
GRD. SURFACE ELEVATION:	55.9 ft NGVD	ELEVATION FROM: Louis Frederici Assoc.		CHECKED BY:	D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 2 CONT'	WEATHERED META-CONGLOMERATE						
25										0.0
							25.5' - 25.6' - extremely weathered phyllite vertical fracture at 25.5' Horizontal fracture observed at 25.6', 25.8' and 26.2'			
26				PHYLLITE/SCHIST						0.0
		5.0	CORE 3 26'-31' RQD = 100%				26.0-31.0' - Phyllite or Schist			
27		5.0								0.0
							No fractures observed during CORE 3			
28										0.0
29										0.0
30										0.0
31										0.0
		5.0	CORE 4 31'-36' RQD = 80%				Phyllite or Schist			
32		5.0								0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B126B	PAGE: 4 OF 8

BORING LOG FOR:	B126B								BORING NO.:	B126B	
PROJECT NO:	112G00933.0212								START DATE:	7/22/2008	
LOGGED BY:	M. Alroy								COMPLETION DATE:	7/25/2008	
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz								MON. WELL NO.:	MW126B	
GRD. SURFACE ELEVATION:	55.9 ft NGVD			ELEVATION FROM: Louis Frederici Assoc.					CHECKED BY:	D.Seiken	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 4 CONT'				Horizontal fracture at 32.0'			
33										0.0
34							Horizontal fracture at 34.0'			0.0
		5.0	CORE 5 36'-41' RQD = 100%	PHYLLITE/SCHIST						
35		5.0								0.0
36										0.0
							Fine grained Metaconglomgrate 36' - 41' vertical fracture observed with oxidation stains at 36.7'			
37										0.0
38				META-CONGLOMERATE						0.0
39										0.0
40										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B126B	PAGE: 5 OF 8

BORING LOG FOR:	B126B	BORING NO.:	B126B

PROJECT NO:	112G00933.0212							START DATE:		7/22/2008
LOGGED BY:	M. Alroy							COMPLETION DATE:		7/25/2008
DRILLED BY (Company/Driller):	Geo Search/Jason Jalutkewicz							MON. WELL NO.:		MW126B
GRD. SURFACE ELEVATION:	55.9 ft NGVD			ELEVATION FROM: Louis Frederici Assoc.				CHECKED BY:		D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		4.0	CORE 6 41'-46' RQD = 36%				Metaconglomerate			
41		5.0								0.0
							Old vertical fracture visible-filled in by calcite fror 41'-45'			
42										0.0
				META-CONGLOMERATE						
43										0.0
44										0.0
45										0.0
		5.	CORE 7 46'-51' RQD = 73%				45' - Transition from Metaconglomgrate to Phyllite or Schist, highly weathered			
46		5.0					- Phyllite or Schist			0.0
				PHYLLITE/SCHIST						
47							No fractures observed during CORE 7			0.0
48										0.0

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD		
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches		
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD	BORING NO.: B126B	PAGE: 6 OF 8

BORING LOG FOR:	B126B	BORING NO.:	B126B
PROJECT NO:	112G00933.0212	START DATE:	7/22/2008
LOGGED BY:	M. Alroy	COMPLETION DATE:	7/25/2008

DRILLED BY (Company/Driller): Geo Search/Jason Jalutkewicz | MON. WELL NO.: MW126B
GRD. SURFACE ELEVATION: 55.9 ft NGVD | ELEVATION FROM: Louis Frederici Assoc. | CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			CORE 7 CONT'							
49										0.0
50										0.0
							- Phyllite or Schist			
51										0.0
		5.0	CORE 8 51'-56' RQD = 90%							
52		5.0		PHYLLITE/SCHIST						0.0
53										0.0
							53.5' - 54.0' - vertical fracture with oxidation staining			
54										0.0
55										0.0
							- Phyllite or Schist			
56										0.0

TYPE OF DRILLING RIG: ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)
METHOD OF ADVANCING BORING: AUGER 4.25" ID, 7.25' OD
METHOD OF SOIL SAMPLING: 3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches
METHOD OF ROCK CORING: HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:: AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD

Tetra Tech NUS, Inc.

BORING LOG FOR: B126B | BORING NO.: B126B
PROJECT NO: 112G00933.0212 | START DATE: 7/22/2008
LOGGED BY: M. Alroy | COMPLETION DATE: 7/25/2008
DRILLED BY (Company/Driller): Geo Search/Jason Jalutkewicz | MON. WELL NO.: MW126B
GRD. SURFACE ELEVATION: 55.9 ft NGVD | ELEVATION FROM: Louis Frederici Assoc. | CHECKED BY: D.Seiken

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG. (ft/ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	DRILLING RATE	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		4.	CORE 9 56'-60' RQD = 100%							0.0
57		4.0					- Phyllite or Schist			
										0.0
58				PHYLLITE/SCHIST						
										0.0
59										
										0.0
60										
							BOTTOM OF BORING @ 60'			

TYPE OF DRILLING RIG:	ATV Mounted CME 750 Hollow Stem Auger Rig (HSA)	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	AUGER 4.25" ID, 7.25' OD	
METHOD OF SOIL SAMPLING:	3" SPLIT SPOON: 2' in Length advanced using a 140-lb hammer falling 30 inches	
METHOD OF ROCK CORING:	HQ WIRELINE Coring: H Size Core, 2.25" ID 3.78" OD	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	AIR HAMMER DRILLING to depth of 10' to install casing- 3.875" OD BORING NO.: B126B	PAGE: 8 OF 8

APPENDIX B.3

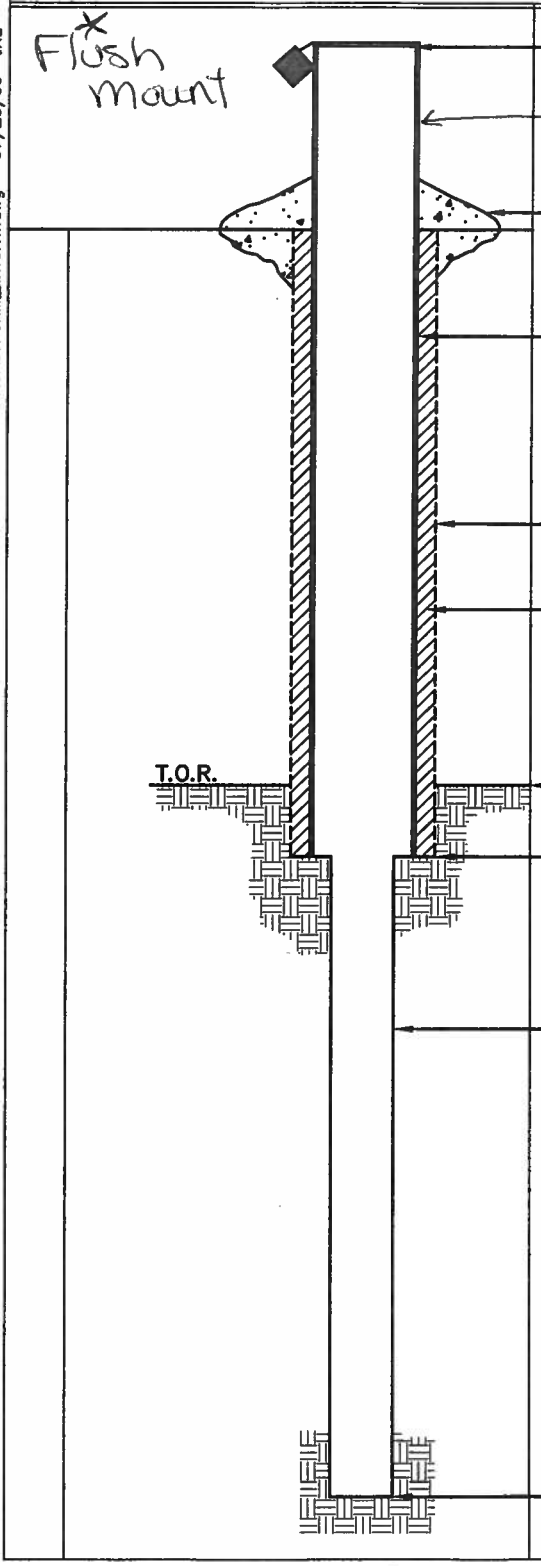
MONITORING WELL CONSTRUCTION LOGS

WELL NO.: MW-100B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION Paved Storage Area	DRILLER Geosearch/Jhn
PROJECT NO. 112G00933	BORING SB-100	DRILLING METHOD HSA/Air Rotary
DATE BEGUN 3/19/08	DATE COMPLETED 3/20/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD
GROUND ELEVATION 51.34	DATUM	



ELEVATION/HEIGHT OF TOP OF ~~SURFACE CASING~~ Surface Seal: 51.34 / 0.04

Elevation / Depth of top of CASING: 51.09 / 0.25

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 9.5'

DEPTH TO BOTTOM CASING: 15'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 6.3/45

ACAD: FORM_MWOHW.dwg 07/20/99 INL

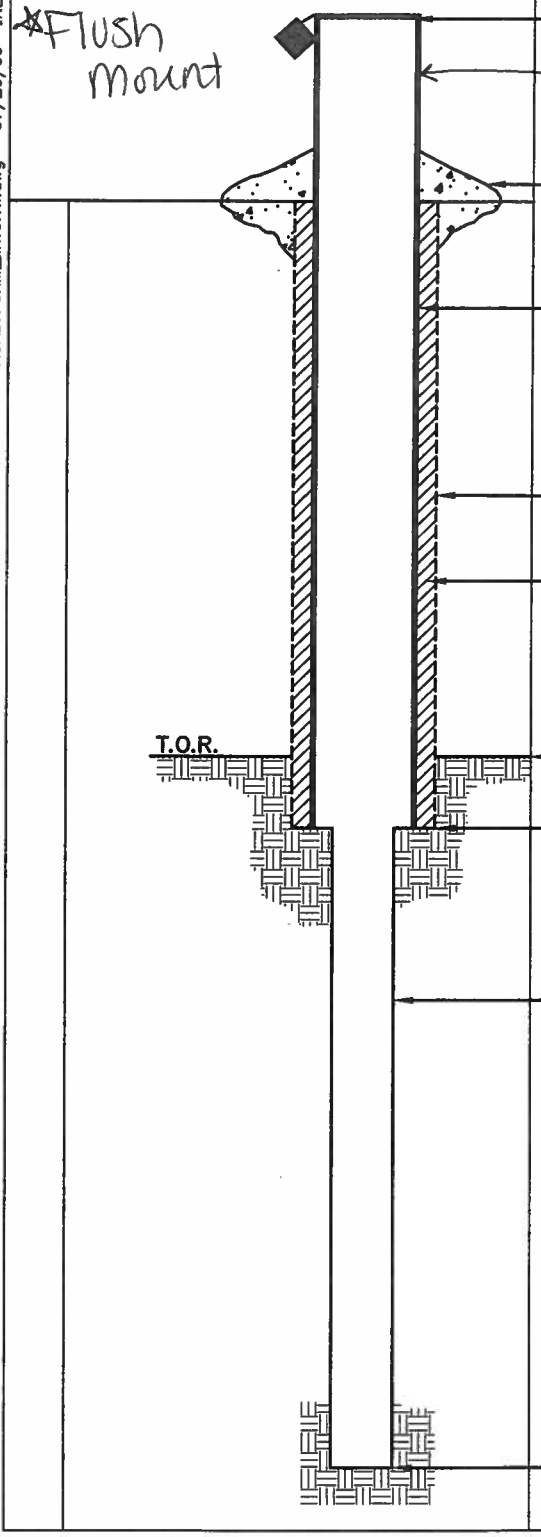
WELL NO.: MW101B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION Paved Storage Areas	DRILLER Geosearch
PROJECT NO. 112G00933	BORING SB-101B	DRILLING METHOD HSA/Air Rotary
DATE BEGUN 3/20/08	DATE COMPLETED 3/28/08	
FIELD GEOLOGIST M. Airey		DEVELOPMENT METHOD
GROUND ELEVATION 51.7	DATUM	

ACAD: FORM_MWOHW.dwg 07/20/99 INL



ELEVATION/HEIGHT OF TOP OF ~~SURFACE CASING~~ Surface Seal: 51.74'/0.04'

Elevation/Depth of Top of Casing: 51.48'/0.26'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 7.5'

DEPTH TO BOTTOM CASING: 10'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 1.7'/50'

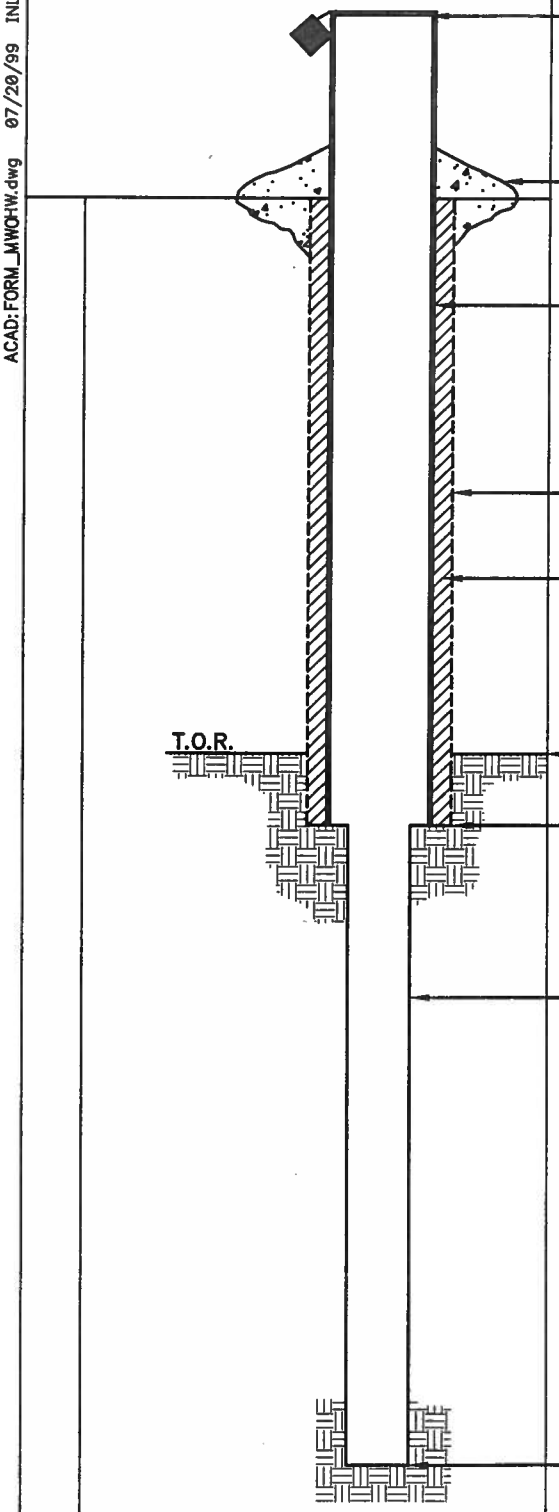
WELL NO.: MW-102B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION Paved Storage Areas	DRILLER Geosearch/Jason
PROJECT NO. 113600933	BORING SB-102B	DRILLING METHOD HSA / Air Rotary
DATE BEGUN 4/1/08	DATE COMPLETED 4/7/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD
GROUND ELEVATION 44.5 50.8 DATUM		

ACAD:FORM_MWOHW.dwg 07/20/99 INL



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 52.55/1.75

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanent

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 9.5'

DEPTH TO BOTTOM CASING: 14'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

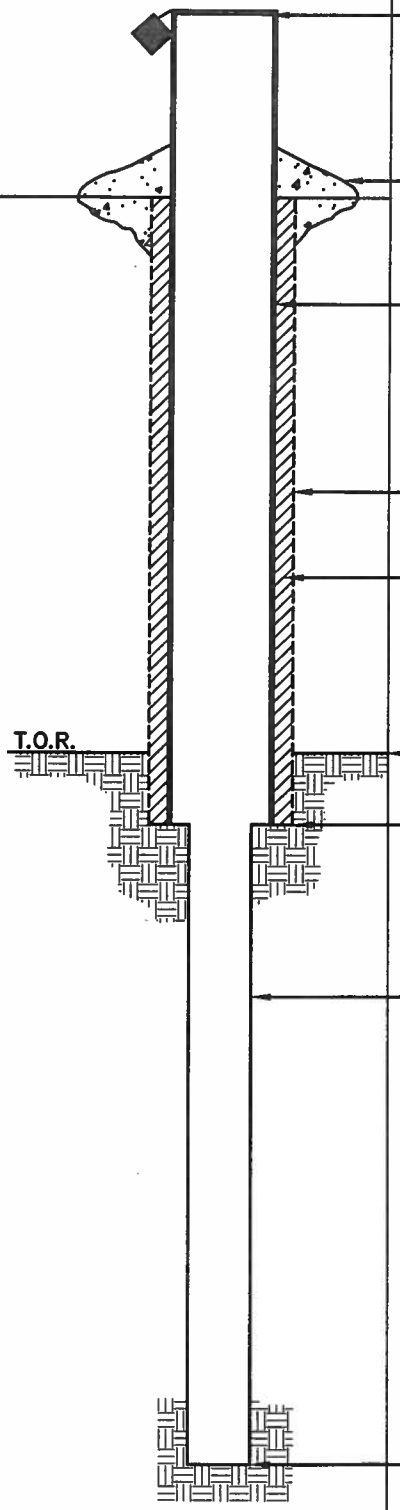
ELEVATION/DEPTH OF HOLE: 6.8', 44'

WELL NO.: MW-103B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION Paved Storage Areas	DRILLER Geosearch
PROJECT NO. 112G00933	BORING SB-103B	DRILLING METHOD
DATE BEGUN 4/1/08	DATE COMPLETED 4/7/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD
GROUND ELEVATION 48.8	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 50.9 / 2.1

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanent

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 16'

DEPTH TO BOTTOM CASING: 20'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: ~ 1.2 / 50'

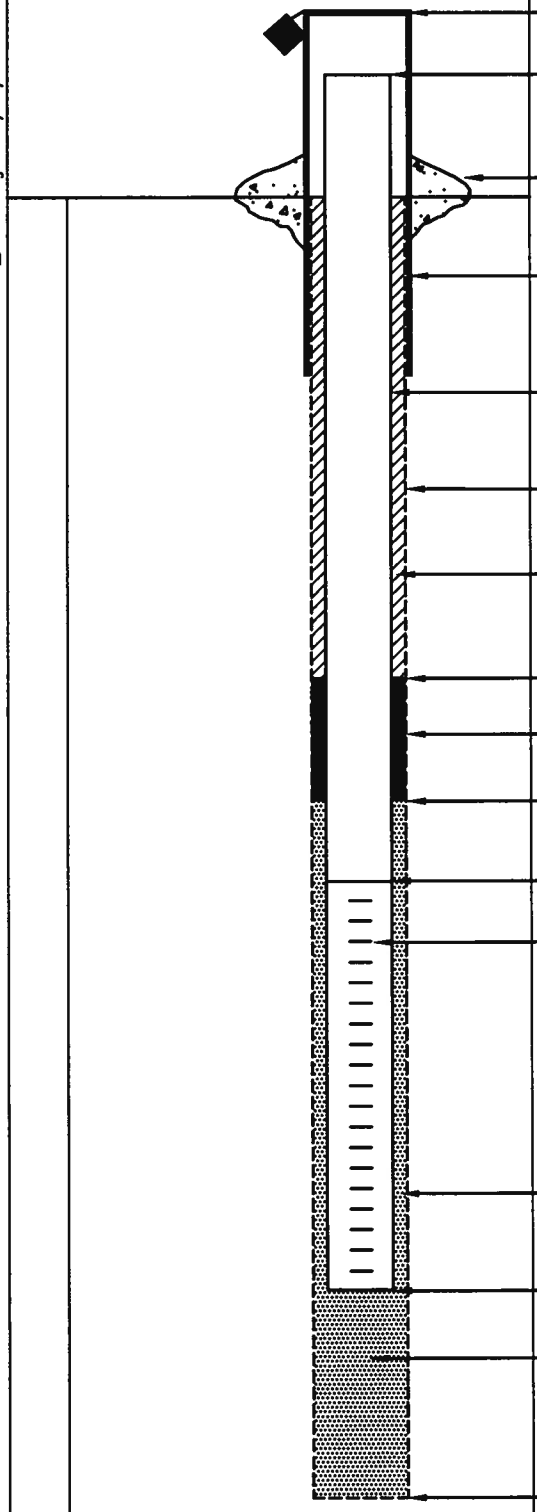
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-103S

Tetra Tech NUS, Inc.

OVERBURDEN
MONITORING WELL SHEET
STICK-UP

PROJECT NUSC-Disposal Area	LOCATION Paved Storage Area SB-103B	DRILLER Geosearch	
PROJECT NO. 112600933	BORING SB-103B	DRILLING METHOD HSA	
DATE BEGUN 4/18/08	DATE COMPLETED 4/18/08		
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD	
GROUND ELEVATION 48.7	DATUM		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 51.02/2.32

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 50.81/2.11

TYPE OF SURFACE SEAL: Cement

I.D. OF SURFACE CASING: 4"
TYPE OF SURFACE CASING: Steel

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 7.25"

TYPE OF BACKFILL: Native Backfill

ELEVATION/DEPTH TOP OF SEAL: 38.2/10.5

TYPE OF SEAL: Bentonite

DEPTH TOP OF SAND PACK: 12.5

ELEVATION/DEPTH TOP OF SCREEN: 34.2/14.5

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10 Slot X 5'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: #1 Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 29.2/19.5

ELEVATION/DEPTH BOTTOM OF SAND PACK: 29.2/19.5

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 29.2/19.5

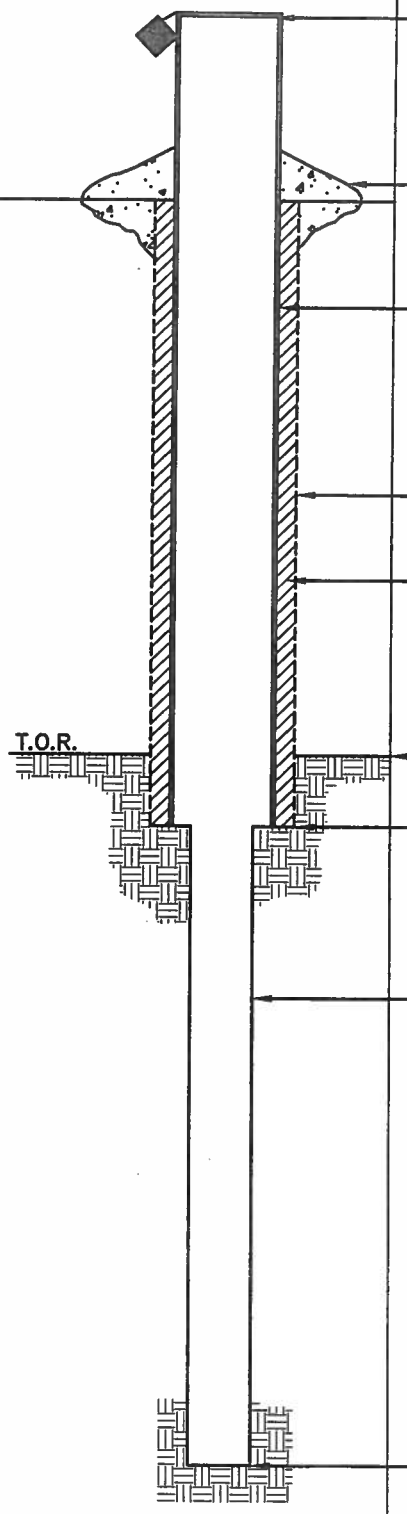
ACAD: FORM_MWSU.dwg 07/20/99 INL

WELL NO.: MW-104B

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION South Meadow	DRILLER Geosearch Nason
PROJECT NO. 112G00933	BORING SB-104B	DRILLING METHOD HSA / ~~Air Rotary~~ NA Wireline
DATE BEGUN 4/9/08	DATE COMPLETED 4/15/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD
GROUND ELEVATION 48.4	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 50.41/2.01

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 16'

DEPTH TO BOTTOM CASING: 19'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 6.4'/42'

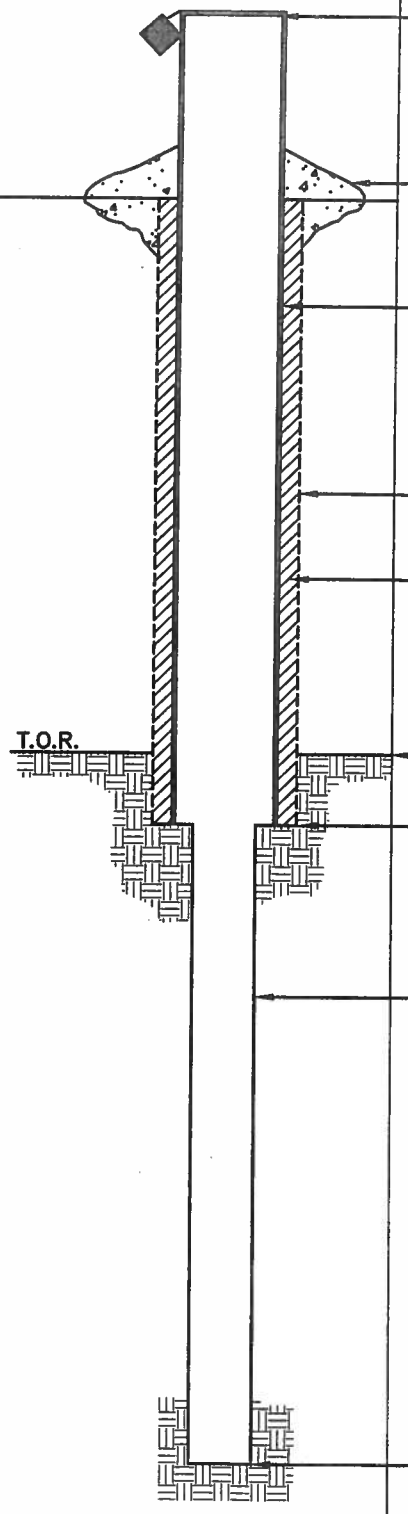
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-105B

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION South Meadow	DRILLER Geosearch
PROJECT NO. 112G09933	BORING SB-105B	DRILLING METHOD HSA / Air Rotary
DATE BEGUN 4/8/08	DATE COMPLETED 4/9/08	DEVELOPMENT METHOD
FIELD GEOLOGIST M. Alroy		
GROUND ELEVATION 47.2	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 49.13/1.93

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 16'

DEPTH TO BOTTOM CASING: 18'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: -0.8'/48.0'

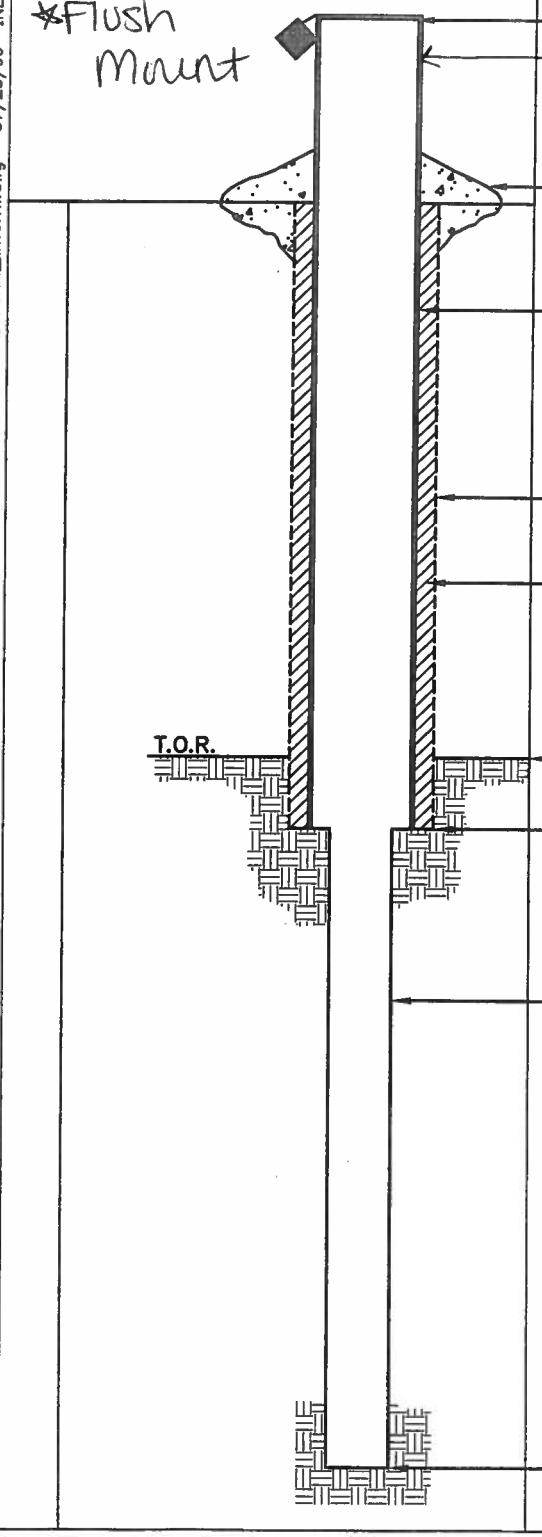
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-106B

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION Paved Storage Areas	DRILLER Geosearch	
PROJECT NO. 112G00933	BORING SB-106B	DRILLING METHOD HSA / ~~Air Rotary~~ HQ-Wireline	
DATE BEGUN 3/19/08	DATE COMPLETED 3/27/08		
FIELD GEOLOGIST M. Alras		DEVELOPMENT METHOD	
GROUND ELEVATION 57.8	DATUM		



ELEVATION/HEIGHT OF TOP OF SURFACE ~~CASING~~ SEAL: 57.81 / 0.01'

ELEVATION/~~Height~~ Depth of Top of CASING: 57.72' / 0.09'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 17'

DEPTH TO BOTTOM CASING: 20'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 7.8' / 50'

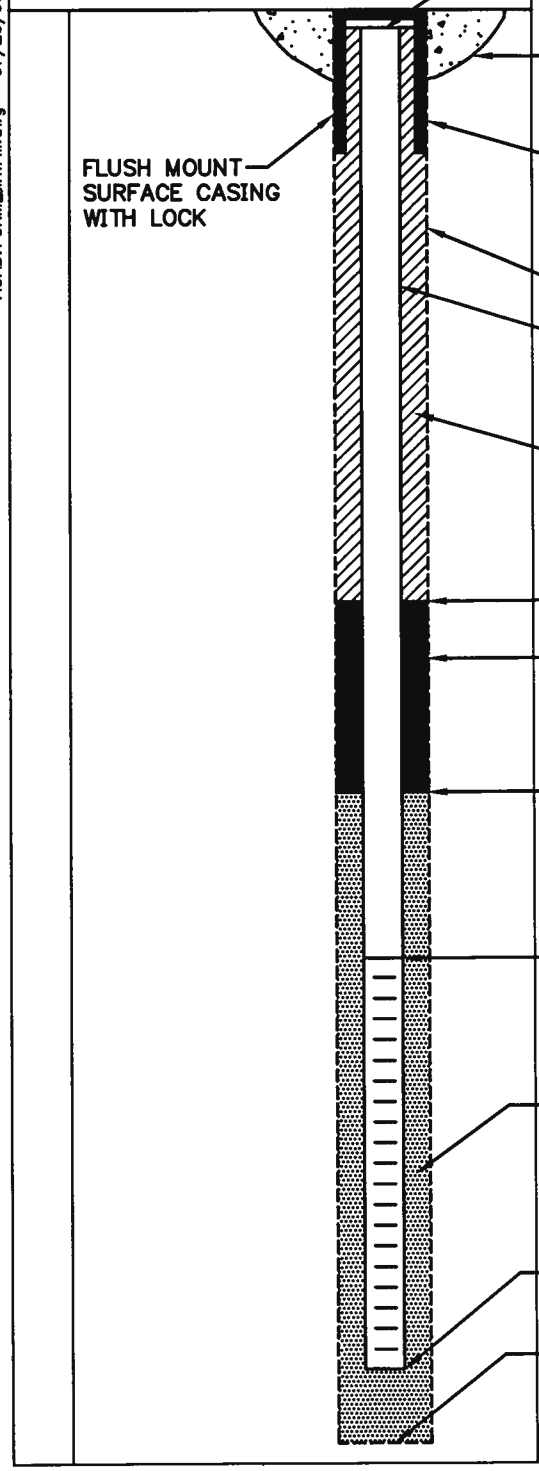
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-106S

Tetra Tech NUS, Inc.

OVERBURDEN
MONITORING WELL SHEET
FLUSH - MOUNT

PROJECT: NUSC - Disposal Area	LOCATION: Paved Storage Area	DRILLER: Geosearch / Jason
PROJECT NO.: 112G00933	BORING: SB-106B	DRILLING METHOD: HSA
DATE BEGUN: 9/18/08	DATE COMPLETED: 9/18/08	
FIELD GEOLOGIST: R. Clark		DEVELOPMENT METHOD:
GROUND ELEVATION: 57.9	DATUM:	



ELEVATION TOP OF RISER: 57.38

TYPE OF SURFACE SEAL: Cement

TYPE OF PROTECTIVE CASING: Steel

I.D. OF PROTECTIVE CASING:

DIAMETER OF HOLE: 7.25"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 2"

TYPE OF BACKFILL/SEAL: Backfill w/ Sand

ELEVATION/DEPTH TOP OF SEAL: 52.9 / 5

TYPE OF SEAL: Bentonite

ELEVATION/DEPTH TOP OF SAND: 50.9 / 7

ELEVATION/DEPTH TOP OF SCREEN: 48.9 / 9

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10-Slot X 10'

TYPE OF SAND PACK: No. 1 Sand

~~DIAMETER OF HOLE IN BEDROCK:~~ NA

ELEVATION / DEPTH BOTTOM OF SCREEN: 38.9 / 19

ELEVATION / DEPTH BOTTOM OF SAND: 38.9 / 19

ELEVATION/DEPTH BOTTOM OF HOLE: 37.9 / 20

BACKFILL MATERIAL BELOW SAND: Sand

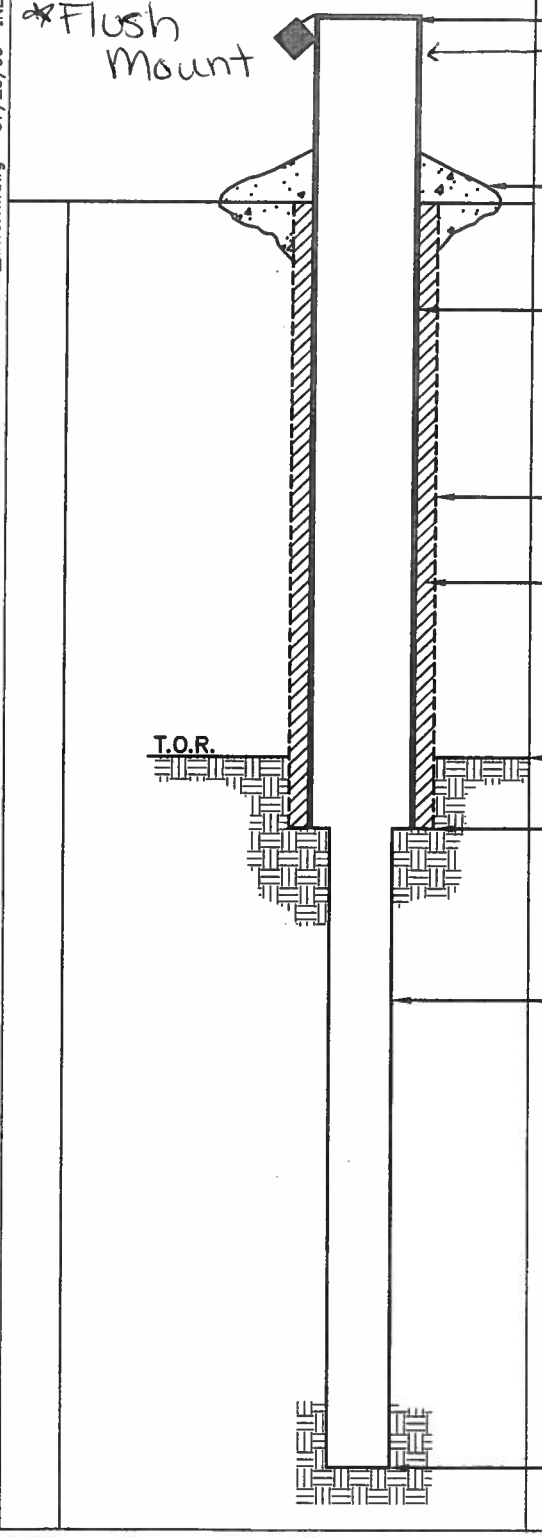
ACAD: FORM_MWFM.dwg 07/20/99 INL

WELL NO.: MW-107B

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET OPEN HOLE WELL

PROJECT NIUSC - Disposal Area	LOCATION Paved Storage Area	DRILLER Geosearch	
PROJECT NO. 112G09933	BORING SB-107B	DRILLING METHOD HSA / ~~Air Rotary~~ HQ-wireline	
DATE BEGUN 3/21/08	DATE COMPLETED 3/26/08		
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD	
GROUND ELEVATION 53.4'	DATUM		



ELEVATION/HEIGHT OF TOP OF SURFACE ~~CASING~~ SEAL: 53.41 / 0.01

ELEVATION / ~~Helo~~ Depth of Top of CASING: 52.97 / 0.44

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 10'

DEPTH TO BOTTOM CASING: 15'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 8.4' / 45'

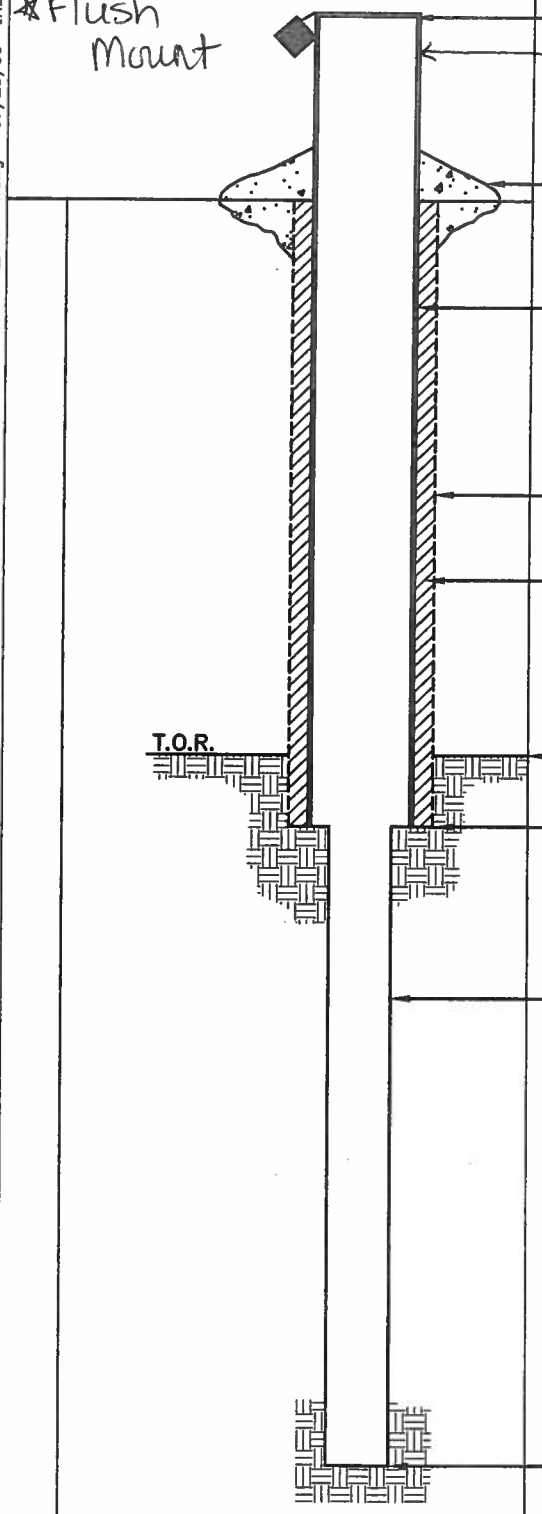
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-108B

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET OPEN HOLE WELL

PROJECT NIUSC - Disposal Area	LOCATION Paved Storage Areas	DRILLER Geosearch
PROJECT NO. 112G00933	BORING SB-108B	DRILLING METHOD HSA / ~~Air Rotary~~ HQ wireline
DATE BEGUN 3/21/08	DATE COMPLETED 3/25/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD
GROUND ELEVATION 51.8	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE ~~CASING~~ SEAL: 51.84/0.04

Elevation/Depth of Top of CASING: 51.43/0.41

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanent

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 9.5'

DEPTH TO BOTTOM CASING: 15'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 6.8'/45'

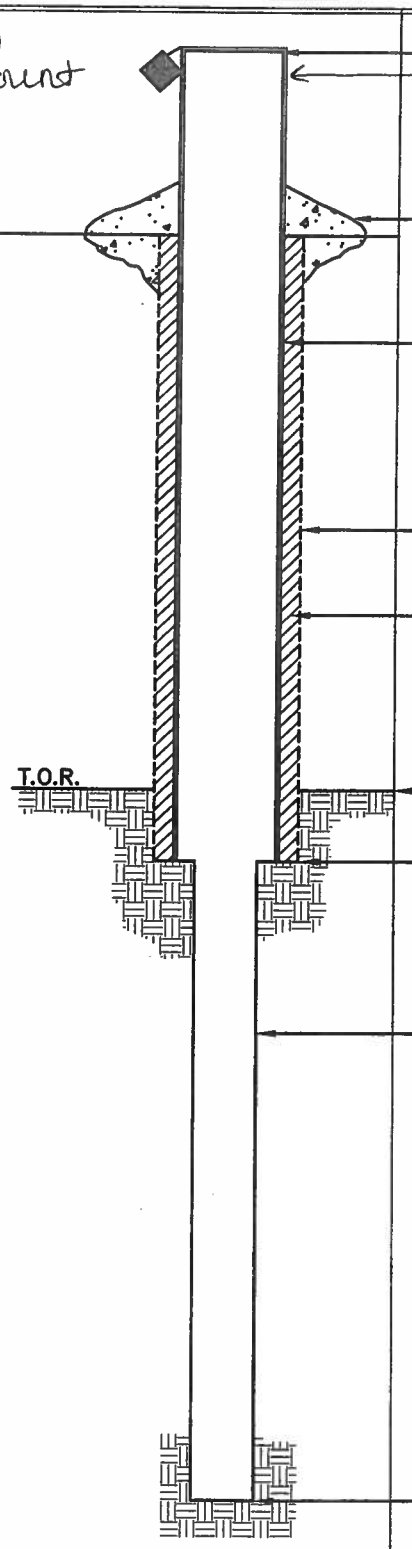
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-109B

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET OPEN HOLE WELL

PROJECT NIUSC - Disposal Area	LOCATION Paved Storage Areas	DRILLER Geosearch
PROJECT NO. 112G00933	BORING SB-109B	DRILLING METHOD HSA / ~~Air Rotary~~ HQ Wireline
DATE BEGUN 3/20/08	DATE COMPLETED 3/24/08	DEVELOPMENT METHOD
FIELD GEOLOGIST		
GROUND ELEVATION 51.1	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE ~~CASING~~ SEAL: 51.10' / -0.01'

Elevation / Depth of Top of CASING 50.65' / 0.45'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 10'

DEPTH TO BOTTOM CASING: 15'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: 6.1', 45'

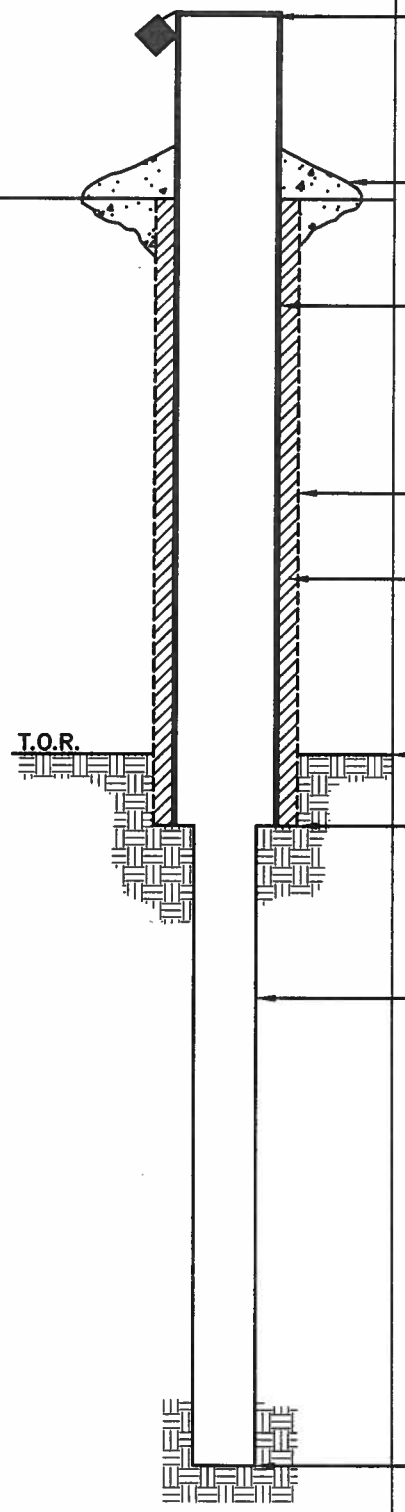
ACAD: FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-110B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC - Disposal Area	LOCATION South Meadow	DRILLER Geosearch/Jason
PROJECT NO. 112G00933	BORING SB-110B	DRILLING METHOD HSA / ~~Air Rotary~~ HQ Wireline
DATE BEGUN 9/11/08	DATE COMPLETED	
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD
GROUND ELEVATION 47.9	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 49.83/1.93

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 16'

DEPTH TO BOTTOM CASING: 19'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: NA

DESCRIBE JOINTS IN BEDROCK AND DEPTH: NA

ELEVATION/DEPTH OF HOLE: -1.1'/49'

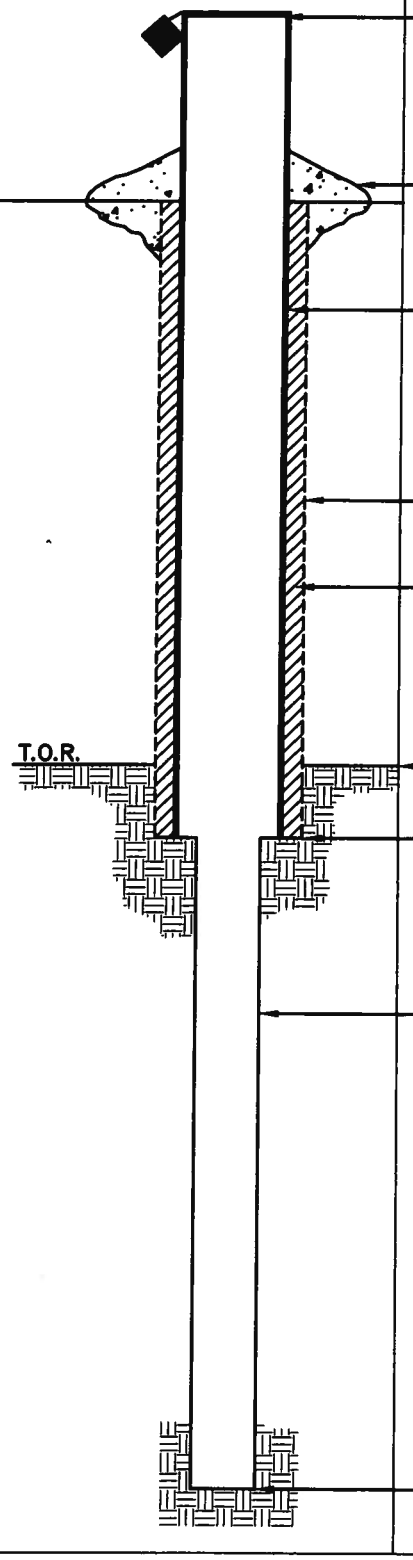
ACAD: FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-1113

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION South Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B1113	DRILLING METHOD HSA/HQ Wireline
DATE BEGUN 04/03/08	DATE COMPLETED 04/10/08	
FIELD GEOLOGIST M.Alroy		DEVELOPMENT METHOD Whale
GROUND ELEVATION 50.60	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 51.86' / 1.26'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 11.3'

DEPTH TO BOTTOM CASING: 14.0'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: 6.6' / 44'

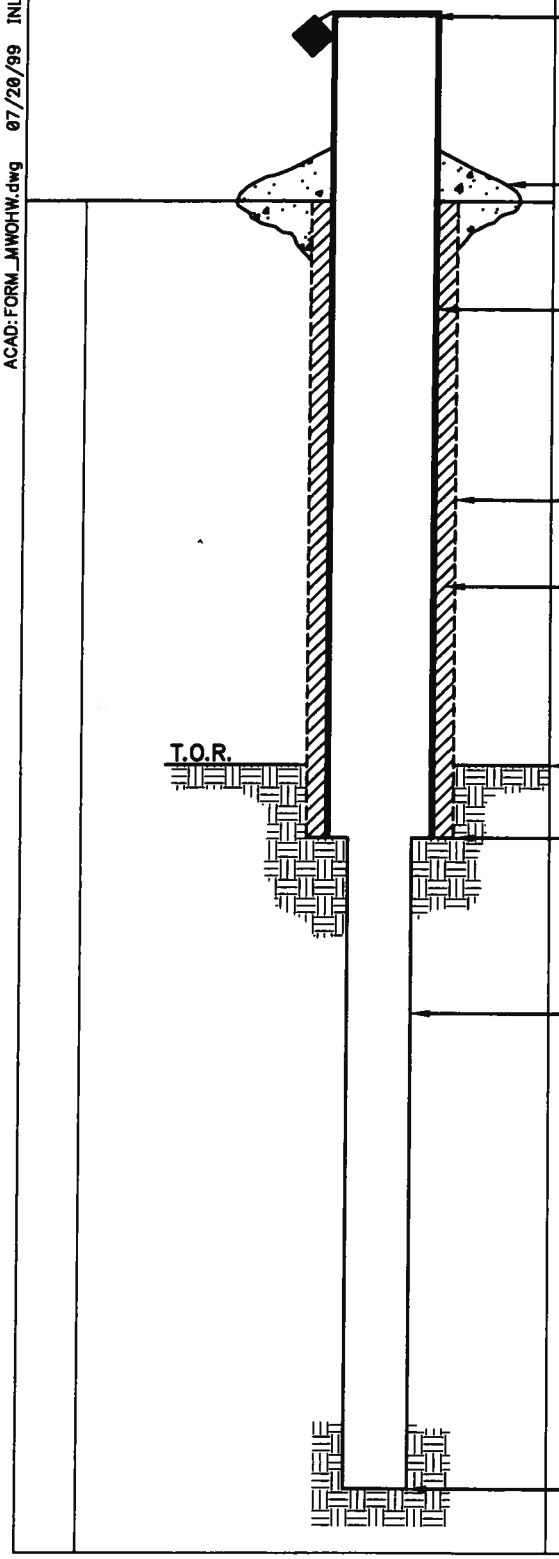
ACAD: FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-112B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION South Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B112B	DRILLING METHOD HSA/HQ Wireline/Air Hammer
DATE BEGUN 04/10/08	DATE COMPLETED 04/16/08	
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD Whale
GROUND ELEVATION 49.70	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 51.86'/2.16'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 12.5'

DEPTH TO BOTTOM CASING: 18.0'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: 27'/47'

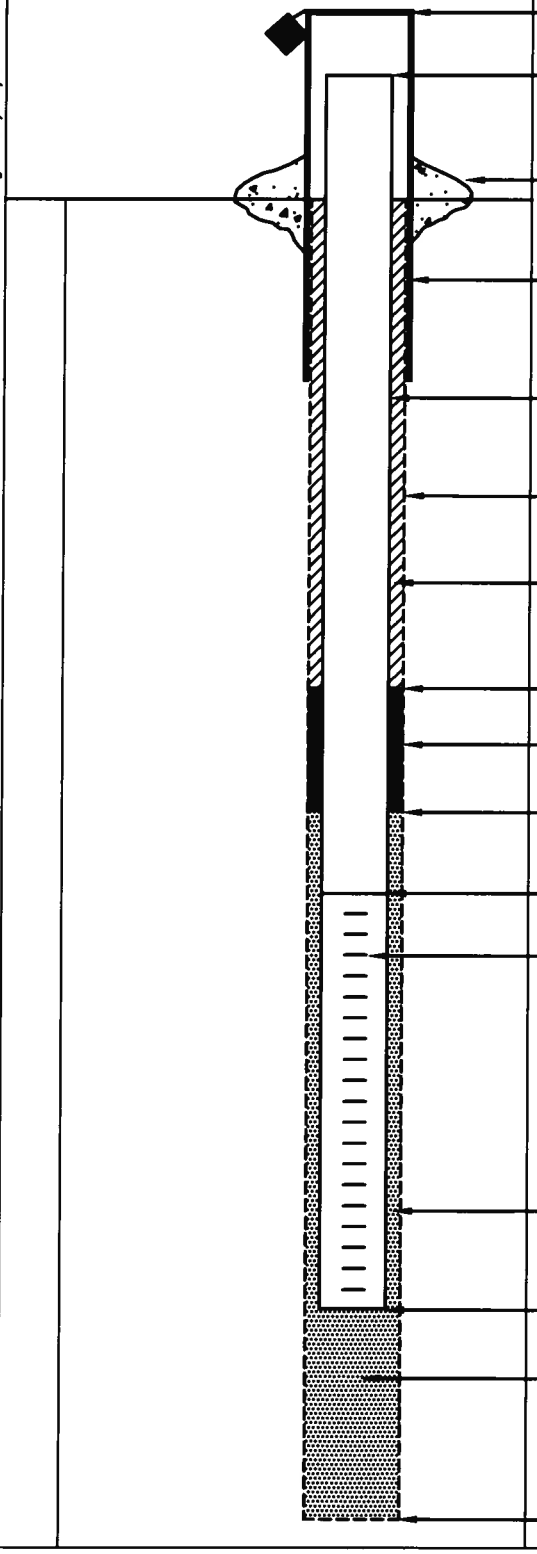
ACAD: FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-112S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NUSC Disposal Area	LOCATION South Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B112S	DRILLING METHOD HSA
DATE BEGUN 04/18/08	DATE COMPLETED 04/18/08	
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD Whale
GROUND ELEVATION 50.0	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 52.68' / 2.68'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 52.55' / 2.55'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 4"
TYPE OF SURFACE CASING: Steel

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 7.25"

TYPE OF BACKFILL: ~~Bentonite~~ BG Native Material

ELEVATION/DEPTH TOP OF SEAL: 44' / 6'

TYPE OF SEAL: Bentonite

DEPTH TOP OF SAND PACK: 8'

ELEVATION/DEPTH TOP OF SCREEN: 40' / 10'

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10 slot x 15'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: #1 Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 30' / 20'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 30' / 20'
BACKFILL MATERIAL BELOW SAND: N/A

ELEVATION/DEPTH OF HOLE: 30' / 20'

ACAD: FORM_MWSU.dwg 07/20/99 INL

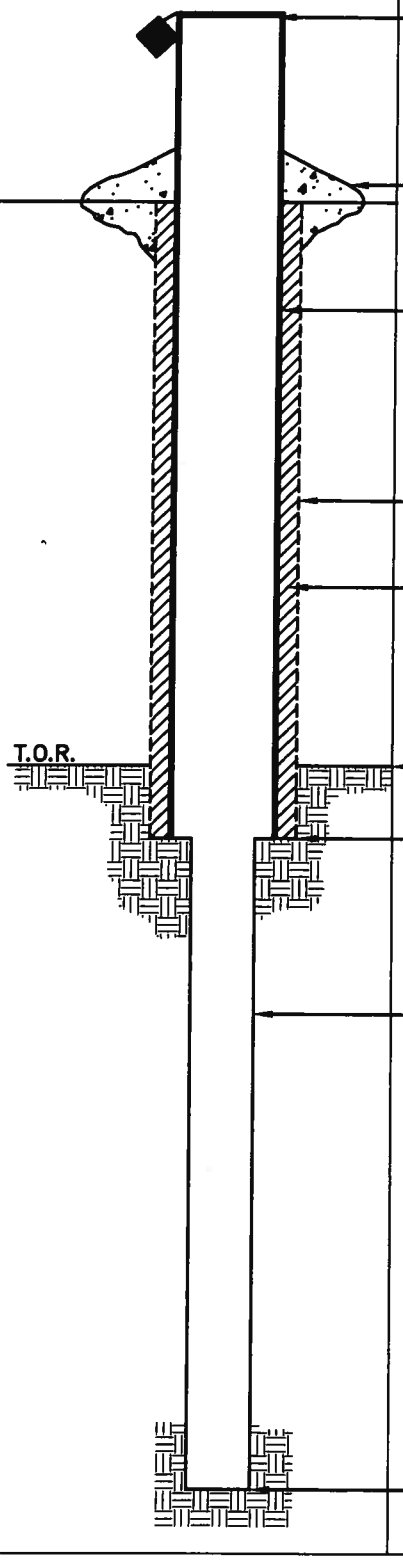
WELL NO.: MW-113B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION South Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B113B	DRILLING METHOD HSA/HQ Wireline/Air Hammer
DATE BEGUN 04/10/08	DATE COMPLETED 04/15/08	
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD Whale
GROUND ELEVATION 50.0	DATUM NGVD	

ACAD:FORM_MWOHW.dwg 07/20/99 INL



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 51.91' / 1.91'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 9.5'

DEPTH TO BOTTOM CASING: 14'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

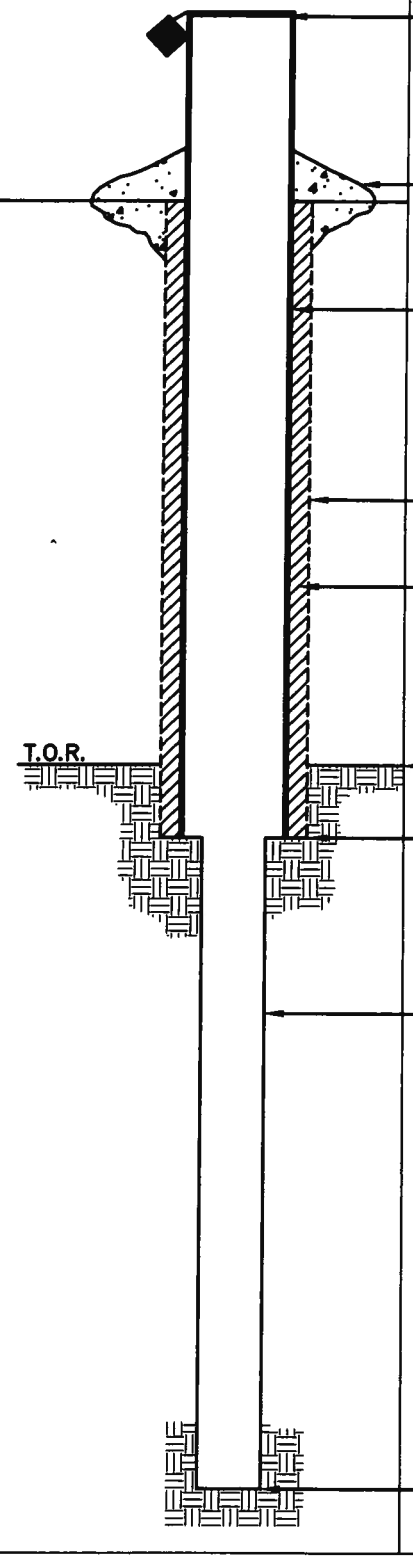
ELEVATION/DEPTH OF HOLE: 4' / 46'

WELL NO.: MW-1143

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION North Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B1143	DRILLING METHOD HSA/HQ Wireline/Air Hammer
DATE BEGUN 03/31/08	DATE COMPLETED 04/08/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD Whale
GROUND ELEVATION 43.4	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 45.55'/2.15'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 2.75'

DEPTH TO BOTTOM CASING: 10'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: -17.6'/61'

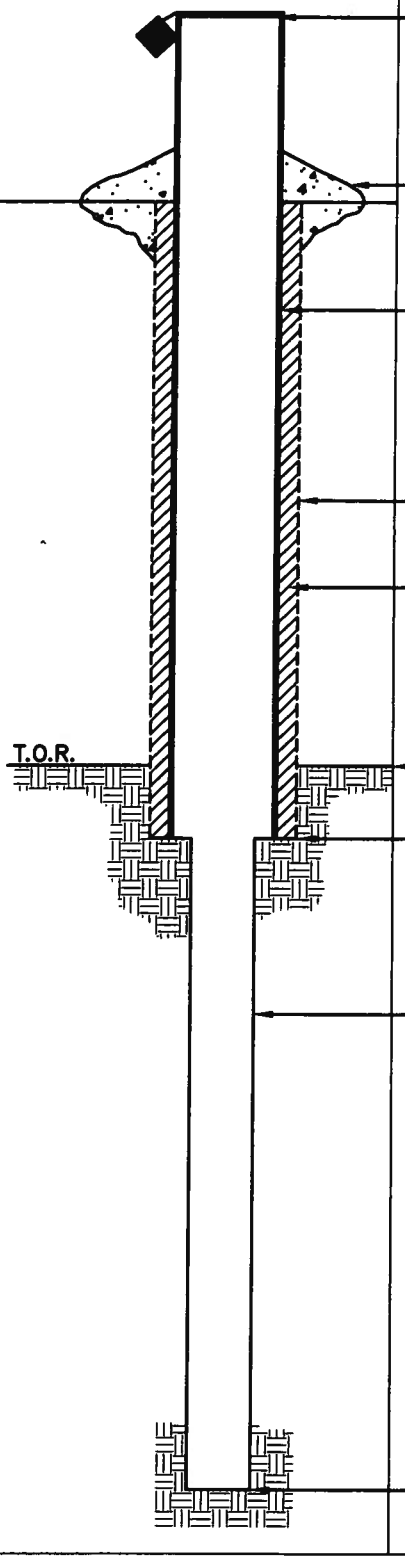
ACAD: FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-115B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION North Meadow	DRILLER Geosearch	
PROJECT NO. 112G00933	BORING B115B	DRILLING METHOD HSA/HQ Wireline	
DATE BEGUN 03/31/08	DATE COMPLETED 04/03/08		
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD Whale	
GROUND ELEVATION 43.1	DATUM NGVD		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 45.27'/2.17'

TYPE OF SURFACE SEAL: 3% Bentonite Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 2.67'

DEPTH TO BOTTOM CASING: 9.5'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: -4.9' / 48'

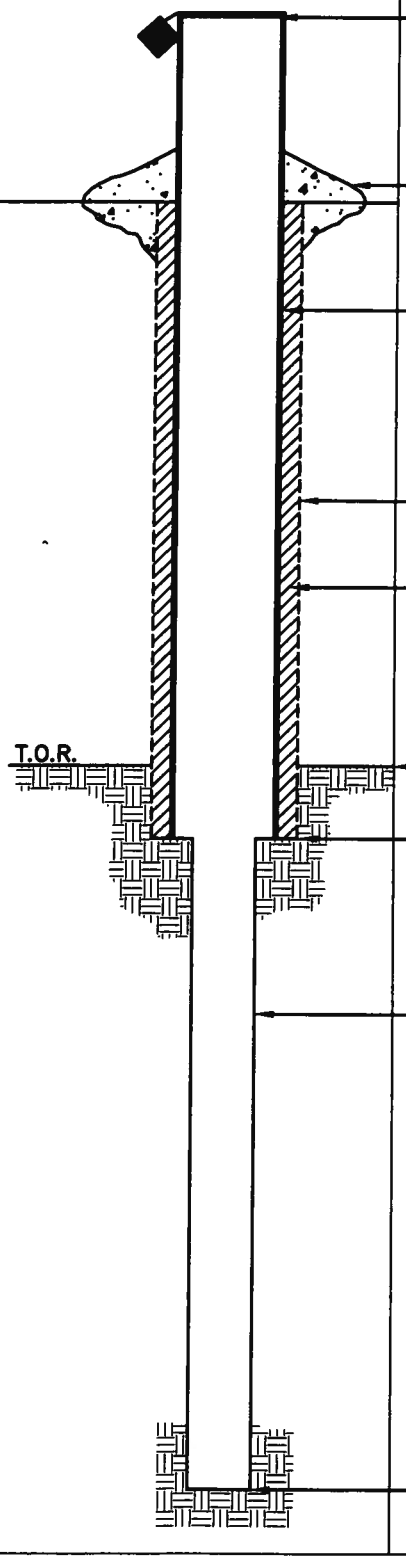
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-116B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION North Meadow	DRILLER Geosearch	
PROJECT NO. 112G00933	BORING B116B	DRILLING METHOD	Air HSA/HQ Wireline/Hammer
DATE BEGUN 04/01/08	DATE COMPLETED 04/02/08		
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD	Whale
GROUND ELEVATION 45.7	DATUM NGVD		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 47.83'/ 2.13'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 5.25'

DEPTH TO BOTTOM CASING: 10'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: 5.7' / 40'

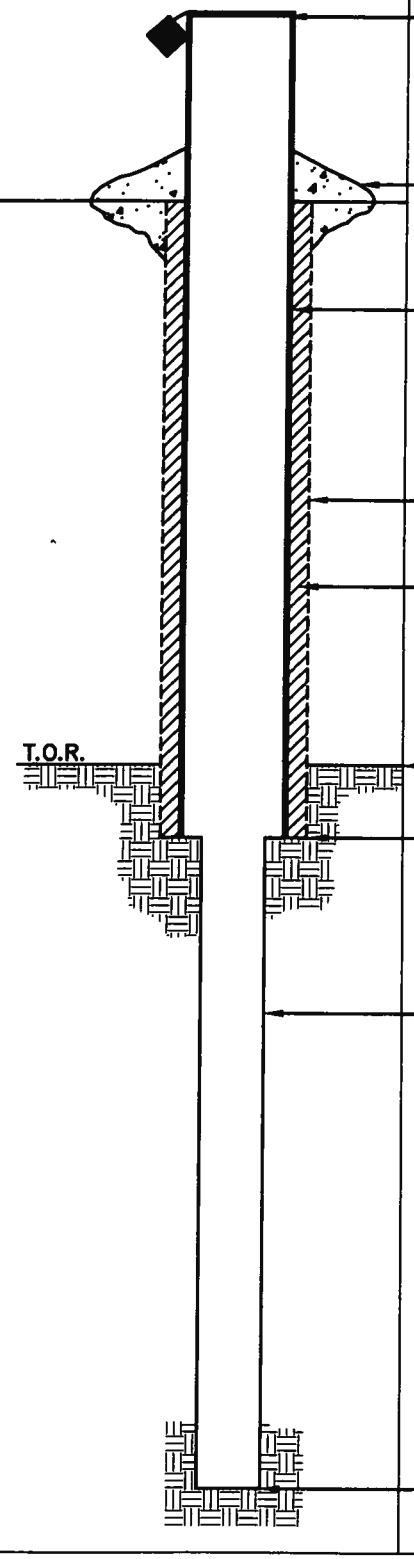
ACAD: FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-117B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION North Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B117B	DRILLING METHOD HSA/HQ Wireline/Hammer Air
DATE BEGUN 03/31/08	DATE COMPLETED 04/04/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD Whale
GROUND ELEVATION 45.0	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 47.00' / 2.00'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 1.35'

DEPTH TO BOTTOM CASING: 10'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: 5' / 40'

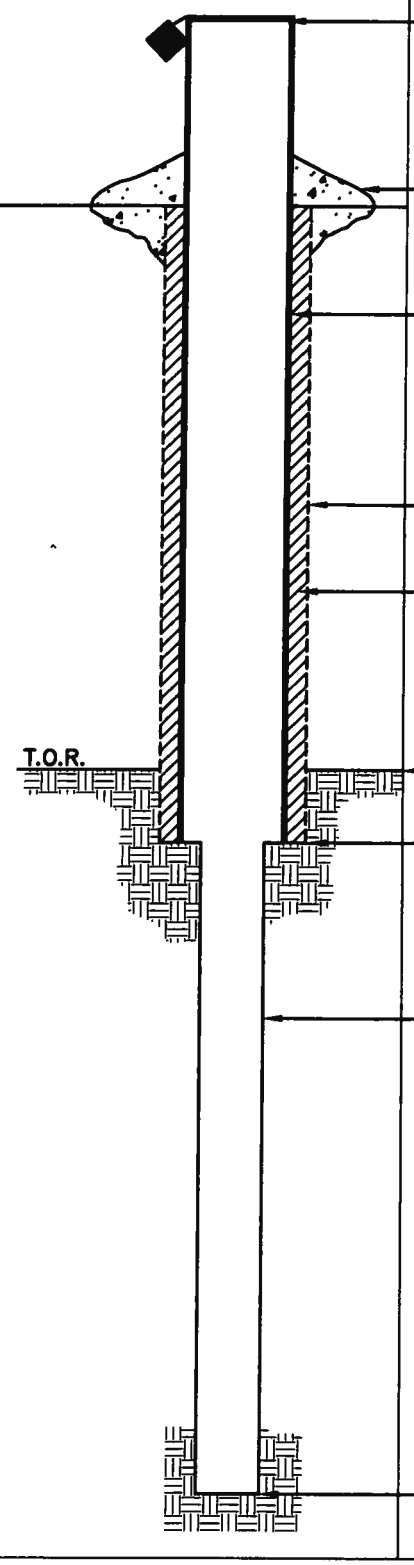
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-118B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION North Meadow	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B118B	DRILLING METHOD HSA/Air Hammer
DATE BEGUN 03/18/08	DATE COMPLETED 03/27/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD Grundfos
GROUND ELEVATION 47.7	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 50.11' / 2.41'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 8.5'

DEPTH TO BOTTOM CASING: 18'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: -1.3' / 49'

ACAD:FORM_MWOHW.dwg 07/20/99 INL

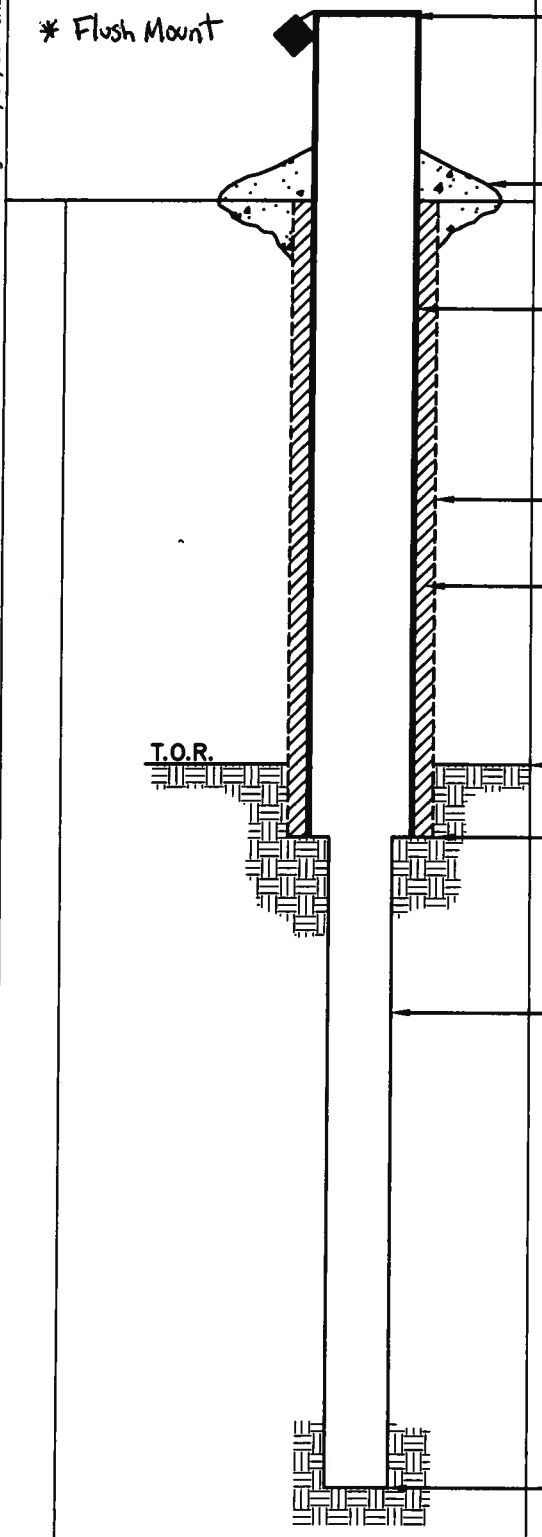
WELL NO.: MW-119B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION North of Dam	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B119B	DRILLING METHOD HSA/HQ Wireline/Hammer Air
DATE BEGUN 04/14/08	DATE COMPLETED 04/17/08	
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD GrundFos
GROUND ELEVATION 29.0	DATUM NGVD	

ACAD: FORM_MWOHW.dwg 07/20/99 INL



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 29.0 / —

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 11'

DEPTH TO BOTTOM CASING: 15'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

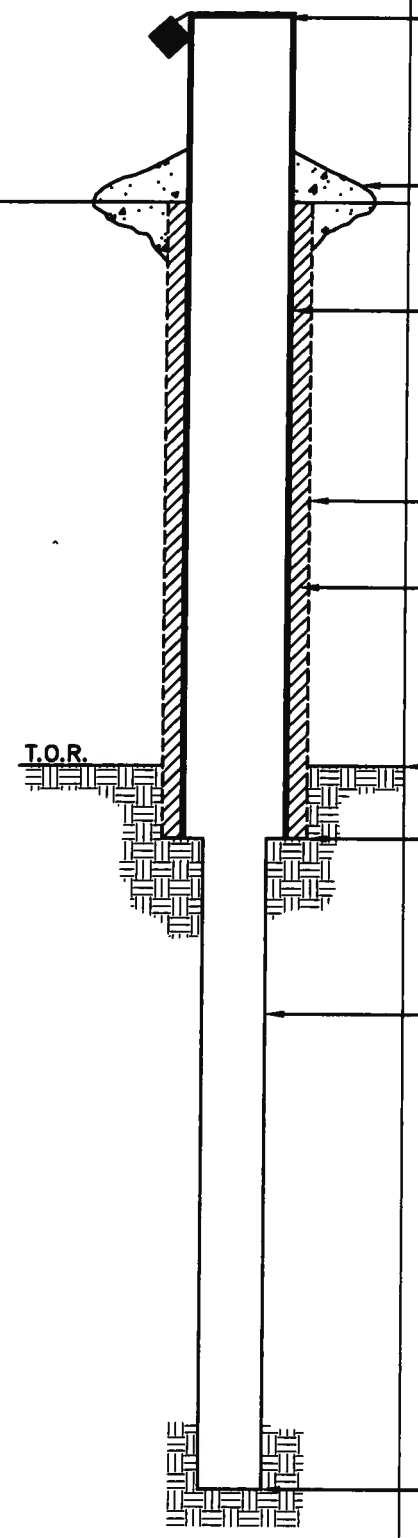
ELEVATION/DEPTH OF HOLE: -16' / 45'

WELL NO.: MW-120B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION West of Pond	DRILLER Geosearch	
PROJECT NO. 112G00933	BORING B120B	DRILLING METHOD HSA/Air Hammer	
DATE BEGUN 04/07/08	DATE COMPLETED 04/09/08		
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD GrundFos	
GROUND ELEVATION 45.0	DATUM NGVD		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 47.37' / 2.37'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 5.4'

DEPTH TO BOTTOM CASING: 10'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: -15' / 60'

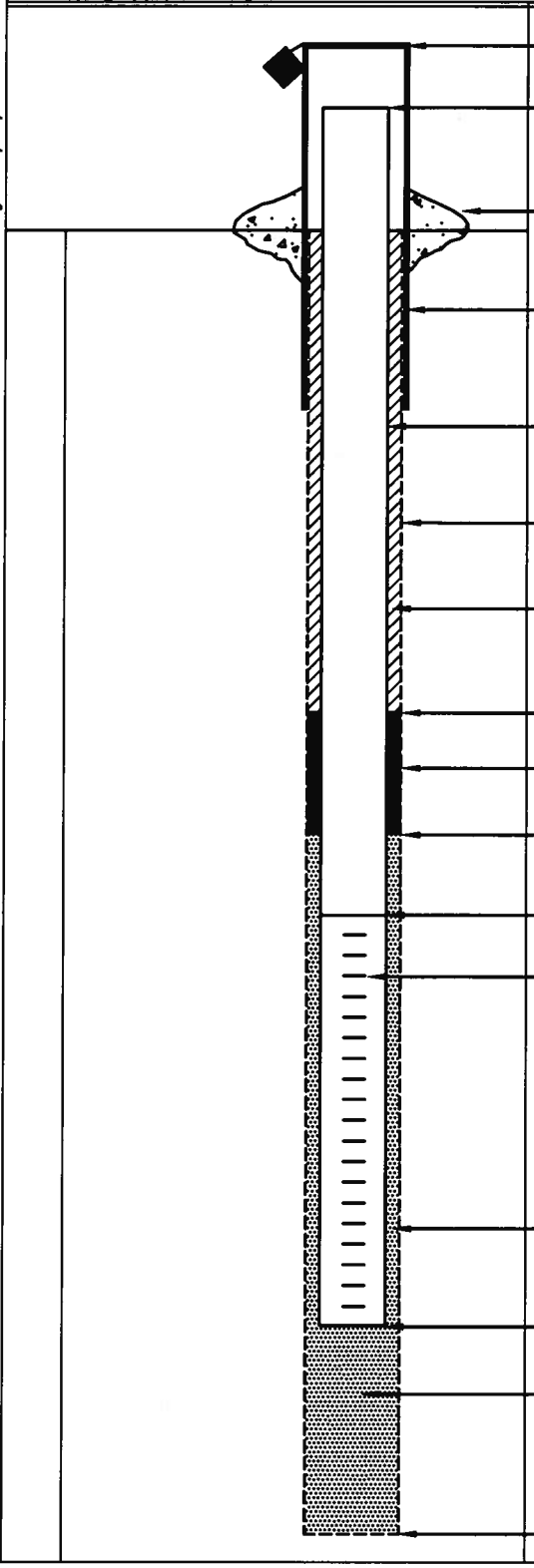
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-122

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NUSC Disposal Area	LOCATION Wetland	DRILLER Drilex
PROJECT NO. 112G00933	BORING SB-48	DRILLING METHOD DPT
DATE BEGUN 02/27/08	DATE COMPLETED 02/27/08	
FIELD GEOLOGIST R. Clark		DEVELOPMENT METHOD Foot Valve
GROUND ELEVATION 28.7	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 32.28' / 3.59'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 31.75' / 3.05'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 4"
TYPE OF SURFACE CASING: Steel

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 3.25"

TYPE OF BACKFILL: N/A

ELEVATION/DEPTH TOP OF SEAL: 28.7' / 0'

TYPE OF SEAL: Concrete

DEPTH TOP OF SAND PACK: 0'

ELEVATION/DEPTH TOP OF SCREEN: 28.7' / 0'

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10 Slot x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 23.7' / 5.0'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 23.7' / 5.0'

BACKFILL MATERIAL BELOW SAND: Native Material

ELEVATION/DEPTH OF HOLE: 22.7' / 6.0'

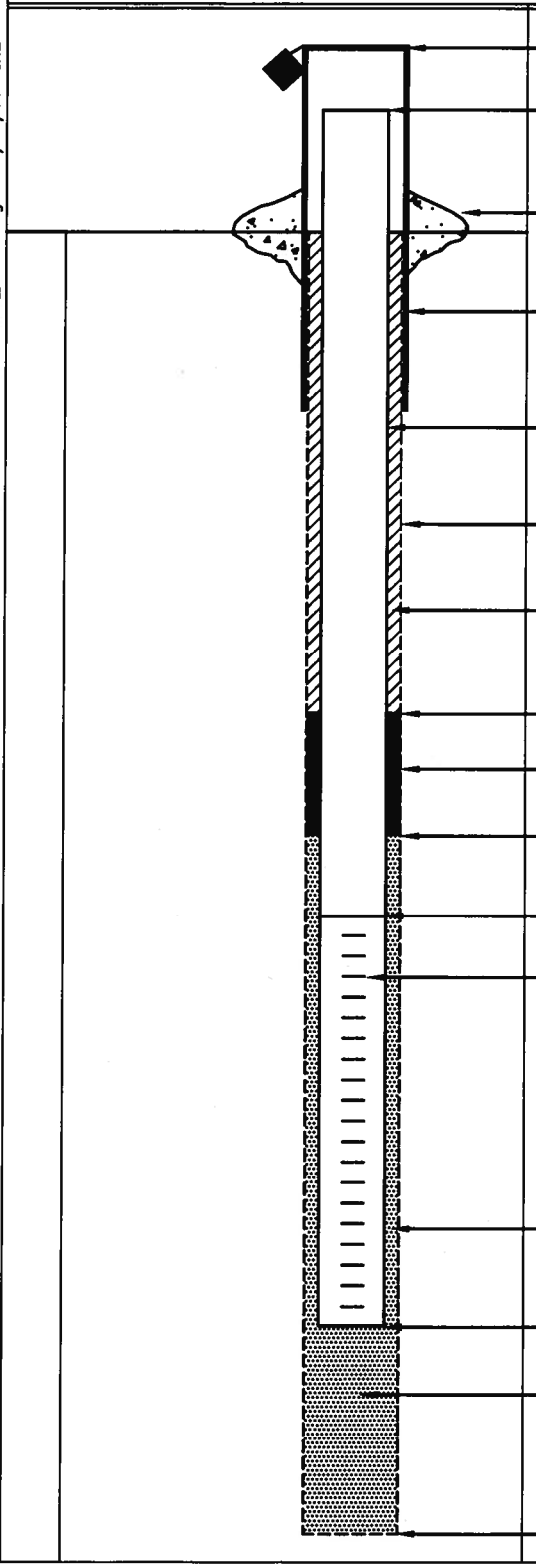
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: MW-123

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT: NUSC Disposal Area	LOCATION: Wetland	DRILLER: Drilex	
PROJECT NO.: 112G00933	BORING: SB-149	DRILLING METHOD: DPT	
DATE BEGUN: 02/27/08	DATE COMPLETED: 02/27/08		
FIELD GEOLOGIST: R. Clark		DEVELOPMENT METHOD: Foot Valve	
GROUND ELEVATION: 29.8	DATUM: NGVD		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 33.56' / 3.76'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 33.46' / 3.66'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 4"
TYPE OF SURFACE CASING: Steel

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 3.25"

TYPE OF BACKFILL: Bentonite

ELEVATION/DEPTH TOP OF SEAL: 28.8' BG ~~32.46'~~ / 1'

TYPE OF SEAL: Bentonite

DEPTH TOP OF SAND PACK: 1'

ELEVATION/DEPTH TOP OF SCREEN: 27.8' BG ~~31.46'~~ / 2'

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10 Slot x 6'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 21.8' / 8'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 21.8' / 8'
BACKFILL MATERIAL BELOW SAND:

ELEVATION/DEPTH OF HOLE: 21.8' / 8'

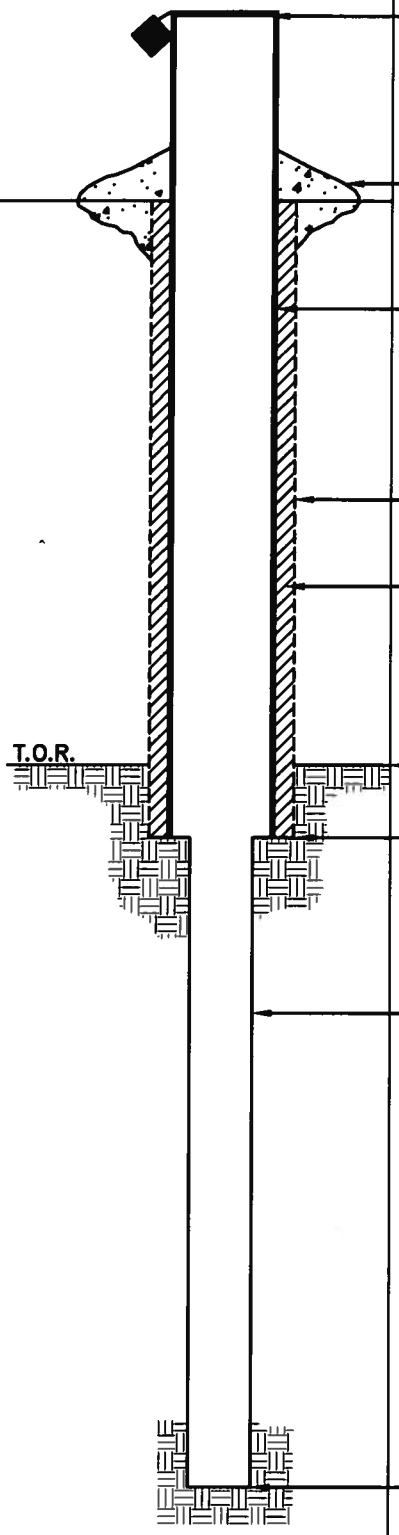
ACAD: FORM_MWSU.dwg 07/20/99 INL

WELL NO.: MW-124B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION South of Bld 185 Complex	DRILLER Geosearch
PROJECT NO. 112G00933	BORING B124B	DRILLING METHOD HSA/HQ Wireline/Air Hammer
DATE BEGUN 07/22/08	DATE COMPLETED 07/23/08	
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD Grund Fos
GROUND ELEVATION 47.1	DATUM NGVD	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 48.95'/ 1.85'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 2.75'

DEPTH TO BOTTOM CASING: 8'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: -1.65'/ 48.75'

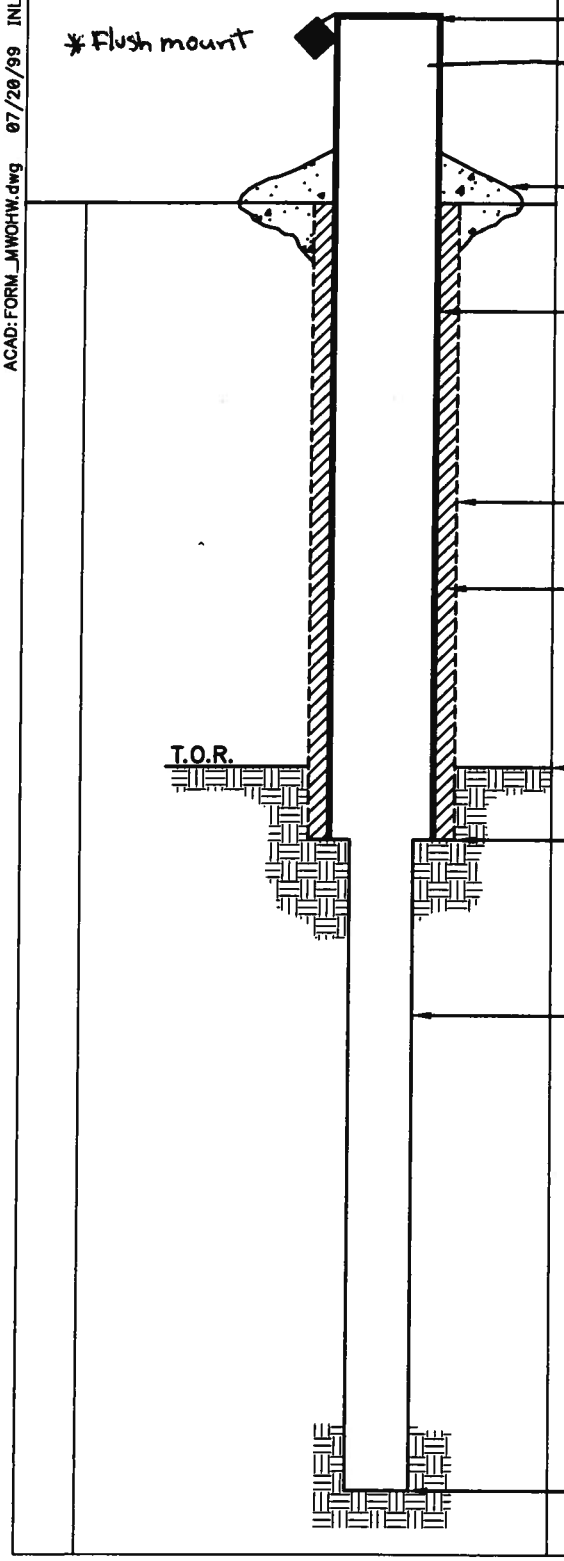
ACAD:FORM_MWOHW.dwg 07/20/99 INL

WELL NO.: MW-125B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION Bld. 185 Complex	DRILLER Geosearch	
PROJECT NO. 112G00933	BORING B125B	DRILLING METHOD	Air HSA/HQ Wireline/Hammer
DATE BEGUN 07/21/08	DATE COMPLETED 07/24/08		
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD	Grundfos
GROUND ELEVATION 52.0	DATUM NGVD		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 52.0 47 / 0

ELEVATION/HEIGHT OF TOP OF CASING: 51.50' / 0.50'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 4'

DEPTH TO BOTTOM CASING: 10'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: 1.5' / 50.50'

ACAD:FORM_MWOHW.dwg 07/20/99 INL

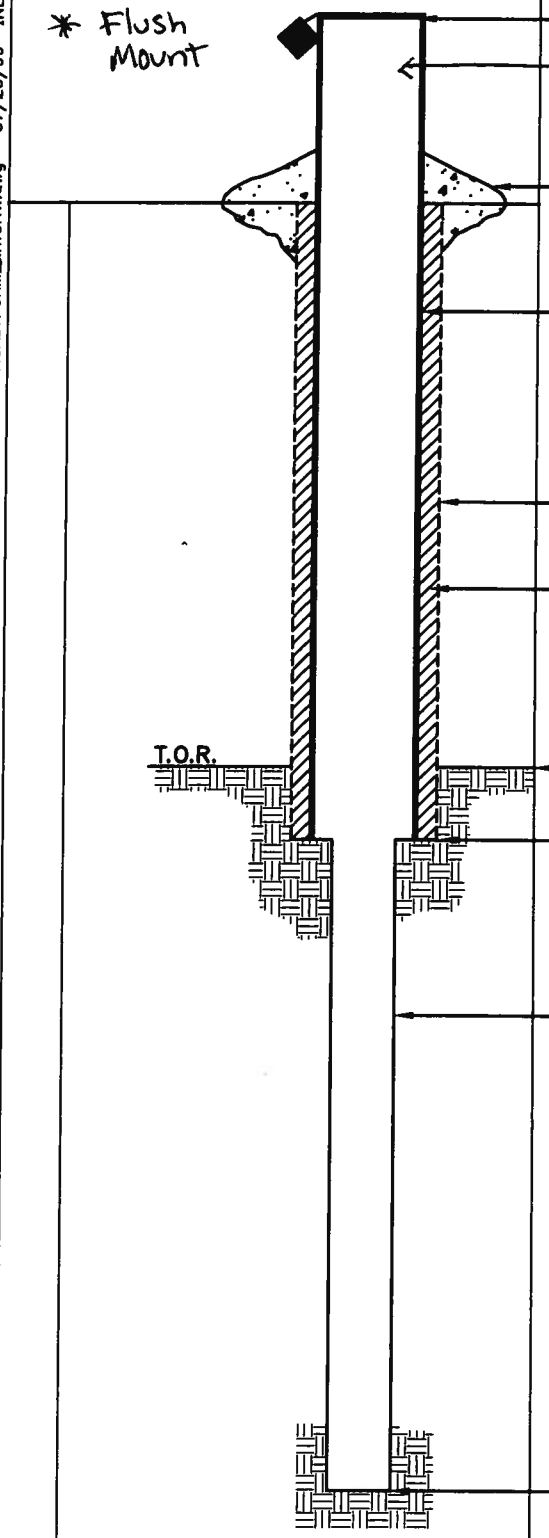
WELL NO.: MW-126B

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
OPEN HOLE WELL

PROJECT NUSC Disposal Area	LOCATION Bld. 185 Complex	DRILLER Geosearch	
PROJECT NO. 112G00933	BORING B126B	DRILLING METHOD HSA/HQ Wireline/Hammer	Air
DATE BEGUN 07/22/08	DATE COMPLETED 07/25/08		
FIELD GEOLOGIST M. Alroy		DEVELOPMENT METHOD Grundfos	
GROUND ELEVATION 55.9	DATUM NGVD		

ACAD: FORM_MWOH.dwg 07/20/99 INL



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 55.9' / 0

ELEVATION/DEPTH OF TOP OF CASING: 55.73' / 0.17'

TYPE OF SURFACE SEAL: Concrete

I.D. OF CASING: 4"

TYPE OF CASING: Steel

TEMP./PERM.: Permanant

DIAMETER OF HOLE: 7.25"

TYPE OF CASING SEAL: Bentonite

DEPTH TO TOP OF ROCK: 4.9'

DEPTH TO BOTTOM CASING: 20'

DIAMETER OF HOLE IN BEDROCK: 3.7"

DESCRIBE IF CORE/REAMED WITH BIT: N/A

DESCRIBE JOINTS IN BEDROCK AND DEPTH: N/A

ELEVATION/DEPTH OF HOLE: -4.1 / 60'

APPENDIX C

RI REPORTS/TECHNICAL MEMORANDA

APPENDIX C.1

METAL DETECTION AND GROUND PENETRATING RADAR SURVEYS (NGS, JANUARY 2008)

Northeast Geophysical Services
4 Union Street, Suite 3, Bangor, ME 04401

METAL DETECTION AND GROUND PENETRATING RADAR SURVEYS NUSC DISPOSAL AREA (SITE 08) NAVAL UNDERSEA WARFARE CENTER MIDDLETOWN, RHODE ISLAND

For:
TETRA TECH NUS, INC.

January, 2008

METAL DETECTION AND GROUND PENETRATING RADAR SURVEYS, NUSC DISPOSAL AREA (SITE 08), NAVAL UNDERSEA WARFARE CENTER MIDDLETOWN, RHODE ISLAND

INTRODUCTION

At the request of Tetra Tech NUS, Inc., metal detection and ground penetrating radar (GPR) surveys were conducted at the NUSC Disposal Area, Naval Undersea Warfare Center in Middletown, RI. The objective of the surveys was to locate possible buried metallic objects such as 55 gallon drums or other similar sized objects at the site in support of a remedial investigation. The surveys were conducted on December 11 & 12, 2007 by Mike Scully of Northeast Geophysical Services (NGS). This report summarizes site conditions, methods used, and the results of the geophysical surveys.

SUMMARY OF RESULTS

Figure 1 shows the site layout and the results of the metal detection survey at the site. The locations of the GPR survey lines are also shown on the figure. The GPR profiles are shown on Figures 2 through 5. Several areas of high metal response indicated on Figure 1 can be explained by visible metal-bearing features including chain link fences, the walls of buildings and a small bridge over the unnamed stream. Other visible metal objects are indicated on the figure.

A large continuous area of low to high metal response was identified that runs through the wooded area west of the paved storage yard and the west and central portions of the South Meadow. No 55 gallon drums were seen on the surface in this area or specifically identified by the surveys, however it is possible that buried drums could cause some of the metal response seen. The GPR profiles in this area tend to indicate that the fill material is less than 4 feet deep on the northeast side of the South Meadow but may increase to greater than 6 feet deep towards Deerfield Creek to the southwest.

Several small, scattered, weak to moderate metal responses occur in the area southeast of the paved storage yard. One 55 gallon drum is exposed on the surface in this area as indicated on Figure 1. The diffuse nature of the EM responses and the results of the GPR profile across the area tend to suggest that these responses are caused by small pieces of metal that are buried less than two feet deep. Only a few very small metal responses were recorded in the North Meadow area. Many of these are associated with visible metal objects and it considered very unlikely that any of the responses could be caused by buried 55 gallon drums.

SITE LOCATION AND CONDITIONS

The Naval Undersea Warfare Center is a large military complex located in Middletown, Rhode Island in the area west of State Route 114 and east of Narragansett Bay. The NUSC Disposal Area is located along the northeast boundary of the property adjacent to the Wanumetonomy

Golf Course. The layout of the site is shown on Figure 1 and the area surveyed is outlined with a magenta colored line. The paved and fenced-in storage areas including Building 185 were not surveyed. Weather conditions were seasonably cool but otherwise amenable to field work during the survey.

METHODS AND INSTRUMENTATION

EM-61 Metal Detector A Geonics EM-61 metal detector was used for the metal detection surveys. The EM-61 is a portable time-domain instrument with a coincident transmitter/receiver coil and second parallel receiver coil for depth to target estimation and rejection of surface metal response. The instrument measures the secondary electromagnetic field response in milli-volts (mV). The EM-61 is designed specifically to locate medium to large buried metal objects such as drums and tanks while being relatively insensitive to above-surface metallic objects such as fences, buildings and power lines. The technique is sensitive to conductive metal up to a depth of approximately 12 feet. The size and burial depth of the metal determine the strength of the response. The EM-61 transmitter/receiver coils can either be carried by the operator using a harness, or pulled on wheels. EM data is digitally recorded on an Allegro CX field computer. Readings can be triggered automatically, manually or, if the wheel mode is used, readings can be recorded at regular intervals controlled by the rotation of the wheels. At this site the wheel mode was used and the readings were triggered automatically at a rate of 5 per second. The locations of the readings were recorded in real time using a Trimble AG132 GPS system with real time differential corrections. In the flat, open areas of the site the survey was conducted along roughly parallel lines spaced approximately 5 feet apart. In the more overgrown and very hummocky parts of the site the survey was conducted in a more wandering fashion, but still with generally less than 10 feet between successive passes.

Ground Penetrating Radar (GPR) Ground penetrating radar utilizes high frequency radio waves to probe the subsurface. Radar waves are transmitted into the ground from an antenna that is pulled across the ground surface. In the subsurface, radar waves are reflected at interfaces of materials with contrasting dielectric properties. The returning signal is intercepted by a receiver and converted to a digital graphic image. The horizontal axis of the image is distance along the traverse. The vertical axis is two-way travel time of the radar pulses in nanoseconds (ns), which can be converted to depth using certain assumptions about the materials that the signal is traveling through.

The GPR graphic images are examined and features noted on the images can then be transferred to a map. Tanks, pipelines and other objects with rounded tops (boulders, tree roots, or segments of old foundations, for example) may show up on the profiles as hyperbola-shaped reflections. Tanks and pipelines usually appear on more than one survey line as hyperbolic reflectors on lines perpendicular to the tank or pipe axis and as horizontal reflectors on lines along the axis. The GPR instrument used was a GSSI, SIR-3000. A 400-MHz antenna was used with a time range set for 60 nanoseconds. At this setting the depth surveyed is approximately 10 feet. Eight GPR profiles were conducted over areas of the site where significant metal anomalies occurred.

SURVEY RESULTS

General: Figure 1 shows the site layout and the results of the metal detection survey at the site. The locations of the GPR survey lines are also shown on the figure. The GPR profiles are shown on Figures 2 through 5. The figure indicates the distribution of metal within approximately 12 feet of the ground surface. The strength of the metal response shown is directly proportional to the total surface area of metal under the instrument and inversely proportional to the depth of the metal. Zero or very low metal responses are not shown on the figure. Increasing metallic responses are indicated by colored blocks progressing from yellow to gold to red to black as shown in the explanation of Figure 1. Several areas of high metal response indicated on Figure 1 can be explained by visible metal-bearing features including chain link fences, the walls of buildings and a small bridge over the unnamed stream. Other visible metal objects are indicated on the figure.

South Meadow Area and Area Adjacent to Paved Storage Yard: The most obvious result of the metal detection survey was the identification of a large continuous area of low to high metal response that runs through the wooded area west of the paved storage yard and the west and central portions of the South Meadow. Several metal or metal-bearing objects were seen on the surface in this area during the survey including; a large chain, a metal bedspring, small pieces of sheet metal and various sized pieces of broken reinforced concrete. It appears that this area may have been used as a dumping ground for demolition debris and other miscellaneous trash. No 55 gallon drums were seen on the surface in this area or specifically identified by the surveys however, it is possible that one or more buried drums could cause some of the metal response seen. Unless they are buried more than a few feet deep any drums would most likely be found in the areas of high metal response (red and black areas on the figure). Several of these high-metal areas are to be targeted for future test pitting work. The GPR profiles in this area tend to indicate that the trash-bearing fill is less than 4 feet deep on the northeast side of the South Meadow but may increase to greater than 6 feet deep towards Deerfield Creek to the southwest.

Area Southeast of Paved Storage Yard: Several small, scattered, weak to moderate metal responses occur in the area southeast of the paved storage yard. One 55 gallon drum is exposed on the surface as indicated on Figure 1. Other exposed metal objects in the area are also shown on Figure 1. Much of this area is quite hummocky and appears to have been filled-in relative to the natural low-lying area to the southwest. The metal detection results do not indicate that there is a great deal of metal-bearing debris in this fill material. It is possible that one or two drums buried a few feet deep could cause some of the responses seen in the area. However, the diffuse nature of the EM responses and the GPR profile across the area tend to suggest that they are caused by smaller pieces of metal that are less than two feet deep. The metal pipes indicated on the figure were apparently once used for surface water drainage from the Building 185 complex area. The pipes have been cut off and are no longer functioning.

North Meadow Area: Only a few very small metal responses were recorded in this area. Some of these are associated with visible metal objects including a monitoring well casing, a piece of metal screen, and other small pieces of metal trash. It is very unlikely that any of these responses could be caused by buried 55 gallon drums. No GPR profiles were conducted across this area.

LIMITATIONS OF THE SURVEYS

The EM-61 metal detection survey provides an indication of where buried metal exists at the site surveyed. The Ground Penetrating Radar survey produces reflectors at interfaces of materials with contrasting dielectric properties. Both of these instruments provide indirect measurements of subsurface conditions. The actual cause of the features depicted on the figures can only be conclusively determined by direct observation.

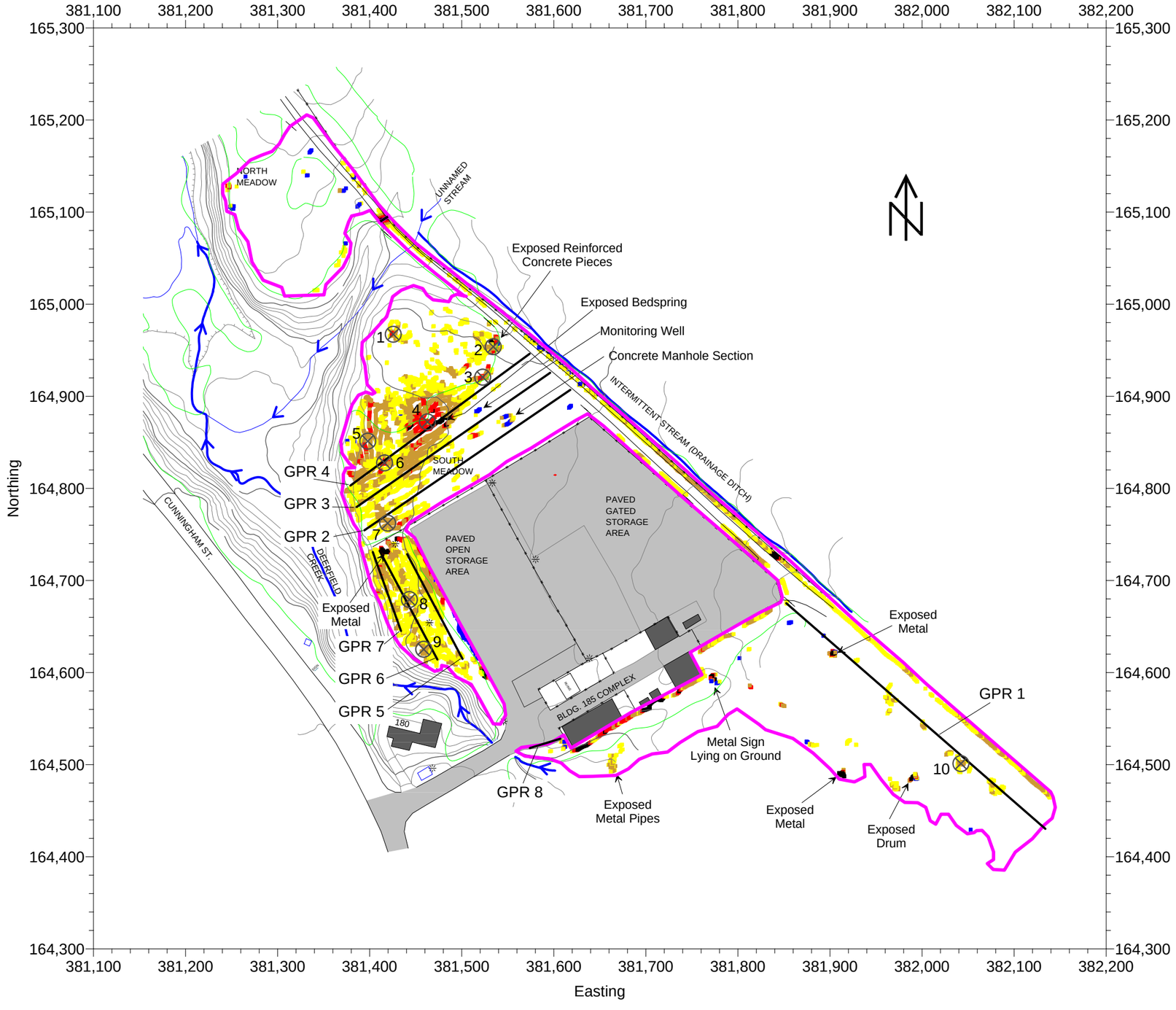
METAL DETECTION SURVEY MAP

NUSC DISPOSAL AREA

MIDDLETOWN, RI

For:

Tetra Tech NUS, Inc.



EXPLANATION

EM-61 Metal Detector Readings
Differential Metallic Response in Millivolts

- -12000 to -25
- -25 to 50
- 50 to 100
- 100 to 200
- 200 to 400
- 400 to 12000

GPR Survey Line

Outline of Survey Area

1 ⊗ Proposed Test Pit Location (and number)

Scale in Feet

0 50 100 150 200

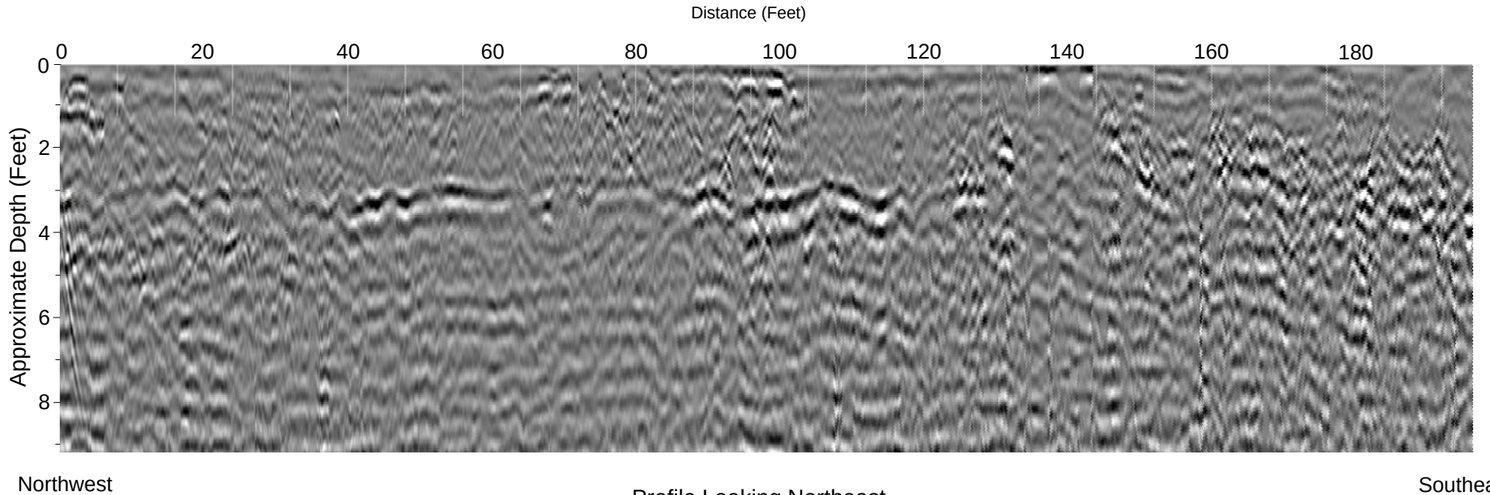
Surveyed December 11 & 12, 2007 by:

NORTHEAST GEOPHYSICAL SERVICES

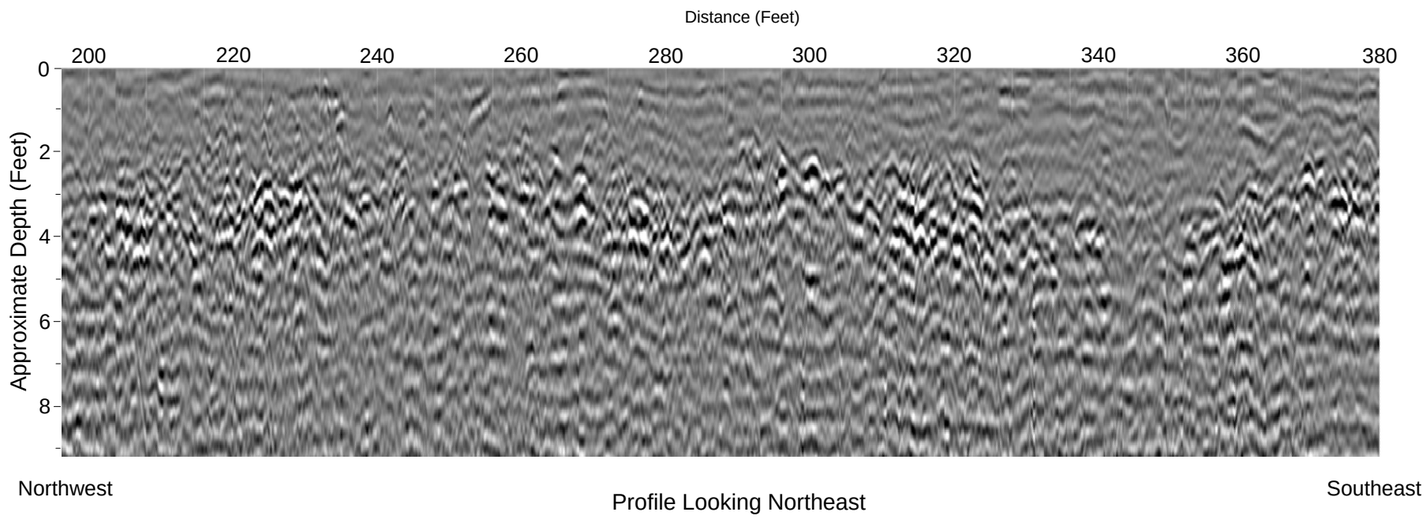
NUSC DISPOSAL AREA, MIDDLETOWN, RI

GPR PROFILE 1

GPR Profile 1 - Area Southeast of Storage Yard



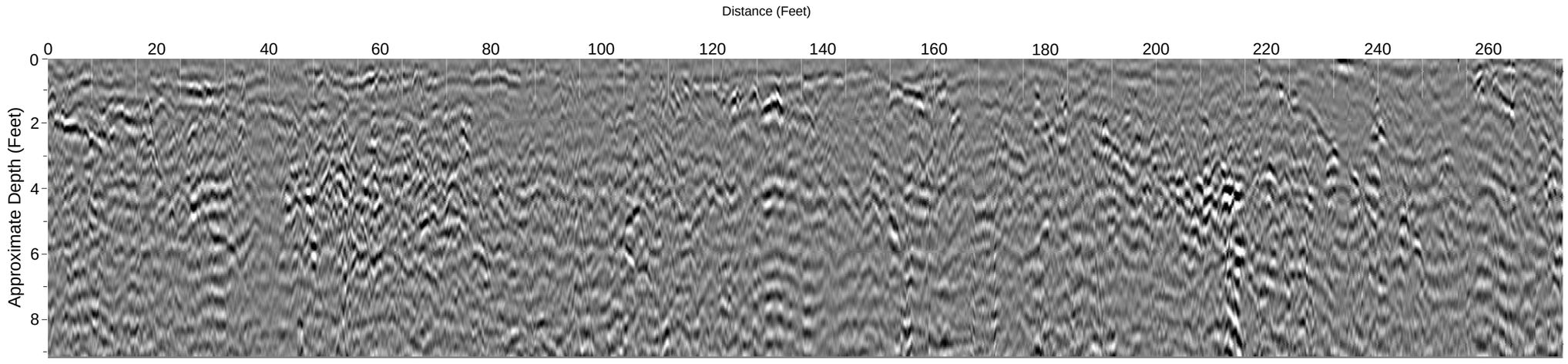
GPR Profile 1 (continued)



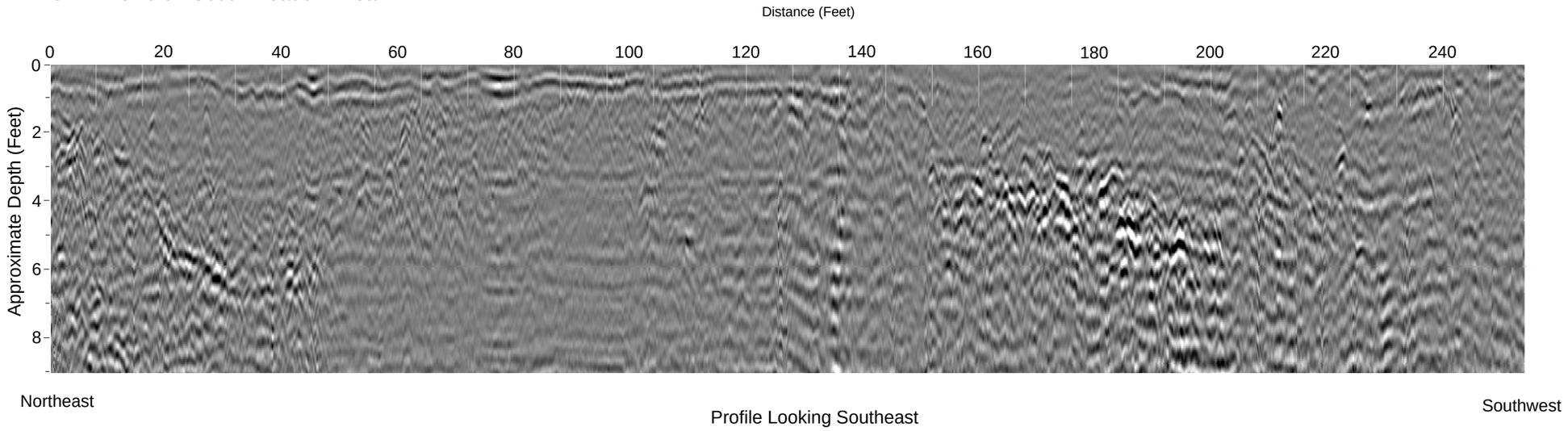
NUSC DISPOSAL AREA, MIDDLETOWN, RI

GPR PROFILES 2 AND 3

GPR Profile 2 - South Meadow Area



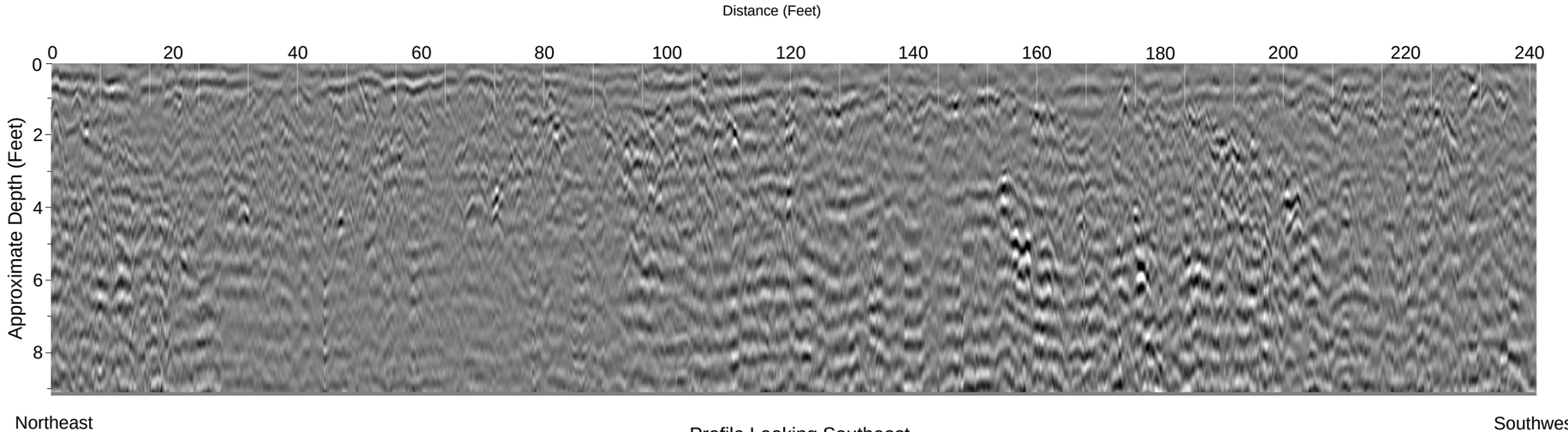
GPR Profile 3 - South Meadow Area



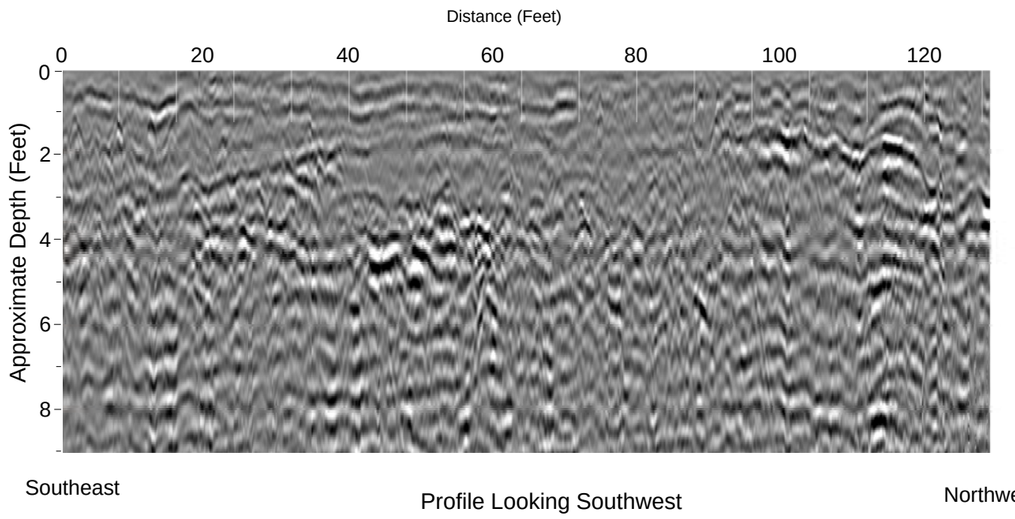
NUSC DISPOSAL AREA, MIDDLETOWN, RI

GPR PROFILES 4 AND 5

GPR Profile 4 - South Meadow Area



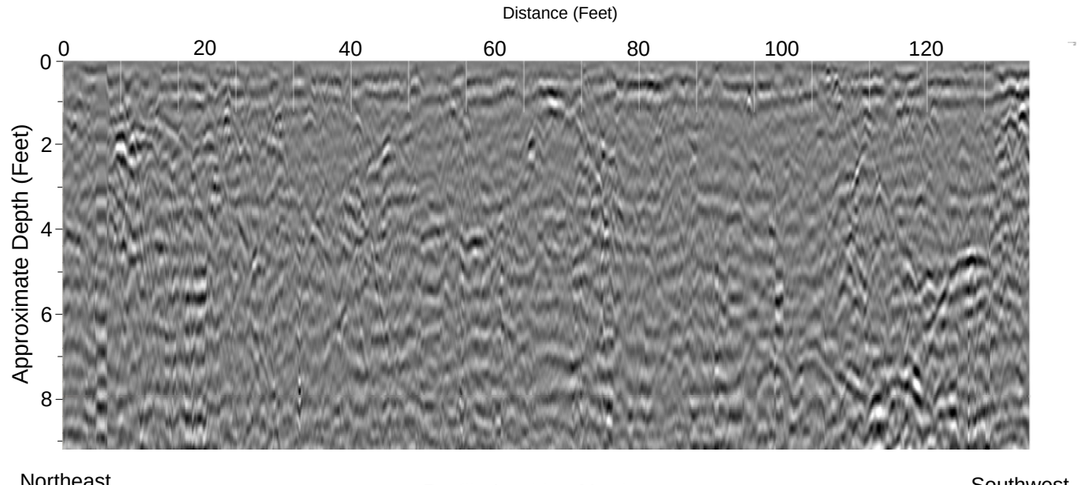
GPR Profile 5 - Area Southwest of Storage Yard



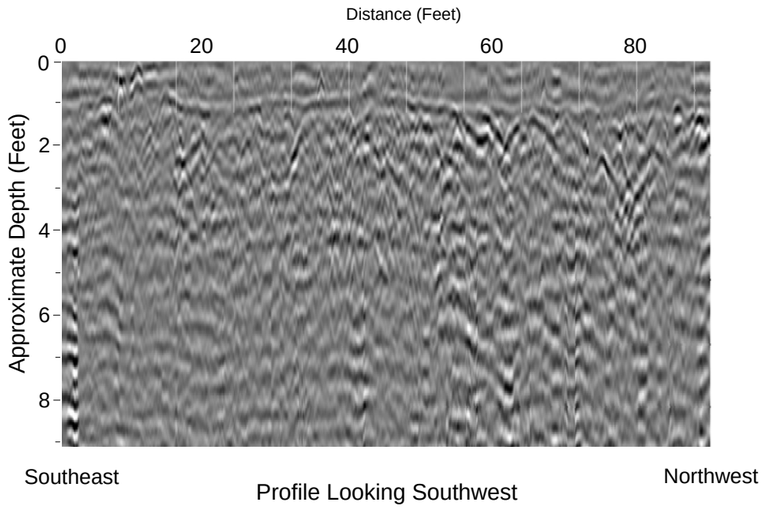
NUSC DISPOSAL AREA, MIDDLETOWN, RI

GPR PROFILES 6, 7 AND 8

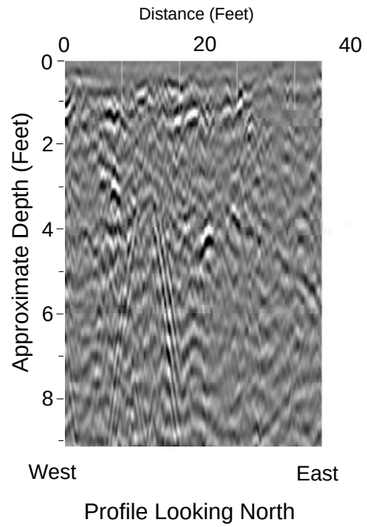
GPR Profile 6 - Area Southwest of Storage Yard



GPR Profile 7 - Area Southwest of Storage Yard



GPR Profile 8 - Southwest of Building 185



APPENDIX C.2

BOREHOLE GEOPHYSICAL LOGGING OF TWO BOREHOLES (NGS, MAY, 2008)

BOREHOLE GEOPHYSICAL LOGGING
OF TWO BOREHOLES
AT THE NUSC DISPOSAL AREA – SITE 08
MIDDLETOWN, RHODE ISLAND
For
Tetra Tech NUS, Inc.

Northeast Geophysical Services
4 Union Street, Suite 3
Bangor, Maine 04401
May, 2008

BOREHOLE GEOPHYSICAL LOGGING
OF TWO BOREHOLES
AT THE NUSC DISPOSAL AREA – SITE 08
MIDDLETOWN, RHODE ISLAND

Introduction

At the request of Tetra Tech NUS, Inc., two bedrock boreholes located in the NUSC Disposal Area – Site 08 in Middletown, Rhode Island were geophysically logged. The boreholes are designated as MW-114B and MW-115B. The boreholes were logged on April 15, 2008 by Rudy Rawcliffe of Northeast Geophysical Services (NGS). Geophysical logging was used as one of the means to identify the location of potential water-bearing fractures in the bedrock boreholes. Fluid temperature, fluid resistivity, caliper, acoustical televiewer (ATV), and flowmeter measurements were collected from each of the boreholes. In addition, an optical televiewer (OTV) image was also generated for MW-114B. An OTV log was not collected for MW-115B because the borehole fluid was too turbid.

Summary of Results

Composite geophysical logs of the two boreholes are appended to this report. Each log shows the results of the caliper, temperature, fluid resistivity and televiewer logging. Heat pulse flowmeter measurements for ambient and pumping conditions are shown adjacent to the caliper log for each borehole.

The composite geophysical logs show the possible locations of potential fractures in each borehole. The flowmeter results and, to a lesser degree, the fluid temperature and fluid resistivity provide indications of which of these potential fractures are transmissive.

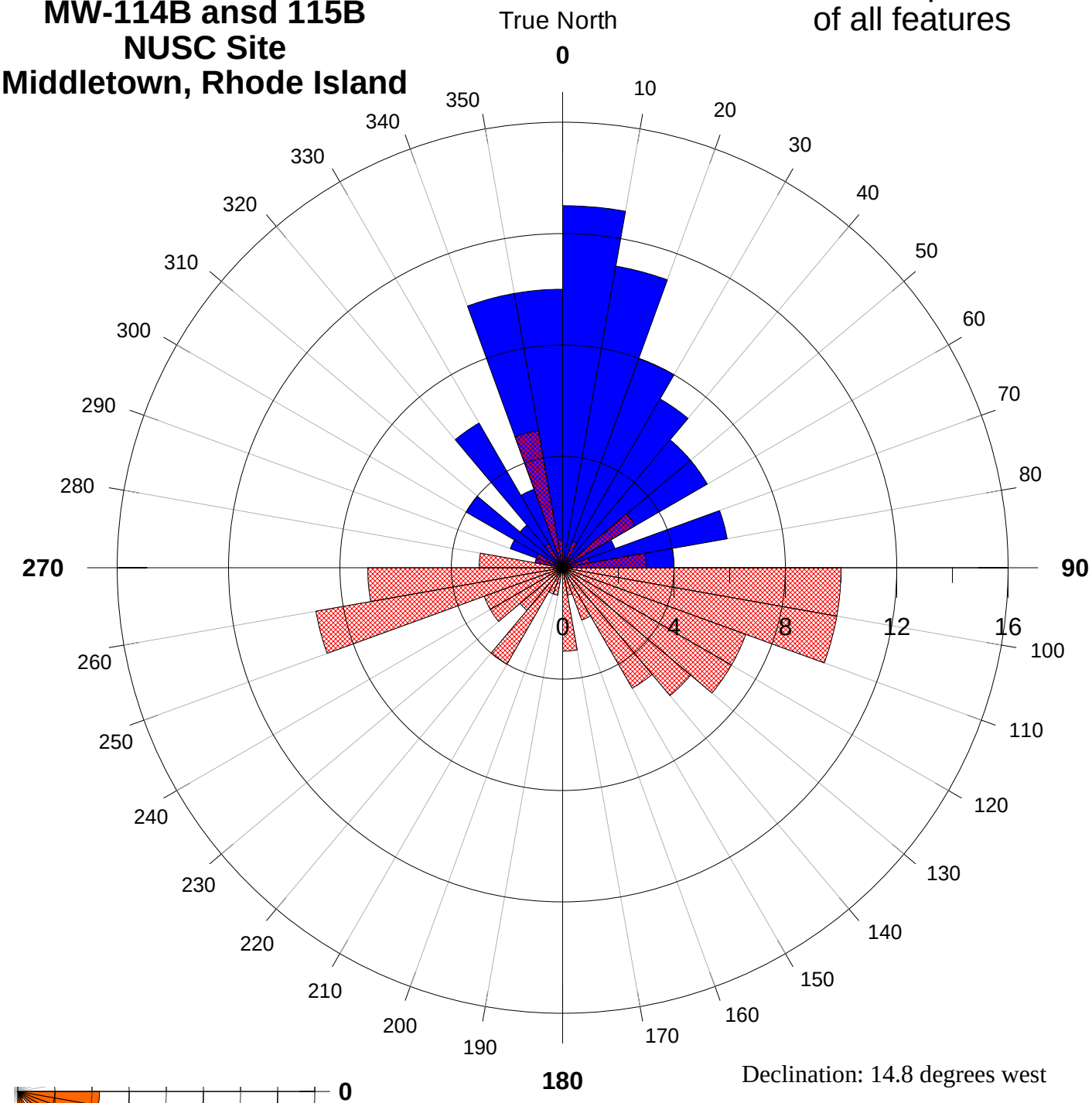
The televiewer logs provide the strike and dip of planar features that intersect the boreholes. These planar features may be fractures, or may represent cleavage or bedding planes. The results have been color-coded on the logs to provide an interpretative range of the likelihood that the associated feature signifies a transmissive fracture as follows:

- Dark blue symbol - multiple distinct borehole geophysical logging responses indicating borehole enlargement (caliper and acoustic signal) and flowmeter evidence that provides the strongest data that the indicated bedrock feature represents a likely transmissive water-bearing fracture.

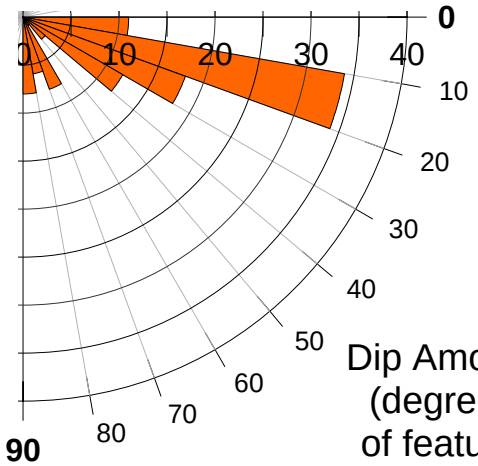
- Light blue symbol - less amount of corroborating flowmeter data to support that the indicated feature will transmit groundwater compared to the dark blue symbol. However, the ATV log shows a fairly distinct acoustic signal that perhaps under a higher stress condition (e.g. pumping rate), vertical flow could be induced in the

FIGURE 1
Strike and Dip Direction
of all features

MW-114B ansd 115B
NUSC Site
Middletown, Rhode Island



Declination: 14.8 degrees west



Dip Amount
(degrees)
of features

Explanation
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 101 measurements

- Black symbol - bedrock feature not interpreted to transmit water; more likely to represent planes of foliation, bedding planes, healed or filled fractures, or mechanical breaks in the rock matrix due to drilling advancement.

Figure 1 (on the following page) is a rose plot of the strike and dip angle of all the interpreted features for all of the boreholes logged by NGS. This plot shows that the strike and dip direction of the identified features in the boreholes are varied. In general the most common strike direction is to the north and the dip direction is to east. Most of the features are fairly shallow dipping with a median dip of 22º. The interpreted results of the televiewer logs are summarized on the composite logs for each borehole and in tables that provide the depth and calculated strike and dip of each identified feature. The televiewer image logs and polar plots for each borehole are also presented in the appendix.

Methods and Instrumentation

The boreholes were logged with a Mount Sopris Matrix digital logger. The boreholes were initially logged with a temperature/fluid resistivity tool and then a caliper tool and then the televiewer tools. The final log on each borehole was the flowmeter measurements. Following is a brief description of each parameter that was measured:

Caliper measures the borehole diameter. Fractures are often revealed on the caliper log as abrupt widenings of the borehole.

Temperature (in degrees Centigrade [ºC]) is measured with the probe going down each hole. Generally, temperature rises smoothly with depth at a rate of about 1.0º C per 100 feet due to the local geothermal gradient. Areas where water may be entering or exiting the borehole are sometimes revealed on the temperature log as abrupt temperature changes or sometimes as temperature gradient changes. Other factors that can affect the temperature log besides transmissive fractures include variations in the thermal resistivity of the rock with depth along the borehole, surface climatic changes, thermal effects of drilling activity, and localized heat sources such as radionuclides in the rock or cement setting outside the casing.

Fluid resistivity measures the resistivity (in ohmmeters) of the water in the borehole. Fluid resistivity can be useful in identifying transmissive fractures because water entering the borehole through fractures sometimes has a different resistivity than the water that is already in the borehole.

The ATV log provides an acoustical image of the borehole walls. The ATV works by scanning the borehole wall with an acoustic beam that is produced by a rapidly rotating piezoelectric source. Planar features such as fractures, bedding surfaces, and joints can be identified with the ATV tool and the strike, dip direction and dip angle of these features can often be determined.

MW-114B was also logged with an optical televiewer. The optical log provides a digital image of the borehole walls that is oriented to magnetic north. Planar features such as fractures, bedding surfaces, and joints can be identified with the optical tool and the strike, dip direction and dip angle of these features can often be determined.

The optical (OTV) and acoustical (ATV) televiewer logs are somewhat duplicative in that they both can provide similar information. However, there are advantages and disadvantages to both tools. The ATV requires the borehole to be water filled and will not provide information above the water level. The OTV can work in air or water but is not effective in cloudy, turbid water whereas the ATV will work fine in cloudy water. The ATV can be better at discerning voids,

cracks and fractures whereas the OTV can be better at discerning lithology. Also, sometimes water-bearing fractures are rust stained, which can be seen by the OTV. At the NUSC site the fluid in MW-115B was too turbid for the OTV to get good results. The fluid in MW-114B was clear and so an OTV log was collected in this borehole.

The temperature, caliper, fluid resistivity and televiewer logs for each borehole were examined and possible bedrock fractures were identified. This information was used to select measurement locations for the flowmeter instrument. Generally, flowmeter measurements were taken in the zone above and below locations where potential fractures might exist in the boreholes.

Flowmeter Measurements

Flowmeter measurements of the vertical water flow were made in the boreholes using a Mount Sopris Heat Pulse Flowmeter. This instrument is capable of measuring flow direction in a borehole (up or down) and has a calibrated measurement range of 1.0 to 0.03 gallons per minute (gpm).

Vertical flow in a borehole is caused when two or more transmissive fractures in the borehole are at hydraulic disequilibrium with one another. When this occurs there is a hydraulic gradient developed and water will flow toward the fracture with the lower hydraulic head. When no vertical flow is measured it can mean that there are less than two transmissive fractures in the borehole or that all the fractures in the borehole are at equilibrium with each other.

Results

Composite geophysical logs of the boreholes are appended to this report. One or a combination of anomalous geophysical responses identified physical discontinuities that may represent possible fractures. These included abrupt widenings in the caliper log and planar images on the televiewer logs. The heat-pulse flowmeter results are also shown. All of the depths on these logs are referenced from the top of the casing (toc). Following is a descriptive summary of the geophysical logging results for each borehole:

MW-114B:

Total Depth (TOC):	62.3 feet
Casing Depth:	10.8 feet
Water Level:	20.4 feet

The caliper log for MW-114B shows an average borehole diameter of 3.91 inches. The caliper log shows that the borehole walls in MW-114B are quite rough and there are several possible fractures in this borehole.

The temperature log for MW-114B shows an ambient water temperature averaging 8.4° C. The temperature rises slightly going downwards in the borehole. There are some temperature deflections at about 25, 32, 50 and 56-57. These temperature changes may represent transmissive fractures in these areas.

The fluid resistivity log for MW-114B shows that the median resistivity for the uncased portion of the borehole is 163 ohmmeters. At about 25 feet there is an abrupt decrease in fluid resistivity of about 10 ohmmeters. At about 32 feet there is a larger abrupt decrease of about 40 ohmmeters. It is possible that these changes in fluid resistivity represent a bedrock fracture in these areas.

The televiewer logs for MW-114B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north and have a median dip of 22º to the east or west. However, there are some steeply dipping transmissive fractures in MW-114B. This is illustrated on the polar plot for this borehole. An example of a steeply dipping fracture can be seen on the OTV log at 24-25 feet.

MW-114
from about 23 to 26 feet

Fracture is estimated to strike 9 degrees (magnetic)
and dip 73 degrees to the west

The strike and dip of other possible transmissive fractures for MW-114D are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-114B under ambient conditions show a slight downflow of 0.02 gpm at 22 feet, which is just below the water table. At 26 feet downflow increased dramatically to 0.74 gpm. Down flow increased to a maximum of 0.97 gpm at 33 feet. Below 33 feet the downflow measurements decreased with each successive measurement going downwards in the borehole until 59 feet where there was no measurable flow. Part of the variability in flow measurements may be due to by-pass around the flowmeter sensor caused by the roughness of the borehole. Under ambient conditions water is entering MW-114B through shallow fractures (above 34 feet) and moving downwards in the borehole and exiting through fractures located below 34 feet.

Measurements were then repeated while pumping the borehole at 1.3 gpm. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole until 53.5 feet where an upflow (0.05 gpm) was detected. The upflow measurements increased with each successive measurement going upwards in the borehole culminating at 25.5 feet where

the flow measured 1.06 gpm.

The results of the flowmeter measurements and the fluid resistivity and temperature logs indicate several likely transmissive fractures in MW-114B. These are shown on the composite log and tabulated in the appendix.

MW-115B:

Total Depth (TOC):	46.4 feet
Casing Depth:	10 feet
Water Level:	4.42 feet

The caliper log for MW-115B shows an average borehole diameter of 3.87 inches. The caliper log shows that the borehole walls in MW-115B are relatively smooth compared with MW-114B. The two largest caliper anomalies (possible fractures) occur at 21 feet (4.44 inches) and at 29.5 feet (4.05 inches).

The temperature log for MW-115B shows a median ambient water temperature of 9.8° C. The temperature rises steeply going downwards in the borehole from just below the casing at 10 feet where it is 7.45° C until about 29 feet where the temperature levels to about 9.97° C. This gradient change at 29 feet may represent a transmissive fracture in this area.

The fluid resistivity log for MW-115B shows that the median resistivity for the uncased portion of the borehole is 81 ohmmeters, which is quite a bit lower than MW-114B, which averaged 163 ohmmeters. The fluid resistivity is fairly constant going downwards in the borehole until about 37.5 feet where the resistivity abruptly decreases. It is believed that this change in resistivity is caused by sediment in the bottom of the borehole.

The televiewer logs for MW-115B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north or northeast and have a median dip of 19º to the east or southeast. However, in the transmissive zones there are some more steeply dipping transmissive fractures such as at 21.1 feet (Feature #11) which strikes 15° and dips 68° west-northwest and at 29.7 feet (Feature #20) which strikes 315° and dips 43° southwest. This is illustrated on the polar plot for this borehole. The strike and dip of other possible transmissive fractures for MW-115B are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-115B under ambient conditions show no measurable flow in the borehole. Measurements were then repeated while pumping the borehole at 0.3 gpm. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole until 26 feet where an upflow (0.11 gpm) was detected. At 19 feet the upflow increased to 0.31 gpm.

The results of the flowmeter measurements and the fluid resistivity and temperature logs indicate two likely transmissive fractures in MW-115B. These are at 29.5 feet and a more transmissive fracture at 21 feet. These fractures are shown on the composite log and tabulated in the appendix.

APPENDIX
BOREHOLE GEOPHYSCIAL LOGS

Northeast Geophysical Services

Borehole Geophysical Log
MW-114B
NUSC Site
Middletown, Rhode Island

Date logged: 4/15/08

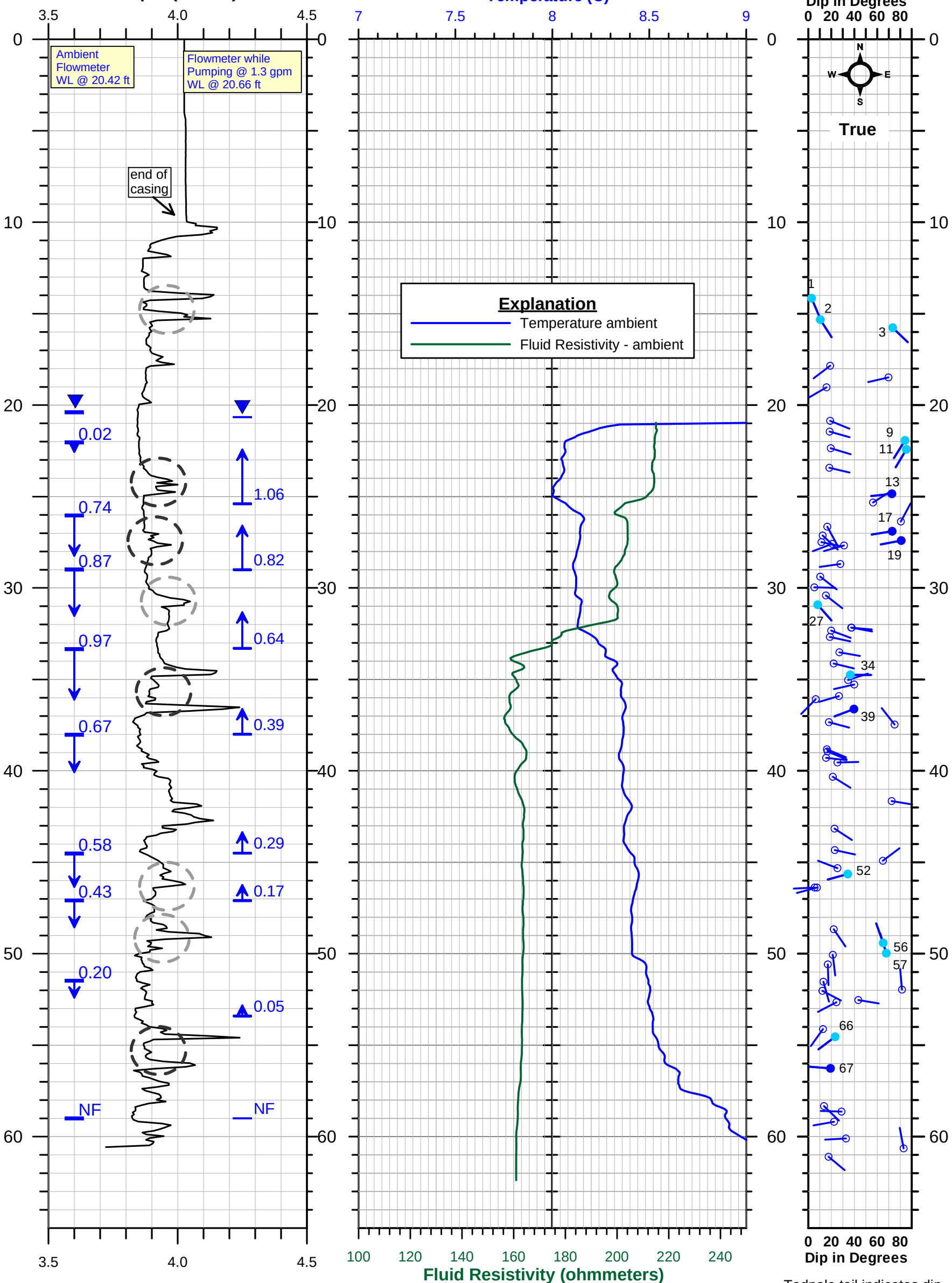
Flowmeter Measurements (in gpm)

Caliper (inches)

Temperature (C)

Dip and Dip Direction of planar features interpreted from Acoustic and Optical Televiewers

Dip in Degrees



= Likely transmissive zone

= Possible transmissive zone

Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

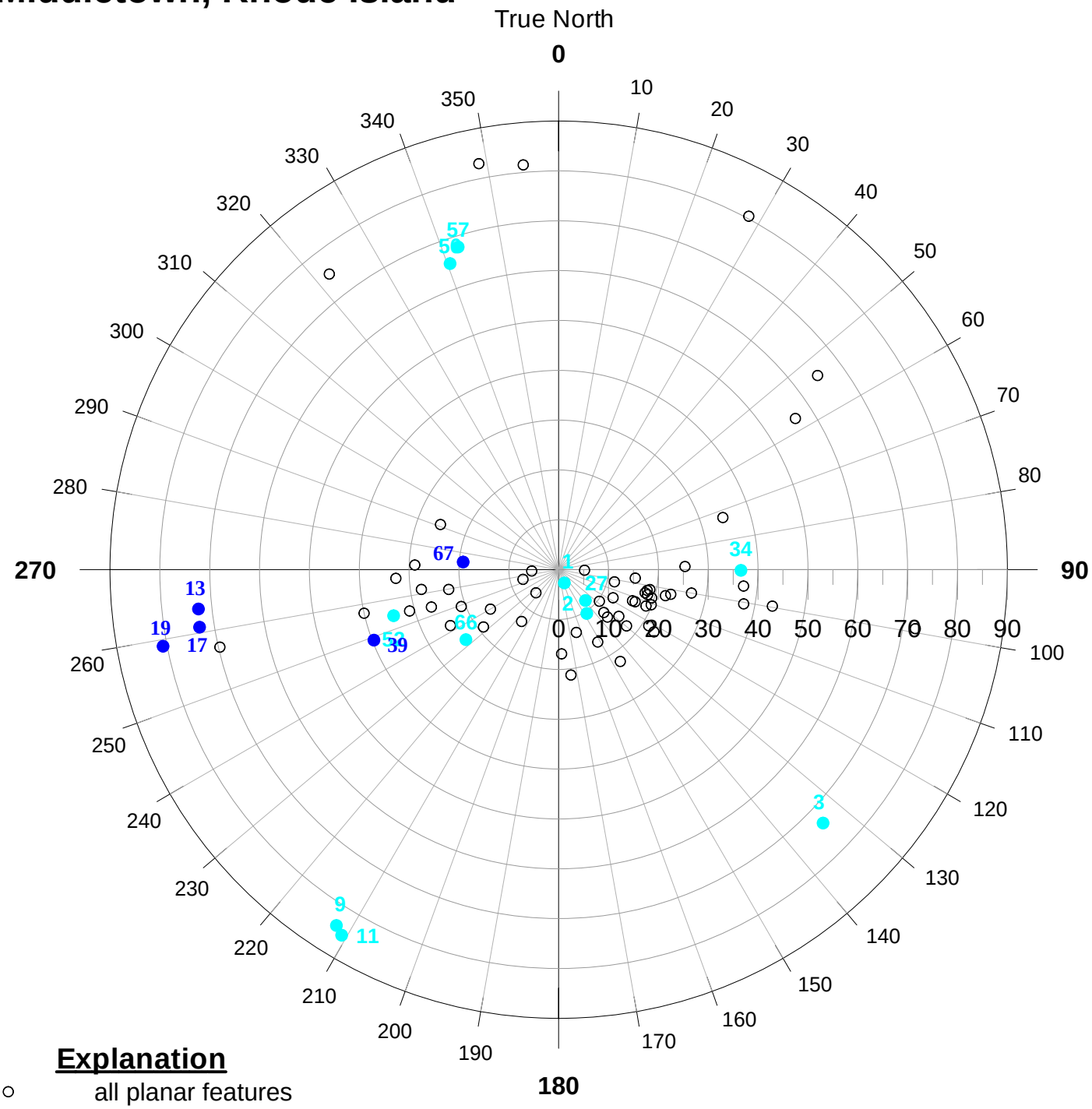
Borehole Geophysical Log
MW-114B
NUSC Site
Middletown, Rhode Island

Date logged: 4/15/08

Northeast Geophysical Services

MW-114B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 73 measurements

Planar features interpreted from acoustical televiewer
MW-114B NUSC Site, Middletown, R.I. **Logged: April 15, 2008**
Declination: 14.8 degrees

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-114B	1	14.2	3	172	82	157	67	108
MW-114B	2	15.3	10	162	72	147	57	108
MW-114B	3	15.8	73	149	59	134	44	108
MW-114B	4	17.9	19	248	338	233	323	100
MW-114B	5	18.5	70	272	2	257	347	100
MW-114B	6	19.0	16	255	345	240	330	100
MW-114B	7	20.9	19	127	37	113	23	100
MW-114B	8	21.5	19	120	30	106	16	100
MW-114B	9	21.9	84	227	317	212	302	108
MW-114B	10	22.4	20	122	32	107	17	100
MW-114B	11	22.4	85	225	315	211	301	108
MW-114B	12	23.4	18	118	28	103	13	100
MW-114B	13	24.9	73	279	9	264	354	107
MW-114B	14	25.3	56	72	342	57	327	100
MW-114B	15	26.4	81	43	313	28	298	100
MW-114B	16	26.7	16	166	76	152	62	100
MW-114B	17	26.9	73	276	6	261	351	107
MW-114B	18	27.1	12	148	58	133	43	100
MW-114B	19	27.4	81	274	4	259	349	107
MW-114B	20	27.5	11	117	27	102	12	100
MW-114B	21	27.6	21	264	354	249	339	100
MW-114B	22	27.7	31	269	359	255	345	100
MW-114B	23	28.7	28	277	7	262	352	100
MW-114B	24	29.4	10	143	53	128	38	100
MW-114B	25	30.0	5	106	16	91	1	100
MW-114B	26	30.4	15	143	53	128	38	100
MW-114B	27	30.9	8	154	64	139	49	108
MW-114B	28	32.2	38	115	25	100	10	100
MW-114B	29	32.2	37	110	20	95	5	100
MW-114B	30	32.3	20	126	36	111	21	100
MW-114B	31	32.7	19	117	27	102	12	100
MW-114B	32	33.5	27	115	25	100	10	100
MW-114B	33	34.1	22	118	28	104	14	100
MW-114B	34	34.8	37	105	15	90	0	108
MW-114B	35	35.0	35	87	357	72	342	100
MW-114B	36	35.3	40	272	2	257	347	100
MW-114B	37	35.9	27	268	358	254	344	100
MW-114B	38	36.1	7	239	329	224	314	100
MW-114B	39	36.6	40	264	354	249	339	107
MW-114B	40	37.3	18	120	30	105	15	100
MW-114B	41	37.5	75	337	67	322	52	100
MW-114B	42	38.8	16	128	38	113	23	100
MW-114B	43	38.9	17	128	38	113	23	100
MW-114B	44	39.3	15	111	21	96	6	100
MW-114B	45	39.5	25	103	13	89	359	100
MW-114B	46	40.3	21	137	47	122	32	100
MW-114B	47	41.7	73	114	24	99	9	100
MW-114B	48	43.2	23	138	48	123	33	100
MW-114B	49	44.3	23	117	27	102	12	100
MW-114B	50	44.9	65	68	338	53	323	100
MW-114B	51	45.3	25	306	36	291	21	100
MW-114B	52	45.6	34	269	359	254	344	108
MW-114B	53	46.4	5	282	12	267	357	100

Planar features interpreted from acoustical televiewer
MW-114B NUSC Site, Middletown, R.I. **Logged: April 15, 2008**
Declination: 14.8 degrees

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-114B	54	46.4	7	270	360	255	345	100
MW-114B	55	48.7	22	161	71	146	56	100
MW-114B	56	49.4	65	355	85	340	70	108
MW-114B	57	50.0	68	358	88	343	73	108
MW-114B	58	50.1	21	188	278	173	83	100
MW-114B	59	50.6	17	193	283	178	88	100
MW-114B	60	51.5	13	179	89	164	74	100
MW-114B	61	52.0	82	10	280	355	85	100
MW-114B	62	52.0	12	132	42	117	27	100
MW-114B	63	52.5	43	115	25	100	10	100
MW-114B	64	52.7	24	257	347	243	333	100
MW-114B	65	54.1	13	230	320	216	306	100
MW-114B	66	54.5	23	248	338	233	323	108
MW-114B	67	56.3	19	289	19	275	5	107
MW-114B	68	58.3	14	149	59	134	44	100
MW-114B	69	58.6	29	287	17	272	2	100
MW-114B	70	59.2	22	275	5	260	350	100
MW-114B	71	60.1	33	282	12	267	357	100
MW-114B	72	60.6	83	4	274	349	79	100
MW-114B	73	61.1	18	144	54	130	40	100

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.
Category 107 = Likely water bearing feature
Category 108 = Possible water bearing fracture

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Combined Geophysical Logs

Well: MW-114B

Site: NUSC

Location: Middletown, Rhode Island

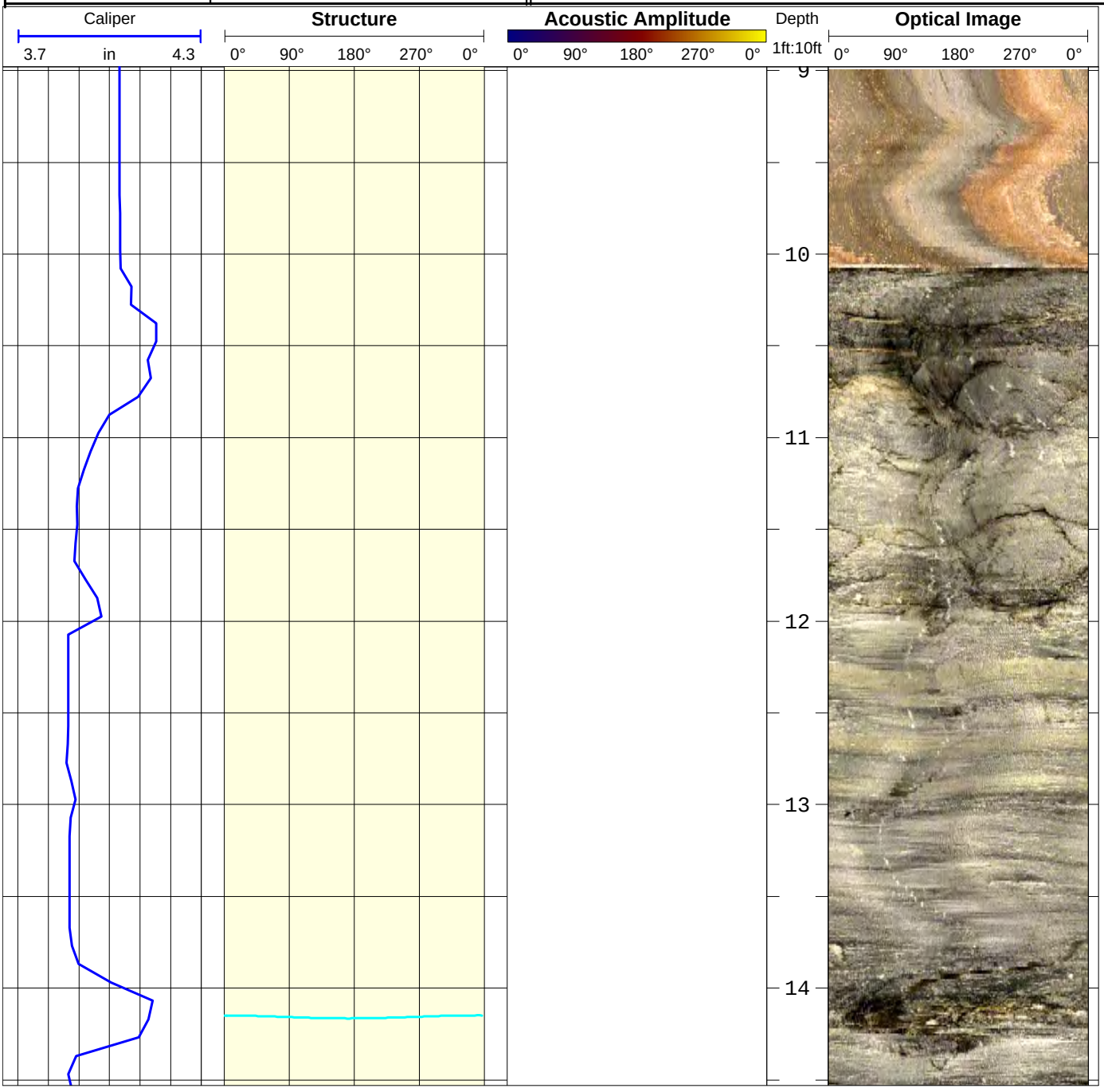
Date:	4/15/08
Casing Depth:	10 ft
Casing Type:	4 in
Boring Depth:	62.3 ft
Meas. From:	top of casing
Stickup:	1.1 ft
Water Level:	20.40 ft

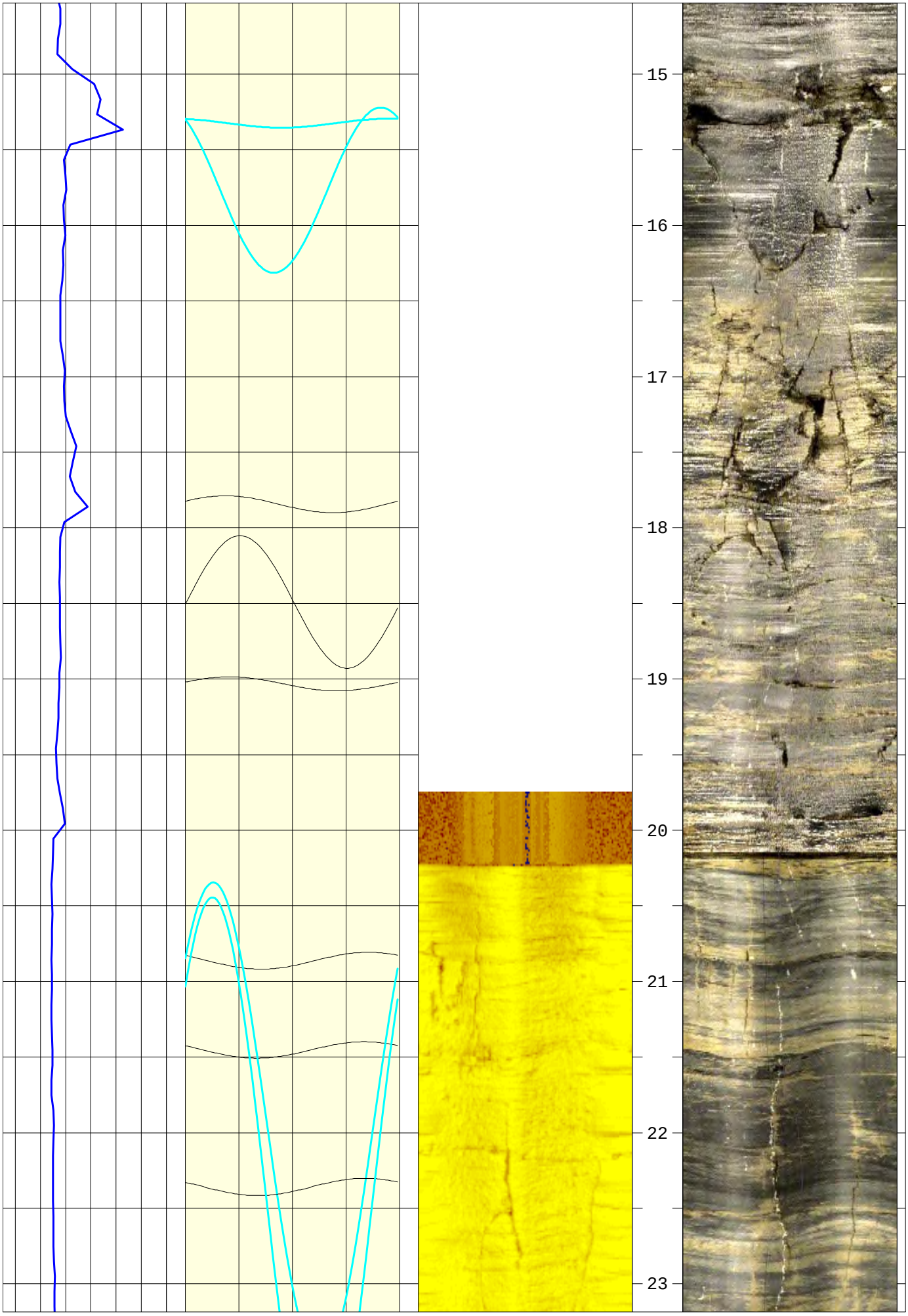
For: Tetra Tech NUS

Logged by: R Rawcliffe

Orientation: Magnetic

Comments:
Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.)
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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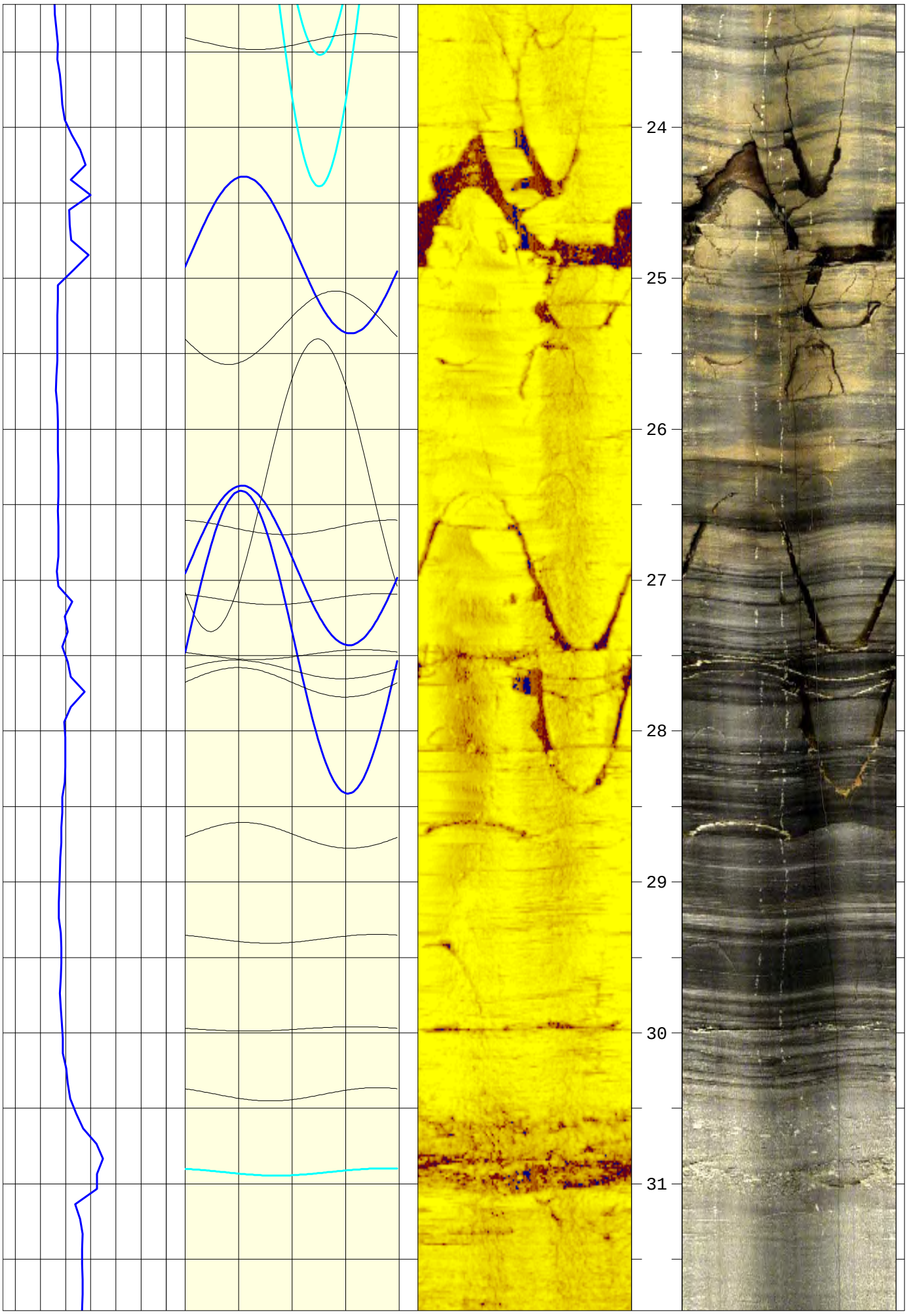
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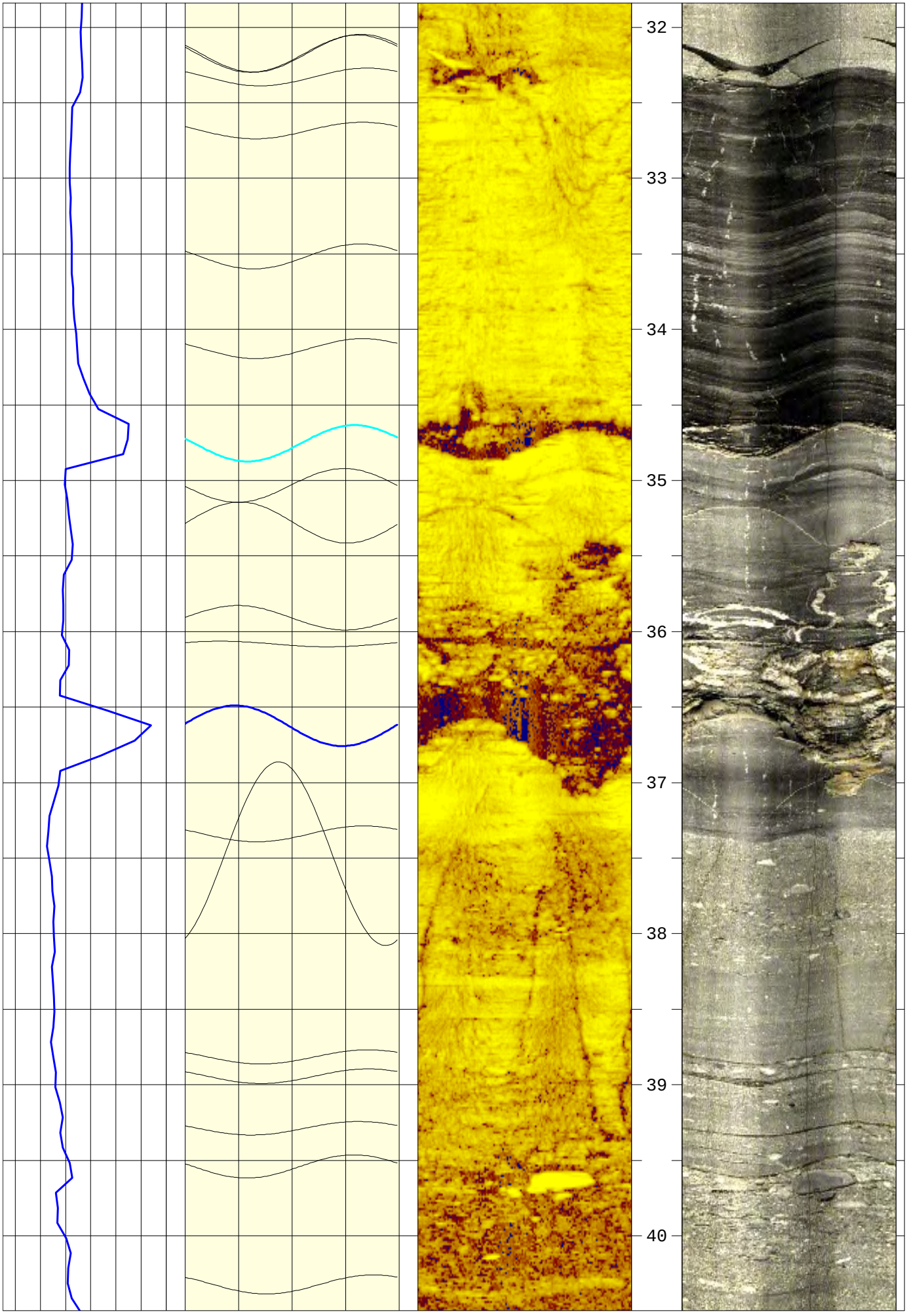
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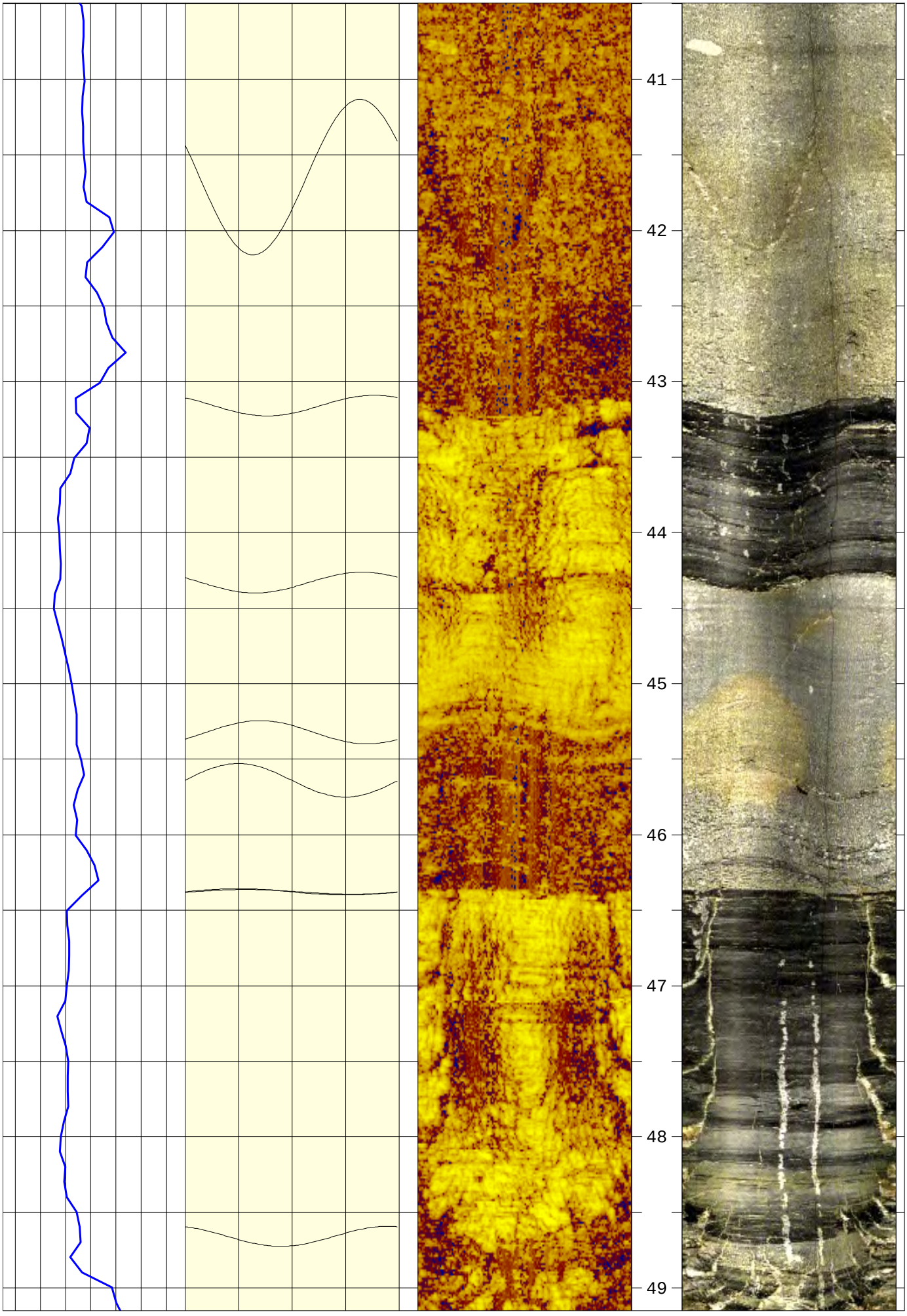
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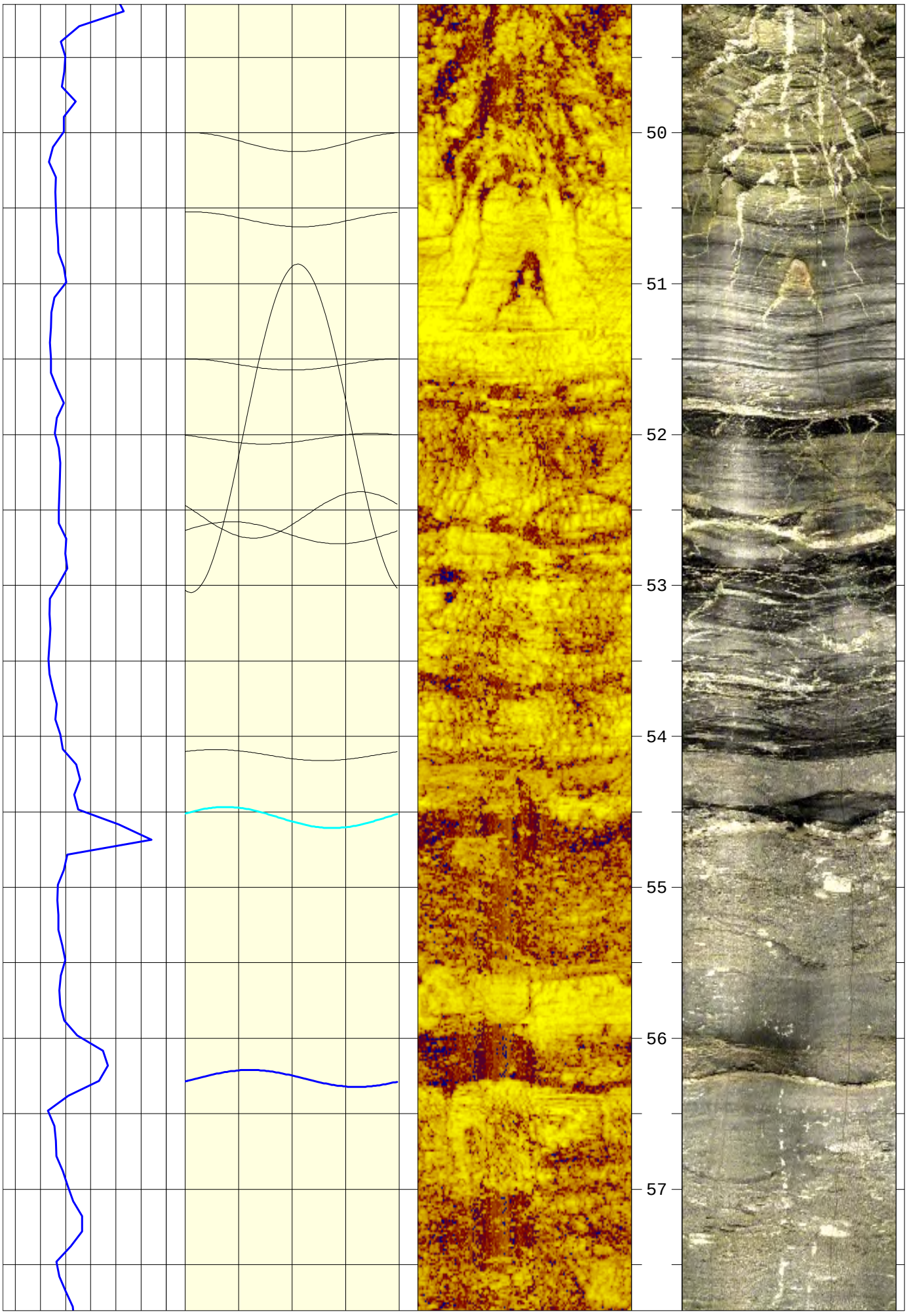
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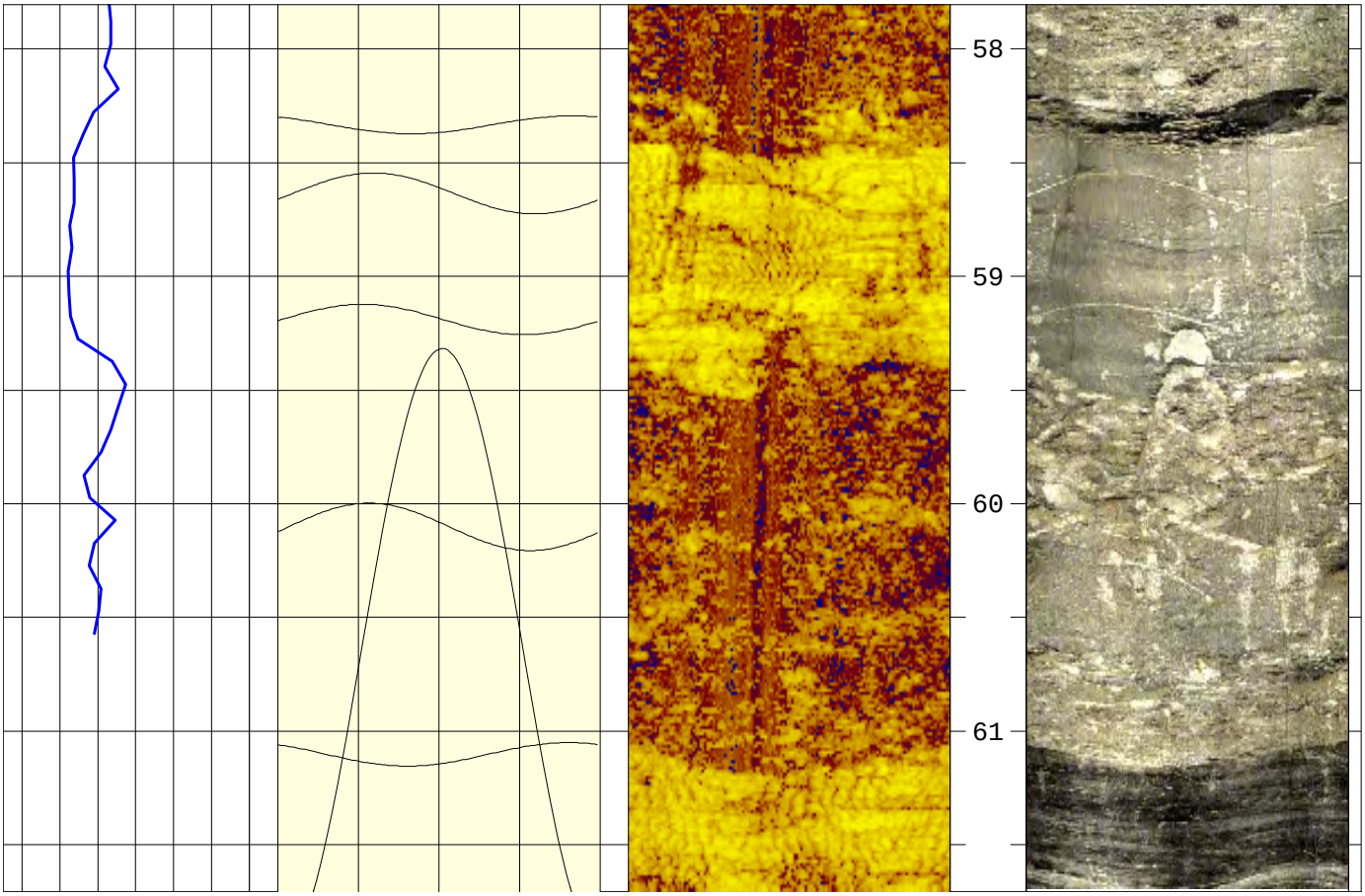
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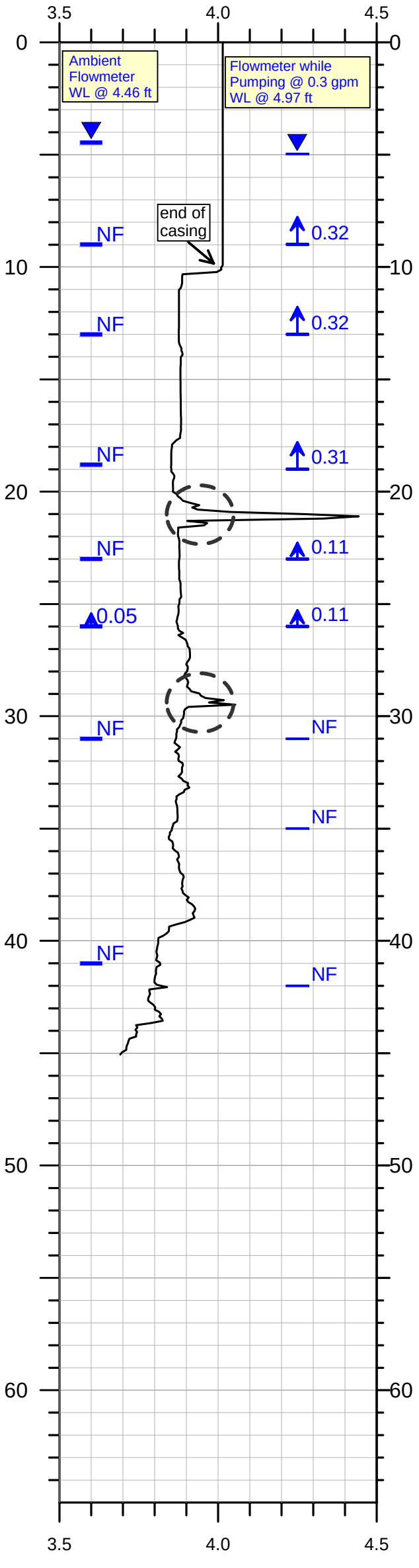
Northeast Geophysical Services

Borehole Geophysical Log
MW-115B
NUSC Site
Middletown, Rhode Island

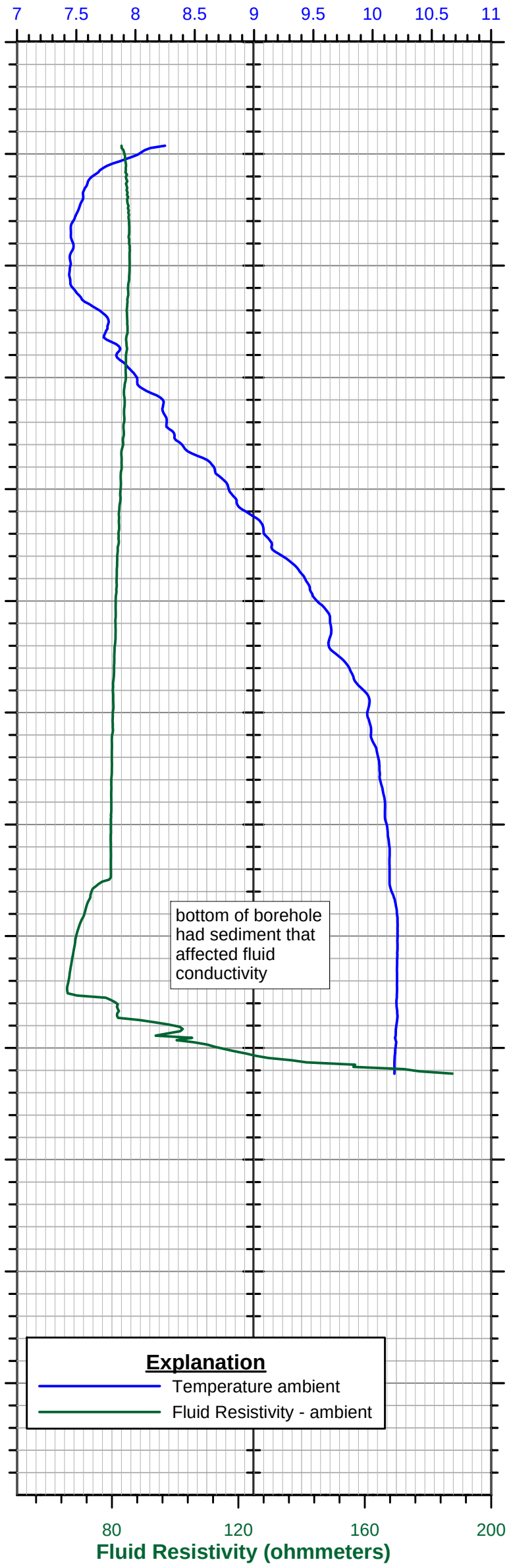
Date logged: 4/15/08

Flowmeter Measurements (in gpm)

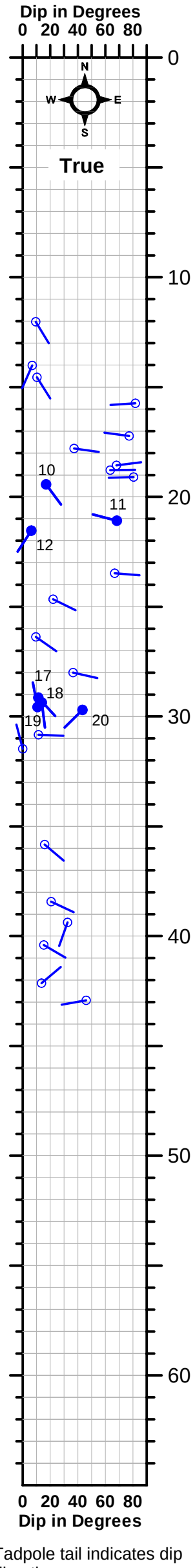
Caliper (inches)



Temperature (C)



Dip and Dip Direction of planar features interpreted from Acoustic and Optical Televiewers



= Likely transmissive zone

= Possible transmissive zone

Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

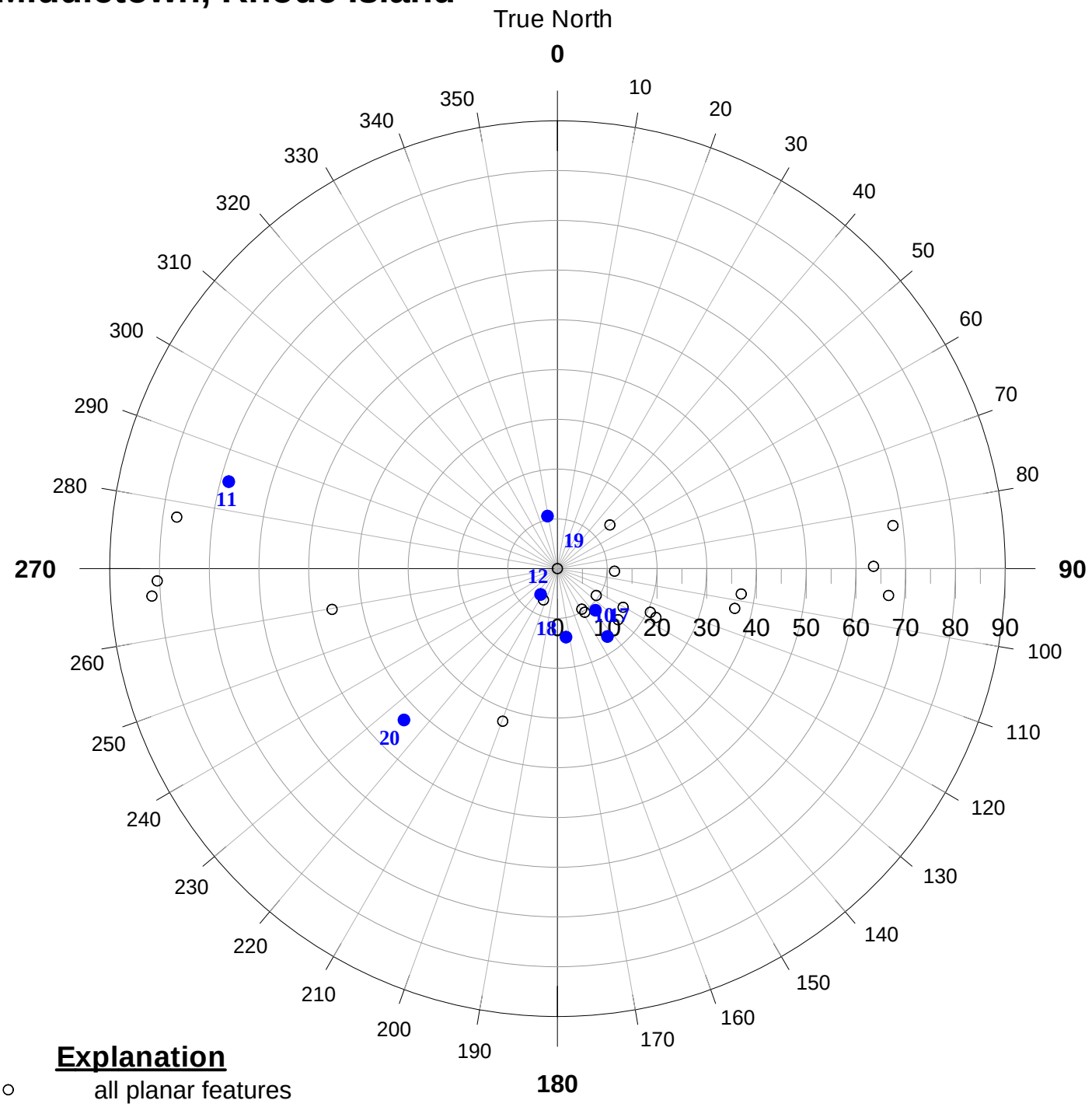
Borehole Geophysical Log
MW-115B
NUSC Site
Middletown, Rhode Island

Date logged: 4/15/08

Northeast Geophysical Services

MW-115B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 28 measurements

Planar features interpreted from acoustical televiewer
MW-115B NUSC Site, Middletown, R.I. **Logged: April 15, 2008**
Declination: 14.8 degrees

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-115B	1	12.0	9	164	74	149	59	100
MW-115B	2	14.0	7	219	309	204	294	100
MW-115B	3	14.6	10	163	73	148	58	100
MW-115B	4	15.7	82	281	11	266	356	100
MW-115B	5	17.2	77	293	23	278	8	100
MW-115B	6	17.8	37	113	23	98	8	100
MW-115B	7	18.6	68	97	7	83	353	100
MW-115B	8	18.8	64	104	14	90	360	100
MW-115B	9	19.1	81	283	13	268	358	100
MW-115B	10	19.4	17	158	68	144	54	107
MW-115B	11	21.1	68	300	30	285	15	107
MW-115B	12	21.5	6	228	318	213	303	107
MW-115B	13	23.5	67	109	19	95	5	100
MW-115B	14	24.7	22	131	41	116	26	100
MW-115B	15	26.4	10	139	49	125	35	100
MW-115B	16	28.0	37	117	27	103	13	100
MW-115B	17	29.1	11	152	62	138	48	107
MW-115B	18	29.4	14	188	278	173	83	107
MW-115B	19	29.6	11	4	274	349	79	107
MW-115B	20	29.7	43	240	330	225	315	107
MW-115B	21	30.8	11	107	17	92	2	100
MW-115B	22	31.5	0	0	90	345	75	100
MW-115B	23	35.8	16	145	55	130	40	100
MW-115B	24	38.4	21	130	40	115	25	100
MW-115B	25	39.4	33	215	305	200	290	100
MW-115B	26	40.4	15	135	45	121	31	100
MW-115B	27	42.1	14	65	335	50	320	100
MW-115B	28	42.9	46	275	5	260	350	100

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.
Category 107 = Likely water bearing feature
Category 108 = Possible water bearing fracture

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Acoustic Televiewer and Caliper Log

Well: MW-115B

Site: NUSC Site

Location: Middletown, RI

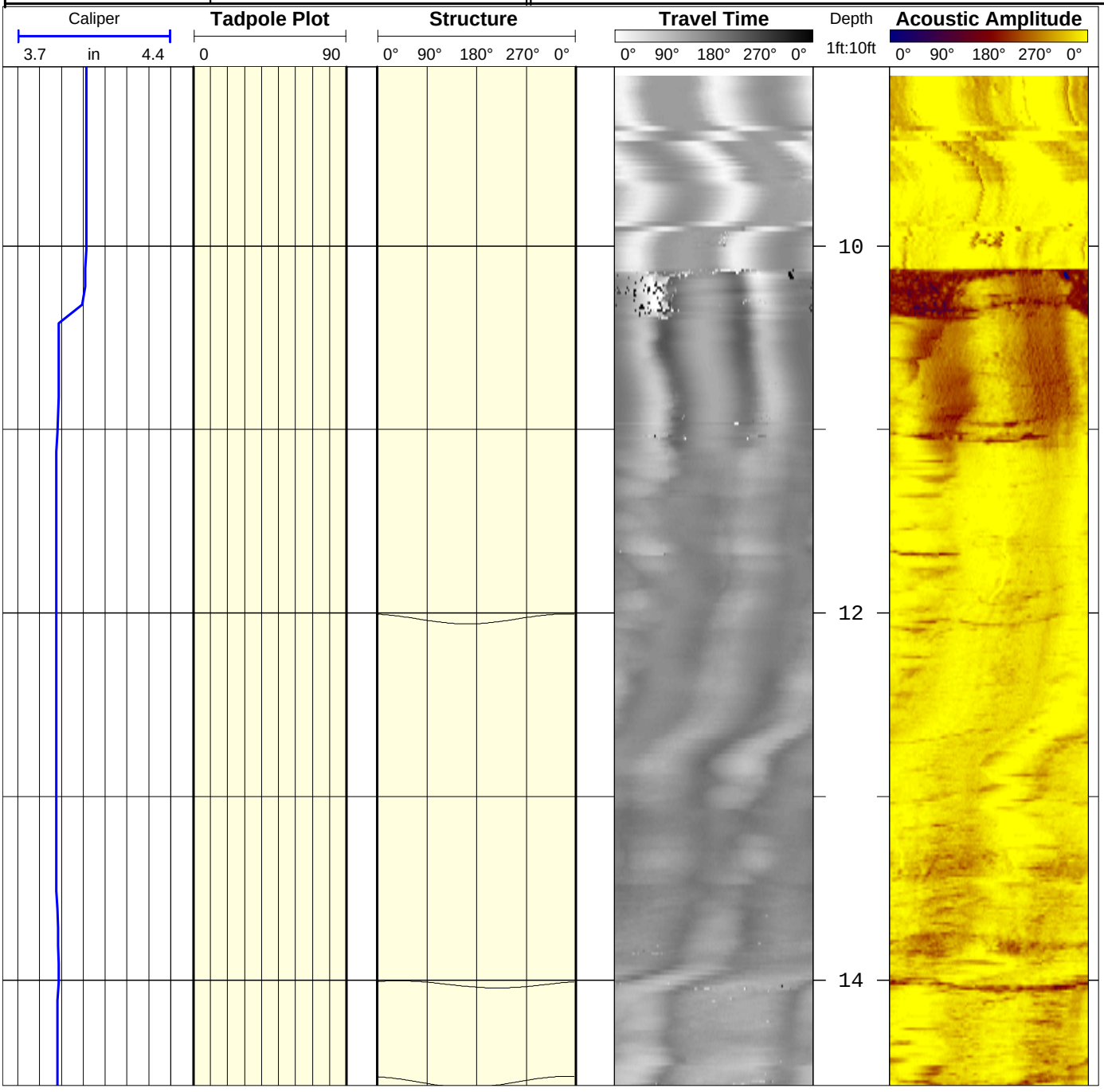
Date:	4/15/08
Casing Depth:	10 ft
Casing Type:	4 inch
Boring Depth:	46.4 ft
Meas. From:	top of casing
Stickup:	0.9 ft
Water Level:	4.46 ft

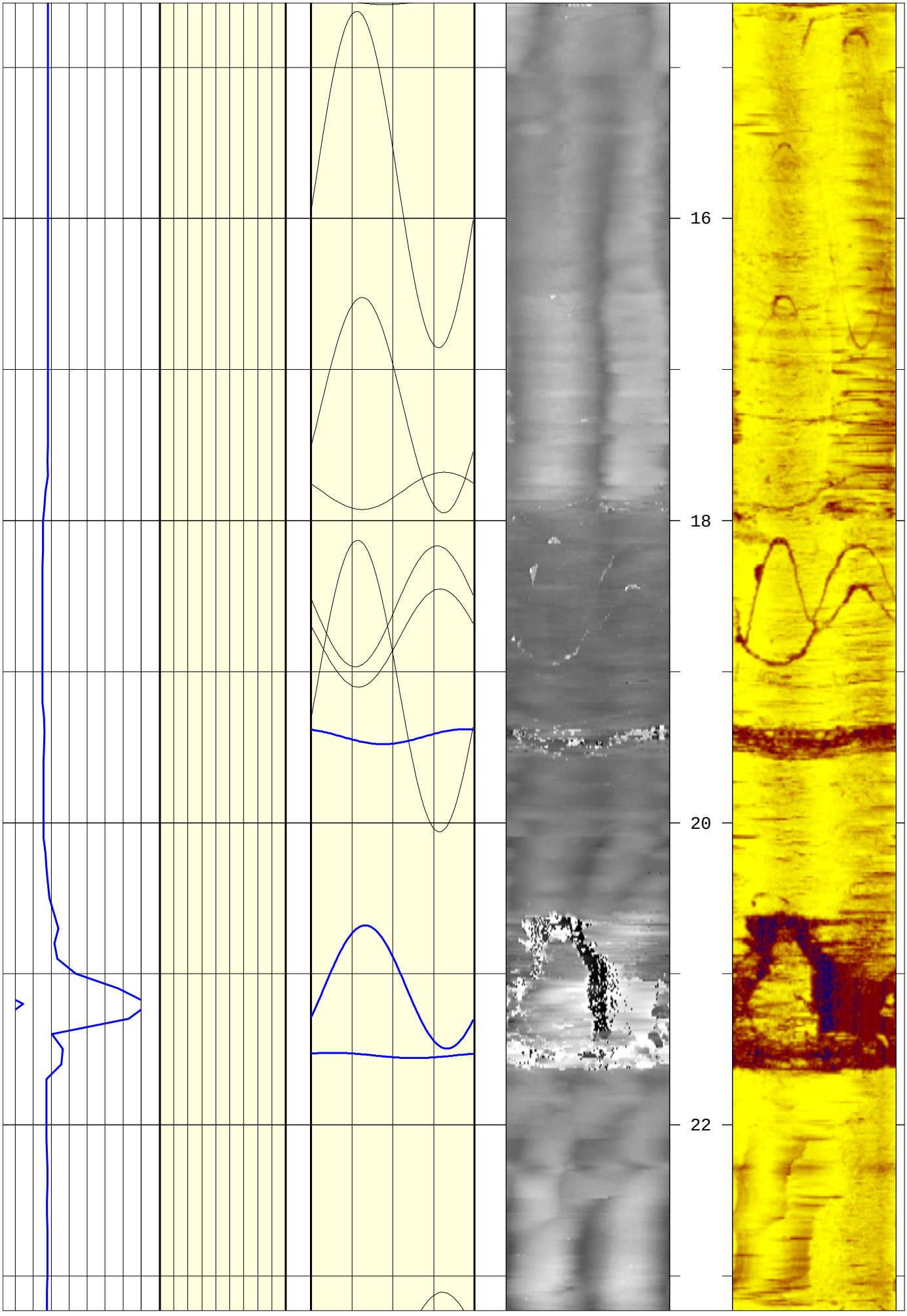
For: Tetra Tech

Logged by: R Rawcliffe

Orientation: Magnetic

Comments:
Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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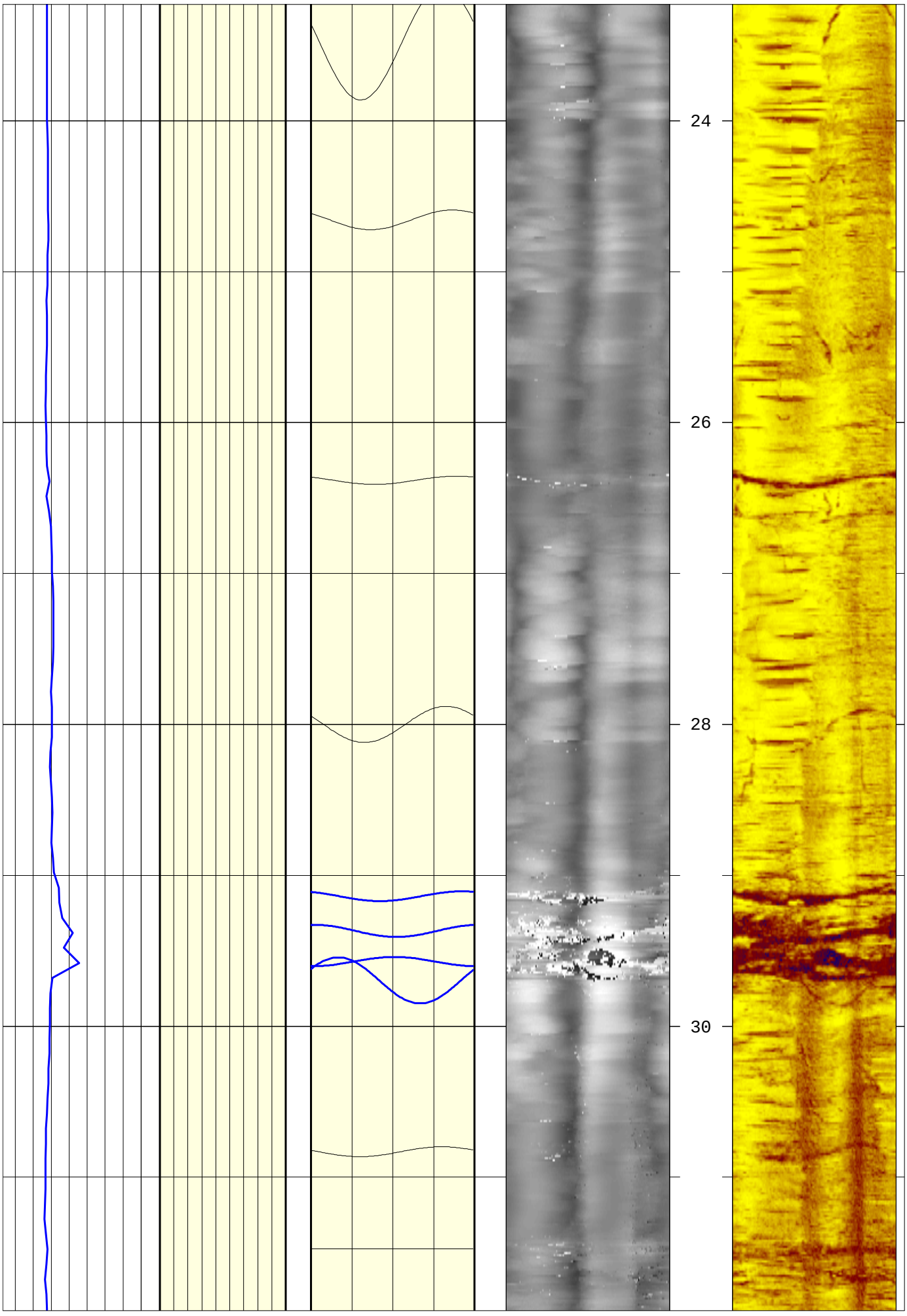
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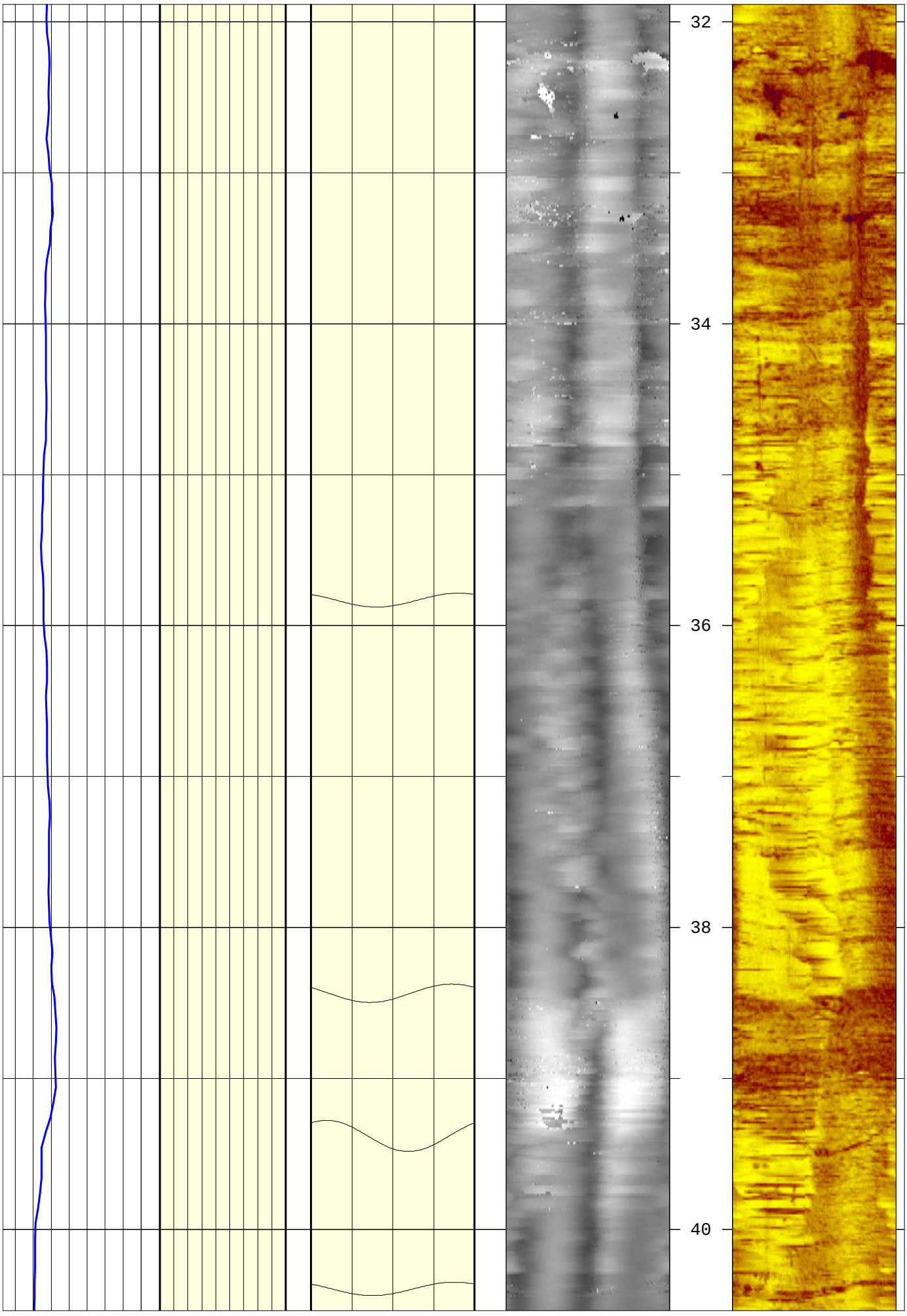
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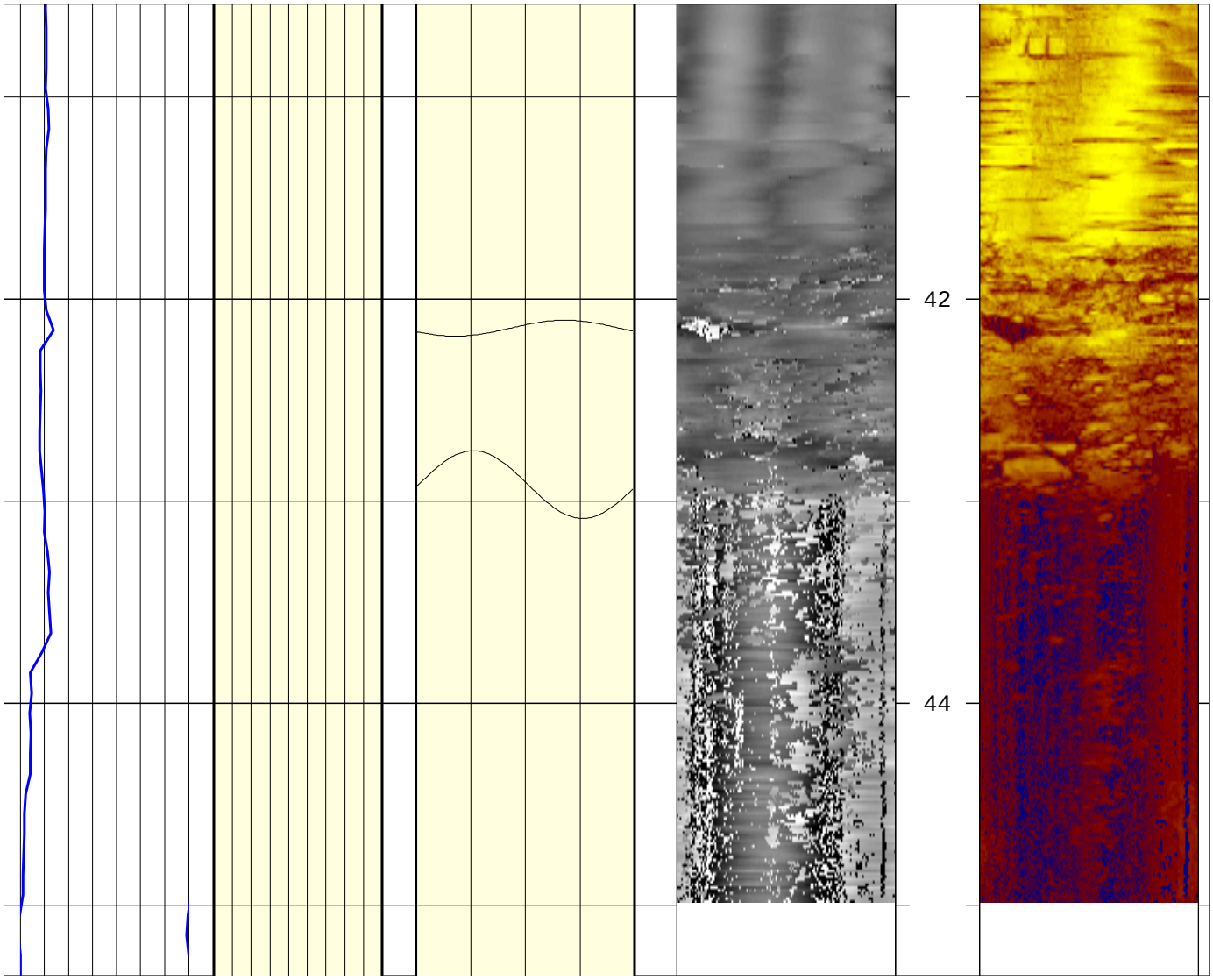

42
44

APPENDIX C.3

BOREHOLE GEOPHYSICAL LOGGING OF SIX BOREHOLES (AUGUST, 2008)

BOREHOLE GEOPHYSICAL LOGGING
OF SIX BOREHOLES
AT THE NUSC DISPOSAL AREA – SITE 08
MIDDLETOWN, RHODE ISLAND
For
Tetra Tech NUS, Inc.

Northeast Geophysical Services
4 Union Street, Suite 3
Bangor, Maine 04401
August, 2008

BOREHOLE GEOPHYSICAL LOGGING
OF SIX BOREHOLES
AT THE NUSC DISPOSAL AREA – SITE 08
MIDDLETOWN, RHODE ISLAND

Introduction

At the request of Tetra Tech NUS, Inc., six bedrock boreholes located in the NUSC Disposal Area – Site 08 in Middletown, Rhode Island were geophysically logged. The boreholes are designated as MW-100B, MW-101B, MW-102B, MW-124B, MW-125B, and MW-126B. MW-101B and MW-102B were logged on July 17 and 18, 2008 by Mike Scully of Northeast Geophysical Services (NGS). The remainder of the boreholes were logged on July 28 and 29, 2008 by Rudy Rawcliffe also of NGS. Geophysical logging was used as one of the means to identify the location of potential water-bearing fractures in the bedrock boreholes. Fluid temperature, fluid resistivity, caliper, acoustical televiewer (ATV), optical televiewer (OTV) and flowmeter measurements were collected from each of the boreholes.

Summary of Results

Composite geophysical logs of the six boreholes are appended to this report. Each log shows the results of the caliper, temperature, fluid resistivity and televiewer logging. Heat pulse flowmeter measurements for ambient and pumping conditions are shown adjacent to the caliper log for each borehole.

The composite geophysical logs show the possible locations of potential fractures in each borehole. The flowmeter results and, to a lesser degree, the fluid temperature and fluid resistivity provide indications of which of these potential fractures are transmissive.

The televiewer logs provide the strike and dip of planar features that intersect the boreholes. These planar features may be fractures, or may represent cleavage or bedding planes. The results have been color-coded on the logs to provide an interpretative range of the likelihood that the associated feature signifies a transmissive fracture as follows:

- Dark blue symbol - multiple distinct borehole geophysical logging responses indicating borehole enlargement (caliper and acoustic signal) and flowmeter evidence that provides the strongest data that the indicated bedrock feature represents a likely transmissive water-bearing fracture.

- Light blue symbol - less amount of corroborating flowmeter data to support that the indicated feature will transmit groundwater compared to the dark blue symbol. However, the ATV log shows a fairly distinct acoustic signal that perhaps under a higher stress condition (e.g. pumping rate), vertical flow could be induced in the borehole. Less degree of confidence that the feature represents a transmissive feature.

- Black symbol - bedrock feature not interpreted to transmit water; more likely to represent planes of foliation, bedding planes, healed or filled fractures, or mechanical breaks in the rock matrix due to drilling advancement.

Figure 1 (on the following page) is a rose plot of the strike and dip angle of all the interpreted features for all of the boreholes logged by NGS at the NUSC Disposal Area∗. This plot shows that the strike and dip direction of the identified features in the boreholes are varied. In general the most common strike direction is to the north (median strike = 359º) with the dip direction is to east or west. Most of the features are fairly shallow dipping with a median dip of 36º. The interpreted results of the televiewer logs are summarized on the composite logs for each borehole and in tables that provide the depth and calculated strike and dip of each identified feature. The televiewer image logs and polar plots for each borehole are also presented in the appendix.

Methods and Instrumentation

The boreholes were logged with a Mount Sopris Matrix digital logger. The boreholes were initially logged with a temperature/fluid resistivity tool and then a caliper tool and then the televiewer tools. The final log on each borehole was the flowmeter measurements. Following is a brief description of each parameter that was measured:

Caliper measures the borehole diameter. Fractures are often revealed on the caliper log as abrupt widenings of the borehole.

Temperature (in degrees Centigrade [ºC]) is measured with the probe going down each hole. Generally, temperature rises smoothly with depth at a rate of about 1.0º C per 100 feet due to the local geothermal gradient. Areas where water may be entering or exiting the borehole are sometimes revealed on the temperature log as abrupt temperature changes or sometimes as temperature gradient changes. Other factors that can affect the temperature log besides transmissive fractures include variations in the thermal resistivity of the rock with depth along the borehole, surface climatic changes, thermal effects of drilling activity, and localized heat sources such as radionuclides in the rock or cement setting outside the casing.

Fluid resistivity measures the resistivity (in ohmmeters) of the water in the borehole. Fluid resistivity can be useful in identifying transmissive fractures because water entering the borehole through fractures sometimes has a different resistivity than the water that is already in the borehole.

The ATV log provides an acoustical image of the borehole walls. The ATV works by scanning the borehole wall with an acoustic beam that is produced by a rapidly rotating piezoelectric source. Planar features such as fractures, bedding surfaces, and joints can be identified with the ATV tool and the strike, dip direction and dip angle of these features can often be determined.

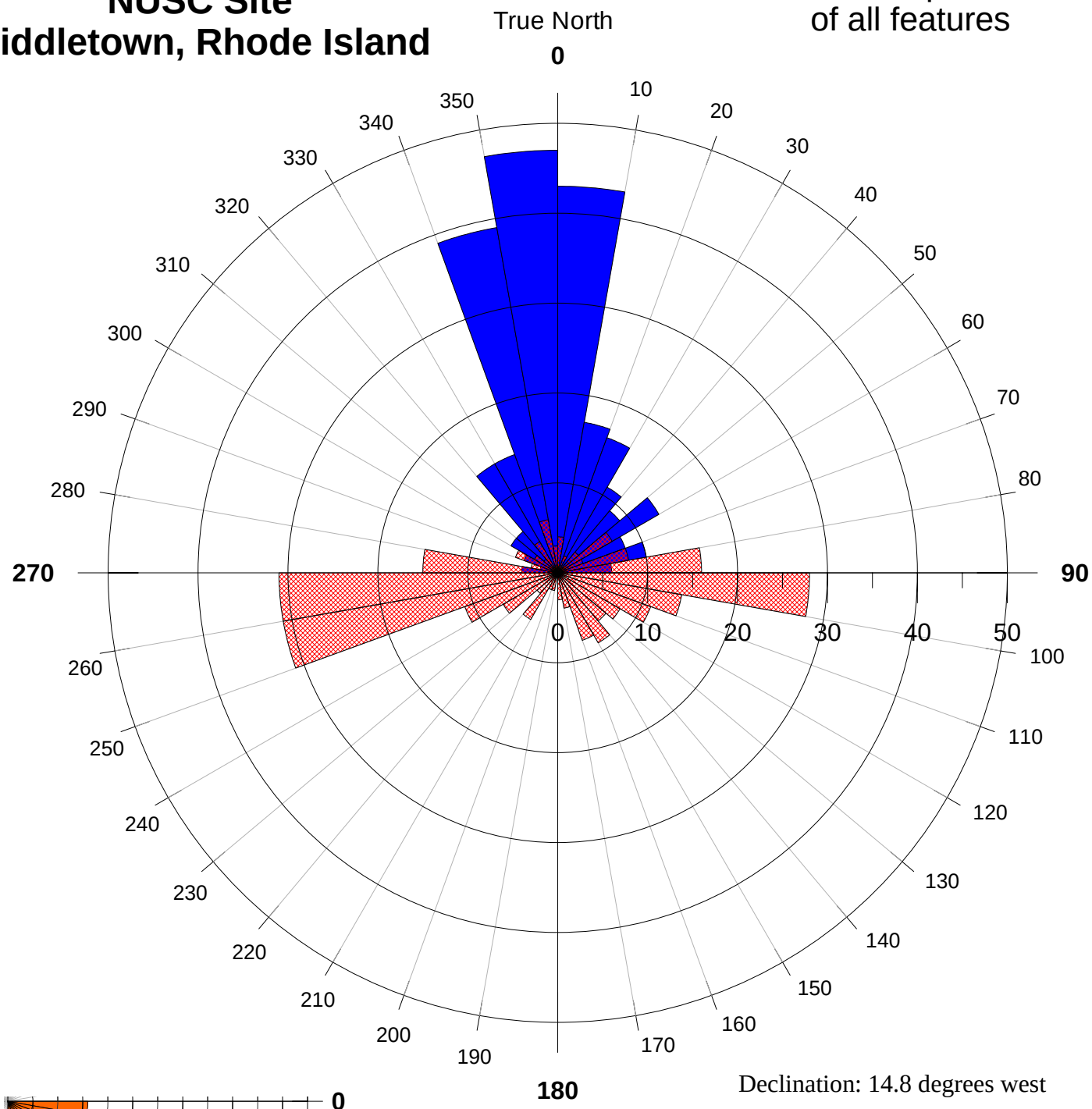
The optical (OTV) log provides a digital image of the borehole walls that is oriented to magnetic north. Planar features such as fractures, bedding surfaces, and joints can be identified with the optical tool and the strike, dip direction and dip angle of these features can often be determined.

The optical and acoustical televiewer logs are somewhat duplicative in that they both can provide similar information. However, there are advantages and disadvantages to both tools. The ATV

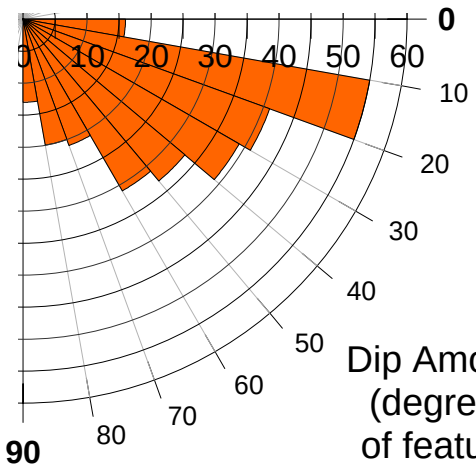
∗ Interpreted features from MW-114B and MW-115B, which were logged by NGS in April, 2008 are also included on Figure 1 and Figure 2.

NUSC Site
Middletown, Rhode Island

FIGURE 1
Strike and Dip Direction
of all features



Declination: 14.8 degrees west



Dip Amount
(degrees)
of features

Explanation

- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 269 measurements taken in eight boreholes (MW-100B, 101B, 102B, 114B, 115B, 124B, 125B and 126B)

requires the borehole to be water filled and will not provide information above the water level. The OTV can work in air or water but is not effective in cloudy, turbid water whereas the ATV will work fine in cloudy water. The ATV can be better at discerning voids, cracks and fractures whereas the OTV can be better at discerning lithology. Also, sometimes water-bearing fractures are rust stained, which can be seen by the OTV. The water in many of the boreholes at the NUSC site was turbid (cloudy), especially near the bottom of the boreholes. Because of this the OTV logs were not as good as they would be if the water had been clear.

The temperature, caliper, fluid resistivity and televiewer logs for each borehole were examined and possible bedrock fractures were identified. This information was used to select measurement locations for the flowmeter instrument. Generally, flowmeter measurements were taken in the zone above and below locations where potential fractures might exist in the boreholes.

Flowmeter Measurements

Flowmeter measurements of the vertical water flow were made in the boreholes using a Mount Sopris Heat Pulse Flowmeter. This instrument is capable of measuring flow direction in a borehole (up or down) and has a calibrated measurement range of 1.0 to 0.03 gallons per minute (gpm).

Vertical flow in a borehole is caused when two or more transmissive fractures in the borehole are at hydraulic disequilibrium with one another. When this occurs there is a hydraulic gradient developed and water will flow toward the fracture with the lower hydraulic head. When no vertical flow is measured it can mean that there are less than two transmissive fractures in the borehole or that all the fractures in the borehole are at equilibrium with each other.

Results

Composite geophysical logs of the boreholes are appended to this report. One or a combination of anomalous geophysical responses identified physical discontinuities that may represent possible fractures. These included abrupt widenings in the caliper log and planar images on the televiewer logs. The heat-pulse flowmeter results are also shown. All of the depths on these logs are referenced from the top of the casing (toc). Following is a descriptive summary of the geophysical logging results for each borehole:

MW-100B:

Total Depth (TOC):	44.3 feet
Casing Depth:	15.0 feet
Water Level:	7.91 feet

The caliper log for MW-100B shows an average borehole diameter of 3.71 inches. The caliper log shows that the borehole walls in MW-100B are quite smooth. There is one anomalously wide zone on the caliper log at 20 feet that probably represents a bedrock fracture.

The temperature log for MW-100B shows an ambient water temperature averaging 7.78° C. The temperature drops rapidly from just below the casing at 15 feet until about 29 feet where it levels off. From about 33 feet to the bottom of the borehole at 44.3 feet the temperature rises slightly. There are no obvious temperature deflections or gradient changes that would indicate a transmissive fracture in the log.

The fluid resistivity log for MW-100B shows that the median resistivity for the uncased portion of the borehole is 34 ohmmeters. The fluid resistivity is fairly constant in the borehole, rising

very slightly from 31 ohmmeters at 15 feet to 34 ohmmeters at the bottom of the borehole at 44 feet. There are no obvious deflections or gradient changes in the fluid resistivity log that would indicate transmissive fractures.

The televiewer logs for MW-100B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north and have a median dip of 55º to the west. However, there are some possible transmissive fractures (features #6, 7 and 16) in MW-100B that dip towards the north. This is illustrated on the polar plot for this borehole. The strike and dip of these and other possible transmissive fractures for MW-100B are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-100B under ambient conditions did not reveal any measurable flow. Measurements were then repeated while pumping the borehole at 0.25 gpm. Pumping at this rate the water level dropped about 3 feet in 30 minutes. This indicates that this borehole is not very transmissive. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole until 35 feet where an upflow (0.07 gpm) was detected. At 30 feet the upflow increased slightly to 0.10 gpm. This increase in flow rate may be due to the decreasing head level rather than a transmissive fracture. At 22 feet the upflow increased to 0.20 gpm and at 19 feet the upflow increased to 0.27 gpm.

The results of the flowmeter measurements indicate possible transmissive fractures in MW-100B at about 20 feet, 23 feet and 35-36 feet. These are shown on the composite log and tabulated in the appendix.

MW-101B:

Total Depth (TOC):	49.1 feet
Casing Depth:	10.0 feet
Water Level:	12.03 feet

The caliper log for MW-101B shows an average borehole diameter of 3.86 inches. The caliper log shows that the borehole walls in MW-101B are quite smooth. There is one anomalously wide zone on the caliper log at 41.4 feet that probably represents a bedrock fracture.

The temperature log for MW-101B shows an ambient water temperature averaging 7.74° C. The temperature drops rapidly from just below the casing at 10 feet until about 27 feet where it levels off. From about 32 feet to the bottom of the borehole at 49.1 feet the temperature rises slightly. There are no obvious temperature deflections or gradient changes that would indicate a transmissive fracture in the log.

The fluid resistivity log for MW-101B shows that the median resistivity for the uncased portion of the borehole is 28 ohmmeters. The fluid resistivity is fairly constant in the borehole, rising very slightly from 26 ohmmeters at 10 feet to 28 ohmmeters at the bottom of the borehole at 49.1 feet. There are no obvious deflections or gradient changes in the fluid resistivity log that would indicate transmissive fractures.

The televiewer logs for MW-101B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north-northwest (348º true) and have a median dip of 34º to the west-southwest. The strike and dip of possible transmissive fractures for MW-101B are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-101B under ambient conditions did not reveal any

measurable flow. Measurements were then repeated while pumping the borehole at 0.12 gpm. Pumping at this rate the water level dropped about 3 feet in 20 minutes. This indicates that this borehole is not very transmissive. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole until 40 feet where a slight upflow (0.03 gpm) was detected. At 30 feet the upflow increased slightly to 0.04 gpm. And at 22 feet upflow was 0.05 gpm. These increases in flow rate may be due to the decreasing head level rather than transmissive fractures.

The results of the flowmeter measurements indicate possible transmissive fractures in MW-101B located below 40 feet. These are shown on the composite log and tabulated in the appendix.

MW-102B:

Total Depth (TOC):	45.1 feet
Casing Depth:	15.1 feet
Water Level:	15.11 feet

The caliper log for MW-102B shows an average borehole diameter of 3.75 inches. The caliper log shows that the borehole walls in MW-102B are quite smooth. There are some anomalously wide zones on the caliper log that may represent bedrock fractures. The largest are at about 17 feet, 23.3 feet and 29.2 feet.

The temperature log for MW-102B shows an ambient water temperature averaging 7.53° C. The temperature drops rapidly from just below the casing at 15 feet until about 25 feet where it levels off. From about 30 feet to the bottom of the borehole at 45.1 feet the temperature rises slightly. There are no obvious temperature deflections or gradient changes that would indicate a transmissive fracture in the log.

The fluid resistivity log for MW-102B shows that the median resistivity for the uncased portion of the borehole is 38 ohmmeters. The fluid resistivity is fairly constant in the borehole, rising very slightly from 37 ohmmeters at 15 feet to 39 ohmmeters at the bottom of the borehole at 45.1 feet. There are no obvious deflections or gradient changes in the fluid resistivity log that would indicate transmissive fractures.

The televiewer logs for MW-102B indicate that the planar features (possible fractures, bedding planes, joints or cleavages) have varied strike and dip directions. A majority of features generally strike to the north-northwest and have a median dip of 43º to the east or west. There are a smaller number of fractures that strike east-northeast and dip to the south-southeast. This is illustrated on the rose and polar plots for this borehole. The strike and dip of possible transmissive fractures for MW-102B are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-102B under ambient conditions did not reveal any measurable flow. Measurements were then repeated while pumping the borehole at 0.12 gpm. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole until 25 feet where an upflow (0.05 gpm) was detected.

The results of the flowmeter measurements indicate a few possible transmissive fractures in MW-102B between 25 and 30 feet. The most likely transmissive fracture is at 29.4 feet (feature #16), which strikes 69º and dips 72º to the southeast. Another possible transmissive fracture is at 17.1 feet (feature #2), which strikes 48º and dips 16º to the southeast. These and other possible

transmissive fractures are shown on the composite log and tabulated in the appendix.

MW-124B:

Total Depth (TOC):	48.8 feet
Casing Depth:	10.0 feet
Water Level:	3.85 feet

The caliper log for MW-124B shows an average borehole diameter of 3.50 inches. The caliper log shows that the borehole walls in MW-124B are quite smooth and there are no large openings suggestive of a fracture except at 11.2 feet, which is just below the casing.

The temperature log for MW-124B shows an ambient water temperature averaging 7.68° C. The temperature drops rapidly from just below the casing at 10 feet until about 28 feet where it levels off. From about 35 feet to the bottom of the borehole at 48.8 feet the temperature rises slightly. There are no obvious temperature deflections or gradient changes that would indicate a transmissive fracture in the log.

The fluid resistivity log for MW-124B shows that the median resistivity for the uncased portion of the borehole is 23 ohmmeters. This is the lowest resistivity (highest fluid conductivity) of the six boreholes that were logged. The fluid resistivity is fairly constant in the borehole, rising from 15 ohmmeters at 10 feet to 29 ohmmeters at the bottom of the borehole at 48.8 feet. There are no obvious deflections or gradient changes in the fluid resistivity log that would indicate transmissive fractures.

The televiewer logs for MW-124B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north and have a median dip of 40º to the west. The strike and dip of possible transmissive fractures for MW-124B are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-124B under ambient conditions did not reveal any measurable flow. Measurements were then repeated while pumping the borehole at 0.25 gpm. Pumping at this rate the water level dropped about 5 feet in 40 minutes. This indicates that this borehole is not very transmissive. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole at 48 feet but then an upflow (0.04 gpm) was detected at 46 feet. At 36 feet the upflow increased to 0.07 gpm. This increase in flow rate may be due to the decreasing head level rather than transmissive fractures. At 10 feet, which is at the casing, upflow measured 0.14 gpm. The results of the flowmeter measurements indicate a few possible transmissive fractures in MW-124B. One is near the bottom of the borehole at 29.4 feet (feature #22), which strikes 48º and dips 11º to the northwest. Other possible transmissive fractures are just below the casing: Feature #1, which strikes 3º and dips 40º to the east and Feature #2, which strikes 16º and dips 44º to the east. These and other possible transmissive fractures are shown on the composite log and tabulated in the appendix.

MW-125B:

Total Depth (TOC):	49.3 feet
Casing Depth:	10.0 feet
Water Level:	5.70 feet

The caliper log for MW-125B shows an average borehole diameter of 3.55 inches. The caliper log shows that the borehole walls in MW-125B are quite smooth. There are two anomalously

wide zones on the caliper log that may represent bedrock fractures, which are located at 13.4 feet and 34.5 feet.

The temperature log for MW-125B shows an ambient water temperature averaging 8.16° C. The temperature drops rapidly from just below the casing at 10 feet until about 26 feet where it levels off. There is a very subtle temperature deflection at about 35 feet that may indicate a transmissive fracture in this area.

The fluid resistivity log for MW-125B shows that the median resistivity for the uncased portion of the borehole is 37 ohmmeters. At about 12.5 feet there is an abrupt decrease in fluid resistivity of about 15 ohmmeters. At about 34.5 feet there is a very subtle increase of about 1 ohmmeter. It is possible that these changes in fluid resistivity represent bedrock fractures in these areas.

The televiewer logs for MW-125B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north and have a median dip of 40º to the east. There are some transmissive fractures in MW-125B. This is illustrated on the polar plot for this borehole. An example of a shallow, east-dipping transmissive fracture can be seen on the OTV log at 34.4 feet.

MW-125B
from 33.5 to 35.5 feet

Fracture is estimated to strike 2 degrees (true)
and dip 16 degrees to the east

The strike and dip of other possible transmissive fractures for MW-125B are shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-125B under ambient conditions did not reveal any

measurable flow. Measurements were then repeated while pumping the borehole at 0.4 gpm. Pumping at this rate the water level dropped about 2.5 feet in 44 minutes. Under pumping conditions, flowmeter measurements indicate no measurable flow at the bottom of the borehole until 40 feet where an upflow (0.02 gpm) was detected. At 33 feet upflow measurements increased to 0.24 gpm. From 33 feet to the uppermost measurement at 12.5 feet the flow rate varied between 0.24 to 0.40 gpm. It is possible that the increases in flow rate going upwards in the borehole are due to transmissive fractures; however, these variations in flow rate are partly due to variations in the pumping rate.

The results of the flowmeter measurements and the fluid resistivity and temperature logs indicate three likely transmissive zones in MW-125B. One is near the bottom of the borehole at 41.7 feet (feature #27), which strikes 24º and dips 46º to the east-southeast. Another likely transmissive fracture is at 34.4 feet (feature #22) which strikes 2º and dips 16º to the east. A third likely transmissive fracture is at 13 feet (feature #4), which strikes 353º and dips 45º to the west-southwest. These and other possible transmissive fractures are shown on the composite log and tabulated in the appendix.

MW-126B:

Total Depth (TOC):	59.8 feet
Casing Depth:	20.0 feet
Water Level:	3.85 feet

The caliper log for MW-126B shows an average borehole diameter of 3.54 inches. The caliper log shows that the borehole walls in MW-126B are generally quite smooth. There is one anomalously wide zone at 34 feet on the caliper log that may represent a bedrock fracture and a rough zone from about 42 to 46 feet, which may also represent bedrock fractures.

The temperature log for MW-126B shows an ambient water temperature averaging 8.39° C. The temperature drops rapidly from just below the casing at 20 feet until about 27 feet where it levels off. There is a very subtle temperature deflection between about 35 and 37.5 feet and a gradient change at about 49 feet that may indicate transmissive fractures near these areas.

The fluid resistivity log for MW-126B shows that the median resistivity for the uncased portion of the borehole is 59 ohmmeters. At about 32 feet there is an abrupt decrease in fluid resistivity of about 8 ohmmeters. It is possible that this change in fluid resistivity represent a bedrock fracture in this area.

The televiewer logs for MW-126B indicates that the planar features (possible fractures, bedding planes, joints or cleavages) generally strike to the north and have a median dip of 40º to the west. The optical televiewer shows that the upper part of borehole MW-126B is a conglomerate with the contact at about 30 feet. There are some transmissive fractures in MW-126B. This is illustrated on the polar plot for this borehole and shown on the composite log and tabulated in the appendix.

The flowmeter measurements for MW-126B under ambient conditions did not reveal any measurable flow. Measurements were then repeated while pumping the borehole at 0.85 gpm. Pumping at this rate the water level dropped and then stabilized about 1.3 feet below the ambient level. This indicates that this borehole is fairly transmissive compared to the other boreholes that were logged. Under pumping conditions, flowmeter measurements indicate no measurable

flow at the bottom of the borehole at 55 feet but then an upflow (0.06 gpm) was detected at 53 feet. At 43 feet the upflow increased to 0.16 gpm. and increased again to 0.21 gpm at 42 feet. At 35 feet upflow increased to 0.32 gpm. At 31.3 feet upflow increased to 0.66 gpm and from here to the casing at 20 feet the flow rate stayed fairly constant.

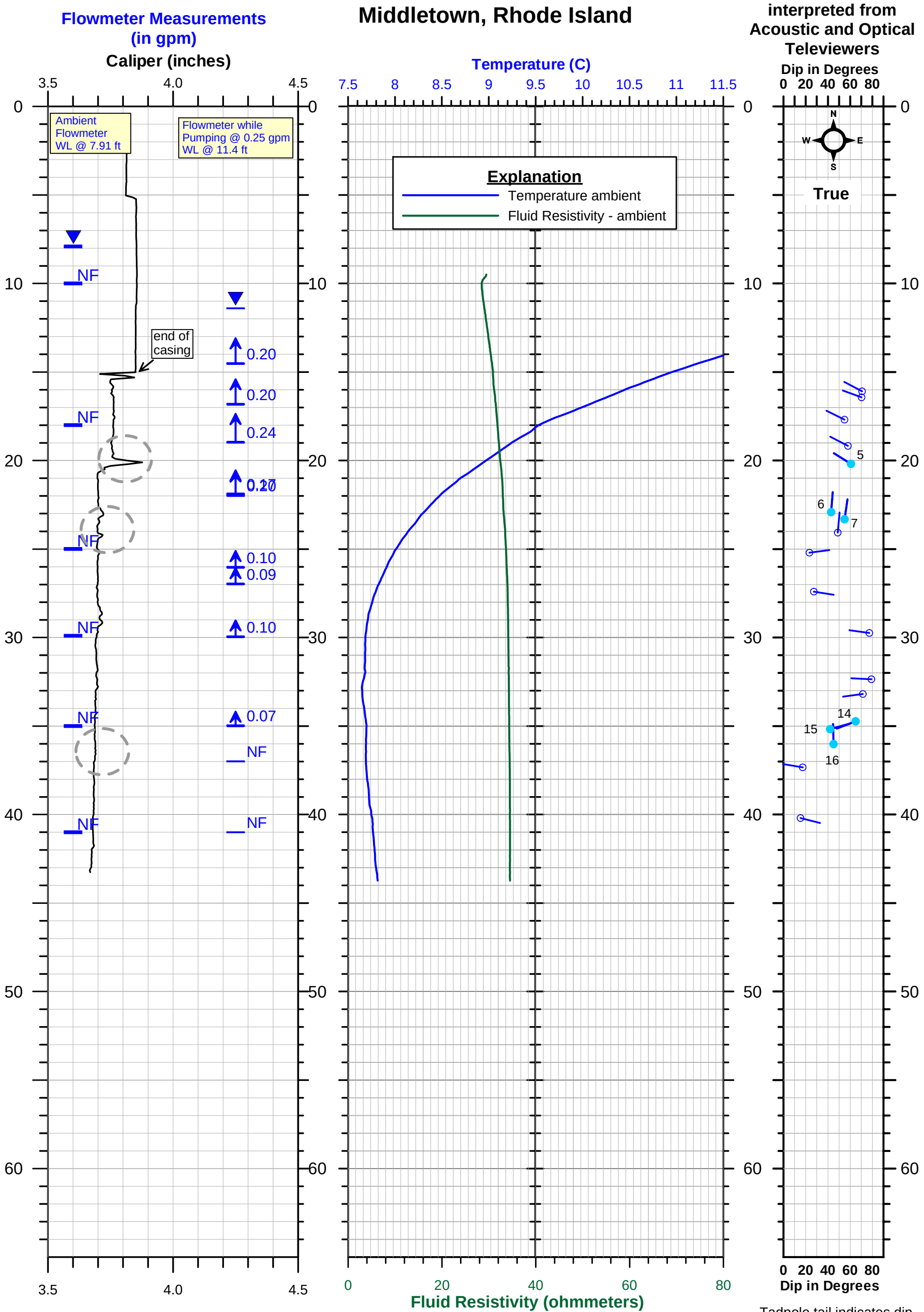
The results of the flowmeter measurements and the fluid resistivity and temperature logs indicate four likely transmissive zones in MW-126B. One is near the bottom of the borehole at 53.7 feet (feature #41), which strikes 355º and dips 44º to the west. Another likely transmissive fracture is at 33.1 feet (feature #17) which strikes 357º and dips 44º to the west. A third likely transmissive fracture is at 35.6 feet (feature #20), which strikes 348º and dips 36º to the west-southwest. The fourth possibly transmissive zone is from 42 to 44 feet. Within this area there are several possible transmissive fractures. These and other possible transmissive fractures are shown on the composite log and tabulated in the appendix.

APPENDIX
BOREHOLE GEOPHYSCIAL LOGS

Northeast Geophysical Services

Borehole Geophysical Log
B-100B
NUSC Site
Middletown, Rhode Island

Date logged: 7/29/08



= Likely transmissive zone

= Possible transmissive zone

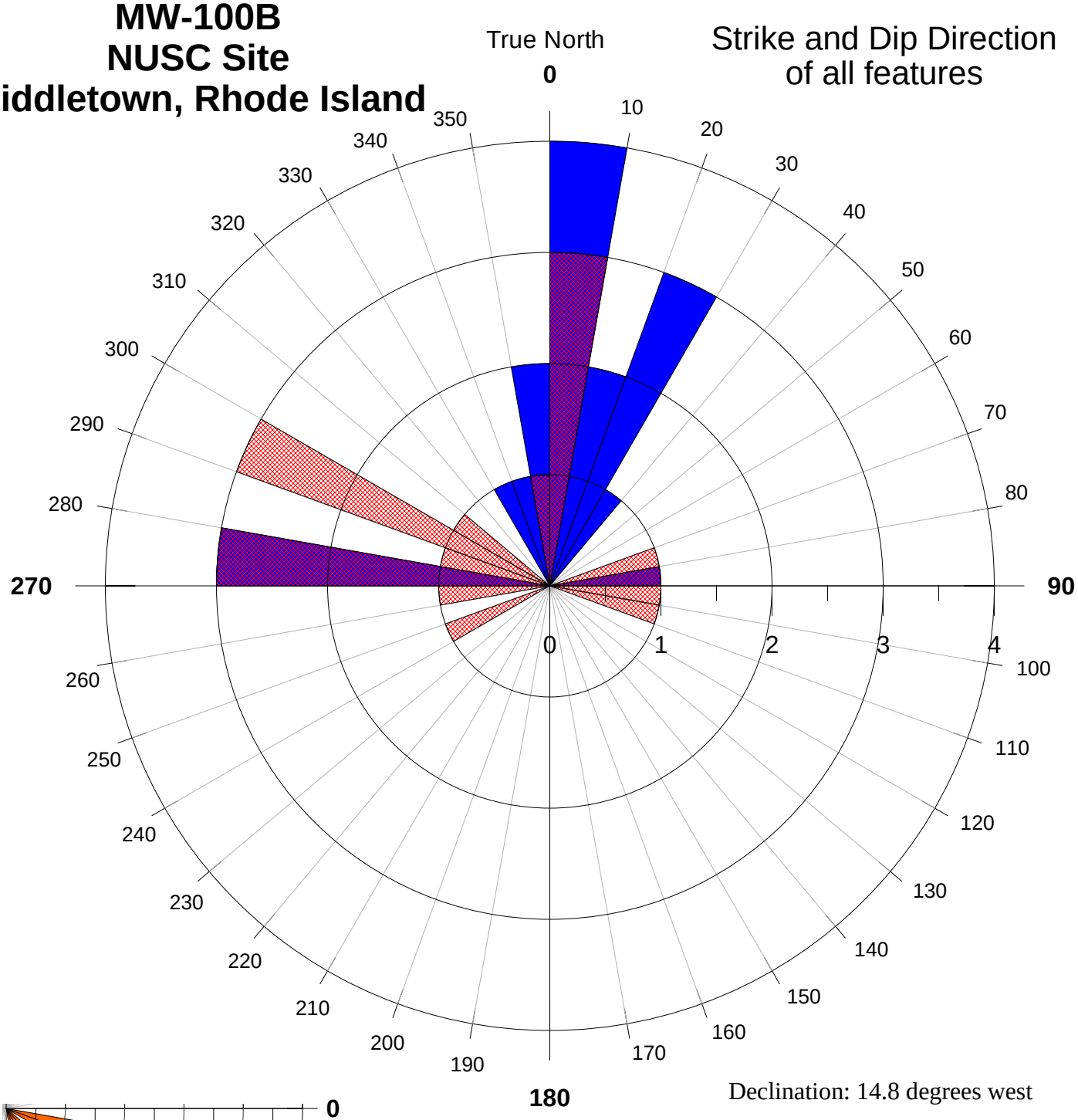
Borehole Geophysical Log
B-100B
NUSC Site
Middletown, Rhode Island

Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

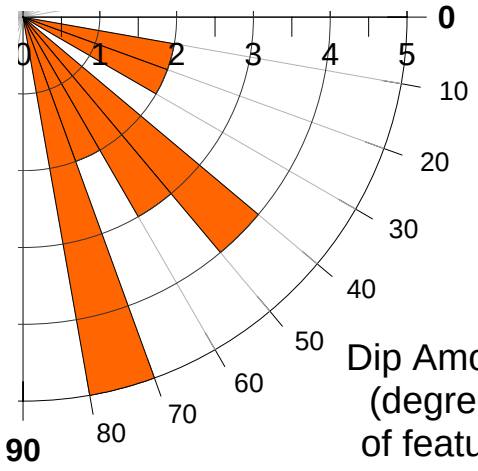
Date logged: 7/29/08

Northeast Geophysical Services

MW-100B
NUSC Site
Middletown, Rhode Island



Declination: 14.8 degrees west



Explanation

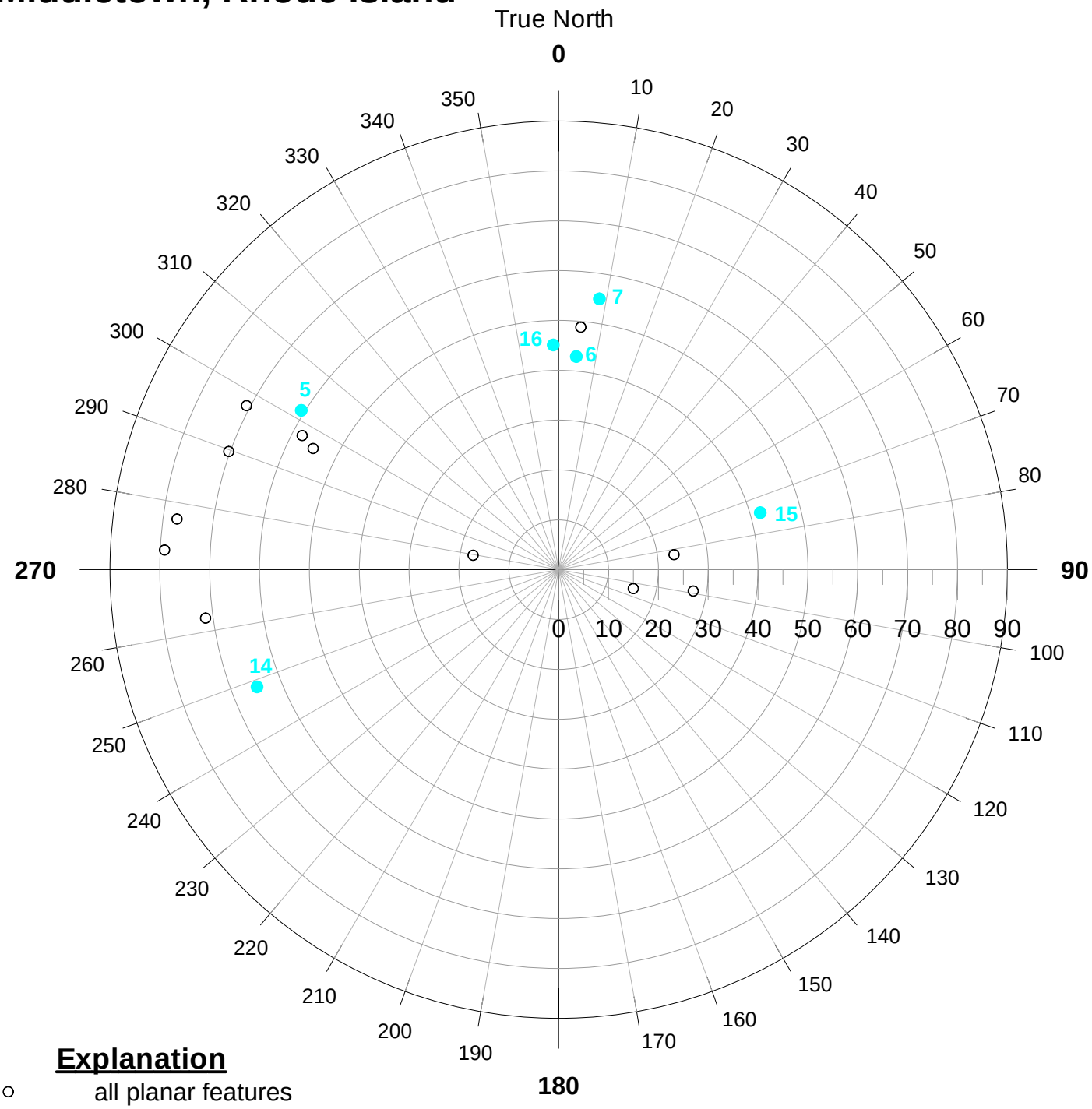
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 18 measurements

Northeast Geophysical Services

MW-100B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 18 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: negeophysical.com

Log: Televiewer Logs

Well: MW-100B

Site: NUSC

Date: 7/29/08

Location: Middletown, R.I.

Casing Depth:	15 ft
Casing Type:	4 in steel
Boring Depth:	44.3 ft
Meas. From:	top of casing
Stickup:	-0.2 ft
Water Level:	7.91 ft

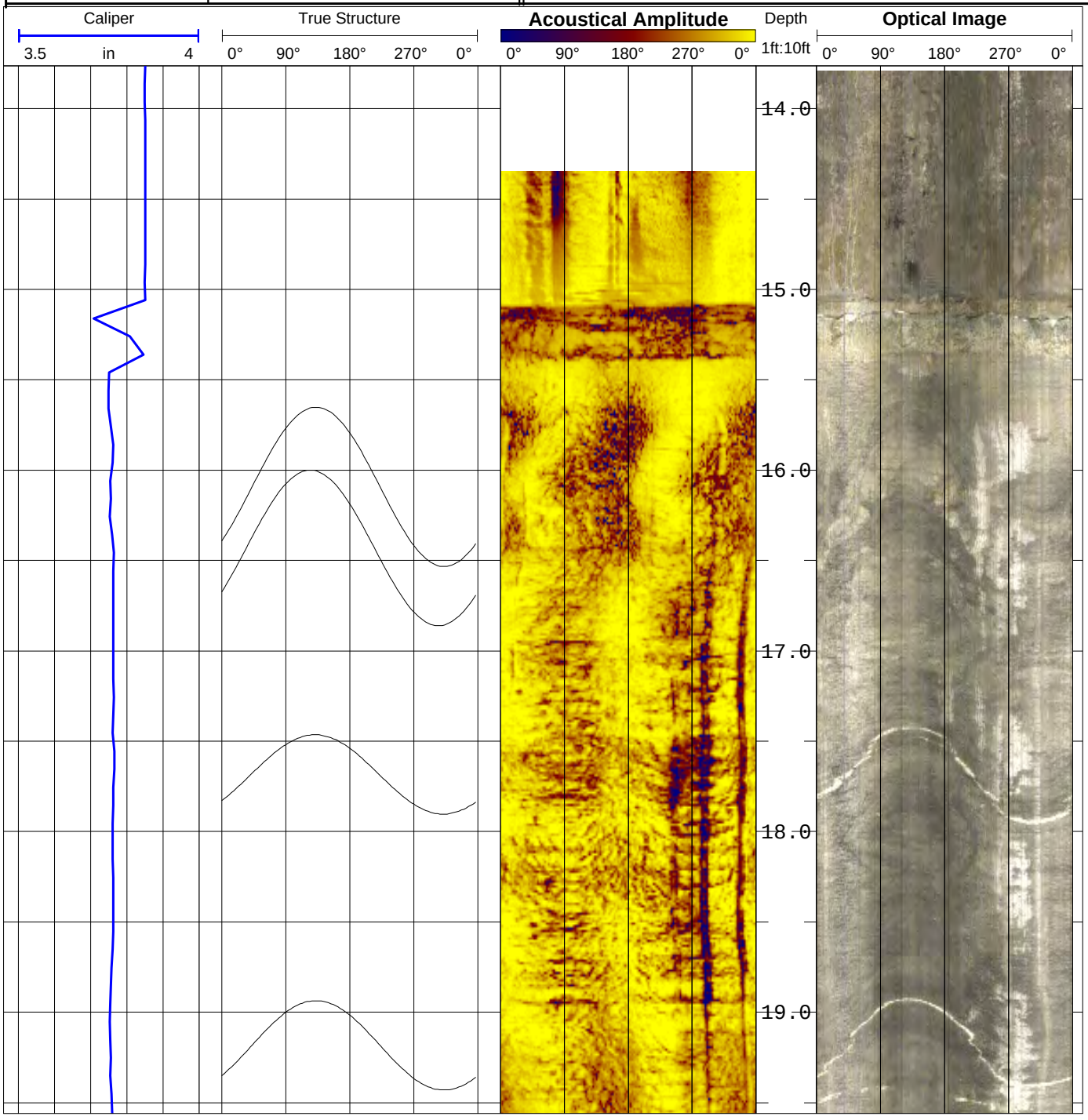
For: Tetra Tech

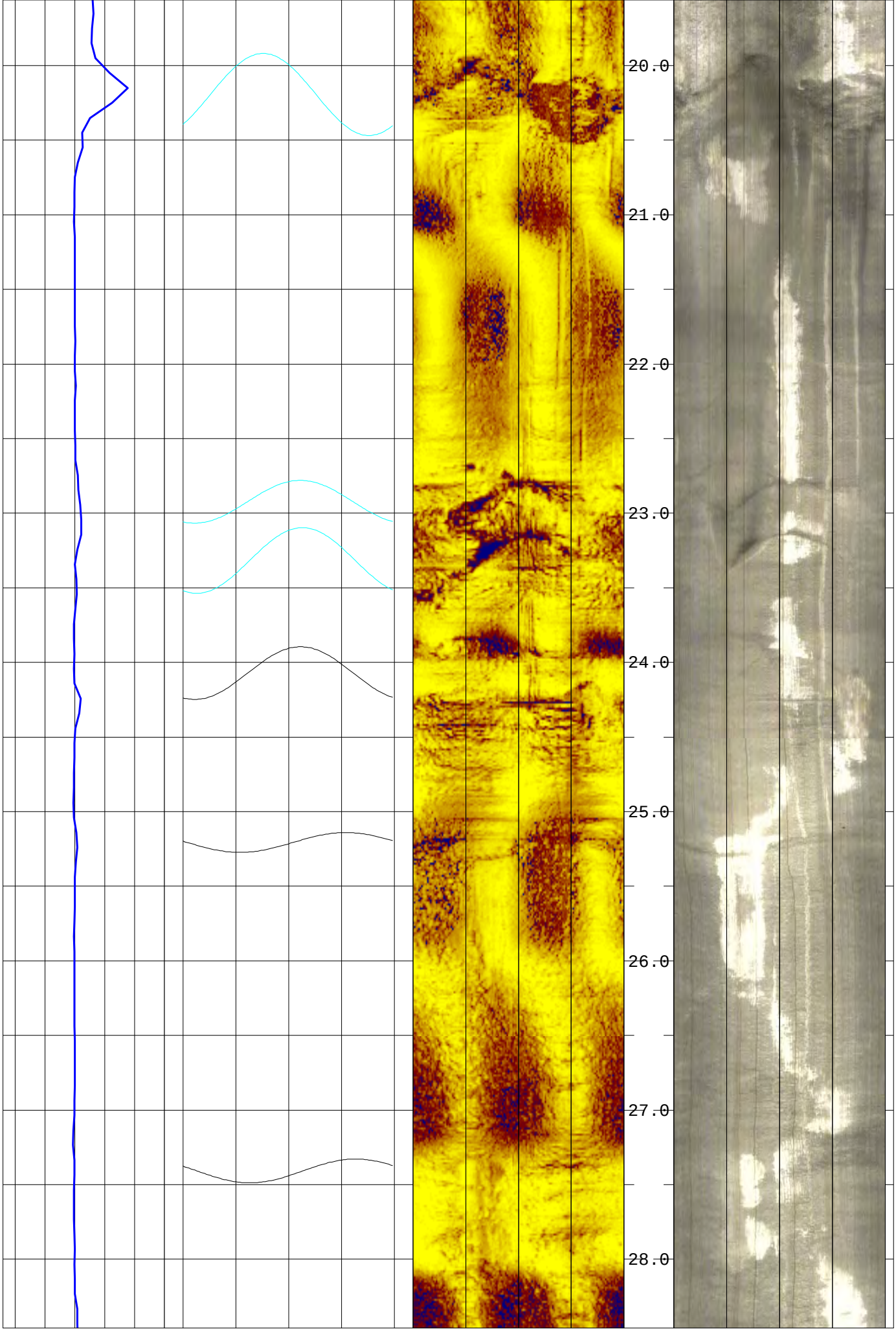
Logged by: R. Rawcliffe

Orientation: magnetic

Comments:

Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.)
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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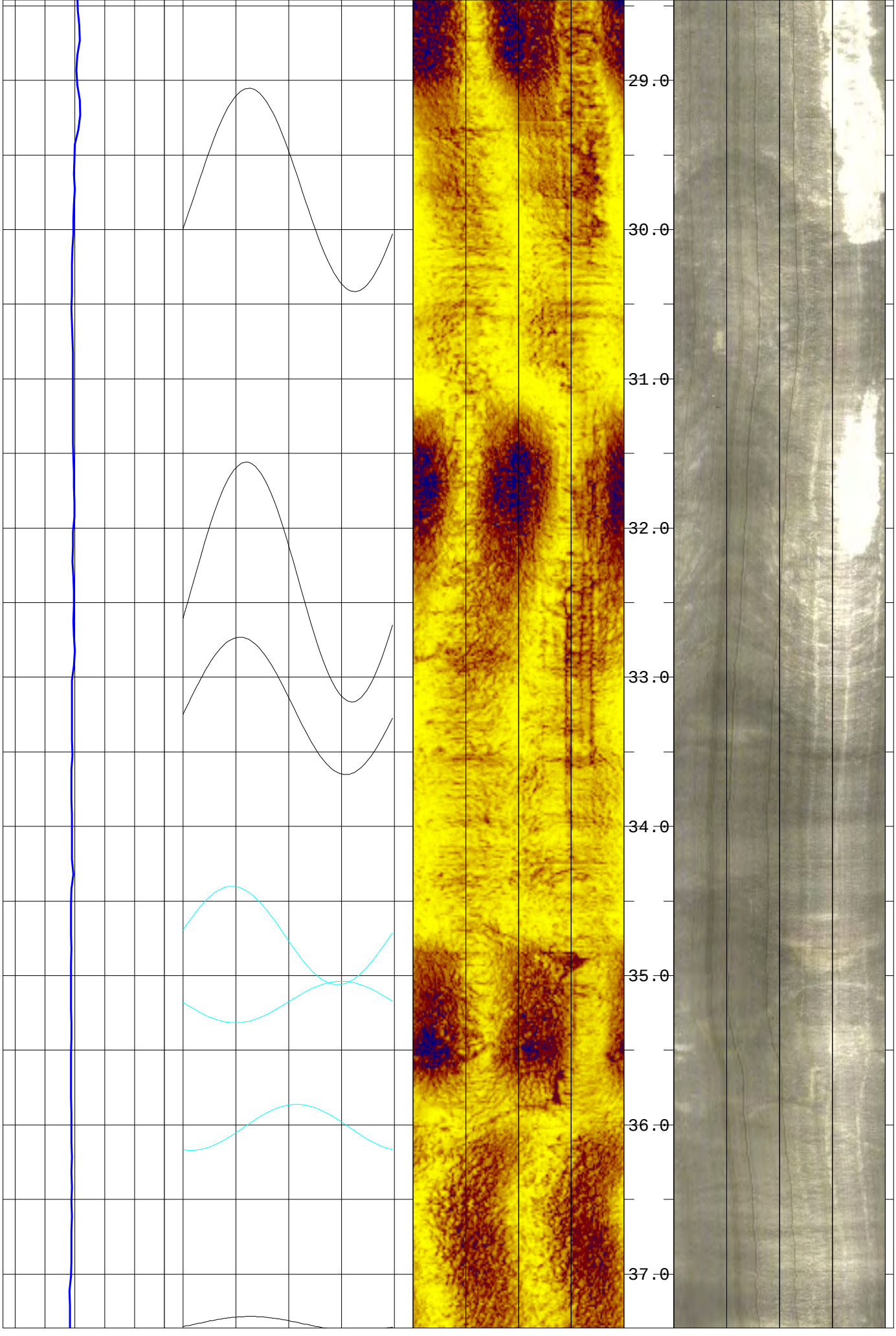
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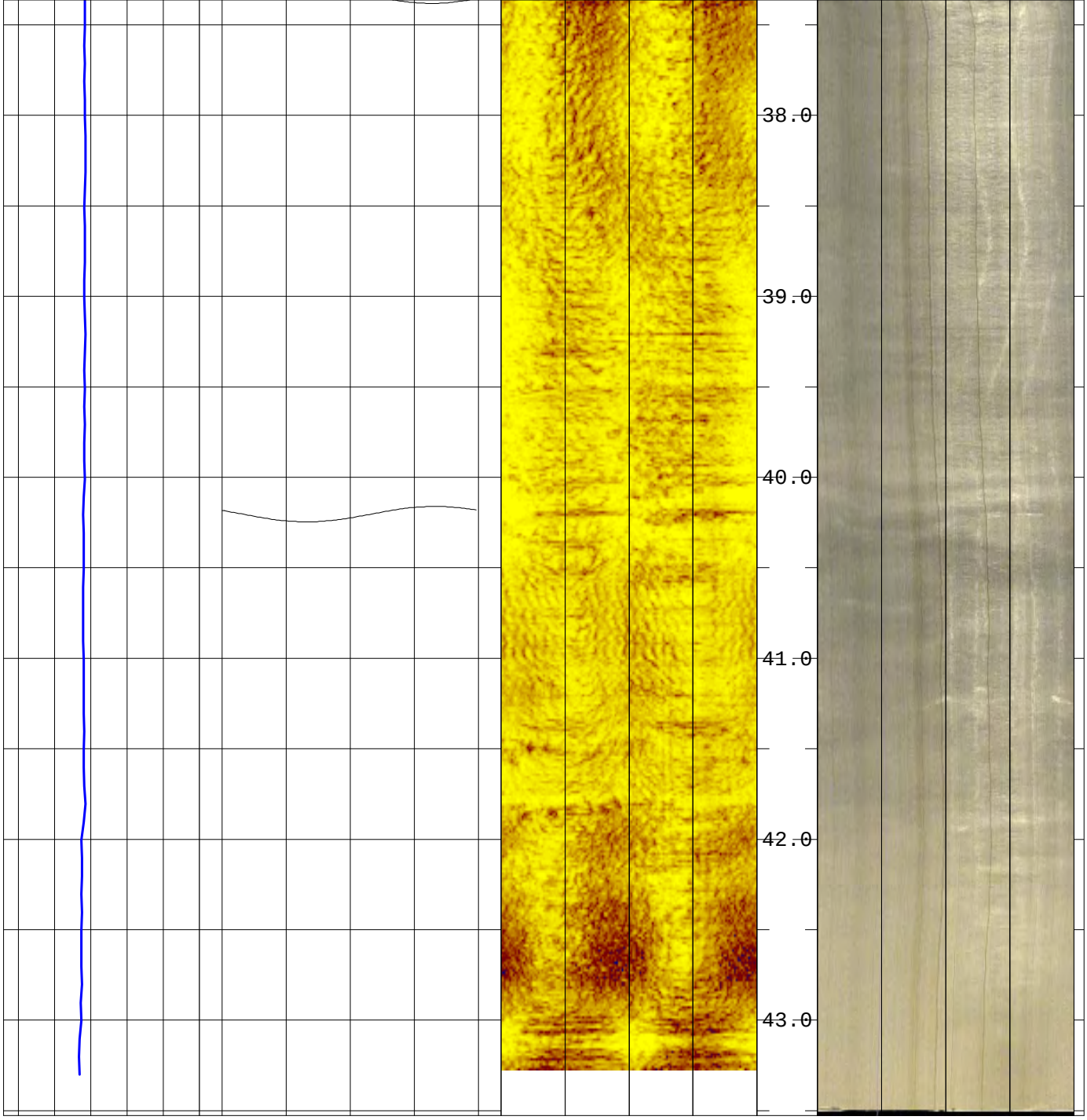

38.0
39.0
40.0
41.0
42.0
43.0

Planar features interpreted from acoustical and optical televiewers
MW-100B - NUSC Disposal Site 08 - Middletown, Rhode Island **Logged: 07/29/08**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-100B	1	16.1	71	313	43	298	28	100
MW-100B	2	16.4	70	305	35	290	20	100
MW-100B	3	17.7	55	311	41	296	26	100
MW-100B	4	19.2	58	312	42	298	28	100
MW-100B	5	20.2	61	317	47	302	32	108
MW-100B	6	22.9	43	20	290	5	275	108
MW-100B	7	23.3	55	23	293	9	279	108
MW-100B	8	24.1	49	20	290	5	275	100
MW-100B	9	25.2	23	97	7	83	353	100
MW-100B	10	27.4	27	114	24	99	9	100
MW-100B	11	29.7	77	292	22	278	8	100
MW-100B	12	32.4	79	288	18	273	3	100
MW-100B	13	33.2	72	277	7	262	352	100
MW-100B	14	34.7	65	264	354	249	339	108
MW-100B	15	35.2	42	89	359	74	344	108
MW-100B	16	36.0	45	13	283	359	89	108
MW-100B	17	37.3	17	294	24	280	10	100
MW-100B	18	40.2	15	119	29	104	14	100

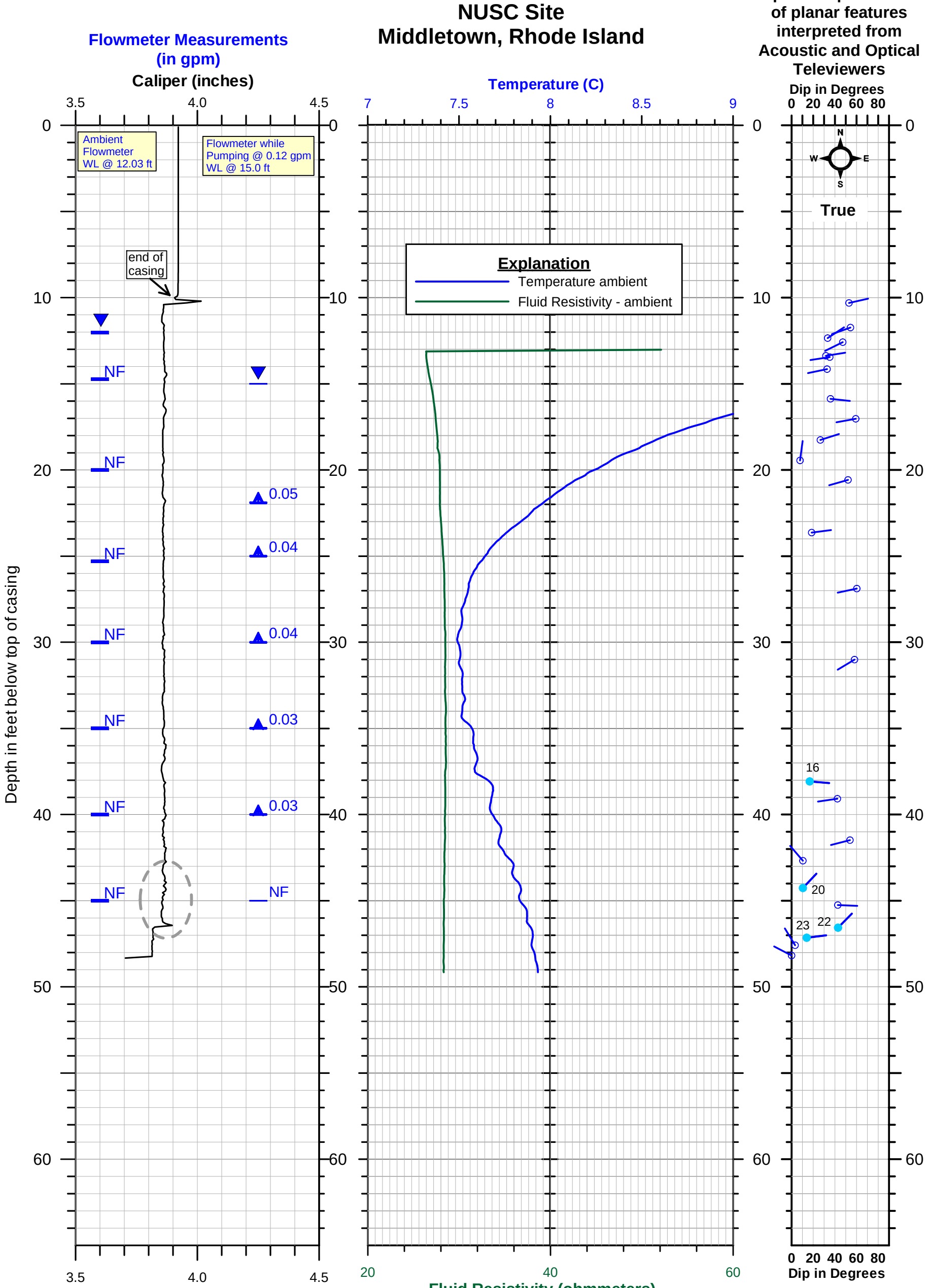
Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 107 = Likely water bearing fracture
Category 108 = Possible water bearing fracture

Northeast Geophysical Services

Borehole Geophysical Log
B-101B
NUSC Site
Middletown, Rhode Island

Date logged: 7/17/08



= Likely transmissive zone

= Possible transmissive zone

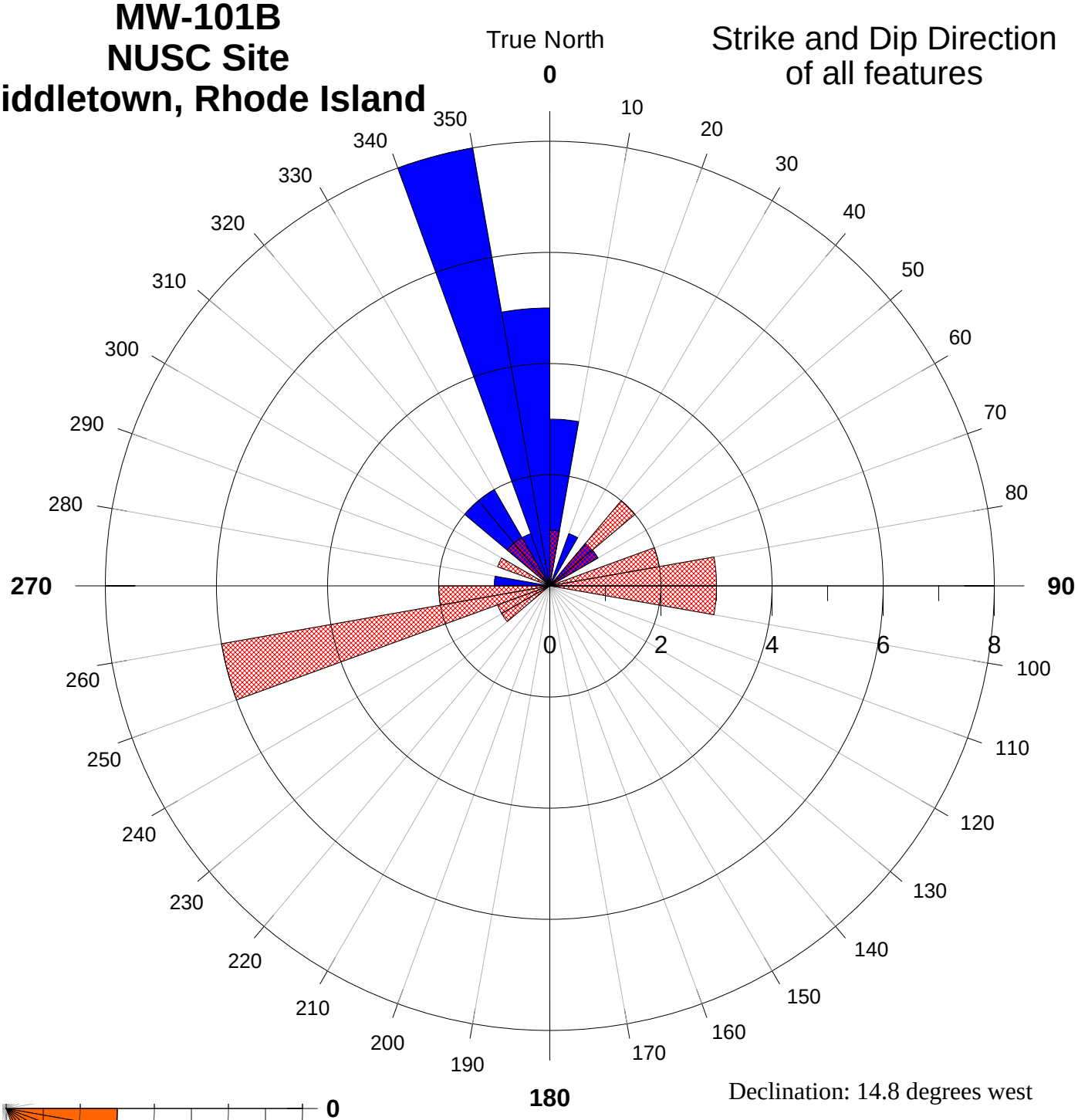
Borehole Geophysical Log
B-101B
NUSC Site
Middletown, Rhode Island

Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

Date logged: 7/17/08

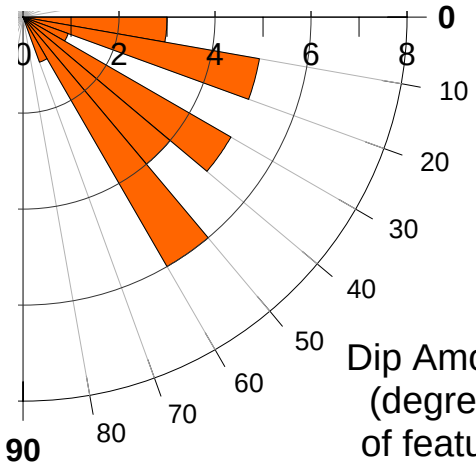
Northeast Geophysical Services

MW-101B
NUSC Site
Middletown, Rhode Island



Strike and Dip Direction of all features

Declination: 14.8 degrees west



Dip Amount (degrees) of features

Explanation

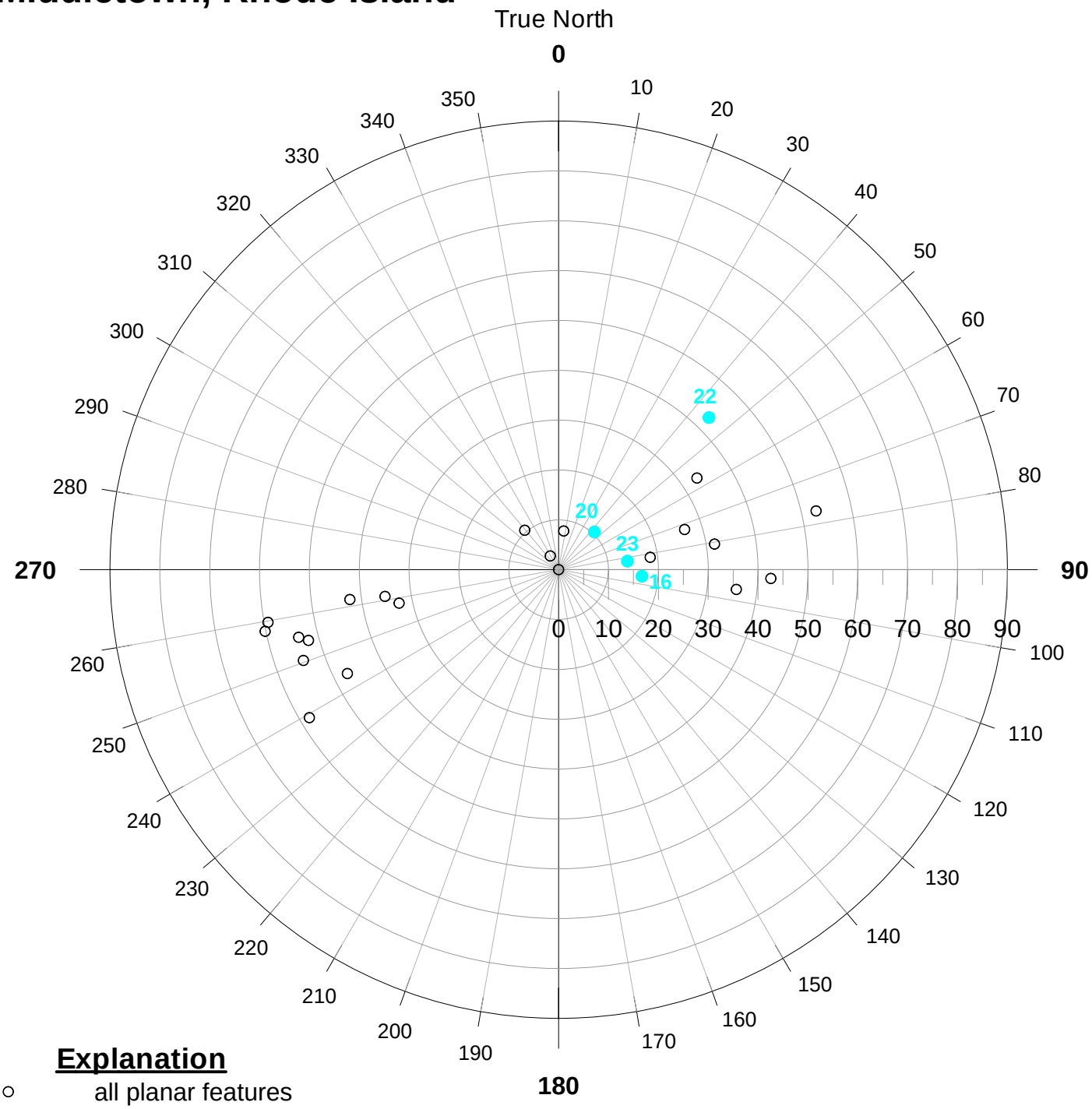
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 25 measurements

Northeast Geophysical Services

B-101B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 25 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Televiewer Logs

Well: MW-101B

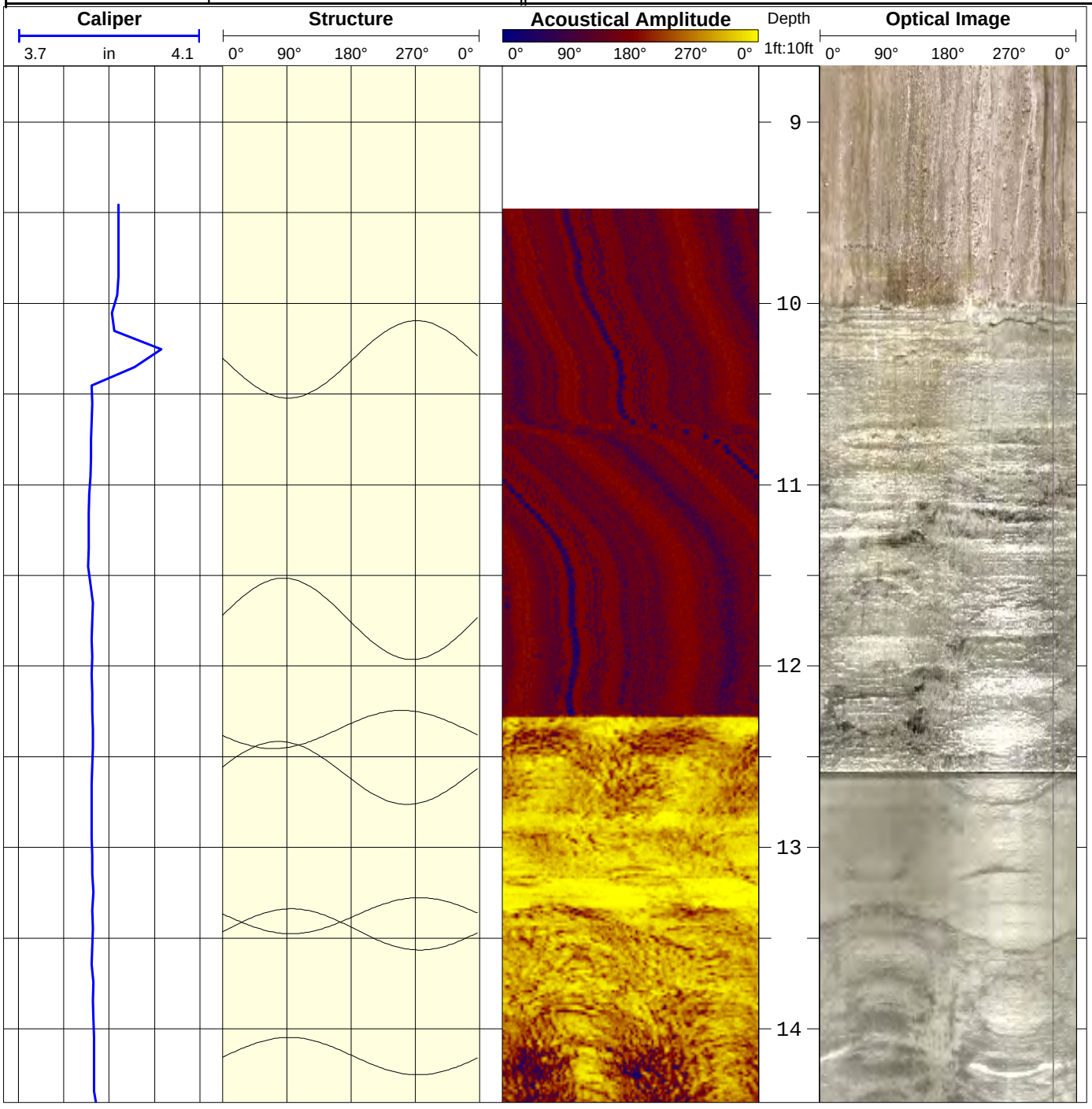
Site: NUSC

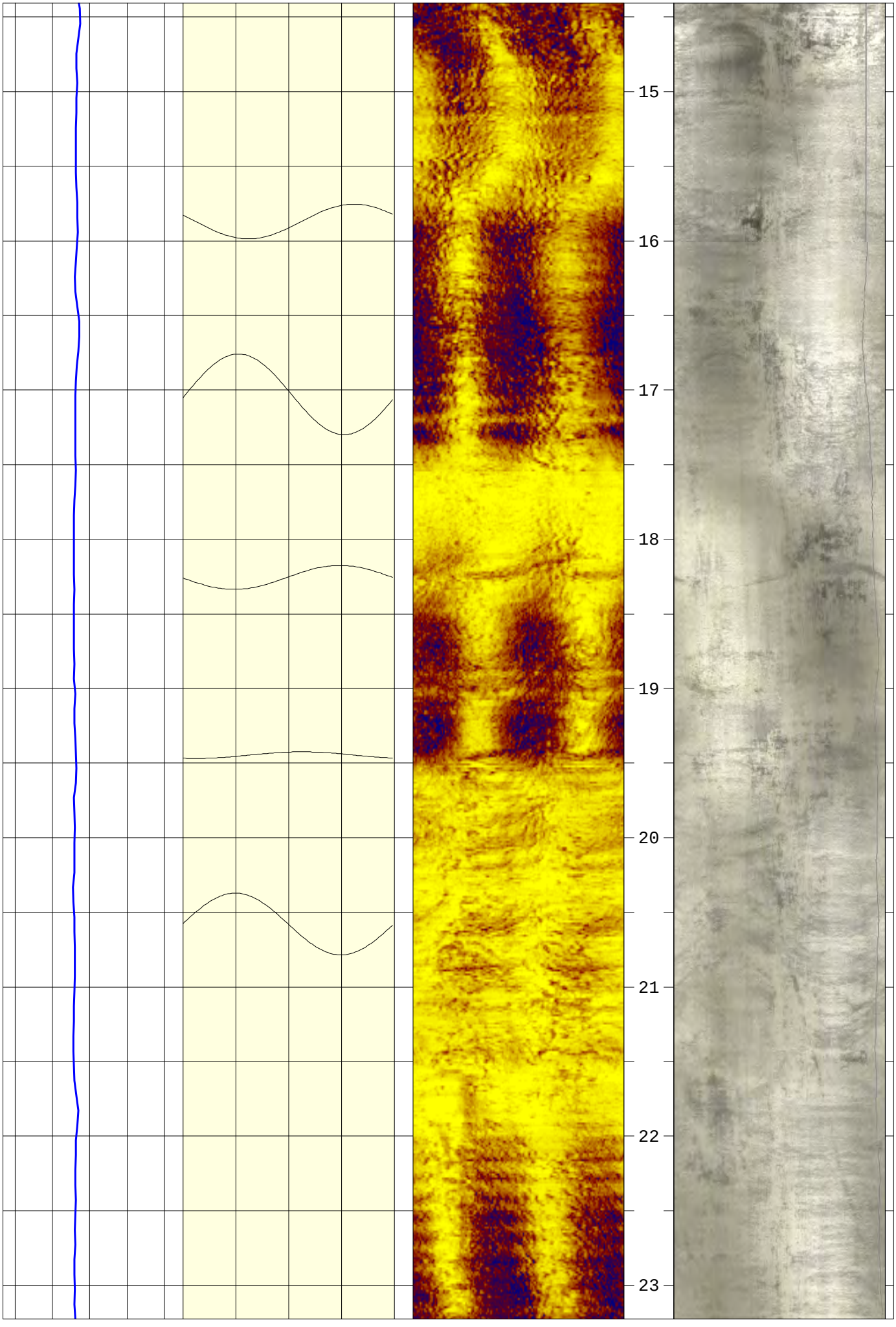
Date: 7/17/08

Location: Middletown, R.I.

Casing Depth:	10 ft	For:	Tetra Tech
Casing Type:	NX	Logged by:	M Scully
Boring Depth:	48 ft	Orientation:	magnetic
Meas. From:	top of casing	Comments:	
Stickup:			
Water Level:	12.6 ft		

Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.)
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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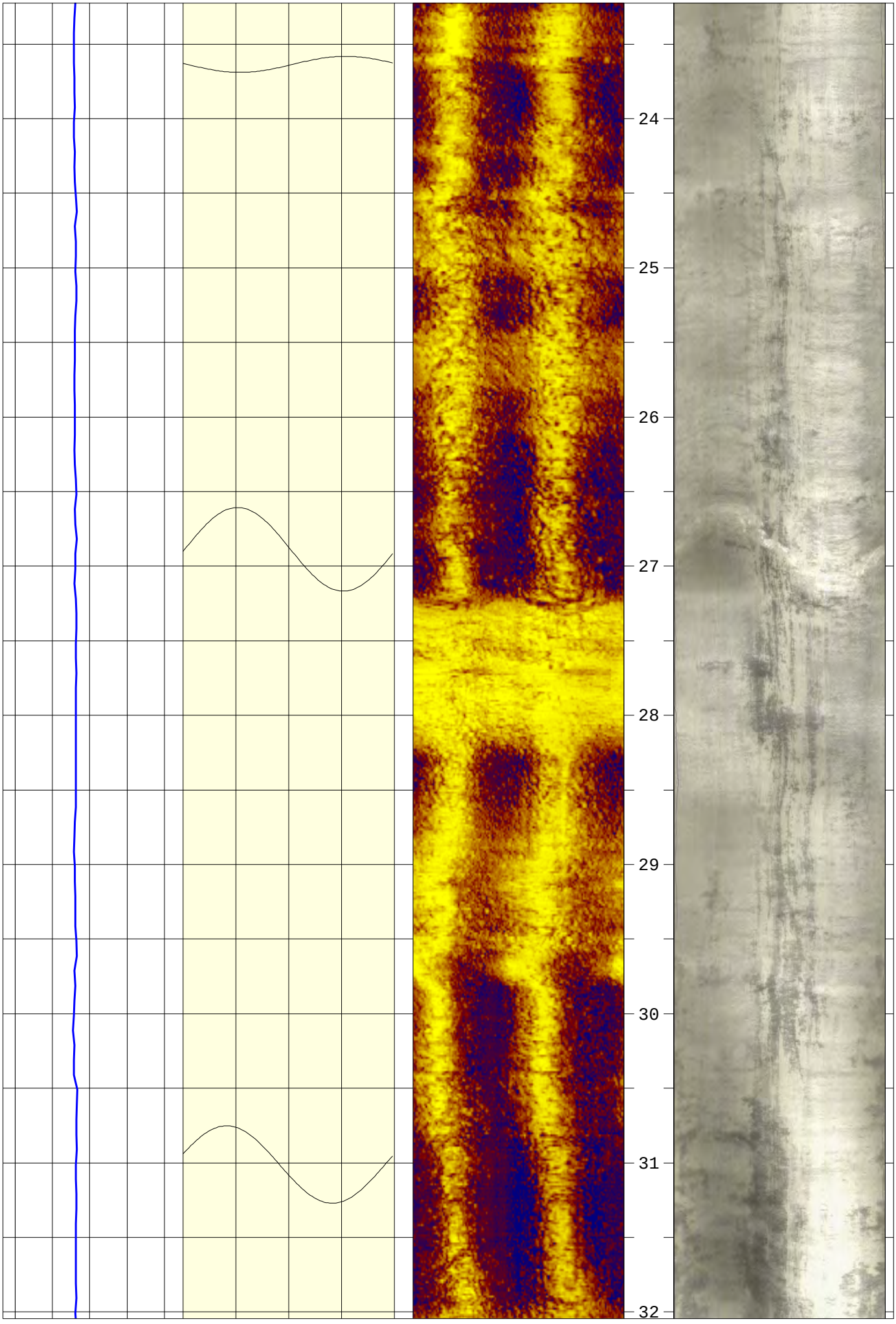
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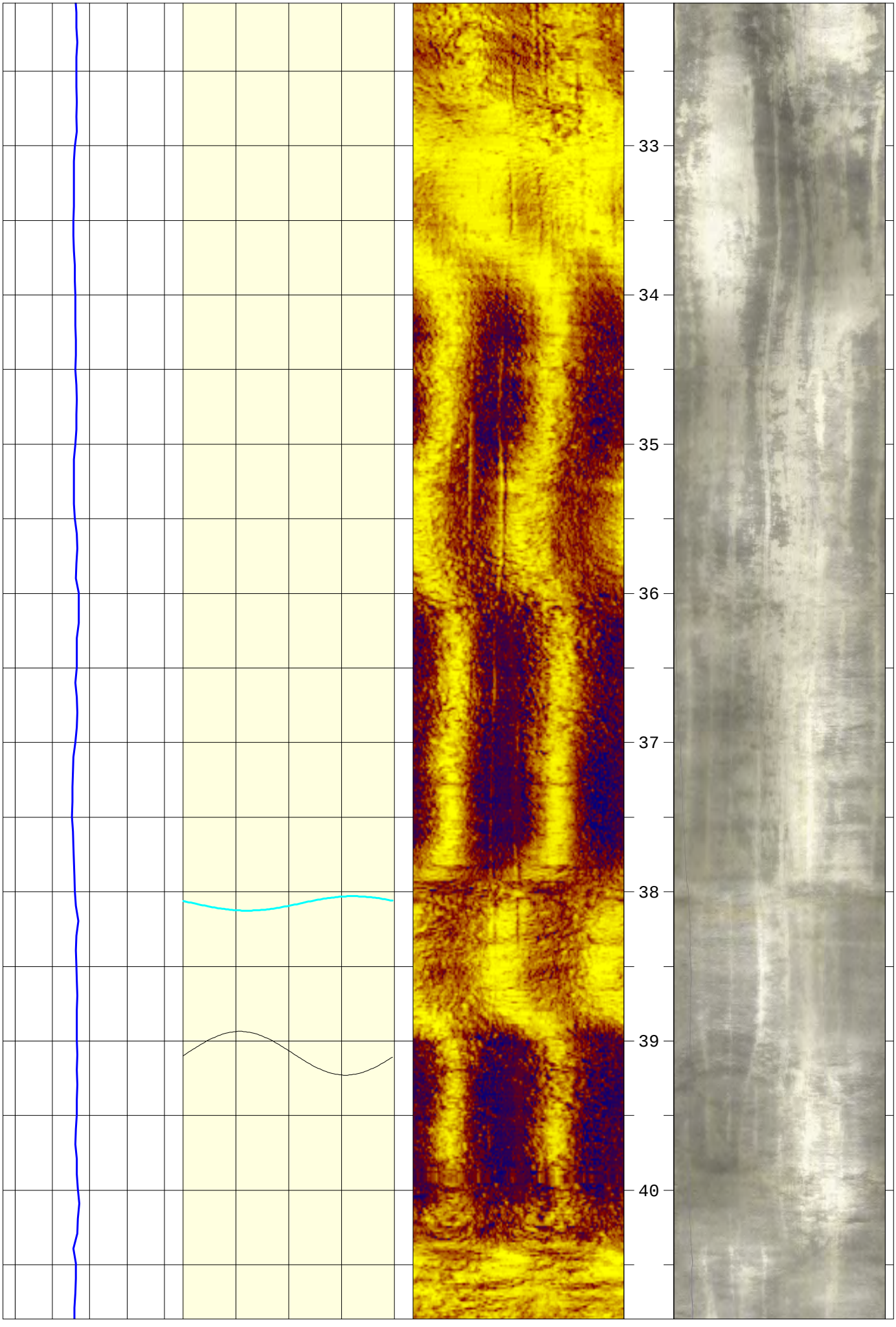
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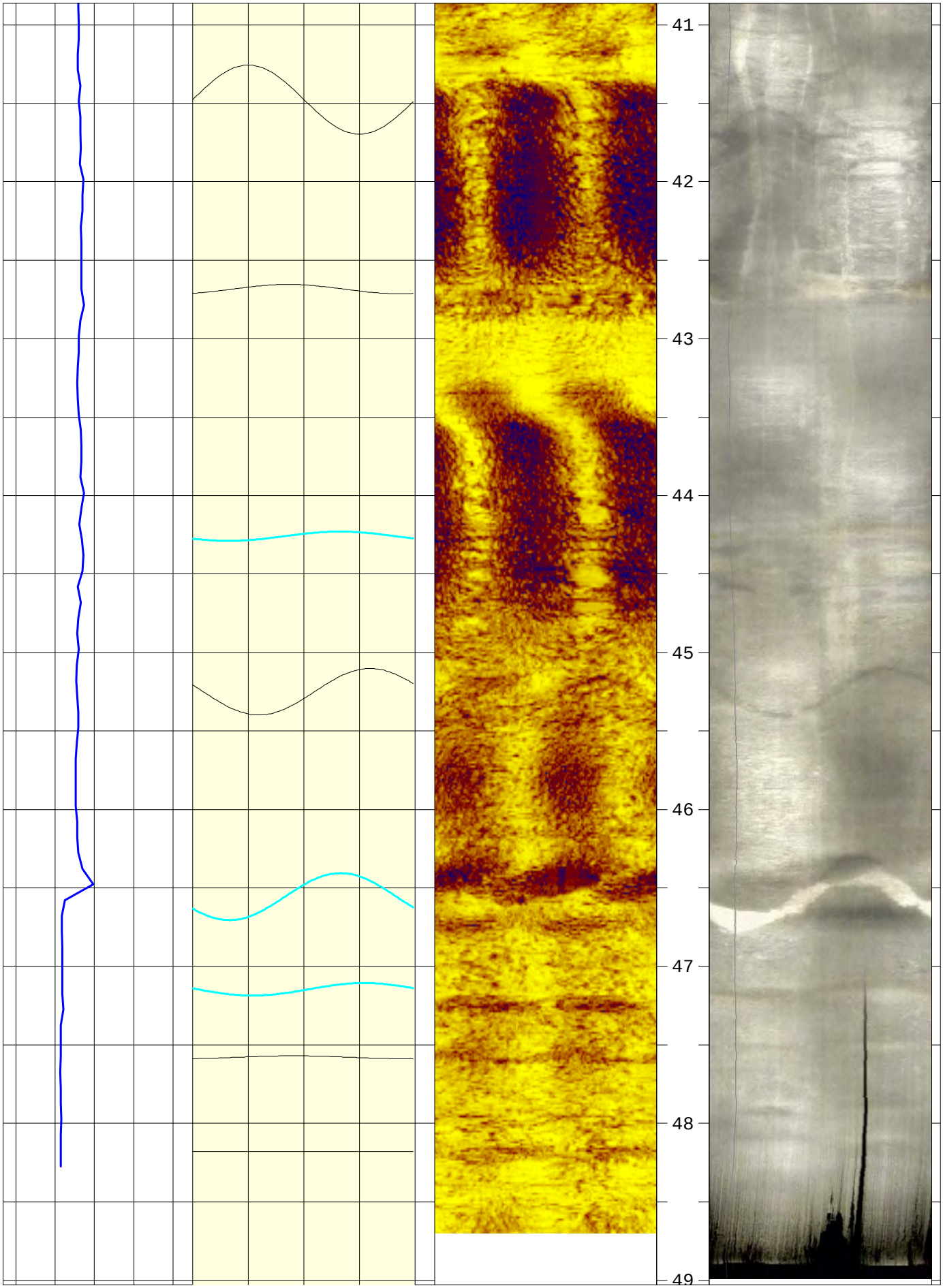
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Planar features interpreted from acoustical and optical televiewers
MW-101B - NUSC Disposal Site 08 - Middletown, Rhode Island **Logged: 07/17/08**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-101B	1	10.3	53	92	2	77	347	100
MW-101B	2	11.7	54	265	355	250	340	100
MW-101B	3	12.4	33	71	341	56	326	100
MW-101B	4	12.6	47	259	349	244	334	100
MW-101B	5	13.4	32	95	5	81	351	100
MW-101B	6	13.5	35	276	6	261	351	100
MW-101B	7	14.2	33	273	3	258	348	100
MW-101B	8	15.9	36	111	21	96	6	100
MW-101B	9	17.0	59	275	5	260	350	100
MW-101B	10	18.3	27	87	357	72	342	100
MW-101B	11	19.5	8	22	292	8	278	100
MW-101B	12	20.6	52	269	359	254	344	100
MW-101B	13	23.6	19	97	7	82	352	100
MW-101B	14	26.9	60	273	3	258	348	100
MW-101B	15	31.0	58	254	344	239	329	100
MW-101B	16	38.1	17	109	19	95	5	108
MW-101B	17	39.1	42	277	7	262	352	100
MW-101B	18	41.5	54	270	0	255	345	100
MW-101B	19	42.7	10	334	64	319	49	100
MW-101B	20	44.3	10	58	328	43	313	108
MW-101B	21	45.3	43	107	17	92	2	100
MW-101B	22	46.6	43	59	329	45	315	108
MW-101B	23	47.2	14	98	8	83	353	108
MW-101B	24	47.6	3	343	73	329	59	100
MW-101B	25	48.2	0	312	42	297	27	100

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 107 = Likely water bearing fracture
Category 108 = Possible water bearing fracture

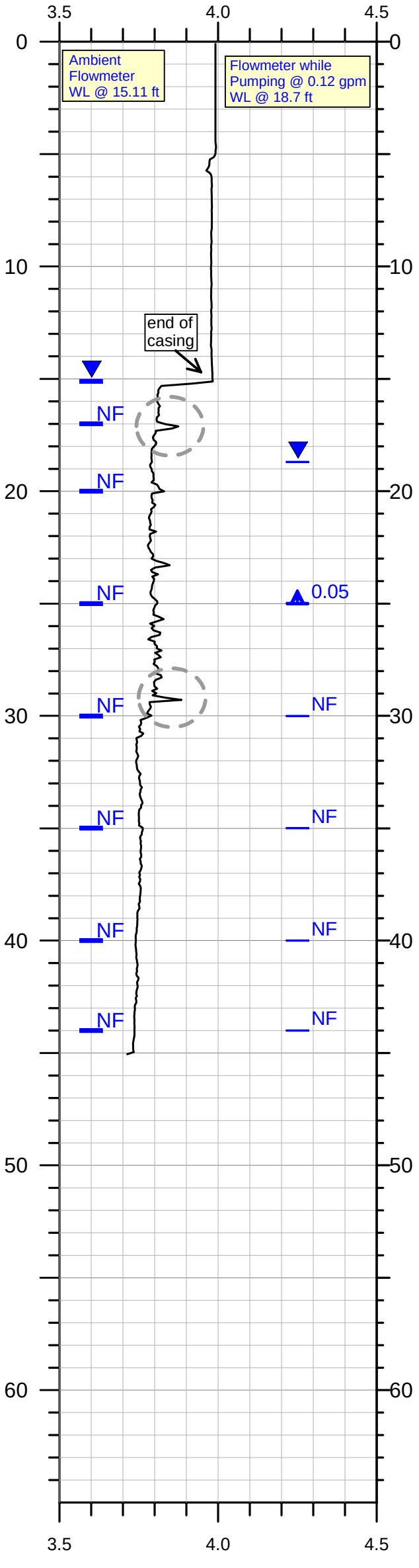
Northeast Geophysical Services

Borehole Geophysical Log
B-102B
NUSC Site
Middletown, Rhode Island

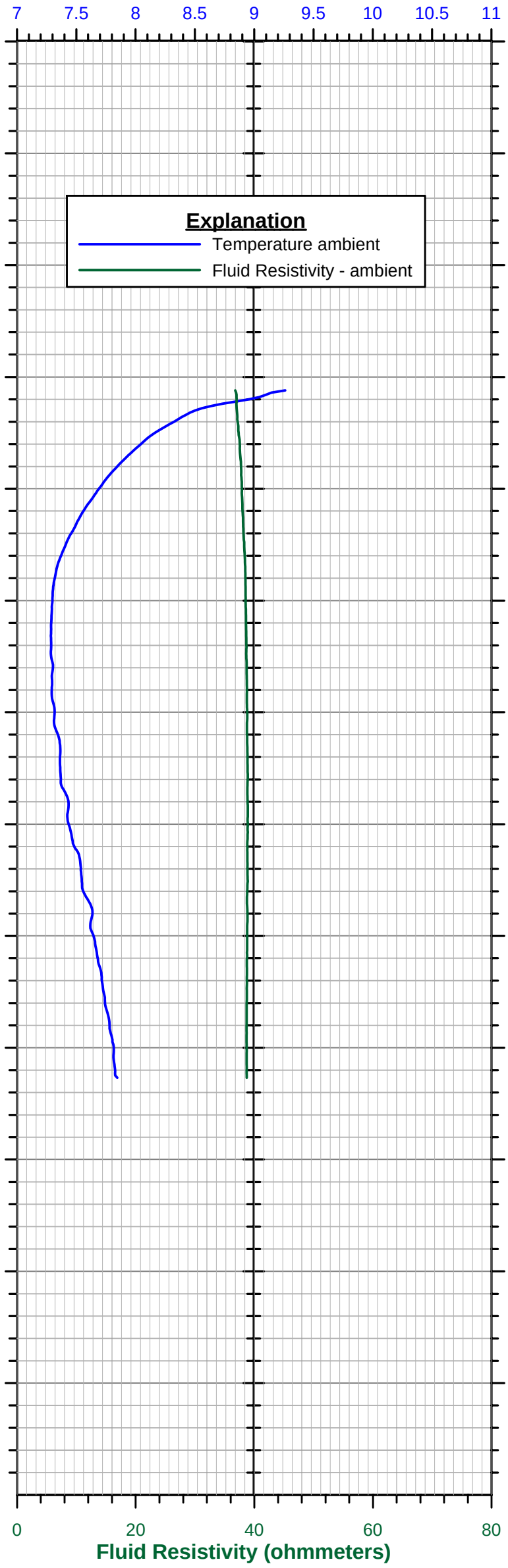
Date logged: 7/18/08

Flowmeter Measurements (in gpm)

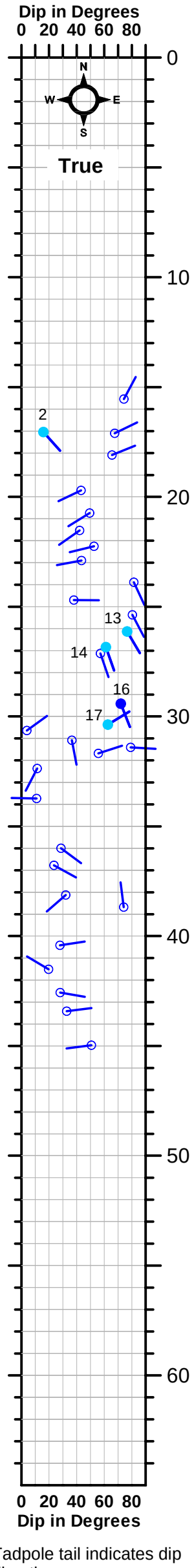
Caliper (inches)



Temperature (C)



Dip and Dip Direction of planar features interpreted from Acoustic and Optical Televiewers



= Likely transmissive zone

= Possible transmissive zone

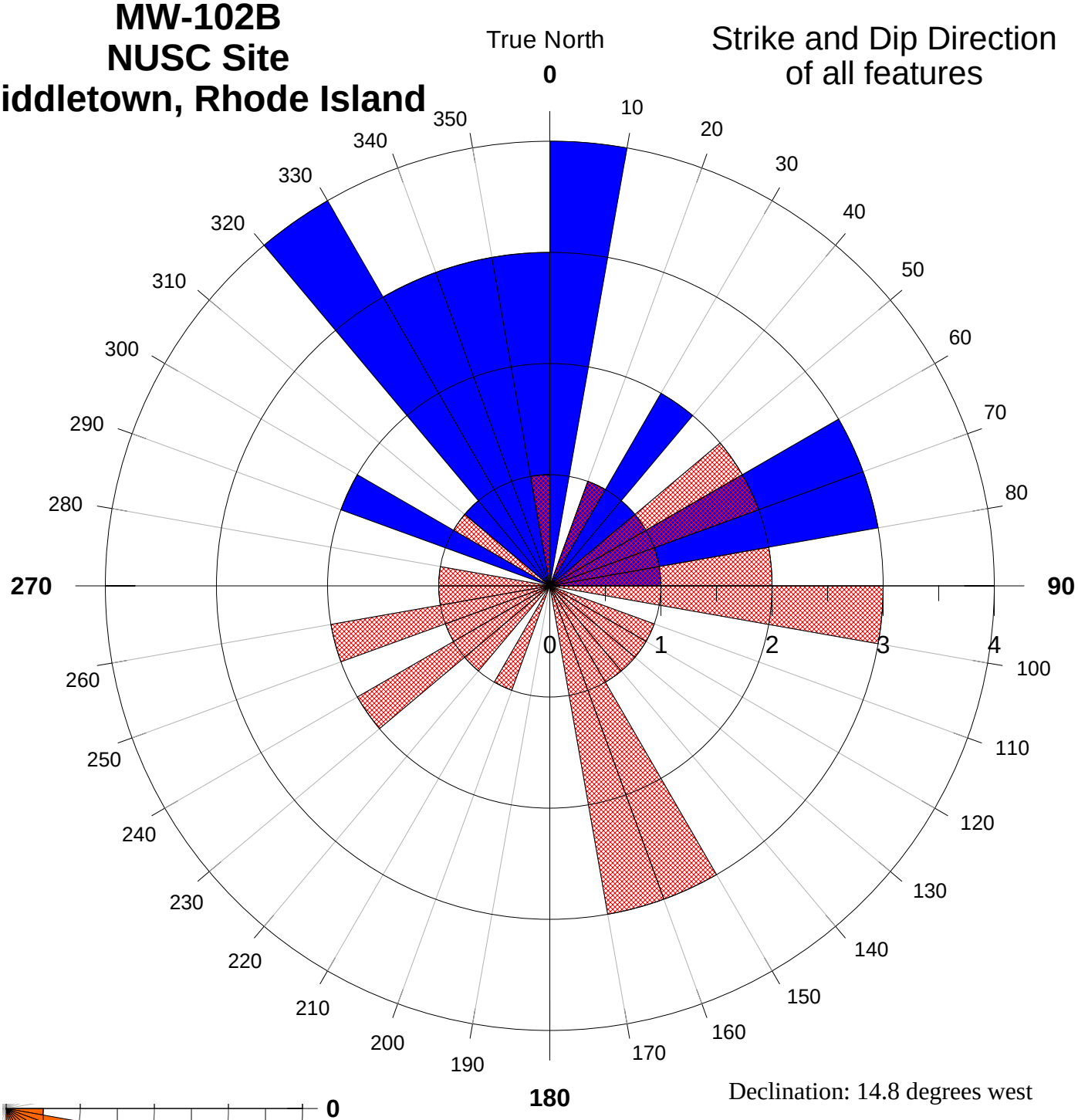
Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

Borehole Geophysical Log
B-102B
NUSC Site
Middletown, Rhode Island

Date logged: 7/18/08

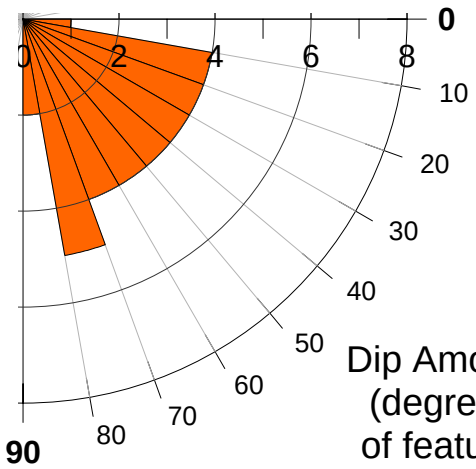
Northeast Geophysical Services

MW-102B
NUSC Site
Middletown, Rhode Island



Strike and Dip Direction of all features

Declination: 14.8 degrees west



Dip Amount (degrees) of features

Explanation

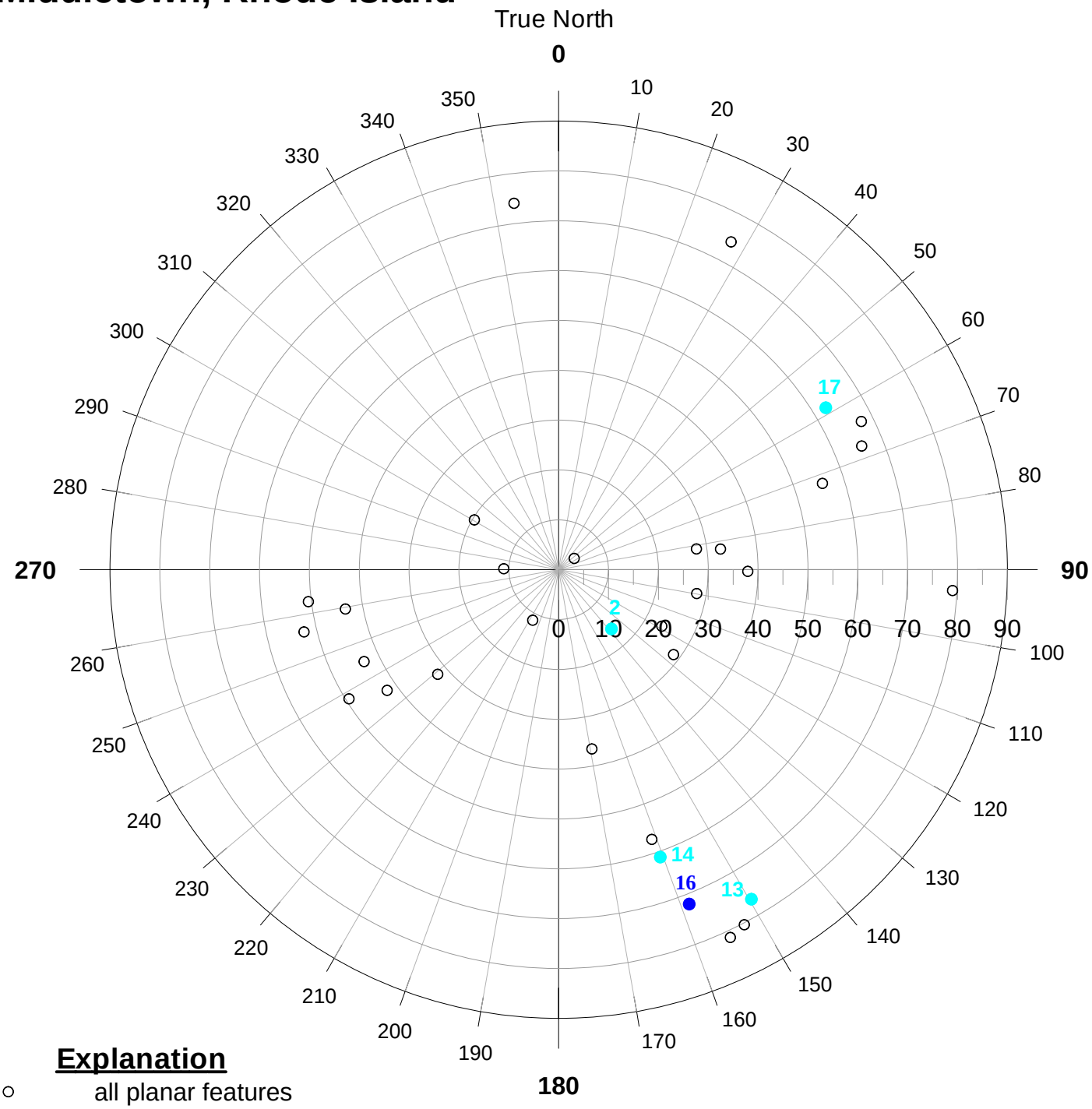
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 32 measurements

Northeast Geophysical Services

B-102B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 32 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Televiewer Logs

Well: MW-102B

Site: NUSC Site

Location: Middletown, R.I.

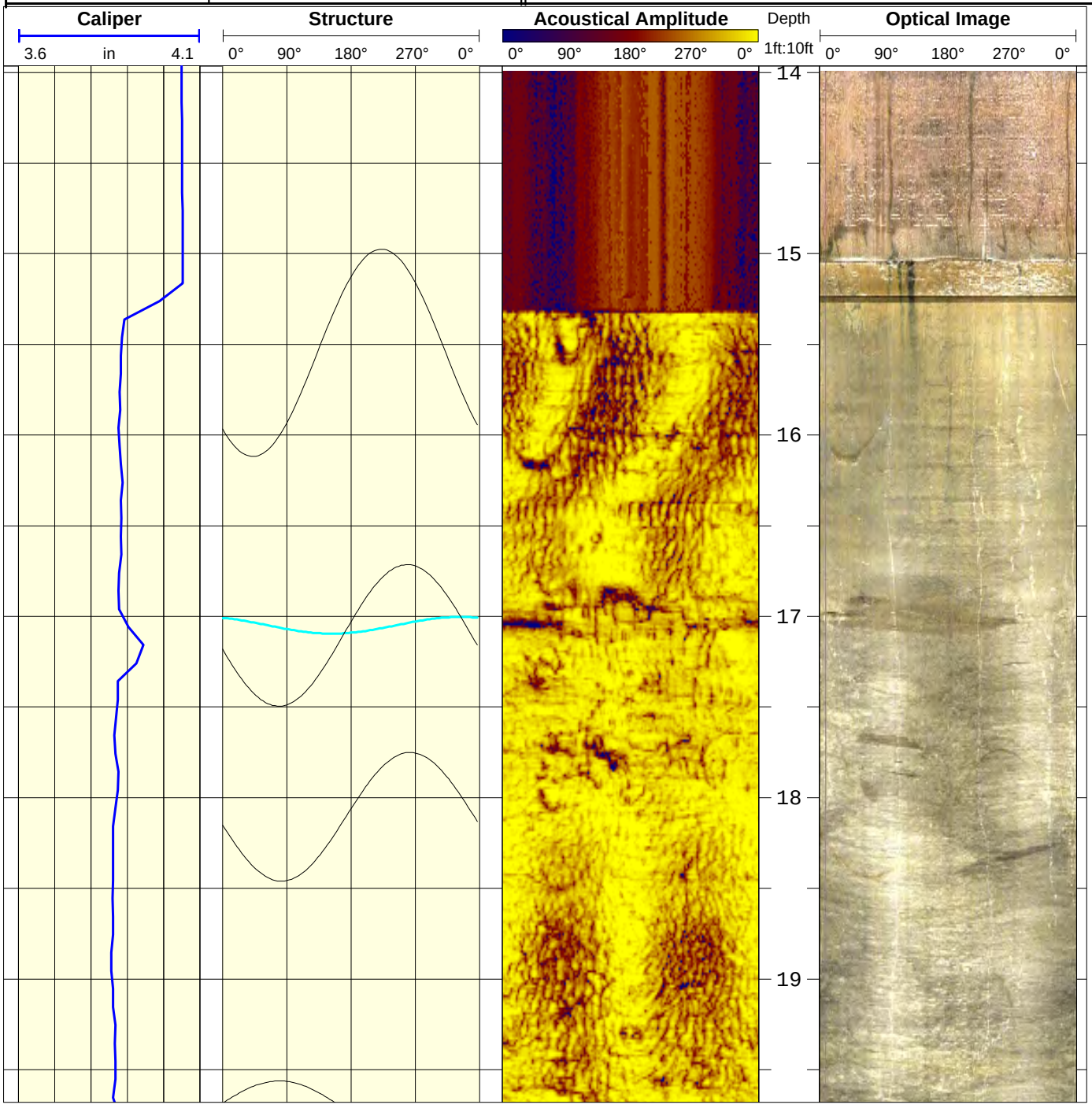
Date:	7/18/08
Casing Depth:	15 ft
Casing Type:	NX
Boring Depth:	44 ft
Meas. From:	top of casing
Stickup:	1.8 ft
Water Level:	15.11 ft

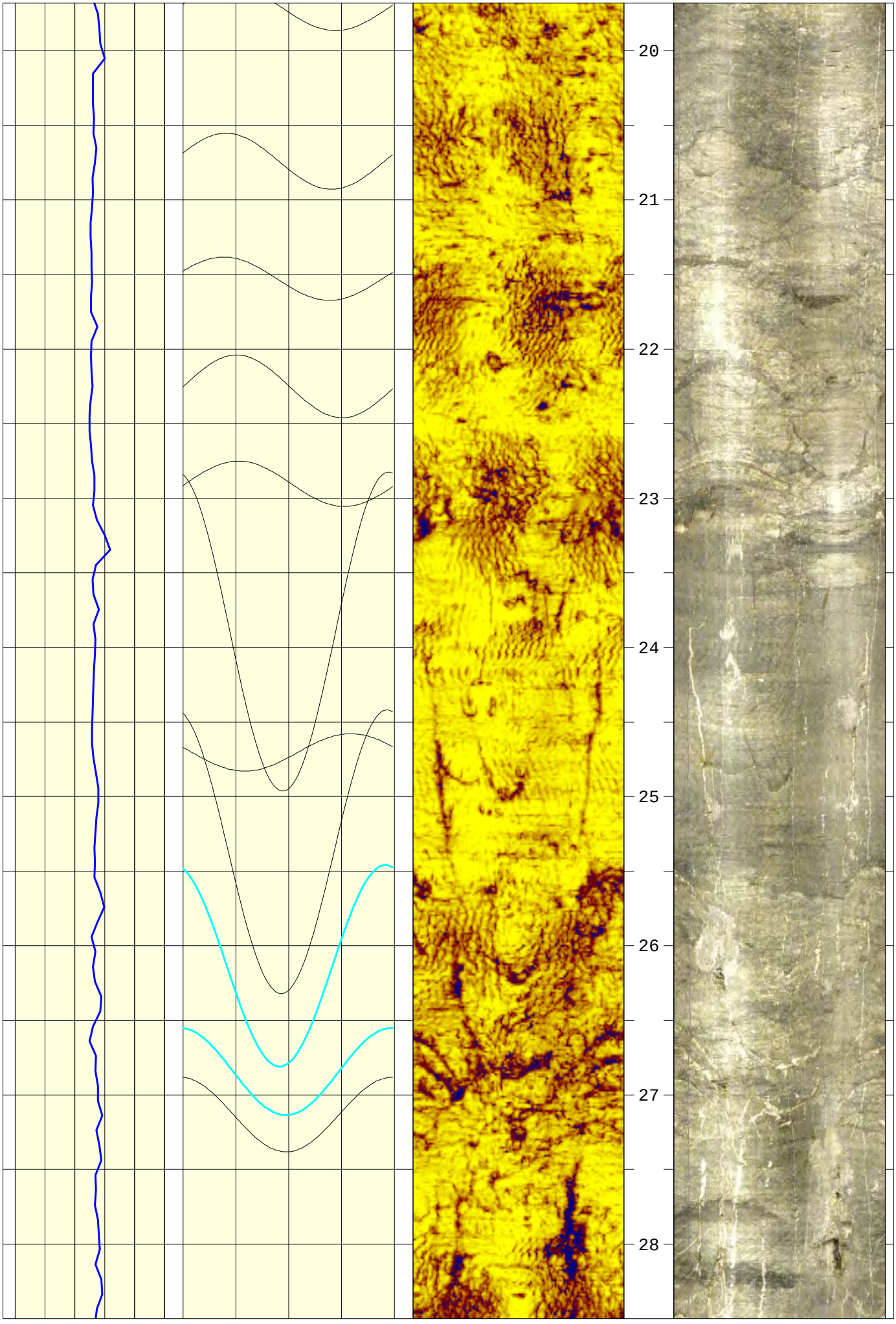
For: Tetra Tech

Logged by: M Scully

Orientation: magnetic

Comments:
Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.)
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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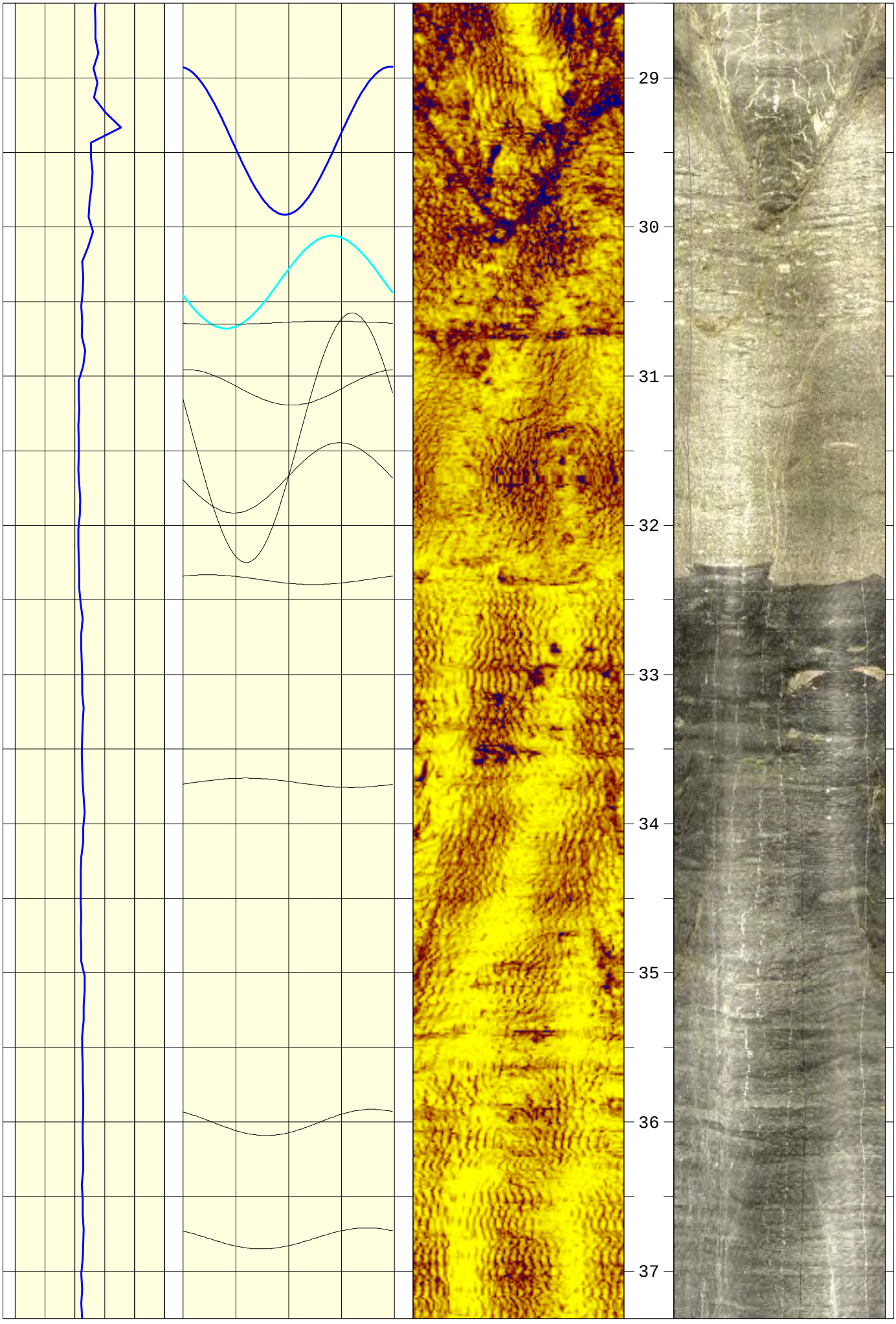
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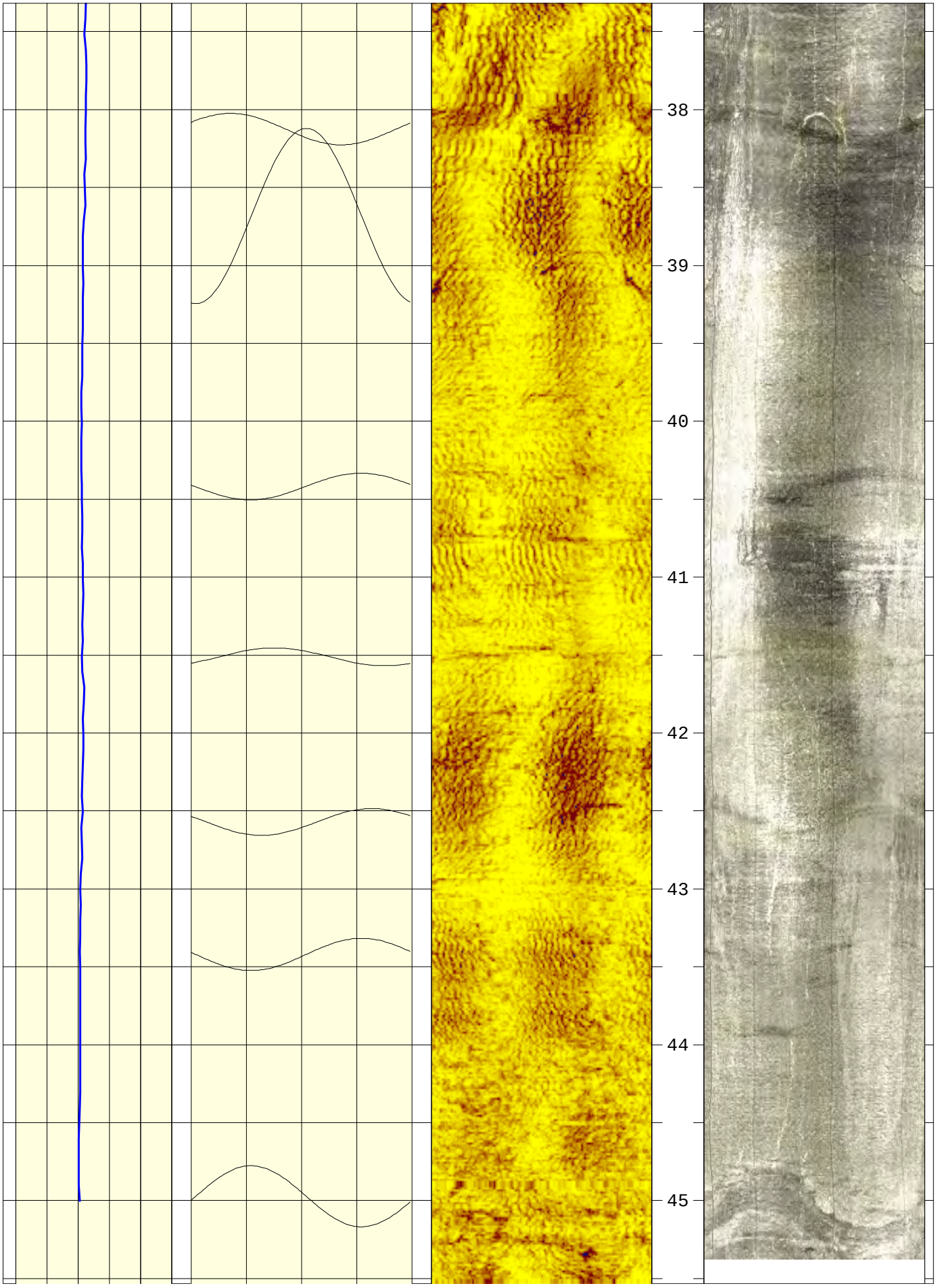
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Planar features interpreted from acoustical and optical televiewers
MW-102B - NUSC Disposal Site 08 - Middletown, Rhode Island **Logged: 07/18/08**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-102B	1	15.6	74	43	313	28	298	100
MW-102B	2	17.1	16	153	63	138	48	108
MW-102B	3	17.1	68	79	349	64	334	100
MW-102B	4	18.1	66	83	353	68	338	100
MW-102B	5	19.7	43	259	349	245	335	100
MW-102B	6	20.7	49	253	343	238	328	100
MW-102B	7	21.5	42	250	340	235	325	100
MW-102B	8	22.3	53	271	1	256	346	100
MW-102B	9	22.9	43	274	4	260	350	100
MW-102B	10	23.9	81	170	80	155	65	100
MW-102B	11	24.7	38	105	15	91	1	100
MW-102B	12	25.4	80	167	77	152	62	100
MW-102B	13	26.1	77	164	74	150	60	108
MW-102B	14	26.8	61	175	85	161	71	108
MW-102B	15	27.1	57	176	86	161	71	100
MW-102B	16	29.4	72	173	83	159	69	107
MW-102B	17	30.4	63	74	344	59	329	108
MW-102B	18	30.6	4	69	339	54	324	100
MW-102B	19	31.1	37	184	274	170	80	100
MW-102B	20	31.4	79	108	18	93	3	100
MW-102B	21	31.7	56	87	357	72	342	100
MW-102B	22	32.4	11	222	312	207	297	100
MW-102B	23	33.7	11	286	16	271	1	100
MW-102B	24	36.0	29	141	51	127	37	100
MW-102B	25	36.8	24	133	43	119	29	100
MW-102B	26	38.1	32	244	334	229	319	100
MW-102B	27	38.7	74	8	278	353	83	100
MW-102B	28	40.4	28	96	6	81	351	100
MW-102B	29	41.5	20	315	45	301	31	100
MW-102B	30	42.6	28	115	25	100	10	100
MW-102B	31	43.4	33	98	8	83	353	100
MW-102B	32	45.0	51	278	8	263	353	100

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 107 = Likely water bearing fracture
Category 108 = Possible water bearing fracture

Northeast Geophysical Services

Borehole Geophysical Log
B-124B
NUSC Site
Middletown, Rhode Island

Date logged: 7/29/08

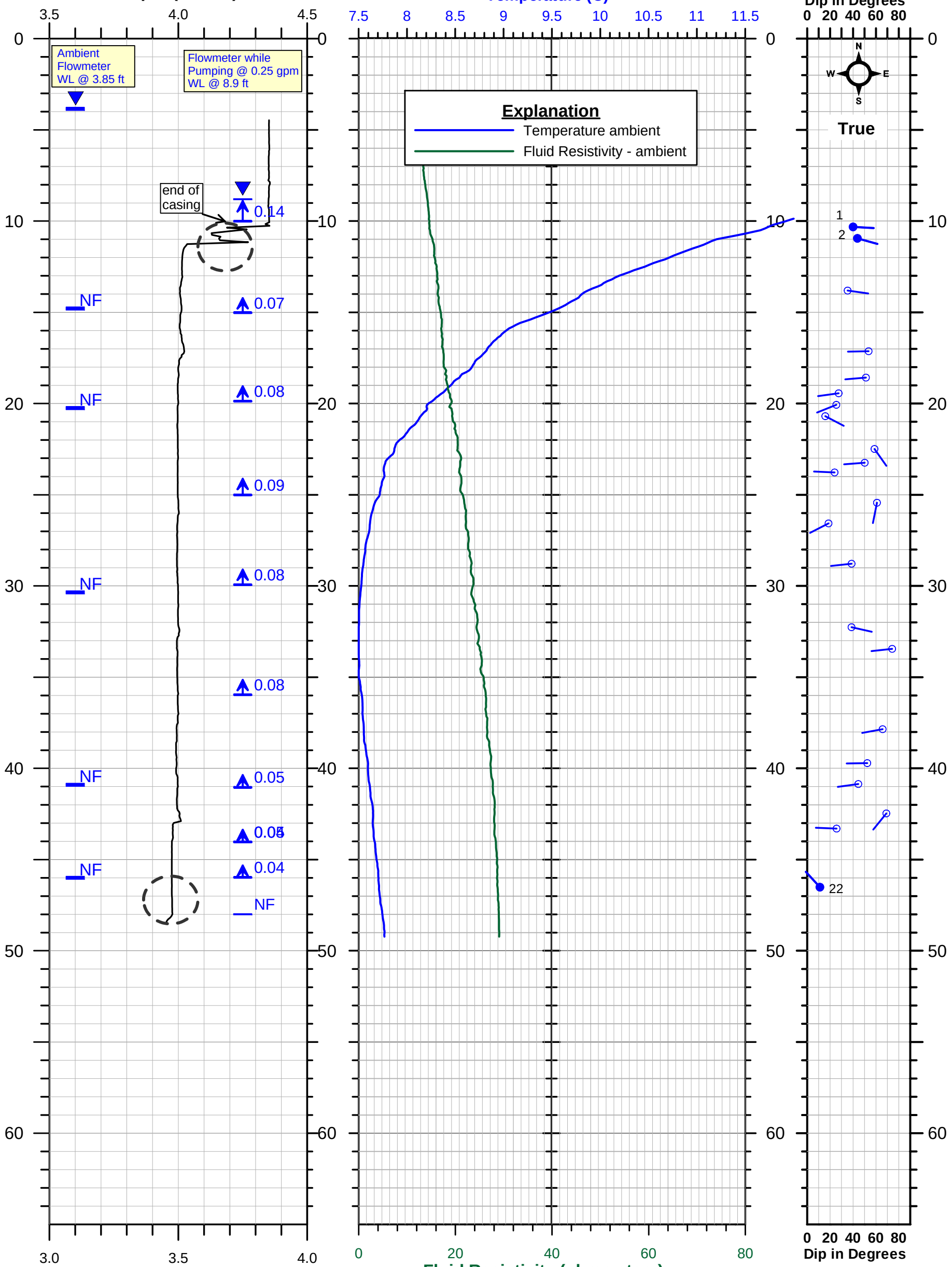
Flowmeter Measurements (in gpm)

Caliper (inches)

Temperature (C)

Dip and Dip Direction of planar features interpreted from Acoustic and Optical Televiewers

Dip in Degrees



= Likely transmissive zone

= Possible transmissive zone

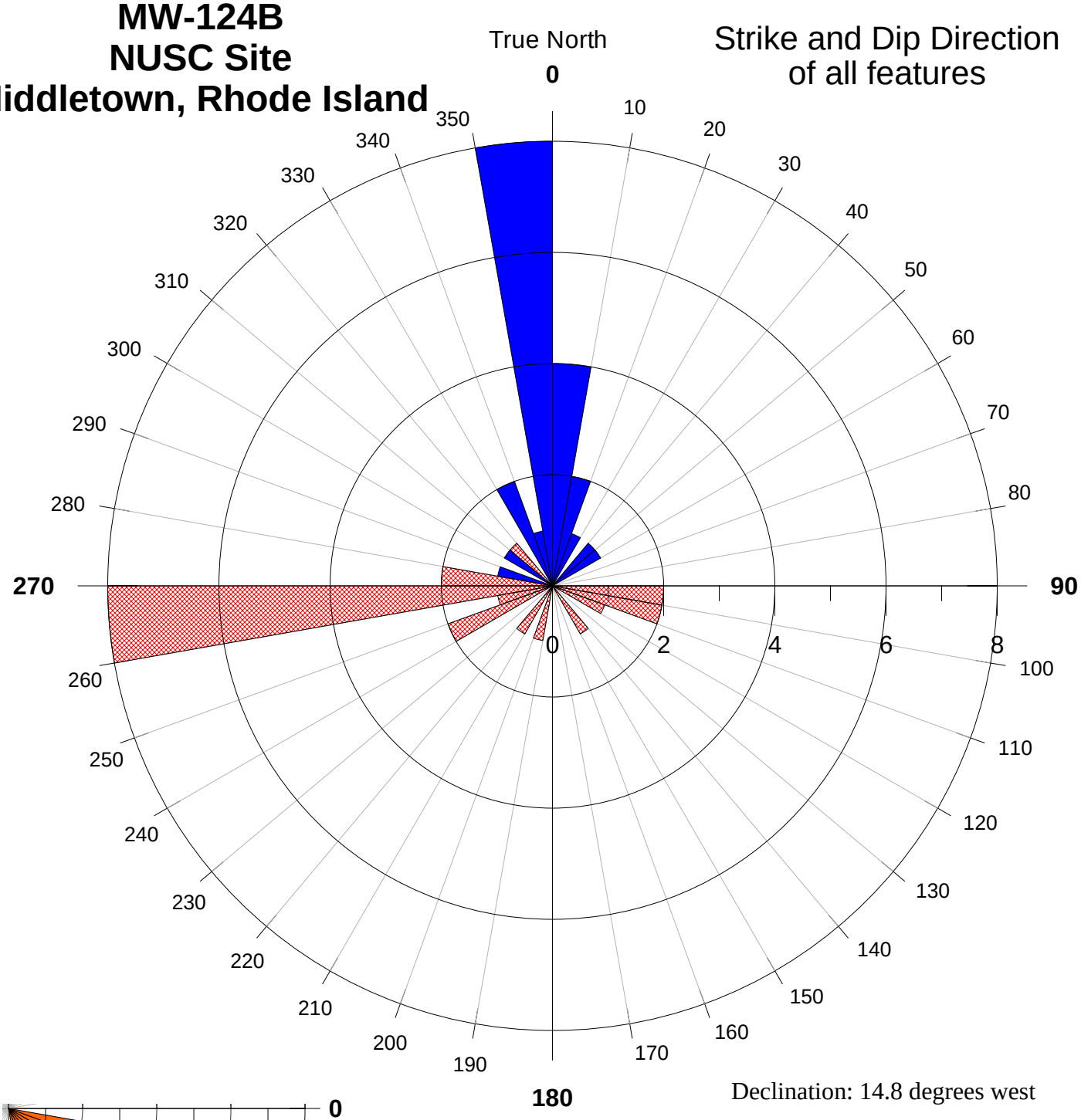
Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

Borehole Geophysical Log
B-124B
NUSC Site
Middletown, Rhode Island

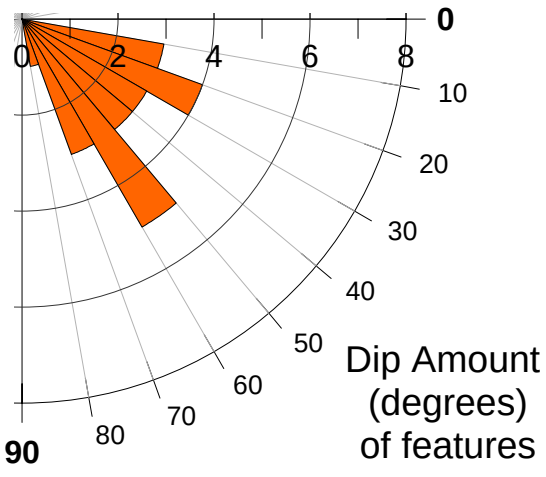
Date logged: 7/29/08

Northeast Geophysical Services

MW-124B
NUSC Site
Middletown, Rhode Island



Declination: 14.8 degrees west



Explanation

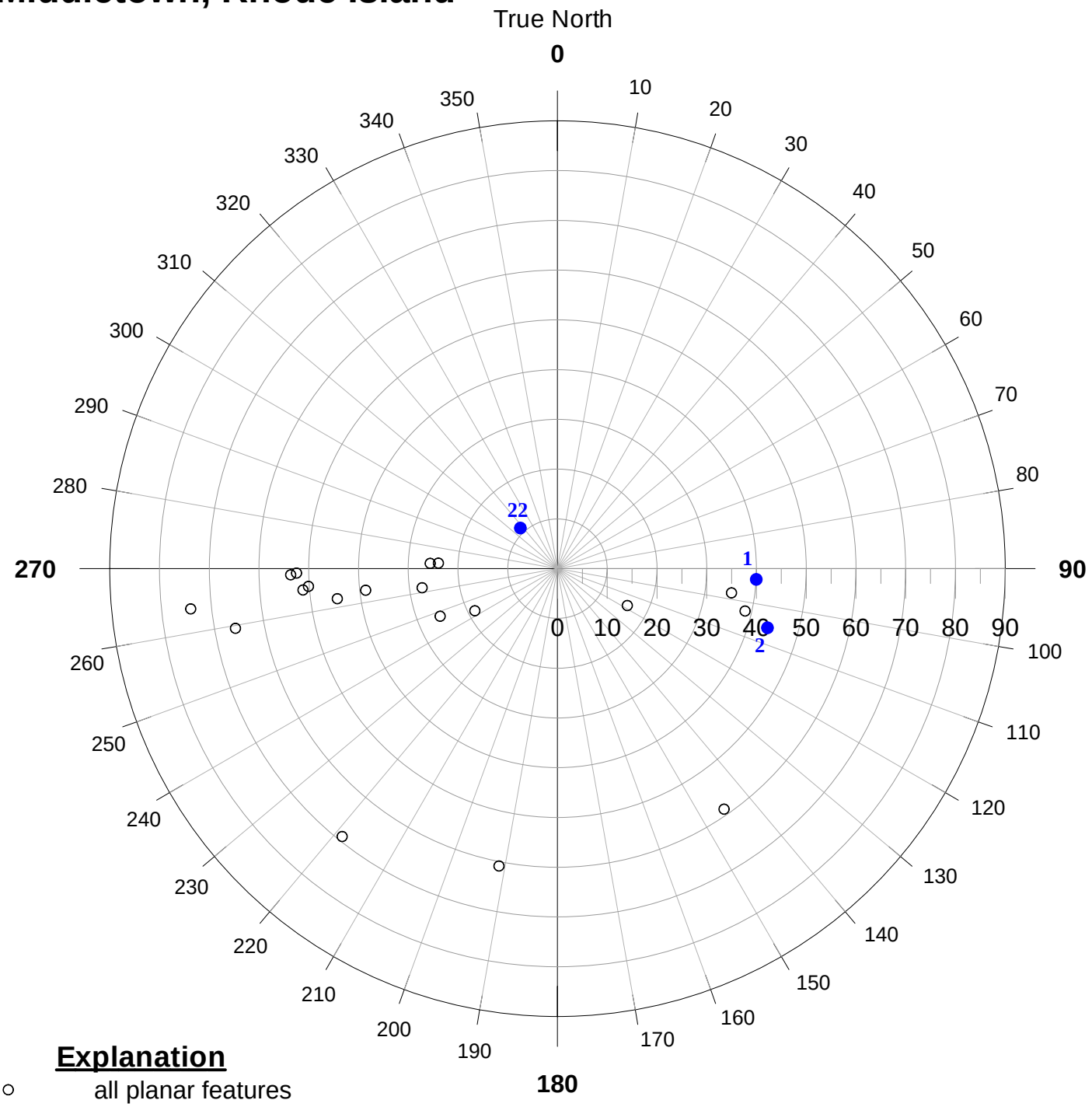
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 22 measurements

Northeast Geophysical Services

B-124B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 22 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Televiewer Logs

Well: MW-124B

Site: NUSC

Location: Middletown RI

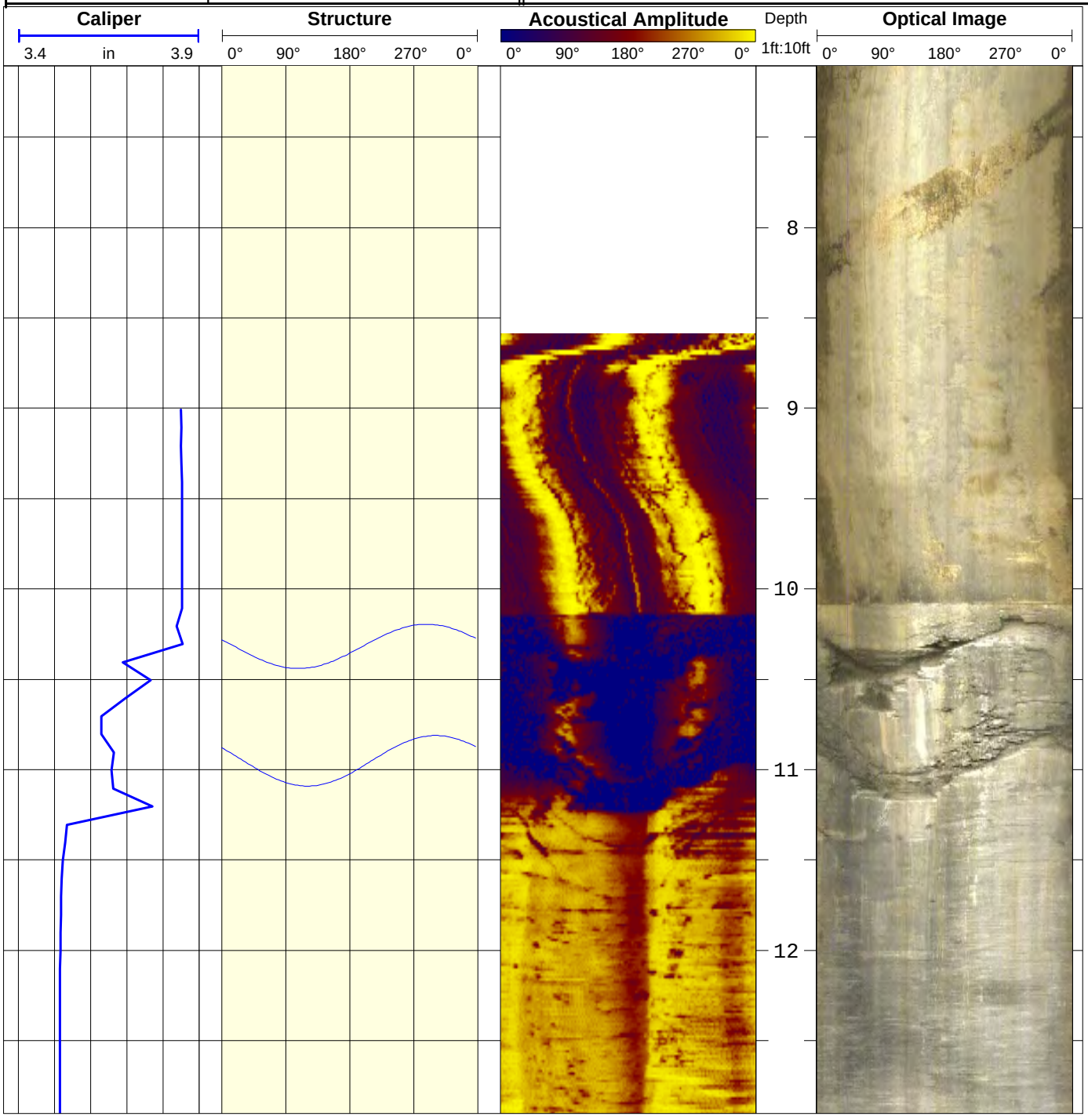
Date:	7/29/08
Casing Depth:	8.5 ft
Casing Type:	4 inch
Boring Depth:	48.7 ft
Meas. From:	top of casing
Stickup:	1.8 ft
Water Level:	3.85 ft

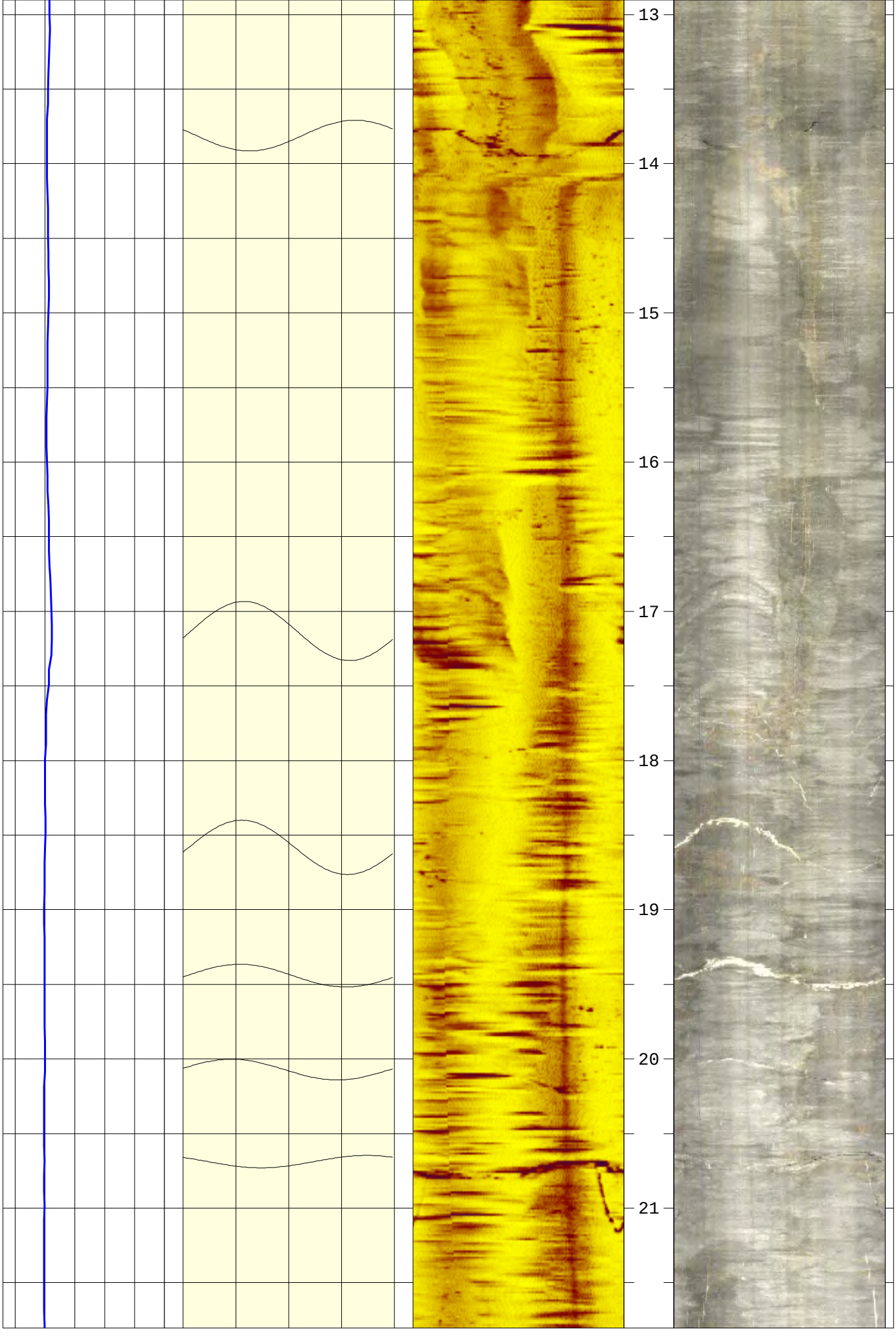
For: Tetra Tech

Logged by: R Rawcliffe

Orientation: Magnetic

Comments:
Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.)
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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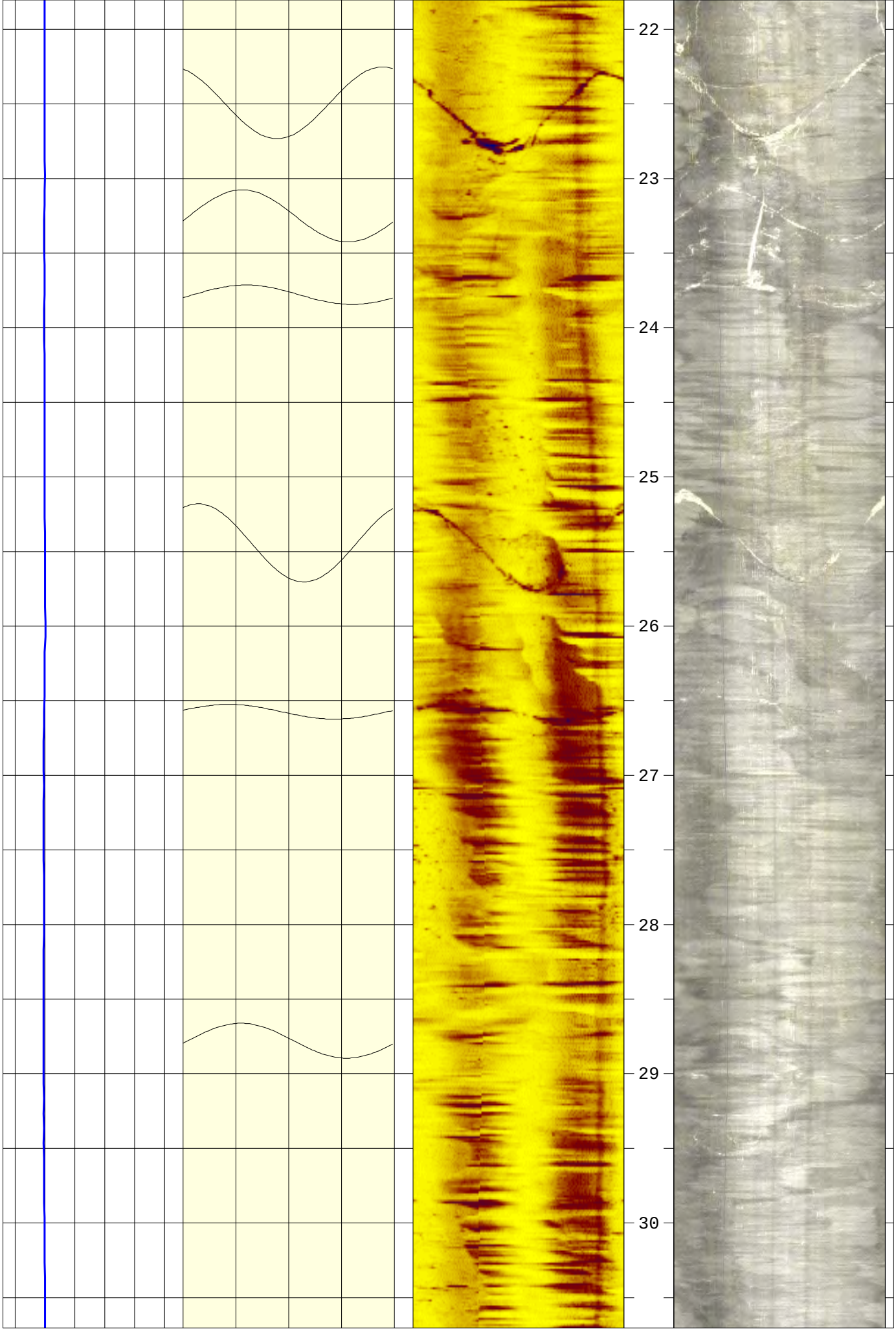
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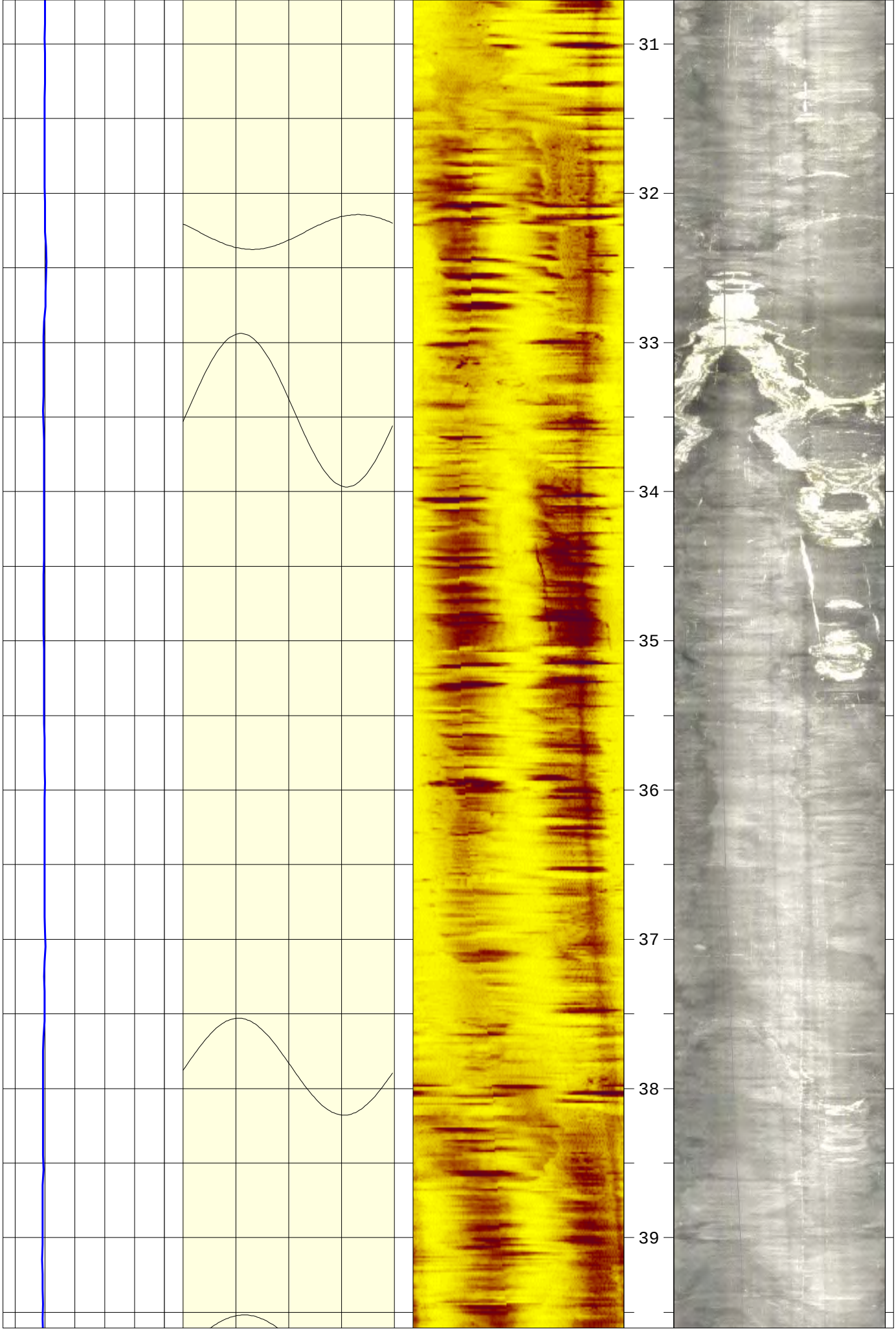
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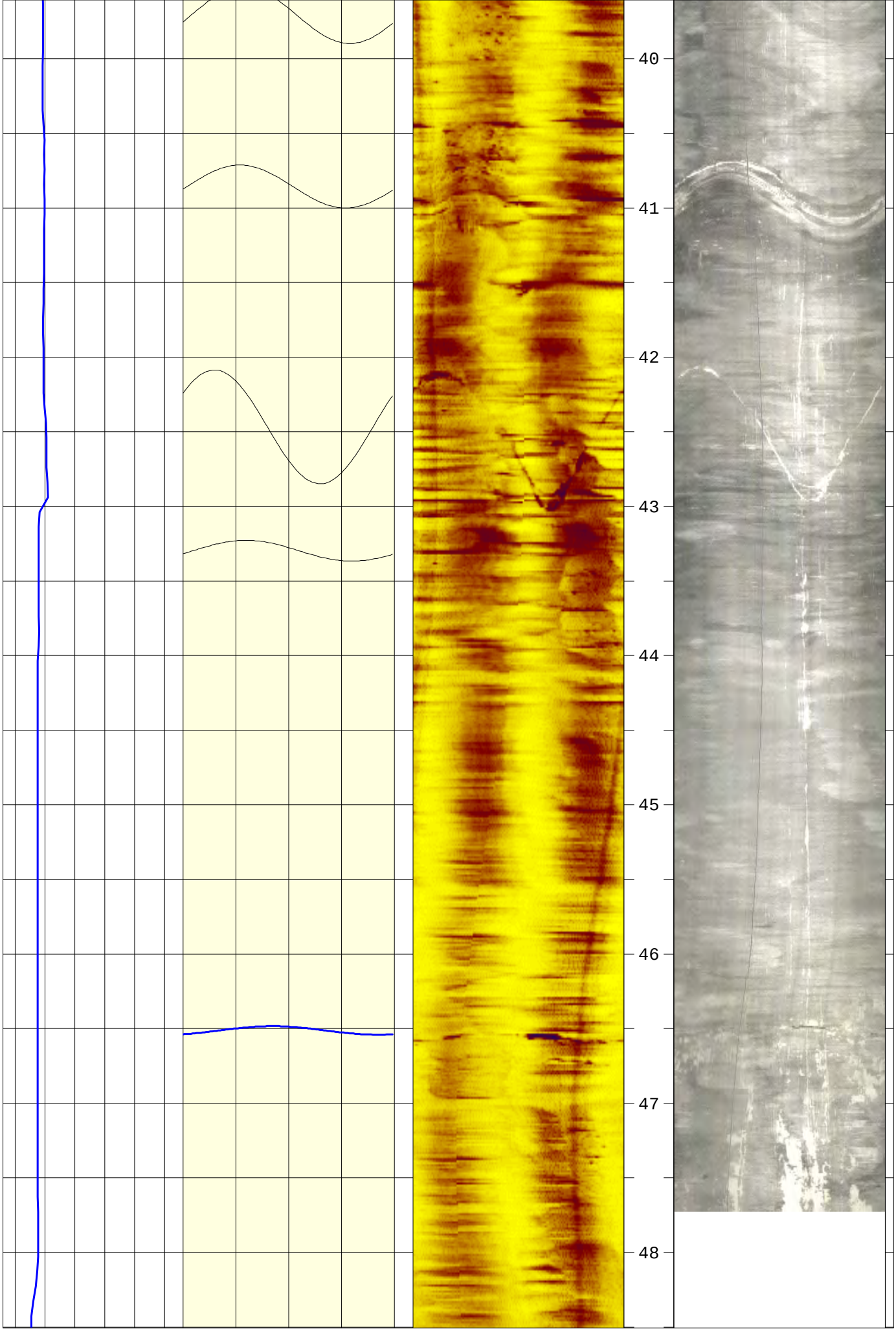
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Planar features interpreted from acoustical and optical televiewers
MW-124B - NUSC Disposal Site 08 - Middletown, Rhode Island **Logged: 07/29/08**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-124B	1	10.3	40	108	18	93	3	107
MW-124B	2	11.0	44	121	31	106	16	107
MW-124B	3	13.8	35	113	23	98	8	100
MW-124B	4	17.1	54	284	14	269	359	100
MW-124B	5	18.6	51	280	10	265	355	100
MW-124B	6	19.4	27	277	7	262	352	100
MW-124B	7	20.1	25	263	353	248	338	100
MW-124B	8	20.7	16	133	43	118	28	100
MW-124B	9	22.5	59	160	70	145	55	100
MW-124B	10	23.3	50	281	11	266	356	100
MW-124B	11	23.8	24	287	17	273	3	100
MW-124B	12	25.4	61	206	296	191	281	100
MW-124B	13	26.6	19	258	348	243	333	100
MW-124B	14	28.8	39	278	8	264	354	100
MW-124B	15	32.3	39	118	28	103	13	100
MW-124B	16	33.5	74	279	9	264	354	100
MW-124B	17	37.9	66	274	4	259	349	100
MW-124B	18	39.7	52	284	14	269	359	100
MW-124B	19	40.9	45	277	7	262	352	100
MW-124B	20	42.5	69	234	324	219	309	100
MW-124B	21	43.3	26	287	17	272	2	100
MW-124B	22	46.5	11	332	62	318	48	107

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 107 = Likely water bearing fracture
Category 108 = Possible water bearing fracture

Northeast Geophysical Services

Borehole Geophysical Log
B-125B
NUSC Site
Middletown, Rhode Island

Date logged: 7/28/08

Flowmeter Measurements (in gpm)

Caliper (inches)

3.5 4.0 4.5

Ambient Flowmeter WL @ 5.70 ft

Flowmeter while Pumping @ 0.4 gpm WL @ 8.30 ft

end of casing

NF
NF
NF
NF
NF
NF
NF
NF
NF
NF

0.28
0.30
0.40
0.32
0.23
0.25
0.24
0.03
0.02

Temperature (C)

7.5 8 8.5 9 9.5 10 10.5 11 11.5

Explanation

Temperature ambient

Fluid Resistivity - ambient

Dip and Dip Direction of planar features interpreted from Acoustic and Optical Televiewers

Dip in Degrees

0 20 40 60 80

N W E S

True

4 16 22 23 27

Depth in feet below top of casing

0 10 20 30 40 50 60

3.0 3.5 4.0

0 20 40 60 80

Fluid Resistivity (ohmmeters)

Dip in Degrees

0 20 40 60 80

= Likely transmissive zone

= Possible transmissive zone

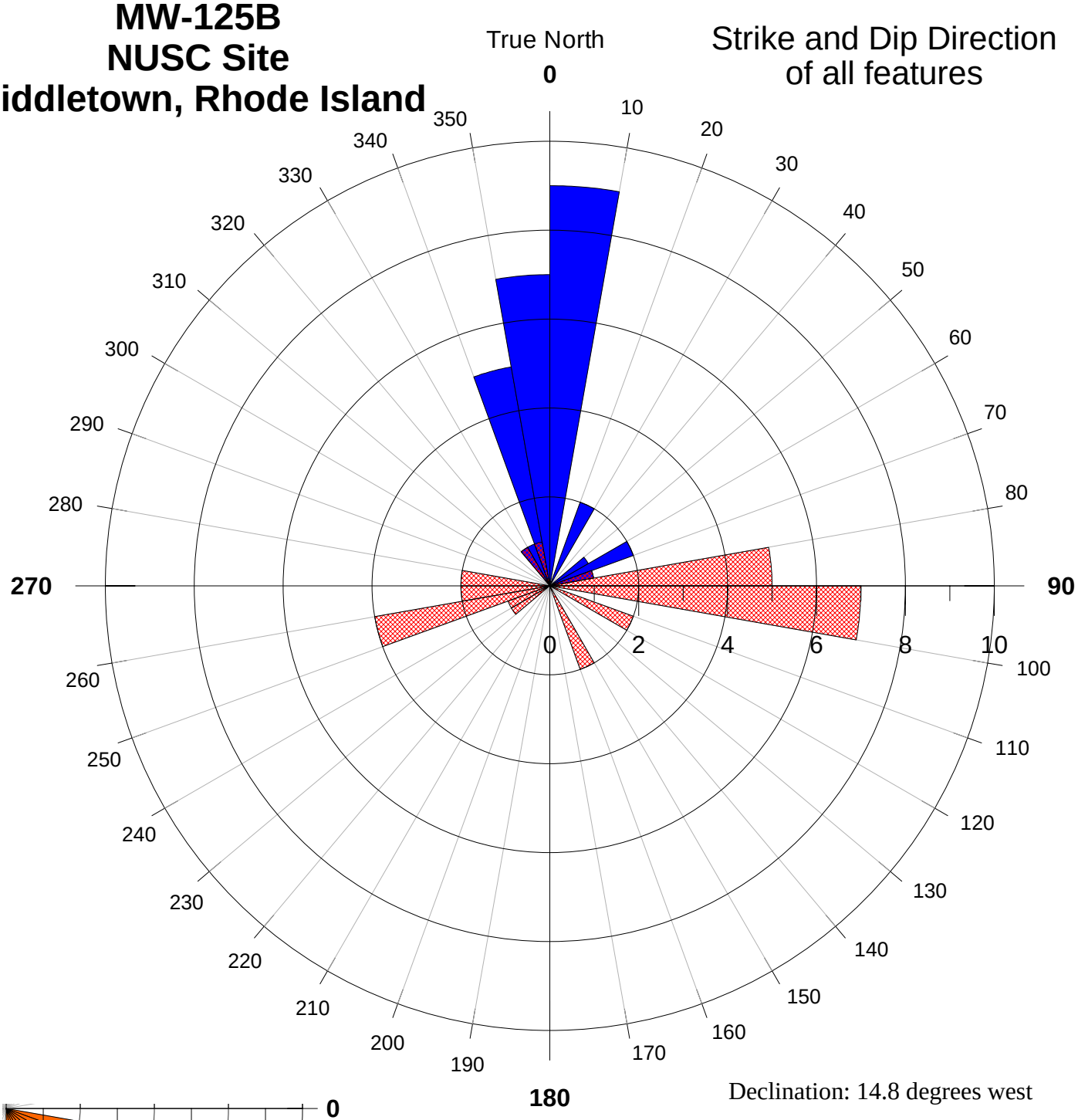
Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

Borehole Geophysical Log
B-125B
NUSC Site
Middletown, Rhode Island

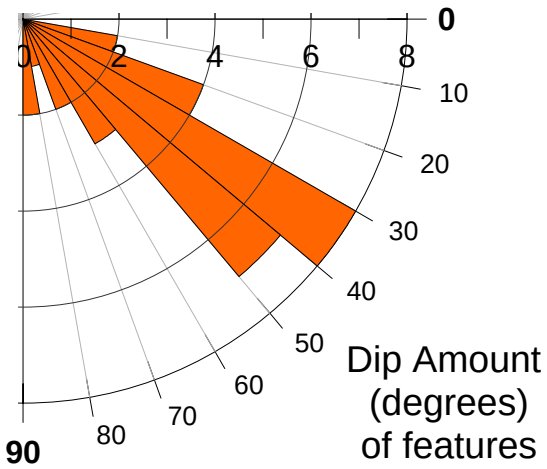
Date logged: 7/28/08

Northeast Geophysical Services

MW-125B
NUSC Site
Middletown, Rhode Island



Declination: 14.8 degrees west



Explanation

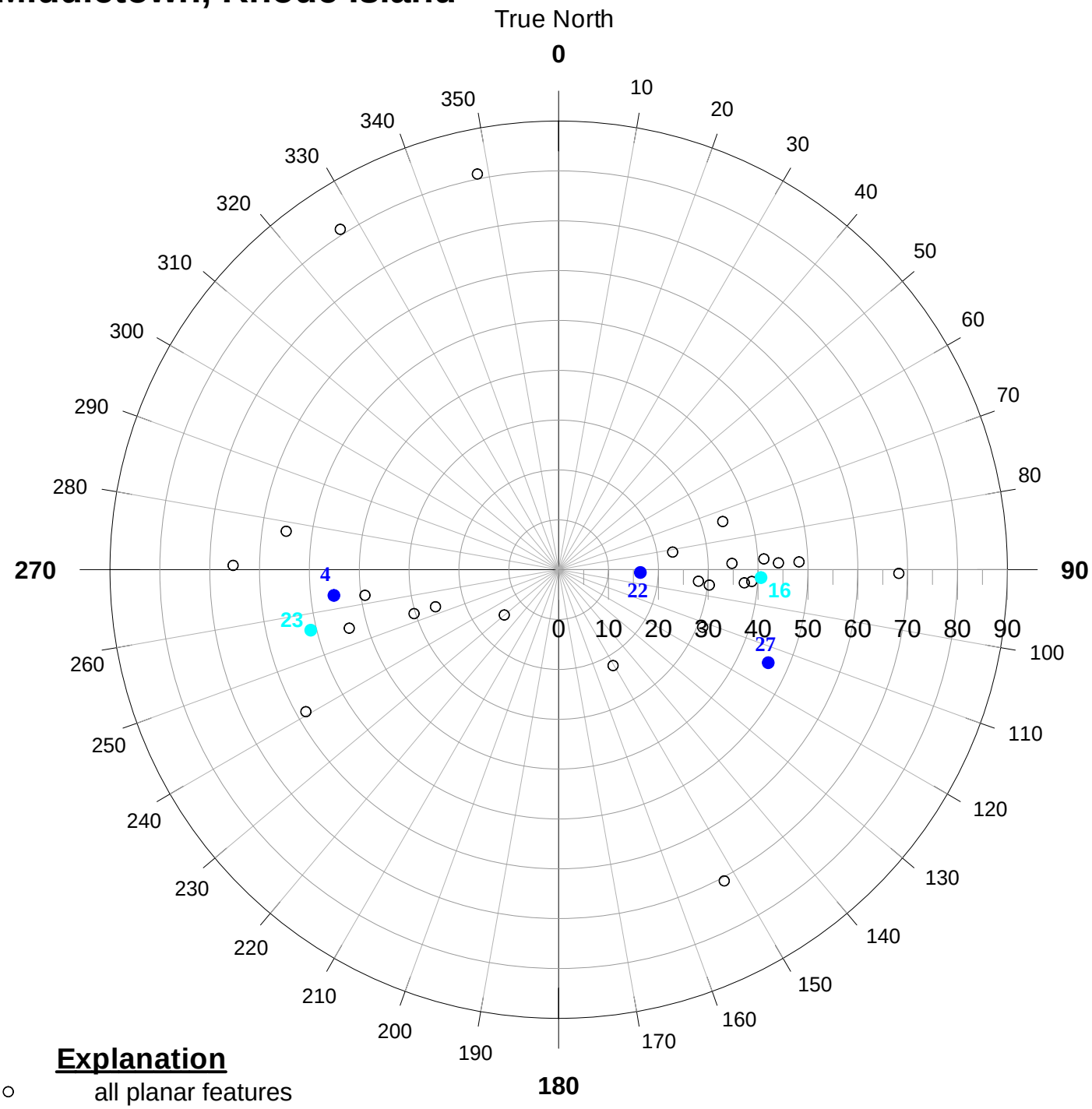
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 29 measurements

Northeast Geophysical Services

MW-125B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 29 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Televiewer Logs

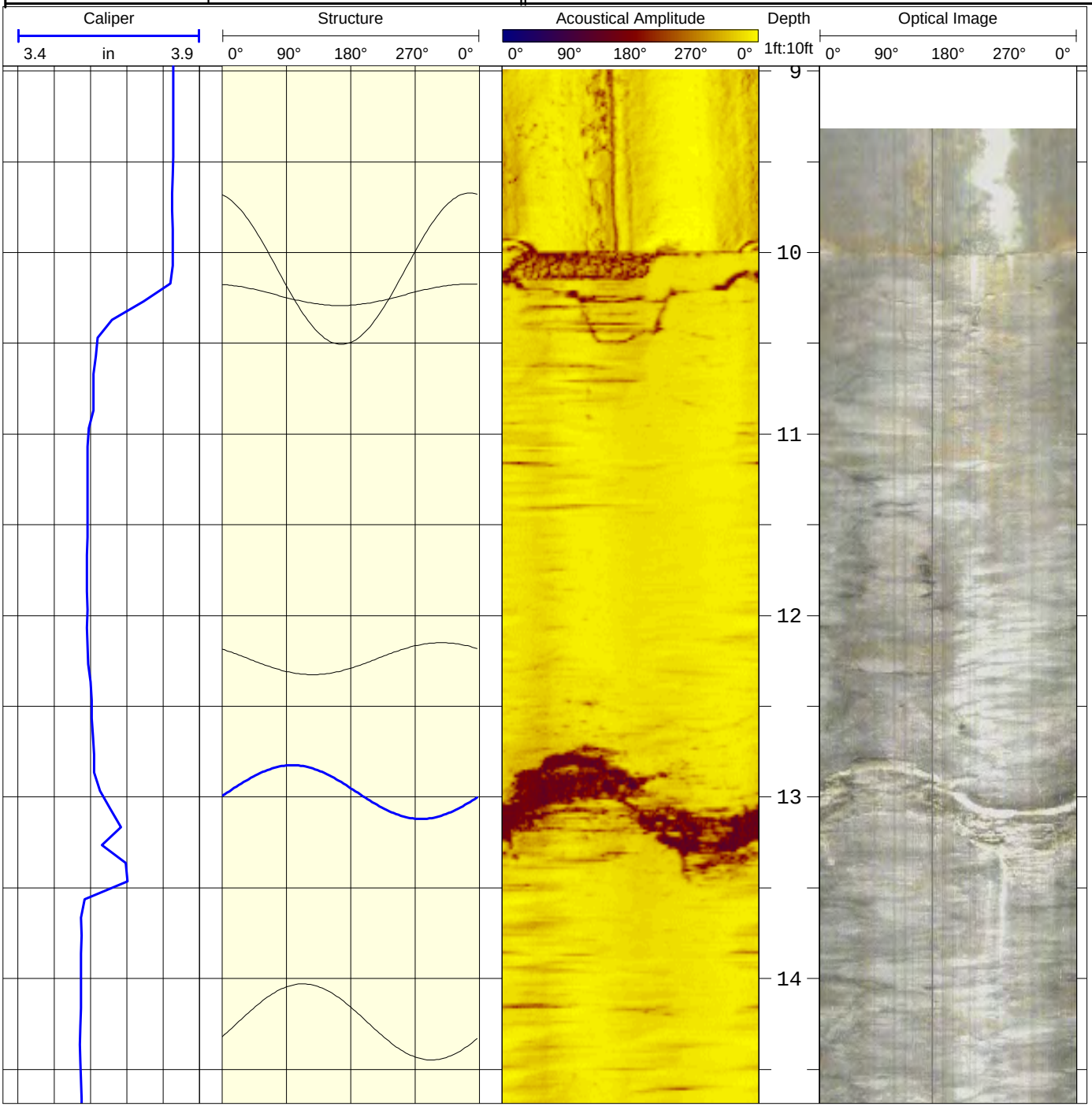
Well: MW-125B

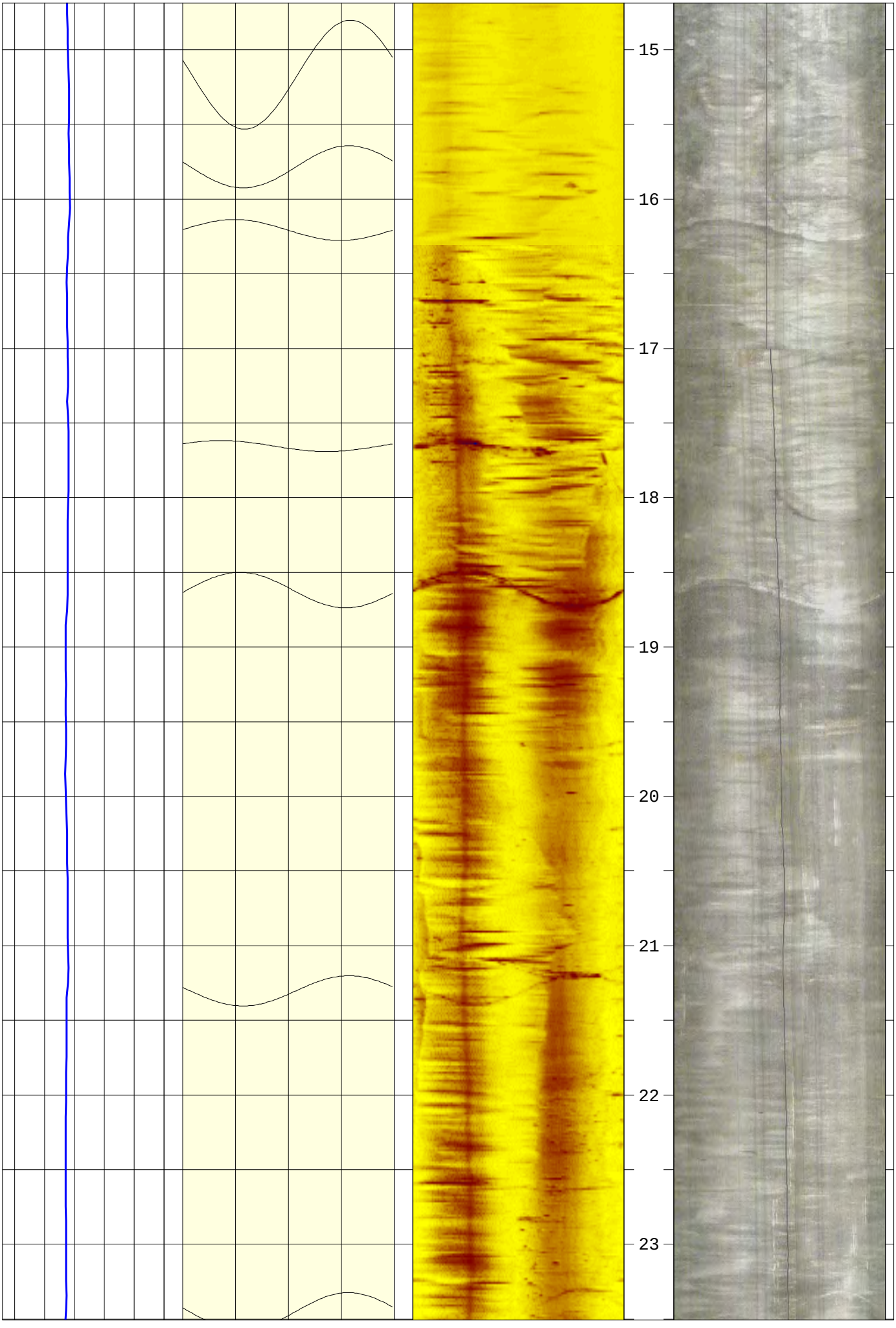
Site: NUSC

Date: 7/28/08

Location: Middletown R.I.

Casing Depth:	10 ft	For:	Tetra Tech
Casing Type:	4 in steel	Logged by:	R. Rawcliffe
Boring Depth:	49.3 ft	Orientation:	Magnetic
Meas. From:	top of casing	Comments:	Structure & Tadpole Plots: black = planar features (faults, bedding, foliation, etc.) light blue = possibly transmissive fracture dark blue = likely transmissive fracture
Stickup:	-0.4 ft		
Water Level:	5.70 ft		

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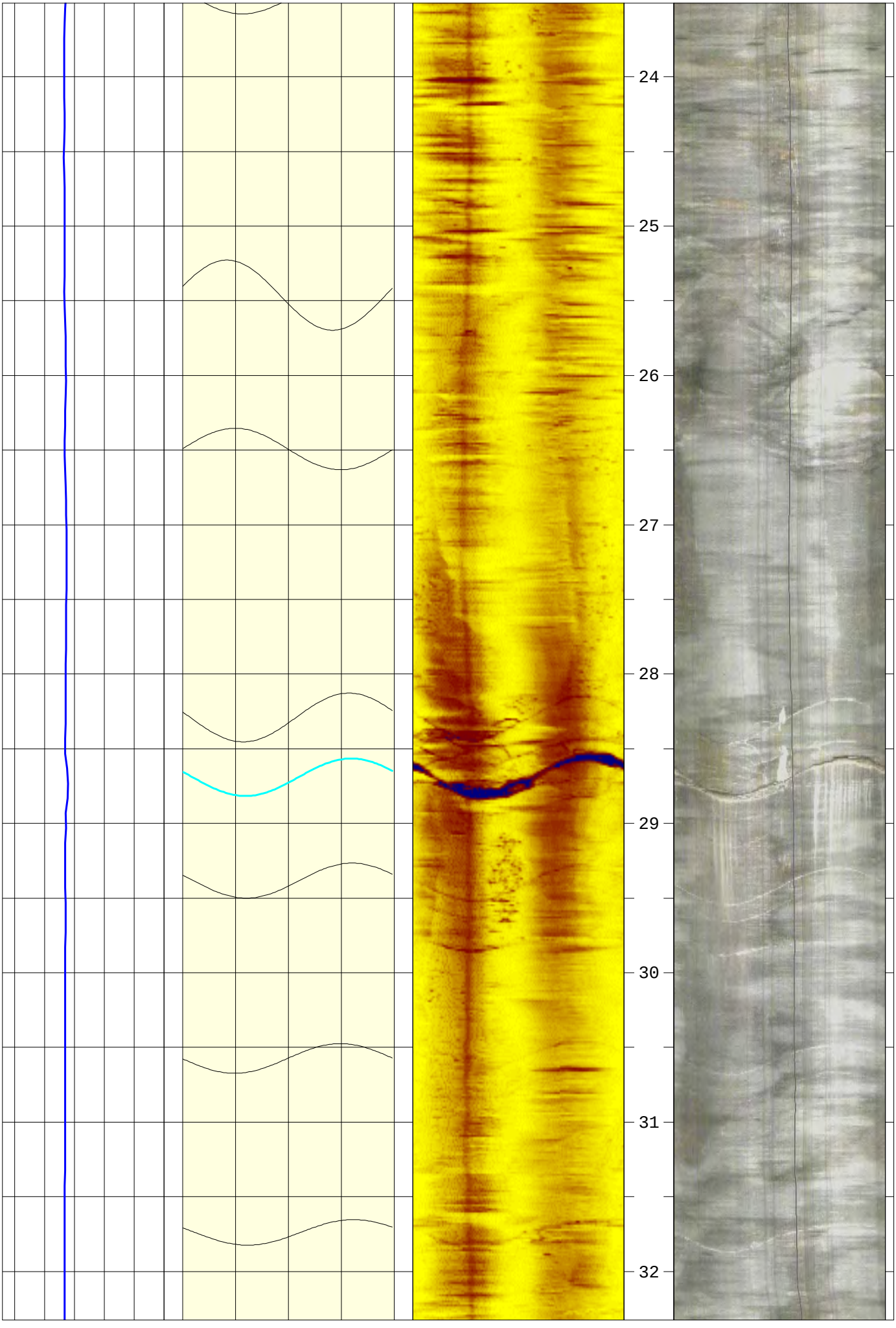
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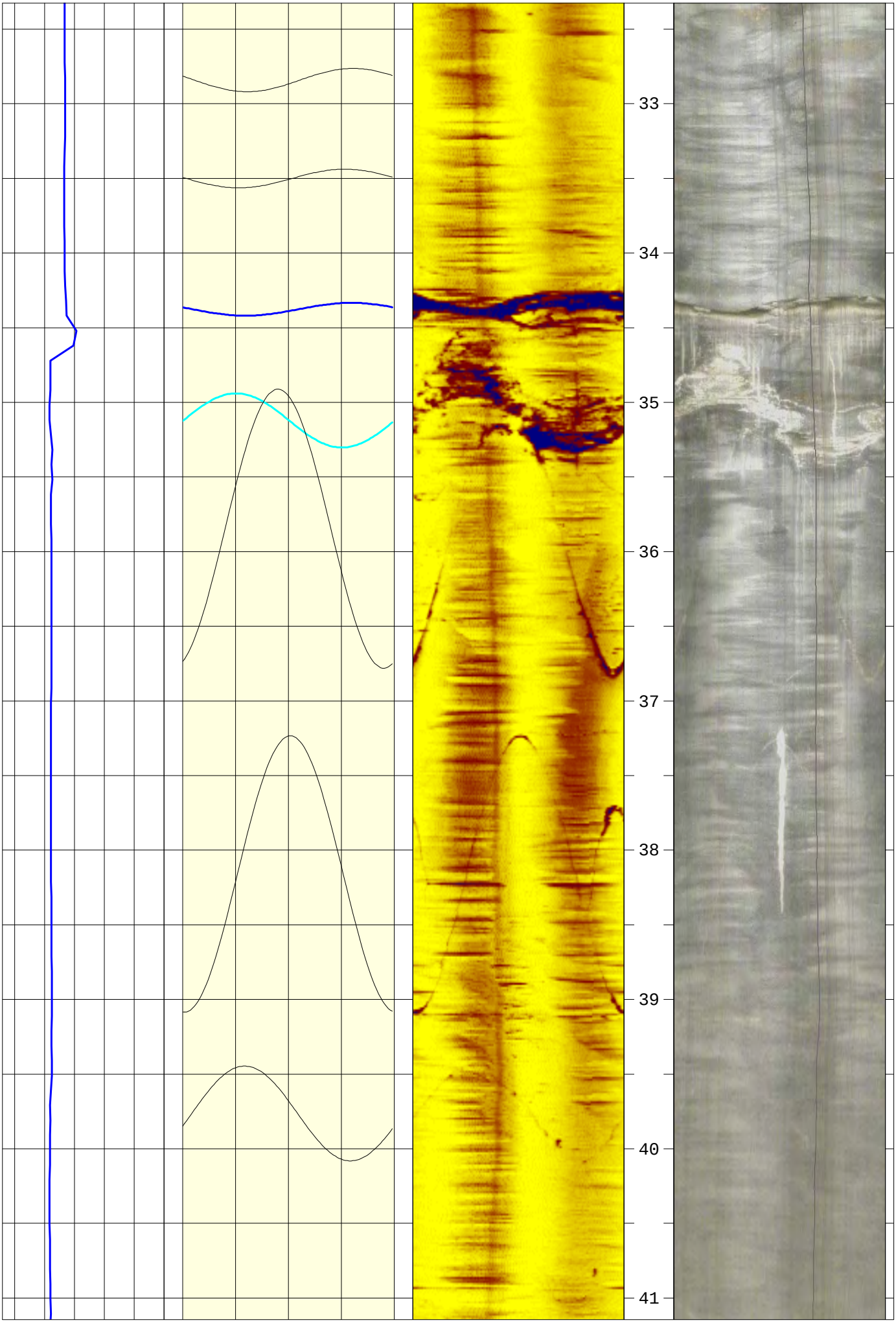
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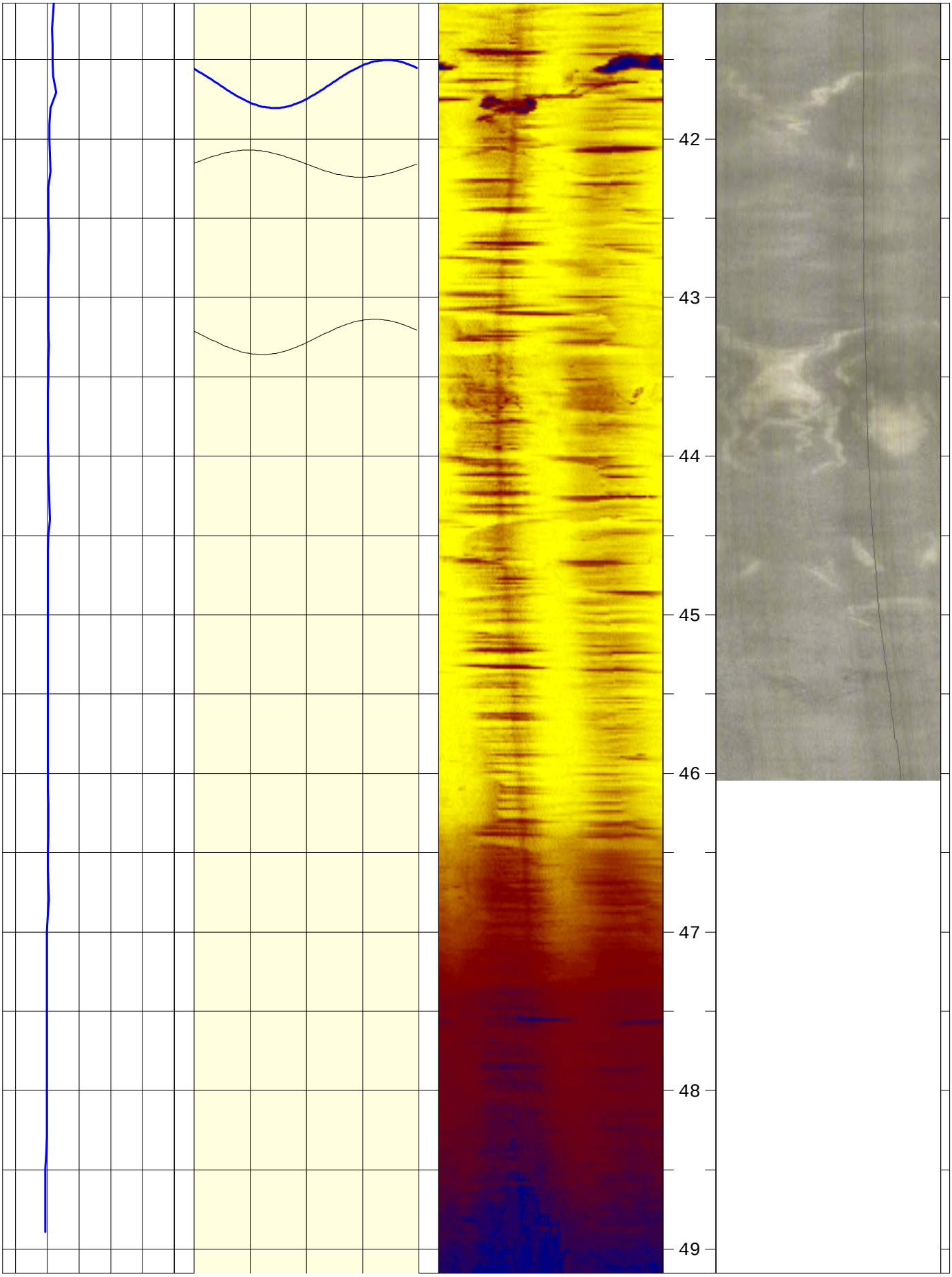
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Planar features interpreted from acoustical and optical televiewers
MW-125B - NUSC Disposal Site 08 - Middletown, Rhode Island **Logged: 07/28/08**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-125B	1	10.1	71	167	77	152	62	100
MW-125B	2	10.2	22	165	75	150	60	100
MW-125B	3	12.2	31	127	37	112	22	100
MW-125B	4	13.0	45	278	8	263	353	107
MW-125B	5	14.2	55	293	23	278	8	100
MW-125B	6	15.2	68	105	15	91	1	100
MW-125B	7	15.8	44	103	13	88	358	100
MW-125B	8	16.2	26	268	358	253	343	100
MW-125B	9	17.7	14	245	335	230	320	100
MW-125B	10	18.6	39	277	7	262	352	100
MW-125B	11	21.3	35	103	13	88	358	100
MW-125B	12	23.5	41	102	12	87	357	100
MW-125B	13	25.5	58	255	345	241	331	100
MW-125B	14	26.5	44	269	359	254	344	100
MW-125B	15	28.3	48	103	13	88	358	100
MW-125B	16	28.7	41	107	17	92	2	108
MW-125B	17	29.4	39	108	18	94	4	100
MW-125B	18	30.6	34	88	358	74	344	100
MW-125B	19	31.7	30	111	21	96	6	100
MW-125B	20	32.8	28	110	20	95	5	100
MW-125B	21	33.5	23	96	6	81	351	100
MW-125B	22	34.4	16	107	17	92	2	107
MW-125B	23	35.1	51	271	1	256	346	108
MW-125B	24	35.9	81	342	72	327	57	100
MW-125B	25	38.2	81	3	273	348	78	100
MW-125B	26	39.8	65	286	16	271	1	100
MW-125B	27	41.7	46	129	39	114	24	107
MW-125B	28	42.2	30	268	358	253	343	100
MW-125B	29	43.3	37	109	19	94	4	100

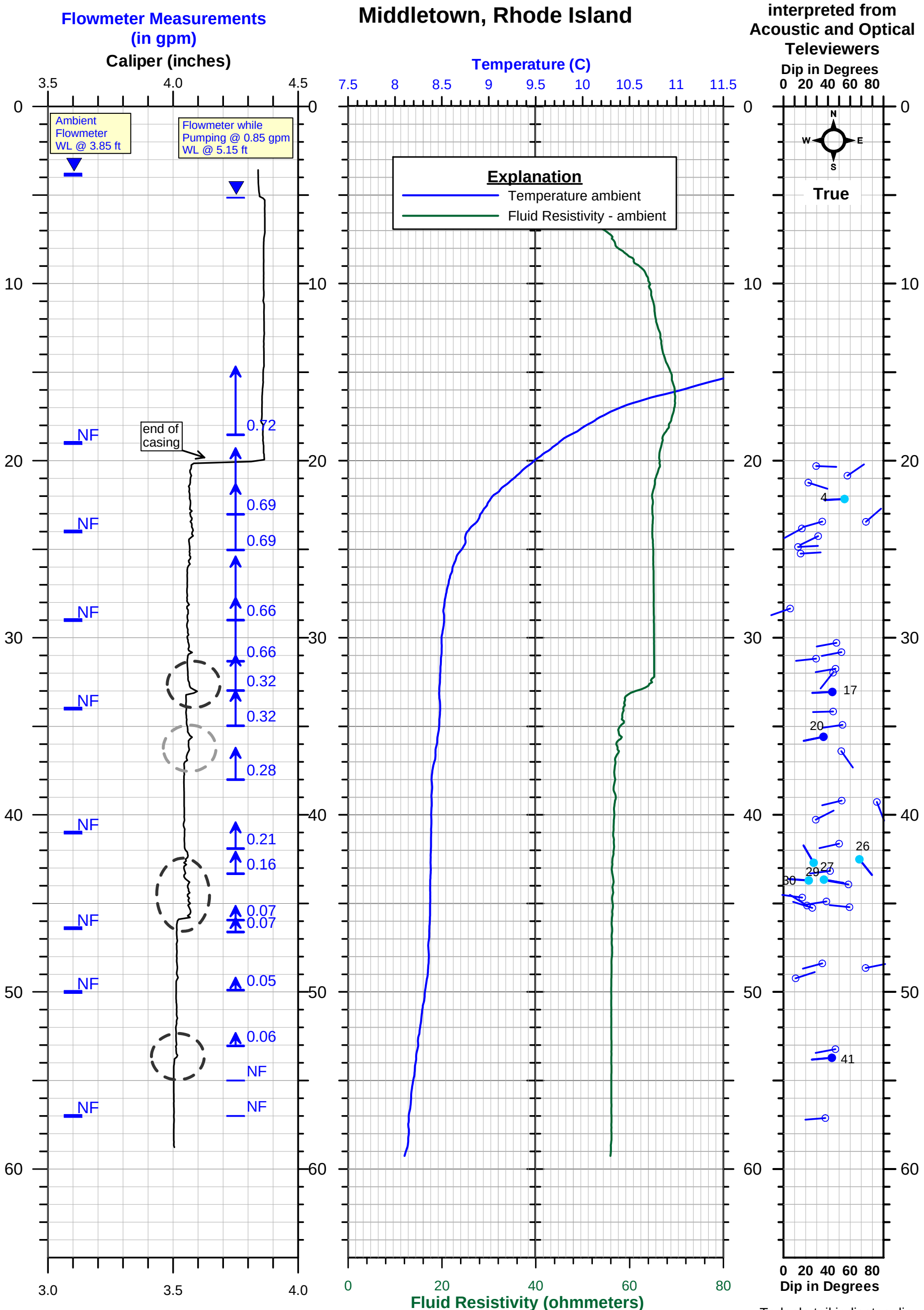
Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 107 = Likely water bearing fracture
Category 108 = Possible water bearing fracture

Northeast Geophysical Services

Borehole Geophysical Log
B-126B
NUSC Site
Middletown, Rhode Island

Date logged: 7/28/08



= Likely transmissive zone

= Possible transmissive zone

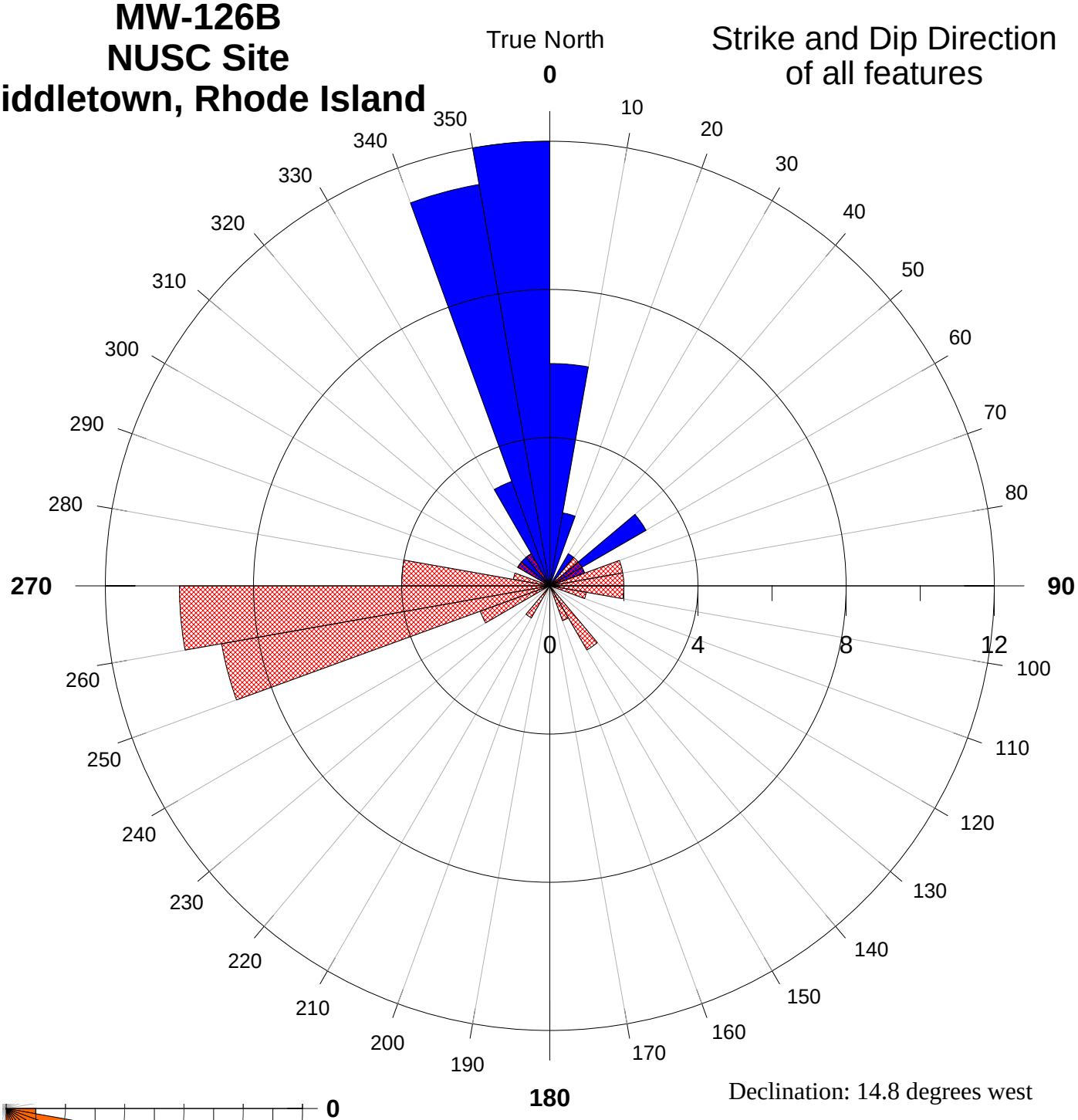
Borehole Geophysical Log
B-126B
NUSC Site
Middletown, Rhode Island

Tadpole tail indicates dip direction.
The solid tadpoles with a feature number are the ones interpreted to be likely or possibly transmissive.

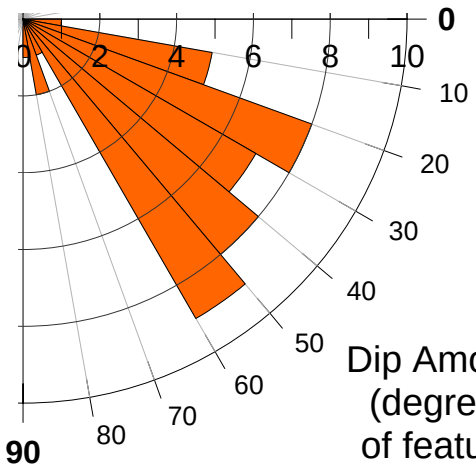
Date logged: 7/28/08

Northeast Geophysical Services

MW-126B
NUSC Site
Middletown, Rhode Island



Declination: 14.8 degrees west



Explanation

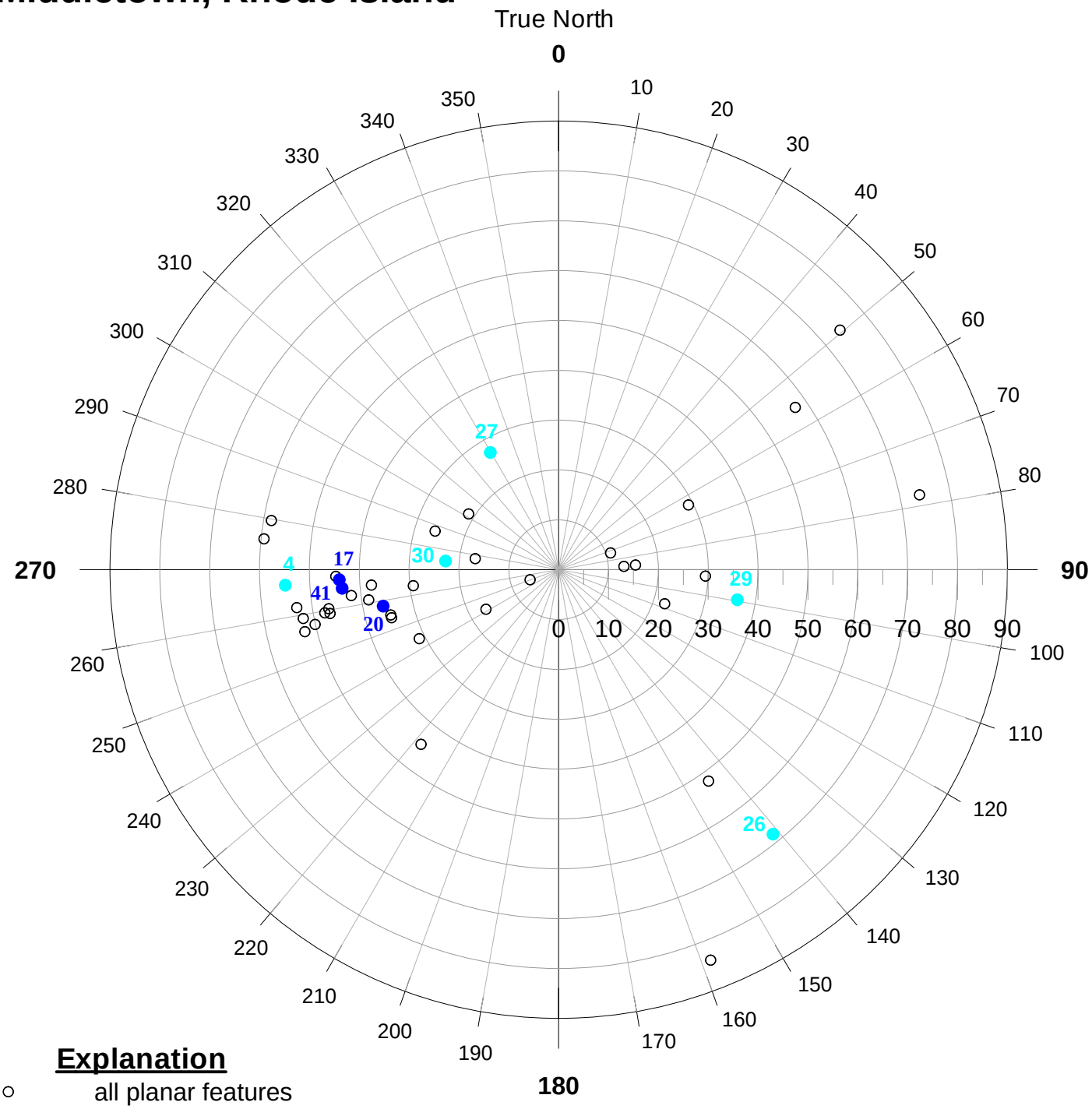
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 42 measurements

Northeast Geophysical Services

B-126B
NUSC Site
Middletown, Rhode Island

Dip Amount and Dip Azimuth of planar features
(upper hemisphere plot)



Explanation

- all planar features
- Likely water bearing
- Possibly water bearing

Based on 42 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@adelphia.net

Log: Televiewer Logs

Well: MW-126B

Site: NUSC

Location: Middletown RI

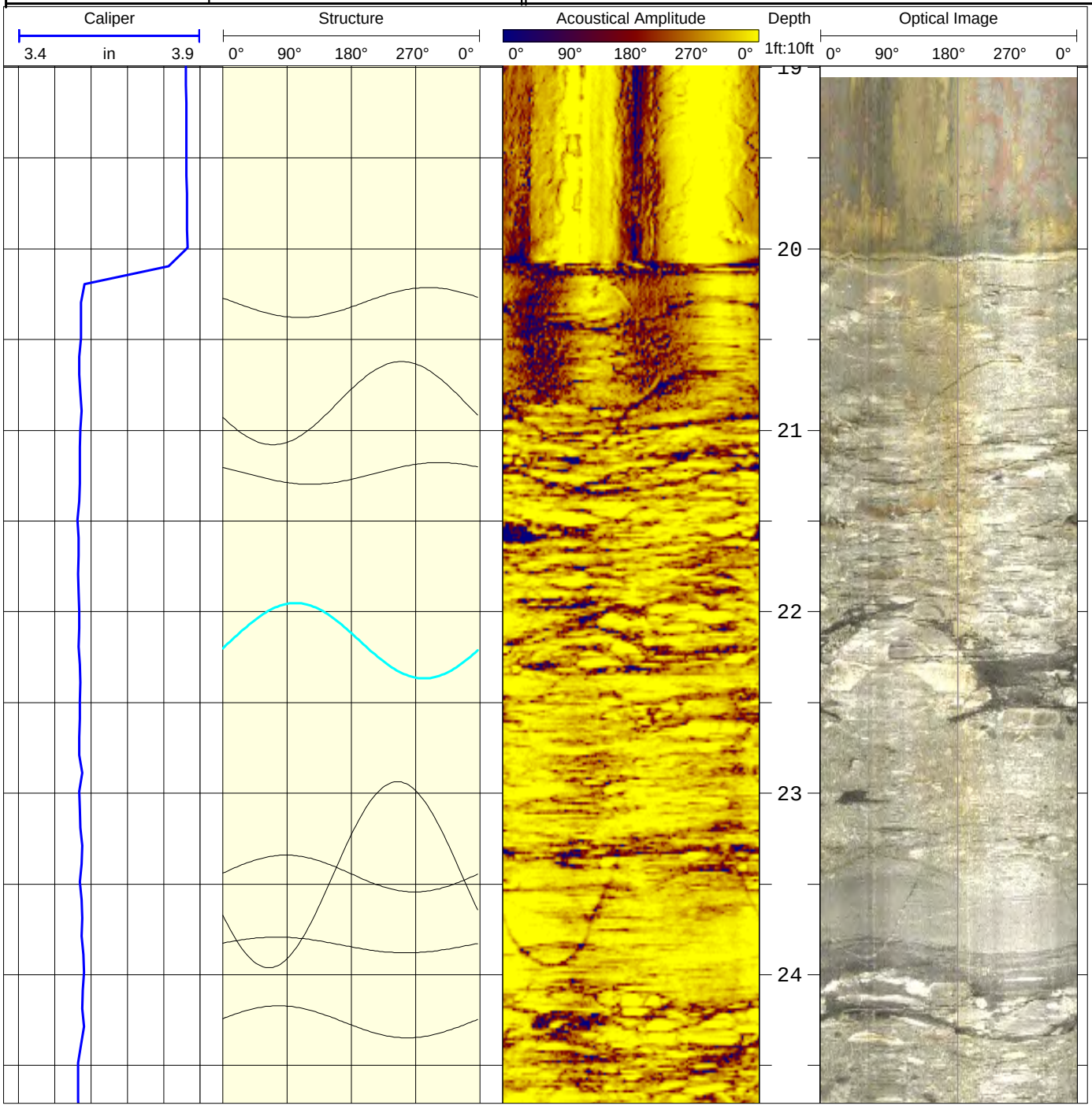
Date:	7/28/08
Casing Depth:	20 ft
Casing Type:	4 inch
Boring Depth:	59.8 ft
Meas. From:	top of casing
Stickup:	-0.2 ft
Water Level:	3.85 ft

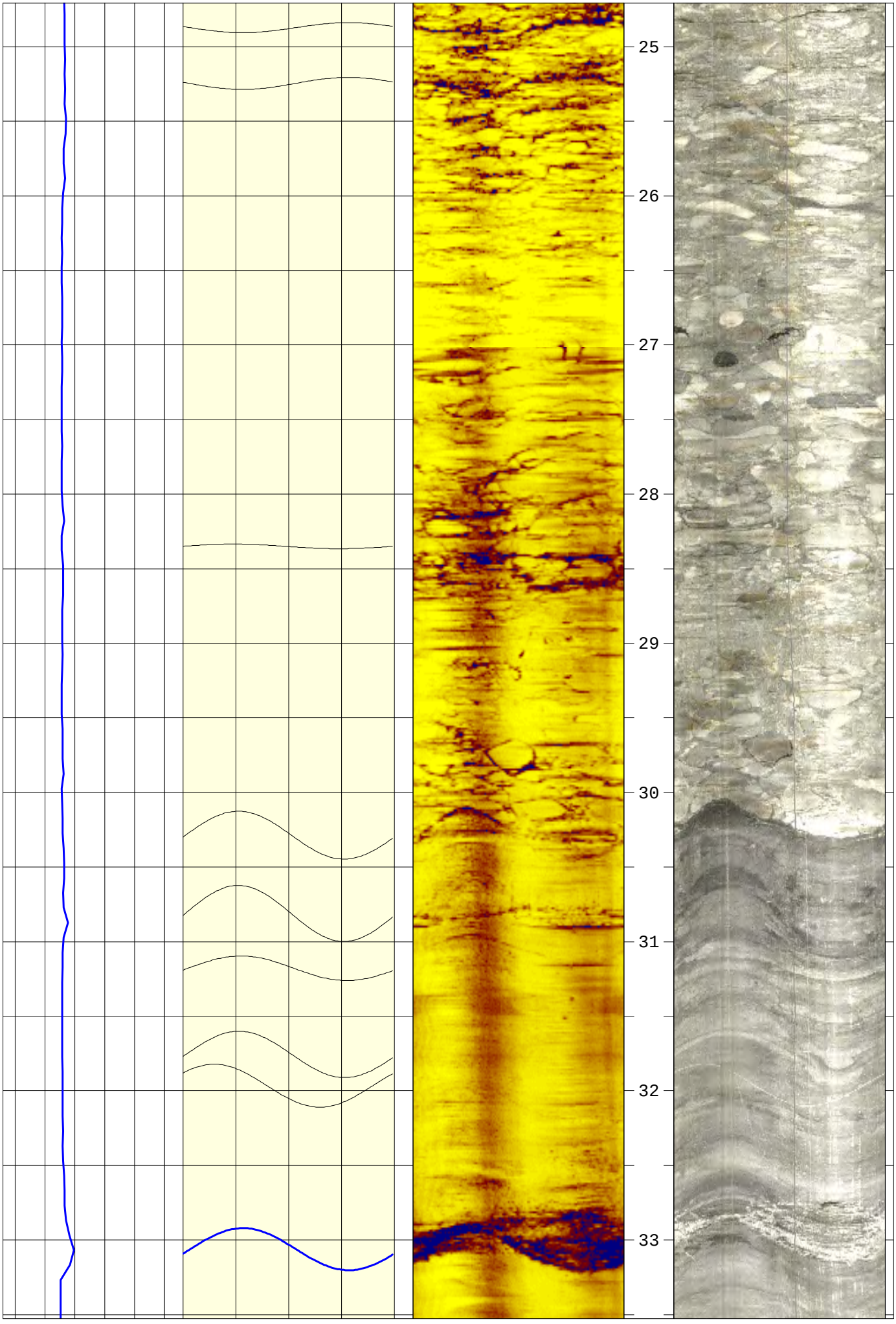
For: Tetra Tech

Logged by: R Rawcliffe

Orientation: Magnetic

Comments:
Structure & Tadpole Plots:
black = planar features (faults, bedding, foliation, etc.)
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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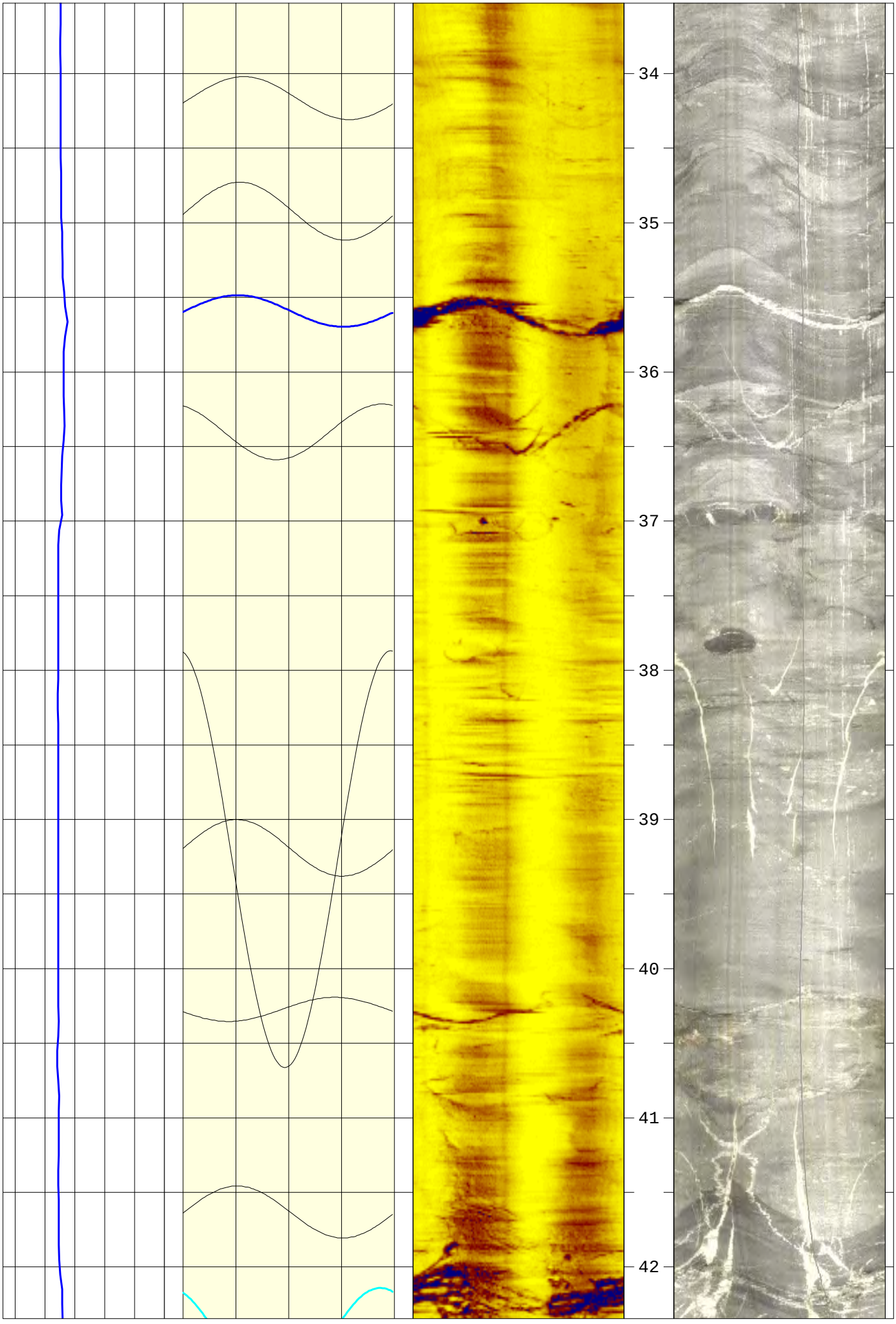
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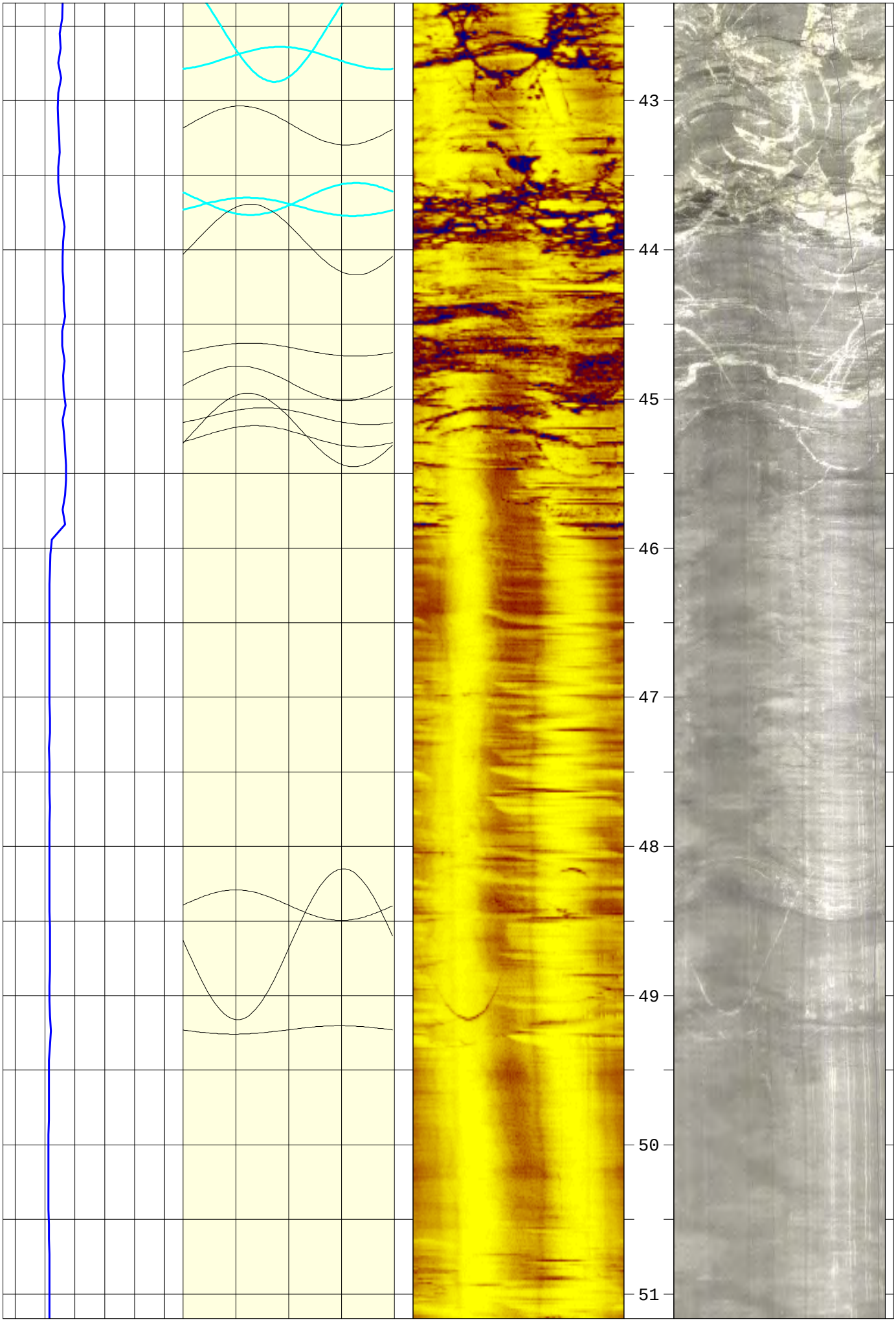
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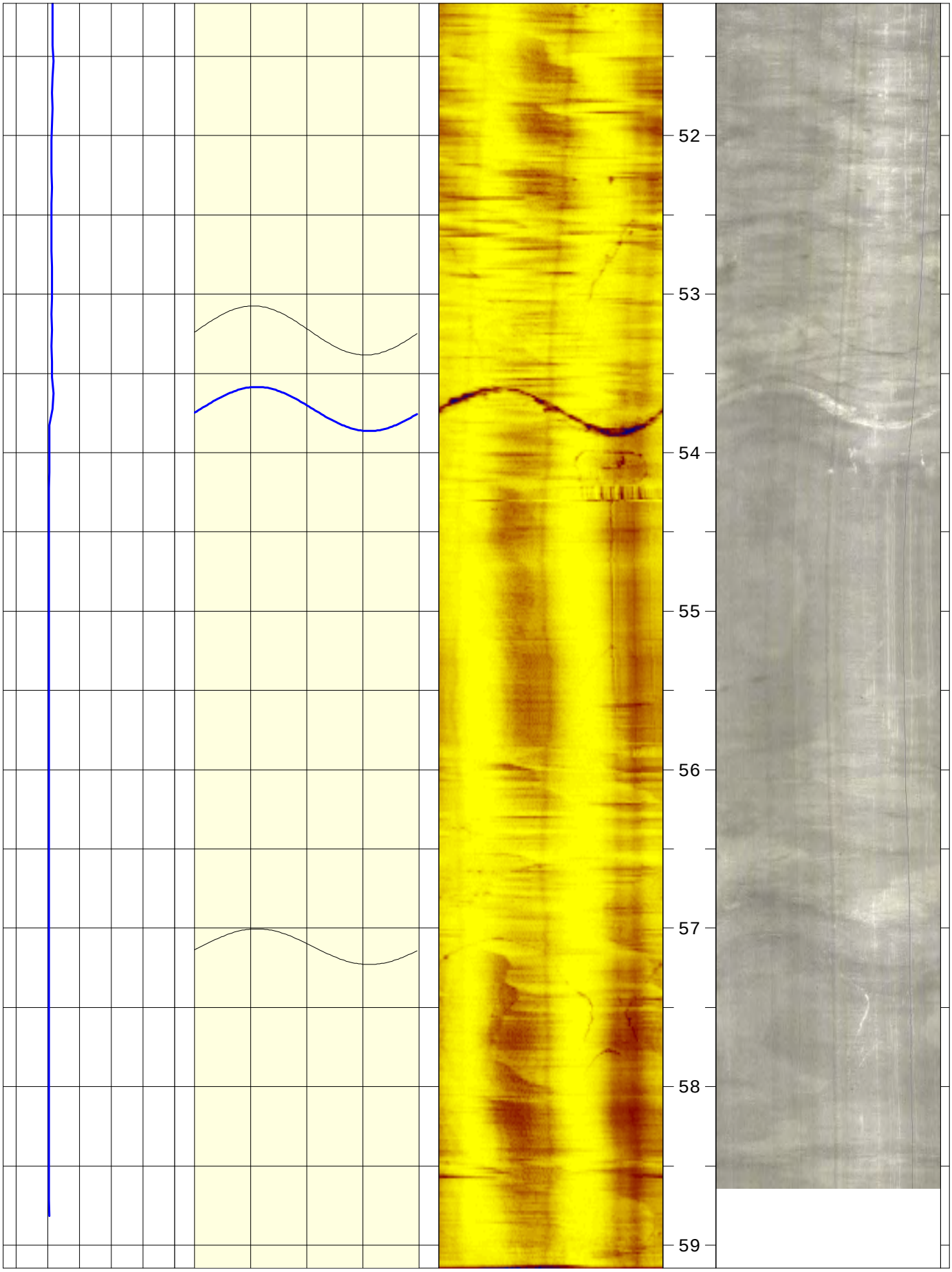
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Planar features interpreted from acoustical and optical televiewers
MW-126B - NUSC Disposal Site 08 - Middletown, Rhode Island **Logged: 07/28/08**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-126B	1	20.3	29	107	17	93	3	100
MW-126B	2	20.9	58	70	340	56	326	100
MW-126B	3	21.2	22	123	33	108	18	100
MW-126B	4	22.2	55	282	12	267	357	108
MW-126B	5	23.4	35	269	359	254	344	100
MW-126B	6	23.5	74	64	334	50	320	100
MW-126B	7	23.8	17	256	346	241	331	100
MW-126B	8	24.3	31	259	349	244	334	100
MW-126B	9	24.9	13	102	12	87	357	100
MW-126B	10	25.3	15	101	11	87	357	100
MW-126B	11	28.4	6	265	355	251	341	100
MW-126B	12	30.3	48	274	4	260	350	100
MW-126B	13	30.8	52	274	4	259	349	100
MW-126B	14	31.2	29	279	9	264	354	100
MW-126B	15	31.8	47	275	5	260	350	100
MW-126B	16	32.0	45	233	323	218	308	100
MW-126B	17	33.1	44	282	12	267	357	107
MW-126B	18	34.2	45	283	13	268	358	100
MW-126B	19	34.9	53	277	7	262	352	100
MW-126B	20	35.6	36	273	3	258	348	107
MW-126B	21	36.4	52	159	69	145	55	100
MW-126B	22	39.2	52	271	1	256	346	100
MW-126B	23	39.3	84	174	84	159	69	100
MW-126B	24	40.3	29	78	348	63	333	100
MW-126B	25	41.6	50	272	2	257	347	100
MW-126B	26	42.5	68	156	66	141	51	108
MW-126B	27	42.7	27	345	75	330	60	108
MW-126B	28	43.2	42	278	8	263	353	100
MW-126B	29	43.7	36	114	24	100	10	108
MW-126B	30	43.7	23	289	19	274	4	108
MW-126B	31	43.9	58	295	25	280	10	100
MW-126B	32	44.7	17	292	22	278	8	100
MW-126B	33	44.9	39	276	6	261	351	100
MW-126B	34	45.1	21	317	47	302	32	100
MW-126B	35	45.2	59	291	21	276	6	100
MW-126B	36	45.3	26	302	32	287	17	100
MW-126B	37	48.4	35	270	360	255	345	100
MW-126B	38	48.7	74	93	3	78	348	100
MW-126B	39	49.2	11	87	357	72	342	100
MW-126B	40	53.2	47	274	4	259	349	100
MW-126B	41	53.7	44	280	10	265	355	107
MW-126B	42	57.1	38	280	10	265	355	100

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 107 = Likely water bearing fracture
Category 108 = Possible water bearing fracture

APPENDIX C.4

METAL DETECTION AND GROUND PENETRATING RADAR SURVEYS IN THE PAVED STORAGE AREAS (NGS, OCTOBER, 2008)

Northeast Geophysical Services
4 Union Street, Suite 3, Bangor, ME 04401

METAL DETECTION AND GROUND PENETRATING RADAR SURVEYS IN THE PAVED STORAGE AREAS NUSC DISPOSAL AREA (SITE 08) NAVAL UNDERSEA WARFARE CENTER MIDDLETOWN, RHODE ISLAND

For:
TETRA TECH NUS, INC.

October, 2008

METAL DETECTION AND GROUND PENETRATING RADAR SURVEYS IN THE PAVED STORAGE AREAS, NUSC DISPOSAL AREA (SITE 08), NAVAL UNDERSEA WARFARE CENTER, MIDDLETOWN, RHODE ISLAND

INTRODUCTION

At the request of Tetra Tech NUS, Inc., metal detection and ground penetrating radar (GPR) surveys were conducted within the paved storage portions of the NUSC Disposal Area, Naval Undersea Warfare Center in Middletown, RI. The objective of the surveys was to locate possible buried metallic objects such as 55 gallon drums or other similar sized objects at the site in support of a remedial investigation. Areas outside the paved storage areas were surveyed in December of 2007 and discussed in a report dated January 2008. The surveys discussed here were conducted on July 16–18 & July 21-22, 2008 by Mike Scully of Northeast Geophysical Services (NGS). This report summarizes site conditions, methods used, and the results of these geophysical surveys.

SUMMARY OF RESULTS

Figure 1 shows the general site layout and the combined results of the new and previous metal detection surveys at the site. Figure 2 shows only the new metal detection survey results in the paved storage areas. Figure 3 shows the locations of the GPR lines completed within the paved storage areas. Sample GPR profiles are included on Figures 4 through 6.

Several areas of high metal response indicated on Figure 2 can be explained by visible metal-bearing features including chain link fences, the walls of buildings, stored equipment, and other visible metal objects as indicated on the figure. As discussed below the Navy was unable to move some of the larger pieces of equipment with their available fork lift.

Three significant metal anomalies and one nonmetallic anomaly were detected within the open storage area as shown on Figure 2. Anomaly 1 is located in the southern end of the open storage area and is the strongest of the three anomalies found. It is an area of strong to very strong metal response that is about 15 to 18 feet wide. GPR profiles over this anomaly suggest several rounded objects, possibly drums, buried in the range of 2 to 6 feet deep. Anomalies 2 and 3 occur in the northern end of the open storage area. Anomaly 2 is a relatively small linear area of moderate metal response. The GPR profiles over Anomaly 2 indicate one or two narrow objects buried 1.5 to 2.5 feet deep. Anomaly 3 is an irregular-shaped area of weak to strong metal response that encompasses most of the northwest corner of the survey grid. This anomaly appears to be contiguous with a much larger area of weak to strong metal response that was detected during the first round of surveying (see Figure 1). The GPR profiles over this anomaly indicate that it is caused by multiple objects in the range of 1.5 to 2 feet deep. Anomaly 4 is a nonmetallic pipe-like feature that is buried about 4 feet deep at the southern end of the open storage area.

No metal anomalies were detected in the portions of the gated storage area that were available to be surveyed. All of the metal responses shown there were caused by the stored equipment and other above-ground metallic objects. No significant GPR reflectors were observed in this area.

SITE LOCATION AND CONDITIONS

The Naval Undersea Warfare Center is a large military complex located in Middletown, Rhode Island in the area west of State Route 114 and east of Narragansett Bay. The NUSC Disposal Area is located along the northeast boundary of the property adjacent to the Wanumetonomy Golf Course. The general layout of the site is shown on Figure 1 and the area surveyed in the first round of surveying is outlined with a magenta-colored line. The area surveyed in the second round of work is shown in more detail on Figure 2. Figure 1 is oriented to true north while Figure 2 is oriented to the local grid used for the survey work. The paved storage areas are used by the Navy for storage of various types of equipment and supplies used at the facility. Navy personnel facilitated the geophysical surveys by moving all of the material that could be moved with an available fork lift prior to and during the survey work. All of the remaining equipment indicated on Figure 2, which prevented surveying of those areas, would have required a crane to move. Weather conditions were amenable to field work during the survey.

METHODS AND INSTRUMENTATION

EM-61 Metal Detector A Geonics EM-61 metal detector was used for the metal detection surveys. The EM-61 is a portable time-domain instrument with a coincident transmitter/receiver coil and second parallel receiver coil for depth to target estimation and rejection of surface metal response. The instrument measures the secondary electromagnetic field response in milli-volts (mV). The EM-61 is designed specifically to locate medium to large buried metal objects such as drums and tanks while being relatively insensitive to above-surface metallic objects such as fences, buildings and power lines. The technique is sensitive to conductive metal up to a depth of approximately 12 feet. The size and burial depth of the metal determine the strength of the response. The EM-61 transmitter/receiver coils can either be carried by the operator using a harness, or pulled on wheels. EM data is digitally recorded on an Allegro CX field computer. Readings can be triggered automatically, manually or, if the wheel mode is used, readings can be recorded at regular intervals controlled by the rotation of the wheels. At this site the wheel mode was used and the readings were recorded every 0.63 feet along lines spaced 5 feet apart.

Ground Penetrating Radar (GPR) Ground penetrating radar utilizes high frequency radio waves to probe the subsurface. Radar waves are transmitted into the ground from an antenna that is pulled across the ground surface. In the subsurface, radar waves are reflected at interfaces of materials with contrasting dielectric properties. The returning signal is intercepted by a receiver and converted to a digital graphic image. The horizontal axis of the image is distance along the traverse. The vertical axis is two-way travel time of the radar pulses in nanoseconds (ns), which can be converted to depth using certain assumptions about the materials that the signal is traveling through.

The GPR graphic images are examined and features noted on the images can then be transferred to a map. Tanks, pipelines and other objects with rounded tops (boulders, tree roots, or segments of old foundations, for example) may show up on the profiles as hyperbola-shaped reflections. Tanks and pipelines usually appear on more than one survey line as hyperbolic reflectors on lines perpendicular to the tank or pipe axis and as horizontal reflectors on lines along the axis. The

GPR instrument used was a GSSI, SIR-3000. A 400-MHz antenna was used with a time range set for 60 nanoseconds. At this setting the depth surveyed is approximately 10 feet. A total of 158 GPR profiles were conducted within the two paved storage areas as shown on Figure 3.

SURVEY RESULTS

General: Figures 1 and 2 show the site layout and the results of the metal detection surveys at the site. The figures indicate the distribution of metal within approximately 12 feet of the ground surface. The strength of the metal response shown is directly proportional to the total surface area of metal under the instrument and inversely proportional to the depth of the metal. Zero or very low metal responses are shown as small gray plus symbols on the figure. Increasing metallic responses are indicated by colored blocks progressing from yellow to gold to red to black as shown in the explanations of Figures 1 and 2. Several areas of high metal response indicated on the figures can be explained by visible metal-bearing features including chain link fences, the walls of buildings, stored equipment and a small bridge over the unnamed stream. Other visible metal objects are indicated on the figures. The locations of the GPR survey lines are shown on Figure 3. Sample GPR profiles are shown on Figures 4 through 6.

Open Storage Area: Three significant metal anomalies and one nonmetallic anomaly were detected within the open storage area as shown on Figure 2. Anomaly 1 is an area of strong to very strong metal response that is centered at approximately 45 North, 82 East on the survey grid. It is roughly circular in shape and is about 15 to 18 feet across. GPR profiles over this anomaly suggest several rounded objects, possibly drums, buried in the range of 2 to 6 feet deep. A small spot of moderate metal response that occurs about 10 feet south of Anomaly 1 can also be seen on Figure 2. GPR indicates that this feature is caused by a single object that is buried about 2 feet deep.

Anomaly 2 is an area of moderate metal response that is located at about 158 North, 50 East on the survey grid. This anomaly has a linear or elongated shape. It is about 15 feet long by 5 feet wide and is oriented northeast - southwest. GPR profiles over this feature indicate that it is caused by one or two narrow objects, such as a piece of pipe or conduit, that is buried about 2 feet deep.

Anomaly 3 is an irregular-shaped area of weak to strong metal response that encompasses most of the northwest corner of the survey grid. The stronger portion of the anomaly which is circled on Figure 2 is centered at about 190 North, 20 East on the survey grid. This anomaly appears to be contiguous with a much larger area of weak to strong metal response that was detected during the first round of surveying (see Figure 1). The GPR profiles over this anomaly indicate that it is caused by multiple objects in the range of 1.5 to 2 feet deep.

Anomaly 4 is a nonmetallic linear feature found by GPR that trends across the southern end of the open storage area. It occurs at about 10 North and runs from about 40 East to at least 95 East on the survey grid. This anomaly appears to be caused by a plastic or other nonmetallic pipe that is buried approximately 4 feet deep.

Gated Storage Area: No metal anomalies were detected in the portions of the gated storage area that were available to be surveyed. All of the metal responses shown there were caused by the stored equipment and other above-ground metallic objects. No significant GPR reflectors were observed in the area either.

LIMITATIONS OF THE SURVEYS

The EM-61 metal detection survey provides an indication of where buried metal exists at the site surveyed. The Ground Penetrating Radar survey produces reflectors at interfaces of materials with contrasting dielectric properties. Both of these instruments provide indirect measurements of subsurface conditions. The actual cause of the features depicted on the figures can only be conclusively determined by direct observation.

FIGURE 1

METAL DETECTION SURVEY MAP

COMBINED SURVEY RESULTS

NUSC DISPOSAL AREA

MIDDLETOWN, RI

For:

Tetra Tech NUS, Inc.

EXPLANATION

EM-61 Metal Detector Readings
Differential Metallic Response in Millivolts

- -12000 to -25
- -25 to 50
- 50 to 100
- 100 to 200
- 200 to 400
- 400 to 12000

Outline of Survey Area

1 ⊗ Test Pit Location

Scale in Feet

0 50 100 150 200

Surveyed December 11 & 12, 2007
and July 16-18 & 22, 2008 by:

NORTHEAST GEOPHYSICAL SERVICES

FIGURE 2

METAL DETECTION SURVEY MAP

PAVED STORAGE AREAS

NUSC DISPOSAL AREA

MIDDLETOWN, RI

For:

Tetra Tech NUS, Inc.

EXPLANATION

EM-61 Metal Detector Readings
Differential Metallic Response in Millivolts

- -20066.39 to -25
- -25 to 50
- 50 to 100
- 100 to 200
- 200 to 400
- 400 to 20000

Outline of Survey Area

Chainlink Fence

Scale in Feet

0 20 40 60 80

Surveyed July 16, 17 & 22, 2008 by:

NORTHEAST GEOPHYSICAL SERVICES

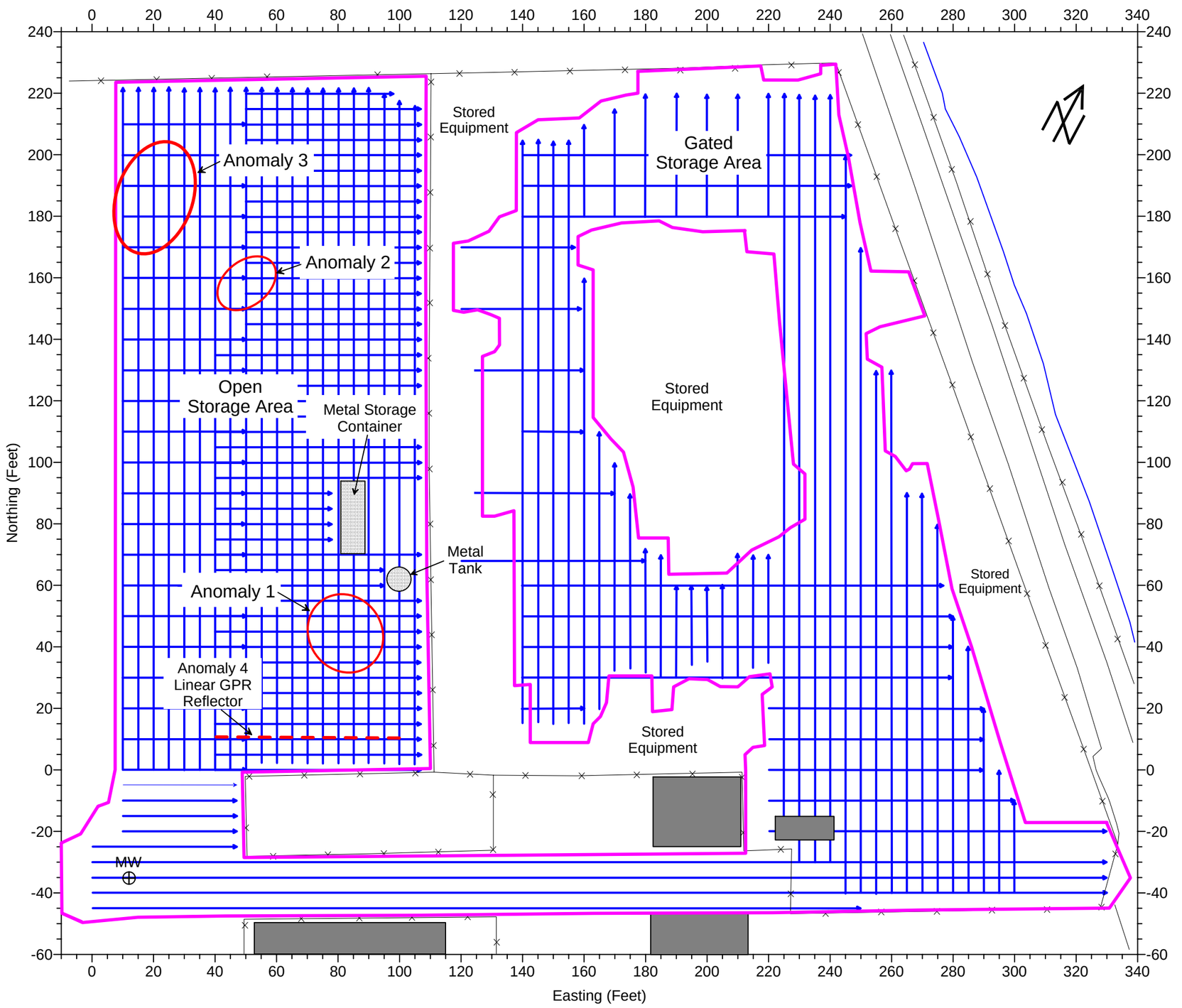


FIGURE 3

GPR LINE LOCATION MAP

PAVED STORAGE AREAS

NUSC DISPOSAL AREA

MIDDLETOWN, RI

For:

Tetra Tech NUS, Inc.

GPR Survey Line

Outline of Survey Area

Chainlink Fence

Scale in Feet

0 20 40 60 80

Surveyed July 16, 17 & 22, 2008 by:

NORTHEAST GEOPHYSICAL SERVICES

FIGURE 4

PAVED STORAGE AREAS, NUSC DISPOSAL AREA, MIDDLETOWN, RI

ANOMALY 1 - GPR PROFILES 45 North and 80 East

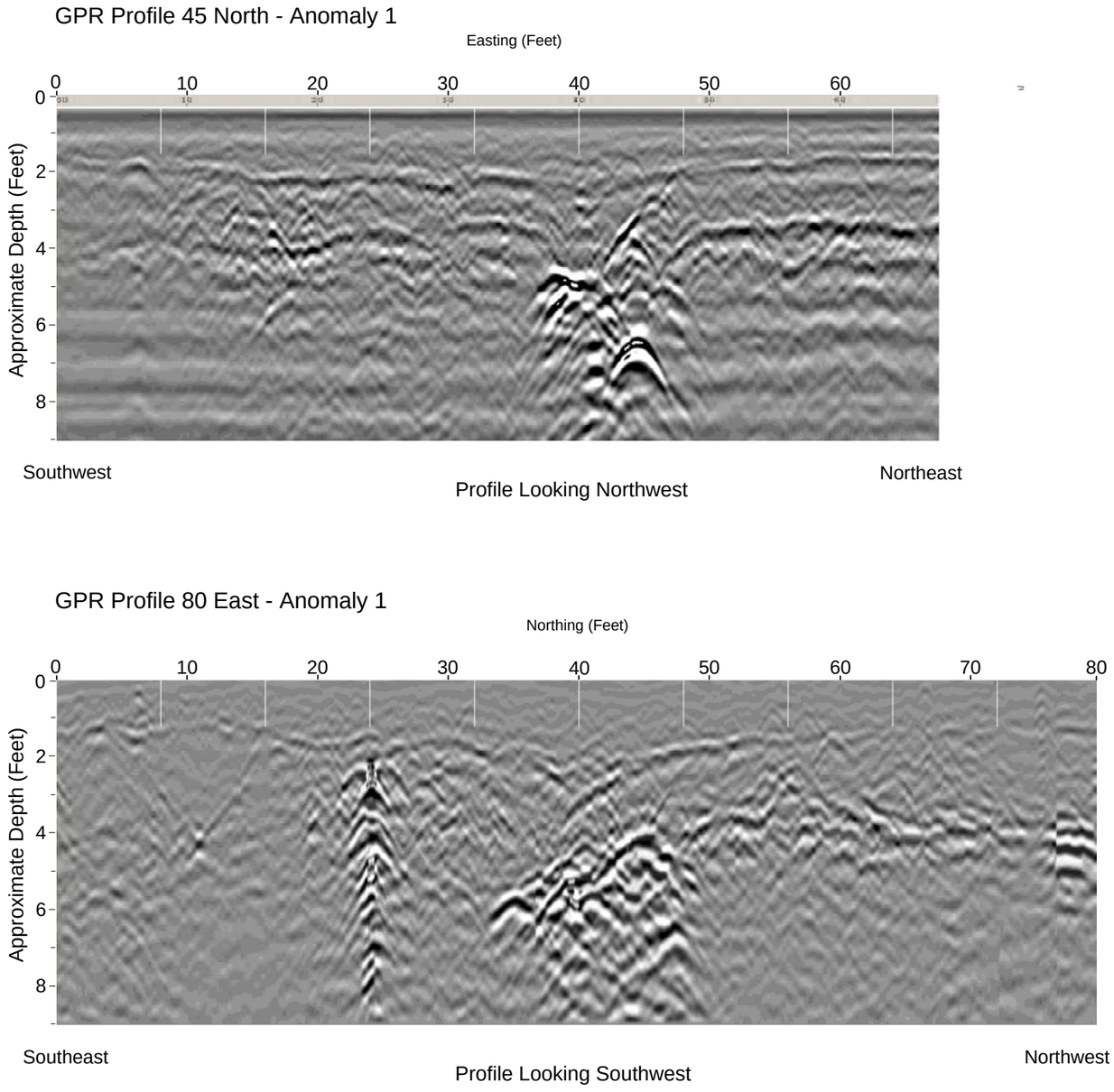
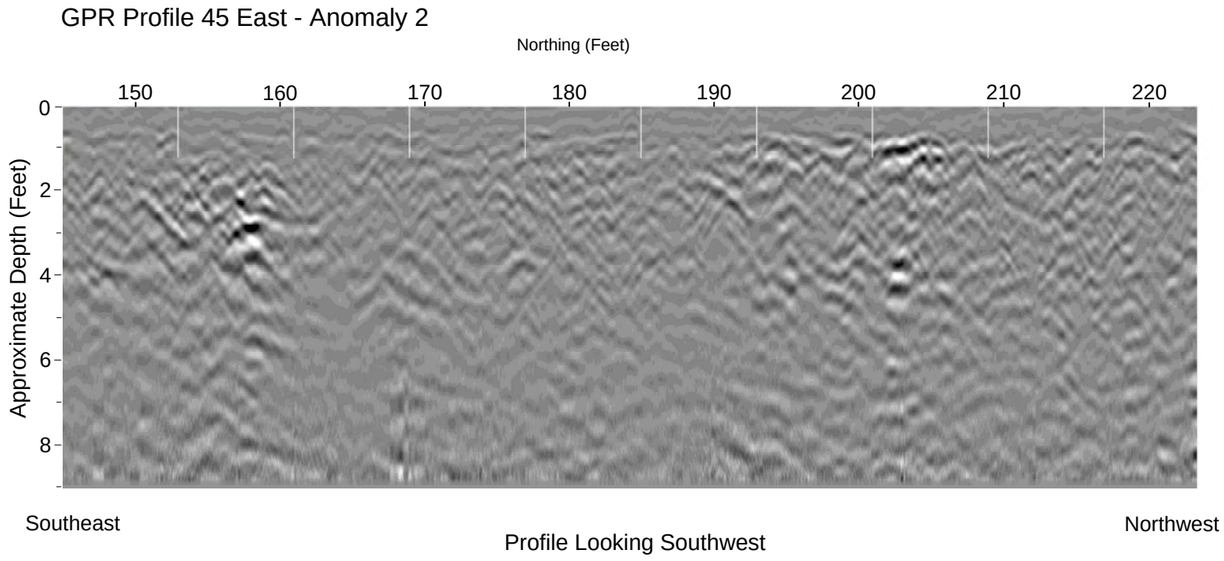


FIGURE 5

PAVED STORAGE AREAS, NUSC DISPOSAL AREA, MIDDLETOWN, RI

ANOMALIES 2 & 3 - GPR PROFILES 45 EAST AND 20 EAST



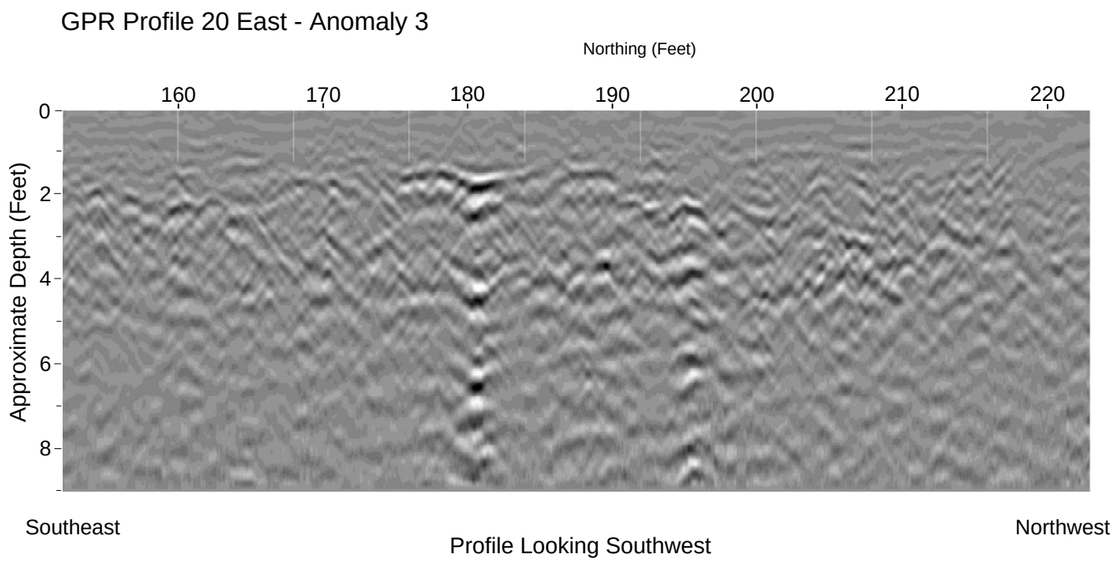
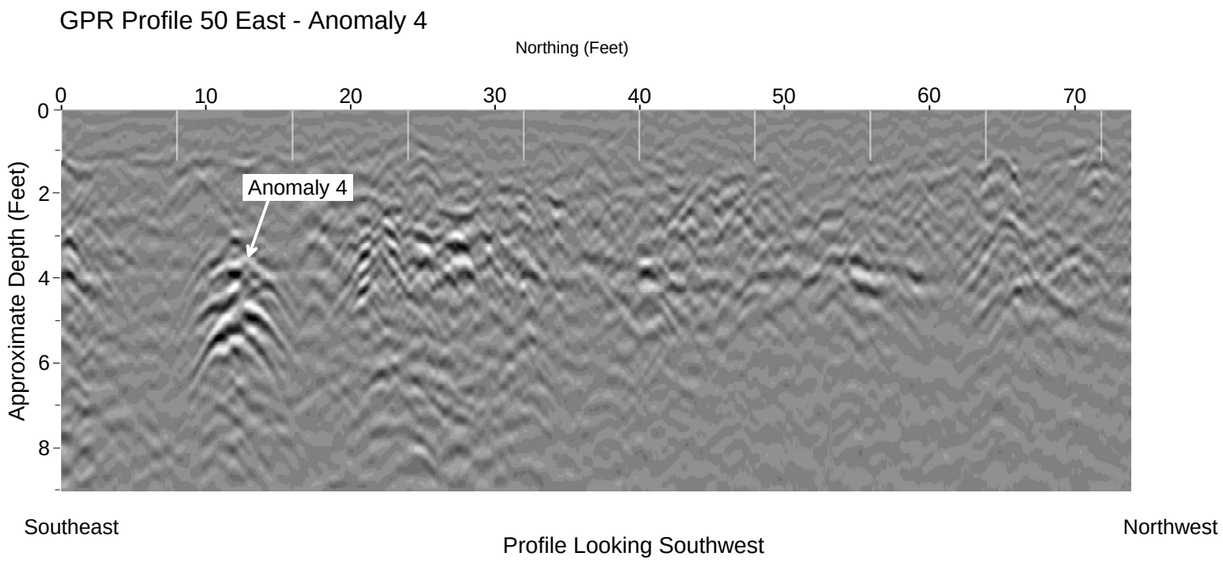


FIGURE 6

PAVED STORAGE AREAS, NUSC DISPOSAL AREA, MIDDLETOWN, RI

ANOMALY 4 - GPR PROFILE 50 EAST



APPENDIX C.5

BUILDING 185 INSPECTION REPORT (TtNUS, JUNE 2008)

Date: Wednesday
July 16, 2008

TETRA TECH

INSPECTION REPORT

July 16, 2008

BUILDING 185 COMPLEX
SITE 08, DISPOSAL AREA SITE REMEDIAL INVESTIGATION
NAVSTA, RHODE ISLAND
CONTRACT NO.: N62467-04-D-0055 CTO 402

Report by: Michael Alroy
Distribution: Project File 112G00933
D. Seiken (TTNUS)

WEATHER

Weather Conditions: Sun
Temperatures: Low 62 High 87 deg F

TtNUS PERSONNEL AND EQUIPMENT

Name	Activity	Equipment	Hours/Comments
M. Alroy	Field Operations Leader/Inspection	Level D PPE	0700-1800

SUBCONTRACT PERSONNEL AND EQUIPMENT

Global Remediation, Inc (GRI)

Name	Activity	Equipment	Hours/Comments
M. Scully	Geophysical & EM Survey	Level D PPE	0730-1800

FIELD ACTIVITIES

Tetra Tech NUS, Inc. (TTNUS) conducted health and safety briefings. Topics included physical hazards, chemical hazards, slips trips and falls, pinch points and heat stress.

Northeast Geophysical began performing ground penetrating radar and electromagnetic surveys in the paved storage areas and areas adjacent to the Building 185 Complex.

Tetra Tech initiated inspection within and around the Building 185 complex to identify source areas and identify the discharge areas. Mr. Tom Cook of Naval Station Newport arranged for Tetra Tech to gain access to the Building 185 Complex and enclosures and accompanied Tetra Tech during the initial site walk.

Building 185 Complex Enclosures – Area 1

Prior to inspection within the Area 1 enclosure Tetra Tech observed decommissioned discharge pipes on the ground surface in the grass area to the south of the Area 1 enclosure. Upon closer inspection Tetra

Tech observed two (2) visible penetrations on the southern side of the Area 1 enclosure's secondary containment. Based upon historical information and the alignment and proximity of the decommissioned discharge pipes to the secondary containment penetrations it is assumed the discharge pipes were once attached to the secondary containment at the penetrations and allowed for drainage of Area 1 to discharge to the adjacent wetland area.

Based upon dimensions illustrated in Figure 3-1 of the work plan Area 1 is approximately 1700 square feet. Area 1 is enclosed by a chain link fence and has a secondary containment type foundation that is approximately two feet in height. In addition the secondary containment divides the enclosure into two separate containment areas with a containment wall that runs north to south from each of the exterior walls. The interior wall creates an eastern containment area that is approximately 850 square feet and a western containment area that is approximately 850 square feet. Based upon discussions with Tom Cook a recent renovation of the enclosure replaced the prior roof and its support structure that was oriented east to west along the center of the enclosure. The locations of the prior support structure are visible in asphalt patches in the floor of the enclosure. The renovated roof structure covers the entire footprint of the enclosure and appeared to be intact upon time of the inspection. Asphalt ramps at the east and west entrances in and out of the enclosure appear to be used to move stored materials in and out of the area. Presently the Area 1 enclosure is being used to store full and empty drums of Otto Fuel and other chemicals. No floor drains were observed during the inspection. No evidence of staining was observed on its floor during the inspection.

Building 185 Complex Enclosures – Area 2

Area No. 2 is basically the same structure as Area No. 1 except it is uncovered. Based upon dimensions illustrated in Figure 3-1 of the work plan Area 2 is approximately 1700 square feet. Area 2 is enclosed by a chain link fence and has a secondary containment type foundation that is approximately two feet in height. In addition the secondary containment divides the enclosure into two separate containment areas with a containment wall that runs north to south from each of the exterior walls. The interior wall creates an eastern containment area that is approximately 850 square feet and a western containment area that is approximately 850 square feet. The roof support structure of Area 2 appears to be of similar design to the prior roof and support structure that had been renovated at Area 2. The locations of the roof support structure run east to west across the center of the enclosure. The roof support structure of Area 2 only covers approximately one quarter of the total area of the enclosure. It appears that Area No. 2 may have been covered but the roof has been removed in the past. Currently there is no preventative measure to prevent storm water from collecting within the secondary containment of the enclosure. Presently the Area 2 enclosure is being used to store miscellaneous torpedo components, cases and debris. A decommissioned grout filled secondary containment pipe penetration was observed in the North West corner of the eastern containment area. No surface drain pipes were located adjacent to the Area 2 enclosure however ground penetrating radar and electromagnetic surveys identified an anomaly that appears to be a drain pipe that runs parallel to the northern secondary containment wall from Area 2 west across the paved storage area towards Deerfield Creek. No floor drains were observed during the inspection. No containers containing oil or hazardous material were observed within the enclosure and no evidence of staining was observed on its floor during the inspection.

Building 185 Complex Enclosures – Area 3

Based upon dimensions illustrated in Figure 3-1 of the work plan Area 3 is approximately 870 square feet. Area 3 is enclosed by a chain link fence and has a secondary containment type foundation that is approximately two feet in height. The roof structure covers the entire footprint of the enclosure and appeared to be intact upon time of the inspection. An asphalt ramp at the west entrance in and out of the enclosure appears to be used to move stored materials in and out of the area. Presently the Area 3 enclosure is being used to store wooden barricades, metal stanchions and palettes of pre-packed sand bags labeled for flood control. No floor drains or secondary containment drain pipe penetrations were observed during the inspection. No containers containing oil or hazardous material were observed within the enclosure and no evidence of staining was observed on its floor during the inspection.

Building 185 Complex Enclosures – Area 4

Based upon dimensions illustrated in Figure 3-1 of the work plan Area 4 is approximately 720 square feet. Area 4 is enclosed by a chain link fence and has a secondary containment type foundation that is approximately two feet in height. The roof structure covers the entire footprint of the enclosure and appeared to have been damaged in several locations at the time of the inspection allowing storm water to flow into the enclosure. An asphalt ramp at the west entrance in and out of the enclosure appears to be used to move stored materials in and out of the area. Presently the Area 4 enclosure is being used to store miscellaneous torpedo components, cases and debris. In the center of the enclosure a metal floor drain approximately 12 inches in diameter was observed. Upon further inspection the floor drain bottom was observed to be approximately 8 inches below the existing grade of the floor of the enclosure with diameter of approximately 6 inches. Hand excavation from the bottom of the drain with the purpose of collecting a soil sample revealed a coarse gravel sub-grade with trace fine grained particles. Based upon this observation no sample was taken at the time of inspection. No piping was observed below grade draining the enclosure beneath the floor drain. It appears the floor drain served as a dry well. No secondary containment drain pipe penetrations were observed. No containers containing oil or hazardous material were observed within the enclosure and no evidence of staining was observed on its floor during the inspection

ATTACHMENTS:
Attachment 1 – Building 185 Complex July 16, 2008 Inspection Photographs
Attachment 2 – Building 185 Complex July 16, 2008 Inspection Sketch

ATTACHMENT 1
PHOTOGRAPHS
JULY 16, 2008 INSPECTION
BUILDING 185 COMPLEX
SITE 08, NUSC DISPOSAL AREA REMEDIAL INVESTIGATION
NAVSTA NEWPORT, RHODE ISLAND

BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

Near: Building 185 Complex-Area 1 Enclosure facing west

Far: Building 185 Complex-Area 1 Enclosure former drain pipe currently disconnected facing south west

BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

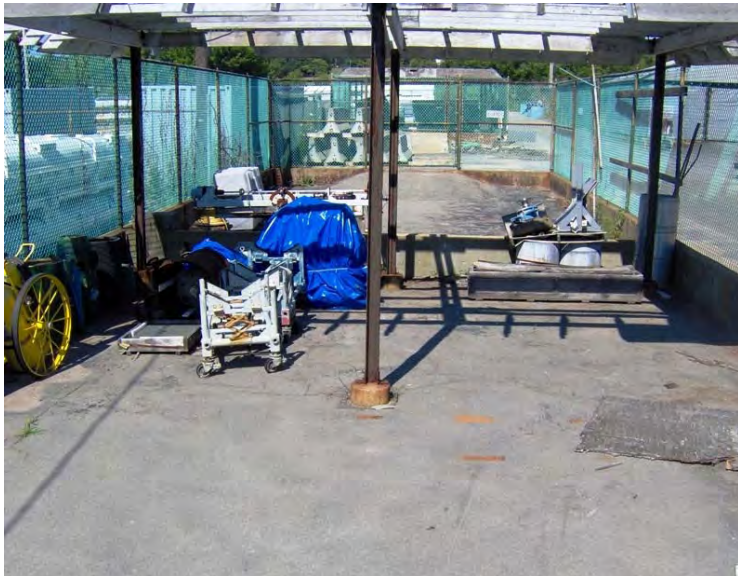
Near: Building 185 Complex-Area 1 Enclosure decommissioned drain pipes discharge into wetlands facing south west

Far: Building 185 Complex-Area 1 Enclosure decommissioned drain pipes discharge into wetlands facing south west

BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

Near: Building 185 Complex-
Area 2 Enclosure facing west

Far: Building 185 Complex-
Area 2 Enclosure facing east



BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

Near: Building 185 Complex-Area 2 Enclosure facing north west in the direction of the grout filled drain pipe penetration in the secondary containment

Far: Building 185 Complex-Area 2 Enclosure showing the grout filled drain pipe penetration in the secondary containment facing north west

BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

Near: Building 185 Complex-
Area 3 Enclosure facing east

Far: Building 185 Complex-
Area 3 Enclosure facing east

BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

Near: Building 185 Complex-Area 4 Enclosure facing east

Far: Building 185 Complex-Area 4 Enclosure facing north west

BUILDING 185 COMPLEX INSPECTION JULY 16, 2008
SITE 08, NUSC DISPOSAL AREA

Near: Building 185 Complex-Area 4 Enclosure showing the floor drain and hand excavated coarse gravel

Far: Building 185 Complex-Area 4 floor drain

7/16/08

CLEAR 80's

TTNUS ONSITE: M. Hray

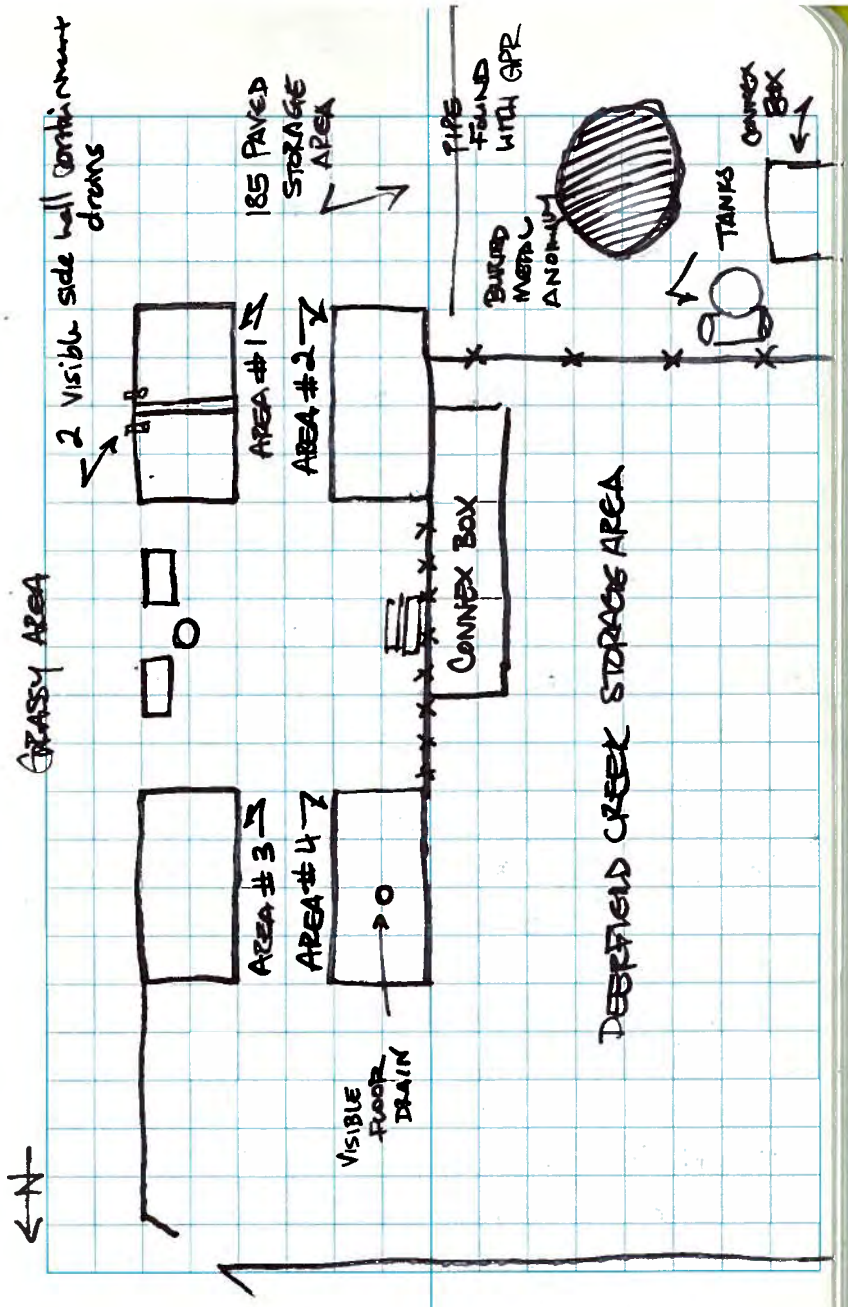
7:30 - M. Scully (Northeast Geophysical) arrived onsite to perform geophysical survey

8:30 - surveyors arrived onsite to continue survey

- TTNUS performed daily safety tailgate meeting. Topics included:

1. Physical Hazards
2. Chemical Hazards
3. Heat Stress
4. Biological Hazards

- TTNUS spoke with Joyce (NAVY) to coordinate moving containers in the afternoon from the south ~~west~~ side of BLDG 185 paved storage area to the northside upon completing GPR & EM survey in area cleared on 7/15/08



APPENDIX C.6

PAVED OPEN STORAGE AREA DATA REVIEW (TtNUS, MARCH 2009)

Site 08 - NUSC Disposal Area
Middletown, Rhode Island
Remedial Investigation
Geophysical Investigation Anomaly Investigation
Paved Open Storage Area Data Review
March 11, 2009

Analytical results for NUSC Disposal Area Site Remedial Investigation (RI) groundwater and soil sampling locations in and around the paved open storage area at the Site were reviewed to determine whether four geophysical anomalies could represent buried items that are sources of contaminants to the subsurface.

Background

The surface geophysical survey was performed as part of the RI to locate buried metallic objects at the Site; both an electromagnetic (EM) survey and ground penetrating radar (GPR) survey were used to accomplish this objective. Anomalies identified as suspect drums by the surface geophysical survey are being investigated in accordance with the Site 08 – NUSC Disposal Area RI Work Plan Section 3.2.1.2 - Geophysical Investigation:

> "Anomalies identified as suspect drums will be checked through test pit excavation in the unpaved areas. In paved areas, anomalies identified as suspect drums may also be checked through test pit excavation, though permanent structures will not be undermined or damaged for this purpose."

The paved area of the Site is used for materials storage by NUWC. The western paved section is partially fenced and open to access on the southern edge, near the Building 185 Complex. The eastern section is gated to restrict access to the stored materials. The storage areas are used for the temporary storage of large equipment such as steel buoys, empty torpedo casings, cable reels, molds, jigs, and other large miscellaneous equipment.

An initial surface geophysical survey was performed on much of the unpaved portions of the Site in 2007. A second surface geophysical survey for paved areas of the Site was performed in July 2008. Results of the metal detection surveys are shown on Figure 1.

Approximately half of the paved gated area was accessible for the geophysical survey. The remaining areas were not accessible due to items in storage that could not be readily moved by Navy using forklifts. No anomalies were observed in the surveyed portion of the paved gated storage area.

Most of the paved open storage area was accessible for the GPR and EM survey. An area located in the southeastern portion of the open paved area was not accessible due to the presence of one large storage container and one round tank. Geophysical survey results for the paved open area include the detection of three anomalies by EM shown on Figure 1 as Anomalies 1, 2 and 3. One additional linear anomaly (Anomaly 4) was identified using GPR. A description of the anomalies as presented in the geophysical survey report by Northeast Geophysical Services for the paved storage areas is repeated below:

> “Anomaly 1 is located in the southern end of the open storage area and is the strongest of the three anomalies found. It is an area of strong to very strong metal response that is about 15 to 18 feet wide. GPR profiles over this anomaly suggest several rounded objects, possibly drums, buried in the range of 2 to 6 feet deep. Anomalies 2 and 3 occur in the northern end of the open storage area. Anomaly 2 is a relatively small linear area of moderate metal response. The GPR profiles over Anomaly 2 indicate one or two narrow objects buried 1.5 to 2.5 feet deep. Anomaly 3 is an irregular-shaped area of weak to strong metal response that encompasses most of the northwest corner of the survey grid.

This anomaly appears to be contiguous with a much larger area of weak to strong metal response that was detected during the first round of surveying. The GPR profiles over this anomaly indicate that it is caused by multiple objects in the range of 1.5 to 2 feet deep. Anomaly 4 is a nonmetallic pipe-like feature that is buried about 4 feet deep at the southern end of the open storage area."

Groundwater Sampling Analytical Data Review

Groundwater sample analytical data was reviewed for spatial trends indicating a source in the paved open storage area. Due to the very thin overburden thicknesses at the Site, groundwater occurs beneath the Site primarily in bedrock. Groundwater flow beneath the Site is generally in a northwesterly direction. The review focused mainly on groundwater analytical results for the following bedrock monitoring wells, which are shown on Figure 2:

MW-108B and MW-107B	upgradient of the anomalies in the paved gated storage area
MW125B and MW-126B	upgradient of the anomalies in the Building 185 Complex Area.
MW-02B	open paved storage area immediately adjacent to Anomaly 1
MW-102B, MW-103B and MW-104B	immediately downgradient of the anomalies in the paved open storage area
MW-105B and MW-04B	further downgradient

Analytical data for other Site monitoring wells were also considered in this evaluation. Metals results from downgradient well MW-103S are not considered representative of dissolved metals migrating with groundwater because the turbidity of the sample collected was greater than 1,100 NTUs.

Analytical results for groundwater samples collected form the above monitoring wells were screened by comparison against the Oak Ridge National Laboratory Regional Screening Level for Tap Water (ORNLTW), which are the screening levels being used for the RI for this site. The review indicates that concentrations above screening levels were detected for the metals cobalt, arsenic, and manganese; and for the chlorinated VOCs 1,1-dichloroethane (1,1-DCA), vinyl chloride, and trichloroethene (TCE).

Cobalt, as shown on Figure 3, was detected in MW-02B, located in the open paved storage area immediately adjacent to Anomaly 1, at 15.6 µg/L, slightly above the screening level (11 µg/L). Cobalt was not detected above the screening level upgradient of the paved open storage area. Because the cobalt concentration is only marginally above the screening level and a similar cobalt concentration was detected in an upgradient well located on the west side of NUWC Pond (MW-120B), it is unlikely that there is a source of cobalt associated with the anomalies.

The concentrations of arsenic in monitoring wells shown on Figure 4 upgradient, within, and downgradient of the anomalies exceed the screening level (0.045 µg/L). The second highest concentration of arsenic at the Site is located at MW-02B (17.2 µg/L), however, arsenic in groundwater is common at the Site and is often naturally occurring. The data does not strongly indicate that the source of arsenic in groundwater is associated with the adjacent anomaly.

Manganese concentrations, as shown on Figure 5, in monitoring wells upgradient, within and downgradient of the anomalies are elevated above the screening level (880 µg/L). The concentration of manganese in MW-02B is the highest detected at the Site (8370 µg/L), whereas the concentration of manganese in upgradient wells (MW-107B and MW-106B) are not above the screening level. Manganese concentrations across the site, including South Meadow and North Meadow monitoring wells and at MW-120B, are also above the screening level, which suggests that the source of manganese is not exclusively associated with the anomalies in the paved open storage area.

The VOCs 1,1-DCA, vinyl chloride, and TCE have been detected around the paved open storage area. As shown on Figure 6, 1,1-DCA was detected above the screening level (2.4 µg/L) in MW-104B (130 µg/L), MW105B (100 µg/L) and MW-04B (23 µg/L), all located downgradient of the

anomalies. Immediately upgradient of the anomalies and within the paved gated storage area 1,1-DCA was not detected. Noting the elevated 1-1-DCA concentrations at MW-100B (310 µg/L) and 103B (805 µg/L,), it is more likely that the source of this VOC is the far upgradient Building 179 UST Site, where high 1,1-DCA concentrations are observed at MW-7A (380 µg/L) and MW-7B (1,000 µg/L).

TCE (Figure 7) and vinyl chloride (Figure 8) are detected in wells around the paved open storage area and the anomalies. Both of these VOCs are detected in monitoring wells located upgradient and downgradient of the paved open storage area, although concentrations increase slightly from upgradient to downgradient. TCE was detected above the screening level (1.7 µg/L) in downgradient wells MW0102B (11 µg/L), MW103B (6 µg/L) and MW104B (7 µg/L). Vinyl chloride was detected above the screening level (0.016 µg/L) in downgradient wells MW-104B (1J µg/L) and MW-105B (0.6J µg/L). The TCE and vinyl chloride distribution suggests that a possible source exists either in the paved gated storage area and/ or in the paved open storage area. It is possible that the anomalies contain a source of TCE, vinyl chloride and/or 1,1-DCA. However, based upon the relatively low concentrations of these compounds, if a source exists it is not a significant source.

Soil Sampling Analytical Data Review

Total petroleum hydrocarbons (TPH) was detected in soil sporadically across the Site and in places it was detected above the screening criterion. In the paved open storage area TPH was detected above screening criterion in one subsurface sample. The subsurface soil sample collected from 6 to 8 feet in SB-112, located adjacent to Anomaly 2, contained 1180 mg/Kg of TPH. The Rhode Island Department of Environmental Management (RIDEM) direct contact soil objective for TPH is 500 mg/Kg, which is being used for soil screening in the RI.

Conclusions and Recommendations

Groundwater data suggests that there may be a low-level source of VOCs in the paved open storage area, or upgradient of the site. However, groundwater concentrations of the VOCs are quite low and a distinct plume is not apparent. Groundwater metals (notably arsenic and manganese) are also detected in and around the anomalies but these compounds are fairly ubiquitous throughout the Site and are less likely to be attributable to a release.

The review of the soils data from the paved open storage area does not suggest that there are significant sources of VOCs or metals in the paved open storage area. Although one soil sample adjacent to an anomaly contained elevated TPH, constituents of TPH have not been detected in groundwater in this area or downgradient. PAHs and limited PCBs are detected in soil collected from around the anomalies, but similarly they are not detected in groundwater, suggesting that they are immobile.

In conclusion, a review of the available data indicates that a significant release of contamination has not occurred at any of the four anomaly locations identified in the geophysical survey of the paved open storage area at the NUSC Disposal Area. Therefore, excavation of these anomaly locations is not warranted.

FIGURES

ACAD: \00816\0410\NUSC_EM_CLOSE_UP 02/16/09 DWM

LEGEND

MW–02B MONITORING WELL LOCATION
SB153 DPT SOIL BORING LOCATION
SB140 HAND AUGER SOIL BORING LOCATION
TEST PITS (2008)
SB–02 SOIL BORING LOCATION
TEST PITS (FROM SASE)
ANOMALY AREA
OUTLINE OF SURVEY AREA

N

EXPLANATION

EM-61 Metal Detector Readings
Differential Metallic Response in Millivolts

- -12000 to -25
- -25 to 50
- 50 to 100
- 100 to 200
- 200 to 400
- 400 to 12000

MW–114B TP12B TP09 TP10 SB134 SB–10 MW–113B TP08 MW–111B SB147 SB145 LL C TP100 TP101 MW–112S MW–112B SB128 TP06 SB–09 SB124 SB123 TP102 SB127 SB130 SB129 TP02 SB125 MW–122B SB148 TP07 MW–01B SB131 TP03 SB126 SB121 TP05 TP01 MW–110B SB132 SB149 MW–04B TP104 SB122 MW–123 SOUTH MEADOW SB133 TP105 MW–105B SB–06 MW–104B TP15A MW–109B PAVED GATED STORAGE AREA TP15 SB115 SB118 TP106 SB111 PAVED OPEN STORAGE AREA MW–108B SB–0 SB110 SB120 SB–04 MW–107B SB146 TP107 SB112 SB–05 SB–03 MW–106S OUTFALL D MW–103S SB–02 MW–106B ASPHALT ROAD ANOMALY 3 MW–103B SB117 SB116 SB–08 SB119 SB150 MW–126B C-281 TP108 SB113 MW–02B SB109 MW–102B SB104 SB100 SB151 ANOMALY 2 SB102B SB105 SB102 MW–125B TP14 SB107 SB114 SB108 SB106 SB101 ANOMALY 1 BLDG 180 MW–100B MW–124B SB152 SB103 MW–101B MW–12 MW–13A MW–9A MW–13B MW–9B ANOMALY 4 LINEAR GPR REFLECTOR

INTERMITTENT STREAM (DRAINAGE DITCH)

CUNNINGHAM ST.

DEER CREEK

GRAVEL

GRAPHIC SCALE
0′ 60′ 120′

TETRA TECH NUS, INC.

DRAFT
PAVED STORAGE AREA
GEOPHYSICAL ANOMALIES
NUSC DISPOSAL AREA
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
\..\NUSC_EM_CLOSE_UP.DWG	AS NOTED
FIGURE NUMBER 1	REV 0 DATE 02/16/09

ACAD: \00816\0410\NUSC_EM_CLOSE_UP 02/13/09 DWM

LEGEND

MW-02B MONITORING WELL LOCATION

SB153 DPT SOIL BORING LOCATION

SB140 HAND AUGER SOIL BORING LOCATION

TEST PITS (2008)

SB-02 SOIL BORING LOCATION

TEST PITS (FROM SASE)

ANOMALY AREA

GROUNDWATER FLOW DIRECTION

N

MW-114B TP12B TP09 TP10 SB-10 SB134 MW-113B TP08 MW-111B SB147 TP100 TP101 SB145 LL C MW-112S SB128 TP06 SB-09 SB124 MW-112B SB123 TP102 SB127 SB130 SB129 TP02 MW-122B SB148 TP07 SB125 SB126 MW-01B SB131 TP01 TP103 SB121 TP05 MW-110B SB132 SB149 MW-04B TP104 SB122 SOUTH MEADOW MW-123 SB133 MW-105B TP105 SB-06 MW-104B TP15A MW-109B PAVED GATED STORAGE AREA TP15 SB115 TP106 SB111 MW-108B SB118 SB-01 PAVED OPEN STORAGE AREA SB110 SB120 SB-04 SB146 SB112 SB-05 MW-107B SB-03 MW-106S OUTFALL D TP107 SB-02 MW-106B ASPHALT ROAD MW-103S ANOMALY 3 MW-103B SB117 SB116 SB-08 SB119 SB150 MW-126B C-281 SB113 TP108 MW-02B SB109 MW-102B SB100 SB151 SB104 SB102B SB105 SB102 MW-125B TP14 SB107 SB114 SB108 SB106 SB101 ANOMALY 2 ANOMALY 1 BLDG 180 MW-100B MW-124B SB152 SB103 MW-101B MW-12 MW-13A MW-9A MW-13B MW-9B ANOMALY 4 LINEAR GPR REFLECTOR

INTERMITTENT STREAM (DRAINAGE DITCH)

CUNNINGHAM ST.

DEERFIELD CREEK

GRAVEL

GRAPHIC SCALE

0' 60' 120'

TETRA TECH NUS, INC.

DRAFT
PAVED STORAGE AREA
GROUNDWATER SAMPLING LOCATIONS
NUSC DISPOSAL AREA
MIDDLETOWN, RHODE ISLAND

FILE	SCALE
\..\NUSC_GW_SAMP_LOCS.DWG	AS NOTED
FIGURE NUMBER 2	REV 0 / DATE 02/16/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_COBALT.MXD 2/17/09 SP

N

CONCRETE DAM

MW119B 0.98 J

MW118B 1.2 UJ

MW120B 12.9 J

W.E. 25.2
NUWC POND (DEERFIELD POND)

MW117B 6.5 J

MW116B 6.7 J

BLDG. 1310 (Survey Plan: 1257)

NORTH MEADOW

UNNAMED STREAM

WANUMETONOMY GOLF COURSE

MW03B 0.31 UJ

MW115B 2.9 UJ

MW114B 1.8 UJ

MW112S 3.7 J

MW113B 1.3 UJ

MW111B 0.67 UJ

MW112B 1.25 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW04B 1.1 UJ

MW110B 1.7 UJ

MW122 1.15 UJ

MW123 0.38 UJ

SOUTH MEADOW

MW109B 1.1 UJ

PAVED GATED STORAGE AREA

MW105B 1.9 UJ

CUNNINGHAM ST.

MW104B 1.7 UJ

PAVED OPEN STORAGE AREA

MW108B 0.925 UJ

MW107B 0.66 UJ

MW106S 7.7 J

DEERFIELD CREEK

MW103S 637

MW02B 15.6 J

MW106B 3.6 J

MW103B 2.4 UJ

MW102B 4.1 J

BLDG 185 COMPLEX

BLDG 180

MW101B 4.05 J

ABANDONED OUTFALL (2-1/4 INCH)

MW09B 0.24 U

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 127

CONCRETE UNDERGROUND STORAGE TANK

BLDG 1303

MW07A 14.5 J

DEERFIELD CREEK

MW07B 1.7 UJ

PROPANE TANKS

BLDG 179

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Cobalt is 11 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Cobalt (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DRAFT

COBALT IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

NEWPORT, RHODE ISLAND

FILE	SCALE
NUSC_GW_COBALT.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 3	0 / 2/17/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_ARSENIC.MXD 2/17/09 SP

N

CONCRETE DAM

MW119B 12.4 U

MW118B 1.69 U

MW120B 6.6 UJ

W.E. 25.2
NUWC POND (DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

MW117B 9.2

MW116B 17.8

NORTH MEADOW

WANUMETONOMY GOLF COURSE

UNNAMED STREAM

MW03B 1.69 U

MW115B 15.3

MW114B 1.69 U

MW112S 2.7 J

MW113B 7.4 J

MW111B 1.69 U

INTERMITTENT STREAM (DRAINAGE DITCH)

MW112B 2.2 J

MW122 1.69 U

MW04B 2.5 J

MW110B 2.3 J

MW123 1.69 U

SOUTH MEADOW

MW109B 9.1

PAVED GATED STORAGE AREA

MW105B 3.9 J

CUNNINGHAM ST.

MW104B 1.69 U

PAVED OPEN STORAGE AREA

MW108B 4.3 J

MW107B 6.4 J

MW106S 7.7 J

MW106B 8 J

MW103S 503 J

MW02B 17.2

MW103B 1.69 U

MW102B 1.69 U

BLDG 185 COMPLEX

BLDG 180

MW101B 2.45 J

ABANDONED OUTFALL (2-1/4 INCH)

MW09B 1.69 U

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

PREVIOUS INTERCEPTOR TANK LOCATION

DEERFIELD CREEK

BLDG 127

CONCRETE UNDERGROUND STORAGE TANK

BLDG 1303

MW07A 5.8 J

MW07B 34.4

PROPANE TANKS

BLDG 179

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Arsenic is 0.045 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Arsenic (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DRAFT

ARSENIC IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

NEWPORT, RHODE ISLAND

FILE	SCALE
NUSC_GW_ARSENIC.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 4	0 / 2/17/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD\NUSC_GW_MANGANESE.MXD 2/17/09 SP

N

CONCRETE DAM

MW119B 454

MW118B 496

MW120B 1620

W.E. 25.2
NUWC POND
(DEERFIELD POND)

BLDG. 1310 (Survey Plan: 1257)

MW117B 914

MW116B 1140

NORTH MEADOW

UNNAMED STREAM

WANUMETONOMY GOLF COURSE

MW03B 56

MW115B 711

MW114B 723

MW113B 1100

MW111B 56.6

MW112S 501

MW112B 1300

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 0.972 J

MW04B 1210

MW110B 2700

MW123 904

SOUTH MEADOW

MW109B 1700

PAVED GATED STORAGE AREA

MW105B 2550

MW104B 1750

PAVED OPEN STORAGE AREA

MW108B 1470

MW107B 351

MW106S 535

CUNNINGHAM ST.

DEERFIELD CREEK

MW103S 13800

MW02B 8370

MW106B 448

MW103B 2010

MW102B 3050

BLDG 185 COMPLEX

BLDG 180

MW101B 248

ABANDONED OUTFALL (2-1/4 INCH)

MW09B 547

BLDG 178

BLDG 1302

BLDG 1192

BLDG 438

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 127

CONCRETE UNDERGROUND STORAGE TANK

BLDG 1303

MW07A 5280

DEERFIELD CREEK

MW07B 1200

PROPANE TANKS

BLDG 179

BLDG 1256

PNTS

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Manganese is 880 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Manganese (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DRAFT

MANGANESE IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

NEWPORT, RHODE ISLAND

FILE	SCALE
NUSC_GW_MANGANESE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 5	0 / 2/17/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_1-1DICHLOROETHANE.MXD 2/17/09 SP

N

CONCRETE DAM

MW119B 1 U

DW12 2

DW13 1

DW11 1

DW14 0.8 J

MW118B 1 U

MW120B 1 U

W.E. 25.2

NUWC POND (DEERFIELD POND)

DW01 3

DW03 0.8 J

DW05 1

DW02 2

DW04 1

MW116B 1 U

DW06 2

BLDG. 1310 (Survey Plan: 1257)

DW07 1

NORTH MEADOW

UNNAMED STREAM

WANUMETONOMY GOLF COURSE

MW03B 2

MW115B 0.8 J

MW117B 0.4 J

DW08 0.6 J

MW113B 1 UJ

DW10 3

MW114B 1 J

MW111B 1 U

DW09 1 U

MW112S 1 UJ

MW112B 1 J

INTERMITTENT STREAM (DRAINAGE DITCH)

MW122 0.4 J

MW04B 23

MW110B 0.7 J

MW123 1 U

SOUTH MEADOW

MW109B 1 U

PAVED GATED STORAGE AREA

MW105B 100

CUNNINGHAM ST.

MW104B 130

PAVED OPEN STORAGE AREA

MW108B 1 U

MW107B 1 U

MW106S 1 U

DEERFIELD CREEK

MW126B 1 U

MW103S 1 U

MW02B 1 U

MW103B 19

MW106B 1 U

MW102B 2

MW100B 310

BLDG 1302

BLDG 1303

MW125B 0.5 J

ABANDONED OUTFALL (2-1/4 INCH)

MW101B 805

MW09B 47

MW13A 1 U

BLDG 178

MW124B 18

BLDG 1192

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 438

CONCRETE UNDERGROUND STORAGE TANK

BLDG 127

MW07A 380

MW07B 1000

PROPANE TANKS

BLDG 179

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for 1,1-Dichloroethane is 2.4 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

1,1-Dichloroethane (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DRAFT

1,1-DICHLOROETHANE IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

NEWPORT, RHODE ISLAND

FILE	SCALE
NUSC_GW_ 1-1DICHLOROETHANE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 6	REV: 0 / DATE: 2/17/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_TRICHLOROETHENE.MXD 2/17/09 SP

N

CONCRETE DAM

MW119B 1 U

DW13 140

DW12 190

DW14 26 J

MW118B 18

DW11 140

W.E. 25.2

NUWC POND (DEERFIELD POND)

DW01 350

MW120B 1 U

DW03 99

MW116B 1 U

DW02 220

DW04 200

DW06 160

MW117B 730

BLDG. 1310 (Survey Plan: 1257)

DW05 300

NORTH MEADOW

UNNAMED STREAM

WANUMETONOMY GOLF COURSE

MW03B 190

MW115B 1 U

DW07 13

DW08 1 U

MW113B 1 UJ

DW10 3

MW114B 1 U

DW09 1 U

MW111B 1 U

MW112S 1 UJ

INTERMITTENT STREAM (DRAINAGE DITCH)

MW123 0.9 J

MW122 1 U

MW112B 1 UJ

MW110B 3 J

SOUTH MEADOW

MW109B 2

PAVED GATED STORAGE AREA

MW105B 2

CUNNINGHAM ST.

MW104B 7

PAVED OPEN STORAGE AREA

MW108B 2

MW107B 1 U

MW106S 1 U

MW103S 1 U

MW02B 1 U

MW126B 1 U

MW106B 1 U

MW103B 6

MW102B 11

BLDG 178

MW100B 50 U

MW125B 4

ABANDONED OUTFALL (2-1/4 INCH)

MW101B 5

MW124B 16

MW13A 0.40 J

MW09B 0.5 J

BLDG 1302

BLDG 1192

BLDG 438

PREVIOUS INTERCEPTOR TANK LOCATION

DEERFIELD CREEK

BLDG 127

CONCRETE UNDERGROUND STORAGE TANK

MW07A 0.9 J

BLDG 1303

MW07B 4 J

PROPANE TANKS

BLDG 179

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Trichloroethene is 1.7 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Trichloroethene (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DRAFT

TRICHLOROETHENE IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

NEWPORT, RHODE ISLAND

FILE	SCALE
NUSC_GW_TRICHLOROETHENE.MXD	AS NOTED
FIGURE NUMBER: FIGURE NO. 7	REV: 0 — DATE: 2/17/09

P:\GIS\NEWPORT_NS\MAPDOCS\MXD NUSC_GW_VINYL_CHLORIDE.MXD 2/17/09 SP

N

CONCRETE DAM

MW119B 2 J

DW13 2 U

DW14 2 U

DW12 2 U

MW118B 2 U

DW11 2 U

DW01 2 U

W.E. 25.2

NUWC POND (DEERFIELD POND)

MW120B 2 U

DW03 2 U

DW02 2 U

DW04 2 U

DW06 2 U

MW117B 2 U

MW116B 2 U

BLDG. 1310 (Survey Plan: 1257)

DW05 2 U

NORTH MEADOW

UNNAMED STREAM

WANUMETONOMY GOLF COURSE

MW03B 2 U

MW115B 2 U

DW07 2 U

DW08 2 J

DW09 2 U

DW10 2 U

MW114B 2 U

MW113B 2 UJ

MW111B 2 U

INTERMITTENT STREAM (DRAINAGE DITCH)

MW112S 2 UJ

MW04B 2 U

MW122 2 U

MW112B 2 UJ

MW123 2 U

SOUTH MEADOW

MW110B 2 UJ

MW109B 0.6 J

PAVED GATED STORAGE AREA

CUNNINGHAM ST.

MW105B 0.6 J

MW104B 1 J

PAVED OPEN STORAGE AREA

MW108B 0.4 J

MW107B 2 U

MW106S 2 U

MW103S 2 U

MW126B 2 U

MW02B 2 U

DEERFIELD CREEK

MW102B 0.4 J

MW103B 2 U

MW106B 2 U

BLDG 1302

MW100B 100 U

BLDG 1310 COMPLEX

MW125B 0.3 J

MW101B 6

ABANDONED OUTFALL (2-1/4 INCH)

MW09B 2 U

MW13A 2 U

BLDG 178

MW124B 19

BLDG 1192

PREVIOUS INTERCEPTOR TANK LOCATION

BLDG 438

CONCRETE UNDERGROUND STORAGE TANK

BLDG 127

MW07A 2 U

BLDG 1303

DEERFIELD CREEK

PROPANE TANKS

BLDG 179

MW07B 0.8 J

PNTS

BLDG 1256

TANK

BLDG 1301

BLDG 1180

125 62.5 0 125 Feet

Notes:
1) The screening criterion (Oak Ridge National Laboratory Regional Screening Level for Tap Water) for Vinyl Chloride is 0.016 µg/L.
2) U indicates the compound was not detected at the associated detection limit.
3) J indicates the result is estimated.

Legend

Vinyl Chloride (µg/L)

Result Is This Many Times Screening Criterion

- Not Detected
- 0.001 - 1
- 1.001 - 10
- 10.001 - 50
- 50.001 - 100
- 100.001 - 1000
- >1000

Tetra Tech NUS, Inc.

DRAFT

VINYL CHLORIDE IN GROUNDWATER

REMEDIAL INVESTIGATION

NUSC NEWPORT

NEWPORT, RHODE ISLAND

FILE	SCALE
NUSC_GW_VINYL_CHLORIDE.MXD	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE NO. 8	0 / 2/17/09

APPENDIX C.7

BUILDING 185 SUMMARY (TtNUS, NOVEMBER 2009)

Building 185 Summary
Site 08, NUSC Disposal Area
Remedial Investigation
NAVSTA Newport, Rhode Island
November 2009

This summarizes Building 185 Complex information pertinent to the on-going Remedial Investigation (RI) of Site 08, NUSC Disposal Area, located at the Naval Undersea Warfare Center (NUWC), NAVSTA Newport, Rhode Island. The summary is based on the results of a recent records search of NUWC files and updates information provided in the Draft Final RI report.

A. Background

Building 185 consist of four 1-story structures (Area Nos. 1 through 4) with concrete containment berms with chain-link fence surrounds. Three of the areas feature covers supported by structural steel columns and beams. Building 185, constructed in 1952, is a hazardous materials and general storage unit that is managed and operated in accordance with NAVSTA Newport's Hazardous Materials Control and Management Plan (NAVSTA Newport, January 2004) Building 185 was constructed to store torpedo fuels, including early generation NAVOL (high-concentration hydrogen peroxide), Otto Fuel, alcohols, and lubricating oils. NAVOL is no longer stored at the location. Building 185 was also reportedly used in the late 1980s as a less than 90-day accumulation area for drummed hazardous wastes that consisted primarily of Otto Fuel contaminated solids (including rags, Tyvec protective suits, and cleaning absorbents) (NUWC Newport 2009a).

Otto Fuel II is a highly flammable, distinct-smelling, reddish-orange, oily liquid used as a fuel for torpedo and other weapons systems. Otto Fuel II's chemical makeup is such that it can burn freely in an oxygen-free environment. It is a mixture of mostly three synthetic substances, propylene glycol dinitrate (PGDN) (76 percent), dibutyl sebacate (22.5 percent), and 2-nitrodiphenylamine (1.5 percent).

Table 1 provides a Building 185 timeline compiled from various sources including its Navy property record, five historical construction drawings dated from 1964 to 2003, and eight historical aerial photographs dated from 1939 to 2003. The drawings and the photographs are provided as Attachments 1 and 2, respectively, each with a summary table. The following summarizes Building 185's history based on these sources.

Building 185 or the Otto Fuel Dispenser Area (its facility name) was built in 1952 according to its Navy property record. The 1951 aerial photograph is consistent with the property record as no evidence of Building 185 Complex present in this image. No original Building 185 construction drawings were located, however based on the 1962 aerial photograph it is assumed that Area Nos. 1, 2 and 3 were built as uncovered curbed containment areas. The 1962 image shows Area No. 4 is partially covered (north

half), however the cover may have been added after 1952. The 1972 construction drawing presents an "Existing Plan", which may represent the original construction with the exception of covers added in 1964 and 1971 modifications discussed below.

The drawings indicate the Building 185 structures were modified at least three times as discussed below.

1. 1964 Drawing 64-58 provides a design for an Area No. 1 partial wood canopy supported by columns placed on concrete footings installed through the existing asphalt floor surface. The drawing shows an existing single drain through Area No. 1 southeast wall at low point.

2. 1971 Drawing 71-61 provides a design for an Area No. 2 partial wood canopy supported by columns placed on concrete footings installed through the existing asphalt floor surface, a concrete dividing wall and one 2-inch galvanized drain pipe with gate valve through northwest wall. The drawing shows an existing single 2-inch drain through the Area No. 2 northwest wall at low point.

3. 1972 Drawing 72-83 provides a design for modification of Area No. 1 including extension of the existing wood canopy, new concrete dividing wall, and installation of two 2-inch galvanized drain pipes with gate valves through southeast wall (new drains necessary because dividing wall at location of existing drain); modification of Area No. 3 including new wood canopy, and bituminous concrete floor; and modification of Area No. 4 including existing canopy removal, new wood canopy and bituminous concrete floor. The drawing shows existing two 2-inch galvanized drain pipes with gate valves through the Area No. 2 southeast wall, not the northwest wall as indicated in drawing 71-61. For Area Nos. 3 and 4 no existing or proposed drain is indicated.

The 1991 Drawing 91-44 provides for Area No. 1 containment wall repairs and shows existing 2-inch drains through Area No. 1 southeast wall at low point. The 2003 Drawing 03-70A provides a design for Area No. 1 roof system replacement. Area No. 1 drains are not shown on the 2003 drawing.

B. Current Building 185 Description

This description of Building 185 and its usage (that follows) is based on the drawings, a July 2008 inspection and additional information provided by NUWC representatives by email, telephone conversation and interviews. A description each area's drainage system is provided in a separate section below.

Overall the Building 185 Complex covers an area 163 feet long by 73 feet wide and consists of four structures referred to as Area Nos. 1 through 4 for the purposes of the RI (see Figure No. 1). Each

structure has a paved floor area surrounded by a concrete containment berm approximately 1 to 2 feet in height and enclosed with chain-link fencing. Area Nos. 3 and 4 are fully covered, while Area No. 1 has a partial (three fourths) cover and Area No. 2 is not covered. Area Nos. 1 and 2 have the same overall dimensions of approximately 81 feet long by 31 feet wide, while Areas Nos. 3 and 4 have the same overall dimensions of approximately 31 feet long by 26 feet wide. Area Nos. 1 and 2 are constructed with same general floor configuration, sloping from both ends to the center where a concrete cross wall separates the structure into two containment areas.

Uncovered Area No. 2 has the same area and similar floor configuration as Area No. 1.

Smaller Area Nos. 3 and 4 are about the same size and have flat floors. Area No. 3 is equipped with a hip roof, and Area No. 4 has a flat roof.

Between the Area Nos. 1 and 3, are two steel lockers or sheds referred to as Shed No. 1, labeled “Otto Fuel” and Shed 2 labeled “Flammable”.

C. Current Building 185 Usage

The Category Code Numbers (CCNs) listed in the Building 185 property record are 441-30, Hazardous and Flammables Storehouse and 441-35, General Storage Shed. 441-35. Currently, only Area No. 1 is used for storage of Otto Fuel II and flammable materials, such mineral spirits and lube oils. Table 2 provides a list of materials authorized for storage in Area No. 1 and an inventory of those materials stored since calendar year 2000 as of September 2009 (NUWC Newport, 2009c).

Area 3 is currently used to store wood, sand bags, wooden traffic barricades and wood but not hazardous materials and was used to store Otto Fuel storage and other liquid hazardous material in the past. Areas 2 and 4 presently contain small amounts of miscellaneous parts, and have not had any recorded hazardous materials inventory in the current data that goes back to 2000.

Locker Shed No. 1 (“Otto Fuel”) locker was previously used to store Otto Fuel and Otto Fuel substitute. It is currently empty, its use discontinued due to a corroded bottom. It is scheduled to be scrapped. Locker Shed No. 2 (“Flammable”) is in sound condition and currently in use. It is scheduled for painting and continued use. Table 2 provides a list of materials authorized for storage in Locker Shed Nos. 1 and 2 along and an inventory of those materials stored since calendar year 2000 as of September 2009 (NUWC Newport, 2009c).

D. Drainage Piping

Available information regarding the drain piping for Area Nos. 1 through 4 is provided below.

Area No. 1 appears to have originally equipped with a single pipe drain through the southeast wall (1964 Drawing 64-58). In an early 1970s modification two 2-inch drain pipes with gate valves were added (1972 Drawing 72-82). This appears to be the current configuration in which two 2-inch drain pipes extend through the southeastern wall of each containment area and are capped on the exterior side. A third pipe extending from the wall below the two drains pipes is believed the original drain pipe shown in 1964 Drawing 64-58, that is assumed to be no longer operable. According to the NUWC representative, the drains were not connected to the remnant drain piping present between the structure and Deerfield Creek as previously assumed.

Area No. 2 appears to have originally equipped with a single pipe drain with a second drain pipe added later through the northwest wall (1971 Drawing 71-61). However, the 1972 Drawing 72-82 incorrectly shows the two drainage pipes extending through the southeast wall. No pipes protruding from the exterior walls are currently visible. A small circular patch in the containment area northwestern concrete wall observed during the 2008 inspection, indicating that a pipe drain system similar to one described for Area. No. 1 above may have been in place but removed at some point.

No information regarding the existence of a drain in Area No. 3 was discovered. A drawing providing for modifications (new roof and floor) was found (1972 Drawing 72-83); however, no indication of an existing or proposed drain appears on this drawing.

No information is available regarding the Area No. 4 floor drain observed during the 2008 inspection. As is the case with Area No. 3, the drawing providing for modifications (1972 Drawing 72-83) does not indicate an existing or proposed drain in Area No. 4. The Navy's research indicates that the Area No. 4 drain is a blind drain (drains to compacted gravel under pavement). No additional information regarding this drain was found.

E. Storm Water Management and Spill Procedure

Building 185 storm water management and spill response procedures are discussed below.

Storm Water Management Procedures

Based on the observed patched areas in the concrete wall of Area 1 and Area 2 the former drains for these two areas have been sealed. According to a NUWC representative, storm water accumulation in Area No. 1 containment area has not been a problem as most of the structure is covered. Storm water is managed in accordance with the NAVSTA Newport Storm Water Pollution Prevention Plan.

Spill Procedures, Notification Requirements

It is Navy policy to report all oil and hazardous substance discharges of any quantity including spills to the pavement. The NUWC Environmental Management and Pollution Prevention Program maintains a spill log for the entire NUWC facility. Spill response procedures and notification requirements for NUWC operational facilities are managed in accordance with the NUWC Division Hazardous Waste Contingency Plan.

F. Evidence of Spill/Release

This section presents information related to spill or releases at Area Nos. 1 through 4, including a review of NUWC records, the 2004 response to the Area No. 1 historical Otto Fuel release, and RI soil sample results for the Building 185 area.

NUWC Spill Logs

A review of the NUWC spill report log index for the period 2001 through October 2009 indicates that no leaks or spills occurred in Area Nos. 1 through 4 (NUWC Newport, 2009c). In addition, except for the historical release discovered in 2004 at Area No. 1 (discussed below), NUWC representatives whose work histories date back to 1987 are not aware of any releases from Area Nos. 1 through 4 to the environment (NUWC Newport, 2009a).

Area No. 1 Historical Otto Fuel Release

This section provides available information regarding the only known historical release from Building 185. It was discovered in soils underlying Area No. 1 during the June 2004 roof replacement project (see Drawing 2003 Drawing 03-70A). While existing interior columns and concrete footings were being removed for the roof replacement the odor of Otto Fuel was detected in the soil underlying the southwest section of Area No. 1. The Navy responded to the discovery by removing soil (2,630 pounds) and concrete (1,450 pounds) suspected of Otto Fuel II contamination for off-site disposal as hazardous waste. The extent of contaminated soil and concrete removal was based on visual and olfactory evidence. Otto Fuel II is a distinct-smelling, reddish-orange, oily liquid. Soils containing Otto Fuel II would be bright yellow in color. No post-excavation soil samples to confirm removal of contaminated soil were collected. Five composite samples of the removed soil were tested for PGDN, the major component of Otto Fuel. One of the five soil samples was contaminated with PGDN (310 mg/kg), verifying that a release of Otto Fuel at the structure had occurred. (NUWC Newport, 2004; NUWC Newport, 2008; NUWC Newport, 2009a; and NUWC Newport, 2009b). The excavation was backfilled with clean soil and covered with pavement. RIDEM was notified of the test results and the soil and concrete removal and disposal by the NAVSTA Newport environmental department (NAVSTA Newport, 2004).

The actual date of the Otto Fuel II release and the circumstances that caused it are unknown. Copies NUWC spill log indexes dating back to 2001 do not list an Area No. 1 Otto Fuel II release for the years 2001 through 2004. In addition, a NUWC representative whose Building 185 work experience dates back to 1994 is not aware of any leak or spill in Area No. 1 (NUWC Newport, 2009c). Therefore, it is likely the release occurred prior to 1994. A location survey of the area excavated to remove of the Otto Fuel II contaminated soil and concrete has not been found.

A data gap for the RI soil investigation is the extent of residual subsurface Otto Fuel contamination in soil resulting from a historical release in Area No. 1. Subsurface soil sampling to investigate the historical release of Otto fuel from Area No. 1 will be conducted in the upcoming supplemental investigation.

Building 185 Area RI Soil Sample Evaluation

The NUSC Disposal Area RI 2008 field investigation surface and subsurface soil sample analytical results and associated field data and observations for the Building 185, Area Nos. 1 through 4, were reviewed to evaluate possible evidence of previous chemical releases to the ground in this area. Data from the following nine soil sample locations in the Building 185 vicinity were reviewed:

Building 185 Soil Samples

Location	Unexposed (Paved) Surface Soil Interval (feet bgs)	Exposed (Grass Covered) Surface Soil Interval (feet bgs)	Unexposed (Paved) Subsurface Soil Interval (feet bgs)
SB100	0 to 2	--	2 to 4
SB101	0 to 2	--	6 to 8
SB102	0 to 2	--	3 to 5
SB117	0 to 2	--	8 to 10
SB150	0 to 2	--	2 to 4
SB151	0 to 2	--	4 to 6
B100B	0 to 2	--	6 to 8
B124B(1)	--	1 to 3	--
B125B	1 to 3	--	3 to 4

Source: TtNUS, 2009 Draft NUSC Disposal Area Remedial Investigation Report
bgs below ground surface
-- not applicable
(1) top of bedrock 2.7 feet below ground surface

With the exception of B124B, all these locations occur under pavement. Soil boring locations are shown on the attached Figure 2. A summary of analytical results are presented on the attached tables:

Table 3: Unexposed Surface Soils

Table 4: Exposed Surface Soils

Table 5: Unexposed Subsurface Soils

At these locations a total of nine surface soil samples (from depths up to 3 feet) and eight subsurface soil samples (between 2 to 10 feet) were shipped for laboratory analysis. These samples were selected for analysis out of a total of 36 soil samples collected from these borings, based on observations including elevated PID readings or visual or olfactory evidence of possible contamination. Bedrock in the area is shallow, occurring at less than 6.5 feet below ground surface at six of the nine locations.

Chemical analyses for soil samples included volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), metals, gasoline range organics (GRO) and extractable total petroleum hydrocarbon (ETPH). Results were compared to Oak Ridge National Laboratory Regional Screening Levels (ORNL) direct contact residential (DCR) and RIDEM Direct Exposure Criteria (DEC). The only criteria exceedances were for polycyclic aromatic hydrocarbon (PAH) compounds (up to a maximum of seven in one sample, with benzo(a)pyrene being the most frequently exceeded) and metals (up to a maximum of four in one sample, including arsenic, beryllium, cobalt and manganese).

Other than the common laboratory contaminants, acetone and 2-butanone, only trace concentrations of several VOCs, usually benzene compounds, were detected in two surface soil samples and in three subsurface soil samples. Two samples were observed to have a petroleum odor and several had somewhat elevated PID readings. Low concentrations of ETPH were detected in all nine surface soil samples and in six of eight subsurface soil samples, ranging from 23 to 2,200 parts per million (ppm). GRO was detected in only one sample at a trace concentration of 0.13 ppm. The RIDEM Industrial/Commercial DEC for total petroleum hydrocarbon (TPH), which includes both GRO and ETPH, is 2,500 ppm and was not exceeded in any sample. The maximum ETPH concentrations in both surface and subsurface soil sample categories were reported at SB100, from 0 to 2 feet and from 2 to 4 feet. The deepest soil sample with ETPH present was from SB117, from 8 to 10 feet. There are no associated ORNLSL DCRs or RIDEM DEC for ETPH.

Based on the RI data evaluated, there is not evidence of a significant release of chemical contaminants to soils in the Building 185 Complex area.

G. General Reference List

NUWC representatives providing information for Building 185 Summary:

Title	Timeframe of Building 185's operations knowledge
Pollution Prevention Manager	1994 to 2009
Facilities Planner	1994 to 2009
Hazardous Waste Program Manager	

NAVSTA Newport, January 2004. Hazardous Material Control and Management Plan. Naval Station Newport, Newport, Rhode Island. January.

NAVSTA Newport, November 12, 2004. Email regarding Otto Fuel at BLDG 185 NUWC. From Cornelia Mueller to Paul Kulpa, RIDEM.

NUWC Newport, June 28, 2004. Email regarding Structure 185. From Ritchie Machado to Cornelia Mueller, NAVSTA Newport.

NUWC Newport, July 29, 2008. Email regarding Otto fuel samples. From Brian Sullivan to Thomas Cook, NUWC Newport.

NUWC Newport, 2009a. Email regarding NUSC Site Plan. From Guy Borges to Cornelia Mueller, NAVSTA Newport. February 23.

NUWC Newport, 2009b. Email regarding NUSC Site Plan. From Guy Borges to Dabra Seiken, Tetra Tech NUS, Inc. March 3.

NUWC Newport, 2009c. Email regarding Site 8 IR. From Thomas Cook to Cornelia Mueller, NAVSTA Newport. September 2.

Parsons, 2009. Facility Condition Assessment Report.

Tetra Tech NUS (TtNUS). 2009. Draft Remedial Investigation Report. NUSC Disposal Area. NAVSTA Newport, Rhode Island. March.

E. Conclusion/Recommendation (Perhaps with input from Susan)

Within Building 185, Area No. 1 has been the facility mostly used for storage of Otto Fuel II and flammable materials. While Area No. 3 has reportedly been used for Otto Fuel storage and other liquid hazardous material in the past, its main function has been to store to store non-hazardous materials. Areas 2 and 4 are used to store parts.

A historical Otto Fuel release to the underlying soil occurred in Area No. 1; the Navy has agreed to investigate Area No. 1 subsurface soil as a part of the upcoming supplemental investigation. No other reports of spill/releases from Areas No. 1 through 4 have been documented in the NUWC spill logs that date back to 2001 or by NUWC representatives whose work histories date back to 1987.

During the RI field investigation soil sampling was performed to investigate possible releases from the Areas 1 through 4. Results for soil samples from borings advanced downgradient of and adjacent to these areas also do not indicate that a release has occurred.

Additionally, Building 185 is currently operational and the hazardous materials stored in this facility are managed under NAVSTA Newport's Hazardous Materials Control and Management Plan. EPA has asserted that "the fact that these areas are still operational does not impact the Navy's responsibility to address past releases under CERCLA and the FFA." The Navy fully intends to carry out its responsibilities under CERCLA and the FFA. However, the parties to the FFA agreed at paragraph 5.31 that "[w]ith respect to those releases and threatened releases at the Site, the Navy will take Response Actions within the meaning of CERCLA and pursuant to Executive Order 12580 *and DERP, 10 U.S.C. 2701 et seq." (emphasis added)*.

Under the Defense Environmental Restoration Program (the "DERP") and its implementing regulations, spills and contamination associated with current operations are not considered DERP-eligible and should not be included in the cleanup being done pursuant to the FFA. Any contamination, if found at these areas, should be addressed when use of these areas shuts down and they are no longer operational. DERP affects this question in two important ways – (1) only DERP may fund a cleanup done pursuant to the FFA, but (2) DERP may not fund cleanups associated with current operations (i.e., operations that may require cleanup activities if or when those operations are shut down). We therefore must address cleanup issues associated with ongoing operations outside this agreement, as they fall outside the purview of DERP, which controls the funding of this cleanup. This position is consistent with how Navy has handled comparable "ongoing operations" issues at other sites subject to FFAs, without objection from EPA.

Therefore, based on the facilities hazardous substance release history, current usage, associated management plans, and sampling results, the Navy does not agree that sampling of the subsurface soil underlying the currently operational Area Nos. 2, 3 and 4 structures is warranted.

Table 1
Timeline
Building 185 Summary
Site 08, NUSC Disposal Area
Remedial Investigation
NAVSTA Newport, Rhode Island

Reference	Description	Comments
1939 Aerial Photograph	The present area if the NUSC Disposal Area Site area appears undeveloped with no evidence of Building 185 Complex present	
1951 Aerial Photograph	Structures and roadways, which are part of the Naval Underwater Ordinance Station, occupy the area west and southwest of the NUSC Disposal Area, no evidence of Building 185 Complex present.	
1952 – Building 185 Navy Property Record	Gives the Building 185 facility built date as 1952 and lists its facility name as the Otto Fuel Dispenser Area.	
1962 Aerial Photograph	Area Nos. 1, 2 and 3 appear as uncovered curbed areas. Area No. 4 is partially covered (north half)	
1964 Drawing 64-58 – Otto Fuel Shelter at Storage Area 185 General Plan and Details.	Design for Area No. 1 partial wood canopy supported by twelve steel columns placed on concrete footings installed through existing asphalt floor surface.	Shows existing single drain through Area No. 1 southeast wall at low point.
1971 Drawing 71-61 – HET-3 Fuel Storage Shelter Structure 185	Design for Area No. 2 partial wood canopy supported by six steel columns placed on concrete footings installed through existing asphalt floor surface, concrete dividing wall and one 2-inch galvanized drain pipe with gate valve through northwest wall .	Shows existing single 2-inch drain through Area No. 2 northwest wall at low point.
1972 Aerial Photograph	A partial roof has been installed at Area No. 1	

Reference	Description	Comments
1972 Drawing 72-83 – Fuel Storage Facility Repairs Structure 185	Design for modification of Area No. 1 including extension of the existing wood canopy, new concrete dividing wall, and installation of two 2-inch galvanized drain pipes with gate valves through southeast wall (new drains necessary because dividing wall at location of existing drain); modification of Area No. 3 including new wood canopy, and bituminous concrete floor; and modification of Area No. 4 including existing canopy removal, new wood canopy and bituminous concrete floor.	Shows existing two 2-inch galvanized drain pipes with gate valves through Area No. 2: southeast wall not northwest wall as indicated in drawing 71-61. For Area No. 3 no existing or proposed drain is indicated. For Area No. 4 no existing or proposed drain is indicated.
1981 Aerial Photograph	The Area No 1 partial cover has been extended and a partial cover has been added to Area No. 2. Area Nos. 3 and 4 have been fully covered.	
1988 Aerial Photograph	No changes in Building 185 Complex evident	
1991 Drawing 91-44 – Repair Concrete Wall Structure #185 Area 1 & 2	Provides for Area No. 1 containment wall repairs.	Shows two existing 2-inch drains through Area No. 1 southeast wall at low point.
1992 Aerial Photograph	The area northeast of Building 185 Complex continues in use as a storage area, with the west side (now the Paved Ungated Storage Area) paved.	
2003 Drawing 03-70A, Replacement to Structure 185 Roof System Demolition.	Design for Area No. 1 roof system replacement. Area No. 1 drains are not shown	
2003 Aerial Photograph	The entire storage area northwest of Building 185 Complex is now paved and in use as a storage area. Obects thought to be the steel lockers labeled "flammable" and "Otto Fuel" between Area Nos. 1 and 3 are present.	

Table 2
September 2009 Inventory of Materials Authorized for Storage
Building 185 Summary
Site 08, NUSC Disposal Area
Remedial Investigation
NAVSTA Newport, Rhode Island

Product Name	Quantity	Container Type
Area No. 1		
Otto Fuel II	50	500-pound drum
Thinner, Paint Type I - regular mineral spirits	0	55-gallon drum
Shell Turbine Fuel JP-8	0	5-gallon drum
Odorless Mineral Spirits	0	55-gallon drum
Rotella Multigrade 10W-30	2	55-gallon drum
MS-SW Mineral Spirits	0	55-gallon drum
Mineral Spirits 66 1% AROM	4	55-gallon drum
Locker Shed No. 1 (“Otto Fuel”)		
Otto Fuel II	0	500-pound drum
Fuel substitute WS 16975	0	5-gallon container
Vacuum Pump, Type 2 - MIL-L-83767B, 1000250	0	1-quart plastic container
Otto Fuel Substitute WS 16975	0	5-gallon plastic container
Otto Fuel Substitute WS 16975	0	5-gallon container
Locker Shed No. 2 (“Flammable”)		
Methanol	0	5-gallon can
Tectyl 966	1	55-gallon drum
Tectyl 250-2A-10	0	55-gallon drum
Fuel substitute WS 16975	0	5-gallon container
XL-740HT diester	0	5-gallon can
Thinner, Paint Type I - regular mineral spirits	0	55-gallon drum
Alcohol, Denatured	2	405-pound drum
Sierra Antifreeze Coolant	0	55-gallon drum
F300 Bulk, 249	1	55-gallon drum
MOBIL VACTRA OIL No. 3	0	5-gallon can
Mobilgear 630	0	38-pound can
Mineral Spirits Paint Thinner, Odorless	0	55-gallon drum
Beta Picoline	0	7-gallon can
Jet Fuel Grade JP-5	0	5-gallon can
Odorless Mineral Spirits	0	55-gallon drum
Otto Fuel Substitute WS 16975	9	5-gallon plastic container
Otto Fuel Substitute WS 16975	0	5-gallon container

Source: NUWC Environmental Management and Pollution Prevention Program
Notes: Inventory of authorized material lists for these areas. Lists reflect inventory tracking, i.e. types of material that may have been stored since 2000.

DRAFT

TABLE 3

SUMMARY OF ANALYTICAL RESULTS: BUILDING 185 AREA UNEXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 1 OF 2

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0002-AVG	DA-SS-B125B-0103-072108-AVG	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002	DA-SB117-0002	DA-SB150-0002	DA-SB151-0002
	LOCATION ID			DA-MW100B	DA-MW125B	DA-SB100	DA-SB101	DA-SB102	DA-SB117	DA-SB150	DA-SB151
	TOP DEPTH			0	1	0	0	0	0	0	0
	BOTTOM DEPTH			2	3	2	2	2	2	2	2
	SAMPLE DATE			03/20/08	07/21/08	03/03/08	03/03/08	03/03/08	03/04/08	03/05/08	03/04/08
	SAMPLE CODE			AVG	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 U	5 U	8 J	6 UJ	7 UJ	6 UJ	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		5 U	5 U	5 J	6 UJ	7 UJ	6 UJ	5 U	5 U
	2-BUTANONE	28000000	10000000	25 U	14.2 J	17 J	9 J	36 U	30 UJ	7 J	25 U
	ACETONE	61000000	7800000	12.2 J	51 J	400 J	70	1600 UJ	27 J	610	53
	BTEX			5.6 U	5.6 UJ	5.8 UJ	6.6 U	13 J	6.8 UJ	5.6 U	5.6 U
	CARBON DISULFIDE	670000		5 U	5 U	5 UJ	6 U	7 U	6 UJ	2 J	5 U
	CHLOROFORM	300	1200	5 U	5 U	5 UJ	6 U	7 U	6 UJ	5 U	5 U
	ETHYLBENZENE	5700	71000	5 U	5 U	5 UJ	6 U	2 J	6 UJ	5 U	5 U
	M+P-XYLENES	4500000		10 U	10 U	11 UJ	11 U	9 J	12 UJ	10 U	10 U
	O-XYLENE	5300000		5 U	5 UJ	5 UJ	6 U	2 J	6 UJ	5 U	5 U
	SEC-BUTYLBENZENE			5 U	1.75 J	5 UJ	6 UJ	7 UJ	6 UJ	5 U	5 U
	TERT-BUTYLBENZENE			5 U	5 U	5 UJ	6 UJ	7 UJ	6 UJ	5 U	5 U
	TETRACHLOROETHENE	570	12000	5 U	5 U	5 UJ	6 U	7 U	6 UJ	5 U	5 U
	TOTAL CHLORINATED ETHENES			6.2 U	6.2 U	6.5 UJ	7.2 U	9 U	7.5 UJ	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			6.6 UJ	6.6 U	6.8 UJ	7.7 UJ	9.4 UJ	7.9 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	7.5 U	7.5 UJ	8 UJ	8.5 U	11 J	9 UJ	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	5 U	5 U	5 UJ	6 U	7 U	6 UJ	5 U	5 U
SEMIVOLATILES (UG/KG)	2-METHYLNAPHTHALENE	310000	123000	7 J	23.5 U	21 J	12 J	11 J	22 U	22 U	22 U
	ACENAPHTHENE	3400000	43000	2.65 J	23.5 U	100 J	16 J	10 J	22 U	2.7 J	1.8 J
	ACENAPHTHYLENE	3400000	23000	21 U	23.5 U	22 U	22 U	38	22 U	22 U	22 U
	ANTHRACENE	17000000	35000	21 U	6.65 J	200	18 J	48	22 U	5.6 J	3.1 J
	BENZO(A)ANTHRACENE	150	900	73.5 J	9.95 J	1100	76 J	470	16 J	37	33
	BENZO(A)PYRENE	15	400	68.5 J	9.35 J	960	81 J	500	26	33	38
	BENZO(B)FLUORANTHENE	150	900	132 J	23.5 U	1300	120 J	460	31	41	45
	BENZO(G,H,I)PERYLENE	1700000	800	31.5 J	7.75 J	480	44 J	160	10 J	11 J	22 J
	BENZO(K)FLUORANTHENE	1500	900	34.5 J	23.5 UJ	1200	50 J	550	12 J	20 J	21 J
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	345 U	385 U	360 U	360 U	380 U	360 U	360 U	370 U
	CARBAZOLE			345 U	385 U	300 J	360 UJ	380 UJ	360 U	360 U	370 U
	CHRYSENE	15000	400	40	6.05 J	1300	87 J	500	21 J	35	33
	DIBENZO(A,H)ANTHRACENE	15	400	16.2 J	23.5 UJ	140 J	26 J	110 J	22 U	10 J	22 UJ
	DIBENZOFURAN			345 U	385 U	360 U	360 U	380 U	360 U	360 U	370 U
	FLUORANTHENE	2300000	20000	90.5	8.45 J	2500	180 J	750	18 J	66	61
	FLUORENE	2300000	28000	6.25 J	23.5 U	61 J	11 J	10 J	22 U	22 U	22 U
	HIGH MOLECULAR WEIGHT PAHS			595.7 J	56.2 J	13010 J	869 J	4650 J	172 J	328 J	335 J
	INDENO(1,2,3-CD)PYRENE	150	900	36.5 J	8.25 J	530	55 J	240 J	16 J	20 J	30 J
	LOW MOLECULAR WEIGHT PAHS			53.9 J	11.25 J	2894 J	191 J	332.3 J	9.7 J	47.3 J	38.9 J
	NAPHTHALENE	3900	54000	21 U	23.5 U	12 J	14 J	5.3 J	22 U	22 U	22 U
	PHENANTHRENE	1700000	40000	38 J	4.6 J	2500	120 J	210	9.7 J	39	34
	PYRENE	1700000	13000	72.5	6.4 J	3500	150 J	910	22 J	55	52
	TOTAL PAHS			649.6 J	67.45 J	15904 J	1060 J	4982.3 J	181.7 J	375.3 J	373.9 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		3.45 U	NA	3.6 U	3.6 U	3.8 U	3.6 U	2.7 J	3.7 U
	4,4'-DDE	1400		3.45 U	NA	3.6 U	3.6 U	1.7 J	3.6 U	1.2 J	3.7 U
	4,4'-DDT	1700		3.45 UJ	NA	3 J	3.6 UJ	3.1 J	3.6 UJ	3.6 UJ	3.7 UJ
	AROCLOR-1248	220	10000	18 U	NA	19 U	18 U	20 U	19 U	19 U	19 U
	AROCLOR-1260	220	10000	18 U	NA	19 UJ	18 UJ	20 UJ	19 UJ	19 U	19 UJ
	AROCLOR-1268	220	10000	18 U	NA	19 U	18 U	20 U	19 U	19 U	19 U
	ENDOSULFAN II	370000		3.45 U	NA	2.6 J	3.6 U	0.98 J	3.6 U	3.6 UJ	3.7 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 3

SUMMARY OF ANALYTICAL RESULTS: BUILDING 185 AREA UNEXPOSED SURFACE SOILS
REMEDIAL INVESTIGATION
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 2 OF 2

	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0002-AVG	DA-SS-B125B-0103-072108-AVG	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002	DA-SB117-0002	DA-SB150-0002	DA-SB151-0002
	LOCATION ID			DA-MW100B	DA-MW125B	DA-SB100	DA-SB101	DA-SB102	DA-SB117	DA-SB150	DA-SB151
	TOP DEPTH			0	1	0	0	0	0	0	0
	BOTTOM DEPTH			2	3	2	2	2	2	2	2
	SAMPLE DATE			03/20/08	07/21/08	03/03/08	03/03/08	03/03/08	03/04/08	03/05/08	03/04/08
	SAMPLE CODE			AVG	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
	TOTAL AROCLOR	220	10000	18 U	NA	19 UJ	18 UJ	20 UJ	19 UJ	19 U	19 UJ
	TOTAL DDD/DDE/DDT			3.4 UJ	NA	3 J	3.6 UJ	4.8 J	3.6 UJ	3.9 J	3.7 UJ
METALS (MG/KG)	ALUMINUM	77000		17000	NA	11900	11600	14100	10400	10300	12900
	ARSENIC	0.39	7	3.7 J	NA	11 J	14.2 J	16 J	23.1 J	32.7	17.6 J
	BARIUM	15000	5500	13.3	NA	36.5	28.8	25.6	25.4	17.6	24.4
	BERYLLIUM	160	0.4	0.23 J	NA	0.44	0.45	0.43 J	0.43 J	0.28 J	0.31 J
	CADMIUM	70	39	0.01 U	NA	0.16 J	0.01 UJ	0.14 J	0.01 UJ	0.01 UJ	0.01 UJ
	CALCIUM			2040 J	NA	1560	1350	953	940	925 J	636
	CHROMIUM	230	390	23.3 J	NA	20.1	15.5	18.8	13.5	13.8	16.8
	COBALT	23		13.6	NA	11.9	12.5	28	14.2	14.6	12.5
	COPPER	3100	3100	16.8	NA	21	19.6	18.7	19.4	21	17.8
	IRON	55000		34800	NA	23300	24000	27700	31200	35000	28200
	LEAD	400	150	15.4	NA	31.2	22.7	28.5	8.5	9.6	9.5
	MAGNESIUM			5580 J	NA	4660	3960	3940	3450	4050	3660
	MANGANESE	1800	390	530	NA	361	325	555	646	373	368
	MERCURY	23	23	0.01 U	NA	0.04	0.05	0.03 J	0.01 U	0.01 UJ	0.02 J
	MOLYBDENUM	390		0.168 J	NA	0.43 J	0.53 J	1.2 J	0.33 J	0.18 J	0.49 J
	NICKEL	1600	1000	24.6	NA	23.4	23.3	30.6	24	27	23.5
	POTASSIUM			546 J	NA	1100	847	460	785	1190	689
	SELENIUM	390	390	0.61 U	NA	0.62 UJ	0.64 J	0.66 UJ	0.6 UJ	0.61 U	0.53 UJ
	SILVER	390	200	0.22 J	NA	0.11 UJ	0.11 UJ	0.12 UJ	0.11 UJ	0.18 J	0.1 UJ
	SODIUM			138 J	NA	307	169	63.8 UJ	54.6 UJ	39.4 J	71.3 UJ
	THALLIUM	5.1	5.5	0.02 UJ	NA	0.04 UJ	0.05 UJ	0.04 UJ	0.03 UJ	0.07 UJ	0.04 UJ
	VANADIUM	390	550	26	NA	24	19.5	24.3	21.2	18	20.8
	ZINC	23000	6000	60.1	NA	56.5	54.4	94.7	58.9	66.8	54.6
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			96	NA	90	92	86	91	91	88
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			2.7 U	2.75 U	3.2 U	130	3.3 U	3.3 U	2.8 U	3.0 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			175000 J	112000	2200000	270000	250000	200000	71000 J	250000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 4

DRAFT

SUMMARY OF ANALYTICAL RESULTS: EXPOSED SURFACE SOILS
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, MIDDLETOWN, RHODE ISLAND
PAGE 1 OF 1

	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-SS-B124B-0103-072108
	LOCATION ID			DA-MW124B
	TOP DEPTH			1
	BOTTOM DEPTH			3
	SAMPLE DATE			07/21/08
	SAMPLE CODE			NORMAL
FRACTION (UNITS)	PARAMETER			EXPOSED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		5 UJ
	1,3,5-TRIMETHYLBENZENE	47000		5 U
	2-BUTANONE	28000000	10000000	25 U
	4-ISOPROPYLTOLUENE			5 U
	ACETONE	61000000	7800000	27
	BENZENE	1100	2500	5 U
	BTEX			5.6 UJ
	M+P-XYLENES	4500000		10 UJ
	METHYLENE CHLORIDE	11000	45000	25 U
	N-BUTYLBENZENE			5 U
	N-PROPYLBENZENE			2 J
	O-XYLENE	5300000		5 UJ
	SEC-BUTYLBENZENE			6 J
	TOLUENE	5000000	190000	5 UJ
	TOTAL CHLORINATED ETHENES			6.2 UJ
	TOTAL CHLORINATED VOCS			6.6 UJ
	TOTAL XYLENES	600000	110000	7.5 UJ
	TRICHLOROETHENE	2800	13000	5 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		380 U
	2-METHYLNAPHTHALENE	310000	123000	3.9 J
	3,3'-DICHLOROBENZIDINE	1100	1400	380 UJ
	ACENAPHTHENE	3400000	43000	4.7 J
	ACENAPHTHYLENE	3400000	23000	23 U
	ANTHRACENE	17000000	35000	7.2 J
	BENZO(A)ANTHRACENE	150	900	52 J
	BENZO(A)PYRENE	15	400	53 J
	BENZO(B)FLUORANTHENE	150	900	65
	BENZO(G,H,I)PERYLENE	1700000	800	38
	BENZO(K)FLUORANTHENE	1500	900	40 J
	BENZOIC ACID	240000000		940 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	380 U
	BUTYL BENZYL PHTHALATE	260000		380 U
	CARBAZOLE			380 U
	CHRYSENE	15000	400	63 J
	DIBENZO(A,H)ANTHRACENE	15	400	16 J
	DIBENZOFURAN			380 U
	FLUORANTHENE	2300000	20000	120 J
	FLUORENE	2300000	28000	23 U
	HIGH MOLECULAR WEIGHT PAHS			595 J
	INDENO(1,2,3-CD)PYRENE	150	900	48
	LOW MOLECULAR WEIGHT PAHS			82.3 J
	NAPHTHALENE	3900	54000	4.5 J
	N-NITROSODIPHENYLAMINE	99000		380 U
	PHENANTHRENE	1700000	40000	62 J
	PYRENE	1700000	13000	100 J
	TOTAL PAHS			677.3 J
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			3.5 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			130000 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 5

SUMMARY OF ANALYTICAL RESULTS: BUILDING 185 AREA UNEXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 1 OF 2

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0608	DA-SS-B125B-0304-072108	DA-SB100-0204	DA-SB101-0608-AVG	DA-SB102-0305	DA-SB117-0810	DA-SB150-0204	DA-SB151-0406-AVG
	LOCATION ID			DA-MW100B	DA-MW125B	DA-SB100	DA-SB101	DA-SB102	DA-SB117	DA-SB150	DA-SB151
	TOP DEPTH			6	3	2	6	3	8	2	4
	BOTTOM DEPTH			8	4	4	8	5	10	4	6
	SAMPLE DATE			03/20/08	07/21/08	03/03/08	03/03/08	03/03/08	03/04/08	03/05/08	03/04/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	AVG
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
VOLATILES (UG/KG)	1,2,4-TRIMETHYLBENZENE	67000		6 U	5 U	6 U	2.25 J	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	47000		6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	2-BUTANONE	28000000	10000000	48	25 U	29 J	25.5 U	27 U	25 U	6 J	25 U
	4-ISOPROPYLTOLUENE			6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	61000000	7800000	140	31	230	190 J	670	28	220	86.5 J
	BTEX			6.8 U	5.6 UJ	6.8 U	5.6 U	5.8 U	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	670000		2 J	5 U	2 J	5 U	5 U	5 U	5 U	5 U
	CIS-1,2-DICHLOROETHENE	780000	630000	6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	ETHYLBENZENE	5700	71000	6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	ISOPROPYLBENZENE	2200000		6	5 U	6 U	4.5 J	5 U	5 U	5 U	5 U
	M+P-XYLENES	4500000		12 U	10 U	12 U	10 U	11 U	10 U	10 U	10 U
	METHYLENE CHLORIDE	11000	45000	30 U	25 U	30 U	25.5 U	27 U	25 U	25 U	25 U
	N-BUTYLBENZENE			5 J	5 U	6 U	10 J	5 U	5 U	5 U	5 U
	N-PROPYLBENZENE			2 J	5 U	6 U	6.5	5 U	5 U	5 U	5 U
	O-XYLENE	5300000		6 U	5 UJ	6 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE			66	5 U	6 U	19.5	5 U	12	5 U	5 U
	TERT-BUTYLBENZENE			12	5 U	6 U	2 J	5 U	5 U	5 U	5 U
	TETRACHLOROETHENE	570	12000	6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	5000000	190000	6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	700000		6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES			7.5 U	6.2 U	7.5 U	6.2 U	6.5 U	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS			7.9 UJ	6.6 U	7.9 UJ	6.6 UJ	6.8 UJ	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	600000	110000	9 U	7.5 UJ	9 U	7.5 U	8 U	7.5 U	7.5 U	7.5 U
	TRICHLOROETHENE	2800	13000	6 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
	VINYL CHLORIDE	60	20	12 U	10 U	12 U	10 U	11 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	3900000		410 U	370 U	380 U	360 U	410 U	400 U	390 U	385 U
	2-METHYLNAPHTHALENE	310000	123000	5.9 J	3.5 J	23 U	6.35 J	3.6 J	24 U	24 U	3.85 J
	ACENAPHTHENE	3400000	43000	25 U	5 J	23 U	3 J	3.1 J	9.5 J	24 U	23.5 U
	ACENAPHTHYLENE	3400000	23000	25 U	23 U	23 U	22 U	5.2 J	24 U	24 U	23.5 U
	ANTHRACENE	17000000	35000	25 U	7.8 J	23 U	22 U	8.4 J	9 J	24 U	23.5 U
	BENZO(A)ANTHRACENE	150	900	5.4 J	70	14 J	22 U	56	120	11 J	9.85 J
	BENZO(A)PYRENE	15	400	25 U	84	13 J	22 U	59	100	14 J	23.5 U
	BENZO(B)FLUORANTHENE	150	900	25 UJ	110	15 J	22 U	48	100	16 J	12.2 J
	BENZO(G,H,I)PERYLENE	1700000	800	4.1 J	48	4.5 J	22 U	26	56	7.9 J	23.5 U
	BENZO(K)FLUORANTHENE	1500	900	25 U	67 J	7.7 J	22 U	29	55 J	10 J	8 J
	BIS(2-ETHYLHEXYL)PHTHALATE	35000	46000	410 U	370 U	380 U	360 U	410 U	400 U	390 U	385 U
	CHRYSENE	15000	400	25 U	84	23 J	22 U	44	93	11 J	14.5 J
	DIBENZO(A,H)ANTHRACENE	15	400	25 UJ	23 UJ	23 U	22 U	25 UJ	30 J	24 U	23.5 UJ
	FLUORANTHENE	2300000	20000	5 J	140	25	22 U	71	200	27	7.75 J
	FLUORENE	2300000	28000	25 U	23 U	23 U	4.4 J	25 U	6 J	24 U	23.5 U
	HIGH MOLECULAR WEIGHT PAHS			14.5 J	786 J	140.2 J	22 U	440 J	1028 J	129.9 J	63.5 J
	INDENO(1,2,3-CD)PYRENE	150	900	25 U	63	9 J	22 U	33 J	64 J	17 J	23.5 UJ
	LOW MOLECULAR WEIGHT PAHS			5.9 J	73.3 J	22 J	21.2 J	67.3 J	85.9 J	13 J	15.85 J
	NAPHTHALENE	3900	54000	25 U	23 U	23 U	7.45 J	25 U	2.4 J	24 U	23.5 U
	PHENANTHRENE	1700000	40000	25 U	57	22 J	22 U	47	59	13 J	12 J
	PYRENE	1700000	13000	25 U	120	29	22 U	74	210 J	16 J	11.2 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

TABLE 5

SUMMARY OF ANALYTICAL RESULTS: BUILDING 185 AREA UNEXPOSED SUBSURFACE SOILS
REMEDIAL INVESTIGATION
SITE 08, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND
PAGE 2 OF 2

FRACTION (UNITS)	SAMPLE ID	ORNLSLDCR	RIDEMDCR	DA-B100B-0608	DA-SS-B125B-0304-072108	DA-SB100-0204	DA-SB101-0608-AVG	DA-SB102-0305	DA-SB117-0810	DA-SB150-0204	DA-SB151-0406-AVG
	LOCATION ID			DA-MW100B	DA-MW125B	DA-SB100	DA-SB101	DA-SB102	DA-SB117	DA-SB150	DA-SB151
	TOP DEPTH			6	3	2	6	3	8	2	4
	BOTTOM DEPTH			8	4	4	8	5	10	4	6
	SAMPLE DATE			03/20/08	07/21/08	03/03/08	03/03/08	03/03/08	03/04/08	03/05/08	03/04/08
	SAMPLE CODE			NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	AVG
	PARAMETER			PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED
	TOTAL PAHS			20.4 J	859.3 J	162.2 J	21.2 J	507.3 J	1113.9 J	142.9 J	79.35 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2000		4.1 U	NA	3.8 U	3.6 U	4.1 U	4 U	3.9 U	3.85 U
	4,4'-DDE	1400		4.1 U	NA	3.8 U	3.6 U	4.1 U	4 U	3.9 UJ	3.85 U
	4,4'-DDT	1700		4.1 U	NA	3.8 UJ	3.6 UJ	4.1 UJ	4 UJ	3.9 UJ	3.85 UJ
	AROCLOR-1260	220	10000	21 U	NA	20 UJ	18 UJ	21 UJ	21 UJ	20 U	20 UJ
	HEPTACHLOR	110		2.1 U	NA	2 U	1.8 U	2.1 U	2.1 U	2 UJ	2 U
	TOTAL AROCLOR	240	10000	21 U	NA	20 UJ	18 UJ	21 UJ	21 UJ	20 U	20 UJ
	TOTAL DDD/DDE/DDT			4.1 U	NA	3.8 UJ	3.6 UJ	4.1 UJ	4 UJ	3.9 UJ	3.8 UJ
	TOXAPHENE	440		41 U	NA	38 U	36 U	41 U	40 U	39 UJ	38.5 U
METALS (MG/KG)	ALUMINUM	77000		20700	NA	11500	18800	19400	10000	12000	11400
	ANTIMONY	31	10	0.25 UJ	NA	0.05 UJ	0.1 UJ	0.11 UJ	0.17 UJ	0.08 UJ	0.105 UJ
	ARSENIC	0.39	7	14.4 J	NA	9.6 J	2.25 J	14.2 J	20 J	14.7	10.3 J
	BARIUM	15000	5500	32.8	NA	31.9	14.4	33.7	22.4	25	25
	BERYLLIUM	160	0.4	0.59	NA	0.33 J	0.37 J	0.55	0.31 J	0.34 J	0.31 J
	CADMIUM	70	39	0.01 U	NA	0.18 J	0.015 UJ	0.02 UJ	0.01 UJ	0.01 UJ	0.01 UJ
	CALCIUM			672 J	NA	733	2020	734	1260	540 J	868
	CHROMIUM	230	390	21.5 J	NA	13.2	22.2	20.9	14.1	15.7	15.5
	COBALT	23		13.8	NA	5.7	17.5	21.5	12.3	11.3	10.8
	COPPER	3100	3100	11.4	NA	9.6	24	20	21.5	15	12.2
	IRON	55000		40000	NA	17000	39000	39700	33100	23600	26600
	LEAD	400	150	16.3	NA	9	14.2	14.5	10.6	10.6	8.75
	MAGNESIUM			3410 J	NA	2310	7120	4650	3430	3070	3020
	MANGANESE	1800	390	733	NA	171	322	2820	1140	334	702
	MERCURY	23	23	0.04 U	NA	0.05	0.01 U	0.06	0.01 U	0.02 UJ	0.02 J
	MOLYBDENUM	390		0.65 J	NA	0.29 J	0.025 UJ	0.73 J	0.32 J	0.23 J	0.405 J
	NICKEL	1600	1000	26.4	NA	13.7	36.4	29.1	28.6	20.1	20.2
	POTASSIUM			410 J	NA	562	291	384	431	358	626
	SELENIUM	390	390	0.51 U	NA	0.34 UJ	0.688 J	0.85 J	0.62 UJ	0.57 U	0.625 UJ
	SILVER	390	200	0.09 U	NA	0.21 UJ	0.12 UJ	0.14 UJ	0.11 UJ	0.14 J	0.13 UJ
	SODIUM			110 J	NA	156	37.6 UJ	56.7 UJ	51.3 UJ	33.2 J	76.2 UJ
	THALLIUM	5.1	5.5	0.07 UJ	NA	0.09 UJ	0.01 U	0.06 UJ	0.04 UJ	0.05 UJ	0.05 UJ
	VANADIUM	390	550	25.2	NA	18.6	19.2	25.7	17.9	19.2	22
	ZINC	23000	6000	63.7	NA	33.9	72.6	75.8	66.9	50.5	76.8
MISCELLANEOUS PARAMETERS (%)	TOTAL SOLIDS			80	NA	86	92	80	82	84	85
PETROLEUM HYDROCARBONS (MG/KG)	GASOLINE RANGE ORGANICS			7.4 U	2.5 U	3.1 U	2.9 U	3.6 U	3.3 U	3.2 U	4.1 U
PETROLEUM HYDROCARBONS (UG/KG)	EXTRACTABLE TPH (C09-C36)			23000	210000	320000	8550 U	89000 U	200000	28000 J	235000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

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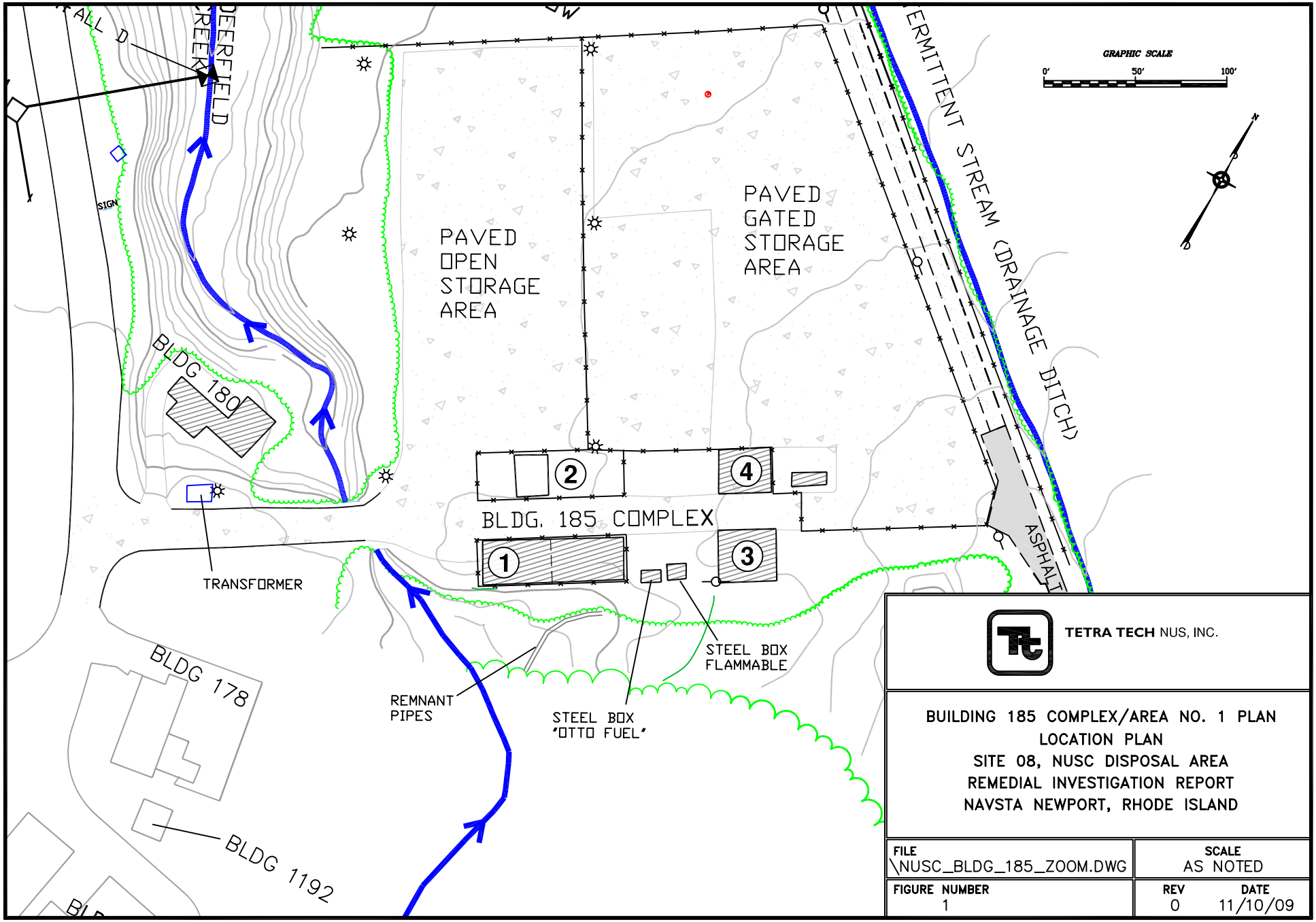

TETRA TECH NUS, INC.

BUILDING 185 COMPLEX/AREA NO. 1 PLAN
LOCATION PLAN
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\NUSC_BLDG_185_ZOOM.DWG	AS NOTED
FIGURE NUMBER	**REV** / **DATE**
1	0 / 11/10/09

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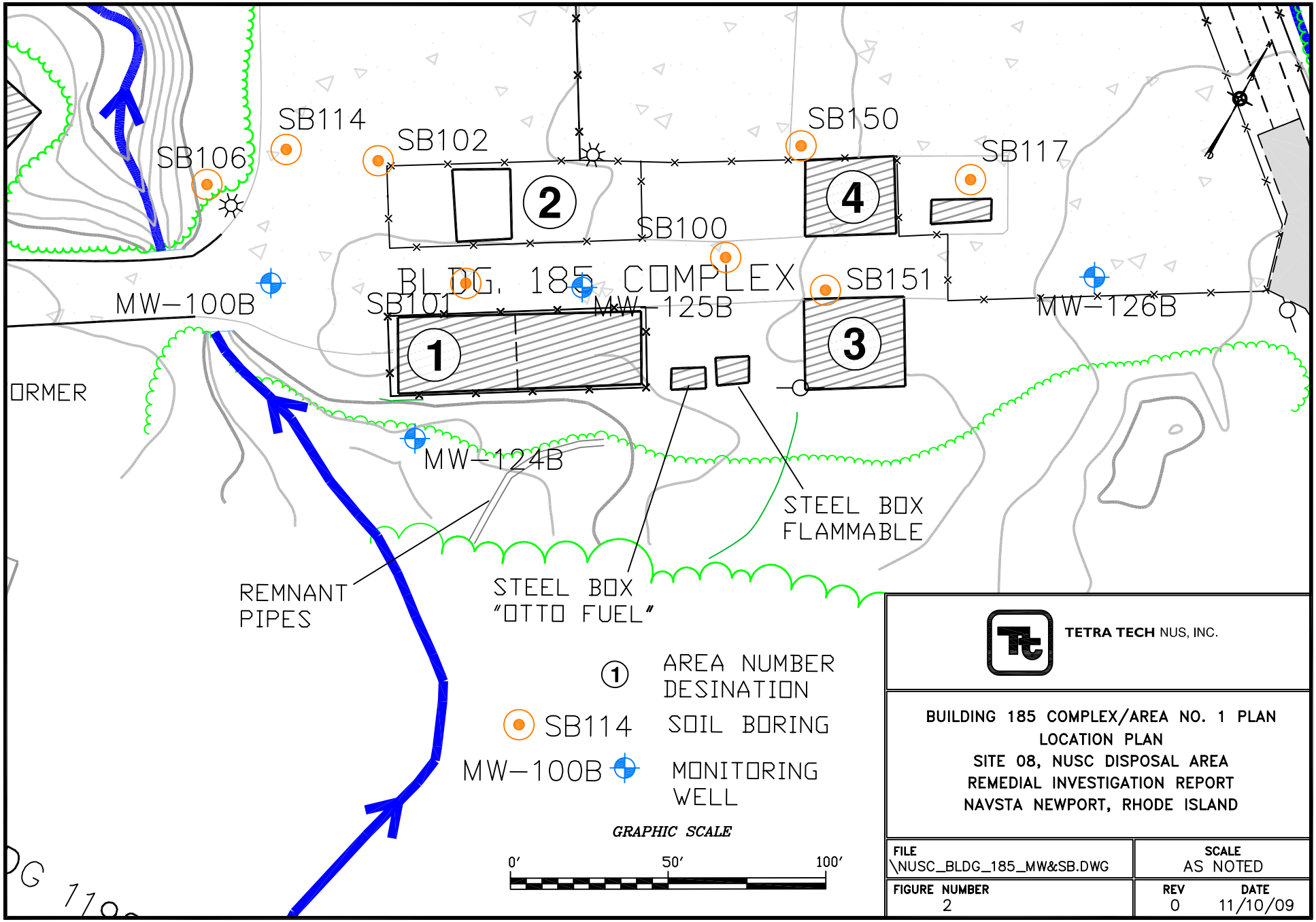


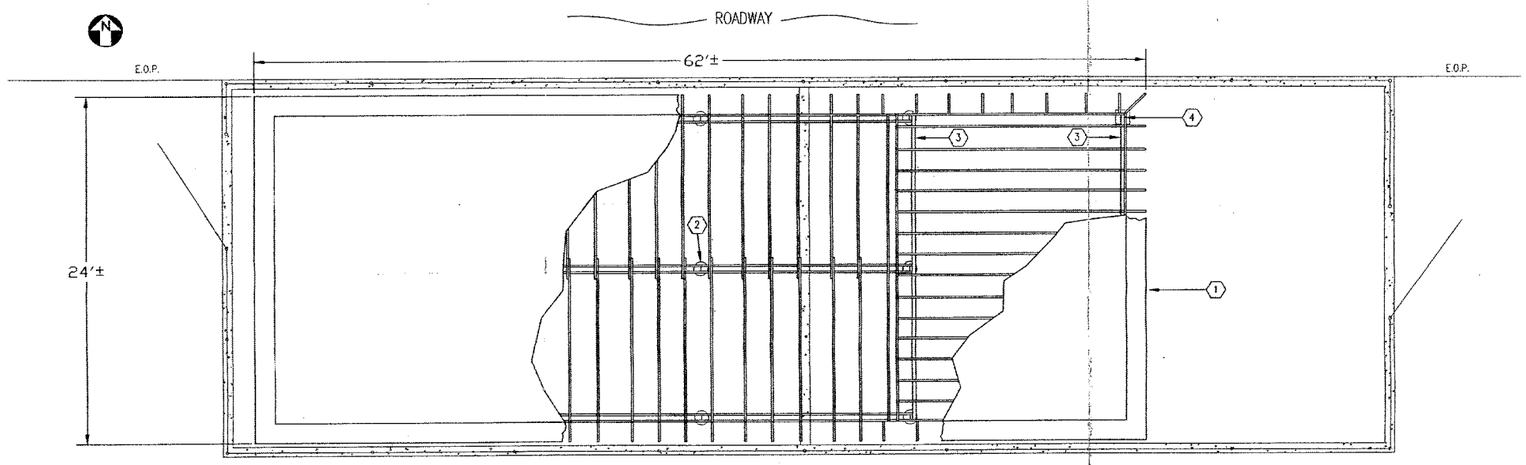
TETRA TECH NUS, INC.

BUILDING 185 COMPLEX/AREA NO. 1 PLAN
LOCATION PLAN
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FILE	SCALE
\NUSC_BLDG_185_MW&SB.DWG	AS NOTED
FIGURE NUMBER 2	**REV** 0 **DATE** 11/10/09

Attachment 1
Building 185 Historical Drawing Summary
Site 08, NUSC Disposal Area
Remedial Investigation Report
NAVSTA Newport, Rhode Island

Drawing/Date	Title	Drawing Summary	Comments
64-58 1964	Otto Fuel Shelter at Storage Area 185 General Plan and Details	Area No. 1: - Construction of new partial wood canopy supported by twelve steel columns placed on concrete footings installed through existing asphalt floor surface.	Area No. 1: Shows existing single drain through southeast wall at low point.
71-61 1971	HET-3 Fuel Storage Shelter Structure 185	Area No. 2: - Construction of new partial wood canopy supported by six steel columns placed on concrete footings installed through existing asphalt floor surface - construction of a new concrete dividing wall - installation of one 2-inch galvanized drain pipe with gate valves through northwest wall	Area No. 2: Shows existing single 2-inch drain through northwest wall at low point.
72-83 1972	Fuel Storage Facility Repairs Structure 185	Area No. 1: - extension of the existing wood canopy - construction of a new concrete dividing wall - construction of a new ramp on southwest end - installation of two 2-inch galvanized drain pipes with gate valves through southeast wall Area No. 2: no work Area No. 3: - construction of new wood canopy - install bituminous concrete floor Area No. 4: - construction of new wood canopy - install bituminous concrete floor	Area No. 1: new drains necessary because dividing wall at location of existing drain Area No. 2: shows existing two 2-inch galvanized drain pipes with gate valves through southeast wall not northwest wall as indicated in drawing 71-61 Area No. 3: no existing or proposed drain indicated Area No. 4: no existing or proposed drain indicated; drawing specifies removal of existing wood roof canopy covering north side
91-44 1991	Repair Concrete Wall Structure #185 Area 1 & 2	Area No. 1: - repair cracks in containment wall - replace containment wall section	Area No. 1: Shows two existing 2-inch drains with gate valves through southeast wall at low point.
03-70A 2003	Replacement to Structure 185 Roof System Demolition	Area No. 1: - remove entire roof system - remove existing interior steel columns and concrete footings (4 places) - remove existing lolly columns (2 places) concrete footings to remain	Area No. 1: Drains are not shown



S185 ROOF STRUCTURE – EXISTING CONDITION

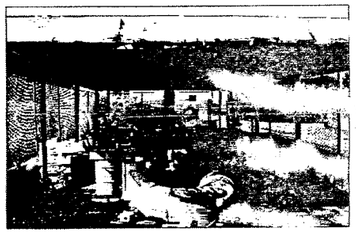


PHOTO 1

PHOTO 2

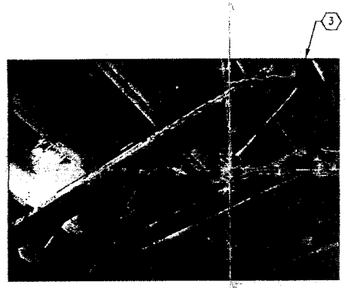
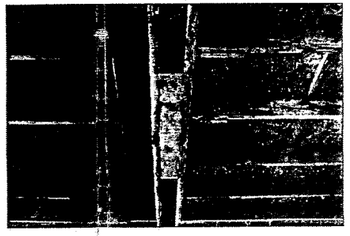


PHOTO 3

PHOTO 4

PHOTO 5



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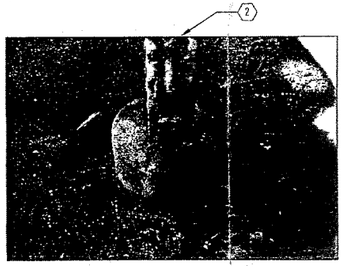

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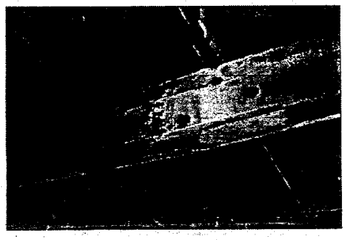

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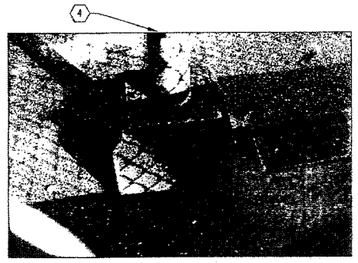

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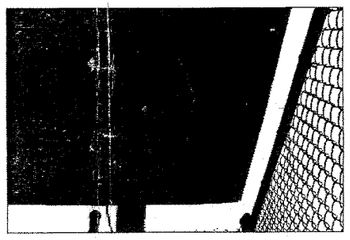


PHOTO 10

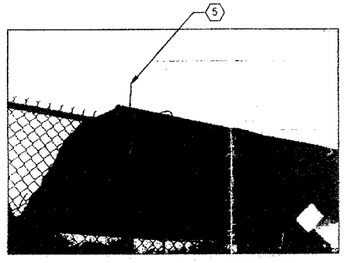


PHOTO 11

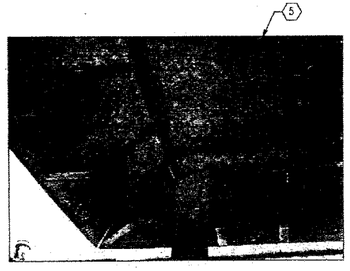


PHOTO 12

GENERAL NOTES

1. FALL PROTECTION PROCEDURES SHALL BE EMPLOYED AT ALL TIMES WHEN WORK IS BEING CONDUCTED SIX FEET ABOVE FINISHED GRADE.

PHOTOS 1–10 BELOW. PERIMETER COLUMNS AND FOOTINGS TO REMAIN, EXCEPT AS NOTED BELOW.

DEMOLITION NOTES

STRUCTURAL

(1) REMOVE ENTIRE ROOF SYSTEM AND DISPOSE OF ALL LUMBER.

NOTE:

RESULTS OF A TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) ANALYSIS FOR THE ROOF STRUCTURE REVEALED LEAD IN CONCENTRATIONS GREATER THAN THE REGULATORY LIMIT OF 5.0 mg/L. ALL DEBRIS GENERATED FROM DEMOLITION SHALL BE HANDLED AND DISPOSED OF AS HAZARDOUS WASTE.

(2) REMOVE EXISTING INTERIOR STEEL COLUMNS AND CONCRETE FOOTINGS (4 PLACES) FOR DISPOSAL. SEE PHOTOS 2 AND 7.

NOTE:

BACK FILL WITH 3/4" PROCESSED GRAVEL AND COMPACT TO 95% MAXIMUM DRY DENSITY. PATCH ASPHALT SURFACE WITH 4" HOT PATCH MATERIAL.

(3) EXISTING STEEL TRUSSES SHALL BE REMOVED (2 PLACES) AND DISPOSED. SEE PHOTO 3 AND 4.

(4) REMOVE EXISTING 4" DIAMETER LOLLY COLUMNS (2 PLACES) FOR DISPOSAL. EXISTING CONCRETE FOOTINGS TO REMAIN. SEE PHOTO 9.

LIGHTNING PROTECTION

(5) REMOVE EXISTING COPPER AIR TERMINALS, COPPER TIES BETWEEN AIR TERMINALS, TIES TO STEEL COLUMNS, AND TIES TO TOP OF CHAIN LINK FENCE. DISPOSE OF ALL MATERIAL. SEE PHOTOS 11 AND 12.

GRAPHIC SCALE

1/4"=1'-0" 5' 0' 5' 10' 15' 20'

SYMBOL	DESCRIPTION	DATE	APPROVED BY

REVISIONS

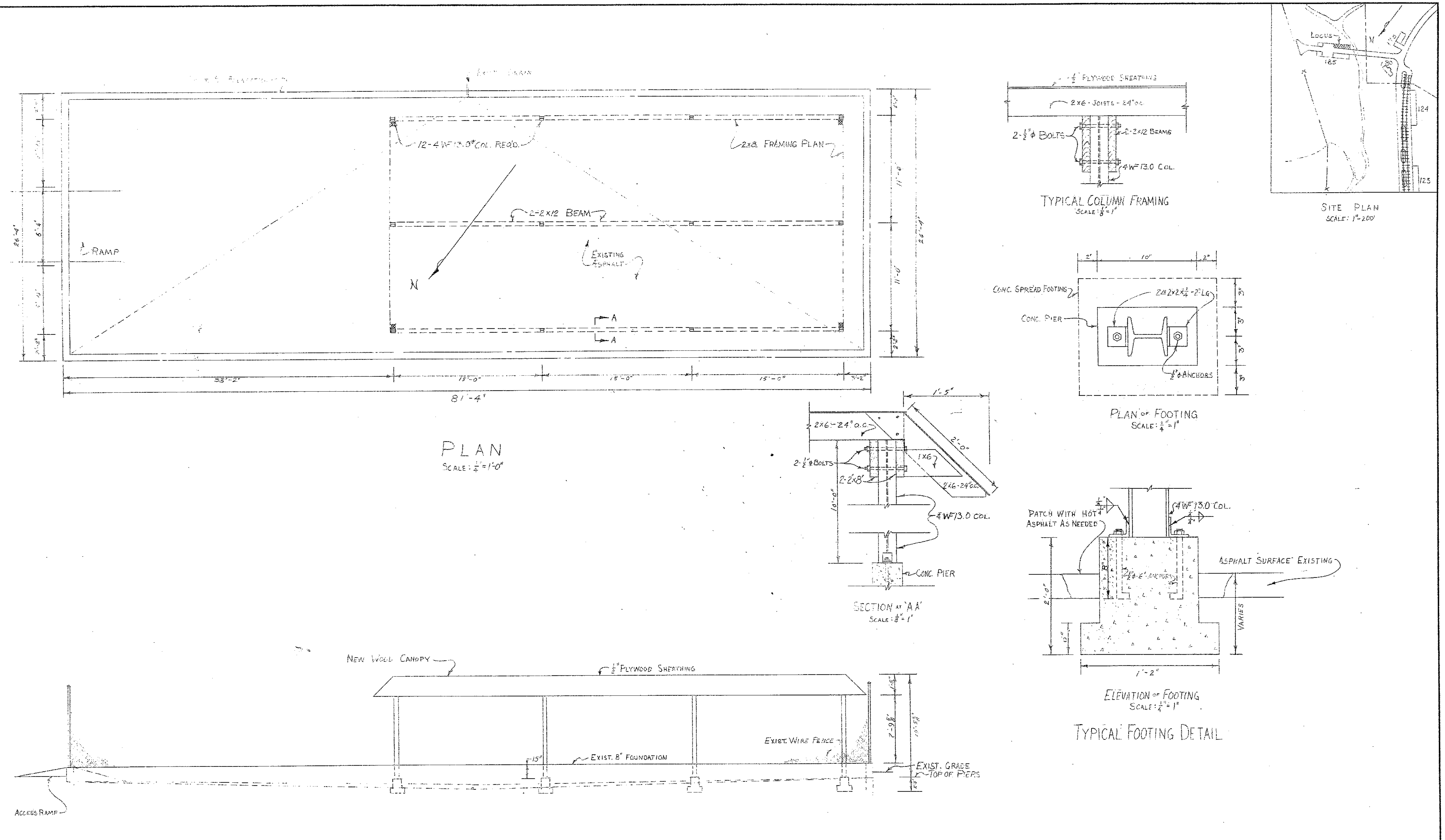
03-70A
NUWCDIVNPT DWG. NO.

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERSEA WARFARE CENTER DIVISION
NEWPORT, RHODE ISLAND EQUIPMENT AND INSTALLATION SUPPORT OFFICE

DRAWN BY	H. Smyth	10/03
DESIGNED BY	S. Regan	10/03
CHECKED BY		
ON SITE		
SUBSTANTIATED BY		
APPROVED		DATE

Replacement to Structure S185
Roof System
Demolition

SIZE	CODE IDENT NO.	NAVY FAC. DRAWING NO.
F	80091	
SCALE AS NOTED	SPEC. NO.	CONTRACT NO.
		SHEET 1 OF 1



NORTH ELEVATION

SCALE: 1/4"=1'-0"

NOTE:
COLUMNS TO BE 4 WF 13.0. ALL WOOD (INCLUDING PLYWOOD SHEATHING) TO BE PAINTED WITH TWO (2) COATS. USE 2x8 OUTSIDE & 2x12 INSIDE FOR MAIN BEAMS. DOUGLAS FIR - SELECT STRUCTURAL - 1600 PSI. WOOD BEAMS TO BE USED IN ALL CASES.
⊠ INDICATES FIRE EXTINGUISHERS - 4 REQ'D - CO_2 - 1 EA. CORNER.

SYMBOL	DESCRIPTION	DATE	APPROVAL

REVISIONS

IND-NUOSNPT-113 (REV. 11/63)1010/1

DRAWING NO. 64-58

DEPARTMENT OF THE NAVY — BUREAU OF YARDS & DOCKS
U. S. NAVAL UNDERWATER ORDNANCE STATION, NEWPORT, R. I.
FACILITIES PLANNING DIVISION

DRAWN BY	D.A. LAVOIE	7-22-64
DESIGNED BY	D.A. LAVOIE	7-22-64
CHECKED BY	CORDEIRO	7/29/64
DIV. HEAD	F.J. LAMOUREUX	8-18-64
SAFETY ENG.	P M Cormier	8-19-64

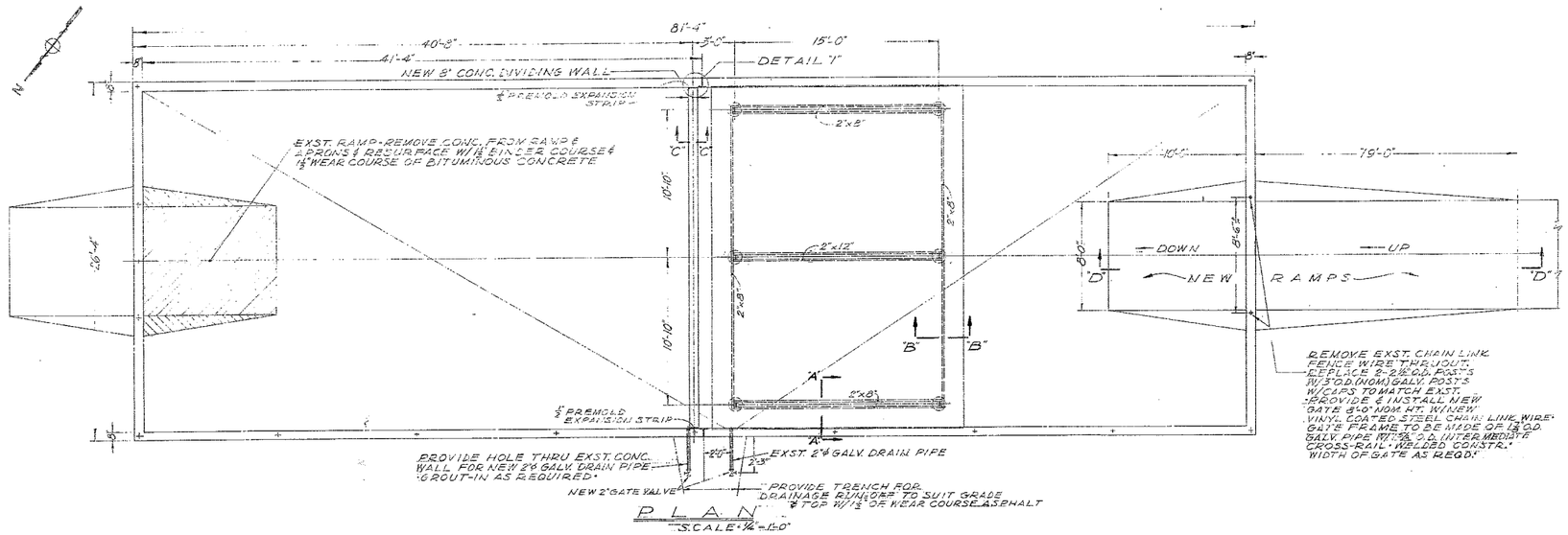
OTTO FUEL SHELTER AT STORAGE AREA 185
GENERAL PLAN & DETAILS

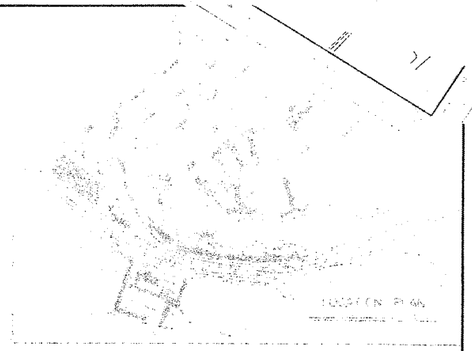
APPROVED ______ DATE ______

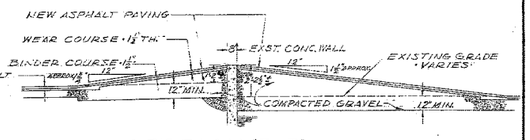
SATISFACTORY TO APL
[signature] 7 Oct 64
DATE 6 Oct. 1964

SCALE AS SHOWN SPEC
SHEET 1 OF 1 NBY
Y & D DRAWING NO.

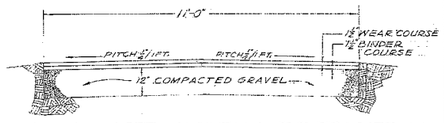
BLDG. 185



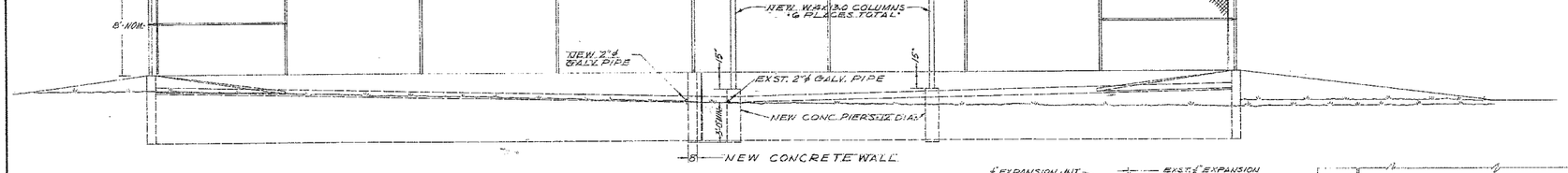




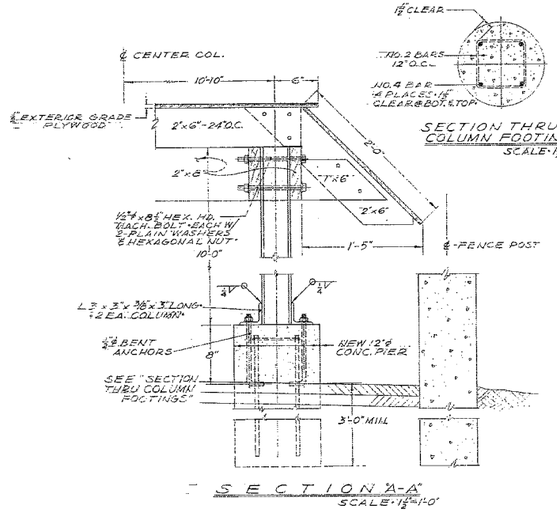
SECTION "D-D"
SCALE: 1/4" = 1'-0"



CROSS-SECTION THRU ROADWAY & APPROACH
SCALE: 1/2" = 1'-0"

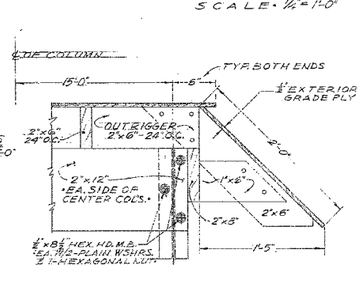


NORTH ELEVATION
SCALE: 1/16" = 1'-0"

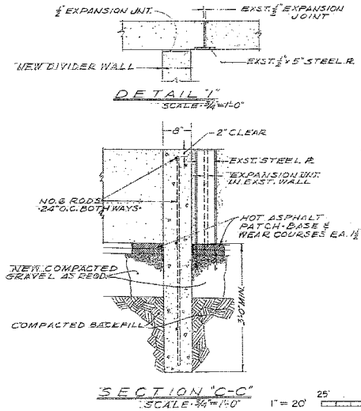


SECTION THRU COLUMN FOOTINGS
SCALE: 1 1/2" = 1'-0"

SECTION "A-A"
SCALE: 1 1/2" = 1'-0"

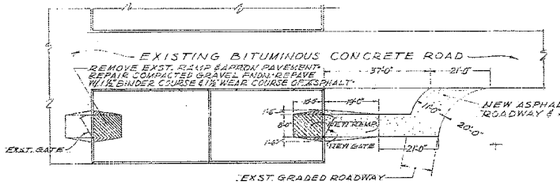


SECTION "B-B"
THRU ROOF EDGE
SCALE: 1/2" = 1'-0"



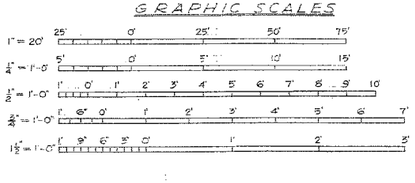
DETAIL "I"
SCALE: 3/4" = 1'-0"

SECTION "C-C"
SCALE: 3/4" = 1'-0"



AREA PLAN
SCALE: 1" = 20'-0"

GRAPHIC SCALES



GENERAL NOTES:

1. WIREBRUSH EXST. FENCE POSTS, TOP RAILS, ETC. TO REMOVE ALL LOOSE RUST.
2. PAINT W/ RUSTOLEUM 5 COAT SYSTEM; FIRST COAT - NO. 769 DAMP-PROOF RED PRIMER SECOND COAT - NO. 960 ZINC CHROMATE PRIMER THIRD COAT - NO. 726 NEW CONTINENTAL-EMSCO GREEN. ON NEW GALVANIZED SURFACES USE "RUSTOLEUM GALVINOLEUM SYSTEM D-2."
3. NEW 8' CHAIN LINK WIRE TO BE VINYL COATED STEEL WIRE - COLOR - DEEP GREEN.

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS IND-NUWS 11010/1 (9-67)		

71-61
NUWS. DWG. NO.

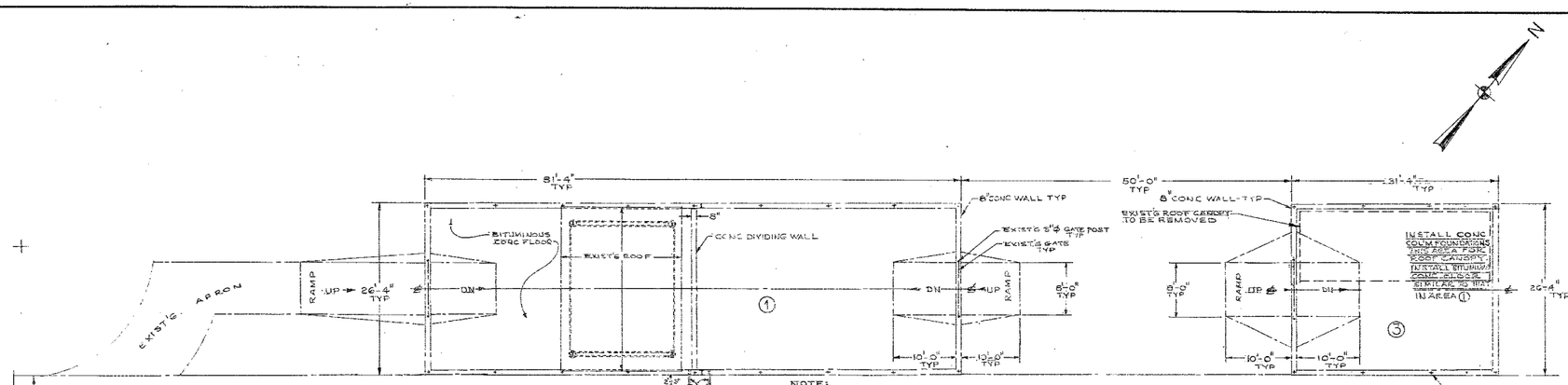
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
U.S. NAVAL UNDERWATER WEAPONS RESEARCH AND ENGINEERING STATION
NEWPORT, RHODE ISLAND — FACILITIES PLANNING DIVISION

DRAWN BY	P.W. KLAGGE	5-21-71
DESIGNED BY	W.A. MANNIX, JR	5/26/71
CHECKED BY	R.A. LEEDEN	5-26-71
DIV. HD.	A. SPENCE	6-4-71

HET-3 FUEL STORAGE SHELTER STRUCTURE 186

SATISFACTORY TO: U.S. NAVAL CIVIL ENGINEER
APPROVED: F. I. [illegible]
DATE: 6/8/71

SIZE: F
CODE IDENT NO.
NAV. FAC. DRAWING NO.
CONSTR. CONTR. NO.
SCALE: AS SHOWN
SPEC.
SHEET 1 OF 1



NA	GENERAL REVISIONS	4-24-74	DEW
NA	GENERAL REVISIONS	9-10-75	DEW
SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS	NAVFAC 11010/1 (5-67)	

72-83
NUSC DWG. NO.

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL UNDERWATER SYSTEMS CENTER — FACILITIES PLANNING DIVISION
NEWPORT, RHODE ISLAND

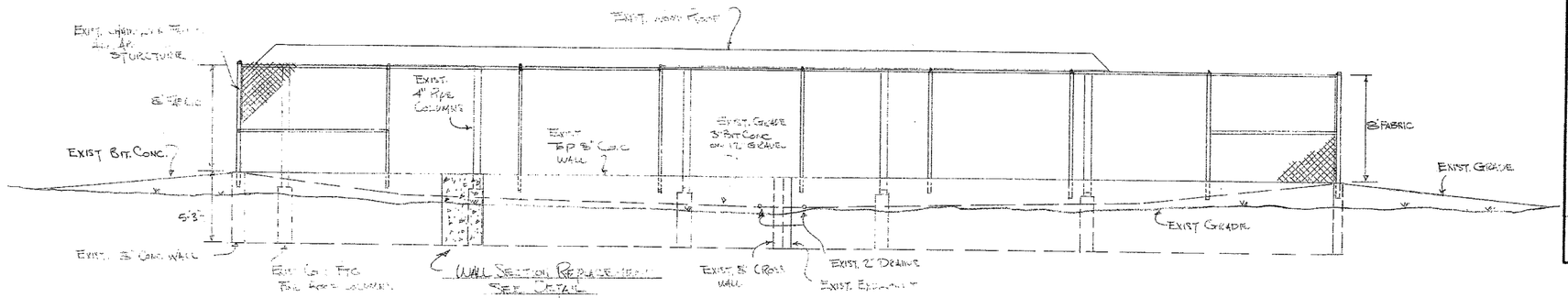
DRAWN BY R.E. SAPUKA 8/20/73
DESIGNED BY R.A. MACHADO 9/7/73
CHECKED BY R.A. MACHADO 9-27-73
DIV. NO. D. B. WRIGHT 9-10-73

FUEL STORAGE FACILITY
REPAIRS
STRUCTURE 185

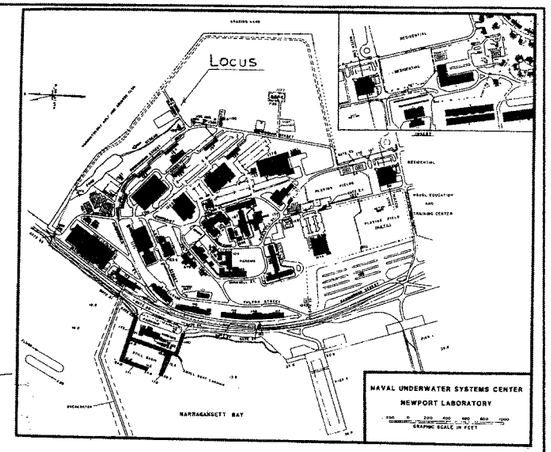
SATISFACTORY TO NUSC [signature] 9/24/73
APPROVED [signature] DATE 9/24/73

SIZE F | CODE IDENT NO. 80091 | NAV. FAC. DRAWING NO. 2,002,245
CONSTR. CONTR. NO. N62472-74-C-1705
SCALE: AS SHOWN | SPEC. 74-74-1709 | SHEET 1 OF 1

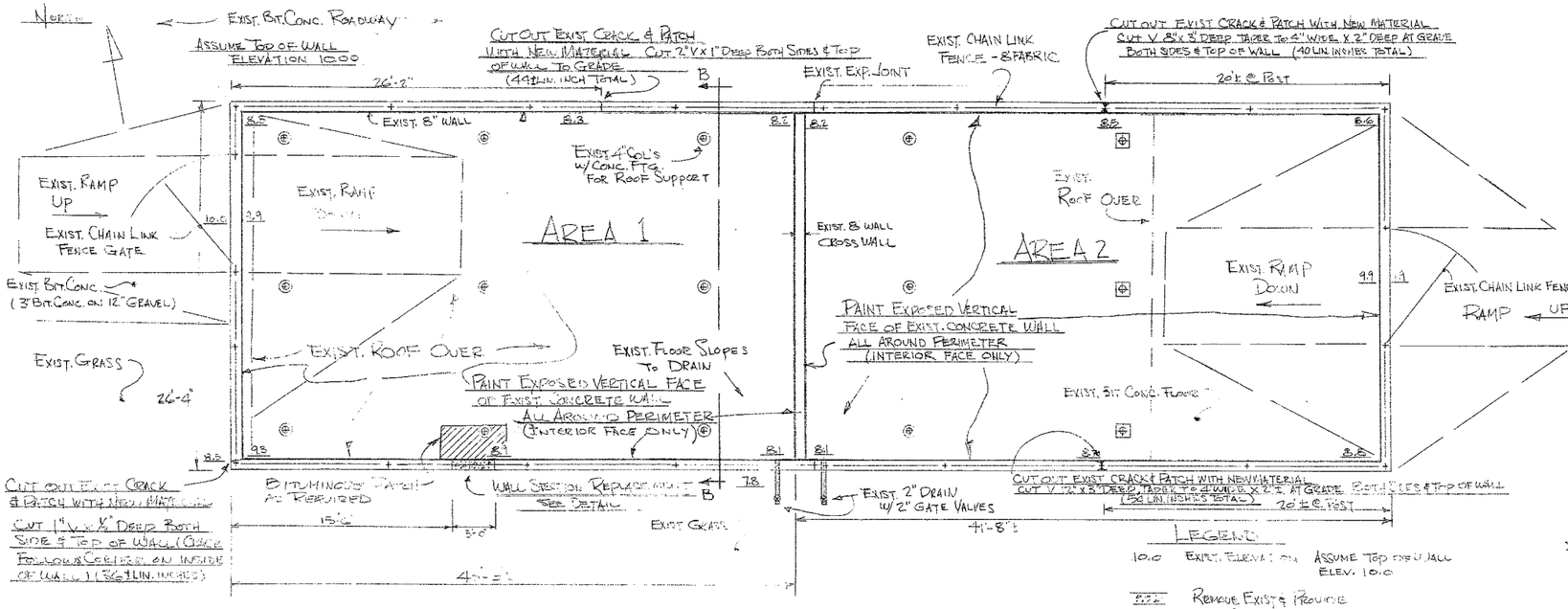
N50126



SOUTH ELEVATION SCALE 1/4"=1'-0"



LOCATION PLAN

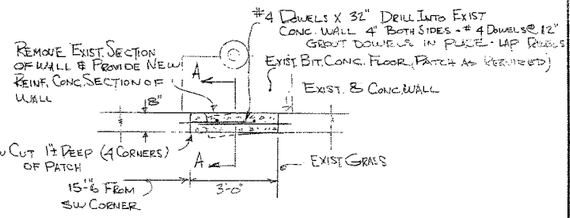


PLAN SCALE 1/4"=1'-0"

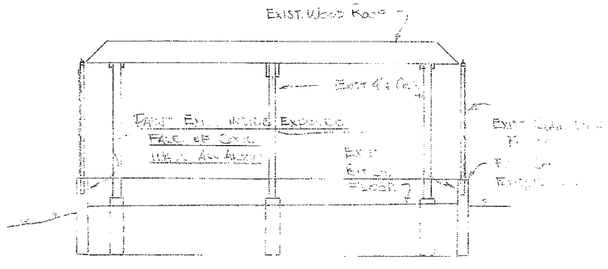
STRUCTURE #185 AREA 1 & 2

NOTE: 1. AT CRACK REPAIR - CLEAN EXPOSED PORTION OF EXIST. FENCE POST EMBEDDED IN CONCRETE WALL & COAT WITH ASPHALT MASTIC PRIOR TO THE APPLICATION OF NEW REPAIR MATERIAL

SECTION A-A

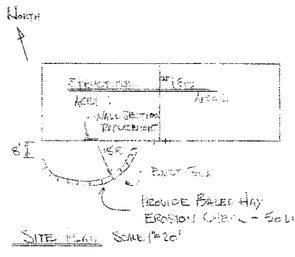


PLAN

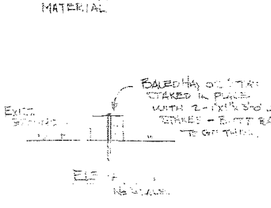


SECTION B-B

SCALE 1/4"=1'-0"



SITE PLAN SCALE 1"=20'



ENVIRONMENTAL PROTECTION PLAN

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS IND-NUWS 11010/1 (8-67)		

91-44 NUSC DWG. NO.	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL UNDERWATER SYSTEMS CENTER NEWPORT, RHODE ISLAND FACILITIES DEVELOPMENT DIVISION
DRAWN BY M.G.L. 7/78	REPAIR CONCRETE WALL
DESIGNED BY P.A.R. 7/78	STRUCTURE #185 AREA 1&2
CHECKED BY	
DIV. HD.	
SATISFACTORY TO	SIZE F; CODE IDENT NO. 81681; NAV. FAC. DRAWING NO.
APPROVED DATE 7/78	CONSTR. CONTR. NO. N62472-91-C-7633
SCALE: AS SHOWN	SPEC. 84-21-7633 SHEET 1 OF 1

FOTOBEAM INC. 847

Attachment 2
Historical Aerial Photograph Summary
Site 08, NUSC Disposal Area
Remedial Investigation Report
NAVSTA Newport, Rhode Island
October 26, 2009

!952: Building 185 constructed according to Aerial photographs images of the Site area dated 1939, 1951, 1962, 1972, 1981, 1988, 1992 and 2003 were reviewed. Images were downloaded from the RI Geographic Information System web site. Observations are summarized below. Current site features such as the Building 185 Complex, and other areas of interest such as the Buried Container area, are outlined in the figures presenting the photographs.

- In the 1939 aerial photograph (Figure 1), a water body (now known as NUWC Pond) formed by the construction of a dam across Deerfield Creek is present. There is no evidence of activity in the vicinity of the NUSC Disposal Area. The North Meadow area is appears to be an open, grassy field. The Wanumetonomy Golf and Country Club golf course occupies land to the northeast. Land to the west and south is mostly wide open farm fields. The structure northwest of Building 179 is believed to be a hog farm.

- In the 1951 photograph (Figure 2), the perimeter of the NUWC pond is consistent with the 1939 photograph. Structures and roadways, which are part of the Naval Underwater Ordinance Station, now occupy the area west and southwest of the Site area. Within the Site area light-colored soil indicating ground disturbance, is visible just northwest of present location of the Building 185 Complex. No activity is evident in the North Meadow area.

- The 1962 photograph (Figure 3) is consistent with the 1951 photograph, except Building 185 Complex and Building 179 are present. The area of light-colored soils (fill area) northeast of the Building 185 is somewhat larger. On the Wanumetonomy Golf and Country Club golf course two water bodies, possibly irrigation water ponds are visible. No ground disturbance activity is evident in the North Meadow area. Building 185 Complex Area Nos. 1, 2 and 3 first appear as uncovered curbed areas. Area No. 4 first appears partially covered with a roof.

- The 1972 photograph (Figure 4) shows the disturbed area extended to the west of the area shown in the photographs from 1951 and 1962. The fill area northwest of the Building 185 Complex (now the Paved Ungated Storage Area) appears to be in use as an unpaved storage area. Additional structures are visible west of Cunningham Street. No ground disturbance activity is evident in the North Meadow area. Building 185 Complex Area No. 1 appears to be partially covered.

- Clear evidence of filling at the Site is shown on the 1981 photograph (Figure 5), with a roadway turnout and mounds of soil present in the South Meadow just south of the unnamed stream. Use of the area northwest of the Building 185 Complex (now the Paved Ungated Storage Area) for storage appears to continue. A roadway turnout is visible alongside Deerfield Creek, west of the storage area. This photograph also shows possible fill activity in the area north of the Building 185 Complex (now the Paved Gated Storage Area). No ground disturbance activity is evident in the North Meadow area. Some of the vegetation in the area southeast of the storage area has been cleared. The Building 185 Complex Area No 1 partial roof has been extended and a partial roof has been added to Area No. 2. Area Nos. 3 and 4 are fully covered with roofs..

- The 1988 photograph (Figure 6) shows a crescent-shaped area of ground disturbance on the southern portion of the North Meadow, and a possible roadway indicating fill operations. The extent of the disposal area in the South Meadow, as highlighted by light-colored material and mounds of soil, appears to extend north towards the unnamed stream. An activity, possible ground disturbance, is visible in the area southeast of the storage area.

- In 1992 photograph (Figure 7) ground disturbance is visible in the southern portion of the North Meadow. The area northeast of Building 185 Complex continues in use as a storage area, with the west side (now the Paved Ungated Storage Area) paved. Light color soil indicates possible fill operations in the North Meadow area.

- No ground disturbance activities are visible in the 2003 photograph (Figure 8). The entire storage area northwest of Building 185 Complex is now paved and in use as a storage area. The northern portion of the South Meadow is revegetated. Between Building 185 Complex Area Nos. 1 and 3 shapes that appear to be that two steel boxes or lockers labeled "flammable" and "Otto Fuel" are present. No ground disturbance activity is evident in the North Meadow area.

Based on the historical aerial photograph analysis the following observations were made:

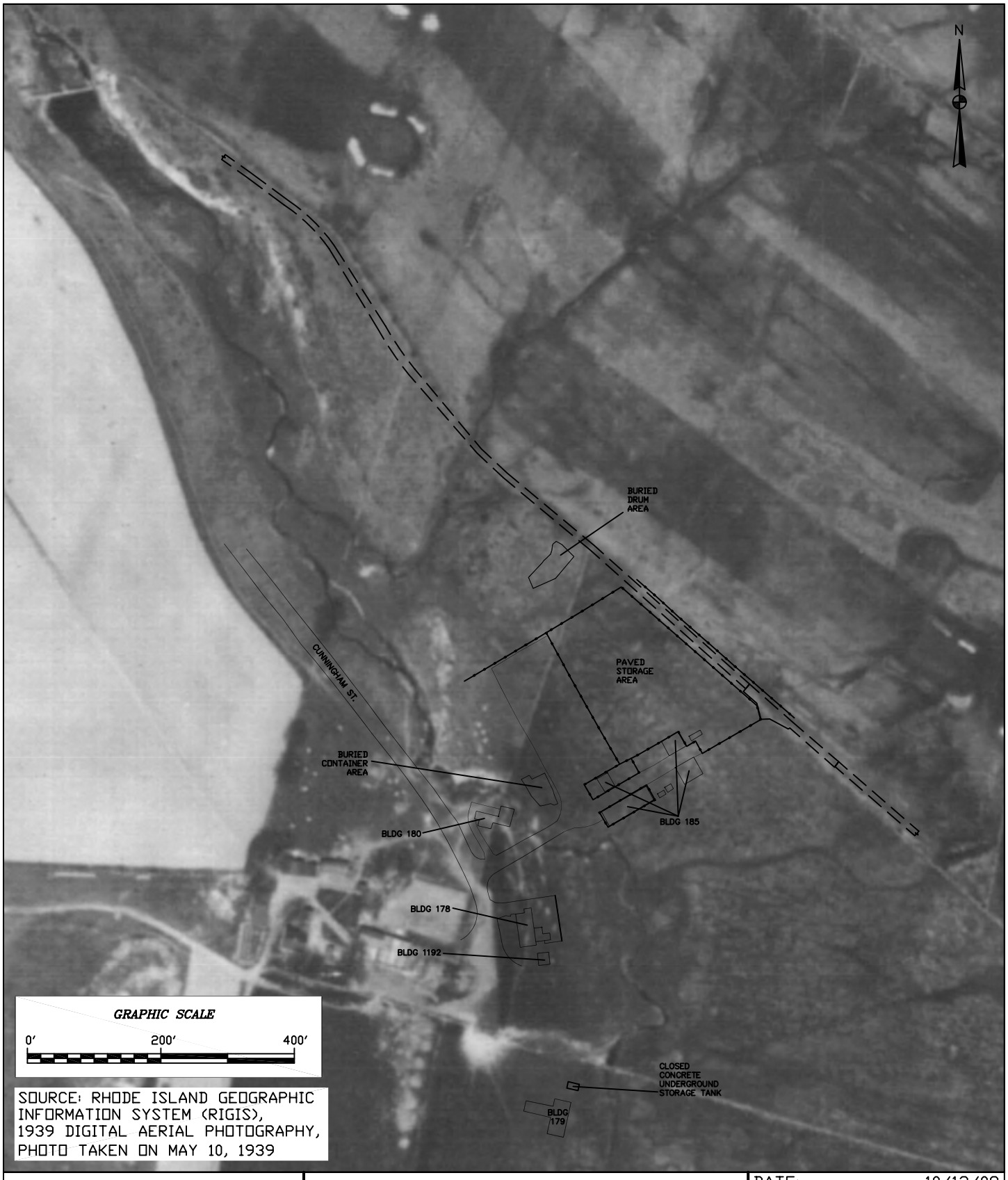
- The disturbance or fill areas observations agree with the SASE photo analysis, which concluded that fill operations occurred from 1951 through 1988 in the paved storage areas, the South Meadow, and the southernmost portions of the North Meadow.

- Building 185 Complex was built after 1951 but before 1962 consistent with the Navy property record indicating a 1952 construction date. The following Building 185 Complex changes were noted:

  1962 - Area No. 4 is partially roofed (north half)
  1972 – A partial roof has been installed at Area No. 1
  1981 – The Area No 1 partial roof has been extended and a partial roof has been added to Area No. 2. Area Nos. 3 and 4 have covered with roofs.
  2003 – Steel lockers between Area Nos. 1 and 3 present

- The west side of the storage area was paved between 1988 and 1992 and the entire storage area was paved by 2003.

- It was not possible to determine when the activities that resulted in the placement of drums at the Buried Drum Area or spray cans at the Buried Container Area occurred.



SOURCE: RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS), 1939 DIGITAL AERIAL PHOTOGRAPHY, PHOTO TAKEN ON MAY 10, 1939

TETRA TECH

WWW.TETRATECH.COM

661 ANDERSEN DRIVE - FOSTER PLAZA 7
PITTSBURGH, PA 15220
T: (412) 921-7090 | F: (412) 921-4040

CURRENT SITE FEATURES
NUSC - 1939
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1939.DWG

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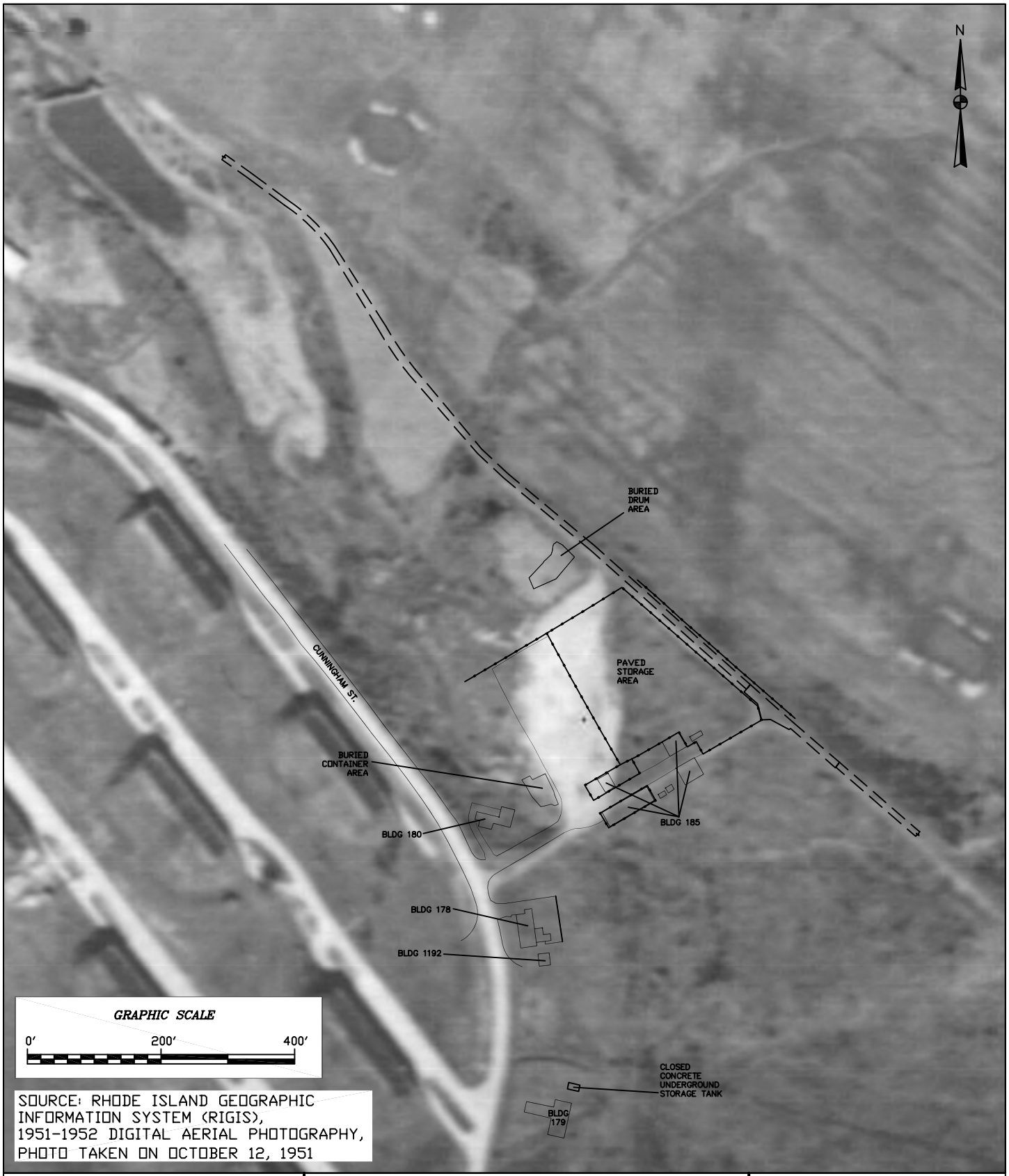

SOURCE: RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS), 1951-1952 DIGITAL AERIAL PHOTOGRAPHY, PHOTO TAKEN ON OCTOBER 12, 1951

TETRA TECH
WWW.TETRATECH.COM
661 ANDERSEN DRIVE - FOSTER PLAZA 7
PITTSBURGH, PA 15220
T: (412) 921-7090 | F: (412) 921-4040

CURRENT SITE FEATURES
NUSC - 1951
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1951.DWG

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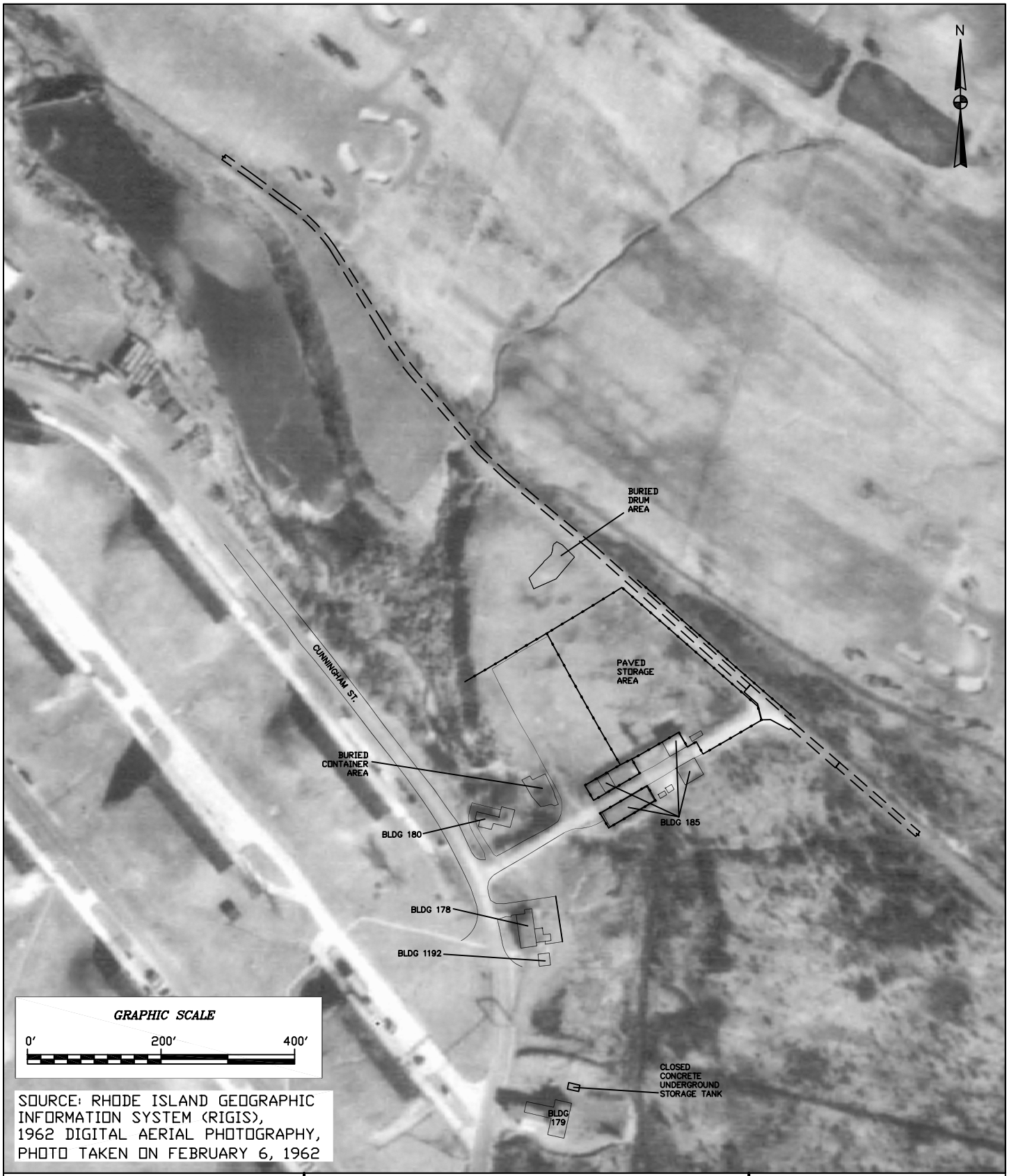

SOURCE: RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS), 1962 DIGITAL AERIAL PHOTOGRAPHY, PHOTO TAKEN ON FEBRUARY 6, 1962

TETRA TECH
WWW.TETRATECH.COM
661 ANDERSEN DRIVE - FOSTER PLAZA 7
PITTSBURGH, PA 15220
T: (412) 921-7090 | F: (412) 921-4040

CURRENT SITE FEATURES
NUSC - 1962
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1962.DWG

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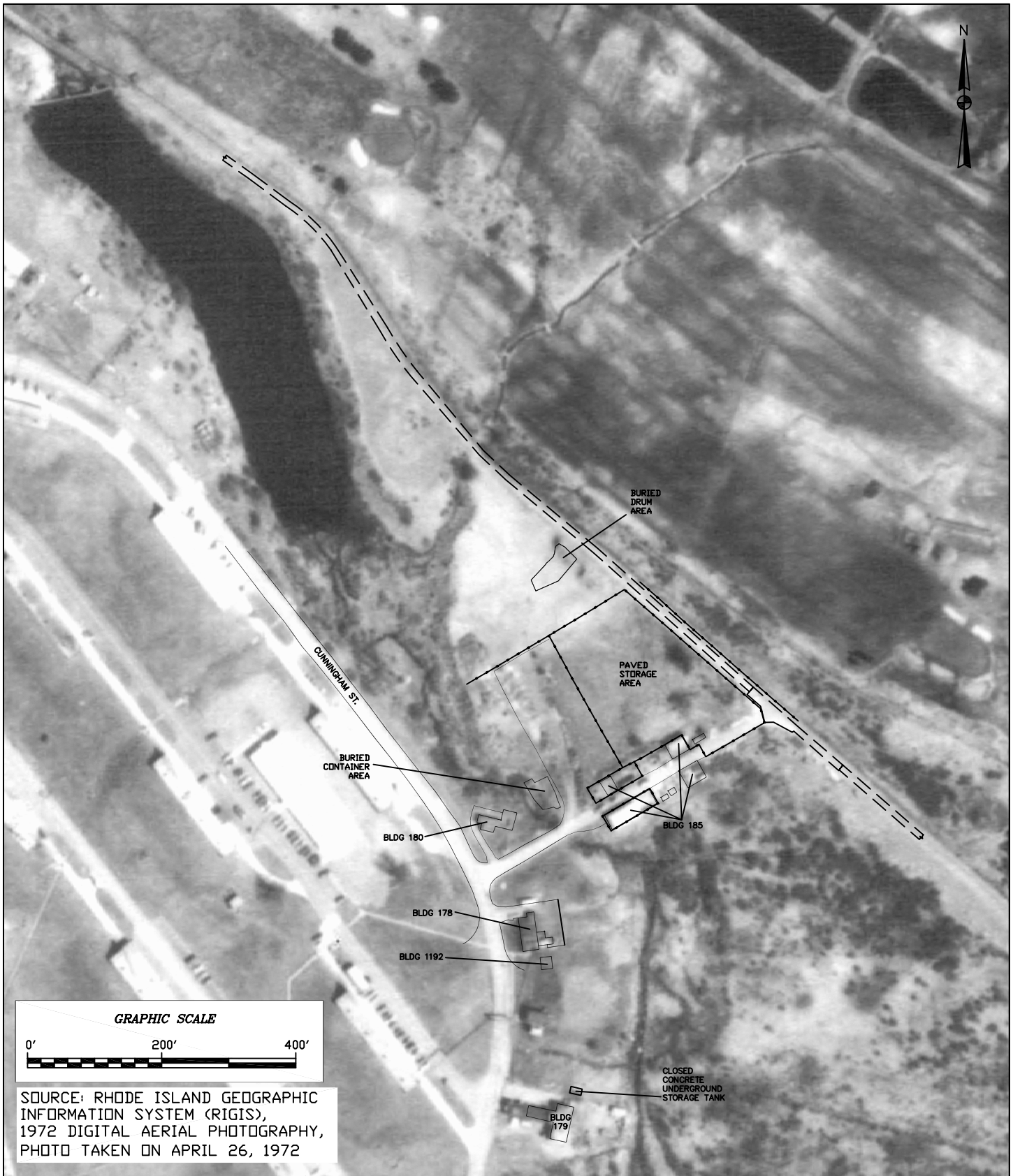

SOURCE: RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS), 1972 DIGITAL AERIAL PHOTOGRAPHY, PHOTO TAKEN ON APRIL 26, 1972

TETRA TECH
WWW.TETRATECH.COM
661 ANDERSEN DRIVE - FOSTER PLAZA 7
PITTSBURGH, PA 15220
T: (412) 921-7090 | F: (412) 921-4040

CURRENT SITE FEATURES
NUSC - 1972
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1972.DWG

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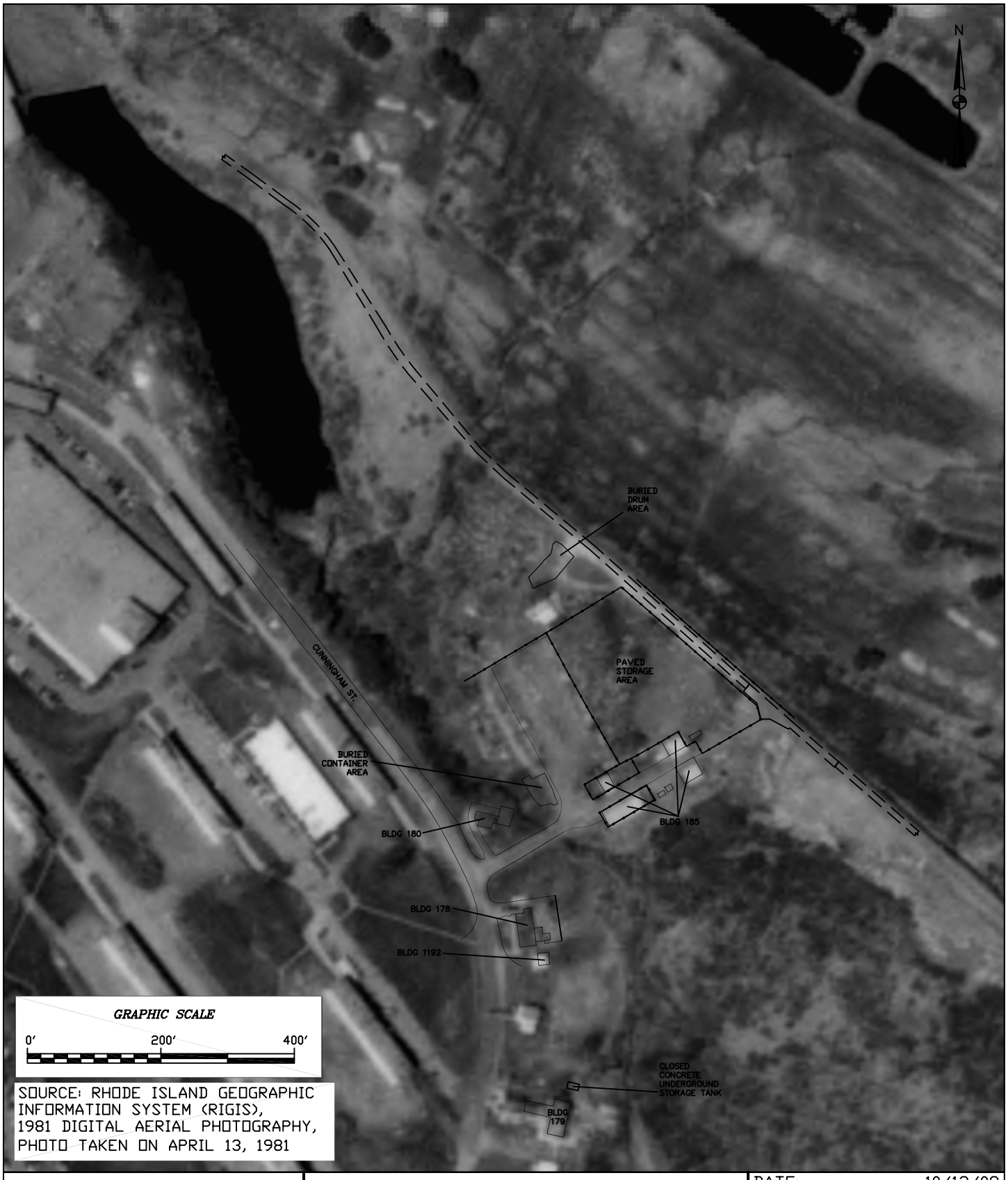

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CURRENT SITE FEATURES
NUSC - 1981
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1981.DWG

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PITTSBURGH, PA 15220
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CURRENT SITE FEATURES
NUSC - 1988
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1988.DWG

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661 ANDERSEN DRIVE - FOSTER PLAZA 7
PITTSBURGH, PA 15220
T: (412) 921-7090 | F: (412) 921-4040

CURRENT SITE FEATURES
NUSC - 1992
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\1992.DWG

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661 ANDERSEN DRIVE - FOSTER PLAZA 7
PITTSBURGH, PA 15220
T: (412) 921-7090 | F: (412) 921-4040

CURRENT SITE FEATURES
NUSC - 2003
NAVSTA NEWPORT
MIDDLETOWN, RHODE ISLAND

DATE:	10/13/09
PROJECT NO.:	112G02124
DESIGNED BY:	J. FORRELLI
DRAWN BY:	D.W. MACDOUGALL
CHECKED BY:	J. FORRELLI
FILE:	\02124\RI.DF\2003.DWG

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APPENDIX D

FIELD MEASUREMENT AND DATA REDUCTION

APPENDIX D.1

WELL DEVELOPMENT, GROUNDWATER SAMPLE LOG SHEETS AND GROUNDWATER LEVEL MEASUREMENTS

.65

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B100B
Site: Site 8
Date Installed:
Date Developed: 4/29/08
Dev. Method: pump
Pump Type: Grundfos

Depth to Bottom (ft.): 44.62
Static Water Level Before (ft.): 8.09
Static Water Level After (ft.): 8.05
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 4"

Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: NAVSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1040	Ø	6	16.90	13.08	8.00	0.406	75.9	5.61 -188 Strong petro odor
1055	Ø	13	19.47	12.53	8.01	0.414	115	4.47 -186
~~10~~ 1110	Ø	18	21.48	12.46	7.85	0.428	76.5	3.65 -173
1125	Ø	23	22.81	12.52	7.72	0.437	70.6	3.50 -160
1140	Ø	26	24.29	12.41	7.62	0.448	40.9	3.41 -146
1155	Ø	30	26.69	12.38	7.56	0.445	36.3	3.58 -135
1210	Ø	34	28.10	12.41	7.55	0.444	19.4	3.64 -128
1225	Ø	38	29.32	12.43	7.53	0.443	15.8	4.21 -122
1310	Ø	60	34.14	12.50	7.53	0.415	15.5	6.02 -105
1325	Ø	65	35.48	12.50	7.56	0.405	8.66	6.36 -96
1340	Ø	70	36.50	12.51	7.57	0.404	8.20	6.10 -95
1355	Ø	74	37.38	12.68	7.58	0.397	7.27	6.94 -90
1410	Ø	75	38.02	13.06	7.59	0.392	5.16	7.24 -87
1425	Ø	77	38.44	13.22	7.60	0.389	10.10	7.29 -85
1440	Ø	79	38.70	13.01	7.59	0.388	10.62	7.24 -84

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B101B
Site: Site 8
Date Installed:
Date Developed: 4/28/08
Dev. Method: pump
Pump Type: Grundfos
Depth to Bottom (ft.): 49.78
Static Water Level Before (ft.): 10.77
Static Water Level After (ft.): 10.96
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 4"
Responsible Personnel: J Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1157	Ø	30	40.90	11.93	7.52	0.548	24.9	7.74 127 clear
1212	Ø	42	44.50	12.44	7.73	0.552	26.0	6.49 110 * cease pumping
1321	Ø	47	33.40	12.06	7.88	0.546	27.4	9.02 191
1336	Ø	50	34.10	12.08	8.03	0.546	19.4	7.38 204
1356	Ø	55	38.30	12.25	7.85	0.544	12.4	6.51 196
1412	Ø	60	42.74	12.21	7.85	0.545	18.1	7.69 201
1420	Ø	63	44.31					* cease pumping
1500	Ø	63	29.14					* will let well recharge overnight
4/29 0754	Ø	64	10.92	12.78	6.46	0.563	53.4	7.38 236 800mL/min
0809	Ø	70	21.23	12.74	7.51	0.521	56.8	6.03 182
0824	Ø	~~75~~	23.82	12.88	7.65	0.521	44.7	7.01 179
0839	Ø	78	25.79	12.90	7.70	0.534	41.4	6.47 171
0854	Ø	82	28.75	12.99	7.73	0.537	41.0	7.07 162
0909	Ø	86	30.48	13.23	7.83	0.530	31.8	6.12 177
0924	Ø	90	33.60	13.56	7.76	0.536	27.7	5.88 167
0939	Ø	93	34.00	13.70	7.77	0.530	22.0	7.36 169
0954	Ø	96	33.40	13.58	7.75	0.530	22.4	6.18 164 * well started to recharge

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B102B
Site: Site 8
Date Installed:
Date Developed: 05/01/08
Dev. Method: pump
Pump Type: Grundfos

Depth to Bottom (ft.): 46.50
Static Water Level Before (ft.): 13.39
Static Water Level After (ft.): 14.02
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 4"

Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP	
1020	Ø	14	20.03	13.95	7.09	0.349	44.4	5.75 -50 *flowrate	1100 mL/min
1035	Ø	20	21.14	15.02	7.18	0.347	53.0	5.74 -59	
1050	Ø	23	26.50	15.05	7.12	0.350	65.0	4.05 -69	
0750	Ø	24	16.18	11.38	7.63	0.332	29.9	7.35 229 *flowrate	800 mL/min
0805	Ø	26	18.97	11.83	5.98	0.383	40.4	7.46 251	
0820	Ø	28	21.70	11.26	6.61	0.329	19.1	6.61 235	
0835	Ø	30	23.51	11.88	6.71	0.325	23.6	6.14 193	
0850	Ø	32	25.94	11.97	6.73	0.326	28.1	6.00 141	
0905	Ø	34	24.34	11.97	6.74	0.327	30.2	5.73 99 *flowrate	~600 mL/min
0920	Ø	35	24.78	12.01	6.78	0.334	17.5	5.91 96	
0935	Ø	37	25.31	11.93	6.75	0.334	15.3	5.73 78	
0950	Ø	39	25.30	12.04	6.80	0.328	12.2	6.03 80	
1005	Ø	41	26.25	12.57	6.70	0.330	15.6	5.01 54	
1020	Ø	43	27.35	12.29	6.75	0.330	12.7	5.15 71	
1030	Ø	44	27.41	12.31	6.80	0.330	4.31	5.72 78	
1035	Ø	45	27.50	12.37	6.80	0.328	3.92	5.93 74	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B103B
Site: Site 8
Date Installed: _____
Date Developed: _____
Dev. Method: _____
Pump Type: _____

Depth to Bottom (ft.): 50.50
Static Water Level Before (ft.): 14.04
Static Water Level After (ft.): 16.02
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): _____

Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1205	Ø	5	17.31	13.04	7.76	0.413	61.6	6.29 -134 *Flowrate 1900 ml/min
1220	Ø	12	17.10	13.08	7.66	0.391	60.1	6.11 -113
1235	Ø	19	16.43	13.15	7.63	0.390	35.7	5.97 -105
1250	Ø	26	16.45	12.71	7.23	0.372	22.6	6.30 -80
1305	Ø	33	16.48	13.13	6.89	0.364	11.7	4.52 -52
1320	Ø	40	16.51	13.22	6.90	0.358	3.69	4.45 -41
1330	Ø	44	16.50	13.16	~~4.55~~ 6.81	0.356	3.30	4.55 -29

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B103-Overburden
Site: Site 8
Date Installed: _____
Date Developed: 5-1-08
Dev. Method: pump
Pump Type: Grundfos
Depth to Bottom (ft.): 19.20
Static Water Level Before (ft.): 13.95
Static Water Level After (ft.): 14.15
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): 2"
Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: _____
Project Number: _____

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1405	Ø	10	14.90	11.02	6.82	0.734	973	5.14 -68 *Flowrate~3800mL/min
1420	Ø	23	14.47	10.67	7.04	0.810	42.4	4.95 -102
1435	Ø	30	14.52	10.66	7.07	0.822	11.94	3.98 -101 *flowrate~2700mL/min
1450	Ø	39	14.68	10.29	7.11	0.821	13.8	4.18 -102
1505	Ø	49	14.74	10.27	7.10	0.823	0.56	3.66 -89
1520	Ø	60	14.77	10.26	7.06	0.823	1.15	4.55 -85

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B184B
Site:
Date Installed:
Date Developed: 4/24/08
Dev. Method:
Pump Type: grundfos

Depth to Bottom (ft.): 42.60
Static Water Level Before (ft.): 15.89
Static Water Level After (ft.): 15.76
Screen Length (ft.): 19-42
Specific Capacity:
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name:
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP
0900	—	30	21.37	11.79	6.96	0.314	2558	8.20	42
0940	—	55	21.12	11.60	6.76	0.296	180	7.33	77
1010	—	75	21.25	11.84	6.80	0.302	17.0	7.50	92
1012	generator out of gas - stop pump								
1014	pump back on								
1035	—	100	21.29	11.93	6.78	0.301	15.0	7.55	80
1050	—	120	21.33	12.16	6.80	0.300	14.6	~~7.52~~ 5.20	92
2hr 1105	—	150	21.64	12.06	6.72	0.301	20.8	5.17	86
1120	—	170	21.55	11.88	6.75	0.301	11.8	4.94	87
1135	—	190	21.58	11.82	6.70	0.297	11.8	4.70	51
3. 1200	—	225	21.59	12.09	6.75	0.297	8.27	5.05	83
1230	—	255	21.55	11.99	6.77	0.299	6.60	5.35	82
1245	—	275	21.70	11.95	6.75	0.298	5.81	5.01	84
1300	—	320	21.81	11.98	6.72	0.299	9.49	5.38	85

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B105B
Site: 08
Date Installed: _____
Date Developed: 4/24/08
Dev. Method: _____
Pump Type: grundfos

Depth to Bottom (ft.): 50.5
Static Water Level Before (ft.): 18.74
Static Water Level After (ft.): 18.21
Screen Length (ft.): 18-48
Specific Capacity: _____
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: Cascade
Project Name: Site 08 RI
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP (mV)
0750	pump	on.	Dark silty water						
0800	—	15	19.06	12.08	7.20	0.321	45.1	6.82	17
0815	—	30	19.09	11.73	6.78	0.305	7.5	6.05	32
0830	—	50	19.10	11.67	6.69	0.301	3.33	6.20	49
0835	—	55	19.10	11.69	6.66	0.296	2.74	6.21	47

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 106 overburd
Site: 08
Date Installed:
Date Developed: 4/24/08
Dev. Method:
Pump Type: Whale / grundfos.

Depth to Bottom (ft.): 18.71
Static Water Level Before (ft.): 2.37
Static Water Level After (ft.): 1.20
Screen Length (ft.): 9-19
Specific Capacity:
Casing ID (in.): 2 (PVC)

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name: Site 08 RI
Project Number: WZG00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP
0807	pump on - Silty gray.								
0837	pump off - only 2 ft water in well - let recharge								
	purged 0.25 gallons.								
0851	pump on - water		3.6 ft TOC.						
0910		40	17.80	(pump off)			80.		
0940			3.0	pump on.					
1005		65	16.5	pump off					
1100 *		65	2.98						
1130	—	80	6.69	12.80	6.64	0.224	10.50	7.30	69
1145	—	90	6.81	12.86	6.09	0.227	4.60	7.32	95
1155	—	100	7.30	12.78	6.06	0.225	2.65	7.50	93

* Changed to grundfos pump

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B106B
Site:
Date Installed:
Date Developed: 4/25/08
Dev. Method:
Pump Type: grundfos

Depth to Bottom (ft.): 49.30
Static Water Level Before (ft.): 1.30
Static Water Level After (ft.):
Screen Length (ft.): 20-50
Specific Capacity:
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name:
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO (g/L)	ORP (mV)
0740	pump on.		gray silty water						
0825	—	70	12.45	12.58	6.18	0.337	54	5.10	-39
1 hr. 0840	—	90	12.60	12.63	7.05	0.303	32	5.49	-97
0855	—	120	12.78	12.66	7.11	0.318	25	4.64	-101
0910	—	140	12.86	12.67	7.19	0.318	17.8	4.95	-104
0925	—	165	13.01	12.67	7.25	0.316	11.6	4.90	-105
2 hr. 0940	—	185	13.00	12.71	7.24	0.317	12.6	3.93	-112
0955	—	210	13.13	12.70	7.25	0.315	14.5	4.17	-105
turned pump down due to water level + turbidity.									
1010	—	230	8.20	12.81	7.26	0.318	542	3.02	-107
1025	—	255	8.12	12.86	7.28	0.321	7.25	3.40	-115
3 1040	— (265) ~~280~~		7.83	12.92	7.28	0.315	6.01	4.31	-117
1055	—	280	7.75	13.02	7.28	0.319	5.69	3.99	-118

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B107B
Site: Site 8
Date Installed:
Date Developed: 4/30/08
Dev. Method: pump
Pump Type: Sand Pos

Depth to Bottom (ft.): 43.96
Static Water Level Before (ft.): 2.54
Static Water Level After (ft.): 2.80
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 4"

Responsible Personnel: J Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP	
0835	0	10	10.03	13.62	6.23	0.427	999	4.14 -109	*flowrate 1700mL/min
0850	0	20	14.20	13.61	7.31	0.371	999	4.64 -193	* well is recharging
0905	0	30	13.40	13.38	7.36	0.363	971	4.15 -117	
0920	0	40	12.02	13.50	7.36	0.365	999	3.74 -114	
0935	0	50	12.02	13.59	7.37	0.370	999	3.42 -160	
0950	0	60	10.54	13.68	7.44	0.373	965	3.48 -143	
1005	0	70	10.51	13.71	7.44	0.370	456	3.53 -158	
1020	0	80	10.50	13.85	7.42	0.369	321	3.66 -144	
1035	0	88	10.51	13.93	7.41	0.368	184	3.82 -141	*flowrate: 4400mL/min
1050	0	95	10.52	13.63	7.44	0.374	189	3.91 -130	
1105	0	103	10.52	13.52	7.48	0.375	181	5.00 -111	
1120	0	111	10.57	13.98	7.37	0.373	193	4.05 -116	
1135	0	122	10.55	14.12	7.34	0.381	229	3.44 -119	
1150	0	130	10.59	14.18	7.36	0.383	164	4.35 -115	
1205	0	145	17.51	14.37	7.39	0.389	123	5.61 -102	*flowrate 7600mL/min
1220	0	200	24.94	15.51	7.46	0.385	193	6.48 ~~-110~~ -91	
1235	0	240	29.70	14.05	7.39	0.375	211	5.89 -97	
1245	0	255	39.14	14.88	7.36	0.358	100.7	5.45 -89	*flowrate 2600mL/min

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B107B
Site: Site 8
Date Installed: _____
Date Developed: 4/30/08
Dev. Method: pump
Pump Type: grundfos

Depth to Bottom (ft.): 43.96
Static Water Level Before (ft.): 2.54
Static Water Level After (ft.): _____
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): 4"

Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1300	Ø	267	22.15	15.11	7.27	0.357	231	8.32 -89
1315	Ø	275	11.15	14.15	7.28	0.377	104.9	5.86 -84
1325							190	
1326							72.5	
1328							88.6	
1330	Ø	285	7.60	14.04	7.24	0.370	94.1	5.60 -93
1345	Ø	290	6.51	14.60	7.25	0.365	81.3	4.10 -100 *flowrate 1600 mL/min
1351							61.9	
1357							72.8	
1400	Ø	294	6.38	14.45	7.36	0.370	58.6	8.16 -106
1415	Ø	299	6.31	14.56	7.31	0.373	78.6	4.97 -105
1420							78.2	*flow rate 1300 mL/min
1422							75.6	
1425							74.4	
1429							64.0	
1430	Ø	305	5.66	14.20	7.29	0.370	61.8	5.33 -110
1440							51.6	
1442							41.5	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B107B
Site: Site 8
Date Installed: _____
Date Developed: 4/30/08
Dev. Method: pump
Pump Type: Grundfos
Depth to Bottom (ft.): 43.96
Static Water Level Before (ft.): 2.54
Static Water Level After (ft.): _____
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): 4"
Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1450							42.4	
1455							41.7	
1500	Ø	315	5.55	14.49	7.24	0.377	51.2	5.20 -112
1505							45.2	
1510							32.8	
1515	Ø	320	5.51	14.26	7.26	0.377	30.1	4.30 -106
1520							28.8	
1525							24.5	
1530	Ø	325	5.48	14.36	7.26	0.386	24.5	8.67 -110
1540							20.3	
1545	Ø	329	5.45	14.23	7.26	0.384	12.5	4.62 -111
1550							13.2	
1555							9.77	
1600	Ø	331	5.33	13.83	7.29	0.387	8.65	4.76 -102 *Flowrate 1300 in/4 min
1605							19.9	
1610							31.2/24.0	*double measure

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B108B13 | Depth to Bottom (ft.): 42.60 | Responsible Personnel: J. Bourgeois
Site: Site 8 | Static Water Level Before (ft.): 5.03 | Drilling Co.: Geosearch
Date Installed: | Static Water Level After (ft.): 7.76 | Project Name: NUSC Site 8 Disposal Area
Date Developed: 05/02/08 | Screen Length (ft.): | Project Number: 112G00816
Dev. Method: pump | Specific Capacity:
Pump Type: Sandfos | Casing ID (in.): 4"

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP	
1115	Ø	23	33.98	12.18	7.17	0.343	88.3	4.81 -133	
1130	Ø	29	27.35	13.03	7.07	0.362	111	3.56 -156 *flowrate	2400mL/min
1200	Ø	48	24.19	12.89	7.05	0.372	28.8	4.40 -129	
1215	Ø	50	23.83	12.77	7.11	0.373	15.9	5.36 -71	
1230	Ø	52	23.71	13.17	7.05	0.374	14.5	4.97 -92	
1245	Ø	56	23.71	13.07	7.07	0.374	13.7	4.77 -90	
1300	Ø	60	23.73	12.95	7.03	0.375	12.6	4.67 -85	
1315	Ø	67	22.28	13.07	6.98	0.376	4.71	3.93 -90 *flowrate	2000mL/min
1320	Ø	69	22.11	13.22	6.99	0.379	4.62	4.05 -88	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B109B
Site: Site 8
Date Installed:
Date Developed: 5/01/08
Dev. Method: pump
Pump Type: Grundfos

Depth to Bottom (ft.): 43.79
Static Water Level Before (ft.): 5.03
Static Water Level After (ft.): 5.97
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 4"

Responsible Personnel: J. Bourgeois
Drilling Co.: Geosearch
Project Name: NASC Site 8 Disposal Area
Project Number: 112600816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
0845	0.5	2	16.05	14.02	5.84	0.389	999	5.28 -101
0900	0	28	18.66	13.19	6.74	0.346	96.6	4.92 33 * Flow Rate 3200 mL/min
0915	0	~~844~~	12.51	13.81	6.97	0.336	30.2	4.18 -92
0930	0	58	12.34	13.75	6.95	0.335	4.67	3.83 -68 * flowrate 2400 mL/min
0945	0	64	12.12	13.51	7.14	0.333	3.88	6.51 -50

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B110B
Site: ~~SS~~ SS
Date Installed: _____
Date Developed: 4/23/08
Dev. Method: _____
Pump Type: Whale pump

Depth to Bottom (ft.): 49.93
Static Water Level Before (ft.): 13.38
Static Water Level After (ft.): _____
Screen Length (ft.): 14-49
Specific Capacity: _____
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: CascadeGeo
Project Name: SWMU 8 RI
Project Number: 112G00433

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	g/L Remarks (odor, color, etc.) DO	ORP (mV)
1315	pump	on -	very silty				~~191~~		
1430	—	55	25.37	13.09	7.18	0.302	191	6.39	-125
1445	—	65	25.87	12.67	7.05	0.296	164	6.38	-122
1500	—	75	26.00	12.66	7.05	0.301	63.8	5.60	-119
1515	—	85	26.40	12.66	7.00	0.300	36.8	5.25	-105
1530	—	95	26.29	12.57	6.99	0.299	30.0	5.34	-98
1545	—	105	26.30	12.60	6.99	0.296	16.9	5.36	-97
1600	—	115	25.70	12.65	6.96	0.302	13.2	5.42	-81
~~1615~~	pump	stopped							
	continued		4/24/08						

2 hr

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 110B
Site: _____
Date Installed: _____
Date Developed: 4/24
Dev. Method: _____
Pump Type: Grundfos

Depth to Bottom (ft.): 49.96
Static Water Level Before (ft.): 13.79
Static Water Level After (ft.): _____
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): _____

Responsible Personnel: R Clarke
Drilling Co.: geoSearch
Project Name: _____
Project Number: _____

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP (mV)
1440	pump	on	(Note - pump 3 hrs yesterday)						
1510	—	45	34.24	13.49	7.20	0.311	293	4.51	-60
1525	—	60	35.00	13.00	7.05	0.302	57.8	4.70	-30
1 hr 1540	—	70	35.30	12.97	7.02	0.302	48.3	4.60	-17
4 hrs	total.								

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: ~~B~~111B
Site: 88
Date Installed:
Date Developed: 4/22/08
Dev. Method:
Pump Type: Whale

Depth to Bottom (ft.): 45
Static Water Level Before (ft.): 12.10
Static Water Level After (ft.): 11.31
Screen Length (ft.): 14-44.
Specific Capacity:
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: Geo Search
Project Name:
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks DO g/L color, etc.)	(odor, ORP
1150	DK gray SILTY Water						~~185~~		
1250		40	13.47	12.92	6.99	0.239	185	7.32	-6
1300		45	1343	12.67	6.49	0.232	95.4	6.52	2
1315		50	13.47	12.53	6.49	0.228	58.3	6.59	16
1330		60	13.47	12.38	6.45	0.229	32.8	5.75	20
1345		~~85~~ 70	13.45	12.29	6.45	0.230	20.1	6.77	30
1347	Pump Stopped - Not working - Replaced.								
1425	pump on		~~14.10~~						
1430		80	14.10				94.4		~~40~~
1455		115	14.79	11.60	6.58	0.234	44.0	6.89	40
1510		130	1490	11.49	6.59	0.244	27.5	6.52	53
1520		145	14.95	11.47	6.58	0.237	20.7	6.53	63
1535		160	14.99	11.41	6.51	0.240	15.5	6.08	49
1550		175	15.05	11.46	6.57	0.239	12.8	6.35	54
1605		190	15.10	11.46	6.64	0.237	7.78	6.35	54
1620		205	15.14	11.41	6.77	0.238	7.12	6.39	62

2hr

3hr.

4hr.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B112 Overland
Site: _____
Date Installed: _____
Date Developed: 4/24/08
Dev. Method: _____
Pump Type: Whale

Depth to Bottom (ft.): 19.96
Static Water Level Before (ft.): 12.28
Static Water Level After (ft.): 11.91
Screen Length (ft.): 10-20
Specific Capacity: _____
Casing ID (in.): 2 in PVC

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name: Site 88 RI
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP
1550	pump on	-	gray + silty						
1645	—	45	12.78	9.89	6.81	0.219	88.2	7.68	189
1700	—	55	12.80	9.80	6.31	0.219	15.6	7.66	191
1715	—	70	12.82	9.73	6.13	0.213	5.03	7.70	184

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B112B
Site: 08
Date Installed: _____
Date Developed: 4/22/08
Dev. Method: _____
Pump Type: Whale

Depth to Bottom (ft.): 50.
Static Water Level Before (ft.): 13.60
Static Water Level After (ft.): 13.18
Screen Length (ft.): 18-48
Specific Capacity: _____
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: Cross Earth
Project Name: Site 08 RI
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (g/L DO, color, etc.) (odor, ORP(mV))
1130	pump	on	Dark gray silty.					
1230	—	30	13.65	12.04	7.13	0.284	19.2	8.00 37
1245	—	45	13.65	11.77	7.08	0.269	6.95	7.19 30
1300	—	60	13.65	11.69	7.01	0.270	5.95	5.91 35

1 hr.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B113B
Site: Disposal Area
Date Installed:
Date Developed: 4/23/08
Dev. Method:
Pump Type: Whalepump.

Depth to Bottom (ft.): 45.00
Static Water Level Before (ft.): 11.97
Static Water Level After (ft.): 11.47
Screen Length (ft.): 14-46
Specific Capacity:
Casing ID (in.): 4

Responsible Personnel: R Clarke
Drilling Co.: GeoSearch
Project Name:
Project Number: 112G00933.

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP
0720	DUMP	Dr.	Gray Silty Water						
0930	(2 ft)	80	13.35	12.39	6.79	0.255	311	6.87	-99
1010		110	13.55	12.57	6.86	0.266	35.2	7.10	-62
1025		125	13.54	12.63	6.62	0.257	22.9	6.70	-54
1040		140	13.55	12.77	6.58	0.252	13.7	6.58	-41
1055		155	13.55	12.95	6.61	0.256	12.4	6.58	-49
1110		170	13.55	12.91	6.67	0.255	7.85	6.62	-42
1125		185	13.55	12.99	6.71	0.253	13.0	6.75	-30
DTB-47.32									

2hr
3hr.
4hr.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B114B
Site: 08
Date Installed:
Date Developed: 4/22/08
Dev. Method:
Pump Type: whale

Depth to Bottom (ft.): 62.59
Static Water Level Before (ft.): 20.55
Static Water Level After (ft.): 20.41
Screen Length (ft.): ~~47.5 ft~~ 9.75-61
Specific Capacity: ~~9h 48~~
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name: Site 08 RI
Project Number: 112G00433.

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH ✓	Specific Conductance (Units S/cm) ✓	Turbidity (NTU)	Remarks (odor, color, etc.) DO (g/L)	(mV) ORP
0800	pump on.								
0810		25	20.75	10.35	5.55	0.146	4.27	10.60	282
0820		40	20.79	10.22	5.68	0.130	2.15	10.75	282
0830		50	20.79	10.26	5.73	0.128	2.08	10.38	281
0840		~~60~~ 65	20.79	10.76	5.80	0.128	1.01	10.35	280

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B115B
Site:
Date Installed: ~~4/22/08~~
Date Developed: 4/23/08
Dev. Method:
Pump Type: Whale pump

Depth to Bottom (ft.): 46.02
Static Water Level Before (ft.): 4.62
Static Water Level After (ft.): 3.81
Screen Length (ft.): ~~9.75-61~~
Specific Capacity: 9½ -48
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: Geo Search
Project Name:
Project Number:

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP
~~0850~~ 0850	pump	on - Very Silty gray water - surging + pumping							
0955		70	8.58	12.18	6.54	0.216	28.2	7.31	-18
1010		90	9.09	11.52	6.66	0.209	19.4	6.85	-41
1020		110	9.13	11.51	6.66	0.208	10.96	7.13	-25
1030		125	8.90	11.87	6.68	0.210	6.86	7.15	-19
1040		140	8.90	11.61	6.71	0.208	6.34	5.38	-29
1050		150	8.86	11.66	6.70	0.208	5.35	6.06	-35

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B116B
Site: NUSC
Date Installed: _____
Date Developed: 4/21/08
Dev. Method: whale pump
Pump Type: _____

Depth to Bottom (ft.): 39.85
Static Water Level Before (ft.): 6.65
Static Water Level After (ft.): 5.57
Screen Length (ft.): 10-40 ft open rock.
Specific Capacity: _____
Casing ID (in.): 4in

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name: _____
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~S/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.) DO g/L	ORP mV
0910	pump on. water silty to start					—	—	—	—
2:50	5 gallons pumped					—	—	—	—
0920		15		11.85	8.01	0.215	462	8.03	-42
0930		30		11.80	7.00	0.215	203	5.86	-5
0940		50		11.80	6.83	0.215	189	5.48	1
1000		85	11.38	11.87	7.54	0.213	114	6.76	-61
1010		100		11.87	7.35	0.211	60	6.70	~~11.87~~ -70
1150	pumping again	—	—	—	—	—	—	—	~~370~~
1155			10.30	12.20	8.55	0.215	44.3	7.56	-127
1205		130	11.00	12.28	8.21	0.199	39.8	5.83	-136
1220		155	11.52	12.32	8.33	0.212	52.8	6.37	-119
1235		175	11.90	12.21	8.18	0.207	43.9	6.64	-72
1300		220	12.25	12.21	8.02	0.212	18.5	7.39	-161
1315		260	12.45	12.32	8.07	0.210	12.4	7.34	-80
1330		310	12.65	12.29	8.16	0.210	17.0	7.07	-111
1345		350	12.80	12.24	8.02	0.210	26.2	7.10	-97
1400		375	12.95	12.25	8.08	0.210	32.2	7.04	-113
1415		400	13.10	12.18	8.20	0.208	30.0	7.02	-103

stop to empty drums.

pulled pump off bottom

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B116B
Site: 08 NUSCDA
Date Installed: _____
Date Developed: 4/21/08
Dev. Method: _____
Pump Type: whale

Depth to Bottom (ft.): 40
Static Water Level Before (ft.): _____
Static Water Level After (ft.): _____
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): _____

Responsible Personnel: _____
Drilling Co.: _____
Project Name: _____
Project Number: _____

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP
1430		430	13.30	13.40	8.41	0.216	9.10	8.38	-96
1445		450	13.30	12.65	7.87	0.210	7.88	8.27	-76
1500		480	13.27	12.75	8.13	0.214	3.51	9.09	-65

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B117B
Site: D8 NUSC
Date Installed:
Date Developed: 4/21/08
Dev. Method:
Pump Type: whale pumps
Depth to Bottom (ft.): 41.45
Static Water Level Before (ft.): 22.10
Static Water Level After (ft.): 21.95
Screen Length (ft.): 10-40 open rock
Specific Capacity:
Casing ID (in.): 4
Responsible Personnel: R Clarke
Drilling Co.: Geo Search
Project Name:
Project Number: 112g00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO	ORP (mV)
1540	PUMP ON								~~-100~~
1545		8	22.14	13.18	8.24	0.197	1.31	7.61	-120
1600		30	22.15	12.98	9.12	0.196	1.98	7.70	-140
1615		50	22.16	12.31	8.51	0.197	1.08	7.56	-4
1630		70	22.17	13.06	8.62	0.199	0.69	8.85	-126
1645		90	22.17	12.94	8.55	0.193	1.54	8.63	-136

Rate - 5 gallons / 3'/4 min.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B118B
Site: 68 NASC
Date Installed: _____
Date Developed: 4/24/08
Dev. Method: _____
Pump Type: grundfos

Depth to Bottom (ft.): 50.72
Static Water Level Before (ft.): 26.60
Static Water Level After (ft.): 26.52
Screen Length (ft.): 18-49
Specific Capacity: _____
Casing ID (in.): 4

Responsible Personnel: R Clark
Drilling Co.: GeoSearch
Project Name: Site 08 RI
Project Number: 112G00933

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.) DO (mg/L)	ORP (mV)
1245	pump	ON					34.5		
1305	—	30	26.70	12.53	6.55	0.190	34.5	8.05	228
1320	—	40	26.63	12.90	6.28	0.190	4.67	7.80	192
1330	—	50	26.63	12.88	6.29	0.187	0	7.72	189

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: B119B
Site: Site 8
Date Installed:
Date Developed: 4/28/08
Dev. Method: pump
Pump Type: grundfos
Depth to Bottom (ft.): 45.13
Static Water Level Before (ft.): 13.75
Static Water Level After (ft.): 13.56
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 4"
Responsible Personnel: J Bourgeois
Drilling Co.: Geosearch
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO ORP
1017	0	20	13.90	11.36	6.87	0.429	14.8	7.25 -113 clear
1032	0	35	13.93	11.45	7.21	0.428	1.45	6.76 -121 clear
1047	0	50	13.97	11.42	7.23	0.430	0.99	6.18 -109 clear

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: ~~P20~~ B/2013
Site: Site 8
Date Installed: _____
Date Developed: 4/28/08
Dev. Method: pump
Pump Type: Grundfos

Depth to Bottom (ft.): 62.5
Static Water Level Before (ft.): 19.25
Static Water Level After (ft.): 18.90
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): 4"

Responsible Personnel: J Bourgeois
Drilling Co.: Geoservices
Project Name: NUSC Site 8 Disposal Area
Project Number: 112G00816

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.) ORP DO
0923	0	45	24.82	12.78	5.69	.567	4.26	44 7.63 clear
0938	0	60	25.10	12.58	5.64	.567	3.86	16 8.28 clear

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Page ___ of ___

Well: MW148 / MW-122
Site: NUSC Disposal Area
Date Installed: ___
Date Developed: 5/29/08
Dev. Method: Foot valve, Waterra Tubing
Pump Type: N/A

Depth to Bottom (ft.): 7.54
Static Water Level Before (ft.): 4.37
Static Water Level After (ft.): 7.54
Screen Length (ft.): ___
Specific Capacity: ___
Casing ID (in.): 1"

Responsible Personnel: Mike Horton
Drilling Co.: Drillex
Project Name: ___
Project Number: ___

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units µS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1605		0.5		13.53	6.60	318	77.8	
1615		2		12.26	6.88	480		
1620		3.5		12.31	6.82	468	64.6	
1630		5		12.03	6.76	451		
1640		7.5		11.65	6.92	460	1175	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW-149 / MW-123
Site: NUSC Disposal Area
Date Installed: _____
Date Developed: 5/29/08
Dev. Method: Foot valve & Watering Tubing
Pump Type: N/A
Depth to Bottom (ft.): 9.82
Static Water Level Before (ft.): 5.81
Static Water Level After (ft.): _____
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): _____
Responsible Personnel: Mike Horton
Drilling Co.: Drill Ex
Project Name: _____
Project Number: _____

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)
856		1		13.79	6.41	841	34.2	Muddy Brown Color
910		2.5		13.79	6.72	831	74.3	
0928		5		13.38	7.00	826	845	
0942		6.5		13.36	6.96	826	113	
0955		8		13.30	7.05	826	102.4	
1008		10		13.18	7.09	827	84.3	

TETRA TECH NUS, INC. | **WELL DEVELOPMENT DATA SHEET** | **Well No.:** MW124B

PROJECT: Site 08 - NUSC Disposal Area
PROJECT NO.: 112G00933.0212
SAMPLE ID: N/A

DATE: 7/29/08
WEATHER: clear 80's/90's
PERSONNEL: M. Alroy

Well Screen Depth: N/A BEDROCK WELL NO SCREEN / _____ ft. bgs
H&S Monitoring Instrument Reading 0.0

Pump Type/Material: Grunfos / Poly
Pump Intake Depth: Bottom of well 48'

Total Purge Volume = _____ (gal)
Data Recorded By: M. Alroy

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments ORP
16:15	14.25		.75 Gal	17.4	6.73	0.634	8.11	50	-101
16:30	15.95		.75 Gal	16.8	6.70	0.637	7.71	45	-96
16:45	16.17		.75 Gal	17.9	6.72	0.634	7.42	34	-96
17:00	16.30		.75 Gal	17.7	6.74	0.606	7.41	30	-94
17:15	16.50		.75 Gal	17.6	6.73	0.601	7.23	26	-93
15:00									
15:15									
15:30									
15:45									
16:00									

TETRA TECH NUS, INC. | **WELL DEVELOPMENT DATA SHEET** | **Well No.:** MW125B

PROJECT: Site 08 - NUSC Disposal Area
PROJECT NO.: 112G00933.0212
SAMPLE ID: _____

DATE: 7/29/08
WEATHER: ~~CLEAR~~ 80's 90's
PERSONNEL: M Alroy

Well Screen Depth: N/A BEDROCK WELL NO SCREEN / _____ ft. bgs
H&S Monitoring Instrument Reading 0.0

Pump Type/Material: GRUNDFOS / POLY
Pump Intake Depth: _____

Total Purge Volume = _____ (gal)
Data Recorded By: M. Alroy

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments ORP
10:30			0759					>MDL	
11:15	8.89		"	14.6	7.11	0.540	9.48	70	-163
11:30	7.76		"	14.4	7.19	0.525	8.81	55	-189
11:45	8.64		"	14.1	7.21	0.526	8.13	32	-201
12:00	9.48		"	14.0	7.20	0.527	7.82	26	-209
12:15	9.26		"	14.1	7.21	0.528	7.85	16	-204
12:30	9.49		"	14.0	7.22	0.526	7.57	12	-203
12:45	9.19		"	14.3	7.21	0.531	7.03	8.1	-221
13:00	9.2		"	14.1	7.22	0.510	7.31	6.1	-212

TtNUS Form 0013

Page ___ of ___

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW126B

PROJECT: Site 08 - NUSC Disposal Area
PROJECT NO.: 112G00933.0212
SAMPLE ID: N/A

DATE: 7/29/08
WEATHER: CLEAR 80's
PERSONNEL: M. Alroy

Well Screen Depth: N/A BEDROCK WELL NO SCREEN / _____ ft. bgs
H&S Monitoring Instrument Reading 0.0

Pump Type/Material: GRUNDFOS / POLY
Pump Intake Depth: 60' bgs

Total Purge Volume = _____ (gal)
Data Recorded By: M. Alroy

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments ORP
7:30	3.72		.756					>MDL	
8:45	4.22		"	14.5	7.34	0.440	9.26	66	-169
9:00	4.28		"	15.5	6.70	0.477	9.36	22	-44
9:15	4.41		"	14.6	6.90	0.400	9.27	9.0	-129
9:30	4.35		"	14.6	7.09	0.393	7.19	7.2	-183
9:45	4.34		"	14.8	7.08	0.389	7.16	6.2	-163

TtNUS Form 0013

Page ___ of ___

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: Hydrant
Site: NUSC
Date Installed: 4/21/08
Date Developed: _____
Dev. Method: _____
Pump Type: _____

Depth to Bottom (ft.): _____
Static Water Level Before (ft.): _____
Static Water Level After (ft.): _____
Screen Length (ft.): _____
Specific Capacity: _____
Casing ID (in.): _____

Responsible Personnel: _____
Drilling Co.: _____
Project Name: _____
Project Number: _____

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units S/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) DO. g/L	ORP(mV)
0835				10.50	8.33	0.230	48.3	17.44	432
0840				10.78	8.65	0.224	15.8	17.17	474

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW109-1924

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 19-24' Feet Screened Interval Depth 19-24' feet
Sample Date & Time: 5/8/08 1040 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: Stick-up - 3.24 from top of casing
sample @ 1130

H&S Survey Meter 0.1 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.76 ft Post - pump insertion WL 10.28 ft
after removal of water sounder @ 5 gals

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC					
Total Fe					
Dis Fe					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1045	10.89		100	0.5	13.58	652	7.20	-188.3	0.52	120	
1050	11.07		"	1.0	13.72	654	7.20	-189.3	0.52	110	
1055	11.10		"	1.5	14.27	661	7.19	-188.3	0.62	110	
1100	11.13		"	2.0	14.10	655	7.23	-196.4	0.50	70	
1105	11.14		"	2.5	14.25	655	7.24	-200.8	0.47	55	
1110	11.16		"	3.0	14.28	654	7.26	-204.2	0.46	45	
1115	11.16		"	3.5	14.27	652	7.27	-205.8	0.43	35	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-mw109-3535

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 30-35' Feet Screened Interval Depth 30-35' feet
Sample Date & Time: 5/8/08 1420 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: stickup - 2.24 from TOC
sample 1515

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.76 ft Post - pump insertion WL 8.1(ft
after removal of 10gal overburden

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
TOC					
total Fe					
Diss Fe					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1425	8.25		100	0.5	12.86	298	7.15	-11.8	0.61	240	
1430	8.77		"	1.0	12.91	305	7.09	-33.4	0.57	220	
1435	8.96		"	1.5	13.08	316	7.02	-39.3	0.48	210	
1440	7.03		"	2.0	13.21	318	7.01	-47.2	0.41	190	
1445	9.12		"	2.5	13.54	322	6.98	-59.7	0.39	185	
1450	9.33		"	3.0	13.99	324	6.99	-67.3	0.37	180	
1455	8.97		"	3.5	14.78	336	6.86	-70.3	0.49	160	
1500	8.81		"	4.0	14.65	339	6.96	-64.9	0.50	140	
1505	8.80		"	4.5	14.66	337	6.96	-68.2	0.48	120	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-mw109-3641

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 36-41' Feet Screened Interval Depth 36-41 feet
Sample Date & Time: 5/8/08 1620 hours _____ /Dup
Sampler(s): C. Dean
Data Recorded By: C. Dean Signature: _____
Notes: Slight sheen - 2.54' purge @ 1105

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.76 ft Post - pump insertion WL 9.54 ft
After removal of tubing overnight

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC					
total Fe					
Diss Fe					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~ Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1625	9.35		100	0.5	14.55	343	7.04	-70.3	0.66	250	
1630	9.27		"	1.0	14.45	342	7.01	-73.3	0.59	190	
1635	9.37		"	1.5	14.20	341	7.01	-87.1	0.55	120	
1640	9.37		"	2.0	14.16	342	7.04	-86.5	0.49	130	
1645	9.37		"	2.5	14.15	342	7.07	-89.3	0.47	120	
1650	9.37		"	3.0	14.17	342	7.06	-91.2	0.48	120	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TUBING CUT 40' TEFLON
70' POLY

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW114-2934

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: BLADDER PUMP (21-34)
Depth Sampled: 29-34 Feet Screened Interval Depth 29-34 feet
Sample Date & Time: 5/5/08 14:15 hours N/A /Dup
Sampler(s): M.Abray, D.Seiken
Data Recorded By: M.Abray Signature: M.Abray
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 20.4 ft Post - pump insertion WL 21.45 ft
FROM TOP OF CASING 1.1'

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC					
Tot. Fe					
Diss Fe					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
12:00	21.4										initial
12:05			100	0.0	16.51	270	5.99	106.7	7.16	90	
12:10	21.4			0.5	15.12	257	5.97	108.4	6.97	85	
12:15	21.45			1.0	14.67	269	6.01	104.3	6.02	80	
12:20	21.45			1.5	14.80	283	6.06	98.2	6.07	65	
12:25	21.45			2.0	14.84	295	6.11	92.8	6.11	55	
12:30	21.45			2.5	14.79	308	6.15	87.3	5.34	60	
12:35	21.45			3.0	14.61	325	6.19	82.6	4.96	45	
12:40	21.45			3.5	14.53	336	6.22	79.0	4.61	40	
12:45	21.45			4.0	14.52	340	6.23	77.8	4.50	40	
12:50	21.45			4.5	14.21	351	6.25	75.4	4.26	35	
12:55	21.45			5.0	14.44	366	6.27	73.2	4.07	36	
13:00	21.45			5.5	15.85	385	6.30	69.2	3.86	29	
13:05	21.45			6.0	14.20	394	6.29	58.9	3.76	29	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: SITE 08 - NUSC DISPOSAL AREA
Sample ID: DA-MW114-2934

Tetra Tech NUS Charge No. _____
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
13:10	21.45		100	6.5	13.88	388	6.82	54.9	3.44	23	
13:15	21.46		"	7.0	14.00	407	6.59	50.4	3.09	17	
13:20	21.47		"	7.5	13.86	419	6.35	47.3	2.68	16	
13:25	21.47		"	8.0	13.93	(5) ~~442~~ 428	6.37	43.5	2.33	16	
13:30	21.48		"	8.5	13.89	449	6.38	36.2	1.78	15	
13:35	21.48		"	9.0	13.95	453	6.39	33.5	1.67	13	
13:40	21.49		"	9.5	15.81	458	6.39	31.3	1.55	12	
13:45	21.50		"	10.0	13.71	460	6.38	28.2	1.39	10	
13:50	21.50		"	10.5	13.79	465	6.38	26.2	1.27	9.9	
13:55	21.49		"	11.0	13.58	467	6.38	25.0	1.09	9.8	
14:00	21.49		"	11.5	13.61	473	6.38	22.8	1.01	9.7	
14:05	21.46		"	12.0	13.48	473	6.37	21.7	0.92	9.1	
14:10	21.46		"	12.5	13.63	475	6.37	19.4	0.85	9.0	
14:15											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW114-3439

Tetra Tech NUS Charge No. 112G00933-0212
QC: N/A (If applicable)

Sample Method: BLADDER PUMP
Depth Sampled: 34'-39' Feet Screened Interval Depth 34'-39' feet
Sample Date & Time: 5/5/08 ~~hours~~ 17:35 N/A /Dup
Sampler(s): M. Alvey, C. ODOM
Data Recorded By: M. Alvey Signature: M. Alvey
Notes:

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 21.62 ft Post - pump insertion WL _____ ft
STICK UP TO MP FROM GS = 2.15'

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOCs					
Total Fe					
Diss Fe					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments PID
15:30	21.62		100	0.5	17.10	383	6.31	22.6	5.63	200	0.0
15:35	21.62		"	1.0	15.87	356	6.21	31.0	4.71	190	"
15:40	21.63		"	1.5	14.94	339	6.18	34.6	4.42	200	"
15:45	21.63		"	2.0	14.48	331	6.18	36.1	4.20	180	"
15:50	21.63		"	2.5	14.28	329	6.21	33.5	4.0	170	"
15:55	21.63		"	3.0	14.33	329	6.23	30.4	3.87	160	"
16:00	21.63		"	3.5	14.34	333	6.26	26.9	3.74	140	"
16:05	21.63		"	4.0	14.23	336	6.30	20.2	3.54	140	"
16:10	21.63		"	4.5	14.19	340	6.32	16.0	3.39	140	"
16:15	21.63		"	5.0	14.22	344	6.34	11.6	3.12	130	"
16:20	21.63		"	5.5	14.02	348	6.36	6.3	2.95	110	"
16:25	21.63		"	6.0	13.90	350	6.38	0.7	2.76	110	"
16:30	21.63		"	6.5	13.79	353	6.39	-2.0	2.76	110	"
16:35	21.63		"	7.0	13.78	357	6.41	-6.3	2.52	110	"

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: SITE 08 - NUSC DISPOSAL AREA
Sample ID: DA-MW114-3439

Tetra Tech NUS Charge No. 112G00933-0212
QC: N/A (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments PID
16:40	21.63		100	7.5	13.71	360	6.42	-10.9	2.38	100	0.0
16:45	21.63		"	8.0	13.71	362	6.44	-14.0	2.28	100	"
16:50	21.63		"	8.5	13.68	364	6.44	-15.8	2.22	100	"
16:55	21.63		"	9.0	13.67	367	6.45	-19.2	2.15	80	"
17:00	21.63		"	9.5	13.72	369	6.46	-21.8	2.11	75	"
17:05	21.63		"	10.0	13.69	391	6.47	-24.2	2.05	80	"
17:10	21.63		"	10.5	13.80	373	6.48	-27.4	2.03	70	"
17:15	21.63		"	11.0	13.72	375	6.49	-29.6	2.05	70	"
17:20	21.63		"	11.5	13.46	375	6.49	-31.3	2.05	60	"
17:25	21.64		"	12.0	13.27	373	6.50	-33.5	2.0	65	"
17:30	21.64		"	12.5	13.16	373	6.50	-35.0	1.94	65	"
17:35				[redacted]							★
17:40											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

★ SEE FIELD BOOK FOR SAMPLE TIME FIELD MODIFICATION

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW114-5361

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: BLADDER PUMP
Depth Sampled: _____ Feet Screened Interval Depth _____ feet
Sample Date & Time: __/__/__ _____ hours _____ /Dup
Sampler(s): M. Alray, C. Odom
Data Recorded By: M Alray Signature: M Alray
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 23.18 ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC					
Total Metals					
Dis Metals					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0930	23.18		100	0.0	12.53	388	6.15	-12.2	4.51	300	
0935	23.18		"	0.5	12.54	391	6.15	-11.1	4.37	270	
0940	23.19		"	1.0	12.61	392	6.15	-10.7	4.30	210	
0945	23.19		"	1.5	12.65	394	6.15	-9.1	4.29	180	
0950	23.20		"	2.0	12.67	396	6.15	-9.5	4.27	140	
0955	23.20		"	2.5	12.70	397	6.15	-10.1	4.30	100	
1000	23.20		"	3.0	12.81	398	6.15	-8.2	4.29	90	
10:05	23.20		"	3.5	12.86	399	6.15	-7.3	4.27	80	
10:10	23.20		"	4.0	14.14	380	6.18	-4.5	4.12	90	
10:15	23.20		"	4.5	12.85	342	6.12	12.9	3.39	85	
10:20	23.20		"	5.0	12.82	340	6.12	15.1	3.38	80	
10:25	23.19		"	5.5	12.94	336	6.14	17.7	3.19	70	
10:30	23.19			6.0	13.06	343	6.19	6.7	2.92	90	
10:35	23.20			6.5	13.05	339	6.20	4.9	2.86	85	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area
Sample ID: DA-MW114-5361

Tetra Tech NUS Charge No. 112G00933-0212
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1040	23.20	~~100~~	100	7.0	13.10	338	6.20	3.3	2.72	80	
1045	23.19		"	7.5	13.19	333	6.20	7.7	2.65	75	
1050	23.19		"	8.0	13.21	328	6.19	12.7	2.62	65	
1055	23.19		"	8.5	13.21	327	6.20	14.2	2.56	55	
1100	23.19		"	9.0	13.20	325	6.19	15.4	2.50	60	
1105	23.20		"	9.5	13.18	324	6.19	16.3	2.46	55	
pumped 10 gallons using Simflex @ 5 minutes as soon as whale pump				whale pump		(water level remain over S/S)	and reserved bladder pump		returned to	at 11:35 23.20	
1140	23.20		"	10.0	14.85	357	6.29	9.5	2.90	95	
1145	23.20		"	10.5	15.27	352	6.20	19.0	2.53	95	
1150	23.20		"	11.0	19.58	353	6.18	21.9	2.42	85	
1155	23.20		"	11.5	15.62	352	6.16	24.8	2.33	85	
1200	23.20		"	12.0	15.41	350	6.14	26.4	2.29	80	
12:00	12:15 collected gws										

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW15-1924

Tetra Tech NUS Charge No. 112600933-0212
QC: N/A (If applicable)

Sample Method: Bladder pump
Depth Sampled: 19.24 Feet Screened Interval Depth 19-24 feet
Sample Date & Time: 5/12/08 0910 hours /Dup
Sampler(s): C. Dam
Data Recorded By: C. Dam Signature: C. Dam
Notes: sample @ 1030 tide up - 1.76

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 4.75 ft Post - pump insertion WL 4.70 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOCs	X3				
tot Fe	X1				
dis Fe	X1				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 1 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0915	4.91		100	0.5	11.88	485	7.02	-167.0	0.26	190	
0920	4.91		"	1.0	11.83	431	6.86	-149.1	0.20	190	
0925	4.90		"	1.5	11.79	428	6.79	-146.3	0.27	170	
0930	4.90		"	2.0	11.67	424	6.77	-147.8	0.24	240	
0935	4.91		"	2.5	11.60	422	6.75	-149.3	0.21	230	
0940	4.91		"	3.0	11.67	421	6.75	-148.7	0.20	230	
0945	4.91		"	3.5	11.79	425	6.81	-153.0	0.18	260	
0950	4.91		"	4.0	11.92	430	6.92	-161.3	0.21	230	
0955	4.90		"	4.5	11.82	431	6.84	-164.5	0.19	240	
1000	4.90		"	5.0	11.99	428	6.89	-176.2	0.18	220	
1005	4.91		"	5.5	11.91	423	7.09	-183.8	0.12	210	
1010	4.90		"	6.0	11.98	423	7.09	-182.1	0.12	160	
1015	4.90		"	6.5	11.85	423	7.09	-182.7	0.10	160	
1020	4.90		"	7.0	11.94	423	7.09	-182.5	0.12	160	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW 115-26'31

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 26-31' Feet Screened Interval Depth 26-31' feet
Sample Date & Time: 5/12/08 1150 hours _____/Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature:
Notes: Sample @ 1250 stick up - 1.83

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 48.89 ft Post - pump insertion WL 48.80 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC					
total Fe					
Nitrate					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. [2] uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1155	48.90		100	0.5	15.83	455	6.55	-109.3	1.36	170	
1200	48.65		"	1.0	16.24	456	6.63	-117.9	1.11	160	
1205	4.31		"	1.5	15.02	441	6.56	-115.6	0.72	170	
1210	4.43		"	2.0	14.43	435	6.61	-127.8	0.57	170	
1215	4.55		"	2.5	14.26	434	6.72	-143.6	0.46	150	
1220	4.60		"	3.0	14.06	432	6.78	-150.8	0.42	150	
1225	4.61		"	3.5	13.92	433	6.85	-154.1	0.37	160	
1230	4.64		"	4.0	13.61	431	6.93	-159.8	0.38	160	
1235	4.65		"	4.5	13.66	430	6.99	-165.7	0.35	170	
1240	4.68		"	5.0	13.63	427	7.01	-172.2	0.33	160	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

7.25
0.5
6.75 · 0.37 = 2.49 gallons

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: ~~DA~~ - MW124B- 1020

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER
Depth Sampled: 10-20 Feet Screened Interval Depth N/A feet
Sample Date & Time: 8/1/08 _____ hours _____ /Dup
Sampler(s): M Alroy
Data Recorded By: M Alroy Signature: M. Alroy
Notes: SPECIFIC COND & ORP SEEM TO BE MALFUNCTIONING TEMP IS HIGH DUE TO FLOW CELL IN THE SUN PRIOR TO SAMPLING

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 2.77 ft Post - pump insertion WL 0.5 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	SVOC				
GRO	PCB				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
14:25	3.5		250	0	27.66	917	7.38	-293.4	0.13	240	
14:30	3.48		"	250	24.92	863	7.59	-292.5	0.14	198	
14:35	3.47		"	500	25.15	869	7.66	-317.5	0.17	190	
14:40	3.49		"	750	25.51	878	7.65	-337.6	0.22	175	
14:45	3.44		"	1000	25.68	815	7.60	-340.3	0.24	160	
14:50	3.43		"	1250	25.84	879	7.60	-348.5	0.26	100	
14:55	3.42		"	1500	25.81	884	7.69	-381.8	0.28	90	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW124B-3545

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 35-45 Feet Screened Interval Depth N/A feet
Sample Date & Time: 8/4/08 _____ hours _____ /Dup
Sampler(s): MAbay
Data Recorded By: MAbay Signature: M. Abay
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.72 ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	DRO				
GRO	PCB				
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
10:50	5.93		300	0	17.91	789	6.62	-117.3	2.42	100	
10:55	6.25		"	300	16.13	754	6.53	-116.5	1.44	95	
11:00	6.37		"	600	15.58	733	6.52	-113.2	1.12	100	
11:05	6.85		"	900	15.72	723	6.51	-111.3	1.0	90	
11:10	7.1		"	1200	15.74	713	6.50	-110.4	0.98	100	
11:15			"	1500	15.72	708	7.06	-110.0	0.94	100	
11:20			"	1800	15.87	698	6.49	-110.8	0.88	100	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

MW13B - 4" BEDROCK 23'
9B - 22
13A - 7' 5'

150
× 4

8.55
25.25
16.97 × 0.37 = 6.28 gallons

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW125B-2636

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 2636 Feet Screened Interval Depth N/A feet
Sample Date & Time: 7/31/08 16:35 hours _____ /Dup
Sampler(s): M Alroy
Data Recorded By: M Alroy Signature: M Alroy
Notes: 15:15 begin purging ontop of packer @ 600 ml/min

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 94 ft Post - pump insertion WL _____ ft
MP 4.47 above TOC

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		SVOC			
GRO		PCB			
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
16:05	11.1		300	0	18.96	487	7.28	-120.1	0.80	80	
16:10	10.65		"	300	17.47	464	7.09	-142.0	0.33	40	
16:15	10.66		"	600	16.52	454	7.07	-152.9	0.21	60	
16:20	10.67		"	900	16.48	450	7.09	-157.0	0.22	50	
16:25	10.55		"	1200	18.71	456	7.12	-159.2	0.27	55	
16:30	10.50		"	1500	17.56	451	7.14	-169.4	0.24	35	
16:35	10.4		"	1800	17.55	463	7.15	-170.5	0.32	30	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW125B-3643

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 36-46 Feet Screened Interval Depth N/A feet
Sample Date & Time: 8/1/08 1010 hours _____ /Dup
Sampler(s): B. Gerringer
Data Recorded By: B. Gerringer Signature: _____
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 11.51 ft Post - pump insertion WL 11.76 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0930	11.76		200	0	15.89	426	7.15	280.4	0.76	250	
0935	11.77			200	15.82	424	7.17	289	0.78	240	
0940	11.81			400	15.66	422	7.19	292	0.65	230	
0945	11.80			600	15.68	425	7.18	288	0.53	250	
0950	11.79			800	15.50	422	7.19	282	0.24	230	
0955	11.80			1000	15.53	421	7.17	274.3	0.18	210	
1000	11.81			1200	15.45	423	7.19	280	0.17	190	
1005	11.80		↓	1400	15.39	419	7.19	270	0.15	190	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

MW-125B (36-46') 08/01/08

Sampled at 1010

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUSC - Site 8 Disposal Area

Sample ID:

Tetra Tech NUS Charge No.

QC: (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
930	11.76		200		15.89	426	7.15	280.4	0.76	250	
935	11.77		200		15.82	424	7.17	289	0.78	240	
940	11.81		200		15.66	422	7.19	292	0.65	230	
945	11.80		200		15.68	425	7.18	288	0.63	260	
950	11.79		200		15.80	422	7.19	282	0.24	230	
955	11.80		200		15.53	421	7.17	274.3	0.18	210	
1000	11.81		200		15.45	423	7.19	280	6.17	190	
1005	11.80		200		15.39	419	7.19	270	0.15	190	
1010			200								
1015			200								
1020			200								
1025			200								
1030			200								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

Sampled at 1010

MW-125 B 8/1/08

Packer Intval 35.7-45.7

Water level : 5.8' From TOC
Top of Paker: 31.75'

To purge 10 Gallons = Started at 815

10.68 - 4.88
36.63

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW126B-2227

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 23' - 27' Feet Screened Interval Depth N/A feet
Sample Date & Time: 7/30/08 12:50 hours _____ /Dup
Sampler(s): M. Alroy
Data Recorded By: M. Alroy Signature: M. Alroy
Notes: Discrete interval packer sampling

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft
(MP - 8.22) = TOC

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	SVOC				
GRO	PCB				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
12:25	9.39		450	0							
12:30	8.5		450	450	17.46	297	7.27	-157.8	0.36	75	
12:35	7.19		"	900	17.90	289	7.22	-156.0	0.75	75	
12:30	7.26		"	1350	18.34	278	7.37	-172.6	2.54	100	
12:35			"	1800	20.41	289	7.41	-160.6	0.97	90	
12:40			150	1950	21.10	291	7.42	-162.9	0.71	75	
12:45			150	2100	19.38	282	7.44	-179.2	0.45	95	
12:50			150								
12:55											
13:00											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

7.1 cont
47.31

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW12GR-4246

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 42-42 Feet Screened Interval Depth N/A feet
Sample Date & Time: 7/30/08 _____ hours _____ /Dup
Sampler(s): M. Alroy
Data Recorded By: M Alroy Signature: M. Alroy
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		SVOC			
GRO		PCB			
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
15:55	7.0		300								
16:00	7.15		300		16.93	298	7.52	-198.6	0.83	180	
16:05	7.25		300		18.86	298	7.47	-200.2	0.49	160	
16:10	7.25		300		16.23	272	9.45	-204.9	5.34	160	
16:15	7.01		300		16.08	256	7.42	-197.0	7.14	170	
16:20	7.01		300		16.04	246	7.42	-196.5	1.75	160	
16:25	7.01		300		15.91	244	7.44	-199.8	0.40	150	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW126B-5055

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 50 - 55 Feet Screened Interval Depth _____ feet
Sample Date & Time: 7/30/08 20:35 hours _____ /Dup
Sampler(s): M. Alroy
Data Recorded By: M Alroy Signature: M Alroy
Notes: _____

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 0.0 ft Post - pump insertion WL _____ ft
MP is 3.3' above TOC

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
SVOC	VOC				
DRO	PCB				
GRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
20:00	7.68		200	0	18.63	248	7.33	-170.4	6.29	38	
20:05	7.67		"	200	16.79	239	7.36	-164.8	8.63	45	
20:10	7.66		"	400	16.32	237	7.39	-173.8	3.63	45	
20:15	7.55		"	600	16.80	246	7.41	-179.0	4.65	40	
20:20	7.55		"	800	16.59	243	7.43	-181.7	5.88	39	
20:25	7.55		"	1000	16.55	237	7.44	-182.8	6.09	39	
20:30	7.54		"	1200	16.42	229	7.44	-181.9	6.77	35	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW12GB-2227

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 23'-27' Feet Screened Interval Depth N/A feet
Sample Date & Time: 7/30/08 12:50 hours _____/Dup
Sampler(s): M. Alroy
Data Recorded By: M Alroy Signature: M. Alroy
Notes: Discrete interval packer sampling

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft
(MP- 5.22) = TOC

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	SVOC				
GRO	PCB				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
12:25	9.39		450	0							
12:30	8.5		450	450	17.46	297	7.27	-157.8	0.36	75	
12:35	7.19		"	900	17.90	289	7.22	-156.0	0.75	75	
12:30	9.26		"	1350	18.34	278	7.37	-172.6	2.54	100	
12:35			"	1800	20.41	289	7.41	-160.6	0.97	90	
12:40			150	1950	21.10	291	7.42	-162.9	0.71	75	
12:45			150	2100	19.38	282	7.44	-179.2	0.45	95	
12:50											
12:55											
13:00											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

7.1 Cotton
47.31

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW12GR-4246

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 42-42 Feet Screened Interval Depth N/A feet
Sample Date & Time: 7/30/08 _____ hours _____ /Dup
Sampler(s): M Alroy
Data Recorded By: M Alroy Signature: M. Alroy
Notes: _____

H&S Survey Meter 0 0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	5VOC				
GRO	PCB				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
15:55	7.0		300								
16:00	7.15		300		16.92	298	7.52	-198.6	0.83	180	
16:05	7.25		300		18.26	298	7.47	-200.2	0.49	160	
16:10	7.25		300		16.23	272	7.45	-204.9	5.34	160	
16:15	7.01		300		16.08	256	7.42	-197.0	7.14	170	
16:20	7.01		300		16.04	246	7.42	-196.5	1.75	160	
16:25	7.01		300		15.91	244	7.44	-199.8	0.40	150	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW26B-5055

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 50 - 55 Feet Screened Interval Depth _____ feet
Sample Date & Time: 7/30/08 2035 hours _____ /Dup
Sampler(s): M Alroy
Data Recorded By: M Alroy Signature: M Alroy
Notes: _____

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 00 ft Post - pump insertion WL _____ ft
MP is 3.3' above TOC

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
SVOC	VOC				
DRO	PCB				
GRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
20 00	7.68		200	0	18.63	248	7.33	-130.4	6.29	38	
20:05	7.67		"	200	16.79	239	7.36	-164.8	8.63	45	
20 10	7.66		"	400	16.32	237	7.39	-173.8	3.63	45	
20:15	7.55		"	600	16.80	246	7.41	-179.0	4.65	40	
20 20	7.55		"	800	16.59	243	7.43	-181.7	5.88	39	
20:25	7.55		"	1000	16.55	237	7.44	-182.8	6.09	39	
20 30	7.54		"	1200	16.42	229	7.44	-181.9	6.77	35	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

7.25
0.5
6.75 · 0.37 = 2.49 gallons

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW124B-1020

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER
Depth Sampled: 10-20 Feet Screened Interval Depth N/A feet
Sample Date & Time: 8/1/08 _____ hours _____ /Dup
Sampler(s): M Alroy
Data Recorded By: M Alroy Signature: M. Alroy
Notes: SPECIFIC COND & ORP SEEM TO BE MALFUNCTIONING TEMP IS HIGH DUE TO FLOW CELL IN THE SUN PRIOR TO SAMPLING

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 2.77 ft Post - pump insertion WL 0.5 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	SVOC				
GRO	PCB				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
14:25	3.5		250	0	27.56	917	7.38	-293.4	0.13	240	
14:30	3.48		"	250	24.92	863	7.59	-292.5	0.14	198	
14:35	3.47		"	500	25.15	869	7.66	-317.5	0.17	190	
14:40	3.49		"	750	25.51	878	7.65	-337.6	0.22	175	
14:45	3.44		"	1000	25.68	815	7.60	-340.3	0.24	160	
14:50	3.43		"	1250	25.84	879	7.60	-348.5	0.26	100	
14:55	3.42		"	1500	25.81	884	7.69	-381.8	0.28	90	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW12B-3545

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 35-45 Feet Screened Interval Depth N/A feet
Sample Date & Time: 8/4/08 _____ hours _____ /Dup
Sampler(s): M Alray
Data Recorded By: M Alray Signature: M. Alray
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.72 ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		DRO			
GRO		PCB			
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
10:50	5.93		300	0	17.91	789	6.52	-117.3	2.42	100	
10:55	6.25		"	300	16.13	754	6.53	-116.5	1.44	95	
11:00	6.37		"	600	15.68	733	6.52	-112.2	1.12	100	
11:05	6.85		"	900	15.72	723	6.51	-111.3	1.0	90	
11:10	7.1		"	1200	15.74	713	6.50	-110.4	0.98	100	
11:15			"	1500	15.72	708	7.06	-110.0	0.94	100	
11:20			"	1800	15.87	698	6.49	-110.8	0.88	100	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

MW13B - 4" BEDROCK 23'
9B - 22
13A - 7' 5'

150
× 4

8.55
25.25
169.7 × 0.37 = 62.78 gallons

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW125B-2636

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 2636 Feet Screened Interval Depth N/A feet
Sample Date & Time: 7/31/08 16:35 hours _____ /Dup
Sampler(s): M. Alroy
Data Recorded By: M. Alroy Signature: M. Alroy
Notes: 15:15 begin purging ontop of packer @ 600 ml/min

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 94 ft Post - pump insertion WL _____ ft
MP 4.47 above TOC

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		SVOC			
GRO		TOB			
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
16:05	11.1		300	0	18.96	487	7.28	-120.1	0.80	80	
16:10	10.65		"	300	17.47	464	7.09	-142.0	0.33	40	
16:15	10.66		"	600	16.52	454	7.07	-152.9	0.21	60	
16:20	10.67		"	900	16.48	450	7.09	-157.0	0.22	50	
16:25	10.55		"	1200	18.71	466	7.12	-159.2	0.27	55	
16:30	10.50		"	1500	17.56	451	7.14	-169.4	0.24	35	
16:35	10.4		"	1800	17.55	463	7.15	-170.5	0.32	30	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW125B-3643

Tetra Tech NUS Charge No. 112G000933.0000.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 36-46 Feet Screened Interval Depth N/A feet
Sample Date & Time: 8/1/08 1010 hours _____/Dup
Sampler(s): B. Garringer
Data Recorded By: B. Garringer Signature: _____
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 11.51 ft Post - pump insertion WL 11.76 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0930	11.76		200	0	15.89	426	7.15	280.4	0.76	250	
0935	11.77			200	15.82	424	7.17	289	0.78	240	
0940	11.81			400	15.66	422	7.19	292	0.65	230	
0945	11.80			600	15.68	425	7.18	288	0.63	260	
0950	11.79			800	15.50	422	7.19	282	0.24	230	
0955	11.80			1000	15.53	421	7.17	274.3	0.18	210	
1000	11.81			1200	15.45	423	7.19	280	0.17	190	
1005	11.80			1400	15.39	419	7.19	270	0.15	190	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

MW-125B (36-46') 08/01/08

Sampled at 1010

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUSC - Site 8 Disposal Area

Sample ID:

Tetra Tech NUS Charge No.

QC: (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
930	11.76		200		15.89	426	7.15	280.4	0.76	250	
935	11.77		200		15.82	424	7.17	289	0.78	240	
940	11.81		200		15.66	422	7.19	292	0.65	230	
945	11.80		200		15.68	425	7.18	288	0.63	260	
950	11.79		200		15.50	422	7.19	282	0.24	230	
955	11.80		200		15.53	421	7.17	274.3	0.18	210	
1000	11.81		200		15.45	423	7.19	280	6.17	190	
1005	11.80		200		15.39	419	7.19	270	0.15	190	
1010			200								
1015			200								
1020			200								
1025			200								
1030			200								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

Sampled at 1010

MW-125B 8/1/25

Packer Intval 35.7-45.7

Water level : 5.8', From TOC
Top of Paker: 31.75'

To purge 10 Gallons = Started at 815

10.68 - 4.88
36.63

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.: DA-DW01-013108
Sample Location: DW-01
Sampled By: RC/LA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 1-31-08								
Time: 1330								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Robert

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SITE 08 RI
Project No.: 00816

Sample ID No.: DA-DW-01-080108
Sample Location: DW-01
Sampled By: MA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 8/1/08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 16:55								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

M. Arnold

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.: DA-DW02-013108
Sample Location: DW-02
Sampled By: RC/LA
C.O.C. No.:

- [ ] Stream
- [ ] Spring
- [X] Pond
- [ ] Lake
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

Date: 1-31-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1340								
Depth: 0-1'								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40 mL VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SITE 08 RI
Project No.: 00816

Sample ID No.: DA-DW-02-080108
Sample Location: DW-02
Sampled By: MA
C.O.C. No.:

- [ ] Stream
- [ ] Spring
- [X] Pond
- [ ] Lake
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

Date: 8/1/08
Time: 1200
Depth: 0-1
Method: PDB

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

M. Ahrens

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NOSC Site 08R1
Project No.: 00816

Sample ID No.: DA-DW03-013108
Sample Location: DW-03
Sampled By: RC/LA
C.O.C. No.:

- [ ] Stream
- [ ] Spring
- [x] Pond
- [ ] Lake
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

Date: 1-31-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1345								
Depth: 0-1'								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.: DA-DW04-013008
Sample Location: DW-04
Sampled By: RC/LA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 1-31-08								
Time: 1350								
Depth: 0-1'								
Method: PDS								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 00816

Sample ID No.: DA-DWQS-013108
Sample Location: DW-04
Sampled By: RC/LA
C.O.C. No.:

- [ ] Stream
- [ ] Spring
- [x] Pond
- [ ] Lake
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

Date: 1-31-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1400								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.: DA-DW06-013108
Sample Location: DW-06
Sampled By: RC/LA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-31-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1405								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40 ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 R1
Project No.: 00876

Sample ID No.: DA-DW07-013108
Sample Location: DW-07
Sampled By: RC/LA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-31-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1415								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 40 ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.: DA-DW08-013108
Sample Location: DW-08
Sampled By: RC/LA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 1-31-08								
Time: 1420								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	6

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	DA-DWDUP-013108

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SFe 08R1
Project No.: 00816

Sample ID No.: DA-DW09-013108
Sample Location: DW09
Sampled By: RC/LA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 1-31-08								
Time: 1435								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

RC

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NJSC Site DSR1
Project No.: 00816

Sample ID No.: DA-DW10-013108
Sample Location: DW-10
Sampled By: RC/LA
C.O.C. No.:

- [] Stream
- [] Spring
- [x] Pond
- [] Lake
- [] Other:
- [] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [] High Concentration

SAMPLING DATA:

Date: 1-31-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1440								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SITE 08 RI
Project No.: 00816

Sample ID No.: DA-DW-11-080108
Sample Location: DW-11
Sampled By: MA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 8/11/08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 16:50								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40 ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): M. Hagen

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SITE 08 RI
Project No.: 00816

Sample ID No.: DA-DW-12-080108
Sample Location: DW-12
Sampled By: MA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 8/1/08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 16:45								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

M. Akroyd

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SITE 08 RI
Project No.: 00816

Sample ID No.: DA-DW-13-080108
Sample Location: DW-13
Sampled By: MA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 8/1/08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 16:35								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	39

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD
YES

Duplicate ID No.:

Signature(s):

M. Angel

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC SITE 08 RI
Project No.: 00816

Sample ID No.: DA-DW-14-080108
Sample Location: DW-14
Sampled By: MA
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 8/1/08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 16:30								
Depth: 0-1								
Method: PDB								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 40ml VOA	3

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No. DA-DW-DUP02

Signature(s):

M. Arau

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: MW-7A-052808

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: 7.5 Feet Screened Interval Depth _____ feet
Sample Date & Time: 05/28/08 1325 hours _____ /Dup
Sampler(s): Jason Bourgeois
Data Recorded By: JB Signature:
Notes: TD 9.03 * Significant air in water line; minimal flow rate. Ferrous Iron = 6.8 mg/L (10 x dilution)

H&S Survey Meter 0.0 ppm Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.89 ft Post - pump insertion WL 5.83 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1130	6.02		50.0	0.1	19.44	1829	6.97	-178.1	4.40	70	
1145	6.05		50.0	~~0.3~~	18.53	1816	6.87	-156.4	5.26	45	
1140	6.02		50.0	0.7	19.20	1854	6.80	-146.9	5.66	45	
1145	6.08		50.0	0.9	18.45	1839	6.72	-126.1	6.27	40	
1150	6.05		<50.0	1.0	17.06	1812	6.67	-122.2	6.45	35	
1155	6.08		<50.0	1.2	16.21	1804	6.85	-132.1	5.57	35	
1200	6.06		<50.0	1.4	15.88	1807	6.91	-145.6	5.14	35	
1205	6.16		<50.0	1.65	15.99	1810	6.92	-148.7	4.83	30	
1210	6.18		<50.0	~1.8	16.00	1808	6.98	-155.3	4.10	30	
1215	6.20		<50.0	2.1	16.04	1802	7.02	-164.5	3.33	27	
1220	6.23		<50.0	2.2	16.21	1778	7.10	-173.2	3.06	25	
1225	6.30		<50.0	2.4	16.11	1756	7.10	-174.7	2.69	23	
1230	6.31		<50.0	2.6	16.14	1722	7.12	-177.8	2.10	15	
1235	6.34		<50.0	2.7	16.22	1701	7.14	-184.0	1.70	6.7	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: FF DISPOSAL AREA STTE OF NUSC
Sample ID: MW-7A-052808

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C (3%)	Spec. Cond. 2 uS/cm (3%)	pH (10%)	ORP/Eh3 mv (10mv)	DO mg/L (10%)	Turbidity NTU (K5)	Comments
1240	6.32		<50.0	2.9	16.30	1681	7.16	-187.9	1.55	7.1	
1245	6.32		<50.0	3.1	16.36	1663	7.18	-193.0	1.30	5.9	
1250	6.34		<50.0	3.2	16.41	1651	7.19	-192.8	1.28	6.2	
1255	6.34		<50.0	3.4	16.44	1654	7.18	-191.4	1.18	4.5	
1300	6.34		<50.0	3.6	16.47	1588	7.17	-190.1	~~0.53~~ *	9.0	
1305	6.35		<50.0	3.7	16.68	1598	7.15	-190.0	~~0.64~~ *	5.6	
1310	6.35		<50.0	3.9	16.73	1603	7.11	-185.0	~~0.70~~ *	7.4	
1315	6.35		<50.0	4.1	16.83	1613	7.08	-185.1	~~0.83~~ *	6.8	
1320	6.34		<50.0	4.2	16.94	1620	7.05	-185.2	~~0.89~~ *	4.3	

TtNUS Form 0009

* Note - Negative DO value not possible; problem with probe or Calibration is OFF.

1. Pump dial setting (for example: hertz cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

Lot 2

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW02-052708

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: 28 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/27/08 1410 hours _____ /Dup
Sampler(s): Dason Bourgeois
Data Recorded By: DB Signature:
Notes: Ferrous Iron => 22.0 mg/L (10X Dilution)
MW-02

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 5.54 ft Post - pump insertion WL 5.52 ft

Analysis Bottle Lot # Analysis Bottle Lot # Analysis Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1215	5.62		40.0	~~0.1~~ <0.1	17.30	666	6.43	-76.1	2.23	110	
1220	5.64		45.0	~~0.1~~ 0.1	17.33	641	6.42	-73.3	2.10	90	
1225	5.66		100.0	0.2	16.75	515	6.39	-67.9	1.72	70	
1230	5.72		60.0	~~0.3~~ 0.3	16.26	461	6.37	-66.0	1.52	70	
1235	5.75		50.0	~~0.4~~ 0.4	16.13	441	6.37	-65.6	1.38	65	
1240	5.73		50.0	~~0.5~~ 0.5	15.98	425	6.36	-67.2	1.23	60	
1245	5.75		50.0	~~0.5~~ 0.5	16.08	422	6.39	-70.1	1.14	60	
1250	5.77		50.0	~~0.6~~ 0.6	16.01	420	6.39	-70.9	1.14	60	
1255	5.77		50.0	2.1 ~~0.6~~ 0.6	16.02	419	6.42	-72.8	1.11	45	
1300	5.75		50.0	~~0.7~~ 0.7	15.83	414	6.42	-74.0	1.09	45	
1305	5.74		50.0	~~0.7~~ 0.7	16.10	416	6.42	-75.9	1.18	23	
1310	5.75		50.0	~~0.8~~ 0.8	16.31	417	6.42	-75.9	1.25	23	
1315	5.77		50.0	3.2 ~~0.8~~ 0.8	16.59	419	6.42	-76.1	1.34	24	
1320	5.75		50.0	0.9	16.33	417	6.40	-76.8	1.51	19	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW02-032708

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1325	5.77		50.0		16.14	414	6.37	-76.4	1.71	14	
1330	5.77		50.0		16.14	413	6.37	-77.5	1.92	14	
1335	5.73		50.0	4.3	15.94	410	6.37	-78.7	2.03	12	
1340	5.75		50.0		15.98	409	6.36	-78.7	1.64	12	
1345	5.72		50.0		15.99	408	6.36	-79.4	1.77	9.1	
1350	5.73		50.0		16.00	407	6.36	-79.6	2.17	7.3	
1355	5.72		50.0	5.3	16.08	408	6.35	-79.7	2.13	6.8	
1400	5.76		50.0		16.02	406	6.35	-79.9	2.15	4.5	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW03B-5220X

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: [redacted] low flow - bladder pump
Depth Sampled: 21 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/22/08 _____ hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: [signature]
Notes: Ferrous iron - 0.00 mg/L

H&S Survey Meter 1.5 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 23.45 ft Post - pump insertion WL 23.57 ft
pump tubing already down hole

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min *	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1135	23.60		50	0.25	11.57	444	6.79	133.7	6.23?	150	
1140	23.61		50	0.50	11.03	397	6.73	156.7	3.60	170	
1145	23.61		50	0.75	10.90	396	6.71	163.4	3.02	170	
1150	23.61		50	1.00	11.19	397	6.71	171.8	2.93	75	
1155	23.61		50	1.25	11.25	399	6.71	176.0	2.74	45	
1200	23.60		50	1.50	11.11	397	6.70	178.1	2.86	24	
1205	23.58		50	1.75	11.42	401	6.71	178.8	2.50	24	
1210	23.58		50	2.00	11.30	401	6.71	178.4	5.73	23	
1215	23.60		50	2.25	11.15	399	6.71	181.4	5.52	30	
1220	23.60		50	2.50	11.08	400	6.71	183.9	4.50	19	
1225	23.60		50	2.75	11.07	400	6.71	185.8	4.96	13	
1230	23.60		50	3.00	11.00	404	6.71	189.7	3.54	5.7	
1235	23.60		50	3.25	11.01	403	6.72	188.5	3.52	3.2	
1240	23.61		50	3.50	11.01	403	6.72	188.2	3.54	2.6	

TtNUS Form 0009

pump @ nav

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW04-52308

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: low flow-bladder pump
Depth Sampled: 30 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/22/08 _____ hours _____ /Dup
Sampler(s): C. Dolan
Data Recorded By: C. Dolan Signature:
Notes: Turbidity lab - 0.00 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 17.81 ft Post - pump insertion WL 17.75 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1215 ~~1155~~	18.11		50	0.25	18.37	591	6.86	304	4.74	75	
1220	18.11		"	0.50	17.33	572	6.82	350.1	1685	70	
1225	18.11		"	0.75	16.42	556	6.82	375.6	4.82	45	
1230	18.10		"	1.0	15.15	538	6.81	390.8	1.40	17	
1235	18.10		"	1.25	14.80	531	6.82	401.2	0.58	14	
1240	18.09		"	1.50	14.81	536	6.84	405.0	0.43	8.2	
1245	18.08		"	1.75	14.64	531	6.84	426.2	0.15	8.4	
1250	18.08		"	2.00	14.66	531	6.83	427.8	0.14	4.8	
1255	18.08		"	2.25	14.64	527	6.84	427.6	0.12	3.9	
1300	18.08		"	2.50	14.63	527	6.85	427.4	0.15	3.1	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW17B-052908

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: 23.7 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/29/08 1730 hours _____ /Dup
Sampler(s): Jason Bourgeois
Data Recorded By: JB Signature:
Notes: Ferrous Iron -> 1.06 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 6.33 ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1420	6.51		200		14.20	499	7.98	-168.8	0.72	550	
1425	6.80		150		13.35	430	8.06	-215.6	0.35	450	
1430	6.83		150		13.18	418	8.12	-227.6	0.27	320	
1435	6.79		200		13.29	422	8.06	-228.7	0.22	320	
1440	6.91		250		12.66	415	7.98	-226.6	0.21	280	
1445	7.00		200		12.59	416	7.96	-228.4	0.19	250	
1450	7.09		200		12.50	451	7.93	-228.8	0.14	230	
1455	7.16		220		12.66	461	7.93	-226.1	0.20	200	
1500	7.11		150		12.86	489	7.95	-224.6	0.32	200	
1505	7.06		150		12.91	498	7.81	-224.5	0.16	190	
1510	7.02		150		12.95	525	7.72	-221.4	0.15	180	
1515	7.01		150		12.95	525	7.72	-223.6	0.13	170	
1520	6.97		150		13.06	546	7.69	-220.1	0.15	160	
1525	6.96		150		13.06	548	7.69	-220.4	0.15	190	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW7R - 052908

Tetra Tech NUS Charge No. 112600938.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1530	6.95		150		13.05	552	7.70	-223.3	0.14	170	
1535	6.94		150		13.08	563	7.70	-222.8	0.14	140	
1540	6.95		150		13.09	569	7.67	-220.8	0.22	150	
1545	6.93		150		13.22	583	7.67	-217.9	0.14	150	
1550	6.92		150		13.11	595	7.63	-219.6	0.12	160	
1555	6.91		150		13.16	602	7.64	-219.7	0.14	170	
1600	6.90		150		13.18	599	7.66	-221.3	0.12	150	
1605	6.91		150		13.15	593	7.65	-221.4	0.12	160	
1610	6.91		150		13.16	618	7.65	-219.8	0.11	150	
1615	6.91		150		13.18	610	7.64	-221.0	0.11	140	
1620	6.90		150		13.17	614	7.64	-220.7	0.12	140	
1625	6.90		150		13.18	620	7.64	-220.5	0.12	140	
1630	6.90		150		13.18	631	7.62	-219.5	0.13	150	
1633	6.89		150		13.19	642	7.62	-219.6	0.13	140	
1640	6.86		150		13.19	644	7.63	-219.9	0.12	130	
1645	6.88		150		13.23	640	7.63	-220.3	0.10	130	
1650	6.87		140		13.22	649	7.62	-219.2	0.11	130	
1655	6.87		140		13.17	655	7.60	-218.5	0.12	130	
1700	6.88		140		13.16	658	7.59	-218.8	0.10	130	
1705	6.87		140		13.23	665	7.58	-218.5	0.10	120	
1710	6.87		140		13.26	667	7.55	-218.3	0.11	140	
1715	6.87		140		13.14	656	7.57	-218.1	0.11	130	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW07B-052908

Tetra Tech NUS Charge No. 112600933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1720	6.90		140		13.16	675	7.57	-216.8	0.11	130	
1725	6.91				13.11	676	7.58	-216.0	0.11	120	
Pump Test											
1824	7.35		500								
1829	7.57		400								
1834	7.72		400								
1839	7.84		400								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW09B-52808

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: _____ Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/28/08 16:00 hours _____ /Dup
Sampler(s): C. ODOM
Data Recorded By: C. ODOM Signature: _____
Notes: FERROUS IRON - 1.00 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL 8.75 ft

Analysis Bottle Lot # Analysis Bottle Lot # Analysis Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
12:25	8.75		10	3.33	16.75	882	7.41	-97.1	0.44	218	
12:30	8.75		10	3.38	16.96	886	7.41	-88.3	0.45	210	
12:35	8.75		10	3.43	17.17	892	7.40	-81.1	0.49	200	
12:40	8.75		10	3.48	17.41	896	7.40	-71.6	0.57	180	
12:45	8.75		10	3.52	17.71	898	7.40	-65.7	0.66	190	
12:50	8.75		10	3.58	17.99	905	7.40	-57.4	0.88	180	
12:55	8.75		10	3.63	17.96	907	7.41	-70.2	0.92	200	
13:00	8.76		10	3.68	18.25	915	7.41	-86.6	1.20	180	
13:05	8.76		10	3.73	18.44	914	7.41	-82.0	1.29	200	
13:10	8.76		10	3.78	18.52	917	7.41	-78.2	1.30	190	
13:15	8.76		10	3.83	18.54	918	7.41	-76.3	1.31	180	
13:20	8.76		10	3.88	18.76	924	7.40	-81.2	1.34	160	
13:25	8.76		10	3.93	18.90	926	7.41	-50.9	1.49	170	
13:30	8.76		10	3.98	18.99	927	7.41	-46.3	1.52	170	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUSC SITE 08 DISPOSAL AREA
Sample ID: DA-MW09B-52808

Tetra Tech NUS Charge No. 112G00953.0224
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
13:35	8.76		10	4.05	19.07	928	7.40	+47.0	1.58	160	
13:40	8.76		10	4.10	19.12	929	7.41	+45.9	1.55	170	
13:45	8.16		10	4.15	19.10	929	7.41	+50.3	1.48	170	
16:25	9.25		300								PUMP TEST
16:30	9.90		300								
16:35	10.42		300								
16:40	10.46		300								
16:45	10.52		300								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OU-Disposal Area
Sample ID: MW09B-52808

Tetra Tech NUS Charge No. 00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1225	8.75		10	3.33	16.75	882	7.41	-92.1	0.44	[illegible]	
1230	8.75		10	3.38	16.96	886	7.41	-86.3	0.45	200	
1235	8.75		10	3.43	17.17	892	7.40	-81.1	0.48	200	
1240	8.75		10	3.48	17.41	896	7.40	-71.6	0.57	180	
1245	8.75		10	3.52	17.71	898	7.40	-65.7	0.66	190	
1250	8.75		10	3.58	17.99	905	7.40	-57.4	0.88	180	
1255	8.75		10	3.63	17.95	907	7.41	-79.2	0.92	200	
1300	8.76		10	3.68	18.25	915	7.41	-86.6	1.20	180	
1305	8.76		10	3.73	18.44	914	7.41	-82.0	1.29	200	
1310	8.75		10	3.78	18.52	917	7.41	-78.2	1.30	190	
1315	8.76		10	3.83	18.54	918	7.41	-76.3	1.31	180	
1320	8.74		10	3.88	18.76	924	7.40	-81.2	1.34	160	
1325	8.76		10	3.93	18.90	926	7.41	-50.9	1.49	170	
1330	8.76		10	3.98	18.99	927	7.41	-46.3	1.52	170	
1335	8.76		10	4.05	19.07	928	7.40	-47.0	1.58	160	
1340	8.76		10	4.10	19.12	921	7.41	-45.9	1.55	170	
1345	8.76		10	4.15	19.10	929	7.41	-50.3	1.48	170	
1625	9.25		300								
1630	9.90		300								
1635	10.42		300								
1640	10.46		300								
1645	10.52		300								

Pump off ↓

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-GW-MW13S-080408

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 5 Feet Screened Interval Depth _____ feet
Sample Date & Time: 8/4/08 15:00 hours DUP of S /Dup
Sampler(s): BRIAN GERRINGER
Data Recorded By: B. Gerringer Signature: _____
Notes: ORP appears to be malfunctioning & DO

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 3.84 ft Post - pump insertion WL 4.04 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	8VOC				
GRO	PCB				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ ml	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
13:10	4.04		200	0	20.25	232	5.14	271.4	0.64	270	
13:15	4.04			1000	19.42	226	4.97	311.7	0.21	100	
13:20	4.04			2000	19.18	224	4.94	372	0.16	150	
13:25	4.04			3000	19.30	225	4.94	404	0.78	85	
13:30	4.04			4000	19.49	226	4.97	432	0.68	70	
13:35	4.04			5000	19.27	224	4.96	470	0.49	60	
13:40	4.04			6000	19.30	224	4.96	495	0.72	84	
13:45	4.04			7000	19.33	224	4.96	510	0.33	19	
13:50	4.04			8000	19.28	224	4.95	521	-0.13	19	
13:55	4.04			9000	19.24	224	4.94	530	-0.17	14	
14:00	4.04			10,000	19.30	223	4.92	542	-0.08	13	
14:05	4.04			11,000	19.23	223	4.90	551	-0.23	10	
14:10	4.04		↓	12000	19.16	222	4.88	556	-0.26	8.9	
14:15	4.04			13000	19.48	224	4.86	569	-0.27	8.4	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NWSC
Sample ID: DA-GW-MW35-080408

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ml liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1430	4.04		200	14000	19.36	223	4.74	585	0.98	8.0	
1435	4.04			15000	19.45	224	4.76	587	0.96	7.2	
1440	4.04			16000	19.42	223	4.75	590	0.88	5.7	
1445	4.04			17000	19.41	224	4.74	596	0.84	5.2	
1450	4.04		↓	18000	19.42	223	4.76	598	0.82	4.7	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUSC - Disposal Area 08
Sample ID: DA-GW-MW100B-091808

Tetra Tech NUS Job No./PMS 112G00933 CWA 0214
QC: N/A (If applicable)

Sample Method: Peristaltic
Depth Sampled: 30 Feet Screened Interval Depth _____ feet
Sample Date & Time: 09 / 18 / 08 _____ hours _____ /Dup
Sampler(s): B. Geringer
Data Recorded By: B. Geringer Signature: B. Geringer
Notes:
Petroleum odor in Casing
Sampled @ 1205

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 7.88 ft Post - pump insertion WL N/A ft

Analysis	Bottle Lot#	Analysis	Bottle Lot #	Analysis	Bottle Lot #
SVOCs					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cum. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1040	7.88	N/A	150	~~150~~ N/A	22.46	0	7.99	86.7	10.87	1.62	*
1050			160	1600							*
1100	8.40		160	3200	18.90	527	7.27	-101.3	0.52	3.71	
1110	8.55		160	4800	18.46	522	7.26	-118.9	0.31	2.37	
1120	8.64		160	5400	18.40	521	7.25	-119.4	0.29	1.07	
1130	8.75		160	7000	17.90	512	7.25	-127.2	0.29	1.40	
1140	8.86		160	8600	17.79	503	7.25	-126.4	0.33	1.32	
1145	8.91		160	9400	17.74	505	7.25	-129.1	0.34	1.60	
1150	8.98		160	10200	17.63	502	7.25	-130.3	0.33	1.50	
1155	9.02		160	11000	17.55	500	7.24	-132.1	0.31	1.43	
1200	9.08	↓	160	11800	17.45	497	7.24	-133.2	0.30	1.40	Stopped Purging - Collected Samples

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

Tt NUS Form 0009

* Mud Flow Cell Set up Wrong

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW-101B-053008

Tetra Tech NUS Charge No. 112G000933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: 45 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/30/08 1355 hours _____ /Dup
Sampler(s): Jason Bougeois
Data Recorded By: JB Signature:
Notes: Ferrous Iron 0.07 mg/L

H&S Survey Meter 1.1 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 11.35 ft Post - pump insertion WL 11.08 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0935	11.61		150	0.0	13.45	913	7.26	114.6	2.34	29	
0940	11.74		130	.750	13.14	907	7.23	131.2	1.48	39	
0945	11.86		130		13.02	902	7.24	144.6	0.96	55	
0950	12.06		130		13.28	911	7.25	153.0	0.95	55	
0955	12.19		130		12.94	903	7.24	157.7	0.80	70	
1000	12.36		130		13.00	903	7.28	155.5	1.60	80	
1005	12.52		130		12.84	901	7.25	157.9	1.31	90	
1010	12.58		150	4.65	13.04	905	7.25	160.7	1.13	100	
1015	12.61		100	5.4	13.27	910	7.25	162.3	0.92	110	
1020	12.61		100		13.46	916	7.29	156.1	3.75	120	
1025	12.61		100		13.48	917	7.29	158.4	4.11	120	
1030	12.61		100		13.42	916	7.26	153.5	4.15	120	
1033	12.61		100		13.40	915	7.24	154.6	3.49	120	
1040	12.61		100		13.40	915	7.24	160.0	3.01	130	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NASC
Sample ID: DAMW101R-053008

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1045	12.62		100		13.43	915	7.23	163.0	2.58	150	
1050	12.62		90	8.9	13.51	918	7.20	173.2	2.17	150	
1055	12.62		90		13.59	918	7.19	179.0	1.99	160	
1100	12.62		90		13.61	920	7.17	186.8	2.25	160	
1105	12.62		90		13.72	923	7.15	198.7	2.04	140	
1110	12.62		90		13.71	923	7.13	208.9	1.81	140	
1115	12.62		90		13.62	920	7.10	223.1	1.61	130	
1120	12.62		90		13.61	920	7.08	236.9	1.46	120	
1125	12.61		90		13.60	920	7.06	243.1	1.31	120	
1130	12.61		90		13.60	920	7.04	254.0	1.26	120	
1135	12.61		90		13.72	923	7.01	262.3	1.15	120	
1140	12.61		90		13.75	924	7.00	265.3	1.09	130	
1145	12.59		90		13.85	927	6.96	278.0	0.99	150	
1150	12.59		90		13.93	928	6.94	283.4	2.49	130	
1155	12.59		90		13.98	930	6.92	289.5	2.32	140	
1200	12.59		90		14.01	930	6.91	293.4	2.02	150	
1205	12.58		90		14.08	931	6.87	307.1	1.88	150	
1210	12.58		90		14.10	934	6.83	320.3	2.95	150	
1215	12.53		90		14.14	937	6.81	325.4	2.74	150	*Changed Pump Batt
1220	12.49		100	17.9	14.37	940	6.79	330.1	2.51	140	
1225	12.49		100		14.14	934	6.73	337.4	2.25	120	
1230	12.51		100		14.71	950	6.75	348.2	2.07	110	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW 101B-053008

Tetra Tech NUS Charge No. 112600933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1235	12.53		100		14.57	944	6.75	348.9	1.92	120	
1240	12.55		100		14.21	935	6.71	348.4	1.72	120	
1245	12.57		100		14.01	929	6.68	354.9	1.46	130	
1250	12.61		100		13.86	924	6.65	360.1	1.25	160	
1255	12.62		100		13.87	924	6.64	363.4	1.14	160	
1300	12.67		100		13.87	925	6.63	366.9	1.02	160	
1305	12.68		100		13.83	926	6.62	369.1	0.86	150	
1310	12.67		100		14.01	930	6.64	370.9	0.78	150	
1315	12.67		100		13.85	927	6.66	371.9	0.73	150	
1320	12.71		100		13.75	923	6.69	373.6	0.69	150	
1325	12.71		100		13.72	924	6.72	367.2	0.40	150	
1330	12.72		100		13.62	921	6.74	367.7	0.34	150	
1335	12.72		100	25.4	13.64	921	6.76	367.0	0.34	160	
Pump Test											
1646	13.10		660								
1651	~~15.53~~	14.52	660								
1656	15.99		660								
1701	16.33		660								
1706	17.09		660								
1711	17.85		660								
1716	18.60		660								

TINUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA, SITE 08 NUSC
Sample ID: DA-MW101B-053008

Tetra Tech NUS Charge No. 1126000933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1721	19.20		660								
1726	19.85		660								
1731	20.46		660								
1733	* Nitrogen bottle empty										

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-GW-MW101B-073108

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder
Depth Sampled: 45 Feet Screened Interval Depth _____ feet
Sample Date & Time: 7/31/08 @ 1430 hours _____ /Dup
Sampler(s): B. Geringer
Data Recorded By: BG Signature: [signature]
Notes: _____

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
PCBs	2 1 LiN	VOCs	3 40mc		
SVOCs	2 1 LOW	GRO	2 40mc		
DRO	2 1 LiN				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1100	11.38		200		15.54	489	7.00	177.7	1.50	27	
1105	11.36		200		15.57	500	7.04	196.8	0.79	20	
1110	11.36		200		16.01	495	7.07	186.8	0.77	21	
1115	12.18		200		16.66	491	7.07	209.1	0.71	25	
1120	12.36		200		16.60	485	7.07	224.0	0.56	65	
1125	12.53		200		16.58	477	7.08	241	0.47	17	
1130	12.71		200		16.55	473	7.07	253.1	0.43	20	
1135	12.81		200		16.52	470	7.07	260.7	0.40	18	
1140	12.86		200		16.49	469	7.07	271.6	0.38	17	
1145	12.97		200		16.44	459	7.07	280.5	0.36	19	
1150	13.08		200		16.39	456	7.06	288.7	0.32	17	
1155	13.19		200		16.32	448	7.06	296.4	0.32	17	
1200	13.22		200		16.36	445	7.06	302.1	0.32	19	
~~1200~~ 1205	13.31		200		16.38	465	7.05	309.0	0.30	16	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUWC Site 08 - Disposal Area
Sample ID: DA-GW-MW10IB-073108

Tetra Tech NUS Charge No. 112G00988.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1210	13.37		200		16.33	464	7.05	312	0.29	14	
1215	13.44		200		16.39	455	7.05	304	0.30	15	
1220	13.60		200		16.01	452	7.04	313	0.28	14	
1225	13.73		200		16.65	440	7.03	321.4	0.29	12	
1230	13.84		200		16.10	452	7.03	323.6	0.27	12	
1235	13.96		200		15.42	473	7.03	324.9	0.25	13	
1240	14.14		200		15.31	481	7.03	324.3	0.22	13	
1245	14.32		200		15.11	477	7.03	322.9	0.20	10	
1250	14.50		200		15.12	479	7.04	321.1	0.20	11	
1255	14.70		200		15.05	473	7.04	318.5	0.19	9.1	
1300	14.89		200		15.00	476	7.05	315.8	1.61	13	
1305	14.96		200		15.23	482	7.05	310.9	0.57	11	
1310	14.98		200		15.57	484	7.07	307.6	0.40	10	
1315	15.00		200		15.54	481	7.07	304.1	0.27	8.8	
1320	15.00		200		15.62	478	7.07	302.0	0.24	11	
1325	15.00		200		15.50	474	7.08	300.0	0.22	7.5	
1330	15.03		200		15.51	475	7.08	298.1	0.21	8.0	
1335	14.98		200		16.19	475	7.09	296.0	0.21	8.5	
1340	14.97		200		16.21	478	7.09	294.2	0.22	8.1	
1345	14.90		200		16.13	476	7.09	293	0.21	7.9	
1350	14.87		200		16.06	481	7.10	291.7	0.21	7.5	
1355	14.85		200		16.44	483	7.10	290.2	0.22	8.0	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: SITE 08 NUSC DISPOSAL DREA
Sample ID: DA-GW-MW10B-073108

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1400	14.77		200		16.27	484	7.10	288.2	0.22	6.2	
1405	14.62		200		16.85	492	7.11	286.5	0.23	7.6	
1410	14.54		200		17.02	497	7.12	285	0.26	9.1	
1415	14.46		200		16.44	506	7.12	280.6	0.24	7.3	
1420	14.48		200		16.25	501	7.11	278.9	0.23	6.7	
1425	14.51		200		16.15	501	7.11	274.9	0.22	5.0	
1430											
1435											
1440											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: ~~DA~~-mw1028-52708

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: _____
Depth Sampled: ~~[illegible]~~ Feet 16 Screened Interval Depth 14-44 feet
Sample Date & Time: 5/27/08 1700 hours _____/Dup
Sampler(s): Curtis Odom
Data Recorded By: C. Odom Signature: _____
Notes: ferrous iron - 3.01 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 13.80 ft Post - pump insertion WL 13.61 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 ~~uS/cm~~	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1350	13.81		500	0.25	14.56	944	7.15	-152.9	0.66	30	
1355	13.87		"	0.50	15.19	915	7.25	-151.3	0.47	25	
1400	13.90		"	0.75	14.95	884	7.25	-152.6	0.39	25	
1405	13.93		"	1.0	14.88	784	7.25	-154.7	0.32	20	
1410	13.89		"	1.25	14.16	780	7.21	-142.6	0.34	30	
1415	13.95		"	1.5	15.19	778	7.18	-131.1	0.38	55	
1420	13.93		"	1.75	14.96	730	7.11	-123.5	0.42	55	
1425	14.08		"	2.0	14.71	731	7.16	-123.5	0.32	55	
1430	14.10		10	2.05	15.30	740	7.15	-120.6	0.35	55	
1435	14.08		10	2.10	15.44	744	7.16	-120.9	0.35	55	
1440	14.08		10	2.15	16.01	749	7.13	-118.2	0.42	50	
1445	14.08		10	2.20	16.11	750	7.09	-112.1	0.47	50	
1450	14.08		10	2.30	16.16	745	7.00	-104.9	0.55	50	
1455	14.08		20	2.40	16.09	742	6.96	-96.8	0.60	50	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

page 2 of 2

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: S.Lot 8-disposal area NJSC
Sample ID: DA-MW108-52708

Tetra Tech NUS Charge No. 126 00933 .0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1500	14.10		20	2.50	15.04	717	6.86	-68.7	0.62	60	
1505	14.11		10	2.55	15.35	719	6.83	-64.0	0.61	45	
1510	14.11		10	2.60	15.63	721	6.82	-62.3	0.62	38	
1515	14.11		10	2.65	15.99	725	6.81	-59.2	0.63	35	
1520	14.10		10	2.70	16.16	728	6.80	-57.6	0.65	30	
1525	14.09		10	2.75	16.22	730	6.79	-58.3	0.66	27	
1530	14.09		10	2.80	16.24	732	6.79	-54.7	0.67	25	
start Pump 1515	14.12		100								
1520	14.20		100								
1525	14.28		100								
1530	14.33		100								
1535	14.34		100								
1540	14.35		100								
1545	14.34		100								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

08/01/08 MW-102B H_2O @ 13.95', Set Pump @ 18' bgs 1 of 2

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08 - NUSC Disposal Area Naval Station Newport
Sample ID: DA-MW102B-030108

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: Low Flow
Depth Sampled: 18 Feet Screened Interval Depth _____ feet
Sample Date & Time: 08/01/08 1345 hours _____ /Dup
Sampler(s): BRIAN GERRINGER
Data Recorded By: BG Signature: [signature]
Notes: _____

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	PCB				
GRO	DRO				
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1210	14.10		200		15.50	418	6.58	-46.7	0.75	40	
1215	14.70		200		15.38	422	6.40	-46.5	0.67	38	
1220	14.90		200		15.20	415	6.32	-47.5	0.38	20	
1225	15.20		200		15.29	414	6.31	-48.8	0.32	20	
1230	15.67		200		15.21	412	6.29	-61.6	0.26	20	
1235	15.89		200		14.97	410	6.25	-61.4	0.24	20	
1240	16.21		200		14.92	407	6.26	-63.8	0.22	26	
1245	16.37		200		15.13	409	6.26	-63	0.20	20	
1250	16.60		200		15.04	407	6.24	-63.7	0.19	18	
1255	16.81		200		15.14	409	6.23	-42.7	0.20	17	
1300	17.02		200		14.96	406	6.21	-37.1	0.18	17	
1305	17.27		200		15.00	405	6.20	-42.3	0.18	14	
1310	17.27		200		14.85	404	6.20	-42.0	0.18	10	
1315	17.38		200		14.80	403	6.20	-45.9	0.16	9.5	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: SITE 08 - NWSC DISPOSAL AREA
Sample ID: DA-GW-102B080108

Tetra Tech NUS Charge No. 112G00937.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1320	17.50		200		14.92	402	6.19	-49.5	0.15	9.5	
1325	17.62		200		14.67	399	6.18	-53	0.18	8.3	
1330	17.70		200		14.75	396	6.14	-45.2	0.17	7.5	
1335	17.81		200		14.68	396	6.14	-44.2	0.18	6.3	
1340	17.90		200		14.69	390	6.13	-42.1	0.17	5.8	
1345	18.10		200		14.70	388	6.12	-41.4	0.15	5.0	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

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TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA STE 08 NUSC
Sample ID: DA-MW103B-52308

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER Pump
Depth Sampled: 35 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/23/08 13:20 hours _____ /Dup
Sampler(s): JASON BOURGEOIS
Data Recorded By: JB Signature: _____
Notes: FERROUS IRON - 2.45 MG/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL 16.72 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
11:40	16.72		250	13.75	11.25	606	6.73	-100.5	0.33	19	
11:45	16.70		"	15.0	11.24	605	6.72	-96.8	0.33	21	
11:50	16.71		"	16.25	11.26	603	6.71	-95.6	0.33	20	
11:55	16.71		"	17.50	11.27	601	6.71	-95.0	0.33	19	
12:00	16.71		"	18.75	11.40	600	6.69	-96.3	0.33	16	
12:05	16.73		"	20.0	11.29	592	6.64	-84.9	0.33	16	
12:10	16.73		"	21.25	11.28	591	6.63	-84.1	0.33	16	
12:15	16.73		"	22.50	11.27	589	6.62	-83.8	0.33	16	
12:20	16.71		"	23.75	11.29	588	6.61	-81.3	0.33	14	
12:25	16.71		"	25.00	11.30	586	6.60	-79.0	0.33	12	
12:30	16.74		"	26.25	11.32	584	6.60	-78.8	0.33	12	
12:35	16.76		"	27.50	11.34	582	6.59	-78.3	0.33	12	
12:40	16.75		"	28.75	11.37	579	6.57	-75.5	0.33	12	
12:45	16.75		"	30.00	11.37	565	6.55	-73.9	0.34	9.9	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW103B-52308

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1250	16.75		250	31.25	11.37	565	6.55	-69.9	0.34	10	
1255	16.78		"	32.50	11.37	554	6.54	-66.6	0.32	10	
1300	16.75		"	33.75	11.38	560	6.52	-64.3	0.33	9.7	
1305	16.76		"	35.00	11.38	566	6.50	-60.7	0.33	8.2	
1310	16.77		"	36.25	11.37	569	6.51	-62.7	0.33	6.7	
1315	16.75		"	37.50	11.37	571	6.50	-60.1	0.33	5.8	
1403	16.76		400								
1408	16.80		400								
1413	16.84		400								
1418	16.82		400								
14:23	16.82		400								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: _____
Sample ID: MW03B

Tetra Tech NUS Charge No. _____
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1140	16.72		250	13.75	11.25	606	6.73	-100.5	0.33	19	
1145	16.70		250	15.0	11.24	605	6.72	-96.8	0.33	21	
1150	16.71		250	16.25	11.26	603	6.71	-95.6	0.33	20	
1155	16.71		250	17.50	11.27	601	6.71	-95.0	0.33	19	
1200	16.71		250	18.75	11.40	600	6.69	-96.3	0.33	16	
1205	16.73		250	20.0	11.29	592	6.64	-84.9	0.33	16	
1210	16.73		250	21.25	11.28	591	6.64	-84.1	0.33	16	
1215	16.73		250	22.50	11.27	591	6.63	-83.8	0.33	16	
1220	16.71		250	23.75	11.29	589	6.62	-81.3	0.33	14	
1225	16.71		250	25.00	11.30	588	6.61	-79.0	0.33	12	
1230	16.74		250	26.25	11.30	586	6.60	-78.8	0.33	12	
1235	16.76		250	27.50	11.32	584	6.60	-78.3	0.33	12	
1240	16.75		250	28.75	11.34	582	6.59	-75.5	0.33	12	
1245	16.75		250	30.00	11.37	579	6.57	-73.9	0.34	9.9	
1250	16.75		250	31.25	11.37	565	6.55	-69.9	0.34	10	
1255	16.78		250	32.50	11.37	554	6.54	-66.6	0.32	10	
1300	16.75		250	33.75	11.38	560	6.52	-64.3	0.33	9.7	
1305	16.76		250	35.00	11.38	566	6.50	-60.7	0.33	8.2	
1310	16.77		250	36.25	11.37	569	6.51	-62.7	0.33	6.7	
1315	16.76		250	37.50	11.37	571	6.50	-60.1	0.33	5.8	
1403	16.76	Start pump test									

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

Pump test (400mL/min)

1408 ~~16.08~~ 16.80
1413 16.84
1418 16.82
1423 16.82

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW1035-52608

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: low flow-bladder pump
Depth Sampled: 17 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/26/08 1630 hours _____ /Dup
Sampler(s): Curtis Odom
Data Recorded By: C. Odom Signature: C Odom
Notes: Fe reading - 2.33
~~Purge~~ 50 mL/min - max flow rate

H&S Survey Meter 0.1 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 16.57 ft Post - pump insertion WL 16.48 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond.[2] uS/cm	pH	ORP/Eh[3] mv	DO mg/L	Turbidity NTU	Comments
1135	16.48		50	0.25	14.12	1422	7.66	-252.2	0.40	offscale	
1140	16.48		"	0.50	14.35	1424	7.66	-240.6	0.37	"	
1145	16.49		"	0.75	14.23	1431	7.66	-228.2	0.29	"	
1150	16.48		"	1.0	14.61	1433	7.65	-221.2	0.31	"	
1155	16.48		"	1.25	14.28	1333	7.88	-280.1	0.22	"	
1200	16.48		"	1.5	12.88	1337	7.71	-273.2	0.44	"	
1205	16.49		"	1.75	12.80	1395	7.70	-271.3	0.31	"	
1210	16.48		"	2.0	13.25	1407	7.74	-282.9	0.52	"	
1215	16.48		"	2.25	13.03	1408	7.70	-276.6	0.54	"	
1220	16.48		"	2.5	13.60	1425	7.73	-284.9	0.55	"	
1225	16.49		"	2.75	13.87	1442	7.67	-278.9	0.53	"	
1230	16.48		"	3.0	13.76	1442	7.58	-261.2	0.44	"	
1235	16.48		"	3.25	13.65	1443	7.49	-257.7	0.28	"	
1240	16.49		"	3.50	13.59	1443	7.42	-245.1	0.11	"	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area - S.E of NUSC
Sample ID: DA-MW1035-52608

Tetra Tech NUS Charge No. 112600933 0000.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1245	16.49		50	3.75	13.78	1453	7.39	-239.2	0.09	off scale	
1250	16.49		"	4.00	14.26	1452	7.34	-235.2	0.08	"	
1255	16.49		"	4.25	13.66	1448	7.34	-231.1	0.12	"	
1300	16.49		"	4.50	13.50	1450	7.35	-236.0	0.07	"	
1305	16.49		"	4.75	13.88	1464	7.31	-227.1	0.12	"	
1310	16.49		"	5.0	12.99	1426	7.18	-211.1	0.18	"	
1315	16.49		"	5.25	12.48	1395	7.11	-200.5	0.09	"	
1320	16.49		"	5.5	12.42	1398	7.08	-195.3	0.11	"	
1325	16.49		"	5.75	12.43	1388	7.11	-199.1	0.12	"	
1330	16.49		"	6.0	13.44	1427	7.22	-212.3	0.18	"	
1335	16.49		"	6.25	12.96	1405	7.15	-206.2	0.22	"	
1340	16.49		"	6.5	12.43	1403	7.09	-195.6	0.16	"	
1345	16.49		"	6.75	12.44	1401	7.08	-198.7	0.18	"	
1350	16.49		"	7.0	12.96	1399	7.11	-199.9	0.15	"	
1355	16.49		"	7.25	12.42	1402	7.10	-201.3	0.18	"	
1400	16.49		"	7.5	12.43	1401	7.11	-202.6	0.17	"	
1405	16.49		"	7.75	13.55	1433	7.11	-201.5	0.16	"	
1410	16.49		"	8.0	13.89	1457	7.10	-203.4	0.14	"	
1415	16.49		"	8.25	14.67	1473	7.11	-201.1	0.11	"	
1420	16.49		"	8.50	14.85	1481	7.10	-199.4	0.09	"	
1425	16.50		"	8.75	15.28	1492	7.09	-193.4	0.11	"	
1430	16.49		"	9.0	16.19	1517	7.01	-185.0	0.13	"	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area - Sta. 08 NOSC
Sample ID: ~~DA~~ MW035-526-08

Tetra Tech NUS Charge No. 112601937 0000.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1435	16.49		50	9.25	15.88	1502	7.01	-181.7	0.22	VFS <5	
1440	16.50		"	9.5	15.85	1494	7.00	-175.3	0.19	"	
1445	16.50		"	9.75	15.85	1432	7.06	-178.1	0.14	"	
1450	16.50		"	10.0	14.96	1433	7.04	-177.3	0.11	"	
1455	16.50		"	10.25	14.88	1436	7.03	-176.2	0.13	"	
1500	16.50		"	10.5	14.81	1434	7.02	-179.7	0.11	"	
1505	16.50		"	10.75	14.79	1433	7.03	-179.1	0.12	"	
1510	16.50		"	11.0	14.78	1435	7.02	-178.7	0.11	"	
1515	16.50		"	11.25	14.79	1433	7.03	-177.6	0.12	"	
1520	16.50		"	11.5	14.81	1434	7.02	-178.3	0.13	"	
1525	16.50		"	11.75	14.85	1434	7.02	-179.1	0.14	"	
1530	16.50		"	12.0	14.86	1433	7.01	-178.2	0.13	"	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW104R-052008

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: low flow - bladder pump
Depth Sampled: 20 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/20/08 1355 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 16.15 ft Post - pump insertion WL 16.29 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1135	16.40		100	0.5	11.18	532	7.18	-152.4	0.06	150	
1140	16.40		"	1.0	11.11	530	7.22	-158.4	0.06	150	
1145	16.36		"	1.5	11.67	537	7.23	-152.4	0.12	130	
1150	16.37		"	2.0	11.43	541	7.24	-135.6	0.32	120	
1155	16.36		"	2.5	11.97	540	6.94	-102.5	0.44	130	
1200	16.36		"	3.0	12.05	538	6.94	-101.2	0.41	120	
1205	16.36		"	3.5	11.65	536	6.93	-99.7	0.37	120	
1210	16.36		"	4.0	11.49	533	6.91	-96.2	0.35	120	
1215	16.36		"	4.5	11.34	530	6.90	-94.6	0.34	120	
1220	16.36		"	5.0	11.28	529	6.90	-93.1	0.31	110	
1225	16.36		"	5.5	11.09	526	6.90	-92.1	0.29	100	
1235	16.36		"	6.0	11.09	525	6.90	-93.1	0.29	95	
1240	16.36		"	6.5	11.02	523	6.90	-93.5	0.27	80	
1245	16.39		"	7.0	10.92	521	6.90	-94.3	0.26	85	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC. fecal strep - 1.73 ms/L

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: MW104R

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
12:50	16.39		100	7.5	11.03	524	6.90	-94.3	0.28	80	
12:55	16.40		100	8.0	10.97	522	6.89	-92.1	0.27	75	
13:00	16.40		100	8.5	10.96	522	6.89	-92.3	0.27	75	
13:05	16.40		100	9.0	10.95	521	6.89	-92.1	0.26	70	
13:10	16.40		100	9.5	11.16	522	6.88	-89.5	1.09	70	
13:15	16.40		100	10.0	11.21	525	6.93	-83.9	1.41	70	
13:20	16.40		100	10.5	11.03	522	6.89	-87.6	0.55	70	
13:25	16.39		100	11.0	11.10	522	6.88	-91.6	0.39	67	
13:30	16.39		100	11.5	11.06	521	6.88	-93.4	0.33	65	
13:35	16.40		100	12.0	11.09	521	6.87	-92.8	0.29	65	
13:40	16.40		100	12.5	11.17	522	6.87	-93.2	0.35	65	
13:45	16.40		100	13.0	11.01	520	6.86	-93.1	0.31	65	
13:50	16.40		100	13.5	10.98	520	6.85	-90.3	0.31	65	
13:55	16.40		100	14.0	10.97	519	6.85	-90.1	0.30	65	
1520 1500	1639		300								
1525 14:05	1645		300								
1530 14:10	1645		700								
1535 14:25	1645		300								
1540 14:25											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC. Serratian-0.0

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW105-52008

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 45 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/20/08 1730 hours _____ /Dup
Sampler(s): C. Dam
Data Recorded By: C. Dam Signature: C. Dam
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 15.54 ft Post - pump insertion WL 15.56 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1635	18.60		100	0.5	16.01	522	7.04	3.2	2.03	8.7	
1640	18.60		"	1.0	15.96	522	7.05	18.8	0.83	0.00	
1645	18.60		"	1.5							
1650	18.59		"	2.0	10.60	512	7.04	31.3	0.72	0.0	
1655	18.59		"	2.5	10.53	514	7.02	32.1	0.33	0.0	
1700	18.58		"	3.0	10.46	509	7.00	34.4	0.31	0.0	
1705	18.58		"	3.5	10.45	509	6.99	35.1	0.34	0.0	
1735	18.60										
1740	18.60		600								
1745	18.60		600								
1750	18.60		600								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh)

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: MW1063-52108

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: low flow - bladder pump
Depth Sampled: 35 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/20/08 1330 hours _____ /Dup
Sampler(s): C. Orr
Data Recorded By: C. Orr Signature: C. Orr
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 0.25 ft Post - pump insertion WL 0.25 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1105	0.29		150	0.75	14.91	601	7.20	-202.6	3.50	85	
1110	0.35		150	1.5	13.99	573	7.05	-226.9	1.54	75	
1115	0.40		100	2.0	14.21	576	7.05	-234.5	1.21	80	
1120	0.40		100	2.5	13.58	568	7.05	-244.0	0.89	95	
1125	0.40		"	3.0	13.67	562	7.06	-255.2	0.64	90	
1130	0.41		"	3.5	13.55	559	7.06	-259.8	0.56	85	
1135	0.41		"	4.0	13.43	557	7.07	-266.8	0.45	80	
1140	0.41		"	4.5	13.39	557	7.07	-275.5	0.40	80	
1145	0.41		"	5.0	13.11	550	7.07	-284.9	0.38	75	
1150	0.40		"	5.5	13.02	545	7.07	-301.5	0.31	75	
1155	0.40		"	6.0	13.06	544	7.08	-310.5	0.32	75	
1200	0.41		"	6.5	13.09	543	7.09	-288.1	0.33	50	
1205	0.40		"	7.0	13.00	548	7.05	-282.4	0.30	50	
1210	0.41		"	7.5	12.97	554	7.10	-286.7	0.26	45	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: S.t ox-disposal area
Sample ID: MW106B-032108
dissolved O2 = 3.8 mg/L

Tetra Tech NUS Charge No. 112600932 .0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1215	0.42		100	8.0	12.51	549	7.11	-305.2	0.24	40	
1220	0.42		"	8.5	12.67	551	7.12	-314.9	0.58	65	
1225	0.43		"	9.0	12.78	553	7.10	-321.7	0.32	40	
1230	0.43		"	9.5	12.81	557	7.10	-327.3	0.26	45	
1235	0.44		"	10.0	12.72	555	7.12	-328.9	0.28	38	
1240	0.44		"	10.5	12.77	555	7.10	-340.6	0.25	40	
1245	0.44		"	11.0	12.76	557	7.12	-330.6	0.27	40	
1250	0.44		"	11.5	12.73	553	7.12	-335.7	0.27	45	
1255	0.45		"	12.0	12.77	553	7.12	-336.1	0.28	40	
1300	0.45		"	12.5	12.74	554	7.11	-336.8	0.27	40	
Pump test											
1350	0.30		500								
1355	0.50		500								
1400	0.50		500								
1405	0.50		500								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: MW106B-52108

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: low flow-bladder pump
Depth Sampled: 614 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/21/08 1330 hours _____ /Dup
Sampler(s): C. Dan
Data Recorded By: C. Dan Signature:
Notes:

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 1.35 ft Post - pump insertion WL 1.26 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1520	1.55		200	1.0	14.95	450	6.52	-91.2	0.82	400	
1525	1.50		200	2.0	14.78	451	6.51	-89.6	0.82	400	
1530	1.52		200	3.0	14.21	446	6.49	-84.3	0.55	400	
1535	1.50		100	3.5	14.14	444	6.42	-80.3	0.71	400	
1540	1.60		100	4.0	13.67	437	6.39	-84.7	0.61	400	
1545	1.56		100	4.5	13.76	439	6.31	-66.3	0.79	950	
1550	1.60		100	5.0	13.12	427	6.24	-60.7	0.89	off scale	
1555	1.40		100	5.5	13.33	422	6.22	-58.9	0.77	off scale	
1600	1.58		100	6.0	13.24	436	6.19	-49.6	0.69	"	
1605	1.55		100	6.5	13.31	428	6.19	-47.6	0.64	"	
1610	1.52		100	7.0	13.40	435	6.13	-41.7	0.71	"	
1615	1.54		"	7.5	13.33	423	6.12	-40.5	0.67	"	
1620	1.55		"	8.0	13.51	422	6.12	-31.9	0.58	"	
1625	1.54		"	8.5	13.39	418	6.11	-29.1	0.44	"	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: S.L.F. - Disposal Area
Sample ID: MW068-S2108

Tetra Tech NUS Charge No. 112600983 0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1630	1.56		"	9.0	13.01	422	6.21	-22.6	0.37	Off scale	
1635	1.52		"	9.5	13.29	414	6.21	-18.0	0.34	"	
1640	1.58		"	10.0	13.22	418	6.20	-12.1	0.33	"	
1645	1.52		"	10.5	17.25	416	6.16	-13.8	0.31	"	
1650	1.58		"	11.0	13.22	417	6.22	-22.5	0.33	"	
1655	1.55		"	11.5	13.21	419	6.21	-18.9	0.29	"	
1700	1.57		"	12.0	13.22	418	6.22	-19.5	0.28	"	
1705	1.53		"	12.5	13.19	418	6.21	-22.1	0.31	"	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
   Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW10GS-051208

Tetra Tech NUS Charge No. 112G000933.0000.0214
QC: _____ (If applicable)

Sample Method: BLADDER PUMP
Depth Sampled: 14 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/21/08 _____ hours _____ /Dup
Sampler(s): J. Bourgois
Data Recorded By: JB Signature:
Notes:

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 1.45 ft Post - pump insertion WL 1.40 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity 5 NTU NTU	Comments
1035	1.69		100	1.0	12.53	429	6.23	-33.1	3.47	1100	
1040	1.75		100	3.0	13.13	423	6.21	-21.5	1.84	900	
1045	1.79		100	4.0	13.12	414	6.17	-5.1	1.47	600	
1050	1.67		100	5.0	13.03	409	6.16	1.9	1.40	450	
1055	1.76		100	6.0	12.99	403	6.15	13.2	1.39	380	
1100	1.78		100	6.5	12.96	400	6.15	16.6	1.40	260	
1105	1.70		100	7.0	12.88	397	6.14	24.2	1.45	220	
1110	1.90		100	7.5	12.65	392	6.13	30.0	1.49	160	
1115	1.85		100	8.0	12.45	387	6.13	34.1	1.55	160	
1120	1.82		100	8.5	12.37	385	6.12	37.7	1.59	140	
1125	1.80		100	9.0	12.36	385	6.11	43.9	1.69	110	
1130	1.75		100	9.5	12.43	387	6.11	46.3	1.79	100	
1135	1.73		100	10.0	12.53	392	6.11	49.1	1.84	90	
1140	1.75		100	10.5	12.59	390	6.11	50.5	1.85	75	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08
Sample ID: DA-MW106S-052108

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1145	1.66		100	11.0	12.87	391	6.11	56.7	~~56.7~~ 1.87	70	
1150	1.63		100	11.5	13.07	394	6.11	58.8	1.88	75	
1155	1.64		100	12.0	13.19	394	6.11	61.3	1.87	60	
1200	1.62		100	12.5	13.50	395	6.10	65.7	1.85	70	
1205	1.64		100	13.0	13.53	395	6.10	66.9	1.84	70	
1210	1.62		100	13.5	13.44	393	6.10	69.9	1.84	70	
1215	1.60		100	14.0	13.40	390	6.10	71.3	1.82	65	
1220	1.63		100	14.5	13.18	392	6.11	69.5	1.82	65	
1225	1.59		100	15.0	13.01	389	6.11	69.7	1.82	60	
1230	1.60		100	15.5	12.96	387	6.12	68.8	1.80	70	
1235			100	16.0	12.87	385	6.13	68.4	1.80	60	
1240			100	16.5	13.06	386	6.13	68.4	1.79	55	
1245			100	17.0	13.75	390	6.11	72.3	1.79	55	temp↑/sunshine
1250			100	17.5	14.08	397	6.08	80.1	1.77	50	
1255			100	18.0	14.27	397	6.08	84.3	1.77	55	
1300			100	18.5	14.01	400	6.08	86.3	1.79	55	
1305			100	19.0	14.14	402	6.08	86.4	1.80	50	
1310			100	19.5	13.79	397	6.07	87.8	1.81	50	overcast/temp↓
1315			100	20.0	13.59	394	6.09	84.4	1.81	45	
1320	1.63		100	20.5	13.30	391	6.10	81.5	1.82	45	
1325	1.65		100	21.0	13.15	394	6.11	76.9	1.82	45	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NSC
Sample ID: DA-MW106S-052408

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1330	1.63		100	21.5	13.02	392	6.11	77.3	1.87	45	
1335	1.58		100	22.0	13.20	393	6.12	74.1	1.98	40	
1340	1.58		100	22.5	13.29	393	6.12	51.7	1.92	40	
1345	1.51		100	23.0	13.06	391	6.11	52.0	1.92	35	
1350	1.65		100	23.5	13.00	389	6.12	41.2	1.90	40	
1355	1.63		100	24.0	12.77	386	6.12	42.4	1.90	36	
1400	1.62		100	24.5	12.70	385	6.12	43.1	1.90	40	
1405	1.60		100	25.0	12.67	383	6.13	44.2	1.88	40	
1410	1.61		100	25.5	12.59	388	6.14	45.2	1.88	36	
1415	1.61		100	26.0	12.58	387	6.13	46.6	1.89	33	
1420	1.65		100	26.5	12.54	388	6.13	47.5	1.89	31	
1425	1.57		100	27.0	12.67	388	6.13	47.7	1.90	31	
1430	1.61		100	27.5	12.89	389	6.13	49.9	1.90	30	
1435	1.61		100	28.0	12.99	390	6.13	49.4	1.91	25	
1440	1.55		100	28.5	13.18	391	6.12	50.7	1.92	27	
1445	1.58		100	29.0	13.07	391	6.12	50.1	1.90	25	
1450	1.61		100	29.5	12.92	391	6.12	49.7	1.90	30	
1455	1.65		100	30.0	12.75	390	6.13	49.5	1.92	31	
1500	1.63		100	30.5	12.50	387	6.14	49.2	1.94	31	
1505	1.60		100	31.0	12.35	386	6.14	49.7	1.97	26	
1510	1.63		100	31.5	12.13	382	6.15	49.3	1.97	35	
1515	1.59		100	32.0	12.05	381	6.15	49.0	1.97	29	

TtNUS Form 0009

1. Pump dial setting (for example hertz, cycle/min etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW106S-052408

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
15.20	1.58		100	32.5	11.98	380	6.15	49.1	1.97	24	
15.25	1.61		100	33.0	11.93	379	6.15	49.2	1.97	28	
15.30	1.61		100	33.5	11.95	379	6.15	49.2	1.97	27	
15.35	1.63		100	34.0	11.95	379	6.15	48.5	1.96	25	
15.40	1.60		100	34.5	11.95	378	6.15	48.6	1.96	25	
15.45	1.63		100	35.0	11.95	378	6.15	49.0	1.96	23	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW105S

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: _____
Depth Sampled: _____ Feet Screened Interval Depth _____ feet
Sample Date & Time: __/__/__ _____ hours _____ /Dup
Sampler(s): _____
Data Recorded By: _____ Signature: _____
Notes: _____

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1520	1.58		100	32.5	11.98	380	6.15	49.6	[illegible]	24	
1525	1.61		100	33.0	11.93	379	6.15	[illegible]	1.97	[illegible]	
1530	1.61		100	33.5	11.95	379	6.15	[illegible]	1.97	[illegible]	
1535	1.63		100	34.0	[illegible]	377	[illegible]	[illegible]	1.96	[illegible]	
1540	1.60		100	34.5	[illegible]	[illegible]	[illegible]	[illegible]	1.96	[illegible]	
1545	1.63		100	35.0	11.95	378	6.16	48.0	1.96	23	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW107B-060408

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: 22.0 Feet Screened Interval Depth N/A feet
Sample Date & Time: 6/04/08 1805 hours _____ /Dup
Sampler(s): Jason Bourgeois
Data Recorded By: JB Signature:
Notes: Ferrous Iron = 3.78 mg/L (10x dilution)

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 4.27 ft Post - pump insertion WL 4.15 ft

Analysis Bottle Lot # Analysis Bottle Lot # Analysis Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1600	4.21		175		18.42	620	6.84	-18.5	2.36	19	
1605	4.34		60		15.58	600	6.85	-41.5	1.18	13	
1610	4.33		80		15.62	596	6.90	-74.8	0.85	17	
1615	4.32		80		15.53	590	6.93	-90.1	0.73	17	
1620	4.33		50		15.36	587	6.99	-100.2	0.65	18	
1625	4.34		50		15.49	589	7.00	-98.8	0.61	23	
1630	4.38		150		14.77	578	6.94	-100.0	0.47	25	
1635	4.38		150		14.77	578	6.95	-99.4	0.42	16	
1640	4.36		70		14.91	580	6.96	-100.9	0.35	16	
1645	4.33		60		15.09	582	6.97	-102.3	0.34	16	
1650	4.33		60		15.08	582	6.97	-103.0	0.31	16	
1655	4.31		60		15.38	587	6.99	-102.3	0.32	16	
1700	4.33		60		15.46	588	7.01	-104.7	0.32	17	
1705	4.32		60		15.56	589	7.02	-107.8	0.29	19	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NWSC
Sample ID: DA-MW107B-060408

Tetra Tech NUS Charge No. 1126000933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1710	4.30		60		15.53	588	7.04	-110.8	0.27	15	
1715	4.31		60		15.42	587	7.00	-109.4	0.26	15	
1720	4.30		60		15.37	586	7.00	-107.6	0.24	15	
1725	4.30		60		15.49	587	7.02	-108.2	0.25	17	
1730	4.30		50		15.50	588	7.03	-110.1	0.21	17	
1735	4.30		50		15.32	585	7.01	-109.1	0.19	17	
1740	4.30		50		15.06	582	7.00	-108.4	0.19	17	
1745	4.31		50		15.07	582	7.00	-108.2	0.22	16	
1750	4.30		50		15.11	582	7.00	-107.2	0.21	16	
1755	4.30		50		15.30	585	7.01	-108.6	0.22	17	
1800	4.31		50		15.49	589	7.03	-113.6	0.21	16	
Pump Test											
1930	4.64		600								
1935	4.88		600								
1940	5.01		600								
1945	5.05		600								
1950	5.11		600								
1955	5.15		600								
2000	5.17		600								
2005	5.16		600								
2010	5.17		600								
2015	5.17		600								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA STIE 08 NUSC
Sample ID: DA-MW107B-060408

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
PUMP TEST CONT'											
2020	5.17	600									
2025	5.17	600									
2030	5.17	600									

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

3/3

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: DA-MW107B-060408

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: _____
Depth Sampled: _____ Feet Screened Interval Depth _____ feet
Sample Date & Time: __/__/__ _____ hours _____ /Dup
Sampler(s): _____
Data Recorded By: _____ Signature: _____
Notes: _____

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
Pump Test cond.											
2020	5.17		600								
2025	5.17		600								
2030	5.17		600								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: ~~DA~~MW108B-060308

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: _____ Feet Screened Interval Depth _____ feet
Sample Date & Time: 6/03/08 1625 hours _____ /Dup
Sampler(s): Jason Bourgeois
Data Recorded By: JB Signature:
Notes: Ferrous Iron = 3.22mg/L

H&S Survey Meter 42.5 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 6.69 ft Post - pump insertion WL 6.54 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1120	6.86		60		17.73	684	7.54	-158.6	0.90	30	
1125	6.97		60		17.34	670	7.24	-207.5	0.67	36	
1130	7.03		60		16.99	661	7.27	-205.1	0.75	22	
1135	7.12		60		16.58	651	7.18	-201.2	0.52	22	
1140	7.15		60		16.45	645	7.17	-199.0	0.46	22	
1145	7.19		60		16.06	641	7.13	-203.8	0.42	19	
1150	7.22		60		15.96	636	7.14	-200.3	0.57	19	
1155	7.24		60		15.85	635	7.12	-203.4	0.59	23	
1200	7.25		60		15.84	635	7.12	-205.5	0.72	31	
1205	7.27		60		15.83	634	7.11	-202.7	0.74	20	
1210	7.28		60		~~15.82~~	633	7.08	-199.7	0.59	19	
~~1215~~					15.69						
1215	7.29		60		15.82	634	7.07	-199.1	0.88	22	
1220	7.30		60		15.88	636	7.08	-199.1	0.46	23	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW108B-060308

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1225	7.31		60		15.85	634	7.08	-200.1	0.99	22	
1230	7.31		60		15.78	633	7.09	-201.9	0.76	22	
1235	7.31		60		15.88	634	7.06	-198.8	0.65	23	
1240	7.31		60		15.73	632	7.02	-193.5	1.52	17	
1245	7.31		60		15.75	633	7.01	-195.4	1.57	19	
1250	7.31		60		15.97	636	7.01	-203.5	0.72	19	
1255	7.31		60		15.93	635	6.99	-199.8	2.35	19	
1300	7.31		60		15.75	632	6.97	-200.8	1.10	19	
1305	7.31		60		15.80	632	6.97	-200.7	1.59	20	
1310	7.31		60		15.83	633	6.95	-200.1	1.13	22	
1315	7.32		60		15.88	633	6.94	-199.0	0.81	22	
1320	7.31		60		16.02	635	6.96	-195.9	1.61	22	
1325	7.32		60		15.90	635	6.96	-195.6	1.44	22	
1330	7.32		60		15.92	633	6.95	-195.3	1.13	20	
1335	7.32		60		15.89	632	6.96	-194.7	0.99	22	
1340	7.32		60		15.73	629	6.94	-191.9	1.92	22	
1345	7.32		60		15.76	629	6.95	-192.8	0.93	19	
1350	7.32		60		15.74	628	6.94	-192.6	0.66	19	
1355	7.32		60		15.72	628	6.94	-192.7	0.48	15	
1400	7.32		60		15.84	629	6.93	-188.1	0.67	17	
1405	7.32		60		15.89	630	6.94	-190.8	-1.14	19	
1410	7.32		60		15.92	630	6.94	-192.0	-2.65	17	

TtNUS Form 0009

BG

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE OF NUSC
Sample ID: DA-MW108B-060308

Tetra Tech NUS Charge No. 112600933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1415	7.32		60		16.05	631	6.97	-194.0	-2.99 BS	17	
1420	7.32		60		16.32	635	7.03	-193.9	-3.20	17	
1425	7.32		60		16.69	642	7.13	-216.7	-3.78	16	
1430	7.32		60		16.73	642	7.13	-219.4	-3.99	18	
1435	7.32		60		16.78	643	7.14	-222.4	-4.08	18	
1440	7.32		60		16.81	643	7.15	-225.7	-4.18	20	
1445	7.32		60		16.86	644	7.17	-228.4	-4.34	19	
1450	7.32		60		16.91	645	7.17	-231.3	-4.52	22	
1455	7.32		60		17.26	652	7.14	-229.3	-4.69	22	* pump tubing/cell in sun, insulate equipment
1500	7.32		60		18.43	660	7.13	-223.1	-4.91	22	
1505	7.32		60		19.21	673	7.13	-220.4	-5.20	22	
1510	7.32		60		19.55	689	7.11	-218.3	-5.40	23	
1515	7.31		60		18.22	664	7.24	-240.6	-6.36	22	
1520	7.31		60		17.84	658	7.21	-242.9	-6.59	22	
Pump Test											
1820	7.51		275								
1825	7.79		275								
1830	7.89		275								
1835	8.04		275								
1840	8.11		275								
1845	8.17		275								
1850	8.21		275								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

* Note - Negative DO Value not possible; problem with probe or Calibration is off.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA-MW108B-060308

Tetra Tech NUS Charge No. 112G009133.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1855	8.24		275								
1900	8.26		275								
1905	8.27		275								
1910	8.27		275								
1915	8.28		275								
1920	8.28		275								
1925	8.28		275								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: MW1093-060208

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low Flow Bladder Pump
Depth Sampled: 27.0 Feet Screened Interval Depth N/A feet
Sample Date & Time: 6/2/08 1320 hours _____ /Dup
Sampler(s): Jason Bourgeois
Data Recorded By: JB Signature:
Notes: Ferrous Iron -> 2.37 mg/L

H&S Survey Meter 1.7 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 6.96 ft Post - pump insertion WL 6.92 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1055	7.19		350	0.0	13.21	588	6.82	-119.3	1.08	13	
1100	7.36		350		13.39	594	6.80	-119.4	0.64	9.7	
1105	7.25		200		13.64	601	6.77	-117.7	0.56	11	
1110	7.26		200		13.77	601	6.77	-116.2	0.62	14	
1115	7.32		220		13.56	598	6.76	-114.7	0.49	11	
1120	7.31		220		13.58	598	6.75	-113.3	0.48	11	
1125	7.18		200		14.25	606	6.76	-111.5	0.51	11	
1130	7.15		75		15.15	620	6.83	+20.6	0.57	18	
1135	7.16		75		15.28	621	6.85	-128.5	0.53	15	
1140	7.14		75		15.24	619	6.88	-134.9	0.47	15	
1145	7.13		75		15.21	618	6.89	-136.4	0.43	14	
1150	7.15		75		15.19	616	6.90	-137.7	0.38	15	
1155	7.15		75		15.23	616	6.90	-139.7	0.34	15	
1200	7.14		75		15.36	615	6.86	-140.2	0.33	15	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NUSC
Sample ID: DA MW 109B - 060208

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1205	7.16		75		15.29	613	6.86	-139.8	0.32	17	
1210	7.15		65		15.37	612	6.87	-140.0	0.31	14	
1215	7.14		65		15.45	611	6.85	-140.5	0.30	14	
1220	7.15		65		15.59	612	6.86	-141.3	0.30	15	
1225	7.15		65		15.56	610	6.85	-141.7	0.30	16	
1230	7.15		65		15.71	610	6.86	-140.6	0.28	14	
1235	7.16		65		15.84	611	6.88	-141.1	0.29	16	
1240	7.15		65		15.98	618	6.87	-140.4	0.30	15	
1245	7.16		65		16.70	621	6.86	-139.4	0.30	16	
1250	7.16		65		16.87	626	6.79	-139.9	0.31	13	
1255	7.16		65		16.87	625	6.81	-139.9	0.29	15	
1300	7.16		65		17.61	633	6.81	-140.3	0.29	14	
1305	7.16		65		17.83	641	6.82	-141.4	0.29	14	
1310	7.15		65		18.20	643	6.81	-142.0	0.32	13	
1315	7.13		65		18.32	644	6.81	-141.9	0.32	14	
Pump Test											
1632	7.81		560								
1637	7.55		300								
1642	7.71		300								
1647	7.80		300								
1652	7.85		300								
1657	7.91		300								

TINUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE OF NUSC
Sample ID: DA-MW109B-060208

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1702	7.91		300								
1707	7.91		300								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA SITE 08 NNSC
Sample ID: DA-MW110-51908

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Sample Method: 2" BLADDER PUMP
Depth Sampled: 47 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/19/08 1330 hours _____ /Dup
Sampler(s): CURTIS ODOM
Data Recorded By: C.ODOM Signature: _____
Notes: _____

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 13.54 ft Post - pump insertion WL 13.80 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
10:55	13.81		200	1.0	12.24	523	6.86	-158.6	4.61	220	
11:00	13.80		100	1.5	12.20	518	6.86	-173.4	3.63	210	
11:05	13.74		"	2.0	12.88	523	6.86	-178.1	3.31	140	
11:10	13.73		"	2.5	13.22	527	6.85	-181.4	2.98	100	
11:15	13.73		"	3.0	13.18	538	6.85	-184.8	1.03	85	
11:20	13.72		"	3.5	12.77	529	6.85	-186.5	0.84	75	
11:25	13.72		"	4.0	12.62	524	6.84	-189.4	0.87	70	
11:30	13.72		"	4.5	12.42	518	6.85	-191.4	0.69	60	
11:35	13.72		"	5.0	12.35	515	6.86	-191.5	0.66	65	
11:40	13.73		"	5.5	12.48	515	6.86	-194.4	0.63	60	
11:45	13.72		"	6.0	12.40	515	6.87	-196.3	0.54	50	
11:50	13.74		"	6.5	12.48	525	6.87	-197.7	0.33	45	
11:55	13.75		"	7.0	12.49	522	6.86	-199.2	0.29	40	
12:00	13.75		"	7.5	12.32	518	6.86	-201.1	0.26	39	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA STE 08 NUSC
Sample ID: DA-MW110-51908
FERROUS IRON SCREEN - 3.04 mg/L

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
12:05	13.75		100	8.0	12.34	517	6.88	-202.9	0.27	39	
12:10	13.75		"	8.5	12.35	519	6.87	-202.0	0.31	37	
12:15	13.77		"	9.0	12.39	517	6.85	-202.0	0.29	34	
12:20	13.77		"	9.5	12.41	516	6.85	-197.5	0.30	35	
12:25	13.78		"	10.0	12.48	520	6.85	-202.4	0.20	30	
12:30	13.77		"	10.5	12.44	518	6.84	-201.9	0.19	31	
12:35	13.78		"	11.0	12.42	516	6.84	-198.4	0.19	32	
12:40	13.78		"	11.5	12.19	511	6.84	-201.8	0.21	30	
12:45	13.78		"	12.0	12.10	516	6.83	-203.1	0.18	27	
12:50	13.78		"	12.5	12.09	516	6.83	-202.1	0.21	32	
12:55	13.78		"	13.0	12.12	516	6.84	-202.0	0.19	30	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

5/19/08

Site Name: NUSC S.E of disposal area
Sample ID: DA-MW10-51908

PID- 0.0 ppm pre WL -13.54 post WL -13.80
Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	~~Water Depth below MP~~ ft	~~Pump Dial~~ 1 WL	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1055		13.81	200	1.0	12.24	523	6.86	-158.6	4.61	220	
1100		13.80	100	1.5	12.20	518	6.86	-173.4	3.63	210	
1105		13.74	"	2.0	12.88	523	6.86	-178.1	3.31	140	
1110		13.73	"	2.5	13.22	527	6.85	-181.4	2.98	100	
1115		13.73	"	3.0	13.18	538	6.85	-184.8	1.03	85	
1120		13.72	"	3.5	12.77	529	6.85	-186.5	0.84	75	
1125		13.72	"	4.0	12.62	524	6.84	-189.4	0.87	70	
1130		13.72	"	4.5	12.42	518	6.85	-191.4	0.69	60	
1135		13.72	"	5.0	12.35	515	6.86	-191.5	0.66	65	
1140		13.73	"	5.5	12.48	515	6.86	-194.4	0.63	60	
1145		13.72	"	6.0	12.40	515	6.87	-196.3	0.54	50	
1150		13.74	"	6.5	12.45	525	6.87	-197.7	0.33	45	
1155		13.75	"	7.0	12.49	522	6.86	-199.2	0.29	40	
1200		13.75	"	7.5	12.32	518	6.86	-201.0	0.26	39	
1205		13.75	"	8.0	12.34	517	6.88	-202.9	0.27	39	
1210		13.75	"	8.5	12.35	519	6.87	-202.0	0.31	37	
1215		13.77	"	9.0	12.35	517	6.85	-202.0	0.29	34	
1220		13.77	"	9.5	12.41	516	6.85	-197.5	0.30	35	
1225		13.76	"	10.0	12.48	520	6.85	-202.4	0.20	30	
1230		13.77	"	10.5	12.44	518	6.84	-201.9	0.19	31	
1235		13.76	"	11.0	12.42	516	6.84	-198.4	0.19	32	
1240		13.78	"	11.5	12.19	511	6.84	-201.8	0.21	30	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

DA -MW110B

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TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUSC site 8 - disposal area

Sample ID: MW110 - 5190X

ferrous iron - 3.04 mg/L

Tetra Tech NUS Charge No. 112600933.0214

QC: (If applicable)

Sample time - 1330 Sampler - C. Odom

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1245	13.78		100	12.0	12.10	516	6.83	-203.1	0.18	27	
1250	13.78		"	12.5	12.09	516	6.83	-202.1	0.21	32	
1255	13.78		"	13.0	12.12	516	6.84	-202.0	0.19	30	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW111B-51608

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 42 bgs Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/16/08 1228 hours _____ /Dup
Sampler(s): M. Horton
Data Recorded By: M. Horton Signature: Mel Horton
Notes: - Light Sheen Visible, No Odor - Rusty Color to purge water for the first 20 min of Purging - Fe 0.75 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL ~~11.39~~ 11.21 ft Post - pump insertion WL ~~11.71~~ 11.39 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1028	11.92		200		10.62	316	6.02	-28.1	9.74	191	
1033	12.97				10.66	320	6.02	-37.0	3.07	105	
1038	12.95		150		10.62	320	6.03	-42.4	2.01	91.4	
1043	12.93				10.64	320	6.02	-43.6	1.85	68.5	
1048	12.94			2 gal	10.66	319	6.01	-40.4	1.81	55.7	
1053	12.94				10.63	~~317~~ 317	6.00	-32.9	1.86	44.7	
1058	12.95				10.67	317	6.00	-27.0	1.86	39.6	
1103	12.95				10.62	315	5.99	-23.3	1.87	47.2	
1108	12.94				10.61	314	5.99	-20.2	1.85	42.0	
1113	~~11.93~~				10.57	313	5.99	-17.3	1.83	43.1	
1118					10.58	314	5.99	-15.8	1.82	40.3	
1123	11.93		325		10.57	314	5.99	-13.7	1.87	36.0	
1128					10.58	313	5.98	-11.8	1.86	41.6	
1133					10.61	314	5.99	-11.2	1.86		

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: STTE 08 DISPOSAL AREA
Sample ID: DA-MW111B-51608

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
11:38	11.95		360		10.59	314	5.99	-9.7	1.83	39.7	
11:43	11.92				10.57	315	5.99	-8.1	1.81	31.8	
11:48					10.60	315	5.99	-6.4	1.80	27.5	
11:53	11.92				10.60	315	5.99	-4.3	1.77	27.0	
11:58					10.61	315	5.99	-2.2	1.75	25.2	
12:03			250		10.62	315	5.99	0.3	1.83	30.0	
12:08					10.64	314	5.98	3.2	1.81	25.7	
12:13					10.65	313	5.98	5.3	1.80	25.7	
12:18					10.59	313	5.98	7.2	1.75	20.9	
12:23	12.91				10.55	312	5.98	9.2	1.73	26.4	
12:28	12.90				10.50	312	5.98	11.3	1.75	21.0	
12:33											
12:38											
12:43											
12:48											
12:53											
12:58											
13:03											
13:08											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: MW1125-51908

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: low flow - bladder pump
Depth Sampled: 16 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/19/08 1730 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C Odom Signature: C Odom
Notes: ferrous iron-0.06 mg/L

16.7'
H&S Survey Meter 0.1 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 14.02 ft Post - pump insertion WL 14.02 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1505	14.20		100	0.5	10.81	640	6.88	-98.5	0.14	270	
1510	14.23		"	1.0	10.92	577	6.78	-59.1	0.10	220	
1515	14.23		"	1.5	11.04	571	6.68	-52.0	0.11	210	
1520	14.21		"	2.0	11.05	566	6.54	-17.8	0.18	off scale	
1525	14.21		"	2.5	11.56	544	6.62	-19.3	0.07	4	
1530	14.21		"	3.0	10.98	508	6.55	-3.6	0.04	"	
1535	14.22		"	3.5	11.50	508	6.41	-2.1	0.09	"	
1540	14.22		"	4.0	10.94	480	6.40	35.3	0.12	"	
1545	14.22		"	4.5	10.80	450	6.36	57.1	0.20	"	
1550	14.24		"	5.0	10.17	428	6.21	74.7	0.18	"	
1555	14.24		"	5.5	10.03	414	6.17	80.3	0.15	"	
1600	14.22		"	6.0	10.23	398	6.16	86.3	0.13	"	
1605	14.22		"	6.5	10.16	405	6.17	90.5	0.11	"	
1610	14.22		"	7.0	10.95	407	6.17	91.6	0.12	750	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: S. Lot 08 - disposal area
Sample ID: MW1125-SW08

Tetra Tech NUS Charge No. 112G00933 0000.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1615	14.23		10.0	7.5	10.62	390	6.12	98.3	0.16	450	
1620	14.22		"	8.0	10.14	368	6.07	108.8	0.19	350	
1625	14.22		"	8.5	9.95	363	6.06	113.9	0.20	300	
1630	14.22		"	9.0	9.93	359	6.06	118.6	0.22	230	
1635	14.22		"	9.5	10.06	357	6.06	120.9	0.20	200	
1640	14.23		"	10.0	10.18	354	6.06	123.9	0.21	160	
1645	14.23		"	10.5	10.11	351	6.06	125.6	0.18	160	
1650	14.23		"	11.0	10.09	349	6.06	127.7	0.16	140	
1655	14.23		"	11.5	10.06	350	6.06	128.2	0.18	130	
1700	14.23		"	12.0	10.10	351	6.06	129.6	0.20	130	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

CO

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: MW112D-51608

Tetra Tech NUS Charge No. 112G00933-0212
QC: MW112D-51608-D (Duplicate) (If applicable)

Sample Method: low flow bladder pump
Depth Sampled: 47 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/16/08 1600 hours /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C Odom
Notes: Ferrous iron - 0.01 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 13.50 ft Post - pump insertion WL 13.49 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1420	13.50		200	1.0	11.97	500	7.16	-67.2	1.69	55	
1425	13.50		"	2.0	11.91	488	7.06	-57.0	1.04	70	
1430	13.50		"	3.0	11.77	475	7.03	-49.9	0.88	30	
1435	13.50		"	4.0	11.69	470	6.97	-40.4	0.58	17	
1440	13.50		"	5.0	11.67	467	6.96	-34.8	0.85	13	
1445	13.50		"	6.0	11.69	466	6.94	-29.0	0.97	"	
1450	13.50		"	7.0	11.73	469	6.94	-22.3	0.56	0.0	
1455	13.50		"	8.0	11.74	470	6.94	-21.6	0.48	0.0	
1500	13.50		"	9.0	11.75	471	6.93	-18.8	0.51	0.0	
1505	13.50		"	10.0	11.74	468	6.92	-20.1	0.54	0.0	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW1138-51608

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 29 bgs Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/16/08 1637 hours _____ /Dup
Sampler(s): M. Horton
Data Recorded By: M. Horton Signature: M Horton
Notes: - Very Rusty Color to the Water
- Fe 0.60 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 12.66 ft Post - pump insertion WL 12.67 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1434	12.82		200		11.11	390	6.33	30.9	1.38	273	
1439	12.83				10.89	388	6.34	29.4	0.78	204	
1444	12.84				10.81	386	6.33	28.6	0.56	203	
1449	12.84				10.87	387	6.33	25.9	0.41	186	
1454	12.84			2 gal	10.83	387	6.33	22.7	0.38	191	
1459	12.84				10.85	388	6.33	20.7	0.35	185	
1504	12.84				10.80	388	6.34	17.9	0.35	177	
1509	12.84				10.78	389	6.34	15.0	0.32	170	
1514	12.84			4 gal	10.77	389	6.35	12.8	0.32	152	
1519	12.84				10.77	386	6.35	10.6	0.30	147	
1524	12.84				10.77	391	6.36	7.9	0.28	151	
1529	12.84				10.70	393	6.37	5.0	0.27	151	
1534	12.85			5 gal	10.69	390	6.36	4.2	0.27	148	
1539	12.87				10.65	390	6.37	2.7	0.27	147	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: DISPOSAL AREA STTG 08
Sample ID: DA-MW13B-51608

Tetra Tech NUS Charge No. 112G000933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1544	12.85				10.66	394	6.39	-1.6	0.22	142	
1549	12.87			6 gal	10.63	394	6.40	-4.6	0.22	130	
1554	12.87				10.63	393	6.40	-5.7	0.23	133	
1559	12.87			7 gal	10.67	393	6.41	-6.9	0.20	137	
1604	12.87				10.67	394	6.42	-8.4	0.26	137	
1609	12.86				10.65	396	6.42	-10.9	0.22	137	
1614	12.88				10.65	397	6.43	-11.8	0.21	115	
1619	12.87				10.62	395	6.43	~~-12~~ -12.1	0.45	114	
1624	12.88				10.61	396	6.43	-13.5	0.35	114	
1629	12.88				10.62	397	6.44	-15.7	0.35	107.6	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW114B-51608

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder pump - low flow
Depth Sampled: 60.16 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/16/08 1200 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: bubbles in DO probe causing anomalous readings actual is ~ 0.65 Serious low - 0.00 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL _____ ft Post - pump insertion WL 21.57 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr CO	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec.~~ Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1030	21.54		200	1.0	10.20	220	6.17	144.7	5.87	100	
1035	21.54		"	2.0	10.00	217	6.17	111.2	4.75	80	
1040	21.54		"	3.0	10.00	217	6.21	107.1	3.09	60	
1045	21.55		"	4.0	10.02	215	6.31	98.1	0.66	50	
1050	21.54		"	5.0	10.03	215	6.24	102.6	0.70	50	
1055	21.55		"	6.0	10.02	216	6.19	109.1	3.05	25	
1100	21.55		"	7.0	10.02	215	6.19	111.6	3.26	20	
1105	21.55		"	8.0	10.00	217	6.19	114.1	3.47	14	
1110	21.55		"	9.0	10.00	218	6.18	115.2	3.26	12	
1115	21.55		"	10.0	10.00	218	6.19	113.9	4.13	10	
1120	21.56		"	11.0	9.95	218	6.19	114.5	2.57	8.4	
1125	21.56		"	12.0	9.95	219	6.20	114.9	2.79	5.8	
1130	21.56		"	13.0	9.97	217	6.20	114.4	2.78	4.1	
1135	21.56		"	14.0	9.96	216	6.19	114.7	2.78	2.2	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: PA-MW115B-515008

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: bladder pump - low flow
Depth Sampled: 30 Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/15/08 1800 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: Ferrous iron - 1.83 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL ~~5.71~~ 5.11 ft Post - pump insertion WL 5.66 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec.~~ Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1515	5.75		100	0.5	12.74	422	6.81	-129.8	2.45	100	
1520	5.71		100	1.0	12.60	423	6.82	-127.2	2.18	95	
1525	5.70		"	1.5	12.47	419	6.79	-126.8	1.63	90	
1545	5.71		"	3.5	11.98	417	6.78	-126.9	0.67	70	
1605	5.71		"	5.5	11.87	413	6.81	-130.1	0.42	60	
1610	5.71		"	6.0	11.82	412	6.81	-130.5	0.35	50	
1615	5.71		"	6.5	11.96	413	6.81	-131.9	0.28	35	
1620	5.71		"	7.0	12.24	415	6.81	-132.2	0.35	35	
1625	5.71		"	7.5	12.53	419	6.80	-132.6	0.39	35	
1630	5.71		"	8.0	12.11	419	6.78	-132.0	0.34	35	
1635	5.71		"	8.5	11.99	412	6.76	-131.9	0.31	40	
1640	5.71		"	9.0	11.95	411	6.75	-132.3	0.27	35	
1645	5.71		"	9.5	12.30	416	6.77	-133.2	0.34	27	
1650	5.71		"	10.0	12.28	416	6.75	-132.9	0.33	31	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: NUSC - Site 08 disposal Area
Sample ID: ~~DA~~-MW115B51508

Tetra Tech NUS Charge No. 112600933-0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1655	5.71		100	10.5	12.31	416	6.74	-132.9	0.29	27	
1700	5.71		"	11.0	12.48	418	6.74	-132.8	0.39	21	
1705	5.71		"	11.5	12.42	417	6.74	-132.1	0.35	27	
1710	5.71		"	12.0	12.45	418	6.75	-132.1	0.33	21	
1715	5.71		"	12.5	12.41	418	6.76	-129.6	0.34	21	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: MW116-5/15/08

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump - low flow
Depth Sampled: 37' Feet Screened Interval Depth _____ feet
Sample Date & Time: 5/15/08 1200 hours _____ /Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: purge initiated @ 0935

ferrous iron - 2.98 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 8.02 ft Post - pump insertion WL 7.99 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec~~. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0910	8.11		100	0.5	11.61	372	6.48	-101.1	0.97	40	
0945	8.13		"	1.0	11.59	370	6.50	-112.8	0.59	40	
0950	8.08		"	1.5	11.85	372	6.51	-116.5	0.58	34	
0955	8.10		"	2.0	11.72	370	6.50	-117.1	0.64	32	
1000	8.11		"	2.5	11.67	368	6.49	-117.0	0.54	24	
1005	8.11		"	3.0	11.77	369	6.49	-117.6	0.50	20	
1010	8.11		"	3.5	11.86	369	6.49	-117.5	0.48	17	
1015	8.10		"	4.0	11.98	369	6.48	-117.7	0.82	16	
1035	8.11		"	6.0	12.03	367	6.45	-116.2	0.38	15	
1055	8.11		"	8.0	11.90	365	6.43	-114.3	0.32	13	
1115	8.11		"	10.0	11.67	362	6.44	-113.4	0.33	10	
1135	8.12		"	12.0	11.89	364	6.44	-113.4	0.30	4.8	
1140	8.12		"	12.5	11.86	364	6.43	-113.0	0.30	4.1	
1145	8.12		"	13.0	11.88	364	6.43	-113.3	0.29	3.6	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

draw down @ 450 ml/min

start

Time	SWL
1340	8.17
1345	8.26
1350	8.29
1355	8.30

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW117B-51508

Tetra Tech NUS Charge No. 112600933-0212
QC: DA-MWDUP01 (If applicable)

Sample Method: Bladder Pump → 25' BGS
Depth Sampled: ~~51508~~ Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/15/08 1622 hours /Dup
Sampler(s): M. Horton
Data Recorded By: M. Horton Signature: M. Horton
Notes: Fe Colorimeter Reading 2.41 mg/L 1617

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 23.30 ft Post - pump insertion WL 23.31 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1543	23.30		90	1 gal	12.29	340	6.76	-78.4	0.35	1.00	-took about 30 min to get 100 ml/min
1548	23.31				12.27	338	6.74	-73.6	0.35	0.00	
1553	23.31				12.17	342	6.76	-74.8	0.34	0.10	
1558	23.31				12.13	340	6.59	-61.5	0.36	0.00	
1603	23.31				12.08	338	6.58	-59.9	0.34	0.00	
1608	23.31				12.07	337	6.58	-58.4	0.37	0.00	
-STABILIZATION ACHIEVED											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: DA-MW118B-51508

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 33.5 Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/15/08 1152 hours _____ /Dup
Sampler(s): M. Horton
Data Recorded By: M. Horton Signature: M. Horton
Notes: Fe Reading of 0.0 @ 1034
DrawDown 26.60' @ 1323 26.60' @ 1338

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D B115938
Pre-pump insertion WL 26.59 ft Post - pump insertion WL 26.60 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0947	26.57		110		11.96	277	6.15	180.0	0.28	55	
0952	26.58				11.85	272	6.37	166.8	5.87	65	
0957	26.58				11.85	272	6.36	171.8	7.35	62	
1062	26.58			1 gal	11.83	271	6.36	174.4	5.44	45	
1007	26.59				11.89	276	6.37	179.1	5.26	45	
1012	26.59				11.94	270	6.38	181.4	6.62	40	
1017	26.59				12.04	272	6.34	176.4	6.33	34	
1022	26.59			2 gal	12.01	271	6.35	168.0	8.56	32	
1027	26.59				11.97	273	6.36	161.6	6.94	33	
1032	26.59				11.99	272	6.34	160.3	7.81	29	
1037	26.59				11.96	273	6.34	158.0	0.42	29	
1042	26.59				11.94	272	6.37	157.4	0.39	29	
1047	26.59				11.90	271	6.36	158.0	0.36	28	
- Had to Stop to Switch Nitrogen Tanks											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: SITE 08 NUSC DISPOSAL AREA
Sample ID: ~~MW~~ DA-MW11B-51508

Tetra Tech NUS Charge No. 112G00933.0214
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1102	26.59		110	4.5	12.09	276	6.48	163.2	0.24	19	
1107	26.59				12.06	276	6.37	166.0	0.28	20	
WG 1112	26.59				12.10	275	6.34	169.7	0.35	11	
1117	26.59			5	12.07	273	6.33	169.0	0.40	11	
1122	26.59				12.05	273	6.32	169.8	0.42	7.6	
1127	26.59				12.03	272	6.31	169.4	0.98	6.2	Bubbles on DO Probe
1132	26.59				12.07	276	6.29	158.0	0.43	3.3	
1137	26.59				12.11	275	6.28	156.6	0.34	3.4	
1142	26.60				12.32	276	6.29	156.8	0.38	4.6	
-STABILIZATION AT 2Hrs											

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: MW-119B-051408

Tetra Tech NUS Charge No. 112600933-0212
QC: N/A (If applicable)

Sample Method: Bladder Pump
Depth Sampled: 30' Feet Screened Interval Depth N/A feet
Sample Date & Time: 5/14/08 1128 hours N/A /Dup
Sampler(s): M. Horton
Data Recorded By: M. Horton Signature: M Horton
Notes:

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 13.60 ft Post - pump insertion WL 13.60 ft

Analysis Bottle Lot # Analysis Bottle Lot # Analysis Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters gal	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1046	13.60		100		14.66	744 754	6.81	-165.0	1.16	7.1	
1051	13.60		100		14.61	751	6.80	-165.7	1.14	0.0	
1056	13.60				14.21	740	6.75	-169.7	0.71	0.00	
1101	13.60				13.96	735	6.74	-170.5	0.59	0.00	
1106	13.60			1 gal	14.09	737	6.73	-171.6	0.57	0.00	
1111	13.60				13.93	734	6.73	-172.4	0.43	0.00	
1116	13.60				13.87	733	6.75	-173.2	0.45	0.00	
1121	13.60			1.5 gal	13.81	734	6.78	-172.1	0.42	0.00	
-END PURGE, STABILIZATION											
- Fe Reading was 3.27 mg/L											
- DRAW DOWN PURGE Begin	13.61' @	1312 - About	600 mL/min				13.64' @ 1327				

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Site 08-NUSC Disposal Area
Sample ID: MW1208-51408

Tetra Tech NUS Charge No. 112600933-0212
QC: _____ (If applicable)

Sample Method: Bladder pump-low flow
Depth Sampled: 56 Feet Screened Interval Depth _____ feet
Sample Date & Time: __/__/__ 1305 hours _____/Dup
Sampler(s): C. Odom
Data Recorded By: C. Odom Signature: C. Odom
Notes: purging initiated @ 1135
Ferrous iron - ~~3.06~~ 3.06 mg/L

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 21.91 ft Post - pump insertion WL 21.83 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	~~Spec.~~ Cond. [2] uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1140	22.10		100	0.5	14.48	815	6.06	-31.5	1.92	14	
1145	22.0		"	1.0	14.32	811	6.05	-27.2	1.72	13	
1150	22.10		"	1.5	13.86	797	6.05	-19.0	1.23	10	
1155	22.09		"	2.0	13.84	791	6.07	-18.9	1.02	8.5	
1200	22.09		"	2.5	13.79	782	6.03	-14.8	0.91	7.9	
1205	22.10		"	3.0	13.71	776	6.04	-11.0	0.81	7.7	
1210	22.10		"	3.5	13.65	770	6.04	-13.6	0.73	7.5	
1215	22.10		"	4.0	13.60	766	6.06	-14.1	0.69	6.1	
1220	22.10		"	4.5	13.61	761	6.06	-15.8	0.61	4.9	
1225	22.10		"	5.0	13.62	762	6.06	-18.2	0.68	4.2	
1230	22.10		"	5.5	13.61	767	6.08	-17.6	0.62	3.6	
1305	22.21		600								
1310	22.62		"								
1315	22.62		"								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TP= 8.15

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: MW123B-6408

S Charge No. 112G00933.0000.0214
(If applicable)

MW 123

Sample Method: Low flow - bladder pump
Depth Sampled: 7.15 Feet Screened Interval Depth
Sample Date & Time: 6/9/08 hours
Sampler(s): Curtis Odom
Data Recorded By: C. Odom Signature:
Notes: Ferrous iron - 0.0 mg/L

eter 0.0 PPM Field Instrument Group A/B/C/D
tion WL 4.49 ft Post - pump insertion WL 4.42 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond.[2] uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1330	4.42		50*	0.25	13.57	499	6.33	175.7	1.70	45	
1335	4.42		"	0.50	13.37	495	6.31	170.6	1.55	16	
1340	4.42		"	0.75	13.29	490	6.30	167.5	0.90	9.0	
1345	4.42		"	1.0	13.24	488	6.30	163.2	0.83	7.7	
1350	4.41		"	1.25	13.19	486	6.29	159.8	0.80	6.0	
1355	4.41		"	1.50	13.20	486	6.29	156.8	0.77	4.9	

TtNUS Form 0009

* max pump rate

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TP = 10.20

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Disposal Area Site 08 NUSC
Sample ID: MW1235-6308

Tetra Tech NUS Charge No. 112G00933.0000.0214
QC: _____ (If applicable)

Sample Method: Low flow-bladder pump
Depth Sampled: 8.0 Feet Screened Interval Depth 5-15
Sample Date & Time: 6/3/08 1700 hours Yes
Sampler(s): C. Odom
Data Recorded By: C Odom Signature:
Notes: Turbidity = 0.00 mg/L

max pump rate = 50 mL/min

eter 0.0 PPM Field Instrument Group A/B/C/D
ion WL 5.95 ft Post - pump insertion WL 5.98 ft

MW-123

ot # Analysis Bottle Lot # Analysis Bottle Lot #

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond.[2] uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1415	6.09		50	0.5	22.18	553	6.50	260.5	6.49	220	
1420	6.11		"	0.75	21.14	1010	6.42	298.1	7.67	200	
1425	6.12		"	1.0	21.11	994	6.44	308.9	6.87	140	
1430	6.14		"	1.25	21.19	985	6.46	317.3	6.71	100	
1435	6.16		"	1.50	21.21	992	6.46	326.0	2.75	100	
1440	6.20		"	1.75	20.86	972	6.45	336.2	2.53	70	
1445	6.19		"	2.0	20.77	963	6.46	348.1	2.50	40	
1450	6.20		"	2.25	20.76	955	6.46	344.6	2.25	9.8	
1455	6.20		"	2.50	20.79	956	6.46	350.1	2.24	4.6	
1500	6.20		"	2.75	20.82	956	6.47	349.6	2.26	3.2	

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NUSC Site 08 Disposal Area
Project No.: 112G00933.0214
Location: Newport, RI
Personnel: M.Alroy, M. Horton, C.Odom
Weather Conditions: P.Cloudy/Windy 50's
Measuring Device: Oil/Water Interface Probe
Tidally Influenced: Yes No
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
S120B	5/13/08	1400			21.89	N/A		SU-2.40
118B	"	1420			26.65	"		SU-2.35
116B	"	1431			7.85	"		2.11-SU
115		1433			5.43	"		2.16-SU
114		1439			21.57	"		2.11-SU
117B		1449			23.36	"		SU-1.95
micro 03B		1454			23.58			Sd-.0.18 SU-5.29
104B		1533			16.29			SU-1.96
105B		1517			18.55	"		SU-1.91
110B		1554			13.65			SU-1.80
111B		1607			11.44			SU-1.23
113B		1614			12.66			SU-1.88
micro 01B		1630			12.43			Sd-.26 SU-2.68
112B-D		1735		50.22	13.40			SU-2.15 tilted
2" 112B-S		1756		23.05	~~14.08~~			SU-0.15 ~~Sd-2.68~~
micro 04B		1638			17.75			Sd-0.27 SU-2.13
119		1702			13.39			Sd-0.57
109		1827			5.75			Sd-0.45
108		1836			5.68			Sd-0.43
107								
100B		1849			~~7.77~~ 5.07			Sd-0.25

* All measurements to the nearest 0.01 foot

7.77 - 5.07 fp @ 100B
LNAPL in bailer measured 0.1"

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NUSC Site 08 Disposal Area
Project No.: 112G00933.0214
Location: Newport, RI
Personnel: M.Alroy, M. Horton, C.Odom
Weather Conditions: P.Cloudy/Windy 50's
Measuring Device: Oil/Water Interface Probe
Tidally Influenced: Yes (NO)
Remarks:

	Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)* Stick Up	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
+	MW02B	5/13/08	1439	-0.21'	43.80'	4.99'			NO Bailer Used 1" - 3/4" PVC
	B102B	5/13/08	1424	1.77'	48.55'	13.50'			
	B106B	5/13/08	1459	~~NOT~~ 0.09	49.54'	0.43'			Casing Filled w/ Water
	B101B	5/13/08	1525	-0.29'	49.60'	11.02'			
+	MW-9B	5/13/08	1542	CASING 4.16' SD 0.12'	8.57'	7.13'	..water had an orange color but it was cqueard (0.55')		SCREENED PVC AT TOP OF WELL
+	MW-9A	5/13/08	1554	CASING 3.57' SD 2.70'	26.24 FROM TOC	7.18' FROM TOC	1.70' - DARK COLOR, LOOKED LIKE SEDIMENT		
	MW-12	5		~~0.87~~					
	MW-13A								
	MW-13B								
	MW-8A								
	MW-8B								
+	MW-7A	5/13/08	1631	-0.48'	8.99'	-NO WATER DETECTED -2.8' OF WATER IN BAILER	-NO PRODUCT, SHEEN VISIBLE ON PURGE WATER		
+	MW-7B	5/13	1651	-0.59'	27.90'	5.93	-NO PRODUCT VISIBLE		
	MW-10								
	MW-11	5/13/08	1759	CASING 3.40' SD 0.34'	13.18'	8.41'			
	MW-6A	5/13/08	1752	CASING 3.72' SD 0.23'	12.06'	9.49			
	MW-6B	5/13/08	1741	3.89'	39.25'	9.67' FROM TOC			
	106 Overburden	5/13/08	1506	-0.49	18.60'	1.53'			
	B107B	5/13/08	1818	-0.42	44.08'	3.20'	-NO PRODUCT VISIBLE		
	148	5/13/08	1831	CASING 3.56 SD 0.40	7.54'	4.25'			
	149	5/13/08	1842	CASING 3.75 SD 0.11	~~5.80~~ 9.31'	5.67'			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NUSC-Disposal Area 08 **Project No.:** 112G00933 0000.0214
Location: NCBC Davisville, Middletown, RI **Personnel:** Geringer, Horton
Weather Conditions: Sun 75° **Equipment:** N.A
Low Tide: _____ **High Tide:** N/A **Remarks:**

Well ID	2008 Date	Time	Locked? (Y or N)	Labeled? (Y or No)	Damaged? (Y or N)	TOR Elevation (feet above ground)	Depth to Water (ft below TOR)	Groundwater Elevation (feet)*	Comments
MW-03B	9/18	0919	Y	Y	N		23.58'		
MW-114B	9/18	0922	Y	Y	N		22.31'		
MW-115B	9/18	0939	Y	Y	N		7.01'		
MW-116B	9/18	0909	Y	Y	N		9.57'		
MW-117B	9/18	0914	Y	Y	N		23.33'		
MW-118B	9/18	0859	Y	Y	N		26.77'		
MW-119B	9/18	0851	N/A	Y	N		14.01'		
MW-120B	9/18	0842	Y	Y	N		22.41'		
MW-01B	9/18	~~0851~~ 1043	~~N/A~~ N	~~Y~~ Y	~~N~~ N		~~13.06~~ 13.06		
MW-04B	9/18	1009	N	Y	N		7.65		
MW-104B	~~9/18~~ 9/18	~~1009~~ 1038	~~N~~ Y	~~Y~~ Y	~~N~~ N		~~7.65~~ 16.16		~~104 + 105 are in approx same spot on map, labeled in field 105 south 104 north of 105~~
MW-105B	9/18	1013	Y	Y	N		18.42'		
MW-110B	9/18	1027	Y	Y	N		13.87'		
MW-111B	9/18	0945	Y	Y	N		11.84'		
MW-112S	9/18	1002	Y	Y	N		14.38'		
MW-112B	9/18	1005	Y	Y	N		13.71'		
MW-113B	9/18	0950	Y	Y	N		13.12'		
MW-122 (SB148)	9/18	0929	Y	Y	N		4.08'		
MW-123 (SB149)	9/18	0934	Y	Y	N		5.77'		
MW-02B	9/18								COVERED INACCESSIBLE
MW-100B	9/18	1155	N	Y	N		11.18		
MW-101B	9/18	1040	N	Y	N		7.88		
MW-102B	9/18	1150	Y	Y	N		13.91		
MW-103S	9/18	~~1154~~	Y	Y	N		16.45'		
MW-103B	9/18	1146	Y	Y	N		16.58'		
MW-106S	9/19	1162	N/A	N	N		3.87'		
MW-106B	9/18	1057	N/A	N	N		1.90'		
MW-107B	9/18	1114	N/A	Y	N		4.19		
MW-108B	9/18	1119	N/A	Y	N		6.12		
MW-109B	9/18	1124	N	Y	N		6.72		

MW-125B	~~9/17~~ 9/17	1132	N	Y	N		5.65'		
MW-126B									COULD NOT OPEN.
MW-07A	9/18	1217	N	N	N		5.64'		SHALLOW
MW-07B	9/18	1222	N	N	N		6.09'		Deep
MW-09A	9/18	1212	N	N	N		7.28'		From Top of outer casing
MW-09B	9/18	~~1210~~ 1210	N	N	N		7.12'		
MW-12	9/18								LOCKED
MW-13A	9/18	1234	N	N	N		3.86'		SHALLOW
MW-13B	9/18	1236	N	Y	N		3.62'		DEEP
MW-124B*	~~9/18~~ 9/18	1136	N	Y	N		3.68'		

Notes:

* All measurements to the nearest 0.01 foot

APPENDIX D.2

TEST PIT LOGS AND PHOTOGRAPHS

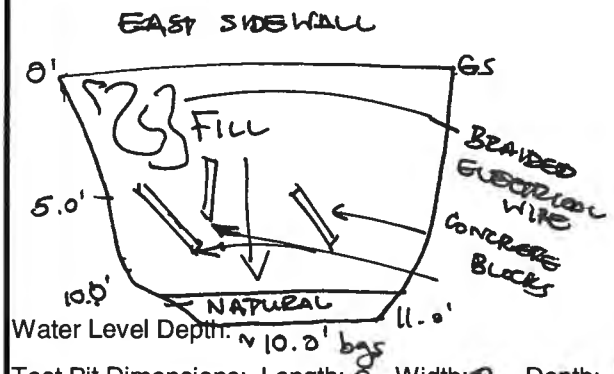
TEST PIT LOG

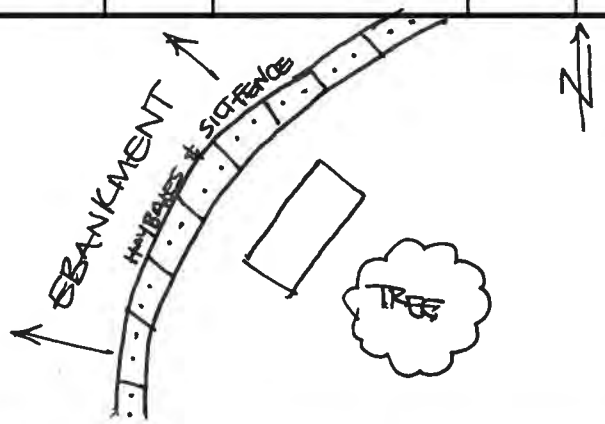
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area
PROJECT NUMBER: 112G00816-0324
LOCATION: Newport, RI
CONTRACTOR: GLOBAL REMEDIATION
TEST PIT No.: TP-100
DATE: 2/11/08
GEOLOGIST: M.Alroy
OPERATOR: R. TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0-0.5	TOPSOIL / WOOD DEBRIS		FILL	0.0	
	0.5-10.0	Loose, Dry, Brown SILT, some Gravel, little f-c Sand, Reinforced Concrete blocks & approx 75' of thick braided electrical wire.	SM		0.0	
5					0.0	
					0.0	
					0.0	
10	10'-11'	M. Dense, Moist, Brown SILT, some fine SAND	SM	NATURAL	0.0	
11		BOTTOM OF TEST PIT @ 11.0' weathered bedrock				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: ~10.0' bgs

Test Pit Dimensions: Length: 9 Width: 7 Depth: 11.0' Equipment Used: KOBELCO 135SRLC

REMARKS: GROUNDWATER ENCOUNTERED AT APPROX 10.0'

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

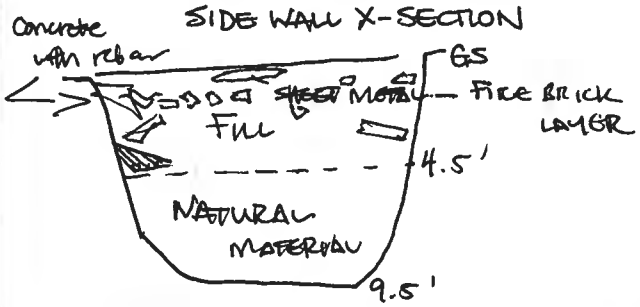
TEST PIT LOG

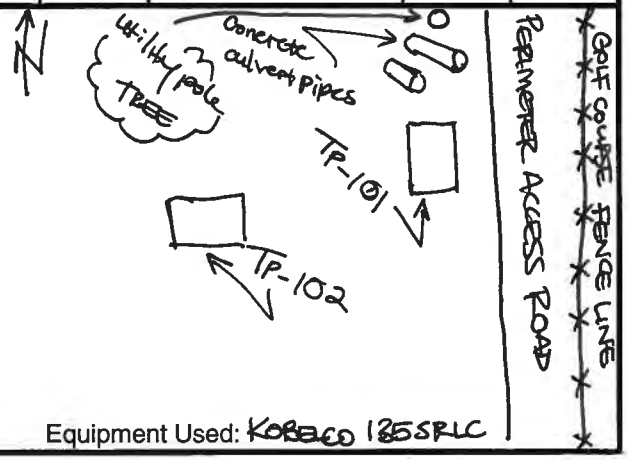
Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-101
PROJECT NUMBER:	112G00816-0324	DATE:	2/11/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R. TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0'-0.5'	TOPSOIL			0.0	
	0.5'-4.5'	Loose, Dry, Brown, SILT, some Gravel, little f-c Sand, Sheet metal, concrete with rebar & Bricks	SM	* SHEET METAL @ 0.5'	0.0	
				Concrete w/ rebar		
	4.5-8.5'	M. Dense, Dry, Brown, SILT, some Gravel, little f-c Sand, Grey	SM	@ 1.5' FILL TO 4.5'	0.0	
5					0.0	
	8.5-9.5	Moist, M. Dense, Brown/Grey SILT & fractured bedrock	SM		0.0	
					* 35.0 ppm	
10		Bottom of T.P @ 9.5'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: GW encountered @ 9.5'

Test Pit Dimensions: Length: 12.5 Width: 8 Depth: 9.5' Equipment Used: KOBELCO 185SRLC

REMARKS: * 35 ppm PID screening hit on groundwater, Solvent odor & sheen on water

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

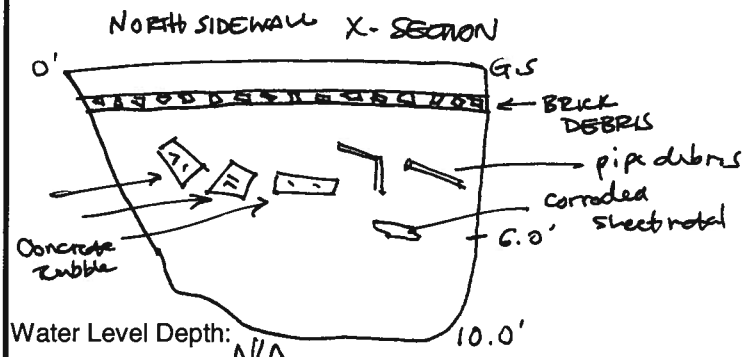
TEST PIT LOG

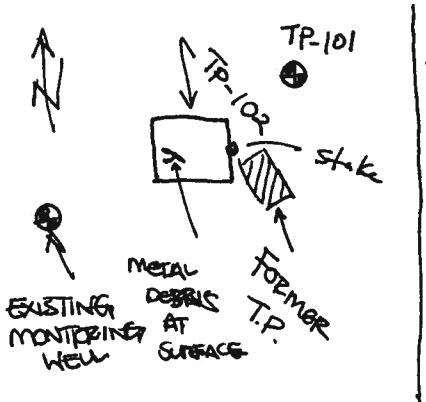
Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-102
PROJECT NUMBER:	112G00816-0324	DATE:	2/11/08
LOCATION:	Newport, RI	GEOLOGIST:	M. Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R. TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0-.75'	TOPSOIL		FILL	0.0	
	0.75-1.5	Loose, Dry, Lt. Brown firebrick debris				
	1.5-2.5	Loose, Grey, Dry, SILT, some Gravel little f-c Sand	SM		0.0	
5	2.5'-6.0'	Loose, Brown, Dry, SILT some Gravel little f-c Sand, Concrete Rubble, Pipe metal debris, corroded piece of sheet metal	SM		0.0	
	6.0'-9.0'	Loose Brown/Dry SILT, some Gravel little f-c Sand		NATURAL MATERIAL	0.0	
10	9.0'-10.6'	Dense, Brown/Grey SILT, little Gravel, little f-c Sand (TILL/NATURAL MATERIAL)	SM		0.0	
		BOTTOM OF TEST PIT 10.0'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: N/A

Test Pit Dimensions: Length: 12 Width: 8.5 Depth: 10.0'

Equipment Used: KOBELCO 135SRSS

REMARKS: NO GROUNDWATER ENCOUNTERED

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

TEST PIT LOG

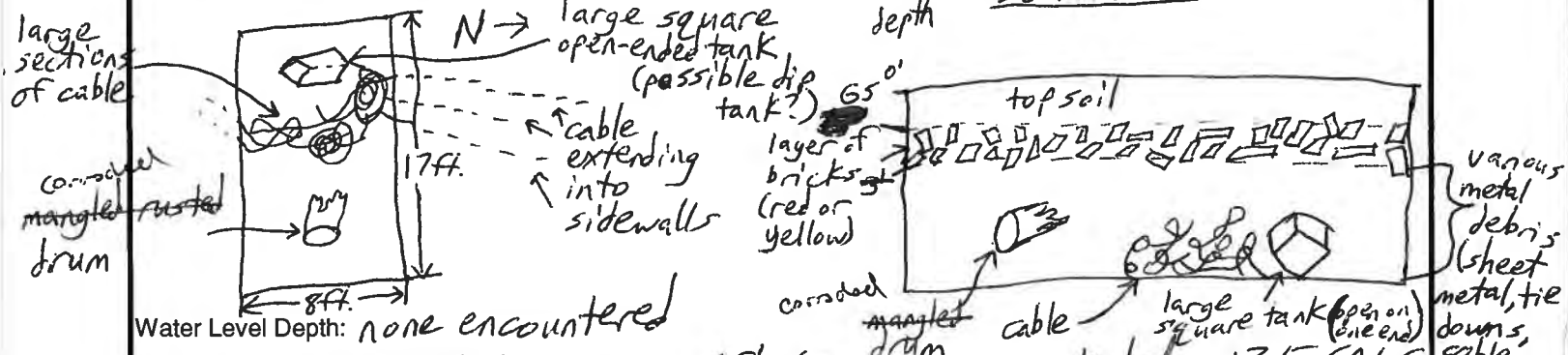
Page 1 of 1

Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area
PROJECT NUMBER: 112G00816-0324
LOCATION: Newport, RI spa 2/7/08
CONTRACTOR: Global Pet Remediation
TEST PIT No.: TP-103
DATE: 2/7/08
GEOLOGIST: M.Alroy
OPERATOR: R. Tomlinson

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
	0'-0.5'	TOPSOIL	-	FILL	0.0	
1	0.5'-1.5'	SILT, some Gravel, little f-c Sand	SM			
	1.5'-6.5'	SILT and GRAVEL, little f-c Sand (brick, wire, sheet metal, drum, tank debris, wood debris, ash)			0.0	
2						
					0.0	
3						
		BOTTOM OF TESTPIT 6.5'			0.0	
4						
					0.0	
5						
					0.0	
6						
					0.0	

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth: none encountered

Test Pit Dimensions: Length: 17ft Width: 8ft. Depth: 6ft 6in. Equipment Used: Kobelco 135SRLC

REMARKS: Soil Sample SB-TP103-0506 Collected at Corroded drum

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

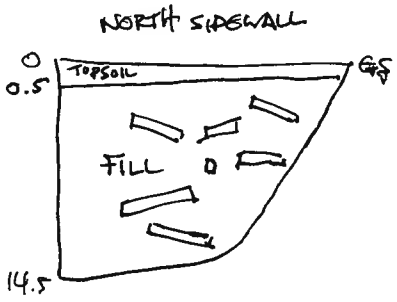
TEST PIT LOG

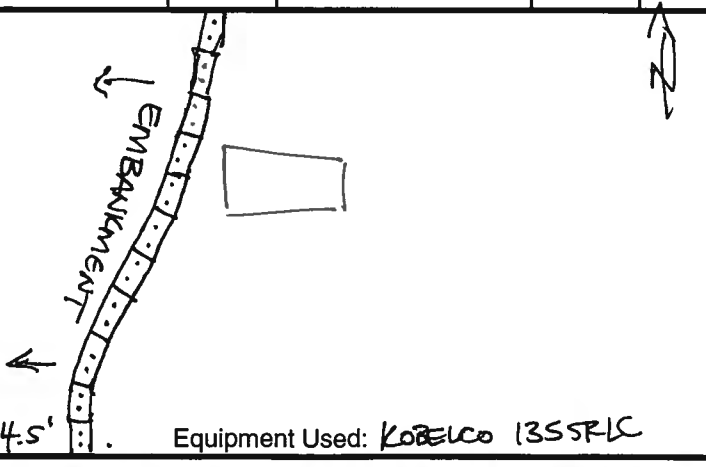
Tetra Tech NUS, Inc.

PROJECT NAME: NUSC Disposal Area
PROJECT NUMBER: 112G00816-0324
LOCATION: Newport, RI
CONTRACTOR: GLOBAL REMEDITION
TEST PIT No.: TP-104
DATE: 2/8/08
GEOLOGIST: M.Alroy
OPERATOR: R. TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0		0-0.5 TOPSOIL			0.0	
		0.5-14.5' LOOSE, WET, BROWN	SM	FILL		
		SILT, SOME GRAVEL, LITTLE			0.0	
		f-c SAND, LOTS OF CONCRETE				
5		GRADE BEAM DEBRIS			0.0	
					0.0	
					0.0	
10					0.0	
					0.0	
15		BOTTOM OF TEST PIT 14.5'			0.0	

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth:

Test Pit Dimensions: Length: 16 Width: 6.5 Depth: 14.5'

Equipment Used: KOBELCO 135SRLC

REMARKS: NATURAL MATERIAL NOT ENCOUNTERED. EXCAVATION BECAME TOO BIG DUE TO UNSTABLE SIDEWALLS, ABANDONED THE TEST PIT DUE TO SAFETY CONCERNS & SIZE.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

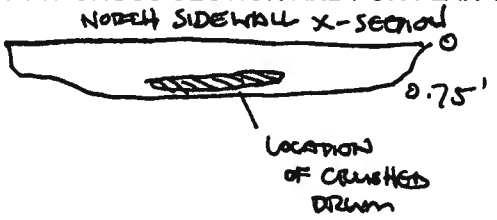
TEST PIT LOG

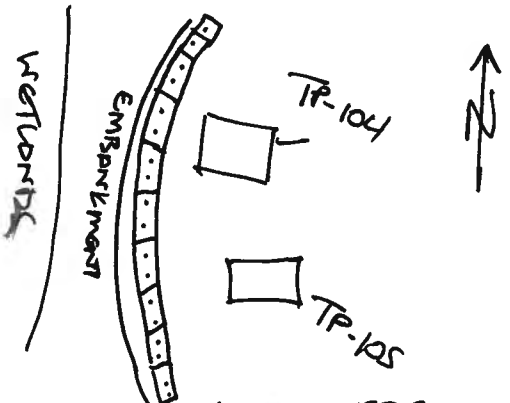
Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-105
PROJECT NUMBER:	112G00816-0324	DATE:	2/8/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R.T

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0'-0.5'	TOPSOIL			0.0	
	0.5'-0.75'	Dry, Loose, Brown SILT, Some Gravel, Little f-c Sand	SM	~~crushed~~ drum observed	0.0	
1		BOTTOM OF TESTPIT 0.75'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: NO GROUNDWATER ENCOUNTERED

Test Pit Dimensions: Length: 12 Width: 7 Depth: 0.75'

Equipment Used: KOBELCO 135 SRLC

REMARKS: CRUSHED DRUM HAD A SOLIDIFIED LIQUID ASPHALT / ROOF TAR RESIDUE INPLACES. NO PID READINGS WERE OBSERVED EMINATING FROM THE DRUM OR SOIL AROUND IT.

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

TEST PIT LOG

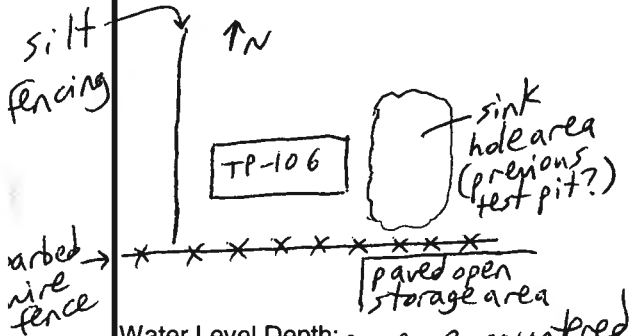
Tetra Tech NUS, Inc.

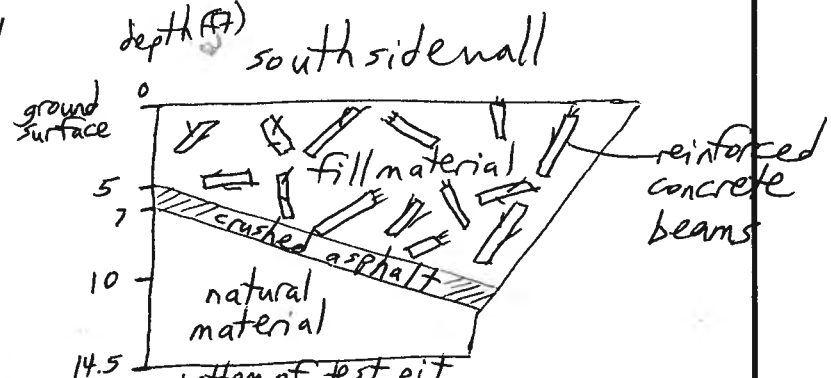
PROJECT NAME: NUSC Disposal Area
PROJECT NUMBER: 112G00816-0324
LOCATION: Newport, RI
CONTRACTOR: Global Remediation

TEST PIT No.: TP-106
DATE: 2/7/08
GEOLOGIST: M.Alroy
OPERATOR: R. Tomlinson

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0'-5'	moist brown silt and gravel, little f-c sand, loose	SM	fill, metal debris	0.0	
				↓ fill		
	5'-7'					
5		crushed asphalt layer				
7		moist brown silt, some f-c sand, little weathered bedrock (shale fillite), dense	SM	natural material		
10						
		bottom of test pit				
14.5						
15		Bottom of Test Pit 14.5				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: none encountered

Test Pit Dimensions: Length: ~~9.4~~ 2/7/08 ~~6.6~~ 2/7/08 Depth: 14.5ft.

Equipment Used: Kobelco 135SRLC

REMARKS: test pit filled with reinforced concrete beams, red plate debris at 9ft. (potential asbestos containing material)

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

length = 9ft. 9in.
width = 6ft 6in

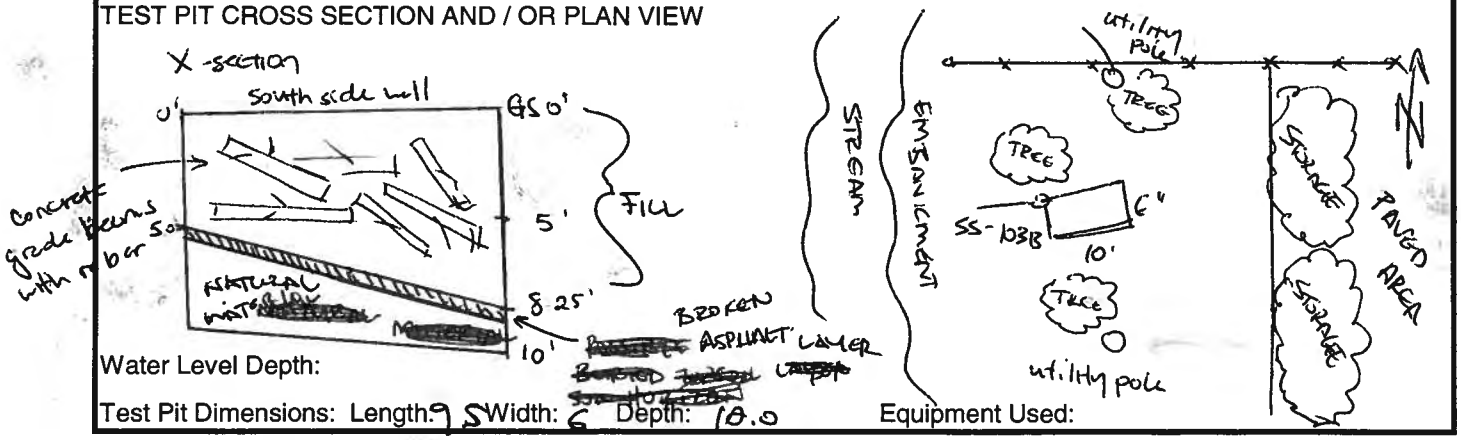
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-107
PROJECT NUMBER:	112G00816-0324	DATE:	2/6/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	Richard Tomlinson

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
	0-0.25	D. Brown Topsoil/Loam, loose, moist				
1	0.25'-8.25'	Loose, Brown, SILT & some Gravel little	SM			
		Dry f-c SAND				
2		(LOTS OF CONCRETE DEBRIS WITH REBAR)				
3						
4						
		5.0-8.25' 6" LAYER Crushed Asphalt Debris				
5				▼		
				FILL		
6						
7						
8	8.25'-10.0'	Moist to Dense, Grey SILT, some weathered bedrock, little f-c Sand	ML	▼		
9						
10						

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth:

Test Pit Dimensions: Length: 9 Width: 6 Depth: 10.0

Equipment Used:

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

TEST PIT LOG

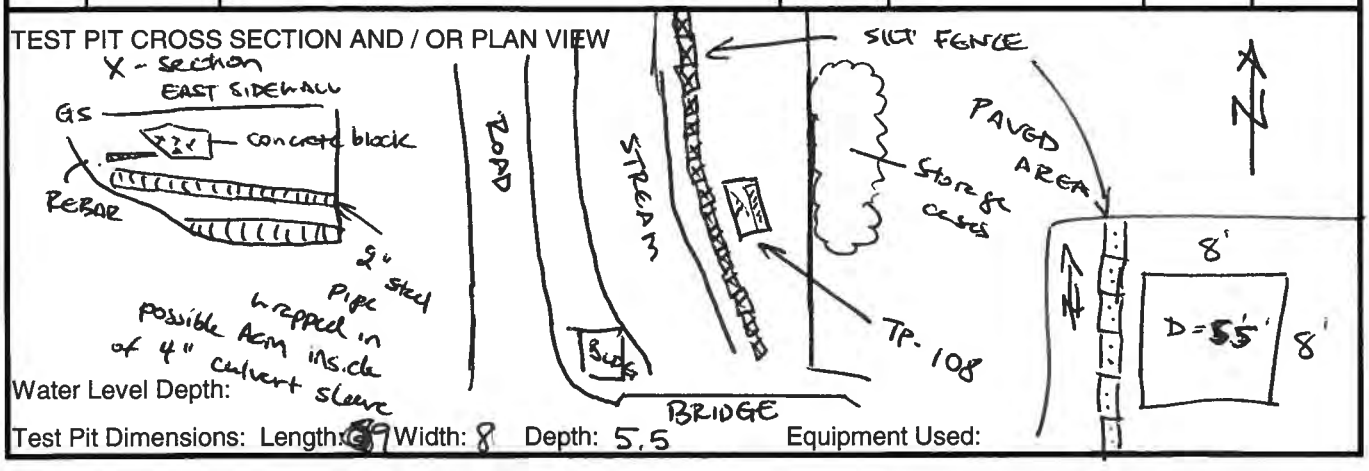
Page ___ of ___

Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-108
PROJECT NUMBER:	112G00816-0324	DATE:	2/6/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
	0-0.25'	TOPSOIL / LOAM D. Brown loose			0.0	
1	0.25'-	Brown, M. Dense/Loose, Dry				
		SILT & GRAVEL, little f-c Sand	GM	FILL	0.0	
2						
					0.0	
3						
					0.0	
4						
					0.0	
5						
					0.0	
		BOTTOM OF TEST PIT @ 5.5'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW



Water Level Depth:

Test Pit Dimensions: Length: 8 Width: 8 Depth: 5.5 Equipment Used:

REMARKS: Pipes wrapped in insulation seem to be old steam lines. No VOC odors or PID readings observed. Due to the amount of friable insulation present TTNUS abandoned the test pit at a depth of 5.5'

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

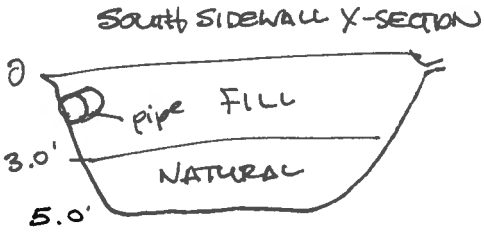
TEST PIT LOG

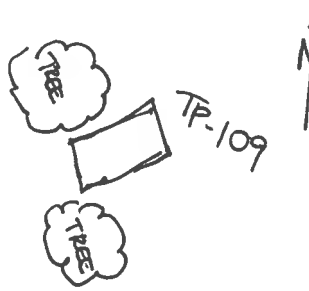
Tetra Tech NUS, Inc.

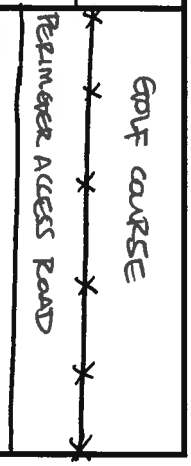
PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-109
PROJECT NUMBER:	112G00816-0324	DATE:	2/12/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R.TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0'-0.5'	TOPSOIL		FILL	0.0	
1	0.5'-3.0'	Loose, Dry, Brown SILT, some Gravel, little f-c Sand	SM	4" corrugated culvert pipe @ 2.5'		
2					0.0	
3	3.0'-5.0'	Moist, M Dense, Brown SILT, some Gravel, little f-c Sand	SM	NATURAL MATERIAL @ 3.0'	0.0	
4						
5					0.0	
		Bottom of Test Pit @ 5.0'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW







Water Level Depth: GW ENCOUNTERED @ 3.0'

Test Pit Dimensions: Length: 15 Width: 10 Depth: 5.0'

Equipment Used: KOBELCO 135 SR LC

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

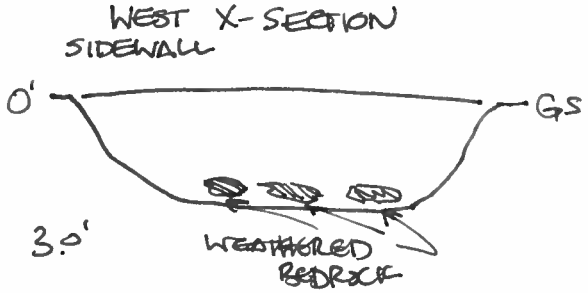
TEST PIT LOG

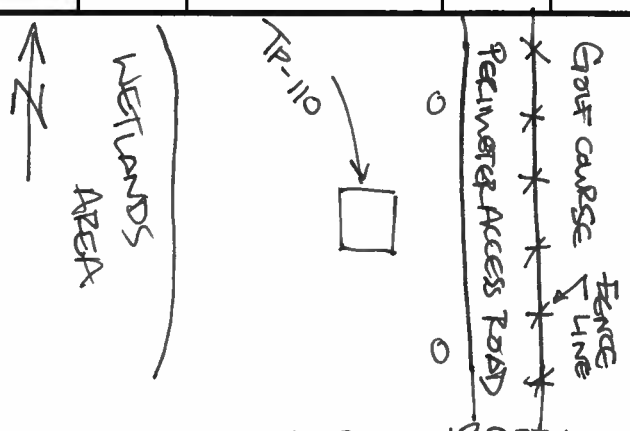
Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-110
PROJECT NUMBER:	112G00816-0324	DATE:	2/11/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R. TOMLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0		0'-0.33' TOPSOIL			0.0	
		0.33'-2.75' M. Dense, Dry, Brown	SM.	NATURAL MATERIAL		
		SILT, Some Gravel, little f-c			0.0	
		Sand				
5		2.75-3.0 M. Dense, Moist, Brown	SM		0.0	
		SILT, some Gravel, little f-c				
		Sand, weathered bedrock				
		~~BOTTOM OF BORING 3.0'~~				
10						

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: GW ENCOUNTERED @ 3.0'

Test Pit Dimensions: Length: Width: Depth:

Equipment Used: KOBELCO 135SR LC

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

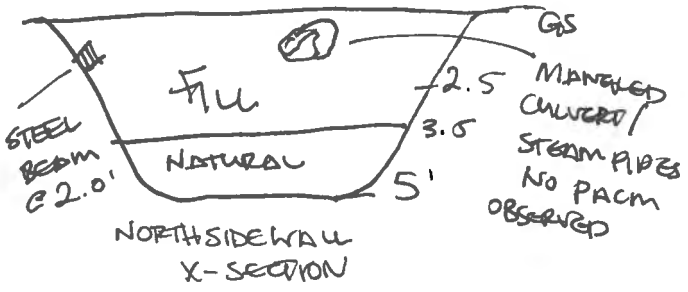
TEST PIT LOG

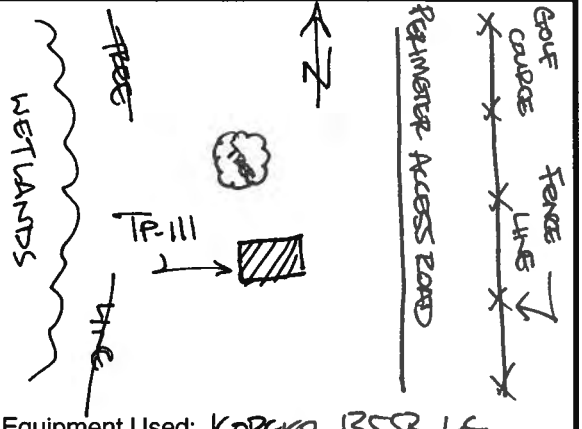
Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-111
PROJECT NUMBER:	112G00816-0324	DATE:	2/12/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R. Thornton

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0-0.33	TOPSOIL			0.0	
1	0.33-3.5	Loose, Brown, Dry SILT, little f-c Sand, little Gravel	SM	FILL		
2					0.0	
3	3.5'-5.0'	M. Dense, Moist, Brown SILT, trace Gravel, trace f-c Sand	SM		0.0	
4				NATURAL MATERIAL		
5					0.0	
		Bottom of Test Pit 5.0'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: GW ENCOUNTERED @ 3.5'

Test Pit Dimensions: Length: 13 Width: 10 Depth: 5.0'

Equipment Used: KOBELCO 135SR LC

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

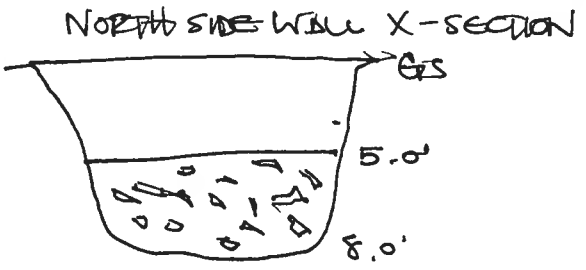
TEST PIT LOG

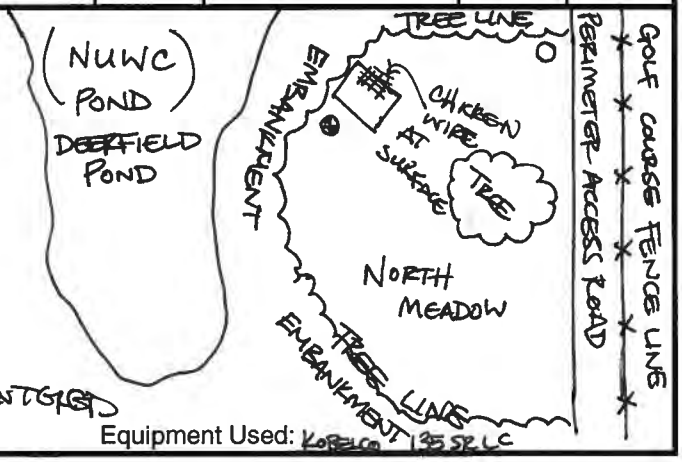
Tetra Tech NUS, Inc.

PROJECT NAME:	NUSC Disposal Area	TEST PIT No.:	TP-112
PROJECT NUMBER:	112G00816-0324	DATE:	2/11/08
LOCATION:	Newport, RI	GEOLOGIST:	M.Alroy
CONTRACTOR:	GLOBAL REMEDIATION	OPERATOR:	R. TONNLINSON

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0	0'-0.5'	TOPSOIL			0.0	
	0.5'-8.0'	M. Dense, Dry, Brown SILTY Sand, Gravel, little f-c Sand	SM	NO FILL ENCOUNTERED	0.0	
					0.0	
5	5.0'-8.0'	Dense, Dry, Brown SILTY & WEATHERED BEDROCK, trace gravel, trace f-c sand	SM			
					0.0	
					0.0	
10		BOTTOM OF TEST PIT 8.0'				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





Water Level Depth: GROUNDWATER NOT ENCOUNTERED

Test Pit Dimensions: Length: 8 Width: 8 Depth: 8 Equipment Used: KOBELCO 135 SR LC

REMARKS:

Note: Draw stratification lines at the approximate boundary between soil types for this test pit and show depths

PHOTO LOG:

TEST PIT EXCAVATION PHOTOGRAPHS
NUSC DISPOSAL AREA (SITE 08)
REMEDIAL INVESTIGATION
FEBRUARY 2008
CTO 402

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-100

Near right: TP-100 facing North

Far right: braided electrical cable, facing northeast

Near right: reinforced concrete debris

Far right: groundwater encountered at approximately 10 feet below ground surface (bgs)

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-101

Near right: TP-101 facing south

Far right: sheet metal debris encountered at approximately 0.5 feet bgs

Near right: fire brick debris and reinforced concrete debris

Far right: groundwater with solvent odor encountered at approximately 9.5 feet bgs

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-102

Near right: TP-102 facing East

Far right: pipe debris encountered at approximately 4.0 feet bgs

Near right: pipe debris in excavated soil pile

Far right: sheet metal debris excavated from TP-102

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-103

Near right: TP-103 facing west, braided wire rope encountered at approximately 2.0 feet bgs

Far right: empty corroded drum encountered at approximately 4.0 feet bgs

Near right: additional braided wire rope encountered at approximately 2.0 feet to 4.0 feet bgs

Far right: empty rectangular open top steel tub encountered at approximately 4.0 feet bgs

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-104

Near right: TP-104 facing east

Far right: reinforced concrete debris located at approximately 2.0 feet to 14.5 feet bgs

Near right: reinforced concrete debris located within TP-104

Far right: reinforced concrete debris and 1-inch steel pipe located in excavated soil pile

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-105

Near right: TP-105 facing east, crushed drum debris located in foreground in the center of the excavation

Far right: crushed drum debris in excavator bucket

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-106

Near right: TP-106 facing west

Far right: reinforced concrete debris in excavator bucket

Near right: close-up of reinforced concrete debris

Far right: reinforced concrete debris located in excavated soil pile

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-107

Near right: TP-107 facing east

Far right: Buried crushed asphalt layer at approximately 5.0 feet to 8.25 feet below ground surface

Near right: close-up of reinforced concrete debris

Far right: reinforced concrete debris located in excavated soil pile

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-108

Near right: TP-107 facing south

Far right: Steam pipe observed at approximately 4.0 feet to 5.5 feet below ground surface

Near right: close-up of possible steam pipe

Far right: additional possible steam pipe

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-109

Near right: TP-109 facing east

Far right: surficial metal debris: concrete with steel angle iron post

Near right: corrugated steel culvert pipe observed at approximately 2.5 feet bgs

Far right: natural material and groundwater observed at approximately 3.0 feet bgs

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-110

Near right: TP-110 facing east

Far right: TP-110 facing west

Near right: natural material observed throughout TP-110, groundwater observed at approximately 3.0 feet bgs

Far right: natural material in excavated soil pile, no fill material or metal debris observed

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-111

Near right: TP-110 facing east

Far right: corrugated steel culvert pipe observed at approximately 1.0 feet bgs

Near right: metal debris in excavated soil pile

Far right: natural material and groundwater observed at approximately 3.5 feet bgs

TEST PIT EXCAVATION PHOTOGRAPHS FEBRUARY 2008 NUSC DISPOSAL AREA

TP-112

Near right: TP-112 facing west

Far right: Surficial metal debris: wire mesh (“chicken wire”)

Near right: natural material observed throughout TP-112, groundwater was not encountered

APPENDIX D.3

SURFACE WATER, SEDIMENT AND BIOTA SAMPLE COLLECTION SUMMARY FORMS AND FIELD LOGS

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW 01-012308
Sample Location: SW- 01
Sampled By: LA/MH
C.O.C. No.: 1

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-23-08 / Time: 1345 / Depth: Surface / Method: DIP	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
	clear	7.59	0.544	2.47	0.7	13.19	0.0	150

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	3
SVOC	none	one liter amber	2
PCB	none	one liter amber	2
Pesticides	none	one liter amber	2
Total metals	HNO3	one liter poly	1
Dissolved metals	HNO3	one liter poly	1

OBSERVATIONS / NOTES:

VOC collected 1-31-08 at 16.25 via PDB.

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Sit 08R1
Project No.: 00816

Sample ID No.:
Sample Location: SD02
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP (mV)
Time: 1245								
Depth: Surface								
Method:	clear	7.67	0.567	2.19	0.7	13.98	0.0	209

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rob

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08
Project No.: 00816

Sample ID No.:
Sample Location: SD03
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08
Time: 1118
Depth: SURFACE
Method:

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
clear	7.57	0.557	1.53	10.0	13.99	0.0	221

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

Field parameters only.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.:
Sample Location: SD-04
Sampled By: MH/LA
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Time: 1020								
Depth: Surface								
Method:	Clear	7.58	0.255	3.95	1.1	13.20	0.0	119

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

Field parameters only.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc. **SURFACE WATER SAMPLE LOG SHEET**

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.:
Sample Location: SD-05
Sampled By: LA/INH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP mV
Time: 1000								
Depth: Surface								
Method:	Clear	7.68	0.255	3.02	0.7	13.16	0.0	116

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 00816

Sample ID No.:
Sample Location: SD 06
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Time: 0930								
Depth: Surface								
Method:	clear	7.40	0.560	1.12	1.5	13.90	0.0	177

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site DERI
Project No.: 00516

Sample ID No.:
Sample Location: SW10
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-06 / Time: 1319 / Depth: Surface / Method:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
	clear	7.56	0.554	2.27	0.7	13.10	0.0	145

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00876

Sample ID No.:
Sample Location: SW101
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Time: 1313	clear	7.72	0.555	2.16	0.7	13.35	0.0	156
Depth: surface								
Method:								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

Field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 R1
Project No.: 00876

Sample ID No.:
Sample Location: SW102
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08 / Time: 1255 / Depth: Surface / Method:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP (mV)
	clear	7.48	0.567	2.25	0.7	13.39	0.0	164

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 R4
Project No.: 00516

Sample ID No.:
Sample Location: SW103
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP (mV)
Date: 1-23-08								
Time: 1251								
Depth: Surface	Clear	7.43	0.568	2.23	0.8	13.63	0.0	176
Method:								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.:
Sample Location: SW104
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08
Time: 1248
Depth: Surface
Method:

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Clear	7.50	0.564	2.24	2.5	13.90	0.0	184

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NJSC Site 08R4
Project No.: 00816

Sample ID No.:
Sample Location: SW 105
Sampled By: LA/MM
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08
Time: 1240
Depth: Surface
Method:

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP (mV)
Clear	7.72	0.572	2.15	0.7	14.45	0.0	222

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Rob

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW 106-012308
Sample Location: SW-106
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
Time: 1121								
Depth: Surface	clear	7.75	0.560	1.64	0.6	14.63	0.0	201
Method: DIP								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	9
SVOC	none	one liter amber	6
PCB	none	one liter amber	6
Pesticides	none	one liter amber	6
Total metals	HNO3	one liter poly	3
Dissolved metals	HNO3	one liter poly	3

OBSERVATIONS / NOTES:

MS/MSD 01

VOC collected in triplicate on 1-31-08 at 1540 via PDB.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW 107-012308
Sample Location: SW-107
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08 / Time: 0900 / Depth: Surface / Method: Dip	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
	clear	7.31	0.265	2.04	1.2	12.95	0.0	142

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	2
SVOC	none	one liter amber	2
PCB	none	one liter amber	2
Pesticides	none	one liter amber	2
Total metals	HNO3	one liter poly	1
Dissolved metals	HNO3	one liter poly	1

OBSERVATIONS / NOTES:

VOC collected 1-31-08 at 1500 via PDB. Only enough water for 2 40ml vials.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW108-D123008
Sample Location: SW-108
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
Time: 1005								
Depth: Surface	clear	7.51	0.259	3.49	1.5	13.32	0.0	111
Method: DIP								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	3
SVOC	none	one liter amber	2
PCB	none	one liter amber	2
Pesticides	none	one liter amber	2
Total metals	HNO3	one liter poly	1
Dissolved metals	HNO3	one liter poly	1

OBSERVATIONS / NOTES:

VOC collected on 1-3-08 via PDB (1510)

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08R1
Project No.: 00816

Sample ID No.:
Sample Location: SD-409
Sampled By: LA/MA
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08 / Time: 0840 / Depth: Surface / Method:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP mV
	clear	6.75	0.265	1.79	0.7	12.47	0.0	181

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only...

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Rolla

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW10-012308
Sample Location: SW-10
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-23-08
Time: 1100
Depth: Surface
Method: DIP

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
Clear	7.62	0.559	1.40	1.2	14.37	0.0	235

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	6
SVOC	none	one liter amber	4
PCB	none	one liter amber	4
Pesticides	none	one liter amber	4
Total metals	HNO3	one liter poly	2
Dissolved metals	HNO3	one liter poly	2

OBSERVATIONS / NOTES:

VOC collected 1-31-08 at 1535 via PDB.

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: DUP01

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW 111-012308
Sample Location: SW-111
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08 Time: 1435 Depth: Surface Method: DIP	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
	clear	7.67	0.557	1.19	0.5	13.69	0.0	161

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	3
SVOC	none	one liter amber	2
PCB	none	one liter amber	2
Pesticides	none	one liter amber	2
Total metals	HNO3	one liter poly	1
Dissolved metals	HNO3	one liter poly	1

OBSERVATIONS / NOTES:

VOC collected 1-31-08 at 1530 via PDB.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW 112-012308
Sample Location: SW-112
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
Date: 1-23-08								
Time: 0920								
Depth: Surface								
Method: DIP	Clear	7.33	0.561	1.11	0.5	13.05	0.0	174

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	2
SVOC	none	one liter amber	2
PCB	none	one liter amber	2
Pesticides	none	one liter amber	2
Total metals	HNO3	one liter poly	1
Dissolved metals	HNO3	one liter poly	1

OBSERVATIONS / NOTES:

VOC collected
1-31-08 at 1520
Only 2 vials
could be filled

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 00816

Sample ID No.:
Sample Location: SW113
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP mV
Date: 1-23-08								
Time: 0635								
Depth: Surface								
Method:	Clear	6.58	0.252	1.8	1.2	12.66	0.0	2.03

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

Field parameters only.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Police

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: 0A - SW114 - 0508
Sample Location: Deerfield Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-20-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 1530 hrs								
Depth: Surface	Colorless	14.24	242	10.44	6.79	310		
Method: Hand								

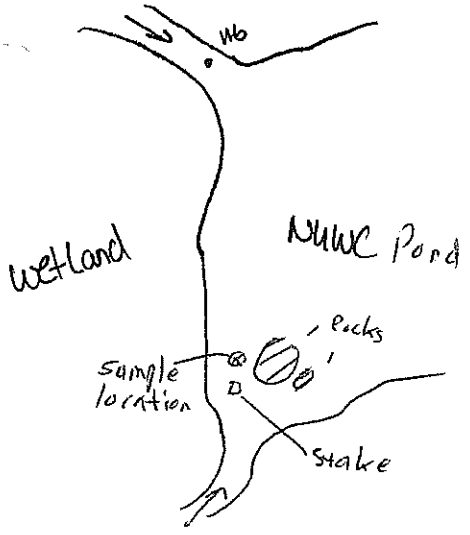
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	(Yes) / No
TCL, SVOC	Cool	2 x 1 liter amber glass	(Yes) / No
TCL PCB	Cool	2 x 1 liter amber glass	(Yes) / No
TCL Pest	Cool	2 x 1 liter amber glass	(Yes) / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	(Yes) / No

OBSERVATIONS / NOTES:

Location At Inlet to NUWC Pond from the Unnamed Stream

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW116-0508
Sample Location: NWC Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type: DA-SW-DUP01

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-20-08 Time: 1415 hrs Depth: surface Method: Hand	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
	Clear	12.56	456.0	12.08	6.30	275		

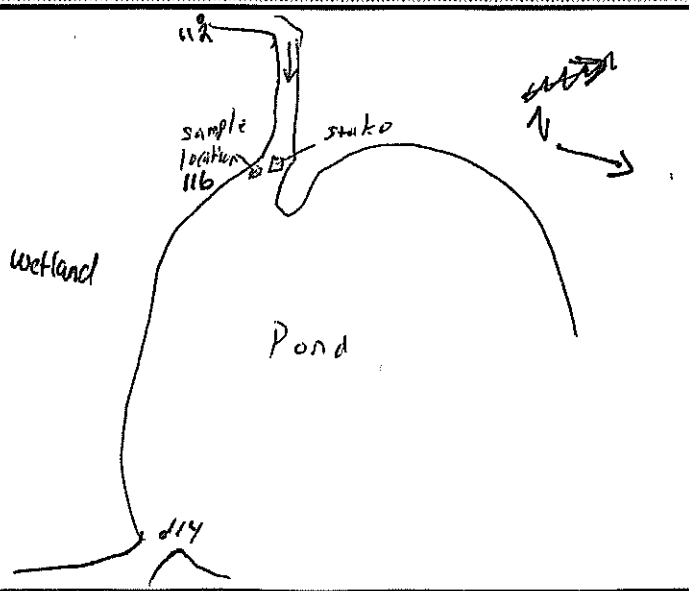
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	(Yes) / No
TCL, SVOC	Cool	2 x 1 liter amber glass	(Yes) / No
TCL PCB	Cool	2 x 1 liter amber glass	(Yes) / No
TCL Pest	Cool	2 x 1 liter amber glass	(Yes) / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	(Yes) / No

OBSERVATIONS / NOTES:

pH - 5.tc 6.30
Cond - 0.456 mS/cm
Turb - 65.3 Ntu
DO - 12.08 mg/L
Temp - 12.56 °C
ORP - 275 mV

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: DA-SW-DUP01 1430hrs

Signature(s): Tn A. Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW-DUP 01-0506
Sample Location: NWL Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type: Dupon SW116

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-20-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 1430 hrs								
Depth: surface	colorless Clear	12.56	456.0	12.08	6.30	275		
Method: Hand								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	(Yes) / No
TCL, SVOC	Cool	2 x 1 liter amber glass	(Yes) / No
TCL PCB	Cool	2 x 1 liter amber glass	(Yes) / No
TCL Pest	Cool	2 x 1 liter amber glass	(Yes) / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	(Yes) / No

OBSERVATIONS / NOTES:

MAP:

See MAP for 116

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	DA-SW116-0506

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW 117 080108
Sample Location: SW- 117
Sampled By: RC MH
C.O.C. No.:

[] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 8/21/08
Time: 1010
Depth: 1ft
Method:

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity	ORP mV
Brown	8.13	273	21.73	12.9	8.82	0.13	118.3

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	Yes
SVOC	none	3 one liter amber	
PCB	none	3 one liter amber	
Pesticides	none	3 one liter amber	
Total metals	HNO3	one liter poly	
Dissolved metals	~~HNO3~~	one liter poly lab filtered	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW119-0508
Sample Location: NUWC Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-21-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 0930 hr		13.27	0.242	10.73	6.23	274	10.63	
Depth: 1.5 ft			242					
Method: Hand								

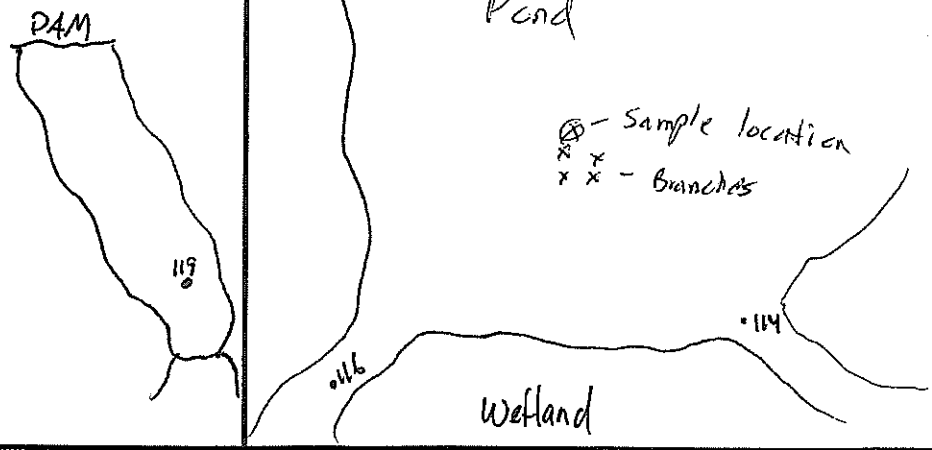
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL x 3	(Yes) / No
TCL, SVOC	Cool	2 x 1 liter amber glass x 3	(Yes) / No
TCL PCB	Cool	2 x 1 liter amber glass x 3	(Yes) / No
TCL Pest	Cool	2 x 1 liter amber glass x 3	(Yes) / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3 x 2	(Yes) / No

OBSERVATIONS / NOTES:

Extra volume collected for MS/MSD

MAP:



Circle if Applicable:

(MS/MSD)

Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW121-0508
Sample Location: NUWC Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-21-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 1127								
Depth: 4.5 Ft	Brown	12.43	223	10.18	6.75	196	32.0	
Method: Kemmler								

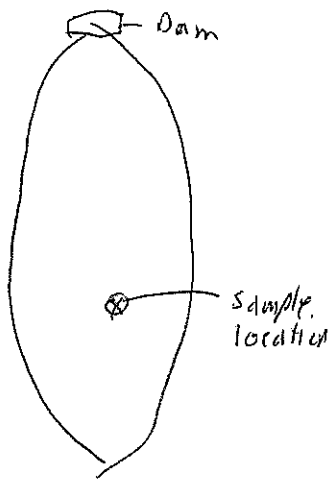
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	Yes / No
TCL, SVOC	Cool	2 x 1 liter amber glass	Yes / No
TCL PCB	Cool	2 x 1 liter amber glass	Yes / No
TCL Pest	Cool	2 x 1 liter amber glass	Yes / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	Yes / No

OBSERVATIONS / NOTES:

-Middle of the Pond, Southern most White bouy (As of 5-21-08)

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: N/A

Signature(s):

Tu A. Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW125-0508
Sample Location: NUWC Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-21-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 1245 hrs								
Depth: 7 Ft	Brown	12.87	237	10.41	7.13	92	122	
Method: Kemmler								

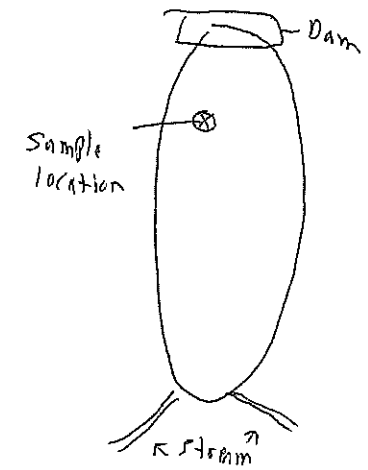
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	Yes / No
TCL, SVOC	Cool	2 x 1 liter amber glass	Yes / No
TCL PCB	Cool	2 x 1 liter amber glass	Yes / No
TCL Pest	Cool	2 x 1 liter amber glass	Yes / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	Yes / No

OBSERVATIONS / NOTES:

- location about 25 yards South of the DAM towards the West shore

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NASC, SITE 05R1
Project No.: 00566

Sample ID No.:
Sample Location: SW132
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 1-23-08	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Time: 1316								
Depth: Surface								
Method: DP	Clear	7.58	0.555	2.22	0.8	13.12	0.0	144

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

field parameters only

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rob

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 Remedial Investigation
Project No.: 112G00816

Sample ID No.: DA-SW133-012308
Sample Location: SW-133
Sampled By: LA/MH
C.O.C. No.:

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP mV
Date: 1-23-08 Time: 1310 Depth: Surface Method: Dip	Clear	7.65	0.555	2.08	1.8	13.55	0.0	139

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 - 40 ml VOA vials	1
SVOC	none	one liter amber	2
PCB	none	one liter amber	2
Pesticides	none	one liter amber	2
Total metals	HNO3	one liter poly	1
Dissolved metals	HNO3	one liter poly	1

OBSERVATIONS / NOTES:

VOC collected 1-31-08 at 1620 Only one vial could be filled.

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW-RP01-0508
Sample Location: upper Melville Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[X] Pond
[] Lake
[] Other:
[] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-22-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 0900								
Depth: 4 Ft	Colorless	15.77	254	13.28	6.19	295	2.77	
Method: Kemmler								

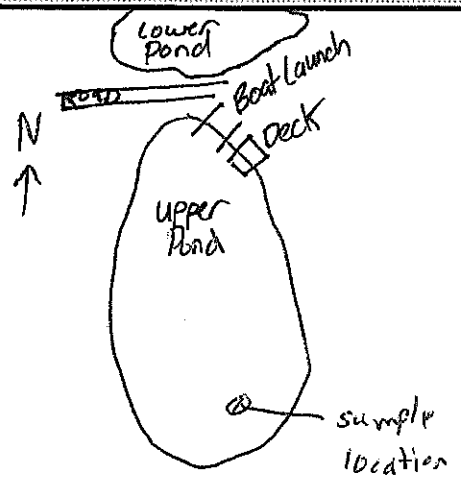
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	Yes / No
TCL, SVOC	Cool	2 x 1 liter amber glass	Yes / No
TCL PCB	Cool	2 x 1 liter amber glass	Yes / No
TCL Pest	Cool	2 x 1 liter amber glass	Yes / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	Yes / No

OBSERVATIONS / NOTES:

- location is at the South end of the Pond about 25 yards North of the Wetland

MAP:



Circle if Applicable:

MS/MSD | Duplicate ID No.: N/A

Signature(s):

Ted Campbell

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW-RP02-0508
Sample Location:
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[ ] Pond
[] Lake
[] Other:
[] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Date: 5-22-05								
Time: 1030								
Depth: 4 ft		15.72	254	13.23	6.43	266	9.00	
Method:								

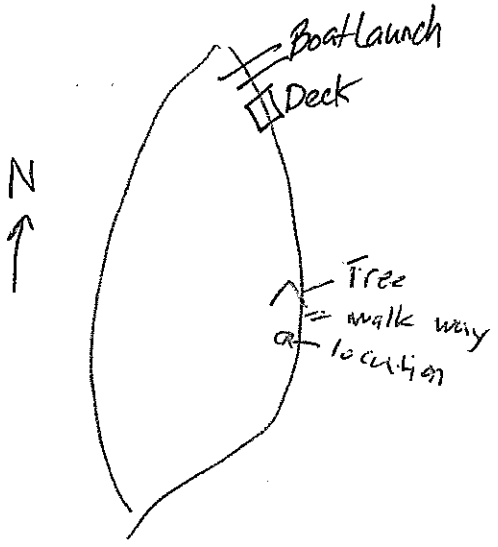
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	Yes / No
TCL, SVOC	Cool	2 x 1 liter amber glass	Yes / No
TCL PCB	Cool	2 x 1 liter amber glass	Yes / No
TCL Pest	Cool	2 x 1 liter amber glass	Yes / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	Yes / No

OBSERVATIONS / NOTES:

-Location is about 50 yards South of the Boat launch Next to an Area that could be a Drainage point into the pond During Heavy Rainfall

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	N/A

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SW-RP04-0508
Sample Location: Melville Brook
Sampled By: Campbell, Horton
C.O.C. No.:

[ ] Stream
[] Spring
[ ] Pond
[] Lake
[] Other:
[] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-22-08	Color (Visual)	Temp. (°C)	S.C. (us/cm)	DO (mg/L)	pH (S.U.)	ORP (mv)	Turbidity (NTU)	Other
Time: 1430								
Depth: 6"		15.56	266	10.90	7.18	248	52.3	
Method: Hand								

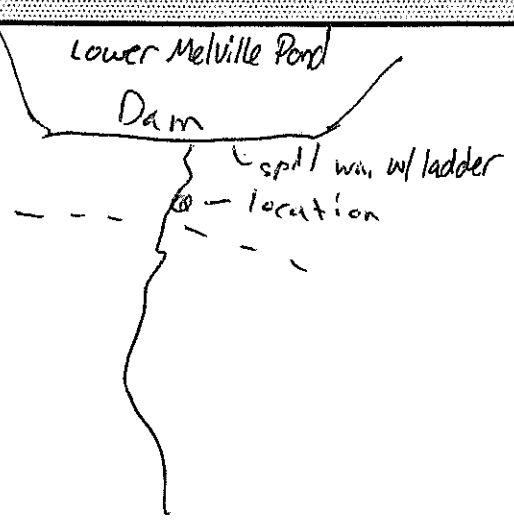
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 X 40 mL vial with HCL	(Yes) / No
TCL, SVOC	Cool	2 x 1 liter amber glass	(Yes) / No
TCL PCB	Cool	2 x 1 liter amber glass	(Yes) / No
TCL Pest	Cool	2 x 1 liter amber glass	(Yes) / No
TAL Metals (unfiltered and filtered)	HNO_3	1 each 500 mL poly with HNO_3	(Yes) / No

OBSERVATIONS / NOTES:

-To access this location, cross the Road that Divides the upper and lower Ponds, look for a path to the ~~west~~ East of the lower pond, it will Bring you behind the lower pond over a couple streams before you arrive at a stream where there is a man made wall w/ ladder, this is the stream location, 20' downstream from the wall

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	N/A

Signature(s):

T. A Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD100-071207
Sample Location: SD-100
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite 2 for

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/12/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1320	0-4"	Brown	silty medium grained sand & gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD101-071207
Sample Location: SD-101
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite 2pa

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/12/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1235	0-4"	Brown	well sorted sand with some silt and gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear 6-lass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD102-071207
Sample Location: SD-102
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: composite 1 of 2

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/12/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1120	0-4"	Brown	Gravely silty fine grained sand trace organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: Assigned time
SD-DUP02 1420

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD103-070807
Sample Location: SD-103
Sampled By:
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Trip

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1215	0-4"	Brown	Sandy silt with trace gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Type

Sample ID No.: DA-SD104-071107
Sample Location: SD-104
Sampled By: L A
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silty, Clay, Moisture, etc.)
Time: 1655	0-4"	Brown	Silty Sand with trace Gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD105-071107
Sample Location: SD-105
Sampled By: LM
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Split

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1635	0-4"	Brown	Silty Sand with trace Gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD106-021107
Sample Location: SD106
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[■] Sediment
[] Other:
[] QA Sample Type: Composite Lpa

Type of Sample:
[■] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1615	0-4"	Brown	Silty Fine grained sand trace medium grained sand and gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD06-0000
Sample Location: Brenton Creek
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: ~~N/A~~ DA-SD-DUP01

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 04JUN2007	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0730	0-6"	Brown	sandy silt w/ fine grained sand trace Gravel (Angular up to 1")
Method: GRAB			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same	as above	
Monitor Readings (Range in ppm):				

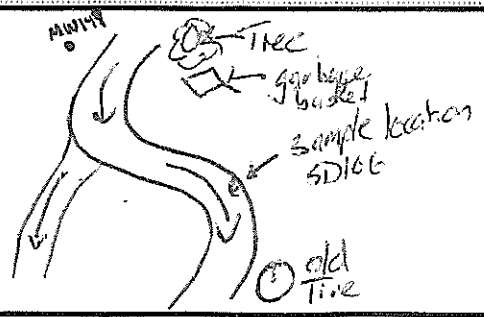
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI + stir bar	3 x 40 mL vial	YES / NO	DUP01
VOC - med/GRO	MeOH	2 x 40 mL vial	YES / NO	↓
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	YES / NO	↓
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	YES / NO	↓
DRO	Cool	8 oz wide mouth jar	YES / NO	↓
Grain Size	None	1 x 1 liter amber wide mouth jar	YES / NO	↓
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	YES / NO	↓
Extra Volume:				

OBSERVATIONS / NOTES:

- From location 110, walk upstream past the old tire and over the bundle of Branches, Sample location is in pool just on the upstream side of the bundle of branches

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: DA-SD-DUP01 0945 hrs

Signature(s): Mark A Horton

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-107-071107
Sample Location: SD-107
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite 1 per

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1420	0-4"	Brown	Medium to coarse grained sand, some fine grained sand + trace silt
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	20z clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD107-0006
Sample Location: Unnamed Stream
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type: Lab QC - MS/MSD

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - SDG - Location

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/19/08	0-6"	Brown	Silty sand Trace gravel Medium - fine sand
Time: 1400 hrs			
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - N/A - See Sketch

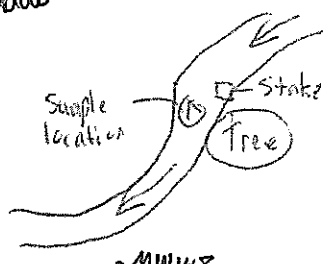
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same	as above	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) NO	9 vials
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) NO	6 vials
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) NO	3 jars
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) NO	2 jars
DRO	Cool	8 oz wide mouth jar	(YES) NO	3 jars
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) NO	1 jar
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) NO	1 bucket
Extra Volume:				

OBSERVATIONS / NOTES:

North Meadow



MAP:

Ponded area u/s stream of dam area
- Fish observed down stream
About 150' Downstream from Golf Course Fence

Circle if Applicable:
(MS/MSD)

Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-108-071107
Sample Location: SD-108
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Type

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1215	0-4"	Brown	Sandy Silt with some Gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD108-0001
Sample Location: Unnamed Stream
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC: Grab

Date: 5/19/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1445	0-6"	Brown, dark brown	Gravel w/ some coarse grain sand, little no silt
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - N/A VOC fractions

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same	as above	
Monitor Readings (Range in ppm):				

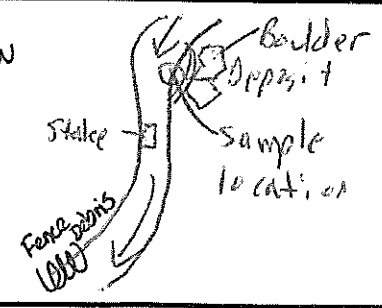
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) NO	
DRO	Cool	8 oz wide mouth jar	(YES) NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) NO	
Extra Volume:				

OBSERVATIONS / NOTES:

Swift stream, very gravelly sediment
- About 50' Downstream from Golf Course Fence

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-109-071107
Sample Location: SD-109
Sampled By:
C.O.C. No.:

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type: Composite Type

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1200	0-4"	Brown	Silty sand with trace gravel + clay
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD110-071107
Sample Location: SD-110
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite 2pa

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1555	0-4"	Brown	Fine to medium grained sandy silt with trace Gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: OA-SD110-0006
Sample Location: Deerfield Creek
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC fraction

Date: 5-20-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0800 hrs	0-6"	Brown	Medium grain silty sand - some angular gravel
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - Non VOC fraction

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same	as above	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

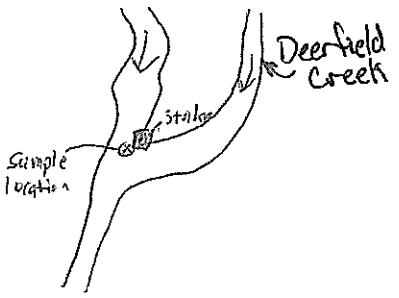
OBSERVATIONS / NOTES:

Metal/wire circular mesh noted adjacent to sample location - glass and metal debris noted

Stream has medium sized rocks (angular)

-About 70' upstream from 111

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-111-071107
Sample Location: SD-111
Sampled By:
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Lab

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1530	0-4"	Brown	Silty clay with trace sand + gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	3	

OBSERVATIONS / NOTES:

MS/MSD sample was collected from this location

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: SED 111 - 0006
Sample Location: Deerfield Creek
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: Upper Location

Date: 5-19-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600 hrs	0-6"	Greyish Brown w/ Orange	Fine Sand w/ silt
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: Lower Location

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as above		
Monitor Readings (Range in ppm):				

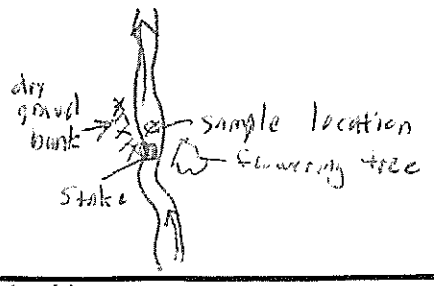
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	YES / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	YES / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	YES / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	YES / NO	
DRO	Cool	8 oz wide mouth jar	YES / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	YES / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	YES / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

Slow moving creek, well defined depositional bed
Noted spots / streaks of orange colored sediment, noted on upper surface layer

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-112-071107
Sample Location: SD-112
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type: Composite Spoon

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1510	0-4"	Brown	Silty clay with trace gravel no organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2 oz clear glass	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 1210
SD-Duplicate assigned time

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD112-0006
Sample Location: Deerfield Road
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: — NUSC Disposal Site

Date: 5/19/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 15:45	0-6"	Dark Brown	Silt, Trace fine sand
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: — NUSC Disposal Site

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as above		
Monitor Readings (Range in ppm):				

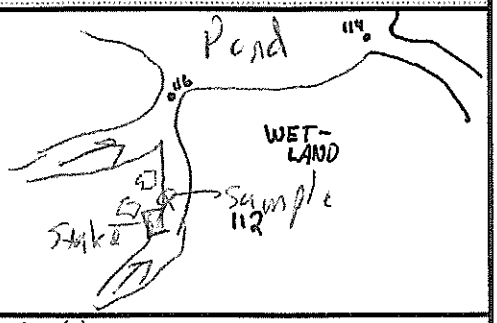
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

Grassy bank
Vegetation in stream
Plastic fragment in auger location - linear material
- located at the West Inlet to the pond

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-113-071107
Sample Location: SD-113
Sampled By: LH
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[■] Sediment
[] Other:
[] QA Sample Type: Composite Split

Type of Sample:
[■] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	0-4"	Gray	Clayey silt with trace gravel & organic material
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-114-071107
Sample Location: SD-114
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite 1 per

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1125	0-4"	Brown	Silty sand with trace gravel + organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA - SD14 - 0006
Sample Location:
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC Fraction

Date: 5-20-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600 hrs	0-6"	Greyish Brown	Silt w/ trace sand
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - N/A VOC Fraction

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as above		
Monitor Readings (Range in ppm):				

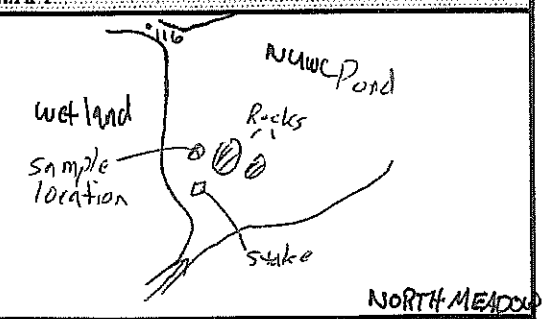
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

- Layer of sand above silt bed
- location At inlet to pond from Unnamed Stream

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: N/A

Signature(s): T. A Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-115-071109
Sample Location: SD-115
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:
Composite 2pa

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	0-4"	Brown	Silty Sand and Gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear Gluss	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type: Composite Lab

Sample ID No.: DA-SD116-071707
Sample Location: SD-116
Sampled By: LA
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/17/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1610	0-4"	Brown	Silty Sand with organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: NA-SD16-0006
Sample Location: Deerfield Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC Aliquot

Date: 5-20-08	Depth Interval	Color	Description (Sand, Silty, Clay, Moisture, etc.)
Time: 1500 hrs	0-6"	Brown	Silty, little clay Organics
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - NOA VOC fractions

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as above		
Monitor Readings (Range in ppm):				

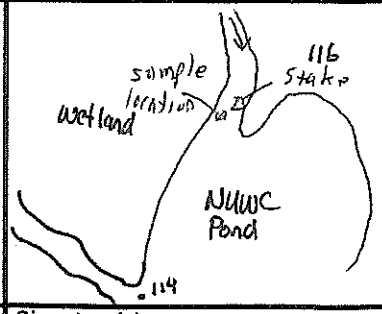
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

- location is Right at the inlet to the pond off of Deerfield Creek

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD- 117-0004
Sample Location: 117
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC GRO

Date: 8/24/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	0-4in	gray	mucky Silt
Method: Power			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA: SVOC Pest PCB Metals DRO

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: Power		0-4in		SAA
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA		
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar		
TS for VOC/GRO	4oz jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: SD-118-071107
Sample Location: SD-118
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[■] Sediment
[] Other:
[] QA Sample Type: Composite Trip

Type of Sample:
[■] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/11/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1050	0-4"	Dark Brown to Black	Silt with organic debris
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

No PID readings above the background of 0.0 but a sulfur odor was noted.

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD119-071707
Sample Location: SD-119
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Trip

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/17/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1435	0-4"	Brown to Gray	Silty Fine Grained sand with trace organics
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	20z clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD119-0006
Sample Location: ~~DA-SD~~ TC Deerfield Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: DA-SD-DUP02

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC fraction

Date: 5-21-06	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1000 hrs	0-6"	Brown	Silty sand organics
Method: Ponar Dredge			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - Rest VOC fractions

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as above		
Monitor Readings (Range in ppm):				

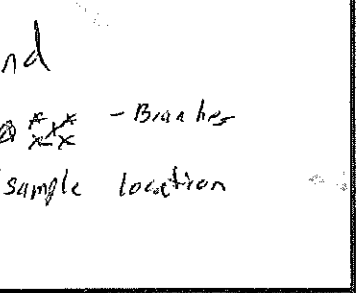
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	YES / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	YES / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	YES / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	YES / NO	
DRO	Cool	8 oz wide mouth jar	YES / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	YES / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	YES / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

- Golf ball, rich in organics
- Sediment at about 2' below water surface

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	DA-SD-DUP02 1015 hrs

Signature(s):

for A. Campbell

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD-119-0424
Sample Location: SD-119
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC GRO

Date: 8/21/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1245	4-24"	gray	Silt, little organics
Method: PVC tube			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA: SVOC PEST PCB METALS DRO

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: PVC tube		SAME		
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA		
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar		
MS for VOC/GRO	40g jar		

OBSERVATIONS / NOTES:

Deep Sample at SD-119

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD120-071207
Sample Location: SD-120
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/13/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1230	0-4"	Brown to Gray	Silt with some Fine sand and trace organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear glass	1	

OBSERVATIONS / NOTES:

A slight sulfur odor was noted from the sample

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD121-071707
Sample Location: SD-121
Sampled By: LP
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:
Composite Lab

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/17/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1215		Brown to grey	silt with trace sand and no organic debris
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: D4-SD121-0006
Sample Location: SD121
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC fraction

Date: 5/21/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1215	0-6"	Brown	silt with organics
Method: Power Dredge			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA: - Non VOC fractions

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as		above
Monitor Readings (Range in ppm):				

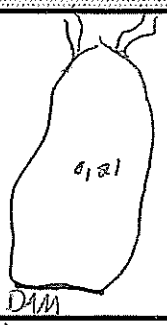
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

- Sample taken from about 4.5' Below Water Surface

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD122-071707
Sample Location: SD-122
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Split

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/17/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1145	0-4"	Brown to Gray	Silt with trace clay no organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	20z clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD123-071207
Sample Location: SD-123
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[■] Sediment
[] Other:
[] QA Sample Type: Composite 2pa

Type of Sample:
[■] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/17/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1105	0-4"	Gray to Brown	Silt with no organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD124-071607
Sample Location: SD-124
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

composite, 2pc

GRAB SAMPLE DATA:

Date: 7/16/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1720	0-4"	Brown	Silt with trace organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD125-071607
Sample Location: SD-125
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Area

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/16/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1635	0-4"	Brown to Dark Gray	Silt no organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear glass	2	

OBSERVATIONS / NOTES:

Dup 03 was collected with an assigned time of 1445

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: SD-Dup 03 Assigned time 1445

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD125-0006
Sample Location: NUSC Pond
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC fraction

Date: 5-21-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	0-6"	Brown-greyish	Silt w/ organics
Method: Ponar Dredge			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - Non VOC fractions

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):		Same as		above

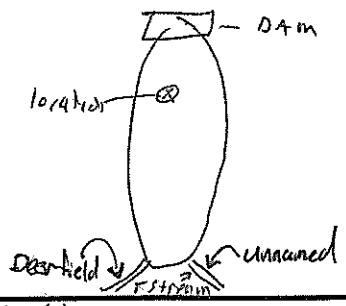
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

collected from 7ft in water depth

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: N/A

Signature(s):

Tm A. Campbell

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD- 125 - 0424
Sample Location: SD-125
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC GRO

Date: 8/21/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0900	4-24 in	gray	gray Silt. to 24 in
Method: PVC tube			hard layer at 24 in
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA: SVOC Pest PCB Metals DRO

Date: 8/21/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: PVC tube	0900	4-24 in		SAA
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA	↓	
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar	↓	
TS for VOC	40 g	yes	

OBSERVATIONS / NOTES:

Deep Sample at SD-125

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Rebecca

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD126-071607
Sample Location: SD-126
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Split

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/16/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1545	0-4"	Brown	Silt with organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2 oz Clear Glass	3	

OBSERVATIONS / NOTES:

MS/MSD sample collected From this Location

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: QA-SD127-071607
Sample Location: SD-127
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[■] Sediment
[] Other:
[] QA Sample Type: Composite 2 for

Type of Sample:
[■] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/16/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1525	0-4"	Brown	silt with organic material
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD- 128
Sample Location: SD 128
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC GRO

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 8/21/08 1245	0-4in	BROWN	f Sandy SiLt trace Gravel A up to 1/2"
Method: Grab			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA: SVOC METALS PEST PCB DRO

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
SAA				
Method: Composite		SAA		
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA		
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar		
TS for VOC/gro	4oz jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD-124
Sample Location: 124
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC GRO

Date: 8/12/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1440	0-4"	Brown	VF Sandy Silt roots
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA: METALS SVOC PEST PCB DRO

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: Composite		SAME		
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA		
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar		
TS for VOC/GRO	4 oz jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD- 130
Sample Location: SD-130
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC/GRO

Date: 5/25/05	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1310	0-4"	Brown	VF Sandy Silt roots
Method: grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA: SVOC Metals Pest PCB DRO

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: Composite		SAME		
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA		
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar		
TS for VOC/GRO	Hang Jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC disposal Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD-131
Sample Location: 131
Sampled By: Clark, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: VOC GRO

Date: 8/21/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	0-4"	Brown	VF Sandy Silt trace SA
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA: Metals SVOC - Pest PCB DRO Gravel up to 1"

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: COMPOSITE		SAA		
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC - low	5 ml DI, stir bar - 3 @ 40 ml VOA	yes	
VOC - med/GRO	MeOH - 2 @ 40 ml VOA		
SVOC/Pest/PCB	8 oz glass jar		
Metals	8 oz glass jar		
DRO	8 oz glass jar		
TS for VOC/GRO	4 oz jar	yes	

OBSERVATIONS / NOTES:

Worms,

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rob

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: OA-SD132-071207
Sample Location: SD-132
Sampled By: LA
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite Lab

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/12/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1300	0-4"	Brown	Fine to medium grained sandy silt with gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead only	2 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SD132-071207
Sample Location: SD-132
Sampled By:
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type: Composite 1pa

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 7/12/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1155	0-4"	Brown	Fine to medium grained sand with silt & gravel
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Lead Only	2oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: DA-SD133-0006
Sample Location: Deerfield Creek
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: - VOC fraction

Date: 5-20-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1000 hrs	0-6"	Dark brown	Gravelly
Method: Auger			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA: - Non VOC fraction

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same as above		
Monitor Readings (Range in ppm):				

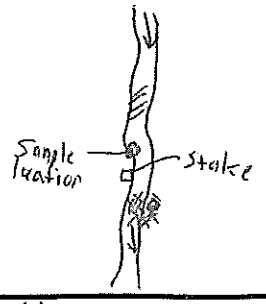
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

- Not much depositional sediment. Rocky stream bed. Stream bed consists of bedrock out croppings (phyllite).
- Sample collected from East streambank 3-5' upstream of the sample location stake
- About 100' Downstream from the ~~Paint Can~~ Metal Can Excavation

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: N/A

Signature(s):

T. A. Campbell

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Page ___ of ___ QR1

DA-SD134-0006

Project Site Name: NUSC Disposal Site, Site 08, NAVSTA Newport
Project No.: 112G00816 / CTO 402

Sample ID No.: ~~DA-SD01-0006~~
Sample Location: Upper Deerfield Creek
Sampled By: Campbell, Horton
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[ ] QA Sample Type: N/A

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA: ~ VOC sample

Date: 5/30/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1130	0-6"	Brown	Medium Grained Sand with some silt, Trace angular Gravel up to 1"
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA: ~ non VOC samples

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
		Same	as above	
Monitor Readings (Range in ppm):				

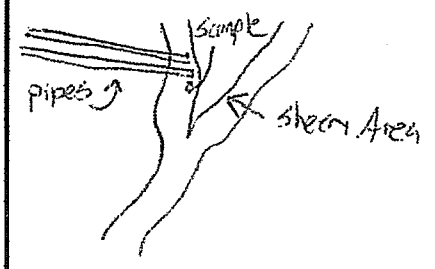
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected	Other
VOC - low	5 mL DI & stir bar	3 x 40 mL vial	(YES) / NO	
VOC - med/GRO	MeOH	2 x 40 mL vial	(YES) / NO	
SVOC/Pest/PCBs	Cool	8 oz wide mouth jar	(YES) / NO	
Metals/pH/TOC/TS	Cool	8 oz wide mouth jar	(YES) / NO	
DRO	Cool	8 oz wide mouth jar	(YES) / NO	
Grain Size	None	1 x 1 liter amber wide mouth jar	(YES) / NO	
Toxicity Testing	Cool	1 x 1 gallon plastic bucket	(YES) / NO	
Extra Volume:				

OBSERVATIONS / NOTES:

- Sheen on water in ponded area next to sample Area
- South of the Bldg 185 Complex

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	N/A

Signature(s):

T. A Campbell

TETRA TECH NUS, Inc.

EARTHWORM TISSUE SAMPLING

Project NUSC Disposal Area (112G00816)
Sampler(s) M. Horton, B. Geringer

Location	Date	Time	Sample ID	Number of Animals Collected	Total Weight g	Comments
MW103	8/7/08	1016	DA-EW-MW103-080708	12	21.28	
MW105	8/7/08	0850	DA-EW-MW105-080708	15	23.57	
MW113	8/6/08	1452	DA-EW-MW113-080608	17	24.47	
MW115	8/6/08	1205	DA-EW-MW115-080608	40	20.01	
SB104	8/7/08	1000	DA-EW-SB104-080708	11	22.59	
SB108	8/7/08	0940	DA-EW-SB108-080708	15	23.93	
SB121	8/7/08	0730	DA-EW-SB121-080708	35	24.42	
SB123	8/6/08	1572	DA-EW-SB123-080708	15	23.14	
SB127	8/6/08	1530	N/A	N/A	N/A	NO SAMPLE COLLECTED, POOR CONDITIONS FOR WORMS, SEE SAMPLING DATA SHEET
SB130	8/7/08	0835	DA-EW-SB130-080708	15	24.12	
SB134	8/6/08	1418	DA-EW-SB134-080608	15 ~~(DUP01 15)~~	23.84	DUP 01
SB153	8/7/08	0908	DA-EW-SB153-080708	15	22.62	
DUP01	8/6/08	—	DA-EW-DUP01-080608	15	24.84	SB134

Preservative: 4°C

Notes Observations:

- ~~MW121 & 5~~ MW115 & SB121 were poor locations for Earthworm sampling. The conditions were not ideal for Earthworm habitat and the specimens collected were all very small
- SB127 - No worms Found. location was in the center of a dry compacted meadow with very sandy soil

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: ~~SS~~ MW103
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816 . 0326
Date: ~~8~~/7/08
Time: 1016
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab
Total # of specimens: 12

	Weight g		Weight g
1	1.65	11	1.61
2	1.89	12	1.43
3	1.27	13	
4	1.47	14	
5	2.72	15	
6	2.37	16	
7	2.69	17	
8	2.09	18	
9	1.18	19	
10	1.41	20	

Total: 21.28

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 21.28 g/oz

MAP:

Observations / Notes:

Start Sampling 1016
End Sampling 1024

Area had some tree cover, ground was covered by tall weeds and grass. Worms were found in top 4" of soil

Signatures:

Michael Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: MW105
Sampler(s): M. Horton, B. Geringer
Subcontractors: Normandeau Associates

Project Number: 112G00816.0326
Date: 8/7/08 Time: 0850
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 15

	Weight g		Weight g
1	1.81	11	2.12
2	1.82	12	1.27
3	1.13	13	1.37
4	1.08	14	1.82
5	1.77	15	2.36
6	1.58	16	
7	1.35	17	
8	1.35	18	
9	1.56	19	
10	1.18	20	

Total: 23.57 g

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

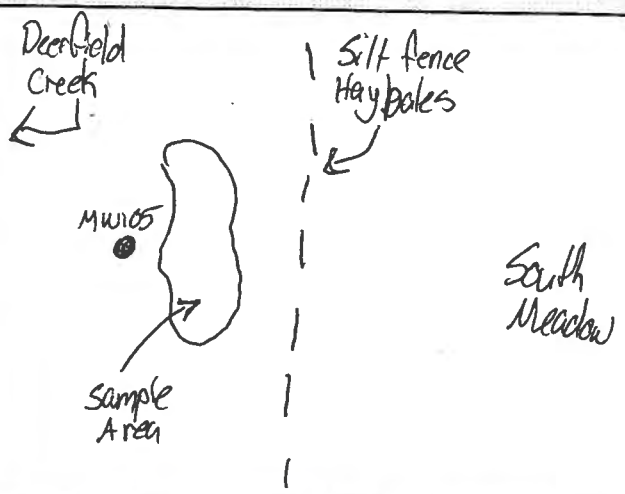
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 23.57 g

MAP:



Observations / Notes:

Start Sampling 0850
END Sampling 0857
- Area was shaded by trees and was covered by high vegetation & mulch from when trees were cut down
- Worms found in top 4" of mulch & soil

Signatures:

Mark Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: MW113
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/6/08 Time: 1452
Weather: cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 17

	Weight g		Weight g
1	1.49	11	0.79
2	1.56	12	0.84
3	1.95	13	1.21
4	1.67	14	1.10
5	1.39	15	1.68
6	1.83	16	1.32
7	1.65	17	1.68
8	1.26	18	
9	1.58	19	
10	1.47	20	

Total: 24.47g

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

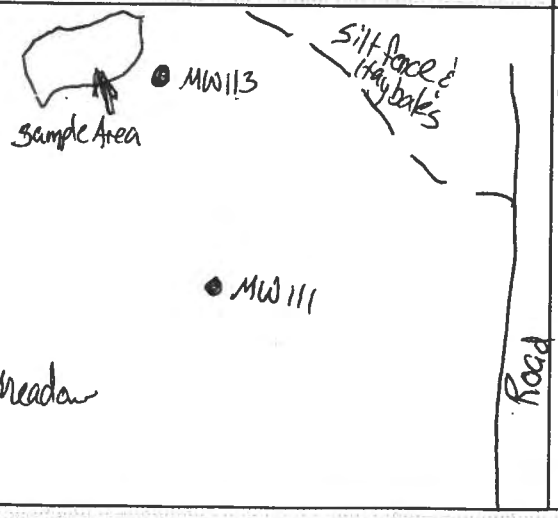
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Jar
TAL Metals	4°C	N/A	4oz Jar
Percent Lipids	4°C	N/A	4oz Jar

} 1 Jar

Size: 24.47g/ea

MAP:



Observations / Notes:

Start Sampling 1452
End Sampling 1502

- Very loose dirt w/ chopped up branches & sticks
- Little Tree Cover

Signatures:

Mel J Hort

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: MW115
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816
Date: 9/6/07
Time: 12:05
Weather: Rain 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 40

	Weight g		Weight g
1	0.54	11	0.79
2	0.52	12	0.76
3	0.38	13	0.40
4	0.59	14	0.73
5	0.47	15	0.47
6	0.54	16	0.35
7	0.58	17	0.78
8	0.58	18	0.43
9	0.49	19	0.43
10	0.52	20	0.44

Total: 20.01

Weight g	Weight g
0.33	0.61
0.47	0.40
0.28	0.43
0.47	0.72
0.45	0.62
0.59	0.57
0.33	0.27
0.35	0.37
0.44	0.71
0.38	0.42

~~Remarks on Condition~~:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP NA

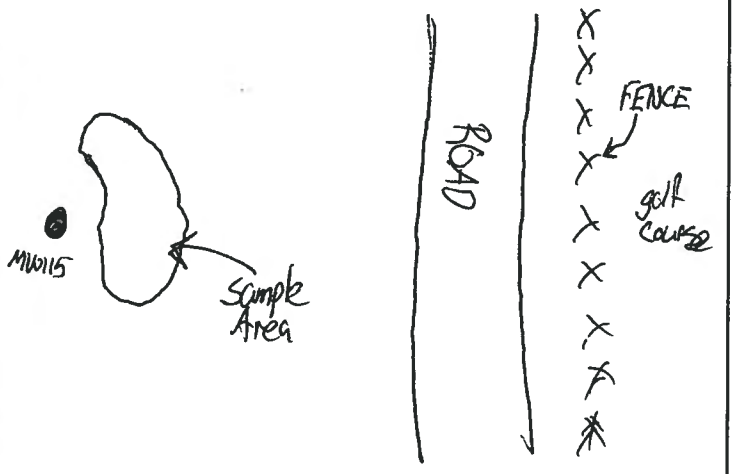
Type: Composite / Single
Preperation: ~~N/A~~
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 20.01 g oz

MAP:



Observations / Notes:

Start Sampling ~~1300~~ 1205
End Sampling 1335
- Ground was pretty dry
- Soil was mostly ~~sand~~ silty sand w/ some gravel 1-4"

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB104
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/7/03
Time: 1000
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 11

	Weight g		Weight g
1	2.09	11	2.00
2	2.49	12	
3	3.01	13	
4	2.30	14	
5	2.13	15	
6	2.36	16	
7	1.79	17	
8	1.97	18	
9	2.10	19	
10	2.35	20	

Total: 22.59g

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

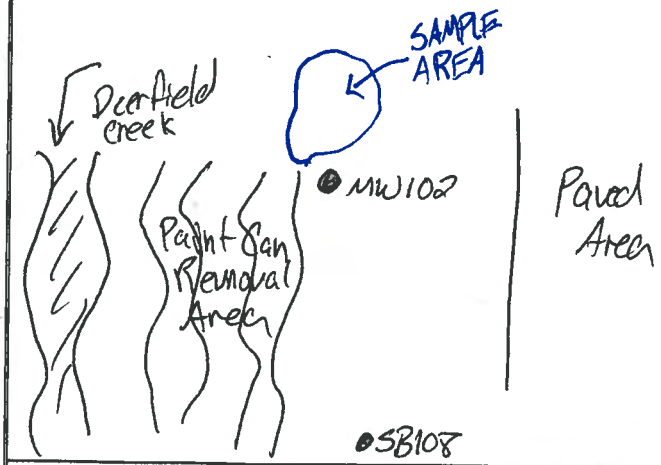
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 22.59 ~~g~~ oz

MAP:



Observations / Notes:

Start Sampling 1000
End sampling 1010
Area had some tree cover and ground was covered by thick grass
- Collected at MW102 because it was moved to the same location as SB104

Signatures:

M J Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB108
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816
Date: 8/7/07
Time: 0940
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 15

	Weight g		Weight g
1	2.21	11	1.45
2	1.47	12	1.30
3	1.43	13	1.05
4	2.47	14	0.86
5	1.79	15	1.39
6	2.12	16	
7	1.24	17	
8	1.89	18	
9	1.73	19	
10	1.53	20	

Total: 23.93 g

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

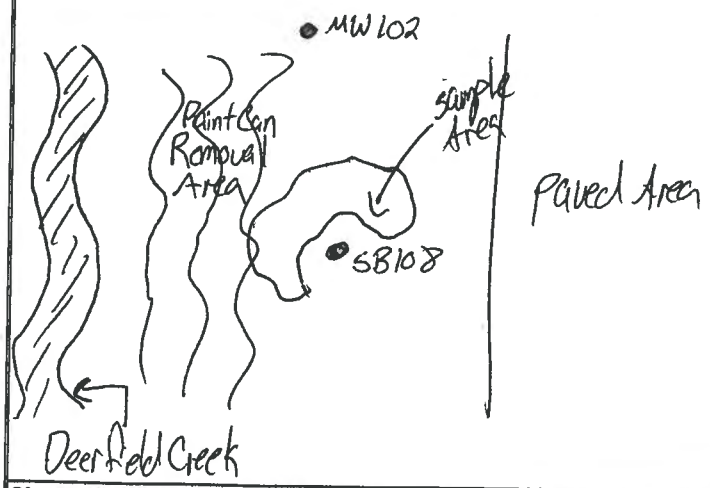
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 23.93 g

MAP:



Observations / Notes:

- Start Sampling 0940
END Sampling 0957
- Area had some grass and high weeds
- Some areas around sample points were sandy some were more like topsoil

Signatures:

M. Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB121
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/7/07
Time: 0730
Weather: Cloudy 65°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 35

	Weight g		Weight g
1	0.75	11	0.64
2	0.69	12	0.82
3	0.69	13	0.63
4	1.01	14	1.01
5	0.64	15	0.93
6	0.74	16	0.71
7	0.58	17	0.76
8	0.61	18	0.65
9	0.53	19	0.75
10	0.49	20	0.74

Total: 24.42 g

Weight g ~~Remarks on Condition:~~
0.49 0.73
1.23 0.90
1.01 0.66
0.60 0.25
0.52 0.77
0.94
0.56
0.43
0.57
0.58

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

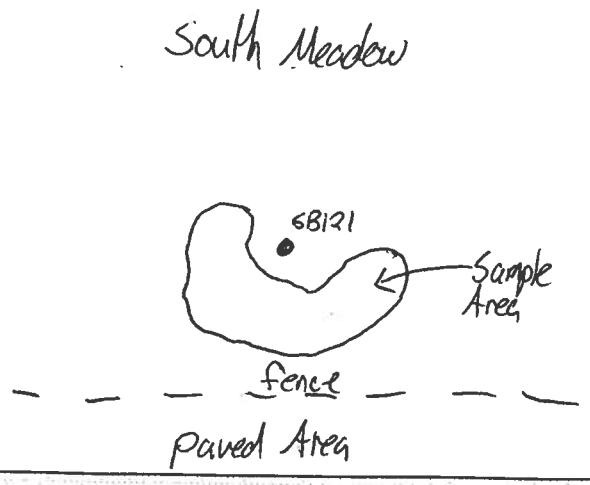
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 24.42 g ~~Wet~~

MAP:



Observations / Notes:

Start Sampling 0730
End Sampling 0826
- Area was overgrown with tallweeds,
- 4-6" of loose topsoil w/ compacted sandy soil w/ gravel up to 2" beneath

Signatures:

Mil Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB123
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/6/08
Time: 1512
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 15

	Weight (g)		Weight (g)
1	1.83	11	1.55
2	1.33	12	1.17
3	1.76	13	1.53
4	1.10	14	1.27
5	1.91	15	0.99
6	1.66	16	
7	1.40	17	
8	1.95	18	
9	2.31	19	
10	1.38	20	

Total: 23.14

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

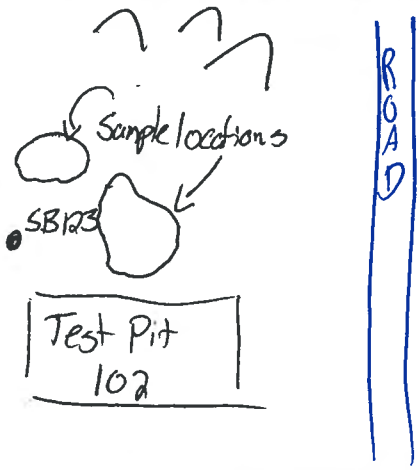
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz glass Jar

3 Jar

Size: 23.14g /oz

MAP:



Observations / Notes:

Start Sampling 1512
End Sampling 1522
Area over grown by bamboo & Multiflora Rose
- Some tree cover
- Just outside the Hummocky area

Signatures:

Michael Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB127
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/20/08
Time: 1530
Weather:

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens:

	Weight		Weight
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

Total:

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP

Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Size: g /oz

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	
TAL Metals	4°C	N/A	
Percent Lipids	4°C	N/A	

MAP:

Observations / Notes:

Dug in Search of Worms for 35 min and found none. First tried within 10' radius then Expanded to 20' radius and found none still

- Soil is very sandy with rounded gravel up to 2", also very compact

Signatures:

Mich J Hort

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB130
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/7/08
Time: 0835
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 15

	Weight g		Weight g
1	1.95	11	1.75
2	1.35	12	1.33
3	1.48	13	1.62
4	1.51	14	1.34
5	1.96	15	1.02
6	1.61	16	
7	1.55	17	
8	1.66	18	
9	2.14	19	
10	1.85	20	

Total: 24.12 g

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

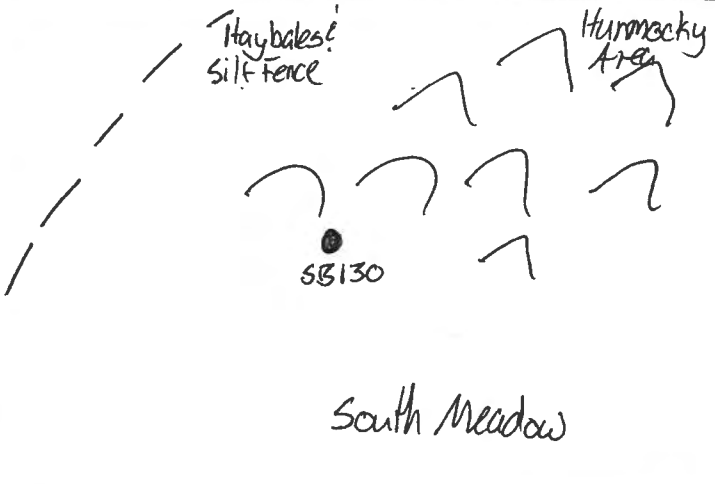
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 sample

Size: 24.12 g ~~oz~~

MAP:



Observations / Notes:

Start Sampling ~~0845~~ 0835
End Sampling 0845
- Area was covered by tall weeds and ground was covered by mulch from when the trees were chopped down

Signatures:

Mark Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Sample Location: SB134
Sampler(s): M. Horton, B. Geringer
Subcontractors: ~~Normandeau Associates~~ N/A

Project Number: 112G00816.0326
Date: 8/6/08
Time: 1418
Weather: Cloudy 70°

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab

Total # of specimens: 15 DUP01 15

	Weight (g)		Weight (g)
1	1.86	11	1.33
2	1.49	12	2.19
3	1.30	13	1.60
4	2.01	14	1.56
5	1.72	15	1.57
6	1.63	16	
7	1.00	17	
8	1.37	18	
9	0.94	19	
10	2.17	20	

Total: 23.84g

~~Remarks on Condition~~:

DUP 01 Weights

1.39	2.32	1.49
2.03	2.24	1.57
1.29	1.73	2.14
1.74	1.30	0.88
1.54	1.81	1.47

TOTAL 24.84g

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC (DUP) DUP01

Second ~~Double~~ 4oz Jar For DupO1

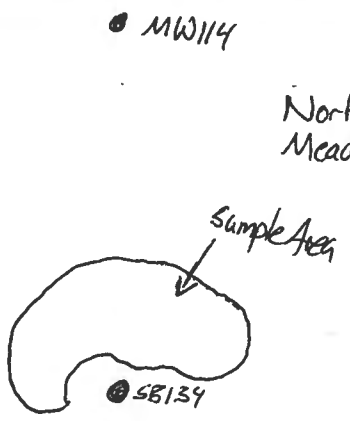
Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4 oz glass Jar
TAL Metals	4°C	N/A	4 oz glass Jar
Percent Lipids	4°C	N/A	4 oz glass
			~~4 oz glass jar~~

} 1 Jar

Size: 23.84 & 24.84 01 DUP

MAP:



Observations / Notes:

1418 Begin Sampling
1441 End sampling - Filled Jar

- Sample location was in area that was in an area under tree cover and was very grassy

Signatures:

Michael Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area
Project Number: 112G00816.0326
Sample Location: SB153
Date: 8/7/08 Time: 0908
Sampler(s): M. Horton, B. Geringer
Weather: Cloudy 70°
Subcontractors: ~~Normandeau Associates~~ N/A

FISH COLLECTION DATA

Species Common Name: Earth Worm
Method: grab
Total # of specimens: 15

	Weight g		Weight g
1	1.97	11	1.58
2	1.06	12	1.04
3	1.36	13	1.19
4	1.57	14	1.48
5	2.78	15	0.73
6	1.55	16	
7	2.16	17	
8	1.78	18	
9	1.06	19	
10	1.45	20	

Total: 22.62 g

Remarks on Condition:

SAMPLE DESCRIPTION

Circle If Applicable:
Lab QC DUP N/A

Type: Composite / Single
Preperation: N/A
Describe body "part" sampled if circled above:
N/A

Analysis	Preservative	Preparation	Container
TCL Pest/PCB's	4°C	N/A	4oz Glass Jar
TAL Metals	4°C	N/A	4oz Glass Jar
Percent Lipids	4°C	N/A	4oz Glass Jar

} 1 Jar

Size: 22.62 g 4oz

MAP:

Observations / Notes:

- Start Sampling 0908
  End Sampling 0928
- Area had some tree cover with a thin layer of mulch covering the ground along with tall weeds

Signatures:

Mike Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Sample ~~Location~~: DA-FT-RP01-BHF-081308
Sampler(s): M. Horton
Subcontractors: Normandeau Associates

Project Number: 112G00816.0325
Date: 8/13/08
Time: 1500
Weather: 80° Sunny

FISH COLLECTION DATA

Species Common Name: Bull Head
Method: electrofishing / gill net / trap net / trot lines / (Rod & Reel)

Total # of specimens: 1

	Length (mm)	Weight (g)
1	394	790
2		
3		
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:

- Very large Individual, Some parasites visible in Fillet
- Length & Weight of Fish is Whole

SAMPLE DESCRIPTION

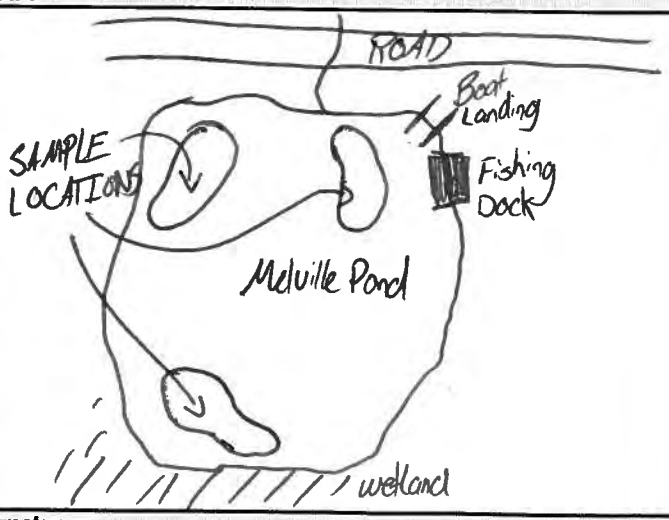
Circle If Applicable:
Lab QC DUP N/A

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / (Fillet)	Ziplock Bag
Pest/PCBs	4°C	Whole / (Fillet)	↓
TAL Metals	4°C	Whole / (Fillet)	↓
Percent Lipids	4°C	Whole / (Fillet)	↓

Type: Composite / (Single)
Preperation: Whole / (Part)
Describe body "part" sampled if circled above:
Left Fillet of Fish

Size: g /oz

MAP:



Observations / Notes:

- Electro Fishing yeilded no results for any Fish that were found at NUWC Pond
- There were Many Bass found Both while using electro Fishing and by hook

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: DA-FT-RP01-BGW-081308
Date: 8/13/08 Time: 1510
Sampler(s): M. Horton
Weather:
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Blue Gill
Total # of specimens: 5
Method: electrofishing / gill net / trap net / (trot lines)

	Length (in)	Weight (g)
1	0.43	48.64
2	0.54	71.61
3	0.24	7.00
4	0.21	4.07
5	0.26	8.65
6		
7		
8		
9		
10		

Total:

Remarks on Condition:

- Most Fish were very small, collected from trot lines

SAMPLE DESCRIPTION

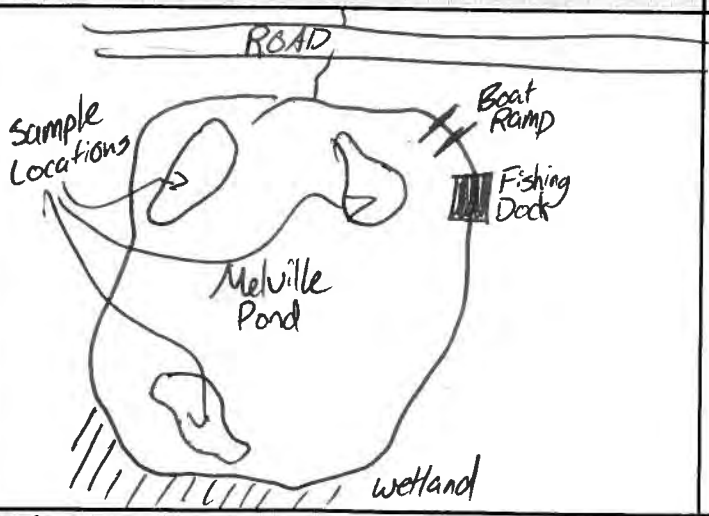
Circle If Applicable:
Lab QC DUP N/A

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / Fillet	Ziplock Bag
Pest/PCBs	4°C	Whole / Fillet	↓
TAL Metals	4°C	Whole / Fillet	
Percent Lipids	4°C	Whole / Fillet	

Type: (Composite) / Single
Preperation: (Whole) / Part
Describe body "part" sampled if circled above:

Size: g /oz

MAP:



Observations / Notes:

- Pond had many Bass
- Electro fishing did not work on target species Found in NUWC Pond

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: DA-FT-RP01-BGF-081308
Date: 8/13/08
Time: ~~1320~~ 1520
Sampler(s): M. Horton
Weather:
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Blue Gill
Total # of specimens: 1
Method: electrofishing / gill net / trap net / trot lines / Rod & Reel

	Length (mm)	Weight (g)
1	200	200
2		
3		
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:

- Only Specimen captured that was large enough to Fillet
- Used Left & Right Fillet to ensure that there was enough tissue to sample
- Length & Weight were Recorded Before the Fish was Filleted

SAMPLE DESCRIPTION

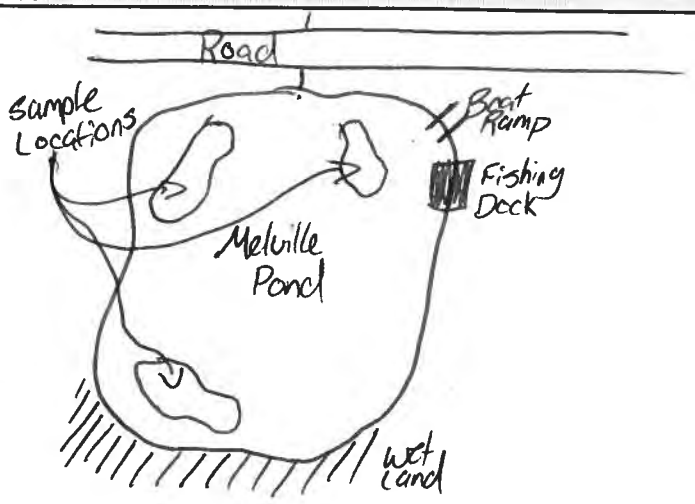
Circle If Applicable:
Lab QC DUP N/A

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / (Fillet)	Ziplock Bag
Pest/PCBs	4°C	Whole / (Fillet)	
TAL Metals	4°C	Whole / (Fillet)	
Percent Lipids	4°C	Whole / (Fillet)	

Type: Composite / (Single)
Preperation: Whole / (Part)
Describe body "part" sampled if circled above:
Right & Left Fillet

Size: g /oz

MAP:



Observations / Notes:

- Electro Fishing did not capture any target species found in Melville Pond
- This was the only Blue Gill large Enough to Fillet, took left & Right Fillet to ensure that there would be enough sample

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc. DA-FT-ET01-BHF-081208

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample ~~Location~~ ID: DA-FT-ET01-081208
Date: 8/12/08 Time: 1209
Sampler(s): M. Horton
Weather: Sunny 75°
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Bull Head
Total # of specimens: 3
Method: electrofishing / gill net / trap net / (trot lines)

	Length (~~in~~) ft	Weight (g)
1	0.81	151.7
2	0.68	111.0
3	0.65	89.9
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:

One of the fish had a bloody spot on its back unsure as to how it was wounded
- Length & weight was recorded before fillet was taken
- Parasites were observed in the fillet

SAMPLE DESCRIPTION

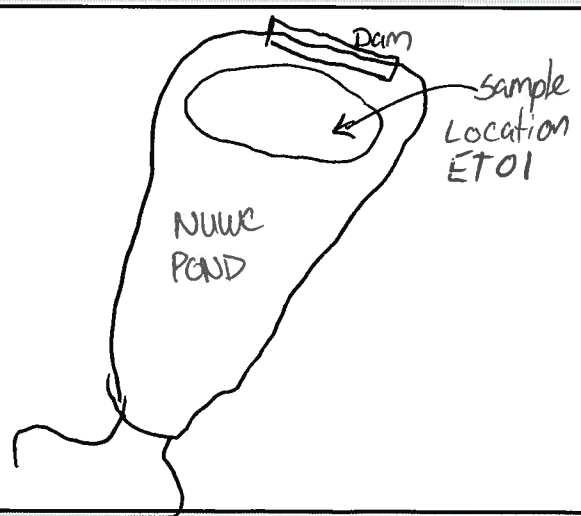
Circle If Applicable:
Lab QC DUP N/A

Type: (Composite) / Single
Preperation: ~~Whole~~ / (Part)
Describe body "part" sampled if circled above: Left Half

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / (Fillet)	Ziplock Bag
Pest/PCBs	4°C	Whole / (Fillet)	↓
TAL Metals	4°C	Whole / (Fillet)	↓
Percent Lipids	4°C	Whole / (Fillet)	↓

Size: g /oz

MAP:



Observations / Notes:

- the 3 Bull Heads were the only 3 fish on the ~~Haul~~ Trot Line

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample ~~Location~~: OA-FT-ETO3-BHF-08N208
Date: 8/19/08
Time: 1235
Sampler(s): M. Horton
Weather: Sunny 75°
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Bull Head
Total # of specimens: 3
Method: electrofishing / gill net / trap net / trot lines

	Length ~~(cm)~~ FT	Weight (g)
1	0.70	112.6
2	0.88	~~209 +fillet~~ 235
3	0.85	218
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:
- Length weight was recorded before Fillet was taken
- Parasites were observed in the Fillet

SAMPLE DESCRIPTION

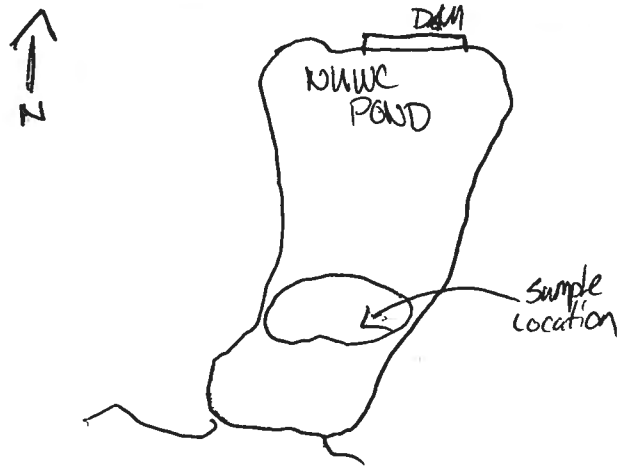
Circle If Applicable:
Lab QC (DUP) DUP01 collected @ 35

Type: Composite / Single
Preperation: Whole / Part
Describe body "part" sampled if circled above:
Left Fillet

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / Fillet	Ziplock Bag
Pest/PCBs	4°C	Whole / Fillet	↓
TAL Metals	4°C	Whole / Fillet	
Percent Lipids	4°C	Whole / Fillet	

Size: g /oz

MAP:



Observations / Notes:

2 Bullheads caught on First Try w/ the Trot Line, third caught later in the day on the trot line

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: DA-FT-ET02-BHF-081208
Date: 8/12/08
Time: 1225
Sampler(s): M. Horton
Weather: Sunny 75°
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Bull Head
Total # of specimens: 3
Method: electrofishing / gill net / trap net / trot lines

	Length (in)	Weight (g)
1	0.90	250g
2	0.68	100.1
3	0.64	94
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:

- Length and weight were recorded Before Fillet was taken
- Some Parasites were observed in the Fillet

SAMPLE DESCRIPTION

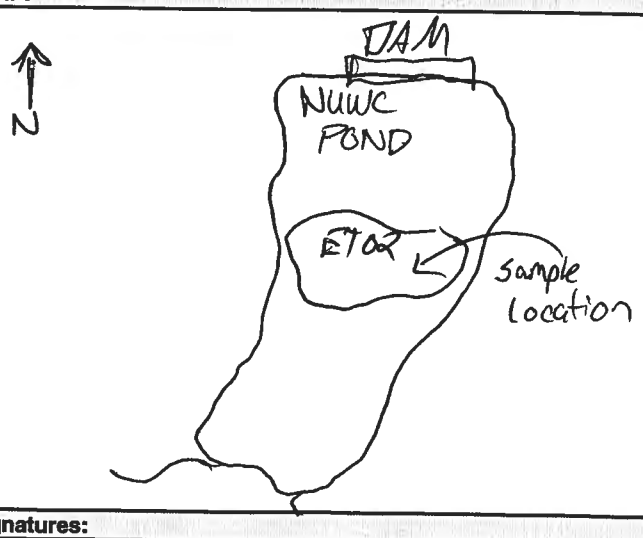
Circle If Applicable:
Lab QC DUP N/A

Type: Composite / Single
Preperation: Whole / Part
Describe body "part" sampled if circled above: left Fillet

Size: g /oz

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / Fillet	ziplock Bag
Pest/PCBs	4°C	Whole / Fillet	
TAL Metals	4°C	Whole / Fillet	
Percent Lipids	4°C	Whole / Fillet	

MAP:



Observations / Notes:

- Two Bull heads caught on first Try with the Trot Line
- third was captured later in the day by trot Line

Signatures:

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: DA-FT-FT02-WPF-081208
Date: 8/12/08
Time: 1330
Sampler(s): M. Horton
Weather: Sunny 75°
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: White Perch
Method: electrofishing / gill net / trap net / trot lines / (Rod & Reel)
Total # of specimens: 1

	Length (in)	Weight (g)
1	0.89	306
2		
3		
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:
- very large
- Length & Weight were Recorded Before Fillet was taken

SAMPLE DESCRIPTION

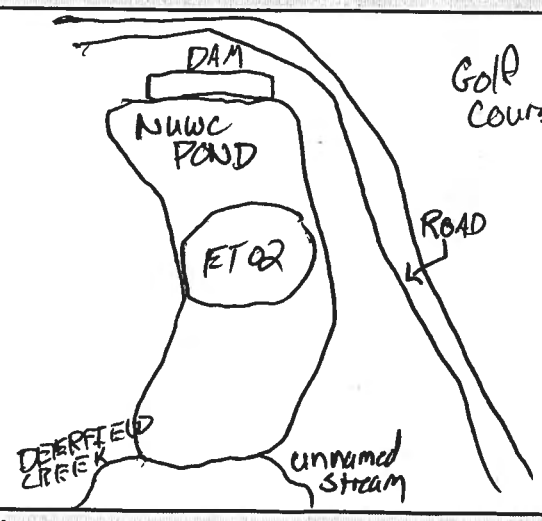
Circle If Applicable:
Lab QC DUP N/A

Type: Composite / (Single)
Preperation: Whole / (Part)
Describe body "part" sampled if circled above:
Left Fillet

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / (Fillet)	Ziplock Bag
Pest/PCBs	4°C	Whole / (Fillet)	↓
TAL Metals	4°C	Whole / (Fillet)	↓
Percent Lipids	4°C	Whole / (Fillet)	↓

Size: g /oz

MAP:



Observations / Notes:

- only White Perch found in the entire pond. this is odd because it is a school Fish and this one was very large

Signatures:

Mel Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: DA-FT-ET02-BGW-081208
Date: 8/12/08 Time: 1340
Sampler(s): M. Horton
Weather: Sunny 75°
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Blue Gill Whole
Method: electrofishing / gill net / trap net / trot lines / Rod Reel
Total # of specimens: 5

	Length (in)	Weight (g)
1	0.53	92
2	0.35	34
3	0.34	24
4	0.34	21
5	0.35	23
6	0.35	28
7		
8		
9		
10		

Total:

See Sample Page

Remarks on Condition:
- Fish #1 was Taken and used as Fillet Sample
- The Remaining Fish were used as Whole Body Samples
- Weight & Length of First Fish were Recorded Before Fillet was Taken

SAMPLE DESCRIPTION

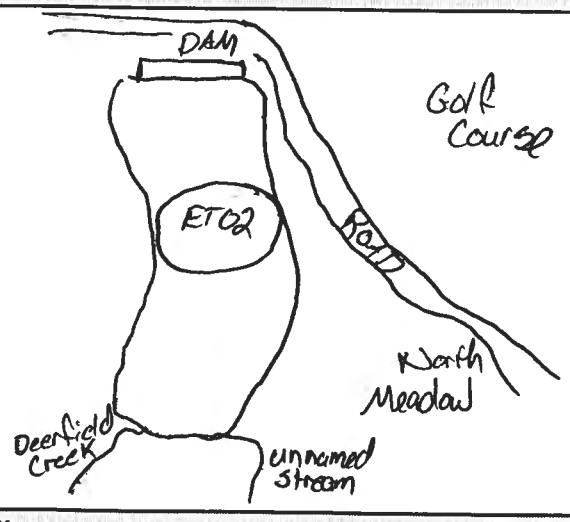
Circle If Applicable:
Lab QC DUP N/A

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / Fillet	Ziplock Bag
Pest/PCBs	4°C	Whole / Fillet	
TAL Metals	4°C	Whole / Fillet	
Percent Lipids	4°C	Whole / Fillet	

Type: Composite / Single
Preperation: Whole / Part
Describe body "part" sampled if circled above:

Size: g /oz

MAP:



Observations / Notes:
- There are Many Small Blue Gills but few that are large enough to Fillet
- Found Eels During Electro Fishing

Signatures:

Mike Abbott

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: D4-FT-ET01-BGW-08208
Date: 08/6/08
Time: 1330
Sampler(s): M. Horton
Weather:
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Blue Gill
Method: electrofishing / gill net / trap net / ~~fish line~~ Line & Rod & Trot lines
Total # of specimens: 5

	Length (in)	Weight (g)
1	0.55	100 ← See Sample Data Sheet
2	0.40	35
3	0.38	34
4	0.34	~~17~~ 25
5	0.35	~~17~~ 28
6	0.36	28
7		
8		
9		
10		
Total:		

Remarks on Condition:
Fish #1 was taken and used as Fillet sample
-The Remaining Fish were too small to Fillet

SAMPLE DESCRIPTION

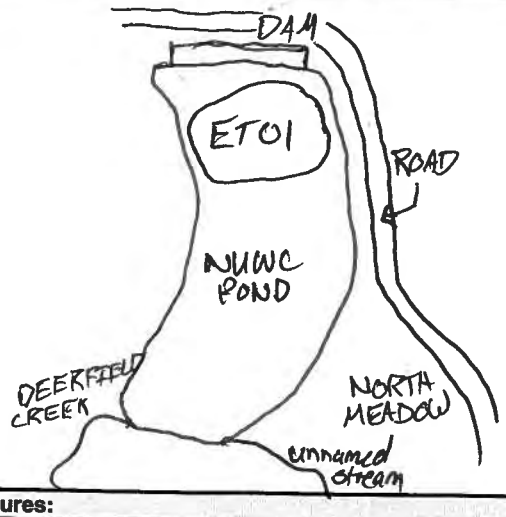
Circle If Applicable:
Lab QC DUP N/A

Analysis	Preservative	Preparation	Container
SVOCs	4°C	~~Whole~~ / Fillet	Ziplock Bag
Pest/PCBs	4°C	~~Whole~~ / Fillet	
TAL Metals	4°C	~~Whole~~ / Fillet	
Percent Lipids	4°C	~~Whole~~ / Fillet	

Type: Composite / Single
Preperation: ~~Whole~~ / Part
Describe body "part" sampled if circled above:

Size: g /oz

MAP:



Observations / Notes:
There were Many Small Blue Gills caught by Trot Lines, & Rod & Reel, Some were captured with Electro Fishing As well but were released because we already had Enough specimens

Signatures:

Mark D Horton

BIOLOGICAL TISSUE SAMPLING DATA SHEET

Tetra Tech NUS, Inc.

Project: NUSC Disposal Area - Remedial Investigation
Project Number: 112G00816.0325
Sample Location: DA-BT-ET-ET01-BGF-081208
Date: 8/12/08 Time: 1330
Sampler(s): M. Horton
Weather:
Subcontractors: Normandeau Associates

FISH COLLECTION DATA

Species Common Name: Blue Gill
Total # of specimens: 2
Method: electrofishing / gill net / trap net / trot lines / Rod & Reel

	Length (in)	Weight (g)
1	0.53	92
2	0.55	100
3		
4		
5		
6		
7		
8		
9		
10		

Total:

Remarks on Condition:

- Sample is combined From 2 Batches of Blue Gill Taken From Trot Lines & Rod & Reel, these were the only two Blue Gill large enough to Fillet so they were combined for ET01
- Measurements were Recorded Before Fillet was Taken

SAMPLE DESCRIPTION

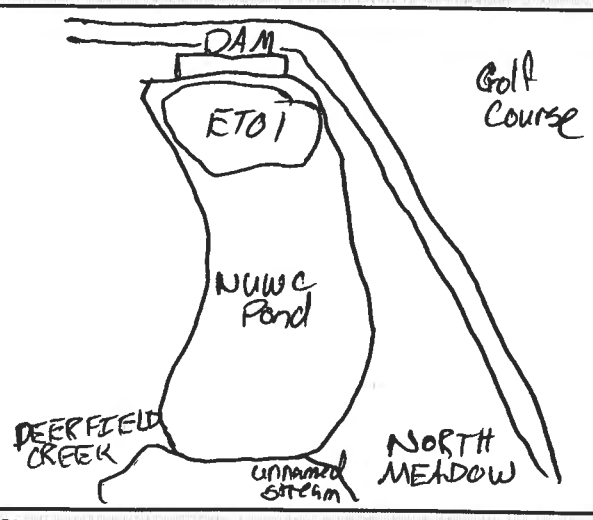
Circle If Applicable:
Lab QC DUP N/A

Type: Composite / Single
Preperation: Whole / Part
Describe body "part" sampled if circled above:
Left Fillet

Size: g /oz

Analysis	Preservative	Preparation	Container
SVOCs	4°C	Whole / Fillet	Ziplock Bag
Pest/PCBs	4°C	Whole / Fillet	↓
TAL Metals	4°C	Whole / Fillet	
Percent Lipids	4°C	Whole / Fillet	

MAP:



Observations / Notes:

- Taken From 2 locations to ensure that there is enough Tissue for Sample

Signatures:

Mike Horton

APPENDIX D.4

SOIL SAMPLE COLLECTION LOGS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS102B-073107
Sample Location: SS-102B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite Tpa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0940	0-1'	Brown	Silty fine grained sand with pebbles and sea shells mixed in
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS103B-073007
Sample Location: SS-103B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2ea

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1720	0-1'	Brown	Silty Fine grained sand with pebbles, Rocks and rock Fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.5			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

Duplicate sample DA-SS-Dup07 was collected at this Location with an assigned time of 1220

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: DA-SS-Dup07 Assigned time of 1220

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: QA-SS104B-072007
Sample Location: SS-104B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type: Composite 2pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1340	0-1'	Brown	Silty Fine to medium grained sand with roots gravel pebbles and rock frag
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	40z Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: _____
Project No.: _____

Sample ID No.: DA-55105-073107
Sample Location: 55-105
Sampled By: LA
C.O.C. No.: _____

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other: _____
- [ ] QA Sample Type: _____

Composite 2ea

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1135	0-1'	light brown	silty sand and gravel with rock fragments and roots
Method: hand auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS105B-073007
Sample Location: SS-105B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite Trip

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1410	0-1'	Brown	silty Fine to medium grained sand with rocks and gravel Metal sheeting and what may be paint chips.
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS1103-072307
Sample Location: SS-1103
Sampled By: LA
C.O.C. No.:

[■] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:
Composite Lab

Type of Sample:
[■] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1145	0 - 1'	Brown	Silty Fine grained sand with trace clay and gravel moist
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	40z clear Glass	2	

OBSERVATIONS / NOTES:

Duplicate sample DA-SS-Dup06 was collected with an assigned time of 1645

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: SS-Dup06 Assigned Time = 1645

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS111B-072607
Sample Location: SS-111B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 1ba

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1050	0-1'	Brown	Silty Fine grained sand with pebbles and trace medium grained sand
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS112B-072307
Sample Location: SS-112B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pc

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1515	0-1'	Brown	Silty Fine grained sand with roots + gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS112B-073007
Sample Location: SS-112B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

Composite for

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1120	0-		silty Fine grained sand trace medium grained sand gravel and rock fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	De	Description (Sand, Silt, Clay, Moisture, etc.)
Method:			
Monitor Readings (Range in ppm):			

Sample NOT Analyzed

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	40z clear glass	3	

OBSERVATIONS / NOTES:

MS/MSD sample was collected from this location

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SSH3B-072607
Sample Location: SS-113B
Sampled By:
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1025	0-1'	Brown	Silty Fine grained sand with roots and rock Fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz Clear Glass	3	

OBSERVATIONS / NOTES:

MS/MSD sample collected at this location

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS114B-072507
Sample Location: SS-114B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

Composite 2pts

GRAB SAMPLE DATA:

Date: 7/25/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1620	0-1'	Brown	silty sand with roots rocks and rock fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS11SB-072507
Sample Location: SS-11SB
Sampled By:
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite Type

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	0-1'	Dark Brown to Light Brown	Silty Fine grained sand trace roots and gravel some rock fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4 oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS116B-072507
Sample Location: SS-116B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/25/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1540	0-1'	Gray to Brown	Silty Fine grained sand with roots + gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz clear glass	2	

OBSERVATIONS / NOTES:

Duplicate sample DA-SS-Dup04 with an assigned time of 1340 was collected at this location

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.: DA-SS-Dup04	Assigned Time = 1340

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite Aa

Sample ID No.: DA-SS117B-072507
Sample Location: SS-117B
Sampled By: LA
C.O.C. No.:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/25/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1500	0-1'	Brown to Grey	Silty Fine grained sand with trace roots and rock Fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS-118B-072507
Sample Location: DA-SS-118B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite IPA

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/25/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1350	0-1'	Brown	silty Fine grained sand with roots and rock fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
IPAH only	4 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS119B-073007
Sample Location: SS-119B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	0-1'	Brown	Fine to medium grained sandy silt with rocks roots and gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS120B-080207
Sample Location: SS-120B
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 8/2/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1140	0 - 1'	Brown	Silty sand with no roots rocks and gravel were observed throughout hole moist
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MS/MSD sample was collected From this location

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS104-073107
Sample Location: SS-104
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite IPA

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	0-1'	Brown	Silty Fine grained sand with roots + pebbles
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS106-073107
Sample Location: SS-106
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 1pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07 Time: 1035 Method: Hand Auger Monitor Reading (ppm): 0.0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	Brown	silty Fine grained sand with roots and pebbles

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS107-073107
Sample Location: SS-107
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1005	0-1'	Light Brown	Silty sand and gravel with trace clay damp
Method: Hand Auger			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS108-073107
Sample Location: SS-108
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite, 2pt

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/31/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1055	0 - 1'	Brown to Light Brown	silty sand with roots and gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS109-073007
Sample Location: SS-109
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite Zpa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silty, Clay, Moisture, etc.)
Time: 1740	0 - 1'	Brown	Silty Fine grained sand + trace medium grained sand gravel pebbles and rock frag
Method: Hand Auger			
Monitor Reading (ppm): 0.9			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS110-073007
Sample Location: SS-110
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite IPA

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1655	0-1'	Brown	Silty Fine to Medium grained sand with roots gravel, glass and rock fragments
Method: Hand Auger			
Monitor Reading (ppm): 1.5			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS121-072607
Sample Location: SS-121
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1455	0-1'	Brown	Silty Fine to medium grained sand with roots rocks and pebbles
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS122-073007
Sample Location: SS-122
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	0-1'	Brown	Silty Fine grained sand with roots and pebbles trace rocks
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS123-022607
Sample Location: SS-123
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1335	0-1'	Brown	Silty Fine grained sand with roots rocks and gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4 oz clear Glass	Y	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55124-072607
Sample Location: SS-124
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for DA

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1255	0-1'	Gray to Brown	0-6" Road bed rocks fine grained sandy silt 6-12" silty fine grained sand roots pebbles and rocks
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4 oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS125-072607
Sample Location: SS-125
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1440	0-1'	Brown	Silty Fine to medium grained sand with roots pebbles and rocks
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS126-072607
Sample Location: SS-126
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2da

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silty, Clay, Moisture, etc.)
Time: 1530	0-1'	Brown	silty fine to medium grained sand roots rocks and pebbles
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	40z clear glass	2	

OBSERVATIONS / NOTES:

Duplicate sample DA-SS-Dup05 with an assigned time of 1230 was collected at this location

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: DA-SS-Dup05

Assigned Time = 1230

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS127-072607
Sample Location: SS-127
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 1pt

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1405	0-1'	Brown	silty Fine to medium sand with roots and gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55128-072607
Sample Location: SS-128
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/26/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1320	0-1'	Brown	silty sand with rocks roots and trace clay
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55129-073007
Sample Location: SS-129
Sampled By: CA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1045	0-1'	Brown	Sandy silt with trace clay roots pebbles and rock fragments moist
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55130-073007
Sample Location: 55-130
Sampled By: LA
C.O.C. No.:

[■] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[■] Low Concentration
[ ] High Concentration

Composite for PAH

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1445	0-1'	Brown	Silty Fine to medium grained sand with rocks and Gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	40z Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55131-070007
Sample Location: SS-131
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite TPA

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1210	0-1'	Brown	silty Fine grained sand with roots gravel pebbles and rock Fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS132-073007
Sample Location: SS-132
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 1pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	0-1'	Brown	Silty Fine Grained sand with roots, pebbles and gravel
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS133-073007
Sample Location: SS-133
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 4pt

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/30/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1510	0-1'	Brown to Black	Silty Fine to medium grained sand with roots Gravel rock Frag 6-8" Black cydery type material with what appeared as copper shot for sand Blasting
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS134-071907
Sample Location: SS-134
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1620	0-1'	Gray to Brown	Silty sand with roots and rocks.
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS135-071907
Sample Location: SS-135
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite TPA

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1610	0-1'	Gray to Brown	Silty sand with roots and rocks
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4 oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pa

Sample ID No.: DA-SS136-072507
Sample Location: SS-136
Sampled By: LA
C.O.C. No.:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/25/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1430	0-1'	Brown	Silty fine grained sand with trace rock fragments and roots
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS137-071907
Sample Location: SS-137
Sampled By:
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1545	0-1'	Brown	Fine grained silty sand to silty fine grained sand
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Analysis only	2 oz clear Glass		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55138-071907
Sample Location: SS-138
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1525	0-1'	Brown	Silty Fine grained sand with roots and rocks
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz clear glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS139-071907
Sample Location: SS-139
Sampled By: LA
C.O.C. No.:

[x] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[x] Low Concentration
[ ] High Concentration

Composite 2pa

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	0-1'	Brown	Silty sand with roots rocks and rock fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4 oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori anderson

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SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS140-071907
Sample Location: SS-140
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1420	0-1'	Brown	Silty Sand with Rock Fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	40z Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55141-071907
Sample Location: SS-141
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 1pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 7/19/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1400	0-1'	Brown	Silty sand with trace Rock Fragments
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS142-080207
Sample Location: SS-142
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite for PAH

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 8/2/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1050	0-1'	Brown	silty sand with trace organic material and rocks very dry
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55143-080207
Sample Location: SS-143
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type: Composite, Lab

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 8/21/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1115	0-1'	Brown	Silty fine to medium grained sand with trace clay and rocks
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS144-080207
Sample Location: SS-144
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 8/2/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1250	0-1'	Brown to Lt. Brown	Sandy silt with roots pebbles and trace clay moist
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-55145-080207
Sample Location: SS-145
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite 2pr

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 8/2/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1320	0-1'	Brown	Silty fine to medium grained sand with roots and gravel moist
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NUSC Site 08 RI
Project No.: 112G00816

Sample ID No.: DA-SS146-080207
Sample Location: SS-146
Sampled By: LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Composite ZBa

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 8/2/07	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1350	0-1'	Brown to Gray	Sandy Silt with gravel roots and rock fragments
Method: Hand Auger			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Only	4oz Clear Glass	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112GD0816

Sample ID No.: DA-55102B-011508
Sample Location: 55102B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1435	6-12	brown	fine grained sandy silt, ~~some~~ little rounded gravel up to 3 in.
Method:			
Monitor Reading (ppm): 0.2			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.1-0.2				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO → 2			

OBSERVATIONS / NOTES:

*Background bkgd: 0.3ppm

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55103B-011508
Sample Location: 55103B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08 Time: 1400 Method: Monitor Reading (ppm): 0.3*	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	6-12	brown	silty fine-grained sand, little rounded gravel up to 1 in.

COMPOSITE SAMPLE DATA:

Date: 1/15/08 Method: Monitor Readings (Range in ppm): 0.1-0.3*	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see above	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals pH → 2	8oz jars		
Pest/PCB DRO TOC			
grain size	1 liter nalgene		
toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

*P.I.D. readings from sample are the same as background levels (0.1-0.3ppm)

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	DA-55-Dup03-011508

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55104B-011608
Sample Location: 55104B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1100	6-12	brown	fine-grained sandy silt, some gravel up to 3in. (rounded to angular), trace cobbles (angular, up to 6in.)
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	see above	
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

unidentified substance - see plastic bag

MAP:

Circle if Applicable:

MS/MSD #2

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55105B-011608
Sample Location: 55105B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1015	~~6-10~~ 6-12	dark brown	medium-grained sandy silt, some rounded gravel up to 2 in., little cobbles up to 6 in.
Method:			
Monitor Reading (ppm): 0.2*			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	see	above
Monitor Readings (Range in ppm): 0.0-0.2*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO PH TOC → 2			
grain size	1 liter nalgene		
toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

* background P.I.D. readings were 0.0-0.3 ppm

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55110B-011508
Sample Location: 55110B
Sampled By: LA/MH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	6-12	brown	fine-grained sandy silt, trace rounded gravel up to 1 in.
Method:			
Monitor Reading (ppm): 0.2*			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	see	above
Monitor Readings (Range in ppm): 0.2*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO * 2			
PH/TOC			
Grain Size	1 liter nalgene		
Toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

*background PID reading is 0.1ppm
-yellow fiberous material in sample

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55111B-011408
Sample Location: 55111B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/14/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1355	6-12	brown	silty fine sand/gravel up to 3 in. (subrounded to subangular) some
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1/14/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8		see above
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55112B-011608
Sample Location: 55112B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	6-12	brown	fine grained sandy silt, some gravel (angular, up to 3 in.)
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: #04

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G0081/6

Sample ID No.: DA-SS113B-01608
Sample Location: SS113B
Sampled By: LAMH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1300	6-12	brown	fine grained sandy silt, little gravel (angular, up to 2 in.)
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see above	
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals ~~pH~~ lpa	8oz jars		
pest/PCB DRO ~~TOC~~ lpa → 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 08 NUSCDA
Project No.: 112G00816

Sample ID No.: SS1143-011008
Sample Location: SS1143
Sampled By: RC
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0945	6-12	~~grayish~~ Grayish Brown	SILTY F SAND & gravel (up to 1/2
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1-10-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	SAA	~~6~~ 2-6	SAA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3-40 ml VOA - DI		
VOC/gro	2-40 ml VOA - MeOH		
SVOC, TAL metals, Pest/PCB, DRO, % moisture	2-8oz Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rob

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 08 NUSC DA
Project No.: 117500816

Sample ID No.: SS11SB-011008
Sample Location: SS11SB
Sampled By: RC/LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0930	0-6	grayish Brown	SILTY F SAND some F gravel up to 1/2 in
Method:	6-12		
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
1-10-08	0930	4-10	SAA	SAA
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3-40 ml VOA-DI		
VOC/GRO	2-40 ml VOA-MeOH		
SVOC, TAL Metals	2 500g jar		
Pest/PCB DRO			
% Moisture			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: SAE 08 NUSC SA
Project No.: 112G00816

Sample ID No.: SS116B-011008
Sample Location: SS116B
Sampled By: RClark / LA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 11/10/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0820	0-12 in	gray	Silty F SAND, some F gravel up to 1 in. damp
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	~~SNA~~	4-8	~~SNA~~	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC (w/ % moisture)	3-40 ml VOA Vial - DI		
GRO/VOC	2-40 ml VOA Vial - MeOH		
SVOC	2-8oz jar		
TAL metals			
Pest/PCB			
DRO			
% moisture			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 08 NUSCDA
Project No.: ~~112G00816~~

Sample ID No.: SS117B-01008
Sample Location: SS117B
Sampled By: RClark
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0845	6-12	Brownish gray	Silty F SAND Some R gravel up to 2 in
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1-10-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		~~0-6~~ 4-8	SAA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 - 40 ml VOA Vial - DI		
8260 VOC	2 - 40 ml VOA Vial - MeOH		
USVOC, TAL metals	2 8oz Jar		
~~Pest~~/PCB, DRO			
%D moisture			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55118B-011608
Sample Location: 55118B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1610	6-12	gray brown	fine grained sand (little), silt, trace rounded gravel up to 2 in.
Method:			
Monitor Reading (ppm): 0.2			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	gray	cobble
Method:				
Monitor Readings (Range in ppm): 0.2				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals ~~pH~~ lpa	8oz jars		
pest/PCB DRO ~~TOC~~ lpa → 2			
~~grain size~~	~~1 liter Nalgene~~ lpa		
~~toxicity~~	~~1 gallon bucket~~ lpa		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-551198-011
Sample Location: 1198
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1530	6-12	brown	fine-grained sand and silt, trace rounded gravel upto 2in
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

earthworm found

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: # 05

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55120B-011708
Sample Location: 55120B
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1055	6-12	brown	fine-grained sandy silt, some rounded gravel up to 1.5 in.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: SS03-011708
Sample Location: SS03
Sampled By: RC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: ~~1-17-08~~	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	~~4-8~~		
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1-17-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: Composite	0830	4-8	Brown	Fine gravelly Sand gravel up to 1" R little silt
Monitor Readings (Range in ppm):				

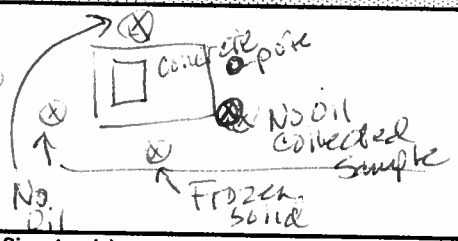
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~VOC~~ ~~VOC TCL~~ ~~SVOC TAL metals~~ Pest/PCB ~~TCL~~	~~3 40 ml VOA DI~~ ~~3 40 ml VOA MeOH~~ 2 8oz jars		

OBSERVATIONS / NOTES:

(continued) Dug 1ft at each location
NO visual contamination
Collect sample as shown

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55104-011508
Sample Location: 55104
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1030	6-12	brown	fine grained sandy silt, some rounded gravel up to 1 in.
Method: *0.2 ppm			
Monitor Reading (ppm): ~~0.1~~ R			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	See	above
Method:				
Monitor Readings (Range in ppm): 0.2 R *a				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL GRO	2 40ml VOA MeOH		
SVOC TAL metals pH PEST/PCB DRO TOC → 2	~~8oz jars~~		
grain size	1 liter nalgene		
toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

*R reading of 0.1 ppm in open air

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: SB05-011508
Sample Location: SB05
Sampled By: RE
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-15-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	6-12	BROWN	F SAND + F R gravel Wet (snow melt.) some silt + crs sand
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: SAA	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: Composite		4-8	SAA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112GD0816

Sample ID No.: SS106-011408
Sample Location: SS106
Sampled By: RC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-14-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	6-12	Brown	Silty f SAND little f gravel upto 1/2 in
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1520	4-8	SAA	
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rob

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55107-011508
Sample Location: 55107
Sampled By: EA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1315	6-12	grayish brown	silty coarse-grained sand, little gravel up to 2 in. (50% angular, 50% rounded)
Method:			
Monitor Reading (ppm): 0.1*			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	see above	
Monitor Readings (Range in ppm): 0.1*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC VOC TCL SVOC TAL metals pest/PCB DRO > 2	3 40ml VOA DI 2 40ml VOA MeOH 8oz jars		

OBSERVATIONS / NOTES:

* 0.1 ppm reading in open air as well as in sample

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55108-011508
Sample Location: 55108
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1115	6-12	brown	fine-grained sand and silt, ~~some fa~~ trace rounded gravel up to 1 in.
Method:			
Monitor Reading (ppm): 0.1			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	a bar
Method:				
Monitor Readings (Range in ppm): 0.1				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals pH → 2	8oz jars		
pest/PCB DRO TOC			
grain size	1 liter na/gene		
toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00876

Sample ID No.: SS09-01140[illegible]
Sample Location: SS09
Sampled By: SS/RE
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-14-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1500	6-12	Brown	Silty gravelly (upto R 1½in) F-M SAND.
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	SAA	4-8		
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: SS-110-011508
Sample Location: SS-110
Sampled By: RC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-15-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1045	6-12	↓	↓
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: SAA	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	SAA	4-8	Brown	Gravelly F-M SAND some silt
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G0081 6

Sample ID No.: DA-55127-011508
Sample Location: 55-127
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0815	6-12	brown	fine-grained sandy silt, some rounded gravel up to 1 in.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8 see above		
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals pH → 2	8oz jars		
pest/PCB DRO TOC → 2			
grain size	1 liter nalgene		
toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: SS121-011008
Sample Location: SS121
Sampled By: RC/LA
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	6-12	Brown	Silty F SAND some f gravel
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1-10-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	SAA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40 ml VOA-DI		
VOC/GRO	2 40 ml VOA-MEOH		
SVOC TAL metals	8oz jar		
Pest/PCB DRO			
% MOISTURE			

OBSERVATIONS / NOTES:

grub
earthworm - 2

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rcle

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: ~~SITE 08 NUSC DA~~
Project No.: ~~N2600816~~

Sample ID No.: SS122-011008
Sample Location: SS122
Sampled By: RC/LA
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silty, Clay, Moisture, etc.)
Time: 1430	6-12	DK Brown	Silty + SAND some R gravel up to 1/2"
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	SAA	
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3-40 ml VOA-DI		
VOC/GRO	2-40 ml VOA-MeOH		
SVOC TAL metals	> 2 8oz Jar		
pest/PCB DRO			
% moisture			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 08 NUSCDA
Project No.: 112G00816

Sample ID No.: SS123-011008
Sample Location: SS123
Sampled By: RC/LA
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1130	6-12	Brown	Silty Fine Sand - SA-R gravel up 1/2 in
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1-10-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	SAA	4-8"	SAA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA-DI		
VOC/GRO	2 40ml VOA-MeOH		
SVOC TAL metals Pest/PCB DRO %moisture	2 8oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 08 NUSC-DA
Project No.: 112G00816

Sample ID No.: SS124-011008
Sample Location: SS124
Sampled By: RC/CA
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08 Time: 1315 Method: Monitor Reading (ppm):	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	6-12"	Dk Brown	~~gravelly silty sand~~ gravel w/ silty sand

COMPOSITE SAMPLE DATA:

Date: Method: Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	SAA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3-40 ml VOA - DI		
VOC (gro)	2-40 ml VOA - MeOH		
SVOC TAL metals	2 8oz Jar		
Pest/PCB TPH % Moisture			

OBSERVATIONS / NOTES:

Earthworms - 2

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Rch

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSCDA
Project No.: 112G00816

Sample ID No.: SS125-011008
Sample Location: SS125
Sampled By: RC/LA
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 01-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1050	6-12	grayish brown	Silty fine Sand some gravel (R) UP TO
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	SAA	4-8	SAA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA-DI	6	
VOC/GRO	2 40 ml VOA MeOH	4	
SVOC TAL metals Pest/PCB DRO % moisture	2 8oz jar	4	

OBSERVATIONS / NOTES:

live earthworm

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: DUP 01-011008

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55126-011408
Sample Location: 55126
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/14/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1530	6-12	brown	fine-grained sandy silt, some rounded gravel up to 1.5 in.
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1/14/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see above	
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO → 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55128-01 608
Sample Location: 55128
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1415	6-12	brown	fine-grained sandy silt; trace rounded gravel up to 1 in.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO → 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55129-011408
Sample Location: 55-129
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/14/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1500	6-12	brown	fine-grained sandy silt, some angular gravel up to 3in.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/14/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

2 worms found
site covered with wood chips

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55130-011508
Sample Location: 55130
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0935	6-12	brown	fine-grained sandy silt, some gravel up to 3in. (rounded to angular)
Method:			
Monitor Reading (ppm): 0.1*			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		~~4~~ 4-8		
Monitor Readings (Range in ppm): 0.1*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals pH → 2	~~8oz jars~~		
pest/PCB DRO TOC → 2			
grainsize	1 liter nalgene		
~~toxicity~~	~~1 gallon bucket~~		

OBSERVATIONS / NOTES:

- sample under pile of sticks, vines, and debris from clearing efforts
* - reading of 0.1 ppm in the open air as well as from the sample

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Tori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55131-011608
Sample Location: 55131
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 11/6/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1440	6-12	brown	fine grained sandy silt, some gravel up to 3in. (angular to rounded)
Method:			
Monitor Reading (ppm): 0.1			

COMPOSITE SAMPLE DATA:

Date: 11/6/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see above	
Method:				
Monitor Readings (Range in ppm): 0.1				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

earthworm found

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55132-011408
Sample Location: 55-132
Sampled By: LA/MH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/14/08 Time: 1430 Method: Monitor Reading (ppm): 0.1	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	6-12	brown	fine-grained sandy silt, some gravel up to 1.5 in., subrounded to subangular

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see above	
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC VOC GRO SVOC TAL metals pest/PCB DRO ⟩ 2	3 40ml VOA DI 2 40ml VOA MeOH 8oz ~~jars~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-SS133-011508
Sample Location: SS133
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 11/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0845	6-12	dark brown	fine-grained sandy silt, some rounded gravel up to 1 inch
Method:			
Monitor Reading (ppm): 0.3			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.3				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals pH → 2	8oz jars		
Pest/PCB DRO TOC → 2			
toxicity	1 gallon bucket		
grain size	1 liter nalgene		

OBSERVATIONS / NOTES:

earthworm

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G0081/6

Sample ID No.: DA-55134-011508
Sample Location: 55134
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/15/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1525	6-12	brown	silt, trace fine-grained sand, trace rounded gravel upto 1 in.
Method:			
Monitor Reading (ppm): 0.3*			

COMPOSITE SAMPLE DATA:

Date: 1/15/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.1-0.3*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals TOC → 2	8oz jars		
Pest/PCB DRO pH			
grain size	1 liter nalgene		
toxicity	1 gallon bucket		

OBSERVATIONS / NOTES:

* background P.I.D. readings are 0.1-0.2 ppm

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55135-011108
Sample Location: 55135
Sampled By: LARC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/11/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0900	6-12	dark brown	silt with little gravel (up to 3 in.), trace coarse sand and cobbles
Method:			
Monitor Reading (ppm): 0.0			

A-5R

COMPOSITE SAMPLE DATA:

Date: 1/11/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8		see above
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
PEST/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	55-DUP02-011108

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 06 NUSCDA
Project No.: 112600816

Sample ID No.: SS136 011008
Sample Location: SS136
Sampled By: RClark
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-10-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0905	0-12in	Brownish Gray	Silty F SAND Some R gravel up to 3/4 in
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1-10-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	SAA	SAA
Monitor Readings (Range in ppm):	0.0			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3-40 ml VOA-DI		
VOC/GRO	2-40 ml VOA-MeOH		
SVOC TAL METALS PEST/PCB DRO %MOISTURE	2 8oz Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55137-011108
Sample Location: 55137
Sampled By: LA/RC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/11/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1415	6-12	brown	silt, little fine sand and gravel up to an inch (one piece up to 3 inches)
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1/11/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8		see above
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

grab

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55138-011108 (1st Rev 1/14/08)
Sample Location: 55138
Sampled By: LA/RC
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/11/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1030	6-12	brown	silt ~~with~~ some platey gravel and cobbles up to 6in., trace coarse sand
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/11/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8		see above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable: MS/MSD #1

Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55139-011108
Sample Location: 55139
Sampled By: LA/RC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/11/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	6-12	brown fine grained	sandy silt, little subrounded gravel up to 2 inches
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1/11/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1345	4-8		see above
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):
Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55140-011108
Sample Location: 55140
Sampled By: LA/RC
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/11/08	Depth Interval	Color	Description (Sand, Silty, Clay, Moisture, etc.)
Time: 1300	6-12	grayish Brown	Silty Sand some gravel up to 2"
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 1/11/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1300	4-8		see above
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC VOC TCL SVOC TAL metals pest/PCB DRO > 2	3 40ml VOA DI 2 40ml VOA MeOH 8oz jars		

OBSERVATIONS / NOTES:

earthworm

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

JoAnderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55142-011708
Sample Location: 55142
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0830	6-12	brown	fine-grained sandy silt, some gravel (angular to rounded up to 2 in.)
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55141-011108
Sample Location: 55141
Sampled By: RC/LA
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/11/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1215	6-12	brown	fine-grained sandy silt, platey gravel up to 3in.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/11/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112GDD816

Sample ID No.: DA-55143-011708
Sample Location: 55143
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0915	6-12	brown	silt, trace fine-grained sand, trace rounded gravel up to 2 in.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8		
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC GRO	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO	> 2		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD ~~#3~~ #1

Duplicate ID No.:

Signature(s):

Tori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55144-011708
Sample Location: 55144
Sampled By: LA/MH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08 Time: 1255 Method: Monitor Reading (ppm): 0.0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	6-12	brown	silt, trace fine-grained sand, saturated

COMPOSITE SAMPLE DATA:

Date: 1/17/08 Method: Monitor Readings (Range in ppm): 0.0	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC VOC TCL SVOC TAL metals Pest/PCB DRO → 2	3 40ml VOA DI 2 40ml VOA MeOH 8oz ~~jars~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55145-011708
Sample Location: 55145
Sampled By: LA/MH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08 Time: 1330 Method: Monitor Reading (ppm): 0.0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	6-12	brown	fine grained sand (little), silt, some angular gravel up to 3in.

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC VOC GRO SVOC TAL metals PEST/PCB DRO → 2	3 40ml VOA DI 2 40ml VOA MeOH 8oz jars		

OBSERVATIONS / NOTES:

trash and debris at sample location

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55146-01708
Sample Location: 55146
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1030	6-12	Brown	SA-A gravel up to 3" some cobbles + Med Sand + Silt.
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see above	
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC Grd	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO → 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: SS147-011708
Sample Location: SS147
Sampled By: RC
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1315	6-12	Brown	Silt little Clay Gravel upto 1in + F SAND
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	SAME	
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC (6)	8 40ml VOA DI	6	
VOC TCL (4)	2 40ml VOA MeOH	4	
SVOC TAL metals → (4)	8oz jars		
pest/PCB DRO			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.: #06

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00876

Sample ID No.: DA-55148-011708
Sample Location: 55148
Sampled By: LA/MH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1515	6-12	dark brown	silt
Method:			
Monitor Reading (ppm): OR			

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	see above	
Monitor Readings (Range in ppm): Not collected OR				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

OR P.I.D. stopped working, no reading was collected

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55149-011708
Sample Location: 55149
Sampled By: LA/MH
C.O.C. No.:

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/17/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1430	6-12	brown	Medium grained sandy gravel with some silt
Method:			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date: 1/17/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
Pest/PCB DRO > 2			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55152-0116 08
Sample Location: 55152
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0825	6-12	brown	silt, trace fine-grained sand
Method:			
Monitor Reading (ppm): 0.2*			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:		4-8	see	above
Monitor Readings (Range in ppm): 0.0-0.2*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO pH TOC → 2			
toxicity	1 gallon bucket		
grain size	1 liter nalgene		

OBSERVATIONS / NOTES:

* Background PID reading was up to 0.2 ppm

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lori Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: RI-Site 08 NUSC DA
Project No.: 112G00816

Sample ID No.: DA-55153-011608
Sample Location: 55153
Sampled By: LA/MH
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1/16/08	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0920	6-12	brown	fine-grained sandy silt, some rounded gravel up to 3in.
Method:			
Monitor Reading (ppm): 0.2*			

COMPOSITE SAMPLE DATA:

Date: 1/16/08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		4-8	see	above
Method:				
Monitor Readings (Range in ppm): 0.0-0.2*				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 40ml VOA DI		
VOC TCL	2 40ml VOA MeOH		
SVOC TAL metals	8oz jars		
pest/PCB DRO pH TOC → 2			
Grain Size	1 liter Nalgene		
TOXICITY	1 gal bucket		

OBSERVATIONS / NOTES:

earthworm found
*background P.I.D. is up to 0.2ppm

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Lori Anderson

APPENDIX D.5

FIELD MODIFICATION RECORDS

Field Modification Record Summary
Remedial Investigation
Site 08, NUSC Disposal Area
Naval Station Newport, Rhode Island

FMR No.	date	Summary
1	4/24/2007	Benthic samping will be modified to focus on sediment.
2	7/12/2007	Sediment sampling locations moved due to change in streambed.
3	7/17/2007	SD-117 had to be moved due to field conditions.
4	7/30/2007	Moved 3 surface soil locations (SS-105B, SS120B and SS-119B) due to field condtions/access.
5	1/7/2008	Hexane and nitric acid deleted from decon procedure.
6	1/9/2008	Surface soil samples at unpaved locations were collected prior to DPT and conventional drilling.
7	1/15/2008	Location SS153 was moved to the cleared area due to access issues.
8	1/16/2008	PAH in soil and lead in sediment were collected prior to other analyses.
9	1/22/2008	Otto fuel analysis is not available, TICs for SVOC analysis will be evaluated for Otto fuel components
10	1/29/2008	Surface water samples were collected at 8 targeted locations based on lead results in sediment samples.
11	2/10/2008	13 Test pits were excavated after geophysical investigation to identify anamolies, some DPT locations were moved.
12	2/14/2008	Table 3-2 incorrectly identifies field parameters for surface water.
13	2/7/2008	Added soil sample at depth of drum at TP-103 to evaluate soil under a discovered drum.
14	2/28/2008	Attempted additional soil sample from SB-132 at drum depth in TP-103
15	2/27/2008	Additional soil sample from SB-133 (1-3 ft bgs) at depth of drum found in TP-105.
16	6/12/2009	Sediment sampling methodology modification - field conditions did not permit the completion of a secondary hole.
17	10/16/2009	Collection of sediment sample SD-134 (requested by RIDEM) at suspected Bldg. 185 Complex Area 1 former discharge location.
18		
19		
20		
21		
22		
23		

TETRA TECH NUS, INC. FIELD MODIFICATION RECORD

Project: Phase 1 Remedial Investigation, Site 08-NUSC Disposal No: 001

Site Name: Site 08 – NUSC Disposal Area Location: Newport/Middletown, RI

Project Number: 112G00816 Task Assignment:

To: James Forrelli Location: Wilmington, MA Date: 4/24/07

Description: Reference: Sec. 3.2; Work Plan for Remedial Investigation Revision 2 for Site 08-NUSC (Jan. 2007)

The benthic macroinvertebrate sampling will be modified to focus the sampling on sediment at each location and not the aquatic/vegetation habitat as described. The appropriate sampling device will be determined after selection and evaluation of locations.

Reason for Change: Per discussions with RIDEM and Navy during April 24, 2007 conference call.

Recommended Action: Sample sediments for benthic macroinvertebrates.

Allow RIDEM to review location and sampling device selections prior to sample collections.

Field Operations Leader (Signature): Date: 04/24/07

Disposition/Action:

Project Manager (Signature): J. K. Forrelli Date:

Distribution:

		Others as Required:
Program Manager:	G. Glenn	
Project Manager:	J. Forrelli	
Quality Assurance Officer:	L. Guzman	
Field Operations Leader:	K. O'Neill	
Project File:	0816-2.5	

TtNUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (2)

Site Name: Site 8 Disposal Area Location: Naval Station Newport

Project Number: 00816 Task Assignment: Sediment Sampling

To: Jim Forrelli Location: Wilmington, MA Date: 7/12/07

Description: Location of sediment sampling points along the Deerfield Creek section of the investigation had to be changed

Reason for Change: The creek bed has changed and no longer meets the Unnamed Tributary. Due to heavy vegitative cover, the GPS was not working.

Recommended Action: Sediment sample Locations will be scaled off the map. The new locations will be GPS'ed in later.

Field Operations Leader (Signature): [signature] Date: 7/12/07

Disposition/Action:

Project Manager (Signature): James R Franklin Date: 8/6/2007

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

Tt NUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (3)

Site Name: Site 8 Disposal Area Location: Naval Station Newport

Project Number: 00816 Task Assignment: sediment sampling

To: Jim Fucelli Location: Wilmington MA Date: 7/17/07

Description: Sediment sample location SD-117 could not be safely collected from the GPS'ed location

Reason for Change: The water was to shallow to get the boat in and the bottom was to soft to get to walk to the location

Recommended Action: The sample location will be moved during future sampling activities

Field Operations Leader (Signature): [signature] Date: 7/17/07

Disposition/Action:

Project Manager (Signature): James R Faulkner Date: 8/6/2007

Distribution: Program Manager: _____ Others as Required: _____

Project Manager: _____ _____

Quality Assurance Officer: _____ _____

Field Operations Leader: _____ _____

Project File: _____ _____

Tt NUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (4)

Site Name: Site 8 Disposal Area Location: Naval Station Newport

Project Number: 00816 Task Assignment: Surface Soil Sampling

To: Jim Forrelli Location: Wilmington, MA Date: 7/30/07

Description: Moving three surface soil/monitoring well locations SS-105B, SS-120B and SS-119B

Reason for Change: SS-105B was relocated to allow access for a drill rig, SS-119B was moved due to bees in the original location, SS-120B was moved due to large soil piles from the new parking lot

Recommended Action: SS-105B was moved to the top of the embankment to allow access. SS-119B was moved 10 feet north of the orginal location to allow access. SS-120B was moved 35 feet south to allow for access for the drill rig and an at grade sample location

Field Operations Leader (Signature): [signature] Date: 7/30/07

Disposition/Action:

Project Manager (Signature): James R Forsythe Date: 8/6/2007

Distribution: Program Manager:
Project Manager:
Quality Assurance Officer:
Field Operations Leader:
Project File:

Others as Required:

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (5)

Site Name: Site 08 Disposal Area Location: Naval Sta Newport

Project Number: 00816 Task Assignment:

To: Jim Forelli Location: Wilmington MA Date: 1-7-08

Description: Section 3.3.4 Decon procedures include hexane + Nitric acid rinse

Reason for Change: hexane is only used for sites w/ high concentrations of PCBs - Nitric can produce metals contamination from sample equipment

Recommended Action: Skip hexane + Nitric acid - just use ISOpropanol

Field Operations Leader (Signature): Robert Clark Date: 1-10-08

Disposition/Action:

Project Manager (Signature): J R Forelli Date:

Distribution: Program Manager:
Project Manager:
Quality Assurance Officer:
Field Operations Leader:
Project File:

Others as Required:

Tt NUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (6)

Site Name: Site 08 Disposal Area Location: Naval Sta Newport

Project Number: 00816 Task Assignment: Surf Soil Samples

To: Jim Forrelli Location: Wilmington MA Date: 1-9-08

Description: Surface Soil Samples at DPT & MW locations. at unpaved locations

Reason for Change: Surface Soil Samples were to be collected w/ DPT or drill rig.

Recommended Action: Surface Soil Samples were collected prior to DPT & drilling. at unpaved locations

Field Operations Leader (Signature): Rob Cl Date: 1-9-08

Disposition/Action:

Project Manager (Signature): J Forrelli Date: _____

Distribution: Program Manager: _____ Others as Required:

Project Manager: _____

Quality Assurance Officer: _____

Field Operations Leader: _____

Project File: _____

Tt NUS Form 0003

TETRA TECH NUS, INC.

FIELD MODIFICATION RECORD (7)

Site Name: Site 08 Disposal Area Location: Naval Station Newport

Project Number: 00816 Task Assignment: Surface Soil Sampling

To: Jim Forselli Location: Wilmington MA Date: 1-15-08

Description: Moved location SS153 to cleared area - could not access GPS location of SS153 due to thick brush

Reason for Change: Could not access location due to thick brush

Recommended Action: Discussed w/ PM - OK to move location 30 to 40 ft. from where GPS said it should be

Field Operations Leader (Signature): [signature] Date: 1-15-08

Disposition/Action:

Project Manager (Signature): [signature] Date:

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

TtNUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (8)

Site Name: Site 08 Disposal area Location: Naval Station Newport
Project Number: 00816 Task Assignment: Surface Soil
To: Jim Forrelli Location: Wilmington MA Date: 1-16-08

Description: PAH in Soil and lead in Sediment Samples were collected July 2007

Reason for Change: Due to concerns about reaching consensus on the benthic sampling program Sediment Samples were collected for lead only analysis with full suite analysis to be collected after concerns are addressed.

Recommended Action: Only targeted locations were selected for full suite analysis based on PAH/lead results.

Field Operations Leader (Signature): [signature] Date: _____

Disposition/Action:

Project Manager (Signature): [signature] Date: _____

Distribution:
Program Manager: _____
Project Manager: _____
Quality Assurance Officer: _____
Field Operations Leader: _____
Project File: _____

Others as Required:
_____
_____
_____
_____

Tt NUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (9)

Site Name: Site 08 Disposal area Location: Naval Station Newport

Project Number: 00816 Task Assignment:

To: Jim Forcelli Location: Wilmington MA Date: 1-22-08

Description: Samples for Otto fuel

Reason for Change: Otto fuel analysis not available
Main components of Otto fuel are propylene glycol dinitrate, 2-nitrodiphenylamine + Dibutyl Sebacate

Recommended Action: 20 SVOC tics will be identified by the lab to see if they are the Otto fuel components

Field Operations Leader (Signature): [signature] Date: 1-22-08

Disposition/Action:

Project Manager (Signature): [signature] Date:

Distribution:
- Program Manager:
- Project Manager:
- Quality Assurance Officer:
- Field Operations Leader:
- Project File:

Others as Required:

Tt NUS Form 0003

TETRA TECH NUS, INC.

FIELD MODIFICATION RECORD

(10)

Site Name: Site 08 Disposal Area Location: Naval Sta. Newport

Project Number: 00816 Task Assignment: Surface Water Sampling

To: Jim Forrelli Location: Wilmington MA Date: 1-29-08

Description: Collect 33 surface water samples - with 15 analyzed based on lead in Sediment.

Reason for Change: Sediment samples were analyzed for lead in July 2007.

Recommended Action: Surface water samples were collected at 8 targeted locations based on lead analysis - 14 locations had grab field parameters collected. Police

Field Operations Leader (Signature): _____ Date: 1-29-08

Disposition/Action: _____

Project Manager (Signature): J. Frank Date: _____

Distribution:

		Others as Required:
Program Manager:	_____	
Project Manager:	_____	_____
Quality Assurance Officer:	_____	_____
Field Operations Leader:	_____	_____
Project File:	_____	_____

TtNUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (11)

Site Name: Site 08 Disposal Area Location: Naval Station Newport

Project Number: 00816 Task Assignment:

To: Jim Forrelli Location: Wilmington MA Date: 2/10/08

Description: Test pits were excavated at 13 locations after the geophysical investigation

Reason for Change: Anomalies identified during the geophysical investigations will be investigated with test pits

Recommended Action: NO DPT or new locations were deleted - but a few will be moved due to excavated test pits.

Field Operations Leader (Signature): [signature] Date: 2/10/08

Disposition/Action:

Project Manager (Signature): [signature] Date:

Distribution: Program Manager: Others as Required:

Project Manager:

Quality Assurance Officer:

Field Operations Leader:

Project File:

Tt NUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (12)

Site Name: Site 08 Disposal Area Location: Naval Sta. Newport

Project Number: 00846 Task Assignment: Surface water Samples

To: Tina Formelli Location: Wilmington MA Date: 2/14/08

Description: Table 3-2 states that field parameters for surface water include ammonia hardness & alkalinity

Reason for Change: Field parameters include Temperature DO, conductivity, pH, ORP & turbidity.

Recommended Action: Ammonia Alkalinity & hardness will be analyzed by the lab

Field Operations Leader (Signature): [signature] Date: 2/18/08

Disposition/Action:

Project Manager (Signature): [signature] Date:

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

Tt NUS Form 0003

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD 13

Site Name: Site 08 - NUSC Disposal Area Location: Naval Sta Newport

Project Number: 112G00933 Task Assignment: Test pits

To: Jim Forcelli Location: Wilmington MA Date: 2/7/08

Description: During excavation of TP-103 a corroded 55-gal drum was encountered.

Reason for Change: Soil Sample added to evaluate soil under drum

Recommended Action: Soil sample collected beneath drum and sent for laboratory analysis

Field Operations Leader (Signature): Police Date: 3/26/08

Disposition/Action:

Project Manager (Signature): JR Forcelli Date:

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD (14)

Site Name: Site 08 - NUSC Disposal Area Location: Naval Sta Newport

Project Number: 112600933 Task Assignment: DPT

To: Jim Forcelli Location: Wilmington MA Date: 3/28/08

Description: Advance SB132 near TP103 - Collect sample at depth 4-6 ft where drum was observed in TP103.

Reason for Change: Additional DPT near SB132 was needed to get closer to TP103 + drum location

Recommended Action: Attempted to advance additional DPT close to TP103 at drum depth - Could not get sample depth - abandoned attempt

Field Operations Leader (Signature): [signature] Date: 3/26/08

Disposition/Action:

Project Manager (Signature): [signature] Date:

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

TETRA TECH NUS INC.

FIELD MODIFICATION RECORD 15

Site Name: Site 08-NUSC Disposal Area Location: Naval Sta Newport

Project Number: 112G00933 Task Assignment: DPT

To: Jim Forrelli Location: Wilmington MA Date: 2/27/08

Description: A crushed corroded 55-gal drum was observed at 3/4 ft bgs at TP105 near SB133.

Reason for Change: Evaluate soil at depth of drum

Recommended Action: Additional Soil Sample collected at SB133 from 1-3 ft bgs.

Field Operations Leader (Signature): [signature] Date: 3/26/08

Disposition/Action:

Project Manager (Signature): [signature] Date:

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

TETRA TECH NUS, INC.

FIELD MODIFICATION RECORD

16

Site Name: NWSC Disposal Site -Site 08 Location: NAVSTA Newport

Project Number: CTO 402 112600816 Task Assignment: Sediment sampling

To: Jim Forrelli / Debra Seiker Location: Wilmington, MA Date: 6/12/09

Description: Sediment sampling methodology - secondary hole to be dug 1 ft into subsurface material - had to be changed

Reason for Change: Field conditions generally did not permit the completion of a secondary hole dug to 1 ft into the subsurface material. The sediment conditions at several locations consisted of rocky and gravelly sediment that would not allow for the completion of a secondary hole. Several repeated grabs were necessary to collect the required sample volume at all stream and creek locations. At pond locations where a ponar dredge was used, 1 ft of sediment was observed in the recovered sediment.

Recommended Action: Recommend eliminating the requirement for a secondary hole. Evidence of contamination will be noted during sediment collection efforts.

Field Operations Leader (Signature): Tim A. Cuphell Date: 6/12/09

Disposition/Action: Approved.

Project Manager (Signature): JR Forrelli Date: 6/12/09

Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

TtNUS Form 0003

TETRA TECH NUS, INC.

FIELD MODIFICATION RECORD

17

Site Name: NUSC Disposal Site -Site 08 Location: NAVSTA Newport

Project Number: CTO 402 112G00816 Task Assignment: Sediment Sampling

To: Jim Forrelli / Dabra Seiken Location: Wilmington, MA Date: 10/16/09

Description: Re-assign the correct sample identification number to the sediment sample collected at location SD-134 on May 20, 2008, which was inadvertently assigned the same identification (ID) number as nearby sample location SD-01.

Reason for Change: Incorrect sample ID number assigned. Originally, the sample at SD-134 was labelled SD-01; however, SD-01 location is approximately 33 feet west of SD-134.

Recommended Action: Correct all field records and other documentation related to the sediment sample collected May 20, 2008 which was labelled SD-01 in the field. (Revise to SD-134.)

Field Operations Leader (Signature): _____ Date: _____

Disposition/Action: _____

Project Manager (Signature): James R Forrelli Date: _____

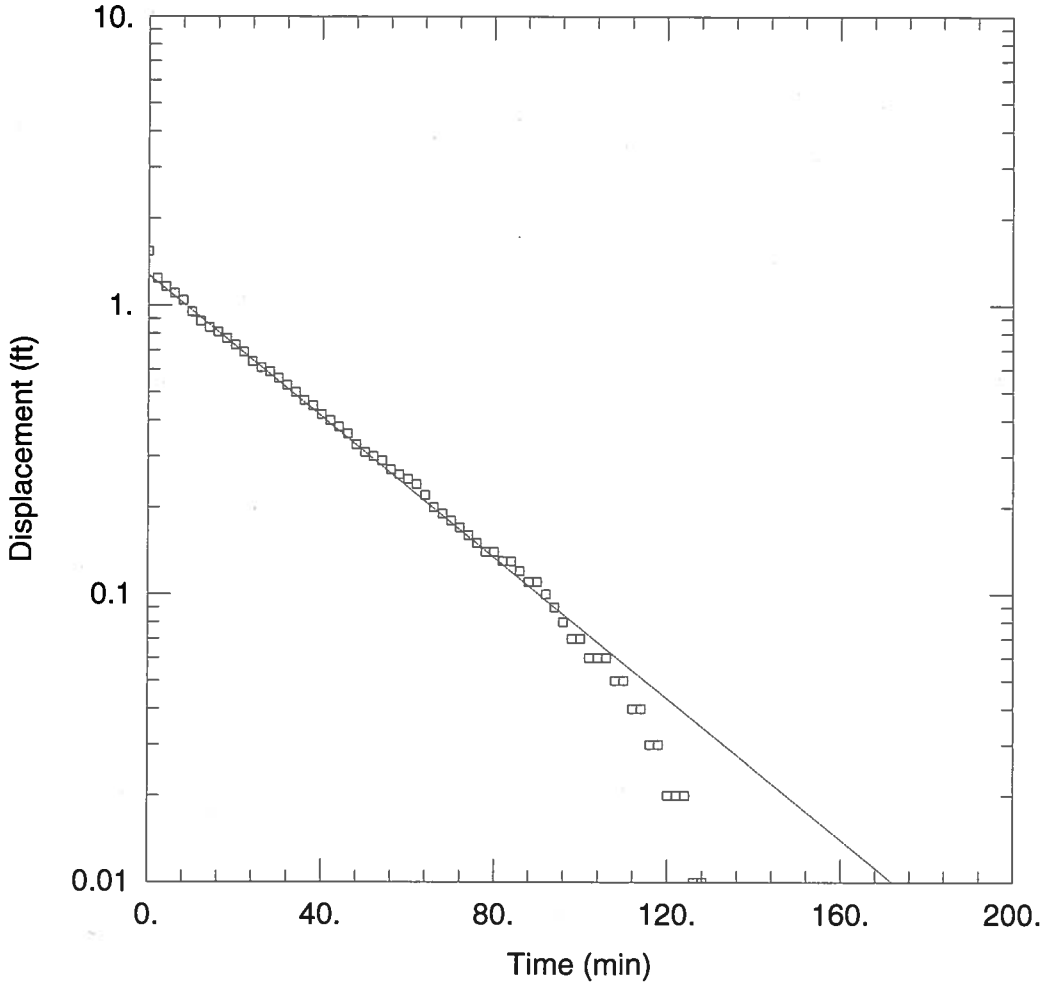
Distribution:

		Others as Required:
Program Manager:		
Project Manager:		
Quality Assurance Officer:		
Field Operations Leader:		
Project File:		

TtNUS Form 0003

APPENDIX D.6

HYDRAULIC CONDUCTIVITY TESTING RESULTS



WELL TEST ANALYSIS

Data Set: O:\...\MW101B.aqt
Date: 03/11/09 Time: 16:07:13

PROJECT INFORMATION

Test Well: MW-101B

AQUIFER DATA

Saturated Thickness: 38.63 ft Anisotropy Ratio (Kz/Kr): 0.1

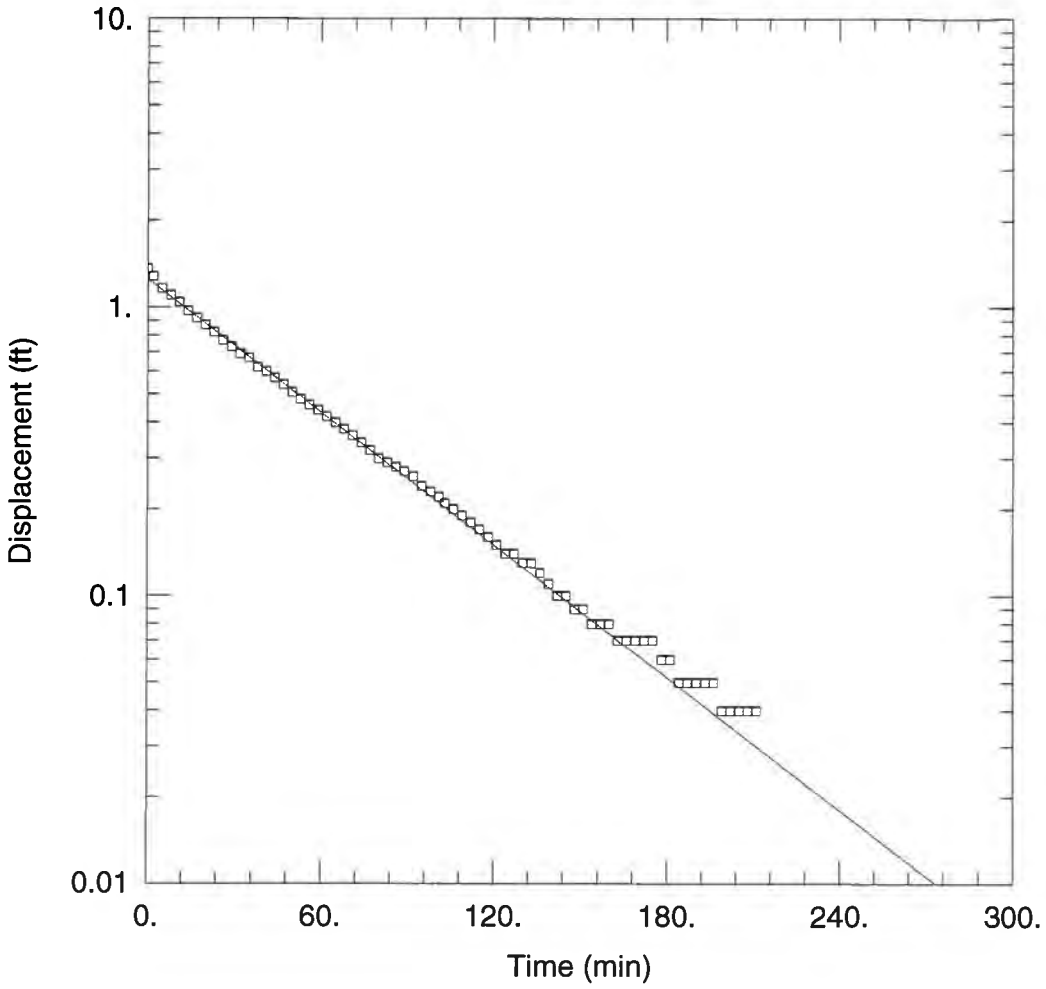
WELL DATA (MW101B)

Initial Displacement: 1.54 ft
Total Well Penetration Depth: 38.63 ft
Casing Radius: 0.15 ft
Static Water Column Height: 38.63 ft
Screen Length: 38.63 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.821E-5 cm/sec y0 = 1.275 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW102B.aqt
Date: 03/11/09 Time: 16:07:16

AQUIFER DATA

Saturated Thickness: 30.67 ft Anisotropy Ratio (Kz/Kr): 0.1

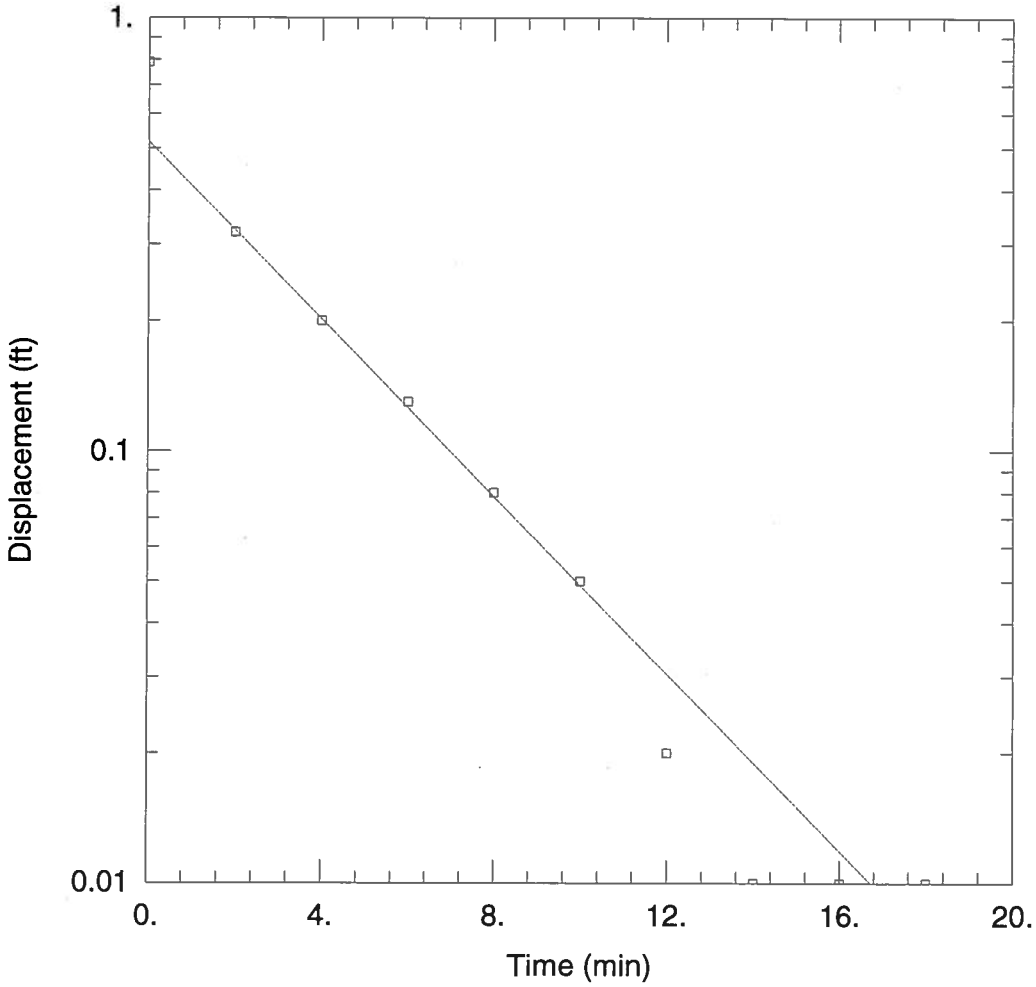
WELL DATA (MW-102B Falling)

Initial Displacement: 1.36 ft
Total Well Penetration Depth: 30.67 ft
Casing Radius: 0.15 ft
Static Water Column Height: 30.67 ft
Screen Length: 30. ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.793E-5 cm/sec y0 = 1.254 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW103B.aqt
Date: 03/11/09 Time: 16:07:20

AQUIFER DATA

Saturated Thickness: 34.38 ft Anisotropy Ratio (Kz/Kr): 0.1

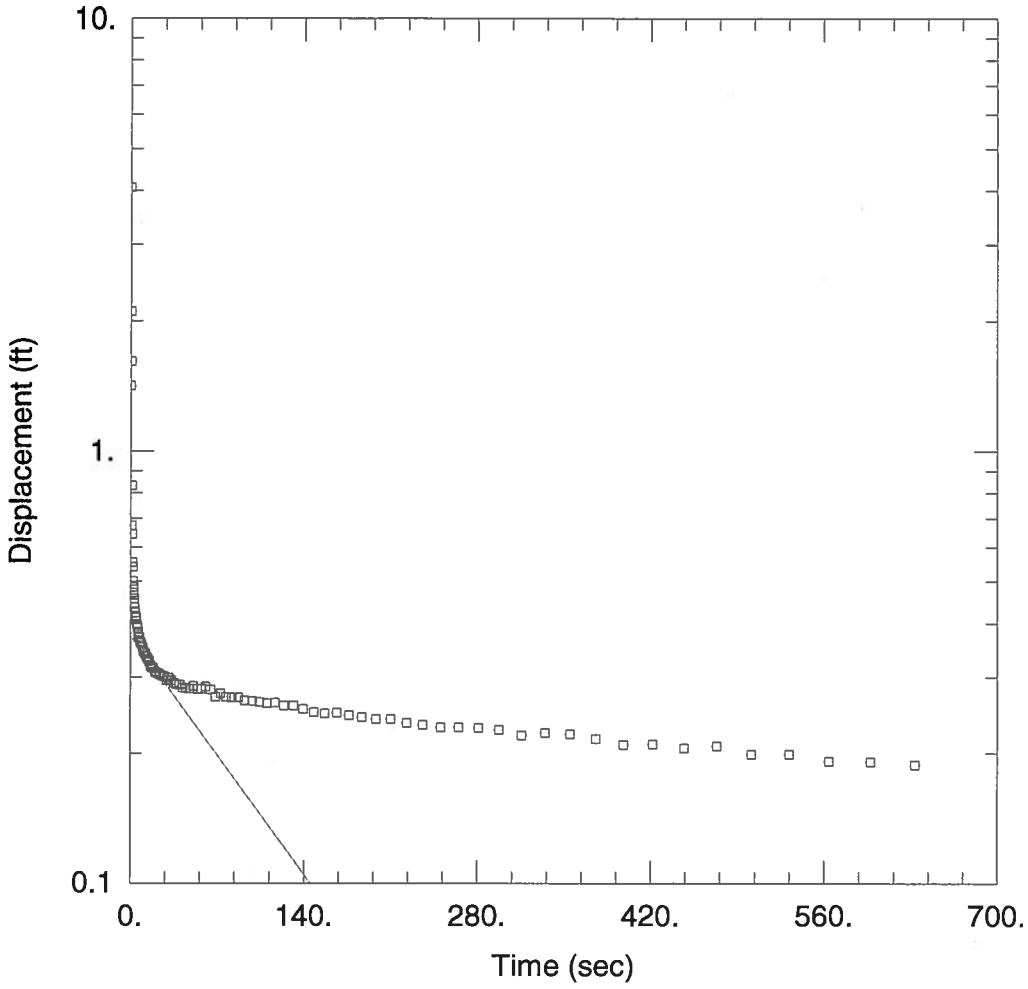
WELL DATA (MW-103B)

Initial Displacement: 0.79 ft
Total Well Penetration Depth: 34.38 ft
Casing Radius: 0.15 ft
Static Water Column Height: 34.38 ft
Screen Length: 30. ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.000243 cm/sec y0 = 0.5181 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW103S F.aqt
Date: 03/12/09 Time: 11:39:02

AQUIFER DATA

Saturated Thickness: 17.42 ft Anisotropy Ratio (Kz/Kr): 0.1

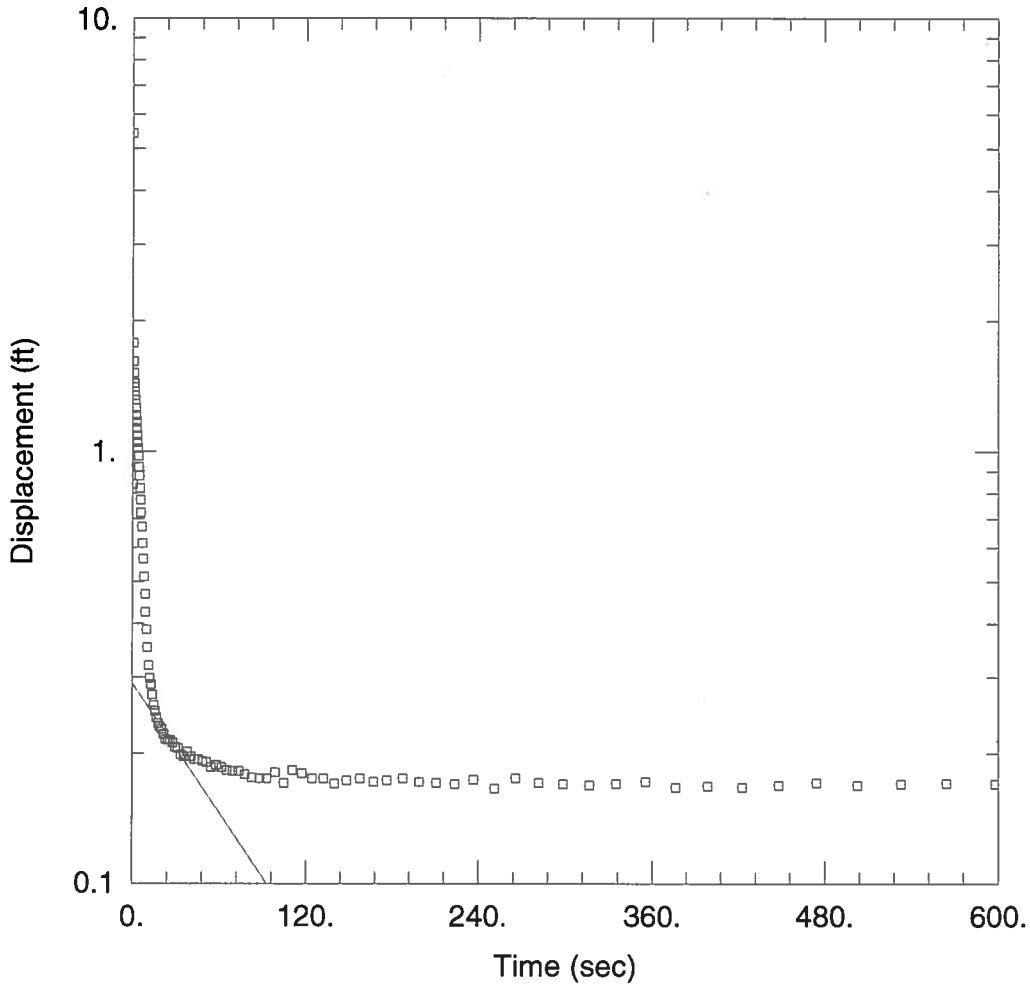
WELL DATA (MW-103S F)

Initial Displacement: 4.064 ft
Total Well Penetration Depth: 17.42 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.42 ft
Screen Length: 5. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007104 cm/sec y0 = 0.3741 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW103S R.aqt
Date: 03/12/09 Time: 11:39:06

AQUIFER DATA

Saturated Thickness: 17.24 ft Anisotropy Ratio (Kz/Kr): 0.1

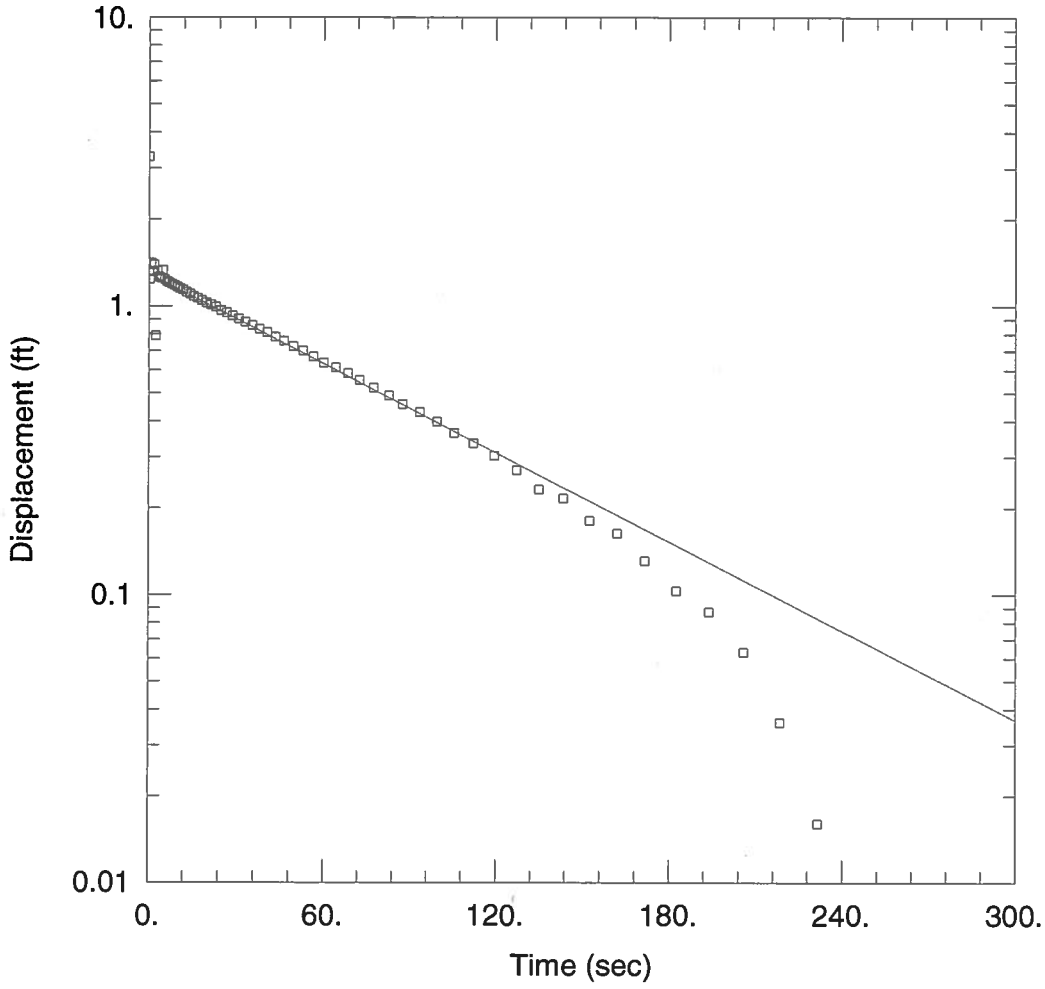
WELL DATA (MW-103S R)

Initial Displacement: 5.43 ft
Total Well Penetration Depth: 17.24 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.24 ft
Screen Length: 5. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0008989 cm/sec y0 = 0.2912 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW104B F.aqt
Date: 03/12/09 Time: 11:21:35

AQUIFER DATA

Saturated Thickness: 18.3 ft Anisotropy Ratio (Kz/Kr): 0.1

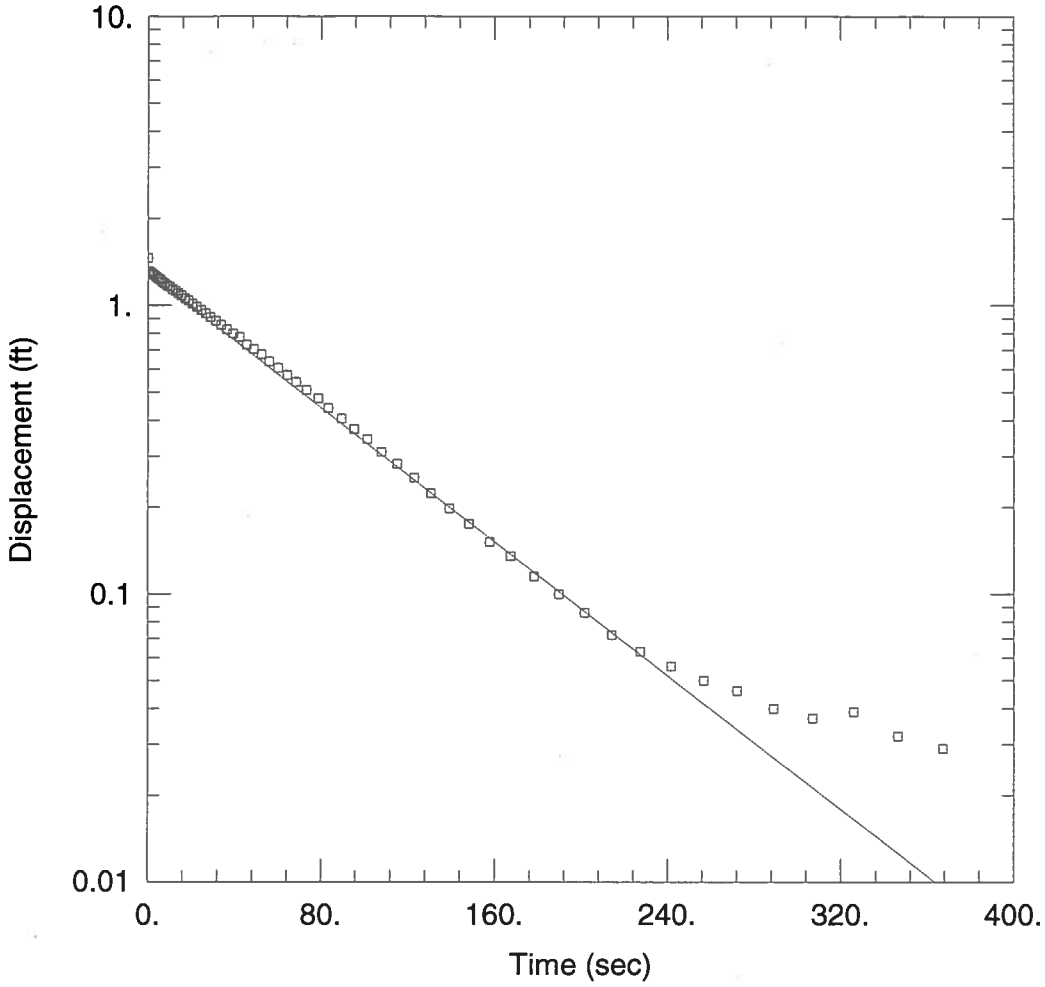
WELL DATA (MW-104B F)

Initial Displacement: 3.289 ft
Total Well Penetration Depth: 18.3 ft
Casing Radius: 0.15 ft
Static Water Column Height: 18.3 ft
Screen Length: 18.3 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0008234 cm/sec y0 = 1.286 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW104B R.aqt
Date: 03/12/09 Time: 11:21:33

AQUIFER DATA

Saturated Thickness: 18.61 ft Anisotropy Ratio (Kz/Kr): 0.1

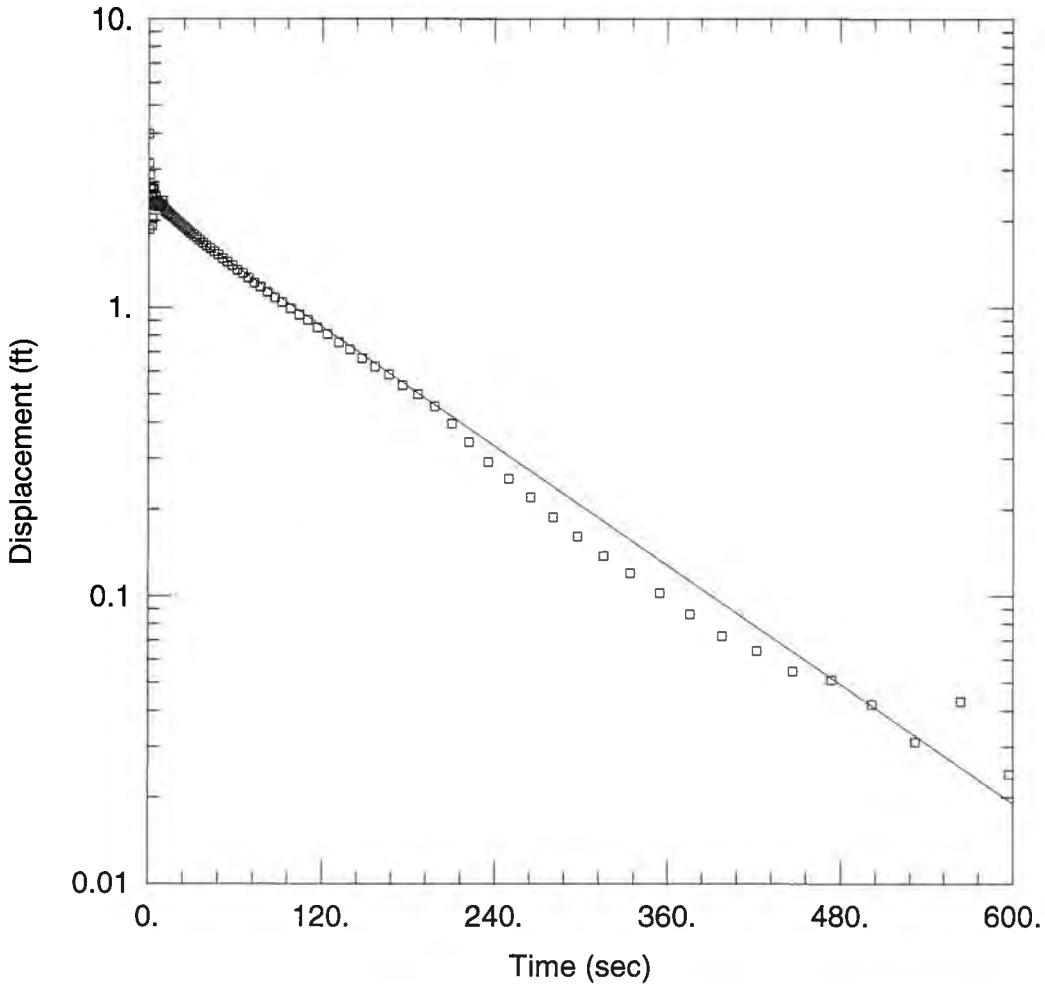
WELL DATA (MW-104B R)

Initial Displacement: 1.458 ft
Total Well Penetration Depth: 18.61 ft
Casing Radius: 0.15 ft
Static Water Column Height: 18.61 ft
Screen Length: 18.61 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0009157 cm/sec y0 = 1.285 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW106S F.aqt
Date: 03/12/09 Time: 10:43:54

AQUIFER DATA

Saturated Thickness: 3.396 ft Anisotropy Ratio (Kz/Kr): 0.1

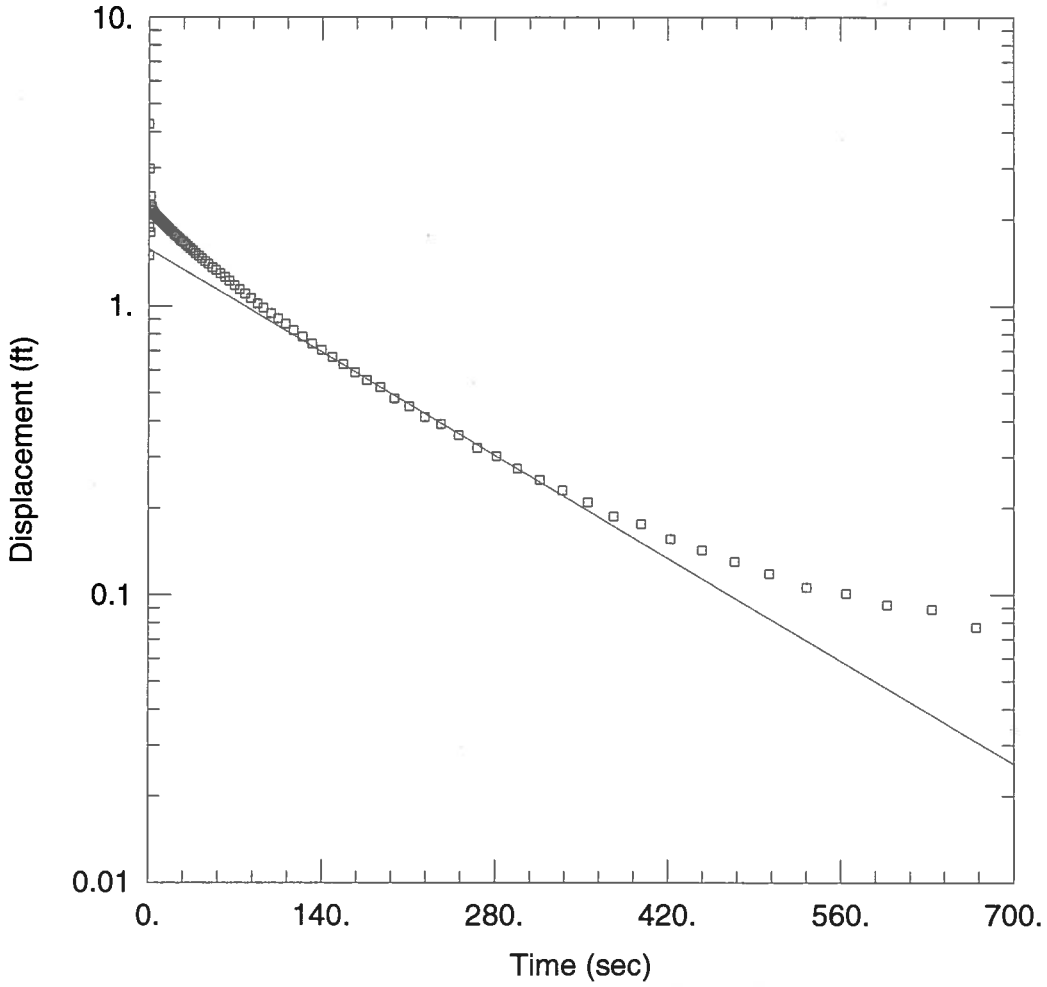
WELL DATA (MW-106S F)

Initial Displacement: 3.983 ft
Total Well Penetration Depth: 3.396 ft
Casing Radius: 0.083 ft
Static Water Column Height: 3.396 ft
Screen Length: 3.396 ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0004102 cm/sec y0 = 2.22 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW106S R.aqt
Date: 03/12/09 Time: 10:44:31

AQUIFER DATA

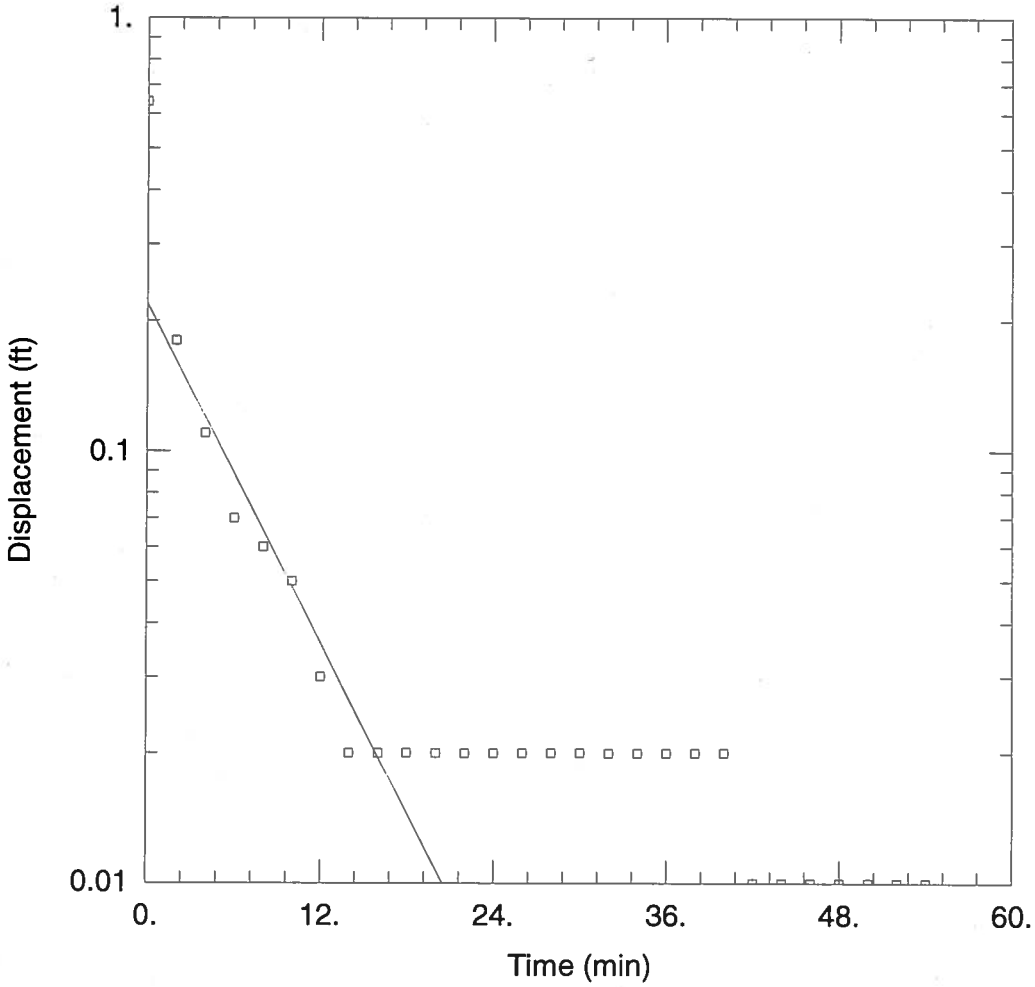
Saturated Thickness: 3.378 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-106S R)

Initial Displacement: 4.262 ft
Static Water Column Height: 3.378 ft
Total Well Penetration Depth: 3.378 ft
Screen Length: 3.378 ft
Casing Radius: 0.083 ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003046 cm/sec
y0 = 1.576 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW106B .aqt
Date: 03/11/09 Time: 16:07:26

AQUIFER DATA

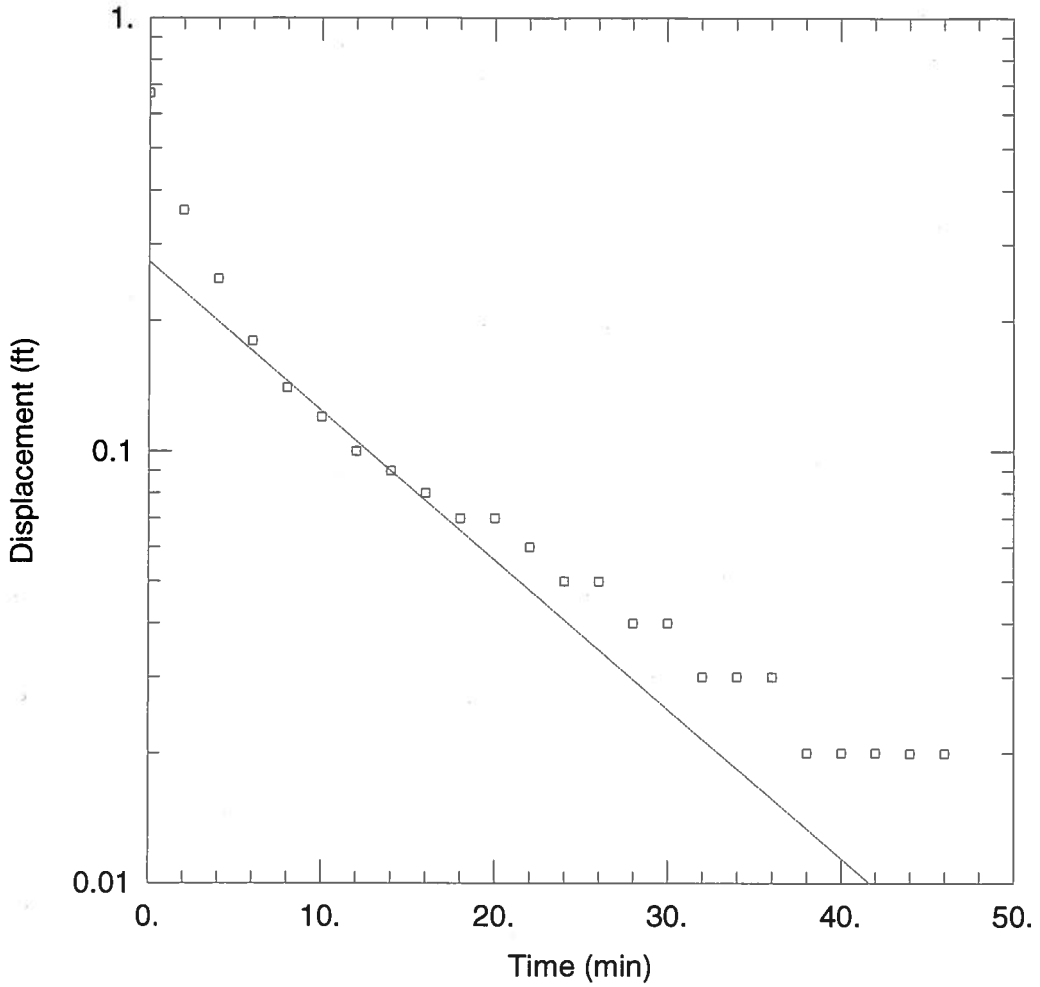
Saturated Thickness: 45.89 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-106B Falling)

Initial Displacement: 0.64 ft
Total Well Penetration Depth: 45.89 ft
Casing Radius: 0.15 ft
Static Water Column Height: 45.89 ft
Screen Length: 30. ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001615 cm/sec
y0 = 0.2193 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW107B.aqt
Date: 03/11/09 Time: 16:30:34

AQUIFER DATA

Saturated Thickness: 38.44 ft Anisotropy Ratio (Kz/Kr): 0.1

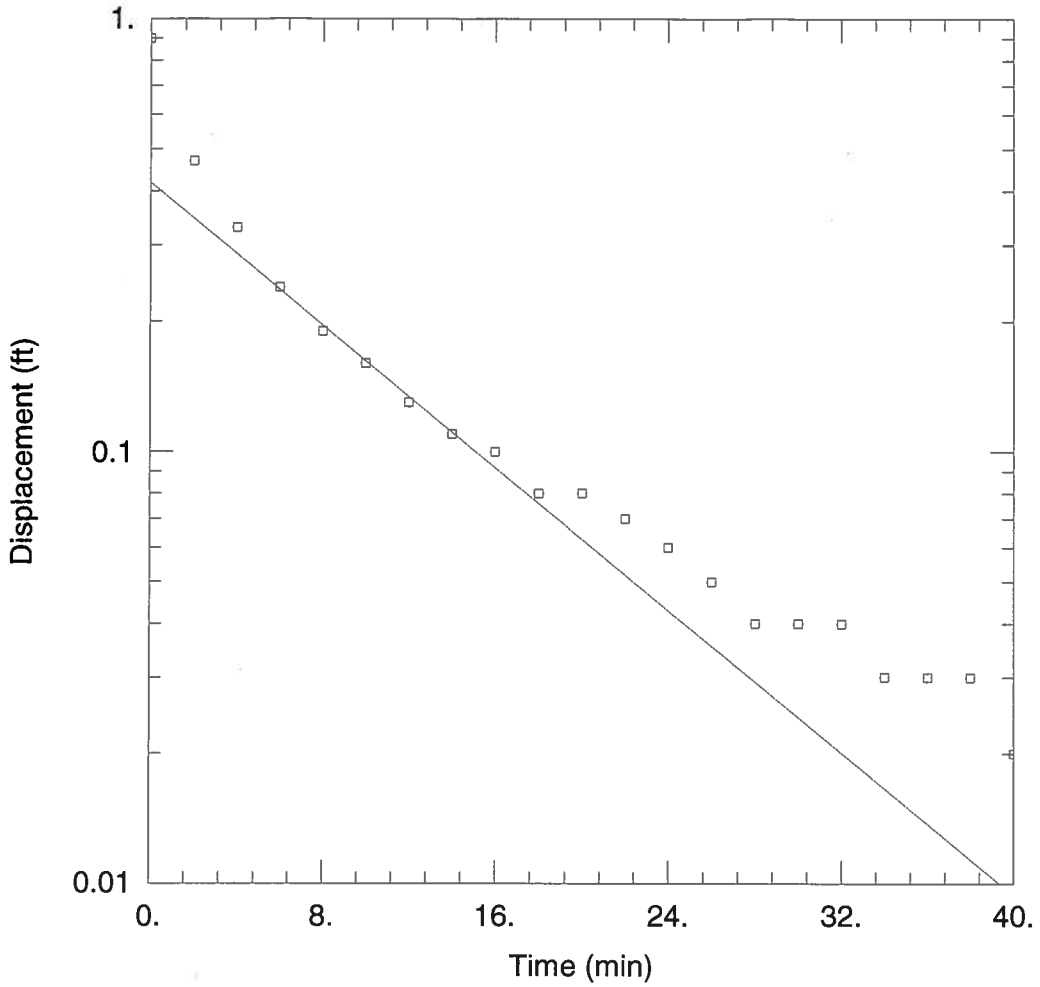
WELL DATA (MW-107B Falling)

Initial Displacement: 0.67 ft
Total Well Penetration Depth: 38.44 ft
Casing Radius: 0.15 ft
Static Water Column Height: 38.44 ft
Screen Length: 30. ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 8.313E-5 cm/sec y0 = 0.2741 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW109B.aqt
Date: 03/11/09 Time: 16:30:42

AQUIFER DATA

Saturated Thickness: 38.07 ft Anisotropy Ratio (Kz/Kr): 0.1

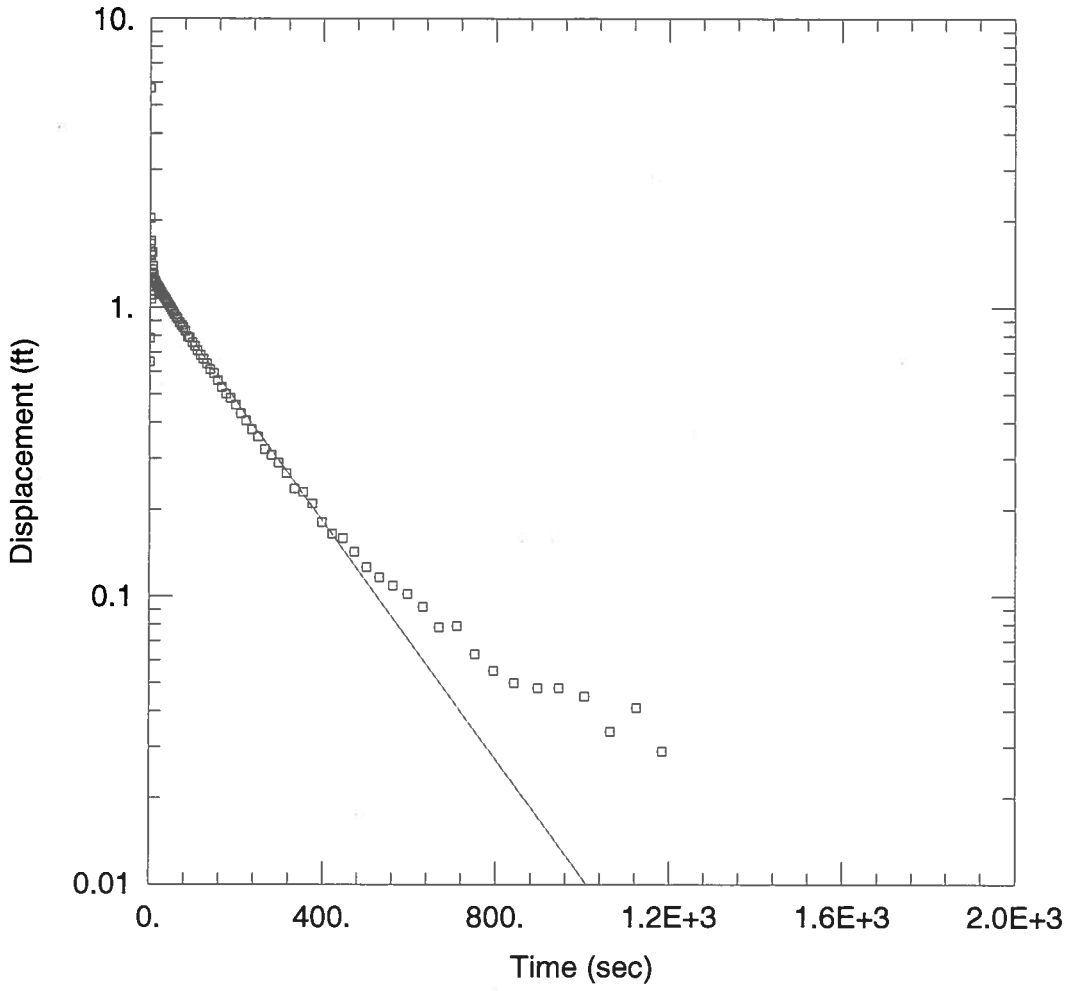
WELL DATA (MW-109B Falling)

Initial Displacement: 0.9 ft
Total Well Penetration Depth: 38.07 ft
Casing Radius: 0.15 ft
Static Water Column Height: 38.07 ft
Screen Length: 30. ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 9.911E-5 cm/sec y0 = 0.4186 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW110B F.aqt
Date: 03/12/09 Time: 11:36:25

AQUIFER DATA

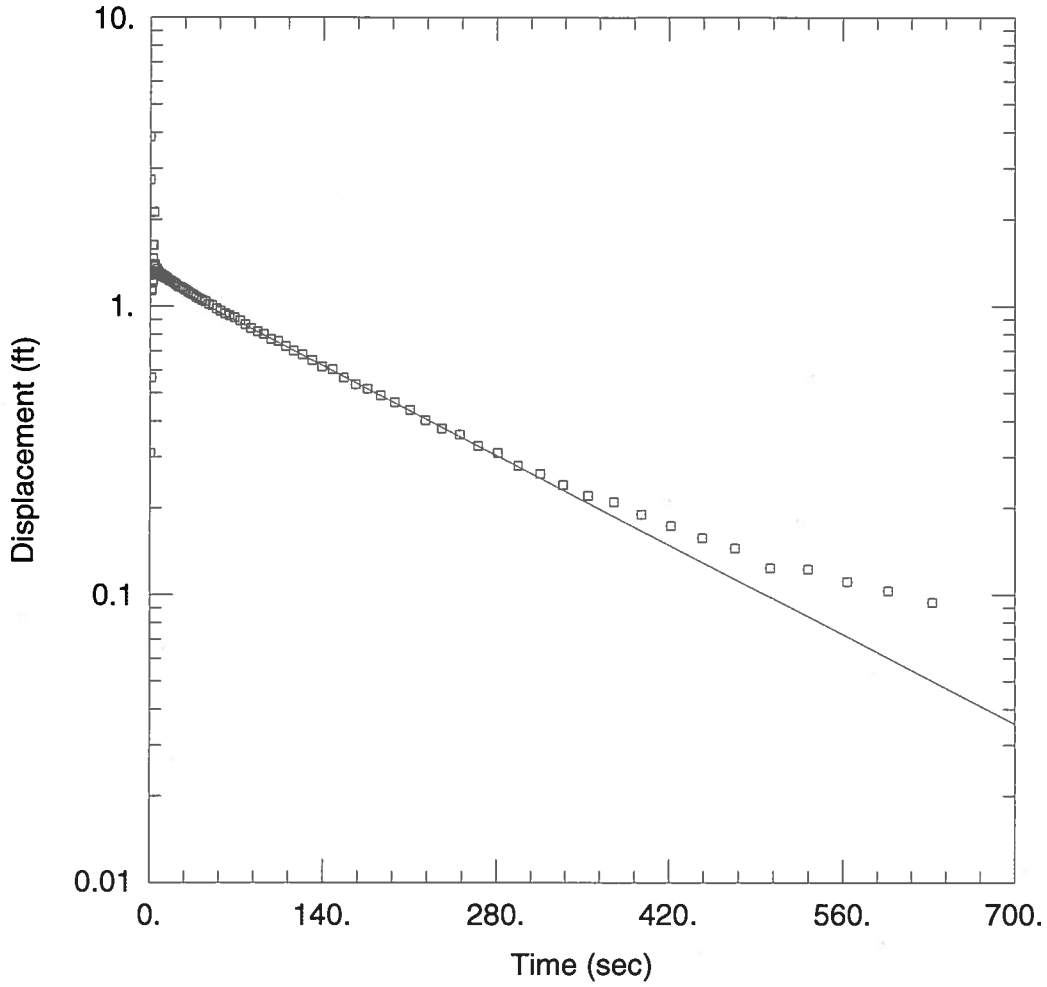
Saturated Thickness: 15.08 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-110B F)

Initial Displacement: 5.727 ft
Total Well Penetration Depth: 15.08 ft
Casing Radius: 0.15 ft
Static Water Column Height: 15.08 ft
Screen Length: 15.08 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003841 cm/sec
y0 = 1.222 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW110B R.aqt
Date: 03/12/09 Time: 11:22:07

AQUIFER DATA

Saturated Thickness: 15.05 ft Anisotropy Ratio (Kz/Kr): 0.1

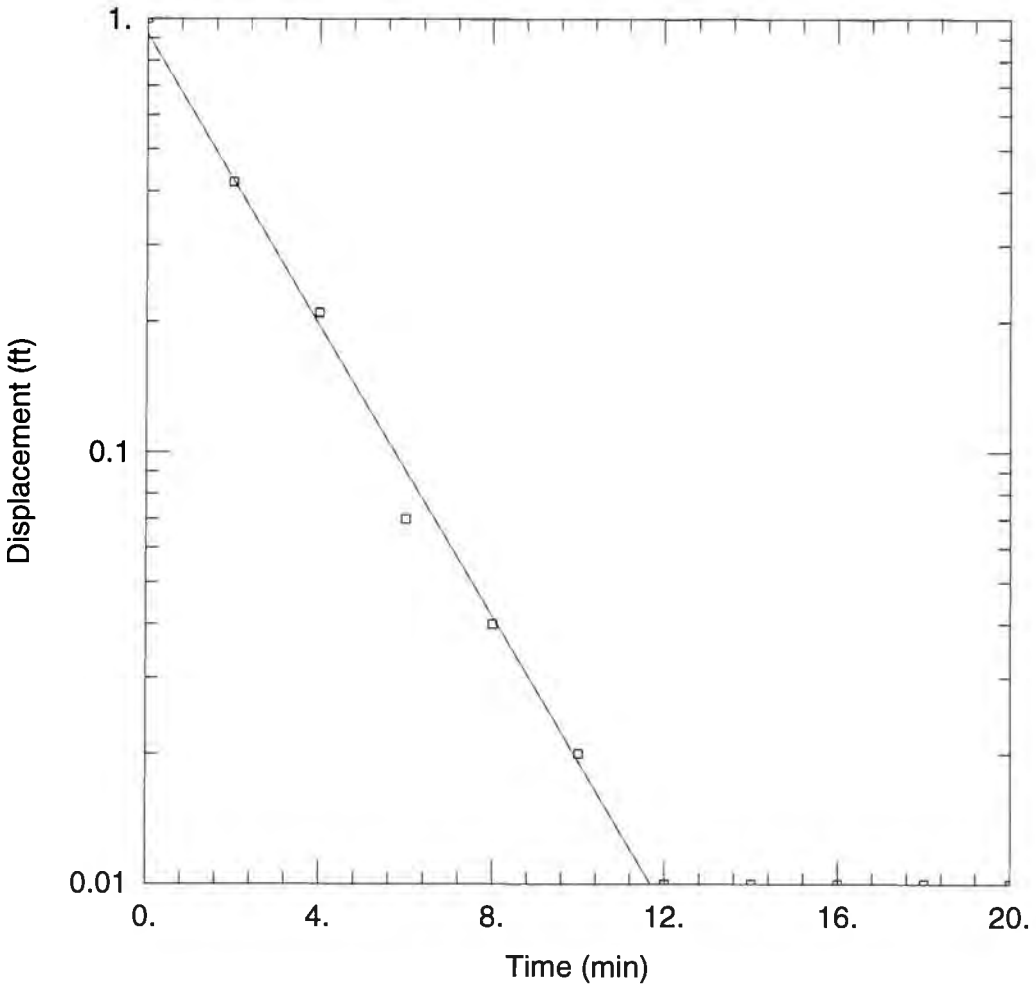
WELL DATA (MW-110B R)

Initial Displacement: 3.865 ft
Total Well Penetration Depth: 15.05 ft
Casing Radius: 0.15 ft
Static Water Column Height: 15.05 ft
Screen Length: 15.05 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0004127 cm/sec
y0 = 1.268 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW111B.aqt
Date: 03/11/09 Time: 16:31:17

AQUIFER DATA

Saturated Thickness: 32.08 ft Anisotropy Ratio (Kz/Kr): 0.1

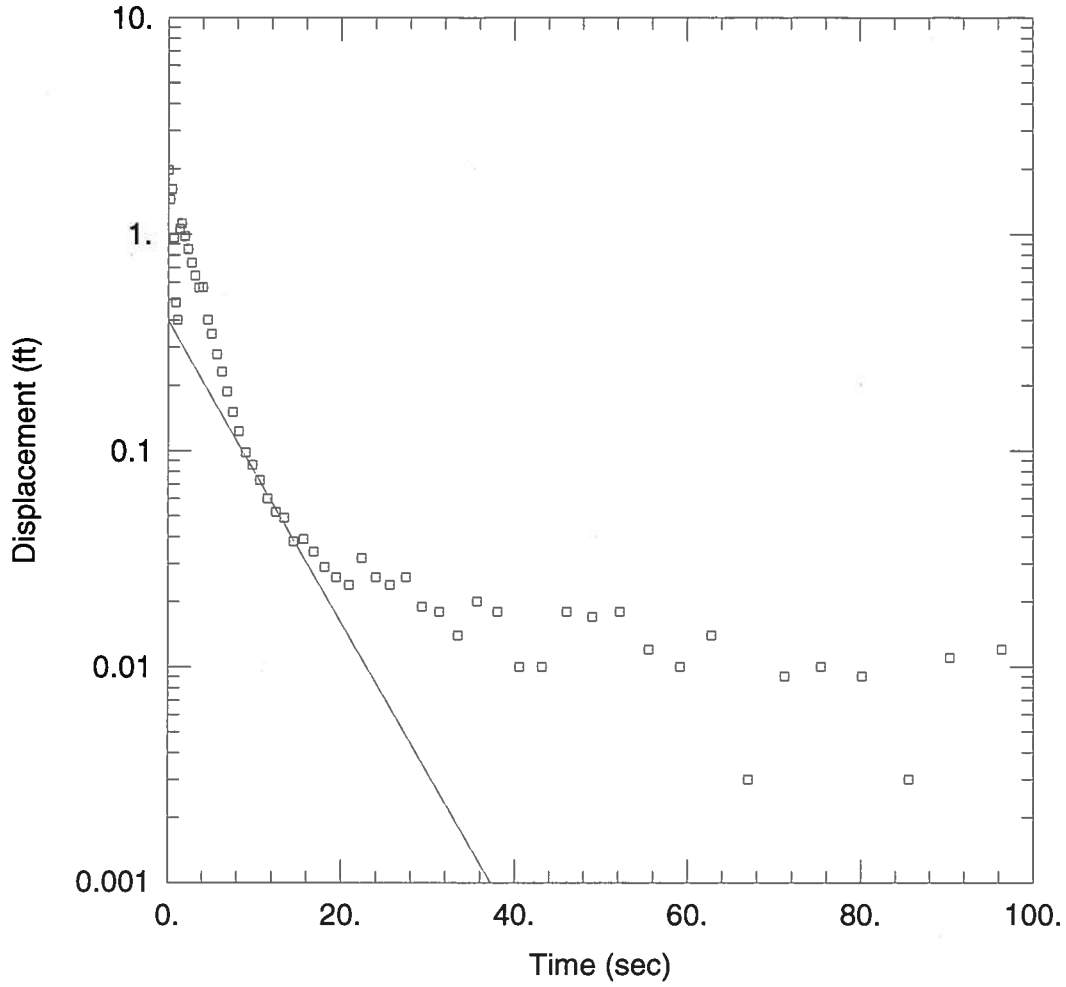
WELL DATA (MW-111B Falling)

Initial Displacement: 1. ft
Total Well Penetration Depth: 32.08 ft
Casing Radius: 0.15 ft
Static Water Column Height: 32.08 ft
Screen Length: 30. ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0003949 cm/sec
y0 = 0.922 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW114B R.aqt
Date: 03/12/09 Time: 11:21:40

AQUIFER DATA

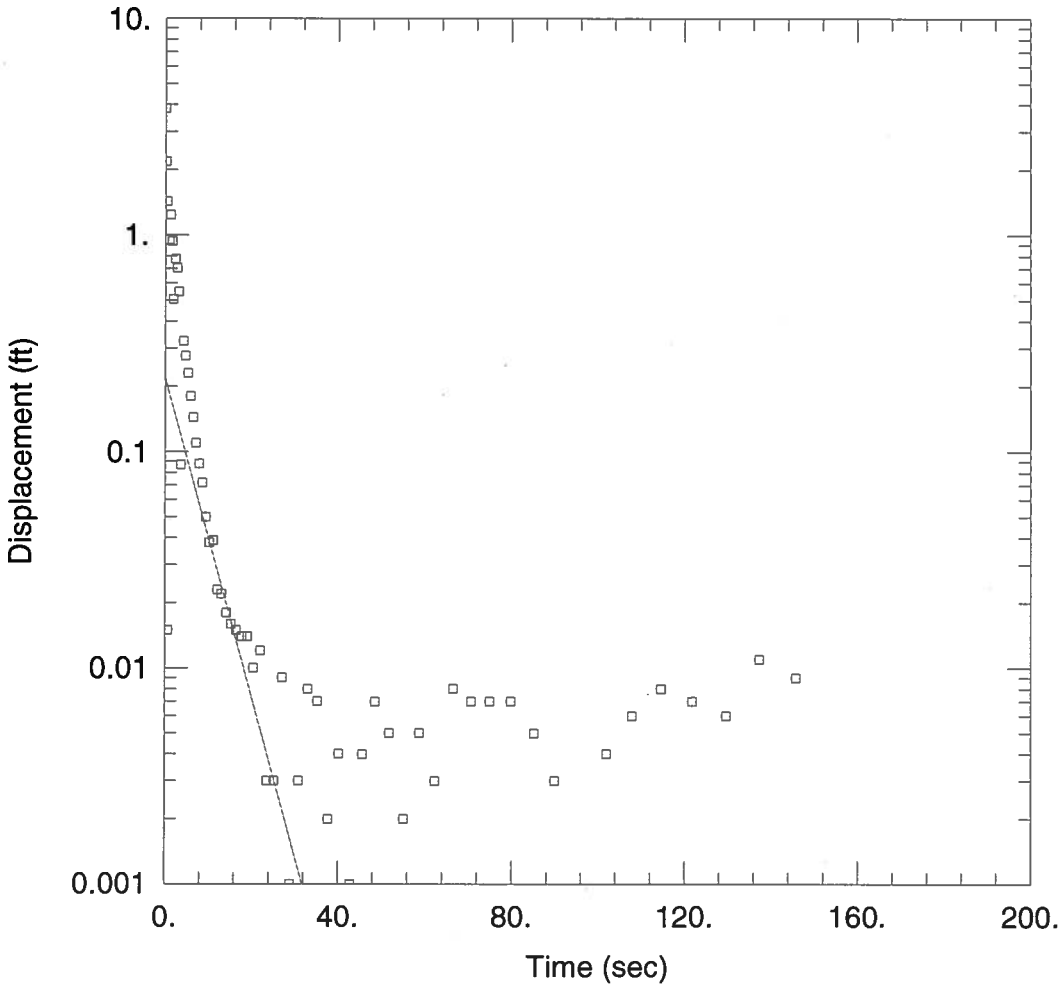
Saturated Thickness: 35.17 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-114B R)

Initial Displacement: 1.974 ft
Total Well Penetration Depth: 35.17 ft
Casing Radius: 0.15 ft
Static Water Column Height: 35.17 ft
Screen Length: 35.17 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.006706 cm/sec
y0 = 0.3996 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW114B F.aqt
Date: 03/12/09 Time: 11:39:43

AQUIFER DATA

Saturated Thickness: 35.16 ft Anisotropy Ratio (Kz/Kr): 0.1

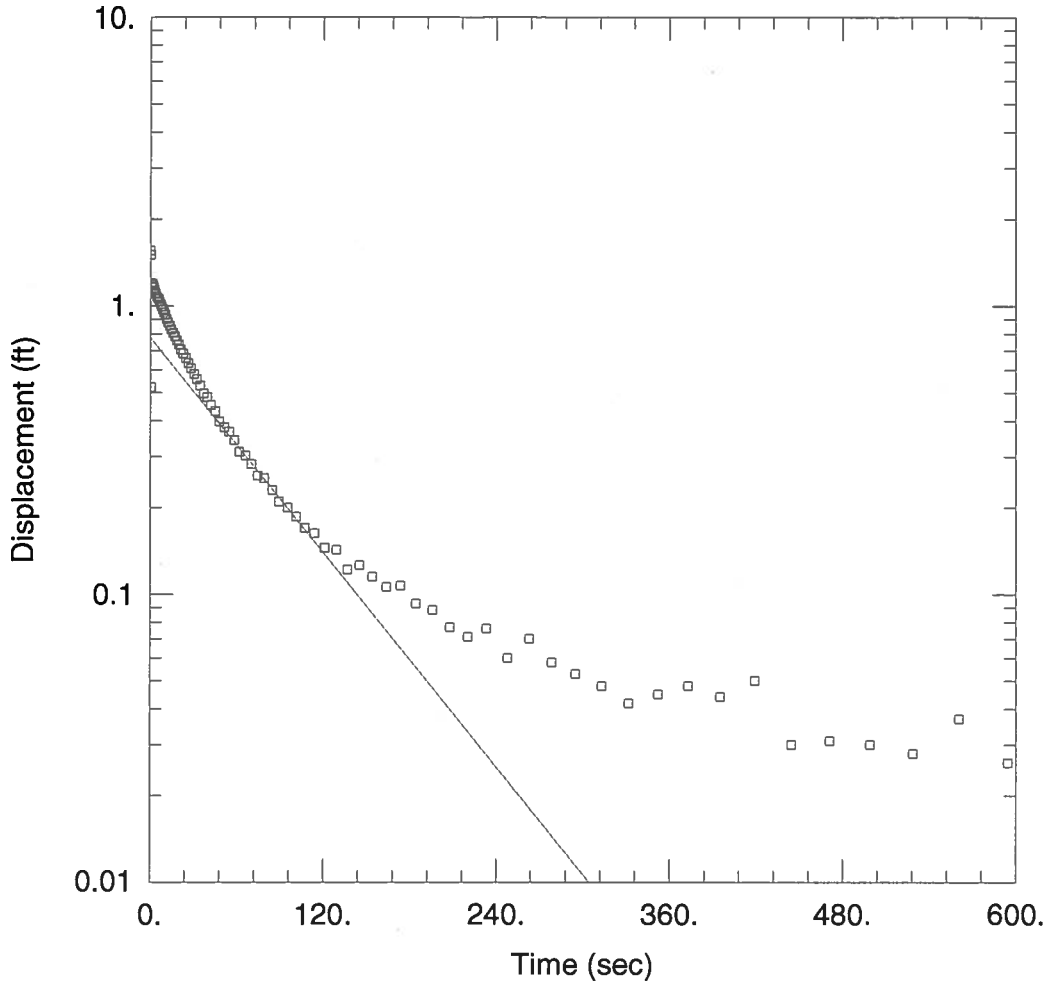
WELL DATA (MW-114B F)

Initial Displacement: 3.84 ft
Total Well Penetration Depth: 35.16 ft
Casing Radius: 0.15 ft
Static Water Column Height: 35.16 ft
Screen Length: 35.16 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.007077 cm/sec y0 = 0.2202 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW115B F.aqt
Date: 03/12/09 Time: 11:22:00

AQUIFER DATA

Saturated Thickness: 10.18 ft Anisotropy Ratio (Kz/Kr): 0.1

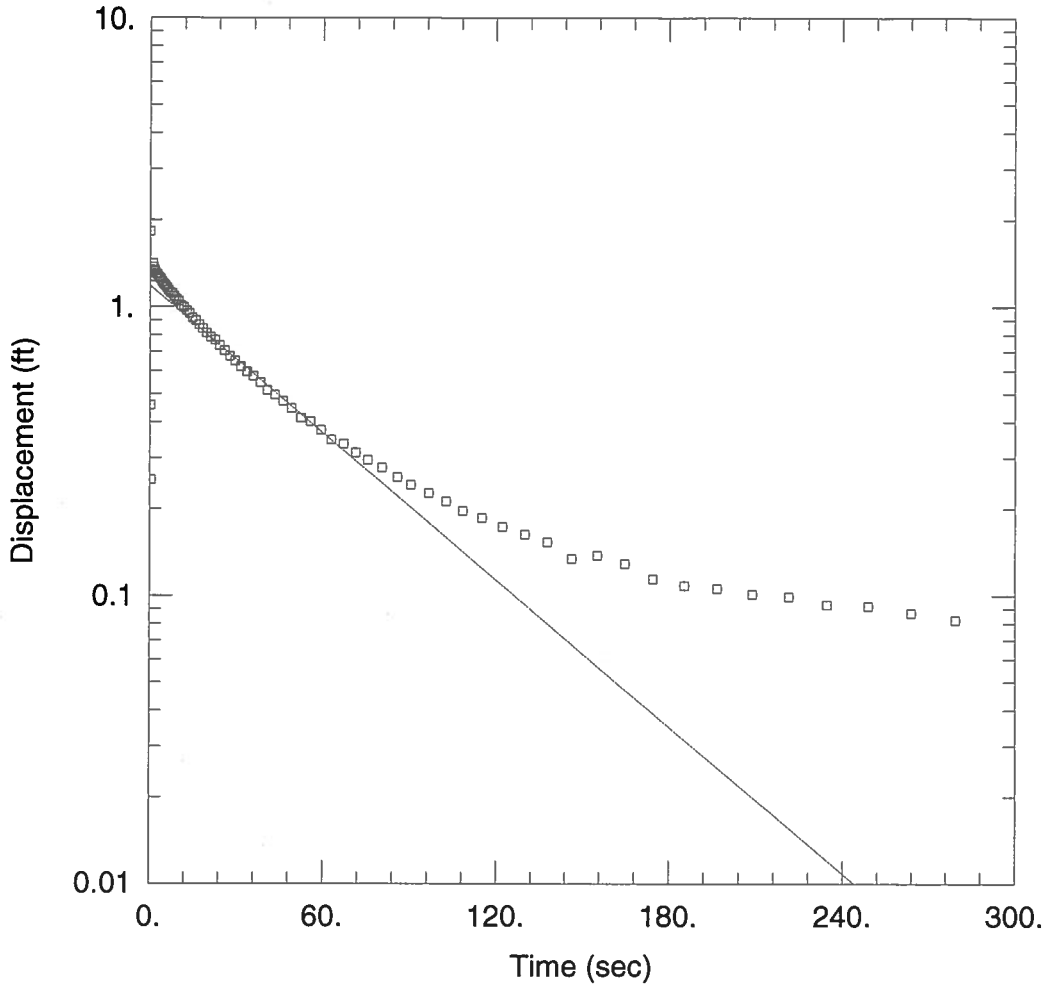
WELL DATA (MW-115B F)

Initial Displacement: 1.555 ft
Total Well Penetration Depth: 10.18 ft
Casing Radius: 0.15 ft
Static Water Column Height: 10.18 ft
Screen Length: 10.18 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001559 cm/sec y0 = 0.7754 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW115B R.aqt
Date: 03/12/09 Time: 11:21:42

AQUIFER DATA

Saturated Thickness: 10.15 ft Anisotropy Ratio (Kz/Kr): 0.1

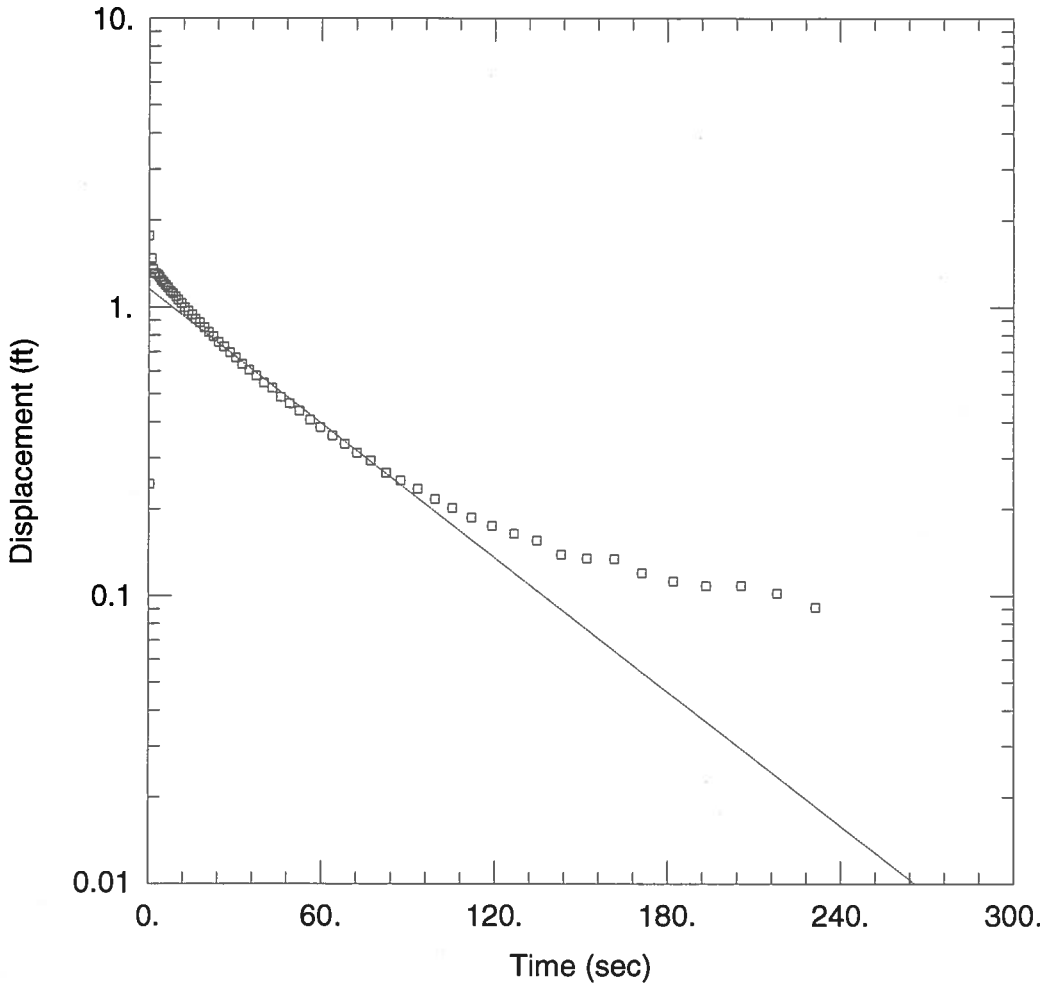
WELL DATA (MW-115B R)

Initial Displacement: 1.825 ft
Total Well Penetration Depth: 10.15 ft
Casing Radius: 0.15 ft
Static Water Column Height: 10.15 ft
Screen Length: 10.15 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002137 cm/sec y0 = 1.182 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW116B Rising.aqt
Date: 03/12/09 Time: 11:40:42

AQUIFER DATA

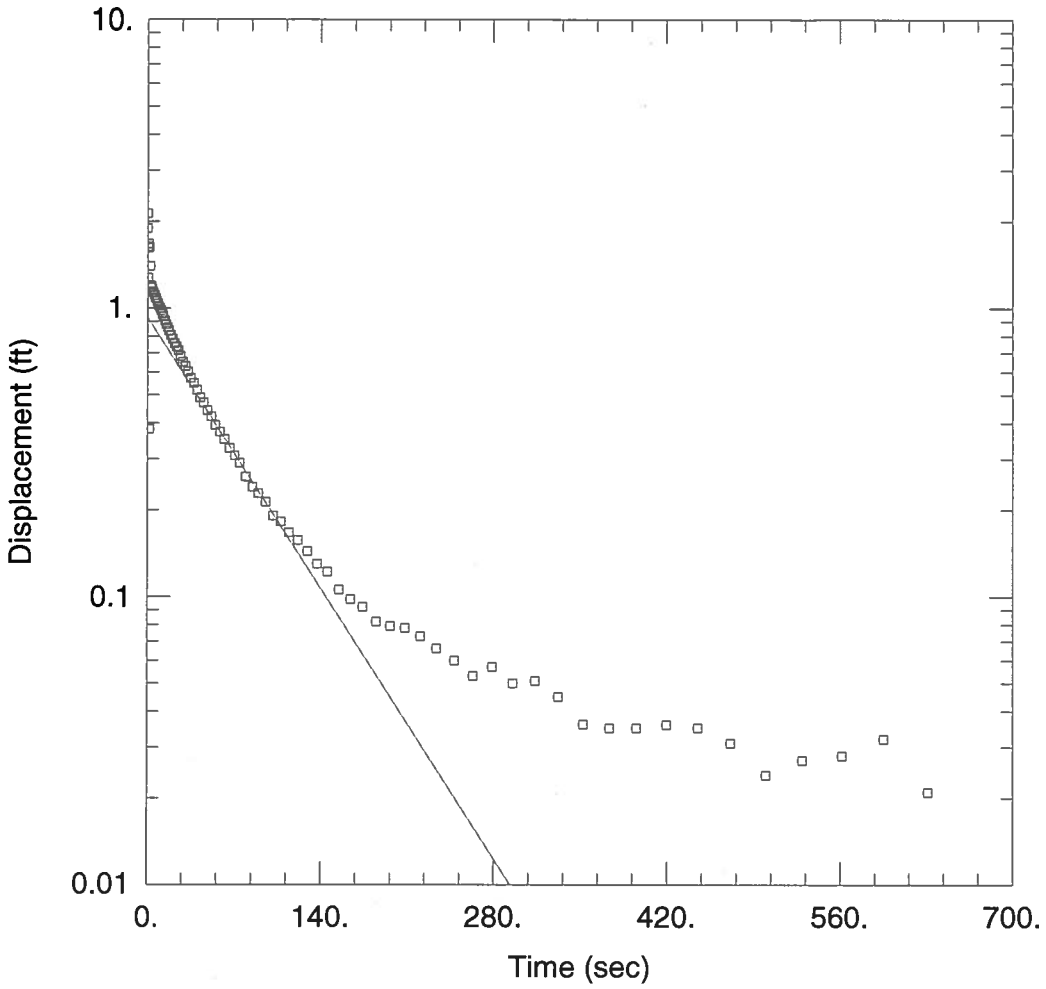
Saturated Thickness: 11.49 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116B R)

Initial Displacement: 1.768 ft
Total Well Penetration Depth: 11.49 ft
Casing Radius: 0.15 ft
Static Water Column Height: 11.49 ft
Screen Length: 11.49 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001777 cm/sec
y0 = 1.155 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW116B Falling.aqt
Date: 03/12/09 Time: 11:21:57

AQUIFER DATA

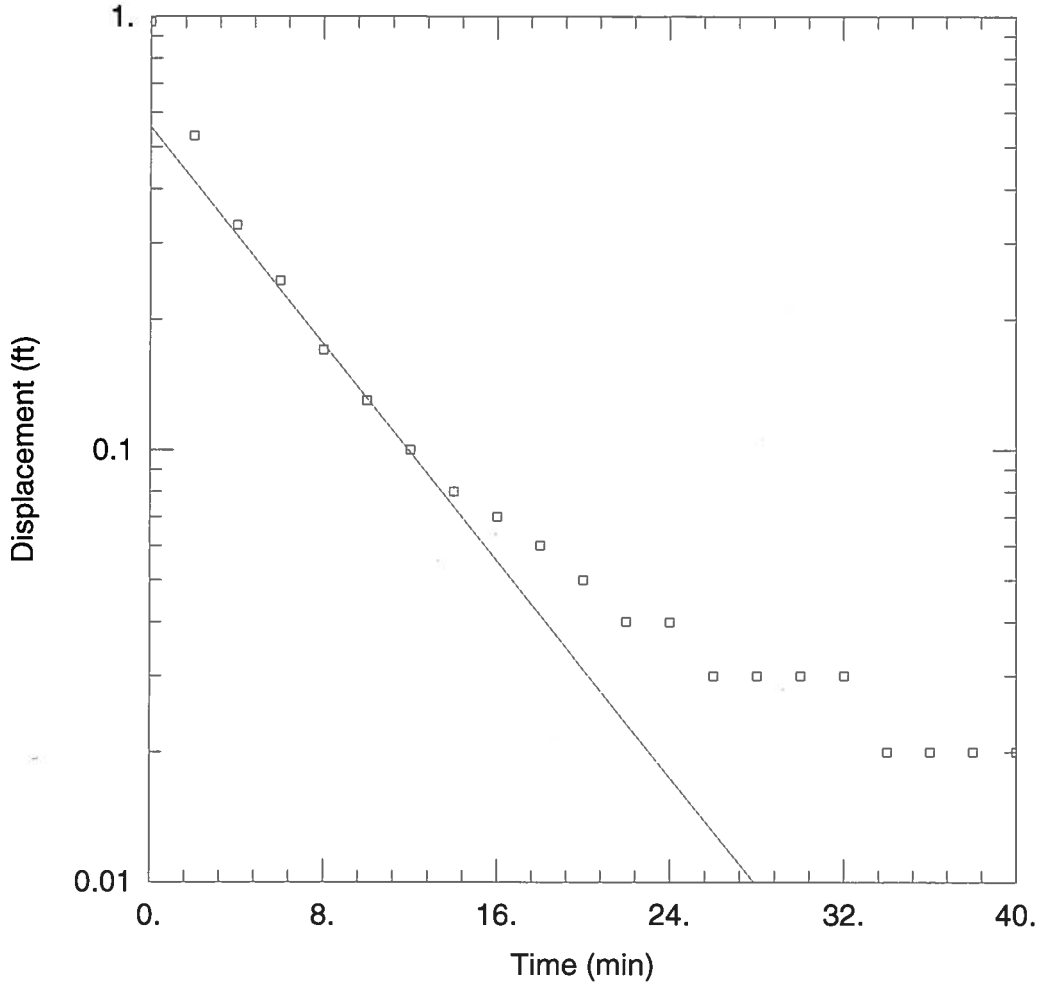
Saturated Thickness: 11.51 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116B F)

Initial Displacement: 2.132 ft
Total Well Penetration Depth: 11.51 ft
Casing Radius: 0.15 ft
Static Water Column Height: 11.51 ft
Screen Length: 11.51 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001534 cm/sec
y0 = 0.9284 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW120B F.aqt
Date: 03/12/09 Time: 11:50:40

AQUIFER DATA

Saturated Thickness: 39.9 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-120B Falling)

Initial Displacement: 0.97 ft
Total Well Penetration Depth: 39.9 ft
Casing Radius: 0.15 ft
Static Water Column Height: 39.9 ft
Screen Length: 39.9 ft
Well Radius: 0.15 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 9.082E-5 cm/sec y0 = 0.5563 ft

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-101B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alday / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 16

STATIC WATER LEVEL (Depth/Elevation): 11.11' DATE: 07/29/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

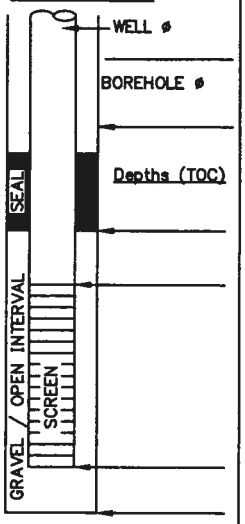
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 3

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

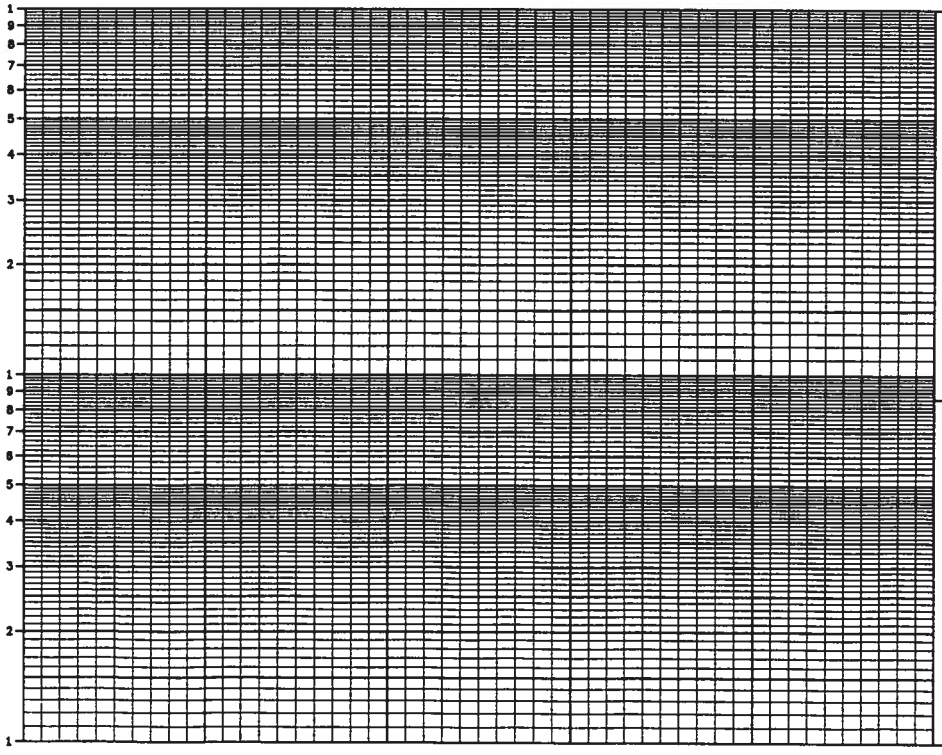
838

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	9.57	0	24	10.47	0.05
2	9.87	0.30	26	10.50	0.03
4	9.95	0.08	28	10.52	0.02
6	10.01	0.06	30	10.55	0.03
8	10.07	0.06	32	10.58	0.03
10	10.16	0.09	34	10.61	0.03
12	10.23	0.07	36	10.64	0.03
14	10.27	0.04	38	10.66	0.02
16	10.30	0.03	40	10.69	0.03
18	10.34	0.04	42	10.71	0.02
20	10.38	0.04	44	10.73	0.02
22	10.42	0.04	46	10.75	0.02

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUUC Site 08- Disposal Area WELL/BORING NO.: MW-101B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alley / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 16

STATIC WATER LEVEL (Depth/Elevation): 11.11' DATE: 07/29/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

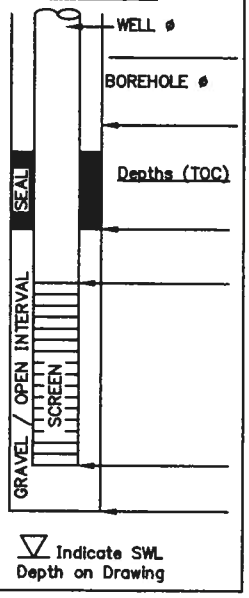
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 2 OF 3

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

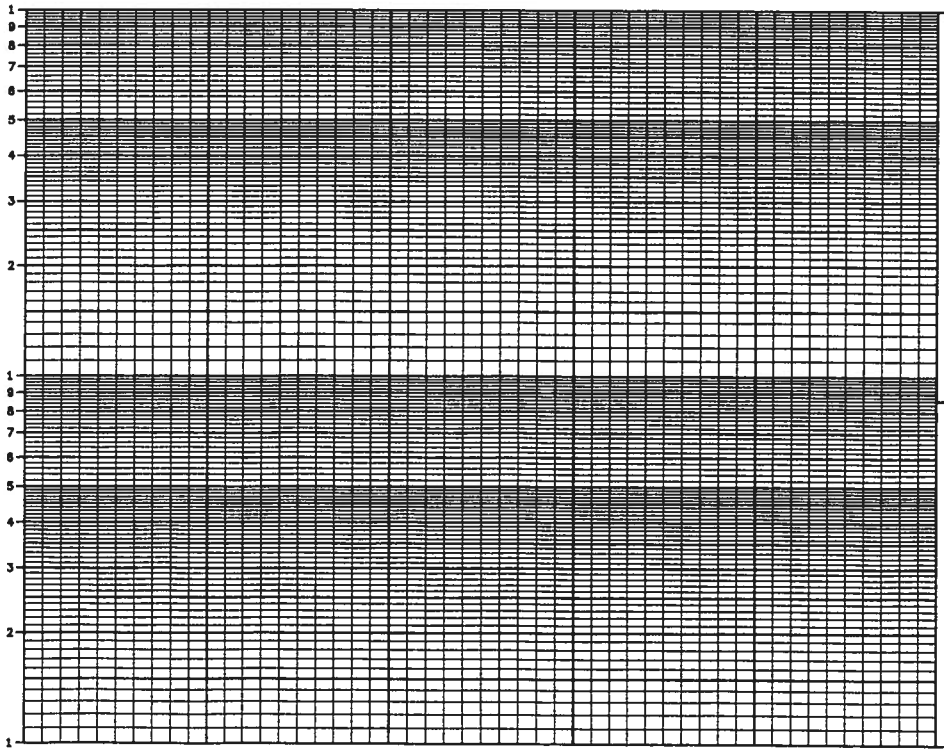
ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
926 48	10.78	0.03	72	10.94	0.01
50	10.80	0.02	74	10.95	0.01
52	10.81	0.01	76	10.96	0.01
54	10.82	0.01	78	10.97	0.01
56	10.84	0.02	80	10.97	0.00
58	10.85	0.01	82	10.98	0.01
60	10.86	0.01	84	10.98	0.00
62	10.87	0.01	86	10.99	0.01
64	10.89	0.02	88	11.00	0.01
94 ~~1284~~ 66	10.91	0.02	90	11.00	0.00
68	10.92	0.01	92	11.01	0.01
70	10.93	0.01	94	11.02	0.01

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-101B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alcorn / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: ____ TEST NO.: 16

STATIC WATER LEVEL (Depth/Elevation): 11.11" DATE: 07/29/08

TEST TYPE (Rising/Falling/Constant Head): ____ CHECKED: ____

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 3 OF 3

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

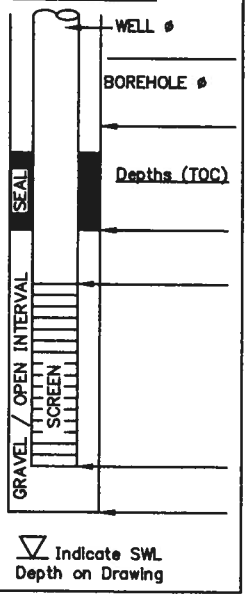
ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
96	11.03	0.01	120	11.09	0.01
98	11.04	0.01	122	11.09	0.00
100	11.04	0.00	124	11.09	0.00
102	11.05	0.01	126	11.10	0.01
104	11.05	0.00	128	11.10	0.00
106	11.05	0.00			
108	11.06	0.01			
110	11.06	0.00			
112	11.07	0.01			
114	11.07	0.00			
116	11.08	0.01			
118	11.08	0.00			

1016

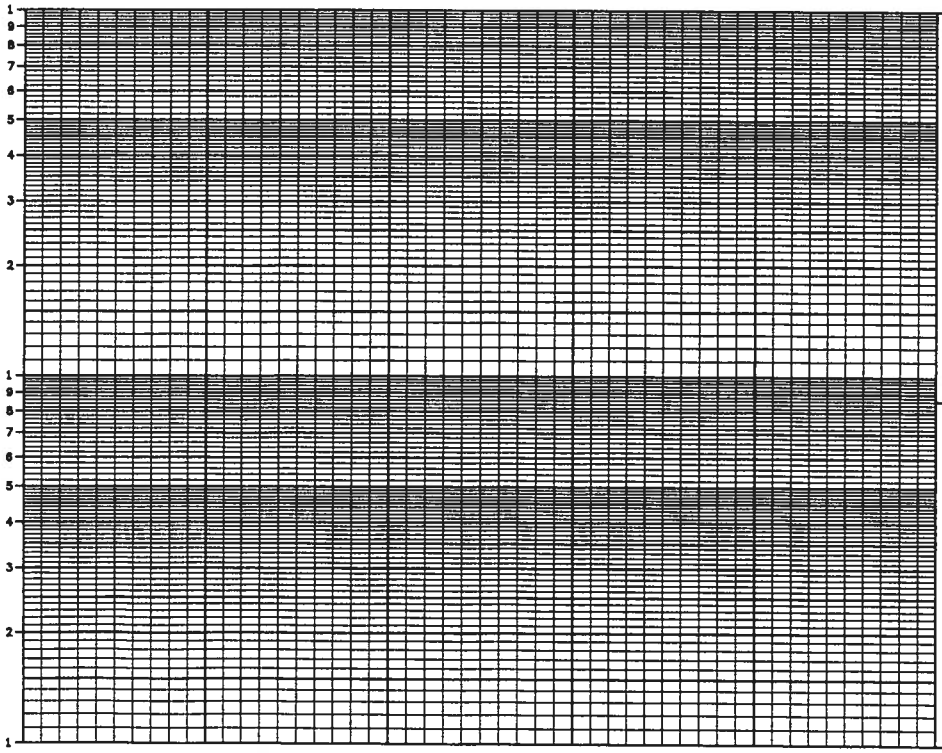
1026

1036

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC SITE 08 DISPOSAL AREA WELL/BORING NO.: MW102B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Ahrens, B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 15.08 / 15.04 DATE: 7/17/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

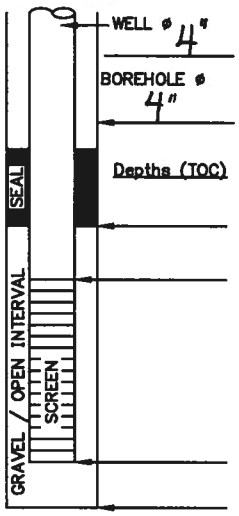
METHOD OF INDUCING WATER LEVEL CHANGE: SLUGS (2)-1" & (1) 1.5" PAGE 1 OF 3

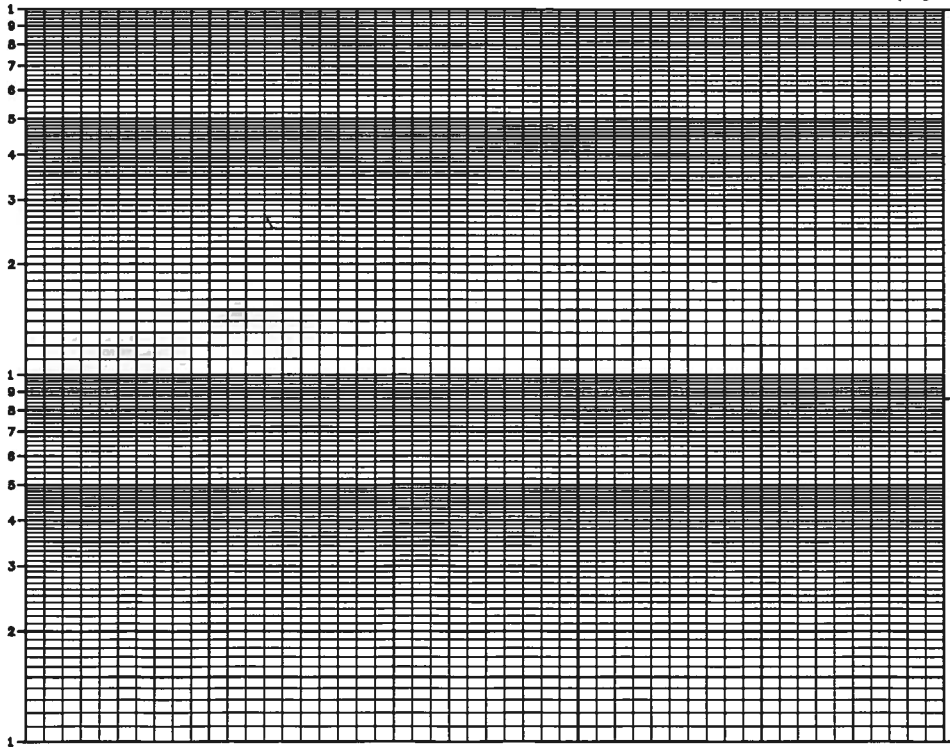
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): INSTALLED @ 6.55' BSWL TOP OF CASING

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
8:39 0	13.72	0	35	14.41	0.02
2	13.8	0.08	38	14.46	0.05
5	13.92	0.12	41	14.48	0.02
8	13.98	0.06	44	14.51	0.03
11	14.04	0.06	47	14.54	0.03
14	14.11	0.07	50	14.57	0.03
17	14.16	0.05	53	14.60	0.03
20	14.21	0.05	56	14.62	0.02
23	14.26	0.05	59	14.64	0.02
26	14.31	0.05	62	14.66	0.02
29	14.35	0.04	65	14.68	0.02
911 32	14.39	0.04	68	14.70	0.02
				947	

WELL SCHEMATIC





REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC SITE 08 Disposal Area WELL/BORING NO.: MW102B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 15.08 DATE: 7/17/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

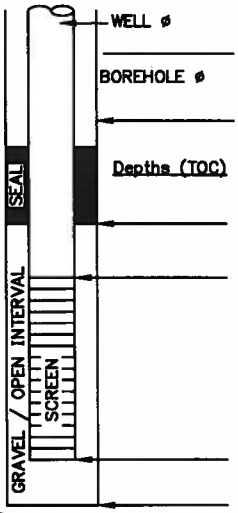
METHOD OF INDUCING WATER LEVEL CHANGE: SLUGS (2) 1" & (1) 1.5" PAGE 2 OF 3

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

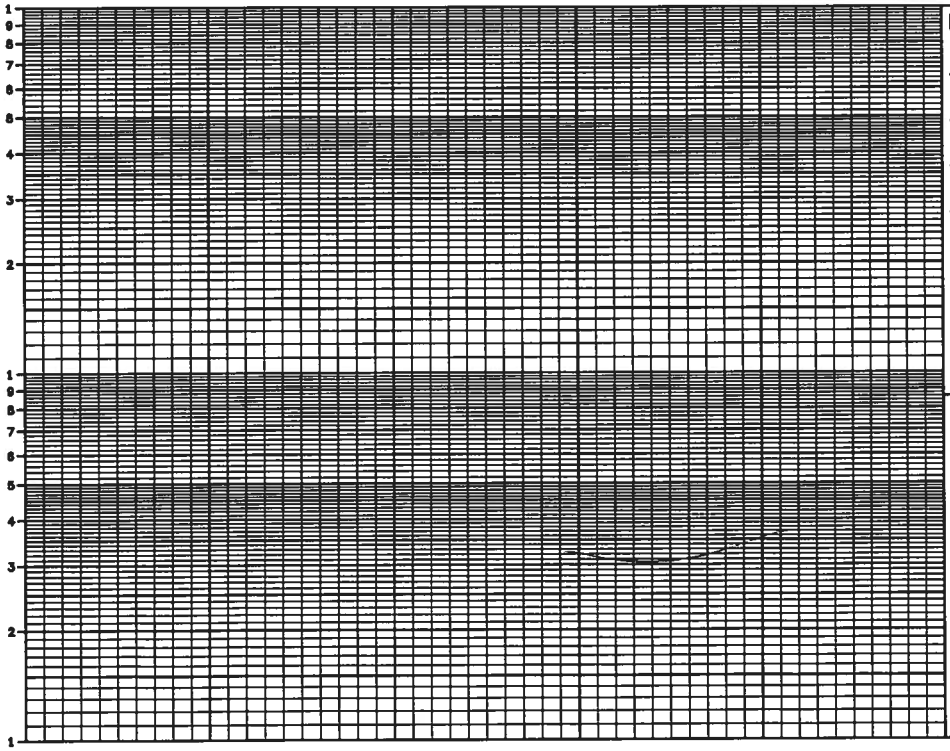
ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
950 71	14.72	0.02	106	14.88	0.01
74	14.74	0.02	109	14.89	0.01
77	14.76	0.02	112	14.90	0.01
80	14.78	0.02	115	14.91	0.01
83	14.79	0.01	118	14.92	0.01
86	14.80	0.01	121 (1041)	14.93	0.01
89	14.81	0.01	124	14.94	0.01
92	14.82	0.01	127	14.94	0.00
95	14.84	0.02	130	14.95	0.01
98	14.85	0.01	133	14.95	0.01
101	14.86	0.01	136	14.96	~~14.96~~ 0.0
1023 103	14.87	0.01	139	14.97	0.01

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC SITE 08 Disposal Area WELL/BORING NO.: MW102B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 15.08 DATE: 07/17/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUGS(2) 1" & (1) 1.5" PAGE 3 OF 3

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

07/08/99 INL

ACAD:FORM_HYDCONTST.dwg

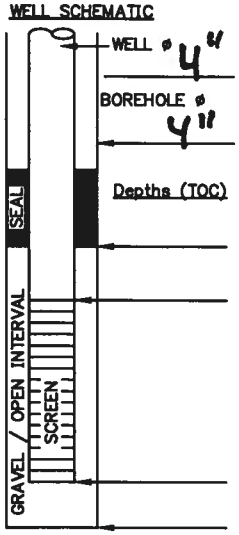
1105

1

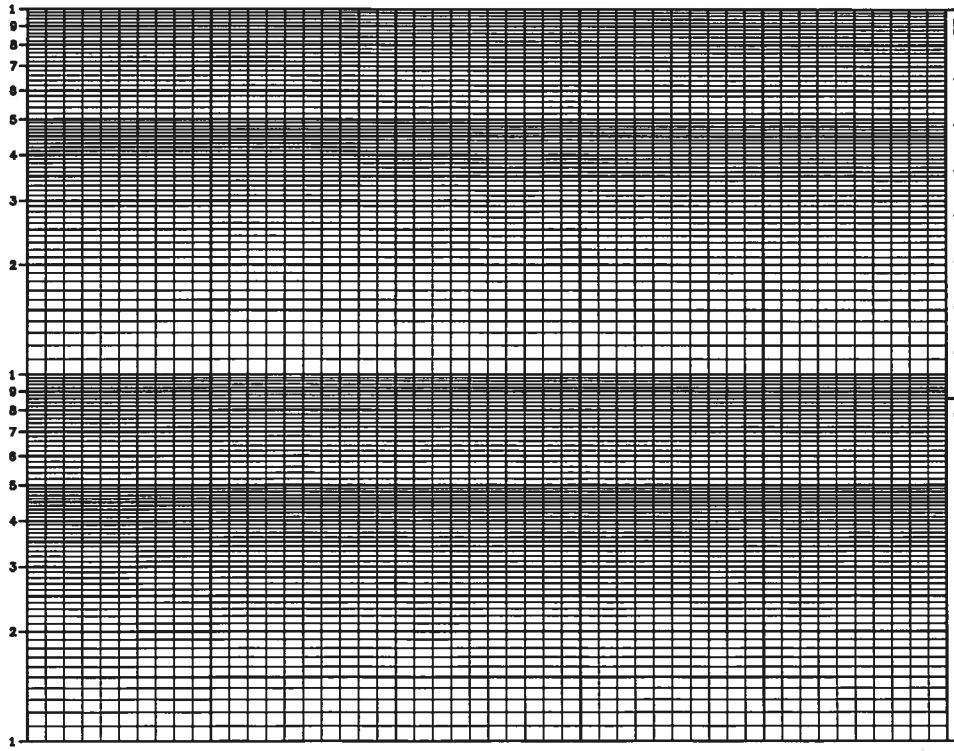
1137

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
142	14.98	0.01	178	15.02	0.01
145	14.98	0.00	181	15.02	0.00
148	14.99	0.01	184	15.03	0.01
151	14.99	0.00	187	15.03	0.00
154	15.00	0.01	190	15.03	0.00
157	15.00	0.00	193	15.03	0.00
160	15.00	0.00	196	15.03	0.00
163	15.01	0.01	199	15.04	0.01
166	15.01	0.00	202	15.04	0.00
169	15.01	0.00	205	15.04	0.00
172	15.01	0.00	208	15.04	0.00
175	15.01	0.00	211	15.04	0.00

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-103B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 45

STATIC WATER LEVEL (Depth/Elevation): 17.72 DATE: 07/18/08

TEST TYPE (Rising/Falling/Constant Head): Rising CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG(2) 1" + (1) 1.5" PAGE 1 OF 1

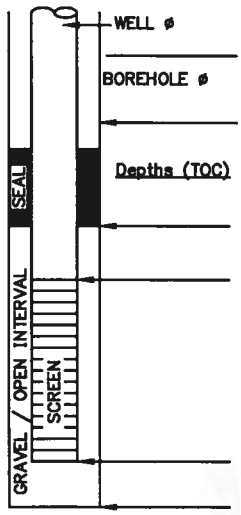
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

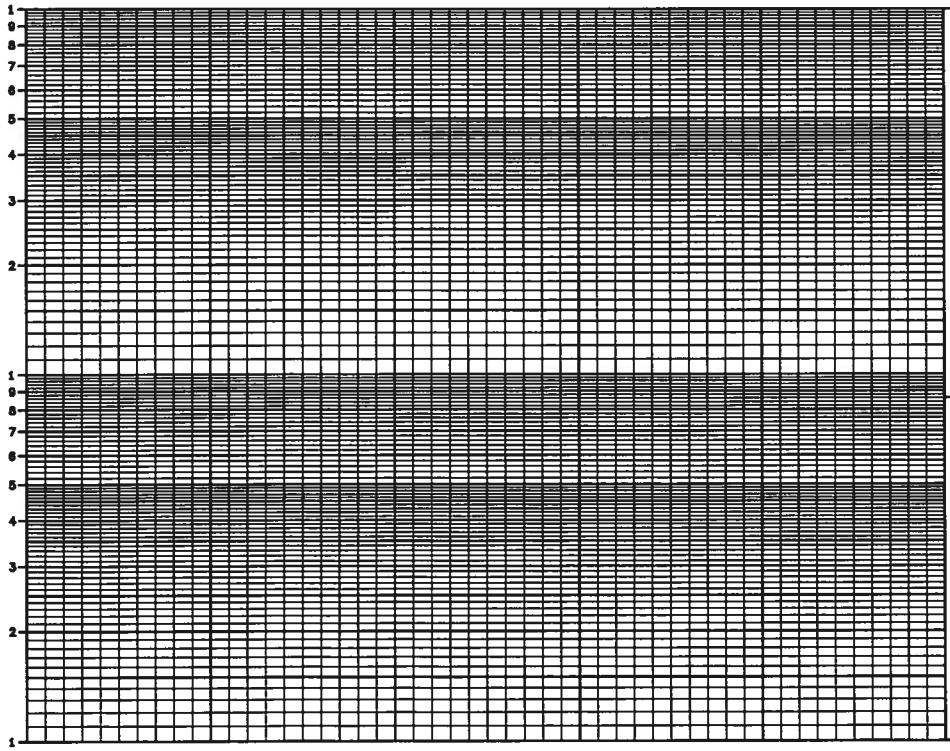
836

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	16.93	—			
2	17.40	0.53			
4	17.52	0.12			
6	17.59	0.07			
8	17.64	0.05			
10	17.67	0.03			
12	17.70	0.03			
14	17.71	0.01			
16	17.71	0.00			
18	17.71	0.00			
20	17.72	0.01			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-105B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 8

STATIC WATER LEVEL (Depth/Elevation): 19.22 DATE: 07/18/08

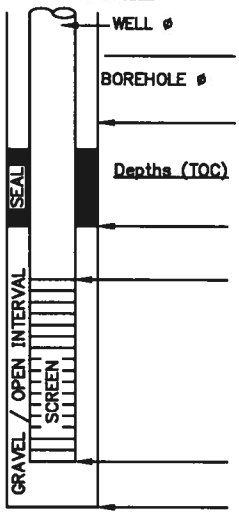
TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

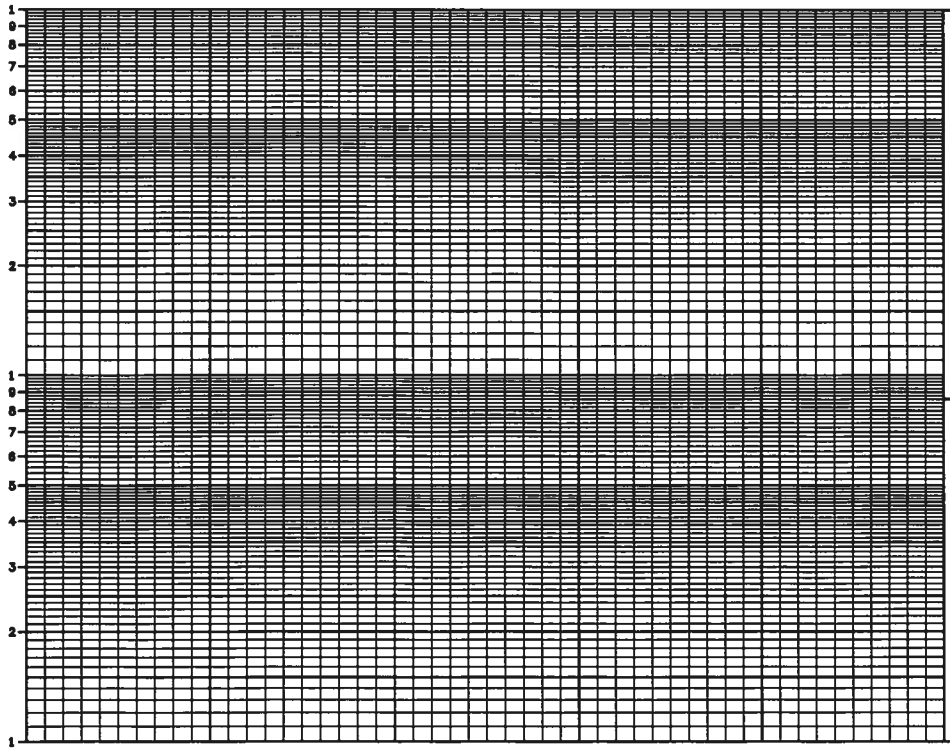
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	19.22				
2	19.22				

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

High Conductivity - Could not change head level

CALCS, SKETCH MAPS, ETC.:

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 Disposal Area WELL/BORING NO.: MW-106B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 2

STATIC WATER LEVEL (Depth/Elevation): 4.02 DATE: 07/17/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUGS (2) 1" + (1) 1.5" PAGE 1 OF 2

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

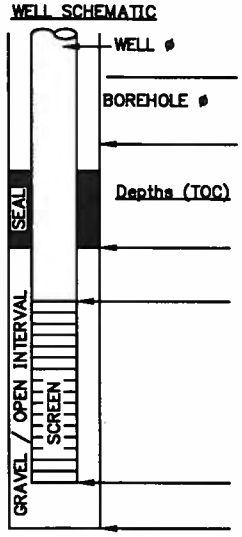
ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	3.38	—	24	4.00	0.00
2	3.84	0.46	26	4.00	0.00
4	3.91	0.07	28	4.00	0.00
6	3.95	0.04	30	4.00	0.00
8	3.96	0.01	32	4.00	0.00
10	3.987	0.01	34	4.00	0.00
12	3.99	0.02	36	4.00	0.00
14	4.00	0.01	38	4.00	0.00
16	4.00	0.00	40	4.00	0.00
18	4.00	0.00	42	4.01	0.01
20	4.00	0.00	44	4.01	0.00
22	4.00	0.00	46	4.01	0.00

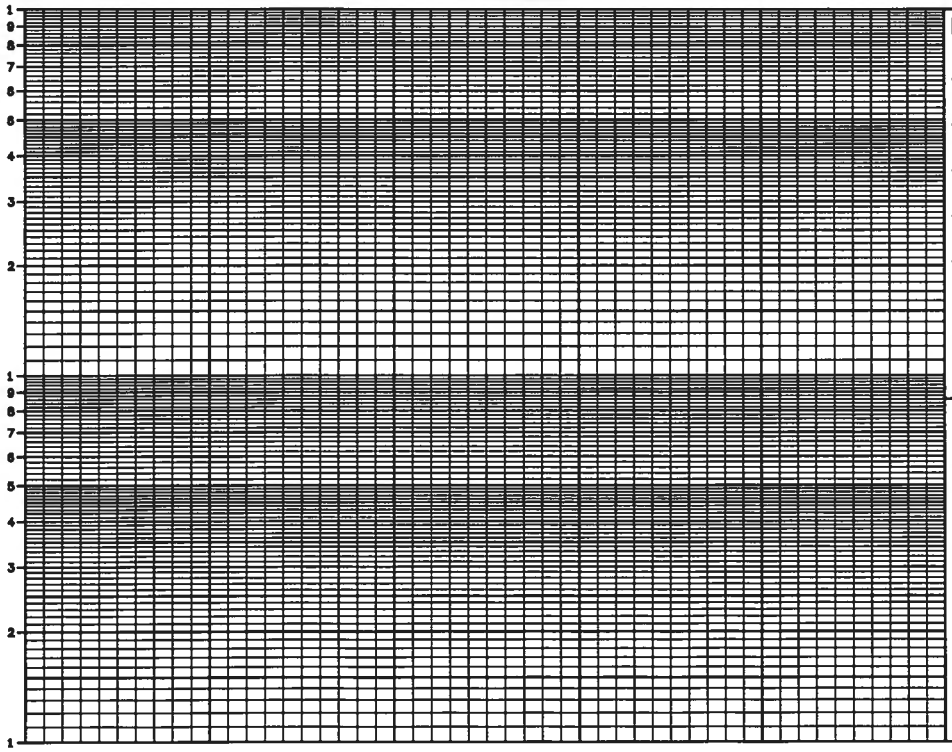
109

131

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NWC Site 08 Disposal Area WELL/BORING NO.: MW-106B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A (open hole) TEST NO.: 2

STATIC WATER LEVEL (Depth/Elevation): 4.02' DATE: 07/17/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUGS (2) 1" + (1) 1.5" PAGE 2 OF 2

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

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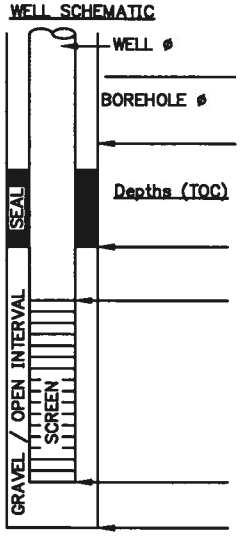
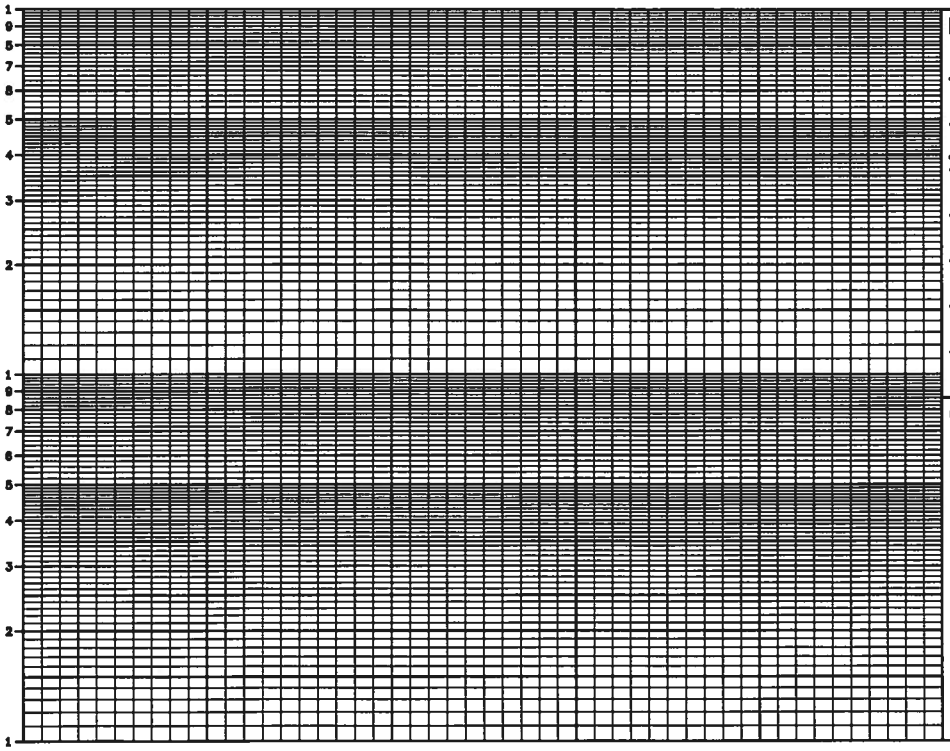
ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
48	4.01	0.00			
50	4.01	0.00			
52	4.01	0.00			
54	4.01	0.00			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-107B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Gerings

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 3

STATIC WATER LEVEL (Depth/Elevation): 6.12 DATE: 07/17/08

TEST TYPE (Rising/Falling/Constant Head): Rising CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

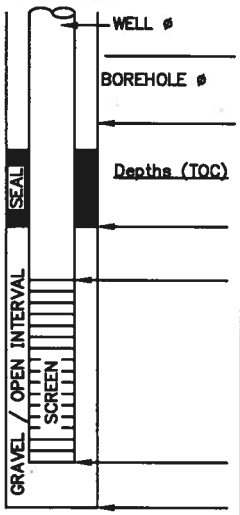
ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	5.45	—	24	6.07	0.01
2	5.76	0.31	26	6.07	0.00
4	5.87	0.11	28	6.08	0.01
6	5.94	0.07	30	6.08	0.00
8	5.98	0.04	32	6.09	0.01
10	6.00	0.02	34	6.09	0.00
12	6.02	0.02	36	6.09	0.00
14	6.03	0.01	38	6.10	0.01
16	6.04	0.01	40	6.10	0.00
18	6.05	0.01	42	6.10	0.00
20	6.05	0.00	44	6.10	0.00
22	6.06	0.01	46	6.10	0.00

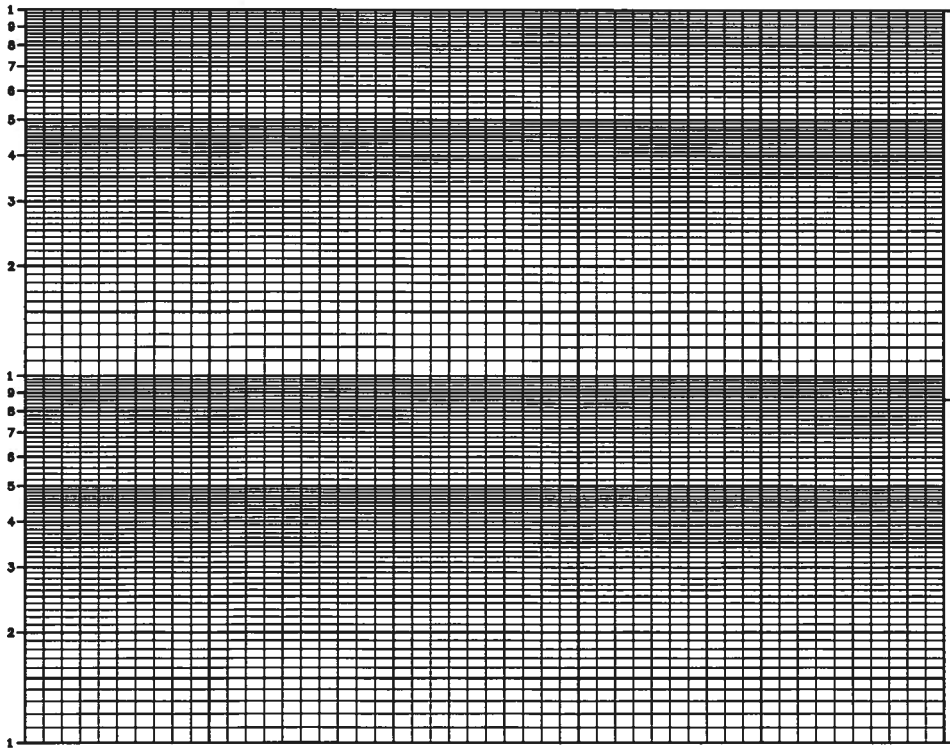
407

429

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-109B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geesing

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 14

STATIC WATER LEVEL (Depth/Elevation): 6.48 DATE: 07/28/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

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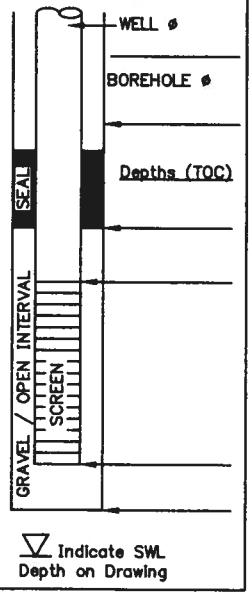
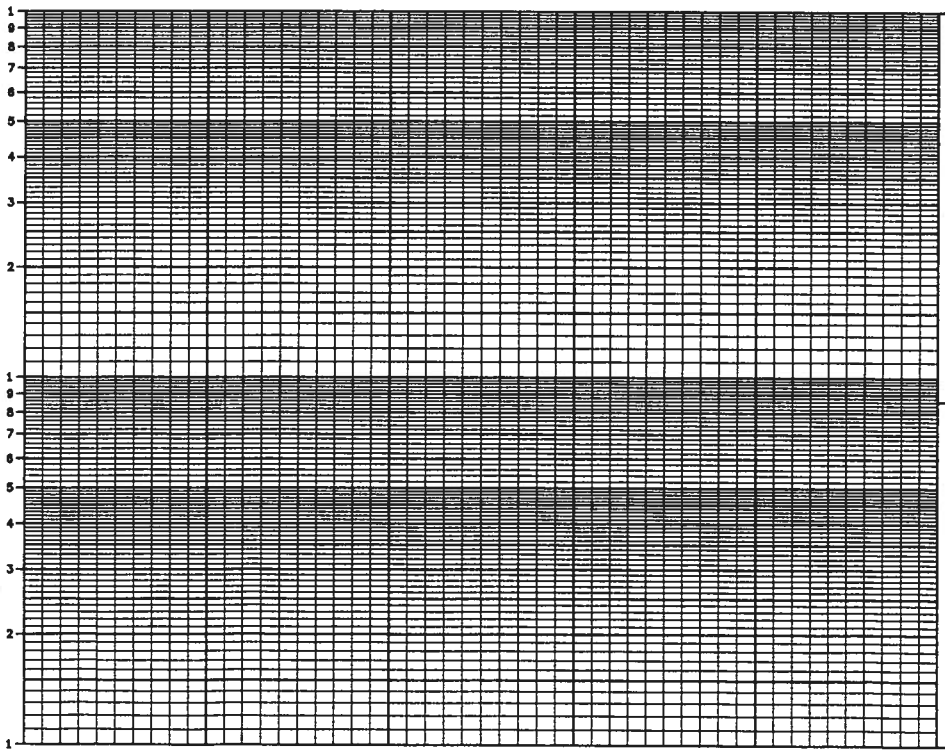
ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	5.58	N/A	24	6.42	0.01
2	6.01	0.43	26	6.43	0.01
4	6.15	0.14	28	6.44	0.01
6	6.24	0.09	30	6.44	0.00
8	6.29	0.05	32	6.44	0.00
10	6.32	0.03	34	6.45	0.01
12	6.35	0.03	36	6.45	0.00
14	6.37	0.02	38	6.45	0.00
16	6.38	0.01	40	6.46	0.01
18	6.40	0.02			
20	6.40	0.00			
22	6.41	0.01			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-111B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 09

STATIC WATER LEVEL (Depth/Elevation): 13.18 DATE: 07/18/08

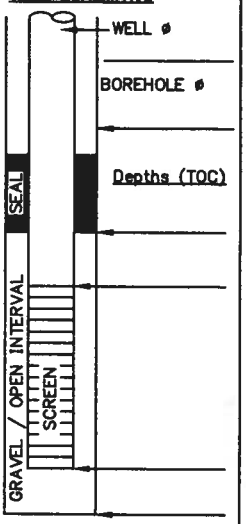
TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

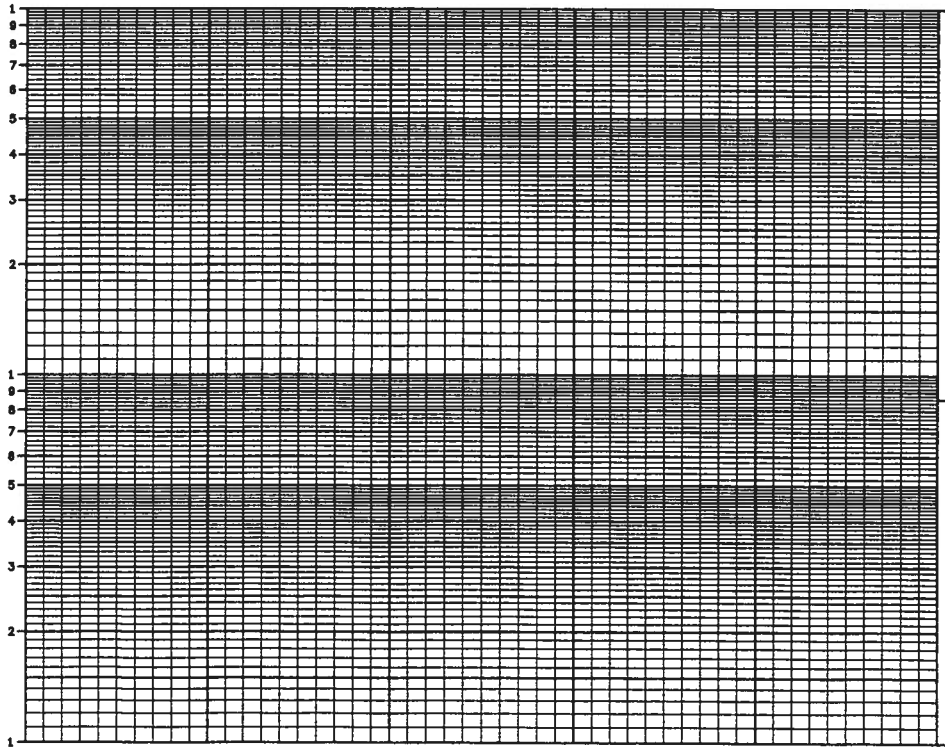
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	12.18	—			
2	12.76	0.58			
4	12.97	0.21			
6	13.11	0.14			
8	13.14	0.03			
10	13.16	0.02			
12	13.17	0.01			
14	13.17	0.00			
16	13.17	0.00			
18	13.17	0.00			
20	13.17	0.00			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NWC Site 8 Disposal Area WELL/BORING NO.: MW-112B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 10

STATIC WATER LEVEL (Depth/Elevation): 14.67 DATE: 07/31/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

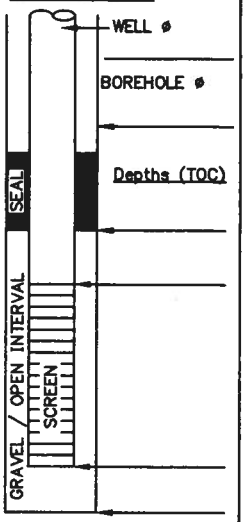
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

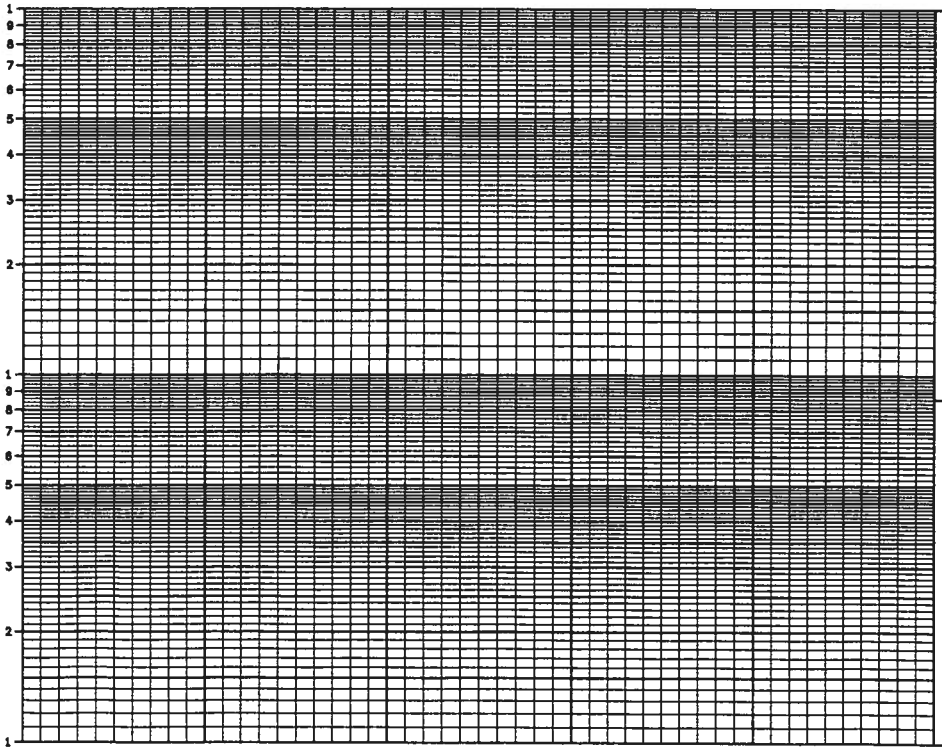
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	14.67				
2	14.67				
4	14.67				

WELL SCHEMATIC





REMARKS:

Slug did not affect water level

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-113B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 11

STATIC WATER LEVEL (Depth/Elevation): 14.28 DATE: 07/21/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

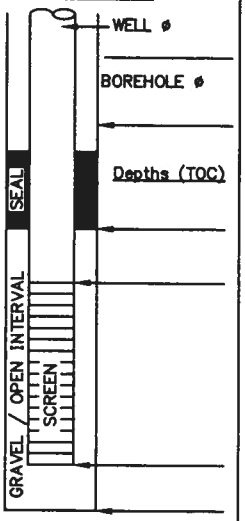
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

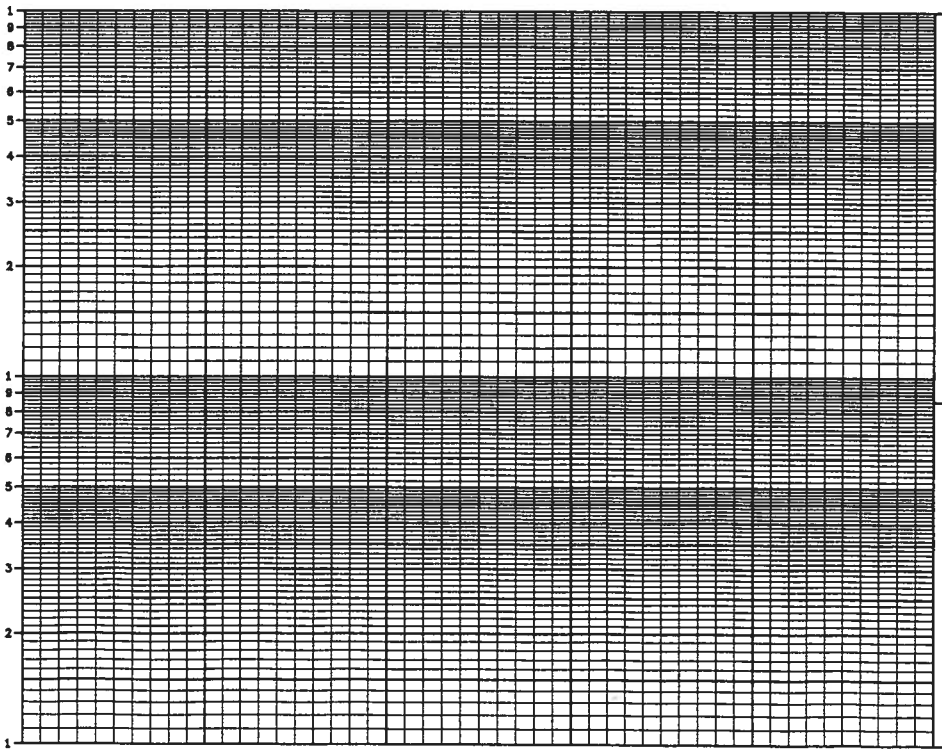
1016

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	13.55	—	26	14.37	-0.01
2	14.14	0.59	28	14.37	0.00
4	14.32	0.28	30	14.37	0.00
6	14.39	0.17	32	14.37	0.00
8	14.41	0.02	34	14.37	0.00
10	14.41	0.00	36	14.37	0.00
12	14.41	0.00	38	14.37	0.00
14	14.41	0.00			
16	14.40	-0.02			
20	14.38	-0.02			
22	14.38	0.00			
24	14.38	0.00			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-116B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 4

STATIC WATER LEVEL (Depth/Elevation): 10.60 DATE: 07/18/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

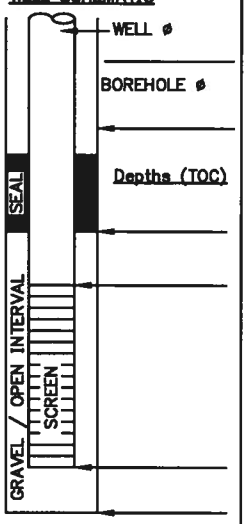
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

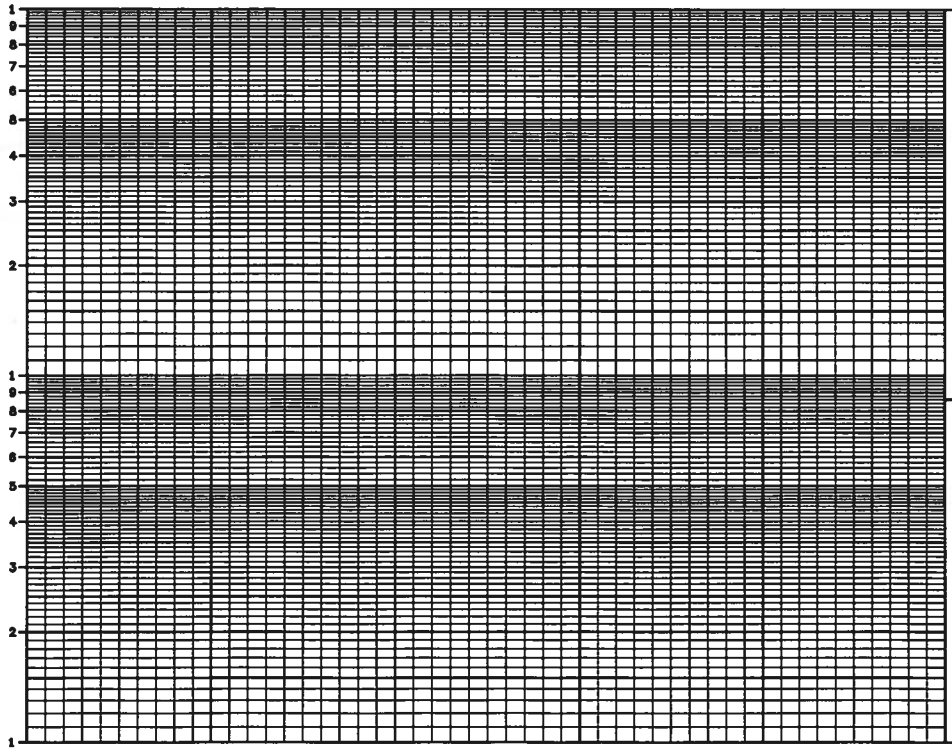
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	10.32	—			
2	10.48	0.16			
4	10.53	0.05			
6	10.55	0.08			
8	10.57	0.02			
10	10.58	0.01			
12	10.60	0.02			

WELL SCHEMATIC





REMARKS:

CALCS,SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-117B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 6

STATIC WATER LEVEL (Depth/Elevation): 23.52 DATE:

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

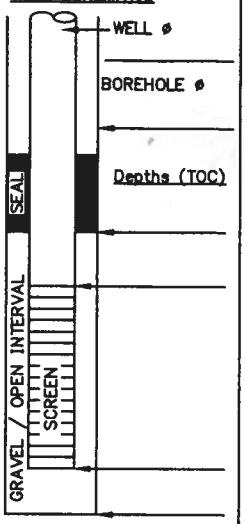
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	23.52				
2	23.52	0			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing

?

REMARKS:

Water level did not change after introducing slug -

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 8 Disposal Area WELL/BORING NO.: MW-118B

PROJECT NO.: 112G00933.0212 GEOLOGIST: B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: N/A TEST NO.: 7

STATIC WATER LEVEL (Depth/Elevation): 26.78 DATE: 07/18/08

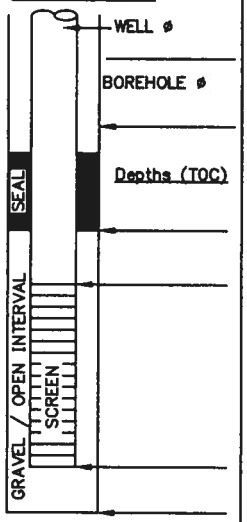
TEST TYPE (Rising/Falling/Constant Head): Falling CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: Top of Casing PAGE 1 OF 1

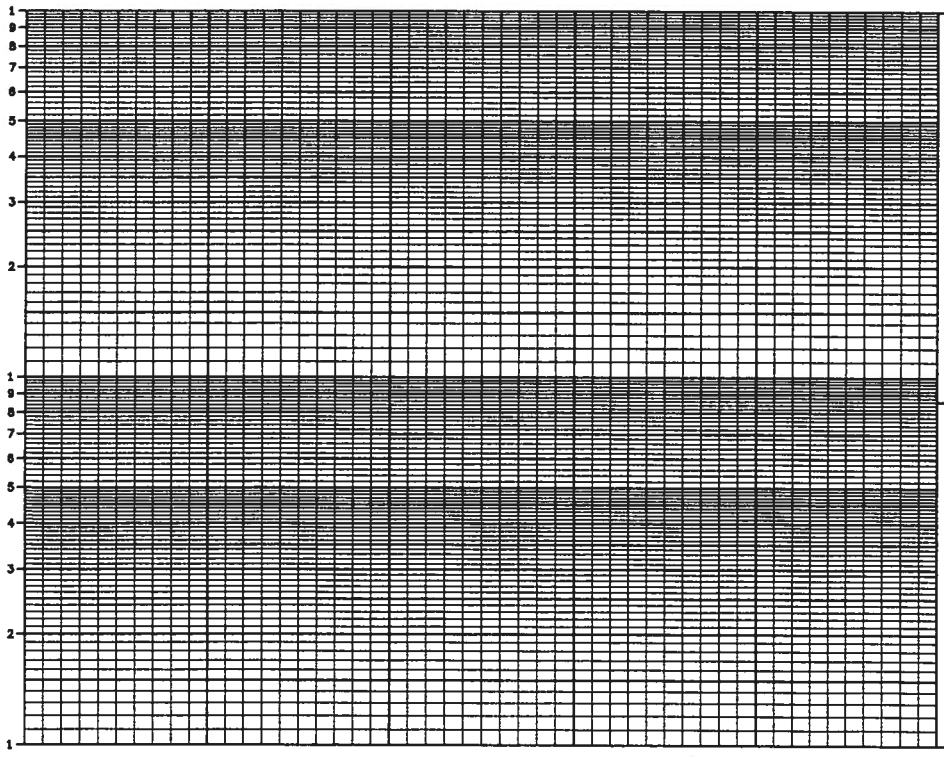
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): SLUG(2) 1" + (1) 4"

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	26.78	0.00			
2	26.78	↓			
4	26.78	↓			
6	26.78	↓			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

SLUG did not affect water level

CALCS, SKETCH MAPS, ETC.:

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC 08 - Disposal Area WELL/BORING NO.: MW-119B

PROJECT NO.: 112G00933.0212 GEOLOGIST: P M. Alex / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: ____ TEST NO.: 13

STATIC WATER LEVEL (Depth/Elevation): 13.74" DATE: 07/28/08

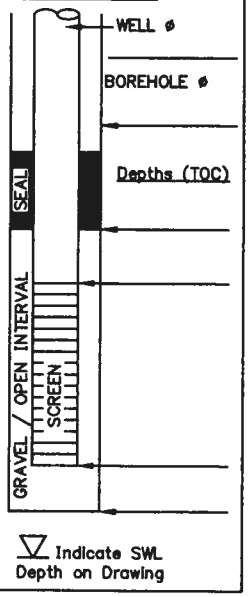
TEST TYPE (Rising/Falling/Constant Head): ____ CHECKED: ____

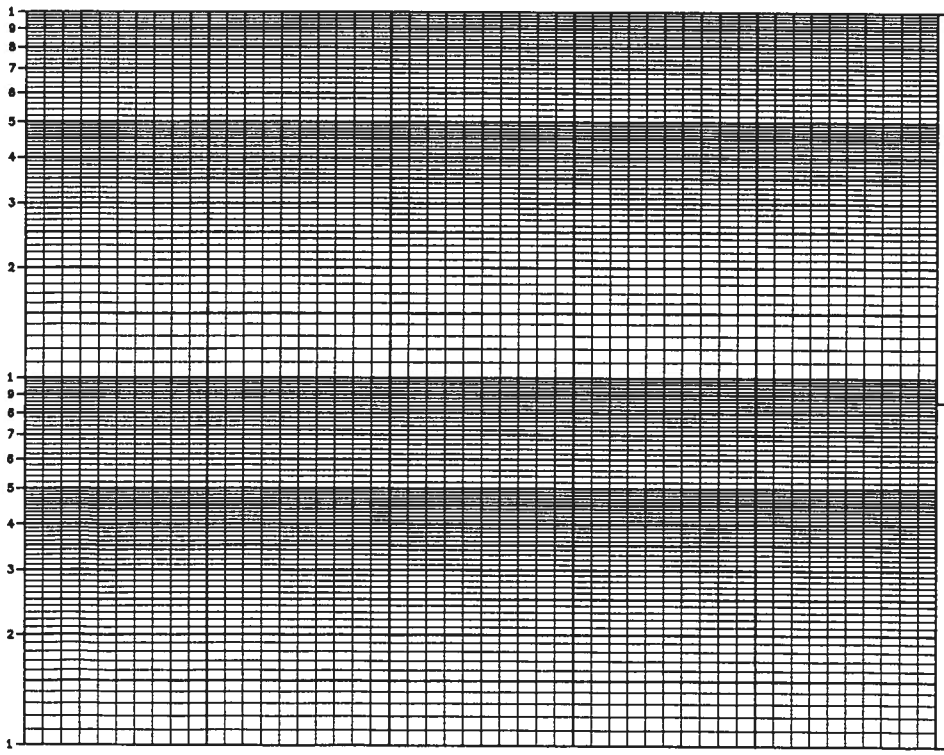
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	13.74				
2	13.74				
4	13.74				
6	13.74				
8	13.74				

WELL SCHEMATIC





REMARKS:

* Water level did not change after submersing slug - Conductivity too high.

CALCS, SKETCH MAPS, ETC.:

1143

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-120B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: ____ TEST NO.: 12

STATIC WATER LEVEL (Depth/Elevation): 22.47 DATE: 07/28/08

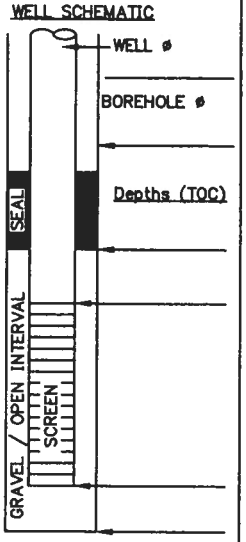
TEST TYPE (Rising/Falling/Constant Head): ____ CHECKED: ____

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	21.50	—	24	22.43	0.00
2	21.94	0.44	26	22.44	0.01
4	22.14	0.20	28	22.44	0.00
6	22.24	0.10	30	22.44	0.00
8	22.30	0.06	32	22.44	0.00
10	22.34	0.04	34	22.45	0.01
12	22.37	0.03	36	22.45	0.00
14	22.39	0.02	38	22.45	0.00
16	22.40	0.01	40	22.45	0.00
18	22.41	0.01			
20	22.42	0.01			
22	22.43	0.01			

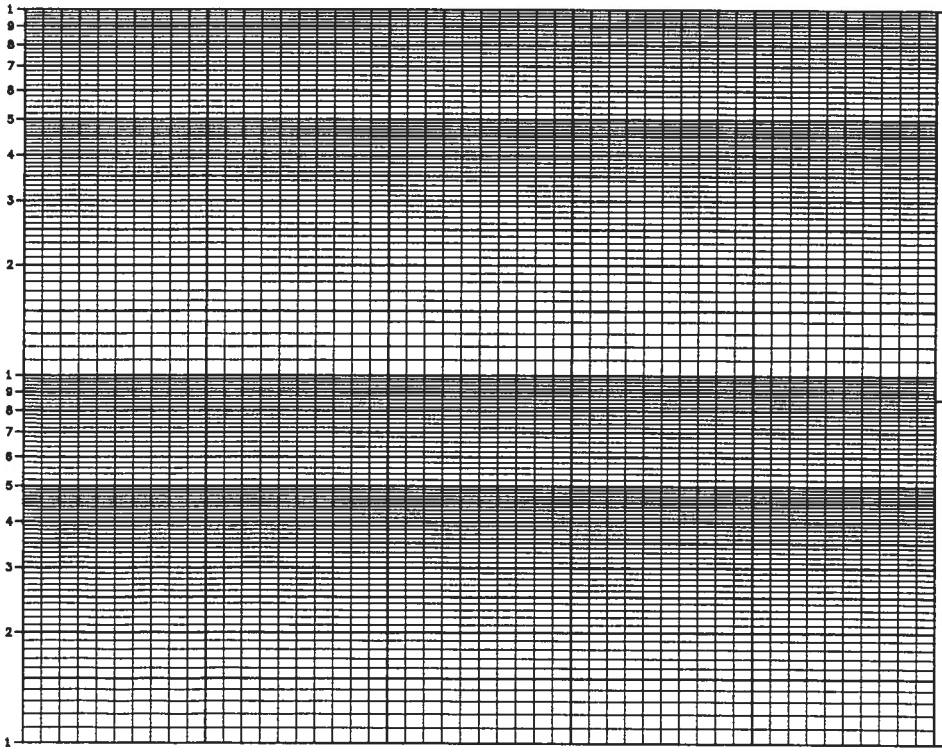
WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing

950

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-07B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alley / B. Gerngel

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: ~~S~~ 17

STATIC WATER LEVEL (Depth/Elevation): ~~S~~. 5.73' DATE: 07/29/08

TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5' PAGE 1 OF 2

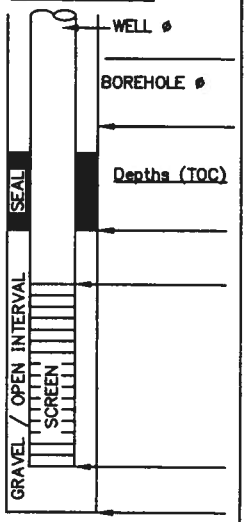
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Tol of Casing

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

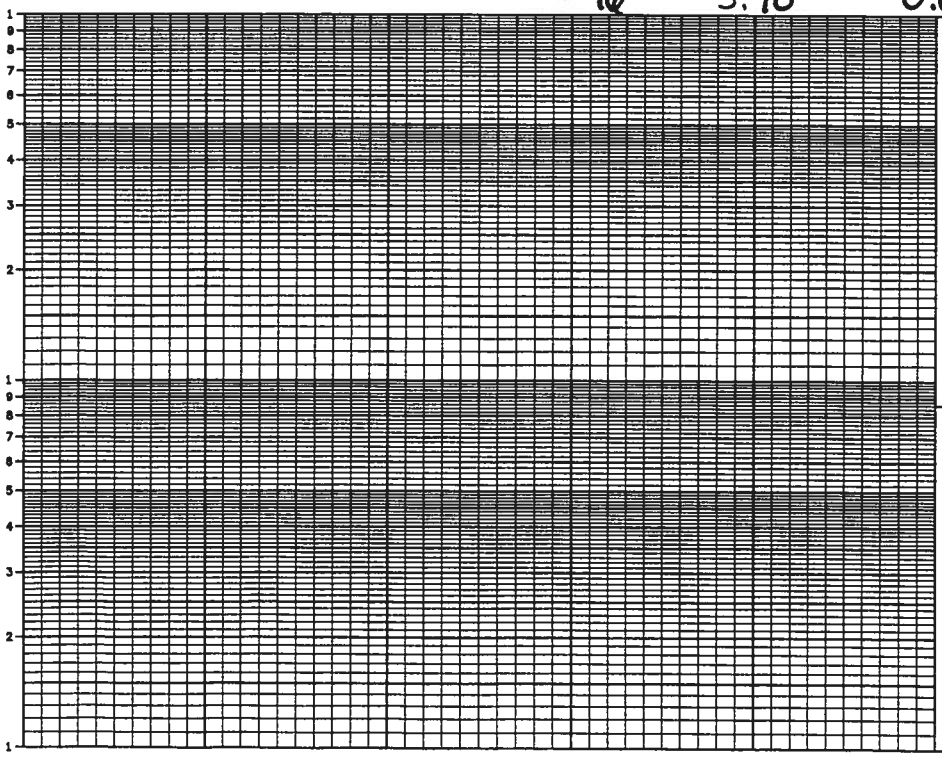
1300

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	4.58	—	22	5.57	0.02
2	4.90	0.32	24	5.58	0.01
4	5.03	0.13	26	5.60	0.02
6	5.14	0.11	28	5.61	0.01
8	5.25	0.11	30	5.62	0.01
10	5.31	0.06	32	5.64	0.02
12	5.36	0.05	34	5.65	0.01
14	5.41	0.05	36	5.66	0.01
16	5.46	0.05	38	5.67	0.01
18	5.50	0.04	40	5.68	0.01
20	5.5~~5~~	0.05	42	5.69	0.01
			44	5.70	0.01
			46	5.70	0.00

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC ~~FBB~~ Site 08 - Disposal Area WELL/BORING NO.: MW-07B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 4" SCREEN LENGTH/DEPTH: TEST NO.: 17

STATIC WATER LEVEL (Depth/Elevation): 5.73' DATE: 07/29/08

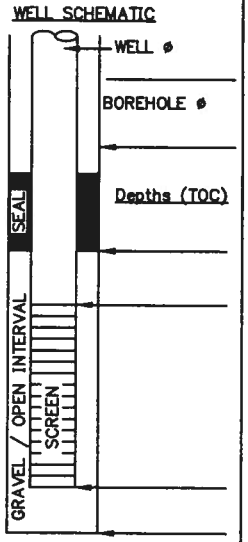
TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 2 OF 2

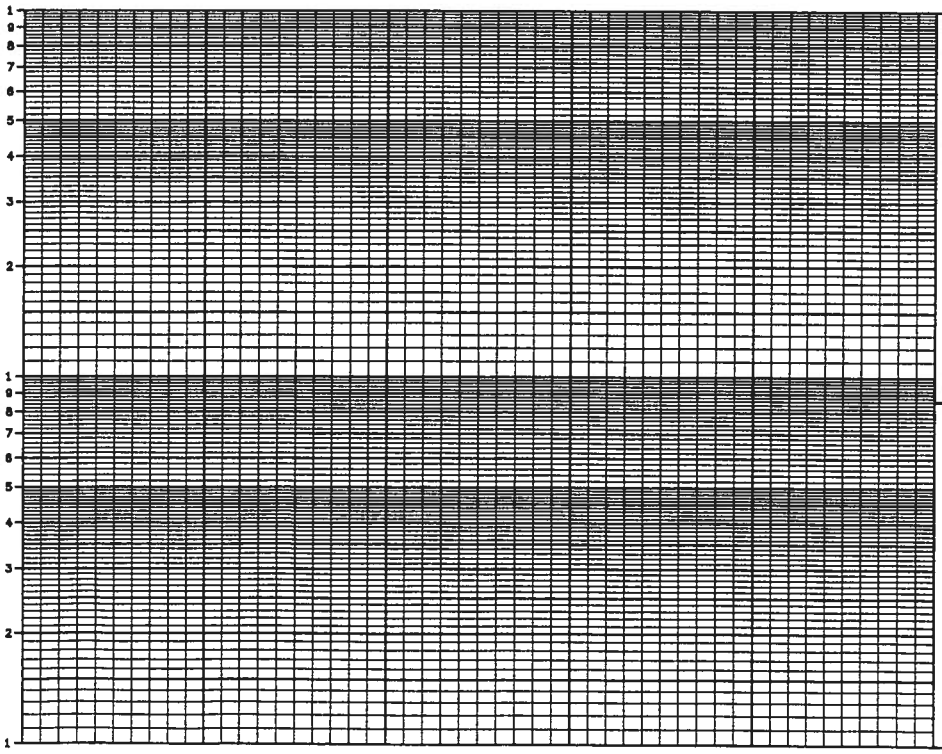
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
48	5.70	0.00			
50	5.71	0.01			
52	5.71	0.00			
54	5.71	0.00			
56	5.71	0.00			
58	5.72	0.01			
60	5.72	0.00			

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

CALCS, SKETCH MAPS, ETC.:

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NUWC Site 08 - Disposal Area WELL/BORING NO.: MW-09B

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alroy / B. Geringer

WELL DIAMETER: 6.5" SCREEN LENGTH/DEPTH: TEST NO.: 15

STATIC WATER LEVEL (Depth/Elevation): ~~6.22~~ 6.22" DATE: 07/28/08

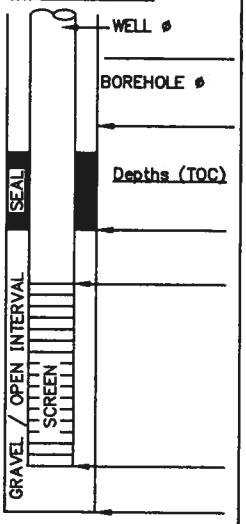
TEST TYPE (Rising/Falling/Constant Head): CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: SLUG (2) 1" + (1) 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	6.22	0			
2	6.22	0			
4	6.22	0			
6	6.22	0			
8	6.22	0			
10	6.22	0 *			

WELL SCHEMATIC



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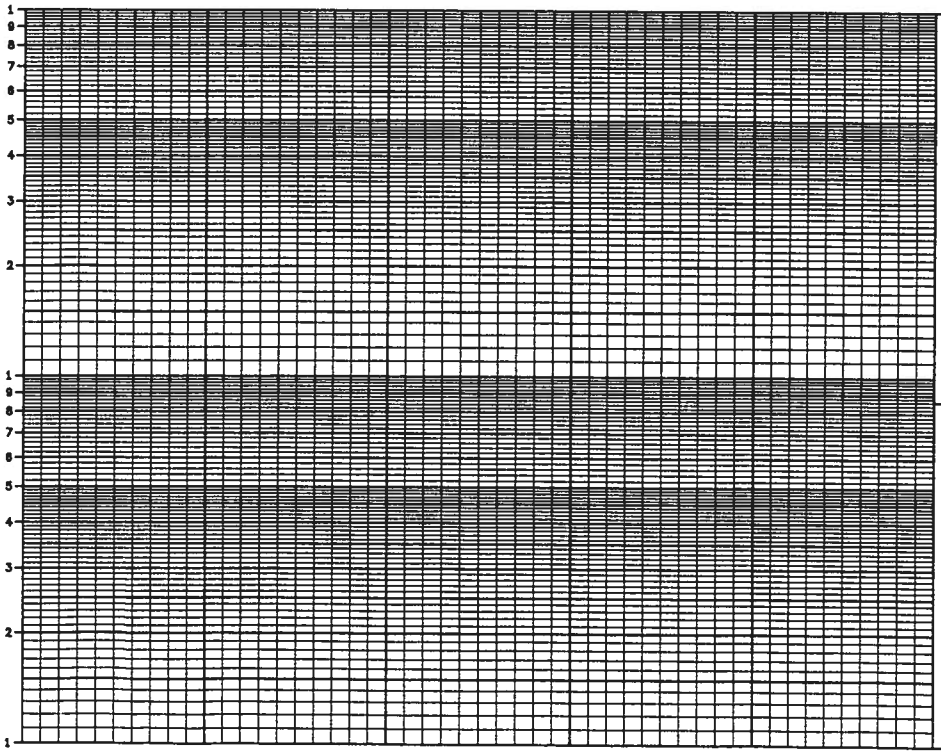


REMARKS:

* SLUG did not Change Water Level

CALCS, SKETCH MAPS, ETC.:

330

ACAD: FORM_HYDCONTST.dwg 07/06/99 INL

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: NWC Site 03- Disposal Area WELL/BORING NO.: MW-1123

PROJECT NO.: 112G00933.0212 GEOLOGIST: M. Alley / B. Goringer

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: ____ TEST NO.: 18

STATIC WATER LEVEL (Depth/Elevation): 14.48 DATE: 07/29/08

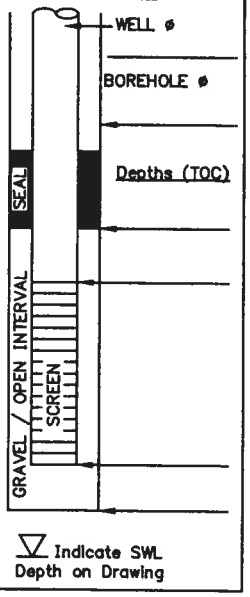
TEST TYPE (Rising/Falling/Constant Head): ____ CHECKED: ____

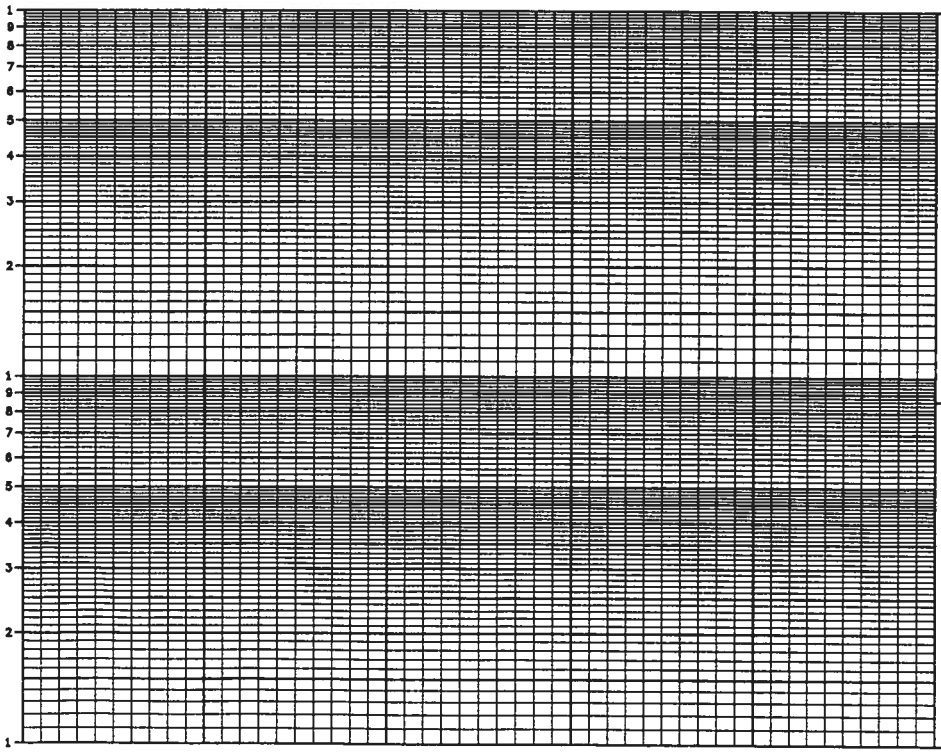
METHOD OF INDUCING WATER LEVEL CHANGE: SLUG 1 1.5" PAGE 1 OF 1

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): Top of Casing

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)
0	14.48	N/A			
2	14.48	↓			
4	14.48				
6	14.48				
8	14.48				
10	14.48				

WELL SCHEMATIC





REMARKS:

* Water level did not change after adding slug

CALCS, SKETCH MAPS, ETC.:

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

APPENDIX D.7

GRAIN SIZE AND TOC ANALYTICAL RESULTS

APPENDIX D.7

Grain Size and Total Organic Carbon Analytical Results
Remedial Investigation
Site 8, NUSC Disposal Area
NAVSTA Newport, Rhode Island

1.0 Grain Size Distribution

Analysis of grain size distribution was conducted on aliquots of sediment, surface soil and subsurface soil samples collected as described in Section 2.0. The term sediment is used in this report to describe the surface of the land that is under water or is periodically underwater along Melville Stream, Deerfield Creek, unnamed stream, NUWC Pond and Melville Pond. This material is a mix of sand, gravel, clay, silt and cobbles, as well as wood and plant fragments. Surface soil is described as soil collected from the zero to six inches below ground surface (bgs) and subsurface soil is described any soil collected greater than six inches bgs. Results from the grain size distribution analyses are summarized below. Surface and subsurface soils are described as a mix of sand, silt, gravel and clay.

Sediment

These results indicate that grain size differs based on the general location within the study area. Overall, coarse-grained materials, sand or sand and gravel, are the predominant materials observed in sediment samples collected along the Melville Brook (reference samples), unnamed stream and Deerfield Creek, at locations SD-RP04, SD-RP05, SD-01 through SD-06, SD-106 through SD-108, SD-110 through SD-112, SD-133 and SD-134 (Figures 2-3 and 2-4). One sample was collected at each location except for SD-02 and SD-106 where duplicate samples were collected. In total, 19 sediment samples were collected for grain size analysis along Melville Brook, the unnamed stream and Deerfield Creek. The grain sizes in the streams are fairly coarse, with sand and gravel content ranging from 43.0 to 96.7 percent of total sample material. In general, a gradation exists in the coarse-grained material observed in samples, with sand and gravel comprising a larger component of the material farthest from NUWC Pond. The silt and clay content of samples increases within the wetland area south of NUWC Pond (SD-06 and SD-112). Sample SD-112 is located closest to the Pond and fines (silt and clay) comprise 82.9 percent of the sediment material. Due to its proximity to the Pond and its presence in the wetland, grain size at the SD-112 location is more consistent with Pond sediment rather than stream sediment. Plant fragments were observed in four out of eighteen samples described above, samples collected at locations SD-107 and SD-112 also contained wood in addition to plant fragments. Samples from SD-133 and SD-110 contained debris and rust, respectively.

Sediment samples collected in NUWC Pond included sample locations SD-07, SD-08, SD-09, SD-114, SD-116, SD-119, SD-121 and SD-125. In total, nine samples were collected from NUWC Pond, as SD-119 was a duplicate location. Fine-grained materials (silt and clay) are the predominant components of the sediment samples collected in NUWC Pond ranging from 54.8 to 99.3 percent of total sample material. In general, a higher percentage of fined-grained materials were found in samples collected farthest from the outlet of Deerfield Creek and the unnamed stream, located at the southern portion of the Pond. At SD-119 wood fragments were observed, and at SD-114 and SD-116 plant fragments were observed. In reference samples collected from Melville Pond (RP-01 through RP-03), fine-grained silt and clay were present, ranging from 26.1 (RP-01) to 79.8 (RP-02) percent of the sediment material, with plant fragments detected. Fine sand ranged from 17.6 (RP-02) to 46.6 (RP-01) percent of the sediment material.

Surface Soil

Surface soil samples were collected from four separate areas including the North Meadow (SB-134), South Meadow (SB-127, SB-130, SB-133, MW-105B and MW-110B) west of the Paved Open Storage Area (SB-104, SB-108 and MW-103) and southeast of the Building 185 Complex (SB-152 and SB-153). The sample collected in the North Meadow (SB-134) was located in the southern portion, north of the unnamed stream, and was predominantly composed of silt (45.1%) and sand (33.5%), and contained plant fragments. Samples collected in the South Meadow were primarily sand and gravel (from 63.1 to 80.8 percent). Four of the five samples (SB-130, -132, -133 and MW-105B) were collected in the western portion of the South Meadow, and one sample (SB-127) was collected in the eastern portion of the South Meadow. All samples from the South Meadow contained plant fragments, and SB-127 contained tar, indicating this sample was at least in part from fill. Similar to the South Meadow, samples collected west of the Paved Open Storage Area were primarily sand and gravel (from 61.4 to 66.3 percent). Additionally, all three samples contained plant fragments with one sample also containing tar (MW-103B), indicating debris fill. Additionally, two surface soil samples were collected southeast of the Building 185 Complex: samples SB-152 and SB-153 contained 64.5 and 33 percent sand and gravel, respectively, and both contained plant fragments.

Two subsurface soil samples were collected for grain size analysis, including MW-110B and MW-104B. Both were collected from the eastern portion of the South Meadow at 10 to 12 feet bgs. Sand and gravel materials comprised 64.7 and 65.5 percent of the total sample material, respectively. In addition, sample MW-110B contained plant fragments, glass, brick, and tar, indicating debris fill.

With the exception of a few locations, these results indicate a predominance of coarse-grained materials in both stream and terrestrial locations, with more fined-grained materials encountered in aquatic or semi–aquatic locations. The presence of debris (in samples MW-103B, MW-110B, and SB-127) indicates these sample locations have been altered from their natural state, presumably related to disposal activities that historically took place on site.

2.0 Total Organic Carbon

Analysis of total organic carbon (TOC) was conducted on aliquots of sediment as described in Section 2.2 of this report, and on aliquots of surface soil and subsurface soil samples collected as described in Section 2.3 of this report. Samples analyzed for TOC were the same samples described above that were analyzed for grain size. A total of 12 surface soil, two subsurface soil and 30 sediment samples were collected which includes five reference sediment samples. Three of the five reference sediment samples were collected in Melville Pond, and TOC concentrations ranged from 16,000 milligrams per kilogram (mg/kg) to 75,000 mg/kg, averaging 45,000 mg/kg. Reference samples collected in Melville stream were 16,000 mg/kg and 18,000 mg/kg. TOC concentrations in nine sediment samples collected in NUWC Pond ranged from 31,000 mg/kg to 78,000 mg/kg, averaging 54,133 mg/kg, while samples collected in Deerfield Creek and the unnamed stream ranged form 3,700 mg/kg to 96,000 mg/kg, averaging 27,369 mg/kg. TOC concentrations ranged form 4,900 to 76,000 in the twelve surface soil samples analyzed, averaging 31,600 mg/kg, and concentrations of the two subsurface soil samples, DA-B104B-1012 and DA-B110B-1012, were 18,000 mg/kg and 29,000 mg/kg, respectively.

The highest TOC concentrations were found in pond sediment samples collected from NUWC and Melville Ponds. These samples contained the greatest amount of fine-grained materials such as clay and silt, along with decomposing plants and organisms, rich sources of organic carbon which accounts for higher TOC concentrations. The second highest TOC results were from surface soil samples, followed by stream sediment samples, with subsurface soils containing the lowest TOC. Higher TOC detected in surface soil and stream sediments compared to subsurface soil directly relates to biological activity. In many of the surface soil samples plant fragment were detected, thus contributing to higher organic carbon concentrations.

PROJ_NO: 00816	NSAMPLE	~~DA-SD01-0006~~ DA-SD134-0006	DA-SD106-0006	DA-SD107-0006	DA-SD108-0006
SDG: CTO402-9	LAB_ID	753517	753515	753510	753511
FRACTION: MISCO	SAMP_DATE	5/20/2008	5/20/2008	5/19/2008	5/19/2008
MEDIA: SEDIMENT	QC_TYPE	NM	NM	NM	NM
	UNITS	%	%	%	%
	PCT_SOLIDS				
	DUP_OF				

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM	1.2			4.2			0.8			0.3		
HYDROMETER-12.9UM	0.6			5.6			1.6			0		
HYDROMETER-21.5UM	1.2			4.2			0.8			0		
HYDROMETER-3.4UM	1.8			5.6			1.6			0.3		
HYDROMETER-32.8UM	7.8			0.7			8.8			2.5		
HYDROMETER-6.6UM	1.8			4.2			0.8			0		
HYDROMETER-9.1UM	1.2			4.2			1.6			0.3		
PERCENT CLAY	4.5			15.7			4.3			0.6		
PERCENT COARSE SAND	10.2			8.4			11.3			7.7		
PERCENT FINE SAND	15.1			28.2			29.2			0.3		
PERCENT GRAVEL	33.6			8.8			8.1			85.8		
PERCENT MEDIUM SAND	23.9			20.2			33.4			2.8		
PERCENT SILT	12.8			18.7			13.7			2.7		
SIEVE 1"	0			0			0			6.1		
SIEVE 1-1/2"	0			0			0			0		
SIEVE 2"	0			0			0			0		
SIEVE 3"	0			0			0			0		
SIEVE 3/4"	13.6			0			0			0		
SIEVE 3/8"	6			0			3.2			56.3		
SIEVE NO. 004	14			8.8			4.8			23.4		
SIEVE NO. 010	10.2			8.4			11.3			7.7		
SIEVE NO. 020	13.4			9.3			15.9			2.2		
SIEVE NO. 040	10.5			10.9			17.5			0.6		
SIEVE NO. 060	6.1			8.6			12			0.1		
SIEVE NO. 080	4.8			8.6			8.2			0.1		
SIEVE NO. 100	1.1			2			2.1			0		
SIEVE NO. 200	3.1			9			6.9			0.1		

PROJ_NO: 00816	NSAMPLE	DA-SD110-0006			DA-SD111-0006			DA-SD112-0006			DA-SD114-0006		
SDG: CTO402-9	LAB_ID	753514			753512			753513			753519		
FRACTION: MISCO	SAMP_DATE	5/20/2008			5/19/2008			5/19/2008			5/20/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		1			1.4			4.2			3.3		
HYDROMETER-12.9UM		1.5			2.7			8.4			6.5		
HYDROMETER-21.5UM		1.5			1.4			8.4			4.3		
HYDROMETER-3.4UM		1.5			2.7			9.9			5.4		
HYDROMETER-32.8UM		6.4			6.1			34.5			26.2		
HYDROMETER-6.6UM		1			0			4.2			1.1		
HYDROMETER-9.1UM		1			2.7			5.6			4.3		
PERCENT CLAY		4.1			7.3			21.6			12.3		
PERCENT COARSE SAND		13			6.6			1.2			2.1		
PERCENT FINE SAND		14.5			35.4			12.2			26.4		
PERCENT GRAVEL		33.3			9.3			0.6			7.8		
PERCENT MEDIUM SAND		23.9			28.4			3.1			9		
PERCENT SILT		11.2			12.9			61.3			42.5		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			0			0			0		
SIEVE 3/8"		20.4			5.7			0			6.1		
SIEVE NO. 004		12.9			3.6			0.6			1.7		
SIEVE NO. 010		13			6.6			1.2			2.1		
SIEVE NO. 020		13.5			10.3			0.6			3.2		
SIEVE NO. 040		10.5			18.1			2.4			5.8		
SIEVE NO. 060		6.1			15			1.6			6.3		
SIEVE NO. 080		4			10.6			3			6.7		
SIEVE NO. 100		0.9			2.2			0.7			1.7		
SIEVE NO. 200		3.5			7.6			6.9			11.7		

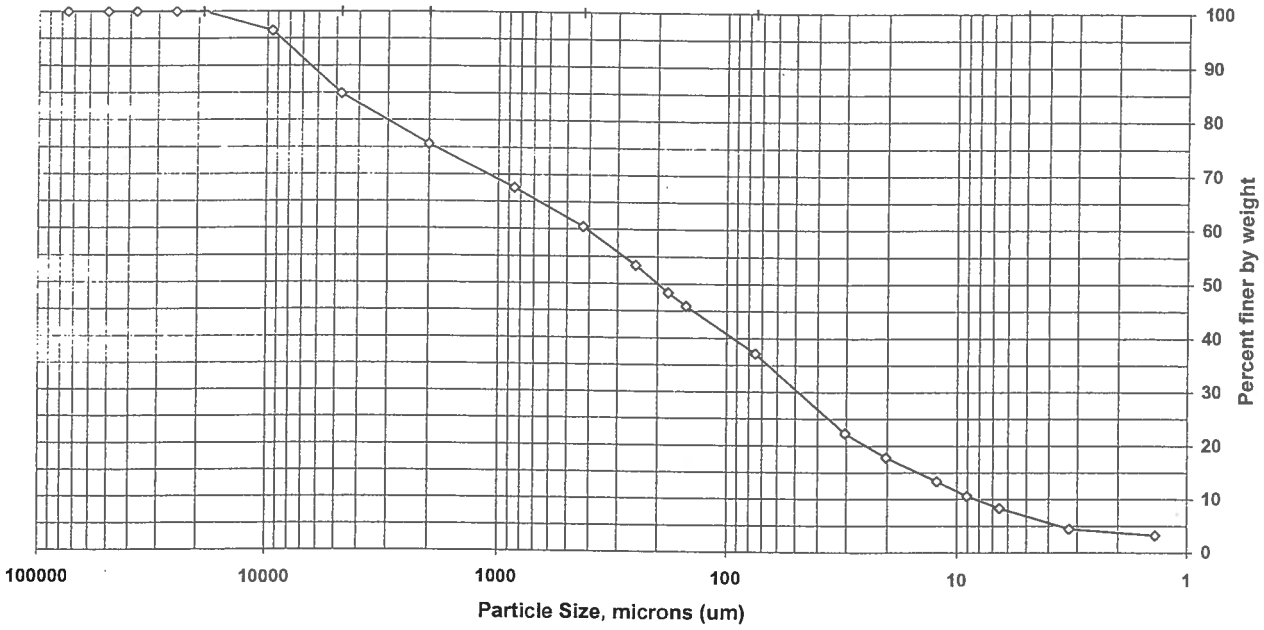
PROJ_NO: 00816	NSAMPLE	DA-SD116-0006			DA-SD119-0006			DA-SD121-0006			DA-SD125-0006		
SDG: CTO402-9	LAB_ID	753518			753521			753523			753524		
FRACTION: MISCO	SAMP_DATE	5/20/2008			5/21/2008			5/21/2008			5/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		4.7			1.9			6.8			9.6		
HYDROMETER-12.9UM		7.8			11.6			18.8			27.2		
HYDROMETER-21.5UM		7.8			15.5			22.2			13.4		
HYDROMETER-3.4UM		6.3			8.1			8.6			9.6		
HYDROMETER-32.8UM		38.9			33.3			17.8			8.4		
HYDROMETER-6.6UM		4.7			3.9			8.6			11.5		
HYDROMETER-9.1UM		7.8			7.7			12.3			15.4		
PERCENT CLAY		19.3			14.2			17.4			23.4		
PERCENT COARSE SAND		0.1			0.8			0			0		
PERCENT FINE SAND		11.7			9.8			2.3			0.7		
PERCENT GRAVEL		0.3			1.6			0			0		
PERCENT MEDIUM SAND		1.7			1.5			0.5			0.1		
PERCENT SILT		67			72			79.7			75.9		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			0			0			0		
SIEVE 3/8"		0			0			0			0		
SIEVE NO. 004		0.3			1.6			0			0		
SIEVE NO. 010		0.1			0.8			0			0		
SIEVE NO. 020		0.7			0.4			0.2			0		
SIEVE NO. 040		98			1.1			0.3			0.1		
SIEVE NO. 060		0.9			0.8			0.2			0.1		
SIEVE NO. 080		1.9			1.6			0.4			0.1		
SIEVE NO. 100		0.8			0.8			0.2			0.1		
SIEVE NO. 200		8.1			6.7			1.5			0.3		

PROJ_NO: 00816	NSAMPLE	DA-SD133-0006			DA-SD-DUP01			DA-SD-DUP02		
SDG: CTO402-9	LAB_ID	753516			753520			753522		
FRACTION: MISCO	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM		
	UNITS	%			%			%		
	PCT_SOLIDS									
	DUP_OF				DA-SD106-0006			DA-SD119-0006		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		0.6			3.1			3		
HYDROMETER-12.9UM		0.6			3.9			10.5		
HYDROMETER-21.5UM		0.6			3.1			12		
HYDROMETER-3.4UM		1.2			3.2			6.3		
HYDROMETER-32.8UM		0.2			4.8			44.2		
HYDROMETER-6.6UM		0.6			2.3			4.5		
HYDROMETER-9.1UM		1.2			3.1			4.5		
PERCENT CLAY		2.6			8			11		
PERCENT COARSE SAND		11.9			9.4			1.6		
PERCENT FINE SAND		3			18.8			8.5		
PERCENT GRAVEL		69.5			28.3			2.1		
PERCENT MEDIUM SAND		9.8			18.4			1		
PERCENT SILT		3.2			17.1			75.7		
SIEVE 1"		0			0			0		
SIEVE 1-1/2"		0			0			0		
SIEVE 2"		0			0			0		
SIEVE 3"		0			0			0		
SIEVE 3/4"		20.9			0			0		
SIEVE 3/8"		26.7			20.5			0		
SIEVE NO. 004		21.8			7.8			2.1		
SIEVE NO. 010		11.9			9.4			1.6		
SIEVE NO. 020		6.5			9.8			0.3		
SIEVE NO. 040		3.3			8.6			0.8		
SIEVE NO. 060		1.1			5.9			0.8		
SIEVE NO. 080		1			5.3			1.3		
SIEVE NO. 100		0.2			1.4			0.7		
SIEVE NO. 200		0.7			6.2			5.8		

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS103B-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738419			End Date:	1/29/2008

Percent Solids:	87.9%	Non-soil material:	plant, tar
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	96.5	3.5
#4	4750	84.9	11.6
#10	2000	75.5	9.3
#20	850	67.6	8.0
#40	425	60.5	7.1
#60	250	53.4	7.1
#80	180	48.4	5.0
#100	150	45.9	2.4
#200	75	37.1	8.8
Hydrometer	30.5	22.3	14.8
I	20.3	17.8	4.5
I	12.2	13.4	4.5
I	9.0	10.6	2.8
I	6.5	8.4	2.2
I	3.3	4.5	3.9
V	1.4	3.3	1.2

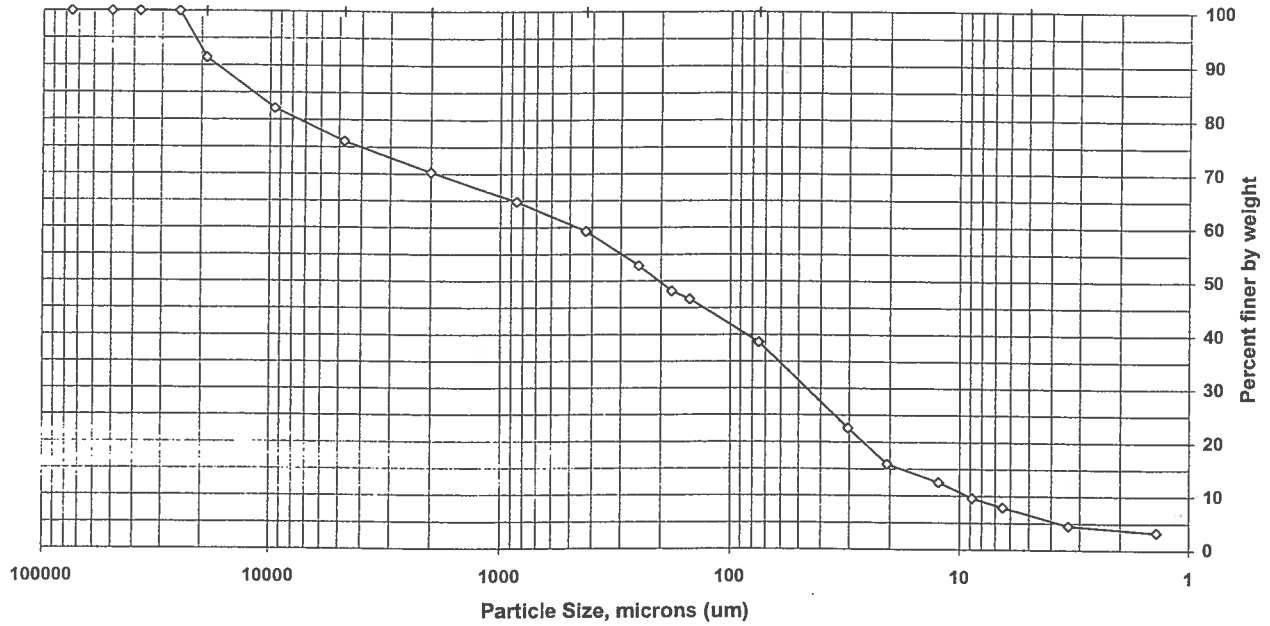
Soil Classification	Percent of Total Sample
Gravel	15.1
Sand	47.7
Coarse Sand	9.3
Medium Sand	15.1
Fine Sand	23.3
Silt	28.8
Clay	8.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS104-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738422			**End Date:**	1/29/2008

Percent Solids:	85.4%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	91.4	8.6
3/8 inch	9500	82.1	9.3
#4	4750	76.1	6.1
#10	2000	70.3	5.7
#20	850	64.8	5.5
#40	425	59.3	5.5
#60	250	52.9	6.5
#80	180	48.2	4.7
#100	150	46.7	1.5
#200	75	38.6	8.1
Hydrometer	30.5	22.6	16.0
I	20.6	15.9	6.7
I	12.3	12.5	3.4
I	8.8	9.6	2.9
I	6.5	7.9	1.7
I	3.4	4.5	3.4
V	1.4	3.3	1.2

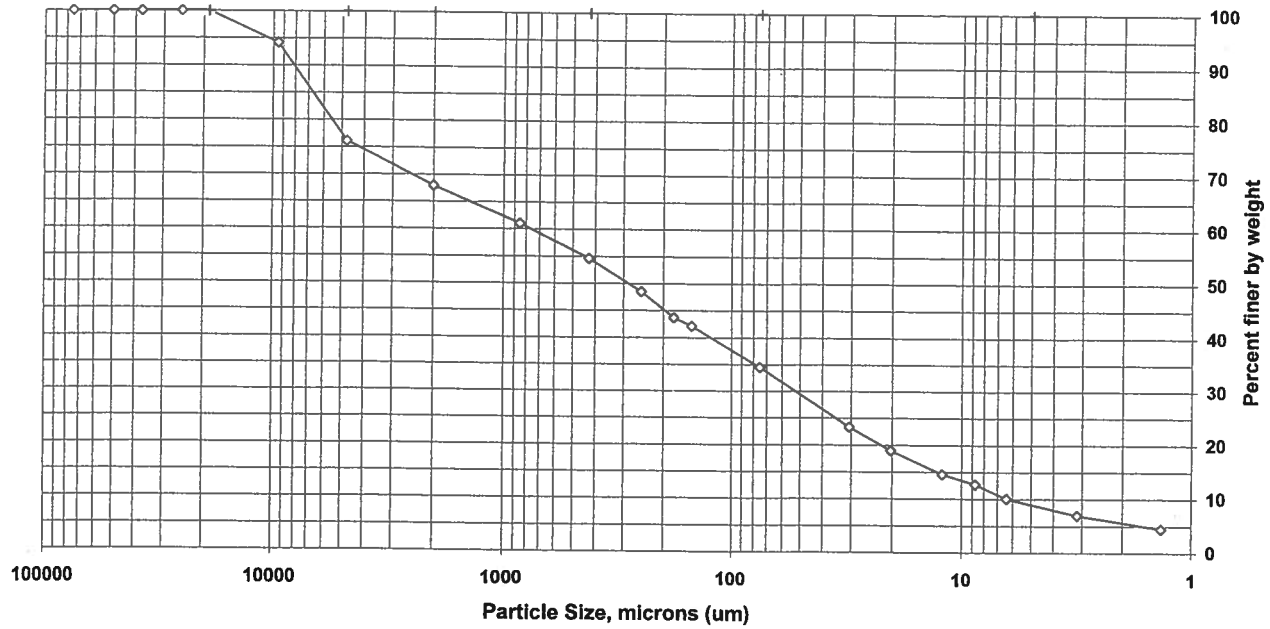
Soil Classification	Percent of Total Sample
Gravel	23.9
Sand	37.5
Coarse Sand	5.7
Medium Sand	11.0
Fine Sand	20.7
Silt	30.7
Clay	7.9

Preparation Method: D2217
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	125118	**Date Received:**	4/23/2008
Sample ID:	SA-B104B-1012	**ETR(s):**	125118	**Start Date:**	4/23/2008
Lab ID:	749616			**End Date:**	4/30/2008

Percent Solids:	87.2%	**Non-soil material:**	n/a
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	94.2	5.8
#4	4750	76.1	18.0
#10	2000	67.9	8.2
#20	850	61.0	6.9
#40	425	54.6	6.4
#60	250	48.5	6.1
#80	180	43.7	4.8
#100	150	42.1	1.6
#200	75	34.5	7.6
Hydrometer	30.7	23.4	11.1
|	20.2	19.0	4.4
|	12.2	14.6	4.4
|	8.7	12.7	1.9
|	6.4	10.1	2.6
|	3.1	7.0	3.1
V	1.4	4.5	2.5

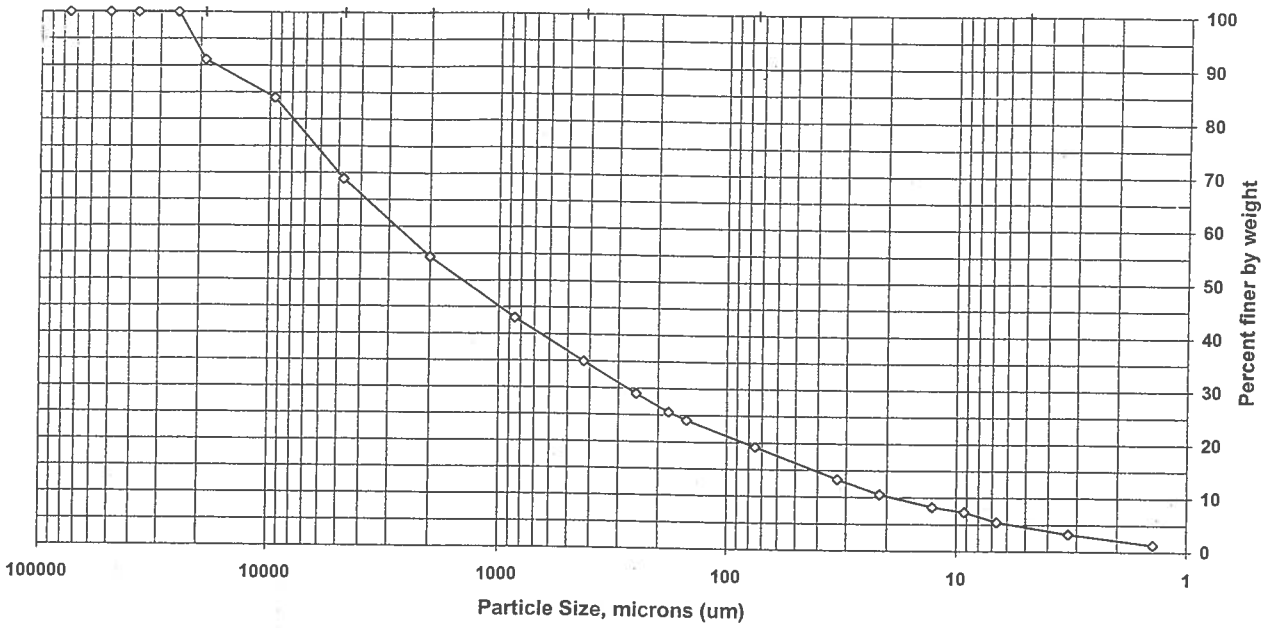
Soil Classification	Percent of Total Sample
Gravel	23.9
Sand	41.6
Coarse Sand	8.2
Medium Sand	13.3
Fine Sand	20.1
Silt	24.4
Clay	10.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	C70402-4	**Date Received:**	1/18/2008
Sample ID:	DA-SS105B-011608	**ETR(s):**	123846	**Start Date:**	1/18/2008
Lab ID:	738543			**End Date:**	1/25/2008

Percent Solids:	86.6%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	91.1	8.9
3/8 inch	9500	84.0	7.1
#4	4750	68.8	15.1
#10	2000	54.3	14.5
#20	850	43.0	11.3
#40	425	35.0	8.0
#60	250	29.0	6.0
#80	180	25.6	3.4
#100	150	24.1	1.5
#200	75	19.2	4.8
Hydrometer	32.8	13.3	5.9
I	21.5	10.5	2.8
I	12.7	8.2	2.3
I	9.2	7.3	0.9
I	6.7	5.5	1.8
I	3.3	3.2	2.2
V	1.4	1.3	1.9

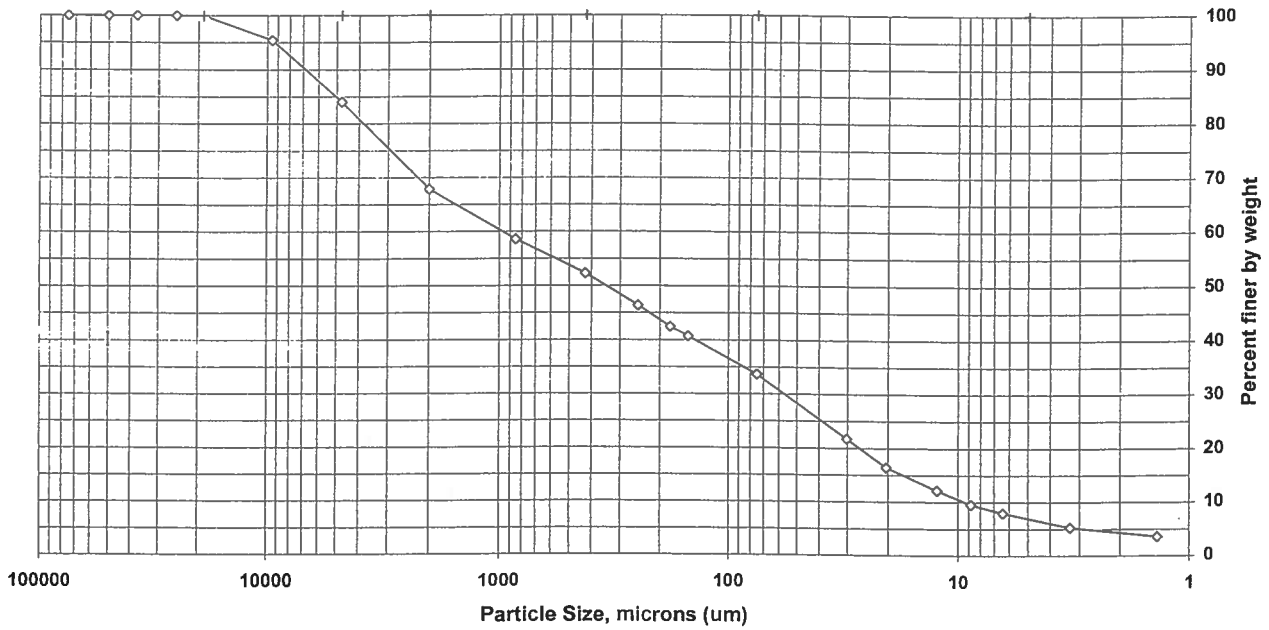
Soil Classification	Percent of Total Sample
Gravel	31.2
Sand	49.6
Coarse Sand	14.5
Medium Sand	19.4
Fine Sand	15.7
Silt	13.8
Clay	5.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS108-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738421			End Date:	1/29/2008

Percent Solids:	89.4%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	95.4	4.6
#4	4750	84.1	11.4
#10	2000	67.9	16.2
#20	850	58.6	9.3
#40	425	52.3	6.3
#60	250	46.4	5.9
#80	180	42.5	3.9
#100	150	40.7	1.8
#200	75	33.7	7.0
Hydrometer	30.2	21.7	11.9
I	20.4	16.4	5.3
I	12.3	12.2	4.2
I	8.8	9.5	2.7
I	6.4	8.0	1.6
I	3.3	5.3	2.7
V	1.4	3.6	1.7

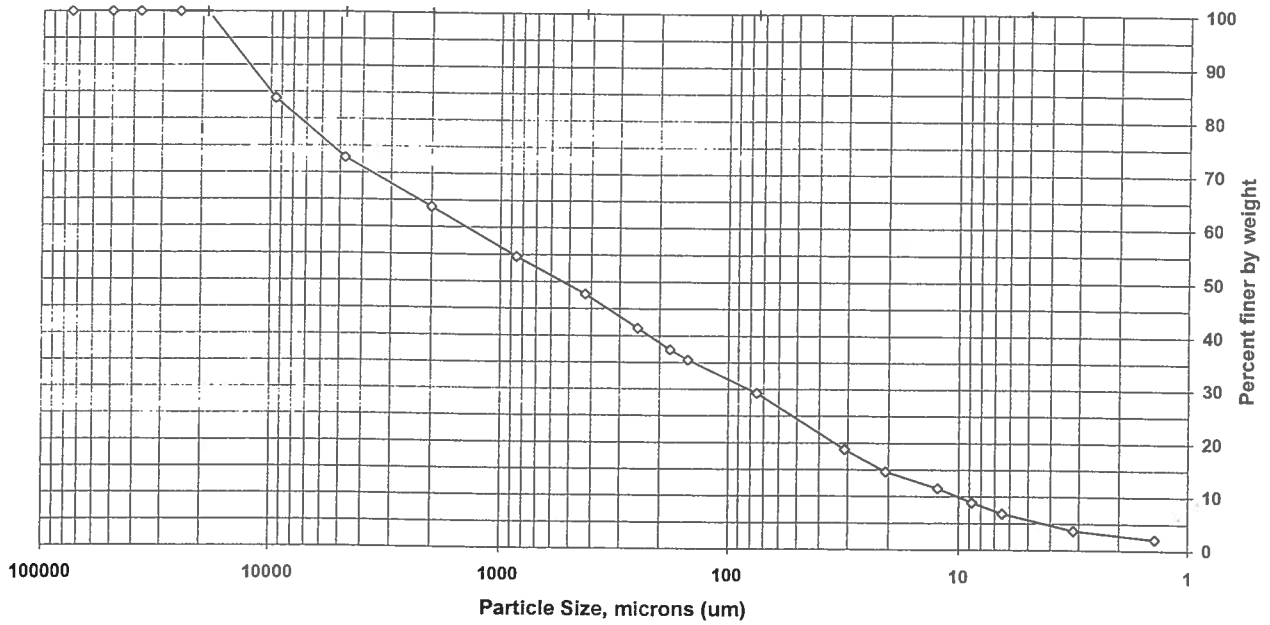
Soil Classification	Percent of Total Sample
Gravel	15.9
Sand	50.4
Coarse Sand	16.2
Medium Sand	15.6
Fine Sand	18.6
Silt	25.7
Clay	8.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS110B-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738423			End Date:	1/29/2008

Percent Solids:	85.8%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	83.8	16.2
#4	4750	72.8	11.0
#10	2000	63.8	9.0
#20	850	54.6	9.1
#40	425	47.7	6.9
#60	250	41.4	6.3
#80	180	37.4	4.1
#100	150	35.5	1.9
#200	75	29.3	6.2
Hydrometer	31.1	18.8	10.5
I	20.6	14.6	4.2
I	12.3	11.5	3.1
I	8.8	8.9	2.6
I	6.5	6.8	2.1
I	3.2	3.6	3.2
V	1.4	2.1	1.6

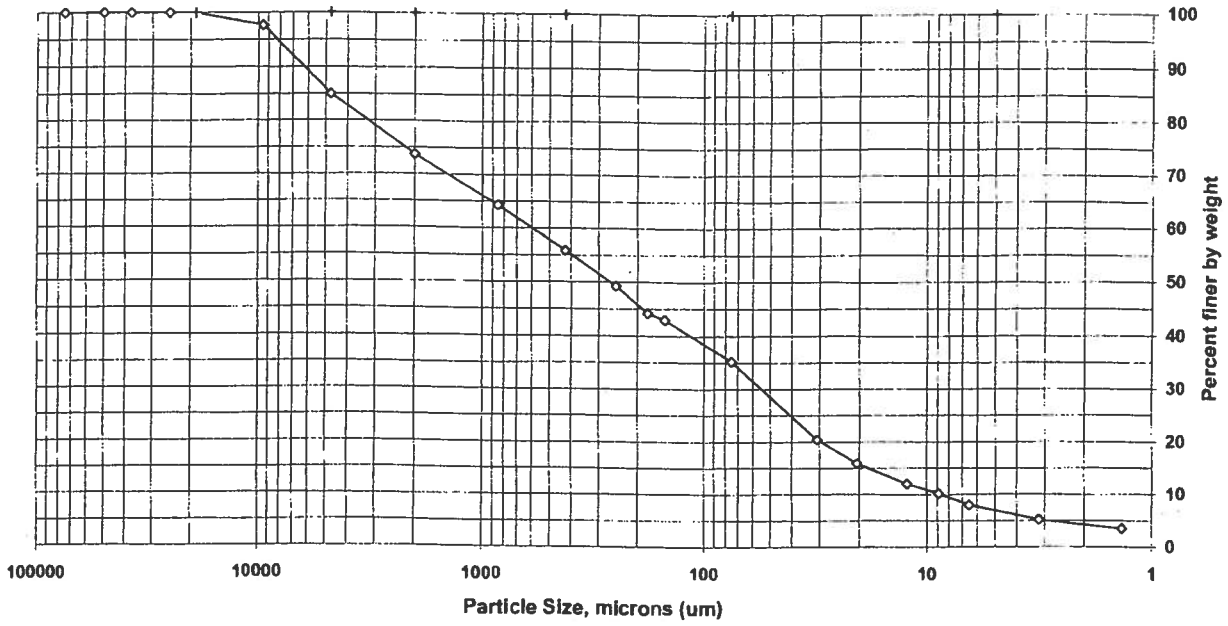
Soil Classification	Percent of Total Sample
Gravel	27.2
Sand	43.5
Coarse Sand	9.0
Medium Sand	16.0
Fine Sand	18.5
Silt	22.4
Clay	6.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	125118	**Date Received:**	4/23/2008
Sample ID:	DA-B110B-1012	**ETR(s):**	125118	**Start Date:**	4/23/2008
Lab ID:	749617			**End Date:**	4/30/2008

Percent Solids:	83.5%	**Non-soil material:**	plant, glass, brick, tar
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.6	2.4
#4	4750	85.0	12.7
#10	2000	73.7	11.3
#20	850	64.3	9.4
#40	425	55.8	8.5
#60	250	49.2	6.6
#80	180	44.2	5.0
#100	150	43.0	1.2
#200	75	35.3	7.7
Hydrometer	30.9	20.4	14.8
|	20.5	15.9	4.5
|	12.3	12.0	3.9
|	8.9	10.2	1.8
|	6.5	8.0	2.2
|	3.2	5.1	2.8
V	1.4	3.5	1.7

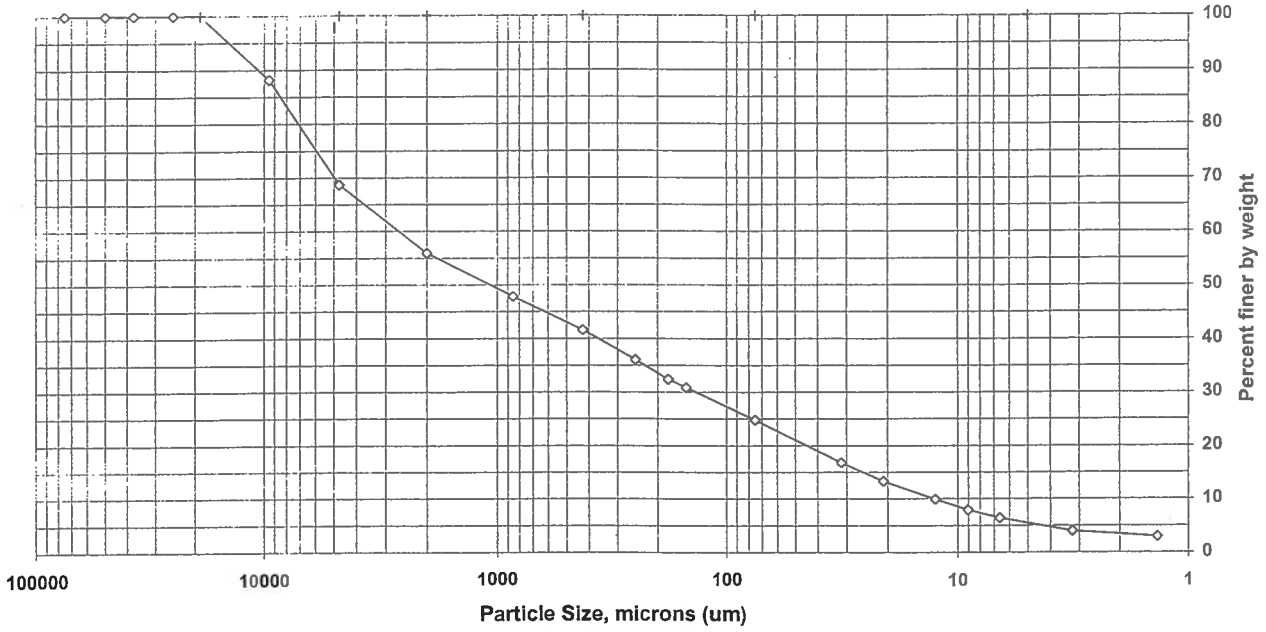
Soil Classification	Percent of Total Sample
Gravel	15.0
Sand	49.7
Coarse Sand	11.3
Medium Sand	17.9
Fine Sand	20.6
Silt	27.3
Clay	8.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS127-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738418			End Date:	1/29/2008

Percent Solids:	89.3%	Non-soil material:	plant, tar
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	88.2	11.8
#4	4750	68.7	19.4
#10	2000	55.9	12.8
#20	850	47.8	8.1
#40	425	41.6	6.2
#60	250	36.1	5.5
#80	180	32.4	3.6
#100	150	30.8	1.6
#200	75	24.8	6.0
Hydrometer	31.6	16.8	8.0
|	20.9	13.3	3.5
|	12.5	9.9	3.5
|	9.0	7.9	2.0
|	6.6	6.4	1.5
|	3.2	4.0	2.5
V	1.4	3.0	1.0

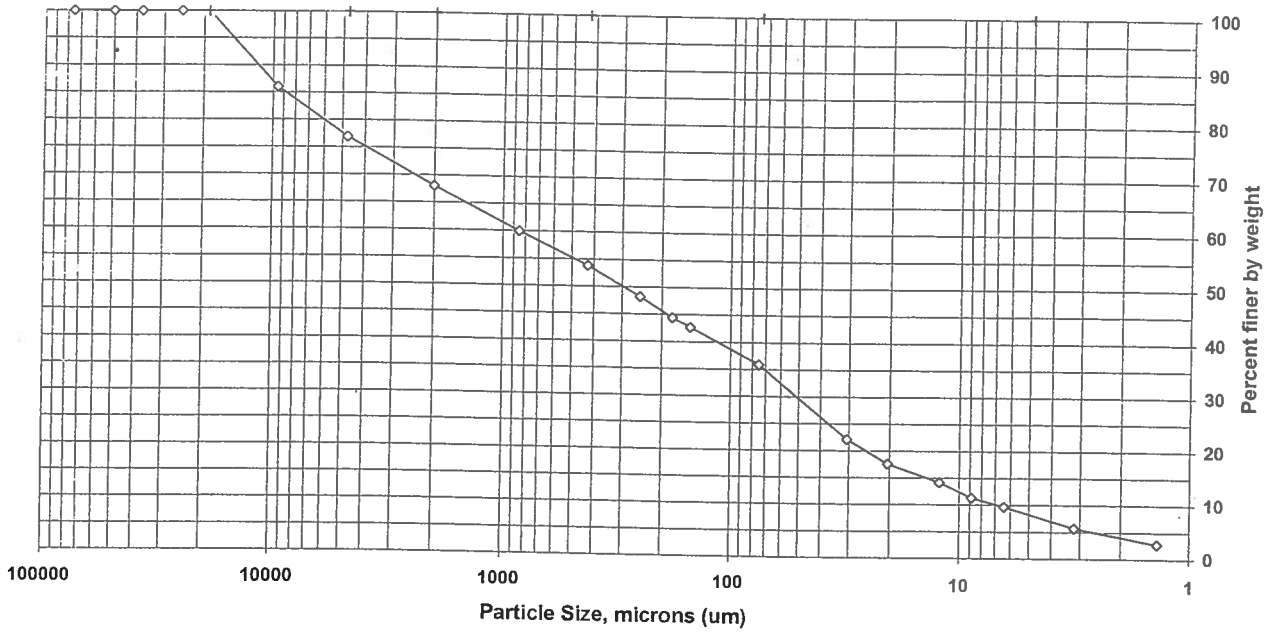
Soil Classification	Percent of Total Sample
Gravel	31.3
Sand	44.0
Coarse Sand	12.8
Medium Sand	14.3
Fine Sand	16.8
Silt	18.4
Clay	6.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS130-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738417			End Date:	1/29/2008

Percent Solids:	86.6%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	86.0	14.0
#4	4750	76.9	9.1
#10	2000	68.0	8.9
#20	850	59.9	8.1
#40	425	53.8	6.2
#60	250	48.2	5.6
#80	180	44.4	3.7
#100	150	42.7	1.8
#200	75	35.9	6.8
Hydrometer	30.7	22.1	13.8
I	20.4	17.6	4.5
I	12.2	14.2	3.4
I	8.8	11.4	2.8
I	6.4	9.6	1.7
I	3.2	5.7	4.0
V	1.4	2.7	2.9

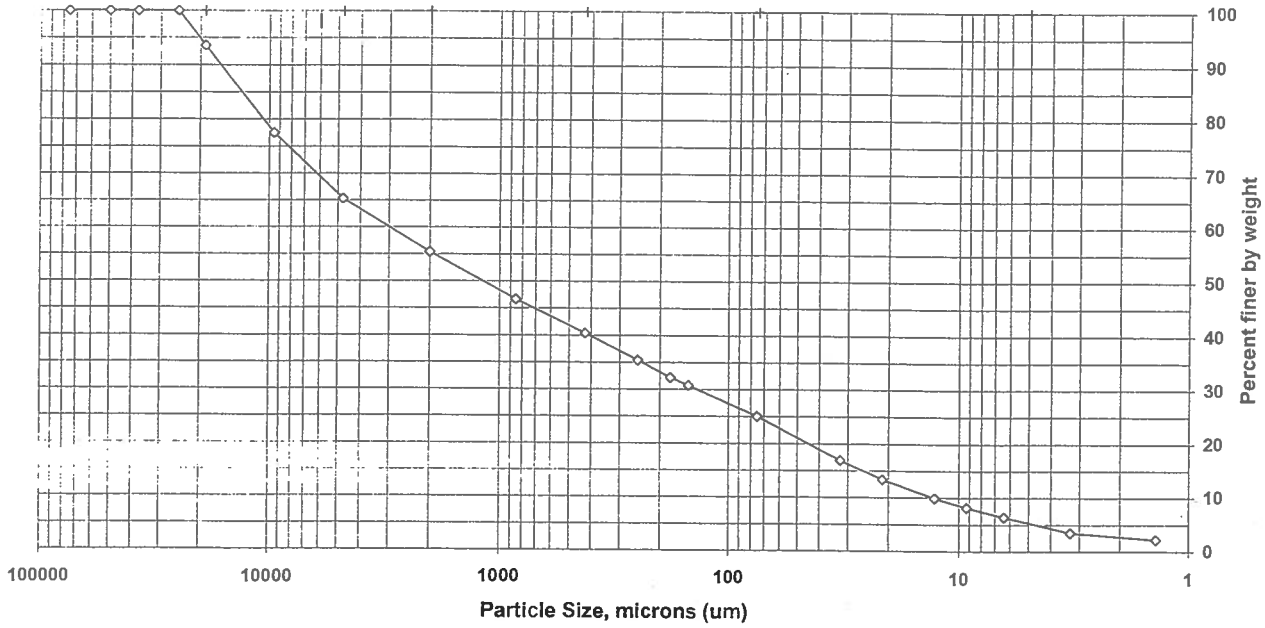
Soil Classification	Percent of Total Sample
Gravel	23.1
Sand	41.0
Coarse Sand	8.9
Medium Sand	14.2
Fine Sand	17.9
Silt	26.2
Clay	9.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-22133-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738420			End Date:	1/29/2008

Percent Solids:	84.2%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	25 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	93.6	6.4
3/8 inch	9500	77.5	16.1
#4	4750	65.3	12.2
#10	2000	55.4	9.9
#20	850	46.6	8.7
#40	425	40.4	6.3
#60	250	35.4	5.0
#80	180	32.2	3.2
#100	150	30.7	1.5
#200	75	25.1	5.7
Hydrometer	32.6	16.9	8.2
I	21.3	13.4	3.5
I	12.7	9.9	3.5
I	9.3	8.2	1.7
I	6.4	6.4	1.7
I	3.3	3.5	2.9
V	1.4	2.2	1.3

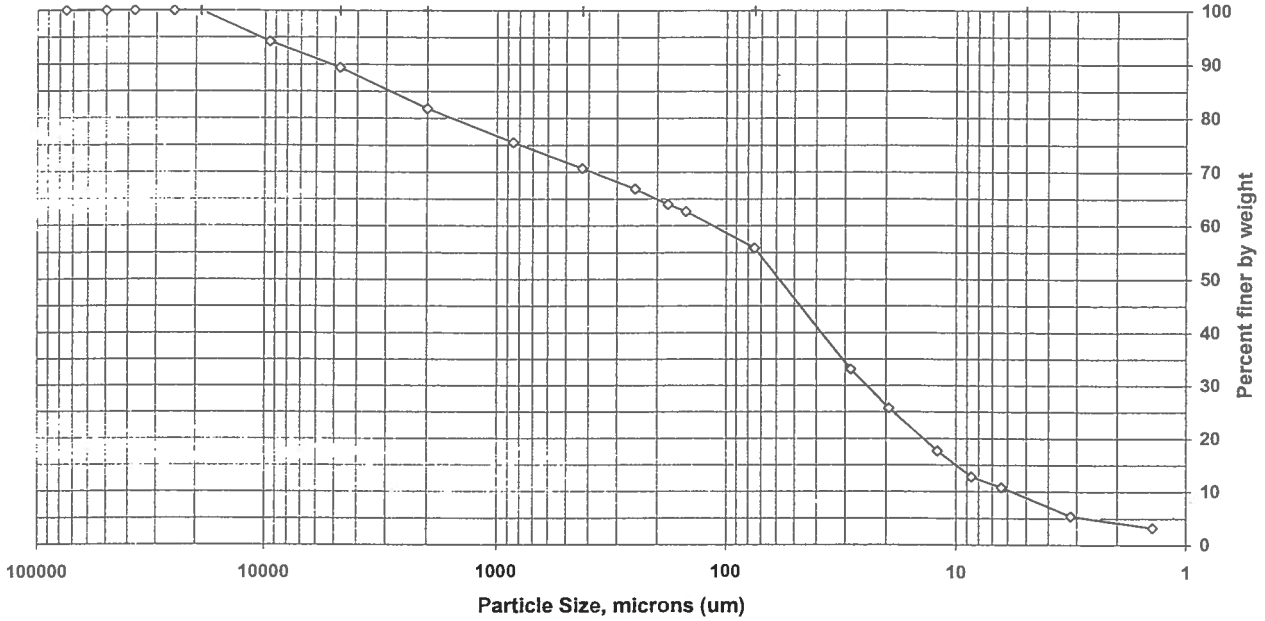
Soil Classification	Percent of Total Sample
Gravel	34.7
Sand	40.2
Coarse Sand	9.9
Medium Sand	15.0
Fine Sand	15.3
Silt	18.7
Clay	6.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS134-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738424			**End Date:**	1/29/2008

Percent Solids:	83.3%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	94.2	5.8
#4	4750	89.4	4.9
#10	2000	81.8	7.6
#20	850	75.5	6.3
#40	425	70.7	4.8
#60	250	66.8	3.9
#80	180	64.0	2.8
#100	150	62.6	1.4
#200	75	55.9	6.8
Hydrometer	28.4	33.2	22.7
I	19.4	25.7	7.4
I	12.0	17.6	8.1
I	8.6	12.8	4.8
I	6.4	10.8	2.0
I	3.2	5.4	5.4
V	1.4	3.3	2.1

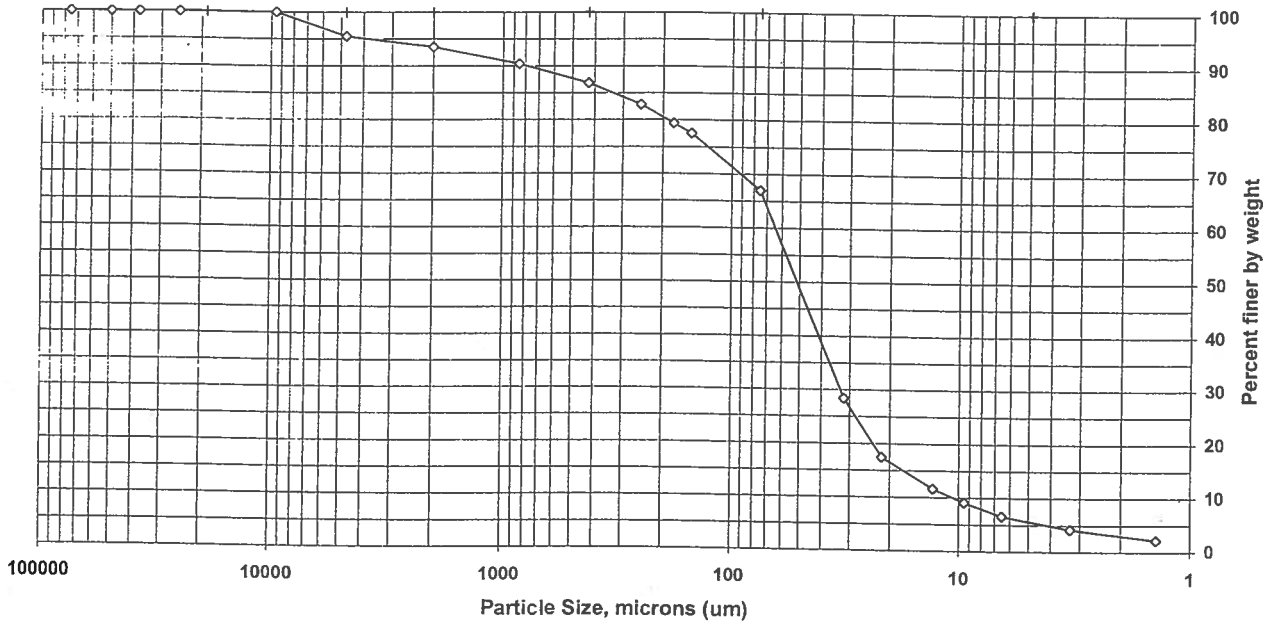
Soil Classification	Percent of Total Sample
Gravel	10.6
Sand	33.5
Coarse Sand	7.6
Medium Sand	11.1
Fine Sand	14.8
Silt	45.1
Clay	10.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	C70402-4	**Date Received:**	1/18/2008
Sample ID:	DA-SS152-011608	**ETR(s):**	123846	**Start Date:**	1/18/2008
Lab ID:	738544			**End Date:**	1/25/2008

Percent Solids:	78.3%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	95.5	4.5
#10	2000	93.5	2.0
#20	850	90.4	3.1
#40	425	86.9	3.5
#60	250	82.8	4.0
#80	180	79.4	3.5
#100	150	77.5	1.9
#200	75	67.0	10.5
Hydrometer	31.8	28.4	38.6
I	21.7	17.5	10.9
I	13.0	11.6	5.9
I	9.5	9.1	2.5
I	6.5	6.6	2.5
I	3.3	4.2	2.4
V	1.4	2.2	2.0

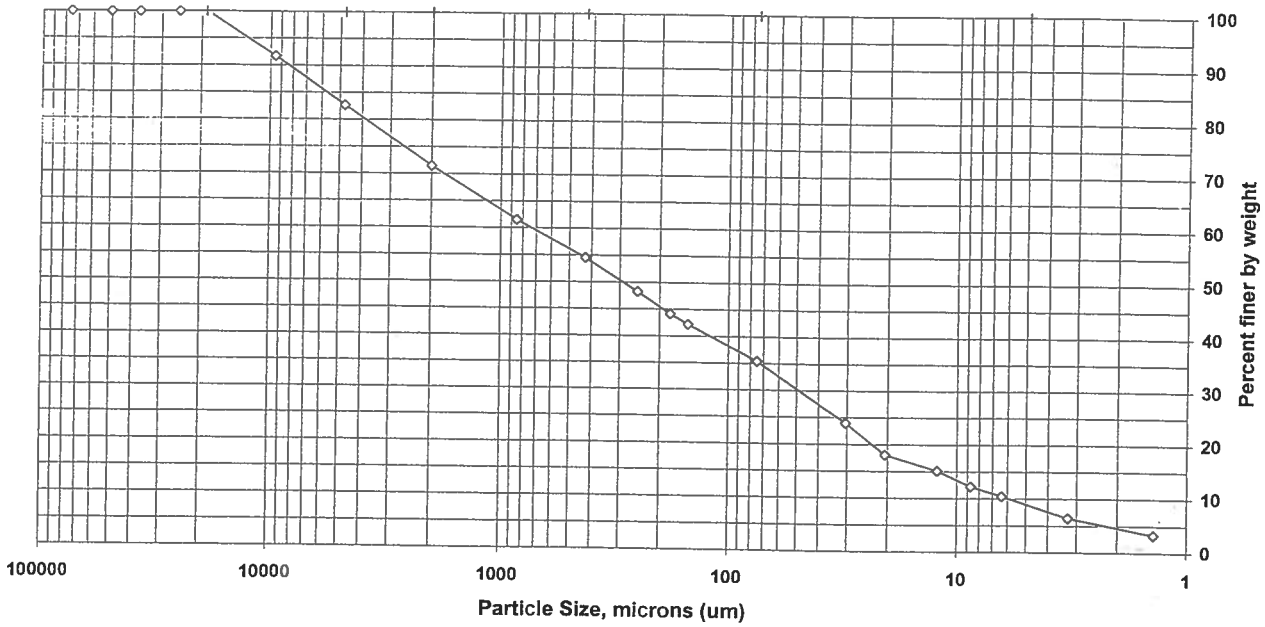
Soil Classification	Percent of Total Sample
Gravel	4.5
Sand	28.5
Coarse Sand	2.0
Medium Sand	6.6
Fine Sand	19.9
Silt	60.4
Clay	6.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	C70402-4	Date Received:	1/18/2008
Sample ID:	DA-SS153-011608	ETR(s):	123846	Start Date:	1/18/2008
Lab ID:	738545			End Date:	1/25/2008

Percent Solids:	83.5%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	91.7	8.3
#4	4750	82.7	9.1
#10	2000	71.4	11.2
#20	850	61.5	9.9
#40	425	54.5	7.0
#60	250	48.3	6.2
#80	180	44.1	4.2
#100	150	42.2	1.9
#200	75	35.4	6.8
Hydrometer	30.4	24.0	11.5
I	20.5	18.1	5.9
I	12.2	15.2	2.9
I	8.7	12.2	2.9
I	6.4	10.5	1.8
I	3.3	6.5	4.0
V	1.4	3.3	3.1

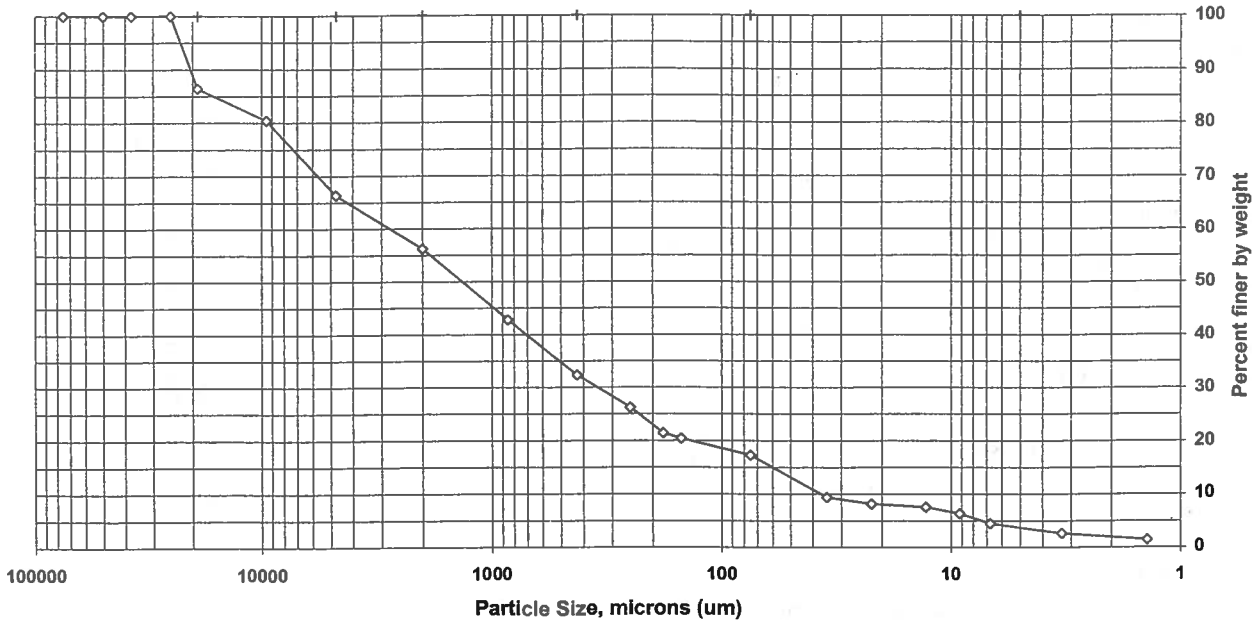
Soil Classification	Percent of Total Sample
Gravel	17.3
Sand	47.2
Coarse Sand	11.2
Medium Sand	16.9
Fine Sand	19.1
Silt	25.0
Clay	10.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	~~DA-SD01-0006~~ DA-SD134-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753517			**End Date:**	6/6/2008

Percent Solids:	72.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	86.4	13.6
3/8 inch	9500	80.4	6.0
#4	4750	66.4	14.0
#10	2000	56.2	10.2
#20	850	42.8	13.4
#40	425	32.3	10.5
#60	250	26.2	6.1
#80	180	21.4	4.8
#100	150	20.4	1.1
#200	75	17.3	3.1
Hydrometer	34.7	9.4	7.8
|	22.2	8.2	1.2
|	12.9	7.6	0.6
|	9.2	6.3	1.2
|	6.8	4.5	1.8
|	3.3	2.7	1.8
V	1.4	1.4	1.2

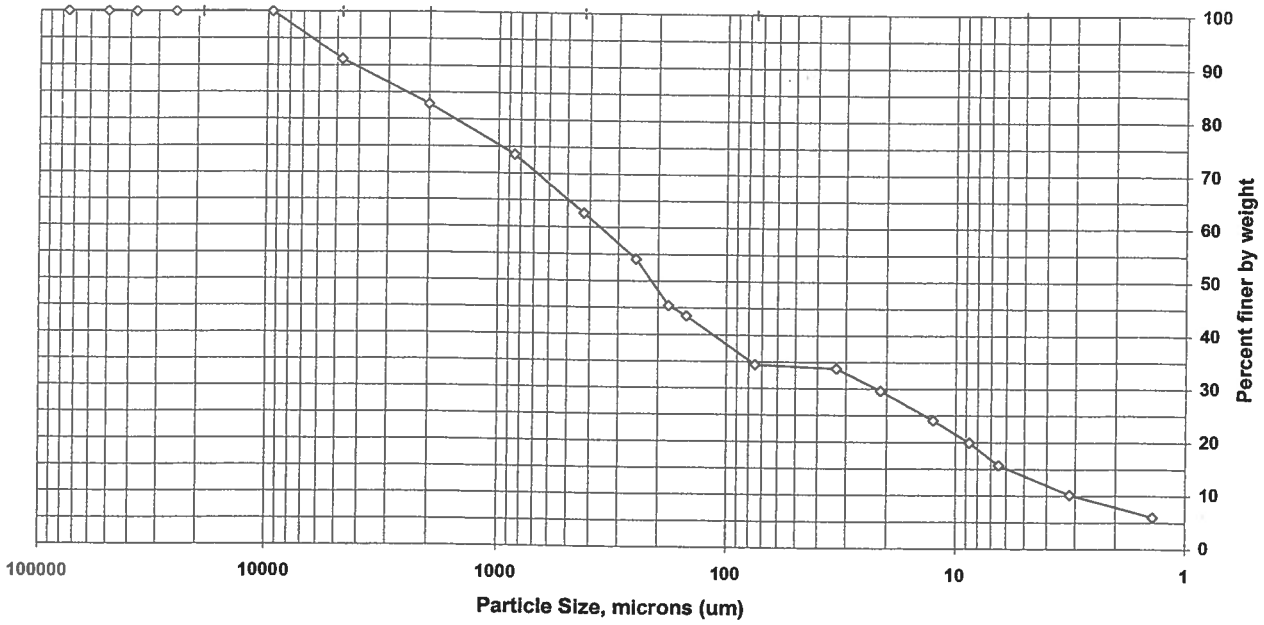
Soil Classification	Percent of Total Sample
Gravel	33.6
Sand	49.1
Coarse Sand	10.2
Medium Sand	23.9
Fine Sand	15.1
Silt	12.8
Clay	4.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD106-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753515			**End Date:**	6/6/2008

Percent Solids:	51.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	91.2	8.8
#10	2000	82.8	8.4
#20	850	73.5	9.3
#40	425	62.7	10.9
#60	250	54.1	8.6
#80	180	45.4	8.6
#100	150	43.5	2.0
#200	75	34.5	9.0
Hydrometer	33.1	33.8	0.7
I	21.3	29.6	4.2
I	12.5	24.1	5.6
I	8.7	19.9	4.2
I	6.5	15.7	4.2
I	3.2	10.2	5.6
V	1.4	6.0	4.2

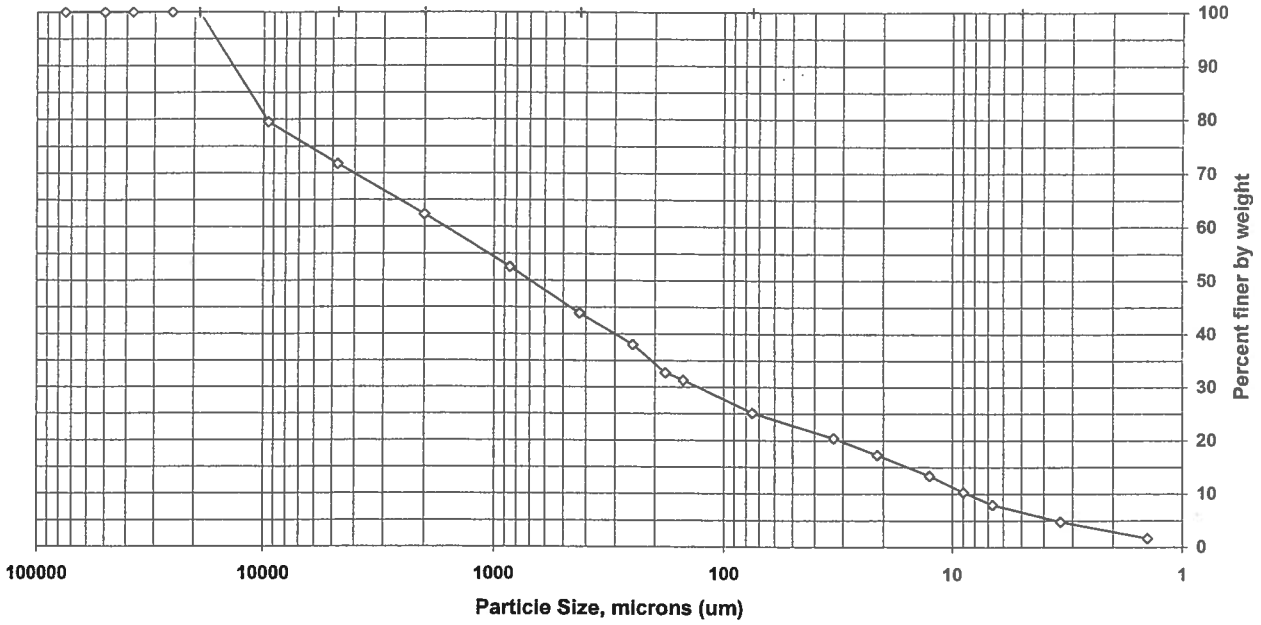
Soil Classification	Percent of Total Sample
Gravel	8.8
Sand	56.7
Coarse Sand	8.4
Medium Sand	20.2
Fine Sand	28.2
Silt	18.7
Clay	15.7

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CTO402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD-DUP01	**ETR(s):**	125705	**Start Date:**	6/6/2008
Lab ID:	753520			**End Date:**	6/9/2008

Percent Solids:	67.3%	**Non-soil material:**	wood
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	79.5	20.5
#4	4750	71.7	7.8
#10	2000	62.3	9.4
#20	850	52.5	9.8
#40	425	43.9	8.6
#60	250	38.0	5.9
#80	180	32.7	5.3
#100	150	31.3	1.4
#200	75	25.1	6.2
Hydrometer	32.9	20.4	4.8
|	21.3	17.3	3.1
|	12.6	13.4	3.9
|	8.9	10.3	3.1
|	6.7	8.0	2.3
|	3.4	4.8	3.2
V	1.4	1.7	3.1

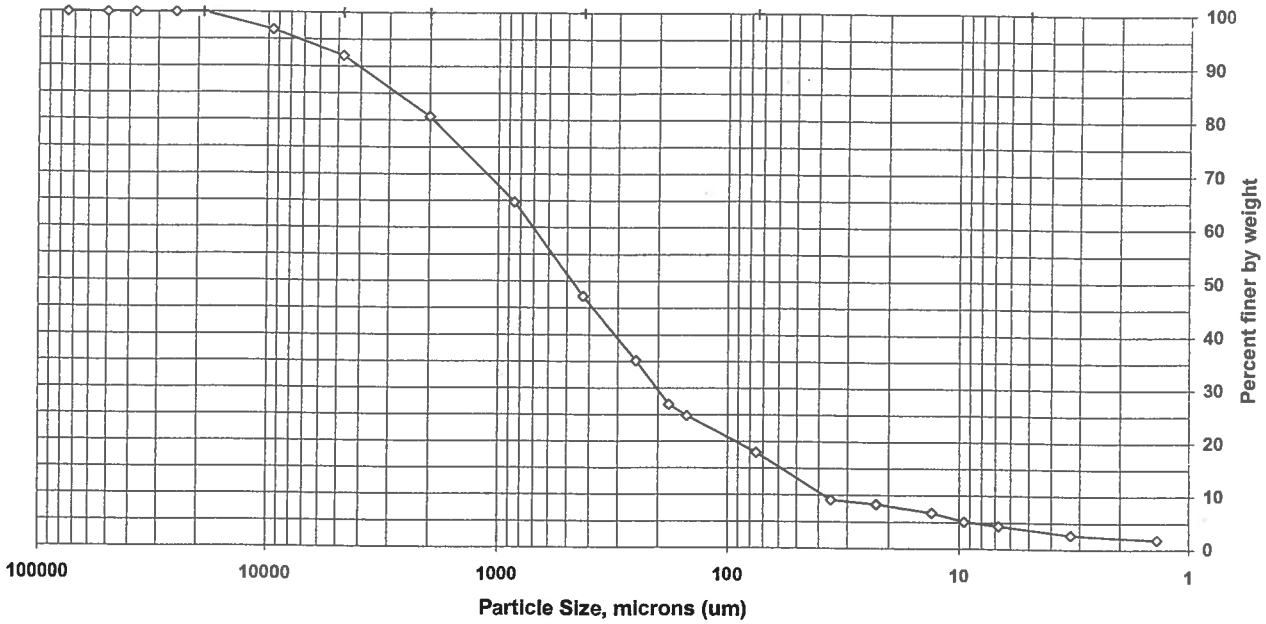
Soil Classification	Percent of Total Sample
Gravel	28.3
Sand	46.6
Coarse Sand	9.4
Medium Sand	18.4
Fine Sand	18.8
Silt	17.1
Clay	8.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD107-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753510			End Date:	6/6/2008

Percent Solids:	66.3%	Non-soil material:	wood,plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	96.8	3.2
#4	4750	91.9	4.8
#10	2000	80.7	11.3
#20	850	64.7	15.9
#40	425	47.2	17.5
#60	250	35.2	12.0
#80	180	26.9	8.2
#100	150	24.8	2.1
#200	75	18.0	6.9
Hydrometer	35.4	9.1	8.8
I	22.5	8.3	0.8
I	13.1	6.7	1.6
I	9.5	5.1	1.6
I	6.8	4.3	0.8
I	3.3	2.7	1.6
V	1.4	1.9	0.8

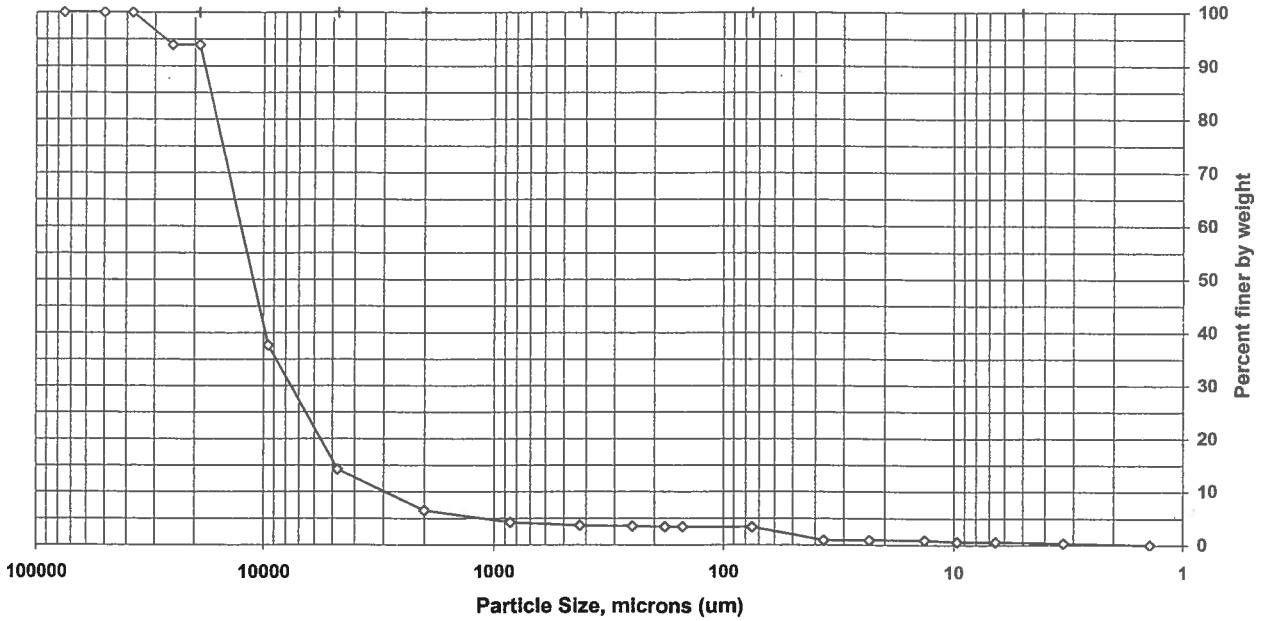
Soil Classification	Percent of Total Sample
Gravel	8.1
Sand	74.0
Coarse Sand	11.3
Medium Sand	33.4
Fine Sand	29.2
Silt	13.7
Clay	4.3

Preparation Method: D2217
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD108-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753511			**End Date:**	6/6/2008

Percent Solids:	95.5%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	37.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	93.9	6.1
3/4 inch	19000	93.9	0.0
3/8 inch	9500	37.6	56.3
#4	4750	14.2	23.4
#10	2000	6.5	7.7
#20	850	4.3	2.2
#40	425	3.7	0.6
#60	250	3.5	0.1
#80	180	3.4	0.1
#100	150	3.4	0.0
#200	75	3.3	0.1
Hydrometer	36.7	0.9	2.5
|	23.2	0.9	0.0
|	13.4	0.9	0.0
|	9.7	0.6	0.3
|	6.6	0.6	0.0
|	3.3	0.4	0.3
V	1.4	0.1	0.3

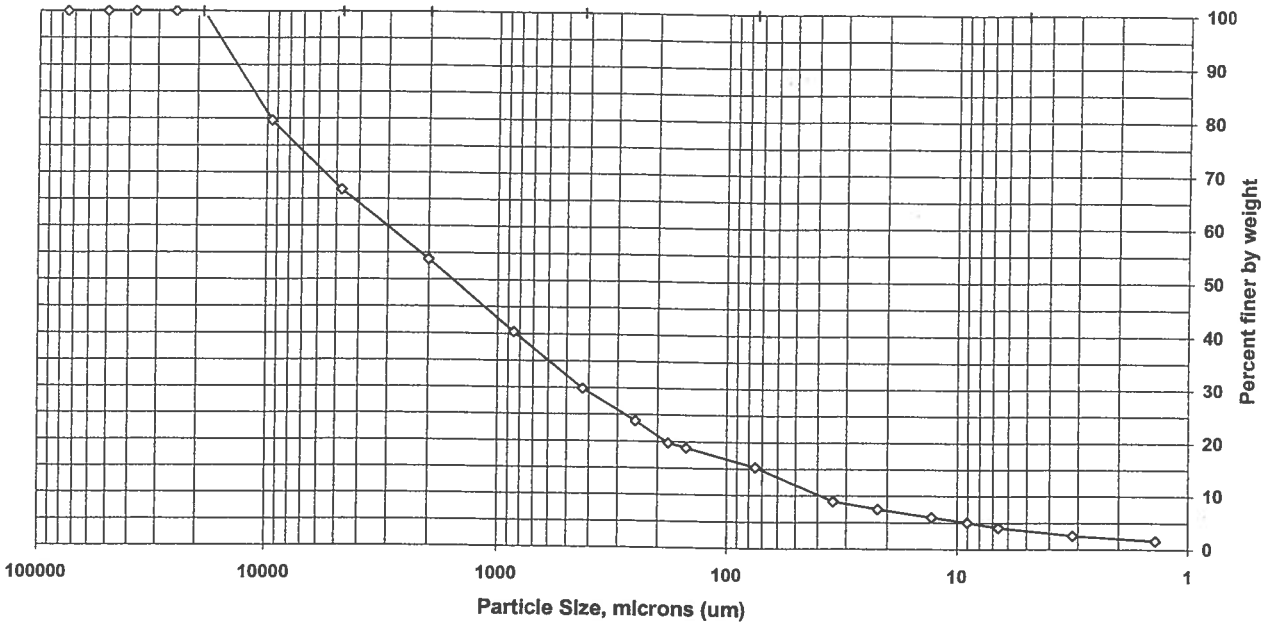
Soil Classification	Percent of Total Sample
Gravel	85.8
Sand	10.9
Coarse Sand	7.7
Medium Sand	2.8
Fine Sand	0.3
Silt	2.7
Clay	0.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD110-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753514			End Date:	6/6/2008

Percent Solids:	80.3%	Non-soil material:	rust
Specific Gravity:	2.650	Shape (> #10):	subangular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	79.6	20.4
#4	4750	66.7	12.9
#10	2000	53.8	13.0
#20	850	40.3	13.5
#40	425	29.9	10.5
#60	250	23.8	6.1
#80	180	19.8	4.0
#100	150	18.8	0.9
#200	75	15.3	3.5
Hydrometer	34.2	9.0	6.4
I	22.0	7.5	1.5
I	12.9	6.0	1.5
I	9.0	5.1	1.0
I	6.6	4.1	1.0
I	3.2	2.6	1.5
V	1.4	1.6	1.0

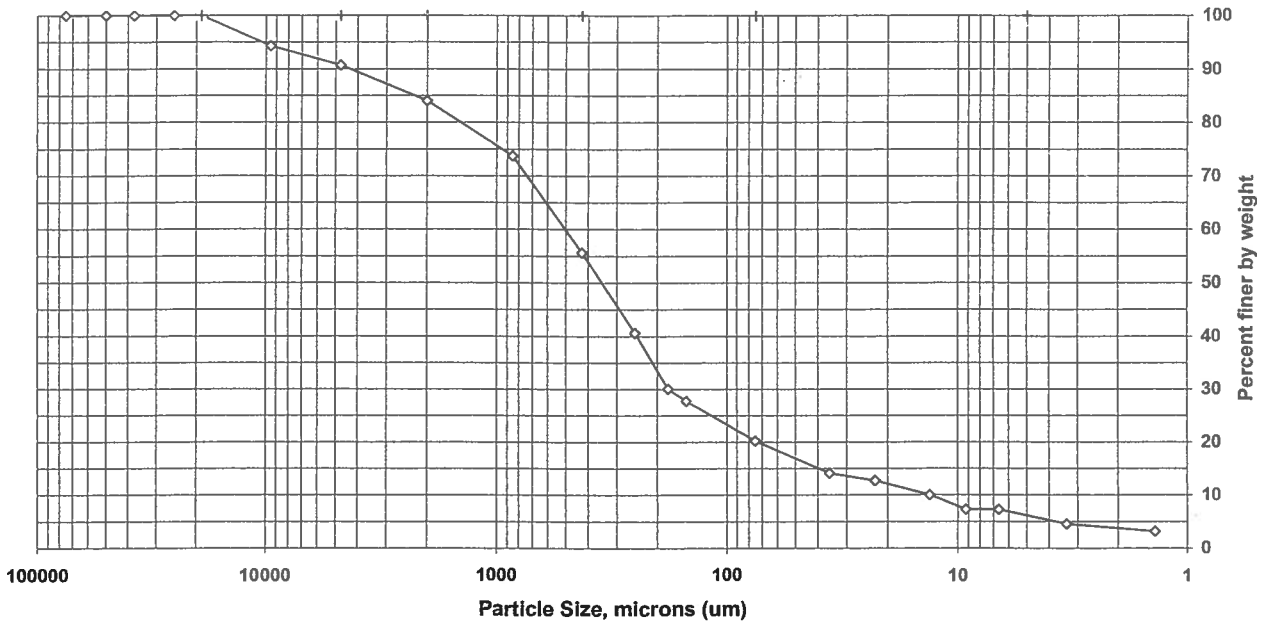
Soil Classification	Percent of Total Sample
Gravel	33.3
Sand	51.4
Coarse Sand	13.0
Medium Sand	23.9
Fine Sand	14.5
Silt	11.2
Clay	4.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD111-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753512			End Date:	6/6/2008

Percent Solids:	70.8%	Non-soil material:	na
Specific Gravity:	2.650	Shape (> #10):	subangular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	94.3	5.7
#4	4750	90.7	3.6
#10	2000	84.0	6.6
#20	850	73.7	10.3
#40	425	55.6	18.1
#60	250	40.6	15.0
#80	180	30.1	10.6
#100	150	27.8	2.2
#200	75	20.2	7.6
Hydrometer	35.6	14.1	6.1
|	22.6	12.7	1.4
|	13.2	10.0	2.7
|	9.2	7.3	2.7
|	6.6	7.3	0.0
|	3.4	4.6	2.7
V	1.4	3.2	1.4

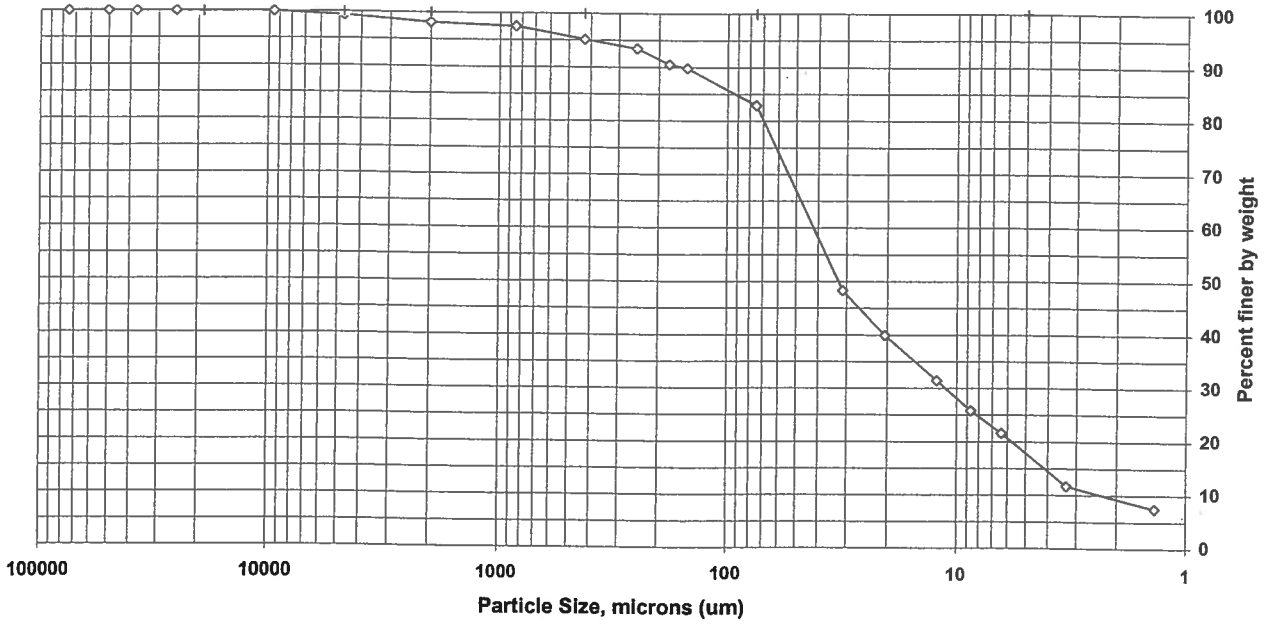
Soil Classification	Percent of Total Sample
Gravel	9.3
Sand	70.5
Coarse Sand	6.6
Medium Sand	28.4
Fine Sand	35.4
Silt	12.9
Clay	7.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD112-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753513			**End Date:**	6/6/2008

Percent Solids:	38.0%	**Non-soil material:**	wood,plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.4	0.6
#10	2000	98.2	1.2
#20	850	97.5	0.6
#40	425	95.1	2.4
#60	250	93.5	1.6
#80	180	90.5	3.0
#100	150	89.8	0.7
#200	75	82.9	6.9
Hydrometer	31.3	48.3	34.5
|	20.5	39.9	8.4
|	12.2	31.4	8.4
|	8.7	25.8	5.6
|	6.4	21.6	4.2
|	3.3	11.7	9.9
V	1.4	7.5	4.2

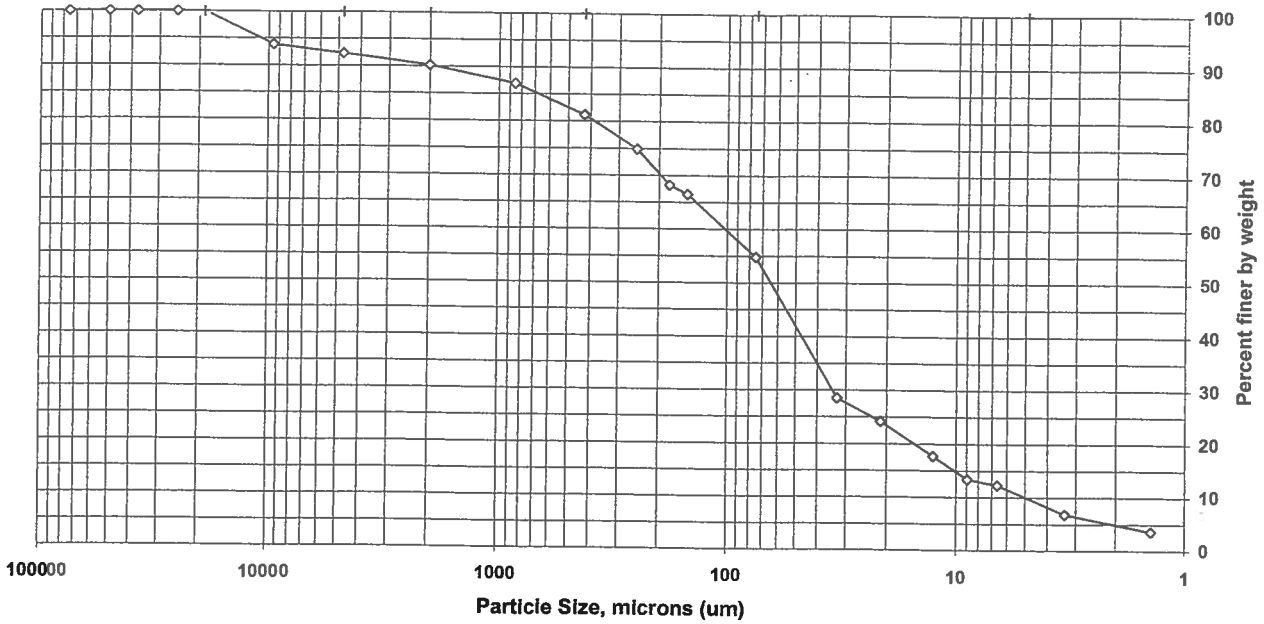
Soil Classification	Percent of Total Sample
Gravel	0.6
Sand	16.5
Coarse Sand	1.2
Medium Sand	3.1
Fine Sand	12.2
Silt	61.3
Clay	21.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD114-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753519			**End Date:**	6/6/2008

Percent Solids:	57.1%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	93.9	6.1
#4	4750	92.2	1.7
#10	2000	90.1	2.1
#20	850	86.9	3.2
#40	425	81.1	5.8
#60	250	74.9	6.3
#80	180	68.2	6.7
#100	150	66.5	1.7
#200	75	54.8	11.7
Hydrometer	32.8	28.5	26.2
|	21.2	24.2	4.3
|	12.6	17.7	6.5
|	8.9	13.4	4.3
|	6.6	12.3	1.1
|	3.3	6.9	5.4
V	1.4	3.6	3.3

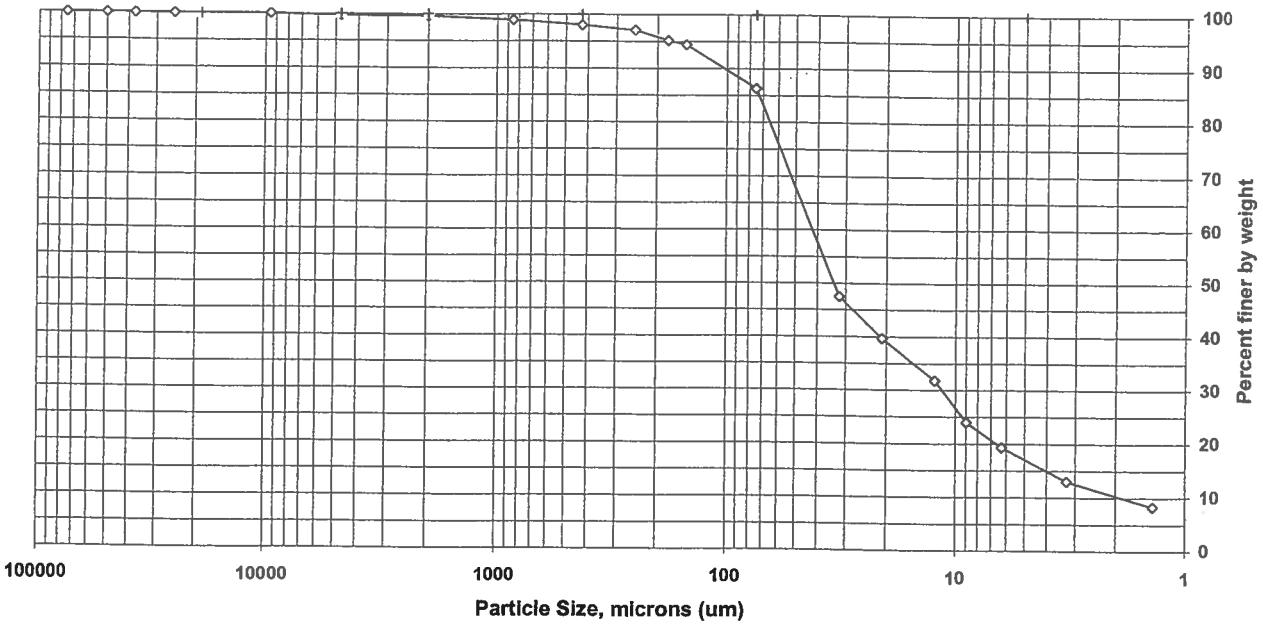
Soil Classification	Percent of Total Sample
Gravel	7.8
Sand	37.4
Coarse Sand	2.1
Medium Sand	9.0
Fine Sand	26.4
Silt	42.5
Clay	12.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD116-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753518			End Date:	6/6/2008

Percent Solids:	46.9%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	subangular
Maximum Particle Size:	9.5 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.7	0.3
#10	2000	99.6	0.1
#20	850	98.9	0.7
#40	425	98.0	1.0
#60	250	97.1	0.9
#80	180	95.2	1.9
#100	150	94.4	0.8
#200	75	86.3	8.1
Hydrometer	32.0	47.5	38.9
I	20.8	39.7	7.8
I	12.4	31.8	7.8
I	9.0	24.0	7.8
I	6.3	19.3	4.7
I	3.3	13.0	6.3
V	1.4	8.3	4.7

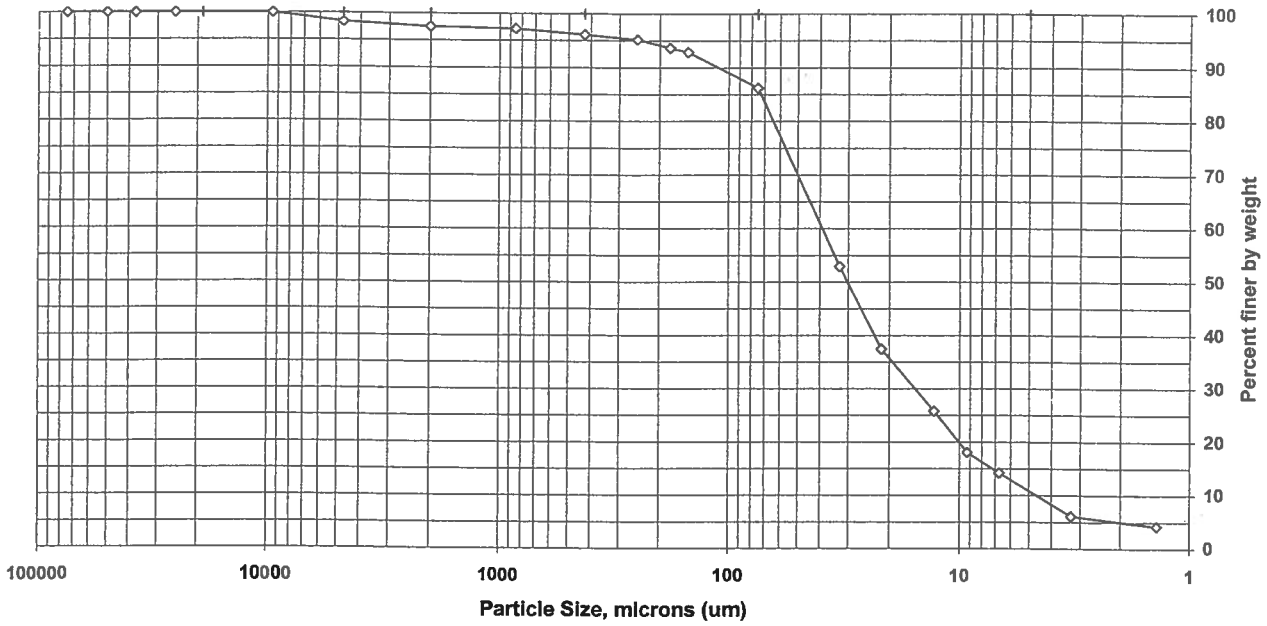
Soil Classification	Percent of Total Sample
Gravel	0.3
Sand	13.4
Coarse Sand	0.1
Medium Sand	1.7
Fine Sand	11.7
Silt	67.0
Clay	19.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD119-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753521			End Date:	6/5/2008

Percent Solids:	34.0%	Non-soil material:	wood
Specific Gravity:	2.650	Shape (> #10):	na
Maximum Particle Size:	9.5 mm	Hardness (> #10):	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.4	1.6
#10	2000	97.6	0.8
#20	850	97.2	0.4
#40	425	96.1	1.1
#60	250	95.2	0.8
#80	180	93.7	1.6
#100	150	92.9	0.8
#200	75	86.2	6.7
Hydrometer	32.8	52.9	33.3
I	21.6	37.4	15.5
I	12.9	25.8	11.6
I	9.3	18.1	7.7
I	6.7	14.2	3.9
I	3.3	6.1	8.1
V	1.4	4.2	1.9

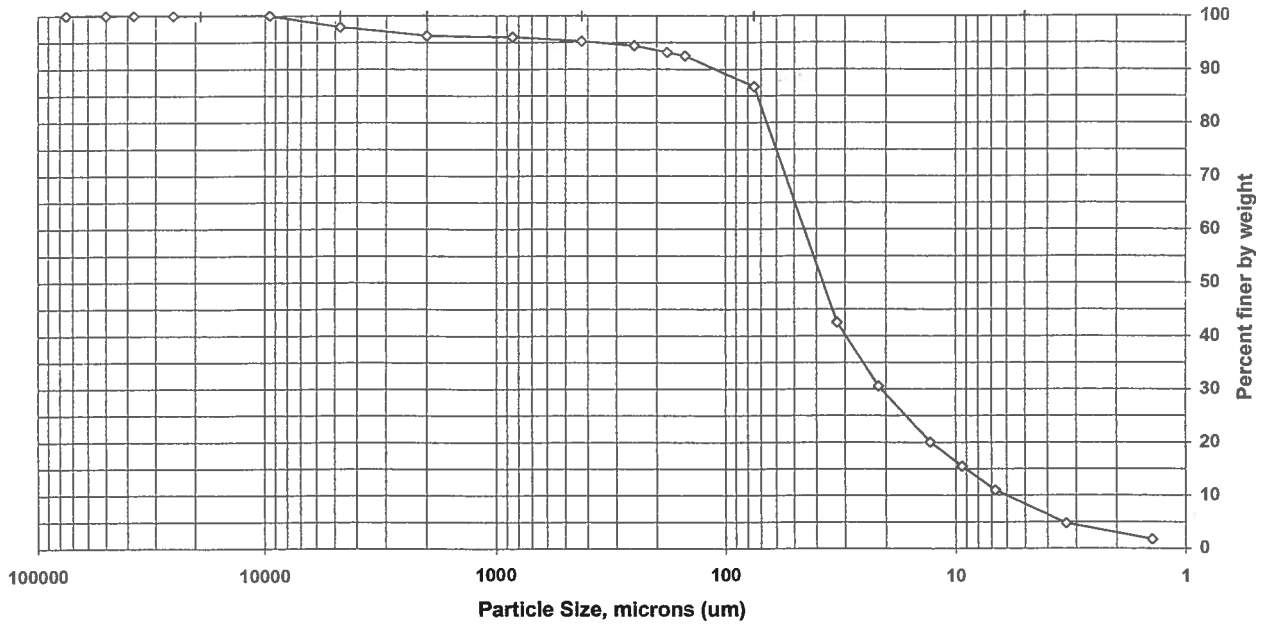
Soil Classification	Percent of Total Sample
Gravel	1.6
Sand	12.1
Coarse Sand	0.8
Medium Sand	1.5
Fine Sand	9.8
Silt	72.0
Clay	14.2

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD-DUP02	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753522			**End Date:**	6/5/2008

Percent Solids:	35.2%	**Non-soil material:**	wood,plant
Specific Gravity:	2.650	**Shape (> #10):**	subrounded
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	97.9	2.1
#10	2000	96.3	1.6
#20	850	96.0	0.3
#40	425	95.3	0.8
#60	250	94.4	0.8
#80	180	93.1	1.3
#100	150	92.5	0.7
#200	75	86.7	5.8
Hydrometer	32.6	42.5	44.2
|	21.5	30.5	12.0
|	12.9	20.0	10.5
|	9.4	15.5	4.5
|	6.7	11.0	4.5
|	3.3	4.8	6.3
V	1.4	1.8	3.0

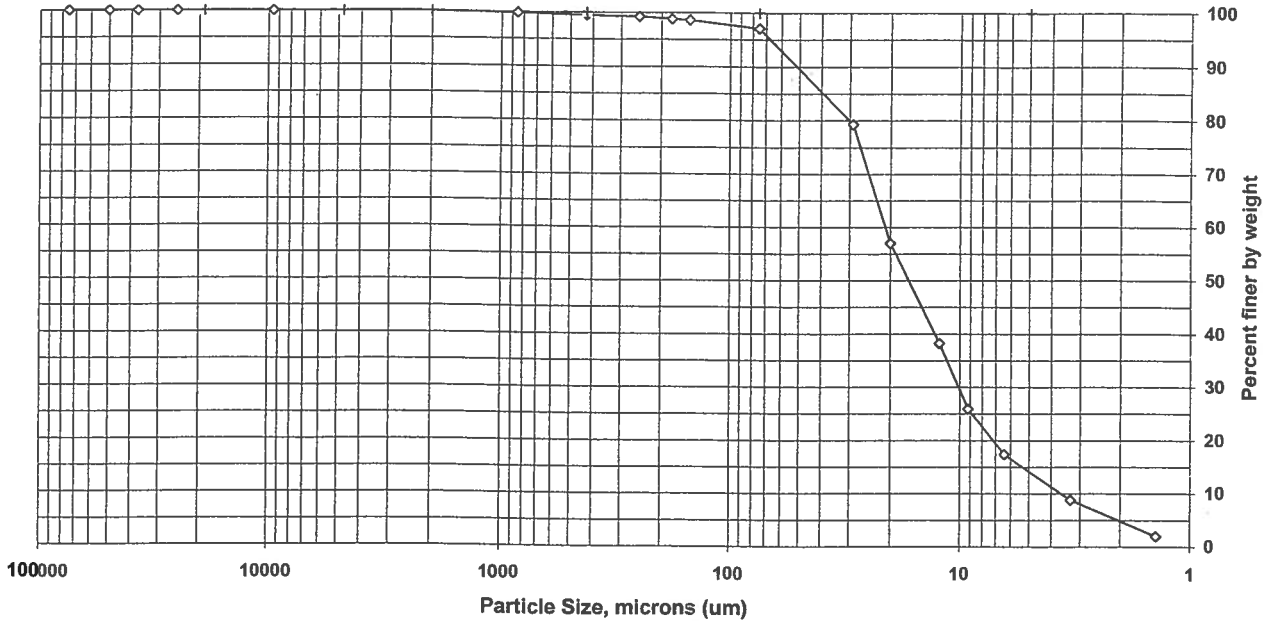
Soil Classification	Percent of Total Sample
Gravel	2.1
Sand	11.2
Coarse Sand	1.6
Medium Sand	1.0
Fine Sand	8.5
Silt	75.7
Clay	11.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD121-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753523			End Date:	6/5/2008

Percent Solids:	32.0%	Non-soil material:	na
Specific Gravity:	2.650	Shape (> #10):	na
Maximum Particle Size:	Med sand	Hardness (> #10):	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.8	0.2
#40	425	99.5	0.3
#60	250	99.2	0.2
#80	180	98.8	0.4
#100	150	98.6	0.2
#200	75	97.1	1.5
Hydrometer	29.1	79.3	17.8
I	20.0	57.0	22.2
I	12.3	38.2	18.8
I	9.2	26.0	12.3
I	6.4	17.4	8.6
I	3.3	8.8	8.6
V	1.4	2.0	6.8

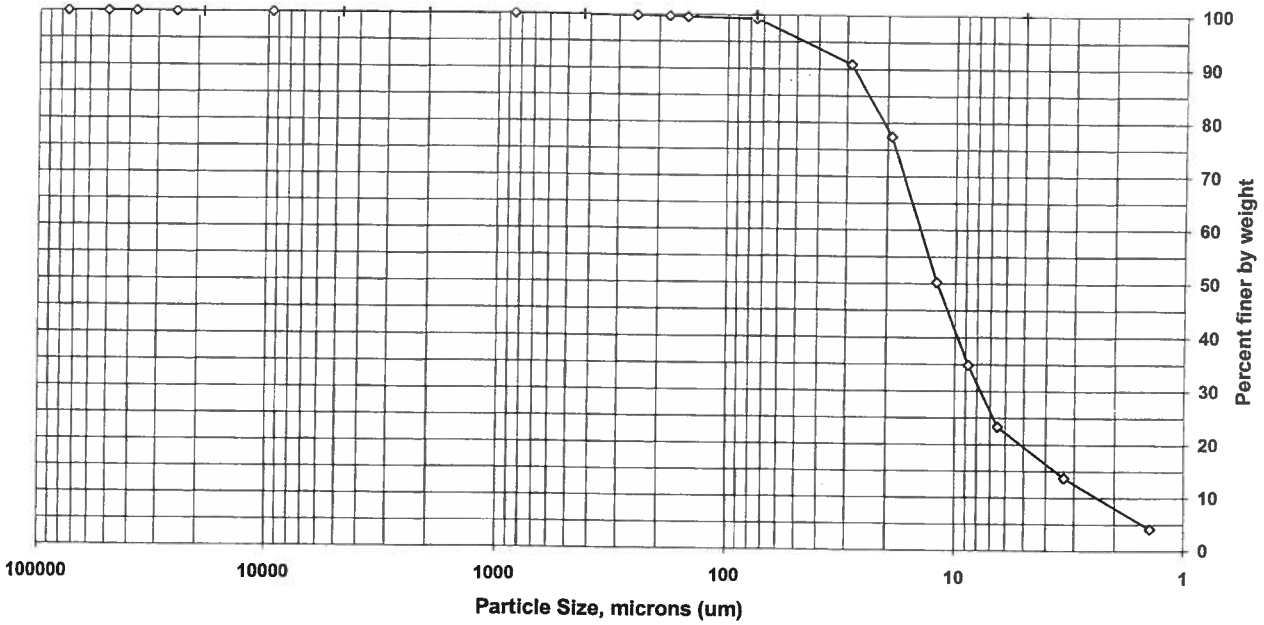
Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	2.9
Coarse Sand	0.0
Medium Sand	0.5
Fine Sand	2.3
Silt	79.7
Clay	17.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD125-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753524			**End Date:**	6/5/2008

Percent Solids:	34.7%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	100.0	0.0
#40	425	99.9	0.1
#60	250	99.8	0.1
#80	180	99.7	0.1
#100	150	99.6	0.1
#200	75	99.3	0.3
Hydrometer	28.8	90.8	8.4
I	19.1	77.4	13.4
I	12.1	50.2	27.2
I	8.8	34.9	15.4
I	6.5	23.4	11.5
I	3.3	13.8	9.6
V	1.4	4.2	9.6

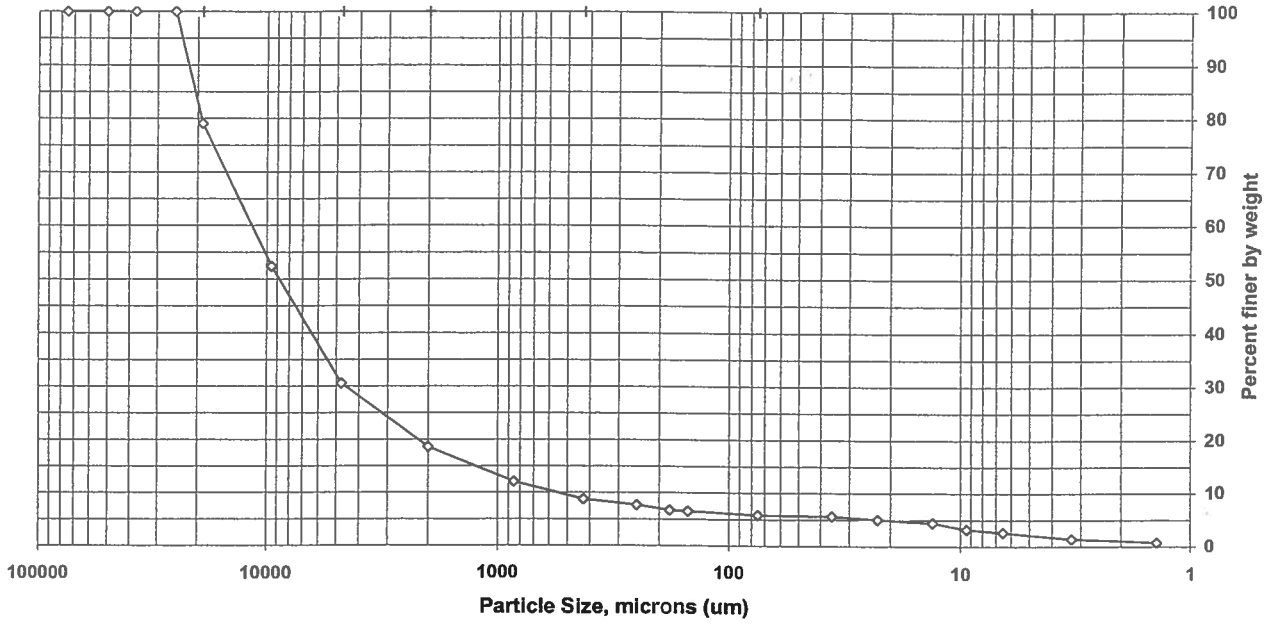
Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	0.7
Coarse Sand	0.0
Medium Sand	0.1
Fine Sand	0.7
Silt	75.9
Clay	23.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD133-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753516			End Date:	6/6/2008

Percent Solids:	84.9%	Non-soil material:	screen
Specific Gravity:	2.650	Shape (> #10):	subangular
Maximum Particle Size:	25 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	79.1	20.9
3/8 inch	9500	52.4	26.7
#4	4750	30.5	21.8
#10	2000	18.6	11.9
#20	850	12.0	6.5
#40	425	8.8	3.3
#60	250	7.7	1.1
#80	180	6.7	1.0
#100	150	6.6	0.2
#200	75	5.8	0.7
Hydrometer	35.7	5.7	0.2
I	22.7	5.1	0.6
I	13.2	4.4	0.6
I	9.4	3.2	1.2
I	6.5	2.6	0.6
I	3.3	1.4	1.2
V	1.4	0.8	0.6

Soil Classification	Percent of Total Sample
Gravel	69.5
Sand	24.7
Coarse Sand	11.9
Medium Sand	9.8
Fine Sand	3.0
Silt	3.2
Clay	2.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

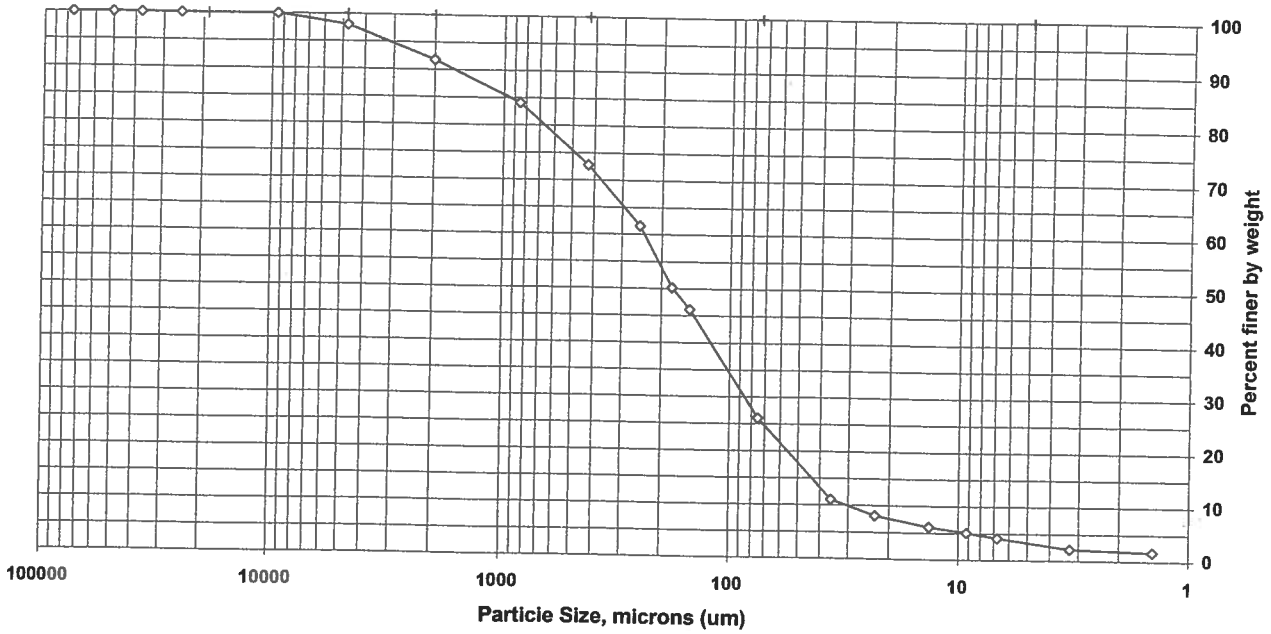
Client Code: KATANA
Sample ID: DA-SD-RP01-0006
Lab ID: 753621

SDG: CT040211
ETR(s): 125725

Date Received: 5/29/2008
Start Date: 5/29/2008
End Date: 6/4/2008

Percent Solids: 48.1%
Specific Gravity: 2.650
Maximum Particle Size: 9.5 mm

Non-soil material: plant
Shape (> #10): subangular
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.0	2.0
#10	2000	91.8	6.3
#20	850	84.1	7.7
#40	425	72.7	11.4
#60	250	61.6	11.1
#80	180	50.2	11.4
#100	150	46.2	4.0
#200	75	26.1	20.0
Hydrometer	35.8	11.1	15.0
I	23.0	8.1	3.0
I	13.4	6.1	2.0
I	9.2	5.1	1.0
I	6.7	4.1	1.0
I	3.3	2.1	2.0
V	1.4	1.7	0.5

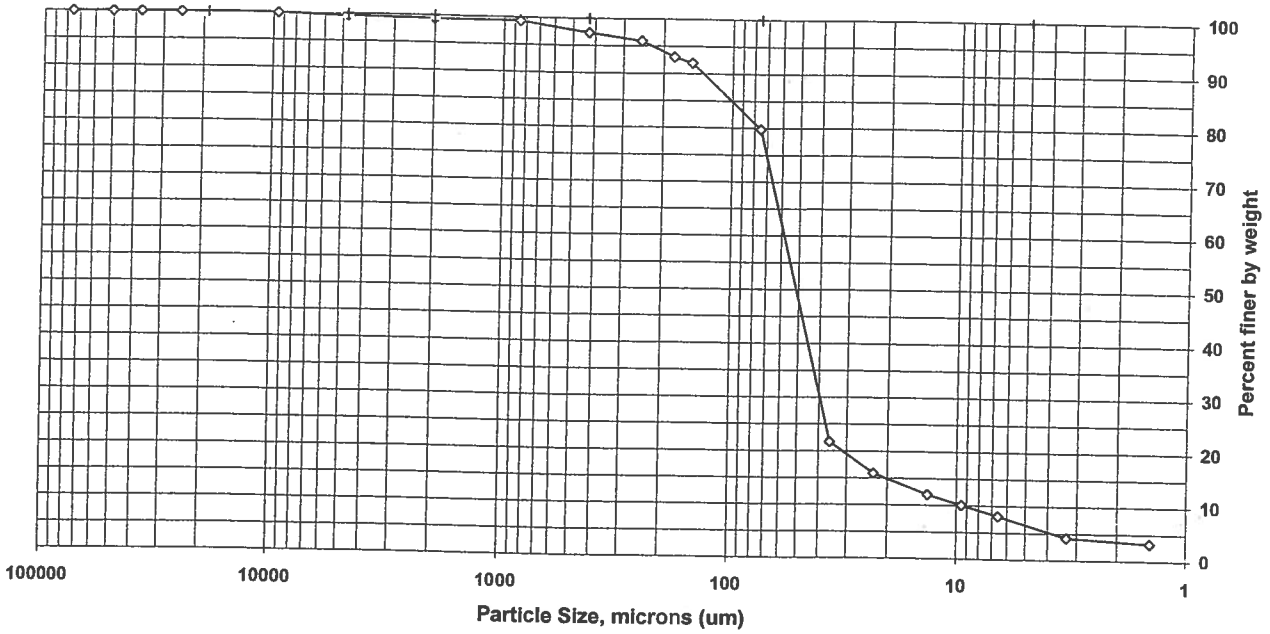
Soil Classification	Percent of Total Sample
Gravel	2.0
Sand	71.9
Coarse Sand	6.3
Medium Sand	19.0
Fine Sand	46.6
Silt	22.0
Clay	4.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP02-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753622			**End Date:**	6/4/2008

Percent Solids:	28.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	99.4	0.2
#20	850	99.3	0.1
#40	425	97.4	2.0
#60	250	95.9	1.5
#80	180	93.0	2.9
#100	150	91.9	1.1
#200	75	79.8	12.2
Hydrometer	35.8	21.7	58.0
I	23.0	15.9	5.8
I	13.4	12.0	3.9
I	9.5	10.1	1.9
I	6.6	8.1	1.9
I	3.3	4.2	3.9
V	1.4	3.2	1.0

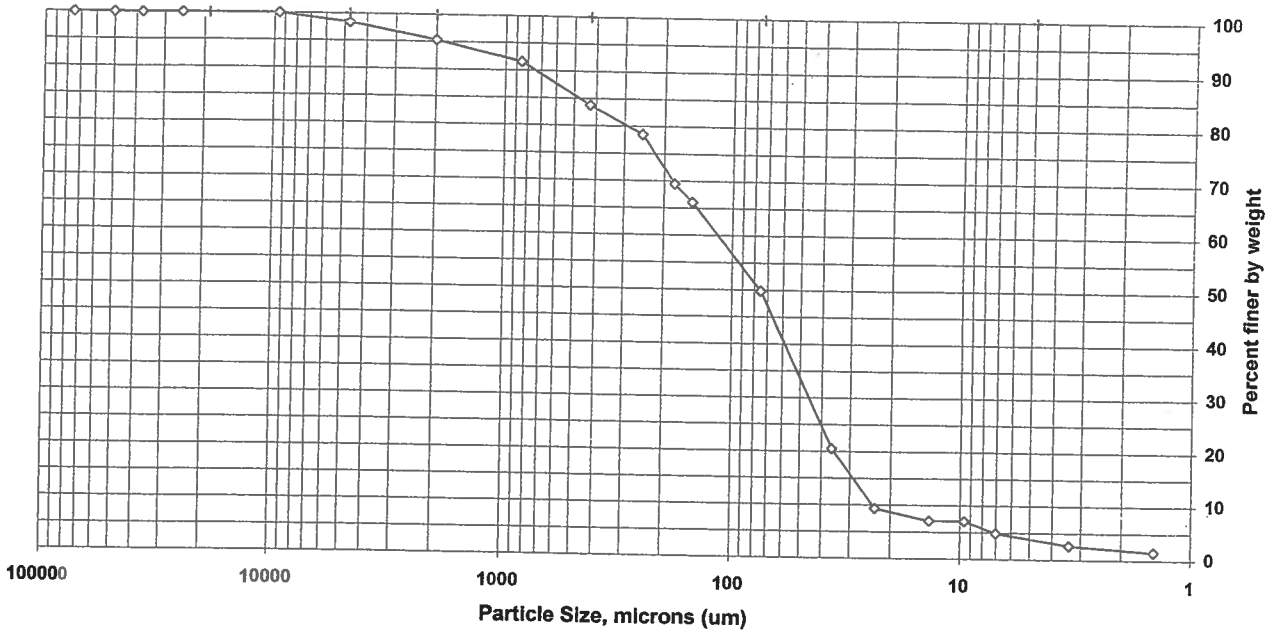
Soil Classification	Percent of Total Sample
Gravel	0.4
Sand	19.9
Coarse Sand	0.2
Medium Sand	2.1
Fine Sand	17.6
Silt	71.7
Clay	8.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT040211	Date Received:	5/29/2008
Sample ID:	DA-SD-RP03-0006	ETR(s):	125725	Start Date:	5/29/2008
Lab ID:	753623			End Date:	6/4/2008

Percent Solids:	22.5%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	subangular
Maximum Particle Size:	9.5 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.4	1.6
#10	2000	95.3	3.0
#20	850	91.5	3.8
#40	425	83.8	7.7
#60	250	78.5	5.3
#80	180	69.5	9.0
#100	150	66.1	3.4
#200	75	49.8	16.3
Hydrometer	36.1	20.6	29.3
I	23.4	9.3	11.2
I	13.6	7.1	2.2
I	9.6	7.1	0.0
I	7.0	4.9	2.2
I	3.4	2.6	2.2
V	1.4	1.5	1.1

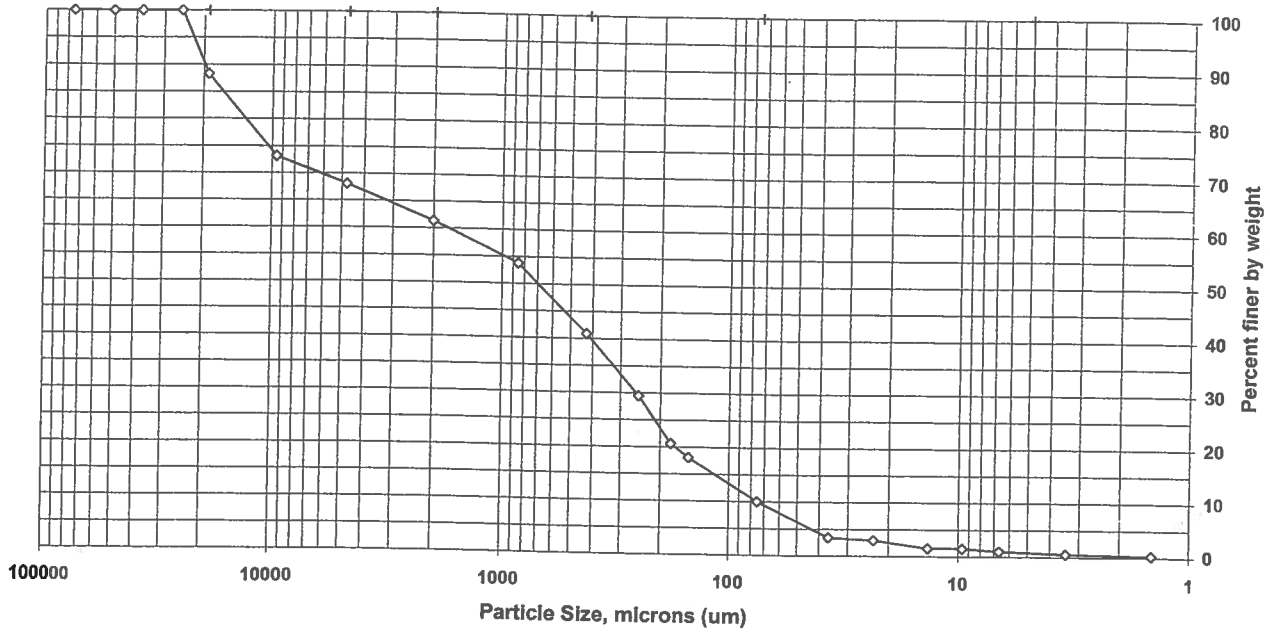
Soil Classification	Percent of Total Sample
Gravel	1.6
Sand	48.6
Coarse Sand	3.0
Medium Sand	11.6
Fine Sand	34.0
Silt	44.9
Clay	4.9

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP04-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753624			**End Date:**	6/4/2008

Percent Solids:	74.6%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	88.3	11.7
3/8 inch	9500	73.1	15.2
#4	4750	68.1	5.0
#10	2000	61.3	6.7
#20	850	53.8	7.6
#40	425	40.9	12.9
#60	250	29.4	11.4
#80	180	20.7	8.8
#100	150	18.1	2.6
#200	75	10.1	8.0
Hydrometer	36.5	3.4	6.6
I	23.2	3.0	0.5
I	13.6	1.5	1.4
I	9.6	1.5	0.0
I	6.6	1.0	0.5
I	3.4	0.6	0.5
V	1.4	0.3	0.2

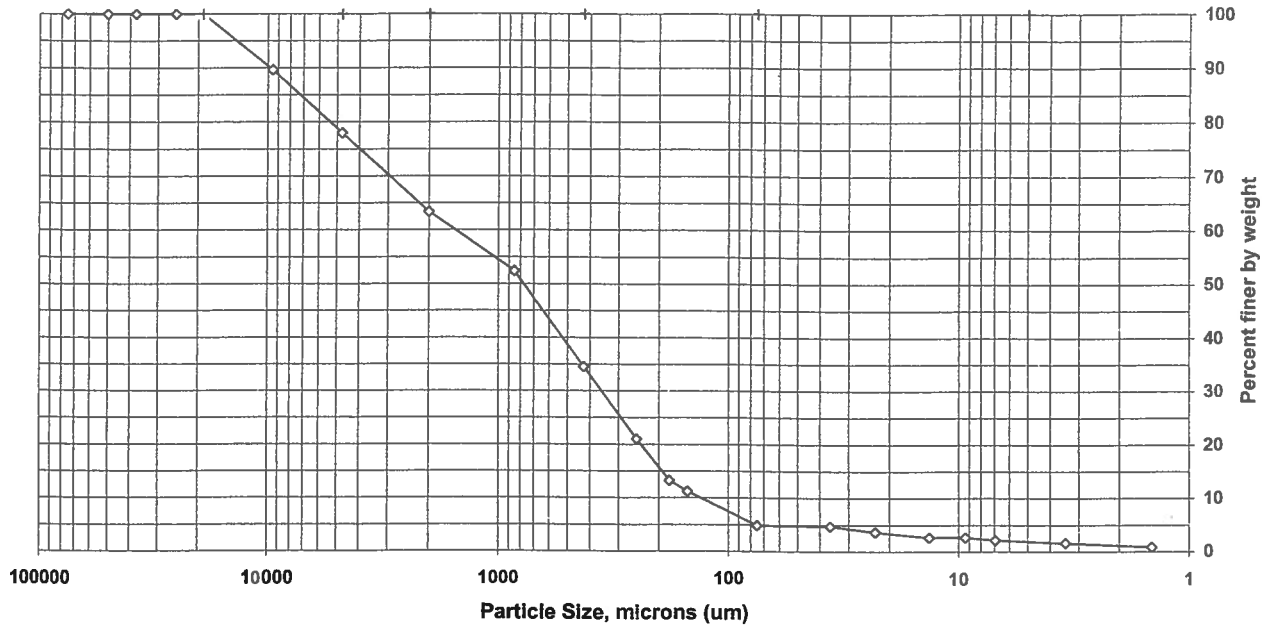
Soil Classification	Percent of Total Sample
Gravel	31.9
Sand	58.0
Coarse Sand	6.7
Medium Sand	20.5
Fine Sand	30.8
Silt	9.0
Clay	1.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP05-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753625			**End Date:**	6/4/2008

Percent Solids:	74.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	89.6	10.4
#4	4750	78.0	11.7
#10	2000	63.4	14.6
#20	850	52.4	11.0
#40	425	34.5	17.9
#60	250	21.0	13.5
#80	180	13.3	7.8
#100	150	11.2	2.1
#200	75	4.9	6.3
Hydrometer	36.1	4.7	0.2
|	23.1	3.7	1.0
|	13.4	2.7	1.0
|	9.3	2.7	0.0
|	6.9	2.1	0.5
|	3.4	1.6	0.5
V	1.4	0.9	0.8

Soil Classification	Percent of Total Sample
Gravel	22.0
Sand	73.1
Coarse Sand	14.6
Medium Sand	28.9
Fine Sand	29.6
Silt	2.7
Clay	2.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

APPENDIX E

ECOLOGICAL AND BACKGROUND CHARACTERIZATION

APPENDIX E.1

UPDATED SPECIES LISTS

APPENDIX E.1
OBSERVED SPECIES LISTS
SITE08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

BIRDS

COMMON NAME	SCIENTIFIC NAME	HABITAT REQUIREMENTS	KEY FOOD HABITS	IMPORTANT FUNCTIONS
American Crow	*Corvus brachyrynchos*	Interior and edges of open deciduous, coniferous, and mixed forests and woodlots. Prefers woodland with adjacent farmland.	Major foods: Ominivorous, taking mammals (mainly carrion), insects, small birds, fruit, garbage, and grain.	Common, will overwinter in New England; will congregate in coastal areas where food is more accessible.
American goldfinch	*Carduelis tristis*	Open weedy fields, pasture with scattered trees, forest edges.	Major foods: insects, buds, succulent vegetation in summer; seeds of weeds, birches, alders, conifers in winter.	Wintering: present in New England and commone at feeding stations.
American robin	*Turdus migratorius*	Open woodland edges and clearings, fields, orchards, shade trees in residential areas.	Major foods: Wild and cultivated fruits, earthworms, insects.	Will overwinter in New England. Frequents sheltered wooded areas and feeds on persistent wild and cultivated fruits.
Black-Capped chickadee	*Parus atricapillus*	Deciduous or coniferous woodlands, frequents both heavily forested and residential areas.	Major foods: insects, seeds, fruits.	Wintering: frequent city parks and residential areas with feeding stations adjacent to breeding habitat.
Black-crowned night heron	*Nycticorax nycticorax*	Breeding habitat is varied, occupies fresh, brackish and shallow water areas.	Major foods: fishes, crustaceans, mollusks, worms, aquatic terrestrial insects, reptiles and amphibians, occasionally young birds and mammals.	Wintering: Coastal wetlands and islands; Range is permanent in RI.
Blue jay	*Cayanocitta cristata*	Prefers mixed woodlands, wooded islands, farms, cities, suburbs, parks.	Major Foods: seeeds, fruits, mast, occasionally takes insects, nestlings, young mice, acorns are staple food item throughout the year.	Will overwinter in New England but some northern birds move to southern New England.
Brown-headed cowbird	*Molothrus ater*	Open coniferous and deciduous woodlands and edges	Major foods: seeds of weeds, grasses, grains, insects.	Will overwinter in RI using agricultural land and feeding stations
Canada goose	*Branta canadensis*	Shallow waterbodies with abundant plant foods.	Tender shoots of grasses, sedges and other marsh plants, submerged vegetation, cultivated grains, wild seeds and fruits.	Wintering: in New England in areas with bare ground and open water.
Field sparrow	*Spizella pusilla*	Old fields with scattered woody vegetation, also briar thickets and woodland edges.	Major foods: insects (>40%) in summer, with weed seeds and grasses.	Will overwinter in southern New England.
Grackle, Common	*Quiscalus quiscula*	Farmlands, suburbs, marshes, meadows.	Major foods: ground dwelling insects, fruits, mast, waste grains, small quantities of fish, amphibians, nestlings and eggs.	Will overwinter in RI in areas with open water and bare ground
European starling	*Sturnus vulgaris*	Farms, cities, orchards, gardens, parks.	Major food: Insects, seeds, fruits, grain.	Overwinters in New England, wintering roost in dense vegetation or on buildings
Double Crested cormorant	*Phalacrocorax auritus*	Lakes, rivers, swamps and coasts.	Predominantly fish. Also some other aquatic animals, insects and amphibians.	Winters mainly on coasts, north to Alaska, south to New England.
Herring gull	*Larus argentatus*	Mainly Breeding on islands in estuaries, rivers and lakes or coastal beaches.	Major foods: fish and shell fish, offal from fishing boats and fish prcessing plants; Also scavenge along shoreline and garbage dumps.	Wintering same as breeding habitat except where water bodies freeze over.
Great blue heron	*Ardea herodias*	Shallow shores of ponds, lakes, streams rievers, etc.	Major Foods: Aquatic and terrestreal insects, fishes, amphibians, reptiles, crustaceans, and occasionally small birds and mammals.	Wintering: mainly coastal areas with bare ground and open water in New England.
Killdeer	*Characdrius vociferus*	Heavily grazed meadows, edges of pasture ponds, dry uplands.	Major food: insects, centipedes, spiders, worms, snails, crayfish, weed seeds.	Will overwinter in RI in plowed or sparsely vegetated fields, coastal flats and beaches, river and lake shores that are free of ice.

APPENDIX E.1
OBSERVED SPECIES LISTS
SITE08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

COMMON NAME	SCIENTIFIC NAME	HABITAT REQUIREMENTS	KEY FOOD HABITS	IMPORTANT FUNCTIONS
Mallard	*Anas platyrhycchos*	Ponds, lakes, rivers, swamps etc. Prefers water less than 16" deep, avoids salt water.	Major foods: seeds of sedges, grasses and smartweed are stables; also eats leaves, stems and seeds of other marsh plants, snails and insects.	Wintering: Coastal marshes, inland ice free ponds and rivers.
Morning Dove	*Agelaius phoeniceus*	Marshes, swamps, wet meadows, ponds, dry fields. Prefers wetlands with extensive emergent growth.	Major foods: insects, weed seeds, grain.	Common in New England, Overwinters in New England.
Mute Swan	*Cygnus olor*	Prefers shallow coastal ponds, estuaries, bogs, and streams flowing into lakes.	Aquatic plants, and some aquatic animals.	Introduced species in the US, found from NH to VA.
Red Winged Blackbird	*Agelaius phoeniceus*	Marshes, swamps, wet meadows, ponds, dry fields. Prefers wetlands with extensive emergent growth.	Major foods: insects, weed seeds, grain.	Migratory, New England provides breeding habitat.
Snowy egret	*Egretta thula*	Shallow shores of ponds, lakes, streams rivers, etc.	Major foods:Prefers fish; also insects, amphibians, crustaceans.	Migratory, New England provides breeding habitat.
Tree Swallow	*Techycineta bicolor*	Cavity for nesting, open feeding areas such as meadows, marshes, or water.	Major foods: Flying insects in summer berries and seeds are taken as a supplement when insects are less abundant.	Migratory, New England provides breeding habitat.

APPENDIX E.1
OBSERVED SPECIES LISTS
SITE08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

MAMMALS

COMMON NAME	SCIENTIFIC NAME	HABITAT REQUIREMENTS	KEY FOOD HABITS	IMPORTANT FUNCTIONS
Cottontail, Eastern	*Sylvilagus floridanus*	Open fields, fallow fields, open woodlands, thickets, swamps and marshes, suburban areas with adequate food and cover	Crepuscular and nocturnal feeder. Summer foods: tender parts of grasses and herbs. Winter foods: bark, twigs and buds of shrubs and young trees such as maple, birch and oak	Home range size ranges from 0.5 to 40 acres.
Coyote	*Canis latrans*	Edges of second growth forest, open bushy fields. Open or semi-open country for hunting and secluded den sights.	Opportunistic feeders consuming mainly carrion, small live vertebrates, invertebrates and vegetation.	Habitat range size may exceed an area 5 miles in diameter depending on food supply and time of year.
Eastern chipmunk	*Taniias striatus*	Edges or interiors of deciduous woodlands with abundant cover of undergrowtn, old logs, stone walls. Semi-open burshlands with ample cover.	Many kinds of seeds, fruits, nuts, bulbs, insects, meat, and eggs. Feeds during daylight hours.	Home range is typically less than 91 m in diameter or 0.5 to 1 acre.
Gray Squirrel	*Sciurus carolinensis*	Deciduous and mixed forests or woodlots, espically those with trees that produce mast.	Diurnal feeder. Consumes nuts, buds, seeds and grains, fungi, fruits, birds' eggs, inner bark of trees. Will eat insects and then pupae in spring and summer when preferred foods are scarce.	Home range size is 2 to 7 acres depending of food availability and weather.
Raccoon (s)	*Procyon lotor*	Wooded areas interrupted by fields and water couses. Commonly found in wetlands near human habitation.	Ominvorous and opportunistic. Animal matter is the major food in spring and early summer. Fruits and seeds are eaten in summer, fall and winter. Crayfish, worms , insects, carrion, tender buds and shots, grass, and garbage are typical foods.	The home range is usually between 1 and 3 km in diameter. Size varies with individual, food availability and weather.
Red fox	*Vulpes vulpes*	Found in a variety of habitats. A mixture of forest and open areas is preferred. Edges used heavily.	Opportunistic feeders consuming animals ranging from insects to small mammals. Commonly takes birds, turtles, frogs, snakes and their eggs. Berries and fruits when available.	Home range size is less than 3 miles in diameter. Home range is shared by a male-female pair and seasonally by their pups.
Whitetail Deer (s)	*Odocorleus viginianus*	Forest edges, swamp borders, areas interspersed with fields and woodland openings. In winter (when snow exceeds 16") will "yard" in stands of conifers forming a central resting area with trails packed through snow.	Mainly crepuscular. Beer browse on a variety of woody deciduous plants and some coniverous growth, feeding on twigs and stripping young bark. Adaptable in its food habits.	Home range size is generally 2 to 3 square miles. Size depends on quality of habitat. Home range is from 40 acres in excellent habitat to 300 acres in poor habitat.

APPENDIX E.1
OBSERVED SPECIES LISTS
SITE08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

REPTILES, FISH AND AMPHIBIANS

COMMON NAME	SCIENTIFIC NAME	HABITAT REQUIREMENTS	KEY FOOD HABITS	IMPORTANT FEATURES
American Eel	*Anguilla rostrata*	Adults are usually found in fresh to brackish rivers and streams but can be found in streams and ponds.	Predominantly worms, fish and crustaceans.	American Eels are born in the ocean and return to fresh waters to mature. When they are mature and ready to spawn they return to the ocean and die after they are done spawning.
Bluegill sunfish	*Lepomis macrochirus*	Clear warm pools of streams, ponds or reservoirs, usually in shallow water with vegetation.	Young consume zooplankton, switching to aquatic insects at maturity. Small mouth size limits the size of food particles ingested and almost dictates a diet of insects and similar small organisms. While insects remain the staple food item for adults, crayfish, snails, small fish and fish eggs are also consumed, Algae and other vegetation are eaten when normal food items are scarce.	Common sunfish and popular gamefish. Commonly stocked in ponds as forage for larger fishes.
Brown bullhead	*Ictalurus nebulosus*	Shallow weedy, muddy, areas of lakes and large slow moving streams. Also impoundments, lakes and ponds.	Highly omniverous, feeds on the bottoms of ponds and lakes, rich in submerged plants and moss. Feeds on molluscs, insects, leeches, crayfish and plankton, worms, plants and alge.	Common fish for consumption by humans. Of particular interset because it spends most of its time in the sediment.
Eastern American Toad	*Bufo a. americanus*	Found in almost any habitat with cover, damp soils and food supply.	Terrestrial arthropods including insects, sowbugs, spiders, centipedes and milipeds, slugs, and earthworms.	Small home range, Returns to breeding sites.
Eastern Garter snake	*Thamnophis s. sirtalis*	Ubiquitous, terrestrial.	Earthworms account for 80% of food items, also amphibians, carrion, fish, insects, small birds and rodents.	Home range estimated at 5 acres
Golden Shiner	*Notemigonus crysoleucas*	Found in lakes, ponds, marshes and quiet streams.	Feed on zooplankton, crustaceans, insects, small fish and alge.	Do not make nests or care for their eggs. Once the eggs are laid they stick to a plant or another species nest of eggs until they are ready to hatch.
Green Frog	*Rana clamitans melanota*	Riparian, inhabits margins of shallow fresh water.	Terrestrial feeder among shoreline vegetation, insects, worms, small fish, crayfish spiders, and mollusks.	Home range of 20-200 square meters.
Snapping turtle, Common	*Chelydra s. serpentina*	Bottom dweller in fresh or brackish water; almost entirely aquatic but will travel over land.	Omnivorous feeder; scavenges for food readily available; animal matter accounts for 54% of prey items including fish (40%) crayfish, aquatic invertebrates, reptiles, birds, mammals; plant material (37%)	Quite migratory distance ranging from 100 m to 1.1 km; females exhibit strong nesting site fidelity; home range from 4.5 to 22.2 acres.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087

November 6, 2003

Reference	Project	Location
	Environmental investigation Naval Underwater Weapons Center	Newport, RI

Kevin O'Neill
Tetra Tech NUS, Inc.
55 Jonspin Road
Wilmington, MA 01887

NOV 10

Dear Mr. O'Neill:

This responds to your recent correspondence requesting information on the presence of federally-listed and/or proposed endangered or threatened species in relation to the proposed activity(ies) referenced above.

Based on information currently available to us, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under Section 7 of the Endangered Species Act is not required.

This concludes our review of listed species and critical habitat in the project location(s) and environs referenced above. No further Endangered Species Act coordination of this type is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your coordination. Please contact us at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Michael J. Amaral

Michael J. Amaral
Endangered Species Specialist
New England Field Office

RECEIVED
OCT 8 2003
TETRA TECH NUS, INC.
WILMINGTON, MA 01887-1020

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF FISH AND WILDLIFE
Field Headquarters
P.O. Box 218
West Kingston, RI 02892

401 789-0281
401 222-1267
FAX 401 783-7490
TDD 401 831-5508

Kevin O'Neill
Tetra Tech NUS, Inc.
55 Jonspin Rd.
Wilmington, MA 01887

7 October 2003

Mr. O'Neill,

This letter is in response to your query of 1 October 2003 (file N8856-3.2) regarding the Naval Underwater Weapons Center in Newport, Rhode Island.

There are no known endangered species or critical habitats in the vicinity of that site.

Sincerely,

Christopher J. Raithel
Principal Wildlife Biologist

cc: Enser
Lapisky

APPENDIX E.2

WETLAND DELINEATION REPORT

WETLAND DELINEATION AND WATERBODY IDENTIFICATION REPORT

NUSC DISPOSAL AREA

TOWN OF MIDDLETOWN,
NEWPORT COUNTY, RHODE ISLAND

Prepared for:

Naval Station Newport
1260 Peary Street
Newport, RI 02841-1629

Submitted by:

Tetra Tech, Inc.
451 Presumpscot Street
Portland, Maine 04103

In Association with:

Tetra Tech, Inc.
5 Jonspin Road
Wilmington, MA 01887-1020

September 2008

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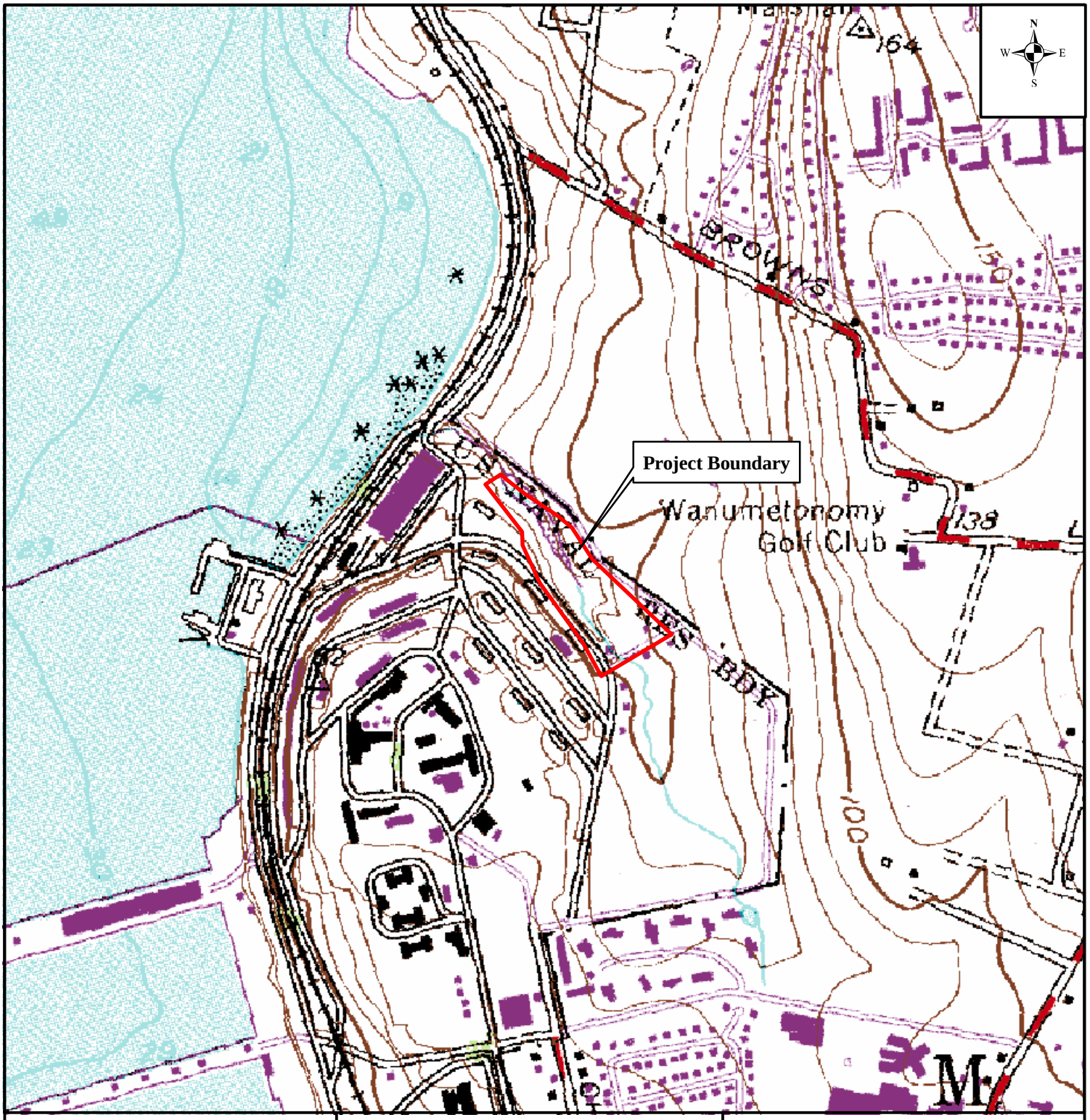
1.0 INTRODUCTION

Tetra Tech, Inc. was contracted by Naval Station Newport to perform a wetland determination and delineation for the Naval Underwater Weapons Center (NUWC), formerly known as the Naval Underwater Systems Center (NUSC). The NUSC Disposal Area (site) consists of an approximately 9.7-acre parcel located in the NUWC area of the Naval Station Newport base, in Middletown and Newport, Rhode Island (Figure 1). The purpose of this investigation was to determine the presence and extent of areas within the survey parcel that meet the criteria for federal wetlands designation according to the U.S. Army Corps of Engineers (USACE) guidelines, and are potentially jurisdictional and regulated under Section 404 of the Clean Water Act (CWA).

Section 2 of this report provides an overview of the survey methods; Section 3 provides survey results; Section 4 contains a summary; and lastly, Section 5 contains a list of references. Appendix A provides copies of field data forms.



Project Location

500 250 0 500 1,000 1,500

Feet

Figure 1. Site Location Map for NUSC Disposal Area, Middletown, Rhode Island.

Source: USGS 7.5' Series Topographic Quadrangle, Prudence Island, Rhode Island 1955 Photorevised 1970 and 1975

Client: Naval Station Newport

Prepared By: TETRA TECH, INC.

Date: 10/08

z:/projects/112G00816/maps/figurex.mxd

2.0 METHODS

2.1 SELECTION OF DELINEATION METHOD

Based on current USACE policy for identifying jurisdictional wetlands, the delineation was accomplished using the USACE Wetlands Delineation Manual (Environmental Laboratory 1987). Based on the level of detail required, the *Routine On-Site Determination Method*, as described in the USACE Wetlands Delineation Manual, was selected as the most appropriate technique to meet the objectives of the study. This technique involved collection and review of background information, followed by an on-site survey and delineation.

2.2 BACKGROUND RESEARCH

Prior to conducting fieldwork, Tetra Tech conducted a thorough review of existing site information including:

- The Newport County Soil Survey Geographic Database Soil Survey Maps (United States Department of Agriculture/Natural Resources Conservation Service [USDA/NRCS] 2008) and list of hydric soils for Newport County, Rhode Island (USDA/NRCS 2006) to determine presence and extent of hydric and upland soils;
- The Newport County, Rhode Island, National Wetland Inventory (NWI) 7.5-minute series quadrangle maps from the U.S. Fish and Wildlife Service (USFWS) to determine the presence of mapped, Federally-designated wetlands (USFWS 1985);
- The Prudence Island 7.5 minute topographic quadrangle maps from the Unites States Geological Service (USGS 1975) to determine known waterbodies;
- Rhode Island wetland survey data (RIGIS 1993); and,
- Digital Orthophotos of Rhode Island 2003-2004, 2005, Chas. H. Sells Inc. (RIDOT 2005).

2.3 ON-SITE FIELD DETERMINATION

2.3.1 Wetland Delineation

Following a review of background information and a preliminary wetland determination walkover survey, wetland scientists from Tetra Tech performed systematic field surveys of the area on July 2 and 3, 2008. The survey of the site was initiated with a walkover inspection of the entire site to identify topographic, drainage, and vegetation features that would indicate the potential for wetland classification. Sampling locations within the distinct plant communities were then investigated using the *Routine On-Site Determination Method* (Environmental Laboratory 1987). This method involves a detailed examination of the soils, vegetation, and hydrologic indicators of a study area. At each sampling location, field data forms were completed to document vegetation, soil, hydrology, and general site characteristics. In addition, to further characterize each wetland, the hydrological connection to adjacent wetlands and waterbodies occurring in and outside of the survey was evaluated. Specific methods for characterizing and evaluating the soils, vegetation, and hydrologic indicators, are described below. Methods for evaluating atypical situations and problem areas were followed according to the *USACE Wetland Delineation Manual* (Environmental Laboratory 1987).

The study area was surveyed to designate wetland/upland transitional zones and ensure accurate and thorough coverage of the site. At each sampling location, field data forms based on *USACE Wetlands Delineation Manual* format were completed to document vegetation, soil, hydrology, and general site characteristics. Specific methods for characterizing and evaluating the soils, vegetation, and hydrologic indicators within the plant communities, are described below.

Vegetation: Dominant plant species in each major vegetation stratum (tree, sapling/shrub, and herbaceous) were identified within a 20-meter radius of each sample plot. The wetland indicator status of each species was assigned according to the National List of Plant Species that Occur in Wetlands: Region 1 (Reed 1988). Hydrophytic vegetation was determined to be present where more than 50 percent of the dominant species in all vegetation stratums were classified as facultative (FAC), facultative wetland (FACW), or obligate (OBL).

Soils: A soil auger or shovel was used at each sample plot to extract a core sample to a depth of 18 inches, or until rocky substrate resulted in refusal. The soils were characterized by determining the color, texture, and structure of each soil horizon. Colors of soil matrix and mottles were identified using Munsell Soil Color Charts (Munsell Color 1988). Mineral soils were considered hydric if they exhibited a matrix chroma of 2 or less with mottles, or a matrix color of 1 or less without mottles in the horizon immediately below the A horizon or 10 inches, whichever is less. Additional indicators used to determine presence of hydric soils included histic epipedons, sulfidic odors, aquic moisture regimes, and concretions.

Hydrology: Each sample plot was examined for evidence of wetland hydrology. Indicators of wetland hydrology included inundation, saturation in the upper 12 inches of the soil, hummocks, watermarks on vegetation, drift lines, drainage patterns, oxidized root channels in the upper 12 inches, and water-stained leaves. Presence of standing water or depth to soil saturation was recorded when applicable.

Wetland cover types were classified according to the USFWS classification system for wetlands and deepwater habitats of the United States (Cowardin et al. 1979). Each wetland was described, and additional notes and sketches characterizing the wetland were recorded on data forms. Appendix A provides copies of the field data sheets for each wetland.

2.3.2 Waterbody Identification

Deepwater aquatic habitats, such as lakes, ponds, rivers, and/or streams, are areas that are permanently inundated at mean annual water depths greater than 6.6 feet or permanently inundated areas less than 6.6 feet in depth that do not support rooted-emergent or woody plant species. Areas less than 6.6 feet mean annual depth that support only submergent aquatic plants are classified as vegetated shallows, not wetlands (Environmental Laboratory 1987).

Prior to field surveys, known waterbodies in the study area were identified on USGS topographic quadrangle maps. A biologist examined the entire survey area for waterbodies, concurrently with wetland delineation surveys. Data collected included stream name, associated wetlands,

flow conditions (perennial or intermittent), direction of flow, water width, bank-to-bank width, bank height and slope, water depth, bottom and bank substrates, observed water quality, and channel meander. In addition, indicators of aquatic habitat, wildlife use, and soil erosion potential were recorded.

2.4 GPS MAPPING

Wetland borders and other identified site features were located using a Trimble, Inc. (Sunnyvale, CA) Geo XT Global Positioning System (GPS). Wetland flag points were surveyed according to Trimble, Inc. sub-meter accuracy standards. Sub-meter accuracy was ensured at each wetland flag point through the collection of a minimum of 20 measurements, with a Precisional Dilution of Position (PDOP) no greater than 4.0 or a minimum of 60 measurements with a PDOP no greater than 6.0. Surveyed points that did not meet the sub-meter accuracy criterion due to restricted satellite reception caused by heavy vegetation or topography were spatially referenced to existing points, such as groundwater monitoring wells, and identified as such in field log books.

GPS data were differentially corrected using Pathfinder Office 3.1 software (Trimble Inc., Sunnyvale, CA) and commercial base station control points. A georeferenced wetland delineation boundary suitable for overlay onto project maps and aerial photographs was created using a combination of ArcMap 9.2 and ArcInfo Workstation (Environmental Systems Research Institute, Inc.; Redlands, CA) mapping software.

3.0 SURVEY RESULTS

This section provides a site description, results of the review of background information, field delineation/determination, descriptions of identified wetlands and adjacent upland areas, and an evaluation of hydrologic connectivity of wetland areas.

3.1 SITE DESCRIPTION

The site is classified as an elevated stream embankment area that includes Deerfield Creek in the southwest and the NUWC Pond in north/northwest. Wanumetonomy Golf and Country Club is adjacent to the site to the east/northeast. A small unnamed stream flows southwest from the golf course, turning northwest prior to flowing into the 1.9 acre NUWC Pond. The southeast of the site is occupied by a paved storage area that is of little habitat value. The northern end of the study area is protected by a chain-link fence, which separates the site from surrounding habitat. A one-lane access road of crushed stone used for fence patrols runs along the east and north boundaries of the site (Tetra Tech 2003).

Site topography is highly variable, with a downslope gradient to the northwest and topographic relief of 15 to 20 feet throughout the site. The NUWC Pond, Deerfield Creek, unnamed creek, and associated lowlands form a deep valley/basin dominated by a variety of scrub/shrub vegetation including northern arrowwood (*Viburnum recognitum*), American bittersweet (*Celastrus scandens*), multiflora rose (*Rosa multiflora*), and tartarian honeysuckle (*Lonicera tartarica*). The lowlands at the south end of the pond are likely inundated during seasonal periods of high water, supporting a variety of emergent vegetation such as soft-stem bulrush (*Scirpus validus*), spotted jewelweed (*Impatiens capensis*), and blue-flag (*Iris versicolor*). The steep slopes on the east and west shores of the pond allow for a narrow fringe of emergent vegetation. At the north end of the NUWC Pond a concrete dam and spillway are present that discharge into Narragansett Bay (Tetra Tech 2003).

Two meadows are present within the upland area on the east side of the site, and are characterized by open grassland and early successional shrub-scrub vegetation. This includes tall fescue (*Schedonorus phoenix*), goldenrods (*Solidago* spp.), blackberry (*Rubus allegheniensis*), and knapweed (*Centaurea* spp.) The south meadow is located immediately northwest of the paved storage area, and the north meadow is approximately 300 feet north of the storage area, adjacent to the access road and golf course. The remainder of the upland is dominated by a variety of dense shrub and sapling cover such as autumn olive (*Elaeagnus umbellata*), northern arrowood, and tartarian honeysuckle with an inclusion of young trees such as red oak (*Quercus rubra*), white pine (*Pinus strobus*), black locust (*Robinia pseudoacacia*), and Norway maple (*Acer platanoides*). No known threatened or endangered species are recorded (Tetra Tech 2003).

3.2 REVIEW OF BACKGROUND INFORMATION

3.2.1 Soils

A review of the publicly available soil survey data for Newport County, Rhode Island indicates that three soil types underlie the site: Pittstown silt loam, 3 to 8 percent slopes; Stissing silt loam, 0 to 3 percent slopes; and Udorthents, or disturbed urban soils (Figure 2).

Pittstown Silt Loam (PmB)

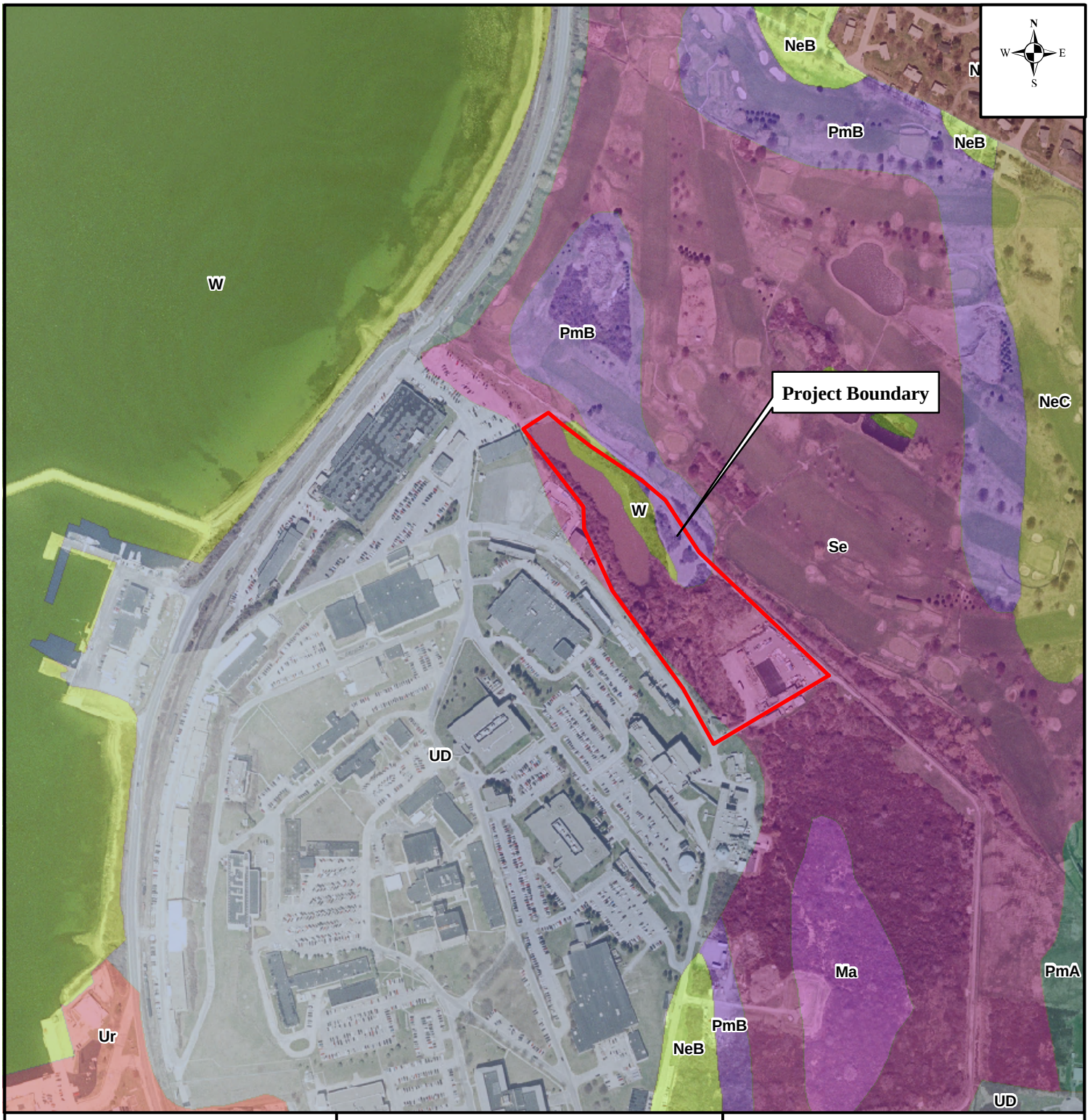
Pittstown silt loam underlies a portion of the old field area on the northeastern side of the site, adjacent to the NUWC Pond. The Pittstown series consists of moderately well-drained soils approximately 30 inches deep, formed in glacial till. They are found on side slopes and crests of glaciated hills at 0 to 8 percent slopes. The surface layer is an 8 inch deep, very dark grayish-brown silt loam with many fine roots and 5 percent rock fragments. The subsurface layer from 8 to 16 inches is a dark yellowish-brown silt loam, also with common fine roots and 5 percent rock fragments present. From 16 to 20 inches in depth, the soil is an olive-brown silt loam with few fine roots present. The subsurface layer 20 to 28 inches in depth is an olive-brown silt loam with few, distinct yellowish-brown mottles. Beyond 28 inches in depth is an olive-gray channery silt loam with few distinct yellowish-brown mottles and 20 percent rock fragments. This layer may extend to 60 inches in depth to parent material. Pittstown silt loam is listed as hydric on the Rhode Island Hydric Soil List (USDA/NRCS 2006).

Stissing Silt Loam (Se)

Stissing silt loam underlies the majority of the site, including the paved storage area to the southeast, west to Deerfield Creek, and north along the west side of NUWC Pond. The Stissing series consists of loamy, poorly drained soils formed on compact glacial till. They generally have very stony surface layers, and form on flat surfaces of 0 to 3 percent slopes, or depressions between glacial uplands. The surface layer is an approximately 8 inch deep very dark gray silt loam with many roots and 10 percent coarse phyllite, slate, shale or schist. The subsurface layer 8 to 15 inches-deep is typically a dark grayish-brown silt loam with many distinct strong brown mottles and 5 percent coarse fragments. From 15 to 60 inches, or until glacial till substratum is reached, the soil is a dark gray silt loam with common distinct strong brown mottles and 10 percent coarse fragments. Stissing silt loam is listed as hydric on the Rhode Island Hydric Soil List (USDA/NRCS 2006).

Udorthents (UD)

Udorthents are only listed as underlying the southwest corner of the site, occupying less than 5 percent of the total area. They are moderate to extremely well drained soils that have been greatly disturbed through cutting, filling and erosion. Udorthents are often built upon, or used as a source of fill material. Due to their highly disturbed character, clear strata are variable and often not present. There may be small areas of undisturbed soils intermingled within the udorthents and not clearly indicated on soil surveys due to their small size. On- site investigation may be necessary for such areas in question. Udorthents are not listed as hydric on the Rhode Island Hydric Soil List (USDA/NRCS 2006).



Rhode Island

Project Location

Source: Digital Orthophotos of Rhode Island 2003-2004, 2005, Chas. H. Sells Inc Rhode Island Department of Transportation Rhode Island Geographic Informaiton System; USDA, NRCS, SSURGO Soils Database, 2008.

500 250 0 500

Feet

Soils Types

Ma - Mansfield mucky silt loam
NeB - Newport silt loam, 3-8% slopes
NeC - Newport silt loam, 8-15% slopes
NP - Newport - Urban Land Complex
PmA - Pittstown silt loam, 0-3% slopes
PnB - Pittstown very stony slit loam, 0-8% slopes
Se - Stissing silt loam
UD - Udorthents - Urban Land Complex
Ur - Urban Land
W - Water

Figure 2. USDA NRCS Soils for NUSC Disposal Area, Middletown, Rhode Island.

Client: Naval Station Newport

Prepared By: TETRA TECH, INC.

Date: 10/08

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3.2.2 Mapped Wetlands

The USFWS NWI data (USFWS 1975) identify no federally designated wetlands located within the site boundary (Figure 3). The NUWC Pond is designated as a Palustrine Unconsolidated Bottom (PUB), and is included in the mapped waterbodies section below.

The Rhode Island State wetland survey identifies two freshwater wetland community types on site (RIGIS 1993). The RIGIS data identifies the lowland area immediately south of the NUWC Pond and a portion of Deerfield Creek, which are designated as an Emergent Wetland, Marsh/Wet Meadow (EMA). Additionally, a Scrub-Shrub Swamp (SSA) is identified south of the Emergent Wetland along the riparian area surrounding Deerfield Creek, continuing southeast to the survey boundary (Figure 4).

3.2.3 Mapped Waterbodies

The USGS 7.5 minute topographic quadrangle maps (USGS 1975) depict one perennial stream (Deerfield Creek) running through the southwest side of the site toward the approximate center of the parcel. A body of open water (POW) is also depicted in the northwest portion of the site, in the location of the NUWC Pond (Figure 4).

The USFWS NWI data (USFWS 1975) identifies one mapped waterbody located within the site boundary (see Figure 3). This occurs in the northwestern portion of the site in the location of the NUWC Pond depicted on the USGS map, and is characterized as a palustrine unconsolidated bottom (PUB) habitat. The Rhode Island State wetland survey classifies this waterbody as Palustrine Open Water (RIGIS 1993) (Figure 4). These habitat classifications do not support rooted emergent or woody vegetation and therefore do not meet the criteria for federally jurisdictional wetlands (Environmental Laboratory 1987).

Project Location

500 250 0 500

Feet

Figure 3. USFWS National Wetlands Inventory for NUSC Disposal Area, Middletown, Rhode Island.

Client: Naval Station Newport

Prepared By: TETRA TECH, INC.

Date: 10/08

Source: Digital Orthophotos of Rhode Island 2003-2004, 2005, Chas. H. Sells Inc Rhode Island Department of Transportation Rhode Island Geographic Informaiton System; NWI, Prudence Island, Rhode Island.

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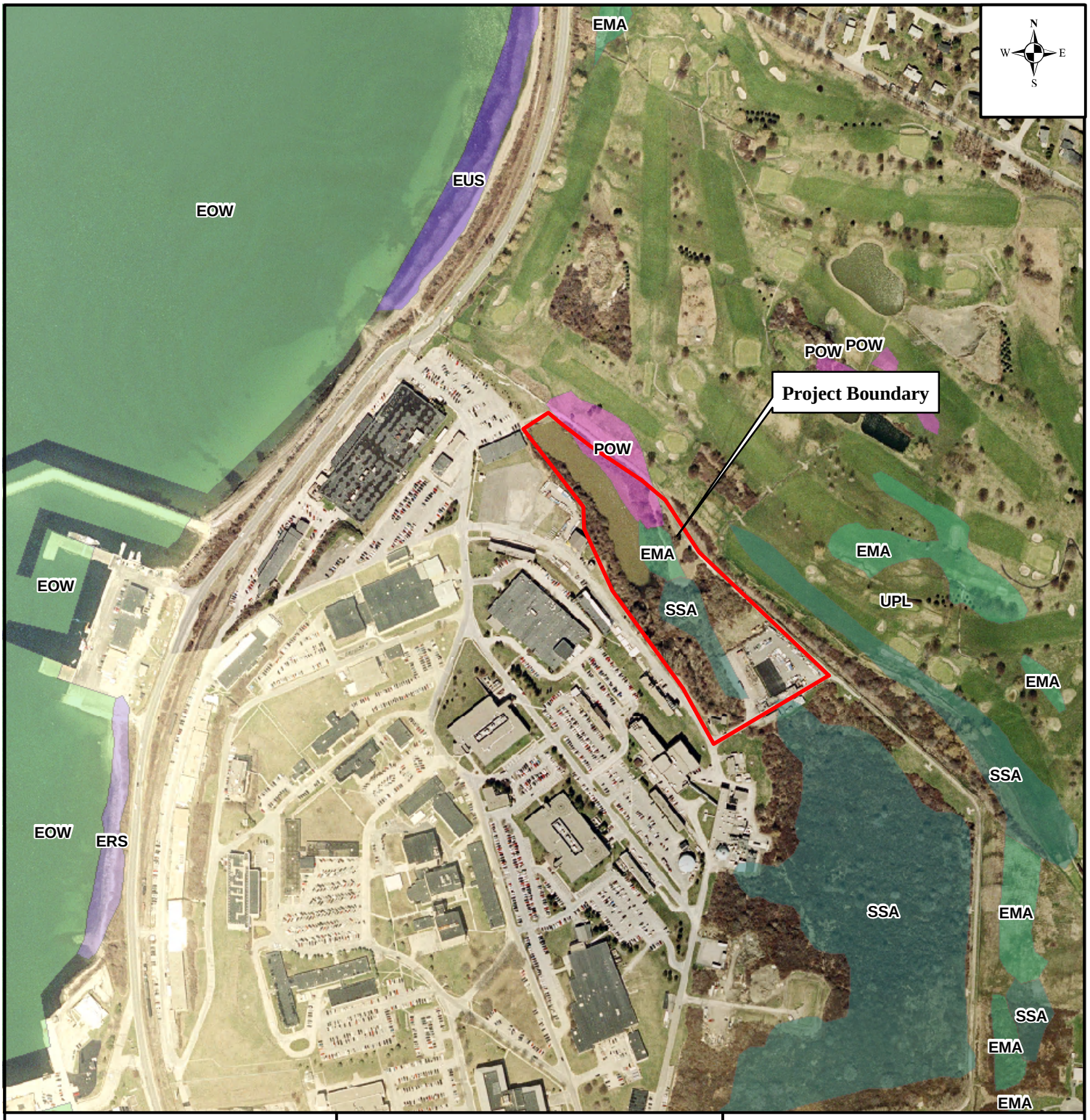

500 250 0 500

Feet

Source: Digital Orthophotos of Rhode Island 2003-2004, 2005, Chas. H. Sells Inc Rhode Island Department of Transportation Rhode Island Geographic Informaiton System; Wetlands of Rhode Island; s44wwt93, RIGIS, 1993.

Figure 4. Rhode Island State Wetlands Survey for NUSC Disposal Area, Middletown, Rhode Island.

Client: Naval Station Newport

Prepared By: TETRA TECH, INC.

Date: 10/08

z:/projects/112G00816/maps/figurex.mxd

3.3 FIELD WETLAND DELINEATION

The site boundary contains one area that met the criteria for designation as wetland, comprising a total of 0.8 acres of wetland (Figure 5). The wetland was composed of two community types:

- Palustrine Emergent (PEM), and;
- Palustrine Scrub-Shrub / Emergent (PSS/EM).

A wetland plot sampling point was located within each community type, and wetland flag points were taken consecutively from WL-01 to WL-50 along the greater wetland boundary. A corresponding upland plot sampling point was located south of the wetland. A detailed description of each of the wetland community types is provided in Sections 3.3.1 and 3.3.2, although the boundaries of the communities were not specifically delineated. A description of the upland community at the sampling plot is described in Section 3.3.3.

3.3.1 Palustrine Emergent Wetland Community

The PEM wetland community (Figure 5) is characterized as a palustrine emergent persistent intermittently flooded wetland (PEM1J) (Cowardin et al. 1979). This wetland is associated with the riparian zones of Deerfield Creek on the east, and the unknown creek on the west. Water flow of both creeks through the wetland is northeast, although Deerfield Creek becomes shallow and braided prior to reaching the NUWC Pond. The wetland continues north as a narrow fringe (8–10 feet width) surrounding the NUWC Pond, excluding the concrete dam at the north end. The wetland fringe boundary was estimated based on contour data and the width of existing wetland data points on the northern half of the east side of the pond (approximately 350 feet in length) due to impassible vegetation and steep slopes.

The herbaceous vegetation in the PEM wetland is dominated by reed-canary grass (*Phalaris arundinacea*), spotted jewelweed, and soft-stem bulrush. The shrub/sapling vegetation is dominated by pussy willow (*Salix discolor*). The composition of hydrophytic plant species in this wetland exceeds 50% and thereby meets the USACE criteria for wetland vegetation.

The soils of the PEM wetland consist of a 0 to 4-inch-deep, very dark grayish-brown (10YR 3/2), A horizon with many fine roots and oxidized root channels. Below this horizon is a 4 to 10-inch-deep, very dark grayish-brown (2.5Y 3/2), silty clay loam with yellowish red (5YR 4/6) common, prominent mottles. A very dark gray (2.5Y 3/1) silty clay loam continues to a depth from 10 to greater than 14 inches and does not exhibit mottling. These mineral soils contain low-chroma colors immediately below the A horizon as well as evidence of reducing conditions (mottles), and thereby meet the USACE hydric soil criteria for nonsandy soils.

Within the wetland area, the primary indicators of wetland hydrology are saturated soils in the upper 12 inches (noted at 4 inches), and drainage patterns. The secondary indicator of hydrology is oxidized root channels in the upper 12 inches of the soil horizon.

3.3.2 Palustrine Scrub-Shrub / Emergent Wetland Community

The PSS/EM wetland community (Figure 5) is classified as a palustrine scrub-shrub/emergent broad-leaved deciduous/persistent intermittently flooded (PSS1J/PEM1J) wetland (Cowardin et al. 1979). The riparian area surrounding Deerfield Creek composes the western boundary of the wetland, flowing north into the NUWC Pond. The eastern boundary is the riparian zone surrounding the unnamed creek entering from the northeast and flowing northwest into the NUWC Pond. Areas south are considered uplands with the exception of the meandering riparian zone of Deerfield Creek.

The herbaceous vegetation is dominated by spotted jewelweed, giant goldenrod (*Solidago gigantea*), and blue flag (*Iris versilcolor*). The shrub vegetation is dominated by multiflora rose and pussy willow. The dominant vine species occurring throughout the wetland is hedge bindweed (*Convolvulus sepium*). The composition of hydrophytic plant species in this wetland exceeds 50% and thereby meets the USACE criteria for wetland vegetation.

The soils in this PSS/EM wetland consists of a 3-inch-deep, very dark grayish-brown (10YR 3/2), silty clay loam A horizon. At a depth of 3 to 7-inches is a very dark grayish brown (2.5Y 3/2) horizon with common, distinct yellowish red (5YR 4/6) mottles. Below this horizon is a very dark gray (2.5Y 3/1), silty clay loam horizon greater than 12 inches in depth with strong brown (7.5YR 4/6) distinct mottles. Up to 12-inches-deep these mottles are many, but become few below 12 inches. These mineral soils contain distinct mottling and low-chroma matrices immediately below the A horizon and thereby meet the USACE hydric soil criteria for nonsandy soils.

The primary indicators of wetland hydrology are saturated soils in the upper 12 inches (recorded at surface), sediment deposits, and drainage patterns. The secondary indicator of hydrology is oxidized root channels in the upper 12 inches of the soil horizon.

3.3.3 Upland Areas

The adjacent upland area is dominated by stinging nettle (*Urtica dioica*) and violets (*Viola* sp.) in the herbaceous layer, and tartarian honeysuckle and multiflora rose in the shrub/sapling layer. The overstory is dominated by Norway maple and gray birch (*Betula populifolia*), with American bittersweet dominating the vine stratum. The species listed as OBL, FACW and FAC in the upland area do not exceed 50 percent abundance, and therefore this area fails to meet USACE criteria for hydrophytic vegetation.

Soils of the adjacent upland areas consist of a 0 to 9-inch-deep, light olive-brown (2.5Y 5/3), silty clay loam. A depth greater than 9 inches could not be reached due to extremely rocky soil. These soils do not contain colors with a matrix chroma of 2 or less and therefore do not meet the USACE hydric soils criteria for nonsandy soils.

No primary or secondary hydrologic indicators of wetland hydrology were observed within adjacent upland areas; the upland area does not meet the USACE hydrology criteria for wetlands.

Project Location

Source: Digital Orthophotos of Rhode Island 2003-2004, 2005, Chas. H. Sells Inc Rhode Island Department of Transportation Rhode Island Geographic Informaiton System; Tetra Tech, 2008.

100 50 0 100 200

Feet

LEGEND

- Project Boundary
- Open Water
- Braided/Poorly Defined Channel
- Upland
- Wetland

Figure 5. Delineated Wetland Boundaries for NUSC Disposal Area, Middletown, Rhode Island.

Client: Naval Station Newport

Prepared By: TETRA TECH, INC.

Date: 10/08

z:/projects/112G00816/maps/figurex.mxd

3.4 FIELD WATERBODY IDENTIFICATION

Field surveys for waterbodies encompassed the same survey area as for the wetlands. Field surveys were performed to identify waterbodies, including perennial and intermittent streams, springs, and ponds within the parcel that were potentially jurisdictional under Section 404 of the Clean Water Act. Each waterbody was characterized according to the methods described in Section 2.3.2. GPS data points DC-01 through DC-17 were taken along the length of Deerfield Creek beginning at the upstream entrance to the parcel. Points UC-01 through UC-14 were taken along the unnamed channel beginning at the upstream entry to the parcel on the northeast boundary.

3.4.1 Deerfield Creek

Deerfield Creek (DC) is an intermittent stream with moderate meander flowing northwest along the southwest border, becoming braided prior to entry into the NUWC Pond. Water width was estimated at 1 to 4 feet, with a bank width of 3 to 15 feet. Average depth was less than 6 inches to a substrate of sand, gravel/cobbles, and shale, although no water was present at the shallow, braided north end of the stream during measurement. Bank heights were estimated at less than 3 feet with slopes of 21 to 50 percent each. The bank substrate was sand, silt and clay, and displayed low erosion potential.

The dominant vegetation surrounding the channel was varied and totaled an estimated 76 to 100 percent canopy closure. Present species included Norway maple, gray birch, and red maple (*Acer rubrum*) in the overstory; tartarian honeysuckle, multiflora rose and northern arrowwood in the shrub layer; and, stinging nettle, spotted jewelweed, and sweet white violet (*Viola incognita*) in the herb layer. Fish, green frogs and salamanders were observed within the channel. No threatened or endangered species were identified at the time of measurement.

3.4.2 Unnamed Channel

The unnamed channel (UC) is a highly meandering intermittent stream entering the site from the adjacent golf course. Upon entry, the flow is to the southwest meandering northwest until joining the NUWC Pond at the southern end. Water width was estimated at 2 feet, with a bank to bank width ranging from 3 to 10 feet. Water depth was less than 6 inches over a substrate of sand and gravel/cobbles. Bank heights were less than 3 feet, with a 51 to 100 percent slope on the left bank and 0 to 20 percent on the right bank. The bank substrate was sand, silt and clay that exhibited low erosion potential.

The canopy closure above the channel was estimated to be 76 to 100 percent. The dominant vegetation on the banks included black cherry (*Prunus serotina*), willow (*Salix* sp.) and Norway maple in the overstory; northern arrowwood and multiflora rose in the shrub layer; and, spotted jewelweed and sweet white violet in the herb layer. Green frogs were observed in the channel, and no threatened or endangered species were identified.

3.4.3 NUWC Pond

The NUWC Pond occupies approximately 1.9 acres of the northwest portion of the site. During periods of high water, the depth at the concrete dam on the north end can exceed 10 feet, and open water may expand into the lowlands at the south end. During periods of drought and diversion for irrigation, the depth at the dam can drop to 3 feet. The shallow, south end and a small fringe extending around the banks support a variety of emergent wetland vegetation that has been identified and described in the PEM wetland community description (see Section 3.3.1). The substrate of the pond is organic mucky silt with sand increasing with proximity to the south end (Tetra Tech 2003).

4.0 SUMMARY

In July 2008, Tetra Tech performed wetland delineation field surveys on the NUSC Disposal Area in Middletown, Rhode Island. Background research and on-site investigation concluded that one area totaling 0.8 acres and containing two community types met the federal criteria for wetland designation in the survey area. In addition to the wetland identified on-site, two streams and one pond feature was field verified. The wetlands are hydrologically connected to the pond through the two streams. The intermittent channels have defined bed and banks and likely experience continuous flow during wet seasons and ephemeral flow after storm events.

5.0 REFERENCES

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Reed, P B., Jr. 1988. National List of Plant Species That Occur in Wetlands: Region 1. U.S. Fish and Wildlife Service, Washington, D.C. 112 pp.

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United States Department of Agriculture, Natural Resources Conservation Service (USDA/NRCS). 2006. Hydric Soils List of Bristol, Kent, Newport, Providence and Washington Counties, Rhode Island.

United States Fish and Wildlife Service (USFWS). 1975. National Wetlands Inventory (NWI) Quadrangle, 7.5-minute Series Quadrangle. Prudence Island, Rhode Island.

United States Geological Survey (USGS). 1975. Topographic Quadrangle, 7.5-minute Series Quadrangle, Prudence Island, Rhode Island.

APPENDIX A

FIELD DATA FORMS

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TETRA TECH

Water Resources Field Data Form — Data Sheet No.

Project Name: NUSC DISPOSAL AREA
State/County: RI

Date: 7/3/08
Surveyors: S. WATTS
Photo: Roll _____ Frames _____

Aerial Sheet No.:
GPS Point No (s): DC-1 ... 12
Associated Data Sheet No(s): _____

Stream [✓] Spring [ ] Water Well [ ]

Stream Information

Name: Deerfield Creek

Perceptible Flow Yes [✓] No [ ]
Direction of Flow: N

Stream Width:
water 1-4 ft.
bank to bank 3-15 ft.

Perennial [ ] Intermittent [✓]

Probed Stream Depth
[✓] 0-6"
[ ] 7-12"
[ ] 13-24"
[ ] 25-36"
[ ] >36"

Bottom Substrate
[✓] Shale
[ ] Bedrock
[✓] Cobble/Gravel
[✓] Sand
[ ] Silt/Clay
[ ] Organic

Observed Water Quality
[✓] Clear
[ ] Slightly Turbid
[ ] Turbid
[ ] Very Turbid

Aquatic Habitat
[✓] Sand Bar
[ ] Sand/Gravel Beach Bar
[ ] Mud Bar
[✓] Overhanging Trees/Shrubs
[ ] Cobble Riffles
[✓] Deep Pods/Holes
[ ] Aquatic Vegetation
[ ] Other: _____

Wildlife Observed (species)
[ ] Waterfowl _____
[✓] Fish _____
[ ] Turtles _____
[✓] Frogs Green
[ ] Invertebrates _____
[✓] Salamanders _____
[ ] Other: _____

Observed Use N/A
[ ] Drinking
[ ] Irrigation
[ ] Swimming
[ ] Fishing
[ ] Drainage
[ ] Boating
[ ] Other: _____

Left Bank* Height and Slope
[✓] 0-3'
[ ] 3-6'
[ ] 6'+
[ ] 0-20% (0-11°)
[✓] 21-50% (12-27°)
[ ] 51-100% (28-45°)

Right Bank* Height and Slope
[✓] 0-3'
[ ] 3-6'
[ ] 6'+
[ ] 0-20% (0-11°)
[✓] 21-50% (12-27°)
[ ] 51-100% (28-45°)

* Direction when facing downstream

Bank Substrate
[ ] Shale
[ ] Bedrock
[ ] Cobble
[✓] Sand
[✓] Silt/Clay
[ ] Organic

Erosion Potential
[✓] Low
[ ] Moderate
[ ] High

Channel Meander
[ ] Low
[✓] Medium
[ ] High

Recommended Stream Crossing Technique N/A
[ ] Directional drill
[ ] Pump around with coffer dams
[ ] Flume
[ ] Open-cut
[ ] Other: _____

(over)

Stream Info Cont'd

Adjacent Vegetation Type: _____

Dominant Vegetative Species:

Trees: Acer pseudoplatanoides, Betula populifolia, Acer rubrum

Shrubs: Lonicera tartarica, Rosa multiflora, Viburnum recognitum

Herbs: Urtica dioica, Impatiens capensis, Viola incognita

Estimated % of canopy closure over stream channel:

[ ] 0-25% [ ] 26-50% [ ] 51-75% [✓] 76-100%

Presence of threatened/endangered species (fish, reptiles, or amphibians)?

[ ] Unknown [✓] No [ ] Yes (identify) _____

None found.

Spring Information N/A

Approximate distance and direction from centerline: _____

Associated Wetland [ ] Yes: Data Form No. _____

[ ] No

Surrounding Land Use: _____

Associated Vegetation Type: _____

Water Well Information N/A

Type: [ ] Private

[ ] Community

[ ] Municipal/Public

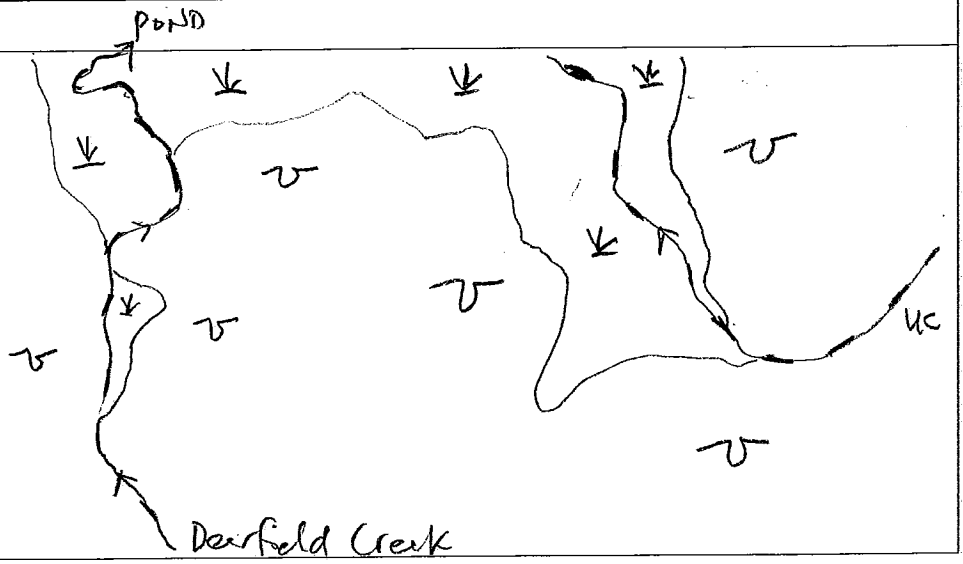
[ ] Unknown

Surrounding Land Use: _____

Approximate distance and direction from centerline:

Notes: Channel becomes braided near pond - several small (~3' wide) channels split out and go to pond. No observable flow at N end near pond.

Sketch:



TETRA TECH

Water Resources Field Data Form Data Sheet No. 2

Project Name: NUSC
State/County: RI

Date: 7/2/08
Surveyors: S. WATTS, M HORTON
Photo: Roll _____ Frames _____
Aerial Sheet No.:
GPS Point No (s): UC-01 . . .
Associated Data Sheet No(s): _____

Stream [✓] Spring [ ] Water Well [ ]

Stream Information

Name: Unnamed Channel
Perceptible Flow Yes [✓] No [ ]
Direction of Flow: SSW then NW

Stream Width:
water 2 ft.
bank to bank 3-10 ft.
Perennial [ ] Intermittent [✓]

Probed Stream Depth
[✓] 0-6"
[ ] 7-12"
[ ] 13-24"
[ ] 25-36"
[ ] >36"

Bottom Substrate
[ ] Shale
[ ] Bedrock
[✓] Cobble/Gravel
[✓] Sand
[ ] Silt/Clay
[ ] Organic

Observed Water Quality
[✓] Clear
[ ] Slightly Turbid
[ ] Turbid
[ ] Very Turbid

Aquatic Habitat
[✓] Sand Bar
[ ] Sand/Gravel Beach Bar
[ ] Mud Bar
[✓] Overhanging Trees/Shrubs
[ ] Cobble Riffles
[ ] Deep Pods/Holes
[ ] Aquatic Vegetation
[✓] Other: Algal growth

Wildlife Observed (species)
[ ] Waterfowl _____
[ ] Fish _____
[ ] Turtles _____
[✓] Frogs Green
[ ] Invertebrates _____
[ ] Salamanders _____
[ ] Other: _____

Observed Use N/A
[ ] Drinking
[ ] Irrigation
[ ] Swimming
[ ] Fishing
[ ] Drainage
[ ] Boating
[ ] Other: _____

Left Bank* Height and Slope
[✓] 0-3'
[ ] 3-6'
[ ] 6'+
[ ] 0-20% (0-11°)
[ ] 21-50% (12-27°)
[✓] 51-100% (28-45°)

Right Bank* Height and Slope
[✓] 0-3'
[ ] 3-6'
[ ] 6'+
[✓] 0-20% (0-11°)
[ ] 21-50% (12-27°)
[ ] 51-100% (28-45°)

* Direction when facing downstream

Bank Substrate
[ ] Shale
[ ] Bedrock
[ ] Cobble
[✓] Sand
[✓] Silt/Clay
[ ] Organic

Erosion Potential
[✓] Low
[ ] Moderate
[ ] High

Channel Meander
[ ] Low
[ ] Medium
[✓] High

Recommended Stream Crossing Technique N/A
[ ] Directional drill
[ ] Pump around with coffer dams
[ ] Flume
[ ] Open-cut
[ ] Other: _____

(over)

Stream Info Cont'd

Adjacent Vegetation Type: Forest

Dominant Vegetative Species:

Trees: Prunus serotina, Salix sp., Acer pseudoplatanoides

Shrubs: Viburnum recognitum, Rosa multiflora

Herbs: Impatiens capensis, Viola incognita

Estimated % of canopy closure over stream channel:

[ ] 0-25% [ ] 26-50% [ ] 51-75% [✓] 76-100%

Presence of threatened/endangered species (fish, reptiles, or amphibians)?

[ ] Unknown [✓] No [ ] Yes (identify) None found

Spring Information N/A

Approximate distance and direction from centerline:

Associated Wetland [ ] Yes: Data Form No.

[ ] No

Surrounding Land Use:

Associated Vegetation Type:

Water Well Information N/A

Type: [ ] Private

[ ] Community

[ ] Municipal/Public

[ ] Unknown

Surrounding Land Use:

Approximate distance and direction from centerline:

Notes:

Sketch:

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: NUSC Disposal Area	Date: 7/3/08
Applicant/Owner:	County:
Investigator: S. Watts M. Horton	State: RI
Do Normal Circumstances exist on the site? (Yes) No	Community ID:
Is the site significantly disturbed (A typical Situation)? Yes (No)	Transect ID:
Is the area a potential Problem Area? Yes (No)	Plot ID: WP-wet1
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Phalaris arundinacea	H	FACW+	7.		
2. Impatiens capensis	H	FACW	8.		
3. Scirpus validus	H	OBL	9.		
4. Salix discolor	S	FACW	10.		
5.			11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: 12 (in.)

Depth to Saturated Soil: 4" (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ✓ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ✓ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR 3/2			
4-10"		2.5Y 3/2	5YR 4/6	common/Prominent	silty clay loam
10-14"+		2.5Y 3/1			silty clay loam

Hydric Soil Indicators:

____	Histosol	✓	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
✓	Reducing Conditions	____	Listed on National Hydric Soils List
✓	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

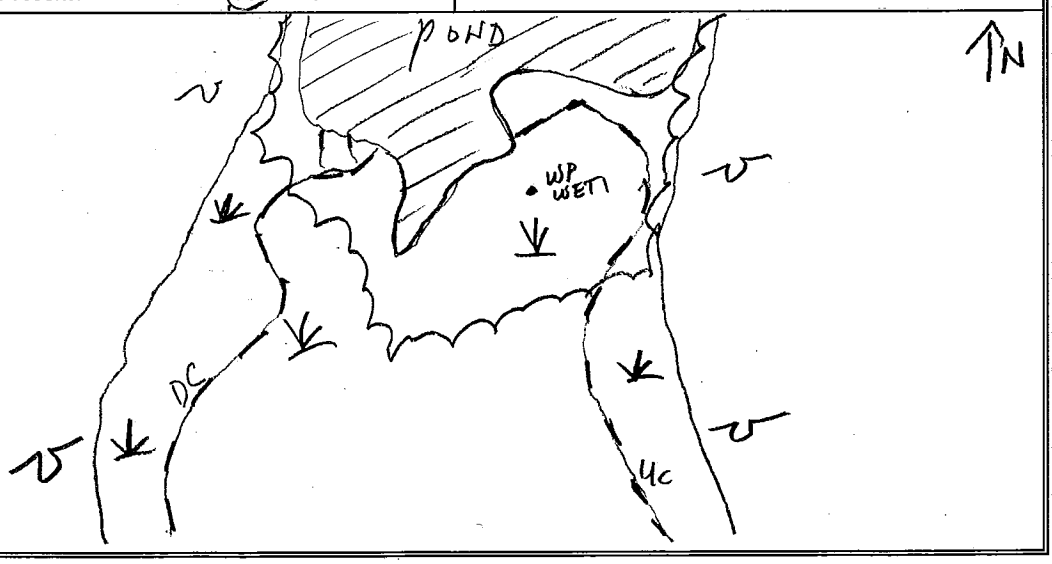
Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Sketch:



TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: NUSC Disposal Area	Date: 7/30/08
Applicant/Owner:	County:
Investigator: S. Watts M. Horton	State: RI
Do Normal Circumstances exist on the site? (Yes) No	Community ID:
Is the site significantly disturbed (A typical Situation)? Yes (No)	Transect ID:
Is the area a potential Problem Area? Yes (No)	Plot ID: WP-wet2
(If needed, explain on reverse)	

LOCATION - 315° 50' to SD112

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Impatiens capinsis	H	FACW	7.		
2. Solidago gigantea	H	FACW	8.		
3. Iris versacolor	H	OBL	9.		
4. Salix discolor	S	FACW	10.		
5. Rosa multiflora	S	FACU	11.		
6. Convolvulus sepium	V	FAC-	12.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/6

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ✓ Sediment Deposits
- ✓ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ✓ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"		10YR 3/2			Silty Clay loam
3-7"		2.5Y 3/2	5YR 4/6	Common/Distinct	
7-12"		2.5Y 3/1	7.5YR 4/6	~~Common~~ Many/Distinct	
12+		2.5Y 3/1	7.5YR 4/6	Few/Distinct	

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
✓	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

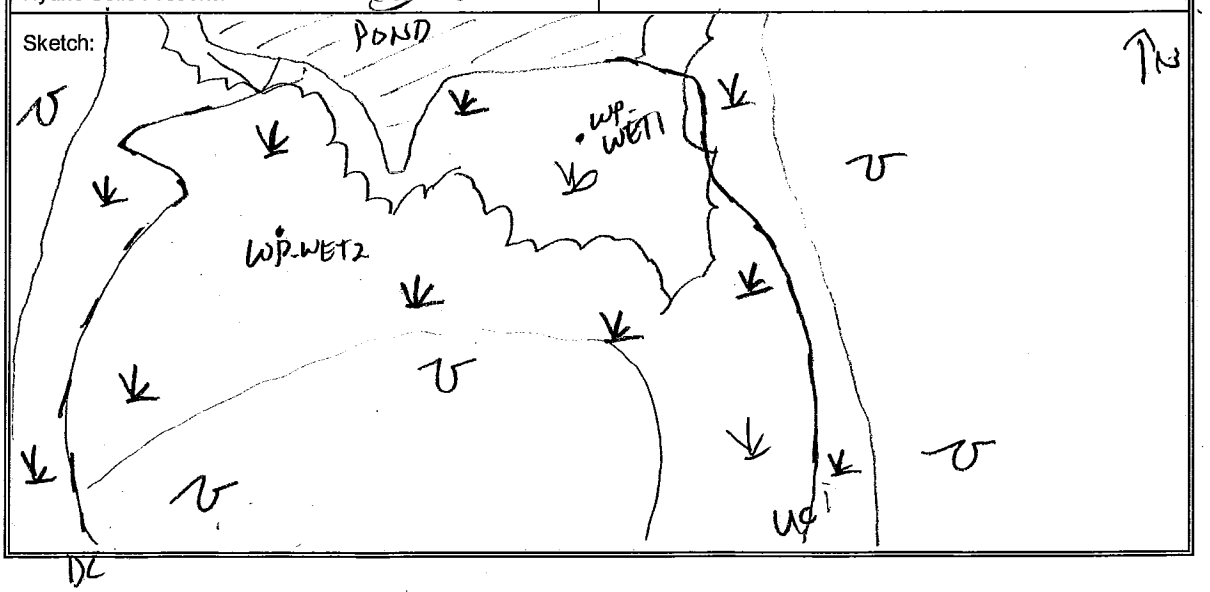
Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Sketch:



TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: NNSC Disposal Area	Date: 7/3/08
Applicant/Owner:	County:
Investigator: S. WATTS M. HORTON	State: RI
Do Normal Circumstances exist on the site? (Yes) No	Community ID: FOREST/SCRUB-SHRUB
Is the site significantly disturbed (A typical Situation)? Yes (No)	Transect ID:
Is the area a potential Problem Area? Yes (No)	Plot ID: WP-UP 15
(If needed, explain on reverse)	

LOCATION - 25° 40' to SOUTH

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Urtica dioica	H	FACU	7. Celastrus scandens	V	FACU-
2. Viola sp.	H	—	8.		
3. Lonicera tatarica	S	FACU	9.		
4. Rosa multiflora	S	FACU	10.		
5. Acer pseudoplatanoides	T	UPL	11.		
6. Betula populifolia	T	FAC	12.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/7

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)

Depth to Free Water in Pit: — (in.)

Depth to Saturated Soil: — (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9"		2.5Y 5/3			Silty Clay Loam

Hydric Soil Indicators:

_____ Histosol	_____ Concretions
_____ Histic Epipedon	_____ High Organic Content in Surface Layer in Sandy Soils
_____ Sulfidic Odor	_____ Organic Streaking in Sandy Soils
_____ Aquic Moisture Regime	_____ Listed on Local Hydric Soils List
_____ Reducing Conditions	_____ Listed on National Hydric Soils List
_____ Gleyed or Low-Chroma Colors	_____ Other (Explain in Remarks)

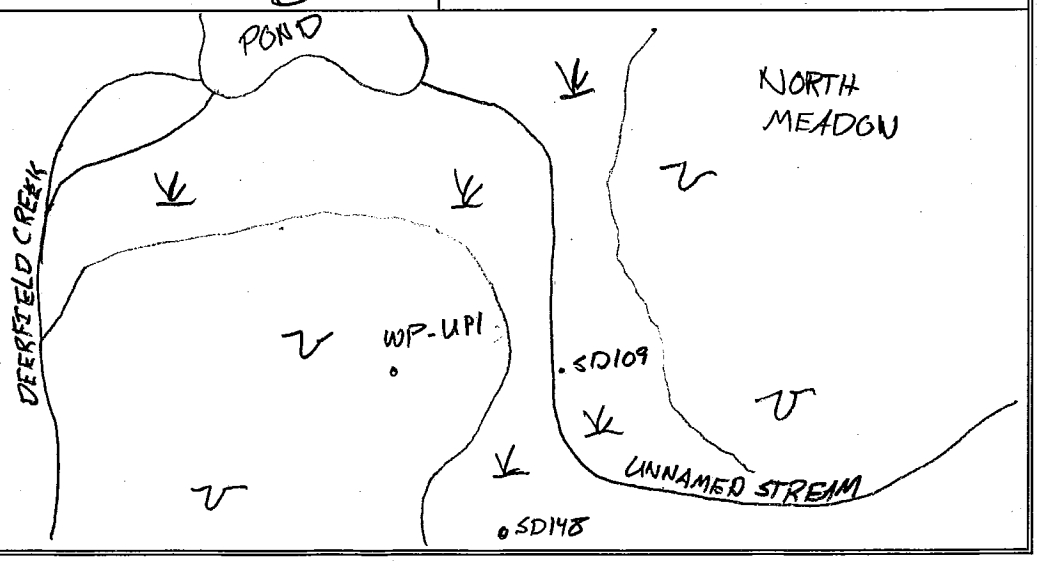
Remarks:
Soil is Extremely Rocky Soil w/ Phyllite, unable to dig past 9"

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Sketch:



~~Retu~~ Give map w/ photo locations to J. Gildersleeve.

Return badge and exit site 1600.

END 6/10/08
SW

Mike--

I circled the points in red that I would like you to try to get when you return to the site. Good luck -- I hope you have better signal than when we were out. Please remember to take 60 points (set the GPS unit to take a point every 1 second -- ours defaults to 5 seconds, and that can take forever to collect enough points). The 60 points are necessary so that we can have these points be as accurate as we can -- I think this is important because we used the "known" points to locate some of the points we weren't able to get. If you can't get 60 points, just do the best that you can.

Thanks!
-sw

7/2/08

NUSC DISPOSAL AREA
Tt-NUS

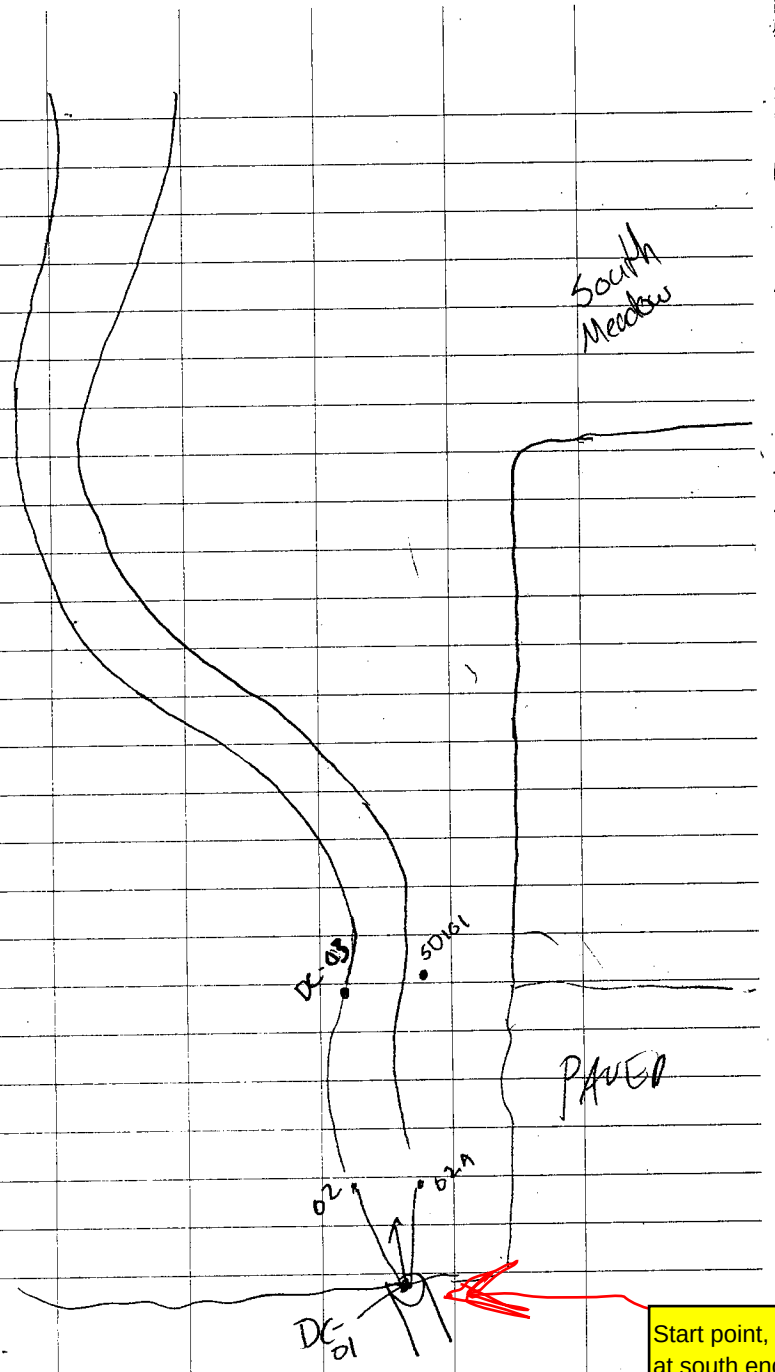
0900 MEET MIKE HORTON @ Gate
check in, get badge.

0930 On site.
Calm, wispy clouds. Light wind. 80's.

0945 Initiate site investigation

Two creeks:
Deerfield Creek - from south, flows N into ~~NUSC~~ pond ~~(NUWC~~ NUWC
Unnamed Creek - flows W, then N into NUWC pond.

Trimble GeoXT
NUSC 070208
Check Logging Settings
GPS Settings

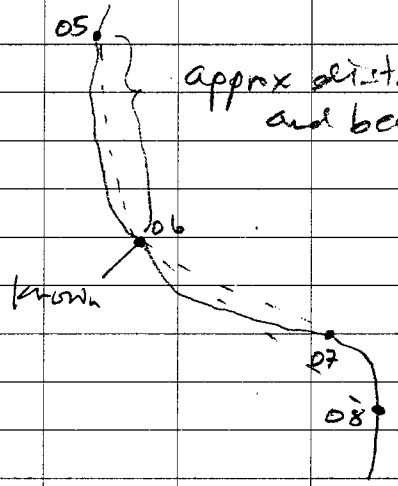


Start point, along road at south end of site.

~~From~~ Difficulty w/ GPS reception
Estimate some points distance & direction from known points.

DC-01 Deerfold Creek
to DC-02 303° 22'
to DC-02A 156° 22'
DC-03 60° 8' width - Area of SD101
-point taken on GPS 8' accross stream from flag
DC-04 - point taken under flag
DC-05 - point taken under flag
DC-06 - point Not taken due to Cover
-flag about 100' upstream from SD105
- 60° 8' width
DC-07 - point NOT taken due to cover
-flag about 80' upstream of SD105
- 60° - 10' width
DC-08 - point NOT taken
-flag about 12' upstream from SD105
- 60° 8' width
DC-09 - point NOT Taken
-flag about 40' downstream of SD105
-60° 10' width

Many points estimate locations as shown: (Example illustration)



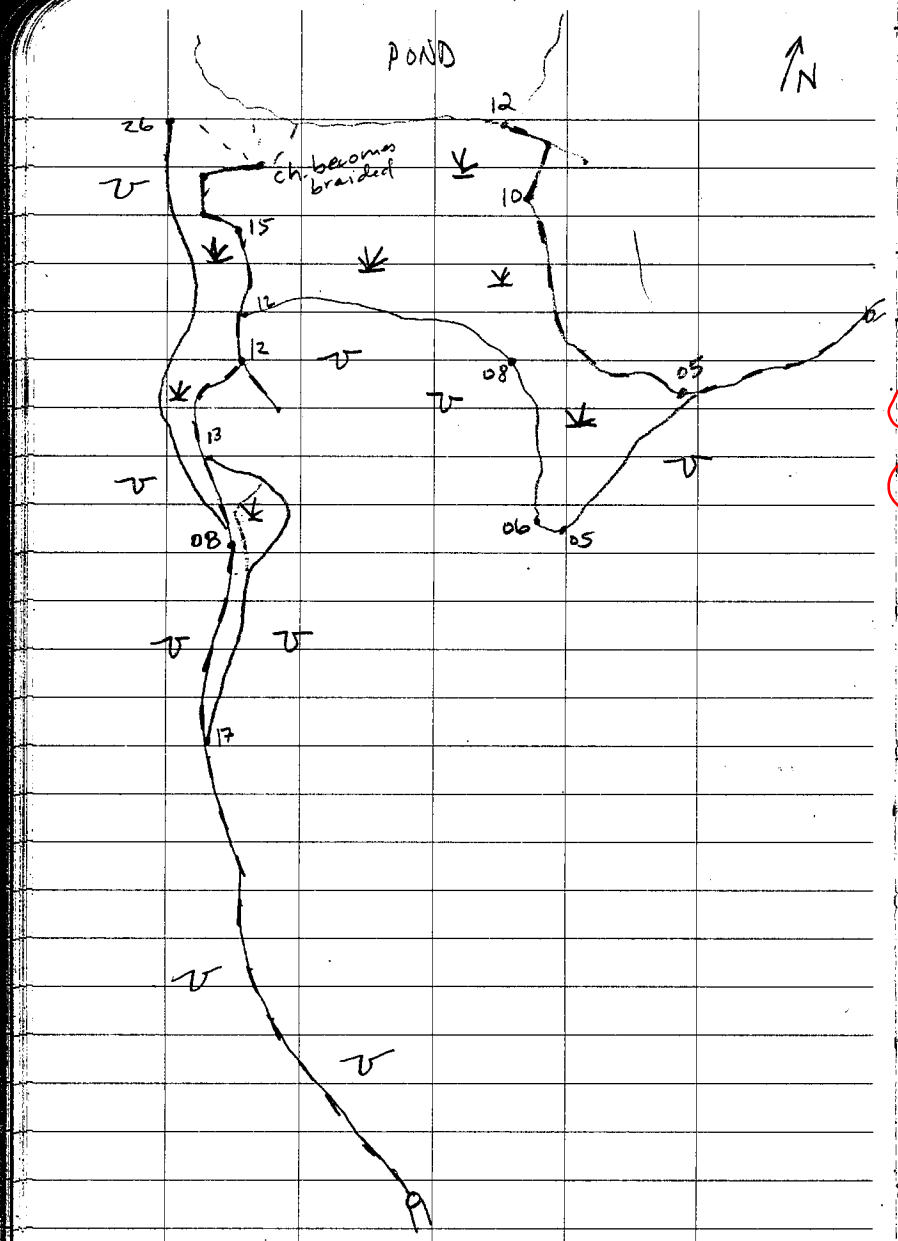
DC-10 - From SD106 210° 18' away
DC-11 - point NOT taken
- Dug about 20' upstream from SD110
- 68° 12' width
DC-12 - point NOT taken
- 306° 6' away from SD110
DC-12a - point NOT taken
- 126° 40' away from SD110
DC-13 - point taken beneath flag
- 320° 40' away from SD110
DC-14 - point NOT taken
- SD111 & DC-14 are the same
DC-15 - point NOT taken
- 332° 50' from SD111
DC-16 - point NOT taken
- 312° 55' from SD111
DC-17 - point NOT Taken
- 233° 30' from SD112

Unnamed Channel

UC-02 Width 15' @ 60°
UC-03 Width 12' @ 60°
UC-04 Point Not taken
- Width 15' @ 60°
- About 50' upstream from SD107

UC-05 - Width 10'
UC-06 - Width 4'
- Point taken from opposite side of river
UC-07 - Width 6'
- No point taken, flag hung 10' upstream from SD-109
UC-08 - Width 6'
- ~~No point taken~~, flag hung 25' downstream from SD109
UC-09 - Width 6'
UC-10 - Width 3'
UC-11 Width 5'
UC-12 - Width 5'
UC-13 - Width 2'
UC-14 - Width 1'
END STREAMS.

BEGIN WETLANDS.
WETLAND - connect to edge of stream UC (unnamed channel)
WL-01 - located with UC-05 8' 130°
WL-03 - located w/ SD148 260° 10'
WL-02 - NO Point taken
180° and 25' from WL-01



WL-04 - located 40° 18' from SD148
WL-09 - Point NOT taken
-56° 35' from SD-09
WL-10 - Point NOT taken
-94° 20' from WL-09
WL-11 - Offset is SD111
-120° 40'
WL-12 - offset is SD111
-108° 10'
Tie in ↓ edge to DC stream.
WL-13 - NO Point Taken
W-317° 18' from SD105
WL-14 - NO Point Taken
-202° 20' to SD105
WL-15 - NO Point Taken
-102° 12' from SD105
WL-16 - NO Point Taken
-296° 40' to DC-08
WL-17 - NO Point Taken
-309° -25' to DC-07
WL-18 - NO Point Taken
-88° 12' to SD105
WL-19 - NO point taken
-94° 40' to SD105

WL-20 = DC-10
WL-21 - NO Point Taken
-79° 20' to SD110
WL 22 - NO Point Taken
-0° 30' to SD111
WL 23 - NO Point Taken
-50° 18' to SD111
WL 24 - NO Point Taken
-312° 55' from SD111
WL 25 - NO Point Taken
-259° 30' from SD112
WL 26 - NO Point Taken
-308° 40' from SD112

1700 END

END
7/2
SW

NUSC Disposal Site 7/3/08
Tt-NUS S. Watts

Onsite 0745
meet up w/ Mike H.

Weather: 70s, light breeze, clear
expect 90s midday.

Continue flagging ⊻s around perimeter of pond.

GPS - settings same as yesterday

NUSC 070308

WL-27 - NO Point taken
-101° 50' to SD116
WL-29 - NO Point Taken
-121° 80' from SD114
WL-30 - NO Point Taken
-136° 120' from SD114
WL-31 - NO Point taken
-141° 150' to SD114
WL-32 - NO Point Taken
-147° 200' to SD114

} See next pages for MORE INFO

WL-33 - NO Point taken - See next pg. for more info ☆
-150° 200' from SD114
-8' back from shore of pond
WL 34 - No Point Taken
-48° 80' from SD122
-6' back from shore of Pond

After point WL-34 unable to access shoreline through v. thick vines (Rosa multiflora, Celastrus (bittersweet), Poison ivy, Rubus sp.). Due to the fact that GPS has been unreliable → unable to get any data points today → and need to estimate distance and take bearing to a known point that is now very distant, we have decided to estimate ⊻ boundary around perimeter of lake at N end based on combination of contour data for site and width of ⊻ buffer ~~for~~ at mid-ll existing points (~6-8').
We will resume attempt at point collection at first access point on E side.

WL-35 - 18' @ 236° from GPS Point
WL-38 - 230° 35' from SD137
WL-39 - ~~25~~ 358° 50' from Pond Diffusion Bag 01
* WL-33 - 247° 150' from Pond Diffusion Bag 01
WL-40 - 5' back from shore at Pond Diffusion Bag 01
WL-~~41~~41 - 5' back from shore at Pond Diffusion Bag 03
WL-42 - 5' back from shore @ Pond Diffusion Bag 05

WL-32 - 288° 140' from Pond Diffusion Bag 05
WL-31 - 251° 130' from Pond Diffusion Bag 05

WL-43 - 5' back from shore @ Pond Diffusion Bag ~~08~~ 07
WL-44 - 243° 40' ~~From~~ To SD114
WL-45 - 270° 40' to SD114
WL-46 - 231° 10' from Diffusion Bag 10
WL-47 - GPS point taken - About 1' from UC-09
WL-48 - 343° 35' from SD109
WL-49 - 278° 15' to SD109
WL-50 - 170° 25' to SD148, connect to UC.
END delineation, near to WL-01, WL-02.

Do three plots:
2 wetlands
- herbaceous (PEM)
- scrub-shrub (PSS/EM)
1 upland.

GPS still difficult to get signal to obtain points. Where unable to get GPS, estimate distance and take bearing from (or to) point.

2 streams

END 7/3
1230 GN

APPENDIX F

ANALYTICAL DATA RESULTS

APPENDIX F.1

SOIL SAMPLE ANALYTICAL DATA

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,2,3-TRICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2,3-TRICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2,4-TRIMETHYLBENZENE	5 U	5 U	5 U	5 UJ	1 J	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2-DIBROMOETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,2-DICHLOROETHANE	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,3,5-TRIMETHYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	2-BUTANONE	25 U	25 U	25 U	25 UJ	6 J	25 U	25 U	25 UJ	25 U	25 UJ
	2-CHLOROTOLUENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	2-HEXANONE	25 U	25 U	25 U	25 UJ	25 U	25 U	25 U	25 UJ	25 UJ	25 UJ
	4-CHLOROTOLUENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	4-METHYL-2-PENTANONE	25 U	25 U	25 U	25 UJ	25 U	25 U	25 U	25 UJ	25 U	25 UJ
	ACETONE	12 J	12.2 J	25 U	25 J	82	32	14 J	25 UJ	11.2 J	1700 U
	BENZENE	5 U	5 U	5 U	5 UJ	2 J	5 U	5 U	5 UJ	5 U	5 UJ
	BROMOBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	BROMOCHLOROMETHANE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	BROMOFORM	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	BROMOMETHANE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 UJ
	BTEX	5.6 U	5.6 U	5.6 U	5.6 UJ	6 J	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 UJ
	CARBON DISULFIDE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	CHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	CHLOROETHANE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
	CHLOROFORM	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	CHLOROMETHANE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	DIBROMOMETHANE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 UJ
	ETHYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	HEXACHLOROBUTADIENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	ISOPROPYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	M+P-XYLENES	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 UJ
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	METHYLENE CHLORIDE	25 U	25 U	25 U	25 UJ	25 U	25 U	25 U	25 UJ	25 U	25 UJ
	N-BUTYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ

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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	N-PROPYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	O-XYLENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	SEC-BUTYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	STYRENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	TERT-BUTYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
	TETRACHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	TOLUENE	5 U	5 U	5 U	5 UJ	4 J	5 U	5 U	5 UJ	5 U	5 UJ
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	6.2 U	3 J	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 U	5 J
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	3 J	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	5 J
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 UJ
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 UJ
	TRICHLOROETHENE	5 U	5 U	5 U	3 J	5 U	5 U	5 U	5 UJ	5 U	5 J
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 UJ
	VINYL CHLORIDE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	1,2-DIPHENYLHYDRAZINE	690 U	690 U	690 U	720 U	750 U	720 U	710 U	700 U	760 U	800 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	340 UJ	345 UJ	350 UJ	360 UJ	380 UJ	360 UJ	360 UJ	350 UJ	380 U	400 U
	2,4,5-TRICHLOROPHENOL	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	2,4,6-TRICHLOROPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2,4-DICHLOROPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2,4-DIMETHYLPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2,4-DINITROPHENOL	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	2,4-DINITROTOLUENE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2,6-DICHLOROPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2,6-DINITROTOLUENE	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U

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R - REJECTED; NA - NOT ANALYZED

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	2-CHLORONAPHTHALENE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2-CHLOROPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2-METHYLNAPHTHALENE	6.7 J	7 J	7.3 J	6.9 J	8.6 J	8.9 J	120	42	36 J	11 J
	2-METHYLPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	2-NITROANILINE	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	2-NITROPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	3&4-METHYLPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	3,3'-DICHLOROBENZIDINE	340 UJ	345 UJ	350 UJ	360 UJ	380 UJ	360 UJ	360 UJ	350 UJ	380 U	400 UJ
	3-NITROANILINE	860 UJ	860 UJ	860 UJ	900 UJ	940 UJ	890 UJ	890 UJ	880 UJ	940 U	990 U
	4,6-DINITRO-2-METHYLPHENOL	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	4-BROMOPHENYL PHENYL ETHER	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	4-CHLORO-3-METHYLPHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	4-CHLOROANILINE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	4-CHLOROPHENYL PHENYL ETHER	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	4-NITROANILINE	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	4-NITROPHENOL	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	ACENAPHTHENE	3 J	2.65 J	2.3 J	3.3 J	23 U	4.5 J	890	710	120	85
	ACENAPHTHYLENE	21 U	21 U	21 U	22 U	23 U	3.1 J	22 U	21 U	9.45 J	8.5 J
	ANTHRACENE	21 U	21 U	21 U	12 J	23 U	9.5 J	890	2000	275 J	160 J
	BENZIDINE	1600 UJ	1600 UJ	1600 UJ	1600 UJ	1700 UJ	1600 UJ	1600 UJ	1600 UR	1700 UJ	1800 R
	BENZO(A)ANTHRACENE	69 J	73.5 J	78 J	46	15 J	130 J	2200	5600 J	980	840
	BENZO(A)PYRENE	51 J	68.5 J	86 J	28	23 U	72	1800	4800 J	920	750
	BENZO(B)FLUORANTHENE	93 J	132 J	170 J	58	23 U	150 J	2000	5700 J	945	780
	BENZO(G,H,I)PERYLENE	21 J	31.5 J	42 J	22 U	23 U	31 J	700	2000 J	470	330 J
	BENZO(K)FLUORANTHENE	31	34.5 J	38 J	19 J	23 U	35	1700	3900 J	615	750
	BENZOIC ACID	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	BENZYL ALCOHOL	690 U	690 U	690 U	720 U	750 U	720 U	710 U	700 U	760 U	800 U
	BIS(2-CHLOROETHOXY)METHANE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	BIS(2-CHLOROETHYL)ETHER	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	BIS(2-ETHYLHEXYL)PHTHALATE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 UJ
	BUTYL BENZYL PHTHALATE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 UJ
	CARBAZOLE	340 U	345 U	350 U	360 U	380 U	360 U	610	800	235 J	400 U
	CHRYSENE	39	40	41	29	13 J	90 J	2000	5700 J	915	1200
	DIBENZO(A,H)ANTHRACENE	21 UJ	16.2 J	22 J	22 U	23 U	17 J	150 J	760	150 J	180 J
	DIBENZOFURAN	340 U	345 U	350 U	360 U	380 U	360 U	270 J	350 J	380 U	400 U
	DIETHYL PHTHALATE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	DIMETHYL PHTHALATE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	DI-N-BUTYL PHTHALATE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	DI-N-OCTYL PHTHALATE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 UJ
	FLUORANTHENE	100	90.5	81	78	22 J	110	5100	10000	1950	2400
	FLUORENE	21 U	6.25 J	2 J	4 J	23 U	3.8 J	450	870	97 J	76 J
	HEXACHLOROBENZENE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	HEXACHLOROETHANE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	HIGH MOLECULAR WEIGHT PAHS	509 J	595.7 J	671 J	306 J	66 J	838 J	21210 J	53660 J	8720 J	8910 J
	INDENO(1,2,3-CD)PYRENE	27 J	36.5 J	46 J	22 U	23 U	33	760	2200 J	720	370 J
	ISOPHORONE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	LOW MOLECULAR WEIGHT PAHS	50.7 J	53.9 J	46.6 J	74.1 J	25.6 J	98.8 J	6190 J	12174	1873.45 J	1644.2 J
	NAPHTHALENE	21 U	21 U	21 U	2.9 J	23 U	22 U	340 J	52	96 J	13 J
	NITROBENZENE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	N-NITROSODIMETHYLAMINE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	N-NITROSO-DI-N-PROPYLAMINE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	N-NITROSODIPHENYLAMINE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	N-NITROSOPYRROLIDINE	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	PENTACHLOROPHENOL	860 U	860 U	860 U	900 U	940 U	890 U	890 U	880 U	940 U	990 U
	PHENANTHRENE	41 J	38 J	35 J	45	17 J	69 J	3500	8500	1240 J	1300
	PHENOL	340 U	345 U	350 U	360 U	380 U	360 U	360 U	350 U	380 U	400 U
	PYRENE	78	72.5	67	48	16 J	170 J	4800	13000	2100	1700
	TOTAL PAHS	559.7 J	649.6 J	717.6 J	380.1 J	91.6 J	936.8 J	27400 J	65834 J	10593.45 J	10554.2 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	1.9 J	3.6 U	3.5 U	3.8 U	4 U
	4,4'-DDE	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	5.35	8.6 J
	4,4'-DDT	3.4 UJ	3.45 UJ	3.5 U	3.6 UJ	3.8 UJ	1.3 J	3.6 U	3.5 UJ	5.5	26 J
	ALDRIN	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	ALPHA-BHC	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	ALPHA-CHLORDANE	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	AROCLOR-1016	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 UJ	20 U	21 U
	AROCLOR-1221	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 U	20 U	21 U
	AROCLOR-1232	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 U	20 U	21 U
	AROCLOR-1242	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 U	20 U	21 U
	AROCLOR-1248	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 U	20 U	21 U
	AROCLOR-1254	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 U	20 U	21 U
	AROCLOR-1260	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 UJ	160 J	94 J
	AROCLOR-1268	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 U	580 J	400 J
	BETA-BHC	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	DELTA-BHC	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	DIELDRIN	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	3.8 U	4 U
	ENDOSULFAN I	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	ENDOSULFAN II	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	3.8 U	4 U
	ENDOSULFAN SULFATE	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	3.8 U	4 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	ENDRIN	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	3.8 U	4 U
	ENDRIN ALDEHYDE	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	3.8 U	4 U
	ENDRIN KETONE	3.4 U	3.45 U	3.5 U	3.6 U	3.8 UJ	3.6 U	3.6 U	3.5 U	3.8 U	4 U
	GAMMA-BHC (LINDANE)	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	GAMMA-CHLORDANE	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	HEPTACHLOR	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	HEPTACHLOR EPOXIDE	1.8 U	1.8 U	1.8 U	1.9 U	1.9 UJ	1.8 U	1.8 U	1.8 U	2 U	2.1 U
	METHOXYCHLOR	18 UJ	18 UJ	18 U	19 UJ	19 UJ	18 U	18 U	18 UJ	20 U	21 U
	TOTAL AROCLOR	18 U	18 U	18 U	19 U	19 UJ	18 U	18 U	18 UJ	740 J	494 J
	TOTAL DDD/DDE/DDT	3.4 UJ	3.4 UJ	3.5 U	3.6 UJ	3.8 UJ	3.2 J	3.6 U	3.5 UJ	10.85	34.6 J
	TOXAPHENE	34 U	34.5 U	35 U	36 U	38 UJ	36 U	36 U	35 U	38 U	40 U
METALS (MG/KG)	ALUMINUM	15900	17000	18100	19500	9390	8130	12100	6650	12000	11500
	ANTIMONY	0.13 UJ	0.22 UJ	0.31 UJ	0.24 UJ	0.14 UJ	0.32 UJ	0.14 UJ	0.06 UJ	0.145 U	0.14 UJ
	ARSENIC	3.1 J	3.7 J	4.3 J	6 J	7.6 J	15.9 J	15.2 J	2.6 J	16.4	18.8
	BARIUM	14.7	13.3	11.9	17.6	20.4	25.4	19.6	23.3	26	35.8
	BERYLLIUM	0.22 J	0.23 J	0.24 J	0.32 J	0.21 J	0.34 J	0.32 J	0.21 J	0.415 J	0.5 J
	CADMIUM	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.12 UJ	1.5 J	0.57 J
	CALCIUM	2160 J	2040 J	1930 J	2480 J	893 J	1050 J	879 J	1550 J	834	1480
	CHROMIUM	20.5 J	23.3 J	26.1 J	24.2 J	16.4 J	17.2 J	15.8 J	12.3 J	19	22.8
	COBALT	13	13.6	14.2	16.4	7.9	8	10.7	4	27.7	12.9
	COPPER	15.5	16.8	18.1	25.2	11.5	12.2	16.2	8	24.8	26 J
	IRON	32800	34800	36700	38900	17600	22100	26600	11100	27400	24100
	LEAD	15.6	15.4	15.3	16.3	6.3	10.1	13.3	7.3	61.4	36.5
	MAGNESIUM	5420 J	5580 J	5750 J	6020 J	2760 J	2670 J	3410 J	2420 J	3360	3370
	MANGANESE	486	530	573	827	282	348	324	289	409	333
	MERCURY	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 UJ	0.02 UJ	0.035 J	0.03 J
	MOLYBDENUM	0.17 UJ	0.168 J	0.25 J	0.21 J	0.28 J	0.38 J	0.44 J	0.39 J	0.635 J	0.68 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	NICKEL	23.3	24.6	26	34.2	13.7	14.9	21.3	8.3	22.2	25.9
	POTASSIUM	647 J	546 J	446 J	727 J	638 J	956 J	558 J	1070 J	533	476
	SELENIUM	0.61 U	0.61 U	0.61 U	0.68 U	0.27 U	0.63 U	0.62 U	0.26 U	0.255 U	0.62 J
	SILVER	0.13 J	0.22 J	0.31 J	0.2 J	0.18 J	0.36 J	0.4 J	0.15 J	0.78 J	0.07 UJ
	SODIUM	136 J	138 J	141 J	144 J	45 J	48.1 J	33.4 J	57.7 J	45 UJ	51.6 UJ
	THALLIUM	0.02 UJ	0.02 UJ	0.02 UJ	0.05 UJ	0.03 UJ	0.05 UJ	0.04 UJ	0.05 UJ	0.045 UJ	0.06 UJ
	VANADIUM	25.9	26	26.1	22.8	15.8	17.2	17.8	14.3	19.7	20.1
	ZINC	56.8	60.1	63.4	71.1	32.8	46	49.1	27.5	105	371
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	1.2	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	4.5	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	4.5	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	3.9	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	14.8	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	2.2	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	2.8	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	8.4	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	9.3	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	23.3	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	15.1	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	15.1	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	28.8	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	3.5	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW106B	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW103B	DA-MW104B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1
	SAMPLE DATE	03/20/08	03/20/08	03/20/08	03/20/08	03/19/08	03/21/08	03/21/08	03/20/08	01/15/08	01/16/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0002	DA-B100B-0002-AVG	DA-B100B-0002-D	DA-B101B-0002	DA-B106B-0002	DA-B107B-0002	DA-B108B-0002	DA-B109B-0002	DA-MW103B-0001-LOCDEPTHMAX	DA-MW104B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER										
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	11.6	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	9.3	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	8	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	7.1	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	7.1	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	5	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	2.4	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	8.8	NA
	TOTAL SOLIDS	96	96	NA	91	88	92	92	94	92.5	87
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	19000	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	5.45	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	250 J	175 J	100 J	92	230	470	200	550	86.5	96 J
	GASOLINE RANGE ORGANICS	2.9 U	2.7 U	2.5 U	47	2.7 U	2.8 U	2.5 U	2.8 U	3.1 U	3.4 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,1,2,2-TETRACHLOROETHANE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	8 U	5 UJ
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,2,3-TRICHLOROBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	1,2,3-TRICHLOROPROPANE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	8 U	5 UJ
	1,2,4-TRICHLOROBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	1,2,4-TRIMETHYLBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 UJ	5 UJ
	1,2-DIBROMOETHANE	5 UJ	5 UJ	5 U	5 UJ	5 UJ	8 U	5 U
	1,2-DICHLOROBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	1,2-DICHLOROETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	1,3-DICHLOROBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	1,4-DICHLOROBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	2-BUTANONE	25 U	25 U	25 U	25 UJ	25 U	41 U	27 U
	2-CHLOROTOLUENE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	8 U	5 UJ
	2-HEXANONE	25 U	25 U	25 U	25 UJ	25 U	41 U	27 U
	4-CHLOROTOLUENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	4-METHYL-2-PENTANONE	25 U	25 U	25 U	25 UJ	25 U	41 U	27 U
	ACETONE	25 UJ	1500 U	12 J	1450 U	25 UJ	120 J	46 J
	BENZENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	BROMOBENZENE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	8 U	5 UJ
	BROMOCHLOROMETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	BROMOFORM	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	BROMOMETHANE	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U
	BTEX	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U	9 U	5.8 U
	CARBON DISULFIDE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	CHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	CHLOROETHANE	10 U	10 U	10 UJ	10 UJ	10 U	16 UJ	11 UJ
	CHLOROFORM	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	CHLOROMETHANE	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	DIBROMOMETHANE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U
	ETHYLBENZENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	HEXACHLOROBUTADIENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	ISOPROPYLBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	M+P-XYLENES	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	METHYLENE CHLORIDE	25 U	25 U	25 U	25 UJ	25 U	41 U	27 U
	N-BUTYLBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-PROPYLBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 U
	O-XYLENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	SEC-BUTYLBENZENE	5 U	5 UJ	5 UJ	5 UJ	5 U	8 U	5 UJ
	STYRENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TERT-BUTYLBENZENE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	8 U	5 UJ
	TETRACHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TOLUENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 U	10 U	6.5 U
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	11 UJ	6.8 UJ
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	12 U	8 U
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TRICHLOROETHENE	5 U	5 U	5 U	5 UJ	5 U	8 U	5 U
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U
	VINYL CHLORIDE	10 U	10 U	10 U	10 UJ	10 U	16 U	11 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	1,2-DIPHENYLHYDRAZINE	770 U	790 U	780 U	810 U	820 U	810 U	810 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2,4,5-TRICHLOROPHENOL	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	2,4,6-TRICHLOROPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2,4-DICHLOROPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2,4-DIMETHYLPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2,4-DINITROPHENOL	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	2,4-DINITROTOLUENE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2,6-DICHLOROPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2,6-DINITROTOLUENE	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	2-CHLORONAPHTHALENE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2-CHLOROPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2-METHYLNAPHTHALENE	35 J	33	33	120	21 J	26 J	22 U
	2-METHYLPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	2-NITROANILINE	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	2-NITROPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	3&4-METHYLPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	3,3'-DICHLOROBENZIDINE	390 UJ	400 U	390 U	405 UJ	410 UJ	400 U	410 U
	3-NITROANILINE	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	4,6-DINITRO-2-METHYLPHENOL	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	4-BROMOPHENYL PHENYL ETHER	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	4-CHLORO-3-METHYLPHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	4-CHLOROANILINE	390 U	400 U	390 U	405 U	410 U	400 UJ	410 UJ
	4-CHLOROPHENYL PHENYL ETHER	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	4-NITROANILINE	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	4-NITROPHENOL	960 U	980 U	970 U	1000 U	1000 U	1000 UJ	1000 UJ
	ACENAPHTHENE	700 J	220	180	470 J	44	160	6.2 J
	ACENAPHTHYLENE	6.9 J	64.5	22 U	5.8 J	3.4 J	22 U	4.3 J
	ANTHRACENE	1200 J	540	380	1700 J	120	220	9.3 J
	BENZIDINE	1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 UJ
	BENZO(A)ANTHRACENE	4200	1600	1100	5000	430	400	46
	BENZO(A)PYRENE	3700	1350	1000	2500	240	320	44
	BENZO(B)FLUORANTHENE	3800	1650	790	3300	350	320	38
	BENZO(G,H,I)PERYLENE	1700 J	635	250 J	790 J	86	140	24 J
	BENZO(K)FLUORANTHENE	3700	1120	800	2900	120	290 J	31 J
	BENZOIC ACID	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	BENZYL ALCOHOL	770 U	790 U	780 U	810 U	820 U	810 U	810 U
	BIS(2-CHLOROETHOXY)METHANE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	BIS(2-CHLOROETHYL)ETHER	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	BIS(2-ETHYLHEXYL)PHTHALATE	390 UJ	400 U	390 UJ	405 UJ	410 UJ	440 J	410 UJ
	BUTYL BENZYL PHTHALATE	390 UJ	400 U	390 UJ	405 UJ	410 UJ	400 UJ	410 UJ
	CARBAZOLE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	CHRYSENE	4400	1550	960	3800	310	520	46
	DIBENZO(A,H)ANTHRACENE	950 J	235 J	120	670 J	26	73	13 J
	DIBENZOFURAN	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	DIETHYL PHTHALATE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	DIMETHYL PHTHALATE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	DI-N-BUTYL PHTHALATE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	DI-N-OCTYL PHTHALATE	390 UJ	400 U	390 UJ	405 UJ	410 UJ	400 UJ	410 UJ
	FLUORANTHENE	10000	3050	2300	13000	900	1100	81
	FLUORENE	790 J	200	150	800 J	69	100	22 U
	HEXACHLOROBENZENE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	HEXACHLOROETHANE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	HIGH MOLECULAR WEIGHT PAHS	41350 J	14795 J	9700 J	41760 J	3188	4323 J	418 J
	INDENO(1,2,3-CD)PYRENE	2000 J	855	280	1000 J	78	180	32
	ISOPHORONE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	LOW MOLECULAR WEIGHT PAHS	10990 J	3312.5 J	2297	13450 J	906 J	1434 J	51.8 J
	NAPHTHALENE	1100 J	32	54	360 J	42	88	22 U
	NITROBENZENE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	N-NITROSODIMETHYLAMINE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	N-NITROSO-DI-N-PROPYLAMINE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	N-NITROSODIPHENYLAMINE	390 U	400 U	390 U	405 U	410 U	400 U	410 U

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SITE 08, NUSC DISPOSAL AREA
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	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-NITROSOPYRROLIDINE	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	PENTACHLOROPHENOL	960 U	980 U	970 U	1000 U	1000 U	1000 U	1000 U
	PHENANTHRENE	7200	2300	1500	10000	610	840	32
	PHENOL	390 U	400 U	390 U	405 U	410 U	400 U	410 U
	PYRENE	6900	3000	2100	8800	650	980	63
	TOTAL PAHS	52340 J	18107.5 J	11997 J	55210 J	4094 J	5757 J	469.8 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.9 U	4 U	3.9 U	4.05 U	4.1 U	4 U	4.1 UJ
	4,4'-DDE	3.9 U	6.6	3.9 U	4.05 U	4.1 U	4 UJ	4.1 UJ
	4,4'-DDT	13	18 J	3.9 U	4.05 U	4.1 U	4 UJ	2 J
	ALDRIN	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ
	ALPHA-BHC	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 U
	ALPHA-CHLORDANE	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ
	AROCLOR-1016	20 UJ	20 U	20 U	21 UJ	21 UJ	21 U	21 UJ
	AROCLOR-1221	20 U	20 U	20 U	21 U	21 U	21 U	21 U
	AROCLOR-1232	20 U	20 U	20 U	21 U	21 U	21 U	21 U
	AROCLOR-1242	20 U	20 U	20 U	21 U	21 U	21 U	21 U
	AROCLOR-1248	20 U	20 U	20 U	21 U	21 U	21 U	21 U
	AROCLOR-1254	20 U	20 U	20 U	21 U	21 U	21 U	21 U
	AROCLOR-1260	130	220	20 U	21 UJ	21 UJ	21 U	21 UJ
	AROCLOR-1268	20 U	620	20 U	21 U	21 U	21 U	21 U
	BETA-BHC	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 U
	DELTA-BHC	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ
	DIELDRIN	3.9 U	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 UJ
	ENDOSULFAN I	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 U
	ENDOSULFAN II	3.9 U	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 U
	ENDOSULFAN SULFATE	3.9 UJ	4 U	3.9 UJ	4.05 UJ	4.1 UJ	4 UJ	4.1 UJ

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	ENDRIN	3.9 U	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 UJ
	ENDRIN ALDEHYDE	3.9 U	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 U
	ENDRIN KETONE	3.9 U	4 U	3.9 U	4.05 U	4.1 U	4 UJ	4.1 U
	GAMMA-BHC (LINDANE)	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ
	GAMMA-CHLORDANE	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ
	HEPTACHLOR	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	1.7 J
	HEPTACHLOR EPOXIDE	2 U	2 U	2 U	2.1 U	2.1 U	2.1 UJ	2.1 UJ
	METHOXYCHLOR	20 U	20 U	20 U	21 U	21 U	21 UJ	21 U
	TOTAL AROCLOR	130 J	840	20 U	21 UJ	21 UJ	21 U	21 UJ
	TOTAL DDD/DDE/DDT	13	24.6 J	3.9 U	4 U	4.1 U	4 UJ	2 J
	TOXAPHENE	39 U	40 U	39 U	40.5 U	41 U	40 UJ	41 U
METALS (MG/KG)	ALUMINUM	11900	13100	13100	13200	15800	12500	15400
	ANTIMONY	0.19 UJ	0.16 U	0.18 U	0.15 UJ	0.16 UJ	0.39 UJ	0.17 UJ
	ARSENIC	22.4	16.8	20.4	24	26	23	14.2
	BARIUM	38.4	41.6	17	17.9	14.8	22.8	26.3
	BERYLLIUM	0.5 J	0.4 J	0.4 J	0.385 J	0.37 J	0.48 J	0.58 J
	CADMIUM	0.48 J	0.74 J	0.32 J	0.02 UJ	0.02 UJ	0.3 UJ	0.24 UJ
	CALCIUM	8940	1320	472	1130	1240	417 J	411 J
	CHROMIUM	16	19.5	15.7	16.8	18.3	16.2	28.8
	COBALT	17.6	10.8	13	15.4	17.1	13.6	11.4
	COPPER	39 J	24.9	23.7	24.9 J	23.9 J	43.4 J	24 J
	IRON	30000	27100	29000	32800	39400	31300	29200
	LEAD	53.2	33.4	15.2	12.2	13.3	21.8	32.2
	MAGNESIUM	3770	3830	3320	4080	4950	3170 J	3040 J
	MANGANESE	416	314	356	479	606	358 J	292 J
	MERCURY	0.09	0.2	0.02 J	0.01 J	0.03 J	0.03 J	0.02 J
	MOLYBDENUM	0.66 J	0.43 J	0.42 J	0.328 J	0.29 UJ	0.43 UJ	0.66 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	NICKEL	30.4	25.8	24.5	27.6	30.2	26.2	28.9
	POTASSIUM	496	496	372	498	426	488 J	547 J
	SELENIUM	0.66 J	0.27 U	0.32 U	0.44 J	0.28 U	0.44 UJ	0.3 U
	SILVER	2 J	1.8 J	0.56 UJ	0.085 UJ	0.09 UJ	0.1 UJ	0.09 UJ
	SODIUM	65 UJ	62.2 J	31.7 UJ	35.2 UJ	28.2 UJ	46.4 J	40 J
	THALLIUM	0.04 U	0.03 UJ	0.04 U	0.1 UJ	0.03 U	0.04 U	0.06 UJ
	VANADIUM	19.9	24.6	19	19	21	22	29.2
	ZINC	152	76.5	53.5	66.4	76	67.1	58.2
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	1.9	1.6	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	2.3	3.1	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	2.8	4.2	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	2.2	3.2	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	5.9	10.5	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	1.8	2.1	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	0.9	2.6	NA	NA	NA	NA	NA
	PERCENT CLAY	5.5	6.8	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	14.5	9	NA	NA	NA	NA	NA
	PERCENT FINE SAND	15.7	18.5	NA	NA	NA	NA	NA
	PERCENT GRAVEL	31.2	27.2	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	19.4	16	NA	NA	NA	NA	NA
	PERCENT SILT	13.8	22.4	NA	NA	NA	NA	NA
	SIEVE 1"	0	0	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	0	0	NA	NA	NA	NA	NA
	SIEVE 2"	0	0	NA	NA	NA	NA	NA
	SIEVE 3"	0	0	NA	NA	NA	NA	NA
	SIEVE 3/4"	8.9	0	NA	NA	NA	NA	NA
	SIEVE 3/8"	7.1	16.2	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW105B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/15/08	01/14/08	01/16/08	01/16/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW105B-0001-LOCDEPTHMAX	DA-MW110B-0001-LOCDEPTHMAX	DA-MW111B-0001-LOCDEPTHMAX	DA-MW112B-0001-LOCDEPTHMAX	DA-MW113B-0001-LOCDEPTHMAX	DA-MW114B-0001-LOCDEPTHMAX	DA-MW115B-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	SIEVE NO. 004	15.1	11	NA	NA	NA	NA	NA
	SIEVE NO. 010	14.5	9	NA	NA	NA	NA	NA
	SIEVE NO. 020	11.3	9.1	NA	NA	NA	NA	NA
	SIEVE NO. 040	8	6.9	NA	NA	NA	NA	NA
	SIEVE NO. 060	6	6.3	NA	NA	NA	NA	NA
	SIEVE NO. 080	3.4	4.1	NA	NA	NA	NA	NA
	SIEVE NO. 100	1.5	1.9	NA	NA	NA	NA	NA
	SIEVE NO. 200	4.8	6.2	NA	NA	NA	NA	NA
	TOTAL SOLIDS	82	89	91	88	86	89	89
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	30000	30000	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	5.2	5.5	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	130 J	150	35	30.5 J	52 J	71	48
	GASOLINE RANGE ORGANICS	2.6 U	3 U	2.6 U	2.85 U	3.0 U	3.3 U	3.2 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,1,1-TRICHLOROETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,1,2,2-TETRACHLOROETHANE	5 U	6 UJ	5 U	5 U	6 UJ	5 UJ	6 UJ	7 UJ
	1,1,2-TRICHLOROETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,1-DICHLOROETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,1-DICHLOROETHENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,1-DICHLOROPROPENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,2,3-TRICHLOROBENZENE	5 U	6 UJ	5 U	5 U	6 UJ	5 UJ	6 UJ	7 UJ
	1,2,3-TRICHLOROPROPANE	5 U	6 UJ	5 U	5 U	6 UJ	5 UJ	6 UJ	7 UJ
	1,2,4-TRICHLOROBENZENE	5 U	6 UJ	5 U	5 U	6 UJ	5 UJ	6 UJ	7 UJ
	1,2,4-TRIMETHYLBENZENE	5 U	6 UJ	5 U	5 U	6 UJ	8 J	6 UJ	7 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	1,2-DIBROMOETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,2-DICHLOROBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	1,2-DICHLOROETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,2-DICHLOROPROPANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,3,5-TRIMETHYLBENZENE	5 U	6 UJ	5 UJ	5 UJ	6 UJ	5 J	6 UJ	7 UJ
	1,3-DICHLOROBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	1,3-DICHLOROPROPANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	1,4-DICHLOROBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	2,2-DICHLOROPROPANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	2-BUTANONE	25 U	30 U	12 J	25 U	29 U	17 J	9 J	36 U
	2-CHLOROTOLUENE	5 U	6 UJ	5 U	5 U	6 UJ	5 UJ	6 UJ	7 UJ
	2-HEXANONE	25 U	30 U	25 U	25 U	29 U	27 UJ	29 U	36 U
	4-CHLOROTOLUENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	4-ISOPROPYLTOLUENE	8	6 U	14	5 U	6 U	5 UJ	6 U	7 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	4-METHYL-2-PENTANONE	25 U	30 U	25 U	25 U	29 UJ	27 UJ	29 U	36 U
	ACETONE	21 J	120 J	160	55.2	2300 J	400 J	70	1600 UJ
	BENZENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	BROMOBENZENE	5 U	6 UJ	5 UJ	5 UJ	6 U	5 UJ	6 UJ	7 UJ
	BROMOCHLOROMETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	BROMODICHLOROMETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	BROMOFORM	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	BROMOMETHANE	10 U	12 U	10 U	10 U	12 U	11 UJ	11 U	15 U
	BTEX	5.6 U	6.8 U	5.6 U	5.6 U	6.8 U	5.8 UJ	6.6 U	13 J
	CARBON DISULFIDE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	CARBON TETRACHLORIDE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	CHLOROBENZENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	CHLORODIBROMOMETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	CHLOROETHANE	10 UJ	12 UJ	10 U	10 U	12 U	11 UJ	11 U	15 U
	CHLOROFORM	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	CHLOROMETHANE	10 U	12 U	10 U	10 U	12 U	11 UJ	11 U	15 U
	CIS-1,2-DICHLOROETHENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	CIS-1,3-DICHLOROPROPENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	DIBROMOMETHANE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	DICHLORODIFLUOROMETHANE	10 U	12 U	10 U	10 U	12 U	11 UJ	11 U	15 U
	ETHYLBENZENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	2 J
	HEXACHLOROBUTADIENE	5 U	6 UJ	5 U	5 U	6 UJ	5 UJ	6 UJ	7 UJ
	ISOPROPYLBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	M+P-XYLENES	10 U	12 U	10 U	10 U	12 U	11 UJ	11 U	9 J
	METHYL TERT-BUTYL ETHER	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	METHYLENE CHLORIDE	25 U	30 U	25 U	25 U	29 U	27 UJ	29 U	36 U
	N-BUTYLBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	N-PROPYLBENZENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	O-XYLENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	2 J
	SEC-BUTYLBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	STYRENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TERT-BUTYLBENZENE	5 U	6 UJ	5 U	5 U	6 U	5 UJ	6 UJ	7 UJ
	TETRACHLOROETHENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TOLUENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TOTAL 1,2-DICHLOROETHENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TOTAL CHLORINATED ETHENES	6.2 U	7.5 U	6.2 U	6.2 U	7.5 U	6.5 UJ	7.2 U	9 U
	TOTAL CHLORINATED VOCS	6.6 UJ	7.9 UJ	6.6 U	6.6 U	7.8 UJ	6.8 UJ	7.7 UJ	9.4 UJ
	TOTAL XYLENES	7.5 U	9 U	7.5 U	7.5 U	9 U	8 UJ	8.5 U	11 J
	TRANS-1,2-DICHLOROETHENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TRANS-1,3-DICHLOROPROPENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TRICHLOROETHENE	5 U	6 U	5 U	5 U	6 U	5 UJ	6 U	7 U
	TRICHLOROFLUOROMETHANE	10 U	12 U	10 U	10 U	12 U	11 UJ	11 U	15 U
	VINYL CHLORIDE	10 U	12 U	10 U	10 U	12 U	11 UJ	11 U	15 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	1,2-DIPHENYLHYDRAZINE	790 U	810 U	790 U	775 U	820 U	730 UJ	720 U	770 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	410 U	400 U	385 U	410 U	360 UJ	360 U	380 U
	2,4,5-TRICHLOROPHENOL	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U
	2,4,6-TRICHLOROPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2,4-DICHLOROPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2,4-DIMETHYLPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2,4-DINITROPHENOL	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U
	2,4-DINITROTOLUENE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2,6-DICHLOROPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2,6-DINITROTOLUENE	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	2-CHLORONAPHTHALENE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2-CHLOROPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2-METHYLNAPHTHALENE	22.5 U	23 U	22 U	22 J	23 U	21 J	12 J	11 J
	2-METHYLPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	2-NITROANILINE	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U
	2-NITROPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	3&4-METHYLPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	3,3'-DICHLOROBENZIDINE	390 U	410 U	400 UJ	385 UJ	410 U	360 U	360 U	380 U
	3-NITROANILINE	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U
	4,6-DINITRO-2-METHYLPHENOL	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U
	4-BROMOPHENYL PHENYL ETHER	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	4-CHLORO-3-METHYLPHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	4-CHLOROANILINE	390 UJ	410 UJ	400 U	385 U	410 U	360 U	360 U	380 U
	4-CHLOROPHENYL PHENYL ETHER	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	4-NITROANILINE	980 U	1000 U	980 U	960 U	1000 U	900 U	890 U	960 U
	4-NITROPHENOL	980 UJ	1000 UJ	980 U	960 U	1000 U	900 U	890 U	960 U
	ACENAPHTHENE	4.4 J	6.9 J	3.8 J	52.4 J	3.2 J	100 J	16 J	10 J
	ACENAPHTHYLENE	3.3 J	4 J	22 U	6.8 J	7.4 J	22 U	22 U	38
	ANTHRACENE	5.9 J	9 J	3.6 J	112 J	8.3 J	200	18 J	48
	BENZIDINE	1800 UJ	1800 UJ	1800 UJ	1750 UJ	1800 UJ	1600 UJ	1600 UJ	1800 UJ
	BENZO(A)ANTHRACENE	24	47	26	202 J	77	1100	76 J	470
	BENZO(A)PYRENE	24	47	22 J	170 J	79	960	81 J	500
	BENZO(B)FLUORANTHENE	24.5	39	32	240	110	1300	120 J	460
	BENZO(G,H,I)PERYLENE	16 J	23 J	12 J	85	52	480	44 J	160
	BENZO(K)FLUORANTHENE	18 J	29 J	17 J	147 J	100	1200	50 J	550
	BENZOIC ACID	980 U	1100	600 J	960 U	1000 U	900 U	890 UJ	960 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	BENZYL ALCOHOL	790 U	810 U	790 U	775 U	820 U	730 U	720 U	770 U
	BIS(2-CHLOROETHOXY)METHANE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	BIS(2-CHLOROETHYL)ETHER	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	BIS(2-ETHYLHEXYL)PHTHALATE	390 UJ	410 UJ	400 UJ	385 UJ	410 UJ	360 U	360 U	380 U
	BUTYL BENZYL PHTHALATE	390 UJ	410 UJ	400 UJ	385 UJ	410 UJ	360 U	360 U	380 U
	CARBAZOLE	390 U	410 U	400 U	385 U	410 U	300 J	360 UJ	380 UJ
	CHRYSENE	24	43	29	325 J	85	1300	87 J	500
	DIBENZO(A,H)ANTHRACENE	22.5 U	13 J	22 U	37.5 J	34	140 J	26 J	110 J
	DIBENZOFURAN	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	DIETHYL PHTHALATE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	DIMETHYL PHTHALATE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	DI-N-BUTYL PHTHALATE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	DI-N-OCTYL PHTHALATE	390 UJ	410 UJ	400 UJ	385 UJ	410 UJ	360 U	360 UJ	380 UJ
	FLUORANTHENE	42	84	63	640 J	100	2500	180 J	750
	FLUORENE	22.5 U	23 U	22 U	33.1 J	2.3 J	61 J	11 J	10 J
	HEXACHLOROBENZENE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	HEXACHLOROETHANE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	HIGH MOLECULAR WEIGHT PAHS	214 J	409 J	246 J	2347 J	806	13010 J	869 J	4650 J
	INDENO(1,2,3-CD)PYRENE	18 J	31	15 J	160	72	530	55 J	240 J
	ISOPHORONE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	LOW MOLECULAR WEIGHT PAHS	29.6 J	53.9 J	45.4 J	851.1 J	54.4 J	2894 J	191 J	332.3 J
	NAPHTHALENE	22.5 U	23 U	9 J	74.8 J	23 U	12 J	14 J	5.3 J
	NITROBENZENE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	N-NITROSODIMETHYLAMINE	390 U	410 U	400 U	385 U	410 U	360 UJ	360 UJ	380 UJ
	N-NITROSO-DI-N-PROPYLAMINE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	N-NITROSODIPHENYLAMINE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	N-NITROSOPYRROLIDINE	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	PENTACHLOROPHENOL	980 U	1000 U	980 U	960 U	1000 U	900 UJ	890 UJ	960 UJ
	PHENANTHRENE	16 J	34	29	550 J	34	2500	120 J	210
	PHENOL	390 U	410 U	400 U	385 U	410 U	360 U	360 U	380 U
	PYRENE	29	57	42	520 J	97	3500	150 J	910
	TOTAL PAHS	243.6 J	462.9 J	291.4 J	3198.1 J	860.4 J	15904 J	1060 J	4982.3 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.9 U	4.1 U	4 U	3.85 U	4.1 U	3.6 U	3.6 U	3.8 U
	4,4'-DDE	3.9 UJ	4.1 UJ	4 U	6.45	1.3 J	3.6 U	3.6 U	1.7 J
	4,4'-DDT	3.9 UJ	4.1 UJ	4 U	3.85 U	3.2 J	3 J	3.6 UJ	3.1 J
	ALDRIN	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	ALPHA-BHC	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	ALPHA-CHLORDANE	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	AROCLOR-1016	20 U	21 U	20 U	20 U	21 UJ	19 UJ	18 UJ	20 UJ
	AROCLOR-1221	20 U	21 U	20 U	20 U	21 U	19 U	18 U	20 U
	AROCLOR-1232	20 U	21 U	20 U	20 U	21 U	19 U	18 U	20 U
	AROCLOR-1242	20 U	21 U	20 U	20 U	21 U	19 U	18 U	20 U
	AROCLOR-1248	20 U	21 U	20 U	20 U	21 U	19 U	18 U	20 U
	AROCLOR-1254	20 U	21 U	20 U	20 U	21 U	19 U	18 U	20 U
	AROCLOR-1260	20 U	21 U	20 U	80.5	21 UJ	19 UJ	18 UJ	20 UJ
	AROCLOR-1268	20 U	21 U	20 U	400	21 U	19 U	18 U	20 U
	BETA-BHC	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	DELTA-BHC	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 UJ	1.8 U	2 UJ
	DIELDRIN	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U	3.6 U	3.6 U	3.8 U
	ENDOSULFAN I	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	ENDOSULFAN II	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U	2.6 J	3.6 U	0.98 J
	ENDOSULFAN SULFATE	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U	3.6 UJ	3.6 U	3.8 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	ENDRIN	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U	3.6 U	3.6 U	3.8 U
	ENDRIN ALDEHYDE	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U	3.6 U	3.6 U	3.8 U
	ENDRIN KETONE	3.9 UJ	4.1 UJ	4 U	3.85 U	4.1 U	3.6 U	3.6 U	3.8 U
	GAMMA-BHC (LINDANE)	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	GAMMA-CHLORDANE	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	HEPTACHLOR	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	HEPTACHLOR EPOXIDE	2 UJ	2.1 UJ	2 U	2 U	2.1 U	1.9 U	1.8 U	2 U
	METHOXYCHLOR	20 UJ	21 UJ	20 U	20 U	21 U	19 UJ	18 UJ	20 UJ
	TOTAL AROCLOR	20 U	21 U	20 U	480.5	21 UJ	19 UJ	18 UJ	20 UJ
	TOTAL DDD/DDE/DDT	3.9 UJ	4.1 UJ	4 U	6.45	4.5 J	3 J	3.6 UJ	4.8 J
	TOXAPHENE	39 UJ	41 UJ	40 U	38.5 U	41 U	36 U	36 U	38 U
METALS (MG/KG)	ALUMINUM	12400	13100	11500	13000	16200	11900	11600	14100
	ANTIMONY	0.22 UJ	0.35 UJ	0.17 UJ	0.17 UJ	0.19 UJ	0.09 UJ	0.09 UJ	0.1 UJ
	ARSENIC	21.3	22.1	23.8	29.8	16.2	11 J	14.2 J	16 J
	BARIUM	20	21.5	20.2	27.6	28.3	36.5	28.8	25.6
	BERYLLIUM	0.46 J	0.4 J	0.45 J	0.5 J	0.48 J	0.44	0.45	0.43 J
	CADMIUM	0.17 UJ	0.19 UJ	0.02 UJ	0.02 UJ	6.5	0.16 J	0.01 UJ	0.14 J
	CALCIUM	150 J	211 J	259	760	579 J	1560	1350	953
	CHROMIUM	16.5	18.4	15.2	15.5	17.6	20.1	15.5	18.8
	COBALT	13.5	12.9	14.2	14.8	12.3	11.9	12.5	28
	COPPER	25.8 J	25.9 J	23.4 J	22 J	18.7	21	19.6	18.7
	IRON	30900	33700	29400	33800	30600	23300	24000	27700
	LEAD	13.7	17.3	17.1	19.4	18.7	31.2	22.7	28.5
	MAGNESIUM	3180 J	3290 J	2850	3450	3660	4660	3960	3940
	MANGANESE	383 J	325 J	339	448	415	361	325	555
	MERCURY	0.01 J	0.02 J	0.02 J	0.03 J	0.03 J	0.04	0.05	0.03 J
	MOLYBDENUM	0.54 J	0.60 J	0.52 UJ	0.37 UJ	0.28 UJ	0.43 J	0.53 J	1.2 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	NICKEL	27	29.1	25.6	25.8	25.1	23.4	23.3	30.6
	POTASSIUM	509 J	558 J	458	511	341 J	1100	847	460
	SELENIUM	0.32 U	0.72 UJ	0.44 J	0.485 J	0.39 UJ	0.62 UJ	0.64 J	0.66 UJ
	SILVER	0.1 UJ	0.1 UJ	0.09 UJ	0.085 UJ	0.1 UJ	0.11 UJ	0.11 UJ	0.12 UJ
	SODIUM	29.8 UJ	39.5 J	45.7 UJ	46.4 UJ	38.2 J	307	169	63.8 UJ
	THALLIUM	0.04 U	0.04 U	0.05 UJ	0.06 UJ	0.08 UJ	0.04 UJ	0.05 UJ	0.04 UJ
	VANADIUM	22.5	29.1	23.8	19.8	21.9	24	19.5	24.3
	ZINC	60.5	61.9	64.3	69.5	79.7	56.5	54.4	94.7
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW116B	DA-MW117B	DA-MW118B	DA-MW119B	DA-MW120B	DA-SB100	DA-SB101	DA-SB102
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	2	2	2
	SAMPLE DATE	01/10/08	01/10/08	01/16/08	01/16/08	01/17/08	03/03/08	03/03/08	03/03/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW116B-0001-LOCDEPTHMAX	DA-MW117B-0001-LOCDEPTHMAX	DA-MW118B-0001-LOCDEPTHMAX	DA-MW119B-0001-LOCDEPTHMAX	DA-MW120B-0001-LOCDEPTHMAX	DA-SB100-0002	DA-SB101-0002	DA-SB102-0002
FRACTION (UNITS)	PARAMETER								
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	88.5	86	89	94	87	90	92	86
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	15	59	69 J	25 J	21	2200	270	250
	GASOLINE RANGE ORGANICS	3.1 U	4.4 U	2.9 U	2.7 U	3.3 U	3.2 U	130	3.3 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 UJ	5 U
	1,1,2-TRICHLOROETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,1-DICHLOROETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,1-DICHLOROETHENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,1-DICHLOROPROPENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,2,3-TRICHLOROPROPANE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 UJ	5 U
	1,2,4-TRICHLOROBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,2-DIBROMOETHANE	6 U	NA	5 UJ	5 UJ	6 U	5 UJ	5 U
	1,2-DICHLOROBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,2-DICHLOROETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,2-DICHLOROPROPANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,3-DICHLOROBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	1,3-DICHLOROPROPANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	1,4-DICHLOROBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	2,2-DICHLOROPROPANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	2-BUTANONE	29 U	NA	26 U	25 U	30 U	25 U	25 U
	2-CHLOROTOLUENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 UJ	5 U
	2-HEXANONE	29 U	NA	26 UJ	25 UJ	30 U	25 U	25 U
	4-CHLOROTOLUENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	4-ISOPROPYLTOLUENE	6 U	NA	5 U	5 U	6 U	5 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	4-METHYL-2-PENTANONE	29 U	NA	26 U	25 U	30 U	25 U	25 U
	ACETONE	430	NA	11 J	12 J	95	25 UJ	45
	BENZENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	BROMOBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 UJ	5 U
	BROMOCHLOROMETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 UJ
	BROMODICHLOROMETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	BROMOFORM	6 U	NA	5 UJ	5 UJ	6 U	5 U	5 U
	BROMOMETHANE	12 U	NA	10 U	10 U	12 U	10 U	10 U
	BTEX	6.8 U	NA	5.6 U	5.6 U	6.8 U	5.6 U	5.6 U
	CARBON DISULFIDE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	CARBON TETRACHLORIDE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	CHLOROBENZENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	CHLORODIBROMOMETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	CHLOROETHANE	12 UJ	NA	10 UJ	10 UJ	12 UJ	10 U	10 U
	CHLOROFORM	6 U	NA	5 U	5 U	6 U	5 U	5 U
	CHLOROMETHANE	12 UJ	NA	10 U	10 U	12 U	10 U	10 U
	CIS-1,2-DICHLOROETHENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	DIBROMOMETHANE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	12 U	NA	10 U	10 U	12 U	10 U	10 U
	ETHYLBENZENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	HEXACHLOROBUTADIENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	ISOPROPYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	M+P-XYLENES	12 U	NA	10 U	10 U	12 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	6 U	NA	5 U	5 U	6 U	5 U	5 U
	METHYLENE CHLORIDE	29 UJ	NA	26 U	25 U	30 U	25 U	25 U
	N-BUTYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	N-PROPYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	O-XYLENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	SEC-BUTYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 U	5 U
	STYRENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TERT-BUTYLBENZENE	6 UJ	NA	5 UJ	5 UJ	6 UJ	5 UJ	5 U
	TETRACHLOROETHENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TOLUENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	7.5 U	NA	6.2 U	6.2 U	7.5 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	7.8 UJ	NA	6.6 UJ	6.6 UJ	7.9 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	9 U	NA	7.5 U	7.5 U	9 U	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TRICHLOROETHENE	6 U	NA	5 U	5 U	6 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	12 U	NA	10 U	10 U	12 U	10 U	10 U
	VINYL CHLORIDE	12 U	NA	10 U	10 U	12 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	1,2-DIPHENYLHYDRAZINE	850 U	NA	790 U	770 U	830 U	740 U	770 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2,4,5-TRICHLOROPHENOL	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	2,4,6-TRICHLOROPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2,4-DICHLOROPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2,4-DIMETHYLPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2,4-DINITROPHENOL	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	2,4-DINITROTOLUENE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2,6-DICHLOROPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2,6-DINITROTOLUENE	1100 U	NA	980 U	950 U	1000 U	920 U	960 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	2-CHLORONAPHTHALENE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2-CHLOROPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2-METHYLNAPHTHALENE	33	NA	130	21 U	3.1 J	22 U	23 U
	2-METHYLPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	2-NITROANILINE	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	2-NITROPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	3&4-METHYLPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	3,3'-DICHLOROBENZIDINE	430 U	NA	390 U	380 U	410 U	370 U	380 UJ
	3-NITROANILINE	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	4,6-DINITRO-2-METHYLPHENOL	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	4-BROMOPHENYL PHENYL ETHER	430 U	NA	390 U	380 U	410 U	370 U	380 U
	4-CHLORO-3-METHYLPHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	4-CHLOROANILINE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	4-CHLOROPHENYL PHENYL ETHER	430 U	NA	390 U	380 U	410 U	370 U	380 U
	4-NITROANILINE	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	4-NITROPHENOL	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	ACENAPHTHENE	170	NA	150	5.2 J	15 J	3 J	18 J
	ACENAPHTHYLENE	6.7 J	NA	3.8 J	10 J	4.2 J	22 U	23 UJ
	ANTHRACENE	470	NA	520	24	35	9.3 J	31
	BENZIDINE	1900 UJ	NA	1800 UJ	1700 UJ	1900 UJ	1700 UJ	1800 UJ
	BENZO(A)ANTHRACENE	760	NA	1400	120	200	42	180 J
	BENZO(A)PYRENE	530	NA	720	79	150	27	240
	BENZO(B)FLUORANTHENE	680	NA	600	98	210	43	210
	BENZO(G,H,I)PERYLENE	310 J	NA	170	45	83	22	200
	BENZO(K)FLUORANTHENE	290 J	NA	580	44 J	73	13 J	160
	BENZOIC ACID	1100 U	NA	980 U	950 U	1000 U	920 U	960 UJ

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	BENZYL ALCOHOL	850 U	NA	790 U	770 U	830 U	740 U	770 U
	BIS(2-CHLOROETHOXY)METHANE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	BIS(2-CHLOROETHYL)ETHER	430 U	NA	390 U	380 U	410 U	370 U	380 U
	BIS(2-ETHYLHEXYL)PHTHALATE	430 U	NA	390 U	380 UJ	410 UJ	370 U	380 U
	BUTYL BENZYL PHTHALATE	430 U	NA	390 U	380 UJ	410 UJ	370 U	380 U
	CARBAZOLE	430 U	NA	400	380 U	410 U	370 U	380 U
	CHRYSENE	660	NA	1100	80	170	37	160
	DIBENZO(A,H)ANTHRACENE	98	NA	96 J	19 J	30	5.8 J	85
	DIBENZOFURAN	430 U	NA	210 J	380 U	410 U	370 U	380 U
	DIETHYL PHTHALATE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	DIMETHYL PHTHALATE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	DI-N-BUTYL PHTHALATE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	DI-N-OCTYL PHTHALATE	430 U	NA	390 U	380 UJ	410 UJ	370 U	380 U
	FLUORANTHENE	1800	NA	3000	250	450	86	370 J
	FLUORENE	150	NA	250	6 J	12 J	3.3 J	15 J
	HEXACHLOROBENZENE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	HEXACHLOROETHANE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	HIGH MOLECULAR WEIGHT PAHS	6728 J	NA	10766 J	944 J	1796	376.8 J	2125 J
	INDENO(1,2,3-CD)PYRENE	500	NA	200 J	73	160	35	230
	ISOPHORONE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	LOW MOLECULAR WEIGHT PAHS	1881	NA	3820	116.8 J	232.3 J	55.2 J	224 J
	NAPHTHALENE	58	NA	270	21 U	3.3 J	22 U	23 U
	NITROBENZENE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	N-NITROSODIMETHYLAMINE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	N-NITROSO-DI-N-PROPYLAMINE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	N-NITROSODIPHENYLAMINE	430 U	NA	390 U	380 U	410 U	370 U	380 U

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	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	N-NITROSOPYRROLIDINE	430 U	NA	390 U	380 U	410 U	370 U	380 U
	PENTACHLOROPHENOL	1100 U	NA	980 U	950 U	1000 U	920 U	960 U
	PHENANTHRENE	1000	NA	2500	79	160	40	160
	PHENOL	430 U	NA	390 U	380 U	410 U	370 U	380 U
	PYRENE	1100	NA	2900	160	270	66	290
	TOTAL PAHS	8609 J	NA	14586 J	1060.8 J	2028.3 J	432 J	2349 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.3 U	3.7 UJ	2.1 J	3.8 U	4.1 U	3.7 U	3.8 U
	4,4'-DDE	4 J	3.7 U	5.1	1.2 J	5.9	3.7 U	3.8 U
	4,4'-DDT	5.7	3.7 UJ	6.5	1.8 J	4.1 U	3.7 U	3.8 U
	ALDRIN	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	ALPHA-BHC	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	ALPHA-CHLORDANE	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	AROCLOR-1016	22 U	19 U	20 U	20 U	21 U	19 UJ	20 U
	AROCLOR-1221	22 U	19 U	20 U	20 U	21 U	19 U	20 U
	AROCLOR-1232	22 U	19 U	20 U	20 U	21 U	19 U	20 U
	AROCLOR-1242	22 U	19 U	20 U	20 U	21 U	19 U	20 U
	AROCLOR-1248	22 U	19 U	20 U	20 U	21 U	19 U	20 U
	AROCLOR-1254	22 U	19 U	20 U	20 U	21 U	19 U	20 U
	AROCLOR-1260	22 U	96	80	20 U	68	19 U	20 U
	AROCLOR-1268	22 U	19 U	20 U	20 U	21 U	19 U	20 U
	BETA-BHC	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	DELTA-BHC	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	DIELDRIN	4.3 U	3.7 U	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U
	ENDOSULFAN I	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	ENDOSULFAN II	4.3 U	3.7 U	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U
	ENDOSULFAN SULFATE	4.3 U	3.7 U	3.9 U	3.8 UJ	4.1 UJ	3.7 U	3.8 U

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	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	ENDRIN	4.3 U	3.7 U	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U
	ENDRIN ALDEHYDE	4.3 U	3.7 U	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U
	ENDRIN KETONE	4.3 U	3.7 UJ	3.9 U	3.8 U	4.1 U	3.7 U	3.8 U
	GAMMA-BHC (LINDANE)	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	GAMMA-CHLORDANE	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	HEPTACHLOR	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	HEPTACHLOR EPOXIDE	2.2 U	1.9 U	2 U	2 U	2.1 U	1.9 U	2 U
	METHOXYCHLOR	22 U	19 UJ	20 U	20 U	21 U	19 U	20 U
	TOTAL AROCLOR	22 U	96	80	20 U	68	19 UJ	20 U
	TOTAL DDD/DDE/DDT	9.7 J	3.7 UJ	13.7 J	3 J	5.9	3.7 U	3.8 U
	TOXAPHENE	43 U	37 U	39 U	38 U	41 U	37 U	38 U
METALS (MG/KG)	ALUMINUM	11100	NA	13100	6050	12100	1800	8120
	ANTIMONY	0.18 U	NA	0.13 U	0.07 U	0.09 U	0.08 U	0.05 UJ
	ARSENIC	13	NA	14.5	1.6	13.8	0.29	6.8
	BARIUM	25.9	NA	28.3	18.6	22.9	7.4	22.4
	BERYLLIUM	0.4 J	NA	0.42 J	0.38	0.37 J	0.45 J	0.31 J
	CADMIUM	1.1 J	NA	0.6 J	0.09 J	0.38 J	0.09 J	1.6
	CALCIUM	1490	NA	652	936	547	1350	1210
	CHROMIUM	16.2	NA	14.6	5.4	14.3	1 J	11.8
	COBALT	9.3	NA	11.1	2.4	8.2	0.82 J	20
	COPPER	19.4	NA	18.7	6.7	19	2.3 U	15.9
	IRON	24400	NA	21800	8660	20700	5270	14800
	LEAD	36	NA	33.1	14.5	36.6	4.2	110
	MAGNESIUM	2520	NA	2620	1120	2570	407	1920
	MANGANESE	324	NA	369	251	297	351	312
	MERCURY	0.05	NA	0.05	0.05	0.11	0.01 U	0.02 J
	MOLYBDENUM	0.78 J	NA	0.40 J	0.20 UJ	0.38 J	0.10 UJ	0.32 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	NICKEL	18.1	NA	17.4	4.2	16.5	0.98 J	10.9
	POTASSIUM	583	NA	546	758	491	771	681
	SELENIUM	0.31 U	NA	0.23 U	0.11 U	0.15 U	0.14 U	0.32 UJ
	SILVER	0.55 UJ	NA	0.44 UJ	0.04 U	0.32 UJ	0.04 U	1.3 J
	SODIUM	63.3 J	NA	46.9 J	32.8 J	33.3 J	21.6 UJ	45.2 J
	THALLIUM	0.05 UJ	NA	0.08 U	0.06 UJ	0.06 UJ	0.03 U	0.06 UJ
	VANADIUM	21	NA	22.5	8.1	22	1.5 J	14.2
	ZINC	118	NA	52.2	24.2	44.6	13.8	63.3
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	1.2	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	3.4	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	6.7	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	3.4	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	16	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	1.7	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	2.9	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	7.9	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	5.7	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	20.7	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	23.9	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	11	NA	NA	NA	NA
	PERCENT SILT	NA	NA	30.7	NA	NA	NA	NA
	SIEVE 1"	NA	NA	0	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	0	NA	NA	NA	NA
	SIEVE 2"	NA	NA	0	NA	NA	NA	NA
	SIEVE 3"	NA	NA	0	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	8.6	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	9.3	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB102B	DA-SB103	DA-SB104	DA-SB105	DA-SB106	DA-SB107	DA-SB107
	TOP DEPTH	0	1	0	0	0	0	1
	BOTTOM DEPTH	1	3	1	1	1	1	3
	SAMPLE DATE	01/15/08	04/14/08	01/15/08	01/15/08	01/14/08	01/15/08	02/29/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB102B-0001-LOCDEPTHMAX	DA-SB103-0103	DA-SB104-0001-LOCDEPTHMAX	DA-SB105-0001-LOCDEPTHMAX	DA-SB106-0001-LOCDEPTHMAX	DA-SB107-0001-LOCDEPTHMAX	DA-SB107-0103
FRACTION (UNITS)	PARAMETER							
	SIEVE NO. 004	NA	NA	6.1	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	5.7	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	5.5	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	5.5	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	6.5	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	4.7	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	1.5	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	8.1	NA	NA	NA	NA
	TOTAL SOLIDS	95	NA	89	96	92	92	86
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	22000	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	5.5	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	89	NA	23	19	22	9.5 U	38
	GASOLINE RANGE ORGANICS	3.8 U	NA	3 U	3.3 U	3.3 UJ	2.5 U	2.8 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,1,2,2-TETRACHLOROETHANE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,2,3-TRICHLOROBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,2,3-TRICHLOROPROPANE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,2,4-TRICHLOROBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,2,4-TRIMETHYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,2-DIBROMOETHANE	5 UJ	5 U	5 UJ	5 U	5 U	5 U	6 U	5 U	6 U
	1,2-DICHLOROBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,3,5-TRIMETHYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,3-DICHLOROBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	1,4-DICHLOROBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	2-BUTANONE	25 U	25 U	26 U	25 U	25 U	25 U	28 U	27 U	30 U
	2-CHLOROTOLUENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	2-HEXANONE	25 UJ	25 U	26 UJ	25 U	25 U	25 U	28 U	27 U	30 U
	4-CHLOROTOLUENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	4-METHYL-2-PENTANONE	25 U	25 U	26 U	25 U	25 U	25 U	28 U	27 U	30 U
	ACETONE	120	20 J	10 J	1600 UJ	25 U	8 J	12 J	80 U	97
	BENZENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	BROMOBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	BROMOCHLOROMETHANE	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	6 UJ	5 UJ	6 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	BROMOFORM	5 UJ	5 U	5 UJ	5 U	5 U	5 U	6 U	5 U	6 U
	BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U
	BTEX	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	6.6 U	5.8 U	6.8 U
	CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	CHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	CHLOROETHANE	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	11 U	11 UJ	12 U
	CHLOROFORM	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	DIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U
	ETHYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	HEXACHLOROBUTADIENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	ISOPROPYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	M+P-XYLENES	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	METHYLENE CHLORIDE	25 U	25 U	26 U	25 U	25 U	25 U	28 U	27 U	30 U
	N-BUTYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	N-PROPYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	O-XYLENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	SEC-BUTYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	STYRENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TERT-BUTYLBENZENE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	6 U	5 U	6 U
	TETRACHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	7.2 U	6.5 U	7.5 U
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	7.6 UJ	6.8 UJ	7.9 UJ
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	8.5 U	8 U	9 U
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TRICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	6 U
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U
	VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	1,2-DIPHENYLHYDRAZINE	760 U	780 U	780 U	750 U	730 U	720 U	730 U	740 U	730 UJ
	2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 UJ
	2,4,5-TRICHLOROPHENOL	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U
	2,4,6-TRICHLOROPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2,4-DICHLOROPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2,4-DIMETHYLPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2,4-DINITROPHENOL	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U
	2,4-DINITROTOLUENE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2,6-DICHLOROPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2,6-DINITROTOLUENE	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	2-CHLORONAPHTHALENE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2-CHLOROPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2-METHYLNAPHTHALENE	21 U	11 J	76	6.6 J	11 J	6.8 J	22 U	9.6 J	390
	2-METHYLPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	2-NITROANILINE	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U
	2-NITROPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	3&4-METHYLPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	3,3'-DICHLOROBENZIDINE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	3-NITROANILINE	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U
	4,6-DINITRO-2-METHYLPHENOL	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U
	4-BROMOPHENYL PHENYL ETHER	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	4-CHLORO-3-METHYLPHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	4-CHLOROANILINE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	4-CHLOROPHENYL PHENYL ETHER	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	4-NITROANILINE	940 U	960 U	970 U	930 U	900 U	890 U	910 U	920 U	910 U
	4-NITROPHENOL	940 U	960 U	970 U	930 U	900 U	890 UJ	910 U	920 U	910 U
	ACENAPHTHENE	6.5 J	100	430 J	23 U	140	39	3.9 J	100	22 U
	ACENAPHTHYLENE	5.2 J	3.8 J	13 J	23 U	22 U	22 U	3.6 J	22 U	22 U
	ANTHRACENE	14 J	300 J	1300	23 U	250	100	8.5 J	130	22 U
	BENZIDINE	1700 UJ	1800 UJ	1800 UJ	1700 UJ	1600 UJ	1600 UJ	1700 UJ	1700 UJ	1700 UJ
	BENZO(A)ANTHRACENE	49	630	2600	23 U	890	240	69 J	240	17 J
	BENZO(A)PYRENE	45 J	380	1600	16 J	760	170	89 J	200	20 J
	BENZO(B)FLUORANTHENE	41	510	2100	14 J	740	170	89 J	210	21 J
	BENZO(G,H,I)PERYLENE	24	230 J	930	8.3 J	280	83	50 J	61	14 J
	BENZO(K)FLUORANTHENE	25 J	210 J	890 J	6.8 J	670	110	29 J	130	11 J
	BENZOIC ACID	940 U	960 U	970 U	930 U	900 U	890 U	910 UJ	920 U	910 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	BENZYL ALCOHOL	760 U	780 U	780 U	750 U	730 U	720 U	730 U	740 U	730 U
	BIS(2-CHLOROETHOXY)METHANE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	BIS(2-CHLOROETHYL)ETHER	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	BIS(2-ETHYLHEXYL)PHTHALATE	380 U	390 UJ	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	BUTYL BENZYL PHTHALATE	380 U	390 UJ	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	CARBAZOLE	380 U	390 U	390 U	370 U	360 U	360 UJ	360 UJ	370 U	360 U
	CHRYSENE	42	540	2200	14 J	910	260	76 J	230	24
	DIBENZO(A,H)ANTHRACENE	11 J	61	180 J	23 UJ	140	51	40 J	55 J	22 UJ
	DIBENZOFURAN	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	DIETHYL PHTHALATE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	DIMETHYL PHTHALATE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	DI-N-BUTYL PHTHALATE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	DI-N-OCTYL PHTHALATE	380 U	390 UJ	390 U	370 U	360 U	360 U	360 UJ	370 U	360 U
	FLUORANTHENE	70	1600	6300	12 J	1800	490	57 J	1300	31
	FLUORENE	5.7 J	130	440 J	23 U	110	37	22 U	120	30
	HEXACHLOROBENZENE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	HEXACHLOROETHANE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	HIGH MOLECULAR WEIGHT PAHS	375 J	5461 J	22600 J	92.1 J	8110	2065	616 J	3704 J	195 J
	INDENO(1,2,3-CD)PYRENE	39	350	1500	9 J	420	91	37 J	78 J	18 J
	ISOPHORONE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	LOW MOLECULAR WEIGHT PAHS	71.4 J	1292 J	5976 J	23.6 J	1829 J	468.8 J	71 J	1369.6 J	754
	NAPHTHALENE	21 U	11 J	130	23 U	18 J	16 J	22 U	10 J	270
	NITROBENZENE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	N-NITROSODIMETHYLAMINE	380 U	390 U	390 U	370 U	360 U	360 U	360 UJ	370 U	360 UJ
	N-NITROSO-DI-N-PROPYLAMINE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	N-NITROSODIPHENYLAMINE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	N-NITROSOPYRROLIDINE	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	PENTACHLOROPHENOL	940 U	960 U	970 U	930 U	900 U	890 U	910 UJ	920 U	910 UJ
	PHENANTHRENE	40	740	3600	17 J	1300	270	55 J	1000	64
	PHENOL	380 U	390 U	390 U	370 U	360 U	360 U	360 U	370 U	360 U
	PYRENE	54	950	4300	12 J	1500	400	80 J	1200	39
	TOTAL PAHS	446.4 J	6753 J	28576 J	115.7 J	9939 J	2533.8 J	687 J	5073.6 J	949 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.8 U	3.9 U	3.9 U	3.7 U	1.2 J	1.3 J	3.6 U	3.7 U	3.6 U
	4,4'-DDE	1.1 J	1.7 J	3.9 U	0.96 J	1.8 J	7.2	3.6 U	3.7 UJ	3.6 U
	4,4'-DDT	1.4 J	3.3 J	3.9 U	3.7 UJ	4.5 J	6.7	3.6 UJ	3.7 UJ	3.6 UJ
	ALDRIN	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	ALPHA-BHC	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	ALPHA-CHLORDANE	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	AROCLOR-1016	20 U	20 U	20 U	19 U	19 U	18 U	19 UJ	19 U	19 U
	AROCLOR-1221	20 U	20 U	20 U	19 U	19 U	18 U	19 U	19 U	19 U
	AROCLOR-1232	20 U	20 U	20 U	19 U	19 U	18 U	19 U	19 U	19 U
	AROCLOR-1242	20 U	20 U	20 U	19 U	19 U	18 U	19 U	19 U	19 U
	AROCLOR-1248	20 U	20 U	20 U	19 U	19 U	18 U	43	19 U	19 U
	AROCLOR-1254	20 U	20 U	20 U	19 U	19 U	18 U	19 U	19 U	19 U
	AROCLOR-1260	20 U	20 U	260	44	28 J	18 U	19 UJ	19 U	19 UJ
	AROCLOR-1268	20 U	20 U	20 U	19 U	19 U	18 U	19 U	19 U	19 U
	BETA-BHC	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	DELTA-BHC	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 UJ	1.9 UJ	1.9 U
	DIELDRIN	3.8 U	3.9 U	3.9 U	3.7 UJ	3.6 U	3.6 U	3.6 U	3.7 UJ	3.6 U
	ENDOSULFAN I	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	ENDOSULFAN II	3.8 U	3.9 U	3.9 U	3.7 UJ	3.6 U	3.6 U	3.6 U	3.7 UJ	3.6 U
	ENDOSULFAN SULFATE	3.8 U	3.9 UJ	3.9 UJ	3.7 UJ	3.6 U	3.6 U	3.6 UJ	3.7 UJ	3.6 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	ENDRIN	3.8 U	3.9 U	3.9 U	3.7 UJ	3.6 UJ	3.6 U	3.6 U	3.7 UJ	3.6 U
	ENDRIN ALDEHYDE	3.8 U	3.9 U	3.9 U	3.7 UJ	3.6 U	3.6 U	3.6 U	3.7 UJ	3.6 U
	ENDRIN KETONE	3.8 U	3.9 U	3.9 U	3.7 UJ	3.6 UJ	3.6 U	3.6 U	3.7 UJ	3.6 U
	GAMMA-BHC (LINDANE)	2 U	2 U	2 U	1.9 UJ	1.9 UJ	1.8 U	1.9 U	1.9 UJ	1.9 U
	GAMMA-CHLORDANE	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	HEPTACHLOR	2 U	2 U	2 U	1.9 UJ	1.9 UJ	1.8 U	1.9 U	1.9 UJ	1.9 U
	HEPTACHLOR EPOXIDE	2 U	2 U	2 U	1.9 UJ	1.9 U	1.8 U	1.9 U	1.9 UJ	1.9 U
	METHOXYCHLOR	20 U	20 U	20 U	19 UJ	19 UJ	18 U	19 UJ	19 UJ	19 UJ
	TOTAL AROCLOR	20 U	20 U	260	44	28 J	18 U	43 J	19 U	19 UJ
	TOTAL DDD/DDE/DDT	2.5 J	5 J	3.9 U	0.96 J	7.5 J	15.2 J	3.6 UJ	3.7 UJ	3.6 UJ
	TOXAPHENE	38 U	39 U	39 U	37 UJ	36 U	36 U	36 U	37 UJ	36 U
METALS (MG/KG)	ALUMINUM	4940	5020	8460	7980	5380	5650	7610	12000	11900
	ANTIMONY	0.19 J	0.08 U	0.08 U	0.05 UJ	0.04 UJ	0.06 UJ	0.07 UJ	0.08 UJ	0.08 UJ
	ARSENIC	6.2	2	9.7	15.1	5.3	3.7 J	6 J	25.4	20.7 J
	BARIUM	32.4	16.6	23.1	21.2	15.9	14.6	23.1	20.8	18.5
	BERYLLIUM	0.4	0.27 J	0.31 J	0.48	0.4	0.48	0.57	0.45	0.31 J
	CADMIUM	1.4	0.27 J	0.72 J	0.29 J	0.77 J	0.36 J	0.36 J	0.33 J	0.01 UJ
	CALCIUM	862	705	903	1290 J	1420 J	609	572	1580 J	709
	CHROMIUM	6.5	5.4	11.4	10.2	6.9	6.6	7.5	14.8	14.7
	COBALT	3.6	3.4	7.5	9.9	4.5	4.8	5.4	10.3	11.4
	COPPER	38.2	8.6	17.6	17.2	12.1	9.1	10.8	18	18.7
	IRON	15400	7850	16300	21600	12000	11800	14700	24700	28900
	LEAD	44.1	28.8	32	18.8	18	38.8	54.8	16	13.3
	MAGNESIUM	980	1720	2220	2160	1420	1600	1730	3710	3540
	MANGANESE	368	186	250	357	208	179	246	292	345
	MERCURY	0.03 J	0.02 J	0.06	0.02 UJ	0.01 UJ	0.02 J	0.01 J	0.02 UJ	0.04
	MOLYBDENUM	0.72 UJ	0.18 UJ	0.36 J	0.5 J	0.44 J	0.53 J	0.67 J	0.36 J	0.38 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	NICKEL	28.9	4.9	13	17.5	8.1	8.2	10.2	21.1	22.2
	POTASSIUM	703	886	647	603	528	607	755	472	405
	SELENIUM	0.12 U	0.14 U	0.14 U	0.33 U	0.29 U	0.33 UJ	0.32 UJ	0.52 U	0.51 UJ
	SILVER	0.21 UJ	0.08 UJ	0.44 J	0.06 UJ	0.05 UJ	0.14 UJ	0.17 UJ	0.13 J	0.09 UJ
	SODIUM	30 J	30.3 J	36.4 J	50.7 J	93.5	78.3 UJ	122	38.6 J	40 UJ
	THALLIUM	0.06 UJ	0.04 UJ	0.04 UJ	0.08 UJ	0.07 UJ	0.06 UJ	0.08 UJ	0.04 UJ	0.02 UJ
	VANADIUM	9.5	9.9	16.3	13	9.2	10.1	13.2	16.3	17
	ZINC	86	31.2	57	54.6	44.9	41.4	48.9	52.2	53.3
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	1.7	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	4.2	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	5.3	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	2.7	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	11.9	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	1.6	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	2.7	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	8	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	16.2	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	18.6	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	15.9	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	15.6	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	25.7	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	4.6	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB108	DA-SB109	DA-SB110	DA-SB111	DA-SB112	DA-SB113	DA-SB114	DA-SB115	DA-SB116
	TOP DEPTH	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	2	2	2	2	2	2
	SAMPLE DATE	01/15/08	01/14/08	01/15/08	03/05/08	03/05/08	03/03/08	03/03/08	03/05/08	03/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB108-0001-LOCDEPTHMAX	DA-SB109-0001-LOCDEPTHMAX	DA-SB110-0001-LOCDEPTHMAX	DA-SB111-0002	DA-SB112-0002	DA-SB113-0002	DA-SB114-0002	DA-SB115-0002	DA-SB116-0002
FRACTION (UNITS)	PARAMETER									
	SIEVE NO. 004	11.4	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	16.2	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	9.3	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	6.3	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	5.9	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	3.9	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	1.8	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	7	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	93	93	88	88	90	92	90	89	90
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	4900	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	5.4	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	18	15	260	110	130	130	200	93 J	890
	GASOLINE RANGE ORGANICS	2.8 U	3 U	3 U	3.2 U	2.9 UJ	3.0 U	3.0 U	2.8 U	3.1 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,1,1-TRICHLOROETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,1,2-TRICHLOROETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,1-DICHLOROETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,1-DICHLOROETHENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,1-DICHLOROPROPENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,2,3-TRICHLOROBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2,3-TRICHLOROPROPANE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2,4-TRICHLOROBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	6 UJ	5 U	6 UJ	5 U	5 UJ	5 UJ	5 UJ	5 UJ
	1,2-DIBROMOETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,2-DICHLOROBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2-DICHLOROETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,2-DICHLOROPROPANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,3-DICHLOROBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,3-DICHLOROPROPANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	1,4-DICHLOROBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	2,2-DICHLOROPROPANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	2-BUTANONE	30 UJ	25 U	30 U	25 U	25 U	25 UJ	25 U	26 U
	2-CHLOROTOLUENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	2-HEXANONE	30 UJ	25 U	30 U	25 U	25 U	25 UJ	25 U	26 U
	4-CHLOROTOLUENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	4-ISOPROPYLTOLUENE	6 UJ	5 U	6 U	5 U	73	5 UJ	5 U	5 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	4-METHYL-2-PENTANONE	30 UJ	25 U	30 U	25 U	25 U	25 UJ	25 U	26 U
	ACETONE	27 J	25 U	900 UJ	28 U	24 J	12 J	16 J	33 J
	BENZENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	BROMOBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	BROMOCHLOROMETHANE	6 UJ	5 UJ	6 UJ	5 UJ	5 U	5 UJ	5 U	5 U
	BROMODICHLOROMETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	BROMOFORM	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	BROMOMETHANE	12 UJ	10 U	12 U	10 U	10 U	10 UJ	10 U	10 U
	BTEX	6.8 UJ	5.6 U	6.8 U	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 U
	CARBON DISULFIDE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	CARBON TETRACHLORIDE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	CHLOROBENZENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	CHLORODIBROMOMETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	CHLOROETHANE	12 UJ	10 U	12 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	CHLOROFORM	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	CHLOROMETHANE	12 UJ	10 U	12 U	10 U	10 U	10 UJ	10 U	10 U
	CIS-1,2-DICHLOROETHENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	DIBROMOMETHANE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	DICHLORODIFLUOROMETHANE	12 UJ	10 U	12 U	10 U	10 U	10 UJ	10 U	10 U
	ETHYLBENZENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	HEXACHLOROBUTADIENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	ISOPROPYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	M+P-XYLENES	12 UJ	10 U	12 U	10 U	10 U	10 UJ	10 U	10 U
	METHYL TERT-BUTYL ETHER	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	METHYLENE CHLORIDE	30 UJ	25 U	30 U	25 U	25 U	25 UJ	25 U	26 U
	N-BUTYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	N-PROPYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	O-XYLENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	SEC-BUTYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	STYRENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	TERT-BUTYLBENZENE	6 UJ	5 U	6 UJ	5 U	5 U	5 UJ	5 U	5 U
	TETRACHLOROETHENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	TOLUENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	TOTAL CHLORINATED ETHENES	7.5 UJ	6.2 U	7.5 U	6.2 U	6.2 U	4 J	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	7.9 UJ	6.6 UJ	7.9 UJ	6.6 UJ	6.6 UJ	4 J	6.6 UJ	6.6 UJ
	TOTAL XYLENES	9 UJ	7.5 U	9 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	6 UJ	5 U	6 U	5 U	5 U	5 UJ	5 U	5 U
	TRICHLOROETHENE	6 UJ	5 U	6 U	5 U	5 U	4 J	5 U	5 U
	TRICHLOROFLUOROMETHANE	12 UJ	10 U	12 U	10 U	10 U	10 UJ	10 U	10 U
	VINYL CHLORIDE	12 UJ	10 U	12 U	10 U	10 U	10 UJ	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	1,2-DIPHENYLHYDRAZINE	720 UJ	760 U	1400 U	740 U	820 U	800 U	800 U	820 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	360 UJ	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2,4,5-TRICHLOROPHENOL	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	2,4,6-TRICHLOROPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2,4-DICHLOROPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2,4-DIMETHYLPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2,4-DINITROPHENOL	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	2,4-DINITROTOLUENE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2,6-DICHLOROPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2,6-DINITROTOLUENE	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	2-CHLORONAPHTHALENE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2-CHLOROPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2-METHYLNAPHTHALENE	22 U	220	110 U	14 J	16 J	14 J	11 J	22 U
	2-METHYLPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	2-NITROANILINE	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	2-NITROPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	3&4-METHYLPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	3,3'-DICHLOROBENZIDINE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	3-NITROANILINE	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	4,6-DINITRO-2-METHYLPHENOL	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	4-BROMOPHENYL PHENYL ETHER	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	4-CHLORO-3-METHYLPHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	4-CHLOROANILINE	360 U	380 U	720 U	370 U	410 UJ	400 UJ	400 U	410 UJ
	4-CHLOROPHENYL PHENYL ETHER	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	4-NITROANILINE	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	4-NITROPHENOL	900 U	940 U	1800 U	920 U	1000 UJ	990 UJ	990 U	1000 UJ
	ACENAPHTHENE	22 U	1400	110 U	150	120	42	2600 J	28
	ACENAPHTHYLENE	22 U	23 U	18 J	22 U	24 J	6.5 J	8.3 J	5 J
	ANTHRACENE	22 U	2000	19 J	450	380 J	130	5600	55
	BENZIDINE	1600 UR	1700 UJ	3300 UJ	1700 UJ	1800 UJ	1800 UJ	1800 UJ	1900 UJ
	BENZO(A)ANTHRACENE	16 J	2600	130 J	1100	1200	680	10000	210
	BENZO(A)PYRENE	26	2000	850 J	860	1000	420	6100	190
	BENZO(B)FLUORANTHENE	31	1800	1200 J	940	1600	540	10000	160
	BENZO(G,H,I)PERYLENE	10 J	950	270 J	480	740	170	4100 J	85
	BENZO(K)FLUORANTHENE	12 J	2000	340 J	760	680	440	3800 J	150 J
	BENZOIC ACID	900 U	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	BENZYL ALCOHOL	720 U	760 U	1400 U	740 U	820 U	800 U	800 U	820 U
	BIS(2-CHLOROETHOXY)METHANE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	BIS(2-CHLOROETHYL)ETHER	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	BIS(2-ETHYLHEXYL)PHTHALATE	360 U	380 U	720 U	370 U	410 UJ	400 UJ	400 UJ	410 UJ
	BUTYL BENZYL PHTHALATE	360 U	380 U	720 U	370 U	410 UJ	400 UJ	400 UJ	410 UJ
	CARBAZOLE	360 U	1000	720 U	370 U	410 U	400 U	400 U	410 U
	CHRYSENE	21 J	2300	94 J	1100	1200	640	8500	250
	DIBENZO(A,H)ANTHRACENE	22 U	270 J	130 J	170	140	140	1200 J	50
	DIBENZOFURAN	360 U	750	720 U	370 U	410 U	400 U	400 U	410 U
	DIETHYL PHTHALATE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	DIMETHYL PHTHALATE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	DI-N-BUTYL PHTHALATE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	DI-N-OCTYL PHTHALATE	360 U	380 U	720 UJ	370 U	410 UJ	400 UJ	400 UJ	410 UJ
	FLUORANTHENE	18 J	6000	110	2300	2600	1400	22000	460
	FLUORENE	22 U	1100	110 U	180	120	38	2700 J	22 J
	HEXACHLOROBENZENE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	HEXACHLOROETHANE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	HIGH MOLECULAR WEIGHT PAHS	172 J	23920 J	3584 J	10190	12130 J	5680	84200 J	2065 J
	INDENO(1,2,3-CD)PYRENE	16 J	1000	340 J	480	570 J	250	3500 J	110
	ISOPHORONE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	LOW MOLECULAR WEIGHT PAHS	9.7 J	11720	147 J	2619 J	2259 J	899 J	30640 J	343.4 J
	NAPHTHALENE	22 U	1000	110 U	25	23 J	15 J	740 J	3.4 J
	NITROBENZENE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	N-NITROSODIMETHYLAMINE	360 UJ	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	N-NITROSO-DI-N-PROPYLAMINE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	N-NITROSODIPHENYLAMINE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	N-NITROSOPYRROLIDINE	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	PENTACHLOROPHENOL	900 UJ	940 U	1800 U	920 U	1000 U	990 U	990 U	1000 U
	PHENANTHRENE	9.7 J	6000	110	1800	1600	660	19000	230
	PHENOL	360 U	380 U	720 U	370 U	410 U	400 U	400 U	410 U
	PYRENE	22 J	5000	120 J	2000	2400	1000	15000	420
	TOTAL PAHS	181.7 J	35640 J	3731 J	12809 J	14389 J	6579 J	114840 J	2408.4 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.6 U	3.8 U	3.6 U	3.7 U	4.1 U	4 U	4 U	4.1 U
	4,4'-DDE	3.6 U	3.8 UJ	1.3 J	3.7 U	1.8 J	4 UJ	4 UJ	4.1 UJ
	4,4'-DDT	3.6 UJ	3.8 UJ	1.5 J	3.7 UJ	4.1 UJ	4 UJ	4 UJ	4.1 UJ
	ALDRIN	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	ALPHA-BHC	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	ALPHA-CHLORDANE	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	AROCLOR-1016	19 U	20 U	18 U	19 U	21 UJ	20 UJ	20 UJ	21 UJ
	AROCLOR-1221	19 U	20 U	18 U	19 U	21 U	20 U	20 U	21 U
	AROCLOR-1232	19 U	20 U	18 U	19 U	21 U	20 U	20 U	21 U
	AROCLOR-1242	19 U	20 U	18 U	19 U	21 U	20 U	20 U	21 U
	AROCLOR-1248	19 U	20 U	18 U	19 U	21 U	20 U	20 U	21 U
	AROCLOR-1254	19 U	20 U	18 U	19 U	21 U	20 U	20 U	21 U
	AROCLOR-1260	19 UJ	20 U	18 UJ	19 U	170 J	51 J	110 J	70 J
	AROCLOR-1268	19 U	20 U	18 U	19 U	21 U	20 U	20 U	21 U
	BETA-BHC	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	DELTA-BHC	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	DIELDRIN	3.6 U	3.8 UJ	3.6 UJ	3.7 U	4.1 UJ	4 UJ	4 UJ	4.1 UJ
	ENDOSULFAN I	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	ENDOSULFAN II	3.6 U	3.8 UJ	3.6 UJ	3.7 U	4.1 UJ	4 UJ	4 UJ	4.1 UJ
	ENDOSULFAN SULFATE	3.6 U	3.8 UJ	3.6 UJ	3.7 U	4.1 UJ	4 UJ	4 UJ	4.1 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	ENDRIN	3.6 U	3.8 UJ	3.6 UJ	3.7 UJ	4.1 UJ	4 UJ	4 UJ	4.1 UJ
	ENDRIN ALDEHYDE	3.6 U	3.8 UJ	3.6 UJ	3.7 U	4.1 UJ	4 UJ	4 UJ	4.1 UJ
	ENDRIN KETONE	3.6 U	3.8 UJ	3.6 UJ	3.7 UJ	4.1 UJ	4 UJ	4 UJ	4.1 UJ
	GAMMA-BHC (LINDANE)	1.9 U	2 UJ	1.8 UJ	1.9 UJ	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	GAMMA-CHLORDANE	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	HEPTACHLOR	1.9 U	2 UJ	1.8 UJ	1.9 UJ	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	HEPTACHLOR EPOXIDE	1.9 U	2 UJ	1.8 UJ	1.9 U	2.1 UJ	2 UJ	2 UJ	2.1 UJ
	METHOXYCHLOR	19 UJ	20 UJ	18 UJ	19 UJ	21 UJ	20 UJ	20 UJ	21 UJ
	TOTAL AROCLOR	19 UJ	20 U	18 UJ	19 U	170 J	51 J	110 J	70 J
	TOTAL DDD/DDE/DDT	3.6 UJ	3.8 UJ	2.8 J	3.7 UJ	1.8 J	4 UJ	4 UJ	4.1 UJ
	TOXAPHENE	36 U	38 UJ	36 UJ	37 U	41 UJ	40 UJ	40 UJ	41 UJ
METALS (MG/KG)	ALUMINUM	10400	18000	4730	14000	10800	12000	13100	9550
	ANTIMONY	0.09 UJ	0.1 UJ	0.04 UJ	0.1 UJ	0.19 UJ	0.19 UJ	0.18 UJ	0.38 UJ
	ARSENIC	23.1 J	45.8	1.7	19.2	23.9	22.3	18.6	8.1
	BARIUM	25.4	17.3	29.3	21.1	26.3	39.6	42.7	30
	BERYLLIUM	0.43 J	0.53	0.15 UJ	0.33 J	0.4 J	0.57 J	0.48 J	0.42 J
	CADMIUM	0.01 UJ	0.01 UJ	0.01 U	0.01 UJ	2.4 J	1.6 J	0.43 J	1.5 J
	CALCIUM	940	1610 J	1580 J	832 J	1250 J	1210 J	1100 J	1570 J
	CHROMIUM	13.5	26.2	9.6	18.3	19.6	22.4	17.2	14.7
	COBALT	14.2	16.6	2.7	15	11	18.5	10.9	7.2
	COPPER	19.4	16.2	8.5	20.1	26.5 J	133 J	24.3 J	16.8 J
	IRON	31200	43000	8540	35000	25800	31300	28900	16600
	LEAD	8.5	13.1	26	16.8	25.4	86.1	23	23
	MAGNESIUM	3450	6240	1910	4570	2990 J	2530 J	3260 J	2890 J
	MANGANESE	646	633	170	411	355 J	782 J	395 J	348 J
	MERCURY	0.01 U	0.02 U	0.01 UJ	0.02 UJ	0.03 J	0.08	0.04	0.06
	MOLYBDENUM	0.33 J	0.13 UJ	0.54 J	0.39 J	0.47 J	0.69 J	0.57 J	0.76 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	NICKEL	24	38.5	9.7	27.2	25.9	22.1	23.2	14.4
	POTASSIUM	785	338	1200	431	592 J	465 J	552 J	679 J
	SELENIUM	0.6 UJ	0.69 U	0.3 U	0.66 U	0.16 U	0.32 U	0.37 UJ	0.16 U
	SILVER	0.11 UJ	0.27 J	0.05 U	0.27 J	0.05 UJ	0.1 UJ	0.09 UJ	0.05 UJ
	SODIUM	54.6 UJ	53 J	98.5	30.2 UJ	57.2 J	54.8 J	50.4 J	52.8 J
	THALLIUM	0.03 UJ	0.04 UJ	0.06 UJ	0.04 UJ	0.04 U	0.08 UJ	0.04 UJ	0.04 U
	VANADIUM	21.2	31.9	38	21.4	17.9	19.6	23.2	17
	ZINC	58.9	80.9	29.4	60.2	144	663	64.6	109
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB117	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124
	TOP DEPTH	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	2	2	2	2	1	1	1	1
	SAMPLE DATE	03/04/08	03/04/08	03/04/08	03/06/08	01/10/08	01/10/08	01/10/08	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB117-0002	DA-SB118-0002	DA-SB119-0002	DA-SB120-0002	DA-SB121-0001-LOCDEPTHMAX	DA-SB122-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB124-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER								
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	91	87	92	89	86	89	86	90
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	200	160	1200	170	150	110	66	60
	GASOLINE RANGE ORGANICS	3.3 U	2.8 UJ	3.4 UJ	2.5 UJ	4.6 U	60	3.3 U	3.5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,1,2,2-TETRACHLOROETHANE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U
	1,2,3-TRICHLOROPROPANE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	1,2,4-TRICHLOROBENZENE	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U
	1,2,4-TRIMETHYLBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 UJ
	1,2-DIBROMOETHANE	5 U	5 U	5 UJ	5 U	5 UJ	5 UJ	5 U
	1,2-DICHLOROBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	5 UJ	5 U	5 UJ	5 UJ	5 UJ	5 U
	1,3-DICHLOROBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	2-BUTANONE	25 U	26 U	25 U	25 U	26 U	25 U	25 U
	2-CHLOROTOLUENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	2-HEXANONE	25 U	26 U	25 UJ	25 U	26 UJ	25 UJ	25 U
	4-CHLOROTOLUENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	4-METHYL-2-PENTANONE	25 U	26 U	25 U	25 U	26 U	25 U	25 U
	ACETONE	210 J	550	330	93	100	180	25 UJ
	BENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOBENZENE	5 U	5 UJ	5 U	5 UJ	5 UJ	5 UJ	5 U
	BROMOCHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOFORM	5 U	5 U	5 UJ	5 U	5 UJ	5 UJ	5 U
	BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BTEX	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROETHANE	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ
	CHLOROFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	ISOPROPYLBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	M+P-XYLENES	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	METHYLENE CHLORIDE	25 U	26 U	25 U	25 U	26 U	25 U	25 UJ
	N-BUTYLBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-PROPYLBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	O-XYLENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	STYRENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
	TETRACHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 UJ
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	6.6 U	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
	VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	380 U	400 U	660	410 U	440 U	390 U	400 U
	1,2-DIPHENYLHYDRAZINE	765 U	810 U	750 U	820 U	870 U	780 U	810 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2,4,5-TRICHLOROPHENOL	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	2,4,6-TRICHLOROPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2,4-DICHLOROPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2,4-DIMETHYLPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2,4-DINITROPHENOL	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	2,4-DINITROTOLUENE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2,6-DICHLOROPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2,6-DINITROTOLUENE	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	2-CHLORONAPHTHALENE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2-CHLOROPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2-METHYLNAPHTHALENE	51 J	74	2400 J	3 J	37	37	99
	2-METHYLPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	2-NITROANILINE	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	2-NITROPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	3&4-METHYLPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	3,3'-DICHLOROBENZIDINE	380 U	400 U	380 U	410 UJ	440 U	390 U	400 UJ
	3-NITROANILINE	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	4,6-DINITRO-2-METHYLPHENOL	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	4-BROMOPHENYL PHENYL ETHER	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	4-CHLORO-3-METHYLPHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	4-CHLOROANILINE	380 UJ	400 U	380 U	410 U	440 U	390 U	400 U
	4-CHLOROPHENYL PHENYL ETHER	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	4-NITROANILINE	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	4-NITROPHENOL	945 UJ	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	ACENAPHTHENE	320 J	600 J	9500	24	210	260 J	190
	ACENAPHTHYLENE	21 U	96	21 U	7.2 J	15 J	12 J	6.9 J
	ANTHRACENE	500 J	1500	13000	70	580	650	340 J
	BENZIDINE	1700 UJ	1800 UJ	1700 UJ	1900 UJ	2000 UJ	1800 UJ	1800 UJ
	BENZO(A)ANTHRACENE	1320 J	5100	20000	320	1400	930	1100
	BENZO(A)PYRENE	1060 J	3000	17000	190	1200	680	740
	BENZO(B)FLUORANTHENE	1200	3300	15000	480	910	880	890
	BENZO(G,H,I)PERYLENE	470	1100 J	7400 J	97	320 J	400 J	380 J
	BENZO(K)FLUORANTHENE	715 J	2900	12000	110	930	350 J	810
	BENZOIC ACID	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	BENZYL ALCOHOL	765 U	810 U	750 U	820 U	870 U	780 U	810 U
	BIS(2-CHLOROETHOXY)METHANE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	BIS(2-CHLOROETHYL)ETHER	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	BIS(2-ETHYLHEXYL)PHTHALATE	380 UJ	400 UJ	380 U	410 UJ	620 J	390 UJ	400 UJ
	BUTYL BENZYL PHTHALATE	380 UJ	400 UJ	380 U	410 UJ	440 UJ	390 UJ	400 UJ
	CARBAZOLE	315	1200	7300	410 U	370 J	390 U	400 U
	CHRYSENE	1110 J	4700	17000	220	1300	850	920
	DIBENZO(A,H)ANTHRACENE	150 J	330	3500	24 J	140	91	190 J
	DIBENZOFURAN	200 J	360 J	4700	410 U	440 U	390 U	400 U
	DIETHYL PHTHALATE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	DIMETHYL PHTHALATE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	DI-N-BUTYL PHTHALATE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	DI-N-OCTYL PHTHALATE	380 UJ	400 UJ	380 U	410 UJ	440 UJ	390 UJ	400 UJ
	FLUORANTHENE	2400 J	8700	45000	470	2900	2300	2300
	FLUORENE	206 J	540 J	5900 J	27	260	180	240 J
	HEXACHLOROBENZENE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	HEXACHLOROETHANE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	HIGH MOLECULAR WEIGHT PAHS	10845 J	43630 J	193100 J	2746	12210 J	8864 J	9860 J
	INDENO(1,2,3-CD)PYRENE	350 J	1500	9200	86	310	600	430 J
	ISOPHORONE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	LOW MOLECULAR WEIGHT PAHS	3061 J	8789 J	89800 J	506.3 J	3742 J	2917 J	3069 J
	NAPHTHALENE	134 J	79	11000	2.3 J	40	90	300 J
	NITROBENZENE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	N-NITROSODIMETHYLAMINE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	N-NITROSO-DI-N-PROPYLAMINE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	N-NITROSODIPHENYLAMINE	380 U	400 U	380 U	410 U	440 U	390 U	400 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-NITROSOPYRROLIDINE	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	PENTACHLOROPHENOL	945 U	1000 U	940 U	1000 U	1100 U	980 U	1000 U
	PHENANTHRENE	1850 J	5900 J	48000 J	380	2600	1700	1900
	PHENOL	380 U	400 U	380 U	410 U	440 U	390 U	400 U
	PYRENE	2600 J	13000	50000	750	2800	1800	2100
	TOTAL PAHS	13906 J	52419 J	282900 J	3252.3 J	15952 J	11781 J	12929 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.8 U	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U
	4,4'-DDE	3.8 UJ	4 U	3.8 U	2.0 J	7.9	5.4	2.4 J
	4,4'-DDT	3.8 UJ	4 U	3.8 U	4.2 J	12	16 J	4 U
	ALDRIN	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	ALPHA-BHC	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	ALPHA-CHLORDANE	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	AROCLOR-1016	20 UJ	21 U	19 U	21 UJ	22 U	20 U	21 U
	AROCLOR-1221	20 U	21 U	19 U	21 U	22 U	20 U	21 U
	AROCLOR-1232	20 U	21 U	19 U	21 U	22 U	20 U	21 U
	AROCLOR-1242	20 U	21 U	19 U	21 U	22 U	20 U	21 U
	AROCLOR-1248	20 U	21 U	19 U	21 U	22 U	20 U	21 U
	AROCLOR-1254	20 U	21 U	19 U	21 U	22 U	20 U	21 U
	AROCLOR-1260	44.5 J	21 U	19 U	26 J	120	170	81
	AROCLOR-1268	20 U	21 U	19 U	21 U	280	460	160
	BETA-BHC	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	DELTA-BHC	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	DIELDRIN	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U
	ENDOSULFAN I	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	ENDOSULFAN II	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U
	ENDOSULFAN SULFATE	3.8 UJ	4 UJ	3.8 UJ	4.1 UJ	4.4 UJ	3.9 UJ	4 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	ENDRIN	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U
	ENDRIN ALDEHYDE	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U
	ENDRIN KETONE	3.8 UJ	4 U	3.8 U	4.1 U	4.4 U	3.9 U	4 U
	GAMMA-BHC (LINDANE)	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	GAMMA-CHLORDANE	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	HEPTACHLOR	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	HEPTACHLOR EPOXIDE	2 UJ	2.1 U	1.9 U	2.1 U	2.2 U	2 U	2.1 U
	METHOXYCHLOR	20 UJ	21 U	19 U	21 U	22 U	20 U	21 U
	TOTAL AROCLOR	44.5 J	21 U	19 U	26 J	400	630	241
	TOTAL DDD/DDE/DDT	3.8 UJ	4 U	3.8 U	6.2 J	19.9	21.4 J	2.4 J
	TOXAPHENE	38 UJ	40 U	38 U	41 U	44 U	39 U	40 U
METALS (MG/KG)	ALUMINUM	9860	10600	7500	10800	13600	12600	12800
	ANTIMONY	0.09 UJ	0.09 U	0.08 U	0.09 UJ	0.16 U	0.19 U	0.16 UJ
	ARSENIC	11.4	16.7	8.3	9.4	20.8	17.6	15.6
	BARIUM	24.8	19.1	22.3	21.2	24.1	22.6	28.5
	BERYLLIUM	0.465 J	0.32 J	0.42 J	0.31 J	0.38 J	0.36 J	0.44 J
	CADMIUM	0.41 J	0.73 J	0.3 J	0.01 UJ	1.1 J	0.44 J	0.56 J
	CALCIUM	1340 J	949	1370	994	1400	1380	1320
	CHROMIUM	16.5	13.1	8.3	13.9	28.1	15.9	16.4
	COBALT	7.55	11.5	6.2	11.2	13	11.7	12.7
	COPPER	17.3 J	19	11	16.6 J	25.2	21.4	23.1 J
	IRON	19600	23500	15500	21600	31400	27200	27100
	LEAD	23.2	55	17.3	63.7	81.8	22.8	33.9
	MAGNESIUM	2520 J	2910	1860	3270	3780	3550	3660
	MANGANESE	364 J	389	381	443	424	363	397
	MERCURY	0.04 J	0.04	0.03 J	0.05	0.05	0.04	0.06
	MOLYBDENUM	0.41 J	1.2 J	0.29 J	1.8 J	0.68 J	0.38 J	0.53 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	NICKEL	16.4	18.7	10.4	18.3	26.4	22.6	23.3
	POTASSIUM	784 J	396	784	475	626	522	608
	SELENIUM	0.15 UJ	0.16 U	0.13 U	0.26 J	0.27 U	0.33 U	0.67 J
	SILVER	0.045 UJ	0.55 J	0.2 UJ	0.05 UJ	0.66 J	0.57 UJ	0.58 J
	SODIUM	41.7 J	28.6 UJ	35.8 J	26.6 UJ	40.3 UJ	45.8 UJ	41.3 UJ
	THALLIUM	0.05 UJ	0.04 U	0.07 UJ	0.07 UJ	0.03 U	0.04 U	0.06 UJ
	VANADIUM	17.2	17.7	10.5	17.9	27.6	19.6	22.9
	ZINC	61.3	57.2	46.1	56	121	80.7	97.6
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	1	NA	NA	2.9	NA
	HYDROMETER-12.9UM	NA	NA	3.5	NA	NA	3.4	NA
	HYDROMETER-20.5UM	NA	NA	3.5	NA	NA	4.5	NA
	HYDROMETER-3.4UM	NA	NA	2.5	NA	NA	4	NA
	HYDROMETER-30.5UM	NA	NA	8	NA	NA	13.8	NA
	HYDROMETER-6.6UM	NA	NA	1.5	NA	NA	1.7	NA
	HYDROMETER-9.1UM	NA	NA	2	NA	NA	2.8	NA
	PERCENT CLAY	NA	NA	6.4	NA	NA	9.6	NA
	PERCENT COARSE SAND	NA	NA	12.8	NA	NA	8.9	NA
	PERCENT FINE SAND	NA	NA	16.8	NA	NA	17.9	NA
	PERCENT GRAVEL	NA	NA	31.3	NA	NA	23.1	NA
	PERCENT MEDIUM SAND	NA	NA	14.3	NA	NA	14.2	NA
	PERCENT SILT	NA	NA	18.4	NA	NA	26.2	NA
	SIEVE 1"	NA	NA	0	NA	NA	0	NA
	SIEVE 1-1/2"	NA	NA	0	NA	NA	0	NA
	SIEVE 2"	NA	NA	0	NA	NA	0	NA
	SIEVE 3"	NA	NA	0	NA	NA	0	NA
	SIEVE 3/4"	NA	NA	0	NA	NA	0	NA
	SIEVE 3/8"	NA	NA	11.8	NA	NA	14	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB125	DA-SB126	DA-SB127	DA-SB128	DA-SB129	DA-SB130	DA-SB131
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	01/14/08	01/15/08	01/16/08	01/14/08	01/15/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB125-0001-LOCDEPTHMAX	DA-SB126-0001-LOCDEPTHMAX	DA-SB127-0001-LOCDEPTHMAX	DA-SB128-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	SIEVE NO. 004	NA	NA	19.4	NA	NA	9.1	NA
	SIEVE NO. 010	NA	NA	12.8	NA	NA	8.9	NA
	SIEVE NO. 020	NA	NA	8.1	NA	NA	8.1	NA
	SIEVE NO. 040	NA	NA	6.2	NA	NA	6.2	NA
	SIEVE NO. 060	NA	NA	5.5	NA	NA	5.6	NA
	SIEVE NO. 080	NA	NA	3.6	NA	NA	3.7	NA
	SIEVE NO. 100	NA	NA	1.6	NA	NA	1.8	NA
	SIEVE NO. 200	NA	NA	6	NA	NA	6.8	NA
	TOTAL SOLIDS	95	90.5	96	87	85	85	86
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	8300	NA	NA	30000	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	5.1	NA	NA	5.6	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	106	260	1600	26 J	86	42	120 J
	GASOLINE RANGE ORGANICS	2.75 U	3.2 U	2.5 U	3.2 U	3.2 U	2.8 U	3.2 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,1,1-TRICHLOROETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,1,2,2-TETRACHLOROETHANE	5 UJ	5 UJ	5 U	6 UJ	9.5 UJ	5 U	6 UJ
	1,1,2-TRICHLOROETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,1-DICHLOROETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,1-DICHLOROETHENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,1-DICHLOROPROPENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,2,3-TRICHLOROBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,2,3-TRICHLOROPROPANE	5 UJ	5 UJ	5 U	6 UJ	9.5 UJ	5 U	6 UJ
	1,2,4-TRICHLOROBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,2,4-TRIMETHYLBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 UJ	6 UJ
	1,2-DIBROMOETHANE	5 U	5 UJ	5 U	6 UJ	9.5 UJ	5 U	6 UJ
	1,2-DICHLOROBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,2-DICHLOROETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,2-DICHLOROPROPANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,3,5-TRIMETHYLBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,3-DICHLOROBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,3-DICHLOROPROPANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	1,4-DICHLOROBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	2,2-DICHLOROPROPANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	2-BUTANONE	25 U	26 UJ	25 U	29 U	49.5 UJ	25 U	30 UJ
	2-CHLOROTOLUENE	5 UJ	5 UJ	5 U	6 UJ	9.5 UJ	5 U	6 UJ
	2-HEXANONE	25 U	26 UJ	25 U	29 U	49.5 UJ	25 U	30 UJ
	4-CHLOROTOLUENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	4-ISOPROPYLTOLUENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	4-METHYL-2-PENTANONE	25 U	26 UJ	25 U	29 U	49.5 UJ	25 U	30 UJ
	ACETONE	25	1100 J	340	120 J	99.5 J	1700 U	140 J
	BENZENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	BROMOBENZENE	5 UJ	5 UJ	5 U	6 UJ	9.5 UJ	5 U	6 UJ
	BROMOCHLOROMETHANE	5 U	5 UJ	5 UJ	6 U	9.5 UJ	5 U	6 UJ
	BROMODICHLOROMETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	BROMOFORM	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	BROMOMETHANE	10 U	10 UJ	10 U	12 U	20 UJ	10 U	12 UJ
	BTEX	5.6 U	5.6 UJ	5.6 U	6.8 U	11 UJ	5.6 U	6.8 UJ
	CARBON DISULFIDE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	CARBON TETRACHLORIDE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	CHLOROBENZENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	CHLORODIBROMOMETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	CHLOROETHANE	10 UJ	10 UJ	10 U	12 U	20 UJ	10 UJ	12 UJ
	CHLOROFORM	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	CHLOROMETHANE	10 U	10 UJ	10 U	12 U	20 UJ	10 U	12 UJ
	CIS-1,2-DICHLOROETHENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	CIS-1,3-DICHLOROPROPENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	DIBROMOMETHANE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	DICHLORODIFLUOROMETHANE	10 U	10 UJ	10 U	12 U	20 UJ	10 U	12 UJ
	ETHYLBENZENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	HEXACHLOROBUTADIENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	ISOPROPYLBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	M+P-XYLENES	10 U	10 UJ	10 U	12 U	20 UJ	10 U	12 UJ
	METHYL TERT-BUTYL ETHER	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	METHYLENE CHLORIDE	25 U	26 UJ	25 U	29 U	49.5 UJ	25 U	30 UJ
	N-BUTYLBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-PROPYLBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	O-XYLENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	SEC-BUTYLBENZENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	STYRENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	TERT-BUTYLBENZENE	5 UJ	5 UJ	5 U	6 UJ	9.5 UJ	5 U	6 UJ
	TETRACHLOROETHENE	5 UJ	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	TOLUENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	TOTAL 1,2-DICHLOROETHENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	TOTAL CHLORINATED ETHENES	6.2 UJ	6.2 UJ	6.2 U	7.5 U	8.5 J	6.2 U	7.5 UJ
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	7.8 UJ	8.5 J	6.6 UJ	7.9 UJ
	TOTAL XYLENES	7.5 U	7.5 UJ	7.5 U	9 U	15 UJ	7.5 U	9 UJ
	TRANS-1,2-DICHLOROETHENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	TRANS-1,3-DICHLOROPROPENE	5 U	5 UJ	5 U	6 U	9.5 UJ	5 U	6 UJ
	TRICHLOROETHENE	5 U	5 UJ	5 U	6 U	8.5 J	5 U	6 UJ
	TRICHLOROFLUOROMETHANE	10 U	10 UJ	10 U	12 U	20 UJ	10 U	12 UJ
	VINYL CHLORIDE	10 U	10 UJ	10 U	12 U	20 UJ	10 U	12 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	1,2-DIPHENYLHYDRAZINE	800 U	810 U	750 U	840 U	815 U	780 U	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2,4,5-TRICHLOROPHENOL	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA
	2,4,6-TRICHLOROPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2,4-DICHLOROPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2,4-DIMETHYLPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2,4-DINITROPHENOL	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA
	2,4-DINITROTOLUENE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2,6-DICHLOROPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2,6-DINITROTOLUENE	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	2-CHLORONAPHTHALENE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2-CHLOROPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2-METHYLNAPHTHALENE	140	90	13 J	23 U	6.6 J	22 U	22 U
	2-METHYLPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	2-NITROANILINE	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA
	2-NITROPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	3&4-METHYLPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	3,3'-DICHLOROBENZIDINE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	3-NITROANILINE	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA
	4,6-DINITRO-2-METHYLPHENOL	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA
	4-BROMOPHENYL PHENYL ETHER	400 U	410 U	380 U	420 U	410 U	390 U	NA
	4-CHLORO-3-METHYLPHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	4-CHLOROANILINE	400 U	410 U	380 U	420 U	410 U	390 UJ	NA
	4-CHLOROPHENYL PHENYL ETHER	400 U	410 U	380 U	420 U	410 U	390 U	NA
	4-NITROANILINE	990 U	1000 U	930 U	1000 U	1000 U	960 U	NA
	4-NITROPHENOL	990 U	1000 U	930 U	1000 U	1000 UJ	960 UJ	NA
	ACENAPHTHENE	240	610 J	76	10 J	23 U	9.9 J	10 J
	ACENAPHTHYLENE	23 U	10 J	23 UJ	3.6 J	23 U	4.3 J	22 U
	ANTHRACENE	390	1800	190	17 J	6.45 J	13 J	15 J
	BENZIDINE	1800 UJ	1800 UJ	1700 UJ	1900 UJ	1850 UJ	1800 UJ	NA
	BENZO(A)ANTHRACENE	870 J	3000	1100	130	38	110	130
	BENZO(A)PYRENE	750 J	2100	280	99	41.5 J	100	99
	BENZO(B)FLUORANTHENE	650	2900	250	170	30.5 J	78	190
	BENZO(G,H,I)PERYLENE	360 J	1300	130 J	64	31 J	48	46
	BENZO(K)FLUORANTHENE	620	1200	280	66	32 J	68 J	74
	BENZOIC ACID	990 U	1000 U	930 UJ	1000 U	1000 U	520 J	NA

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	BENZYL ALCOHOL	800 U	810 U	750 U	840 U	815 U	780 U	NA
	BIS(2-CHLOROETHOXY)METHANE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	BIS(2-CHLOROETHYL)ETHER	400 U	410 U	380 U	420 U	410 U	390 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	400 UJ	410 U	380 U	420 U	410 UJ	390 UJ	NA
	BUTYL BENZYL PHTHALATE	400 UJ	410 U	380 U	420 U	410 UJ	390 UJ	NA
	CARBAZOLE	400 U	270 J	380	420 U	410 U	390 U	NA
	CHRYSENE	970	2800	1000	99	46.5 J	110	99
	DIBENZO(A,H)ANTHRACENE	190	380 J	52	23 U	23 U	25	22 U
	DIBENZOFURAN	400 U	410 U	380 U	420 U	410 U	390 U	NA
	DIETHYL PHTHALATE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	DIMETHYL PHTHALATE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	DI-N-BUTYL PHTHALATE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	DI-N-OCTYL PHTHALATE	400 UJ	410 U	380 U	420 U	410 UJ	390 UJ	NA
	FLUORANTHENE	1600	7400	2400	200	95.5	190	230
	FLUORENE	190	640 J	81 J	8.9 J	23 U	6.8 J	9.3 J
	HEXACHLOROBENZENE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	HEXACHLOROETHANE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	HIGH MOLECULAR WEIGHT PAHS	8640 J	28080 J	7632 J	1073	396.5 J	967 J	1129
	INDENO(1,2,3-CD)PYRENE	370 J	1900	140 J	55	33.5 J	65	41
	ISOPHORONE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	LOW MOLECULAR WEIGHT PAHS	3496	8280 J	2494 J	145.9 J	61.85 J	112 J	136.6 J
	NAPHTHALENE	36	140 J	34	23 U	6.8 J	22 U	2.3 J
	NITROBENZENE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	N-NITROSODIMETHYLAMINE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	N-NITROSO-DI-N-PROPYLAMINE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	N-NITROSODIPHENYLAMINE	400 U	410 U	380 U	420 U	410 U	390 U	NA

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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-NITROSOPYRROLIDINE	400 U	410 U	380 U	420 U	410 U	390 U	NA
	PENTACHLOROPHENOL	990 U	1000 U	930 UJ	1000 U	1000 U	960 U	NA
	PHENANTHRENE	2500	5000	2100	110	42	78	100
	PHENOL	400 U	410 U	380 U	420 U	410 U	390 U	NA
	PYRENE	3200	5100	2000	190	48	180 J	220
	TOTAL PAHS	12136 J	36360 J	10126 J	1218.9 J	458.35 J	1079 J	1265.6 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ	3.9 UJ	NA
	4,4'-DDE	2.7 J	2.2 J	3.8 UJ	1.6 J	1.62 J	3.9 UJ	NA
	4,4'-DDT	5.4	4.1 U	3.8 U	1.7 J	2.98 J	3.9 UJ	NA
	ALDRIN	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ	2 UJ	NA
	ALPHA-BHC	2 U	2.1 U	1.9 UJ	2.2 U	2.1 U	2 UJ	NA
	ALPHA-CHLORDANE	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ	2 UJ	NA
	AROCLOR-1016	20 U	21 U	19 U	22 UJ	21 UJ	20 U	NA
	AROCLOR-1221	20 U	21 U	19 U	22 U	21 U	20 U	NA
	AROCLOR-1232	20 U	21 U	19 U	22 U	21 U	20 U	NA
	AROCLOR-1242	20 U	21 U	19 U	22 U	21 U	20 U	NA
	AROCLOR-1248	20 U	21 U	19 U	22 U	21 U	20 U	NA
	AROCLOR-1254	20 U	21 U	19 U	22 U	21 U	20 U	NA
	AROCLOR-1260	67	130	19 U	22 U	32.2 J	20 U	NA
	AROCLOR-1268	290 J	21 U	19 U	22 U	21 U	20 U	NA
	BETA-BHC	2 U	2.1 U	1.9 UJ	2.2 U	2.1 U	2 UJ	NA
	DELTA-BHC	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ	2 UJ	NA
	DIELDRIN	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ	3.9 UJ	NA
	ENDOSULFAN I	2 U	2.1 U	1.9 UJ	2.2 U	2.1 U	2 UJ	NA
	ENDOSULFAN II	4 U	4.1 U	3.8 U	4.2 U	4.1 U	3.9 UJ	NA
	ENDOSULFAN SULFATE	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ	3.9 UJ	NA

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	ENDRIN	4 U	4.1 U	3.8 U	4.2 U	4.1 UJ	3.9 UJ	NA
	ENDRIN ALDEHYDE	4 U	4.1 U	3.8 U	4.2 U	4.1 U	3.9 UJ	NA
	ENDRIN KETONE	4 U	4.1 U	3.8 U	4.2 U	4.1 U	3.9 UJ	NA
	GAMMA-BHC (LINDANE)	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ	2 UJ	NA
	GAMMA-CHLORDANE	2 U	2.1 U	1.9 U	2.2 U	2.1 UJ	2 UJ	NA
	HEPTACHLOR	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ	2 UJ	NA
	HEPTACHLOR EPOXIDE	2 U	2.1 U	1.9 UJ	2.2 U	2.1 UJ	2 UJ	NA
	METHOXYCHLOR	20 U	21 U	19 U	22 U	21 U	20 UJ	NA
	TOTAL AROCLOR	357 J	130	19 U	22 UJ	32.2 J	20 U	NA
	TOTAL DDD/DDE/DDT	8.1 J	2.2 J	3.8 UJ	3.3 J	4.6 J	3.9 UJ	NA
	TOXAPHENE	40 U	41 U	38 U	42 U	41 U	39 UJ	NA
METALS (MG/KG)	ALUMINUM	15000	11400	13600	16900	16200	11500	NA
	ANTIMONY	0.2 U	0.16 U	0.1 UJ	0.21 U	0.215 UJ	0.17 UJ	NA
	ARSENIC	17.6	18.2	23.1	15.1	13.6	26.9	NA
	BARIUM	30.9	28.2	23.5	26.4	23.6	19.4	NA
	BERYLLIUM	0.43 J	0.39 J	0.43 J	0.48 J	0.52 J	0.45 J	NA
	CADMIUM	0.81 J	3.2	0.01 UJ	0.46 J	0.11 UJ	0.24 UJ	NA
	CALCIUM	607	2990	2440	442	452 J	251 J	NA
	CHROMIUM	17.9	18.9	16.5	19.4	17.6	16.2	NA
	COBALT	11.6	11.7	13.6	13.2	7	9.5	NA
	COPPER	33.6	41.2	19.4	30.1	19.4 J	26.7 J	NA
	IRON	29500	28800	29400	32100	30800	31500	NA
	LEAD	35.6	50.8	14.1	20.8	20	20.6	NA
	MAGNESIUM	3560	3190	3590	4100	3040 J	2910 J	NA
	MANGANESE	396	337	411	326	220 J	248 J	NA
	MERCURY	0.12	2	0.08	0.04	0.045	0.03 J	NA
	MOLYBDENUM	0.49 J	0.70 J	0.34 J	0.41 J	0.535 J	0.58 J	NA

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	NICKEL	27	24.7	24.3	27.3	18.7	24.3	NA
	POTASSIUM	416	441	572	550	468 J	444 J	NA
	SELENIUM	0.34 U	0.27 U	0.7 UJ	0.36 U	0.495 UJ	0.3 UJ	NA
	SILVER	0.78 J	0.98 J	0.79 J	0.74 J	0.095 UJ	0.09 UJ	NA
	SODIUM	41.8 UJ	49.4 J	50.6 J	47 UJ	44.4 J	38.4 J	NA
	THALLIUM	0.05 UJ	0.05 UJ	0.03 UJ	0.05 UJ	0.08 UJ	0.04 UJ	NA
	VANADIUM	21.3	19.3	20.5	25	29.5	36.7	NA
	ZINC	87	97.2	58.6	62.7	53.4	58.5	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	1.3	NA	2.1	NA	NA	NA
	HYDROMETER-12.9UM	NA	3.5	NA	8.1	NA	NA	NA
	HYDROMETER-20.5UM	NA	3.5	NA	7.4	NA	NA	NA
	HYDROMETER-3.4UM	NA	2.9	NA	5.4	NA	NA	NA
	HYDROMETER-30.5UM	NA	8.2	NA	22.7	NA	NA	NA
	HYDROMETER-6.6UM	NA	1.7	NA	2	NA	NA	NA
	HYDROMETER-9.1UM	NA	1.7	NA	4.8	NA	NA	NA
	PERCENT CLAY	NA	6.4	NA	10.8	NA	NA	NA
	PERCENT COARSE SAND	NA	9.9	NA	7.6	NA	NA	NA
	PERCENT FINE SAND	NA	15.3	NA	14.8	NA	NA	NA
	PERCENT GRAVEL	NA	34.7	NA	10.6	NA	NA	NA
	PERCENT MEDIUM SAND	NA	15	NA	11.1	NA	NA	NA
	PERCENT SILT	NA	18.7	NA	45.1	NA	NA	NA
	SIEVE 1"	NA	0	NA	0	NA	NA	NA
	SIEVE 1-1/2"	NA	0	NA	0	NA	NA	NA
	SIEVE 2"	NA	0	NA	0	NA	NA	NA
	SIEVE 3"	NA	0	NA	0	NA	NA	NA
	SIEVE 3/4"	NA	6.4	NA	0	NA	NA	NA
	SIEVE 3/8"	NA	16.1	NA	5.8	NA	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB132	DA-SB133	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	0	0	1	0	0	0	0
	BOTTOM DEPTH	1	1	2	1	1	1	1
	SAMPLE DATE	01/14/08	01/15/08	02/27/08	01/15/08	01/11/08	01/10/08	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB132-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX	DA-SB133-0102	DA-SB134-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	SIEVE NO. 004	NA	12.2	NA	4.9	NA	NA	NA
	SIEVE NO. 010	NA	9.9	NA	7.6	NA	NA	NA
	SIEVE NO. 020	NA	8.7	NA	6.3	NA	NA	NA
	SIEVE NO. 040	NA	6.3	NA	4.8	NA	NA	NA
	SIEVE NO. 060	NA	5	NA	3.9	NA	NA	NA
	SIEVE NO. 080	NA	3.2	NA	2.8	NA	NA	NA
	SIEVE NO. 100	NA	1.5	NA	1.4	NA	NA	NA
	SIEVE NO. 200	NA	5.7	NA	6.8	NA	NA	NA
	TOTAL SOLIDS	85	87	88	88	87	89	90
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	76000	NA	40000	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	5.3	NA	5.1	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	90	100	31	41	95	36	NA
	GASOLINE RANGE ORGANICS	3.2 U	3.2 U	3.3 U	3.7 U	5.4 U	3.4 U	4.0 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,1,1-TRICHLOROETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	1,1,2,2-TETRACHLOROETHANE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	1,1,2-TRICHLOROETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,1-DICHLOROETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,1-DICHLOROETHENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	1,1-DICHLOROPROPENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,2,3-TRICHLOROBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	1,2,3-TRICHLOROPROPANE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	1,2,4-TRICHLOROBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	1,2,4-TRIMETHYLBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	1,2-DIBROMO-3-CHLOROPROPANE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	1,2-DIBROMOETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,2-DICHLOROBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	1,2-DICHLOROETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,2-DICHLOROPROPANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,3,5-TRIMETHYLBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	1,3-DICHLOROBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	1,3-DICHLOROPROPANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	1,4-DICHLOROBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	2,2-DICHLOROPROPANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	2-BUTANONE	38 UJ	31 U	25 U	27 U	27 U	34 UJ	32 U
	2-CHLOROTOLUENE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	2-HEXANONE	38 UJ	31 U	25 U	27 U	27 U	34 UJ	32 U
	4-CHLOROTOLUENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	4-ISOPROPYLTOLUENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	4-METHYL-2-PENTANONE	38 UJ	31 U	25 U	27 U	27 UJ	34 UJ	32 U
	ACETONE	1600 UJ	47	19 J	170 J	87	2200 UJ	24 J
	BENZENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	BROMOBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	BROMOCHLOROMETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	BROMODICHLOROMETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	BROMOFORM	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	BROMOMETHANE	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 UJ
	BTEX	9 UJ	6.8 U	5.6 U	5.8 U	5.8 U	7.8 UJ	6.9 U
	CARBON DISULFIDE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	CARBON TETRACHLORIDE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	CHLOROBENZENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	CHLORODIBROMOMETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	CHLOROETHANE	15 UJ	12 UJ	10 UJ	11 UJ	11 U	13 UJ	13 UJ
	CHLOROFORM	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	CHLOROMETHANE	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 U
	CIS-1,2-DICHLOROETHENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	CIS-1,3-DICHLOROPROPENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	DIBROMOMETHANE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	DICHLORODIFLUOROMETHANE	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 U
	ETHYLBENZENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	HEXACHLOROBUTADIENE	8 UJ	6 UJ	5 UJ	5 UJ	5 UJ	7 UJ	6 U
	ISOPROPYLBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	M+P-XYLENES	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 U
	METHYL TERT-BUTYL ETHER	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	METHYLENE CHLORIDE	38 UJ	31 U	25 U	3 J	27 U	34 UJ	32 UJ
	N-BUTYLBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-PROPYLBENZENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	O-XYLENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	SEC-BUTYLBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	STYRENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	TERT-BUTYLBENZENE	8 UJ	6 UJ	5 UJ	5 UJ	5 U	7 UJ	6 U
	TETRACHLOROETHENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	TOLUENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	TOTAL 1,2-DICHLOROETHENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	TOTAL CHLORINATED ETHENES	9.8 UJ	7.5 U	6.2 U	6.5 U	6.5 U	8.5 UJ	7.8 UJ
	TOTAL CHLORINATED VOCS	10 UJ	7.9 UJ	6.6 UJ	3 J	6.8 UJ	9 UJ	8.1 UJ
	TOTAL XYLENES	12 UJ	9 U	7.5 U	8 U	8 U	10 UJ	9.5 U
	TRANS-1,2-DICHLOROETHENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 UJ
	TRANS-1,3-DICHLOROPROPENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	TRICHLOROETHENE	8 UJ	6 U	5 U	5 U	5 U	7 UJ	6 U
	TRICHLOROFLUOROMETHANE	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 UJ
	VINYL CHLORIDE	15 UJ	12 U	10 U	11 U	11 U	13 UJ	13 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	1,2-DIPHENYLHYDRAZINE	840 U	820 U	770 U	770 U	760 U	970 UJ	950 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	420 U	410 U	380 U	380 U	380 U	480 UJ	480 U
	2,4,5-TRICHLOROPHENOL	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	2,4,6-TRICHLOROPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2,4-DICHLOROPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2,4-DIMETHYLPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2,4-DINITROPHENOL	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	2,4-DINITROTOLUENE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2,6-DICHLOROPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2,6-DINITROTOLUENE	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	2-CHLORONAPHTHALENE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2-CHLOROPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2-METHYLNAPHTHALENE	22 U	22 U	23 U	6.1 J	11 J	8.5 J	27 U
	2-METHYLPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	2-NITROANILINE	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	2-NITROPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	3&4-METHYLPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	3,3'-DICHLOROBENZIDINE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	3-NITROANILINE	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	4,6-DINITRO-2-METHYLPHENOL	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	4-BROMOPHENYL PHENYL ETHER	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	4-CHLORO-3-METHYLPHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	4-CHLOROANILINE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	4-CHLOROPHENYL PHENYL ETHER	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	4-NITROANILINE	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	4-NITROPHENOL	1000 UJ	1000 U	950 U	960 U	940 U	1200 U	1200 U
	ACENAPHTHENE	22 U	21 J	3.2 J	6.7 J	48	11 J	2.4 J
	ACENAPHTHYLENE	22 U	7.1 J	23 U	22 U	10 J	3.3 J	27 U
	ANTHRACENE	22 U	30	5.6 J	10 J	110	31	4 J
	BENZIDINE	1900 R	1900 UJ	1700 UJ	1700 UJ	1700 UJ	2200 R	2200 UJ
	BENZO(A)ANTHRACENE	16 J	190	57	70	310	110	22 J
	BENZO(A)PYRENE	18 J	180 J	45	66	270	120	21 J
	BENZO(B)FLUORANTHENE	30	130 J	90	110	300	130	31
	BENZO(G,H,I)PERYLENE	14 J	98 J	25	40 J	160	77	16 J
	BENZO(K)FLUORANTHENE	16 J	140 J	29	47	270	100	22 J
	BENZOIC ACID	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	BENZYL ALCOHOL	840 U	820 U	770 U	770 U	760 U	970 U	950 U
	BIS(2-CHLOROETHOXY)METHANE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	BIS(2-CHLOROETHYL)ETHER	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	BIS(2-ETHYLHEXYL)PHTHALATE	420 UJ	280 J	380 UJ	4300 J	380 UJ	480 UJ	480 UJ
	BUTYL BENZYL PHTHALATE	420 UJ	410 UJ	380 UJ	380 UJ	380 U	480 UJ	480 UJ
	CARBAZOLE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	CHRYSENE	20 J	250	45	71 J	350	140	24 J
	DIBENZO(A,H)ANTHRACENE	22 U	55 J	5.4 J	17 J	95	40	27 U
	DIBENZOFURAN	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	DIETHYL PHTHALATE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	DIMETHYL PHTHALATE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	DI-N-BUTYL PHTHALATE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	DI-N-OCTYL PHTHALATE	420 UJ	410 UJ	380 UJ	380 UJ	380 UJ	480 UJ	480 UJ
	FLUORANTHENE	36	430	91	130	700	240	50
	FLUORENE	22 U	14 J	2.9 J	5.1 J	40	11 J	27 U
	HEXACHLOROBENZENE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	HEXACHLOROETHANE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	HIGH MOLECULAR WEIGHT PAHS	167 J	1983 J	502.4 J	660.2 J	2960	1199	226 J
	INDENO(1,2,3-CD)PYRENE	15 J	110 J	20 J	45	180	87	19 J
	ISOPHORONE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	LOW MOLECULAR WEIGHT PAHS	18.9 J	272.1 J	56.7 J	89.1 J	754 J	216.9 J	29.1 J
	NAPHTHALENE	6.9 J	22 U	6.3 J	6.4 J	15 J	11 J	27 U
	NITROBENZENE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	N-NITROSODIMETHYLAMINE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	N-NITROSO-DI-N-PROPYLAMINE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	N-NITROSODIPHENYLAMINE	420 U	410 U	380 U	380 U	380 U	480 UJ	480 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	N-NITROSOPYRROLIDINE	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	PENTACHLOROPHENOL	1000 U	1000 U	950 U	960 U	940 U	1200 U	1200 U
	PHENANTHRENE	12 J	200	45	65	520	150	23 J
	PHENOL	420 U	410 U	380 U	380 U	380 U	480 U	480 U
	PYRENE	32	400	95	140	490	200	35
	TOTAL PAHS	185.9 J	2255.1 J	559.1 J	745.8 J	3714 J	1415.9 J	255.1 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.2 UJ	4.1 UJ	3.8 UJ	3.8 UJ	3.8 U	5.1 J	2.6 J
	4,4'-DDE	4.2 UJ	2.4 J	1.4 J	1.5 J	3.9 J	8 J	7.9
	4,4'-DDT	4.2 UJ	4.1 UJ	1.2 J	1.8 J	14 J	12 J	5.1 J
	ALDRIN	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	2.4 U
	ALPHA-BHC	2.2 U	2.1 UJ	2 U	2 U	2 U	2.5 U	2.4 U
	ALPHA-CHLORDANE	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	3.2 J
	AROCLOR-1016	22 UJ	21 UJ	20 UJ	20 UJ	20 UJ	25 UJ	24 UJ
	AROCLOR-1221	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	AROCLOR-1232	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	AROCLOR-1242	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	AROCLOR-1248	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	AROCLOR-1254	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	AROCLOR-1260	22 UJ	74 J	20 UJ	20 UJ	250 J	68 J	24 UJ
	AROCLOR-1268	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	BETA-BHC	2.2 U	2.1 UJ	2 U	2 U	2 U	2.5 U	2.4 U
	DELTA-BHC	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	2.4 U
	DIELDRIN	4.2 UJ	4.1 UJ	1.3 J	3.8 UJ	3.8 U	4.8 U	4.1 J
	ENDOSULFAN I	2.2 U	2.1 UJ	2 U	2 U	2 U	2.5 U	2.4 U
	ENDOSULFAN II	4.2 U	4.1 UJ	3.8 U	3.8 U	3.8 U	4.8 U	4.8 U
	ENDOSULFAN SULFATE	4.2 UJ	4.1 UJ	3.8 UJ	3.8 UJ	3.8 U	4.8 U	4.8 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	ENDRIN	4.2 UJ	4.1 UJ	3.8 UJ	3.8 UJ	3.8 U	2.4 J	4.8 U
	ENDRIN ALDEHYDE	4.2 U	4.1 UJ	3.8 U	3.8 U	3.8 U	4.8 U	4.8 U
	ENDRIN KETONE	4.2 U	4.1 UJ	3.8 U	3.8 U	3.8 U	4.8 U	4.8 U
	GAMMA-BHC (LINDANE)	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	2.4 U
	GAMMA-CHLORDANE	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	3.2
	HEPTACHLOR	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	2.4 U
	HEPTACHLOR EPOXIDE	2.2 UJ	2.1 UJ	2 UJ	2 UJ	2 U	2.5 U	2.4 U
	METHOXYCHLOR	22 U	21 UJ	20 U	20 U	20 U	25 U	24 U
	TOTAL AROCLOR	22 UJ	74 J	20 UJ	20 UJ	250 J	68 J	24 UJ
	TOTAL DDD/DDE/DDT	4.2 UJ	2.4 J	2.6 J	3.3 J	17.9 J	25.1 J	15.6 J
	TOXAPHENE	42 U	41 UJ	38 U	38 U	38 U	48 U	48 U
METALS (MG/KG)	ALUMINUM	17600	15700	14100	12600	12200	17600	16100
	ANTIMONY	0.09 UJ	0.21 UJ	0.14 UJ	0.16 UJ	0.15 UJ	0.19 UJ	0.17 UJ
	ARSENIC	7.5	10.6	26.6	15.4	14.5	16.8	13.9
	BARIUM	25.3	21.3	27.5	18.7	22.9	32.6	27.6
	BERYLLIUM	0.54	0.49 J	0.51 J	0.43 J	0.54 J	0.58 J	0.58 J
	CADMIUM	0.24 UJ	0.19 UJ	0.02 U	0.28 UJ	0.26 J	0.02 UJ	0.02 UJ
	CALCIUM	305 J	363 J	531 J	732 J	616 J	491 J	580 J
	CHROMIUM	15.2	16.9	22.5	15.5	16.1	19	16.1
	COBALT	2.2 J	4.7 J	15.8	10.8	10.4	28.4	11.7
	COPPER	9.1 J	17.2 J	23.5 J	16.5 J	21.2	20.4	12.7
	IRON	18100	21500	37200	24600	25300	33600	30700
	LEAD	42.7	43.5	12.6	69.7	33.6	45.9	18.6
	MAGNESIUM	1210 J	2220 J	3720 J	3450 J	2950	3140	2520
	MANGANESE	79.8 J	150 J	517 J	359 J	354	866	231
	MERCURY	0.03 J	0.06	0.02 J	0.02 J	0.08	0.08	0.03 J
	MOLYBDENUM	0.50 J	0.63 J	0.46 J	0.22 J	0.49 J	0.53 J	0.59 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	NICKEL	8.7 J	15.3	28.3	21.1	19.6	27.4	24.7
	POTASSIUM	301 J	354 J	586 J	421 J	416 J	380 J	319 J
	SELENIUM	0.6 UJ	0.44 UJ	0.24 U	0.21 UJ	0.36 UJ	0.37 UJ	0.3 UJ
	SILVER	0.05 UJ	0.05 UJ	0.07 UJ	0.05 UJ	0.08 UJ	0.1 UJ	0.09 UJ
	SODIUM	44.3 J	40.6 J	56.5 J	52.4 J	32.9 J	34.5 J	41.9 J
	THALLIUM	0.1 UJ	0.08 UJ	0.05 UJ	0.04 U	0.1 UJ	0.08 UJ	0.1 UJ
	VANADIUM	27.2	47.2	19.9	21	21.5	36.2	21.3
	ZINC	31.5	56.2	63.9	49.7	59.1	108	65.3
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB139	DA-SB140	DA-SB141	DA-SB142	DA-SB143	DA-SB144
	TOP DEPTH	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1
	SAMPLE DATE	01/11/08	01/11/08	01/11/08	01/11/08	01/17/08	01/17/08	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX	DA-SB143-0001-LOCDEPTHMAX	DA-SB144-0001-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER							
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	91	93	83	93	84	77	74
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	68 J	76	19	22	57	96	24
	GASOLINE RANGE ORGANICS	3.3 UJ	3.6 U	2.8 U	2.6 U	3.2 U	4.5 U	4.4 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2-TRICHLOROETHANE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,1-DICHLOROETHANE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,2,3-TRICHLOROPROPANE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,4-TRICHLOROBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,2-DIBROMOETHANE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,2-DICHLOROETHANE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3-DICHLOROBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,3-DICHLOROPROPANE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	2,2-DICHLOROPROPANE	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	2-BUTANONE	30 U	29 U	7 J	25 U	25 U	16 J	14.2 J	25 U
	2-CHLOROTOLUENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-HEXANONE	30 U	29 U	25 U	25 U	25 UJ	25 U	25 U	25 U
	4-CHLOROTOLUENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	4-ISOPROPYLTOLUENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	4-METHYL-2-PENTANONE	30 U	29 U	25 U	25 U	25 UJ	25 UJ	25 UJ	25 UJ
	ACETONE	7900 J	700 J	610	53	27	76 J	51 J	26 J
	BENZENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	BROMOCHLOROMETHANE	6 UJ	6 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	BROMODICHLOROMETHANE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOFORM	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	BROMOMETHANE	12 UJ	12 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	BTEX	6.8 U	6.8 U	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 UJ	5.6 UJ
	CARBON DISULFIDE	6 UJ	6 UJ	2 J	5 U	5 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	CHLOROETHANE	12 UJ	12 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	CHLOROFORM	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROMETHANE	12 U	12 U	10 U	10 U	10 U	10 U	10 U	10 U
	CIS-1,2-DICHLOROETHENE	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	DIBROMOMETHANE	6 U	6 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U
	DICHLORODIFLUOROMETHANE	12 U	12 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHYLBENZENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	ISOPROPYLBENZENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	M+P-XYLENES	12 U	12 U	10 U	10 U	10 UJ	10 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	30 UJ	29 UJ	25 U	25 U	25 U	25 U	25 U	25 U
	N-BUTYLBENZENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	N-PROPYLBENZENE	6 U	6 U	5 U	5 U	2 J	5 U	5 U	5 U
	O-XYLENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 UJ	5 UJ
	SEC-BUTYLBENZENE	6 U	6 U	5 U	5 U	6 J	1 J	1.75 J	5 U
	STYRENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TERT-BUTYLBENZENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	TETRACHLOROETHENE	6 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	7.5 UJ	7.5 UJ	6.2 U	6.2 U	6.2 UJ	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	7.9 UJ	7.8 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 U	6.6 U	6.6 U
	TOTAL XYLENES	9 U	9 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 UJ	7.5 UJ
	TRANS-1,2-DICHLOROETHENE	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TRICHLOROETHENE	6 U	6 U	5 U	5 U	5 UJ	5 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	12 UJ	12 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	VINYL CHLORIDE	12 UJ	12 UJ	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	1,2-DIPHENYLHYDRAZINE	860 U	810 UJ	720 U	740 U	750 U	780 U	770 U	760 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	400 UJ	360 U	370 UJ	380 U	390 U	385 U	380 U
	2,4,5-TRICHLOROPHENOL	1100 U	1000 U	900 U	920 U	940 U	980 U	960 U	940 U
	2,4,6-TRICHLOROPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2,4-DICHLOROPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2,4-DIMETHYLPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2,4-DINITROPHENOL	1100 U	1000 U	900 U	920 U	940 UJ	980 U	960 U	940 U
	2,4-DINITROTOLUENE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2,6-DICHLOROPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2,6-DINITROTOLUENE	1100 U	1000 U	900 U	920 U	940 U	980 U	960 U	940 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	2-CHLORONAPHTHALENE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2-CHLOROPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2-METHYLNAPHTHALENE	12 J	8.7 J	22 U	22 U	3.9 J	24 U	23.5 U	23 U
	2-METHYLPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	2-NITROANILINE	1100 U	1000 U	900 U	920 U	940 U	980 U	960 U	940 U
	2-NITROPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	3&4-METHYLPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	3,3'-DICHLOROBENZIDINE	430 U	400 U	360 U	370 UJ	380 UJ	390 UJ	385 UJ	380 UJ
	3-NITROANILINE	1100 U	1000 U	900 U	920 UJ	940 U	980 U	960 U	940 U
	4,6-DINITRO-2-METHYLPHENOL	1100 U	1000 U	900 U	920 U	940 U	980 U	960 U	940 U
	4-BROMOPHENYL PHENYL ETHER	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	4-CHLORO-3-METHYLPHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	4-CHLOROANILINE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	4-CHLOROPHENYL PHENYL ETHER	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	4-NITROANILINE	1100 U	1000 U	900 U	920 U	940 UJ	980 U	960 U	940 U
	4-NITROPHENOL	1100 U	1000 U	900 U	920 U	940 U	980 U	960 U	940 U
	ACENAPHTHENE	90	21 J	2.7 J	1.8 J	4.7 J	24 U	23.5 U	23 U
	ACENAPHTHYLENE	30	9.9 J	22 U	22 U	23 U	24 U	23.5 U	23 U
	ANTHRACENE	400 J	50	5.6 J	3.1 J	7.2 J	1.8 J	6.65 J	23 U
	BENZIDINE	2000 UJ	1800 UJ	1600 UJ	1700 UJ	1700 UR	1800 UR	1750 UR	1700 UR
	BENZO(A)ANTHRACENE	2400	210	37	33	52 J	8.4 J	9.95 J	23 U
	BENZO(A)PYRENE	1800	230	33	38	53 J	12 J	9.35 J	6.7 J
	BENZO(B)FLUORANTHENE	2600	200	41	45	65	24 U	23.5 U	23 U
	BENZO(G,H,I)PERYLENE	1200 J	140	11 J	22 J	38	4 J	7.75 J	23 U
	BENZO(K)FLUORANTHENE	2000	190	20 J	21 J	40 J	24 UJ	23.5 UJ	23 UJ
	BENZOIC ACID	1100 U	1000 U	900 U	920 UJ	940 UJ	980 U	960 U	940 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	BENZYL ALCOHOL	860 U	810 U	720 U	740 U	750 U	780 U	770 U	760 U
	BIS(2-CHLOROETHOXY)METHANE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	BIS(2-CHLOROETHYL)ETHER	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	BIS(2-ETHYLHEXYL)PHTHALATE	4500 J	400 UJ	360 U	370 U	380 U	390 U	385 U	380 U
	BUTYL BENZYL PHTHALATE	270 J	400 UJ	360 U	370 U	380 U	390 U	385 U	380 U
	CARBAZOLE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	CHRYSENE	2500	290	35	33	63 J	8.8 J	6.05 J	3.3 J
	DIBENZO(A,H)ANTHRACENE	320	64	10 J	22 UJ	16 J	24 UJ	23.5 UJ	23 UJ
	DIBENZOFURAN	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	DIETHYL PHTHALATE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	DIMETHYL PHTHALATE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	DI-N-BUTYL PHTHALATE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	DI-N-OCTYL PHTHALATE	430 UJ	400 UJ	360 U	370 U	380 U	390 UJ	385 UJ	380 UJ
	FLUORANTHENE	5900	390	66	61	120 J	12 J	8.45 J	4.9 J
	FLUORENE	100	17 J	22 U	22 U	23 U	24 U	23.5 U	23 U
	HEXACHLOROBENZENE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	HEXACHLOROETHANE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	HIGH MOLECULAR WEIGHT PAHS	23900	2274	328 J	335 J	595 J	60.2 J	56.2 J	17.7 J
	INDENO(1,2,3-CD)PYRENE	1500	160	20 J	30 J	48	5 J	8.25 J	23 U
	ISOPHORONE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	LOW MOLECULAR WEIGHT PAHS	2646 J	379.6 J	47.3 J	38.9 J	82.3 J	8 J	11.25 J	3 J
	NAPHTHALENE	16 J	13 J	22 U	22 U	4.5 J	24 U	23.5 U	23 U
	NITROBENZENE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	N-NITROSODIMETHYLAMINE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	N-NITROSO-DI-N-PROPYLAMINE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	N-NITROSODIPHENYLAMINE	430 U	400 J	360 U	370 U	380 U	390 U	385 U	380 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	N-NITROSOPYRROLIDINE	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	PENTACHLOROPHENOL	1100 U	1000 U	900 U	920 UJ	940 U	980 U	960 U	940 U
	PHENANTHRENE	2000	260	39	34	62 J	6.2 J	4.6 J	3 J
	PHENOL	430 U	400 U	360 U	370 U	380 U	390 U	385 U	380 U
	PYRENE	4000	400	55	52	100 J	10 J	6.4 J	2.8 J
	TOTAL PAHS	26546 J	2653.6 J	375.3 J	373.9 J	677.3 J	68.2 J	67.45 J	20.7 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.3 U	4 U	2.7 J	3.7 U	NA	NA	NA	NA
	4,4'-DDE	4.3 U	2.4 J	1.2 J	3.7 U	NA	NA	NA	NA
	4,4'-DDT	4.3 U	16 J	3.6 UJ	3.7 UJ	NA	NA	NA	NA
	ALDRIN	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	ALPHA-BHC	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	ALPHA-CHLORDANE	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	AROCLOR-1016	22 UJ	21 U	19 U	19 U	NA	NA	NA	NA
	AROCLOR-1221	22 U	21 U	19 U	19 U	NA	NA	NA	NA
	AROCLOR-1232	22 U	21 U	19 U	19 U	NA	NA	NA	NA
	AROCLOR-1242	22 U	21 U	19 U	19 U	NA	NA	NA	NA
	AROCLOR-1248	22 U	21 U	19 U	19 U	NA	NA	NA	NA
	AROCLOR-1254	22 U	21 U	19 U	19 U	NA	NA	NA	NA
	AROCLOR-1260	350 J	140	19 U	19 UJ	NA	NA	NA	NA
	AROCLOR-1268	22 U	21 U	19 U	19 U	NA	NA	NA	NA
	BETA-BHC	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	DELTA-BHC	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	DIELDRIN	4.3 U	4 U	3.6 UJ	3.7 U	NA	NA	NA	NA
	ENDOSULFAN I	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	ENDOSULFAN II	4.3 U	4 U	3.6 UJ	3.7 U	NA	NA	NA	NA
	ENDOSULFAN SULFATE	4.3 UJ	4 U	3.6 UJ	3.7 U	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	ENDRIN	4.3 U	4 U	3.6 UJ	3.7 U	NA	NA	NA	NA
	ENDRIN ALDEHYDE	4.3 U	4 U	3.6 UJ	3.7 U	NA	NA	NA	NA
	ENDRIN KETONE	4.3 U	4 U	3.6 UJ	3.7 U	NA	NA	NA	NA
	GAMMA-BHC (LINDANE)	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	GAMMA-CHLORDANE	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	HEPTACHLOR	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	HEPTACHLOR EPOXIDE	2.2 U	2.1 U	1.9 UJ	1.9 U	NA	NA	NA	NA
	METHOXYCHLOR	22 U	21 U	19 UJ	19 UJ	NA	NA	NA	NA
	TOTAL AROCLOR	350 J	140	19 U	19 UJ	NA	NA	NA	NA
	TOTAL DDD/DDE/DDT	4.3 U	18.4 J	3.9 J	3.7 UJ	NA	NA	NA	NA
	TOXAPHENE	43 U	40 U	36 UJ	37 U	NA	NA	NA	NA
METALS (MG/KG)	ALUMINUM	12200	11600	10300	12900	NA	NA	NA	NA
	ANTIMONY	0.43 J	0.08 UJ	0.09 UJ	0.08 UJ	NA	NA	NA	NA
	ARSENIC	18.6	10	32.7	17.6 J	NA	NA	NA	NA
	BARIUM	42.8	16.1	17.6	24.4	NA	NA	NA	NA
	BERYLLIUM	0.49 J	0.43 J	0.28 J	0.31 J	NA	NA	NA	NA
	CADMIUM	2.4	0.82 J	0.01 UJ	0.01 UJ	NA	NA	NA	NA
	CALCIUM	1420 J	817 J	925 J	636	NA	NA	NA	NA
	CHROMIUM	33.4	16.1	13.8	16.8	NA	NA	NA	NA
	COBALT	20.7	11.2	14.6	12.5	NA	NA	NA	NA
	COPPER	63	48.8	21	17.8	NA	NA	NA	NA
	IRON	28200	21800	35000	28200	NA	NA	NA	NA
	LEAD	112	46.9	9.6	9.5	NA	NA	NA	NA
	MAGNESIUM	3650	3070	4050	3660	NA	NA	NA	NA
	MANGANESE	444	487	373	368	NA	NA	NA	NA
	MERCURY	0.08 J	0.04 J	0.01 UJ	0.02 J	NA	NA	NA	NA
	MOLYBDENUM	3.2	0.45 J	0.18 J	0.49 J	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	NICKEL	27.9	18.9	27	23.5	NA	NA	NA	NA
	POTASSIUM	505 J	392 J	1190	689	NA	NA	NA	NA
	SELENIUM	0.52 UJ	0.34 UJ	0.61 U	0.53 UJ	NA	NA	NA	NA
	SILVER	0.16 J	0.04 UJ	0.18 J	0.1 UJ	NA	NA	NA	NA
	SODIUM	274	306	39.4 J	71.3 UJ	NA	NA	NA	NA
	THALLIUM	0.05 UJ	0.17 UJ	0.07 UJ	0.04 UJ	NA	NA	NA	NA
	VANADIUM	27.1	23.6	18	20.8	NA	NA	NA	NA
	ZINC	171	158	66.8	54.6	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB145	DA-SB146	DA-SB150	DA-SB151	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B
	TOP DEPTH	0	0	0	0	1	1	1	1
	BOTTOM DEPTH	1	1	2	2	3	3	3	3
	SAMPLE DATE	01/17/08	01/17/08	03/05/08	03/04/08	07/21/08	07/21/08	07/21/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SB145-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX	DA-SB150-0002	DA-SB151-0002	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108	DA-SS-B125B-0103-072108-AVG	DA-SS-B125B-0103-072108-D
FRACTION (UNITS)	PARAMETER								
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	74	91.5	91	88	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	310 J	100	71 J	250	130 J	130	112	93
	GASOLINE RANGE ORGANICS	3.5 U	3.3 U	2.8 U	3.0 U	3.5 U	2.8 U	2.75 U	2.7 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,1,1-TRICHLOROETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,1,2,2-TETRACHLOROETHANE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,1,2-TRICHLOROETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,1-DICHLOROETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,1-DICHLOROETHENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,1-DICHLOROPROPENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,2,3-TRICHLOROBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2,3-TRICHLOROPROPANE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2,4-TRICHLOROBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2,4-TRIMETHYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2-DIBROMOETHANE	5 UJ	6 U	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2-DICHLOROBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,2-DICHLOROETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,2-DICHLOROPROPANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,3,5-TRIMETHYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,3-DICHLOROBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	1,3-DICHLOROPROPANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	1,4-DICHLOROBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	2,2-DICHLOROPROPANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	2-BUTANONE	31 J	29 U	NA	NA	25 U	25 U	25 U	NA	NA	NA
	2-CHLOROTOLUENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	2-HEXANONE	25 UJ	29 U	NA	NA	25 UJ	25 UJ	25 UJ	NA	NA	NA
	4-CHLOROTOLUENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	4-ISOPROPYLTOLUENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	4-METHYL-2-PENTANONE	25 UJ	29 U	NA	NA	25 U	25 U	25 U	NA	NA	NA
	ACETONE	160 J	430	NA	NA	10 J	11.2 J	25 U	NA	NA	NA
	BENZENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	BROMOBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	BROMOCHLOROMETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	BROMODICHLOROMETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	BROMOFORM	5 UJ	6 U	NA	NA	5 UJ	5 UJ	5 U	NA	NA	NA
	BROMOMETHANE	10 UJ	12 U	NA	NA	10 U	10 U	10 U	NA	NA	NA
	BTEX	5.6 UJ	6.8 U	NA	NA	5.6 U	5.6 U	5.6 U	NA	NA	NA
	CARBON DISULFIDE	2 J	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	CARBON TETRACHLORIDE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	CHLOROBENZENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	CHLORODIBROMOMETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	CHLOROETHANE	10 UJ	12 UJ	NA	NA	10 UJ	10 UJ	10 UJ	NA	NA	NA
	CHLOROFORM	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	CHLOROMETHANE	10 UJ	12 UJ	NA	NA	10 U	10 U	10 U	NA	NA	NA
	CIS-1,2-DICHLOROETHENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	CIS-1,3-DICHLOROPROPENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	DIBROMOMETHANE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	DICHLORODIFLUOROMETHANE	10 UJ	12 U	NA	NA	10 U	10 U	10 U	NA	NA	NA
	ETHYLBENZENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	HEXACHLOROBUTADIENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	ISOPROPYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	M+P-XYLENES	10 UJ	12 U	NA	NA	10 U	10 U	10 U	NA	NA	NA
	METHYL TERT-BUTYL ETHER	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	METHYLENE CHLORIDE	25 UJ	29 UJ	NA	NA	25 U	25 U	25 U	NA	NA	NA
	N-BUTYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	N-PROPYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	O-XYLENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	SEC-BUTYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	STYRENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TERT-BUTYLBENZENE	5 UJ	6 UJ	NA	NA	5 UJ	5 UJ	5 UJ	NA	NA	NA
	TETRACHLOROETHENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TOLUENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TOTAL 1,2-DICHLOROETHENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TOTAL CHLORINATED ETHENES	6.2 UJ	7.5 U	NA	NA	6.2 U	6.2 U	6.2 U	NA	NA	NA
	TOTAL CHLORINATED VOCS	6.6 UJ	7.8 UJ	NA	NA	6.6 UJ	6.6 UJ	6.6 UJ	NA	NA	NA
	TOTAL XYLENES	7.5 UJ	9 U	NA	NA	7.5 U	7.5 U	7.5 U	NA	NA	NA
	TRANS-1,2-DICHLOROETHENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TRANS-1,3-DICHLOROPROPENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TRICHLOROETHENE	5 UJ	6 U	NA	NA	5 U	5 U	5 U	NA	NA	NA
	TRICHLOROFLUOROMETHANE	10 UJ	12 U	NA	NA	10 U	10 U	10 U	NA	NA	NA
	VINYL CHLORIDE	10 UJ	12 U	NA	NA	10 U	10 U	10 U	NA	NA	NA
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	1,2-DIPHENYLHYDRAZINE	750 U	850 U	NA	NA	760 U	760 U	760 U	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2,4-DICHLOROPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2,4-DIMETHYLPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2,4-DINITROPHENOL	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	2,4-DINITROTOLUENE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2,6-DICHLOROPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2,6-DINITROTOLUENE	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	2-CHLORONAPHTHALENE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2-CHLOROPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2-METHYLNAPHTHALENE	23 U	26 U	33	NA	21 J	36 J	51	12 J	11.5 J	11 J
	2-METHYLPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	2-NITROANILINE	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	2-NITROPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	3&4-METHYLPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	380 UJ	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	3-NITROANILINE	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	4-CHLOROANILINE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	4-NITROANILINE	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	4-NITROPHENOL	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	ACENAPHTHENE	23 U	14 J	170	NA	110	120	130	64	63	62
	ACENAPHTHYLENE	23 U	6.7 J	21 U	NA	7.4 J	9.45 J	23 U	22 U	22 U	22 U
	ANTHRACENE	23 U	28 J	470	NA	190 J	275 J	360 J	170	230 J	290 J
	BENZIDINE	1700 UR	1900 UJ	NA	NA	1700 UJ	1700 UJ	1700 UJ	NA	NA	NA
	BENZO(A)ANTHRACENE	2.6 J	130	760	NA	710	905	1100	760	980	1200
	BENZO(A)PYRENE	7.3 J	120 J	530	NA	880	920	960	510	740	970
	BENZO(B)FLUORANTHENE	23 U	96 J	680	NA	690	725	760	690	945	1200
	BENZO(G,H,I)PERYLENE	3 J	43 J	310 J	NA	340 J	340 J	340	340	470	600
	BENZO(K)FLUORANTHENE	23 UJ	78 J	290 J	NA	590	615	640	270 J	370 J	470
	BENZOIC ACID	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	BENZYL ALCOHOL	750 U	850 U	NA	NA	760 U	760 U	760 U	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	BUTYL BENZYL PHTHALATE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	CARBAZOLE	380 U	430 U	NA	NA	380 U	235 J	280 J	NA	NA	NA
	CHRYSENE	2.8 J	120	660	NA	730	915	1100	710	850	990
	DIBENZO(A,H)ANTHRACENE	23 UJ	28 J	98	NA	140 J	150 J	160	54	107	160
	DIBENZOFURAN	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	DIETHYL PHTHALATE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	DIMETHYL PHTHALATE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	DI-N-BUTYL PHTHALATE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	DI-N-OCTYL PHTHALATE	380 UJ	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	FLUORANTHENE	4.4 J	230	1800	NA	1300 J	1750 J	2200 J	1700	1950	2200
	FLUORENE	23 U	12 J	150	NA	84	97 J	110 J	86	79.5	73
	HEXACHLOROBENZENE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	HEXACHLOROETHANE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	23.4 J	1089 J	6728 J	NA	7280 J	8720 J	10160 J	6934 J	8482 J	10030
	INDENO(1,2,3-CD)PYRENE	23 U	64 J	500	NA	300 J	300 J	300	500	720	940
	ISOPHORONE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	23 U	180.7 J	1881	NA	1264.4 J	1873.45 J	2481 J	1182 J	1235 J	1288 J
	NAPHTHALENE	23 U	26 U	58	NA	62 J	96 J	130 J	20 J	21 J	22
	NITROBENZENE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	N-NITROSODIMETHYLAMINE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	N-NITROSODIPHENYLAMINE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	N-NITROSOPYRROLIDINE	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	PENTACHLOROPHENOL	940 U	1100 U	NA	NA	940 U	940 U	940 U	NA	NA	NA
	PHENANTHRENE	23 U	120	1000	NA	790 J	1240 J	1700 J	830	830	830
	PHENOL	380 U	430 U	NA	NA	380 U	380 U	380 U	NA	NA	NA
	PYRENE	3.3 J	180	1100	NA	1600	2100	2600	1400	1350	1300
	TOTAL PAHS	23.4 J	1269.7 J	8609 J	NA	8544.4 J	10593.45 J	12641 J	8116 J	9717 J	11318 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA
	4,4'-DDE	NA	4 J	NA	4 U	5.9	5.35	4.8	NA	NA	NA
	4,4'-DDT	NA	5.7	NA	4 UJ	3.8 U	5.5	9.1	NA	NA	NA
	ALDRIN	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	ALPHA-BHC	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	ALPHA-CHLORDANE	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	AROCLOR-1016	NA	22 U	NA	21 UJ	20 U	20 U	20 U	NA	NA	NA
	AROCLOR-1221	NA	22 U	NA	21 U	20 U	20 U	20 U	NA	NA	NA
	AROCLOR-1232	NA	22 U	NA	21 U	20 U	20 U	20 U	NA	NA	NA
	AROCLOR-1242	NA	22 U	NA	21 U	20 U	20 U	20 U	NA	NA	NA
	AROCLOR-1248	NA	22 U	NA	21 U	20 U	20 U	20 U	NA	NA	NA
	AROCLOR-1254	NA	22 U	NA	21 U	20 U	20 U	20 U	NA	NA	NA
	AROCLOR-1260	NA	22 U	NA	230 J	220 J	160 J	99 J	NA	NA	NA
	AROCLOR-1268	NA	22 U	NA	21 U	880 J	580 J	280	NA	NA	NA
	BETA-BHC	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	DELTA-BHC	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	DIELDRIN	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA
	ENDOSULFAN I	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	ENDOSULFAN II	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA
	ENDOSULFAN SULFATE	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	ENDRIN	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA
	ENDRIN ALDEHYDE	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA
	ENDRIN KETONE	NA	4.3 U	NA	4 U	3.8 U	3.8 U	3.8 U	NA	NA	NA
	GAMMA-BHC (LINDANE)	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	GAMMA-CHLORDANE	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	HEPTACHLOR	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	HEPTACHLOR EPOXIDE	NA	2.2 U	NA	2.1 U	2 U	2 U	2 U	NA	NA	NA
	METHOXYCHLOR	NA	22 U	NA	21 U	20 U	20 U	20 U	NA	NA	NA
	TOTAL AROCLOR	NA	22 U	NA	230 J	1100 J	740 J	379 J	NA	NA	NA
	TOTAL DDD/DDE/DDT	NA	9.7 J	NA	4 UJ	5.9	10.85	13.9	NA	NA	NA
	TOXAPHENE	NA	43 U	NA	40 U	38 U	38 U	38 U	NA	NA	NA
METALS (MG/KG)	ALUMINUM	NA	11100	NA	NA	12100	12000	12000	NA	NA	NA
	ANTIMONY	NA	0.18 U	NA	NA	0.15 U	0.145 U	0.14 U	NA	NA	NA
	ARSENIC	NA	13	NA	NA	16.3	16.4	16.5	NA	NA	NA
	BARIUM	NA	25.9	NA	NA	26.2	26	25.8	NA	NA	NA
	BERYLLIUM	NA	0.4 J	NA	NA	0.44 J	0.415 J	0.39 J	NA	NA	NA
	CADMIUM	NA	1.1 J	NA	NA	1.6 J	1.5 J	1.4 J	NA	NA	NA
	CALCIUM	NA	1490	NA	NA	851	834	817	NA	NA	NA
	CHROMIUM	NA	16.2	NA	NA	19.3	19	18.6	NA	NA	NA
	COBALT	NA	9.3	NA	NA	26.2	27.7	29.2	NA	NA	NA
	COPPER	NA	19.4	NA	NA	27.6	24.8	22	NA	NA	NA
	IRON	NA	24400	NA	NA	29200	27400	25700	NA	NA	NA
	LEAD	NA	36	NA	NA	71.4	61.4	51.4	NA	NA	NA
	MAGNESIUM	NA	2520	NA	NA	3400	3360	3330	NA	NA	NA
	MANGANESE	NA	324	NA	NA	411	409	407	NA	NA	NA
	MERCURY	NA	0.05	NA	NA	0.04 J	0.035 J	0.03 J	NA	NA	NA
	MOLYBDENUM	NA	0.78 J	NA	NA	0.89 J	0.635 J	0.38 J	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	NICKEL	NA	18.1	NA	NA	22.8	22.2	21.6	NA	NA	NA
	POTASSIUM	NA	583	NA	NA	552	533	514	NA	NA	NA
	SELENIUM	NA	0.31 U	NA	NA	0.26 U	0.255 U	0.25 U	NA	NA	NA
	SILVER	NA	0.55 UJ	NA	NA	0.79 J	0.78 J	0.77 J	NA	NA	NA
	SODIUM	NA	63.3 J	NA	NA	45.4 UJ	45 UJ	44.7 UJ	NA	NA	NA
	THALLIUM	NA	0.05 UJ	NA	NA	0.04 UJ	0.045 UJ	0.05 UJ	NA	NA	NA
	VANADIUM	NA	21	NA	NA	19.1	19.7	20.3	NA	NA	NA
	ZINC	NA	118	NA	NA	114	105	96.6	NA	NA	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	1.2	1.2	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	4.5	4.5	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	4.5	4.5	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	3.9	3.9	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	14.8	14.8	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	2.2	2.2	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	2.8	2.8	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	8.4	8.4	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	9.3	9.3	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	23.3	23.3	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	15.1	15.1	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	15.1	15.1	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	28.8	28.8	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	0	0	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	0	0	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	0	0	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	0	0	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	0	0	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	3.5	3.5	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-SB102B	DA-SB102B	DA-SB103	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B	DA-MW103B
	TOP DEPTH	1	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	3	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/22/08	01/15/08	07/31/07	01/17/08	01/15/08	01/15/08	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP
	SAMPLE ID	DA-SS-B126B-0103-072208	DA-SS102B-011508	DA-SS102B-073107	DA-SS103-011708	DA-SS103B-011508	DA-SS103B-011508-AVG	DA-SS103B-011508-D	DA-SS103B-073007	DA-SS103B-073007-AVG	DA-SS103B-073007-D
FRACTION (UNITS)	PARAMETER										
	SIEVE NO. 004	NA	NA	NA	NA	11.6	11.6	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	9.3	9.3	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	8	8	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	7.1	7.1	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	7.1	7.1	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	5	5	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	2.4	2.4	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	8.8	8.8	NA	NA	NA	NA
	TOTAL SOLIDS	NA	NA	95	NA	NA	NA	NA	92	92.5	93
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	17000	19000	21000	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	5.4	5.45	5.5	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	30	89	NA	NA	91	86.5	82	NA	NA	NA
	GASOLINE RANGE ORGANICS	2.6 U	3.8 U	NA	NA	3 U	3.1 U	3.2 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,1,1-TRICHLOROETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,1,2,2-TETRACHLOROETHANE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	6 UJ	NA	5 UJ
	1,1,2-TRICHLOROETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,1-DICHLOROETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,1-DICHLOROETHENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,1-DICHLOROPROPENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,2,3-TRICHLOROBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,2,3-TRICHLOROPROPANE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	6 UJ	NA	5 UJ
	1,2,4-TRICHLOROBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,2,4-TRIMETHYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,2-DIBROMOETHANE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	6 U	NA	5 UJ
	1,2-DICHLOROBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,2-DICHLOROETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,2-DICHLOROPROPANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,3,5-TRIMETHYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,3-DICHLOROBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	1,3-DICHLOROPROPANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	1,4-DICHLOROBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	2,2-DICHLOROPROPANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	2-BUTANONE	26 U	NA	25 UJ	NA	25 U	NA	25 U	NA	30 U	NA	25 U
	2-CHLOROTOLUENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	6 UJ	NA	5 UJ
	2-HEXANONE	26 UJ	NA	25 UJ	NA	25 UJ	NA	25 U	NA	30 U	NA	25 U
	4-CHLOROTOLUENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	4-ISOPROPYLTOLUENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	26 U	NA	25 UJ	NA	25 U	NA	25 U	NA	30 U	NA	25 U
	ACETONE	11 J	NA	1700 U	NA	12 J	NA	25 UJ	NA	95	NA	25 UJ
	BENZENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	BROMOBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	6 UJ	NA	5 UJ
	BROMOCHLOROMETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	BROMODICHLOROMETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	BROMOFORM	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 U	NA	5 U
	BROMOMETHANE	10 U	NA	10 UJ	NA	10 U	NA	10 U	NA	12 U	NA	10 U
	BTEX	5.6 U	NA	5.6 UJ	NA	5.6 U	NA	5.6 U	NA	6.8 U	NA	5.6 U
	CARBON DISULFIDE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	CARBON TETRACHLORIDE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	CHLOROBENZENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	CHLORODIBROMOMETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	CHLOROETHANE	10 UJ	NA	10 UJ	NA	10 UJ	NA	10 U	NA	12 UJ	NA	10 U
	CHLOROFORM	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	CHLOROMETHANE	10 U	NA	10 UJ	NA	10 U	NA	10 U	NA	12 U	NA	10 U
	CIS-1,2-DICHLOROETHENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	DIBROMOMETHANE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	DICHLORODIFLUOROMETHANE	10 U	NA	10 UJ	NA	10 U	NA	10 U	NA	12 U	NA	10 U
	ETHYLBENZENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	HEXACHLOROBUTADIENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	ISOPROPYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	M+P-XYLENES	10 U	NA	10 UJ	NA	10 U	NA	10 U	NA	12 U	NA	10 U
	METHYL TERT-BUTYL ETHER	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	METHYLENE CHLORIDE	26 U	NA	25 UJ	NA	25 U	NA	25 U	NA	30 U	NA	25 U
	N-BUTYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	O-XYLENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	SEC-BUTYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	6 UJ	NA	5 U
	STYRENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TERT-BUTYLBENZENE	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	6 UJ	NA	5 UJ
	TETRACHLOROETHENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TOLUENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	NA	5 J	NA	6.2 U	NA	6.2 U	NA	7.5 U	NA	6.2 U
	TOTAL CHLORINATED VOCS	6.6 UJ	NA	5 J	NA	6.6 UJ	NA	6.6 UJ	NA	7.9 UJ	NA	6.6 UJ
	TOTAL XYLENES	7.5 U	NA	7.5 UJ	NA	7.5 U	NA	7.5 U	NA	9 U	NA	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	NA	5 UJ	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TRICHLOROETHENE	5 U	NA	5 J	NA	5 U	NA	5 U	NA	6 U	NA	5 U
	TRICHLOROFLUOROMETHANE	10 U	NA	10 UJ	NA	10 U	NA	10 U	NA	12 U	NA	10 U
	VINYL CHLORIDE	10 U	NA	10 UJ	NA	10 U	NA	10 U	NA	12 U	NA	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	1,2-DIPHENYLHYDRAZINE	790 U	NA	800 U	NA	770 U	NA	770 U	NA	830 U	NA	740 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2,4,5-TRICHLOROPHENOL	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	2,4,6-TRICHLOROPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2,4-DICHLOROPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2,4-DIMETHYLPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2,4-DINITROPHENOL	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	2,4-DINITROTOLUENE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2,6-DICHLOROPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2,6-DINITROTOLUENE	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2-CHLOROPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2-METHYLNAPHTHALENE	130	22 U	6.9 J	11 J	23 U	21 U	35 J	2400 U	25 U	3.1 J	22 U
	2-METHYLPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	2-NITROANILINE	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	2-NITROPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	3&4-METHYLPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	3,3'-DICHLOROBENZIDINE	390 U	NA	400 UJ	NA	380 U	NA	390 UJ	NA	410 U	NA	370 U
	3-NITROANILINE	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	4,6-DINITRO-2-METHYLPHENOL	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	4-BROMOPHENYL PHENYL ETHER	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	4-CHLORO-3-METHYLPHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	4-CHLOROANILINE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	4-CHLOROPHENYL PHENYL ETHER	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	4-NITROANILINE	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	4-NITROPHENOL	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	ACENAPHTHENE	150	19 J	85	58	5.2 J	3.7 J	100	700 J	9.2 J	15 J	3 J
	ACENAPHTHYLENE	24 U	3.8 J	8.5 J	23 U	10 J	5.3 J	6.9 J	24 U	4.2 J	3.9 J	22 U
	ANTHRACENE	520	43	160 J	150	19 J	24	220 J	1200 J	15 J	35	4 J
	BENZIDINE	1800 UJ	NA	1800 R	NA	1700 UJ	NA	1800 UJ	NA	1900 UJ	NA	1700 UJ
	BENZO(A)ANTHRACENE	1400	190	840	830	90	120	920	4200	83	200	22 U
	BENZO(A)PYRENE	720	160	750	600	79	74	850	3700	78	150	22 U
	BENZO(B)FLUORANTHENE	600	220	700	780	49	98	500	3800	58	210	22 U
	BENZO(G,H,I)PERYLENE	170	98	280	330 J	30 J	45	220	1700 J	35 J	83	6 J
	BENZO(K)FLUORANTHENE	580	78	750	680	44 J	32	490 J	3700	46 J	73	22 U
	BENZOIC ACID	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	790 U	NA	800 U	NA	770 U	NA	770 U	NA	830 U	NA	740 U
	BIS(2-CHLOROETHOXY)METHANE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	BIS(2-CHLOROETHYL)ETHER	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	BIS(2-ETHYLHEXYL)PHTHALATE	390 U	NA	400 UJ	NA	380 UJ	NA	390 UJ	NA	410 UJ	NA	370 U
	BUTYL BENZYL PHTHALATE	390 U	NA	400 UJ	NA	380 UJ	NA	390 UJ	NA	410 UJ	NA	370 U
	CARBAZOLE	400	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	CHRYSENE	1100	180	1200	780	70	80	800 J	4400	77	170	4.6 J
	DIBENZO(A,H)ANTHRACENE	96 J	26	120 J	180 J	19 J	12 J	110	950 J	20 J	30	22 UJ
	DIBENZOFURAN	210 J	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	DIETHYL PHTHALATE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	DIMETHYL PHTHALATE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	DI-N-BUTYL PHTHALATE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	DI-N-OCTYL PHTHALATE	390 U	NA	400 UJ	NA	380 UJ	NA	390 UJ	NA	410 UJ	NA	370 U
	FLUORANTHENE	3000	510	2400	1600	140	250	1400	10000	140	450	7.1 J
	FLUORENE	250	19 J	76 J	69	6 J	4.8 J	69 J	790 J	7 J	12 J	22 U
	HEXACHLOROBENZENE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	HEXACHLOROETHANE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	HIGH MOLECULAR WEIGHT PAHS	10766 J	1952	8910 J	7850 J	686 J	944 J	7810 J	41350 J	716 J	1796	17.7 J
	INDENO(1,2,3-CD)PYRENE	200 J	170	270 J	370 J	45	73	220	2000 J	49	160	22 UJ
	ISOPHORONE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	LOW MOLECULAR WEIGHT PAHS	3820	327.4 J	1644.2 J	1231 J	113.2 J	116.8 J	1658.9 J	10990 J	102.4 J	232.3 J	13.3 J
	NAPHTHALENE	270	2.6 J	7.8 J	13 J	23 U	21 U	28 J	1100 J	25 U	3.3 J	22 U
	NITROBENZENE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	N-NITROSODIMETHYLAMINE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	N-NITROSO-DI-N-PROPYLAMINE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	N-NITROSODIPHENYLAMINE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	PENTACHLOROPHENOL	980 U	NA	990 U	NA	950 U	NA	960 U	NA	1000 U	NA	920 U
	PHENANTHRENE	2500	240	1300	930	73	79	1200	7200	67	160	6.3 J
	PHENOL	390 U	NA	400 U	NA	380 U	NA	390 U	NA	410 U	NA	370 U
	PYRENE	2900	320	1600	1700	120 J	160	2300	6900	130 J	270	22 U
	TOTAL PAHS	14586 J	2279.4 J	10554.2 J	9081 J	799.2 J	1060.8 J	9468.9 J	52340 J	818.4 J	2028.3 J	31 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2.1 J	NA	4 U	NA	3.8 U	NA	3.9 U	NA	4.1 U	NA	3.7 U
	4,4'-DDE	5.1	NA	8.6 J	NA	1.2 J	NA	3.9 U	NA	5.9	NA	3.7 U
	4,4'-DDT	6.5	NA	26 J	NA	1.8 J	NA	13	NA	4.1 U	NA	3.7 U
	ALDRIN	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	ALPHA-BHC	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	ALPHA-CHLORDANE	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	AROCLOR-1016	20 U	NA	21 U	NA	20 U	NA	20 UJ	NA	21 U	NA	19 UJ
	AROCLOR-1221	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	AROCLOR-1232	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	AROCLOR-1242	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	AROCLOR-1248	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	AROCLOR-1254	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	AROCLOR-1260	80	NA	94 J	NA	20 U	NA	130	NA	68	NA	19 U
	AROCLOR-1268	20 U	NA	400 J	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	BETA-BHC	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	DELTA-BHC	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	DIELDRIN	3.9 U	NA	4 U	NA	3.8 U	NA	3.9 U	NA	4.1 U	NA	3.7 U
	ENDOSULFAN I	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	ENDOSULFAN II	3.9 U	NA	4 U	NA	3.8 U	NA	3.9 U	NA	4.1 U	NA	3.7 U
	ENDOSULFAN SULFATE	3.9 U	NA	4 UJ	NA	3.8 UJ	NA	3.9 UJ	NA	4.1 UJ	NA	3.7 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.9 U	NA	4 U	NA	3.8 U	NA	3.9 U	NA	4.1 U	NA	3.7 U
	ENDRIN ALDEHYDE	3.9 U	NA	4 U	NA	3.8 U	NA	3.9 U	NA	4.1 U	NA	3.7 U
	ENDRIN KETONE	3.9 U	NA	4 U	NA	3.8 U	NA	3.9 U	NA	4.1 U	NA	3.7 U
	GAMMA-BHC (LINDANE)	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	GAMMA-CHLORDANE	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	HEPTACHLOR	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	HEPTACHLOR EPOXIDE	2 U	NA	2.1 U	NA	2 U	NA	2 U	NA	2.1 U	NA	1.9 U
	METHOXYCHLOR	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	19 U
	TOTAL AROCLOR	80	NA	494 J	NA	20 U	NA	130 J	NA	68	NA	19 UJ
	TOTAL DDD/DDE/DDT	13.7 J	NA	34.6 J	NA	3 J	NA	13	NA	5.9	NA	3.7 U
	TOXAPHENE	39 U	NA	40 U	NA	38 U	NA	39 U	NA	41 U	NA	37 U
METALS (MG/KG)	ALUMINUM	13100	NA	11500	NA	6050	NA	11900	NA	12100	NA	1800
	ANTIMONY	0.13 U	NA	0.14 UJ	NA	0.07 U	NA	0.19 UJ	NA	0.09 U	NA	0.08 U
	ARSENIC	14.5	NA	18.8	NA	1.6	NA	22.4	NA	13.8	NA	0.29
	BARIUM	28.3	NA	35.8	NA	18.6	NA	38.4	NA	22.9	NA	7.4
	BERYLLIUM	0.42 J	NA	0.5 J	NA	0.38	NA	0.5 J	NA	0.37 J	NA	0.45 J
	CADMIUM	0.6 J	NA	0.57 J	NA	0.09 J	NA	0.48 J	NA	0.38 J	NA	0.09 J
	CALCIUM	652	NA	1480	NA	936	NA	8940	NA	547	NA	1350
	CHROMIUM	14.6	NA	22.8	NA	5.4	NA	16	NA	14.3	NA	1 J
	COBALT	11.1	NA	12.9	NA	2.4	NA	17.6	NA	8.2	NA	0.82 J
	COPPER	18.7	NA	26 J	NA	6.7	NA	39 J	NA	19	NA	2.3 U
	IRON	21800	NA	24100	NA	8660	NA	30000	NA	20700	NA	5270
	LEAD	33.1	NA	36.5	NA	14.5	NA	53.2	NA	36.6	NA	4.2
	MAGNESIUM	2620	NA	3370	NA	1120	NA	3770	NA	2570	NA	407
	MANGANESE	369	NA	333	NA	251	NA	416	NA	297	NA	351
	MERCURY	0.05	NA	0.03 J	NA	0.05	NA	0.09	NA	0.11	NA	0.01 U
	MOLYBDENUM	0.40 J	NA	0.68 J	NA	0.20 UJ	NA	0.66 J	NA	0.38 J	NA	0.10 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	NICKEL	17.4	NA	25.9	NA	4.2	NA	30.4	NA	16.5	NA	0.98 J
	POTASSIUM	546	NA	476	NA	758	NA	496	NA	491	NA	771
	SELENIUM	0.23 U	NA	0.62 J	NA	0.11 U	NA	0.66 J	NA	0.15 U	NA	0.14 U
	SILVER	0.44 UJ	NA	0.07 UJ	NA	0.04 U	NA	2 J	NA	0.32 UJ	NA	0.04 U
	SODIUM	46.9 J	NA	51.6 UJ	NA	32.8 J	NA	65 UJ	NA	33.3 J	NA	21.6 UJ
	THALLIUM	0.08 U	NA	0.06 UJ	NA	0.06 UJ	NA	0.04 U	NA	0.06 UJ	NA	0.03 U
	VANADIUM	22.5	NA	20.1	NA	8.1	NA	19.9	NA	22	NA	1.5 J
	ZINC	52.2	NA	371	NA	24.2	NA	152	NA	44.6	NA	13.8
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	1.2	NA	NA	NA	NA	NA	1.9	NA	NA	NA	NA
	HYDROMETER-12.9UM	3.4	NA	NA	NA	NA	NA	2.3	NA	NA	NA	NA
	HYDROMETER-20.5UM	6.7	NA	NA	NA	NA	NA	2.8	NA	NA	NA	NA
	HYDROMETER-3.4UM	3.4	NA	NA	NA	NA	NA	2.2	NA	NA	NA	NA
	HYDROMETER-30.5UM	16	NA	NA	NA	NA	NA	5.9	NA	NA	NA	NA
	HYDROMETER-6.6UM	1.7	NA	NA	NA	NA	NA	1.8	NA	NA	NA	NA
	HYDROMETER-9.1UM	2.9	NA	NA	NA	NA	NA	0.9	NA	NA	NA	NA
	PERCENT CLAY	7.9	NA	NA	NA	NA	NA	5.5	NA	NA	NA	NA
	PERCENT COARSE SAND	5.7	NA	NA	NA	NA	NA	14.5	NA	NA	NA	NA
	PERCENT FINE SAND	20.7	NA	NA	NA	NA	NA	15.7	NA	NA	NA	NA
	PERCENT GRAVEL	23.9	NA	NA	NA	NA	NA	31.2	NA	NA	NA	NA
	PERCENT MEDIUM SAND	11	NA	NA	NA	NA	NA	19.4	NA	NA	NA	NA
	PERCENT SILT	30.7	NA	NA	NA	NA	NA	13.8	NA	NA	NA	NA
	SIEVE 1"	0	NA	NA	NA	NA	NA	0	NA	NA	NA	NA
	SIEVE 1-1/2"	0	NA	NA	NA	NA	NA	0	NA	NA	NA	NA
	SIEVE 2"	0	NA	NA	NA	NA	NA	0	NA	NA	NA	NA
	SIEVE 3"	0	NA	NA	NA	NA	NA	0	NA	NA	NA	NA
	SIEVE 3/4"	8.6	NA	NA	NA	NA	NA	8.9	NA	NA	NA	NA
	SIEVE 3/8"	9.3	NA	NA	NA	NA	NA	7.1	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB104	DA-SB104	DA-MW104B	DA-MW104B	DA-SB105	DA-SB105	DA-MW105B	DA-MW105B	DA-SB106	DA-SB106	DA-SB107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/31/07	01/16/08	07/30/07	01/15/08	07/31/07	01/16/08	07/30/07	01/14/08	07/31/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS104-011508	DA-SS104-073107	DA-SS104B-011608	DA-SS104B-073007	DA-SS105-011508	DA-SS105-073107	DA-SS105B-011608	DA-SS105B-073007	DA-SS106-011408	DA-SS106-073107	DA-SS107-011508
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	6.1	NA	NA	NA	NA	NA	15.1	NA	NA	NA	NA
	SIEVE NO. 010	5.7	NA	NA	NA	NA	NA	14.5	NA	NA	NA	NA
	SIEVE NO. 020	5.5	NA	NA	NA	NA	NA	11.3	NA	NA	NA	NA
	SIEVE NO. 040	5.5	NA	NA	NA	NA	NA	8	NA	NA	NA	NA
	SIEVE NO. 060	6.5	NA	NA	NA	NA	NA	6	NA	NA	NA	NA
	SIEVE NO. 080	4.7	NA	NA	NA	NA	NA	3.4	NA	NA	NA	NA
	SIEVE NO. 100	1.5	NA	NA	NA	NA	NA	1.5	NA	NA	NA	NA
	SIEVE NO. 200	8.1	NA	NA	NA	NA	NA	4.8	NA	NA	NA	NA
	TOTAL SOLIDS	NA	89	NA	87	NA	96	NA	82	NA	92	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	22000	NA	NA	NA	NA	NA	30000	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	5.5	NA	NA	NA	NA	NA	5.2	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	23	NA	96 J	NA	19	NA	130 J	NA	22	NA	9.5 U
	GASOLINE RANGE ORGANICS	3 U	NA	3.4 U	NA	3.3 U	NA	2.6 U	NA	3.3 UJ	NA	2.5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,1,1-TRICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,1,2,2-TETRACHLOROETHANE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,1,2-TRICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,1-DICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,1-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,1-DICHLOROPROPENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,2,3-TRICHLOROBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2,3-TRICHLOROPROPANE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2,4-TRICHLOROBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2,4-TRIMETHYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2-DIBROMO-3-CHLOROPROPANE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2-DIBROMOETHANE	NA	5 UJ	NA	5 U	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2-DICHLOROBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,2-DICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,2-DICHLOROPROPANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,3,5-TRIMETHYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,3-DICHLOROBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	1,3-DICHLOROPROPANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	1,4-DICHLOROBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	2,2-DICHLOROPROPANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	2-BUTANONE	NA	25 U	NA	25 U	NA	26 U	NA	25 U	NA	NA	NA
	2-CHLOROTOLUENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	2-HEXANONE	NA	25 UJ	NA	25 U	NA	26 UJ	NA	25 U	NA	NA	NA
	4-CHLOROTOLUENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	4-ISOPROPYLTOLUENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	NA	25 U	NA	25 U	NA	26 U	NA	25 U	NA	NA	NA
	ACETONE	NA	120	NA	20 J	NA	10 J	NA	1500 U	NA	NA	NA
	BENZENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	BROMOBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	BROMOCHLOROMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	BROMODICHLOROMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	BROMOFORM	NA	5 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA	NA	NA
	BROMOMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	NA
	BTEX	NA	5.6 U	NA	5.6 U	NA	5.6 U	NA	5.6 U	NA	NA	NA
	CARBON DISULFIDE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	CARBON TETRACHLORIDE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	CHLOROBENZENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	CHLORODIBROMOMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	CHLOROETHANE	NA	10 UJ	NA	10 UJ	NA	10 UJ	NA	10 U	NA	NA	NA
	CHLOROFORM	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	CHLOROMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	NA
	CIS-1,2-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	CIS-1,3-DICHLOROPROPENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	DIBROMOMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	DICHLORODIFLUOROMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	NA
	ETHYLBENZENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	HEXACHLOROBUTADIENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	ISOPROPYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	M+P-XYLENES	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	NA
	METHYL TERT-BUTYL ETHER	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	METHYLENE CHLORIDE	NA	25 U	NA	25 U	NA	26 U	NA	25 U	NA	NA	NA
	N-BUTYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	O-XYLENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	SEC-BUTYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	STYRENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TERT-BUTYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	NA	NA
	TETRACHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TOLUENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TOTAL 1,2-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TOTAL CHLORINATED ETHENES	NA	6.2 U	NA	6.2 U	NA	6.2 U	NA	6.2 U	NA	NA	NA
	TOTAL CHLORINATED VOCS	NA	6.6 UJ	NA	6.6 UJ	NA	6.6 UJ	NA	6.6 UJ	NA	NA	NA
	TOTAL XYLENES	NA	7.5 U	NA	7.5 U	NA	7.5 U	NA	7.5 U	NA	NA	NA
	TRANS-1,2-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TRANS-1,3-DICHLOROPROPENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TRICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	NA
	TRICHLOROFLUOROMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	NA
	VINYL CHLORIDE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	NA
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	1,2-DIPHENYLHYDRAZINE	NA	760 U	NA	780 U	NA	780 U	NA	790 U	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2,4-DICHLOROPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2,4-DIMETHYLPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2,4-DINITROPHENOL	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	2,4-DINITROTOLUENE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2,6-DICHLOROPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2,6-DINITROTOLUENE	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2-CHLOROPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2-METHYLNAPHTHALENE	22 U	23 U	21 U	24 U	11 J	17 J	76	33	40	32.5	25
	2-METHYLPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	2-NITROANILINE	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	2-NITROPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	3&4-METHYLPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	3-NITROANILINE	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	4-CHLOROANILINE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	4-NITROANILINE	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	4-NITROPHENOL	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	ACENAPHTHENE	2.6 J	6.5 J	2.5 J	9.8 J	100	130	430 J	220	250 J	200 J	150
	ACENAPHTHYLENE	22 U	5.2 J	2.7 J	3.8 J	22 U	13 J	23 U	38	73	64.5	56
	ANTHRACENE	9.3 J	14 J	7.2 J	14 J	300 J	310	1300	410 J	520	540	560
	BENZIDINE	NA	1700 UJ	NA	1800 UJ	NA	1800 UJ	NA	1800 UJ	NA	NA	NA
	BENZO(A)ANTHRACENE	42	49	33	61	630	1100	2600	1200	2000	1600	1200
	BENZO(A)PYRENE	27	45 J	30	55	380	880	1600	1100	1700	1350	1000
	BENZO(B)FLUORANTHENE	43	28 J	41	32	510	690	2100	870	2000	1650	1300
	BENZO(G,H,I)PERYLENE	22	22 J	24	25 J	230 J	180 J	930	240	690	635	580
	BENZO(K)FLUORANTHENE	13 J	25 J	13 J	32 J	210 J	620	890 J	780	1800	1120	440
	BENZOIC ACID	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	NA	760 U	NA	780 U	NA	780 U	NA	790 U	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	380 U	NA	390 UJ	NA	390 U	NA	400 U	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	380 U	NA	390 UJ	NA	390 U	NA	400 U	NA	NA	NA
	CARBAZOLE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	CHRYSENE	37	42	31	53	540	970	2200	1200	1800	1550	1300
	DIBENZO(A,H)ANTHRACENE	5.8 J	11 J	6.6 J	14 J	61	110 J	180 J	140 J	370 J	235 J	100
	DIBENZOFURAN	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	DIETHYL PHTHALATE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	DIMETHYL PHTHALATE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	DI-N-OCTYL PHTHALATE	NA	380 U	NA	390 UJ	NA	390 U	NA	400 U	NA	NA	NA
	FLUORANTHENE	86	70	62	93	1600	2100	6300	2400	3500	3050	2600
	FLUORENE	3.3 J	5.7 J	2.7 J	7.3 J	130	130	440 J	200	230 J	195 J	160
	HEXACHLOROBENZENE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	HEXACHLOROETHANE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	376.8 J	375 J	332.6 J	497 J	5461 J	9160 J	22600 J	11180 J	18090 J	14795 J	11500
	INDENO(1,2,3-CD)PYRENE	35	29 J	39	32	350	210 J	1500	250 J	830	855	880
	ISOPHORONE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	55.2 J	71.4 J	46.1 J	113.9 J	1292 J	1932 J	5976 J	3233 J	3857 J	3312.5 J	2768 J
	NAPHTHALENE	22 U	23 U	21 U	24 U	11 J	32	130	32	44	30.5 J	17 J
	NITROBENZENE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	N-NITROSODIMETHYLAMINE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	N-NITROSODIPHENYLAMINE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	PENTACHLOROPHENOL	NA	940 U	NA	960 U	NA	970 U	NA	980 U	NA	NA	NA
	PHENANTHRENE	40	40	31	79	740	1300	3600	2300	2700	2250	1800
	PHENOL	NA	380 U	NA	390 U	NA	390 U	NA	400 U	NA	NA	NA
	PYRENE	66	54	53	100 J	950	2300	4300	3000	3400	2750	2100
	TOTAL PAHS	432 J	446.4 J	378.7 J	610.9 J	6753 J	11092 J	28576 J	14413 J	21947 J	18107.5 J	14268 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	3.8 U	NA	3.9 U	NA	3.9 U	NA	4 U	NA	NA	NA
	4,4'-DDE	NA	1.1 J	NA	1.7 J	NA	3.9 U	NA	6.6	NA	NA	NA
	4,4'-DDT	NA	1.4 J	NA	3.3 J	NA	3.9 U	NA	18 J	NA	NA	NA
	ALDRIN	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	ALPHA-BHC	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	ALPHA-CHLORDANE	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	AROCLOR-1016	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	AROCLOR-1221	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	AROCLOR-1232	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	AROCLOR-1242	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	AROCLOR-1248	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	AROCLOR-1254	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	AROCLOR-1260	NA	20 U	NA	20 U	NA	260	NA	220	NA	NA	NA
	AROCLOR-1268	NA	20 U	NA	20 U	NA	20 U	NA	620	NA	NA	NA
	BETA-BHC	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	DELTA-BHC	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	DIELDRIN	NA	3.8 U	NA	3.9 U	NA	3.9 U	NA	4 U	NA	NA	NA
	ENDOSULFAN I	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	ENDOSULFAN II	NA	3.8 U	NA	3.9 U	NA	3.9 U	NA	4 U	NA	NA	NA
	ENDOSULFAN SULFATE	NA	3.8 U	NA	3.9 UJ	NA	3.9 UJ	NA	4 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	ENDRIN	NA	3.8 U	NA	3.9 U	NA	3.9 U	NA	4 U	NA	NA	NA
	ENDRIN ALDEHYDE	NA	3.8 U	NA	3.9 U	NA	3.9 U	NA	4 U	NA	NA	NA
	ENDRIN KETONE	NA	3.8 U	NA	3.9 U	NA	3.9 U	NA	4 U	NA	NA	NA
	GAMMA-BHC (LINDANE)	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	GAMMA-CHLORDANE	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	HEPTACHLOR	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	HEPTACHLOR EPOXIDE	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	NA	NA
	METHOXYCHLOR	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	NA	NA
	TOTAL AROCLOR	NA	20 U	NA	20 U	NA	260	NA	840	NA	NA	NA
	TOTAL DDD/DDE/DDT	NA	2.5 J	NA	5 J	NA	3.9 U	NA	24.6 J	NA	NA	NA
	TOXAPHENE	NA	38 U	NA	39 U	NA	39 U	NA	40 U	NA	NA	NA
METALS (MG/KG)	ALUMINUM	NA	4940	NA	5020	NA	8460	NA	13100	NA	NA	NA
	ANTIMONY	NA	0.19 J	NA	0.08 U	NA	0.08 U	NA	0.16 U	NA	NA	NA
	ARSENIC	NA	6.2	NA	2	NA	9.7	NA	16.8	NA	NA	NA
	BARIUM	NA	32.4	NA	16.6	NA	23.1	NA	41.6	NA	NA	NA
	BERYLLIUM	NA	0.4	NA	0.27 J	NA	0.31 J	NA	0.4 J	NA	NA	NA
	CADMIUM	NA	1.4	NA	0.27 J	NA	0.72 J	NA	0.74 J	NA	NA	NA
	CALCIUM	NA	862	NA	705	NA	903	NA	1320	NA	NA	NA
	CHROMIUM	NA	6.5	NA	5.4	NA	11.4	NA	19.5	NA	NA	NA
	COBALT	NA	3.6	NA	3.4	NA	7.5	NA	10.8	NA	NA	NA
	COPPER	NA	38.2	NA	8.6	NA	17.6	NA	24.9	NA	NA	NA
	IRON	NA	15400	NA	7850	NA	16300	NA	27100	NA	NA	NA
	LEAD	NA	44.1	NA	28.8	NA	32	NA	33.4	NA	NA	NA
	MAGNESIUM	NA	980	NA	1720	NA	2220	NA	3830	NA	NA	NA
	MANGANESE	NA	368	NA	186	NA	250	NA	314	NA	NA	NA
	MERCURY	NA	0.03 J	NA	0.02 J	NA	0.06	NA	0.2	NA	NA	NA
	MOLYBDENUM	NA	0.72 UJ	NA	0.18 UJ	NA	0.36 J	NA	0.43 J	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	NICKEL	NA	28.9	NA	4.9	NA	13	NA	25.8	NA	NA	NA
	POTASSIUM	NA	703	NA	886	NA	647	NA	496	NA	NA	NA
	SELENIUM	NA	0.12 U	NA	0.14 U	NA	0.14 U	NA	0.27 U	NA	NA	NA
	SILVER	NA	0.21 UJ	NA	0.08 UJ	NA	0.44 J	NA	1.8 J	NA	NA	NA
	SODIUM	NA	30 J	NA	30.3 J	NA	36.4 J	NA	62.2 J	NA	NA	NA
	THALLIUM	NA	0.06 UJ	NA	0.04 UJ	NA	0.04 UJ	NA	0.03 UJ	NA	NA	NA
	VANADIUM	NA	9.5	NA	9.9	NA	16.3	NA	24.6	NA	NA	NA
	ZINC	NA	86	NA	31.2	NA	57	NA	76.5	NA	NA	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	1.7	NA	NA	NA	NA	NA	1.6	NA	NA	NA
	HYDROMETER-12.9UM	NA	4.2	NA	NA	NA	NA	NA	3.1	NA	NA	NA
	HYDROMETER-20.5UM	NA	5.3	NA	NA	NA	NA	NA	4.2	NA	NA	NA
	HYDROMETER-3.4UM	NA	2.7	NA	NA	NA	NA	NA	3.2	NA	NA	NA
	HYDROMETER-30.5UM	NA	11.9	NA	NA	NA	NA	NA	10.5	NA	NA	NA
	HYDROMETER-6.6UM	NA	1.6	NA	NA	NA	NA	NA	2.1	NA	NA	NA
	HYDROMETER-9.1UM	NA	2.7	NA	NA	NA	NA	NA	2.6	NA	NA	NA
	PERCENT CLAY	NA	8	NA	NA	NA	NA	NA	6.8	NA	NA	NA
	PERCENT COARSE SAND	NA	16.2	NA	NA	NA	NA	NA	9	NA	NA	NA
	PERCENT FINE SAND	NA	18.6	NA	NA	NA	NA	NA	18.5	NA	NA	NA
	PERCENT GRAVEL	NA	15.9	NA	NA	NA	NA	NA	27.2	NA	NA	NA
	PERCENT MEDIUM SAND	NA	15.6	NA	NA	NA	NA	NA	16	NA	NA	NA
	PERCENT SILT	NA	25.7	NA	NA	NA	NA	NA	22.4	NA	NA	NA
	SIEVE 1"	NA	0	NA	NA	NA	NA	NA	0	NA	NA	NA
	SIEVE 1-1/2"	NA	0	NA	NA	NA	NA	NA	0	NA	NA	NA
	SIEVE 2"	NA	0	NA	NA	NA	NA	NA	0	NA	NA	NA
	SIEVE 3"	NA	0	NA	NA	NA	NA	NA	0	NA	NA	NA
	SIEVE 3/4"	NA	0	NA	NA	NA	NA	NA	0	NA	NA	NA
	SIEVE 3/8"	NA	4.6	NA	NA	NA	NA	NA	16.2	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-MW110B	DA-MW110B	DA-MW110B	DA-MW110B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/31/07	01/15/08	07/31/07	01/14/08	07/30/07	01/15/08	07/30/07	01/15/08	07/30/07	07/30/07	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
	SAMPLE ID	DA-SS107-073107	DA-SS108-011508	DA-SS108-073107	DA-SS109-011408	DA-SS109-073007	DA-SS110-011508	DA-SS110-073007	DA-SS110B-011508	DA-SS110B-073007	DA-SS110B-073007-AVG	DA-SS110B-073007-D
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	11.4	NA	NA	NA	NA	NA	11	NA	NA	NA
	SIEVE NO. 010	NA	16.2	NA	NA	NA	NA	NA	9	NA	NA	NA
	SIEVE NO. 020	NA	9.3	NA	NA	NA	NA	NA	9.1	NA	NA	NA
	SIEVE NO. 040	NA	6.3	NA	NA	NA	NA	NA	6.9	NA	NA	NA
	SIEVE NO. 060	NA	5.9	NA	NA	NA	NA	NA	6.3	NA	NA	NA
	SIEVE NO. 080	NA	3.9	NA	NA	NA	NA	NA	4.1	NA	NA	NA
	SIEVE NO. 100	NA	1.8	NA	NA	NA	NA	NA	1.9	NA	NA	NA
	SIEVE NO. 200	NA	7	NA	NA	NA	NA	NA	6.2	NA	NA	NA
	TOTAL SOLIDS	92	NA	93	NA	93	NA	88	NA	88	89	90
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	4900	NA	NA	NA	NA	NA	30000	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	5.4	NA	NA	NA	NA	NA	5.5	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	18	NA	15	NA	260	NA	150	NA	NA	NA
	GASOLINE RANGE ORGANICS	NA	2.8 U	NA	3 U	NA	3 U	NA	3 U	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,1,1-TRICHLOROETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,1,2,2-TETRACHLOROETHANE	5 UJ	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	8 U	NA	5 UJ
	1,1,2-TRICHLOROETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,1-DICHLOROETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,1-DICHLOROETHENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,1-DICHLOROPROPENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,2,3-TRICHLOROBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	1,2,3-TRICHLOROPROPANE	5 UJ	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	8 U	NA	5 UJ
	1,2,4-TRICHLOROBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	1,2,4-TRIMETHYLBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 UJ	NA	5 UJ
	1,2-DIBROMOETHANE	5 U	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	8 U	NA	5 U
	1,2-DICHLOROBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	1,2-DICHLOROETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,2-DICHLOROPROPANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,3,5-TRIMETHYLBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	1,3-DICHLOROBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	1,3-DICHLOROPROPANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	1,4-DICHLOROBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	2,2-DICHLOROPROPANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	2-BUTANONE	25 U	NA	25 U	25 UJ	25 UJ	NA	25 U	NA	41 U	NA	27 U
	2-CHLOROTOLUENE	5 UJ	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	8 U	NA	5 UJ
	2-HEXANONE	25 U	NA	25 U	25 UJ	25 UJ	NA	25 U	NA	41 U	NA	27 U
	4-CHLOROTOLUENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	4-ISOPROPYLTOLUENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	NA	25 U	25 UJ	25 UJ	NA	25 U	NA	41 U	NA	27 U
	ACETONE	12 J	NA	1400 U	1450 U	1500 U	NA	25 UJ	NA	120 J	NA	46 J
	BENZENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	BROMOBENZENE	5 UJ	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	8 U	NA	5 UJ
	BROMOCHLOROMETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	BROMODICHLOROMETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	BROMOFORM	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	BROMOMETHANE	10 U	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 U	NA	11 U
	BTEX	5.6 U	NA	5.6 U	5.6 UJ	5.6 UJ	NA	5.6 U	NA	9 U	NA	5.8 U
	CARBON DISULFIDE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	CARBON TETRACHLORIDE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	CHLOROBENZENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	CHLORODIBROMOMETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	CHLOROETHANE	10 UJ	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 UJ	NA	11 UJ
	CHLOROFORM	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	CHLOROMETHANE	10 U	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 U	NA	11 U
	CIS-1,2-DICHLOROETHENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	DIBROMOMETHANE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	DICHLORODIFLUOROMETHANE	10 U	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 U	NA	11 U
	ETHYLBENZENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	HEXACHLOROBUTADIENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	ISOPROPYLBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	M+P-XYLENES	10 U	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 U	NA	11 U
	METHYL TERT-BUTYL ETHER	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	METHYLENE CHLORIDE	25 U	NA	25 U	25 UJ	25 UJ	NA	25 U	NA	41 U	NA	27 U
	N-BUTYLBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	O-XYLENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	SEC-BUTYLBENZENE	5 UJ	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 UJ
	STYRENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TERT-BUTYLBENZENE	5 UJ	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	8 U	NA	5 UJ
	TETRACHLOROETHENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TOLUENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	NA	6.2 U	6.2 UJ	6.2 UJ	NA	6.2 U	NA	10 U	NA	6.5 U
	TOTAL CHLORINATED VOCS	6.6 UJ	NA	6.6 UJ	6.6 UJ	6.6 UJ	NA	6.6 UJ	NA	11 UJ	NA	6.8 UJ
	TOTAL XYLENES	7.5 U	NA	7.5 U	7.5 UJ	7.5 UJ	NA	7.5 U	NA	12 U	NA	8 U
	TRANS-1,2-DICHLOROETHENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TRICHLOROETHENE	5 U	NA	5 U	5 UJ	5 UJ	NA	5 U	NA	8 U	NA	5 U
	TRICHLOROFLUOROMETHANE	10 U	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 U	NA	11 U
	VINYL CHLORIDE	10 U	NA	10 U	10 UJ	10 UJ	NA	10 U	NA	16 U	NA	11 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	1,2-DIPHENYLHYDRAZINE	780 U	NA	810 U	810 U	810 U	NA	820 U	NA	810 U	NA	810 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2,4,5-TRICHLOROPHENOL	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	2,4,6-TRICHLOROPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2,4-DICHLOROPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2,4-DIMETHYLPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2,4-DINITROPHENOL	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	2,4-DINITROTOLUENE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2,6-DICHLOROPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2,6-DINITROTOLUENE	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2-CHLOROPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2-METHYLNAPHTHALENE	33	31	25 U	24.5 U	24 U	120	25 U	21 J	26 J	22 U	25 UJ
	2-METHYLPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	2-NITROANILINE	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	2-NITROPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	3&4-METHYLPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	3,3'-DICHLOROBENZIDINE	390 U	NA	410 UJ	405 UJ	400 UJ	NA	410 UJ	NA	400 U	NA	410 U
	3-NITROANILINE	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	4,6-DINITRO-2-METHYLPHENOL	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	4-BROMOPHENYL PHENYL ETHER	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	4-CHLORO-3-METHYLPHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	4-CHLOROANILINE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 UJ	NA	410 UJ
	4-CHLOROPHENYL PHENYL ETHER	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	4-NITROANILINE	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	4-NITROPHENOL	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 UJ	NA	1000 UJ
	ACENAPHTHENE	180	180	28	22.5 J	17 J	470 J	16 J	44	160	2.9 J	6.2 J
	ACENAPHTHYLENE	24 U	22 U	4.6 J	5.8 J	7 J	23 U	3.4 J	23 U	24 U	22 U	4.3 J
	ANTHRACENE	380	NA	95 J	94 J	93 J	1700 J	35 J	120	220	6.5 J	9.3 J
	BENZIDINE	1800 UJ	NA	1800 UJ	1800 UJ	1800 UJ	NA	1800 UJ	NA	1800 UJ	NA	1800 UJ
	BENZO(A)ANTHRACENE	1100	NA	310 J	555 J	800 J	5000	170	430	400	48	46
	BENZO(A)PYRENE	1000	NA	200	250	300	2500	110	240	320	31	44
	BENZO(B)FLUORANTHENE	790	NA	160 J	220 J	280 J	3300	85	350	320	52	38
	BENZO(G,H,I)PERYLENE	250 J	NA	74	97	120	790 J	43	86	140	16 J	24 J
	BENZO(K)FLUORANTHENE	800	NA	170	225	280	2900	82	120	290 J	18 J	31 J
	BENZOIC ACID	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	780 U	NA	810 U	810 U	810 U	NA	820 U	NA	810 U	NA	810 U
	BIS(2-CHLOROETHOXY)METHANE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	BIS(2-CHLOROETHYL)ETHER	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	BIS(2-ETHYLHEXYL)PHTHALATE	390 UJ	NA	410 UJ	405 UJ	400 UJ	NA	410 UJ	NA	440 J	NA	410 UJ
	BUTYL BENZYL PHTHALATE	390 UJ	NA	410 UJ	405 UJ	400 UJ	NA	410 UJ	NA	400 UJ	NA	410 UJ
	CARBAZOLE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	CHRYSENE	960	NA	360 J	485 J	610 J	3800	140	310	520	30	46
	DIBENZO(A,H)ANTHRACENE	120	54	47	57.5	68	670 J	26	24	73	22 U	13 J
	DIBENZOFURAN	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	DIETHYL PHTHALATE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	DIMETHYL PHTHALATE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	DI-N-BUTYL PHTHALATE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	DI-N-OCTYL PHTHALATE	390 UJ	NA	410 UJ	405 UJ	400 UJ	NA	410 UJ	NA	400 UJ	NA	410 UJ
	FLUORANTHENE	2300	NA	1400	1300	1200	13000	340	900	1100	72	81
	FLUORENE	150	140	28 J	23.5 J	19 J	800 J	14 J	69	100	2.8 J	25 U
	HEXACHLOROBENZENE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	HEXACHLOROETHANE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	HIGH MOLECULAR WEIGHT PAHS	9700 J	54	4021 J	4764.5 J	5508 J	41760 J	1436	3188	4323 J	341 J	418 J
	INDENO(1,2,3-CD)PYRENE	280	NA	100	125	150	1000 J	60	78	180	14 J	32
	ISOPHORONE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	LOW MOLECULAR WEIGHT PAHS	2297	403	1161.5 J	840.5 J	519.5 J	13450 J	292.6 J	906 J	1434 J	44.2 J	51.8 J
	NAPHTHALENE	54	52	5.9 J	4.7 J	3.5 J	360 J	4.2 J	42	88	22 U	25 U
	NITROBENZENE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	N-NITROSODIMETHYLAMINE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	N-NITROSO-DI-N-PROPYLAMINE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	N-NITROSODIPHENYLAMINE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	PENTACHLOROPHENOL	970 U	NA	1000 U	1000 U	1000 U	NA	1000 U	NA	1000 U	NA	1000 U
	PHENANTHRENE	1500	NA	1000 J	690 J	380 J	10000	220	610	840	32	32
	PHENOL	390 U	NA	410 U	405 U	400 U	NA	410 U	NA	400 U	NA	410 U
	PYRENE	2100	NA	1200	1450	1700	8800	380	650	980	60	63
	TOTAL PAHS	11997 J	457	5182.5 J	5605 J	6027.5 J	55210 J	1728.6 J	4094 J	5757 J	385.2 J	469.8 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 U	NA	4.1 UJ
	4,4'-DDE	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	4.1 UJ
	4,4'-DDT	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	2 J
	ALDRIN	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ
	ALPHA-BHC	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 U
	ALPHA-CHLORDANE	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ
	AROCLOR-1016	20 U	NA	21 UJ	21 UJ	21 UJ	NA	21 UJ	NA	21 U	NA	21 UJ
	AROCLOR-1221	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 U	NA	21 U
	AROCLOR-1232	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 U	NA	21 U
	AROCLOR-1242	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 U	NA	21 U
	AROCLOR-1248	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 U	NA	21 U
	AROCLOR-1254	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 U	NA	21 U
	AROCLOR-1260	20 U	NA	21 UJ	21 UJ	21 UJ	NA	21 UJ	NA	21 U	NA	21 UJ
	AROCLOR-1268	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 U	NA	21 U
	BETA-BHC	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 U
	DELTA-BHC	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ
	DIELDRIN	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	4.1 UJ
	ENDOSULFAN I	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 U
	ENDOSULFAN II	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	4.1 U
	ENDOSULFAN SULFATE	3.9 UJ	NA	4.1 UJ	4.05 UJ	4 UJ	NA	4.1 UJ	NA	4 UJ	NA	4.1 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	4.1 UJ
	ENDRIN ALDEHYDE	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	4.1 U
	ENDRIN KETONE	3.9 U	NA	4.1 U	4.05 U	4 U	NA	4.1 U	NA	4 UJ	NA	4.1 U
	GAMMA-BHC (LINDANE)	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ
	GAMMA-CHLORDANE	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ
	HEPTACHLOR	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	1.7 J
	HEPTACHLOR EPOXIDE	2 U	NA	2.1 U	2.1 U	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ
	METHOXYCHLOR	20 U	NA	21 U	21 U	21 U	NA	21 U	NA	21 UJ	NA	21 U
	TOTAL AROCLOR	20 U	NA	21 UJ	21 UJ	21 UJ	NA	21 UJ	NA	21 U	NA	21 UJ
	TOTAL DDD/DDE/DDT	3.9 U	NA	4.1 U	4 U	4 U	NA	4.1 U	NA	4 UJ	NA	2 J
	TOXAPHENE	39 U	NA	41 U	40.5 U	40 U	NA	41 U	NA	40 UJ	NA	41 U
METALS (MG/KG)	ALUMINUM	13100	NA	13000	13200	13500	NA	15800	NA	12500	NA	15400
	ANTIMONY	0.18 U	NA	0.16 UJ	0.15 UJ	0.14 UJ	NA	0.16 UJ	NA	0.39 UJ	NA	0.17 UJ
	ARSENIC	20.4	NA	23.9	24	24	NA	26	NA	23	NA	14.2
	BARIUM	17	NA	15.9	17.9	19.9	NA	14.8	NA	22.8	NA	26.3
	BERYLLIUM	0.4 J	NA	0.39 J	0.385 J	0.38 J	NA	0.37 J	NA	0.48 J	NA	0.58 J
	CADMIUM	0.32 J	NA	0.02 UJ	0.02 UJ	0.02 UJ	NA	0.02 UJ	NA	0.3 UJ	NA	0.24 UJ
	CALCIUM	472	NA	1050	1130	1210	NA	1240	NA	417 J	NA	411 J
	CHROMIUM	15.7	NA	17.1	16.8	16.6	NA	18.3	NA	16.2	NA	28.8
	COBALT	13	NA	15.3	15.4	15.4	NA	17.1	NA	13.6	NA	11.4
	COPPER	23.7	NA	26.8 J	24.9 J	23 J	NA	23.9 J	NA	43.4 J	NA	24 J
	IRON	29000	NA	32800	32800	32700	NA	39400	NA	31300	NA	29200
	LEAD	15.2	NA	11.8	12.2	12.5	NA	13.3	NA	21.8	NA	32.2
	MAGNESIUM	3320	NA	3980	4080	4190	NA	4950	NA	3170 J	NA	3040 J
	MANGANESE	356	NA	440	479	518	NA	606	NA	358 J	NA	292 J
	MERCURY	0.02 J	NA	0.01 J	0.01 J	0.01 J	NA	0.03 J	NA	0.03 J	NA	0.02 J
	MOLYBDENUM	0.42 J	NA	0.25 UJ	0.328 J	0.53 J	NA	0.29 UJ	NA	0.43 UJ	NA	0.66 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	NICKEL	24.5	NA	27.3	27.6	27.8	NA	30.2	NA	26.2	NA	28.9
	POTASSIUM	372	NA	465	498	532	NA	426	NA	488 J	NA	547 J
	SELENIUM	0.32 U	NA	0.6 J	0.44 J	0.28 J	NA	0.28 U	NA	0.44 UJ	NA	0.3 U
	SILVER	0.56 UJ	NA	0.09 UJ	0.085 UJ	0.08 UJ	NA	0.09 UJ	NA	0.1 UJ	NA	0.09 UJ
	SODIUM	31.7 UJ	NA	32.7 UJ	35.2 UJ	37.8 UJ	NA	28.2 UJ	NA	46.4 J	NA	40 J
	THALLIUM	0.04 U	NA	0.07 UJ	0.1 UJ	0.13 U	NA	0.03 U	NA	0.04 U	NA	0.06 UJ
	VANADIUM	19	NA	18.5	19	19.4	NA	21	NA	22	NA	29.2
	ZINC	53.5	NA	67.8	66.4	64.9	NA	76	NA	67.1	NA	58.2
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/14/08	07/26/07	01/16/08	01/16/08	01/16/08	07/30/07	01/16/08	07/26/07	01/10/08	07/25/07	01/10/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS111B-011408	DA-SS111B-072607	DA-SS112B-011608	DA-SS112B-011608-AVG	DA-SS112B-011608-D	DA-SS112B-073007	DA-SS113B-011608	DA-SS113B-072607	DA-SS114B-011008	DA-SS114B-072507	DA-SS115B-011008
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	NA	91	NA	NA	NA	88	NA	86	NA	89	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	35	NA	19 J	30.5 J	42 J	NA	52 J	NA	71	NA	48
(MG/KG)	GASOLINE RANGE ORGANICS	2.6 U	NA	2.8 U	2.85 U	2.9 U	NA	3.0 U	NA	3.3 U	NA	3.2 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,1,1-TRICHLOROETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,1,2,2-TETRACHLOROETHANE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,1,2-TRICHLOROETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,1-DICHLOROETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,1-DICHLOROETHENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,1-DICHLOROPROPENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,2,3-TRICHLOROBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,2,3-TRICHLOROPROPANE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,2,4-TRICHLOROBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,2,4-TRIMETHYLBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	NA	5 UJ	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,2-DIBROMOETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,2-DICHLOROBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,2-DICHLOROETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,2-DICHLOROPROPANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,3,5-TRIMETHYLBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 UJ	NA	5 UJ
	1,3-DICHLOROBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	1,3-DICHLOROPROPANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	1,4-DICHLOROBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	2,2-DICHLOROPROPANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	2-BUTANONE	NA	25 U	NA	NA	NA	30 U	NA	12 J	NA	25 U
	2-CHLOROTOLUENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	2-HEXANONE	NA	25 U	NA	NA	NA	30 U	NA	25 U	NA	25 U
	4-CHLOROTOLUENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	4-ISOPROPYLTOLUENE	NA	8	NA	NA	NA	6 U	NA	14	NA	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	4-METHYL-2-PENTANONE	NA	25 U	NA	NA	NA	30 U	NA	25 U	NA	25 U
	ACETONE	NA	21 J	NA	NA	NA	120 J	NA	160	NA	98
	BENZENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	BROMOBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 UJ	NA	5 UJ
	BROMOCHLOROMETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	BROMODICHLOROMETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	BROMOFORM	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	BROMOMETHANE	NA	10 U	NA	NA	NA	12 U	NA	10 U	NA	10 U
	BTEX	NA	5.6 U	NA	NA	NA	6.8 U	NA	5.6 U	NA	5.6 U
	CARBON DISULFIDE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	CARBON TETRACHLORIDE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	CHLOROBENZENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	CHLORODIBROMOMETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	CHLOROETHANE	NA	10 UJ	NA	NA	NA	12 UJ	NA	10 U	NA	10 U
	CHLOROFORM	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	CHLOROMETHANE	NA	10 U	NA	NA	NA	12 U	NA	10 U	NA	10 U
	CIS-1,2-DICHLOROETHENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	CIS-1,3-DICHLOROPROPENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	DIBROMOMETHANE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	DICHLORODIFLUOROMETHANE	NA	10 U	NA	NA	NA	12 U	NA	10 U	NA	10 U
	ETHYLBENZENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	HEXACHLOROBUTADIENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	ISOPROPYLBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	M+P-XYLENES	NA	10 U	NA	NA	NA	12 U	NA	10 U	NA	10 U
	METHYL TERT-BUTYL ETHER	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	METHYLENE CHLORIDE	NA	25 U	NA	NA	NA	30 U	NA	25 U	NA	25 U
	N-BUTYLBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	N-PROPYLBENZENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	O-XYLENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	SEC-BUTYLBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	STYRENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TERT-BUTYLBENZENE	NA	5 U	NA	NA	NA	6 UJ	NA	5 U	NA	5 U
	TETRACHLOROETHENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TOLUENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TOTAL 1,2-DICHLOROETHENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TOTAL CHLORINATED ETHENES	NA	6.2 U	NA	NA	NA	7.5 U	NA	6.2 U	NA	6.2 U
	TOTAL CHLORINATED VOCS	NA	6.6 UJ	NA	NA	NA	7.9 UJ	NA	6.6 U	NA	6.6 U
	TOTAL XYLENES	NA	7.5 U	NA	NA	NA	9 U	NA	7.5 U	NA	7.5 U
	TRANS-1,2-DICHLOROETHENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TRANS-1,3-DICHLOROPROPENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TRICHLOROETHENE	NA	5 U	NA	NA	NA	6 U	NA	5 U	NA	5 U
	TRICHLOROFLUOROMETHANE	NA	10 U	NA	NA	NA	12 U	NA	10 U	NA	10 U
	VINYL CHLORIDE	NA	10 U	NA	NA	NA	12 U	NA	10 U	NA	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	1,2-DIPHENYLHYDRAZINE	NA	790 U	NA	NA	NA	810 U	NA	790 U	NA	770 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2,4,5-TRICHLOROPHENOL	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	2,4,6-TRICHLOROPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2,4-DICHLOROPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2,4-DIMETHYLPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2,4-DINITROPHENOL	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	2,4-DINITROTOLUENE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2,6-DICHLOROPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2,6-DINITROTOLUENE	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	2-CHLORONAPHTHALENE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2-CHLOROPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2-METHYLNAPHTHALENE	22 U	24 UJ	22 U	22.5 U	23 U	25 UJ	23 U	24 U	22 U	37 J
	2-METHYLPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	2-NITROANILINE	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	2-NITROPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	3&4-METHYLPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	3,3'-DICHLOROBENZIDINE	NA	390 U	NA	NA	NA	410 U	NA	400 UJ	NA	380 UJ
	3-NITROANILINE	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	4,6-DINITRO-2-METHYLPHENOL	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	4-BROMOPHENYL PHENYL ETHER	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	4-CHLORO-3-METHYLPHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	4-CHLOROANILINE	NA	390 UJ	NA	NA	NA	410 UJ	NA	400 U	NA	380 U
	4-CHLOROPHENYL PHENYL ETHER	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	4-NITROANILINE	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	4-NITROPHENOL	NA	980 UJ	NA	NA	NA	1000 UJ	NA	980 U	NA	950 U
	ACENAPHTHENE	22 U	4.4 J	22 U	22.5 U	23 U	6.9 J	23 U	3.8 J	22 U	95
	ACENAPHTHYLENE	22 U	3.3 J	22 U	22.5 U	23 U	4 J	23 U	24 U	22 U	23 U
	ANTHRACENE	22 U	5.9 J	22 U	22.5 U	23 U	9 J	23 U	3.6 J	22 U	210 J
	BENZIDINE	NA	1800 UJ	NA	NA	NA	1800 UJ	NA	1800 UJ	NA	1700 UJ
	BENZO(A)ANTHRACENE	10 J	24	14 J	14 J	14 J	47	29	26	23	320 J
	BENZO(A)PYRENE	11 J	24	13 J	13 J	13 J	47	22 J	22 J	19 J	260 J
	BENZO(B)FLUORANTHENE	22 J	19 J	24	24.5	25	35	39	20 J	32	200 J
	BENZO(G,H,I)PERYLENE	4.9 J	16 J	6.1 J	6.6 J	7.1 J	23 J	8.3 J	12 J	9.2 J	100 J
	BENZO(K)FLUORANTHENE	7.1 J	18 J	9.3 J	8.95 J	8.6 J	29 J	14 J	17 J	12 J	220 J
	BENZOIC ACID	NA	980 U	NA	NA	NA	1100	NA	600 J	NA	950 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	BENZYL ALCOHOL	NA	790 U	NA	NA	NA	810 U	NA	790 U	NA	770 U
	BIS(2-CHLOROETHOXY)METHANE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	BIS(2-CHLOROETHYL)ETHER	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	390 UJ	NA	NA	NA	410 UJ	NA	400 UJ	NA	380 UJ
	BUTYL BENZYL PHTHALATE	NA	390 UJ	NA	NA	NA	410 UJ	NA	400 UJ	NA	380 UJ
	CARBAZOLE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	CHRYSENE	10 J	24	11 J	11 J	11 J	43	22 J	29	22 J	550 J
	DIBENZO(A,H)ANTHRACENE	22 U	24 U	22 U	22.5 U	23 U	13 J	23 U	24 U	22 U	59
	DIBENZOFURAN	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	DIETHYL PHTHALATE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	DIMETHYL PHTHALATE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	DI-N-BUTYL PHTHALATE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	DI-N-OCTYL PHTHALATE	NA	390 UJ	NA	NA	NA	410 UJ	NA	400 UJ	NA	380 UJ
	FLUORANTHENE	26	42	28	29	30	84	52	63	41	1100 J
	FLUORENE	22 U	24 U	22 U	22.5 U	23 U	25 U	23 U	24 U	22 U	61 J
	HEXACHLOROBENZENE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	HEXACHLOROETHANE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	HIGH MOLECULAR WEIGHT PAHS	112.3 J	214 J	133.4 J	134.9 J	136.4 J	409 J	238.1 J	246 J	208.8 J	3859 J
	INDENO(1,2,3-CD)PYRENE	5.3 J	18 J	5 J	5.35 J	5.7 J	31	7.8 J	15 J	8.6 J	140 J
	ISOPHORONE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	LOW MOLECULAR WEIGHT PAHS	7.2 J	29.6 J	9.6 J	9 J	8.4 J	53.9 J	21 J	45.4 J	18 J	1543 J
	NAPHTHALENE	22 U	24 U	22 U	22.5 U	23 U	25 U	23 U	9 J	22 U	140 J
	NITROBENZENE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	N-NITROSODIMETHYLAMINE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	N-NITROSO-DI-N-PROPYLAMINE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	N-NITROSODIPHENYLAMINE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	N-NITROSOPYRROLIDINE	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	PENTACHLOROPHENOL	NA	980 U	NA	NA	NA	1000 U	NA	980 U	NA	950 U
	PHENANTHRENE	7.2 J	16 J	9.6 J	9 J	8.4 J	34	21 J	29	18 J	1000 J
	PHENOL	NA	390 U	NA	NA	NA	410 U	NA	400 U	NA	380 U
	PYRENE	16 J	29	23	22.5 J	22 J	57	44	42	42	910 J
	TOTAL PAHS	119.5 J	243.6 J	143 J	143.9 J	144.8 J	462.9 J	259.1 J	291.4 J	226.8 J	5402 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	3.9 U	NA	NA	NA	4.1 U	NA	4 U	NA	3.8 U
	4,4'-DDE	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	6.6
	4,4'-DDT	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U
	ALDRIN	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	ALPHA-BHC	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	ALPHA-CHLORDANE	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	AROCLOR-1016	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	20 U
	AROCLOR-1221	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	20 U
	AROCLOR-1232	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	20 U
	AROCLOR-1242	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	20 U
	AROCLOR-1248	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	20 U
	AROCLOR-1254	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	20 U
	AROCLOR-1260	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	100
	AROCLOR-1268	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	440
	BETA-BHC	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	DELTA-BHC	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	DIELDRIN	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U
	ENDOSULFAN I	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	ENDOSULFAN II	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U
	ENDOSULFAN SULFATE	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	ENDRIN	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U
	ENDRIN ALDEHYDE	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U
	ENDRIN KETONE	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	3.8 U
	GAMMA-BHC (LINDANE)	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	GAMMA-CHLORDANE	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	HEPTACHLOR	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	HEPTACHLOR EPOXIDE	NA	2 UJ	NA	NA	NA	2.1 UJ	NA	2 U	NA	2 U
	METHOXYCHLOR	NA	20 UJ	NA	NA	NA	21 UJ	NA	20 U	NA	20 U
	TOTAL AROCLOR	NA	20 U	NA	NA	NA	21 U	NA	20 U	NA	540
	TOTAL DDD/DDE/DDT	NA	3.9 UJ	NA	NA	NA	4.1 UJ	NA	4 U	NA	6.6
	TOXAPHENE	NA	39 UJ	NA	NA	NA	41 UJ	NA	40 U	NA	38 U
METALS (MG/KG)	ALUMINUM	NA	12400	NA	NA	NA	13100	NA	11500	NA	13300
	ANTIMONY	NA	0.22 UJ	NA	NA	NA	0.35 UJ	NA	0.17 UJ	NA	0.18 UJ
	ARSENIC	NA	21.3	NA	NA	NA	22.1	NA	23.8	NA	29.4
	BARIUM	NA	20	NA	NA	NA	21.5	NA	20.2	NA	27.8
	BERYLLIUM	NA	0.46 J	NA	NA	NA	0.4 J	NA	0.45 J	NA	0.53 J
	CADMIUM	NA	0.17 UJ	NA	NA	NA	0.19 UJ	NA	0.02 UJ	NA	0.02 U
	CALCIUM	NA	150 J	NA	NA	NA	211 J	NA	259	NA	724
	CHROMIUM	NA	16.5	NA	NA	NA	18.4	NA	15.2	NA	15.9
	COBALT	NA	13.5	NA	NA	NA	12.9	NA	14.2	NA	14.8
	COPPER	NA	25.8 J	NA	NA	NA	25.9 J	NA	23.4 J	NA	21.7 J
	IRON	NA	30900	NA	NA	NA	33700	NA	29400	NA	35100
	LEAD	NA	13.7	NA	NA	NA	17.3	NA	17.1	NA	19.9
	MAGNESIUM	NA	3180 J	NA	NA	NA	3290 J	NA	2850	NA	3480
	MANGANESE	NA	383 J	NA	NA	NA	325 J	NA	339	NA	419
	MERCURY	NA	0.01 J	NA	NA	NA	0.02 J	NA	0.02 J	NA	0.03 J
	MOLYBDENUM	NA	0.54 J	NA	NA	NA	0.60 J	NA	0.52 UJ	NA	0.36 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	NICKEL	NA	27	NA	NA	NA	29.1	NA	25.6	NA	25.8
	POTASSIUM	NA	509 J	NA	NA	NA	558 J	NA	458	NA	510
	SELENIUM	NA	0.32 U	NA	NA	NA	0.72 UJ	NA	0.44 J	NA	0.69 J
	SILVER	NA	0.1 UJ	NA	NA	NA	0.1 UJ	NA	0.09 UJ	NA	0.09 UJ
	SODIUM	NA	29.8 UJ	NA	NA	NA	39.5 J	NA	45.7 UJ	NA	45.7 UJ
	THALLIUM	NA	0.04 U	NA	NA	NA	0.04 U	NA	0.05 UJ	NA	0.06 UJ
	VANADIUM	NA	22.5	NA	NA	NA	29.1	NA	23.8	NA	20.8
	ZINC	NA	60.5	NA	NA	NA	61.9	NA	64.3	NA	70.6
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/25/07	01/10/08	07/25/07	07/25/07	07/25/07	01/10/08	07/25/07	01/16/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SS115B-072507	DA-SS116B-011008	DA-SS116B-072507	DA-SS116B-072507-AVG	DA-SS116B-072507-D	DA-SS117B-011008	DA-SS117B-072507	DA-SS118B-011608	DA-SS118B-072507	DA-SS119B-011608
FRACTION (UNITS)	PARAMETER										
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	89	NA	89	88.5	88	NA	86	NA	89	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	15	NA	NA	NA	59	NA	69 J	NA	21 J
	GASOLINE RANGE ORGANICS	NA	3.1 U	NA	NA	NA	4.4 U	NA	2.9 U	NA	2.8 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1,1-TRICHLOROETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1,2-TRICHLOROETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1-DICHLOROETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1-DICHLOROETHENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1-DICHLOROPROPENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2,3-TRICHLOROBENZENE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2,3-TRICHLOROPROPANE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2,4-TRICHLOROBENZENE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2,4-TRIMETHYLBENZENE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	NA	6 U	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,2-DIBROMOETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2-DICHLOROBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2-DICHLOROETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,2-DICHLOROPROPANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,3,5-TRIMETHYLBENZENE	5 UJ	5 UJ	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,3-DICHLOROBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,3-DICHLOROPROPANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,4-DICHLOROBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	2,2-DICHLOROPROPANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	2-BUTANONE	25 U	25 U	NA	29 U	NA	25 U	NA	25 UJ	NA	25 U	NA
	2-CHLOROTOLUENE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	2-HEXANONE	25 U	25 U	NA	29 U	NA	25 U	NA	25 UJ	NA	25 U	NA
	4-CHLOROTOLUENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	4-ISOPROPYLTOLUENE	5 U	5 U	NA	6 U	NA	73	NA	5 UJ	NA	5 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	25 U	NA	29 UJ	NA	25 U	NA	25 UJ	NA	25 U	NA
	ACETONE	55.2	25 U	NA	2300 J	NA	24 J	NA	12 J	NA	16 J	NA
	BENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	BROMOBENZENE	5 UJ	5 UJ	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	BROMOCHLOROMETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	BROMODICHLOROMETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	BROMOFORM	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	BROMOMETHANE	10 U	10 U	NA	12 U	NA	10 U	NA	10 UJ	NA	10 U	NA
	BTEX	5.6 U	5.6 U	NA	6.8 U	NA	5.6 U	NA	5.6 UJ	NA	5.6 U	NA
	CARBON DISULFIDE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CARBON TETRACHLORIDE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CHLOROBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CHLORODIBROMOMETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CHLOROETHANE	10 U	10 U	NA	12 U	NA	10 UJ	NA	10 UJ	NA	10 UJ	NA
	CHLOROFORM	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CHLOROMETHANE	10 U	10 U	NA	12 U	NA	10 U	NA	10 UJ	NA	10 U	NA
	CIS-1,2-DICHLOROETHENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	DIBROMOMETHANE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	DICHLORODIFLUOROMETHANE	10 U	10 U	NA	12 U	NA	10 U	NA	10 UJ	NA	10 U	NA
	ETHYLBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	HEXACHLOROBUTADIENE	5 U	5 U	NA	6 UJ	NA	5 U	NA	5 UJ	NA	5 U	NA
	ISOPROPYLBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	M+P-XYLENES	10 U	10 U	NA	12 U	NA	10 U	NA	10 UJ	NA	10 U	NA
	METHYL TERT-BUTYL ETHER	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	METHYLENE CHLORIDE	25 U	25 U	NA	29 U	NA	25 U	NA	25 UJ	NA	25 U	NA
	N-BUTYLBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	O-XYLENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	SEC-BUTYLBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	STYRENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TERT-BUTYLBENZENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TETRACHLOROETHENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TOLUENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	NA	7.5 U	NA	6.2 U	NA	4 J	NA	6.2 U	NA
	TOTAL CHLORINATED VOCS	6.6 U	6.6 U	NA	7.8 UJ	NA	6.6 UJ	NA	4 J	NA	6.6 UJ	NA
	TOTAL XYLENES	7.5 U	7.5 U	NA	9 U	NA	7.5 U	NA	7.5 UJ	NA	7.5 U	NA
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	NA	6 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TRICHLOROETHENE	5 U	5 U	NA	6 U	NA	5 U	NA	4 J	NA	5 U	NA
	TRICHLOROFLUOROMETHANE	10 U	10 U	NA	12 U	NA	10 U	NA	10 UJ	NA	10 U	NA
	VINYL CHLORIDE	10 U	10 U	NA	12 U	NA	10 U	NA	10 UJ	NA	10 U	NA
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	1,2-DIPHENYLHYDRAZINE	775 U	780 U	NA	820 U	NA	820 U	NA	800 U	NA	800 U	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2,4,5-TRICHLOROPHENOL	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	2,4,6-TRICHLOROPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2,4-DICHLOROPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2,4-DIMETHYLPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2,4-DINITROPHENOL	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	2,4-DINITROTOLUENE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2,6-DICHLOROPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2,6-DINITROTOLUENE	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2-CHLOROPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2-METHYLNAPHTHALENE	22 J	7.1 J	4.7 J	25 U	23 U	25 U	16 J	7.9 J	14 J	11 J	4600 U
	2-METHYLPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	2-NITROANILINE	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	2-NITROPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	3&4-METHYLPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	3,3'-DICHLOROBENZIDINE	385 UJ	390 UJ	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	3-NITROANILINE	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	4,6-DINITRO-2-METHYLPHENOL	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	4-BROMOPHENYL PHENYL ETHER	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	4-CHLORO-3-METHYLPHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	4-CHLOROANILINE	385 U	390 U	NA	410 U	NA	410 UJ	NA	400 UJ	NA	400 U	NA
	4-CHLOROPHENYL PHENYL ETHER	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	4-NITROANILINE	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	4-NITROPHENOL	960 U	970 U	NA	1000 U	NA	1000 UJ	NA	990 UJ	NA	990 U	NA
	ACENAPHTHENE	52.4 J	9.7 J	18 J	3.2 J	2.4 J	57	120	22 J	42	74	2600 J
	ACENAPHTHYLENE	6.8 J	2.1 J	5.1 J	25 U	7.4 J	24 J	23 U	6.5 J	22 U	8.3 J	23 U
	ANTHRACENE	112 J	15 J	36	6.4 J	8.3 J	170	380 J	53	130	220	5600
	BENZIDINE	1750 UJ	1800 UJ	NA	1800 UJ	NA	1800 UJ	NA	1800 UJ	NA	1800 UJ	NA
	BENZO(A)ANTHRACENE	202 J	84 J	160	45	77	410	1200	270	680	970	10000
	BENZO(A)PYRENE	170 J	79 J	160	48	79	760	1000	240	420	730	6100
	BENZO(B)FLUORANTHENE	136 J	71 J	240	52	110	760	1600	220	540	580	10000
	BENZO(G,H,I)PERYLENE	74 J	48 J	85	28	52	180	740	110	170	190	4100 J
	BENZO(K)FLUORANTHENE	147 J	74 J	77	46	100	570 J	680	220 J	440	510 J	3800 J
	BENZOIC ACID	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	775 U	780 U	NA	820 U	NA	820 U	NA	800 U	NA	800 U	NA
	BIS(2-CHLOROETHOXY)METHANE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	BIS(2-CHLOROETHYL)ETHER	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	385 UJ	390 UJ	NA	410 UJ	NA	410 UJ	NA	400 UJ	NA	400 UJ	NA
	BUTYL BENZYL PHTHALATE	385 UJ	390 UJ	NA	410 UJ	NA	410 UJ	NA	400 UJ	NA	400 UJ	NA
	CARBAZOLE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	CHRYSENE	325 J	100 J	220	54	85	1100	1200	380	640	880	8500
	DIBENZO(A,H)ANTHRACENE	37.5 J	16 J	25	25 U	34	100	140	63	140	99	1200 J
	DIBENZOFURAN	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	DIETHYL PHTHALATE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	DIMETHYL PHTHALATE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	DI-N-BUTYL PHTHALATE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	DI-N-OCTYL PHTHALATE	385 UJ	390 UJ	NA	410 UJ	NA	410 UJ	NA	400 UJ	NA	400 UJ	NA
	FLUORANTHENE	640 J	180 J	440	73	100	2000	2600	590	1400	1700	22000
	FLUORENE	33.1 J	5.2 J	19 J	25 U	2.3 J	46	120	15 J	38	66	2700 J
	HEXACHLOROBENZENE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	HEXACHLOROETHANE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	HIGH MOLECULAR WEIGHT PAHS	2347 J	833 J	1857	445	806	8500 J	12130 J	2833 J	5680	7879 J	84200 J
	INDENO(1,2,3-CD)PYRENE	95.5 J	51 J	160	31	72	220	570 J	140	250	220	3500 J
	ISOPHORONE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	LOW MOLECULAR WEIGHT PAHS	851.1 J	147.7 J	292.8 J	41.6 J	54.4 J	1134.9 J	2259 J	373.7 J	899 J	1388.3 J	30640 J
	NAPHTHALENE	74.8 J	9.6 J	10 J	25 U	23 U	7.9 J	23 J	9.3 J	15 J	29	740 J
	NITROBENZENE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	N-NITROSODIMETHYLAMINE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	N-NITROSO-DI-N-PROPYLAMINE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	N-NITROSODIPHENYLAMINE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	PENTACHLOROPHENOL	960 U	970 U	NA	1000 U	NA	1000 U	NA	990 U	NA	990 U	NA
	PHENANTHRENE	550 J	99 J	200	32	34	830	1600	260	660	980	19000
	PHENOL	385 U	390 U	NA	410 U	NA	410 U	NA	400 U	NA	400 U	NA
	PYRENE	520 J	130 J	290	68	97	2400	2400	600	1000	2000	15000
	TOTAL PAHS	3198.1 J	980.7 J	2149.8 J	486.6 J	860.4 J	9634.9 J	14389 J	3206.7 J	6579 J	9267.3 J	114840 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.85 U	3.9 U	NA	4.1 U	NA	4.1 U	NA	4 U	NA	4 U	NA
	4,4'-DDE	6.45	6.3	NA	1.3 J	NA	1.8 J	NA	4 UJ	NA	4 UJ	NA
	4,4'-DDT	3.85 U	3.9 U	NA	3.2 J	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA
	ALDRIN	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	ALPHA-BHC	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	ALPHA-CHLORDANE	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	AROCLOR-1016	20 U	20 U	NA	21 UJ	NA	21 UJ	NA	20 UJ	NA	20 UJ	NA
	AROCLOR-1221	20 U	20 U	NA	21 U	NA	21 U	NA	20 U	NA	20 U	NA
	AROCLOR-1232	20 U	20 U	NA	21 U	NA	21 U	NA	20 U	NA	20 U	NA
	AROCLOR-1242	20 U	20 U	NA	21 U	NA	21 U	NA	20 U	NA	20 U	NA
	AROCLOR-1248	20 U	20 U	NA	21 U	NA	21 U	NA	20 U	NA	20 U	NA
	AROCLOR-1254	20 U	20 U	NA	21 U	NA	21 U	NA	20 U	NA	20 U	NA
	AROCLOR-1260	80.5	61	NA	21 UJ	NA	170 J	NA	51 J	NA	110 J	NA
	AROCLOR-1268	400	360	NA	21 U	NA	21 U	NA	20 U	NA	20 U	NA
	BETA-BHC	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	DELTA-BHC	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	DIELDRIN	3.85 U	3.9 U	NA	4.1 U	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA
	ENDOSULFAN I	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	ENDOSULFAN II	3.85 U	3.9 U	NA	4.1 U	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA
	ENDOSULFAN SULFATE	3.85 U	3.9 U	NA	4.1 U	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.85 U	3.9 U	NA	4.1 U	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA
	ENDRIN ALDEHYDE	3.85 U	3.9 U	NA	4.1 U	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA
	ENDRIN KETONE	3.85 U	3.9 U	NA	4.1 U	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA
	GAMMA-BHC (LINDANE)	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	GAMMA-CHLORDANE	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	HEPTACHLOR	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	HEPTACHLOR EPOXIDE	2 U	2 U	NA	2.1 U	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA
	METHOXYCHLOR	20 U	20 U	NA	21 U	NA	21 UJ	NA	20 UJ	NA	20 UJ	NA
	TOTAL AROCLOR	480.5	421	NA	21 UJ	NA	170 J	NA	51 J	NA	110 J	NA
	TOTAL DDD/DDE/DDT	6.45	6.3	NA	4.5 J	NA	1.8 J	NA	4 UJ	NA	4 UJ	NA
	TOXAPHENE	38.5 U	39 U	NA	41 U	NA	41 UJ	NA	40 UJ	NA	40 UJ	NA
METALS (MG/KG)	ALUMINUM	13000	12600	NA	16200	NA	10800	NA	12000	NA	13100	NA
	ANTIMONY	0.17 UJ	0.16 UJ	NA	0.19 UJ	NA	0.19 UJ	NA	0.19 UJ	NA	0.18 UJ	NA
	ARSENIC	29.8	30.2	NA	16.2	NA	23.9	NA	22.3	NA	18.6	NA
	BARIUM	27.6	27.3	NA	28.3	NA	26.3	NA	39.6	NA	42.7	NA
	BERYLLIUM	0.5 J	0.47 J	NA	0.48 J	NA	0.4 J	NA	0.57 J	NA	0.48 J	NA
	CADMIUM	0.02 UJ	0.02 UJ	NA	6.5	NA	2.4 J	NA	1.6 J	NA	0.43 J	NA
	CALCIUM	760	796	NA	579 J	NA	1250 J	NA	1210 J	NA	1100 J	NA
	CHROMIUM	15.5	15.1	NA	17.6	NA	19.6	NA	22.4	NA	17.2	NA
	COBALT	14.8	14.8	NA	12.3	NA	11	NA	18.5	NA	10.9	NA
	COPPER	22 J	22.2 J	NA	18.7	NA	26.5 J	NA	133 J	NA	24.3 J	NA
	IRON	33800	32500	NA	30600	NA	25800	NA	31300	NA	28900	NA
	LEAD	19.4	19	NA	18.7	NA	25.4	NA	86.1	NA	23	NA
	MAGNESIUM	3450	3420	NA	3660	NA	2990 J	NA	2530 J	NA	3260 J	NA
	MANGANESE	448	476	NA	415	NA	355 J	NA	782 J	NA	395 J	NA
	MERCURY	0.03 J	0.03 J	NA	0.03 J	NA	0.03 J	NA	0.08	NA	0.04	NA
	MOLYBDENUM	0.37 UJ	0.38 UJ	NA	0.28 UJ	NA	0.47 J	NA	0.69 J	NA	0.57 J	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	NICKEL	25.8	25.7	NA	25.1	NA	25.9	NA	22.1	NA	23.2	NA
	POTASSIUM	511	512	NA	341 J	NA	592 J	NA	465 J	NA	552 J	NA
	SELENIUM	0.485 J	0.28 J	NA	0.39 UJ	NA	0.16 U	NA	0.32 U	NA	0.37 UJ	NA
	SILVER	0.085 UJ	0.08 UJ	NA	0.1 UJ	NA	0.05 UJ	NA	0.1 UJ	NA	0.09 UJ	NA
	SODIUM	46.4 UJ	47.2 UJ	NA	38.2 J	NA	57.2 J	NA	54.8 J	NA	50.4 J	NA
	THALLIUM	0.06 UJ	0.06 UJ	NA	0.08 UJ	NA	0.04 U	NA	0.08 UJ	NA	0.04 UJ	NA
	VANADIUM	19.8	18.8	NA	21.9	NA	17.9	NA	19.6	NA	23.2	NA
	ZINC	69.5	68.4	NA	79.7	NA	144	NA	663	NA	64.6	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW119B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/16/08	01/16/08	07/30/07	01/17/08	08/02/07	01/10/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS119B-011608-AVG	DA-SS119B-011608-D	DA-SS119B-073007	DA-SS120B-011708	DA-SS120B-080207	DA-SS121-011008	DA-SS121-072607	DA-SS122-011008	DA-SS122-073007	DA-SS123-011008	DA-SS123-072607
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	NA	NA	94	NA	87	NA	86	NA	89	NA	86
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	25 J	29 J	NA	21	NA	150	NA	110	NA	66	NA
	GASOLINE RANGE ORGANICS	2.7 U	2.6 U	NA	3.3 U	NA	4.6 U	NA	60	NA	3.3 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,1,1-TRICHLOROETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	1,1,2-TRICHLOROETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,1-DICHLOROETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,1-DICHLOROETHENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,1-DICHLOROPROPENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,2,3-TRICHLOROBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 UJ
	1,2,3-TRICHLOROPROPANE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	1,2,4-TRICHLOROBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 UJ
	1,2,4-TRIMETHYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	NA	5 UJ	5 UJ	5 UJ	NA	5 UJ	NA	NA	NA	5 UJ
	1,2-DIBROMOETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 UJ
	1,2-DICHLOROBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	1,2-DICHLOROETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,2-DICHLOROPROPANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	1,3-DICHLOROBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	1,3-DICHLOROPROPANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	1,4-DICHLOROBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	2,2-DICHLOROPROPANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	2-BUTANONE	26 U	NA	25 U	25 U	25 U	NA	26 U	NA	NA	NA	25 U
	2-CHLOROTOLUENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	2-HEXANONE	26 U	NA	25 U	25 U	25 U	NA	26 U	NA	NA	NA	25 UJ
	4-CHLOROTOLUENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	4-ISOPROPYLTOLUENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	26 U	NA	25 U	25 U	25 U	NA	26 U	NA	NA	NA	25 U
	ACETONE	33 J	NA	150 J	210 J	270 J	NA	550	NA	NA	NA	330
	BENZENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	BROMOBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	BROMOCHLOROMETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	BROMODICHLOROMETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	BROMOFORM	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 UJ
	BROMOMETHANE	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	NA	NA	10 U
	BTEX	5.6 U	NA	5.6 U	5.6 U	5.6 U	NA	5.6 U	NA	NA	NA	5.6 U
	CARBON DISULFIDE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	CARBON TETRACHLORIDE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	CHLOROBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	CHLORODIBROMOMETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	CHLOROETHANE	10 UJ	NA	10 UJ	10 UJ	10 UJ	NA	10 UJ	NA	NA	NA	10 UJ
	CHLOROFORM	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	CHLOROMETHANE	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	NA	NA	10 U
	CIS-1,2-DICHLOROETHENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	DIBROMOMETHANE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	DICHLORODIFLUOROMETHANE	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	NA	NA	10 U
	ETHYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	HEXACHLOROBUTADIENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	ISOPROPYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	M+P-XYLENES	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	NA	NA	10 U
	METHYL TERT-BUTYL ETHER	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	METHYLENE CHLORIDE	26 U	NA	25 U	25 U	25 U	NA	26 U	NA	NA	NA	25 U
	N-BUTYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	O-XYLENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	SEC-BUTYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	STYRENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TERT-BUTYLBENZENE	5 U	NA	5 U	5 U	5 U	NA	5 UJ	NA	NA	NA	5 U
	TETRACHLOROETHENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TOLUENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	NA	6.2 U	6.2 U	6.2 U	NA	6.2 U	NA	NA	NA	6.2 U
	TOTAL CHLORINATED VOCS	6.6 UJ	NA	6.6 UJ	6.6 UJ	6.6 UJ	NA	6.6 UJ	NA	NA	NA	6.6 UJ
	TOTAL XYLENES	7.5 U	NA	7.5 U	7.5 U	7.5 U	NA	7.5 U	NA	NA	NA	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TRICHLOROETHENE	5 U	NA	5 U	5 U	5 U	NA	5 U	NA	NA	NA	5 U
	TRICHLOROFLUOROMETHANE	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	NA	NA	10 U
	VINYL CHLORIDE	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	NA	NA	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	660
	1,2-DIPHENYLHYDRAZINE	820 U	NA	760 U	765 U	770 U	NA	810 U	NA	NA	NA	750 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2,4,5-TRICHLOROPHENOL	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	2,4,6-TRICHLOROPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2,4-DICHLOROPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2,4-DIMETHYLPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2,4-DINITROPHENOL	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	2,4-DINITROTOLUENE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2,6-DICHLOROPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2,6-DINITROTOLUENE	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2-CHLOROPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2-METHYLNAPHTHALENE	25 U	22 U	86	51 J	16 J	13 J	74	16 J	11.3 J	6.6 J	2400 J
	2-METHYLPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	2-NITROANILINE	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	2-NITROPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	3&4-METHYLPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	3,3'-DICHLOROBENZIDINE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	3-NITROANILINE	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	4,6-DINITRO-2-METHYLPHENOL	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	4-BROMOPHENYL PHENYL ETHER	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	4-CHLORO-3-METHYLPHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	4-CHLOROANILINE	410 UJ	NA	380 U	380 UJ	380 UJ	NA	400 U	NA	NA	NA	380 U
	4-CHLOROPHENYL PHENYL ETHER	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	4-NITROANILINE	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	4-NITROPHENOL	1000 UJ	NA	940 U	945 UJ	950 UJ	NA	1000 U	NA	NA	NA	940 U
	ACENAPHTHENE	28	17 J	510 J	320 J	130 J	120	600 J	89	58.5	28	9500
	ACENAPHTHYLENE	5 J	22 U	23 U	23 U	23 U	21 U	96	24	31.5	39	23 U
	ANTHRACENE	55	37	730 J	500 J	270 J	320 J	1500	190	142	95	13000
	BENZIDINE	1900 UJ	NA	1700 UJ	1700 UJ	1700 UJ	NA	1800 UJ	NA	NA	NA	1700 UJ
	BENZO(A)ANTHRACENE	210	140	1700 J	1320 J	930 J	860	5100	1100	1050	1000	20000
	BENZO(A)PYRENE	190	100	1400 J	1060 J	730 J	700	3000	890	1100	1300	17000
	BENZO(B)FLUORANTHENE	140	160	1000 J	765 J	530 J	1200	3300	1900	2250	2600	12000
	BENZO(G,H,I)PERYLENE	85	45	620 J	425 J	230 J	470	1100 J	600	850	1100	7400 J
	BENZO(K)FLUORANTHENE	150 J	65	910 J	715 J	520 J	430	2900	750	855	960	12000
	BENZOIC ACID	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	820 U	NA	760 U	765 U	770 U	NA	810 U	NA	NA	NA	750 U
	BIS(2-CHLOROETHOXY)METHANE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	BIS(2-CHLOROETHYL)ETHER	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	BIS(2-ETHYLHEXYL)PHTHALATE	410 UJ	NA	380 UJ	380 UJ	380 UJ	NA	400 UJ	NA	NA	NA	380 U
	BUTYL BENZYL PHTHALATE	410 UJ	NA	380 UJ	380 UJ	380 UJ	NA	400 UJ	NA	NA	NA	380 U
	CARBAZOLE	410 U	NA	440	315	380 U	NA	1200	NA	NA	NA	7300
	CHRYSENE	250	120	1400 J	1110 J	820 J	820	4700	1200	1200	1200	17000
	DIBENZO(A,H)ANTHRACENE	50	10 J	190 J	150 J	110 J	85	330	81	200 J	320 J	3500
	DIBENZOFURAN	410 U	NA	210 J	200 J	380 U	NA	360 J	NA	NA	NA	4700
	DIETHYL PHTHALATE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	DIMETHYL PHTHALATE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	DI-N-BUTYL PHTHALATE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	DI-N-OCTYL PHTHALATE	410 UJ	NA	380 UJ	380 UJ	380 UJ	NA	400 UJ	NA	NA	NA	380 U
	FLUORANTHENE	460	170	3200 J	2400 J	1600 J	1900	8700	1500	1180	860	45000
	FLUORENE	22 J	16 J	320 J	206 J	91 J	98	540 J	67	45.5	24	5900 J
	HEXACHLOROBENZENE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	HEXACHLOROETHANE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	HIGH MOLECULAR WEIGHT PAHS	2065 J	1053 J	14180 J	10845 J	7510 J	8215 J	43630 J	10371	11330 J	12280 J	193100 J
	INDENO(1,2,3-CD)PYRENE	110	43	360	300	240	350 J	1500	550	745	940	9200
	ISOPHORONE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	LOW MOLECULAR WEIGHT PAHS	343.4 J	210 J	4576 J	3061 J	1545 J	1774 J	8789 J	1219 J	903.8 J	589.7 J	89800 J
	NAPHTHALENE	3.4 J	22 U	230 J	134 J	38 J	23	79	33	20 J	7.1 J	11000
	NITROBENZENE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	N-NITROSODIMETHYLAMINE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	N-NITROSO-DI-N-PROPYLAMINE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	N-NITROSODIPHENYLAMINE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	PENTACHLOROPHENOL	1000 U	NA	940 U	945 U	950 U	NA	1000 U	NA	NA	NA	940 U
	PHENANTHRENE	230	140	2700 J	1850 J	1000 J	1200	5900 J	800	595	390	48000 J
	PHENOL	410 U	NA	380 U	380 U	380 U	NA	400 U	NA	NA	NA	380 U
	PYRENE	420	200	3400 J	2600 J	1800 J	1400	13000	1800	1900	2000	50000
	TOTAL PAHS	2408.4 J	1263 J	18756 J	13906 J	9055 J	9989 J	52419 J	11590 J	12233.8 J	12869.7 J	282900 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.1 U	NA	3.8 U	3.8 U	3.8 U	NA	4 U	NA	NA	NA	3.8 U
	4,4'-DDE	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	4,4'-DDT	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	ALDRIN	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	ALPHA-BHC	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	ALPHA-CHLORDANE	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	AROCLOR-1016	21 UJ	NA	20 UJ	20 UJ	20 UJ	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1221	21 U	NA	20 U	20 U	20 U	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1232	21 U	NA	20 U	20 U	20 U	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1242	21 U	NA	20 U	20 U	20 U	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1248	21 U	NA	20 U	20 U	20 U	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1254	21 U	NA	20 U	20 U	20 U	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1260	70 J	NA	52 J	44.5 J	37 J	NA	21 U	NA	NA	NA	19 U
	AROCLOR-1268	21 U	NA	20 U	20 U	20 U	NA	21 U	NA	NA	NA	19 U
	BETA-BHC	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	DELTA-BHC	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	DIELDRIN	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	ENDOSULFAN I	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	ENDOSULFAN II	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	ENDOSULFAN SULFATE	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 UJ	NA	NA	NA	3.8 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	ENDRIN	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	ENDRIN ALDEHYDE	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	ENDRIN KETONE	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	GAMMA-BHC (LINDANE)	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	GAMMA-CHLORDANE	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	HEPTACHLOR	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	HEPTACHLOR EPOXIDE	2.1 UJ	NA	2 UJ	2 UJ	2 UJ	NA	2.1 U	NA	NA	NA	1.9 U
	METHOXYCHLOR	21 UJ	NA	20 UJ	20 UJ	20 UJ	NA	21 U	NA	NA	NA	19 U
	TOTAL AROCLOR	70 J	NA	52 J	44.5 J	37 J	NA	21 U	NA	NA	NA	19 U
	TOTAL DDD/DDE/DDT	4.1 UJ	NA	3.8 UJ	3.8 UJ	3.8 UJ	NA	4 U	NA	NA	NA	3.8 U
	TOXAPHENE	41 UJ	NA	38 UJ	38 UJ	38 UJ	NA	40 U	NA	NA	NA	38 U
METALS (MG/KG)	ALUMINUM	9550	NA	9030	9860	10700	NA	10600	NA	NA	NA	7500
	ANTIMONY	0.38 UJ	NA	0.09 UJ	0.09 UJ	0.09 UJ	NA	0.09 U	NA	NA	NA	0.08 U
	ARSENIC	8.1	NA	10.1	11.4	12.6	NA	16.7	NA	NA	NA	8.3
	BARIUM	30	NA	22.2	24.8	27.5	NA	19.1	NA	NA	NA	22.3
	BERYLLIUM	0.42 J	NA	0.44	0.465 J	0.49 J	NA	0.32 J	NA	NA	NA	0.42 J
	CADMIUM	1.5 J	NA	0.43 J	0.41 J	0.39 J	NA	0.73 J	NA	NA	NA	0.3 J
	CALCIUM	1570 J	NA	1280 J	1340 J	1390 J	NA	949	NA	NA	NA	1370
	CHROMIUM	14.7	NA	19	16.5	14	NA	13.1	NA	NA	NA	8.3
	COBALT	7.2	NA	7	7.55	8.1	NA	11.5	NA	NA	NA	6.2
	COPPER	16.8 J	NA	16.6 J	17.3 J	18 J	NA	19	NA	NA	NA	11
	IRON	16600	NA	19100	19600	20100	NA	23500	NA	NA	NA	15500
	LEAD	23	NA	23.4	23.2	23	NA	55	NA	NA	NA	17.3
	MAGNESIUM	2890 J	NA	2480 J	2520 J	2570 J	NA	2910	NA	NA	NA	1860
	MANGANESE	348 J	NA	332 J	364 J	395 J	NA	389	NA	NA	NA	381
	MERCURY	0.06	NA	0.04 J	0.04 J	0.04	NA	0.04	NA	NA	NA	0.03 J
	MOLYBDENUM	0.76 J	NA	0.44 J	0.41 J	0.38 J	NA	1.2 J	NA	NA	NA	0.29 J

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	NICKEL	14.4	NA	17.5	16.4	15.2	NA	18.7	NA	NA	NA	10.4
	POTASSIUM	679 J	NA	696 J	784 J	872 J	NA	396	NA	NA	NA	784
	SELENIUM	0.16 U	NA	0.15 UJ	0.15 UJ	0.15 U	NA	0.16 U	NA	NA	NA	0.13 U
	SILVER	0.05 UJ	NA	0.04 UJ	0.045 UJ	0.05 UJ	NA	0.55 J	NA	NA	NA	0.2 UJ
	SODIUM	52.8 J	NA	34.8 J	41.7 J	48.6 J	NA	28.6 UJ	NA	NA	NA	35.8 J
	THALLIUM	0.04 U	NA	0.04 UJ	0.05 UJ	0.06 UJ	NA	0.04 U	NA	NA	NA	0.07 UJ
	VANADIUM	17	NA	16	17.2	18.3	NA	17.7	NA	NA	NA	10.5
	ZINC	109	NA	66.2	61.3	56.4	NA	57.2	NA	NA	NA	46.1
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.8
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.8
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.3
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.3
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.4
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.8

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB125	DA-SB125	DA-SB126	DA-SB126	DA-SB126	DA-SB126	DA-SB127
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/10/08	07/26/07	01/10/08	01/10/08	01/10/08	07/26/07	01/14/08	07/26/07	07/26/07	07/26/07	01/15/08
	SAMPLE CODE	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-SS124-011008	DA-SS124-072607	DA-SS125-011008	DA-SS125-011008-AVG	DA-SS125-011008-D	DA-SS125-072607	DA-SS126-011408	DA-SS126-072607	DA-SS126-072607-AVG	DA-SS126-072607-D	DA-SS127-011508
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.4
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.8
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.1
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6
	TOTAL SOLIDS	NA	90	NA	NA	NA	95	NA	90	90.5	91	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	60	NA	83	106	130	NA	260	NA	NA	NA	1600
	GASOLINE RANGE ORGANICS	3.5 U	NA	2.7 U	2.75 U	2.8 U	NA	3.2 U	NA	NA	NA	2.5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1,1-TRICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	1,1,2,2-TETRACHLOROETHANE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,1,2-TRICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1-DICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1-DICHLOROPROPENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,2,3-TRICHLOROBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,2,3-TRICHLOROPROPANE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,2,4-TRICHLOROBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,2,4-TRIMETHYLBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,2-DIBROMOETHANE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 U	NA
	1,2-DICHLOROBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,2-DICHLOROETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,2-DICHLOROPROPANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,3,5-TRIMETHYLBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,3-DICHLOROBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	1,3-DICHLOROPROPANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,4-DICHLOROBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	2,2-DICHLOROPROPANE	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	2-BUTANONE	NA	25 U	NA	26 U	NA	25 U	NA	25 U	NA	25 U	NA
	2-CHLOROTOLUENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	2-HEXANONE	NA	25 U	NA	26 UJ	NA	25 UJ	NA	25 U	NA	25 U	NA
	4-CHLOROTOLUENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	4-ISOPROPYLTOLUENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	NA	25 U	NA	26 U	NA	25 U	NA	25 U	NA	25 U	NA
	ACETONE	NA	93	NA	100	NA	180	NA	25 UJ	NA	25	NA
	BENZENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	BROMOBENZENE	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	BROMOCHLOROMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	BROMODICHLOROMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	BROMOFORM	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 U	NA
	BROMOMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
	BTEX	NA	5.6 U	NA	5.6 U	NA	5.6 U	NA	5.6 U	NA	5.6 U	NA
	CARBON DISULFIDE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	CARBON TETRACHLORIDE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLOROBENZENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLORODIBROMOMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLOROETHANE	NA	10 U	NA	10 UJ	NA	10 UJ	NA	10 UJ	NA	10 UJ	NA
	CHLOROFORM	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CHLOROMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
	CIS-1,2-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	CIS-1,3-DICHLOROPROPENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	DIBROMOMETHANE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	DICHLORODIFLUOROMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
	ETHYLBENZENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	HEXACHLOROBUTADIENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	ISOPROPYLBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	M+P-XYLENES	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
	METHYL TERT-BUTYL ETHER	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	METHYLENE CHLORIDE	NA	25 U	NA	26 U	NA	25 U	NA	25 UJ	NA	25 U	NA
	N-BUTYLBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	O-XYLENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	SEC-BUTYLBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	STYRENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	TERT-BUTYLBENZENE	NA	5 U	NA	5 UJ	NA	5 UJ	NA	5 U	NA	5 UJ	NA
	TETRACHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA
	TOLUENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	TOTAL 1,2-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 UJ	NA	5 U	NA
	TOTAL CHLORINATED ETHENES	NA	6.2 U	NA	6.2 U	NA	6.2 U	NA	6.2 UJ	NA	6.2 UJ	NA
	TOTAL CHLORINATED VOCS	NA	6.6 U	NA	6.6 UJ	NA	6.6 UJ	NA	6.6 UJ	NA	6.6 UJ	NA
	TOTAL XYLENES	NA	7.5 U	NA	7.5 U	NA	7.5 U	NA	7.5 U	NA	7.5 U	NA
	TRANS-1,2-DICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	TRANS-1,3-DICHLOROPROPENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	TRICHLOROETHENE	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
	TRICHLOROFLUOROMETHANE	NA	10 U	NA	10 U	NA	10 U	NA	10 UJ	NA	10 U	NA
	VINYL CHLORIDE	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	1,2-DIPHENYLHYDRAZINE	NA	820 U	NA	870 U	NA	780 U	NA	810 U	NA	800 U	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2,4,5-TRICHLOROPHENOL	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	2,4,6-TRICHLOROPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2,4-DICHLOROPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2,4-DIMETHYLPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2,4-DINITROPHENOL	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	2,4-DINITROTOLUENE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2,6-DICHLOROPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2,6-DINITROTOLUENE	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2-CHLOROPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2-METHYLNAPHTHALENE	1500 J	25 U	3 J	37	4.2 J	12 J	37	8.8 J	99	140	30
	2-METHYLPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	2-NITROANILINE	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	2-NITROPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	3&4-METHYLPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	3,3'-DICHLOROBENZIDINE	NA	410 UJ	NA	440 U	NA	390 U	NA	400 UJ	NA	400 U	NA
	3-NITROANILINE	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	4-BROMOPHENYL PHENYL ETHER	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	4-CHLORO-3-METHYLPHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	4-CHLOROANILINE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	4-NITROANILINE	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	4-NITROPHENOL	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	ACENAPHTHENE	8000	6.7 J	24	210	48	60	260 J	67	190	240	110
	ACENAPHTHYLENE	21 U	7.2 J	23 U	15 J	23 U	12 J	23 U	6.9 J	23 U	24 U	23 U
	ANTHRACENE	9600	15 J	70	580	120	160	650	140 J	340 J	390	330 J
	BENZIDINE	NA	1900 UJ	NA	2000 UJ	NA	1800 UJ	NA	1800 UJ	NA	1800 UJ	NA
	BENZO(A)ANTHRACENE	16000	96	320	1400	440	370	930	380	1100	870 J	870
	BENZO(A)PYRENE	11000	85	190	1200	350	370	680	270	740	750 J	560
	BENZO(B)FLUORANTHENE	15000	55	480	910	380	390	880	280	890	520 J	650
	BENZO(G,H,I)PERYLENE	7200	37	97	320 J	150	160 J	400 J	120	380 J	230 J	360 J
	BENZO(K)FLUORANTHENE	6100	53	110	930	380	340	350 J	240 J	810	390 J	620
	BENZOIC ACID	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	NA	820 U	NA	870 U	NA	780 U	NA	810 U	NA	800 U	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	BIS(2-CHLOROETHYL)ETHER	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	410 UJ	NA	620 J	NA	390 UJ	NA	400 UJ	NA	400 UJ	NA
	BUTYL BENZYL PHTHALATE	NA	410 UJ	NA	440 UJ	NA	390 UJ	NA	400 UJ	NA	400 UJ	NA
	CARBAZOLE	NA	410 U	NA	370 J	NA	390 U	NA	400 U	NA	400 U	NA
	CHRYSENE	12000	83	220	1300	370	540	850	550	920	970	780
	DIBENZO(A,H)ANTHRACENE	1800 J	24 J	23	140	110	91	74	70	190 J	110	190
	DIBENZOFURAN	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	DIETHYL PHTHALATE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	DIMETHYL PHTHALATE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	DI-N-BUTYL PHTHALATE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	DI-N-OCTYL PHTHALATE	NA	410 UJ	NA	440 UJ	NA	390 UJ	NA	400 UJ	NA	400 UJ	NA
	FLUORANTHENE	34000	140	470	2900	920	1100	2300	1300	2300	1400	1600
	FLUORENE	5900	5.3 J	27	260	47	56	180	63	240 J	190	140
	HEXACHLOROBENZENE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	HEXACHLOROETHANE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	HIGH MOLECULAR WEIGHT PAHS	133000 J	774 J	2746	12210 J	3950	4841 J	8864 J	4340 J	9860 J	8640 J	7900 J
	INDENO(1,2,3-CD)PYRENE	5900	51	86	310	200	180	600	150	430 J	200	370 J
	ISOPHORONE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	LOW MOLECULAR WEIGHT PAHS	61400 J	86.2 J	506.3 J	3742 J	774.9 J	1044 J	2917 J	1141.7 J	3069 J	3496	2131 J
	NAPHTHALENE	5400	25 U	2.3 J	40	5.7 J	24	90	16 J	300 J	36	21 J
	NITROBENZENE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	N-NITROSODIMETHYLAMINE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	N-NITROSODIPHENYLAMINE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	PENTACHLOROPHENOL	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA
	PHENANTHRENE	31000	52 J	380	2600	550	720	1700	840	1900	2500	1500
	PHENOL	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA
	PYRENE	24000	150	750	2800	650	1300	1800	980	2100	3200	1900
	TOTAL PAHS	194400 J	860.2 J	3252.3 J	15952 J	4724.9 J	5885 J	11781 J	5481.7 J	12929 J	12136 J	10031 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA
	4,4'-DDE	NA	2.0 J	NA	7.9	NA	5.4	NA	2.4 J	NA	2.7 J	NA
	4,4'-DDT	NA	4.2 J	NA	12	NA	16 J	NA	4 U	NA	5.4	NA
	ALDRIN	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	ALPHA-BHC	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	ALPHA-CHLORDANE	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	AROCLOR-1016	NA	21 UJ	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	AROCLOR-1221	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	AROCLOR-1232	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	AROCLOR-1242	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	AROCLOR-1248	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	AROCLOR-1254	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	AROCLOR-1260	NA	26 J	NA	120	NA	170	NA	81	NA	67	NA
	AROCLOR-1268	NA	21 U	NA	280	NA	460	NA	160	NA	290 J	NA
	BETA-BHC	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	DELTA-BHC	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	DIELDRIN	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA
	ENDOSULFAN I	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	ENDOSULFAN II	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA
	ENDOSULFAN SULFATE	NA	4.1 UJ	NA	4.4 UJ	NA	3.9 UJ	NA	4 U	NA	4 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	ENDRIN	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA
	ENDRIN ALDEHYDE	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA
	ENDRIN KETONE	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA
	GAMMA-BHC (LINDANE)	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	GAMMA-CHLORDANE	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	HEPTACHLOR	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	HEPTACHLOR EPOXIDE	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA
	METHOXYCHLOR	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA
	TOTAL AROCLOR	NA	26 J	NA	400	NA	630	NA	241	NA	357 J	NA
	TOTAL DDD/DDE/DDT	NA	6.2 J	NA	19.9	NA	21.4 J	NA	2.4 J	NA	8.1 J	NA
	TOXAPHENE	NA	41 U	NA	44 U	NA	39 U	NA	40 U	NA	40 U	NA
METALS (MG/KG)	ALUMINUM	NA	10800	NA	13600	NA	12600	NA	12800	NA	15000	NA
	ANTIMONY	NA	0.09 UJ	NA	0.16 U	NA	0.19 U	NA	0.16 UJ	NA	0.2 U	NA
	ARSENIC	NA	9.4	NA	20.8	NA	17.6	NA	15.6	NA	17.6	NA
	BARIUM	NA	21.2	NA	24.1	NA	22.6	NA	28.5	NA	30.9	NA
	BERYLLIUM	NA	0.31 J	NA	0.38 J	NA	0.36 J	NA	0.44 J	NA	0.43 J	NA
	CADMIUM	NA	0.01 UJ	NA	1.1 J	NA	0.44 J	NA	0.56 J	NA	0.81 J	NA
	CALCIUM	NA	994	NA	1400	NA	1380	NA	1320	NA	607	NA
	CHROMIUM	NA	13.9	NA	28.1	NA	15.9	NA	16.4	NA	17.9	NA
	COBALT	NA	11.2	NA	13	NA	11.7	NA	12.7	NA	11.6	NA
	COPPER	NA	16.6 J	NA	25.2	NA	21.4	NA	23.1 J	NA	33.6	NA
	IRON	NA	21600	NA	31400	NA	27200	NA	27100	NA	29500	NA
	LEAD	NA	63.7	NA	81.8	NA	22.8	NA	33.9	NA	35.6	NA
	MAGNESIUM	NA	3270	NA	3780	NA	3550	NA	3660	NA	3560	NA
	MANGANESE	NA	443	NA	424	NA	363	NA	397	NA	396	NA
	MERCURY	NA	0.05	NA	0.05	NA	0.04	NA	0.06	NA	0.12	NA
	MOLYBDENUM	NA	1.8 J	NA	0.68 J	NA	0.38 J	NA	0.53 J	NA	0.49 J	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	NICKEL	NA	18.3	NA	26.4	NA	22.6	NA	23.3	NA	27	NA
	POTASSIUM	NA	475	NA	626	NA	522	NA	608	NA	416	NA
	SELENIUM	NA	0.26 J	NA	0.27 U	NA	0.33 U	NA	0.67 J	NA	0.34 U	NA
	SILVER	NA	0.05 UJ	NA	0.66 J	NA	0.57 UJ	NA	0.58 J	NA	0.78 J	NA
	SODIUM	NA	26.6 UJ	NA	40.3 UJ	NA	45.8 UJ	NA	41.3 UJ	NA	41.8 UJ	NA
	THALLIUM	NA	0.07 UJ	NA	0.03 U	NA	0.04 U	NA	0.06 UJ	NA	0.05 UJ	NA
	VANADIUM	NA	17.9	NA	27.6	NA	19.6	NA	22.9	NA	21.3	NA
	ZINC	NA	56	NA	121	NA	80.7	NA	97.6	NA	87	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	2.9	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	3.4	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	4.5	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	13.8	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	1.7	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	2.8	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	9.6	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	8.9	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	17.9	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	23.1	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	14.2	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	26.2	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	14	NA	NA	NA	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/26/07	01/16/08	07/26/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS127-072607	DA-SS128-011608	DA-SS128-072607	DA-SS129-011408	DA-SS129-073007	DA-SS130-011508	DA-SS130-073007	DA-SS131-011608	DA-SS131-073007	DA-SS132-011408	DA-SS132-073007
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	NA	NA	NA	NA	9.1	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	8.9	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	8.1	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	6.2	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	3.7	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	1.8	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	6.8	NA	NA	NA	NA	NA
	TOTAL SOLIDS	96	NA	87	NA	85	NA	85	NA	86	NA	85
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	30000	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	26 J	NA	86	NA	42	NA	120 J	NA	90	NA
	GASOLINE RANGE ORGANICS	NA	3.2 U	NA	3.2 U	NA	2.8 U	NA	3.2 U	NA	3.2 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,1,1-TRICHLOROETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,1,2,2-TETRACHLOROETHANE	5 UJ	NA	6 UJ	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,1,2-TRICHLOROETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,1-DICHLOROETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,1-DICHLOROETHENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,1-DICHLOROPROPENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2,3-TRICHLOROBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2,3-TRICHLOROPROPANE	5 UJ	NA	6 UJ	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2,4-TRICHLOROBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2,4-TRIMETHYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 UJ	NA	6 UJ
	1,2-DIBROMOETHANE	5 UJ	NA	6 UJ	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2-DICHLOROBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2-DICHLOROETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,2-DICHLOROPROPANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,3,5-TRIMETHYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,3-DICHLOROBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,3-DICHLOROPROPANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	1,4-DICHLOROBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	2,2-DICHLOROPROPANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	2-BUTANONE	26 UJ	NA	29 U	NA	47 UJ	49.5 UJ	52 UJ	NA	25 U	NA	30 UJ
	2-CHLOROTOLUENE	5 UJ	NA	6 UJ	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	2-HEXANONE	26 UJ	NA	29 U	NA	47 UJ	49.5 UJ	52 UJ	NA	25 U	NA	30 UJ
	4-CHLOROTOLUENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	4-ISOPROPYLTOLUENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	26 UJ	NA	29 U	NA	47 UJ	49.5 UJ	52 UJ	NA	25 U	NA	30 UJ
	ACETONE	1100 J	NA	120 J	NA	100 J	99.5 J	99 J	NA	1700 U	NA	140 J
	BENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	BROMOBENZENE	5 UJ	NA	6 UJ	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	BROMOCHLOROMETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	BROMODICHLOROMETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	BROMOFORM	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	BROMOMETHANE	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 U	NA	12 UJ
	BTEX	5.6 UJ	NA	6.8 U	NA	10 UJ	11 UJ	12 UJ	NA	5.6 U	NA	6.8 UJ
	CARBON DISULFIDE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	CARBON TETRACHLORIDE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	CHLOROBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	CHLORODIBROMOMETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	CHLOROETHANE	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 UJ	NA	12 UJ
	CHLOROFORM	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	CHLOROMETHANE	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 U	NA	12 UJ
	CIS-1,2-DICHLOROETHENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	CIS-1,3-DICHLOROPROPENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	DIBROMOMETHANE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	DICHLORODIFLUOROMETHANE	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 U	NA	12 UJ
	ETHYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	HEXACHLOROBUTADIENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	ISOPROPYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	M+P-XYLENES	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 U	NA	12 UJ
	METHYL TERT-BUTYL ETHER	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	METHYLENE CHLORIDE	26 UJ	NA	29 U	NA	47 UJ	49.5 UJ	52 UJ	NA	25 U	NA	30 UJ
	N-BUTYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	O-XYLENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	SEC-BUTYLBENZENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	STYRENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TERT-BUTYLBENZENE	5 UJ	NA	6 UJ	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TETRACHLOROETHENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TOLUENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TOTAL 1,2-DICHLOROETHENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TOTAL CHLORINATED ETHENES	6.2 UJ	NA	7.5 U	NA	10 J	8.5 J	7 J	NA	6.2 U	NA	7.5 UJ
	TOTAL CHLORINATED VOCS	6.6 UJ	NA	7.8 UJ	NA	10 J	8.5 J	7 J	NA	6.6 UJ	NA	7.9 UJ
	TOTAL XYLENES	7.5 UJ	NA	9 U	NA	14 UJ	15 UJ	16 UJ	NA	7.5 U	NA	9 UJ
	TRANS-1,2-DICHLOROETHENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TRANS-1,3-DICHLOROPROPENE	5 UJ	NA	6 U	NA	9 UJ	9.5 UJ	10 UJ	NA	5 U	NA	6 UJ
	TRICHLOROETHENE	5 UJ	NA	6 U	NA	10 J	8.5 J	7 J	NA	5 U	NA	6 UJ
	TRICHLOROFLUOROMETHANE	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 U	NA	12 UJ
	VINYL CHLORIDE	10 UJ	NA	12 U	NA	19 UJ	20 UJ	21 UJ	NA	10 U	NA	12 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	1,2-DIPHENYLHYDRAZINE	810 U	NA	840 U	NA	810 U	815 U	820 U	NA	780 U	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2,4,5-TRICHLOROPHENOL	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	2,4,6-TRICHLOROPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2,4-DICHLOROPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2,4-DIMETHYLPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2,4-DINITROPHENOL	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	2,4-DINITROTOLUENE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2,6-DICHLOROPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2,6-DINITROTOLUENE	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2-CHLOROPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2-METHYLNAPHTHALENE	53	90	26 U	23 U	6.6 J	6.6 J	6.6 J	23 U	24 U	22 U	NA
	2-METHYLPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	2-NITROANILINE	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	2-NITROPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	3&4-METHYLPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	3,3'-DICHLOROBENZIDINE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	3-NITROANILINE	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	4-BROMOPHENYL PHENYL ETHER	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	4-CHLORO-3-METHYLPHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	4-CHLOROANILINE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 UJ	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	4-NITROANILINE	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	4-NITROPHENOL	1000 U	NA	1000 U	NA	1000 UJ	1000 UJ	1000 U	NA	960 UJ	NA	NA
	ACENAPHTHENE	110	610 J	4.6 J	10 J	25 U	25 U	25 U	23 U	9.9 J	2.8 J	NA
	ACENAPHTHYLENE	10 J	23 U	3.6 J	23 U	25 U	25 U	25 U	23 U	4.3 J	22 U	NA
	ANTHRACENE	400	1800	6.4 J	17 J	7.1 J	6.45 J	5.8 J	23 U	13 J	5.1 J	NA
	BENZIDINE	1800 UJ	NA	1900 UJ	NA	1800 UJ	1850 UJ	1900 UJ	NA	1800 UJ	NA	NA
	BENZO(A)ANTHRACENE	1200	3000	21 J	130	43	38	33	12 J	110	62	NA
	BENZO(A)PYRENE	940	2100	24 J	99	46 J	41.5 J	37	10 J	100	44	NA
	BENZO(B)FLUORANTHENE	650	2900	19 J	170	33 J	30.5 J	28	26	71	78	NA
	BENZO(G,H,I)PERYLENE	300 J	1300	15 J	64	33 J	31 J	29 J	7.9 J	48	19 J	NA
	BENZO(K)FLUORANTHENE	610	1200	19 J	66	35 J	32 J	29	9.6 J	68 J	30	NA
	BENZOIC ACID	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	520 J	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	810 U	NA	840 U	NA	810 U	815 U	820 U	NA	780 U	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	BIS(2-CHLOROETHYL)ETHER	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	410 U	NA	420 U	NA	410 UJ	410 UJ	410 UJ	NA	390 UJ	NA	NA
	BUTYL BENZYL PHTHALATE	410 U	NA	420 U	NA	410 UJ	410 UJ	410 UJ	NA	390 UJ	NA	NA
	CARBAZOLE	270 J	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	CHRYSENE	1100	2800	22 J	99	52 J	46.5 J	41 J	12 J	110	41	NA
	DIBENZO(A,H)ANTHRACENE	160	380 J	26 UJ	23 U	25 U	25 U	25 U	23 U	25	22 U	NA
	DIBENZOFURAN	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	DIETHYL PHTHALATE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	DIMETHYL PHTHALATE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	DI-N-BUTYL PHTHALATE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	DI-N-OCTYL PHTHALATE	410 U	NA	420 U	NA	410 UJ	410 UJ	410 UJ	NA	390 UJ	NA	NA
	FLUORANTHENE	2300	7400	38	200	110	95.5	81	20 J	190	110	NA
	FLUORENE	130 J	640 J	26 U	8.9 J	25 UJ	25 UJ	25 UJ	23 U	6.8 J	2.6 J	NA
	HEXACHLOROBENZENE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	HEXACHLOROETHANE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	10140 J	28080 J	201 J	1073	441 J	396.5 J	352 J	131.4 J	967 J	483 J	NA
	INDENO(1,2,3-CD)PYRENE	280	1900	17 J	55	36 J	33.5 J	31	8.9 J	65	17 J	NA
	ISOPHORONE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	LOW MOLECULAR WEIGHT PAHS	2369 J	8280 J	32.6 J	145.9 J	68.5 J	61.85 J	55.2 J	12 J	112 J	51.5 J	NA
	NAPHTHALENE	66	140 J	26 U	23 U	6.8 J	6.8 J	6.8 J	23 U	24 U	22 U	NA
	NITROBENZENE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	N-NITROSODIMETHYLAMINE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	N-NITROSODIPHENYLAMINE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	PENTACHLOROPHENOL	1000 U	NA	1000 U	NA	1000 U	1000 U	1000 U	NA	960 U	NA	NA
	PHENANTHRENE	1600 J	5000	18 J	110	48	42	36	12 J	78	41	NA
	PHENOL	410 U	NA	420 U	NA	410 U	410 U	410 U	NA	390 U	NA	NA
	PYRENE	2600	5100	26	190	53	48	43	25	180 J	82	NA
	TOTAL PAHS	12509 J	36360 J	233.6 J	1218.9 J	509.5 J	458.35 J	407.2 J	143.4 J	1079 J	534.5 J	NA
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.1 U	NA	4.2 U	NA	4.1 UJ	4.1 UJ	4.1 UJ	NA	3.9 UJ	NA	NA
	4,4'-DDE	2.2 J	NA	1.6 J	NA	1.2 J	1.62 J	4.1 UJ	NA	3.9 UJ	NA	NA
	4,4'-DDT	4.1 U	NA	1.7 J	NA	3.9 J	2.98 J	4.1 UJ	NA	3.9 UJ	NA	NA
	ALDRIN	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	ALPHA-BHC	2.1 U	NA	2.2 U	NA	2.1 U	2.1 U	2.1 U	NA	2 UJ	NA	NA
	ALPHA-CHLORDANE	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	AROCLOR-1016	21 U	NA	22 UJ	NA	21 UJ	21 UJ	21 UJ	NA	20 U	NA	NA
	AROCLOR-1221	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 U	NA	NA
	AROCLOR-1232	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 U	NA	NA
	AROCLOR-1242	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 U	NA	NA
	AROCLOR-1248	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 U	NA	NA
	AROCLOR-1254	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 U	NA	NA
	AROCLOR-1260	130	NA	22 U	NA	54 J	32.2 J	21 UJ	NA	20 U	NA	NA
	AROCLOR-1268	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 U	NA	NA
	BETA-BHC	2.1 U	NA	2.2 U	NA	2.1 U	2.1 U	2.1 U	NA	2 UJ	NA	NA
	DELTA-BHC	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	DIELDRIN	4.1 U	NA	4.2 U	NA	4.1 UJ	4.1 UJ	4.1 UJ	NA	3.9 UJ	NA	NA
	ENDOSULFAN I	2.1 U	NA	2.2 U	NA	2.1 U	2.1 U	2.1 U	NA	2 UJ	NA	NA
	ENDOSULFAN II	4.1 U	NA	4.2 U	NA	4.1 U	4.1 U	4.1 U	NA	3.9 UJ	NA	NA
	ENDOSULFAN SULFATE	4.1 U	NA	4.2 U	NA	4.1 UJ	4.1 UJ	4.1 UJ	NA	3.9 UJ	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	ENDRIN	4.1 U	NA	4.2 U	NA	4.1 UJ	4.1 UJ	4.1 UJ	NA	3.9 UJ	NA	NA
	ENDRIN ALDEHYDE	4.1 U	NA	4.2 U	NA	4.1 U	4.1 U	4.1 U	NA	3.9 UJ	NA	NA
	ENDRIN KETONE	4.1 U	NA	4.2 U	NA	4.1 U	4.1 U	4.1 U	NA	3.9 UJ	NA	NA
	GAMMA-BHC (LINDANE)	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	GAMMA-CHLORDANE	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	HEPTACHLOR	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	HEPTACHLOR EPOXIDE	2.1 U	NA	2.2 U	NA	2.1 UJ	2.1 UJ	2.1 UJ	NA	2 UJ	NA	NA
	METHOXYCHLOR	21 U	NA	22 U	NA	21 U	21 U	21 U	NA	20 UJ	NA	NA
	TOTAL AROCLOR	130	NA	22 UJ	NA	54 J	32.2 J	21 UJ	NA	20 U	NA	NA
	TOTAL DDD/DDE/DDT	2.2 J	NA	3.3 J	NA	5.1 J	4.6 J	4.1 UJ	NA	3.9 UJ	NA	NA
	TOXAPHENE	41 U	NA	42 U	NA	41 U	41 U	41 U	NA	39 UJ	NA	NA
METALS (MG/KG)	ALUMINUM	11400	NA	16900	NA	14800	16200	17500	NA	11500	NA	NA
	ANTIMONY	0.16 U	NA	0.21 U	NA	0.17 UJ	0.215 UJ	0.26 UJ	NA	0.17 UJ	NA	NA
	ARSENIC	18.2	NA	15.1	NA	13.4	13.6	13.9	NA	26.9	NA	NA
	BARIUM	28.2	NA	26.4	NA	21.9	23.6	25.4	NA	19.4	NA	NA
	BERYLLIUM	0.39 J	NA	0.48 J	NA	0.48 J	0.52 J	0.56 J	NA	0.45 J	NA	NA
	CADMIUM	3.2	NA	0.46 J	NA	0.2 UJ	0.11 UJ	0.02 U	NA	0.24 UJ	NA	NA
	CALCIUM	2990	NA	442	NA	357 J	452 J	548 J	NA	251 J	NA	NA
	CHROMIUM	18.9	NA	19.4	NA	16.3	17.6	19	NA	16.2	NA	NA
	COBALT	11.7	NA	13.2	NA	6.4	7	7.6	NA	9.5	NA	NA
	COPPER	41.2	NA	30.1	NA	19.4 J	19.4 J	19.4 J	NA	26.7 J	NA	NA
	IRON	28800	NA	32100	NA	28600	30800	33000	NA	31500	NA	NA
	LEAD	50.8	NA	20.8	NA	19.3	20	20.8	NA	20.6	NA	NA
	MAGNESIUM	3190	NA	4100	NA	2530 J	3040 J	3550 J	NA	2910 J	NA	NA
	MANGANESE	337	NA	326	NA	193 J	220 J	247 J	NA	248 J	NA	NA
	MERCURY	2	NA	0.04	NA	0.04	0.045	0.05	NA	0.03 J	NA	NA
	MOLYBDENUM	0.70 J	NA	0.41 J	NA	0.51 J	0.535 J	0.56 J	NA	0.58 J	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	NICKEL	24.7	NA	27.3	NA	17	18.7	20.4	NA	24.3	NA	NA
	POTASSIUM	441	NA	550	NA	421 J	468 J	515 J	NA	444 J	NA	NA
	SELENIUM	0.27 U	NA	0.36 U	NA	0.3 U	0.495 UJ	0.69 UJ	NA	0.3 UJ	NA	NA
	SILVER	0.98 J	NA	0.74 J	NA	0.09 UJ	0.095 UJ	0.1 UJ	NA	0.09 UJ	NA	NA
	SODIUM	49.4 J	NA	47 UJ	NA	40.2 J	44.4 J	48.5 J	NA	38.4 J	NA	NA
	THALLIUM	0.05 UJ	NA	0.05 UJ	NA	0.08 UJ	0.08 UJ	0.08 UJ	NA	0.04 UJ	NA	NA
	VANADIUM	19.3	NA	25	NA	28.2	29.5	30.8	NA	36.7	NA	NA
	ZINC	97.2	NA	62.7	NA	48.8	53.4	58	NA	58.5	NA	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	1.3	NA	2.1	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	3.5	NA	8.1	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	3.5	NA	7.4	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	2.9	NA	5.4	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	8.2	NA	22.7	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	1.7	NA	2	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	1.7	NA	4.8	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	6.4	NA	10.8	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	9.9	NA	7.6	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	15.3	NA	14.8	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	34.7	NA	10.6	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	15	NA	11.1	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	18.7	NA	45.1	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	0	NA	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	0	NA	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	0	NA	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	0	NA	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	6.4	NA	0	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	16.1	NA	5.8	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/15/08	07/30/07	01/15/08	07/19/07	01/11/08	01/11/08	01/11/08	07/19/07	01/10/08	07/25/07	01/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS133-011508	DA-SS133-073007	DA-SS134-011508	DA-SS134-071907	DA-SS135-011108	DA-SS135-011108-AVG	DA-SS135-011108-D	DA-SS135-071907	DA-SS136-011008	DA-SS136-072507	DA-SS137-011608
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	12.2	NA	4.9	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	9.9	NA	7.6	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	8.7	NA	6.3	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	6.3	NA	4.8	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	5	NA	3.9	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	3.2	NA	2.8	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	1.5	NA	1.4	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	5.7	NA	6.8	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	NA	87	NA	88	NA	NA	NA	87	NA	89	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	76000	NA	40000	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	5.3	NA	5.1	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	100	NA	41	NA	90	95	100	NA	36	NA	NA
	GASOLINE RANGE ORGANICS	3.2 U	NA	3.7 U	NA	5.7 U	5.4 U	5.1 U	NA	3.4 U	NA	4.0 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1,1-TRICHLOROETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1,2,2-TETRACHLOROETHANE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,1,2-TRICHLOROETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1-DICHLOROETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1-DICHLOROETHENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,1-DICHLOROPROPENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,2,3-TRICHLOROBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,2,3-TRICHLOROPROPANE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,2,4-TRICHLOROBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,2,4-TRIMETHYLBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,2-DIBROMO-3-CHLOROPROPANE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	1,2-DIBROMOETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,2-DICHLOROBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	1,2-DICHLOROETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,2-DICHLOROPROPANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,3,5-TRIMETHYLBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	1,3-DICHLOROBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	1,3-DICHLOROPROPANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	1,4-DICHLOROBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	2,2-DICHLOROPROPANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	2-BUTANONE	NA	38 UJ	NA	31 U	NA	25 U	NA	27 U	NA	27 U	NA
	2-CHLOROTOLUENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	2-HEXANONE	NA	38 UJ	NA	31 U	NA	25 U	NA	27 U	NA	27 U	NA
	4-CHLOROTOLUENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	4-ISOPROPYLTOLUENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	NA	38 UJ	NA	31 U	NA	25 U	NA	27 U	NA	27 UJ	NA
	ACETONE	NA	1600 UJ	NA	47	NA	19 J	NA	170 J	NA	87	NA
	BENZENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	BROMOBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	BROMOCHLOROMETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	BROMODICHLOROMETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	BROMOFORM	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	BROMOMETHANE	NA	15 UJ	NA	12 U	NA	10 U	NA	11 U	NA	11 U	NA
	BTEX	NA	9 UJ	NA	6.8 U	NA	5.6 U	NA	5.8 U	NA	5.8 U	NA
	CARBON DISULFIDE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	CARBON TETRACHLORIDE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLOROBENZENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLORODIBROMOMETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLOROETHANE	NA	15 UJ	NA	12 UJ	NA	10 UJ	NA	11 UJ	NA	11 U	NA
	CHLOROFORM	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	CHLOROMETHANE	NA	15 UJ	NA	12 U	NA	10 U	NA	11 U	NA	11 U	NA
	CIS-1,2-DICHLOROETHENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	CIS-1,3-DICHLOROPROPENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	DIBROMOMETHANE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	DICHLORODIFLUOROMETHANE	NA	15 UJ	NA	12 U	NA	10 U	NA	11 U	NA	11 U	NA
	ETHYLBENZENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	HEXACHLOROBUTADIENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 UJ	NA
	ISOPROPYLBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	M+P-XYLENES	NA	15 UJ	NA	12 U	NA	10 U	NA	11 U	NA	11 U	NA
	METHYL TERT-BUTYL ETHER	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	METHYLENE CHLORIDE	NA	38 UJ	NA	31 U	NA	25 U	NA	3 J	NA	27 U	NA
	N-BUTYLBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	O-XYLENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	SEC-BUTYLBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	STYRENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TERT-BUTYLBENZENE	NA	8 UJ	NA	6 UJ	NA	5 UJ	NA	5 UJ	NA	5 U	NA
	TETRACHLOROETHENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TOLUENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TOTAL 1,2-DICHLOROETHENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TOTAL CHLORINATED ETHENES	NA	9.8 UJ	NA	7.5 U	NA	6.2 U	NA	6.5 U	NA	6.5 U	NA
	TOTAL CHLORINATED VOCS	NA	10 UJ	NA	7.9 UJ	NA	6.6 UJ	NA	3 J	NA	6.8 UJ	NA
	TOTAL XYLENES	NA	12 UJ	NA	9 U	NA	7.5 U	NA	8 U	NA	8 U	NA
	TRANS-1,2-DICHLOROETHENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TRANS-1,3-DICHLOROPROPENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TRICHLOROETHENE	NA	8 UJ	NA	6 U	NA	5 U	NA	5 U	NA	5 U	NA
	TRICHLOROFLUOROMETHANE	NA	15 UJ	NA	12 U	NA	10 U	NA	11 U	NA	11 U	NA
	VINYL CHLORIDE	NA	15 UJ	NA	12 U	NA	10 U	NA	11 U	NA	11 U	NA
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	1,2-DIPHENYLHYDRAZINE	NA	840 U	NA	820 U	NA	770 U	NA	770 U	NA	760 U	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2,4,5-TRICHLOROPHENOL	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	2,4,6-TRICHLOROPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2,4-DICHLOROPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2,4-DIMETHYLPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2,4-DINITROPHENOL	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	2,4-DINITROTOLUENE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2,6-DICHLOROPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2,6-DINITROTOLUENE	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2-CHLOROPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2-METHYLNAPHTHALENE	22 U	25 U	22 U	25 U	22 U	23 U	24 U	6.1 J	22 U	11 J	3.4 J
	2-METHYLPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	2-NITROANILINE	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	2-NITROPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	3&4-METHYLPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	3,3'-DICHLOROBENZIDINE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	3-NITROANILINE	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	4-BROMOPHENYL PHENYL ETHER	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	4-CHLORO-3-METHYLPHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	4-CHLOROANILINE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	4-NITROANILINE	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	4-NITROPHENOL	NA	1000 UJ	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	ACENAPHTHENE	10 J	25 U	22 U	21 J	6.5 J	23 U	3.2 J	3.6 J	6.7 J	48	36
	ACENAPHTHYLENE	22 U	25 U	22 U	7.1 J	22 U	23 U	24 U	23 U	22 U	10 J	24 U
	ANTHRACENE	15 J	25 UJ	22 U	30	8.4 J	23 UJ	5.6 J	10 J	8.8 J	110	75
	BENZIDINE	NA	1900 R	NA	1900 UJ	NA	1700 UJ	NA	1700 UJ	NA	1700 UJ	NA
	BENZO(A)ANTHRACENE	130	15 J	16 J	190	81	16 J	57	63	70	310	310
	BENZO(A)PYRENE	99	18 J	12 J	180 J	70	13 J	45	60	66	270	270
	BENZO(B)FLUORANTHENE	190	14 J	30	130 J	130	9.4 J	90	47	110	200	300
	BENZO(G,H,I)PERYLENE	46	14 J	9.7 J	98 J	32	8 J	25	40 J	30	160	130
	BENZO(K)FLUORANTHENE	74	16 J	11 J	140 J	49	18 J	29	46	47	230	270
	BENZOIC ACID	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	NA	840 U	NA	820 U	NA	770 U	NA	770 U	NA	760 U	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	BIS(2-CHLOROETHYL)ETHER	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	420 UJ	NA	280 J	NA	380 UJ	NA	4300 J	NA	380 UJ	NA
	BUTYL BENZYL PHTHALATE	NA	420 UJ	NA	410 UJ	NA	380 UJ	NA	380 UJ	NA	380 U	NA
	CARBAZOLE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	CHRYSENE	99	20 J	15 J	250	70	17 J	45	71 J	58	350	260
	DIBENZO(A,H)ANTHRACENE	22 U	25 U	22 U	55 J	6.3 J	23 U	5.4 J	17 J	5.2 J	70	95
	DIBENZOFURAN	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	DIETHYL PHTHALATE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	DIMETHYL PHTHALATE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	DI-N-BUTYL PHTHALATE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	DI-N-OCTYL PHTHALATE	NA	420 UJ	NA	410 UJ	NA	380 UJ	NA	380 UJ	NA	380 UJ	NA
	FLUORANTHENE	230	36	29	430	140	34	91	130	110	700	560
	FLUORENE	9.3 J	25 UJ	22 U	14 J	4.8 J	23 UJ	2.9 J	4 J	5.1 J	40	37
	HEXACHLOROBENZENE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	HEXACHLOROETHANE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	HIGH MOLECULAR WEIGHT PAHS	1129	167 J	162.8 J	1983 J	746.3 J	141.1 J	502.4 J	596 J	660.2 J	2960	2855
	INDENO(1,2,3-CD)PYRENE	41	15 J	8.1 J	110 J	28	7.7 J	20 J	45	24	180	180
	ISOPHORONE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	LOW MOLECULAR WEIGHT PAHS	136.6 J	18.9 J	12 J	272.1 J	89.7 J	16.1 J	56.7 J	89.1 J	85.6 J	754 J	506 J
	NAPHTHALENE	2.3 J	6.9 J	22 U	25 U	22 U	6.3 J	24 U	6.4 J	22 U	15 J	4.6 J
	NITROBENZENE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	N-NITROSODIMETHYLAMINE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	N-NITROSODIPHENYLAMINE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	PENTACHLOROPHENOL	NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA
	PHENANTHRENE	100	12 J	12 J	200	70	9.8 J	45	59	65	520	350
	PHENOL	NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA
	PYRENE	220	19 J	32	400	140	18 J	95	77	140	490	480
	TOTAL PAHS	1265.6 J	185.9 J	174.8 J	2255.1 J	836 J	157.2 J	559.1 J	685.1 J	745.8 J	3714 J	3361 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	4.2 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	3.8 UJ	NA	3.8 U	NA
	4,4'-DDE	NA	4.2 UJ	NA	2.4 J	NA	1.4 J	NA	1.5 J	NA	3.9 J	NA
	4,4'-DDT	NA	4.2 UJ	NA	4.1 UJ	NA	1.2 J	NA	1.8 J	NA	14 J	NA
	ALDRIN	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	ALPHA-BHC	NA	2.2 U	NA	2.1 UJ	NA	2 U	NA	2 U	NA	2 U	NA
	ALPHA-CHLORDANE	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	AROCLOR-1016	NA	22 UJ	NA	21 UJ	NA	20 UJ	NA	20 UJ	NA	20 UJ	NA
	AROCLOR-1221	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	AROCLOR-1232	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	AROCLOR-1242	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	AROCLOR-1248	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	AROCLOR-1254	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	AROCLOR-1260	NA	22 UJ	NA	74 J	NA	20 UJ	NA	20 UJ	NA	250 J	NA
	AROCLOR-1268	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	BETA-BHC	NA	2.2 U	NA	2.1 UJ	NA	2 U	NA	2 U	NA	2 U	NA
	DELTA-BHC	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	DIELDRIN	NA	4.2 UJ	NA	4.1 UJ	NA	1.3 J	NA	3.8 UJ	NA	3.8 U	NA
	ENDOSULFAN I	NA	2.2 U	NA	2.1 UJ	NA	2 U	NA	2 U	NA	2 U	NA
	ENDOSULFAN II	NA	4.2 U	NA	4.1 UJ	NA	3.8 U	NA	3.8 U	NA	3.8 U	NA
	ENDOSULFAN SULFATE	NA	4.2 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	3.8 UJ	NA	3.8 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	ENDRIN	NA	4.2 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	3.8 UJ	NA	3.8 U	NA
	ENDRIN ALDEHYDE	NA	4.2 U	NA	4.1 UJ	NA	3.8 U	NA	3.8 U	NA	3.8 U	NA
	ENDRIN KETONE	NA	4.2 U	NA	4.1 UJ	NA	3.8 U	NA	3.8 U	NA	3.8 U	NA
	GAMMA-BHC (LINDANE)	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	GAMMA-CHLORDANE	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	HEPTACHLOR	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	HEPTACHLOR EPOXIDE	NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA
	METHOXYCHLOR	NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA
	TOTAL AROCLOR	NA	22 UJ	NA	74 J	NA	20 UJ	NA	20 UJ	NA	250 J	NA
	TOTAL DDD/DDE/DDT	NA	4.2 UJ	NA	2.4 J	NA	2.6 J	NA	3.3 J	NA	17.9 J	NA
	TOXAPHENE	NA	42 U	NA	41 UJ	NA	38 U	NA	38 U	NA	38 U	NA
METALS (MG/KG)	ALUMINUM	NA	17600	NA	15700	NA	14100	NA	12600	NA	12200	NA
	ANTIMONY	NA	0.09 UJ	NA	0.21 UJ	NA	0.14 UJ	NA	0.16 UJ	NA	0.15 UJ	NA
	ARSENIC	NA	7.5	NA	10.6	NA	26.6	NA	15.4	NA	14.5	NA
	BARIUM	NA	25.3	NA	21.3	NA	27.5	NA	18.7	NA	22.9	NA
	BERYLLIUM	NA	0.54	NA	0.49 J	NA	0.51 J	NA	0.43 J	NA	0.54 J	NA
	CADMIUM	NA	0.24 UJ	NA	0.19 UJ	NA	0.02 U	NA	0.28 UJ	NA	0.26 J	NA
	CALCIUM	NA	305 J	NA	363 J	NA	531 J	NA	732 J	NA	616 J	NA
	CHROMIUM	NA	15.2	NA	16.9	NA	22.5	NA	15.5	NA	16.1	NA
	COBALT	NA	2.2 J	NA	4.7 J	NA	15.8	NA	10.8	NA	10.4	NA
	COPPER	NA	9.1 J	NA	17.2 J	NA	23.5 J	NA	16.5 J	NA	21.2	NA
	IRON	NA	18100	NA	21500	NA	37200	NA	24600	NA	25300	NA
	LEAD	NA	42.7	NA	43.5	NA	12.6	NA	69.7	NA	33.6	NA
	MAGNESIUM	NA	1210 J	NA	2220 J	NA	3720 J	NA	3450 J	NA	2950	NA
	MANGANESE	NA	79.8 J	NA	150 J	NA	517 J	NA	359 J	NA	354	NA
	MERCURY	NA	0.03 J	NA	0.06	NA	0.02 J	NA	0.02 J	NA	0.08	NA
	MOLYBDENUM	NA	0.50 J	NA	0.63 J	NA	0.46 J	NA	0.22 J	NA	0.49 J	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	NICKEL	NA	8.7 J	NA	15.3	NA	28.3	NA	21.1	NA	19.6	NA
	POTASSIUM	NA	301 J	NA	354 J	NA	586 J	NA	421 J	NA	416 J	NA
	SELENIUM	NA	0.6 UJ	NA	0.44 UJ	NA	0.24 U	NA	0.21 UJ	NA	0.36 UJ	NA
	SILVER	NA	0.05 UJ	NA	0.05 UJ	NA	0.07 UJ	NA	0.05 UJ	NA	0.08 UJ	NA
	SODIUM	NA	44.3 J	NA	40.6 J	NA	56.5 J	NA	52.4 J	NA	32.9 J	NA
	THALLIUM	NA	0.1 UJ	NA	0.08 UJ	NA	0.05 UJ	NA	0.04 U	NA	0.1 UJ	NA
	VANADIUM	NA	27.2	NA	47.2	NA	19.9	NA	21	NA	21.5	NA
	ZINC	NA	31.5	NA	56.2	NA	63.9	NA	49.7	NA	59.1	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB137	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/17/08	08/02/07
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS137-071907	DA-SS138-011108	DA-SS138-071907	DA-SS139-011108	DA-SS139-071907	DA-SS140-011108	DA-SS140-071907	DA-SS141-011108	DA-SS141-071907	DA-SS142-011708	DA-SS142-080207
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	90	NA	91	NA	93	NA	83	NA	93	NA	84
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	68 J	NA	76	NA	19	NA	22	NA	57	NA
	GASOLINE RANGE ORGANICS	NA	3.3 UJ	NA	3.6 U	NA	2.8 U	NA	2.6 U	NA	3.2 U	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,1,1-TRICHLOROETHANE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	1,1,2,2-TETRACHLOROETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,1,2-TRICHLOROETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,1-DICHLOROETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,1-DICHLOROETHENE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	1,1-DICHLOROPROPENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2,3-TRICHLOROBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2,3-TRICHLOROPROPANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2,4-TRICHLOROBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2,4-TRIMETHYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2-DIBROMO-3-CHLOROPROPANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2-DIBROMOETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2-DICHLOROBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2-DICHLOROETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,2-DICHLOROPROPANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,3,5-TRIMETHYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,3-DICHLOROBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,3-DICHLOROPROPANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	1,4-DICHLOROBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	2,2-DICHLOROPROPANE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	2-BUTANONE	34 UJ	NA	32 U	NA	30 U	NA	29 U	NA	NA	NA	34 U
	2-CHLOROTOLUENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	2-HEXANONE	34 UJ	NA	32 U	NA	30 U	NA	29 U	NA	NA	NA	34 U
	4-CHLOROTOLUENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	4-ISOPROPYLTOLUENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	34 UJ	NA	32 U	NA	30 U	NA	29 U	NA	NA	NA	34 U
	ACETONE	2200 UJ	NA	24 J	NA	7900 J	NA	700 J	NA	NA	NA	500 J
	BENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	BROMOBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	BROMOCHLOROMETHANE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	BROMODICHLOROMETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	BROMOFORM	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	BROMOMETHANE	13 UJ	NA	13 UJ	NA	12 UJ	NA	12 UJ	NA	NA	NA	14 UJ
	BTEX	7.8 UJ	NA	6.9 U	NA	6.8 U	NA	6.8 U	NA	NA	NA	7.8 U
	CARBON DISULFIDE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	CARBON TETRACHLORIDE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	CHLOROBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	CHLORODIBROMOMETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	CHLOROETHANE	13 UJ	NA	13 UJ	NA	12 UJ	NA	12 UJ	NA	NA	NA	14 UJ
	CHLOROFORM	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	CHLOROMETHANE	13 UJ	NA	13 U	NA	12 U	NA	12 U	NA	NA	NA	14 U
	CIS-1,2-DICHLOROETHENE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	CIS-1,3-DICHLOROPROPENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	DIBROMOMETHANE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	DICHLORODIFLUOROMETHANE	13 UJ	NA	13 U	NA	12 U	NA	12 U	NA	NA	NA	14 U
	ETHYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	HEXACHLOROBUTADIENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	ISOPROPYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	M+P-XYLENES	13 UJ	NA	13 U	NA	12 U	NA	12 U	NA	NA	NA	14 U
	METHYL TERT-BUTYL ETHER	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	METHYLENE CHLORIDE	34 UJ	NA	32 UJ	NA	30 UJ	NA	29 UJ	NA	NA	NA	34 UJ
	N-BUTYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	O-XYLENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	SEC-BUTYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	STYRENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	TERT-BUTYLBENZENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	TETRACHLOROETHENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	TOLUENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	TOTAL 1,2-DICHLOROETHENE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	TOTAL CHLORINATED ETHENES	8.5 UJ	NA	7.8 UJ	NA	7.5 UJ	NA	7.5 UJ	NA	NA	NA	8.8 UJ
	TOTAL CHLORINATED VOCS	9 UJ	NA	8.1 UJ	NA	7.9 UJ	NA	7.8 UJ	NA	NA	NA	9.1 UJ
	TOTAL XYLENES	10 UJ	NA	9.5 U	NA	9 U	NA	9 U	NA	NA	NA	10 U
	TRANS-1,2-DICHLOROETHENE	7 UJ	NA	6 UJ	NA	6 UJ	NA	6 UJ	NA	NA	NA	7 UJ
	TRANS-1,3-DICHLOROPROPENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	TRICHLOROETHENE	7 UJ	NA	6 U	NA	6 U	NA	6 U	NA	NA	NA	7 U
	TRICHLOROFLUOROMETHANE	13 UJ	NA	13 UJ	NA	12 UJ	NA	12 UJ	NA	NA	NA	14 UJ
	VINYL CHLORIDE	13 UJ	NA	13 UJ	NA	12 UJ	NA	12 UJ	NA	NA	NA	14 UJ
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	1,2-DIPHENYLHYDRAZINE	970 UJ	NA	950 U	NA	860 U	NA	810 UJ	NA	NA	NA	850 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	480 UJ	NA	480 U	NA	430 U	NA	400 UJ	NA	NA	NA	420 U
	2,4,5-TRICHLOROPHENOL	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	2,4,6-TRICHLOROPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2,4-DICHLOROPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2,4-DIMETHYLPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2,4-DINITROPHENOL	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	2,4-DINITROTOLUENE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2,6-DICHLOROPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2,6-DINITROTOLUENE	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2-CHLOROPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2-METHYLNAPHTHALENE	8.5 J	26 U	29 U	27 U	12 J	10 J	8.7 J	22 U	22 U	22 U	7.2 J
	2-METHYLPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	2-NITROANILINE	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	2-NITROPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	3&4-METHYLPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	3,3'-DICHLOROBENZIDINE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	3-NITROANILINE	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	4,6-DINITRO-2-METHYLPHENOL	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	4-BROMOPHENYL PHENYL ETHER	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	4-CHLORO-3-METHYLPHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	4-CHLOROANILINE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	4-CHLOROPHENYL PHENYL ETHER	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	4-NITROANILINE	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	4-NITROPHENOL	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	ACENAPHTHENE	9.1 J	11 J	2.4 J	2.1 J	52	90	21 J	4.6 J	4.2 J	3.8 J	3.2 J
	ACENAPHTHYLENE	2.8 J	3.3 J	29 U	27 U	24 J	30	9.9 J	7 J	6.65 J	6.3 J	2.2 J
	ANTHRACENE	31	21 J	29 U	4 J	210	400 J	50	18 J	15.5 J	13 J	4.4 J
	BENZIDINE	2200 R	NA	2200 UJ	NA	2000 UJ	NA	1800 UJ	NA	NA	NA	1900 UJ
	BENZO(A)ANTHRACENE	110	110	19 J	22 J	1500 J	2400	210	110	98.5	87	39
	BENZO(A)PYRENE	120	100	21 J	19 J	1600	1800	230	120	115	110	45
	BENZO(B)FLUORANTHENE	110	130	19 J	31	1400	2600	200	98	119	140	37
	BENZO(G,H,I)PERYLENE	77	58	16 J	12 J	1200 J	1200	140	71	68	65	29
	BENZO(K)FLUORANTHENE	93	100	16 J	22 J	1300	2000	190	120	120	120	38
	BENZOIC ACID	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	970 U	NA	950 U	NA	860 U	NA	810 U	NA	NA	NA	850 U
	BIS(2-CHLOROETHOXY)METHANE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	BIS(2-CHLOROETHYL)ETHER	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	BIS(2-ETHYLHEXYL)PHTHALATE	480 UJ	NA	480 UJ	NA	4500 J	NA	400 UJ	NA	NA	NA	420 UJ
	BUTYL BENZYL PHTHALATE	480 UJ	NA	480 UJ	NA	270 J	NA	400 UJ	NA	NA	NA	420 UJ
	CARBAZOLE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	CHRYSENE	140	100	24 J	21 J	1900	2500	290	110	98.5	87	50
	DIBENZO(A,H)ANTHRACENE	32	40	29 U	27 U	320	1100 U	64	54	51	48	26 U
	DIBENZOFURAN	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	DIETHYL PHTHALATE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	DIMETHYL PHTHALATE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	DI-N-BUTYL PHTHALATE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	DI-N-OCTYL PHTHALATE	480 UJ	NA	480 UJ	NA	430 UJ	NA	400 UJ	NA	NA	NA	420 UJ
	FLUORANTHENE	240	NA	50	49	3600	5900	390	230	190	150	96
	FLUORENE	4.5 J	11 J	29 U	27 U	54	100	17 J	5.9 J	5.15 J	4.4 J	26 U
	HEXACHLOROBENZENE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	HEXACHLOROETHANE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	HIGH MOLECULAR WEIGHT PAHS	1199	916	212 J	226 J	16820 J	23900	2274	1177	1104.5	1032	432
	INDENO(1,2,3-CD)PYRENE	87	78	19 J	15 J	1300	1500	160	94	89.5	85	36
	ISOPHORONE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	LOW MOLECULAR WEIGHT PAHS	216.9 J	168.7 J	18.4 J	29.1 J	1668 J	2646 J	379.6 J	124.5 J	107 J	89.5 J	66.7 J
	NAPHTHALENE	11 J	2.4 J	29 U	27 U	16 J	16 J	13 J	22 U	22 U	22 U	9.7 J
	NITROBENZENE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	N-NITROSODIMETHYLAMINE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	N-NITROSO-DI-N-PROPYLAMINE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	N-NITROSODIPHENYLAMINE	480 UJ	NA	480 U	NA	430 U	NA	400 J	NA	NA	NA	420 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	PENTACHLOROPHENOL	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	NA	NA	NA	1000 U
	PHENANTHRENE	150	120	16 J	23 J	1300	2000	260	89	75.5	62	40
	PHENOL	480 U	NA	480 U	NA	430 U	NA	400 U	NA	NA	NA	420 U
	PYRENE	190	200	28 J	35	2700	4000	400	170	155	140	62
	TOTAL PAHS	1415.9 J	1084.7 J	230.4 J	255.1 J	18488 J	26546 J	2653.6 J	1301.5 J	1211.5 J	1121.5 J	498.7 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	5.1 J	NA	2.6 J	NA	4.3 U	NA	4 U	NA	NA	NA	4.2 U
	4,4'-DDE	8 J	NA	7.9	NA	4.3 U	NA	2.4 J	NA	NA	NA	1.2 J
	4,4'-DDT	12 J	NA	5.1 J	NA	4.3 U	NA	16 J	NA	NA	NA	3.3 J
	ALDRIN	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	ALPHA-BHC	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	ALPHA-CHLORDANE	2.5 U	NA	3.2 J	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	AROCLOR-1016	25 UJ	NA	24 UJ	NA	22 UJ	NA	21 U	NA	NA	NA	22 UJ
	AROCLOR-1221	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	AROCLOR-1232	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	AROCLOR-1242	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	AROCLOR-1248	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	AROCLOR-1254	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	AROCLOR-1260	68 J	NA	24 UJ	NA	350 J	NA	140	NA	NA	NA	22 UJ
	AROCLOR-1268	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	BETA-BHC	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	DELTA-BHC	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	DIELDRIN	4.8 U	NA	4.1 J	NA	4.3 U	NA	4 U	NA	NA	NA	4.2 U
	ENDOSULFAN I	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	ENDOSULFAN II	4.8 U	NA	4.8 U	NA	4.3 U	NA	4 U	NA	NA	NA	4.2 U
	ENDOSULFAN SULFATE	4.8 U	NA	4.8 U	NA	4.3 UJ	NA	4 U	NA	NA	NA	4.2 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	ENDRIN	2.4 J	NA	4.8 U	NA	4.3 U	NA	4 U	NA	NA	NA	4.2 U
	ENDRIN ALDEHYDE	4.8 U	NA	4.8 U	NA	4.3 U	NA	4 U	NA	NA	NA	4.2 U
	ENDRIN KETONE	4.8 U	NA	4.8 U	NA	4.3 U	NA	4 U	NA	NA	NA	4.2 U
	GAMMA-BHC (LINDANE)	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	GAMMA-CHLORDANE	2.5 U	NA	3.2	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	HEPTACHLOR	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	HEPTACHLOR EPOXIDE	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	NA	NA	NA	2.2 U
	METHOXYCHLOR	25 U	NA	24 U	NA	22 U	NA	21 U	NA	NA	NA	22 U
	TOTAL AROCLOR	68 J	NA	24 UJ	NA	350 J	NA	140	NA	NA	NA	22 UJ
	TOTAL DDD/DDE/DDT	25.1 J	NA	15.6 J	NA	4.3 U	NA	18.4 J	NA	NA	NA	4.5 J
	TOXAPHENE	48 U	NA	48 U	NA	43 U	NA	40 U	NA	NA	NA	42 U
METALS (MG/KG)	ALUMINUM	17600	NA	16100	NA	12200	NA	11600	NA	NA	NA	17600
	ANTIMONY	0.19 UJ	NA	0.17 UJ	NA	0.43 J	NA	0.08 UJ	NA	NA	NA	0.19 UJ
	ARSENIC	16.8	NA	13.9	NA	18.6	NA	10	NA	NA	NA	8.7
	BARIUM	32.6	NA	27.6	NA	42.8	NA	16.1	NA	NA	NA	18.9
	BERYLLIUM	0.58 J	NA	0.58 J	NA	0.49 J	NA	0.43 J	NA	NA	NA	0.46 J
	CADMIUM	0.02 UJ	NA	0.02 UJ	NA	2.4	NA	0.82 J	NA	NA	NA	0.02 UJ
	CALCIUM	491 J	NA	580 J	NA	1420 J	NA	817 J	NA	NA	NA	555 J
	CHROMIUM	19	NA	16.1	NA	33.4	NA	16.1	NA	NA	NA	20.6
	COBALT	28.4	NA	11.7	NA	20.7	NA	11.2	NA	NA	NA	9.9
	COPPER	20.4	NA	12.7	NA	63	NA	48.8	NA	NA	NA	16.2
	IRON	33600	NA	30700	NA	28200	NA	21800	NA	NA	NA	32500
	LEAD	45.9	NA	18.6	NA	112	NA	46.9	NA	NA	NA	25.4
	MAGNESIUM	3140	NA	2520	NA	3650	NA	3070	NA	NA	NA	3850
	MANGANESE	866	NA	231	NA	444	NA	487	NA	NA	NA	321
	MERCURY	0.08	NA	0.03 J	NA	0.08 J	NA	0.04 J	NA	NA	NA	0.05 J
	MOLYBDENUM	0.53 J	NA	0.59 J	NA	3.2	NA	0.45 J	NA	NA	NA	0.54 J

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	NICKEL	27.4	NA	24.7	NA	27.9	NA	18.9	NA	NA	NA	24.5
	POTASSIUM	380 J	NA	319 J	NA	505 J	NA	392 J	NA	NA	NA	343 J
	SELENIUM	0.37 UJ	NA	0.3 UJ	NA	0.52 UJ	NA	0.34 UJ	NA	NA	NA	0.61 UJ
	SILVER	0.1 UJ	NA	0.09 UJ	NA	0.16 J	NA	0.04 UJ	NA	NA	NA	0.25 J
	SODIUM	34.5 J	NA	41.9 J	NA	274	NA	306	NA	NA	NA	31 J
	THALLIUM	0.08 UJ	NA	0.1 UJ	NA	0.05 UJ	NA	0.17 UJ	NA	NA	NA	0.09 UJ
	VANADIUM	36.2	NA	21.3	NA	27.1	NA	23.6	NA	NA	NA	28.2
	ZINC	108	NA	65.3	NA	171	NA	158	NA	NA	NA	68.6
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-20.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-30.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB146	DA-SB146	DA-SB147
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	08/02/07	08/02/07	01/17/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	ORIG
	SAMPLE ID	DA-SS143-011708	DA-SS143-080207	DA-SS144-011708	DA-SS144-080207	DA-SS145-011708	DA-SS145-080207	DA-SS146-011708	DA-SS146-080207	DA-SS146-080207-AVG	DA-SS146-080207-D	DA-SS147-011708
FRACTION (UNITS)	PARAMETER											
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	NA	77	NA	74	NA	74	NA	90	91.5	93	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	96	NA	24	NA	310 J	NA	100	NA	NA	NA	58
	GASOLINE RANGE ORGANICS	4.5 U	NA	4.4 U	NA	3.5 U	NA	3.3 U	NA	NA	NA	4.5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,1,1-TRICHLOROETHANE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	1,1,2,2-TETRACHLOROETHANE	6.5 U	6 U	8 U	5 U	6 UJ	5 UJ
	1,1,2-TRICHLOROETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,1-DICHLOROETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,1-DICHLOROETHENE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	1,1-DICHLOROPROPENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,2,3-TRICHLOROBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,2,3-TRICHLOROPROPANE	6.5 U	6 U	8 U	5 U	6 UJ	5 UJ
	1,2,4-TRICHLOROBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,2,4-TRIMETHYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,2-DIBROMOETHANE	6.5 U	6 U	8 U	5 U	6 UJ	5 UJ
	1,2-DICHLOROBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,2-DICHLOROETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,2-DICHLOROPROPANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,3,5-TRIMETHYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,3-DICHLOROBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	1,3-DICHLOROPROPANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	1,4-DICHLOROBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	2,2-DICHLOROPROPANE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	2-BUTANONE	31.5 U	29 U	38 U	25 U	30 U	25 U
	2-CHLOROTOLUENE	6.5 U	6 U	8 U	5 U	6 UJ	5 UJ
	2-HEXANONE	31.5 U	29 U	38 U	25 U	30 U	25 U
	4-CHLOROTOLUENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	4-ISOPROPYLTOLUENE	6.5 U	6 U	8 U	5 U	6 U	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	4-METHYL-2-PENTANONE	31.5 U	29 U	38 U	25 U	30 U	25 U
	ACETONE	550 J	600 J	850 J	12 J	30 UJ	1200 J
	BENZENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	BROMOBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 UJ
	BROMOCHLOROMETHANE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	BROMODICHLOROMETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	BROMOFORM	6.5 U	6 U	8 U	5 U	6 U	5 U
	BROMOMETHANE	13 UJ	12 UJ	15 UJ	10 UJ	12 U	10 U
	BTEX	7.3 U	6.8 U	9 U	5.6 U	6.8 U	5.6 U
	CARBON DISULFIDE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	CARBON TETRACHLORIDE	6.5 U	6 U	8 U	5 U	6 U	5 U
	CHLOROBENZENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	CHLORODIBROMOMETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	CHLOROETHANE	13 UJ	12 UJ	15 UJ	10 UJ	12 U	10 U
	CHLOROFORM	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	CHLOROMETHANE	13 U	12 U	15 U	10 U	12 U	10 U
	CIS-1,2-DICHLOROETHENE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	CIS-1,3-DICHLOROPROPENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	DIBROMOMETHANE	6.5 U	6 U	8 U	5 U	6 U	5 U
	DICHLORODIFLUOROMETHANE	13 U	12 U	15 U	10 U	12 U	10 U
	ETHYLBENZENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	HEXACHLOROBUTADIENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	ISOPROPYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	M+P-XYLENES	13 U	12 U	15 U	10 U	12 U	10 U
	METHYL TERT-BUTYL ETHER	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	METHYLENE CHLORIDE	31.5 UJ	29 UJ	38 UJ	25 UJ	30 U	25 U
	N-BUTYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	N-PROPYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	O-XYLENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	SEC-BUTYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 U
	STYRENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	TERT-BUTYLBENZENE	6.5 U	6 U	8 U	5 U	6 UJ	5 UJ
	TETRACHLOROETHENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	TOLUENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	TOTAL 1,2-DICHLOROETHENE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	TOTAL CHLORINATED ETHENES	8.1 UJ	7.5 UJ	9.8 UJ	6.2 UJ	7.5 U	6.2 U
	TOTAL CHLORINATED VOCS	8.5 UJ	7.8 UJ	10 UJ	6.6 UJ	7.9 UJ	6.6 UJ
	TOTAL XYLENES	9.8 U	9 U	12 U	7.5 U	9 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	6.5 UJ	6 UJ	8 UJ	5 UJ	6 U	5 U
	TRANS-1,3-DICHLOROPROPENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	TRICHLOROETHENE	6.5 U	6 U	8 U	5 U	6 U	5 U
	TRICHLOROFLUOROMETHANE	13 UJ	12 UJ	15 UJ	10 UJ	12 U	10 U
	VINYL CHLORIDE	13 UJ	12 UJ	15 UJ	10 UJ	12 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	420 U	420 U	520 U	410 U	420 U	410 U
	1,2-DIPHENYLHYDRAZINE	845 U	840 U	1000 U	820 U	850 U	810 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	420 U	420 U	520 U	410 U	420 U	410 U
	2,4,5-TRICHLOROPHENOL	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	2,4,6-TRICHLOROPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	2,4-DICHLOROPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	2,4-DIMETHYLPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	2,4-DINITROPHENOL	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	2,4-DINITROTOLUENE	420 U	420 U	520 U	410 U	420 U	410 U
	2,6-DICHLOROPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	2,6-DINITROTOLUENE	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	2-CHLORONAPHTHALENE	420 U	420 U	520 U	410 U	420 U	410 U
	2-CHLOROPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	2-METHYLNAPHTHALENE	7.2 J	7.2 J	11 J	7.3 J	26 U	25 U
	2-METHYLPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	2-NITROANILINE	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	2-NITROPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	3&4-METHYLPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	3,3'-DICHLOROBENZIDINE	420 U	420 U	520 U	410 U	420 UJ	410 UJ
	3-NITROANILINE	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	4,6-DINITRO-2-METHYLPHENOL	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	4-BROMOPHENYL PHENYL ETHER	420 U	420 U	520 U	410 U	420 U	410 U
	4-CHLORO-3-METHYLPHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	4-CHLOROANILINE	420 U	420 U	520 U	410 U	420 U	410 U
	4-CHLOROPHENYL PHENYL ETHER	420 U	420 U	520 U	410 U	420 U	410 U
	4-NITROANILINE	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	4-NITROPHENOL	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	ACENAPHTHENE	3.15 J	3.1 J	17 J	10 J	3.8 J	46
	ACENAPHTHYLENE	2.05 J	1.9 J	49	3.1 J	3.1 J	5.6 J
	ANTHRACENE	4.4 J	4.4 J	110	33	5 J	180 J
	BENZIDINE	1900 UJ	1900 UJ	2400 UJ	1800 UJ	1900 UJ	1800 UJ
	BENZO(A)ANTHRACENE	38.5	38	450 J	120	7.3 J	340
	BENZO(A)PYRENE	45	45	420	140 J	9.3 J	260
	BENZO(B)FLUORANTHENE	38.5	40	320	120 J	9.6 J	240
	BENZO(G,H,I)PERYLENE	29.5	30	250 J	98 J	8.8 J	99
	BENZO(K)FLUORANTHENE	38	38	340	110 J	10 J	220
	BENZOIC ACID	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	BENZYL ALCOHOL	845 U	840 U	1000 U	820 U	850 U	810 U
	BIS(2-CHLOROETHOXY)METHANE	420 U	420 U	520 U	410 U	420 U	410 U
	BIS(2-CHLOROETHYL)ETHER	420 U	420 U	520 U	410 U	420 U	410 U
	BIS(2-ETHYLHEXYL)PHTHALATE	420 UJ	420 UJ	520 UJ	410 UJ	420 UJ	410 UJ
	BUTYL BENZYL PHTHALATE	420 UJ	420 U	520 U	410 U	420 UJ	410 UJ
	CARBAZOLE	420 U	420 U	520 U	410 U	420 U	410 U
	CHRYSENE	49	48	690	180	9.6 J	380 J
	DIBENZO(A,H)ANTHRACENE	25.5 U	25 U	110	40 J	26 U	68
	DIBENZOFURAN	420 U	420 U	520 U	410 U	420 U	410 U
	DIETHYL PHTHALATE	420 U	420 U	520 U	410 U	420 U	410 U
	DIMETHYL PHTHALATE	420 U	420 U	520 U	410 U	420 U	410 U
	DI-N-BUTYL PHTHALATE	420 U	420 U	520 U	410 U	420 U	410 U
	DI-N-OCTYL PHTHALATE	420 UJ	420 UJ	520 UJ	410 UJ	420 UJ	410 UJ
	FLUORANTHENE	95.5	95	1400	250	16 J	910
	FLUORENE	25.5 U	25 U	57	8.3 J	26 UJ	48 J
	HEXACHLOROBENZENE	420 U	420 U	520 U	410 U	420 U	410 U
	HEXACHLOROETHANE	420 U	420 U	520 U	410 U	420 U	410 U
	HIGH MOLECULAR WEIGHT PAHS	431	430	5210 J	1348 J	88.3 J	3657 J
	INDENO(1,2,3-CD)PYRENE	35.5	35	280	110 J	6.7 J	140
	ISOPHORONE	420 U	420 U	520 U	410 U	420 U	410 U
	LOW MOLECULAR WEIGHT PAHS	67.3 J	67.9 J	1088 J	221.2 J	21.9 J	1065 J
	NAPHTHALENE	9.5 J	9.3 J	14 J	9.5 J	26 U	5.4 J
	NITROBENZENE	420 U	420 U	520 U	410 U	420 U	410 U
	N-NITROSODIMETHYLAMINE	420 U	420 U	520 U	410 U	420 U	410 U
	N-NITROSO-DI-N-PROPYLAMINE	420 U	420 U	520 U	410 U	420 U	410 U
	N-NITROSODIPHENYLAMINE	420 U	420 U	520 U	410 U	420 U	410 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	N-NITROSOPYRROLIDINE	420 U	420 U	520 U	410 U	420 U	410 U
	PENTACHLOROPHENOL	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U
	PHENANTHRENE	41	42	830	150	10 J	780
	PHENOL	420 U	420 U	520 U	410 U	420 U	410 U
	PYRENE	61.5	61	950	180	11 J	1000
	TOTAL PAHS	498.3 J	497.9 J	6298 J	1569.2 J	110.2 J	4722 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.2 U	4.2 U	5.2 U	5.2 J	4.2 U	4.1 U
	4,4'-DDE	1.4 J	1.6 J	4.7 J	22	4.2 U	6.0
	4,4'-DDT	2.7 J	4.2 UJ	5.2 U	38	4.2 U	4.1 U
	ALDRIN	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	ALPHA-BHC	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	ALPHA-CHLORDANE	2.2 U	2.2 U	2.7 U	16 J	2.2 U	2.1 U
	AROCLOR-1016	22 UJ	22 UJ	27 U	21 U	22 UJ	21 UJ
	AROCLOR-1221	22 U	22 U	27 U	21 U	22 U	21 U
	AROCLOR-1232	22 U	22 U	27 U	21 U	22 U	21 U
	AROCLOR-1242	22 U	22 U	27 U	21 U	22 U	21 U
	AROCLOR-1248	22 U	22 U	27 U	21 U	22 U	21 U
	AROCLOR-1254	22 UJ	22 UJ	27 U	21 U	22 U	21 U
	AROCLOR-1260	22 UJ	22 U	74	46	22 UJ	510 J
	AROCLOR-1268	22 U	22 U	27 U	21 U	22 U	21 U
	BETA-BHC	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	DELTA-BHC	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	DIELDRIN	4.2 U	4.2 U	5.2 U	23	4.2 U	4.1 U
	ENDOSULFAN I	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	ENDOSULFAN II	4.2 U	4.2 U	5.2 U	4.1 U	4.2 U	4.1 U
	ENDOSULFAN SULFATE	4.2 U	4.2 U	5.2 UJ	4.1 UJ	4.2 UJ	4.1 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	ENDRIN	4.2 U	4.2 U	5.2 U	4.1 U	4.2 U	4.1 U
	ENDRIN ALDEHYDE	4.2 U	4.2 U	5.2 U	4.1 U	4.2 U	4.1 U
	ENDRIN KETONE	4.2 U	4.2 U	5.2 U	4.1 U	4.2 U	4.1 U
	GAMMA-BHC (LINDANE)	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	GAMMA-CHLORDANE	2.2 U	2.2 U	2.7 U	10	2.2 U	2.1 U
	HEPTACHLOR	2.2 U	2.2 U	2.7 U	1.2 J	2.2 U	2.1 U
	HEPTACHLOR EPOXIDE	2.2 U	2.2 U	2.7 U	2.1 U	2.2 U	2.1 U
	METHOXYCHLOR	22 U	22 U	27 U	21 U	22 U	21 U
	TOTAL AROCLOR	22 UJ	22 UJ	74	46	22 UJ	510 J
	TOTAL DDD/DDE/DDT	4.1 J	1.6 J	4.7 J	65.2 J	4.2 U	6
	TOXAPHENE	42 U	42 U	52 U	41 U	42 U	41 U
METALS (MG/KG)	ALUMINUM	17200	16800	20700	13800	14000	12100
	ANTIMONY	0.185 UJ	0.18 UJ	0.26 UJ	0.19 UJ	0.09 UJ	0.18 UJ
	ARSENIC	7.8	6.9	19.4	19.4	6	31.6
	BARIUM	19.5	20.1	42.2	32	24.8	27.9
	BERYLLIUM	0.45 J	0.44 J	0.74 J	0.55 J	0.45 J	0.44 J
	CADMIUM	0.02 UJ	0.02 UJ	1.2 J	1.2 J	0.08 J	0.02 UJ
	CALCIUM	528 J	501 J	2230 J	1550 J	602	1290
	CHROMIUM	19.9	19.2	26	19.1	14.3	15
	COBALT	9.05	8.2	18.8	218	4.7	11.9
	COPPER	14.9	13.6	28	50.4	12.9 J	21.1 J
	IRON	30600	28600	38000	43700	17700	27300
	LEAD	25.2	25	90.2	2870	14.5	23.4
	MAGNESIUM	3580	3320	4550	3940	2270	3120
	MANGANESE	282	242	1210	2020	105	377
	MERCURY	0.05 J	0.05 J	0.15	0.05 J	0.32	0.04 J
	MOLYBDENUM	0.495 J	0.45 J	0.98 J	7.6	0.34 UJ	0.44 UJ

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	NICKEL	23	21.4	32.5	28.5	14.3	22.4
	POTASSIUM	359 J	375 J	586 J	416 J	320	500
	SELENIUM	0.605 UJ	0.6 UJ	0.67 UJ	0.33 U	0.6 J	0.58 J
	SILVER	0.315 J	0.38 J	0.73 J	0.68 J	0.05 UJ	0.09 UJ
	SODIUM	31.6 J	32.3 J	61.8 J	108 J	44.9 UJ	58.9 UJ
	THALLIUM	0.09 UJ	0.09 UJ	0.1 UJ	0.04 UJ	0.1 UJ	0.04 UJ
	VANADIUM	28.2	28.3	38.6	24.4	22.7	19.2
	ZINC	64.4	60.1	125	175	58	68.8
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	2	3.1
	HYDROMETER-12.9UM	NA	NA	NA	NA	5.9	2.9
	HYDROMETER-20.5UM	NA	NA	NA	NA	10.9	5.9
	HYDROMETER-3.4UM	NA	NA	NA	NA	2.4	4
	HYDROMETER-30.5UM	NA	NA	NA	NA	38.6	11.5
	HYDROMETER-6.6UM	NA	NA	NA	NA	2.5	1.8
	HYDROMETER-9.1UM	NA	NA	NA	NA	2.5	2.9
	PERCENT CLAY	NA	NA	NA	NA	6.6	10.5
	PERCENT COARSE SAND	NA	NA	NA	NA	2	11.2
	PERCENT FINE SAND	NA	NA	NA	NA	19.9	19.1
	PERCENT GRAVEL	NA	NA	NA	NA	4.5	17.3
	PERCENT MEDIUM SAND	NA	NA	NA	NA	6.6	16.9
	PERCENT SILT	NA	NA	NA	NA	60.4	25
	SIEVE 1"	NA	NA	NA	NA	0	0
	SIEVE 1-1/2"	NA	NA	NA	NA	0	0
	SIEVE 2"	NA	NA	NA	NA	0	0
	SIEVE 3"	NA	NA	NA	NA	0	0
	SIEVE 3/4"	NA	NA	NA	NA	0	0
	SIEVE 3/8"	NA	NA	NA	NA	0	8.3

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APPENDIX F-1A SURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB147	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153
	TOP DEPTH	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1
	SAMPLE DATE	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SS147-011708-AVG	DA-SS147-011708-D	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608
FRACTION (UNITS)	PARAMETER						
	SIEVE NO. 004	NA	NA	NA	NA	4.5	9.1
	SIEVE NO. 010	NA	NA	NA	NA	2	11.2
	SIEVE NO. 020	NA	NA	NA	NA	3.1	9.9
	SIEVE NO. 040	NA	NA	NA	NA	3.5	7
	SIEVE NO. 060	NA	NA	NA	NA	4	6.2
	SIEVE NO. 080	NA	NA	NA	NA	3.5	4.2
	SIEVE NO. 100	NA	NA	NA	NA	1.9	1.9
	SIEVE NO. 200	NA	NA	NA	NA	10.5	6.8
	TOTAL SOLIDS	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	72000	28000
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	5.2	5.3
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	64	70	58	72	56 J	60 J
	GASOLINE RANGE ORGANICS	4.2 U	3.9 U	5.0 UJ	8.1	3.6 U	3.1 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,1,2-TRICHLOROETHANE	6 U	5 U	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	6 U	5 U	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2,3-TRICHLOROPROPANE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2,4-TRICHLOROBENZENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2,4-TRIMETHYLBENZENE	6 U	5 UJ	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2-DIBROMOETHANE	6 U	5 U	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2-DICHLOROETHANE	6 UJ	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,2-DICHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	6 U	5 UJ	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,3-DICHLOROBENZENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	1,3-DICHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	2,2-DICHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	2-BUTANONE	48	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	25 U	25 U
	2-CHLOROTOLUENE	6 U	5 UJ	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	2-HEXANONE	30 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	25 U	25 U
	4-CHLOROTOLUENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	4-ISOPROPYLTOLUENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	30 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	25 U	25 U
	ACETONE	140	25 U	16 J	34	25 J	16 J	NA	15 J	48	390	38
	BENZENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	BROMOBENZENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	BROMOCHLOROMETHANE	6 UJ	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 UJ	5 UJ	5 UJ
	BROMODICHLOROMETHANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	BROMOFORM	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	BROMOMETHANE	12 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U
	BTEX	6.8 U	5.6 U	5.6 UJ	5.6 U	5.6 U	5.6 U	NA	5.6 U	5.6 U	5.6 U	2 J
	CARBON DISULFIDE	2 J	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	4 J	2 J
	CARBON TETRACHLORIDE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	CHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	CHLOROETHANE	12 UJ	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 UJ
	CHLOROFORM	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	CHLOROMETHANE	12 UJ	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 UJ
	CIS-1,2-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	6 U	5 U	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	DIBROMOMETHANE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	12 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U
	ETHYLBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	6 U	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	ISOPROPYLBENZENE	6	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	M+P-XYLENES	12 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	30 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	25 U	25 U
	N-BUTYLBENZENE	5 J	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	2 J	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	O-XYLENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	66	5 UJ	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	STYRENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	12	5 UJ	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 UJ
	TETRACHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	TOLUENE	6 U	5 U	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	2 J
	TOTAL 1,2-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	7.5 U	2 J	6.2 UJ	6.2 U	6.2 U	6.2 U	NA	6.2 U	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	7.9 UJ	2 J	6.6 UJ	6.6 U	6.6 U	6.6 U	NA	6.6 U	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	9 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	NA	7.5 U	7.5 U	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	6 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	TRICHLOROETHENE	6 U	2 J	5 UJ	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	12 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U
	VINYL CHLORIDE	12 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	410 U	370 U	380 U	380 UJ	375 UJ	370 UJ	NA	360 UJ	370 U	360 U	370 U
	1,2-DIPHENYLHYDRAZINE	820 U	730 U	770 U	760 U	755 U	750 U	NA	720 U	740 U	720 U	740 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	410 UJ	370 UJ	380 U	380 UJ	375 UJ	370 UJ	NA	360 UJ	370 UJ	360 UJ	370 UJ
	2,4,5-TRICHLOROPHENOL	1000 U	910 U	960 U	940 U	935 U	930 U	NA	890 U	920 U	900 U	910 U
	2,4,6-TRICHLOROPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2,4-DICHLOROPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2,4-DIMETHYLPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2,4-DINITROPHENOL	1000 U	910 U	960 UJ	940 UJ	935 UJ	930 UJ	NA	890 UJ	920 U	900 U	910 U
	2,4-DINITROTOLUENE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2,6-DICHLOROPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2,6-DINITROTOLUENE	1000 U	910 U	960 U	940 UJ	935 UJ	930 UJ	NA	890 UJ	920 U	900 U	910 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2-CHLOROPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2-METHYLNAPHTHALENE	5.9 J	8.9 J	120 U	35 J	51 J	67 J	NA	15 J	7 J	22 U	7.8 J
	2-METHYLPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	2-NITROANILINE	1000 U	910 U	960 U	940 U	935 U	930 U	NA	890 U	920 U	900 U	910 U
	2-NITROPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	3&4-METHYLPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	3,3'-DICHLOROBENZIDINE	410 UJ	370 UJ	380 U	380 U	375 U	370 U	NA	360 U	370 UJ	360 U	370 UJ
	3-NITROANILINE	1000 UJ	910 UJ	960 U	940 UJ	935 UJ	930 UJ	NA	890 UJ	920 UJ	900 UJ	910 UJ
	4,6-DINITRO-2-METHYLPHENOL	1000 U	910 U	960 U	940 UJ	935 UJ	930 UJ	NA	890 UJ	920 U	900 U	910 U
	4-BROMOPHENYL PHENYL ETHER	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	4-CHLORO-3-METHYLPHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	4-CHLOROANILINE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	4-CHLOROPHENYL PHENYL ETHER	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	4-NITROANILINE	1000 U	910 U	960 U	940 U	935 U	930 U	NA	890 U	920 U	900 U	910 U
	4-NITROPHENOL	1000 U	910 U	960 U	940 U	935 U	930 U	NA	890 U	920 U	900 U	910 U
	ACENAPHTHENE	25 U	2.7 J	41 J	170	255 J	340 J	NA	110	22 U	22 U	30
	ACENAPHTHYLENE	25 U	22 U	120 U	6.8 J	5.45 J	4.1 J	NA	2.5 J	22 U	22 U	22 U
	ANTHRACENE	25 U	22 U	87 J	640	970	1300	NA	160	2.9 J	22 U	50
	BENZIDINE	1900 UJ	1700 UJ	1800 U	1700 UJ	1700 UJ	1700 UJ	NA	1600 UJ	1700 UJ	1600 UJ	1700 UJ
	BENZO(A)ANTHRACENE	5.4 J	45	240	980 J	1340 J	1700 J	NA	440	19 J	22 U	190 J
	BENZO(A)PYRENE	25 U	29	190	620	805	990	NA	640 J	20 J	22 U	110
	BENZO(B)FLUORANTHENE	25 UJ	64	170	720	1010	1300	NA	210	43	22 U	170 J
	BENZO(G,H,I)PERYLENE	4.1 J	14 J	110 J	220	325	430	NA	220	22 U	22 U	39 J
	BENZO(K)FLUORANTHENE	25 U	20 J	160	280	420	560	NA	180	14 J	22 U	74
	BENZOIC ACID	1000 U	910 U	960 U	940 UJ	935 UJ	930 UJ	NA	890 UJ	920 U	900 U	910 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	820 U	730 U	770 U	760 U	755 U	750 U	NA	720 U	740 U	720 U	740 U
	BIS(2-CHLOROETHOXY)METHANE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	BIS(2-CHLOROETHYL)ETHER	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	BIS(2-ETHYLHEXYL)PHTHALATE	410 U	370 U	380 U	380 U	375 U	370 U	NA	280 J	370 U	360 U	370 U
	BUTYL BENZYL PHTHALATE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	CARBAZOLE	410 U	370 U	380 U	590 J	895 J	1200 J	NA	360 UJ	370 U	360 U	370 U
	CHRYSENE	25 U	33	210	1000 J	1400 J	1800 J	NA	570	14 J	22 U	92
	DIBENZO(A,H)ANTHRACENE	25 UJ	22 U	34 J	88	99	110	NA	43	22 U	22 U	18 J
	DIBENZOFURAN	410 U	370 U	380 U	380 U	240 J	290 J	NA	360 U	370 U	360 U	370 U
	DIETHYL PHTHALATE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	DIMETHYL PHTHALATE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	DI-N-BUTYL PHTHALATE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	DI-N-OCTYL PHTHALATE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 UJ	370 U	360 U	370 U
	FLUORANTHENE	5 J	57	600	3100	4100	5100	NA	970	32	5.5 J	310 J
	FLUORENE	25 U	2.9 J	42 J	280	415	550	NA	87	22 U	22 U	18 J
	HEXACHLOROBENZENE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	HEXACHLOROETHANE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	HIGH MOLECULAR WEIGHT PAHS	14.5 J	321 J	2194 J	9368 J	12679 J	15990 J	NA	4483 J	166 J	5.5 J	1320 J
	INDENO(1,2,3-CD)PYRENE	25 U	16 J	100 J	260	380	500	NA	110	22 U	22 U	47
	ISOPHORONE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	LOW MOLECULAR WEIGHT PAHS	5.9 J	61.3 J	571 J	3596.8 J	5088.95 J	6581.1 J	NA	1190.5 J	25.9 J	4.8 J	325 J
	NAPHTHALENE	25 U	3.8 J	21 J	65 J	92.5 J	120 J	NA	26	22 U	22 U	9.2 J
	NITROBENZENE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	N-NITROSODIMETHYLAMINE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	N-NITROSO-DI-N-PROPYLAMINE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	N-NITROSODIPHENYLAMINE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	PENTACHLOROPHENOL	1000 U	910 U	960 U	940 U	935 U	930 U	NA	890 U	920 U	900 U	910 U
	PHENANTHRENE	25 U	43	380	2400 J	3300 J	4200 J	NA	790	16 J	4.8 J	210 J
	PHENOL	410 U	370 U	380 U	380 U	375 U	370 U	NA	360 U	370 U	360 U	370 U
	PYRENE	25 U	43	380	2100	2800	3500	NA	1100	24	22 U	270
	TOTAL PAHS	20.4 J	382.3 J	2765 J	12964.8 J	17767.95 J	22571.1 J	NA	5673.5 J	191.9 J	10.3 J	1645 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.1 U	1.4 J	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	4,4'-DDE	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	4,4'-DDT	4.1 U	1 J	3.8 U	3.8 UJ	3.75 UJ	3.7 U	NA	7.8 J	3.7 U	3.6 UJ	3.7 U
	ALDRIN	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	ALPHA-BHC	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	ALPHA-CHLORDANE	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	AROCLOR-1016	21 U	19 U	20 U	19 U	57.5 U	96 U	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1221	21 U	19 U	20 U	19 U	57.5 U	96 U	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1232	21 U	19 U	20 U	19 U	57.5 U	96 U	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1242	21 U	19 U	20 U	19 U	57.5 U	96 U	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1248	21 U	19 U	20 U	19 U	57.5 U	96 U	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1254	21 U	19 U	40	19 U	57.5 U	96 U	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1260	21 U	19 U	20 U	19 U	57.5 UJ	96 UJ	NA	18 U	19 U	18 UJ	19 U
	AROCLOR-1268	21 U	19 U	83	220 J	4060 J	7900 J	NA	18 U	19 U	18 UJ	19 U
	BETA-BHC	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	DELTA-BHC	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	DIELDRIN	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	ENDOSULFAN I	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	ENDOSULFAN II	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	ENDOSULFAN SULFATE	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	ENDRIN	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	ENDRIN ALDEHYDE	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	ENDRIN KETONE	4.1 U	3.7 U	3.8 U	3.8 U	3.75 U	3.7 U	NA	3.6 U	3.7 U	3.6 UJ	3.7 U
	GAMMA-BHC (LINDANE)	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	GAMMA-CHLORDANE	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	HEPTACHLOR	2.1 U	1.9 U	2 U	1.6 J	1.28 J	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	HEPTACHLOR EPOXIDE	2.1 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	NA	1.8 U	1.9 U	1.8 UJ	1.9 U
	METHOXYCHLOR	21 U	19 UJ	20 U	19 UJ	19 UJ	19 U	NA	18 UJ	19 U	18 UJ	19 U
	TOTAL AROCLOR	21 U	19 U	123	220 J	4060 J	7900 J	NA	18 U	19 U	18 UJ	19 U
	TOTAL DDD/DDE/DDT	4.1 U	2.4 J	3.8 U	3.8 UJ	3.8 UJ	3.7 U	NA	7.8 J	3.7 U	3.6 UJ	3.7 U
	TOXAPHENE	41 U	37 U	38 U	38 U	37.5 U	37 U	NA	36 U	37 U	36 UJ	37 U
METALS (MG/KG)	ALUMINUM	20700	11600	13800	13500	13200	12800	NA	10200	10200	11100	9530
	ANTIMONY	0.25 UJ	0.35 UJ	0.108 UJ	0.096 UJ	0.0935 UJ	0.091 UJ	NA	0.23 UJ	0.11 UJ	0.31 UJ	0.07 UJ
	ARSENIC	14.4 J	8.9 J	18.8	21.3	20.8	20.2	NA	10.8	9.8 J	14.1 J	8.2 J
	BARIUM	32.8	24.4	23	25.3	22.6	20	NA	28	23.8	25.3	25.2
	BERYLLIUM	0.59	0.2 J	0.35 J	0.46	0.435	0.41	NA	0.39	0.28 J	0.39 J	0.25 J
	CADMIUM	0.01 U	0.01 U	0.015 U	0.16 UJ	0.145 UJ	0.13 UJ	NA	0.26 UJ	0.01 U	0.01 U	0.18 UJ
	CALCIUM	672 J	2150 J	1300	1100	1010	924	NA	6110	1190 J	821 J	822 J
	CHROMIUM	21.5 J	19.5 J	16.3	16.2	17.4	18.7	NA	13	14 J	16.1 J	16.8 J
	COBALT	13.8	9.3	12.5	11.6	10.8	10.1	NA	14.6	11.2	12.6	7.2
	COPPER	11.4	16.2	19.1	25.5	26.8	28.2	NA	19.1	15	20.6	14.6
	IRON	40000	23400	27300	29100	28900	28700	NA	22800	25400	30200	19600
	LEAD	16.3	12.4	14.8	15.6	14.4	13.3	NA	43.2	7.6	9.9	8.3
	MAGNESIUM	3410 J	3930 J	3480	3180	3240	3310	NA	2890	2900 J	3170 J	2720 J
	MANGANESE	733	373	335	382	357	332	NA	483	248	312	375
	MERCURY	0.04 U	0.02 UJ	0.02 J	0.02 J	0.02 J	0.02 J	NA	0.22	0.01 U	0.01 U	0.02 UJ
	MOLYBDENUM	0.65 J	0.59 J	0.39 J	0.34 J	0.53 J	0.72 J	NA	0.48 J	0.28 J	0.44 J	1.5 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	NICKEL	26.4	20	23.2	21.9	21.6	21.2	NA	19.3	20.3	22.8	15.6
	POTASSIUM	410 J	1080 J	512	511	438	364	NA	520	589 J	692 J	906 J
	SELENIUM	0.51 U	0.61 U	0.728 U	0.649 U	0.63 U	0.611 U	NA	0.554 U	0.57 U	0.6 U	0.3 U
	SILVER	0.09 U	0.11 U	0.131 UJ	0.116 UJ	0.113 UJ	0.11 UJ	NA	0.1 UJ	0.26 J	0.44 J	0.23 J
	SODIUM	110 J	147 J	47.2 J	51.7 J	45.2 J	38.7 J	NA	51.8 J	44.4 J	44.8 J	44.5 J
	THALLIUM	0.07 UJ	0.06 UJ	0.07 UJ	0.06 UJ	0.05 UJ	0.04 UJ	NA	0.04 UJ	0.08 UJ	0.04 UJ	0.05 UJ
	VANADIUM	25.2	19.2	19.8	20.3	19	17.7	NA	20.9	18.8	18.1	17.4
	ZINC	63.7	42.4	54.3	60.3	62	63.8	NA	61.3	44.3	55.4	38.3
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	4.5	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	14.6	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	19	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	7	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	23.4	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	10.1	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	12.7	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	10.1	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	8.2	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	20.1	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	23.9	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	13.3	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	24.4	NA	NA	NA	NA
	PH	NA	NA	NA	NA	NA	NA	6.8	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW100B	DA-MW101B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW106B	DA-MW107B	DA-MW108B
	TOP DEPTH	6	4	8	4	4	4	10	2	4	6	4
	BOTTOM DEPTH	8	6	10	6	6	6	12	4	6	8	6
	SAMPLE DATE	03/20/08	03/20/08	04/01/08	04/11/08	04/11/08	04/11/08	04/09/08	04/08/08	03/19/08	03/21/08	03/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B100B-0608	DA-B101B-0406	DA-B103B-0810	DA-B104B-0406	DA-B104B-0406-AVG	DA-B104B-0406-D	DA-B104B-1012	DA-B105B-0204	DA-B106B-0406	DA-B107B-0608	DA-B108B-0406
FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	94.2	NA	NA	NA	NA
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	76.1	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	67.9	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	61	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	54.6	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	48.5	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	43.7	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	42.1	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	34.5	NA	NA	NA	NA
	TOTAL SOLIDS	80	90	NA	NA	NA	NA	NA	NA	89	91	90
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	18000	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	23	370	27	28 J	55.5 J	83 J	NA	980	73	30	240
	GASOLINE RANGE ORGANICS	7.4 U	2.6 U	2.9 U	2.8 U	2.8 U	2.8 U	NA	2.6 U	2.7 U	2.6 U	2.6 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,2,3-TRICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,2,4-TRIMETHYLBENZENE	5 U	46	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,2-DIBROMOETHANE	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,2-DICHLOROETHANE	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	20	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ
	1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-BUTANONE	25 U	27 U	26 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	26 U
	2-CHLOROTOLUENE	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ
	2-HEXANONE	25 U	27 U	26 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	26 U
	4-CHLOROTOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	4-ISOPROPYLTOLUENE	5 U	11	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	27 U	26 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	26 U
	ACETONE	34	1000 J	26 U	120	8 J	25 U	25 U	25 U	25 UJ	25 U	11 J
	BENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	BROMOCHLOROMETHANE	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOMETHANE	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BTEX	5.6 U	5.8 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 UJ	5.6 U	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROETHANE	10 UJ	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	CHLOROFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROMETHANE	10 UJ	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	CIS-1,2-DICHLOROETHENE	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	DIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	ISOPROPYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	M+P-XYLENES	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	25 U	27 UJ	26 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	26 UJ
	N-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	O-XYLENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	5 U	4 J	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ
	STYRENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
	TETRACHLOROETHENE	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	11
	TOLUENE	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	5 J	2 J	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 UJ	6.2 U	6.2 U	6.2 U	41
	TOTAL CHLORINATED VOCS	5 J	2 J	6.6 U	6.6 U	6.6 U	6.6 UJ	6.6 UJ	6.6 UJ	6.6 U	6.6 U	41 J
	TOTAL XYLENES	7.5 U	8 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	30
	TRICHLOROFLUOROMETHANE	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	VINYL CHLORIDE	3 J	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	360 U	400 U	390 UJ	390 UJ	660 J	370 U	370 U	360 U	350 U	370 UJ	400 U
	1,2-DIPHENYLHYDRAZINE	730 U	790 U	780 U	770 U	740 U	740 U	740 U	730 U	690 U	750 U	810 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	360 UJ	400 U	390 UJ	390 UJ	370 UJ	370 U	370 U	360 UJ	350 U	370 UJ	400 U
	2,4,5-TRICHLOROPHENOL	900 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U	930 U	1000 U
	2,4,6-TRICHLOROPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2,4-DICHLOROPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2,4-DIMETHYLPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2,4-DINITROPHENOL	900 U	990 U	970 UJ	960 UJ	930 UJ	920 UJ	920 UJ	910 U	860 U	930 UJ	1000 UJ
	2,4-DINITROTOLUENE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2,6-DICHLOROPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2,6-DINITROTOLUENE	900 U	990 U	970 UJ	960 UJ	930 UJ	920 U	920 U	910 U	860 U	930 UJ	1000 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2-CHLOROPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2-METHYLNAPHTHALENE	31	60	12 J	9.2 J	2500 J	22 U	22 U	5.6 J	260 J	23 UJ	100
	2-METHYLPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	2-NITROANILINE	900 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U	930 U	1000 U
	2-NITROPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	3&4-METHYLPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	3,3'-DICHLOROBENZIDINE	360 UJ	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 UJ
	3-NITROANILINE	900 UJ	990 U	970 UJ	960 UJ	930 UJ	920 U	920 U	910 UJ	860 U	930 UJ	1000 U
	4,6-DINITRO-2-METHYLPHENOL	900 U	990 U	970 UJ	960 UJ	930 UJ	920 U	920 U	910 U	860 U	930 UJ	1000 U
	4-BROMOPHENYL PHENYL ETHER	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	4-CHLORO-3-METHYLPHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	4-CHLOROANILINE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 UJ
	4-CHLOROPHENYL PHENYL ETHER	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	4-NITROANILINE	900 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U	930 U	1000 U
	4-NITROPHENOL	900 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U	930 U	1000 UJ
	ACENAPHTHENE	9.3 J	170	110	19 J	13000 J	22 U	22 U	22 U	710	23 U	560 J
	ACENAPHTHYLENE	22 U	24 U	1.9 J	2.2 J	110 U	22 U	22 U	22 U	21 U	23 U	180
	ANTHRACENE	29	390 J	170	38	32000	22 U	22 U	22 U	1600	23 U	970
	BENZIDINE	1600 UJ	1800 UJ	1800 UJ	1800 UJ	1700 UJ	1700 U	1700 U	1700 UJ	1600 UJ	1700 UJ	1800 U
	BENZO(A)ANTHRACENE	210 J	1100	420	230	59000	22 U	22 U	22 U	3800	23 U	3500
	BENZO(A)PYRENE	120	1000	370 J	160	30000	22 U	22 U	22 U	3000	23 U	4400
	BENZO(B)FLUORANTHENE	210 J	1400	500	240	42000	22 U	22 U	22 U	3700	23 U	5700 J
	BENZO(G,H,I)PERYLENE	43 J	290	170	69	6500 J	22 U	22 U	22 U	1900	23 U	3800
	BENZO(K)FLUORANTHENE	74	370 J	210	75	16000	22 U	22 U	22 U	1000	23 U	3600
	BENZOIC ACID	900 U	990 U	970 UJ	960 UJ	930 UJ	920 U	920 U	910 U	860 U	930 UJ	1000 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	730 U	790 U	780 U	770 U	740 U	740 U	740 U	730 U	690 U	750 U	810 U
	BIS(2-CHLOROETHOXY)METHANE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	BIS(2-CHLOROETHYL)ETHER	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	BIS(2-ETHYLHEXYL)PHTHALATE	360 U	380 J	390 U	390 U	240 J	370 U	370 U	360 U	350 U	370 U	400 U
	BUTYL BENZYL PHTHALATE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	CARBAZOLE	360 U	400 J	390 UJ	390 UJ	41000	370 U	370 U	360 U	1300 J	370 UJ	300 J
	CHRYSENE	130	1100	470	210	53000	22 U	22 U	22 U	3100	23 U	3400
	DIBENZO(A,H)ANTHRACENE	22 UJ	160	54	17 J	1800 J	22 U	22 U	22 U	340 J	23 U	24 U
	DIBENZOFURAN	360 U	400 U	390 U	390 U	12000 J	370 U	370 U	360 U	590	370 U	400 U
	DIETHYL PHTHALATE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	DIMETHYL PHTHALATE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	DI-N-BUTYL PHTHALATE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	DI-N-OCTYL PHTHALATE	360 U	400 UJ	390 U	390 U	370 U	370 U	370 U	360 U	350 UJ	370 U	400 U
	FLUORANTHENE	350 J	2000	1200	450	180000	4.8 J	22 U	22 U	8000	23 U	7800
	FLUORENE	5.5 J	190	78	23 J	17000	22 U	22 U	22 U	710	23 U	380 J
	HEXACHLOROBENZENE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	HEXACHLOROETHANE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	HIGH MOLECULAR WEIGHT PAHS	1469 J	10230 J	4324 J	1794 J	515300 J	4.8 J	22 U	22 U	32240 J	23 U	42800 J
	INDENO(1,2,3-CD)PYRENE	52	610	180	73	7000 J	22 U	22 U	22 U	1800	23 U	5100
	ISOPHORONE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	LOW MOLECULAR WEIGHT PAHS	298.8 J	2610 J	1124.9 J	350.4 J	230100 J	22 U	22 U	5.6 J	10380 J	23 UJ	5640 J
	NAPHTHALENE	24	100	33	19 J	5600 J	22 U	22 U	22 U	600	23 U	250
	NITROBENZENE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	N-NITROSODIMETHYLAMINE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	N-NITROSO-DI-N-PROPYLAMINE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	N-NITROSODIPHENYLAMINE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	PENTACHLOROPHENOL	900 U	990 U	970 U	960 U	930 U	920 U	920 U	910 U	860 U	930 U	1000 U
	PHENANTHRENE	200 J	1700	720	240	160000	22 U	22 U	22 U	6500	23 U	3200
	PHENOL	360 U	400 U	390 U	390 U	370 U	370 U	370 U	360 U	350 U	370 U	400 U
	PYRENE	280	2200	750	270	120000	22 U	22 U	22 U	5600	23 U	5500
	TOTAL PAHS	1767.8 J	12840 J	5448.9 J	2144.4 J	745400 J	4.8 J	22 U	5.6 J	42620 J	23 UJ	48440 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.6 U	4 UJ	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 UJ	3.7 U	4 U
	4,4'-DDE	3.6 U	4 U	3.9 U	2.1 J	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U	3.7 U	4 U
	4,4'-DDT	3.6 UJ	18 J	3.9 UJ	3.9 UJ	3.7 U	3.7 UJ	3.7 UJ	3.6 U	3.3 J	3.7 U	4 U
	ALDRIN	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	ALPHA-BHC	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	ALPHA-CHLORDANE	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	15 J	1.9 U	2.1 U
	AROCLOR-1016	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U	19 U	21 UJ
	AROCLOR-1221	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U	19 U	21 UJ
	AROCLOR-1232	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U	19 U	21 UJ
	AROCLOR-1242	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U	19 U	21 UJ
	AROCLOR-1248	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U	19 U	21 UJ
	AROCLOR-1254	19 U	20 U	20 U	20 U	19 U	19 UJ	19 U	19 U	18 U	19 U	21 UJ
	AROCLOR-1260	19 U	260	20 U	20 U	19 UJ	19 UJ	19 UJ	19 U	18 U	19 U	1100 J
	AROCLOR-1268	19 U	61	310	79	19 U	19 UJ	19 U	19 U	18 U	19 U	1300 J
	BETA-BHC	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	DELTA-BHC	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	DIELDRIN	3.6 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U	3.7 U	4 U
	ENDOSULFAN I	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	ENDOSULFAN II	3.6 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U	3.7 U	4 U
	ENDOSULFAN SULFATE	3.6 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U	3.7 U	4 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.6 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U	3.7 U	4 U
	ENDRIN ALDEHYDE	3.6 U	4 U	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 U	3.7 U	4 U
	ENDRIN KETONE	3.6 U	4 UJ	3.9 U	3.9 U	3.7 U	3.7 UJ	3.7 U	3.6 U	3.5 UJ	3.7 U	4 U
	GAMMA-BHC (LINDANE)	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	GAMMA-CHLORDANE	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	20	1.9 U	2.1 U
	HEPTACHLOR	1.9 U	2 U	1.5 J	2 U	21	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	HEPTACHLOR EPOXIDE	1.9 U	2 U	2 U	2 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	1.9 U	2.1 U
	METHOXYCHLOR	19 UJ	20 UJ	20 UJ	20 UJ	19 U	19 UJ	19 UJ	19 U	18 UJ	19 U	21 U
	TOTAL AROCLOR	19 U	321	310	79	19 UJ	19 UJ	19 UJ	19 U	18 U	19 U	2400 J
	TOTAL DDD/DDE/DDT	3.6 UJ	18 J	3.9 UJ	2.1 J	3.7 U	3.7 UJ	3.7 UJ	3.6 U	3.3 J	3.7 U	4 U
	TOXAPHENE	36 U	40 U	39 U	39 U	37 U	37 UJ	37 U	36 U	35 U	37 U	40 U
METALS (MG/KG)	ALUMINUM	16100	9120	12900	13900	15400	26800	12500	14300	12800	20100	13700
	ANTIMONY	0.35 UJ	1 J	0.16 UJ	0.13 UJ	0.103 UJ	0.149 UJ	0.099 UJ	0.16 UJ	0.1 UJ	0.15 UJ	0.69 J
	ARSENIC	28.6 J	10.8	21.7	16.6	22.8	6.6	27.5	20.1 J	10.3	21.7	22.5
	BARIUM	22.8	60.2	25.1	28.2	21.7	8.1	17.1	20.2	16.1	18.8	90.6
	BERYLLIUM	0.38 J	0.21 J	0.41 J	0.48	0.43 J	0.28 J	0.44	0.44	0.27 J	0.45	0.42 J
	CADMIUM	0.05 UJ	5.6	0.04 UJ	0.32 UJ	0.014 U	0.02 U	0.014 U	0.01 U	0.08 UJ	0.016 U	2.4
	CALCIUM	2080 J	12600	1280	1380	1820	1410	226	233 J	3700	290	5680
	CHROMIUM	22.1 J	50.7	15.8	17.7	18.7	32	16.3	17.2 J	13.3	23.2	25.3 J
	COBALT	15.2	16.7	11.4	11.9	14.2	26.3	15.9	14.8	15.2	19.8	27.1
	COPPER	25.4	46.9	18.6	23.2	20.5	29.2	26.3	22.4	18.5	25.5	92.6 J
	IRON	33000	20100	29900	29000	33100	58200	37600	38200	29600	48000	29900
	LEAD	22.2	4540	19.5	28.9	11.4	14.6	11	10	78.3	13.8	653 J
	MAGNESIUM	4660 J	3310	3330	3200	3980	9760	3580	3750 J	3710	5030	3490
	MANGANESE	382	330	440	399	424	600	428	466	482	677	374
	MERCURY	0.12	0.12	0.07	0.03 J	0.015 U	0.014 U	0.015 U	0.01 U	0.06	0.014 U	0.09 J
	MOLYBDENUM	0.64 J	0.74 J	0.48 J	0.77 J	0.36 J	0.11 UJ	0.39 J	0.4 J	0.61 J	0.38 J	1.3 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	NICKEL	31	18.4	23.6	52.3	26.6	51.2	27.2	29.5	23.8	35.2	33.8
	POTASSIUM	514 J	770	407	523	495	262 J	467	536 J	392	351	764 J
	SELENIUM	0.6 U	0.38 UJ	0.711 U	0.679 U	0.693 U	1 U	0.665 U	0.62 U	0.7 UJ	0.763 U	0.31 U
	SILVER	0.46 J	0.77 J	0.128 UJ	0.122 UJ	0.062 UJ	0.18 UJ	0.119 UJ	0.45 J	0.13 U	0.137 UJ	0.93 J
	SODIUM	63.2 J	106 J	44.8 J	50.1 J	48.7 J	17.3 UJ	31.4 J	29.6 UJ	51.8 UJ	40.5 J	119 UJ
	THALLIUM	0.02 UJ	0.04 UJ	0.04 UJ	0.1 UJ	0.06 UJ	0.011 U	0.03 UJ	0.04 UJ	0.01 U	0.03 UJ	0.14 UJ
	VANADIUM	29.4	13.9	18.4	19.4	20.9	23	16.9	19.9	15.2	24	23.1
	ZINC	59.5	9840	98.1	69.4	59.3	90.2	61.7	65.3	60.5	74.4	414 J
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	15.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	20.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	11.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	20.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	15	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	17.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	27.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PH	NA	7.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW113B	DA-MW114B	DA-MW116B	DA-MW118B	DA-MW119B	DA-MW120B	DA-TP103
	TOP DEPTH	2	10	4	6	6	2	3	6	2	2	5
	BOTTOM DEPTH	4	12	6	8	8	4	5	8	4	4	6
	SAMPLE DATE	03/20/08	04/11/08	04/08/08	04/10/08	04/10/08	03/31/08	04/01/08	03/18/08	04/14/08	04/08/08	02/07/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-B109B-0204	DA-B110B-1012	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608	DA-B114B-0204	DA-B116B-0305	DA-B118B-0608	DA-B119B-0204	DA-B120B-0204	DA-SB-TP103-0506
FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	97.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 004	NA	85	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	73.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	64.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	55.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	49.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	44.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	43	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	35.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	91	NA	NA	NA	NA	NA	NA	90	NA	NA	82
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	29000	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	180	170	30	67	2500	6	3 J	2.3 J	200	3.8 J	260
	GASOLINE RANGE ORGANICS	40	24	2.9 U	15	2.5 U	2.7 U	2.7 U	2.7 U	5.1 U	11	25

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2-TRICHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,4-TRICHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	6 U	2 J	2.25 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ
	1,2-DIBROMOETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3-DICHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3-DICHLOROPROPANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2,2-DICHLOROPROPANE	6 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
	2-BUTANONE	29 J	26 U	25.5 U	25 U	27 U	26 UJ	25 U	27 U	25 U	25 UJ	25 U
	2-CHLOROTOLUENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-HEXANONE	30 U	26 U	25.5 U	25 U	27 U	26 UJ	25 U	27 U	25 U	25 UJ	25 U
	4-CHLOROTOLUENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-ISOPROPYLTOLUENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	30 U	26 U	25.5 U	25 U	27 U	26 U	25 U	27 U	25 U	25 U	25 U
	ACETONE	230	250 J	190 J	130 J	670	26 UJ	9 J	620	530	13 J	20 J
	BENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOCHLOROMETHANE	6 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	BROMODICHLOROMETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOFORM	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOMETHANE	12 U	10 U	10 U	10 U	11 U	11 U	10 U	11 U	10 U	10 U	10 U
	BTEX	6.8 U	5.6 U	5.6 U	5.6 U	5.8 U	5.8 U	5.6 U	5.8 U	5.6 U	5.6 U	5.6 U
	CARBON DISULFIDE	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROETHANE	12 U	10 U	10 U	10 U	11 U	11 U	10 U	11 U	10 U	10 U	10 U
	CHLOROFORM	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROMETHANE	12 U	10 U	10 U	10 U	11 U	11 U	10 U	11 U	10 U	10 U	10 U
	CIS-1,2-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DIBROMOMETHANE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	12 U	10 U	10 U	10 U	11 U	11 U	10 U	11 U	10 U	10 U	10 U
	ETHYLBENZENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ISOPROPYLBENZENE	6 U	5 J	4.5 J	4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	M+P-XYLENES	12 U	10 U	10 U	10 U	11 U	11 U	10 U	11 U	10 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	30 U	26 U	25.5 U	25 U	27 U	26 U	25 U	27 U	25 U	25 U	25 U
	N-BUTYLBENZENE	6 U	13 J	10 J	7 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	6 U	8	6.5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	O-XYLENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	6 U	23	19.5	16	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	STYRENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	6 U	2 J	2 J	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TETRACHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	7.5 U	6.2 U	6.2 U	6.2 U	6.5 U	6.5 U	6.2 U	6.5 U	6.2 U	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	7.9 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.8 UJ	6.8 UJ	6.6 UJ	6.8 UJ	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	9 U	7.5 U	7.5 U	7.5 U	8 U	8 U	7.5 U	8 U	7.5 U	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROETHENE	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	12 UJ	10 UJ	10 UJ	10 U	11 U	11 U	10 UJ	11 U	10 U	10 U	10 U
	VINYL CHLORIDE	12 U	10 U	10 U	10 U	11 U	11 U	10 U	11 U	10 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	8300 J
	1,2-DIPHENYLHYDRAZINE	770 U	710 U	715 U	720 U	820 U	800 U	760 U	770 U	700 U	760 U	3700 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2,4,5-TRICHLOROPHENOL	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U
	2,4,6-TRICHLOROPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2,4-DICHLOROPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2,4-DIMETHYLPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2,4-DINITROPHENOL	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U
	2,4-DINITROTOLUENE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2,6-DICHLOROPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2,6-DINITROTOLUENE	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2-CHLOROPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2-METHYLNAPHTHALENE	23 U	6.5 J	6.35 J	6.2 J	3.6 J	7.4 J	23 U	97	21 U	8 J	23000 J
	2-METHYLPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	2-NITROANILINE	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U
	2-NITROPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	3&4-METHYLPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	2200 J
	3,3'-DICHLOROBENZIDINE	380 U	360 U	360 U	360 U	410 U	400 UJ	380 UJ	390 UJ	350 UJ	380 U	1900 UJ
	3-NITROANILINE	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U
	4,6-DINITRO-2-METHYLPHENOL	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U
	4-BROMOPHENYL PHENYL ETHER	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	4-CHLORO-3-METHYLPHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	4-CHLOROANILINE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	4-CHLOROPHENYL PHENYL ETHER	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	4-NITROANILINE	960 U	890 U	890 U	890 U	1000 U	1000 U	950 U	960 U	860 U	940 U	4600 U
	4-NITROPHENOL	960 UJ	890 UJ	890 UJ	890 U	1000 U	1000 U	950 U	960 U	860 U	940 UJ	4600 U
	ACENAPHTHENE	23 U	3 J	3 J	3 J	3.1 J	40	2.5 J	130	2.6 J	23 J	150000
	ACENAPHTHYLENE	23 U	22 U	22 U	22 U	5.2 J	24 UJ	23 UJ	23 U	21 UJ	23 UJ	110 UJ
	ANTHRACENE	23 U	22 U	22 U	22 U	8.4 J	66	5.1 J	640	6.8 J	48	270000
	BENZIDINE	1800 UJ	1600 UJ	1600 UJ	1600 UJ	1900 UJ	1800 UJ	1700 UJ	1800 UJ	1600 UJ	1700 UJ	8500 UJ
	BENZO(A)ANTHRACENE	14 J	22 U	22 U	22 U	56	140	19 J	2000	40 J	200	490000
	BENZO(A)PYRENE	13 J	22 U	22 U	22 U	59	120	43	1700	72	220	440000
	BENZO(B)FLUORANTHENE	15 J	22 U	22 U	22 U	48	120	28	1500	60	250	410000
	BENZO(G,H,I)PERYLENE	4.5 J	22 U	22 U	22 U	26	43 J	60	1000	89	130	250000
	BENZO(K)FLUORANTHENE	7.7 J	22 U	22 U	22 U	29	120	24	1500	42	200	350000
	BENZOIC ACID	960 U	890 U	890 UJ	890 UJ	1000 UJ	1000 UJ	950 UJ	960 UJ	860 UJ	940 U	4600 UJ

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	770 U	710 U	715 U	720 U	820 U	800 U	760 U	770 U	700 U	760 U	3700 U
	BIS(2-CHLOROETHOXY)METHANE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	BIS(2-CHLOROETHYL)ETHER	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	BIS(2-ETHYLHEXYL)PHTHALATE	380 U	360 U	360 U	360 U	410 U	400 U	1900	390 U	350 U	380 U	1900 U
	BUTYL BENZYL PHTHALATE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	CARBAZOLE	380 UJ	360 UJ	360 UJ	360 UJ	410 UJ	400 U	380 U	290 J	350 U	380 U	170000
	CHRYSENE	23 J	22 U	22 U	22 U	44	140	18 J	1800	37	220	460000
	DIBENZO(A,H)ANTHRACENE	23 U	22 U	22 U	22 U	25 UJ	16 J	21 J	160	30	60	90000
	DIBENZOFURAN	380 U	360 U	360 U	360 U	410 U	400 U	380 U	400	350 U	380 U	82000
	DIETHYL PHTHALATE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	DIMETHYL PHTHALATE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	DI-N-BUTYL PHTHALATE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	DI-N-OCTYL PHTHALATE	380 U	360 U	360 UJ	360 UJ	410 UJ	400 U	380 U	390 U	350 U	380 U	1900 U
	FLUORANTHENE	25	22 U	22 U	22 U	71	210 J	32	3800	64	380	1100000
	FLUORENE	23 U	4.4 J	4.4 J	4.4 J	25 U	32	23 U	120	21 U	19 J	150000
	HEXACHLOROBENZENE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	HEXACHLOROETHANE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	HIGH MOLECULAR WEIGHT PAHS	140.2 J	22 U	22 U	22 U	440 J	1240 J	343 J	18160 J	590 J	2200	4740000
	INDENO(1,2,3-CD)PYRENE	9 J	22 U	22 U	22 U	33 J	51 J	71	1000	100	120	260000
	ISOPHORONE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	LOW MOLECULAR WEIGHT PAHS	22 J	21.8 J	21.2 J	20.6 J	67.3 J	400.4 J	22.6 J	4252	35.4 J	406.8 J	1571000 J
	NAPHTHALENE	23 U	7.9 J	7.45 J	7 J	25 U	15 J	23 U	65	21 U	8.8 J	78000
	NITROBENZENE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	N-NITROSODIMETHYLAMINE	380 U	360 U	360 UJ	360 UJ	410 UJ	400 U	380 U	390 U	350 U	380 UJ	1900 U
	N-NITROSO-DI-N-PROPYLAMINE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	N-NITROSODIPHENYLAMINE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	PENTACHLOROPHENOL	960 U	890 U	890 UJ	890 UJ	1000 UJ	1000 U	950 U	960 U	860 U	940 U	4600 U
	PHENANTHRENE	22 J	22 U	22 U	22 U	47	240	15 J	3200	26	300	900000
	PHENOL	380 U	360 U	360 U	360 U	410 U	400 U	380 U	390 U	350 U	380 U	1900 U
	PYRENE	29	22 U	22 U	22 U	74	280	27	3700 J	56	420	890000
	TOTAL PAHS	162.2 J	21.8 J	21.2 J	20.6 J	507.3 J	1640.4 J	365.6 J	22412 J	625.4 J	2606.8 J	6311000 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	4 U	3.8 U	3.1 J	3.5 U	3.8 U	3.7 U
	4,4'-DDE	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	1.3 J	3.8 U	3.9 U	3.5 U	3.8 U	3.7 UJ
	4,4'-DDT	3.8 UJ	3.6 UJ	3.6 UJ	3.6 UJ	4.1 UJ	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U
	ALDRIN	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	ALPHA-BHC	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	ALPHA-CHLORDANE	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	AROCLOR-1016	20 UJ	18 U	18 UJ	18 UJ	21 UJ	21 UJ	20 U	20 U	18 U	20 U	19 U
	AROCLOR-1221	20 U	18 U	18 U	18 U	21 U	21 U	20 U	20 U	18 U	20 U	19 U
	AROCLOR-1232	20 U	18 U	18 U	18 U	21 U	21 U	20 U	20 U	18 U	20 U	19 U
	AROCLOR-1242	20 U	18 U	18 U	18 U	21 U	21 U	20 U	20 U	18 U	20 U	19 U
	AROCLOR-1248	20 U	18 U	18 U	18 U	21 U	21 U	20 U	20 U	18 U	20 U	19 U
	AROCLOR-1254	20 U	18 U	18 U	18 U	21 U	21 U	20 U	20 U	18 U	20 U	19 U
	AROCLOR-1260	20 UJ	18 U	18 UJ	18 UJ	21 UJ	21 UJ	20 U	20 U	19	20 U	19 U
	AROCLOR-1268	20 U	18 U	18 U	18 U	21 U	21 U	20 U	20 U	18 U	20 U	19 U
	BETA-BHC	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	DELTA-BHC	2 UJ	1.8 UJ	1.8 UJ	1.8 UJ	2.1 UJ	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	DIELDRIN	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U
	ENDOSULFAN I	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	ENDOSULFAN II	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U
	ENDOSULFAN SULFATE	3.8 UJ	3.6 UJ	3.6 UJ	3.6 UJ	4.1 UJ	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U
	ENDRIN ALDEHYDE	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U
	ENDRIN KETONE	3.8 U	3.6 U	3.6 U	3.6 U	4.1 U	4 U	3.8 U	3.9 U	3.5 U	3.8 U	3.7 U
	GAMMA-BHC (LINDANE)	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	GAMMA-CHLORDANE	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 U
	HEPTACHLOR	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	52 J
	HEPTACHLOR EPOXIDE	2 U	1.8 U	1.8 U	1.8 U	2.1 U	2.1 U	2 U	2 U	1.8 U	2 U	1.9 UJ
	METHOXYCHLOR	20 UJ	18 UJ	18 UJ	18 UJ	21 UJ	21 U	20 U	20 U	18 U	20 U	19 U
	TOTAL AROCLOR	20 UJ	18 U	18 UJ	18 UJ	21 UJ	21 UJ	20 U	20 U	19	20 U	19 U
	TOTAL DDD/DDE/DDT	3.8 UJ	3.6 UJ	3.6 UJ	3.6 UJ	4.1 UJ	1.3 J	3.8 U	3.1 J	3.5 U	3.8 U	3.7 UJ
	TOXAPHENE	38 U	36 U	36 U	36 U	41 U	40 U	38 U	39 U	35 U	38 U	37 U
METALS (MG/KG)	ALUMINUM	11500	18300	18800	19200	19400	16700	12500	11100	4450	13200	14200
	ANTIMONY	0.05 UJ	0.11 UJ	0.1 UJ	0.09 UJ	0.11 UJ	0.1 UJ	0.11 UJ	2.2 UJ	0.04 UJ	0.09 UJ	0.09 UJ
	ARSENIC	9.6 J	2.2 J	2.25 J	2.3 J	14.2 J	9.4	20.2	26.3	2.9	14.5	17
	BARIUM	31.9	13.7	14.4	15	33.7	25.1	25.9	653	14.2	26.3	51.6
	BERYLLIUM	0.33 J	0.37	0.37 J	0.37 J	0.55	0.35 J	0.47	0.46	0.36	0.34 J	0.74
	CADMIUM	0.18 J	0.02 UJ	0.015 UJ	0.01 UJ	0.02 UJ	0.01 UJ	0.33 J	1.7 J	0.66 J	0.01 UJ	0.01 UJ
	CALCIUM	733	2070	2020	1970	734	1430	1260	9560	1230	946	12700
	CHROMIUM	13.2	22	22.2	22.5	20.9	21.2	15.5	98.2	4.9	17.4	16
	COBALT	5.7	17.6	17.5	17.4	21.5	12.5	12.1	35.6	14.7	10.3	11
	COPPER	9.6	24.6	24	23.4	20	19.6	19.1	140	6.5	21.5	20
	IRON	17000	38800	39000	39200	39700	28600	26500	134000	10500	24500	23400
	LEAD	9	14.6	14.2	13.8	14.5	24.8	23.3	4650	25.6	19.4	28.6
	MAGNESIUM	2310	7050	7120	7190	4650	3720	2970	3700	1160	3390	8280
	MANGANESE	171	320	322	325	2820	415	393	920	356	312	460
	MERCURY	0.05	0.01 U	0.01 U	0.01 U	0.06	0.06	0.02 J	0.06	0.01 U	0.03	0.04
	MOLYBDENUM	0.29 J	0.02 UJ	0.025 UJ	0.03 UJ	0.73 J	0.36 J	0.56 J	58.8	0.18 J	0.49 J	0.47 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
	TOP DEPTH	2	6	6	6	3	6	4	6	2	2	8
	BOTTOM DEPTH	4	8	8	8	5	8	6	8	4	4	10
	SAMPLE DATE	03/03/08	03/03/08	03/03/08	03/03/08	03/03/08	02/28/08	02/29/08	02/29/08	02/29/08	02/28/08	02/28/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB100-0204	DA-SB101-0608	DA-SB101-0608-AVG	DA-SB101-0608-D	DA-SB102-0305	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608	DA-SB108-0204	DA-SB109-0204	DA-SB110-0810
FRACTION (UNITS)	PARAMETER											
	NICKEL	13.7	35.9	36.4	37	29.1	25	20.9	102	4.4	24.8	21.8
	POTASSIUM	562	266	291	316	384	346	542	275	1100	432	854
	SELENIUM	0.34 UJ	0.75 UJ	0.688 J	1 J	0.85 J	0.65 UJ	0.65 UJ	2.63 UJ	0.25 UJ	0.63 UJ	0.64 UJ
	SILVER	0.21 UJ	0.13 UJ	0.12 UJ	0.11 UJ	0.14 UJ	1.2 J	0.35 UJ	1.9 UJ	0.31 J	0.91 J	0.77 J
	SODIUM	156	36.2 UJ	37.6 UJ	39 UJ	56.7 UJ	41 J	56.4 J	64.4 J	29.3 J	43.8 J	266
	THALLIUM	0.09 UJ	0.01 U	0.01 U	0.01 U	0.06 UJ	0.04 UJ	0.02 UJ	0.04 U	0.07 UJ	0.05 UJ	0.07 UJ
	VANADIUM	18.6	18.7	19.2	19.8	25.7	23.6	16.3	28.6	6.1	23.3	22.2
	ZINC	33.9	71.6	72.6	73.6	75.8	67.9	53.5	148	40.1	58.6	60.2
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB100	DA-SB101	DA-SB101	DA-SB101	DA-SB102	DA-SB104	DA-SB105	DA-SB106	DA-SB108	DA-SB109	DA-SB110
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	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
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FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	86	92	92	NA	80	82	86	85	95	87	88
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	320	9.5 U	8.55 U	7.6 U	89 U	22	16	220	26	190	12000
(MG/KG)	GASOLINE RANGE ORGANICS	3.1 U	2.6 U	2.9 U	3.2 U	3.6 U	3.3 U	2.9 U	3.1 U	2.5 U	3.2 U	2.6 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,1,2-TRICHLOROETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2,3-TRICHLOROPROPANE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2,4-TRICHLOROBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	14000 J	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2-DIBROMOETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,2-DICHLOROETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	7500 J	5 U
	1,3-DICHLOROBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	1,3-DICHLOROPROPANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	2,2-DICHLOROPROPANE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 U
	2-BUTANONE	25 U	30 UJ	27.5 UJ	25 U	18 J	12 J	6 J	25 U	25 U	27 U	25 U
	2-CHLOROTOLUENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	2-HEXANONE	25 U	30 UJ	27.5 UJ	25 U	26 U	25.5 U	25 U	25 U	25 U	27 U	25 U
	4-CHLOROTOLUENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	4-ISOPROPYLTOLUENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	3000 J	5 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	30 UJ	27.5 UJ	25 U	26 U	25.5 U	25 U	25 U	25 U	27 U	25 U
	ACETONE	300	1000 J	900 J	800	120 J	520 J	920 J	35	140	300 J	28
	BENZENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	BROMOCHLOROMETHANE	5 UJ	6 UJ	5.5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	BROMODICHLOROMETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOFORM	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOMETHANE	10 U	12 UJ	11 UJ	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
	BTEX	5.6 U	6.8 UJ	6.2 UJ	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	170 J	5.6 U
	CARBON DISULFIDE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROETHANE	10 U	12 UJ	11 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	11 U	10 U
	CHLOROFORM	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROMETHANE	10 U	12 UJ	11 UJ	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
	CIS-1,2-DICHLOROETHENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DIBROMOMETHANE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	10 U	12 UJ	11 UJ	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
	ETHYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U
	ISOPROPYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	120 J	5 U
	M+P-XYLENES	10 U	12 UJ	11 UJ	10 U	10 U	10 U	10 U	10 U	10 U	170 J	10 U
	METHYL TERT-BUTYL ETHER	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	25 U	30 UJ	27.5 UJ	25 U	26 U	25.5 U	25 U	25 U	25 U	27 U	25 U
	N-BUTYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	2600 J	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	81 J	5 U
	O-XYLENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	2000 J	12
	STYRENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	5 U	6 UJ	5.5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	110 J	5 U
	TETRACHLOROETHENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	7.5 UJ	6.9 UJ	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.5 U	6.2 U
	TOTAL CHLORINATED VOCS	6.6 UJ	7.9 UJ	7.2 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.8 UJ	6.6 UJ
	TOTAL XYLENES	7.5 U	9 UJ	8.2 UJ	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	170 J	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROETHENE	5 U	6 UJ	5.5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	10 U	12 UJ	11 UJ	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	11 U	10 U
	VINYL CHLORIDE	10 U	12 UJ	11 UJ	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	310 J	400 U
	1,2-DIPHENYLHYDRAZINE	760 U	3700 U	3700 U	3700 U	740 U	755 U	770 U	760 U	760 U	800 UJ	810 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 UJ	400 U
	2,4,5-TRICHLOROPHENOL	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U
	2,4,6-TRICHLOROPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2,4-DICHLOROPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2,4-DIMETHYLPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2,4-DINITROPHENOL	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U
	2,4-DINITROTOLUENE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2,6-DICHLOROPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2,6-DINITROTOLUENE	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2-CHLOROPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2-METHYLNAPHTHALENE	23 U	55 J	49 J	43 J	6.2 J	5.25 J	4.3 J	23 U	23 U	2600 J	24 U
	2-METHYLPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	2-NITROANILINE	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U
	2-NITROPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	3&4-METHYLPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	3,3'-DICHLOROBENZIDINE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	3-NITROANILINE	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U
	4,6-DINITRO-2-METHYLPHENOL	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U
	4-BROMOPHENYL PHENYL ETHER	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	4-CHLORO-3-METHYLPHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	4-CHLOROANILINE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	4-CHLOROPHENYL PHENYL ETHER	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	4-NITROANILINE	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 U	940 U	1000 U	1000 U
	4-NITROPHENOL	940 U	4600 U	4600 U	4600 U	920 UJ	935 UJ	950 UJ	940 U	940 U	1000 U	1000 U
	ACENAPHTHENE	19 J	61 J	65.5 J	70 J	23	14.3 J	5.6 J	2.6 J	14 J	24 U	9.5 J
	ACENAPHTHYLENE	23 U	660 J	670 J	680 J	22 U	22.5 U	23 U	23 U	23 U	24 U	24 U
	ANTHRACENE	49	620 J	730 J	840 J	54	34 J	14 J	9.1 J	32	24 U	9 J
	BENZIDINE	1700 UJ	8300 UJ	8300 UJ	8300 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1800 UJ	1800 UJ
	BENZO(A)ANTHRACENE	210	7000	7700	8400	170	145	120	53 J	110	24 U	120
	BENZO(A)PYRENE	190	5200	5700	6200	170	145	120	70 J	130	24 U	100
	BENZO(B)FLUORANTHENE	220	5700	6500	7300	170	140	110	62 J	140	24 U	100
	BENZO(G,H,I)PERYLENE	91	1200 J	1350 J	1500 J	89	72.5	56	35 J	51	24 U	56
	BENZO(K)FLUORANTHENE	140	4900	5350	5800	74	60.5 J	47 J	26 J	73	24 U	55 J
	BENZOIC ACID	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 UJ	940 U	1000 U	1000 UJ

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	760 U	3700 U	3700 U	3700 U	740 U	755 U	770 U	760 U	760 U	800 U	810 U
	BIS(2-CHLOROETHOXY)METHANE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	BIS(2-CHLOROETHYL)ETHER	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	BIS(2-ETHYLHEXYL)PHTHALATE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	BUTYL BENZYL PHTHALATE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	CARBAZOLE	380 U	1800 U	1800 U	1800 U	370 UJ	375 UJ	380 UJ	380 UJ	380 U	400 U	400 UJ
	CHRYSENE	190	6800	7550	8300	180	150	120	52 J	94	17 J	93
	DIBENZO(A,H)ANTHRACENE	67 J	690 J	700 J	710 J	65	51	37	23 UJ	52 J	24 U	30 J
	DIBENZOFURAN	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	DIETHYL PHTHALATE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	DIMETHYL PHTHALATE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	DI-N-BUTYL PHTHALATE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	DI-N-OCTYL PHTHALATE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 UJ	380 U	400 U	400 UJ
	FLUORANTHENE	440	11000	11500	12000	250 J	190 J	130 J	64 J	150	13 J	200
	FLUORENE	13 J	160 J	170 J	180 J	25	13.5 J	2 J	23 U	10 J	68	6 J
	HEXACHLOROBENZENE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	HEXACHLOROETHANE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	HIGH MOLECULAR WEIGHT PAHS	1978 J	55190 J	60600 J	66010 J	1545 J	1241.5 J	938 J	458 J	1034 J	52 J	1028 J
	INDENO(1,2,3-CD)PYRENE	90 J	2700	2750	2800	87 J	67.5 J	48 J	30 J	64 J	24 U	64 J
	ISOPHORONE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	LOW MOLECULAR WEIGHT PAHS	261 J	4469 J	4799.5 J	5130 J	325.7 J	218.55 J	98.9 J	71.7 J	176 J	2808 J	85.9 J
	NAPHTHALENE	23 U	13 J	15 J	17 J	7.5 J	9.5 J	23 U	23 U	23 U	NA	2.4 J
	NITROBENZENE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	N-NITROSODIMETHYLAMINE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 UJ	380 U	400 UJ	400 UJ
	N-NITROSO-DI-N-PROPYLAMINE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	N-NITROSODIPHENYLAMINE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	PENTACHLOROPHENOL	940 U	4600 U	4600 U	4600 U	920 U	935 U	950 U	940 UJ	940 U	1000 UJ	1000 UJ
	PHENANTHRENE	180	2900	3100	3300	210 J	142 J	73 J	60 J	120	140	59
	PHENOL	380 U	1800 U	1800 U	1800 U	370 U	375 U	380 U	380 U	380 U	400 U	400 U
	PYRENE	340 J	10000	11500	13000	290 J	220 J	150 J	66 J	170	22 J	210 J
	TOTAL PAHS	2239 J	59659 J	65399.5 J	71140 J	1870.7 J	1460.05 J	1036.9 J	529.7 J	1210 J	2860 J	1113.9 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.8 U	6.4 J	9.2 J	12 J	1.4 J	1.65 J	3.8 U	3.8 U	3.8 U	4 U	4 U
	4,4'-DDE	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	1.1 J	1.03 J	0.96 J	3.8 U	3.8 UJ	4 UJ	4 U
	4,4'-DDT	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.75 UJ	3.8 UJ	3.8 UJ	3.8 UJ	4 UJ	4 UJ
	ALDRIN	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	ALPHA-BHC	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	ALPHA-CHLORDANE	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	AROCLOR-1016	200 U	19 U	19 U	19 U	19 U	19.5 UJ	20 UJ	19 UJ	20 U	21 U	21 UJ
	AROCLOR-1221	200 U	19 U	19 U	19 U	19 U	19.5 U	20 U	19 U	20 U	21 U	21 U
	AROCLOR-1232	200 U	19 U	19 U	19 U	19 U	19.5 U	20 U	19 U	20 U	21 U	21 U
	AROCLOR-1242	200 U	19 U	19 U	19 U	19 U	19.5 U	20 U	19 U	20 U	21 U	21 U
	AROCLOR-1248	200 U	19 U	19 U	19 U	19 U	19.5 U	20 U	19 U	20 U	21 U	21 U
	AROCLOR-1254	200 U	19 U	19 U	19 U	19 U	19.5 U	20 U	19 U	20 U	21 U	21 U
	AROCLOR-1260	1500	19 U	19 U	19 U	19 U	19.5 UJ	20 UJ	19 UJ	20 U	21 U	21 UJ
	AROCLOR-1268	200 U	19 U	19 U	19 U	19 U	19.5 U	20 U	19 U	20 U	21 U	21 U
	BETA-BHC	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	DELTA-BHC	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.95 UJ	2 UJ	1.9 UJ	2 UJ	2.1 UJ	2.1 U
	DIELDRIN	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 U	3.75 U	3.8 U	3.8 U	3.8 UJ	4 UJ	4 U
	ENDOSULFAN I	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	ENDOSULFAN II	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 U	3.75 U	3.8 U	3.8 U	3.8 UJ	4 UJ	4 U
	ENDOSULFAN SULFATE	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.75 UJ	3.8 UJ	3.8 UJ	3.8 UJ	4 UJ	4 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 U	3.75 U	3.8 U	3.8 U	3.8 UJ	4 UJ	4 U
	ENDRIN ALDEHYDE	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 U	3.75 U	3.8 U	3.8 U	3.8 UJ	4 UJ	4 U
	ENDRIN KETONE	3.8 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 U	3.75 U	3.8 U	3.8 U	3.8 UJ	4 UJ	4 U
	GAMMA-BHC (LINDANE)	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	GAMMA-CHLORDANE	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	HEPTACHLOR	2 UJ	1.3 J	1.12 J	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	HEPTACHLOR EPOXIDE	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.95 U	2 U	1.9 U	2 UJ	2.1 UJ	2.1 U
	METHOXYCHLOR	20 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19.5 UJ	20 UJ	19 UJ	20 UJ	21 UJ	21 UJ
	TOTAL AROCLOR	1500	19 U	19 U	19 U	19 U	20 UJ	20 UJ	19 UJ	20 U	21 U	21 UJ
	TOTAL DDD/DDE/DDT	3.8 UJ	6.4 J	9.2 J	12 J	2.5 J	2.68 J	0.96 J	3.8 UJ	3.8 UJ	4 UJ	4 UJ
	TOXAPHENE	38 UJ	37 UJ	37 UJ	37 UJ	37 U	37.5 U	38 U	38 U	38 UJ	40 UJ	40 U
METALS (MG/KG)	ALUMINUM	8360	9570	9480	9380	15200	14400	13600	13200	14000	12700	10000
	ANTIMONY	0.07 UJ	0.05 UJ	0.07 UJ	0.09 UJ	0.83 J	0.472 J	0.23 UJ	0.12 UJ	0.09 UJ	0.09 UJ	0.17 UJ
	ARSENIC	11.6	11.8	13.3	14.8	220 J	122 J	23.2 J	11.8 J	16.8	11.4	20 J
	BARIUM	33.3	13.5	13.3	13.1	17.2	18.6	20.1	31.4	19.3	55.8	22.4
	BERYLLIUM	0.34 J	0.23 J	0.235 J	0.24 J	1	0.76	0.52	0.57	0.38 J	0.37 J	0.31 J
	CADMIUM	0.41 J	0.01 UJ	0.01 UJ	0.01 UJ	0.02 UJ	0.015 UJ	0.01 UJ	0.28 J	0.01 UJ	0.01 UJ	0.01 UJ
	CALCIUM	9620 J	2120 J	1680 J	1250 J	864	916	968	1110	1370 J	1010 J	1260
	CHROMIUM	103	15.3	14.4	13.5	20.3	19.6	18.8	14.4	23.1	16.5	14.1
	COBALT	15.2	7.2	7.8	8.4	23.5	18.7	13.9	9.9	11.7	12.3	12.3
	COPPER	26.4	13.8	13.3	12.8	27.4	24.7	22	16.3	23	7.8	21.5
	IRON	17400	20300	20500	20700	49200	39600	29900	23300	29300	28700	33100
	LEAD	159	13.8	12.8	11.8	36.4	29.3	22.2	17	44.7	10.9	10.6
	MAGNESIUM	2760	3930	3770	3610	4520	4210	3900	2710	4610	3010	3430
	MANGANESE	309	278	298	317	563	539	515	344	306	870	1140
	MERCURY	0.04 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.02 J	0.02 J	0.02 J	0.04	0.01 UJ	0.02 UJ	0.01 U
	MOLYBDENUM	0.46 J	0.21 J	0.185 J	0.16 J	2.5 J	1.56 J	0.61 J	0.62 J	0.4 J	0.32 J	0.32 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	NICKEL	16.5	17.2	17.6	18	39.3	32.6	25.8	18.6	25	14.5	28.6
	POTASSIUM	497	497	438	380	371	413	455	439	351	446	431
	SELENIUM	0.3 U	0.34 U	0.465 U	0.59 U	0.67 UJ	0.598 J	0.86 J	0.35 UJ	0.62 U	0.61 U	0.62 UJ
	SILVER	0.61 J	0.06 UJ	0.105 J	0.18 J	0.18 UJ	0.155 UJ	0.13 UJ	0.26 UJ	0.17 J	0.23 J	0.11 UJ
	SODIUM	58.7 J	80.2 J	72 J	63.7 J	74 UJ	64.4 J	91.7 J	133 J	32.4 J	52.1 J	51.3 UJ
	THALLIUM	0.04 UJ	0.05 UJ	0.03 UJ	0.01 UJ	0.03 UJ	0.025 UJ	0.02 UJ	0.04 UJ	0.03 UJ	0.09 UJ	0.04 UJ
	VANADIUM	14.5	20.4	18.7	17	23.1	22	20.8	19.8	19.8	29.1	17.9
	ZINC	81.2	41.1	40.4	39.7	96.9	80	63	53	53.7	41.4	66.9
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB111	DA-SB112	DA-SB112	DA-SB112	DA-SB113	DA-SB113	DA-SB113	DA-SB114	DA-SB115	DA-SB116	DA-SB117
	TOP DEPTH	2	6	6	6	4	4	4	4	2	2	8
	BOTTOM DEPTH	4	8	8	8	6	6	6	6	4	4	10
	SAMPLE DATE	03/05/08	03/05/08	03/05/08	03/05/08	03/03/08	03/03/08	03/03/08	03/03/08	03/05/08	03/04/08	03/04/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB111-0204	DA-SB112-0608	DA-SB112-0608-AVG	DA-SB112-0608-D	DA-SB113-0406	DA-SB113-0406-AVG	DA-SB113-0406-D	DA-SB114-0406	DA-SB115-0204	DA-SB116-0204	DA-SB117-0810
FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	87	90	90	NA	89	89	NA	87	87	82	82
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	200	950	1180	1400	230	220	210	160	160	1900	200
	GASOLINE RANGE ORGANICS	2.6 U	2.9 U	2.75 U	2.6 U	2.6 U	2.9 U	3.2 U	3.2 U	2.5 U	820 J	3.3 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ
	1,2,3-TRICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U
	1,2-DIBROMOETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	2-BUTANONE	25 U	7 J	25 U	26 U	25 UJ	25 U	26 U	25 U	27 U	25 U	25 U
	2-CHLOROTOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	2-HEXANONE	25 U	25 U	25 U	26 U	25 UJ	25 U	26 U	25 U	27 U	25 U	25 U
	4-CHLOROTOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	25 U	25 U	26 U	25 UJ	25 U	26 U	25 U	27 U	25 U	25 U
	ACETONE	29 U	250	25 U	53	27 J	8 J	26 U	14 J	27	11 J	25 U
	BENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOCHLOROMETHANE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOFORM	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	BROMOMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
	BTEX	5.6 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 U	5.6 U	5.8 U	5.6 U	5.6 U
	CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
	CHLOROFORM	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CHLOROMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	DIBROMOMETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
	ETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	HEXACHLOROBUTADIENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	ISOPROPYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	M+P-XYLENES	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	2 J	25 U	2 J	26 U	25 UJ	25 U	26 U	25 U	27 U	25 U	25 U
	N-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	O-XYLENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	STYRENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TETRACHLOROETHENE	5 U	5 U	5 U	10	3 J	5 U	5 U	5 U	5 U	5 U	5 U
	TOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	6.2 U	10	31 J	6.2 U	6.2 U	6.2 U	5 J	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	2 J	6.6 UJ	2 J	10 J	31 J	6.6 UJ	6.6 UJ	6.6 UJ	5 J	6.6 UJ	6.6 UJ
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 U	7.5 U	8 U	7.5 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
	TRICHLOROETHENE	5 U	5 U	5 U	5 U	28 J	5 U	5 U	5 U	5 J	5 U	5 U
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
	VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	1800	360 U
	1,2-DIPHENYLHYDRAZINE	760 UJ	760 U	790 U	720 U	720 U	730 U	750 U	770 U	720 U	760 U	730 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	380 UJ	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	2,4,5-TRICHLOROPHENOL	940 U	940 U	980 U	900 U	890 UJ	910 U	940 U	960 U	890 U	950 U	910 U
	2,4,6-TRICHLOROPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	2,4-DICHLOROPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	2,4-DIMETHYLPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	390	360 U
	2,4-DINITROPHENOL	940 U	940 U	980 U	900 U	890 UJ	910 U	940 U	960 U	890 U	950 U	910 U
	2,4-DINITROTOLUENE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	2,6-DICHLOROPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	2,6-DINITROTOLUENE	940 U	940 U	980 U	900 U	890 U	910 U	940 U	960 U	890 U	950 U	910 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	2-CHLOROPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	2-METHYLNAPHTHALENE	82	5.3 J	24 U	28	25	22 U	23 U	17 J	22 U	5600	290
	2-METHYLPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	2-NITROANILINE	940 U	940 U	980 U	900 U	890 U	910 U	940 U	960 U	890 U	950 U	910 U
	2-NITROPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	3&4-METHYLPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	740	360 U
	3,3'-DICHLOROBENZIDINE	380 U	380 U	390 U	360 U	360 UJ	370 UJ	380 U	390 U	360 U	380 UJ	360 UJ
	3-NITROANILINE	940 U	940 U	980 U	900 U	890 U	910 U	940 U	960 U	890 U	950 U	910 U
	4,6-DINITRO-2-METHYLPHENOL	940 U	940 U	980 U	900 U	890 UJ	910 U	940 U	960 U	890 U	950 U	910 U
	4-BROMOPHENYL PHENYL ETHER	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	4-CHLORO-3-METHYLPHENOL	380 U	380 U	390 U	360 U	360 UJ	370 U	380 U	390 U	360 U	380 U	360 U
	4-CHLOROANILINE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	4-CHLOROPHENYL PHENYL ETHER	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	4-NITROANILINE	940 U	940 U	980 U	900 U	890 U	910 U	940 U	960 U	890 U	950 U	910 U
	4-NITROPHENOL	940 U	940 U	980 U	900 U	890 UJ	910 U	940 U	960 U	890 U	950 U	910 U
	ACENAPHTHENE	280	23 U	24 U	12 J	290	2.1 J	23 U	120	7.4 J	37000	1900
	ACENAPHTHYLENE	23 U	23 U	24 U	8.9 J	22 U	22 U	23 UJ	23 UJ	22 U	230 UJ	22 U
	ANTHRACENE	400	23 U	24 U	82	420	6.1 J	23 U	170	7.5 J	45000	4500
	BENZIDINE	1700 UJ	1700 UJ	1800 UJ	1600 UJ	1600 UJ	1700 UJ	1700 UJ	1800 UJ	1600 UJ	1700 UJ	1600 UJ
	BENZO(A)ANTHRACENE	500	10 J	24 U	120 J	1300	10 J	23 U	350 J	16 J	63000	8900
	BENZO(A)PYRENE	300	16 J	24 U	210 J	1200	6.2 J	23 U	280	13 J	52000	6300
	BENZO(B)FLUORANTHENE	250	17 J	24 U	73 J	1200	7.2 J	23 U	250	12 J	40000	5900
	BENZO(G,H,I)PERYLENE	160	7.7 J	24 U	130 J	630	22 U	23 UJ	140 J	22 U	28000	3300
	BENZO(K)FLUORANTHENE	400	5.4 J	24 U	200 J	1200	7.3 J	23 U	280	12 J	46000	6300
	BENZOIC ACID	940 U	940 U	980 U	900 U	890 UJ	910 U	940 UJ	960 UJ	890 UJ	950 UJ	910 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	760 U	760 U	790 U	720 U	720 U	730 U	750 U	770 U	720 U	760 U	730 U
	BIS(2-CHLOROETHOXY)METHANE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	BIS(2-CHLOROETHYL)ETHER	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	BIS(2-ETHYLHEXYL)PHTHALATE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	BUTYL BENZYL PHTHALATE	380 U	380 U	390 U	360 UJ	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	CARBAZOLE	250 J	380 U	390 U	360 UJ	340 J	370 UJ	380 U	390 U	360 U	32000	2800 J
	CHRYSENE	460	14 J	3.3 J	520 J	1400	11 J	23 U	340 J	17 J	57000	8400
	DIBENZO(A,H)ANTHRACENE	68	6.9 J	24 U	42 J	200	22 U	23 U	47	22 U	10000	1500
	DIBENZOFURAN	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	17000	1200
	DIETHYL PHTHALATE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	DIMETHYL PHTHALATE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	DI-N-BUTYL PHTHALATE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	DI-N-OCTYL PHTHALATE	380 U	380 U	390 U	360 UJ	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	FLUORANTHENE	1200	9.5 J	24 U	280	2900	24	23 U	860	35	130000	17000
	FLUORENE	260	23 U	24 U	38	230	2.8 J	23 UJ	70 J	5.7 J	29000	2300
	HEXACHLOROBENZENE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	HEXACHLOROETHANE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	HIGH MOLECULAR WEIGHT PAHS	4508	109.2 J	3.3 J	2866 J	13690	83.7 J	23 UJ	3357 J	156 J	576000	78800
	INDENO(1,2,3-CD)PYRENE	170	9.7 J	24 U	91 J	660	22 U	23 UJ	140 J	22 U	30000	3200
	ISOPHORONE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	LOW MOLECULAR WEIGHT PAHS	2652 J	20.3 J	24 U	784.9 J	3797	29 J	23 UJ	1127 J	59.1 J	278600 J	26940
	NAPHTHALENE	330 J	23 U	24 U	16 J	32	22 U	23 U	70	9.5 J	22000	950
	NITROBENZENE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	N-NITROSODIMETHYLAMINE	380 UJ	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	N-NITROSO-DI-N-PROPYLAMINE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	N-NITROSODIPHENYLAMINE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 U	360 U
	PENTACHLOROPHENOL	940 UJ	940 U	980 U	900 UJ	890 UJ	910 U	940 UJ	960 UJ	890 UJ	950 U	910 U
	PHENANTHRENE	1300	15 J	24 U	600 J	2800	18 J	23 U	680	29	140000	17000
	PHENOL	380 U	380 U	390 U	360 U	360 U	370 U	380 U	390 U	360 U	380 J	360 U
	PYRENE	1000	13 J	24 U	1200 J	3000	18 J	23 U	670	51	120000	18000
	TOTAL PAHS	7160 J	129.5 J	3.3 J	3650.9 J	17487	112.7 J	23 UJ	4484 J	215.1 J	854600 J	105740
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.8 U	3.8 U	3.9 U	3.6 UJ	3.6 UJ	3.7 UJ	3.8 U	3.9 U	3.6 UJ	3.8 U	3.6 U
	4,4'-DDE	3.8 UJ	3.8 UJ	3.9 U	3.6 U	3.6 U	3.7 U	3.8 UJ	3.9 UJ	3.6 U	3.8 UJ	3.6 U
	4,4'-DDT	3.8 UJ	3.8 UJ	3.9 UJ	3.6 UJ	3.6 UJ	3.7 UJ	3.8 U	3.9 U	3.6 UJ	3.8 U	3.6 UJ
	ALDRIN	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	ALPHA-BHC	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	ALPHA-CHLORDANE	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	AROCLOR-1016	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1221	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1232	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1242	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1248	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1254	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1260	20 U	19 UJ	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	AROCLOR-1268	20 U	19 U	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	BETA-BHC	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	DELTA-BHC	2 UJ	1.9 UJ	2 U	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	2 UJ	1.8 UJ	2 UJ	1.9 UJ
	DIELDRIN	3.8 UJ	3.8 UJ	3.9 U	3.6 U	3.6 U	3.7 U	3.8 U	3.9 U	3.6 U	3.8 U	3.6 U
	ENDOSULFAN I	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	ENDOSULFAN II	3.8 UJ	3.8 UJ	3.9 U	3.6 U	3.6 U	3.7 U	3.8 U	3.9 U	3.6 U	3.8 U	3.6 U
	ENDOSULFAN SULFATE	3.8 UJ	3.8 UJ	3.9 U	3.6 UJ	3.6 UJ	3.7 UJ	3.8 U	3.9 U	3.6 UJ	3.8 U	3.6 UJ

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.8 UJ	3.8 UJ	3.9 UJ	3.6 U	3.6 U	3.7 U	3.8 U	3.9 U	3.6 U	3.8 U	3.6 U
	ENDRIN ALDEHYDE	3.8 UJ	3.8 UJ	3.9 U	3.6 U	3.6 U	3.7 U	3.8 U	3.9 U	3.6 U	3.8 U	3.6 U
	ENDRIN KETONE	3.8 UJ	3.8 UJ	3.9 UJ	3.6 U	3.6 U	3.7 U	3.8 U	3.9 U	3.6 U	3.8 U	3.6 U
	GAMMA-BHC (LINDANE)	2 UJ	1.9 UJ	2 UJ	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	GAMMA-CHLORDANE	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 U	2 U	1.8 U	2 U	1.9 U
	HEPTACHLOR	2 UJ	1.9 UJ	2 UJ	3 J	1.8 UJ	1.9 UJ	1.9 UJ	2 UJ	1.8 UJ	2 UJ	1.9 U
	HEPTACHLOR EPOXIDE	2 UJ	1.9 UJ	2 U	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.8 U	2 UJ	1.9 U
	METHOXYCHLOR	20 UJ	19 UJ	20 UJ	18 UJ	18 UJ	19 UJ	19 U	20 U	18 UJ	20 U	19 U
	TOTAL AROCLOR	20 U	19 UJ	20 U	18 U	18 U	19 U	19 U	20 U	18 U	20 U	19 U
	TOTAL DDD/DDE/DDT	3.8 UJ	3.8 UJ	3.9 UJ	3.6 UJ	3.6 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.6 UJ	3.8 UJ	3.6 UJ
	TOXAPHENE	38 UJ	38 UJ	39 U	36 U	36 U	37 U	38 U	39 U	36 U	38 U	36 U
METALS (MG/KG)	ALUMINUM	9690	14100	13500	9600	11800	14800	14800	15700	16700	10600	17400
	ANTIMONY	0.07 UJ	0.09 UJ	0.11 UJ	0.06 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.1 UJ	0.11 UJ	0.05 UJ	0.11 UJ
	ARSENIC	11.4	9.8	9.7	15.3	9.8	13.9	14.5	11.7	4.7	11.7	9
	BARIUM	22	30	37.8	14.7	42	16.8	21.3	23.1	12.9	27.9	34.4
	BERYLLIUM	0.3 J	0.34 J	0.34 J	0.42 J	0.55	0.42 J	0.33 J	0.28 J	0.28 J	0.26 J	0.5
	CADMIUM	0.01 UJ	0.01 UJ	0.02 UJ	0.23 J	0.17 J	0.02 UJ	0.02 UJ	0.01 UJ	0.02 UJ	0.19 J	0.29 J
	CALCIUM	887 J	660 J	551 J	5070	35700	1520	525	2040	1170	3300	3360
	CHROMIUM	13.9	16.3	18.2	21.1 J	14.7 J	19.4 J	19.5	20.9	21.6 J	11.5	23.3 J
	COBALT	10.8	9.4	13.5	8.8	7.7	16.5	19.4	14.2	18.6	7.6	18.4
	COPPER	13.2	13.4	10.5	17.8 J	17.7 J	31.8 J	27	19.9	20.5 J	14.4	39.6 J
	IRON	26100	29400	30200	21400	20000	35200	37800	30700	32800	18800	42200
	LEAD	8.1	10.6	10.2	9.7 J	13.9 J	18.4 J	12.3	13.9	15.1 J	25.1	110 J
	MAGNESIUM	2780	3280	3470	4700	4620	4700	4570	4260	5580	2470	5980
	MANGANESE	337	259	1880	361	322	565	679	753	553	300	1200
	MERCURY	0.01 U	0.02 UJ	0.03 UJ	0.02 J	0.02 J	0.01 U	0.01 U	0.02 U	0.01 U	0.09	0.02 J
	MOLYBDENUM	0.23 J	0.5 J	0.35 J	0.75 J	0.44 J	0.64 J	0.44 J	0.63 J	0.13 J	0.29 J	1.9 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	NICKEL	18.6	17.9	21.8	18.4	14.9	33.1	35	26.9	31.2	13.1	36.6
	POTASSIUM	411	505	381	732 J	907 J	406 J	490	518	240 J	579	338 J
	SELENIUM	0.46 U	1 J	0.77 U	0.36 U	0.35 U	0.74 U	0.72 UJ	0.65 UJ	0.73 U	0.35 UJ	0.73 U
	SILVER	0.14 J	0.25 J	0.28 J	0.07 UJ	0.06 UJ	0.13 UJ	0.92 UJ	0.74 UJ	0.4 J	0.13 UJ	0.13 UJ
	SODIUM	35 J	43.3 J	28.9 J	95 J	109	31.8 J	37.7 J	47.8 J	21.4 UJ	47.6 J	33.9 J
	THALLIUM	0.06 UJ	0.1 UJ	0.06 UJ	0.02 UJ	0.02 UJ	0.01 U	0.02 UJ	0.04 UJ	0.01 U	0.06 UJ	0.02 UJ
	VANADIUM	19.4	25.7	22.4	22.4 J	16.2 J	17.9 J	22.5	25.6	19.2 J	16.1	19.5 J
	ZINC	42.5	50.9	52.6	48.6	47.6	69.8	72.2	57.7	66.6	58.3	86.8
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB118	DA-SB119	DA-SB120	DA-SB121	DA-SB122	DA-SB123	DA-SB124	DA-SB125	DA-SB126	DA-SB127	DA-SB128
	TOP DEPTH	4	2	4	4	4	5	6	8	10	2	8
	BOTTOM DEPTH	6	4	6	6	7	8	8	10	13	4	10
	SAMPLE DATE	03/04/08	03/04/08	03/06/08	02/26/08	02/26/08	02/25/08	02/27/08	02/27/08	02/26/08	02/27/08	02/25/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SB118-0406	DA-SB119-0204	DA-SB120-0406	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508	DA-SB124-0608	DA-SB125-0810	DA-SB126-1013	DA-SB127-0204	DA-SB128-0810
FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	87	87	84	92	92	90	88	85	92	87	90
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	31	150	9.4 U	2800	530	2.6 J	5.7 U	34	200	1400	530
(MG/KG)	GASOLINE RANGE ORGANICS	3.6 UJ	2.8 UJ	2.8 UJ	3.4 U	5.4 U	2.5 U	3.0 U	2.8 U	2.8 U	2.8 U	2.7 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2,3-TRICHLOROBENZENE	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ
	1,2,3-TRICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2-DIBROMOETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	2-BUTANONE	25 U	25 U	26 U	25 U	26 UJ	25 U	25 U	30 U	26 U	27 U	26 U
	2-CHLOROTOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	2-HEXANONE	25 U	25 U	26 U	25 U	26 UJ	25 U	25 U	30 U	26 U	27 U	26 U
	4-CHLOROTOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	25 U	26 U	25 U	26 UJ	25 U	25 U	30 U	26 U	27 U	26 U
	ACETONE	25 U	25 U	160	690	45 J	89	23 J	38	27	130	26 U
	BENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	BROMOBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	BROMOCHLOROMETHANE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	6 UJ	5 UJ	5 U	5 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	BROMOFORM	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	BROMOMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
	BTEX	5.6 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U	5.6 U	6.8 UJ	5.6 U	5.8 UJ	5.6 UJ
	CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	CHLOROBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	CHLOROETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
	CHLOROFORM	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	CHLOROMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	DIBROMOMETHANE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
	ETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ
	HEXACHLOROBUTADIENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	ISOPROPYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	M+P-XYLENES	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	METHYLENE CHLORIDE	25 U	25 U	26 U	25 U	26 UJ	25 U	25 U	30 UJ	26 U	27 UJ	26 UJ
	N-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	O-XYLENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	SEC-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	STYRENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	TERT-BUTYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	TETRACHLOROETHENE	5 U	5 U	5 U	4 J	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ
	TOLUENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U	6.2 U	4 J	6.2 UJ	6.2 U	6.2 U	7.5 UJ	6.2 U	6.5 UJ	6.2 UJ
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	4 J	6.6 UJ	6.6 UJ	6.6 UJ	7.9 UJ	6.6 UJ	6.8 UJ	6.6 UJ
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U	7.5 U	9 U	7.5 U	8 U	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 UJ	5 U	5 UJ	5 UJ
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	TRICHLOROETHENE	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U	5 U
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
	VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	12 U	10 U	11 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	365 U	370 U	380 U	390 U	380 U	380 U	170 J	370 U	370 U	350 U	380 U
	1,2-DIPHENYLHYDRAZINE	735 U	740 U	760 U	780 U	750 U	750 U	730 U	740 U	730 U	700 U	760 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2,4,5-TRICHLOROPHENOL	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	2,4,6-TRICHLOROPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2,4-DICHLOROPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2,4-DIMETHYLPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2,4-DINITROPHENOL	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	2,4-DINITROTOLUENE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2,6-DICHLOROPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2,6-DINITROTOLUENE	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2-CHLOROPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2-METHYLNAPHTHALENE	250	210	22 J	86	31	26	500	22 U	22 U	21 U	23 U
	2-METHYLPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	2-NITROANILINE	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	2-NITROPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	3&4-METHYLPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	3,3'-DICHLOROBENZIDINE	365 UJ	370 UJ	380 U	390 UJ	380 UJ	380 UJ	370 UJ	370 UJ	370 U	350 UJ	380 UJ
	3-NITROANILINE	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	4,6-DINITRO-2-METHYLPHENOL	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	4-BROMOPHENYL PHENYL ETHER	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	4-CHLORO-3-METHYLPHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	4-CHLOROANILINE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	4-CHLOROPHENYL PHENYL ETHER	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	4-NITROANILINE	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	4-NITROPHENOL	915 U	920 U	940 U	960 U	940 U	930 U	910 U	920 U	910 U	870 U	950 U
	ACENAPHTHENE	1800	1700	82	540	110 J	160	2500	22 U	22 U	21 U	23 U
	ACENAPHTHYLENE	22 U	22 U	23 U	23 U	23 U	23 U	44 UJ	22 U	22 UJ	21 U	23 U
	ANTHRACENE	4200	3900	140	650	200 J	380	4800	22 U	22 U	21 U	23 U
	BENZIDINE	1650 UJ	1700 UJ	1700 UJ	1800 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1600 UJ	1700 UJ
	BENZO(A)ANTHRACENE	9000 J	9100 J	410	140 J	600 J	1100	10000	22 U	22 U	21 U	3.2 J
	BENZO(A)PYRENE	6400	6500	300	820	520 J	1100	8600	22 U	22 U	21 U	23 U
	BENZO(B)FLUORANTHENE	6400	6900	280	660	500 J	1100	6800	22 U	22 U	21 U	23 U
	BENZO(G,H,I)PERYLENE	3100	2900	120	180 J	150	580	3700	22 U	22 UJ	21 U	8.5 J
	BENZO(K)FLUORANTHENE	5800	5300	300	800	430	770	7200	22 U	22 U	21 U	23 U
	BENZOIC ACID	915 U	920 U	940 UJ	960 U	940 U	930 U	910 UJ	440 J	910 UJ	870 U	950 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	735 U	740 U	760 U	780 U	750 U	750 U	730 U	740 U	730 U	700 U	760 U
	BIS(2-CHLOROETHOXY)METHANE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	BIS(2-CHLOROETHYL)ETHER	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	BIS(2-ETHYLHEXYL)PHTHALATE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	BUTYL BENZYL PHTHALATE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	CARBAZOLE	2600 J	2400 J	380 U	450 J	380 UJ	250 J	3100	370 UJ	370 U	350 UJ	380 U
	CHRYSENE	8550 J	8700 J	470	960	600	1100	8900	22 U	22 U	21 U	3.3 J
	DIBENZO(A,H)ANTHRACENE	1600	1700	55	81 J	62	150	1600	22 U	22 UJ	21 U	4.5 J
	DIBENZOFURAN	1150	1100	380 U	260 J	380 U	380 U	1500	370 U	370 U	350 U	380 U
	DIETHYL PHTHALATE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	DIMETHYL PHTHALATE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	DI-N-BUTYL PHTHALATE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	DI-N-OCTYL PHTHALATE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	FLUORANTHENE	17000 J	17000 J	920	2100	1500	1700	21000	22 U	22 U	5.2 J	23 U
	FLUORENE	2150	2000	58	380 J	110 J	120	2500	22 U	22 U	21 U	23 U
	HEXACHLOROBENZENE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	HEXACHLOROETHANE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	HIGH MOLECULAR WEIGHT PAHS	80000 J	81200 J	3835	8201 J	5732 J	10270	90100	22 U	22 UJ	5.2 J	29.5 J
	INDENO(1,2,3-CD)PYRENE	3150	3100	120	260	170	570	4300	22 U	22 UJ	21 U	10 J
	ISOPHORONE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	LOW MOLECULAR WEIGHT PAHS	25715 J	24490 J	1041 J	4386 J	1636 J	2250	29500 J	22 U	22 UJ	21 U	23 U
	NAPHTHALENE	815	680	29	430	85 J	64	1200	22 U	22 U	21 U	23 U
	NITROBENZENE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	N-NITROSODIMETHYLAMINE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	N-NITROSO-DI-N-PROPYLAMINE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	N-NITROSODIPHENYLAMINE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	PENTACHLOROPHENOL	915 U	920 U	940 UJ	960 U	940 U	930 U	910 U	920 U	910 UJ	870 U	950 UJ
	PHENANTHRENE	16500 J	16000 J	710	2300	1100	1500	18000	22 U	22 U	21 U	23 U
	PHENOL	365 U	370 U	380 U	390 U	380 U	380 U	370 U	370 U	370 U	350 U	380 U
	PYRENE	19000 J	20000 J	860	2200	1200 J	2100	18000	22 U	22 U	21 U	23 U
	TOTAL PAHS	105715 J	105690 J	4876 J	12587 J	7368 J	12520	119600 J	22 U	22 UJ	5.2 J	29.5 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.65 U	3.7 U	3.8 UJ	3.9 UJ	3.8 UJ	3.8 U	3.7 U	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U
	4,4'-DDE	3.65 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	0.92 J	3.7 U	3.7 U	3.5 U	3.8 U
	4,4'-DDT	3.65 UJ	3.7 U	2.4 J	3.9 UJ	3.8 UJ	3.8 UJ	1.7 J	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U
	ALDRIN	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	ALPHA-BHC	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	ALPHA-CHLORDANE	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	AROCLOR-1016	19 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	AROCLOR-1221	19 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	AROCLOR-1232	19 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	AROCLOR-1242	19 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	AROCLOR-1248	19 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	AROCLOR-1254	19 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	AROCLOR-1260	19 U	19 U	20 U	20 U	19 U	19 U	82	19 U	19 U	45	20 U
	AROCLOR-1268	19 U	19 U	150	20 U	19 U	19 U	19 U	19 U	19 U	18 U	20 U
	BETA-BHC	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	DELTA-BHC	1.9 UJ	1.9 U	2 UJ	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ	2 U
	DIELDRIN	3.65 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 U	3.7 U	3.5 U	3.8 U
	ENDOSULFAN I	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	ENDOSULFAN II	3.65 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 U	3.7 U	3.5 U	3.8 U
	ENDOSULFAN SULFATE	3.65 UJ	3.7 U	2 J	3.9 UJ	3.8 UJ	3.8 UJ	3.7 U	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.65 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 U	3.7 U	3.5 U	3.8 U
	ENDRIN ALDEHYDE	3.65 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	1.2 J	3.7 U	3.7 U	3.5 U	3.8 U
	ENDRIN KETONE	3.65 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 U	3.7 U	3.5 U	3.8 U
	GAMMA-BHC (LINDANE)	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	GAMMA-CHLORDANE	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	2 U
	HEPTACHLOR	1.9 U	1.9 U	2 UJ	2 UJ	1.9 UJ	1.9 U	1.9 UJ	5.8 J	1.9 UJ	1.8 UJ	2 U
	HEPTACHLOR EPOXIDE	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 UJ	1.9 U	1.9 U	1.8 U	2 U
	METHOXYCHLOR	19 U	19 U	20 UJ	20 UJ	19 UJ	19 U	19 U	19 UJ	19 UJ	18 UJ	20 U
	TOTAL AROCLOR	19 U	19 U	150	20 U	19 U	19 U	82	19 U	19 U	45	20 U
	TOTAL DDD/DDE/DDT	3.6 UJ	3.7 U	2.4 J	3.9 UJ	3.8 UJ	3.8 UJ	2.62 J	3.7 UJ	3.7 UJ	3.5 UJ	3.8 U
	TOXAPHENE	36.5 U	37 U	38 U	39 U	38 U	38 U	37 U	37 U	37 U	35 U	38 U
METALS (MG/KG)	ALUMINUM	17000	16500	12500	12900	12500	13800	14100	23300	25900	17700	17400
	ANTIMONY	0.11 UJ	0.11 UJ	0.2 UJ	0.11 UJ	0.1 UJ	1.6 J	0.1 UJ	0.1 UJ	0.17 UJ	0.1 UJ	0.14 UJ
	ARSENIC	8.9	8.8	16.1	26.2	17.7	15.6	14.3	5.2	4.5	7.9	16.2
	BARIUM	40.4	46.4	50.8	23.9	23.6	95.4	26.8	9.2	8	20.7	17.3
	BERYLLIUM	0.46 J	0.42 J	0.53	0.46 J	0.4 J	0.42 J	0.36 J	0.28 J	0.29 J	0.26 J	0.7
	CADMIUM	0.41 J	0.53 J	0.57 J	0.02 UJ	0.01 UJ	8.8	0.01 UJ	0.01 UJ	0.02 UJ	0.01 UJ	0.02 UJ
	CALCIUM	2900	2430	9590	4050	7190	6010	11800	1550	1310	244	268
	CHROMIUM	22.8 J	22.2 J	15.7 J	17.2 J	16.9 J	25.2 J	18.6	32 J	27.4 J	26 J	18.8 J
	COBALT	19.4	20.3	9.5	18.3	11.2	14	10.8	21.1	15.9	22.6	25
	COPPER	33 J	26.5 J	32 J	23.8 J	20.8 J	132 J	17.6	26 J	15.2 J	21.7 J	22.7 J
	IRON	38600	35000	22800	31600	28200	31800	26100	49400	61400	48600	54600
	LEAD	117 J	124 J	66.8 J	19.3 J	21.3 J	926 J	16.6	13.2 J	10.4 J	10.1 J	12.3 J
	MAGNESIUM	5810	5640	3090	3660	3630	4400	4560	9250	8500	4990	4920
	MANGANESE	1050	900	314	745	352	560	350	647	363	870	978
	MERCURY	0.02 J	0.02 J	0.12	0.02 J	0.03 J	0.05	0.02 J	0.01 U	0.01 U	0.01 U	0.01 J
	MOLYBDENUM	1.26 J	0.61 J	0.64 J	0.63 J	0.36 J	2.2 J	0.31 J	0.12 J	2.5 J	0.9 J	0.14 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	NICKEL	36.7	36.8	24.5	29.5	20.7	31.7	22.9	46	23.9	35.1	31.8
	POTASSIUM	348 J	357 J	627 J	384 J	460 J	379 J	664	174 J	196 J	253 J	294 J
	SELENIUM	0.75 U	0.77 U	0.38 U	0.74 U	0.71 U	0.76 U	0.66 UJ	0.7 U	1.13 U	0.68 U	0.94 U
	SILVER	0.135 UJ	0.14 UJ	0.07 UJ	0.16 J	0.17 J	0.54 J	0.74 J	0.13 UJ	0.67 J	0.12 U	0.17 UJ
	SODIUM	24.7 J	31 UJ	74.7 J	47 J	66.9 J	77.8 J	74.9 J	20.3 UJ	21.6 UJ	27.5 UJ	30.1 J
	THALLIUM	0.02 UJ	0.02 U	0.04 UJ	0.03 UJ	0.02 UJ	0.07 UJ	0.03 UJ	0.01 U	0.02 U	0.01 U	0.06 UJ
	VANADIUM	19.8 J	20.2 J	18.9 J	21.2 J	20 J	27.6 J	22.7	23.4 J	53.8 J	32.1 J	20.8 J
	ZINC	84.9	83	144	62.3	54.1	381	57.5	84.9	86	83.2	96.4
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB128	DA-SB128	DA-SB129	DA-SB130	DA-SB131	DA-SB132	DA-SB133	DA-SB134	DA-SB135	DA-SB136	DA-SB137
	TOP DEPTH	8	8	4	10	4	4	8	4	12	8	4
	BOTTOM DEPTH	10	10	6	11.5	6	6	10	5	14	10	6
	SAMPLE DATE	02/25/08	02/25/08	02/26/08	02/25/08	02/25/08	02/25/08	02/27/08	02/22/08	02/26/08	02/22/08	02/21/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SB128-0810-AVG	DA-SB128-0810-D	DA-SB129-0406	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406	DA-SB133-0810	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810	DA-SB137-0406
FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	90	NA	87	85	88	88	90	90	90	95	86
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	545	560	260	94	39 J	150	490	4.3 J	3.8 J	6	4.3 J
	GASOLINE RANGE ORGANICS	2.75 U	2.8 U	3.2 U	2.9 U	2.9 U	2.7 U	2.8 U	3.4 U	3.1 U	3.2 U	3.1 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,1-DICHLOROETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,1-DICHLOROETHENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,1-DICHLOROPROPENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2,3-TRICHLOROBENZENE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2,3-TRICHLOROPROPANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2,4-TRIMETHYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ
	1,2-DIBROMOETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2-DICHLOROBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2-DICHLOROETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,2-DICHLOROPROPANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,3-DICHLOROBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,3-DICHLOROPROPANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	1,4-DICHLOROBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	2,2-DICHLOROPROPANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	2-BUTANONE	25 U	25 U	25 U	NA	28 U	6 J	25 U	25 U	25 U	25 UJ	25 U
	2-CHLOROTOLUENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	2-HEXANONE	25 U	25 U	25 U	NA	28 U	25 U	25 U	25 U	25 U	25 UJ	25 U
	4-CHLOROTOLUENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	4-ISOPROPYLTOLUENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	4-METHYL-2-PENTANONE	25 U	25 U	25 U	NA	28 U	25 U	25 U	25 U	25 U	25 UJ	25 U
	ACETONE	25 U	10.8 J	9 J	NA	28 U	220	63 J	86.5 J	110 J	25 UJ	73
	BENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	BROMOBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	BROMOCHLOROMETHANE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	BROMODICHLOROMETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	BROMOFORM	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	BROMOMETHANE	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
	BTEX	5.6 UJ	5.6 UJ	5.6 UJ	NA	6.6 UJ	5.6 U	5.6 U	5.6 U	5.6 U	5.6 UJ	5.6 U
	CARBON DISULFIDE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	CARBON TETRACHLORIDE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	CHLOROBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	CHLORODIBROMOMETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	CHLOROETHANE	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
	CHLOROFORM	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	CHLOROMETHANE	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	DIBROMOMETHANE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	DICHLORODIFLUOROMETHANE	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
	ETHYLBENZENE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
	HEXACHLOROBUTADIENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	ISOPROPYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	M+P-XYLENES	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
	METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	METHYLENE CHLORIDE	25 UJ	25 UJ	25 UJ	NA	28 UJ	25 U	25 U	25 U	25 U	25 UJ	25 U
	N-BUTYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	N-PROPYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	O-XYLENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	SEC-BUTYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	STYRENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	TERT-BUTYLBENZENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	TETRACHLOROETHENE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
	TOLUENE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
	TOTAL 1,2-DICHLOROETHENE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
	TOTAL CHLORINATED ETHENES	6.2 UJ	6.2 UJ	6.2 UJ	NA	7.2 UJ	6.2 U	6.2 U	6.2 U	6.2 U	6.2 UJ	6.2 U
	TOTAL CHLORINATED VOCS	6.6 UJ	6.6 UJ	6.6 UJ	NA	7.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ
	TOTAL XYLENES	7.5 U	7.5 U	7.5 U	NA	8.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 UJ	7.5 U
	TRANS-1,2-DICHLOROETHENE	5 UJ	5 UJ	5 UJ	NA	6 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	TRICHLOROETHENE	5 U	5 U	5 U	NA	6 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
	VINYL CHLORIDE	10 U	10 U	10 U	NA	11 U	10 U	10 U	10 U	10 U	10 UJ	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	1,2-DIPHENYLHYDRAZINE	700 U	705 U	710 U	NA	700 U	790 U	780 U	775 U	770 U	750 U	800 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	350 U	350 U	350 U	NA	350 U	390 U	390 UJ	385 UJ	380 U	380 U	400 U
	2,4,5-TRICHLOROPHENOL	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U
	2,4,6-TRICHLOROPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2,4-DICHLOROPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2,4-DIMETHYLPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2,4-DINITROPHENOL	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U
	2,4-DINITROTOLUENE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2,6-DICHLOROPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2,6-DINITROTOLUENE	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	2-CHLORONAPHTHALENE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2-CHLOROPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2-METHYLNAPHTHALENE	21 U	21 U	21 U	NA	21 U	24 U	4.3 J	3.85 J	3.4 J	23 U	24 U
	2-METHYLPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	2-NITROANILINE	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U
	2-NITROPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	3&4-METHYLPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	3,3'-DICHLOROBENZIDINE	350 UJ	350 UJ	350 UJ	NA	350 UJ	390 U	390 UJ	385 UJ	380 U	380 UJ	400 UJ
	3-NITROANILINE	870 U	875 U	880 U	NA	870 U	980 U	970 UJ	965 UJ	960 U	930 U	1000 U
	4,6-DINITRO-2-METHYLPHENOL	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U
	4-BROMOPHENYL PHENYL ETHER	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	4-CHLORO-3-METHYLPHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	4-CHLOROANILINE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	4-CHLOROPHENYL PHENYL ETHER	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	4-NITROANILINE	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U
	4-NITROPHENOL	870 U	875 U	880 U	NA	870 U	980 U	970 U	965 U	960 U	930 U	1000 U
	ACENAPHTHENE	21 U	21 U	21 U	NA	21 U	24 U	24 U	23.5 U	23 U	23 U	7.5 J
	ACENAPHTHYLENE	21 U	21 U	21 U	NA	21 U	24 U	24 U	23.5 U	23 U	23 UJ	24 UJ
	ANTHRACENE	21 U	21 U	21 U	NA	21 U	24 U	24 U	23.5 U	23 U	23 U	14 J
	BENZIDINE	1600 UJ	1600 UJ	1600 UJ	NA	1600 UJ	1800 UJ	1800 UJ	1750 UJ	1700 UJ	1700 UJ	1800 UJ
	BENZO(A)ANTHRACENE	21 U	21 U	21 U	NA	21 U	11 J	8.2 J	9.85 J	23 U	23 U	28
	BENZO(A)PYRENE	21 U	21 U	21 U	NA	21 U	14 J	24 U	23.5 U	23 U	23 U	22 J
	BENZO(B)FLUORANTHENE	21 U	21 U	21 U	NA	21 U	16 J	13 J	12.2 J	23 U	23 U	23 J
	BENZO(G,H,I)PERYLENE	21 U	21 U	21 U	NA	21 U	7.9 J	24 U	23.5 U	23 U	23 UJ	5.4 J
	BENZO(K)FLUORANTHENE	21 U	21 U	21 U	NA	21 U	10 J	4.5 J	8 J	23 U	23 U	23 J
	BENZOIC ACID	870 U	875 U	880 U	NA	870 U	980 U	970 UJ	965 UJ	960 UJ	1500 J	1000 UJ

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	BENZYL ALCOHOL	700 U	705 U	710 U	NA	700 U	790 U	780 U	775 U	770 U	750 U	800 U
	BIS(2-CHLOROETHOXY)METHANE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	BIS(2-CHLOROETHYL)ETHER	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	BIS(2-ETHYLHEXYL)PHTHALATE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	BUTYL BENZYL PHTHALATE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	CARBAZOLE	350 U	350 U	350 U	NA	350 UJ	390 U	390 U	385 UJ	380 UJ	380 U	400 U
	CHRYSENE	21 U	21 U	21 U	NA	21 U	11 J	14 J	14.5 J	15 J	23 U	33
	DIBENZO(A,H)ANTHRACENE	21 U	21 U	21 U	NA	21 U	24 U	24 U	23.5 UJ	23 UJ	23 U	24 U
	DIBENZOFURAN	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	DIETHYL PHTHALATE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	DIMETHYL PHTHALATE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	DI-N-BUTYL PHTHALATE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	DI-N-OCTYL PHTHALATE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 UJ	380 UJ	380 U	400 U
	FLUORANTHENE	21 U	21 U	21 U	NA	21 U	27	9.5 J	7.75 J	6 J	23 U	80
	FLUORENE	21 U	21 U	21 U	NA	21 U	24 U	24 U	23.5 U	23 U	23 UJ	5.4 J
	HEXACHLOROBENZENE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	HEXACHLOROETHANE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	HIGH MOLECULAR WEIGHT PAHS	21 U	21 U	21 U	NA	21 U	129.9 J	60.2 J	63.5 J	21 J	23 UJ	280.9 J
	INDENO(1,2,3-CD)PYRENE	21 U	21 U	21 U	NA	21 U	17 J	24 U	23.5 UJ	23 UJ	23 UJ	7.5 J
	ISOPHORONE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	LOW MOLECULAR WEIGHT PAHS	21 U	21 U	21 U	NA	21 U	13 J	17.3 J	15.85 J	14.4 J	23 UJ	85.9 J
	NAPHTHALENE	21 U	21 U	21 U	NA	21 U	24 U	24 U	23.5 U	23 U	23 U	24 U
	NITROBENZENE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	N-NITROSODIMETHYLAMINE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 UJ	380 UJ	380 U	400 U
	N-NITROSO-DI-N-PROPYLAMINE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	N-NITROSODIPHENYLAMINE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	N-NITROSOPYRROLIDINE	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	PENTACHLOROPHENOL	870 UJ	875 UJ	880 UJ	NA	870 U	980 U	970 UJ	965 UJ	960 UJ	930 U	1000 U
	PHENANTHRENE	21 U	21 U	21 U	NA	21 U	13 J	13 J	12 J	11 J	23 U	59
	PHENOL	350 U	350 U	350 U	NA	350 U	390 U	390 U	385 U	380 U	380 U	400 U
	PYRENE	21 U	21 U	21 U	NA	21 U	16 J	11 J	11.2 J	23 U	23 U	59
	TOTAL PAHS	21 U	21 U	21 U	NA	21 U	142.9 J	77.5 J	79.35 J	35.4 J	23 UJ	366.8 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 U	3.9 U	3.85 U	3.8 U	3.8 U	4 U
	4,4'-DDE	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 UJ	4 UJ
	4,4'-DDT	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 UJ	3.85 UJ	3.8 UJ	3.8 U	4 U
	ALDRIN	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	ALPHA-BHC	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	ALPHA-CHLORDANE	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	AROCLOR-1016	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 UJ	21 U
	AROCLOR-1221	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	AROCLOR-1232	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	AROCLOR-1242	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	AROCLOR-1248	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	AROCLOR-1254	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	AROCLOR-1260	18 U	18 U	18 U	18 U	NA	20 U	20 UJ	20 UJ	20 UJ	19 U	21 U
	AROCLOR-1268	18 U	18 U	18 U	18 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	BETA-BHC	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	DELTA-BHC	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	DIELDRIN	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 U	4 U
	ENDOSULFAN I	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	ENDOSULFAN II	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 U	4 U
	ENDOSULFAN SULFATE	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 U	4 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	ENDRIN	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 U	4 U
	ENDRIN ALDEHYDE	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 U	4 U
	ENDRIN KETONE	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 U	3.85 U	3.8 U	3.8 U	4 U
	GAMMA-BHC (LINDANE)	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	GAMMA-CHLORDANE	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 U	2.1 U
	HEPTACHLOR	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	HEPTACHLOR EPOXIDE	1.8 U	1.8 U	1.8 U	1.8 U	NA	2 UJ	2 U	2 U	2 U	1.9 UJ	2.1 UJ
	METHOXYCHLOR	18 U	18 U	18 U	18 U	NA	20 UJ	20 UJ	20 UJ	20 UJ	19 U	21 U
	TOTAL AROCLOR	18 U	18 U	18 U	18 U	NA	20 U	20 UJ	20 UJ	20 UJ	19 UJ	21 U
	TOTAL DDD/DDE/DDT	3.5 U	3.5 U	3.5 U	3.5 U	NA	3.9 UJ	3.9 UJ	3.8 UJ	3.8 UJ	3.8 UJ	4 UJ
	TOXAPHENE	35 U	35 U	35 U	35 U	NA	39 UJ	39 U	38.5 U	38 U	38 U	40 U
METALS (MG/KG)	ALUMINUM	11200	11600	12000	NA	27200	12000	11400	11400	11400	9500	11400
	ANTIMONY	0.1 UJ	0.1 UJ	0.1 UJ	NA	0.14 UJ	0.08 UJ	0.09 UJ	0.105 UJ	0.12 UJ	0.08 UJ	0.1 UJ
	ARSENIC	30.3	29.6	28.8	NA	11.9	14.7	11.4 J	10.3 J	9.2 J	6	12.6
	BARIUM	25.1	23.4	21.8	NA	9	25	24.8	25	25.1	18.1	29.6
	BERYLLIUM	0.5	0.49	0.48	NA	0.34 J	0.34 J	0.35 J	0.31 J	0.27 J	0.36 J	0.31 J
	CADMIUM	0.01 UJ	0.01 UJ	0.01 UJ	NA	0.02 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
	CALCIUM	696	600	503	NA	2350	540 J	852	868	885	573	757
	CHROMIUM	16.4 J	16.9 J	17.4 J	NA	33.6 J	15.7	16	15.5	15	13.5	14.2
	COBALT	18.1	18.4	18.8	NA	30.5	11.3	11	10.8	10.7	6.6	8.4
	COPPER	26.6 J	30.8 J	35 J	NA	29.5 J	15	12.6	12.2	11.9	17.9	9.3
	IRON	45100	46100	47100	NA	69200	23600	30500	26600	22800	19600	25200
	LEAD	9.6 J	10 J	10.4 J	NA	10.7 J	10.6	8.4	8.75	9.1	9	10.5
	MAGNESIUM	3760	3940	4110	NA	9600	3070	3070	3020	2980	2210	2850
	MANGANESE	786	738	691	NA	1350	334	623	702	782	122	367
	MERCURY	0.01 U	0.01 U	0.01 U	NA	0.01 U	0.02 UJ	0.02 J	0.02 J	0.02 J	0.01 J	0.02 J
	MOLYBDENUM	0.67 J	0.58 J	0.49 J	NA	0.02 UJ	0.23 J	0.41 J	0.405 J	0.4 J	0.4 J	0.2 J

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	NICKEL	36.7	36.8	36.9	NA	53.9	20.1	21.2	20.2	19.2	16.1	17.2
	POTASSIUM	650 J	570 J	489 J	NA	333 J	358	645	626	607	379	393
	SELENIUM	0.68 U	0.685 U	0.69 U	NA	0.94 U	0.57 U	0.63 UJ	0.625 UJ	0.62 UJ	0.55 UJ	0.66 UJ
	SILVER	0.12 UJ	0.12 UJ	0.12 UJ	NA	0.17 UJ	0.14 J	0.11 UJ	0.13 UJ	0.15 UJ	0.51 UJ	0.94 J
	SODIUM	107	88.8 J	70.7 J	NA	61 J	33.2 J	77.6 UJ	76.2 UJ	74.8 UJ	32.1 J	38.3 J
	THALLIUM	0.1 J	0.06 J	0.04 UJ	NA	0.02 U	0.05 UJ	0.04 UJ	0.05 UJ	0.06 UJ	0.08 UJ	0.04 UJ
	VANADIUM	19.8 J	19.1 J	18.4 J	NA	34.3 J	19.2	22.3	22	21.7	23.3	21.2
	ZINC	81	81.5	82	NA	106	50.5	77.5	76.8	76	40	46.4
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB138	DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB150	DA-SB151	DA-SB151	DA-SB151	DA-SB152	DA-SB153
	TOP DEPTH	4	4	4	4	10	2	4	4	4	2	2
	BOTTOM DEPTH	6	6	6	6	12	4	6	6	6	4	4
	SAMPLE DATE	02/21/08	02/21/08	02/21/08	02/21/08	02/21/08	03/05/08	03/04/08	03/04/08	03/04/08	02/28/08	02/28/08
	SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SB138-0406	DA-SB138-0406-AVG	DA-SB138-0406-D	DA-SB139-0406	DA-SB139-1012	DA-SB150-0204	DA-SB151-0406	DA-SB151-0406-AVG	DA-SB151-0406-D	DA-SB152-0204	DA-SB153-0204
FRACTION (UNITS)	PARAMETER											
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SOLIDS	94	94	NA	94	NA	84	85	85	NA	88	82
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	2.5 J	2.65 J	2.8 J	NA	2.6 J	28 J	190	235	280	5.7 U	7.2 U
	GASOLINE RANGE ORGANICS	2.5 U	2.8 U	3.1 U	NA	2.8 U	3.2 U	2.8 U	4.1 U	5.4 U	3.0 U	2.8 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	5 U	5 U
	1,1,1-TRICHLOROETHANE	5 U	5 U
	1,1,2,2-TETRACHLOROETHANE	5 U	5 U
	1,1,2-TRICHLOROETHANE	5 U	5 U
	1,1-DICHLOROETHANE	5 U	5 U
	1,1-DICHLOROETHENE	5 U	5 U
	1,1-DICHLOROPROPENE	5 U	5 U
	1,2,3-TRICHLOROBENZENE	5 U	5 U
	1,2,3-TRICHLOROPROPANE	5 U	5 U
	1,2,4-TRICHLOROBENZENE	5 U	5 U
	1,2,4-TRIMETHYLBENZENE	5 U	5 U
	1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U
	1,2-DIBROMOETHANE	5 U	5 U
	1,2-DICHLOROBENZENE	5 U	5 U
	1,2-DICHLOROETHANE	5 U	5 U
	1,2-DICHLOROPROPANE	5 U	5 U
	1,3,5-TRIMETHYLBENZENE	5 U	5 U
	1,3-DICHLOROBENZENE	5 U	5 U
	1,3-DICHLOROPROPANE	5 U	5 U
	1,4-DICHLOROBENZENE	5 U	5 U
	2,2-DICHLOROPROPANE	5 U	5 U
	2-BUTANONE	25 U	25 U
	2-CHLOROTOLUENE	5 U	5 U
	2-HEXANONE	25 U	25 U
	4-CHLOROTOLUENE	5 U	5 U
	4-ISOPROPYLTOLUENE	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	4-METHYL-2-PENTANONE	25 UJ	25 UJ
	ACETONE	25 U	31
	BENZENE	5 U	5 U
	BROMOBENZENE	5 U	5 U
	BROMOCHLOROMETHANE	5 U	5 U
	BROMODICHLOROMETHANE	5 U	5 U
	BROMOFORM	5 U	5 U
	BROMOMETHANE	10 U	10 U
	BTEX	5.6 U	5.6 UJ
	CARBON DISULFIDE	5 U	5 U
	CARBON TETRACHLORIDE	5 U	5 U
	CHLOROBENZENE	5 U	5 U
	CHLORODIBROMOMETHANE	5 U	5 U
	CHLOROETHANE	10 U	10 U
	CHLOROFORM	5 U	5 U
	CHLOROMETHANE	10 U	10 U
	CIS-1,2-DICHLOROETHENE	5 U	5 U
	CIS-1,3-DICHLOROPROPENE	5 U	5 U
	DIBROMOMETHANE	5 UJ	5 U
	DICHLORODIFLUOROMETHANE	10 U	10 U
	ETHYLBENZENE	5 U	5 U
	HEXACHLOROBUTADIENE	5 U	5 U
	ISOPROPYLBENZENE	5 U	5 U
	M+P-XYLENES	10 U	10 U
	METHYL TERT-BUTYL ETHER	5 U	5 U
	METHYLENE CHLORIDE	25 U	25 U
	N-BUTYLBENZENE	5 U	5 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	N-PROPYLBENZENE	5 U	5 U
	O-XYLENE	5 U	5 UJ
	SEC-BUTYLBENZENE	5 U	5 U
	STYRENE	5 U	5 U
	TERT-BUTYLBENZENE	5 U	5 U
	TETRACHLOROETHENE	5 U	5 U
	TOLUENE	5 U	5 U
	TOTAL 1,2-DICHLOROETHENE	5 U	5 U
	TOTAL CHLORINATED ETHENES	6.2 U	6.2 U
	TOTAL CHLORINATED VOCS	6.6 U	6.6 U
	TOTAL XYLENES	7.5 U	7.5 UJ
	TRANS-1,2-DICHLOROETHENE	5 U	5 U
	TRANS-1,3-DICHLOROPROPENE	5 U	5 U
	TRICHLOROETHENE	5 U	5 U
	TRICHLOROFLUOROMETHANE	10 U	10 U
	VINYL CHLORIDE	10 U	10 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	370 U	370 U
	1,2-DIPHENYLHYDRAZINE	740 U	750 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	370 U
	2,4,5-TRICHLOROPHENOL	920 U	930 U
	2,4,6-TRICHLOROPHENOL	370 U	370 U
	2,4-DICHLOROPHENOL	370 U	370 U
	2,4-DIMETHYLPHENOL	370 U	370 U
	2,4-DINITROPHENOL	920 U	930 U
	2,4-DINITROTOLUENE	370 U	370 U
	2,6-DICHLOROPHENOL	370 U	370 U
	2,6-DINITROTOLUENE	920 U	930 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	2-CHLORONAPHTHALENE	370 U	370 U
	2-CHLOROPHENOL	370 U	370 U
	2-METHYLNAPHTHALENE	22 U	3.5 J
	2-METHYLPHENOL	370 U	370 U
	2-NITROANILINE	920 U	930 U
	2-NITROPHENOL	370 U	370 U
	3&4-METHYLPHENOL	370 U	370 U
	3,3'-DICHLOROBENZIDINE	370 UJ	370 UJ
	3-NITROANILINE	920 U	930 U
	4,6-DINITRO-2-METHYLPHENOL	920 U	930 U
	4-BROMOPHENYL PHENYL ETHER	370 U	370 U
	4-CHLORO-3-METHYLPHENOL	370 U	370 U
	4-CHLOROANILINE	370 U	370 U
	4-CHLOROPHENYL PHENYL ETHER	370 U	370 U
	4-NITROANILINE	920 U	930 U
	4-NITROPHENOL	920 U	930 U
	ACENAPHTHENE	22 U	5 J
	ACENAPHTHYLENE	22 U	23 U
	ANTHRACENE	22 U	7.8 J
	BENZIDINE	1700 UR	1700 UR
	BENZO(A)ANTHRACENE	22 U	70
	BENZO(A)PYRENE	5.6 J	84
	BENZO(B)FLUORANTHENE	22 U	110
	BENZO(G,H,I)PERYLENE	3.4 J	48
	BENZO(K)FLUORANTHENE	22 UJ	67 J
	BENZOIC ACID	920 U	930 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	BENZYL ALCOHOL	740 U	750 U
	BIS(2-CHLOROETHOXY)METHANE	370 U	370 U
	BIS(2-CHLOROETHYL)ETHER	370 U	370 U
	BIS(2-ETHYLHEXYL)PHTHALATE	370 U	370 U
	BUTYL BENZYL PHTHALATE	370 U	370 U
	CARBAZOLE	370 U	370 U
	CHRYSENE	22 U	84
	DIBENZO(A,H)ANTHRACENE	22 UJ	23 UJ
	DIBENZOFURAN	370 U	370 U
	DIETHYL PHTHALATE	370 U	370 U
	DIMETHYL PHTHALATE	370 U	370 U
	DI-N-BUTYL PHTHALATE	370 U	370 U
	DI-N-OCTYL PHTHALATE	370 UJ	370 UJ
	FLUORANTHENE	22 U	140
	FLUORENE	22 U	23 U
	HEXACHLOROBENZENE	370 U	370 U
	HEXACHLOROETHANE	370 U	370 U
	HIGH MOLECULAR WEIGHT PAHS	9 J	786 J
	INDENO(1,2,3-CD)PYRENE	22 U	63
	ISOPHORONE	370 U	370 U
	LOW MOLECULAR WEIGHT PAHS	22 U	73.3 J
	NAPHTHALENE	22 U	23 U
	NITROBENZENE	370 U	370 U
	N-NITROSODIMETHYLAMINE	370 U	370 U
	N-NITROSO-DI-N-PROPYLAMINE	370 U	370 U
	N-NITROSODIPHENYLAMINE	370 U	370 U

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	N-NITROSOPYRROLIDINE	370 U	370 U
	PENTACHLOROPHENOL	920 U	930 U
	PHENANTHRENE	22 U	57
	PHENOL	370 U	370 U
	PYRENE	22 U	120
	TOTAL PAHS	9 J	859.3 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	NA
	4,4'-DDE	NA	NA
	4,4'-DDT	NA	NA
	ALDRIN	NA	NA
	ALPHA-BHC	NA	NA
	ALPHA-CHLORDANE	NA	NA
	AROCLOR-1016	NA	NA
	AROCLOR-1221	NA	NA
	AROCLOR-1232	NA	NA
	AROCLOR-1242	NA	NA
	AROCLOR-1248	NA	NA
	AROCLOR-1254	NA	NA
	AROCLOR-1260	NA	NA
	AROCLOR-1268	NA	NA
	BETA-BHC	NA	NA
	DELTA-BHC	NA	NA
	DIELDRIN	NA	NA
	ENDOSULFAN I	NA	NA
	ENDOSULFAN II	NA	NA
	ENDOSULFAN SULFATE	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	ENDRIN	NA	NA
	ENDRIN ALDEHYDE	NA	NA
	ENDRIN KETONE	NA	NA
	GAMMA-BHC (LINDANE)	NA	NA
	GAMMA-CHLORDANE	NA	NA
	HEPTACHLOR	NA	NA
	HEPTACHLOR EPOXIDE	NA	NA
	METHOXYCHLOR	NA	NA
	TOTAL AROCLOR	NA	NA
	TOTAL DDD/DDE/DDT	NA	NA
	TOXAPHENE	NA	NA
METALS (MG/KG)	ALUMINUM	NA	NA
	ANTIMONY	NA	NA
	ARSENIC	NA	NA
	BARIUM	NA	NA
	BERYLLIUM	NA	NA
	CADMIUM	NA	NA
	CALCIUM	NA	NA
	CHROMIUM	NA	NA
	COBALT	NA	NA
	COPPER	NA	NA
	IRON	NA	NA
	LEAD	NA	NA
	MAGNESIUM	NA	NA
	MANGANESE	NA	NA
	MERCURY	NA	NA
	MOLYBDENUM	NA	NA

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APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	NICKEL	NA	NA
	POTASSIUM	NA	NA
	SELENIUM	NA	NA
	SILVER	NA	NA
	SODIUM	NA	NA
	THALLIUM	NA	NA
	VANADIUM	NA	NA
	ZINC	NA	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA
	HYDROMETER-12.9UM	NA	NA
	HYDROMETER-21.5UM	NA	NA
	HYDROMETER-3.4UM	NA	NA
	HYDROMETER-32.8UM	NA	NA
	HYDROMETER-6.6UM	NA	NA
	HYDROMETER-9.1UM	NA	NA
	PERCENT CLAY	NA	NA
	PERCENT COARSE SAND	NA	NA
	PERCENT FINE SAND	NA	NA
	PERCENT GRAVEL	NA	NA
	PERCENT MEDIUM SAND	NA	NA
	PERCENT SILT	NA	NA
	PH	NA	NA
	SIEVE 1"	NA	NA
	SIEVE 1-1/2"	NA	NA
	SIEVE 2"	NA	NA
	SIEVE 3"	NA	NA
	SIEVE 3/4"	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-1B SUBSURFACE SOIL ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW125B
	TOP DEPTH	6	3
	BOTTOM DEPTH	8	4
	SAMPLE DATE	07/22/08	07/21/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-SO-B126B-0608-072208	DA-SS-B125B-0304-072108
FRACTION (UNITS)	PARAMETER		
	SIEVE 3/8"	NA	NA
	SIEVE NO. 004	NA	NA
	SIEVE NO. 010	NA	NA
	SIEVE NO. 020	NA	NA
	SIEVE NO. 040	NA	NA
	SIEVE NO. 060	NA	NA
	SIEVE NO. 080	NA	NA
	SIEVE NO. 100	NA	NA
	SIEVE NO. 200	NA	NA
	TOTAL SOLIDS	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	2.7 J	210
	GASOLINE RANGE ORGANICS	2.5 U	2.5 U

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APPENDIX F.2

GROUNDWATER SAMPLE ANALYTICAL DATA

APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	2	1 J	0.7 J	0.8 J	0.6 J	1 U	1 U	1 U	1	2	2
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	3	2	1	2	1	0.6 J	0.8 J	1 J	1	3	1
	1,1-DICHLOROETHENE	0.7 J	0.5 J	0.5 J	0.5 J	1 U	1 U	1 U	1 U	0.4 J	0.7 J	0.6 J
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	6	6	7	7	7	5 J	6 J	7 J	5 U	6	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	440	420	500	490	480	440	475	510	5 U	440	5 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.3 J	0.3 J	1.1 U
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	0.8 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 J	1 J	1
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	0.3 J	0.4 J	0.3 J	1 U	0.3 J	1 U	1 U	1 U	0.5 J	0.5 J	1 U
	CHLOROMETHANE	3	4	0.4 J	2 U	2 U	5 J	7 J	9 J	2 U	3	2 U
	CIS-1,2-DICHLOROETHENE	7	37	43	26	27	43 J	68 J	93 J	21	21	2
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	0.4 J	0.45 J	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	0.6 J	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U	0.6 J	1 U
	TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J	0.3 J	1 U
	TOTAL 1,2-DICHLOROETHENE	7	37.4 J	43	26	27	43.4 J	68.6 J	93.8 J	21	21	2
	TOTAL CHLORINATED ETHENES	357.6 J	257.4 J	183	216	167 J	60.4 J	94.6 J	128.8 J	181	357.6 J	222
	TOTAL CHLORINATED VOCS	367.4 J	265.7 J	185.9 J	219.3 J	168.9 J	66 J	102.4 J	138.8 J	184.9 J	367.4 J	226.6 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	0.4 J	1 U	1 U	1 U	0.4 J	0.6 J	0.8 J	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	350	220	140	190	140	17 J	26 J	35 J	160	350	220
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DIPHENYLHYDRAZINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3&4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIMETHYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSOPYRROLIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL AROCLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL DDD/DDE/DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD (UG/L)	FERROUS IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW01	DA-DW02	DA-DW11	DA-DW12	DA-DW13	DA-DW14	DA-DW14	DA-DW14	DA-DW01	DA-DW01	DA-DW02
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	08/01/08	01/31/08	08/01/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW-01-080108	DA-DW-02-080108	DA-DW-11-080108	DA-DW-12-080108	DA-DW-13-080108	DA-DW-14-080108	DA-DW-14-080108-AVG	DA-DW-14-080108-D	DA-DW01-013108	DA-DW01-2008LOCMAX	DA-DW02-013108
FRACTION (UNITS)	PARAMETER											
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	2	1 J	1 J	2	2	2	2	1	1	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	2	0.8 J	0.8 J	1	1	1	1	2	2	1
	1,1-DICHLOROETHENE	0.6 J	1 U	1 U	0.6 J	0.6 J	0.9 J	0.9 J	0.9 J	0.9 J	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	6	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	420	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	1.1 U	0.6 J	0.6 J	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.4 J
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1	0.9 J	0.9 J	1	1	1	1	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	0.4 J	1 U	1 U	0.4 J	0.4 J	0.5 J	0.5 J	1 U	1 U	1 U
	CHLOROMETHANE	4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	37	1	1	4	4	5	5	13	13	2
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	0.5 J	0.5 J	0.9 J	0.9 J	1 U
	TOLUENE	1 U	0.6 J	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J
	TOTAL 1,2-DICHLOROETHENE	37.4 J	1	1	4	4	5	5	13	13	2
	TOTAL CHLORINATED ETHENES	257.4 J	100	100	204	204	305.5 J	305.5 J	173.9 J	173.9 J	15
	TOTAL CHLORINATED VOCS	265.7 J	102.7 J	102.7 J	209 J	209 J	310.9 J	310.9 J	177.8 J	177.8 J	16 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	220	99	99	200	200	300	300	160	160	13
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DIPHENYLHYDRAZINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3&4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIMETHYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSOPYRROLIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL AROCLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL DDD/DDE/DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD (UG/L)	FERROUS IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	LOCATION ID	DA-DW02	DA-DW03	DA-DW03	DA-DW04	DA-DW04	DA-DW05	DA-DW05	DA-DW06	DA-DW06	DA-DW07
	SAMPLE DATE	08/01/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW02-2008LOCMAX	DA-DW03-013108	DA-DW03-2008LOCMAX	DA-DW04-013108	DA-DW04-2008LOCMAX	DA-DW05-013108	DA-DW05-2008LOCMAX	DA-DW06-013108	DA-DW06-2008LOCMAX	DA-DW07-013108
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.7 J
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	1	0.7 J	0.6 J	0.5 J	0.6 J	1 U	1 U	3	3	1
	1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 J
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	7
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	0.4 J	0.4 J	0.45 J	0.5 J	0.45 J	0.7 J	0.7 J	1.1 U	1.1 U	1.1 U
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.4 J
	CIS-1,2-DICHLOROETHENE	2	4	3.5	3	3.5	0.6 J	0.6 J	2	2	43
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	2	1 U
	TOLUENE	0.4 J	0.4 J	0.45 J	0.5 J	0.45 J	0.7 J	0.7 J	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	2	4	3.5	3	3.5	0.6 J	0.6 J	2	2	43
	TOTAL CHLORINATED ETHENES	15	6	5.5 J	5 J	5.5 J	0.6 J	0.6 J	7	7	183
	TOTAL CHLORINATED VOCS	16 J	6.7 J	6.1 J	5.5 J	6.1 J	0.6 J	0.6 J	10 J	10 J	185.9 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	13	1 U	1 U	1 U	1 U	1 U	1 U	3	3	140
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2	2 J	2 J	2 J	2 U	2 U	2 U	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DIPHENYLHYDRAZINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3&4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIMETHYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSOPYRROLIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL AROCLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL DDD/DDE/DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD (UG/L)	FERROUS IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW07	DA-DW08	DA-DW08	DA-DW08	DA-DW08	DA-DW09	DA-DW09	DA-DW10	DA-DW10	DA-DW11
	SAMPLE DATE	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	01/31/08	08/01/08
	SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-DW07-2008LOCMAX	DA-DW08-013108	DA-DW08-013108-AVG	DA-DW08-013108-D	DA-DW08-2008LOCMAX	DA-DW09-013108	DA-DW09-2008LOCMAX	DA-DW10-013108	DA-DW10-2008LOCMAX	DA-DW11-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,1,1-TRICHLOROETHANE	0.8 J	0.6 J	1 U	88	1 U	1 U	1 U	1 U	NA	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,1-DICHLOROETHANE	2	1	0.8 J	740	2	1 U	1 U	1 U	NA	1 U
	1,1-DICHLOROETHENE	0.5 J	1 U	1 U	78	1 U	1 U	1 U	1 U	NA	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	NA	1 U
	2-BUTANONE	7	7	6 J	5 U	5 UJ	5 UJ	5 UJ	5 U	NA	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U
	ACETONE	490	480	475	5 U	7 UJ	5 UJ	5 UJ	5 U	NA	5 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	BROMOMETHANE	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U
	BTEX	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	NA	1.1 U
	CARBON DISULFIDE	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	CHLOROETHANE	2 U	2 U	2 U	240	2 U	2 U	2 U	2 U	NA	2 U
	CHLOROFORM	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	CHLOROMETHANE	2 U	2 U	7 J	4	2 UJ	2 UJ	2 UJ	2 UJ	NA	2 U
	CIS-1,2-DICHLOROETHENE	26	27	68 J	0.4 J	3	1 U	1 U	1 U	NA	0.3 J
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9 U	1 UJ
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	N-PROPYLBENZENE	1 U	1 U	0.45 J	1 U	1 U	1 U	1 U	1 U	NA	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	2
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	TETRACHLOROETHENE	1 U	1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 U
	TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	TOTAL 1,2-DICHLOROETHENE	26	27	68.6 J	0.4 J	3	1 U	1 U	1 U	NA	0.3 J
	TOTAL CHLORINATED ETHENES	216	167 J	94.6 J	11.4 J	14.4 J	1.2 UJ	0.4 J	0.4 J	NA	0.3 J
	TOTAL CHLORINATED VOCS	219.3 J	168.9 J	102.4 J	1161.4 J	16.4 J	1.3 UJ	0.4 J	0.4 J	9 U	0.3 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	NA	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	NA	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
	TRICHLOROETHENE	190	140	26 J	5	11	1 U	0.40 J	0.4 J	NA	1 U
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	6	0.4 J	2 U	2 U	2 U	NA	2 U
VOLATILE GASES (UG/L)	ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U
	ETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	1,2-DIPHENYLHYDRAZINE	NA	NA	NA	20 U	19 U	19 U	19 U	19 U	19 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	25 U	24 U	24 U	24 U	24 U	24 U	25 UR
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	2,4-DICHLOROPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	2,4-DIMETHYLPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	2,4-DINITROPHENOL	NA	NA	NA	25 U	24 U	24 U	24 U	24 U	24 U	25 UR
	2,4-DINITROTOLUENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	2,6-DICHLOROPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	2,6-DINITROTOLUENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	2-CHLORONAPHTHALENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	2-CHLOROPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	2-METHYLNAPHTHALENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	2-METHYLPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	NA	NA	NA	25 U	24 U	24 U	24 U	24 U	24 U	25 U
	2-NITROPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	3&4-METHYLPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 UR
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	10 UJ	9 UJ	9 UJ	9 UJ	9 UJ	9 U	10 UJ
	3-NITROANILINE	NA	NA	NA	25 UJ	24 UJ	24 UJ	24 UJ	24 UJ	24 U	25 UJ
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	25 U	24 U	24 U	24 U	24 U	24 U	25 UR
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	25 UR
	4-CHLOROANILINE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	4-NITROANILINE	NA	NA	NA	25 UJ	24 UJ	24 UJ	24 UJ	24 UJ	24 U	25 UJ
	4-NITROPHENOL	NA	NA	NA	25 U	24 U	24 U	24 U	24 U	24 UJ	25 UR
	ACENAPHTHENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	ACENAPHTHYLENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	ANTHRACENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BENZIDINE	NA	NA	NA	50 UR	47 UJ	47 UJ	47 UJ	47 UJ	47 UR	50 UR
	BENZO(A)ANTHRACENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BENZO(A)PYRENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BENZO(B)FLUORANTHENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BENZO(G,H,I)PERYLENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BENZO(K)FLUORANTHENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BENZOIC ACID	NA	NA	NA	25 UR	24 UR	24 UR	24 UR	24 UR	24 UR	25 UR
	BENZYL ALCOHOL	NA	NA	NA	20 U	19 U	19 U	19 U	19 U	19 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	BUTYL BENZYL PHTHALATE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	CARBAZOLE	NA	NA	NA	10 UJ	9 U	9 U	9 U	9 U	9 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	DIBENZOFURAN	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	DIETHYL PHTHALATE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	DIMETHYL PHTHALATE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	DI-N-BUTYL PHTHALATE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	DI-N-OCTYL PHTHALATE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 UJ	10 U
	FLUORANTHENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	FLUORENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	HEXACHLOROBENZENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	HEXACHLOROETHANE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	ISOPHORONE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	NAPHTHALENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	NITROBENZENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 UJ	10 U
	N-NITROSODIMETHYLAMINE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	N-NITROSODIPHENYLAMINE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	N-NITROSOPYRROLIDINE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	PENTACHLOROPHENOL	NA	NA	NA	25 U	24 U	24 U	24 U	24 U	24 U	25 UR
	PHENANTHRENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	PHENOL	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 UJ	10 UR
	PYRENE	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
	TOTAL PAHS	NA	NA	NA	10 U	9 U	9 U	9 U	9 U	9 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	AROCLOR-1016	NA	NA	NA	0.1 UJ	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1221	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1232	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1242	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1248	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1254	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1260	NA	NA	NA	0.1 UJ	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	AROCLOR-1268	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	NA	0.1 U
	BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U
	METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U
	TOTAL AROCLOR	NA	NA	NA	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
	TOTAL DDD/DDE/DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U
	TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2 U
METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.6 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78 U
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.2
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.9 J
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13 U
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38 UJ
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	12100
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.4 J
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.6 J
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7 UJ
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	26700
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4 J
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	1850
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	8370
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03 U
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.37 UJ
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8 UJ
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	1170
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29 U
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	13100
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.64 U
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38 U
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.3 UJ
DISSOLVED METALS (UG/L)	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.6 U
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78 U
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.4
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.6
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13 U
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.37 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
	SAMPLE DATE	08/01/08	08/01/08	08/01/08	07/31/08	08/01/08	08/04/08	08/04/08	08/04/08	09/18/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	12200
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 UJ
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.6 J
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8 UJ
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	26600
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8 J
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	1870
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	8220
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03 U
	MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43 UJ
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1 UJ
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	1110
	SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.61 J
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	13100
	THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.64 U
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38 U
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.3 J
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	3
	NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U
	NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U
	ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.055
	SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5
	SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U
	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	5
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	260
FIELD (UG/L)	FERROUS IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	22000

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SITE 08, NUSC DISPOSAL AREA
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	LOCATION ID	DA-DW12	DA-DW13	DA-DW14	DA-MW101B	DA-MW102B	DA-MW13A	DA-MW13A	DA-MW13A	DA-MW100B	DA-MW02B
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	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-DW12-2008LOCMAX	DA-DW13-2008LOCMAX	DA-DW14-2008LOCMAX	DA-GW-MW101B-073108	DA-GW-MW102B-080408	DA-GW-MW13A-080408	DA-GW-MW13A-080408-AVG	DA-GW-MW13A-080408-D	DA-MW-100B-091908	DA-MW02B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	NA	NA	75 U	75 U	75 U	58 J	58 J	NA	190
	GASOLINE RANGE ORGANICS	NA	NA	NA	83	22	10 U	10 U	10 U	NA	74

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SITE 08, NUSC DISPOSAL AREA
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	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	2	2	0.4 J	0.4 J	260	260	1600	1600	76
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J	0.3 J	1 U
	1,1-DICHLOROETHANE	1 U	2	2	23	23	380	380	1000	1000	47
	1,1-DICHLOROETHENE	1 U	0.5 J	0.5 J	1	1	4	4	58 J	58 J	14
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 J	5 J	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 J	1 J	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 U	5 UJ	5 UJ	5 U	5 U	9	9	3 J	3 J	14

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.3 J	0.3 J	5 J	5 J	1.1 U
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	2	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	85	85	22 J	22 J	0.4 J
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	0.3 J	1 J	1 J	0.6 J	0.6 J	1	1	1 U	1 U	1 U
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 J	1 J	1 U
	HEXACHLOROBUTADIENE	1 UJ	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 J	0.5 J	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 J	1 J	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 J	2 J	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 J	1 J	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	0.3 J	0.3 J	1 J	1 J	1 U
	SEC-BUTYLBENZENE	2	1 U	1 U	1 U	1 U	1 U	1 U	0.5 J	0.5 J	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	2	2	2 J	2 J	1 U
	TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 J	2 J	1 U
	TOTAL 1,2-DICHLOROETHENE	0.3 J	1 J	1 J	0.6 J	0.6 J	1	1	1 U	1 U	1 U
	TOTAL CHLORINATED ETHENES	0.3 J	191 J	191 J	0.6 J	0.6 J	3.9 J	3.9 J	6.8 J	6.8 J	0.5 J
	TOTAL CHLORINATED VOCS	0.3 J	197.5 J	197.5 J	25 J	25 J	732.9 J	732.9 J	2687.1 J	2687.1 J	137.9 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.3 J	0.3 J	2 J	2 J	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	1 U	190	190	1 U	1 U	0.9 J	0.9 J	4 J	4 J	0.5 J
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.8 J	0.8 J	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	1,2-DIPHENYLHYDRAZINE	20 U	20 U	20 U	20 U	20 U	20 U	20 U	22 U	22 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	2,4,5-TRICHLOROPHENOL	25 UR	25 U	25 U	25 UR	25 UR	25 UR	25 UR	27 UJ	27 UJ	25 UJ
	2,4,6-TRICHLOROPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	2,4-DICHLOROPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	2,4-DIMETHYLPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	2,4-DINITROPHENOL	25 UR	25 U	25 U	25 UR	25 UR	25 UR	25 UR	27 UJ	27 UJ	25 UJ
	2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	2,6-DICHLOROPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	2-CHLOROPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	2-METHYLPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	27 U	27 U	25 U
	2-NITROPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	3&4-METHYLPHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	3,3'-DICHLOROBENZIDINE	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 UJ	11 UJ	10 UJ
	3-NITROANILINE	25 UJ	25 U	25 U	25 U	25 U	25 UJ	25 UJ	27 UJ	27 UJ	25 UJ
	4,6-DINITRO-2-METHYLPHENOL	25 UR	25 UJ	25 UJ	25 UR	25 UR	25 UR	25 UR	27 UJ	27 UJ	25 UJ
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	4-CHLORO-3-METHYLPHENOL	25 UR	25 U	25 U	25 UR	25 UR	25 UR	25 UR	27 UJ	27 UJ	25 UJ
	4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	4-NITROANILINE	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	27 UJ	27 UJ	25 UJ
	4-NITROPHENOL	25 UR	25 UJ	25 UJ	25 UR	25 UR	25 UR	25 UR	27 UJ	27 UJ	25 UJ
	ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BENZIDINE	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	54 UR	54 UR	50 UR
	BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BENZOIC ACID	25 UR	25 UR	25 UR	25 UR	25 UR	25 UR	25 UR	27 UR	27 UR	25 UR
	BENZYL ALCOHOL	20 U	20 U	20 U	20 U	20 U	20 U	20 U	22 U	22 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	DIETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	DIMETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	DI-N-BUTYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	11 U	11 U	10 U
	FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	N-NITROSODIMETHYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	N-NITROSOPYRROLIDINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	PENTACHLOROPHENOL	25 UR	25 U	25 U	25 UR	25 UR	25 UR	25 UR	27 UJ	27 UJ	25 UJ
	PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	PHENOL	10 UR	10 U	10 U	10 UR	10 UR	10 UR	10 UR	11 UJ	11 UJ	10 UJ
	PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
	TOTAL PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

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R - REJECTED; NA - NOT ANALYZED

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ALDRIN	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	AROCLOR-1016	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1221	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1232	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1242	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1248	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1254	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1260	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	AROCLOR-1268	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	BETA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	DELTA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 U
	DIELDRIN	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN I	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDOSULFAN II	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN SULFATE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN ALDEHYDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN KETONE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	GAMMA-BHC (LINDANE)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	GAMMA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	METHOXYCHLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL AROCLOR	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
	TOTAL DDD/DDE/DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	TOXAPHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METALS (UG/L)	ALUMINUM	14.6 U	18.4 UJ	18.4 UJ	140 J	140 J	35.4 UJ	35.4 UJ	1320	1320	38 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	0.78 U	0.98 UJ	0.98 UJ	0.78 U	0.78 U	1.4 UJ	1.4 UJ	2.8 UJ	2.8 UJ	1.7 UJ
	ARSENIC	17.2	1.69 U	1.69 U	2.5 J	2.5 J	5.8 J	5.8 J	34.4	34.4	1.69 U
	BARIUM	25.9 J	6.2	6.2	1.5 UJ	1.5 UJ	80.8 J	80.8 J	72.8 J	72.8 J	19.1 J
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.38 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.1 UJ	0.1 UJ	0.19 UJ	0.19 UJ	0.09 UJ
	CALCIUM	12100	26600	26600	42700	42700	53900	53900	56000	56000	50100
	CHROMIUM	2.4 J	0.41 U	0.41 U	0.78 UJ	0.78 UJ	1.2 UJ	1.2 UJ	2.2 UJ	2.2 UJ	0.66 UJ
	COBALT	15.6 J	0.31 UJ	0.31 UJ	1.1 UJ	1.1 UJ	14.5 J	14.5 J	1.7 UJ	1.7 UJ	0.24 U
	COPPER	1.7 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 U	0.75 U	2.3 UJ	2.3 UJ	6.7 UJ
	IRON	26700	9.2 UJ	9.2 UJ	1330	1330	12200	12200	44800	44800	28300
	LEAD	1.4 J	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	1.7 J	1.7 J	1.8 J	1.8 J	1.8 J
	MAGNESIUM	1850	7820	7820	11500	11500	6090	6090	8900	8900	7790
	MANGANESE	8370	56	56	1210	1210	5280	5280	1200	1200	547
	MERCURY	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.37 UJ	0.3 U	0.3 U	0.84 UJ	0.84 UJ	0.3 U	0.3 U	2 J	2 J	0.48 UJ
	NICKEL	1.8 UJ	0.42 U	0.42 U	0.42 U	0.42 U	2.1 UJ	2.1 UJ	7.7 J	7.7 J	1.2 UJ
	POTASSIUM	1170	2370	2370	637 UJ	637 UJ	14500	14500	1110	1110	1850
	SELENIUM	0.96 U	0.96 U	0.96 U	1.7 J	1.7 J	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.29 U	0.29 U	0.29 U	0.48 UJ	0.48 UJ	0.55 J	0.55 J	0.62 J	0.62 J	0.69 J
	SODIUM	13100	16100	16100	11500	11500	64600	64600	37200	37200	47100
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.38 U	0.49 UJ	0.49 UJ	0.61 UJ	0.61 UJ	0.38 U	0.38 U	2 UJ	2 UJ	0.38 U
	ZINC	9.3 UJ	4.7 UJ	4.7 UJ	5.9 UJ	5.9 UJ	8.5 UJ	8.5 UJ	17.2 J	17.2 J	42
DISSOLVED METALS (UG/L)	ALUMINUM	14.6 U	15.8 UJ	15.8 UJ	19.4 UJ	19.4 UJ	19.4 UJ	19.4 UJ	14.6 U	14.6 U	14.6 U
	ANTIMONY	0.78 U	0.78 U	0.78 U	1.4 UJ	1.4 UJ	0.78 U	0.78 U	1.3 UJ	1.3 UJ	0.78 U
	ARSENIC	16.4	1.69 U	1.69 U	1.69 U	1.69 U	4.3 J	4.3 J	24.7	24.7	1.69 U
	BARIUM	25.6	6.7	6.7	0.59 U	0.59 U	76	76	45.2	45.2	17.9
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.37 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.05 UJ	0.05 UJ	0.04 U	0.04 U	0.04 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CALCIUM	12200	27400	27400	42600	42600	52100	52100	54500	54500	49600
	CHROMIUM	2.3 UJ	0.41 U	0.41 U	0.8 UJ	0.8 UJ	1.1 UJ	1.1 UJ	0.46 UJ	0.46 UJ	0.74 UJ
	COBALT	15.6 J	0.28 UJ	0.28 UJ	0.48 UJ	0.48 UJ	12.3 J	12.3 J	0.51 UJ	0.51 UJ	0.25 UJ
	COPPER	1.8 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
	IRON	26600	9 U	9 U	23 UJ	23 UJ	10600	10600	748	748	556
	LEAD	1.8 J	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	2.2 J	2.2 J	0.97 U	0.97 U	0.97 U
	MAGNESIUM	1870	8020	8020	11500	11500	6120	6120	8500	8500	7740
	MANGANESE	8220	56.2	56.2	1090	1090	5400	5400	957	957	385
	MERCURY	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.43 UJ	0.3 U	0.3 U	0.83 UJ	0.83 UJ	0.3 U	0.3 U	1.1 UJ	1.1 UJ	0.36 UJ
	NICKEL	2.1 UJ	0.42 U	0.42 U	0.42 U	0.42 U	1.8 UJ	1.8 UJ	0.45 UJ	0.45 UJ	0.42 U
	POTASSIUM	1110	2460	2460	618 UJ	618 UJ	13400	13400	1020	1020	1780
	SELENIUM	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.61 J	0.29 U	0.29 U	0.54 UJ	0.54 UJ	0.42 J	0.42 J	0.29 U	0.29 U	0.29 U
	SODIUM	13100	16700	16700	11500	11500	60400	60400	38000	38000	47300
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.38 U	0.66 UJ	0.66 UJ	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.43 UJ
	ZINC	12.3 J	5.9 UJ	5.9 UJ	5 UJ	5 UJ	8.1 UJ	8.1 UJ	5.3 UJ	5.3 UJ	5.2 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	3	0.1 U	0.1 U	0.1 U	0.1 U	2.1	2.1	0.1 U	0.1 U	0.1 U
	NITRATE-N	0.05 U	1.1	1.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	NITRITE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	ORTHOPHOSPHATE-P	0.055	0.07	0.07	0.016 J	0.016 J	0.019 J	0.019 J	0.079	0.079	0.018 J
	SULFATE	6.5	25	25	30	30	9.5	9.5	11	11	2
	SULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL ORGANIC CARBON	5	1.3	1.3	0.41 J	0.41 J	5.8	5.8	1.3	1.3	0.92 J
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	260	10 U	10 U	8.8 J	8.8 J	3.2 J	3.2 J	22	22	500
FIELD (UG/L)	FERROUS IRON	22000	0 U	0 U	0 U	0 U	6800	6800	1060	1060	1000

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW09B
	SAMPLE DATE	05/27/08	05/22/08	05/22/08	05/23/08	05/23/08	05/28/08	05/28/08	05/29/08	05/29/08	05/28/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW02B-52708	DA-MW03B-2008LOCMAX	DA-MW03B-52208	DA-MW04B-2008LOCMAX	DA-MW04B-52308	DA-MW07A-2008LOCMAX	DA-MW07A-52808	DA-MW07B-2008LOCMAX	DA-MW07B-52908	DA-MW09B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	190	79 U	79 U	85 U	85 U	570	570	200	200	82 U
	GASOLINE RANGE ORGANICS	74	47 U	47 U	10 U	10 U	140	140	510	510	19 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	76	50 U	50 U	110	110	110	110	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	47	310	310	805	800	805	810	2	1
	1,1-DICHLOROETHENE	14	50 U	50 U	79	78	79	80	1 U	1 U
	1,1-DICHLOROPROPENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	9 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	810	810	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 UJ	1 U
	1,2-DIBROMOETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	9 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	290	290	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	9 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	9 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 UJ	1 U
	2-BUTANONE	5 U	250 U	250 U	5 U	5 U	5 U	5 U	5 UJ	5 U
	2-CHLOROTOLUENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	250 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	110	110	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	250 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	14	250 U	250 U	5 U	5 U	5 U	5 U	3 J	3 J

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	BENZENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	100 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	1.1 U	155 J	155 J	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CARBON DISULFIDE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	0.4 J	130	130	270	270	270	270	2 U	2 U
	CHLOROFORM	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	2 U	100 U	100 U	4	2 U	2 U	2 U	2 UJ	2 U
	CIS-1,2-DICHLOROETHENE	1 U	50 U	50 U	0.4 J	0.4 J	0.4 J	0.4 J	3	2
	CIS-1,3-DICHLOROPROPENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	100 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	58	58	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 UJ	9 U	50 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 UJ
	ISOPROPYLBENZENE	1 U	94	94	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	60 J	60 J	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	250 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	98	98	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	140	140	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	37 J	37 J	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	84	84	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	TERT-BUTYLBENZENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 UJ	1 U
	TOLUENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	1 U	50 U	50 U	0.4 J	0.4 J	0.4 J	0.4 J	3	2
	TOTAL CHLORINATED ETHENES	0.5 J	62 U	62 U	11.4 J	4.4 J	4.4 J	4.4 J	14.4 J	7
	TOTAL CHLORINATED VOCS	137.9 J	440	440	1268.4 J	1262.4 J	1268.4 J	1274.4 J	16.4 J	8 J
	TOTAL XYLENES	1.5 U	97 J	97 J	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	50 U	50 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	0.5 J	50 U	50 U	5	4	4	4	11	5
	TRICHLOROFLUOROMETHANE	2 U	100 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	100 U	100 U	6	2 U	2 U	2 U	0.4 J	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U
	ETHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	9 U	NA	10 U	10 UJ	10 UJ	10 UJ	9 U	10 U
	1,2-DIPHENYLHYDRAZINE	20 U	19 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	2,4,5-TRICHLOROPHENOL	25 UJ	24 U	NA	25 U	25 U	25.5 U	26 U	24 U	26 UJ
	2,4,6-TRICHLOROPHENOL	10 UJ	9 U	NA	10 U	10 UJ	10 UJ	10 UJ	9 U	10 UJ
	2,4-DICHLOROPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	2,4-DIMETHYLPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	2,4-DINITROPHENOL	25 UJ	24 U	NA	25 U	25 UJ	25.5 UJ	26 UJ	24 U	26 UJ
	2,4-DINITROTOLUENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	2,6-DICHLOROPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	2,6-DINITROTOLUENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	2-CHLORONAPHTHALENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	2-CHLOROPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	2-METHYLNAPHTHALENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	2-METHYLPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	2-NITROANILINE	25 U	24 U	NA	25 U	25 U	25.5 U	26 U	24 U	26 U
	2-NITROPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	3&4-METHYLPHENOL	10 UJ	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	3,3'-DICHLOROBENZIDINE	10 UJ	9 U	NA	10 UJ	10 UJ	10 UJ	10 UJ	9 UJ	10 UJ
	3-NITROANILINE	25 UJ	24 U	NA	25 UJ	25 UJ	25.5 UJ	26 UJ	24 UJ	26 UJ
	4,6-DINITRO-2-METHYLPHENOL	25 UJ	24 U	NA	25 U	25 U	25.5 U	26 U	24 U	26 UJ
	4-BROMOPHENYL PHENYL ETHER	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	4-CHLORO-3-METHYLPHENOL	25 UJ	9 U	NA	10 U	25 U	25.5 U	26 U	9 U	26 UJ
	4-CHLOROANILINE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	4-NITROANILINE	25 UJ	24 U	NA	25 UJ	25 UJ	25.5 UJ	26 UJ	24 UJ	26 UJ
	4-NITROPHENOL	25 UJ	24 UJ	NA	25 U	25 UJ	25.5 UJ	26 UJ	24 U	26 UJ
	ACENAPHTHENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	ACENAPHTHYLENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	ANTHRACENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BENZIDINE	50 UR	47 UR	NA	50 UR	50 UR	50.5 UR	51 UR	47 UJ	53 UR
	BENZO(A)ANTHRACENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BENZO(A)PYRENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BENZO(B)FLUORANTHENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BENZO(G,H,I)PERYLENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BENZO(K)FLUORANTHENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BENZOIC ACID	25 UR	24 UR	NA	25 UR	25 UR	25.5 UR	26 UR	24 UR	26 UR
	BENZYL ALCOHOL	20 U	19 U	NA	20 U	20 U	20 U	20 U	19 U	21 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	BUTYL BENZYL PHTHALATE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	CARBAZOLE	10 U	9 U	NA	10 UJ	10 U	10 U	10 U	9 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	CHRYSENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	DIBENZO(A,H)ANTHRACENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	DIBENZOFURAN	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	DIETHYL PHTHALATE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	DIMETHYL PHTHALATE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	DI-N-BUTYL PHTHALATE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	DI-N-OCTYL PHTHALATE	10 U	9 UJ	NA	10 U	10 U	10 U	10 U	9 U	10 U
	FLUORANTHENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	FLUORENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	HEXACHLOROBENZENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	HEXACHLOROETHANE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	ISOPHORONE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	NAPHTHALENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	NITROBENZENE	10 U	9 UJ	NA	10 U	10 U	10 U	10 U	9 U	10 U
	N-NITROSODIMETHYLAMINE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	N-NITROSODIPHENYLAMINE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	N-NITROSOPYRROLIDINE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	PENTACHLOROPHENOL	25 UJ	24 U	NA	25 U	25 U	25.5 U	26 U	24 U	26 UJ
	PHENANTHRENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	PHENOL	10 UJ	9 UJ	NA	10 U	10 U	10 U	10 U	9 U	10 UJ
	PYRENE	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
	TOTAL PAHS	10 U	9 U	NA	10 U	10 U	10 U	10 U	9 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	4,4'-DDE	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	4,4'-DDT	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	ALDRIN	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	ALPHA-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	ALPHA-CHLORDANE	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	AROCLOR-1016	0.11 U	NA	NA	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1221	0.11 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1232	0.11 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1242	0.11 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1248	0.11 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1254	0.11 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1260	0.11 U	NA	NA	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1268	0.11 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	BETA-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	DELTA-BHC	0.01 U	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ
	DIELDRIN	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	ENDOSULFAN I	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	ENDOSULFAN II	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	ENDOSULFAN SULFATE	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	ENDRIN	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	ENDRIN ALDEHYDE	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	ENDRIN KETONE	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	GAMMA-BHC (LINDANE)	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	GAMMA-CHLORDANE	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	HEPTACHLOR	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	HEPTACHLOR EPOXIDE	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.011 UJ	0.011 UJ
	METHOXYCHLOR	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.11 UJ	0.11 UJ
	TOTAL AROCLOR	0.11 U	NA	NA	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL DDD/DDE/DDT	0.02 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.022 UJ	0.022 UJ
	TOXAPHENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.22 UJ	0.22 UJ
METALS (UG/L)	ALUMINUM	38 UJ	NA	NA	4920	4900	4920	4940	1950	1950

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	ANTIMONY	1.7 UJ	NA	NA	1.09 UJ	1.4 UJ	1.09 UJ	0.78 U	0.78 U	0.78 U
	ARSENIC	1.69 U	NA	NA	2.45 J	2 J	2.45 J	2.9 J	1.69 U	1.69 U
	BARIUM	19.1 J	NA	NA	14 J	13.4 J	14 J	14.7 J	6.5 UJ	6.5 UJ
	BERYLLIUM	0.13 U	NA	NA	0.14 UJ	0.15 UJ	0.14 UJ	0.13 U	0.13 U	0.13 U
	CADMIUM	0.09 UJ	NA	NA	0.05 UJ	0.06 UJ	0.05 UJ	0.04 U	0.42 UJ	0.42 UJ
	CALCIUM	50100	NA	NA	77600	76500	77600	78800	57000	57000
	CHROMIUM	0.66 UJ	NA	NA	7.4 J	7.6 J	7.4 J	7.2 J	5.6 J	5.6 J
	COBALT	0.24 U	NA	NA	4.05 J	4.2 J	4.05 J	3.9 J	4.1 J	4.1 J
	COPPER	6.7 UJ	NA	NA	9.3 UJ	8.8 UJ	9.3 UJ	9.8 UJ	17.3 J	17.3 J
	IRON	28300	NA	NA	10200	10200	10200	10100	23200	23200
	LEAD	1.8 J	NA	NA	3.7 J	3.8 J	3.7 J	3.6 J	3.5 J	3.5 J
	MAGNESIUM	7790	NA	NA	14000	13700	14000	14200	9950	9950
	MANGANESE	547	NA	NA	248	246	248	249	3050	3050
	MERCURY	0.03 U	NA	NA	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.48 UJ	NA	NA	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	0.86 UJ	0.86 UJ
	NICKEL	1.2 UJ	NA	NA	7.4 J	7.4 J	7.4 J	7.4 J	6 J	6 J
	POTASSIUM	1850	NA	NA	1520	1470	1520	1560	1330	1330
	SELENIUM	0.96 U	NA	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.69 J	NA	NA	0.268 J	0.29 U	0.268 J	0.39 J	0.29 U	0.29 U
	SODIUM	47100	NA	NA	33100	32500	33100	33700	21200	21200
	THALLIUM	1.64 U	NA	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.38 U	NA	NA	7.65 J	7.7 J	7.65 J	7.6 J	2 UJ	2 UJ
	ZINC	42	NA	NA	34.2 J	23 J	34.2 J	45.3	21.5 J	21.5 J
DISSOLVED METALS (UG/L)	ALUMINUM	14.6 U	NA	NA	27.2 UJ	37.9 UJ	27.2 UJ	16.6 UJ	186 J	186 J
	ANTIMONY	0.78 U	NA	NA	2.1 UJ	2.4 UJ	2.1 UJ	1.8 UJ	0.78 U	0.78 U
	ARSENIC	1.69 U	NA	NA	1.69 U	1.69 U	1.69 U	1.69 U	1.69 U	1.69 U
	BARIUM	17.9	NA	NA	4.85 UJ	4.9 UJ	4.85 UJ	4.8 UJ	2.4 UJ	2.4 UJ
	BERYLLIUM	0.13 U	NA	NA	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.04 UJ	NA	NA	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
	CALCIUM	49600	NA	NA	77400	78400	77400	76300	55100	55100
	CHROMIUM	0.74 UJ	NA	NA	0.54 UJ	0.6 UJ	0.54 UJ	0.48 UJ	1 UJ	1 UJ
	COBALT	0.25 UJ	NA	NA	0.475 UJ	0.52 UJ	0.475 UJ	0.43 UJ	2.6 UJ	2.6 UJ
	COPPER	0.75 U	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	3.9 UJ	3.9 UJ
	IRON	556	NA	NA	9 UJ	9 UJ	9 UJ	9 UJ	5320	5320
	LEAD	0.97 U	NA	NA	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U
	MAGNESIUM	7740	NA	NA	12600	12800	12600	12500	9130	9130
	MANGANESE	385	NA	NA	81.5	82.6	81.5	80.4	2860	2860
	MERCURY	0.03 U	NA	NA	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.36 UJ	NA	NA	1.35 UJ	1.4 UJ	1.35 UJ	1.3 UJ	0.3 U	0.3 U
	NICKEL	0.42 U	NA	NA	0.42 U	0.42 U	0.42 U	0.42 U	2 UJ	2 UJ
	POTASSIUM	1780	NA	NA	1240	1270	1240	1200	1260	1260
	SELENIUM	0.96 U	NA	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.29 U	NA	NA	0.418 J	0.29 U	0.418 J	0.69 J	0.29 U	0.29 U
	SODIUM	47300	NA	NA	33800	34300	33800	33400	20400	20400
	THALLIUM	1.64 U	NA	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.43 UJ	NA	NA	0.615 UJ	0.72 UJ	0.615 UJ	0.51 UJ	0.38 U	0.38 U
	ZINC	5.2 UJ	NA	NA	4.8 UJ	4.6 UJ	4.8 UJ	5 UJ	8.1 UJ	8.1 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	NITRATE-N	0.05 U	NA	NA	0.0315 J	0.031 J	0.0315 J	0.032 J	0.05 U	0.05 U
	NITRITE-N	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	ORTHOPHOSPHATE-P	0.018 J	NA	NA	0.0795 J	0.11	0.0795 J	0.049 J	0.024 J	0.024 J
	SULFATE	2	NA	NA	14	14	14	14	5.1	5.1
	SULFIDE	1 U	NA	NA	1.05	1 U	1.05	1.6	0.8 J	0.8 J
	TOTAL ORGANIC CARBON	0.92 J	NA	NA	0.615 J	0.63 J	0.615 J	0.6 J	1.3	1.3
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	500	NA	NA	810	770	810	850	2.8 J	2.8 J
FIELD (UG/L)	FERROUS IRON	1000	NA	NA	70	70	70	70	3010	3010

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW09B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B
	SAMPLE DATE	05/28/08	09/18/08	05/13/08	07/31/08	05/30/08	05/30/08	05/30/08	08/01/08	05/27/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-MW09B-52808	DA-MW100B-2008LOCMAX	DA-MW100B-51308	DA-MW101B-2008LOCMAX	DA-MW101B-53008	DA-MW101B-53008-AVG	DA-MW101B-53008-D	DA-MW102B-2008LOCMAX	DA-MW102B-52708
FRACTION (UNITS)	PARAMETER									
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	82 U	NA	NA	70 J	99 J	70 J	82 U	81	81
	GASOLINE RANGE ORGANICS	19 U	NA	NA	105	110	105	100	22	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1	1	1 U	1 U	4	4	3	3	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	19	19	1 U	1 U	130	130	100	100	1 U
	1,1-DICHLOROETHENE	1	1	1 U	1 U	7	7	5	5	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 U	5 U	8	8	5 U	5 U	5 U	5 U	5 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U
	CIS-1,2-DICHLOROETHENE	4	4	1 U	1 U	8	8	3	3	1 U
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	1 U	1 U	0.5 J	0.5 J	3	3	1 U
	TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	4	4	1 U	1 U	8	8	3	3	1 U
	TOTAL CHLORINATED ETHENES	10	10	1.2 U	1.2 U	16.5 J	16.5 J	8.6 J	8.6 J	1.2 U
	TOTAL CHLORINATED VOCS	31	31	1.3 U	1.3 U	157.5 J	157.5 J	116.6 J	116.6 J	1.3 U
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	6	6	1 U	1 U	7	7	2	2	1 U
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	2 U	1 J	1 J	0.6 J	0.6 J	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	1,2-DIPHENYLHYDRAZINE	22 U	22 U	24 U	24 U	22 U	22 U	21 U	21 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	2,4,5-TRICHLOROPHENOL	27 UR	27 UR	29 U	29 U	28 UJ	28 UJ	26 UR	26 UR	25 U
	2,4,6-TRICHLOROPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	2,4-DICHLOROPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	2,4-DIMETHYLPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	2,4-DINITROPHENOL	27 UR	27 UR	29 U	29 U	28 UJ	28 UJ	26 UR	26 UR	25 U
	2,4-DINITROTOLUENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	2,6-DICHLOROPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	2,6-DINITROTOLUENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	2-CHLORONAPHTHALENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	2-CHLOROPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	2-METHYLNAPHTHALENE	11 U	11 U	12 U	12 U	11 UJ	11 UJ	10 UJ	10 UJ	10 U
	2-METHYLPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	2-NITROANILINE	27 U	27 U	29 U	29 U	28 U	28 U	26 U	26 U	25 U
	2-NITROPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	3&4-METHYLPHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	3,3'-DICHLOROBENZIDINE	11 UJ	11 UJ	12 UJ	12 UJ	11 UJ	11 UJ	10 UJ	10 UJ	10 UJ
	3-NITROANILINE	27 U	27 U	29 U	29 U	28 U	28 U	26 U	26 U	25 U
	4,6-DINITRO-2-METHYLPHENOL	27 UR	27 UR	29 U	29 U	28 UJ	28 UJ	26 UR	26 UR	25 U
	4-BROMOPHENYL PHENYL ETHER	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	4-CHLORO-3-METHYLPHENOL	27 UR	27 UR	29 U	29 U	28 UJ	28 UJ	26 UR	26 UR	25 U
	4-CHLOROANILINE	11 UJ	11 UJ	12 UJ	12 UJ	11 U	11 U	10 U	10 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	4-NITROANILINE	27 U	27 U	29 U	29 U	28 U	28 U	26 U	26 U	25 U
	4-NITROPHENOL	27 UR	27 UR	29 U	29 U	28 UJ	28 UJ	26 UR	26 UR	25 U
	ACENAPHTHENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	ACENAPHTHYLENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	ANTHRACENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BENZIDINE	54 UR	54 UR	59 UR	59 UR	56 UR	56 UR	52 UR	52 UR	50 UR
	BENZO(A)ANTHRACENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BENZO(A)PYRENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BENZO(B)FLUORANTHENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BENZO(G,H,I)PERYLENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BENZO(K)FLUORANTHENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BENZOIC ACID	27 UR	27 UR	29 UR	29 UR	28 UR	28 UR	26 UR	26 UR	25 UR
	BENZYL ALCOHOL	22 U	22 U	24 U	24 U	22 U	22 U	21 U	21 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BIS(2-CHLOROETHYL)ETHER	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	11 U	11 U	3 J	3 J	11 U	11 U	10 U	10 U	10 U
	BUTYL BENZYL PHTHALATE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	CARBAZOLE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	CHRYSENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	DIBENZO(A,H)ANTHRACENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	DIBENZOFURAN	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	DIETHYL PHTHALATE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	DIMETHYL PHTHALATE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	DI-N-BUTYL PHTHALATE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	3 J
	DI-N-OCTYL PHTHALATE	11 UJ	11 UJ	12 UJ	12 UJ	11 UJ	11 UJ	10 UJ	10 UJ	10 UJ
	FLUORANTHENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	FLUORENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	HEXACHLOROBENZENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	HEXACHLOROETHANE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	INDENO(1,2,3-CD)PYRENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	ISOPHORONE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	LOW MOLECULAR WEIGHT PAHS	11 U	11 U	3 J	3 J	11 UJ	11 UJ	10 UJ	10 UJ	10 U
	NAPHTHALENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	NITROBENZENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	N-NITROSODIMETHYLAMINE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	N-NITROSODIPHENYLAMINE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	N-NITROSOPYRROLIDINE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	PENTACHLOROPHENOL	27 UR	27 UR	29 U	29 U	28 UJ	28 UJ	26 UR	26 UR	25 U
	PHENANTHRENE	11 U	11 U	3 J	3 J	11 U	11 U	10 U	10 U	10 U
	PHENOL	11 UR	11 UR	12 U	12 U	11 UJ	11 UJ	10 UR	10 UR	10 U
	PYRENE	11 U	11 U	12 U	12 U	11 U	11 U	10 U	10 U	10 U
	TOTAL PAHS	11 U	11 U	3 J	3 J	11 UJ	11 UJ	10 UJ	10 UJ	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	4,4'-DDE	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	4,4'-DDT	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	ALDRIN	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-BHC	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-CHLORDANE	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	AROCLOR-1016	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1221	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1232	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1242	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1248	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1254	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1260	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1268	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	BETA-BHC	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	DELTA-BHC	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	DIELDRIN	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN I	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDOSULFAN II	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN SULFATE	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	ENDRIN	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	ENDRIN ALDEHYDE	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	ENDRIN KETONE	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	GAMMA-BHC (LINDANE)	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	GAMMA-CHLORDANE	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR EPOXIDE	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	METHOXYCHLOR	0.11 U	0.11 U	0.12 U	0.12 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL AROCLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL DDD/DDE/DDT	0.022 U	0.022 U	0.024 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
	TOXAPHENE	0.22 U	0.22 U	0.24 U	0.24 U	0.21 U	0.21 U	0.2 U	0.2 U	0.2 U
METALS (UG/L)	ALUMINUM	102 J	102 J	564000	564000	784	784	193 J	193 J	1210

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	ANTIMONY	1.3 UJ	1.3 UJ	49.4 UJ	49.4 UJ	0.89 UJ	0.89 UJ	0.78 U	0.78 U	0.78 U
	ARSENIC	1.69 U	1.69 U	503 J	503 J	1.69 U	1.69 U	3.9 J	3.9 J	8 J
	BARIUM	3.4 J	3.4 J	1390	1390	5.3	5.3	5 J	5 J	51.2
	BERYLLIUM	0.13 U	0.13 U	17.8 J	17.8 J	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.04 U	0.04 U	0.4 U	0.4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.15 UJ
	CALCIUM	52700	52700	226000	226000	48100	48100	46000	46000	46800
	CHROMIUM	1.1 UJ	1.1 UJ	868	868	3.1 UJ	3.1 UJ	1.2 UJ	1.2 UJ	9.9 J
	COBALT	2.4 UJ	2.4 UJ	637	637	1.7 UJ	1.7 UJ	1.9 UJ	1.9 UJ	3.6 J
	COPPER	0.75 UJ	0.75 UJ	1440	1440	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	10.4 J
	IRON	5650	5650	1210000	1210000	6740	6740	937	937	9420
	LEAD	0.97 UJ	0.97 UJ	1890	1890	0.97 UJ	0.97 UJ	1.3 J	1.3 J	1.4 J
	MAGNESIUM	7010	7010	195000	195000	10300	10300	11700	11700	14400
	MANGANESE	2010	2010	13800	13800	1750	1750	2550	2550	448
	MERCURY	0.03 U	0.03 U	1.9	1.9	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.65 UJ	0.65 UJ	20.3 J	20.3 J	0.82 UJ	0.82 UJ	0.74 UJ	0.74 UJ	2.6 J
	NICKEL	0.7 J	0.7 J	1160	1160	3 J	3 J	0.84 J	0.84 J	5.9 J
	POTASSIUM	3600	3600	41800	41800	1250	1250	654 UJ	654 UJ	1280
	SELENIUM	0.96 U	0.96 U	13.8 J	13.8 J	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.85 UJ	0.85 UJ	2.9 UJ	2.9 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.54 UJ
	SODIUM	15400	15400	16800	16800	12900	12900	13300	13300	8940
	THALLIUM	1.64 U	1.64 U	16.4 U	16.4 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.43 UJ	0.43 UJ	832	832	1.2 UJ	1.2 UJ	0.38 U	0.38 U	2.1 J
	ZINC	16.9 J	16.9 J	3990	3990	23.8 J	23.8 J	9.5 UJ	9.5 UJ	28.5
DISSOLVED METALS (UG/L)	ALUMINUM	19.7 UJ	19.7 UJ	5900	5900	33.8 UJ	33.8 UJ	24.5 UJ	24.5 UJ	28.2 UJ
	ANTIMONY	1.2 UJ	1.2 UJ	1.8 UJ	1.8 UJ	1.4 UJ	1.4 UJ	0.78 UJ	0.78 UJ	0.78 U
	ARSENIC	1.69 U	1.69 U	20.2	20.2	2 J	2 J	3.3 J	3.3 J	4.5 J
	BARIUM	3.1 J	3.1 J	90.7	90.7	2.3 UJ	2.3 UJ	0.83 UJ	0.83 UJ	47.4
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.11 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
	CALCIUM	53400	53400	143000	143000	48400	48400	45100	45100	45400
	CHROMIUM	1 UJ	1 UJ	8.6 UJ	8.6 UJ	0.95 UJ	0.95 UJ	0.98 UJ	0.98 UJ	0.72 UJ
	COBALT	2.3 UJ	2.3 UJ	6.8 J	6.8 J	1.1 UJ	1.1 UJ	0.58 UJ	0.58 UJ	0.79 UJ
	COPPER	0.75 UJ	0.75 UJ	19 J	19 J	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ
	IRON	4360	4360	38200	38200	1960	1960	18.3 UJ	18.3 UJ	4340
	LEAD	0.97 UJ	0.97 UJ	19.9	19.9	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ
	MAGNESIUM	7100	7100	14800	14800	10300	10300	11500	11500	14100
	MANGANESE	2040	2040	1910	1910	1750	1750	2140	2140	384
	MERCURY	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.8 UJ	0.8 UJ	2.3 J	2.3 J	0.61 UJ	0.61 UJ	0.57 UJ	0.57 UJ	1.1 UJ
	NICKEL	0.42 U	0.42 U	10.6 J	10.6 J	1.3 J	1.3 J	0.42 U	0.42 U	0.46 J
	POTASSIUM	3710	3710	24300	24300	1210	1210	650 UJ	650 UJ	1320
	SELENIUM	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.73 UJ	0.73 UJ	1.8 UJ	1.8 UJ	0.29 UJ	0.29 UJ	0.59 UJ	0.59 UJ	0.3 UJ
	SODIUM	15600	15600	17600	17600	13100	13100	13100	13100	8980
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.38 U	0.38 U	7.5 J	7.5 J	0.38 U	0.38 U	0.38 U	0.38 U	0.44 UJ
	ZINC	8.5 UJ	8.5 UJ	41	41	16.3 J	16.3 J	6.1 UJ	6.1 UJ	6.6 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.06 J	0.06 J	1.8	1.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	NITRATE-N	0.81	0.81	0.05 U	0.05 U	0.3	0.3	0.048 J	0.048 J	0.05 U
	NITRITE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.037 J	0.037 J	0.05 U	0.05 U	0.05 U
	ORTHOPHOSPHATE-P	0.05 U	0.05 U	0.032 J	0.032 J	0.061	0.061	0.023 J	0.023 J	0.061
	SULFATE	11	11	46	46	19	19	28	28	41
	SULFIDE	1 U	1 U	1 U	1 U	1.4	1.4	1 U	1 U	1.3
	TOTAL ORGANIC CARBON	1.7	1.7	14	14	0.94 J	0.94 J	0.96 J	0.96 J	0.83 J
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	49	49	150	150	9.8 J	9.8 J	14	14	10 U
FIELD (UG/L)	FERROUS IRON	2450	2450	2330	2330	1730	1730	0 U	0 U	3800

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW103S	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B
	SAMPLE DATE	05/23/08	05/23/08	05/26/08	05/26/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW103B-2008LOCMAX	DA-MW103B-52308	DA-MW103S-2008LOCMAX	DA-MW103S-52608	DA-MW104B-2008LOCMAX	DA-MW104B-52008	DA-MW105B-2008LOCMAX	DA-MW105B-52008	DA-MW106B-2008LOCMAX
FRACTION (UNITS)	PARAMETER									
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	83 U	83 U	220	220	69 J	69 J	84 U	84 U	75 U
	GASOLINE RANGE ORGANICS	10 U	10 U	10 U	10 U	25 U	25 U	16 U	16 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	2-BUTANONE	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 UJ	10 J	10 J	5 U	5 U	4 J	4 J	4 J	4 J	5 J

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	BTEX	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.6 J	0.6 J	0.6 J	0.6 J	41
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	9.5	9	9.5	10	4
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	7	7	7	7	2 J
	TOLUENE	1 U	1 U	1 U	1 U	1 U	0.6 J	0.6 J	0.6 J	0.6 J	41
	TOTAL 1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	9.5	9	9.5	10	4
	TOTAL CHLORINATED ETHENES	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	18.9 J	18.4 J	18.9 J	19.4 J	7 J
	TOTAL CHLORINATED VOCS	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	18.9 J	18.4 J	18.9 J	19.4 J	7 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	2	2	2	2	1
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	0.4 J	0.4 J	0.4 J	0.4 J	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	1,2-DIPHENYLHYDRAZINE	20 U	20 U	20 U	20 U	20 U	20.5 U	20 U	20.5 U	21 U	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25.5 UR	25 UR	25.5 UR	26 UR	NA
	2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	2,4-DINITROPHENOL	25 U	25 U	25 U	25 UJ	25 UJ	25.5 UR	25 UR	25.5 UR	26 UR	NA
	2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	2,6-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UR	NA
	2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 UR	10 U	10 U	NA
	2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25.5 U	25 U	25.5 U	26 U	NA
	2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	3&4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	3,3'-DICHLOROBENZIDINE	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	NA
	3-NITROANILINE	25 U	25 U	25 U	25 UJ	25 UJ	25.5 UJ	25 UJ	25.5 UJ	26 UJ	NA
	4,6-DINITRO-2-METHYLPHENOL	25 U	25 UJ	25 UJ	25 U	25 U	25.5 UR	25 UR	25.5 UR	26 UR	NA
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	4-CHLORO-3-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	25.5 UR	25 UR	25.5 UR	26 UR	NA
	4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	4-NITROANILINE	25 U	25 UJ	25 UJ	25 UJ	25 UJ	25.5 UJ	25 UJ	25.5 UJ	26 UJ	NA
	4-NITROPHENOL	25 U	25 UJ	25 UJ	25 UJ	25 UJ	25.5 UR	25 UR	25.5 UR	26 UR	NA
	ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BENZIDINE	50 UR	50 UR	50 UR	50 UR	50 UR	51.5 UR	50 UR	51.5 UR	53 UR	NA
	BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BENZOIC ACID	25 UR	25 UR	25 UR	25 UR	25 UR	25.5 UR	25 UR	25.5 UR	26 UR	NA
	BENZYL ALCOHOL	20 U	20 U	20 U	53 UJ	53 UJ	20.5 U	20 U	20.5 U	21 U	NA
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	NA
	BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	DIETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	DIMETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	DI-N-BUTYL PHTHALATE	3 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	DI-N-OCTYL PHTHALATE	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	HIGH MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	LOW MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	N-NITROSODIMETHYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	N-NITROSOPYRROLIDINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25.5 UR	25 UR	25.5 UR	26 UR	NA
	PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	PHENOL	10 U	10 U	10 U	10 U	10 U	10 UR	10 UR	10 UR	10 UR	NA
	PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
	TOTAL PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA
	4,4'-DDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA
	4,4'-DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924	
FRACTION (UNITS)	PARAMETER											
	ALDRIN	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	ALPHA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	ALPHA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	AROCLOR-1016	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1221	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1232	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1242	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1248	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1254	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1260	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	AROCLOR-1268	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	BETA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	DELTA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	DIELDRIN	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	ENDOSULFAN I	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	ENDOSULFAN II	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	ENDOSULFAN SULFATE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	ENDRIN	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	ENDRIN ALDEHYDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	ENDRIN KETONE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	GAMMA-BHC (LINDANE)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	GAMMA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	HEPTACHLOR	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0105 U	0.01 U	0.0105 U	0.011 U	NA	
	METHOXYCHLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.105 U	0.1 U	0.105 U	0.11 U	NA	
	TOTAL AROCLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	NA	
	TOTAL DDD/DDE/DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	NA	
	TOXAPHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	0.21 U	0.22 U	NA	
METALS (UG/L)	ALUMINUM	1210	336	336	376	376	539	561	539	517	NA	

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	0.78 U	0.88 UJ	0.88 UJ	1.5 UJ	1.5 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	NA
	ARSENIC	8 J	7.7 J	7.7 J	6.4 J	6.4 J	4.3 J	4.5 J	4.3 J	4.1 J	NA
	BARIUM	51.2	9.6	9.6	23.8 J	23.8 J	20.8 J	21 J	20.8 J	20.7 J	NA
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.21 UJ	0.21 UJ	0.13 U	0.13 U	0.13 U	0.13 U	NA
	CADMIUM	0.15 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.055 UJ	0.04 U	0.055 UJ	0.07 UJ	NA
	CALCIUM	46800	20300	20300	45300	45300	53300	53100	53300	53500	NA
	CHROMIUM	9.9 J	1.1 UJ	1.1 UJ	1.6 UJ	1.6 UJ	3.4 J	3.3 J	3.4 J	3.5 J	NA
	COBALT	3.6 J	7.7 J	7.7 J	0.66 UJ	0.66 UJ	0.925 UJ	0.98 UJ	0.925 UJ	0.87 UJ	NA
	COPPER	10.4 J	0.75 UJ	0.75 UJ	0.75 U	0.75 U	7.7 UJ	8.4 UJ	7.7 UJ	7 UJ	NA
	IRON	9420	3120	3120	7600	7600	12600	12900	12600	12400	15000
	LEAD	1.4 J	0.97 UJ	0.97 UJ	0.97 U	0.97 U	1.75 J	1.3 J	1.75 J	2.2 J	NA
	MAGNESIUM	14400	10500	10500	13200	13200	13800	13800	13800	13900	NA
	MANGANESE	448	535	535	351	351	1470	1460	1470	1480	NA
	MERCURY	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA
	MOLYBDENUM	2.6 J	0.3 U	0.3 U	0.69 UJ	0.69 UJ	3.1 J	3.1 J	3.1 J	3.1 J	NA
	NICKEL	5.9 J	8.1 J	8.1 J	2 UJ	2 UJ	2.05 UJ	2 UJ	2.05 UJ	2.1 UJ	NA
	POTASSIUM	1280	2040	2040	722 J	722 J	3290	3360	3290	3220	NA
	SELENIUM	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	NA
	SILVER	0.54 UJ	0.52 UJ	0.52 UJ	0.29 U	0.29 U	0.392 J	0.29 U	0.392 J	0.64 J	NA
	SODIUM	8940	12000	12000	9400	9400	14000	14000	14000	14000	NA
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	NA
	VANADIUM	2.1 J	0.85 UJ	0.85 UJ	0.67 UJ	0.67 UJ	1.15 UJ	1.3 UJ	1.15 UJ	1 UJ	NA
	ZINC	28.5	7.9 UJ	7.9 UJ	6.2 UJ	6.2 UJ	13.4 J	14.5 J	13.4 J	12.2 J	NA
DISSOLVED METALS (UG/L)	ALUMINUM	28.2 UJ	21.5 UJ	21.5 UJ	42.2 UJ	42.2 UJ	117 UJ	116 UJ	117 UJ	118 UJ	NA
	ANTIMONY	0.78 U	0.78 U	0.78 U	1.4 UJ	1.4 UJ	1.45 UJ	1.6 UJ	1.45 UJ	1.3 UJ	NA
	ARSENIC	4.5 J	5.8 J	5.8 J	6.1 J	6.1 J	5.25 J	4.7 J	5.25 J	5.8 J	NA
	BARIUM	47.4	7.9	7.9	21.6	21.6	18.2	18.4	18.2	18	NA
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	NA
	CADMIUM	0.11 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924	
FRACTION (UNITS)	PARAMETER											
	CALCIUM	45400	20700	20700	44600	44600	51800	52100	51800	51500	NA	
	CHROMIUM	0.72 UJ	0.6 UJ	0.6 UJ	0.41 U	0.41 U	1.15 UJ	1.1 UJ	1.15 UJ	1.2 UJ	NA	
	COBALT	0.79 UJ	7 J	7 J	0.48 UJ	0.48 UJ	0.725 UJ	0.7 UJ	0.725 UJ	0.75 UJ	NA	
	COPPER	0.75 UJ	0.75 UJ	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	NA	
	IRON	4340	2420	2420	4730	4730	8440	8480	8440	8410	10400	
	LEAD	0.97 UJ	0.97 UJ	0.97 UJ	0.97 U	0.97 U	0.732 J	0.98 J	0.732 J	0.97 U	NA	
	MAGNESIUM	14100	10600	10600	12900	12900	13400	13500	13400	13400	NA	
	MANGANESE	384	519	519	334	334	1440	1440	1440	1430	NA	
	MERCURY	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA	
	MOLYBDENUM	1.1 UJ	0.3 U	0.3 U	0.43 UJ	0.43 UJ	2.25 J	2.2 J	2.25 J	2.3 J	NA	
	NICKEL	0.46 J	7.5 J	7.5 J	0.89 UJ	0.89 UJ	0.675 UJ	0.85 UJ	0.675 UJ	0.5 UJ	NA	
	POTASSIUM	1320	2010	2010	685 J	685 J	2650	2710	2650	2590	NA	
	SELENIUM	0.96 U	1.3 J	1.3 J	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	NA	
	SILVER	0.3 UJ	0.41 UJ	0.41 UJ	0.29 U	0.29 U	0.238 J	0.33 J	0.238 J	0.29 U	NA	
	SODIUM	8980	12200	12200	9210	9210	13400	13500	13400	13400	NA	
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	NA	
	VANADIUM	0.44 UJ	0.38 U	0.38 U	0.38 U	0.38 U	0.465 UJ	0.38 U	0.465 UJ	0.55 UJ	NA	
	ZINC	6.6 UJ	7.3 UJ	7.3 UJ	4.3 UJ	4.3 UJ	5.15 UJ	4.7 UJ	5.15 UJ	5.6 UJ	NA	
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.1 U	0.042 J	0.042 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	
	NITRATE-N	0.05 U	4.9	4.9	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	
	NITRITE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	
	ORTHOPHOSPHATE-P	0.061	0.05 U	0.05 U	0.049 J	0.049 J	0.0245 J	0.024 J	0.0245 J	0.05 U	NA	
	SULFATE	41	34	34	44	44	29	29	29	29	NA	
	SULFIDE	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	
	TOTAL ORGANIC CARBON	0.83 J	0.64 J	0.64 J	0.36 J	0.36 J	1.8	1.8	1.8	1.8	NA	
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	10 U	1.8 J	1.8 J	10 U	10 U	1.35 J	1.3 J	1.35 J	1.4 J	NA	
FIELD (UG/L)	FERROUS IRON	3800	NA	NA	3780	3780	3220	3220	3220	3220	NA	

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW106B	DA-MW106S	DA-MW106S	DA-MW107B	DA-MW107B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW108B	DA-MW109B
	SAMPLE DATE	05/21/08	05/22/08	05/22/08	06/04/08	06/04/08	06/03/08	06/03/08	06/03/08	06/03/08	05/08/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW106B-52108	DA-MW106S-2008LOCMAX	DA-MW106S-52208	DA-MW107B-2008LOCMAX	DA-MW107B-6408	DA-MW108B-2008LOCMAX	DA-MW108B-6308	DA-MW108B-6308-AVG	DA-MW108B-6308-D	DA-MW109-1924
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	75 U	75 U	75 U	75 U	75 U	79.5 J	92	79.5 J	67 J	NA
	GASOLINE RANGE ORGANICS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	0.7 J	0.7 J	1 U	1 U	1 J	1
	1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	2-BUTANONE	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U
	ACETONE	5 U	5 U	5 J	5 U	13 J	13 J	5 U	5 U	5 UJ	5 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 UJ
	BTEX	9	4	41	1.1 U	1.1 UJ	1.1 UJ	1.1 U	1.1 U	1.1 UJ	1.1 U
	CARBON DISULFIDE	1 U	1 U	0.6 J	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	CHLOROETHANE	2 UJ	2 UJ	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 U
	CHLOROFORM	1 U	1 U	1	1	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 U
	CIS-1,2-DICHLOROETHENE	6	4	6	3	2 J	2 J	1 U	1 U	1 UJ	1 U
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	TETRACHLOROETHENE	5 J	4 J	5 J	3	7 J	7 J	1 U	1 U	1 UJ	1 UJ
	TOLUENE	9	4	41	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	TOTAL 1,2-DICHLOROETHENE	6	4	6	3	2 J	2 J	1 U	1 U	1 UJ	1 U
	TOTAL CHLORINATED ETHENES	13.6 J	9 J	13.6 J	7.4 J	12 J	12 J	1.2 U	1.2 U	1.2 UJ	1.2 UJ
	TOTAL CHLORINATED VOCS	13.6 J	9 J	13.6 J	8.4 J	12.7 J	12.7 J	1.3 U	1.3 U	1 J	1 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 UJ	1.5 UJ	1.5 U	1.5 U	1.5 UJ	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U
	TRICHLOROETHENE	2	1	2	1	3 J	3 J	1 U	1 U	1 UJ	1 U
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 U
	VINYL CHLORIDE	0.6 J	2 U	0.6 J	0.4 J	2 UJ	2 UJ	2 U	2 U	2 UJ	2 U
VOLATILE GASES (UG/L)	ETHANE	NA	NA	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	ETHENE	NA	NA	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	NA	NA	12 UJ	12 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	1,2-DIPHENYLHYDRAZINE	NA	NA	24 U	24 U	21 UJ	21 UJ	20 U	20 U	20 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	2,4,5-TRICHLOROPHENOL	NA	NA	29 UR	29 UR	26 UJ	26 UJ	25 U	25 U	25 UJ	25 UJ
	2,4,6-TRICHLOROPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	2,4-DICHLOROPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	2,4-DIMETHYLPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	2,4-DINITROPHENOL	NA	NA	29 UR	29 UR	26 UJ	26 UJ	25 U	25 U	25 UJ	25 UJ
	2,4-DINITROTOLUENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	2,6-DICHLOROPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	2,6-DINITROTOLUENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	2-CHLORONAPHTHALENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	2-CHLOROPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	2-METHYLNAPHTHALENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
	2-METHYLPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	NA	NA	29 U	29 U	26 UJ	26 UJ	25 U	25 U	25 U	25 U
	2-NITROPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	3&4-METHYLPHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	3,3'-DICHLOROBENZIDINE	NA	NA	12 UJ	12 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	3-NITROANILINE	NA	NA	29 UJ	29 UJ	26 UJ	26 UJ	25 U	25 U	25 U	25 U
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	29 UR	29 UR	26 UJ	26 UJ	25 U	25 U	25 UJ	25 UJ
	4-BROMOPHENYL PHENYL ETHER	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	4-CHLORO-3-METHYLPHENOL	NA	NA	29 UR	29 UR	26 UJ	26 UJ	25 U	25 U	25 UJ	25 UJ
	4-CHLOROANILINE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	4-NITROANILINE	NA	NA	29 UJ	29 UJ	26 UJ	26 UJ	25 U	25 U	25 U	25 U
	4-NITROPHENOL	NA	NA	29 UR	29 UR	26 UJ	26 UJ	25 U	25 U	25 UJ	25 UJ
	ACENAPHTHENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	ACENAPHTHYLENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	ANTHRACENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BENZIDINE	NA	NA	59 UR	59 UR	52 UR	52 UR	50 UR	50 UR	50 UR	50 UR
	BENZO(A)ANTHRACENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BENZO(A)PYRENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BENZO(B)FLUORANTHENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BENZO(G,H,I)PERYLENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BENZO(K)FLUORANTHENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BENZOIC ACID	NA	NA	29 UR	29 UR	26 UR	26 UR	25 UR	25 UR	25 UR	25 UR
	BENZYL ALCOHOL	NA	NA	24 U	24 U	21 UJ	21 UJ	20 UJ	20 UJ	20 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BIS(2-CHLOROETHYL)ETHER	NA	NA	12 U	12 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	BUTYL BENZYL PHTHALATE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	CARBAZOLE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	DIBENZO(A,H)ANTHRACENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	DIBENZOFURAN	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	DIETHYL PHTHALATE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	DIMETHYL PHTHALATE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	DI-N-BUTYL PHTHALATE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	DI-N-OCTYL PHTHALATE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	FLUORANTHENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	FLUORENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	HEXACHLOROBENZENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	HEXACHLOROETHANE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	INDENO(1,2,3-CD)PYRENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	ISOPHORONE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	LOW MOLECULAR WEIGHT PAHS	NA	NA	12 U	12 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
	NAPHTHALENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	NITROBENZENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	N-NITROSODIMETHYLAMINE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	N-NITROSODIPHENYLAMINE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	N-NITROSOPYRROLIDINE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	PENTACHLOROPHENOL	NA	NA	29 UR	29 UR	26 UJ	26 UJ	25 U	25 U	25 UJ	25 UJ
	PHENANTHRENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	PHENOL	NA	NA	12 UR	12 UR	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
	PYRENE	NA	NA	12 U	12 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U
	TOTAL PAHS	NA	NA	12 U	12 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDE	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDT	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	ALDRIN	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-BHC	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-CHLORDANE	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	AROCLOR-1016	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1221	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1232	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1242	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1248	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1254	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1260	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	AROCLOR-1268	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.105 U	0.11 U
	BETA-BHC	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	DELTA-BHC	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	DIELDRIN	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN I	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	ENDOSULFAN II	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN SULFATE	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN ALDEHYDE	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN KETONE	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	GAMMA-BHC (LINDANE)	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	GAMMA-CHLORDANE	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR EPOXIDE	NA	NA	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U
	METHOXYCHLOR	NA	NA	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL AROCLOR	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.11 U
	TOTAL DDD/DDE/DDT	NA	NA	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
	TOXAPHENE	NA	NA	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U
METALS (UG/L)	ALUMINUM	NA	NA	129 UJ	129 UJ	820	820	106 J	106 J	426	384

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	NA	NA	0.78 U	0.78 U	1.9 UJ	1.9 UJ	0.94 UJ	0.94 UJ	1.55 UJ	1.2 UJ
	ARSENIC	NA	NA	9.1	9.1	2.3 J	2.3 J	1.69 U	1.69 U	2.2 J	1.8 J
	BARIUM	NA	NA	10.5 J	10.5 J	5.5	5.5	5.1	5.1	2.7 UJ	2.7 UJ
	BERYLLIUM	NA	NA	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	NA	NA	0.6 UJ	0.6 UJ	0.28 UJ	0.28 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.06 UJ
	CALCIUM	NA	NA	45800	45800	44000	44000	19600	19600	40400	39800
	CHROMIUM	NA	NA	2.4 J	2.4 J	3.3 UJ	3.3 UJ	0.79 UJ	0.79 UJ	1.6 UJ	1.2 UJ
	COBALT	NA	NA	1.1 UJ	1.1 UJ	1.7 UJ	1.7 UJ	0.67 UJ	0.67 UJ	1.25 UJ	1.2 UJ
	COPPER	NA	NA	4.6 UJ	4.6 UJ	1.6 J	1.6 J	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ
	IRON	17200	15300	17200	5760	8680	8680	2930	2930	1010	928
	LEAD	NA	NA	1.2 J	1.2 J	1.1 J	1.1 J	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ
	MAGNESIUM	NA	NA	13000	13000	12500	12500	8070	8070	12200	12000
	MANGANESE	NA	NA	1700	1700	2700	2700	56.6	56.6	1300	1280
	MERCURY	NA	NA	0.03 U	0.03 U	0.03 U	0.03 U	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
	MOLYBDENUM	NA	NA	3.8 J	3.8 J	1.5 UJ	1.5 UJ	0.3 U	0.3 U	0.53 UJ	0.44 UJ
	NICKEL	NA	NA	3.7 J	3.7 J	1.9 J	1.9 J	8.4 J	8.4 J	0.335 J	0.42 U
	POTASSIUM	NA	NA	1060	1060	2020	2020	754 UJ	754 UJ	703 UJ	733 UJ
	SELENIUM	NA	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	NA	NA	0.29 U	0.29 U	0.89 UJ	0.89 UJ	0.5 UJ	0.5 UJ	0.29 U	0.29 U
	SODIUM	NA	NA	14400	14400	12100	12100	11800	11800	11300	11200
	THALLIUM	NA	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	NA	NA	0.38 U	0.38 U	1 UJ	1 UJ	0.61 UJ	0.61 UJ	0.795 UJ	0.72 UJ
	ZINC	NA	NA	15.7 J	15.7 J	9.7 UJ	9.7 UJ	6 UJ	6 UJ	6.55 UJ	5.4 UJ
DISSOLVED METALS (UG/L)	ALUMINUM	NA	NA	14.6 U	14.6 U	47.9 UJ	47.9 UJ	27.8 UJ	27.8 UJ	27.4 UJ	23 UJ
	ANTIMONY	NA	NA	0.78 U	0.78 U	1.5 UJ	1.5 UJ	0.97 UJ	0.97 UJ	1.1 UJ	1.2 UJ
	ARSENIC	NA	NA	9.3	9.3	1.69 U	1.69 U	1.69 U	1.69 U	1.37 J	1.9 J
	BARIUM	NA	NA	10.9	10.9	1.9 UJ	1.9 UJ	5.3	5.3	1.35 UJ	1 UJ
	BERYLLIUM	NA	NA	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	NA	NA	0.05 UJ	0.05 UJ	0.04 U	0.04 U	0.12 UJ	0.12 UJ	0.1 UJ	0.08 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
	CALCIUM	NA	NA	46700	46700	41600	41600	20200	20200	39200	39300
	CHROMIUM	NA	NA	0.53 UJ	0.53 UJ	1.2 UJ	1.2 UJ	0.41 U	0.41 U	0.55 UJ	0.69 UJ
	COBALT	NA	NA	1.2 UJ	1.2 UJ	1.3 UJ	1.3 UJ	0.65 UJ	0.65 UJ	0.965 UJ	1.1 UJ
	COPPER	NA	NA	3.4 UJ	3.4 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ
	IRON	6050	8070	10400	2800	4950	4950	774	774	65.6 UJ	64.4 UJ
	LEAD	NA	NA	0.97 U	0.97 U	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ
	MAGNESIUM	NA	NA	13400	13400	11800	11800	8210	8210	11800	11800
	MANGANESE	NA	NA	1740	1740	2540	2540	53.5	53.5	1300	1310
	MERCURY	NA	NA	0.03 U	0.03 U	0.03 U	0.03 U	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
	MOLYBDENUM	NA	NA	2 J	2 J	0.93 UJ	0.93 UJ	0.3 U	0.3 U	0.425 UJ	0.43 UJ
	NICKEL	NA	NA	0.88 UJ	0.88 UJ	0.42 U	0.42 U	1.2 J	1.2 J	0.42 U	0.42 U
	POTASSIUM	NA	NA	706 J	706 J	1870	1870	809 UJ	809 UJ	652 UJ	689 UJ
	SELENIUM	NA	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	NA	NA	0.29 U	0.29 U	0.35 UJ	0.35 UJ	0.49 UJ	0.49 UJ	0.42 UJ	0.46 UJ
	SODIUM	NA	NA	14100	14100	11600	11600	12200	12200	11100	11200
	THALLIUM	NA	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	NA	NA	0.38 U	0.38 U	0.38 U	0.38 U	0.39 UJ	0.39 UJ	0.43 UJ	0.48 UJ
	ZINC	NA	NA	7.8 UJ	7.8 UJ	7.2 UJ	7.2 UJ	8.1 UJ	8.1 UJ	4.65 UJ	3.4 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	NA	NA	0.04 J	0.04 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	NITRATE-N	NA	NA	0.05 U	0.05 U	0.078	0.078	1.7	1.7	0.05 U	0.05 U
	NITRITE-N	NA	NA	0.05 U	0.05 U	0.0064 J	0.0064 J	0.05 U	0.05 U	0.05 U	0.05 U
	ORTHOPHOSPHATE-P	NA	NA	0.025 J	0.025 J	0.063	0.063	0.034 J	0.034 J	0.023 J	0.026 J
	SULFATE	NA	NA	36	36	33	33	27	27	33	33
	SULFIDE	NA	NA	1.2	1.2	2	2	1 U	1 U	1 U	1 U
	TOTAL ORGANIC CARBON	NA	NA	1.1	1.1	0.59 J	0.59 J	1.3	1.3	0.59 J	0.53 J
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	NA	NA	13	13	8.7 J	8.7 J	10 U	10 U	4.75 J	4.6 J
FIELD (UG/L)	FERROUS IRON	NA	NA	2370	2370	3040	3040	750	750	10	10

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B
	SAMPLE DATE	05/08/08	05/08/08	06/02/08	06/02/08	05/19/08	05/19/08	05/16/08	05/16/08	05/16/08	05/16/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-MW109-3035	DA-MW109-3641	DA-MW109B-2008LOCMAX	DA-MW109B-6208	DA-MW110B-2008LOCMAX	DA-MW110B-51908	DA-MW111B-2008LOCMAX	DA-MW111B-51608	DA-MW112B-2008LOCMAX	DA-MW112B-51608
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	NA	NA	52 J	52 J	77 UJ	77 UJ	51 J	51 J	47.5 J	54 J
	GASOLINE RANGE ORGANICS	NA	NA	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,1,1-TRICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,1,2,2-TETRACHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,1,2-TRICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,1-DICHLOROETHANE	1 J	1 J	1 UJ	1 UJ	1 UJ	1 UJ	1 J	1 UJ	1 UJ	1 J
	1,1-DICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,1-DICHLOROPROPENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2,3-TRICHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2,3-TRICHLOROPROPANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2,4-TRICHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2,4-TRIMETHYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2-DIBROMOETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2-DICHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2-DICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,2-DICHLOROPROPANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,3,5-TRIMETHYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,3-DICHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,3-DICHLOROPROPANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	1,4-DICHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	2,2-DICHLOROPROPANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	2-BUTANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
	2-CHLOROTOLUENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	2-HEXANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
	4-CHLOROTOLUENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	4-ISOPROPYLTOLUENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	4-METHYL-2-PENTANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
	ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	4 J	5 J	5 J

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	BROMOBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	BROMOCHLOROMETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	BROMODICHLOROMETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	BROMOFORM	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	BROMOMETHANE	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	BTEX	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	14 J	5 J	6 J	14 J
	CARBON DISULFIDE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CARBON TETRACHLORIDE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CHLORODIBROMOMETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CHLOROETHANE	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	CHLOROFORM	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CHLOROMETHANE	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	CIS-1,2-DICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CIS-1,3-DICHLOROPROPENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	DIBROMOMETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	DICHLORODIFLUOROMETHANE	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	ETHYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	HEXACHLOROBUTADIENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	ISOPROPYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	M+P-XYLENES	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	METHYL TERT-BUTYL ETHER	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	METHYLENE CHLORIDE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
	N-BUTYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	N-PROPYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	O-XYLENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	SEC-BUTYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	STYRENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	TETRACHLOROETHENE	1 UJ	1 UJ	0.5 J	0.5 J	0.6 J	0.6 J	1 UJ	1 UJ	1 UJ	1 U
	TOLUENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	14 J	5 J	6 J	14 J
	TOTAL 1,2-DICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	TOTAL CHLORINATED ETHENES	1.2 UJ	1.2 UJ	0.5 J	0.5 J	0.6 J	0.6 J	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U
	TOTAL CHLORINATED VOCS	1 J	1 J	0.5 J	0.5 J	0.6 J	0.6 J	1 J	1.3 UJ	1.3 UJ	1 J
	TOTAL XYLENES	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	TRANS-1,3-DICHLOROPROPENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	TRICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	TRICHLOROFLUOROMETHANE	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	VINYL CHLORIDE	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	NA	NA	NA	10 UJ
	1,2-DIPHENYLHYDRAZINE	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA	21 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	2,4,5-TRICHLOROPHENOL	25 UJ	25 UJ	26 UR	26 UR	25 U	25 U	NA	NA	NA	26 U
	2,4,6-TRICHLOROPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	2,4-DICHLOROPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	2,4-DIMETHYLPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	2,4-DINITROPHENOL	25 UJ	25 UJ	26 UR	26 UR	25 U	25 U	NA	NA	NA	26 U
	2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	2,6-DICHLOROPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	2-CHLOROPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 UJ
	2-METHYLPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	25 U	25 U	26 U	26 U	25 U	25 U	NA	NA	NA	26 U
	2-NITROPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	3&4-METHYLPHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	3,3'-DICHLOROBENZIDINE	10 U	10 U	10 UJ	10 UJ	10 U	10 U	NA	NA	NA	10 U
	3-NITROANILINE	25 U	25 U	26 U	26 U	25 U	25 U	NA	NA	NA	26 U
	4,6-DINITRO-2-METHYLPHENOL	25 UJ	25 UJ	26 UR	26 UR	25 U	25 U	NA	NA	NA	26 U
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	4-CHLORO-3-METHYLPHENOL	25 UJ	25 UJ	26 UR	26 UR	25 U	25 U	NA	NA	NA	26 U
	4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	4-NITROANILINE	25 U	25 U	26 U	26 U	25 U	25 U	NA	NA	NA	26 U
	4-NITROPHENOL	25 UJ	25 UJ	26 UR	26 UR	25 U	25 U	NA	NA	NA	26 U
	ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BENZIDINE	50 UR	50 UR	51 UR	51 UR	50 UR	50 UR	NA	NA	NA	52 UR
	BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BENZOIC ACID	25 UR	25 UR	26 UR	26 UR	25 UR	25 UR	NA	NA	NA	26 UR
	BENZYL ALCOHOL	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA	21 UJ
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	DIETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	DIMETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	DI-N-BUTYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	DI-N-OCTYL PHTHALATE	10 U	10 U	10 UJ	10 UJ	10 U	10 U	NA	NA	NA	10 U
	FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 UJ
	NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	N-NITROSODIMETHYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	N-NITROSOPYRROLIDINE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	PENTACHLOROPHENOL	25 UJ	25 UJ	26 UR	26 UR	25 U	25 U	NA	NA	NA	26 U
	PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	PHENOL	10 UJ	10 UJ	10 UR	10 UR	10 U	10 U	NA	NA	NA	10 U
	PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U
	TOTAL PAHS	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 UJ
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	4,4'-DDE	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	4,4'-DDT	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ALDRIN	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	ALPHA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	ALPHA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	AROCLOR-1016	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1221	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1232	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1242	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1248	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1254	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1260	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	AROCLOR-1268	0.105 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	BETA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	DELTA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	DIELDRIN	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	ENDOSULFAN I	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	ENDOSULFAN II	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	ENDOSULFAN SULFATE	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	ENDRIN	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	ENDRIN ALDEHYDE	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	ENDRIN KETONE	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	GAMMA-BHC (LINDANE)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	GAMMA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	HEPTACHLOR	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U
	METHOXYCHLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	TOTAL AROCLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U
	TOTAL DDD/DDE/DDT	0.02 U	0.02 U	0.021 U	0.021 U	0.02 U	0.02 U	NA	NA	NA	0.021 U
	TOXAPHENE	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U	0.2 U	NA	NA	NA	0.21 U
METALS (UG/L)	ALUMINUM	426	468	3420	3420	275 J	275 J	NA	NA	NA	53.8 UJ

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	1.55 UJ	1.9 UJ	1.2 UJ	1.2 UJ	0.78 U	0.78 U	NA	NA	NA	0.78 U
	ARSENIC	2.2 J	2.6 J	2.7 J	2.7 J	7.4 J	7.4 J	NA	NA	NA	1.69 U
	BARIUM	2.7 UJ	2.7 UJ	17.6	17.6	5.5	5.5	NA	NA	NA	2.3 UJ
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	NA	NA	NA	0.13 U
	CADMIUM	0.09 UJ	0.12 UJ	0.04 U	0.04 U	0.36 UJ	0.36 UJ	NA	NA	NA	0.14 UJ
	CALCIUM	40400	41000	26200	26200	32200	32200	NA	NA	NA	12200
	CHROMIUM	1.6 UJ	2 UJ	5.2 J	5.2 J	2.2 UJ	2.2 UJ	NA	NA	NA	0.41 U
	COBALT	1.25 UJ	1.3 UJ	3.7 J	3.7 J	1.3 UJ	1.3 UJ	NA	NA	NA	1.8 UJ
	COPPER	0.75 UJ	0.75 UJ	6.5 J	6.5 J	4.8 J	4.8 J	NA	NA	NA	0.75 UJ
	IRON	1010	1100	6040	6040	10800	10800	1230	9290	9950	9950
	LEAD	0.97 UJ	0.97 UJ	3.6 J	3.6 J	0.97 UJ	0.97 UJ	NA	NA	NA	0.97 UJ
	MAGNESIUM	12200	12300	8600	8600	10500	10500	NA	NA	NA	5660
	MANGANESE	1300	1320	501	501	1100	1100	NA	NA	NA	723
	MERCURY	0.06 UJ	0.06 UJ	0.03 U	0.03 U	0.06 UJ	0.06 UJ	NA	NA	NA	0.06 UJ
	MOLYBDENUM	0.53 UJ	0.62 UJ	0.52 UJ	0.52 UJ	0.98 UJ	0.98 UJ	NA	NA	NA	0.33 UJ
	NICKEL	0.335 J	0.46 J	6.5 J	6.5 J	2.1 J	2.1 J	NA	NA	NA	2.1 J
	POTASSIUM	703 UJ	673 UJ	1550	1550	772 UJ	772 UJ	NA	NA	NA	848 UJ
	SELENIUM	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	NA	NA	NA	0.96 U
	SILVER	0.29 U	0.29 U	0.29 U	0.29 U	0.67 UJ	0.67 UJ	NA	NA	NA	0.41 UJ
	SODIUM	11300	11400	10400	10400	10800	10800	NA	NA	NA	8680
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	NA	NA	NA	1.64 U
	VANADIUM	0.795 UJ	0.87 UJ	3.8 J	3.8 J	0.38 U	0.38 U	NA	NA	NA	0.38 U
	ZINC	6.55 UJ	7.7 UJ	22.6 J	22.6 J	11.1 UJ	11.1 UJ	NA	NA	NA	6.6 UJ
DISSOLVED METALS (UG/L)	ALUMINUM	27.4 UJ	31.8 UJ	181 J	181 J	24 UJ	24 UJ	NA	NA	NA	14.6 U
	ANTIMONY	1.1 UJ	1 UJ	0.78 U	0.78 U	1.4 UJ	1.4 UJ	NA	NA	NA	0.78 U
	ARSENIC	1.37 J	1.69 U	1.69 U	1.69 U	2.8 J	2.8 J	NA	NA	NA	1.69 U
	BARIUM	1.35 UJ	1.7 UJ	9.2	9.2	4.2 J	4.2 J	NA	NA	NA	2.3 UJ
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	NA	NA	NA	0.13 U
	CADMIUM	0.1 UJ	0.12 UJ	0.04 U	0.04 U	0.26 UJ	0.26 UJ	NA	NA	NA	0.12 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CALCIUM	39200	39000	25800	25800	32000	32000	NA	NA	NA	12800
	CHROMIUM	0.55 UJ	0.41 U	0.93 UJ	0.93 UJ	0.5 UJ	0.5 UJ	NA	NA	NA	0.41 U
	COBALT	0.965 UJ	0.83 UJ	0.68 UJ	0.68 UJ	1.4 UJ	1.4 UJ	NA	NA	NA	1.9 UJ
	COPPER	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	NA	NA	NA	0.75 UJ
	IRON	65.6 UJ	66.8 UJ	288	288	998	998	918	3520	3030	3520
	LEAD	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	NA	NA	NA	0.97 UJ
	MAGNESIUM	11800	11700	8130	8130	10500	10500	NA	NA	NA	5840
	MANGANESE	1300	1300	240	240	1070	1070	NA	NA	NA	747
	MERCURY	0.06 UJ	0.06 UJ	0.03 U	0.03 U	0.06 UJ	0.06 UJ	NA	NA	NA	0.06 UJ
	MOLYBDENUM	0.425 UJ	0.42 UJ	0.3 U	0.3 U	0.41 UJ	0.41 UJ	NA	NA	NA	0.3 U
	NICKEL	0.42 U	0.42 U	0.42 U	0.42 U	1.4 J	1.4 J	NA	NA	NA	2.1 J
	POTASSIUM	652 UJ	615 UJ	1260	1260	808 UJ	808 UJ	NA	NA	NA	795 UJ
	SELENIUM	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	NA	NA	NA	0.96 U
	SILVER	0.42 UJ	0.38 UJ	0.39 UJ	0.39 UJ	0.29 UJ	0.29 UJ	NA	NA	NA	0.29 U
	SODIUM	11100	11000	10900	10900	10900	10900	NA	NA	NA	8930
	THALLIUM	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	NA	NA	NA	1.64 U
	VANADIUM	0.43 UJ	0.38 U	0.47 UJ	0.47 UJ	0.38 U	0.38 U	NA	NA	NA	0.38 U
	ZINC	4.65 UJ	5.9 UJ	6.2 UJ	6.2 UJ	5.7 UJ	5.7 UJ	NA	NA	NA	6.9 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.1 U	0.1 U	0.084 J	0.084 J	0.047 J	0.047 J	NA	NA	NA	0.1 U
	NITRATE-N	0.05 U	0.05 U	2.7	2.7	0.55	0.55	NA	NA	NA	0.25
	NITRITE-N	0.05 U	0.05 U	0.1 U	0.1 U	0.05 U	0.05 U	NA	NA	NA	0.05 U
	ORTHOPHOSPHATE-P	0.023 J	0.02 J	0.048 J	0.048 J	0.02 J	0.02 J	NA	NA	NA	0.12
	SULFATE	33	33	27	27	32	32	NA	NA	NA	16
	SULFIDE	1 U	1 U	1.4	1.4	1 U	1 U	NA	NA	NA	1 U
	TOTAL ORGANIC CARBON	0.59 J	0.65 J	1.1	1.1	0.67 J	0.67 J	NA	NA	NA	1.1
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	4.75 J	4.9 J	72	72	2.4 J	2.4 J	NA	NA	NA	10 U
FIELD (UG/L)	FERROUS IRON	10	10	60	60	600	600	NA	NA	NA	0 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW112B	DA-MW112B	DA-MW112S	DA-MW112S	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW114B	DA-MW114B
	SAMPLE DATE	05/16/08	05/16/08	05/19/08	05/19/08	05/16/08	05/16/08	05/05/08	05/05/08	05/06/08	05/16/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW112B-51608-AVG	DA-MW112B-51608-D	DA-MW112S-2008LOCMAX	DA-MW112S-51908	DA-MW113B-2008LOCMAX	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261	DA-MW114B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	47.5 J	82 U	82 U	82 U	49 J	49 J	NA	NA	NA	76 U
	GASOLINE RANGE ORGANICS	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	0.4 J	0.7 J	0.6 J	0.8 J	0.8 J	1 U	1 U	0.4 J	0.4 J	1 U
	1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 J	1 J	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 U	8	5 J	8	5 U	5 U	5 U	5 U	5 U	5 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	1.1 U	0.6 J	2	2	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 UJ	2 UJ	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	2	0.4 J
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	0.5 J	0.5 J	1 U	1 U	1 U	1 U	1 U	1 U
	TOLUENE	1 U	0.6 J	2	2	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	2	0.4 J
	TOTAL CHLORINATED ETHENES	1.2 U	1.2 U	0.5 J	0.5 J	1.2 U	1.2 U	1.2 U	732	732	18.4 J
	TOTAL CHLORINATED VOCS	0.4 J	0.7 J	1.1 J	1.1 J	0.8 J	1.3 UJ	1.3 UJ	733.4 J	733.4 J	18.4 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	730	730	18
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 UJ	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	1,2-DIPHENYLHYDRAZINE	21 U	NA	NA	20 U	20 U	20 U	20 U	21 U	21 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,4,5-TRICHLOROPHENOL	26 U	NA	NA	25 UR	25 UR	26 UR	26 UR	26 UR	26 UR	25 U
	2,4,6-TRICHLOROPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	2,4-DICHLOROPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	2,4-DIMETHYLPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	2,4-DINITROPHENOL	26 U	NA	NA	25 UR	25 UR	26 UR	26 UR	26 UR	26 UR	25 U
	2,4-DINITROTOLUENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,6-DICHLOROPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	2,6-DINITROTOLUENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-CHLORONAPHTHALENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-CHLOROPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	2-METHYLNAPHTHALENE	10 UJ	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	2-METHYLPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U

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REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	26 U	NA	NA	25 U	25 U	26 U	26 U	26 U	26 U	25 U
	2-NITROPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	3&4-METHYLPHENOL	10 U	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 U
	3,3'-DICHLOROBENZIDINE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	3-NITROANILINE	26 U	NA	NA	25 U	25 U	26 U	26 U	26 U	26 U	25 U
	4,6-DINITRO-2-METHYLPHENOL	26 U	NA	NA	25 UR	25 UR	26 UR	26 UR	26 UR	26 UR	25 U
	4-BROMOPHENYL PHENYL ETHER	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLORO-3-METHYLPHENOL	26 U	NA	NA	25 UR	25 UR	26 UR	26 UR	26 UR	26 UR	25 U
	4-CHLOROANILINE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-NITROANILINE	26 U	NA	NA	25 U	25 U	26 U	26 U	26 U	26 U	25 U
	4-NITROPHENOL	26 U	NA	NA	25 UR	25 UR	26 UR	26 UR	26 UR	26 UR	25 U
	ACENAPHTHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ACENAPHTHYLENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ANTHRACENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZIDINE	52 UR	NA	NA	50 UR	50 UR	51 UR	51 UR	52 UR	52 UR	50 UR
	BENZO(A)ANTHRACENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(A)PYRENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(B)FLUORANTHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(G,H,I)PERYLENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(K)FLUORANTHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZOIC ACID	26 UR	NA	NA	25 UR	25 UR	26 UR	26 UR	26 UR	26 UR	25 UR
	BENZYL ALCOHOL	21 UJ	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	21 UJ	21 UJ	20 UJ
	BIS(2-CHLOROETHOXY)METHANE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BIS(2-CHLOROETHYL)ETHER	10 UJ	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BUTYL BENZYL PHTHALATE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	CARBAZOLE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIBENZO(A,H)ANTHRACENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIBENZOFURAN	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIETHYL PHTHALATE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIMETHYL PHTHALATE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DI-N-BUTYL PHTHALATE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DI-N-OCTYL PHTHALATE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	FLUORANTHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	FLUORENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HEXACHLOROBENZENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HEXACHLOROETHANE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ISOPHORONE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	LOW MOLECULAR WEIGHT PAHS	10 UJ	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	NAPHTHALENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	NITROBENZENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSODIMETHYLAMINE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSODIPHENYLAMINE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSOPYRROLIDINE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PENTACHLOROPHENOL	26 U	NA	NA	25 UJ	25 UJ	26 UR	26 UR	26 UR	26 UR	25 U
	PHENANTHRENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PHENOL	10 U	NA	NA	10 UJ	10 UJ	10 UR	10 UR	10 UR	10 UR	10 U
	PYRENE	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	TOTAL PAHS	10 UJ	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDE	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDT	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ALDRIN	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ALPHA-CHLORDANE	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	AROCLOR-1016	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1221	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1232	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1242	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1248	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1254	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1260	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	AROCLOR-1268	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	BETA-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	DELTA-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	DIELDRIN	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN I	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDOSULFAN II	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDOSULFAN SULFATE	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN ALDEHYDE	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	ENDRIN KETONE	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	GAMMA-BHC (LINDANE)	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	GAMMA-CHLORDANE	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	HEPTACHLOR EPOXIDE	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	METHOXYCHLOR	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL AROCLOR	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	TOTAL DDD/DDE/DDT	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	TOXAPHENE	0.21 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METALS (UG/L)	ALUMINUM	53.8 UJ	NA	NA	952	952	84.6 UJ	84.6 UJ	15 UJ	15 UJ	32.8 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	0.78 U	NA	NA	0.86 UJ	0.86 UJ	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U
	ARSENIC	1.69 U	NA	NA	15.3	15.3	17.8	17.8	9.2	9.2	1.69 U
	BARIUM	2.3 UJ	NA	NA	11.6	11.6	9.1	9.1	8.5	8.5	1.2 UJ
	BERYLLIUM	0.13 U	NA	NA	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.14 UJ	NA	NA	0.18 UJ	0.18 UJ	0.14 UJ	0.14 UJ	0.16 UJ	0.16 UJ	0.12 UJ
	CALCIUM	12200	NA	NA	31600	31600	20200	20200	23200	23200	15600
	CHROMIUM	0.41 U	NA	NA	2.4 UJ	2.4 UJ	0.61 UJ	0.61 UJ	0.5 UJ	0.5 UJ	0.41 U
	COBALT	1.8 UJ	NA	NA	2.9 UJ	2.9 UJ	6.7 J	6.7 J	6.5 J	6.5 J	1.2 UJ
	COPPER	0.75 UJ	NA	NA	6.5 J	6.5 J	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ
	IRON	138	13900	17300	17300	3960	8580	8580	2620	2620	76.3 UJ
	LEAD	0.97 UJ	NA	NA	1.1 J	1.1 J	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ
	MAGNESIUM	5660	NA	NA	10500	10500	8860	8860	8840	8840	8730
	MANGANESE	723	NA	NA	711	711	1140	1140	914	914	496
	MERCURY	0.06 UJ	NA	NA	0.06 UJ	0.06 UJ	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.33 UJ	NA	NA	1.3 UJ	1.3 UJ	0.48 UJ	0.48 UJ	0.53 UJ	0.53 UJ	0.56 UJ
	NICKEL	2.1 J	NA	NA	2.3 J	2.3 J	4.7 J	4.7 J	10 J	10 J	1 J
	POTASSIUM	848 UJ	NA	NA	835 UJ	835 UJ	646 UJ	646 UJ	720 UJ	720 UJ	832 UJ
	SELENIUM	0.96 U	NA	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.41 UJ	NA	NA	0.6 UJ	0.6 UJ	0.43 UJ	0.43 UJ	0.29 U	0.29 U	0.54 UJ
	SODIUM	8680	NA	NA	9560	9560	10600	10600	9900	9900	9800
	THALLIUM	1.64 U	NA	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.38 U	NA	NA	1.5 J	1.5 J	0.43 UJ	0.43 UJ	0.38 U	0.38 U	0.43 UJ
	ZINC	6.6 UJ	NA	NA	15.6 J	15.6 J	14.4 J	14.4 J	11.1 UJ	11.1 UJ	4.7 UJ
DISSOLVED METALS (UG/L)	ALUMINUM	14.6 U	NA	NA	24.9 UJ	24.9 UJ	17.4 UJ	17.4 UJ	28.3 UJ	28.3 UJ	14.6 U
	ANTIMONY	0.78 U	NA	NA	1.7 UJ	1.7 UJ	0.78 U	0.78 U	1.8 UJ	1.8 UJ	1.8 UJ
	ARSENIC	1.69 U	NA	NA	14.1	14.1	18.4	18.4	9.2	9.2	1.69 U
	BARIUM	2.3 UJ	NA	NA	9.4	9.4	9	9	8.3	8.3	1.1 UJ
	BERYLLIUM	0.13 U	NA	NA	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.12 UJ	NA	NA	0.1 UJ	0.1 UJ	0.16 UJ	0.16 UJ	0.07 UJ	0.07 UJ	0.1 UJ

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	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
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	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CALCIUM	12800	NA	NA	32800	32800	20400	20400	23500	23500	16000
	CHROMIUM	0.41 U	NA	NA	0.44 UJ	0.44 UJ	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
	COBALT	1.9 UJ	NA	NA	1.7 UJ	1.7 UJ	6.8 J	6.8 J	6.4 J	6.4 J	1.1 UJ
	COPPER	0.75 UJ	NA	NA	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ
	IRON	29.5 UJ	5600	4890	5600	1860	8470	8470	2610	2610	9 U
	LEAD	0.97 UJ	NA	NA	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ	0.97 UJ
	MAGNESIUM	5840	NA	NA	10600	10600	8990	8990	8940	8940	8880
	MANGANESE	747	NA	NA	684	684	1140	1140	925	925	502
	MERCURY	0.06 UJ	NA	NA	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
	MOLYBDENUM	0.3 U	NA	NA	0.95 UJ	0.95 UJ	0.36 UJ	0.36 UJ	0.3 U	0.3 U	0.67 UJ
	NICKEL	2.1 J	NA	NA	0.42 U	0.42 U	4.9 J	4.9 J	3.5 J	3.5 J	0.76 J
	POTASSIUM	795 UJ	NA	NA	775 UJ	775 UJ	667 UJ	667 UJ	720 UJ	720 UJ	836 UJ
	SELENIUM	0.96 U	NA	NA	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.29 U	NA	NA	0.62 UJ	0.62 UJ	0.63 UJ	0.63 UJ	0.29 U	0.29 U	0.29 U
	SODIUM	8930	NA	NA	9720	9720	10700	10700	10000	10000	10000
	THALLIUM	1.64 U	NA	NA	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.38 U	NA	NA	0.46 UJ	0.46 UJ	0.38 U	0.38 U	0.38 U	0.38 U	0.48 UJ
	ZINC	6.9 UJ	NA	NA	7.4 UJ	7.4 UJ	15.5 J	15.5 J	11.4 UJ	11.4 UJ	5.5 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	NITRATE-N	0.25	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	NITRITE-N	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	ORTHOPHOSPHATE-P	0.12	NA	NA	0.022 J	0.022 J	0.038 J	0.038 J	0.032 J	0.032 J	0.063
	SULFATE	16	NA	NA	25	25	29	29	23	23	14
	SULFIDE	1 U	NA	NA	3.1	3.1	1 U	1 U	1 U	1 U	1 U
	TOTAL ORGANIC CARBON	1.1	NA	NA	0.38 J	0.38 J	0.28 J	0.28 J	0.41 J	0.41 J	0.28 J
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	10 U	NA	NA	1.3 J	1.3 J	10 U	10 U	10 U	10 U	10 U
FIELD (UG/L)	FERROUS IRON	0 U	NA	NA	1830	1830	2980	2980	2410	2410	0 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B
	SAMPLE DATE	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08	05/15/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-2008LOCMAX	DA-MW115B-51508	DA-MW116B-2008LOCMAX	DA-MW116B-51508	DA-MW117B-2008LOCMAX	DA-MW117B-51508	DA-MW118B-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	76 U	NA	NA	75 U	75 U	75 U	75 U	75 U	75 U	79 U
	GASOLINE RANGE ORGANICS	10 U	NA	NA	10 U	10 U	10 U	10 U	180	180	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1	1	1	1	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	0.4 J	0.4 J	0.4 J	0.4 J	1 U
	1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
	2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 U	5 U	5 U	5 U	5 U	2.25 J	5 U	2.25 J	2 J	5 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	BTEX	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2
	TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J
	TOTAL CHLORINATED ETHENES	18.4 J	2 J	2 J	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	3.3 J
	TOTAL CHLORINATED VOCS	18.4 J	2 J	2 J	1.3 U	1.3 U	1.4 J	1.4 J	1.4 J	1.4 J	3.3 J
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.9 J
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	2 J	2 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ETHENE	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
	1,2-DIPHENYLHYDRAZINE	20 U	20 U	20 U	20 U	20 U	22 U	22 U	22 U	22 U	21 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
	2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 UR	25 UR	27.5 U	27 U	27.5 U	28 U	26 U
	2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	2,4-DINITROPHENOL	25 U	25 U	25 U	25 UR	25 UR	27.5 UR	27 UR	27.5 UR	28 UR	26 UJ
	2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	2,6-DICHLOROPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	2-CHLOROPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	2-METHYLNAPHTHALENE	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
	2-METHYLPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	27.5 U	27 U	27.5 U	28 U	26 U
	2-NITROPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	3&4-METHYLPHENOL	10 U	10 U	10 U	10 UR	10 UR	11 UJ	11 UJ	11 UJ	11 U	10 U
	3,3'-DICHLOROBENZIDINE	10 U	10 UJ	10 UJ	10 UJ	10 UJ	11 UJ	11 UJ	11 UJ	11 UJ	10 UJ
	3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	27.5 UJ	27 UJ	27.5 UJ	28 UJ	26 UJ
	4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 UR	25 UR	27.5 UJ	27 U	27.5 UJ	28 UJ	26 U
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	4-CHLORO-3-METHYLPHENOL	25 U	25 U	25 U	25 UR	25 UR	27.5 U	27 U	27.5 U	28 U	26 U
	4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	27.5 UJ	27 UJ	27.5 UJ	28 UJ	26 UJ
	4-NITROPHENOL	25 U	25 U	25 U	25 UR	25 UR	27.5 UJ	27 UJ	27.5 UJ	28 UJ	26 UJ
	ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	ANTHRACENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BENZIDINE	50 UR	50 UJ	50 UJ	50 UJ	50 UJ	55 UR	54 UR	55 UR	56 UR	53 UR
	BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BENZOIC ACID	25 UR	25 UR	25 UR	25 UR	25 UR	27.5 UR	27 UR	27.5 UR	28 UR	26 UR
	BENZYL ALCOHOL	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	22 U	22 U	22 U	22 U	110
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	BIS(2-CHLOROETHYL)ETHER	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 UJ
	BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	CARBAZOLE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	DIETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	DIMETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	DI-N-BUTYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	DI-N-OCTYL PHTHALATE	10 U	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
	FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	FLUORENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	ISOPHORONE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	LOW MOLECULAR WEIGHT PAHS	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
	NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	NITROBENZENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	N-NITROSODIMETHYLAMINE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	N-NITROSOPYRROLIDINE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	PENTACHLOROPHENOL	25 U	25 U	25 U	25 UR	25 UR	27.5 U	27 U	27.5 U	28 U	26 U
	PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	PHENOL	10 U	10 U	10 U	10 UR	10 UR	11 U	11 U	11 U	11 U	10 U
	PYRENE	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U	11 U	10 U
	TOTAL PAHS	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 U	11 U	11 U	11 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	4,4'-DDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	4,4'-DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ALDRIN	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	ALPHA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	ALPHA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	AROCLOR-1016	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1221	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1232	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1242	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1248	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1254	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1260	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	AROCLOR-1268	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.115 U	0.11 U	0.115 U	0.12 U	0.11 U
	BETA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	DELTA-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	DIELDRIN	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0108 J	0.012 J	0.0108 J	0.0097 J	0.02 U
	ENDOSULFAN I	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	ENDOSULFAN II	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	ENDOSULFAN SULFATE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	ENDRIN	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	ENDRIN ALDEHYDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	ENDRIN KETONE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0225 U	0.021 U	0.0225 U	0.024 U	0.02 U
	GAMMA-BHC (LINDANE)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	GAMMA-CHLORDANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	HEPTACHLOR	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.01 U
	METHOXYCHLOR	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U	0.1 U
	TOTAL AROCLOR	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.12 U	0.11 U	0.12 U	0.12 U	0.11 U
	TOTAL DDD/DDE/DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.022 U	0.021 U	0.022 U	0.024 U	0.02 U
	TOXAPHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.225 U	0.21 U	0.225 U	0.24 U	0.2 U
METALS (UG/L)	ALUMINUM	32.8 UJ	31.4 J	31.4 J	415	415	31.6 UJ	36.3 UJ	31.6 UJ	27 UJ	31.7 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	0.78 U	1.2 J	1.2 J	0.78 U	0.78 U	1.36 UJ	1.8 UJ	1.36 UJ	0.93 UJ	1.7 UJ
	ARSENIC	1.69 U	12.4 U	12.4 U	6.6 UJ	6.6 UJ	1.69 U	1.69 U	1.69 U	1.69 U	1.69 U
	BARIUM	1.2 UJ	24.5	24.5	21.7	21.7	14.7 J	14.7 J	14.7 J	14.7 J	9.5 J
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.27 J	0.27 J	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.12 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.05 UJ	0.04 UJ	0.05 UJ	0.06 UJ	0.04 U
	CALCIUM	15600	34700	34700	37400	37400	41200	41800	41200	40700	43700
	CHROMIUM	0.41 U	0.41 U	0.41 U	1.5 J	1.5 J	0.52 UJ	0.41 U	0.52 UJ	0.63 UJ	0.57 UJ
	COBALT	1.2 UJ	0.98 J	0.98 J	12.9 J	12.9 J	1.15 UJ	1.2 UJ	1.15 UJ	1.1 UJ	0.38 UJ
	COPPER	0.75 UJ	0.89 J	0.89 J	9.8 J	9.8 J	0.76 UJ	0.77 UJ	0.76 UJ	0.75 U	0.75 U
	IRON	76.3 UJ	7670	7670	17000	17000	28.2 J	28.8 J	28.2 J	27.5 J	19.4 J
	LEAD	0.97 UJ	0.97 U	0.97 U	1.5 J	1.5 J	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U
	MAGNESIUM	8730	12200	12200	24900	24900	9560	9680	9560	9440	6210
	MANGANESE	496	454	454	1620	1620	0.972 J	1.4 J	0.972 J	1.09 UJ	904
	MERCURY	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.56 UJ	1.4 J	1.4 J	0.3 U	0.3 U	4.45 J	4.4 J	4.45 J	4.5 J	0.38 UJ
	NICKEL	1 J	0.42 U	0.42 U	29.2 J	29.2 J	0.87 UJ	0.93 UJ	0.87 UJ	0.81 UJ	0.53 UJ
	POTASSIUM	832 UJ	2430	2430	711 J	711 J	4200	4250	4200	4140	1300
	SELENIUM	0.96 U	0.96 UJ	0.96 UJ	0.96 UJ	0.96 UJ	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.54 UJ	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
	SODIUM	9800	38200	38200	24600	24600	56400	56900	56400	55800	10300
	THALLIUM	1.64 U	2.3 J	2.3 J	1.64 U	1.64 U	1.82 UJ	2 UJ	1.82 UJ	1.64 U	1.64 U
	VANADIUM	0.43 UJ	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
	ZINC	4.7 UJ	4.4 J	4.4 J	14.8 J	14.8 J	7.2 UJ	6.8 UJ	7.2 UJ	7.6 UJ	3.4 UJ
DISSOLVED METALS (UG/L)	ALUMINUM	14.6 U	22.1 J	22.1 J	17.6 J	17.6 J	14.6 U	14.6 U	14.6 U	14.6 U	14.6 U
	ANTIMONY	1.8 UJ	0.78 U	0.78 U	0.78 U	0.78 U	1.25 UJ	1.5 UJ	1.25 UJ	1 UJ	1.1 UJ
	ARSENIC	1.69 U	12.4 U	12.4 U	6 UJ	6 UJ	1.69 U	1.69 U	1.69 U	1.69 U	1.69 U
	BARIUM	1.1 UJ	24.1	24.1	19.2	19.2	14.4	14.2	14.4	14.7	10.7
	BERYLLIUM	0.13 U	0.13 U	0.13 U	0.24 J	0.24 J	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
	CADMIUM	0.1 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.05 UJ	0.04 U	0.05 UJ	0.06 UJ	0.04 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
	CALCIUM	16000	33900	33900	36400	36400	41000	41200	41000	40900	46400
	CHROMIUM	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.84 UJ	0.58 UJ	0.84 UJ	1.1 UJ	0.61 UJ
	COBALT	1.1 UJ	1 J	1 J	12.2 J	12.2 J	1.01 UJ	1.1 UJ	1.01 UJ	0.92 UJ	0.27 UJ
	COPPER	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	1.55 UJ	1.1 UJ	1.55 UJ	2 UJ	0.75 U
	IRON	9 U	7280	7280	15000	15000	7.1 J	9 UJ	7.1 J	9.7 J	18.2 J
	LEAD	0.97 UJ	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U
	MAGNESIUM	8880	11900	11900	24200	24200	9500	9510	9500	9490	6360
	MANGANESE	502	439	439	1570	1570	1.09 UJ	1.09 UJ	1.09 UJ	1.09 UJ	978
	MERCURY	0.06 UJ	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
	MOLYBDENUM	0.67 UJ	1.3 J	1.3 J	0.3 U	0.3 U	4.45 J	4.5 J	4.45 J	4.4 J	0.3 U
	NICKEL	0.76 J	0.42 U	0.42 U	26.7 J	26.7 J	1.1 UJ	1.2 UJ	1.1 UJ	1 UJ	0.64 UJ
	POTASSIUM	836 UJ	2390	2390	660 J	660 J	4320	4310	4320	4320	1380
	SELENIUM	0.96 U	0.96 U	0.96 U	0.96 UJ	0.96 UJ	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
	SILVER	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.352 J	0.29 U	0.352 J	0.56 J	0.29 U
	SODIUM	10000	37200	37200	23800	23800	56000	56100	56000	56000	10500
	THALLIUM	1.64 U	1.64 U	1.64 U	1.8 J	1.8 J	1.64 U	1.64 U	1.64 U	1.64 U	1.64 U
	VANADIUM	0.48 UJ	0.38 U	0.38 U	0.38 U	0.38 U	0.395 UJ	0.41 UJ	0.395 UJ	0.38 U	0.38 U
	ZINC	5.5 UJ	4.6 J	4.6 J	11.7 J	11.7 J	7.65 UJ	8.6 UJ	7.65 UJ	6.7 UJ	4.2 UJ
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.1 U	1.1	1.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	NITRATE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	1.7	1.7	1.7	1.7	0.34
	NITRITE-N	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.014 J
	ORTHOPHOSPHATE-P	0.063	0.12	0.12	0.046 J	0.046 J	0.043 J	0.039 J	0.043 J	0.047 J	0.049 J
	SULFATE	14	5	5	65	65	24	24	24	24	26
	SULFIDE	1 U	3.1	3.1	1 U	1 U	1 U	1 U	1 U	1 U	1 J
	TOTAL ORGANIC CARBON	0.28 J	2.1	2.1	0.49 J	0.49 J	2.2	2.2	2.2	2.2	1.9
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	10 U	2300	2300	2 J	2 J	10 U	10 U	10 U	10 U	4.9 J
FIELD (UG/L)	FERROUS IRON	0 U	3270	3270	3060	3060	0 U	0 U	0 U	0 U	0 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW122	DA-MW122	DA-MW122	DA-MW122	DA-MW123
	SAMPLE DATE	05/15/08	05/14/08	05/14/08	05/14/08	05/14/08	06/03/08	06/03/08	06/03/08	06/03/08	06/04/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
	SAMPLE ID	DA-MW118B-51508	DA-MW119B-2008LOCMAX	DA-MW119B-51408	DA-MW120B-2008LOCMAX	DA-MW120B-51408	DA-MW122-2008LOCMAX	DA-MW122B-6308	DA-MW122B-6308-AVG	DA-MW122B-6308-D	DA-MW123-2008LOCMAX
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	79 U	75 U	75 U	75 U	75 U	82 U	79 U	82 U	85 U	81 U
	GASOLINE RANGE ORGANICS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	1 U	1	18	18	0.5 J	1 U	0.5 J	1 U	1 U	1 U
	1,1-DICHLOROETHENE	1 U	1 U	0.8 J	0.8 J	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	0.3 J	0.3 J	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ
	1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	0.3 J	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	5 U	46 U	46 U	49 U	5 U	11 U	5 U	5 U	7 U	5 U

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	BENZENE	1 U	1 U	0.4 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2	2 U	2 U
	BTEX	1.1 U	5	18.4 J	18.4 J	12	12	11	4	2	4
	CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	2 U	2 U	1 J	1 J	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	7	7	1 U
	CHLOROMETHANE	2 U	2 U	2 U	3 U	2 U	2 U	2 U	16	2 U	2 U
	CIS-1,2-DICHLOROETHENE	0.4 J	5	26	26	4	4	3	1 U	1 U	1 U
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U	0.4 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	TERT-BUTYLBENZENE	1 U	1 U	0.4 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U
	TETRACHLOROETHENE	2	1 U	1 U	1 U	12	12	8	1 U	1 U	1 U
	TOLUENE	1 U	5	18	18	12	12	11	4	2	4
	TOTAL 1,2-DICHLOROETHENE	0.4 J	5.5 J	29	29	4	4	3	1 U	1 U	1 U
	TOTAL CHLORINATED ETHENES	3.3 J	8.5 J	64	64	20.3 J	20.3 J	13	1.2 U	1.2 U	1.2 U
	TOTAL CHLORINATED VOCS	3.3 J	9.8 J	83.8 J	83.8 J	20.3 J	20.3 J	13.5 J	16	7 J	1.3 UJ
	TOTAL XYLENES	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	0.5 J	3	3	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	0.9 J	2	16	16	4	4	2	1 U	1 U	1 U
	TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	2 U	1 J	19	19	0.3 J	0.3 J	2 U	2 U	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ETHENE	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	1,2-DIPHENYLHYDRAZINE	21 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,4,5-TRICHLOROPHENOL	26 U	25 U	25 U	25 UR	25 U	25 U	25 U	24 UJ	25 U	24 UJ
	2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	2,4-DINITROPHENOL	26 UJ	25 U	25 U	25 UR	25 U	25 U	25 U	24 UJ	25 U	24 UJ
	2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,6-DICHLOROPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-CHLOROPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-METHYLPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	2-NITROANILINE	26 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	2-NITROPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	3&4-METHYLPHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	3,3'-DICHLOROBENZIDINE	10 UJ	10 UJ	10 UJ	10 UR	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	3-NITROANILINE	26 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
	4,6-DINITRO-2-METHYLPHENOL	26 U	25 U	25 U	25 UR	25 U	25 U	25 U	24 UJ	25 U	24 UJ
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLORO-3-METHYLPHENOL	26 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	4-CHLOROANILINE	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-NITROANILINE	26 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
	4-NITROPHENOL	26 UJ	25 U	25 U	25 UR	25 U	25 U	25 U	24 UJ	25 U	24 UJ
	ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZIDINE	53 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR	50 UR
	BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(K)FLUORANTHENE	10 U	10 U	4 J	4 J	10 U	10 U	10 U	10 U	10 U	10 U
	BENZOIC ACID	26 UR	25 UR	25 UR	25 UR	25 UR	25 UR	25 UR	24 UR	25 UR	24 UR
	BENZYL ALCOHOL	110	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	CARBAZOLE	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIMETHYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DI-N-BUTYL PHTHALATE	10 U	3 J	5 J	5 J	10 U	10 U	10 U	10 U	10 U	10 U
	DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	10 U	4 J	4 J	10 U	10 U	10 U	10 U	10 U	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSODIMETHYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSOPYRROLIDINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PENTACHLOROPHENOL	26 U	25 U	25 U	25 UR	25 U	25 U	25 U	24 UJ	25 U	24 UJ
	PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PHENOL	10 U	10 U	10 U	10 UR	10 U	10 U	10 U	9 UJ	10 U	9 UJ
	PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	TOTAL PAHS	10 U	10 U	4 J	4 J	10 U	10 U	10 U	10 U	10 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	ALDRIN	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-BHC	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALPHA-CHLORDANE	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AROCLOR-1016	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1221	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1232	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1242	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1248	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1254	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1260	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U
	AROCLOR-1268	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
	BETA-BHC	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DELTA-BHC	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIELDRIN	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN I	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN II	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDOSULFAN SULFATE	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN ALDEHYDE	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ENDRIN KETONE	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-BHC (LINDANE)	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GAMMA-CHLORDANE	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEPTACHLOR EPOXIDE	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	METHOXYCHLOR	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL AROCLOR	0.11 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U
	TOTAL DDD/DDE/DDT	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOXAPHENE	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)	ALUMINUM	31.7 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	ANTIMONY	1.7 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	1.69 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	9.5 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	0.13 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CALCIUM	43700	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	0.57 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	0.38 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	0.75 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	19.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	0.97 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	6210	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	904	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	0.03 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	0.38 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	0.53 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	1300	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	0.96 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	10300	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	1.64 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	0.38 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	3.4 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (UG/L)	ALUMINUM	14.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	1.1 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	1.69 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	10.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	0.13 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
	CALCIUM	46400	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	0.61 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	0.27 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	0.75 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	18.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	0.97 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	6360	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	978	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	0.03 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MOLYBDENUM	0.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	0.64 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	1380	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SELENIUM	0.96 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	10500	NA	NA	NA	NA	NA	NA	NA	NA	NA
	THALLIUM	1.64 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	0.38 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	4.2 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRATE-N	0.34	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRITE-N	0.014 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ORTHOPHOSPHATE-P	0.049 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFATE	26	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SULFIDE	1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL ORGANIC CARBON	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	4.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD (UG/L)	FERROUS IRON	0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW123	DA-MW124B	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B
	SAMPLE DATE	06/04/08	08/01/08	08/04/08	08/04/08	08/01/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-2008LOCMAX	DA-MW124B-3545	DA-MW125B-2008LOCMAX	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2008LOCMAX	DA-MW126B-2227	DA-MW126B-4246
FRACTION (UNITS)	PARAMETER										
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	81 U	1100 J	1300 J	1300 J	270	270	220	360	360	270
	GASOLINE RANGE ORGANICS	10 U	25	61	61	19	19	18	10 U	10 U	10 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	1 U
	1,1-DICHLOROETHANE	1 U	1 U
	1,1-DICHLOROETHENE	1 U	1 U
	1,1-DICHLOROPROPENE	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 UJ
	1,2-DIBROMOETHANE	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	1 U
	1,2-DICHLOROETHANE	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	1 UJ
	2-BUTANONE	5 U	5 UJ
	2-CHLOROTOLUENE	1 U	1 U
	2-HEXANONE	5 U	5 U
	4-CHLOROTOLUENE	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	5 U
	ACETONE	5 U	5 UJ

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	BENZENE	1 U	1 U
	BROMOBENZENE	1 U	1 U
	BROMOCHLOROMETHANE	1 U	1 U
	BROMODICHLOROMETHANE	1 U	1 U
	BROMOFORM	1 U	1 U
	BROMOMETHANE	2	2 U
	BTEX	2	1.1 U
	CARBON DISULFIDE	1 U	1 U
	CARBON TETRACHLORIDE	1 U	1 U
	CHLOROBENZENE	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	1 U
	CHLOROETHANE	2 U	2 U
	CHLOROFORM	1 U	1 U
	CHLOROMETHANE	16	2 UJ
	CIS-1,2-DICHLOROETHENE	1 U	1 U
	CIS-1,3-DICHLOROPROPENE	1 U	1 U
	DIBROMOMETHANE	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 U	2 U
	ETHYLBENZENE	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	1 U
	ISOPROPYLBENZENE	1 U	1 U
	M+P-XYLENES	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	1 U
	METHYLENE CHLORIDE	5 U	5 U
	N-BUTYLBENZENE	1 U	1 U
	N-PROPYLBENZENE	1 U	1 U
	O-XYLENE	1 U	1 U
	SEC-BUTYLBENZENE	1 U	1 U
	STYRENE	1 U	1 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	TERT-BUTYLBENZENE	1 U	1 U
	TETRACHLOROETHENE	1 U	1 UJ
	TOLUENE	2	1 U
	TOTAL 1,2-DICHLOROETHENE	1 U	1 U
	TOTAL CHLORINATED ETHENES	1.2 U	0.4 J
	TOTAL CHLORINATED VOCS	16	0.4 J
	TOTAL XYLENES	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U
	TRICHLOROETHENE	1 U	0.40 J
	TRICHLOROFLUOROMETHANE	2 U	2 U
	VINYL CHLORIDE	2 U	2 U
VOLATILE GASES (UG/L)	ETHANE	NA	NA
	ETHENE	NA	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	9 U
	1,2-DIPHENYLHYDRAZINE	20 U	19 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	9 U
	2,4,5-TRICHLOROPHENOL	25 U	24 U
	2,4,6-TRICHLOROPHENOL	10 U	9 U
	2,4-DICHLOROPHENOL	10 U	9 U
	2,4-DIMETHYLPHENOL	10 U	9 U
	2,4-DINITROPHENOL	25 U	24 U
	2,4-DINITROTOLUENE	10 U	9 U
	2,6-DICHLOROPHENOL	10 U	9 U
	2,6-DINITROTOLUENE	10 U	9 U
	2-CHLORONAPHTHALENE	10 U	9 U
	2-CHLOROPHENOL	10 U	9 U
	2-METHYLNAPHTHALENE	10 U	9 U
	2-METHYLPHENOL	10 U	9 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	2-NITROANILINE	25 U	24 U
	2-NITROPHENOL	10 U	9 U
	3&4-METHYLPHENOL	10 U	9 U
	3,3'-DICHLOROBENZIDINE	10 UJ	9 UJ
	3-NITROANILINE	25 UJ	24 UJ
	4,6-DINITRO-2-METHYLPHENOL	25 U	24 U
	4-BROMOPHENYL PHENYL ETHER	10 U	9 U
	4-CHLORO-3-METHYLPHENOL	10 U	9 U
	4-CHLOROANILINE	10 U	9 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	9 U
	4-NITROANILINE	25 UJ	24 UJ
	4-NITROPHENOL	25 U	24 U
	ACENAPHTHENE	10 U	9 U
	ACENAPHTHYLENE	10 U	9 U
	ANTHRACENE	10 U	9 U
	BENZIDINE	50 UR	47 UJ
	BENZO(A)ANTHRACENE	10 U	9 U
	BENZO(A)PYRENE	10 U	9 U
	BENZO(B)FLUORANTHENE	10 U	9 U
	BENZO(G,H,I)PERYLENE	10 U	9 U
	BENZO(K)FLUORANTHENE	10 U	9 U
	BENZOIC ACID	25 UR	24 UR
	BENZYL ALCOHOL	20 U	19 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	9 U
	BIS(2-CHLOROETHYL)ETHER	10 U	9 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	9 U
	BUTYL BENZYL PHTHALATE	10 U	9 U
	CARBAZOLE	10 UJ	9 U

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	CHRYSENE	10 U	9 U
	DIBENZO(A,H)ANTHRACENE	10 U	9 U
	DIBENZOFURAN	10 U	9 U
	DIETHYL PHTHALATE	10 U	9 U
	DIMETHYL PHTHALATE	10 U	9 U
	DI-N-BUTYL PHTHALATE	10 U	9 U
	DI-N-OCTYL PHTHALATE	10 U	9 U
	FLUORANTHENE	10 U	9 U
	FLUORENE	10 U	9 U
	HEXACHLOROBENZENE	10 U	9 U
	HEXACHLOROETHANE	10 U	9 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	9 U
	INDENO(1,2,3-CD)PYRENE	10 U	9 U
	ISOPHORONE	10 U	9 U
	LOW MOLECULAR WEIGHT PAHS	10 U	9 U
	NAPHTHALENE	10 U	9 U
	NITROBENZENE	10 U	9 U
	N-NITROSODIMETHYLAMINE	10 U	9 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	9 U
	N-NITROSODIPHENYLAMINE	10 U	9 U
	N-NITROSOPYRROLIDINE	10 U	9 U
	PENTACHLOROPHENOL	25 U	24 U
	PHENANTHRENE	10 U	9 U
	PHENOL	10 U	9 U
	PYRENE	10 U	9 U
	TOTAL PAHS	10 U	9 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	NA
	4,4'-DDE	NA	NA
	4,4'-DDT	NA	NA

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	ALDRIN	NA	NA
	ALPHA-BHC	NA	NA
	ALPHA-CHLORDANE	NA	NA
	AROCLOR-1016	0.1 UJ	0.10 U
	AROCLOR-1221	0.1 U	0.10 U
	AROCLOR-1232	0.1 U	0.10 U
	AROCLOR-1242	0.1 U	0.10 U
	AROCLOR-1248	0.1 U	0.10 U
	AROCLOR-1254	0.1 U	0.10 U
	AROCLOR-1260	0.1 UJ	0.10 U
	AROCLOR-1268	0.1 U	0.10 U
	BETA-BHC	NA	NA
	DELTA-BHC	NA	NA
	DIELDRIN	NA	NA
	ENDOSULFAN I	NA	NA
	ENDOSULFAN II	NA	NA
	ENDOSULFAN SULFATE	NA	NA
	ENDRIN	NA	NA
	ENDRIN ALDEHYDE	NA	NA
	ENDRIN KETONE	NA	NA
	GAMMA-BHC (LINDANE)	NA	NA
	GAMMA-CHLORDANE	NA	NA
	HEPTACHLOR	NA	NA
	HEPTACHLOR EPOXIDE	NA	NA
	METHOXYCHLOR	NA	NA
	TOTAL AROCLOR	0.1 UJ	0.1 U
	TOTAL DDD/DDE/DDT	NA	NA
	TOXAPHENE	NA	NA
METALS (UG/L)	ALUMINUM	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	ANTIMONY	NA	NA
	ARSENIC	NA	NA
	BARIUM	NA	NA
	BERYLLIUM	NA	NA
	CADMIUM	NA	NA
	CALCIUM	NA	NA
	CHROMIUM	NA	NA
	COBALT	NA	NA
	COPPER	NA	NA
	IRON	NA	NA
	LEAD	NA	NA
	MAGNESIUM	NA	NA
	MANGANESE	NA	NA
	MERCURY	NA	NA
	MOLYBDENUM	NA	NA
	NICKEL	NA	NA
	POTASSIUM	NA	NA
	SELENIUM	NA	NA
	SILVER	NA	NA
	SODIUM	NA	NA
	THALLIUM	NA	NA
	VANADIUM	NA	NA
	ZINC	NA	NA
DISSOLVED METALS (UG/L)	ALUMINUM	NA	NA
	ANTIMONY	NA	NA
	ARSENIC	NA	NA
	BARIUM	NA	NA
	BERYLLIUM	NA	NA
	CADMIUM	NA	NA

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
	CALCIUM	NA	NA
	CHROMIUM	NA	NA
	COBALT	NA	NA
	COPPER	NA	NA
	IRON	NA	NA
	LEAD	NA	NA
	MAGNESIUM	NA	NA
	MANGANESE	NA	NA
	MERCURY	NA	NA
	MOLYBDENUM	NA	NA
	NICKEL	NA	NA
	POTASSIUM	NA	NA
	SELENIUM	NA	NA
	SILVER	NA	NA
	SODIUM	NA	NA
	THALLIUM	NA	NA
	VANADIUM	NA	NA
	ZINC	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)	AMMONIA-N	NA	NA
	NITRATE-N	NA	NA
	NITRITE-N	NA	NA
	ORTHOPHOSPHATE-P	NA	NA
	SULFATE	NA	NA
	SULFIDE	NA	NA
	TOTAL ORGANIC CARBON	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)	METHANE	NA	NA
FIELD (UG/L)	FERROUS IRON	NA	NA

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APPENDIX F-2 GROUNDWATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW126B	DA-MW13A
	SAMPLE DATE	07/30/08	08/04/08
	SAMPLE CODE	NORMAL	NORMAL
	SAMPLE ID	DA-MW126B-5055	DA-MW13A-2008LOCMAX
FRACTION (UNITS)	PARAMETER		
PETROLEUM HYDROCARBONS	EXTRACTABLE TPH (C09-C36)	180	58 J
	GASOLINE RANGE ORGANICS	10 U	10 U

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APPENDIX F.3

SURFACE WATER ANALYTICAL DATA

APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	0.31 U	0.31 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,1,1-TRICHLOROETHANE	0.25 U	0.25 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,1,2,2-TETRACHLOROETHANE	0.29 U	0.29 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,1,2-TRICHLOROETHANE	0.16 U	0.16 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,1-DICHLOROETHANE	0.19 U	0.19 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,1-DICHLOROETHENE	0.38 U	0.38 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,1-DICHLOROPROPENE	0.34 U	0.34 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,2,3-TRICHLOROBENZENE	0.38 U	0.38 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,2,3-TRICHLOROPROPANE	0.22 U	0.22 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,2,4-TRICHLOROBENZENE	0.28 U	0.28 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U
	1,2,4-TRIMETHYLBENZENE	0.25 U	0.25 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,2-DIBROMO-3-CHLOROPROPANE	1 UJ	1 UJ	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	1,2-DIBROMOETHANE	0.22 U	0.22 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,2-DICHLOROBENZENE	0.15 U	0.15 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U
	1,2-DICHLOROETHANE	0.14 U	0.14 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,2-DICHLOROPROPANE	0.24 U	0.24 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,3,5-TRIMETHYLBENZENE	0.27 U	0.27 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,3-DICHLOROBENZENE	0.2 U	0.2 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U
	1,3-DICHLOROPROPANE	0.17 U	0.17 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	1,4-DICHLOROBENZENE	0.23 U	0.23 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U
	2,2-DICHLOROPROPANE	0.63 U	0.63 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	2-BUTANONE	1.7 U	1.7 U	5 U	5 UJ	5 U	5 U	NA	5 U	NA
	2-CHLOROTOLUENE	0.24 U	0.24 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	2-HEXANONE	1.8 U	1.8 U	5 U	5 UJ	5 U	5 U	NA	5 U	NA
	4-CHLOROTOLUENE	0.24 U	0.24 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	4-ISOPROPYLTOLUENE	0.33 U	0.33 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	4-METHYL-2-PENTANONE	0.4 U	0.4 U	5 U	5 U	5 U	5 U	NA	5 U	NA
	ACETONE	1.5 U	1.5 U	7	5 UJ	13	5 U	NA	5 U	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	BENZENE	0.29 U	0.29 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	BROMOBENZENE	0.15 U	0.15 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	BROMOCHLOROMETHANE	0.19 U	0.19 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	BROMODICHLOROMETHANE	0.24 U	0.24 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	BROMOMETHANE	0.36 U	0.36 U	2 U	2 U	2 U	2 U	NA	2 U	NA
	BTEX	0.32 U	0.32 U	1.1 U	1.1 U	1.1 U	1.1 U	NA	1.1 U	NA
	CARBON DISULFIDE	0.27 U	0.27 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	CARBON TETRACHLORIDE	0.38 U	0.38 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	CHLOROBENZENE	0.32 U	0.32 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	CHLORODIBROMOMETHANE	0.19 U	0.19 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	CHLOROETHANE	0.36 U	0.36 U	2 U	2 U	2 U	2 U	NA	2 U	NA
	CHLOROFORM	0.14 U	0.14 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	CHLOROMETHANE	0.12 U	0.12 U	2 U	2 U	2 U	2 U	NA	2 U	NA
	CIS-1,2-DICHLOROETHENE	0.18 U	0.18 U	0.6 J	1 U	1 U	1 U	NA	1 U	NA
	CIS-1,3-DICHLOROPROPENE	0.13 U	0.13 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	DIBROMOMETHANE	0.19 U	0.19 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	DICHLORODIFLUOROMETHANE	0.3 U	0.3 U	2 U	2 U	2 U	2 U	NA	2 UJ	NA
	ETHYLBENZENE	0.28 U	0.28 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	HEXACHLOROBUTADIENE	0.43 U	0.43 U	1 U	1 U	1 U	1 U	10 U	1 UJ	10 U
	ISOPROPYLBENZENE	0.26 U	0.26 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	M+P-XYLENES	0.38 U	0.38 U	2 U	2 U	2 U	2 U	NA	2 U	NA
	METHYL TERT-BUTYL ETHER	0.12 U	0.12 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	METHYLENE CHLORIDE	0.37 U	0.37 U	5 U	5 U	5 U	5 U	NA	5 U	NA
	N-BUTYLBENZENE	0.41 U	0.41 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	N-PROPYLBENZENE	0.32 U	0.32 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	O-XYLENE	0.3 U	0.3 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	SEC-BUTYLBENZENE	0.4 U	0.4 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	STYRENE	0.44 U	0.44 U	1 U	1 U	1 U	1 U	NA	1 U	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	TERT-BUTYLBENZENE	0.29 U	0.29 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	TETRACHLOROETHENE	0.43 U	0.43 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA
	TOLUENE	0.31 U	0.31 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	TOTAL 1,2-DICHLOROETHENE	0.26 U	0.26 U	0.6 J	1 U	1 U	1 U	NA	1 U	NA
	TOTAL CHLORINATED ETHENES	0.32 U	0.32 U	1 J	1.2 U	1.2 U	1.2 U	NA	1.2 UJ	NA
	TOTAL CHLORINATED VOCS	0.31 U	0.31 U	1 J	1.3 U	1.3 U	1.3 U	10 U	1.3 UJ	10 U
	TOTAL XYLENES	0.38 U	0.38 U	1.5 U	1.5 U	1.5 U	1.5 U	NA	1.5 U	NA
	TRANS-1,2-DICHLOROETHENE	0.34 U	0.34 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	TRANS-1,3-DICHLOROPROPENE	0.24 U	0.24 U	1 U	1 U	1 U	1 U	NA	1 U	NA
	TRICHLOROETHENE	0.34 U	0.34 U	0.4 J	1 U	1 U	1 U	NA	1 U	NA
	TRICHLOROFLUOROMETHANE	0.29 U	0.29 U	2 U	2 U	2 U	2 U	NA	2 U	NA
	VINYL CHLORIDE	0.27 U	0.27 U	2 U	2 U	2 U	2 U	NA	2 U	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	10 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	1,2-DIPHENYLHYDRAZINE	1.6 U	1.6 U	19 U	20 U	20 U	21 U	20 U	NA	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	2.3 U	2.3 U	9 UJ	10 U	10 U	10 U	10 U	NA	10 U
	2,4,5-TRICHLOROPHENOL	3.5 U	3.5 U	24 U	25 U	25 U	26 U	25 U	NA	25 U
	2,4,6-TRICHLOROPHENOL	3.5 U	3.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2,4-DICHLOROPHENOL	3.2 U	3.2 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2,4-DIMETHYLPHENOL	3.5 U	3.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2,4-DINITROPHENOL	2.3 U	2.3 U	24 UJ	25 U	25 U	26 U	25 U	NA	25 U
	2,4-DINITROTOLUENE	1.4 U	1.4 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2,6-DICHLOROPHENOL	2.3 U	2.3 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2,6-DINITROTOLUENE	1.5 U	1.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2-CHLORONAPHTHALENE	1.5 U	1.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2-CHLOROPHENOL	3.2 U	3.2 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2-METHYLNAPHTHALENE	4.2 U	4.2 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2-METHYLPHENOL	3.1 U	3.1 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	2-NITROANILINE	3.5 U	3.5 U	24 U	25 U	25 U	26 U	25 U	NA	25 U
	2-NITROPHENOL	3 U	3 U	9 U	10 U	10 U	10 U	10 U	NA	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	3&4-METHYLPHENOL	2.8 U	2.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	3,3'-DICHLOROBENZIDINE	5.2 U	5.2 U	9 U	10 UJ	10 UJ	10 UJ	10 UJ	NA	10 UJ
	3,3'-DIMETHYLBENZIDINE	NA	NA	NA	10 UR	10 UR	10 UR	NA	NA	NA
	3-NITROANILINE	3.7 U	3.7 U	24 U	25 U	25 U	26 U	25 U	NA	25 U
	4,6-DINITRO-2-METHYLPHENOL	2.3 U	2.3 U	24 U	25 U	25 U	26 U	25 U	NA	25 U
	4-BROMOPHENYL PHENYL ETHER	1.7 U	1.7 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	4-CHLORO-3-METHYLPHENOL	3.3 U	3.3 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	4-CHLOROANILINE	4.6 U	4.6 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	4-CHLOROPHENYL PHENYL ETHER	1.5 U	1.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	4-NITROANILINE	2.7 U	2.7 U	24 U	25 UJ	25 UJ	26 UJ	25 U	NA	25 U
	4-NITROPHENOL	1.9 U	1.9 U	24 U	25 U	25 U	26 U	25 U	NA	25 U
	ACENAPHTHENE	1.5 U	1.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	ACENAPHTHYLENE	1.6 U	1.6 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	ANTHRACENE	1.4 U	1.4 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BENZIDINE	44 U	44 U	47 UR	50 UR	50 UR	53 UR	50 UJ	NA	50 UJ
	BENZO(A)ANTHRACENE	1.5 U	1.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BENZO(A)PYRENE	1.6 U	1.6 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BENZO(B)FLUORANTHENE	1.5 U	1.5 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BENZO(G,H,I)PERYLENE	1.6 U	1.6 U	9 UJ	10 U	10 U	10 U	10 U	NA	10 U
	BENZO(K)FLUORANTHENE	1.7 U	1.7 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BENZOIC ACID	15 U	15 U	24 UJ	25 U	25 U	26 U	25 U	NA	25 UR
	BENZYL ALCOHOL	3 U	3 U	19 U	20 U	20 U	21 U	20 U	NA	20 U
	BIS(2-CHLOROETHOXY)METHANE	1.7 U	1.7 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BIS(2-CHLOROETHYL)ETHER	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	3.8 U	3.8 U	9 U	10 U	10 U	10 U	10 UJ	NA	10 UJ
	BUTYL BENZYL PHTHALATE	2.2 U	2.2 U	9 UJ	10 U	10 U	10 U	10 UJ	NA	10 UJ
	CARBAZOLE	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	CHRYSENE	1.6 U	1.6 U	9 U	10 U	10 U	10 U	10 U	NA	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	DIBENZO(A,H)ANTHRACENE	1.8 U	1.8 U	9 UJ	10 U	10 U	10 U	10 U	NA	10 U
	DIBENZOFURAN	3 U	3 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	DIETHYL PHTHALATE	4.9 U	4.9 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	DIMETHYL PHTHALATE	1.6 U	1.6 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	DI-N-BUTYL PHTHALATE	1.9 U	1.9 U	9 UJ	10 U	10 U	10 U	10 U	NA	10 U
	DI-N-OCTYL PHTHALATE	1.8 U	1.8 U	9 UJ	10 UJ	10 UJ	10 UJ	10 UJ	NA	10 UJ
	FLUORANTHENE	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	FLUORENE	1.4 U	1.4 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	HEXACHLOROBENZENE	0.217 UJ	0.217 UJ	9 U	10 U	10 U	10 U	10 U	NA	10 U
	HEXACHLOROETHANE	1 U	1 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	HIGH MOLECULAR WEIGHT PAHS	1.7 U	1.7 U	9 UJ	10 U	10 U	10 U	10 UJ	NA	10 UJ
	INDENO(1,2,3-CD)PYRENE	1.8 U	1.8 U	9 UJ	10 U	10 U	10 U	10 U	NA	10 UJ
	ISOPHORONE	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	LOW MOLECULAR WEIGHT PAHS	1.7 U	1.7 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	NAPHTHALENE	0.41 U	0.41 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	NITROBENZENE	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	N-NITROSODIMETHYLAMINE	5.1 U	5.1 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	N-NITROSO-DI-N-PROPYLAMINE	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	N-NITROSODIPHENYLAMINE	1.9 U	1.9 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	N-NITROSOPYRROLIDINE	2.0 U	2.0 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	PENTACHLOROPHENOL	3.1 U	3.1 U	24 U	25 U	25 U	26 U	25 U	NA	25 U
	PHENANTHRENE	1.6 U	1.6 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	PHENOL	1.8 U	1.8 U	9 U	10 U	10 U	10 U	10 U	NA	10 U
	PYRENE	1.7 U	1.7 U	9 U	10 U	10 U	10 U	10 UJ	NA	10 UJ
	TOTAL PAHS	1.7 U	1.7 U	9 UJ	10 U	10 U	10 U	10 UJ	NA	10 UJ
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.0076 U	0.0076 U	0.0094 U	0.01 U	0.01 U	0.01 UJ	0.01 U	NA	0.01 U
	4,4'-DDE	0.0033 U	0.0033 U	0.0094 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.01 U
	4,4'-DDT	0.0022 U	0.0022 U	0.0094 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	NA	0.01 UJ
	ALDRIN	0.0022 U	0.0022 U	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	ALPHA-BHC	0.0022 UJ	0.0022 UJ	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	ALPHA-CHLORDANE	0.0011 UJ	0.0011 UJ	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	AROCLOR-1016	0.05 U	0.05 U	0.047 UJ	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1221	0.05 U	0.05 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1232	0.05 U	0.05 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1242	0.05 U	0.05 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1248	0.05 U	0.05 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1254	0.05 U	0.05 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1260	0.043 U	0.043 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	AROCLOR-1268	0.05 U	0.05 U	0.047 U	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	BETA-BHC	0.005 U	0.005 U	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	DELTA-BHC	0.0022 UJ	0.0022 UJ	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	DIELDRIN	0.013 J	0.013 J	0.0033 J	0.01 U	0.01 U	0.01 U	0.0093	NA	0.009
	ENDOSULFAN I	0.0011 U	0.0011 U	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	ENDOSULFAN II	0.0076 U	0.0076 U	0.0094 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.01 U
	ENDOSULFAN SULFATE	0.0033 U	0.0033 U	0.0094 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.01 U
	ENDRIN	0.0033 U	0.0033 U	0.0094 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.01 U
	ENDRIN ALDEHYDE	0.0044 UJ	0.0044 UJ	0.0094 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.01 U
	ENDRIN KETONE	0.0033 UJ	0.0033 UJ	0.0094 UJ	0.01 U	0.01 U	0.01 UJ	0.01 U	NA	0.01 U
	GAMMA-BHC (LINDANE)	0.0022 U	0.0022 U	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	GAMMA-CHLORDANE	0.0022 UJ	0.0022 UJ	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	HEPTACHLOR	0.0011 UJ	0.0011 UJ	0.0047 UJ	0.005 U	0.005 U	0.0052 UJ	0.005 U	NA	0.005 U
	HEPTACHLOR EPOXIDE	0.0022 UJ	0.0022 UJ	0.0047 U	0.005 U	0.005 U	0.0052 U	0.005 U	NA	0.005 U
	METHOXYCHLOR	0.0174 U	0.0174 U	0.047 UJ	0.05 UJ	0.05 UJ	0.052 UJ	0.05 U	NA	0.05 UJ
	TOTAL AROCLOR	0.05 U	0.05 U	0.047 UJ	0.05 U	0.05 U	0.055 U	0.05 U	NA	0.05 U
	TOTAL DDD/DDE/DDT	0.0044 U	0.0044 U	0.0094 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	NA	0.01 UJ
	TOXAPHENE	0.0467 U	0.0467 U	0.094 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
METALS (UG/L)	ALUMINUM	36 J	36 J	103 UJ	71.5 UJ	714	80.2 UJ	19 U	NA	19 U
	ANTIMONY	0.87 U	0.87 U	1.92 U	1.5 U	1.5 UJ	1.5 U	0.87 U	NA	1.1 J

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	ARSENIC	1.3 U	1.3 U	4.9 J	3.4 UJ	3.4 UJ	3.1 UJ	1.3 U	NA	1.3 U
	BARIUM	13.8	13.8	10.9	3.5 UJ	17	8.2	13.8	NA	12.7
	BERYLLIUM	0.12 U	0.12 U	0.18 U	0.12 U	0.12 U	0.12 U	0.12 U	NA	0.12 U
	CADMIUM	0.1 U	0.1 U	0.12 U	0.1 U	0.11 UJ	0.1 U	0.1 U	NA	0.1 U
	CALCIUM	32000	32000	21100	14600	14300	15300	31600	NA	33300
	CHROMIUM	0.91 UJ	0.91 UJ	0.62 UJ	0.43 UJ	2.3 UJ	0.38 U	0.91 UJ	NA	0.58 UJ
	COBALT	0.26 J	0.26 J	1 UJ	0.39 J	0.99 J	0.31 J	0.26 J	NA	0.54 J
	COPPER	1.8 J	1.8 J	1.04 U	3.3 J	21.9 J	2.5 J	1.8 J	NA	2.5 J
	IRON	310	310	1180	850	2660	638	161	NA	113
	LEAD	0.8 U	0.8 U	5.5 UJ	1.5 J	5.7	1.7 J	0.91 U	NA	0.91 U
	MAGNESIUM	9200	9200	4850 J	2350	2460	2500	8430	NA	8350
	MANGANESE	220	220	352	98.1 J	144 J	72.2 J	220	NA	165
	MERCURY	0.012 U	0.012 U	0.02 UJ	0.16 J	0.24 J	0.02 UJ	0.02 U	NA	0.02 U
	MOLYBDENUM	63	63	3.7 UJ	2 U	2 U	2 U	0.99 UJ	NA	1.2 UJ
	NICKEL	2.67 J	2.67 J	1.2 J	2.1 UJ	3.9 J	1.2 UJ	1.4 J	NA	1.4 J
	POTASSIUM	4220	4220	3390	3100	3140	3560	4220	NA	4120
	SELENIUM	1.5 U	1.5 U	2.52 U	2.2 U	2.2 U	2.2 U	1.5 U	NA	1.5 U
	SILVER	0.46 U	0.46 U	0.62 U	0.54 U	0.54 U	0.54 U	0.46 U	NA	0.46 U
	SODIUM	56500	56500	26100	37400	36800	37000	56500	NA	57500
	THALLIUM	0.35 U	0.35 U	0.36 U	0.3 U	0.33 UJ	0.3 U	0.35 U	NA	0.35 U
	VANADIUM	0.29 U	0.29 U	1.4 UJ	0.73 J	2.4 J	0.52 U	0.29 U	NA	0.29 U
	ZINC	17.6 J	17.6 J	7.5 J	15.2 J	41.3	13.9 J	17.6 J	NA	15.1 J
DISSOLVED METALS (UG/L)	ALUMINUM	54	54	35.5 UJ	35.1 UJ	25.1 UJ	29.6 UJ	19 U	NA	19 U
	ANTIMONY	0.87 U	0.87 U	1.6 U	1.5 U	1.5 U	1.5 U	0.87 U	NA	0.87 U
	ARSENIC	1.3 U	1.3 U	3 J	3.4 UJ	3.4 UJ	3.5 UJ	1.3 U	NA	1.3 U
	BARIUM	14.1	14.1	7.4	5.1	4.5 J	8.4	14.1	NA	13.1
	BERYLLIUM	0.12 U	0.12 U	0.15 U	0.12 U	0.12 U	0.12 U	0.12 U	NA	0.12 U
	CADMIUM	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
	CALCIUM	32000	32000	20900	13900	14400	15500	31100	NA	33900

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD117	DA-SW/SD-RP01	DA-SW/SD-RP02	DA-SW/SD-RP04	DA-SW/SD-01	DA-SW/SD-01	DA-SW/SD106
	SAMPLE DATE	01/31/08	01/31/08	08/21/08	05/22/08	05/22/08	05/22/08	01/23/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW-01-LOCDEPTHMAX	DA-SW-01-LOCDEPTHMAX-2008	DA-SW-117-082108	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508	DA-SW01-012308	DA-SW01-013108	DA-SW106-012308
FRACTION (UNITS)	PARAMETER									
	CHROMIUM	0.28 UJ	0.28 UJ	0.74 UJ	0.38 U	0.38 U	0.38 U	0.28 UJ	NA	0.28 U
	COBALT	0.26 U	0.26 U	0.25 U	0.28 U	0.28 U	0.28 U	0.26 U	NA	0.59 J
	COPPER	4.2 J	4.2 J	1.1 J	2.4 J	2.8 J	1.7 J	2.4 J	NA	2.7 J
	IRON	350	350	251	788	470	264	81.8 J	NA	35 UJ
	LEAD	1 J	1 J	1.8 UJ	1.4 U	1.4 U	1.4 U	1 J	NA	0.91 U
	MAGNESIUM	9300	9300	4760 J	2260	2330	2540	8320	NA	8490
	MANGANESE	211	211	85.4	103 J	60.4 J	34.9 J	211	NA	161
	MERCURY	0.012 U	0.012 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	NA	0.02 U
	MOLYBDENUM	64	64	3.6 UJ	2 U	2 U	2 U	1.1 UJ	NA	1.2 UJ
	NICKEL	2.55 J	2.55 J	0.53 J	1.5 UJ	1.5 UJ	0.82 UJ	1.4 J	NA	1.2 J
	POTASSIUM	4200	4200	3130	3000	3040	3340	4110	NA	4190
	SELENIUM	1.5 U	1.5 U	2.1 U	2.2 U	2.2 U	2.2 U	1.5 U	NA	1.5 U
	SILVER	0.46 U	0.46 U	0.52 U	0.54 U	0.54 U	0.54 U	0.46 U	NA	0.46 U
	SODIUM	55300	55300	24700	36200	36500	37000	55300	NA	58000
	THALLIUM	0.35 U	0.35 U	0.3 U	0.3 U	0.3 U	0.3 U	0.35 U	NA	1.4 UJ
	VANADIUM	0.29 U	0.29 U	0.93 UJ	0.61 J	0.52 U	0.52 U	0.29 U	NA	0.29 U
	ZINC	16.5 J	16.5 J	6.2 UJ	10.7 J	10 UJ	13 J	16.5 J	NA	15.8 J
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS	NA	NA	10 U	NA	NA	NA	NA	NA	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,1,1-TRICHLOROETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,1,2,2-TETRACHLOROETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,1,2-TRICHLOROETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,1-DICHLOROETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,1-DICHLOROETHENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,1-DICHLOROPROPENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2,3-TRICHLOROBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2,3-TRICHLOROPROPANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2,4-TRICHLOROBENZENE	1 U	1 U	10 U	1 U	1 U	10 U	1 U	1 U	10 U
	1,2,4-TRIMETHYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2-DIBROMOETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2-DICHLOROBENZENE	1 U	1 U	10 U	1 U	1 U	10 U	1 U	1 U	10 U
	1,2-DICHLOROETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,2-DICHLOROPROPANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,3,5-TRIMETHYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,3-DICHLOROBENZENE	1 U	1 U	10 U	1 U	1 U	10 U	1 U	1 U	10 U
	1,3-DICHLOROPROPANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	1,4-DICHLOROBENZENE	1 U	1 U	10 U	1 U	1 U	10 U	1 U	1 U	10 U
	2,2-DICHLOROPROPANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	2-BUTANONE	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	NA
	2-CHLOROTOLUENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	2-HEXANONE	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	NA
	4-CHLOROTOLUENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	4-ISOPROPYLTOLUENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	4-METHYL-2-PENTANONE	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	NA
	ACETONE	3 J	3 J	NA	5 U	5 U	NA	5 U	5 U	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	BENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	BROMOBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	BROMOCHLOROMETHANE	1 UJ	1 UJ	NA	1 UJ	1 UJ	NA	1 UJ	1 UJ	NA
	BROMODICHLOROMETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	BROMOFORM	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	BROMOMETHANE	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
	BTEX	1.1 U	1.1 U	NA	1.1 U	1.1 U	NA	1.1 U	1.1 U	NA
	CARBON DISULFIDE	1 UJ	1 UJ	NA	1 U	1 U	NA	1 U	1 U	NA
	CARBON TETRACHLORIDE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	CHLOROBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	CHLORODIBROMOMETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	CHLOROETHANE	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
	CHLOROFORM	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	CHLOROMETHANE	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
	CIS-1,2-DICHLOROETHENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	CIS-1,3-DICHLOROPROPENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	DIBROMOMETHANE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	DICHLORODIFLUOROMETHANE	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
	ETHYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	HEXACHLOROBUTADIENE	1 U	1 U	10 U	1 U	1 U	10 U	1 U	1 U	10 U
	ISOPROPYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	M+P-XYLENES	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
	METHYL TERT-BUTYL ETHER	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	METHYLENE CHLORIDE	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	NA
	N-BUTYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	N-PROPYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	O-XYLENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	SEC-BUTYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	STYRENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	TERT-BUTYLBENZENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TETRACHLOROETHENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TOLUENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TOTAL 1,2-DICHLOROETHENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TOTAL CHLORINATED ETHENES	1.2 U	1.2 U	NA	1.2 U	1.2 U	NA	1.2 U	1.2 U	NA
	TOTAL CHLORINATED VOCS	1.3 UJ	1.3 UJ	10 U	1.3 UJ	1.3 UJ	10 U	1.3 UJ	1.3 UJ	10 U
	TOTAL XYLENES	1.5 U	1.5 U	NA	1.5 U	1.5 U	NA	1.5 U	1.5 U	NA
	TRANS-1,2-DICHLOROETHENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TRANS-1,3-DICHLOROPROPENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TRICHLOROETHENE	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	NA
	TRICHLOROFLUOROMETHANE	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
	VINYL CHLORIDE	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	NA
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	1,2-DIPHENYLHYDRAZINE	NA	20 U	20 U	NA	20 U	20 U	NA	20 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2,4,5-TRICHLOROPHENOL	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	2,4,6-TRICHLOROPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2,4-DICHLOROPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2,4-DIMETHYLPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2,4-DINITROPHENOL	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	2,4-DINITROTOLUENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2,6-DICHLOROPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2,6-DINITROTOLUENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2-CHLORONAPHTHALENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2-CHLOROPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2-METHYLNAPHTHALENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2-METHYLPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	2-NITROANILINE	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	2-NITROPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	3&4-METHYLPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	3,3'-DICHLOROBENZIDINE	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
	3,3'-DIMETHYLBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	4,6-DINITRO-2-METHYLPHENOL	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	4-BROMOPHENYL PHENYL ETHER	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	4-CHLORO-3-METHYLPHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	4-CHLOROANILINE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	4-NITROANILINE	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	4-NITROPHENOL	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	ACENAPHTHENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	ACENAPHTHYLENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	ANTHRACENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BENZIDINE	NA	50 UJ	50 UJ	NA	50 UJ	50 UJ	NA	50 UJ	50 UJ
	BENZO(A)ANTHRACENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BENZO(A)PYRENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BENZO(B)FLUORANTHENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BENZO(G,H,I)PERYLENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BENZO(K)FLUORANTHENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BENZOIC ACID	NA	25 UR	25 U	NA	25 U	25 U	NA	25 U	25 U
	BENZYL ALCOHOL	NA	20 U	20 U	NA	20 U	20 U	NA	20 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BIS(2-CHLOROETHYL)ETHER	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
	BUTYL BENZYL PHTHALATE	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
	CARBAZOLE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	CHRYSENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	DIBENZO(A,H)ANTHRACENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	DIBENZOFURAN	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	DIETHYL PHTHALATE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	DIMETHYL PHTHALATE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	DI-N-BUTYL PHTHALATE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	DI-N-OCTYL PHTHALATE	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
	FLUORANTHENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	FLUORENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	HEXACHLOROBENZENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	HEXACHLOROETHANE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
	INDENO(1,2,3-CD)PYRENE	NA	10 UJ	10 U	NA	10 U	10 U	NA	10 U	10 U
	ISOPHORONE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	LOW MOLECULAR WEIGHT PAHS	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	NAPHTHALENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	NITROBENZENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	N-NITROSODIMETHYLAMINE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	N-NITROSODIPHENYLAMINE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	N-NITROSOPYRROLIDINE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	PENTACHLOROPHENOL	NA	25 U	25 U	NA	25 U	25 U	NA	25 U	25 U
	PHENANTHRENE	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	PHENOL	NA	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U
	PYRENE	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
	TOTAL PAHS	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	10 UJ
PESTICIDES/PCBS (UG/L)	4,4'-DDD	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	4,4'-DDE	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	4,4'-DDT	NA	0.01 UJ	0.01 UJ	NA	0.01 UJ	0.01 U	NA	0.01 U	0.0047 J
	ALDRIN	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	ALPHA-BHC	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	ALPHA-CHLORDANE	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	AROCLOR-1016	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1221	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1232	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1242	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1248	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1254	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1260	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	AROCLOR-1268	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	BETA-BHC	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	DELTA-BHC	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	DIELDRIN	NA	0.009	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.012 J
	ENDOSULFAN I	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	ENDOSULFAN II	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	ENDOSULFAN SULFATE	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	ENDRIN	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	ENDRIN ALDEHYDE	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	ENDRIN KETONE	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U
	GAMMA-BHC (LINDANE)	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	GAMMA-CHLORDANE	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	HEPTACHLOR	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	HEPTACHLOR EPOXIDE	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	0.005 U	0.005 U
	METHOXYCHLOR	NA	0.05 UJ	0.05 UJ	NA	0.05 UJ	0.05 U	NA	0.05 U	0.05 U
	TOTAL AROCLOR	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	0.05 U	0.05 U
	TOTAL DDD/DDE/DDT	NA	0.01 UJ	0.01 UJ	NA	0.01 UJ	0.01 U	NA	0.01 U	0.0047 J
	TOXAPHENE	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U
METALS (UG/L)	ALUMINUM	NA	19 U	19 U	NA	19 U	19 U	NA	19 U	67.4 J
	ANTIMONY	NA	1.1 J	0.87 U	NA	0.87 U	0.87 U	NA	0.87 U	0.87 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	ARSENIC	NA	1.3 U	1.3 U	NA	1.3 U	1.3 U	NA	1.3 U	1.3 U
	BARIUM	NA	12.7	6.8	NA	6.8	6.7	NA	6.7	13.1
	BERYLLIUM	NA	0.12 U	0.12 U	NA	0.12 U	0.12 U	NA	0.12 U	0.12 U
	CADMIUM	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U
	CALCIUM	NA	33300	21200	NA	21200	20200	NA	20200	33300
	CHROMIUM	NA	0.58 UJ	0.28 U	NA	0.28 U	0.28 U	NA	0.28 U	1.6 UJ
	COBALT	NA	0.54 J	0.26 U	NA	0.26 U	0.35 J	NA	0.35 J	0.71 J
	COPPER	NA	2.5 J	0.6 UJ	NA	0.6 UJ	0.94 UJ	NA	0.94 UJ	3 J
	IRON	NA	113	155	NA	155	190	NA	190	229
	LEAD	NA	0.91 U	0.91 U	NA	0.91 U	0.91 U	NA	0.91 U	3.2 J
	MAGNESIUM	NA	8350	7550	NA	7550	7230	NA	7230	8420
	MANGANESE	NA	165	74	NA	74	78.5	NA	78.5	169
	MERCURY	NA	0.02 U	0.02 U	NA	0.02 U	0.02 U	NA	0.02 U	0.02 U
	MOLYBDENUM	NA	1.2 UJ	0.29 UJ	NA	0.29 UJ	0.20 U	NA	0.20 U	1.1 UJ
	NICKEL	NA	1.4 J	0.79 J	NA	0.79 J	1.3 J	NA	1.3 J	1.6 J
	POTASSIUM	NA	4120	3020	NA	3020	2890	NA	2890	4180
	SELENIUM	NA	1.5 U	1.5 U	NA	1.5 U	1.5 U	NA	1.5 U	1.5 U
	SILVER	NA	0.46 U	0.46 U	NA	0.46 U	0.46 U	NA	0.46 U	0.46 U
	SODIUM	NA	57500	14400	NA	14400	13800	NA	13800	57000
	THALLIUM	NA	0.35 U	0.35 U	NA	0.35 U	0.35 U	NA	0.35 U	0.35 U
	VANADIUM	NA	0.29 U	0.29 U	NA	0.29 U	0.29 U	NA	0.29 U	0.29 U
	ZINC	NA	15.1 J	5.4 UJ	NA	5.4 UJ	6.5 UJ	NA	6.5 UJ	17.5 J
DISSOLVED METALS (UG/L)	ALUMINUM	NA	19 U	19 U	NA	19 U	19 U	NA	19 U	19 U
	ANTIMONY	NA	0.87 U	0.87 U	NA	0.87 U	0.87 U	NA	0.87 U	0.87 U
	ARSENIC	NA	1.3 U	1.3 U	NA	1.3 U	1.3 U	NA	1.3 U	1.3 U
	BARIUM	NA	13.1	6.9	NA	6.9	6.8	NA	6.8	12.9
	BERYLLIUM	NA	0.12 U	0.12 U	NA	0.12 U	0.12 U	NA	0.12 U	0.12 U
	CADMIUM	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U
	CALCIUM	NA	33900	20800	NA	20800	20600	NA	20600	33400

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SW/SD110
	SAMPLE DATE	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08	01/23/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-SW106-013108	DA-SW106-LOCDEPTH MAX	DA-SW107-012308	DA-SW107-013108	DA-SW107-LOCDEPTH MAX	DA-SW108-012308	DA-SW108-013108	DA-SW108-LOCDEPTH MAX	DA-SW110-012308
FRACTION (UNITS)	PARAMETER									
	CHROMIUM	NA	0.28 U	0.28 U	NA	0.28 U	0.63 UJ	NA	0.63 UJ	0.73 UJ
	COBALT	NA	0.59 J	0.26 U	NA	0.26 U	0.26 U	NA	0.26 U	0.35 J
	COPPER	NA	2.7 J	0.78 UJ	NA	0.78 UJ	1 UJ	NA	1 UJ	2 J
	IRON	NA	35 UJ	58.3 J	NA	58.3 J	92.8 J	NA	92.8 J	28.1 UJ
	LEAD	NA	0.91 U	0.91 U	NA	0.91 U	0.91 U	NA	0.91 U	0.94 J
	MAGNESIUM	NA	8490	7380	NA	7380	7350	NA	7350	8400
	MANGANESE	NA	161	64.4	NA	64.4	71.2	NA	71.2	131
	MERCURY	NA	0.02 U	0.02 U	NA	0.02 U	0.02 U	NA	0.02 U	0.02 U
	MOLYBDENUM	NA	1.2 UJ	0.20 U	NA	0.20 U	0.20 U	NA	0.20 U	1.0 UJ
	NICKEL	NA	1.2 J	1.3 J	NA	1.3 J	1.4 J	NA	1.4 J	1.3 J
	POTASSIUM	NA	4190	2970	NA	2970	2920	NA	2920	4170
	SELENIUM	NA	1.5 U	1.5 U	NA	1.5 U	1.5 U	NA	1.5 U	1.5 U
	SILVER	NA	0.46 U	0.46 U	NA	0.46 U	0.46 U	NA	0.46 U	0.46 U
	SODIUM	NA	58000	14000	NA	14000	14100	NA	14100	56800
	THALLIUM	NA	1.4 UJ	0.35 U	NA	0.35 U	0.35 U	NA	0.35 U	0.35 U
	VANADIUM	NA	0.29 U	0.29 U	NA	0.29 U	0.29 U	NA	0.29 U	0.29 U
	ZINC	NA	15.8 J	6.5 UJ	NA	6.5 UJ	6.5 UJ	NA	6.5 UJ	18.9 J
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,1,1-TRICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,1,2-TRICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,1-DICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,1-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,1-DICHLOROPROPENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,2,3-TRICHLOROBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,2,3-TRICHLOROPROPANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,2,4-TRICHLOROBENZENE	10 U	10 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	1,2-DIBROMOETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,2-DICHLOROBENZENE	10 U	10 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U
	1,2-DICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,2-DICHLOROPROPANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,3-DICHLOROBENZENE	10 U	10 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U
	1,3-DICHLOROPROPANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	1,4-DICHLOROBENZENE	10 U	10 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U
	2,2-DICHLOROPROPANE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	2-BUTANONE	NA	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U
	2-CHLOROTOLUENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	2-HEXANONE	NA	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U
	4-CHLOROTOLUENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	4-ISOPROPYLTOLUENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	4-METHYL-2-PENTANONE	NA	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U
	ACETONE	NA	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	BENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	BROMOBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	BROMOCHLOROMETHANE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	BROMODICHLOROMETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	BROMOFORM	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	BROMOMETHANE	NA	NA	2 U	2 U	2 U	2 U	NA	2 U	2 U
	BTEX	NA	NA	1.1 U	1.1 U	1.1 U	1.1 U	NA	1.1 U	1.1 U
	CARBON DISULFIDE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	CARBON TETRACHLORIDE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	CHLOROBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	CHLORODIBROMOMETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	CHLOROETHANE	NA	NA	2 U	2 U	2 U	2 U	NA	2 U	2 U
	CHLOROFORM	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	CHLOROMETHANE	NA	NA	2 U	2 U	2 U	2 U	NA	2 U	2 U
	CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	CIS-1,3-DICHLOROPROPENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	DIBROMOMETHANE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	DICHLORODIFLUOROMETHANE	NA	NA	2 UJ	2 UJ	2 UJ	2 UJ	NA	2 UJ	2 UJ
	ETHYLBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	HEXACHLOROBUTADIENE	10 U	10 U	1 UJ	1 UJ	1 UJ	1 UJ	10 U	1 UJ	1 UJ
	ISOPROPYLBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	M+P-XYLENES	NA	NA	2 U	2 U	2 U	2 U	NA	2 U	2 U
	METHYL TERT-BUTYL ETHER	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	METHYLENE CHLORIDE	NA	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U
	N-BUTYLBENZENE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	N-PROPYLBENZENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	O-XYLENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	SEC-BUTYLBENZENE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	STYRENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	TERT-BUTYLBENZENE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	TETRACHLOROETHENE	NA	NA	1 UJ	1 UJ	1 UJ	1 UJ	NA	1 UJ	1 UJ
	TOLUENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	TOTAL CHLORINATED ETHENES	NA	NA	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	NA	1.2 UJ	1.2 UJ
	TOTAL CHLORINATED VOCS	10 U	10 U	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	10 U	1.3 UJ	1.3 UJ
	TOTAL XYLENES	NA	NA	1.5 U	1.5 U	1.5 U	1.5 U	NA	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	TRICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
	TRICHLOROFLUOROMETHANE	NA	NA	2 U	2 U	2 U	2 U	NA	2 U	2 U
	VINYL CHLORIDE	NA	NA	2 U	2 U	2 U	2 U	NA	2 U	2 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	1,2-DIPHENYLHYDRAZINE	20 U	20 U	NA	NA	NA	20 U	20 U	NA	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2,4,5-TRICHLOROPHENOL	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	2,4,6-TRICHLOROPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2,4-DICHLOROPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2,4-DIMETHYLPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2,4-DINITROPHENOL	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	2,4-DINITROTOLUENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2,6-DICHLOROPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2,6-DINITROTOLUENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2-CHLORONAPHTHALENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2-CHLOROPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2-METHYLNAPHTHALENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2-METHYLPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	2-NITROANILINE	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	2-NITROPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	3&4-METHYLPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	3,3'-DICHLOROBENZIDINE	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
	3,3'-DIMETHYLBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	4-CHLOROANILINE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	4-NITROANILINE	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	4-NITROPHENOL	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	ACENAPHTHENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	ACENAPHTHYLENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	ANTHRACENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BENZIDINE	50 UJ	50 UJ	NA	NA	NA	50 UJ	50 UJ	NA	50 UJ
	BENZO(A)ANTHRACENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BENZO(A)PYRENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BENZO(B)FLUORANTHENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BENZO(G,H,I)PERYLENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BENZO(K)FLUORANTHENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BENZOIC ACID	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	BENZYL ALCOHOL	20 U	20 U	NA	NA	NA	20 U	20 U	NA	20 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
	BUTYL BENZYL PHTHALATE	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
	CARBAZOLE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	CHRYSENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	DIBENZOFURAN	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	DIETHYL PHTHALATE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	DIMETHYL PHTHALATE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	DI-N-BUTYL PHTHALATE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	DI-N-OCTYL PHTHALATE	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
	FLUORANTHENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	FLUORENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	HEXACHLOROBENZENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	HEXACHLOROETHANE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	ISOPHORONE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	NAPHTHALENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	NITROBENZENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	N-NITROSODIMETHYLAMINE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	N-NITROSODIPHENYLAMINE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	N-NITROSOPYRROLIDINE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	PENTACHLOROPHENOL	25 U	25 U	NA	NA	NA	25 U	25 U	NA	25 U
	PHENANTHRENE	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	PHENOL	10 U	10 U	NA	NA	NA	10 U	10 U	NA	10 U
	PYRENE	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
	TOTAL PAHS	10 UJ	10 UJ	NA	NA	NA	10 UJ	10 UJ	NA	10 UJ
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	4,4'-DDE	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	4,4'-DDT	0.00485 J	0.01 U	NA	NA	NA	0.00485 J	0.01 U	NA	0.01 U
	ALDRIN	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	ALPHA-BHC	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	ALPHA-CHLORDANE	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	AROCLOR-1016	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1221	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1232	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1242	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1248	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1254	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1260	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1268	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	BETA-BHC	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	DELTA-BHC	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	DIELDRIN	0.0105 J	0.009	NA	NA	NA	0.0105 J	0.0094 J	NA	0.0094 J
	ENDOSULFAN I	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	ENDOSULFAN II	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	ENDOSULFAN SULFATE	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	ENDRIN	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	ENDRIN ALDEHYDE	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	ENDRIN KETONE	0.01 U	0.01 U	NA	NA	NA	0.01 U	0.01 U	NA	0.01 U
	GAMMA-BHC (LINDANE)	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	GAMMA-CHLORDANE	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	HEPTACHLOR	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	HEPTACHLOR EPOXIDE	0.005 U	0.005 U	NA	NA	NA	0.005 U	0.005 U	NA	0.005 U
	METHOXYCHLOR	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	TOTAL AROCLOR	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.05 U	NA	0.05 U
	TOTAL DDD/DDE/DDT	0.00485 J	0.01 U	NA	NA	NA	0.00485 J	0.01 U	NA	0.01 U
	TOXAPHENE	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U
METALS (UG/L)	ALUMINUM	58.9 J	50.4 J	NA	NA	NA	58.9 J	19 U	NA	19 U
	ANTIMONY	0.87 U	0.87 U	NA	NA	NA	0.87 U	0.87 U	NA	0.87 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	ARSENIC	1.3 U	1.3 U	NA	NA	NA	1.3 U	1.3 U	NA	1.3 U
	BARIUM	13	12.8	NA	NA	NA	13	11.9	NA	11.9
	BERYLLIUM	0.12 U	0.12 U	NA	NA	NA	0.12 U	0.12 U	NA	0.12 U
	CADMIUM	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U
	CALCIUM	33100	32900	NA	NA	NA	33100	32900	NA	32900
	CHROMIUM	0.97 UJ	0.34 UJ	NA	NA	NA	0.97 UJ	0.44 UJ	NA	0.44 UJ
	COBALT	0.71 J	0.71 J	NA	NA	NA	0.71 J	0.59 J	NA	0.59 J
	COPPER	2.65 J	2.3 J	NA	NA	NA	2.65 J	2.4 J	NA	2.4 J
	IRON	212	195	NA	NA	NA	212	70.6 J	NA	70.6 J
	LEAD	2.9 J	2.6 J	NA	NA	NA	2.9 J	0.91 U	NA	0.91 U
	MAGNESIUM	8320	8230	NA	NA	NA	8320	8180	NA	8180
	MANGANESE	162	155	NA	NA	NA	162	109	NA	109
	MERCURY	0.02 U	0.02 U	NA	NA	NA	0.02 U	0.02 U	NA	0.02 U
	MOLYBDENUM	1.1 UJ	1.1 UJ	NA	NA	NA	1.1 UJ	1.4 UJ	NA	1.4 UJ
	NICKEL	1.35 J	1.1 J	NA	NA	NA	1.35 J	1.1 J	NA	1.1 J
	POTASSIUM	4150	4120	NA	NA	NA	4150	3970	NA	3970
	SELENIUM	1.5 U	1.5 U	NA	NA	NA	1.5 U	1.5 U	NA	1.5 U
	SILVER	0.46 U	0.46 U	NA	NA	NA	0.46 U	0.46 U	NA	0.46 U
	SODIUM	56400	55700	NA	NA	NA	56400	57600	NA	57600
	THALLIUM	0.35 U	0.35 U	NA	NA	NA	0.35 U	0.35 U	NA	0.35 U
	VANADIUM	0.29 U	0.29 U	NA	NA	NA	0.29 U	0.29 U	NA	0.29 U
	ZINC	16.7 J	15.9 J	NA	NA	NA	16.7 J	14.7 J	NA	14.7 J
DISSOLVED METALS (UG/L)	ALUMINUM	19 U	19 U	NA	NA	NA	19 U	19 U	NA	19 U
	ANTIMONY	0.87 U	0.87 U	NA	NA	NA	0.87 U	0.87 U	NA	0.87 U
	ARSENIC	1.3 U	1.3 U	NA	NA	NA	1.3 U	1.3 U	NA	1.3 U
	BARIUM	12.8	12.8	NA	NA	NA	12.8	11.5	NA	11.5
	BERYLLIUM	0.12 U	0.12 U	NA	NA	NA	0.12 U	0.12 U	NA	0.12 U
	CADMIUM	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U
	CALCIUM	33300	33200	NA	NA	NA	33300	32100	NA	32100

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111
	SAMPLE DATE	01/23/08	01/23/08	01/31/08	01/31/08	01/31/08	01/31/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW110-012308-AVG	DA-SW110-012308-D	DA-SW110-013108	DA-SW110-013108-AVG	DA-SW110-013108-D	DA-SW110-LOCDEPTHMAX	DA-SW111-012308	DA-SW111-013108	DA-SW111-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER									
	CHROMIUM	0.6 UJ	0.47 UJ	NA	NA	NA	0.6 UJ	0.64 UJ	NA	0.64 UJ
	COBALT	0.465 J	0.58 J	NA	NA	NA	0.465 J	0.53 J	NA	0.53 J
	COPPER	2.05 J	2.1 J	NA	NA	NA	2.05 J	3.5 J	NA	3.5 J
	IRON	51.6 J	89.2 J	NA	NA	NA	51.6 J	31.4 UJ	NA	31.4 UJ
	LEAD	1.27 J	1.6 J	NA	NA	NA	1.27 J	0.91 U	NA	0.91 U
	MAGNESIUM	8380	8350	NA	NA	NA	8380	7910	NA	7910
	MANGANESE	132	134	NA	NA	NA	132	106	NA	106
	MERCURY	0.02 U	0.02 U	NA	NA	NA	0.02 U	0.02 U	NA	0.02 U
	MOLYBDENUM	1.1 UJ	1.2 UJ	NA	NA	NA	1.1 UJ	1.3 UJ	NA	1.3 UJ
	NICKEL	1.25 J	1.2 J	NA	NA	NA	1.25 J	1.3 J	NA	1.3 J
	POTASSIUM	4180	4180	NA	NA	NA	4180	3880	NA	3880
	SELENIUM	1.5 U	1.5 U	NA	NA	NA	1.5 U	1.5 U	NA	1.5 U
	SILVER	0.46 U	0.46 U	NA	NA	NA	0.46 U	0.46 U	NA	0.46 U
	SODIUM	56600	56500	NA	NA	NA	56600	55800	NA	55800
	THALLIUM	0.35 U	0.35 U	NA	NA	NA	0.35 U	0.35 U	NA	0.35 U
	VANADIUM	0.29 U	0.29 U	NA	NA	NA	0.29 U	0.29 U	NA	0.29 U
	ZINC	16.4 J	13.8 J	NA	NA	NA	16.4 J	17.3 J	NA	17.3 J
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-TRICHLOROETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROPROPENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,3-TRICHLOROPROPANE	NA	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U
	1,2,4-TRICHLOROBENZENE	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	NA	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U
	1,2-DIBROMOETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROBENZENE	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROPROPANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROBENZENE	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DICHLOROBENZENE	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2,2-DICHLOROPROPANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-BUTANONE	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	2-CHLOROTOLUENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-HEXANONE	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-CHLOROTOLUENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-ISOPROPYLTOLUENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	4-METHYL-2-PENTANONE	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	ACETONE	NA	5 UJ	5 UJ	7	4 J	3.25 J	5 U	5 U	5 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	BENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOCHLOROMETHANE	NA	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
	BROMODICHLOROMETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOMETHANE	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BTEX	NA	0.4 J	0.4 J	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
	CARBON DISULFIDE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CARBON TETRACHLORIDE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLORODIBROMOMETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	NA	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 U
	CIS-1,2-DICHLOROETHENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	0.5 J
	CIS-1,3-DICHLOROPROPENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DIBROMOMETHANE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	DICHLORODIFLUOROMETHANE	NA	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 UJ	2 UJ
	ETHYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	HEXACHLOROBUTADIENE	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ISOPROPYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	M+P-XYLENES	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT-BUTYL ETHER	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	METHYLENE CHLORIDE	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	N-BUTYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	N-PROPYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	O-XYLENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	SEC-BUTYLBENZENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	STYRENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	TERT-BUTYLBENZENE	NA	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
	TETRACHLOROETHENE	NA	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
	TOLUENE	NA	0.4 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	0.5 J
	TOTAL CHLORINATED ETHENES	NA	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 U	1.2 J	1.5 J
	TOTAL CHLORINATED VOCS	10 U	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 U	1.2 J	1.5 J
	TOTAL XYLENES	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TRICHLOROETHENE	NA	1 U	1 U	1 U	1 U	1 U	1 U	0.8 J	1
	TRICHLOROFLUOROMETHANE	NA	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U
	VINYL CHLORIDE	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	1,2-DIPHENYLHYDRAZINE	20 U	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,4,5-TRICHLOROPHENOL	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	2,4,6-TRICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,4-DICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,4-DIMETHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,4-DINITROPHENOL	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	2,4-DINITROTOLUENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,6-DICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2,6-DINITROTOLUENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-CHLORONAPHTHALENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-CHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-METHYLNAPHTHALENE	10 U	NA	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
	2-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-NITROANILINE	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	2-NITROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	3&4-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	3,3'-DICHLOROBENZIDINE	10 UJ	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	3,3'-DIMETHYLBENZIDINE	NA	NA	NA	10 UR	10 UR	10 UR	10 UR	10 UJ	10 UJ
	3-NITROANILINE	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	4,6-DINITRO-2-METHYLPHENOL	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	4-BROMOPHENYL PHENYL ETHER	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLORO-3-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLOROANILINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	4-NITROANILINE	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	4-NITROPHENOL	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	ACENAPHTHENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ACENAPHTHYLENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ANTHRACENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZIDINE	50 UJ	NA	50 UJ	50 UR	50 UR	50 UR	50 UR	50 UR	50 UJ
	BENZO(A)ANTHRACENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(A)PYRENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(B)FLUORANTHENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(G,H,I)PERYLENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZO(K)FLUORANTHENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BENZOIC ACID	25 U	NA	25 U	25 UR	25 UR	25 UR	25 UR	25 UR	25 U
	BENZYL ALCOHOL	20 U	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 UJ	NA	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	BUTYL BENZYL PHTHALATE	10 UJ	NA	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	CARBAZOLE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	CHRYSENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	DIBENZO(A,H)ANTHRACENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIBENZOFURAN	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIETHYL PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DIMETHYL PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DI-N-BUTYL PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	DI-N-OCTYL PHTHALATE	10 UJ	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
	FLUORANTHENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	FLUORENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HEXACHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HEXACHLOROETHANE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 UJ	NA	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	INDENO(1,2,3-CD)PYRENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	ISOPHORONE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	NA	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
	NAPHTHALENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	NITROBENZENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSODIMETHYLAMINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSODIPHENYLAMINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	N-NITROSOPYRROLIDINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PENTACHLOROPHENOL	25 U	NA	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	PHENANTHRENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	PYRENE	10 UJ	NA	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
	TOTAL PAHS	10 UJ	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	4,4'-DDE	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	4,4'-DDT	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.00505 J	0.0051 J	0.01 UJ	0.0043 J
	ALDRIN	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	ALPHA-BHC	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	ALPHA-CHLORDANE	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	AROCLOR-1016	0.05 U	NA	0.05 U	0.05 UJ	0.055 UJ	0.0525 UJ	0.05 UJ	0.05 U	0.053 U
	AROCLOR-1221	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	AROCLOR-1232	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	AROCLOR-1242	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	AROCLOR-1248	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	AROCLOR-1254	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	AROCLOR-1260	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	AROCLOR-1268	0.05 U	NA	0.05 U	0.05 U	0.055 U	0.0525 U	0.05 U	0.05 U	0.053 U
	BETA-BHC	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	DELTA-BHC	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	DIELDRIN	0.011 J	NA	0.011 J	0.01 U	0.011	0.0105 J	0.01 J	0.0064 J	0.0082 J
	ENDOSULFAN I	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	ENDOSULFAN II	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDOSULFAN SULFATE	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDRIN	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDRIN ALDEHYDE	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	ENDRIN KETONE	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	GAMMA-BHC (LINDANE)	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	GAMMA-CHLORDANE	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	HEPTACHLOR	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	HEPTACHLOR EPOXIDE	0.005 U	NA	0.005 U	0.0052 U	0.005 U	0.00515 U	0.0053 U	0.005 U	0.005 U
	METHOXYCHLOR	0.05 U	NA	0.05 U	0.052 U	0.05 U	0.0515 U	0.053 U	0.05 UJ	0.05 UJ
	TOTAL AROCLOR	0.05 U	NA	0.05 U	0.05 UJ	0.055 UJ	0.052 UJ	0.05 UJ	0.05 U	0.053 U
	TOTAL DDD/DDE/DDT	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.00505 J	0.0051 J	0.01 UJ	0.0043 J
	TOXAPHENE	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
METALS (UG/L)	ALUMINUM	19 U	NA	19 U	261 UJ	79.6 UJ	80.4 UJ	81.2 UJ	310 U	386 U
	ANTIMONY	0.87 U	NA	0.87 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U

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	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTH MAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	ARSENIC	1.3 U	NA	1.3 U	5.2 U	2.8 UJ	3.3 UJ	3.8 UJ	5.4 U	3.4 UJ
	BARIUM	12	NA	12	8	10.7	10.3	9.9	11.1	11
	BERYLLIUM	0.14 UJ	NA	0.14 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
	CADMIUM	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.12 UJ
	CALCIUM	32700	NA	32700	22500	37100	36200	35400	20100	19700
	CHROMIUM	0.53 UJ	NA	0.53 UJ	0.41 UJ	0.38 U	0.425 UJ	0.47 UJ	0.38 U	1.4 UJ
	COBALT	0.43 J	NA	0.43 J	1.1 J	0.54 J	0.42 J	0.3 J	1 J	1.3 J
	COPPER	2.1 J	NA	2.1 J	1.9 J	3.1 J	2.55 J	2 J	2.9 J	4 J
	IRON	80.4 J	NA	80.4 J	652	150 U	138 U	126 U	977	1120
	LEAD	0.96 J	NA	0.96 J	4.3 J	2.2 J	2.3 J	2.4 J	4.2 J	4.6 J
	MAGNESIUM	8060	NA	8060	7380	8930	8760	8580	5560	5430
	MANGANESE	110	NA	110	86.8 J	36.4 J	30.8 J	25.1 J	193 J	187 J
	MERCURY	0.02 U	NA	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.59
	MOLYBDENUM	1.3 UJ	NA	1.3 UJ	2 U	3.6 J	3.35 J	3.1 J	2 U	2.4 J
	NICKEL	1.1 J	NA	1.1 J	1.7 UJ	1 UJ	1.1 UJ	1.2 UJ	1.6 UJ	3.7 J
	POTASSIUM	3940	NA	3940	3240	4130	4040	3950	2920	3120
	SELENIUM	1.5 U	NA	1.5 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
	SILVER	0.46 U	NA	0.46 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U
	SODIUM	57100	NA	57100	15500	50100	48800	47500	24100	23500
	THALLIUM	0.35 U	NA	0.35 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.32 UJ
	VANADIUM	0.29 U	NA	0.29 U	0.57 J	0.72 J	0.49 J	0.52 U	0.92 J	1.1 J
	ZINC	15 J	NA	15 J	7.8 UJ	7.5 UJ	7.25 UJ	7 UJ	10.5 UJ	14.9 J
DISSOLVED METALS (UG/L)	ALUMINUM	19 U	NA	19 U	17.8 UJ	22.5 UJ	29 UJ	35.5 UJ	24.2 UJ	51.2 UJ
	ANTIMONY	0.87 U	NA	0.87 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
	ARSENIC	1.3 U	NA	1.3 U	5.2 U	3.8 UJ	4.2 UJ	4.6 UJ	4.8 UJ	3.5 UJ
	BARIUM	12.4	NA	12.4	6.9	10.4	10	9.7	9.3	9
	BERYLLIUM	0.12 U	NA	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
	CADMIUM	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	CALCIUM	33900	NA	33900	22700	36000	35400	34900	19700	19600

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD114	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD119	DA-SW/SD121
	SAMPLE DATE	01/23/08	01/31/08	01/31/08	05/20/08	05/20/08	05/20/08	05/20/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-SW112-012308	DA-SW112-013108	DA-SW112-LOCDEPTHMAX	DA-SW114-0508	DA-SW116-0508	DA-SW116-0508-AVG	DA-SW116-0508-D	DA-SW119-0508	DA-SW121-0508
FRACTION (UNITS)	PARAMETER									
	CHROMIUM	0.41 UJ	NA	0.41 UJ	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 UJ
	COBALT	0.57 J	NA	0.57 J	0.28 U	0.44 J	0.29 J	0.28 U	0.6 J	0.74 J
	COPPER	2.2 J	NA	2.2 J	0.8 U	2.3 J	2.5 J	2.7 J	2.4 J	2.9 J
	IRON	26 UJ	NA	26 UJ	45.4 UJ	15.5 UJ	15.3 UJ	15.1 UJ	153 U	230
	LEAD	1.1 J	NA	1.1 J	1.4 U	1.4 U	1.4 U	1.4 U	1.6 J	1.4 U
	MAGNESIUM	8380	NA	8380	7350	8650	8530	8410	5370	5320
	MANGANESE	112	NA	112	50.8 J	33.1 J	26.8 J	20.6 J	127 J	134 J
	MERCURY	0.02 U	NA	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ
	MOLYBDENUM	1.2 UJ	NA	1.2 UJ	2 U	3.4 J	3.15 J	2.9 J	2 U	2 U
	NICKEL	1 J	NA	1 J	1.4 UJ	1.2 UJ	1.1 UJ	0.99 UJ	1.3 UJ	1.5 UJ
	POTASSIUM	4080	NA	4080	3270	4030	3980	3930	2760	2910
	SELENIUM	1.5 U	NA	1.5 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
	SILVER	0.46 U	NA	0.46 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U
	SODIUM	59000	NA	59000	15100	48800	47800	46900	23300	23200
	THALLIUM	0.35 U	NA	0.35 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
	VANADIUM	0.29 U	NA	0.29 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.75 J
	ZINC	15.1 J	NA	15.1 J	5.1 UJ	7.5 UJ	7.45 UJ	7.4 UJ	5.2 UJ	7.5 UJ
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER				
VOLATILES (UG/L)	1,1,1,2-TETRACHLOROETHANE	1 U	NA	1 U	1 U
	1,1,1-TRICHLOROETHANE	1 U	NA	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	1 U	NA	1 U	1 U
	1,1,2-TRICHLOROETHANE	1 U	NA	1 U	1 U
	1,1-DICHLOROETHANE	1 U	NA	1 U	1 U
	1,1-DICHLOROETHENE	1 U	NA	1 U	1 U
	1,1-DICHLOROPROPENE	1 U	NA	1 U	1 U
	1,2,3-TRICHLOROBENZENE	1 U	NA	1 U	1 U
	1,2,3-TRICHLOROPROPANE	1 U	NA	1 U	1 U
	1,2,4-TRICHLOROBENZENE	1 U	10 U	1 U	1 U
	1,2,4-TRIMETHYLBENZENE	1 U	NA	1 U	1 U
	1,2-DIBROMO-3-CHLOROPROPANE	1 U	NA	1 U	1 U
	1,2-DIBROMOETHANE	1 U	NA	1 U	1 U
	1,2-DICHLOROBENZENE	1 U	10 U	1 U	1 U
	1,2-DICHLOROETHANE	1 U	NA	1 U	1 U
	1,2-DICHLOROPROPANE	1 U	NA	1 U	1 U
	1,3,5-TRIMETHYLBENZENE	1 U	NA	1 U	1 U
	1,3-DICHLOROBENZENE	1 U	10 U	1 U	1 U
	1,3-DICHLOROPROPANE	1 U	NA	1 U	1 U
	1,4-DICHLOROBENZENE	1 U	10 U	1 U	1 U
	2,2-DICHLOROPROPANE	1 U	NA	1 U	1 U
	2-BUTANONE	5 U	NA	5 U	5 U
	2-CHLOROTOLUENE	1 U	NA	1 U	1 U
	2-HEXANONE	5 U	NA	5 U	5 U
	4-CHLOROTOLUENE	1 U	NA	1 U	1 U
	4-ISOPROPYLTOLUENE	1 U	NA	1 U	1 U
	4-METHYL-2-PENTANONE	5 U	NA	5 U	5 U
	ACETONE	5 U	NA	5 U	5 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER				
	BENZENE	1 U	NA	1 U	1 U
	BROMOBENZENE	1 U	NA	1 U	1 U
	BROMOCHLOROMETHANE	1 U	NA	1 UJ	1 UJ
	BROMODICHLOROMETHANE	1 U	NA	1 U	1 U
	BROMOFORM	1 U	NA	1 U	1 U
	BROMOMETHANE	2 U	NA	2 U	2 U
	BTEX	1.1 U	NA	1.1 U	1.1 U
	CARBON DISULFIDE	1 U	NA	1 U	1 U
	CARBON TETRACHLORIDE	1 U	NA	1 U	1 U
	CHLOROBENZENE	1 U	NA	1 U	1 U
	CHLORODIBROMOMETHANE	1 U	NA	1 U	1 U
	CHLOROETHANE	2 U	NA	2 U	2 U
	CHLOROFORM	1 U	NA	1 U	1 U
	CHLOROMETHANE	2 U	NA	2 U	2 U
	CIS-1,2-DICHLOROETHENE	1 U	NA	1 U	1 U
	CIS-1,3-DICHLOROPROPENE	1 U	NA	1 U	1 U
	DIBROMOMETHANE	1 U	NA	1 U	1 U
	DICHLORODIFLUOROMETHANE	2 UJ	NA	2 U	2 U
	ETHYLBENZENE	1 U	NA	1 U	1 U
	HEXACHLOROBUTADIENE	1 U	10 U	1 U	1 U
	ISOPROPYLBENZENE	1 U	NA	1 U	1 U
	M+P-XYLENES	2 U	NA	2 U	2 U
	METHYL TERT-BUTYL ETHER	1 U	NA	1 U	1 U
	METHYLENE CHLORIDE	5 U	NA	5 U	5 U
	N-BUTYLBENZENE	1 U	NA	1 U	1 U
	N-PROPYLBENZENE	1 U	NA	1 U	1 U
	O-XYLENE	1 U	NA	1 U	1 U
	SEC-BUTYLBENZENE	1 U	NA	1 U	1 U
	STYRENE	1 U	NA	1 U	1 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTH MAX
FRACTION (UNITS)	PARAMETER				
	TERT-BUTYLBENZENE	1 U	NA	1 U	1 U
	TETRACHLOROETHENE	1 U	NA	1 U	1 U
	TOLUENE	1 U	NA	1 U	1 U
	TOTAL 1,2-DICHLOROETHENE	1 U	NA	1 U	1 U
	TOTAL CHLORINATED ETHENES	0.6 J	NA	1.2 U	1.2 U
	TOTAL CHLORINATED VOCS	0.6 J	10 U	1.3 UJ	1.3 UJ
	TOTAL XYLENES	1.5 U	NA	1.5 U	1.5 U
	TRANS-1,2-DICHLOROETHENE	1 U	NA	1 U	1 U
	TRANS-1,3-DICHLOROPROPENE	1 U	NA	1 U	1 U
	TRICHLOROETHENE	0.6 J	NA	1 U	1 U
	TRICHLOROFLUOROMETHANE	2 U	NA	2 U	2 U
	VINYL CHLORIDE	2 U	NA	2 U	2 U
SEMIVOLATILES (UG/L)	1,1-BIPHENYL	10 U	10 U	NA	10 U
	1,2-DIPHENYLHYDRAZINE	20 U	20 U	NA	20 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA	10 U
	2,4,5-TRICHLOROPHENOL	25 U	25 U	NA	25 U
	2,4,6-TRICHLOROPHENOL	10 U	10 U	NA	10 U
	2,4-DICHLOROPHENOL	10 U	10 U	NA	10 U
	2,4-DIMETHYLPHENOL	10 U	10 U	NA	10 U
	2,4-DINITROPHENOL	25 U	25 U	NA	25 U
	2,4-DINITROTOLUENE	10 U	10 U	NA	10 U
	2,6-DICHLOROPHENOL	10 U	10 U	NA	10 U
	2,6-DINITROTOLUENE	10 U	10 U	NA	10 U
	2-CHLORONAPHTHALENE	10 U	10 U	NA	10 U
	2-CHLOROPHENOL	10 U	10 U	NA	10 U
	2-METHYLNAPHTHALENE	10 U	10 U	NA	10 U
	2-METHYLPHENOL	10 U	10 U	NA	10 U
	2-NITROANILINE	25 U	25 U	NA	25 U
	2-NITROPHENOL	10 U	10 U	NA	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER				
	3&4-METHYLPHENOL	10 U	10 U	NA	10 U
	3,3'-DICHLOROBENZIDINE	10 UJ	10 UJ	NA	10 UJ
	3,3'-DIMETHYLBENZIDINE	10 UJ	NA	NA	NA
	3-NITROANILINE	25 U	25 U	NA	25 U
	4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	NA	25 U
	4-BROMOPHENYL PHENYL ETHER	10 U	10 U	NA	10 U
	4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA	10 U
	4-CHLOROANILINE	10 U	10 U	NA	10 U
	4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	NA	10 U
	4-NITROANILINE	25 U	25 U	NA	25 U
	4-NITROPHENOL	25 U	25 U	NA	25 U
	ACENAPHTHENE	10 U	10 U	NA	10 U
	ACENAPHTHYLENE	10 U	10 U	NA	10 U
	ANTHRACENE	10 U	10 U	NA	10 U
	BENZIDINE	50 UJ	50 UJ	NA	50 UJ
	BENZO(A)ANTHRACENE	10 U	10 U	NA	10 U
	BENZO(A)PYRENE	10 U	10 U	NA	10 U
	BENZO(B)FLUORANTHENE	10 U	10 U	NA	10 U
	BENZO(G,H,I)PERYLENE	10 U	10 U	NA	10 U
	BENZO(K)FLUORANTHENE	10 U	10 U	NA	10 U
	BENZOIC ACID	25 U	25 U	NA	25 U
	BENZYL ALCOHOL	20 U	20 U	NA	20 U
	BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA	10 U
	BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA	10 U
	BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 UJ	NA	10 UJ
	BUTYL BENZYL PHTHALATE	10 U	10 UJ	NA	10 UJ
	CARBAZOLE	10 U	10 U	NA	10 U
	CHRYSENE	10 U	10 U	NA	10 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTH MAX
FRACTION (UNITS)	PARAMETER				
	DIBENZO(A,H)ANTHRACENE	10 U	10 U	NA	10 U
	DIBENZOFURAN	10 U	10 U	NA	10 U
	DIETHYL PHTHALATE	10 U	10 U	NA	10 U
	DIMETHYL PHTHALATE	10 U	10 U	NA	10 U
	DI-N-BUTYL PHTHALATE	10 U	10 U	NA	10 U
	DI-N-OCTYL PHTHALATE	10 UJ	10 UJ	NA	10 UJ
	FLUORANTHENE	10 U	10 U	NA	10 U
	FLUORENE	10 U	10 U	NA	10 U
	HEXACHLOROBENZENE	10 U	10 U	NA	10 U
	HEXACHLOROETHANE	10 U	10 U	NA	10 U
	HIGH MOLECULAR WEIGHT PAHS	10 U	10 UJ	NA	10 UJ
	INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA	10 U
	ISOPHORONE	10 U	10 U	NA	10 U
	LOW MOLECULAR WEIGHT PAHS	10 U	10 U	NA	10 U
	NAPHTHALENE	10 U	10 U	NA	10 U
	NITROBENZENE	10 U	10 U	NA	10 U
	N-NITROSODIMETHYLAMINE	10 U	10 U	NA	10 U
	N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA	10 U
	N-NITROSODIPHENYLAMINE	10 U	10 U	NA	10 U
	N-NITROSOPYRROLIDINE	10 U	10 U	NA	10 U
	PENTACHLOROPHENOL	25 U	25 U	NA	25 U
	PHENANTHRENE	10 U	10 U	NA	10 U
	PHENOL	10 U	10 U	NA	10 U
	PYRENE	10 U	10 UJ	NA	10 UJ
	TOTAL PAHS	10 U	10 UJ	NA	10 UJ
PESTICIDES/PCBS (UG/L)	4,4'-DDD	0.01 U	0.01 U	NA	0.01 U
	4,4'-DDE	0.01 U	0.01 U	NA	0.01 U
	4,4'-DDT	0.0059 J	0.0045	NA	0.0045
	ALDRIN	0.005 U	0.005 U	NA	0.005 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTHMAX
FRACTION (UNITS)	PARAMETER				
	ALPHA-BHC	0.005 U	0.005 U	NA	0.005 U
	ALPHA-CHLORDANE	0.005 U	0.005 U	NA	0.005 U
	AROCLOR-1016	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1221	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1232	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1242	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1248	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1254	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1260	0.05 U	0.05 U	NA	0.05 U
	AROCLOR-1268	0.05 U	0.05 U	NA	0.05 U
	BETA-BHC	0.005 U	0.005 U	NA	0.005 U
	DELTA-BHC	0.005 U	0.005 U	NA	0.005 U
	DIELDRIN	0.0087 J	0.01	NA	0.01
	ENDOSULFAN I	0.005 U	0.005 U	NA	0.005 U
	ENDOSULFAN II	0.01 U	0.01 U	NA	0.01 U
	ENDOSULFAN SULFATE	0.01 U	0.01 U	NA	0.01 U
	ENDRIN	0.01 U	0.01 U	NA	0.01 U
	ENDRIN ALDEHYDE	0.01 U	0.01 U	NA	0.01 U
	ENDRIN KETONE	0.01 U	0.01 U	NA	0.01 U
	GAMMA-BHC (LINDANE)	0.005 U	0.005 U	NA	0.005 U
	GAMMA-CHLORDANE	0.005 U	0.005 U	NA	0.005 U
	HEPTACHLOR	0.005 U	0.005 U	NA	0.005 U
	HEPTACHLOR EPOXIDE	0.005 U	0.005 U	NA	0.005 U
	METHOXYCHLOR	0.05 UJ	0.05 U	NA	0.05 U
	TOTAL AROCLOR	0.05 U	0.05 U	NA	0.05 U
	TOTAL DDD/DDE/DDT	0.0059 J	0.0045	NA	0.0045
	TOXAPHENE	0.1 U	0.1 U	NA	0.1 U
METALS (UG/L)	ALUMINUM	3160	19 U	NA	19 U
	ANTIMONY	1.5 U	0.87 U	NA	0.87 U

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTH MAX
FRACTION (UNITS)	PARAMETER				
	ARSENIC	5.9 U	1.3 U	NA	1.3 U
	BARIUM	21.4	13.2	NA	13.2
	BERYLLIUM	0.15 UJ	0.12 U	NA	0.12 U
	CADMIUM	0.12 UJ	0.1 U	NA	0.1 U
	CALCIUM	18200	31500	NA	31500
	CHROMIUM	4.2 UJ	0.38 UJ	NA	0.38 UJ
	COBALT	4.4 J	0.4 J	NA	0.4 J
	COPPER	14.2 J	2.4 J	NA	2.4 J
	IRON	5590	134	NA	134
	LEAD	21.5	0.91 U	NA	0.91 U
	MAGNESIUM	5300	8370	NA	8370
	MANGANESE	253 J	193	NA	193
	MERCURY	0.17 J	0.02 U	NA	0.02 U
	MOLYBDENUM	2 U	1.1 UJ	NA	1.1 UJ
	NICKEL	6.1 J	1.2 J	NA	1.2 J
	POTASSIUM	2970	4070	NA	4070
	SELENIUM	2.2 U	2.4 UJ	NA	2.4 UJ
	SILVER	0.54 U	0.46 U	NA	0.46 U
	SODIUM	20600	57500	NA	57500
	THALLIUM	0.3 U	0.35 U	NA	0.35 U
	VANADIUM	5.3 J	0.29 U	NA	0.29 U
	ZINC	35.5	15.6 J	NA	15.6 J
DISSOLVED METALS (UG/L)	ALUMINUM	86.5 UJ	19 U	NA	19 U
	ANTIMONY	1.6 J	0.87 U	NA	0.87 U
	ARSENIC	3.6 UJ	1.3 U	NA	1.3 U
	BARIUM	9	13.9	NA	13.9
	BERYLLIUM	0.12 U	0.12 U	NA	0.12 U
	CADMIUM	0.1 U	0.1 U	NA	0.1 U
	CALCIUM	18300	32000	NA	32000

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APPENDIX F-3 SURFACE WATER ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD125	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133
	SAMPLE DATE	05/21/08	01/23/08	01/31/08	01/31/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SW125-0508	DA-SW133-012308	DA-SW133-013108	DA-SW133-LOCDEPTH MAX
FRACTION (UNITS)	PARAMETER				
	CHROMIUM	0.38 U	0.64 UJ	NA	0.64 UJ
	COBALT	0.94 J	0.4 J	NA	0.4 J
	COPPER	2.4 J	2.2 J	NA	2.2 J
	IRON	358	59 J	NA	59 J
	LEAD	1.4 U	0.91 U	NA	0.91 U
	MAGNESIUM	4890	8400	NA	8400
	MANGANESE	163 J	194	NA	194
	MERCURY	0.02 UJ	0.02 U	NA	0.02 U
	MOLYBDENUM	2 U	1.0 UJ	NA	1.0 UJ
	NICKEL	1.3 UJ	1.5 J	NA	1.5 J
	POTASSIUM	2820	4140	NA	4140
	SELENIUM	2.2 U	1.5 U	NA	1.5 U
	SILVER	0.54 U	0.46 U	NA	0.46 U
	SODIUM	21000	57600	NA	57600
	THALLIUM	0.3 U	0.35 U	NA	0.35 U
	VANADIUM	0.52 J	0.29 U	NA	0.29 U
	ZINC	6.8 UJ	14.9 J	NA	14.9 J
PETROLEUM HYDROCARBONS (UG/L)	GASOLINE RANGE ORGANICS	NA	NA	NA	NA

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F.4

SEDIMENT SAMPLE ANALYTICAL DATA

APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SD100	DA-SD101	DA-SD102	DA-SD102	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
FRACTION (UNITS)	PARAMETER																
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	0.31 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,1,1-TRICHLOROETHANE	0.64 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,1,2,2-TETRACHLOROETHANE	0.42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,1,2-TRICHLOROETHANE	0.45 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,1-DICHLOROETHANE	0.67 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,1-DICHLOROETHENE	0.82 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,1-DICHLOROPROPENE	0.55 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,2,3-TRICHLOROBENZENE	0.37 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,2,3-TRICHLOROPROPANE	0.45 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,2,4-TRICHLOROBENZENE	4.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,2,4-TRIMETHYLBENZENE	0.51 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,2-DIBROMO-3-CHLOROPROPANE	0.76 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,2-DIBROMOETHANE	0.14 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,2-DICHLOROBENZENE	0.43 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,2-DICHLOROETHANE	0.38 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,2-DICHLOROPROPANE	0.37 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,3,5-TRIMETHYLBENZENE	0.43 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,3-DICHLOROBENZENE	0.38 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	1,3-DICHLOROPROPANE	0.56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	1,4-DICHLOROBENZENE	0.31 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	2,2-DICHLOROPROPANE	0.65 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	2-BUTANONE	27 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 U	35 U	31 U	33 U	NA	7 J
	2-CHLOROTOLUENE	0.58 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	2-HEXANONE	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 U	35 U	31 U	33 U	NA	29 U
	4-CHLOROTOLUENE	0.58 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	4-ISOPROPYLTOLUENE	0.53 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	4-METHYL-2-PENTANONE	0.85 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 U	35 U	31 U	33 U	NA	29 U
	ACETONE	70 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 U	35 U	31 U	33 U	NA	46 J
	BENZENE	0.46 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	BROMOBENZENE	0.59 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	BROMOCHLOROMETHANE	0.39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	BROMODICHLOROMETHANE	0.57 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	BROMOFORM	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	BROMOMETHANE	2.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
	BTEX	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.3 U	7.8 U	6.8 U	7.3 U	NA	6.8 U
	CARBON DISULFIDE	0.69 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	CARBON TETRACHLORIDE	0.76 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	CHLOROBENZENE	0.48 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	CHLORODIBROMOMETHANE	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SD100	DA-SD101	DA-SD102	DA-SD102	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
FRACTION (UNITS)	PARAMETER																
	CHLOROETHANE	1.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
	CHLOROFORM	0.55 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	CHLOROMETHANE	0.84 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
	CIS-1,2-DICHLOROETHENE	0.62 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	CIS-1,3-DICHLOROPROPENE	0.36 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	DIBROMOMETHANE	0.73 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	DICHLORODIFLUOROMETHANE	66 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
	ETHYLBENZENE	0.56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	HEXACHLOROBUTADIENE	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	ISOPROPYLBENZENE	0.62 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	M+P-XYLENES	2.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
	METHYL TERT-BUTYL ETHER	0.62 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 U	6 UJ	6.5 UJ	NA	6 UJ
	METHYLENE CHLORIDE	11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 U	35 U	31 U	33 U	NA	29 U
	N-BUTYLBENZENE	0.61 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	N-PROPYLBENZENE	0.56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	O-XYLENE	0.97 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	SEC-BUTYLBENZENE	0.54 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	STYRENE	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TERT-BUTYLBENZENE	0.56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 UJ	7 UJ	6 U	6.5 UJ	NA	6 U
	TETRACHLOROETHENE	0.54 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TOLUENE	0.47 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TOTAL 1,2-DICHLOROETHENE	0.56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TOTAL CHLORINATED ETHENES	0.65 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.1 U	8.8 U	7.5 U	8.1 U	NA	7.5 U
	TOTAL CHLORINATED VOCS	67.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.5 UJ	9.2 UJ	7.9 U	8.5 UJ	NA	7.8 U
	TOTAL XYLENES	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.8 U	10 U	9 U	9.8 U	NA	9 U
	TRANS-1,2-DICHLOROETHENE	0.51 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TRANS-1,3-DICHLOROPROPENE	0.31 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TRICHLOROETHENE	0.59 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5 U	7 U	6 U	6.5 U	NA	6 U
	TRICHLOROFLUOROMETHANE	0.66 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
	VINYL CHLORIDE	0.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 U	14 U	12 U	13 U	NA	12 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	1,2-DIPHENYLHYDRAZINE	110 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1040 U	980 U	1100 U	1040 U	NA	990 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2,4,5-TRICHLOROPHENOL	220 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	2,4,6-TRICHLOROPHENOL	360 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2,4-DICHLOROPHENOL	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2,4-DIMETHYLPHENOL	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2,4-DINITROPHENOL	240 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	2,4-DINITROTOLUENE	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	LOCATION ID	DA-SW/SD-01	DA-SD100	DA-SD101	DA-SD102	DA-SD102	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
	PARAMETER																
	2,6-DICHLOROPHENOL	220 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2,6-DINITROTOLUENE	140 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2-CHLORONAPHTHALENE	110 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2-CHLOROPHENOL	230 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2-METHYLNAPHTHALENE	31 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 J	4.7 J	5.5 J	5.1 J	NA	9.2 J
	2-METHYLPHENOL	290 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	2-NITROANILINE	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	2-NITROPHENOL	280 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	3&4-METHYLPHENOL	310 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	3,3'-DICHLOROBENZIDINE	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 UJ	490 U	530 UJ	510 UJ	NA	490 U
	3-NITROANILINE	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	4,6-DINITRO-2-METHYLPHENOL	200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	4-BROMOPHENYL PHENYL ETHER	84 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	4-CHLORO-3-METHYLPHENOL	320 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	4-CHLOROANILINE	370 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	4-CHLOROPHENYL PHENYL ETHER	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	4-NITROANILINE	330 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	4-NITROPHENOL	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 UJ	1200 U	1300 UJ	1250 UJ	NA	1200 U
	ACENAPHTHENE	3.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.9 J	5.2 J	8.6 J	6.9 J	NA	16 J
	ACENAPHTHYLENE	2.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.3 J	7.3 J	7.3 J	7.3 J	NA	6.8 J
	ANTHRACENE	87 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.5 J	12 J	29 J	20.5 J	NA	33
	BENZIDINE	6700 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	2300 UR	2200 UR	2400 UR	2300 UR	NA	2200 UR
	BENZO(A)ANTHRACENE	320 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	230 J	170 J	290 J	230 J	NA	170 J
	BENZO(A)PYRENE	310 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	205 J	150 J	260 J	205 J	NA	100 J
	BENZO(B)FLUORANTHENE	490 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 J	350	350 J	350 J	NA	180 J
	BENZO(G,H,I)PERYLENE	420 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	140 J	100 J	180 J	140 J	NA	54
	BENZO(K)FLUORANTHENE	300 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 J	110	150 J	130 J	NA	56
	BENZOIC ACID	1500 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 UR	1200 UR	1300 UR	1250 UR	NA	1200 UR
	BENZYL ALCOHOL	400 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	1040 U	980 U	1100 U	1040 U	NA	990 U
	BIS(2-CHLOROETHOXY)METHANE	140 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	BIS(2-CHLOROETHYL)ETHER	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	BIS(2-ETHYLHEXYL)PHTHALATE	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	BUTYL BENZYL PHTHALATE	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	CARBAZOLE	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	CHRYSENE	380 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	275 J	190 J	360 J	275 J	NA	120 J
	DIBENZO(A,H)ANTHRACENE	37 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.5 J	29 J	50 J	39.5 J	NA	18 J
	DIBENZOFURAN	200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	DIETHYL PHTHALATE	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	DIMETHYL PHTHALATE	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	LOCATION ID	DA-SW/SD-01	DA-SD100	DA-SD101	DA-SD102	DA-SD102	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
	PARAMETER																
	DI-N-BUTYL PHTHALATE	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	DI-N-OCTYL PHTHALATE	240 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 UJ	490 UJ	530 U	510 UJ	NA	490 UJ
	FLUORANTHENE	710 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	420 J	330	510 J	420 J	NA	220
	FLUORENE	4.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.6 J	6.1 J	9.1 J	7.6 J	NA	19 J
	HEXACHLOROBENZENE	93 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	HEXACHLOROETHANE	140 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	HIGH MOLECULAR WEIGHT PAHS	3410 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	2364.5 J	1829 J	2900 J	2364.5 J	NA	1240 J
	INDENO(1,2,3-CD)PYRENE	140 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	140 J	100 J	180 J	140 J	NA	52
	ISOPHORONE	140 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	LOW MOLECULAR WEIGHT PAHS	477 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	222.4 J	155.3 J	289.5 J	222.4 J	NA	277 J
	NAPHTHALENE	8.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 U	30 U	32 U	31 U	NA	13 J
	NITROBENZENE	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	N-NITROSODIMETHYLAMINE	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	N-NITROSO-DI-N-PROPYLAMINE	120 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	N-NITROSODIPHENYLAMINE	170 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	N-NITROSOPYRROLIDINE	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	PENTACHLOROPHENOL	680 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1250 U	1200 U	1300 U	1250 U	NA	1200 U
	PHENANTHRENE	390 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	175 J	120 J	230 J	175 J	NA	180
	PHENOL	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	510 U	490 U	530 U	510 U	NA	490 U
	PYRENE	660 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	435	300	570	435	NA	270 J
	TOTAL PAHS	3887 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	2586.9 J	1984.3 J	3189.5 J	2586.9 J	NA	1517 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	18 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	22 J	22 J	22 J	22 J	NA	4.9 UJ
	4,4'-DDE	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.5	41	50	45.5	NA	2.2 J
	4,4'-DDT	17 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.2 J	4.9 UJ	22 J	12.2 J	NA	4.9 UJ
	ALDRIN	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U
	ALPHA-BHC	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U
	ALPHA-CHLORDANE	19 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.5 J	18 J	23 J	20.5 J	NA	2.5 U
	AROCLOR-1016	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	AROCLOR-1221	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	AROCLOR-1232	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	AROCLOR-1242	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	AROCLOR-1248	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	AROCLOR-1254	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	AROCLOR-1260	67	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.5	46	55	50.5	NA	55
	AROCLOR-1268	26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 U	25 U	27 U	26 U	NA	25 U
	BETA-BHC	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U
	DELTA-BHC	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U
	DIELDRIN	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	39	34	44	39	NA	2.2 J
	ENDOSULFAN I	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	LOCATION ID	DA-SW/SD-01	DA-SD100	DA-SD101	DA-SD102	DA-SD102	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
	PARAMETER																
	ENDOSULFAN II	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 U	4.9 U	5.3 U	5.1 U	NA	4.9 U
	ENDOSULFAN SULFATE	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 U	4.9 U	5.3 U	5.1 U	NA	4.9 U
	ENDRIN	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 U	4.9 U	5.3 U	5.1 U	NA	4.9 U
	ENDRIN ALDEHYDE	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 U	4.9 U	5.3 U	5.1 U	NA	4.9 U
	ENDRIN KETONE	5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 UJ	4.9 UJ	5.3 UJ	5.1 UJ	NA	4.9 UJ
	GAMMA-BHC (LINDANE)	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U
	GAMMA-CHLORDANE	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.5	12	17	14.5	NA	2.5 U
	HEPTACHLOR	2.6 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 UJ	2.5 UJ	2.7 UJ	2.6 UJ	NA	2.5 UJ
	HEPTACHLOR EPOXIDE	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6 U	2.5 U	2.7 U	2.6 U	NA	2.5 U
	METHOXYCHLOR	26 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 UJ	25 UJ	27 UJ	26 UJ	NA	25 UJ
	TOTAL AROCLOR	67	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.5	46	55	50.5	NA	55
	TOTAL DDD/DDE/DDT	66 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	79.7 J	63 J	94 J	79.7 J	NA	2.2 J
	TOXAPHENE	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	51 U	49 U	53 U	51 U	NA	49 U
METALS (MG/KG)	ALUMINUM	10300	NA	NA	NA	NA	NA	NA	NA	NA	NA	13000	13600	12400	13000	NA	9170
	ANTIMONY	0.24 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.35 UJ	0.27 UJ	0.43 UJ	0.35 UJ	NA	0.46 UJ
	ARSENIC	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.2	12.9	15.4	14.2	NA	15.7
	BARIUM	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.3	39	47.6	43.3	NA	22.3
	BERYLLIUM	0.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.45	0.43	0.47	0.45	NA	0.35 J
	CADMIUM	0.98 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.435 J	0.42 J	0.45 J	0.435 J	NA	0.02 UJ
	CALCIUM	1600	NA	NA	NA	NA	NA	NA	NA	NA	NA	2340	2400	2290	2340	NA	1330
	CHROMIUM	14.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.5	19.7	17.3	18.5	NA	13.8
	COBALT	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	70.3	59.5	81.1	70.3	NA	12.1
	COPPER	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.9 J	24 J	27.8 J	25.9 J	NA	20.3 J
	IRON	30500	NA	NA	NA	NA	NA	NA	NA	NA	NA	30000	30200	29700	30000	NA	28800
	LEAD	76	27200	458	1010	238	624	530	255	314	824	824	353 J	733 J	543 J	13	14.3 J
	MAGNESIUM	2640	NA	NA	NA	NA	NA	NA	NA	NA	NA	3060	3400	2720	3060	NA	3150
	MANGANESE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	2040	1710	2380	2040	NA	722
	MERCURY	0.143 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.09	0.09	0.09	0.09	NA	0.02 J
	MOLYBDENUM	5.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.35	3.8	4.9	4.35	NA	0.44 J
	NICKEL	19.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.2	23.6	22.7	23.2	NA	21.4
	POTASSIUM	303 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	489 J	494 J	484 J	489 J	NA	512 J
	SELENIUM	0.097 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.325 UJ	0.32 UJ	0.33 UJ	0.325 UJ	NA	0.33 UJ
	SILVER	0.24 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.828 J	0.31 UJ	1.5 J	0.828 J	NA	0.08 UJ
	SODIUM	64.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	102 J	90 J	113 J	102 J	NA	42.9 UJ
	THALLIUM	0.05 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.085 UJ	0.09 UJ	0.08 UJ	0.085 UJ	NA	0.06 UJ
	VANADIUM	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.2	22.6	21.7	22.2	NA	17.7
	ZINC	157	NA	NA	NA	NA	NA	NA	NA	NA	NA	147	139	155	147	NA	73.4
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.65	4.2	3.1	3.65	NA	0.8
	HYDROMETER-12.9UM	0.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.75	5.6	3.9	4.75	NA	1.6

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	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
FRACTION (UNITS)	PARAMETER																
	HYDROMETER-21.5UM	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.65	4.2	3.1	3.65	NA	0.8
	HYDROMETER-3.4UM	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	5.6	3.2	4.4	NA	1.6
	HYDROMETER-32.8UM	7.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.75	0.7	4.8	2.75	NA	8.8
	HYDROMETER-6.6UM	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.25	4.2	2.3	3.25	NA	0.8
	HYDROMETER-9.1UM	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.65	4.2	3.1	3.65	NA	1.6
	PERCENT CLAY	7.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.8	15.7	8	11.8	NA	4.3
	PERCENT COARSE SAND	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.9	8.4	9.4	8.9	NA	11.3
	PERCENT COARSE SILT	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	15.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.5	28.2	18.8	23.5	NA	29.2
	PERCENT FINE SILT	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	33.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.6	8.8	28.3	18.6	NA	8.1
	PERCENT MEDIUM SAND	23.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.3	20.2	18.4	19.3	NA	33.4
	PERCENT MEDIUM SILT	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SAND	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	12.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.9	18.7	17.1	17.9	NA	13.7
	SIEVE 1"	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0.0	0.0	0	NA	0.0
	SIEVE 1-1/2"	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0.0	0.0	0	NA	0.0
	SIEVE 2"	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0.0	0.0	0	NA	0.0
	SIEVE 3"	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0.0	0.0	0	NA	0.0
	SIEVE 3/4"	13.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0.0	0.0	0	NA	0.0
	SIEVE 3/8"	6.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.2	0.0	20.5	10.2	NA	3.2
	SIEVE NO. 004	14.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.3	8.8	7.8	8.3	NA	4.8
	SIEVE NO. 010	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.9	8.4	9.4	8.9	NA	11.3
	SIEVE NO. 020	13.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.55	9.3	9.8	9.55	NA	15.9
	SIEVE NO. 040	10.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.75	10.9	8.6	9.75	NA	17.5
	SIEVE NO. 060	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.25	8.6	5.9	7.25	NA	12.0
	SIEVE NO. 080	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.95	8.6	5.3	6.95	NA	8.2
	SIEVE NO. 100	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7	2.0	1.4	1.7	NA	2.1
	SIEVE NO. 200	3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.6	9.0	6.2	7.6	NA	6.9
	TOTAL SOLIDS	51	80	78	58	64	61	69	71	68	52	52	NA	NA	NA	71	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	24000	NA	NA	NA	NA	NA	NA	NA	NA	NA	29000	27000	31000	29000	NA	14000
MISCELLANEOUS PARAMETERS (S.U.)	PH	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.2	7.2	7.2	7.2	NA	6.9
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE	2.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	0.027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BISMUTH	0.139 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	0.069	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD-01	DA-SD100	DA-SD101	DA-SD102	DA-SD102	DA-SD102	DA-SD103	DA-SD104	DA-SW/SD105	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD106	DA-SW/SD107	DA-SW/SD107
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/20/08	07/12/07	07/12/07	07/12/07	07/12/07	07/12/07	07/11/07	07/11/07	07/11/07	07/11/07	05/20/08	05/20/08	05/20/08	05/20/08	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL
	SAMPLE ID	DA-SD-01-LOCDEPTHMAX	DA-SD100-071207	DA-SD101-071207	DA-SD102-071207	DA-SD102-071207-D	DA-SD102-071207-AVG	DA-SD103-071107	DA-SD104-071107	DA-SD105-071107	DA-SD106-071107	DA-SD106-LOCDEPTHMAX	DA-SD106-0006	DA-SD106-0006-D	DA-SD106-0006-AVG	DA-SD107-071107	DA-SD107-0006
FRACTION (UNITS)	PARAMETER																
	COPPER	0.294	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	0.329	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	0.0082	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	0.114	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS	0.2842	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	1.59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	380	NA	NA	NA	NA	NA	NA	NA	NA	NA	145	170	120	145	NA	180
	GASOLINE RANGE ORGANICS	4.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5 UJ	6.0 UJ	5 U	5.5 UJ	NA	4.5 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,1,1-TRICHLOROETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	1 J	1 J	NA	NA	NA	9 U
	1,1,2,2-TETRACHLOROETHANE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,1,2-TRICHLOROETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,1-DICHLOROETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,1-DICHLOROETHENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,1-DICHLOROPROPENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,2,3-TRICHLOROBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,2,3-TRICHLOROPROPANE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,2,4-TRICHLOROBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,2,4-TRIMETHYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,2-DIBROMO-3-CHLOROPROPANE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,2-DIBROMOETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,2-DICHLOROBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,2-DICHLOROETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,2-DICHLOROPROPANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,3,5-TRIMETHYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,3-DICHLOROBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	1,3-DICHLOROPROPANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	1,4-DICHLOROBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	2,2-DICHLOROPROPANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	2-BUTANONE	7 J	NA	25 U	25 U	NA	NA	26 U	26 U	NA	25 U	25 U	NA	NA	NA	44 U
	2-CHLOROTOLUENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	2-HEXANONE	29 U	NA	25 U	25 U	NA	NA	26 U	26 U	NA	25 U	25 U	NA	NA	NA	44 U
	4-CHLOROTOLUENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	4-ISOPROPYLTOLUENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	18	18	NA	NA	NA	9 UJ
	4-METHYL-2-PENTANONE	29 U	NA	25 U	25 U	NA	NA	26 U	26 U	NA	25 U	25 U	NA	NA	NA	44 U
	ACETONE	46 J	NA	13 J	13 J	NA	NA	26 U	26 U	NA	25 U	25 U	NA	NA	NA	33 J
	BENZENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	BROMOBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	BROMOCHLOROMETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	BROMODICHLOROMETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	BROMOFORM	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	BROMOMETHANE	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
	BTEX	6.8 U	NA	5.6 U	5.6 U	NA	NA	5.6 U	5.6 U	NA	5.6 U	5.6 U	NA	NA	NA	10 U
	CARBON DISULFIDE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	CARBON TETRACHLORIDE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	CHLOROBENZENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	CHLORODIBROMOMETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U

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SITE 08, NUSC DISPOSAL AREA
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NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
	CHLOROETHANE	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
	CHLOROFORM	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	CHLOROMETHANE	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
	CIS-1,2-DICHLOROETHENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	CIS-1,3-DICHLOROPROPENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	DIBROMOMETHANE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	DICHLORODIFLUOROMETHANE	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
	ETHYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	HEXACHLOROBUTADIENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	ISOPROPYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	M+P-XYLENES	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
	METHYL TERT-BUTYL ETHER	6 UJ	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 U
	METHYLENE CHLORIDE	29 U	NA	25 U	25 U	NA	NA	26 U	26 U	NA	25 U	25 U	NA	NA	NA	44 U
	N-BUTYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	N-PROPYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	O-XYLENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	SEC-BUTYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	STYRENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	TERT-BUTYLBENZENE	6 U	NA	5 U	5 U	NA	NA	5 UJ	5 UJ	NA	5 U	5 U	NA	NA	NA	9 UJ
	TETRACHLOROETHENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	TOLUENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	TOTAL 1,2-DICHLOROETHENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	TOTAL CHLORINATED ETHENES	7.5 U	NA	6.2 U	6.2 U	NA	NA	6.2 U	6.2 U	NA	2 J	2 J	NA	NA	NA	11 U
	TOTAL CHLORINATED VOCS	7.8 U	NA	6.6 U	6.6 U	NA	NA	6.6 UJ	6.6 UJ	NA	3 J	3 J	NA	NA	NA	12 UJ
	TOTAL XYLENES	9 U	NA	7.5 U	7.5 U	NA	NA	7.5 U	7.5 U	NA	7.5 U	7.5 U	NA	NA	NA	13 U
	TRANS-1,2-DICHLOROETHENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	TRANS-1,3-DICHLOROPROPENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	5 U	5 U	NA	NA	NA	9 U
	TRICHLOROETHENE	6 U	NA	5 U	5 U	NA	NA	5 U	5 U	NA	2 J	2 J	NA	NA	NA	9 U
	TRICHLOROFLUOROMETHANE	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
	VINYL CHLORIDE	12 U	NA	10 U	10 U	NA	NA	10 U	10 U	NA	10 U	10 U	NA	NA	NA	17 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	1,2-DIPHENYLHYDRAZINE	990 U	NA	770 U	770 U	NA	NA	840 U	840 U	NA	940 U	940 U	NA	NA	NA	1500 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2,4,5-TRICHLOROPHENOL	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	2,4,6-TRICHLOROPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2,4-DICHLOROPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2,4-DIMETHYLPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2,4-DINITROPHENOL	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	2,4-DINITROTOLUENE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U

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	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
	2,6-DICHLOROPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2,6-DINITROTOLUENE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2-CHLORONAPHTHALENE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2-CHLOROPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2-METHYLNAPHTHALENE	9.2 J	NA	23 U	23 U	NA	NA	6.1 J	6.1 J	NA	200	200	NA	NA	NA	19 J
	2-METHYLPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	2-NITROANILINE	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	2-NITROPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	3&4-METHYLPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	3,3'-DICHLOROBENZIDINE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	3-NITROANILINE	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	4,6-DINITRO-2-METHYLPHENOL	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	4-BROMOPHENYL PHENYL ETHER	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	4-CHLORO-3-METHYLPHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	4-CHLOROANILINE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	4-CHLOROPHENYL PHENYL ETHER	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	4-NITROANILINE	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	4-NITROPHENOL	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	ACENAPHTHENE	16 J	NA	23 U	23 U	NA	NA	28	28	NA	1000	1000	NA	NA	NA	34 J
	ACENAPHTHYLENE	6.8 J	NA	1.8 J	1.8 J	NA	NA	25 U	25 U	NA	28 U	28 U	NA	NA	NA	17 J
	ANTHRACENE	33	NA	23 U	23 U	NA	NA	62	62	NA	2000	2000	NA	NA	NA	81 J
	BENZIDINE	2200 UR	NA	1800 UR	1800 UR	NA	NA	1900 UR	1900 UR	NA	2100 UR	2100 UR	NA	NA	NA	3400 UR
	BENZO(A)ANTHRACENE	170 J	NA	16 J	16 J	NA	NA	200 J	200 J	NA	3000	3000	NA	NA	NA	730 J
	BENZO(A)PYRENE	100 J	NA	15 J	15 J	NA	NA	120	120	NA	2500	2500	NA	NA	NA	670 J
	BENZO(B)FLUORANTHENE	180 J	NA	27	27	NA	NA	240	240	NA	2000	2000	NA	NA	NA	920
	BENZO(G,H,I)PERYLENE	54	NA	10 J	10 J	NA	NA	63	63	NA	1300	1300	NA	NA	NA	450 J
	BENZO(K)FLUORANTHENE	56	NA	2.8 J	2.8 J	NA	NA	52	52	NA	2300	2300	NA	NA	NA	450 J
	BENZOIC ACID	1200 UR	NA	960 UR	960 UR	NA	NA	1000 UR	1000 UR	NA	1200 UR	1200 UR	NA	NA	NA	1800 UR
	BENZYL ALCOHOL	990 U	NA	770 U	770 U	NA	NA	840 U	840 U	NA	940 U	940 U	NA	NA	NA	1500 U
	BIS(2-CHLOROETHOXY)METHANE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	BIS(2-CHLOROETHYL)ETHER	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	BIS(2-ETHYLHEXYL)PHTHALATE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	540 J
	BUTYL BENZYL PHTHALATE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	CARBAZOLE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	1300	1300	NA	NA	NA	740 U
	CHRYSENE	120 J	NA	8.7 J	8.7 J	NA	NA	150 J	150 J	NA	2800	2800	NA	NA	NA	830 J
	DIBENZO(A,H)ANTHRACENE	18 J	NA	23 U	23 U	NA	NA	20 J	20 J	NA	260	260	NA	NA	NA	120 J
	DIBENZOFURAN	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	580	580	NA	NA	NA	740 U
	DIETHYL PHTHALATE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	DIMETHYL PHTHALATE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
	DI-N-BUTYL PHTHALATE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	DI-N-OCTYL PHTHALATE	490 UJ	NA	390 UJ	390 UJ	NA	NA	420 UJ	420 UJ	NA	470 UJ	470 UJ	NA	NA	NA	740 UJ
	FLUORANTHENE	220	NA	24	24	NA	NA	340	340	NA	5400	5400	NA	NA	NA	1300
	FLUORENE	19 J	NA	23 U	23 U	NA	NA	37	37	NA	1300	1300	NA	NA	NA	29 J
	HEXACHLOROBENZENE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	HEXACHLOROETHANE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	HIGH MOLECULAR WEIGHT PAHS	1240 J	NA	134 J	134 J	NA	NA	1535 J	1535 J	NA	27060	27060	NA	NA	NA	7290 J
	INDENO(1,2,3-CD)PYRENE	52	NA	9.5 J	9.5 J	NA	NA	60	60	NA	1200	1200	NA	NA	NA	420 J
	ISOPHORONE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	LOW MOLECULAR WEIGHT PAHS	277 J	NA	12.8 J	12.8 J	NA	NA	433.1 J	433.1 J	NA	11600	11600	NA	NA	NA	819.9 J
	NAPHTHALENE	13 J	NA	23 U	23 U	NA	NA	25 U	25 U	NA	200	200	NA	NA	NA	9.9 J
	NITROBENZENE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	N-NITROSODIMETHYLAMINE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	N-NITROSO-DI-N-PROPYLAMINE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	N-NITROSODIPHENYLAMINE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	N-NITROSOPYRROLIDINE	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	PENTACHLOROPHENOL	1200 U	NA	960 U	960 U	NA	NA	1000 U	1000 U	NA	1200 U	1200 U	NA	NA	NA	1800 U
	PHENANTHRENE	180	NA	11 J	11 J	NA	NA	300	300	NA	6900	6900	NA	NA	NA	630
	PHENOL	490 U	NA	390 U	390 U	NA	NA	420 U	420 U	NA	470 U	470 U	NA	NA	NA	740 U
	PYRENE	270 J	NA	21 J	21 J	NA	NA	290	290	NA	6300	6300	NA	NA	NA	1400
	TOTAL PAHS	1517 J	NA	146.8 J	146.8 J	NA	NA	1968.1 J	1968.1 J	NA	38660	38660	NA	NA	NA	8109.9 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	4.9 UJ	NA	3.9 UJ	3.9 UJ	NA	NA	6.9 J	6.9 J	NA	8.9 J	8.9 J	NA	NA	NA	48 J
	4,4'-DDE	2.2 J	NA	3.9 U	3.9 U	NA	NA	6.3	6.3	NA	12	12	NA	NA	NA	79
	4,4'-DDT	4.9 UJ	NA	3.9 UJ	3.9 UJ	NA	NA	4.2 UJ	4.2 UJ	NA	4.7 UJ	4.7 UJ	NA	NA	NA	7.4 UJ
	ALDRIN	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U
	ALPHA-BHC	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U
	ALPHA-CHLORDANE	2.5 U	NA	2 U	2 U	NA	NA	4.5 J	4.5 J	NA	2.4 U	2.4 U	NA	NA	NA	44 J
	AROCLOR-1016	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	AROCLOR-1221	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	AROCLOR-1232	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	AROCLOR-1242	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	AROCLOR-1248	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	AROCLOR-1254	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	AROCLOR-1260	55	NA	35	35	NA	NA	43	43	NA	68	68	NA	NA	NA	370
	AROCLOR-1268	25 U	NA	20 U	20 U	NA	NA	22 U	22 U	NA	24 U	24 U	NA	NA	NA	38 U
	BETA-BHC	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U
	DELTA-BHC	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U
	DIELDRIN	2.2 J	NA	3.9 U	3.9 U	NA	NA	8	8	NA	11	11	NA	NA	NA	26
	ENDOSULFAN I	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
	ENDOSULFAN II	4.9 U	NA	3.9 U	3.9 U	NA	NA	4.2 U	4.2 U	NA	4.7 U	4.7 U	NA	NA	NA	7.4 U
	ENDOSULFAN SULFATE	4.9 U	NA	3.9 U	3.9 U	NA	NA	4.2 U	4.2 U	NA	4.7 U	4.7 U	NA	NA	NA	7.4 U
	ENDRIN	4.9 U	NA	3.9 U	3.9 U	NA	NA	4.2 U	4.2 U	NA	4.7 U	4.7 U	NA	NA	NA	7.4 U
	ENDRIN ALDEHYDE	4.9 U	NA	3.9 U	3.9 U	NA	NA	4.2 U	4.2 U	NA	4.7 U	4.7 U	NA	NA	NA	7.4 U
	ENDRIN KETONE	4.9 UJ	NA	3.9 UJ	3.9 UJ	NA	NA	4.2 UJ	4.2 UJ	NA	4.7 UJ	4.7 UJ	NA	NA	NA	7.4 UJ
	GAMMA-BHC (LINDANE)	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U
	GAMMA-CHLORDANE	2.5 U	NA	2 U	2 U	NA	NA	3.3	3.3	NA	2.4 U	2.4 U	NA	NA	NA	33
	HEPTACHLOR	2.5 UJ	NA	2 UJ	2 UJ	NA	NA	2.2 UJ	2.2 UJ	NA	2.4 UJ	2.4 UJ	NA	NA	NA	3.8 UJ
	HEPTACHLOR EPOXIDE	2.5 U	NA	2 U	2 U	NA	NA	2.2 U	2.2 U	NA	2.4 U	2.4 U	NA	NA	NA	3.8 U
	METHOXYCHLOR	25 UJ	NA	20 UJ	20 UJ	NA	NA	22 UJ	22 UJ	NA	24 UJ	24 UJ	NA	NA	NA	38 UJ
	TOTAL AROCLOR	55	NA	35	35	NA	NA	43	43	NA	68	68	NA	NA	NA	370
	TOTAL DDD/DDE/DDT	2.2 J	NA	3.9 UJ	3.9 UJ	NA	NA	13.2 J	13.2 J	NA	20.9 J	20.9 J	NA	NA	NA	127 J
	TOXAPHENE	49 U	NA	39 U	39 U	NA	NA	42 U	42 U	NA	47 U	47 U	NA	NA	NA	74 U
METALS (MG/KG)	ALUMINUM	9170	NA	6860	6860	NA	NA	12000	12000	NA	11400	11400	NA	NA	NA	16400
	ANTIMONY	0.46 UJ	NA	0.37 UJ	0.37 UJ	NA	NA	0.18 UJ	0.18 UJ	NA	0.55 UJ	0.55 UJ	NA	NA	NA	0.54 UJ
	ARSENIC	15.7	NA	14.8	14.8	NA	NA	12.1	12.1	NA	13.2	13.2	NA	NA	NA	9.4
	BARIUM	22.3	NA	25.8	25.8	NA	NA	20.7	20.7	NA	23.8	23.8	NA	NA	NA	42.5
	BERYLLIUM	0.35 J	NA	0.29	0.29	NA	NA	0.36	0.36	NA	0.37	0.37	NA	NA	NA	0.65
	CADMIUM	0.02 UJ	NA	0.01 UJ	0.01 UJ	NA	NA	0.17 UJ	0.17 UJ	NA	0.16 UJ	0.16 UJ	NA	NA	NA	0.14 UJ
	CALCIUM	1330	NA	1010	1010	NA	NA	1440	1440	NA	1360	1360	NA	NA	NA	2370
	CHROMIUM	13.8	NA	11.6	11.6	NA	NA	16.5	16.5	NA	16.3	16.3	NA	NA	NA	21
	COBALT	12.1	NA	9.7	9.7	NA	NA	93.9	93.9	NA	60.7	60.7	NA	NA	NA	21.1
	COPPER	20.3 J	NA	18.6 J	18.6 J	NA	NA	22.4 J	22.4 J	NA	33.6 J	33.6 J	NA	NA	NA	31.6 J
	IRON	28800	NA	23700	23700	NA	NA	31100	31100	NA	26800	26800	NA	NA	NA	21200
	LEAD	14.3 J	23.5	9.4 J	23.5	25.4	642	799 J	799 J	344	1520 J	1520 J	524	492	508	376 J
	MAGNESIUM	3150	NA	2790	2790	NA	NA	3410	3410	NA	3030	3030	NA	NA	NA	3100
	MANGANESE	722	NA	394	394	NA	NA	733	733	NA	269	269	NA	NA	NA	147
	MERCURY	0.02 J	NA	0.01 U	0.01 U	NA	NA	0.07	0.07	NA	0.17	0.17	NA	NA	NA	0.17
	MOLYBDENUM	0.44 J	NA	0.44 J	0.44 J	NA	NA	3.1	3.1	NA	1.2	1.2	NA	NA	NA	1.5
	NICKEL	21.4	NA	16.7	16.7	NA	NA	22.3	22.3	NA	20.6	20.6	NA	NA	NA	21.7
	POTASSIUM	512 J	NA	673 J	673 J	NA	NA	364 J	364 J	NA	286 J	286 J	NA	NA	NA	652 J
	SELENIUM	0.33 UJ	NA	0.26 UJ	0.26 UJ	NA	NA	0.26 UJ	0.26 UJ	NA	0.48 J	0.48 J	NA	NA	NA	0.92 J
	SILVER	0.08 UJ	NA	0.06 UJ	0.06 UJ	NA	NA	0.7 J	0.7 J	NA	3.8 J	3.8 J	NA	NA	NA	2.2 J
	SODIUM	42.9 UJ	NA	24.8 UJ	24.8 UJ	NA	NA	65 J	65 J	NA	72.3 J	72.3 J	NA	NA	NA	161 J
	THALLIUM	0.06 UJ	NA	0.03 UJ	0.03 UJ	NA	NA	0.07 UJ	0.07 UJ	NA	0.05 UJ	0.05 UJ	NA	NA	NA	0.19 UJ
	VANADIUM	17.7	NA	13.1	13.1	NA	NA	22.6	22.6	NA	22.8	22.8	NA	NA	NA	31.6
	ZINC	73.4	NA	47.3	47.3	NA	NA	98.9	98.9	NA	94	94	NA	NA	NA	95.5
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	0.8	NA	0.3	0.3	NA	NA	1.0	1.0	NA	1.4	1.4	NA	NA	NA	4.2
	HYDROMETER-12.9UM	1.6	NA	0.0	0.0	NA	NA	1.5	1.5	NA	2.7	2.7	NA	NA	NA	8.4

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	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
	HYDROMETER-21.5UM	0.8	NA	0.0	0.0	NA	NA	1.5	1.5	NA	1.4	1.4	NA	NA	NA	8.4
	HYDROMETER-3.4UM	1.6	NA	0.3	0.3	NA	NA	1.5	1.5	NA	2.7	2.7	NA	NA	NA	9.9
	HYDROMETER-32.8UM	8.8	NA	2.5	2.5	NA	NA	6.4	6.4	NA	6.1	6.1	NA	NA	NA	34.5
	HYDROMETER-6.6UM	0.8	NA	0.0	0.0	NA	NA	1.0	1.0	NA	0.0	0.0	NA	NA	NA	4.2
	HYDROMETER-9.1UM	1.6	NA	0.3	0.3	NA	NA	1.0	1.0	NA	2.7	2.7	NA	NA	NA	5.6
	PERCENT CLAY	4.3	NA	0.6	0.6	NA	NA	4.1	4.1	NA	7.3	7.3	NA	NA	NA	21.6
	PERCENT COARSE SAND	11.3	NA	7.7	7.7	NA	NA	13	13	NA	6.6	6.6	NA	NA	NA	1.2
	PERCENT COARSE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	29.2	NA	0.3	0.3	NA	NA	14.5	14.5	NA	35.4	35.4	NA	NA	NA	12.2
	PERCENT FINE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	8.1	NA	85.8	85.8	NA	NA	33.3	33.3	NA	9.3	9.3	NA	NA	NA	0.6
	PERCENT MEDIUM SAND	33.4	NA	2.8	2.8	NA	NA	23.9	23.9	NA	28.4	28.4	NA	NA	NA	3.1
	PERCENT MEDIUM SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	13.7	NA	2.7	2.7	NA	NA	11.2	11.2	NA	12.9	12.9	NA	NA	NA	61.3
	SIEVE 1"	0.0	NA	6.1	6.1	NA	NA	0.0	0.0	NA	0.0	0.0	NA	NA	NA	0.0
	SIEVE 1-1/2"	0.0	NA	0.0	0.0	NA	NA	0.0	0.0	NA	0.0	0.0	NA	NA	NA	0.0
	SIEVE 2"	0.0	NA	0.0	0.0	NA	NA	0.0	0.0	NA	0.0	0.0	NA	NA	NA	0.0
	SIEVE 3"	0.0	NA	0.0	0.0	NA	NA	0.0	0.0	NA	0.0	0.0	NA	NA	NA	0.0
	SIEVE 3/4"	0.0	NA	0.0	0.0	NA	NA	0.0	0.0	NA	0.0	0.0	NA	NA	NA	0.0
	SIEVE 3/8"	3.2	NA	56.3	56.3	NA	NA	20.4	20.4	NA	5.7	5.7	NA	NA	NA	0.0
	SIEVE NO. 004	4.8	NA	23.4	23.4	NA	NA	12.9	12.9	NA	3.6	3.6	NA	NA	NA	0.6
	SIEVE NO. 010	11.3	NA	7.7	7.7	NA	NA	13.0	13.0	NA	6.6	6.6	NA	NA	NA	1.2
	SIEVE NO. 020	15.9	NA	2.2	2.2	NA	NA	13.5	13.5	NA	10.3	10.3	NA	NA	NA	0.6
	SIEVE NO. 040	17.5	NA	0.6	0.6	NA	NA	10.5	10.5	NA	18.1	18.1	NA	NA	NA	2.4
	SIEVE NO. 060	12.0	NA	0.1	0.1	NA	NA	6.1	6.1	NA	15.0	15.0	NA	NA	NA	1.6
	SIEVE NO. 080	8.2	NA	0.1	0.1	NA	NA	4.0	4.0	NA	10.6	10.6	NA	NA	NA	3.0
	SIEVE NO. 100	2.1	NA	0.0	0.0	NA	NA	0.9	0.9	NA	2.2	2.2	NA	NA	NA	0.7
	SIEVE NO. 200	6.9	NA	0.1	0.1	NA	NA	3.5	3.5	NA	7.6	7.6	NA	NA	NA	6.9
	TOTAL SOLIDS	71	84	NA	84	66	76	NA	76	66	NA	66	67	68	67.5	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	14000	NA	3700	3700	NA	NA	96000	96000	NA	19000	19000	NA	NA	NA	64000
MISCELLANEOUS PARAMETERS (S.U.)	PH	6.9	NA	7	7	NA	NA	7.1	7.1	NA	7	7	NA	NA	NA	6.9
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BISMUTH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD107	DA-SW/SD108	DA-SW/SD108	DA-SW/SD108	DA-SD109	DA-SW/SD110	DA-SW/SD110	DA-SW/SD110	DA-SW/SD111	DA-SW/SD111	DA-SW/SD111	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112	DA-SW/SD112
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	05/19/08	05/19/08	07/11/07	07/11/07	07/11/07	05/19/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL
	SAMPLE ID	DA-SD107-LOCDEPTHMAX	DA-SD108-071107	DA-SD108-0006	DA-SD108-LOCDEPTHMAX	DA-SD109-071107	DA-SD110-071107	DA-SD110-0006	DA-SD110-LOCDEPTHMAX	DA-SD111-071107	DA-SD111-0006	DA-SD111-LOCDEPTHMAX	DA-SD112-071107	DA-SD112-071107-D	DA-SD112-071107-AVG	DA-SD112-0006
FRACTION (UNITS)	PARAMETER															
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	180	NA	53	53	NA	NA	82	82	NA	160	160	NA	NA	NA	500
	GASOLINE RANGE ORGANICS	4.5 U	NA	3.2 U	3.2 U	NA	NA	3.8 U	3.8 U	NA	3.9 U	3.9 U	NA	NA	NA	8.8 UJ

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,1,1-TRICHLOROETHANE	9 U	NA	NA	2 J	2 J	NA	NA	2 J	2 J	6 U	NA	NA	17.5 U	18 U	17 U
	1,1,2,2-TETRACHLOROETHANE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,1,2-TRICHLOROETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,1-DICHLOROETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,1-DICHLOROETHENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,1-DICHLOROPROPENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,2,3-TRICHLOROBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 UJ	NA	NA	17.5 UJ	18 UJ	17 U
	1,2,3-TRICHLOROPROPANE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,2,4-TRICHLOROBENZENE	9 UJ	NA	NA	4 J	4 J	NA	NA	9 UJ	9 UJ	6 UJ	NA	NA	17.5 UJ	18 UJ	17 U
	1,2,4-TRIMETHYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,2-DIBROMO-3-CHLOROPROPANE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,2-DIBROMOETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,2-DICHLOROBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,2-DICHLOROETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,2-DICHLOROPROPANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,3,5-TRIMETHYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,3-DICHLOROBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	1,3-DICHLOROPROPANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	1,4-DICHLOROBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	2,2-DICHLOROPROPANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	2-BUTANONE	44 U	NA	NA	39 UJ	39 UJ	NA	NA	45 U	45 U	33	NA	NA	190	160	220
	2-CHLOROTOLUENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	2-HEXANONE	44 U	NA	NA	39 UJ	39 UJ	NA	NA	45 U	45 U	30 U	NA	NA	88.5 U	91 U	86 U
	4-CHLOROTOLUENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	4-ISOPROPYLTOLUENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	4-METHYL-2-PENTANONE	44 U	NA	NA	39 UJ	39 UJ	NA	NA	45 U	45 U	30 U	NA	NA	88.5 U	91 U	86 U
	ACETONE	33 J	NA	NA	19 J	19 J	NA	NA	29 J	29 J	95	NA	NA	550 J	460 J	640 J
	BENZENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	BROMOBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	BROMOCHLOROMETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	BROMODICHLOROMETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	BROMOFORM	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	BROMOMETHANE	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 U	NA	NA	35.5 U	36 U	35 U
	BTEX	10 U	NA	NA	9 UJ	9 UJ	NA	NA	10 U	10 U	6.8 U	NA	NA	20 U	20 U	19 U
	CARBON DISULFIDE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	5.5 J	6 J	5 J
	CARBON TETRACHLORIDE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	CHLOROBENZENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	CHLORODIBROMOMETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
FRACTION (UNITS)	PARAMETER															
	CHLOROETHANE	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 U	NA	NA	35.5 U	36 U	35 U
	CHLOROFORM	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	CHLOROMETHANE	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 U	NA	NA	35.5 U	36 U	35 U
	CIS-1,2-DICHLOROETHENE	9 U	NA	NA	4 J	4 J	NA	NA	9 U	9 U	6 U	NA	NA	7.5 J	18 U	6 J
	CIS-1,3-DICHLOROPROPENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	DIBROMOMETHANE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	DICHLORODIFLUOROMETHANE	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 UJ	NA	NA	35.5 U	36 U	35 U
	ETHYLBENZENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	HEXACHLOROBUTADIENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	ISOPROPYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	M+P-XYLENES	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 U	NA	NA	35.5 U	36 U	35 U
	METHYL TERT-BUTYL ETHER	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 UJ
	METHYLENE CHLORIDE	44 U	NA	NA	39 UJ	39 UJ	NA	NA	45 U	45 U	30 U	NA	NA	88.5 U	91 U	86 U
	N-BUTYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	N-PROPYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	O-XYLENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	SEC-BUTYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	STYRENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	TERT-BUTYLBENZENE	9 UJ	NA	NA	8 UJ	8 UJ	NA	NA	9 UJ	9 UJ	6 U	NA	NA	17.5 UJ	18 UJ	17 U
	TETRACHLOROETHENE	9 U	NA	NA	33 J	33 J	NA	NA	3 J	3 J	6 U	NA	NA	17.5 U	18 U	17 U
	TOLUENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	TOTAL 1,2-DICHLOROETHENE	9 U	NA	NA	4 J	4 J	NA	NA	9 U	9 U	6 U	NA	NA	7.5 J	18 U	6 J
	TOTAL CHLORINATED ETHENES	11 U	NA	NA	76 J	76 J	NA	NA	15 J	15 J	7.5 U	NA	NA	7.5 J	22 U	6 J
	TOTAL CHLORINATED VOCS	12 UJ	NA	NA	82 J	82 J	NA	NA	17 J	17 J	7.9 UJ	NA	NA	7.5 J	24 UJ	6 J
	TOTAL XYLENES	13 U	NA	NA	12 UJ	12 UJ	NA	NA	14 U	14 U	9 U	NA	NA	26 U	27 U	26 U
	TRANS-1,2-DICHLOROETHENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	TRANS-1,3-DICHLOROPROPENE	9 U	NA	NA	8 UJ	8 UJ	NA	NA	9 U	9 U	6 U	NA	NA	17.5 U	18 U	17 U
	TRICHLOROETHENE	9 U	NA	NA	39 J	39 J	NA	NA	12	12	6 U	NA	NA	17.5 U	18 U	17 U
	TRICHLOROFLUOROMETHANE	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 U	NA	NA	35.5 U	36 U	35 U
	VINYL CHLORIDE	17 U	NA	NA	15 UJ	15 UJ	NA	NA	18 U	18 U	12 U	NA	NA	35.5 U	36 U	35 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 UJ	NA	NA	985 U	970 U	1000 U
	1,2-DIPHENYLHYDRAZINE	1500 U	NA	NA	1300 U	1300 U	NA	NA	1400 U	1400 U	2000 U	NA	NA	1950 U	1900 U	2000 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2,4,5-TRICHLOROPHENOL	1800 U	NA	NA	1600 U	1600 U	NA	NA	1700 U	1700 U	2500 U	NA	NA	2450 U	2400 U	2500 U
	2,4,6-TRICHLOROPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2,4-DICHLOROPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2,4-DIMETHYLPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2,4-DINITROPHENOL	1800 U	NA	NA	1600 U	1600 U	NA	NA	1700 U	1700 U	2500 U	NA	NA	2450 U	2400 U	2500 U
	2,4-DINITROTOLUENE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
FRACTION (UNITS)	PARAMETER															
	2,6-DICHLOROPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2,6-DINITROTOLUENE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2-CHLORONAPHTHALENE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2-CHLOROPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2-METHYLNAPHTHALENE	19 J	NA	NA	9.4 J	9.4 J	NA	NA	12 J	12 J	61 U	NA	NA	12 J	13 J	11 J
	2-METHYLPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	2-NITROANILINE	1800 U	NA	NA	1600 U	1600 U	NA	NA	1700 U	1700 U	2500 U	NA	NA	2450 U	2400 U	2500 U
	2-NITROPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	3&4-METHYLPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	3,3'-DICHLOROBENZIDINE	740 U	NA	NA	630 U	630 U	NA	NA	700 UJ	700 UJ	1000 U	NA	NA	985 UJ	970 UJ	1000 UJ
	3-NITROANILINE	1800 U	NA	NA	1600 U	1600 U	NA	NA	1700 U	1700 U	2500 UJ	NA	NA	2450 U	2400 U	2500 U
	4,6-DINITRO-2-METHYLPHENOL	1800 U	NA	NA	1600 UJ	1600 UJ	NA	NA	1700 U	1700 U	2500 U	NA	NA	2450 U	2400 U	2500 U
	4-BROMOPHENYL PHENYL ETHER	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	4-CHLORO-3-METHYLPHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	4-CHLOROANILINE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	4-CHLOROPHENYL PHENYL ETHER	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	4-NITROANILINE	1800 U	NA	NA	1600 U	1600 U	NA	NA	1700 U	1700 U	2500 U	NA	NA	2450 U	2400 U	2500 U
	4-NITROPHENOL	1800 U	NA	NA	1600 UJ	1600 UJ	NA	NA	1700 UJ	1700 UJ	2500 U	NA	NA	2450 UJ	2400 UJ	2500 UJ
	ACENAPHTHENE	34 J	NA	NA	29 J	29 J	NA	NA	30 J	30 J	24 J	NA	NA	48 J	71	25 J
	ACENAPHTHYLENE	17 J	NA	NA	8.2 J	8.2 J	NA	NA	16 J	16 J	12 J	NA	NA	22.8 J	59 U	16 J
	ANTHRACENE	81 J	NA	NA	70	70	NA	NA	95	95	62	NA	NA	118 J	170 J	66 J
	BENZIDINE	3400 UR	NA	NA	2900 UR	2900 UR	NA	NA	3200 UR	3200 UR	4600 UR	NA	NA	4450 UR	4400 UR	4500 UR
	BENZO(A)ANTHRACENE	730 J	NA	NA	500 J	500 J	NA	NA	440 J	440 J	520	NA	NA	705 J	620 J	790 J
	BENZO(A)PYRENE	670 J	NA	NA	320 J	320 J	NA	NA	460 J	460 J	650	NA	NA	690 J	750 J	630 J
	BENZO(B)FLUORANTHENE	920	NA	NA	630 U	630 U	NA	NA	700 U	700 U	760	NA	NA	985 J	1200 J	770 J
	BENZO(G,H,I)PERYLENE	450 J	NA	NA	230 J	230 J	NA	NA	560 J	560 J	310	NA	NA	445 J	440 J	450 J
	BENZO(K)FLUORANTHENE	450 J	NA	NA	170 J	170 J	NA	NA	220 J	220 J	710	NA	NA	495 J	500 J	490 J
	BENZOIC ACID	1800 UR	NA	NA	1600 UR	1600 UR	NA	NA	1700 UR	1700 UR	2500 UJ	NA	NA	2450 UR	2400 UR	2500 UR
	BENZYL ALCOHOL	1500 U	NA	NA	1300 U	1300 U	NA	NA	1400 U	1400 U	2000 U	NA	NA	1950 U	1900 U	2000 U
	BIS(2-CHLOROETHOXY)METHANE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	BIS(2-CHLOROETHYL)ETHER	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE	540 J	NA	NA	630 U	630 U	NA	NA	550 J	550 J	470 J	NA	NA	985 U	970 U	1000 U
	BUTYL BENZYL PHTHALATE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	CARBAZOLE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	CHRYSENE	830 J	NA	NA	430 J	430 J	NA	NA	550 J	550 J	870	NA	NA	825 J	900 J	750 J
	DIBENZO(A,H)ANTHRACENE	120 J	NA	NA	56 J	56 J	NA	NA	86 J	86 J	130	NA	NA	110 J	120 J	100 J
	DIBENZOFURAN	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	DIETHYL PHTHALATE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	DIMETHYL PHTHALATE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
FRACTION (UNITS)	PARAMETER															
	DI-N-BUTYL PHTHALATE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	DI-N-OCTYL PHTHALATE	740 UJ	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 UJ	NA	NA	985 UJ	970 UJ	1000 U
	FLUORANTHENE	1300	NA	NA	770	770	NA	NA	970	970	1600	NA	NA	1550	1700	1400
	FLUORENE	29 J	NA	NA	31 J	31 J	NA	NA	36 J	36 J	35 J	NA	NA	60 J	84	36 J
	HEXACHLOROBENZENE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	HEXACHLOROETHANE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	HIGH MOLECULAR WEIGHT PAHS	7290 J	NA	NA	3426 J	3426 J	NA	NA	4686 J	4686 J	7130	NA	NA	7790 J	8460 J	7120 J
	INDENO(1,2,3-CD)PYRENE	420 J	NA	NA	180 J	180 J	NA	NA	300 J	300 J	380	NA	NA	435 J	430 J	440 J
	ISOPHORONE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	LOW MOLECULAR WEIGHT PAHS	819.9 J	NA	NA	573 J	573 J	NA	NA	716.2 J	716.2 J	653 J	NA	NA	998.8 J	1164 J	774 J
	NAPHTHALENE	9.9 J	NA	NA	5.4 J	5.4 J	NA	NA	7.2 J	7.2 J	61 U	NA	NA	18 J	6 J	60 U
	NITROBENZENE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	N-NITROSODIMETHYLAMINE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	N-NITROSO-DI-N-PROPYLAMINE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	N-NITROSODIPHENYLAMINE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	N-NITROSOPYRROLIDINE	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	PENTACHLOROPHENOL	1800 U	NA	NA	1600 U	1600 U	NA	NA	1700 U	1700 U	2500 U	NA	NA	2450 U	2400 U	2500 U
	PHENANTHRENE	630	NA	NA	420	420	NA	NA	520	520	520	NA	NA	720 J	820 J	620
	PHENOL	740 U	NA	NA	630 U	630 U	NA	NA	700 U	700 U	1000 U	NA	NA	985 U	970 U	1000 U
	PYRENE	1400	NA	NA	770	770	NA	NA	1100	1100	1200	NA	NA	1550	1800	1300
	TOTAL PAHS	8109.9 J	NA	NA	3999 J	3999 J	NA	NA	5402.2 J	5402.2 J	7783 J	NA	NA	8788.8 J	9624 J	7894 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	48 J	NA	NA	21 J	21 J	NA	NA	56 J	56 J	40	NA	NA	61 J	65 J	57 J
	4,4'-DDE	79	NA	NA	17	17	NA	NA	48	48	140	NA	NA	170	180	160
	4,4'-DDT	7.4 UJ	NA	NA	17 UJ	17 UJ	NA	NA	47 J	47 J	23 J	NA	NA	19 J	33 J	10 UJ
	ALDRIN	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U
	ALPHA-BHC	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U
	ALPHA-CHLORDANE	44 J	NA	NA	20 J	20 J	NA	NA	39 J	39 J	53	NA	NA	72 J	74 J	70 J
	AROCLOR-1016	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 UJ	NA	NA	50.5 U	50 U	51 U
	AROCLOR-1221	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 U	NA	NA	50.5 U	50 U	51 U
	AROCLOR-1232	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 U	NA	NA	50.5 U	50 U	51 U
	AROCLOR-1242	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 U	NA	NA	50.5 U	50 U	51 U
	AROCLOR-1248	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 U	NA	NA	50.5 U	50 U	51 U
	AROCLOR-1254	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 U	NA	NA	50.5 U	50 U	51 U
	AROCLOR-1260	370	NA	NA	220	220	NA	NA	550	550	52 UJ	NA	NA	150	140	160
	AROCLOR-1268	38 U	NA	NA	33 U	33 U	NA	NA	36 U	36 U	52 U	NA	NA	50.5 U	50 U	51 U
	BETA-BHC	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U
	DELTA-BHC	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U
	DIELDRIN	26	NA	NA	6.3 U	6.3 U	NA	NA	7 U	7 U	30	NA	NA	43.5	43	44
	ENDOSULFAN I	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U

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SITE 08, NUSC DISPOSAL AREA
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FRACTION (UNITS)	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
	PARAMETER															
	ENDOSULFAN II	7.4 U	NA	NA	6.3 U	6.3 U	NA	NA	7 U	7 U	10 U	NA	NA	9.85 U	9.7 U	10 U
	ENDOSULFAN SULFATE	7.4 U	NA	NA	6.3 U	6.3 U	NA	NA	7 U	7 U	10 U	NA	NA	9.85 U	9.7 U	10 U
	ENDRIN	7.4 U	NA	NA	6.3 U	6.3 U	NA	NA	7 U	7 U	10 U	NA	NA	9.85 U	9.7 U	10 U
	ENDRIN ALDEHYDE	7.4 U	NA	NA	6.3 U	6.3 U	NA	NA	7 U	7 U	10 U	NA	NA	9.85 U	9.7 U	10 U
	ENDRIN KETONE	7.4 UJ	NA	NA	6.3 UJ	6.3 UJ	NA	NA	7 UJ	7 UJ	10 UJ	NA	NA	9.85 UJ	9.7 UJ	10 UJ
	GAMMA-BHC (LINDANE)	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U
	GAMMA-CHLORDANE	33	NA	NA	17	17	NA	NA	36	36	37	NA	NA	51	52	50
	HEPTACHLOR	3.8 UJ	NA	NA	3.3 UJ	3.3 UJ	NA	NA	3.6 UJ	3.6 UJ	5.2 UJ	NA	NA	5.05 UJ	5 UJ	5.1 UJ
	HEPTACHLOR EPOXIDE	3.8 U	NA	NA	3.3 U	3.3 U	NA	NA	3.6 U	3.6 U	5.2 U	NA	NA	5.05 U	5 U	5.1 U
	METHOXYCHLOR	38 UJ	NA	NA	33 UJ	33 UJ	NA	NA	36 UJ	36 UJ	52 UJ	NA	NA	50.5 UJ	50 UJ	51 UJ
	TOTAL AROCLOR	370	NA	NA	220	220	NA	NA	550	550	52 UJ	NA	NA	150	140	160
	TOTAL DDD/DDE/DDT	127 J	NA	NA	38 J	38 J	NA	NA	151 J	151 J	203 J	NA	NA	250 J	278 J	217 J
	TOXAPHENE	74 U	NA	NA	63 U	63 U	NA	NA	70 U	70 U	100 U	NA	NA	98.5 U	97 U	100 U
METALS (MG/KG)	ALUMINUM	16400	NA	NA	14100	14100	NA	NA	17800	17800	21100	NA	NA	19000	18600	19500
	ANTIMONY	0.54 UJ	NA	NA	0.21 UJ	0.21 UJ	NA	NA	0.46 UJ	0.46 UJ	0.34 U	NA	NA	0.28 UJ	0.22 UJ	0.34 UJ
	ARSENIC	9.4	NA	NA	10	10	NA	NA	10.4	10.4	15.8	NA	NA	14.8	14.2	15.5
	BARIUM	42.5	NA	NA	41.2	41.2	NA	NA	63.9	63.9	81.4	NA	NA	67.6	65.6	69.6
	BERYLLIUM	0.65	NA	NA	0.56	0.56	NA	NA	0.7	0.7	0.55 J	NA	NA	0.71 J	0.69 J	0.73
	CADMIUM	0.14 UJ	NA	NA	0.7 J	0.7 J	NA	NA	1.2 J	1.2 J	1.5 J	NA	NA	0.925 J	0.85 J	1 J
	CALCIUM	2370	NA	NA	2300	2300	NA	NA	2960	2960	2340	NA	NA	2760	2700	2810
	CHROMIUM	21	NA	NA	19.3	19.3	NA	NA	25.3	25.3	27.7	NA	NA	25.8	25.2	26.3
	COBALT	21.1	NA	NA	23.8	23.8	NA	NA	27.6	27.6	40.1	NA	NA	39.8	37.6	42
	COPPER	31.6 J	NA	NA	24.1 J	24.1 J	NA	NA	38.4 J	38.4 J	47.8	NA	NA	39.8 J	39 J	40.6 J
	IRON	21200	NA	NA	19900	19900	NA	NA	20900	20900	33900	NA	NA	34200	33400	35000
	LEAD	508	77.9	248	288 J	288 J	106	441	562 J	562 J	264	187	230	258 J	246 J	271 J
	MAGNESIUM	3100	NA	NA	2780	2780	NA	NA	3180	3180	3800	NA	NA	3480	3390	3580
	MANGANESE	147	NA	NA	177	177	NA	NA	137	137	398	NA	NA	338	335	342
	MERCURY	0.17	NA	NA	0.13	0.13	NA	NA	0.24	0.24	0.21	NA	NA	0.22	0.23	0.21
	MOLYBDENUM	1.5	NA	NA	0.56 J	0.56 J	NA	NA	1.9	1.9	2.6 J	NA	NA	2.15	2.0	2.3
	NICKEL	21.7	NA	NA	20.4	20.4	NA	NA	23.8	23.8	31.3	NA	NA	27.6	26.6	28.7
	POTASSIUM	652 J	NA	NA	498 J	498 J	NA	NA	762 J	762 J	1260	NA	NA	956 J	946 J	966 J
	SELENIUM	0.92 J	NA	NA	0.2 UJ	0.2 UJ	NA	NA	0.22 UJ	0.22 UJ	0.45 UJ	NA	NA	0.315 UJ	0.32 UJ	0.31 UJ
	SILVER	2.2 J	NA	NA	0.96 J	0.96 J	NA	NA	1.9 J	1.9 J	0.91 J	NA	NA	0.27 UJ	0.25 UJ	0.29 UJ
	SODIUM	161 J	NA	NA	139 J	139 J	NA	NA	216	216	289	NA	NA	282 J	276	288 J
	THALLIUM	0.19 UJ	NA	NA	0.09 UJ	0.09 UJ	NA	NA	0.14 UJ	0.14 UJ	0.16 UJ	NA	NA	0.14 UJ	0.14 UJ	0.14 UJ
	VANADIUM	31.6	NA	NA	28.8	28.8	NA	NA	40.5	40.5	37.1	NA	NA	34.2	33.4	35
	ZINC	95.5	NA	NA	140	140	NA	NA	171	171	228	NA	NA	219	212	226
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	4.2	NA	NA	3.3	3.3	NA	NA	4.7	4.7	NA	NA	NA	2.45	1.9	3.0
	HYDROMETER-12.9UM	8.4	NA	NA	6.5	6.5	NA	NA	7.8	7.8	NA	NA	NA	11	11.6	10.5

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
FRACTION (UNITS)	PARAMETER															
	HYDROMETER-21.5UM	8.4	NA	NA	4.3	4.3	NA	NA	7.8	7.8	NA	NA	NA	13.8	15.5	12
	HYDROMETER-3.4UM	9.9	NA	NA	5.4	5.4	NA	NA	6.3	6.3	NA	NA	NA	7.2	8.1	6.3
	HYDROMETER-32.8UM	34.5	NA	NA	26.2	26.2	NA	NA	38.9	38.9	NA	NA	NA	38.8	33.3	44.2
	HYDROMETER-6.6UM	4.2	NA	NA	1.1	1.1	NA	NA	4.7	4.7	NA	NA	NA	4.2	3.9	4.5
	HYDROMETER-9.1UM	5.6	NA	NA	4.3	4.3	NA	NA	7.8	7.8	NA	NA	NA	6.1	7.7	4.5
	PERCENT CLAY	21.6	NA	NA	12.3	12.3	NA	NA	19.3	19.3	NA	NA	NA	12.6	14.2	11
	PERCENT COARSE SAND	1.2	NA	NA	2.1	2.1	NA	NA	0.1	0.1	NA	NA	NA	1.2	0.8	1.6
	PERCENT COARSE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	12.2	NA	NA	26.4	26.4	NA	NA	11.7	11.7	NA	NA	NA	9.15	9.8	8.5
	PERCENT FINE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	0.6	NA	NA	7.8	7.8	NA	NA	0.3	0.3	NA	NA	NA	1.85	1.6	2.1
	PERCENT MEDIUM SAND	3.1	NA	NA	9	9	NA	NA	1.7	1.7	NA	NA	NA	1.25	1.5	1
	PERCENT MEDIUM SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	61.3	NA	NA	42.5	42.5	NA	NA	67	67	NA	NA	NA	73.8	72	75.7
	SIEVE 1"	0.0	NA	NA	0.0	0.0	NA	NA	0.0	0.0	NA	NA	NA	0	0.0	0.0
	SIEVE 1-1/2"	0.0	NA	NA	0.0	0.0	NA	NA	0.0	0.0	NA	NA	NA	0	0.0	0.0
	SIEVE 2"	0.0	NA	NA	0.0	0.0	NA	NA	0.0	0.0	NA	NA	NA	0	0.0	0.0
	SIEVE 3"	0.0	NA	NA	0.0	0.0	NA	NA	0.0	0.0	NA	NA	NA	0	0.0	0.0
	SIEVE 3/4"	0.0	NA	NA	0.0	0.0	NA	NA	0.0	0.0	NA	NA	NA	0	0.0	0.0
	SIEVE 3/8"	0.0	NA	NA	6.1	6.1	NA	NA	0.0	0.0	NA	NA	NA	0	0.0	0.0
	SIEVE NO. 004	0.6	NA	NA	1.7	1.7	NA	NA	0.3	0.3	NA	NA	NA	1.85	1.6	2.1
	SIEVE NO. 010	1.2	NA	NA	2.1	2.1	NA	NA	0.1	0.1	NA	NA	NA	1.2	0.8	1.6
	SIEVE NO. 020	0.6	NA	NA	3.2	3.2	NA	NA	0.7	0.7	NA	NA	NA	0.35	0.4	0.3
	SIEVE NO. 040	2.4	NA	NA	5.8	5.8	NA	NA	98	98	NA	NA	NA	0.95	1.1	0.8
	SIEVE NO. 060	1.6	NA	NA	6.3	6.3	NA	NA	0.9	0.9	NA	NA	NA	0.8	0.8	0.8
	SIEVE NO. 080	3.0	NA	NA	6.7	6.7	NA	NA	1.9	1.9	NA	NA	NA	1.45	1.6	1.3
	SIEVE NO. 100	0.7	NA	NA	1.7	1.7	NA	NA	0.8	0.8	NA	NA	NA	0.75	0.8	0.7
	SIEVE NO. 200	6.9	NA	NA	11.7	11.7	NA	NA	8.1	8.1	NA	NA	NA	6.25	6.7	5.8
	TOTAL SOLIDS	67.5	53	50	NA	50	70	46	NA	46	NA	27	35	35	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	64000	NA	NA	31000	31000	NA	NA	55000	55000	NA	NA	NA	70500	78000	63000
MISCELLANEOUS PARAMETERS (S.U.)	PH	6.9	NA	NA	7	7	NA	NA	7	7	NA	NA	NA	6.6	6.6	6.6
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BISMUTH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
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	LOCATION ID	DA-SW/SD112	DA-SD113	DA-SW/SD114	DA-SW/SD114	DA-SW/SD114	DA-SD115	DA-SW/SD116	DA-SW/SD116	DA-SW/SD116	DA-SW/SD117	DA-SD118	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119	DA-SW/SD119
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	05/19/08	07/11/07	07/11/07	05/20/08	05/20/08	07/11/07	07/17/07	05/20/08	05/20/08	08/21/08	07/11/07	07/17/07	05/21/08	05/21/08	05/21/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
	SAMPLE ID	DA-SD112-LOCDEPTHMAX	DA-SD113-071107	DA-SD114-071107	DA-SD114-0006	DA-SD114-LOCDEPTHMAX	DA-SD115-071107	DA-SD116-071707	DA-SD116-0006	DA-SD116-LOCDEPTHMAX	DA-SD-117-082108	DA-SD118-071107	DA-SD119-071707	DA-SD119-00.5-LOCDEPTHMAX	DA-SD119-0006	DA-SD119-0006-D
FRACTION (UNITS)	PARAMETER															
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	500	NA	NA	520	520	NA	NA	1800	1800	740	NA	NA	665	750	580
	GASOLINE RANGE ORGANICS	8.8 UJ	NA	NA	7.3 U	7.3 U	NA	NA	9.3 U	9.3 U	10 U	NA	NA	12 J	16 J	16 UJ

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
FRACTION (UNITS)	PARAMETER																
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,1,1-TRICHLOROETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,1,2,2-TETRACHLOROETHANE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,1,2-TRICHLOROETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,1-DICHLOROETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,1-DICHLOROETHENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,1-DICHLOROPROPENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2,3-TRICHLOROBENZENE	17.5 UJ	12 UJ	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 UJ	NA
	1,2,3-TRICHLOROPROPANE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2,4-TRICHLOROBENZENE	17.5 UJ	12 UJ	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 UJ	NA
	1,2,4-TRIMETHYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2-DIBROMO-3-CHLOROPROPANE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2-DIBROMOETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2-DICHLOROBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2-DICHLOROETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,2-DICHLOROPROPANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,3,5-TRIMETHYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,3-DICHLOROBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,3-DICHLOROPROPANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	1,4-DICHLOROBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	2,2-DICHLOROPROPANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	2-BUTANONE	190	200	NA	NA	1300 UJ	1300 UJ	NA	NA	NA	NA	NA	NA	130	130	190	NA
	2-CHLOROTOLUENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	2-HEXANONE	88.5 U	59 U	NA	NA	1300 UJ	1300 UJ	NA	NA	NA	NA	NA	NA	63 U	63 U	66 U	NA
	4-CHLOROTOLUENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	4-ISOPROPYLTOLUENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	4-METHYL-2-PENTANONE	88.5 U	59 U	NA	NA	1300 U	1300 U	NA	NA	NA	NA	NA	NA	63 U	63 U	66 U	NA
	ACETONE	550 J	670	NA	NA	740 J	740 J	NA	NA	NA	NA	NA	NA	460 J	460 J	650	NA
	BENZENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	BROMOBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	BROMOCHLOROMETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	BROMODICHLOROMETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	BROMOFORM	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	BROMOMETHANE	35.5 U	24 U	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 U	NA
	BTEX	20 U	14 U	NA	NA	300 U	300 U	NA	NA	NA	NA	NA	NA	14 U	14 U	15 U	NA
	CARBON DISULFIDE	5.5 J	13	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	7 J	NA
	CARBON TETRACHLORIDE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	CHLOROBENZENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	CHLORODIBROMOMETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
FRACTION (UNITS)	PARAMETER																
	CHLOROETHANE	35.5 U	24 U	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 U	NA
	CHLOROFORM	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	CHLOROMETHANE	35.5 U	24 U	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 U	NA
	CIS-1,2-DICHLOROETHENE	7.5 J	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	CIS-1,3-DICHLOROPROPENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	DIBROMOMETHANE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	DICHLORODIFLUOROMETHANE	35.5 U	24 UJ	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 UJ	NA
	ETHYLBENZENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	HEXACHLOROBUTADIENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	ISOPROPYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	M+P-XYLENES	35.5 U	24 U	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 U	NA
	METHYL TERT-BUTYL ETHER	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 UJ	12 UJ	13 U	NA
	METHYLENE CHLORIDE	88.5 U	59 U	NA	NA	1300 U	1300 U	NA	NA	NA	NA	NA	NA	63 U	63 U	66 U	NA
	N-BUTYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	N-PROPYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	O-XYLENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	SEC-BUTYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	STYRENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TERT-BUTYLBENZENE	17.5 UJ	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TETRACHLOROETHENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TOLUENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TOTAL 1,2-DICHLOROETHENE	7.5 J	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TOTAL CHLORINATED ETHENES	7.5 J	15 U	NA	NA	330 U	330 U	NA	NA	NA	NA	NA	NA	15 U	15 U	16 U	NA
	TOTAL CHLORINATED VOCS	7.5 J	16 UJ	NA	NA	340 U	340 U	NA	NA	NA	NA	NA	NA	16 U	16 U	17 UJ	NA
	TOTAL XYLENES	26 U	18 U	NA	NA	400 U	400 U	NA	NA	NA	NA	NA	NA	18 U	18 U	20 U	NA
	TRANS-1,2-DICHLOROETHENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TRANS-1,3-DICHLOROPROPENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TRICHLOROETHENE	17.5 U	12 U	NA	NA	260 U	260 U	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U	NA
	TRICHLOROFLUOROMETHANE	35.5 U	24 U	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 U	NA
	VINYL CHLORIDE	35.5 U	24 U	NA	NA	530 U	530 U	NA	NA	NA	NA	NA	NA	25 U	25 U	26 U	NA
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	985 U	780 UJ	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 UJ	NA
	1,2-DIPHENYLHYDRAZINE	1950 U	1600 U	NA	NA	2100 U	2100 U	NA	NA	NA	NA	NA	NA	2100 U	2100 U	1700 U	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2,4,5-TRICHLOROPHENOL	2450 U	1900 U	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 U	NA
	2,4,6-TRICHLOROPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2,4-DICHLOROPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2,4-DIMETHYLPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2,4-DINITROPHENOL	2450 U	1900 U	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 U	NA
	2,4-DINITROTOLUENE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
FRACTION (UNITS)	PARAMETER																
	2,6-DICHLOROPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2,6-DINITROTOLUENE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2-CHLORONAPHTHALENE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2-CHLOROPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2-METHYLNAPHTHALENE	12 J	8.2 J	NA	NA	12 J	12 J	NA	NA	NA	NA	NA	NA	13 J	13 J	11 J	NA
	2-METHYLPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	2-NITROANILINE	2450 U	1900 U	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 U	NA
	2-NITROPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	3&4-METHYLPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	3,3'-DICHLOROBENZIDINE	985 UJ	780 U	NA	NA	1000 UJ	1000 UJ	NA	NA	NA	NA	NA	NA	1000 UJ	1000 UJ	870 U	NA
	3-NITROANILINE	2450 U	1900 UJ	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 UJ	NA
	4,6-DINITRO-2-METHYLPHENOL	2450 U	1900 U	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 U	NA
	4-BROMOPHENYL PHENYL ETHER	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	4-CHLORO-3-METHYLPHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	4-CHLOROANILINE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	4-CHLOROPHENYL PHENYL ETHER	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	4-NITROANILINE	2450 U	1900 U	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 U	NA
	4-NITROPHENOL	2450 UJ	1900 U	NA	NA	2600 UJ	2600 UJ	NA	NA	NA	NA	NA	NA	2600 UJ	2600 UJ	2200 U	NA
	ACENAPHTHENE	48 J	18 J	NA	NA	22 J	22 J	NA	NA	NA	NA	NA	NA	19 J	19 J	27 J	NA
	ACENAPHTHYLENE	22.8 J	13 J	NA	NA	21 J	21 J	NA	NA	NA	NA	NA	NA	24 J	24 J	19 J	NA
	ANTHRACENE	118 J	40 J	NA	NA	67	67	NA	NA	NA	NA	NA	NA	68	68	47 J	NA
	BENZIDINE	4450 UR	3500 UR	NA	NA	4800 UR	4800 UR	NA	NA	NA	NA	NA	NA	4700 UR	4700 UR	3900 UR	NA
	BENZO(A)ANTHRACENE	705 J	270	NA	NA	660 J	660 J	NA	NA	NA	NA	NA	NA	720 J	720 J	340	NA
	BENZO(A)PYRENE	690 J	270	NA	NA	990 J	990 J	NA	NA	NA	NA	NA	NA	1300 J	1300 J	360	NA
	BENZO(B)FLUORANTHENE	985 J	350	NA	NA	1100	1100	NA	NA	NA	NA	NA	NA	1800 J	1800 J	430	NA
	BENZO(G,H,I)PERYLENE	445 J	180	NA	NA	740 J	740 J	NA	NA	NA	NA	NA	NA	730 J	730 J	180	NA
	BENZO(K)FLUORANTHENE	495 J	240	NA	NA	780 J	780 J	NA	NA	NA	NA	NA	NA	810 J	810 J	350	NA
	BENZOIC ACID	2450 UR	1900 UJ	NA	NA	2600 UR	2600 UR	NA	NA	NA	NA	NA	NA	2600 UR	2600 UR	2200 UJ	NA
	BENZYL ALCOHOL	1950 U	1600 U	NA	NA	2100 U	2100 U	NA	NA	NA	NA	NA	NA	2100 U	2100 U	1700 U	NA
	BIS(2-CHLOROETHOXY)METHANE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	BIS(2-CHLOROETHYL)ETHER	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	985 U	310 J	NA	NA	850 J	850 J	NA	NA	NA	NA	NA	NA	1000 J	1000 J	310 J	NA
	BUTYL BENZYL PHTHALATE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	CARBAZOLE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	CHRYSENE	825 J	350	NA	NA	1200	1200	NA	NA	NA	NA	NA	NA	1400 J	1400 J	460	NA
	DIBENZO(A,H)ANTHRACENE	110 J	56	NA	NA	150 J	150 J	NA	NA	NA	NA	NA	NA	140 J	140 J	74	NA
	DIBENZOFURAN	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	DIETHYL PHTHALATE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	DIMETHYL PHTHALATE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
FRACTION (UNITS)	PARAMETER																
	DI-N-BUTYL PHTHALATE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	DI-N-OCTYL PHTHALATE	985 UJ	780 UJ	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 UJ	NA
	FLUORANTHENE	1550	600	NA	NA	2200	2200	NA	NA	NA	NA	NA	NA	2600 J	2600 J	960	NA
	FLUORENE	60 J	28 J	NA	NA	42 J	42 J	NA	NA	NA	NA	NA	NA	42 J	42 J	48 J	NA
	HEXACHLOROBENZENE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	HEXACHLOROETHANE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	HIGH MOLECULAR WEIGHT PAHS	7790 J	3046	NA	NA	10660 J	10660 J	NA	NA	NA	NA	NA	NA	12620 J	12620 J	4074	NA
	INDENO(1,2,3-CD)PYRENE	435 J	170	NA	NA	740 J	740 J	NA	NA	NA	NA	NA	NA	720 J	720 J	200	NA
	ISOPHORONE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	LOW MOLECULAR WEIGHT PAHS	998.8 J	367.2 J	NA	NA	1010.2 J	1010.2 J	NA	NA	NA	NA	NA	NA	976 J	976 J	462 J	NA
	NAPHTHALENE	18 J	47 U	NA	NA	6.2 J	6.2 J	NA	NA	NA	NA	NA	NA	63 U	63 U	53 U	NA
	NITROBENZENE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	N-NITROSODIMETHYLAMINE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	N-NITROSO-DI-N-PROPYLAMINE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	N-NITROSODIPHENYLAMINE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	N-NITROSOPYRROLIDINE	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	PENTACHLOROPHENOL	2450 U	1900 U	NA	NA	2600 U	2600 U	NA	NA	NA	NA	NA	NA	2600 U	2600 U	2200 U	NA
	PHENANTHRENE	720 J	260	NA	NA	840	840	NA	NA	NA	NA	NA	NA	810 J	810 J	310	NA
	PHENOL	985 U	780 U	NA	NA	1000 U	1000 U	NA	NA	NA	NA	NA	NA	1000 U	1000 U	870 U	NA
	PYRENE	1550	560	NA	NA	2100	2100	NA	NA	NA	NA	NA	NA	2400 J	2400 J	720	NA
	TOTAL PAHS	8788.8 J	3413.2 J	NA	NA	11670.2 J	11670.2 J	NA	NA	NA	NA	NA	NA	13596 J	13596 J	4536 J	NA
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	61 J	22	NA	NA	100 J	100 J	NA	NA	NA	NA	NA	NA	170 J	170 J	78	NA
	4,4'-DDE	170	56	NA	NA	320	320	NA	NA	NA	NA	NA	NA	430	430	160	NA
	4,4'-DDT	19 J	20 J	NA	NA	66 J	66 J	NA	NA	NA	NA	NA	NA	77 J	77 J	28 UJ	NA
	ALDRIN	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA
	ALPHA-BHC	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA
	ALPHA-CHLORDANE	72 J	15 J	NA	NA	120	120	NA	NA	NA	NA	NA	NA	180 J	180 J	42	NA
	AROCLOR-1016	50.5 U	40 UJ	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	AROCLOR-1221	50.5 U	40 U	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	AROCLOR-1232	50.5 U	40 U	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	AROCLOR-1242	50.5 U	40 U	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	AROCLOR-1248	50.5 U	40 U	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	AROCLOR-1254	50.5 U	200	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	AROCLOR-1260	150	40 UJ	NA	NA	160	160	NA	NA	NA	NA	NA	NA	170	170	410 J	NA
	AROCLOR-1268	50.5 U	40 U	NA	NA	54 U	54 U	NA	NA	NA	NA	NA	NA	53 U	53 U	45 U	NA
	BETA-BHC	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA
	DELTA-BHC	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA
	DIELDRIN	43.5	11	NA	NA	86	86	NA	NA	NA	NA	NA	NA	140	140	29	NA
	ENDOSULFAN I	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
	PARAMETER																
	ENDOSULFAN II	9.85 U	7.8 U	NA	NA	21 U	21 U	NA	NA	NA	NA	NA	NA	52 U	52 U	8.7 U	NA
	ENDOSULFAN SULFATE	9.85 U	7.8 U	NA	NA	21 U	21 U	NA	NA	NA	NA	NA	NA	52 U	52 U	8.7 U	NA
	ENDRIN	9.85 U	7.8 U	NA	NA	21 U	21 U	NA	NA	NA	NA	NA	NA	52 U	52 U	8.7 U	NA
	ENDRIN ALDEHYDE	9.85 U	7.8 U	NA	NA	21 U	21 U	NA	NA	NA	NA	NA	NA	52 U	52 U	8.7 U	NA
	ENDRIN KETONE	9.85 UJ	7.8 UJ	NA	NA	21 UJ	21 UJ	NA	NA	NA	NA	NA	NA	52 UJ	52 UJ	8.7 UJ	NA
	GAMMA-BHC (LINDANE)	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA
	GAMMA-CHLORDANE	51	12	NA	NA	93	93	NA	NA	NA	NA	NA	NA	130	130	35	NA
	HEPTACHLOR	5.05 UJ	4 UJ	NA	NA	11 UJ	11 UJ	NA	NA	NA	NA	NA	NA	27 UJ	27 UJ	4.5 UJ	NA
	HEPTACHLOR EPOXIDE	5.05 U	4 U	NA	NA	11 U	11 U	NA	NA	NA	NA	NA	NA	27 U	27 U	4.5 U	NA
	METHOXYCHLOR	50.5 UJ	40 UJ	NA	NA	110 UJ	110 UJ	NA	NA	NA	NA	NA	NA	270 UJ	270 UJ	45 UJ	NA
	TOTAL AROCLOR	150	200 J	NA	NA	160	160	NA	NA	NA	NA	NA	NA	170	170	410 J	NA
	TOTAL DDD/DDE/DDT	250 J	98 J	NA	NA	486 J	486 J	NA	NA	NA	NA	NA	NA	677 J	677 J	238 J	NA
	TOXAPHENE	98.5 U	78 U	NA	NA	210 U	210 U	NA	NA	NA	NA	NA	NA	520 U	520 U	87 U	NA
METALS (MG/KG)	ALUMINUM	19000	18000	NA	NA	29300	29300	NA	NA	NA	NA	NA	NA	32400	32400	26500	NA
	ANTIMONY	0.28 UJ	0.35 UJ	NA	NA	0.43 UJ	0.43 UJ	NA	NA	NA	NA	NA	NA	0.83 UJ	0.83 UJ	0.62 UJ	NA
	ARSENIC	14.8	18.8	NA	NA	21.8	21.8	NA	NA	NA	NA	NA	NA	22.5	22.5	19.4	NA
	BARIUM	67.6	59.3	NA	NA	91	91	NA	NA	NA	NA	NA	NA	107	107	127	NA
	BERYLLIUM	0.71 J	0.46 J	NA	NA	1	1	NA	NA	NA	NA	NA	NA	1.1	1.1	0.66 J	NA
	CADMIUM	0.925 J	1.1 J	NA	NA	0.8 J	0.8 J	NA	NA	NA	NA	NA	NA	0.46 J	0.46 J	1.5 J	NA
	CALCIUM	2760	1560	NA	NA	2970	2970	NA	NA	NA	NA	NA	NA	2910	2910	2070	NA
	CHROMIUM	25.8	21	NA	NA	38.2	38.2	NA	NA	NA	NA	NA	NA	40.4	40.4	28.8	NA
	COBALT	39.8	35.9	NA	NA	43.1	43.1	NA	NA	NA	NA	NA	NA	37.3	37.3	73.1	NA
	COPPER	39.8 J	27.4	NA	NA	51.7 J	51.7 J	NA	NA	NA	NA	NA	NA	50.9 J	50.9 J	37.9	NA
	IRON	34200	28700	NA	NA	50500	50500	NA	NA	NA	NA	NA	NA	51100	51100	34400	NA
	LEAD	258 J	149	220	199	224 J	224 J	176	183	164	155	156	156	167 J	167 J	216	104
	MAGNESIUM	3480	3330	NA	NA	5020	5020	NA	NA	NA	NA	NA	NA	5340	5340	4410	NA
	MANGANESE	338	255	NA	NA	658	658	NA	NA	NA	NA	NA	NA	666	666	397	NA
	MERCURY	0.22	0.2	NA	NA	0.27	0.27	NA	NA	NA	NA	NA	NA	0.28	0.28	0.25	NA
	MOLYBDENUM	2.15	0.9 J	NA	NA	3.3	3.3	NA	NA	NA	NA	NA	NA	3.4	3.4	1.4 J	NA
	NICKEL	27.6	25	NA	NA	39.6	39.6	NA	NA	NA	NA	NA	NA	40.9	40.9	36.7	NA
	POTASSIUM	956 J	794	NA	NA	1350 J	1350 J	NA	NA	NA	NA	NA	NA	1540 J	1540 J	1300	NA
	SELENIUM	0.315 UJ	0.27 UJ	NA	NA	0.64 UJ	0.64 UJ	NA	NA	NA	NA	NA	NA	0.62 UJ	0.62 UJ	0.65 UJ	NA
	SILVER	0.27 UJ	0.78 J	NA	NA	0.16 UJ	0.16 UJ	NA	NA	NA	NA	NA	NA	0.15 UJ	0.15 UJ	1 J	NA
	SODIUM	282 J	149 J	NA	NA	196 J	196 J	NA	NA	NA	NA	NA	NA	256 J	256 J	202 J	NA
	THALLIUM	0.14 UJ	0.14 UJ	NA	NA	0.25 UJ	0.25 UJ	NA	NA	NA	NA	NA	NA	0.24 UJ	0.24 UJ	0.18 UJ	NA
	VANADIUM	34.2	31.5	NA	NA	50.8	50.8	NA	NA	NA	NA	NA	NA	54.1	54.1	51.3	NA
	ZINC	219	149	NA	NA	276	276	NA	NA	NA	NA	NA	NA	255	255	206	NA
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	2.45	NA	NA	NA	6.8	6.8	NA	NA	NA	NA	NA	NA	9.6	9.6	NA	NA
	HYDROMETER-12.9UM	11	NA	NA	NA	18.8	18.8	NA	NA	NA	NA	NA	NA	27.2	27.2	NA	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

FRACTION (UNITS)	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
	PARAMETER																
	HYDROMETER-21.5UM	13.8	NA	NA	NA	22.2	22.2	NA	NA	NA	NA	NA	NA	13.4	13.4	NA	NA
	HYDROMETER-3.4UM	7.2	NA	NA	NA	8.6	8.6	NA	NA	NA	NA	NA	NA	9.6	9.6	NA	NA
	HYDROMETER-32.8UM	38.8	NA	NA	NA	17.8	17.8	NA	NA	NA	NA	NA	NA	8.4	8.4	NA	NA
	HYDROMETER-6.6UM	4.2	NA	NA	NA	8.6	8.6	NA	NA	NA	NA	NA	NA	11.5	11.5	NA	NA
	HYDROMETER-9.1UM	6.1	NA	NA	NA	12.3	12.3	NA	NA	NA	NA	NA	NA	15.4	15.4	NA	NA
	PERCENT CLAY	12.6	NA	NA	NA	17.4	17.4	NA	NA	NA	NA	NA	NA	23.4	23.4	NA	NA
	PERCENT COARSE SAND	1.2	NA	NA	NA	0	0	NA	NA	NA	NA	NA	NA	0	0	NA	NA
	PERCENT COARSE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	9.15	NA	NA	NA	2.3	2.3	NA	NA	NA	NA	NA	NA	0.7	0.7	NA	NA
	PERCENT FINE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	1.85	NA	NA	NA	0	0	NA	NA	NA	NA	NA	NA	0	0	NA	NA
	PERCENT MEDIUM SAND	1.25	NA	NA	NA	0.5	0.5	NA	NA	NA	NA	NA	NA	0.1	0.1	NA	NA
	PERCENT MEDIUM SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	73.8	NA	NA	NA	79.7	79.7	NA	NA	NA	NA	NA	NA	75.9	75.9	NA	NA
	SIEVE 1"	0	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE 1-1/2"	0	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE 2"	0	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE 3"	0	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE 3/4"	0	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE 3/8"	0	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE NO. 004	1.85	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE NO. 010	1.2	NA	NA	NA	0.0	0.0	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE NO. 020	0.35	NA	NA	NA	0.2	0.2	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
	SIEVE NO. 040	0.95	NA	NA	NA	0.3	0.3	NA	NA	NA	NA	NA	NA	0.1	0.1	NA	NA
	SIEVE NO. 060	0.8	NA	NA	NA	0.2	0.2	NA	NA	NA	NA	NA	NA	0.1	0.1	NA	NA
	SIEVE NO. 080	1.45	NA	NA	NA	0.4	0.4	NA	NA	NA	NA	NA	NA	0.1	0.1	NA	NA
	SIEVE NO. 100	0.75	NA	NA	NA	0.2	0.2	NA	NA	NA	NA	NA	NA	0.1	0.1	NA	NA
	SIEVE NO. 200	6.25	NA	NA	NA	1.5	1.5	NA	NA	NA	NA	NA	NA	0.3	0.3	NA	NA
	TOTAL SOLIDS	NA	NA	31	32	NA	32	33	31	26	31	31	31	31	NA	NA	23
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	70500	NA	NA	NA	63000	63000	NA	NA	NA	NA	NA	NA	56000	56000	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH	6.6	NA	NA	NA	6.6	6.6	NA	NA	NA	NA	NA	NA	6.5	6.5	NA	NA
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BISMUTH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SW/SD119	DA-SW/SD119	DA-SD120	DA-SW/SD121	DA-SW/SD121	DA-SW/SD121	DA-SD122	DA-SD123	DA-SD124	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SW/SD125	DA-SD126
	TOP DEPTH	0	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
	BOTTOM DEPTH	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
	SAMPLE DATE	05/21/08	08/21/08	07/17/07	07/17/07	05/21/08	05/21/08	07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07	05/21/08	05/21/08	08/21/08	07/16/07
	SAMPLE CODE	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD119-0006-AVG	DA-SD-119-0424	DA-SD120-071707	DA-SD121-071707	DA-SD121-0006	DA-SD121-LOCDEPTHMAX	DA-SD122-071707	DA-SD123-071707	DA-SD124-071607	DA-SD125-071607	DA-SD125-071607-D	DA-SD125-071607-AVG	DA-SD125-00.5-LOCDEPTHMAX	DA-SD125-0006	DA-SD-125-0424	DA-SD126-071607
FRACTION (UNITS)	PARAMETER																
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	665	820	NA	NA	760	760	NA	NA	NA	NA	NA	NA	640 J	640 J	910	NA
	GASOLINE RANGE ORGANICS	12 J	9.4 U	NA	NA	16 UJ	16 UJ	NA	NA	NA	NA	NA	NA	16 UJ	16 UJ	14 U	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
VOLATILES (UG/KG)	1,1,1,2-TETRACHLOROETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,1,1-TRICHLOROETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	5 J	5 J	7 U
	1,1,2,2-TETRACHLOROETHANE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,1,2-TRICHLOROETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,1-DICHLOROETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,1-DICHLOROETHENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,1-DICHLOROPROPENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2,3-TRICHLOROBENZENE	NA	5 UJ	7 UJ	12 UJ	6 UJ	NA	NA	6 U	6 U	7 U
	1,2,3-TRICHLOROPROPANE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2,4-TRICHLOROBENZENE	NA	5 UJ	7 UJ	12 UJ	6 UJ	NA	NA	6 U	6 U	7 U
	1,2,4-TRIMETHYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2-DIBROMOETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2-DICHLOROBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2-DICHLOROETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,2-DICHLOROPROPANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,3,5-TRIMETHYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,3-DICHLOROBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,3-DICHLOROPROPANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	1,4-DICHLOROBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	2,2-DICHLOROPROPANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	2-BUTANONE	NA	26 U	37 U	59 UJ	29 U	NA	NA	28 U	28 U	33 U
	2-CHLOROTOLUENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	2-HEXANONE	NA	26 U	37 U	59 UJ	29 U	NA	NA	28 U	28 U	33 U
	4-CHLOROTOLUENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	4-ISOPROPYLTOLUENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	4-METHYL-2-PENTANONE	NA	26 U	37 U	59 UJ	29 U	NA	NA	28 U	28 U	33 U
	ACETONE	NA	13 J	37 UJ	100 J	29 U	NA	NA	28 U	28 U	33 U
	BENZENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	BROMOBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	BROMOCHLOROMETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	BROMODICHLOROMETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	BROMOFORM	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	BROMOMETHANE	NA	10 U	15 U	23 UJ	12 U	NA	NA	11 U	11 U	13 U
	BTEX	NA	5.6 U	8 U	14 UJ	6.8 U	NA	NA	6.6 U	6.6 U	7.8 U
	CARBON DISULFIDE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	CARBON TETRACHLORIDE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	CHLOROBENZENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	CHLORODIBROMOMETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
	CHLOROETHANE	NA	10 U	15 U	23 UJ	12 U	NA	NA	11 U	11 U	13 U
	CHLOROFORM	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	CHLOROMETHANE	NA	10 U	15 U	23 UJ	12 U	NA	NA	11 U	11 U	13 U
	CIS-1,2-DICHLOROETHENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	CIS-1,3-DICHLOROPROPENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	DIBROMOMETHANE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	DICHLORODIFLUOROMETHANE	NA	10 UJ	15 U	23 UJ	12 UJ	NA	NA	11 U	11 U	13 U
	ETHYLBENZENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	HEXACHLOROBUTADIENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	ISOPROPYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	M+P-XYLENES	NA	10 U	15 U	23 UJ	12 U	NA	NA	11 U	11 U	13 U
	METHYL TERT-BUTYL ETHER	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 UJ
	METHYLENE CHLORIDE	NA	26 U	37 U	59 UJ	29 U	NA	NA	28 U	28 U	33 U
	N-BUTYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	N-PROPYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	O-XYLENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	SEC-BUTYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	STYRENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TERT-BUTYLBENZENE	NA	5 U	7 UJ	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TETRACHLOROETHENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TOLUENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TOTAL 1,2-DICHLOROETHENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TOTAL CHLORINATED ETHENES	NA	6.2 U	9 U	15 UJ	7.5 U	NA	NA	7.2 U	7.2 U	8.5 U
	TOTAL CHLORINATED VOCS	NA	6.6 UJ	9.4 UJ	16 UJ	7.8 UJ	NA	NA	5 J	5 J	8.9 U
	TOTAL XYLENES	NA	7.5 U	11 U	18 UJ	9 U	NA	NA	8.5 U	8.5 U	10 U
	TRANS-1,2-DICHLOROETHENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TRANS-1,3-DICHLOROPROPENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TRICHLOROETHENE	NA	5 U	7 U	12 UJ	6 U	NA	NA	6 U	6 U	7 U
	TRICHLOROFLUOROMETHANE	NA	10 U	15 U	23 UJ	12 U	NA	NA	11 U	11 U	13 U
	VINYL CHLORIDE	NA	10 U	15 U	23 UJ	12 U	NA	NA	11 U	11 U	13 U
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	430 UJ	430 UJ	500 UJ	430 UJ	NA	NA	370 U	370 U	500 U
	1,2-DIPHENYLHYDRAZINE	NA	850 U	860 U	1000 U	860 U	NA	NA	740 U	740 U	1000 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2,4,5-TRICHLOROPHENOL	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 U	920 U	1200 U
	2,4,6-TRICHLOROPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2,4-DICHLOROPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2,4-DIMETHYLPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2,4-DINITROPHENOL	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 U	920 U	1200 U
	2,4-DINITROTOLUENE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
	2,6-DICHLOROPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2,6-DINITROTOLUENE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2-CHLORONAPHTHALENE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2-CHLOROPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2-METHYLNAPHTHALENE	NA	26 U	3.1 J	3.8 J	26 U	NA	NA	22 U	22 U	31 U
	2-METHYLPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	2-NITROANILINE	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 U	920 U	1200 U
	2-NITROPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	3&4-METHYLPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	3,3'-DICHLOROBENZIDINE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 UJ
	3-NITROANILINE	NA	1100 UJ	1100 UJ	1200 UJ	1100 UJ	NA	NA	920 U	920 U	1200 U
	4,6-DINITRO-2-METHYLPHENOL	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 UJ	920 UJ	1200 U
	4-BROMOPHENYL PHENYL ETHER	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	4-CHLORO-3-METHYLPHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	4-CHLOROANILINE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	4-CHLOROPHENYL PHENYL ETHER	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	4-NITROANILINE	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 U	920 U	1200 U
	4-NITROPHENOL	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 UJ	920 UJ	1200 UJ
	ACENAPHTHENE	NA	12 J	18 J	26 J	6.5 J	NA	NA	22 U	22 U	3.9 J
	ACENAPHTHYLENE	NA	6.4 J	26 U	9 J	4.5 J	NA	NA	22 U	22 U	2.8 J
	ANTHRACENE	NA	24 J	41	51	17 J	NA	NA	22 U	22 U	12 J
	BENZIDINE	NA	1900 UR	2000 UR	2300 UR	1900 UR	NA	NA	1700 UR	1700 UR	2300 UR
	BENZO(A)ANTHRACENE	NA	160	320	300	150	NA	NA	45 J	45 J	280 J
	BENZO(A)PYRENE	NA	160	420	280	200	NA	NA	48	48	230 J
	BENZO(B)FLUORANTHENE	NA	170	530	310	270	NA	NA	110	110	490 J
	BENZO(G,H,I)PERYLENE	NA	72	200	110	120	NA	NA	38	38	220 J
	BENZO(K)FLUORANTHENE	NA	160	410	270	220	NA	NA	31	31	120 J
	BENZOIC ACID	NA	1100 UJ	1900 J	760 J	1100 UJ	NA	NA	920 UR	920 UR	1200 UR
	BENZYL ALCOHOL	NA	850 U	860 U	1000 U	860 U	NA	NA	740 U	740 U	1000 U
	BIS(2-CHLOROETHOXY)METHANE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	BIS(2-CHLOROETHYL)ETHER	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	BUTYL BENZYL PHTHALATE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	CARBAZOLE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	CHRYSENE	NA	190	510	330	240	NA	NA	49 J	49 J	260 J
	DIBENZO(A,H)ANTHRACENE	NA	31	97	52	48	NA	NA	11 J	11 J	37 J
	DIBENZOFURAN	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	DIETHYL PHTHALATE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	DIMETHYL PHTHALATE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
	DI-N-BUTYL PHTHALATE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	DI-N-OCTYL PHTHALATE	NA	430 UJ	430 UJ	500 UJ	430 UJ	NA	NA	370 U	370 U	500 U
	FLUORANTHENE	NA	340	890	740	430	NA	NA	76	76	320
	FLUORENE	NA	12 J	18 J	26 J	7 J	NA	NA	22 U	22 U	4.2 J
	HEXACHLOROBENZENE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	HEXACHLOROETHANE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	HIGH MOLECULAR WEIGHT PAHS	NA	1665	4297	3142	2118	NA	NA	522 J	522 J	2577 J
	INDENO(1,2,3-CD)PYRENE	NA	92	250	150	140	NA	NA	36	36	140 J
	ISOPHORONE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	LOW MOLECULAR WEIGHT PAHS	NA	224.4 J	384.7 J	481.9 J	165 J	NA	NA	28	28	132.9 J
	NAPHTHALENE	NA	26 U	4.6 J	6.1 J	26 U	NA	NA	22 U	22 U	31 U
	NITROBENZENE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	N-NITROSODIMETHYLAMINE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	N-NITROSO-DI-N-PROPYLAMINE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	N-NITROSODIPHENYLAMINE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	N-NITROSOPYRROLIDINE	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	PENTACHLOROPHENOL	NA	1100 U	1100 U	1200 U	1100 U	NA	NA	920 U	920 U	1200 U
	PHENANTHRENE	NA	170	300	360	130	NA	NA	28	28	110
	PHENOL	NA	430 U	430 U	500 U	430 U	NA	NA	370 U	370 U	500 U
	PYRENE	NA	290	670	600	300	NA	NA	78	78	480 J
	TOTAL PAHS	NA	1889.4 J	4681.7 J	3623.9 J	2283 J	NA	NA	550 J	550 J	2709.9 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	NA	6.4	36	9.6 J	36	NA	NA	4.7 J	4.7 J	18 J
	4,4'-DDE	NA	14	100	9.5	89	NA	NA	12	12	31
	4,4'-DDT	NA	5.4 J	34 J	8.6 UJ	37 J	NA	NA	10 J	10 J	17 J
	ALDRIN	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U
	ALPHA-BHC	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U
	ALPHA-CHLORDANE	NA	6.8 J	38 J	2.6 U	34	NA	NA	6.8 J	6.8 J	19 J
	AROCLOR-1016	NA	22 UJ	22 UJ	26 U	22 UJ	NA	NA	19 U	19 U	26 U
	AROCLOR-1221	NA	22 U	22 U	26 U	22 U	NA	NA	19 U	19 U	26 U
	AROCLOR-1232	NA	22 U	22 U	26 U	22 U	NA	NA	19 U	19 U	26 U
	AROCLOR-1242	NA	22 U	22 U	26 U	22 U	NA	NA	19 U	19 U	26 U
	AROCLOR-1248	NA	22 U	22 U	26 U	22 U	NA	NA	19 U	19 U	26 U
	AROCLOR-1254	NA	22 U	22 U	26 U	22 U	NA	NA	19 U	19 U	26 U
	AROCLOR-1260	NA	22 UJ	22 UJ	86	22 UJ	NA	NA	19 U	19 U	67
	AROCLOR-1268	NA	22 U	22 U	26 U	22 U	NA	NA	19 U	19 U	26 U
	BETA-BHC	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U
	DELTA-BHC	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U
	DIELDRIN	NA	11	64	11 J	66	NA	NA	11	11	22
	ENDOSULFAN I	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
	ENDOSULFAN II	NA	4.3 U	4.3 U	5 U	4.3 U	NA	NA	3.7 U	3.7 U	5 U
	ENDOSULFAN SULFATE	NA	4.3 U	4.3 U	5 U	4.3 U	NA	NA	3.7 U	3.7 U	5 U
	ENDRIN	NA	4.3 U	4.3 U	5 U	4.3 U	NA	NA	3.7 U	3.7 U	5 U
	ENDRIN ALDEHYDE	NA	4.3 U	4.3 U	5 U	4.3 U	NA	NA	3.7 U	3.7 U	5 U
	ENDRIN KETONE	NA	4.3 UJ	4.3 UJ	5 UJ	4.3 UJ	NA	NA	3.7 UJ	3.7 UJ	5 UJ
	GAMMA-BHC (LINDANE)	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U
	GAMMA-CHLORDANE	NA	5.3	26	2.6 U	23	NA	NA	4.8	4.8	14
	HEPTACHLOR	NA	2.2 UJ	2.2 UJ	2.6 UJ	2.2 UJ	NA	NA	1.9 UJ	1.9 UJ	2.6 UJ
	HEPTACHLOR EPOXIDE	NA	2.2 U	2.2 U	2.6 U	2.2 U	NA	NA	1.9 U	1.9 U	2.6 U
	METHOXYCHLOR	NA	22 UJ	22 UJ	26 UJ	22 UJ	NA	NA	19 UJ	19 UJ	26 UJ
	TOTAL AROCLOR	NA	22 UJ	22 UJ	86	22 UJ	NA	NA	19 U	19 U	67
	TOTAL DDD/DDE/DDT	NA	25.8 J	170 J	19.1 J	162 J	NA	NA	26.7 J	26.7 J	66 J
	TOXAPHENE	NA	43 U	43 U	50 U	43 U	NA	NA	37 U	37 U	50 U
METALS (MG/KG)	ALUMINUM	NA	12600	19000	13400	13700	NA	NA	9450	9450	10300
	ANTIMONY	NA	0.39 UJ	0.44 UJ	0.47 UJ	0.75 UJ	NA	NA	0.38 UJ	0.38 UJ	0.24 UJ
	ARSENIC	NA	16.1	17.4	13	16.3	NA	NA	15.7	15.7	10.6
	BARIUM	NA	18.1	67.6	54.6	49.6	NA	NA	34.6	34.6	25
	BERYLLIUM	NA	0.29 J	0.47 J	0.33 J	0.38 J	NA	NA	0.36	0.36	0.71
	CADMIUM	NA	0.43 UJ	1.4 J	1.5 J	1.2 J	NA	NA	0.91 J	0.91 J	0.49 J
	CALCIUM	NA	1380	3240	7040	2280	NA	NA	1330	1330	1470
	CHROMIUM	NA	19.1	23.5	19.2	20.9	NA	NA	15.4	15.4	14.9
	COBALT	NA	14.4	32	17.7	82.1	NA	NA	204	204	10
	COPPER	NA	20.1	30.2	36.2	31.3	NA	NA	30.9 J	30.9 J	15.4 J
	IRON	NA	29800	30600	26400	31400	NA	NA	42800	42800	30500
	LEAD	142	44.9	137	86	580	5340	15300	1000 J	15300	43.7 J
	MAGNESIUM	NA	3660	4000	3730	3780	NA	NA	3120	3120	2640
	MANGANESE	NA	485	1300	632	2500	NA	NA	2360	2360	500
	MERCURY	NA	0.08	0.16	0.19	0.11	NA	NA	0.02 J	0.02 J	0.06
	MOLYBDENUM	NA	0.55 J	2.5 J	0.85 J	5.9	NA	NA	7.5	7.5	2.7
	NICKEL	NA	26.8	26.6	29.6	26.6	NA	NA	24.4	24.4	19.5
	POTASSIUM	NA	387	1040	697	686	NA	NA	222 J	222 J	303 J
	SELENIUM	NA	0.39 UJ	0.26 UJ	0.26 UJ	0.41 UJ	NA	NA	0.56 UJ	0.56 UJ	0.35 UJ
	SILVER	NA	0.32 J	0.51 J	0.26 J	0.85 J	NA	NA	1.5 J	1.5 J	0.09 UJ
	SODIUM	NA	74.3 J	108 J	105 J	74.3 UJ	NA	NA	40 UJ	40 UJ	64.3 J
	THALLIUM	NA	0.09 UJ	0.17 UJ	0.07 UJ	0.08 UJ	NA	NA	0.04 UJ	0.04 UJ	0.05 UJ
	VANADIUM	NA	32	34.1	33	28	NA	NA	17.2	17.2	22
	ZINC	NA	67.6	139	111	144	NA	NA	130	130	157
MISCELLANEOUS PARAMETERS (%)	HYDROMETER-1.4UM	NA	NA	NA	NA	NA	NA	NA	0.6	0.6	1.2
	HYDROMETER-12.9UM	NA	NA	NA	NA	NA	NA	NA	0.6	0.6	0.6

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
	HYDROMETER-21.5UM	NA	NA	NA	NA	NA	NA	NA	0.6	0.6	1.2
	HYDROMETER-3.4UM	NA	NA	NA	NA	NA	NA	NA	1.2	1.2	1.8
	HYDROMETER-32.8UM	NA	NA	NA	NA	NA	NA	NA	0.2	0.2	7.8
	HYDROMETER-6.6UM	NA	NA	NA	NA	NA	NA	NA	0.6	0.6	1.8
	HYDROMETER-9.1UM	NA	NA	NA	NA	NA	NA	NA	1.2	1.2	1.2
	PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA	2.6	2.6	4.5
	PERCENT COARSE SAND	NA	NA	NA	NA	NA	NA	NA	11.9	11.9	10.2
	PERCENT COARSE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT FINE SAND	NA	NA	NA	NA	NA	NA	NA	3	3	15.1
	PERCENT FINE SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT GRAVEL	NA	NA	NA	NA	NA	NA	NA	69.5	69.5	33.6
	PERCENT MEDIUM SAND	NA	NA	NA	NA	NA	NA	NA	9.8	9.8	23.9
	PERCENT MEDIUM SILT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PERCENT SILT	NA	NA	NA	NA	NA	NA	NA	3.2	3.2	12.8
	SIEVE 1"	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
	SIEVE 1-1/2"	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
	SIEVE 2"	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
	SIEVE 3"	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
	SIEVE 3/4"	NA	NA	NA	NA	NA	NA	NA	20.9	20.9	13.6
	SIEVE 3/8"	NA	NA	NA	NA	NA	NA	NA	26.7	26.7	6.0
	SIEVE NO. 004	NA	NA	NA	NA	NA	NA	NA	21.8	21.8	14.0
	SIEVE NO. 010	NA	NA	NA	NA	NA	NA	NA	11.9	11.9	10.2
	SIEVE NO. 020	NA	NA	NA	NA	NA	NA	NA	6.5	6.5	13.4
	SIEVE NO. 040	NA	NA	NA	NA	NA	NA	NA	3.3	3.3	10.5
	SIEVE NO. 060	NA	NA	NA	NA	NA	NA	NA	1.1	1.1	6.1
	SIEVE NO. 080	NA	NA	NA	NA	NA	NA	NA	1.0	1.0	4.8
	SIEVE NO. 100	NA	NA	NA	NA	NA	NA	NA	0.2	0.2	1.1
	SIEVE NO. 200	NA	NA	NA	NA	NA	NA	NA	0.7	0.7	3.1
	TOTAL SOLIDS	20	NA	NA	NA	NA	80	82	NA	82	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	25000	25000	24000
MISCELLANEOUS PARAMETERS (S.U.)	PH	NA	NA	NA	NA	NA	NA	NA	7.2	7.2	7
AVS/SEM (UMO/G)	ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BISMUTH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-4 SEDIMENT ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SD127	DA-SD128	DA-SD129	DA-SD130	DA-SD131	DA-SD132	DA-SW/SD133	DA-SW/SD133	DA-SW/SD133	DA-SD134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	SAMPLE DATE	07/16/07	08/21/08	08/21/08	08/21/08	08/21/08	07/12/07	07/12/07	05/20/08	05/20/08	05/20/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-SD127-071607	DA-SD-128-082108	DA-SD-129-082108	DA-SD-130-082108	DA-SD-131-082108	DA-SD132-071207	DA-SD133-071207	DA-SD133-0006	DA-SD133-LOCDEPTHMAX	DA-SD134-0006
FRACTION (UNITS)	PARAMETER										
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL SEM-AVS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE TPH (C09-C36)	NA	95	120	270	150	NA	NA	57	57	380
	GASOLINE RANGE ORGANICS	NA	3.1 U	4.8 U	7.4 U	4	NA	NA	3.2 U	3.2 U	4.9 U

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APPENDIX F.5

BIOTA SAMPLE ANALYTICAL DATA

APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
	SAMPLE DATE	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-EW-MW103-080708	DA-EW-MW105-080708	DA-EW-MW113-080608	DA-EW-MW115-080608	DA-EW-SB104-080708	DA-EW-SB108-080708	DA-EW-SB121-080708	DA-EW-SB123-080608	DA-EW-SB130-080708	DA-EW-SB134-080608
FRACTION (UNITS)	PARAMETER										
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
	SAMPLE DATE	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-EW-MW103-080708	DA-EW-MW105-080708	DA-EW-MW113-080608	DA-EW-MW115-080608	DA-EW-SB104-080708	DA-EW-SB108-080708	DA-EW-SB121-080708	DA-EW-SB123-080608	DA-EW-SB130-080708	DA-EW-SB134-080608
FRACTION (UNITS)	PARAMETER										
	BENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIMETHYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/KG)	2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
	SAMPLE DATE	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-EW-MW103-080708	DA-EW-MW105-080708	DA-EW-MW113-080608	DA-EW-MW115-080608	DA-EW-SB104-080708	DA-EW-SB108-080708	DA-EW-SB121-080708	DA-EW-SB123-080608	DA-EW-SB130-080708	DA-EW-SB134-080608
FRACTION (UNITS)	PARAMETER										
	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	4,4'-DDE	1.07	7.92 J	0.384 U	0.663	2.35	1.08	1.96 UJ	0.721 J	1.22	1.09
	4,4'-DDT	0.372 U	0.38 U	0.384 U	11.4 UJ	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ALDRIN	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ALPHA-BHC	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ALPHA-CHLORDANE	0.372 U	0.38 U	0.384 U	0.381 U	0.916	0.485	0.38 U	0.38 U	0.361 U	0.382 UJ
	AROCLOR-1016	14.9 U	15.2 U	15.4 U	15.2 U	14.9 U	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	AROCLOR-1221	14.9 U	15.2 U	15.4 U	15.2 U	14.9 U	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	AROCLOR-1232	14.9 U	15.2 U	15.4 U	15.2 U	14.9 U	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	AROCLOR-1242	14.9 U	15.2 U	15.4 U	15.2 U	14.9 U	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	AROCLOR-1248	14.9 U	15.2 U	15.4 U	15.2 U	14.9 U	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	AROCLOR-1254	14.9 U	15.2 U	15.4 U	15.2 U	39.6	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	AROCLOR-1260	14.9 U	76.3	15.4 U	117	14.9 U	15.2 U	66.4	15.2 U	14.4 U	15.3 U
	AROCLOR-1268	14.9 U	15.2 U	15.4 U	15.2 U	32.6	15.2 U	15.2 U	15.2 U	14.4 U	15.3 U
	BETA-BHC	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	DELTA-BHC	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	DIELDRIN	4.6	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
	SAMPLE DATE	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-EW-MW103-080708	DA-EW-MW105-080708	DA-EW-MW113-080608	DA-EW-MW115-080608	DA-EW-SB104-080708	DA-EW-SB108-080708	DA-EW-SB121-080708	DA-EW-SB123-080608	DA-EW-SB130-080708	DA-EW-SB134-080608
FRACTION (UNITS)	PARAMETER										
	ENDOSULFAN I	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ENDOSULFAN II	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ENDOSULFAN SULFATE	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ENDRIN	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ENDRIN ALDEHYDE	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	ENDRIN KETONE	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	GAMMA-BHC (LINDANE)	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	GAMMA-CHLORDANE	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	HEPTACHLOR	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	HEPTACHLOR EPOXIDE	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	HEXACHLOROBENZENE	0.372 U	0.38 U	0.384 U	0.381 U	0.372 U	0.379 U	0.38 U	0.38 U	0.361 U	0.382 U
	METHOXYCHLOR	0.743 U	0.759 U	0.768 U	0.762 U	0.745 U	0.758 U	0.759 U	0.759 U	0.722 U	0.765 U
	TOTAL AROCLOR	15 U	76.3	15 U	117	72.2	15 U	66.4	15 U	14 U	15 U
	TOTAL DDD/DDE/DDT	1.07	7.92 J	0.38 U	0.663 J	2.35	1.08	0.91 UJ	0.721 J	1.22	1.09
	TOXAPHENE	18.6 U	19 U	19.2 U	19 U	18.6 U	18.9 U	19 U	19 U	18 U	19.1 U
METALS (MG/KG)	ALUMINUM	1300 J	2340 J	3000 J	175 J	2250 J	1730 J	1380 J	1830 J	1060 J	2300 J
	ANTIMONY	0.0264 J	0.0147 J	0.0151 J	0.0136 J	0.107 J	0.0119 J	0.0413 J	0.0327 J	0.0171 J	0.0131 J
	ARSENIC	1.38	4.05	6.55	0.685	3.06	1.17	3.34	2.76	2.67	2.62
	BARIUM	9.26 J	12.4 J	11.7 J	3.37 J	9.56 J	11.2 J	6.71 J	17 J	9.78 J	11 J
	BERYLLIUM	0.0642	0.0924	0.0801	0.0148 U	0.082	0.14	0.0602	0.0626	0.0378 J	0.0805
	CADMIUM	4.55	2.96	0.739 J	34.1	4.48	4.24	134	1.56	2.17	0.56
	CALCIUM	2150 J	2010 J	1400 J	525 J	1340 J	973 J	855 J	1450 J	1610 J	838 J
	CHROMIUM	8.17	41	19.1	2.01	6.59	36.9	14.8	48.3	3.57	17.9
	COBALT	2.07	4.01	4.91	1.6	3.02	1.95	1.85	1.96	1.56	2.06
	COPPER	5.77	9.66	7.62	1.93	7.35	5.53	9.62	7.05	6.65	6.41
	IRON	2840	5090	8570	324	4450	3180	2960	3710	2190	4330
	LEAD	6.31	17.8	3.44	141	12.4	24.3	17.7	5.13	3.73	8.99
	MAGNESIUM	562	713	889	163	618	464	446	445	424	557
	MANGANESE	71.9	121	125	8.26	64.7	60.6	53.3	61.1	39.4	84.3

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
	SAMPLE DATE	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
	SAMPLE ID	DA-EW-MW103-080708	DA-EW-MW105-080708	DA-EW-MW113-080608	DA-EW-MW115-080608	DA-EW-SB104-080708	DA-EW-SB108-080708	DA-EW-SB121-080708	DA-EW-SB123-080608	DA-EW-SB130-080708	DA-EW-SB134-080608
FRACTION (UNITS)	PARAMETER										
	MERCURY	0.0297	0.0666	0.0335	0.0996	0.0368	0.0217	0.0873	0.0307	0.314	0.0241
	MOLYBDENUM	0.626	2.29	1.55	0.184	0.48	2.36	1.01	3.09	0.288	1.33
	NICKEL	6.58	24.2	14.9	1.17	5.68	20.2	11.6	27.4	3.08	12.1
	POTASSIUM	1250	1210	1270	1370	1310	1460	1440	1310	1340	1240
	SELENIUM	0.35	0.425	0.294	3.37	0.475	0.362	1.77	0.325	0.317	0.324
	SILVER	0.0378 J	0.255 J	0.0319 J	0.0457 J	0.0635 J	0.0587 J	0.0391 J	0.0592 J	0.041 J	0.12 J
	SODIUM	465	437	514	754	535	501	692	556	574	562
	THALLIUM	0.015 UJ	0.0198 U	0.0185 UJ	0.014 UJ	0.0205 U	0.0238 U	0.0134 UJ	0.0208 U	0.0103 UJ	0.0207 U
	VANADIUM	2.97	4.95	4.96	0.408 J	4.68	3.73	2.91	3.6	2.05	5.84
	ZINC	42.1	48.2	28.5	111	36.7	27.6	296	25.7	38.9	26.7
MISCELLANEOUS PARAMETERS (%)	LIPIDS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.121	0.1 U	0.1 U	0.1 U

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB134	DA-SB134	DA-SB153	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108
	SAMPLE DATE	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EW-SB134-080608 AVG	DA-EW-SB134-080608-D	DA-EW-SB153-080708	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708
FRACTION (UNITS)	PARAMETER									
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB134	DA-SB134	DA-SB153	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108
	SAMPLE DATE	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EW-SB134-080608 AVG	DA-EW-SB134-080608-D	DA-EW-SB153-080708	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708
FRACTION (UNITS)	PARAMETER									
	BENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIMETHYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/KG)	2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB134	DA-SB134	DA-SB153	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108
	SAMPLE DATE	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EW-SB134-080608 AVG	DA-EW-SB134-080608-D	DA-EW-SB153-080708	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708
FRACTION (UNITS)	PARAMETER									
	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	4,4'-DDE	1.18	1.26	0.716	6.69	49.5 J	2.4 U	4.14	14.7	6.75
	4,4'-DDT	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	71.2 UJ	2.32 U	2.37 U
	ALDRIN	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ALPHA-BHC	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ALPHA-CHLORDANE	0.52 J	0.849 J	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	5.72	3.03
	AROCLOR-1016	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	93.1 U	95 U
	AROCLOR-1221	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	93.1 U	95 U
	AROCLOR-1232	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	93.1 U	95 U
	AROCLOR-1242	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	93.1 U	95 U
	AROCLOR-1248	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	93.1 U	95 U
	AROCLOR-1254	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	248	95 U
	AROCLOR-1260	14.9 U	14.5 U	71.2	93.1 U	477	96.2 U	731	93.1 U	95 U
	AROCLOR-1268	14.9 U	14.5 U	15.2 U	93.1 U	95 U	96.2 U	95 U	204	95 U
	BETA-BHC	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	DELTA-BHC	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	DIELDRIN	0.372 U	0.363 U	0.381 U	28.8	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB134	DA-SB134	DA-SB153	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108
	SAMPLE DATE	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EW-SB134-080608 AVG	DA-EW-SB134-080608-D	DA-EW-SB153-080708	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708
FRACTION (UNITS)	PARAMETER									
	ENDOSULFAN I	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ENDOSULFAN II	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ENDOSULFAN SULFATE	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ENDRIN	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ENDRIN ALDEHYDE	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	ENDRIN KETONE	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	GAMMA-BHC (LINDANE)	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	GAMMA-CHLORDANE	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	HEPTACHLOR	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	HEPTACHLOR EPOXIDE	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	HEXACHLOROBENZENE	0.372 U	0.363 U	0.381 U	2.32 U	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U
	METHOXYCHLOR	0.746 U	0.726 U	0.762 U	4.64 U	4.74 U	4.8 U	4.76 U	4.66 U	4.74 U
	TOTAL AROCLOR	15 U	14 U	71.2	93.8 U	477	93.8 U	731	451	93.8 U
	TOTAL DDD/DDE/DDT	1.18	1.26	0.716	6.69	49.5 J	2.38 U	4.14 J	14.7	6.75
	TOXAPHENE	18.6 U	18.2 U	19 U	116 U	119 U	120 U	119 U	116 U	118 U
METALS (MG/KG)	ALUMINUM	2540 J	2790 J	1360 J	8120 J	14600 J	18800 J	1090 J	14100 J	10800 J
	ANTIMONY	0.0158 J	0.0185 J	0.0184 J	0.165 J	0.0919 J	0.0944 J	0.085 J	0.669 J	0.0744 J
	ARSENIC	2.85	3.08	4.27	8.62	25.3	40.9	4.28	19.1	7.31
	BARIUM	13.2 J	15.4 J	8.49 J	57.9 J	77.5 J	73.1 J	21.1 J	59.8 J	70 J
	BERYLLIUM	0.0818	0.083	0.0486 J	0.401	0.578	0.501	0.0925 U	0.512	0.875
	CADMIUM	0.56 J	0.56 J	1.64	28.4	18.5	4.62 J	213	28	26.5
	CALCIUM	924 J	1010 J	1580 J	13400 J	12600 J	8750 J	3280 J	8380 J	6080 J
	CHROMIUM	22.2	26.6	3.3	51.1	256	119	12.6	41.2	231
	COBALT	2.07	2.08	2.08	12.9	25.1	30.7	10	18.9	12.2
	COPPER	6.52	6.63	5.11	36.1	60.4	47.6	12.1	45.9	34.6
	IRON	4460	4580	3490	17800	31800	53600	2020	27800	19900
	LEAD	8.51	8.03	3.38	39.4	111	21.5	881	77.5	152
	MAGNESIUM	566	576	524	3510	4460	5560	1020	3860	2900
	MANGANESE	82.9	81.5	82.8	449	756	781	51.6	404	379

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB134	DA-SB134	DA-SB153	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108
	SAMPLE DATE	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08
	SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EW-SB134-080608 AVG	DA-EW-SB134-080608-D	DA-EW-SB153-080708	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708
FRACTION (UNITS)	PARAMETER									
	MERCURY	0.0284	0.0326	0.0426	0.186	0.416	0.209	0.622	0.23	0.136
	MOLYBDENUM	1.36	1.4	0.217	3.91	14.3	9.69	1.15	3	14.8
	NICKEL	14.5	16.9	4.01	41.1	151	93.1	7.31	35.5	126
	POTASSIUM	1340	1430	1260	7810	7560	7940	8560	8190	9120
	SELENIUM	0.388	0.452	0.318	2.19	2.66	1.84	21.1	2.97	2.26
	SILVER	0.124 J	0.129 J	0.0238 J	0.236 J	1.59 J	0.199 J	0.286 J	0.397 J	0.367 J
	SODIUM	546	531	476	2910	2730	3210	4710	3340	3130
	THALLIUM	0.0216 U	0.0226 U	0.0111 UJ	0.0938 UJ	0.124 U	0.116 UJ	0.0875 UJ	0.128 U	0.149 U
	VANADIUM	6.23	6.62	2.51	18.6	30.9	31	2.55 J	29.2	23.3
	ZINC	26.8	27	32	263	301	178	694	229	172
MISCELLANEOUS PARAMETERS (%)	LIPIDS	0.1 U	0.1 U	0.1 U	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB121	DA-SB123	DA-SB130	DA-SB134	DA-SB134	DA-SB134	DA-SB153	DA-FT-ET01	DA-FT-ET01
	SAMPLE DATE	08/07/08	08/06/08	08/07/08	08/06/08	08/06/08	08/06/08	08/07/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608	DA-EWDRY-SB134-080608 AVG	DA-EWDRY-SB134-080608-D	DA-EWDRY-SB153-080708	DA-FT-ET01-BGF-081208	DA-FT-ET01-BGW-081208
FRACTION (UNITS)	PARAMETER									
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	775 UJ	717 UJ
	4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ
	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB121	DA-SB123	DA-SB130	DA-SB134	DA-SB134	DA-SB134	DA-SB153	DA-FT-ET01	DA-FT-ET01
	SAMPLE DATE	08/07/08	08/06/08	08/07/08	08/06/08	08/06/08	08/06/08	08/07/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608	DA-EWDRY-SB134-080608 AVG	DA-EWDRY-SB134-080608-D	DA-EWDRY-SB153-080708	DA-FT-ET01-BGF-081208	DA-FT-ET01-BGW-081208
FRACTION (UNITS)	PARAMETER									
	BENZIDINE	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ
	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ
	DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	194 UJ	179 UJ
	HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	775 U	717 U
	HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	N-NITROSODIMETHYLAMINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
	PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	775 U	717 U
	PHENOL	NA	NA	NA	NA	NA	NA	NA	194 U	179 U
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/KG)	2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB121	DA-SB123	DA-SB130	DA-SB134	DA-SB134	DA-SB134	DA-SB153	DA-FT-ET01	DA-FT-ET01
	SAMPLE DATE	08/07/08	08/06/08	08/07/08	08/06/08	08/06/08	08/06/08	08/07/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608	DA-EWDRY-SB134-080608 AVG	DA-EWDRY-SB134-080608-D	DA-EWDRY-SB153-080708	DA-FT-ET01-BGF-081208	DA-FT-ET01-BGW-081208
FRACTION (UNITS)	PARAMETER									
	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	CHRYSENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	FLUORENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	HIGH MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	7.8 U	7.6 U
	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	LOW MOLECULAR WEIGHT PAHS	NA	NA	NA	NA	NA	NA	NA	7.8 U	7.6 U
	NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	PYRENE	NA	NA	NA	NA	NA	NA	NA	7.77 U	7.62 U
	TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	7.8 U	7.6 U
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	6.06	36.5
	4,4'-DDE	12.2 UJ	4.51 J	7.62	6.81	7.38	7.88	4.48	247	638
	4,4'-DDT	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	15.0 UJ	52.7 UJ
	ALDRIN	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ALPHA-BHC	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ALPHA-CHLORDANE	2.38 U	2.38 U	2.26 U	2.39 UJ	3.25 J	5.31 J	2.38 U	2.12	17.9
	AROCLOR-1016	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	15.9 U	14.1 U
	AROCLOR-1221	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	15.9 U	14.1 U
	AROCLOR-1232	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	15.9 U	14.1 U
	AROCLOR-1242	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	15.9 U	14.1 U
	AROCLOR-1248	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	15.9 U	14.1 U
	AROCLOR-1254	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	173 J	513
	AROCLOR-1260	415	95 U	90 U	95.6 U	93.1 U	90.6 U	445	100	342
	AROCLOR-1268	95 U	95 U	90 U	95.6 U	93.1 U	90.6 U	95 U	15.9 U	14.1 U
	BETA-BHC	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	DELTA-BHC	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	DIELDRIN	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	6.27	22.9

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB121	DA-SB123	DA-SB130	DA-SB134	DA-SB134	DA-SB134	DA-SB153	DA-FT-ET01	DA-FT-ET01
	SAMPLE DATE	08/07/08	08/06/08	08/07/08	08/06/08	08/06/08	08/06/08	08/07/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608	DA-EWDRY-SB134-080608 AVG	DA-EWDRY-SB134-080608-D	DA-EWDRY-SB153-080708	DA-FT-ET01-BGF-081208	DA-FT-ET01-BGW-081208
FRACTION (UNITS)	PARAMETER									
	ENDOSULFAN I	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ENDOSULFAN II	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ENDOSULFAN SULFATE	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ENDRIN	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ENDRIN ALDEHYDE	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	ENDRIN KETONE	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	GAMMA-BHC (LINDANE)	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	GAMMA-CHLORDANE	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	1.1 J	6.91
	HEPTACHLOR	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	HEPTACHLOR EPOXIDE	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.732 UJ
	HEXACHLOROBENZENE	2.38 U	2.38 U	2.26 U	2.39 U	2.32 U	2.27 U	2.38 U	0.398 U	0.352 U
	METHOXYCHLOR	4.74 U	4.74 U	4.51 U	4.78 U	4.66 U	4.54 U	4.76 U	3.98 U	3.52 U
	TOTAL AROCLOR	415	93.8 U	87.5 U	93.8 U	93.8 U	87.5 U	445	273 J	855
	TOTAL DDD/DDE/DDT	5.69 UJ	4.51 J	7.62	6.81	7.38	7.88	4.48	253.06 J	674.5 J
	TOXAPHENE	119 U	119 U	112 U	119 U	116 U	114 U	119 U	19.9 U	17.6 U
METALS (MG/KG)	ALUMINUM	8620 J	11400 J	6620 J	14400 J	15900 J	17400 J	8500 J	1.49 J	106
	ANTIMONY	0.258 J	0.204 J	0.107 J	0.0819 J	0.0988 J	0.116 J	0.115 J	0.00515 U	0.00486 U
	ARSENIC	20.9	17.2	16.7	16.4	17.8	19.2	26.7	0.124	0.377
	BARIUM	41.9 J	106 J	61.1 J	68.8 J	82.5 J	96.2 J	53.1 J	0.246	3.64
	BERYLLIUM	0.376	0.391	0.236 J	0.503	0.511	0.519	0.304 J	0.0155 U	0.0147 U
	CADMIUM	838	9.75	13.6	3.5	3.5 J	3.5 J	10.2	0.00651 U	0.0862
	CALCIUM	5340 J	9060 J	10100 J	5240 J	5780 J	6310 J	9880 J	3120	19000
	CHROMIUM	92.5	302	22.3	112	139	166	20.6	4.19 J	2.98 J
	COBALT	11.6	12.2	9.75	12.9	12.9	13	13	0.0845	0.596
	COPPER	60.1	44.1	41.6	40.1	40.8	41.4	31.9	0.345	0.892
	IRON	18500	23200	13700	27100	27900	28600	21800	38	357
	LEAD	111	32.1	23.3	56.2	53.2	50.2	21.1	0.0354	1.32
	MAGNESIUM	2790	2780	2650	3480	3540	3600	3280	295	586
	MANGANESE	333	382	246	527	518	509	518	5.03	173

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-SB121	DA-SB123	DA-SB130	DA-SB134	DA-SB134	DA-SB134	DA-SB153	DA-FT-ET01	DA-FT-ET01
	SAMPLE DATE	08/07/08	08/06/08	08/07/08	08/06/08	08/06/08	08/06/08	08/07/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608	DA-EWDRY-SB134-080608 AVG	DA-EWDRY-SB134-080608-D	DA-EWDRY-SB153-080708	DA-FT-ET01-BGF-081208	DA-FT-ET01-BGW-081208
FRACTION (UNITS)	PARAMETER									
	MERCURY	0.546	0.192	1.96	0.151	0.178	0.204	0.266	0.112	0.0313
	MOLYBDENUM	6.31	19.3	1.8	8.31	8.5	8.75	1.36	0.324	0.428
	NICKEL	72.5	171	19.2	75.6	90.6	106	25.1	2.36 J	2.3 J
	POTASSIUM	9000	8190	8380	7750	8380	8940	7880	3660	2600
	SELENIUM	11.1	2.03	1.98	2.02	2.42	2.82	1.99	0.426	0.617
	SILVER	0.244 J	0.37 J	0.256 J	0.75 J	0.775 J	0.806 J	0.149 J	0.0116 UJ	0.011 UJ
	SODIUM	4320	3480	3590	3510	3410	3320	2980	544	1240
	THALLIUM	0.0838 UJ	0.13 U	0.0644 UJ	0.129 U	0.135 U	0.141 U	0.0694 UJ	0.00602 U	0.00569 U
	VANADIUM	18.2	22.5	12.8	36.5	38.9	41.4	15.7	0.0136 UJ	0.252 J
	ZINC	1850	161	243	167	168	169	200	16.8	33.7
MISCELLANEOUS PARAMETERS (%)	LIPIDS	0.756	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.715	1.86

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/13/08	08/13/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-FT-ET01-BHF-081208	DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208	DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208	DA-FT-ET03-BHF-081208-AVG	DA-FT-ET03-BHF-081208-D	DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
FRACTION (UNITS)	PARAMETER									
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	1,2,4-TRICHLOROBENZENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	1,2-DICHLOROBENZENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	1,3-DICHLOROBENZENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	1,4-DICHLOROBENZENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	2,4,5-TRICHLOROPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	2,4,6-TRICHLOROPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	2,4-DICHLOROPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	2,4-DIMETHYLPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	2,4-DINITROPHENOL	753 UJ	180 UJ	769 UJ	182 UJ	193 UJ	189 UJ	185 UJ	712 UJ	14600 UJ
	2,4-DINITROTOLUENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	2,6-DINITROTOLUENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	2-CHLORONAPHTHALENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	2-CHLOROPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	2-METHYLPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	2-NITROANILINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	2-NITROPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	3,3'-DICHLOROBENZIDINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	3-NITROANILINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	4,6-DINITRO-2-METHYLPHENOL	377 UJ	718 UJ	385 UJ	730 UJ	771 UJ	755 UJ	739 UJ	356 UJ	14600 UJ
	4-BROMOPHENYL PHENYL ETHER	188 U	180 UJ	192 U	182 UJ	193 UJ	189 UJ	185 UJ	178 U	189 U
	4-CHLORO-3-METHYLPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	4-CHLOROANILINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	4-CHLOROPHENYL PHENYL ETHER	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	4-METHYLPHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
	4-NITROANILINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	4-NITROPHENOL	188 U	180 UJ	192 U	182 UJ	193 UR	185 UJ	185 UJ	178 U	14600 UJ

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/13/08	08/13/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-FT-ET01-BHF-081208	DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208	DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208	DA-FT-ET03-BHF-081208-AVG	DA-FT-ET03-BHF-081208-D	DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
FRACTION (UNITS)	PARAMETER									
	BENZIDINE	188 UJ	180 UJ	192 UJ	182 UJ	193 UJ	189 UJ	185 UJ	178 UJ	189 UJ
	BIS(2-CHLOROETHOXY)METHANE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	BIS(2-CHLOROETHYL)ETHER	188 U	180 U	192 U	182 UJ	193 UJ	189 UJ	185 UJ	178 U	189 U
	BIS(2-ETHYLHEXYL)PHTHALATE	188 U	219 U	192 U	204 U	193 U	189 U	185 U	178 U	189 U
	BUTYL BENZYL PHTHALATE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	CARBAZOLE	188 U	180 UJ	192 U	182 UJ	193 UJ	189 UJ	185 UJ	178 U	189 U
	DIBENZOFURAN	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	DIETHYL PHTHALATE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	DIMETHYL PHTHALATE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	DI-N-BUTYL PHTHALATE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	DI-N-OCTYL PHTHALATE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	HEXACHLOROBUTADIENE	188 U	180 UJ	192 U	182 UJ	193 UJ	189 UJ	185 UJ	178 U	189 U
	HEXACHLOROCYCLOPENTADIENE	188 UJ	718 U	192 UJ	730 U	771 U	755 U	739 U	178 UJ	189 UJ
	HEXACHLOROETHANE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	ISOPHORONE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	NITROBENZENE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	N-NITROSODIMETHYLAMINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	N-NITROSO-DI-N-PROPYLAMINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	N-NITROSODIPHENYLAMINE	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	189 U
	PENTACHLOROPHENOL	188 U	718 U	192 U	730 U	771 U	755 U	739 U	178 U	14600 UJ
	PHENOL	188 U	180 U	192 U	182 U	193 U	189 U	185 U	178 U	3660 UJ
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/KG)	2-METHYLNAPHTHALENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	ACENAPHTHENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	ACENAPHTHYLENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	ANTHRACENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	BENZO(A)ANTHRACENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	BENZO(A)PYRENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	BENZO(B)FLUORANTHENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	BENZO(G,H,I)PERYLENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
R - REJECTED; NA - NOT ANALYZED

APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/13/08	08/13/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-FT-ET01-BHF-081208	DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208	DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208	DA-FT-ET03-BHF-081208-AVG	DA-FT-ET03-BHF-081208-D	DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
FRACTION (UNITS)	PARAMETER									
	BENZO(K)FLUORANTHENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	CHRYSENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	DIBENZO(A,H)ANTHRACENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	FLUORANTHENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	FLUORENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	HIGH MOLECULAR WEIGHT PAHS	7.7 U	7.6 U	7.1 U	7.4 U	7.8 U	7.8 U	7.8 U	7.1 U	7.1 U
	INDENO(1,2,3-CD)PYRENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	LOW MOLECULAR WEIGHT PAHS	7.7 U	7.6 U	7.1 U	7.4 U	7.8 U	7.8 U	7.8 U	7.1 U	7.1 U
	NAPHTHALENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	PHENANTHRENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	PYRENE	7.72 U	7.56 U	7.14 U	7.41 U	7.83 U	7.8 U	7.77 U	7.07 U	7.07 U
	TOTAL PAHS	7.7 U	7.6 U	7.1 U	7.4 U	7.8 U	7.8 U	7.8 U	7.1 U	7.1 U
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	19.3	53.8	24	83.3 J	11.1	12.3	13.5	3.72 J	6.42 J
	4,4'-DDE	212	740	262	652	170	186	203	23.6	54.1
	4,4'-DDT	10.1 UJ	52.5 UJ	10.8 UJ	20.7 J	7.72 UJ	8.14 UJ	8.56 UJ	1.64 UJ	3.12 UJ
	ALDRIN	1.33	0.376 U	1.53 J	1.55 J	1.47 J	1.4 J	1.33	0.36 U	0.373 U
	ALPHA-BHC	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	ALPHA-CHLORDANE	20.6	19	24.2	58.1	12.3	13.8	15.4	0.36 U	0.425
	AROCLOR-1016	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U	14.6 U	14.4 U	14.9 U
	AROCLOR-1221	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U	14.6 U	14.4 U	14.9 U
	AROCLOR-1232	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U	14.6 U	14.4 U	14.9 U
	AROCLOR-1242	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U	14.6 U	14.4 U	14.9 U
	AROCLOR-1248	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U	14.6 U	14.4 U	14.9 U
	AROCLOR-1254	93.6	403	123	446	123 J	103 J	83.5	14.4 U	42.6 J
	AROCLOR-1260	64.1	277	65.8	208	59	59.6	60.1	14.4 U	26.3
	AROCLOR-1268	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U	14.6 U	14.4 U	14.9 U
	BETA-BHC	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	DELTA-BHC	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	DIELDRIN	11.8	36.9	8.75	40.3	7.53	8.46	9.38	2.42	2.94

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/13/08	08/13/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-FT-ET01-BHF-081208	DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208	DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208	DA-FT-ET03-BHF-081208-AVG	DA-FT-ET03-BHF-081208-D	DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
FRACTION (UNITS)	PARAMETER									
	ENDOSULFAN I	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	ENDOSULFAN II	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	ENDOSULFAN SULFATE	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.664 J
	ENDRIN	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	ENDRIN ALDEHYDE	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	ENDRIN KETONE	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	GAMMA-BHC (LINDANE)	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	GAMMA-CHLORDANE	9.9	8.86	11.8	13.8	5.7	6.72	7.73	0.389	0.373 U
	HEPTACHLOR	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	HEPTACHLOR EPOXIDE	0.36 U	1.23 UJ	0.353 U	0.838 UJ	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	HEXACHLOROBENZENE	0.36 U	0.376 U	0.353 U	0.355 U	0.375 U	0.37 U	0.364 U	0.36 U	0.373 U
	METHOXYCHLOR	3.6 U	3.76 U	3.53 U	3.55 U	3.75 U	3.7 U	3.64 U	3.6 U	3.73 U
	TOTAL AROCLOR	157.7	680	188.8	654	182 J	162.6 J	143.6	14 U	68.9 J
	TOTAL DDD/DDE/DDT	231.3 J	793.8 J	286 J	756 J	181.1 J	198.3 J	216.5 J	27.32 J	60.52 J
	TOXAPHENE	18 U	18.8 U	17.6 U	17.8 U	18.8 U	18.5 U	18.2 U	18 U	18.7 U
METALS (MG/KG)	ALUMINUM	0.887 J	98.5	0.822 J	0.91 J	1.32 J	1.29 J	1.26 J	2.09 J	16.5
	ANTIMONY	0.00515 U	0.005 U	0.00482 U	0.0051 U	0.00491 U	0.00498 U	0.00505 U	0.00495 U	0.00525 U
	ARSENIC	0.0286 J	0.251	0.0503 J	0.14	0.0638 J	0.0506 J	0.0373 J	0.0575 J	0.156
	BARIUM	0.0434 J	3.09	0.022 J	0.0465 J	0.0293 J	0.0254 J	0.0216 J	0.073	2.42
	BERYLLIUM	0.0155 U	0.0151 U	0.0145 U	0.0154 U	0.0148 U	0.015 U	0.0152 U	0.015 U	0.0158 U
	CADMIUM	0.00651 U	0.0824	0.00609 U	0.00644 U	0.0062 U	0.00629 U	0.00638 U	0.00626 U	0.0128 J
	CALCIUM	123 J	19300	96.8 J	252	95.4 J	102 J	109 J	546	14900
	CHROMIUM	0.529 J	3.04 J	1.81 J	2.1 J	0.523 J	1.05 J	1.57 J	2.11 J	1.16 J
	COBALT	0.0232 J	0.382	0.0338 J	0.022 J	0.0256 J	0.028 J	0.0303 J	0.0147 J	0.1
	COPPER	0.295	0.869	0.373	0.392	0.296	0.326	0.355	0.262	1.33
	IRON	6.8 J	304	13.1	12.1	9.12 J	10.2 J	11.2	14.8	188
	LEAD	0.00795 J	1.08	0.00514 J	0.00504 J	0.0067 J	0.00662 J	0.00655 J	0.00911 J	0.12
	MAGNESIUM	292	591	265	250	266	268	270	278	508
	MANGANESE	0.428	96.1	0.368	0.473	0.338	0.374	0.409	0.522	15.8

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/13/08	08/13/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
	SAMPLE ID	DA-FT-ET01-BHF-081208	DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208	DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208	DA-FT-ET03-BHF-081208-AVG	DA-FT-ET03-BHF-081208-D	DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
FRACTION (UNITS)	PARAMETER									
	MERCURY	0.0156	0.0362	0.0254	0.101	0.0262	0.0235	0.0208	0.0479	0.0394
	MOLYBDENUM	0.0295 J	0.508	0.066	0.115	0.0425 J	0.0722 J	0.102	0.0742	0.113
	NICKEL	0.168 J	2.28 J	0.853 J	1.09 J	0.234 J	0.512 J	0.79 J	0.921 J	0.948 J
	POTASSIUM	4530	2680	4470	4240	4370	4440	4510	3880	2750
	SELENIUM	0.213	0.591	0.239	0.612	0.33	0.288	0.247	0.48	0.537
	SILVER	0.0116 UJ	0.0113 UJ	0.0109 UJ	0.0115 UJ	0.0111 UJ	0.0112 UJ	0.0114 UJ	0.0112 UJ	0.0119 UJ
	SODIUM	368	1230	391	382	399	388	377	497	1110
	THALLIUM	0.00602 U	0.00585 U	0.00564 U	0.00596 U	0.00574 U	0.00582 U	0.0059 U	0.00579 U	0.00614 U
	VANADIUM	0.0136 UJ	0.222 J	0.0127 UJ	0.0135 UJ	0.0222 J	0.0144 J	0.0133 UJ	0.0324 J	0.0729 J
	ZINC	5.23	37.1	6.17	9.29	4.84	4.88	4.91	11	27.8
MISCELLANEOUS PARAMETERS (%)	LIPIDS	0.88	1.94	0.814	1.73	0.673	0.71	0.746	0.975	1.85

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-RP01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03
	SAMPLE DATE	08/13/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
	SAMPLE ID	DA-FT-RP01-BHF-081308	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BGW-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BGW-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208	DA-FTDRY-ET03-BHF-081208-AVG
FRACTION (UNITS)	PARAMETER									
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	1,2,4-TRICHLOROBENZENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	1,2-DICHLOROBENZENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	1,3-DICHLOROBENZENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	1,4-DICHLOROBENZENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,4,5-TRICHLOROPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,4,6-TRICHLOROPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,4-DICHLOROPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,4-DIMETHYLPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,4-DINITROPHENOL	772 UJ	776 UJ	716 UJ	3010 UJ	720 UJ	3080 UJ	728 UJ	772 UJ	756 UJ
	2,4-DINITROTOLUENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2,6-DINITROTOLUENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2-CHLORONAPHTHALENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2-CHLOROPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2-METHYLPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2-NITROANILINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	2-NITROPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	3,3'-DICHLOROBENZIDINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	3-NITROANILINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	4,6-DINITRO-2-METHYLPHENOL	386 UJ	3100 UJ	2870 UJ	1510 UJ	2870 UJ	1540 UJ	2920 UJ	3080 UJ	3020 UJ
	4-BROMOPHENYL PHENYL ETHER	193 U	776 UJ	716 UJ	752 U	720 UJ	768 U	728 UJ	772 UJ	756 UJ
	4-CHLORO-3-METHYLPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	4-CHLOROANILINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	4-CHLOROPHENYL PHENYL ETHER	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	4-METHYLPHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	4-NITROANILINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	4-NITROPHENOL	193 U	776 UJ	716 UJ	752 U	720 UJ	768 U	728 UJ	772 UR	740 UJ

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R - REJECTED; NA - NOT ANALYZED

APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-RP01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03
	SAMPLE DATE	08/13/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
	SAMPLE ID	DA-FT-RP01-BHF-081308	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BGW-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BGW-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208	DA-FTDRY-ET03-BHF-081208-AVG
FRACTION (UNITS)	PARAMETER									
	BENZIDINE	193 UJ	776 UJ	716 UJ	752 UJ	720 UJ	768 UJ	728 UJ	772 UJ	756 UJ
	BIS(2-CHLOROETHOXY)METHANE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	BIS(2-CHLOROETHYL)ETHER	193 U	776 UJ	716 UJ	752 U	720 U	768 U	728 UJ	772 UJ	756 UJ
	BIS(2-ETHYLHEXYL)PHTHALATE	193 U	776 U	716 U	752 U	876 U	768 U	816 U	772 U	756 U
	BUTYL BENZYL PHTHALATE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	CARBAZOLE	193 U	776 UJ	716 UJ	752 U	720 UJ	768 U	728 UJ	772 UJ	756 UJ
	DIBENZOFURAN	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	DIETHYL PHTHALATE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	DIMETHYL PHTHALATE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	DI-N-BUTYL PHTHALATE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	DI-N-OCTYL PHTHALATE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	HEXACHLOROBUTADIENE	193 U	776 UJ	716 UJ	752 U	720 UJ	768 U	728 UJ	772 UJ	756 UJ
	HEXACHLOROCYCLOPENTADIENE	193 UJ	3100 U	2870 U	752 UJ	2870 U	768 UJ	2920 U	3080 U	3020 U
	HEXACHLOROETHANE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	ISOPHORONE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	NITROBENZENE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	N-NITROSODIMETHYLAMINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	N-NITROSO-DI-N-PROPYLAMINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	N-NITROSODIPHENYLAMINE	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
	PENTACHLOROPHENOL	193 U	3100 U	2870 U	752 U	2870 U	768 U	2920 U	3080 U	3020 U
	PHENOL	193 U	776 U	716 U	752 U	720 U	768 U	728 U	772 U	756 U
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/KG)	2-METHYLNAPHTHALENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	ACENAPHTHENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	ACENAPHTHYLENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	ANTHRACENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	BENZO(A)ANTHRACENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	BENZO(A)PYRENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	BENZO(B)FLUORANTHENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	BENZO(G,H,I)PERYLENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-RP01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03
	SAMPLE DATE	08/13/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
	SAMPLE ID	DA-FT-RP01-BHF-081308	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BGW-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BGW-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208	DA-FTDRY-ET03-BHF-081208-AVG
FRACTION (UNITS)	PARAMETER									
	BENZO(K)FLUORANTHENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	CHRYSENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	DIBENZO(A,H)ANTHRACENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	FLUORANTHENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	FLUORENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	HIGH MOLECULAR WEIGHT PAHS	7.7 U	31.2 U	30.4 U	30.8 U	30.4 U	28.4 U	29.6 U	31.2 U	31.2 U
	INDENO(1,2,3-CD)PYRENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	LOW MOLECULAR WEIGHT PAHS	7.7 U	31.2 U	30.4 U	30.8 U	30.4 U	28.4 U	29.6 U	31.2 U	31.2 U
	NAPHTHALENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	PHENANTHRENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	PYRENE	7.68 U	31.1 U	30.5 U	30.9 U	30.2 U	28.6 U	29.6 U	31.3 U	31.2 U
	TOTAL PAHS	7.7 U	31.2 U	30.4 U	30.8 U	30.4 U	28.4 U	29.6 U	31.2 U	31.2 U
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	6.08	24.2	146	77.2	215	96	333 J	44.4	49.2
	4,4'-DDE	75.7 J	988	2550	848	2960	1050	2610	680	744
	4,4'-DDT	0.372 U	60 UJ	211 UJ	40.4 UJ	210 UJ	43.2 UJ	82.8 J	30.9 UJ	32.6 UJ
	ALDRIN	0.372 U	1.59 U	1.41 U	5.32	1.5 U	6.12 J	6.2 J	5.88 J	5.6 J
	ALPHA-BHC	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	ALPHA-CHLORDANE	0.439	8.48	71.6	82.4	76	96.8	232	49.2	55.2
	AROCLOR-1016	14.9 U	63.6 U	56.4 U	57.6 U	60 U	56.4 U	56.8 U	60 U	59.2 U
	AROCLOR-1221	14.9 U	63.6 U	56.4 U	57.6 U	60 U	56.4 U	56.8 U	60 U	59.2 U
	AROCLOR-1232	14.9 U	63.6 U	56.4 U	57.6 U	60 U	56.4 U	56.8 U	60 U	59.2 U
	AROCLOR-1242	14.9 U	63.6 U	56.4 U	57.6 U	60 U	56.4 U	56.8 U	60 U	59.2 U
	AROCLOR-1248	14.9 U	63.6 U	56.4 U	57.6 U	60 U	56.4 U	56.8 U	60 U	59.2 U
	AROCLOR-1254	40.1	692 J	2050	374	1610	492	1780	492 J	412 J
	AROCLOR-1260	49.2	400	1370	256	1110	263	832	236	238
	AROCLOR-1268	14.9 U	63.6 U	56.4 U	57.6 U	60 U	56.4 U	56.8 U	60 U	59.2 U
	BETA-BHC	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	DELTA-BHC	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	DIELDRIN	0.864 J	25.1	91.6	47.2	148	35	161	30.1	33.8

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-RP01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03
	SAMPLE DATE	08/13/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
	SAMPLE ID	DA-FT-RP01-BHF-081308	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BGW-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BGW-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208	DA-FTDRY-ET03-BHF-081208-AVG
FRACTION (UNITS)	PARAMETER									
	ENDOSULFAN I	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	ENDOSULFAN II	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	ENDOSULFAN SULFATE	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	ENDRIN	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	ENDRIN ALDEHYDE	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	ENDRIN KETONE	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	GAMMA-BHC (LINDANE)	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	GAMMA-CHLORDANE	0.924	4.4 J	27.6	39.6	35.4	47.2	55.2	22.8	26.9
	HEPTACHLOR	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	HEPTACHLOR EPOXIDE	0.372 U	1.59 U	2.93 UJ	1.44 U	4.92 UJ	1.41 U	3.35 UJ	1.5 U	1.48 U
	HEXACHLOROBENZENE	0.372 U	1.59 U	1.41 U	1.44 U	1.5 U	1.41 U	1.42 U	1.5 U	1.48 U
	METHOXYCHLOR	3.72 U	15.9 U	14.1 U	14.4 U	15 U	14.1 U	14.2 U	15 U	14.8 U
	TOTAL AROCLOR	89.3	1090 J	3420	631	2720	755	2620	728 J	650 J
	TOTAL DDD/DDE/DDT	81.78 J	1010 J	2700 J	925 J	3180 J	1140 J	3020 J	724 J	793 J
	TOXAPHENE	18.6 U	79.6 U	70.4 U	72 U	75.2 U	70.4 U	71.2 U	75.2 U	74 U
METALS (MG/KG)	ALUMINUM	1.56 J	5.96 J	424	3.55 J	394	3.29 J	3.64 J	5.28 J	5.16 J
	ANTIMONY	0.00486 U	0.0206 U	0.0194 U	0.0206 U	0.02 U	0.0193 U	0.0204 U	0.0196 U	0.0199 U
	ARSENIC	0.0229 U	0.496	1.51	0.114 J	1	0.201 J	0.56	0.255 J	0.202 J
	BARIUM	0.0271 J	0.984	14.6	0.174 J	12.4	0.088 J	0.186 J	0.117 J	0.102 J
	BERYLLIUM	0.0147 U	0.062 U	0.0588 U	0.062 U	0.0604 U	0.058 U	0.0616 U	0.0592 U	0.06 U
	CADMIUM	0.00615 U	0.026 U	0.345	0.026 U	0.33	0.0244 U	0.0258 U	0.0248 U	0.0252 U
	CALCIUM	84.4 J	12500	76000	492 J	77200	387 J	1010	382 J	408 J
	CHROMIUM	1.59 J	16.8 J	11.9 J	2.12 J	12.2 J	7.24 J	8.4 J	2.09 J	4.2 J
	COBALT	0.0128 U	0.338	2.38	0.0928 J	1.53	0.135 J	0.088 J	0.102 J	0.112 J
	COPPER	0.347	1.38	3.57	1.18	3.48	1.49	1.57	1.18	1.3
	IRON	19.1	152	1430	27.2 J	1220	52.4	48.4	36.5 J	40.8 J
	LEAD	0.0076 J	0.142	5.28	0.0318 J	4.32	0.0206 J	0.0202 J	0.0268 J	0.0265 J
	MAGNESIUM	272	1180	2340	1170	2360	1060	1000	1060	1070
	MANGANESE	0.261	20.1	692	1.71	384	1.47	1.89	1.35	1.5

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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-RP01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET01	DA-FT-ET02	DA-FT-ET02	DA-FT-ET02	DA-FT-ET03	DA-FT-ET03
	SAMPLE DATE	08/13/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08	08/12/08
	SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
	SAMPLE ID	DA-FT-RP01-BHF-081308	DA-FTDRY-ET01-BGF-081208	DA-FTDRY-ET01-BGW-081208	DA-FTDRY-ET01-BHF-081208	DA-FTDRY-ET02-BGW-081208	DA-FTDRY-ET02-BHF-081208	DA-FTDRY-ET02-WPF-081208	DA-FTDRY-ET03-BHF-081208	DA-FTDRY-ET03-BHF-081208-AVG
FRACTION (UNITS)	PARAMETER									
	MERCURY	0.0328	0.448	0.125	0.0624	0.145	0.102	0.404	0.105	0.094
	MOLYBDENUM	0.0624	1.3	1.71	0.118 J	2.03	0.264	0.46	0.17 J	0.289 J
	NICKEL	0.715 J	9.44 J	9.2 J	0.672 J	9.12 J	3.41 J	4.36 J	0.936 J	2.05 J
	POTASSIUM	4350	14600	10400	18100	10700	17900	17000	17500	17800
	SELENIUM	0.243	1.7	2.47	0.852	2.36	0.956	2.45	1.32	1.15
	SILVER	0.011 UJ	0.0464 UJ	0.044 UJ	0.0464 UJ	0.0452 UJ	0.0436 UJ	0.046 UJ	0.0444 UJ	0.0448 UJ
	SODIUM	410	2180	4960	1470	4920	1560	1530	1600	1550
	THALLIUM	0.00569 U	0.0241 U	0.0228 U	0.0241 U	0.0234 U	0.0226 U	0.0238 U	0.023 U	0.0233 U
	VANADIUM	0.0142 J	0.0544 UJ	1.01 J	0.0544 UJ	0.888 J	0.0508 UJ	0.054 UJ	0.0888 J	0.0576 J
	ZINC	5.56	67.2	135	20.9	148	24.7	37.2	19.4	19.5
MISCELLANEOUS PARAMETERS (%)	LIPIDS	0.507	2.86	7.44	3.52	7.76	3.26	6.92	2.69	2.84

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/13/08	08/13/08	08/13/08
	SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-FTDRY-ET03-BHF-081208-D	DA-FTDRY-RP01-BGF-081308	DA-FTDRY-RP01-BGW-081308	DA-FTDRY-RP01-BHF-081308
FRACTION (UNITS)	PARAMETER				
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL	740 U	712 U	756 U	772 U
	1,2,4-TRICHLOROBENZENE	740 U	712 U	756 U	772 U
	1,2-DICHLOROBENZENE	740 U	712 U	756 U	772 U
	1,3-DICHLOROBENZENE	740 U	712 U	756 U	772 U
	1,4-DICHLOROBENZENE	740 U	712 U	756 U	772 U
	2,2'-OXYBIS(1-CHLOROPROPANE)	740 U	712 U	756 U	772 U
	2,4,5-TRICHLOROPHENOL	740 U	712 U	14600 UJ	772 U
	2,4,6-TRICHLOROPHENOL	740 U	712 U	14600 UJ	772 U
	2,4-DICHLOROPHENOL	740 U	712 U	14600 UJ	772 U
	2,4-DIMETHYLPHENOL	740 U	712 U	14600 UJ	772 U
	2,4-DINITROPHENOL	740 UJ	2850 UJ	58400 UJ	3090 UJ
	2,4-DINITROTOLUENE	740 U	712 U	756 U	772 U
	2,6-DINITROTOLUENE	740 U	712 U	756 U	772 U
	2-CHLORONAPHTHALENE	740 U	712 U	756 U	772 U
	2-CHLOROPHENOL	740 U	712 U	14600 UJ	772 U
	2-METHYLPHENOL	740 U	712 U	14600 UJ	772 U
	2-NITROANILINE	740 U	712 U	756 U	772 U
	2-NITROPHENOL	740 U	712 U	14600 UJ	772 U
	3,3'-DICHLOROBENZIDINE	740 U	712 U	756 U	772 U
	3-NITROANILINE	740 U	712 U	756 U	772 U
	4,6-DINITRO-2-METHYLPHENOL	2960 UJ	1420 UJ	58400 UJ	1540 UJ
	4-BROMOPHENYL PHENYL ETHER	740 UJ	712 U	756 U	772 U
	4-CHLORO-3-METHYLPHENOL	740 U	712 U	14600 UJ	772 U
	4-CHLOROANILINE	740 U	712 U	756 U	772 U
	4-CHLOROPHENYL PHENYL ETHER	740 U	712 U	756 U	772 U
	4-METHYLPHENOL	740 U	712 U	14600 UJ	772 U
	4-NITROANILINE	740 U	712 U	756 U	772 U
	4-NITROPHENOL	740 UJ	712 U	58400 UJ	772 U

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/13/08	08/13/08	08/13/08
	SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-FTDRY-ET03-BHF-081208-D	DA-FTDRY-RP01-BGF-081308	DA-FTDRY-RP01-BGW-081308	DA-FTDRY-RP01-BHF-081308
FRACTION (UNITS)	PARAMETER				
	BENZIDINE	740 UJ	712 UJ	756 UJ	772 UJ
	BIS(2-CHLOROETHOXY)METHANE	740 U	712 U	756 U	772 U
	BIS(2-CHLOROETHYL)ETHER	740 UJ	712 U	756 U	772 U
	BIS(2-ETHYLHEXYL)PHTHALATE	740 U	712 U	756 U	772 U
	BUTYL BENZYL PHTHALATE	740 U	712 U	756 U	772 U
	CARBAZOLE	740 UJ	712 U	756 U	772 U
	DIBENZOFURAN	740 U	712 U	756 U	772 U
	DIETHYL PHTHALATE	740 U	712 U	756 U	772 U
	DIMETHYL PHTHALATE	740 U	712 U	756 U	772 U
	DI-N-BUTYL PHTHALATE	740 U	712 U	756 U	772 U
	DI-N-OCTYL PHTHALATE	740 U	712 U	756 U	772 U
	HEXACHLOROBUTADIENE	740 UJ	712 U	756 U	772 U
	HEXACHLOROCYCLOPENTADIENE	2960 U	712 UJ	756 UJ	772 UJ
	HEXACHLOROETHANE	740 U	712 U	756 U	772 U
	ISOPHORONE	740 U	712 U	756 U	772 U
	NITROBENZENE	740 U	712 U	756 U	772 U
	N-NITROSODIMETHYLAMINE	740 U	712 U	756 U	772 U
	N-NITROSO-DI-N-PROPYLAMINE	740 U	712 U	756 U	772 U
	N-NITROSODIPHENYLAMINE	740 U	712 U	756 U	772 U
	PENTACHLOROPHENOL	2960 U	712 U	58400 UJ	772 U
	PHENOL	740 U	712 U	14600 UJ	772 U
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/KG)	2-METHYLNAPHTHALENE	31.1 U	28.3 U	28.3 U	30.7 U
	ACENAPHTHENE	31.1 U	28.3 U	28.3 U	30.7 U
	ACENAPHTHYLENE	31.1 U	28.3 U	28.3 U	30.7 U
	ANTHRACENE	31.1 U	28.3 U	28.3 U	30.7 U
	BENZO(A)ANTHRACENE	31.1 U	28.3 U	28.3 U	30.7 U
	BENZO(A)PYRENE	31.1 U	28.3 U	28.3 U	30.7 U
	BENZO(B)FLUORANTHENE	31.1 U	28.3 U	28.3 U	30.7 U
	BENZO(G,H,I)PERYLENE	31.1 U	28.3 U	28.3 U	30.7 U

U - NOT DETECTED; UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE;
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APPENDIX F-5 BIOTA SAMPLE ANALYTICAL DATA
SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/13/08	08/13/08	08/13/08
	SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-FTDRY-ET03-BHF-081208-D	DA-FTDRY-RP01-BGF-081308	DA-FTDRY-RP01-BGW-081308	DA-FTDRY-RP01-BHF-081308
FRACTION (UNITS)	PARAMETER				
	BENZO(K)FLUORANTHENE	31.1 U	28.3 U	28.3 U	30.7 U
	CHRYSENE	31.1 U	28.3 U	28.3 U	30.7 U
	DIBENZO(A,H)ANTHRACENE	31.1 U	28.3 U	28.3 U	30.7 U
	FLUORANTHENE	31.1 U	28.3 U	28.3 U	30.7 U
	FLUORENE	31.1 U	28.3 U	28.3 U	30.7 U
	HIGH MOLECULAR WEIGHT PAHS	31.2 U	28.4 U	28.4 U	30.8 U
	INDENO(1,2,3-CD)PYRENE	31.1 U	28.3 U	28.3 U	30.7 U
	LOW MOLECULAR WEIGHT PAHS	31.2 U	28.4 U	28.4 U	30.8 U
	NAPHTHALENE	31.1 U	28.3 U	28.3 U	30.7 U
	PHENANTHRENE	31.1 U	28.3 U	28.3 U	30.7 U
	PYRENE	31.1 U	28.3 U	28.3 U	30.7 U
	TOTAL PAHS	31.2 U	28.4 U	28.4 U	30.8 U
PESTICIDES/PCBS (UG/KG)	4,4'-DDD	54	14.9 J	25.7 J	24.3
	4,4'-DDE	812	94.4	216	303 J
	4,4'-DDT	34.2 UJ	6.56 UJ	12.5 UJ	1.49 U
	ALDRIN	5.32	1.44 U	1.49 U	1.49 U
	ALPHA-BHC	1.46 U	1.44 U	1.49 U	1.49 U
	ALPHA-CHLORDANE	61.6	1.44 U	1.7	1.76
	AROCLOR-1016	58.4 U	57.6 U	59.6 U	59.6 U
	AROCLOR-1221	58.4 U	57.6 U	59.6 U	59.6 U
	AROCLOR-1232	58.4 U	57.6 U	59.6 U	59.6 U
	AROCLOR-1242	58.4 U	57.6 U	59.6 U	59.6 U
	AROCLOR-1248	58.4 U	57.6 U	59.6 U	59.6 U
	AROCLOR-1254	334	57.6 U	170 J	160
	AROCLOR-1260	240	57.6 U	105	197
	AROCLOR-1268	58.4 U	57.6 U	59.6 U	59.6 U
	BETA-BHC	1.46 U	1.44 U	1.49 U	1.49 U
	DELTA-BHC	1.46 U	1.44 U	1.49 U	1.49 U
	DIELDRIN	37.5	9.68	11.8	3.46 J

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/13/08	08/13/08	08/13/08
	SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-FTDRY-ET03-BHF-081208-D	DA-FTDRY-RP01-BGF-081308	DA-FTDRY-RP01-BGW-081308	DA-FTDRY-RP01-BHF-081308
FRACTION (UNITS)	PARAMETER				
	ENDOSULFAN I	1.46 U	1.44 U	1.49 U	1.49 U
	ENDOSULFAN II	1.46 U	1.44 U	1.49 U	1.49 U
	ENDOSULFAN SULFATE	1.46 U	1.44 U	2.66 J	1.49 U
	ENDRIN	1.46 U	1.44 U	1.49 U	1.49 U
	ENDRIN ALDEHYDE	1.46 U	1.44 U	1.49 U	1.49 U
	ENDRIN KETONE	1.46 U	1.44 U	1.49 U	1.49 U
	GAMMA-BHC (LINDANE)	1.46 U	1.44 U	1.49 U	1.49 U
	GAMMA-CHLORDANE	30.9	1.56	1.49 U	3.7
	HEPTACHLOR	1.46 U	1.44 U	1.49 U	1.49 U
	HEPTACHLOR EPOXIDE	1.46 U	1.44 U	1.49 U	1.49 U
	HEXACHLOROBENZENE	1.46 U	1.44 U	1.49 U	1.49 U
	METHOXYCHLOR	14.6 U	14.4 U	14.9 U	14.9 U
	TOTAL AROCLOR	574	56 U	276 J	357
	TOTAL DDD/DDE/DDT	866 J	109 J	242 J	327 J
	TOXAPHENE	72.8 U	72 U	74.8 U	74.4 U
METALS (MG/KG)	ALUMINUM	5.04 J	8.36 J	66	6.24 J
	ANTIMONY	0.0202 U	0.0198 U	0.021 U	0.0194 U
	ARSENIC	0.149 J	0.23 J	0.624	0.0916 U
	BARIUM	0.0864 J	0.292	9.68	0.108 J
	BERYLLIUM	0.0608 U	0.06 U	0.0632 U	0.0588 U
	CADMIUM	0.0255 U	0.025 U	0.0512 J	0.0246 U
	CALCIUM	436 J	2180	59600	338 J
	CHROMIUM	6.28 J	8.44 J	4.64 J	6.36 J
	COBALT	0.121 J	0.0588 J	0.4	0.0512 U
	COPPER	1.42	1.05	5.32	1.39
	IRON	44.8	59.2	752	76.4
	LEAD	0.0262 J	0.0364 J	0.48	0.0304 J
	MAGNESIUM	1080	1110	2030	1090
	MANGANESE	1.64	2.09	63.2	1.04

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SITE 08, NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

	LOCATION ID	DA-FT-ET03	DA-FT-RP01	DA-FT-RP01	DA-FT-RP01
	SAMPLE DATE	08/12/08	08/13/08	08/13/08	08/13/08
	SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL
	SAMPLE ID	DA-FTDRY-ET03-BHF-081208-D	DA-FTDRY-RP01-BGF-081308	DA-FTDRY-RP01-BGW-081308	DA-FTDRY-RP01-BHF-081308
FRACTION (UNITS)	PARAMETER				
	MERCURY	0.0832	0.192	0.158	0.131
	MOLYBDENUM	0.408	0.297	0.452	0.25
	NICKEL	3.16 J	3.68 J	3.79 J	2.86 J
	POTASSIUM	18000	15500	11000	17400
	SELENIUM	0.988	1.92	2.15	0.972
	SILVER	0.0456 UJ	0.0448 UJ	0.0476 UJ	0.044 UJ
	SODIUM	1510	1990	4440	1640
	THALLIUM	0.0236 U	0.0232 U	0.0246 U	0.0228 U
	VANADIUM	0.0532 UJ	0.13 J	0.292 J	0.0568 J
	ZINC	19.6	44	111	22.2
MISCELLANEOUS PARAMETERS (%)	LIPIDS	2.98	3.9	7.4	2.03

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APPENDIX F.6

WETLAND DELINEATION REPORT

APPENDIX F: BACKGROUND COMPARISON TESTS FOR SITE 8 SOIL

This appendix comprises an evaluation of the organics and metals soil concentrations, relative to background levels, at Site 8 NUSC Disposal Area on Naval Station Newport (NAVSTA), Newport, Rhode Island. Soil metals concentrations are compared to background conditions in accordance with Navy policy. If metals are present at concentrations that pose risk, and those concentrations are found to be consistent with background conditions, the decision to remediate the site for those metals will have to be reconsidered. Therefore, this background evaluation is conducted as a part of the data evaluation process. The background soils data used for these comparisons were obtained from the results of the Base-Wide Background Study Report of NAVSTA Newport soils (TtNUS, 2008).

F.1 ANALYTICAL DATA SETS FOR SITE 8 AND BACKGROUND SOIL

F.1.1 Site 8 Soil Analytical Data

The Site 8 analytical data were divided into two groups, surface soil and subsurface soil, for statistical evaluation. The Site 8 surface soil (SS) data category was defined to include those sample locations where the upper limit of the sample collection depth interval was less than or equal to 1 foot below ground surface (bgs). In nearly all samples from this data category, the lower sample collection depth interval extended to either 0.5, 1, or 2 feet bgs. The Site 8 subsurface soil (SB) data category was defined to include those samples where the upper limit of the sample collection depth interval was greater than 1 foot bgs, while the lower depth interval was greater than 2 feet bgs. Laboratory analyses were performed for TAL metals, molybdenum, TCL pesticides, PCBs, TCL semivolatiles, and TCL volatiles. The complete set of analytical results for each sample are presented in an Appendix to this Remedial Investigation Report.

Soil samples were collected at the site in two phases. For reasons stated in Section 3 of the Remedial Investigation Report, forty eight of the sample stations were resampled several months after initial samples were collected. Uncertainties from use of co-located samples were addressed by using the maximum detected concentration from each location as a proxy value for that location. This improves sample independence but potentially could alter the likelihood that site will be declared greater than background. To evaluate whether this problem existed, all two sample hypothesis tests were re-run using a second approach that treated each sample as a discrete sample. The two sets of statistical comparisons to background did not produce any differences in the outcome for any statistical test. Therefore, it is concluded that the data set

statistics associated with the maximum value from each location are adequate and as such they have been used in this background assessment.

F.1.2 Background Soil Analytical Data

The Base-Wide Background Study Report (TtNUS, 2008) identified seven US Department of Agriculture (USDA) soil types that are found at or near NAVSTA Newport sites. Two of these USDA soil types are found in areas adjacent to the Site 8 NUSC Disposal Area, Stissing Silt Loam (Se) and Pittstown Silt Loam (Pm). Background data for these soil types were subdivided into surface soil (0 to 1 foot sampling depth interval) and subsurface soil (top depth interval greater than or equal to 1 foot bgs). Background data subgroups have been labeled with the abbreviations, SeSS, PmSS, SeSB, and PmSB.

The base-wide study and a previous background study at NUSC Disposal Area (TtNUS, 2005) have shown that soil metals concentrations at NAVSTA Newport are generally different among the various USDA soil types and between the SS and SB depth categories. In addition, the 2008 study noted that elevated background levels of arsenic were associated with bedrock geology in the areas surrounding the base.

In the case of organic compounds, the 2005 background study concluded that the overall weight of evidence does not support the segregation of Se and Pm soil organic data into separate groups. Therefore, for application of background data for use in statistical comparisons against site data, the recommendation was made to combine the organic data sets from background soil types Se and Pm.

F.2 EXPLORATORY DATA EVALUATION

As part of the Base-Wide Background Study Report (TtNUS, 2008), an exploratory data analysis was performed on the background data to evaluate the distributional shape, check for outliers, and compare descriptive statistics. The base-wide background study found obvious qualitative differences in metals concentrations between various soil subcategories as evidenced by box plots, and also documented differences in the metals population distributions based on probability plots and statistical tests that categorized the data as matching a normal, lognormal, or nonparametric shape. Candidate outliers were found in isolated instances, for example, for arsenic in the SeSS background data set, and for certain other metals and soil types. However, after a careful assessment, and considering the mineral content of the bedrock cores evaluated,

no scientific or judgmental reasons could be identified to justify eliminating atypical metals results that may actually represent the upper range of observed natural variation in background soil.

In the case of Site 8 soil data, the exploratory data evaluation did not include formal outlier tests, since it was not desired to eliminate atypical data points that possibly could be associated with hot spots impacted by contaminant disposal.

Frequency of detections, average concentrations, and range were tabulated for substances found in Site 8 soils and background soils. Descriptive statistics for metals in Site 8 surface soil are compared to those for Se and Pm background surface soil in Table F.1.1. Summary statistics for metals in Site 8 subsurface soil are compared to Se and Pm background subsurface soil in Table F.1.2. Descriptive statistics for organic analytes detected in Site 8 surface and subsurface soil are compared to background soil in Table F.1.3.

The metals soil concentrations in Site 8 surface soil and subsurface soil were plotted side-by-side for a qualitative comparison with background data for soil types SeSS, PmSS, SeSB, and PmSB. Figures F.1.1 through F.1.17 present the univariate box plots of selected metals concentrations for each site and background data set. The descriptive statistics illustrated on these plots include a shaded region that represents the interquartile range (IQR), along with the maximum, minimum, and median for each soil type. Positive results are shown as circles with solid shading, while non-detects are shown as open circles and divided by two as a qualitative approximation. Examination of the plots revealed obvious differences in the descriptive properties for several metals in the site data sets versus the background data sets. Notable differences were previously identified in the ranges of metals concentrations associated with different background soil types and soil depth categories, which are documented in more detail in the Newport Base-Wide Background Study Report (TtNUS, 2008).

As part of exploratory data evaluation, distributional analysis tests were performed on each data set to determine whether statistical tests could be applied to compare site and background that require the assumption of a normal distribution. Results of the background data distributional analysis are presented in Tables F2.1 through F.2.4, and the site data distributional analysis in Tables F.2.5 and F.2.6. If a normal distribution was demonstrated for a pair of data groups, then a t-test could be used to compare the two data sets. In addition, if a background data set was normally distributed, then background upper tolerance limits (UTLs) could be generated. When data sets did not match a normal distribution, then only the alternative nonparametric statistical methods could be applied.

F.3 OVERVIEW OF STATISTICAL DECISION PROCESS

Several types of background comparison methods were able to be utilized at the Site 8 NUSC Disposal area in accordance with Navy guidance (Navy, 2002) and EPA guidance (EPA, 2002). For this project, a four types of statistical procedures were applied to evaluate Site 8 organic and inorganic soil data as follows:

Part 1: Site-wide two sample hypothesis tests were performed, which included parametric comparisons of soil concentrations and nonparametric comparisons of the ranks of concentrations between site and background soil data sets.

Part 2: For selected metals that exceeded background from the two sample tests performed in Part 1, a second procedure was applied that superimposed the Site 8 soil concentrations onto a geochemical scatter plot of background soil data. These plots were evaluated to identify individual samples that exceeded background upper prediction limits.

Part 3: Substances exceeding background based on the previous steps were subjected to background threshold value (BTV) comparisons. This yielded a list of samples exceeding upper tolerance limits (UTLs) for the purpose of helping to identify potential hot spots.

Part 4: Selected common soil minerals that had been indicated in previous steps to be elevated above background were further scrutinized to see if the differences between site and background might only be very slight – in particular, if Site 8 concentrations were not more than 2 standard deviations above background. This was accomplished by a different type of hypothesis test that initially added a two standard deviation offset to each background sample, and then applied two sample hypothesis tests to compare the site and modified background data.

Summary of Findings for Each Substance Compared to Background: After statistical tests were completed, a summary of background comparison findings was prepared for each substance, which was accompanied by a table that listed Site 8 samples that were found to be elevated relative to background.

F.4 PART 1: SITE-WIDE TWO SAMPLE HYPOTHESIS TESTS (TEST FORM I)

Several site-wide two sample hypothesis tests were performed to compare Site 8 soil data sets (either SS or SB) to background data. For metals, Site 8 surface soil data were compared once

to background surface soil type Se and then to background surface soil type Pm. Analogous comparisons were performed for metals in subsurface data sets for site versus background. For organics, Site 8 data were subdivided into surface and subsurface groups, and then each was compared to a single background soil data set.

Statistical hypothesis tests were based on the initial assumption (null hypothesis) that site concentrations are not greater than background, an approach referred to as "Test Form I" (EPA, 2002). The Test Form I comparisons determined whether or not the null hypothesis could be rejected; i.e., whether it could be confidently concluded that Site 8 concentrations are greater than background. For each constituent of interest and each statistical test performed, the chance of a false positive (alpha) from any one test was set equal to a probability of 0.05, which represents the likelihood Site 8 concentrations would be mistakenly concluded to be greater than background given a situation where site and background samples actually belonged to the same underlying population.

An array of tests was applied for each substance of interest, including the students t-test or Satterthwaite's t-test, which look for differences in the means of site and background data; the Mann Whitney test or Gehan test, which look for differences between the site and background rank sums; and the quantile test, which focuses only on the rank sums that comprise just the upper ranks of concentrations found in site and background data sets. In addition, the test of proportions or Fisher's exact test was also run. Test Form I background comparisons for metals are presented in Tables F.3.1 through F.3.4, and for organic substances in Tables F.3.5 and F.3.6.

For the Test Form I site-wide comparisons, a tentative conclusion was established that site data exceeded background whenever any one of the quantitative test outcomes indicated site exceeded background, whether it was the student's t-test, the Mann-Whitney test, or the Quantile test. However, Test Form I does not determine the extent or magnitude of the differences in concentrations relative to background, which might correspond to either a slight exceedance or a large difference. For metals, separate comparisons were performed to background soil types Se and Pm. In some cases, Site 8 concentrations exceeded background for one of the two background soil types but not the other. This situation leads to an uncertain conclusion because soils from Site 8 conceivably could represent any mixture of the two native soil types in unknown proportions. Therefore, if the site-wide tests only exceeded background for one soil type, this might not indicate non-naturally occurring metals if the dominant soil type actually present at the site corresponds the particular background soil type that exhibits higher natural concentrations.

If none of the aforementioned tests could be applied due to not meeting the required assumptions for test validity, such as having too many non-detected sample results, then the test of proportions or Fisher's exact test was considered for making this initial decision. For organics data, an analogous approach was used, except that background data across both soil types were combined together in accordance with the recommendations from previous NAVSTA Newport background studies. (These recommendations are summarized in Section F.1.2.)

F.5 PART 2: GEOCHEMICAL COMPARISONS TO BACKGROUND

The two sample hypothesis tests determined that several metals exceeded background in either surface soil or subsurface soil, including some that are potentially important risk drivers from the Site 8 human health risk assessment or the ecological risk assessment. For several of these Site 8 metals of interest, a geochemical background comparison was performed, using data and equations developed in the Basewide Background Study Report (TtNUS, 2008).

In the Basewide study, background soil concentrations for each metal of interest were plotted against concentrations of a second metal (or linear combination of metals) selected for high correlation and a linear relationship across background soil types. Scatter plots of concentrations were used to establish 95 percent upper prediction limit (UPL) envelopes which defined the expected range for observed background soil concentrations. Geochemical prediction limits developed around strong correlation relationships between metals in soil can yield a more accurate determination of what site samples are potentially impacted by sources different than those found in background because, unlike univariate upper tolerance limits (UTLs), the geochemical method accounts for co-varying mineral associations that are generally prevalent in soil and which tend to account for a large portion of the variance in metal concentrations.

Site 8 soil concentrations for metal pairs used in the Basewide background geochemical study were superimposed over the scatter plots of background data. Sample results falling outside of the plotted 95 percent UPLs were identified from these graphs and were listed in tables. Either one or two types of regression plots were performed for metals of interest, including single-metal regressions (for example, arsenic versus iron) and factor analysis regressions (for example, arsenic versus predicted arsenic based upon coefficients from a factor analysis involving linear combination of other metals). Only the geochemical prediction limit plots that were pertinent to the Site 8 investigation were included. For example, for some metals a site-wide exceedance of background was noted for just one medium (surface or subsurface soil) or risk-based concerns existed with only one medium (for example, only surface soil in the case of ecological risks).

Geochemical scatter plots of Site 8 surface soil and subsurface soil data versus background data are shown for arsenic in Figures F.2.1 through F.2.4, chromium in Figures F.2.5 and F.2.6, lead in Figures F.2.7 through F.2.9, and manganese in Figure F.2.10. For the single-metal geochemical plots, the names of the metals graphed are listed on the X and Y axis legends. For the geochemical scatter plots based on factor analysis, the coefficients of the linear equations involving several metals, and the calculated x-axis values for each Site 8 sample, are listed for arsenic in Table F.4.1, chromium in Table F.4.2, and lead in Table F.4.3. Support documentation listing the concentrations graphed for the background data points, site data points, and regression equation statistics is presented for arsenic in Table F.5.1, chromium in Table F.5.2, lead in Tables F.5.3 and F.5.4, and manganese in Table F.5.5.

Based on the geochemical scatterplots, lists of Site 8 sample results exceeding geochemical UPLs were developed for each metal and are presented in Tables F.6.1 through F.6.5. Only soil sample results that exceeded the geochemical UPLs are shown on these tables. Bold results indicate a subset of these samples that did not exceed the univariate UTLs (as further discussed in Section F.6). For several metals, two separate geochemical prediction methods were used (single metal versus factor analysis) and two separate lists of exceedances were tabulated. Line-of-evidence considerations related to having two lists of geochemical prediction exceedances are discussed in Section F.8 on a chemical-specific basis.

F.6 PART 3: BACKGROUND THRESHOLD VALUE (UPPER TOLERANCE LIMIT) TESTS

The overall site-wide decision as to whether a substance was greater than background at Site 8 was based on site-wide comparisons (two sample hypothesis tests) and geochemical evaluations as described in previous sections above. After these decisions were made, the Upper Tolerance Limit (UTL) test was employed as a preliminary tool to identify locations where site concentrations were most clearly elevated. {This is not intended to be the only tool needed to define areas of concern, as other factors also have to be considered, including geospatial variation in concentrations, since when individual sample results fall outside of geochemical prediction limits, this may indicate either a random exceedance of a site sample that belongs to the 5 percent of the population lying outside the background derived prediction envelope, or alternately may represent increased levels of contamination from a non-background source. .}

The lists of geochemical exceedances for each metal were compared to the maximum of the univariate background UTLs estimated for background soil types SeSS, SeSB, PmSS, and PmSB Relevant UTLs are listed in the footnotes to Tables F.6.1 through F.6.5. On these tables, bold results indicate a subset of the geochemical exceedances that did not exceed the univariate

UTLs and hence may be of lesser concern. Supporting information for the calculation of these UTLs is found within the tables presented earlier for the initial two sample hypothesis tests (Tables F.3.1 through F.3.4).

The UTL was computed in one of three different ways using formula presented in EPA, 1992a. If all background sample results were detects and the data fit a normal distribution, the UTL was calculated assuming 95 percent coverage of the 95 percent UTL, so that the formula includes the K-value times the standard deviation. If the data did not fit a normal distribution, but fit a lognormal distribution, then the log-transformed data were used to estimate the UTL. If non-detects were present or the data did not fit either type of distribution, but there were at least 19 data points, then a nonparametric UTL was calculated as the estimated 95th quantile of the background data.

F.7 PART 4: TWO SAMPLE HYPOTHESIS TESTS (TEST FORM II)

To provide additional perspective on the extent to which Site 8 metals exceeded background for certain common minerals, aluminum, chromium, iron, and manganese, a modified hypothesis test, referred to as Test Form II, was used to compare site data to background. This was done because examination of box plots for the aforementioned metals revealed that the 25th to the 75th percentile range (the IQR) of the Site 8 data sets greatly overlapped the IQRs of the background soil types. This suggests that the majority of Site 8 sample results for these metals exhibit site-wide concentrations that are either very similar to background or only exceed background by a very small amount.

In accordance with background guidance (EPA, 2002), the Test Form II hypotheses were applied with an initial assumption (null hypothesis) that site-wide concentrations were greater than background by at least a specified constant, which in this case was selected to be two standard deviations of the background data. To accomplish this comparison, two standard deviations were added to each background sample concentration.

Test Form II was applied to the parametric comparisons of means (using student's t-test or Satterthwaite's t-test) and to the nonparametric comparisons of rank sums (using the Mann Whitney test or Gehan test). The tests were run using a selected false positive probability (alpha) of 0.05, which represents the likelihood Site 8 concentrations would be mistakenly concluded to be less than background plus two sigma if in fact the site population actually was equivalent to the background population plus two standard deviations. Test Form II background comparisons for metals are presented in Tables F.7.1 through F.7.4.

F.8 SUMMARY OF FINDINGS FOR EACH SUBSTANCE COMPARED TO BACKGROUND

F.8.1 Summary of Statistical Comparisons for Aluminum

Aluminum in Surface Soil: Two sample hypothesis tests indicated that Site 8 concentrations exceeded background concentrations for soil type PmSS. It is notable that the student's t-test and the Mann Whitney test did not find that average Site 8 concentrations or the rank sums of concentrations were elevated compared to background. Only the quantile test indicated that Site 8 concentrations were elevated. The quantile test indicated the 15 largest-ranked sample concentrations for aluminum were greater than expected compared to the background PmSS data set, but did not indicate a problem when data were compared to the background SeSS. Aluminum box plots were examined to see whether the IQR of Site 8 surface soil concentrations was similar to the IQRs for background soil types SeSS and PmSS, and revealed that the background soil IQRs fell within the range of the Site 8 IQRs, although the spread of the site IQR was greater. To further demonstrate that there was not a global exceedance for aluminum, the two sample hypothesis tests were also run as Test Form II and concluded that site-wide aluminum concentrations in surface soil were not more than two standard deviations greater than background.

Since surface soil from locations within the Site 8 NUSC Disposal area are likely to have been disturbed as a result of historical activities, it is not known which sample locations might represent soil that was re-located/re-distributed. Surface soil may also have been mixed with subsurface soil and mixtures of soil types Se and Pm could be present. Therefore, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (17,400 mg/kg), SeSB (15,500 mg/kg), PmSS (14,900 mg/kg), and PmSB (13,200 mg/kg). A list of the Site 8 surface soil aluminum concentrations that were found to exceed the maximum UTL of 17,400 mg/kg is presented as follows:

Surface Soil Sample ID	Aluminum (mg/kg)	Surface Soil Sample ID	Aluminum (mg/kg)
DA-SB138-0001-LOCDEPTHMAX	17600	DA-B101B-0002	19500
DA-SB143-0001-LOCDEPTHMAX	17600	DA-SS148-011708	20700
DA-SB118-0002	18000		

Aluminum in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface concentrations exceeded background concentrations for soil types SeSB and PmSB. The Mann

Whitney test did not find that the rank sums for Site 8 concentrations were elevated compared to background. The quantile test indicated the 34 largest-ranked Site 8 aluminum results were greater than expected compared to the background SeSB data set, and the 54 largest-ranked site concentrations were greater than expected relative to PmSB background data. Aluminum box plots illustrated that the background soil IQRs fell within the range of the Site 8 IQRs, although the spread of the site IQRs were greater. To further demonstrate the lack of a global exceedance for subsurface soil, aluminum two sample hypothesis tests were also run as Test Form II and concluded that site-wide aluminum concentrations in subsurface soil were not more than two standard deviations greater than background..

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (17,400 mg/kg), SeSB (15,500 mg/kg), PmSS (14,900 mg/kg), and PmSB (13,200 mg/kg). A list of the Site 8 subsurface soil aluminum concentrations that were found to exceed the maximum UTL of 17,400 mg/kg is presented as follows:

Subsurface Soil Sample ID	Aluminum (mg/kg)	Subsurface Soil Sample ID	Aluminum (mg/kg)
DA-SB136-0810	17700	DA-SB134-0405	23300
DA-SB101-0608	18750	DA-SB135-1214	25900
DA-SB102-0305	19400	DA-B114B-0204	26800
DA-B120B-0204	20100		

F.8.2 Summary of Statistical Comparisons for Antimony

Antimony in Surface Soil: Antimony was not detected in any background surface soil samples. Detection limits in background surface soil type Pm ranged from 0.7 to 9 mg/kg. Antimony was detected rarely in Site 8 surface soil samples (5 out of 97 samples). Since the range of Site 8 positive detections, 0.19 mg/kg to 5.5 mg/kg, fell within the range of background detection limits, and since the majority of site concentrations were non-detected, no conclusions could be reached from statistical tests as to whether the underlying population distribution of antimony concentrations in Site 8 surface soil exceeds background.

Antimony in Subsurface Soil: Antimony was not detected in any background subsurface soil samples. Detection limits in background subsurface soils of types Pm and Se ranged from 0.6 to 1.5 mg/kg. Antimony was detected rarely in Site 8 subsurface soil samples (8 out of 99 samples). Since the majority of site concentrations were non-detected and all background concentrations were non-detected, no conclusions could be reached from statistical tests as to whether the

underlying population distribution of antimony concentrations in Site 8 subsurface soil exceeds background. However, from a qualitative standpoint, it is notable that the range of Site 8 positive detections, 0.26 mg/kg to 6.2 mg/kg, included 2 subsurface soil samples above the range of background detection limits (samples DA-SB132-0406 and DA-S-TP07-0910-01).

F.8.3 Summary of Statistical Comparisons for Arsenic

Arsenic in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were elevated relative to background.

To determine sample locations associated with elevated arsenic concentrations, Site 8 surface soil concentrations were superimposed over the geochemical scatter plots of background data. Sample results falling outside of the plotted 95 percent UPLs were identified from these graphs and were listed in tables. A total of 22 exceedances were indicated from the arsenic/iron graphs, while 38 exceedances were indicated from the factor analysis graphs.

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (49.8 mg/kg), SeSB (39.6 mg/kg), PmSS (23.2 mg/kg), and PmSB (25.6 mg/kg). Therefore, the list of the Site 8 surface soil arsenic concentrations that exceeded geochemical prediction limits was refined to exclude those that did not exceed the maximum UTL of 49.8 mg/kg, which left only one arsenic exceedance, which is shown in the following table. Therefore, the overall conclusion for arsenic in surface soil indicates that concentrations appear to be clearly elevated above 95 percent of the background population in only a single location, based on available data.

Subsurface Soil Sample ID	Arsenic (mg/kg)
DA-S-TP13-0001-01	90

Arsenic in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 concentrations exceeded background concentrations only for soil type PmSB. It is notable that the Mann Whitney test did not find that the rank sums of Site 8 site-wide subsurface concentrations were elevated compared to background. Only the quantile test indicated that Site 8 subsurface concentrations might be elevated, which was noted only in comparing to one of the two

background soil types. The 20 largest-ranked Site 8 sample concentrations for arsenic were greater than expected compared to the background PmSB data set, but did not indicate a problem when data were compared to the background soil type SeSB. This indicates uncertainty in whether the arsenic subsurface concentrations at Site 8 are truly elevated because the composition of Site 8 soil is considered to be an unknown mixture of one or both background soil types.

To determine sample locations associated with elevated arsenic concentrations, Site 8 subsurface soil concentrations were superimposed over the geochemical scatter plots of background data. Sample results falling outside of the plotted 95 percent UPLs were identified from these graphs and were listed in tables. A total of 26 exceedances were indicated from the arsenic/iron graphs, while 38 exceedances were indicated from the factor analysis graphs.

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (49.8 mg/kg), SeSB (39.6 mg/kg), PmSS (23.2 mg/kg), and PmSB (25.6 mg/kg). Therefore, the list of the Site 8 subsurface soil arsenic concentrations that exceeded geochemical prediction limits was refined to exclude those that did not exceed the maximum UTL of 49.8 mg/kg, which left only one arsenic exceedance, which is shown in the following table:

Subsurface Soil Sample ID	Arsenic (mg/kg)
DA-SB113-0406	121.6

F.8.4 Summary of Statistical Comparisons for Barium

Barium in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations did not exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were not elevated relative to background.

Barium in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface soil concentrations did not exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSB and PmSB and using both the Mann Whitney test and the quantile test, all indicated that Site 8 subsurface soil concentrations were not elevated relative to background.

F.8.5 Summary of Statistical Comparisons for Beryllium

Beryllium in Surface Soil: Beryllium was detected in 1 out of 20 background surface soil samples of soil type Se and 1 out of 20 of soil type Pm. Detection limits in background surface and subsurface soil ranged from 0.6 to 0.8 mg/kg. Beryllium was detected in 96 out of 97 Site 8 surface soil samples, with all detections between 0.2 mg/kg to 0.76 mg/kg, which is within the range of background detection limits. Statistical tests could not determine if beryllium concentrations in Site 8 surface soil exceeded the underlying background population concentrations due to the similar range of background detection limits. However, from a qualitative standpoint, it was demonstrated that site concentrations were not greater than the range of background detection limits.

Beryllium in Subsurface Soil: Beryllium was detected in all background subsurface soils of types Pm and Se at levels ranging from 0.39 to 0.76 mg/kg. Beryllium was detected in nearly all Site 8 subsurface soil samples at levels that did not exceed the background range, except for 2 samples (DA-S-TP15A-0203-01 at 2.5 mg/kg and DA-S-TP15A-0506-01 at 2.4 mg/kg). The outcome of the comparison tests performed using each background soil type (SeSB and PmSB) and using both the Mann Whitney test and the quantile test, all indicated that Site 8 subsurface soil concentrations were not elevated relative to background.

F.8.6 Summary of Statistical Comparisons for Cadmium

Cadmium in Surface Soil: Cadmium was not detected in background surface soil samples but was detected in 46 out of 97 Site 8 surface soil samples. The Mann Whitney test was inconclusive for surface soil because background detection limits exceeded the concentrations reported for the majority of site data points. The quantile test indicated the 16 largest-ranked Site 8 cadmium results were greater than expected compared to the background SeSS data set, and the 18 largest-ranked site concentrations were greater than expected relative to PmSS background data. The UTL test could not be performed due to non-detected results in background. The 16 or 18 largest Site 8 surface soil results for cadmium may indicate hotspots within this subset; therefore, these sample IDs and the associated concentrations are shown in the following table.

Surface Soil Sample ID	Cadmium (mg/kg)	Surface Soil Sample ID	Cadmium (mg/kg)
DA-SB112-0002	0.77	DA-SB108-0001-LOCDEPTHMAX	1.4
DA-SB132-0001-LOCDEPTHMAX	0.81	DA-MW103B-0001-LOCDEPTHMAX	1.5
DA-SB146-0001-LOCDEPTHMAX	0.82	DA-SB124-0001-LOCDEPTHMAX	1.5
DA-S-TP10-0001-01	0.84	DA-SB122-0001-LOCDEPTHMAX	1.6
DA-S-TP05-0001-01	0.92	DA-SB145-0001-LOCDEPTHMAX	2.4
DA-SB102B-0001-LOCDEPTHMAX	1.1	DA-SB121-0001-LOCDEPTHMAX	2.4
DA-SB129-0001-LOCDEPTHMAX	1.1	DA-SB133-0001-LOCDEPTHMAX	3.2
DA-SS148-011708	1.2	DA-MW120B-0001-LOCDEPTHMAX	6.5
DA-SS149-011708	1.2	DA-S-TP01-0001-01	11

Cadmium in Subsurface Soil: Cadmium was detected in background subsurface soil type Se in 11 out of 15 samples but was detected rarely in soil type Pm, in 2 out of 24 samples. In Site 8 subsurface soil, cadmium was detected in 29 out of 99 samples. Gehan's test indicated site concentrations exceeded background for soil type Pm but not for soil type Se. The IQRs for the background subsurface soil types exceeded the concentrations of more than 50 percent of the site data points. The quantile test indicated the 19 largest-ranked Site 8 cadmium results were at the borderline level of statistical significance (probability of 0.053), which provides some evidence to suggest the ranks of the Site 8 concentrations were greater than expected relative to the ranks of the background SeSB data set. The 19 largest-ranked site concentrations were greater than expected relative to PmSB background data, which was a statistically significant finding (probability of 0.011). The UTL test could not be performed due to non-detected results in background. The 19 largest Site 8 subsurface soil results for cadmium may indicate hotspots within this subset; therefore, these sample IDs and the associated concentrations are shown in the following table.

Subsurface Soil Sample ID	Cadmium (mg/kg)	Subsurface Soil Sample ID	Cadmium (mg/kg)
DA-SB105-0406	0.33	DA-S-TP01-0607-01	1.3
DA-S-TP15A-0506-01	0.36	DA-S-TP07-0910-01	1.6
DA-SB111-0204	0.41	DA-SB106-0608	1.7
DA-SB128-0810	0.41	DA-SB-TP103-0506	2.4
DA-SB129-0406	0.57	DA-S-TP01-0304-01	2.8
DA-S-TP15A-0910-01	0.58	DA-S-TP14-0910-01	3.5
DA-S-TP15A-0203-01	0.61	DA-S-TP14-0506-01	5.4
DA-S-TP15-0506-01	0.66	DA-B110B-1012	5.6
DA-SB108-0204	0.66	DA-SB132-0406	8.8
DA-S-TP07-0304-01	0.79		

F.8.7 Summary of Statistical Comparisons for Chromium

Chromium in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were elevated relative to background. Test Form II hypothesis tests were conducted to evaluate the magnitude by which site-wide concentrations were elevated. These tests indicated that site-wide chromium surface soil concentrations were not elevated by more than 2 standard deviations when compared to background soil type SeSS, although the opposite conclusion was obtained when data were compared to background soil type PmSS.

To determine sample locations associated with elevated chromium concentrations, Site 8 surface soil concentrations were superimposed over the geochemical scatter plots of background data. Sample results falling outside of the plotted 95 percent UPLs were identified from these graphs and were listed in tables. A total of 24 exceedances were indicated from the chromium/log-iron graphs, while 15 exceedances were indicated from the factor analysis graphs.

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (27.6 mg/kg), SeSB (18.6 mg/kg), PmSS (16.9 mg/kg), and PmSB (20.3 mg/kg). Therefore, the list of the Site 8 surface soil chromium concentrations that exceeded geochemical prediction limits was refined to exclude those that did not exceed the maximum UTL of 27.6 mg/kg, which left only 4 chromium exceedances, which are shown in the following table. Therefore, the overall conclusion for chromium in surface soil indicates that concentrations appear to be clearly elevated above 95 percent of the background population in very few locations, based on available data.

Surface Soil Sample ID	Chromium (mg/kg)	Surface Soil Sample ID	Chromium (mg/kg)
DA-S-TP10-0001-01	64.0	DA-SS129-011408	28.1
DA-SS115B-011008	28.8	DA-SS145-011708	33.4

Chromium in Subsurface Soil: The quantile test indicated the 46 largest-ranked Site 8 chromium results were greater than expected compared to the background SeSB data set, and the 52 largest-ranked site concentrations were greater than expected relative to PmSB

background data. Chromium box plots illustrated that the background soil IQRs fell within the range of the Site 8 IQRs, although the spread of the site IQRs were greater. To further demonstrate the lack of a global exceedance for subsurface soil, chromium two sample hypothesis tests were also run as Test Form II and concluded that site-wide chromium concentrations in subsurface soil were not more than two standard deviations greater than background..

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (27.6 mg/kg), SeSB (18.6 mg/kg), PmSS (16.9 mg/kg), and PmSB (20.3 mg/kg). A list of the Site 8 subsurface soil chromium concentrations that were found to exceed the maximum UTL of 27.6 mg/kg is presented as follows. Therefore, the overall conclusion for chromium in subsurface soil indicates that concentrations appear to be clearly elevated above 95 percent of the background population in very few locations, based on available data.

Subsurface Soil Sample ID	Chromium (mg/kg)	Subsurface Soil Sample ID	Chromium (mg/kg)
DA-B114B-0204	32	DA-B110B-1012	50.7
DA-SB134-0405	32	DA-SB106-0608	98.2
DA-SB139-1012	33.6	DA-SB111-0204	103

F.8.8 Summary of Statistical Comparisons for Cobalt

Cobalt in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were elevated relative to background.

Further statistical evaluations of cobalt surface soil data were not undertaken because the Site 8 human health risk and ecological risk assessments did not identify this substance as a risk driver.

Cobalt in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface soil concentrations exceeded background concentrations. The Mann Whitney test indicated site concentrations exceeded background for soil type Pm but not for soil type Se. The quantile test also indicated the 41 largest-ranked site concentrations were greater than expected relative to PmSB background data, which was a statistically significant finding (probability of 0.019). The

quantile test also suggested that the 18 largest-ranked Site 8 cobalt results were at the borderline level of statistical significance (probability of 0.063), indicating the ranks of the Site 8 concentrations may be greater than expected relative to the ranks of the background SeSB data set.

Further statistical evaluations of cobalt subsurface soil data were not undertaken because the Site 8 human health risk assessment did not identify this substance as a risk driver.

F.8.9 Summary of Statistical Comparisons for Copper

Copper in Surface Soil: Copper was not detected in background surface soil samples but was detected in 96 out of 97 Site 8 surface soil samples. The Gehan test could not be performed due to no detections in background surface soil. The quantile test indicated the 61 largest-ranked Site 8 copper results were greater than expected compared to the background SeSS data set, and the 66 largest-ranked site concentrations were greater than expected relative to PmSS background data. The UTL test could not be performed due to non-detected results in background.

Further statistical evaluations of copper surface soil data were not undertaken because the Site 8 human health risk and ecological risk assessments did not identify this substance as a risk driver.

Copper in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface soil concentrations exceeded background concentrations for soil type Pm but not for soil type Se. The Mann Whitney test and the quantile test indicated site concentrations were greater than expected relative to PmSB background data. From a qualitative standpoint, examination of box plots revealed one subsurface soil sample (DA-S-TP07-0910-01) with a copper concentration of 2600 mg/kg, which was more than an order of magnitude greater than all other subsurface soil samples and approximately two orders of magnitude greater than the background UTLs of 35.2 mg/kg and 24.9 mg/kg for soil types SeSB and PmSB, respectively.

Further statistical evaluations of copper subsurface soil data were not undertaken because the Site 8 human health risk assessment did not identify this substance as a risk driver.

F.8.10 Summary of Statistical Comparisons for Iron

Iron in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test

and the quantile test, all indicated that Site 8 surface soil concentrations were elevated relative to background. Iron box plots were examined to see whether the IQR of Site 8 surface soil concentrations was similar to the IQRs for background soil types SeSS and PmSS, and revealed that the range of the Site 8 IQRs slightly exceeded the background soil IQRs.

To provide additional perspective on the extent to which Site 8 iron concentrations exceeded background, the modified hypothesis test, Test Form II, was used to compare site data to background. The results of Test Form II comparisons indicated that iron concentrations across the site were not elevated above background by more than 2 standard deviations when compared to background soil types SeSS and PmSS. In other words, the amount by which average or median Site 8 iron concentrations exceeded background was slight.

Since surface soil from locations within the Site 8 NUSC Disposal area are likely to have been disturbed as a result of historical activities, it is not known which sample locations might represent soil that was re-located/re-distributed. Surface soil may also have been mixed with subsurface soil and mixtures of soil types Se and Pm could be present. Therefore, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (52,400 mg/kg), SeSB (52,000 mg/kg), PmSS (37,100 mg/kg), and PmSB (41,600 mg/kg). Based on this comparison, no Site 8 surface soil samples exceeded the background UTLs for iron.

Iron in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 concentrations exceeded background concentrations only for soil type PmSB. It is notable that the Mann Whitney test did not find that the rank sums of Site 8 site-wide subsurface concentrations were elevated compared to background. Only the quantile test indicated that Site 8 subsurface concentrations might be elevated, which was noted only in comparing to one of the two background soil types. The 22 largest-ranked Site 8 sample concentrations for iron were greater than expected compared to the background PmSB data set, but did not indicate a problem when data were compared to the background soil type SeSB. This indicates uncertainty in whether the iron subsurface concentrations at Site 8 are truly elevated because the composition of Site 8 soil is considered to be an unknown mixture of one or both background soil types.

To provide additional perspective on the extent to which Site 8 iron concentrations exceeded background, iron box plots were examined to see whether the IQR of Site 8 subsurface soil concentrations was similar to the IQRs for background soil types SeSB and PmSB, and revealed that the background soil IQRs nearly matched the Site 8 IQRs. In addition, the modified hypothesis test, Test Form II, was used to compare site data to background. The results of Test

Form II comparisons confirmed that iron concentrations across the site were not elevated above background by more than 2 standard deviations when compared to background soil types SeSB and PmSB. In other words, the amount by which average or median site iron concentrations exceeded background was slight.

Since subsurface soil from locations within the Site 8 NUSC Disposal area are likely to have been disturbed as a result of historical activities, it is not known which sample locations might represent soil that was re-located/re-distributed. Surface soil may also have been mixed with subsurface soil and mixtures of soil types Se and Pm could be present. Therefore, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (52,400 mg/kg), SeSB (52,000 mg/kg), PmSS (37,100 mg/kg), and PmSB (41,600 mg/kg). A list of the Site 8 subsurface soil iron concentrations that were found to exceed the maximum UTL of 52,400 mg/kg is presented as follows. Therefore, the overall conclusion for iron in subsurface soil indicates that concentrations may be elevated above 95 percent of the background population in very few locations, based on available data.

Subsurface Soil Sample ID	Iron (mg/kg)	Subsurface Soil Sample ID	Iron (mg/kg)
DA-SB137-0406	54600	DA-S-SB03-0304-01	67000
DA-B114B-0204	58200	DA-SB139-1012	69200
DA-SB135-1214	61400	DA-SB106-0608	134000

F.8.11 Summary of Statistical Comparisons for Lead

Lead in Surface Soil: Two sample hypothesis tests indicated that Site 8 concentrations exceeded background concentrations for soil type SeSS. It is notable that the Mann Whitney test did not find that the rank sums of Site 8 concentrations were elevated compared to background. Only the quantile test indicated that Site 8 concentrations were elevated. The quantile test indicated the 27 largest-ranked site concentrations were greater than expected relative to SeSS background data, which was a statistically significant finding (probability of 0.021). The quantile test also suggested that the 14 largest-ranked Site 8 lead results were at the borderline level of statistical significance (probability of 0.061), which provides some evidence to suggest the ranks of the Site 8 concentrations were greater than expected relative to the ranks of the background PmSS data set.

To determine sample locations associated with elevated lead concentrations, Site 8 surface soil concentrations were superimposed over the geochemical scatter plots of background data.

Sample results falling outside of the plotted 95 percent UPLs were identified from these graphs and were listed in tables. A total of 50 exceedances were indicated from the lead/vanadium graphs, while 51 exceedances were indicated from the factor analysis graphs.

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (39 mg/kg), SeSB (16 mg/kg), PmSS (53.2 mg/kg), and PmSB (12.2 mg/kg). Therefore, the list of the Site 8 surface soil lead concentrations that exceeded geochemical prediction limits was refined to exclude those that did not exceed the maximum UTL of 53.2 mg/kg, which left only 13 lead exceedances, which are shown in the following table. Therefore, the overall conclusion for lead in surface soil indicates that concentrations may be elevated above 95 percent of the background population in a relatively small number (about 13 percent) of sample locations, based on available data.

Surface Soil Sample ID	Lead (mg/kg)	Surface Soil Sample ID	Lead (mg/kg)
DA-S-TP01-0001-01	120	DA-SS128-011608	63.7
DA-S-TP10-0001-01	160	DA-SS129-011408	81.8
DA-SB107-0103	110	DA-SS141-011108	69.7
DA-SB114-0002	54.8	DA-SS145-011708	112
DA-SS103B-011508	61.4	DA-SS148-011708	90.2
DA-SS122-011008	86.1	DA-SS149-011708	2870
DA-SS126-011408	55		

Lead in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface soil concentrations exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSB and PmSB and using both the Mann Whitney test and the quantile test, all indicated that Site 8 subsurface soil concentrations were elevated relative to background.

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (39 mg/kg), SeSB (16 mg/kg), PmSS (53.2 mg/kg), and PmSB (12.2 mg/kg). Therefore, the list of the Site 8 subsurface soil lead concentrations that exceeded geochemical prediction limits was refined to exclude those that did not exceed the maximum UTL of 53.2 mg/kg, which left only 10 lead exceedances, which are shown in the following table. Therefore, the overall conclusion for lead in subsurface soil indicates that concentrations may be elevated above 95 percent of the

background population in a very limited number (about 10 percent) of sample locations, based on available data.

Subsurface Soil Sample ID	Lead (mg/kg)	Subsurface Soil Sample ID	Lead (mg/kg)
DA-SB129-0406	66.8	DA-SB-TP103-0506	653
DA-B119B-0204	78.3	DA-S-TP14-0506-01	830
DA-SB128-0810	117	DA-SB132-0406	926
DA-SB111-0204	159	DA-B110B-1012	4540
DA-S-TP07-0910-01	400	DA-SB106-0608	4650

F.8.12 Summary of Statistical Comparisons for Manganese

Manganese in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were elevated relative to background.

To determine sample locations associated with elevated manganese concentrations, Site 8 surface soil concentrations were superimposed over the geochemical scatter plots of background data. Sample results falling outside of the plotted 95 percent UPLs were identified from these graphs and were listed in tables. A total of 3 exceedances were indicated from the manganese/log-iron graphs.

Since historical site activities are known to have involved considerable soil disturbance, a reasonable approach to identifying samples exceeding background was to assume samples were elevated only if concentrations exceeded all four of the background soil UTLs, including SeSS (436 mg/kg), SeSB (1630 mg/kg), PmSS (560 mg/kg), and PmSB (1440 mg/kg). Therefore, the list of the Site 8 surface soil manganese concentrations that exceeded geochemical prediction limits was refined to exclude those that did not exceed the maximum UTL of 1630 mg/kg, which left only one manganese exceedance, which is shown in the following table. Therefore, the overall conclusion for manganese in surface soil indicates that concentrations appear to be clearly elevated above 95 percent of the background population in only a single location, based on available data.

Surface Soil Sample ID	Manganese (mg/kg)
DA-SS149-011708	2020

Manganese in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface soil concentrations did not exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSB and PmSB and using both the Mann Whitney test and the quantile test, all indicated that Site 8 subsurface soil concentrations were not elevated relative to background.

F.8.13 Summary of Statistical Comparisons for Mercury

Mercury in Surface Soil: Mercury was detected in 2 out of 20 background surface soil samples of soil type Se and 4 out of 20 of soil type Pm. Detection limits in background surface and subsurface soil ranged from 0.03 to 0.22 mg/kg. Mercury was detected in 77 out of 97 Site 8 surface soil samples, with all but 2 site detections between 0.008 mg/kg to 0.2 mg/kg, which is within the range of background detection limits. Statistical tests could not determine if mercury concentrations in Site 8 surface soil exceeded the underlying background population concentrations due to the similar range of background detection limits. However, from a qualitative standpoint, it was demonstrated that all except 2 site concentrations were not greater than the range of background detection limits. One sample exceeded the maximum background level and the range of background detections (DA-SB133-0001-LOCDEPTHMAX, 2 mg/kg).

Mercury in Subsurface Soil: Mercury was not detected in background samples of subsurface soil type Se and was detected in 1 out of 24 samples of soil type Pm. Gehan's test determined that the rank sums for Site 8 concentrations were elevated compared to background soil type Pm. The quantile test indicated the 27 largest-ranked Site 8 mercury results (ranging from 0.04 mg/kg to 0.22 mg/kg) were greater than expected compared to the background SeSB data set, and the same 27 largest-ranked site concentrations were greater than expected relative to PmSB background data. Mercury box plots illustrated that the background soil IQRs were similar to the lower 25th percentile of the Site 8 subsurface soil data. The UTL tests could not be performed due to too few background detections.

Further statistical evaluations of mercury subsurface soil data were not undertaken because the Site 8 human health risk assessment did not identify this substance as a risk driver.

F.8.14 Summary of Statistical Comparisons for Nickel

Nickel in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations exceeded background concentrations. The outcome of separate comparison tests

performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were elevated relative to background.

Further statistical evaluations of cobalt surface soil data were not undertaken because the Site 8 human health risk and ecological risk assessments did not identify this substance as a risk driver.

Nickel in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface soil concentrations exceeded background concentrations for soil type Pm but not for soil type Se. The Mann Whitney test and the quantile test indicated site concentrations were greater than expected relative to PmSB background data. This indicates uncertainty in whether the nickel subsurface concentrations at Site 8 are truly elevated because the composition of Site 8 soil is considered to be an unknown mixture of one or both background soil types.

Further statistical evaluations of nickel subsurface soil data were not undertaken because the Site 8 human health risk assessment did not identify this substance as a risk driver.

F.8.15 Summary of Statistical Comparisons for Selenium

Selenium in Surface Soil: Selenium was not detected in any background surface soil samples. Detection limits in background surface soils of types Pm and Se ranged from 4 to 5.7 mg/kg. Selenium was detected infrequently in Site 8 surface soil samples (11 out of 97 samples). Examination of box plots revealed that all Site 8 surface soil positive results and detection limits were at least an order of magnitude smaller than the detection limits for background samples. Therefore, no conclusions could be reached from statistical tests as to whether the underlying population distribution of selenium concentrations in Site 8 surface soil exceeds background. However, from a qualitative standpoint, it was demonstrated that site concentrations were not greater than the range of background detection limits.

Selenium in Subsurface Soil: Gehan's test indicated that Site 8 concentrations did not exceed background for either soil type. Selenium was detected in one background subsurface soil sample of type Se and one sample of type Pm. Selenium detection limits in background subsurface soils ranged from 0.17 to 0.45 mg/kg. Selenium was detected infrequently in Site 8 surface soil samples (6 out of 99 samples). Selenium box plots illustrated that the background soil IQRs were close to the lower 25th percentile of the Site 8 subsurface soil data.

F.8.16 Summary of Statistical Comparisons for Silver

Silver in Surface Soil: Silver was not detected in any background surface soil samples. Detection limits in background surface soils of types Pm and Se ranged from 1.1 to 1.6 mg/kg. Silver was detected in 31 out of 95 Site 8 surface soil samples. Examination of box plots revealed that the 75th percentile of Site 8 surface soil results was about 5-fold smaller than the detection limits for background samples. Therefore, no conclusions could be reached from statistical tests as to whether the underlying population distribution of silver concentrations in Site 8 surface soil exceeds background. However, from a qualitative standpoint, it was demonstrated that a large majority of site concentrations were not greater than the range of background detection limits, although it was noted that two Site 8 samples were detected at levels marginally greater than the 1.6 mg/kg maximum background detection limit..

Silver in Subsurface Soil: Silver was not detected in any background subsurface soil samples. Detection limits in background subsurface soils of types Pm and Se ranged from 0.05 to 0.22 mg/kg. Silver was detected in 35 out of 99 Site 8 subsurface soil samples. Examination of box plots revealed that the IQRs of background soil were close to the 25th percentile of site data. From a qualitative standpoint, the majority of positive silver results exceeded the range of background detection limits.

F.8.17 Summary of Statistical Comparisons for Thallium

Thallium in Surface Soil: Thallium was not detected in all background surface soil samples and infrequently detected in Site 8 surface soil. Examination of box plots revealed that all Site 8 surface soil positive results and detection limits were 6-fold smaller than the detection limits for background samples. Therefore, no conclusions could be reached from statistical tests as to whether the underlying population distribution of thallium concentrations in Site 8 surface soil exceeds background. However, from a qualitative standpoint, it was demonstrated that site concentrations were not greater than the range of background detection limits.

Thallium in Subsurface Soil: Thallium was not detected in all background subsurface soil samples and infrequently detected in Site 8 subsurface soil. Only one Site 8 sample exceeded the range of background detection limits. Therefore, no conclusions could be reached from statistical tests as to whether the underlying population distribution of thallium concentrations in Site 8 subsurface soil exceeds background.

F.8.18 Summary of Statistical Comparisons for Vanadium

Vanadium in Surface Soil: Two sample hypothesis tests indicated that Site 8 surface soil concentrations did not exceeded background concentrations. The outcome of separate comparison tests performed using background soil types SeSS and PmSS and using both the Mann Whitney test and the quantile test, all indicated that Site 8 surface soil concentrations were not elevated relative to background.

Vanadium in Subsurface Soil: Two sample hypothesis tests indicated that Site 8 subsurface concentrations exceeded background concentrations for soil types SeSB and PmSB. The Mann Whitney test did not find that the rank sums for Site 8 concentrations were elevated compared to background. The quantile test indicated the 31 largest-ranked Site 8 vanadium results were greater than expected compared to the background SeSB data set, and the 42 largest-ranked site concentrations were greater than expected relative to PmSB background data. Vanadium box plots illustrated that the background soil IQRs fell within the range of the Site 8 IQRs, although the spread of the site IQRs were greater.

Further statistical evaluations of vanadium subsurface soil data were not undertaken because the Site 8 human health risk assessment did not identify this substance as a risk driver.

F.8.19 Summary of Statistical Comparisons for DDT-Analogs

DDT-Analogs in Surface Soil: Eight Site 8 surface soil detections occurred for 4,4'-DDD, while background was nondetected for this substance. However, because the magnitude of the positive results were similar to the background detection limits, no conclusion is possible regarding whether 4,4'-DDD concentrations exceed background.

4,4'-DDE was detected in 6 out of 40 background in samples. Background detection limits were 3.4 to 6.2 ug/kg and detected concentrations were 11 to 43 ug/kg. In contrast, DDE was detected in 38 out of 99 Site 8 surface soil samples. All Site 8 sample results except the highest detection displayed concentrations less than or equal to 8.6, which were within the range of background detection limits. Two sample hypothesis tests were not able to conclude that Site 8 does not exceed background. Too few detections occurred in background soil to estimate a UTL. However, from a qualitative standpoint, it is notable that the maximum detected DDE concentration in Site 8 surface soil (sample DA-S-TP07-0001-01) was 5 times greater than the maximum detected background concentration.

DDT-Analogs in Subsurface Soil: 4,4'-DDE was detected in 4 Site 8 subsurface samples and 6 background samples. Most of the detected concentrations in background samples were greater than the concentrations observed in site samples. However, due to the low frequency of detections, no conclusions were possible from statistical tests.

4,4'-DDT was detected in 10 Site 8 subsurface samples and 5 background samples. Due to the low frequency of detections, no conclusions were possible from statistical tests. However, from a qualitative standpoint, it is notable that the 4 highest concentration Site 8 samples (DA-S-TP07-0910-01, DA-S-TP01-0607-01, DA-S-TP01-0304-01, and DA-S-TP07-0304-01) were approximately 5-fold greater than the maximum detected background concentration.

F.8.20 Summary of Statistical Comparisons for PCBs

PCBs in Surface Soil: Aroclor-1254 was detected in two Site 8 surface soil samples and one background surface soil. Statistical tests involving parametric comparisons (means) and nonparametric comparisons (ranks) were unable to evaluate whether site concentrations exceed background due to the low frequency of detections. However, from a qualitative standpoint, it is notable that the maximum concentration of Aroclor-1254 in Site 8 surface soil was 5220 ug/kg (sample DA-S-TP07-0001-01), which is two orders of magnitude greater than the detected levels and the detection limits for background.

One Site 8 surface soil detection occurred for Aroclor-1248, while background was nondetected for this substance. However, because the magnitude of the positive result was similar to the background detection limits, no conclusion is possible regarding whether Aroclor-1248 concentrations exceed background.

PCBs in Subsurface Soil: Aroclor-1248 was detected in two Site 8 subsurface soil samples but was not detected in background samples. No conclusions were possible from statistical tests due to the low frequency of detections. However, from a qualitative standpoint, it is notable that the maximum site concentration (in sample DA-S-TP07-0910-01) exceeded the maximum background detection limit by 40-fold.

Aroclor-1254 was detected in 3 Site 8 subsurface soil samples and one background sample. No conclusions were possible from statistical tests because the range of site detections was similar to the range of detection limits in site and background.

Aroclor-1260 was detected in 7 Site 8 subsurface soil samples and 6 background samples. No conclusions were possible from statistical tests due to the low frequency of detections. However, from a qualitative standpoint, it is notable that the 4 highest concentration Site 8 samples (DA-B110B-1012, DA-S-TP07-0910-01, DA-SB-TP103-0506, and DA-SB111-0204) ranged from 3-fold to 16-fold greater than the maximum concentration detected in background samples.

F.8.21 Summary of Statistical Comparisons for Other Pesticides

Other Pesticides in Surface Soil: Alpha-chlordane was detected in 3 Site 8 surface soil samples and 3 background samples. Statistical tests were unable to determine whether site concentrations exceeded background due to the low frequency of detections. The detected concentrations in background samples were only approximately twice the detection limits. In contrast, one Site 8 surface soil sample (DA-S-TP07-0001-01) displayed a concentration 30-fold greater than background detection limits, and another sample (DA-SS149-011708) displayed a concentration 5 times the background detection limits. From a qualitative standpoint, it is notable that these two sample concentrations were substantially greater than all background sample results.

Dieldrin was detected in only 2 background soil samples and 3 Site 8 surface soil samples, so statistical tests were not able to determine whether site concentrations exceeded background. However, from a qualitative standpoint, it is notable that the maximum Site 8 concentration was similar to the maximum background concentration.

Endosulfan II, endrin, and heptachlor were not detected in background soil samples but were detected in Site 8 surface soil at concentrations similar to background detection limits. No conclusions were possible from statistical tests.

Gamma-chlordane was detected in 2 Site 8 surface soil samples and 3 background samples at similar concentrations. However, detected concentrations for site and background samples were within a factor of 2 or 3 compared to detection limits. Therefore, no conclusions were possible from statistical tests.

Other Pesticides in Subsurface Soil: Alpha-chlordane was detected in 1 Site 8 subsurface soil sample and in 3 background samples. The Site 8 detected concentration was about twice the maximum background concentration. No conclusions were possible from statistical tests.

Endosulfan sulfate and endrin aldehyde were detected in Site 8 subsurface soil samples at concentrations within the same general range as background soil detection limits. No conclusions were possible from statistical tests.

Gamma chlordane was detected in 1 out of 99 Site 8 subsurface soil samples and 3 out of 40 background samples. The maximum detected site concentration was about 3-fold greater than the maximum background level. No conclusions were possible from statistical tests.

Heptachlor was detected in 7 out of 99 Site 8 subsurface soil samples but was not detected in background. No conclusions were possible from statistical tests. However, from a qualitative standpoint, it is notable that the two largest Site 8 concentrations (samples DA-B113B-0608 and DA-SB110-0810) exceeded the maximum background detection limit by an order of magnitude.

F.8.22 Summary of Statistical Comparisons for Polyaromatic Hydrocarbons (PAHs)

PAHs in Surface Soil: Several PAHs compounds displayed moderate to high frequencies of detection in Site 8 surface soil samples and exhibited concentrations markedly greater than background concentration ranges and background detection limits. Two sample hypothesis tests were able to conclude that the following PAH compounds exhibited concentrations greater than background: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, naphthalene, phenanthrene, and pyrene. In most instances, the quantile test and Gehan's test demonstrated statistically significant exceedances of background. However, UTLs were not calculated for these substances due to the degree of uncertainty that would be associated with UTLs based on generally low frequencies of detection in background samples.

PAHs in Subsurface Soil: Several PAHs compounds displayed moderate to high frequencies of detection in Site 8 subsurface soil samples and exhibited concentrations markedly greater than background concentration ranges and background detection limits. Two sample hypothesis tests were able to conclude that the following PAH compounds exhibited concentrations greater than background: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. In most instances, the quantile test and Gehan's test demonstrated statistically significant exceedances of background. However, UTLs were not calculated for these substances due to the degree of uncertainty that would be associated with UTLs based on generally low frequencies of detection in background samples.

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APPENDIX F

TABLES F.1.1 THROUGH F.1.3

DESCRIPTIVE STATISTICS FOR SITE 8 AND BACKGROUND SOIL DATA

TABLE F.1.1
DESCRIPTIVE STATISTICS FOR METALS CONCENTRATIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Background Surface Soil (Pittstown Silt Loam)					Background Surface Soil (Stissing Silt Loam)					Site 08: NUSC Disposal Area Surface Soil			
Substance	Freq. of Detection	Range of Positive Detection Min. - Max.	Mean of All Data	Median of All Data	95 % UTL or 95th Quantile	Freq. of Detection	Range of Positive Detection Min. - Max.	Mean of All Data	Median of All Data	95 % UTL or 95th Quantile	Freq. of Detection	Range of Positive Detection Min. - Max.	Mean of All Data	Median of All Data
Aluminum	20/20	9110 - 14600	11200	11100	17400	20/20	7580 - 16700	12100	12300	14900	97/97	1800 - 20700	11100	11500
Antimony	0/20	-	-	3.9	-	0/0	-	-	-	-	5/97	0.19 - 5.5	0.185	0.085
Arsenic	20/20	4.7 - 32.3	9.59	8.6	49.8	20/20	3.3 - 71.7	13	9.7	23.2	97/97	0.29 - 90	17.2	16
Barium	20/20	28.1 - 53.1	39.7	38.8	63	20/20	15.1 - 60.6	35	32.125	56.1	97/97	7.4 - 42.8	22.8	22.3
Beryllium	1/20	0.38 - 0.38	0.33	0.3275	-	1/20	0.37 - 0.37	0.35	0.35	-	96/97	0.21 - 0.74	0.402	0.4
Cadmium	0/20	-		0.325	-	0/20	-		0.347	-	46/97	0.08 - 11	0.544	0.12
Calcium	0/20	-		-	-	0/20	-		-	-	97/97	39 - 8940	1010	834
Chromium	20/20	11.2 - 16	13.5	13.5	27.6	20/20	7.6 - 28.2	12.7	11.9	16.9	97/97	1 - 64	15.7	15.5
Cobalt	20/20	4.5 - 13.8	7.25	6.95	11.9	20/20	3.3 - 11.9	5.52	4.6	12.2	97/97	0.82 - 218	13.5	11.2
Copper	0/20	-		4.3875	-	0/20	-		3.5625	-	96/97	6.7 - 560	28.2	20
Iron	20/20	12700 - 63300	19800	18250	52400	20/20	8290 - 53900	19600	18500	37100	97/97	5270 - 43700	25300	26600
Lead	20/20	17.9 - 49.5	31.2	32.275	39	20/20	13.4 - 38	23.2	22.55	53.2	97/97	4.2 - 2870	58.6	22
Magnesium	20/20	1360 - 1960	1610	1590	2920	15/20	1570 - 2930	1660	1685	2040	97/97	407 - 6240	2940	2950
Manganese	20/20	101 - 615	289	279.75	436	20/20	46.6 - 373	130	91.7	560	97/97	79.8 - 2020	378	351
Mercury	4/20	0.1 - 0.68	0.0848	0.0345	-	2/20	0.1 - 0.12	0.0559	0.04575	-	77/97	0.00821 - 2	0.0633	0.03
Molybdenum	0/0	-	-	-	-	0/0	-	-	-	-	64/97	0.18 - 7.6	0.52	-
Nickel	20/20	7.5 - 14.4	10.3	10.375	19.2	20/20	5.3 - 19.1	11	10.7	14.9	97/97	0.98 - 38.5	20.5	22
Potassium	0/20	-	-	-	-	0/20	-	-	-	-	96/97	110 - 1200	478	475
Selenium	0/18	-	-	2.3	-	0/20	-	-	2.425	-	11/97	0.19 - 0.67	0.193	0.15
Silver	0/20	-	-	0.65	-	0/20	-	-	0.7	-	31/97	0.034 - 2	0.232	0.05
Sodium	0/6	-	-	-	-	0/6	-	-	-	-	49/97	30 - 307	45.6	32.8
Thallium	0/20	-	-	1.65	-	0/20	-	-	1.75	-	4/97	0.18 - 0.38	0.107	0.03
Vanadium	20/20	26.1 - 42.6	30.5	30.35	38	20/20	14 - 34.2	25.1	24.025	37.6	97/97	1.5 - 47.2	20.1	19.7
Zinc	20/20	25.9 - 93.7	50.2	47	77.4	20/20	21.4 - 81.7	43.3	41.7	97.3	97/97	13.8 - 663	77.4	58.9

Notes:

Units are mg/kg.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE F.1.2
DESCRIPTIVE STATISTICS FOR METALS CONCENTRATIONS IN SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Background Subsurface Soil (Pittstown Silt Loam)					Background Subsurface Soil (Stissing Silt Loam)					Site 08: NUSC Disposal Area Subsurface Soil			
	Freq. of	Range of Positive Detection	Mean of	Median of	95 % UTL or 95th	Freq. of	Range of Positive Detection	Mean of	Median of	95 % UTL or 95th	Freq. of	Range of Positive Detection	Mean of	Median of
Substance	Detection	Min. - Max.	All Data	All Data	Quantile	Detection	Min. - Max.	All Data	All Data	Quantile	Detection	Min. - Max.	All Data	All Data
Aluminum	24/24	8390 - 13200	10600	10575	13200	15/15	9060 - 14000	11100	10750	15500	99/99	3700 - 27200	12000	11600
Antimony	0/24	-	-	0.2925	-	0/15	-	-	0.55	-	8/99	0.26 - 6.2	0.221	0.07
Arsenic	24/24	5.3 - 23.5	14.3	14.325	25.6	15/15	4.4 - 37.1	16.8	20.5	39.6	99/99	2.2 - 220	16.9	15
Barium	24/24	18.2 - 33.4	25.8	25.475	35.5	15/15	19.3 - 30.2	25.2	24.8	33.3	99/99	6.9 - 653	32.8	21.7
Beryllium	24/24	0.39 - 0.76	0.529	0.505	0.745	15/15	0.44 - 0.62	0.524	0.517	0.662	98/99	0.2 - 2.5	0.413	0.35
Cadmium	2/24	0.13 - 0.15	0.0717	0.06	-	11/15	0.084 - 0.28	0.135	0.14	-	29/99	0.16 - 8.8	0.423	0.01
Calcium	24/24	646 - 1650	1090	1150	1720	15/15	703 - 1540	1170	1210	1820	99/99	70 - 53000	3410	1170
Chromium	24/24	11.9 - 21.3	14.4	14.15	20.3	15/15	12.6 - 17.3	14.8	14.9	18.6	99/99	2.6 - 103	17.6	15.5
Cobalt	24/24	6.5 - 17.1	11.5	11.7	18.7	15/15	9 - 17.7	13.7	14.35	21.7	99/99	3.4 - 35.6	14.1	13
Copper	24/24	6.5 - 25.8	14.6	14.55	24.9	15/15	11.1 - 30.5	19.6	20.5	35.2	99/99	2.1 - 2600	49.7	20.5
Iron	24/24	14900 - 38700	26900	26250	41600	15/15	15000 - 46600	29600	29700	52000	99/99	3800 - 134000	30100	28200
Lead	24/24	5.2 - 11.3	8.22	7.825	12.2	15/15	7.1 - 15.4	10.3	10.4	16	99/99	6.2 - 4650	141	14.45
Magnesium	24/24	2080 - 3360	2750	2750	3690	15/15	2380 - 3850	2970	2940	4240	99/99	960 - 24000	3910	3310
Manganese	24/24	214 - 1520	549	462.25	1440	15/15	191 - 1330	461	334	1630	99/99	122 - 3300	567	374
Mercury	1/24	0.016 - 0.016	0.00757	0.00725	-	0/15	-	-	0.007	-	57/99	0.00808 - 0.22	0.0298	0.0154
Molybdenum	0/0	-	-	-	-	0/0	-	-	-	-	66/99	0.12 - 58.8	1.03	-
Nickel	24/24	11.4 - 27.1	18.5	18.6	28.3	15/15	15.1 - 37.1	24.2	24.6	40.7	99/99	4.4 - 102	23.4	21.8
Potassium	24/24	359 - 590	462	448	575	15/15	376 - 677	548	538	751	99/99	81 - 3400	431	358
Selenium	1/24	0.71 - 0.71	0.148	0.115	-	1/15	0.5 - 0.5	0.155	0.165	-	6/99	0.32 - 1	0.258	0.28
Silver	0/24	-	-	0.085	-	0/15	-	-	0.085	-	35/99	0.034 - 2.5	0.253	0.07
Sodium	20/24	54.1 - 94.5	68.7	75.75	93.3	3/15	58.8 - 60.8	35.2	28.5	-	52/99	28.9 - 1500	69.7	31.8
Thallium	0/24	-	-	0.1775	-	0/15	-	-	0.2775	-	6/99	0.1 - 0.89	0.155	0.035
Vanadium	24/24	15.2 - 28.5	19.3	18.7	28	15/15	15.5 - 21.2	18.7	18.6	23	99/99	6.1 - 53.8	19.3	19
Zinc	24/24	29.7 - 61.4	42.6	40.875	63	15/15	34.1 - 74.5	55.4	58.6	88.1	99/99	23 - 9840	177	57.5

Notes:

Units are mg/kg.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE F.1.3
DESCRIPTIVE STATISTICS FOR ORGANICS CONCENTRATIONS IN SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Background Surface Soil			Site 08: NUSC Disposal Area Surface Soil			Site 08: NUSC Disposal Area Subsurface Soil		
	Freq. of	Range of Positive Detection	Mean of	Freq. of	Range of Positive Detection	Mean of	Freq. of	Range of Positive Detection	Mean of
Substance	Detection	Min. - Max.	All Data	Detection	Min. - Max.	All Data	Detection	Min. - Max.	All Data
Diesel Range Organics	0/0	-		17/24	11000 - 430000	70500	20/36	13000 - 63000000	3280000
Extractable Petroleum Hydrocarbons	0/0	-		8/8	130 - 2200	549	29/34	2.5 - 12000	595
Gasoline Range Organics	0/0	-		20/101	0.56 - 130	4.74	35/101	0.39 - 920	22.3
TPH (c09-c36)	0/0	-		67/68	15 - 1600	137	28/29	2.3 - 2500	313
4,4'-DDD	0/40	-		8/99	1.2 - 5.2	6.98	4/99	1.4 - 12	16
4,4'-DDE	6/40	5.4 - 43	5.21	38/99	0.96 - 216	7.49	4/99	0.92 - 2.1	9.29
4,4'-DDT	5/40	3.6 - 23	3.63	32/99	1.2 - 184	9.88	10/99	1 - 347	22.8
Alpha-Chlordane	3/40	3.8 - 7	1.62	3/99	3.2 - 235	5.28	1/99	15 - 15	6.24
Aroclor-1248	0/40	-		1/99	43 - 43	11.5	2/99	117 - 2190	40.2
Aroclor-1254	1/40	25 - 25	25.2	2/99	152 - 5220	65.2	3/99	40 - 55.2	18.1
Aroclor-1260	6/40	34 - 86	29.7	35/99	26 - 510	51	7/99	19 - 1500	48
Aroclor-1268	0/0	-		11/99	94.1 - 620	45.7	10/99	27.4 - 7900	78.6
Dieldrin	2/40	13 - 26	3.35	3/99	1.3 - 23	4.7	0/99	-	
Endosulfan II	0/40	-		2/99	0.98 - 2.6	6.92	0/99	-	
Endosulfan Sulfate	0/40	-		0/99	-		1/99	2 - 2	11.4
Endrin	0/40	-		1/99	2.4 - 2.4	4.72	0/99	-	
Endrin Aldehyde	0/40	-		0/99	-		1/99	1.2 - 1.2	13
Gamma-Chlordane	3/40	2.8 - 7.2	1.54	2/99	3.2 - 10	2.74	1/99	20 - 20	5.61
Heptachlor	0/40	-		2/99	1.2 - 1.7	2.89	7/99	1.3 - 52	7.03
Total Aroclor	0/0	-		40/99	26 - 5220	142	18/99	19 - 7900	137
Total DDD/DDE/DDT	0/0	-		43/99	0.96 - 216	12.8	15/99	0.96 - 347	21.6
Toxaphene	0/40	-		0/99	-		1/99	45.9 - 45.9	342
1,1'-Biphenyl	0/40	-		1/76	660 - 660	205	5/63	170 - 8300	363
2,4-Dimethylphenol	0/40	-		0/100	-		2/100	390 - 510	3050
2,4-Dinitrophenol	0/40	-		0/100	-		1/101	310 - 310	1240
2-Methylnaphthalene	0/40	-		53/101	3 - 2400	109	39/101	3.4 - 23000	1640
3&4-Methylphenol	0/40	-		0/100	-		2/101	740 - 2200	1190
3,3'-Dichlorobenzidine	0/40	-		1/100	110 - 110	385	1/101	220 - 220	1020
4,6-Dinitro-2-methylphenol	0/40	-		0/100	-		1/101	260 - 260	1100
4-Nitroaniline	0/40	-		0/100	-		1/101	420 - 420	1420
4-Nitrophenol	0/40	-		0/100	-		1/101	520 - 520	1670
Acenaphthene	0/40	-		72/101	1.8 - 9500	257	54/101	2.1 - 480000	11100
Acenaphthylene	0/40	-		45/101	1.9 - 290	44.4	11/101	1.9 - 3500	551
Anthracene	0/40	-		80/101	1.8 - 13000	471	57/101	2.9 - 970000	21900
Benz(a)anthracene	6/40	52 - 79	114	91/101	2.6 - 20000	1030	66/101	3.2 - 1900000	42500
Benzo(a)pyrene	11/40	51 - 95	107	89/101	6.7 - 17000	778	61/101	5.6 - 1500000	34300
Benzo(b)fluoranthene	13/40	51 - 130	109	87/101	9.6 - 15000	871	63/101	7.2 - 1300000	30000
Benzo(g,h,i)perylene	5/40	55 - 100	117	83/101	3 - 7400	396	61/101	3.4 - 830000	19000
Benzo(k)fluoranthene	7/40	52 - 110	114	88/101	6.8 - 12000	646	63/101	4.5 - 1200000	28000
Benzoic Acid	0/0	-		10/100	520 - 5900	775	4/101	440 - 2300	1970
Bis(2-ethylhexyl) Phthalate	2/40	130 - 160	126	15/100	280 - 4500	336	18/101	240 - 1900	881
Butyl Benzyl Phthalate	0/40	-		1/100	270 - 270	187	0/101	-	
Carbazole	0/40	-		17/100	160 - 7300	331	28/101	92 - 490000	12200
Chrysene	13/40	54 - 140	108	92/101	2.8 - 17000	970	67/101	3.3 - 1700000	38000
Di-n-butyl Phthalate	0/40	-		0/100	-		1/101	120 - 120	586
Dibenz(a,h)anthracene	0/40	-		61/101	5.4 - 3500	175	42/101	4.5 - 330000	7330
Dibenzofuran	0/40	-		8/100	200 - 4700	250	18/101	230 - 250000	6050
Diethyl Phthalate	0/40	-		0/100	-		1/101	180 - 180	546

TABLE F.1.3
DESCRIPTIVE STATISTICS FOR ORGANICS CONCENTRATIONS IN SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Background Surface Soil			Site 08: NUSC Disposal Area Surface Soil			Site 08: NUSC Disposal Area Subsurface Soil		
	Freq. of	Range of Positive Detection	Mean of	Freq. of	Range of Positive Detection	Mean of	Freq. of	Range of Positive Detection	Mean of
Substance	Detection	Min. - Max.	All Data	Detection	Min. - Max.	All Data	Detection	Min. - Max.	All Data
Fluoranthene	31/40	56 - 230	100	93/101	4.4 - 45000	2300	69/101	4.8 - 4600000	101000
Fluorene	0/40	-		63/101	2 - 5900	224	50/101	2 - 480000	11300
High Molecular Weight PAHs	34/40	44 - 1172	265	93/101	17.7 - 193100	9430	72/101	3.3 - 17810000	400000
Indeno(1,2,3-cd)pyrene	2/40	60 - 98	122	80/101	5 - 9200	459	57/101	7.5 - 850000	19500
Low Molecular Weight PAHs	17/40	51 - 95	100	93/101	3 - 89800	2910	70/101	4.8 - 5650000	131000
N-Nitrosodiphenylamine	0/40	-		1/100	400 - 400	232	0/101	-	
Naphthalene	0/40	-		56/101	2.3 - 11000	183	43/100	2.4 - 220000	5780
Pentachlorophenol	0/40	-		0/100	-		1/101	410 - 410	2590
Phenanthrene	17/40	51 - 95	100	92/101	3 - 48000	1820	65/101	4.8 - 3500000	80300
Phenol	0/40	-		0/100	-		1/101	380 - 380	765
Pyrene	34/40	44 - 190	93.9	93/101	2.8 - 50000	2110	65/101	11 - 3600000	80000
Total PAHs	34/40	44 - 1264	293	94/101	20.7 - 282900	12300	75/101	3.3 - 23460000	530000
1,2,4-Trimethylbenzene	0/0	-		5/101	1 - 1600	21	7/101	1.1 - 17000	318
1,2-Dichloroethene (cis)	0/0	-		0/101	-		2/101	1.3 - 2	9.01
1,3,5-Trimethylbenzene	0/0	-		2/101	5 - 860	13.6	3/101	20 - 7500	87.5
2-Butanone	0/0	-		11/101	1.8 - 31	20.2	11/101	2.8 - 48	75.2
4-Isopropyltoluene	0/0	-		5/101	8 - 290	8.43	7/101	2.5 - 6400	105
Acetone	0/0	-		65/101	8 - 7900	281	56/101	8 - 1000	150
Benzene	0/0	-		1/101	2 - 2	3.3	0/101	-	
BTEX	0/0	-		6/101	0.61 - 580	8.96	12/101	0.61 - 1600	29.9
Carbon Disulfide	0/0	-		3/101	0.95 - 2	8.67	8/101	0.93 - 4	12.8
Chloroform	0/0	-		1/101	0.76 - 0.76	3.29	0/101	-	
Ethylbenzene	0/0	-		1/101	2 - 2	3.24	3/101	0.82 - 1600	26.6
Isopropylbenzene	0/0	-		0/101	-		6/101	0.58 - 2800	39.6
m+p-Xylenes	0/0	-		5/101	0.61 - 350	8.34	9/101	0.61 - 170	19.7
Methylene Chloride	0/0	-		1/101	3 - 3	17.7	4/101	2 - 1300	32.8
n-Butylbenzene	0/0	-		2/101	190 - 260	6.58	6/101	1.8 - 8100	124
n-Propylbenzene	0/0	-		2/101	2 - 300	5.68	5/101	2 - 6100	74.7
O-xylene	0/0	-		2/101	2 - 230	5	3/101	0.71 - 1.4	14
sec-Butylbenzene	0/0	-		3/101	0.97 - 6	3.53	13/101	1.1 - 4700	83.5
tert-Butylbenzene	0/0	-		1/101	1.1 - 1.1	5.67	8/101	0.54 - 110	14.4
Tetrachloroethene	0/0	-		1/101	2.4 - 2.4	3.58	13/101	0.64 - 11	19.1
Toluene	0/0	-		1/101	4 - 4	3.62	2/101	2 - 90	13.2
Total 1,2-dichloroethene	0/0	-		5/101	-		2/101	1.3 - 2	12.1
Total Chlorinated Ethenes	0/0	-		5/101	2.4 - 8.5	4.15	16/101	0.64 - 41	15.9
Total Chlorinated Vocs	0/0	-		7/101	0.76 - 8.5	5.35	20/101	0.64 - 1300	25.2
Trichloroethene	0/0	-		4/101	3 - 8.5	3.44	8/101	1.7 - 30	15.9
Vinyl Chloride	0/0	-		0/101			1/101	3 - 3	14.2
Xylenes (Total)	0/0	-		5/101	0.61 - 580	9.61	9/101	0.61 - 170	18.9

Notes:

Units are ug/kg.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

APPENDIX F

TABLES F.2.1 THROUGH F.2.6

STATISTICAL DISTRIBUTION OF SITE 8 AND BACKGROUND SOIL DATA

TABLE F.2.1
STATISTICAL DISTRIBUTION OF METALS IN BACKGROUND SURFACE SOIL TYPE SE
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Substance	Number of Sample Results	Statistical Distribution of Surface Soil Type Se Data	Results of Shapiro-Wilk or Shapiro-Francia Distribution Tests		
			W-norm.	W-lognorm	W-Table
Aluminum	20	normal	0.9713	0.9639	0.905
Arsenic	20	lognormal	0.5162	0.9162	0.905
Barium	20	normal (skip log test)	0.9541	0.964	0.905
Beryllium	20	normal	0.9806	0.9802	0.905
Chromium	20	assumed normal, log std.dev.<0.5	0.743	0.9016	0.905
Cobalt	20	assumed normal, log std.dev.<0.5	0.7195	0.8388	0.905
Iron	20	assumed normal, log std.dev.<0.5	0.6913	0.8931	0.905
Lead	20	normal (skip log test)	0.9616	0.9823	0.905
Magnesium	20	normal	0.9195	0.8392	0.905
Manganese	20	lognormal	0.7928	0.9177	0.905
Mercury	20	lognormal	0.8225	0.9206	0.905
Nickel	20	normal	0.9714	0.9643	0.905
Vanadium	20	normal	0.9567	0.9463	0.905
Zinc	20	normal (skip log test)	0.9511	0.9737	0.905

Notes:

Number of sample results excludes rejected data or blank-qualified data. Duplicates are considered as one result. Non-detected results are treated as present at one-half the detection limit in all calculations.
Statistical distribution of data is determined using Shapiro-Wilk test for n <= 50, Shapiro-Francia test for n > 50. Statistical significance level is 0.05.
A normal distribution is assumed if the test statistic W-norm. is >= than the reference value (W-table), regardless of whether W-lognorm. is greater than the reference value.
A lognormal distribution is assumed if the test statistic W-lognorm. is >= the reference value (W-table), and the test statistic W-norm. is < than the reference value (W-table).
The decision scheme for when parametric versus nonparametric tests may be used is discussed in the text.

TABLE F.2.2
STATISTICAL DISTRIBUTION OF METALS IN BACKGROUND SURFACE SOIL TYPE PM
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Substance	Number of Sample Results	Statistical Distribution of Surface Soil Type Pm Data	Results of Shapiro-Wilk or Shapiro-Francia Distribution Tests		
			W-norm.	W-lognorm	W-Table
Aluminum	20	normal (skip log test)	0.951	0.966	0.905
Arsenic	20	lognormal	0.8978	0.9677	0.905
Barium	20	normal	0.9719	0.9672	0.905
Beryllium	20	normal (skip log test)	0.9251	0.9418	0.905
Chromium	20	normal (skip log test)	0.9502	0.9508	0.905
Cobalt	20	lognormal	0.8005	0.9173	0.905
Iron	20	lognormal	0.7757	0.9208	0.905
Lead	20	normal	0.9575	0.9541	0.905
Magnesium	20	normal (skip log test)	0.9383	0.9474	0.905
Manganese	20	normal	0.9607	0.9409	0.905
Mercury	20	nonparametric	0.4728	0.8391	0.905
Nickel	20	normal (skip log test)	0.9476	0.9532	0.905
Vanadium	20	normal (skip log test)	0.9418	0.9507	0.905
Zinc	20	normal (skip log test)	0.9344	0.9605	0.905

Notes:

Number of sample results excludes rejected data or blank-qualified data. Duplicates are considered as one result. Non-detected results are treated as present at one-half the detection limit in all calculations.
Statistical distribution of data is determined using Shapiro-Wilk test for n <= 50, Shapiro-Francia test for n > 50. Statistical significance level is 0.05.
A normal distribution is assumed if the test statistic W-norm. is >= than the reference value (W-table), regardless of whether W-lognorm. is greater than the reference value.
A lognormal distribution is assumed if the test statistic W-lognorm. is >= the reference value (W-table), and the test statistic W-norm. is < than the reference value (W-table).
The decision scheme for when parametric versus nonparametric tests may be used is discussed in the text.

TABLE F.2.3
STATISTICAL DISTRIBUTION OF METALS IN BACKGROUND SUBSURFACE SOIL TYPE SE
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Substance	Number of Sample Results	Statistical Distribution of Subsurface Soil Type Se Data	Results of Shapiro-Wilk or Shapiro-Francia Distribution Tests		
			W-norm.	W-lognorm	W-Table
Aluminum	15	normal (skip log test)	0.9104	0.9112	0.881
Arsenic	15	normal	0.9156	0.8642	0.881
Barium	15	normal (skip log test)	0.9524	0.954	0.881
Beryllium	15	normal (skip log test)	0.9507	0.958	0.881
Cadmium	15	normal	0.9352	0.9237	0.881
Calcium	15	normal	0.925	0.8774	0.881
Chromium	15	normal (skip log test)	0.9418	0.9433	0.881
Cobalt	15	normal (skip log test)	0.9073	0.9107	0.881
Copper	15	normal	0.9344	0.9068	0.881
Iron	15	normal	0.9549	0.9181	0.881
Lead	15	normal (skip log test)	0.926	0.9294	0.881
Magnesium	15	normal (skip log test)	0.906	0.9184	0.881
Manganese	15	lognormal	0.7478	0.9233	0.881
Nickel	15	normal	0.9616	0.9542	0.881
Potassium	15	normal	0.9533	0.9389	0.881
Selenium	15	assumed normal, log std.dev.<0.5	0.8125	0.8416	0.881
Sodium	15	assumed normal, log std.dev.<0.5	0.6038	0.6327	0.881
Vanadium	15	normal	0.9652	0.9632	0.881
Zinc	15	normal	0.9458	0.9257	0.881

Notes:

Number of sample results excludes rejected data or blank-qualified data. Duplicates are considered as one result. Non-detected results are treated as present at one-half the detection limit in all calculations.
Statistical distribution of data is determined using Shapiro-Wilk test for n <= 50, Shapiro-Francia test for n > 50. Statistical significance level is 0.05.
A normal distribution is assumed if the test statistic W-norm. is >= than the reference value (W-table), regardless of whether W-lognorm. is greater than the reference value.
A lognormal distribution is assumed if the test statistic W-lognorm. is >= the reference value (W-table), and the test statistic W-norm. is < than the reference value (W-table).
The decision scheme for when parametric versus nonparametric tests may be used is discussed in the text.

TABLE F.2.4
STATISTICAL DISTRIBUTION OF METALS IN BACKGROUND SUBSURFACE SOIL TYPE PM
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Substance	Number of Sample Results	Statistical Distribution of Subsurface Soil Type Pm Data	Results of Shapiro-Wilk or Shapiro-Francia Distribution Tests		
			W-norm.	W-lognorm	W-Table
Aluminum	24	normal	0.9825	0.9779	0.916
Arsenic	24	normal	0.9812	0.9566	0.916
Barium	24	normal	0.969	0.9668	0.916
Beryllium	24	lognormal	0.9126	0.9515	0.916
Cadmium	24	lognormal	0.8866	0.933	0.916
Calcium	24	normal	0.9519	0.9261	0.916
Chromium	24	assumed normal, log std.dev.<0.5	0.8131	0.8809	0.916
Cobalt	24	normal	0.9582	0.9304	0.916
Copper	24	normal (skip log test)	0.98	0.9876	0.916
Iron	24	normal	0.9766	0.9647	0.916
Lead	24	normal (skip log test)	0.9468	0.9633	0.916
Magnesium	24	normal	0.9469	0.9439	0.916
Manganese	24	lognormal	0.762	0.9485	0.916
Mercury	24	normal			
Nickel	24	normal	0.9755	0.9686	0.916
Potassium	24	normal (skip log test)	0.9591	0.9718	0.916
Selenium	24	assumed normal, log std.dev.<0.5	0.4385	0.74	0.916
Sodium	24	assumed normal, log std.dev.<0.5	0.8457	0.7485	0.916
Vanadium	24	assumed normal, log std.dev.<0.5	0.8199	0.8835	0.916
Zinc	24	normal (skip log test)	0.9596	0.9679	0.916

Notes:

Number of sample results excludes rejected data or blank-qualified data. Duplicates are considered as one result. Non-detected results are treated as present at one-half the detection limit in all calculations.
Statistical distribution of data is determined using Shapiro-Wilk test for n <= 50, Shapiro-Francia test for n > 50. Statistical significance level is 0.05.
A normal distribution is assumed if the test statistic W-norm. is >= than the reference value (W-table), regardless of whether W-lognorm. is greater than the reference value.
A lognormal distribution is assumed if the test statistic W-lognorm. is >= the reference value (W-table), and the test statistic W-norm. is < than the reference value (W-table).
The decision scheme for when parametric versus nonparametric tests may be used is discussed in the text.

TABLE F.2.5
STATISTICAL DISTRIBUTION OF METALS IN SITE 08 SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Substance	Number of Sample Results	Statistical Distribution of Site Data	Results of Shapiro-Wilk or Shapiro-Francia Distribution Tests		
			W-norm.	W-lognorm	W-Table
Aluminum	97	normal	0.9893	0.9074	0.986
Antimony	97	nonparametric	0.1844	0.8679	0.986
Arsenic	97	nonparametric	0.7581	0.8287	0.986
Barium	97	assumed normal, log std.dev.<0.5	0.9715	0.9824	0.986
Beryllium	97	assumed normal, log std.dev.<0.5	0.974	0.8545	0.986
Cadmium	97	nonparametric	0.3681	0.9348	0.986
Calcium	97	nonparametric	0.5355	0.9128	0.986
Chromium	97	assumed normal, log std.dev.<0.5	0.7674	0.8486	0.986
Cobalt	97	nonparametric	0.2133	0.8421	0.986
Copper	97	nonparametric	0.1837	0.7675	0.986
Iron	97	assumed normal, log std.dev.<0.5	0.9814	0.8719	0.986
Lead	97	nonparametric	0.1006	0.8615	0.986
Magnesium	97	assumed normal, log std.dev.<0.5	0.9721	0.9016	0.986
Manganese	97	assumed normal, log std.dev.<0.5	0.5887	0.9098	0.986
Mercury	97	nonparametric	0.1777	0.9499	0.986
Molybdenum	97	nonparametric	0.3236	0.9408	0.986
Nickel	97	nonparametric	0.9801	0.7651	0.986
Potassium	97	nonparametric	0.9518	0.928	0.986
Selenium	97	nonparametric	0.8199	0.9461	0.986
Silver	97	nonparametric	0.5748	0.9291	0.986
Sodium	97	nonparametric	0.5615	0.9546	0.986
Thallium	97	nonparametric	0.5985	0.801	0.986
Vanadium	97	assumed normal, log std.dev.<0.5	0.9499	0.8382	0.986
Zinc	97	nonparametric	0.4464	0.8936	0.986

Notes:

Number of sample results excludes rejected data or blank-qualified data. Duplicates are considered as one result. Non-detected results are treated as present at one-half the detection limit in all calculations.
Statistical distribution of data is determined using Shapiro-Wilk test for n <= 50, Shapiro-Francia test for n > 50. Statistical significance level is 0.05.
A normal distribution is assumed if the test statistic W-norm. is >= than the reference value (W-table), regardless of whether W-lognorm. is greater than the reference value.
A lognormal distribution is assumed if the test statistic W-lognorm. is >= the reference value (W-table), and the test statistic W-norm. is < than the reference value (W-table).
The decision scheme for when parametric versus nonparametric tests may be used is discussed in the text.

TABLE F.2.6
STATISTICAL DISTRIBUTION OF METALS IN SITE 08 SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Substance	Number of Sample Results	Statistical Distribution of Site Data	Results of Shapiro-Wilk or Shapiro-Francia Distribution Tests		
			W-norm.	W-lognorm	W-Table
Aluminum	99	lognormal	0.9403	0.9872	0.987
Antimony	99	nonparametric	0.2294	0.8496	0.987
Arsenic	99	nonparametric	0.5465	0.927	0.987
Barium	99	nonparametric	0.2275	0.869	0.987
Beryllium	99	assumed normal, log std.dev.<0.5	0.3945	0.807	0.987
Cadmium	99	nonparametric	0.3482	0.8378	0.987
Calcium	99	nonparametric	0.3592	0.9445	0.987
Chromium	99	nonparametric	0.5171	0.909	0.987
Cobalt	99	assumed normal, log std.dev.<0.5	0.8914	0.9707	0.987
Copper	99	nonparametric	0.0858	0.6768	0.987
Iron	99	assumed normal, log std.dev.<0.5	0.7218	0.8976	0.987
Lead	99	nonparametric	0.1734	0.6819	0.987
Magnesium	99	nonparametric	0.553	0.934	0.987
Manganese	99	nonparametric	0.5825	0.9062	0.987
Mercury	99	nonparametric	0.7081	0.9437	0.987
Molybdenum	99	nonparametric	0.0912	0.8837	0.987
Nickel	99	assumed normal, log std.dev.<0.5	0.756	0.9499	0.987
Potassium	99	nonparametric	0.4994	0.9519	0.987
Selenium	99	nonparametric	0.7781	0.8794	0.987
Silver	99	nonparametric	0.5522	0.9619	0.987
Sodium	99	nonparametric	0.2177	0.8928	0.987
Thallium	99	nonparametric	0.7126	0.8918	0.987
Vanadium	99	assumed normal, log std.dev.<0.5	0.8694	0.9677	0.987
Zinc	99	nonparametric	0.0897	0.5923	0.987

Notes:

Number of sample results excludes rejected data or blank-qualified data. Duplicates are considered as one result. Non-detected results are treated as present at one-half the detection limit in all calculations.
Statistical distribution of data is determined using Shapiro-Wilk test for n <= 50, Shapiro-Francia test for n > 50. Statistical significance level is 0.05.
A normal distribution is assumed if the test statistic W-norm. is >= than the reference value (W-table), regardless of whether W-lognorm. is greater than the reference value.
A lognormal distribution is assumed if the test statistic W-lognorm. is >= the reference value (W-table), and the test statistic W-norm. is < than the reference value (W-table).
The decision scheme for when parametric versus nonparametric tests may be used is discussed in the text.

APPENDIX F

TABLES F.3.1 THROUGH F.3.6

SITE-WIDE TWO SAMPLE HYPOTHESIS TESTS (TEST FORM I)

TABLE F.3.1
STATISTICAL COMPARISON OF METALS CONCENTRATIONS IN SURFACE SOIL TO BACKGROUND SURFACE SOIL TYPE SE
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 ss Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				95 % Upper Tolerance Limit (UTL) Site Max > UTL on Background ?## Bkg. log. or norm. If not, #b>18 for Quantile Test Max >95% UTL (parametric). Or, Max >95% Quantile					Quantile Test Majority are Site 8 ss? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 ss > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 8 ss Freq.	P Value	YN	Back. Mean@	Std.Dev. Back.@	t Value	L,N Q	Back. UTL	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean@	Site 8 ss Mean@	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
Aluminum	N	20/20	97/97		NA	12100	2230	2.3960	N*	17400	8	8	0.2119	N	0.8895			N	12100	11100	-1.5396	1.6802	N	normal	normal	2230	3740	6.5760	3.8411	N
Antimony	NA	0/0	5/97		NA									NA				NA		0.185			NA							NA
Arsenic	**Y**	20/20	97/97		NA	2.29@	0.676@	2.3960	L*	49.8	82	73	0.0093	**Y**	0.0008			**Y**	13	17.2			NA	lognor.	nonpar.					NA
Barium	N	20/20	97/97		NA	35	11.7	2.3960	N*	63	18	10	0.9996	N	1.0000			N	35	22.8			NA	lognor.	nonpar.					NA
Beryllium	NA	1/20	96/97		NA	0.35								NA	0.5309	Gehan	Test	NA	0.35	0.402			NA	normal	nonpar.					NA
Cadmium	**Y**	0/20	46/97		NA						16	16	0.0394	**Y**				NA		0.544			NA							NA
Calcium	N	0/20	97/97		NA						6	6	0.3160	N				NA		1010			NA							NA
Chromium	**Y**	20/20	97/97		NA	12.7			Q	27.6	82	73	0.0093	**Y**	0.0037			**Y**	12.7	15.7			NA	nonpar.	nonpar.					NA
Cobalt	**Y**	20/20	97/97		NA	5.52			Q	11.9	81	78	<.0001	**Y**	<.0001			**Y**	5.52	13.5			NA	nonpar.	nonpar.					NA
Copper	**Y**	0/20	96/97		NA						61	61	<.0001	**Y**				NA		28.2			NA							NA
Iron	**Y**	20/20	97/97		NA	19600			Q	52400	81	76	<.0001	**Y**	0.0001			**Y**	19600	25300			NA	nonpar.	nonpar.					NA
Lead	**Y**	20/20	97/97		NA	23.2	6.59	2.3960	N*	39	28	27	0.0210	**Y**	0.6042			N	23.2	58.6			NA	lognor.	nonpar.					NA
Magnesium	**Y**	15/20	97/97	0.0001	**Y**	1660			Q	2920	83	78	<.0001	**Y**	<.0001	Gehan	Test	**Y**	1660	2940			NA	normal	nonpar.					NA
Manganese	**Y**	20/20	97/97		NA	4.7@	0.576@	2.3960	L*	436	81	78	<.0001	**Y**	<.0001			**Y**	130	378			NA	lognor.	nonpar.					NA
Mercury	N	2/20	77/97		NA						2	2	0.6861	N	0.7736	Gehan	Test	N	0.0559	0.0633			NA	lognor.	nonpar.					NA
Molybdenum	NA	0/0	64/97		NA									NA				NA		0.52			NA							NA
Nickel	**Y**	20/20	97/97		NA	11	3.39	2.3960	N*	19.2	81	78	<.0001	**Y**	<.0001			**Y**	11	20.5			NA	normal	nonpar.					NA
Potassium	**Y**	0/20	96/97		NA						20	20	0.0161	**Y**				NA		478			NA							NA
Selenium	NA	0/20	11/97		NA									NA				NA		0.193			NA							NA
Silver	NA	0/20	31/97		NA						3	3	0.5668	NA				NA		0.232			NA							NA
Sodium	NA	0/6	49/97		NA									NA				NA		45.6			NA							NA
Thallium	NA	0/20	4/97		NA									NA				NA		0.107			NA							NA
Vanadium	N	20/20	97/97		NA	25.1	5.41	2.3960	N*	38	5	5	0.3846	N	0.9997			N	25.1	20.1			NA	normal	nonpar.					NA
Zinc	**Y**	20/20	97/97		NA	43.3	14.2	2.3960	N*	77.4	81	74	0.0006	**Y**	<.0001			**Y**	43.3	77.4			NA	lognor.	nonpar.					NA

**** Site 8 metals concentrations in surface soil are compared to background Stissing Silt Loam (SE) surface soil (SS).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 ss to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal varia
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 ss > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 ss (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 ss results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 ss > bkg. with 95 % confidence.
L, N, or Q	UTL is based on 95 % upper limit (using t-value) when data are lognormal (L) or normal (N). Otherwise, an upper 95 % quantile (Q) is used if there are > 18 back. points.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution. For the UTL test, an (L) code indicates mean and standard deviations represent log-transformed data.
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 8 ss and bkg. data set are comprised of Site 8 ss data if both populations are in fact equal.

TABLE F.3.2
STATISTICAL COMPARISON OF METALS CONCENTRATIONS IN SURFACE SOIL TO BACKGROUND SURFACE SOIL TYPE PM
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 ss Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				95 % Upper Tolerance Limit (UTL) Site Max > UTL on Background ?## Bkg. log. or norm. If not, #b>18 for Quantile Test Max >95% UTL (parametric). Or, Max >95% Quantile					Quantile Test Majority are Site 8 ss? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 ss > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background?	Y/N	bkg. Freq.	Site 8 ss Freq.	P Value	YN	Back. Mean@	Std.Dev. Back.@	t Value	L,N Q	Back. UTL	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean@	Site 8 ss Mean@	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
Aluminum	**Y**	20/20	97/97		NA	11200	1530	2.3960	N*	14900	15	15	0.0490	**Y**	0.4668			N	11200	11100	-0.2415	1.6663	N	normal	normal	1530	3740	16.6849	3.8411	N
Antimony	NA	0/20	5/97		NA									NA				NA		0.185			NA							NA
Arsenic	**Y**	20/20	97/97		NA	2.18@	0.402@	2.3960	L*	23.2	82	74	0.0021	**Y**	<.0001			**Y**	9.59	17.2			NA	lognor.	nonpar.					NA
Barium	N	20/20	97/97		NA	39.7	6.86	2.3960	N*	56.1	9	3	1.0000	N	1.0000			N	39.7	22.8			NA	normal	nonpar.					NA
Beryllium	NA	1/20	96/97		NA	0.33								NA	0.4035	Gehan	Test	NA	0.33	0.402			NA	lognor.	nonpar.					NA
Cadmium	**Y**	0/20	46/97		NA						18	18	0.0253	**Y**				NA		0.544			NA							NA
Calcium	**Y**	0/20	97/97	<.0001	**Y**						37	37	0.0002	**Y**				NA		1010			NA							NA
Chromium	**Y**	20/20	97/97		NA	13.5	1.41	2.3960	N*	16.9	67	61	0.0071	**Y**	0.0197			**Y**	13.5	15.7			NA	lognor.	nonpar.					NA
Cobalt	**Y**	20/20	97/97		NA	1.95@	0.23@	2.3960	L*	12.2	80	76	<.0001	**Y**	<.0001			**Y**	7.25	13.5			NA	lognor.	nonpar.					NA
Copper	**Y**	0/20	96/97		NA						66	66	<.0001	**Y**				NA		28.2			NA							NA
Iron	**Y**	20/20	97/97		NA	9.85@	0.279@	2.3960	L*	37100	81	75	0.0001	**Y**	0.0002			**Y**	19800	25300			NA	lognor.	nonpar.					NA
Lead	N	20/20	97/97		NA	31.2	9.17	2.3960	N*	53.2	14	14	0.0608	N	0.9868			N	31.2	58.6			NA	normal	nonpar.					NA
Magnesium	**Y**	20/20	97/97		NA	1610	177	2.3960	N*	2040	81	81	<.0001	**Y**	<.0001			**Y**	1610	2940			NA	lognor.	nonpar.					NA
Manganese	**Y**	20/20	97/97		NA	289	113	2.3960	N*	560	81	71	0.0403	**Y**	0.0392			**Y**	289	378			NA	normal	nonpar.					NA
Mercury	N	4/20	77/97		NA						1	1	0.8291	N	0.6914	Gehan	Test	N	0.0848	0.0633			NA	nonpar.	nonpar.					NA
Molybdenum	NA	0/0	64/97		NA									NA				NA		0.52			NA							NA
Nickel	**Y**	20/20	97/97		NA	10.3	1.95	2.3960	N*	14.9	82	81	<.0001	**Y**	<.0001			**Y**	10.3	20.5			NA	lognor.	nonpar.					NA
Potassium	**Y**	0/20	96/97		NA						71	71	<.0001	**Y**				NA		478			NA							NA
Selenium	NA	0/18	11/97		NA									NA				NA		0.193			NA							NA
Silver	NA	0/20	31/97		NA						3	3	0.5668	NA				NA		0.232			NA							NA
Sodium	NA	0/6	49/97		NA									NA				NA		45.6			NA							NA
Thallium	NA	0/20	4/97		NA									NA				NA		0.107			NA							NA
Vanadium	N	20/20	97/97		NA	30.5	2.95	2.3960	N*	37.6	5	5	0.3846	N	1.0000			N	30.5	20.1			NA	lognor.	nonpar.					NA
Zinc	**Y**	20/20	97/97		NA	50.2	19.7	2.3960	N*	97.3	81	72	0.0122	**Y**	0.0091			**Y**	50.2	77.4			NA	lognor.	nonpar.					NA

**** Site 8 metals concentrations in surface soil are compared to background Pittstown Silt Loam (Pm) surface soil (SS).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 ss to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 ss > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 ss (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 ss results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 ss > bkg. with 95 % confidence.
L, N, or Q	UTL is based on 95 % upper limit (using t-value) when data are lognormal (L) or normal (N). Otherwise, an upper 95 % quantile (Q) is used if there are > 18 back. points.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution. For the UTL test, an (L) code indicates mean and standard deviations represent log-transformed da
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 8 ss and bkg. data set are comprised of Site 8 ss data if both populations are in fact equal.

TABLE F.3.3
STATISTICAL COMPARISON OF METALS CONCENTRATIONS IN SUBSURFACE SOIL TO BACKGROUND SUBSURFACE SOIL TYPE SE
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 sb Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				95 % Upper Tolerance Limit (UTL) Site Max > UTL on Background ?## Bkg. log. or norm. If not, #b>18 for Quantile Test Max >95% UTL (parametric). Or, Max >95% Quantile					Quantile Test Majority are Site 8 sb? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 sb > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 sb Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 8 sb Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 8 ss Freq.	P Value	YN	Back. Mean@	Std.Dev. Back.@	t Value	L,N Q	Back. UTL	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean@	Site 8 ss Mean@	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
Aluminum	**Y**	15/15	99/99		NA	11100	1720	2.5660	N*	15500	35	34	0.0235	**Y**	0.2689			N	11100	12000			NA	lognor.	lognor.					NA
Antimony	NA	0/15	8/99		NA						1	1	0.8684	NA				NA		0.221			NA							NA
Arsenic	N	15/15	99/99		NA	16.8	8.86	2.5660	N*	39.6	79	70	0.2889	N	0.6716			N	16.8	16.9			NA	normal	nonpar.					NA
Barium	N	15/15	99/99		NA	25.2	3.14	2.5660	N*	33.3	19	19	0.0530	N	0.9720			N	25.2	32.8			NA	lognor.	nonpar.					NA
Beryllium	N	15/15	98/99	1.0000	N	0.524	0.0536	2.5660	N*	0.662	7	7	0.3618	N	1.0000			N	0.524	0.413			NA	lognor.	nonpar.					NA
Cadmium	N	11/15	29/99		NA	0.135					19	19	0.0530	N	0.2374	Gehan	Test	N	0.135	0.423			NA	normal	nonpar.					NA
Calcium	**Y**	15/15	99/99		NA	1170	255	2.5660	N*	1820	38	37	0.0139	**Y**	0.4983			N	1170	3410			NA	normal	nonpar.					NA
Chromium	**Y**	15/15	99/99		NA	14.8	1.51	2.5660	N*	18.6	49	46	0.0464	**Y**	0.3239			N	14.8	17.6			NA	lognor.	nonpar.					NA
Cobalt	N	15/15	99/99		NA	13.7	3.13	2.5660	N*	21.7	18	18	0.0628	N	0.5880			N	13.7	14.1			NA	lognor.	nonpar.					NA
Copper	N	15/15	99/99		NA	19.6	6.07	2.5660	N*	35.2	30	28	0.1834	N	0.2943			N	19.6	49.7			NA	normal	nonpar.					NA
Iron	N	15/15	99/99		NA	29600	8740	2.5660	N*	52000	11	11	0.1959	N	0.7488			N	29600	30100			NA	normal	nonpar.					NA
Lead	**Y**	15/15	99/99		NA	10.3	2.23	2.5660	N*	16	80	73	0.0370	**Y**	0.0005			**Y**	10.3	141			NA	lognor.	nonpar.					NA
Magnesium	**Y**	15/15	99/99		NA	2970	495	2.5660	N*	4240	65	60	0.0443	**Y**	0.0885			N	2970	3910			NA	lognor.	nonpar.					NA
Manganese	N	15/15	99/99		NA	5.97@	0.557@	2.5660	L*	1630	74	67	0.0987	N	0.1718			N	461	567			NA	lognor.	nonpar.					NA
Mercury	**Y**	0/15	57/99		NA						27	27	0.0126	**Y**				NA		0.0298			NA							NA
Molybdenum	NA	0/0	66/99		NA									NA				NA		1.03			NA							NA
Nickel	N	15/15	99/99		NA	24.2	6.42	2.5660	N*	40.7	18	17	0.2694	N	0.8418			N	24.2	23.4			NA	normal	nonpar.					NA
Potassium	N	15/15	99/99		NA	548	79.2	2.5660	N*	751	11	11	0.1959	N	0.9998			N	548	431			NA	normal	nonpar.					NA
Selenium	N	1/15	6/99		NA	0.155								NA	0.3700	Gehan	Test	N	0.155	0.258			NA	nonpar.	nonpar.					NA
Silver	NA	0/15	35/99		NA						2	2	0.7531	NA				NA		0.253			NA							NA
Sodium	N	3/15	52/99		NA	35.2					6	6	0.4202	NA	0.3323	Gehan	Test	N	35.2	69.7			NA	nonpar.	nonpar.					NA
Thallium	N	0/15	6/99		NA						1	1	0.8684	N				NA		0.155			NA							NA
Vanadium	**Y**	15/15	99/99		NA	18.7	1.68	2.5660	N*	23	31	31	0.0058	**Y**	0.4383			N	18.7	19.3			NA	normal	nonpar.					NA
Zinc	**Y**	15/15	99/99		NA	55.4	12.8	2.5660	N*	88.1	22	22	0.0314	**Y**	0.3360			N	55.4	177			NA	normal	nonpar.					NA

**** Site 8 metals concentrations in subsurface soil are compared to background Stissing Silt Loam (SE) subsurface soil (SB).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 sb to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 sb > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 sb (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 sb results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 sb > bkg. with 95 % confidence.
L, N, or Q	UTL is based on 95 % upper limit (using t-value) when data are lognormal (L) or normal (N). Otherwise, an upper 95 % quantile (Q) is used if there are > 18 back. points.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution. For the UTL test, an (L) code indicates mean and standard deviations represent log-transformed da
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 8 sb and bkg. data set are comprised of Site 8 sb data if both populations are in fact equal.

TABLE F.3.4
STATISTICAL COMPARISON OF METALS CONCENTRATIONS IN SUBSURFACE SOIL TO BACKGROUND SUBSURFACE SOIL TYPE PM
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 sb Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				95 % Upper Tolerance Limit (UTL) Site Max > UTL on Background ?## Bkg. log. or norm. If not, #b>18 for Quantile Test Max >95% UTL (parametric). Or, Max >95% Quantile					Quantile Test Majority are Site 8 sb? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 sb > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 sb Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table				Bartlett's Test for Equal Standard Deviations Site 8 sb Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background?	Y/N	bkg. Freq.	Site 8 ss Freq.	P Value	YN	Back. Mean@	Std.Dev. Back.@	t Value	L,N Q	Back. UTL	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean@	Site 8 ss Mean@	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
Aluminum	**Y**	24/24	99/99		NA	10600	1150	2.3099	N*	13200	61	54	0.0218	**Y**	0.0885			N	10600	12000			NA	normal	lognor.					NA
Antimony	NA	0/24	8/99		NA						1	1	0.8049	NA				NA		0.221			NA							NA
Arsenic	**Y**	24/24	99/99		NA	14.3	4.89	2.3099	N*	25.6	21	20	0.0481	**Y**	0.2257			N	14.3	16.9			NA	normal	nonpar.					NA
Barium	**Y**	24/24	99/99		NA	25.8	4.22	2.3099	N*	35.5	15	15	0.0307	**Y**	0.9926			N	25.8	32.8			NA	normal	nonpar.					NA
Beryllium	N	24/24	98/99	1.0000	N	-0.649@	0.154@	2.3099	L*	0.745	7	6	0.5882	N	1.0000			N	0.529	0.413			NA	lognor.	nonpar.					NA
Cadmium	**Y**	2/24	29/99		NA						19	19	0.0111	**Y**	0.0410	Gehan	Test	**Y**	0.0717	0.423			NA	lognor.	nonpar.					NA
Calcium	**Y**	24/24	99/99		NA	1090	271	2.3099	N*	1720	53	47	0.0368	**Y**	0.2743			N	1090	3410			NA	normal	nonpar.					NA
Chromium	**Y**	24/24	99/99		NA	14.4			Q	20.3	58	52	0.0130	**Y**	0.1574			N	14.4	17.6			NA	nonpar.	nonpar.					NA
Cobalt	**Y**	24/24	99/99		NA	11.5	3.14	2.3099	N*	18.7	45	41	0.0185	**Y**	0.0195			**Y**	11.5	14.1			NA	normal	nonpar.					NA
Copper	**Y**	24/24	99/99		NA	14.6	4.46	2.3099	N*	24.9	83	75	0.0001	**Y**	<.0001			**Y**	14.6	49.7			NA	lognor.	nonpar.					NA
Iron	**Y**	24/24	99/99		NA	26900	6350	2.3099	N*	41600	23	22	0.0311	**Y**	0.2916			N	26900	30100			NA	normal	nonpar.					NA
Lead	**Y**	24/24	99/99		NA	8.22	1.71	2.3099	N*	12.2	86	80	<.0001	**Y**	<.0001			**Y**	8.22	141			NA	lognor.	nonpar.					NA
Magnesium	**Y**	24/24	99/99		NA	2750	406	2.3099	N*	3690	78	67	0.0410	**Y**	0.0037			**Y**	2750	3910			NA	normal	nonpar.					NA
Manganese	N	24/24	99/99		NA	6.19@	0.469@	2.3099	L*	1440	27	24	0.1660	N	0.9046			N	549	567			NA	lognor.	nonpar.					NA
Mercury	**Y**	1/24	57/99		NA	0.00757					27	27	0.0012	**Y**	<.0001	Gehan	Test	**Y**	0.00757	0.0298			NA	isomet.	nonpar.					NA
Molybdenum	NA	0/0	66/99		NA									NA				NA		1.03			NA							NA
Nickel	**Y**	24/24	99/99		NA	18.5	4.22	2.3099	N*	28.3	70	61	0.0284	**Y**	0.0145			**Y**	18.5	23.4			NA	normal	nonpar.					NA
Potassium	**Y**	24/24	99/99		NA	462	48.9	2.3099	N*	575	14	14	0.0394	**Y**	0.9978			N	462	431			NA	lognor.	nonpar.					NA
Selenium	N	1/24	6/99		NA	0.148								NA	0.3956	Gehan	Test	N	0.148	0.258			NA	nonpar.	nonpar.					NA
Silver	NA	0/24	35/99		NA						2	2	0.6465	NA				NA		0.253			NA							NA
Sodium	N	20/24	52/99		NA	68.7			Q	93.3	6	6	0.2637	N	1.0000	Gehan	Test	N	68.7	69.7			NA	nonpar.	nonpar.					NA
Thallium	N	0/24	6/99		NA						1	1	0.8049	N				NA		0.155			NA							NA
Vanadium	**Y**	24/24	99/99		NA	19.3			Q	28	47	42	0.0399	**Y**	0.5884			N	19.3	19.3			NA	nonpar.	nonpar.					NA
Zinc	**Y**	24/24	99/99		NA	42.6	8.79	2.3099	N*	63	86	77	0.0002	**Y**	<.0001			**Y**	42.6	177			NA	lognor.	nonpar.					NA

**** Site 8 metals concentrations in subsurface soil are compared to background Pittstown Silt Loam (PM) subsurface soil (SB).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 sb to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 sb > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 sb (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 sb results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 sb > bkg. with 95 % confidence.
L, N, or Q	UTL is based on 95 % upper limit (using t-value) when data are lognormal (L) or normal (N). Otherwise, an upper 95 % quantile (Q) is used if there are > 18 back. points.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution. For the UTL test, an (L) code indicates mean and standard deviations represent log-transformed da
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 8 sb and bkg. data set are comprised of Site 8 sb data if both populations are in fact equal.

TABLE F.3.5
STATISTICAL COMPARISON OF ORGANICS CONCENTRATIONS IN SITE 8 SURFACE SOIL TO BACKGROUND SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 ss Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 8 ss? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 ss > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 8 ss Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean[@]	Site 8 ss Mean[@]	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
Diesel Range Organics	NA	0/0	17/24		NA				NA				NA		70500			NA							NA
Extractable Petroleum Hydrocarbons	NA	0/0	8/8		NA				NA				NA		549			NA							NA
Gasoline Range Organics	NA	0/0	20/101		NA				NA				NA		4.74			NA							NA
TPH (c09-c36)	NA	0/0	67/68		NA				NA				NA		137			NA							NA
4,4'-DDD	NA	0/40	8/99		NA				NA				NA		6.98			NA							NA
4,4'-DDE	NA	6/40	38/99		NA	1	1	0.7122	N	0.2196	Gehan	Test	NA	5.21	7.49			NA	nonpar.	nonpar.					NA
4,4'-DDT	**Y**	5/40	32/99		NA	1	1	0.7122	N	0.0404	Gehan	Test	**Y**	3.63	9.88			NA	nonpar.	nonpar.					NA
Alpha-Chlordane	NA	3/40	3/99		NA	1	1	0.7122	NA	0.7475	Gehan	Test	NA	1.62	5.28			NA	nonpar.	nonpar.					NA
Aroclor-1248	NA	0/40	1/99	0.7122	N	1	1	0.7122	NA				NA		11.5			NA							NA
Aroclor-1254	NA	1/40	2/99	0.8011	N	2	2	0.5058	NA	0.5661	Gehan	Test	NA	25.2	65.2			NA	nonpar.	nonpar.					NA
Aroclor-1260	**Y**	6/40	35/99		NA	41	35	0.0125	**Y**	0.0038	Gehan	Test	**Y**	29.7	51			NA	nonpar.	nonpar.					NA
Aroclor-1268	NA	0/0	11/99		NA				NA				NA		45.7			NA							NA
Dieldrin	NA	2/40	3/99		NA				NA	0.8293	Gehan	Test	NA	3.35	4.7			NA	nonpar.	nonpar.					NA
Endosulfan II	NA	0/40	2/99		NA				NA				NA		6.92			NA							NA
Endrin	NA	0/40	1/99		NA				NA				NA		4.72			NA							NA
Gamma-Chlordane	NA	3/40	2/99		NA				NA	0.8490	Gehan	Test	NA	1.54	2.74			NA	nonpar.	nonpar.					NA
Heptachlor	NA	0/40	2/99		NA				NA				NA		2.89			NA							NA
Total Aroclor	NA	0/0	40/99		NA				NA				NA		142			NA							NA
Total DDD/DDE/DDT	NA	0/0	43/99		NA				NA				NA		12.8			NA							NA
1,1-Biphenyl	NA	0/40	1/76		NA	1	1	0.6552	NA				NA		205			NA							NA
2-Methylnaphthalene	NA	0/40	53/101		NA	1	1	0.7163	NA				NA		109			NA							NA
3,3'-Dichlorobenzidine	NA	0/40	1/100		NA				NA				NA		385			NA							NA
Acenaphthene	NA	0/40	72/101		NA	4	4	0.2588	NA				NA		257			NA							NA
Acenaphthylene	NA	0/40	45/101		NA				NA				NA		44.4			NA							NA
Anthracene	**Y**	0/40	80/101		NA	10	10	0.0311	**Y**				NA		471			NA							NA
Benz(a)anthracene	**Y**	6/40	91/101		NA	26	26	0.0001	**Y**	<.0001	Gehan	Test	**Y**	114	1030			NA	nonpar.	lognor.					NA
Benzo(a)pyrene	**Y**	11/40	89/101		NA	20	20	0.0007	**Y**	<.0001	Gehan	Test	**Y**	107	778			NA	nonpar.	nonpar.					NA
Benzo(b)fluoranthene	**Y**	13/40	87/101		NA	22	22	0.0003	**Y**	<.0001	Gehan	Test	**Y**	109	871			NA	nonpar.	lognor.					NA
Benzo(g,h,i)perylene	**Y**	5/40	83/101		NA	10	10	0.0311	**Y**	<.0001	Gehan	Test	**Y**	117	396			NA	nonpar.	lognor.					NA
Benzo(k)fluoranthene	**Y**	7/40	88/101		NA	16	16	0.0033	**Y**	<.0001	Gehan	Test	**Y**	114	646			NA	nonpar.	nonpar.					NA
Benzoic Acid	NA	0/0	10/100		NA				NA				NA		775			NA							NA
Bis(2-ethylhexyl) Phthalate	**Y**	2/40	15/100		NA	2	2	0.5087	N	0.0035	Gehan	Test	**Y**	126	336			NA	nonpar.	nonpar.					NA
Butyl Benzyl Phthalate	NA	0/40	1/100		NA				NA				NA		187			NA							NA
Carbazole	NA	0/40	17/100		NA	4	4	0.2558	NA				NA		331			NA							NA
Chrysene	**Y**	13/40	92/101		NA	29	29	<.0001	**Y**	<.0001	Gehan	Test	**Y**	108	970			NA	nonpar.	nonpar.					NA
Dibenz(a,h)anthracene	NA	0/40	61/101		NA	4	4	0.2588	NA				NA		175			NA							NA
Dibenzofuran	NA	0/40	8/100		NA	1	1	0.7143	NA				NA		250			NA							NA
Fluoranthene	**Y**	31/40	93/101		NA	41	41	<.0001	**Y**	<.0001	Gehan	Test	**Y**	100	2300			NA	lognor.	lognor.					NA
Fluorene	NA	0/40	63/101		NA	4	4	0.2588	NA				NA		224			NA							NA
High Molecular Weight PAHs	**Y**	34/40	93/101		NA	63	62	<.0001	**Y**	<.0001	Gehan	Test	**Y**	265	9430			NA	nonpar.	lognor.					NA
Indeno(1,2,3-cd)pyrene	**Y**	2/40	80/101		NA	9	9	0.0446	**Y**	<.0001	Gehan	Test	**Y**	122	459			NA	nonpar.	lognor.					NA
Low Molecular Weight PAHs	**Y**	17/40	93/101		NA	42	42	<.0001	**Y**	<.0001	Gehan	Test	**Y**	100	2910			NA	nonpar.	nonpar.					NA
N-Nitrosodiphenylamine	NA	0/40	1/100		NA				NA				NA		232			NA							NA
Naphthalene	**Y**	0/40	56/101		NA	11	11	0.0216	**Y**				NA		183			NA							NA
Phenanthrene	**Y**	17/40	92/101		NA	33	33	<.0001	**Y**	<.0001	Gehan	Test	**Y**	100	1820			NA	nonpar.	nonpar.					NA
Pyrene	**Y**	34/40	93/101		NA	41	41	<.0001	**Y**	<.0001	Gehan	Test	**Y**	93.9	2110			NA	lognor.	lognor.					NA
Total PAHs	**Y**	34/40	94/101		NA	68	66	<.0001	**Y**	<.0001	Gehan	Test	**Y**	293	12300			NA	nonpar.	lognor.					NA

TABLE F.3.5
STATISTICAL COMPARISON OF ORGANICS CONCENTRATIONS IN SITE 8 SURFACE SOIL TO BACKGROUND SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 ss Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 8 ss? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 ss > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 8 ss Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean@	Site 8 ss Mean@	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
1,2,4-Trimethylbenzene	NA	0/0	5/101		NA				NA				NA		21			NA							NA
1,3,5-Trimethylbenzene	NA	0/0	2/101		NA				NA				NA		13.6			NA							NA
2-Butanone	NA	0/0	11/101		NA				NA				NA		20.2			NA							NA
4-Isopropyltoluene	NA	0/0	5/101		NA				NA				NA		8.43			NA							NA
Acetone	NA	0/0	65/101		NA				NA				NA		281			NA							NA
Benzene	NA	0/0	1/101		NA				NA				NA		3.3			NA							NA
BTEX	NA	0/0	6/101		NA				NA				NA		8.96			NA							NA
Carbon Disulfide	NA	0/0	3/101		NA				NA				NA		8.67			NA							NA
Chloroform	NA	0/0	1/101		NA				NA				NA		3.29			NA							NA
Ethylbenzene	NA	0/0	1/101		NA				NA				NA		3.24			NA							NA
M+p-xylenes	NA	0/0	5/101		NA				NA				NA		8.34			NA							NA
Methylene Chloride	NA	0/0	1/101		NA				NA				NA		17.7			NA							NA
N-Butylbenzene	NA	0/0	2/101		NA				NA				NA		6.58			NA							NA
N-Propylbenzene	NA	0/0	2/101		NA				NA				NA		5.68			NA							NA
O-xylene	NA	0/0	2/101		NA				NA				NA		5			NA							NA
Sec-butylbenzene	NA	0/0	3/101		NA				NA				NA		3.53			NA							NA
tert-Butylbenzene	NA	0/0	1/101		NA				NA				NA		5.67			NA							NA
Tetrachloroethene	NA	0/0	1/101		NA				NA				NA		3.58			NA							NA
Toluene	NA	0/0	1/101		NA				NA				NA		3.62			NA							NA
Total Chlorinated Ethenes	NA	0/0	5/101		NA				NA				NA		4.15			NA							NA
Total Chlorinated Vocs	NA	0/0	7/101		NA				NA				NA		5.35			NA							NA
Trichloroethene	NA	0/0	4/101		NA				NA				NA		3.44			NA							NA
Xylenes (Total)	NA	0/0	5/101		NA				NA				NA		9.61			NA							NA

**** Site 8 organics concentrations in surface soil are compared to background soil.**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 ss to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 ss > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 ss (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 ss results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 ss > bkg. with 95 % confidence.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 8 ss and bkg. data set are comprised of Site 8 ss data if both populations are in fact equal.

TABLE F.3.6
STATISTICAL COMPARISON OF ORGANICS CONCENTRATIONS IN SITE 8 SUBSURFACE SOIL TO BACKGROUND SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 sb Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 8 sb? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 sb > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table				Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite					
Concentration > background? Y/N		bkg. Freq.	Site 8 ss Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean[@]	Site 8 ss Mean[@]	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
Diesel Range Organics	NA	0/0	20/36		NA				NA				NA		3280000			NA							NA
Extractable Petroleum Hydrocarbons	NA	0/0	29/34		NA				NA				NA		595			NA							NA
Gasoline Range Organics	NA	0/0	35/101		NA				NA				NA		22.3			NA							NA
TPH (c09-c36)	NA	0/0	28/29		NA				NA				NA		313			NA							NA
4,4'-DDD	NA	0/40	4/99		NA				NA				NA		16			NA							NA
4,4'-DDE	NA	6/40	4/99		NA				NA	0.9987	Gehan	Test	N	5.21	9.29			NA	nonpar.	nonpar.					NA
4,4'-DDT	NA	5/40	10/99		NA	4	4	0.2528	N	0.7822	Gehan	Test	N	3.63	22.8			NA	nonpar.	nonpar.					NA
Alpha-Chlordane	NA	3/40	1/99		NA				NA	0.9690	Gehan	Test	N	1.62	6.24			NA	nonpar.	nonpar.					NA
Aroclor-1248	NA	0/40	2/99		NA	2	2	0.5058	N				NA		40.2			NA							NA
Aroclor-1254	NA	1/40	3/99		NA				NA	0.4077	Gehan	Test	N	25.2	18.1			NA	nonpar.	nonpar.					NA
Aroclor-1260	NA	6/40	7/99		NA	4	4	0.2528	N	0.9499	Gehan	Test	N	29.7	48			NA	nonpar.	nonpar.					NA
Aroclor-1268	NA	0/0	10/99		NA				NA				NA		78.6			NA							NA
Endosulfan Sulfate	NA	0/40	1/99		NA				NA				NA		11.4			NA							NA
Endrin Aldehyde	NA	0/40	1/99		NA				NA				NA		13			NA							NA
Gamma-Chlordane	NA	3/40	1/99		NA				NA	0.9675	Gehan	Test	N	1.54	5.61			NA	nonpar.	nonpar.					NA
Heptachlor	NA	0/40	7/99		NA	1	1	0.7122	N				NA		7.03			NA							NA
Total Aroclor	NA	0/0	18/99		NA				NA				NA		137			NA							NA
Total DDD/DDE/DDT	NA	0/0	15/99		NA				NA				NA		21.6			NA							NA
Toxaphene	NA	0/40	1/99		NA				NA				NA		342			NA							NA
1,1-Biphenyl	NA	0/40	5/63		NA	3	3	0.2245	N				NA		363			NA							NA
2,4-Dimethylphenol	NA	0/40	2/100		NA				NA				NA		3050			NA							NA
2,4-Dinitrophenol	NA	0/40	1/101		NA				NA				NA		1240			NA							NA
2-Methylnaphthalene	NA	0/40	39/101		NA				NA				NA		1640			NA							NA
3&4-methylphenol	NA	0/0	2/101		NA				NA				NA		1190			NA							NA
3,3'-Dichlorobenzidine	NA	0/40	1/101		NA				NA				NA		1020			NA							NA
4,6-Dinitro-2-methylphenol	NA	0/40	1/101		NA				NA				NA		1100			NA							NA
4-Nitroaniline	NA	0/40	1/101		NA				NA				NA		1420			NA							NA
4-Nitrophenol	NA	0/40	1/101		NA				NA				NA		1670			NA							NA
Acenaphthene	**Y**	0/40	54/101		NA	11	11	0.0216	**Y**				NA		11100			NA							NA
Acenaphthylene	NA	0/40	11/101		NA				NA				NA		551			NA							NA
Anthracene	**Y**	0/40	57/101		NA	14	14	0.0071	**Y**				NA		21900			NA							NA
Benz(a)anthracene	**Y**	6/40	66/101		NA	42	42	<.0001	**Y**	<.0001	Gehan	Test	**Y**	114	42500			NA	nonpar.	nonpar.					NA
Benzo(a)pyrene	**Y**	11/40	61/101		NA	22	22	0.0003	**Y**	<.0001	Gehan	Test	**Y**	107	34300			NA	nonpar.	nonpar.					NA
Benzo(b)fluoranthene	**Y**	13/40	63/101		NA	23	23	0.0002	**Y**	0.0001	Gehan	Test	**Y**	109	30000			NA	nonpar.	nonpar.					NA
Benzo(g,h,i)perylene	**Y**	5/40	61/101		NA	18	18	0.0015	**Y**	<.0001	Gehan	Test	**Y**	117	19000			NA	nonpar.	nonpar.					NA
Benzo(k)fluoranthene	**Y**	7/40	63/101		NA	20	20	0.0007	**Y**	<.0001	Gehan	Test	**Y**	114	28000			NA	nonpar.	nonpar.					NA
Benzoic Acid	NA	0/0	4/101		NA				NA				NA		1970			NA							NA
Bis(2-ethylhexyl) Phthalate	**Y**	2/40	18/101		NA				NA	0.0026	Gehan	Test	**Y**	126	881			NA	nonpar.	nonpar.					NA
Carbazole	**Y**	0/40	28/101		NA	13	13	0.0103	**Y**				NA		12200			NA							NA
Chrysene	**Y**	13/40	67/101		NA	43	43	<.0001	**Y**	0.0001	Gehan	Test	**Y**	108	38000			NA	nonpar.	nonpar.					NA
Di-n-butyl Phthalate	NA	0/40	1/101		NA				NA				NA		586			NA							NA
Dibenz(a,h)anthracene	**Y**	0/40	42/101		NA	10	10	0.0311	**Y**				NA		7330			NA							NA
Dibenzofuran	**Y**	0/40	18/101		NA	10	10	0.0311	**Y**				NA		6050			NA							NA
Diethyl Phthalate	NA	0/40	1/101		NA				NA				NA		546			NA							NA
Fluoranthene	**Y**	31/40	69/101		NA	48	47	<.0001	**Y**	0.0371	Gehan	Test	**Y**	100	101000			NA	lognor.	nonpar.					NA
Fluorene	**Y**	0/40	50/101		NA	11	11	0.0216	**Y**				NA		11300			NA							NA
High Molecular Weight PAHs	**Y**	34/40	72/101		NA	69	57	0.0038	**Y**	0.0136	Gehan	Test	**Y**	265	400000			NA	nonpar.	nonpar.					NA
Indeno(1,2,3-cd)pyrene	**Y**	2/40	57/101		NA	15	15	0.0049	**Y**	<.0001	Gehan	Test	**Y**	122	19500			NA	nonpar.	nonpar.					NA
Low Molecular Weight PAHs	**Y**	17/40	70/101		NA	48	48	<.0001	**Y**	0.0001	Gehan	Test	**Y**	100	131000			NA	nonpar.	nonpar.					NA
Naphthalene	**Y**	0/40	43/100		NA	19	19	0.0010	**Y**				NA		5780			NA							NA
Pentachlorophenol	NA	0/40	1/101		NA				NA				NA		2590			NA							NA
Phenanthrene	**Y**	17/40	65/101		NA	44	44	<.0001	**Y**	0.0008	Gehan	Test	**Y**	100	80300			NA	nonpar.	nonpar.					NA
Phenol	NA	0/40	1/101		NA				NA				NA		765			NA							NA
Pyrene	**Y**	34/40	65/101		NA	49	49	<.0001	**Y**	0.0577	Gehan	Test	N	93.9	80000			NA	lognor.	nonpar.					NA
Total PAHs	**Y**	34/40	75/101		NA	75	59	0.0368	**Y**	0.0065	Gehan	Test	**Y**	293	530000			NA	nonpar.	nonpar.					NA

TABLE F.3.6
STATISTICAL COMPARISON OF ORGANICS CONCENTRATIONS IN SITE 8 SUBSURFACE SOIL TO BACKGROUND SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 8 sb Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 8 sb? # Site 8 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 8 sb > bkg.? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table				Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 8 ss Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean@	Site 8 ss Mean@	t Value	t Table	YN	bkg. Distrib.	Site 8 ss Distrib.	Std.Dev. bkg.@	Std.Dev. Site 8 ss@	F Value	F Table	YN
1,2,4-Trimethylbenzene	NA	0/0	7/101		NA				NA				NA		318			NA							NA
1,2-Dichloroethene (cis)	NA	0/0	2/101		NA				NA				NA		9.01			NA							NA
1,3,5-Trimethylbenzene	NA	0/0	3/101		NA				NA				NA		87.5			NA							NA
2-Butanone	NA	0/0	11/101		NA				NA				NA		75.2			NA							NA
4-Isopropyltoluene	NA	0/0	7/101		NA				NA				NA		105			NA							NA
Acetone	NA	0/0	56/101		NA				NA				NA		150			NA							NA
BTEX	NA	0/0	12/101		NA				NA				NA		29.9			NA							NA
Carbon Disulfide	NA	0/0	8/101		NA				NA				NA		12.8			NA							NA
Ethylbenzene	NA	0/0	3/101		NA				NA				NA		26.6			NA							NA
Isopropylbenzene	NA	0/0	6/101		NA				NA				NA		39.6			NA							NA
M+p-xylenes	NA	0/0	9/101		NA				NA				NA		19.7			NA							NA
Methylene Chloride	NA	0/0	4/101		NA				NA				NA		32.8			NA							NA
N-Butylbenzene	NA	0/0	6/101		NA				NA				NA		124			NA							NA
N-Propylbenzene	NA	0/0	5/101		NA				NA				NA		74.7			NA							NA
O-xylene	NA	0/0	3/101		NA				NA				NA		14			NA							NA
Sec-butylbenzene	NA	0/0	13/101		NA				NA				NA		83.5			NA							NA
tert-Butylbenzene	NA	0/0	8/101		NA				NA				NA		14.4			NA							NA
Tetrachloroethene	NA	0/0	13/101		NA				NA				NA		19.1			NA							NA
Toluene	NA	0/0	2/101		NA				NA				NA		13.2			NA							NA
Total 1,2-dichloroethene	NA	0/0	2/101		NA				NA				NA		12.1			NA							NA
Total Chlorinated Ethenes	NA	0/0	16/101		NA				NA				NA		15.9			NA							NA
Total Chlorinated Vocs	NA	0/0	20/101		NA				NA				NA		25.2			NA							NA
Trichloroethene	NA	0/0	8/101		NA				NA				NA		15.9			NA							NA
Vinyl Chloride	NA	0/0	1/101		NA				NA				NA		14.2			NA							NA
Xylenes (Total)	NA	0/0	9/101		NA				NA				NA		18.9			NA							NA

**** Site 8 organics concentrations in subsurface soil are compared to background soil.**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 sb to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 sb > bkg.) for each chemical appears at the left and is based on four criteria
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies o detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 sb (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 sb results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 ss > bkg. with 95 % confidence
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 8 sb and bkg. data set are comprised of Site 8 sb data if both populations are in fact equal.

APPENDIX F

TABLES F.4.1 THROUGH F.4.3

GEOCHEMICAL PREDICTION COEFFICIENTS FROM FACTOR ANALYSIS OF BACKGROUND SAMPLES

TABLE F.4.1
SITE 8 SOIL ARSENIC CONCENTRATIONS PREDICTED BY FACTOR ANALYSIS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

LINEAR EQUATION COEFFICIENTS TO PREDICT ARSENIC CONC. WITH ALL METALS CONCENTRATIONS UNSCALED (ORIGINAL UNITS)												
Intercept: -4.04	**AL**	**AS**	**BA**	**CR**	**CO**	**FE**	**PB**	**MG**	**MN**	**NI**	**V**	**ZN**
Scalar Coefficients:	**-2.05E-04**		**5.10E-02**	**-1.03E-01**	**3.33E-03**	**1.04E-03**	**3.09E-02**	**-1.67E-03**	**-4.86E-04**	**-9.42E-02**	**-6.89E-03**	**-7.36E-03**
Sample ID	**Conc.Al**	**Predicted As**	**Conc.Ba**	**Conc.Cr**	**Conc.Co**	**Conc.Fe**	**Conc.Pb**	**Conc.Mg**	**Conc.Mn**	**Conc.Ni**	**Conc.V**	**Conc.Zn**
DA-B100B-0002	17000	**14.9**	13.3	23.3	13.6	34750	15.45	5585	529.5	24.65	26	60.1
DA-B101B-0002	19500	**17.0**	17.6	24.2	16.4	38900	16.3	6020	827	34.2	22.8	71.1
DA-B106B-0002	9390	**5.5**	20.4	16.4	7.9	17600	6.3	2760	282	13.7	15.8	32.8
DA-B107B-0002	8130	**10.7**	25.4	17.2	8	22100	10.1	2670	348	14.9	17.2	46
DA-B108B-0002	12100	**12.6**	19.6	15.8	10.7	26600	13.3	3410	324	21.3	17.8	49.1
DA-B109B-0002	6650	**1.0**	23.3	12.3	4	11100	7.3	2420	289	8.3	14.3	27.5
DA-S-SB01-0102-01	7200	**18.3**	11	10	15	30000	11	2600	410	24	16	58
DA-S-SB02-0102-01	5800	**13.4**	20	8.7	8.4	20000	22	920	400	10	17	36
DA-S-SB03-0102-01	9500	**15.9**	12	13	16	29000	15	3100	340	24	13	54
DA-S-SB04-0102-01	5200	**13.2**	12	7.7	18	22000	12	1600	340	18	9.1	39
DA-S-SB05-0102-01	4300	**2.4**	10	5.6	4.7	10000	12	1400	150	7.4	8.2	28
DA-S-SB06-0515-01	4100	**8.9**	13	8.6	8.8	17000	9.8	1400	390	12	9.7	39
DA-S-SB07-0102-01	5400	**12.9**	8.2	8.1	14	22000	6.8	1400	310	20	9.8	40
DA-S-SB08-0102-01	7800	**6.6**	14	19	8.6	18000	15	2400	200	14	12	33
DA-S-TP01-0001-01	9100	**11.4**	39	26	17	21000	120	2500	300	24	18	120
DA-S-TP05-0001-01	7000	**14.2**	17	9.3	9.2	24000	22	2200	380	15	14	71
DA-S-TP06-0001-01	9500	**11.7**	17	13	8.3	24000	26	3200	240	17	18	65
DA-S-TP07-0001-01	5400	**6.8**	26	7.1	9	14000	23	1400	240	12	13	40
DA-S-TP08-0001-01	9400	**13.5**	12	11	14	26000	9.7	2900	410	21	14	46
DA-S-TP09-0001-01	8800	**13.0**	10	11	5.9	23000	25	2100	140	14	19	35
DA-S-TP09-0102-01	12500	**15.1**	10.25	14.5	11	30000	9.65	3750	215	22	17	49
DA-S-TP10-0001-01	9200	**13.4**	36	64	10	27000	160	2900	360	18	29	280
DA-S-TP10-0102-01	11000	**13.1**	17	13	9	25000	15	2600	210	18	20	50
DA-S-TP11-0001-01	11000	**19.0**	16	12	7.4	30000	17	2300	190	17	24	44
DA-S-TP12-0001-01	9500	**15.3**	16	12	11	27000	7.8	2600	260	19	15	46
DA-S-TP12-0102-01	8200	**16.1**	16	11	13	27000	6.4	2200	300	21	15	46
DA-S-TP12A-0001-01	9000	**13.4**	19	13	8.9	24000	36	2400	310	17	24	72
DA-S-TP12B-0001-01	10000	**14.7**	28	12	7.3	24000	40	2000	240	16	28	68
DA-S-TP13-0001-01	8700	**16.2**	13	9.5	20	28000	11	2400	410	26	14	59
DA-S-TP15-0001-01	8000	**10.8**	17	9.2	10	21000	14	2200	310	16	14	48
DA-SB100-0002	11900	**7.8**	36.5	20.1	11.9	23300	31.2	4660	361	23.4	24	56.5
DA-SB101-0002	11600	**9.7**	28.8	15.5	12.5	24000	22.7	3960	325	23.3	19.5	54.4
DA-SB102-0002	14100	**11.6**	25.6	18.8	28	27700	28.5	3940	555	30.6	24.3	94.7
DA-SB107-0103	8120	**8.1**	22.4	11.8	20	14800	110	1920	312	10.9	14.2	63.3
DA-SB111-0002	7980	**11.5**	21.2	10.2	9.9	21600	18.8	2160	357	17.5	13	54.6
DA-SB112-0002	5380	**4.4**	15.9	6.9	4.5	12000	18	1420	208	8.1	9.2	44.9
DA-SB113-0002	5650	**4.5**	14.6	6.6	4.8	11800	38.8	1600	179	8.2	10.1	41.4
DA-SB114-0002	7610	**7.4**	23.1	7.5	5.4	14700	54.8	1730	246	10.2	13.2	48.9
DA-SB115-0002	12000	**10.4**	20.8	14.8	10.3	24700	16	3710	292	21.1	16.3	52.2
DA-SB116-0002	11900	**14.8**	18.5	14.7	11.4	28900	13.3	3540	345	22.2	17	53.3
DA-SB117-0002	10400	**17.6**	25.4	13.5	14.2	31200	8.5	3450	646	24	21.2	58.9
DA-SB118-0002	18000	**20.5**	17.3	26.2	16.6	43000	13.1	6240	633	38.5	31.9	80.9
DA-SB119-0002	4730	**0.5**	29.3	9.6	2.7	8540	26	1910	170	9.7	38	29.4
DA-SB120-0002	14000	**18.3**	21.1	18.3	15	35000	16.8	4570	411	27.2	21.4	60.2
DA-SB133-0102	13600	**14.7**	23.5	16.5	13.6	29400	14.1	3590	411	24.3	20.5	58.6
DA-SB150-0002	10300	**20.0**	17.6	13.8	14.6	35000	9.6	4050	373	27	18	66.8
DA-SB151-0002	12900	**13.5**	24.4	16.8	12.5	28200	9.5	3660	368	23.5	20.8	54.6
DA-SS102B-011508	11100	**12.8**	25.9	16.2	9.3	24400	36	2520	324	18.1	21	118
DA-SS103B-011508	12050	**14.6**	26	18.95	27.7	27450	61.4	3365	409	22.2	19.7	105.3
DA-SS104-011508	13100	**10.2**	28.3	14.6	11.1	21800	33.1	2620	369	17.4	22.5	52.2
DA-SS104B-011608	11500	**8.2**	35.8	22.8	12.9	24100	36.5	3370	333	25.9	20.1	371
DA-SS105-011508	6050	**2.0**	18.6	5.4	2.4	8660	14.5	1120	251	4.2	8.1	24.2
DA-SS105B-011608	11900	**16.1**	38.4	16	17.6	30000	53.2	3770	416	30.4	19.9	152
DA-SS106-011408	12100	**9.4**	22.9	14.3	8.2	20700	36.6	2570	297	16.5	22	44.6
DA-SS107-011508	1800	**0.4**	7.4	1	0.82	5270	4.2	407	351	0.98	1.5	13.8
DA-SS108-011508	4940	**8.1**	32.4	6.5	3.6	15400	44.1	980	368	28.9	9.5	86
DA-SS109-011408	5020	**0.6**	16.6	5.4	3.4	7850	28.8	1720	186	4.9	9.9	31.2
DA-SS110-011508	8460	**6.6**	23.1	11.4	7.5	16300	32	2220	250	13	16.3	57
DA-SS110B-011508	13100	**12.9**	41.6	19.5	10.8	27100	33.4	3830	314	25.8	24.6	76.5
DA-SS111B-011408	13100	**14.7**	17	15.7	13	29000	15.2	3320	356	24.5	19	53.5
DA-SS112B-011608	13250	**16.7**	17.9	16.85	15.35	32750	12.15	4085	479	27.55	18.95	66.35
DA-SS113B-011608	15800	**21.0**	14.8	18.3	17.1	39400	13.3	4950	606	30.2	21	76
DA-SS114B-011008	12500	**17.6**	22.8	16.2	13.6	31300	21.8	3170	358	26.2	22	67.1
DA-SS115B-011008	15400	**14.0**	26.3	28.8	11.4	29200	32.2	3040	292	28.9	29.2	58.2
DA-SS116B-011008	12400	**16.7**	20	16.5	13.5	30900	13.7	3180	383	27	22.5	60.5
DA-SS117B-011008	13100	**19.1**	21.5	18.4	12.9	33700	17.3	3290	325	29.1	29.1	61.9
DA-SS118B-011608	11500	**16.3**	20.2	15.2	14.2	29400	17.1	2850	339	25.6	23.8	64.3
DA-SS119B-011608	12950	**19.9**	27.55	15.5	14.8	33800	19.45	3450	447.5	25.75	19.8	69.5
DA-SS120B-011708	16200	**15.3**	28.3	17.6	12.3	30600	18.7	3660	415	25.1	21.9	79.7
DA-SS121-011008	10800	**12.0**	26.3	19.6	11	25800	25.4	2990	355	25.9	17.9	144
DA-SS122-011008	12000	**16.8**	39.6	22.4	18.5	31300	86.1	2530	782	22.1	19.6	663
DA-SS123-011008	13100	**16.0**	42.7	17.2	10.9	28900	23	3260	395	23.2	23.2	64.6
DA-SS124-011008	9550	**4.8**	30	14.7	7.2	16600	23	2890	348	14.4	17	109
DA-SS125-011008	9865	**8.1**	24.85	16.5	7.55	19600	23.2	2525	363.5	16.35	17.15	61.3
DA-SS126-011408	10600	**12.3**	19.1	13.1	11.5	23500	55	2910	389	18.7	17.7	57.2
DA-SS127-011508	7500	**6.7**	22.3	8.3	6.2	15500	17.3	1860	381	10.4	10.5	46.1
DA-SS128-011608	10800	**9.9**	21.2	13.9	11.2	21600	63.7	3270	443	18.3	17.9	56
DA-SS129-011408	13600	**16.7**	24.1	28.1	13	31400	81.8	3780	424	26.4	27.6	121
DA-SS130-011508	12600	**13.0**	22.6	15.9	11.7	27200	22.8	3550	363	22.6	19.6	80.7
DA-SS131-011608	12800	**13.0**	28.5	16.4	12.7	27100	33.9	3660	397	23.3	22.9	97.6
DA-SS132-011408	15000	**15.0**	30.9	17.9	11.6	29500	35.6	3560	396	27	21.3	87
DA-SS133-011508	11400	**16.0**	28.2	18.9	11.7	28800	50.8	3190	337	24.7	19.3	97.2
DA-SS134-011508	16900	**15.7**	26.4	19.4	13.2	32100	20.8	4100	326	27.3	25	62.7
DA-SS135-011108	16150	**17.2**	23.65	17.65	7	30800	20.05	3040	220	18.7	29.5	53.4
DA-SS136-011008	11500	**18.4**	19.4	16.2	9.5	31500	20.6	2910	248	24.3	36.7	58.5
DA-SS138-011108	17600	**8.9**	25.3	15.2	2.2	18100	42.7	1210	79.8	8.7	27.2	31.5
DA-SS139-011108	15700	**9.9**	21.3	16.9	4.7	21500	43.5	2220	150	15.3	47.2	56.2
DA-SS140-011108	14100	**21.6**	27.5	22.5	15.8	37200	12.6	3720	517	28.3	19.9	63.9
DA-SS141-011108	12600	**12.1**	18.7	15.5	10.8	24600	69.7	3450	359	21.1	21	49.7
DA-SS142-011708	12200	**12.8**	22.9	16.1	10.4	25300	33.6	2950	354	19.6	21.5	59.1
DA-SS143-011708	17600	**19.3**	32.6	19	28.4	33600	45.9	3140	866	27.4	36.2	108
DA-SS144-011708	16100	**17.7**	27.6	16.1	11.7	30700	18.6	2520	231	24.7	21.3	65.3
DA-SS145-011708	12200	**14.7**	42.8	33.4	20.7	28200	112	3650	444	27.9	27.1	171
DA-SS146-011708	11600	**8.4**	16.1	16.1	11.2	21800	46.9	3070	487	18.9	23.6	158
DA-SS147-011708	17200	**15.0**	19.5	19.9	9.05	30550	25.2	3585	281.5	22.95	28.25	64.35
DA-SS148-011708	20700	**21.2**	42.2	26	18.8	38000	90.2	4550	1210	32.5	38.6	125
DA-SS149-011708	13800	**116.0**	32	19.1	218	43700	2870	3940	2020	28.5	24.4	175
DA-SS152-011608	14000	**6.0**	24.8	14.3	4.7	17700	14.5	2270	105	14.3	22.7	58
DA-SS153-011608	12100	**14.4**	27.9	15	11.9	27300	23.4	3120	377	22.4	19.2	68.8

TABLE F.4.1
SITE 8 SOIL ARSENIC CONCENTRATIONS PREDICTED BY FACTOR ANALYSIS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

LINEAR EQUATION COEFFICIENTS TO PREDICT ARSENIC CONC. WITH ALL METALS CONCENTRATIONS UNSCALED (ORIGINAL UNITS)												
Intercept: -4.04	AL	AS	BA	CR	CO	FE	PB	MG	MN	NI	V	ZN
Scalar Coefficients:	-2.05E-04		5.10E-02	-1.03E-01	3.33E-03	1.04E-03	3.09E-02	-1.67E-03	-4.86E-04	-9.42E-02	-6.89E-03	-7.36E-03
Sample ID	Conc.Al	Predicted As	Conc.Ba	Conc.Cr	Conc.Co	Conc.Fe	Conc.Pb	Conc.Mg	Conc.Mn	Conc.Ni	Conc.V	Conc.Zn
DA-B100B-0608	20700	**24.2**	32.8	21.5	13.8	40000	16.3	3410	733	26.4	25.2	63.7
DA-B101B-0406	11600	**8.5**	24.4	19.5	9.3	23400	12.4	3930	373	20	19.2	42.4
DA-B103B-0810	13800	**12.8**	23	16.3	12.5	27300	14.8	3480	335	23.2	19.8	54.3
DA-B104B-0406	13150	**15.0**	22.65	17.45	10.85	28900	14.45	3245	357	21.55	19	62.05
DA-B105B-0204	10200	**11.6**	28	13	14.6	22800	43.2	2890	483	19.3	20.9	61.3
DA-B106B-0406	10200	**13.0**	23.8	14	11.2	25400	7.6	2900	248	20.3	18.8	44.3
DA-B107B-0608	11100	**17.0**	25.3	16.1	12.6	30200	9.9	3170	312	22.8	18.1	55.4
DA-B108B-0406	9530	**7.6**	25.2	16.8	7.2	19600	8.3	2720	375	15.6	17.4	38.3
DA-B109B-0204	16100	**15.1**	22.8	22.1	15.2	33000	22.2	4660	382	31	29.4	59.5
DA-B110B-1012	9120	**73.3**	60.2	50.7	16.7	20100	4540	3310	330	18.4	13.9	9840
DA-B111B-0406	12900	**15.9**	25.1	15.8	11.4	29900	19.5	3330	440	23.6	18.4	98.1
DA-B112B-0608	13900	**12.7**	28.2	17.7	11.9	29000	28.9	3200	399	52.3	19.4	69.4
DA-B113B-0608	15400	**16.9**	21.7	18.7	14.2	33100	11.4	3980	424	26.6	20.9	59.3
DA-B114B-0204	26800	**26.4**	8.1	32	26.3	58200	14.6	9760	600	51.2	23	90.2
DA-B116B-0305	12500	**22.8**	17.1	16.3	15.9	37600	11	3580	428	27.2	16.9	61.7
DA-B118B-0608	14300	**22.5**	20.2	17.2	14.8	38200	10	3750	466	29.5	19.9	65.3
DA-B119B-0204	12800	**16.8**	16.1	13.3	15.2	29600	78.3	3710	482	23.8	15.2	60.5
DA-B120B-0204	20100	**28.1**	18.8	23.2	19.8	48000	13.8	5030	677	35.2	24	74.4
DA-S-MW04B-0810-01	6500	**6.9**	21	9.7	9.1	15000	17	1500	270	11	12	34
DA-S-MW04B-1416-01	6200	**8.4**	9.4	11	17	18000	24	2000	300	14	11	34
DA-S-SB01-0809-01	7600	**13.9**	9	11	12	26000	7.6	2700	190	23	12	48
DA-S-SB01-5575-01	8700	**16.8**	8.5	13	12	30000	8.8	3100	180	24	13	52
DA-S-SB02-0304-01	5300	**9.3**	19	6.8	15	16000	7.9	960	370	8	14	23
DA-S-SB02-5565-01	5200	**5.4**	20	9.4	8.6	13000	9	1200	230	10	12	37
DA-S-SB03-0304-01	9500	**63.1**	100	12	34	67000	16	1400	3300	7.5	40	30
DA-S-SB03-0607-01	9200	**36.3**	60	13	16	43000	13	1700	1300	8.6	30	30
DA-S-SB04-0910-01	3800	**14.8**	10	7.4	14	23500	6.9	1350	335	22	9.4	41
DA-S-SB04-2535-01	5300	**11.2**	28	9.5	14	20000	7.2	1400	2000	17	14	34
DA-S-SB05-0203-01	12000	**13.9**	12	15	14	29000	13	3900	370	23	16	48
DA-S-SB05-0304-01	9200	**11.1**	18	11	9.9	22000	15	2400	440	16	13	46
DA-S-SB06-2535-01	5400	**12.5**	15	7.7	11	20000	7.1	1100	480	11	12	29
DA-S-SB08-0607-01	11000	**17.6**	17.5	22	13	32000	9.55	3500	295	21	16.5	46
DA-S-TP01-0304-01	7300	**12.9**	20	11	12	23000	36	2300	340	19	15	88
DA-S-TP01-0607-01	7300	**7.0**	20	9.8	13	16000	37	2000	280	14	17	59
DA-S-TP02-0203-01	8800	**20.4**	15.5	11.5	16.5	32000	16.5	2700	420	21	15	55.5
DA-S-TP02-0506-01	9000	**20.1**	18	12	17	33000	12	3100	670	26	15	58
DA-S-TP05-0607-01	6700	**16.3**	22	8.6	19	28000	9.6	2200	2700	27	12	50
DA-S-TP05-0910-01	11500	**14.3**	11.5	13.5	17	29500	18.5	4000	625	24.5	16	55.5
DA-S-TP06-0304-01	7600	**7.8**	17	9.1	6.4	16000	16	1400	180	9.8	14	34
DA-S-TP06-0910-01	7900	**16.7**	12	10	15	29000	14	2700	920	25	13	68
DA-S-TP07-0304-01	6100	**6.6**	16	7.4	8.1	14000	24	1200	240	11	13	33
DA-S-TP07-0910-01	5700	**12.1**	19	10	12	17000	400	1400	260	14	10	1200
DA-S-TP08-0304-01	8400	**11.6**	13.5	9.75	12	22500	11.5	2350	330	17.5	13.5	41.5
DA-S-TP08-0708-01	8900	**13.7**	15	10	13	24000	36	2400	330	18	16	42
DA-S-TP11-0203-01	14000	**22.4**	12	14	13	38500	9.05	4400	310	22.5	25.5	58
DA-S-TP11-0304-01	17000	**22.0**	7.6	16	11	42000	14	6400	280	21	22	58
DA-S-TP12-0203-01	10000	**10.2**	6.9	13	15	25000	14	3900	400	22	10	51
DA-S-TP13-0203-01	7400	**16.6**	11	9.4	16	28000	6.9	2300	390	25	12	52
DA-S-TP13-0405-01	7400	**13.8**	12	8.8	16	25000	6.2	2300	400	23	12	46
DA-S-TP14-0506-01	9300	**50.0**	30	20	30	38000	830	3200	340	25	20	120
DA-S-TP14-0910-01	14000	**16.9**	21	14	13	29000	46	3000	220	19	19	57
DA-S-TP15-0203-01	8500	**9.8**	19	9.6	9.8	20000	20	2300	280	16	13	45
DA-S-TP15-0506-01	9100	**7.7**	24	10	9.8	21000	25	4000	340	18	14	87
DA-S-TP15A-0203-01	17000	**-37.3**	120	3.7	4.4	4800	39	24000	770	7	21	57
DA-S-TP15A-0506-01	15000	**-32.8**	120	2.6	3.4	3800	35	21000	770	6	18	51
DA-S-TP15A-0910-01	6500	**9.4**	22	8.6	8.5	17000	42	1500	280	13	12	73
DA-SB-TP103-0506	13700	**34.2**	90.6	25.3	27.1	29900	653	3490	374	33.8	23.1	414
DA-SB100-0204	11500	**6.2**	31.9	13.2	5.7	17000	9	2310	171	13.7	18.6	33.9
DA-SB101-0608	18750	**15.5**	14.35	22.25	17.5	39000	14.2	7120	322.5	36.45	19.25	72.6
DA-SB102-0305	19400	**20.8**	33.7	20.9	21.5	39700	14.5	4650	2820	29.1	25.7	75.8
DA-SB104-0608	16700	**12.8**	25.1	21.2	12.5	28600	24.8	3720	415	25	23.6	67.9
DA-SB105-0406	12500	**13.8**	25.9	15.5	12.1	26500	23.3	2970	393	20.9	16.3	53.5
DA-SB106-0608	11100	**282.8**	653	98.2	35.6	134000	4650	3700	920	102	28.6	148
DA-SB108-0204	4450	**4.2**	14.2	4.9	14.7	10500	25.6	1160	356	4.4	6.1	40.1
DA-SB109-0204	13200	**10.2**	26.3	17.4	10.3	24500	19.4	3390	312	24.8	23.3	58.6
DA-SB110-0810	14200	**2.6**	51.6	16	11	23400	28.6	8280	460	21.8	22.2	60.2
DA-SB111-0204	8360	**1.4**	33.3	103	15.2	17400	159	2760	309	16.5	14.5	81.2
DA-SB112-0608	9475	**6.4**	13.3	14.4	7.8	20500	12.8	3770	297.5	17.6	18.7	40.4
DA-SB113-0406	14400	**23.0**	18.65	19.55	18.7	39550	29.3	4210	539	32.55	21.95	79.95
DA-SB114-0406	13200	**11.2**	31.4	14.4	9.9	23300	17	2710	344	18.6	19.8	53
DA-SB115-0204	14000	**12.9**	19.3	23.1	11.7	29300	44.7	4610	306	25	19.8	53.7
DA-SB116-0204	12700	**17.4**	55.8	16.5	12.3	28700	10.9	3010	870	14.5	29.1	41.4
DA-SB117-0810	10000	**18.8**	22.4	14.1	12.3	33100	10.6	3430	1140	28.6	17.9	66.9
DA-SB118-0406	9690	**14.1**	22	13.9	10.8	26100	8.1	2780	337	18.6	19.4	42.5
DA-SB119-0204	14100	**16.0**	30	16.3	9.4	29400	10.6	3280	259	17.9	25.7	50.9
DA-SB120-0406	13500	**15.7**	37.8	18.2	13.5	30200	10.2	3470	1880	21.8	22.4	52.6
DA-SB121-0406	9600	**4.9**	14.7	21.1	8.8	21400	9.7	4700	361	18.4	22.4	48.6
DA-SB122-0407	11800	**5.7**	42	14.7	7.7	20000	13.9	4620	322	14.9	16.2	47.6
DA-SB123-0508	14800	**17.2**	16.8	19.4	16.5	35200	18.4	4700	565	33.1	17.9	69.8
DA-SB124-0608	14800	**19.8**	21.3	19.5	19.4	37800	12.3	4570	679	35	22.5	72.2
DA-SB125-0810	15700	**13.6**	23.1	20.9	14.2	30700	13.9	4260	753	26.9	25.6	57.7
DA-SB126-1013	16700	**12.5**	12.9	21.6	18.6	32800	15.1	5580	553	31.2	19.2	66.6
DA-SB127-0204	10600	**8.3**	27.9	11.5	7.6	18800	25.1	2470	300	13.1	16.1	58.3
DA-SB128-0810	16950	**21.6**	40.4	22.75	19.35	38600	117	5810	1050	36.7	19.85	84.9
DA-SB129-0406	12500	**11.4**	50.8	15.7	9.5	22800	66.8	3090	314	24.5	18.9	144
DA-SB130-1011.5	12900	**16.4**	23.9	17.2	18.3	31600	19.3	3660	745	29.5	21.2	62.3
DA-SB131-0406	12500	**14.2**	23.6	16.9	11.2	28200	21.3	3630	352	20.7	20	54.1
DA-SB132-0406	13800	**43.6**	95.4	25.2	14	31800	926	4400	560	31.7	27.6	381
DA-SB133-0810	14100	**9.7**	26.8	18.6	10.8	26100	16.6	4560	350	22.9	22.7	57.5
DA-SB134-0405	23300	**19.4**	9.2	32	21.1	49400	13.2	9250	647	46	23.4	84.9
DA-SB135-1214	25900	**34.9**	8	27.4	15.9	61400	10.4	8500	363	23.9	53.8	86
DA-SB136-0810	17700	**28.8**	20.7	26	22.6	48600	10.1	4990	870	35.1	32.1	83.2
DA-SB137-0406	17400	**36.1**	17.3	18.8	25	54600	12.3	4920	978	31.8	20.8	96.4
DA-SB138-0406	11600	**30.3**	23.45	16.9	18.45	46100	10	3935	738.5	36.8	19.1	81.5
DA-SB139-1012	27200	**37.0**	9	33.6	30.5	69200	10.7	9600	1350	53.9	34.3	106
DA-SB150-0204	12000	**10.4**	25	15.7	11.3	23600	10.6	3070	334	20.1	19.2	50.5
DA-SB151-0406	11400	**13.3**	24.95	15.5	10.85	26650	8.75	3025	702.5	20.2	22	76.75
DA-SB152-0204	9500	**8.5**	18.1	13.5	6.6	19600	9	2210	122	16.1	23.3	40
DA-SB153-0204	11400	**13.2**	29.6	14.2	8.4	25200	10.5	2850	367	17.2	21.2	46.4

TABLE F.4.2
SITE 8 SURFACE SOIL CHROMIUM CONCENTRATIONS PREDICTED BY FACTOR ANALYSIS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

LINEAR EQUATION COEFFICIENTS TO PREDICT CHROMIUM CONC. WITH ALL METALS CONCENTRATIONS UNSCALED (ORIGINAL UNITS)												
Intercept: -7.4	**AL**	**AS_log**	**BA**	**CR**	**CO_log**	**FE_log**	**PB_log**	**MG**	**MN_log**	**NI_log**	**V**	**ZN_log**
Scalar Coefficients:	**6.06E-04**	**-5.08E-01**	**5.00E-02**		**1.45E-01**	**4.13E-01**	**2.26E-01**	**9.13E-04**	**1.28E-01**	**2.09E+00**	**2.67E-02**	**-1.56E-01**
Sample ID	**Conc.Al**	**Conc.As**	**Conc.Ba**	**Predicted Cr**	**Conc.Co**	**Conc.Fe**	**Conc.Pb**	**Conc.Mg**	**Conc.Mn**	**Conc.Ni**	**Conc.V**	**Conc.Zn**
DA-B100B-0002	17000	3.7	13.3	**20.8**	13.6	34750	15.45	5585	529.5	24.65	26	60.1
DA-B101B-0002	19500	6	17.6	**23.4**	16.4	38900	16.3	6020	827	34.2	22.8	71.1
DA-B106B-0002	9390	7.6	20.4	**11.6**	7.9	17600	6.3	2760	282	13.7	15.8	32.8
DA-B107B-0002	8130	15.9	25.4	**11.0**	8	22100	10.1	2670	348	14.9	17.2	46
DA-B108B-0002	12100	15.2	19.6	**14.7**	10.7	26600	13.3	3410	324	21.3	17.8	49.1
DA-B109B-0002	6650	2.6	23.3	**9.0**	4	11100	7.3	2420	289	8.3	14.3	27.5
DA-S-SB01-0102-01	7200	31	11	**10.5**	15	30000	11	2600	410	24	16	58
DA-S-SB02-0102-01	5800	21	20	**6.9**	8.4	20000	22	920	400	10	17	36
DA-S-SB03-0102-01	9500	32	12	**12.3**	16	29000	15	3100	340	24	13	54
DA-S-SB04-0102-01	5200	41	12	**7.4**	18	22000	12	1600	340	18	9.1	39
DA-S-SB05-0102-01	4300	7.7	10	**5.0**	4.7	10000	12	1400	150	7.4	8.2	28
DA-S-SB06-0515-01	4100	12	13	**6.2**	8.8	17000	9.8	1400	390	12	9.7	39
DA-S-SB07-0102-01	5400	31	8.2	**7.4**	14	22000	6.8	1400	310	20	9.8	40
DA-S-SB08-0102-01	7800	10	14	**9.9**	8.6	18000	15	2400	200	14	12	33
DA-S-TP01-0001-01	9100	19	39	**13.5**	17	21000	120	2500	300	24	18	120
DA-S-TP05-0001-01	7000	13	17	**9.7**	9.2	24000	22	2200	380	15	14	71
DA-S-TP06-0001-01	9500	18	17	**12.3**	8.3	24000	26	3200	240	17	18	65
DA-S-TP07-0001-01	5400	19	26	**7.5**	9	14000	23	1400	240	12	13	40
DA-S-TP08-0001-01	9400	25	12	**11.9**	14	26000	9.7	2900	410	21	14	46
DA-S-TP09-0001-01	8800	11	10	**10.3**	5.9	23000	25	2100	140	14	19	35
DA-S-TP09-0102-01	12500	10.5	10.25	**15.0**	11	30000	9.65	3750	215	22	17	49
DA-S-TP10-0001-01	9200	15	36	**13.6**	10	27000	160	2900	360	18	29	280
DA-S-TP10-0102-01	11000	13	17	**12.9**	9	25000	15	2600	210	18	20	50
DA-S-TP11-0001-01	11000	19	16	**12.4**	7.4	30000	17	2300	190	17	24	44
DA-S-TP12-0001-01	9500	14	16	**11.8**	11	27000	7.8	2600	260	19	15	46
DA-S-TP12-0102-01	8200	19	16	**10.7**	13	27000	6.4	2200	300	21	15	46
DA-S-TP12A-0001-01	9000	15	19	**11.7**	8.9	24000	36	2400	310	17	24	72
DA-S-TP12B-0001-01	10000	14	28	**12.4**	7.3	24000	40	2000	240	16	28	68
DA-S-TP13-0001-01	8700	90	13	**10.9**	20	28000	11	2400	410	26	14	59
DA-S-TP15-0001-01	8000	21	17	**10.0**	10	21000	14	2200	310	16	14	48
DA-SB100-0002	11900	11	36.5	**17.3**	11.9	23300	31.2	4660	361	23.4	24	56.5
DA-SB101-0002	11600	14.2	28.8	**15.7**	12.5	24000	22.7	3960	325	23.3	19.5	54.4
DA-SB102-0002	14100	16	25.6	**17.9**	28	27700	28.5	3940	555	30.6	24.3	94.7
DA-SB107-0103	8120	6.8	22.4	**10.3**	20	14800	110	1920	312	10.9	14.2	63.3
DA-SB111-0002	7980	15.1	21.2	**10.6**	9.9	21600	18.8	2160	357	17.5	13	54.6
DA-SB112-0002	5380	5.3	15.9	**6.5**	4.5	12000	18	1420	208	8.1	9.2	44.9
DA-SB113-0002	5650	3.7	14.6	**7.2**	4.8	11800	38.8	1600	179	8.2	10.1	41.4
DA-SB114-0002	7610	6	23.1	**9.4**	5.4	14700	54.8	1730	246	10.2	13.2	48.9
DA-SB115-0002	12000	25.4	20.8	**14.7**	10.3	24700	16	3710	292	21.1	16.3	52.2
DA-SB116-0002	11900	20.7	18.5	**14.6**	11.4	28900	13.3	3540	345	22.2	17	53.3
DA-SB117-0002	10400	23.1	25.4	**14.2**	14.2	31200	8.5	3450	646	24	21.2	58.9
DA-SB118-0002	18000	45.8	17.3	**22.1**	16.6	43000	13.1	6240	633	38.5	31.9	80.9
DA-SB119-0002	4730	1.7	29.3	**8.9**	2.7	8540	26	1910	170	9.7	38	29.4
DA-SB120-0002	14000	19.2	21.1	**17.7**	15	35000	16.8	4570	411	27.2	21.4	60.2
DA-SB133-0102	13600	23.1	23.5	**16.2**	13.6	29400	14.1	3590	411	24.3	20.5	58.6
DA-SB150-0002	10300	32.7	17.6	**14.3**	14.6	35000	9.6	4050	373	27	18	66.8
DA-SB151-0002	12900	17.6	24.4	**15.9**	12.5	28200	9.5	3660	368	23.5	20.8	54.6
DA-SS102B-011508	11100	13	25.9	**13.5**	9.3	24400	36	2520	324	18.1	21	118
DA-SS103B-011508	12050	16.4	26	**15.5**	27.7	27450	61.4	3365	409	22.2	19.7	105.3
DA-SS104-011508	13100	14.5	28.3	**14.9**	11.1	21800	33.1	2620	369	17.4	22.5	52.2
DA-SS104B-011608	11500	18.8	35.8	**15.4**	12.9	24100	36.5	3370	333	25.9	20.1	371
DA-SS105-011508	6050	1.6	18.6	**5.8**	2.4	8660	14.5	1120	251	4.2	8.1	24.2
DA-SS105B-011608	11900	22.4	38.4	**16.8**	17.6	30000	53.2	3770	416	30.4	19.9	152
DA-SS106-011408	12100	13.8	22.9	**13.8**	8.2	20700	36.6	2570	297	16.5	22	44.6
DA-SS107-011508	1800	0.29	7.4	**-0.8**	0.82	5270	4.2	407	351	0.98	1.5	13.8
DA-SS108-011508	4940	6.2	32.4	**9.5**	3.6	15400	44.1	980	368	28.9	9.5	86
DA-SS109-011408	5020	2	16.6	**6.0**	3.4	7850	28.8	1720	186	4.9	9.9	31.2
DA-SS110-011508	8460	9.7	23.1	**10.7**	7.5	16300	32	2220	250	13	16.3	57
DA-SS110B-011508	13100	16.8	41.6	**17.5**	10.8	27100	33.4	3830	314	25.8	24.6	76.5
DA-SS111B-011408	13100	20.4	17	**15.4**	13	29000	15.2	3320	356	24.5	19	53.5
DA-SS112B-011608	13250	23.95	17.9	**16.4**	15.35	32750	12.15	4085	479	27.55	18.95	66.35
DA-SS113B-011608	15800	26	14.8	**18.9**	17.1	39400	13.3	4950	606	30.2	21	76
DA-SS114B-011008	12500	23	22.8	**15.4**	13.6	31300	21.8	3170	358	26.2	22	67.1
DA-SS115B-011008	15400	14.2	26.3	**17.9**	11.4	29200	32.2	3040	292	28.9	29.2	58.2
DA-SS116B-011008	12400	21.3	20	**15.3**	13.5	30900	13.7	3180	383	27	22.5	60.5
DA-SS117B-011008	13100	22.1	21.5	**16.2**	12.9	33700	17.3	3290	325	29.1	29.1	61.9
DA-SS118B-011608	11500	23.8	20.2	**14.3**	14.2	29400	17.1	2850	339	25.6	23.8	64.3
DA-SS119B-011608	12950	29.8	27.55	**16.0**	14.8	33800	19.45	3450	447.5	25.75	19.8	69.5
DA-SS120B-011708	16200	16.2	28.3	**18.4**	12.3	30600	18.7	3660	415	25.1	21.9	79.7
DA-SS121-011008	10800	23.9	26.3	**14.0**	11	25800	25.4	2990	355	25.9	17.9	144
DA-SS122-011008	12000	22.3	39.6	**15.1**	18.5	31300	86.1	2530	782	22.1	19.6	663
DA-SS123-011008	13100	18.6	42.7	**16.7**	10.9	28900	23	3260	395	23.2	23.2	64.6

TABLE F.4.2
SITE 8 SURFACE SOIL CHROMIUM CONCENTRATIONS PREDICTED BY FACTOR ANALYSIS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

LINEAR EQUATION COEFFICIENTS TO PREDICT CHROMIUM CONC. WITH ALL METALS CONCENTRATIONS UNSCALED (ORIGINAL UNITS)												
Intercept:	**-7.4**	**AL**	**AS_log**	**BA**	**CR**	**CO_log**	**FE_log**	**PB_log**	**MG**	**MN_log**	**NI_log**	**V**	**ZN_log**
Scalar Coefficients:		**6.06E-04**	**-5.08E-01**	**5.00E-02**		**1.45E-01**	**4.13E-01**	**2.26E-01**	**9.13E-04**	**1.28E-01**	**2.09E+00**	**2.67E-02**	**-1.56E-01**
Sample ID		**Conc.Al**	**Conc.As**	**Conc.Ba**	**Predicted Cr**	**Conc.Co**	**Conc.Fe**	**Conc.Pb**	**Conc.Mg**	**Conc.Mn**	**Conc.Ni**	**Conc.V**	**Conc.Zn**
DA-SS124-011008		9550	8.1	30	**12.5**	7.2	16600	23	2890	348	14.4	17	109
DA-SS125-011008		9865	11.35	24.85	**12.3**	7.55	19600	23.2	2525	363.5	16.35	17.15	61.3
DA-SS126-011408		10600	16.7	19.1	**13.3**	11.5	23500	55	2910	389	18.7	17.7	57.2
DA-SS127-011508		7500	8.3	22.3	**9.1**	6.2	15500	17.3	1860	381	10.4	10.5	46.1
DA-SS128-011608		10800	9.4	21.2	**14.1**	11.2	21600	63.7	3270	443	18.3	17.9	56
DA-SS129-011408		13600	20.8	24.1	**17.1**	13	31400	81.8	3780	424	26.4	27.6	121
DA-SS130-011508		12600	17.6	22.6	**15.5**	11.7	27200	22.8	3550	363	22.6	19.6	80.7
DA-SS131-011608		12800	15.6	28.5	**16.3**	12.7	27100	33.9	3660	397	23.3	22.9	97.6
DA-SS132-011408		15000	17.6	30.9	**17.9**	11.6	29500	35.6	3560	396	27	21.3	87
DA-SS133-011508		11400	18.2	28.2	**15.0**	11.7	28800	50.8	3190	337	24.7	19.3	97.2
DA-SS134-011508		16900	15.1	26.4	**19.5**	13.2	32100	20.8	4100	326	27.3	25	62.7
DA-SS135-011108		16150	13.65	23.65	**17.2**	7	30800	20.05	3040	220	18.7	29.5	53.4
DA-SS136-011008		11500	26.9	19.4	**14.5**	9.5	31500	20.6	2910	248	24.3	36.7	58.5
DA-SS138-011108		17600	7.5	25.3	**14.8**	2.2	18100	42.7	1210	79.8	8.7	27.2	31.5
DA-SS139-011108		15700	10.6	21.3	**16.1**	4.7	21500	43.5	2220	150	15.3	47.2	56.2
DA-SS140-011108		14100	26.6	27.5	**17.2**	15.8	37200	12.6	3720	517	28.3	19.9	63.9
DA-SS141-011108		12600	15.4	18.7	**15.4**	10.8	24600	69.7	3450	359	21.1	21	49.7
DA-SS142-011708		12200	14.5	22.9	**14.6**	10.4	25300	33.6	2950	354	19.6	21.5	59.1
DA-SS143-011708		17600	16.8	32.6	**19.9**	28.4	33600	45.9	3140	866	27.4	36.2	108
DA-SS144-011708		16100	13.9	27.6	**17.2**	11.7	30700	18.6	2520	231	24.7	21.3	65.3
DA-SS145-011708		12200	18.6	42.8	**17.3**	20.7	28200	112	3650	444	27.9	27.1	171
DA-SS146-011708		11600	10	16.1	**14.1**	11.2	21800	46.9	3070	487	18.9	23.6	158
DA-SS147-011708		17200	7.8	19.5	**18.9**	9.05	30550	25.2	3585	281.5	22.95	28.25	64.35
DA-SS148-011708		20700	19.4	42.2	**24.1**	18.8	38000	90.2	4550	1210	32.5	38.6	125
DA-SS149-011708		13800	19.4	32	**19.4**	218	43700	2870	3940	2020	28.5	24.4	175
DA-SS152-011608		14000	6	24.8	**14.4**	4.7	17700	14.5	2270	105	14.3	22.7	58
DA-SS153-011608		12100	31.6	27.9	**14.8**	11.9	27300	23.4	3120	377	22.4	19.2	68.8

TABLE F.4.3
SITE 8 SURFACE SOIL LEAD CONCENTRATIONS PREDICTED BY FACTOR ANALYSIS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

LINEAR EQUATION COEFFICIENTS TO PREDICT LEAD CONC. WITH ALL METALS CONCENTRATIONS UNSCALED (ORIGINAL UNITS)												
Intercept: -3.04	**AL**	**AS**	**BA**	**CR**	**CO**	**FE**	**PB**	**MG**	**MN**	**NI**	**V**	**ZN**
Scalar Coefficients:	**1.34E-04**	**1.84E-02**	**5.99E-02**	**-2.96E-01**	**5.91E-02**	**-2.61E-04**		**-9.48E-04**	**-8.09E-04**	**-2.97E-01**	**9.44E-01**	**2.66E-01**
Sample ID	**Conc.Al**	**Conc.As**	**Conc.Ba**	**Conc.Cr**	**Conc.Co**	**Conc.Fe**	**Predicted Pb**	**Conc.Mg**	**Conc.Mn**	**Conc.Ni**	**Conc.V**	**Conc.Zn**
DA-B100B-0002	17000	3.7	13.3	23.3	13.6	34750	**12.4**	5585	529.5	24.65	26	60.1
DA-B101B-0002	19500	6	17.6	24.2	16.4	38900	**8.3**	6020	827	34.2	22.8	71.1
DA-B106B-0002	9390	7.6	20.4	16.4	7.9	17600	**7.3**	2760	282	13.7	15.8	32.8
DA-B107B-0002	8130	15.9	25.4	17.2	8	22100	**10.7**	2670	348	14.9	17.2	46
DA-B108B-0002	12100	15.2	19.6	15.8	10.7	26600	**9.1**	3410	324	21.3	17.8	49.1
DA-B109B-0002	6650	2.6	23.3	12.3	4	11100	**8.8**	2420	289	8.3	14.3	27.5
DA-S-SB01-0102-01	7200	31	11	10	15	30000	**9.9**	2600	410	24	16	58
DA-S-SB02-0102-01	5800	21	20	8.7	8.4	20000	**13.5**	920	400	10	17	36
DA-S-SB03-0102-01	9500	32	12	13	16	29000	**5.4**	3100	340	24	13	54
DA-S-SB04-0102-01	5200	41	12	7.7	18	22000	**4.0**	1600	340	18	9.1	39
DA-S-SB05-0102-01	4300	7.7	10	5.6	4.7	10000	**5.8**	1400	150	7.4	8.2	28
DA-S-SB06-0515-01	4100	12	13	8.6	8.8	17000	**6.4**	1400	390	12	9.7	39
DA-S-SB07-0102-01	5400	31	8.2	8.1	14	22000	**3.8**	1400	310	20	9.8	40
DA-S-SB08-0102-01	7800	10	14	19	8.6	18000	**2.7**	2400	200	14	12	33
DA-S-TP01-0001-01	9100	19	39	26	17	21000	**27.9**	2500	300	24	18	120
DA-S-TP05-0001-01	7000	13	17	9.3	9.2	24000	**15.9**	2200	380	15	14	71
DA-S-TP06-0001-01	9500	18	17	13	8.3	24000	**16.0**	3200	240	17	18	65
DA-S-TP07-0001-01	5400	19	26	7.1	9	14000	**12.2**	1400	240	12	13	40
DA-S-TP08-0001-01	9400	25	12	11	14	26000	**6.3**	2900	410	21	14	46
DA-S-TP09-0001-01	8800	11	10	11	5.9	23000	**11.0**	2100	140	14	19	35
DA-S-TP09-0102-01	12500	10.5	10.25	14.5	11	30000	**6.8**	3750	215	22	17	49
DA-S-TP10-0001-01	9200	15	36	64	10	27000	**68.6**	2900	360	18	29	280
DA-S-TP10-0102-01	11000	13	17	13	9	25000	**14.1**	2600	210	18	20	50
DA-S-TP11-0001-01	11000	19	16	12	7.4	30000	**15.8**	2300	190	17	24	44
DA-S-TP12-0001-01	9500	14	16	12	11	27000	**7.6**	2600	260	19	15	46
DA-S-TP12-0102-01	8200	19	16	11	13	27000	**7.7**	2200	300	21	15	46
DA-S-TP12A-0001-01	9000	15	19	13	8.9	24000	**24.2**	2400	310	17	24	72
DA-S-TP12B-0001-01	10000	14	28	12	7.3	24000	**28.5**	2000	240	16	28	68
DA-S-TP13-0001-01	8700	90	13	9.5	20	28000	**10.2**	2400	410	26	14	59
DA-S-TP15-0001-01	8000	21	17	9.2	10	21000	**10.7**	2200	310	16	14	48
DA-SB100-0002	11900	11	36.5	20.1	11.9	23300	**15.7**	4660	361	23.4	24	56.5
DA-SB101-0002	11600	14.2	28.8	15.5	12.5	24000	**12.3**	3960	325	23.3	19.5	54.4
DA-SB102-0002	14100	16	25.6	18.8	28	27700	**24.4**	3940	555	30.6	24.3	94.7
DA-SB107-0103	8120	6.8	22.4	11.8	20	14800	**18.3**	1920	312	10.9	14.2	63.3
DA-SB111-0002	7980	15.1	21.2	10.2	9.9	21600	**10.8**	2160	357	17.5	13	54.6
DA-SB112-0002	5380	5.3	15.9	6.9	4.5	12000	**10.5**	1420	208	8.1	9.2	44.9
DA-SB113-0002	5650	3.7	14.6	6.6	4.8	11800	**10.4**	1600	179	8.2	10.1	41.4
DA-SB114-0002	7610	6	23.1	7.5	5.4	14700	**14.3**	1730	246	10.2	13.2	48.9
DA-SB115-0002	12000	25.4	20.8	14.8	10.3	24700	**9.3**	3710	292	21.1	16.3	52.2
DA-SB116-0002	11900	20.7	18.5	14.7	11.4	28900	**8.8**	3540	345	22.2	17	53.3
DA-SB117-0002	10400	23.1	25.4	13.5	14.2	31200	**13.8**	3450	646	24	21.2	58.9
DA-SB118-0002	18000	45.8	17.3	26.2	16.6	43000	**17.0**	6240	633	38.5	31.9	80.9
DA-SB119-0002	4730	1.7	29.3	9.6	2.7	8540	**33.3**	1910	170	9.7	38	29.4
DA-SB120-0002	14000	19.2	21.1	18.3	15	35000	**10.3**	4570	411	27.2	21.4	60.2
DA-SB133-0102	13600	23.1	23.5	16.5	13.6	29400	**12.9**	3590	411	24.3	20.5	58.6
DA-SB150-0002	10300	32.7	17.6	13.8	14.6	35000	**10.3**	4050	373	27	18	66.8
DA-SB151-0002	12900	17.6	24.4	16.8	12.5	28200	**12.3**	3660	368	23.5	20.8	54.6
DA-SS102B-011508	11100	13	25.9	16.2	9.3	24400	**32.8**	2520	324	18.1	21	118
DA-SS103B-011508	12050	16.4	26	18.95	27.7	27450	**25.8**	3365	409	22.2	19.7	105.3
DA-SS104-011508	13100	14.5	28.3	14.6	11.1	21800	**18.5**	2620	369	17.4	22.5	52.2
DA-SS104B-011608	11500	18.8	35.8	22.8	12.9	24100	**95.1**	3370	333	25.9	20.1	371
DA-SS105-011508	6050	1.6	18.6	5.4	2.4	8660	**6.8**	1120	251	4.2	8.1	24.2
DA-SS105B-011608	11900	22.4	38.4	16	17.6	30000	**36.0**	3770	416	30.4	19.9	152
DA-SS106-011408	12100	13.8	22.9	14.3	8.2	20700	**16.1**	2570	297	16.5	22	44.6
DA-SS107-011508	1800	0.29	7.4	1	0.82	5270	**0.1**	407	351	0.98	1.5	13.8
DA-SS108-011508	4940	6.2	32.4	6.5	3.6	15400	**16.0**	980	368	28.9	9.5	86
DA-SS109-011408	5020	2	16.6	5.4	3.4	7850	**9.6**	1720	186	4.9	9.9	31.2
DA-SS110-011508	8460	9.7	23.1	11.4	7.5	16300	**16.9**	2220	250	13	16.3	57
DA-SS110B-011508	13100	16.8	41.6	19.5	10.8	27100	**21.3**	3830	314	25.8	24.6	76.5
DA-SS111B-011408	13100	20.4	17	15.7	13	29000	**10.1**	3320	356	24.5	19	53.5
DA-SS112B-011608	13250	23.95	17.9	16.85	15.35	32750	**10.7**	4085	479	27.55	18.95	66.35
DA-SS113B-011608	15800	26	14.8	18.3	17.1	39400	**11.7**	4950	606	30.2	21	76
DA-SS114B-011008	12500	23	22.8	16.2	13.6	31300	**15.8**	3170	358	26.2	22	67.1
DA-SS115B-011008	15400	14.2	26.3	28.8	11.4	29200	**16.7**	3040	292	28.9	29.2	58.2
DA-SS116B-011008	12400	21.3	20	16.5	13.5	30900	**14.1**	3180	383	27	22.5	60.5
DA-SS117B-011008	13100	22.1	21.5	18.4	12.9	33700	**18.9**	3290	325	29.1	29.1	61.9
DA-SS118B-011608	11500	23.8	20.2	15.2	14.2	29400	**17.8**	2850	339	25.6	23.8	64.3
DA-SS119B-011608	12950	29.8	27.55	15.5	14.8	33800	**14.3**	3450	447.5	25.75	19.8	69.5
DA-SS120B-011708	16200	16.2	28.3	17.6	12.3	30600	**19.3**	3660	415	25.1	21.9	79.7
DA-SS121-011008	10800	23.9	26.3	19.6	11	25800	**32.9**	2990	355	25.9	17.9	144
DA-SS122-011008	12000	22.3	39.6	22.4	18.5	31300	**172.8**	2530	782	22.1	19.6	663

TABLE F.4.3
SITE 8 SURFACE SOIL LEAD CONCENTRATIONS PREDICTED BY FACTOR ANALYSIS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

LINEAR EQUATION COEFFICIENTS TO PREDICT LEAD CONC. WITH ALL METALS CONCENTRATIONS UNSCALED (ORIGINAL UNITS)													
Intercept:	**-3.04**	**AL**	**AS**	**BA**	**CR**	**CO**	**FE**	**PB**	**MG**	**MN**	**NI**	**V**	**ZN**
Scalar Coefficients:		**1.34E-04**	**1.84E-02**	**5.99E-02**	**-2.96E-01**	**5.91E-02**	**-2.61E-04**		**-9.48E-04**	**-8.09E-04**	**-2.97E-01**	**9.44E-01**	**2.66E-01**
Sample ID		**Conc.Al**	**Conc.As**	**Conc.Ba**	**Conc.Cr**	**Conc.Co**	**Conc.Fe**	**Predicted Pb**	**Conc.Mg**	**Conc.Mn**	**Conc.Ni**	**Conc.V**	**Conc.Zn**
DA-SS123-011008		13100	18.6	42.7	17.2	10.9	28900	**18.4**	3260	395	23.2	23.2	64.6
DA-SS124-011008		9550	8.1	30	14.7	7.2	16600	**29.7**	2890	348	14.4	17	109
DA-SS125-011008		9865	11.35	24.85	16.5	7.55	19600	**15.4**	2525	363.5	16.35	17.15	61.3
DA-SS126-011408		10600	16.7	19.1	13.1	11.5	23500	**13.8**	2910	389	18.7	17.7	57.2
DA-SS127-011508		7500	8.3	22.3	8.3	6.2	15500	**10.3**	1860	381	10.4	10.5	46.1
DA-SS128-011608		10800	9.4	21.2	13.9	11.2	21600	**13.7**	3270	443	18.3	17.9	56
DA-SS129-011408		13600	20.8	24.1	28.1	13	31400	**31.3**	3780	424	26.4	27.6	121
DA-SS130-011508		12600	17.6	22.6	15.9	11.7	27200	**18.8**	3550	363	22.6	19.6	80.7
DA-SS131-011608		12800	15.6	28.5	16.4	12.7	27100	**26.4**	3660	397	23.3	22.9	97.6
DA-SS132-011408		15000	17.6	30.9	17.9	11.6	29500	**20.4**	3560	396	27	21.3	87
DA-SS133-011508		11400	18.2	28.2	18.9	11.7	28800	**21.5**	3190	337	24.7	19.3	97.2
DA-SS134-011508		16900	15.1	26.4	19.4	13.2	32100	**15.8**	4100	326	27.3	25	62.7
DA-SS135-011108		16150	13.65	23.65	17.65	7	30800	**21.4**	3040	220	18.7	29.5	53.4
DA-SS136-011008		11500	26.9	19.4	16.2	9.5	31500	**27.8**	2910	248	24.3	36.7	58.5
DA-SS138-011108		17600	7.5	25.3	15.2	2.2	18100	**22.1**	1210	79.8	8.7	27.2	31.5
DA-SS139-011108		15700	10.6	21.3	16.9	4.7	21500	**42.9**	2220	150	15.3	47.2	56.2
DA-SS140-011108		14100	26.6	27.5	22.5	15.8	37200	**9.0**	3720	517	28.3	19.9	63.9
DA-SS141-011108		12600	15.4	18.7	15.5	10.8	24600	**12.9**	3450	359	21.1	21	49.7
DA-SS142-011708		12200	14.5	22.9	16.1	10.4	25300	**16.6**	2950	354	19.6	21.5	59.1
DA-SS143-011708		17600	16.8	32.6	19	28.4	33600	**40.0**	3140	866	27.4	36.2	108
DA-SS144-011708		16100	13.9	27.6	16.1	11.7	30700	**16.5**	2520	231	24.7	21.3	65.3
DA-SS145-011708		12200	18.6	42.8	33.4	20.7	28200	**44.4**	3650	444	27.9	27.1	171
DA-SS146-011708		11600	10	16.1	16.1	11.2	21800	**45.2**	3070	487	18.9	23.6	158
DA-SS147-011708		17200	7.8	19.5	19.9	9.05	30550	**20.6**	3585	281.5	22.95	28.25	64.35
DA-SS148-011708		20700	19.4	42.2	26	18.8	38000	**40.9**	4550	1210	32.5	38.6	125
DA-SS149-011708		13800	19.4	32	19.1	218	43700	**52.7**	3940	2020	28.5	24.4	175
DA-SS152-011608		14000	6	24.8	14.3	4.7	17700	**22.2**	2270	105	14.3	22.7	58
DA-SS153-011608		12100	31.6	27.9	15	11.9	27300	**16.5**	3120	377	22.4	19.2	68.8

APPENDIX F

TABLES F.5.1 THROUGH F.5.5

SUPPORT DATA FOR LINEAR REGRESSIONS AND UPLS FOR BACKGROUND SOIL

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Y variable name used on graph: AS ^0.67			******************* GRAPH LINES *******************				**- - - Extreme Value Lines: +/-3 x IQR of residuals**			
	X variable name used on graph: AS predict (from Factor Anal.)			**X-Points**	**Y Predicted**	**Lower 95%**	**Upper 95%**	**-3 x IQR**	**+3 x IQR**	**Median**	
	N	234.000000		-1.85	0.70	0.34	1.06	-1.10	1.10	0.00	**No. of Exceedances**
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	2.783250E+01		0.08	1.27	0.73	1.81	-1.10	1.10	0.00	**of Upper 95% Limit**
0.10	**t-Value: 2-tail, 0.100 alpha**	1.651448		2.01	1.84	1.04	2.64	-1.10	1.10	0.00	**for Each Soil Type:**
degrees freedom	SUM(XY*w^2)	1.494898E+03		3.94	2.41	1.42	3.40	-1.10	1.10	0.00	---- V ----
2	SUM(X^2*w^2)	3.718358E+03		5.87	2.98	1.83	4.14	-1.10	1.10	0.00	BASS
	SUM(X*w^2)	3.155778E+02		7.80	3.56	2.27	4.85	-1.10	1.10	0.00	0
	SUM(Y*w^2)	1.867875E+02		9.73	4.13	2.71	5.55	-1.10	1.10	0.00	MASS
	SUM(w^2)	7.489584E+01		11.66	4.70	3.16	6.24	-1.10	1.10	0.00	2
	SUM(Y)	988.722909		13.59	5.27	3.63	6.92	-1.10	1.10	0.00	MMSS
	SUM(X)	2.267485E+03		15.52	5.85	4.10	7.60	-1.10	1.10	0.00	0
	Denominator	1.789002E+05		17.46	6.42	4.57	8.26	-1.10	1.10	0.00	NESS
	Slope	**2.963420E-01**		19.39	6.99	5.05	8.93	-1.10	1.10	0.00	4
	Intercept	**1.245310E+00**		21.32	7.56	5.53	9.59	-1.10	1.10	0.00	PMSS
	Minimum X value	-1.853517E+00		23.25	8.13	6.02	10.25	-1.10	1.10	0.00	0
	Maximum X value	4.448763E+01		25.18	8.71	6.51	10.90	-1.10	1.10	0.00	SESS
	Minimum Y value	8.831858E-01		27.11	9.28	7.00	11.55	-1.10	1.10	0.00	2
	Maximum Y value	1.725889E+01		29.04	9.85	7.50	12.20	-1.10	1.10	0.00	SESD
	No. of graph points	25		30.97	10.42	8.00	12.85	-1.10	1.10	0.00	0
	SUM(Ypred.- Yobs)^2	2.151484E+02		32.90	11.00	8.50	13.50	-1.10	1.10	0.00	MASB
	SUM(Yobs - Yave)^2	1.371855E+03		34.83	11.57	9.00	14.14	-1.10	1.10	0.00	3
	SUM(X - Xave)^2	1.308872E+04		36.76	12.14	9.50	14.78	-1.10	1.10	0.00	MMSB
	Std. Error of Y-estimate	**9.629973E-01**		38.69	12.71	10.00	15.42	-1.10	1.10	0.00	1
	R^2	**8.431697E-01**		40.63	13.28	10.51	16.06	-1.10	1.10	0.00	NESB
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1/SQRT(xy)**		42.56	13.86	11.02	16.70	-1.10	1.10	0.00	0
est.M, Std.Err.Y	**0.296**	**0.2**		44.49	14.43	11.53	17.33	-1.10	1.10	0.00	PMSB
Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:			**25**	4.19	2.49	1.48	3.50	3.93	**-54%**	**67%**	3
Inverse Log Transform (Y/N)?		**No**	**50**	7.99	3.61	2.31	4.92	6.87	**-49%**	**59%**	SESB
Inverse Power Transform (Y/N)?		**Yes**	**75**	13.62	5.28	3.63	6.93	12.14	**-43%**	**50%**	0
Inverse Power Transform (1/Power):		**1.5**	**90**	19.74	7.09	5.14	9.05	18.90	**-38%**	**44%**	<<--Original Units Errors

TEXT BOX ==>	**(AS ^0.67) = (2.96E-01)x(AS predict (from Factor Anal.)) + (1.25E+00)**		**R^2 = 0.84; Std. Error of Y-estimate = 9.63E-01**					**+/-3 x IQR of re**	-1.103323	1.103323	
TEXT BOX ==>	**Weighted 1/SQRT(MAX(x-Xmin,0.7)*MAX(y-Ymin,0.2)). 95% Confid**		**\/ - wt.descrip.**	**TEXT BOX==> Residuals Plot: (Observed - Predicted) x (1/SQRT(xy))^0.5**						**Y-Pred.**	
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**	**(MAX(x-Xmin,0.7)***	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!E**	**DA!G**	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**AS predict**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
BASS	BASS-BWBK-SS-BA101-0001	-0.060746734	1.129243235	1.505633947	9.61669E-03	9.58564E+00	9.50791E+01	-9.80647E-02	-1.20330E-01	1.22731E+00	
BASS	BASS-BWBK-SS-BA102-0001	-0.669756625	0.92525194	2.055195275	1.47819E-02	1.08904E+01	1.07327E+02	-1.21581E-01	-1.74298E-01	1.04683E+00	
BASS	BASS-BWBK-SS-BA103-0001	-0.586015082	0.973152319	1.98614376	9.70158E-03	1.05765E+01	1.05599E+02	-9.84966E-02	-1.38812E-01	1.07165E+00	
BASS	BASS-BWBK-SS-BA104-0001	-0.732840979	1.191138425	1.702228945	2.65691E-02	9.20621E+00	1.08638E+02	1.63000E-01	2.12666E-01	1.02814E+00	
BASS	BASS-BWBK-SS-BA105-0001	-0.004900922	1.129243235	1.482717303	1.31364E-02	9.58564E+00	9.39932E+01	-1.14614E-01	-1.39562E-01	1.24386E+00	
BASS	BASS-BWBK-SS-BA106-0001	-0.808277778	1.084889807	2.177884483	6.25787E-03	9.86225E+00	1.10216E+02	7.91067E-02	1.16743E-01	1.00578E+00	
BASS	BASS-BWBK-SS-BA107-0001	-0.666109872	0.91830817	2.052036901	1.67975E-02	1.09363E+01	1.07251E+02	-1.29605E-01	-1.85659E-01	1.04791E+00	
BASS	BASS-BWBK-SS-BA108-0001	-1.121589067	0.945929025	2.613670433	1.08855E-03	1.07543E+01	1.16893E+02	3.29932E-02	5.33396E-02	9.12936E-01	
BASS	BASS-BWBK-SS-BA109-0001	-1.853517055	0.959588944	2.720294102	6.94608E-02	1.06649E+01	1.33255E+02	2.63554E-01	4.34688E-01	6.96035E-01	
BASS	BASS-BWBK-SS-BA110-0001	0.38609221	1.065602237	1.494166085	8.65083E-02	9.98376E+00	8.65647E+01	-2.94123E-01	-3.59524E-01	1.35973E+00	
BASS	BASS-BWBK-SS-BA111-0001	-0.682656747	0.979898643	2.066485966	3.98303E-03	1.05327E+01	1.07594E+02	-6.31113E-02	-9.07242E-02	1.04301E+00	
BASS	BASS-BWBK-SS-BA112-0001	-0.625410595	0.883185767	2.017748319	3.12542E-02	1.11698E+01	1.06410E+02	-1.76789E-01	-2.51124E-01	1.05997E+00	
BASS	BASS-BWBK-SS-BA113-0001	-0.363055193	1.026491978	1.831574415	1.23720E-02	1.02324E+01	1.01066E+02	-1.11229E-01	-1.50533E-01	1.13772E+00	
MASB	MASB-BWBK-SB-MA01-0105	13.27645573	5.443386192	0.120389597	6.95404E-02	1.48371E+00	1.28619E+01	2.63705E-01	9.14983E-02	5.17968E+00	
MASB	MASB-BWBK-SB-MA02-0107	14.85506932	4.795046974	0.123691093	7.26660E-01	3.24598E-01	2.66768E+01	-8.52444E-01	-2.99802E-01	5.64749E+00	
MASB	MASB-BWBK-SB-MA03-0108	16.59165401	6.428728274	0.098875032	7.10834E-02	4.85505E+00	4.76314E+01	2.66615E-01	8.38354E-02	6.16211E+00	
MASB	MASB-BWBK-SB-MA04-0106	12.31914374	5.299560899	0.126398327	1.62870E-01	1.15401E+00	6.91184E+00	4.03572E-01	1.43480E-01	4.89599E+00	
MASB	MASB-BWBK-SB-MA05-0108	13.68275239	9.417419036	0.086844911	1.69524E+01	2.69580E+01	1.59412E+01	4.11734E+00	1.21336E+00	5.30008E+00	MASB-BWBK-SB-MA05-0108
MASB	MASB-BWBK-SB-MA06-0105	12.3015442	4.230056502	0.145286297	4.36547E-01	2.25143E-05	6.81961E+00	-6.60717E-01	-2.51842E-01	4.89077E+00	
MASB	MASB-BWBK-SB-MA07-0108	15.33558254	6.546510582	0.101353255	5.72479E-01	5.38796E+00	3.18714E+01	7.56624E-01	2.40879E-01	5.78989E+00	
MASB	MASB-BWBK-SB-MA08-0108	36.09071938	12.39717786	0.047842529	2.08550E-01	6.67794E+01	6.96992E+02	4.56672E-01	9.98876E-02	1.19405E+01	
MASB	MASB-BWBK-SB-MA09-0108	22.35988263	12.19756289	0.060416671	1.87150E+01	6.35568E+01	1.60523E+02	4.32608E+00	1.06334E+00	7.87148E+00	MASB-BWBK-SB-MA09-0108

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	SAMPLE	AS predict	AS ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
MASB	MASB-BWBK-SB-MA10-0104	15.89277992	5.471923029	0.11081525	2.33371E-01	1.55404E+00	3.84732E+01	-4.83085E-01	-1.60814E-01	5.95501E+00	
MASB	MASB-BWBK-SB-MA11-0108	19.0304084	6.269984034	0.094281954	3.78022E-01	4.18069E+00	8.72412E+01	-6.14835E-01	-1.88787E-01	6.88482E+00	
MASB	MASB-BWBK-SB-MA12-0108	19.74473469	11.44126321	0.066221388	1.88769E+01	5.20700E+01	1.01096E+02	4.34476E+00	1.11806E+00	7.09650E+00	MASB-BWBK-SB-MA12-0108
MASB	MASB-BWBK-SB-MA13-0105	6.01461536	3.190924808	0.234677159	2.66447E-02	1.06996E+00	1.35092E+01	1.63232E-01	7.90752E-02	3.02769E+00	
MASB	MASB-BWBK-SB-MA14-0104	20.69443252	7.120367359	0.084324209	6.63432E-02	8.38135E+00	1.21095E+02	-2.57572E-01	-7.47953E-02	7.37794E+00	
MASB	MASB-BWBK-SB-MA15-0105	13.994206	5.669644725	0.114817846	7.68754E-02	2.08610E+00	1.85253E+01	2.77264E-01	9.39503E-02	5.39238E+00	
MASB	MASB-BWBK-SB-MA16-0104	11.20618545	4.033264272	0.155909533	2.83992E-01	3.68822E-02	2.29849E+00	-5.32909E-01	-2.10421E-01	4.56617E+00	
MASB	MASB-BWBK-SB-MA17-0104	11.21086587	4.033264272	0.155881602	2.85472E-01	3.68822E-02	2.31271E+00	-5.34296E-01	-2.10950E-01	4.56756E+00	
MASB	MASB-BWBK-SB-MA18-0104	5.563902704	3.865530119	0.21261538	9.43622E-01	1.29443E-01	1.70256E+01	9.71402E-01	4.47916E-01	2.89413E+00	
MASB	MASB-BWBK-SB-MA19-0103	5.453162545	3.728679007	0.219311391	7.52328E-01	2.46644E-01	1.79517E+01	8.67368E-01	4.06195E-01	2.86131E+00	
MASB	MASB-BWBK-SB-MA20-0103	12.55292136	3.694073786	0.157144764	1.61593E+00	2.82214E-01	8.19571E+00	-1.27119E+00	-5.03920E-01	4.96527E+00	
MASS	MASS-BWBK-SS-MA01-0001	0.120574159	1.792561899	0.746353574	2.61654E-01	5.91827E+00	9.15760E+01	5.11521E-01	4.41912E-01	1.28104E+00	
MASS	MASS-BWBK-SS-MA02-0001	0.293237268	1.792561899	0.715709944	2.11925E-01	5.91827E+00	8.83012E+01	4.60354E-01	3.89458E-01	1.33221E+00	
MASS	MASS-BWBK-SS-MA03-0001	3.615895614	3.153494065	0.283783562	6.99971E-01	1.14879E+00	3.68960E+01	8.36643E-01	4.45691E-01	2.31685E+00	
MASS	MASS-BWBK-SS-MA04-0001	2.685568108	2.305218146	0.39360544	6.97286E-02	3.68676E+00	4.90636E+01	2.64062E-01	1.65667E-01	2.04116E+00	
MASS	MASS-BWBK-SS-MA05-0001	6.48721246	2.805855095	0.249715605	1.30963E-01	2.01486E+00	1.02585E+01	-3.61888E-01	-1.80841E-01	3.16774E+00	
MASS	MASS-BWBK-SS-MA06-0001	10.05672986	7.969939269	0.108846872	1.40205E+01	1.40222E+01	1.34412E-01	3.74440E+00	1.23535E+00	4.22554E+00	MASS-BWBK-SS-MA06-0001
MASS	MASS-BWBK-SS-MA07-0001	0.305253869	2.348920585	0.56217175	1.02648E+00	3.52084E+00	8.80755E+01	1.01315E+00	7.59642E-01	1.33577E+00	MASS-BWBK-SS-MA07-0001
MASS	MASS-BWBK-SS-MA08-0001	11.01785667	4.610593104	0.144372382	1.00460E-02	1.48442E-01	1.76292E+00	1.00230E-01	3.80837E-02	4.51036E+00	
MASS	MASS-BWBK-SS-MA09-0001	10.18826154	4.88595171	0.144037171	3.86178E-01	4.36445E-01	2.48158E-01	6.21432E-01	2.35847E-01	4.26452E+00	
MASS	MASS-BWBK-SS-MA10-0001	11.1635745	5.241482788	0.132765308	4.73257E-01	1.03260E+00	2.17111E+00	6.87937E-01	2.50663E-01	4.55355E+00	
MASS	MASS-BWBK-SS-MA11-0001	16.38448959	5.528774814	0.108640291	3.27124E-01	1.69902E+00	4.48148E+01	-5.71947E-01	-1.88517E-01	6.10072E+00	
MASS	MASS-BWBK-SS-MA12-0001	5.008583892	2.216541975	0.330596579	2.63191E-01	4.03516E+00	2.19167E+01	-5.13022E-01	-2.94975E-01	2.72956E+00	
MASS	MASS-BWBK-SS-MA13-0001	7.020902023	3.03983898	0.228580867	8.18297E-02	1.40535E+00	7.12465E+00	-2.86059E-01	-1.36765E-01	3.32590E+00	
MASS	MASS-BWBK-SS-MA14-0001	2.673660293	2.171534093	0.414066025	1.79310E-02	4.21800E+00	4.92305E+01	1.33907E-01	8.61661E-02	2.03763E+00	
MASS	MASS-BWBK-SS-MA15-0001	2.969599696	2.392220179	0.370669234	7.12320E-02	3.36022E+00	4.51652E+01	2.66893E-01	1.62492E-01	2.12533E+00	
MASS	MASS-BWBK-SS-MA16-0001	6.671312945	3.589268453	0.208202819	1.34666E-01	4.04551E-01	9.11312E+00	3.66969E-01	1.67445E-01	3.22230E+00	
MASS	MASS-BWBK-SS-MA17-0001	6.270633256	3.447095504	0.219108719	1.18015E-01	6.05620E-01	1.16928E+01	3.43534E-01	1.60805E-01	3.10356E+00	
MASS	MASS-BWBK-SS-MA18-0001	5.248654122	3.831547162	0.218531514	1.06263E+00	1.55050E-01	1.97265E+01	1.03084E+00	4.81891E-01	2.80071E+00	
MASS	MASS-BWBK-SS-MA19-0001	6.921316511	3.694073786	0.201353315	1.58155E-01	2.82214E-01	7.66620E+00	3.97687E-01	1.78452E-01	3.29639E+00	
MASS	MASS-BWBK-SS-MA20-0001	8.251035033	3.763124384	0.185374439	5.28332E-03	2.13617E-01	2.07093E+00	7.26864E-02	3.12952E-02	3.69044E+00	
MMSB	MMSB-BWBK-SB-MM101-0110	6.404729106	2.705453085	0.25778049	1.91710E-01	2.30997E+00	1.07937E+01	-4.37847E-01	-2.22304E-01	3.14330E+00	
MMSB	MMSB-BWBK-SB-MM102-0109	2.830961383	2.477667769	0.365897605	1.54783E-01	3.05426E+00	4.70479E+01	3.93425E-01	2.37981E-01	2.08424E+00	
MMSB	MMSB-BWBK-SB-MM103-0107	3.84362082	3.03983898	0.285286668	4.29684E-01	1.40535E+00	3.41814E+01	6.55503E-01	3.50119E-01	2.38434E+00	
MMSB	MMSB-BWBK-SB-MM104-0110	9.334174257	3.55399273	0.182939932	2.09237E-01	4.50669E-01	1.26688E-01	-4.57425E-01	-1.95647E-01	4.01142E+00	
MMSB	MMSB-BWBK-SB-MM105-0110	2.780120753	2.725680889	0.342243954	4.30998E-01	2.24889E+00	4.77479E+01	6.56505E-01	3.84066E-01	2.06918E+00	
MMSB	MMSB-BWBK-SB-MM106-0110	6.671721228	2.5198421	0.267712093	4.93617E-01	2.90863E+00	9.11065E+00	-7.02579E-01	-3.63521E-01	3.22242E+00	
MMSB	MMSB-BWBK-SB-MM107-0110	3.471509456	2.5198421	0.338735228	6.04070E-02	2.90863E+00	3.86710E+01	2.45778E-01	1.43045E-01	2.27406E+00	
MMSB	MMSB-BWBK-SB-MM108-0110	4.419639478	2.370619812	0.327369397	3.40088E-02	3.43988E+00	2.77778E+01	-1.84415E-01	-1.05515E-01	2.55503E+00	
MMSB	MMSB-BWBK-SB-MM109-0110	6.464947642	2.348920585	0.286385291	6.59709E-01	3.52084E+00	1.04017E+01	-8.12225E-01	-4.34662E-01	3.16115E+00	
MMSB	MMSB-BWBK-SB-MM110-0109	5.369817243	2.685149378	0.277177603	2.29410E-02	2.37210E+00	1.86649E+01	-1.51463E-01	-7.97416E-02	2.83661E+00	
MMSB	MMSB-BWBK-SB-MM111-0110	7.334208716	2.5198421	0.25787975	8.08024E-01	2.90863E+00	5.55026E+00	-8.98902E-01	-4.56479E-01	3.41874E+00	
MMSB	MMSB-BWBK-SB-MM112-0110	7.09447755	2.238875126	0.287115772	1.22950E+00	3.94593E+00	6.73729E+00	-1.10883E+00	-5.94144E-01	3.34770E+00	
MMSB	MMSB-BWBK-SB-MM113-0110	3.077621979	2.216541975	0.389989831	3.50506E-03	4.03516E+00	4.37250E+01	5.92036E-02	3.69721E-02	2.15734E+00	
MMSB	MMSB-BWBK-SB-MM114-0110	2.73272138	3.00148075	0.320832582	8.95580E-01	1.49776E+00	4.84052E+01	9.46351E-01	5.36033E-01	2.05513E+00	MMSB-BWBK-SB-MM114-0110
MMSB	MMSB-BWBK-SB-MM115-0110	4.926705411	2.080083823	0.351034214	3.90895E-01	4.60200E+00	2.26900E+01	-6.25216E-01	-3.70429E-01	2.70530E+00	
MMSB	MMSB-BWBK-SB-MM116-0110	4.1811056	2.348920585	0.336238344	1.83403E-02	3.52084E+00	3.03491E+01	-1.35426E-01	-7.85284E-02	2.48435E+00	
MMSB	MMSB-BWBK-SB-MM117-0110	3.794575101	2.348920585	0.347553295	4.36022E-04	3.52084E+00	3.47573E+01	-2.08811E-02	-1.23102E-02	2.36980E+00	
MMSB	MMSB-BWBK-SB-MM118-0110	2.47076378	2.392220179	0.39146549	1.71992E-01	3.36022E+00	5.21189E+01	4.14719E-01	2.59478E-01	1.97750E+00	
MMSB	MMSB-BWBK-SB-MM119-0110	4.179864418	2.5198421	0.31822981	1.28615E-03	2.90863E+00	3.03628E+01	3.58630E-02	2.02310E-02	2.48398E+00	
MMSB	MMSB-BWBK-SB-MM120-0110	1.996514491	1.842015749	0.520471619	2.55519E-05	5.68010E+00	5.91914E+01	5.05489E-03	3.64679E-03	1.83696E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	7.50852924	3.228137283	0.213426171	5.86923E-02	9.94357E-01	4.75928E+00	-2.42265E-01	-1.11922E-01	3.47040E+00	
MMSS	MMSS-BWBK-SS-MM102-0001	4.893847334	2.392220179	0.313388709	9.20164E-02	3.36022E+00	2.30041E+01	-3.03342E-01	-1.69814E-01	2.69556E+00	

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SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
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	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**AS predict**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MMSS	MMSS-BWBK-SS-MM103-0001	7.428572113	3.301927249	0.211048566	2.09614E-02	8.52639E-01	5.11454E+00	-1.44780E-01	-6.65121E-02	3.44671E+00	
MMSS	MMSS-BWBK-SS-MM104-0001	7.52474844	3.301927249	0.209963601	3.00265E-02	8.52639E-01	4.68878E+00	-1.73281E-01	-7.94007E-02	3.47521E+00	
MMSS	MMSS-BWBK-SS-MM105-0001	3.890599935	2.644309612	0.314407873	6.05414E-02	2.49957E+00	3.36343E+01	2.46052E-01	1.37966E-01	2.39826E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	7.054037624	3.077956704	0.226165393	6.64405E-02	1.31642E+00	6.94886E+00	-2.57761E-01	-1.22583E-01	3.33572E+00	
MMSS	MMSS-BWBK-SS-MM107-0001	6.717724928	2.765913248	0.248934099	2.21032E-01	2.12984E+00	8.83505E+00	-4.70141E-01	-2.34569E-01	3.23605E+00	
MMSS	MMSS-BWBK-SS-MM108-0001	5.732371521	2.725680889	0.267481406	4.76860E-02	2.24889E+00	1.56637E+01	-2.18371E-01	-1.12939E-01	2.94405E+00	
MMSS	MMSS-BWBK-SS-MM109-0001	5.279992345	2.725680889	0.275832355	7.10857E-03	2.24889E+00	1.94491E+01	-8.43123E-02	-4.42806E-02	2.80999E+00	
MMSS	MMSS-BWBK-SS-MM110-0001	2.856489847	1.938991221	0.448432704	2.33529E-02	5.22726E+00	4.66983E+01	-1.52816E-01	-1.02334E-01	2.09181E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	2.476441959	1.890814389	0.478748978	7.80910E-03	5.44988E+00	5.20370E+01	-8.83691E-02	-6.11441E-02	1.97918E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	1.900816985	2.080083823	0.471742456	7.37026E-02	4.60200E+00	6.06730E+01	2.71482E-01	1.86463E-01	1.80860E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	5.215026535	2.477667769	0.297868939	9.80149E-02	3.05426E+00	2.00263E+01	-3.13073E-01	-1.70867E-01	2.79074E+00	
MMSS	MMSS-BWBK-SS-MM114-0001	1.289333392	1.792561899	0.591515823	2.72806E-02	5.91827E+00	7.05730E+01	1.65168E-01	1.27031E-01	1.62739E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	3.596147601	1.986576777	0.407802975	1.05250E-01	5.01193E+00	3.71363E+01	-3.24423E-01	-2.07174E-01	2.31100E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	2.792686379	2.080083823	0.424055117	5.16070E-05	4.60200E+00	4.75744E+01	7.18380E-03	4.67806E-03	2.07290E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	5.766087393	2.435131383	0.29080076	2.69270E-01	3.20475E+00	1.53979E+01	-5.18912E-01	-2.79828E-01	2.95404E+00	
MMSS	MMSS-BWBK-SS-MM118-0001	2.967384404	2.725680889	0.335531037	3.61214E-01	2.24889E+00	4.51950E+01	6.01011E-01	3.48136E-01	2.12467E+00	
MMSS	MMSS-BWBK-SS-MM119-0001	2.161122936	2.261097439	0.425173323	1.40892E-01	3.85814E+00	5.66856E+01	3.75356E-01	2.44752E-01	1.88574E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	8.351267892	2.348920585	0.258565376	1.88025E+00	3.52084E+00	1.79249E+00	-1.37122E+00	-6.97256E-01	3.72014E+00	
NESB	NESB-BWBK-SB-NE01-0108	8.903181644	3.00148075	0.209491921	7.78304E-01	1.49776E+00	6.19251E-01	-8.82216E-01	-4.03793E-01	3.88370E+00	
NESB	NESB-BWBK-SB-NE02-0109	9.316301564	3.228137283	0.195393452	6.05259E-01	9.94357E-01	1.39730E-01	-7.77984E-01	-3.43895E-01	4.00612E+00	
NESB	NESB-BWBK-SB-NE03-0105	9.824371371	3.115839842	0.195842579	1.08336E+00	1.23093E+00	1.80270E-02	-1.04084E+00	-4.60616E-01	4.15668E+00	
NESB	NESB-BWBK-SB-NE04-0110	7.211602277	2.765913248	0.242058037	3.80069E-01	2.12984E+00	6.14298E+00	-6.16497E-01	-3.03313E-01	3.38241E+00	
NESB	NESB-BWBK-SB-NE05-0108	9.012407939	2.904491652	0.213378486	1.02328E+00	1.74457E+00	4.59276E-01	-1.01157E+00	-4.67275E-01	3.91606E+00	
NESB	NESB-BWBK-SB-NE06-0109	8.173894596	2.88489971	0.223205335	6.12585E-01	1.79670E+00	2.29890E+00	-7.82678E-01	-3.69773E-01	3.66758E+00	
NESB	NESB-BWBK-SB-NE07-0107	9.028277541	3.00148075	0.208284292	8.45088E-01	1.49776E+00	4.38018E-01	-9.19287E-01	-4.19546E-01	3.92077E+00	
NESB	NESB-BWBK-SB-NE08-0104	6.055390855	2.685149378	0.264891933	1.25760E-01	2.37210E+00	1.32112E+01	-3.54627E-01	-1.82518E-01	3.03978E+00	
NESB	NESB-BWBK-SB-NE09-0110	7.741681625	2.725680889	0.237831755	6.62294E-01	2.24889E+00	3.79636E+00	-8.13814E-01	-3.96881E-01	3.53950E+00	
NESB	NESB-BWBK-SB-NE10-0107	6.196705295	2.435131383	0.282916198	4.17991E-01	3.20475E+00	1.22039E+01	-6.46522E-01	-3.43884E-01	3.08165E+00	
NESB	NESB-BWBK-SB-NE101-0110	6.272572936	2.171534093	0.309059813	8.69747E-01	4.21800E+00	1.16795E+01	-9.32602E-01	-5.18463E-01	3.10414E+00	
NESB	NESB-BWBK-SB-NE102-0110	4.098117798	1.890814389	0.40834911	3.23692E-01	5.44988E+00	3.12703E+01	-5.68940E-01	-3.63565E-01	2.45975E+00	
NESB	NESB-BWBK-SB-NE103-0110	3.44881133	1.767577948	0.4617897	2.49760E-01	6.04045E+00	3.89538E+01	-4.99759E-01	-3.39612E-01	2.26734E+00	
NESB	NESB-BWBK-SB-NE104-0110	2.708036941	1.639882998	0.538248115	1.66408E-01	6.68444E+00	4.87493E+01	-4.07932E-01	-2.99281E-01	2.04781E+00	
NESB	NESB-BWBK-SB-NE105-0110	6.34084817	2.392220179	0.284375888	5.36042E-01	3.36022E+00	1.12175E+01	-7.32149E-01	-3.90433E-01	3.12437E+00	
NESB	NESB-BWBK-SB-NE106-0110	4.564457233	1.890814389	0.393233733	5.00041E-01	5.44988E+00	2.62723E+01	-7.07136E-01	-4.43433E-01	2.59795E+00	
NESB	NESB-BWBK-SB-NE107-0510	3.628369687	1.534036644	0.529412539	6.18600E-01	7.24296E+00	3.67447E+01	-7.86511E-01	-5.72272E-01	2.32055E+00	
NESB	NESB-BWBK-SB-NE108-0110	4.64201515	1.691538112	0.436407573	8.63776E-01	6.42001E+00	2.54832E+01	-9.29396E-01	-6.13969E-01	2.62093E+00	
NESB	NESB-BWBK-SB-NE109-0110	4.565620719	1.691538112	0.438996745	8.22208E-01	6.42001E+00	2.62604E+01	-9.06757E-01	-6.00788E-01	2.59829E+00	
NESB	NESB-BWBK-SB-NE110-0110	3.940729953	1.842015749	0.424258639	3.26153E-01	5.68010E+00	3.30553E+01	-5.71098E-01	-3.71985E-01	2.41311E+00	
NESS	NESS-BKG-SS03-NEB-0016	8.068256385	3.374901689	0.201120381	6.83149E-02	7.23197E-01	2.63040E+00	-2.61371E-01	-1.17216E-01	3.63627E+00	
NESS	NESS-BKG-SS09-NEB-0018	4.234671706	4.88595171	0.202570336	5.69171E+00	4.36445E-01	2.97618E+01	2.38573E+00	1.07377E+00	2.50022E+00	NESS-BKG-SS09-NEB-0018
NESS	NESS-BWBK-SS-NE01-0001	10.77541032	5.946279717	0.125057221	2.27335E+00	2.96173E+00	1.17788E+00	1.50776E+00	5.33197E-01	4.43852E+00	NESS-BWBK-SS-NE01-0001
NESS	NESS-BWBK-SS-NE02-0001	9.429922635	6.637391074	0.124104225	6.74752E+00	5.81813E+00	6.76958E-02	2.59760E+00	9.15093E-01	4.03979E+00	NESS-BWBK-SS-NE02-0001
NESS	NESS-BWBK-SS-NE03-0001	8.488751381	4.19757986	0.170800849	1.90704E-01	7.69048E-04	1.44325E+00	4.36697E-01	1.80478E-01	3.76088E+00	
NESS	NESS-BWBK-SS-NE04-0001	8.106884585	3.55399273	0.193883265	8.78482E-03	4.50669E-01	2.50659E+00	-9.37274E-02	-4.12702E-02	3.64772E+00	
NESS	NESS-BWBK-SS-NE05-0001	7.253297738	4.454017329	0.175360617	1.12201E+00	5.23063E-02	5.93804E+00	1.05925E+00	4.43573E-01	3.39477E+00	
NESS	NESS-BWBK-SS-NE06-0001	6.550211541	3.153494065	0.228939944	1.08362E-03	1.14879E+00	9.85894E+00	-3.29185E-02	-1.57507E-02	3.18641E+00	
NESS	NESS-BWBK-SS-NE07-0001	8.618916501	5.153756646	0.149531685	1.83413E+00	8.62010E-01	1.14745E+00	1.35430E+00	5.23699E-01	3.79946E+00	NESS-BWBK-SS-NE07-0001
NESS	NESS-BWBK-SS-NE08-0001	7.553561821	3.447095504	0.203620379	1.34336E-03	6.05620E-01	4.56482E+00	-3.66518E-02	-1.65389E-02	3.48375E+00	
NESS	NESS-BWBK-SS-NE09-0001	7.24352566	4.099385194	0.18487509	5.00577E-01	1.58575E-02	5.98576E+00	7.07515E-01	3.04211E-01	3.39187E+00	
NESS	NESS-BWBK-SS-NE10-0001	7.084960891	4.066391931	0.187471749	5.20578E-01	2.52555E-02	6.78679E+00	7.21511E-01	3.12400E-01	3.34488E+00	
NESS	NESS-BWBK-SS-NE101-0001	3.742242446	2.12605484	0.379190797	5.20928E-02	4.40688E+00	3.53771E+01	-2.28239E-01	-1.40546E-01	2.35429E+00	
NESS	NESS-BWBK-SS-NE102-0001	2.646856852	1.792561899	0.494315155	5.62272E-02	5.91827E+00	4.96074E+01	-2.37123E-01	-1.66715E-01	2.02968E+00	
NESS	NESS-BWBK-SS-NE103-0001	2.013576296	1.986576777	0.484108771	2.08975E-02	5.01193E+00	5.89291E+01	1.44560E-01	1.00582E-01	1.84202E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)^	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	AS predict	AS ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
NESS	NESS-BWBK-SS-NE104-0001	3.740874894	1.792561899	0.443355172	3.15087E-01	5.91827E+00	3.53934E+01	-5.61326E-01	-3.73759E-01	2.35389E+00	
NESS	NESS-BWBK-SS-NE105-0001	1.765371004	1.691538112	0.584671701	5.91749E-03	6.42001E+00	6.28014E+01	-7.69252E-02	-5.88200E-02	1.76846E+00	
NESS	NESS-BWBK-SS-NE106-0001	2.516079619	1.742416162	0.516088888	6.17590E-02	6.16477E+00	5.14667E+01	-2.48514E-01	-1.78531E-01	1.99093E+00	
NESS	NESS-BWBK-SS-NE107-0001	1.949738633	1.742416162	0.553181213	6.50975E-03	6.16477E+00	5.99133E+01	-8.06830E-02	-6.00089E-02	1.82310E+00	
NESS	NESS-BWBK-SS-NE108-0001	2.404987396	1.792561899	0.508159058	2.73726E-02	5.91827E+00	5.30730E+01	-1.65447E-01	-1.17939E-01	1.95801E+00	
NESS	NESS-BWBK-SS-NE109-0001	1.671182124	1.424402129	0.724024917	9.99502E-02	7.84509E+00	6.43032E+01	-3.16149E-01	-2.69010E-01	1.74055E+00	
NESS	NESS-BWBK-SS-NE110-0001	2.584068894	2.080083823	0.433908373	4.76182E-03	4.60200E+00	5.04958E+01	6.90059E-02	4.54554E-02	2.01108E+00	
PMSB	PMSB-BWBK-SB-PM01-0105	8.549869892	4.610593104	0.16058656	6.91555E-01	1.48442E-01	1.30014E+00	8.31598E-01	3.33248E-01	3.77900E+00	
PMSB	PMSB-BWBK-SB-PM02-0104	25.65536895	7.49035798	0.074174681	1.84339E+00	1.06605E+01	2.54890E+02	-1.35771E+00	-3.69774E-01	8.84807E+00	
PMSB	PMSB-BWBK-SB-PM03-0106	21.22638165	6.766152446	0.085819278	5.92016E-01	6.45587E+00	1.33086E+02	-7.69426E-01	-2.25403E-01	7.53558E+00	
PMSB	PMSB-BWBK-SB-PM04-0105	14.1948467	7.80376763	0.094888442	5.53157E+00	1.28053E+01	2.02927E+01	2.35193E+00	7.24487E-01	5.45184E+00	PMSB-BWBK-SB-PM04-0105
PMSB	PMSB-BWBK-SB-PM05-0105	14.6781733	5.877733751	0.110050818	7.98994E-02	2.73050E+00	2.48808E+01	2.82665E-01	9.37710E-02	5.59507E+00	
PMSB	PMSB-BWBK-SB-PM06-0105	16.99296374	6.428728274	0.097816664	2.18123E-02	4.85505E+00	5.33317E+01	1.47690E-01	4.61909E-02	6.28104E+00	
PMSB	PMSB-BWBK-SB-PM07-0105	16.30420006	6.481208051	0.099186386	1.63442E-01	5.08907E+00	4.37462E+01	4.04279E-01	1.27323E-01	6.07693E+00	
PMSB	PMSB-BWBK-SB-PM08-0106	12.77285121	6.868285455	0.106879904	3.37767E+00	6.98531E+00	9.50331E+00	1.83784E+00	6.00837E-01	5.03044E+00	PMSB-BWBK-SB-PM08-0106
PMSB	PMSB-BWBK-SB-PM09-0106	9.096105908	6.000833218	0.133587319	4.24346E+00	3.15248E+00	3.52837E-01	2.05997E+00	7.52909E-01	3.94087E+00	PMSB-BWBK-SB-PM09-0106
PMSB	PMSB-BWBK-SB-PM10-0105	14.51455674	5.918908978	0.110146395	1.38627E-01	2.86827E+00	2.32753E+01	3.72327E-01	1.23569E-01	5.54658E+00	
PMSB	PMSB-BWBK-SB-PM11-0104	17.19851626	5.725503855	0.104112452	3.80009E-01	2.25058E+00	5.63762E+01	-6.16449E-01	-1.98906E-01	6.34195E+00	
PMSB	PMSB-BWBK-SB-PM12-0105	3.896314316	3.03983898	0.283976425	4.09456E-01	1.40535E+00	3.35680E+01	6.39888E-01	3.40993E-01	2.39995E+00	
PMSB	PMSB-BWBK-SB-PM13-0106	14.17288991	4.641588834	0.128848759	6.46003E-01	1.73287E-01	2.00953E+01	-8.03743E-01	-2.88508E-01	5.44533E+00	
PMSB	PMSB-BWBK-SB-PM14-0106	6.273639854	3.694073786	0.20922275	3.47653E-01	2.82214E-01	1.16722E+01	5.89621E-01	2.69698E-01	3.10445E+00	
PMSB	PMSB-BWBK-SB-PM15-0105	11.6735835	4.485550359	0.143253027	4.80190E-02	6.77242E-02	3.93418E+00	-2.19132E-01	-8.29389E-02	4.70468E+00	
PMSB	PMSB-BWBK-SB-PM16-0106	7.814536753	3.865530119	0.186230829	9.26867E-02	1.29443E-01	3.51776E+00	3.04445E-01	1.31382E-01	3.56109E+00	
PMSB	PMSB-BWBK-SB-PM17-0105	13.00837937	5.020747126	0.127523628	6.31893E-03	6.32718E-01	1.10109E+01	-7.94917E-02	-2.83869E-02	5.10024E+00	
PMSB	PMSB-BWBK-SB-PM18-0105	20.94683325	6.585536125	0.087700545	7.52036E-01	5.57066E+00	1.26714E+02	-8.67200E-01	-2.56815E-01	7.45274E+00	
PMSB	PMSB-BWBK-SB-PM19-0105	13.91670878	5.065277397	0.123135782	9.24997E-02	7.05543E-01	1.78642E+01	-3.04138E-01	-1.06724E-01	5.36941E+00	
PMSB	PMSB-BWBK-SB-PM20-0106	10.8488061	4.779812496	0.14213925	1.02110E-01	3.07471E-01	1.34258E+00	3.19546E-01	1.20473E-01	4.46027E+00	
PMSB	PMSB-BWBK-SB-SO01-0107-PM	16.62269752	5.500385648	0.108269009	4.50144E-01	1.62581E+00	4.80608E+01	-6.70927E-01	-2.20764E-01	6.17131E+00	
PMSB	PMSB-BWBK-SB-SO02-0109-PM	22.13498194	7.465979245	0.07957806	1.14823E-01	1.05019E+01	1.54875E+02	-3.38855E-01	-9.55896E-02	7.80483E+00	
PMSB	PMSB-BWBK-SB-SO13-0104-PM	21.77872652	7.070311794	0.08269953	3.95577E-01	8.09403E+00	1.46135E+02	-6.28949E-01	-1.80870E-01	7.69926E+00	
PMSB	PMSB-BWBK-SB-SO14-0105-PM	22.85096135	8.204370068	0.074356936	3.51041E-02	1.58329E+01	1.73208E+02	1.87361E-01	5.10904E-02	8.01701E+00	
PMSS	PMSS-DABK-S-SO21-0001	12.88523675	5.613509052	0.119763425	3.02239E-01	1.92709E+00	1.02089E+01	5.49763E-01	1.90256E-01	5.06375E+00	
PMSS	PMSS-DABK-S-SO22-0001	15.00682832	5.500385648	0.113338492	3.68938E-02	1.62581E+00	2.82675E+01	-1.92078E-01	-6.46644E-02	5.69246E+00	
PMSS	PMSS-DABK-S-SO23-0001	8.867803977	4.262408947	0.166137401	1.51474E-01	1.37621E-03	6.76182E-01	3.89196E-01	1.58636E-01	3.87321E+00	
PMSS	PMSS-DABK-S-SO24-0001	17.9097503	5.212322846	0.108111018	1.79667E+00	9.74191E-01	6.75625E+01	-1.34040E+00	-4.40726E-01	6.55272E+00	
PMSS	PMSS-DABK-S-SO25-0001	35.32069385	7.683983123	0.06289255	1.62275E+01	1.19624E+01	6.56927E+02	-4.02833E+00	-1.01024E+00	1.17123E+01	
PMSS	PMSS-DABK-S-SO26-0001	15.54874656	6.082201996	0.105132391	5.25077E-02	3.44804E+00	3.43237E+01	2.29146E-01	7.42985E-02	5.85306E+00	
PMSS	PMSS-DABK-S-SO27-0001	7.909833709	3.933052423	0.183256812	1.18148E-01	8.54154E-02	3.16937E+00	3.43727E-01	1.47144E-01	3.58933E+00	
PMSS	PMSS-DABK-S-SO28-0001	10.15747701	4.579492834	0.150081272	1.05038E-01	1.25444E-01	2.18435E-01	3.24096E-01	1.25556E-01	4.25540E+00	
PMSS	PMSS-DABK-S-SO29-0001	12.67443202	4.825443595	0.132137271	3.09171E-02	3.60158E-01	8.90620E+00	-1.75833E-01	-6.39164E-02	5.00128E+00	
PMSS	PMSS-DABK-S-SO30-0001	9.320617062	4.132246217	0.165964104	1.55866E-02	8.66116E-03	1.36523E-01	1.24846E-01	5.08607E-02	4.00740E+00	
PMSS	PMSS-DABK-S-SO31-0001	8.296014254	3.190924808	0.206625376	2.63007E-01	1.06996E+00	1.94349E+00	-5.12842E-01	-2.33118E-01	3.70377E+00	
PMSS	PMSS-DABK-S-SO32-0001	15.36369227	5.528774814	0.111814526	7.25991E-02	1.69902E+00	3.21896E+01	-2.69442E-01	-9.00979E-02	5.79822E+00	
PMSS	PMSS-DABK-S-SO33-0001	4.573701472	2.805855095	0.2844698	4.20929E-02	2.01486E+00	2.61776E+01	2.05166E-01	1.09426E-01	2.60069E+00	
PMSS	PMSS-DABK-S-SO34-0001	7.713774104	3.265136495	0.209478337	7.08031E-02	9.21936E-01	3.90589E+00	-2.66088E-01	-1.21786E-01	3.53122E+00	
PMSS	PMSS-DABK-S-SO35-0001	9.625048433	3.831547162	0.171896025	7.07925E-02	1.55050E-01	4.23260E-03	-2.66069E-01	-1.10313E-01	4.09762E+00	
PMSS	PMSS-DABK-S-SO36-0001	5.96249173	3.228137283	0.233582631	4.66088E-02	9.94357E-01	1.38951E+01	2.15891E-01	1.04341E-01	3.01225E+00	
PMSS	PMSS-DABK-S-SO37-0001	11.37610229	4.825443595	0.138469401	4.36463E-02	3.60158E-01	2.84258E+00	2.08917E-01	7.77411E-02	4.61653E+00	
PMSS	PMSS-DABK-S-SO38-0001	5.639767593	3.077956704	0.246586493	2.60328E-02	1.31642E+00	1.64052E+01	1.61347E-01	8.01208E-02	2.91661E+00	
PMSS	PMSS-DABK-S-SO39-0001	10.69632213	3.65930571	0.16941888	5.71194E-01	3.20363E-01	1.01247E+00	-7.55773E-01	-3.11080E-01	4.41508E+00	
PMSS	PMSS-DABK-S-SO40-0001	6.163349659	3.411094095	0.222135008	1.15141E-01	6.62950E-01	1.24380E+01	3.39325E-01	1.59928E-01	3.07177E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
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	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)^	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**AS predict**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
SESB	SESB-BWBK-SB-SO03-0108	25.1118126	8.458436074	0.069967868	5.22389E-02	1.79193E+01	2.37829E+02	-2.28558E-01	-6.04570E-02	8.68699E+00	
SESB	SESB-BWBK-SB-SO04-0108	20.84312181	8.157754172	0.077824369	5.41331E-01	1.54641E+01	1.24390E+02	7.35752E-01	2.05253E-01	7.42200E+00	
SESB	SESB-BWBK-SB-SO05-0106	18.43638231	7.587479384	0.085740012	7.72105E-01	1.13042E+01	7.64973E+01	8.78695E-01	2.57294E-01	6.70878E+00	
SESB	SESB-BWBK-SB-SO06-0108	27.91778863	10.12132214	0.060298828	3.63367E-01	3.47629E+01	3.32248E+02	6.02799E-01	1.48022E-01	9.51852E+00	
SESB	SESB-BWBK-SB-SO07-0106	15.56291153	6.189855071	0.104018224	1.10623E-01	3.85943E+00	3.44898E+01	3.32601E-01	1.07270E-01	5.85725E+00	
SESB	SESB-BWBK-SB-SO08-0107	25.08071846	8.549879733	0.069589483	1.63584E-02	1.87019E+01	2.36871E+02	-1.27900E-01	-3.37398E-02	8.67778E+00	
SESB	SESB-BWBK-SB-SO09-0106	16.05531761	7.49035798	0.091930267	2.21171E+00	1.06605E+01	4.05159E+01	1.48718E+00	4.50914E-01	6.00317E+00	
SESB	SESB-BWBK-SB-SO11-0106	19.75968421	8.227628401	0.07937085	1.26944E+00	1.60185E+01	1.01396E+02	1.12669E+00	3.17422E-01	7.10093E+00	
SESB	SESB-BWBK-SB-SO12-0106	21.69855402	8.00532198	0.077211202	1.08781E-01	1.42885E+01	1.44203E+02	3.29819E-01	9.16466E-02	7.67550E+00	
SESB	SESB-BWBK-SB-SO15-0103	11.40419799	4.764553701	0.139403364	1.95164E-02	2.90782E-01	2.93811E+00	1.39701E-01	5.21599E-02	4.62485E+00	
SESB	SESB-BWBK-SB-SO16-0105	13.26309483	4.485550359	0.135512368	4.76337E-01	6.77242E-02	1.27662E+01	-6.90171E-01	-2.54066E-01	5.17572E+00	
SESB	SESB-BWBK-SB-SO17-0106	6.871202024	3.00148075	0.232611432	7.84306E-02	1.49776E+00	7.94622E+00	-2.80055E-01	-1.35070E-01	3.28154E+00	
SESB	SESB-BWBK-SB-SO18-0105	3.975995888	2.685149378	0.30853956	6.84267E-02	2.37210E+00	3.26511E+01	2.61585E-01	1.45301E-01	2.42356E+00	
SESB	SESB-BWBK-SB-SO19-0104	5.071272747	2.725680889	0.279958417	5.04450E-04	2.24889E+00	2.13336E+01	-2.24600E-02	-1.18838E-02	2.74814E+00	
SESB	SESB-BWBK-SB-SO20-0104	17.7695122	4.672481414	0.115967883	3.38075E+00	1.99961E-01	6.52768E+01	-1.83868E+00	-6.26145E-01	6.51116E+00	
SESS	SESS-DABK-S-SO01-0001	8.124370928	3.933052423	0.18127598	7.84842E-02	8.54154E-02	2.45153E+00	2.80150E-01	1.19278E-01	3.65290E+00	
SESS	SESS-DABK-S-SO02-0001	12.42359212	6.428728274	0.112384868	2.25536E+00	4.85505E+00	7.47194E+00	1.50179E+00	5.03457E-01	4.92694E+00	
SESS	SESS-DABK-S-SO03-0001	10.16442865	4.19757986	0.158446558	3.58525E-03	7.69048E-04	2.24981E-01	-5.98770E-02	-2.38342E-02	4.25746E+00	
SESS	SESS-DABK-S-SO04-0001	8.11436984	3.89936435	0.182376939	6.22134E-02	1.06242E-01	2.48295E+00	2.49426E-01	1.06519E-01	3.64994E+00	
SESS	SESS-DABK-S-SO05-0001	10.01398218	4.485550359	0.152941928	7.43528E-02	6.77242E-02	1.04895E-01	2.72677E-01	1.06638E-01	4.21287E+00	
SESS	SESS-DABK-S-SO06-0001	44.48762797	17.25888641	0.03630084	8.00904E+00	1.69874E+02	1.21087E+03	2.83002E+00	5.39198E-01	1.44289E+01	
SESS	SESS-DABK-S-SO07-0001	5.792032553	4.610593104	0.18732348	2.71874E+00	1.48442E-01	1.51950E+01	1.64886E+00	7.13642E-01	2.96173E+00	SESS-DABK-S-SO07-0001
SESS	SESS-DABK-S-SO08-0001	11.15948765	5.585335783	0.127838883	1.06709E+00	1.84967E+00	2.15908E+00	1.03300E+00	3.69345E-01	4.55233E+00	
SESS	SESS-DABK-S-SO09-0001	14.10720478	5.414774355	0.117584073	1.23046E-04	1.41482E+00	1.95108E+01	-1.10926E-02	-3.80371E-03	5.42587E+00	
SESS	SESS-DABK-S-SO10-0001	16.62340359	5.005859797	0.11457654	1.35877E+00	6.09256E-01	4.80706E+01	-1.16566E+00	-3.94567E-01	6.17152E+00	
SESS	SESS-DABK-S-SO11-0001	2.731633151	1.902915653	0.462466887	2.30711E-02	5.39352E+00	4.84204E+01	-1.51892E-01	-1.03294E-01	2.05481E+00	
SESS	SESS-DABK-S-SO12-0001	6.097029946	3.447095504	0.221487963	1.56009E-01	6.05620E-01	1.29102E+01	3.94980E-01	1.85887E-01	3.05212E+00	
SESS	SESS-DABK-S-SO13-0001	9.527536425	5.299560899	0.141050877	1.51497E+00	1.15401E+00	2.64291E-02	1.23084E+00	4.62264E-01	4.06872E+00	
SESS	SESS-DABK-S-SO14-0001	8.938504712	5.005859797	0.149919835	1.23587E+00	6.09256E-01	5.64906E-01	1.11170E+00	4.30443E-01	3.89416E+00	
SESS	SESS-DABK-S-SO15-0001	9.9028025	4.946087443	0.144692544	5.87003E-01	5.19518E-01	4.52394E-02	7.66161E-01	2.91436E-01	4.17993E+00	
SESS	SESS-DABK-S-SO16-0001	3.201051409	2.477667769	0.352247685	8.05152E-02	3.05426E+00	4.21078E+01	2.83752E-01	1.68408E-01	2.19392E+00	
SESS	SESS-DABK-S-SO17-0001	9.586982456	3.228137283	0.193068122	7.36504E-01	9.94357E-01	1.06346E-02	-8.58198E-01	-3.77088E-01	4.08634E+00	
SESS	SESS-DABK-S-SO18-0001	4.562089446	3.228137283	0.257818577	3.98021E-01	9.94357E-01	2.62966E+01	6.30889E-01	3.20339E-01	2.59725E+00	
SESS	SESS-DABK-S-SO19-0001	7.219805169	4.390613599	0.177264782	1.01158E+00	2.73248E-02	6.10239E+00	1.00577E+00	4.23459E-01	3.38484E+00	
SESS	SESS-DABK-S-SO20-0001	12.05682244	8.204370068	0.099092427	1.14658E+01	1.58329E+01	5.60134E+00	3.38612E+00	1.06591E+00	4.81825E+00	SESS-DABK-S-SO20-0001
SESD	SESD-SD01	12.4660444	5.863976613	0.118409348	8.54616E-01	2.68522E+00	7.70583E+00	9.24454E-01	3.18111E-01	4.93952E+00	
SESD	SESD-SD02	10.65599678	3.966596834	0.16101416	1.90560E-01	6.69333E-02	9.32943E-01	-4.36532E-01	-1.75165E-01	4.40313E+00	
SESD	SESD-SD03	19.72430747	7.269491743	0.085186605	3.20558E-02	9.26703E+00	1.00685E+02	1.79041E-01	5.22563E-02	7.09045E+00	
SESD	SESD-SD04	18.37896444	6.481208051	0.093963268	4.43358E-02	5.08907E+00	7.54962E+01	-2.10561E-01	-6.45441E-02	6.69177E+00	
SESD	SESD-SD05	15.4151375	6.349604208	0.10292463	2.87448E-01	4.51262E+00	3.27760E+01	5.36142E-01	1.72004E-01	5.81346E+00	
SESD	SESD-SD06	18.1672464	6.791757603	0.091942948	2.64810E-02	6.58665E+00	7.18619E+01	1.62730E-01	4.93431E-02	6.62903E+00	
SESD	SESD-SD07	15.68322715	6.50736837	0.100692195	3.77561E-01	5.20778E+00	3.59175E+01	6.14460E-01	1.94981E-01	5.89291E+00	
SESD	SESD-SD08	30.47684047	8.458436074	0.063899322	3.30673E+00	1.79193E+01	4.32088E+02	-1.81844E+00	-4.59671E-01	1.02769E+01	
SESD	SESD-SD09	7.725588119	4.033264272	0.182044197	2.48540E-01	3.68822E-02	3.85933E+00	4.98538E-01	2.12710E-01	3.53473E+00	
SESD	SESD-SD10	18.8100268	6.868285455	0.08992116	2.37899E-03	6.98531E+00	8.31729E+01	4.87748E-02	1.46260E-02	6.81951E+00	
SESD	SESD-SD11	29.78044528	9.154891032	0.061819527	8.38351E-01	2.43008E+01	4.03622E+02	-9.15615E-01	-2.27654E-01	1.00705E+01	
SESD	SESD-SD12	33.33304265	10.5669867	0.054173721	3.09473E-01	4.02168E+01	5.58988E+02	-5.56303E-01	-1.29481E-01	1.11233E+01	
SESD	SESD-SD13	22.8705313	8.29720717	0.073860678	7.52946E-02	1.65803E+01	1.73724E+02	2.74399E-01	7.45742E-02	8.02281E+00	
SESD	SESD-SD14	13.42276566	6.428728274	0.10864735	1.45369E+00	4.85505E+00	1.39327E+01	1.20569E+00	3.97416E-01	5.22304E+00	
SESD	SESD-SD15	22.00196217	7.922639752	0.077167857	2.47196E-02	1.36702E+01	1.51582E+02	1.57225E-01	4.36756E-02	7.76542E+00	
SESD	SESD-SD16	20.11130196	6.969664646	0.086487457	5.54454E-02	7.53147E+00	1.08601E+02	-2.35468E-01	-6.92483E-02	7.20513E+00	
SESD	SESD-SD17	17.39722409	7.120367359	0.091260339	5.17723E-01	8.38135E+00	5.93997E+01	7.19530E-01	2.17365E-01	6.40084E+00	
SESD	SESD-SD18	13.10967453	4.855744778	0.129703801	7.53569E-02	3.97446E-01	1.16934E+01	-2.74512E-01	-9.88639E-02	5.13026E+00	
SESD	SESD-SD19	17.72909016	6.766152446	0.093167952	7.12723E-02	6.45587E+00	6.46253E+01	2.66969E-01	8.14880E-02	6.49918E+00	
SESD	SESD-SD20	11.79832252	3.831547162	0.157620991	8.28284E-01	1.55050E-01	4.44457E+00	-9.10101E-01	-3.61324E-01	4.74165E+00	

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	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	AS predict	AS ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
Site 8 SS	DA-B100B-0002	14.90862332	2.392220179	0.19883173	1.07004E+01	3.36022E+00	2.72329E+01	-3.27114E+00	-1.45862E+00	5.66336E+00	
Site 8 SS	DA-B101B-0002	17.04812183	3.301927249	0.147895698	8.97276E+00	8.52639E-01	5.41404E+01	-2.99546E+00	-1.15197E+00	6.29738E+00	
Site 8 SS	DA-B106B-0002	5.533941004	3.865530119	0.213046102	9.60951E-01	1.29443E-01	1.72737E+01	9.80281E-01	4.52468E-01	2.88525E+00	
Site 8 SS	DA-B107B-0002	**10.66701934**	**6.323119888**	0.121169053	3.67383E+00	4.40080E+00	9.54358E-01	1.91672E+00	6.67199E-01	4.40640E+00	DA-B107B-0002
Site 8 SS	DA-B108B-0002	12.63780145	6.136146578	0.114615662	1.31269E+00	3.65129E+00	8.68890E+00	1.14573E+00	3.87885E-01	4.99042E+00	
Site 8 SS	DA-B109B-0002	1.040469261	1.890814389	0.585600604	1.13684E-01	5.44988E+00	7.48162E+01	3.37170E-01	2.58018E-01	1.55364E+00	
Site 8 SS	DA-S-SB01-0102-01	**18.29158119**	**9.868272403**	0.074328295	1.02554E+01	3.18430E+01	7.39854E+01	3.20240E+00	8.73077E-01	6.66587E+00	DA-S-SB01-0102-01
Site 8 SS	DA-S-SB02-0102-01	**13.36657315**	**7.611662611**	0.098817305	5.78535E+00	1.14674E+01	1.35164E+01	2.40528E+00	7.56104E-01	5.20639E+00	DA-S-SB02-0102-01
Site 8 SS	DA-S-SB03-0102-01	**15.89492196**	**10.0793684**	0.078273747	1.70051E+01	3.42700E+01	3.84997E+01	4.12373E+00	1.15371E+00	5.95564E+00	DA-S-SB03-0102-01
Site 8 SS	DA-S-SB04-0102-01	**13.16075145**	**11.89020214**	0.077788089	4.54924E+01	5.87505E+01	1.20454E+01	6.74481E+00	1.88116E+00	5.14539E+00	DA-S-SB04-0102-01
Site 8 SS	DA-S-SB05-0102-01	**2.433719706**	**3.89936435**	0.278088315	3.73588E+00	1.06242E-01	5.26552E+01	1.93284E+00	1.01927E+00	1.96652E+00	DA-S-SB05-0102-01
Site 8 SS	DA-S-SB06-0515-01	8.91140676	5.241482788	0.14599437	1.83697E+00	1.03260E+00	6.06374E-01	1.35535E+00	5.17868E-01	3.88613E+00	
Site 8 SS	DA-S-SB07-0102-01	**12.85902197**	**9.868272403**	0.086975123	2.31582E+01	3.18430E+01	1.00420E+01	4.81229E+00	1.41922E+00	5.05598E+00	DA-S-SB07-0102-01
Site 8 SS	DA-S-SB08-0102-01	**6.592143465**	**4.641588834**	0.177493116	2.08153E+00	1.73287E-01	9.59738E+00	1.44275E+00	6.07830E-01	3.19884E+00	DA-S-SB08-0102-01
Site 8 SS	DA-S-TP01-0001-01	**11.4381303**	**7.120367359**	0.109828841	6.17751E+00	8.38135E+00	3.05559E+00	2.48546E+00	8.23692E-01	4.63491E+00	DA-S-TP01-0001-01
Site 8 SS	DA-S-TP05-0001-01	14.23371063	5.528774814	0.115674865	4.27963E-03	1.69902E+00	2.06443E+01	6.54189E-02	2.22496E-02	5.46336E+00	
Site 8 SS	DA-S-TP06-0001-01	**11.68368162**	**6.868285455**	0.111096379	4.66824E+00	6.98531E+00	3.97434E+00	2.16061E+00	7.20156E-01	4.70768E+00	DA-S-TP06-0001-01
Site 8 SS	DA-S-TP07-0001-01	**6.790451936**	**7.120367359**	0.13619125	1.49209E+01	8.38135E+00	8.40800E+00	3.86276E+00	1.42552E+00	3.25761E+00	DA-S-TP07-0001-01
Site 8 SS	DA-S-TP08-0001-01	**13.46249412**	**8.549879733**	0.092283296	1.09897E+01	1.87019E+01	1.42309E+01	3.31507E+00	1.00706E+00	5.23481E+00	DA-S-TP08-0001-01
Site 8 SS	DA-S-TP09-0001-01	12.98104976	4.946087443	0.128808466	2.13313E-02	5.19518E-01	1.08303E+01	-1.46052E-01	-5.24181E-02	5.09214E+00	
Site 8 SS	DA-S-TP09-0102-01	15.06532668	4.795046974	0.12292011	8.36771E-01	3.24598E-01	2.88930E+01	-9.14752E-01	-3.20712E-01	5.70980E+00	
Site 8 SS	DA-S-TP10-0001-01	13.42180074	6.082201996	0.112213288	7.38653E-01	3.44804E+00	1.39255E+01	8.59449E-01	2.87900E-01	5.22275E+00	
Site 8 SS	DA-S-TP10-0102-01	13.09958786	5.528774814	0.119981397	1.61208E-01	1.69902E+00	1.16246E+01	4.01507E-01	1.39075E-01	5.12727E+00	
Site 8 SS	DA-S-TP11-0001-01	19.03616382	7.120367359	0.087607221	5.46825E-02	8.38135E+00	8.73488E+01	2.33843E-01	6.92140E-02	6.88652E+00	
Site 8 SS	DA-S-TP12-0001-01	15.27144038	5.808785734	0.108881898	1.43693E-03	2.50739E+00	3.11513E+01	3.79069E-02	1.25082E-02	5.77088E+00	
Site 8 SS	DA-S-TP12-0102-01	16.06604735	7.120367359	0.094589315	1.24103E+00	8.38135E+00	4.06526E+01	1.11401E+00	3.42619E-01	6.00635E+00	
Site 8 SS	DA-S-TP12A-0001-01	13.41065872	6.082201996	0.112254235	7.44339E-01	3.44804E+00	1.38425E+01	8.62751E-01	2.89059E-01	5.21945E+00	
Site 8 SS	DA-S-TP12B-0001-01	14.68495529	5.808785734	0.110795657	4.48199E-02	2.50739E+00	2.49485E+01	2.11707E-01	7.04688E-02	5.59708E+00	
Site 8 SS	DA-S-TP13-0001-01	**16.22404783**	**20.0829885**	0.053676186	1.96836E+02	2.51466E+02	4.26924E+01	1.40298E+01	3.25044E+00	6.05318E+00	DA-S-TP13-0001-01
Site 8 SS	DA-S-TP15-0001-01	**10.77973315**	**7.611662611**	0.108463614	1.00607E+01	1.14674E+01	1.18729E+00	3.17187E+00	1.04462E+00	4.43980E+00	DA-S-TP15-0001-01
Site 8 SS	DA-SB100-0002	**7.816289837**	**4.946087443**	0.159541233	1.91679E+00	5.19518E-01	3.51119E+00	1.38448E+00	5.52999E-01	3.56160E+00	DA-SB100-0002
Site 8 SS	DA-SB101-0002	**9.671081006**	**5.863976613**	0.131989065	3.07203E+00	2.68522E+00	3.61982E-04	1.75272E+00	6.36768E-01	4.11126E+00	DA-SB101-0002
Site 8 SS	DA-SB102-0002	**11.64217607**	**6.349604208**	0.116426265	2.73647E+00	4.51262E+00	3.81057E+00	1.65423E+00	5.64444E-01	4.69538E+00	DA-SB102-0002
Site 8 SS	DA-SB107-0103	8.142634382	3.589268453	0.192270677	4.76733E-03	4.04551E-01	2.39467E+00	-6.90458E-02	-3.02757E-02	3.65831E+00	
Site 8 SS	DA-SB111-0002	11.52897397	6.109204058	0.11957656	2.09489E+00	3.54905E+00	3.38143E+00	1.44738E+00	5.00500E-01	4.66183E+00	
Site 8 SS	DA-SB112-0002	4.387295908	3.03983898	0.272577032	2.44421E-01	1.40535E+00	2.81198E+01	4.94389E-01	2.58115E-01	2.54545E+00	
Site 8 SS	DA-SB113-0002	4.455574689	2.392220179	0.324091027	3.00896E-02	3.36022E+00	2.74003E+01	-1.73463E-01	-9.87510E-02	2.56568E+00	
Site 8 SS	DA-SB114-0002	7.395266672	3.301927249	0.211428224	1.82009E-02	8.52639E-01	5.26629E+00	-1.34911E-01	-6.20337E-02	3.43684E+00	
Site 8 SS	DA-SB115-0002	**10.44671565**	**8.640836967**	0.102371298	1.84876E+01	1.94969E+01	5.72457E-01	4.29973E+00	1.37572E+00	4.34111E+00	DA-SB115-0002
Site 8 SS	DA-SB116-0002	**14.79532332**	**7.538996881**	0.09499648	3.64509E+00	1.09805E+01	2.60632E+01	1.90921E+00	5.88448E-01	5.62979E+00	DA-SB116-0002
Site 8 SS	DA-SB117-0002	17.59927381	8.111004704	0.084334526	2.72346E+00	1.50986E+01	6.25549E+01	1.65029E+00	4.79251E-01	6.46071E+00	
Site 8 SS	DA-SB118-0002	**20.49186188**	**12.80099276**	0.061278477	3.00642E+01	7.35423E+01	1.16678E+02	5.48308E+00	1.35731E+00	7.31791E+00	DA-SB118-0002
Site 8 SS	DA-SB119-0002	0.529386201	1.424402129	0.88056483	4.93417E-04	7.84509E+00	8.39188E+01	2.22130E-02	2.08443E-02	1.40219E+00	
Site 8 SS	DA-SB120-0002	18.29052559	7.170247594	0.088859286	2.54709E-01	8.67265E+00	7.39672E+01	5.04687E-01	1.50444E-01	6.66556E+00	
Site 8 SS	DA-SB133-0102	**14.691951**	**8.111004704**	0.091444342	6.30940E+00	1.50986E+01	2.50184E+01	2.51185E+00	7.59578E-01	5.59915E+00	DA-SB133-0102
Site 8 SS	DA-SB150-0002	**19.99326547**	**10.22582843**	0.069995704	9.33715E+00	3.60062E+01	1.06155E+02	3.05567E+00	8.08431E-01	7.17015E+00	DA-SB150-0002
Site 8 SS	DA-SB151-0002	13.46195191	6.766152446	0.105350513	2.34550E+00	6.45587E+00	1.42268E+01	1.53150E+00	4.97091E-01	5.23465E+00	
Site 8 SS	DA-SS102B-011508	12.79032693	5.528774814	0.121241712	2.43201E-01	1.69902E+00	9.61136E+00	4.93154E-01	1.71715E-01	5.03562E+00	
Site 8 SS	DA-SS103B-011508	14.60117564	6.454994829	0.104437628	7.79236E-01	4.97149E+00	2.41186E+01	8.82744E-01	2.85275E-01	5.57225E+00	
Site 8 SS	DA-SS104-011508	**10.22734398**	**5.946279717**	0.127862462	2.78950E+00	2.96173E+00	2.88624E-01	1.67018E+00	5.97220E-01	4.27610E+00	DA-SS104-011508
Site 8 SS	DA-SS104B-011608	**8.230878559**	**7.070311794**	0.126599089	1.14640E+01	8.09403E+00	2.12935E+00	3.38585E+00	1.20471E+00	3.68446E+00	DA-SS104B-011608
Site 8 SS	DA-SS105-011508	1.957402746	1.367980757	0.73570894	2.09205E-01	8.16434E+00	5.97947E+01	-4.57390E-01	-3.92319E-01	1.82537E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	AS predict	AS ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
Site 8 SS	DA-SS105B-011608	**16.13829701**	**7.946307107**	0.088708286	3.68080E+00	1.38458E+01	4.15792E+01	1.91854E+00	5.71417E-01	6.02776E+00	DA-SS105B-011608
Site 8 SS	DA-SS106-011408	**9.404128822**	**5.753331403**	0.13505531	2.96247E+00	2.33484E+00	8.17834E-02	1.72118E+00	6.32528E-01	4.03215E+00	DA-SS106-011408
Site 8 SS	DA-SS107-011508	0.42788987	0.438125636	1.480415503	8.72330E-01	1.43428E+01	8.57887E+01	-9.33986E-01	-1.13640E+00	1.37211E+00	
Site 8 SS	DA-SS108-011508	8.099676996	3.374901689	0.200802678	7.32690E-02	7.23197E-01	2.52947E+00	-2.70683E-01	-1.21296E-01	3.64558E+00	
Site 8 SS	DA-SS109-011408	0.567312242	1.587401052	0.765887873	3.02665E-02	6.95857E+00	8.32254E+01	1.73973E-01	1.52252E-01	1.41343E+00	
Site 8 SS	DA-SS110-011508	**6.620633796**	**4.548286599**	0.179435736	1.79829E+00	1.04313E-01	9.42166E+00	1.34101E+00	5.68048E-01	3.20728E+00	DA-SS110-011508
Site 8 SS	DA-SS110B-011508	12.94621863	6.559531991	0.109103475	2.18364E+00	5.44858E+00	1.06023E+01	1.47771E+00	4.88101E-01	5.08182E+00	
Site 8 SS	DA-SS111B-011408	**14.6683021**	**7.465979245**	0.095888374	3.51126E+00	1.05019E+01	2.47824E+01	1.87384E+00	5.80249E-01	5.59214E+00	DA-SS111B-011408
Site 8 SS	DA-SS112B-011608	**16.66216604**	**8.308775255**	0.085283431	4.51888E+00	1.66747E+01	4.86096E+01	2.12577E+00	6.20794E-01	6.18301E+00	DA-SS112B-011608
Site 8 SS	DA-SS113B-011608	20.95299186	8.776382955	0.07453223	1.74721E+00	2.07123E+01	1.26853E+02	1.32182E+00	3.60865E-01	7.45456E+00	
Site 8 SS	DA-SS114B-011008	17.60567504	8.087579399	0.084457628	2.64052E+00	1.49171E+01	6.26562E+01	1.62497E+00	4.72242E-01	6.46261E+00	
Site 8 SS	DA-SS115B-011008	14.02935145	5.863976613	0.112431079	2.12688E-01	2.68522E+00	1.88290E+01	4.61181E-01	1.54637E-01	5.40280E+00	
Site 8 SS	DA-SS116B-011008	16.72614827	7.683983123	0.088961304	2.19636E+00	1.19624E+01	4.95059E+01	1.48201E+00	4.42031E-01	6.20197E+00	
Site 8 SS	DA-SS117B-011008	19.07844204	7.875198618	0.082659724	9.52860E-01	1.33217E+01	8.81408E+01	9.76145E-01	2.80648E-01	6.89905E+00	
Site 8 SS	DA-SS118B-011608	**16.26901121**	**8.274046768**	0.09	4.87	16.392257	43.281983	2.207546	6.48905E-01	6.06650E+00	DA-SS118B-011608
Site 8 SS	DA-SS119B-011608	**19.89007324**	**9.611935386**	0.07	6.11	29.015716	104.039315	2.472362	6.66103E-01	7.13957E+00	DA-SS119B-011608
Site 8 SS	DA-SS120B-011708	15.31750797	6.402407948	0.10	0.38	4.739749	31.667643	0.617877	1.98031E-01	5.78453E+00	
Site 8 SS	DA-SS121-011008	**11.95187122**	**8.29720717**	0.10	12.32	16.580334	5.115578	3.510056	1.10354E+00	4.78715E+00	DA-SS121-011008
Site 8 SS	DA-SS122-011008	16.80935301	7.922639752	0.09	2.88	13.670236	50.683666	1.696013	5.00956E-01	6.22663E+00	
Site 8 SS	DA-SS123-011008	16.04820036	7.020078408	0.10	1.04	7.810722	40.425353	1.019013	3.14752E-01	6.00107E+00	
Site 8 SS	DA-SS124-011008	**4.754116974**	**4.033264272**	0.22	1.90	0.036882	24.363996	1.379110	6.45665E-01	2.65415E+00	DA-SS124-011008
Site 8 SS	DA-SS125-011008	**8.141572163**	**5.050455797**	0.15	1.94	0.680863	2.397960	1.392456	5.48115E-01	3.65800E+00	DA-SS125-011008
Site 8 SS	DA-SS126-011408	**12.25347022**	**6.53347621**	0.11	2.75	5.327624	6.570832	1.656949	5.54540E-01	4.87653E+00	DA-SS126-011408
Site 8 SS	DA-SS127-011508	6.708040896	4.099385194	0.19	0.75	0.015857	8.892717	0.866201	3.78133E-01	3.23318E+00	
Site 8 SS	DA-SS128-011608	9.943729379	4.454017329	0.15	0.07	0.052306	0.064324	0.261963	1.02826E-01	4.19205E+00	
Site 8 SS	DA-SS129-011408	16.67059108	7.563257557	0.09	1.90	11.141883	48.727160	1.377752	4.13087E-01	6.18551E+00	
Site 8 SS	DA-SS130-011508	**12.97905418**	**6.766152446**	0.11	2.80	6.455872	10.817175	1.674604	5.47910E-01	5.09155E+00	DA-SS130-011508
Site 8 SS	DA-SS131-011608	13.01634803	6.243331554	0.11	1.30	4.072405	11.063880	1.140731	3.81779E-01	5.10260E+00	
Site 8 SS	DA-SS132-011408	14.98857479	6.766152446	0.10	1.16	6.455872	28.073763	1.079099	3.42029E-01	5.68705E+00	
Site 8 SS	DA-SS133-011508	16.0312149	6.919067891	0.10	0.85	7.256323	40.209651	0.923036	2.86360E-01	5.99603E+00	
Site 8 SS	DA-SS134-011508	15.72510421	6.109204058	0.10	0.04	3.549051	36.421193	0.203886	6.58563E-02	5.90532E+00	
Site 8 SS	DA-SS135-011108	17.19326937	5.711564702	0.10	0.40	2.208948	56.297448	-0.628833	-2.03062E-01	6.34040E+00	
Site 8 SS	DA-SS136-011008	**18.42430051**	**8.977764038**	0.08	5.16	22.585804	76.286139	2.272560	6.34909E-01	6.70520E+00	DA-SS136-011008
Site 8 SS	DA-SS138-011108	8.941084124	3.831547162	0.18	0.00	0.155050	0.561035	-0.063381	-2.66848E-02	3.89493E+00	
Site 8 SS	DA-SS139-011108	9.860714997	4.825443595	0.15	0.43	0.360158	0.029107	0.657990	2.52409E-01	4.16745E+00	
Site 8 SS	DA-SS140-011108	21.57663228	8.910890175	0.07	1.62	21.954647	141.289487	1.271518	3.43345E-01	7.63937E+00	
Site 8 SS	DA-SS141-011108	12.0905321	6.189855071	0.12	1.85	3.859431	5.762041	1.361613	4.64249E-01	4.82824E+00	
Site 8 SS	DA-SS142-011708	12.84357589	5.946279717	0.12	0.80	2.961731	9.944367	0.894879	3.04686E-01	5.05140E+00	
Site 8 SS	DA-SS143-011708	19.25040082	6.559531991	0.09	0.15	5.448585	91.399221	-0.390480	-1.18030E-01	6.95001E+00	
Site 8 SS	DA-SS144-011708	17.69972384	5.781091815	0.10	0.50	2.420452	64.153964	-0.709389	-2.26766E-01	6.49048E+00	
Site 8 SS	DA-SS145-011708	14.69547144	7.020078408	0.10	2.02	7.810722	25.053675	1.419883	4.47273E-01	5.60020E+00	
Site 8 SS	DA-SS146-011708	8.447442345	4.641588834	0.16	0.80	0.173287	1.544215	0.892947	3.57977E-01	3.74864E+00	
Site 8 SS	DA-SS147-011708	15.02629056	3.933052423	0.14	3.12	0.085415	28.474857	-1.765178	-6.58986E-01	5.69823E+00	
Site 8 SS	DA-SS148-011708	21.15400865	7.219954932	0.08	0.09	8.967889	131.421045	-0.294176	-8.46589E-02	7.51413E+00	
Site 8 SS	DA-SS149-011708	116.0460598	7.219954932	0.04	807.39	8.967889	11311.588731	-28.414676	-5.43498E+00	3.56346E+01	
Site 8 SS	DA-SS152-011608	5.991053758	3.301927249	0.23	0.08	0.852639	13.682994	0.281217	1.34742E-01	3.02071E+00	
Site 8 SS	DA-SS153-011608	**14.38978992**	**9.995197694**	0.08	20.12	33.291586	22.087021	4.485589	1.28602E+00	5.50961E+00	DA-SS153-011608
Site 8 SB	DA-B100B-0608	24.17512264	5.918908978	0.09	6.20	2.868272	209.815683	-2.490505	-7.36053E-01	8.40941E+00	
Site 8 SB	DA-B101B-0406	8.508539306	4.294639074	0.17	0.28	0.004806	1.396102	0.527892	2.16495E-01	3.76675E+00	
Site 8 SB	DA-B103B-0810	**12.83847185**	**7.070311794**	0.10	4.08	8.094026	9.912202	2.020424	6.54335E-01	5.04989E+00	DA-B103B-0810
Site 8 SB	DA-B104B-0406	**14.97123237**	**7.551132091**	0.09	3.49	11.061082	27.890287	1.869217	5.74347E-01	5.68191E+00	DA-B104B-0406
Site 8 SB	DA-B105B-0204	11.59572756	4.88595171	0.14	0.04	0.436445	3.631390	0.204341	7.54381E-02	4.68161E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	AS predict	AS ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
Site 8 SB	DA-B106B-0406	13.01626025	4.579492834	0.13	0.27	0.125444	11.063297	-0.523081	-1.92111E-01	5.10257E+00	
Site 8 SB	DA-B107B-0608	16.96996202	5.836413792	0.10	0.19	2.595650	52.996292	-0.437808	-1.40892E-01	6.27422E+00	
Site 8 SB	DA-B108B-0406	7.642000942	4.066391931	0.18	0.31	0.025255	4.194738	0.556436	2.37312E-01	3.50996E+00	
Site 8 SB	DA-B109B-0204	**15.09561376**	**9.352133308**	0.08	13.20	26.284301	29.219505	3.633359	1.04970E+00	5.71877E+00	DA-B109B-0204
Site 8 SB	DA-B110B-1012	73.30202205	4.88595171	0.06	326.95	0.436445	4046.475757	-18.081825	-4.34172E+00	2.29678E+01	
Site 8 SB	DA-B111B-0406	**15.87988103**	**7.779884614**	0.09	3.34	12.634989	38.313305	1.828699	5.49900E-01	5.95119E+00	DA-B111B-0406
Site 8 SB	DA-B112B-0608	12.73178709	6.50736837	0.11	2.22	5.207783	9.251819	1.489095	4.94799E-01	5.01827E+00	
Site 8 SB	DA-B113B-0608	16.89155163	8.040626668	0.09	3.20	14.556629	51.860807	1.789641	5.25841E-01	6.25099E+00	
Site 8 SB	DA-B114B-0204	26.44818736	3.518541062	0.12	30.96	0.499525	280.833263	-5.564477	-1.89348E+00	9.08302E+00	
Site 8 SB	DA-B116B-0305	22.79860336	9.110770968	0.07	1.23	23.867713	171.832681	1.109278	2.93940E-01	8.00149E+00	
Site 8 SB	DA-B118B-0608	22.5180046	7.392602786	0.08	0.28	10.031734	164.554961	-0.525737	-1.48137E-01	7.91834E+00	
Site 8 SB	DA-B119B-0204	16.84148337	4.733962534	0.12	2.26	0.258726	51.142186	-1.502186	-5.15710E-01	6.23615E+00	
Site 8 SB	DA-B120B-0204	28.09962284	7.779884614	0.07	3.21	12.634989	338.910279	-1.792523	-4.72818E-01	9.57241E+00	
Site 8 SB	DA-S-MW04B-0810-01	**6.860901383**	**6.349604208**	0.14	9.43	4.512619	8.004404	3.071121	1.16899E+00	3.27848E+00	DA-S-MW04B-0810-01
Site 8 SB	DA-S-MW04B-1416-01	**8.436579491**	**7.611662611**	0.12	14.95	11.467373	1.571331	3.866240	1.34031E+00	3.74542E+00	DA-S-MW04B-1416-01
Site 8 SB	DA-S-SB01-0809-01	13.85957569	6.349604208	0.11	0.99	4.512619	17.384470	0.997120	3.27534E-01	5.35248E+00	
Site 8 SB	DA-S-SB01-5575-01	16.80921772	6.868285455	0.09	0.41	6.985311	50.681740	0.641699	1.97387E-01	6.22659E+00	
Site 8 SB	DA-S-SB02-0304-01	9.287786171	4.946087443	0.15	0.90	0.519518	0.161862	0.948417	3.65642E-01	3.99767E+00	
Site 8 SB	DA-S-SB02-5565-01	5.369619781	3.797412828	0.22	0.92	0.183097	18.666608	0.960859	4.48588E-01	2.83655E+00	
Site 8 SB	DA-S-SB03-0304-01	63.09218363	10.69987481	0.04	85.42	41.919969	2851.781806	-9.242298	-1.839294	19.942173	
Site 8 SB	DA-S-SB03-0607-01	36.3045938	9.654893846	0.05	5.52	29.480364	708.330917	-2.348992	-0.549179	12.003885	
Site 8 SB	DA-S-SB04-0910-01	**14.79494954**	**8.320335292**	0.09	7.24	16.769219	26.059419	2.690661	0.806610	5.629675	DA-S-SB04-0910-01
Site 8 SB	DA-S-SB04-2535-01	11.15215154	5.528774814	0.13	0.96	1.699016	2.137575	0.978614	0.351009	4.550161	
Site 8 SB	DA-S-SB05-0203-01	**13.87211315**	**10.28827648**	0.08	24.33	36.759543	17.489177	4.932077	1.414286	5.356199	DA-S-SB05-0203-01
Site 8 SB	DA-S-SB05-0304-01	**11.09455666**	**6.611489018**	0.12	4.32	5.693843	1.972479	2.078396	0.708224	4.533093	DA-S-SB05-0304-01
Site 8 SB	DA-S-SB06-2535-01	**12.49652147**	**6.868285455**	0.11	3.69	6.985311	7.875963	1.919732	0.630608	4.948554	DA-S-SB06-2535-01
Site 8 SB	DA-S-SB08-0607-01	17.55521606	5.669644725	0.10	0.61	2.086098	61.859943	-0.778013	-0.250602	6.447657	
Site 8 SB	DA-S-TP01-0304-01	**12.89454316**	**7.120367359**	0.10	4.22	8.381348	10.268412	2.053863	0.663194	5.066504	DA-S-TP01-0304-01
Site 8 SB	DA-S-TP01-0607-01	**6.96579048**	**6.082201996**	0.15	7.69	3.448042	7.421900	2.772636	1.065501	3.309566	DA-S-TP01-0607-01
Site 8 SB	DA-S-TP02-0203-01	20.4310852	9	0.07	2.89	22.797650	115.368616	1.700102	0.463583	7.299898	
Site 8 SB	DA-S-TP02-0506-01	20.09011126	7.851424411	0.08	0.43	13.148694	108.160092	0.652571	0.185575	7.198853	
Site 8 SB	DA-S-TP05-0607-01	**16.347762**	**8.776382955**	0.08	7.22	20.712251	44.324372	2.686545	0.775989	6.089838	DA-S-TP05-0607-01
Site 8 SB	DA-S-TP05-0910-01	14.31688459	5.808785734	0.11	0.10	2.507390	21.407072	0.320782	0.107378	5.488004	
Site 8 SB	DA-S-TP06-0304-01	**7.804176759**	**6.349604208**	0.14	7.79	4.512619	3.556732	2.791589	1.035637	3.558015	DA-S-TP06-0304-01
Site 8 SB	DA-S-TP06-0910-01	16.68826552	7.368062997	0.09	1.39	9.876886	48.974225	1.177319	0.355534	6.190744	
Site 8 SB	DA-S-TP07-0304-01	**6.613673929**	**6.349604208**	0.15	9.89	4.512619	9.464439	3.144385	1.205522	3.205219	DA-S-TP07-0304-01
Site 8 SB	DA-S-TP07-0910-01	12.14287465	5.808785734	0.12	0.93	2.507390	6.016070	0.965032	0.334906	4.843753	
Site 8 SB	DA-S-TP08-0304-01	**11.60294398**	**8.204370068**	0.10	12.39	15.832906	3.658946	3.520621	1.117484	4.683749	DA-S-TP08-0304-01
Site 8 SB	DA-S-TP08-0708-01	**13.72207388**	**8.320335292**	0.09	9.05	16.769219	16.256758	3.008599	0.917068	5.311736	DA-S-TP08-0708-01
Site 8 SB	DA-S-TP11-0203-01	22.43097047	6.082201996	0.09	3.28	3.448042	162.329606	-1.810346	-0.540069	7.892548	
Site 8 SB	DA-S-TP11-0304-01	22.00984889	5.808785734	0.09	3.84	2.507390	151.776044	-1.958967	-0.594948	7.767752	
Site 8 SB	DA-S-TP12-0203-01	10.19711309	3.65930571	0.17	0.37	0.320363	0.257055	-0.607837	-0.252741	4.267143	
Site 8 SB	DA-S-TP13-0203-01	**16.5955969**	**11.69607095**	0.07	30.61	55.812246	47.685793	5.532789	1.472193	6.163282	DA-S-TP13-0203-01
Site 8 SB	DA-S-TP13-0405-01	**13.79096229**	**8.087579399**	0.09	7.59	14.917113	16.817015	2.755428	0.845667	5.332151	DA-S-TP13-0405-01
Site 8 SB	DA-S-TP14-0506-01	49.9548048	8.320335292	0.05	59.73	16.769219	1621.245902	-7.728681	-1.744431	16.049016	
Site 8 SB	DA-S-TP14-0910-01	16.90843586	5.241482788	0.11	1.03	1.032604	52.104274	-1.014507	-0.337370	6.255989	
Site 8 SB	DA-S-TP15-0203-01	**9.757894902**	**6.868285455**	0.12	7.46	6.985311	0.004595	2.731302	0.945977	4.136984	DA-S-TP15-0203-01
Site 8 SB	DA-S-TP15-0506-01	**7.667573767**	**6.611489018**	0.14	9.57	5.693843	4.090640	3.093955	1.138507	3.517534	DA-S-TP15-0506-01
Site 8 SB	DA-S-TP15A-0203-01	**-37.30794125**	**2.261097439**	1.04	145.73	3.858137	2208.816524	12.071697	12.289336	-9.810600	DA-S-TP15A-0203-01
Site 8 SB	DA-S-TP15A-0506-01	**-32.7758261**	**1.938991221**	1.18	108.30	5.227261	1803.355461	10.406535	11.323368	-8.467544	DA-S-TP15A-0506-01
Site 8 SB	DA-S-TP15A-0910-01	**9.398220692**	**6.349604208**	0.13	5.38	4.512619	0.085198	2.319207	0.828150	4.030397	DA-S-TP15A-0910-01
Site 8 SB	DA-SB-TP103-0506	34.16437753	7.969939269	0.06	11.56	14.022237	598.989926	-3.399710	-0.850551	11.369650	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	*(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!E	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**AS predict**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SB	DA-SB100-0204	**6.247758442**	**4.516972939**	0.18	2.02	0.085066	11.849762	1.420190	0.609703	3.096783	DA-SB100-0204
Site 8 SB	DA-SB101-0608	15.48714226	1.717071364	0.26	16.96	6.291269	33.605620	-4.117729	-2.111615	5.834800	
Site 8 SB	DA-SB102-0305	20.77286775	5.863976613	0.09	2.36	2.685223	122.827589	-1.537206	-0.471795	7.401183	
Site 8 SB	DA-SB104-0608	12.77181389	4.454017329	0.14	0.33	0.052306	9.496918	-0.576117	-0.214310	5.030135	
Site 8 SB	DA-SB105-0406	**13.83569244**	**7.417101912**	0.10	4.29	10.187526	17.185880	2.071695	0.651077	5.345406	DA-SB105-0406
Site 8 SB	DA-SB106-0608	282.7673327	8.843764427	0.02	5806.04	21.330107	74571.171293	-76.197380	-11.044275	85.041145	
Site 8 SB	DA-SB108-0204	4.172869194	2.033599058	0.38	0.20	4.803604	30.439911	-0.448307	-0.276279	2.481906	
Site 8 SB	DA-SB109-0204	**10.19163704**	**5.946279717**	0.13	2.82	2.961731	0.251533	1.680760	0.601449	4.265520	DA-SB109-0204
Site 8 SB	DA-SB110-0810	**2.591204697**	**6.611489018**	0.20	21.14	5.693843	50.394412	4.598296	2.047054	2.013193	DA-SB110-0810
Site 8 SB	DA-SB111-0204	**1.392996809**	**5.124348519**	0.27	12.01	0.808267	68.842035	3.466235	1.799420	1.658113	DA-SB111-0204
Site 8 SB	DA-SB112-0608	**6.440533093**	**5.613509052**	0.16	6.05	1.927092	10.559730	2.459599	0.982766	3.153910	DA-SB112-0608
Site 8 SB	DA-SB113-0406	**22.97759416**	**24.54458631**	0.04	271.92	412.872926	176.557319	16.490050	3.349368	8.054536	DA-SB113-0406
Site 8 SB	DA-SB114-0406	11.20685137	5.183081107	0.13	0.38	0.917322	2.300514	0.616711	0.225283	4.566370	
Site 8 SB	DA-SB115-0204	12.87127156	6.559531991	0.11	2.25	5.448585	10.119809	1.499924	0.496066	5.059608	
Site 8 SB	DA-SB116-0204	17.42984561	5.065277397	0.11	1.81	0.705543	59.903556	-1.345228	-0.448902	6.410505	
Site 8 SB	DA-SB117-0810	18.82743424	7.368062997	0.09	0.30	9.876886	83.490752	0.543394	0.159679	6.824669	
Site 8 SB	DA-SB118-0406	14.10902494	5.065277397	0.12	0.13	0.705543	19.526837	-0.361129	-0.126339	5.426406	
Site 8 SB	DA-SB119-0204	16.03510115	4.579492834	0.12	2.01	0.125444	40.258953	-1.417691	-0.497159	5.997184	
Site 8 SB	DA-SB120-0406	15.73232904	4.548286599	0.12	1.85	0.104313	36.508449	-1.359173	-0.479692	5.907460	
Site 8 SB	DA-SB121-0406	**4.893001302**	**6.163030077**	0.17	12.03	3.754753	23.012222	3.467719	1.419445	2.695312	DA-SB121-0406
Site 8 SB	DA-SB122-0407	**5.694568885**	**4.579492834**	0.19	2.71	0.125444	15.964324	1.646643	0.716470	2.932850	DA-SB122-0407
Site 8 SB	DA-SB123-0508	17.16184504	5.781091815	0.10	0.30	2.420452	55.826872	-0.549993	-0.177043	6.331085	
Site 8 SB	DA-SB124-0608	19.84298816	5.946279717	0.10	1.39	2.961731	103.080999	-1.179341	-0.364282	7.125620	
Site 8 SB	DA-SB125-0810	13.57622768	5.153756646	0.12	0.01	0.862010	15.101935	-0.114759	-0.040279	5.268516	
Site 8 SB	DA-SB126-1013	12.47977274	2.805855095	0.19	4.57	2.014857	7.782236	-2.137735	-0.933021	4.943591	
Site 8 SB	DA-SB127-0204	**8.345651962**	**5.153756646**	0.15	2.06	0.862010	1.807559	1.435280	0.558694	3.718477	DA-SB127-0204
Site 8 SB	DA-SB128-0810	21.62184765	4.294639074	0.11	11.28	0.004806	142.366439	-3.358132	-1.122561	7.652771	
Site 8 SB	DA-SB129-0406	**11.38396199**	**6.376033409**	0.12	3.09	4.625604	2.869145	1.757178	0.601748	4.618856	DA-SB129-0406
Site 8 SB	DA-SB130-1011.5	**16.44995089**	**8.821332542**	0.08	7.30	21.123409	45.695492	2.701212	0.778028	6.120121	DA-SB130-1011.5
Site 8 SB	DA-SB131-0406	14.18426853	6.791757603	0.10	1.80	6.586645	20.197489	1.343053	0.430464	5.448704	
Site 8 SB	DA-SB132-0406	43.57243458	6.243331554	0.06	62.64	4.072405	1148.012133	-7.914320	-2.003519	14.157652	
Site 8 SB	DA-SB133-0810	**9.705556378**	**5.891474808**	0.13	3.13	2.776100	0.000239	1.770001	0.641683	4.121474	DA-SB133-0810
Site 8 SB	DA-SB134-0405	19.35619137	3.00148075	0.15	15.84	1.497762	93.433190	-3.979881	-1.537234	6.981362	
Site 8 SB	DA-SB135-1214	34.8807606	2.725680889	0.12	78.43	2.248892	634.569037	-8.856263	-3.087671	11.581944	
Site 8 SB	DA-SB136-0810	28.78244929	3.966596834	0.10	33.73	0.066933	364.517540	-5.808161	-1.863043	9.774758	
Site 8 SB	DA-SB137-0406	36.09140858	6.402407948	0.07	30.67	4.739749	697.028734	-5.538302	-1.455857	11.940710	
Site 8 SB	DA-SB138-0406	30.26360014	9.558101912	0.06	0.43	28.438653	423.268627	-0.655583	-0.160464	10.213685	
Site 8 SB	DA-SB139-1012	37.04803406	5.212322846	0.08	49.17	0.974191	748.456182	-7.011875	-1.946445	12.224198	
Site 8 SB	DA-SB150-0204	**10.39599286**	**6.000833218**	0.13	2.80	3.152477	0.498275	1.674754	0.595188	4.326079	DA-SB150-0204
Site 8 SB	DA-SB151-0406	13.3282836	4.733962534	0.13	0.21	0.258726	13.236330	-0.461077	-0.166746	5.195040	
Site 8 SB	DA-SB152-0204	8.521247936	3.301927249	0.20	0.22	0.852639	1.366231	-0.468586	-0.209362	3.770513	
Site 8 SB	DA-SB153-0204	13.20294671	5.414774355	0.12	0.07	1.414822	12.340044	0.256877	0.089378	5.157897	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Y variable name used on graph: AS ^0.67			****************** GRAPH LINES ******************				- - - Extreme Value Lines: +/-3 x IQR of residuals			
	X variable name used on graph: FE			X-Points	Y Predicted	Lower 95%	Upper 95%	-3 x IQR	+3 x IQR	Median	
	N	234.000000		5940.00	0.76	-0.15	1.68	-0.25	0.25	0.01	**No. of Exceedances**
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	1.060000E+00		7938.33	1.23	0.32	2.14	-0.25	0.25	0.01	**of Upper 95% Limit**
0.10	**t-Value: 2-tail, 0.100 alpha**	1.651448		9936.67	1.70	0.79	2.61	-0.25	0.25	0.01	**for Each Soil Type:**
degrees freedom	SUM(XY*w^2)	9.133106E+04		11935.00	2.16	1.11	3.21	-0.25	0.25	0.01	---- \/ ----
2	SUM(X^2*w^2)	4.557398E+08		13933.33	2.63	1.41	3.85	-0.25	0.25	0.01	BASS
	SUM(X*w^2)	2.436084E+04		15931.67	3.10	1.74	4.46	-0.25	0.25	0.01	0
	SUM(Y*w^2)	4.720641E+00		17930.00	3.57	2.07	5.07	-0.25	0.25	0.01	MASS
	SUM(w^2)	1.559503E+00		19928.33	4.03	2.41	5.66	-0.25	0.25	0.01	3
	SUM(Y)	988.722909		21926.67	4.50	2.77	6.24	-0.25	0.25	0.01	MMSS
	SUM(X)	4.708720E+06		23925.00	4.97	3.13	6.81	-0.25	0.25	0.01	0
	Denominator	1.172770E+08		25923.33	5.44	3.49	7.38	-0.25	0.25	0.01	NESS
	Slope	**2.339101E-04**		27921.67	5.90	3.86	7.95	-0.25	0.25	0.01	2
	Intercept	**-6.268692E-01**		29920.00	6.37	4.24	8.51	-0.25	0.25	0.01	PMSS
	Minimum X value	5.940000E+03		31918.33	6.84	4.61	9.06	-0.25	0.25	0.01	0
	Maximum X value	5.390000E+04		33916.67	7.31	4.99	9.62	-0.25	0.25	0.01	SESS
	Minimum Y value	8.831858E-01		35915.00	7.77	5.38	10.17	-0.25	0.25	0.01	6
	Maximum Y value	1.725889E+01		37913.33	8.24	5.76	10.72	-0.25	0.25	0.01	SESD
	No. of graph points	25		39911.67	8.71	6.15	11.26	-0.25	0.25	0.01	0
	SUM(Ypred.- Yobs)^2	2.621428E+02		41910.00	9.18	6.54	11.81	-0.25	0.25	0.01	MASB
	SUM(Yobs - Yave)^2	1.371855E+03		43908.33	9.64	6.94	12.35	-0.25	0.25	0.01	3
	SUM(X - Xave)^2	1.757949E+10		45906.67	10.11	7.33	12.89	-0.25	0.25	0.01	MMSB
	Std. Error of Y-estimate	**1.062980E+00**		47905.00	10.58	7.73	13.43	-0.25	0.25	0.01	0
	R^2	**8.089136E-01**		49903.33	11.05	8.13	13.97	-0.25	0.25	0.01	NESB
	Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>	**1/SQRT(xy)**		51901.67	11.51	8.52	14.50	-0.25	0.25	0.01	0
est.M, Std.Err.Y	**2.34E-04**	**1**		53900.00	11.98	8.92	15.04	-0.25	0.25	0.01	PMSB
	Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:		**25**	14550.00	2.78	1.51	4.04	4.63	**-60%**	**76%**	1
	Inverse Log Transform (Y/N)?	**No**	**50**	18200.00	3.63	2.12	5.15	6.92	**-56%**	**69%**	SESB
	Inverse Power Transform (Y/N)?	**Yes**	**75**	24675.00	5.14	3.26	7.03	11.67	**-49%**	**60%**	0
	Inverse Power Transform (1/Power):	**1.5**	**90**	32230.00	6.91	4.67	9.15	18.17	**-44%**	**52%**	<<--Original Units Errors

TEXT BOX ==> **(AS ^0.67) = (2.34E-04)x(FE) + (-6.27E-01) R^2 = 0.81; Std. Error of Y-estimate = 1.06E+00** | **+/-3 x IQR of re** | -0.249844 | 0.249844

TEXT BOX ==> **Weighted 1/SQRT(MAX(x-Xmin,4273.5)*MAX(y-Ymin,1.0)). 95% Co** | **\/ - wt.descrip.** | **TEXT BOX==> Residuals Plot: (Observed - Predicted) x (1/SQRT(xy))^0.5 \/ Y-Pred.**

GROUP	SAMPLE	FE	AS ^0.67	Regression Wt.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Wt'd.Residuals	Y-Pred.	Candidate High Outliers
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**	**AX(x-Xmin,4273.**	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!O**	**DA!G**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	BASS-BWBK-SS-BA101-0001	9130	1.129243235	0.015297059	1.44010E-01	9.58564E+00	1.20840E+08	-3.79486E-01	-4.69354E-02	1.50873E+00	
BASS	BASS-BWBK-SS-BA102-0001	7400	0.92525194	0.015297059	3.19742E-02	1.08904E+01	1.61868E+08	-1.78813E-01	-2.21159E-02	1.10407E+00	
BASS	BASS-BWBK-SS-BA103-0001	7780	0.973152319	0.015297059	4.83115E-02	1.05765E+01	1.52343E+08	-2.19799E-01	-2.71850E-02	1.19295E+00	
BASS	BASS-BWBK-SS-BA104-0001	8800	1.191138425	0.015297059	5.77926E-02	9.20621E+00	1.28204E+08	-2.40401E-01	-2.97331E-02	1.43154E+00	
BASS	BASS-BWBK-SS-BA105-0001	8450	1.129243235	0.015297059	4.85883E-02	9.58564E+00	1.36253E+08	-2.20428E-01	-2.72628E-02	1.34967E+00	
BASS	BASS-BWBK-SS-BA106-0001	8975	1.084889807	0.015297059	1.50221E-01	9.86225E+00	1.24272E+08	-3.87584E-01	-4.79369E-02	1.47247E+00	
BASS	BASS-BWBK-SS-BA107-0001	7390	0.91830817	0.015297059	3.36421E-02	1.09363E+01	1.62123E+08	-1.83418E-01	-2.26854E-02	1.10173E+00	
BASS	BASS-BWBK-SS-BA108-0001	7180	0.945929025	0.015297059	1.13798E-02	1.07543E+01	1.67514E+08	-1.06676E-01	-1.31938E-02	1.05261E+00	
BASS	BASS-BWBK-SS-BA109-0001	7860	0.959588944	0.015297059	6.35418E-02	1.06649E+01	1.50375E+08	-2.52075E-01	-3.11769E-02	1.21166E+00	
BASS	BASS-BWBK-SS-BA110-0001	9920	1.065602237	0.015297059	3.94279E-01	9.98376E+00	1.04096E+08	-6.27916E-01	-7.76615E-02	1.69352E+00	
BASS	BASS-BWBK-SS-BA111-0001	8040	0.979898643	0.015297059	7.50042E-02	1.05327E+01	1.45992E+08	-2.73869E-01	-3.38725E-02	1.25377E+00	
BASS	BASS-BWBK-SS-BA112-0001	8000	0.883185767	0.015297059	1.30484E-01	1.11698E+01	1.46961E+08	-3.61225E-01	-4.46768E-02	1.24441E+00	
BASS	BASS-BWBK-SS-BA113-0001	7855	1.026491978	0.015297059	3.38569E-02	1.02324E+01	1.50497E+08	-1.84002E-01	-2.27576E-02	1.21049E+00	
MASB	MASB-BWBK-SB-MA01-0105	27000	5.443386192	0.003226851	6.01800E-02	1.48371E+00	4.72968E+07	-2.45316E-01	-1.39353E-02	5.68870E+00	
MASB	MASB-BWBK-SB-MA02-0107	29000	4.795046974	0.003329497	1.85362E+00	3.24598E-01	7.88058E+07	-1.36148E+00	-7.85596E-02	6.15652E+00	
MASB	MASB-BWBK-SB-MA03-0108	29300	6.428728274	0.002778379	4.08173E-02	4.85505E+00	8.42222E+07	2.02033E-01	1.06492E-02	6.22670E+00	
MASB	MASB-BWBK-SB-MA04-0106	27800	5.299560899	0.003218414	3.32086E-01	1.15401E+00	5.89404E+07	-5.76269E-01	-3.26924E-02	5.87583E+00	
MASB	MASB-BWBK-SB-MA05-0108	27200	9.417419036	0.002347665	1.35566E+01	2.69580E+01	5.00877E+07	3.68193E+00	1.78400E-01	5.73548E+00	
MASB	MASB-BWBK-SB-MA06-0105	25800	4.230056502	0.003878742	1.38758E+00	2.25143E-05	3.22313E+07	-1.17795E+00	-7.33624E-02	5.40801E+00	
MASB	MASB-BWBK-SB-MA07-0108	28000	6.546510582	0.002829186	3.89249E-01	5.38796E+00	6.20513E+07	6.23898E-01	3.31852E-02	5.92261E+00	
MASB	MASB-BWBK-SB-MA08-0108	51700	12.39717786	0.001377666	8.66570E-01	6.67794E+01	9.97124E+08	9.30897E-01	3.45520E-02	1.14663E+01	
MASB	MASB-BWBK-SB-MA09-0108	35000	12.19756289	0.001743961	2.15071E+01	6.35568E+01	2.21333E+08	4.63758E+00	1.93669E-01	7.55998E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.)	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	FE	AS ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
MASB	MASB-BWBK-SB-MA10-0104	26900	5.471923029	0.003224466	3.73990E-02	1.55404E+00	4.59313E+07	-1.93388E-01	-1.09814E-02	5.66531E+00	
MASB	MASB-BWBK-SB-MA11-0108	32500	6.269984034	0.002643751	4.97340E-01	4.18069E+00	1.53197E+08	-7.05224E-01	-3.62608E-02	6.97521E+00	
MASB	MASB-BWBK-SB-MA12-0108	33600	11.44126321	0.001850468	1.77136E+01	5.20700E+01	1.81637E+08	4.20875E+00	1.81048E-01	7.23251E+00	
MASB	MASB-BWBK-SB-MA13-0105	15800	3.190924808	0.006629308	1.48877E-02	1.06996E+00	1.86860E+07	1.22015E-01	9.93454E-03	3.06891E+00	
MASB	MASB-BWBK-SB-MA14-0104	31350	7.120367359	0.002511907	1.71525E-01	8.38135E+00	1.26051E+08	4.14156E-01	2.07571E-02	6.70621E+00	
MASB	MASB-BWBK-SB-MA15-0105	24400	5.669644725	0.003364163	3.47049E-01	2.08610E+00	1.82950E+07	5.89109E-01	3.41691E-02	5.08054E+00	
MASB	MASB-BWBK-SB-MA16-0104	21300	4.033264272	0.004546149	1.03781E-01	3.68822E-02	1.38595E+06	-3.22151E-01	-2.17211E-02	4.35541E+00	
MASB	MASB-BWBK-SB-MA17-0104	20800	4.033264272	0.004622	4.21053E-02	3.68822E-02	4.58688E+05	-2.05196E-01	-1.39503E-02	4.23846E+00	
MASB	MASB-BWBK-SB-MA18-0104	17200	3.865530119	0.005456974	2.20098E-01	1.29443E-01	8.54238E+06	4.69146E-01	3.46565E-02	3.39638E+00	
MASB	MASB-BWBK-SB-MA19-0103	15100	3.728679007	0.006194033	6.78163E-01	2.46644E-01	2.52279E+07	8.23506E-01	6.48117E-02	2.90517E+00	
MASB	MASB-BWBK-SB-MA20-0103	24600	3.694073786	0.004366389	2.05419E+00	2.82214E-01	2.00459E+07	-1.43324E+00	-9.47069E-02	5.12732E+00	
MASS	MASS-BWBK-SS-MA01-0001	7090	1.792561899	0.015297059	5.79134E-01	5.91827E+00	1.69852E+08	7.61009E-01	9.41225E-02	1.03155E+00	
MASS	MASS-BWBK-SS-MA02-0001	8420	1.792561899	0.015297059	2.02418E-01	5.91827E+00	1.36954E+08	4.49908E-01	5.56452E-02	1.34265E+00	
MASS	MASS-BWBK-SS-MA03-0001	11800	3.153494065	0.008669794	1.04086E+00	1.14879E+00	6.92679E+07	1.02022E+00	9.49949E-02	2.13327E+00	
MASS	MASS-BWBK-SS-MA04-0001	11900	2.305218146	0.010862308	2.20694E-02	3.68676E+00	6.76134E+07	1.48558E-01	1.54830E-02	2.15666E+00	
MASS	MASS-BWBK-SS-MA05-0001	17700	2.805855095	0.006650343	5.00533E-01	2.01486E+00	5.86965E+06	-7.07484E-01	-5.76950E-02	3.51334E+00	
MASS	MASS-BWBK-SS-MA06-0001	20400	7.969939269	0.003123865	1.46310E+01	1.40222E+01	7.68759E+04	3.82504E+00	2.13788E-01	4.14490E+00	
MASS	MASS-BWBK-SS-MA07-0001	5940	2.348920585	0.012635145	2.51655E+00	3.52084E+00	2.01150E+08	1.58636E+00	1.78317E-01	7.62557E-01	
MASS	MASS-BWBK-SS-MA08-0001	18900	4.610593104	0.004549818	6.66774E-01	1.48442E-01	1.49508E+06	8.16562E-01	5.50790E-02	3.79403E+00	
MASS	MASS-BWBK-SS-MA09-0001	20800	4.88595171	0.004100252	4.19246E-01	4.36445E-01	4.58688E+05	6.47492E-01	4.14610E-02	4.23846E+00	
MASS	MASS-BWBK-SS-MA10-0001	21600	5.241482788	0.003827769	6.65684E-01	1.03260E+00	2.18231E+06	8.15895E-01	5.04786E-02	4.42559E+00	
MASS	MASS-BWBK-SS-MA11-0001	26600	5.528774814	0.003227858	4.40411E-03	1.69902E+00	4.19550E+07	-6.63635E-02	-3.77039E-03	5.59514E+00	
MASS	MASS-BWBK-SS-MA12-0001	14900	2.216541975	0.009148985	4.11970E-01	4.03516E+00	2.72770E+07	-6.41849E-01	-6.13930E-02	2.85839E+00	
MASS	MASS-BWBK-SS-MA13-0001	15300	3.03983898	0.007038367	7.72365E-03	1.40535E+00	2.32588E+07	8.78843E-02	7.37305E-03	2.95195E+00	
MASS	MASS-BWBK-SS-MA14-0001	9440	2.171534093	0.01347694	3.48445E-01	4.21800E+00	1.14121E+08	5.90292E-01	6.85272E-02	1.58124E+00	
MASS	MASS-BWBK-SS-MA15-0001	10500	2.392220179	0.012055022	3.17007E-01	3.36022E+00	9.25970E+07	5.63034E-01	6.18185E-02	1.82919E+00	
MASS	MASS-BWBK-SS-MA16-0001	15000	3.589268453	0.006386536	5.00538E-01	4.04551E-01	2.62424E+07	7.07487E-01	5.65394E-02	2.88178E+00	
MASS	MASS-BWBK-SS-MA17-0001	14900	3.447095504	0.006597731	3.46573E-01	6.05620E-01	2.72770E+07	5.88705E-01	4.78184E-02	2.85839E+00	
MASS	MASS-BWBK-SS-MA18-0001	13000	3.831547162	0.006931182	2.00955E+00	1.55050E-01	5.07334E+07	1.41759E+00	1.18019E-01	2.41396E+00	
MASS	MASS-BWBK-SS-MA19-0001	15200	3.694073786	0.006198302	5.86006E-01	2.82214E-01	2.42333E+07	7.65510E-01	6.02681E-02	2.92856E+00	
MASS	MASS-BWBK-SS-MA20-0001	17400	3.763124384	0.005504477	1.02374E-01	2.13617E-01	7.41329E+06	3.19959E-01	2.37384E-02	3.44317E+00	
MMSB	MMSB-BWBK-SB-MM101-0110	16800	2.705453085	0.007108518	3.56847E-01	2.30997E+00	1.10406E+07	-5.97367E-01	-5.03652E-02	3.30282E+00	
MMSB	MMSB-BWBK-SB-MM102-0109	15800	2.477667769	0.007975386	3.49567E-01	3.05426E+00	1.86860E+07	-5.91242E-01	-5.28009E-02	3.06891E+00	
MMSB	MMSB-BWBK-SB-MM103-0107	14900	3.03983898	0.007193758	3.29235E-02	1.40535E+00	2.72770E+07	1.81448E-01	1.53897E-02	2.85839E+00	
MMSB	MMSB-BWBK-SB-MM104-0110	24000	3.55399273	0.004553233	2.05343E+00	4.50669E-01	1.50332E+07	-1.43298E+00	-9.66941E-02	4.98697E+00	
MMSB	MMSB-BWBK-SB-MM105-0110	12000	2.725680889	0.00946369	2.97711E-01	2.24889E+00	6.59788E+07	5.45629E-01	5.30796E-02	2.18005E+00	
MMSB	MMSB-BWBK-SB-MM106-0110	21600	2.5198421	0.006246336	3.63187E+00	2.90863E+00	2.18231E+06	-1.90575E+00	-1.50618E-01	4.42559E+00	
MMSB	MMSB-BWBK-SB-MM107-0110	14700	2.5198421	0.008351591	8.51277E-02	2.90863E+00	2.94061E+07	-2.91767E-01	-2.66637E-02	2.81161E+00	
MMSB	MMSB-BWBK-SB-MM108-0110	15550	2.370619812	0.008364104	4.09360E-01	3.43988E+00	2.09099E+07	-6.39812E-01	-5.85143E-02	3.01043E+00	
MMSB	MMSB-BWBK-SB-MM109-0110	17800	2.348920585	0.007584552	1.41089E+00	3.52084E+00	5.39510E+06	-1.18781E+00	-1.03446E-01	3.53673E+00	
MMSB	MMSB-BWBK-SB-MM110-0109	16900	2.685149378	0.007115767	4.10960E-01	2.37210E+00	1.03860E+07	-6.41061E-01	-5.40767E-02	3.32621E+00	
MMSB	MMSB-BWBK-SB-MM111-0110	19200	2.5198421	0.00678812	1.80731E+00	2.90863E+00	8.51440E+05	-1.34436E+00	-1.10762E-01	3.86420E+00	
MMSB	MMSB-BWBK-SB-MM112-0110	19550	2.238875126	0.007361916	2.91452E+00	3.94593E+00	3.28025E+05	-1.70720E+00	-1.46480E-01	3.94607E+00	
MMSB	MMSB-BWBK-SB-MM113-0110	16100	2.216541975	0.008591719	8.51081E-01	4.03516E+00	1.61824E+07	-9.22541E-01	-8.55117E-02	3.13908E+00	
MMSB	MMSB-BWBK-SB-MM114-0110	12700	3.00148075	0.008356673	4.32559E-01	1.49776E+00	5.50970E+07	6.57692E-01	6.01228E-02	2.34379E+00	
MMSB	MMSB-BWBK-SB-MM115-0110	16300	2.080083823	0.008980314	1.22275E+00	4.60200E+00	1.46133E+07	-1.10578E+00	-1.04789E-01	3.18586E+00	
MMSB	MMSB-BWBK-SB-MM116-0110	15600	2.348920585	0.008403955	4.53208E-01	3.52084E+00	2.04551E+07	-6.73207E-01	-6.17150E-02	3.02213E+00	
MMSB	MMSB-BWBK-SB-MM117-0110	13500	2.348920585	0.009499733	3.31225E-02	3.52084E+00	4.38606E+07	-1.81996E-01	-1.77385E-02	2.53092E+00	
MMSB	MMSB-BWBK-SB-MM118-0110	14900	2.392220179	0.00859996	2.17315E-01	3.36022E+00	2.72770E+07	-4.66170E-01	-4.32308E-02	2.85839E+00	
MMSB	MMSB-BWBK-SB-MM119-0110	15800	2.5198421	0.007871958	3.01475E-01	2.90863E+00	1.86860E+07	-5.49068E-01	-4.87155E-02	3.06891E+00	
MMSB	MMSB-BWBK-SB-MM120-0110	10600	1.842015749	0.014648968	1.11549E-04	5.68010E+00	9.06825E+07	-1.05617E-02	-1.27831E-03	1.85258E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	17800	3.228137283	0.005996402	9.52293E-02	9.94357E-01	5.39510E+06	-3.08593E-01	-2.38963E-02	3.53673E+00	
MMSS	MMSS-BWBK-SS-MM102-0001	14100	2.392220179	0.009011671	7.78647E-02	3.36022E+00	3.62733E+07	-2.79042E-01	-2.64894E-02	2.67126E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MMSS	MMSS-BWBK-SS-MM103-0001	17400	3.301927249	0.006006382	1.99483E-02	8.52639E-01	7.41329E+06	-1.41239E-01	-1.09461E-02	3.44317E+00	
MMSS	MMSS-BWBK-SS-MM104-0001	18000	3.301927249	0.005855064	7.92899E-02	8.52639E-01	4.50600E+06	-2.81585E-01	-2.15464E-02	3.58351E+00	
MMSS	MMSS-BWBK-SS-MM105-0001	12000	2.644309612	0.009679852	2.15536E-01	2.49957E+00	6.59788E+07	4.64258E-01	4.56766E-02	2.18005E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	17900	3.077956704	0.006172197	2.32482E-01	1.31642E+00	4.94055E+06	-4.82164E-01	-3.78804E-02	3.56012E+00	
MMSS	MMSS-BWBK-SS-MM107-0001	17800	2.765913248	0.006692123	5.94158E-01	2.12984E+00	5.39510E+06	-7.70817E-01	-6.30570E-02	3.53673E+00	
MMSS	MMSS-BWBK-SS-MM108-0001	15400	2.725680889	0.007574453	6.23325E-02	2.24889E+00	2.23042E+07	-2.49665E-01	-2.17287E-02	2.97535E+00	
MMSS	MMSS-BWBK-SS-MM109-0001	15500	2.725680889	0.007534733	7.45595E-02	2.24889E+00	2.13697E+07	-2.73056E-01	-2.37020E-02	2.99874E+00	
MMSS	MMSS-BWBK-SS-MM110-0001	9880	1.938991221	0.014887301	6.49378E-02	5.22726E+00	1.04914E+08	2.54829E-01	3.10926E-02	1.68416E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	10400	1.890814389	0.014917029	7.22823E-03	5.44988E+00	9.45316E+07	8.50190E-02	1.03838E-02	1.80580E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	9120	2.080083823	0.013982324	3.29124E-01	4.60200E+00	1.21060E+08	5.73693E-01	6.78374E-02	1.50639E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	14100	2.477667769	0.008766881	3.74790E-02	3.05426E+00	3.62733E+07	-1.93595E-01	-1.81266E-02	2.67126E+00	
MMSS	MMSS-BWBK-SS-MM114-0001	8240	1.792561899	0.015297059	2.42076E-01	5.91827E+00	1.41199E+08	4.92012E-01	6.08527E-02	1.30055E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	11000	1.986576777	0.013383202	1.63502E-03	5.01193E+00	8.32243E+07	4.04353E-02	4.67779E-03	1.94614E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	10200	2.080083823	0.013982324	1.03086E-01	4.60200E+00	9.84607E+07	3.21070E-01	3.79656E-02	1.75901E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	15000	2.435131383	0.008433302	1.99496E-01	3.20475E+00	2.62424E+07	-4.46650E-01	-4.10172E-02	2.88178E+00	
MMSS	MMSS-BWBK-SS-MM118-0001	13100	2.725680889	0.008706434	8.31332E-02	2.24889E+00	4.93188E+07	2.88328E-01	2.69034E-02	2.43735E+00	
MMSS	MMSS-BWBK-SS-MM119-0001	11400	2.261097439	0.011529036	4.90144E-02	3.85814E+00	7.60861E+07	2.21392E-01	2.37716E-02	2.03971E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	17600	2.348920585	0.007649323	1.30194E+00	3.52084E+00	6.36419E+06	-1.14103E+00	-9.97947E-02	3.48995E+00	
NESB	NESB-BWBK-SB-NE01-0108	23700	3.00148075	0.005155672	3.66844E+00	1.49776E+00	1.27968E+07	-1.91532E+00	-1.37526E-01	4.91680E+00	
NESB	NESB-BWBK-SB-NE02-0109	22200	3.228137283	0.005121212	1.78970E+00	9.94357E-01	4.31503E+06	-1.33780E+00	-9.57363E-02	4.56593E+00	
NESB	NESB-BWBK-SB-NE03-0105	22300	3.115839842	0.00523236	2.17116E+00	1.23093E+00	4.74048E+06	-1.47349E+00	-1.06585E-01	4.58933E+00	
NESB	NESB-BWBK-SB-NE04-0110	20000	2.765913248	0.006146298	1.65230E+00	2.12984E+00	1.50639E+04	-1.28542E+00	-1.00775E-01	4.05133E+00	
NESB	NESB-BWBK-SB-NE05-0108	22900	2.904491652	0.005400961	3.33128E+00	1.74457E+00	7.71320E+06	-1.82518E+00	-1.34135E-01	4.72967E+00	
NESB	NESB-BWBK-SB-NE06-0109	21100	2.88489971	0.005740496	2.02702E+00	1.79670E+00	9.55047E+05	-1.42373E+00	-1.07871E-01	4.30863E+00	
NESB	NESB-BWBK-SB-NE07-0107	23100	3.00148075	0.005245032	3.15053E+00	1.49776E+00	8.86411E+06	-1.77497E+00	-1.28548E-01	4.77645E+00	
NESB	NESB-BWBK-SB-NE08-0104	18200	2.685149378	0.006727935	8.93298E-01	2.37210E+00	3.69691E+06	-9.45144E-01	-7.75245E-02	3.63029E+00	
NESB	NESB-BWBK-SB-NE09-0110	20500	2.725680889	0.006105428	2.08111E+00	2.24889E+00	1.42329E+05	-1.44261E+00	-1.12721E-01	4.16829E+00	
NESB	NESB-BWBK-SB-NE10-0107	18200	2.435131383	0.007249641	1.42841E+00	3.20475E+00	3.69691E+06	-1.19516E+00	-1.01762E-01	3.63029E+00	
NESB	NESB-BWBK-SB-NE101-0110	17600	2.171534093	0.008158946	1.73821E+00	4.21800E+00	6.36419E+06	-1.31841E+00	-1.19088E-01	3.48995E+00	
NESB	NESB-BWBK-SB-NE102-0110	14400	1.890814389	0.010830901	7.23556E-01	5.44988E+00	3.27497E+07	-8.50621E-01	-8.85255E-02	2.74144E+00	
NESB	NESB-BWBK-SB-NE103-0110	13100	1.767577948	0.011817986	4.48598E-01	6.04045E+00	4.93188E+07	-6.69775E-01	-7.28116E-02	2.43735E+00	
NESB	NESB-BWBK-SB-NE104-0110	11800	1.639882998	0.013063249	2.43430E-01	6.68444E+00	6.92679E+07	-4.93386E-01	-5.63914E-02	2.13327E+00	
NESB	NESB-BWBK-SB-NE105-0110	17300	2.392220179	0.007637677	1.05587E+00	3.36022E+00	7.96783E+06	-1.02755E+00	-8.98019E-02	3.41977E+00	
NESB	NESB-BWBK-SB-NE106-0110	15200	1.890814389	0.010352477	1.07692E+00	5.44988E+00	2.42333E+07	-1.03775E+00	-1.05588E-01	2.92856E+00	
NESB	NESB-BWBK-SB-NE107-0510	13600	1.534036644	0.011425774	1.04095E+00	7.24296E+00	4.25461E+07	-1.02027E+00	-1.09058E-01	2.55431E+00	
NESB	NESB-BWBK-SB-NE108-0110	15200	1.691538112	0.010391889	1.53023E+00	6.42001E+00	2.42333E+07	-1.23703E+00	-1.26103E-01	2.92856E+00	
NESB	NESB-BWBK-SB-NE109-0110	14900	1.691538112	0.010564428	1.36154E+00	6.42001E+00	2.72770E+07	-1.16685E+00	-1.19933E-01	2.85839E+00	
NESB	NESB-BWBK-SB-NE110-0110	14800	1.842015749	0.01062388	9.86017E-01	5.68010E+00	2.83315E+07	-9.92984E-01	-1.02349E-01	2.83500E+00	
NESS	NESS-BKG-SS03-NEB-0016	17700	3.374901689	0.005841805	1.91648E-02	7.23197E-01	5.86965E+06	-1.38437E-01	-1.05810E-02	3.51334E+00	
NESS	NESS-BKG-SS09-NEB-0018	13700	4.88595171	0.005673996	5.32803E+00	4.36445E-01	4.12515E+07	2.30825E+00	1.73871E-01	2.57770E+00	
NESS	NESS-BWBK-SS-NE01-0001	23000	5.946279717	0.003402534	1.42377E+00	2.96173E+00	8.27865E+06	1.19322E+00	6.96019E-02	4.75306E+00	
NESS	NESS-BWBK-SS-NE02-0001	22600	6.637391074	0.003229757	3.91206E+00	5.81813E+00	6.13684E+06	1.97789E+00	1.12406E-01	4.65950E+00	
NESS	NESS-BWBK-SS-NE03-0001	19700	4.19757986	0.004682618	4.68380E-02	7.69048E-04	1.78705E+05	2.16421E-01	1.48096E-02	3.98116E+00	
NESS	NESS-BWBK-SS-NE04-0001	20800	3.55399273	0.005019603	4.68495E-01	4.50669E-01	4.58688E+05	-6.84467E-01	-4.84939E-02	4.23846E+00	
NESS	NESS-BWBK-SS-NE05-0001	18600	4.454017329	0.004703254	5.33133E-01	5.23063E-02	2.31872E+06	7.30159E-01	5.00745E-02	3.72386E+00	
NESS	NESS-BWBK-SS-NE06-0001	19100	3.153494065	0.00578535	4.72407E-01	1.14879E+00	1.04599E+06	-6.87319E-01	-5.22785E-02	3.84081E+00	
NESS	NESS-BWBK-SS-NE07-0001	19200	5.153756646	0.004202283	1.66295E+00	8.62010E-01	8.51440E+05	1.28955E+00	8.35953E-02	3.86420E+00	
NESS	NESS-BWBK-SS-NE08-0001	19000	3.447095504	0.005464835	1.37142E-01	6.05620E-01	1.26053E+06	-3.70326E-01	-2.73762E-02	3.81742E+00	
NESS	NESS-BWBK-SS-NE09-0001	17700	4.099385194	0.005141915	3.43450E-01	1.58575E-02	5.86965E+06	5.86046E-01	4.20237E-02	3.51334E+00	
NESS	NESS-BWBK-SS-NE10-0001	17400	4.066391931	0.005235707	3.88411E-01	2.52555E-02	7.41329E+06	6.23226E-01	4.50955E-02	3.44317E+00	
NESS	NESS-BWBK-SS-NE101-0001	13200	2.12605484	0.010527348	1.12017E-01	4.40688E+00	4.79243E+07	-3.34689E-01	-3.43400E-02	2.46074E+00	
NESS	NESS-BWBK-SS-NE102-0001	10700	1.792561899	0.014494276	6.95665E-03	5.91827E+00	8.87879E+07	-8.34065E-02	-1.00415E-02	1.87597E+00	
NESS	NESS-BWBK-SS-NE103-0001	9870	1.986576777	0.014562744	9.28748E-02	5.01193E+00	1.05119E+08	3.04754E-01	3.67765E-02	1.68182E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273,	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
NESS	NESS-BWBK-SS-NE104-0001	12300	1.792561899	0.012539247	2.09455E-01	5.91827E+00	6.11952E+07	-4.57663E-01	-5.12485E-02	2.25022E+00	
NESS	NESS-BWBK-SS-NE105-0001	9200	1.691538112	0.015297059	2.77005E-02	6.42001E+00	1.19306E+08	1.66435E-01	2.05849E-02	1.52510E+00	
NESS	NESS-BWBK-SS-NE106-0001	10100	1.742416162	0.015297059	4.61555E-05	6.16477E+00	1.00455E+08	6.79378E-03	8.40264E-04	1.73562E+00	
NESS	NESS-BWBK-SS-NE107-0001	9320	1.742416162	0.015297059	3.58131E-02	6.16477E+00	1.16699E+08	1.89244E-01	2.34059E-02	1.55317E+00	
NESS	NESS-BWBK-SS-NE108-0001	10100	1.792561899	0.015297059	3.24211E-03	5.91827E+00	1.00455E+08	5.69395E-02	7.04235E-03	1.73562E+00	
NESS	NESS-BWBK-SS-NE109-0001	9020	1.424402129	0.015297059	3.43365E-03	7.84509E+00	1.23271E+08	-5.85974E-02	-7.24740E-03	1.48300E+00	
NESS	NESS-BWBK-SS-NE110-0001	9580	2.080083823	0.013982324	2.17244E-01	4.60200E+00	1.11149E+08	4.66095E-01	5.51142E-02	1.61399E+00	
PMSB	PMSB-BWBK-SB-PM01-0105	21000	4.610593104	0.004220696	1.05853E-01	1.48442E-01	7.69594E+05	3.25351E-01	2.11370E-02	4.28524E+00	
PMSB	PMSB-BWBK-SB-PM02-0104	38700	7.49035798	0.002149415	8.74397E-01	1.06605E+01	3.45115E+08	-9.35092E-01	-4.33525E-02	8.42545E+00	
PMSB	PMSB-BWBK-SB-PM03-0106	35100	6.766152446	0.002414393	6.67851E-01	6.45587E+00	2.24318E+08	-8.17221E-01	-4.01554E-02	7.58337E+00	
PMSB	PMSB-BWBK-SB-PM04-0105	27700	7.80376763	0.00257691	3.80768E+00	1.28053E+01	5.74149E+07	1.95133E+00	9.90558E-02	5.85244E+00	
PMSB	PMSB-BWBK-SB-PM05-0105	27700	5.877733751	0.00303335	6.39807E-04	2.73050E+00	5.74149E+07	2.52944E-02	1.39311E-03	5.85244E+00	
PMSB	PMSB-BWBK-SB-PM06-0105	30300	6.428728274	0.002720754	1.01616E-03	4.85505E+00	1.03577E+08	-3.18772E-02	-1.66274E-03	6.46061E+00	
PMSB	PMSB-BWBK-SB-PM07-0105	26600	6.481208051	0.002940475	7.85120E-01	5.08907E+00	4.19550E+07	8.86070E-01	4.80482E-02	5.59514E+00	
PMSB	PMSB-BWBK-SB-PM08-0106	24800	6.868285455	0.002976415	2.87026E+00	6.98531E+00	2.18768E+07	1.69419E+00	9.24289E-02	5.17410E+00	
PMSB	PMSB-BWBK-SB-PM09-0106	20300	6.000833218	0.003688821	3.53187E+00	3.15248E+00	3.14229E+04	1.87933E+00	1.14142E-01	4.12150E+00	
PMSB	PMSB-BWBK-SB-PM10-0105	25700	5.918908978	0.003170119	2.85466E-01	2.86827E+00	3.11059E+07	5.34290E-01	3.00825E-02	5.38462E+00	
PMSB	PMSB-BWBK-SB-PM11-0104	28600	5.725503855	0.003018863	1.13876E-01	2.25058E+00	7.18640E+07	-3.37455E-01	-1.85412E-02	6.06296E+00	
PMSB	PMSB-BWBK-SB-PM12-0105	14900	3.03983898	0.007193758	3.29235E-02	1.40535E+00	2.72770E+07	1.81448E-01	1.53897E-02	2.85839E+00	
PMSB	PMSB-BWBK-SB-PM13-0106	24300	4.641588834	0.003806817	1.72687E-01	1.73287E-01	1.74495E+07	-4.15556E-01	-2.56396E-02	5.05715E+00	
PMSB	PMSB-BWBK-SB-PM14-0106	16400	3.694073786	0.005831931	2.35049E-01	2.82214E-01	1.38588E+07	4.84818E-01	3.70241E-02	3.20926E+00	
PMSB	PMSB-BWBK-SB-PM15-0105	23000	4.485550359	0.004033821	7.15625E-02	6.77242E-02	8.27865E+06	-2.67512E-01	-1.69903E-02	4.75306E+00	
PMSB	PMSB-BWBK-SB-PM16-0106	18700	3.865530119	0.005126203	1.39905E-02	1.29443E-01	2.02418E+06	1.18281E-01	8.46864E-03	3.74725E+00	
PMSB	PMSB-BWBK-SB-PM17-0105	25200	5.020747126	0.003542417	6.09680E-02	6.32718E-01	2.57786E+07	-2.46917E-01	-1.46961E-02	5.26766E+00	
PMSB	PMSB-BWBK-SB-PM18-0105	34100	6.585536125	0.002495495	5.83585E-01	5.57066E+00	1.95364E+08	-7.63928E-01	-3.81619E-02	7.34946E+00	
PMSB	PMSB-BWBK-SB-PM19-0105	25900	5.065277397	0.00346117	1.34047E-01	7.05543E-01	3.33768E+07	-3.66124E-01	-2.15397E-02	5.43140E+00	
PMSB	PMSB-BWBK-SB-PM20-0106	22550	4.779812496	0.003930708	1.74266E-02	3.07471E-01	5.89162E+06	1.32010E-01	8.27641E-03	4.64780E+00	
PMSB	PMSB-BWBK-SB-SO01-0107-PM	29300	5.500385648	0.003044908	5.27526E-01	1.62581E+00	8.42222E+07	-7.26310E-01	-4.00783E-02	6.22670E+00	
PMSB	PMSB-BWBK-SB-SO02-0109-PM	34900	7.465979245	0.002290317	4.98613E-03	1.05019E+01	2.18368E+08	-7.06125E-02	-3.37932E-03	7.53659E+00	
PMSB	PMSB-BWBK-SB-SO13-0104-PM	33900	7.070311794	0.00240429	5.39958E-02	8.09403E+00	1.89813E+08	-2.32370E-01	-1.13939E-02	7.30268E+00	
PMSB	PMSB-BWBK-SB-SO14-0105-PM	36100	8.204370068	0.002128108	1.49836E-01	1.58329E+01	2.55273E+08	3.87086E-01	1.78568E-02	7.81728E+00	
PMSS	PMSS-DABK-S-SO21-0001	20400	5.613509052	0.003823582	2.15682E+00	1.92709E+00	7.68759E+04	1.46861E+00	9.08119E-02	4.14490E+00	
PMSS	PMSS-DABK-S-SO22-0001	23500	5.500385648	0.003511951	3.97364E-01	1.62581E+00	1.14059E+07	6.30369E-01	3.73567E-02	4.87002E+00	
PMSS	PMSS-DABK-S-SO23-0001	18200	4.262408947	0.004912995	3.99570E-01	1.37621E-03	3.69691E+06	6.32115E-01	4.43067E-02	3.63029E+00	
PMSS	PMSS-DABK-S-SO24-0001	25700	5.212322846	0.003419053	2.96860E-02	9.74191E-01	3.11059E+07	-1.72296E-01	-1.00746E-02	5.38462E+00	
PMSS	PMSS-DABK-S-SO25-0001	43300	7.683983123	0.001983886	3.30314E+00	1.19624E+01	5.37186E+08	-1.81745E+00	-8.09509E-02	9.50144E+00	
PMSS	PMSS-DABK-S-SO26-0001	24600	6.082201996	0.003210581	9.11803E-01	3.44804E+00	2.00459E+07	9.54884E-01	5.41056E-02	5.12732E+00	
PMSS	PMSS-DABK-S-SO27-0001	16000	3.933052423	0.005709007	6.68079E-01	8.54154E-02	1.69969E+07	8.17361E-01	6.17581E-02	3.11569E+00	
PMSS	PMSS-DABK-S-SO28-0001	18300	4.579492834	0.004678501	8.57120E-01	1.25444E-01	3.32236E+06	9.25808E-01	6.33249E-02	3.65368E+00	
PMSS	PMSS-DABK-S-SO29-0001	21800	4.825443595	0.003999226	1.24661E-01	3.60158E-01	2.81322E+06	3.53074E-01	2.23282E-02	4.47237E+00	
PMSS	PMSS-DABK-S-SO30-0001	18000	4.132246217	0.005051815	3.01109E-01	8.66116E-03	4.50600E+06	5.48734E-01	3.90019E-02	3.58351E+00	
PMSS	PMSS-DABK-S-SO31-0001	16500	3.190924808	0.006405819	1.74072E-03	1.06996E+00	1.31242E+07	-4.17219E-02	-3.33927E-03	3.23265E+00	
PMSS	PMSS-DABK-S-SO32-0001	23200	5.528774814	0.0035315	5.31340E-01	1.69902E+00	9.46956E+06	7.28931E-01	4.33177E-02	4.79984E+00	
PMSS	PMSS-DABK-S-SO33-0001	12700	2.805855095	0.00877151	2.13506E-01	2.01486E+00	5.50970E+07	4.62067E-01	4.32755E-02	2.34379E+00	
PMSS	PMSS-DABK-S-SO34-0001	15400	3.265136495	0.006661746	8.39787E-02	9.21936E-01	2.23042E+07	2.89791E-01	2.36526E-02	2.97535E+00	
PMSS	PMSS-DABK-S-SO35-0001	17850	3.831547162	0.005336466	8.01580E-02	1.55050E-01	5.16532E+06	2.83122E-01	2.06824E-02	3.54843E+00	
PMSS	PMSS-DABK-S-SO36-0001	14200	3.228137283	0.007185269	2.84605E-01	9.94357E-01	3.50788E+07	5.33484E-01	4.52213E-02	2.69465E+00	
PMSS	PMSS-DABK-S-SO37-0001	20100	4.825443595	0.004232489	5.63582E-01	3.60158E-01	5.16882E+02	7.50721E-01	4.88401E-02	4.07472E+00	
PMSS	PMSS-DABK-S-SO38-0001	13700	3.077956704	0.007662571	2.50258E-01	1.31642E+00	4.12515E+07	5.00258E-01	4.37907E-02	2.57770E+00	
PMSS	PMSS-DABK-S-SO39-0001	18800	3.65930571	0.005292494	1.23953E-02	3.20363E-01	1.74963E+06	-1.11334E-01	-8.09951E-03	3.77064E+00	
PMSS	PMSS-DABK-S-SO40-0001	14500	3.411094095	0.00679802	4.17662E-01	6.62950E-01	3.16151E+07	6.46267E-01	5.32848E-02	2.76483E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
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NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
SESB	SESB-BWBK-SB-SO03-0108	40900	8.458436074	0.001943192	2.31954E-01	1.79193E+01	4.31695E+08	-4.81616E-01	-2.12304E-02	8.94005E+00	
SESB	SESB-BWBK-SB-SO04-0108	33600	8.157754172	0.002229309	8.56079E-01	1.54641E+01	1.81637E+08	9.25245E-01	4.36860E-02	7.23251E+00	
SESB	SESB-BWBK-SB-SO05-0106	31600	7.587479384	0.002410989	6.76985E-01	1.13042E+01	1.31728E+08	8.22791E-01	4.04005E-02	6.76469E+00	
SESB	SESB-BWBK-SB-SO06-0108	42650	10.12132214	0.001717179	5.95872E-01	3.47629E+01	5.07478E+08	7.71927E-01	3.19878E-02	9.34939E+00	
SESB	SESB-BWBK-SB-SO07-0106	29100	6.189855071	0.002852461	9.88363E-05	3.85943E+00	8.05913E+07	9.94164E-03	5.30968E-04	6.17991E+00	
SESB	SESB-BWBK-SB-SO08-0107	39900	8.549879733	0.001959802	2.44179E-02	1.87019E+01	3.91140E+08	-1.56262E-01	-6.91768E-03	8.70614E+00	
SESB	SESB-BWBK-SB-SO09-0106	29000	7.49035798	0.002561902	1.77912E+00	1.06605E+01	7.88058E+07	1.33384E+00	6.75124E-02	6.15652E+00	
SESB	SESB-BWBK-SB-SO11-0106	34800	8.227628401	0.002172063	5.10407E-01	1.60185E+01	2.15422E+08	7.14428E-01	3.32962E-02	7.51320E+00	
SESB	SESB-BWBK-SB-SO12-0106	34900	8.00532198	0.00220189	2.19708E-01	1.42885E+01	2.18368E+08	4.68730E-01	2.19948E-02	7.53659E+00	
SESB	SESB-BWBK-SB-SO15-0103	22700	4.764553701	0.003920763	6.66911E-03	2.90782E-01	6.64229E+06	8.16646E-02	5.11351E-03	4.68289E+00	
SESB	SESB-BWBK-SB-SO16-0105	24900	4.485550359	0.00382637	5.06860E-01	6.77242E-02	2.28223E+07	-7.11941E-01	-4.40390E-02	5.19749E+00	
SESB	SESB-BWBK-SB-SO17-0106	18100	3.00148075	0.006230745	3.66536E-01	1.49776E+00	4.09146E+06	-6.05422E-01	-4.77890E-02	3.60690E+00	
SESB	SESB-BWBK-SB-SO18-0105	15000	2.685149378	0.007826415	3.86643E-02	2.37210E+00	2.62424E+07	-1.96632E-01	-1.73955E-02	2.88178E+00	
SESB	SESB-BWBK-SB-SO19-0104	16400	2.725680889	0.007203291	2.33845E-01	2.24889E+00	1.38588E+07	-4.83575E-01	-4.10421E-02	3.20926E+00	
SESB	SESB-BWBK-SB-SO20-0104	29700	4.672481414	0.00333271	2.71517E+00	1.99961E-01	9.17240E+07	-1.64778E+00	-9.51256E-02	6.32026E+00	
SESS	SESS-DABK-S-SO01-0001	18600	3.933052423	0.00508912	4.37624E-02	8.54154E-02	2.31872E+06	2.09195E-01	1.49235E-02	3.72386E+00	
SESS	SESS-DABK-S-SO02-0001	24100	6.428728274	0.003151157	2.01176E+00	4.85505E+00	1.58186E+07	1.41837E+00	7.96202E-02	5.01036E+00	
SESS	SESS-DABK-S-SO03-0001	19100	4.19757986	0.004788175	1.27283E-01	7.69048E-04	1.04599E+06	3.56767E-01	2.46871E-02	3.84081E+00	
SESS	SESS-DABK-S-SO04-0001	18400	3.89936435	0.00515837	4.94122E-02	1.06242E-01	2.96782E+06	2.22289E-01	1.59652E-02	3.67708E+00	
SESS	SESS-DABK-S-SO05-0001	19300	4.485550359	0.0045583	3.57551E-01	6.77242E-02	6.76893E+05	5.97955E-01	4.03711E-02	3.88759E+00	
SESS	SESS-DABK-S-SO06-0001	53900	17.25888641	0.001128393	2.78573E+01	1.69874E+02	1.14090E+09	5.27800E+00	1.77296E-01	1.19809E+01	
SESS	SESS-DABK-S-SO07-0001	16000	4.610593104	0.005164135	2.23473E+00	1.48442E-01	1.69969E+07	1.49490E+00	1.07426E-01	3.11569E+00	
SESS	SESS-DABK-S-SO08-0001	20500	5.585335783	0.003821827	2.00803E+00	1.84967E+00	1.42329E+05	1.41705E+00	8.76033E-02	4.16829E+00	
SESS	SESS-DABK-S-SO09-0001	23000	5.414774355	0.003596543	4.37863E-01	1.41482E+00	8.27865E+06	6.61712E-01	3.96837E-02	4.75306E+00	
SESS	SESS-DABK-S-SO10-0001	23800	5.005859797	0.003685274	4.31250E-03	6.09256E-01	1.35223E+07	6.56697E-02	3.98657E-03	4.94019E+00	
SESS	SESS-DABK-S-SO11-0001	8840	1.902915653	0.015148351	2.13462E-01	5.39352E+00	1.27300E+08	4.62020E-01	5.68648E-02	1.44090E+00	
SESS	SESS-DABK-S-SO12-0001	14500	3.447095504	0.006750124	4.65491E-01	6.05620E-01	3.16151E+07	6.82269E-01	5.60546E-02	2.76483E+00	
SESS	SESS-DABK-S-SO13-0001	18700	5.299560899	0.004212517	2.40967E+00	1.15401E+00	2.02418E+06	1.55231E+00	1.00751E-01	3.74725E+00	
SESS	SESS-DABK-S-SO14-0001	18000	5.005859797	0.004484736	2.02307E+00	6.09256E-01	4.50600E+06	1.42235E+00	9.52520E-02	3.58351E+00	
SESS	SESS-DABK-S-SO15-0001	17500	4.946087443	0.004614269	2.18901E+00	5.19518E-01	6.87874E+06	1.47953E+00	1.00502E-01	3.46656E+00	
SESS	SESS-DABK-S-SO16-0001	9330	2.477667769	0.012114294	8.50372E-01	3.05426E+00	1.16483E+08	9.22156E-01	1.01497E-01	1.55551E+00	
SESS	SESS-DABK-S-SO17-0001	14800	3.228137283	0.006937711	1.54557E-01	9.94357E-01	2.83315E+07	3.93138E-01	3.27456E-02	2.83500E+00	
SESS	SESS-DABK-S-SO18-0001	13100	3.228137283	0.007717499	6.25341E-01	9.94357E-01	4.93188E+07	7.90785E-01	6.94699E-02	2.43735E+00	
SESS	SESS-DABK-S-SO19-0001	17300	4.390613599	0.005009755	9.42528E-01	2.73248E-02	7.96783E+06	9.70839E-01	6.87156E-02	3.41977E+00	
SESS	SESS-DABK-S-SO20-0001	23500	8.204370068	0.002788991	1.11179E+01	1.58329E+01	1.14059E+07	3.33435E+00	1.76090E-01	4.87002E+00	
SESD	SESD-SD01	24700	5.863976613	0.003271406	5.08750E-01	2.68522E+00	2.09514E+07	7.13267E-01	4.07962E-02	5.15071E+00	
SESD	SESD-SD02	20900	3.966596834	0.004656059	8.71750E-02	6.69333E-02	6.04141E+05	-2.95254E-01	-2.01468E-02	4.26185E+00	
SESD	SESD-SD03	34000	7.269491743	0.00236228	3.20140E-03	9.26703E+00	1.92578E+08	-5.65810E-02	-2.75002E-03	7.32607E+00	
SESD	SESD-SD04	31300	6.481208051	0.002654044	4.55001E-02	5.08907E+00	1.24931E+08	-2.13307E-01	-1.09891E-02	6.69452E+00	
SESD	SESD-SD05	27100	6.349604208	0.002940294	4.06420E-01	4.51262E+00	4.86822E+07	6.37511E-01	3.45687E-02	5.71209E+00	
SESD	SESD-SD06	30900	6.791757603	0.002603973	3.64070E-02	6.58665E+00	1.16149E+08	1.90806E-01	9.73667E-03	6.60095E+00	
SESD	SESD-SD07	29100	6.50736837	0.002770773	1.07227E-01	5.20778E+00	8.05913E+07	3.27455E-01	1.72366E-02	6.17991E+00	
SESD	SESD-SD08	42700	8.458436074	0.00189502	8.14784E-01	1.79193E+01	5.09733E+08	-9.02654E-01	-3.92942E-02	9.36109E+00	
SESD	SESD-SD09	15700	4.033264272	0.005703145	9.75641E-01	3.68822E-02	1.95606E+07	9.87746E-01	7.45937E-02	3.04552E+00	
SESD	SESD-SD10	31200	6.868285455	0.002571862	3.88724E-02	6.98531E+00	1.22706E+08	1.97161E-01	9.99873E-03	6.67112E+00	
SESD	SESD-SD11	36200	9.154891032	0.001998794	1.72716E+00	2.43008E+01	2.58478E+08	1.31422E+00	5.87558E-02	7.84067E+00	
SESD	SESD-SD12	40850	10.5669867	0.001719896	2.68511E+00	4.02168E+01	4.29620E+08	1.63863E+00	6.79567E-02	8.92836E+00	
SESD	SESD-SD13	33600	8.29720717	0.002208244	1.13358E+00	1.65803E+01	1.81637E+08	1.06470E+00	5.00323E-02	7.23251E+00	
SESD	SESD-SD14	23900	6.428728274	0.003168654	2.14666E+00	4.85505E+00	1.42677E+07	1.46515E+00	8.24743E-02	4.96358E+00	
SESD	SESD-SD15	34100	7.922639752	0.002246023	3.28531E-01	1.36702E+01	1.95364E+08	5.73176E-01	2.71641E-02	7.34946E+00	
SESD	SESD-SD16	31000	6.969664646	0.00256051	1.19247E-01	7.53147E+00	1.18315E+08	3.45322E-01	1.74738E-02	6.62434E+00	
SESD	SESD-SD17	28900	7.120367359	0.00264253	9.74635E-01	8.38135E+00	7.70404E+07	9.87236E-01	5.07494E-02	6.13313E+00	
SESD	SESD-SD18	23100	4.855744778	0.003830065	6.28717E-03	3.97446E-01	8.86411E+06	7.92917E-02	4.90717E-03	4.77645E+00	
SESD	SESD-SD19	29900	6.766152446	0.002663535	1.59290E-01	6.45587E+00	9.55949E+07	3.99111E-01	2.05979E-02	6.36704E+00	
SESD	SESD-SD20	21400	3.831547162	0.004683871	2.99492E-01	1.55050E-01	1.63141E+06	-5.47259E-01	-3.74537E-02	4.37881E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-B100B-0002	34750	2.392220179	0.004795996	2.61048E+01	3.36022E+00	2.13957E+08	-5.10929E+00	-3.53834E-01	7.50151E+00	
Site 8 SS	DA-B101B-0002	38900	3.301927249	0.003541699	2.67321E+01	8.52639E-01	3.52586E+08	-5.17030E+00	-3.07696E-01	8.47223E+00	
Site 8 SS	DA-B106B-0002	17600	3.865530119	0.005362556	1.41062E-01	1.29443E-01	6.36419E+06	3.75582E-01	2.75037E-02	3.48995E+00	
Site 8 SS	DA-B107B-0002	**22100**	**6.323119888**	0.003372737	3.17045E+00	4.40080E+00	3.90958E+06	1.78058E+00	1.03407E-01	4.54254E+00	DA-B107B-0002
Site 8 SS	DA-B108B-0002	26600	6.136146578	0.003035518	2.92690E-01	3.65129E+00	4.19550E+07	5.41008E-01	2.98071E-02	5.59514E+00	
Site 8 SS	DA-B109B-0002	11100	1.890814389	0.013868353	6.19653E-03	5.44988E+00	8.14097E+07	-7.87180E-02	-9.27015E-03	1.96953E+00	
Site 8 SS	DA-S-SB01-0102-01	**30000**	**9.868272403**	0.002150756	1.20954E+01	3.18430E+01	9.75604E+07	3.47784E+00	1.61289E-01	6.39043E+00	DA-S-SB01-0102-01
Site 8 SS	DA-S-SB02-0102-01	**20000**	**7.611662611**	0.003251239	1.26760E+01	1.14674E+01	1.50639E+04	3.56033E+00	2.03009E-01	4.05133E+00	DA-S-SB02-0102-01
Site 8 SS	DA-S-SB03-0102-01	**29000**	**10.0793684**	0.002171534	1.53887E+01	3.42700E+01	7.88058E+07	3.92285E+00	1.82804E-01	6.15652E+00	DA-S-SB03-0102-01
Site 8 SS	DA-S-SB04-0102-01	**22000**	**11.89020214**	0.002378441	5.43324E+01	5.87505E+01	3.52412E+06	7.37105E+00	3.59481E-01	4.51915E+00	DA-S-SB04-0102-01
Site 8 SS	DA-S-SB05-0102-01	**10000**	**3.89936435**	0.008808043	4.78355E+00	1.06242E-01	1.02470E+08	2.18713E+00	2.05265E-01	1.71223E+00	DA-S-SB05-0102-01
Site 8 SS	DA-S-SB06-0515-01	**17000**	**5.241482788**	0.004554745	3.57921E+00	1.03260E+00	9.75147E+06	1.89188E+00	1.27681E-01	3.34960E+00	DA-S-SB06-0515-01
Site 8 SS	DA-S-SB07-0102-01	**22000**	**9.868272403**	0.002632486	2.86131E+01	3.18430E+01	3.52412E+06	5.34912E+00	2.74451E-01	4.51915E+00	DA-S-SB07-0102-01
Site 8 SS	DA-S-SB08-0102-01	18000	4.641588834	0.004697044	1.11953E+00	1.73287E-01	4.50600E+06	1.05808E+00	7.25153E-02	3.58351E+00	
Site 8 SS	DA-S-TP01-0001-01	**21000**	**7.120367359**	0.003262822	8.03794E+00	8.38135E+00	7.69594E+05	2.83513E+00	1.61946E-01	4.28524E+00	DA-S-TP01-0001-01
Site 8 SS	DA-S-TP05-0001-01	24000	5.528774814	0.003452397	2.93550E-01	1.69902E+00	1.50332E+07	5.41803E-01	3.18348E-02	4.98697E+00	
Site 8 SS	DA-S-TP06-0001-01	**24000**	**6.868285455**	0.003041623	3.53934E+00	6.98531E+00	1.50332E+07	1.88131E+00	1.03756E-01	4.98697E+00	DA-S-TP06-0001-01
Site 8 SS	DA-S-TP07-0001-01	**14000**	**7.120367359**	0.004460035	2.00032E+01	8.38135E+00	3.74879E+07	4.47250E+00	2.98689E-01	2.64787E+00	DA-S-TP07-0001-01
Site 8 SS	DA-S-TP08-0001-01	**26000**	**8.549879733**	0.002549943	9.57957E+00	1.87019E+01	3.45422E+07	3.09509E+00	1.56293E-01	5.45479E+00	DA-S-TP08-0001-01
Site 8 SS	DA-S-TP09-0001-01	23000	4.946087443	0.003798327	3.72588E-02	5.19518E-01	8.27865E+06	1.93025E-01	1.18963E-02	4.75306E+00	
Site 8 SS	DA-S-TP09-0102-01	30000	4.795046974	0.003259571	2.54525E+00	3.24598E-01	9.75604E+07	-1.59539E+00	-9.10848E-02	6.39043E+00	
Site 8 SS	DA-S-TP10-0001-01	27000	6.082201996	0.00302211	1.54842E-01	3.44804E+00	4.72968E+07	3.93500E-01	2.16321E-02	5.68870E+00	
Site 8 SS	DA-S-TP10-0102-01	25000	5.528774814	0.00336061	9.47979E-02	1.69902E+00	2.37877E+07	3.07893E-01	1.78488E-02	5.22088E+00	
Site 8 SS	DA-S-TP11-0001-01	30000	7.120367359	0.002581416	5.32805E-01	8.38135E+00	9.75604E+07	7.29935E-01	3.70863E-02	6.39043E+00	
Site 8 SS	DA-S-TP12-0001-01	27000	5.808785734	0.003104854	1.44200E-02	2.50739E+00	4.72968E+07	1.20083E-01	6.69119E-03	5.68870E+00	
Site 8 SS	DA-S-TP12-0102-01	27000	7.120367359	0.002759158	2.04966E+00	8.38135E+00	4.72968E+07	1.43167E+00	7.52021E-02	5.68870E+00	
Site 8 SS	DA-S-TP12A-0001-01	24000	6.082201996	0.003263477	1.19953E+00	3.44804E+00	1.50332E+07	1.09523E+00	6.25670E-02	4.98697E+00	
Site 8 SS	DA-S-TP12B-0001-01	24000	5.808785734	0.00335283	6.75378E-01	2.50739E+00	1.50332E+07	8.21814E-01	4.75860E-02	4.98697E+00	
Site 8 SS	DA-S-TP13-0001-01	**28000**	**20.0829885**	0.001536558	2.00516E+02	2.51466E+02	6.20513E+07	1.41604E+01	5.55072E-01	5.92261E+00	DA-S-TP13-0001-01
Site 8 SS	DA-S-TP15-0001-01	**21000**	**7.611662611**	0.003141443	1.10651E+01	1.14674E+01	7.69594E+05	3.32642E+00	1.86441E-01	4.28524E+00	DA-S-TP15-0001-01
Site 8 SS	DA-SB100-0002	23300	4.946087443	0.003765364	1.50927E-02	5.19518E-01	1.00950E+07	1.22852E-01	7.53853E-03	4.82324E+00	
Site 8 SS	DA-SB101-0002	24000	5.863976613	0.003334203	7.69137E-01	2.68522E+00	1.50332E+07	8.77004E-01	5.06405E-02	4.98697E+00	
Site 8 SS	DA-SB102-0002	27700	6.349604208	0.002899473	2.47173E-01	4.51262E+00	5.74149E+07	4.97165E-01	2.67707E-02	5.85244E+00	
Site 8 SS	DA-SB107-0103	14800	3.589268453	0.006458217	5.68921E-01	4.04551E-01	2.83315E+07	7.54269E-01	6.06153E-02	2.83500E+00	
Site 8 SS	DA-SB111-0002	21600	6.109204058	0.003495575	2.83456E+00	3.54905E+00	2.18231E+06	1.68362E+00	9.95411E-02	4.42559E+00	
Site 8 SS	DA-SB112-0002	12000	3.03983898	0.00874729	7.39235E-01	1.40535E+00	6.59788E+07	8.59787E-01	8.04133E-02	2.18005E+00	
Site 8 SS	DA-SB113-0002	11800	2.392220179	0.010634122	6.70555E-02	3.36022E+00	6.92679E+07	2.58951E-01	2.67035E-02	2.13327E+00	
Site 8 SS	DA-SB114-0002	14700	3.301927249	0.006869944	2.40412E-01	8.52639E-01	2.94061E+07	4.90319E-01	4.06401E-02	2.81161E+00	
Site 8 SS	DA-SB115-0002	**24700**	**8.640836967**	0.00262131	1.21810E+01	1.94969E+01	2.09514E+07	3.49013E+00	1.78690E-01	5.15071E+00	DA-SB115-0002
Site 8 SS	DA-SB116-0002	28900	7.538996881	0.002558077	1.97646E+00	1.09805E+01	7.70404E+07	1.40587E+00	7.11051E-02	6.13313E+00	
Site 8 SS	DA-SB117-0002	31200	8.111004704	0.002340344	2.07325E+00	1.50986E+01	1.22706E+08	1.43988E+00	6.96572E-02	6.67112E+00	
Site 8 SS	DA-SB118-0002	**43000**	**12.80099276**	0.001504697	1.13551E+01	7.35423E+01	5.23369E+08	3.36973E+00	1.30713E-01	9.43126E+00	DA-SB118-0002
Site 8 SS	DA-SB119-0002	8540	1.424402129	0.015297059	2.88148E-03	7.84509E+00	1.34160E+08	5.36794E-02	6.63914E-03	1.37072E+00	
Site 8 SS	DA-SB120-0002	35000	7.170247594	0.002339528	1.51893E-01	8.67265E+00	2.21333E+08	-3.89735E-01	-1.88510E-02	7.55998E+00	
Site 8 SS	DA-SB133-0102	29400	8.111004704	0.002428468	3.46302E+00	1.50986E+01	8.60676E+07	1.86092E+00	9.17051E-02	6.25009E+00	
Site 8 SS	DA-SB150-0002	**35000**	**10.22582843**	0.001919187	7.10673E+00	3.60062E+01	2.21333E+08	2.66585E+00	1.16787E-01	7.55998E+00	DA-SB150-0002
Site 8 SS	DA-SB151-0002	28200	6.766152446	0.002763371	6.34823E-01	6.45587E+00	6.52422E+07	7.96758E-01	4.18838E-02	5.96939E+00	
Site 8 SS	DA-SS102B-011508	24400	5.528774814	0.003414788	2.00918E-01	1.69902E+00	1.82950E+07	4.48239E-01	2.61934E-02	5.08054E+00	
Site 8 SS	DA-SS103B-011508	27450	6.454994829	0.002888562	4.36965E-01	4.97149E+00	5.36888E+07	6.61033E-01	3.55274E-02	5.79396E+00	
Site 8 SS	DA-SS104-011508	21800	5.946279717	0.003528909	2.17241E+00	2.96173E+00	2.81322E+06	1.47391E+00	8.75570E-02	4.47237E+00	
Site 8 SS	DA-SS104B-011608	**24100**	**7.070311794**	0.002983305	4.24339E+00	8.09403E+00	1.58186E+07	2.05995E+00	1.12514E-01	5.01036E+00	DA-SS104B-011608
Site 8 SS	DA-SS105-011508	8660	1.367980757	0.015297059	9.49327E-04	8.16434E+00	1.31394E+08	-3.08111E-02	-3.81076E-03	1.39879E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-SS105B-011608	30000	7.946307107	0.002425794	2.42075E+00	1.38458E+01	9.75604E+07	1.55587E+00	7.66305E-02	6.39043E+00	
Site 8 SS	DA-SS106-011408	20700	5.753331403	0.003729803	2.36625E+00	2.33484E+00	3.33235E+05	1.53826E+00	9.39449E-02	4.21507E+00	
Site 8 SS	DA-SS107-011508	5270	0.438125636	0.015297059	2.81270E-02	1.43428E+01	2.20604E+08	-1.67711E-01	-2.07427E-02	6.05837E-01	
Site 8 SS	DA-SS108-011508	15400	3.374901689	0.006513361	1.59645E-01	7.23197E-01	2.23042E+07	3.99556E-01	3.22463E-02	2.97535E+00	
Site 8 SS	DA-SS109-011408	7850	1.587401052	0.015297059	1.42942E-01	6.95857E+00	1.50620E+08	3.78076E-01	4.67610E-02	1.20932E+00	
Site 8 SS	DA-SS110-011508	16300	4.548286599	0.005131888	1.85619E+00	1.04313E-01	1.46133E+07	1.36242E+00	9.76001E-02	3.18586E+00	
Site 8 SS	DA-SS110B-011508	27100	6.559531991	0.002885411	7.18152E-01	5.44858E+00	4.86822E+07	8.47439E-01	4.55210E-02	5.71209E+00	
Site 8 SS	DA-SS111B-011408	29000	7.465979245	0.002566642	1.71468E+00	1.05019E+01	7.88058E+07	1.30946E+00	6.63397E-02	6.15652E+00	
Site 8 SS	DA-SS112B-011608	32750	8.308775255	0.002241228	1.62585E+00	1.66747E+01	1.59448E+08	1.27509E+00	6.03648E-02	7.03369E+00	
Site 8 SS	DA-SS113B-011608	39400	8.776382955	0.001945855	3.50423E-02	2.07123E+01	3.71613E+08	1.87196E-01	8.25756E-03	8.58919E+00	
Site 8 SS	DA-SS114B-011008	31300	8.087579399	0.002339519	1.94063E+00	1.49171E+01	1.24931E+08	1.39306E+00	6.73805E-02	6.69452E+00	
Site 8 SS	DA-SS115B-011008	29200	5.863976613	0.002937961	1.15143E-01	2.68522E+00	8.23967E+07	-3.39328E-01	-1.83926E-02	6.20330E+00	
Site 8 SS	DA-SS116B-011008	30900	7.683983123	0.002427157	1.17296E+00	1.19624E+01	1.16149E+08	1.08303E+00	5.33568E-02	6.60095E+00	
Site 8 SS	DA-SS117B-011008	33700	7.875198618	0.002269808	3.83531E-01	1.33217E+01	1.84342E+08	6.19299E-01	2.95050E-02	7.25590E+00	
Site 8 SS	DA-SS118B-011608	29400	8.274046768	0.002401533	4.09642E+00	1.63923E+01	8.60676E+07	2.02396E+00	9.91851E-02	6.25009E+00	
Site 8 SS	DA-SS119B-011608	**33800**	**9.611935386**	0.002027839	5.44123E+00	2.90157E+01	1.87068E+08	2.33264E+00	1.05043E-01	7.27929E+00	DA-SS119B-011608
Site 8 SS	DA-SS120B-011708	30600	6.402407948	0.002710594	1.64790E-02	4.73975E+00	1.09773E+08	-1.28371E-01	-6.68340E-03	6.53078E+00	
Site 8 SS	DA-SS121-011008	**25800**	**8.29720717**	0.002606054	8.34746E+00	1.65803E+01	3.22313E+07	2.88920E+00	1.47492E-01	5.40801E+00	DA-SS121-011008
Site 8 SS	DA-SS122-011008	31300	7.922639752	0.002366769	1.50829E+00	1.36702E+01	1.24931E+08	1.22812E+00	5.97476E-02	6.69452E+00	
Site 8 SS	DA-SS123-011008	28900	7.020078408	0.002664034	7.86675E-01	7.81072E+00	7.70404E+07	8.86947E-01	4.57791E-02	6.13313E+00	
Site 8 SS	DA-SS124-011008	16600	4.033264272	0.005457085	6.04081E-01	3.68822E-02	1.24097E+07	7.77227E-01	5.74153E-02	3.25604E+00	
Site 8 SS	DA-SS125-011008	19600	5.050455797	0.004191301	1.19397E+00	6.80863E-01	2.73252E+05	1.09269E+00	7.07409E-02	3.95777E+00	
Site 8 SS	DA-SS126-011408	23500	6.53347621	0.003174698	2.76710E+00	5.32762E+00	1.14059E+07	1.66346E+00	9.37267E-02	4.87002E+00	
Site 8 SS	DA-SS127-011508	15500	4.099385194	0.00570295	1.21143E+00	1.58575E-02	2.13697E+07	1.10065E+00	8.31186E-02	2.99874E+00	
Site 8 SS	DA-SS128-011608	21600	4.454017329	0.004228822	8.08226E-04	5.23063E-02	2.18231E+06	2.84293E-02	1.84874E-03	4.42559E+00	
Site 8 SS	DA-SS129-011408	31400	7.563257557	0.002424824	7.14618E-01	1.11419E+01	1.27177E+08	8.45351E-01	4.16272E-02	6.71791E+00	
Site 8 SS	DA-SS130-011508	27200	6.766152446	0.002827614	1.06228E+00	6.45587E+00	5.00877E+07	1.03067E+00	5.48061E-02	5.73548E+00	
Site 8 SS	DA-SS131-011608	27100	6.243331554	0.002969299	2.82214E-01	4.07240E+00	4.86822E+07	5.31238E-01	2.89478E-02	5.71209E+00	
Site 8 SS	DA-SS132-011408	29500	6.766152446	0.00268605	2.42729E-01	6.45587E+00	8.79331E+07	4.92675E-01	2.55339E-02	6.27348E+00	
Site 8 SS	DA-SS133-011508	28800	6.919067891	0.002692102	6.55011E-01	7.25632E+00	7.52949E+07	8.09327E-01	4.19923E-02	6.10974E+00	
Site 8 SS	DA-SS134-011508	32100	6.109204058	0.002704554	5.96663E-01	3.54905E+00	1.43455E+08	-7.72440E-01	-4.01710E-02	6.88164E+00	
Site 8 SS	DA-SS135-011108	30800	5.711564702	0.002886348	7.49949E-01	2.20895E+00	1.14004E+08	-8.65996E-01	-4.65254E-02	6.57756E+00	
Site 8 SS	DA-SS136-011008	**31500**	**8.977764038**	0.00219848	5.00178E+00	2.25858E+01	1.29442E+08	2.23647E+00	1.04863E-01	6.74130E+00	DA-SS136-011008
Site 8 SS	DA-SS138-011108	18100	3.831547162	0.005281325	5.04651E-02	1.55050E-01	4.09146E+06	2.24644E-01	1.63255E-02	3.60690E+00	
Site 8 SS	DA-SS139-011108	21500	4.825443595	0.004037594	1.79138E-01	3.60158E-01	1.89686E+06	4.23247E-01	2.68940E-02	4.40220E+00	
Site 8 SS	DA-SS140-011108	37200	8.910890175	0.001996227	6.99407E-01	2.19546E+01	2.91633E+08	8.36305E-01	3.73654E-02	8.07458E+00	
Site 8 SS	DA-SS141-011108	24600	6.189855071	0.003177848	1.12898E+00	3.85943E+00	2.00459E+07	1.06254E+00	5.98978E-02	5.12732E+00	
Site 8 SS	DA-SS142-011708	25300	5.946279717	0.003194032	4.29319E-01	2.96173E+00	2.68041E+07	6.55224E-01	3.70305E-02	5.29106E+00	
Site 8 SS	DA-SS143-011708	33600	6.559531991	0.00252371	4.52898E-01	5.44858E+00	1.81637E+08	-6.72977E-01	-3.38080E-02	7.23251E+00	
Site 8 SS	DA-SS144-011708	30700	5.781091815	0.00287157	5.97649E-01	2.42045E+00	1.11879E+08	-7.73078E-01	-4.14269E-02	6.55417E+00	
Site 8 SS	DA-SS145-011708	28200	7.020078408	0.002705597	1.10394E+00	7.81072E+00	6.52422E+07	1.05068E+00	5.46517E-02	5.96939E+00	
Site 8 SS	DA-SS146-011708	21800	4.641588834	0.004095875	2.86350E-02	1.73287E-01	2.81322E+06	1.69219E-01	1.08298E-02	4.47237E+00	
Site 8 SS	DA-SS147-011708	30550	3.933052423	0.003650092	6.68755E+00	8.54154E-02	1.08728E+08	-2.58603E+00	-1.56238E-01	6.51908E+00	
Site 8 SS	DA-SS148-011708	38000	7.219954932	0.002218627	1.08526E+00	8.96789E+00	3.19597E+08	-1.04176E+00	-4.90692E-02	8.26171E+00	
Site 8 SS	DA-SS149-011708	43700	7.219954932	0.002044326	5.64084E+00	8.96789E+00	5.55887E+08	-2.37505E+00	-1.07386E-01	9.59500E+00	
Site 8 SS	DA-SS152-011608	17700	3.301927249	0.005929275	4.46948E-02	8.52639E-01	5.86965E+06	-2.11412E-01	-1.62791E-02	3.51334E+00	
Site 8 SS	DA-SS153-011608	**27300**	**9.995197694**	0.002266691	1.79464E+01	3.32916E+01	5.15131E+07	4.23632E+00	2.01690E-01	5.75888E+00	DA-SS153-011608
Site 8 SB	DA-B100B-0608	40000	5.918908978	0.002414609	7.89961E+00	2.86827E+00	3.95106E+08	-2.81062E+00	-1.38110E-01	8.72953E+00	
Site 8 SB	DA-B101B-0406	23400	4.294639074	0.004097398	3.04690E-01	4.80630E-03	1.07405E+07	-5.51987E-01	-3.53332E-02	4.84663E+00	
Site 8 SB	DA-B103B-0810	27300	7.070311794	0.002750774	1.71987E+00	8.09403E+00	5.15131E+07	1.31144E+00	6.87820E-02	5.75888E+00	
Site 8 SB	DA-B104B-0406	28900	7.551132091	0.002555748	2.01073E+00	1.10611E+01	7.70404E+07	1.41800E+00	7.16862E-02	6.13313E+00	
Site 8 SB	DA-B105B-0204	22800	4.88595171	0.003849383	3.22819E-02	4.36445E-01	7.16775E+06	1.79672E-01	1.11474E-02	4.70628E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SB	DA-B106B-0406	25400	4.579492834	0.003728589	5.40156E-01	1.25444E-01	2.78495E+07	-7.34953E-01	-4.48779E-02	5.31445E+00	
Site 8 SB	DA-B107B-0608	30200	5.836413792	0.002884765	3.60961E-01	2.59565E+00	1.01551E+08	-6.00801E-01	-3.22690E-02	6.43721E+00	
Site 8 SB	DA-B108B-0406	19600	4.066391931	0.004795592	1.17992E-02	2.52555E-02	2.73252E+05	1.08624E-01	7.52224E-03	3.95777E+00	
Site 8 SB	DA-B109B-0204	33000	9.352133308	0.002088918	5.10747E+00	2.62843E+01	1.65824E+08	2.25997E+00	1.03291E-01	7.09216E+00	
Site 8 SB	DA-B110B-1012	20100	4.88595171	0.004200377	6.58092E-01	4.36445E-01	5.16882E+02	8.11229E-01	5.25760E-02	4.07472E+00	
Site 8 SB	DA-B111B-0406	29900	7.779884614	0.002460005	1.99613E+00	1.26350E+01	9.55949E+07	1.41284E+00	7.00748E-02	6.36704E+00	
Site 8 SB	DA-B112B-0608	29000	6.50736837	0.002776775	1.23093E-01	5.20778E+00	7.88058E+07	3.50846E-01	1.84879E-02	6.15652E+00	
Site 8 SB	DA-B113B-0608	33100	8.040626668	0.002268069	8.55760E-01	1.45566E+01	1.68409E+08	9.25073E-01	4.40559E-02	7.11555E+00	
Site 8 SB	DA-B114B-0204	58200	3.518541062	0.002694609	8.96460E+01	4.99525E-01	1.44988E+09	-9.46815E+00	-4.91488E-01	1.29867E+01	
Site 8 SB	DA-B116B-0305	37600	9.110770968	0.001959333	8.88536E-01	2.38677E+01	3.05455E+08	9.42622E-01	4.17246E-02	8.16815E+00	
Site 8 SB	DA-B118B-0608	38200	7.392602786	0.002182211	8.38858E-01	1.00317E+01	3.26788E+08	-9.15892E-01	-4.27851E-02	8.30849E+00	
Site 8 SB	DA-B119B-0204	29600	4.733962534	0.003312977	2.44267E+00	2.58726E-01	8.98186E+07	-1.56291E+00	-8.99585E-02	6.29687E+00	
Site 8 SB	DA-B120B-0204	48000	7.779884614	0.001856713	7.95764E+00	1.26350E+01	7.77142E+08	-2.82093E+00	-1.21553E-01	1.06008E+01	
Site 8 SB	DA-S-MW04B-0810-01	**15000**	**6.349604208**	0.004493497	1.20258E+01	4.51262E+00	2.62424E+07	3.46782E+00	2.32460E-01	2.88178E+00	DA-S-MW04B-0810-01
Site 8 SB	DA-S-MW04B-1416-01	**18000**	**7.611662611**	0.003510492	1.62260E+01	1.14674E+01	4.50600E+06	4.02815E+00	2.38666E-01	3.58351E+00	DA-S-MW04B-1416-01
Site 8 SB	DA-S-SB01-0809-01	26000	6.349604208	0.003019834	8.00688E-01	4.51262E+00	3.45422E+07	8.94812E-01	4.91726E-02	5.45479E+00	
Site 8 SB	DA-S-SB01-5575-01	30000	6.868285455	0.002635218	2.28343E-01	6.98531E+00	9.75604E+07	4.77853E-01	2.45303E-02	6.39043E+00	
Site 8 SB	DA-S-SB02-0304-01	**16000**	**4.946087443**	0.004946327	3.35035E+00	5.19518E-01	1.69969E+07	1.83040E+00	1.28732E-01	3.11569E+00	DA-S-SB02-0304-01
Site 8 SB	DA-S-SB02-5565-01	**13000**	**3.797412828**	0.006971656	1.91394E+00	1.83097E-01	5.07334E+07	1.38345E+00	1.15513E-01	2.41396E+00	DA-S-SB02-5565-01
Site 8 SB	DA-S-SB03-0304-01	67000	10.69987481	0.001291633	1.88810E+01	4.19200E+01	2.19748E+09	-4.34523E+00	-1.56164E-01	1.50451E+01	
Site 8 SB	DA-S-SB03-0607-01	43000	9.654893846	0.001753902	5.00107E-02	2.94804E+01	5.23369E+08	2.23631E-01	9.36556E-03	9.43126E+00	
Site 8 SB	DA-S-SB04-0910-01	**23500**	**8.320335292**	0.002767161	1.19047E+01	1.67692E+01	1.14059E+07	3.45032E+00	1.81500E-01	4.87002E+00	DA-S-SB04-0910-01
Site 8 SB	DA-S-SB04-2535-01	20000	5.528774814	0.003912794	2.18284E+00	1.69902E+00	1.50639E+04	1.47744E+00	9.24175E-02	4.05133E+00	
Site 8 SB	DA-S-SB05-0203-01	**29000**	**10.28827648**	0.002147281	1.70714E+01	3.67595E+01	7.88058E+07	4.13175E+00	1.91460E-01	6.15652E+00	DA-S-SB05-0203-01
Site 8 SB	DA-S-SB05-0304-01	**22000**	**6.611489018**	0.003296964	4.37787E+00	5.69384E+00	3.52412E+06	2.09234E+00	1.20140E-01	4.51915E+00	DA-S-SB05-0304-01
Site 8 SB	DA-S-SB06-2535-01	**20000**	**6.868285455**	0.003447241	7.93523E+00	6.98531E+00	1.50639E+04	2.81695E+00	1.65392E-01	4.05133E+00	DA-S-SB06-2535-01
Site 8 SB	DA-S-SB08-0607-01	32000	5.669644725	0.002831429	1.41279E+00	2.08610E+00	1.41069E+08	-1.18861E+00	-6.32472E-02	6.85825E+00	
Site 8 SB	DA-S-TP01-0304-01	**23000**	**7.120367359**	0.003065606	5.60413E+00	8.38135E+00	8.27865E+06	2.36731E+00	1.31073E-01	4.75306E+00	DA-S-TP01-0304-01
Site 8 SB	DA-S-TP01-0607-01	**16000**	**6.082201996**	0.004372607	8.80018E+00	3.44804E+00	1.69969E+07	2.96651E+00	1.96163E-01	3.11569E+00	DA-S-TP01-0607-01
Site 8 SB	DA-S-TP02-0203-01	32000	9	0.002174303	4.58708E+00	2.27976E+01	1.41069E+08	2.14175E+00	9.98684E-02	6.85825E+00	
Site 8 SB	DA-S-TP02-0506-01	33000	7.851424411	0.002302897	5.76478E-01	1.31487E+01	1.65824E+08	7.59262E-01	3.64358E-02	7.09216E+00	
Site 8 SB	DA-S-TP05-0607-01	**28000**	**8.776382955**	0.002396463	8.14401E+00	2.07123E+01	6.20513E+07	2.85377E+00	1.39703E-01	5.92261E+00	DA-S-TP05-0607-01
Site 8 SB	DA-S-TP05-0910-01	29500	5.808785734	0.002935505	2.15938E-01	2.50739E+00	8.79331E+07	-4.64692E-01	-2.51771E-02	6.27348E+00	
Site 8 SB	DA-S-TP06-0304-01	**16000**	**6.349604208**	0.004264318	1.04582E+01	4.51262E+00	1.69969E+07	3.23391E+00	2.11180E-01	3.11569E+00	DA-S-TP06-0304-01
Site 8 SB	DA-S-TP06-0910-01	29000	7.368062997	0.002585946	1.46783E+00	9.87689E+00	7.88058E+07	1.21154E+00	6.16095E-02	6.15652E+00	
Site 8 SB	DA-S-TP07-0304-01	**14000**	**6.349604208**	0.004764102	1.37028E+01	4.51262E+00	3.74879E+07	3.70173E+00	2.55503E-01	2.64787E+00	DA-S-TP07-0304-01
Site 8 SB	DA-S-TP07-0910-01	**17000**	**5.808785734**	0.004284428	6.04759E+00	2.50739E+00	9.75147E+06	2.45918E+00	1.60967E-01	3.34960E+00	DA-S-TP07-0910-01
Site 8 SB	DA-S-TP08-0304-01	**22500**	**8.204370068**	0.002871965	1.27325E+01	1.58329E+01	5.65139E+06	3.56826E+00	1.91226E-01	4.63611E+00	DA-S-TP08-0304-01
Site 8 SB	DA-S-TP08-0708-01	**24000**	**8.320335292**	0.002728587	1.11113E+01	1.67692E+01	1.50332E+07	3.33336E+00	1.74121E-01	4.98697E+00	DA-S-TP08-0708-01
Site 8 SB	DA-S-TP11-0203-01	38500	6.082201996	0.002430509	5.27376E+00	3.44804E+00	3.37724E+08	-2.29647E+00	-1.13216E-01	8.37867E+00	
Site 8 SB	DA-S-TP11-0304-01	42000	5.808785734	0.002372781	1.14824E+01	2.50739E+00	4.78615E+08	-3.38857E+00	-1.65061E-01	9.19735E+00	
Site 8 SB	DA-S-TP12-0203-01	25000	3.65930571	0.004347298	2.43852E+00	3.20363E-01	2.37877E+07	-1.56158E+00	-1.02961E-01	5.22088E+00	
Site 8 SB	DA-S-TP13-0203-01	**28000**	**11.69607095**	0.002047512	3.33328E+01	5.58122E+01	6.20513E+07	5.77346E+00	2.61246E-01	5.92261E+00	DA-S-TP13-0203-01
Site 8 SB	DA-S-TP13-0405-01	**25000**	**8.087579399**	0.002698608	8.21795E+00	1.49171E+01	2.37877E+07	2.86670E+00	1.48920E-01	5.22088E+00	DA-S-TP13-0405-01
Site 8 SB	DA-S-TP14-0506-01	38000	8.320335292	0.002047929	3.43658E-03	1.67692E+01	3.19597E+08	5.86224E-02	2.65290E-03	8.26171E+00	
Site 8 SB	DA-S-TP14-0910-01	29000	5.241482788	0.003154365	8.37298E-01	1.03260E+00	7.88058E+07	-9.15040E-01	-5.13920E-02	6.15652E+00	
Site 8 SB	DA-S-TP15-0203-01	**20000**	**6.868285455**	0.003447241	7.93523E+00	6.98531E+00	1.50639E+04	2.81695E+00	1.65392E-01	4.05133E+00	DA-S-TP15-0203-01
Site 8 SB	DA-S-TP15-0506-01	**21000**	**6.611489018**	0.003404666	5.41143E+00	5.69384E+00	7.69594E+05	2.32625E+00	1.35735E-01	4.28524E+00	DA-S-TP15-0506-01
Site 8 SB	DA-S-TP15A-0203-01	**4800**	**2.261097439**	0.013031585	3.11593E+00	3.85814E+00	2.34786E+08	1.76520E+00	2.01508E-01	4.95899E-01	DA-S-TP15A-0203-01
Site 8 SB	DA-S-TP15A-0506-01	**3800**	**1.938991221**	0.014887301	2.81234E+00	5.22726E+00	2.66432E+08	1.67700E+00	2.04617E-01	2.61989E-01	DA-S-TP15A-0506-01
Site 8 SB	DA-S-TP15A-0910-01	**17000**	**6.349604208**	0.00406697	9.00001E+00	4.51262E+00	9.75147E+06	3.00000E+00	1.91319E-01	3.34960E+00	DA-S-TP15A-0910-01
Site 8 SB	DA-SB-TP103-0506	29900	7.969939269	0.002426794	2.56928E+00	1.40222E+01	9.55949E+07	1.60290E+00	7.89628E-02	6.36704E+00	

TABLE F.5.1
SUPPORT DATA FOR ARSENIC REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	AX(x-Xmin,4273.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!G	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**AS ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SB	DA-SB100-0204	17000	4.516972939	0.004988187	1.36276E+00	8.50664E-02	9.75147E+06	1.16737E+00	8.24480E-02	3.34960E+00	
Site 8 SB	DA-SB101-0608	39000	1.717071364	0.005499821	4.59488E+01	6.29127E+00	3.56351E+08	-6.77855E+00	-5.02703E-01	8.49562E+00	
Site 8 SB	DA-SB102-0305	39700	5.863976613	0.002438651	7.81417E+00	2.68522E+00	3.83269E+08	-2.79538E+00	-1.38044E-01	8.65936E+00	
Site 8 SB	DA-SB104-0608	28600	4.454017329	0.003515486	2.58869E+00	5.23063E-02	7.18640E+07	-1.60894E+00	-9.53966E-02	6.06296E+00	
Site 8 SB	DA-SB105-0406	26500	7.417101912	0.00272836	3.40533E+00	1.01875E+01	4.06695E+07	1.84535E+00	9.63897E-02	5.57175E+00	
Site 8 SB	DA-SB106-0608	134000	8.843764427	0.000990423	4.78442E+02	2.13301E+01	1.29680E+10	-2.18733E+01	-6.88375E-01	3.07171E+01	
Site 8 SB	DA-SB108-0204	10500	2.033599058	0.013806724	4.17845E-02	4.80360E+00	9.25970E+07	2.04413E-01	2.40189E-02	1.82919E+00	
Site 8 SB	DA-SB109-0204	24500	5.946279717	0.003262143	7.09558E-01	2.96173E+00	1.91604E+07	8.42353E-01	4.81111E-02	5.10393E+00	
Site 8 SB	DA-SB110-0810	23400	6.611489018	0.003162022	3.11474E+00	5.69384E+00	1.07405E+07	1.76486E+00	9.92415E-02	4.84663E+00	
Site 8 SB	DA-SB111-0204	**17400**	**5.124348519**	0.004535918	2.82638E+00	8.08267E-01	7.41329E+06	1.68118E+00	1.13226E-01	3.44317E+00	DA-SB111-0204
Site 8 SB	DA-SB112-0608	20500	5.613509052	0.003810429	2.08867E+00	1.92709E+00	1.42329E+05	1.44522E+00	8.92116E-02	4.16829E+00	
Site 8 SB	DA-SB113-0406	**39550**	**24.54458631**	0.001121361	2.53456E+02	4.12873E+02	3.77419E+08	1.59203E+01	5.33119E-01	8.62427E+00	DA-SB113-0406
Site 8 SB	DA-SB114-0406	23300	5.183081107	0.003660127	1.29489E-01	9.17322E-01	1.00950E+07	3.59846E-01	2.17703E-02	4.82324E+00	
Site 8 SB	DA-SB115-0204	29300	6.559531991	0.002746181	1.10780E-01	5.44858E+00	8.42222E+07	3.32837E-01	1.74420E-02	6.22670E+00	
Site 8 SB	DA-SB116-0204	28700	5.065277397	0.003241284	1.04259E+00	7.05543E-01	7.35695E+07	-1.02107E+00	-5.81320E-02	6.08635E+00	
Site 8 SB	DA-SB117-0810	33100	7.368062997	0.002382782	6.37610E-02	9.87689E+00	1.68409E+08	2.52509E-01	1.23259E-02	7.11555E+00	
Site 8 SB	DA-SB118-0406	26100	5.065277397	0.003443959	1.70491E-01	7.05543E-01	3.57277E+07	-4.12906E-01	-2.42315E-02	5.47818E+00	
Site 8 SB	DA-SB119-0204	29400	4.579492834	0.003395877	2.79088E+00	1.25444E-01	8.60676E+07	-1.67059E+00	-9.73524E-02	6.25009E+00	
Site 8 SB	DA-SB120-0406	30200	4.548286599	0.003353603	3.56805E+00	1.04313E-01	1.01551E+08	-1.88893E+00	-1.09388E-01	6.43721E+00	
Site 8 SB	DA-SB121-0406	**21400**	**6.163030077**	0.003500134	3.18346E+00	3.75475E+00	1.63141E+06	1.78422E+00	1.05558E-01	4.37881E+00	DA-SB121-0406
Site 8 SB	DA-SB122-0407	20000	4.579492834	0.004386552	2.78954E-01	1.25444E-01	1.50639E+04	5.28161E-01	3.49807E-02	4.05133E+00	
Site 8 SB	DA-SB123-0508	35200	5.781091815	0.002641543	3.33308E+00	2.42045E+00	2.27324E+08	-1.82567E+00	-9.38322E-02	7.60676E+00	
Site 8 SB	DA-SB124-0608	37800	5.946279717	0.002489827	5.14678E+00	2.96173E+00	3.12486E+08	-2.26865E+00	-1.13202E-01	8.21493E+00	
Site 8 SB	DA-SB125-0810	30700	5.153756646	0.003075259	1.96116E+00	8.62010E-01	1.11879E+08	-1.40041E+00	-7.76599E-02	6.55417E+00	
Site 8 SB	DA-SB126-1013	32800	2.805855095	0.004400426	1.79736E+01	2.01486E+00	1.60713E+08	-4.23953E+00	-2.81232E-01	7.04538E+00	
Site 8 SB	DA-SB127-0204	18800	5.153756646	0.004267137	1.91301E+00	8.62010E-01	1.74963E+06	1.38312E+00	9.03498E-02	3.77064E+00	
Site 8 SB	DA-SB128-0810	38600	4.294639074	0.002995865	1.68709E+01	4.80630E-03	3.41409E+08	-4.10742E+00	-2.24818E-01	8.40206E+00	
Site 8 SB	DA-SB129-0406	22800	6.376033409	0.003286037	2.78808E+00	4.62560E+00	7.16775E+06	1.66975E+00	9.57169E-02	4.70628E+00	
Site 8 SB	DA-SB130-1011.5	31600	8.821332542	0.002215706	4.22978E+00	2.11234E+01	1.31728E+08	2.05664E+00	9.68089E-02	6.76469E+00	
Site 8 SB	DA-SB131-0406	28200	6.791757603	0.002757377	6.76281E-01	6.58665E+00	6.52422E+07	8.22363E-01	4.31829E-02	5.96939E+00	
Site 8 SB	DA-SB132-0406	31800	6.243331554	0.002685947	3.22782E-01	4.07240E+00	1.36359E+08	-5.68139E-01	-2.94444E-02	6.81147E+00	
Site 8 SB	DA-SB133-0810	26100	5.891474808	0.003147096	1.70810E-01	2.77610E+00	3.57277E+07	4.13292E-01	2.31852E-02	5.47818E+00	
Site 8 SB	DA-SB134-0405	49400	3.00148075	0.003295808	6.28343E+01	1.49776E+00	8.57158E+08	-7.92681E+00	-4.55071E-01	1.09283E+01	
Site 8 SB	DA-SB135-1214	61400	2.725680889	0.003128289	1.21210E+02	2.24889E+00	1.70381E+09	-1.10095E+01	-6.15775E-01	1.37352E+01	
Site 8 SB	DA-SB136-0810	48600	3.966596834	0.002757235	4.58947E+01	6.69333E-02	8.10955E+08	-6.77456E+00	-3.55728E-01	1.07412E+01	
Site 8 SB	DA-SB137-0406	54600	6.402407948	0.001929634	3.29730E+01	4.73975E+00	1.18868E+09	-5.74221E+00	-2.52242E-01	1.21446E+01	
Site 8 SB	DA-SB138-0406	46100	9.558101912	0.001694223	3.57942E-01	2.84387E+01	6.74818E+08	-5.98282E-01	-2.46259E-02	1.01564E+01	
Site 8 SB	DA-SB139-1012	69200	5.212322846	0.001910886	1.07068E+02	9.74191E-01	2.40858E+09	-1.03474E+01	-4.52322E-01	1.55597E+01	
Site 8 SB	DA-SB150-0204	23600	6.000833218	0.003326362	1.22639E+00	3.15248E+00	1.20914E+07	1.10743E+00	6.38703E-02	4.89341E+00	
Site 8 SB	DA-SB151-0406	26650	4.733962534	0.00354108	7.61904E-01	2.58726E-01	4.26052E+07	-8.72871E-01	-5.19419E-02	5.60683E+00	
Site 8 SB	DA-SB152-0204	19600	3.301927249	0.005501485	4.30127E-01	8.52639E-01	2.73252E+05	-6.55841E-01	-4.86450E-02	3.95777E+00	
Site 8 SB	DA-SB153-0204	25200	5.414774355	0.003384906	2.16414E-02	1.41482E+00	2.57786E+07	1.47110E-01	8.55886E-03	5.26766E+00	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Y variable name used on graph: Cr^0.5			********** GRAPH LINES **********				- - - Extreme Value Lines: +/-3 x IQR of residuals			
	X variable name used on graph: CR predict (from Factor Anal.)			**X-Points**	**Y Predicted**	**Lower 95%**	**Upper 95%**	**-3 x IQR**	**+3 x IQR**	**Median**	
	N	214.000000		3.12	2.04	1.93	2.16	-0.07	0.07	0.00	**No. of Exceedances**
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	9.237175E-02		3.74	2.14	2.00	2.28	-0.07	0.07	0.00	**of Upper 95% Limit**
0.10	**t-Value: 2-tail, 0.100 alpha**	1.652073		4.36	2.24	2.08	2.39	-0.07	0.07	0.00	**for Each Soil Type:**
degrees freedom	SUM(XY*w^2)	6.320466E+01		4.98	2.33	2.16	2.51	-0.07	0.07	0.00	---- \/ ----
2	SUM(X^2*w^2)	2.140000E+02		5.60	2.43	2.23	2.63	-0.07	0.07	0.00	BASS
	SUM(X*w^2)	1.921134E+01		6.22	2.53	2.31	2.74	-0.07	0.07	0.00	0
	SUM(Y*w^2)	6.078644E+00		6.84	2.62	2.39	2.86	-0.07	0.07	0.00	MASS
	SUM(w^2)	1.983882E+00		7.46	2.72	2.46	2.98	-0.07	0.07	0.00	1
	SUM(Y)	737.844900		8.09	2.82	2.54	3.10	-0.07	0.07	0.00	MMSS
	SUM(X)	2.599550E+03		8.71	2.91	2.61	3.21	-0.07	0.07	0.00	1
	Denominator	5.547538E+01		9.33	3.01	2.69	3.33	-0.07	0.07	0.00	NESS
	Slope	**1.552352E-01**		9.95	3.10	2.76	3.45	-0.07	0.07	0.00	0
	Intercept	**1.560762E+00**		10.57	3.20	2.84	3.57	-0.07	0.07	0.00	PMSS
	Minimum X value	3.119267E+00		11.19	3.30	2.91	3.68	-0.07	0.07	0.00	0
	Maximum X value	1.801747E+01		11.81	3.39	2.99	3.80	-0.07	0.07	0.00	SESS
	Minimum Y value	2.190890E+00		12.43	3.49	3.06	3.92	-0.07	0.07	0.00	1
	Maximum Y value	5.310367E+00		13.05	3.59	3.14	4.04	-0.07	0.07	0.00	SESD
	No. of graph points	25		13.67	3.68	3.21	4.16	-0.07	0.07	0.00	0
	SUM(Ypred.- Yobs)^2	1.252281E+01		14.29	3.78	3.29	4.27	-0.07	0.07	0.00	MASB
	SUM(Yobs - Yave)^2	5.555422E+01		14.91	3.88	3.36	4.39	-0.07	0.07	0.00	2
	SUM(X - Xave)^2	1.782933E+03		15.53	3.97	3.43	4.51	-0.07	0.07	0.00	MMSB
	Std. Error of Y-estimate	**2.430429E-01**		16.16	4.07	3.51	4.63	-0.07	0.07	0.00	2
	R^2	**7.745841E-01**		16.78	4.16	3.58	4.75	-0.07	0.07	0.00	NESB
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1/x**		17.40	4.26	3.66	4.86	-0.07	0.07	0.00	0
est.M, Std.Err.Y				18.02	4.36	3.73	4.98	-0.07	0.07	0.00	PMSB
Percentiles of Y-Pred.	**Domain for Estimating % Err in Y-Pred:**		**25**	10.67	3.22	2.85	3.59	10.35	**-22%**	**24%**	4
	Inverse Log Transform (Y/N)?	**No**	**50**	12.64	3.52	3.09	3.96	12.42	**-23%**	**26%**	SESB
	Inverse Power Transform (Y/N)?	**Yes**	**75**	14.13	3.75	3.27	4.24	14.09	**-24%**	**28%**	0
	Inverse Power Transform (1/Power):	**2**	**90**	15.34	3.94	3.41	4.47	15.54	**-25%**	**29%**	<<--Original Units Errors

TEXT BOX ==>	**(Cr^0.5) = (1.55E-01)x(CR predict (from Factor Anal.)) + (1.56E+00)**			**R^2 = 0.77; Std. Error of Y-estimate = 2.43E-01**				**+/-3 x IQR of r**	-0.068813	0.068813	
TEXT BOX ==>	**Weighted 1/x. 95% Confidence Limits on a Y-value predicted fro**			**\/ - wt.descrip.**	**TEXT BOX==> Residuals Plot: (Observed - Predicted) x (1/x)^0.5 Versus Y-Pred.**						
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**	**Weighted 1/x.**	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!J**	**DA!L**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
BASS	BASS-BWBK-SS-BA101-0001	5.826502353	2.366431913	0.029456704	9.76316E-03	1.16952E+00	3.99541E+01	-9.88087E-02	-1.69585E-02	2.46524E+00	
BASS	BASS-BWBK-SS-BA102-0001	4.389288115	2.19089023	0.051905314	2.62596E-03	1.58001E+00	6.01888E+01	-5.12442E-02	-1.16748E-02	2.24213E+00	
BASS	BASS-BWBK-SS-BA103-0001	5.063686438	2.236067977	0.03900016	1.22671E-02	1.46847E+00	5.01794E+01	-1.10757E-01	-2.18728E-02	2.34682E+00	
BASS	BASS-BWBK-SS-BA104-0001	6.465006452	2.529822128	0.023925558	1.19279E-03	8.42818E-01	3.22899E+01	-3.45368E-02	-5.34211E-03	2.56436E+00	
BASS	BASS-BWBK-SS-BA105-0001	5.056797535	2.387467277	0.039106493	1.73989E-03	1.12446E+00	5.02771E+01	4.17119E-02	8.24869E-03	2.34576E+00	
BASS	BASS-BWBK-SS-BA106-0001	6.664009522	2.729468813	0.022517946	1.80144E-02	5.16105E-01	3.00679E+01	1.34218E-01	2.01407E-02	2.59525E+00	
BASS	BASS-BWBK-SS-BA107-0001	4.54569113	2.19089023	0.048394962	5.70379E-03	1.58001E+00	5.77864E+01	-7.55234E-02	-1.66143E-02	2.26641E+00	
BASS	BASS-BWBK-SS-BA108-0001	4.734596873	2.28035085	0.044610181	2.36779E-04	1.36311E+00	5.49501E+01	-1.53876E-02	-3.25004E-03	2.29574E+00	
BASS	BASS-BWBK-SS-BA109-0001	6.23996838	2.645751311	0.025682377	1.35318E-02	6.43400E-01	3.48981E+01	1.16326E-01	1.86421E-02	2.52943E+00	
BASS	BASS-BWBK-SS-BA110-0001	7.347396386	2.645751311	0.018523927	3.08976E-03	6.43400E-01	2.30403E+01	-5.55856E-02	-7.56534E-03	2.70134E+00	
BASS	BASS-BWBK-SS-BA111-0001	5.20478528	2.42899156	0.036914277	3.63167E-03	1.03812E+00	4.82003E+01	6.02633E-02	1.15784E-02	2.36873E+00	
BASS	BASS-BWBK-SS-BA112-0001	5.098527395	2.28035085	0.038468964	5.16709E-03	1.36311E+00	4.96870E+01	-7.18824E-02	-1.40987E-02	2.35223E+00	
BASS	BASS-BWBK-SS-BA113-0001	4.585763169	2.418677324	0.047552872	2.13286E-02	1.05924E+00	5.71788E+01	1.46043E-01	3.18471E-02	2.27263E+00	
MASB	MASB-BWBK-SB-MA01-0105	13.82864624	3.834057903	0.005229265	1.60283E-02	1.49138E-01	2.82649E+00	1.26603E-01	9.15513E-03	3.70745E+00	
MASB	MASB-BWBK-SB-MA02-0107	15.10042388	3.987480407	0.004385526	6.82290E-03	2.91176E-01	8.72017E+00	8.26009E-02	5.47010E-03	3.90488E+00	
MASB	MASB-BWBK-SB-MA03-0108	13.37568047	3.660601044	0.005589439	5.50483E-04	4.52531E-02	1.50860E+00	2.34624E-02	1.75411E-03	3.63714E+00	
MASB	MASB-BWBK-SB-MA04-0106	15.86563074	4.037325848	0.003972696	1.86576E-04	3.47454E-01	1.38250E+01	1.36593E-02	8.60935E-04	4.02367E+00	
MASB	MASB-BWBK-SB-MA05-0108	13.618632	3.937003937	0.005391791	6.87230E-02	2.39249E-01	2.16444E+00	2.62151E-01	1.92494E-02	3.67485E+00	
MASB	MASB-BWBK-SB-MA06-0105	14.20236589	3.885871846	0.004957681	1.44968E-02	1.91843E-01	4.22276E+00	1.20403E-01	8.47764E-03	3.76547E+00	
MASB	MASB-BWBK-SB-MA07-0108	12.7908942	3.514256678	0.006112209	1.03058E-03	4.40674E-03	4.14046E-01	-3.21026E-02	-2.50980E-03	3.54636E+00	
MASB	MASB-BWBK-SB-MA08-0108	16.79185475	4.324349662	0.003546522	2.46178E-02	7.68211E-01	2.15707E+01	1.56901E-01	9.34385E-03	4.16745E+00	
MASB	MASB-BWBK-SB-MA09-0108	13.39212896	3.605551275	0.005575717	1.16559E-03	2.48623E-02	1.54928E+00	-3.41408E-02	-2.54932E-03	3.63969E+00	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	Weighted 1/x.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!J	DA!L	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MASB	MASB-BWBK-SB-MA10-0104	10.67425721	3.405877273	0.008776567	3.53796E-02	1.76367E-03	2.17024E+00	1.88095E-01	1.76213E-02	3.21778E+00	
MASB	MASB-BWBK-SB-MA11-0108	14.58047367	3.974921383	0.004703885	2.27275E-02	2.77780E-01	5.91970E+00	1.50756E-01	1.03396E-02	3.82416E+00	
MASB	MASB-BWBK-SB-MA12-0108	14.12564674	3.911521443	0.00501168	2.49519E-02	2.14970E-01	3.91334E+00	1.57962E-01	1.11826E-02	3.75356E+00	
MASB	MASB-BWBK-SB-MA13-0105	11.2971937	3.768288736	0.007835358	2.05938E-01	1.02666E-01	7.22902E-01	4.53804E-01	4.01697E-02	3.31448E+00	MASB-BWBK-SB-MA13-0105
MASB	MASB-BWBK-SB-MA14-0104	14.30479206	4.049691346	0.004886939	7.19966E-02	3.62185E-01	4.65421E+00	2.68322E-01	1.87575E-02	3.78137E+00	
MASB	MASB-BWBK-SB-MA15-0105	13.91243642	3.898717738	0.005166466	3.17751E-02	2.03261E-01	3.11525E+00	1.78256E-01	1.28127E-02	3.72046E+00	
MASB	MASB-BWBK-SB-MA16-0104	11.51497863	3.563705936	0.007541778	4.64030E-02	1.34172E-02	3.99995E-01	2.15414E-01	1.87073E-02	3.34829E+00	
MASB	MASB-BWBK-SB-MA17-0104	12.24299706	3.521363372	0.006671516	3.60684E-03	5.40078E-03	9.13308E-03	6.00570E-02	4.90542E-03	3.46131E+00	
MASB	MASB-BWBK-SB-MA18-0104	12.65134853	4.086563348	0.006247789	3.15694E-01	4.07925E-01	2.53934E-01	5.61866E-01	4.44116E-02	3.52470E+00	MASB-BWBK-SB-MA18-0104
MASB	MASB-BWBK-SB-MA19-0103	10.87293354	3.464101615	0.008458757	4.64305E-02	2.63356E-04	1.62434E+00	2.15477E-01	1.98178E-02	3.24862E+00	
MASB	MASB-BWBK-SB-MA20-0103	13.06679895	3.674234614	0.005856816	7.23269E-03	5.12394E-02	8.45239E-01	8.50452E-02	6.50850E-03	3.58919E+00	
MASS	MASS-BWBK-SS-MA01-0001	8.121471374	2.846049894	0.015161095	6.02670E-04	3.62191E-01	1.62083E+01	2.45493E-02	3.02277E-03	2.82150E+00	
MASS	MASS-BWBK-SS-MA02-0001	12.97337722	3.420526275	0.00594147	2.37655E-02	7.47863E-04	6.82189E-01	-1.54161E-01	-1.18829E-02	3.57469E+00	
MASS	MASS-BWBK-SS-MA03-0001	9.935261795	3.255764119	0.010130745	2.33171E-02	3.69060E-02	4.89369E+00	1.52699E-01	1.53694E-02	3.10306E+00	
MASS	MASS-BWBK-SS-MA04-0001	11.78449284	3.346640106	0.007200758	1.89140E-03	1.02482E-02	1.31723E-01	-4.34903E-02	-3.69047E-03	3.39013E+00	
MASS	MASS-BWBK-SS-MA05-0001	14.1164942	3.714835124	0.005018181	1.39158E-03	7.12686E-02	3.87721E+00	-3.73039E-02	-2.64258E-03	3.75214E+00	
MASS	MASS-BWBK-SS-MA06-0001	15.85906946	3.974921383	0.003975984	2.27783E-03	2.77780E-01	1.37763E+01	-4.77266E-02	-3.00942E-03	4.02265E+00	
MASS	MASS-BWBK-SS-MA07-0001	3.119266953	2.19089023	0.102776757	2.12891E-02	1.58001E+00	8.15077E+01	1.45908E-01	4.67763E-02	2.04498E+00	MASS-BWBK-SS-MA07-0001
MASS	MASS-BWBK-SS-MA08-0001	11.66798382	3.224903099	0.00734528	2.16505E-02	4.97157E-02	2.29869E-01	-1.47141E-01	-1.26107E-02	3.37204E+00	
MASS	MASS-BWBK-SS-MA09-0001	18.01746761	4.171330723	0.003080438	3.47363E-02	5.23391E-01	3.44573E+01	-1.86377E-01	-1.03442E-02	4.35771E+00	
MASS	MASS-BWBK-SS-MA10-0001	15.4552419	3.911521443	0.004186474	2.34627E-03	2.14970E-01	1.09416E+01	-4.84383E-02	-3.13410E-03	3.95996E+00	
MASS	MASS-BWBK-SS-MA11-0001	16.10019039	4	0.003857785	3.60942E-03	3.04844E-01	1.56243E+01	-6.00785E-02	-3.73154E-03	4.06008E+00	
MASS	MASS-BWBK-SS-MA12-0001	11.99802784	3.435112807	0.006946728	1.40050E-04	1.62832E-04	2.23210E-02	1.18343E-02	9.86353E-04	3.42328E+00	
MASS	MASS-BWBK-SS-MA13-0001	13.62193001	3.687817783	0.00538918	1.55065E-04	5.75733E-02	2.17415E+00	1.24525E-02	9.14152E-04	3.67537E+00	
MASS	MASS-BWBK-SS-MA14-0001	10.49081128	3.178049716	0.009086191	1.26692E-04	7.28048E-02	2.74439E+00	-1.12558E-02	-1.07292E-03	3.18931E+00	
MASS	MASS-BWBK-SS-MA15-0001	11.53850574	3.376388603	0.007511054	5.97513E-04	5.11007E-03	3.70789E-01	2.44441E-02	2.11848E-03	3.35194E+00	
MASS	MASS-BWBK-SS-MA16-0001	10.65939093	3.420526275	0.008801065	4.20460E-02	7.47863E-04	2.21426E+00	2.05051E-01	1.92367E-02	3.21547E+00	
MASS	MASS-BWBK-SS-MA17-0001	11.62634668	3.492849839	0.007397985	1.61975E-02	2.02288E-03	2.71528E-01	1.27269E-01	1.09466E-02	3.36558E+00	
MASS	MASS-BWBK-SS-MA18-0001	10.31130457	3.224903099	0.009405303	4.02760E-03	4.97157E-02	3.37136E+00	6.34634E-02	6.15474E-03	3.16144E+00	
MASS	MASS-BWBK-SS-MA19-0001	11.71967671	3.492849839	0.007280626	1.27196E-02	2.02288E-03	1.82973E-01	1.12781E-01	9.62324E-03	3.38007E+00	
MASS	MASS-BWBK-SS-MA20-0001	11.97276005	3.492849839	0.00697608	5.40133E-03	2.02288E-03	3.05096E-02	7.34938E-02	6.13842E-03	3.41936E+00	
MMSB	MMSB-BWBK-SB-MM101-0110	10.56222321	3.098386677	0.008963741	1.04049E-02	1.22141E-01	2.51288E+00	-1.02004E-01	-9.65748E-03	3.20039E+00	
MMSB	MMSB-BWBK-SB-MM102-0109	12.9135948	3.478505426	0.005996608	7.55184E-03	9.38323E-04	5.87009E-01	-8.69013E-02	-6.72944E-03	3.56541E+00	
MMSB	MMSB-BWBK-SB-MM103-0107	10.71827007	3.435112807	0.008704636	4.43093E-02	1.62832E-04	2.04250E+00	2.10498E-01	1.96392E-02	3.22462E+00	
MMSB	MMSB-BWBK-SB-MM104-0110	14.73564246	3.701351105	0.004605342	2.15801E-02	6.42510E-02	6.69884E+00	-1.46902E-01	-9.96913E-03	3.84825E+00	
MMSB	MMSB-BWBK-SB-MM105-0110	8.400394381	2.774887385	0.014171005	8.08414E-03	4.52910E-01	1.40403E+01	-8.99118E-02	-1.07033E-02	2.86480E+00	
MMSB	MMSB-BWBK-SB-MM106-0110	16.25340338	3.885871846	0.003785396	3.92003E-02	1.91843E-01	1.68590E+01	-1.97991E-01	-1.21815E-02	4.08386E+00	
MMSB	MMSB-BWBK-SB-MM107-0110	10.25342407	4	0.009511788	7.18333E-01	3.04844E-01	3.58726E+00	8.47545E-01	8.26597E-02	3.15245E+00	MMSB-BWBK-SB-MM107-0110
MMSB	MMSB-BWBK-SB-MM108-0110	11.11664258	3.138470965	0.008091941	2.18997E-02	9.57298E-02	1.06252E+00	-1.47986E-01	-1.33121E-02	3.28646E+00	
MMSB	MMSB-BWBK-SB-MM109-0110	13.61149145	3.605551275	0.005397449	4.65036E-03	2.48623E-02	2.14348E+00	-6.81936E-02	-5.01000E-03	3.67374E+00	
MMSB	MMSB-BWBK-SB-MM110-0109	11.8082272	3.78153408	0.00717184	1.50326E-01	1.11329E-01	1.15058E-01	3.87719E-01	3.28347E-02	3.39381E+00	
MMSB	MMSB-BWBK-SB-MM111-0110	13.19691159	3.405877273	0.005741897	4.14164E-02	1.76367E-03	1.10141E+00	-2.03510E-01	-1.54210E-02	3.60939E+00	
MMSB	MMSB-BWBK-SB-MM112-0110	13.68125205	3.471310992	0.005342547	4.54812E-02	5.49322E-04	2.35261E+00	-2.13263E-01	-1.55880E-02	3.68457E+00	
MMSB	MMSB-BWBK-SB-MM113-0110	12.18663474	4.335896678	0.006733369	7.80289E-01	7.88585E-01	1.53702E-03	8.83340E-01	7.24843E-02	3.45256E+00	MMSB-BWBK-SB-MM113-0110
MMSB	MMSB-BWBK-SB-MM114-0110	9.96943863	2.966479395	0.010061404	2.01330E-02	2.31740E-01	4.74365E+00	-1.41891E-01	-1.42326E-02	3.10837E+00	
MMSB	MMSB-BWBK-SB-MM115-0110	13.81781685	3.130495168	0.005237465	3.30946E-01	1.00729E-01	2.79019E+00	-5.75279E-01	-4.16331E-02	3.70577E+00	
MMSB	MMSB-BWBK-SB-MM116-0110	11.62142209	3.413209633	0.007404256	2.34194E-03	1.20157E-03	2.76684E-01	4.83936E-02	4.16417E-03	3.36482E+00	
MMSB	MMSB-BWBK-SB-MM117-0110	9.267891839	2.626785107	0.011642281	1.38891E-01	6.74186E-01	8.29174E+00	-3.72680E-01	-4.02120E-02	2.99947E+00	
MMSB	MMSB-BWBK-SB-MM118-0110	12.39540346	3.082207001	0.006508466	1.62214E-01	1.33712E-01	6.14909E-02	-4.02758E-01	-3.24925E-02	3.48497E+00	
MMSB	MMSB-BWBK-SB-MM119-0110	11.02717347	3.193743885	0.008223782	6.21320E-03	6.45818E-02	1.25497E+00	-7.88239E-02	-7.14815E-03	3.27257E+00	
MMSB	MMSB-BWBK-SB-MM120-0110	6.981205778	2.48997992	0.020518193	2.38737E-02	9.17560E-01	2.66899E+01	-1.54511E-01	-2.21325E-02	2.64449E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	14.4630186	3.478505426	0.004780597	1.07208E-01	9.38323E-04	5.36195E+00	-3.27426E-01	-2.26389E-02	3.80593E+00	
MMSS	MMSS-BWBK-SS-MM102-0001	10.6752252	3.098386677	0.008774975	1.42913E-02	1.22141E-01	2.16739E+00	-1.19546E-01	-1.11985E-02	3.21793E+00	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	Weighted 1/x.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!J	DA!L	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MMSS	MMSS-BWBK-SS-MM103-0001	13.28225898	3.492849839	0.005668343	1.68445E-02	2.02288E-03	1.28784E+00	-1.29787E-01	-9.77142E-03	3.62264E+00	
MMSS	MMSS-BWBK-SS-MM104-0001	14.26917305	3.521363372	0.004911367	6.47584E-02	5.40078E-03	4.50179E+00	-2.54477E-01	-1.78340E-02	3.77584E+00	
MMSS	MMSS-BWBK-SS-MM105-0001	9.217430339	2.915475947	0.011770103	5.79974E-03	2.83447E-01	8.58490E+00	-7.61560E-02	-8.26217E-03	2.99163E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	13.96539007	3.885871846	0.005127361	2.47085E-02	1.91843E-01	3.30498E+00	1.57189E-01	1.12556E-02	3.72868E+00	
MMSS	MMSS-BWBK-SS-MM107-0001	14.82068488	3.54964787	0.004552642	9.72232E-02	1.03580E-02	7.14629E+00	-3.11806E-01	-2.10386E-02	3.86145E+00	
MMSS	MMSS-BWBK-SS-MM108-0001	13.77749428	3.449637662	0.005268167	6.24383E-02	3.11274E-06	2.65711E+00	-2.49877E-01	-1.81366E-02	3.69951E+00	
MMSS	MMSS-BWBK-SS-MM109-0001	12.73666896	3.391164992	0.006164364	2.15434E-02	3.21584E-03	3.47203E-01	-1.46777E-01	-1.15239E-02	3.53794E+00	
MMSS	MMSS-BWBK-SS-MM110-0001	7.733157254	2.664582519	0.016721927	9.33891E-03	6.13545E-01	1.94858E+01	-9.66380E-02	-1.24966E-02	2.76122E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	8.955110181	2.792848009	0.012469761	2.49838E-02	4.29058E-01	1.01909E+01	-1.58063E-01	-1.76506E-02	2.95091E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	7.430630897	2.529822128	0.018111258	3.40165E-02	8.42818E-01	2.22482E+01	-1.84436E-01	-2.48210E-02	2.71426E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	12.2228652	3.193743885	0.006693511	6.99271E-02	6.45818E-02	5.69048E-03	-2.64437E-01	-2.16346E-02	3.45818E+00	
MMSS	MMSS-BWBK-SS-MM114-0001	6.591950544	2.408318916	0.023012941	3.08867E-02	1.08067E+00	3.08634E+01	-1.75746E-01	-2.66607E-02	2.58407E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	8.601940164	2.664582519	0.013514724	5.35940E-02	6.13545E-01	1.25705E+01	-2.31504E-01	-2.69130E-02	2.89609E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	7.889131212	2.645751311	0.016067253	1.95110E-02	6.43400E-01	1.81331E+01	-1.39682E-01	-1.77056E-02	2.78543E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	12.30656132	3.209361307	0.006602776	6.85458E-02	5.68880E-02	2.53228E-02	-2.61812E-01	-2.12742E-02	3.47117E+00	
MMSS	MMSS-BWBK-SS-MM118-0001	10.08380756	3.065941943	0.009834469	3.62190E-03	1.45872E-01	4.25854E+00	-6.01822E-02	-5.96821E-03	3.12612E+00	
MMSS	MMSS-BWBK-SS-MM119-0001	9.181833913	2.75680975	0.011861542	5.25768E-02	4.77569E-01	8.79476E+00	-2.29296E-01	-2.49728E-02	2.98611E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	9.28775268	3.577708764	0.011592543	3.30809E-01	1.68572E-02	8.17775E+00	5.75160E-01	6.19267E-02	3.00255E+00	MMSS-BWBK-SS-MM120-0001
NESB	NESB-BWBK-SB-NE01-0108	15.27709933	3.860051813	0.004284678	5.22064E-03	1.69891E-01	9.79483E+00	-7.22540E-02	-4.72956E-03	3.93231E+00	
NESB	NESB-BWBK-SB-NE02-0109	14.89988897	3.687817783	0.004504369	3.45706E-02	5.75733E-02	7.57603E+00	-1.85932E-01	-1.24787E-02	3.87375E+00	
NESB	NESB-BWBK-SB-NE03-0105	13.24829809	3.521363372	0.005697441	9.21621E-03	5.40078E-03	1.21191E+00	-9.60011E-02	-7.24630E-03	3.61736E+00	
NESB	NESB-BWBK-SB-NE04-0110	13.3698419	3.449637662	0.005594322	3.48176E-02	3.11274E-06	1.49429E+00	-1.86595E-01	-1.39564E-02	3.63623E+00	
NESB	NESB-BWBK-SB-NE05-0108	14.24890421	3.687817783	0.00492535	7.20393E-03	5.75733E-02	4.41619E+00	-8.48759E-02	-5.95666E-03	3.77269E+00	
NESB	NESB-BWBK-SB-NE06-0109	13.21381138	3.464101615	0.005727219	2.18772E-02	2.63356E-04	1.13717E+00	-1.47909E-01	-1.11935E-02	3.61201E+00	
NESB	NESB-BWBK-SB-NE07-0107	14.98642874	3.820994635	0.004452498	4.38096E-03	1.39219E-01	8.05991E+00	-6.61889E-02	-4.41659E-03	3.88718E+00	
NESB	NESB-BWBK-SB-NE08-0104	12.44016169	3.435112807	0.006461717	3.22629E-03	1.62832E-04	8.56919E-02	-5.68004E-02	-4.56589E-03	3.49191E+00	
NESB	NESB-BWBK-SB-NE09-0110	12.89373255	3.521363372	0.006015098	1.67772E-03	5.40078E-03	5.56968E-01	-4.09600E-02	-3.17674E-03	3.56232E+00	
NESB	NESB-BWBK-SB-NE10-0107	13.22570084	3.660601044	0.005716927	2.18505E-03	4.52531E-02	1.16267E+00	4.67445E-02	3.53437E-03	3.61386E+00	
NESB	NESB-BWBK-SB-NE101-0110	14.32003222	3.420526275	0.004876542	1.31921E-01	7.47863E-04	4.72020E+00	-3.63209E-01	-2.53637E-02	3.78374E+00	
NESB	NESB-BWBK-SB-NE102-0110	13.19470466	3.16227766	0.005743818	1.99601E-01	8.15649E-02	1.09678E+00	-4.46767E-01	-3.38596E-02	3.60904E+00	
NESB	NESB-BWBK-SB-NE103-0110	11.28956129	2.949576241	0.007845956	1.32295E-01	2.48300E-01	7.35939E-01	-3.63723E-01	-3.22177E-02	3.31330E+00	
NESB	NESB-BWBK-SB-NE104-0110	9.819479547	2.774887385	0.010371058	9.62264E-02	4.52910E-01	5.41935E+00	-3.10204E-01	-3.15907E-02	3.08509E+00	
NESB	NESB-BWBK-SB-NE105-0110	13.54658665	3.31662479	0.005449294	1.20440E-01	1.72262E-02	1.95764E+00	-3.47045E-01	-2.56186E-02	3.66367E+00	
NESB	NESB-BWBK-SB-NE106-0110	12.84642261	3.16227766	0.006059483	1.54215E-01	8.15649E-02	4.88591E-01	-3.92702E-01	-3.05689E-02	3.55498E+00	
NESB	NESB-BWBK-SB-NE107-0510	10.38521507	2.75680975	0.009271906	1.73142E-01	4.77569E-01	3.10540E+00	-4.16103E-01	-4.00669E-02	3.17291E+00	
NESB	NESB-BWBK-SB-NE108-0110	12.52393979	3.130495168	0.006375556	1.40193E-01	1.00729E-01	1.41760E-01	-3.74423E-01	-2.98966E-02	3.50492E+00	
NESB	NESB-BWBK-SB-NE109-0110	12.5342534	3.098386677	0.006365068	1.66572E-01	1.22141E-01	1.49632E-01	-4.08133E-01	-3.25614E-02	3.50652E+00	
NESB	NESB-BWBK-SB-NE110-0110	12.1529806	3.170173497	0.006770713	7.68172E-02	7.71172E-02	3.08102E-05	-2.77159E-01	-2.28059E-02	3.44733E+00	
NESS	NESS-BKG-SS03-NEB-0016	15.31260642	3.464101615	0.00426483	2.24407E-01	2.63356E-04	1.00183E+01	-4.73716E-01	-3.09363E-02	3.93782E+00	
NESS	NESS-BKG-SS09-NEB-0018	11.22949602	3.376388603	0.007930115	5.24368E-03	5.11007E-03	8.42603E-01	7.24133E-02	6.44849E-03	3.30398E+00	
NESS	NESS-BWBK-SS-NE01-0001	16.94804708	4.135214626	0.003481454	3.19011E-03	4.72438E-01	2.30459E+01	-5.64810E-02	-3.33260E-03	4.19170E+00	
NESS	NESS-BWBK-SS-NE02-0001	15.75710782	4.123105626	0.004027606	1.35223E-02	4.55939E-01	1.30298E+01	1.16286E-01	7.37988E-03	4.00682E+00	
NESS	NESS-BWBK-SS-NE03-0001	15.04150991	3.807886553	0.004419948	7.71718E-03	1.29609E-01	8.37570E+00	-8.78475E-02	-5.84034E-03	3.89573E+00	
NESS	NESS-BWBK-SS-NE04-0001	16.27533965	3.962322551	0.003775199	1.56113E-02	2.64658E-01	1.70396E+01	-1.24945E-01	-7.67697E-03	4.08727E+00	
NESS	NESS-BWBK-SS-NE05-0001	14.35521814	4.086563348	0.004852666	8.84265E-02	4.07925E-01	4.87433E+00	2.97366E-01	2.07148E-02	3.78920E+00	
NESS	NESS-BWBK-SS-NE06-0001	15.34827964	3.898717738	0.004245028	1.99253E-03	2.03261E-01	1.02454E+01	-4.46377E-02	-2.90832E-03	3.94336E+00	
NESS	NESS-BWBK-SS-NE07-0001	14.54504801	3.794733192	0.004726827	5.72763E-04	1.20312E-01	5.74857E+00	-2.39325E-02	-1.64540E-03	3.81867E+00	
NESS	NESS-BWBK-SS-NE08-0001	15.06519637	3.768288736	0.00440606	1.71930E-02	1.02666E-01	8.51336E+00	-1.31122E-01	-8.70365E-03	3.89941E+00	
NESS	NESS-BWBK-SS-NE09-0001	16.29975737	3.728270376	0.003763897	1.31615E-01	7.86225E-02	1.72418E+01	-3.62788E-01	-2.22573E-02	4.09106E+00	
NESS	NESS-BWBK-SS-NE10-0001	13.89685801	3.577708764	0.005178056	1.96939E-02	1.68572E-02	3.06050E+00	-1.40335E-01	-1.00983E-02	3.71804E+00	
NESS	NESS-BWBK-SS-NE101-0001	12.7715539	3.209361307	0.006130735	1.11553E-01	5.68880E-02	3.89531E-01	-3.33996E-01	-2.61515E-02	3.54336E+00	
NESS	NESS-BWBK-SS-NE102-0001	9.831382553	2.810693865	0.01034596	7.63113E-02	4.05998E-01	5.36408E+00	-2.76245E-01	-2.80983E-02	3.08694E+00	
NESS	NESS-BWBK-SS-NE103-0001	8.61681888	2.880972058	0.013468092	3.03591E-04	3.21377E-01	1.24652E+01	-1.74239E-02	-2.02208E-03	2.89840E+00	

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SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
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	Indexed value lookups:	X data column ref.	Y data column ref.	Weighted 1/x.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!J	DA!L	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
NESS	NESS-BWBK-SS-NE104-0001	10.50664156	2.810693865	0.009058831	1.45214E-01	4.05998E-01	2.69219E+00	-3.81069E-01	-3.62693E-02	3.19176E+00	
NESS	NESS-BWBK-SS-NE105-0001	8.10244193	2.569046516	0.015232393	6.22503E-02	7.72337E-01	1.63619E+01	-2.49500E-01	-3.07932E-02	2.81855E+00	
NESS	NESS-BWBK-SS-NE106-0001	9.216332357	2.664582519	0.011772908	1.06850E-01	6.13545E-01	8.59133E+00	-3.26879E-01	-3.54674E-02	2.99146E+00	
NESS	NESS-BWBK-SS-NE107-0001	8.76616697	2.569046516	0.013013093	1.24280E-01	7.72337E-01	1.14329E+01	-3.52533E-01	-4.02152E-02	2.92158E+00	
NESS	NESS-BWBK-SS-NE108-0001	9.589435993	2.664582519	0.010874615	1.48069E-01	6.13545E-01	6.54333E+00	-3.84798E-01	-4.01273E-02	3.04938E+00	
NESS	NESS-BWBK-SS-NE109-0001	8.128028691	2.50998008	0.015136642	9.76803E-02	8.79644E-01	1.61556E+01	-3.12538E-01	-3.84519E-02	2.82252E+00	
NESS	NESS-BWBK-SS-NE110-0001	7.808989685	2.569046516	0.016398733	4.15939E-02	7.72337E-01	1.88221E+01	-2.03946E-01	-2.61168E-02	2.77299E+00	
PMSB	PMSB-BWBK-SB-PM01-0105	14.99925355	3.728270376	0.004444887	2.58901E-02	7.86225E-02	8.13290E+00	-1.60904E-01	-1.07275E-02	3.88917E+00	
PMSB	PMSB-BWBK-SB-PM02-0104	15.62845526	4.615192304	0.004094189	3.94816E-01	1.36263E+00	1.21175E+01	6.28344E-01	4.02051E-02	3.98685E+00	PMSB-BWBK-SB-PM02-0104
PMSB	PMSB-BWBK-SB-PM03-0106	14.47838007	3.962322551	0.004770458	2.37179E-02	2.64658E-01	5.43333E+00	1.54006E-01	1.06370E-02	3.80832E+00	
PMSB	PMSB-BWBK-SB-PM04-0105	14.13170709	3.872983346	0.005007382	1.40382E-02	1.80718E-01	3.93736E+00	1.18483E-01	8.38418E-03	3.75450E+00	
PMSB	PMSB-BWBK-SB-PM05-0105	14.0000526	3.853569774	0.005102002	1.42818E-02	1.64590E-01	3.43221E+00	1.19507E-01	8.53615E-03	3.73406E+00	
PMSB	PMSB-BWBK-SB-PM06-0105	14.28911204	3.754996671	0.00489767	5.73063E-04	9.43247E-02	4.58680E+00	-2.39387E-02	-1.67531E-03	3.77894E+00	
PMSB	PMSB-BWBK-SB-PM07-0105	11.71653192	3.605551275	0.007284535	5.10628E-02	2.48623E-02	1.85673E-01	2.25971E-01	1.92865E-02	3.37958E+00	
PMSB	PMSB-BWBK-SB-PM08-0106	13.0420223	3.701351105	0.00587909	1.34578E-02	6.42510E-02	8.00296E-01	1.16008E-01	8.89493E-03	3.58534E+00	
PMSB	PMSB-BWBK-SB-PM09-0106	10.69801977	3.449637662	0.008737621	5.20598E-02	3.11274E-06	2.10079E+00	2.28166E-01	2.13279E-02	3.22147E+00	
PMSB	PMSB-BWBK-SB-PM10-0105	12.20927167	4.147288271	0.006708424	4.77781E-01	4.89181E-01	3.82440E-03	6.91217E-01	5.66141E-02	3.45607E+00	PMSB-BWBK-SB-PM10-0105
PMSB	PMSB-BWBK-SB-PM11-0104	13.26214529	3.646916506	0.005685549	7.50896E-04	3.96182E-02	1.24259E+00	2.74025E-02	2.06622E-03	3.61951E+00	
PMSB	PMSB-BWBK-SB-PM12-0105	10.7176758	3.794733192	0.008705601	3.25140E-01	1.20312E-01	2.04420E+00	5.70210E-01	5.32028E-02	3.22452E+00	PMSB-BWBK-SB-PM12-0105
PMSB	PMSB-BWBK-SB-PM13-0106	12.23555968	3.911521443	0.006679629	2.03735E-01	2.14970E-01	7.76686E-03	4.51370E-01	3.68900E-02	3.46015E+00	PMSB-BWBK-SB-PM13-0106
PMSB	PMSB-BWBK-SB-PM14-0106	10.69168826	3.449637662	0.008747973	5.25093E-02	3.11274E-06	2.11918E+00	2.29149E-01	2.14324E-02	3.22049E+00	
PMSB	PMSB-BWBK-SB-PM15-0105	12.69938249	3.768288736	0.006200615	5.57599E-02	1.02666E-01	3.04652E-01	2.36135E-01	1.85942E-02	3.53215E+00	
PMSB	PMSB-BWBK-SB-PM16-0106	11.6806181	3.464101615	0.007329399	8.11734E-03	2.63356E-04	2.17913E-01	9.00963E-02	7.71331E-03	3.37401E+00	
PMSB	PMSB-BWBK-SB-PM17-0105	13.4473004	3.69459064	0.005530059	2.14684E-03	6.08694E-02	1.68966E+00	4.63340E-02	3.44560E-03	3.64826E+00	
PMSB	PMSB-BWBK-SB-PM18-0105	14.2289213	3.872983346	0.004939194	1.06898E-02	1.80718E-01	4.33261E+00	1.03392E-01	7.26630E-03	3.76959E+00	
PMSB	PMSB-BWBK-SB-PM19-0105	13.68625252	3.728270376	0.005338643	1.84213E-03	7.86225E-02	2.36798E+00	4.29200E-02	3.13599E-03	3.68535E+00	
PMSB	PMSB-BWBK-SB-PM20-0106	12.86496875	3.667424164	0.006042025	1.20047E-02	4.82026E-02	5.14862E-01	1.09566E-01	8.51661E-03	3.55786E+00	
PMSB	PMSB-BWBK-SB-SO01-0107-PM	14.22527009	3.619392214	0.004941729	2.23899E-02	2.94187E-02	4.31742E+00	-1.49633E-01	-1.05188E-02	3.76902E+00	
PMSB	PMSB-BWBK-SB-SO02-0109-PM	14.04718233	3.820994635	0.005067824	6.33859E-03	1.39219E-01	3.60906E+00	7.96152E-02	5.66770E-03	3.74138E+00	
PMSB	PMSB-BWBK-SB-SO13-0104-PM	13.48088755	3.794733192	0.005502538	1.99551E-02	1.20312E-01	1.77811E+00	1.41263E-01	1.04787E-02	3.65347E+00	
PMSB	PMSB-BWBK-SB-SO14-0105-PM	14.74081369	3.834057903	0.004602111	2.24925E-04	1.49138E-01	6.72564E+00	-1.49975E-02	-1.01741E-03	3.84906E+00	
PMSS	PMSS-DABK-S-SO21-0001	10.99773631	3.535533906	0.008267865	7.15754E-02	7.68437E-03	1.32180E+00	2.67536E-01	2.43264E-02	3.26800E+00	
PMSS	PMSS-DABK-S-SO22-0001	13.51694205	3.872983346	0.005473222	4.57600E-02	1.80718E-01	1.87556E+00	2.13916E-01	1.58258E-02	3.65907E+00	
PMSS	PMSS-DABK-S-SO23-0001	14.00227182	3.687817783	0.005100385	2.17062E-03	5.75733E-02	3.44044E+00	-4.65899E-02	-3.32731E-03	3.73441E+00	
PMSS	PMSS-DABK-S-SO24-0001	12.66138552	3.768288736	0.006237887	5.85803E-02	1.02666E-01	2.64150E-01	2.42034E-01	1.91159E-02	3.52625E+00	
PMSS	PMSS-DABK-S-SO25-0001	14.07611875	3.820994635	0.00504701	5.64351E-03	1.39219E-01	3.71984E+00	7.51233E-02	5.33693E-03	3.74587E+00	
PMSS	PMSS-DABK-S-SO26-0001	14.58418586	3.898717738	0.004701491	5.47252E-03	2.03261E-01	5.93778E+00	7.39765E-02	5.07238E-03	3.82474E+00	
PMSS	PMSS-DABK-S-SO27-0001	12.63725359	3.464101615	0.006261734	3.41140E-03	2.63356E-04	2.39927E-01	-5.84072E-02	-4.62183E-03	3.52251E+00	
PMSS	PMSS-DABK-S-SO28-0001	12.71957195	3.741657387	0.006180947	4.25885E-02	8.63091E-02	3.27347E-01	2.06370E-01	1.62246E-02	3.53529E+00	
PMSS	PMSS-DABK-S-SO29-0001	15.49783105	4	0.004163496	1.11749E-03	3.04844E-01	1.12252E+01	3.34289E-02	2.15700E-03	3.96657E+00	
PMSS	PMSS-DABK-S-SO30-0001	15.00799896	3.898717738	0.004439708	6.70072E-05	2.03261E-01	8.18286E+00	8.18579E-03	5.45429E-04	3.89053E+00	
PMSS	PMSS-DABK-S-SO31-0001	10.34738303	3.405877273	0.00933983	5.70431E-02	1.76367E-03	3.24017E+00	2.38837E-01	2.30819E-02	3.16704E+00	
PMSS	PMSS-DABK-S-SO32-0001	13.83427262	3.885871846	0.005225013	3.15217E-02	1.91843E-01	2.84544E+00	1.77544E-01	1.28336E-02	3.70833E+00	
PMSS	PMSS-DABK-S-SO33-0001	12.99885731	3.660601044	0.0059182	6.71721E-03	4.52531E-02	7.24929E-01	8.19586E-02	6.30506E-03	3.57864E+00	
PMSS	PMSS-DABK-S-SO34-0001	10.65778801	3.464101615	0.008803712	6.19390E-02	2.63356E-04	2.21903E+00	2.48875E-01	2.33515E-02	3.21523E+00	
PMSS	PMSS-DABK-S-SO35-0001	11.89261974	3.653765181	0.007070415	6.09348E-02	4.23914E-02	6.49282E-02	2.46850E-01	2.07565E-02	3.40692E+00	
PMSS	PMSS-DABK-S-SO36-0001	11.34621314	3.521363372	0.007767802	3.97083E-02	5.40078E-03	6.41948E-01	1.99269E-01	1.75626E-02	3.32209E+00	
PMSS	PMSS-DABK-S-SO37-0001	11.80616909	3.728270376	0.007174341	1.12074E-01	7.86225E-02	1.16459E-01	3.34775E-01	2.83559E-02	3.39350E+00	
PMSS	PMSS-DABK-S-SO38-0001	10.29419804	3.346640106	0.009436587	3.52898E-02	1.02482E-02	3.43447E+00	1.87856E-01	1.82487E-02	3.15878E+00	
PMSS	PMSS-DABK-S-SO39-0001	11.28909989	3.507135583	0.007846597	3.76002E-02	3.51201E-03	7.36730E-01	1.93908E-01	1.71765E-02	3.31323E+00	
PMSS	PMSS-DABK-S-SO40-0001	11.35045591	3.492849839	0.007761996	2.89331E-02	2.02288E-03	6.35168E-01	1.70097E-01	1.49859E-02	3.32275E+00	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	Weighted 1/x.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!J	DA!L	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
SESB	SESB-BWBK-SB-SO03-0108	17.95040097	4.074309757	0.0031035	7.45216E-02	3.92423E-01	3.36745E+01	-2.72987E-01	-1.52078E-02	4.34730E+00	
SESB	SESB-BWBK-SB-SO04-0108	14.03969907	3.860051813	0.005073228	1.43602E-02	1.69891E-01	3.58068E+00	1.19834E-01	8.53537E-03	3.74022E+00	
SESB	SESB-BWBK-SB-SO05-0106	15.1620498	3.974921383	0.004349949	3.65727E-03	2.77780E-01	9.08793E+00	6.04753E-02	3.98860E-03	3.91445E+00	
SESB	SESB-BWBK-SB-SO06-0108	16.50898844	4.10487515	0.003669096	3.48314E-04	4.31651E-01	1.90232E+01	-1.86632E-02	-1.13049E-03	4.12354E+00	
SESB	SESB-BWBK-SB-SO07-0106	14.14220437	3.807886553	0.004999951	2.67872E-03	1.29609E-01	3.97913E+00	5.17564E-02	3.65971E-03	3.75613E+00	
SESB	SESB-BWBK-SB-SO08-0107	16.80674207	4.159326869	0.003540242	1.08854E-04	5.06166E-01	2.17092E+01	-1.04333E-02	-6.20780E-04	4.16976E+00	
SESB	SESB-BWBK-SB-SO09-0106	14.6496762	3.911521443	0.00465955	5.86967E-03	2.14970E-01	6.26124E+00	7.66138E-02	5.22973E-03	3.83491E+00	
SESB	SESB-BWBK-SB-SO11-0106	16.07154733	3.974921383	0.003871548	6.51422E-03	2.77780E-01	1.53987E+01	-8.07107E-02	-5.02196E-03	4.05563E+00	
SESB	SESB-BWBK-SB-SO12-0106	13.95690268	3.879432948	0.005133599	2.31247E-02	1.86244E-01	3.27419E+00	1.52068E-01	1.08955E-02	3.72736E+00	
SESB	SESB-BWBK-SB-SO15-0103	12.95492485	3.660601044	0.005958408	7.88161E-03	4.52531E-02	6.52048E-01	8.87784E-02	6.85287E-03	3.57182E+00	
SESB	SESB-BWBK-SB-SO16-0105	12.20287108	3.646916506	0.006715463	3.68022E-02	3.96182E-02	3.07372E-03	1.91839E-01	1.57208E-02	3.45508E+00	
SESB	SESB-BWBK-SB-SO17-0106	12.09210812	3.619392214	0.006839053	3.29456E-02	2.94187E-02	3.06050E-03	1.81509E-01	1.50105E-02	3.43788E+00	
SESB	SESB-BWBK-SB-SO18-0105	11.80261691	3.54964787	0.00717866	2.45561E-02	1.03580E-02	1.18896E-01	1.56704E-01	1.32771E-02	3.39294E+00	
SESB	SESB-BWBK-SB-SO19-0104	12.28605772	3.619392214	0.006624832	2.29224E-02	2.94187E-02	1.92177E-02	1.51401E-01	1.23230E-02	3.46799E+00	
SESB	SESB-BWBK-SB-SO20-0104	12.71163554	3.701351105	0.006188667	2.79878E-02	6.42510E-02	3.18328E-01	1.67296E-01	1.31608E-02	3.53406E+00	
SESS	SESS-DABK-S-SO01-0001	13.31772259	3.605551275	0.005638195	5.10322E-04	2.48623E-02	1.36958E+00	-2.25903E-02	-1.69626E-03	3.62814E+00	
SESS	SESS-DABK-S-SO02-0001	16.29272633	5.310367219	0.003767146	1.48938E+00	3.46888E+00	1.71835E+01	1.22040E+00	7.49046E-02	4.08997E+00	SESS-DABK-S-SO02-0001
SESS	SESS-DABK-S-SO03-0001	12.32692084	3.449637662	0.006580983	6.09923E-04	3.11274E-06	3.22170E-02	-2.46966E-02	-2.00347E-03	3.47433E+00	
SESS	SESS-DABK-S-SO04-0001	15.68601112	3.794733192	0.004064199	4.04211E-02	1.20312E-01	1.25216E+01	-2.01050E-01	-1.28172E-02	3.99578E+00	
SESS	SESS-DABK-S-SO05-0001	12.61020577	3.449637662	0.006288624	4.71590E-03	3.11274E-06	2.14161E-01	-6.86724E-02	-5.44578E-03	3.51831E+00	
SESS	SESS-DABK-S-SO06-0001	16.17525571	3.974921383	0.003822062	9.37215E-03	2.77780E-01	1.62234E+01	-9.68099E-02	-5.98506E-03	4.07173E+00	
SESS	SESS-DABK-S-SO07-0001	14.96803792	3.687817783	0.004463446	3.86165E-02	5.75733E-02	7.95583E+00	-1.96511E-01	-1.31287E-02	3.88433E+00	
SESS	SESS-DABK-S-SO08-0001	13.91748713	3.563705936	0.005162717	2.48189E-02	1.34172E-02	3.13310E+00	-1.57540E-01	-1.13196E-02	3.72125E+00	
SESS	SESS-DABK-S-SO09-0001	11.59480702	3.346640106	0.007438287	1.97244E-04	1.02482E-02	3.05392E-01	-1.40444E-02	-1.21126E-03	3.36068E+00	
SESS	SESS-DABK-S-SO10-0001	11.1428167	3.31662479	0.00805397	6.81478E-04	1.72262E-02	1.00925E+00	2.61051E-02	2.34278E-03	3.29052E+00	
SESS	SESS-DABK-S-SO11-0001	8.318939108	2.880972058	0.014449876	8.30452E-04	3.21377E-01	1.46573E+01	2.88176E-02	3.46409E-03	2.85215E+00	
SESS	SESS-DABK-S-SO12-0001	12.44839647	3.361547263	0.006453171	1.73302E-02	7.45220E-03	9.05809E-02	-1.31644E-01	-1.05752E-02	3.49319E+00	
SESS	SESS-DABK-S-SO13-0001	10.83114937	3.301514804	0.008524147	3.52561E-03	2.14208E-02	1.73259E+00	5.93769E-02	5.48205E-03	3.24214E+00	
SESS	SESS-DABK-S-SO14-0001	9.794593868	3.130495168	0.010423826	2.42725E-03	1.00729E-01	5.53584E+00	4.92671E-02	5.03003E-03	3.08123E+00	
SESS	SESS-DABK-S-SO15-0001	10.87073144	3.577708764	0.008462184	1.08522E-01	1.68572E-02	1.62996E+00	3.29426E-01	3.03040E-02	3.24828E+00	
SESS	SESS-DABK-S-SO16-0001	7.905837704	2.880972058	0.015999419	8.63885E-03	3.21377E-01	1.79911E+01	9.29454E-02	1.17566E-02	2.78803E+00	
SESS	SESS-DABK-S-SO17-0001	10.21352397	3.016620626	0.009586251	1.68066E-02	1.85979E-01	3.73999E+00	-1.29640E-01	-1.26930E-02	3.14626E+00	
SESS	SESS-DABK-S-SO18-0001	10.73458479	3.146426545	0.008678197	6.51591E-03	9.08702E-02	1.99613E+00	-8.07212E-02	-7.51973E-03	3.22715E+00	
SESS	SESS-DABK-S-SO19-0001	15.14148508	3.754996671	0.004361773	2.44163E-02	9.43247E-02	8.96437E+00	-1.56257E-01	-1.03198E-02	3.91125E+00	
SESS	SESS-DABK-S-SO20-0001	16.83946281	4	0.003526497	3.05689E-02	3.04844E-01	2.20152E+01	-1.74840E-01	-1.03827E-02	4.17484E+00	
Site 8 SS	DA-B100B-0002	20.81718252	4.827007354	0.002307576	1.20310E-03	1.90201E+00	7.51646E+01	3.46857E-02	1.66621E-03	4.79232E+00	
Site 8 SS	DA-B101B-0002	23.41389253	4.91934955	0.001824117	7.62162E-02	2.16524E+00	1.26933E+02	-2.76073E-01	-1.17910E-02	5.19542E+00	
Site 8 SS	DA-B106B-0002	**11.56608049**	**4.049691346**	0.007475282	4.80895E-01	3.62185E-01	3.37967E-01	6.93466E-01	5.99569E-02	3.35623E+00	DA-B106B-0002
Site 8 SS	DA-B107B-0002	**10.9842024**	**4.147288271**	0.008288252	7.76850E-01	4.89181E-01	1.35310E+00	8.81391E-01	8.02417E-02	3.26590E+00	DA-B107B-0002
Site 8 SS	DA-B108B-0002	14.72371974	3.974921383	0.004612803	1.65173E-02	2.77780E-01	6.63727E+00	1.28520E-01	8.72874E-03	3.84640E+00	
Site 8 SS	DA-B109B-0002	**8.97281805**	**3.507135583**	0.012420591	3.06336E-01	3.51201E-03	1.00782E+01	5.53476E-01	6.16836E-02	2.95366E+00	DA-B109B-0002
Site 8 SS	DA-S-SB01-0102-01	10.48217055	3.16227766	0.009101177	6.59795E-04	8.15649E-02	2.77309E+00	-2.56865E-02	-2.45049E-03	3.18796E+00	
Site 8 SS	DA-S-SB02-0102-01	**6.923446877**	**2.949576241**	0.020861968	9.86282E-02	2.48300E-01	2.72900E+01	3.14051E-01	4.53605E-02	2.63553E+00	DA-S-SB02-0102-01
Site 8 SS	DA-S-SB03-0102-01	12.33974952	3.605551275	0.006567307	1.66992E-02	2.48623E-02	3.69868E-02	1.29226E-01	1.04723E-02	3.47633E+00	
Site 8 SS	DA-S-SB04-0102-01	7.435842966	2.774887385	0.018085877	3.57849E-03	4.52910E-01	2.21991E+01	5.98205E-02	8.04488E-03	2.71507E+00	
Site 8 SS	DA-S-SB05-0102-01	5.00487573	2.366431913	0.039922102	8.25795E-04	1.16952E+00	5.10161E+01	2.87367E-02	5.74173E-03	2.33770E+00	
Site 8 SS	DA-S-SB06-0515-01	**6.191382558**	**2.93257566**	0.026087035	1.68669E-01	2.65532E-01	3.54745E+01	4.10693E-01	6.63330E-02	2.52188E+00	DA-S-SB06-0515-01
Site 8 SS	DA-S-SB07-0102-01	7.384611075	2.846049894	0.018337695	1.93032E-02	3.62191E-01	2.26844E+01	1.38936E-01	1.88143E-02	2.70711E+00	
Site 8 SS	DA-S-SB08-0102-01	**9.931170518**	**4.358898944**	0.010139093	1.57872E+00	8.29968E-01	4.91181E+00	1.25647E+00	1.26518E-01	3.10243E+00	DA-S-SB08-0102-01
Site 8 SS	DA-S-TP01-0001-01	**13.50220289**	**5.099019514**	0.005485178	2.08006E+00	2.72628E+00	1.83541E+00	1.44224E+00	1.06815E-01	3.65678E+00	DA-S-TP01-0001-01
Site 8 SS	DA-S-TP05-0001-01	9.654994566	3.049590136	0.010727436	9.93446E-05	1.58630E-01	6.21223E+00	-9.96718E-03	-1.03233E-03	3.05956E+00	
Site 8 SS	DA-S-TP06-0001-01	12.26485099	3.605551275	0.006647762	1.98394E-02	2.48623E-02	1.37877E-02	1.40852E-01	1.14842E-02	3.46470E+00	
Site 8 SS	DA-S-TP07-0001-01	7.534366599	2.664582519	0.017615968	4.32684E-03	6.13545E-01	2.12804E+01	-6.57787E-02	-8.73049E-03	2.73036E+00	

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REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	Weighted 1/x.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!J	DA!L	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-S-TP08-0001-01	11.85571781	3.31662479	0.007114499	7.15077E-03	1.72262E-02	8.50959E-02	-8.45622E-02	-7.13261E-03	3.40119E+00	
Site 8 SS	DA-S-TP09-0001-01	10.31033209	3.31662479	0.009407077	2.41293E-02	1.72262E-02	3.37493E+00	1.55336E-01	1.50661E-02	3.16129E+00	
Site 8 SS	DA-S-TP09-0102-01	14.97251943	3.807886553	0.004460774	5.95023E-03	1.29609E-01	7.98113E+00	-7.71377E-02	-5.15195E-03	3.88502E+00	
Site 8 SS	DA-S-TP10-0001-01	**13.57465499**	**8**	0.005426782	1.87660E+01	2.07219E+01	2.03697E+00	4.33197E+00	3.19122E-01	3.66803E+00	DA-S-TP10-0001-01
Site 8 SS	DA-S-TP10-0102-01	12.89272911	3.605551275	0.006016034	1.88214E-03	2.48623E-02	5.55471E-01	4.33836E-02	3.36497E-03	3.56217E+00	
Site 8 SS	DA-S-TP11-0001-01	12.44639806	3.464101615	0.006455243	8.28273E-04	2.63356E-04	8.93820E-02	-2.87797E-02	-2.31229E-03	3.49288E+00	
Site 8 SS	DA-S-TP12-0001-01	11.82774243	3.464101615	0.007148193	4.52356E-03	2.63356E-04	1.02200E-01	6.72574E-02	5.68641E-03	3.39684E+00	
Site 8 SS	DA-S-TP12-0102-01	10.72581028	3.31662479	0.008692402	8.25176E-03	1.72262E-02	2.02100E+00	9.08392E-02	8.46922E-03	3.22579E+00	
Site 8 SS	DA-S-TP12A-0001-01	11.68475969	3.605551275	0.007324204	5.33162E-02	2.48623E-02	2.14064E-01	2.30903E-01	1.97610E-02	3.37465E+00	
Site 8 SS	DA-S-TP12B-0001-01	12.36247721	3.464101615	0.006543182	2.48134E-04	2.63356E-04	4.62453E-02	-1.57523E-02	-1.27420E-03	3.47985E+00	
Site 8 SS	DA-S-TP13-0001-01	10.89203007	3.082207001	0.008429122	2.86902E-02	1.33712E-01	1.57603E+00	-1.69382E-01	-1.55510E-02	3.25159E+00	
Site 8 SS	DA-S-TP15-0001-01	10.04240934	3.033150178	0.009915718	7.49048E-03	1.71995E-01	4.43111E+00	-8.65475E-02	-8.61820E-03	3.11970E+00	
Site 8 SS	DA-SB100-0002	17.25947127	4.483302354	0.003356951	5.91767E-02	1.07211E+00	2.61330E+01	2.43263E-01	1.40944E-02	4.24004E+00	
Site 8 SS	DA-SB101-0002	15.73491847	3.937003937	0.004038974	4.40517E-03	2.39249E-01	1.28701E+01	-6.63715E-02	-4.21810E-03	4.00338E+00	
Site 8 SS	DA-SB102-0002	17.91843624	4.335896678	0.003114582	4.14419E-05	7.88585E-01	3.33045E+01	-6.43754E-03	-3.59269E-04	4.34233E+00	
Site 8 SS	DA-SB107-0103	10.28625751	3.435112807	0.009451162	7.70403E-02	1.62832E-04	3.46396E+00	2.77561E-01	2.69837E-02	3.15755E+00	
Site 8 SS	DA-SB111-0002	10.60614532	3.193743885	0.008889654	1.81320E-04	6.45818E-02	2.37556E+00	-1.34655E-02	-1.26959E-03	3.20721E+00	
Site 8 SS	DA-SB112-0002	6.506453723	2.626785107	0.023621709	3.13512E-03	6.74186E-01	3.18206E+01	5.59921E-02	8.60563E-03	2.57079E+00	
Site 8 SS	DA-SB113-0002	7.171550744	2.569046516	0.019443473	1.10235E-02	7.72337E-01	2.47594E+01	-1.04993E-01	-1.46402E-02	2.67404E+00	
Site 8 SS	DA-SB114-0002	9.396791515	2.738612788	0.011325068	7.88836E-02	5.03051E-01	7.56601E+00	-2.80862E-01	-2.98892E-02	3.01948E+00	
Site 8 SS	DA-SB115-0002	14.65929346	3.847076812	0.004653438	1.13982E-04	1.59363E-01	6.30946E+00	1.06762E-02	7.28291E-04	3.83640E+00	
Site 8 SS	DA-SB116-0002	14.61293912	3.834057903	0.004683007	2.35530E-05	1.49138E-01	6.07874E+00	4.85315E-03	3.32113E-04	3.82920E+00	
Site 8 SS	DA-SB117-0002	14.21158633	3.674234614	0.00495125	8.58700E-03	5.12394E-02	4.26074E+00	-9.26661E-02	-6.52046E-03	3.76690E+00	
Site 8 SS	DA-SB118-0002	22.08803674	5.118593557	0.002049679	1.66386E-02	2.79131E+00	9.88157E+01	1.28991E-01	5.83984E-03	4.98960E+00	
Site 8 SS	DA-SB119-0002	8.861884617	3.098386677	0.012733501	2.62271E-02	1.22141E-01	1.07948E+01	1.61948E-01	1.82747E-02	2.93644E+00	
Site 8 SS	DA-SB120-0002	17.71118439	4.277849927	0.003187901	1.04403E-03	6.88861E-01	3.09554E+01	-3.23115E-02	-1.82436E-03	4.31016E+00	
Site 8 SS	DA-SB133-0102	16.21907592	4.062019202	0.003801437	2.72729E-04	3.77175E-01	1.65783E+01	-1.65145E-02	-1.01821E-03	4.07853E+00	
Site 8 SS	DA-SB150-0002	14.28215346	3.714835124	0.004902444	3.97153E-03	7.12686E-02	4.55704E+00	-6.30201E-02	-4.41250E-03	3.77786E+00	
Site 8 SS	DA-SB151-0002	15.85778758	4.098780306	0.003976627	5.82646E-03	4.23680E-01	1.37668E+01	7.63313E-02	4.81349E-03	4.02245E+00	
Site 8 SS	DA-SS102B-011508	13.47728215	4.024922359	0.005505482	1.38393E-01	3.32986E-01	1.76851E+00	3.72012E-01	2.76029E-02	3.65291E+00	
Site 8 SS	DA-SS103B-011508	15.4780909	4.353159772	0.004174123	1.51829E-01	8.19543E-01	1.10933E+01	3.89653E-01	2.51745E-02	3.96351E+00	
Site 8 SS	DA-SS104-011508	14.90768409	3.820994635	0.004499659	2.91221E-03	1.39219E-01	7.61900E+00	-5.39649E-02	-3.61994E-03	3.87496E+00	
Site 8 SS	DA-SS104B-011608	**15.39662375**	**4.774934555**	0.004218412	6.79099E-01	1.76109E+00	1.05573E+01	8.24074E-01	5.35231E-02	3.95086E+00	DA-SS104B-011608
Site 8 SS	DA-SS105-011508	5.827520563	2.323790008	0.029446411	2.00530E-02	1.26356E+00	3.99413E+01	-1.41609E-01	-2.43000E-02	2.46540E+00	
Site 8 SS	DA-SS105B-011608	16.76278889	4	0.003558832	2.65485E-02	3.04844E-01	2.13015E+01	-1.62937E-01	-9.72017E-03	4.16294E+00	
Site 8 SS	DA-SS106-011408	13.84130971	3.78153408	0.005219701	5.20034E-03	1.11329E-01	2.86923E+00	7.21134E-02	5.21001E-03	3.70942E+00	
Site 8 SS	DA-SS107-011508	-0.817374819	1	1.496778346	1.88249E-01	5.99208E+00	1.68086E+02	-4.33877E-01	-5.30818E-01	1.43388E+00	
Site 8 SS	DA-SS108-011508	9.490491205	2.549509757	0.011102547	2.34751E-01	8.07057E-01	7.05932E+00	-4.84511E-01	-5.10522E-02	3.03402E+00	
Site 8 SS	DA-SS109-011408	5.994641779	2.323790008	0.027827457	2.80736E-02	1.26356E+00	3.78568E+01	-1.67552E-01	-2.79503E-02	2.49134E+00	
Site 8 SS	DA-SS110-011508	10.65123838	3.376388603	0.008814543	2.63021E-02	5.11007E-03	2.23859E+00	1.62179E-01	1.52263E-02	3.21421E+00	
Site 8 SS	DA-SS110B-011508	17.4876992	4.415880433	0.003269901	1.97155E-02	9.37038E-01	2.85185E+01	1.40412E-01	8.02917E-03	4.27547E+00	
Site 8 SS	DA-SS111B-011408	15.38560509	3.962322551	0.004224456	1.73524E-04	2.64658E-01	1.04858E+01	1.31729E-02	8.56180E-04	3.94915E+00	
Site 8 SS	DA-SS112B-011608	16.40965049	4.10487515	0.003713653	1.05133E-05	4.31651E-01	1.81665E+01	-3.24243E-03	-1.97593E-04	4.10812E+00	
Site 8 SS	DA-SS113B-011608	18.91665076	4.277849927	0.002794548	4.81549E-02	6.88861E-01	4.58224E+01	-2.19442E-01	-1.16005E-02	4.49729E+00	
Site 8 SS	DA-SS114B-011008	15.41891165	4.024922359	0.004206226	4.98469E-03	3.32986E-01	1.07026E+01	7.06023E-02	4.57894E-03	3.95432E+00	
Site 8 SS	DA-SS115B-011008	**17.90605177**	**5.366563146**	0.003118892	1.05299E+00	3.68137E+00	3.31617E+01	1.02615E+00	5.73075E-02	4.34041E+00	DA-SS115B-011008
Site 8 SS	DA-SS116B-011008	15.25589733	4.062019202	0.004296596	1.76903E-02	3.77175E-01	9.66257E+00	1.33005E-01	8.71825E-03	3.92901E+00	
Site 8 SS	DA-SS117B-011008	16.22732268	4.289522118	0.003797574	4.39775E-02	7.08373E-01	1.66455E+01	2.09708E-01	1.29232E-02	4.07981E+00	
Site 8 SS	DA-SS118B-011608	14.29807648	3.898717738	0.004891531	1.40164E-02	2.03261E-01	4.62528E+00	1.18391E-01	8.28019E-03	3.78033E+00	
Site 8 SS	DA-SS119B-011608	15.99923613	3.937003937	0.003906623	1.15354E-02	2.39249E-01	1.48364E+01	-1.07403E-01	-6.71300E-03	4.04441E+00	
Site 8 SS	DA-SS120B-011708	18.40361048	4.195235393	0.002952527	4.94684E-02	5.58550E-01	3.91398E+01	-2.22415E-01	-1.20854E-02	4.41765E+00	
Site 8 SS	DA-SS121-011008	**14.04915028**	**4.427188724**	0.005066405	4.69916E-01	9.59059E-01	3.61654E+00	6.85504E-01	4.87933E-02	3.74168E+00	DA-SS121-011008
Site 8 SS	DA-SS122-011008	**15.064213**	**4.732863826**	0.004406635	6.94898E-01	1.65120E+00	8.50762E+00	8.33605E-01	5.53368E-02	3.89926E+00	DA-SS122-011008

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	Weighted 1/x.	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	d - Predicted) x	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!J	DA!L	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**CR predict**	**Cr^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-SS123-011008	16.71061472	4.147288271	0.003581089	5.69956E-05	4.89181E-01	2.08227E+01	-7.54955E-03	-4.51781E-04	4.15484E+00	
Site 8 SS	DA-SS124-011008	12.45984482	3.834057903	0.006441318	1.14981E-01	1.49138E-01	9.76031E-02	3.39089E-01	2.72146E-02	3.49497E+00	
Site 8 SS	DA-SS125-011008	**12.331197**	**4.062019202**	0.00657642	3.44594E-01	3.77175E-01	3.37703E-02	5.87021E-01	4.76046E-02	3.47500E+00	DA-SS125-011008
Site 8 SS	DA-SS126-011408	13.29079931	3.619392214	0.005661061	2.08842E-05	2.94187E-02	1.30729E+00	-4.56992E-03	-3.43841E-04	3.62396E+00	
Site 8 SS	DA-SS127-011508	9.058155001	2.880972058	0.012187665	7.38478E-03	3.21377E-01	9.54362E+00	-8.59348E-02	-9.48700E-03	2.96691E+00	
Site 8 SS	DA-SS128-011608	14.11210273	3.728270376	0.005021304	5.37635E-04	7.86225E-02	3.85994E+00	-2.31869E-02	-1.64305E-03	3.75146E+00	
Site 8 SS	DA-SS129-011408	**17.1479997**	**5.300943312**	0.003400737	1.16253E+00	3.43387E+00	2.50057E+01	1.07821E+00	6.28766E-02	4.22274E+00	DA-SS129-011408
Site 8 SS	DA-SS130-011508	15.48293817	3.987480407	0.00417151	5.39224E-04	2.91176E-01	1.11256E+01	2.32212E-02	1.49979E-03	3.96426E+00	
Site 8 SS	DA-SS131-011608	16.29434731	4.049691346	0.003766397	1.64245E-03	3.62185E-01	1.71969E+01	-4.05271E-02	-2.48719E-03	4.09022E+00	
Site 8 SS	DA-SS132-011408	17.91126797	4.23083916	0.003117076	1.21842E-02	6.13035E-01	3.32218E+01	-1.10382E-01	-6.16273E-03	4.34122E+00	
Site 8 SS	DA-SS133-011508	15.03328876	4.347413024	0.004424783	2.05168E-01	8.09172E-01	8.32818E+00	4.52955E-01	3.01301E-02	3.89446E+00	
Site 8 SS	DA-SS134-011508	19.48954583	4.404543109	0.002632671	3.30086E-02	9.15217E-01	5.39067E+01	-1.81683E-01	-9.32205E-03	4.58623E+00	
Site 8 SS	DA-SS135-011108	17.16939015	4.201190308	0.003392269	6.18298E-04	5.67486E-01	2.52201E+01	-2.48656E-02	-1.44825E-03	4.22606E+00	
Site 8 SS	DA-SS136-011008	14.47421968	4.024922359	0.004773201	4.71983E-02	3.32986E-01	5.41395E+00	2.17252E-01	1.50096E-02	3.80767E+00	
Site 8 SS	DA-SS138-011108	14.84338985	3.898717738	0.004538724	1.13831E-03	2.03261E-01	7.26820E+00	3.37389E-02	2.27299E-03	3.86498E+00	
Site 8 SS	DA-SS139-011108	16.12592717	4.110960958	0.00384548	2.19841E-03	4.39685E-01	1.58284E+01	4.68872E-02	2.90757E-03	4.06407E+00	
Site 8 SS	DA-SS140-011108	17.18023855	4.74341649	0.003387986	2.65922E-01	1.67843E+00	2.53292E+01	5.15677E-01	3.00157E-02	4.22774E+00	
Site 8 SS	DA-SS141-011108	15.43309097	3.937003937	0.0041985	3.80923E-04	2.39249E-01	1.07956E+01	-1.95172E-02	-1.26464E-03	3.95652E+00	
Site 8 SS	DA-SS142-011708	14.64594965	4.01248053	0.004661921	3.17379E-02	3.18781E-01	6.24260E+00	1.78151E-01	1.21639E-02	3.83433E+00	
Site 8 SS	DA-SS143-011708	19.94891024	4.358898944	0.002512822	8.91836E-02	8.29968E-01	6.08631E+01	-2.98636E-01	-1.49701E-02	4.65754E+00	
Site 8 SS	DA-SS144-011708	17.24490343	4.01248053	0.003362625	5.07591E-02	3.18781E-01	2.59842E+01	-2.25298E-01	-1.30646E-02	4.23778E+00	
Site 8 SS	DA-SS145-011708	**17.31912011**	**5.779273311**	0.003333868	2.34082E+00	5.43543E+00	2.67464E+01	1.52997E+00	8.83402E-02	4.24930E+00	DA-SS145-011708
Site 8 SS	DA-SS146-011708	14.13264047	4.01248053	0.005006721	6.64789E-02	3.18781E-01	3.94106E+00	2.57835E-01	1.82439E-02	3.75465E+00	
Site 8 SS	DA-SS147-011708	18.86232469	4.460941605	0.002810668	7.79376E-04	1.02631E+00	4.50898E+01	-2.79173E-02	-1.48006E-03	4.48886E+00	
Site 8 SS	DA-SS148-011708	24.10660455	5.099019514	0.00172079	4.15900E-02	2.72628E+00	1.43022E+02	-2.03936E-01	-8.45976E-03	5.30296E+00	
Site 8 SS	DA-SS149-011708	19.41108659	4.370354677	0.002653996	4.14902E-02	8.50972E-01	5.27607E+01	-2.03691E-01	-1.04936E-02	4.57405E+00	
Site 8 SS	DA-SS152-011608	14.4288603	3.78153408	0.004803258	3.64625E-04	1.11329E-01	5.20492E+00	-1.90952E-02	-1.32340E-03	3.80063E+00	
Site 8 SS	DA-SS153-011608	14.76519833	3.872983346	0.004586923	4.05724E-04	1.80718E-01	6.85271E+00	2.01426E-02	1.36419E-03	3.85284E+00	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Y variable name used on graph: CR				********** GRAPH LINES **********				- - - Extreme Value Lines: +/-3 x IQR of residuals			
X variable name used on graph: FE_log				**X-Points**	**Y Predicted**	**Lower 95%**	**Upper 95%**	**-3 x IQR**	**+3 x IQR**	**Median**	
	N	214.000000		8.69	5.05	1.68	8.42	-6.71	6.71	-0.28	**No. of Exceedances**
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	8.517721E+02		8.78	5.65	2.29	9.01	-6.71	6.71	-0.28	**of Upper 95% Limit**
0.10	**t-Value: 2-tail, 0.100 alpha**	1.652073		8.87	6.25	2.89	9.60	-6.71	6.71	-0.28	**for Each Soil Type:**
degrees freedom	SUM(XY*w^2)	2.566559E+04		8.97	6.85	3.50	10.20	-6.71	6.71	-0.28	---- \/ ----
2	SUM(X^2*w^2)	2.049109E+04		9.06	7.45	4.11	10.79	-6.71	6.71	-0.28	BASS
	SUM(X*w^2)	2.092089E+03		9.15	8.05	4.71	11.39	-6.71	6.71	-0.28	0
	SUM(Y*w^2)	2.599550E+03		9.24	8.65	5.32	11.98	-6.71	6.71	-0.28	MASS
	SUM(w^2)	2.140000E+02		9.33	9.25	5.92	12.58	-6.71	6.71	-0.28	2
	SUM(Y)	2599.550000		9.42	9.85	6.53	13.18	-6.71	6.71	-0.28	MMSS
	SUM(X)	2.092089E+03		9.52	10.45	7.13	13.77	-6.71	6.71	-0.28	0
	Denominator	8.255834E+03		9.61	11.05	7.73	14.37	-6.71	6.71	-0.28	NESS
	Slope	**6.534385E+00**		9.70	11.65	8.33	14.97	-6.71	6.71	-0.28	1
	Intercept	**-5.173348E+01**		9.79	12.25	8.93	15.57	-6.71	6.71	-0.28	PMSS
	Minimum X value	8.689464E+00		9.88	12.85	9.53	16.17	-6.71	6.71	-0.28	1
	Maximum X value	1.089489E+01		9.98	13.45	10.13	16.77	-6.71	6.71	-0.28	SESS
	Minimum Y value	4.800000E+00		10.07	14.05	10.73	17.38	-6.71	6.71	-0.28	1
	Maximum Y value	2.820000E+01		10.16	14.65	11.33	17.98	-6.71	6.71	-0.28	SESD
	No. of graph points	25		10.25	15.25	11.93	18.58	-6.71	6.71	-0.28	0
	SUM(Ypred.- Yobs)^2	8.517721E+02		10.34	15.86	12.52	19.19	-6.71	6.71	-0.28	MASB
	SUM(Yobs - Yave)^2	2.499011E+03		10.44	16.46	13.12	19.79	-6.71	6.71	-0.28	1
	SUM(X - Xave)^2	3.857866E+01		10.53	17.06	13.71	20.40	-6.71	6.71	-0.28	MMSB
	Std. Error of Y-estimate	**2.004443E+00**		10.62	17.66	14.31	21.01	-6.71	6.71	-0.28	2
	R^2	**6.591563E-01**		10.71	18.26	14.90	21.61	-6.71	6.71	-0.28	NESB
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1**		10.80	18.86	15.49	22.22	-6.71	6.71	-0.28	0
est.M, Std.Err.Y				10.89	19.46	16.09	22.83	-6.71	6.71	-0.28	PMSB
Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:			**25**	9.55	10.70	7.37	14.02	10.70	**-31%**	**31%**	2
Inverse Log Transform (Y/N)?		**No**	**50**	9.79	12.22	8.90	15.54	12.22	**-27%**	**27%**	SESB
Inverse Power Transform (Y/N)?		**No**	**75**	10.06	14.01	10.69	17.34	14.01	**-24%**	**24%**	0
Inverse Power Transform (1/Power):		**1**	**90**	10.29	15.54	12.21	18.87	15.54	**-21%**	**21%**	<<---Original Units Errors

TEXT BOX ==>	**(CR) = (6.53E+00)x(FE_log) + (-5.17E+01)**	**R^2 = 0.66; Std. Error of Y-estimate = 2.00E+00**						**+/-3 x IQR of r**	-6.712141	6.712141	
TEXT BOX ==>	**95% Confidence Limits on a Y-value predicted from one X-valu**			**\/ - wt.descrip.**	**TEXT BOX==>**	**Residuals Plot:**	**(Observed - Predicted) Versus Y-Pred.**			**Y-Pred.**	
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!O**	**DA!K**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
BASS	BASS-BWBK-SS-BA101-0001	9.119320974	5.6	1	5.08804E+00	4.28688E+01	4.31382E-01	-2.25567E+00	-2.25567E+00	7.85567E+00	
BASS	BASS-BWBK-SS-BA102-0001	8.909235279	4.8	1	2.83211E+00	5.39847E+01	7.51485E-01	-1.68289E+00	-1.68289E+00	6.48289E+00	
BASS	BASS-BWBK-SS-BA103-0001	8.959311617	5	1	3.27649E+00	5.10858E+01	6.67172E-01	-1.81011E+00	-1.81011E+00	6.81011E+00	
BASS	BASS-BWBK-SS-BA104-0001	9.082507	6.4	1	1.47650E+00	3.30330E+01	4.81095E-01	-1.21511E+00	-1.21511E+00	7.61511E+00	
BASS	BASS-BWBK-SS-BA105-0001	9.04192172	5.7	1	2.72221E+00	4.15694E+01	5.39043E-01	-1.64991E+00	-1.64991E+00	7.34991E+00	
BASS	BASS-BWBK-SS-BA106-0001	9.102198213	7.45	1	8.63082E-02	2.20658E+01	4.54167E-01	-2.93783E-01	-2.93783E-01	7.74378E+00	
BASS	BASS-BWBK-SS-BA107-0001	8.907883014	4.8	1	2.80245E+00	5.39847E+01	7.53831E-01	-1.67405E+00	-1.67405E+00	6.47405E+00	
BASS	BASS-BWBK-SS-BA108-0001	8.879054662	5.2	1	1.17869E+00	4.82668E+01	8.04722E-01	-1.08568E+00	-1.08568E+00	6.28568E+00	
BASS	BASS-BWBK-SS-BA109-0001	8.969541885	7	1	1.51401E-02	2.64960E+01	6.50564E-01	1.23045E-01	1.23045E-01	6.87696E+00	
BASS	BASS-BWBK-SS-BA110-0001	9.2023082	7	1	1.95424E+00	2.64960E+01	3.29257E-01	-1.39794E+00	-1.39794E+00	8.39794E+00	
BASS	BASS-BWBK-SS-BA111-0001	8.992184362	5.9	1	1.26542E+00	3.90304E+01	6.14551E-01	-1.12491E+00	-1.12491E+00	7.02491E+00	
BASS	BASS-BWBK-SS-BA112-0001	8.987196821	5.2	1	3.21241E+00	4.82668E+01	6.22396E-01	-1.79232E+00	-1.79232E+00	6.99232E+00	
BASS	BASS-BWBK-SS-BA113-0001	8.968905551	5.85	1	1.04611E+00	3.96576E+01	6.51591E-01	-1.02280E+00	-1.02280E+00	6.87280E+00	
MASB	MASB-BWBK-SB-MA01-0105	10.20359214	14.7	1	5.79435E-02	6.51561E+00	1.82735E-01	-2.40715E-01	-2.40715E-01	1.49407E+01	
MASB	MASB-BWBK-SB-MA02-0107	10.27505111	15.9	1	2.42404E-01	1.40818E+01	2.48935E-01	4.92345E-01	4.92345E-01	1.54077E+01	
MASB	MASB-BWBK-SB-MA03-0108	10.2853428	13.4	1	4.30523E+00	1.56893E+00	2.59311E-01	-2.07490E+00	-2.07490E+00	1.54749E+01	
MASB	MASB-BWBK-SB-MA04-0106	10.2327913	16.3	1	1.36536E+00	1.72438E+01	2.08551E-01	1.16849E+00	1.16849E+00	1.51315E+01	
MASB	MASB-BWBK-SB-MA05-0108	10.21097225	15.5	1	2.61183E-01	1.12397E+01	1.89099E-01	5.11061E-01	5.11061E-01	1.49889E+01	
MASB	MASB-BWBK-SB-MA06-0105	10.15812977	15.1	1	2.08259E-01	8.71767E+00	1.45933E-01	4.56354E-01	4.56354E-01	1.46436E+01	
MASB	MASB-BWBK-SB-MA07-0108	10.23995979	12.35	1	7.99959E+00	4.10346E-02	2.15150E-01	-2.82835E+00	-2.82835E+00	1.51784E+01	
MASB	MASB-BWBK-SB-MA08-0108	10.85321306	18.7	1	2.35795E-01	4.29362E+01	1.16014E+00	-4.85588E-01	-4.85588E-01	1.91856E+01	
MASB	MASB-BWBK-SB-MA09-0108	10.46310334	13	1	1.32238E+01	7.26876E-01	4.71950E-01	-3.63646E+00	-3.63646E+00	1.66365E+01	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!K	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MASB	MASB-BWBK-SB-MA10-0104	10.19988157	11.6	1	1.09990E+01	2.99680E-01	1.79576E-01	-3.31647E+00	-3.31647E+00	1.49165E+01	
MASB	MASB-BWBK-SB-MA11-0108	10.38899537	15.8	1	1.24052E-01	1.33413E+01	3.75619E-01	-3.52211E-01	-3.52211E-01	1.61522E+01	
MASB	MASB-BWBK-SB-MA12-0108	10.42228135	15.3	1	1.14429E+00	9.93870E+00	4.17528E-01	-1.06971E+00	-1.06971E+00	1.63697E+01	
MASB	MASB-BWBK-SB-MA13-0105	9.667765219	14.2	1	7.62083E+00	4.21304E+00	1.17402E-02	2.76058E+00	2.76058E+00	1.14394E+01	
MASB	MASB-BWBK-SB-MA14-0104	10.35296955	16.4	1	2.33478E-01	1.80844E+01	3.32758E-01	4.83196E-01	4.83196E-01	1.59168E+01	
MASB	MASB-BWBK-SB-MA15-0105	10.10233841	15.2	1	8.48087E-01	9.31818E+00	1.06420E-01	9.20916E-01	9.20916E-01	1.42791E+01	
MASB	MASB-BWBK-SB-MA16-0104	9.966462352	12.7	1	4.77781E-01	3.05334E-01	3.62312E-02	-6.91217E-01	-6.91217E-01	1.33912E+01	
MASB	MASB-BWBK-SB-MA17-0104	9.942708266	12.4	1	6.98894E-01	6.37917E-02	2.77525E-02	-8.35999E-01	-8.35999E-01	1.32360E+01	
MASB	MASB-BWBK-SB-MA18-0104	9.752664663	16.7	1	2.21447E+01	2.07259E+01	5.50030E-04	4.70582E+00	4.70582E+00	1.19942E+01	MASB-BWBK-SB-MA18-0104
MASB	MASB-BWBK-SB-MA19-0103	9.622450023	12	1	7.33921E-01	2.17356E-02	2.36137E-02	8.56692E-01	8.56692E-01	1.11433E+01	
MASB	MASB-BWBK-SB-MA20-0103	10.11050172	13.5	1	6.92933E-01	1.82945E+00	1.11813E-01	-8.32426E-01	-8.32426E-01	1.43324E+01	
MASS	MASS-BWBK-SS-MA01-0001	8.86644062	8.1	1	3.59765E+00	1.63817E+01	8.27512E-01	1.89675E+00	1.89675E+00	6.20325E+00	
MASS	MASS-BWBK-SS-MA02-0001	9.038365107	11.7	1	1.91260E+01	2.00194E-01	5.44278E-01	4.37333E+00	4.37333E+00	7.32667E+00	MASS-BWBK-SS-MA02-0001
MASS	MASS-BWBK-SS-MA03-0001	9.37585481	10.6	1	1.14071E+00	2.39454E+00	1.60210E-01	1.06804E+00	1.06804E+00	9.53196E+00	
MASS	MASS-BWBK-SS-MA04-0001	9.384293679	11.2	1	2.60144E+00	8.97623E-01	1.53526E-01	1.61290E+00	1.61290E+00	9.58710E+00	
MASS	MASS-BWBK-SS-MA05-0001	9.781319919	13.8	1	2.61978E+00	2.73099E+00	2.70663E-05	1.61857E+00	1.61857E+00	1.21814E+01	
MASS	MASS-BWBK-SS-MA06-0001	9.92329018	15.8	1	7.24087E+00	1.33413E+01	2.16598E-02	2.69089E+00	2.69089E+00	1.31091E+01	
MASS	MASS-BWBK-SS-MA07-0001	8.689464412	4.8	1	6.09206E-02	5.39847E+01	1.18081E+00	-2.46821E-01	-2.46821E-01	5.04682E+00	
MASS	MASS-BWBK-SS-MA08-0001	9.846917201	10.4	1	4.88438E+00	3.05351E+00	5.01261E-03	-2.21006E+00	-2.21006E+00	1.26101E+01	
MASS	MASS-BWBK-SS-MA09-0001	9.942708266	17.4	1	1.73389E+01	2.75895E+01	2.77525E-02	4.16400E+00	4.16400E+00	1.32360E+01	MASS-BWBK-SS-MA09-0001
MASS	MASS-BWBK-SS-MA10-0001	9.980448594	15.3	1	3.30291E+00	9.93870E+00	4.17512E-02	1.81739E+00	1.81739E+00	1.34826E+01	
MASS	MASS-BWBK-SS-MA11-0001	10.18866649	16	1	1.33822E+00	1.48423E+01	1.70197E-01	1.15682E+00	1.15682E+00	1.48432E+01	
MASS	MASS-BWBK-SS-MA12-0001	9.609116492	11.8	1	5.53266E-01	1.20708E-01	2.78893E-02	7.43818E-01	7.43818E-01	1.10562E+01	
MASS	MASS-BWBK-SS-MA13-0001	9.635608107	13.6	1	5.62027E+00	2.10996E+00	1.97429E-02	2.37071E+00	2.37071E+00	1.12293E+01	
MASS	MASS-BWBK-SS-MA14-0001	9.152711259	10.1	1	4.10527E+00	4.19197E+00	3.88635E-01	2.02615E+00	2.02615E+00	8.07385E+00	
MASS	MASS-BWBK-SS-MA15-0001	9.259130536	11.4	1	6.92090E+00	5.58651E-01	2.67275E-01	2.63076E+00	2.63076E+00	8.76924E+00	
MASS	MASS-BWBK-SS-MA16-0001	9.61580548	11.7	1	3.60132E-01	2.00194E-01	2.56999E-02	6.00110E-01	6.00110E-01	1.10999E+01	
MASS	MASS-BWBK-SS-MA17-0001	9.609116492	12.2	1	1.30832E+00	2.76361E-03	2.78893E-02	1.14382E+00	1.14382E+00	1.10562E+01	
MASS	MASS-BWBK-SS-MA18-0001	9.472704636	10.4	1	5.53124E-02	3.05351E+00	9.20593E-02	2.35186E-01	2.35186E-01	1.01648E+01	
MASS	MASS-BWBK-SS-MA19-0001	9.629050707	12.2	1	1.02730E+00	2.76361E-03	2.16286E-02	1.01356E+00	1.01356E+00	1.11864E+01	
MASS	MASS-BWBK-SS-MA20-0001	9.764225485	12.2	1	1.69719E-02	2.76361E-03	1.41417E-04	1.30276E-01	1.30276E-01	1.20697E+01	
MMSB	MMSB-BWBK-SB-MM101-0110	9.729134165	9.6	1	5.01950E+00	6.48940E+00	2.20742E-03	-2.24042E+00	-2.24042E+00	1.18404E+01	
MMSB	MMSB-BWBK-SB-MM102-0109	9.667765219	12.1	1	4.36372E-01	2.24960E-03	1.17402E-02	6.60585E-01	6.60585E-01	1.14394E+01	
MMSB	MMSB-BWBK-SB-MM103-0107	9.609116492	11.8	1	5.53266E-01	1.20708E-01	2.78893E-02	7.43818E-01	7.43818E-01	1.10562E+01	
MMSB	MMSB-BWBK-SB-MM104-0110	10.08580911	13.7	1	2.21912E-01	2.41047E+00	9.59090E-02	-4.71075E-01	-4.71075E-01	1.41711E+01	
MMSB	MMSB-BWBK-SB-MM105-0110	9.392661929	7.7	1	3.77053E+00	1.97796E+01	1.47038E-01	-1.94178E+00	-1.94178E+00	9.64178E+00	
MMSB	MMSB-BWBK-SB-MM106-0110	9.980448594	15.1	1	2.61595E+00	8.71767E+00	4.17512E-02	1.61739E+00	1.61739E+00	1.34826E+01	
MMSB	MMSB-BWBK-SB-MM107-0110	9.595602773	16	1	2.53223E+01	1.48423E+01	3.25855E-02	5.03212E+00	5.03212E+00	1.09679E+01	MMSB-BWBK-SB-MM107-0110
MMSB	MMSB-BWBK-SB-MM108-0110	9.651815918	9.85	1	2.20581E+00	5.27818E+00	1.54509E-02	-1.48520E+00	-1.48520E+00	1.13352E+01	
MMSB	MMSB-BWBK-SB-MM109-0110	9.786953736	13	1	6.11151E-01	7.26876E-01	1.17426E-04	7.81761E-01	7.81761E-01	1.22182E+01	
MMSB	MMSB-BWBK-SB-MM110-0109	9.735068901	14.3	1	5.86026E+00	4.63356E+00	1.68498E-03	2.42080E+00	2.42080E+00	1.18792E+01	
MMSB	MMSB-BWBK-SB-MM111-0110	9.862665558	11.6	1	1.23870E+00	2.99680E-01	7.49059E-03	-1.11297E+00	-1.11297E+00	1.27130E+01	
MMSB	MMSB-BWBK-SB-MM112-0110	9.880730565	12.05	1	6.09981E-01	9.49259E-03	1.09439E-02	-7.81013E-01	-7.81013E-01	1.28310E+01	
MMSB	MMSB-BWBK-SB-MM113-0110	9.686574551	18.8	1	5.23840E+01	4.42567E+01	8.01792E-03	7.23768E+00	7.23768E+00	1.15623E+01	MMSB-BWBK-SB-MM113-0110
MMSB	MMSB-BWBK-SB-MM114-0110	9.449357272	8.8	1	1.46956E+00	1.12053E+01	1.06772E-01	-1.21225E+00	-1.21225E+00	1.00123E+01	
MMSB	MMSB-BWBK-SB-MM115-0110	9.698920387	9.8	1	3.39663E+00	5.51043E+00	5.95938E-03	-1.84299E+00	-1.84299E+00	1.16430E+01	
MMSB	MMSB-BWBK-SB-MM116-0110	9.655026193	11.65	1	8.63341E-02	2.47437E-01	1.46631E-02	2.93827E-01	2.93827E-01	1.13562E+01	
MMSB	MMSB-BWBK-SB-MM117-0110	9.510444964	6.9	1	1.23301E+01	2.75355E+01	7.05818E-02	-3.51142E+00	-3.51142E+00	1.04114E+01	
MMSB	MMSB-BWBK-SB-MM118-0110	9.609116492	9.5	1	2.42170E+00	7.00889E+00	2.78893E-02	-1.55618E+00	-1.55618E+00	1.10562E+01	
MMSB	MMSB-BWBK-SB-MM119-0110	9.667765219	10.2	1	1.53615E+00	3.79248E+00	1.17402E-02	-1.23942E+00	-1.23942E+00	1.14394E+01	
MMSB	MMSB-BWBK-SB-MM120-0110	9.26860928	6.2	1	6.92309E+00	3.53719E+01	2.57564E-01	-2.63118E+00	-2.63118E+00	8.83118E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	9.786953736	12.1	1	1.39804E-02	2.24960E-03	1.17426E-04	-1.18239E-01	-1.18239E-01	1.22182E+01	
MMSS	MMSS-BWBK-SS-MM102-0001	9.553930076	9.6	1	1.20028E+00	6.48940E+00	4.93672E-02	-1.09557E+00	-1.09557E+00	1.06956E+01	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!K	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MMSS	MMSS-BWBK-SS-MM103-0001	9.764225485	12.2	1	1.69719E-02	2.76361E-03	1.41417E-04	1.30276E-01	1.30276E-01	1.20697E+01	
MMSS	MMSS-BWBK-SS-MM104-0001	9.798127037	12.4	1	1.18267E-02	6.37917E-02	4.84425E-04	1.08751E-01	1.08751E-01	1.22912E+01	
MMSS	MMSS-BWBK-SS-MM105-0001	9.392661929	8.5	1	1.30367E+00	1.33037E+01	1.47038E-01	-1.14178E+00	-1.14178E+00	9.64178E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	9.792555992	15.1	1	8.09490E+00	8.71767E+00	2.70228E-04	2.84515E+00	2.84515E+00	1.22548E+01	
MMSS	MMSS-BWBK-SS-MM107-0001	9.786953736	12.6	1	1.45742E-01	2.04820E-01	1.17426E-04	3.81761E-01	3.81761E-01	1.22182E+01	
MMSS	MMSS-BWBK-SS-MM108-0001	9.642122788	11.9	1	3.94563E-01	6.12216E-02	1.79546E-02	6.28142E-01	6.28142E-01	1.12719E+01	
MMSS	MMSS-BWBK-SS-MM109-0001	9.648595303	11.5	1	3.45397E-02	4.19165E-01	1.62619E-02	1.85848E-01	1.85848E-01	1.13142E+01	
MMSS	MMSS-BWBK-SS-MM110-0001	9.198267791	7.1	1	1.61681E+00	2.54765E+01	3.33910E-01	-1.27154E+00	-1.27154E+00	8.37154E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	9.249561085	7.8	1	8.22120E-01	1.89001E+01	2.77262E-01	-9.06708E-01	-9.06708E-01	8.70671E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	9.118225083	6.4	1	2.09818E+00	3.30330E+01	4.32822E-01	-1.44851E+00	-1.44851E+00	7.84851E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	9.553930076	10.2	1	2.45592E-01	3.79248E+00	4.93672E-02	-4.95572E-01	-4.95572E-01	1.06956E+01	
MMSS	MMSS-BWBK-SS-MM114-0001	9.016755623	5.8	1	1.91952E+00	4.02899E+01	5.76630E-01	-1.38547E+00	-1.38547E+00	7.18547E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	9.305650552	7.1	1	3.89359E+00	2.54765E+01	2.21339E-01	-1.97322E+00	-1.97322E+00	9.07322E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	9.230142999	7	1	2.49584E+00	2.64960E+01	2.98088E-01	-1.57982E+00	-1.57982E+00	8.57982E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	9.61580548	10.3	1	6.39824E-01	3.41300E+00	2.56999E-02	-7.99890E-01	-7.99890E-01	1.10999E+01	
MMSS	MMSS-BWBK-SS-MM118-0001	9.480367509	9.4	1	6.64040E-01	7.54837E+00	8.74680E-02	-8.14886E-01	-8.14886E-01	1.02149E+01	
MMSS	MMSS-BWBK-SS-MM119-0001	9.341368634	7.6	1	2.91253E+00	2.06791E+01	1.89006E-01	-1.70661E+00	-1.70661E+00	9.30661E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	9.775654181	12.8	1	4.29807E-01	4.25848E-01	2.14559E-07	6.55597E-01	6.55597E-01	1.21444E+01	
NESB	NESB-BWBK-SB-NE01-0108	10.07323033	14.9	1	6.57915E-01	7.57664E+00	8.82761E-02	8.11120E-01	8.11120E-01	1.40889E+01	
NESB	NESB-BWBK-SB-NE02-0109	10.00784757	13.6	1	3.80000E-03	2.10996E+00	5.36989E-02	-6.16441E-02	-6.16441E-02	1.36616E+01	
NESB	NESB-BWBK-SB-NE03-0105	10.01234196	12.4	1	1.66671E+00	6.37917E-02	5.58020E-02	-1.29101E+00	-1.29101E+00	1.36910E+01	
NESB	NESB-BWBK-SB-NE04-0110	9.903487553	11.9	1	1.16579E+00	6.12216E-02	1.62232E-02	-1.07972E+00	-1.07972E+00	1.29797E+01	
NESB	NESB-BWBK-SB-NE05-0108	10.03889219	13.6	1	6.99611E-02	2.10996E+00	6.90506E-02	-2.64502E-01	-2.64502E-01	1.38645E+01	
NESB	NESB-BWBK-SB-NE06-0109	9.957028319	12	1	1.76776E+00	2.17356E-02	3.27288E-02	-1.32957E+00	-1.32957E+00	1.33296E+01	
NESB	NESB-BWBK-SB-NE07-0107	10.0475879	14.6	1	4.60603E-01	6.01510E+00	7.36962E-02	6.78677E-01	6.78677E-01	1.39213E+01	
NESB	NESB-BWBK-SB-NE08-0104	9.809176873	11.8	1	3.17480E-01	1.20708E-01	1.09293E-03	-5.63453E-01	-5.63453E-01	1.23635E+01	
NESB	NESB-BWBK-SB-NE09-0110	9.928180165	12.4	1	5.49180E-01	6.37917E-02	2.31231E-02	-7.41067E-01	-7.41067E-01	1.31411E+01	
NESB	NESB-BWBK-SB-NE10-0107	9.809176873	13.4	1	1.07443E+00	1.56893E+00	1.09293E-03	1.03655E+00	1.03655E+00	1.23635E+01	
NESB	NESB-BWBK-SB-NE101-0110	9.775654181	11.7	1	1.97494E-01	2.00194E-01	2.14559E-07	-4.44403E-01	-4.44403E-01	1.21444E+01	
NESB	NESB-BWBK-SB-NE102-0110	9.574983486	10	1	6.94128E-01	4.61146E+00	4.04548E-02	-8.33144E-01	-8.33144E-01	1.08331E+01	
NESB	NESB-BWBK-SB-NE103-0110	9.480367509	8.7	1	2.29488E+00	1.18848E+01	8.74680E-02	-1.51489E+00	-1.51489E+00	1.02149E+01	
NESB	NESB-BWBK-SB-NE104-0110	9.37585481	7.7	1	3.35608E+00	1.97796E+01	1.60210E-01	-1.83196E+00	-1.83196E+00	9.53196E+00	
NESB	NESB-BWBK-SB-NE105-0110	9.75846178	11	1	1.06515E+00	1.31660E+00	3.11720E-04	-1.03206E+00	-1.03206E+00	1.20321E+01	
NESB	NESB-BWBK-SB-NE106-0110	9.629050707	10	1	1.40764E+00	4.61146E+00	2.16286E-02	-1.18644E+00	-1.18644E+00	1.11864E+01	
NESB	NESB-BWBK-SB-NE107-0510	9.517825072	7.6	1	8.17759E+00	2.06791E+01	6.67149E-02	-2.85965E+00	-2.85965E+00	1.04596E+01	
NESB	NESB-BWBK-SB-NE108-0110	9.629050707	9.8	1	1.92221E+00	5.51043E+00	2.16286E-02	-1.38644E+00	-1.38644E+00	1.11864E+01	
NESB	NESB-BWBK-SB-NE109-0110	9.609116492	9.6	1	2.12047E+00	6.48940E+00	2.78893E-02	-1.45618E+00	-1.45618E+00	1.10562E+01	
NESB	NESB-BWBK-SB-NE110-0110	9.60238246	10.05	1	9.25788E-01	4.39921E+00	3.01838E-02	-9.62179E-01	-9.62179E-01	1.10122E+01	
NESS	NESS-BKG-SS03-NEB-0016	9.781319919	12	1	3.29151E-02	2.17356E-02	2.70663E-05	-1.81425E-01	-1.81425E-01	1.21814E+01	
NESS	NESS-BKG-SS09-NEB-0018	9.525151112	11.4	1	7.96521E-01	5.58651E-01	6.29841E-02	8.92480E-01	8.92480E-01	1.05075E+01	
NESS	NESS-BWBK-SS-NE01-0001	10.04324949	17.1	1	1.02850E+01	2.45280E+01	7.13596E-02	3.20703E+00	3.20703E+00	1.38930E+01	
NESS	NESS-BWBK-SS-NE02-0001	10.02570519	17	1	1.03791E+01	2.35474E+01	6.22941E-02	3.22167E+00	3.22167E+00	1.37783E+01	
NESS	NESS-BWBK-SS-NE03-0001	9.888373915	14.5	1	2.62130E+00	5.53459E+00	1.26015E-02	1.61904E+00	1.61904E+00	1.28810E+01	
NESS	NESS-BWBK-SS-NE04-0001	9.942708266	15.7	1	6.07130E+00	1.26208E+01	2.77525E-02	2.46400E+00	2.46400E+00	1.32360E+01	
NESS	NESS-BWBK-SS-NE05-0001	9.83091686	16.7	1	1.75937E+01	2.07259E+01	3.00298E-03	4.19449E+00	4.19449E+00	1.25055E+01	NESS-BWBK-SS-NE05-0001
NESS	NESS-BWBK-SS-NE06-0001	9.857443614	15.2	1	6.35621E+00	9.31818E+00	6.61396E-03	2.52115E+00	2.52115E+00	1.26788E+01	
NESS	NESS-BWBK-SS-NE07-0001	9.862665558	14.4	1	2.84607E+00	5.07407E+00	7.49059E-03	1.68703E+00	1.68703E+00	1.27130E+01	
NESS	NESS-BWBK-SS-NE08-0001	9.852194258	14.2	1	2.41944E+00	4.21304E+00	5.78769E-03	1.55545E+00	1.55545E+00	1.26445E+01	
NESS	NESS-BWBK-SS-NE09-0001	9.781319919	13.9	1	2.95350E+00	3.07150E+00	2.70663E-05	1.71857E+00	1.71857E+00	1.21814E+01	
NESS	NESS-BWBK-SS-NE10-0001	9.764225485	12.8	1	5.33304E-01	4.25848E-01	1.41417E-04	7.30276E-01	7.30276E-01	1.20697E+01	
NESS	NESS-BWBK-SS-NE101-0001	9.487972109	10.3	1	1.25474E-03	3.41300E+00	8.30277E-02	3.54223E-02	3.54223E-02	1.02646E+01	
NESS	NESS-BWBK-SS-NE102-0001	9.27799902	7.9	1	9.85121E-01	1.80407E+01	2.48122E-01	-9.92533E-01	-9.92533E-01	8.89253E+00	
NESS	NESS-BWBK-SS-NE103-0001	9.197255132	8.3	1	4.21475E-03	1.48027E+01	3.35082E-01	-6.49211E-02	-6.49211E-02	8.36492E+00	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!K	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
NESS	NESS-BWBK-SS-NE104-0001	9.417354541	7.9	1	3.62192E+00	1.80407E+01	1.28711E-01	-1.90314E+00	-1.90314E+00	9.80314E+00	
NESS	NESS-BWBK-SS-NE105-0001	9.126958763	6.6	1	1.70453E+00	3.07740E+01	4.21407E-01	-1.30558E+00	-1.30558E+00	7.90558E+00	
NESS	NESS-BWBK-SS-NE106-0001	9.220290703	7.1	1	2.00348E+00	2.54765E+01	3.08943E-01	-1.41544E+00	-1.41544E+00	8.51544E+00	
NESS	NESS-BWBK-SS-NE107-0001	9.139917908	6.6	1	1.93282E+00	3.07740E+01	4.04750E-01	-1.39026E+00	-1.39026E+00	7.99026E+00	
NESS	NESS-BWBK-SS-NE108-0001	9.220290703	7.1	1	2.00348E+00	2.54765E+01	3.08943E-01	-1.41544E+00	-1.41544E+00	8.51544E+00	
NESS	NESS-BWBK-SS-NE109-0001	9.107199613	6.3	1	2.17994E+00	3.41924E+01	4.47451E-01	-1.47646E+00	-1.47646E+00	7.77646E+00	
NESS	NESS-BWBK-SS-NE110-0001	9.167432871	6.6	1	2.46506E+00	3.07740E+01	3.70497E-01	-1.57005E+00	-1.57005E+00	8.17005E+00	
PMSB	PMSB-BWBK-SB-PM01-0105	9.952277717	13.9	1	3.61767E-01	3.07150E+00	3.10325E-02	6.01471E-01	6.01471E-01	1.32985E+01	
PMSB	PMSB-BWBK-SB-PM02-0104	10.56359488	21.3	1	1.60552E+01	8.37695E+01	6.20121E-01	4.00689E+00	4.00689E+00	1.72931E+01	PMSB-BWBK-SB-PM02-0104
PMSB	PMSB-BWBK-SB-PM03-0106	10.46595641	15.7	1	9.12223E-01	1.26208E+01	4.75878E-01	-9.55104E-01	-9.55104E-01	1.66551E+01	
PMSB	PMSB-BWBK-SB-PM04-0105	10.22918769	15	1	1.16566E-02	8.13716E+00	2.05273E-01	-1.07966E-01	-1.07966E-01	1.51080E+01	
PMSB	PMSB-BWBK-SB-PM05-0105	10.22918769	14.85	1	6.65463E-02	7.30389E+00	2.05273E-01	-2.57966E-01	-2.57966E-01	1.51080E+01	
PMSB	PMSB-BWBK-SB-PM06-0105	10.31890299	14.1	1	2.54147E+00	3.81253E+00	2.94616E-01	-1.59420E+00	-1.59420E+00	1.56942E+01	
PMSB	PMSB-BWBK-SB-PM07-0105	10.18866649	13	1	3.39733E+00	7.26876E-01	1.70197E-01	-1.84318E+00	-1.84318E+00	1.48432E+01	
PMSB	PMSB-BWBK-SB-PM08-0106	10.11859893	13.7	1	4.69686E-01	2.41047E+00	1.17294E-01	-6.85336E-01	-6.85336E-01	1.43853E+01	
PMSB	PMSB-BWBK-SB-PM09-0106	9.918376165	11.9	1	1.38534E+00	6.12216E-02	2.02376E-02	-1.17700E+00	-1.17700E+00	1.30770E+01	
PMSB	PMSB-BWBK-SB-PM10-0105	10.15424627	17.2	1	6.66533E+00	2.55285E+01	1.42981E-01	2.58173E+00	2.58173E+00	1.46183E+01	
PMSB	PMSB-BWBK-SB-PM11-0104	10.261162	13.3	1	4.06788E+00	1.32842E+00	2.35268E-01	-2.01690E+00	-2.01690E+00	1.53169E+01	
PMSB	PMSB-BWBK-SB-PM12-0105	9.609116492	14.4	1	1.11811E+01	5.07407E+00	2.78893E-02	3.34382E+00	3.34382E+00	1.10562E+01	PMSB-BWBK-SB-PM12-0105
PMSB	PMSB-BWBK-SB-PM13-0106	10.09823163	15.3	1	1.09778E+00	9.93870E+00	1.03758E-01	1.04775E+00	1.04775E+00	1.42522E+01	
PMSB	PMSB-BWBK-SB-PM14-0106	9.705036614	11.9	1	4.71060E-02	6.12216E-02	5.05248E-03	2.17039E-01	2.17039E-01	1.16830E+01	
PMSB	PMSB-BWBK-SB-PM15-0105	10.04324949	14.2	1	9.42650E-02	4.21304E+00	7.13596E-02	3.07026E-01	3.07026E-01	1.38930E+01	
PMSB	PMSB-BWBK-SB-PM16-0106	9.836278803	12	1	2.92192E-01	2.17356E-02	3.61940E-03	-5.40548E-01	-5.40548E-01	1.25405E+01	
PMSB	PMSB-BWBK-SB-PM17-0105	10.13459927	13.65	1	7.05413E-01	2.25772E+00	1.28509E-01	-8.39889E-01	-8.39889E-01	1.44899E+01	
PMSB	PMSB-BWBK-SB-PM18-0105	10.43705266	15	1	2.14985E+00	8.13716E+00	4.36835E-01	-1.46624E+00	-1.46624E+00	1.64662E+01	
PMSB	PMSB-BWBK-SB-PM19-0105	10.16199825	13.9	1	5.91244E-01	3.07150E+00	1.48904E-01	-7.68924E-01	-7.68924E-01	1.46689E+01	
PMSB	PMSB-BWBK-SB-PM20-0106	10.02349034	13.45	1	9.85081E-02	1.69669E+00	6.11934E-02	-3.13860E-01	-3.13860E-01	1.37639E+01	
PMSB	PMSB-BWBK-SB-SO01-0107-PM	10.2853428	13.1	1	5.64017E+00	9.07390E-01	2.59311E-01	-2.37490E+00	-2.37490E+00	1.54749E+01	
PMSB	PMSB-BWBK-SB-SO02-0109-PM	10.46024211	14.6	1	4.07137E+00	6.01510E+00	4.68027E-01	-2.01776E+00	-2.01776E+00	1.66178E+01	
PMSB	PMSB-BWBK-SB-SO13-0104-PM	10.43117029	14.4	1	4.11196E+00	5.07407E+00	4.29094E-01	-2.02780E+00	-2.02780E+00	1.64278E+01	
PMSB	PMSB-BWBK-SB-SO14-0105-PM	10.49404814	14.7	1	4.57389E+00	6.51561E+00	5.15425E-01	-2.13867E+00	-2.13867E+00	1.68387E+01	
PMSS	PMSS-DABK-S-SO21-0001	9.92329018	12.5	1	3.71019E-01	1.24306E-01	2.16598E-02	-6.09114E-01	-6.09114E-01	1.31091E+01	
PMSS	PMSS-DABK-S-SO22-0001	10.0647557	15	1	9.34115E-01	8.13716E+00	8.33121E-02	9.66496E-01	9.66496E-01	1.40335E+01	
PMSS	PMSS-DABK-S-SO23-0001	9.809176873	13.6	1	1.52905E+00	2.10996E+00	1.09293E-03	1.23655E+00	1.23655E+00	1.23635E+01	
PMSS	PMSS-DABK-S-SO24-0001	10.15424627	14.2	1	1.74949E-01	4.21304E+00	1.42981E-01	-4.18270E-01	-4.18270E-01	1.46183E+01	
PMSS	PMSS-DABK-S-SO25-0001	10.67590791	14.6	1	1.17444E+01	6.01510E+00	8.09623E-01	-3.42701E+00	-3.42701E+00	1.80270E+01	
PMSS	PMSS-DABK-S-SO26-0001	10.11050172	15.2	1	7.52685E-01	9.31818E+00	1.11813E-01	8.67574E-01	8.67574E-01	1.43324E+01	
PMSS	PMSS-DABK-S-SO27-0001	9.680344001	12	1	2.28857E-01	2.17356E-02	9.17254E-03	4.78390E-01	4.78390E-01	1.15216E+01	
PMSS	PMSS-DABK-S-SO28-0001	9.814656339	14	1	2.56237E+00	3.43202E+00	1.48525E-03	1.60074E+00	1.60074E+00	1.23993E+01	
PMSS	PMSS-DABK-S-SO29-0001	9.989665249	16	1	6.03767E+00	1.48423E+01	4.56027E-02	2.45717E+00	2.45717E+00	1.35428E+01	
PMSS	PMSS-DABK-S-SO30-0001	9.798127037	15.2	1	8.46083E+00	9.31818E+00	4.84425E-04	2.90875E+00	2.90875E+00	1.22912E+01	
PMSS	PMSS-DABK-S-SO31-0001	9.71111566	11.6	1	1.50513E-02	2.99680E-01	4.22522E-03	-1.22684E-01	-1.22684E-01	1.17227E+01	
PMSS	PMSS-DABK-S-SO32-0001	10.05190756	15.1	1	1.32354E+00	8.71767E+00	7.60602E-02	1.15045E+00	1.15045E+00	1.39495E+01	
PMSS	PMSS-DABK-S-SO33-0001	9.449357272	13.4	1	1.14768E+01	1.56893E+00	1.06772E-01	3.38775E+00	3.38775E+00	1.00123E+01	PMSS-DABK-S-SO33-0001
PMSS	PMSS-DABK-S-SO34-0001	9.642122788	12	1	5.30191E-01	2.17356E-02	1.79546E-02	7.28142E-01	7.28142E-01	1.12719E+01	
PMSS	PMSS-DABK-S-SO35-0001	9.789758787	13.35	1	1.23973E+00	1.44617E+00	1.86088E-04	1.11343E+00	1.11343E+00	1.22366E+01	
PMSS	PMSS-DABK-S-SO36-0001	9.560997244	12.4	1	2.74979E+00	6.37917E-02	4.62767E-02	1.65825E+00	1.65825E+00	1.07418E+01	
PMSS	PMSS-DABK-S-SO37-0001	9.908475094	13.9	1	7.88000E-01	3.07150E+00	1.75186E-02	8.87694E-01	8.87694E-01	1.30123E+01	
PMSS	PMSS-DABK-S-SO38-0001	9.525151112	11.2	1	4.79529E-01	8.97623E-01	6.29841E-02	6.92480E-01	6.92480E-01	1.05075E+01	
PMSS	PMSS-DABK-S-SO39-0001	9.841612149	12.3	1	7.58440E-02	2.32776E-02	4.28956E-03	-2.75398E-01	-2.75398E-01	1.25754E+01	
PMSS	PMSS-DABK-S-SO40-0001	9.581903928	12.2	1	1.74672E+00	2.76361E-03	3.77189E-02	1.32164E+00	1.32164E+00	1.08784E+01	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!K	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
SESB	SESB-BWBK-SB-SO03-0108	10.61888534	16.6	1	1.11176E+00	1.98254E+01	7.10258E-01	-1.05440E+00	-1.05440E+00	1.76544E+01	
SESB	SESB-BWBK-SB-SO04-0108	10.42228135	14.9	1	2.16006E+00	7.57664E+00	4.17528E-01	-1.46971E+00	-1.46971E+00	1.63697E+01	
SESB	SESB-BWBK-SB-SO05-0106	10.3609124	15.8	1	2.84616E-02	1.33413E+01	3.41985E-01	-1.68706E-01	-1.68706E-01	1.59687E+01	
SESB	SESB-BWBK-SB-SO06-0108	10.66078255	16.85	1	1.16246E+00	2.21142E+01	7.82632E-01	-1.07817E+00	-1.07817E+00	1.79282E+01	
SESB	SESB-BWBK-SB-SO07-0106	10.27849345	14.5	1	8.65176E-01	5.53459E+00	2.52382E-01	-9.30149E-01	-9.30149E-01	1.54301E+01	
SESB	SESB-BWBK-SB-SO08-0107	10.5941316	17.3	1	3.71139E-02	2.65490E+01	6.69147E-01	-1.92650E-01	-1.92650E-01	1.74926E+01	
SESB	SESB-BWBK-SB-SO09-0106	10.27505111	15.3	1	1.15896E-02	9.93870E+00	2.48935E-01	-1.07655E-01	-1.07655E-01	1.54077E+01	
SESB	SESB-BWBK-SB-SO11-0106	10.45737267	15.8	1	6.38424E-01	1.33413E+01	4.64109E-01	-7.99014E-01	-7.99014E-01	1.65990E+01	
SESB	SESB-BWBK-SB-SO12-0106	10.46024211	15.05	1	2.45788E+00	8.42491E+00	4.68027E-01	-1.56776E+00	-1.56776E+00	1.66178E+01	
SESB	SESB-BWBK-SB-SO15-0103	10.0301202	13.4	1	1.65797E-01	1.56893E+00	6.45174E-02	-4.07182E-01	-4.07182E-01	1.38072E+01	
SESB	SESB-BWBK-SB-SO16-0105	10.12262308	13.3	1	1.23572E+00	1.32842E+00	1.20066E-01	-1.11163E+00	-1.11163E+00	1.44116E+01	
SESB	SESB-BWBK-SB-SO17-0106	9.803667217	13.1	1	5.96832E-01	9.07390E-01	7.58993E-04	7.72549E-01	7.72549E-01	1.23275E+01	
SESB	SESB-BWBK-SB-SO18-0105	9.61580548	12.6	1	2.25033E+00	2.04820E-01	2.56999E-02	1.50011E+00	1.50011E+00	1.10999E+01	
SESB	SESB-BWBK-SB-SO19-0104	9.705036614	13.1	1	2.00800E+00	9.07390E-01	5.05248E-03	1.41704E+00	1.41704E+00	1.16830E+01	
SESB	SESB-BWBK-SB-SO20-0104	10.29890232	13.7	1	3.47266E+00	2.41047E+00	2.73304E-01	-1.86351E+00	-1.86351E+00	1.55635E+01	
SESS	SESS-DABK-S-SO01-0001	9.83091686	13	1	2.44520E-01	7.26876E-01	3.00298E-03	4.94489E-01	4.94489E-01	1.25055E+01	
SESS	SESS-DABK-S-SO02-0001	10.08996712	28.2	1	1.96049E+02	2.57685E+02	9.85017E-02	1.40018E+01	1.40018E+01	1.41982E+01	SESS-DABK-S-SO02-0001
SESS	SESS-DABK-S-SO03-0001	9.857443614	11.9	1	6.06602E-01	6.12216E-02	6.61396E-03	-7.78847E-01	-7.78847E-01	1.26788E+01	
SESS	SESS-DABK-S-SO04-0001	9.820105944	14.4	1	3.86174E+00	5.07407E+00	1.93499E-03	1.96513E+00	1.96513E+00	1.24349E+01	
SESS	SESS-DABK-S-SO05-0001	9.867860375	11.9	1	7.17263E-01	6.12216E-02	8.41678E-03	-8.46914E-01	-8.46914E-01	1.27469E+01	
SESS	SESS-DABK-S-SO06-0001	10.89488576	15.8	1	1.33802E+01	1.33413E+01	1.25164E+00	-3.65789E+00	-3.65789E+00	1.94579E+01	
SESS	SESS-DABK-S-SO07-0001	9.680344001	13.6	1	4.31971E+00	2.10996E+00	9.17254E-03	2.07839E+00	2.07839E+00	1.15216E+01	
SESS	SESS-DABK-S-SO08-0001	9.928180165	12.7	1	1.94540E-01	3.05334E-01	2.31231E-02	-4.41067E-01	-4.41067E-01	1.31411E+01	
SESS	SESS-DABK-S-SO09-0001	10.04324949	11.2	1	7.25211E+00	8.97623E-01	7.13596E-02	-2.69297E+00	-2.69297E+00	1.38930E+01	
SESS	SESS-DABK-S-SO10-0001	10.07744086	11	1	9.71191E+00	1.31660E+00	9.07958E-02	-3.11639E+00	-3.11639E+00	1.41164E+01	
SESS	SESS-DABK-S-SO11-0001	9.087042156	8.3	1	4.29356E-01	1.48027E+01	4.74825E-01	6.55253E-01	6.55253E-01	7.64475E+00	
SESS	SESS-DABK-S-SO12-0001	9.581903928	11.3	1	1.77777E-01	7.18137E-01	3.77189E-02	4.21636E-01	4.21636E-01	1.08784E+01	
SESS	SESS-DABK-S-SO13-0001	9.836278803	10.9	1	2.69140E+00	1.55608E+00	3.61940E-03	-1.64055E+00	-1.64055E+00	1.25405E+01	
SESS	SESS-DABK-S-SO14-0001	9.798127037	9.8	1	6.20632E+00	5.51043E+00	4.84425E-04	-2.49125E+00	-2.49125E+00	1.22912E+01	
SESS	SESS-DABK-S-SO15-0001	9.76995616	12.8	1	4.80013E-01	4.25848E-01	3.79607E-05	6.92830E-01	6.92830E-01	1.21072E+01	
SESS	SESS-DABK-S-SO16-0001	9.140990294	8.3	1	9.16485E-02	1.48027E+01	4.03386E-01	3.02735E-01	3.02735E-01	7.99726E+00	
SESS	SESS-DABK-S-SO17-0001	9.60238246	9.1	1	3.65643E+00	9.28683E+00	3.01838E-02	-1.91218E+00	-1.91218E+00	1.10122E+01	
SESS	SESS-DABK-S-SO18-0001	9.480367509	9.9	1	9.91534E-02	5.05094E+00	8.74680E-02	-3.14886E-01	-3.14886E-01	1.02149E+01	
SESS	SESS-DABK-S-SO19-0001	9.75846178	14.1	1	4.27637E+00	3.81253E+00	3.11720E-04	2.06794E+00	2.06794E+00	1.20321E+01	
SESS	SESS-DABK-S-SO20-0001	10.0647557	16	1	3.86711E+00	1.48423E+01	8.33121E-02	1.96650E+00	1.96650E+00	1.40335E+01	
Site 8 SS	DA-B100B-0002	**10.45593485**	**23.3**	1	4.50292E+01	1.24380E+02	4.62152E-01	6.71038E+00	6.71038E+00	1.65896E+01	DA-B100B-0002
Site 8 SS	DA-B101B-0002	**10.56874953**	**24.2**	1	4.72410E+01	1.45264E+02	6.28266E-01	6.87321E+00	6.87321E+00	1.73268E+01	DA-B101B-0002
Site 8 SS	DA-B106B-0002	**9.775654181**	**16.4**	1	1.81101E+01	1.80844E+01	2.14559E-07	4.25560E+00	4.25560E+00	1.21444E+01	DA-B106B-0002
Site 8 SS	DA-B107B-0002	**10.00333289**	**17.2**	1	1.27296E+01	2.55285E+01	5.16269E-02	3.56786E+00	3.56786E+00	1.36321E+01	DA-B107B-0002
Site 8 SS	DA-B108B-0002	10.18866649	15.8	1	9.15496E-01	1.33413E+01	1.70197E-01	9.56815E-01	9.56815E-01	1.48432E+01	
Site 8 SS	DA-B109B-0002	9.314700387	12.3	1	1.00340E+01	2.32776E-02	2.12906E-01	3.16765E+00	3.16765E+00	9.13235E+00	
Site 8 SS	DA-S-SB01-0102-01	10.30895266	10	1	3.16877E+01	4.61146E+00	2.83913E-01	-5.62918E+00	-5.62918E+00	1.56292E+01	
Site 8 SS	DA-S-SB02-0102-01	9.903487553	8.7	1	1.83160E+01	1.18848E+01	1.62232E-02	-4.27972E+00	-4.27972E+00	1.29797E+01	
Site 8 SS	DA-S-SB03-0102-01	10.27505111	13	1	5.79680E+00	7.26876E-01	2.48935E-01	-2.40765E+00	-2.40765E+00	1.54077E+01	
Site 8 SS	DA-S-SB04-0102-01	9.998797732	7.7	1	3.48396E+01	1.97796E+01	4.95865E-02	-5.90251E+00	-5.90251E+00	1.36025E+01	
Site 8 SS	DA-S-SB05-0102-01	9.210340372	5.6	1	8.12492E+00	4.28688E+01	3.20104E-01	-2.85043E+00	-2.85043E+00	8.45043E+00	
Site 8 SS	DA-S-SB06-0515-01	9.740968623	8.6	1	1.10075E+01	1.25843E+01	1.23544E-03	-3.31775E+00	-3.31775E+00	1.19178E+01	
Site 8 SS	DA-S-SB07-0102-01	9.998797732	8.1	1	3.02776E+01	1.63817E+01	4.95865E-02	-5.50251E+00	-5.50251E+00	1.36025E+01	
Site 8 SS	DA-S-SB08-0102-01	**9.798127037**	**19**	1	4.50073E+01	4.69577E+01	4.84425E-04	6.70875E+00	6.70875E+00	1.22912E+01	DA-S-SB08-0102-01
Site 8 SS	DA-S-TP01-0001-01	**9.952277717**	**26**	1	1.61327E+02	1.91894E+02	3.10325E-02	1.27015E+01	1.27015E+01	1.32985E+01	DA-S-TP01-0001-01
Site 8 SS	DA-S-TP05-0001-01	10.08580911	9.3	1	2.37274E+01	8.10786E+00	9.59090E-02	-4.87107E+00	-4.87107E+00	1.41711E+01	
Site 8 SS	DA-S-TP06-0001-01	10.08580911	13	1	1.37142E+00	7.26876E-01	9.59090E-02	-1.17107E+00	-1.17107E+00	1.41711E+01	
Site 8 SS	DA-S-TP07-0001-01	9.546812609	7.1	1	1.25959E+01	2.54765E+01	5.25807E-02	-3.54906E+00	-3.54906E+00	1.06491E+01	

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!K	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-S-TP08-0001-01	10.16585182	11	1	1.36464E+01	1.31660E+00	1.51893E-01	-3.69410E+00	-3.69410E+00	1.46941E+01	
Site 8 SS	DA-S-TP09-0001-01	10.04324949	11	1	8.36930E+00	1.31660E+00	7.13596E-02	-2.89297E+00	-2.89297E+00	1.38930E+01	
Site 8 SS	DA-S-TP09-0102-01	10.30895266	14.5	1	1.27505E+00	5.53459E+00	2.83913E-01	-1.12918E+00	-1.12918E+00	1.56292E+01	
Site 8 SS	DA-S-TP10-0001-01	**10.20359214**	**64**	1	2.40681E+03	2.68869E+03	1.82735E-01	4.90593E+01	4.90593E+01	1.49407E+01	DA-S-TP10-0001-01
Site 8 SS	DA-S-TP10-0102-01	10.1266311	13	1	2.06733E+00	7.26876E-01	1.22860E-01	-1.43782E+00	-1.43782E+00	1.44378E+01	
Site 8 SS	DA-S-TP11-0001-01	10.30895266	12	1	1.31710E+01	2.17356E-02	2.83913E-01	-3.62918E+00	-3.62918E+00	1.56292E+01	
Site 8 SS	DA-S-TP12-0001-01	10.20359214	12	1	8.64780E+00	2.17356E-02	1.82735E-01	-2.94071E+00	-2.94071E+00	1.49407E+01	
Site 8 SS	DA-S-TP12-0102-01	10.20359214	11	1	1.55292E+01	1.31660E+00	1.82735E-01	-3.94071E+00	-3.94071E+00	1.49407E+01	
Site 8 SS	DA-S-TP12A-0001-01	10.08580911	13	1	1.37142E+00	7.26876E-01	9.59090E-02	-1.17107E+00	-1.17107E+00	1.41711E+01	
Site 8 SS	DA-S-TP12B-0001-01	10.08580911	12	1	4.71357E+00	2.17356E-02	9.59090E-02	-2.17107E+00	-2.17107E+00	1.41711E+01	
Site 8 SS	DA-S-TP13-0001-01	10.23995979	9.5	1	3.22437E+01	7.00889E+00	2.15150E-01	-5.67835E+00	-5.67835E+00	1.51784E+01	
Site 8 SS	DA-S-TP15-0001-01	9.952277717	9.2	1	1.67979E+01	8.68734E+00	3.10325E-02	-4.09853E+00	-4.09853E+00	1.32985E+01	
Site 8 SS	DA-SB100-0002	**10.05620864**	**20.1**	1	3.74831E+01	6.32434E+01	7.84511E-02	6.12235E+00	6.12235E+00	1.39777E+01	DA-SB100-0002
Site 8 SS	DA-SB101-0002	10.08580911	15.5	1	1.76604E+00	1.12397E+01	9.59090E-02	1.32893E+00	1.32893E+00	1.41711E+01	
Site 8 SS	DA-SB102-0002	**10.22918769**	**18.8**	1	1.36311E+01	4.42567E+01	2.05273E-01	3.69203E+00	3.69203E+00	1.51080E+01	DA-SB102-0002
Site 8 SS	DA-SB107-0103	9.60238246	11.8	1	6.20662E-01	1.20708E-01	3.01838E-02	7.87821E-01	7.87821E-01	1.10122E+01	
Site 8 SS	DA-SB111-0002	9.980448594	10.2	1	1.07755E+01	3.79248E+00	4.17512E-02	-3.28261E+00	-3.28261E+00	1.34826E+01	
Site 8 SS	DA-SB112-0002	9.392661929	6.9	1	7.51738E+00	2.75355E+01	1.47038E-01	-2.74178E+00	-2.74178E+00	9.64178E+00	
Site 8 SS	DA-SB113-0002	9.37585481	6.6	1	8.59639E+00	3.07740E+01	1.60210E-01	-2.93196E+00	-2.93196E+00	9.53196E+00	
Site 8 SS	DA-SB114-0002	9.595602773	7.5	1	1.20262E+01	2.15986E+01	3.25855E-02	-3.46788E+00	-3.46788E+00	1.09679E+01	
Site 8 SS	DA-SB115-0002	10.11455852	14.8	1	1.94539E-01	7.03613E+00	1.14542E-01	4.41065E-01	4.41065E-01	1.43589E+01	
Site 8 SS	DA-SB116-0002	10.27159687	14.7	1	4.69340E-01	6.51561E+00	2.45500E-01	-6.85084E-01	-6.85084E-01	1.53851E+01	
Site 8 SS	DA-SB117-0002	10.34817337	13.5	1	5.69044E+00	1.82945E+00	3.27248E-01	-2.38546E+00	-2.38546E+00	1.58855E+01	
Site 8 SS	DA-SB118-0002	**10.66895539**	**26.2**	1	6.75425E+01	1.97475E+02	7.97160E-01	8.21842E+00	8.21842E+00	1.79816E+01	DA-SB118-0002
Site 8 SS	DA-SB119-0002	9.052516287	9.6	1	4.75614E+00	6.48940E+00	5.23599E-01	2.18086E+00	2.18086E+00	7.41914E+00	
Site 8 SS	DA-SB120-0002	10.46310334	18.3	1	2.76736E+00	3.78541E+01	4.71950E-01	1.66354E+00	1.66354E+00	1.66365E+01	
Site 8 SS	DA-SB133-0102	10.28874995	16.5	1	1.00567E+00	1.89449E+01	2.62792E-01	1.00283E+00	1.00283E+00	1.54972E+01	
Site 8 SS	DA-SB150-0002	10.46310334	13.8	1	8.04551E+00	2.73099E+00	4.71950E-01	-2.83646E+00	-2.83646E+00	1.66365E+01	
Site 8 SS	DA-SB151-0002	10.24707726	16.8	1	2.48106E+00	2.16464E+01	2.21803E-01	1.57514E+00	1.57514E+00	1.52249E+01	
Site 8 SS	DA-SS102B-011508	10.10233841	16.2	1	3.68992E+00	1.64233E+01	1.06420E-01	1.92092E+00	1.92092E+00	1.42791E+01	
Site 8 SS	DA-SS103B-011508	**10.22012145**	**18.95**	1	1.52200E+01	4.62750E+01	1.97140E-01	3.90128E+00	3.90128E+00	1.50487E+01	DA-SS103B-011508
Site 8 SS	DA-SS104-011508	9.989665249	14.6	1	1.11760E+00	6.01510E+00	4.56027E-02	1.05717E+00	1.05717E+00	1.35428E+01	
Site 8 SS	DA-SS104B-011608	**10.08996712**	**22.8**	1	7.39902E+01	1.13477E+02	9.85017E-02	8.60176E+00	8.60176E+00	1.41982E+01	DA-SS104B-011608
Site 8 SS	DA-SS105-011508	9.066470002	5.4	1	4.45345E+00	4.55278E+01	5.03599E-01	-2.11032E+00	-2.11032E+00	7.51032E+00	
Site 8 SS	DA-SS105B-011608	10.30895266	16	1	1.37507E-01	1.48423E+01	2.83913E-01	3.70819E-01	3.70819E-01	1.56292E+01	
Site 8 SS	DA-SS106-011408	9.937888979	14.3	1	1.20010E+00	4.63356E+00	2.61700E-02	1.09549E+00	1.09549E+00	1.32045E+01	
Site 8 SS	DA-SS107-011508	8.569785642	1	1	1.06589E+01	1.24265E+02	1.45524E+00	-3.26479E+00	-3.26479E+00	4.26479E+00	
Site 8 SS	DA-SS108-011508	9.642122788	6.5	1	2.27706E+01	3.18935E+01	1.79546E-02	-4.77186E+00	-4.77186E+00	1.12719E+01	
Site 8 SS	DA-SS109-011408	8.968268811	5.4	1	2.15689E+00	4.55278E+01	6.52619E-01	-1.46864E+00	-1.46864E+00	6.86864E+00	
Site 8 SS	DA-SS110-011508	9.698920387	11.4	1	5.90466E-02	5.58651E-01	5.95938E-03	-2.42995E-01	-2.42995E-01	1.16430E+01	
Site 8 SS	DA-SS110B-011508	**10.20728901**	**19.5**	1	2.05674E+01	5.40603E+01	1.85909E-01	4.53513E+00	4.53513E+00	1.49649E+01	DA-SS110B-011508
Site 8 SS	DA-SS111B-011408	10.27505111	15.7	1	8.54656E-02	1.26208E+01	2.48935E-01	2.92345E-01	2.92345E-01	1.54077E+01	
Site 8 SS	DA-SS112B-011608	10.39665824	16.85	1	4.19538E-01	2.21142E+01	3.85071E-01	6.47717E-01	6.47717E-01	1.62023E+01	
Site 8 SS	DA-SS113B-011608	10.5815211	18.3	1	7.91659E-01	3.78541E+01	6.48675E-01	8.89752E-01	8.89752E-01	1.74102E+01	
Site 8 SS	DA-SS114B-011008	10.35137338	16.2	1	8.62162E-02	1.64233E+01	3.30919E-01	2.93626E-01	2.93626E-01	1.59064E+01	
Site 8 SS	DA-SS115B-011008	**10.28192399**	**28.8**	1	1.78154E+02	2.77308E+02	2.55840E-01	1.33474E+01	1.33474E+01	1.54526E+01	DA-SS115B-011008
Site 8 SS	DA-SS116B-011008	10.33851146	16.5	1	4.59238E-01	1.89449E+01	3.16287E-01	6.77671E-01	6.77671E-01	1.58223E+01	
Site 8 SS	DA-SS117B-011008	10.42525312	18.4	1	4.04359E+00	3.90946E+01	4.21377E-01	2.01087E+00	2.01087E+00	1.63891E+01	
Site 8 SS	DA-SS118B-011608	10.28874995	15.2	1	8.83091E-02	9.31818E+00	2.62792E-01	-2.97168E-01	-2.97168E-01	1.54972E+01	
Site 8 SS	DA-SS119B-011608	10.42821608	15.5	1	8.25361E-01	1.12397E+01	4.25233E-01	-9.08494E-01	-9.08494E-01	1.64085E+01	
Site 8 SS	DA-SS120B-011708	10.32875529	17.6	1	3.39083E+00	2.97305E+01	3.05409E-01	1.84142E+00	1.84142E+00	1.57586E+01	
Site 8 SS	DA-SS121-011008	**10.15812977**	**19.6**	1	2.45654E+01	5.55408E+01	1.45933E-01	4.95635E+00	4.95635E+00	1.46436E+01	DA-SS121-011008
Site 8 SS	DA-SS122-011008	**10.35137338**	**22.4**	1	4.21672E+01	1.05115E+02	3.30919E-01	6.49363E+00	6.49363E+00	1.59064E+01	DA-SS122-011008

TABLE F.5.2
SUPPORT DATA FOR CHROMIUM REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!K	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**CR**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-SS123-011008	10.27159687	17.2	1	3.29392E+00	2.55285E+01	2.45500E-01	1.81492E+00	1.81492E+00	1.53851E+01	
Site 8 SS	DA-SS124-011008	9.717157974	14.7	1	8.63087E+00	6.51561E+00	3.47621E-03	2.93783E+00	2.93783E+00	1.17622E+01	
Site 8 SS	DA-SS125-011008	**9.883284845**	**16.5**	1	1.33393E+01	1.89449E+01	1.14849E-02	3.65230E+00	3.65230E+00	1.28477E+01	DA-SS125-011008
Site 8 SS	DA-SS126-011408	10.0647557	13.1	1	8.71429E-01	9.07390E-01	8.33121E-02	-9.33504E-01	-9.33504E-01	1.40335E+01	
Site 8 SS	DA-SS127-011508	9.648595303	8.3	1	9.08511E+00	1.48027E+01	1.62619E-02	-3.01415E+00	-3.01415E+00	1.13142E+01	
Site 8 SS	DA-SS128-011608	9.980448594	13.9	1	1.74216E-01	3.07150E+00	4.17512E-02	4.17391E-01	4.17391E-01	1.34826E+01	
Site 8 SS	DA-SS129-011408	**10.35456317**	**28.1**	1	1.48177E+02	2.54484E+02	3.34600E-01	1.21728E+01	1.21728E+01	1.59272E+01	DA-SS129-011408
Site 8 SS	DA-SS130-011508	10.21097225	15.9	1	8.30032E-01	1.40818E+01	1.89099E-01	9.11061E-01	9.11061E-01	1.49889E+01	
Site 8 SS	DA-SS131-011608	10.20728901	16.4	1	2.05959E+00	1.80844E+01	1.85909E-01	1.43513E+00	1.43513E+00	1.49649E+01	
Site 8 SS	DA-SS132-011408	10.29214554	17.9	1	5.66746E+00	3.30921E+01	2.66285E-01	2.38064E+00	2.38064E+00	1.55194E+01	
Site 8 SS	DA-SS133-011508	**10.26813067**	**18.9**	1	1.25144E+01	4.55972E+01	2.42077E-01	3.53757E+00	3.53757E+00	1.53624E+01	DA-SS133-011508
Site 8 SS	DA-SS134-011508	10.37661131	19.4	1	1.10803E+01	5.25998E+01	3.60593E-01	3.32871E+00	3.32871E+00	1.60713E+01	
Site 8 SS	DA-SS135-011108	10.33526997	17.65	1	3.41825E+00	3.02783E+01	3.12652E-01	1.84885E+00	1.84885E+00	1.58011E+01	
Site 8 SS	DA-SS136-011008	10.35774282	16.2	1	6.35068E-02	1.64233E+01	3.38288E-01	2.52006E-01	2.52006E-01	1.59480E+01	
Site 8 SS	DA-SS138-011108	9.803667217	15.2	1	8.25154E+00	9.31818E+00	7.58993E-04	2.87255E+00	2.87255E+00	1.23275E+01	
Site 8 SS	DA-SS139-011108	**9.975808214**	**16.9**	1	1.18867E+01	2.25869E+01	3.98764E-02	3.44771E+00	3.44771E+00	1.34523E+01	DA-SS139-011108
Site 8 SS	DA-SS140-011108	**10.52406404**	**22.5**	1	2.98684E+01	1.07176E+02	5.59424E-01	5.46520E+00	5.46520E+00	1.70348E+01	DA-SS140-011108
Site 8 SS	DA-SS141-011108	10.11050172	15.5	1	1.36323E+00	1.12397E+01	1.11813E-01	1.16757E+00	1.16757E+00	1.43324E+01	
Site 8 SS	DA-SS142-011708	10.13855967	16.1	1	2.50979E+00	1.56228E+01	1.31364E-01	1.58423E+00	1.58423E+00	1.45158E+01	
Site 8 SS	DA-SS143-011708	10.42228135	19	1	6.91840E+00	4.69577E+01	4.17528E-01	2.63029E+00	2.63029E+00	1.63697E+01	
Site 8 SS	DA-SS144-011708	10.33201793	16.1	1	1.02465E-01	1.56228E+01	3.09025E-01	3.20102E-01	3.20102E-01	1.57799E+01	
Site 8 SS	DA-SS145-011708	**10.24707726**	**33.4**	1	3.30336E+02	4.51672E+02	2.21803E-01	1.81751E+01	1.81751E+01	1.52249E+01	DA-SS145-011708
Site 8 SS	DA-SS146-011708	9.989665249	16.1	1	6.53910E+00	1.56228E+01	4.56027E-02	2.55717E+00	2.55717E+00	1.35428E+01	
Site 8 SS	DA-SS147-011708	**10.32711996**	**19.9**	1	1.72400E+01	6.01023E+01	3.03604E-01	4.15211E+00	4.15211E+00	1.57479E+01	DA-SS147-011708
Site 8 SS	DA-SS148-011708	**10.54534144**	**26**	1	7.79012E+01	1.91894E+02	5.91706E-01	8.82616E+00	8.82616E+00	1.71738E+01	DA-SS148-011708
Site 8 SS	DA-SS149-011708	10.68510338	19.1	1	1.02598E+00	4.83382E+01	8.26256E-01	1.01291E+00	1.01291E+00	1.80871E+01	
Site 8 SS	DA-SS152-011608	9.781319919	14.3	1	4.48836E+00	4.63356E+00	2.70663E-05	2.11857E+00	2.11857E+00	1.21814E+01	
Site 8 SS	DA-SS153-011608	10.21464198	15	1	1.66886E-04	8.13716E+00	1.92304E-01	-1.29184E-02	-1.29184E-02	1.50129E+01	

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Y variable name used on graph: Pb ^0.67			********** GRAPH LINES **********				- - - Extreme Value Lines: +/-3 x IQR of residuals			
	X variable name used on graph: PB predict (from Factor Anal.)			**X-Points**	**Y Predicted**	**Lower 95%**	**Upper 95%**	**-3 x IQR**	**+3 x IQR**	**Median**	
	N	115.000000		0.20	1.73	1.33	2.12	-1.21	1.21	-0.01	**No. of Exceedances**
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	1.511590E+01		2.01	2.24	1.68	2.79	-1.21	1.21	-0.01	**of Upper 95% Limit**
0.10	**t-Value: 2-tail, 0.100 alpha**	1.658450		3.82	2.74	1.93	3.56	-1.21	1.21	-0.01	**for Each Soil Type:**
degrees freedom	SUM(XY*w^2)	1.465042E+03		5.64	3.25	2.25	4.26	-1.21	1.21	-0.01	---- \/ ----
2	SUM(X^2*w^2)	3.845034E+03		7.45	3.76	2.59	4.93	-1.21	1.21	-0.01	BASS
	SUM(X*w^2)	2.324061E+02		9.26	4.27	2.96	5.58	-1.21	1.21	-0.01	0
	SUM(Y*w^2)	1.225879E+02		11.08	4.77	3.33	6.21	-1.21	1.21	-0.01	MASS
	SUM(w^2)	3.437956E+01		12.89	5.28	3.72	6.84	-1.21	1.21	-0.01	2
	SUM(Y)	755.630828		14.71	5.79	4.12	7.46	-1.21	1.21	-0.01	MMSS
	SUM(X)	1.963852E+03		16.52	6.30	4.52	8.07	-1.21	1.21	-0.01	0
	Denominator	7.817794E+04		18.33	6.80	4.93	8.68	-1.21	1.21	-0.01	NESS
	Slope	**2.798400E-01**		20.15	7.31	5.35	9.28	-1.21	1.21	-0.01	4
	Intercept	**1.674000E+00**		21.96	7.82	5.76	9.88	-1.21	1.21	-0.01	PMSS
	Minimum X value	1.956295E-01		23.78	8.33	6.18	10.47	-1.21	1.21	-0.01	2
	Maximum X value	4.372861E+01		25.59	8.84	6.61	11.06	-1.21	1.21	-0.01	SESS
	Minimum Y value	1.890814E+00		27.40	9.34	7.04	11.65	-1.21	1.21	-0.01	2
	Maximum Y value	1.348146E+01		29.22	9.85	7.47	12.23	-1.21	1.21	-0.01	SESD
	No. of graph points	25		31.03	10.36	7.90	12.82	-1.21	1.21	-0.01	0
	SUM(Ypred.- Yobs)^2	1.598682E+02		32.85	10.87	8.33	13.40	-1.21	1.21	-0.01	MASB
	SUM(Yobs - Yave)^2	8.434383E+02		34.66	11.37	8.77	13.98	-1.21	1.21	-0.01	0
	SUM(X - Xave)^2	9.859968E+03		36.47	11.88	9.21	14.56	-1.21	1.21	-0.01	MMSB
	Std. Error of Y-estimate	**1.189438E+00**		38.29	12.39	9.64	15.13	-1.21	1.21	-0.01	0
	R^2	**8.104565E-01**		40.10	12.90	10.08	15.71	-1.21	1.21	-0.01	NESB
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1/SQRT(xy)**		41.91	13.40	10.53	16.28	-1.21	1.21	-0.01	0
est.M, Std.Err.Y	**0.279**	**0.2**		43.73	13.91	10.97	16.85	-1.21	1.21	-0.01	PMSB
Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:			**25**	10.92	4.73	3.30	6.16	10.29	**-42%**	**49%**	0
Inverse Log Transform (Y/N)?		**No**	**50**	16.62	6.33	4.55	8.11	15.91	**-39%**	**45%**	SESB
Inverse Power Transform (Y/N)?		**Yes**	**75**	23.24	8.18	6.06	10.29	23.38	**-36%**	**41%**	0
Inverse Power Transform (1/Power):		**1.5**	**90**	29.16	9.83	7.45	12.21	30.84	**-34%**	**38%**	<<--Original Units Errors

TEXT BOX ==>	**(Pb ^0.67) = (2.80E-01)x(PB predict (from Factor Anal.)) + (1.67E+00)**			**R^2 = 0.81; Std. Error of Y-estimate = 1.19E+00**				**+/-3 x IQR of r**	-1.214684	1.214684	
TEXT BOX ==>	**Weighted 1/SQRT(MAX(x-Xmin,0.7)*MAX(y-Ymin,0.2)). 95% Conf**			**\/ - wt.descrip.**	**TEXT BOX==> Residuals Plot: (Observed - Predicted) x (1/SQRT(xy))^0.5**					**Y-Pred.**	
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**	**(MAX(x-Xmin,0.7)***	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	redicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!O**	**DA!P**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**PB predict**	**Pb ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
BASS	BASS-BWBK-SS-BA101-0001	1.915172466	2.080083823	1.705212391	1.68632E-02	2.01657E+01	2.29880E+02	-1.29858E-01	-1.69574E-01	2.20994E+00	
BASS	BASS-BWBK-SS-BA102-0001	1.123435394	1.890814389	2.321434461	9.51955E-03	2.19014E+01	2.54516E+02	-9.75682E-02	-1.48657E-01	1.98838E+00	
BASS	BASS-BWBK-SS-BA103-0001	1.755985454	1.938991221	1.790082942	5.12588E-02	2.14528E+01	2.34733E+02	-2.26404E-01	-3.02915E-01	2.16540E+00	
BASS	BASS-BWBK-SS-BA104-0001	3.018568642	2.261097439	0.978097891	6.63676E-02	1.85727E+01	1.97639E+02	-2.57619E-01	-2.54782E-01	2.51872E+00	
BASS	BASS-BWBK-SS-BA105-0001	1.824333347	2.261097439	1.287692056	5.86382E-03	1.85727E+01	2.32643E+02	7.65756E-02	8.68953E-02	2.18452E+00	
BASS	BASS-BWBK-SS-BA106-0001	2.357190562	2.435131383	0.921913754	1.03012E-02	1.71030E+01	2.16672E+02	1.01495E-01	9.74516E-02	2.33364E+00	
BASS	BASS-BWBK-SS-BA107-0001	1.864537041	2.033599058	1.730887562	2.63002E-02	2.05853E+01	2.31418E+02	-1.62173E-01	-2.13360E-01	2.19577E+00	
BASS	BASS-BWBK-SS-BA108-0001	1.212526106	2.080083823	2.217413017	4.45825E-03	2.01657E+01	2.51681E+02	6.67701E-02	9.94272E-02	2.01331E+00	
BASS	BASS-BWBK-SS-BA109-0001	0.19562945	1.938991221	2.641022529	4.42033E-02	2.14528E+01	2.84980E+02	2.10246E-01	3.41675E-01	1.72875E+00	
BASS	BASS-BWBK-SS-BA110-0001	2.149207164	2.080083823	1.599814601	3.81619E-02	2.01657E+01	2.22838E+02	-1.95351E-01	-2.47087E-01	2.27543E+00	
BASS	BASS-BWBK-SS-BA111-0001	1.301886962	2.033599058	2.125968796	2.22917E-05	2.05853E+01	2.48854E+02	-4.72141E-03	-6.88414E-03	2.03832E+00	
BASS	BASS-BWBK-SS-BA112-0001	1.367027996	1.938991221	2.066011154	1.38200E-02	2.14528E+01	2.46803E+02	-1.17558E-01	-1.68974E-01	2.05655E+00	
BASS	BASS-BWBK-SS-BA113-0001	5.997474881	2.825719659	0.429371406	2.77322E-01	1.40249E+01	1.22755E+02	-5.26614E-01	-3.45071E-01	3.35233E+00	
MASS	MASS-BWBK-SS-MA01-0001	11.57711361	4.88595171	0.171274292	7.72155E-04	2.83839E+00	3.02485E+01	-2.77877E-02	-1.15000E-02	4.91374E+00	
MASS	MASS-BWBK-SS-MA02-0001	13.65383642	4.946087443	0.155948565	3.01184E-01	2.63938E+00	1.17179E+01	-5.48802E-01	-2.16724E-01	5.49489E+00	
MASS	MASS-BWBK-SS-MA03-0001	11.19316161	5.005859797	0.170852048	3.98264E-02	2.44873E+00	3.46193E+01	1.99566E-01	8.24889E-02	4.80629E+00	
MASS	MASS-BWBK-SS-MA04-0001	10.73129152	5.124348519	0.171328795	2.00081E-01	2.09194E+00	4.02677E+01	4.47304E-01	1.85148E-01	4.67704E+00	
MASS	MASS-BWBK-SS-MA05-0001	15.63808066	5.641611799	0.131395375	1.66912E-01	8.63210E-01	2.07043E+00	-4.08548E-01	-1.48093E-01	6.05016E+00	
MASS	MASS-BWBK-SS-MA06-0001	16.19685547	6.189855071	0.120569537	2.77977E-04	1.45045E-01	7.74616E-01	-1.66727E-02	-5.78927E-03	6.20653E+00	
MASS	MASS-BWBK-SS-MA07-0001	8.101514669	5.270561843	0.193456187	1.76739E+00	1.69037E+00	8.05589E+01	1.32943E+00	5.84734E-01	3.94113E+00	MASS-BWBK-SS-MA07-0001
MASS	MASS-BWBK-SS-MA08-0001	18.80714821	9.825782451	0.082287999	8.34511E+00	1.05955E+01	2.99349E+00	2.88879E+00	8.28675E-01	6.93699E+00	MASS-BWBK-SS-MA08-0001
MASS	MASS-BWBK-SS-MA09-0001	28.88728087	10.53620157	0.063493608	6.05884E-01	1.57252E+01	1.39483E+02	7.78386E-01	1.96137E-01	9.75782E+00	

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!P	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	SAMPLE	PB predict	Pb ^0.67	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
MASS	MASS-BWBK-SS-MA10-0001	24.9437941	9.504116406	0.072852083	7.22238E-01	8.60492E+00	6.18868E+01	8.49846E-01	2.29383E-01	8.65427E+00	
MASS	MASS-BWBK-SS-MA11-0001	25.22597935	7.563257557	0.083923089	1.36885E+00	9.85165E-01	6.64062E+01	-1.16998E+00	-3.38937E-01	8.73324E+00	
MASS	MASS-BWBK-SS-MA12-0001	12.04993712	5.270561843	0.157986427	5.04036E-02	1.69037E+00	2.52711E+01	2.24508E-01	8.92362E-02	5.04605E+00	
MASS	MASS-BWBK-SS-MA13-0001	21.06847453	5.863976613	0.109809781	2.90984E+00	4.99462E-01	1.59320E+01	-1.70582E+00	-5.65269E-01	7.56980E+00	
MASS	MASS-BWBK-SS-MA14-0001	22.19189337	8.087579399	0.085653088	4.13718E-02	2.30091E+00	2.61624E+01	2.03401E-01	5.95283E-02	7.88418E+00	
MASS	MASS-BWBK-SS-MA15-0001	19.73630923	6.842823749	0.101657503	1.25447E-01	7.40498E-02	7.07204E+00	-3.54185E-01	-1.12927E-01	7.19701E+00	
MASS	MASS-BWBK-SS-MA16-0001	18.58280125	6.243331554	0.111782106	3.98008E-01	1.07172E-01	2.26750E+00	-6.30879E-01	-2.10927E-01	6.87421E+00	
MASS	MASS-BWBK-SS-MA17-0001	18.68493523	6.109204058	0.113231263	6.29782E-01	2.12981E-01	2.58553E+00	-7.93588E-01	-2.67041E-01	6.90279E+00	
MASS	MASS-BWBK-SS-MA18-0001	22.4959054	7.045217486	0.093272946	8.53843E-01	2.25164E-01	2.93648E+01	-9.24036E-01	-2.82206E-01	7.96925E+00	
MASS	MASS-BWBK-SS-MA19-0001	21.06111043	6.842823749	0.098377339	5.25504E-01	7.40498E-02	1.58733E+01	-7.24917E-01	-2.27371E-01	7.56774E+00	
MASS	MASS-BWBK-SS-MA20-0001	16.60308726	6.323119888	0.117263947	8.48138E-06	6.12973E-02	2.24573E-01	2.91228E-03	9.97276E-04	6.32021E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	16.29042015	5.808785734	0.125929276	1.79713E-01	5.80518E-01	6.18673E-01	-4.23925E-01	-1.50436E-01	6.23271E+00	
MMSS	MMSS-BWBK-SS-MM102-0001	10.85244516	3.933052423	0.21435474	6.05122E-01	6.95720E+00	3.87448E+01	-7.77896E-01	-3.60154E-01	4.71095E+00	
MMSS	MMSS-BWBK-SS-MM103-0001	15.8900513	6.136146578	0.122509989	2.39473E-04	1.88839E-01	1.40880E+00	1.54749E-02	5.41644E-03	6.12067E+00	
MMSS	MMSS-BWBK-SS-MM104-0001	14.34327311	6.136146578	0.129033389	2.00996E-01	1.88839E-01	7.47314E+00	4.48325E-01	1.61044E-01	5.68782E+00	
MMSS	MMSS-BWBK-SS-MM105-0001	11.89153473	4.976018495	0.166471974	6.60926E-04	2.54302E+00	2.68888E+01	-2.57085E-02	-1.04893E-02	5.00173E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	14.05512569	4.946087443	0.153674307	4.37052E-01	2.63938E+00	9.13159E+00	-6.61099E-01	-2.59159E-01	5.60719E+00	
MMSS	MMSS-BWBK-SS-MM107-0001	14.39814888	4.946087443	0.151807172	5.73186E-01	2.63938E+00	7.17613E+00	-7.57090E-01	-2.94981E-01	5.70318E+00	
MMSS	MMSS-BWBK-SS-MM108-0001	17.19643813	5.357322491	0.130262407	1.27448E+00	1.47229E+00	1.42707E-02	-1.12893E+00	-4.07452E-01	6.48625E+00	
MMSS	MMSS-BWBK-SS-MM109-0001	13.79273903	4.326748711	0.173757642	1.45688E+00	5.03533E+00	1.07862E+01	-1.20701E+00	-5.03134E-01	5.53376E+00	
MMSS	MMSS-BWBK-SS-MM110-0001	10.99499455	5.212322846	0.166967985	2.12967E-01	1.84520E+00	3.69905E+01	4.61484E-01	1.88570E-01	4.75084E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	9.446217762	4.733962534	0.194991454	1.73500E-01	3.37361E+00	5.82285E+01	4.16533E-01	1.83932E-01	4.31743E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	9.277213308	5.153756646	0.183702263	7.80787E-01	2.00774E+00	6.08363E+01	8.83621E-01	3.78725E-01	4.27014E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	16.62469183	6.969664646	0.10947398	4.13978E-01	1.59171E-01	2.04563E-01	6.43411E-01	2.12885E-01	6.32625E+00	
MMSS	MMSS-BWBK-SS-MM114-0001	7.535063675	3.728679007	0.272277623	2.90880E-03	8.07710E+00	9.10481E+01	-5.39333E-02	-2.81425E-02	3.78261E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	9.794352675	4.230056502	0.211035578	3.41492E-02	5.47863E+00	5.30366E+01	-1.84795E-01	-8.48923E-02	4.41485E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	10.15208943	4.733962534	0.187952358	4.79618E-02	3.37361E+00	4.79541E+01	2.19002E-01	9.49449E-02	4.51496E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	12.56885473	5.557091279	0.148472462	1.33827E-01	1.02741E+00	2.03232E+01	3.65823E-01	1.40959E-01	5.19127E+00	
MMSS	MMSS-BWBK-SS-MM118-0001	6.161930852	3.338514166	0.340257849	3.58091E-03	1.04470E+01	1.19138E+02	-5.98407E-02	-3.49061E-02	3.39835E+00	
MMSS	MMSS-BWBK-SS-MM119-0001	5.380180888	3.03983898	0.409713	1.95304E-02	1.24670E+01	1.36815E+02	-1.39751E-01	-8.94530E-02	3.17959E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	6.955936611	3.65930571	0.289211341	1.50205E-03	8.47623E+00	1.02435E+02	3.87563E-02	2.08425E-02	3.62055E+00	
NESS	NESS-BKG-SS03-NEB-0016	20.28059243	12.46335937	0.068623792	2.61534E+01	3.47234E+01	1.02631E+01	5.11404E+00	1.33968E+00	7.34932E+00	NESS-BKG-SS03-NEB-0016
NESS	NESS-BKG-SS09-NEB-0018	14.0537266	6.136146578	0.130374411	2.80213E-01	1.88839E-01	9.14005E+00	5.29352E-01	1.91135E-01	5.60679E+00	
NESS	NESS-BWBK-SS-NE01-0001	20.63969802	7.294196927	0.095144454	2.42162E-02	5.23444E-01	1.26930E+01	-1.55616E-01	-4.80004E-02	7.44981E+00	
NESS	NESS-BWBK-SS-NE02-0001	19.03295318	6.481208051	0.107538861	2.69333E-01	8.00932E-03	3.82584E+00	-5.18973E-01	-1.70187E-01	7.00018E+00	
NESS	NESS-BWBK-SS-NE03-0001	13.96295436	5.328480829	0.145359477	6.39645E-02	1.54312E+00	9.69714E+00	-2.52912E-01	-9.64254E-02	5.58139E+00	
NESS	NESS-BWBK-SS-NE04-0001	13.02019556	5.124348519	0.155288729	3.73351E-02	2.09194E+00	1.64575E+01	-1.93223E-01	-7.61427E-02	5.31757E+00	
NESS	NESS-BWBK-SS-NE05-0001	14.43120782	6.714796141	0.120672862	1.00474E+00	2.07629E-02	7.00010E+00	1.00237E+00	3.48202E-01	5.71243E+00	
NESS	NESS-BWBK-SS-NE06-0001	11.62705806	4.579492834	0.180376648	1.21259E-01	3.96492E+00	2.97016E+01	-3.48223E-01	-1.47893E-01	4.92772E+00	
NESS	NESS-BWBK-SS-NE07-0001	18.73203918	8.366495414	0.09127345	2.10401E+00	3.22487E+00	2.73923E+00	1.45052E+00	4.38224E-01	6.91597E+00	
NESS	NESS-BWBK-SS-NE08-0001	12.67735088	5.035612416	0.159612308	3.46024E-02	2.35650E+00	1.93567E+01	-1.86017E-01	-7.43167E-02	5.22163E+00	
NESS	NESS-BWBK-SS-NE09-0001	16.77732043	6.714796141	0.111810545	1.19599E-01	2.07629E-02	8.97947E-02	3.45831E-01	1.15639E-01	6.36897E+00	
NESS	NESS-BWBK-SS-NE10-0001	17.10721944	8.843764427	0.092219598	5.67621E+00	5.16681E+00	9.14536E-04	2.38248E+00	7.23504E-01	6.46128E+00	NESS-BWBK-SS-NE10-0001
NESS	NESS-BWBK-SS-NE101-0001	12.16643825	4.066391931	0.195952573	1.02468E+00	6.27157E+00	2.41134E+01	-1.01226E+00	-4.48094E-01	5.07866E+00	
NESS	NESS-BWBK-SS-NE102-0001	11.66395945	5.443386192	0.156667343	2.55372E-01	1.27084E+00	2.93008E+01	5.05344E-01	2.00021E-01	4.93804E+00	
NESS	NESS-BWBK-SS-NE103-0001	10.1960012	5.124348519	0.175854385	3.56528E-01	2.09194E+00	4.73478E+01	5.97100E-01	2.50394E-01	4.52725E+00	
NESS	NESS-BWBK-SS-NE104-0001	10.3187794	7.827614154	0.128992947	1.06668E+01	1.57983E+00	4.56733E+01	3.26601E+00	1.17301E+00	4.56161E+00	NESS-BWBK-SS-NE104-0001
NESS	NESS-BWBK-SS-NE105-0001	8.988287408	4.164977093	0.223629526	5.90747E-04	5.78752E+00	6.54269E+01	-2.43053E-02	-1.14938E-02	4.18928E+00	
NESS	NESS-BWBK-SS-NE106-0001	10.48756417	8.412528546	0.122059225	1.44680E+01	3.39232E+00	4.34204E+01	3.80369E+00	1.32889E+00	4.60884E+00	NESS-BWBK-SS-NE106-0001
NESS	NESS-BWBK-SS-NE107-0001	11.74994069	5.299560899	0.159342129	1.13878E-01	1.61580E+00	2.83773E+01	3.37458E-01	1.34705E-01	4.96210E+00	
NESS	NESS-BWBK-SS-NE108-0001	12.05321498	5.753331403	0.147763328	4.98944E-01	6.68096E-01	2.52382E+01	7.06360E-01	2.71525E-01	5.04697E+00	
NESS	NESS-BWBK-SS-NE109-0001	9.229799721	4.132246217	0.222225093	1.55304E-02	5.94607E+00	6.15782E+01	-1.24621E-01	-5.87473E-02	4.25687E+00	
NESS	NESS-BWBK-SS-NE110-0001	13.18672112	6.817314583	0.124999399	2.11162E+00	6.08173E-02	1.51341E+01	1.45314E+00	5.13762E-01	5.36417E+00	

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	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!P	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**PB predict**	**Pb ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
PMSS	PMSS-DABK-S-SO21-0001	30.53971826	10.86230562	0.060608095	4.12256E-01	1.84179E+01	1.81245E+02	6.42072E-01	1.58070E-01	1.02202E+01	
PMSS	PMSS-DABK-S-SO22-0001	43.72860528	12.10193262	0.047430114	3.27277E+00	3.05945E+01	7.10309E+02	-1.80908E+00	-3.93989E-01	1.39110E+01	
PMSS	PMSS-DABK-S-SO23-0001	27.03594386	10.14226643	0.067195627	8.14558E-01	1.27561E+01	9.91810E+01	9.02529E-01	2.33955E-01	9.23974E+00	
PMSS	PMSS-DABK-S-SO24-0001	30.32248366	9.176911228	0.067495627	9.65368E-01	6.79232E+00	1.75443E+02	-9.82532E-01	-2.55261E-01	1.01594E+01	
PMSS	PMSS-DABK-S-SO25-0001	27.65547493	10.13179699	0.066475476	5.16515E-01	1.26814E+01	1.11905E+02	7.18690E-01	1.85299E-01	9.41311E+00	
PMSS	PMSS-DABK-S-SO26-0001	40.44767408	12.55760083	0.048260212	1.89464E-01	3.58429E+01	5.46189E+02	-4.35275E-01	-9.56221E-02	1.29929E+01	
PMSS	PMSS-DABK-S-SO27-0001	29.33669891	12.38770894	0.057176404	6.27066E+00	3.38376E+01	1.50301E+02	2.50413E+00	5.98777E-01	9.88358E+00	PMSS-DABK-S-SO27-0001
PMSS	PMSS-DABK-S-SO28-0001	36.30420801	11.00344245	0.055128095	6.88777E-01	1.96492E+01	3.69686E+02	-8.29926E-01	-1.94861E-01	1.18334E+01	
PMSS	PMSS-DABK-S-SO29-0001	34.08346467	10.24666558	0.059426854	9.31708E-01	1.35127E+01	2.89221E+02	-9.65250E-01	-2.35305E-01	1.12119E+01	
PMSS	PMSS-DABK-S-SO30-0001	32.46791141	8.8885431	0.066543649	3.50167E+00	5.37238E+00	2.36881E+02	-1.87128E+00	-4.82715E-01	1.07598E+01	
PMSS	PMSS-DABK-S-SO31-0001	23.77756861	6.944389309	0.091603251	1.91414E+00	1.39642E-01	4.48979E+01	-1.38352E+00	-4.18738E-01	8.32791E+00	
PMSS	PMSS-DABK-S-SO32-0001	37.8401551	13.48145602	0.047873518	1.48418E+00	4.77585E+01	4.31110E+02	1.21827E+00	2.66557E-01	1.22632E+01	
PMSS	PMSS-DABK-S-SO33-0001	32.51764114	9.719153002	0.062866026	1.11214E+00	9.91274E+00	2.38414E+02	-1.05458E+00	-2.64417E-01	1.07737E+01	
PMSS	PMSS-DABK-S-SO34-0001	22.28163041	8.087579399	0.085478904	3.17868E-02	2.30091E+00	2.70884E+01	1.78289E-01	5.21258E-02	7.90929E+00	
PMSS	PMSS-DABK-S-SO35-0001	26.14398693	10.4847928	0.066965009	2.23401E+00	1.53201E+01	8.22106E+01	1.49466E+00	3.86782E-01	8.99013E+00	
PMSS	PMSS-DABK-S-SO36-0001	23.01892742	10.3298034	0.072055243	4.90263E+00	1.41308E+01	3.53068E+01	2.21419E+00	5.94357E-01	8.11562E+00	PMSS-DABK-S-SO36-0001
PMSS	PMSS-DABK-S-SO37-0001	26.22218602	7.269491743	0.084518912	3.03639E+00	4.88306E-01	8.36348E+01	-1.74252E+00	-5.06589E-01	9.01202E+00	
PMSS	PMSS-DABK-S-SO38-0001	23.45875942	8.181078721	0.082666867	3.32005E-03	2.59331E+00	4.07271E+01	-5.76198E-02	-1.65668E-02	8.23870E+00	
PMSS	PMSS-DABK-S-SO39-0001	20.3433664	6.842823749	0.100114305	2.74642E-01	7.40498E-02	1.06693E+01	-5.24063E-01	-1.65818E-01	7.36689E+00	
PMSS	PMSS-DABK-S-SO40-0001	25.03603411	7.563257557	0.084243343	1.24730E+00	9.85165E-01	6.33466E+01	-1.11683E+00	-3.24155E-01	8.68008E+00	
SESS	SESS-DABK-S-SO01-0001	21.0338745	6.296579986	0.104365927	1.59653E+00	7.51433E-02	1.56570E+01	-1.26354E+00	-4.08195E-01	7.56012E+00	
SESS	SESS-DABK-S-SO02-0001	19.62830245	10.41260798	0.077708446	1.05354E+01	1.47602E+01	6.50926E+00	3.24582E+00	9.04814E-01	7.16678E+00	SESS-DABK-S-SO02-0001
SESS	SESS-DABK-S-SO03-0001	30.8867585	9.373920468	0.065986124	8.90058E-01	7.85803E+00	1.90710E+02	-9.43429E-01	-2.42346E-01	1.03173E+01	
SESS	SESS-DABK-S-SO04-0001	30.63188672	7.922639752	0.073804017	5.39812E+00	1.82773E+00	1.83736E+02	-2.32339E+00	-6.31192E-01	1.02460E+01	
SESS	SESS-DABK-S-SO05-0001	26.82563804	8.731317964	0.074091828	2.02111E-01	4.66826E+00	9.50364E+01	-4.49568E-01	-1.22372E-01	9.18089E+00	
SESS	SESS-DABK-S-SO06-0001	26.52101322	8.686136373	0.074766599	1.67693E-01	4.47506E+00	8.91898E+01	-4.09503E-01	-1.11972E-01	9.09564E+00	
SESS	SESS-DABK-S-SO07-0001	23.88166465	8.157754172	0.082077866	3.97166E-02	2.51873E+00	4.63038E+01	-1.99290E-01	-5.70951E-02	8.35704E+00	
SESS	SESS-DABK-S-SO08-0001	22.60293674	9.022208527	0.079107552	1.04654E+00	6.00988E+00	3.05362E+01	1.02300E+00	2.87731E-01	7.99921E+00	
SESS	SESS-DABK-S-SO09-0001	25.546883	8.343431314	0.078186602	2.30024E-01	3.14257E+00	7.17393E+01	-4.79608E-01	-1.34107E-01	8.82304E+00	
SESS	SESS-DABK-S-SO10-0001	19.0226612	7.294196927	0.099146232	8.81472E-02	5.23444E-01	3.78568E+00	2.96896E-01	9.34851E-02	6.99730E+00	
SESS	SESS-DABK-S-SO11-0001	16.94493953	6.559531991	0.11308441	2.06383E-02	1.24788E-04	1.74342E-02	1.43660E-01	4.83102E-02	6.41587E+00	
SESS	SESS-DABK-S-SO12-0001	21.28029923	6.944389309	0.096876233	4.68799E-01	1.39642E-01	1.76679E+01	-6.84689E-01	-2.13109E-01	7.62908E+00	
SESS	SESS-DABK-S-SO13-0001	19.84026718	5.753331403	0.114800237	2.16905E+00	6.68096E-01	7.63577E+00	-1.47277E+00	-4.99006E-01	7.22610E+00	
SESS	SESS-DABK-S-SO14-0001	18.45426335	7.49035798	0.098898464	4.25257E-01	8.45766E-01	1.89691E+00	6.52117E-01	2.05079E-01	6.83824E+00	
SESS	SESS-DABK-S-SO15-0001	25.6744509	8.040626668	0.079887605	6.69305E-01	2.16068E+00	7.39165E+01	-8.18111E-01	-2.31234E-01	8.85874E+00	
SESS	SESS-DABK-S-SO16-0001	12.02483482	5.641611799	0.150127555	3.63105E-01	8.63210E-01	2.55242E+01	6.02582E-01	2.33478E-01	5.03903E+00	
SESS	SESS-DABK-S-SO17-0001	19.99638365	7.732008212	0.092984021	2.13648E-01	1.34863E+00	8.52293E+00	4.62221E-01	1.40946E-01	7.26979E+00	
SESS	SESS-DABK-S-SO18-0001	19.99886117	7.244744507	0.09711708	6.62357E-04	4.54332E-01	8.53740E+00	-2.57363E-02	-8.02036E-03	7.27048E+00	
SESS	SESS-DABK-S-SO19-0001	23.70454134	11.30287864	0.067226623	8.97242E+00	2.23935E+01	4.39246E+01	2.99540E+00	7.76650E-01	8.30748E+00	SESS-DABK-S-SO19-0001
SESS	SESS-DABK-S-SO20-0001	27.29137654	10.30905039	0.066212332	9.95670E-01	1.39752E+01	1.04334E+02	9.97832E-01	2.56760E-01	9.31122E+00	
Site 8 SS	DA-B100B-0002	12.44295193	6.203245786	0.137599965	1.09665E+00	1.35025E-01	2.14742E+01	1.04721E+00	3.88457E-01	5.15604E+00	
Site 8 SS	DA-B101B-0002	**8.311284987**	**6.428728274**	0.164782115	5.89955E+00	2.01568E-02	7.68374E+01	2.42890E+00	9.85971E-01	3.99983E+00	DA-B101B-0002
Site 8 SS	DA-B106B-0002	7.332869184	3.411094095	0.303579966	9.91848E-02	9.98313E+00	9.49477E+01	-3.14936E-01	-1.73524E-01	3.72603E+00	
Site 8 SS	DA-B107B-0002	10.71874307	4.672481414	0.184831207	1.10587E-06	3.60324E+00	4.04272E+01	-1.05160E-03	-4.52105E-04	4.67353E+00	
Site 8 SS	DA-B108B-0002	**9.102094206**	**5.613509052**	0.173667525	1.93872E+00	9.16220E-01	6.35988E+01	1.39238E+00	5.80252E-01	4.22113E+00	DA-B108B-0002
Site 8 SS	DA-B109B-0002	8.817160619	3.763124384	0.248896575	1.43088E-01	7.88250E+00	6.82246E+01	-3.78270E-01	-1.88717E-01	4.14139E+00	
Site 8 SS	DA-S-SB01-0102-01	9.868975366	4.946087443	0.183944423	2.60461E-01	2.63938E+00	5.19553E+01	5.10353E-01	2.18884E-01	4.43573E+00	
Site 8 SS	DA-S-SB02-0102-01	**13.48735093**	**7.851424411**	0.11234766	5.77501E+00	1.64025E+00	1.28854E+01	2.40312E+00	8.05486E-01	5.44830E+00	DA-S-SB02-0102-01
Site 8 SS	DA-S-SB03-0102-01	**5.374085537**	**6.082201996**	0.21464508	8.43506E+00	2.38633E-01	1.36958E+02	2.90432E+00	1.34556E+00	3.17788E+00	DA-S-SB03-0102-01
Site 8 SS	DA-S-SB04-0102-01	**4.006793388**	**5.241482788**	0.279837209	5.98400E+00	1.76683E+00	1.70830E+02	2.44622E+00	1.29404E+00	2.79526E+00	DA-S-SB04-0102-01
Site 8 SS	DA-S-SB05-0102-01	**5.829478873**	**5.241482788**	0.230160958	3.74872E+00	1.76683E+00	1.26506E+02	1.93616E+00	9.28875E-01	3.30532E+00	DA-S-SB05-0102-01
Site 8 SS	DA-S-SB06-0515-01	**6.373180991**	**4.579492834**	0.245370517	1.25893E+00	3.96492E+00	1.14571E+02	1.12202E+00	5.55792E-01	3.45747E+00	DA-S-SB06-0515-01
Site 8 SS	DA-S-SB07-0102-01	**3.814384663**	**3.589268453**	0.403360618	7.18851E-01	8.88895E+00	1.75896E+02	8.47851E-01	5.38476E-01	2.74142E+00	DA-S-SB07-0102-01

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!P	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**PB predict**	**Pb ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-S-SB08-0102-01	**2.731765269**	**6.082201996**	0.306714871	1.32769E+01	2.38633E-01	2.05785E+02	3.64374E+00	2.01797E+00	2.43846E+00	DA-S-SB08-0102-01
Site 8 SS	DA-S-TP01-0001-01	**27.85539113**	**24.32880798**	0.040140592	2.20812E+02	3.15350E+02	1.16174E+02	1.48598E+01	2.97717E+00	9.46905E+00	DA-S-TP01-0001-01
Site 8 SS	DA-S-TP05-0001-01	15.93664067	7.851424411	0.103237703	2.95055E+00	1.64025E+00	1.30037E+00	1.71772E+00	5.51913E-01	6.13371E+00	
Site 8 SS	DA-S-TP06-0001-01	**15.97036876**	**8.776382955**	0.095950889	6.93393E+00	4.86502E+00	1.22458E+00	2.63324E+00	8.15669E-01	6.14315E+00	DA-S-TP06-0001-01
Site 8 SS	DA-S-TP07-0001-01	**12.19549432**	**8.087579399**	0.115965635	9.00475E+00	2.30091E+00	2.38289E+01	3.00079E+00	1.02188E+00	5.08679E+00	DA-S-TP07-0001-01
Site 8 SS	DA-S-TP08-0001-01	**6.32827103**	**4.548286599**	0.247709032	1.21745E+00	4.09017E+00	1.15535E+02	1.10338E+00	5.49158E-01	3.44490E+00	DA-S-TP08-0001-01
Site 8 SS	DA-S-TP09-0001-01	**11.02459398**	**8.549879733**	0.117760569	1.43698E+01	3.91714E+00	3.66314E+01	3.79076E+00	1.30085E+00	4.75912E+00	DA-S-TP09-0001-01
Site 8 SS	DA-S-TP09-0102-01	6.802221107	4.532643289	0.23936405	9.12234E-01	4.15369E+00	1.05571E+02	9.55110E-01	4.67286E-01	3.57753E+00	
Site 8 SS	DA-S-TP10-0001-01	**68.64946611**	**29.47225199**	0.023014029	7.37432E+01	5.24481E+02	2.65972E+03	8.58739E+00	1.30274E+00	2.08849E+01	DA-S-TP10-0001-01
Site 8 SS	DA-S-TP10-0102-01	14.05905218	6.082201996	0.131185506	2.24597E-01	2.38633E-01	9.10788E+00	4.73917E-01	1.71651E-01	5.60828E+00	
Site 8 SS	DA-S-TP11-0001-01	15.78826639	6.611489018	0.116556952	2.69673E-01	1.66351E-03	1.66078E+00	5.19301E-01	1.77292E-01	6.09219E+00	
Site 8 SS	DA-S-TP12-0001-01	7.588165199	3.933052423	0.257365366	1.83820E-02	6.95720E+00	9.00376E+01	1.35580E-01	6.87814E-02	3.79747E+00	
Site 8 SS	DA-S-TP12-0102-01	7.67374141	3.447095504	0.293129816	1.40119E-01	9.75692E+00	8.84209E+01	-3.74324E-01	-2.02665E-01	3.82142E+00	
Site 8 SS	DA-S-TP12A-0001-01	**24.2310216**	**10.90272356**	0.067946328	5.99229E+00	1.87664E+01	5.11803E+01	2.44792E+00	6.38086E-01	8.45481E+00	DA-S-TP12A-0001-01
Site 8 SS	DA-S-TP12B-0001-01	28.53363959	11.69607095	0.059990964	4.15026E+00	2.62694E+01	1.31255E+02	2.03722E+00	4.98977E-01	9.65885E+00	
Site 8 SS	DA-S-TP13-0001-01	10.21395827	4.946087443	0.1807496	1.71242E-01	2.63938E+00	4.71010E+01	4.13813E-01	1.75931E-01	4.53227E+00	
Site 8 SS	DA-S-TP15-0001-01	10.72439521	5.808785734	0.155697142	1.28521E+00	5.80518E-01	4.03553E+01	1.13367E+00	4.47329E-01	4.67511E+00	
Site 8 SS	DA-SB100-0002	**15.65161936**	**9.910671077**	0.089819014	1.48743E+01	1.11554E+01	2.03165E+00	3.85672E+00	1.15585E+00	6.05395E+00	DA-SB100-0002
Site 8 SS	DA-SB101-0002	**12.3386184**	**8.017098844**	0.115941422	8.35360E+00	2.09206E+00	2.24521E+01	2.89026E+00	9.84139E-01	5.12684E+00	DA-SB101-0002
Site 8 SS	DA-SB102-0002	24.40037599	9.33032074	0.074520828	6.85783E-01	7.61549E+00	5.36322E+01	8.28120E-01	2.26064E-01	8.50220E+00	
Site 8 SS	DA-SB107-0103	**18.27079507**	**22.95770425**	0.051245843	2.61495E+02	2.68534E+02	1.42520E+00	1.61708E+01	3.66067E+00	6.78690E+00	DA-SB107-0103
Site 8 SS	DA-SB111-0002	**10.77095348**	**7.070311794**	0.135116799	5.67473E+00	2.49609E-01	3.97659E+01	2.38217E+00	8.75643E-01	4.68814E+00	DA-SB111-0002
Site 8 SS	DA-SB112-0002	**10.52748944**	**6.868285455**	0.1394461	5.05473E+00	8.85554E-02	4.28958E+01	2.24827E+00	8.39561E-01	4.62001E+00	DA-SB112-0002
Site 8 SS	DA-SB113-0002	**10.35797719**	**11.46096405**	0.10140132	4.74499E+01	2.39147E+01	4.51450E+01	6.88839E+00	2.19351E+00	4.57258E+00	DA-SB113-0002
Site 8 SS	DA-SB114-0002	**14.33526457**	**14.42736566**	0.075108979	7.64188E+01	6.17272E+01	7.51699E+00	8.74179E+00	2.39578E+00	5.68558E+00	DA-SB114-0002
Site 8 SS	DA-SB115-0002	**9.323855621**	**6.349604208**	0.156746663	4.27008E+00	4.88846E-02	6.01109E+01	2.06642E+00	8.18120E-01	4.28319E+00	DA-SB115-0002
Site 8 SS	DA-SB116-0002	**8.831884924**	**5.613509052**	0.176363436	2.15501E+00	9.16220E-01	6.79816E+01	1.46799E+00	6.16494E-01	4.14551E+00	DA-SB116-0002
Site 8 SS	DA-SB117-0002	13.77177525	4.164977093	0.179970361	1.85754E+00	5.78752E+00	1.09244E+01	-1.36292E+00	-5.78189E-01	5.52789E+00	
Site 8 SS	DA-SB118-0002	17.04709192	5.557091279	0.127223861	7.87419E-01	1.02741E+00	8.93186E-04	-8.87367E-01	-3.16510E-01	6.44446E+00	
Site 8 SS	DA-SB119-0002	33.34118825	8.776382955	0.066193817	4.96316E+00	4.86502E+00	2.64525E+02	-2.22781E+00	-5.73176E-01	1.10042E+01	
Site 8 SS	DA-SB120-0002	**10.27524281**	**6.559531991**	0.145773728	4.04053E+00	1.24788E-04	4.62636E+01	2.01011E+00	7.67466E-01	4.54942E+00	DA-SB120-0002
Site 8 SS	DA-SB133-0102	12.86013883	5.836413792	0.141465103	3.17682E-01	5.39180E-01	1.77817E+01	5.63633E-01	2.11993E-01	5.27278E+00	
Site 8 SS	DA-SB150-0002	10.25276407	4.516972939	0.194581881	6.84374E-04	4.21781E+00	4.65699E+01	-2.61605E-02	-1.15398E-02	4.54313E+00	
Site 8 SS	DA-SB151-0002	12.30388258	4.485550359	0.178407319	3.98878E-01	4.34786E+00	2.27824E+01	-6.31568E-01	-2.66764E-01	5.11712E+00	
Site 8 SS	DA-SS102B-011508	32.80095267	10.90272356	0.058337437	2.47070E-03	1.87664E+01	2.47243E+02	4.97061E-02	1.20056E-02	1.08530E+01	
Site 8 SS	DA-SS103B-011508	**25.78788647**	**15.56367837**	0.0534584	4.45316E+01	8.08736E+01	7.58799E+01	6.67320E+00	1.54291E+00	8.89048E+00	DA-SS103B-011508
Site 8 SS	DA-SS104-011508	**18.50482967**	**10.30905039**	0.080548001	1.19485E+01	1.39752E+01	2.03876E+00	3.45666E+00	9.81034E-01	6.85239E+00	DA-SS104-011508
Site 8 SS	DA-SS104B-011608	95.14762526	11.00344245	0.033995868	2.99175E+02	1.96492E+01	6.09503E+03	-1.72967E+01	-3.18915E+00	2.83001E+01	
Site 8 SS	DA-SS105-011508	**6.767642675**	**5.946279717**	0.193700365	5.65689E+00	3.89904E+01	1.06282E+02	2.37842E+00	1.04678E+00	3.56786E+00	DA-SS105-011508
Site 8 SS	DA-SS105B-011608	36.00944706	14.14515644	0.047734205	5.73255E+00	5.73723E+01	3.58438E+02	2.39427E+00	5.23105E-01	1.17509E+01	
Site 8 SS	DA-SS106-011408	**16.11930132**	**11.02353089**	0.082923648	2.34131E+01	1.98277E+01	9.17145E-01	4.83871E+00	1.39338E+00	6.18482E+00	DA-SS106-011408
Site 8 SS	DA-SS107-011508	**0.149227262**	**2.603151996**	1.399407404	7.87464E-01	1.57415E+01	2.86549E+02	8.87392E-01	1.04975E+00	1.71576E+00	DA-SS107-011508
Site 8 SS	DA-SS108-011508	**15.97554988**	**12.4822361**	0.077351807	4.01657E+01	3.49462E+01	1.21314E+00	6.33764E+00	1.76264E+00	6.14460E+00	DA-SS108-011508
Site 8 SS	DA-SS109-011408	**9.623562398**	**9.395682339**	0.11888313	2.52871E+01	7.98051E+00	5.55534E+01	5.02862E+00	1.73384E+00	4.36706E+00	DA-SS109-011408
Site 8 SS	DA-SS110-011508	**16.85192359**	**10.0793684**	0.085626304	1.36126E+01	1.23107E+01	5.06495E-02	3.68953E+00	1.07963E+00	6.38984E+00	DA-SS110-011508
Site 8 SS	DA-SS110B-011508	**21.34137407**	**10.37124701**	0.074675735	7.42605E+00	1.44441E+01	1.81851E+01	2.72508E+00	7.44678E-01	7.64617E+00	DA-SS110B-011508
Site 8 SS	DA-SS111B-011408	**10.12905192**	**6.136146578**	0.153990776	2.64919E+00	1.88839E-01	4.82737E+01	1.62763E+00	6.38710E-01	4.50851E+00	DA-SS111B-011408
Site 8 SS	DA-SS112B-011608	10.72818667	5.285071316	0.167247922	3.70754E-01	1.65285E+00	4.03072E+01	6.08896E-01	2.49014E-01	4.67618E+00	
Site 8 SS	DA-SS113B-011608	11.65525072	5.613509052	0.153103867	4.59554E-01	9.16220E-01	2.93951E+01	6.77904E-01	2.65254E-01	4.93561E+00	
Site 8 SS	DA-SS114B-011008	15.81540968	7.80376763	0.104054369	2.90356E+00	1.52045E+00	1.59155E+00	1.70398E+00	5.49662E-01	6.09978E+00	
Site 8 SS	DA-SS115B-011008	**16.74909612**	**10.12132214**	0.085672651	1.41395E+01	1.26069E+01	1.07507E-01	3.76026E+00	1.10062E+00	6.36107E+00	DA-SS115B-011008

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	(MAX(x-Xmin,0.7)*	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!P	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**PB predict**	**Pb ^0.67**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-SS116B-011008	14.06379026	5.725503855	0.137127786	1.34312E-02	7.14361E-01	9.07930E+00	1.15893E-01	4.29161E-02	5.60961E+00	
Site 8 SS	DA-SS117B-011008	18.85905388	6.689044247	0.105672945	6.88920E-02	1.40047E-02	3.17579E+00	-2.62473E-01	-8.53231E-02	6.95152E+00	
Site 8 SS	DA-SS118B-011608	17.81921811	6.637391074	0.109335847	5.35392E-04	4.44732E-03	5.50920E-01	-2.31385E-02	-7.65098E-03	6.66053E+00	
Site 8 SS	DA-SS119B-011608	14.26811561	7.23235503	0.115340364	2.45100E+00	4.37784E-01	7.88971E+00	1.56557E+00	5.31694E-01	5.66679E+00	
Site 8 SS	DA-SS120B-011708	19.2761733	7.045217486	0.10083596	5.30215E-04	2.25164E-01	4.83646E+00	-2.30264E-02	-7.31196E-03	7.06824E+00	
Site 8 SS	DA-SS121-011008	32.91248138	8.640836967	0.067291721	5.03280E+00	4.28546E+00	2.50763E+02	-2.24339E+00	-5.81950E-01	1.08842E+01	
Site 8 SS	DA-SS122-011008	172.7643034	19.49854032	0.018141257	9.31581E+02	1.67129E+02	2.42385E+04	-3.05218E+01	-4.11097E+00	5.00204E+01	
Site 8 SS	DA-SS123-011008	18.4196781	8.087579399	0.094101176	1.58512E+00	2.30091E+00	1.80284E+00	1.25902E+00	3.86215E-01	6.82856E+00	
Site 8 SS	DA-SS124-011008	29.65902093	8.087579399	0.074007565	3.55775E+00	2.30091E+00	1.58308E+02	-1.88620E+00	-5.13128E-01	9.97378E+00	
Site 8 SS	DA-SS125-011008	**15.37982584**	**8.13439623**	0.10270396	4.65052E+00	2.44514E+00	2.88033E+00	2.15651E+00	6.91105E-01	5.97789E+00	DA-SS125-011008
Site 8 SS	DA-SS126-011408	**13.80343074**	**14.46244742**	0.076455754	7.96680E+01	6.22796E+01	1.07161E+01	8.92570E+00	2.46801E+00	5.53675E+00	DA-SS126-011408
Site 8 SS	DA-SS127-011508	**10.33155438**	**6.689044247**	0.143392945	4.51079E+00	1.40047E-02	4.55007E+01	2.12386E+00	8.04248E-01	4.56518E+00	DA-SS127-011508
Site 8 SS	DA-SS128-011608	**13.66580313**	**15.94996086**	0.072666447	1.09239E+02	8.79705E+01	1.16361E+01	1.04517E+01	2.81744E+00	5.49824E+00	DA-SS128-011608
Site 8 SS	DA-SS129-011408	**31.33718685**	**18.84381662**	0.043521768	7.05670E+01	1.50629E+02	2.03354E+02	8.40042E+00	1.75248E+00	1.04434E+01	DA-SS129-011408
Site 8 SS	DA-SS130-011508	18.81341342	8.040626668	0.093455546	1.21414E+00	2.16068E+00	3.01521E+00	1.10188E+00	3.36851E-01	6.93875E+00	
Site 8 SS	DA-SS131-011608	26.36172728	10.47449592	0.06672579	2.02616E+00	1.52396E+01	8.62066E+01	1.42343E+00	3.67691E-01	9.05106E+00	
Site 8 SS	DA-SS132-011408	**20.37314868**	**10.82181234**	0.074493112	1.18790E+01	1.80719E+01	1.08647E+01	3.44659E+00	9.40693E-01	7.37522E+00	DA-SS132-011408
Site 8 SS	DA-SS133-011508	**21.53505334**	**13.71647369**	0.062950035	3.61935E+01	5.10620E+01	1.98744E+01	6.01610E+00	1.50943E+00	7.70037E+00	DA-SS133-011508
Site 8 SS	DA-SS134-011508	15.77777688	7.563257557	0.106365618	2.17269E+00	9.85165E-01	1.68792E+00	1.47400E+00	4.80728E-01	6.08925E+00	
Site 8 SS	DA-SS135-011108	21.39540558	7.380337991	0.092697289	7.89339E-02	6.55509E-01	1.86488E+01	-2.80952E-01	-8.55392E-02	7.66129E+00	
Site 8 SS	DA-SS136-011008	27.75000695	7.514697106	0.080331628	3.70510E+00	8.91125E-01	1.13914E+02	-1.92486E+00	-5.45561E-01	9.43956E+00	
Site 8 SS	DA-SS138-011108	**22.14802179**	**12.21664395**	0.066419652	1.88768E+01	3.18767E+01	2.57155E+01	4.34474E+00	1.11973E+00	7.87190E+00	DA-SS138-011108
Site 8 SS	DA-SS139-011108	42.94779742	12.36876025	0.047247937	1.75231E+00	3.36175E+01	6.69299E+02	-1.32375E+00	-2.87738E-01	1.36925E+01	
Site 8 SS	DA-SS140-011108	8.999582403	5.414774355	0.179533567	1.49409E+00	1.33617E+00	6.52443E+01	1.22233E+00	5.17919E-01	4.19244E+00	
Site 8 SS	DA-SS141-011108	**12.90893894**	**16.93642924**	0.072304565	1.35722E+02	1.07448E+02	1.73726E+01	1.16500E+01	3.13263E+00	5.28644E+00	DA-SS141-011108
Site 8 SS	DA-SS142-011708	**16.59971691**	**10.41260798**	0.084578204	1.67555E+01	1.47602E+01	2.27778E-01	4.09334E+00	1.19044E+00	6.31926E+00	DA-SS142-011708
Site 8 SS	DA-SS143-011708	39.95797546	12.81961916	0.047970878	1.31183E-03	3.90490E+01	5.23540E+02	-3.62192E-02	-7.93282E-03	1.28558E+01	
Site 8 SS	DA-SS144-011708	16.51580926	7.020078408	0.109297443	5.24603E-01	2.01938E-01	3.14911E-01	7.24295E-01	2.39453E-01	6.29578E+00	
Site 8 SS	DA-SS145-011708	**44.42630564**	**23.23514293**	0.032545951	8.33366E+01	2.77704E+02	7.47986E+02	9.12889E+00	1.64690E+00	1.41063E+01	DA-SS145-011708
Site 8 SS	DA-SS146-011708	45.23940576	13.00514589	0.044693146	1.76530E+00	4.14021E+01	7.93122E+02	-1.32865E+00	-2.80886E-01	1.43338E+01	
Site 8 SS	DA-SS147-011708	20.60276406	8.595418508	0.085491397	1.33620E+00	4.09947E+00	1.24312E+01	1.15594E+00	3.37985E-01	7.43948E+00	
Site 8 SS	DA-SS148-011708	**40.86664398**	**20.11273007**	0.036733345	4.90365E+01	1.83387E+02	5.65948E+02	7.00261E+00	1.34212E+00	1.31101E+01	DA-SS148-011708
Site 8 SS	DA-SS149-011708	**52.65389159**	**201.9549944**	0.009761316	3.44274E+04	3.81750E+04	1.26572E+03	1.85546E+02	1.83319E+01	1.64087E+01	DA-SS149-011708
Site 8 SS	DA-SS152-011608	22.23300557	5.946279717	0.105779062	3.80018E+00	3.89904E-01	2.65846E+01	-1.94940E+00	-6.34018E-01	7.89568E+00	
Site 8 SS	DA-SS153-011608	**16.48921109**	**8.181078721**	0.098777327	3.58246E+00	2.59331E+00	3.45470E-01	1.89274E+00	5.94866E-01	6.28834E+00	DA-SS153-011608

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Y variable name used on graph: PB^0.5											
	X variable name used on graph: V											
	N	115.000000		5.20	1.71	1.19	2.23	-0.90	0.90	0.00		
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	6.617947E+00		6.48	1.90	1.38	2.41	-0.90	0.90	0.00		
0.10	**t-Value: 2-tail, 0.100 alpha**	1.658450		7.75	2.09	1.57	2.60	-0.90	0.90	0.00		
degrees freedom	SUM(XY*w^2)	1.560693E+03		9.03	2.28	1.75	2.80	-0.90	0.90	0.00		
2	SUM(X^2*w^2)	7.976282E+03		10.30	2.47	1.88	3.05	-0.90	0.90	0.00		
	SUM(X*w^2)	4.031522E+02		11.58	2.65	2.00	3.30	-0.90	0.90	0.00		
	SUM(Y*w^2)	8.415246E+01		12.85	2.84	2.14	3.55	-0.90	0.90	0.00		
	SUM(w^2)	2.599272E+01		14.13	3.03	2.27	3.79	-0.90	0.90	0.00		
	SUM(Y)	463.941033		15.40	3.22	2.41	4.03	-0.90	0.90	0.00		
	SUM(X)	2.355950E+03		16.68	3.41	2.55	4.27	-0.90	0.90	0.00		
	Denominator	4.479358E+04		17.95	3.60	2.70	4.50	-0.90	0.90	0.00		
	Slope	**1.482448E-01**		19.23	3.79	2.84	4.74	-0.90	0.90	0.00		
	Intercept	**9.382327E-01**		20.50	3.98	2.99	4.97	-0.90	0.90	0.00		
	Minimum X value	5.200000E+00		21.78	4.17	3.14	5.19	-0.90	0.90	0.00		
	Maximum X value	3.580000E+01		23.05	4.36	3.29	5.42	-0.90	0.90	0.00		
	Minimum Y value	1.612452E+00		24.33	4.54	3.44	5.65	-0.90	0.90	0.00		
	Maximum Y value	7.035624E+00		25.60	4.73	3.59	5.87	-0.90	0.90	0.00		
	No. of graph points	25		26.88	4.92	3.75	6.10	-0.90	0.90	0.00		
	SUM(Ypred.- Yobs)^2	4.377518E+01		28.15	5.11	3.90	6.32	-0.90	0.90	0.00		
	SUM(Yobs - Yave)^2	1.898867E+02		29.43	5.30	4.06	6.54	-0.90	0.90	0.00		
	SUM(X - Xave)^2	7.233842E+03		30.70	5.49	4.21	6.77	-0.90	0.90	0.00		
	Std. Error of Y-estimate	**6.224074E-01**		31.98	5.68	4.37	6.99	-0.90	0.90	0.00		
	R^2	**7.694668E-01**		33.25	5.87	4.53	7.21	-0.90	0.90	0.00		
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1/SQRT(xy)**		34.53	6.06	4.69	7.43	-0.90	0.90	0.00		
est.M, Std.Err.Y	**1.48E-01**	**0.6**		35.80	6.25	4.84	7.65	-0.90	0.90	0.00		
Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:		**25**		14.65	3.11	2.33	3.89	9.67	**-44%**	**57%**		
Inverse Log Transform (Y/N)?		**No**	**50**	20.90	4.04	3.04	5.04	16.29	**-43%**	**56%**		
Inverse Power Transform (Y/N)?		**Yes**	**75**	26.30	4.84	3.68	6.00	23.40	**-42%**	**54%**		
Inverse Power Transform (1/Power):		**2**	**90**	30.72	5.49	4.22	6.77	30.17	**-41%**	**52%**		

TEXT BOX ==> **(PB^0.5) = (1.48E-01)x(V) + (9.38E-01)** **R^2 = 0.77; Std. Error of Y-estimate = 6.22E-01** **+/-3 x IQR of r** -0.899044 0.899044

TEXT BOX ==> **Weighted 1/SQRT(MAX(x-Xmin,4.1)*MAX(y-Ymin,0.6)). 95% Cont**

				V - wt.descrip.	**TEXT BOX==>**	**Residuals Plot:**	**(Observed - Predicted) x (1/SQRT(xy))^0.5**			**Y-Pred.**	
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**	**MAX(x-Xmin,4.1)**	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!Y**	**DA!AC**	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**V**	**PB^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
BASS	BASS-BWBK-SS-BA101-0001	6.3	1.732050808	0.641179469	1.96348E-02	5.30021E+00	2.01257E+02	-1.40124E-01	-1.12203E-01	1.87218E+00	
BASS	BASS-BWBK-SS-BA102-0001	5.2	1.61245155	0.641179469	9.34205E-03	5.86520E+00	2.33678E+02	-9.66543E-02	-7.73946E-02	1.70911E+00	
BASS	BASS-BWBK-SS-BA103-0001	6	1.643167673	0.641179469	3.40528E-02	5.71737E+00	2.09859E+02	-1.84534E-01	-1.47763E-01	1.82770E+00	
BASS	BASS-BWBK-SS-BA104-0001	8.3	1.843908891	0.641179469	1.05466E-01	4.79768E+00	1.48511E+02	-3.24756E-01	-2.60044E-01	2.16866E+00	
BASS	BASS-BWBK-SS-BA105-0001	6.1	1.843908891	0.641179469	1.91190E-06	4.79768E+00	2.06972E+02	1.38271E-03	1.10719E-03	1.84253E+00	
BASS	BASS-BWBK-SS-BA106-0001	7.75	1.949358869	0.641179469	1.89809E-02	4.34685E+00	1.62219E+02	-1.37771E-01	-1.10319E-01	2.08713E+00	
BASS	BASS-BWBK-SS-BA107-0001	5.9	1.702938637	0.641179469	1.20865E-02	5.43511E+00	2.12767E+02	-1.09939E-01	-8.80319E-02	1.81288E+00	
BASS	BASS-BWBK-SS-BA108-0001	5.5	1.732050808	0.641179469	4.63475E-04	5.30021E+00	2.24596E+02	-2.15285E-02	-1.72386E-02	1.75358E+00	
BASS	BASS-BWBK-SS-BA109-0001	6.1	1.643167673	0.641179469	3.97438E-02	5.71737E+00	2.06972E+02	-1.99359E-01	-1.59634E-01	1.84253E+00	
BASS	BASS-BWBK-SS-BA110-0001	7.8	1.732050808	0.641179469	1.31400E-01	5.30021E+00	1.60948E+02	-3.62492E-01	-2.90260E-01	2.09454E+00	
BASS	BASS-BWBK-SS-BA111-0001	6	1.702938637	0.641179469	1.55658E-02	5.43511E+00	2.09859E+02	-1.24763E-01	-9.99024E-02	1.82770E+00	
BASS	BASS-BWBK-SS-BA112-0001	5.8	1.643167673	0.641179469	2.39894E-02	5.71737E+00	2.15694E+02	-1.54885E-01	-1.24022E-01	1.79805E+00	
BASS	BASS-BWBK-SS-BA113-0001	6.05	2.179449472	0.641179469	1.18567E-01	3.44036E+00	2.08413E+02	3.44336E-01	2.75722E-01	1.83511E+00	
MASS	MASS-BWBK-SS-MA01-0001	13.6	3.286335345	0.266684457	1.10206E-01	5.59406E-01	4.74242E+01	3.31973E-01	1.71436E-01	2.95436E+00	
MASS	MASS-BWBK-SS-MA02-0001	14.2	3.31662479	0.255341776	7.47013E-02	5.15014E-01	3.95204E+01	2.73315E-01	1.38110E-01	3.04331E+00	
MASS	MASS-BWBK-SS-MA03-0001	14.8	3.346640106	0.245084714	4.59604E-02	4.72835E-01	3.23365E+01	2.14384E-01	1.06133E-01	3.13226E+00	
MASS	MASS-BWBK-SS-MA04-0001	13.9	3.405877273	0.253162092	1.65683E-01	3.94877E-01	4.33823E+01	4.07041E-01	2.04804E-01	2.99884E+00	
MASS	MASS-BWBK-SS-MA05-0001	19.9	3.660601044	0.18224705	5.18491E-02	1.39628E-01	3.44008E-01	-2.27704E-01	-9.72077E-02	3.88830E+00	
MASS	MASS-BWBK-SS-MA06-0001	20.9	3.924283374	0.165986228	1.26037E-02	1.20970E-02	1.70964E-01	-1.12266E-01	-4.57389E-02	4.03655E+00	
MASS	MASS-BWBK-SS-MA07-0001	11.6	3.478505426	0.289366282	6.73438E-01	3.08874E-01	7.89703E+01	8.20633E-01	4.41441E-01	2.65787E+00	MASS-BWBK-SS-MA07-0001
MASS	MASS-BWBK-SS-MA08-0001	22.1	5.54977477	0.122590302	1.78311E+00	2.29676E+00	2.60331E+00	1.33533E+00	4.67538E-01	4.21444E+00	MASS-BWBK-SS-MA08-0001
MASS	MASS-BWBK-SS-MA09-0001	29.5	5.848076607	0.098568491	2.87962E-01	3.28989E+00	8.12428E+01	5.36621E-01	1.68476E-01	5.31146E+00	

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	MAX(x-Xmin,4.1)	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!Y	DA!AC	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	V	PB^0.5	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
MASS	MASS-BWBK-SS-MA10-0001	27.5	5.412947441	0.108624411	1.58389E-01	1.90075E+00	4.91889E+01	3.97982E-01	1.31168E-01	5.01497E+00	
MASS	MASS-BWBK-SS-MA11-0001	30.4	4.5607017	0.116015914	7.81764E-01	2.77130E-01	9.82771E+01	-8.84174E-01	-3.01159E-01	5.44488E+00	
MASS	MASS-BWBK-SS-MA12-0001	15.6	3.478505426	0.226997587	5.18260E-02	3.08874E-01	2.38781E+01	2.27653E-01	1.08464E-01	3.25085E+00	
MASS	MASS-BWBK-SS-MA13-0001	24.3	3.768288736	0.155838707	5.96437E-01	7.07460E-02	1.45426E+01	-7.72293E-01	-3.04874E-01	4.54058E+00	
MASS	MASS-BWBK-SS-MA14-0001	24	4.795831523	0.129263775	8.98337E-02	5.79976E-01	1.23445E+01	2.99723E-01	1.07760E-01	4.49611E+00	
MASS	MASS-BWBK-SS-MA15-0001	22.3	4.23083916	0.149446234	1.75652E-04	3.86395E-02	3.28870E+00	-1.32534E-02	-5.12353E-03	4.24409E+00	
MASS	MASS-BWBK-SS-MA16-0001	23.2	3.949683532	0.154174602	1.83038E-01	7.15485E-03	7.36296E+00	-4.27829E-01	-1.67988E-01	4.37751E+00	
MASS	MASS-BWBK-SS-MA17-0001	22.5	3.885871846	0.159454611	1.50443E-01	2.20220E-02	4.05409E+00	-3.87870E-01	-1.54883E-01	4.27374E+00	
MASS	MASS-BWBK-SS-MA18-0001	25.9	4.324349662	0.133468304	2.05594E-01	8.41463E-02	2.93057E+01	-4.53424E-01	-1.65651E-01	4.77777E+00	
MASS	MASS-BWBK-SS-MA19-0001	24.8	4.23083916	0.139590221	1.47353E-01	3.86395E-02	1.86061E+01	-3.83865E-01	-1.43419E-01	4.61470E+00	
MASS	MASS-BWBK-SS-MA20-0001	21.1	3.987480407	0.162729763	6.19658E-03	2.18925E-03	3.76356E-01	-7.87183E-02	-3.17548E-02	4.06620E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	21.7	3.741657387	0.168713255	1.70973E-01	8.56221E-02	1.47253E+00	-4.13488E-01	-1.69839E-01	4.15515E+00	
MMSS	MMSS-BWBK-SS-MM102-0001	16.7	2.792848009	0.271417053	3.85732E-01	1.54113E+00	1.43377E+01	-6.21073E-01	-3.23565E-01	3.41392E+00	
MMSS	MMSS-BWBK-SS-MM103-0001	22.2	3.898717738	0.160402873	1.09264E-01	1.83744E-02	2.93601E+00	-3.30550E-01	-1.32386E-01	4.22927E+00	
MMSS	MMSS-BWBK-SS-MM104-0001	20.6	3.898717738	0.16852962	8.71582E-03	1.83744E-02	1.28773E-02	-9.33586E-02	-3.83259E-02	3.99208E+00	
MMSS	MMSS-BWBK-SS-MM105-0001	16.7	3.33166625	0.224898222	6.76592E-03	4.93652E-01	1.43377E+01	-8.22552E-02	-3.90082E-02	3.41392E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	21.1	3.31662479	0.192107609	5.61861E-01	5.15014E-01	3.76356E-01	-7.49574E-01	-3.28539E-01	4.06620E+00	
MMSS	MMSS-BWBK-SS-MM107-0001	20.4	3.31662479	0.196481351	4.17061E-01	5.15014E-01	7.48601E-03	-6.45803E-01	-2.86260E-01	3.96243E+00	
MMSS	MMSS-BWBK-SS-MM108-0001	22.7	3.521363372	0.173016707	6.11566E-01	2.63073E-01	4.89949E+00	-7.82027E-01	-3.25286E-01	4.30339E+00	
MMSS	MMSS-BWBK-SS-MM109-0001	20.3	3	0.218467806	8.97951E-01	1.06971E+00	3.47904E-02	-9.47603E-01	-4.42915E-01	3.94760E+00	
MMSS	MMSS-BWBK-SS-MM110-0001	15.2	3.449637662	0.233304665	6.66071E-02	3.41795E-01	2.79473E+01	2.58083E-01	1.24658E-01	3.19155E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	13.9	3.209361307	0.268287344	4.43209E-02	6.80474E-01	4.33823E+01	2.10525E-01	1.09045E-01	2.99884E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	12.8	3.420526275	0.269764636	3.41944E-01	3.76681E-01	5.90826E+01	5.84760E-01	3.03718E-01	2.83577E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	21.5	4.289522118	0.151382714	2.69043E-02	6.51537E-02	1.02714E+00	1.64025E-01	6.38189E-02	4.12550E+00	
MMSS	MMSS-BWBK-SS-MM114-0001	10.8	2.683281573	0.408362371	2.07373E-02	1.82517E+00	9.38287E+01	1.44005E-01	9.20236E-02	2.53928E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	13.5	2.949576241	0.300175332	1.00767E-04	1.17656E+00	4.88115E+01	1.00383E-02	5.49979E-03	2.93954E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	14.3	3.209361307	0.262324659	2.28697E-02	6.80474E-01	3.82731E+01	1.51227E-01	7.74551E-02	3.05813E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	17.8	3.619392214	0.198860012	1.79788E-03	1.72123E-01	7.21740E+00	4.24014E-02	1.89084E-02	3.57699E+00	
MMSS	MMSS-BWBK-SS-MM118-0001	12.7	2.469817807	0.394353931	1.23288E-01	2.44751E+00	6.06299E+01	-3.51124E-01	-2.20498E-01	2.82094E+00	
MMSS	MMSS-BWBK-SS-MM119-0001	11.2	2.302172887	0.49157246	8.78541E-02	3.00016E+00	8.62395E+01	-2.96402E-01	-2.07814E-01	2.59857E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	14.4	2.645751311	0.324334331	1.82506E-01	1.92798E+00	3.70457E+01	-4.27207E-01	-2.43296E-01	3.07296E+00	
NESS	NESS-BKG-SS03-NEB-0016	23.1	6.633249581	0.105484126	5.15545E+00	6.75470E+00	6.83027E+00	2.27056E+00	7.37440E-01	4.36269E+00	NESS-BKG-SS03-NEB-0016
NESS	NESS-BKG-SS09-NEB-0018	18.9	3.898717738	0.178680155	2.51722E-02	1.83744E-02	2.51705E+00	1.58658E-01	6.70655E-02	3.74006E+00	
NESS	NESS-BWBK-SS-NE01-0001	23	4.438468204	0.140994652	8.20914E-03	1.63376E-01	6.31757E+00	9.06043E-02	3.40212E-02	4.34786E+00	
NESS	NESS-BWBK-SS-NE02-0001	19.6	4.062019202	0.168373614	4.76059E-02	7.70027E-04	7.85921E-01	2.18188E-01	8.95297E-02	3.84383E+00	
NESS	NESS-BWBK-SS-NE03-0001	19.5	3.507135583	0.192116021	1.03601E-01	2.77871E-01	9.73225E-01	-3.21871E-01	-1.41080E-01	3.82901E+00	
NESS	NESS-BWBK-SS-NE04-0001	20.6	3.405877273	0.190282103	3.43629E-01	3.94877E-01	1.28773E-02	-5.86199E-01	-2.55708E-01	3.99208E+00	
NESS	NESS-BWBK-SS-NE05-0001	19.6	4.171330723	0.164738028	1.07256E-01	1.87857E-02	7.85921E-01	3.27499E-01	1.32925E-01	3.84383E+00	
NESS	NESS-BWBK-SS-NE06-0001	19.5	3.130495168	0.214629719	4.87919E-01	8.16809E-01	9.73225E-01	-6.98512E-01	-3.23608E-01	3.82901E+00	
NESS	NESS-BWBK-SS-NE07-0001	23	4.91934955	0.130340565	3.26596E-01	7.83366E-01	6.31757E+00	5.71486E-01	2.06322E-01	4.34786E+00	
NESS	NESS-BWBK-SS-NE08-0001	19.1	3.361547263	0.202808341	1.66596E-01	4.52556E-01	1.92244E+00	-4.08162E-01	-1.83813E-01	3.76971E+00	
NESS	NESS-BWBK-SS-NE09-0001	20.9	4.171330723	0.157770312	1.81659E-02	1.87857E-02	1.70964E-01	1.34781E-01	5.35354E-02	4.03655E+00	
NESS	NESS-BWBK-SS-NE10-0001	21.5	5.128352562	0.132095456	1.00572E+00	1.19702E+00	1.02714E+00	1.00286E+00	3.64487E-01	4.12550E+00	
NESS	NESS-BWBK-SS-NE101-0001	17.3	2.863564213	0.257015375	4.08710E-01	1.37055E+00	1.01539E+01	-6.39304E-01	-3.24106E-01	3.50287E+00	
NESS	NESS-BWBK-SS-NE102-0001	15.8	3.563705936	0.219882224	8.02050E-02	2.21430E-01	2.19635E+01	2.83205E-01	1.32799E-01	3.28050E+00	
NESS	NESS-BWBK-SS-NE103-0001	15	3.405877273	0.238531239	5.95224E-02	3.94877E-01	3.01019E+01	2.43972E-01	1.19155E-01	3.16191E+00	
NESS	NESS-BWBK-SS-NE104-0001	15.4	4.679743583	0.178781407	2.12734E+00	4.16636E-01	2.58727E+01	1.45854E+00	6.16708E-01	3.22120E+00	NESS-BWBK-SS-NE104-0001
NESS	NESS-BWBK-SS-NE105-0001	12.5	2.915475947	0.324236794	1.54214E-02	1.25170E+00	6.37845E+01	1.24183E-01	7.07119E-02	2.79129E+00	
NESS	NESS-BWBK-SS-NE106-0001	14.5	4.939635614	0.179771198	3.42936E+00	8.19687E-01	3.58384E+01	1.85185E+00	7.85175E-01	3.08778E+00	NESS-BWBK-SS-NE106-0001
NESS	NESS-BWBK-SS-NE107-0001	14.8	3.492849839	0.235363688	1.30028E-01	2.93136E-01	3.23365E+01	3.60594E-01	1.74939E-01	3.13226E+00	
NESS	NESS-BWBK-SS-NE108-0001	15.3	3.714835124	0.217011793	2.58528E-01	1.02039E-01	2.69000E+01	5.08456E-01	2.36862E-01	3.20638E+00	
NESS	NESS-BWBK-SS-NE109-0001	12.5	2.898275349	0.326398264	1.14452E-02	1.29048E+00	6.37845E+01	1.06982E-01	6.11203E-02	2.79129E+00	
NESS	NESS-BWBK-SS-NE110-0001	17.3	4.219004622	0.178063141	5.12851E-01	3.41269E-02	1.01539E+01	7.16136E-01	3.02192E-01	3.50287E+00	

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	MAX(x-Xmin,4.1)	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!Y	DA!AC	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**V**	**PB^0.5**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
PMSS	PMSS-DABK-S-SO21-0001	27.6	5.983310121	0.1010631	9.09200E-01	3.79876E+00	5.06016E+01	9.53520E-01	3.03128E-01	5.02979E+00	
PMSS	PMSS-DABK-S-SO22-0001	34.9	6.488451279	0.083097879	1.41733E-01	6.02301E+00	2.07748E+02	3.76474E-01	1.08525E-01	6.11198E+00	
PMSS	PMSS-DABK-S-SO23-0001	30.4	5.683308895	0.098731739	5.68504E-02	2.71933E+00	9.82771E+01	2.38433E-01	7.49195E-02	5.44488E+00	
PMSS	PMSS-DABK-S-SO24-0001	30.9	5.272570531	0.103106451	6.07266E-02	1.53339E+00	1.08441E+02	-2.46428E-01	-7.91284E-02	5.51900E+00	
PMSS	PMSS-DABK-S-SO25-0001	35.8	5.678908346	0.08964606	3.20910E-01	2.70484E+00	2.34503E+02	-5.66489E-01	-1.69612E-01	6.24540E+00	
PMSS	PMSS-DABK-S-SO26-0001	35.2	6.670832032	0.081177118	2.64588E-01	6.95146E+00	2.16486E+02	5.14381E-01	1.46555E-01	6.15645E+00	
PMSS	PMSS-DABK-S-SO27-0001	30.3	6.603029608	0.089348592	1.37588E+00	6.59853E+00	9.63044E+01	1.17298E+00	3.50618E-01	5.43005E+00	
PMSS	PMSS-DABK-S-SO28-0001	31.5	6.041522987	0.092654343	1.87990E-01	4.02907E+00	1.21297E+02	4.33578E-01	1.31978E-01	5.60795E+00	
PMSS	PMSS-DABK-S-SO29-0001	33.8	5.727128425	0.092182634	4.91863E-02	2.86577E+00	1.77249E+02	-2.21780E-01	-6.73359E-02	5.94891E+00	
PMSS	PMSS-DABK-S-SO30-0001	28.8	5.14781507	0.109478027	3.58429E-03	1.23998E+00	6.91139E+01	-5.98689E-02	-1.98091E-02	5.20768E+00	
PMSS	PMSS-DABK-S-SO31-0001	27	4.277849927	0.131186966	4.39560E-01	5.93313E-02	4.24254E+01	-6.62993E-01	-2.40134E-01	4.94084E+00	
PMSS	PMSS-DABK-S-SO32-0001	34.1	7.03562364	0.079877486	1.08627E+00	9.00812E+00	1.85327E+02	1.04224E+00	2.94565E-01	5.99338E+00	
PMSS	PMSS-DABK-S-SO33-0001	30.8	5.504543578	0.100181716	1.36842E-07	2.16170E+00	1.06368E+02	3.69922E-04	1.17086E-04	5.50417E+00	
PMSS	PMSS-DABK-S-SO34-0001	26.5	4.795831523	0.121441174	5.02530E-03	5.79976E-01	3.61619E+01	-7.08893E-02	-2.47038E-02	4.86672E+00	
PMSS	PMSS-DABK-S-SO35-0001	29.95	5.826662853	0.097916131	2.01150E-01	3.21267E+00	8.95574E+01	4.48497E-01	1.40342E-01	5.37817E+00	
PMSS	PMSS-DABK-S-SO36-0001	28.1	5.761944116	0.102585213	4.33005E-01	2.98486E+00	5.79651E+01	6.58032E-01	2.10760E-01	5.10391E+00	
PMSS	PMSS-DABK-S-SO37-0001	30.9	4.427188724	0.117574872	1.19205E+00	1.54385E-01	1.08441E+02	-1.09181E+00	-3.74373E-01	5.51900E+00	
PMSS	PMSS-DABK-S-SO38-0001	28.6	4.837354649	0.115115482	1.16063E-01	6.44945E-01	6.58285E+01	-3.40680E-01	-1.15588E-01	5.17804E+00	
PMSS	PMSS-DABK-S-SO39-0001	26.1	4.23083916	0.135179205	3.32449E-01	3.86395E-02	3.15111E+01	-5.76584E-01	-2.11991E-01	4.80742E+00	
PMSS	PMSS-DABK-S-SO40-0001	29	4.5607017	0.11937939	4.57830E-01	2.77130E-01	7.24793E+01	-6.76631E-01	-2.33785E-01	5.23733E+00	
SESS	SESS-DABK-S-SO01-0001	23.5	3.974921383	0.152086729	1.99867E-01	3.52224E-03	9.08105E+00	-4.47065E-01	-1.74348E-01	4.42199E+00	
SESS	SESS-DABK-S-SO02-0001	18.9	5.82	0.132080509	4.22915E+00	3.10563E+00	2.51705E+00	2.05649E+00	7.47388E-01	3.74006E+00	SESS-DABK-S-SO02-0001
SESS	SESS-DABK-S-SO03-0001	34.2	5.357238094	0.095959387	4.23759E-01	1.75024E+00	1.88059E+02	-6.50968E-01	-2.01652E-01	6.00821E+00	
SESS	SESS-DABK-S-SO04-0001	30.4	4.722287581	0.112961639	5.22134E-01	4.73368E-01	9.82771E+01	-7.22588E-01	-2.42860E-01	5.44488E+00	
SESS	SESS-DABK-S-SO05-0001	29.5	5.07937004	0.108949451	5.38636E-02	1.09223E+00	8.12428E+01	-2.32085E-01	-7.66055E-02	5.31146E+00	
SESS	SESS-DABK-S-SO06-0001	34	5.059644256	0.100362385	8.44401E-01	1.05139E+00	1.82614E+02	-9.18913E-01	-2.91112E-01	5.97856E+00	
SESS	SESS-DABK-S-SO07-0001	24.15	4.827007354	0.128125304	9.52721E-02	6.28433E-01	1.34211E+01	3.08662E-01	1.10484E-01	4.51835E+00	
SESS	SESS-DABK-S-SO08-0001	25.2	5.205766034	0.117960713	2.82772E-01	1.37240E+00	2.22169E+01	5.31763E-01	1.82636E-01	4.67400E+00	
SESS	SESS-DABK-S-SO09-0001	30.8	4.909175083	0.108852587	3.54023E-01	7.65459E-01	1.06368E+02	-5.94999E-01	-1.96307E-01	5.50417E+00	
SESS	SESS-DABK-S-SO10-0001	23.1	4.438468204	0.140600261	5.74258E-03	1.63376E-01	6.83027E+00	7.57798E-02	2.84149E-02	4.36269E+00	
SESS	SESS-DABK-S-SO11-0001	17.95	4.098780306	0.177609271	2.49553E-01	4.16160E-03	6.43394E+00	4.99553E-01	2.10530E-01	3.59923E+00	
SESS	SESS-DABK-S-SO12-0001	22.2	4.277849927	0.148557463	2.36020E-03	5.93313E-02	2.93601E+00	4.85819E-02	1.87250E-02	4.22927E+00	
SESS	SESS-DABK-S-SO13-0001	20.7	3.714835124	0.175177439	8.53024E-02	1.02039E-01	4.55730E-02	-2.92066E-01	-1.22242E-01	4.00690E+00	
SESS	SESS-DABK-S-SO14-0001	24.3	4.527692569	0.134012739	1.66143E-04	2.43466E-01	1.45426E+01	-1.28896E-02	-4.71861E-03	4.54058E+00	
SESS	SESS-DABK-S-SO15-0001	29.4	4.774934555	0.114308419	2.72167E-01	5.48584E-01	7.94501E+01	-5.21696E-01	-1.76383E-01	5.29663E+00	
SESS	SESS-DABK-S-SO16-0001	14	3.660601044	0.235547141	4.18532E-01	1.39628E-01	4.20750E+01	6.46941E-01	3.13981E-01	3.01366E+00	
SESS	SESS-DABK-S-SO17-0001	22.4	4.636809248	0.138649785	1.42803E-01	3.63054E-01	3.66140E+00	3.77892E-01	1.40711E-01	4.25892E+00	
SESS	SESS-DABK-S-SO18-0001	22.4	4.415880433	0.144009454	2.46375E-02	1.45627E-01	3.66140E+00	1.56963E-01	5.95654E-02	4.25892E+00	
SESS	SESS-DABK-S-SO19-0001	23.9	6.164414003	0.108387665	2.83293E+00	4.53751E+00	1.16518E+01	1.68313E+00	5.54125E-01	4.48128E+00	SESS-DABK-S-SO19-0001
SESS	SESS-DABK-S-SO20-0001	30.6	5.753259945	0.097508073	7.76933E-02	2.95493E+00	1.02282E+02	2.78735E-01	8.70387E-02	5.47452E+00	
Site 8 SS	DA-B100B-0002	26	3.930648801	0.144010162	7.42957E-01	1.07373E-02	3.03984E+01	-8.61950E-01	-3.27098E-01	4.79260E+00	
Site 8 SS	DA-B101B-0002	22.8	4.037325848	0.153073161	7.88987E-02	9.33913E-06	5.35218E+00	-2.80889E-01	-1.09897E-01	4.31821E+00	
Site 8 SS	DA-B106B-0002	15.8	2.50998008	0.32420741	5.93703E-01	2.32346E+00	2.19635E+01	-7.70521E-01	-4.38729E-01	3.28050E+00	
Site 8 SS	DA-B107B-0002	17.2	3.178049716	0.23071149	9.60964E-02	7.33113E-01	1.08012E+01	-3.09994E-01	-1.48898E-01	3.48804E+00	
Site 8 SS	DA-B108B-0002	17.8	3.646916506	0.197510242	4.88961E-03	1.50043E-01	7.21740E+00	6.99257E-02	3.10765E-02	3.57699E+00	
Site 8 SS	DA-B109B-0002	14.3	2.701851217	0.317603796	1.26937E-01	1.77534E+00	3.82731E+01	-3.56283E-01	-2.00788E-01	3.05813E+00	
Site 8 SS	DA-S-SB01-0102-01	16	3.31662479	0.233094084	4.19221E-05	5.15014E-01	2.01289E+01	6.47472E-03	3.12599E-03	3.31015E+00	
Site 8 SS	DA-S-SB02-0102-01	**17**	**4.69041576**	0.165930879	1.51788E+00	4.30527E-01	1.21558E+01	1.23202E+00	5.01859E-01	3.45839E+00	DA-S-SB02-0102-01
Site 8 SS	DA-S-SB03-0102-01	**13**	**3.872983346**	0.238148247	1.01519E+00	2.60133E-02	5.60480E+01	1.00757E+00	4.91697E-01	2.86542E+00	DA-S-SB03-0102-01
Site 8 SS	DA-S-SB04-0102-01	**9.1**	**3.464101615**	0.364985638	1.38495E+00	3.25092E-01	1.29653E+02	1.17684E+00	7.10977E-01	2.28726E+00	DA-S-SB04-0102-01
Site 8 SS	DA-S-SB05-0102-01	**8.2**	**3.464101615**	0.364985638	1.71678E+00	3.25092E-01	1.50959E+02	1.31026E+00	7.91582E-01	2.15384E+00	DA-S-SB05-0102-01
Site 8 SS	DA-S-SB06-0515-01	**9.7**	**3.130495168**	0.38260586	5.68950E-01	8.16809E-01	1.16349E+02	7.54288E-01	4.66566E-01	2.37621E+00	DA-S-SB06-0515-01
Site 8 SS	DA-S-SB07-0102-01	9.8	2.607680962	0.467368548	4.69367E-02	2.03516E+00	1.14202E+02	2.16649E-01	1.48111E-01	2.39103E+00	

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	MAX(x-Xmin,4.1)	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!Y	DA!AC	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	V	PB^0.5	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
Site 8 SS	DA-S-SB08-0102-01	**12**	**3.872983346**	0.255058754	1.33590E+00	2.60133E-02	7.20211E+01	1.15581E+00	5.83724E-01	2.71717E+00	DA-S-SB08-0102-01
Site 8 SS	DA-S-TP01-0001-01	**18**	**10.95445115**	0.091448186	5.39903E+01	4.78889E+01	6.18279E+00	7.34781E+00	2.22201E+00	3.60664E+00	DA-S-TP01-0001-01
Site 8 SS	DA-S-TP05-0001-01	**14**	**4.69041576**	0.192144024	2.81151E+00	4.30527E-01	4.20750E+01	1.67676E+00	7.34993E-01	3.01366E+00	DA-S-TP05-0001-01
Site 8 SS	DA-S-TP06-0001-01	**18**	**5.099019514**	0.149691089	2.22720E+00	1.13369E+00	6.18279E+00	1.49238E+00	5.77401E-01	3.60664E+00	DA-S-TP06-0001-01
Site 8 SS	DA-S-TP07-0001-01	**13**	**4.795831523**	0.200682018	3.72651E+00	5.79976E-01	5.60480E+01	1.93042E+00	8.64779E-01	2.86542E+00	DA-S-TP07-0001-01
Site 8 SS	DA-S-TP08-0001-01	14	3.1144823	0.275054815	1.01651E-02	8.46009E-01	4.20750E+01	1.00822E-01	5.28767E-02	3.01366E+00	
Site 8 SS	DA-S-TP09-0001-01	**19**	**5**	0.14625735	1.55031E+00	9.32635E-01	2.20975E+00	1.24512E+00	4.76177E-01	3.75488E+00	DA-S-TP09-0001-01
Site 8 SS	DA-S-TP09-0102-01	17	3.106444913	0.238168687	1.23869E-01	8.60859E-01	1.21558E+01	-3.51950E-01	-1.71760E-01	3.45839E+00	
Site 8 SS	DA-S-TP10-0001-01	**29**	**12.64911064**	0.061701072	5.49344E+01	7.42155E+01	7.24793E+01	7.41178E+00	1.84106E+00	5.23733E+00	DA-S-TP10-0001-01
Site 8 SS	DA-S-TP10-0102-01	20	3.872983346	0.172887595	9.08785E-04	2.60133E-02	2.36703E-01	-3.01461E-02	-1.25347E-02	3.90313E+00	
Site 8 SS	DA-S-TP11-0001-01	24	4.123105626	0.14555517	1.39131E-01	7.89180E-03	1.23445E+01	-3.73003E-01	-1.42307E-01	4.49611E+00	
Site 8 SS	DA-S-TP12-0001-01	15	2.792848009	0.294017387	1.36203E-01	1.54113E+00	3.01019E+01	-3.69057E-01	-2.00115E-01	3.16191E+00	
Site 8 SS	DA-S-TP12-0102-01	15	2.529822128	0.333514376	3.99529E-01	2.26336E+00	3.01019E+01	-6.32083E-01	-3.65032E-01	3.16191E+00	
Site 8 SS	DA-S-TP12A-0001-01	**24**	**6**	0.110105779	2.26169E+00	3.86410E+00	1.23445E+01	1.50389E+00	4.99024E-01	4.49611E+00	DA-S-TP12A-0001-01
Site 8 SS	DA-S-TP12B-0001-01	**28**	**6.32455532**	0.096477303	1.52638E+00	5.24541E+00	5.64524E+01	1.23547E+00	3.83746E-01	5.08909E+00	DA-S-TP12B-0001-01
Site 8 SS	DA-S-TP13-0001-01	14	3.31662479	0.258227085	9.17874E-02	5.15014E-01	4.20750E+01	3.02964E-01	1.53955E-01	3.01366E+00	
Site 8 SS	DA-S-TP15-0001-01	14	3.741657387	0.231020138	5.29980E-01	8.56221E-02	4.20750E+01	7.27997E-01	3.49909E-01	3.01366E+00	
Site 8 SS	DA-SB100-0002	24	5.585696018	0.115704016	1.18720E+00	2.40692E+00	1.23445E+01	1.08959E+00	3.70626E-01	4.49611E+00	
Site 8 SS	DA-SB101-0002	19.5	4.7644517	0.148949437	8.75057E-01	5.33166E-01	9.73225E-01	9.35445E-01	3.61025E-01	3.82901E+00	
Site 8 SS	DA-SB102-0002	24.3	5.338539126	0.118537779	6.36735E-01	1.70112E+00	1.45426E+01	7.97957E-01	2.74731E-01	4.54058E+00	
Site 8 SS	DA-SB107-0103	**14.2**	**10.48808848**	0.111886833	5.54247E+01	4.16518E+01	3.95204E+01	7.44478E+00	2.49024E+00	3.04331E+00	DA-SB107-0103
Site 8 SS	DA-SB111-0002	**13**	**4.335896678**	0.21696685	2.16231E+00	9.09787E-02	5.60480E+01	1.47048E+00	6.84946E-01	2.86542E+00	DA-SB111-0002
Site 8 SS	DA-SB112-0002	**9.2**	**4.242640687**	0.306239878	3.76576E+00	4.34184E-02	1.27386E+02	1.94056E+00	1.07388E+00	2.30209E+00	DA-SB112-0002
Site 8 SS	DA-SB113-0002	**10.1**	**6.228964601**	0.210254319	1.43903E+01	4.81669E+00	1.07880E+02	3.79346E+00	1.73943E+00	2.43551E+00	DA-SB113-0002
Site 8 SS	DA-SB114-0002	**13.2**	**7.402702209**	0.146928594	2.03188E+01	1.13463E+01	5.30934E+01	4.50764E+00	1.72783E+00	2.89506E+00	DA-SB114-0002
Site 8 SS	DA-SB115-0002	16.3	4	0.19425062	4.16511E-01	1.17442E-03	1.75270E+01	6.45376E-01	2.84442E-01	3.35462E+00	
Site 8 SS	DA-SB116-0002	17	3.646916506	0.204095716	3.55404E-02	1.50043E-01	1.21558E+01	1.88522E-01	8.51683E-02	3.45839E+00	
Site 8 SS	DA-SB117-0002	21.2	2.915475947	0.219009894	1.35850E+00	1.25170E+00	5.09051E-01	-1.16555E+00	-5.45459E-01	4.08102E+00	
Site 8 SS	DA-SB118-0002	31.9	3.619392214	0.136608305	4.19369E+00	1.72123E-01	1.30267E+02	-2.04785E+00	-7.56897E-01	5.66724E+00	
Site 8 SS	DA-SB119-0002	38	5.099019514	0.093511282	2.16831E+00	1.13369E+00	3.06722E+02	-1.47252E+00	-4.50290E-01	6.57154E+00	
Site 8 SS	DA-SB120-0002	21.4	4.098780306	0.157566256	1.41417E-04	4.16160E-03	8.34443E-01	-1.18919E-02	-4.72044E-03	4.11067E+00	
Site 8 SS	DA-SB133-0102	20.5	3.754996671	0.174658327	4.93974E-02	7.79935E-02	1.81664E-04	-2.22255E-01	-9.28852E-02	3.97725E+00	
Site 8 SS	DA-SB150-0002	18	3.098386677	0.229295267	2.58321E-01	8.75877E-01	6.18279E+00	-5.08253E-01	-2.43376E-01	3.60664E+00	
Site 8 SS	DA-SB151-0002	20.8	3.082207001	0.20884071	8.82695E-01	9.06424E-01	9.82686E-02	-9.39518E-01	-4.29351E-01	4.02173E+00	
Site 8 SS	DA-SS102B-011508	**21**	**6**	0.120104836	3.79714E+00	3.86410E+00	2.63660E-01	1.94863E+00	6.75319E-01	4.05137E+00	DA-SS102B-011508
Site 8 SS	DA-SS103B-011508	**19.7**	**7.83581521**	0.105269706	1.58178E+01	1.44517E+01	6.18616E-01	3.97716E+00	1.29040E+00	3.85866E+00	DA-SS103B-011508
Site 8 SS	DA-SS104-011508	**22.5**	**5.753259945**	0.118150178	2.18897E+00	2.95493E+00	4.05409E+00	1.47952E+00	5.08555E-01	4.27374E+00	DA-SS104-011508
Site 8 SS	DA-SS104B-011608	**20.1**	**6.041522987**	0.123097866	4.50955E+00	4.02907E+00	1.49399E-01	2.12357E+00	7.45061E-01	3.91795E+00	DA-SS104B-011608
Site 8 SS	DA-SS105-011508	**8.1**	**3.807886553**	0.335193	2.78513E+00	5.12494E-02	1.53426E+02	1.66887E+00	9.66207E-01	2.13902E+00	DA-SS105-011508
Site 8 SS	DA-SS105B-011608	**19.9**	**7.293833012**	0.109424446	1.15976E+01	1.06248E+01	3.44008E-01	3.40553E+00	1.12653E+00	3.88830E+00	DA-SS105B-011608
Site 8 SS	DA-SS106-011408	**22**	**6.049793385**	0.115820095	3.42314E+00	4.06234E+00	2.29062E+00	1.85017E+00	6.29658E-01	4.19962E+00	DA-SS106-011408
Site 8 SS	DA-SS107-011508	**1.5**	**2.049390153**	0.641179469	7.89948E-01	3.93975E+00	3.60488E+02	8.88790E-01	7.11687E-01	1.16060E+00	DA-SS107-011508
Site 8 SS	DA-SS108-011508	**9.5**	**6.640783086**	0.215057117	1.84404E+01	6.79391E+00	1.20704E+02	4.29422E+00	1.99141E+00	2.34656E+00	DA-SS108-011508
Site 8 SS	DA-SS109-011408	**9.9**	**5.366563146**	0.238066059	8.76578E+00	1.77501E+00	1.12074E+02	2.96071E+00	1.44459E+00	2.40586E+00	DA-SS109-011408
Site 8 SS	DA-SS110-011508	**16.3**	**5.656854249**	0.14924896	5.30027E+00	2.63278E+00	1.75270E+01	2.30223E+00	8.89415E-01	3.35462E+00	DA-SS110-011508
Site 8 SS	DA-SS110B-011508	**24.6**	**5.779273311**	0.11122353	1.42616E+00	3.04504E+00	1.69207E+01	1.19422E+00	3.98274E-01	4.58506E+00	DA-SS110B-011508
Site 8 SS	DA-SS111B-011408	19	3.898717738	0.178031586	2.06880E-02	1.83744E-02	2.20975E+00	1.43833E-01	6.06887E-02	3.75488E+00	
Site 8 SS	DA-SS112B-011608	18.95	3.485685012	0.197039228	6.85326E-02	3.00945E-01	2.36090E+00	-2.61787E-01	-1.16205E-01	3.74747E+00	
Site 8 SS	DA-SS113B-011608	21	3.646916506	0.176378786	1.63586E-01	1.50043E-01	2.63660E-01	-4.04458E-01	-1.69862E-01	4.05137E+00	
Site 8 SS	DA-SS114B-011008	22	4.669047012	0.139548887	2.20363E-01	4.02942E-01	2.29062E+00	4.69428E-01	1.75361E-01	4.19962E+00	
Site 8 SS	DA-SS115B-011008	29.2	5.674504384	0.101279511	1.66075E-01	2.69037E+00	7.59247E+01	4.07522E-01	1.29692E-01	5.26698E+00	

TABLE F.5.3
SUPPORT DATA FOR LEAD REGRESSIONS IN SURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.	MAX(x-Xmin,4.1)	(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	Predicted) x (1/S	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!Y	DA!AC	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	SAMPLE	V	PB^0.5	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
Site 8 SS	DA-SS116B-011008	22.5	3.701351105	0.166348224	3.27631E-01	1.10835E-01	4.05409E+00	-5.72390E-01	-2.33454E-01	4.27374E+00	
Site 8 SS	DA-SS117B-011008	29.1	4.159326869	0.128173194	1.19428E+00	1.56393E-02	7.41920E+01	-1.09283E+00	-3.91247E-01	5.25216E+00	
Site 8 SS	DA-SS118B-011608	23.8	4.135214626	0.145984012	1.09723E-01	1.01898E-02	1.09791E+01	-3.31245E-01	-1.26562E-01	4.46646E+00	
Site 8 SS	DA-SS119B-011608	19.8	4.410215414	0.156465302	2.88084E-01	1.41335E-01	4.71312E-01	5.36735E-01	2.12309E-01	3.87348E+00	
Site 8 SS	DA-SS120B-011708	21.9	4.324349662	0.148595302	1.94756E-02	8.41463E-02	1.99792E+00	1.39555E-01	5.37958E-02	4.18479E+00	
Site 8 SS	DA-SS121-011008	**17.9**	**5.039841267**	0.151571097	2.09678E+00	1.01117E+00	6.69009E+00	1.44803E+00	5.63747E-01	3.59182E+00	DA-SS121-011008
Site 8 SS	DA-SS122-011008	**19.6**	**9.279008568**	0.095174054	2.95411E+01	2.75073E+01	7.85921E-01	5.43518E+00	1.67677E+00	3.84383E+00	DA-SS122-011008
Site 8 SS	DA-SS123-011008	23.2	4.795831523	0.132105077	1.74990E-01	5.79976E-01	7.36296E+00	4.18319E-01	1.52043E-01	4.37751E+00	
Site 8 SS	DA-SS124-011008	**17**	**4.795831523**	0.163160398	1.78874E+00	5.79976E-01	1.21558E+01	1.33744E+00	5.40232E-01	3.45839E+00	DA-SS124-011008
Site 8 SS	DA-SS125-011008	**17.15**	**4.816637832**	0.161605884	1.78491E+00	6.12100E-01	1.11324E+01	1.33601E+00	5.37078E-01	3.48063E+00	DA-SS125-011008
Site 8 SS	DA-SS126-011408	**17.7**	**7.416198487**	0.117406126	1.48536E+01	1.14374E+01	7.76470E+00	3.85403E+00	1.32057E+00	3.56217E+00	DA-SS126-011408
Site 8 SS	DA-SS127-011508	**10.5**	**4.159326869**	0.272181262	2.77064E+00	1.56393E-02	9.97306E+01	1.66452E+00	8.68398E-01	2.49480E+00	DA-SS127-011508
Site 8 SS	DA-SS128-011608	**17.9**	**7.981227976**	0.111191128	1.92669E+01	1.55785E+01	6.69009E+00	4.38941E+00	1.46366E+00	3.59182E+00	DA-SS128-011608
Site 8 SS	DA-SS129-011408	**27.6**	**9.044335244**	0.077504432	1.61166E+01	2.51008E+01	5.06016E+01	4.01455E+00	1.11763E+00	5.02979E+00	DA-SS129-011408
Site 8 SS	DA-SS130-011508	19.6	4.774934555	0.14818514	8.66953E-01	5.48584E-01	7.85921E-01	9.31103E-01	3.58426E-01	3.84383E+00	
Site 8 SS	DA-SS131-011608	**22.9**	**5.822370651**	0.115844786	2.21811E+00	3.19730E+00	5.82488E+00	1.48933E+00	5.06908E-01	4.33304E+00	DA-SS131-011608
Site 8 SS	DA-SS132-011408	**21.3**	**5.966573556**	0.119436417	3.49962E+00	3.73380E+00	6.61747E-01	1.87073E+00	6.46515E-01	4.09585E+00	DA-SS132-011408
Site 8 SS	DA-SS133-011508	**19.3**	**7.127411872**	0.113401617	1.10759E+01	9.56753E+00	1.40783E+00	3.32805E+00	1.12073E+00	3.79936E+00	DA-SS133-011508
Site 8 SS	DA-SS134-011508	25	4.5607017	0.130883602	6.99764E-03	2.77130E-01	2.03715E+01	-8.36519E-02	-3.02634E-02	4.64435E+00	
Site 8 SS	DA-SS135-011108	29.5	4.477722635	0.119843368	6.95110E-01	1.96650E-01	8.12428E+01	-8.33733E-01	-2.88625E-01	5.31146E+00	
Site 8 SS	DA-SS136-011008	36.7	4.538722287	0.104156762	3.38595E+00	2.54472E-01	2.62877E+02	-1.84010E+00	-5.93860E-01	6.37882E+00	
Site 8 SS	DA-SS138-011108	**27.2**	**6.534523701**	0.096098071	2.44619E+00	6.25127E+00	4.50708E+01	1.56403E+00	4.84845E-01	4.97049E+00	DA-SS138-011108
Site 8 SS	DA-SS139-011108	47.2	6.595452979	0.069124157	1.79543E+00	6.55966E+00	7.13610E+02	-1.33994E+00	-3.52289E-01	7.93539E+00	
Site 8 SS	DA-SS140-011108	19.9	3.54964787	0.187393497	1.14689E-01	2.34858E-01	3.44008E-01	-3.38657E-01	-1.46601E-01	3.88830E+00	
Site 8 SS	DA-SS141-011108	**21**	**8.348652586**	0.096931278	1.84666E+01	1.86139E+01	2.63660E-01	4.29728E+00	1.33791E+00	4.05137E+00	DA-SS141-011108
Site 8 SS	DA-SS142-011708	**21.5**	**5.796550698**	0.121089145	2.79242E+00	3.10563E+00	1.02714E+00	1.67105E+00	5.81491E-01	4.12550E+00	DA-SS142-011708
Site 8 SS	DA-SS143-011708	36.2	6.774953874	0.079047661	2.21143E-01	7.51135E+00	2.46913E+02	4.70258E-01	1.32215E-01	6.30470E+00	
Site 8 SS	DA-SS144-011708	21.3	4.312771731	0.151662926	4.70560E-02	7.75633E-02	6.61747E-01	2.16924E-01	8.44787E-02	4.09585E+00	
Site 8 SS	DA-SS145-011708	**27.1**	**10.58300524**	0.071345784	3.16669E+01	4.28859E+01	4.37381E+01	5.62734E+00	1.50310E+00	4.95567E+00	DA-SS145-011708
Site 8 SS	DA-SS146-011708	**23.6**	**6.848357467**	0.101881463	5.81556E+00	7.91909E+00	9.69375E+00	2.41155E+00	7.69739E-01	4.43681E+00	DA-SS146-011708
Site 8 SS	DA-SS147-011708	28.25	5.019960159	0.112835577	1.12761E-02	9.71585E-01	6.02716E+01	-1.06189E-01	-3.56700E-02	5.12615E+00	
Site 8 SS	DA-SS148-011708	**38.6**	**9.497368056**	0.061620926	8.04791E+00	2.98454E+01	3.28098E+02	2.83688E+00	7.04216E-01	6.66048E+00	DA-SS148-011708
Site 8 SS	DA-SS149-011708	**24.4**	**53.57238094**	0.031660306	2.40266E+03	2.45402E+03	1.53153E+01	4.90170E+01	8.72176E+00	4.55541E+00	DA-SS149-011708
Site 8 SS	DA-SS152-011608	22.7	3.807886553	0.161332062	2.45524E-01	5.12494E-02	4.89949E+00	-4.95504E-01	-1.99025E-01	4.30339E+00	
Site 8 SS	DA-SS153-011608	**19.2**	**4.837354649**	0.148825602	1.10843E+00	6.44945E-01	1.65514E+00	1.05282E+00	4.06156E-01	3.78453E+00	DA-SS153-011608

TABLE F.5.4
SUPPORT DATA FOR LEAD REGRESSIONS IN SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
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	Y variable name used on graph: PB					********** GRAPH LINES **********				- - - Extreme Value Lines: +/-3 x IQR of residuals			
	X variable name used on graph: FE					**X-Points**	**Y Predicted**	**Lower 95%**	**Upper 95%**	**-3 x IQR**	**+3 x IQR**	**Median**	**No. of Exceedances of Upper 95% Limit for Each Soil Type:**
	N	99.000000				10600.00	5.93	3.88	7.97	-4.31	4.31	-0.11	
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	1.425092E+02				12312.50	6.23	4.19	8.28	-4.31	4.31	-0.11	
0.10	**t-Value: 2-tail, 0.100 alpha**	1.660715				14025.00	6.54	4.50	8.58	-4.31	4.31	-0.11	
degrees freedom	SUM(XY*w^2)	2.022842E+07				15737.50	6.85	4.82	8.88	-4.31	4.31	-0.11	---- \/ ----
2	SUM(X^2*w^2)	6.071118E+10				17450.00	7.16	5.13	9.19	-4.31	4.31	-0.11	BASS
	SUM(X*w^2)	2.317750E+06				19162.50	7.46	5.44	9.49	-4.31	4.31	-0.11	0
	SUM(Y*w^2)	8.145500E+02				20875.00	7.77	5.75	9.80	-4.31	4.31	-0.11	MASS
	SUM(w^2)	9.900000E+01				22587.50	8.08	6.06	10.10	-4.31	4.31	-0.11	0
	SUM(Y)	814.550000				24300.00	8.39	6.36	10.41	-4.31	4.31	-0.11	MMSS
	SUM(X)	2.317750E+06				26012.50	8.70	6.67	10.72	-4.31	4.31	-0.11	0
	Denominator	6.384420E+11				27725.00	9.00	6.98	11.03	-4.31	4.31	-0.11	NESS
	Slope	**1.796409E-04**				29437.50	9.31	7.28	11.34	-4.31	4.31	-0.11	0
	Intercept	**4.022093E+00**				31150.00	9.62	7.59	11.65	-4.31	4.31	-0.11	PMSS
	Minimum X value	1.060000E+04				32862.50	9.93	7.89	11.96	-4.31	4.31	-0.11	0
	Maximum X value	5.170000E+04				34575.00	10.23	8.19	12.28	-4.31	4.31	-0.11	SESS
	Minimum Y value	5.200000E+00				36287.50	10.54	8.49	12.59	-4.31	4.31	-0.11	0
	Maximum Y value	1.350000E+01				38000.00	10.85	8.79	12.90	-4.31	4.31	-0.11	SESD
	No. of graph points	25				39712.50	11.16	9.09	13.22	-4.31	4.31	-0.11	0
	SUM(Ypred.- Yobs)^2	1.425092E+02				41425.00	11.46	9.39	13.54	-4.31	4.31	-0.11	MASB
	SUM(Yobs - Yave)^2	3.506211E+02				43137.50	11.77	9.69	13.85	-4.31	4.31	-0.11	1
	SUM(X - Xave)^2	6.448909E+09				44850.00	12.08	9.99	14.17	-4.31	4.31	-0.11	MMSB
	Std. Error of Y-estimate	**1.212092E+00**				46562.50	12.39	10.28	14.49	-4.31	4.31	-0.11	2
	R^2	**5.935520E-01**				48275.00	12.69	10.58	14.81	-4.31	4.31	-0.11	NESB
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1**				49987.50	13.00	10.87	15.13	-4.31	4.31	-0.11	0
est.M, Std.Err.Y						51700.00	13.31	11.17	15.45	-4.31	4.31	-0.11	PMSB
Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:			**25**			16350.00	6.96	4.93	8.99	6.96	**-29%**	**29%**	0
Inverse Log Transform (Y/N)?		**No**	**50**			22550.00	8.07	6.05	10.10	8.07	**-25%**	**25%**	SESB
Inverse Power Transform (Y/N)?		**No**	**75**			28800.00	9.20	7.17	11.22	9.20	**-22%**	**22%**	2
Inverse Power Transform (1/Power):		**1**	**90**			34820.00	10.28	8.23	12.32	10.28	**-20%**	**20%**	<<--Original Units Errors
TEXT BOX ==>	**(PB) = (1.80E-04)x(FE) + (4.02E+00)**		**R^2 = 0.59; Std. Error of Y-estimate = 1.21E+00**							**+/-3 x IQR of re**	-4.305086	4.305086	
TEXT BOX ==>	**95% Confidence Limits on a Y-value predicted from one X-value**			**\/ - wt.descrip.**		**TEXT BOX==>**	**Residuals Plot:**	**(Observed - Predicted) Versus Y-Pred.**			**served - Predict**	**Y-Pred.**	
	Indexed value lookups:	**X data column ref.**	**Y data column ref.**			(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred		---- \/ ----	---- \/ ----	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!R**	**DA!T**	---- \/ ----		---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**FE**	**PB**	**Regression Wt.**							**Wt'd.Residuals**		**Candidate High Outliers**
MASB	MASB-BWBK-SB-MA01-0105	27000	9.1	1		5.18025E-02	7.60772E-01	1.28765E+07	2.27602E-01	2.27602E-01	8.87240E+00		
MASB	MASB-BWBK-SB-MA02-0107	29000	8.4	1		6.91692E-01	2.96605E-02	3.12300E+07	-8.31680E-01	-8.31680E-01	9.23168E+00		
MASB	MASB-BWBK-SB-MA03-0108	29300	8.4	1		7.84239E-01	2.96605E-02	3.46731E+07	-8.85573E-01	-8.85573E-01	9.28557E+00		
MASB	MASB-BWBK-SB-MA04-0106	27800	7.7	1		1.73215E+00	2.78549E-01	1.92579E+07	-1.31611E+00	-1.31611E+00	9.01611E+00		
MASB	MASB-BWBK-SB-MA05-0108	27200	8.1	1		6.53392E-01	1.63272E-02	1.43519E+07	-8.08327E-01	-8.08327E-01	8.90833E+00		
MASB	MASB-BWBK-SB-MA06-0105	25800	8.2	1		2.08693E-01	7.71605E-04	5.70438E+06	-4.56829E-01	-4.56829E-01	8.65683E+00		
MASB	MASB-BWBK-SB-MA07-0108	28000	8	1		1.10679E+00	5.18827E-02	2.10533E+07	-1.05204E+00	-1.05204E+00	9.05204E+00		
MASB	MASB-BWBK-SB-MA08-0108	51700	12.2	1		1.23106E+00	1.57785E+01	8.00233E+08	-1.10953E+00	-1.10953E+00	1.33095E+01		
MASB	MASB-BWBK-SB-MA09-0108	35000	10.5	1		3.62804E-02	5.16299E+00	1.34291E+08	1.90474E-01	1.90474E-01	1.03095E+01		
MASB	MASB-BWBK-SB-MA10-0104	26900	8.7	1		2.38500E-02	2.22994E-01	1.21688E+07	-1.54434E-01	-1.54434E-01	8.85443E+00		
MASB	MASB-BWBK-SB-MA11-0108	32500	13.4	1		1.25286E+01	2.67519E+01	8.25987E+07	3.53958E+00	3.53958E+00	9.86042E+00		MASB-BWBK-SB-MA11-0108
MASB	MASB-BWBK-SB-MA12-0108	33600	8.8	1		1.58264E+00	3.27438E-01	1.03803E+08	-1.25803E+00	-1.25803E+00	1.00580E+01		
MASB	MASB-BWBK-SB-MA13-0105	15800	6.4	1		2.11987E-01	3.34077E+00	5.79367E+07	-4.60420E-01	-4.60420E-01	6.86042E+00		
MASB	MASB-BWBK-SB-MA14-0104	31350	10.05	1		1.56946E-01	3.32049E+00	6.30179E+07	3.96164E-01	3.96164E-01	9.65384E+00		
MASB	MASB-BWBK-SB-MA15-0105	24400	8.3	1		1.10948E-02	5.21605E-03	9.76903E+05	-1.05332E-01	-1.05332E-01	8.40533E+00		
MASB	MASB-BWBK-SB-MA16-0104	21300	8.9	1		1.10577E+00	4.51883E-01	4.45892E+06	1.05155E+00	1.05155E+00	7.84845E+00		

TABLE F.5.4
SUPPORT DATA FOR LEAD REGRESSIONS IN SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
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	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predict	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!R**	**DA!T**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**FE**	**PB**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MASB	MASB-BWBK-SB-MA17-0104	20800	7.9	1	1.99870E-02	1.07438E-01	6.82054E+06	1.41375E-01	1.41375E-01	7.75862E+00	
MASB	MASB-BWBK-SB-MA18-0104	17200	7	1	1.25255E-02	1.50744E+00	3.85842E+07	-1.11917E-01	-1.11917E-01	7.11192E+00	
MASB	MASB-BWBK-SB-MA19-0103	15100	6.8	1	4.26784E-03	2.03855E+00	6.90830E+07	6.53287E-02	6.53287E-02	6.73467E+00	
MASB	MASB-BWBK-SB-MA20-0103	24600	8.1	1	1.16458E-01	1.63272E-02	1.41226E+06	-3.41260E-01	-3.41260E-01	8.44126E+00	
MMSB	MMSB-BWBK-SB-MM101-0110	16800	10.6	1	1.26732E+01	5.62744E+00	4.37135E+07	3.55994E+00	3.55994E+00	7.04006E+00	MMSB-BWBK-SB-MM101-0110
MMSB	MMSB-BWBK-SB-MM102-0109	15800	7.5	1	4.09063E-01	5.29660E-01	5.79367E+07	6.39580E-01	6.39580E-01	6.86042E+00	
MMSB	MMSB-BWBK-SB-MM103-0107	14900	8.2	1	2.25377E+00	7.71605E-04	7.24476E+07	1.50126E+00	1.50126E+00	6.69874E+00	
MMSB	MMSB-BWBK-SB-MM104-0110	24000	9.1	1	5.87560E-01	7.60772E-01	3.46196E+05	7.66524E-01	7.66524E-01	8.33348E+00	
MMSB	MMSB-BWBK-SB-MM105-0110	12000	7.7	1	2.31714E+00	2.78549E-01	1.30225E+08	1.52222E+00	1.52222E+00	6.17778E+00	
MMSB	MMSB-BWBK-SB-MM106-0110	21600	8.3	1	1.58136E-01	5.21605E-03	3.28195E+06	3.97663E-01	3.97663E-01	7.90234E+00	
MMSB	MMSB-BWBK-SB-MM107-0110	14700	6.8	1	1.88197E-02	2.03855E+00	7.58923E+07	1.37185E-01	1.37185E-01	6.66281E+00	
MMSB	MMSB-BWBK-SB-MM108-0110	15550	7.15	1	1.11884E-01	1.16160E+00	6.18050E+07	3.34490E-01	3.34490E-01	6.81551E+00	
MMSB	MMSB-BWBK-SB-MM109-0110	17800	9	1	3.16946E+00	5.96327E-01	3.14902E+07	1.78030E+00	1.78030E+00	7.21970E+00	
MMSB	MMSB-BWBK-SB-MM110-0109	16900	8	1	8.87317E-01	5.18827E-02	4.24011E+07	9.41975E-01	9.41975E-01	7.05802E+00	
MMSB	MMSB-BWBK-SB-MM111-0110	19200	9.4	1	3.72027E+00	1.37410E+00	1.77377E+07	1.92880E+00	1.92880E+00	7.47120E+00	
MMSB	MMSB-BWBK-SB-MM112-0110	19550	6.45	1	1.17522E+00	3.16049E+00	1.49121E+07	-1.08407E+00	-1.08407E+00	7.53407E+00	
MMSB	MMSB-BWBK-SB-MM113-0110	16100	6.6	1	9.87922E-02	2.64966E+00	5.34597E+07	-3.14312E-01	-3.14312E-01	6.91431E+00	
MMSB	MMSB-BWBK-SB-MM114-0110	12700	6.5	1	3.85993E-02	2.98522E+00	1.14739E+08	1.96467E-01	1.96467E-01	6.30353E+00	
MMSB	MMSB-BWBK-SB-MM115-0110	16300	5.7	1	1.56310E+00	6.38966E+00	5.05751E+07	-1.25024E+00	-1.25024E+00	6.95024E+00	
MMSB	MMSB-BWBK-SB-MM116-0110	15600	8	1	1.38182E+00	5.18827E-02	6.10213E+07	1.17551E+00	1.17551E+00	6.82449E+00	
MMSB	MMSB-BWBK-SB-MM117-0110	13500	6.7	1	6.38847E-02	2.33410E+00	9.82401E+07	2.52754E-01	2.52754E-01	6.44725E+00	
MMSB	MMSB-BWBK-SB-MM118-0110	14900	9.2	1	6.25629E+00	9.45216E-01	7.24476E+07	2.50126E+00	2.50126E+00	6.69874E+00	MMSB-BWBK-SB-MM118-0110
MMSB	MMSB-BWBK-SB-MM119-0110	15800	6.9	1	1.56658E-03	1.76299E+00	5.79367E+07	3.95801E-02	3.95801E-02	6.86042E+00	
MMSB	MMSB-BWBK-SB-MM120-0110	10600	5.3	1	3.92236E-01	8.57188E+00	1.64138E+08	-6.26287E-01	-6.26287E-01	5.92629E+00	
NESB	NESB-BWBK-SB-NE01-0108	23700	7.4	1	7.73667E-01	6.85216E-01	8.31652E+04	-8.79583E-01	-8.79583E-01	8.27958E+00	
NESB	NESB-BWBK-SB-NE02-0109	22200	7.5	1	2.60224E-01	5.29660E-01	1.46801E+06	-5.10122E-01	-5.10122E-01	8.01012E+00	
NESB	NESB-BWBK-SB-NE03-0105	22300	6.9	1	1.27258E+00	1.76299E+00	1.23569E+06	-1.12809E+00	-1.12809E+00	8.02809E+00	
NESB	NESB-BWBK-SB-NE04-0110	20000	7.3	1	9.91695E-02	8.60772E-01	1.16391E+07	-3.14912E-01	-3.14912E-01	7.61491E+00	
NESB	NESB-BWBK-SB-NE05-0108	22900	7.2	1	8.75854E-01	1.05633E+00	2.61751E+05	-9.35871E-01	-9.35871E-01	8.13587E+00	
NESB	NESB-BWBK-SB-NE06-0109	21100	7	1	6.60184E-01	1.50744E+00	5.34357E+06	-8.12517E-01	-8.12517E-01	7.81252E+00	
NESB	NESB-BWBK-SB-NE07-0107	23100	7.8	1	1.38234E-01	1.82994E-01	9.71046E+04	-3.71799E-01	-3.71799E-01	8.17180E+00	
NESB	NESB-BWBK-SB-NE08-0104	18200	6.5	1	6.26564E-01	2.98522E+00	2.71609E+07	-7.91558E-01	-7.91558E-01	7.29156E+00	
NESB	NESB-BWBK-SB-NE09-0110	20500	6.5	1	1.45138E+00	2.98522E+00	8.47751E+06	-1.20473E+00	-1.20473E+00	7.70473E+00	
NESB	NESB-BWBK-SB-NE10-0107	18200	7.5	1	4.34480E-02	5.29660E-01	2.71609E+07	2.08442E-01	2.08442E-01	7.29156E+00	
NESB	NESB-BWBK-SB-NE101-0110	17600	7.4	1	4.67538E-02	6.85216E-01	3.37749E+07	2.16226E-01	2.16226E-01	7.18377E+00	
NESB	NESB-BWBK-SB-NE102-0110	14400	6.6	1	7.96135E-05	2.64966E+00	8.12092E+07	-8.92264E-03	-8.92264E-03	6.60892E+00	
NESB	NESB-BWBK-SB-NE103-0110	13100	5.85	1	2.76034E-01	5.65383E+00	1.06329E+08	-5.25389E-01	-5.25389E-01	6.37539E+00	
NESB	NESB-BWBK-SB-NE104-0110	11800	5.5	1	4.11979E-01	7.44077E+00	1.34830E+08	-6.41856E-01	-6.41856E-01	6.14186E+00	
NESB	NESB-BWBK-SB-NE105-0110	17300	7.1	1	8.92895E-04	1.27188E+00	3.73519E+07	-2.98813E-02	-2.98813E-02	7.12988E+00	
NESB	NESB-BWBK-SB-NE106-0110	15200	6.5	1	6.38246E-02	2.98522E+00	6.74306E+07	-2.52635E-01	-2.52635E-01	6.75264E+00	
NESB	NESB-BWBK-SB-NE107-0510	13600	5.7	1	5.85546E-01	6.38966E+00	9.62678E+07	-7.65210E-01	-7.65210E-01	6.46521E+00	
NESB	NESB-BWBK-SB-NE108-0110	15200	6.2	1	3.05406E-01	4.11188E+00	6.74306E+07	-5.52635E-01	-5.52635E-01	6.75264E+00	
NESB	NESB-BWBK-SB-NE109-0110	14900	6.4	1	8.92474E-02	3.34077E+00	7.24476E+07	-2.98743E-01	-2.98743E-01	6.69874E+00	
NESB	NESB-BWBK-SB-NE110-0110	14800	6.45	1	5.32590E-02	3.16049E+00	7.41599E+07	-2.30779E-01	-2.30779E-01	6.68078E+00	
PMSB	PMSB-BWBK-SB-PM01-0105	21000	7.6	1	3.78508E-02	3.94105E-01	5.81589E+06	-1.94553E-01	-1.94553E-01	7.79455E+00	
PMSB	PMSB-BWBK-SB-PM02-0104	38700	10.1	1	7.64221E-01	3.50522E+00	2.33735E+08	-8.74197E-01	-8.74197E-01	1.09742E+01	
PMSB	PMSB-BWBK-SB-PM03-0106	35100	7.2	1	9.78119E+00	1.05633E+00	1.36618E+08	-3.12749E+00	-3.12749E+00	1.03275E+01	
PMSB	PMSB-BWBK-SB-PM04-0105	27700	10.3	1	1.69482E+00	4.29410E+00	1.83902E+07	1.30185E+00	1.30185E+00	8.99815E+00	
PMSB	PMSB-BWBK-SB-PM05-0105	27700	8.3	1	4.87409E-01	5.21605E-03	1.83902E+07	-6.98147E-01	-6.98147E-01	8.99815E+00	
PMSB	PMSB-BWBK-SB-PM06-0105	30300	6.6	1	8.20945E+00	2.64966E+00	4.74498E+07	-2.86521E+00	-2.86521E+00	9.46521E+00	
PMSB	PMSB-BWBK-SB-PM07-0105	26600	6.5	1	5.29249E+00	2.98522E+00	1.01658E+07	-2.30054E+00	-2.30054E+00	8.80054E+00	
PMSB	PMSB-BWBK-SB-PM08-0106	24800	7.7	1	6.04022E-01	2.78549E-01	1.92761E+06	-7.77188E-01	-7.77188E-01	8.47719E+00	

TABLE F.5.4
SUPPORT DATA FOR LEAD REGRESSIONS IN SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predict	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!R	DA!T	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
GROUP	**SAMPLE**	**FE**	**PB**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
PMSB	PMSB-BWBK-SB-PM09-0106	20300	5.2	1	6.09499E+00	9.16744E+00	9.68216E+06	-2.46880E+00	-2.46880E+00	7.66880E+00	
PMSB	PMSB-BWBK-SB-PM10-0105	25700	7.9	1	5.45922E-01	1.07438E-01	5.23670E+06	-7.38865E-01	-7.38865E-01	8.63887E+00	
PMSB	PMSB-BWBK-SB-PM11-0104	28600	7.3	1	3.45894E+00	8.60772E-01	2.69193E+07	-1.85982E+00	-1.85982E+00	9.15982E+00	
PMSB	PMSB-BWBK-SB-PM12-0105	14900	6.1	1	3.58493E-01	4.52744E+00	7.24476E+07	-5.98743E-01	-5.98743E-01	6.69874E+00	
PMSB	PMSB-BWBK-SB-PM13-0106	24300	7	1	1.92479E+00	1.50744E+00	7.89226E+05	-1.38737E+00	-1.38737E+00	8.38737E+00	
PMSB	PMSB-BWBK-SB-PM14-0106	16400	6.5	1	2.19215E-01	2.98522E+00	4.91628E+07	-4.68205E-01	-4.68205E-01	6.96820E+00	
PMSB	PMSB-BWBK-SB-PM15-0105	23000	8	1	2.36651E-02	5.18827E-02	1.69428E+05	-1.53835E-01	-1.53835E-01	8.15383E+00	
PMSB	PMSB-BWBK-SB-PM16-0106	18700	6.8	1	3.38001E-01	2.03855E+00	2.21993E+07	-5.81379E-01	-5.81379E-01	7.38138E+00	
PMSB	PMSB-BWBK-SB-PM17-0105	25200	9.4	1	7.24125E-01	1.37410E+00	3.19832E+06	8.50955E-01	8.50955E-01	8.54904E+00	
PMSB	PMSB-BWBK-SB-PM18-0105	34100	8.9	1	1.55713E+00	4.51883E-01	1.14242E+08	-1.24785E+00	-1.24785E+00	1.01478E+01	
PMSB	PMSB-BWBK-SB-PM19-0105	25900	8.6	1	5.59405E-03	1.38549E-01	6.19205E+06	-7.47934E-02	-7.47934E-02	8.67479E+00	
PMSB	PMSB-BWBK-SB-PM20-0106	22550	7.75	1	1.04327E-01	2.28272E-01	7.42382E+05	-3.22996E-01	-3.22996E-01	8.07300E+00	
PMSB	PMSB-BWBK-SB-SO01-0107-PM	29300	10.6	1	1.72772E+00	5.62744E+00	3.46731E+07	1.31443E+00	1.31443E+00	9.28557E+00	
PMSB	PMSB-BWBK-SB-SO02-0109-PM	34900	11.3	1	1.01695E+00	9.43855E+00	1.31983E+08	1.00844E+00	1.00844E+00	1.02916E+01	
PMSB	PMSB-BWBK-SB-SO13-0104-PM	33900	10.8	1	4.73453E-01	6.61633E+00	1.10006E+08	6.88079E-01	6.88079E-01	1.01119E+01	
PMSB	PMSB-BWBK-SB-SO14-0105-PM	36100	10.8	1	8.57723E-02	6.61633E+00	1.60995E+08	2.92869E-01	2.92869E-01	1.05071E+01	
SESB	SESB-BWBK-SB-SO03-0108	40900	12.9	1	2.34271E+00	2.18297E+01	3.05844E+08	1.53059E+00	1.53059E+00	1.13694E+01	
SESB	SESB-BWBK-SB-SO04-0108	33600	10.8	1	5.50522E-01	6.61633E+00	1.03803E+08	7.41971E-01	7.41971E-01	1.00580E+01	
SESB	SESB-BWBK-SB-SO05-0106	31600	10.4	1	4.91756E-01	4.71855E+00	6.70496E+07	7.01253E-01	7.01253E-01	9.69875E+00	
SESB	SESB-BWBK-SB-SO06-0108	42650	13.4	1	2.94541E+00	2.67519E+01	3.70115E+08	1.71622E+00	1.71622E+00	1.16838E+01	
SESB	SESB-BWBK-SB-SO07-0106	29100	13	1	1.40652E+01	2.27741E+01	3.23577E+07	3.75036E+00	3.75036E+00	9.24964E+00	SESB-BWBK-SB-SO07-0106
SESB	SESB-BWBK-SB-SO08-0107	39900	13.5	1	5.33718E+00	2.77963E+01	2.71867E+08	2.31023E+00	2.31023E+00	1.11898E+01	SESB-BWBK-SB-SO08-0107
SESB	SESB-BWBK-SB-SO09-0106	29000	10	1	5.90315E-01	3.14077E+00	3.12300E+07	7.68320E-01	7.68320E-01	9.23168E+00	
SESB	SESB-BWBK-SB-SO11-0106	34800	10.7	1	1.81819E-01	6.11188E+00	1.29695E+08	4.26402E-01	4.26402E-01	1.02736E+01	
SESB	SESB-BWBK-SB-SO12-0106	34900	11.05	1	5.75229E-01	7.96494E+00	1.31983E+08	7.58438E-01	7.58438E-01	1.02916E+01	
SESB	SESB-BWBK-SB-SO15-0103	22700	8.6	1	2.50058E-01	1.38549E-01	5.06398E+05	5.00058E-01	5.00058E-01	8.09994E+00	
SESB	SESB-BWBK-SB-SO16-0105	24900	7.6	1	8.01298E-01	3.94105E-01	2.21529E+06	-8.95152E-01	-8.95152E-01	8.49515E+00	
SESB	SESB-BWBK-SB-SO17-0106	18100	7.5	1	5.12596E-02	5.29660E-01	2.82133E+07	2.26406E-01	2.26406E-01	7.27359E+00	
SESB	SESB-BWBK-SB-SO18-0105	15000	7.1	1	1.46913E-01	1.27188E+00	7.07553E+07	3.83293E-01	3.83293E-01	6.71671E+00	
SESB	SESB-BWBK-SB-SO19-0104	16400	8	1	1.06460E+00	5.18827E-02	4.91628E+07	1.03180E+00	1.03180E+00	6.96820E+00	
SESB	SESB-BWBK-SB-SO20-0104	29700	9.4	1	1.81230E-03	1.37410E+00	3.95438E+07	4.25711E-02	4.25711E-02	9.35743E+00	
Site 8 SB	DA-B100B-0608	**40000**	**16.3**	1	2.59312E+01	6.51608E+01	2.75174E+08	5.09227E+00	5.09227E+00	1.12077E+01	DA-B100B-0608
Site 8 SB	DA-B101B-0406	**23400**	**12.4**	1	1.74249E+01	1.74074E+01	1.34935E+02	4.17431E+00	4.17431E+00	8.22569E+00	DA-B101B-0406
Site 8 SB	DA-B103B-0810	**27300**	**14.8**	1	3.45005E+01	4.31941E+01	1.51195E+07	5.87371E+00	5.87371E+00	8.92629E+00	DA-B103B-0810
Site 8 SB	DA-B104B-0406	**28900**	**14.45**	1	2.74187E+01	3.87160E+01	3.01224E+07	5.23628E+00	5.23628E+00	9.21372E+00	DA-B104B-0406
Site 8 SB	DA-B105B-0204	**22800**	**43.2**	1	1.23075E+03	1.22306E+03	3.74074E+05	3.50821E+01	3.50821E+01	8.11791E+00	DA-B105B-0204
Site 8 SB	DA-B106B-0406	25400	7.6	1	9.70172E-01	3.94105E-01	3.95367E+06	-9.84973E-01	-9.84973E-01	8.58497E+00	
Site 8 SB	DA-B107B-0608	30200	9.9	1	2.04983E-01	2.79633E+00	4.60822E+07	4.52751E-01	4.52751E-01	9.44725E+00	
Site 8 SB	DA-B108B-0406	19600	8.3	1	5.72965E-01	5.21605E-03	1.45284E+07	7.56945E-01	7.56945E-01	7.54306E+00	
Site 8 SB	DA-B109B-0204	**33000**	**22.2**	1	1.50057E+02	1.95223E+02	9.19371E+07	1.22498E+01	1.22498E+01	9.95024E+00	DA-B109B-0204
Site 8 SB	**DA-B110B-1012**	**20100**	**4540**	1	2.05424E+07	2.05370E+07	1.09668E+07	4.53237E+03	4.53237E+03	7.63288E+00	DA-B110B-1012
Site 8 SB	DA-B111B-0406	**29900**	**19.5**	1	1.02144E+02	1.27063E+02	4.20991E+07	1.01066E+01	1.01066E+01	9.39336E+00	DA-B111B-0406
Site 8 SB	DA-B112B-0608	**29000**	**28.9**	1	3.86843E+02	4.27341E+02	3.12300E+07	1.96683E+01	1.96683E+01	9.23168E+00	DA-B112B-0608
Site 8 SB	DA-B113B-0608	33100	11.4	1	2.05003E+00	1.00630E+01	9.38648E+07	1.43179E+00	1.43179E+00	9.96821E+00	
Site 8 SB	DA-B114B-0204	58200	14.6	1	1.50809E-02	4.06052E+01	1.21023E+09	1.22804E-01	1.22804E-01	1.44772E+01	
Site 8 SB	DA-B116B-0305	37600	11	1	4.99110E-02	7.68522E+00	2.01310E+08	2.23408E-01	2.23408E-01	1.07766E+01	
Site 8 SB	DA-B118B-0608	38200	10	1	7.82122E-01	3.14077E+00	2.18696E+08	-8.84377E-01	-8.84377E-01	1.08844E+01	
Site 8 SB	DA-B119B-0204	**29600**	**78.3**	1	4.75556E+03	4.91012E+03	3.82961E+07	6.89605E+01	6.89605E+01	9.33946E+00	DA-B119B-0204
Site 8 SB	DA-B120B-0204	48000	13.8	1	1.33435E+00	3.10497E+01	6.04589E+08	1.15514E+00	1.15514E+00	1.26449E+01	
Site 8 SB	DA-S-MW04B-0810-01	**15000**	**17**	1	1.05746E+02	7.69519E+01	7.07553E+07	1.02833E+01	1.02833E+01	6.71671E+00	DA-S-MW04B-0810-01
Site 8 SB	DA-S-MW04B-1416-01	**18000**	**24**	1	2.80374E+02	2.48763E+02	2.92856E+07	1.67444E+01	1.67444E+01	7.25563E+00	DA-S-MW04B-1416-01
Site 8 SB	DA-S-SB01-0809-01	26000	7.6	1	1.19412E+00	3.94105E-01	6.69973E+06	-1.09276E+00	-1.09276E+00	8.69276E+00	

TABLE F.5.4
SUPPORT DATA FOR LEAD REGRESSIONS IN SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predict	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!R	DA!T	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	SAMPLE	FE	PB	Regression Wt.					Wt'd.Residuals		Candidate High Outliers
Site 8 SB	DA-S-SB01-5575-01	30000	8.8	1	3.73714E-01	3.27438E-01	4.34068E+07	-6.11321E-01	-6.11321E-01	9.41132E+00	
Site 8 SB	DA-S-SB02-0304-01	16000	7.9	1	1.00732E+00	1.07438E-01	5.49321E+07	1.00365E+00	1.00365E+00	6.89635E+00	
Site 8 SB	DA-S-SB02-5565-01	**13000**	**9**	1	6.98320E+00	5.96327E-01	1.08402E+08	2.64257E+00	2.64257E+00	6.35743E+00	DA-S-SB02-5565-01
Site 8 SB	DA-S-SB03-0304-01	67000	16	1	3.36815E-03	6.04074E+01	1.89995E+09	-5.80357E-02	-5.80357E-02	1.60580E+01	
Site 8 SB	DA-S-SB03-0607-01	43000	13	1	1.57088E+00	2.27741E+01	3.83705E+08	1.25335E+00	1.25335E+00	1.17467E+01	
Site 8 SB	DA-S-SB04-0910-01	23500	6.9	1	1.80541E+00	1.76299E+00	7.81170E+03	-1.34366E+00	-1.34366E+00	8.24366E+00	
Site 8 SB	DA-S-SB04-2535-01	20000	7.2	1	1.72152E-01	1.05633E+00	1.16391E+07	-4.14912E-01	-4.14912E-01	7.61491E+00	
Site 8 SB	DA-S-SB05-0203-01	**29000**	**13**	1	1.42002E+01	2.27741E+01	3.12300E+07	3.76832E+00	3.76832E+00	9.23168E+00	DA-S-SB05-0203-01
Site 8 SB	DA-S-SB05-0304-01	**22000**	**15**	1	4.93620E+01	4.58630E+01	1.99266E+06	7.02581E+00	7.02581E+00	7.97419E+00	DA-S-SB05-0304-01
Site 8 SB	DA-S-SB06-2535-01	20000	7.1	1	2.65134E-01	1.27188E+00	1.16391E+07	-5.14912E-01	-5.14912E-01	7.61491E+00	
Site 8 SB	DA-S-SB08-0607-01	32000	9.55	1	4.86657E-02	1.74827E+00	7.37603E+07	-2.20603E-01	-2.20603E-01	9.77060E+00	
Site 8 SB	DA-S-TP01-0304-01	**23000**	**36**	1	7.75409E+02	7.71296E+02	1.69428E+05	2.78462E+01	2.78462E+01	8.15383E+00	DA-S-TP01-0304-01
Site 8 SB	DA-S-TP01-0607-01	**16000**	**37**	1	9.06230E+02	8.27841E+02	5.49321E+07	3.01037E+01	3.01037E+01	6.89635E+00	DA-S-TP01-0607-01
Site 8 SB	DA-S-TP02-0203-01	**32000**	**16.5**	1	4.52848E+01	6.84297E+01	7.37603E+07	6.72940E+00	6.72940E+00	9.77060E+00	DA-S-TP02-0203-01
Site 8 SB	DA-S-TP02-0506-01	**33000**	**12**	1	4.20150E+00	1.42297E+01	9.19371E+07	2.04976E+00	2.04976E+00	9.95024E+00	DA-S-TP02-0506-01
Site 8 SB	DA-S-TP05-0607-01	28000	9.6	1	3.00261E-01	1.88299E+00	2.10533E+07	5.47961E-01	5.47961E-01	9.05204E+00	
Site 8 SB	DA-S-TP05-0910-01	**29500**	**18.5**	1	8.42448E+01	1.05519E+02	3.70684E+07	9.17850E+00	9.17850E+00	9.32150E+00	DA-S-TP05-0910-01
Site 8 SB	DA-S-TP06-0304-01	**16000**	**16**	1	8.28765E+01	6.04074E+01	5.49321E+07	9.10365E+00	9.10365E+00	6.89635E+00	DA-S-TP06-0304-01
Site 8 SB	DA-S-TP06-0910-01	**29000**	**14**	1	2.27369E+01	3.33185E+01	3.12300E+07	4.76832E+00	4.76832E+00	9.23168E+00	DA-S-TP06-0910-01
Site 8 SB	DA-S-TP07-0304-01	**14000**	**24**	1	3.04954E+02	2.48763E+02	8.85785E+07	1.74629E+01	1.74629E+01	6.53707E+00	DA-S-TP07-0304-01
Site 8 SB	**DA-S-TP07-0910-01**	**17000**	**400**	1	1.54389E+05	1.53485E+05	4.11088E+07	3.92924E+02	3.92924E+02	7.07599E+00	DA-S-TP07-0910-01
Site 8 SB	DA-S-TP08-0304-01	**22500**	**11.5**	1	1.18060E+01	1.07074E+01	8.31044E+05	3.43599E+00	3.43599E+00	8.06401E+00	DA-S-TP08-0304-01
Site 8 SB	DA-S-TP08-0708-01	**24000**	**36**	1	7.65437E+02	7.71296E+02	3.46196E+05	2.76665E+01	2.76665E+01	8.33348E+00	DA-S-TP08-0708-01
Site 8 SB	DA-S-TP11-0203-01	38500	9.05	1	3.56556E+00	6.76049E-01	2.27659E+08	-1.88827E+00	-1.88827E+00	1.09383E+01	
Site 8 SB	DA-S-TP11-0304-01	**42000**	**14**	1	5.91943E+00	3.33185E+01	3.45528E+08	2.43299E+00	2.43299E+00	1.15670E+01	DA-S-TP11-0304-01
Site 8 SB	DA-S-TP12-0203-01	**25000**	**14**	1	3.01059E+01	3.33185E+01	2.52296E+06	5.48688E+00	5.48688E+00	8.51312E+00	DA-S-TP12-0203-01
Site 8 SB	DA-S-TP13-0203-01	28000	6.9	1	4.63127E+00	1.76299E+00	2.10533E+07	-2.15204E+00	-2.15204E+00	9.05204E+00	
Site 8 SB	DA-S-TP13-0405-01	25000	6.2	1	5.35051E+00	4.11188E+00	2.52296E+06	-2.31312E+00	-2.31312E+00	8.51312E+00	
Site 8 SB	**DA-S-TP14-0506-01**	**38000**	**830**	1	6.71009E+05	6.75310E+05	2.12821E+08	8.19152E+02	8.19152E+02	1.08484E+01	DA-S-TP14-0506-01
Site 8 SB	DA-S-TP14-0910-01	**29000**	**46**	1	1.35191E+03	1.42674E+03	3.12300E+07	3.67683E+01	3.67683E+01	9.23168E+00	DA-S-TP14-0910-01
Site 8 SB	DA-S-TP15-0203-01	**20000**	**20**	1	1.53390E+02	1.38585E+02	1.16391E+07	1.23851E+01	1.23851E+01	7.61491E+00	DA-S-TP15-0203-01
Site 8 SB	DA-S-TP15-0506-01	**21000**	**25**	1	2.96027E+02	2.81307E+02	5.81589E+06	1.72054E+01	1.72054E+01	7.79455E+00	DA-S-TP15-0506-01
Site 8 SB	DA-S-TP15A-0203-01	**4800**	**39**	1	1.16388E+03	9.46930E+02	3.46392E+08	3.41156E+01	3.41156E+01	4.88437E+00	DA-S-TP15A-0203-01
Site 8 SB	DA-S-TP15A-0506-01	**3800**	**35**	1	9.17803E+02	7.16752E+02	3.84615E+08	3.02953E+01	3.02953E+01	4.70473E+00	DA-S-TP15A-0506-01
Site 8 SB	DA-S-TP15A-0910-01	**17000**	**42**	1	1.21969E+03	1.14056E+03	4.11088E+07	3.49240E+01	3.49240E+01	7.07599E+00	DA-S-TP15A-0910-01
Site 8 SB	**DA-SB-TP103-0506**	**29900**	**653**	1	4.14230E+05	4.15731E+05	4.20991E+07	6.43607E+02	6.43607E+02	9.39336E+00	DA-SB-TP103-0506
Site 8 SB	DA-SB100-0204	17000	9	1	3.70182E+00	5.96327E-01	4.11088E+07	1.92401E+00	1.92401E+00	7.07599E+00	
Site 8 SB	DA-SB101-0608	**39000**	**14.2**	1	1.00610E+01	3.56674E+01	2.42998E+08	3.17191E+00	3.17191E+00	1.10281E+01	DA-SB101-0608
Site 8 SB	DA-SB102-0305	**39700**	**14.5**	1	1.11968E+01	3.93408E+01	2.65311E+08	3.34616E+00	3.34616E+00	1.11538E+01	DA-SB102-0305
Site 8 SB	DA-SB104-0608	**28600**	**24.8**	1	2.44615E+02	2.74639E+02	2.69193E+07	1.56402E+01	1.56402E+01	9.15982E+00	DA-SB104-0608
Site 8 SB	DA-SB105-0406	**26500**	**23.3**	1	2.10756E+02	2.27172E+02	9.53811E+06	1.45174E+01	1.45174E+01	8.78258E+00	DA-SB105-0406
Site 8 SB	**DA-SB106-0608**	**134000**	**4650**	1	2.13620E+07	2.15460E+07	1.22298E+10	4.62191E+03	4.62191E+03	2.80940E+01	DA-SB106-0608
Site 8 SB	DA-SB108-0204	**10500**	**25.6**	1	3.87762E+02	3.01794E+02	1.66710E+08	1.96917E+01	1.96917E+01	5.90832E+00	DA-SB108-0204
Site 8 SB	DA-SB109-0204	**24500**	**19.4**	1	1.20488E+02	1.24819E+02	1.18458E+06	1.09767E+01	1.09767E+01	8.42330E+00	DA-SB109-0204
Site 8 SB	DA-SB110-0810	**23400**	**28.6**	1	4.15112E+02	4.15027E+02	1.34935E+02	2.03743E+01	2.03743E+01	8.22569E+00	DA-SB110-0810
Site 8 SB	DA-SB111-0204	**17400**	**159**	1	2.30591E+04	2.27323E+04	3.61395E+07	1.51852E+02	1.51852E+02	7.14785E+00	DA-SB111-0204
Site 8 SB	DA-SB112-0608	**20500**	**12.8**	1	2.59618E+01	2.09052E+01	8.47751E+06	5.09527E+00	5.09527E+00	7.70473E+00	DA-SB112-0608
Site 8 SB	DA-SB113-0406	**39550**	**29.3**	1	3.30262E+02	4.44039E+02	2.60447E+08	1.81731E+01	1.81731E+01	1.11269E+01	DA-SB113-0406
Site 8 SB	DA-SB114-0406	**23300**	**17**	1	7.73041E+01	7.69519E+01	1.24582E+04	8.79227E+00	8.79227E+00	8.20773E+00	DA-SB114-0406
Site 8 SB	DA-SB115-0204	**29300**	**44.7**	1	1.25418E+03	1.33022E+03	3.46731E+07	3.54144E+01	3.54144E+01	9.28557E+00	DA-SB115-0204
Site 8 SB	DA-SB116-0204	28700	10.9	1	2.96601E+00	7.14077E+00	2.79670E+07	1.72221E+00	1.72221E+00	9.17779E+00	
Site 8 SB	DA-SB117-0810	33100	10.6	1	3.99161E-01	5.62744E+00	9.38648E+07	6.31792E-01	6.31792E-01	9.96821E+00	
Site 8 SB	DA-SB118-0406	26100	8.1	1	3.72981E-01	1.63272E-02	7.22741E+06	-6.10722E-01	-6.10722E-01	8.71072E+00	
Site 8 SB	DA-SB119-0204	29400	10.6	1	1.68082E+00	5.62744E+00	3.58607E+07	1.29646E+00	1.29646E+00	9.30354E+00	
Site 8 SB	DA-SB120-0406	30200	10.2	1	5.66633E-01	3.88966E+00	4.60822E+07	7.52751E-01	7.52751E-01	9.44725E+00	
Site 8 SB	DA-SB121-0406	21400	9.7	1	3.36206E+00	2.16744E+00	4.04660E+06	1.83359E+00	1.83359E+00	7.86641E+00	

TABLE F.5.4
SUPPORT DATA FOR LEAD REGRESSIONS IN SUBSURFACE SOIL
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!R**	**DA!T**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**FE**	**PB**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SB	DA-SB122-0407	**20000**	**13.9**	1	3.95023E+01	3.21741E+01	1.16391E+07	6.28509E+00	6.28509E+00	7.61491E+00	DA-SB122-0407
Site 8 SB	DA-SB123-0508	**35200**	**18.4**	1	6.48757E+01	1.03474E+02	1.38966E+08	8.05455E+00	8.05455E+00	1.03455E+01	DA-SB123-0508
Site 8 SB	DA-SB124-0608	37800	12.3	1	2.21260E+00	1.65830E+01	2.07026E+08	1.48748E+00	1.48748E+00	1.08125E+01	
Site 8 SB	DA-SB125-0810	**30700**	**13.9**	1	1.90352E+01	3.21741E+01	5.31205E+07	4.36293E+00	4.36293E+00	9.53707E+00	DA-SB125-0810
Site 8 SB	DA-SB126-1013	**32800**	**15.1**	1	2.68913E+01	4.72274E+01	8.81418E+07	5.18568E+00	5.18568E+00	9.91432E+00	DA-SB126-1013
Site 8 SB	DA-SB127-0204	**18800**	**25.1**	1	3.13313E+02	2.84672E+02	2.12670E+07	1.77007E+01	1.77007E+01	7.39934E+00	DA-SB127-0204
Site 8 SB	**DA-SB128-0810**	**38600**	**117**	1	1.12453E+04	1.18314E+04	2.30687E+08	1.06044E+02	1.06044E+02	1.09562E+01	DA-SB128-0810
Site 8 SB	DA-SB129-0406	**22800**	**66.8**	1	3.44359E+03	3.43071E+03	3.74074E+05	5.86821E+01	5.86821E+01	8.11791E+00	DA-SB129-0406
Site 8 SB	DA-SB130-1011.5	**31600**	**19.3**	1	9.21841E+01	1.22594E+02	6.70496E+07	9.60125E+00	9.60125E+00	9.69875E+00	DA-SB130-1011.5
Site 8 SB	DA-SB131-0406	**28200**	**21.3**	1	1.49134E+02	1.70883E+02	2.29286E+07	1.22120E+01	1.22120E+01	9.08797E+00	DA-SB131-0406
Site 8 SB	**DA-SB132-0406**	**31800**	**926**	1	8.39542E+05	8.42306E+05	7.03650E+07	9.16265E+02	9.16265E+02	9.73467E+00	DA-SB132-0406
Site 8 SB	DA-SB133-0810	**26100**	**16.6**	1	6.22407E+01	7.00941E+01	7.22741E+06	7.88928E+00	7.88928E+00	8.71072E+00	DA-SB133-0810
Site 8 SB	DA-SB134-0405	49400	13.2	1	9.22001E-02	2.47230E+01	6.75396E+08	3.03645E-01	3.03645E-01	1.28964E+01	
Site 8 SB	DA-SB135-1214	61400	10.4	1	2.16415E+01	4.71855E+00	1.44312E+09	-4.65205E+00	-4.65205E+00	1.50520E+01	
Site 8 SB	DA-SB136-0810	48600	10.1	1	7.03651E+00	3.50522E+00	6.34455E+08	-2.65264E+00	-2.65264E+00	1.27526E+01	
Site 8 SB	DA-SB137-0406	54600	12.3	1	2.34239E+00	1.65830E+01	9.72715E+08	-1.53049E+00	-1.53049E+00	1.38305E+01	
Site 8 SB	DA-SB138-0406	46100	10	1	5.30630E+00	3.14077E+00	5.14763E+08	-2.30354E+00	-2.30354E+00	1.23035E+01	
Site 8 SB	DA-SB139-1012	69200	10.7	1	3.30998E+01	6.11188E+00	2.09658E+09	-5.75325E+00	-5.75325E+00	1.64532E+01	
Site 8 SB	DA-SB150-0204	**23600**	**10.6**	1	5.46802E+00	5.62744E+00	3.54885E+04	2.33838E+00	2.33838E+00	8.26162E+00	DA-SB150-0204
Site 8 SB	DA-SB151-0406	26650	8.75	1	3.54312E-03	2.72716E-01	1.04871E+07	-5.95241E-02	-5.95241E-02	8.80952E+00	
Site 8 SB	DA-SB152-0204	19600	9	1	2.12269E+00	5.96327E-01	1.45284E+07	1.45694E+00	1.45694E+00	7.54306E+00	
Site 8 SB	DA-SB153-0204	25200	10.5	1	3.80623E+00	5.16299E+00	3.19832E+06	1.95096E+00	1.95096E+00	8.54904E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Y variable name used on graph: MN_log
X variable name used on graph: FE_log

	N	214.000000
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	5.206589E+01
0.10	**t-Value: 2-tail, 0.100 alpha**	1.652073
degrees freedom	SUM(XY*w^2)	1.135696E+04
2	SUM(X^2*w^2)	2.049109E+04
	SUM(X*w^2)	2.092089E+03
	SUM(Y*w^2)	1.157169E+03
	SUM(w^2)	2.140000E+02
	SUM(Y)	1157.169109
	SUM(X)	2.092089E+03
	Denominator	8.255834E+03
	Slope	**1.149223E+00**
	Intercept	**-5.827609E+00**
	Minimum X value	8.689464E+00
	Maximum X value	1.089489E+01
	Minimum Y value	3.328627E+00
	Maximum Y value	7.467371E+00
	No. of graph points	25
	SUM(Ypred.- Yobs)^2	5.206589E+01
	SUM(Yobs - Yave)^2	1.030173E+02
	SUM(X - Xave)^2	3.857866E+01
	Std. Error of Y-estimate	**4.955742E-01**
	R^2	**4.945907E-01**
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>		**1**
est.M, Std.Err.Y		
Percentiles of Y-Pred.	**Domain for Estimating % Err in Y-Pred:**	**25**
	Inverse Log Transform (Y/N)?	**Yes**
	Inverse Power Transform (Y/N)?	**No**
	Inverse Power Transform (1/Power):	**1**

********** GRAPH LINES **********				- - - Extreme Value Lines: +/-3 x IQR of residuals			
X-Points	**Y Predicted**	**Lower 95%**	**Upper 95%**	**-3 x IQR**	**+3 x IQR**	**Median**	**No. of Exceedances of Upper 95% Limit for Each Soil Type:**
8.69	4.16	3.33	4.99	-1.71	1.71	0.04	
8.78	4.26	3.43	5.10	-1.71	1.71	0.04	
8.87	4.37	3.54	5.20	-1.71	1.71	0.04	
8.97	4.48	3.65	5.30	-1.71	1.71	0.04	---- \/ ----
9.06	4.58	3.75	5.41	-1.71	1.71	0.04	BASS
9.15	4.69	3.86	5.51	-1.71	1.71	0.04	0
9.24	4.79	3.97	5.62	-1.71	1.71	0.04	MASS
9.33	4.90	4.08	5.72	-1.71	1.71	0.04	0
9.42	5.00	4.18	5.83	-1.71	1.71	0.04	MMSS
9.52	5.11	4.29	5.93	-1.71	1.71	0.04	0
9.61	5.21	4.39	6.04	-1.71	1.71	0.04	NESS
9.70	5.32	4.50	6.14	-1.71	1.71	0.04	0
9.79	5.43	4.61	6.25	-1.71	1.71	0.04	PMSS
9.88	5.53	4.71	6.35	-1.71	1.71	0.04	0
9.98	5.64	4.82	6.46	-1.71	1.71	0.04	SESS
10.07	5.74	4.92	6.56	-1.71	1.71	0.04	0
10.16	5.85	5.03	6.67	-1.71	1.71	0.04	SESD
10.25	5.95	5.13	6.78	-1.71	1.71	0.04	0
10.34	6.06	5.24	6.88	-1.71	1.71	0.04	MASB
10.44	6.17	5.34	6.99	-1.71	1.71	0.04	2
10.53	6.27	5.44	7.10	-1.71	1.71	0.04	MMSB
10.62	6.38	5.55	7.20	-1.71	1.71	0.04	2
10.71	6.48	5.65	7.31	-1.71	1.71	0.04	NESB
10.80	6.59	5.76	7.42	-1.71	1.71	0.04	0
10.89	6.69	5.86	7.53	-1.71	1.71	0.04	PMSB
9.55	5.15	4.33	5.97	172.77	**-56%**	**127%**	4
9.79	5.42	4.60	6.24	225.83	**-56%**	**127%**	SESB
10.06	5.74	4.91	6.56	309.62	**-56%**	**127%**	2
10.29	6.00	5.18	6.83	404.82	**-56%**	**128%**	<<---Original Units Errors

TEXT BOX ==> **(MN_log) = (1.15E+00)x(FE_log) + (-5.83E+00)** **R^2 = 0.49; Std. Error of Y-estimate = 4.96E-01** **+/-3 x IQR of r** -1.712521 1.712521

TEXT BOX ==> **95% Confidence Limits on a Y-value predicted from one X-valu**

Indexed value lookups:		**X data column ref.**	**Y data column ref.**	\/ - wt.descrip.	**TEXT BOX==>** (Pred. - Obs.)^2	**Residuals Plot: (Observed - Predicted) Versus Y-Pred.** (Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	**Y-Pred.** Y-Pred.	Spl. IDs>upper 95% C.L.
Specify X-col., Y-col. as: "DA!" + column		**DA!O**	**DA!V**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
BASS	BASS-BWBK-SS-BA101-0001	9.119320974	4.905274778	1	6.38817E-02	2.52062E-01	4.31382E-01	2.52748E-01	2.52748E-01	4.65253E+00	
BASS	BASS-BWBK-SS-BA102-0001	8.909235279	4.634728988	1	5.00139E-02	5.96916E-01	7.51485E-01	2.23638E-01	2.23638E-01	4.41109E+00	
BASS	BASS-BWBK-SS-BA103-0001	8.959311617	4.700480366	1	5.37499E-02	4.99640E-01	6.67172E-01	2.31840E-01	2.31840E-01	4.46864E+00	
BASS	BASS-BWBK-SS-BA104-0001	9.082507	4.727387819	1	1.37285E-02	4.62324E-01	4.81095E-01	1.17169E-01	1.17169E-01	4.61022E+00	
BASS	BASS-BWBK-SS-BA105-0001	9.04192172	4.812184355	1	6.18053E-02	3.54201E-01	5.39043E-01	2.48607E-01	2.48607E-01	4.56358E+00	
BASS	BASS-BWBK-SS-BA106-0001	9.102198213	4.8978398	1	7.02203E-02	2.59583E-01	4.54167E-01	2.64991E-01	2.64991E-01	4.63285E+00	
BASS	BASS-BWBK-SS-BA107-0001	8.907883014	4.682131227	1	7.43075E-02	5.25917E-01	7.53831E-01	2.72594E-01	2.72594E-01	4.40954E+00	
BASS	BASS-BWBK-SS-BA108-0001	8.879054662	4.663439094	1	8.23875E-02	5.53377E-01	8.04722E-01	2.87032E-01	2.87032E-01	4.37641E+00	
BASS	BASS-BWBK-SS-BA109-0001	8.969541885	4.709530201	1	5.25020E-02	4.86928E-01	6.50564E-01	2.29133E-01	2.29133E-01	4.48040E+00	
BASS	BASS-BWBK-SS-BA110-0001	9.2023082	4.875197323	1	1.62053E-02	2.83168E-01	3.29257E-01	1.27300E-01	1.27300E-01	4.74790E+00	
BASS	BASS-BWBK-SS-BA111-0001	8.992184362	4.779123493	1	7.43682E-02	3.94646E-01	6.14551E-01	2.72705E-01	2.72705E-01	4.50642E+00	
BASS	BASS-BWBK-SS-BA112-0001	8.987196821	4.736198448	1	5.54659E-02	4.50421E-01	6.22396E-01	2.35512E-01	2.35512E-01	4.50069E+00	
BASS	BASS-BWBK-SS-BA113-0001	8.968905551	4.629374875	1	2.24128E-02	6.05218E-01	6.51591E-01	1.49709E-01	1.49709E-01	4.47967E+00	
MASB	MASB-BWBK-SB-MA01-0105	10.20359214	7.467371067	1	2.46105E+00	4.24376E+00	1.82735E-01	1.56877E+00	1.56877E+00	5.89860E+00	MASB-BWBK-SB-MA01-0105
MASB	MASB-BWBK-SB-MA02-0107	10.27505111	6.368187186	1	1.50132E-01	9.23242E-01	2.48935E-01	3.87469E-01	3.87469E-01	5.98072E+00	
MASB	MASB-BWBK-SB-MA03-0108	10.2853428	6.88857246	1	8.02863E-01	2.19407E+00	2.59311E-01	8.96026E-01	8.96026E-01	5.99255E+00	MASB-BWBK-SB-MA03-0108
MASB	MASB-BWBK-SB-MA04-0106	10.2327913	6.637258031	1	4.97174E-01	1.51272E+00	2.08551E-01	7.05105E-01	7.05105E-01	5.93215E+00	
MASB	MASB-BWBK-SB-MA05-0108	10.21097225	6.107022888	1	3.99781E-02	4.89567E-01	1.89099E-01	1.99945E-01	1.99945E-01	5.90708E+00	
MASB	MASB-BWBK-SB-MA06-0105	10.15812977	6.035481433	1	3.57708E-02	3.94571E-01	1.45933E-01	1.89132E-01	1.89132E-01	5.84635E+00	
MASB	MASB-BWBK-SB-MA07-0108	10.23995979	5.598421959	1	1.16943E-01	3.65153E-02	2.15150E-01	-3.41969E-01	-3.41969E-01	5.94039E+00	
MASB	MASB-BWBK-SB-MA08-0108	10.85321306	6.225548038	1	1.76071E-01	6.69477E-01	1.16014E+00	-4.19608E-01	-4.19608E-01	6.64516E+00	
MASB	MASB-BWBK-SB-MA09-0108	10.46310334	6.259581464	1	3.93743E-03	7.26329E-01	4.71950E-01	6.27490E-02	6.27490E-02	6.19683E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MASB	MASB-BWBK-SB-MA10-0104	10.19988157	5.459585514	1	1.89004E-01	2.73040E-03	1.79576E-01	-4.34746E-01	-4.34746E-01	5.89433E+00	
MASB	MASB-BWBK-SB-MA11-0108	10.38899537	6.049733455	1	3.83563E-03	4.12679E-01	3.75619E-01	-6.19325E-02	-6.19325E-02	6.11167E+00	
MASB	MASB-BWBK-SB-MA12-0108	10.42228135	6.278521424	1	1.65386E-02	7.58971E-01	4.17528E-01	1.28602E-01	1.28602E-01	6.14992E+00	
MASB	MASB-BWBK-SB-MA13-0105	9.667765219	5.056245805	1	5.13320E-02	1.23262E-01	1.17402E-02	-2.26566E-01	-2.26566E-01	5.28281E+00	
MASB	MASB-BWBK-SB-MA14-0104	10.35296955	6.061456919	1	7.75681E-05	4.27879E-01	3.32758E-01	-8.80728E-03	-8.80728E-03	6.07026E+00	
MASB	MASB-BWBK-SB-MA15-0105	10.10233841	5.942799375	1	2.57815E-02	2.86725E-01	1.06420E-01	1.60566E-01	1.60566E-01	5.78223E+00	
MASB	MASB-BWBK-SB-MA16-0104	9.966462352	6.08221891	1	2.08062E-01	4.55472E-01	3.62312E-02	4.56138E-01	4.56138E-01	5.62608E+00	
MASB	MASB-BWBK-SB-MA17-0104	9.942708266	5.802118375	1	4.13455E-02	1.55856E-01	2.77525E-02	2.03336E-01	2.03336E-01	5.59878E+00	
MASB	MASB-BWBK-SB-MA18-0104	9.752664663	5.252273428	1	1.64113E-02	2.40432E-02	5.50030E-04	-1.28106E-01	-1.28106E-01	5.38038E+00	
MASB	MASB-BWBK-SB-MA19-0103	9.622450023	5.905361848	1	4.55122E-01	2.48033E-01	2.36137E-02	6.74628E-01	6.74628E-01	5.23073E+00	
MASB	MASB-BWBK-SB-MA20-0103	10.11050172	5.65248918	1	1.93559E-02	6.01019E-02	1.11813E-01	-1.39125E-01	-1.39125E-01	5.79161E+00	
MASS	MASS-BWBK-SS-MA01-0001	8.86644062	3.877431561	1	2.34720E-01	2.34060E+00	8.27512E-01	-4.84479E-01	-4.84479E-01	4.36191E+00	
MASS	MASS-BWBK-SS-MA02-0001	9.038365107	4.154184563	1	1.64273E-01	1.57038E+00	5.44278E-01	-4.05306E-01	-4.05306E-01	4.55949E+00	
MASS	MASS-BWBK-SS-MA03-0001	9.37585481	4.424846632	1	2.73001E-01	9.65278E-01	1.60210E-01	-5.22495E-01	-5.22495E-01	4.94734E+00	
MASS	MASS-BWBK-SS-MA04-0001	9.384293679	4.762173935	1	3.79725E-02	4.16229E-01	1.53526E-01	-1.94865E-01	-1.94865E-01	4.95704E+00	
MASS	MASS-BWBK-SS-MA05-0001	9.781319919	4.836281907	1	3.32963E-01	3.26099E-01	2.70663E-05	-5.77029E-01	-5.77029E-01	5.41331E+00	
MASS	MASS-BWBK-SS-MA06-0001	9.92329018	5.288267031	1	8.30590E-02	1.41765E-02	2.16598E-02	-2.88200E-01	-2.88200E-01	5.57647E+00	
MASS	MASS-BWBK-SS-MA07-0001	8.689464412	3.328626689	1	6.88732E-01	4.32102E+00	1.18081E+00	-8.29899E-01	-8.29899E-01	4.15853E+00	
MASS	MASS-BWBK-SS-MA08-0001	9.846917201	5.003946306	1	2.34983E-01	1.62720E-01	5.01261E-03	-4.84751E-01	-4.84751E-01	5.48870E+00	
MASS	MASS-BWBK-SS-MA09-0001	9.942708266	5.497168225	1	1.03254E-02	8.07050E-03	2.77525E-02	-1.01614E-01	-1.01614E-01	5.59878E+00	
MASS	MASS-BWBK-SS-MA10-0001	9.980448594	5.564520407	1	6.02705E-03	2.47081E-02	4.17512E-02	-7.76341E-02	-7.76341E-02	5.64215E+00	
MASS	MASS-BWBK-SS-MA11-0001	10.18866649	5.655991811	1	5.08284E-02	6.18316E-02	1.70197E-01	-2.25451E-01	-2.25451E-01	5.88144E+00	
MASS	MASS-BWBK-SS-MA12-0001	9.609116492	4.570578741	1	4.15809E-01	7.00156E-01	2.78893E-02	-6.44832E-01	-6.44832E-01	5.21541E+00	
MASS	MASS-BWBK-SS-MA13-0001	9.635608107	4.615120517	1	3.97827E-01	6.27599E-01	1.97429E-02	-6.30735E-01	-6.30735E-01	5.24586E+00	
MASS	MASS-BWBK-SS-MA14-0001	9.152711259	4.471638793	1	4.80752E-02	8.75522E-01	3.88635E-01	-2.19261E-01	-2.19261E-01	4.69090E+00	
MASS	MASS-BWBK-SS-MA15-0001	9.259130536	4.053522568	1	5.77108E-01	1.83280E+00	2.67275E-01	-7.59676E-01	-7.59676E-01	4.81320E+00	
MASS	MASS-BWBK-SS-MA16-0001	9.61580548	4.388257184	1	6.96959E-01	1.03851E+00	2.56999E-02	-8.34841E-01	-8.34841E-01	5.22310E+00	
MASS	MASS-BWBK-SS-MA17-0001	9.609116492	5.030437921	1	3.42150E-02	1.42049E-01	2.78893E-02	-1.84973E-01	-1.84973E-01	5.21541E+00	
MASS	MASS-BWBK-SS-MA18-0001	9.472704636	4.189654742	1	7.55141E-01	1.48274E+00	9.20593E-02	-8.68989E-01	-8.68989E-01	5.05864E+00	
MASS	MASS-BWBK-SS-MA19-0001	9.629050707	4.912654886	1	1.06058E-01	2.44706E-01	2.16286E-02	-3.25665E-01	-3.25665E-01	5.23832E+00	
MASS	MASS-BWBK-SS-MA20-0001	9.764225485	5.225746674	1	2.81968E-02	3.29733E-02	1.41417E-04	-1.67919E-01	-1.67919E-01	5.39367E+00	
MMSB	MMSB-BWBK-SB-MM101-0110	9.729134165	5.700443573	1	1.20482E-01	8.59142E-02	2.20742E-03	3.47105E-01	3.47105E-01	5.35334E+00	
MMSB	MMSB-BWBK-SB-MM102-0109	9.667765219	5.572154032	1	8.37191E-02	2.71662E-02	1.17402E-02	2.89343E-01	2.89343E-01	5.28281E+00	
MMSB	MMSB-BWBK-SB-MM103-0107	9.609116492	5.799092654	1	3.40684E-01	1.53476E-01	2.78893E-02	5.83682E-01	5.83682E-01	5.21541E+00	
MMSB	MMSB-BWBK-SB-MM104-0110	10.08580911	5.814130532	1	2.59013E-03	1.65485E-01	9.59090E-02	5.08933E-02	5.08933E-02	5.76324E+00	
MMSB	MMSB-BWBK-SB-MM105-0110	9.392661929	5.347107531	1	1.44743E-01	3.62702E-03	1.47038E-01	3.80451E-01	3.80451E-01	4.96666E+00	
MMSB	MMSB-BWBK-SB-MM106-0110	9.980448594	6.109247583	1	2.18176E-01	4.92685E-01	4.17512E-02	4.67093E-01	4.67093E-01	5.64215E+00	
MMSB	MMSB-BWBK-SB-MM107-0110	9.595602773	5.501258211	1	9.08284E-02	8.82208E-03	3.25855E-02	3.01378E-01	3.01378E-01	5.19988E+00	
MMSB	MMSB-BWBK-SB-MM108-0110	9.651815918	5.459585514	1	3.80653E-02	2.73040E-03	1.54509E-02	1.95103E-01	1.95103E-01	5.26448E+00	
MMSB	MMSB-BWBK-SB-MM109-0110	9.786953736	5.669880923	1	6.25476E-02	6.89318E-02	1.17426E-04	2.50095E-01	2.50095E-01	5.41979E+00	
MMSB	MMSB-BWBK-SB-MM110-0109	9.735068901	5.480638923	1	1.45156E-02	5.37386E-03	1.68498E-03	1.20481E-01	1.20481E-01	5.36016E+00	
MMSB	MMSB-BWBK-SB-MM111-0110	9.862665558	5.634789603	1	1.63825E-02	5.17368E-02	7.49059E-03	1.27994E-01	1.27994E-01	5.50680E+00	
MMSB	MMSB-BWBK-SB-MM112-0110	9.880730565	6.506531165	1	9.58392E-01	1.20824E+00	1.09439E-02	9.78975E-01	9.78975E-01	5.52756E+00	MMSB-BWBK-SB-MM112-0110
MMSB	MMSB-BWBK-SB-MM113-0110	9.686574551	5.590986981	1	8.21163E-02	3.37290E-02	8.01792E-03	2.86559E-01	2.86559E-01	5.30443E+00	
MMSB	MMSB-BWBK-SB-MM114-0110	9.449357272	5.666426688	1	4.02736E-01	6.71299E-02	1.06772E-01	6.34615E-01	6.34615E-01	5.03181E+00	
MMSB	MMSB-BWBK-SB-MM115-0110	9.698920387	5.746203191	1	1.82831E-01	1.14833E-01	5.95938E-03	4.27587E-01	4.27587E-01	5.31862E+00	
MMSB	MMSB-BWBK-SB-MM116-0110	9.655026193	5.766757274	1	2.48588E-01	1.29186E-01	1.46631E-02	4.98586E-01	4.98586E-01	5.26817E+00	
MMSB	MMSB-BWBK-SB-MM117-0110	9.510444964	5.537334267	1	1.89503E-01	1.69005E-02	7.05818E-02	4.35319E-01	4.35319E-01	5.10202E+00	
MMSB	MMSB-BWBK-SB-MM118-0110	9.609116492	6.289715571	1	1.15413E+00	7.78600E-01	2.78893E-02	1.07430E+00	1.07430E+00	5.21541E+00	MMSB-BWBK-SB-MM118-0110
MMSB	MMSB-BWBK-SB-MM119-0110	9.667765219	5.710427017	1	1.82855E-01	9.18664E-02	1.17402E-02	4.27616E-01	4.27616E-01	5.28281E+00	
MMSB	MMSB-BWBK-SB-MM120-0110	9.26860928	5.262690189	1	1.92368E-01	2.09213E-02	2.57564E-01	4.38598E-01	4.38598E-01	4.82409E+00	
MMSS	MMSS-BWBK-SS-MM101-0001	9.786953736	5.093750201	1	1.06299E-01	9.83337E-02	1.17426E-04	-3.26035E-01	-3.26035E-01	5.41979E+00	
MMSS	MMSS-BWBK-SS-MM102-0001	9.553930076	5.099866428	1	2.71681E-03	9.45353E-02	4.93672E-02	-5.21230E-02	-5.21230E-02	5.15199E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
MMSS	MMSS-BWBK-SS-MM103-0001	9.764225485	5.036952602	1	1.27244E-01	1.37181E-01	1.41417E-04	-3.56713E-01	-3.56713E-01	5.39367E+00	
MMSS	MMSS-BWBK-SS-MM104-0001	9.798127037	5.247024072	1	3.44482E-02	2.56987E-02	4.84425E-04	-1.85602E-01	-1.85602E-01	5.43263E+00	
MMSS	MMSS-BWBK-SS-MM105-0001	9.392661929	4.912654886	1	2.91616E-03	2.44706E-01	1.47038E-01	-5.40015E-02	-5.40015E-02	4.96666E+00	
MMSS	MMSS-BWBK-SS-MM106-0001	9.792555992	5.267858159	1	2.50797E-02	1.94530E-02	2.70228E-04	-1.58366E-01	-1.58366E-01	5.42622E+00	
MMSS	MMSS-BWBK-SS-MM107-0001	9.786953736	5.170483995	1	6.21513E-02	5.60971E-02	1.17426E-04	-2.49302E-01	-2.49302E-01	5.41979E+00	
MMSS	MMSS-BWBK-SS-MM108-0001	9.642122788	4.727387819	1	2.76628E-01	4.62324E-01	1.79546E-02	-5.25955E-01	-5.25955E-01	5.25334E+00	
MMSS	MMSS-BWBK-SS-MM109-0001	9.648595303	4.844187086	1	1.73550E-01	3.17133E-01	1.62619E-02	-4.16594E-01	-4.16594E-01	5.26078E+00	
MMSS	MMSS-BWBK-SS-MM110-0001	9.198267791	4.411585437	1	1.10004E-01	9.91512E-01	3.33910E-01	-3.31669E-01	-3.31669E-01	4.74325E+00	
MMSS	MMSS-BWBK-SS-MM111-0001	9.249561085	4.579852378	1	4.94392E-02	6.84723E-01	2.77262E-01	-2.22349E-01	-2.22349E-01	4.80220E+00	
MMSS	MMSS-BWBK-SS-MM112-0001	9.118225083	4.387014176	1	6.98296E-02	1.04105E+00	4.32822E-01	-2.64253E-01	-2.64253E-01	4.65127E+00	
MMSS	MMSS-BWBK-SS-MM113-0001	9.553930076	4.787491743	1	1.32859E-01	3.84202E-01	4.93672E-02	-3.64498E-01	-3.64498E-01	5.15199E+00	
MMSS	MMSS-BWBK-SS-MM114-0001	9.016755623	4.543294782	1	7.46269E-05	7.46561E-01	5.76630E-01	8.63869E-03	8.63869E-03	4.53466E+00	
MMSS	MMSS-BWBK-SS-MM115-0001	9.305650552	4.94875989	1	6.74025E-03	2.10289E-01	2.21339E-01	8.20990E-02	8.20990E-02	4.86666E+00	
MMSS	MMSS-BWBK-SS-MM116-0001	9.230142999	4.727387819	1	2.75604E-03	4.62324E-01	2.98088E-01	-5.24980E-02	-5.24980E-02	4.77989E+00	
MMSS	MMSS-BWBK-SS-MM117-0001	9.61580548	4.927253685	1	8.75239E-02	2.30475E-01	2.56999E-02	-2.95844E-01	-2.95844E-01	5.22310E+00	
MMSS	MMSS-BWBK-SS-MM118-0001	9.480367509	5.18178355	1	1.30722E-02	5.08722E-02	8.74680E-02	1.14334E-01	1.14334E-01	5.06745E+00	
MMSS	MMSS-BWBK-SS-MM119-0001	9.341368634	5.204006687	1	8.77924E-02	4.13413E-02	1.89006E-01	2.96298E-01	2.96298E-01	4.90771E+00	
MMSS	MMSS-BWBK-SS-MM120-0001	9.775654181	5.141663557	1	7.02973E-02	7.05799E-02	2.14559E-07	-2.65136E-01	-2.65136E-01	5.40680E+00	
NESB	NESB-BWBK-SB-NE01-0108	10.07323033	5.883322388	1	1.81013E-02	2.26567E-01	8.82761E-02	1.34541E-01	1.34541E-01	5.74878E+00	
NESB	NESB-BWBK-SB-NE02-0109	10.00784757	6.452048954	1	6.05917E-01	1.09143E+00	5.36989E-02	7.78407E-01	7.78407E-01	5.67364E+00	
NESB	NESB-BWBK-SB-NE03-0105	10.01234196	5.707110265	1	8.01072E-04	8.98668E-02	5.58020E-02	2.83032E-02	2.83032E-02	5.67881E+00	
NESB	NESB-BWBK-SB-NE04-0110	9.903487553	5.840641657	1	8.23303E-02	1.87757E-01	1.62232E-02	2.86933E-01	2.86933E-01	5.55371E+00	
NESB	NESB-BWBK-SB-NE05-0108	10.03889219	5.834810737	1	1.57481E-02	1.82738E-01	6.90506E-02	1.25492E-01	1.25492E-01	5.70932E+00	
NESB	NESB-BWBK-SB-NE06-0109	9.957028319	5.765191103	1	2.24855E-02	1.28063E-01	3.27288E-02	1.49952E-01	1.49952E-01	5.61524E+00	
NESB	NESB-BWBK-SB-NE07-0107	10.0475879	5.703782475	1	2.41182E-04	8.78827E-02	7.36962E-02	-1.55300E-02	-1.55300E-02	5.71931E+00	
NESB	NESB-BWBK-SB-NE08-0104	9.809176873	5.541263545	1	9.20420E-03	1.79376E-02	1.09293E-03	9.59385E-02	9.59385E-02	5.44533E+00	
NESB	NESB-BWBK-SB-NE09-0110	9.928180165	5.777652323	1	3.82460E-02	1.37137E-01	2.31231E-02	1.95566E-01	1.95566E-01	5.58209E+00	
NESB	NESB-BWBK-SB-NE10-0107	9.809176873	5.517452896	1	5.20243E-03	1.21265E-02	1.09293E-03	7.21279E-02	7.21279E-02	5.44533E+00	
NESB	NESB-BWBK-SB-NE101-0110	9.775654181	5.493061443	1	7.44104E-03	7.34949E-03	2.14559E-07	8.62615E-02	8.62615E-02	5.40680E+00	
NESB	NESB-BWBK-SB-NE102-0110	9.574983486	5.433722004	1	6.63256E-02	6.96417E-04	4.04548E-02	2.57537E-01	2.57537E-01	5.17618E+00	
NESB	NESB-BWBK-SB-NE103-0110	9.480367509	5.318119994	1	6.28356E-02	7.95883E-03	8.74680E-02	2.50670E-01	2.50670E-01	5.06745E+00	
NESB	NESB-BWBK-SB-NE104-0110	9.37585481	5.170483995	1	4.97927E-02	5.60971E-02	1.60210E-01	2.23143E-01	2.23143E-01	4.94734E+00	
NESB	NESB-BWBK-SB-NE105-0110	9.75846178	5.774551546	1	1.50164E-01	1.34850E-01	3.11720E-04	3.87509E-01	3.87509E-01	5.38704E+00	
NESB	NESB-BWBK-SB-NE106-0110	9.629050707	5.509388337	1	7.34781E-02	1.04154E-02	2.16286E-02	2.71068E-01	2.71068E-01	5.23832E+00	
NESB	NESB-BWBK-SB-NE107-0510	9.517825072	5.298317367	1	3.52766E-02	1.18843E-02	6.67149E-02	1.87821E-01	1.87821E-01	5.11050E+00	
NESB	NESB-BWBK-SB-NE108-0110	9.629050707	5.332718793	1	8.91116E-03	5.56717E-03	2.16286E-02	9.43990E-02	9.43990E-02	5.23832E+00	
NESB	NESB-BWBK-SB-NE109-0110	9.609116492	5.365976015	1	2.26698E-02	1.71034E-03	2.78893E-02	1.50565E-01	1.50565E-01	5.21541E+00	
NESB	NESB-BWBK-SB-NE110-0110	9.60238246	5.413875707	1	4.25199E-02	4.28164E-05	3.01838E-02	2.06204E-01	2.06204E-01	5.20767E+00	
NESS	NESS-BKG-SS03-NEB-0016	9.781319919	5.318119994	1	9.06136E-03	7.95883E-03	2.70663E-05	-9.51912E-02	-9.51912E-02	5.41331E+00	
NESS	NESS-BKG-SS09-NEB-0018	9.525151112	5.187385806	1	4.68811E-03	4.83765E-02	6.29841E-02	6.84698E-02	6.84698E-02	5.11892E+00	
NESS	NESS-BWBK-SS-NE01-0001	10.04324949	5.669880923	1	1.97543E-03	6.89318E-02	7.13596E-02	-4.44458E-02	-4.44458E-02	5.71433E+00	
NESS	NESS-BWBK-SS-NE02-0001	10.02570519	5.402677382	1	8.49647E-02	2.16681E-05	6.22941E-02	-2.91487E-01	-2.91487E-01	5.69416E+00	
NESS	NESS-BWBK-SS-NE03-0001	9.888373915	5.257495372	1	7.77544E-02	2.24511E-02	1.26015E-02	-2.78845E-01	-2.78845E-01	5.53634E+00	
NESS	NESS-BWBK-SS-NE04-0001	9.942708266	5.533389489	1	4.27623E-03	1.58904E-02	2.77525E-02	-6.53929E-02	-6.53929E-02	5.59878E+00	
NESS	NESS-BWBK-SS-NE05-0001	9.83091686	5.33753808	1	1.76281E-02	4.87123E-03	3.00298E-03	-1.32771E-01	-1.32771E-01	5.47031E+00	
NESS	NESS-BWBK-SS-NE06-0001	9.857443614	5.214935758	1	8.17151E-02	3.70164E-02	6.61396E-03	-2.85859E-01	-2.85859E-01	5.50079E+00	
NESS	NESS-BWBK-SS-NE07-0001	9.862665558	5.176149733	1	1.09327E-01	5.34454E-02	7.49059E-03	-3.30646E-01	-3.30646E-01	5.50680E+00	
NESS	NESS-BWBK-SS-NE08-0001	9.852194258	5.220355825	1	7.52985E-02	3.49602E-02	5.78769E-03	-2.74406E-01	-2.74406E-01	5.49476E+00	
NESS	NESS-BWBK-SS-NE09-0001	9.781319919	5.38907173	1	5.87550E-04	3.33448E-04	2.70663E-05	-2.42394E-02	-2.42394E-02	5.41331E+00	
NESS	NESS-BWBK-SS-NE10-0001	9.764225485	5.262690189	1	1.71546E-02	2.09213E-02	1.41417E-04	-1.30976E-01	-1.30976E-01	5.39367E+00	
NESS	NESS-BWBK-SS-NE101-0001	9.487972109	4.983606622	1	8.57150E-03	1.79543E-01	8.30277E-02	-9.25824E-02	-9.25824E-02	5.07619E+00	
NESS	NESS-BWBK-SS-NE102-0001	9.27799902	4.852030264	1	2.94026E-04	3.08360E-01	2.48122E-01	1.71472E-02	1.71472E-02	4.83488E+00	
NESS	NESS-BWBK-SS-NE103-0001	9.197255132	4.644390899	1	9.54518E-03	5.82080E-01	3.35082E-01	-9.76994E-02	-9.76994E-02	4.74209E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
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	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
NESS	NESS-BWBK-SS-NE104-0001	9.417354541	4.890349128	1	1.09589E-02	2.67272E-01	1.28711E-01	-1.04685E-01	-1.04685E-01	4.99503E+00	
NESS	NESS-BWBK-SS-NE105-0001	9.126958763	4.779123493	1	1.38814E-02	3.94646E-01	4.21407E-01	1.17819E-01	1.17819E-01	4.66130E+00	
NESS	NESS-BWBK-SS-NE106-0001	9.220290703	4.86753445	1	9.79528E-03	2.91382E-01	3.08943E-01	9.89711E-02	9.89711E-02	4.76856E+00	
NESS	NESS-BWBK-SS-NE107-0001	9.139917908	5.099866428	1	1.79496E-01	9.45353E-02	4.04750E-01	4.23669E-01	4.23669E-01	4.67620E+00	
NESS	NESS-BWBK-SS-NE108-0001	9.220290703	4.859812404	1	8.32639E-03	2.99778E-01	3.08943E-01	9.12491E-02	9.12491E-02	4.76856E+00	
NESS	NESS-BWBK-SS-NE109-0001	9.107199613	4.779123493	1	1.97479E-02	3.94646E-01	4.47451E-01	1.40527E-01	1.40527E-01	4.63860E+00	
NESS	NESS-BWBK-SS-NE110-0001	9.167432871	4.448516376	1	6.72373E-02	9.19328E-01	3.70497E-01	-2.59302E-01	-2.59302E-01	4.70782E+00	
PMSB	PMSB-BWBK-SB-PM01-0105	9.952277717	6.329720906	1	5.18315E-01	8.50801E-01	3.10325E-02	7.19941E-01	7.19941E-01	5.60978E+00	
PMSB	PMSB-BWBK-SB-PM02-0104	10.56359488	6.480044562	1	2.81316E-02	1.15071E+00	6.20121E-01	1.67725E-01	1.67725E-01	6.31232E+00	
PMSB	PMSB-BWBK-SB-PM03-0106	10.46595641	6.040254711	1	2.55541E-02	4.00591E-01	4.75878E-01	-1.59857E-01	-1.59857E-01	6.20011E+00	
PMSB	PMSB-BWBK-SB-PM04-0105	10.22918769	6.246106765	1	1.01185E-01	7.03543E-01	2.05273E-01	3.18096E-01	3.18096E-01	5.92801E+00	
PMSB	PMSB-BWBK-SB-PM05-0105	10.22918769	6.483107351	1	3.08132E-01	1.15729E+00	2.05273E-01	5.55096E-01	5.55096E-01	5.92801E+00	
PMSB	PMSB-BWBK-SB-PM06-0105	10.31890299	7.326465614	1	1.67794E+00	3.68307E+00	2.94616E-01	1.29535E+00	1.29535E+00	6.03111E+00	PMSB-BWBK-SB-PM06-0105
PMSB	PMSB-BWBK-SB-PM07-0105	10.18866649	6.745236349	1	7.46138E-01	1.78999E+00	1.70197E-01	8.63793E-01	8.63793E-01	5.88144E+00	PMSB-BWBK-SB-PM07-0105
PMSB	PMSB-BWBK-SB-PM08-0106	10.11859893	6.400257445	1	3.59205E-01	9.85900E-01	1.17294E-01	5.99337E-01	5.99337E-01	5.80092E+00	
PMSB	PMSB-BWBK-SB-PM09-0106	9.918376165	6.073044534	1	2.52230E-01	4.43173E-01	2.02376E-02	5.02225E-01	5.02225E-01	5.57082E+00	
PMSB	PMSB-BWBK-SB-PM10-0105	10.15424627	6.317164687	1	2.25889E-01	8.27795E-01	1.42981E-01	4.75278E-01	4.75278E-01	5.84189E+00	
PMSB	PMSB-BWBK-SB-PM11-0104	10.261162	7.222566019	1	1.58208E+00	3.29507E+00	2.35268E-01	1.25781E+00	1.25781E+00	5.96476E+00	PMSB-BWBK-SB-PM11-0104
PMSB	PMSB-BWBK-SB-PM12-0105	9.609116492	5.877735782	1	4.38674E-01	2.21279E-01	2.78893E-02	6.62325E-01	6.62325E-01	5.21541E+00	
PMSB	PMSB-BWBK-SB-PM13-0106	10.09823163	6.390240667	1	3.75435E-01	9.66109E-01	1.03758E-01	6.12727E-01	6.12727E-01	5.77751E+00	
PMSB	PMSB-BWBK-SB-PM14-0106	9.705036614	6.34738921	1	1.04396E+00	8.83707E-01	5.05248E-03	1.02174E+00	1.02174E+00	5.32564E+00	PMSB-BWBK-SB-PM14-0106
PMSB	PMSB-BWBK-SB-PM15-0105	10.04324949	5.981414211	1	7.13357E-02	3.29570E-01	7.13596E-02	2.67087E-01	2.67087E-01	5.71433E+00	
PMSB	PMSB-BWBK-SB-PM16-0106	9.836278803	6.070737728	1	3.53153E-01	4.40107E-01	3.61940E-03	5.94267E-01	5.94267E-01	5.47647E+00	
PMSB	PMSB-BWBK-SB-PM17-0105	10.13459927	6.149536102	1	1.09051E-01	5.50867E-01	1.28509E-01	3.30228E-01	3.30228E-01	5.81931E+00	
PMSB	PMSB-BWBK-SB-PM18-0105	10.43705266	5.918893854	1	6.15043E-02	2.61695E-01	4.36835E-01	-2.48001E-01	-2.48001E-01	6.16689E+00	
PMSB	PMSB-BWBK-SB-PM19-0105	10.16199825	6.12249281	1	7.38194E-02	5.11455E-01	1.48904E-01	2.71697E-01	2.71697E-01	5.85080E+00	
PMSB	PMSB-BWBK-SB-PM20-0106	10.02349034	5.905361848	1	4.56860E-02	2.48033E-01	6.11934E-02	2.13743E-01	2.13743E-01	5.69162E+00	
PMSB	PMSB-BWBK-SB-SO01-0107-PM	10.2853428	5.493061443	1	2.49485E-01	7.34949E-03	2.59311E-01	-4.99485E-01	-4.99485E-01	5.99255E+00	
PMSB	PMSB-BWBK-SB-SO02-0109-PM	10.46024211	5.680172609	1	2.63551E-01	7.44418E-02	4.68027E-01	-5.13372E-01	-5.13372E-01	6.19354E+00	
PMSB	PMSB-BWBK-SB-SO13-0104-PM	10.43117029	5.365976015	1	6.30687E-01	1.71034E-03	4.29094E-01	-7.94158E-01	-7.94158E-01	6.16013E+00	
PMSB	PMSB-BWBK-SB-SO14-0105-PM	10.49404814	5.641907071	1	3.48676E-01	5.50253E-02	5.15425E-01	-5.90488E-01	-5.90488E-01	6.23240E+00	
PMSS	PMSS-DABK-S-SO21-0001	9.92329018	5.283203729	1	8.60032E-02	1.54079E-02	2.16598E-02	-2.93263E-01	-2.93263E-01	5.57647E+00	
PMSS	PMSS-DABK-S-SO22-0001	10.0647557	5.703782475	1	1.24324E-03	8.78827E-02	8.33121E-02	-3.52597E-02	-3.52597E-02	5.73904E+00	
PMSS	PMSS-DABK-S-SO23-0001	9.809176873	5.283203729	1	2.62833E-02	1.54079E-02	1.09293E-03	-1.62121E-01	-1.62121E-01	5.44533E+00	
PMSS	PMSS-DABK-S-SO24-0001	10.15424627	5.529429088	1	9.76298E-02	1.49076E-02	1.42981E-01	-3.12458E-01	-3.12458E-01	5.84189E+00	
PMSS	PMSS-DABK-S-SO25-0001	10.67590791	6.11699527	1	1.05234E-01	5.03622E-01	8.09623E-01	-3.24397E-01	-3.24397E-01	6.44139E+00	
PMSS	PMSS-DABK-S-SO26-0001	10.11050172	5.533389489	1	6.66802E-02	1.58904E-02	1.11813E-01	-2.58225E-01	-2.58225E-01	5.79161E+00	
PMSS	PMSS-DABK-S-SO27-0001	9.680344001	5.068904202	1	5.21497E-02	1.14534E-01	9.17254E-03	-2.28363E-01	-2.28363E-01	5.29727E+00	
PMSS	PMSS-DABK-S-SO28-0001	9.814656339	5.765191103	1	9.83255E-02	1.28063E-01	1.48525E-03	3.13569E-01	3.13569E-01	5.45162E+00	
PMSS	PMSS-DABK-S-SO29-0001	9.989665249	4.94875989	1	4.95597E-01	2.10289E-01	4.56027E-02	-7.03987E-01	-7.03987E-01	5.65275E+00	
PMSS	PMSS-DABK-S-SO30-0001	9.798127037	5.549076085	1	1.35606E-02	2.00913E-02	4.84425E-04	1.16450E-01	1.16450E-01	5.43263E+00	
PMSS	PMSS-DABK-S-SO31-0001	9.71111566	6.03787092	1	4.97364E-01	3.97579E-01	4.22522E-03	7.05240E-01	7.05240E-01	5.33263E+00	
PMSS	PMSS-DABK-S-SO32-0001	10.05190756	6.167516491	1	1.96461E-01	5.77880E-01	7.60602E-02	4.43240E-01	4.43240E-01	5.72428E+00	
PMSS	PMSS-DABK-S-SO33-0001	9.449357272	4.94875989	1	6.89765E-03	2.10289E-01	1.06772E-01	-8.30521E-02	-8.30521E-02	5.03181E+00	
PMSS	PMSS-DABK-S-SO34-0001	9.642122788	6.070737728	1	6.68135E-01	4.40107E-01	1.79546E-02	8.17395E-01	8.17395E-01	5.25334E+00	
PMSS	PMSS-DABK-S-SO35-0001	9.789758787	5.558756703	1	1.84274E-02	2.29294E-02	1.86088E-04	1.35747E-01	1.35747E-01	5.42301E+00	
PMSS	PMSS-DABK-S-SO36-0001	9.560997244	4.615120517	1	2.97015E-01	6.27599E-01	4.62767E-02	-5.44991E-01	-5.44991E-01	5.16011E+00	
PMSS	PMSS-DABK-S-SO37-0001	9.908475094	5.739792912	1	3.25269E-02	1.10530E-01	1.75186E-02	1.80352E-01	1.80352E-01	5.55944E+00	
PMSS	PMSS-DABK-S-SO38-0001	9.525151112	5.834810737	1	5.12505E-01	1.82738E-01	6.29841E-02	7.15895E-01	7.15895E-01	5.11892E+00	
PMSS	PMSS-DABK-S-SO39-0001	9.841612149	5.92157842	1	1.92702E-01	2.64449E-01	4.28956E-03	4.38978E-01	4.38978E-01	5.48260E+00	
PMSS	PMSS-DABK-S-SO40-0001	9.581903928	5.996452089	1	6.59855E-01	3.47062E-01	3.77189E-02	8.12314E-01	8.12314E-01	5.18414E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
SESB	SESB-BWBK-SB-SO03-0108	10.61888534	6.11146734	1	6.99039E-02	4.95806E-01	7.10258E-01	-2.64393E-01	-2.64393E-01	6.37586E+00	
SESB	SESB-BWBK-SB-SO04-0108	10.42228135	5.579729826	1	3.25116E-01	2.97209E-02	4.17528E-01	-5.70189E-01	-5.70189E-01	6.14992E+00	
SESB	SESB-BWBK-SB-SO05-0106	10.3609124	5.793013608	1	8.20128E-02	1.48750E-01	3.41985E-01	-2.86379E-01	-2.86379E-01	6.07939E+00	
SESB	SESB-BWBK-SB-SO06-0108	10.66078255	5.547128665	1	7.68921E-01	1.95430E-02	7.82632E-01	-8.76881E-01	-8.76881E-01	6.42401E+00	
SESB	SESB-BWBK-SB-SO07-0106	10.27849345	6.946975992	1	9.26024E-01	2.37050E+00	2.52382E-01	9.62301E-01	9.62301E-01	5.98467E+00	SESB-BWBK-SB-SO07-0106
SESB	SESB-BWBK-SB-SO08-0107	10.5941316	6.280395839	1	4.49133E-03	7.62240E-01	6.69147E-01	-6.70174E-02	-6.70174E-02	6.34741E+00	
SESB	SESB-BWBK-SB-SO09-0106	10.27505111	5.278114659	1	4.93652E-01	1.66972E-02	2.48935E-01	-7.02604E-01	-7.02604E-01	5.98072E+00	
SESB	SESB-BWBK-SB-SO11-0106	10.45737267	7.192934221	1	1.00538E+00	3.18837E+00	4.64109E-01	1.00269E+00	1.00269E+00	6.19025E+00	SESB-BWBK-SB-SO11-0106
SESB	SESB-BWBK-SB-SO12-0106	10.46024211	6.068425588	1	1.56547E-02	4.37044E-01	4.68027E-01	-1.25119E-01	-1.25119E-01	6.19354E+00	
SESB	SESB-BWBK-SB-SO15-0103	10.0301202	6.045005314	1	1.19555E-01	4.06627E-01	6.45174E-02	3.45767E-01	3.45767E-01	5.69924E+00	
SESB	SESB-BWBK-SB-SO16-0105	10.12262308	5.758901774	1	2.17556E-03	1.23601E-01	1.20066E-01	-4.66429E-02	-4.66429E-02	5.80554E+00	
SESB	SESB-BWBK-SB-SO17-0106	9.803667217	5.252273428	1	3.48643E-02	2.40432E-02	7.58993E-04	-1.86720E-01	-1.86720E-01	5.43899E+00	
SESB	SESB-BWBK-SB-SO18-0105	9.61580548	5.513428746	1	8.42919E-02	1.12565E-02	2.56999E-02	2.90331E-01	2.90331E-01	5.22310E+00	
SESB	SESB-BWBK-SB-SO19-0104	9.705036614	5.811140993	1	2.35707E-01	1.63061E-01	5.05248E-03	4.85496E-01	4.85496E-01	5.32564E+00	
SESB	SESB-BWBK-SB-SO20-0104	10.29890232	6.333279628	1	1.05723E-01	8.57378E-01	2.73304E-01	3.25151E-01	3.25151E-01	6.00813E+00	
SESS	SESS-DABK-S-SO01-0001	9.83091686	4.536891345	1	8.71269E-01	7.57667E-01	3.00298E-03	-9.33418E-01	-9.33418E-01	5.47031E+00	
SESS	SESS-DABK-S-SO02-0001	10.08996712	5.690359454	1	6.03049E-03	8.01044E-02	9.85017E-02	-7.76562E-02	-7.76562E-02	5.76802E+00	
SESS	SESS-DABK-S-SO03-0001	9.857443614	4.229749199	1	1.61556E+00	1.38670E+00	6.61396E-03	-1.27105E+00	-1.27105E+00	5.50079E+00	
SESS	SESS-DABK-S-SO04-0001	9.820105944	4.219507705	1	1.53358E+00	1.41093E+00	1.93499E-03	-1.23838E+00	-1.23838E+00	5.45788E+00	
SESS	SESS-DABK-S-SO05-0001	9.867860375	5.099866428	1	1.70486E-01	9.45353E-02	8.41678E-03	-4.12899E-01	-4.12899E-01	5.51277E+00	
SESS	SESS-DABK-S-SO06-0001	10.89488576	5.92157842	1	5.95164E-01	2.64449E-01	1.25164E+00	-7.71468E-01	-7.71468E-01	6.69305E+00	
SESS	SESS-DABK-S-SO07-0001	9.680344001	4.506454213	1	6.25385E-01	8.11581E-01	9.17254E-03	-7.90813E-01	-7.90813E-01	5.29727E+00	
SESS	SESS-DABK-S-SO08-0001	9.928180165	5.327876169	1	6.46228E-02	6.31327E-03	2.31231E-02	-2.54210E-01	-2.54210E-01	5.58209E+00	
SESS	SESS-DABK-S-SO09-0001	10.04324949	4.53044664	1	1.40157E+00	7.68928E-01	7.13596E-02	-1.18388E+00	-1.18388E+00	5.71433E+00	
SESS	SESS-DABK-S-SO10-0001	10.07744086	4.445001434	1	1.71248E+00	9.26081E-01	9.07958E-02	-1.30862E+00	-1.30862E+00	5.75362E+00	
SESS	SESS-DABK-S-SO11-0001	9.087042156	3.921973336	1	4.80884E-01	2.20629E+00	4.74825E-01	-6.93458E-01	-6.93458E-01	4.61543E+00	
SESS	SESS-DABK-S-SO12-0001	9.581903928	4.415219602	1	5.91235E-01	9.84288E-01	3.77189E-02	-7.68918E-01	-7.68918E-01	5.18414E+00	
SESS	SESS-DABK-S-SO13-0001	9.836278803	4.462453884	1	1.02823E+00	8.92795E-01	3.61940E-03	-1.01402E+00	-1.01402E+00	5.47647E+00	
SESS	SESS-DABK-S-SO14-0001	9.798127037	4.234106505	1	1.43645E+00	1.37646E+00	4.84425E-04	-1.19852E+00	-1.19852E+00	5.43263E+00	
SESS	SESS-DABK-S-SO15-0001	9.76995616	4.700480366	1	4.89680E-01	4.99640E-01	3.79607E-05	-6.99771E-01	-6.99771E-01	5.40025E+00	
SESS	SESS-DABK-S-SO16-0001	9.140990294	3.912023005	1	5.85847E-01	2.23595E+00	4.03386E-01	-7.65406E-01	-7.65406E-01	4.67743E+00	
SESS	SESS-DABK-S-SO17-0001	9.60238246	4.744932128	1	2.14128E-01	4.38774E-01	3.01838E-02	-4.62740E-01	-4.62740E-01	5.20767E+00	
SESS	SESS-DABK-S-SO18-0001	9.480367509	4.300002799	1	5.88975E-01	1.22618E+00	8.74680E-02	-7.67447E-01	-7.67447E-01	5.06745E+00	
SESS	SESS-DABK-S-SO19-0001	9.75846178	5.513428746	1	1.59736E-02	1.12565E-02	3.11720E-04	1.26387E-01	1.26387E-01	5.38704E+00	
SESS	SESS-DABK-S-SO20-0001	10.0647557	5.214935758	1	2.74688E-01	3.70164E-02	8.33121E-02	-5.24106E-01	-5.24106E-01	5.73904E+00	
Site 8 SS	DA-B100B-0002	10.45593485	6.271933165	1	6.94536E-03	7.47535E-01	4.62152E-01	8.33388E-02	8.33388E-02	6.18859E+00	
Site 8 SS	DA-B101B-0002	10.56874953	6.717804695	1	1.59649E-01	1.71734E+00	6.28266E-01	3.99561E-01	3.99561E-01	6.31824E+00	
Site 8 SS	DA-B106B-0002	9.775654181	5.641907071	1	5.52754E-02	5.50253E-02	2.14559E-07	2.35107E-01	2.35107E-01	5.40680E+00	
Site 8 SS	DA-B107B-0002	10.00333289	5.85220248	1	3.37636E-02	1.97909E-01	5.16269E-02	1.83749E-01	1.83749E-01	5.66845E+00	
Site 8 SS	DA-B108B-0002	10.18866649	5.780743516	1	1.01404E-02	1.39436E-01	1.70197E-01	-1.00700E-01	-1.00700E-01	5.88144E+00	
Site 8 SS	DA-B109B-0002	9.314700387	5.666426688	1	6.23098E-01	6.71299E-02	2.12906E-01	7.89366E-01	7.89366E-01	4.87706E+00	
Site 8 SS	DA-S-SB01-0102-01	10.30895266	6.01615716	1	1.24031E-05	3.70668E-01	2.83913E-01	-3.52181E-03	-3.52181E-03	6.01968E+00	
Site 8 SS	DA-S-SB02-0102-01	9.903487553	5.991464547	1	1.91630E-01	3.41211E-01	1.62232E-02	4.37756E-01	4.37756E-01	5.55371E+00	
Site 8 SS	DA-S-SB03-0102-01	10.27505111	5.828945618	1	2.30350E-02	1.77758E-01	2.48935E-01	-1.51773E-01	-1.51773E-01	5.98072E+00	
Site 8 SS	DA-S-SB04-0102-01	9.998797732	5.828945618	1	2.74578E-02	1.77758E-01	4.95865E-02	1.65704E-01	1.65704E-01	5.66324E+00	
Site 8 SS	DA-S-SB05-0102-01	9.210340372	5.010635294	1	6.42659E-02	1.57369E-01	3.20104E-01	2.53507E-01	2.53507E-01	4.75713E+00	
Site 8 SS	DA-S-SB06-0515-01	9.740968623	5.966146739	1	3.59051E-01	3.12274E-01	1.23544E-03	5.99208E-01	5.99208E-01	5.36694E+00	
Site 8 SS	DA-S-SB07-0102-01	9.998797732	5.736572297	1	5.37737E-03	1.08399E-01	4.95865E-02	7.33306E-02	7.33306E-02	5.66324E+00	
Site 8 SS	DA-S-SB08-0102-01	9.798127037	5.298317367	1	1.80389E-02	1.18843E-02	4.84425E-04	-1.34309E-01	-1.34309E-01	5.43263E+00	
Site 8 SS	DA-S-TP01-0001-01	9.952277717	5.703782475	1	8.83650E-03	8.78827E-02	3.10325E-02	9.40026E-02	9.40026E-02	5.60978E+00	
Site 8 SS	DA-S-TP05-0001-01	10.08580911	5.940171253	1	3.13057E-02	2.83917E-01	9.59090E-02	1.76934E-01	1.76934E-01	5.76324E+00	
Site 8 SS	DA-S-TP06-0001-01	10.08580911	5.480638923	1	7.98618E-02	5.37386E-03	9.59090E-02	-2.82598E-01	-2.82598E-01	5.76324E+00	
Site 8 SS	DA-S-TP07-0001-01	9.546812609	5.480638923	1	1.13454E-01	5.37386E-03	5.25807E-02	3.36829E-01	3.36829E-01	5.14381E+00	
Site 8 SS	DA-S-TP08-0001-01	10.16585182	6.01615716	1	2.58994E-02	3.70668E-01	1.51893E-01	1.60933E-01	1.60933E-01	5.85522E+00	
Site 8 SS	DA-S-TP09-0001-01	10.04324949	4.941642423	1	5.97041E-01	2.16867E-01	7.13596E-02	-7.72684E-01	-7.72684E-01	5.71433E+00	
Site 8 SS	DA-S-TP09-0102-01	10.30895266	5.370638028	1	4.21254E-01	1.34647E-03	2.83913E-01	-6.49041E-01	-6.49041E-01	6.01968E+00	
Site 8 SS	DA-S-TP10-0001-01	10.20359214	5.886104031	1	1.56055E-04	2.29222E-01	1.82735E-01	-1.24922E-02	-1.24922E-02	5.89860E+00	
Site 8 SS	DA-S-TP10-0102-01	10.1266311	5.347107531	1	2.14409E-01	3.62702E-03	1.22860E-01	-4.63043E-01	-4.63043E-01	5.81015E+00	
Site 8 SS	DA-S-TP11-0001-01	10.30895266	5.247024072	1	5.96996E-01	2.56987E-02	2.83913E-01	-7.72655E-01	-7.72655E-01	6.01968E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-S-TP12-0001-01	10.20359214	5.560681631	1	1.14186E-01	2.35160E-02	1.82735E-01	-3.37915E-01	-3.37915E-01	5.89860E+00	
Site 8 SS	DA-S-TP12-0102-01	10.20359214	5.703782475	1	3.79524E-02	8.78827E-02	1.82735E-01	-1.94814E-01	-1.94814E-01	5.89860E+00	
Site 8 SS	DA-S-TP12A-0001-01	10.08580911	5.736572297	1	7.11018E-04	1.08399E-01	9.59090E-02	-2.66649E-02	-2.66649E-02	5.76324E+00	
Site 8 SS	DA-S-TP12B-0001-01	10.08580911	5.480638923	1	7.98618E-02	5.37386E-03	9.59090E-02	-2.82598E-01	-2.82598E-01	5.76324E+00	
Site 8 SS	DA-S-TP13-0001-01	10.23995979	6.01615716	1	5.74055E-03	3.70668E-01	2.15150E-01	7.57664E-02	7.57664E-02	5.94039E+00	
Site 8 SS	DA-S-TP15-0001-01	9.952277717	5.736572297	1	1.60763E-02	1.08399E-01	3.10325E-02	1.26792E-01	1.26792E-01	5.60978E+00	
Site 8 SS	DA-SB100-0002	10.05620864	5.888877958	1	2.54908E-02	2.31886E-01	7.84511E-02	1.59658E-01	1.59658E-01	5.72922E+00	
Site 8 SS	DA-SB101-0002	10.08580911	5.783825182	1	4.23865E-04	1.41747E-01	9.59090E-02	2.05880E-02	2.05880E-02	5.76324E+00	
Site 8 SS	DA-SB102-0002	10.22918769	6.318968114	1	1.52847E-01	8.31080E-01	2.05273E-01	3.90957E-01	3.90957E-01	5.92801E+00	
Site 8 SS	DA-SB107-0103	9.60238246	5.743003188	1	2.86579E-01	1.12675E-01	3.01838E-02	5.35331E-01	5.35331E-01	5.20767E+00	
Site 8 SS	DA-SB111-0002	9.980448594	5.877735782	1	5.54986E-02	2.21279E-01	4.17512E-02	2.35581E-01	2.35581E-01	5.64215E+00	
Site 8 SS	DA-SB112-0002	9.392661929	5.33753808	1	1.37553E-01	4.87123E-03	1.47038E-01	3.70882E-01	3.70882E-01	4.96666E+00	
Site 8 SS	DA-SB113-0002	9.37585481	5.187385806	1	5.76214E-02	4.83765E-02	1.60210E-01	2.40045E-01	2.40045E-01	4.94734E+00	
Site 8 SS	DA-SB114-0002	9.595602773	5.505331536	1	9.33002E-02	9.60385E-03	3.25855E-02	3.05451E-01	3.05451E-01	5.19988E+00	
Site 8 SS	DA-SB115-0002	10.11455852	5.676753802	1	1.42857E-02	7.25880E-02	1.14542E-01	-1.19523E-01	-1.19523E-01	5.79628E+00	
Site 8 SS	DA-SB116-0002	10.27159687	5.843544417	1	1.77434E-02	1.90281E-01	2.45500E-01	-1.33204E-01	-1.33204E-01	5.97675E+00	
Site 8 SS	DA-SB117-0002	10.34817337	6.470799504	1	1.64874E-01	1.13096E+00	3.27248E-01	4.06047E-01	4.06047E-01	6.06475E+00	
Site 8 SS	DA-SB118-0002	10.66895539	6.450470422	1	2.91315E-04	1.08814E+00	7.97160E-01	1.70679E-02	1.70679E-02	6.43340E+00	
Site 8 SS	DA-SB119-0002	9.052516287	5.135798437	1	3.13651E-01	7.37306E-02	5.23599E-01	5.60045E-01	5.60045E-01	4.57575E+00	
Site 8 SS	DA-SB120-0002	10.46310334	6.018593214	1	3.17692E-02	3.73640E-01	4.71950E-01	-1.78239E-01	-1.78239E-01	6.19683E+00	
Site 8 SS	DA-SB133-0102	10.28874995	6.018593214	1	4.89811E-04	3.73640E-01	2.62792E-01	2.21317E-02	2.21317E-02	5.99646E+00	
Site 8 SS	DA-SB150-0002	10.46310334	5.92157842	1	7.57648E-02	2.64449E-01	4.71950E-01	-2.75254E-01	-2.75254E-01	6.19683E+00	
Site 8 SS	DA-SB151-0002	10.24707726	5.908082938	1	1.63923E-03	2.50751E-01	2.21803E-01	-4.04874E-02	-4.04874E-02	5.94857E+00	
Site 8 SS	DA-SS102B-011508	10.10233841	5.780743516	1	2.21877E-06	1.39436E-01	1.06420E-01	-1.48955E-03	-1.48955E-03	5.78223E+00	
Site 8 SS	DA-SS103B-011508	10.22012145	6.013715156	1	9.23965E-03	3.67700E-01	1.97140E-01	9.61231E-02	9.61231E-02	5.91759E+00	
Site 8 SS	DA-SS104-011508	9.989665249	5.910796644	1	6.65899E-02	2.53476E-01	4.56027E-02	2.58050E-01	2.58050E-01	5.65275E+00	
Site 8 SS	DA-SS104B-011608	10.08996712	5.80814249	1	1.61016E-03	1.60649E-01	9.85017E-02	4.01268E-02	4.01268E-02	5.76802E+00	
Site 8 SS	DA-SS105-011508	**9.066470002**	**5.525452939**	1	8.71728E-01	1.39525E-02	5.03599E-01	9.33664E-01	9.33664E-01	4.59179E+00	DA-SS105-011508
Site 8 SS	DA-SS105B-011608	10.30895266	6.03068526	1	1.21138E-04	3.88569E-01	2.83913E-01	1.10063E-02	1.10063E-02	6.01968E+00	
Site 8 SS	DA-SS106-011408	9.937888979	5.693732139	1	1.00979E-02	8.20249E-02	2.61700E-02	1.00488E-01	1.00488E-01	5.59324E+00	
Site 8 SS	DA-SS107-011508	**8.569785642**	**5.860786223**	1	3.38486E+00	2.05620E-01	1.45524E+00	1.83980E+00	1.83980E+00	4.02099E+00	DA-SS107-011508
Site 8 SS	DA-SS108-011508	9.642122788	5.908082938	1	4.28685E-01	2.50751E-01	1.79546E-02	6.54740E-01	6.54740E-01	5.25334E+00	
Site 8 SS	DA-SS109-011408	8.968268811	5.225746674	1	5.57729E-01	3.29733E-02	6.52619E-01	7.46813E-01	7.46813E-01	4.47893E+00	
Site 8 SS	DA-SS110-011508	9.698920387	5.521460918	1	4.11462E-02	1.30253E-02	5.95938E-03	2.02845E-01	2.02845E-01	5.31862E+00	
Site 8 SS	DA-SS110B-011508	10.20728901	5.749392986	1	2.35474E-02	1.17006E-01	1.85909E-01	-1.53452E-01	-1.53452E-01	5.90284E+00	
Site 8 SS	DA-SS111B-011408	10.27505111	5.874930731	1	1.11911E-02	2.18648E-01	2.48935E-01	-1.05788E-01	-1.05788E-01	5.98072E+00	
Site 8 SS	DA-SS112B-011608	10.39665824	6.171700597	1	2.62434E-03	5.84259E-01	3.85071E-01	5.12283E-02	5.12283E-02	6.12047E+00	
Site 8 SS	DA-SS113B-011608	10.5815211	6.406879986	1	5.46994E-03	9.99096E-01	6.48675E-01	7.39590E-02	7.39590E-02	6.33292E+00	
Site 8 SS	DA-SS114B-011008	10.35137338	5.880532986	1	3.53052E-02	2.23919E-01	3.30919E-01	-1.87897E-01	-1.87897E-01	6.06843E+00	
Site 8 SS	DA-SS115B-011008	10.28192399	5.676753802	1	9.72586E-02	7.25880E-02	2.55840E-01	-3.11863E-01	-3.11863E-01	5.98862E+00	
Site 8 SS	DA-SS116B-011008	10.33851146	5.948034989	1	1.11542E-02	2.92359E-01	3.16287E-01	-1.05614E-01	-1.05614E-01	6.05365E+00	
Site 8 SS	DA-SS117B-011008	10.42525312	5.783825182	1	1.36537E-01	1.41747E-01	4.21377E-01	-3.69509E-01	-3.69509E-01	6.15333E+00	
Site 8 SS	DA-SS118B-011608	10.28874995	5.826000107	1	2.90571E-02	1.75283E-01	2.62792E-01	-1.70461E-01	-1.70461E-01	5.99646E+00	
Site 8 SS	DA-SS119B-011608	10.42821608	6.103676538	1	2.81565E-03	4.84895E-01	4.25233E-01	-5.30627E-02	-5.30627E-02	6.15674E+00	
Site 8 SS	DA-SS120B-011708	10.32875529	6.02827852	1	2.00451E-04	3.85574E-01	3.05409E-01	-1.41581E-02	-1.41581E-02	6.04244E+00	
Site 8 SS	DA-SS121-011008	10.15812977	5.872117789	1	6.63989E-04	2.16026E-01	1.45933E-01	2.57680E-02	2.57680E-02	5.84635E+00	
Site 8 SS	DA-SS122-011008	10.35137338	6.661854741	1	3.52153E-01	1.57383E+00	3.30919E-01	5.93425E-01	5.93425E-01	6.06843E+00	
Site 8 SS	DA-SS123-011008	10.27159687	5.978885765	1	4.56649E-06	3.26673E-01	2.45500E-01	2.13693E-03	2.13693E-03	5.97675E+00	
Site 8 SS	DA-SS124-011008	9.717157974	5.85220248	1	2.62787E-01	1.97909E-01	3.47621E-03	5.12628E-01	5.12628E-01	5.33957E+00	
Site 8 SS	DA-SS125-011008	9.883284845	5.895779297	1	1.33435E-01	2.38580E-01	1.14849E-02	3.65288E-01	3.65288E-01	5.53049E+00	
Site 8 SS	DA-SS126-011408	10.0647557	5.963579344	1	5.04170E-02	3.09411E-01	8.33121E-02	2.24537E-01	2.24537E-01	5.73904E+00	
Site 8 SS	DA-SS127-011508	9.648595303	5.942799375	1	4.65149E-01	2.86725E-01	1.62619E-02	6.82018E-01	6.82018E-01	5.26078E+00	
Site 8 SS	DA-SS128-011608	9.980448594	6.09356977	1	2.03776E-01	4.70922E-01	4.17512E-02	4.51415E-01	4.51415E-01	5.64215E+00	
Site 8 SS	DA-SS129-011408	10.35456317	6.049733455	1	5.00067E-04	4.12679E-01	3.34600E-01	-2.23622E-02	-2.23622E-02	6.07210E+00	
Site 8 SS	DA-SS130-011508	10.21097225	5.894402834	1	1.60650E-04	2.37238E-01	1.89099E-01	-1.26748E-02	-1.26748E-02	5.90708E+00	
Site 8 SS	DA-SS131-011608	10.20728901	5.983936281	1	6.57584E-03	3.32472E-01	1.85909E-01	8.10915E-02	8.10915E-02	5.90284E+00	
Site 8 SS	DA-SS132-011408	10.29214554	5.981414211	1	3.59088E-04	3.29570E-01	2.66285E-01	-1.89496E-02	-1.89496E-02	6.00036E+00	
Site 8 SS	DA-SS133-011508	10.26813067	5.82008293	1	2.33119E-02	1.70363E-01	2.42077E-01	-1.52682E-01	-1.52682E-01	5.97277E+00	
Site 8 SS	DA-SS134-011508	10.37661131	5.786897381	1	9.64329E-02	1.44070E-01	3.60593E-01	-3.10536E-01	-3.10536E-01	6.09743E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SS	DA-SS135-011108	10.33526997	5.393627546	1	4.30724E-01	1.87820E-04	3.12652E-01	-6.56296E-01	-6.56296E-01	6.04992E+00	
Site 8 SS	DA-SS136-011008	10.35774282	5.513428746	1	3.16205E-01	1.12565E-02	3.38288E-01	-5.62321E-01	-5.62321E-01	6.07575E+00	
Site 8 SS	DA-SS138-011108	9.803667217	4.379523504	1	1.12248E+00	1.05639E+00	7.58993E-04	-1.05947E+00	-1.05947E+00	5.43899E+00	
Site 8 SS	DA-SS139-011108	9.975808214	5.010635294	1	3.92109E-01	1.57369E-01	3.98764E-02	-6.26186E-01	-6.26186E-01	5.63682E+00	
Site 8 SS	DA-SS140-011108	10.52406404	6.248042875	1	3.55213E-04	7.06794E-01	5.59424E-01	-1.88471E-02	-1.88471E-02	6.26689E+00	
Site 8 SS	DA-SS141-011108	10.11050172	5.883322388	1	8.41033E-03	2.26567E-01	1.11813E-01	9.17079E-02	9.17079E-02	5.79161E+00	
Site 8 SS	DA-SS142-011708	10.13855967	5.869296913	1	2.06457E-03	2.13411E-01	1.31364E-01	4.54375E-02	4.54375E-02	5.82386E+00	
Site 8 SS	DA-SS143-011708	10.42228135	6.763884909	1	3.76954E-01	1.84024E+00	4.17528E-01	6.13966E-01	6.13966E-01	6.14992E+00	
Site 8 SS	DA-SS144-011708	10.33201793	5.442417711	1	3.64536E-01	1.23099E-03	3.09025E-01	-6.03768E-01	-6.03768E-01	6.04619E+00	
Site 8 SS	DA-SS145-011708	10.24707726	6.095824562	1	2.16838E-02	4.74022E-01	2.21803E-01	1.47254E-01	1.47254E-01	5.94857E+00	
Site 8 SS	DA-SS146-011708	9.989665249	6.188264123	1	2.86779E-01	6.09855E-01	4.56027E-02	5.35518E-01	5.35518E-01	5.65275E+00	
Site 8 SS	DA-SS147-011708	10.32711996	5.640132448	1	1.60340E-01	5.41959E-02	3.03604E-01	-4.00425E-01	-4.00425E-01	6.04056E+00	
Site 8 SS	DA-SS148-011708	10.54534144	7.098375639	1	6.51303E-01	2.85963E+00	5.91706E-01	8.07033E-01	8.07033E-01	6.29134E+00	
Site 8 SS	DA-SS149-011708	**10.68510338**	**7.61085279**	1	1.34303E+00	4.85550E+00	8.26256E-01	1.15889E+00	1.15889E+00	6.45196E+00	DA-SS149-011708
Site 8 SS	DA-SS152-011608	9.781319919	4.65396035	1	5.76614E-01	5.67569E-01	2.70663E-05	-7.59351E-01	-7.59351E-01	5.41331E+00	
Site 8 SS	DA-SS153-011608	10.21464198	5.932245187	1	4.38913E-04	2.75534E-01	1.92304E-01	2.09502E-02	2.09502E-02	5.91129E+00	
Site 8 SB	DA-B100B-0608	10.59663473	6.597145702	1	6.09378E-02	1.41566E+00	6.73249E-01	2.46856E-01	2.46856E-01	6.35029E+00	
Site 8 SB	DA-B101B-0406	10.0604913	5.92157842	1	3.51326E-02	2.64449E-01	8.08685E-02	1.87437E-01	1.87437E-01	5.73414E+00	
Site 8 SB	DA-B103B-0810	10.21464198	5.814130532	1	9.44092E-03	1.65485E-01	1.92304E-01	-9.71644E-02	-9.71644E-02	5.91129E+00	
Site 8 SB	DA-B104B-0406	10.27159687	5.877735782	1	9.80358E-03	2.21279E-01	2.45500E-01	-9.90130E-02	-9.90130E-02	5.97675E+00	
Site 8 SB	DA-B105B-0204	10.03451581	6.180016654	1	2.26316E-01	5.97041E-01	6.67697E-02	4.75727E-01	4.75727E-01	5.70429E+00	
Site 8 SB	DA-B106B-0406	10.14250445	5.513428746	1	9.92024E-02	1.12565E-02	1.34239E-01	-3.14964E-01	-3.14964E-01	5.82839E+00	
Site 8 SB	DA-B107B-0608	10.3155972	5.743003188	1	8.08332E-02	1.12675E-01	2.91038E-01	-2.84312E-01	-2.84312E-01	6.02732E+00	
Site 8 SB	DA-B108B-0406	9.883284845	5.926926026	1	1.57160E-01	2.69978E-01	1.14849E-02	3.96434E-01	3.96434E-01	5.53049E+00	
Site 8 SB	DA-B109B-0204	10.40426284	5.945420609	1	3.37791E-02	2.89539E-01	3.94567E-01	-1.83791E-01	-1.83791E-01	6.12921E+00	
Site 8 SB	DA-B110B-1012	9.908475094	5.799092654	1	5.74330E-02	1.53476E-01	1.75186E-02	2.39652E-01	2.39652E-01	5.55944E+00	
Site 8 SB	DA-B111B-0406	10.30561376	6.086774727	1	5.03148E-03	4.61642E-01	2.80366E-01	7.09329E-02	7.09329E-02	6.01584E+00	
Site 8 SB	DA-B112B-0608	10.27505111	5.988961417	1	6.79454E-05	3.38292E-01	2.48935E-01	8.24290E-03	8.24290E-03	5.98072E+00	
Site 8 SB	DA-B113B-0608	10.40728856	6.049733455	1	6.88160E-03	4.12679E-01	3.98377E-01	-8.29554E-02	-8.29554E-02	6.13269E+00	
Site 8 SB	DA-B114B-0204	10.97164063	6.396929655	1	1.47706E-01	9.79303E-01	1.42928E+00	-3.84326E-01	-3.84326E-01	6.78126E+00	
Site 8 SB	DA-B116B-0305	10.53475933	6.059123196	1	4.84255E-02	4.24831E-01	5.75538E-01	-2.20058E-01	-2.20058E-01	6.27918E+00	
Site 8 SB	DA-B118B-0608	10.55059079	6.144185634	1	2.34670E-02	5.42953E-01	5.99809E-01	-1.53189E-01	-1.53189E-01	6.29738E+00	
Site 8 SB	DA-B119B-0204	10.29552964	6.177944114	1	3.01686E-02	5.93843E-01	2.69789E-01	1.73691E-01	1.73691E-01	6.00425E+00	
Site 8 SB	DA-B120B-0204	10.77895629	6.517671273	1	1.77635E-03	1.23285E+00	1.00569E+00	-4.21468E-02	-4.21468E-02	6.55982E+00	
Site 8 SB	DA-S-MW04B-0810-01	9.61580548	5.598421959	1	1.40868E-01	3.65153E-02	2.56999E-02	3.75324E-01	3.75324E-01	5.22310E+00	
Site 8 SB	DA-S-MW04B-1416-01	9.798127037	5.703782475	1	7.35257E-02	8.78827E-02	4.84425E-04	2.71156E-01	2.71156E-01	5.43263E+00	
Site 8 SB	DA-S-SB01-0809-01	10.16585182	5.247024072	1	3.69907E-01	2.56987E-02	1.51893E-01	-6.08200E-01	-6.08200E-01	5.85522E+00	
Site 8 SB	DA-S-SB01-5575-01	10.30895266	5.192956851	1	6.83469E-01	4.59568E-02	2.83913E-01	-8.26722E-01	-8.26722E-01	6.01968E+00	
Site 8 SB	DA-S-SB02-0304-01	9.680344001	5.913503006	1	3.79746E-01	2.56209E-01	9.17254E-03	6.16236E-01	6.16236E-01	5.29727E+00	
Site 8 SB	DA-S-SB02-5565-01	9.472704636	5.438079309	1	1.43972E-01	9.45380E-04	9.20593E-02	3.79436E-01	3.79436E-01	5.05864E+00	
Site 8 SB	DA-S-SB03-0304-01	**11.1124479**	**8.101677747**	1	1.34236E+00	7.25950E+00	1.78578E+00	1.15860E+00	1.15860E+00	6.94307E+00	DA-S-SB03-0304-01
Site 8 SB	DA-S-SB03-0607-01	10.66895539	7.170119543	1	5.42752E-01	3.10742E+00	7.97160E-01	7.36717E-01	7.36717E-01	6.43340E+00	
Site 8 SB	DA-S-SB04-0910-01	10.0647557	5.814130532	1	5.63827E-03	1.65485E-01	8.33121E-02	7.50884E-02	7.50884E-02	5.73904E+00	
Site 8 SB	DA-S-SB04-2535-01	**9.903487553**	**7.60090246**	1	4.19100E+00	4.81175E+00	1.62232E-02	2.04719E+00	2.04719E+00	5.55371E+00	DA-S-SB04-2535-01
Site 8 SB	DA-S-SB05-0203-01	10.27505111	5.913503006	1	4.51793E-03	2.56209E-01	2.48935E-01	-6.72155E-02	-6.72155E-02	5.98072E+00	
Site 8 SB	DA-S-SB05-0304-01	9.998797732	6.086774727	1	1.79380E-01	4.61642E-01	4.95865E-02	4.23533E-01	4.23533E-01	5.66324E+00	
Site 8 SB	DA-S-SB06-2535-01	9.903487553	6.173786104	1	3.84496E-01	5.87451E-01	1.62232E-02	6.20077E-01	6.20077E-01	5.55371E+00	
Site 8 SB	DA-S-SB08-0607-01	10.37349118	5.686975356	1	1.65545E-01	7.82002E-02	3.56855E-01	-4.06873E-01	-4.06873E-01	6.09385E+00	
Site 8 SB	DA-S-TP01-0304-01	10.04324949	5.828945618	1	1.31375E-02	1.77758E-01	7.13596E-02	1.14619E-01	1.14619E-01	5.71433E+00	
Site 8 SB	DA-S-TP01-0607-01	9.680344001	5.634789603	1	1.13921E-01	5.17368E-02	9.17254E-03	3.37522E-01	3.37522E-01	5.29727E+00	
Site 8 SB	DA-S-TP02-0203-01	10.37349118	6.040254711	1	2.87226E-03	4.00591E-01	3.56855E-01	-5.35934E-02	-5.35934E-02	6.09385E+00	
Site 8 SB	DA-S-TP02-0506-01	10.40426284	6.507277712	1	1.42934E-01	1.20988E+00	3.94567E-01	3.78066E-01	3.78066E-01	6.12921E+00	
Site 8 SB	DA-S-TP05-0607-01	**10.23995979**	**7.901007052**	1	3.84402E+00	6.21841E+00	2.15150E-01	1.96062E+00	1.96062E+00	5.94039E+00	DA-S-TP05-0607-01
Site 8 SB	DA-S-TP05-0910-01	10.29214554	6.43775165	1	1.91308E-01	1.06176E+00	2.66285E-01	4.37388E-01	4.37388E-01	6.00036E+00	
Site 8 SB	DA-S-TP06-0304-01	9.680344001	5.192956851	1	1.08807E-02	4.59568E-02	9.17254E-03	-1.04310E-01	-1.04310E-01	5.29727E+00	
Site 8 SB	DA-S-TP06-0910-01	**10.27505111**	**6.82437367**	1	7.11754E-01	2.00801E+00	2.48935E-01	8.43655E-01	8.43655E-01	5.98072E+00	DA-S-TP06-0910-01
Site 8 SB	DA-S-TP07-0304-01	9.546812609	5.480638923	1	1.13454E-01	5.37386E-03	5.25807E-02	3.36829E-01	3.36829E-01	5.14381E+00	
Site 8 SB	DA-S-TP07-0910-01	9.740968623	5.560681631	1	3.75364E-02	2.35160E-02	1.23544E-03	1.93743E-01	1.93743E-01	5.36694E+00	
Site 8 SB	DA-S-TP08-0304-01	10.02127059	5.799092654	1	1.21054E-02	1.53476E-01	6.01001E-02	1.10025E-01	1.10025E-01	5.68907E+00	

TABLE F.5.5
SUPPORT DATA FOR MANGANESE REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	DA!O	DA!V	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----	---- V ----
BASS	**SAMPLE**	**FE_log**	**MN_log**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
Site 8 SB	DA-S-TP08-0708-01	10.08580911	5.799092654	1	1.28561E-03	1.53476E-01	9.59090E-02	3.58554E-02	3.58554E-02	5.76324E+00	
Site 8 SB	DA-S-TP11-0203-01	10.55841352	5.736572297	1	3.24664E-01	1.08399E-01	6.11987E-01	-5.69793E-01	-5.69793E-01	6.30637E+00	
Site 8 SB	DA-S-TP11-0304-01	10.6454249	5.634789603	1	5.95322E-01	5.17368E-02	7.55696E-01	-7.71571E-01	-7.71571E-01	6.40636E+00	
Site 8 SB	DA-S-TP12-0203-01	10.1266311	5.991464547	1	3.28747E-02	3.41211E-01	1.22860E-01	1.81314E-01	1.81314E-01	5.81015E+00	
Site 8 SB	DA-S-TP13-0203-01	10.23995979	5.966146739	1	6.63371E-04	3.12274E-01	2.15150E-01	2.57560E-02	2.57560E-02	5.94039E+00	
Site 8 SB	DA-S-TP13-0405-01	10.1266311	5.991464547	1	3.28747E-02	3.41211E-01	1.22860E-01	1.81314E-01	1.81314E-01	5.81015E+00	
Site 8 SB	DA-S-TP14-0506-01	10.54534144	5.828945618	1	2.13811E-01	1.77758E-01	5.91706E-01	-4.62397E-01	-4.62397E-01	6.29134E+00	
Site 8 SB	DA-S-TP14-0910-01	10.27505111	5.393627546	1	3.44676E-01	1.87820E-04	2.48935E-01	-5.87091E-01	-5.87091E-01	5.98072E+00	
Site 8 SB	DA-S-TP15-0203-01	9.903487553	5.634789603	1	6.57406E-03	5.17368E-02	1.62232E-02	8.10806E-02	8.10806E-02	5.55371E+00	
Site 8 SB	DA-S-TP15-0506-01	9.952277717	5.828945618	1	4.80336E-02	1.77758E-01	3.10325E-02	2.19166E-01	2.19166E-01	5.60978E+00	
Site 8 SB	DA-S-TP15A-0203-01	**8.476371197**	**6.646390515**	1	7.46796E+00	1.53527E+00	1.68934E+00	2.73276E+00	2.73276E+00	3.91363E+00	DA-S-TP15A-0203-01
Site 8 SB	DA-S-TP15A-0506-01	**8.242756346**	**6.646390515**	1	9.00740E+00	1.53527E+00	2.35120E+00	3.00123E+00	3.00123E+00	3.64516E+00	DA-S-TP15A-0506-01
Site 8 SB	DA-S-TP15A-0910-01	9.740968623	5.634789603	1	7.17442E-02	5.17368E-02	1.23544E-03	2.67851E-01	2.67851E-01	5.36694E+00	
Site 8 SB	DA-SB-TP103-0506	10.30561376	5.924255797	1	8.38800E-03	2.67210E-01	2.80366E-01	-9.15860E-02	-9.15860E-02	6.01584E+00	
Site 8 SB	DA-SB100-0204	9.740968623	5.141663557	1	5.07488E-02	7.05799E-02	1.23544E-03	-2.25275E-01	-2.25275E-01	5.36694E+00	
Site 8 SB	DA-SB101-0608	10.57131693	5.776103136	1	2.97124E-01	1.35992E-01	6.32342E-01	-5.45091E-01	-5.45091E-01	6.32119E+00	
Site 8 SB	DA-SB102-0305	**10.58910647**	**7.944492164**	1	2.56914E+00	6.43718E+00	6.60951E-01	1.60285E+00	1.60285E+00	6.34164E+00	DA-SB102-0305
Site 8 SB	DA-SB104-0608	10.261162	6.02827852	1	4.03501E-03	3.85574E-01	2.35268E-01	6.35217E-02	6.35217E-02	5.96476E+00	
Site 8 SB	DA-SB105-0406	10.18490001	5.973809612	1	9.34989E-03	3.20897E-01	1.67103E-01	9.66948E-02	9.66948E-02	5.87711E+00	
Site 8 SB	DA-SB106-0608	11.80559508	6.82437367	1	8.37740E-01	2.00801E+00	4.11878E+00	-9.15282E-01	-9.15282E-01	7.73966E+00	
Site 8 SB	DA-SB108-0204	**9.259130536**	**5.874930731**	1	1.12727E+00	2.18648E-01	2.67275E-01	1.06173E+00	1.06173E+00	4.81320E+00	DA-SB108-0204
Site 8 SB	DA-SB109-0204	10.1064284	5.743003188	1	1.92986E-03	1.12675E-01	1.09105E-01	-4.39302E-02	-4.39302E-02	5.78693E+00	
Site 8 SB	DA-SB110-0810	10.0604913	6.131226489	1	1.57677E-01	5.24023E-01	8.08685E-02	3.97085E-01	3.97085E-01	5.73414E+00	
Site 8 SB	DA-SB111-0204	9.764225485	5.733341277	1	1.15379E-01	1.06282E-01	1.41417E-04	3.39675E-01	3.39675E-01	5.39367E+00	
Site 8 SB	DA-SB112-0608	9.928180165	5.695414225	1	1.28432E-02	8.29912E-02	2.31231E-02	1.13328E-01	1.13328E-01	5.58209E+00	
Site 8 SB	DA-SB113-0406	10.58532097	6.289715571	1	2.26312E-03	7.78600E-01	6.54810E-01	-4.75723E-02	-4.75723E-02	6.33729E+00	
Site 8 SB	DA-SB114-0406	10.05620864	5.840641657	1	1.24149E-02	1.87757E-01	7.84511E-02	1.11422E-01	1.11422E-01	5.72922E+00	
Site 8 SB	DA-SB115-0204	10.2853428	5.723585102	1	7.23399E-02	1.00016E-01	2.59311E-01	-2.68961E-01	-2.68961E-01	5.99255E+00	
Site 8 SB	DA-SB116-0204	10.2646524	6.768493212	1	6.39560E-01	1.85276E+00	2.38666E-01	7.99725E-01	7.99725E-01	5.96877E+00	
Site 8 SB	DA-SB117-0810	**10.40728856**	**7.038783541**	1	8.21008E-01	2.66163E+00	3.98377E-01	9.06095E-01	9.06095E-01	6.13269E+00	DA-SB117-0810
Site 8 SB	DA-SB118-0406	10.16969059	5.82008293	1	1.56443E-03	1.70363E-01	1.54900E-01	-3.95528E-02	-3.95528E-02	5.85964E+00	
Site 8 SB	DA-SB119-0204	10.28874995	5.556828062	1	1.93278E-01	2.23490E-02	2.62792E-01	-4.39633E-01	-4.39633E-01	5.99646E+00	
Site 8 SB	DA-SB120-0406	**10.3155972**	**7.539027056**	1	2.28527E+00	4.54412E+00	2.91038E-01	1.51171E+00	1.51171E+00	6.02732E+00	DA-SB120-0406
Site 8 SB	DA-SB121-0406	9.971146201	5.888877958	1	6.62620E-02	2.31886E-01	3.80362E-02	2.57414E-01	2.57414E-01	5.63146E+00	
Site 8 SB	DA-SB122-0407	9.903487553	5.774551546	1	4.87714E-02	1.34850E-01	1.62232E-02	2.20843E-01	2.20843E-01	5.55371E+00	
Site 8 SB	DA-SB123-0508	10.46880136	6.336825731	1	1.78075E-02	8.63958E-01	4.79811E-01	1.33445E-01	1.33445E-01	6.20338E+00	
Site 8 SB	DA-SB124-0608	10.54006438	6.520621128	1	5.53864E-02	1.23941E+00	5.83615E-01	2.35343E-01	2.35343E-01	6.28528E+00	
Site 8 SB	DA-SB125-0810	10.33201793	6.624065228	1	3.33944E-01	1.48044E+00	3.09025E-01	5.77879E-01	5.77879E-01	6.04619E+00	
Site 8 SB	DA-SB126-1013	10.39818379	6.315358002	1	3.73002E-02	8.24511E-01	3.86967E-01	1.93133E-01	1.93133E-01	6.12223E+00	
Site 8 SB	DA-SB127-0204	9.841612149	5.703782475	1	4.89215E-02	8.78827E-02	4.28956E-03	2.21182E-01	2.21182E-01	5.48260E+00	
Site 8 SB	DA-SB128-0810	10.56100756	6.956545443	1	4.18867E-01	2.40006E+00	6.16053E-01	6.47199E-01	6.47199E-01	6.30935E+00	
Site 8 SB	DA-SB129-0406	10.03451581	5.749392986	1	2.03430E-03	1.17006E-01	6.67697E-02	4.51032E-02	4.51032E-02	5.70429E+00	
Site 8 SB	DA-SB130-1011.5	10.3609124	6.613384218	1	2.85147E-01	1.45456E+00	3.41985E-01	5.33992E-01	5.33992E-01	6.07939E+00	
Site 8 SB	DA-SB131-0406	10.24707726	5.863631176	1	7.21466E-03	2.08209E-01	2.21803E-01	-8.49391E-02	-8.49391E-02	5.94857E+00	
Site 8 SB	DA-SB132-0406	10.36722157	6.327936784	1	5.82227E-02	8.47513E-01	3.49404E-01	2.41294E-01	2.41294E-01	6.08664E+00	
Site 8 SB	DA-SB133-0810	10.16969059	5.857933154	1	2.89888E-06	2.03041E-01	1.54900E-01	-1.70261E-03	-1.70261E-03	5.85964E+00	
Site 8 SB	DA-SB134-0405	10.8077057	6.472346295	1	1.45230E-02	1.13425E+00	1.06417E+00	-1.20511E-01	-1.20511E-01	6.59286E+00	
Site 8 SB	DA-SB135-1214	11.02516511	5.894402834	1	8.99395E-01	2.37238E-01	1.56012E+00	-9.48364E-01	-9.48364E-01	6.84277E+00	
Site 8 SB	DA-SB136-0810	10.79137881	6.768493212	1	3.77909E-02	1.85276E+00	1.03076E+00	1.94399E-01	1.94399E-01	6.57409E+00	
Site 8 SB	DA-SB137-0406	10.90778916	6.88550967	1	3.15538E-02	2.18501E+00	1.28068E+00	1.77634E-01	1.77634E-01	6.70788E+00	
Site 8 SB	DA-SB138-0406	10.73856823	6.604621102	1	8.32071E-03	1.43350E+00	9.26312E-01	9.12179E-02	9.12179E-02	6.51340E+00	
Site 8 SB	DA-SB139-1012	11.14475614	7.207859871	1	5.18273E-02	3.24190E+00	1.87317E+00	2.27656E-01	2.27656E-01	6.98020E+00	
Site 8 SB	DA-SB150-0204	10.06900199	5.811140993	1	4.51838E-03	1.63061E-01	8.57814E-02	6.72189E-02	6.72189E-02	5.74392E+00	
Site 8 SB	DA-SB151-0406	10.19054443	6.554645401	1	4.50300E-01	1.31633E+00	1.71750E-01	6.71044E-01	6.71044E-01	5.88360E+00	
Site 8 SB	DA-SB152-0204	9.883284845	4.804021045	1	5.27759E-01	3.63984E-01	1.14849E-02	-7.26471E-01	-7.26471E-01	5.53049E+00	
Site 8 SB	DA-SB153-0204	10.13459927	5.905361848	1	7.40526E-03	2.48033E-01	1.28509E-01	8.60538E-02	8.60538E-02	5.81931E+00	

APPENDIX F

TABLES F.6.1 THROUGH F.6.5

SAMPLE CONCENTRATIONS EXCEEDING GEOCHEMICAL UPPER PREDICTION LIMITS

TABLE F.6.1
SITE 8 SAMPLES EXCEEDING ARSENIC UPPER PREDICTION LIMITS FROM BASEWIDE BACKGROUND REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Site 8 Surface Soil > UPL from Iron-Arsenic Regression			
Sample ID	**Arsenic**	**Arsenic^(2/3)**	**Iron**
DA-B107B-0002	**15.9**	6.3	22100
DA-S-SB01-0102-01	**31**	9.9	30000
DA-S-SB02-0102-01	**21**	7.6	20000
DA-S-SB03-0102-01	**32**	10.1	29000
DA-S-SB04-0102-01	**41**	11.9	22000
DA-S-SB05-0102-01	**7.7**	3.9	10000
DA-S-SB06-0515-01	**12**	5.2	17000
DA-S-SB07-0102-01	**31**	9.9	22000
DA-S-TP01-0001-01	**19**	7.1	21000
DA-S-TP06-0001-01	**18**	6.9	24000
DA-S-TP07-0001-01	**19**	7.1	14000
DA-S-TP08-0001-01	**25**	8.5	26000
DA-S-TP13-0001-01	90	20.1	28000
DA-S-TP15-0001-01	**21**	7.6	21000
DA-SB115-0002	**25.4**	8.6	24700
DA-SB118-0002	**45.8**	12.8	43000
DA-SB150-0002	**32.7**	10.2	35000
DA-SS104B-011608	**18.8**	7.1	24100
DA-SS119B-011608	**29.8**	9.6	33800
DA-SS121-011008	**23.9**	8.3	25800
DA-SS136-011008	**26.9**	9.0	31500
DA-SS153-011608	**31.6**	10.0	27300

Site 8 Surface Soil > UPL from Factor Analysis & Regression			
Sample ID	**Arsenic**	**Arsenic^(2/3)**	**Pred. Arsenic**
DA-B107B-0002	**15.9**	6.3	10.7
DA-S-SB01-0102-01	**31**	9.9	18.3
DA-S-SB02-0102-01	**21**	7.6	13.4
DA-S-SB03-0102-01	**32**	10.1	15.9
DA-S-SB04-0102-01	**41**	11.9	13.2
DA-S-SB05-0102-01	**7.7**	3.9	2.4
DA-S-SB07-0102-01	**31**	9.9	12.9
DA-S-SB08-0102-01	**10**	4.6	6.6
DA-S-TP01-0001-01	**19**	7.1	11.4
DA-S-TP06-0001-01	**18**	6.9	11.7
DA-S-TP07-0001-01	**19**	7.1	6.8
DA-S-TP08-0001-01	**25**	8.5	13.5
DA-S-TP13-0001-01	90	20.1	16.2
DA-S-TP15-0001-01	**21**	7.6	10.8
DA-SB100-0002	**11**	4.9	7.8
DA-SB101-0002	**14.2**	5.9	9.7
DA-SB102-0002	**16**	6.3	11.6
DA-SB115-0002	**25.4**	8.6	10.4
DA-SB116-0002	**20.7**	7.5	14.8
DA-SB118-0002	**45.8**	12.8	20.5
DA-SB133-0102	**23.1**	8.1	14.7
DA-SB150-0002	**32.7**	10.2	20.0
DA-SS104-011508	**14.5**	5.9	10.2
DA-SS104B-011608	**18.8**	7.1	8.2
DA-SS105B-011608	**22.4**	7.9	16.1
DA-SS106-011408	**13.8**	5.8	9.4
DA-SS110-011508	**9.7**	4.5	6.6
DA-SS111B-011408	**20.4**	7.5	14.7
DA-SS112B-011608	**23.95**	8.3	16.7
DA-SS118B-011608	**23.8**	8.3	16.3
DA-SS119B-011608	**29.8**	9.6	19.9
DA-SS121-011008	**23.9**	8.3	12.0
DA-SS124-011008	**8.1**	4.0	4.8
DA-SS125-011008	**11.35**	5.1	8.1
DA-SS126-011408	**16.7**	6.5	12.3
DA-SS130-011508	**17.6**	6.8	13.0
DA-SS136-011008	**26.9**	9.0	18.4
DA-SS153-011608	**31.6**	10.0	14.4

BOLD results do **not** exceed the largest of the 4 univariate upper tolerance limits (95% UTLs) for background soil types found at NUSC (SeSS: UTL=49.8; SeSB: UTL=39.6; PmSS: UTL=23.2; PmSB UTL=25.6).

Site 8 Subsurface Soil > UPL from Iron-Arsenic Regression			
Sample ID	**Arsenic**	**Arsenic^(2/3)**	**Iron**
DA-S-MW04B-0810-01	**16**	6.3	15000
DA-S-MW04B-1416-01	**21**	7.6	18000
DA-S-SB02-0304-01	**11**	4.9	16000
DA-S-SB02-5565-01	**7.4**	3.8	13000
DA-S-SB04-0910-01	**24**	8.3	23500
DA-S-SB05-0203-01	**33**	10.3	29000
DA-S-SB05-0304-01	**17**	6.6	22000
DA-S-SB06-2535-01	**18**	6.9	20000
DA-S-TP01-0304-01	**19**	7.1	23000
DA-S-TP01-0607-01	**15**	6.1	16000
DA-S-TP05-0607-01	**26**	8.8	28000
DA-S-TP06-0304-01	**16**	6.3	16000
DA-S-TP07-0304-01	**16**	6.3	14000
DA-S-TP07-0910-01	**14**	5.8	17000
DA-S-TP08-0304-01	**23.5**	8.2	22500
DA-S-TP08-0708-01	**24**	8.3	24000
DA-S-TP13-0203-01	**40**	11.7	28000
DA-S-TP13-0405-01	**23**	8.1	25000
DA-S-TP15-0203-01	**18**	6.9	20000
DA-S-TP15-0506-01	**17**	6.6	21000
DA-S-TP15A-0203-01	**3.4**	2.3	4800
DA-S-TP15A-0506-01	**2.7**	1.9	3800
DA-S-TP15A-0910-01	**16**	6.3	17000
DA-SB111-0204	**11.6**	5.1	17400
DA-SB113-0406	121.6	24.5	39550
DA-SB121-0406	**15.3**	6.2	21400

Site 8 Subsurface Soil > UPL from Factor Analysis & Regression			
Sample ID	**Arsenic**	**Arsenic^(2/3)**	**Pred. Arsenic**
DA-B103B-0810	**18.8**	7.1	12.8
DA-B104B-0406	**20.75**	7.6	15.0
DA-B109B-0204	**28.6**	9.4	15.1
DA-B111B-0406	**21.7**	7.8	15.9
DA-S-MW04B-0810-01	**16**	6.3	6.9
DA-S-MW04B-1416-01	**21**	7.6	8.4
DA-S-SB04-0910-01	**24**	8.3	14.8
DA-S-SB05-0203-01	**33**	10.3	13.9
DA-S-SB05-0304-01	**17**	6.6	11.1
DA-S-SB06-2535-01	**18**	6.9	12.5
DA-S-TP01-0304-01	**19**	7.1	12.9
DA-S-TP01-0607-01	**15**	6.1	7.0
DA-S-TP05-0607-01	**26**	8.8	16.3
DA-S-TP06-0304-01	**16**	6.3	7.8
DA-S-TP07-0304-01	**16**	6.3	6.6
DA-S-TP08-0304-01	**23.5**	8.2	11.6
DA-S-TP08-0708-01	**24**	8.3	13.7
DA-S-TP13-0203-01	**40**	11.7	16.6
DA-S-TP13-0405-01	**23**	8.1	13.8
DA-S-TP15-0203-01	**18**	6.9	9.8
DA-S-TP15-0506-01	**17**	6.6	7.7
DA-S-TP15A-0203-01	**3.4**	2.3	-37.3
DA-S-TP15A-0506-01	**2.7**	1.9	-32.8
DA-S-TP15A-0910-01	**16**	6.3	9.4
DA-SB100-0204	**9.6**	4.5	6.2
DA-SB105-0406	**20.2**	7.4	13.8
DA-SB109-0204	**14.5**	5.9	10.2
DA-SB110-0810	**17**	6.6	2.6
DA-SB111-0204	**11.6**	5.1	1.4
DA-SB112-0608	**13.3**	5.6	6.4
DA-SB113-0406	121.6	24.5	23.0
DA-SB121-0406	**15.3**	6.2	4.9
DA-SB122-0407	**9.8**	4.6	5.7
DA-SB127-0204	**11.7**	5.2	8.3
DA-SB129-0406	**16.1**	6.4	11.4
DA-SB130-1011.5	**26.2**	8.8	16.4
DA-SB133-0810	**14.3**	5.9	9.7
DA-SB150-0204	**14.7**	6.0	10.4

TABLE F.6.2
SITE 8 SURFACE SOILS EXCEEDING CHROMIUM UPPER PREDICTION LIMITS FROM BASEWIDE BACKGROUND REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Site 8 Surface Soil > UPL from Log Iron-Chromium Regression			
Sample ID	**Chromium**	**Log Iron**	**Iron**
DA-B100B-0002	**23.3**	10.5	34750
DA-B101B-0002	**24.2**	10.6	38900
DA-B106B-0002	**16.4**	9.8	17600
DA-B107B-0002	**17.2**	10.0	22100
DA-S-SB08-0102-01	**19.0**	9.8	18000
DA-S-TP01-0001-01	**26.0**	10.0	21000
DA-S-TP10-0001-01	64.0	10.2	27000
DA-SB100-0002	**20.1**	10.1	23300
DA-SB102-0002	**18.8**	10.2	27700
DA-SB118-0002	**26.2**	10.7	43000
DA-SS103B-011508	**19.0**	10.2	27450
DA-SS104B-011608	**22.8**	10.1	24100
DA-SS110B-011508	**19.5**	10.2	27100
DA-SS115B-011008	28.8	10.3	29200
DA-SS121-011008	**19.6**	10.2	25800
DA-SS122-011008	**22.4**	10.4	31300
DA-SS125-011008	**16.5**	9.9	19600
DA-SS129-011408	28.1	10.4	31400
DA-SS133-011508	**18.9**	10.3	28800
DA-SS139-011108	**16.9**	10.0	21500
DA-SS140-011108	**22.5**	10.5	37200
DA-SS145-011708	33.4	10.2	28200
DA-SS147-011708	**19.9**	10.3	30550
DA-SS148-011708	**26.0**	10.5	38000

BOLD results do **not** exceed the largest of the 4 univariate upper tolerance limits (95% UTLs) for background soil types found at NUSC (SeSS: UTL=27.6; SeSB: UTL=18.6; PmSS: UTL=16.9; or PmSB UTL=20.3)

Site 8 Surface Soil > UPL from Factor Analysis & Regression			
Sample ID	**Chromium**	**Chromium^(0.5)**	**Pred. Chromium**
DA-B106B-0002	**16.4**	4.0	11.6
DA-B107B-0002	**17.2**	4.1	11.0
DA-B109B-0002	**12.3**	3.5	9.0
DA-S-SB02-0102-01	**8.7**	2.9	6.9
DA-S-SB06-0515-01	**8.6**	2.9	6.2
DA-S-SB08-0102-01	**19.0**	4.4	9.9
DA-S-TP01-0001-01	**26.0**	5.1	13.5
DA-S-TP10-0001-01	64.0	8.0	13.6
DA-SS104B-011608	**22.8**	4.8	15.4
DA-SS115B-011008	28.8	5.4	17.9
DA-SS121-011008	**19.6**	4.4	14.0
DA-SS122-011008	**22.4**	4.7	15.1
DA-SS125-011008	**16.5**	4.1	12.3
DA-SS129-011408	28.1	5.3	17.1
DA-SS145-011708	33.4	5.8	17.3

TABLE F.6.3
SITE 8 SURFACE SOILS EXCEEDING LEAD UPPER PREDICTION LIMITS FROM BASEWIDE BACKGROUND REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Site 8 Surface Soil > UPL from Vanadium-Lead Regression			
Sample ID	**Lead**	**Lead^(1/2)**	**Vanadium**
DA-S-SB02-0102-01	**22.0**	4.7	17
DA-S-SB03-0102-01	**15.0**	3.9	13
DA-S-SB04-0102-01	**12.0**	3.5	9.1
DA-S-SB05-0102-01	**12.0**	3.5	8.2
DA-S-SB06-0515-01	**9.8**	3.1	9.7
DA-S-SB08-0102-01	**15.0**	3.9	12
DA-S-TP01-0001-01	120.0	11.0	18
DA-S-TP05-0001-01	**22.0**	4.7	14
DA-S-TP06-0001-01	**26.0**	5.1	18
DA-S-TP07-0001-01	**23.0**	4.8	13
DA-S-TP09-0001-01	**25.0**	5.0	19
DA-S-TP10-0001-01	160.0	12.6	29
DA-S-TP12A-0001-01	**36.0**	6.0	24
DA-S-TP12B-0001-01	**40.0**	6.3	28
DA-SB107-0103	110.0	10.5	14.2
DA-SB111-0002	**18.8**	4.3	13
DA-SB112-0002	**18.0**	4.2	9.2
DA-SB113-0002	**38.8**	6.2	10.1
DA-SB114-0002	54.8	7.4	13.2
DA-SS102B-011508	**36.0**	6.0	21
DA-SS103B-011508	61.4	7.8	19.7
DA-SS104-011508	**33.1**	5.8	22.5
DA-SS104B-011608	**36.5**	6.0	20.1
DA-SS105-011508	**14.5**	3.8	8.1
DA-SS105B-011608	**53.2**	7.3	19.9
DA-SS106-011408	**36.6**	6.0	22
DA-SS107-011508	**4.2**	2.0	1.5
DA-SS108-011508	**44.1**	6.6	9.5
DA-SS109-011408	**28.8**	5.4	9.9
DA-SS110-011508	**32.0**	5.7	16.3
DA-SS110B-011508	**33.4**	5.8	24.6
DA-SS121-011008	**25.4**	5.0	17.9
DA-SS122-011008	86.1	9.3	19.6
DA-SS124-011008	**23.0**	4.8	17
DA-SS125-011008	**23.2**	4.8	17.15
DA-SS126-011408	55.0	7.4	17.7
DA-SS127-011508	**17.3**	4.2	10.5
DA-SS128-011608	63.7	8.0	17.9
DA-SS129-011408	81.8	9.0	27.6
DA-SS131-011608	**33.9**	5.8	22.9
DA-SS132-011408	**35.6**	6.0	21.3
DA-SS133-011508	**50.8**	7.1	19.3
DA-SS138-011108	**42.7**	6.5	27.2
DA-SS141-011108	69.7	8.3	21
DA-SS142-011708	**33.6**	5.8	21.5
DA-SS145-011708	112.0	10.6	27.1
DA-SS146-011708	**46.9**	6.8	23.6
DA-SS148-011708	90.2	9.5	38.6
DA-SS149-011708	2870.0	53.6	24.4
DA-SS153-011608	**23.4**	4.8	19.2

Site 8 Surface Soil > UPL from Factor Analysis & Regression			
Sample ID	**Lead**	**Lead^(2/3)**	**Pred. Lead**
DA-B101B-0002	**16.3**	6.4	8.3
DA-B108B-0002	**13.3**	5.6	9.1
DA-S-SB02-0102-01	**22.0**	7.9	13.5
DA-S-SB03-0102-01	**15.0**	6.1	5.4
DA-S-SB04-0102-01	**12.0**	5.2	4.0
DA-S-SB05-0102-01	**12.0**	5.2	5.8
DA-S-SB06-0515-01	**9.8**	4.6	6.4
DA-S-SB07-0102-01	**6.8**	3.6	3.8
DA-S-SB08-0102-01	**15.0**	6.1	2.7
DA-S-TP01-0001-01	120.0	24.3	27.9
DA-S-TP06-0001-01	**26.0**	8.8	16.0
DA-S-TP07-0001-01	**23.0**	8.1	12.2
DA-S-TP08-0001-01	**9.7**	4.5	6.3
DA-S-TP09-0001-01	**25.0**	8.5	11.0
DA-S-TP10-0001-01	160.0	29.5	68.6
DA-S-TP12A-0001-01	**36.0**	10.9	24.2
DA-SB100-0002	**31.2**	9.9	15.7
DA-SB101-0002	**22.7**	8.0	12.3
DA-SB107-0103	110.0	23.0	18.3
DA-SB111-0002	**18.8**	7.1	10.8
DA-SB112-0002	**18.0**	6.9	10.5
DA-SB113-0002	**38.8**	11.5	10.4
DA-SB114-0002	54.8	14.4	14.3
DA-SB115-0002	**16.0**	6.3	9.3
DA-SB116-0002	**13.3**	5.6	8.8
DA-SB120-0002	**16.8**	6.6	10.3
DA-SS103B-011508	61.4	15.6	25.8
DA-SS104-011508	**33.1**	10.3	18.5
DA-SS105-011508	**14.5**	5.9	6.8
DA-SS106-011408	**36.6**	11.0	16.1
DA-SS107-011508	**4.2**	2.6	0.1
DA-SS108-011508	**44.1**	12.5	16.0
DA-SS109-011408	**28.8**	9.4	9.6
DA-SS110-011508	**32.0**	10.1	16.9
DA-SS110B-011508	**33.4**	10.4	21.3
DA-SS111B-011408	**15.2**	6.1	10.1
DA-SS115B-011008	**32.2**	10.1	16.7
DA-SS125-011008	**23.2**	8.1	15.4
DA-SS126-011408	55.0	14.5	13.8
DA-SS127-011508	**17.3**	6.7	10.3
DA-SS128-011608	63.7	15.9	13.7
DA-SS129-011408	81.8	18.8	31.3
DA-SS132-011408	**35.6**	10.8	20.4
DA-SS133-011508	**50.8**	13.7	21.5
DA-SS138-011108	**42.7**	12.2	22.1
DA-SS141-011108	69.7	16.9	12.9
DA-SS142-011708	**33.6**	10.4	16.6
DA-SS145-011708	112.0	23.2	44.4
DA-SS148-011708	90.2	20.1	40.9
DA-SS149-011708	2870.0	202.0	52.7
DA-SS153-011608	**23.4**	8.2	16.5

BOLD results do **not** exceed the maximum of the 4 univariate upper tolerance limits (95% UTLs) for background soil types found at NUSC (SeSS: UTL=39; SeSB: UTL=16; PmSS: UTL=53.2; or PmSB UTL=12.2)

TABLE F.6.4
SITE 8 SUBSURFACE SOILS EXCEEDING LEAD UPPER PREDICTION LIMITS FROM BASEWIDE BACKGROUND REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Site 8 Subsurface Soil > UPL from Iron-Lead Regression

Sample ID	Lead	Iron
DA-B100B-0608	**16.3**	40000
DA-B101B-0406	**12.4**	23400
DA-B103B-0810	**14.8**	27300
DA-B104B-0406	**14.5**	28900
DA-B105B-0204	**43.2**	22800
DA-B109B-0204	**22.2**	33000
DA-B110B-1012	4540.0	20100
DA-B111B-0406	**19.5**	29900
DA-B112B-0608	**28.9**	29000
DA-B119B-0204	78.3	29600
DA-S-MW04B-0810-01	**17.0**	15000
DA-S-MW04B-1416-01	**24.0**	18000
DA-S-SB02-5565-01	**9.0**	13000
DA-S-SB05-0203-01	**13.0**	29000
DA-S-SB05-0304-01	**15.0**	22000
DA-S-TP01-0304-01	**36.0**	23000
DA-S-TP01-0607-01	**37.0**	16000
DA-S-TP02-0203-01	**16.5**	32000
DA-S-TP02-0506-01	**12.0**	33000
DA-S-TP05-0910-01	**18.5**	29500
DA-S-TP06-0304-01	**16.0**	16000
DA-S-TP06-0910-01	**14.0**	29000
DA-S-TP07-0304-01	**24.0**	14000
DA-S-TP07-0910-01	400.0	17000
DA-S-TP08-0304-01	**11.5**	22500
DA-S-TP08-0708-01	**36.0**	24000
DA-S-TP11-0304-01	**14.0**	42000
DA-S-TP12-0203-01	**14.0**	25000
DA-S-TP14-0506-01	830.0	38000
DA-S-TP14-0910-01	**46.0**	29000
DA-S-TP15-0203-01	**20.0**	20000

Sample ID	Lead	Iron
DA-S-TP15-0506-01	**25.0**	21000
DA-S-TP15A-0203-01	**39.0**	4800
DA-S-TP15A-0506-01	**35.0**	3800
DA-S-TP15A-0910-01	**42.0**	17000
DA-SB-TP103-0506	653.0	29900
DA-SB101-0608	**14.2**	39000
DA-SB102-0305	**14.5**	39700
DA-SB104-0608	**24.8**	28600
DA-SB105-0406	**23.3**	26500
DA-SB106-0608	4650.0	134000
DA-SB108-0204	**25.6**	10500
DA-SB109-0204	**19.4**	24500
DA-SB110-0810	**28.6**	23400
DA-SB111-0204	159.0	17400
DA-SB112-0608	**12.8**	20500
DA-SB113-0406	**29.3**	39550
DA-SB114-0406	**17.0**	23300
DA-SB115-0204	**44.7**	29300
DA-SB122-0407	**13.9**	20000
DA-SB123-0508	**18.4**	35200
DA-SB125-0810	**13.9**	30700
DA-SB126-1013	**15.1**	32800
DA-SB127-0204	**25.1**	18800
DA-SB128-0810	117.0	38600
DA-SB129-0406	66.8	22800
DA-SB130-1011.5	**19.3**	31600
DA-SB131-0406	**21.3**	28200
DA-SB132-0406	926.0	31800
DA-SB133-0810	**16.6**	26100
DA-SB150-0204	**10.6**	23600

BOLD results do **not** exceed the maximum of the 4 univariate upper tolerance limits (95% UTLs) for background soil types found at NUSC (SeSS: UTL=39; SeSB: UTL=16; PmSS: UTL=53.2; or PmSB UTL=12.2)

TABLE F.6.5
SAMPLES EXCEEDING MANGANESE UPPER PREDICT. LIMITS FROM BACKGROUND REGRESSIONS
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Site 8 Surface Soil > UPL from Log-Manganese Log-Iron Regression				
Sample ID	**Manganese**	**Log Manganese**	**Log Iron**	**Iron**
DA-SS105-011508	**251**	5.5	9.1	8660
DA-SS107-011508	**351**	5.9	8.6	5270
DA-SS149-011708	2020	7.6	**10.7**	43700

BOLD results do **not** exceed the maximum of the 4 univariate upper tolerance limits (95% UTLs) for background soil types found at NUSC (SeSS: UTL=436; SeSB: UTL=1630; PmSS: UTL=560; or PmSB UTL=1440)

APPENDIX F

TABLES F.7.1 THROUGH F.7.4

SITE-WIDE TWO SAMPLE HYPOTHESIS TESTS (TEST FORM I)

TABLE F.7.1
TEST FORM II COMPARISON OF METALS IN SURFACE SOIL TO BACKGROUND SURFACE SOIL TYPE STISSING SILT LOAM (SE)
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Mann-Whitney/Gehan Ranks of Site 8 ss < bkg.+2σ? <40% ND or use Gehan P value <=0.05 ?				Student's or Satterthwaite T-test Site 8 ss Mean < bkg. Mean + 2σ ? #s>2,#b>2,>=85% Pos; both norm/log t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 8 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm. F-Value<=F-Table (Students T). If not, Satterthwaite						
Site Conc.< background + 2σ? Y/N		P Value	Test	Used	YN	Site 8 ss Mean@	bkg.+ 2σ Mean@	t Value	t Table	YN	Site 8 ss Distrib.	bkg. Distrib.	Std.Dev. Site 8 ss@	Std.Dev. bkg. ss@	F Value	F Table	YN
Aluminum	**Y**	<.0001			**Y**	11100	16500	8.6458	1.6802	**Y**	normal	normal	3740	2230	6.5760	3.8411	N
Chromium	**Y**	<.0001			**Y**	15.7	21.3			NA	nonpar.	nonpar.					NA
Iron	**Y**	<.0001			**Y**	25300	37900			NA	nonpar.	nonpar.					NA
Manganese	N	0.9698			N	378	307			NA	nonpar.	nonpar.					NA

**** Site 8 metals concentrations in surface soil are compared to background Stissing Silt Loam (SE) surface soil (SS).**

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the background data plus 2σ has a distribution with more values ranked greater than the ranks of site data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the background data plus 2σ belongs to a population having a greater mean relative to the mean of the site population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Tes

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 ss to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 ss < bkg. + 2σ) for each chemical appears at the left and is based on the criteria: Overall decision is YES if either one of the Mann-Whitney/Gehan or T-Test is YES.
NOTE: The Test Form 2 results do not utilize the UTL test or quantile test because the minimum detectable difference (MDD) is applied to the entire data set for a comparison of arithemetic mean or rank sum.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 ss (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 ss results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 ss < bkg. + 2σ with 95 % confidence.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.

TABLE F.7.2
TEST FORM II COMPARISON OF METALS IN SUBSURFACE SOIL TO BACKGROUND SUBSURFACE SOIL TYPE STISSING SILT LOAM (SE)
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

Name of Test:		Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:		Ranks of Site 8 sb < bkg.+2σ?				Site 8 sb Mean < bkg. Mean + 2σ ?					Site 8 sb Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:		<40% ND or use Gehan				#s>2,#b>2,>=85% Pos; both norm/log					#s>2,#b>2, Site 8 sb & bkg. both normal or both lognorm.						
Test Criterion:		P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
		P	Test	Used	YN	Site 8 sb	bkg.+ 2σ	t	t	YN	Site 8 sb	bkg.	Std.Dev.	Std.Dev.	F	F	YN
Site Conc.< background + 2σ?	Y/N	Value				Mean@	Mean@	Value	Table		Distrib.	Distrib.	Site 8 sb@	bkg. sb@	Value	Table	
Aluminum	**Y**	0.0017			**Y**	12000	14500			NA	lognor.	normal					NA
Chromium	**Y**	0.0213			**Y**	17.6	17.8			NA	nonpar.	normal					NA
Iron	**Y**	<.0001			**Y**	30100	47000			NA	nonpar.	normal					NA
Manganese	**Y**	<.0001			**Y**	567	1100			NA	nonpar.	nonpar.					NA

**** Site 8 metals concentrations in subsurface soil are compared to background Stissing Silt Loam (SE) subsurface soil (SB).**

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the background data plus 2σ has a distribution with more values ranked greater than the ranks of site data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the background data plus 2σ belongs to a population having a greater mean relative to the mean of the site population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Tes

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 sb to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 sb < bkg. + 2σ) for each chemical appears at the left and is based on the criteria: Overall decision is YES if either one of the Mann-Whitney/Gehan or T-Test is YES.
NOTE: The Test Form 2 results do not utilize the UTL test or quantile test because the minimum detectable difference (MDD) is applied to the entire data set for a comparison of arithemetic mean or rank sum.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 sb (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 sb results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 sb < bkg. + 2σ with 95 % confidence.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.

TABLE F.7.3
TEST FORM II COMPARISON OF METALS IN SURFACE SOIL TO BACKGROUND SURFACE SOIL TYPE PITTSTOWN SILT LOAM (PM)
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

Name of Test:		Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:		Ranks of Site 8 ss < bkg.+2σ?				Site 8 ss Mean < bkg. Mean + 2σ ?					Site 8 ss Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:		<40% ND or use Gehan				#s>2,#b>2,>=85% Pos; both norm/log					#s>2,#b>2, Site 8 ss & bkg. both normal or both lognorm.						
Test Criterion:		P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
		P	Test	Used	YN	Site 8 ss	bkg.+ 2σ	t	t	YN	Site 8 ss	bkg.	Std.Dev.	Std.Dev.	F	F	YN
Site Conc.< background + 2σ?	Y/N	Value				Mean@	Mean@	Value	Table		Distrib.	Distrib.	Site 8 ss@	bkg. ss@	Value	Table	
Aluminum	**Y**	<.0001			**Y**	11100	14300	6.2231	1.6663	**Y**	normal	normal	3740	1530	16.6849	3.8411	N
Chromium	N	0.1154			N	15.7	16.3			NA	nonpar.	normal					NA
Iron	**Y**	<.0001			**Y**	25300	33200			NA	nonpar.	nonpar.					NA
Manganese	**Y**	<.0001			**Y**	378	515			NA	nonpar.	normal					NA

**** Site 8 metals concentrations in surface soil are compared to background Pittstown Silt Loam (PM) surface soil (SS).**

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the background data plus 2σ has a distribution with more values ranked greater than the ranks of site data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the background data plus 2σ belongs to a population having a greater mean relative to the mean of the site population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Tes

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 ss to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 ss < bkg. + 2σ) for each chemical appears at the left and is based on the criteria: Overall decision is YES if either one of the Mann-Whitney/Gehan or T-Test is YES.
NOTE: The Test Form 2 results do not utilize the UTL test or quantile test because the minimum detectable difference (MDD) is applied to the entire data set for a comparison of arithemetic mean or rank sum.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 ss (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 ss results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 ss < bkg. + 2σ with 95 % confidence.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.

TABLE F.7.4
TEST FORM II COMPARISON OF METALS IN SUBSURFACE SOIL TO BACKGROUND SUBSURFACE SOIL TYPE PITTSTOWN SILT LOAM (PM)
NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, RHODE ISLAND

Name of Test:		Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:		Ranks of Site 8 sb < bkg.+2σ?				Site 8 sb Mean < bkg. Mean + 2σ ?					Site 8 sb Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:		<40% ND or use Gehan				#s>2,#b>2,>=85% Pos; both norm/log					#s>2,#b>2, Site 8 sb & bkg. both normal or both lognorm.						
Test Criterion:		P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
		P	Test	Used	YN	Site 8 sb	bkg.+ 2σ	t	t	YN	Site 8 sb	bkg.	Std.Dev.	Std.Dev.	F	F	YN
Site Conc.< background + 2σ?	Y/N	Value				Mean@	Mean@	Value	Table		Distrib.	Distrib.	Site 8 sb@	bkg. sb@	Value	Table	
Aluminum	**Y**	0.0482			**Y**	12000	12900			NA	lognor.	normal					NA
Chromium	**Y**	0.0029			**Y**	17.6	18.2			NA	nonpar.	nonpar.					NA
Iron	**Y**	<.0001			**Y**	30100	39600			NA	nonpar.	normal					NA
Manganese	**Y**	<.0001			**Y**	567	1180			NA	nonpar.	nonpar.					NA

**** Site 8 metals concentrations in subsurface soil are compared to background Pittstown Silt Loam (PM) subsurface soil (SB).**

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the background data plus 2σ has a distribution with more values ranked greater than the ranks of site data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the background data plus 2σ belongs to a population having a greater mean relative to the mean of the site population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Tes

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 8 sb to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 8 sb < bkg. + 2σ) for each chemical appears at the left and is based on the criteria:
Overall decision is YES if either one of the Mann-Whitney/Gehan or T-Test is YES.
NOTE: The Test Form 2 results do not utilize the UTL test or quantile test because the minimum detectable difference (MDD) is applied to the entire data set for a comparison of arithemetic mean or rank sum.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 8 sb (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 8 sb results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 8 sb < bkg. + 2σ with 95 % confidence.
% ND	Mann-Whitney test used if < 40% of data Non-Detected and detect. limits uniformly below the range of positive values. If not, the Gehan Test is used.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.

APPENDIX F

FIGURES F.1.1 THROUGH F.1.16

BOX PLOTS COMPARING SITE AND BACKGROUND SOIL DATA

FIGURE F.1.1
ALUMINUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

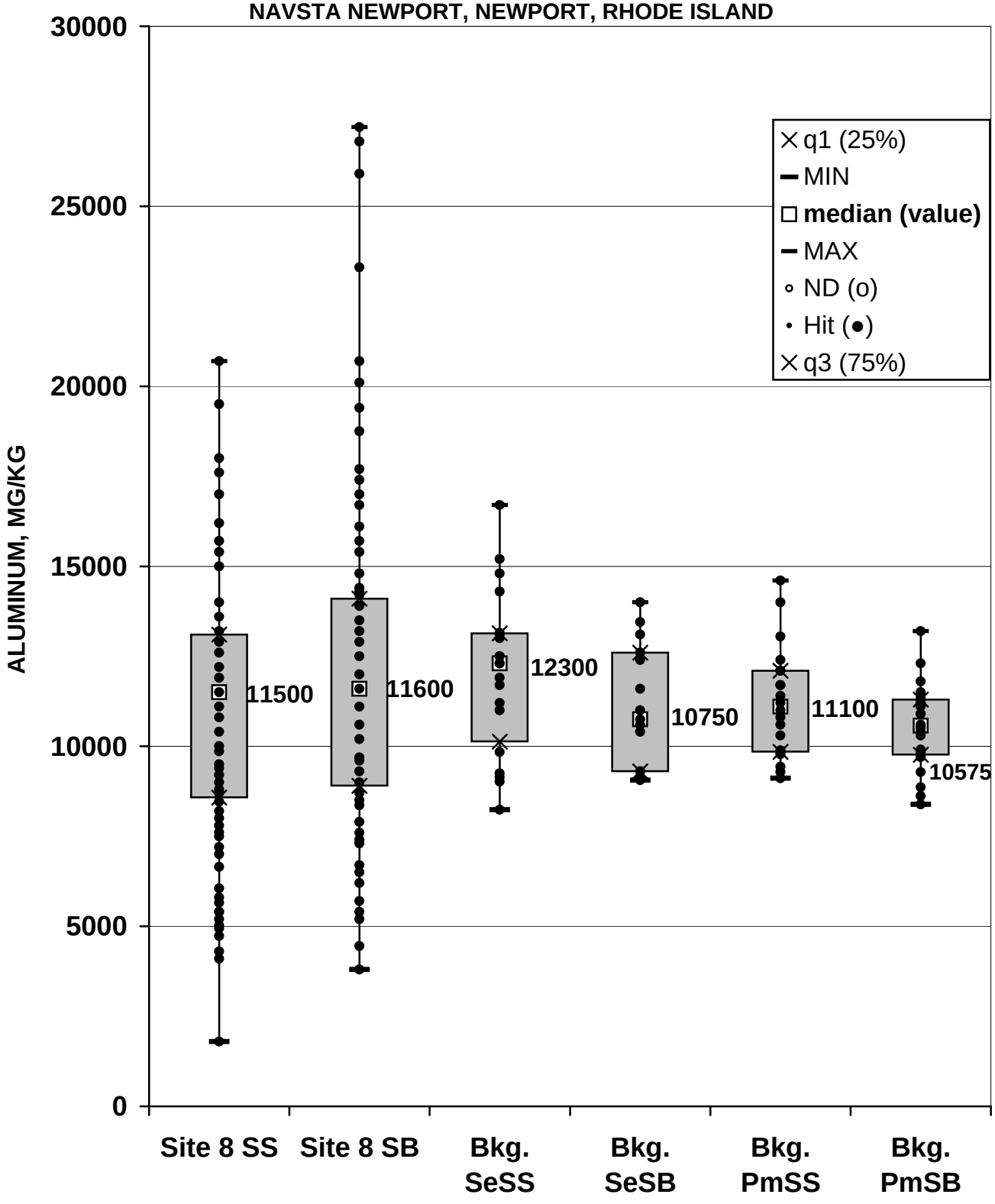


FIGURE F.1.2
ANTIMONY BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

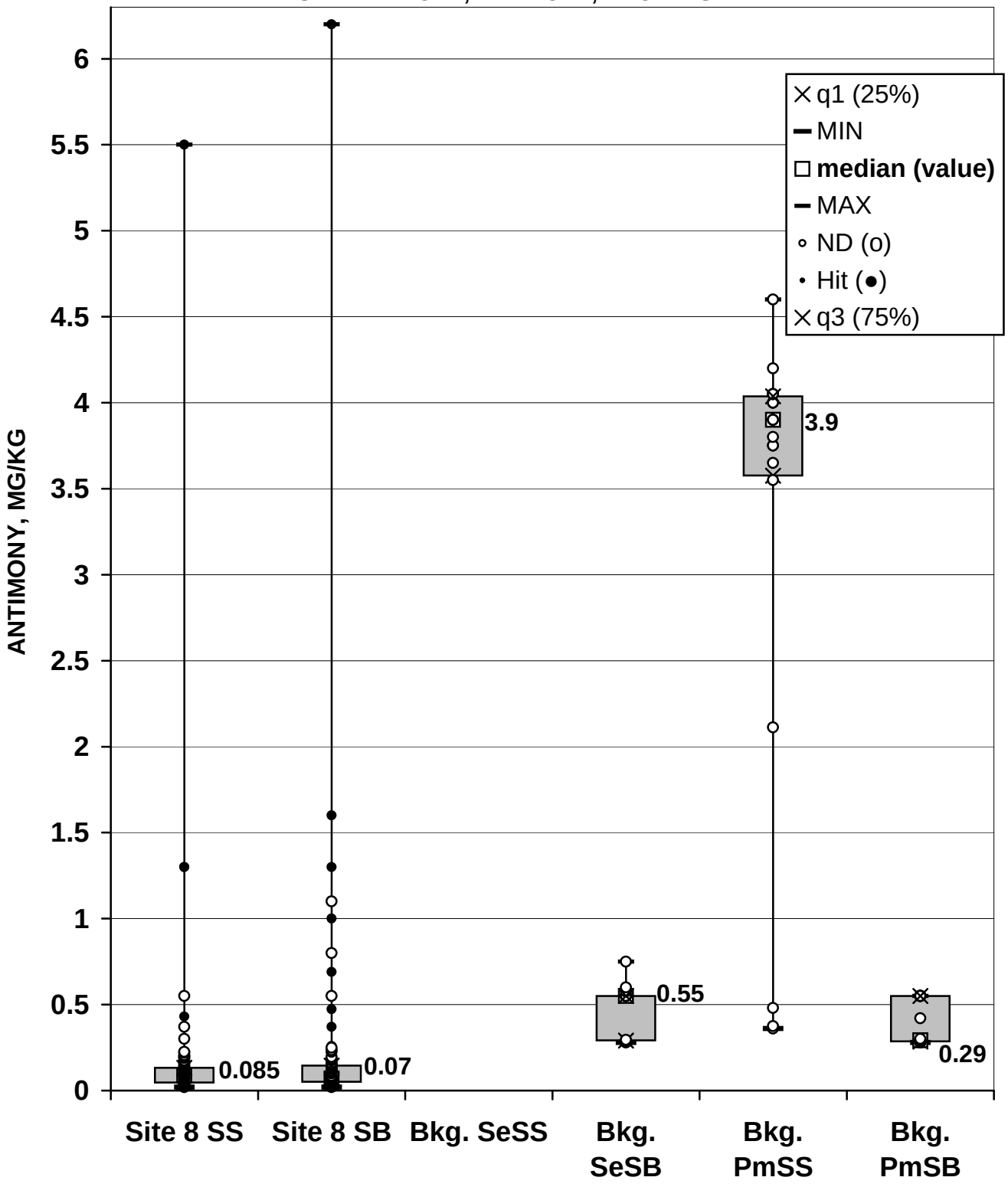


FIGURE F.1.3
ARSENIC BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

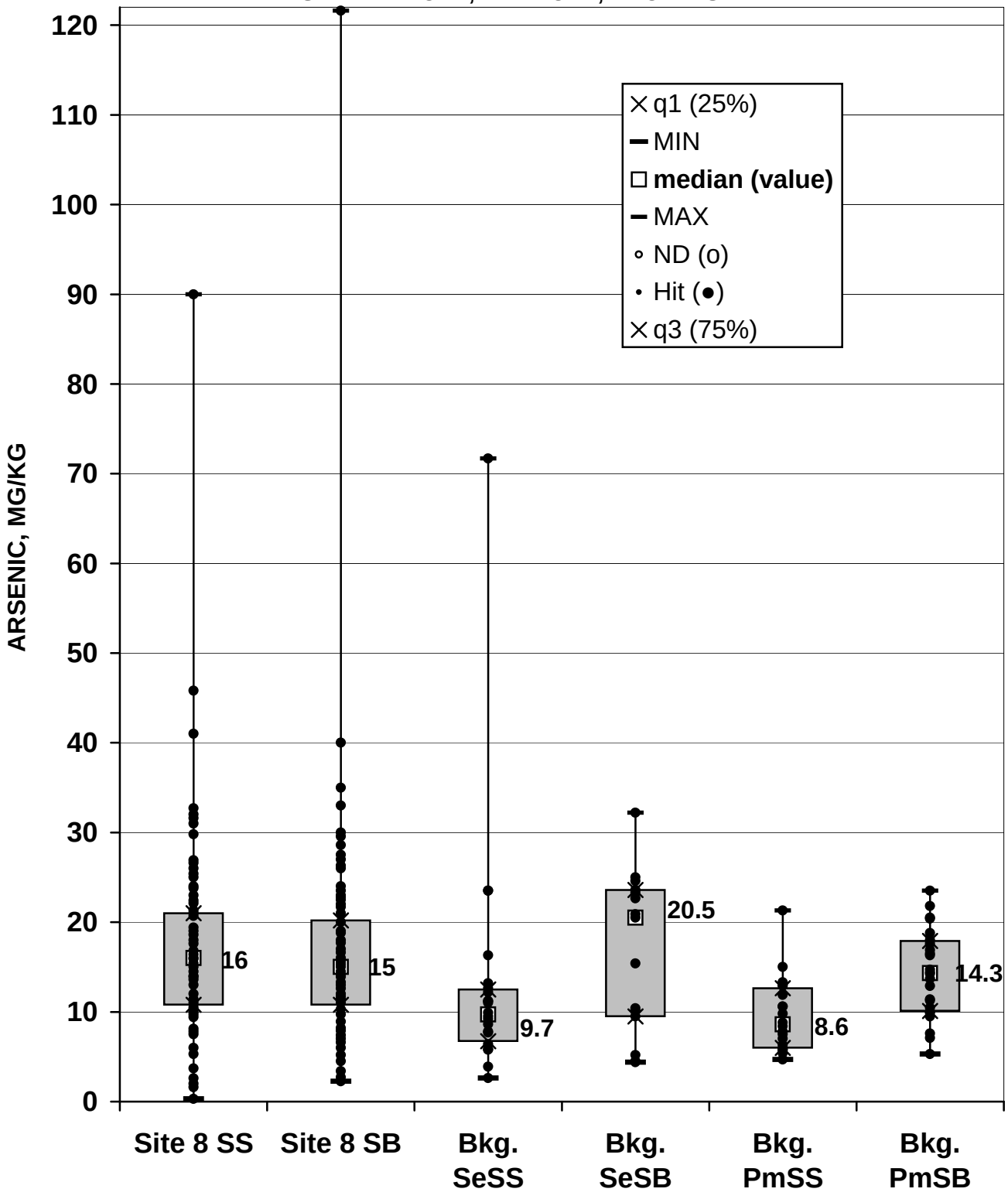


FIGURE F.1.4
BERYLLIUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

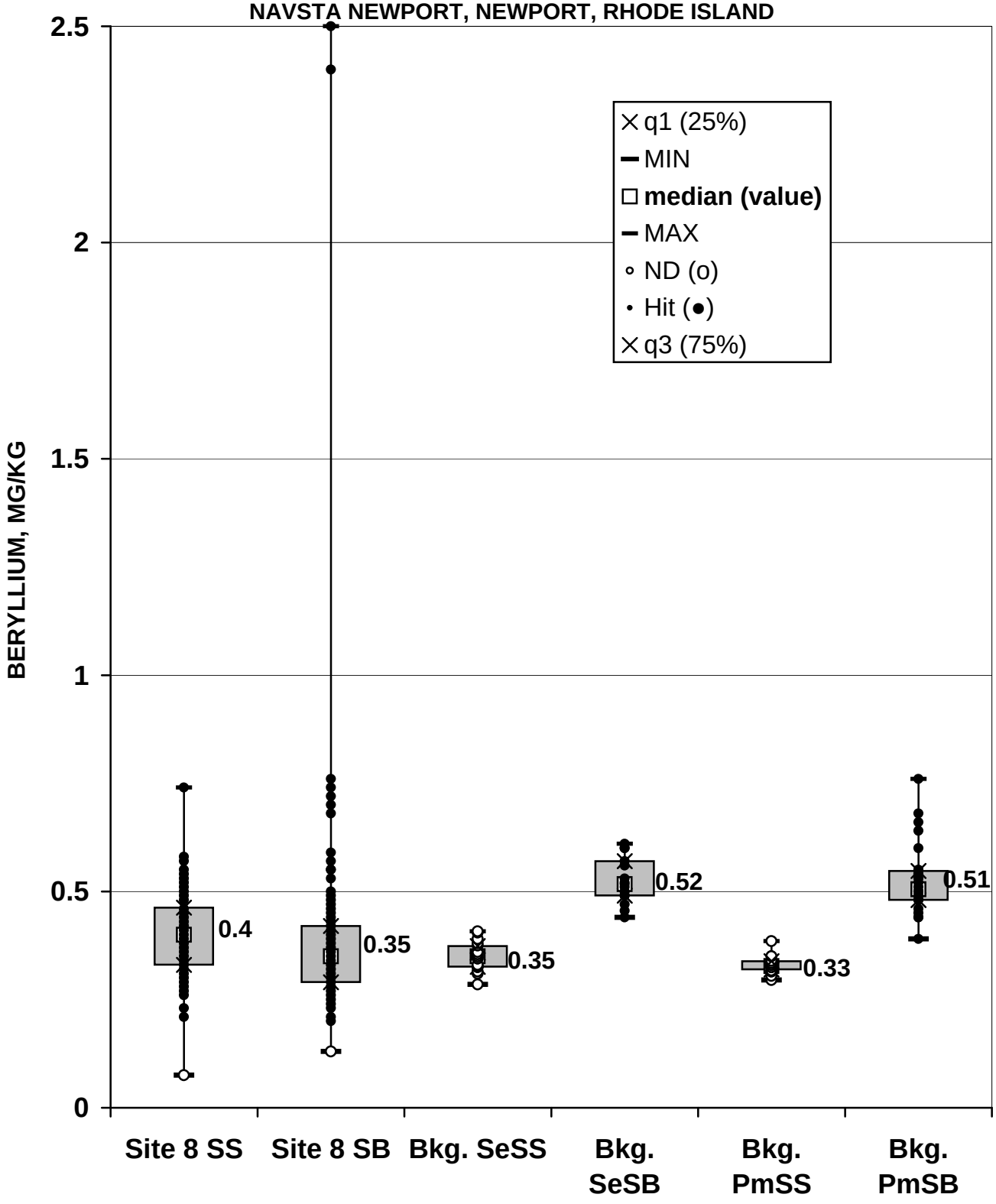


FIGURE F.1.5
CADMIUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

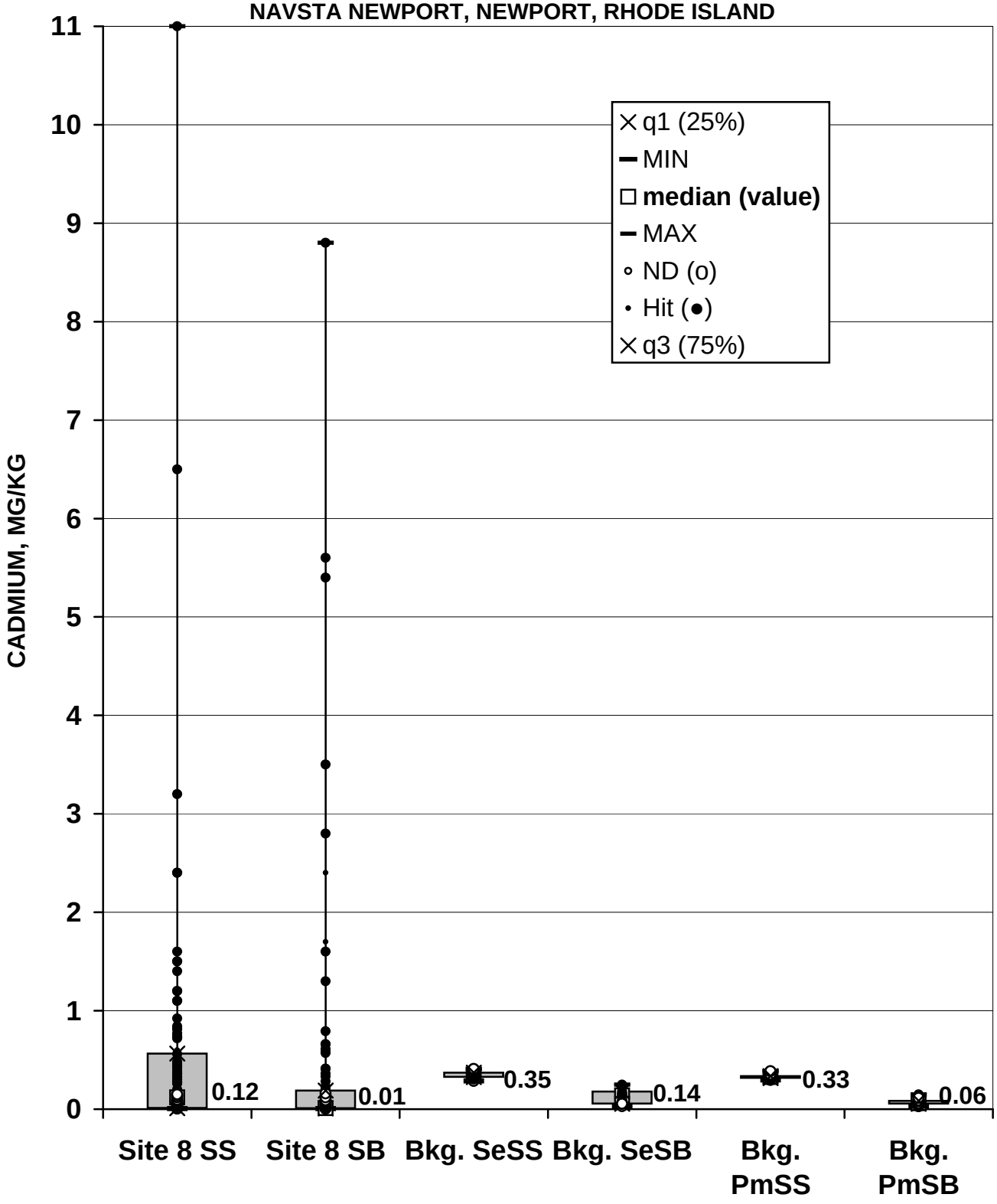


FIGURE F.1.6
CHROMIUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

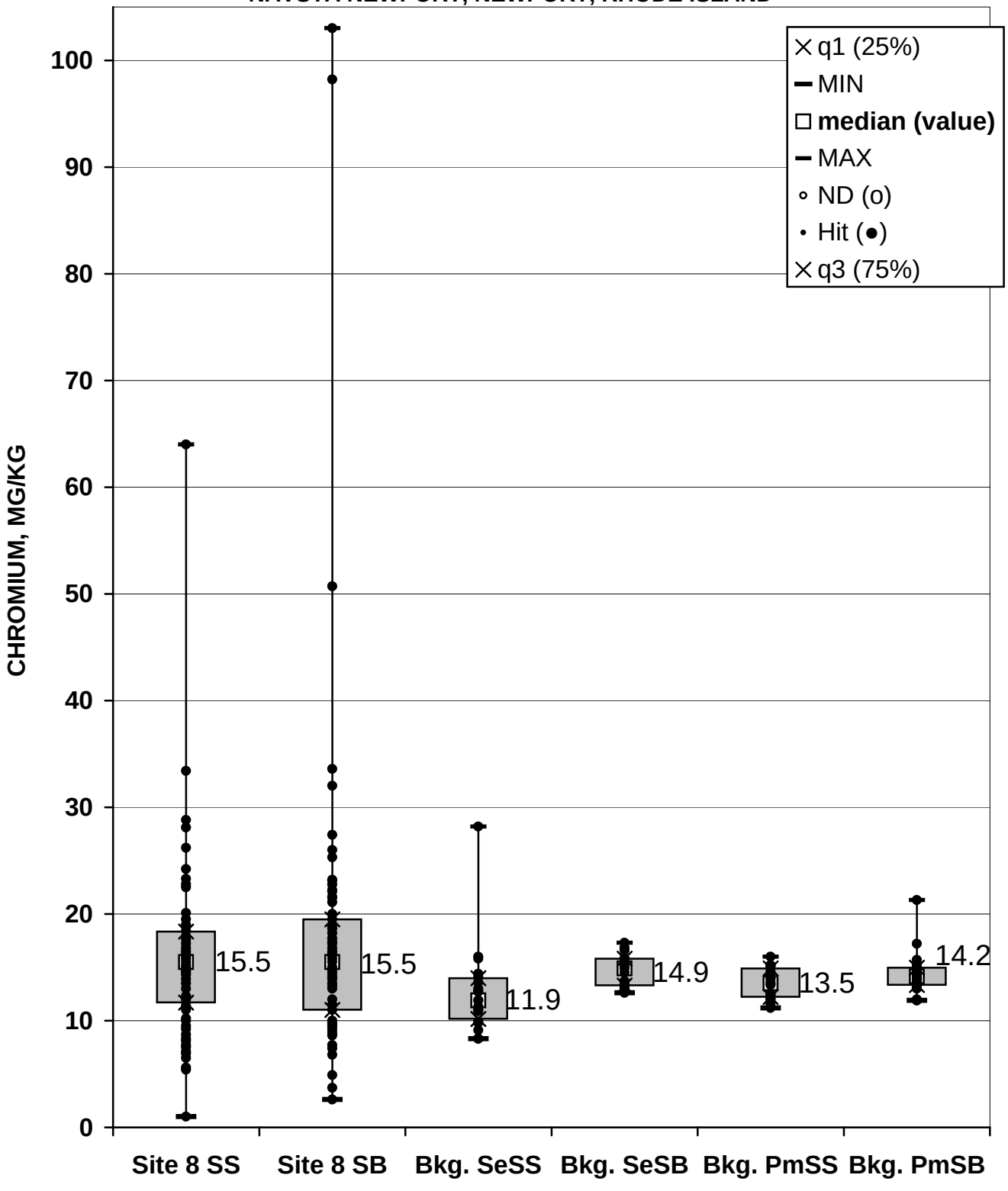


FIGURE F.1.7
COPPER BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

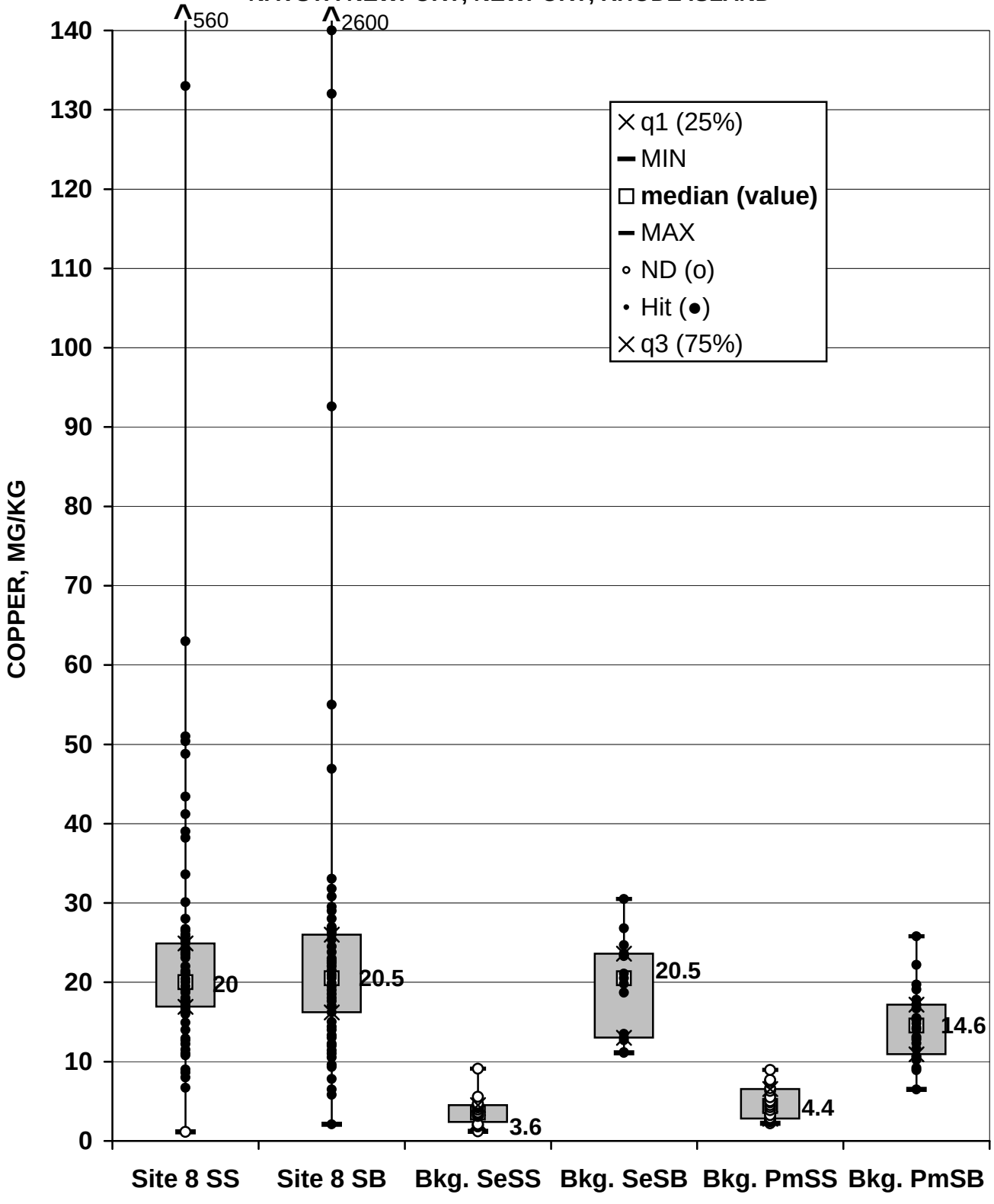


FIGURE F.1.8
IRON BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

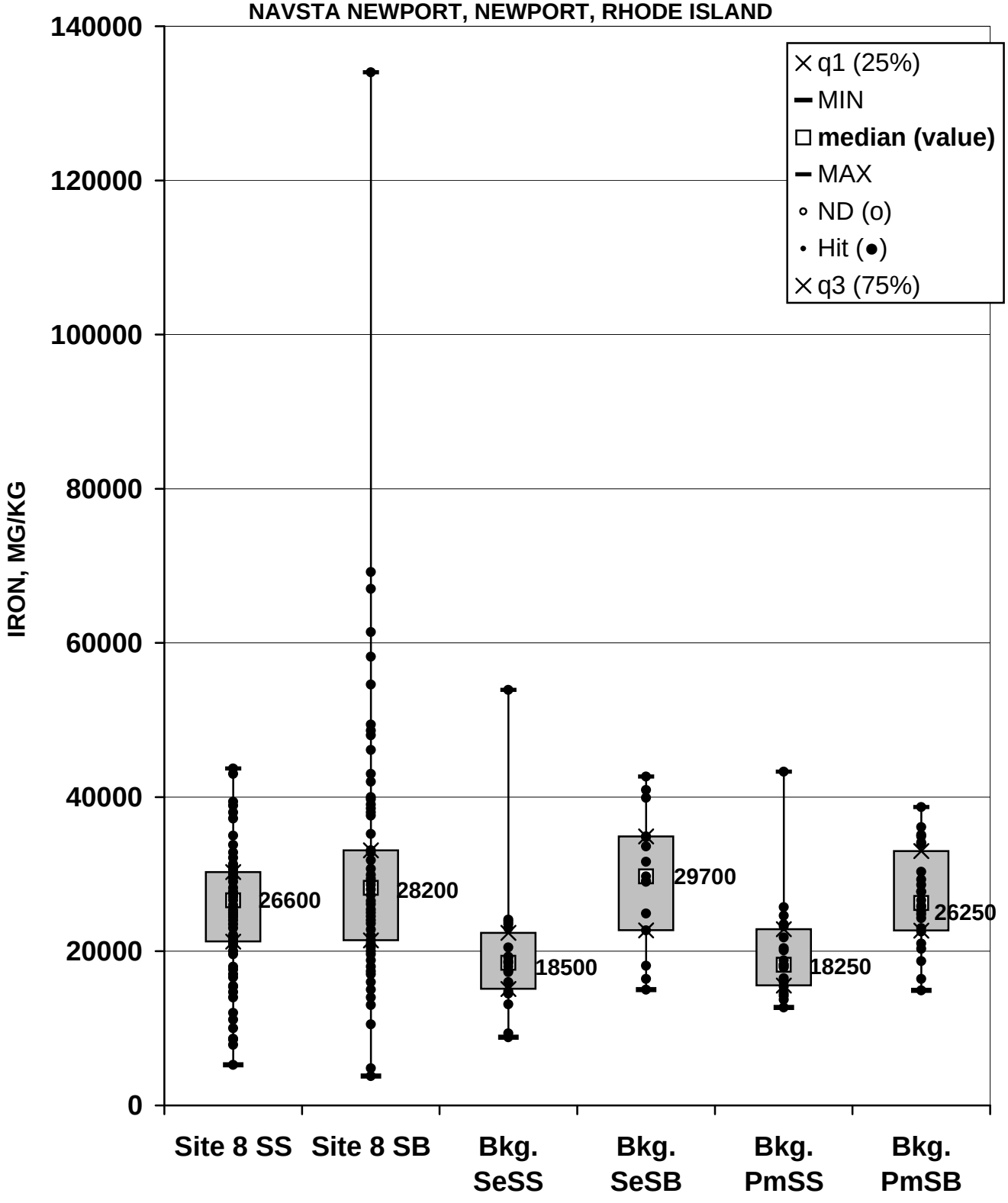


FIGURE F.1.9
LEAD BOX PLOT - SITE 8 VS BACKGROUND, HIGH CONC RANGE
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

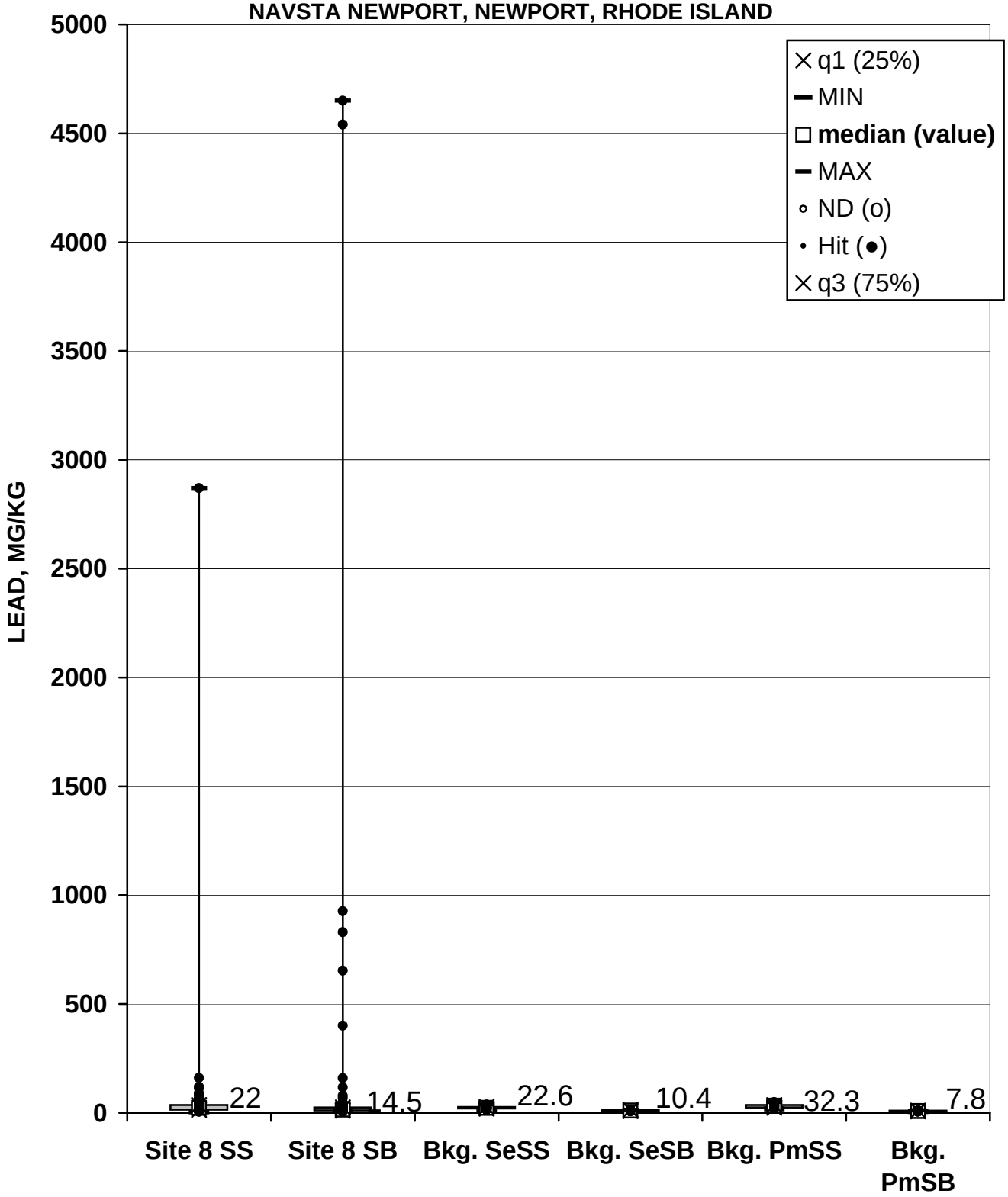


FIGURE F.1.10
LEAD BOX PLOT - SITE 8 VS BACKGROUND, LOW CONC. RANGE
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

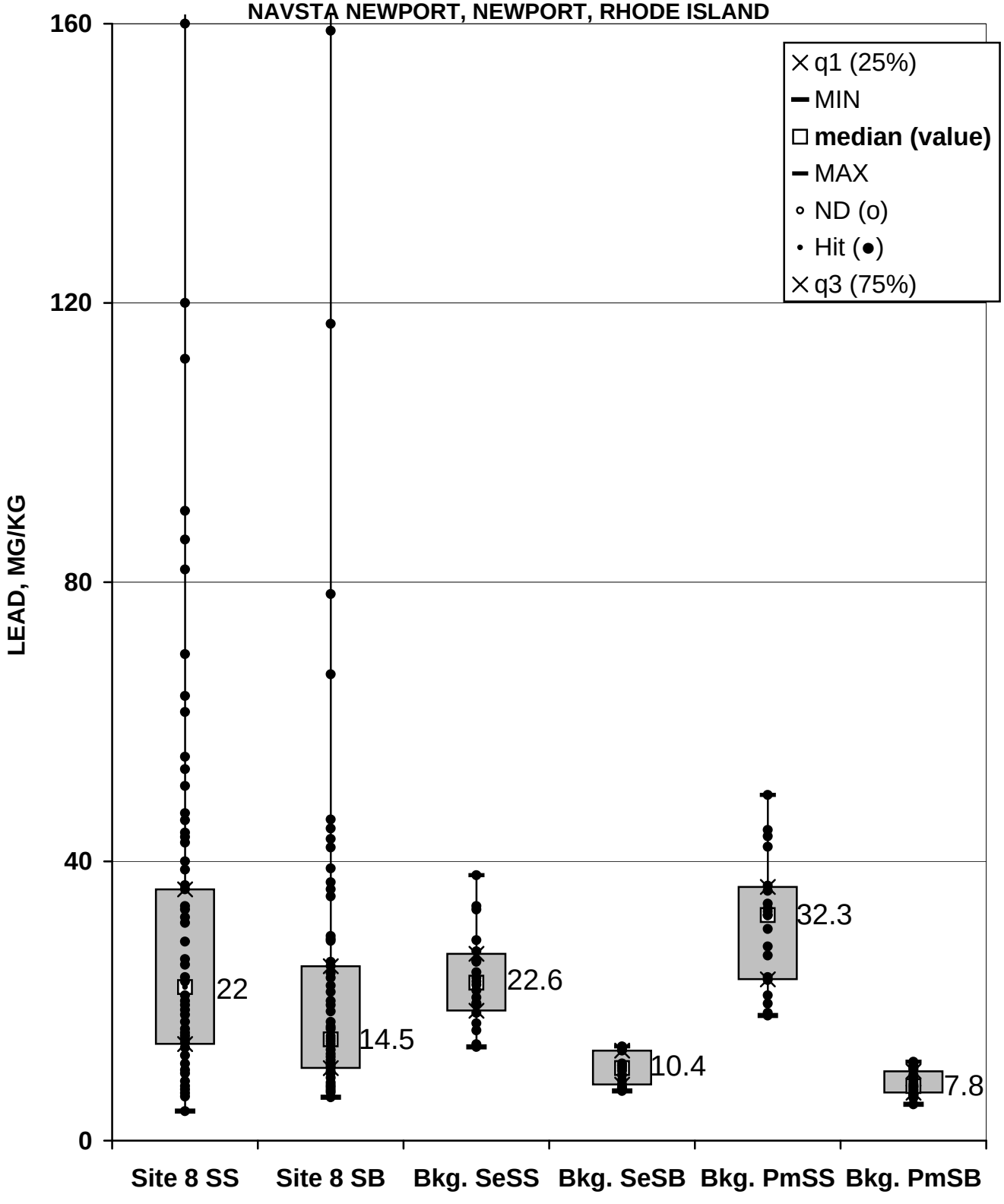


FIGURE F.1.11
MANGANESE BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

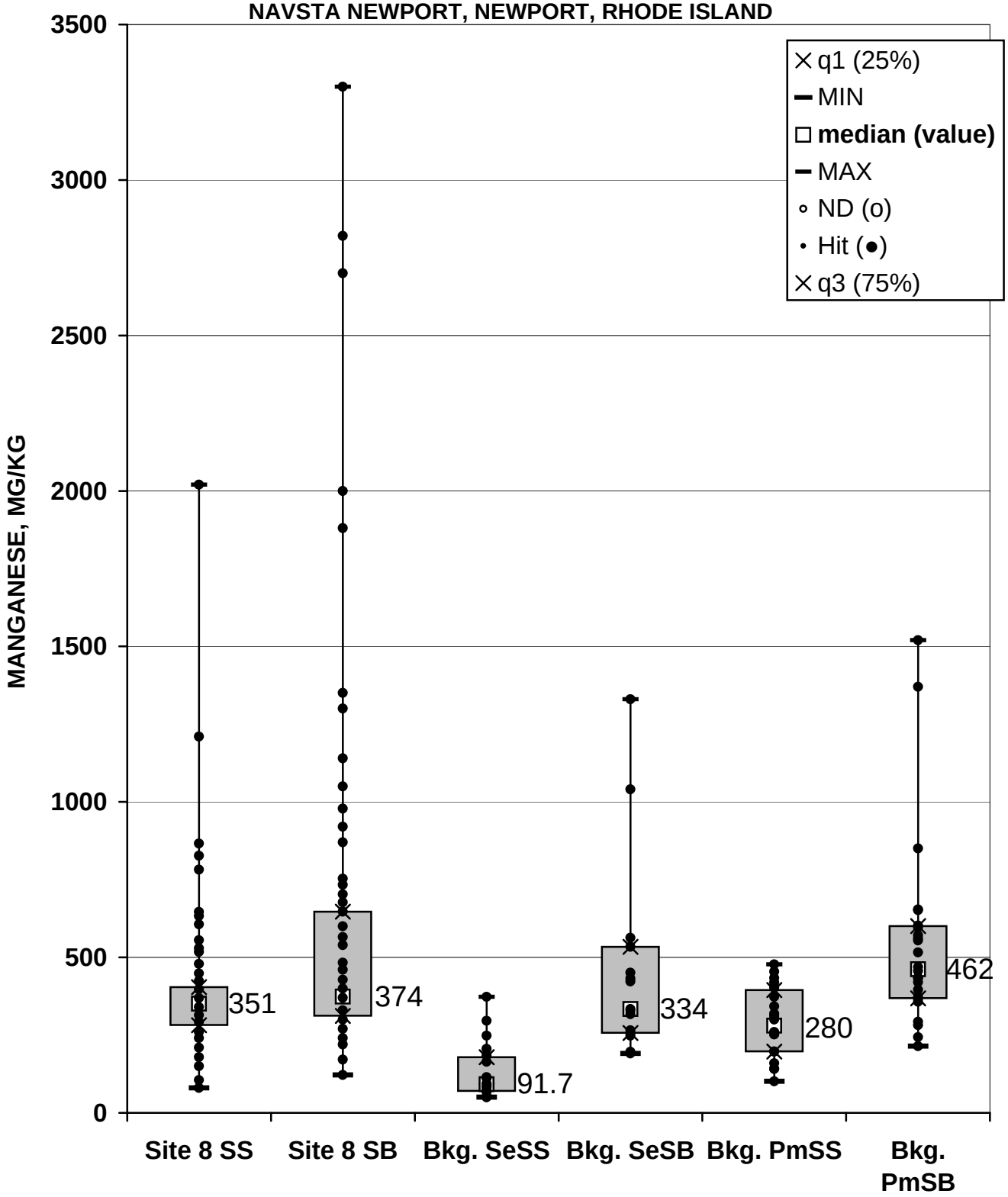


FIGURE F.1.12
MERCURY BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

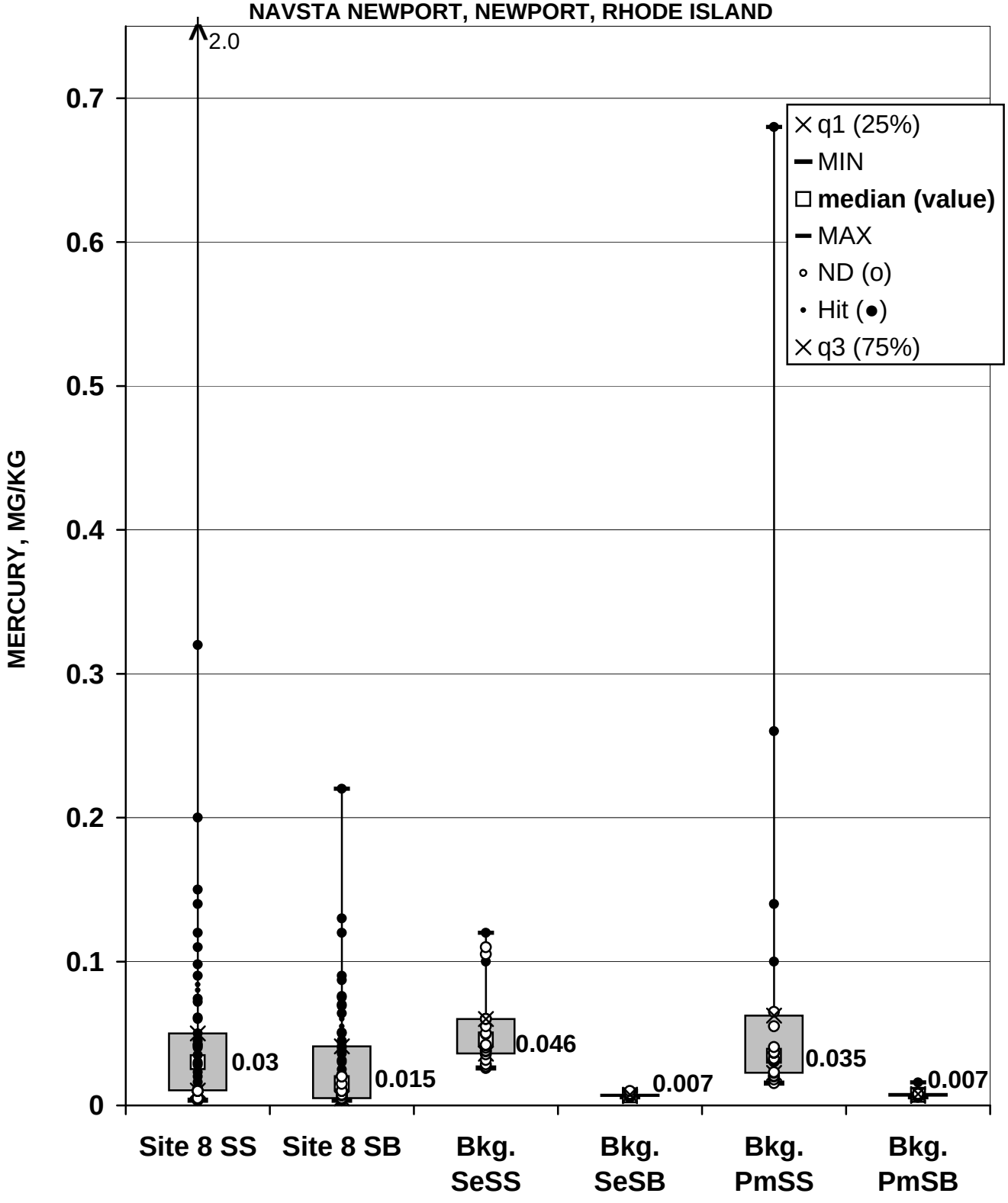


FIGURE F.1.13
SELENIUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

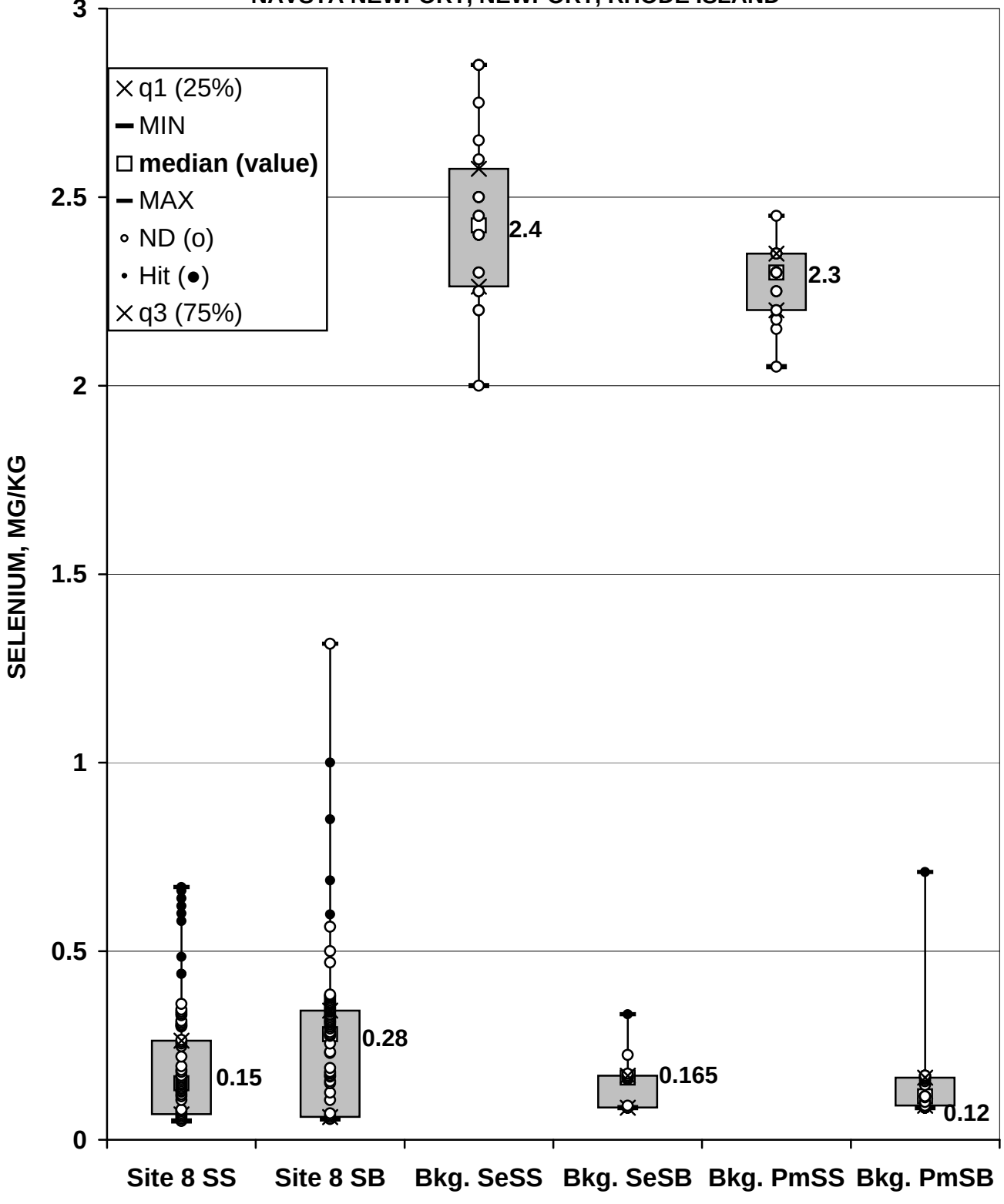


FIGURE F.1.14
SILVER BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

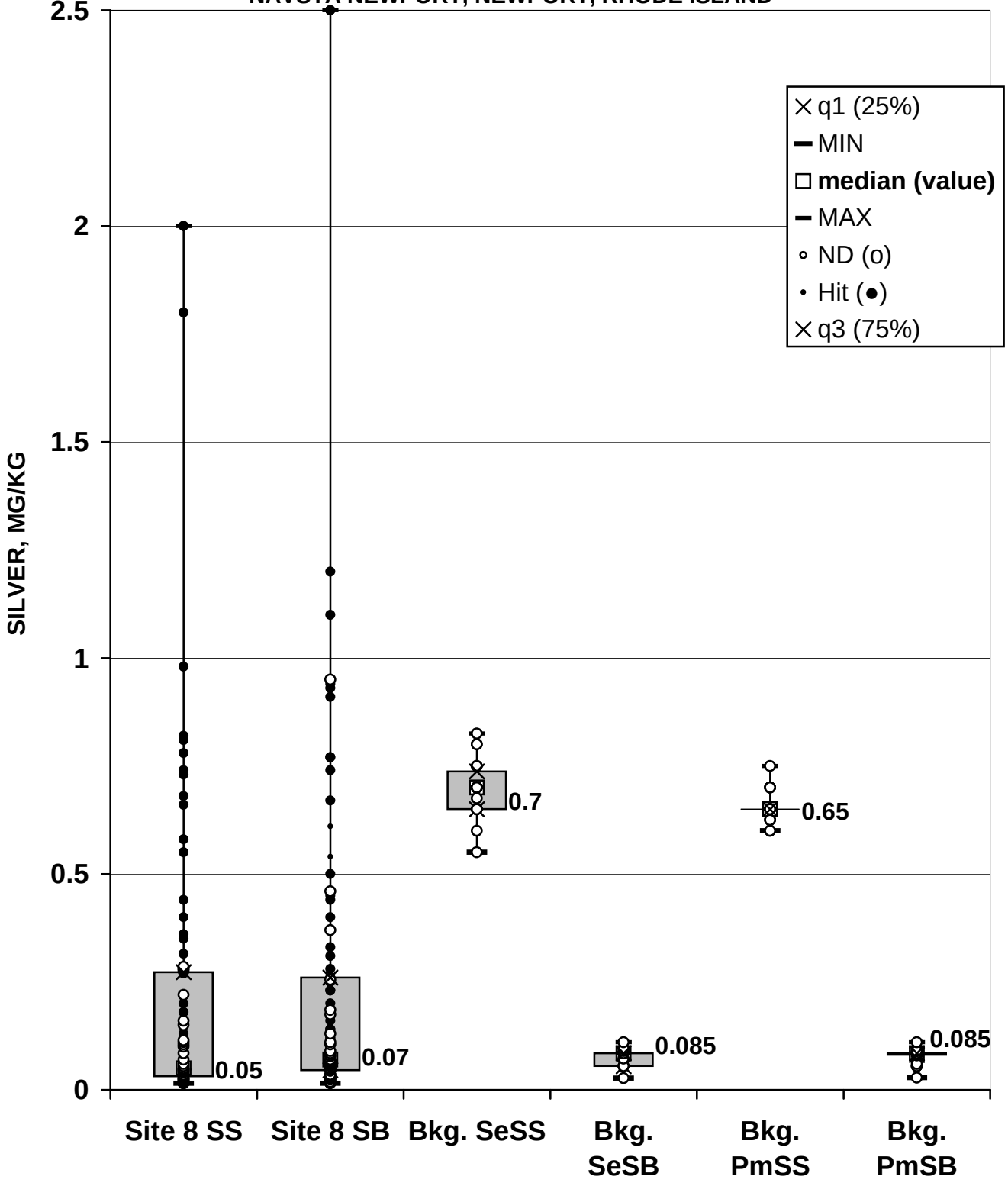


FIGURE F.1.15
THALLIUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

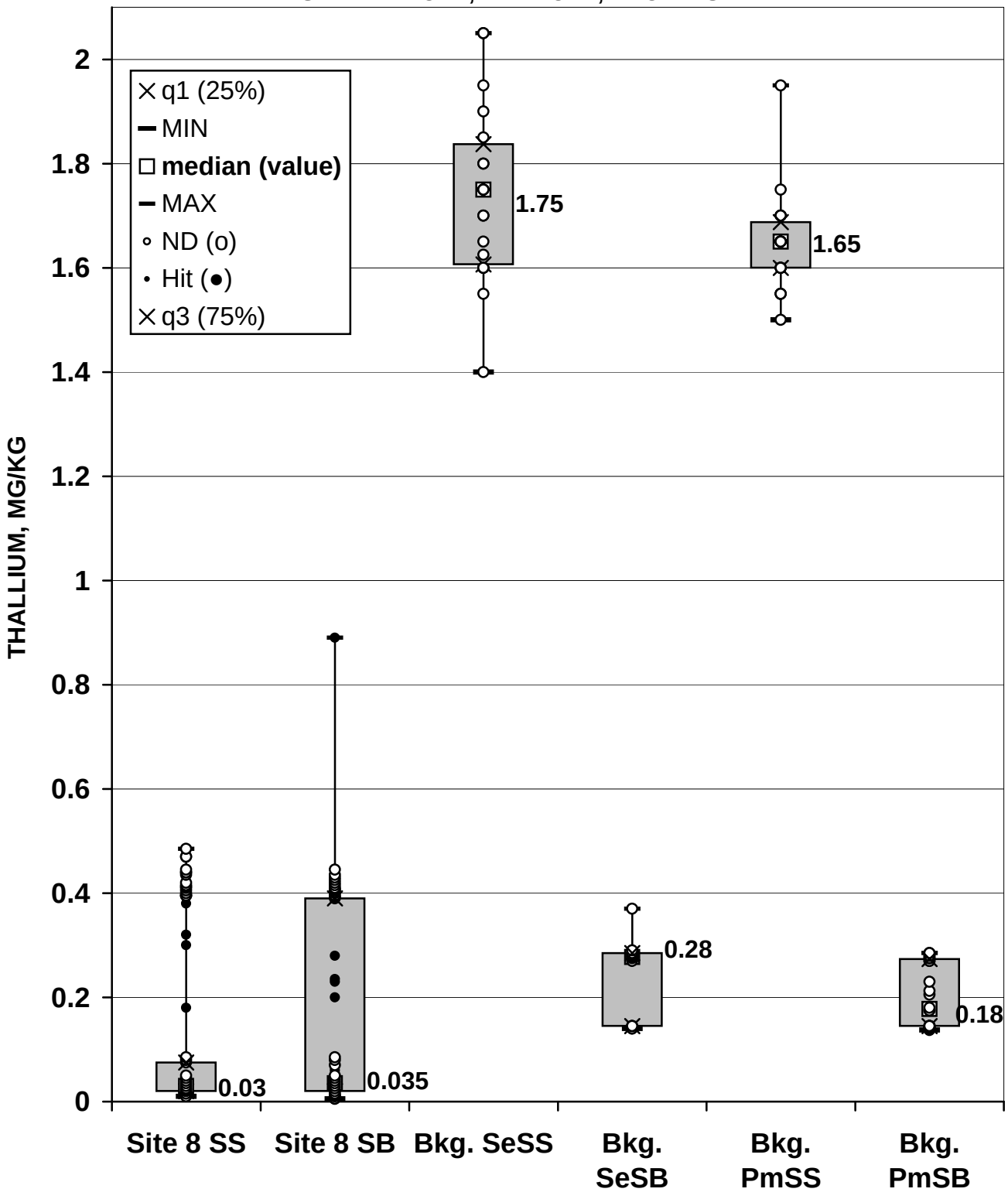
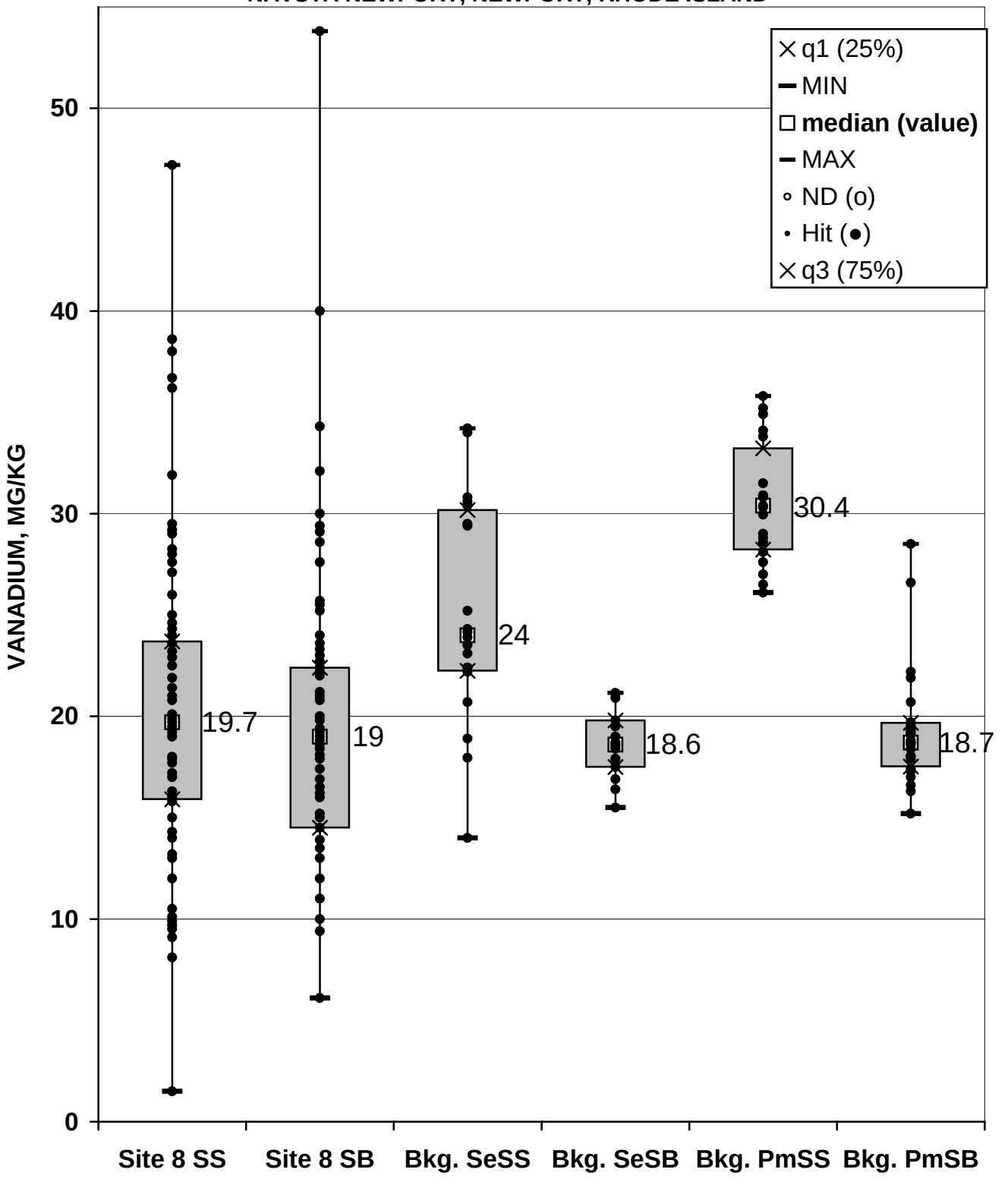


FIGURE F.1.16
VANADIUM BOX PLOTS - SITE 8 VERSUS BACKGROUND
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND



APPENDIX F

FIGURES F.2.1 THROUGH F.2.10

GEOCHEMICAL REGRESSION SCATTER PLOTS AND UPPER PREDICTION LIMITS

FIGURE F.2.1
SITE 8 SURFACE SOIL VS. BASEWIDE BACKGROUND UPPER PREDICTION LIMITS ON ARSENIC 2/3 POWER VS. FACTOR ANAL. PREDICTION
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

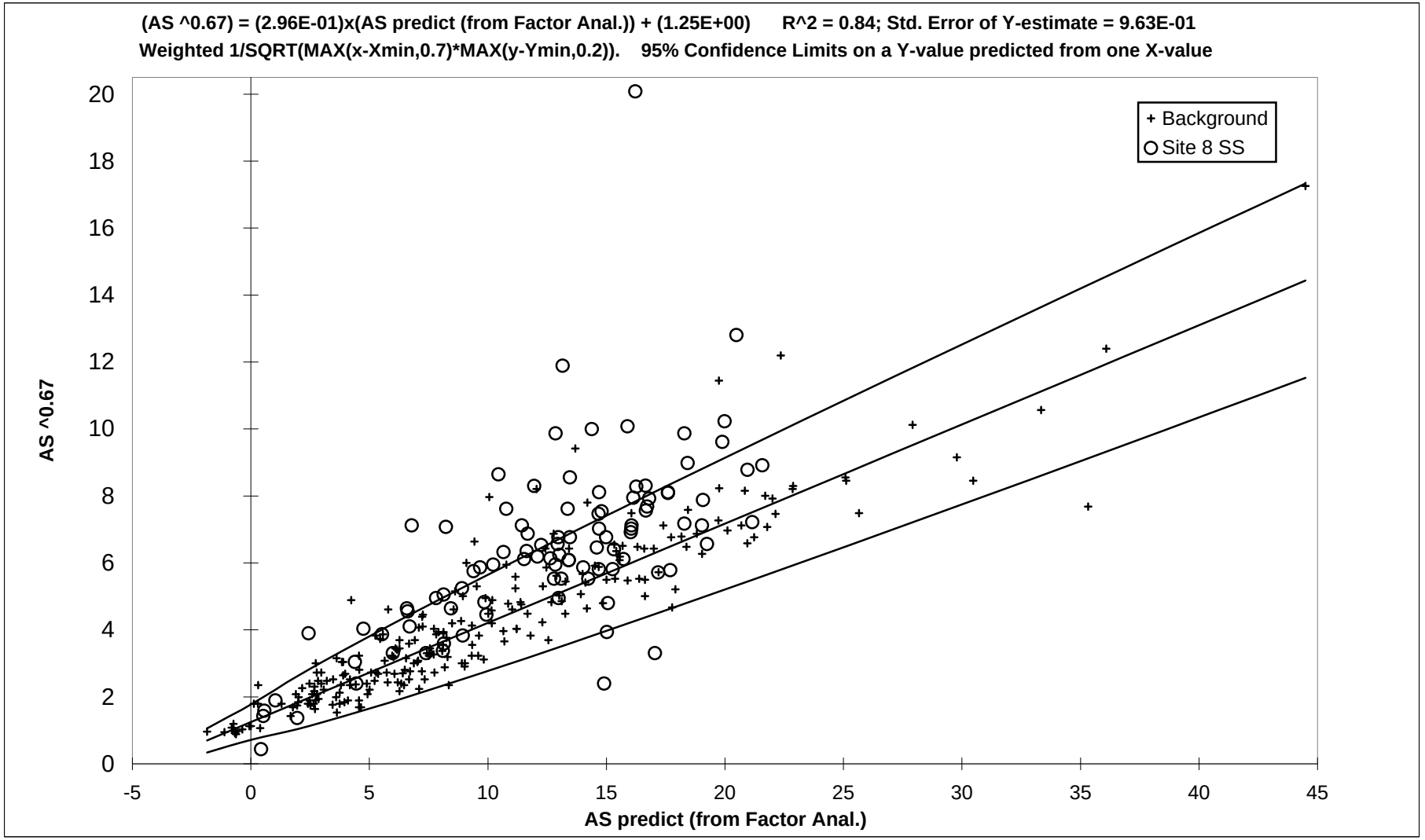


FIGURE F.2.2
SITE 8 SUBSURF. SOIL VS. BASEWIDE BACKGROUND UPPER PREDICT. LIMITS ON ARSENIC 2/3 POWER VS. FACTOR ANAL. PREDICTION
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

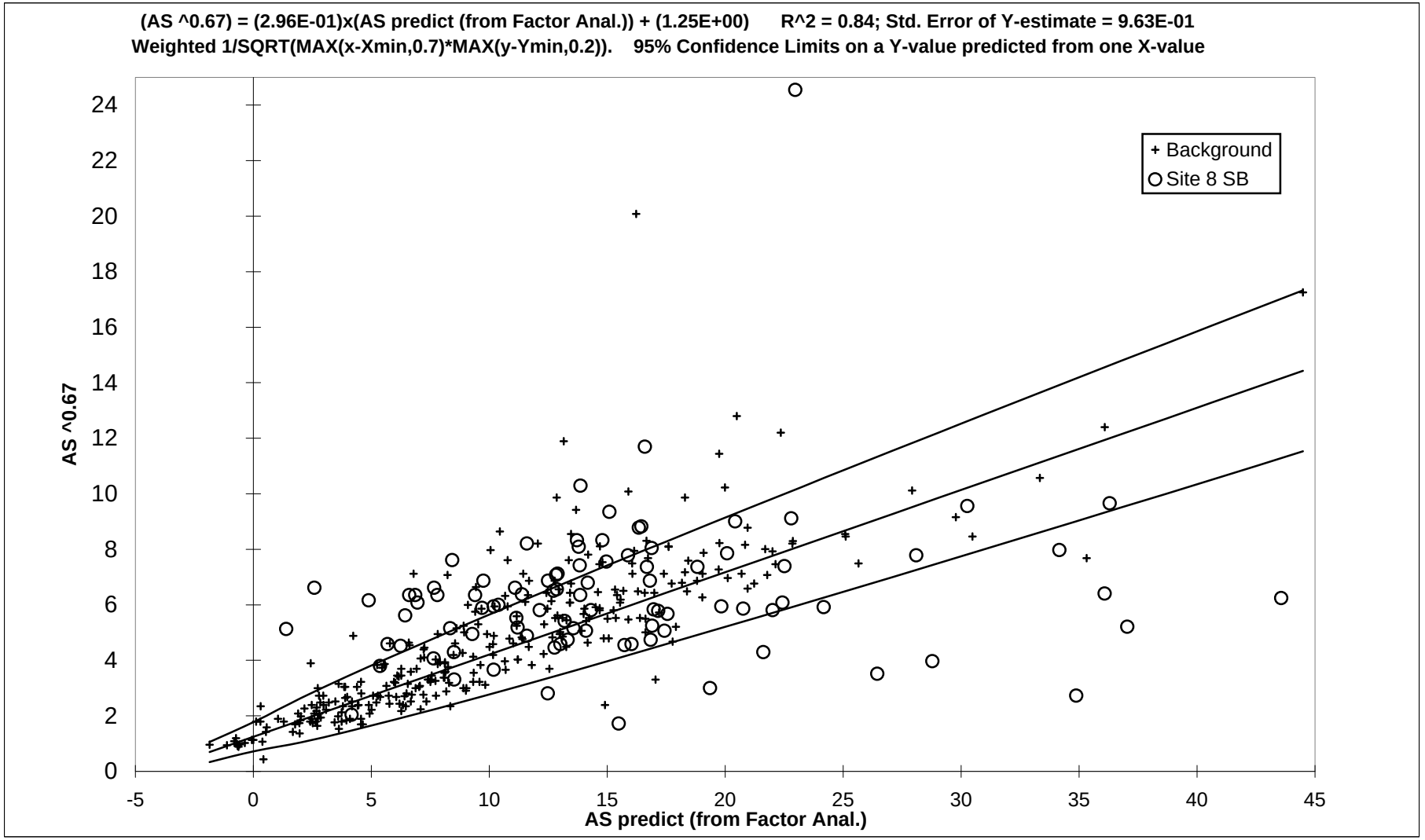


FIGURE F.2.3
SURFACE SOIL FROM SITE 8 VERSUS BASEWIDE BACKGROUND UPPER PREDICTION LIMITS ARSENIC 2/3 POWER VS. IRON
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

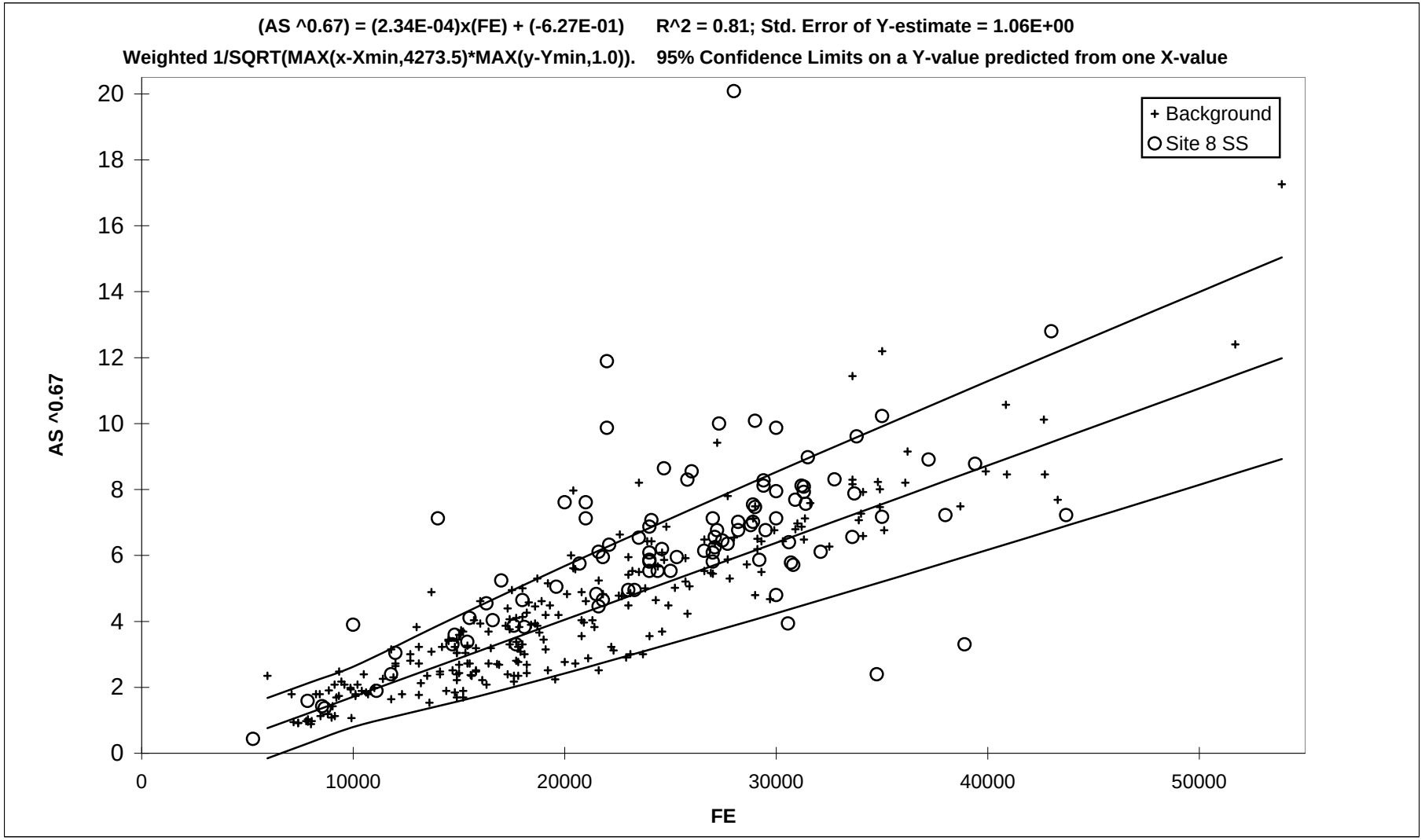


FIGURE F.2.4
SUBSURFACE SOIL FROM SITE 8 VERSUS BASEWIDE BACKGROUND UPPER PREDICTION LIMITS ARSENIC 2/3 POWER VS. IRON
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

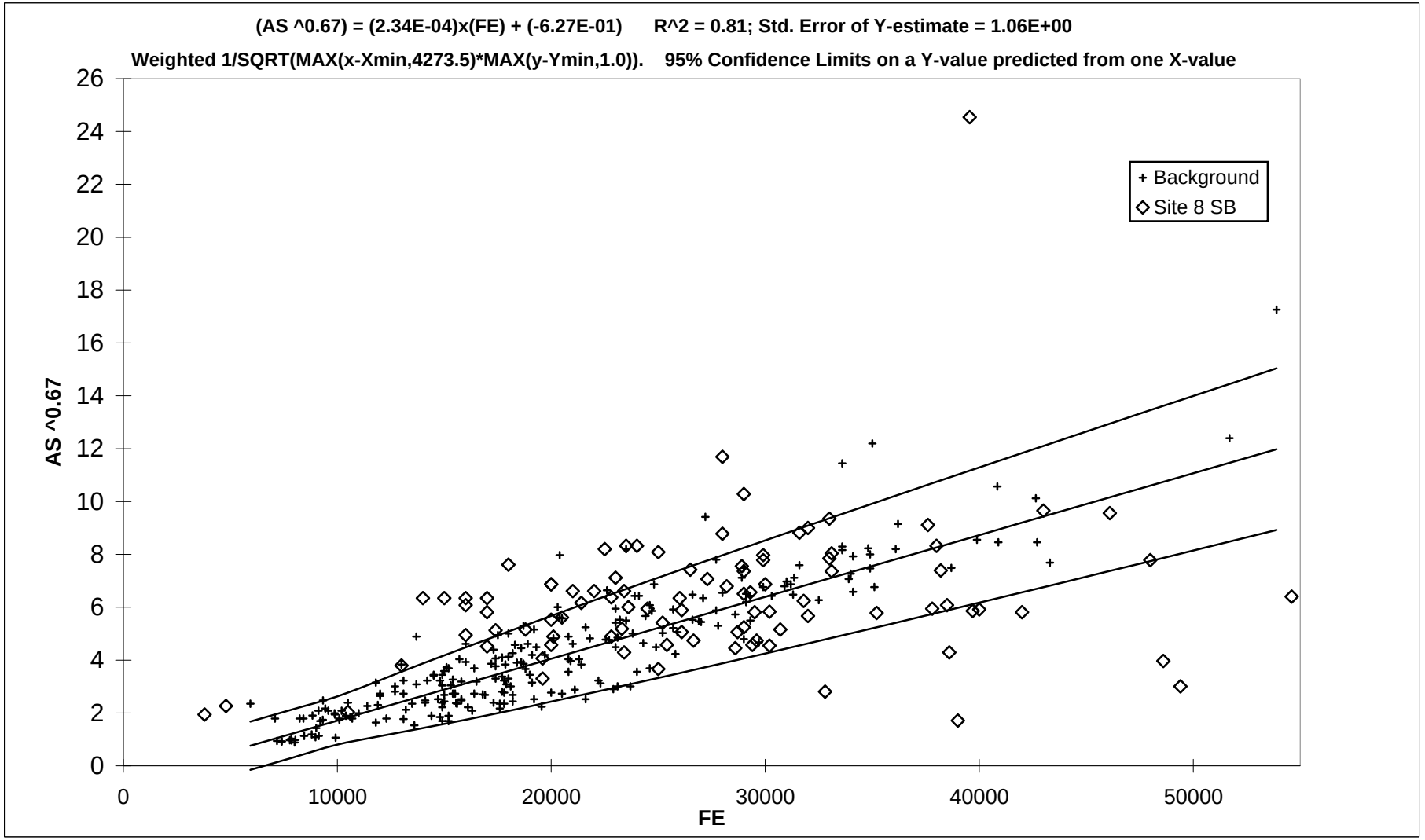


FIGURE F.2.5
SITE 8 SURFACE SOIL VS. BACKGROUND UPPER PREDICTION LIMITS ON CHROMIUM 1/2 POWER VS. FACTOR ANAL. PREDICTION
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

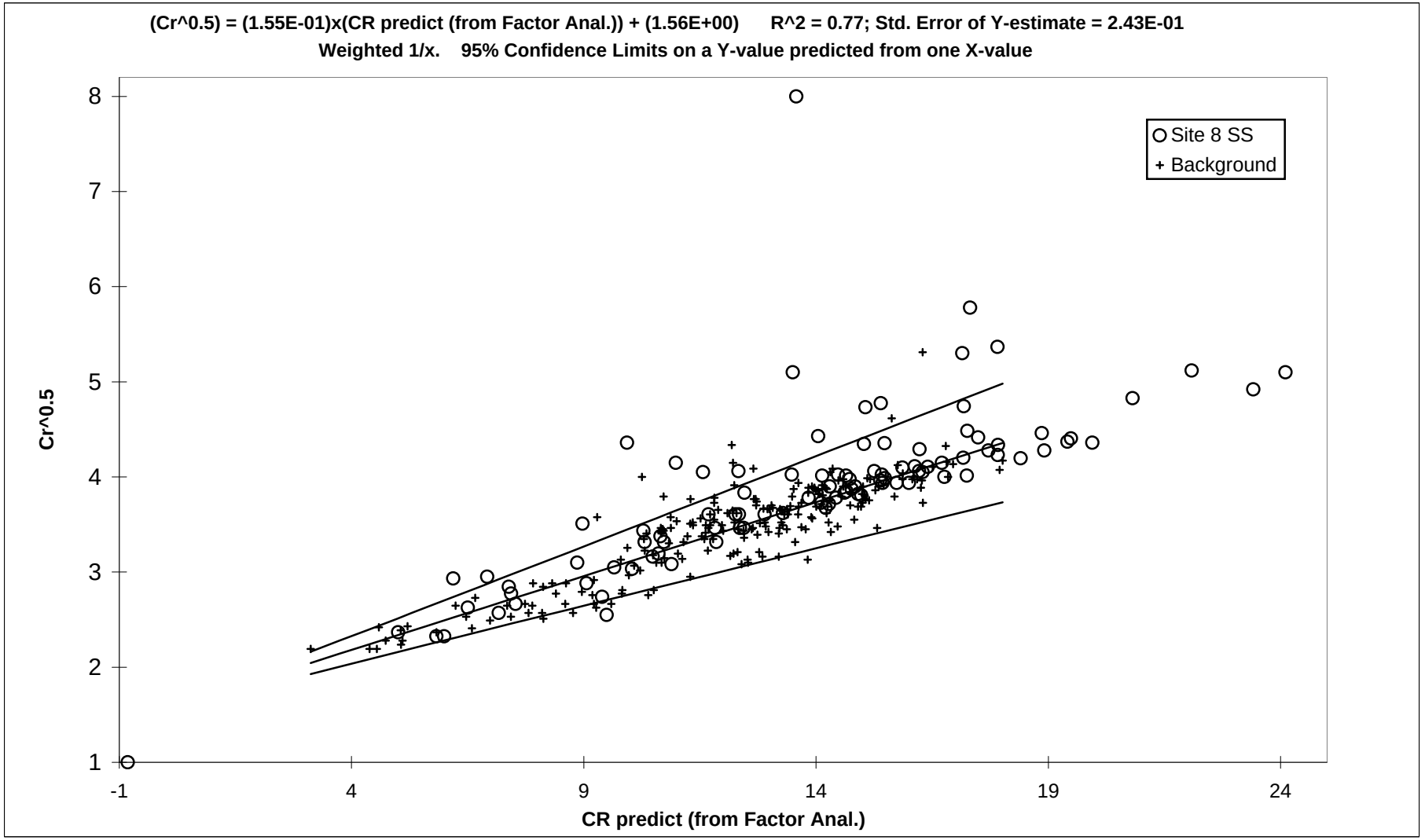


FIGURE F.2.6
SURFACE SOIL FROM SITE 8 VERSUS BASEWIDE BACKGROUND UPPER PREDICTION LIMITS CHROMIUM VS. LOG IRON
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

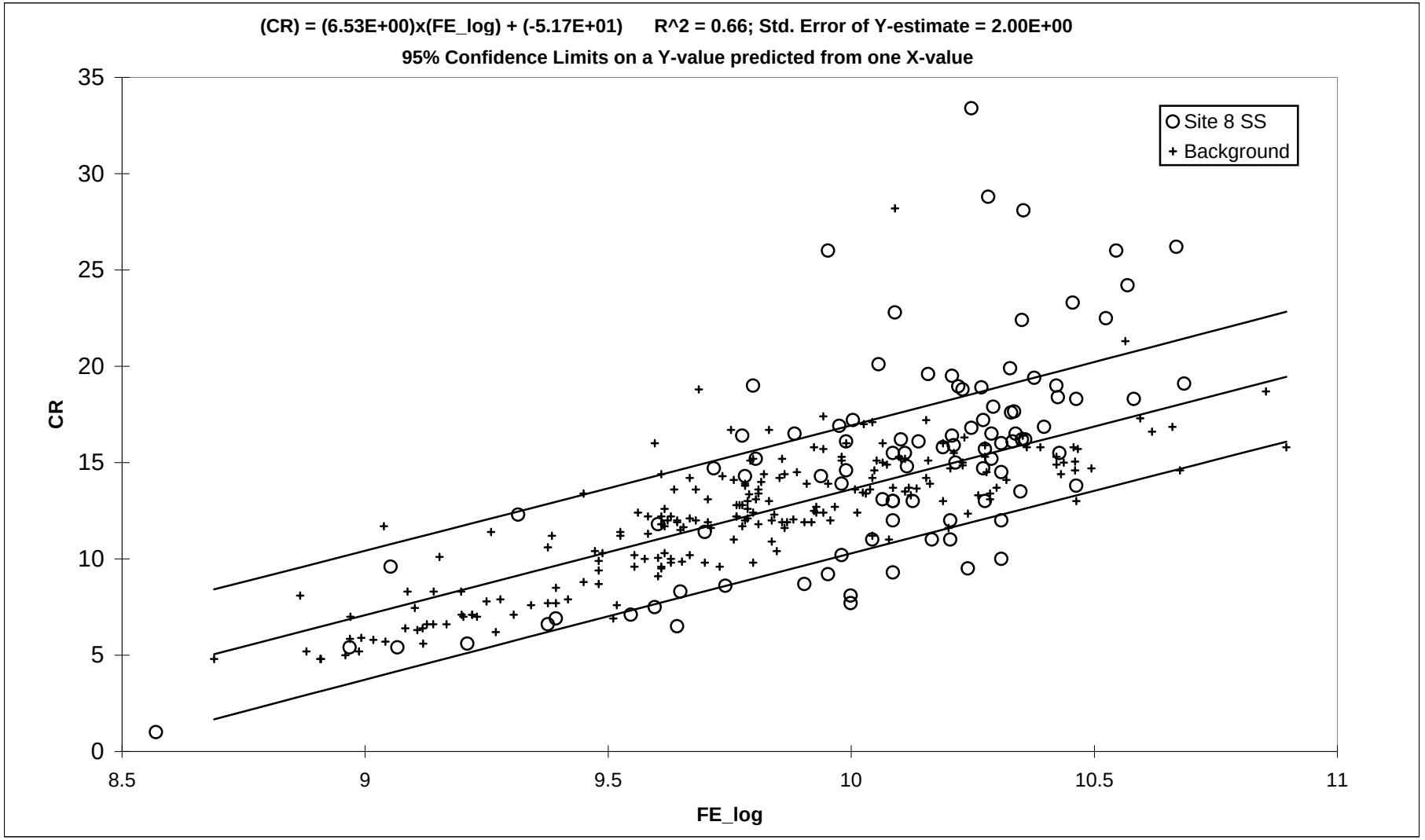


FIGURE F.2.7
SITE 8 SURFACE SOIL VS. BASEWIDE BACKGROUND UPPER PREDICTION LIMITS ON LEAD 2/3 POWER VS. FACTOR ANAL. PREDICTION
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

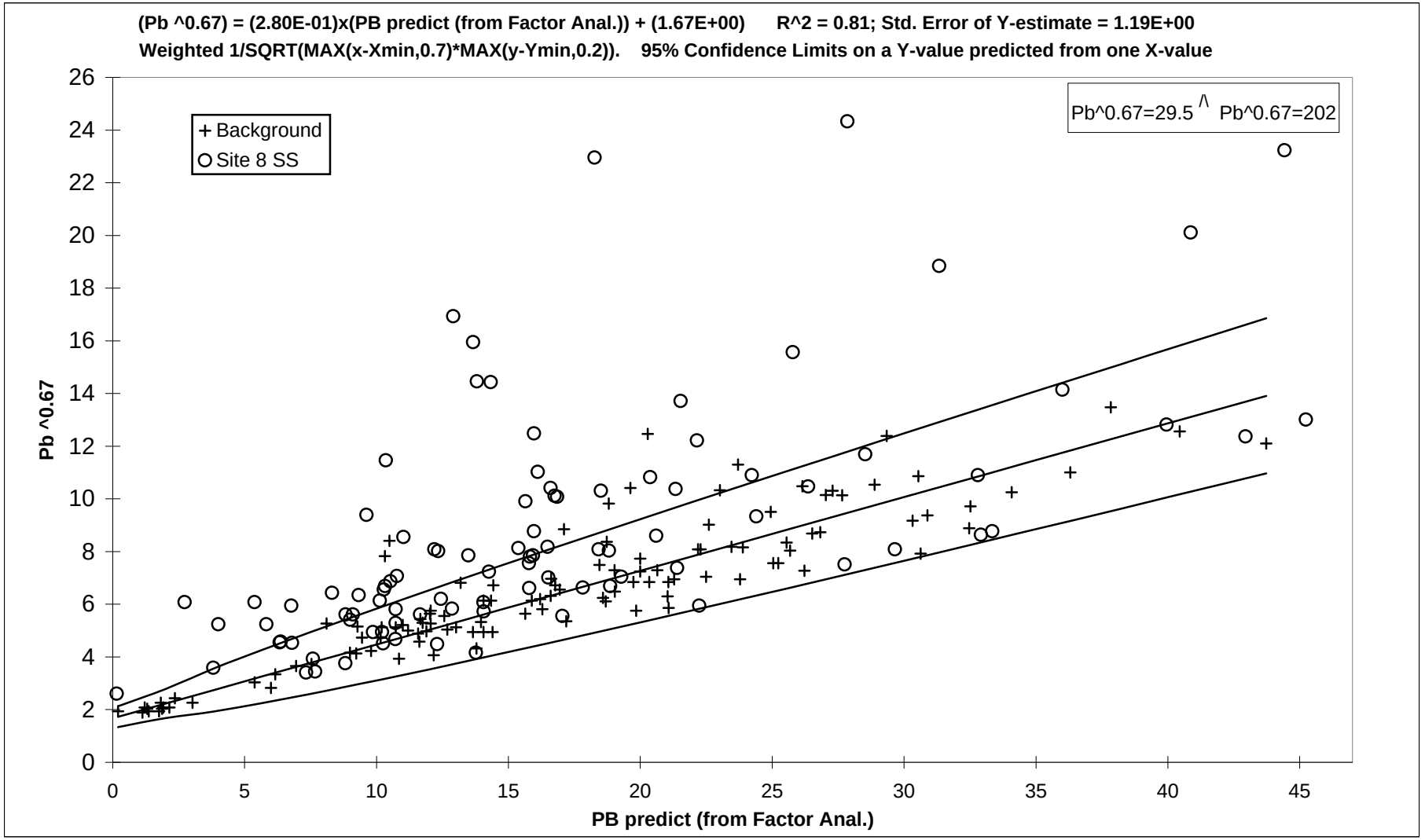


FIGURE F.2.8
SURFACE SOIL FROM SITE 8 VERSUS BASEWIDE BACKGROUND UPPER PREDICTION LIMITS LEAD 1/2 POWER VS. VANADIUM
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

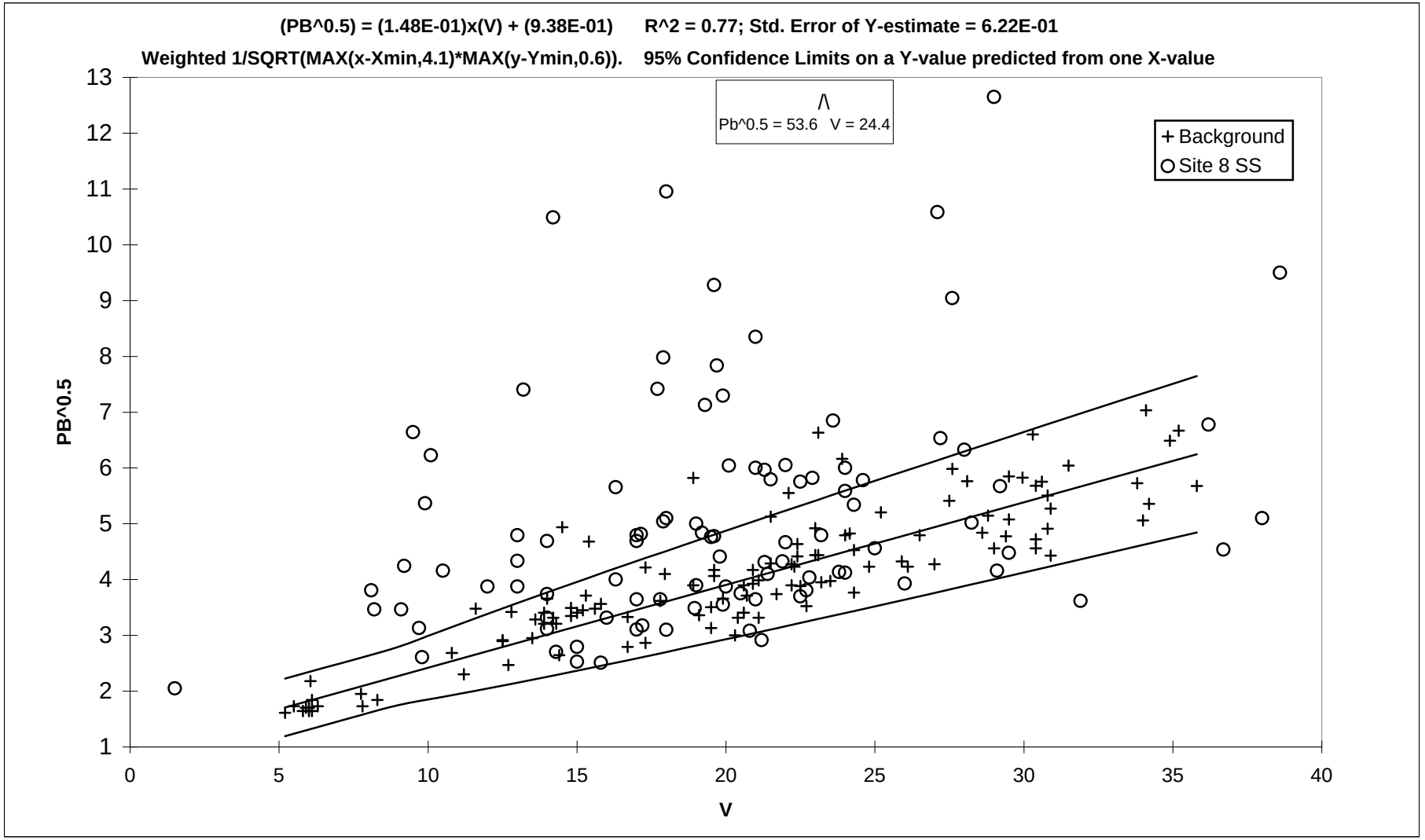


FIGURE F.2.9
SUBSURFACE SOIL FROM SITE 8 VERSUS BASEWIDE BACKGROUND UPPER PREDICTION LIMITS FOR LEAD REGRESSED ON IRON
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

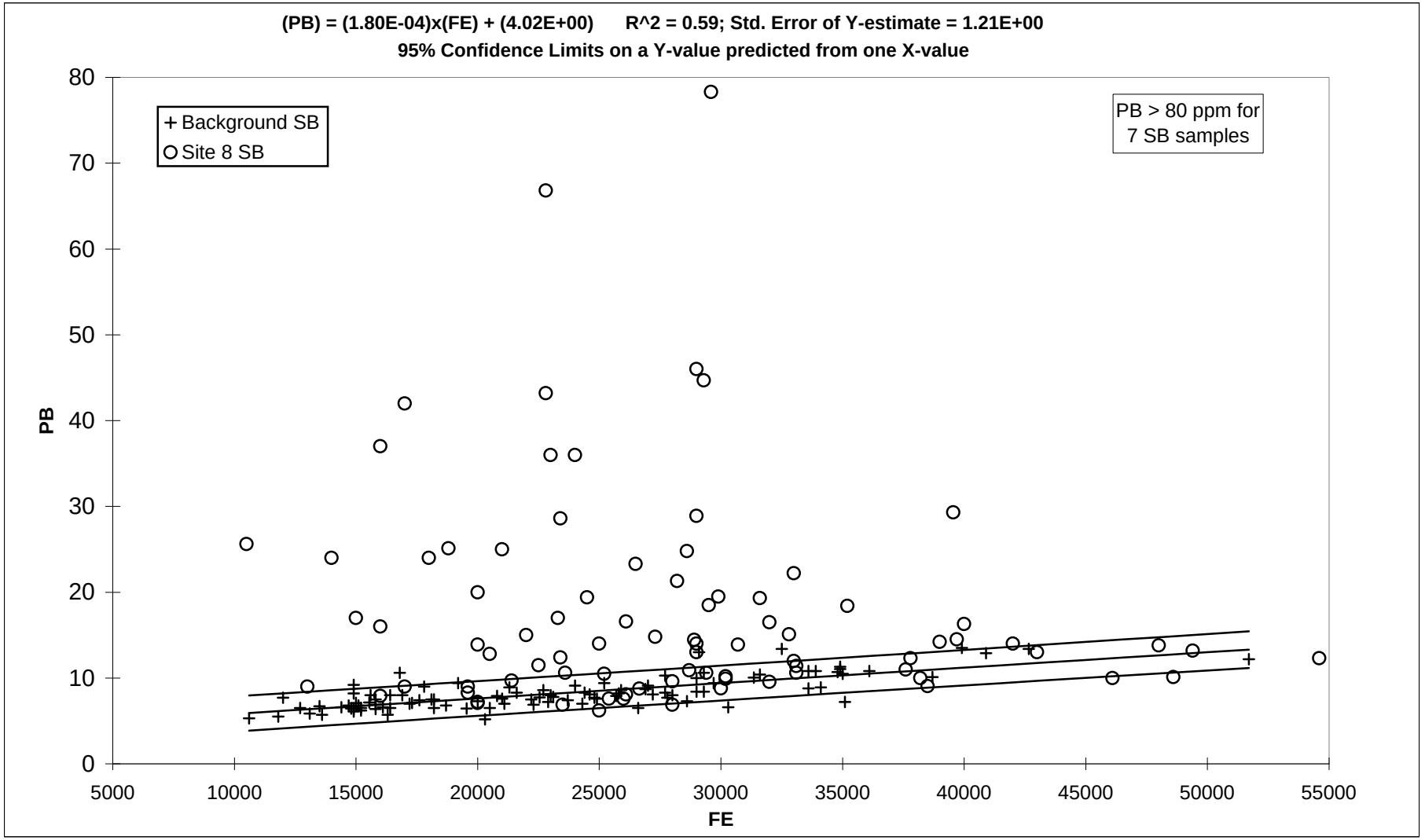
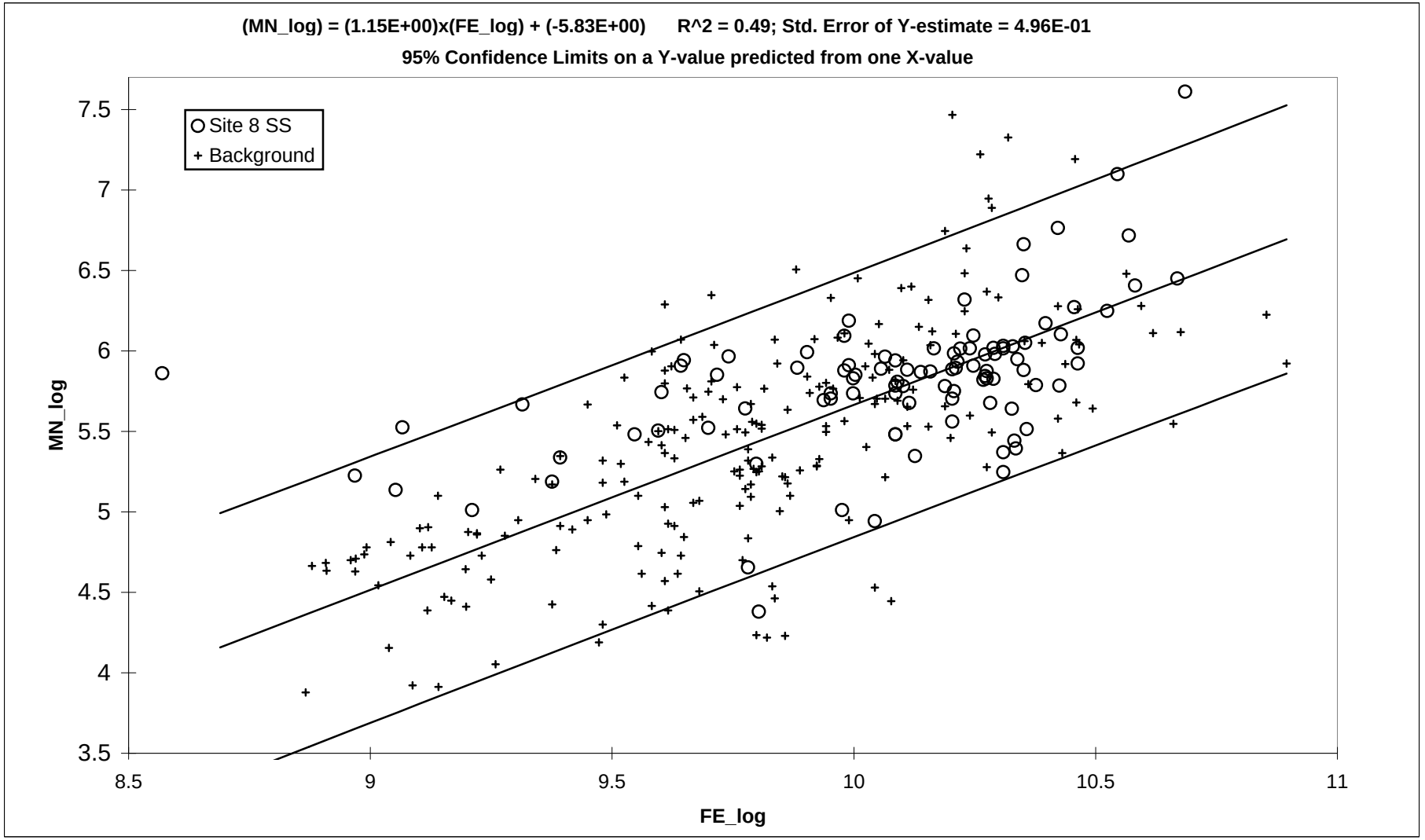


FIGURE F.2.10
SURFACE SOIL FROM SITE 8 VERSUS BASEWIDE BACKGROUND UPPER PREDICTION LIMITS LOG MANGANESE VS. LOG IRON
SITE 08: NUSC DISPOSAL AREA
REMEDIAL INVESTIGATION REPORT
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND



APPENDIX G

DATA VALIDATION MEMORANDA

DATA VALIDATION MEMORANDUM INDEX
REMEDIATION INVESTIGATION
SITE 8, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

SAMPLE DELIVERY GROUP	SAMPLES
CTO402-1	MP-SD01-052107, MP-SD02-052107, MP-SD03-052107, MP-TB01-052107
CTO402-2	DA-SS114B-011008, DA-SS115B-011008, DA-SS116B-011008, DA-SS117B-011008, DA-SS121-011008, DA-SS122-011008, DA-SS123-011008, DA-SS124-011008, DA-SS125-011008, DA-SS135-011108, DA-SS136-011008, DA-SS137-011108, DA-SS138-011108, DA-SS139-011108, DA-SS140-0111
CTO402-3	DA-SS103B-011508, DA-SS104-011508, DA-SS108-011508, DA-SS110B-011508, DA-SS127-011508, DA-SS130-011508, DA-SS133-011508, DA-SS134-011508, DA-SS102B-011508, DA-SS105-011508, DA-SS106-011408, DA-SS107-011508, DA-SS109-011408, DA-SS110-011508, DA-SS111B-0114
CTO402-4	DA-SS105B-011608, DA-SS152-011608, DA-SS153-011608, DA-SS104B-011608, DA-SS112B-011608, DA-SS113B-011608, DA-SS118B-011608, DA-SS119B-011608,DA-SS128-011608, DA-SS131-011608, DA-SSDUP04-011608, DA-SSDUP05-011608, DA-SS-RB02, DA-SS137-011608, DA-SSTB05-011
CTO402-5	DA-SS120B-011708, DA-SS142-011708, DA-SS143-011708, DA-SS144-011708, DA-SS145-011708, DA-SS146-011708, DA-SS147-011708, DA-SS148-011708, DA-SS149-011708, DA-SSDUP06-011708, DA-SSTB06-011708, DA-SS103-011708
CTO402-6	DA-SW-DUP01-012308, DA-SW01-012308, DA-SW106-012308, DA-SW106QC-012308, DA-SW107-012308, DA-SW108-012308, DA-SW110-012308, DA-SW111-012308, DA-SW112-012308, DA-SW133-012308, DA-SW-DUP01F-012308, DA-SW01F-012308, DA-SW106F-012308, DA-SW106QCF-012308, DA-SW
CTO402-7	DA-SW106QCD-012308, DA-SW106QCDF-012308, DA-SWRB-01F-012308
CTO402-8	DA-DW01-013108, DA-DW02-013108, DA-DW03-013108, DA-DW04-013108, DA-DW05-013108, DA-DW06-013108, DA-DW07-013108, DA-DW08-013108, DA-DW09-013108, DA-DW10-013108, DA-DWDUP-013108, DA-SW01-103108, DA-SW106-013108, DA-SW107-013108, DA-SW108-013108, DA-SW110-01
CTO402-9	DA-SD106-0006, DA-SD107-0006, DA-SD108-0006, DA-SD110-0006, DA-SD111-0006, DA-SD112-0006, DA-SD114-0006, DA-SD116-0006, DA-SD119-0006, DA-SD121-0006, DA-SD125-0006, DA-SD133-0006, DA-SD134-0006 (initially identified as DA-SD01-0006), DA-SD-DUP01, DA-SD-DUP02, DA-SD-RB01, DA-SD-RB01-F, DA-SD-TB0
CTO402-10	DA-SW114-0508, DA-SW116-0508, DA-SW119-0508, DA-SW121-0508, DA-SW125-0508, DA-SW-DUP01, DA-SW-RP01-0508, DA-SW-RP02-0508, DA-SW-RP04-0508, DA-SW-RB01-F, DA-SW-TB01, DA-SW-TB02, DA-SW-TB03-0508
CTO402-11	DA-SD-RP01-0006, DA-SD-RP02-0006, DA-SD-RP03-0006, DA-SD-RP04-0006, DA-SD-RP05-0006, DA-SD-TB04
CTO403-1	DA-SB121-0406, DA-SB122-0407, DA-SB123-0508, DA-SB126-1013, DA-SB128-0810, DA-SB129-0406, DA-SB130-1011.5, DA-SB131-0406, DA-SB132-0406, DA-SB134-0405, DA-SB135-1214, DA-SB136-0810, DA-SB137-0406, DA-SB138-0406, DA-SB139-1012, DA-SBDUP01, DA-SBDUP02, TB-0
CTO403-2	DA-SB104-0608, DA-SB105-0406, DA-SB106-0608, DA-SB107-0103, DA-SB108-0204, DA-SB109-0204, DA-SB110-0810, DA-SB124-0608, DA-SB125-0810, DA-SB127-0204, DA-SB133-0102, DA-SB133-0810, DA-SB152-0204, DA-SB153-0204, DA-SBRB01-022908, DA-TB-022708, SBTB-022908,
CTO403-3	DA-SB100-0002, DA-SB100-0204, DA-SB101-0002, DA-SB101-0608, DA-SB102-0002, DA-SB102-0305, DA-SB113-0002, DA-SB113-0406, DA-SB114-0002, DA-SB114-0406, DA-SB116-0002, DA-SB117-0002, DA-SB117-0810, DA-SB151-0002, DA-SB151-0406, DA-SB-DUP03, DA-SB-DUP04, DA-S
CTO403-4	DA-SB111-0002, DA-SB111-0204, DA-SB112-0002, DA-SB112-0608, DA-SB115-0002, DA-SB115-0204, DA-SB116-0204, DA-SB118-0002, DA-SB118-0406, DA-SB119-0002, DA-SB119-0204, DA-SB120-0002, DA-SB120-0406, DA-SB150-0002, DA-SB150-0204, DA-SB-DUP06, DA-TB-030508, DA-
CTO403-5	DA-B100B-0002, DA-B100B-0608, DA-B101B-0002, DA-B101B-0406, DA-B106B-0002, DA-B106B-0406, DA-B107B-0002, DA-B107B-0608, DA-B108B-0002, DA-B108B-0406, DA-B109B-0002, DA-B109B-0204, DA-B118B-0608, DA-SB-DUP06A, DA-TB-031808
CTO403-6	DA-B103B-0810, DA-B104B-0406, DA-B105B-0204, DA-B111B-0406, DA-B112B-0608, DA-B113B-0608, DA-B114B-0204, DA-B116B-0305, DA-B120B-0204, DA-SB-DUP07, DA-B104B-1012, DA-TB-033108, DA-TB-041108
CTO403-7	DA-B110B-1012, DA-B119B-0204, DA-MWRB041708, TB-041808, DA-SB103-0103
CTO403-8	DA-MW109-1924, DA-MW109-3035, DA-MW109-3641, DA-MW114-2934, DA-MW114-3439, DA-MW114-5261, DA-MW115-1924, DA-MW115-2631, DA-MW119B-51408, DA-MW120B-51408, DA-MW119B-51408F, DA-MW120B-51408F, DA-MW100B-DNAPL, DA-MW-TB01, DA-MW-TB04, DA-MW-TB05, DA-MW-TB06
CTO403-9	DA-MW03B-52208, DA-MW04B-52308, DA-MW103B-52308, DA-MW103S-52608, DA-MW104B-52008, DA-MW105B-52008, DA-MW106B-52108, DA-MW106S-52208, DA-MW110B-51908, DA-MW111B-51608, DA-MW112B-51608, DA-MW112S-51908, DA-MW113B-51608, DA-MW114B-51608, DA-MW115B-51508, DA
CTO403-10	DA-HD-SB01, DA-MW02-52708, DA-MW07A-52808, DA-MW07B-52908, DA-MW09B-52808, DA-MW101B-53008, DA-MW102B-52708, DA-MW107B-6408, DA-MW108B-6308, DA-MW109B-6208, DA-MW122B-6308, DA-MW123B-6408, DA-MWDUP02, DA-MW-DUP03, DA-MW-DUP04, DA-RB02, DA-MW02-52708F, DA-
CTO403-12	DA-GW-DUP05, DA-GW-MW101B-073108, DA-GW-MW102B-080408, DA-GW-MW13S-080408, DA-MW124B-1020, DA-MW124B-3545, DA-MW125B-2636, DA-MW125B-3646, DA-MW126B-2227, DA-MW126B-4246, DA-MW126B-5055, DA-GW-TB42, DA-GW-TB43, DA-TB40, DA-TB41
SB0695	DA-SB-TP103-0506, DA-TB-01
SB2474	DA-MW100B-PRODUCT, DA-MW-TB02
SB3985	DA-SO-B126B-0608-072208, DA-SO-DUP05, DA-SS-B124B-0103-072108, DA-SS-B125B-0103-072108, DA-SS-B125B-0304-072108, DA-SS-B126B-0103-072208, DA-SO-TB40

DATA VALIDATION MEMORANDUM INDEX
REMEDIATION INVESTIGATION
SITE 8, NUSC DISPOSAL AREA
NAVSTA NEWPORT, RHODE ISLAND

SAMPLE DELIVERY GROUP	SAMPLES
SB4237	DA-DW-01-080108, DA-DW-02-080108, DA-DW-11-080108, DA-DW-12-080108, DA-DW-13-080108, DA-DW-14-080108, DA-DW-DUP02, DA-RB-BB02
SB4498	No Information
SB4590	DA-FT-DUP01-081208, DA-FT-ET01-BGF-081208, DA-FT-ET01-BGW-081208, DA-FT-ET01-BHF-081208, DA-FT-ET02-BGW-081208, DA-FT-ET02-BHF-081208, DA-FT-ET02-WPF-081208, DA-FT-ET03-BHF-081208, DA-FT-RP01-BGF-081308, DA-FT-RP01-BGW-081308, DA-FT-RP01-BHF-081308
SB4591	DA-EW-DUP01-080608, DA-EW-MW103-080708, DA-EW-MW105-080708, DA-EW-MW113-080608, DA-EW-MW115-080608, DA-EW-SB104-080708, DA-EW-SB108-080708, DA-EW-SB121-080708, DA-EW-SB123-080608, DA-EW-SB130-080708, DA-EW-SB134-080608, DA-EW-SB153-080708
SB4716	DA-SD-117-082108, DA-SD-119-0424, DA-SD-125-0424, DA-SD-128-082108, DA-SD-129-082108, DA-SD-130-082108, DA-SD-131-082108, DA-SW-117-082108, DA-TB-082108S, DA-TB-082108A
SB5295	DA-MW-100B-091908

INTERNAL CORRESPONDENCE

C-NAVY-07-07-2428W

Date: July 18, 2007 c: File G00816-4.10

To: James Forrelli

From: Paula DiMattei

Subject: Tier II Inorganic Data Validation, SDG CTO402-1
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals: 3/Sediments

MP-SD01-052107 MP-SD02-052107 MP-SD03-052107

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals analytical data from sediment samples collected at the Site 08-NUSC Disposal Area on May 21, 2007. The metals analysis was performed according to USEPA SW-846 Methods 6010B/7471A. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
	• Calibration Verification
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
NA	• Matrix Spike Recoveries
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
NA	• Field Duplicate Precision
NA	• ICP Serial Dilution Results
	• Percent Solids
*	• Detection Limits

* - All quality control criteria were met for this parameter.
NA – Not available for this SDG

Calibration Verification

The percent recoveries for calcium were below the 90 percent QC criterion in the continuing calibration verification (CCV) standards associated with all sediment samples. The positive results for calcium in all

sediment samples were qualified as estimated (J) due to this calibration nonconformance. These results may be biased low.

Laboratory Blank Analyses

The laboratory blank analyses were used to calculate the maximum concentrations and action levels of the following contaminants affecting the sediment samples:

Analyte	Maximum Conc. (units)	Action Level (mg/kg)	Affected Samples
Antimony	-0.94 µg/L	-0.47	MP-SD01-052107, MP-SD02-052107
Selenium	2.11 µg/L	1.06	All sediment samples
Thallium	0.076 mg/Kg	0.38	

The positive antimony results were qualified as estimated (J) in the affected sediment samples due to the negative instrument drift. The positive results below the blank action levels for selenium and thallium were changed to non-detected values (U) in the affected sediment samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g (ICP metals) or 0.5 g (mercury) of sample analyzed. The action level for each sample varies, based on the actual amount of soil sample analyzed and percent solids for that sample.

ICP Interference Check Sample Results

The following results were qualified in the affected sediment sample due to ICP interference attributed to the high concentration of iron in the sample:

Analyte	Action		Bias	Affected Sample
	(+)	ND		
Antimony		UJ	High	MP-SD02-052107
Cadmium	J		High	
Silver	J		Low	

The positive cadmium result was qualified as estimated (J) in the affected sediment sample due to positive ICP interference attributed to iron. The result may be biased high. The positive result for silver was qualified as estimated (J) due to the negative ICP interference attributed to iron. The result may be biased low. Professional judgment was used to change the positive antimony result in sample MP-SD02-052107 to an estimated, non-detected value (UJ), rather than reject this result because the reported concentration may be due entirely (≥ 80%) to positive iron ICP interference. This result may be a false positive.

Percent Solids

The positive results for all metals except arsenic, calcium, and thallium were qualified as estimated (J) in all sediment samples due to the low percent solids content. The nondetect result for antimony in

sediment sample MP-SD03-052107 was qualified as estimated (UJ) due to the low percent solids content.

Overall Assessment of the Metals Data

The positive metals results above MDL but below the CRQL are estimated (J) due to uncertainty near the MDL.

The metals data set was qualified due to instrument calibration variability, laboratory blank contamination, ICP interferences attributed to the high concentration of iron, and low percent solids content.

Tables: Data Validation Qualifiers Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-07-07-2427W

Date: July 18, 2007 c: File G00816-4.10

To: James Forrelli

From: Paula DiMattei

Subject: Tier II Organic Data Validation, SDG CTO402-1
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/DRO:
3/Sediments

MP-SD01-052107 MP-SD02-052107 MP-SD03-052107

VOC:
1/Trip blank MP-TB01-052107

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and diesel range organics (DRO) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on May 21, 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analyses according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively. The GRO and DRO analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and DRO data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Preservation and Technical Holding Times
* • GC/MS Instrument Performance Check (Tuning)
• Initial and Continuing Calibrations

*	•	Blanks
*	•	Surrogate Compounds
	•	Internal Standards
NA	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	•	Field Duplicates
*	•	Target Compound Identification
	•	Percent Solids
*	•	Compound Quantitation and Reported Quantitation Limits
*	•	System Performance

* All criteria were met for this parameter.
NA Not available for this SDG.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	Action (+)	Action NDs	Affected Samples
Acetone	J	UJ	All samples
Chloromethane		UJ	MP-TB01-052107
2-Butanone		UJ	
4-Methyl-2-pentanone		UJ	
2-Hexanone		UJ	
1,1,2,2-Tetrachloroethane		UJ	

SVOC

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	Action (+)	Action NDs	Affected Samples
3,3'-Dichlorobenzidine		UJ	All samples
Benzoic acid		UJ	MP-SD03-052107

Compound	Action		Affected Samples
	(+)	NDs	
4-Nitrophenol		UJ	MP-SD03-052107
Bis(2-ethylhexyl)phthalate		UJ	
di-n-Octylphthalate		UJ	

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	Action		Affected Samples
	(+)	NDs	
Benzo(a)anthracene	J		All sediment samples
Benzo(b)fluoranthene	J		
Dibenz(a,h)anthracene	J		MP-SD02-052107, MP-SD03-052107

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	Action		Affected Samples
	(+)	NDs	
gamma-BHC		UJ	All sediment samples
Heptachlor		UJ	
Endrin		UJ	
4,4'-DDT	J	UJ	
Endosulfan sulfate	J	UJ	
Methoxychlor		UJ	
Endrin ketone		UJ	

Internal Standards

Volatiles

Sample MP-SD01-052107 had a low response of the internal standard 1,4-dichlorobenzene-d_4. The positive and nondetect results associated with this internal standard in the affected sample were qualified as estimated (J and UJ, respectively).

Laboratory Control Sample/Laboratory Control Sample Duplicates

PAH

The positive results for dibenz(a,h)anthracene in samples MP-SD03-0521072107 were qualified as estimated (J) due to the high laboratory control sample recovery. The results may be biased high.

Percent Solids

The positive and non-detected SVOC, PAH, and DRO results are estimated (J, UJ) in the sediment samples due to low percent solids. In addition, the positive and nondetect VOC results in samples MP-MP-SD02-052107 and SD03-052107 are estimated (J, UJ) due to low percent solids. The VOC sample aliquot was increased for sample MP-SD01-052107 and for all the GRO samples; consequently, no action was required for these samples. The final volume was decreased by a factor of two for the pesticide and PCB analysis of all the sediments samples; consequently, no action was required for these analyses.

Compound Quantitation and Reported Quantitation Limits

SVOC/PAH

The PAH compounds were reported by full scan as well as by SIM analysis for all samples. The PAH compound results by SIM were selected for reporting for all samples since PAH results meet the project required action limits.

System Performance

The VOC data set was qualified for instrument calibration variability, poor internal standard performance, and low percent solids content. The SVOC data se was qualified due to instrument calibration and low percent solids. The PAH data set was qualified for instrument calibration variability, high laboratory control sample recoveries, and low percent solids content. The pesticide data set was qualified for instrument calibration variability. The DRO data set was qualified for low percent solids content.

Tables: Data Validation Qualifiers Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2692W

Date: April 14, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: Jim Forrelli (w/enc.)

From: for Paula DiMattei (no copy)

Subject: Tier II Inorganic Data Validation, SDG CTO402-2
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum:

18/Soils/	DA-SS114B-011008	DA-SS115B-011008	DA-SS116B-011008
	DA-SS117B-011008	DA-SS121-011008	DA-SS122-011008
	DA-SS123-011008	DA-SS124-011008	DA-SS125-011008
	DA-SS135-011108	DA-SS136-011008	DA-SS137-011108
	DA-SS138-011108	DA-SS139-011108	DA-SS140-011108
	DA-SS141-011108	DA-SS-DUP01-011008	DA-SS-DUP02-011108

(Field Duplicate Pairs: DA-SS125-011008/DA-SS-DUP01-011008 and DA-SS135-011108/DA-SS-DUP02-011108)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area on January 10-11, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The metals analysis was performed according to USEPA SW-846 Methods 6010B/6020/7471A. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

	• Data Completeness
*	• Holding Times
*	• ICP-MS Tuning
*	• Calibration Verification
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
*	• Field Duplicate Precision
*	• ICP Serial Dilution Results
*	• Internal Standard Performance
*	• Reporting Limits

NA • Sample Quantitation

* - All quality control criteria were met for this parameter.
NA - Not applicable for this SDG or for a Tier II data validation.

Data Completeness

The laboratory was contacted on February 29, 2008 regarding clarification of the performance of the ICP-MS tune and regarding clarification of the internal standards assigned to the target analytes. The responses were received on February 29, 2008 and March 4, 2008. The laboratory was contacted on February 29, 2008 for the missing molybdenum data. This response was received on March 12, 2008.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Concentration	Action Level	Affected Samples
Antimony	1.48 µg/L	0.74 mg/kg	DA-SS114B-011008, DA-SS116B-011008, DA-SS117B-011008, DA-SS121-011008, DA-SS124-011008, DA-SS125-011008, DA-SS137-011108, DA-SS139-011108, DA-SS141-011108, DA-SS-DUP02-011108
Molybdenum	0.42 µg/L	0.21 mg/kg	DA-SS114B-011008
Selenium	1.75 µg/L	0.875 mg/kg	DA-SS114B-011008, DA-SS117B-011008, DA-SS123-011008, DA-SS125-011008, DA-SS136-011008, DA-SS137-011108, DA-SS138-011108, DA-SS139-011108, DA-SS141-011108, DA-SS-DUP02-011108
Sodium	3.60 mg/kg	18.0 mg/kg	DA-SS116B-011008
Thallium	0.13 µg/L	0.065 mg/kg	DA-SS115B-011008, DA-SS122-011008, DA-SS123-011008, DA-SS125-011008, DA-SS135-011108, DA-SS136-011008, DA-SS137-011108, DA-SS138-011108, DA-SS139-011108, DA-SS140-011108, DA-SSDUP01-011008, DA-SS-DUP02-011108

The positive results below the blank action level for antimony, molybdenum, selenium, sodium, and thallium were changed to non-detected values (U) with elevated reporting limits in the affected soil samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 1. The action level for each sample varies, based on the actual amount of soil sample analyzed, the percent solids for that sample, and the sample dilution factor.

The project goals with respect to sensitivity were not impacted by the elevated detection limits for antimony, molybdenum, selenium, sodium, and thallium in the affected samples since the project action limits were not exceeded by the sample-specific elevated reporting limits, or because (in the case of

sodium) there is no regulatory limit established for the metal in the soil samples. These results in the affected samples are usable with elevated detection limits.

ICP Interference Check Sample Results

The following results were qualified in the affected soil samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	J	UJ	Low	All samples
Cadmium	J		High	DA-SS121-011008, DA-SS122-011008, DA-SS123-011008, DA-SS124-011008, DA-SS125-011008, DA-SS-DUP01-011008
	UJ		High	DA-SS114B-011008, DA-SS115B-011008, DA-SS116B-011008, DA-SS117B-011008, DA-SS135-011108, DA-SS136-011008, DA-SS138-011108,DA-SS139-011108, DA-SS141-011108
Cobalt	J		Low	DA-SS137-011108, DA-SS138-011108, DA-SS139-011108
Molybdenum	J		Low	All samples
Nickel	J		High	DA-SS138-011108
Selenium	J		High	DA-SS117B-011008, DA-SS137-011108, DA-SS138-011108, DA-SS-DUP02-011108
	UJ		High	DA-SS114B-011008, DA-SS123-011008, DA-SS125-011008, DA-SS136-011008, DA-SS139-011108, DA-SS141-011108
Silver		UJ	Low	All samples
Sodium	J		High	DA-SS114B-011008, DA-SS115B-011008, DA-SS116B-011008, DA-SS117B-011008, DA-SS122-011008, DA-SS123-011008, DA-SS125-011008, DA-SS135-011108, DA-SS136-011008, DA-SS137-011108, DA-SS139-011108, DA-SS140-011108, DA-SS141-011108, DA-SS-DUP02-011108

The positive results for cadmium, nickel, selenium, and sodium were qualified as estimated (J) in the affected samples due to positive ICP interference attributed to iron. The results may be biased high.

Professional judgment was used to change the positive cadmium and selenium results to estimated, non-detected values (UJ), rather than reject these results as provided in the data validation guidelines, in the affected samples because the reported concentrations may be due entirely (≥ 80%) to positive iron ICP interference. These results may be false positive.

The positive and non-detected results for antimony, cobalt, molybdenum, and silver were qualified as estimated (J, UJ) in the affected samples due to negative ICP interference attributed to iron. The results may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for cadmium, nickel, selenium, and sodium in the affected samples are usable as estimated values that may be biased high. The positive and non-detected results for antimony, cobalt, molybdenum, and silver in the affected samples are usable as estimated values and estimated reporting limits that may be biased low.

Although there were ICP interferences attributed to the high concentration of iron that might account entirely for the reported cadmium and selenium concentrations in the samples listed above, the project sensitivity goals are not impacted since the project action limits were not exceeded by the elevated reporting limits. The cadmium and selenium results for these samples are usable as estimated non-detects at the elevated reporting limits.

Matrix Spike/Matrix Spike Duplicate

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were performed for sample DA-SS138-011108. The results of the MS/MSD analyses were below the 75% recovery criterion for antimony. The positive and nondetect results for antimony were qualified as estimated (J and UJ, respectively) in all soil samples due to the low MS/MSD recoveries. The results may be biased low. Additionally, the results of the MS and/or MSD analyses were above the 125% criterion for calcium, copper, magnesium, manganese, and potassium. The positive results for calcium, copper, magnesium, manganese, and potassium were qualified as estimated (J) in all soil samples due to the high MS and/or MSD recoveries. These results may be biased high.

Although the MS/MSD recovery QC criteria were not met for antimony, calcium, copper, magnesium, manganese, and potassium, the accuracy project goals are only slightly impacted. The nondetect results for antimony in the affected samples are usable as estimated reporting limits that may be biased low. The positive results for calcium, copper, magnesium, manganese, and potassium in the affected samples are usable as estimated values that may be biased high.

Reporting Limits

The laboratory reported non-detected results down to the IDL. The laboratory reporting limits met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Field and Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for this data set with the following exceptions. Select analytes were qualified as estimated due to ICP interferences attributed to the high concentration of iron in the samples and low or high MS and/or MSD recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for this data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for this data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
SDG: CTO402-2	LAB_ID	SB0199-019			SB0199-021			SB0199-015			SB0199-013		
FRACTION: M	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		12500			15400			12400			13100		
ANTIMONY		0.39	UJ	ADKP	0.17	UJ	DK	0.22	UJ	ADKP	0.35	UJ	ADKP
ARSENIC		23			14.2			21.3			22.1		
BARIUM		22.8			26.3			20			21.5		
BERYLLIUM		0.48	J	P	0.58	J	P	0.46	J	P	0.4	J	P
CADMIUM		0.3	UJ	KP	0.24	UJ	KP	0.17	UJ	KP	0.19	UJ	KP
CALCIUM		417	J	D	411	J	D	150	J	D	211	J	D
CHROMIUM		16.2			28.8			16.5			18.4		
COBALT		13.6			11.4			13.5			12.9		
COPPER		43.4	J	D	24	J	D	25.8	J	D	25.9	J	D
IRON		31300			29200			30900			33700		
LEAD		21.8			32.2			13.7			17.3		
MAGNESIUM		3170	J	D	3040	J	D	3180	J	D	3290	J	D
MANGANESE		358	J	D	292	J	D	383	J	D	325	J	D
MERCURY		0.03	J	P	0.02	J	P	0.01	J	P	0.02	J	P
MOLYBDENUM		0.43	UJ	AKP	0.66	J	KP	0.54	J	KP	0.6	J	KP
NICKEL		26.2			28.9			27			29.1		
POTASSIUM		488	J	D	547	J	D	509	J	D	558	J	D
SELENIUM		0.44	UJ	AKP	0.3	U		0.32	U		0.72	UJ	AKP
SILVER		0.1	UJ	K	0.09	UJ	K	0.1	UJ	K	0.1	UJ	K
SODIUM		46.4	J	KP	40	J	KP	29.8	UJ	AKP	39.5	J	KP
THALLIUM		0.04	U		0.06	UJ	AP	0.04	U		0.04	U	
VANADIUM		22			29.2			22.5			29.1		
ZINC		67.1			58.2			60.5			61.9		

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008		
SDG: CTO402-2	LAB_ID	SB0199-001			SB0199-003			SB0199-011			SB0199-005		
FRACTION: M	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		10800			12000			13100			9550		
ANTIMONY		0.19	UJ	ADKP	0.19	UJ	DK	0.18	UJ	DK	0.38	UJ	ADKP
ARSENIC		23.9			22.3			18.6			8.1		
BARIUM		26.3			39.6			42.7			30		
BERYLLIUM		0.4	J	P	0.57	J	P	0.48	J	P	0.42	J	P
CADMIUM		2.4	J	K	1.6	J	KP	0.43	J	KP	1.5	J	K
CALCIUM		1250	J	D	1210	J	D	1100	J	D	1570	J	D
CHROMIUM		19.6			22.4			17.2			14.7		
COBALT		11			18.5			10.9			7.2		
COPPER		26.5	J	D	133	J	D	24.3	J	D	16.8	J	D
IRON		25800			31300			28900			16600		
LEAD		25.4			86.1			23			23		
MAGNESIUM		2990	J	D	2530	J	D	3260	J	D	2890	J	D
MANGANESE		355	J	D	782	J	D	395	J	D	348	J	D
MERCURY		0.03	J	P	0.08			0.04			0.06		
MOLYBDENUM		0.47	J	KP	0.69	J	KP	0.57	J	KP	0.76	J	KP
NICKEL		25.9			22.1			23.2			14.4		
POTASSIUM		592	J	D	465	J	D	552	J	D	679	J	D
SELENIUM		0.16	U		0.32	U		0.37	UJ	AKP	0.16	U	
SILVER		0.05	UJ	K	0.1	UJ	K	0.09	UJ	K	0.05	UJ	K
SODIUM		57.2	J	P	54.8	J	KP	50.4	J	KP	52.8	J	P
THALLIUM		0.04	U		0.08	UJ	AP	0.04	UJ	AP	0.04	U	
VANADIUM		17.9			19.6			23.2			17		
ZINC		144			663			64.6			109		

PROJ_NO: 00816	NSAMPLE	DA-SS125-011008			DA-SS135-011108			DA-SS136-011008			DA-SS137-011108		
SDG: CTO402-2	LAB_ID	SB0199-007			SB0231-009			SB0199-017			SB0231-007		
FRACTION: M	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9030			14800			11500			15600		
ANTIMONY		0.09	UJ	ADKP	0.17	UJ	DK	0.17	UJ	DK	0.17	UJ	ADKP
ARSENIC		10.1			13.4			26.9			14		
BARIUM		22.2			21.9			19.4			30.4		
BERYLLIUM		0.44			0.48	J	P	0.45	J	P	0.5	J	P
CADMIUM		0.43	J	KP	0.2	UJ	KP	0.24	UJ	KP	0.01	U	
CALCIUM		1280	J	D	357	J	D	251	J	D	385	J	D
CHROMIUM		19			16.3			16.2			18.1		
COBALT		7			6.4			9.5			5	J	K
COPPER		16.6	J	D	19.4	J	D	26.7	J	D	20	J	D
IRON		19100			28600			31500			23100		
LEAD		23.4			19.3			20.6			57.2		
MAGNESIUM		2480	J	D	2530	J	D	2910	J	D	2030	J	D
MANGANESE		332	J	D	193	J	D	248	J	D	154	J	D
MERCURY		0.04	J	P	0.04			0.03	J	P	0.07		
MOLYBDENUM		0.44	J	KP	0.51	J	KP	0.58	J	KP	0.9	J	KP
NICKEL		17.5			17			24.3			16.8		
POTASSIUM		696	J	D	421	J	D	444	J	D	513	J	D
SELENIUM		0.15	UJ	AKP	0.3	U		0.3	UJ	AKP	0.91	UJ	AKP
SILVER		0.04	UJ	K	0.09	UJ	K	0.09	UJ	K	0.05	UJ	K
SODIUM		34.8	J	KP	40.2	J	KP	38.4	J	KP	46.5	J	KP
THALLIUM		0.04	UJ	AP	0.08	UJ	AP	0.04	UJ	AP	0.09	UJ	AP
VANADIUM		16			28.2			36.7			51.4		
ZINC		66.2			48.8			58.5			91.2		

PROJ_NO: 00816	NSAMPLE	DA-SS138-011108			DA-SS139-011108			DA-SS140-011108			DA-SS141-011108		
SDG: CTO402-2	LAB_ID	SB0231-013			SB0231-001			SB0231-005			SB0231-003		
FRACTION: M	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/11/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.0			80.5			86.1			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		17600			15700			14100			12600		
ANTIMONY		0.09	UJ	DK	0.21	UJ	ADKP	0.14	UJ	DK	0.16	UJ	ADKP
ARSENIC		7.5			10.6			26.6			15.4		
BARIUM		25.3			21.3			27.5			18.7		
BERYLLIUM		0.54			0.49	J	P	0.51	J	P	0.43	J	P
CADMIUM		0.24	UJ	KP	0.19	UJ	KP	0.02	U		0.28	UJ	KP
CALCIUM		305	J	D	363	J	D	531	J	D	732	J	D
CHROMIUM		15.2			16.9			22.5			15.5		
COBALT		2.2	J	KP	4.7	J	K	15.8			10.8		
COPPER		9.1	J	D	17.2	J	D	23.5	J	D	16.5	J	D
IRON		18100			21500			37200			24600		
LEAD		42.7			43.5			12.6			69.7		
MAGNESIUM		1210	J	D	2220	J	D	3720	J	D	3450	J	D
MANGANESE		79.8	J	D	150	J	D	517	J	D	359	J	D
MERCURY		0.03	J	P	0.06			0.02	J	P	0.02	J	P
MOLYBDENUM		0.5	J	KP	0.63	J	KP	0.46	J	KP	0.22	J	KP
NICKEL		8.7	J	K	15.3			28.3			21.1		
POTASSIUM		301	J	D	354	J	D	586	J	D	421	J	D
SELENIUM		0.6	UJ	AKP	0.44	UJ	AKP	0.24	U		0.21	UJ	AKP
SILVER		0.05	UJ	K	0.05	UJ	K	0.07	UJ	K	0.05	UJ	K
SODIUM		44.3	J	P	40.6	J	KP	56.5	J	KP	52.4	J	KP
THALLIUM		0.1	UJ	AP	0.08	UJ	AP	0.05	UJ	AP	0.04	U	
VANADIUM		27.2			47.2			19.9			21		
ZINC		31.5			56.2			63.9			49.7		

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP01-011008			DA-SS-DUP02-011108		
SDG: CTO402-2	LAB_ID	SB0199-009			SB0231-011		
FRACTION: M	SAMP_DATE	1/10/2008			1/11/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	85.9			80.4		
	DUP_OF	DA-SS125-011008			DA-SS135-011108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		10700			17500		
ANTIMONY		0.09	UJ	DK	0.26	UJ	ADKP
ARSENIC		12.6			13.9		
BARIUM		27.5			25.4		
BERYLLIUM		0.49	J	P	0.56	J	P
CADMIUM		0.39	J	KP	0.02	U	
CALCIUM		1390	J	D	548	J	D
CHROMIUM		14			19		
COBALT		8.1			7.6		
COPPER		18	J	D	19.4	J	D
IRON		20100			33000		
LEAD		23			20.8		
MAGNESIUM		2570	J	D	3550	J	D
MANGANESE		395	J	D	247	J	D
MERCURY		0.04			0.05		
MOLYBDENUM		0.38	J	KP	0.56	J	KP
NICKEL		15.2			20.4		
POTASSIUM		872	J	D	515	J	D
SELENIUM		0.15	U		0.69	UJ	AKP
SILVER		0.05	UJ	K	0.1	UJ	K
SODIUM		48.6	J	P	48.5	J	KP
THALLIUM		0.06	UJ	AP	0.08	UJ	AP
VANADIUM		18.3			30.8		
ZINC		56.4			58		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2684W

Date: April 4, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO402-2
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

17/Soils	DA-SS114B-011008	DA-SS115B-011008
	DA-SS116B-011008	DA-SS117B-011008
	DA-SS121-011008	DA-SS122-011008
	DA-SS123-011008	DA-SS124-011008
	DA-SS125-011008	DA-SS135-011108
	DA-SS136-011008	DA-SS138-011108
	DA-SS139-011108	DA-SS140-011108
	DA-SS141-011108	DA-SS-DUP01-011008
	DA-SS-DUP02-011108	

(Field Duplicate Pairs:
DA-SS125-011008/DA-SS-DUP01-011008 and
DA-SS135-011108/DA-SS-DUP02-011108)

VOC/GRO		
2/Trip blanks	DA-SSTB01-011008	DA-SSTB02-011108

SVOC/PAH/Pesticides/PCB/ExTPH:

1/Soil	DA-SS137-011108

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on January 10-11, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- Preservation and Technical Holding Times
* • GC/MS Instrument Performance Check (Tuning)
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- Analyte Identification/Quantitation
* • Percent Solids
- Reporting Limits

* All criteria were met for this parameter.

Data Completeness

Sample DA-SS137-011108 is not reported for VOC and GRO analyses. Laboratory notes indicate that the sample will be recollected (p.25).

Holding Times

Pesticides

Sample DA-SS139-01108 was re-extracted 5 days beyond the 14-day technical holding time criterion because the surrogate recoveries for the initial analysis are <10%. The positive results are estimated (J) and the non-detected results are estimated (UJ) for all pesticide results for the re-extracted sample DA-SS139-011108 due the exceeded holding time criterion.

Although the method required holding time criterion was not met for this sample, the project accuracy goals are only slightly impacted due to the persistent nature of the pesticide target analytes. The positive and non-detected pesticide results in this sample are usable as estimated values and estimated quantitation limits which may be biased low.

PCBs

Sample DA-SS139-01108 was re-extracted 5 days beyond the 14-day technical holding time criterion because the surrogate recoveries for the initial analysis are <10%. The positive results are estimated (J) and the non-detected results are estimated (UJ) for all PCB results for sample DA-SS139-011108 due the exceeded holding time criterion.

Although the method required holding time criterion was not met for this sample, the project accuracy goals are only slightly impacted due to the persistent nature of the PCBs. The positive and non-detected PCB results in this sample are usable as estimated values and estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acetone	-29.62, -32.30, -30.62	J	UJ	DA-SS138-011108(DL), DA-SS122-01108, DA-SS125-011008, DA-SS-DUP01-011008, DA-SS123-011008, DA-SS117B-011008, DA-SS116B-011008, DA-SS-115B-011008, DA-SS121-011008(RA), DA-SS124-011008(RA), DA-SS117B-011008(RA), DA-SS114B-011008(RA), DA-SS141-011108
Chloroethane	43.74, 38.71, 46.64		UJ	All samples, except DA-SSTB01-011008 and DA-SSTB02-011108
1,2-Dichloro-3-chloropropane	50.96, 42.56		UJ	DA-SS121-011008(RA), DA-SS124-011008(RA), DA-SS117B-011008(RA), DA-SS114B-011008(RA), DA-SS141-011108, DA-SS139-011108(RA), DA-SS140-011108, DA-SS135-011108, DA-SS-DUP02-011108, DA-SS138-011108

Although the %D method criterion was outside of the QC limits for acetone, chloroethane, and 1,2-dichloro-3-chloropropane, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 500% allocated for these compounds or there is no regulatory limits established for the affected compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	44.56		UJ	All semivolatile samples

Although the %RSD method criterion was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
4-Chloroaniline	27.85		UJ	DA-SS116B-011008, DA-SS117B-011008, DA-SS136-011008, DA-SS115B-011008, DA-SS114B-011008, DA-SS124-011008, DA-SS-DUP01-011008, DA-SS121-011008, DA-SS122-011008
4-Nitrophenol	37.24, -36.79		UJ	DA-SS116B-011008, DA-SS117B-011008, DA-SS136-011008, DA-SS115B-011008, DA-SS114B-011008, DA-SS124-011008, DA-SS-DUP01-011008, DA-SS121-011008, DA-SS122-011008, DA-SS138-011108, DA-SS135-011108
Butylbenzylphthalate	46.06, 59.87, 66.82		UJ	All samples
Bis(2-ethylhexyl)phthalate	46.24, 64.34, 76.81	J	UJ	
Di-n-octylphthalate	46.48, 67.55, 76.58		UJ	
Benzidine	86.07, 82.60		UJ	DA-SS140-011108, DA-SS-DUP02-011108, DA-SS141-011108, DA-SS137-011108, DA-SS125-011008(RA), DA-SS123-011008, DA-SS139-011108, DA-SS138-011108, DA-SS135-011108

Although the %D method criterion was outside of the QC limits for 4-chloroaniline, 4-nitrophenol, butylbenzylphthalate, di-n-octylphthalate, and benzidine, the project accuracy goals were not impacted

since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The project accuracy goals may be slightly impacted for bis(2-ethylhexyl)phthalate since the project quantitation limits exceed the project action limits for this compound. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Fluorene	47.05	J	UJ	DA-SS140-011108, DA-SS135-011108, DA-SS-DUP02-011108, DA-SS138-011108, DA-SS141-011108, DA-SS137-011108
Anthracene	27.65	J	UJ	
Chrysene	27.63	J	UJ	
Benzo(g,h,i)perylene	29.99	J	UJ	
Pyrene	-29.77	J	UJ	DA-SS136-01108
Benzo(k)fluoroanthene	-27.81	J	UJ	DA-SS136-01108, DA-SS124-011008, DA-SS122-011008

Although the %D method criterion was outside of the QC limits for fluorene, anthracene, chrysene, benzo(g,h,i)perylene, pyrene, and benzo(k)fluoroanthene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
All analytes, except 4,4'-DDD	>25%	>25%	J	UJ	DA-SS121-011008, DA-SS122-011008, DA-SS124-011008, DA-SS125-011008, DA-SS-DUP01-011008, DA-SS123-011008, DA-SS117B-011008, DA-SS116B-011008, DA-SS136-011008, DA-SS114B-011008
4,4'-DDT	-36.80	-38.00	J	UJ	DA-SS115B-011008, DA-SS139-011108, DA-SS138-011108, DA-SS140-011108, DA-SS141-011108, DA-SS137-011108, DA-SS135-011108, DA-SS-DUP02-011108
Endosulfan sulfate	-41.60	-42.40		UJ	

Although the %D method criteria were outside of the QC limits for several analytes, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds with the following exception. Data usability may be impacted for dieldrin, alpha chlordane, and gamma chlordane in the affected samples since the project quantitation limits exceed the project action limits for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the PCB compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	41.67, 32.90, 33.89, 37.48, 32.48	26.64, 26.73, 27.38, 27.08		UJ	DA-SS115B-011108, DA-SS139-011108, DA-SS138-011108, DA-SS141-011108, DA-SS140-011108, DA-SS137-011108, DA-SS135-011108, DA-SS-DUP02-011108
Aroclor-1260	32.17, 31.52, 31.65	26.94, 27.86	J	UJ	

Although the %D method criterion was outside of the QC limits for Aroclor-1016 and Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Blanks

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	2.4	12	All samples, except DA-SS122-011008

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since all the sample reporting limits are below 5 mg/kg and there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

Surrogate Compounds

Volatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS122-011008	Toluene-d8	62	64-89	J	UJ
DA-SS135-011108	BFB	36	41-103	J	UJ
DA-SS138-011108	BFB	31	41-103	J	UJ
DA-SS-DUP02-011108(RA)	BFB	31	41-103	J	UJ

The surrogates toluene-d8 and bromofluorobenzene recovered below QC limits in the volatile samples shown in the table above. All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected samples due to low surrogate recoveries.

Although the surrogate recovery QC criteria were not met for toluene-d8 and bromofluorobenzene, the project accuracy goals are slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS141-011108	TPH	148	45-133	J	

The surrogate terphenyl-d14 recovered above the QC limits in the semivolatile sample DA-SS141-011108. All positive results are estimated (J) in the affected sample due to high surrogate recovery.

Although the surrogate recovery QC criteria were not met for terphenyl-d4, the project accuracy goals are only slightly impacted. The positive results in sample DA-SS141-011108 are usable as estimated values which may be biased high.

Pesticides

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS136-011008	TCX, Column 1	36	41-116		UJ
	DCB, Column 1	39	52-119		
	DCB, Column 2	36	52-119		
DA-SS135-011108	TCX, Column 1	298	41-116	J	

The surrogates tetrachloro-m-xylene (TCX) and decachlorobiphenyl (DCB) recovered outside QC limits in the pesticide samples shown in the table above. All non-detected results are estimated (UJ) in sample DA-SS136-011008 due to low surrogate recoveries. All positive results are estimated (J) in sample DA-SS135-011108 due to high surrogate recovery.

Although the surrogate recovery QC criteria were not met for TCX and DCB, the project accuracy goals are slightly impacted. The non-detected results in sample DA-SS136-011108 are usable as estimated quantitation limits which may be biased low. The positive results in sample DA-SS135-011108 are usable as estimated values which may be biased high.

GRO

The following samples had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS115B-011008	BFB	140	65-129	J	

The surrogate bromofluorobenzene recovered above QC limits for sample DA-SS115B-011008. The positive GRO result is estimated (J) in the affected sample due to high surrogate recovery.

Although the surrogate recovery exceeded the QC criterion for bromofluorobenzene, the project accuracy goals are not impacted since this positive result was changed to a non-detect value due to blank contamination.

Internal Standards

Volatiles

The following table summarizes the volatile internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
1,4-Dichlorobenzene-D4	83805	131109-524434		UJ	DA-SS122-011008
	105898			UJ	DA-SS117B-011008
	115963			UJ	DA-SS115B-011008
	57695	117262-469048		UJ	DA-SS141-011108
	69942	113735-454938		UJ	DA-SS139-011108(RA)
	106984			UJ	DA-SS140-011108
	49220			UJ	DA-SS135-011108
	41671			UJ	DA-SS-DUP02-011108(RA)
	41436			UJ	DA-SS138-011108

The internal standard areas of 1,4-dichlorobenzene-d4 failed to meet the acceptable range for the above samples. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

Although the QC criteria were not met for the internal standard areas of 1,4-dichlorobenzene-d4, the project accuracy goals are only slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

PAH

The following table summarizes the PAH internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Perylene-D12	10451	2459-9834	J		DA-SS135-011108
	11468	2731-10922	J		DA-SS135-011108(RA)
	13969		J		DA-SS139-011108

The internal standard areas of perylene-d12 failed to meet the acceptable range for the above samples. The target compounds associated with perylene-d12 are benzo(b)fluoroanthene, benzo(k)fluoroanthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. All positive results are estimated (J) for the corresponding target compounds in the affected samples.

Professional judgment is used to report the original data results for samples DA-SS135-011108 since both the original and reanalyzed samples have internal standard areas that failed to meet the acceptable range.

Although the QC criteria were not met for the internal standard areas of perylene-d12, the project accuracy goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SS138-011108 recovered the majority of the volatile compounds outside the compound-specific recovery limits and above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-SS138-011108 due to high and low MS/MSD recoveries and MS/MSD imprecision.

The project accuracy goals may be slightly impacted for sample DA-SS138-011108 because the matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits.

The project precision goals may be slightly impacted for sample DA-SS138-011108 because the matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits.

Semivolatiles

The matrix spike/matrix spike duplicate results for sample DA-SS138-011108 recovered 0% benzidine. The non-detected benzidine result is qualified as rejected (R) in sample DA-SS138-011108 due to no MS/MSD recovery. This result should not be used for project decisions.

GRO

The MS/MSD results for sample DA-SS138-011108 recovered GRO above the 131% QC limit. The positive GRO result is qualified as estimated (J) in sample DA-SS138-011108 due to high MS/MSD recovery.

Although the MS/MSD recovery for GRO exceeded the QC limit, the project accuracy goals are only slightly impacted. The positive result in sample DA-SS138-011108 is usable as an estimated value which may be biased high.

ExTPH

The MS/MSD results for sample DA-SS138-011108 recovered ExTPH below the 32% QC limit. The positive ExTPH result is qualified as estimated (J) in sample DA-SS138-011108 due to low MS/MSD recovery.

Although the MS/MSD recovery for ExTPH was below the QC limit, the project accuracy goals are only slightly impacted. The positive result in sample DA-SS138-011108 is usable as an estimated value which may be biased low.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The non-detected results for 1,2-dibromo-3-chloropropane in samples DA-SS-122-011008, DA-SS125-011008, DA-SS-DUP01-011008, DA-SS123-011008, DA-SS117B-011008, DA-SS116B-011008, DA-SS136-011008, DA-SS115B-011008, DA-SS139-011108(RA), DA-SS140-011108, DA-SS135-011108, DA-SS-DUP02-011108, and DA-SS138-011108 were qualified as estimated (UJ) due to laboratory control sample recoveries below the 83% QC limit.

Although the LCS/LCSD recoveries for 1,2-dibromo-3-chloropropane were slightly below the QC limit, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The positive results for bis(2-ethylhexyl)phthalate in samples DA-SS141-011108 and DA-SS139-011108 are qualified as estimated (J) due to laboratory control sample recoveries above the 125% QC limit.

Although the LCS/LCSD recoveries for bis(2-ethylhexyl)phthalate were above the QC limit, the project accuracy goals are only slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

PAH

The positive 2-methylnapthalene results are estimated (J) and the non-detected results are estimated (UJ) in samples DA-SS114B-011008, DA-SS115B-011008, DA-SS117B-011008(RA), and DA-SS116B-011008(RA) due to laboratory control sample recoveries slightly below the 66% QC limit.

The positive benzo(k)fluoroanthene results are estimated (J) and the non-detected results are estimated (UJ) in samples DA-SS114B-011008, DA-SS115B-011008, DA-SS117B-011008(RA), and DA-SS116B-011008(RA), DA-SS121-011008, DA-SS-DUP01-011008, DA-SS123-011008, and DA-SS125-011008 due to laboratory control sample recoveries slightly below the 46% QC limit.

The positive results for benzo(g,h,i)perylene in samples DA-SS140-011108, DA-SS135-011108, DA-SS-DUP02-011108, DA-SS138-011108, DA-SS141-011108, DA-SS137-011108, DA-SS139-011108 are qualified as estimated (J) due to laboratory control sample recoveries above the 110% QC limit.

Although the LCS/LCSD recoveries for 2-methylnapthalene and benzo(k)fluoroanthene were below the QC limits, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Although the LCS/LCSD recoveries for benzo(g,h,i)perylene exceeded the QC limit, the project accuracy goals are only slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

Pesticides

The positive results are estimated (J) and the non-detected results are estimated (UJ) for gamma-BHC, delta-BHC, heptachlor, aldrin, heptachlor epoxide, gamma-chlordane, alpha-chlordane, 4,4'-DDE, dieldrin, endrin, 4,4'-DDD, 4,4'-DDT, and endosulfan sulfate in samples DA-SS139-011108(RE), DA-SS115B-011008, DA-SS138-011108, DA-SS141-011108, DA-SS140-011108, DA-SS137-011108, DA-SS135-011108, and DA-SS-DUP02-011108 due to slightly low laboratory control sample recoveries.

Although the LCS/LCSD recoveries for gamma-BHC, delta-BHC, heptachlor, aldrin, heptachlor epoxide, gamma-chlordane, alpha-chlordane, 4,4'-DDE, dieldrin, endrin, 4,4'-DDD, 4,4'-DDT, and endosulfan sulfate were below the QC limits, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

PCBs

The positive results are estimated (J) and the non-detected results are estimated (UJ) for Aroclor-1016 and Aroclor-1260 in samples DA-SS139-011108(RA), DA-SS121-011008(RA), DA-SS122-011008(RA), DA-SS124-011008(RA), DA-SS125-011008(RA), DA-SS-DUP01-011008(RA), and DA-SS123-011008(RA) due to low laboratory control sample recoveries.

Although the LCS/LCSD recoveries for Aroclor-1016 and Aroclor-1260 were below the QC limits, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Field Duplicates

Volatiles

The field duplicates DA-SS125-011008 and DA-SS-DUP01-011008 exceeded the relative percent difference QC criterion of 50% for acetone. The positive acetone results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for acetone exceeded the QC criterion, the project precision goals for this compound are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

PAH

The field duplicates DA-SS125-011008 and DA-SS-DUP01-011008 exceeded the relative percent difference QC criterion of 50% for all PAH compounds except 2-methylnapthalene, acenaphthylene, and ideno(1,2,3-cd)pyrene. The positive results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

The project precision goals may be slightly impacted because the field duplicate relative percent difference for all PAH compounds except 2-methylnapthalene, acenaphthylene, and indeno(1,2,3-cd)pyrene exceeded the QC criterion. This may be due to sample heterogeneity.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following sample:

Sample	Analyte	%RPD	Action	
			(+)	NDs
DA-SS135-011108	4,4'-DDT	55.0	J	

The analyte quantitation relative percent difference was not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive result in the affected sample is usable as an estimated value.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits, all reporting limits met project action limits.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, poor internal standard areas, poor matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set with the following exceptions. Results for sample DA-SS138-011108 were qualified as estimated due to matrix spike/matrix spike duplicate imprecision. Acetone results in the field duplicate pair DA-SS125-011008 and DA-SS-DUP01-011008 are qualified as estimated due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, high surrogate recoveries, and high laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. The benzidine result in sample DA-SS138-011108 is rejected due to 0% matrix spike recovery. Data usability is impacted; this result should not be used for project decisions.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor internal standard areas, and poor laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PAH data set with the following exception. Select compounds were qualified as estimated due to field duplicate imprecision. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set. Data usability was not impacted with regards to sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to exceeded holding times, instrument calibration variability, poor surrogate recoveries, low laboratory control sample recoveries, and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exceptions. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. Select Aroclors were qualified as estimated due to exceeded holding times, instrument calibration variability, poor surrogate recoveries, high matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy were met for the GRO data set with the following exceptions. GRO results were qualified as estimated due to poor surrogate recoveries and high matrix spike recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the GRO data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the GRO data set. Detection limits were elevated due to laboratory blank GRO contamination; however the data usability is not impacted since there are no established GRO regulatory limits.

ExTPH

The project goals with respect to accuracy were met for the TPH data set with the following exception. The ExTPH result in sample DA-SS138-011108 was qualified as estimated due to low matrix spike recoveries. Although a specific method criterion was not met in this instance, the affected positive result is usable as an estimated value which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the TPH data set. Data usability was not impacted with regards to precision and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008RA			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
SDG: CTO402-2	LAB_ID	SB0199-19RA			SB0199-21			SB0199-15			SB0199-13		
FRACTION: OV	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		8	U		5	U		5	U		6	U	
1,1,1-TRICHLOROETHANE		8	U		5	U		5	U		6	U	
1,1,2,2-TETRACHLOROETHANE		8	U		5	UJ	N	5	U		6	UJ	N
1,1,2-TRICHLOROETHANE		8	U		5	U		5	U		6	U	
1,1-DICHLOROETHANE		8	U		5	U		5	U		6	U	
1,1-DICHLOROETHENE		8	U		5	U		5	U		6	U	
1,1-DICHLOROPROPENE		8	U		5	U		5	U		6	U	
1,2,3-TRICHLOROBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
1,2,3-TRICHLOROPROPANE		8	U		5	UJ	N	5	U		6	UJ	N
1,2,4-TRICHLOROBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
1,2,4-TRIMETHYLBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE		8	UJ	C	5	UJ	EN	5	UJ	E	6	UJ	EN
1,2-DIBROMOETHANE		8	U		5	U		5	U		6	U	
1,2-DICHLOROBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
1,2-DICHLOROETHANE		8	U		5	U		5	U		6	U	
1,2-DICHLOROPROPANE		8	U		5	U		5	U		6	U	
1,3,5-TRIMETHYLBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
1,3-DICHLOROBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
1,3-DICHLOROPROPANE		8	U		5	U		5	U		6	U	
1,4-DICHLOROBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
2,2-DICHLOROPROPANE		8	U		5	U		5	U		6	U	
2-BUTANONE		41	U		27	U		25	U		30	U	
2-CHLOROTOLUENE		8	U		5	UJ	N	5	U		6	UJ	N
2-HEXANONE		41	U		27	U		25	U		30	U	
4-CHLOROTOLUENE		8	U		5	UJ	N	5	U		6	UJ	N
4-ISOPROPYLTOLUENE		8	U		5	U		8			6	U	
4-METHYL-2-PENTANONE		41	U		27	U		25	U		30	U	
ACETONE		120	J	C	46	J	C	21	J	CP	120	J	C
BENZENE		8	U		5	U		5	U		6	U	
BROMOBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
BROMOCHLOROMETHANE		8	U		5	U		5	U		6	U	
BROMODICHLOROMETHANE		8	U		5	U		5	U		6	U	
BROMOFORM		8	U		5	U		5	U		6	U	
BROMOMETHANE		16	U		11	U		10	U		12	U	
CARBON DISULFIDE		8	U		5	U		5	U		6	U	

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008RA			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008RA		
SDG: CTO402-2	LAB_ID	SB0199-1RA			SB0199-3			SB0199-11			SB0199-5RA		
FRACTION: OV	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	UJ	R	5	U		5	U	
1,1,1-TRICHLOROETHANE	5	U		5	UJ	R	5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		5	UJ	NR	5	U		5	U	
1,1,2-TRICHLOROETHANE	5	U		5	UJ	R	5	U		5	U	
1,1-DICHLOROETHANE	5	U		5	UJ	R	5	U		5	U	
1,1-DICHLOROETHENE	5	U		5	UJ	R	5	U		5	U	
1,1-DICHLOROPROPENE	5	U		5	UJ	R	5	U		5	U	
1,2,3-TRICHLOROBENZENE	5	U		5	UJ	NR	5	U		5	U	
1,2,3-TRICHLOROPROPANE	5	U		5	UJ	NR	5	U		5	U	
1,2,4-TRICHLOROBENZENE	5	U		5	UJ	NR	5	U		5	U	
1,2,4-TRIMETHYLBENZENE	5	U		5	UJ	NR	5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	UJ	C	5	UJ	ENR	5	UJ	E	5	UJ	C
1,2-DIBROMOETHANE	5	U		5	UJ	R	5	U		5	U	
1,2-DICHLOROBENZENE	5	U		5	UJ	NR	5	U		5	U	
1,2-DICHLOROETHANE	5	U		5	UJ	R	5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	UJ	R	5	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	U		5	UJ	NR	5	U		5	U	
1,3-DICHLOROBENZENE	5	U		5	UJ	NR	5	U		5	U	
1,3-DICHLOROPROPANE	5	U		5	UJ	R	5	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	UJ	NR	5	U		5	U	
2,2-DICHLOROPROPANE	5	U		5	UJ	R	5	U		5	U	
2-BUTANONE	25	U		25	UJ	R	25	U		26	U	
2-CHLOROTOLUENE	5	U		5	UJ	NR	5	U		5	U	
2-HEXANONE	25	U		25	UJ	R	25	U		26	U	
4-CHLOROTOLUENE	5	U		5	UJ	NR	5	U		5	U	
4-ISOPROPYLTOLUENE	73			5	UJ	R	5	U		5	U	
4-METHYL-2-PENTANONE	25	U		25	UJ	R	25	U		26	U	
ACETONE	24	J	CP	12	J	CPR	16	J	CP	33	J	C
BENZENE	5	U		5	UJ	R	5	U		5	U	
BROMOBENZENE	5	U		5	UJ	NR	5	U		5	U	
BROMOCHLOROMETHANE	5	U		5	UJ	R	5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	UJ	R	5	U		5	U	
BROMOFORM	5	U		5	UJ	R	5	U		5	U	
BROMOMETHANE	10	U		10	UJ	R	10	U		10	U	
CARBON DISULFIDE	5	U		5	UJ	R	5	U		5	U	

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SS125-011008			DA-SS135-011108			DA-SS136-011008			DA-SS138-011108		
	LAB_ID	SB0199-7			SB0231-9			SB0199-17			SB0231-13		
	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,1,1-TRICHLOROETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,1,2,2-TETRACHLOROETHANE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,1,2-TRICHLOROETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,1-DICHLOROETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,1-DICHLOROETHENE		5	U		9	UJ	R	5	U		8	UJ	DR
1,1-DICHLOROPROPENE		5	U		9	UJ	R	5	U		8	UJ	DR
1,2,3-TRICHLOROBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,2,3-TRICHLOROPROPANE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,2,4-TRICHLOROBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,2,4-TRIMETHYLBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,2-DIBROMO-3-CHLOROPROPANE		5	UJ	E	9	UJ	CENR	5	UJ	E	8	UJ	CDENR
1,2-DIBROMOETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,2-DICHLOROBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,2-DICHLOROETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,2-DICHLOROPROPANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,3,5-TRIMETHYLBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,3-DICHLOROBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
1,3-DICHLOROPROPANE		5	U		9	UJ	R	5	U		8	UJ	DR
1,4-DICHLOROBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
2,2-DICHLOROPROPANE		5	U		9	UJ	R	5	U		8	UJ	DR
2-BUTANONE		25	U		47	UJ	R	25	U		38	UJ	DR
2-CHLOROTOLUENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
2-HEXANONE		25	U		47	UJ	R	25	U		38	UJ	DR
4-CHLOROTOLUENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
4-ISOPROPYLTOLUENE		5	U		9	UJ	R	5	U		8	UJ	DR
4-METHYL-2-PENTANONE		25	U		47	UJ	R	25	U		38	UJ	DR
ACETONE		150	J	CG	100	J	R	1700	U		1600	UJ	CDR
BENZENE		5	U		9	UJ	R	5	U		8	UJ	DR
BROMOBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
BROMOCHLOROMETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
BROMODICHLOROMETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
BROMOFORM		5	U		9	UJ	R	5	U		8	UJ	DR
BROMOMETHANE		10	U		19	UJ	R	10	U		15	UJ	DR
CARBON DISULFIDE		5	U		9	UJ	R	5	U		8	UJ	DR

PROJ_NO: 00816	NSAMPLE	DA-SS139-011108RA			DA-SS140-011108			DA-SS141-011108			DA-SS-DUP01-011008		
SDG: CTO402-2	LAB_ID	SB0231-1RA			SB0231-5			SB0231-3			SB0199-9		
FRACTION: OV	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.5			86.1			85.8			85.9		
	DUP_OF										DA-SS125-011008		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1,2-TETRACHLOROETHANE	6	U		5	U		5	U		5	U		
1,1,1-TRICHLOROETHANE	6	U		5	U		5	U		5	U		
1,1,2,2-TETRACHLOROETHANE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,1,2-TRICHLOROETHANE	6	U		5	U		5	U		5	U		
1,1-DICHLOROETHANE	6	U		5	U		5	U		5	U		
1,1-DICHLOROETHENE	6	U		5	U		5	U		5	U		
1,1-DICHLOROPROPENE	6	U		5	U		5	U		5	U		
1,2,3-TRICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,2,3-TRICHLOROPROPANE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,2,4-TRICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,2,4-TRIMETHYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,2-DIBROMO-3-CHLOROPROPANE	6	UJ	CEN	5	UJ	CEN	5	UJ	CN	5	UJ	E	
1,2-DIBROMOETHANE	6	U		5	U		5	U		5	U		
1,2-DICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,2-DICHLOROETHANE	6	U		5	U		5	U		5	U		
1,2-DICHLOROPROPANE	6	U		5	U		5	U		5	U		
1,3,5-TRIMETHYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,3-DICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
1,3-DICHLOROPROPANE	6	U		5	U		5	U		5	U		
1,4-DICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
2,2-DICHLOROPROPANE	6	U		5	U		5	U		5	U		
2-BUTANONE	31	U		25	U		27	U		25	U		
2-CHLOROTOLUENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
2-HEXANONE	31	U		25	U		27	U		25	U		
4-CHLOROTOLUENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
4-ISOPROPYLTOLUENE	6	U		5	U		5	U		5	U		
4-METHYL-2-PENTANONE	31	U		25	U		27	U		25	U		
ACETONE	47			19	J	P	170	J	C	270	J	CG	
BENZENE	6	U		5	U		5	U		5	U		
BROMOBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	U		
BROMOCHLOROMETHANE	6	U		5	U		5	U		5	U		
BROMODICHLOROMETHANE	6	U		5	U		5	U		5	U		
BROMOFORM	6	U		5	U		5	U		5	U		
BROMOMETHANE	12	U		10	U		11	U		10	U		
CARBON DISULFIDE	6	U		5	U		5	U		5	U		

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SS-DUP02-011108RA			DA-SSTB01-011008DL			DA-SSTB02-011108DL		
	LAB_ID	SB0231-11RA			SB0199-23DL			SB0231-15DL		
	SAMP_DATE	1/11/2008			1/10/2008			1/11/2008		
	QC_TYPE	NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.4			.0			.0		
	DUP_OF	DA-SS135-011108								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		10	UJ	R	250	U		250	U	
1,1,1-TRICHLOROETHANE		10	UJ	R	250	U		250	U	
1,1,2,2-TETRACHLOROETHANE		10	UJ	NR	250	U		250	U	
1,1,2-TRICHLOROETHANE		10	UJ	R	250	U		250	U	
1,1-DICHLOROETHANE		10	UJ	R	250	U		250	U	
1,1-DICHLOROETHENE		10	UJ	R	250	U		250	U	
1,1-DICHLOROPROPENE		10	UJ	R	250	U		250	U	
1,2,3-TRICHLOROBENZENE		10	UJ	CNR	250	U		250	U	
1,2,3-TRICHLOROPROPANE		10	UJ	NR	250	U		250	U	
1,2,4-TRICHLOROBENZENE		10	UJ	CNR	250	U		250	U	
1,2,4-TRIMETHYLBENZENE		10	UJ	NR	250	U		250	U	
1,2-DIBROMO-3-CHLOROPROPANE		10	UJ	CNR	250	U		250	U	
1,2-DIBROMOETHANE		10	UJ	R	250	U		250	U	
1,2-DICHLOROBENZENE		10	UJ	NR	250	U		250	U	
1,2-DICHLOROETHANE		10	UJ	R	250	U		250	U	
1,2-DICHLOROPROPANE		10	UJ	R	250	U		250	U	
1,3,5-TRIMETHYLBENZENE		10	UJ	NR	250	U		250	U	
1,3-DICHLOROBENZENE		10	UJ	NR	250	U		250	U	
1,3-DICHLOROPROPANE		10	UJ	R	250	U		250	U	
1,4-DICHLOROBENZENE		10	UJ	NR	250	U		250	U	
2,2-DICHLOROPROPANE		10	UJ	R	250	U		250	U	
2-BUTANONE		52	UJ	R	1200	U		1200	U	
2-CHLOROTOLUENE		10	UJ	NR	250	U		250	U	
2-HEXANONE		52	UJ	R	1200	U		1200	U	
4-CHLOROTOLUENE		10	UJ	NR	250	U		250	U	
4-ISOPROPYLTOLUENE		10	UJ	R	250	U		250	U	
4-METHYL-2-PENTANONE		52	UJ	R	1200	U		1200	U	
ACETONE		99	J	R	1200	U		1200	U	
BENZENE		10	UJ	R	250	U		250	U	
BROMOBENZENE		10	UJ	NR	250	U		250	U	
BROMOCHLOROMETHANE		10	UJ	R	250	U		250	U	
BROMODICHLOROMETHANE		10	UJ	R	250	U		250	U	
BROMOFORM		10	UJ	CR	250	U		250	U	
BROMOMETHANE		21	UJ	R	500	U		500	U	
CARBON DISULFIDE		10	UJ	R	250	U		250	U	

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008RA			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
SDG: CTO402-2	LAB_ID	SB0199-19RA			SB0199-21			SB0199-15			SB0199-13		
FRACTION: OV	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		8	U		5	U		5	U		6	U	
CHLOROBENZENE		8	U		5	U		5	U		6	U	
CHLORODIBROMOMETHANE		8	U		5	U		5	U		6	U	
CHLOROETHANE		16	UJ	C	11	UJ	C	10	UJ	C	12	UJ	C
CHLOROFORM		8	U		5	U		5	U		6	U	
CHLOROMETHANE		16	U		11	U		10	U		12	U	
CIS-1,2-DICHLOROETHENE		8	U		5	U		5	U		6	U	
CIS-1,3-DICHLOROPROPENE		8	U		5	U		5	U		6	U	
DIBROMOMETHANE		8	U		5	U		5	U		6	U	
DICHLORODIFLUOROMETHANE		16	U		11	U		10	U		12	U	
ETHYLBENZENE		8	U		5	U		5	U		6	U	
HEXACHLOROBUTADIENE		8	U		5	UJ	N	5	U		6	UJ	N
ISOPROPYLBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
M+P-XYLENES		16	U		11	U		10	U		12	U	
METHYL TERT-BUTYL ETHER		8	U		5	U		5	U		6	U	
METHYLENE CHLORIDE		41	U		27	U		25	U		30	U	
N-BUTYLBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
N-PROPYLBENZENE		8	U		5	U		5	U		6	U	
O-XYLENE		8	U		5	U		5	U		6	U	
SEC-BUTYLBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
STYRENE		8	U		5	U		5	U		6	U	
TERT-BUTYLBENZENE		8	U		5	UJ	N	5	U		6	UJ	N
TETRACHLOROETHENE		8	U		5	U		5	U		6	U	
TOLUENE		8	U		5	U		5	U		6	U	
TRANS-1,2-DICHLOROETHENE		8	U		5	U		5	U		6	U	
TRANS-1,3-DICHLOROPROPENE		8	U		5	U		5	U		6	U	
TRICHLOROETHENE		8	U		5	U		5	U		6	U	
TRICHLOROFLUOROMETHANE		16	U		11	U		10	U		12	U	
VINYL CHLORIDE		16	U		11	U		10	U		12	U	

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SS121-011008RA			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008RA		
	LAB_ID	SB0199-1RA			SB0199-3			SB0199-11			SB0199-5RA		
	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	UJ	R	5	U		5	U	
CHLOROBENZENE		5	U		5	UJ	R	5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	UJ	R	5	U		5	U	
CHLOROETHANE		10	UJ	C	10	UJ	CR	10	UJ	C	10	UJ	C
CHLOROFORM		5	U		5	UJ	R	5	U		5	U	
CHLOROMETHANE		10	U		10	UJ	R	10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	UJ	R	5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	UJ	R	5	U		5	U	
DIBROMOMETHANE		5	U		5	UJ	R	5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	UJ	R	10	U		10	U	
ETHYLBENZENE		5	U		5	UJ	R	5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	UJ	NR	5	U		5	U	
ISOPROPYLBENZENE		5	U		5	UJ	NR	5	U		5	U	
M+P-XYLENES		10	U		10	UJ	R	10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	UJ	R	5	U		5	U	
METHYLENE CHLORIDE		25	U		25	UJ	R	25	U		26	U	
N-BUTYLBENZENE		5	U		5	UJ	NR	5	U		5	U	
N-PROPYLBENZENE		5	U		5	UJ	R	5	U		5	U	
O-XYLENE		5	U		5	UJ	R	5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	UJ	NR	5	U		5	U	
STYRENE		5	U		5	UJ	R	5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	UJ	NR	5	U		5	U	
TETRACHLOROETHENE		5	U		5	UJ	R	5	U		5	U	
TOLUENE		5	U		5	UJ	R	5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	UJ	R	5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	UJ	R	5	U		5	U	
TRICHLOROETHENE		5	U		4	J	R	5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	UJ	R	10	U		10	U	
VINYL CHLORIDE		10	U		10	UJ	R	10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS125-011008			DA-SS135-011108			DA-SS136-011008			DA-SS138-011108		
SDG: CTO402-2	LAB_ID	SB0199-7			SB0231-9			SB0199-17			SB0231-13		
FRACTION: OV	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		9	UJ	R	5	U		8	UJ	DR
CHLOROBENZENE		5	U		9	UJ	R	5	U		8	UJ	DR
CHLORODIBROMOMETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
CHLOROETHANE		10	UJ	C	19	UJ	CR	10	UJ	C	15	UJ	CDR
CHLOROFORM		5	U		9	UJ	R	5	U		8	UJ	DR
CHLOROMETHANE		10	U		19	UJ	R	10	U		15	UJ	DR
CIS-1,2-DICHLOROETHENE		5	U		9	UJ	R	5	U		8	UJ	DR
CIS-1,3-DICHLOROPROPENE		5	U		9	UJ	R	5	U		8	UJ	DR
DIBROMOMETHANE		5	U		9	UJ	R	5	U		8	UJ	DR
DICHLORODIFLUOROMETHANE		10	U		19	UJ	R	10	U		15	UJ	DR
ETHYLBENZENE		5	U		9	UJ	R	5	U		8	UJ	DR
HEXACHLOROBUTADIENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
ISOPROPYLBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
M+P-XYLENES		10	U		19	UJ	R	10	U		15	UJ	DR
METHYL TERT-BUTYL ETHER		5	U		9	UJ	R	5	U		8	UJ	DR
METHYLENE CHLORIDE		25	U		47	UJ	R	25	U		38	UJ	DR
N-BUTYLBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
N-PROPYLBENZENE		5	U		9	UJ	R	5	U		8	UJ	DR
O-XYLENE		5	U		9	UJ	R	5	U		8	UJ	DR
SEC-BUTYLBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
STYRENE		5	U		9	UJ	R	5	U		8	UJ	DR
TERT-BUTYLBENZENE		5	U		9	UJ	NR	5	U		8	UJ	DNR
TETRACHLOROETHENE		5	U		9	UJ	R	5	U		8	UJ	DR
TOLUENE		5	U		9	UJ	R	5	U		8	UJ	DR
TRANS-1,2-DICHLOROETHENE		5	U		9	UJ	R	5	U		8	UJ	DR
TRANS-1,3-DICHLOROPROPENE		5	U		9	UJ	R	5	U		8	UJ	DR
TRICHLOROETHENE		5	U		10	J	R	5	U		8	UJ	DR
TRICHLOROFLUOROMETHANE		10	U		19	UJ	R	10	U		15	UJ	DR
VINYL CHLORIDE		10	U		19	UJ	R	10	U		15	UJ	DR

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SS139-011108RA			DA-SS140-011108			DA-SS141-011108			DA-SS-DUP01-011008		
	LAB_ID	SB0231-1RA			SB0231-5			SB0231-3			SB0199-9		
	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/10/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.5			86.1			85.8			85.9		
	DUP_OF										DA-SS125-011008		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		6	U		5	U		5	U		5	U	
CHLOROBENZENE		6	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		6	U		5	U		5	U		5	U	
CHLOROETHANE		12	UJ	C	10	UJ	C	11	UJ	C	10	UJ	C
CHLOROFORM		6	U		5	U		5	U		5	U	
CHLOROMETHANE		12	U		10	U		11	U		10	U	
CIS-1,2-DICHLOROETHENE		6	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		6	U		5	U		5	U		5	U	
DIBROMOMETHANE		6	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		12	U		10	U		11	U		10	U	
ETHYLBENZENE		6	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		6	UJ	N	5	UJ	N	5	UJ	N	5	U	
ISOPROPYLBENZENE		6	UJ	N	5	UJ	N	5	UJ	N	5	U	
M+P-XYLENES		12	U		10	U		11	U		10	U	
METHYL TERT-BUTYL ETHER		6	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		31	U		25	U		3	J	P	25	U	
N-BUTYLBENZENE		6	UJ	N	5	UJ	N	5	UJ	N	5	U	
N-PROPYLBENZENE		6	U		5	U		5	U		5	U	
O-XYLENE		6	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		6	UJ	N	5	UJ	N	5	UJ	N	5	U	
STYRENE		6	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		6	UJ	N	5	UJ	N	5	UJ	N	5	U	
TETRACHLOROETHENE		6	U		5	U		5	U		5	U	
TOLUENE		6	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		6	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		6	U		5	U		5	U		5	U	
TRICHLOROETHENE		6	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		12	U		10	U		11	U		10	U	
VINYL CHLORIDE		12	U		10	U		11	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP02-011108RA			DA-SSTB01-011008DL			DA-SSTB02-011108DL		
SDG: CTO402-2	LAB_ID	SB0231-11RA			SB0199-23DL			SB0231-15DL		
FRACTION: OV	SAMP_DATE	1/11/2008			1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.4			.0			.0		
	DUP_OF	DA-SS135-011108								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		10	UJ	R	250	U		250	U	
CHLOROBENZENE		10	UJ	R	250	U		250	U	
CHLORODIBROMOMETHANE		10	UJ	R	250	U		250	U	
CHLOROETHANE		21	UJ	CR	500	U		500	U	
CHLOROFORM		10	UJ	R	250	U		250	U	
CHLOROMETHANE		21	UJ	R	500	U		500	U	
CIS-1,2-DICHLOROETHENE		10	UJ	R	250	U		250	U	
CIS-1,3-DICHLOROPROPENE		10	UJ	R	250	U		250	U	
DIBROMOMETHANE		10	UJ	R	250	U		250	U	
DICHLORODIFLUOROMETHANE		21	UJ	R	500	U		500	U	
ETHYLBENZENE		10	UJ	R	250	U		250	U	
HEXACHLOROBUTADIENE		10	UJ	NR	250	U		250	U	
ISOPROPYLBENZENE		10	UJ	NR	250	U		250	U	
M+P-XYLENES		21	UJ	R	500	U		500	U	
METHYL TERT-BUTYL ETHER		10	UJ	R	250	U		250	U	
METHYLENE CHLORIDE		52	UJ	R	1200	U		1200	U	
N-BUTYLBENZENE		10	UJ	NR	250	U		250	U	
N-PROPYLBENZENE		10	UJ	R	250	U		250	U	
O-XYLENE		10	UJ	R	250	U		250	U	
SEC-BUTYLBENZENE		10	UJ	NR	250	U		250	U	
STYRENE		10	UJ	R	250	U		250	U	
TERT-BUTYLBENZENE		10	UJ	NR	250	U		250	U	
TETRACHLOROETHENE		10	UJ	CR	250	U		250	U	
TOLUENE		10	UJ	R	250	U		250	U	
TRANS-1,2-DICHLOROETHENE		10	UJ	R	250	U		250	U	
TRANS-1,3-DICHLOROPROPENE		10	UJ	R	250	U		250	U	
TRICHLOROETHENE		7	J	PR	250	U		250	U	
TRICHLOROFLUOROMETHANE		21	UJ	R	500	U		500	U	
VINYL CHLORIDE		21	UJ	R	500	U		500	U	

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SS114B-011008			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
	LAB_ID	SB0199-19			SB0199-21			SB0199-15			SB0199-13		
	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		400	U		410	U		390	U		410	U	
1,2,4-TRICHLOROBENZENE		400	U		410	U		390	U		410	U	
1,2-DICHLOROBENZENE		400	U		410	U		390	U		410	U	
1,2-DIPHENYLHYDRAZINE		810	U		810	U		790	U		810	U	
1,3-DICHLOROBENZENE		400	U		410	U		390	U		410	U	
1,4-DICHLOROBENZENE		400	U		410	U		390	U		410	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		400	U		410	U		390	U		410	U	
2,4,5-TRICHLOROPHENOL		1000	U		1000	U		980	U		1000	U	
2,4,6-TRICHLOROPHENOL		400	U		410	U		390	U		410	U	
2,4-DICHLOROPHENOL		400	U		410	U		390	U		410	U	
2,4-DIMETHYLPHENOL		400	U		410	U		390	U		410	U	
2,4-DINITROPHENOL		1000	U		1000	U		980	U		1000	U	
2,4-DINITROTOLUENE		400	U		410	U		390	U		410	U	
2,6-DICHLOROPHENOL		400	U		410	U		390	U		410	U	
2,6-DINITROTOLUENE		1000	U		1000	U		980	U		1000	U	
2-CHLORONAPHTHALENE		400	U		410	U		390	U		410	U	
2-CHLOROPHENOL		400	U		410	U		390	U		410	U	
2-METHYLPHENOL		400	U		410	U		390	U		410	U	
2-NITROANILINE		1000	U		1000	U		980	U		1000	U	
2-NITROPHENOL		400	U		410	U		390	U		410	U	
3&4-METHYLPHENOL		400	U		410	U		390	U		410	U	
3,3'-DICHLOROBENZIDINE		400	U		410	U		390	U		410	U	
3-NITROANILINE		1000	U		1000	U		980	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL		1000	U		1000	U		980	U		1000	U	
4-BROMOPHENYL PHENYL ETHER		400	U		410	U		390	U		410	U	
4-CHLORO-3-METHYLPHENOL		400	U		410	U		390	U		410	U	
4-CHLOROANILINE		400	UJ	C	410	UJ	C	390	UJ	C	410	UJ	C
4-CHLOROPHENYL PHENYL ETHER		400	U		410	U		390	U		410	U	
4-NITROANILINE		1000	U		1000	U		980	U		1000	U	
4-NITROPHENOL		1000	UJ	C	1000	UJ	C	980	UJ	C	1000	UJ	C
BENZIDINE		1800	UJ	C	1800	UJ	C	1800	UJ	C	1800	UJ	C
BENZOIC ACID		1000	U		1000	U		980	U		1100		
BENZYL ALCOHOL		810	U		810	U		790	U		810	U	
BIS(2-CHLOROETHOXY)METHANE		400	U		410	U		390	U		410	U	
BIS(2-CHLOROETHYL)ETHER		400	U		410	U		390	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008		
SDG: CTO402-2	LAB_ID	SB0199-1			SB0199-3			SB0199-11			SB0199-5		
FRACTION: OS	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	410	U		400	U		400	U		410	U	
1,2,4-TRICHLOROBENZENE	410	U		400	U		400	U		410	U	
1,2-DICHLOROBENZENE	410	U		400	U		400	U		410	U	
1,2-DIPHENYLHYDRAZINE	820	U		800	U		800	U		820	U	
1,3-DICHLOROBENZENE	410	U		400	U		400	U		410	U	
1,4-DICHLOROBENZENE	410	U		400	U		400	U		410	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	410	U		400	U		400	U		410	U	
2,4,5-TRICHLOROPHENOL	1000	U		990	U		990	U		1000	U	
2,4,6-TRICHLOROPHENOL	410	U		400	U		400	U		410	U	
2,4-DICHLOROPHENOL	410	U		400	U		400	U		410	U	
2,4-DIMETHYLPHENOL	410	U		400	U		400	U		410	U	
2,4-DINITROPHENOL	1000	U		990	U		990	U		1000	U	
2,4-DINITROTOLUENE	410	U		400	U		400	U		410	U	
2,6-DICHLOROPHENOL	410	U		400	U		400	U		410	U	
2,6-DINITROTOLUENE	1000	U		990	U		990	U		1000	U	
2-CHLORONAPHTHALENE	410	U		400	U		400	U		410	U	
2-CHLOROPHENOL	410	U		400	U		400	U		410	U	
2-METHYLPHENOL	410	U		400	U		400	U		410	U	
2-NITROANILINE	1000	U		990	U		990	U		1000	U	
2-NITROPHENOL	410	U		400	U		400	U		410	U	
3&4-METHYLPHENOL	410	U		400	U		400	U		410	U	
3,3'-DICHLOROBENZIDINE	410	U		400	U		400	U		410	U	
3-NITROANILINE	1000	U		990	U		990	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL	1000	U		990	U		990	U		1000	U	
4-BROMOPHENYL PHENYL ETHER	410	U		400	U		400	U		410	U	
4-CHLORO-3-METHYLPHENOL	410	U		400	U		400	U		410	U	
4-CHLOROANILINE	410	UJ	C	400	UJ	C	400	U		410	UJ	C
4-CHLOROPHENYL PHENYL ETHER	410	U		400	U		400	U		410	U	
4-NITROANILINE	1000	U		990	U		990	U		1000	U	
4-NITROPHENOL	1000	UJ	C	990	UJ	C	990	U		1000	UJ	C
BENZIDINE	1800	UJ	C	1800	UJ	C	1800	UJ	C	1900	UJ	C
BENZOIC ACID	1000	U		990	U		990	U		1000	U	
BENZYL ALCOHOL	820	U		800	U		800	U		820	U	
BIS(2-CHLOROETHOXY)METHANE	410	U		400	U		400	U		410	U	
BIS(2-CHLOROETHYL)ETHER	410	U		400	U		400	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS125-011008RA			DA-SS135-011108			DA-SS136-011008			DA-SS137-011108		
SDG: CTO402-2	LAB_ID	SB0199-7RA			SB0231-9			SB0199-17			SB0231-7		
FRACTION: OS	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		410	U		390	U		420	U	
1,2,4-TRICHLOROBENZENE		380	U		410	U		390	U		420	U	
1,2-DICHLOROBENZENE		380	U		410	U		390	U		420	U	
1,2-DIPHENYLHYDRAZINE		760	U		810	U		780	U		840	U	
1,3-DICHLOROBENZENE		380	U		410	U		390	U		420	U	
1,4-DICHLOROBENZENE		380	U		410	U		390	U		420	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		410	U		390	U		420	U	
2,4,5-TRICHLOROPHENOL		940	U		1000	U		960	U		1000	U	
2,4,6-TRICHLOROPHENOL		380	U		410	U		390	U		420	U	
2,4-DICHLOROPHENOL		380	U		410	U		390	U		420	U	
2,4-DIMETHYLPHENOL		380	U		410	U		390	U		420	U	
2,4-DINITROPHENOL		940	U		1000	U		960	U		1000	U	
2,4-DINITROTOLUENE		380	U		410	U		390	U		420	U	
2,6-DICHLOROPHENOL		380	U		410	U		390	U		420	U	
2,6-DINITROTOLUENE		940	U		1000	U		960	U		1000	U	
2-CHLORONAPHTHALENE		380	U		410	U		390	U		420	U	
2-CHLOROPHENOL		380	U		410	U		390	U		420	U	
2-METHYLPHENOL		380	U		410	U		390	U		420	U	
2-NITROANILINE		940	U		1000	U		960	U		1000	U	
2-NITROPHENOL		380	U		410	U		390	U		420	U	
3&4-METHYLPHENOL		380	U		410	U		390	U		420	U	
3,3'-DICHLOROBENZIDINE		380	U		410	U		390	U		420	U	
3-NITROANILINE		940	U		1000	U		960	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL		940	U		1000	U		960	U		1000	U	
4-BROMOPHENYL PHENYL ETHER		380	U		410	U		390	U		420	U	
4-CHLORO-3-METHYLPHENOL		380	U		410	U		390	U		420	U	
4-CHLOROANILINE		380	U		410	U		390	UJ	C	420	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		410	U		390	U		420	U	
4-NITROANILINE		940	U		1000	U		960	U		1000	U	
4-NITROPHENOL		940	U		1000	UJ	C	960	UJ	C	1000	U	
BENZIDINE		1700	UJ	C	1800	UJ	C	1800	UJ	C	1900	UJ	C
BENZOIC ACID		940	U		1000	U		520	J	P	1000	U	
BENZYL ALCOHOL		760	U		810	U		780	U		840	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		410	U		390	U		420	U	
BIS(2-CHLOROETHYL)ETHER		380	U		410	U		390	U		420	U	

PROJ_NO: 00816	NSAMPLE	DA-SS138-011108			DA-SS139-011108			DA-SS140-011108			DA-SS141-011108		
SDG: CTO402-2	LAB_ID	SB0231-13			SB0231-1			SB0231-5			SB0231-3		
FRACTION: OS	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			80.5			86.1			85.8		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	420	U		410	U		380	U		380	U	
1,2,4-TRICHLOROBENZENE	420	U		410	U		380	U		380	U	
1,2-DICHLOROBENZENE	420	U		410	U		380	U		380	U	
1,2-DIPHENYLHYDRAZINE	840	U		820	U		770	U		770	U	
1,3-DICHLOROBENZENE	420	U		410	U		380	U		380	U	
1,4-DICHLOROBENZENE	420	U		410	U		380	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	420	U		410	U		380	U		380	U	
2,4,5-TRICHLOROPHENOL	1000	U		1000	U		950	U		960	U	
2,4,6-TRICHLOROPHENOL	420	U		410	U		380	U		380	U	
2,4-DICHLOROPHENOL	420	U		410	U		380	U		380	U	
2,4-DIMETHYLPHENOL	420	U		410	U		380	U		380	U	
2,4-DINITROPHENOL	1000	U		1000	U		950	U		960	U	
2,4-DINITROTOLUENE	420	U		410	U		380	U		380	U	
2,6-DICHLOROPHENOL	420	U		410	U		380	U		380	U	
2,6-DINITROTOLUENE	1000	U		1000	U		950	U		960	U	
2-CHLORONAPHTHALENE	420	U		410	U		380	U		380	U	
2-CHLOROPHENOL	420	U		410	U		380	U		380	U	
2-METHYLPHENOL	420	U		410	U		380	U		380	U	
2-NITROANILINE	1000	U		1000	U		950	U		960	U	
2-NITROPHENOL	420	U		410	U		380	U		380	U	
3&4-METHYLPHENOL	420	U		410	U		380	U		380	U	
3,3'-DICHLOROBENZIDINE	420	U		410	U		380	U		380	U	
3-NITROANILINE	1000	U		1000	U		950	U		960	U	
4,6-DINITRO-2-METHYLPHENOL	1000	U		1000	U		950	U		960	U	
4-BROMOPHENYL PHENYL ETHER	420	U		410	U		380	U		380	U	
4-CHLORO-3-METHYLPHENOL	420	U		410	U		380	U		380	U	
4-CHLOROANILINE	420	U		410	U		380	U		380	U	
4-CHLOROPHENYL PHENYL ETHER	420	U		410	U		380	U		380	U	
4-NITROANILINE	1000	U		1000	U		950	U		960	U	
4-NITROPHENOL	1000	UJ	C	1000	U		950	U		960	U	
BENZIDINE	1900	R	D	1900	UJ	C	1700	UJ	C	1700	UJ	C
BENZOIC ACID	1000	U		1000	U		950	U		960	U	
BENZYL ALCOHOL	840	U		820	U		770	U		770	U	
BIS(2-CHLOROETHOXY)METHANE	420	U		410	U		380	U		380	U	
BIS(2-CHLOROETHYL)ETHER	420	U		410	U		380	U		380	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP01-011008			DA-SS-DUP02-011108		
SDG: CTO402-2	LAB_ID	SB0199-9			SB0231-11		
FRACTION: OS	SAMP_DATE	1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	85.9			80.4		
	DUP_OF	DA-SS125-011008			DA-SS135-011108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		410	U	
1,2,4-TRICHLOROBENZENE		380	U		410	U	
1,2-DICHLOROBENZENE		380	U		410	U	
1,2-DIPHENYLHYDRAZINE		770	U		820	U	
1,3-DICHLOROBENZENE		380	U		410	U	
1,4-DICHLOROBENZENE		380	U		410	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		410	U	
2,4,5-TRICHLOROPHENOL		950	U		1000	U	
2,4,6-TRICHLOROPHENOL		380	U		410	U	
2,4-DICHLOROPHENOL		380	U		410	U	
2,4-DIMETHYLPHENOL		380	U		410	U	
2,4-DINITROPHENOL		950	U		1000	U	
2,4-DINITROTOLUENE		380	U		410	U	
2,6-DICHLOROPHENOL		380	U		410	U	
2,6-DINITROTOLUENE		950	U		1000	U	
2-CHLORONAPHTHALENE		380	U		410	U	
2-CHLOROPHENOL		380	U		410	U	
2-METHYLPHENOL		380	U		410	U	
2-NITROANILINE		950	U		1000	U	
2-NITROPHENOL		380	U		410	U	
3&4-METHYLPHENOL		380	U		410	U	
3,3'-DICHLOROBENZIDINE		380	U		410	U	
3-NITROANILINE		950	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL		950	U		1000	U	
4-BROMOPHENYL PHENYL ETHER		380	U		410	U	
4-CHLORO-3-METHYLPHENOL		380	U		410	U	
4-CHLOROANILINE		380	UJ	C	410	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		410	U	
4-NITROANILINE		950	U		1000	U	
4-NITROPHENOL		950	UJ	C	1000	U	
BENZIDINE		1700	UJ	C	1900	UJ	C
BENZOIC ACID		950	U		1000	U	
BENZYL ALCOHOL		770	U		820	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		410	U	
BIS(2-CHLOROETHYL)ETHER		380	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
SDG: CTO402-2	LAB_ID	SB0199-19			SB0199-21			SB0199-15			SB0199-13		
FRACTION: OS	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		440	J	C	410	UJ	C	390	UJ	C	410	UJ	C
BUTYL BENZYL PHTHALATE		400	UJ	C	410	UJ	C	390	UJ	C	410	UJ	C
CARBAZOLE		400	U		410	U		390	U		410	U	
DIBENZOFURAN		400	U		410	U		390	U		410	U	
DIETHYL PHTHALATE		400	U		410	U		390	U		410	U	
DIMETHYL PHTHALATE		400	U		410	U		390	U		410	U	
DI-N-BUTYL PHTHALATE		400	U		410	U		390	U		410	U	
DI-N-OCTYL PHTHALATE		400	UJ	C	410	UJ	C	390	UJ	C	410	UJ	C
HEXACHLOROBENZENE		400	U		410	U		390	U		410	U	
HEXACHLOROBUTADIENE		400	U		410	U		390	U		410	U	
HEXACHLOROETHANE		400	U		410	U		390	U		410	U	
ISOPHORONE		400	U		410	U		390	U		410	U	
NITROBENZENE		400	U		410	U		390	U		410	U	
N-NITROSODIMETHYLAMINE		400	U		410	U		390	U		410	U	
N-NITROSO-DI-N-PROPYLAMINE		400	U		410	U		390	U		410	U	
N-NITROSODIPHENYLAMINE		400	U		410	U		390	U		410	U	
N-NITROSOPYRROLIDINE		400	U		410	U		390	U		410	U	
PENTACHLOROPHENOL		1000	U		1000	U		980	U		1000	U	
PHENOL		400	U		410	U		390	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008		
SDG: CTO402-2	LAB_ID	SB0199-1			SB0199-3			SB0199-11			SB0199-5		
FRACTION: OS	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		410	UJ	C	400	UJ	C	400	UJ	C	410	UJ	C
BUTYL BENZYL PHTHALATE		410	UJ	C	400	UJ	C	400	UJ	C	410	UJ	C
CARBAZOLE		410	U		400	U		400	U		410	U	
DIBENZOFURAN		410	U		400	U		400	U		410	U	
DIETHYL PHTHALATE		410	U		400	U		400	U		410	U	
DIMETHYL PHTHALATE		410	U		400	U		400	U		410	U	
DI-N-BUTYL PHTHALATE		410	U		400	U		400	U		410	U	
DI-N-OCTYL PHTHALATE		410	UJ	C	400	UJ	C	400	UJ	C	410	UJ	C
HEXACHLOROBENZENE		410	U		400	U		400	U		410	U	
HEXACHLOROBUTADIENE		410	U		400	U		400	U		410	U	
HEXACHLOROETHANE		410	U		400	U		400	U		410	U	
ISOPHORONE		410	U		400	U		400	U		410	U	
NITROBENZENE		410	U		400	U		400	U		410	U	
N-NITROSODIMETHYLAMINE		410	U		400	U		400	U		410	U	
N-NITROSO-DI-N-PROPYLAMINE		410	U		400	U		400	U		410	U	
N-NITROSODIPHENYLAMINE		410	U		400	U		400	U		410	U	
N-NITROSOPYRROLIDINE		410	U		400	U		400	U		410	U	
PENTACHLOROPHENOL		1000	U		990	U		990	U		1000	U	
PHENOL		410	U		400	U		400	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS125-011008RA			DA-SS135-011108			DA-SS136-011008			DA-SS137-011108		
SDG: CTO402-2	LAB_ID	SB0199-7RA			SB0231-9			SB0199-17			SB0231-7		
FRACTION: OS	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		380	UJ	C	410	UJ	C	390	UJ	C	420	UJ	C
BUTYL BENZYL PHTHALATE		380	UJ	C	410	UJ	C	390	UJ	C	420	UJ	C
CARBAZOLE		440			410	U		390	U		420	U	
DIBENZOFURAN		210	J	P	410	U		390	U		420	U	
DIETHYL PHTHALATE		380	U		410	U		390	U		420	U	
DIMETHYL PHTHALATE		380	U		410	U		390	U		420	U	
DI-N-BUTYL PHTHALATE		380	U		410	U		390	U		420	U	
DI-N-OCTYL PHTHALATE		380	UJ	C	410	UJ	C	390	UJ	C	420	UJ	C
HEXACHLOROBENZENE		380	U		410	U		390	U		420	U	
HEXACHLOROBUTADIENE		380	U		410	U		390	U		420	U	
HEXACHLOROETHANE		380	U		410	U		390	U		420	U	
ISOPHORONE		380	U		410	U		390	U		420	U	
NITROBENZENE		380	U		410	U		390	U		420	U	
N-NITROSODIMETHYLAMINE		380	U		410	U		390	U		420	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		410	U		390	U		420	U	
N-NITROSODIPHENYLAMINE		380	U		410	U		390	U		420	U	
N-NITROSOPYRROLIDINE		380	U		410	U		390	U		420	U	
PENTACHLOROPHENOL		940	U		1000	U		960	U		1000	U	
PHENOL		380	U		410	U		390	U		420	U	

PROJ_NO: 00816	NSAMPLE	DA-SS138-011108			DA-SS139-011108			DA-SS140-011108			DA-SS141-011108		
SDG: CTO402-2	LAB_ID	SB0231-13			SB0231-1			SB0231-5			SB0231-3		
FRACTION: OS	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			80.5			86.1			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		420	UJ	C	280	J	CEP	380	UJ	C	4300	J	CER
BUTYL BENZYL PHTHALATE		420	UJ	C	410	UJ	C	380	UJ	C	380	UJ	C
CARBAZOLE		420	U		410	U		380	U		380	U	
DIBENZOFURAN		420	U		410	U		380	U		380	U	
DIETHYL PHTHALATE		420	U		410	U		380	U		380	U	
DIMETHYL PHTHALATE		420	U		410	U		380	U		380	U	
DI-N-BUTYL PHTHALATE		420	U		410	U		380	U		380	U	
DI-N-OCTYL PHTHALATE		420	UJ	C	410	UJ	C	380	UJ	C	380	UJ	C
HEXACHLOROBENZENE		420	U		410	U		380	U		380	U	
HEXACHLOROBUTADIENE		420	U		410	U		380	U		380	U	
HEXACHLOROETHANE		420	U		410	U		380	U		380	U	
ISOPHORONE		420	U		410	U		380	U		380	U	
NITROBENZENE		420	U		410	U		380	U		380	U	
N-NITROSODIMETHYLAMINE		420	U		410	U		380	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		420	U		410	U		380	U		380	U	
N-NITROSODIPHENYLAMINE		420	U		410	U		380	U		380	U	
N-NITROSOPYRROLIDINE		420	U		410	U		380	U		380	U	
PENTACHLOROPHENOL		1000	U		1000	U		950	U		960	U	
PHENOL		420	U		410	U		380	U		380	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP01-011008			DA-SS-DUP02-011108		
SDG: CTO402-2	LAB_ID	SB0199-9			SB0231-11		
FRACTION: OS	SAMP_DATE	1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	85.9			80.4		
	DUP_OF	DA-SS125-011008			DA-SS135-011108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		380	UJ	C	410	UJ	C
BUTYL BENZYL PHTHALATE		380	UJ	C	410	UJ	C
CARBAZOLE		380	U		410	U	
DIBENZOFURAN		380	U		410	U	
DIETHYL PHTHALATE		380	U		410	U	
DIMETHYL PHTHALATE		380	U		410	U	
DI-N-BUTYL PHTHALATE		380	U		410	U	
DI-N-OCTYL PHTHALATE		380	UJ	C	410	UJ	C
HEXACHLOROBENZENE		380	U		410	U	
HEXACHLOROBUTADIENE		380	U		410	U	
HEXACHLOROETHANE		380	U		410	U	
ISOPHORONE		380	U		410	U	
NITROBENZENE		380	U		410	U	
N-NITROSODIMETHYLAMINE		380	U		410	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		410	U	
N-NITROSODIPHENYLAMINE		380	U		410	U	
N-NITROSOPYRROLIDINE		380	U		410	U	
PENTACHLOROPHENOL		950	U		1000	U	
PHENOL		380	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008			DA-SS115B-011008			DA-SS116B-011008RA			DA-SS117B-011008RA		
SDG: CTO402-2	LAB_ID	SB0199-20			SB0199-22			SB0199-16RA			SB0199-14RA		
FRACTION: PAH	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		26	J	E	25	UJ	E	24	UJ	E	25	UJ	E
ACENAPHTHENE		160			6.2	J	P	4.4	J	P	6.9	J	P
ACENAPHTHYLENE		24	U		4.3	J	P	3.3	J	P	4	J	P
ANTHRACENE		220			9.3	J	P	5.9	J	P	9	J	P
BENZO(A)ANTHRACENE		400			46			24			47		
BENZO(A)PYRENE		320			44			24			47		
BENZO(B)FLUORANTHENE		320			38			19	J	P	35		
BENZO(G,H,I)PERYLENE		140			24	J	P	16	J	P	23	J	P
BENZO(K)FLUORANTHENE		290	J	E	31	J	E	18	J	EP	29	J	E
CHRYSENE		520			46			24			43		
DIBENZO(A,H)ANTHRACENE		73			13	J	P	24	U		13	J	P
FLUORANTHENE		1100			81			42			84		
FLUORENE		100			25	U		24	U		25	U	
INDENO(1,2,3-CD)PYRENE		180			32			18	J	P	31		
NAPHTHALENE		88			25	U		24	U		25	U	
PHENANTHRENE		840			32			16	J	P	34		
PYRENE		980			63			29			57		

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008		
SDG: CTO402-2	LAB_ID	SB0199-2			SB0199-4			SB0199-12			SB0199-6		
FRACTION: PAH	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		25	U		7.9	J	P	11	J	P	25	U	
ACENAPHTHENE		57			22	J	P	74			28		
ACENAPHTHYLENE		24	J	P	6.5	J	P	8.3	J	P	5	J	P
ANTHRACENE		170			53			220			55		
BENZO(A)ANTHRACENE		410			270			970			210		
BENZO(A)PYRENE		760			240			730			190		
BENZO(B)FLUORANTHENE		760			220			580			140		
BENZO(G,H,I)PERYLENE		180			110			190			85		
BENZO(K)FLUORANTHENE		570	J	E	220	J	C	510	J	E	150	J	C
CHRYSENE		1100			380			880			250		
DIBENZO(A,H)ANTHRACENE		100			63			99			50		
FLUORANTHENE		2000			590			1700			460		
FLUORENE		46			15	J	P	66			22	J	P
INDENO(1,2,3-CD)PYRENE		220			140			220			110		
NAPHTHALENE		7.9	J	P	9.3	J	P	29			3.4	J	P
PHENANTHRENE		830			260			980			230		
PYRENE		2400			600			2000			420		

PROJ_NO: 00816	NSAMPLE	DA-SS125-011008			DA-SS135-011108			DA-SS136-011008			DA-SS137-011108		
SDG: CTO402-2	LAB_ID	SB0199-8			SB0231-10			SB0199-18			SB0231-8		
FRACTION: PAH	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		86			6.6	J	P	24	U		7	J	P
ACENAPHTHENE		510	J	G	25	U		9.9	J	P	11	J	P
ACENAPHTHYLENE		23	U		25	U		4.3	J	P	6	J	P
ANTHRACENE		730	J	G	7.1	J	CP	13	J	P	30	J	C
BENZO(A)ANTHRACENE		1700	J	G	43			110			160		
BENZO(A)PYRENE		1400	J	G	46	J	N	100			160		
BENZO(B)FLUORANTHENE		1000	J	G	33	J	N	71			120		
BENZO(G,H,I)PERYLENE		620	J	G	33	J	CEN	48			91	J	CE
BENZO(K)FLUORANTHENE		910	J	EG	35	J	N	68	J	C	110		
CHRYSENE		1400	J	G	52	J	C	110			180	J	C
DIBENZO(A,H)ANTHRACENE		190	J	G	25	U		25			42		
FLUORANTHENE		3200	J	G	110			190			370		
FLUORENE		320	J	G	25	UJ	C	6.8	J	P	13	J	CP
INDENO(1,2,3-CD)PYRENE		360			36	J	N	65			110		
NAPHTHALENE		230	J	G	6.8	J	P	24	U		7.2	J	P
PHENANTHRENE		2700	J	G	48			78			170		
PYRENE		3400	J	G	53			180	J	C	280		

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SS138-011108			DA-SS139-011108			DA-SS140-011108			DA-SS141-011108		
	LAB_ID	SB0231-14			SB0231-2			SB0231-6			SB0231-4		
	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/11/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			80.5			86.1			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		25	U		25	U		23	U		6.1	J	P
ACENAPHTHENE		25	U		21	J	P	23	U		3.6	J	P
ACENAPHTHYLENE		25	U		7.1	J	P	23	U		23	U	
ANTHRACENE		25	UJ	C	30			23	UJ	C	10	J	CP
BENZO(A)ANTHRACENE		15	J	P	190			16	J	P	63		
BENZO(A)PYRENE		18	J	P	180	J	N	13	J	P	60		
BENZO(B)FLUORANTHENE		14	J	P	130	J	N	9.4	J	P	47		
BENZO(G,H,I)PERYLENE		14	J	CEP	98	J	EN	8	J	CEP	40	J	CE
BENZO(K)FLUORANTHENE		16	J	P	140	J	N	18	J	P	46		
CHRYSENE		20	J	CP	250			17	J	CP	71	J	C
DIBENZO(A,H)ANTHRACENE		25	U		55	J	N	23	U		17	J	P
FLUORANTHENE		36			430			34			130		
FLUORENE		25	UJ	C	14	J	P	23	UJ	C	4	J	CP
INDENO(1,2,3-CD)PYRENE		15	J	P	110	J	N	7.7	J	P	45		
NAPHTHALENE		6.9	J	P	25	U		6.3	J	P	6.4	J	P
PHENANTHRENE		12	J	P	200			9.8	J	P	59		
PYRENE		19	J	P	400			18	J	P	77		

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP01-011008			DA-SS-DUP02-011108		
SDG: CTO402-2	LAB_ID	SB0199-10			SB0231-12		
FRACTION: PAH	SAMP_DATE	1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	85.9			80.4		
	DUP_OF	DA-SS125-011008			DA-SS135-011108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		16	J	P	6.6	J	P
ACENAPHTHENE		130	J	G	25	U	
ACENAPHTHYLENE		23	U		25	U	
ANTHRACENE		270	J	G	5.8	J	CP
BENZO(A)ANTHRACENE		930	J	G	33		
BENZO(A)PYRENE		730	J	G	37		
BENZO(B)FLUORANTHENE		530	J	G	28		
BENZO(G,H,I)PERYLENE		230	J	G	29	J	CE
BENZO(K)FLUORANTHENE		520	J	EG	29		
CHRYSENE		820	J	G	41	J	C
DIBENZO(A,H)ANTHRACENE		110	J	G	25	U	
FLUORANTHENE		1600	J	G	81		
FLUORENE		91	J	G	25	UJ	C
INDENO(1,2,3-CD)PYRENE		240			31		
NAPHTHALENE		38	J	G	6.8	J	P
PHENANTHRENE		1000	J	G	36		
PYRENE		1800	J	G	43		

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
SDG: CTO402-2	LAB_ID	SB0199-19			SB0199-21			SB0199-15			SB0199-13		
FRACTION: PEST/PCB	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	4	U		4.1	UJ	E	3.9	U		4.1	U	
4,4'-DDE	4	UJ	C	4.1	UJ	E	3.9	UJ	C	4.1	UJ	C
4,4'-DDT	4	UJ	C	2	J	CEP	3.9	UJ	C	4.1	UJ	C
ALDRIN	2.1	UJ	C	2.1	UJ	E	2	UJ	C	2.1	UJ	C
ALPHA-BHC	2.1	UJ	C	2.1	U		2	UJ	C	2.1	UJ	C
ALPHA-CHLORDANE	2.1	UJ	C	2.1	UJ	E	2	UJ	C	2.1	UJ	C
AROCLOR-1016	21	U		21	UJ	C	20	U		21	U	
AROCLOR-1221	21	U		21	U		20	U		21	U	
AROCLOR-1232	21	U		21	U		20	U		21	U	
AROCLOR-1242	21	U		21	U		20	U		21	U	
AROCLOR-1248	21	U		21	U		20	U		21	U	
AROCLOR-1254	21	U		21	U		20	U		21	U	
AROCLOR-1260	21	U		21	UJ	C	20	U		21	U	
AROCLOR-1268	21	U		21	U		20	U		21	U	
BETA-BHC	2.1	UJ	C	2.1	U		2	UJ	C	2.1	UJ	C
DELTA-BHC	2.1	UJ	C	2.1	UJ	E	2	UJ	C	2.1	UJ	C
DIELDRIN	4	UJ	C	4.1	UJ	E	3.9	UJ	C	4.1	UJ	C
ENDOSULFAN I	2.1	UJ	C	2.1	U		2	UJ	C	2.1	UJ	C
ENDOSULFAN II	4	UJ	C	4.1	U		3.9	UJ	C	4.1	UJ	C
ENDOSULFAN SULFATE	4	UJ	C	4.1	UJ	CE	3.9	UJ	C	4.1	UJ	C
ENDRIN	4	UJ	C	4.1	UJ	E	3.9	UJ	C	4.1	UJ	C
ENDRIN ALDEHYDE	4	UJ	C	4.1	U		3.9	UJ	C	4.1	UJ	C
ENDRIN KETONE	4	UJ	C	4.1	U		3.9	UJ	C	4.1	UJ	C
GAMMA-BHC (LINDANE)	2.1	UJ	C	2.1	UJ	E	2	UJ	C	2.1	UJ	C
GAMMA-CHLORDANE	2.1	UJ	C	2.1	UJ	E	2	UJ	C	2.1	UJ	C
HEPTACHLOR	2.1	UJ	C	1.7	J	EP	2	UJ	C	2.1	UJ	C
HEPTACHLOR EPOXIDE	2.1	UJ	C	2.1	UJ	E	2	UJ	C	2.1	UJ	C
METHOXYCHLOR	21	UJ	C	21	U		20	UJ	C	21	UJ	C
TOXAPHENE	40	UJ	C	41	U		39	UJ	C	41	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008		
SDG: CTO402-2	LAB_ID	SB0199-1			SB0199-3			SB0199-11			SB0199-5		
FRACTION: PEST/PCB	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	4.1	U		4	U		4	U		4.1	U	
4,4'-DDE	1.8	J	CP	4	UJ	C	4	UJ	C	4.1	UJ	C
4,4'-DDT	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
ALDRIN	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
ALPHA-BHC	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
ALPHA-CHLORDANE	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
AROCLOR-1016	21	UJ	E	20	UJ	E	20	UJ	E	21	UJ	E
AROCLOR-1221	21	U		20	U		20	U		21	U	
AROCLOR-1232	21	U		20	U		20	U		21	U	
AROCLOR-1242	21	U		20	U		20	U		21	U	
AROCLOR-1248	21	U		20	U		20	U		21	U	
AROCLOR-1254	21	U		20	U		20	U		21	U	
AROCLOR-1260	170	J	E	51	J	E	110	J	E	70	J	E
AROCLOR-1268	21	U		20	U		20	U		21	U	
BETA-BHC	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
DELTA-BHC	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
DIELDRIN	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
ENDOSULFAN I	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
ENDOSULFAN II	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
ENDOSULFAN SULFATE	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
ENDRIN	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
ENDRIN ALDEHYDE	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
ENDRIN KETONE	4.1	UJ	C	4	UJ	C	4	UJ	C	4.1	UJ	C
GAMMA-BHC (LINDANE)	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
GAMMA-CHLORDANE	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
HEPTACHLOR	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
HEPTACHLOR EPOXIDE	2.1	UJ	C	2	UJ	C	2	UJ	C	2.1	UJ	C
METHOXYCHLOR	21	UJ	C	20	UJ	C	20	UJ	C	21	UJ	C
TOXAPHENE	41	UJ	C	40	UJ	C	40	UJ	C	41	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SS125-011008			DA-SS135-011108			DA-SS136-011008			DA-SS137-011108		
SDG: CTO402-2	LAB_ID	SB0199-7			SB0231-9			SB0199-17			SB0231-7		
FRACTION: PEST/PCB	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	3.8	U		4.1	UJ	E	3.9	UJ	R	4.2	UJ	E
4,4'-DDE	3.8	UJ	C	1.2	J	EPR	3.9	UJ	CR	6.7	J	E
4,4'-DDT	3.8	UJ	C	3.9	J	CEPRU	3.9	UJ	CR	9	J	CE
ALDRIN	2	UJ	C	2.1	UJ	E	2	UJ	CR	2.2	UJ	E
ALPHA-BHC	2	UJ	C	2.1	U		2	UJ	CR	2.2	U	
ALPHA-CHLORDANE	2	UJ	C	2.1	UJ	E	2	UJ	CR	2.2	UJ	E
AROCLOR-1016	20	UJ	E	21	UJ	C	20	U		22	UJ	C
AROCLOR-1221	20	U		21	U		20	U		22	U	
AROCLOR-1232	20	U		21	U		20	U		22	U	
AROCLOR-1242	20	U		21	U		20	U		22	U	
AROCLOR-1248	20	U		21	U		20	U		22	U	
AROCLOR-1254	20	U		21	U		20	U		22	U	
AROCLOR-1260	52	J	E	54	J	C	20	U		65	J	C
AROCLOR-1268	20	U		21	U		20	U		22	U	
BETA-BHC	2	UJ	C	2.1	U		2	UJ	CR	2.2	U	
DELTA-BHC	2	UJ	C	2.1	UJ	E	2	UJ	CR	2.2	UJ	E
DIELDRIN	3.8	UJ	C	4.1	UJ	E	3.9	UJ	CR	4.2	UJ	E
ENDOSULFAN I	2	UJ	C	2.1	U		2	UJ	CR	2.2	U	
ENDOSULFAN II	3.8	UJ	C	4.1	U		3.9	UJ	CR	4.2	U	
ENDOSULFAN SULFATE	3.8	UJ	C	4.1	UJ	CE	3.9	UJ	CR	4.2	UJ	CE
ENDRIN	3.8	UJ	C	4.1	UJ	E	3.9	UJ	CR	4.2	UJ	E
ENDRIN ALDEHYDE	3.8	UJ	C	4.1	U		3.9	UJ	CR	4.2	U	
ENDRIN KETONE	3.8	UJ	C	4.1	U		3.9	UJ	CR	4.2	U	
GAMMA-BHC (LINDANE)	2	UJ	C	2.1	UJ	E	2	UJ	CR	2.2	UJ	E
GAMMA-CHLORDANE	2	UJ	C	2.1	UJ	E	2	UJ	CR	2.2	UJ	E
HEPTACHLOR	2	UJ	C	2.1	UJ	E	2	UJ	CR	1.4	J	EP
HEPTACHLOR EPOXIDE	2	UJ	C	2.1	UJ	E	2	UJ	CR	2.2	UJ	E
METHOXYCHLOR	20	UJ	C	21	U		20	UJ	CR	22	U	
TOXAPHENE	38	UJ	C	41	U		39	UJ	CR	42	U	

PROJ_NO: 00816	NSAMPLE	DA-SS138-011108			DA-SS139-011108RE			DA-SS140-011108			DA-SS141-011108		
SDG: CTO402-2	LAB_ID	SB0231-13			SB0231-1RE			SB0231-5			SB0231-3		
FRACTION: PEST/PCB	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			80.5			86.1			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4.2	UJ	E	4.1	UJ	EH	3.8	UJ	E	3.8	UJ	E
4,4'-DDE		4.2	UJ	E	2.4	J	EHP	1.4	J	EP	1.5	J	EP
4,4'-DDT		4.2	UJ	CE	4.1	UJ	EH	1.2	J	CEP	1.8	J	CEP
ALDRIN		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
ALPHA-BHC		2.2	U		2.1	UJ	H	2	U		2	U	
ALPHA-CHLORDANE		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
AROCLOR-1016		22	UJ	C	21	UJ	EH	20	UJ	C	20	UJ	C
AROCLOR-1221		22	U		21	UJ	H	20	U		20	U	
AROCLOR-1232		22	U		21	UJ	H	20	U		20	U	
AROCLOR-1242		22	U		21	UJ	H	20	U		20	U	
AROCLOR-1248		22	U		21	UJ	H	20	U		20	U	
AROCLOR-1254		22	U		21	UJ	H	20	U		20	U	
AROCLOR-1260		22	UJ	C	74	J	EH	20	UJ	C	20	UJ	C
AROCLOR-1268		22	U		21	UJ	H	20	U		20	U	
BETA-BHC		2.2	U		2.1	UJ	H	2	U		2	U	
DELTA-BHC		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
DIELDRIN		4.2	UJ	E	4.1	UJ	EH	1.3	J	EP	3.8	UJ	E
ENDOSULFAN I		2.2	U		2.1	UJ	H	2	U		2	U	
ENDOSULFAN II		4.2	U		4.1	UJ	H	3.8	U		3.8	U	
ENDOSULFAN SULFATE		4.2	UJ	CE	4.1	UJ	EH	3.8	UJ	CE	3.8	UJ	CE
ENDRIN		4.2	UJ	E	4.1	UJ	EH	3.8	UJ	E	3.8	UJ	E
ENDRIN ALDEHYDE		4.2	U		4.1	UJ	H	3.8	U		3.8	U	
ENDRIN KETONE		4.2	U		4.1	UJ	H	3.8	U		3.8	U	
GAMMA-BHC (LINDANE)		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
GAMMA-CHLORDANE		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
HEPTACHLOR		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
HEPTACHLOR EPOXIDE		2.2	UJ	E	2.1	UJ	EH	2	UJ	E	2	UJ	E
METHOXYCHLOR		22	U		21	UJ	H	20	U		20	U	
TOXAPHENE		42	U		41	UJ	H	38	U		38	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP01-011008			DA-SS-DUP02-011108		
SDG: CTO402-2	LAB_ID	SB0199-9			SB0231-11		
FRACTION: PEST/PCB	SAMP_DATE	1/10/2008			1/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	85.9			80.4		
	DUP_OF	DA-SS125-011008			DA-SS135-011108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	U		4.1	UJ	E
4,4'-DDE		3.8	UJ	C	4.1	UJ	E
4,4'-DDT		3.8	UJ	C	4.1	UJ	CE
ALDRIN		2	UJ	C	2.1	UJ	E
ALPHA-BHC		2	UJ	C	2.1	U	
ALPHA-CHLORDANE		2	UJ	C	2.1	UJ	E
AROCLOR-1016		20	UJ	E	21	UJ	C
AROCLOR-1221		20	U		21	U	
AROCLOR-1232		20	U		21	U	
AROCLOR-1242		20	U		21	U	
AROCLOR-1248		20	U		21	U	
AROCLOR-1254		20	U		21	U	
AROCLOR-1260		37	J	E	21	UJ	C
AROCLOR-1268		20	U		21	U	
BETA-BHC		2	UJ	C	2.1	U	
DELTA-BHC		2	UJ	C	2.1	UJ	E
DIELDRIN		3.8	UJ	C	4.1	UJ	E
ENDOSULFAN I		2	UJ	C	2.1	U	
ENDOSULFAN II		3.8	UJ	C	4.1	U	
ENDOSULFAN SULFATE		3.8	UJ	C	4.1	UJ	CE
ENDRIN		3.8	UJ	C	4.1	UJ	E
ENDRIN ALDEHYDE		3.8	UJ	C	4.1	U	
ENDRIN KETONE		3.8	UJ	C	4.1	U	
GAMMA-BHC (LINDANE)		2	UJ	C	2.1	UJ	E
GAMMA-CHLORDANE		2	UJ	C	2.1	UJ	E
HEPTACHLOR		2	UJ	C	2.1	UJ	E
HEPTACHLOR EPOXIDE		2	UJ	C	2.1	UJ	E
METHOXYCHLOR		20	UJ	C	21	U	
TOXAPHENE		38	UJ	C	41	U	

PROJ_NO: 00816	NSAMPLE	DA-SS114B-011008			DA-SS115B-011008			DA-SS116B-011008			DA-SS117B-011008		
SDG: CTO402-2	LAB_ID	SB0199-19			SB0199-21			SB0199-15			SB0199-13		
FRACTION: PET	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.4			81.0			83.8			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.3	U	A	3.2	UJ	AR	3.1	U	A	4.4	U	A
TPH (C09-C36)		71			48			15			59		

PROJ_NO: 00816	NSAMPLE	DA-SS121-011008			DA-SS122-011008			DA-SS123-011008			DA-SS124-011008		
SDG: CTO402-2	LAB_ID	SB0199-1			SB0199-3			SB0199-11			SB0199-5		
FRACTION: PET	SAMP_DATE	1/10/2008			1/10/2008			1/10/2008			1/10/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.8			82.6			82.8			80.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		4.6	U	A	60			3.3	U	A	3.5	U	A
TPH (C09-C36)		150			110			66			60		

PROJ_NO: 00816 SDG: CTO402-2 FRACTION: PET MEDIA: WATER	NSAMPLE	DA-SS125-011008			DA-SS135-011108			DA-SS136-011008			DA-SS137-011108		
	LAB_ID	SB0199-7			SB0231-9			SB0199-17			SB0231-7		
	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.9			81.1			85.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.7	U	A	5.7	U	A	3.4	U	A			
TPH (C09-C36)		83			90			36			110		

PROJ_NO: 00816	NSAMPLE	DA-SS138-011108			DA-SS139-011108			DA-SS140-011108			DA-SS141-011108		
SDG: CTO402-2	LAB_ID	SB0231-13			SB0231-1			SB0231-5			SB0231-3		
FRACTION: PET	SAMP_DATE	1/11/2008			1/11/2008			1/11/2008			1/11/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.0			80.5			86.1			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.3	UJ	AD	3.6	U	A	2.8	U	A	2.6	U	A
TPH (C09-C36)		68	J	D	76			19			22		

PROJ_NO: 00816	NSAMPLE	DA-SS-DUP01-011008			DA-SS-DUP02-011108			DA-SSTB01-011008			DA-SSTB02-011108		
SDG: CTO402-2	LAB_ID	SB0199-9			SB0231-11			SB0199-23			SB0231-15		
FRACTION: PET	SAMP_DATE	1/10/2008			1/11/2008			1/10/2008			1/11/2008		
MEDIA: WATER	QC_TYPE	NM			NM			TB			TB		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.9			80.4			.0			.0		
	DUP_OF	DA-SS125-011008			DA-SS135-011008								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.8	U	A	5.1	U	A	2.5	U	A	2.5	U	A
TPH (C09-C36)		130			100								

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2688W

Date: April 9, 2008

c: File G00816-4.10 (w/enc.-original)

To: Jim Forrelli (w/enc.)

From: NF for Paula DiMattei (no copy)

Subject: Tier I/II Inorganic Data Validation, SDG CTO402-3
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum/pH/TOC/Grain Size:

8/Soils/	DA-SS103B-011508	DA-SS104-011508	DA-SS108-011508
	DA-SS110B-011508	DA-SS127-011508	DA-SS130-011508
	DA-SS133-011508	DA-SS134-011508	

TAL Metals and Molybdenum:

10/Soils/	DA-SS102B-011508	DA-SS105-011508	DA-SS106-011408
	DA-SS107-011508	DA-SS109-011408	DA-SS110-011508
	DA-SS111B-011408	DA-SS126-011408	DA-SS129-011408
	DA-SS132-011408		

TAL Metals and Molybdenum/pH/TOC:

1/Soil DA-SSDUP03-011508
(Field Duplicate Pair: DA-SS103B-011508/DA-SSDUP03-011508)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area on January 14-15, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The metals analysis was performed according to USEPA SW-846 Methods 6010B/6020/7471A. Additionally, a Tier I data validation was performed on the pH, total organic carbon (TOC), and grain size analytical data from these soil samples. The pH analysis was performed according to USEPA SW-846 Method 9045C, the TOC analysis according to the Lloyd Kahn method, and the grain size analysis according to ASTM D422. The Tier I and Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Also enclosed are the particle size distribution graphs from the grain size analysis.

The data were evaluated based on the following parameters:

- Data Completeness
* • Holding Times
* • ICP-MS Tuning
* • Calibration Verification
- Laboratory Blank Analyses

	•	ICP Interference Check Sample Results
*	•	Matrix Spike/Matrix Spike Duplicate
NA	•	Laboratory Duplicate Results
*	•	Laboratory Control Sample Results
*	•	Field Duplicate Precision
NA	•	ICP Serial Dilution Results
*	•	Internal Standard Performance
*	•	Reporting Limits
NA	•	Sample Quantitation

* - All quality control criteria were met for this parameter.
NA - Not applicable for this SDG or for a Tier II data validation.

Data Completeness

The laboratory was contacted on February 29, 2008 regarding clarification of the performance of the ICP-MS tune and regarding clarification of the internal standards assigned to the target analytes. The responses were received on February 29, 2008 and March 4, 2008. The laboratory was contacted on February 29, 2008 for the missing molybdenum data. This response was received on March 12, 2008.

For the Tier I data validation, all data completeness requirements were met.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc. (units)	Action Level (mg/kg)	Affected Samples
Copper	0.551 mg/Kg	2.8	DA-SS107-011508
Molybdenum	0.39 µg/L	0.20	DA-SS105-011508, DA-SS107-011508, DA-SS108-011508, DA-SS109-011408
Silver	0.055 mg/Kg	0.28	DA-SS102B-011508, DA-SS108-011508, DA-SS109-011408, DA-SS111B-011408, DA-SS127-011508, DA-SS130-011508
Sodium	5.49 mg/Kg	27.4	DA-SS103B-011508, DA-SS107-011508, DA-SS111B-011408, DA-SS126-011408, DA-SS129-011408, DA-SS130-011508, DA-SS132-011408, DA-SS134-011508, DA-SSDUP03-011508
Thallium	0.13 µg/L	0.065	DA-SS102B-011508, DA-SS103B-011508, DA-SS104-011508, DA-SS105-011508, DA-SS106-011408, DA-SS108-011508, DA-SS109-011408, DA-SS110-011508, DA-SS110B-011508, DA-SS127-011508, DA-SS132-011408, DA-SS133-011508, DA-SS134-011508, DA-SSDUP03-011508

The positive results below the blank action level for copper, molybdenum, silver, sodium, and thallium were changed to non-detected values (U) in the affected soil samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 1. The action level for each sample varies, based on the actual amount of soil sample analyzed, the dilution factor, and the percent solids for that sample.

Although copper, molybdenum, silver, sodium, and thallium contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample-specific elevated reporting limits, or because (in the case of sodium) there is no regulatory limit established for the metal in the soil samples. These results in the affected samples are usable with elevated detection limits.

ICP Interference Check Sample Results

The following results were qualified in the affected soil samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Cadmium	J		Low	DA-SS102B-011508, DA-SS103B-011508, DA-SS104-011508, DA-SS105-011508, DA-SS106-011408, DA-SS110-011508, DA-SS110B-011508, DA-SS111B-011408, DA-SS126-011408, DA-SS127-011508, DA-SS129-011408, DA-SS130-011508, DA-SS132-011408, DA-SS134-011508, DA-SSDUP03-011508
Molybdenum	J		Low	DA-SS102B-011508, DA-SS103B-011508, DA-SS104-011508, DA-SS105-011508, DA-SS106-011408, DA-SS108-011508, DA-SS110-011508, DA-SS110B-011508, DA-SS111B-011408, DA-SS126-011408, DA-SS127-011508, DA-SS129-011408, DA-SS130-011508, DA-SS132-011408, DA-SS133-011508, DA-SS134-011508, DA-SSDUP03-011508
Silver	J		High	DA-SS102B-011508, DA-SS103B-011508, DA-SS110-011508, DA-SS110B-011508, DA-SS126-011408, DA-SS129-011408, DA-SS130-011508, DA-SS132-011408, DA-SS133-011508, DA-SS134-011508, DA-SSDUP03-011508
	UJ		High	DA-SS104-011508, DA-SS106-011408, DA-SS108-011508, DA-SS111B-011408, DA-SS127-011508,

(Continued next page)

(Continued)

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Sodium	J		High	DA-SS102B-011508, DA-SS103B-011508, DA-SS104-011508, DA-SS106-011408, DA-SS108-011508, DA-SS110-011508, DA-SS110B-011508, DA-SS111B-011408, DA-SS126-011408, DA-SS127-011508, DA-SS129-011408, DA-SS130-011508, DA-SS132-011408, DA-SS133-011508, DA-SS134-011508, DA-SSDUP03-011508

The positive results for silver and sodium in the affected samples were qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

Professional judgment was used to change the positive results for silver in samples DA-SS104-011508, DA-SS106-011408, DA-SS108-011508, DA-SS111B-011408, and DA-SS127-011508 to estimated, non-detected values (UJ), rather than reject these results, because the reported concentrations may be due entirely (≥ 80%) to positive iron ICP interference. These results may be false positive.

The positive results for cadmium and molybdenum in the affected samples were qualified as estimated (J) due to negative ICP interference attributed to iron. These results may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for silver and sodium in the affected samples are usable as estimated values that may be biased high. The positive results for cadmium and molybdenum in the affected samples are usable as estimated values that may be biased low.

Although there were ICP interferences attributed to the high concentration of iron that might account entirely for the reported silver concentrations in the samples identified above, the project sensitivity goals are not impacted since the silver project action limit was not exceeded by the sample-specific elevated reporting limits. The silver results in the affected samples are usable as estimated non-detects at the elevated reporting limits.

Reporting Limits

The laboratory reporting limits met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results above the instrument detection limit and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for this data set with the following exceptions. Select analytes were qualified as estimated due to ICP interferences attributed to the high concentration of iron in the samples. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to precision were met for this data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for this data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables
Particle Size Distribution Graphs

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508			DA-SS104-011508			DA-SS105-011508		
SDG: CTO402-3	LAB_ID	SB0270-017			SB0270-009			SB0270-015			SB0270-001		
FRACTION: M	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11100			12100			13100			6050		
ANTIMONY		0.18	U		0.15	U		0.13	U		0.07	U	
ARSENIC		13			16.3			14.5			1.6		
BARIUM		25.9			26.2			28.3			18.6		
BERYLLIUM		0.4	J	P	0.44	J	P	0.42	J	P	0.38		
CADMIUM		1.1	J	KP	1.6	J	KP	0.6	J	KP	0.09	J	KP
CALCIUM		1490			851			652			936		
CHROMIUM		16.2			19.3			14.6			5.4		
COBALT		9.3			26.2			11.1			2.4		
COPPER		19.4			27.6			18.7			6.7		
IRON		24400			29200			21800			8660		
LEAD		36			71.4			33.1			14.5		
MAGNESIUM		2520			3400			2620			1120		
MANGANESE		324			411			369			251		
MERCURY		0.05			0.04	J	P	0.05			0.05		
MOLYBDENUM		0.78	J	KP	0.89	J	KP	0.4	J	KP	0.2	UJ	AKP
NICKEL		18.1			22.8			17.4			4.2		
POTASSIUM		583			552			546			758		
SELENIUM		0.31	U		0.26	U		0.23	U		0.11	U	
SILVER		0.55	UJ	AKP	0.79	J	KP	0.44	UJ	KP	0.04	U	
SODIUM		63.3	J	KP	45.4	UJ	AKP	46.9	J	KP	32.8	J	P
THALLIUM		0.05	UJ	AP	0.04	UJ	AP	0.08	U	A	0.06	UJ	AP
VANADIUM		21			19.1			22.5			8.1		
ZINC		118			114			52.2			24.2		

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508			DA-SS108-011508			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-003			SB0270-021			SB0270-013			SB0244-001		
FRACTION: M	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		12100			1800			4940			5020		
ANTIMONY		0.09	U		0.08	U		0.19	J	P	0.08	U	
ARSENIC		13.8			0.29			6.2			2		
BARIUM		22.9			7.4			32.4			16.6		
BERYLLIUM		0.37	J	P	0.45	J	P	0.4			0.27	J	P
CADMIUM		0.38	J	KP	0.09	J	P	1.4			0.27	J	P
CALCIUM		547			1350			862			705		
CHROMIUM		14.3			1	J	P	6.5			5.4		
COBALT		8.2			0.82	J	P	3.6			3.4		
COPPER		19			2.3	U	A	38.2			8.6		
IRON		20700			5270			15400			7850		
LEAD		36.6			4.2			44.1			28.8		
MAGNESIUM		2570			407			980			1720		
MANGANESE		297			351			368			186		
MERCURY		0.11			0.01	U		0.03	J	P	0.02	J	P
MOLYBDENUM		0.38	J	KP	0.1	UJ	AP	0.72	UJ	AKP	0.18	UJ	AP
NICKEL		16.5			0.98	J	P	28.9			4.9		
POTASSIUM		491			771			703			886		
SELENIUM		0.15	U		0.14	U		0.12	U		0.14	U	
SILVER		0.32	UJ	KP	0.04	U		0.21	UJ	AKP	0.08	UJ	AP
SODIUM		33.3	J	KP	21.6	UJ	AP	30	J	KP	30.3	J	P
THALLIUM		0.06	UJ	AP	0.03	U		0.06	UJ	AP	0.04	UJ	AP
VANADIUM		22			1.5	J	P	9.5			9.9		
ZINC		44.6			13.8			86			31.2		

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508			DA-SS110B-011508			DA-SS111B-011408			DA-SS126-011408		
SDG: CTO402-3	LAB_ID	SB0270-007			SB0270-023			SB0244-007			SB0244-009		
FRACTION: M	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		8460			13100			13100			10600		
ANTIMONY		0.08	U		0.16	U		0.18	U		0.09	U	
ARSENIC		9.7			16.8			20.4			16.7		
BARIUM		23.1			41.6			17			19.1		
BERYLLIUM		0.31	J	P	0.4	J	P	0.4	J	P	0.32	J	P
CADMIUM		0.72	J	KP	0.74	J	KP	0.32	J	KP	0.73	J	KP
CALCIUM		903			1320			472			949		
CHROMIUM		11.4			19.5			15.7			13.1		
COBALT		7.5			10.8			13			11.5		
COPPER		17.6			24.9			23.7			19		
IRON		16300			27100			29000			23500		
LEAD		32			33.4			15.2			55		
MAGNESIUM		2220			3830			3320			2910		
MANGANESE		250			314			356			389		
MERCURY		0.06			0.2			0.02	J	P	0.04		
MOLYBDENUM		0.36	J	KP	0.43	J	KP	0.42	J	KP	1.2	J	K
NICKEL		13			25.8			24.5			18.7		
POTASSIUM		647			496			372			396		
SELENIUM		0.14	U		0.27	U		0.32	U		0.16	U	
SILVER		0.44	J	KP	1.8	J	KP	0.56	UJ	AKP	0.55	J	KP
SODIUM		36.4	J	KP	62.2	J	KP	31.7	UJ	AKP	28.6	UJ	AKP
THALLIUM		0.04	UJ	AP	0.03	UJ	AP	0.04	U		0.04	U	
VANADIUM		16.3			24.6			19			17.7		
ZINC		57			76.5			53.5			57.2		

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508			DA-SS129-011408			DA-SS130-011508			DA-SS132-011408		
SDG: CTO402-3	LAB_ID	SB0270-005			SB0244-011			SB0270-003			SB0244-005		
FRACTION: M	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7500			13600			12600			15000		
ANTIMONY		0.08	U		0.16	U		0.19	U		0.2	U	
ARSENIC		8.3			20.8			17.6			17.6		
BARIUM		22.3			24.1			22.6			30.9		
BERYLLIUM		0.42	J	P	0.38	J	P	0.36	J	P	0.43	J	P
CADMIUM		0.3	J	KP	1.1	J	KP	0.44	J	KP	0.81	J	KP
CALCIUM		1370			1400			1380			607		
CHROMIUM		8.3			28.1			15.9			17.9		
COBALT		6.2			13			11.7			11.6		
COPPER		11			25.2			21.4			33.6		
IRON		15500			31400			27200			29500		
LEAD		17.3			81.8			22.8			35.6		
MAGNESIUM		1860			3780			3550			3560		
MANGANESE		381			424			363			396		
MERCURY		0.03	J	P	0.05			0.04			0.12		
MOLYBDENUM		0.29	J	KP	0.68	J	KP	0.38	J	KP	0.49	J	KP
NICKEL		10.4			26.4			22.6			27		
POTASSIUM		784			626			522			416		
SELENIUM		0.13	U		0.27	U		0.33	U		0.34	U	
SILVER		0.2	UJ	AKP	0.66	J	KP	0.57	UJ	AKP	0.78	J	KP
SODIUM		35.8	J	KP	40.3	UJ	AKP	45.8	UJ	AKP	41.8	UJ	AKP
THALLIUM		0.07	UJ	AP	0.03	U		0.04	U		0.05	UJ	AP
VANADIUM		10.5			27.6			19.6			21.3		
ZINC		46.1			121			80.7			87		

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508			DA-SS134-011508			DA-SSDUP03-011508		
SDG: CTO402-3	LAB_ID	SB0270-011			SB0270-025			SB0270-019		
FRACTION: M	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.2			78.0			86.8		
	DUP_OF							DA-SS103B-011508		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11400			16900			12000		
ANTIMONY		0.16	U		0.21	U		0.14	U	
ARSENIC		18.2			15.1			16.5		
BARIUM		28.2			26.4			25.8		
BERYLLIUM		0.39	J	P	0.48	J	P	0.39	J	P
CADMIUM		3.2			0.46	J	KP	1.4	J	KP
CALCIUM		2990			442			817		
CHROMIUM		18.9			19.4			18.6		
COBALT		11.7			13.2			29.2		
COPPER		41.2			30.1			22		
IRON		28800			32100			25700		
LEAD		50.8			20.8			51.4		
MAGNESIUM		3190			4100			3330		
MANGANESE		337			326			407		
MERCURY		2			0.04			0.03	J	P
MOLYBDENUM		0.7	J	KP	0.41	J	KP	0.38	J	KP
NICKEL		24.7			27.3			21.6		
POTASSIUM		441			550			514		
SELENIUM		0.27	U		0.36	U		0.25	U	
SILVER		0.98	J	KP	0.74	J	KP	0.77	J	KP
SODIUM		49.4	J	KP	47	UJ	AKP	44.7	UJ	AKP
THALLIUM		0.05	UJ	AP	0.05	UJ	AP	0.05	UJ	AP
VANADIUM		19.3			25			20.3		
ZINC		97.2			62.7			96.6		

PROJ_NO: 00816	NSAMPLE	DA-SS103B-011508			DA-SS104-011508			DA-SS108-011508			DA-SS110B-011508		
SDG: CTO402-3	LAB_ID	738419			738422			738421			738423		
FRACTION: MISCO	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		1.2			1.2			1.7			1.6		
HYDROMETER-12.9UM		4.5			3.4			4.2			3.1		
HYDROMETER-20.5UM		4.5			6.7			5.3			4.2		
HYDROMETER-3.4UM		3.9			3.4			2.7			3.2		
HYDROMETER-30.5UM		14.8			16			11.9			10.5		
HYDROMETER-6.6UM		2.2			1.7			1.6			2.1		
HYDROMETER-9.1UM		2.8			2.9			2.7			2.6		
PERCENT CLAY		8.4			7.9			8			6.8		
PERCENT COARSE SAND		9.3			5.7			16.2			9		
PERCENT FINE SAND		23.3			20.7			18.6			18.5		
PERCENT GRAVEL		15.1			23.9			15.9			27.2		
PERCENT MEDIUM SAND		15.1			11			15.6			16		
PERCENT SILT		28.8			30.7			25.7			22.4		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			8.6			0			0		
SIEVE 3/8"		3.5			9.3			4.6			16.2		
SIEVE NO. 004		11.6			6.1			11.4			11		
SIEVE NO. 010		9.3			5.7			16.2			9		
SIEVE NO. 020		8			5.5			9.3			9.1		
SIEVE NO. 040		7.1			5.5			6.3			6.9		
SIEVE NO. 060		7.1			6.5			5.9			6.3		
SIEVE NO. 080		5			4.7			3.9			4.1		
SIEVE NO. 100		2.4			1.5			1.8			1.9		
SIEVE NO. 200		8.8			8.1			7			6.2		

PROJ_NO: 00816 SDG: CTO402-3 FRACTION: MISCO MEDIA: SOIL	NSAMPLE	DA-SS127-011508			DA-SS130-011508			DA-SS133-011508			DA-SS134-011508		
	LAB_ID	738418			738417			738420			738424		
	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		1			2.9			1.3			2.1		
HYDROMETER-12.9UM		3.5			3.4			3.5			8.1		
HYDROMETER-20.5UM		3.5			4.5			3.5			7.4		
HYDROMETER-3.4UM		2.5			4			2.9			5.4		
HYDROMETER-30.5UM		8			13.8			8.2			22.7		
HYDROMETER-6.6UM		1.5			1.7			1.7			2		
HYDROMETER-9.1UM		2			2.8			1.7			4.8		
PERCENT CLAY		6.4			9.6			6.4			10.8		
PERCENT COARSE SAND		12.8			8.9			9.9			7.6		
PERCENT FINE SAND		16.8			17.9			15.3			14.8		
PERCENT GRAVEL		31.3			23.1			34.7			10.6		
PERCENT MEDIUM SAND		14.3			14.2			15			11.1		
PERCENT SILT		18.4			26.2			18.7			45.1		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			0			6.4			0		
SIEVE 3/8"		11.8			14			16.1			5.8		
SIEVE NO. 004		19.4			9.1			12.2			4.9		
SIEVE NO. 010		12.8			8.9			9.9			7.6		
SIEVE NO. 020		8.1			8.1			8.7			6.3		
SIEVE NO. 040		6.2			6.2			6.3			4.8		
SIEVE NO. 060		5.5			5.6			5			3.9		
SIEVE NO. 080		3.6			3.7			3.2			2.8		
SIEVE NO. 100		1.6			1.8			1.5			1.4		
SIEVE NO. 200		6			6.8			5.7			6.8		

PROJ_NO: 00816	NSAMPLE	DA-SS103B-011508						DA-SS104-011508					
SDG: CTO402-3	LAB_ID	SB0270-9						SB0270-15					
FRACTION: MISC	SAMP_DATE	1/15/2008						1/15/2008					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	87.1			87.1			83.7			83.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.4						5.5		
TOTAL ORGANIC CARBON		17000						22000					

PROJ_NO: 00816	NSAMPLE	DA-SS108-011508						DA-SS110B-011508					
SDG: CTO402-3	LAB_ID	SB0270-13						SB0270-23					
FRACTION: MISC	SAMP_DATE	1/15/2008						1/15/2008					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	87.1			87.1			83.4			83.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.4						5.5		
TOTAL ORGANIC CARBON		4900						30000					

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508						DA-SS130-011508					
SDG: CTO402-3	LAB_ID	SB0270-5						SB0270-3					
FRACTION: MISC	SAMP_DATE	1/15/2008						1/15/2008					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	87.6			87.6			84.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.1						5.6		
TOTAL ORGANIC CARBON		8300						30000					

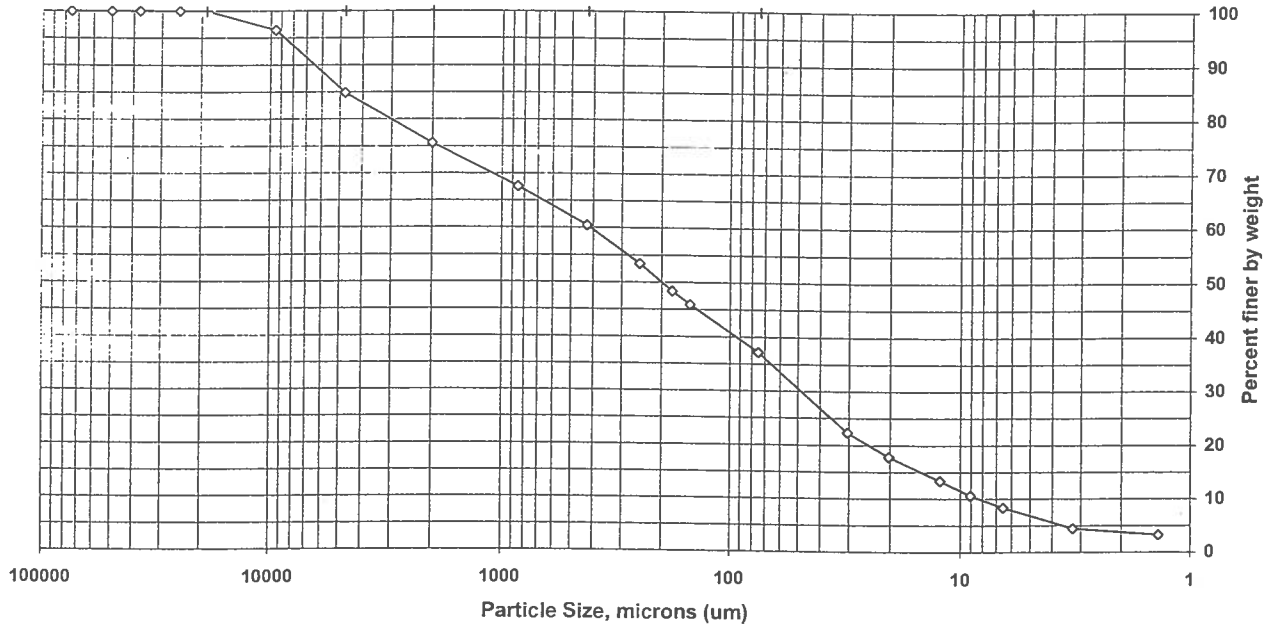
PROJ_NO: 00816	NSAMPLE	DA-SS133-011508						DA-SS134-011508					
SDG: CTO402-3	LAB_ID	SB0270-11						SB0270-25					
FRACTION: MISC	SAMP_DATE	1/15/2008						1/15/2008					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	81.2			81.2			78.0			78.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.3						5.1		
TOTAL ORGANIC CARBON		76000						40000					

PROJ_NO: 00816	NSAMPLE	DA-SSDUP03-011508					
SDG: CTO402-3	LAB_ID	SB0270-19					
FRACTION: MISC	SAMP_DATE	1/15/2008					
MEDIA: SOIL	QC_TYPE	NM					
	UNITS	MG/KG			S.U.		
	PCT_SOLIDS	86.8			86.8		
	DUP_OF	DA-SS103B-011508			DA-SS103B-011508		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.5		
TOTAL ORGANIC CARBON		21000					

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS103B-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738419			**End Date:**	1/29/2008

Percent Solids:	87.9%	**Non-soil material:**	plant, tar
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	96.5	3.5
#4	4750	84.9	11.6
#10	2000	75.5	9.3
#20	850	67.6	8.0
#40	425	60.5	7.1
#60	250	53.4	7.1
#80	180	48.4	5.0
#100	150	45.9	2.4
#200	75	37.1	8.8
Hydrometer	30.5	22.3	14.8
I	20.3	17.8	4.5
I	12.2	13.4	4.5
I	9.0	10.6	2.8
I	6.5	8.4	2.2
I	3.3	4.5	3.9
V	1.4	3.3	1.2

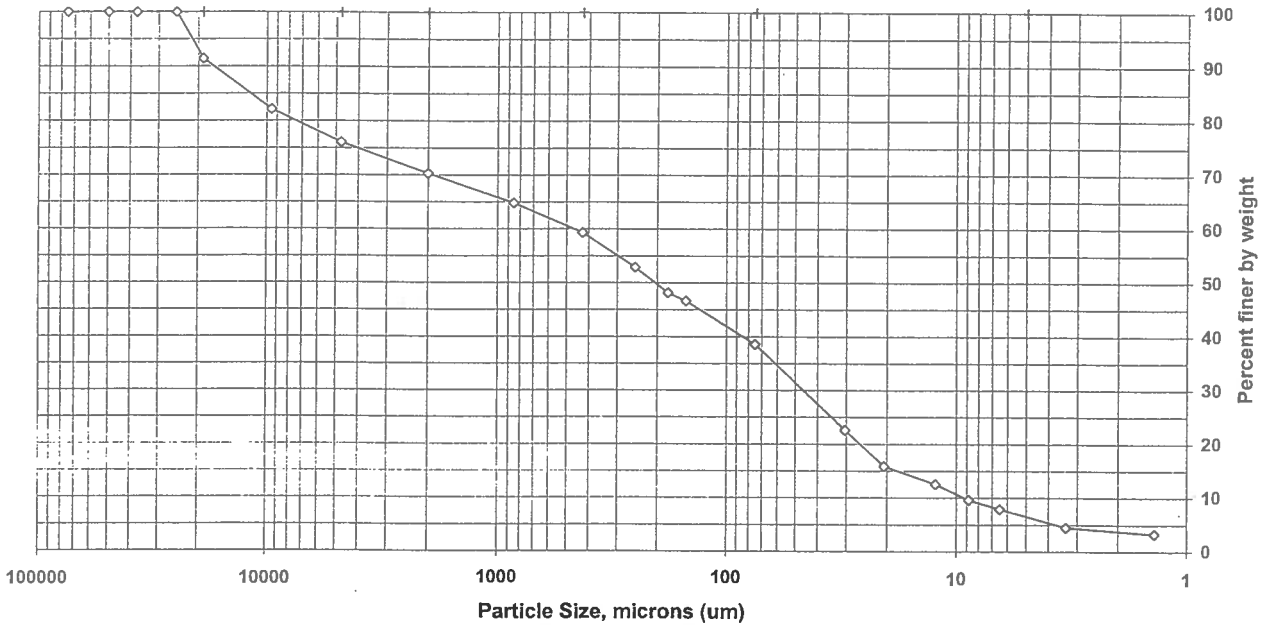
Soil Classification	Percent of Total Sample
Gravel	15.1
Sand	47.7
Coarse Sand	9.3
Medium Sand	15.1
Fine Sand	23.3
Silt	28.8
Clay	8.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS104-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738422			End Date:	1/29/2008

Percent Solids:	85.4%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	25 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	91.4	8.6
3/8 inch	9500	82.1	9.3
#4	4750	76.1	6.1
#10	2000	70.3	5.7
#20	850	64.8	5.5
#40	425	59.3	5.5
#60	250	52.9	6.5
#80	180	48.2	4.7
#100	150	46.7	1.5
#200	75	38.6	8.1
Hydrometer	30.5	22.6	16.0
|	20.6	15.9	6.7
|	12.3	12.5	3.4
|	8.8	9.6	2.9
|	6.5	7.9	1.7
|	3.4	4.5	3.4
V	1.4	3.3	1.2

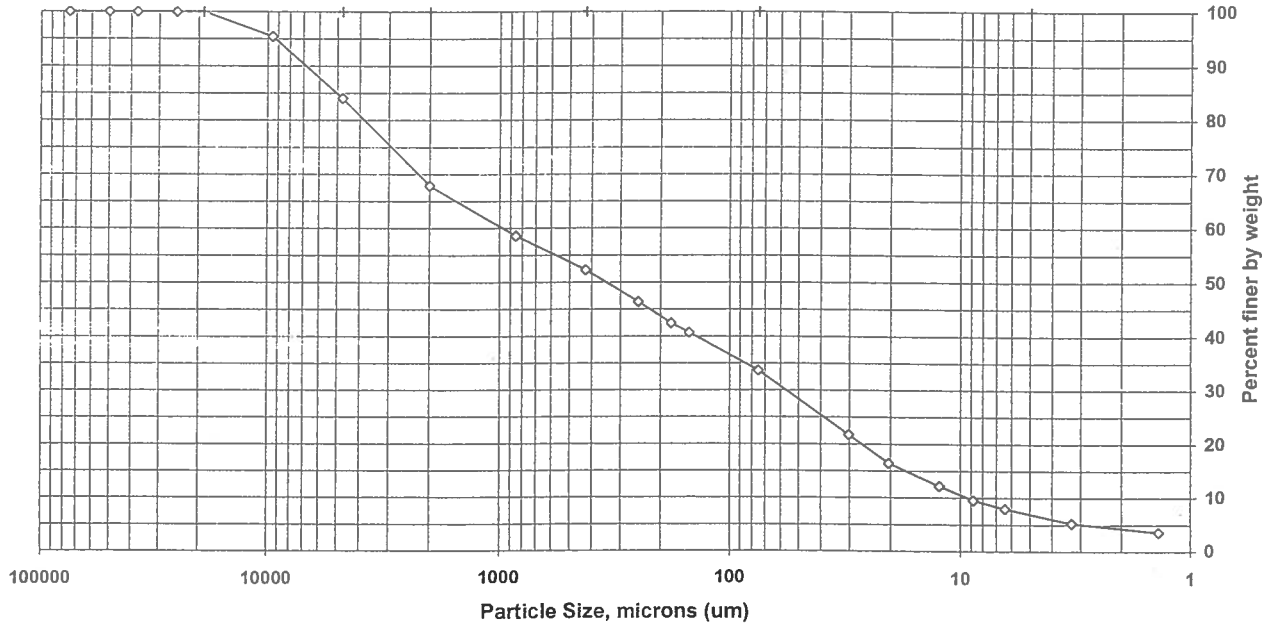
Soil Classification	Percent of Total Sample
Gravel	23.9
Sand	37.5
Coarse Sand	5.7
Medium Sand	11.0
Fine Sand	20.7
Silt	30.7
Clay	7.9

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS108-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738421			**End Date:**	1/29/2008

Percent Solids:	89.4%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	95.4	4.6
#4	4750	84.1	11.4
#10	2000	67.9	16.2
#20	850	58.6	9.3
#40	425	52.3	6.3
#60	250	46.4	5.9
#80	180	42.5	3.9
#100	150	40.7	1.8
#200	75	33.7	7.0
Hydrometer	30.2	21.7	11.9
I	20.4	16.4	5.3
I	12.3	12.2	4.2
I	8.8	9.5	2.7
I	6.4	8.0	1.6
I	3.3	5.3	2.7
V	1.4	3.6	1.7

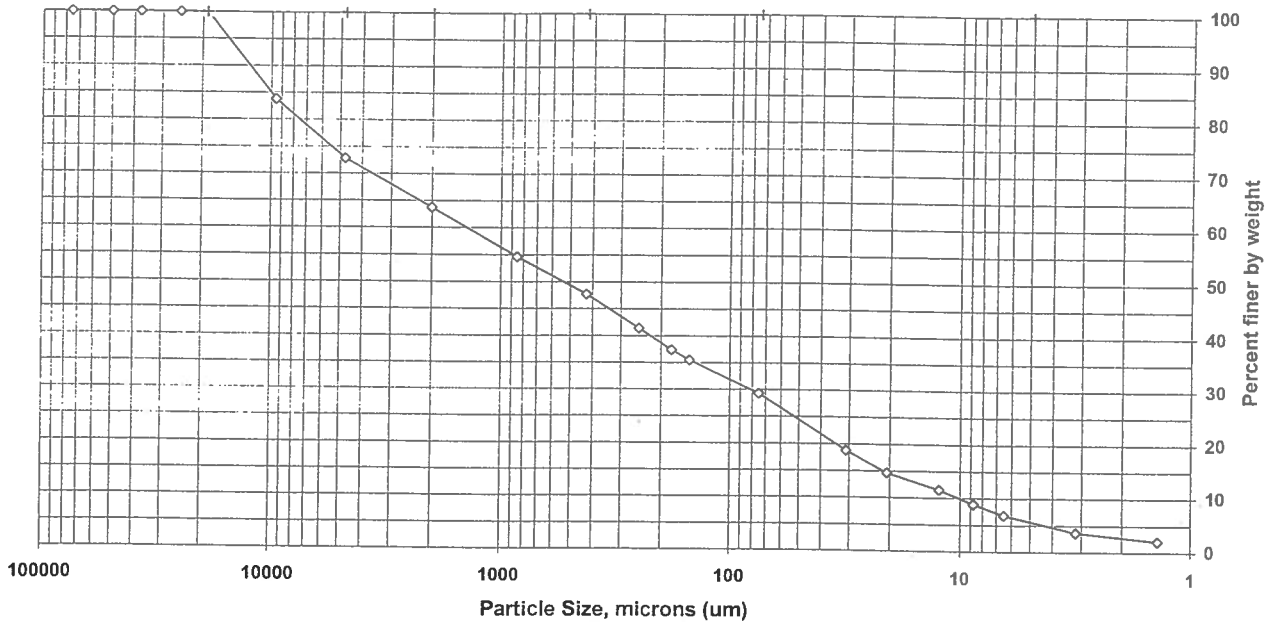
Soil Classification	Percent of Total Sample
Gravel	15.9
Sand	50.4
Coarse Sand	16.2
Medium Sand	15.6
Fine Sand	18.6
Silt	25.7
Clay	8.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-SS110B-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738423			End Date:	1/29/2008

Percent Solids:	85.8%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	19 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	83.8	16.2
#4	4750	72.8	11.0
#10	2000	63.8	9.0
#20	850	54.6	9.1
#40	425	47.7	6.9
#60	250	41.4	6.3
#80	180	37.4	4.1
#100	150	35.5	1.9
#200	75	29.3	6.2
Hydrometer	31.1	18.8	10.5
I	20.6	14.6	4.2
I	12.3	11.5	3.1
I	8.8	8.9	2.6
I	6.5	6.8	2.1
I	3.2	3.6	3.2
V	1.4	2.1	1.6

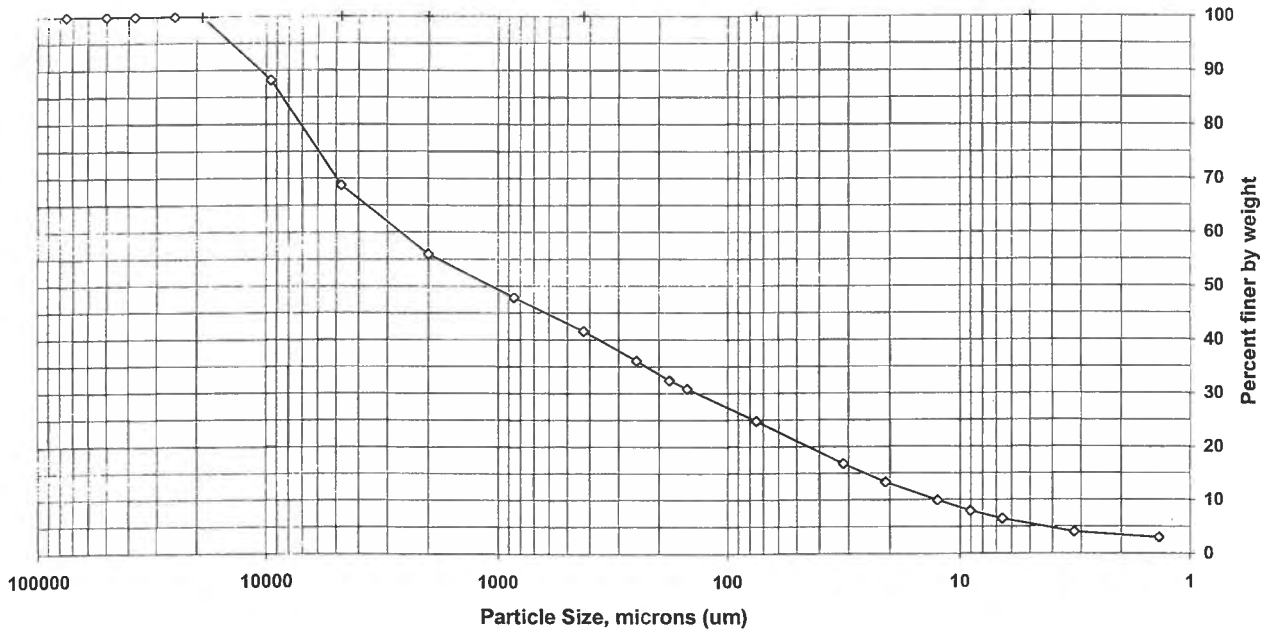
Soil Classification	Percent of Total Sample
Gravel	27.2
Sand	43.5
Coarse Sand	9.0
Medium Sand	16.0
Fine Sand	18.5
Silt	22.4
Clay	6.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS127-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738418			**End Date:**	1/29/2008

Percent Solids:	89.3%	**Non-soil material:**	plant, tar
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	88.2	11.8
#4	4750	68.7	19.4
#10	2000	55.9	12.8
#20	850	47.8	8.1
#40	425	41.6	6.2
#60	250	36.1	5.5
#80	180	32.4	3.6
#100	150	30.8	1.6
#200	75	24.8	6.0
Hydrometer	31.6	16.8	8.0
|	20.9	13.3	3.5
|	12.5	9.9	3.5
|	9.0	7.9	2.0
|	6.6	6.4	1.5
|	3.2	4.0	2.5
V	1.4	3.0	1.0

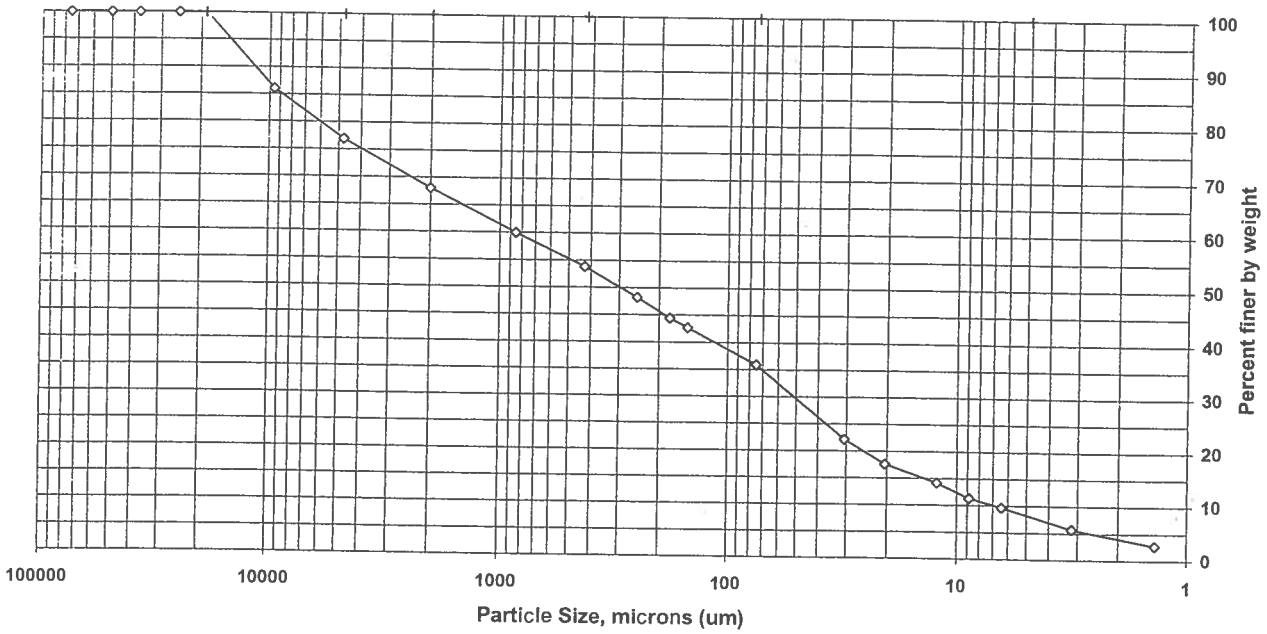
Soil Classification	Percent of Total Sample
Gravel	31.3
Sand	44.0
Coarse Sand	12.8
Medium Sand	14.3
Fine Sand	16.8
Silt	18.4
Clay	6.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS130-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738417			**End Date:**	1/29/2008

Percent Solids:	86.6%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	86.0	14.0
#4	4750	76.9	9.1
#10	2000	68.0	8.9
#20	850	59.9	8.1
#40	425	53.8	6.2
#60	250	48.2	5.6
#80	180	44.4	3.7
#100	150	42.7	1.8
#200	75	35.9	6.8
Hydrometer	30.7	22.1	13.8
|	20.4	17.6	4.5
|	12.2	14.2	3.4
|	8.8	11.4	2.8
|	6.4	9.6	1.7
|	3.2	5.7	4.0
V	1.4	2.7	2.9

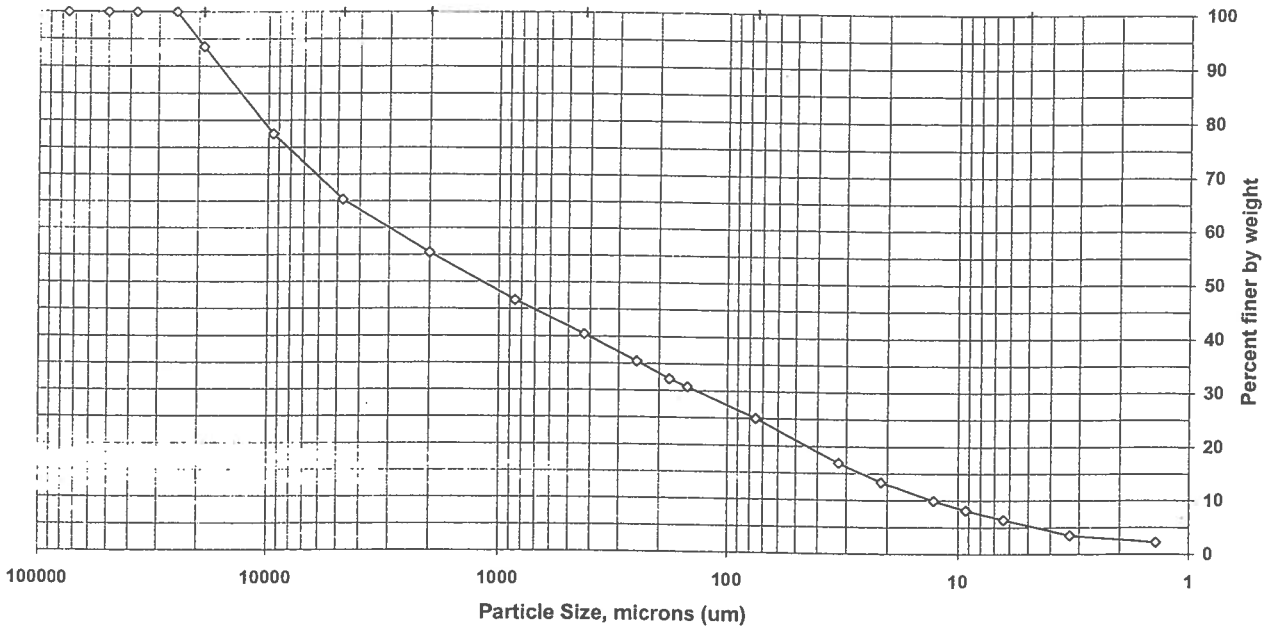
Soil Classification	Percent of Total Sample
Gravel	23.1
Sand	41.0
Coarse Sand	8.9
Medium Sand	14.2
Fine Sand	17.9
Silt	26.2
Clay	9.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-3	Date Received:	1/17/2008
Sample ID:	DA-22133-011508	ETR(s):	123834	Start Date:	1/17/2008
Lab ID:	738420			End Date:	1/29/2008

Percent Solids:	84.2%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	angular
Maximum Particle Size:	25 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	93.6	6.4
3/8 inch	9500	77.5	16.1
#4	4750	65.3	12.2
#10	2000	55.4	9.9
#20	850	46.6	8.7
#40	425	40.4	6.3
#60	250	35.4	5.0
#80	180	32.2	3.2
#100	150	30.7	1.5
#200	75	25.1	5.7
Hydrometer	32.6	16.9	8.2
I	21.3	13.4	3.5
I	12.7	9.9	3.5
I	9.3	8.2	1.7
I	6.4	6.4	1.7
I	3.3	3.5	2.9
V	1.4	2.2	1.3

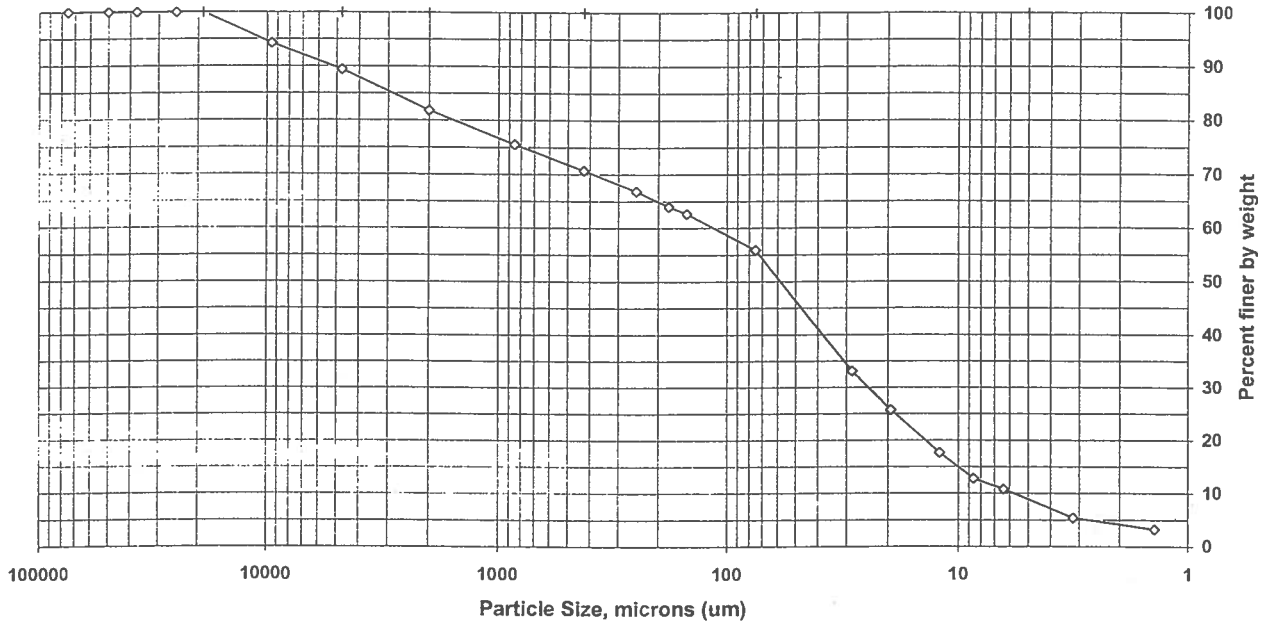
Soil Classification	Percent of Total Sample
Gravel	34.7
Sand	40.2
Coarse Sand	9.9
Medium Sand	15.0
Fine Sand	15.3
Silt	18.7
Clay	6.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-3	**Date Received:**	1/17/2008
Sample ID:	DA-SS134-011508	**ETR(s):**	123834	**Start Date:**	1/17/2008
Lab ID:	738424			**End Date:**	1/29/2008

Percent Solids:	83.3%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	94.2	5.8
#4	4750	89.4	4.9
#10	2000	81.8	7.6
#20	850	75.5	6.3
#40	425	70.7	4.8
#60	250	66.8	3.9
#80	180	64.0	2.8
#100	150	62.6	1.4
#200	75	55.9	6.8
Hydrometer	28.4	33.2	22.7
|	19.4	25.7	7.4
|	12.0	17.6	8.1
|	8.6	12.8	4.8
|	6.4	10.8	2.0
|	3.2	5.4	5.4
V	1.4	3.3	2.1

Soil Classification	Percent of Total Sample
Gravel	10.6
Sand	33.5
Coarse Sand	7.6
Medium Sand	11.1
Fine Sand	14.8
Silt	45.1
Clay	10.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2686W

Date: April 8, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO402-3
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:		
19/Soils	DA-SS102B-011508	DA-SS103B-011508
	DA-SS104-011508	DA-SS105-011508
	DA-SS106-011408	DA-SS107-011508
	DA-SS108-011508	DA-SS109-011408
	DA-SS110-011508	DA-SS110B-011508
	DA-SS111B-011408	DA-SS126-011408
	DA-SS127-011508	DA-SS129-011408
	DA-SS130-011508	DA-SS132-011408
	DA-SS133-011508	DA-SS134-011508
	DA-SSDUP03-011508	
	(Field Duplicate Pair: DA-SS103B-011508/ DA-SSDUP03-011508)	
VOC/GRO		
2/Trip blanks	DA-SSTB-03-011408	DA-SSTB04-011508

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on January 14-15, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analyses according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

*	•	Data Completeness
*	•	Preservation and Technical Holding Times
*	•	GC/MS Instrument Performance Check (Tuning)
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Surrogate Compounds
	•	Internal Standards
NA	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
	•	Field Duplicates
	•	Analyte Identification
*	•	Percent Solids
	•	Reporting Limits

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

A low concentration sample (DI) vial was not received by the laboratory for sample DA-SSTB-03-011408. The high concentration trip blank was analyzed by the laboratory.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Dichlorodifluoromethane	-31.26		UJ	DA-SSTB-03-011408
Acetone	-29.62, -84.05	J	UJ	DA-SSTB-03-011408, DA-SSTB04-011508(RA), DA-SS107-011508(RA), DA-SS110B-011508(RA), DA-SS134-011508(RA)
Bromobenzene	26.75		UJ	DA-SSTB04-011508(RA), DA-SS107-011508(RA), DA-SS110B-011508(RA), DA-SS134-011508(RA)
1,1,2,2-Tetrachloroethane	27.36		UJ	
2-Chlorotoluene	26.85		UJ	
1,2,3-Trichloropropane	30.06		UJ	
tert-Butylbenzene	26.88		UJ	
Chloroethane	46.64, 27.13, 43.34, 45.10		UJ	DA-SS109-011408, DA-SS106-011408, DA-SS111B-011408, DA-SS126-011408, DA-SS132-011408(RA), DA-SS102-011508, DA-SS129-011408(RA), DA-SS105-011508(RA), DA-SS130-011508(RA), DA-SS127-011508(RA), DA-SS10-011508(RA), DA-SS103B-011508(RA), DA-SS133-011508(RA), DA-SS108-011508(RA), DA-SS104-011508(RA), DA-SS102B-011508(RA), DA-SSDUP03-011508(RA)
Tetrachloroethene	-32.78		UJ	DA-SS132-011408(RA)
Bromoform	-27.32		UJ	
1,2-Dibromo-3-chloropropane	-38.87, -34.80, -31.92		UJ	DA-SS132-011408(RA), DA-SS102-011508, DA-SS129-011408(RA), DA-SS105-011508(RA), DA-SS130-011508(RA), DA-SS127-011508(RA), DA-SS110-011508(RA), DA-SS103B-011508(RA), DA-SS133-011508(RA), DA-SS108-011508(RA), DA-SS104-011508(RA), DA-SSDUP03-011508(RA)
1,2,4-Trichlorobenzene	-34.30, -25.71, -31.86		UJ	
1,2,3-Trichlorobenzene	-38.91, -30.54, -32.89		UJ	
Chloromethane	28.60		UJ	DA-SS104-011508, DA-SS102-011508
Methylene Chloride	26.60		UJ	

Although the %D method criteria were outside of the QC limits for dichlorodifluoromethane, acetone, bromobenzene, 1,1,2,2-tetrachloroethane, 2-chlorotoluene, 1,2,3-trichloropropane, tert-butylbenzene, chloroethane, tetrachloroethene, bromoform, 1,2-dichloro-3-chloropropane, 1,2,4-trichlorobenzene, 1,2,3-trichlorobenzene, chloromethane, and methylene chloride; the project accuracy goals were not impacted since the instrument calibration variability is either below safety margin of greater than 100% allocated or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	44.56		UJ	All semivolatile samples

Although the %RSD method criterion was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzidine	48.67, 84.99		UJ	DA-SS109-011408, DA-SS106-011408, DA-SS111B-011408, DA-SS105-011508, DA-SS126-011508, DA-SS129-011508, DA-SS132-011508, DA-SS130-011508, DA-SS107-011508, DA-SS134-011508, DA-SS108-011508, DA-SS104-011508, DA-SS102B-011508, DA-SS103B-011508, DA-SSDUP01-011508, DA-SS110B-011508, DA-SS127-011508, DA-SS110-011508, DA-SS133-011508
Butylbenzylphthalate	45.76		UJ	DA-SS109-011408, DA-SS106-011408, DA-SS111B-011408, DA-SS105-011508, DA-SS126-011508, DA-SS129-011508, DA-SS132-011508, DA-SS130-011508
bis(2-Ethylhexyl)phthalate	54.57	J	UJ	
Di-n-octylphthalate	56.79		UJ	

Although the %D method criterion was outside of the QC limits for butylbenzylphthalate, benzidine, and di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D method criterion was outside of the QC limits for bis(2-ethylhexyl)phthalate; therefore the project accuracy goals may be slightly impacted since the project quantitation limit exceeds the project action limit for this compound as noted in the approved work plan. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Phenanthrene	-26.61	J		DA-SS126-011408(DL), DA-SS127-011508(DL), DA-SS133-011508(DL)
Fluorene	-28.76, -33.47	J		DA-SSDUP03-011508(RA), DA-SS126-011408(DL), DA-SS127-011508(DL), DA-SS133-011508
Dibenzo(a,h)anthracene	43.61	J	UJ	DA-SS107-011508, DA-SS134-011508, DA-SS108-011508, DA-SS104-011508, DA-SS102B-011508, DA-SS103B-011508, DA-SS110B-011508, DA-SS110-011508
Indeno(1,2,3-cd)pyrene	32.29	J	UJ	DA-SS107-011508, DA-SS134-011508, DA-SS108-011508, DA-SS104-011508, DA-SS102B-011508, DA-SS103B-011508, DA-SS110B-011508, DA-SS110-011508
Napthalene	34.41	J	UJ	DA-SSDUP03-011508(RA)
Pyrene	-29.77	J		DA-SS109-011408, DA-SS106-011408, DA-SS105-011508
Benzo(k)fluoroanthene	-27.81	J		DA-SS109-011408, DA-SS106-011408, DA-SS105-011508, DA-SS132-011408

Although the %D method criterion was outside of the QC limits for phenanthrene, fluorene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, napthalene, pyrene, and benzo(k)fluoroanthene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Endosulfan sulfate	-36.20	-39.40		UJ	DA-SS109-011408, DA-SS106-011408, DA-SS132-011408, DA-SS111B-011408, DA-SS126-011408, DA-SS129-011408, DA-SS105-011508, DA-SS130-011508, DA-SS127-011508, DA-SS110-011508

Although the %D method criterion was outside of the QC limits for endosulfan sulfate, the project accuracy goals were not impacted since there are no regulatory limits established for this compound. The non-detected endosulfan sulfate results in the affected samples are usable as estimated quantitation limits.

PCB

The following table summarizes the PCB compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	34.99, 27.80, 27.80, 27.79, 25.52	32.92, 27.25, 40.93, 35.64, 27.10		UJ	DA-SS107-011508(RA), DA-SS134-011508(RA)

Although the %D method criterion was outside of the QC limits for Aroclor-1016, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this Aroclor. The non-detected Aroclor-1016 results in the affected samples are usable as estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (ug/Kg)	Action Level (ug/Kg)	Affected Samples
n-Propylbenzene	Method	2	10	DA-SSTB04-011508(RA)
Methylene Chloride	Method	10	100	DA-SS111B-011408

Blank actions were applied to the affected samples due to n-propylbenzene and methylene chloride method blank contamination. (The 10x rule applies for the common laboratory contaminant methylene chloride, and the 5x rule applies for n-propylbenzene). The positive results for n-propylbenzene and methylene chloride in the samples are changed to non-detected values at elevated reporting limits.

Although n-propylbenzene and methylene chloride contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the elevated reporting limits do not exceed the project action limits for these compounds. The results in the affected samples are usable with elevated detection limits.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	2.4	12	All samples

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

ExTPH

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the sample.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Sample
ExTPH	Method	2.4	12	DA-SS107-011508

Blank action was applied to the affected sample due to ExTPH method blank contamination. The 5x rule applies for this hydrocarbon range. The positive result for ExTPH in the affected sample was changed to a non-detected value at an elevated reporting limit.

Although ExTPH contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The result in the affected sample is usable with an elevated detection limit.

Surrogate Compounds

Volatiles

The following sample had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS133-011508(RA)	BFB	40	41-103	J	UJ

The surrogate p-bromofluorobenzene recovered slightly below QC limits in sample DA-SS133-011508(RA). All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected sample due to low surrogate recoveries.

Although the surrogate recovery QC criteria were not met for p-bromofluorobenzene in sample DA-SS133-011508(RA), the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected sample are usable as estimated values and estimated quantitation limits which may be biased low.

GRO

The following sample had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS106-011408	BFB	137	65-129	J	

The surrogate 4-bromofluorobenzene recovered above QC limits for sample DA-SS106-011408. The positive GRO result is estimated (J) in the affected sample due to high surrogate recovery.

Although the surrogate recovery exceeded the QC criteria for bromofluorobenzene, the project accuracy goals are slightly impacted. The positive result in the affected sample is usable as an estimated value which may be biased high.

Internal Standards

Volatiles

The following table summarizes the volatile internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
1,4-Dichlorobenzene-D4	158021	639060-159765	J	UJ	DA-SS110B-011508(RA)
	65401	454938-113735	J	UJ	DA-SS109-011408
	77519		J	UJ	DA-SS106-011408
	88749		J	UJ	DA-SS111B-011408
	108694		J	UJ	DA-SS126-011408
	98233	463822-115956	J	UJ	DA-SS132-011408(RA)
	80706	442234-110559	J	UJ	DA-SS102B-011508
	81080	494164-123541	J	UJ	DA-SS129-011408(RA)
	94565		J	UJ	DA-SS105-011508(RA)
	74620		J	UJ	DA-SS130-011508(RA)
	90389		J	UJ	DA-SS110-011508(RA)
	83507		J	UJ	DA-SS103B-011508(RA)
	52473		J	UJ	DA-SS133-011508(RA)
	104217		J	UJ	DA-SS108-011508(RA)
	76669		J	UJ	DA-SS104-011508(RA)
	84068		J	UJ	DA-SSDUP03-011508(RA)

The internal standard areas of 1,4-dichlorobenzene-d4 are below the acceptable range for the above samples. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

The project accuracy goals may be slightly impacted for the affected samples which failed to meet the QC criteria for the internal standard areas of 1,4-dichlorobenzene-d4. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Perylene-D12	16494	13042-3261	J		DA-SS108-011508
	16532		J		DA-SS102B-011508

The internal standard areas of perylene-d12 exceeded the acceptable range for the above samples. The target compounds associated with perylene-d12 are benzo(b)fluoroanthene, benzo(k)fluoroanthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. All positive results are estimated (J) for the corresponding target compounds in the affected samples.

The project accuracy goals may be slightly impacted for the affected samples that failed to meet the QC criteria for the internal standard areas of perylene-d12. The positive results in the affected samples are usable as estimated values.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the LCS recovery limits:

Compound	% Rec	QC Limits	Action (+)	Action NDs	Affected Samples
1,2-Dibromoethane	88, 85	89-119		UJ	DA-SSTB04-011508(RA), DA-SS107-011508(RA), DA-SS110B-011508(RA), DA-SS134-011508(RA), DA-SS129-011408(RA), DA-SS105-011508(RA), DA-SS130-011508(RA), DA-SS127-011508(RA), DA-SS110-011508(RA), DA-SS103B-011508(RA), DA-SS133-011508(RA), DA-SS108-011508(RA), DA-SS104-011508(RA), DA-SSDUP03-011508(RA)
1,2-Dibromo-3-chloropropane	78, 68	83-117	J	UJ	DA-SS109-011408, DA-SS106-011408, DA-SS111B-011408, DA-SS126-011408, DA-SS129-011408(RA), DA-SS105-011508(RA), DA-SS130-011508(RA), DA-SS127-011508(RA), DA-SS110-011508(RA), DA-SS103B-011508(RA), DA-SS133-011508(RA), DA-SS108-011508(RA), DA-SS104-011508(RA), DA-SSDUP03-011508(RA)
2-Hexanone	75	84-132	J	UJ	DA-SS129-011408(RA), DA-SS105-011508(RA), DA-SS130-011508(RA), DA-SS127-011508(RA), DA-SS110-011508(RA), DA-SS103B-011508(RA), DA-SS133-011508(RA), DA-SS108-011508(RA), DA-SS104-011508(RA), DA-SSDUP03-011508(RA)
Bromoform	83	84-124	J	UJ	
1,2,4-Trichlorobenzene	69	74-124	J	UJ	

The laboratory has demonstrated an inability to accurately recover 1,2-dibromoethane, 1,2-dibromo-3-chloropropane, 2-hexanone, bromoform, and 1,2,4-trichlorobenzene through low LCS recoveries. The positive results are estimated (J) and the non-detected results are estimated (UJ). The results may be biased low.

Although the laboratory control sample recovery criteria were not met due to slightly low LCS recoveries for 1,2-dibromoethane, 1,2-dibromo-3-chloropropane, 2-hexanone, bromoform, and 1,2,4-trichlorobenzene; the project accuracy goals were only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated detection limits which may be biased low

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action (+)	Action NDs	Affected Sample
bis(2-Ethylhexyl) phthalate	137	45-125	J		DA-SS129-011408

The positive result for bis(2-ethylhexyl)phthalate in sample DA-SS129-011408 is qualified as estimated (J) due to a laboratory control sample recovery above the 125% QC limit.

Although the LCS recovery for bis(2-ethylhexyl)phthalate was above the QC limit, the project accuracy goals are only slightly impacted. The positive result in the affected sample is usable as an estimated value which may be biased high.

PAH

The following table summarizes the PAH compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Sample
			(+)	NDs	
Benzo(g,h,i)perylene	111	10-110	J		DA-SS109-011408, DA-SS106-011408, DA-SS111B-011408, DA-SS132-011408, DA-SS129-011408, DA-SS105-011508, DA-SS130-011508, DA-SS108-011508, DA-SS110-011508, DA-SS103B-011508, DA-SS133-011508, DA-SS126-011408(DL), DA-SS127-011508(DL)

The positive results for benzo(g,h,i)perylene in the affected samples are qualified as estimated (J) due to laboratory control sample recoveries above the 110% QC limit.

Although the LCS/LCSD recoveries for benzo(g,h,i)perylene exceeded the QC limit, the project accuracy goals are only slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

Field Duplicates

PAH

The field duplicates DA-SS103B-011508 and DA-SS-DUP03-011508 exceeded the relative percent difference QC criterion of 50% for anthracene, fluoroanthene, naphthalene, and phenanthrene. The positive results for the affected compounds in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

The project precision goals may be slightly impacted for anthracene, fluoroanthene, naphthalene, and phenanthrene due to field duplicate RPD above the QC criterion. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

PCBs

The field duplicates DA-SS103B-011508 and DA-SS-DUP03-011508 exceeded the relative percent difference QC criterion of 50% for Aroclor-1260 and Aroclor-1268. The positive results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

The project precision goals may be slightly impacted for Aroclor-1260 and Aroclor-1268 due to filed duplicate RPD above the QC criterion. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for 4,4'-DDT in samples DA-SS132-011408 and DA-SS110B-011508. The positive results are estimated (J) in the affected samples due to instrument variability.

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

PCBs

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for Aroclor-1268 in sample DA-SS132-011408. The positive Aroclor-1268 result is estimated (J) in the affected sample due to instrument variability.

The analyte quantitation relative percent difference was not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive result in the affected sample is usable as an estimated value.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples (DA-SS102B-011508, DA-SS106-011408, and DA-SS134-011508(RA)). Additionally, only the high concentration sample for the trip blank DA-SSTB-03-011408 is reported because a low concentration vial was not received by the laboratory. For sample DA-SSTB-03-011408 all PQLs and some PALs are exceeded.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits, all reporting limits met project action limits.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, poor internal standard areas, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and high laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor internal standard areas, and high laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PAH data set with the following exception. Select compounds were qualified as estimated due to field duplicate imprecision. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set. Data usability was not impacted with regards to sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exception. Aroclor-1016 was qualified as estimated in samples DA-SS107-011508(RA) and DA-SS134-011508(RA) due instrument calibration variability. Aroclor-1268 was qualified as estimated in sample DA-SS132-011408 due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCB data set with the following exception. Select compounds were qualified as estimated due to field duplicate imprecision. Although a specific

method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy were met for the GRO data set with the following exception. GRO was qualified as estimated in sample DA-SS106-011408 due to poor surrogate recoveries. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the GRO data set. Data usability was not impacted with regards to precision and sensitivity.

ExTPH

The project goals with respect to accuracy, precision, and sensitivity were met for the TPH data set. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508RA			DA-SS104-011508RA			DA-SS105-011508RA		
SDG: CTO402-3	LAB_ID	SB0270-17			SB0270-9RA			SB0270-15RA			SB0270-1RA		
FRACTION: OV	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	6	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE	6	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,1,2-TRICHLOROETHANE	6	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE	6	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	6	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE	6	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE	6	UJ	CN	5	UJ	CN	5	UJ	CN	5	UJ	CN
1,2,3-TRICHLOROPROPANE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,2,4-TRICHLOROBENZENE	6	UJ	CN	5	UJ	CEN	5	UJ	CEN	5	UJ	CEN
1,2,4-TRIMETHYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE	6	UJ	CN	5	UJ	CEN	5	UJ	CEN	5	UJ	CEN
1,2-DIBROMOETHANE	6	U		5	UJ	E	5	UJ	E	5	UJ	E
1,2-DICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,2-DICHLOROETHANE	6	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	6	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,3-DICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,3-DICHLOROPROPANE	6	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
2,2-DICHLOROPROPANE	6	U		5	U		5	U		5	U	
2-BUTANONE	29	U		25	U		26	U		25	U	
2-CHLOROTOLUENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
2-HEXANONE	29	U		25	UJ	E	26	UJ	E	25	UJ	E
4-CHLOROTOLUENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
4-ISOPROPYLTOLUENE	6	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	29	U		25	U		26	U		25	U	
ACETONE	430			10	J	P	11	J	P	12	J	P
BENZENE	6	U		5	U		5	U		5	U	
BROMOBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
BROMOCHLOROMETHANE	6	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	6	U		5	U		5	U		5	U	
BROMOFORM	6	U		5	UJ	E	5	UJ	E	5	UJ	E
BROMOMETHANE	12	U		10	U		10	U		10	U	
CARBON DISULFIDE	6	U		5	U		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508RA			DA-SS108-011508RA			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-3			SB0270-21RA			SB0270-13RA			SB0244-1		
FRACTION: OV	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		6	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		6	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		6	UJ	N	5	UJ	C	5	UJ	N	5	UJ	N
1,1,2-TRICHLOROETHANE		6	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		6	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		6	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		6	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		6	UJ	N	5	U		5	UJ	CN	5	UJ	N
1,2,3-TRICHLOROPROPANE		6	UJ	N	5	UJ	C	5	UJ	N	5	UJ	N
1,2,4-TRICHLOROBENZENE		6	UJ	N	5	U		5	UJ	CEN	5	UJ	N
1,2,4-TRIMETHYLBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE		6	UJ	EN	5	U		5	UJ	CEN	5	UJ	EN
1,2-DIBROMOETHANE		6	U		5	UJ	E	5	UJ	E	5	U	
1,2-DICHLOROBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
1,2-DICHLOROETHANE		6	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		6	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
1,3-DICHLOROBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
1,3-DICHLOROPROPANE		6	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
2,2-DICHLOROPROPANE		6	U		5	U		5	U		5	U	
2-BUTANONE		30	U		25	U		25	U		25	U	
2-CHLOROTOLUENE		6	UJ	N	5	UJ	C	5	UJ	N	5	UJ	N
2-HEXANONE		30	U		25	U		25	UJ	E	25	U	
4-CHLOROTOLUENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
4-ISOPROPYLTOLUENE		6	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		30	U		25	U		25	U		25	U	
ACETONE		95			25	UJ	C	120			20	J	P
BENZENE		6	U		5	U		5	U		5	U	
BROMOBENZENE		6	UJ	N	5	UJ	C	5	UJ	N	5	UJ	N
BROMOCHLOROMETHANE		6	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE		6	U		5	U		5	U		5	U	
BROMOFORM		6	U		5	U		5	UJ	E	5	U	
BROMOMETHANE		12	U		10	U		10	U		10	U	
CARBON DISULFIDE		6	U		5	U		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508RA	DA-SS110B-011508RA	DA-SS111B-011408	DA-SS126-011408
SDG: CTO402-3	LAB_ID	SB0270-7RA	SB0270-23RA	SB0244-7	SB0244-9
FRACTION: OV	SAMP_DATE	1/15/2008	1/15/2008	1/14/2008	1/14/2008
MEDIA: SOIL	QC_TYPE	NM	NM	NM	NM
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG
	PCT_SOLIDS	84.5	83.4	84.2	81.3
	DUP_OF				

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	UJ	N	5	UJ	CN	5	UJ	N	5	UJ	N
1,1,2-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE	5	UJ	CN	5	UJ	N	5	UJ	N	5	UJ	N
1,2,3-TRICHLOROPROPANE	5	UJ	N	5	UJ	CN	5	UJ	N	5	UJ	N
1,2,4-TRICHLOROBENZENE	5	UJ	CEN	5	UJ	N	5	UJ	N	5	UJ	N
1,2,4-TRIMETHYLBENZENE	5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE	5	UJ	CEN	5	UJ	N	5	UJ	EN	5	UJ	EN
1,2-DIBROMOETHANE	5	UJ	E	5	UJ	E	5	U		5	U	
1,2-DICHLOROBENZENE	5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,3-DICHLOROBENZENE	5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
1,3-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
2,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
2-BUTANONE	26	U		25	U		25	U		26	U	
2-CHLOROTOLUENE	5	UJ	N	5	UJ	CN	5	UJ	N	5	UJ	N
2-HEXANONE	26	UJ	E	25	U		25	U		26	U	
4-CHLOROTOLUENE	5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
4-ISOPROPYLTOLUENE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	26	U		25	U		25	U		26	U	
ACETONE	10	J	P	1500	U		12	J	P	550		
BENZENE	5	U		5	U		5	U		5	U	
BROMOBENZENE	5	UJ	N	5	UJ	CN	5	UJ	N	5	UJ	N
BROMOCHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMOFORM	5	UJ	E	5	U		5	U		5	U	
BROMOMETHANE	10	U		10	U		10	U		10	U	
CARBON DISULFIDE	5	U		5	U		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508RA			DA-SS129-011408RA			DA-SS130-011508RA			DA-SS132-011408RA		
SDG: CTO402-3	LAB_ID	SB0270-5RA			SB0244-11RA			SB0270-3RA			SB0244-5RA		
FRACTION: OV	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
1,1,2-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE	5	UJ	C	5	UJ	CN	5	UJ	CN	5	UJ	N
1,2,3-TRICHLOROPROPANE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
1,2,4-TRICHLOROBENZENE	5	UJ	CE	5	UJ	CEN	5	UJ	CEN	5	UJ	N
1,2,4-TRIMETHYLBENZENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE	5	UJ	CE	5	UJ	CEN	5	UJ	CEN	5	UJ	N
1,2-DIBROMOETHANE	5	UJ	E	5	UJ	E	5	UJ	E	5	U	
1,2-DICHLOROBENZENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
1,3-DICHLOROBENZENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
1,3-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
2,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
2-BUTANONE	25	U		26	U		25	U		25	U	
2-CHLOROTOLUENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
2-HEXANONE	25	UJ	E	26	UJ	E	25	UJ	E	25	U	
4-CHLOROTOLUENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
4-ISOPROPYLTOLUENE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	25	U		26	U		25	U		25	U	
ACETONE	330			100			180			25		
BENZENE	5	U		5	U		5	U		5	U	
BROMOBENZENE	5	U		5	UJ	N	5	UJ	N	5	UJ	N
BROMOCHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMOFORM	5	UJ	E	5	UJ	E	5	UJ	E	5	U	
BROMOMETHANE	10	U		10	U		10	U		10	U	
CARBON DISULFIDE	5	U		5	U		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508RA			DA-SS134-011508RA			DA-SSDUP03-011508RA			DA-SSTB-03-011408DL		
SDG: CTO402-3	LAB_ID	SB0270-11RA			SB0270-25RA			SB0270-19RA			SB0244-13DL		
FRACTION: OV	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.2			78.0			86.8			.0		
	DUP_OF							DA-SS103B-011508					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1,2-TETRACHLOROETHANE	5	UJ	R	6	U		5	U		250	U		
1,1,1-TRICHLOROETHANE	5	UJ	R	6	U		5	U		250	U		
1,1,2,2-TETRACHLOROETHANE	5	UJ	NR	6	UJ	C	5	UJ	N	250	U		
1,1,2-TRICHLOROETHANE	5	UJ	R	6	U		5	U		250	U		
1,1-DICHLOROETHANE	5	UJ	R	6	U		5	U		250	U		
1,1-DICHLOROETHENE	5	UJ	R	6	U		5	U		250	U		
1,1-DICHLOROPROPENE	5	UJ	R	6	U		5	U		250	U		
1,2,3-TRICHLOROBENZENE	5	UJ	CNR	6	U		5	UJ	CN	250	U		
1,2,3-TRICHLOROPROPANE	5	UJ	NR	6	UJ	C	5	UJ	N	250	U		
1,2,4-TRICHLOROBENZENE	5	UJ	CENR	6	U		5	UJ	CEN	250	U		
1,2,4-TRIMETHYLBENZENE	5	UJ	NR	6	U		5	UJ	N	250	U		
1,2-DIBROMO-3-CHLOROPROPANE	5	UJ	CENR	6	U		5	UJ	CEN	250	U		
1,2-DIBROMOETHANE	5	UJ	ER	6	UJ	E	5	UJ	E	250	U		
1,2-DICHLOROBENZENE	5	UJ	NR	6	U		5	UJ	N	250	U		
1,2-DICHLOROETHANE	5	UJ	R	6	U		5	U		250	U		
1,2-DICHLOROPROPANE	5	UJ	R	6	U		5	U		250	U		
1,3,5-TRIMETHYLBENZENE	5	UJ	NR	6	U		5	UJ	N	250	U		
1,3-DICHLOROBENZENE	5	UJ	NR	6	U		5	UJ	N	250	U		
1,3-DICHLOROPROPANE	5	UJ	R	6	U		5	U		250	U		
1,4-DICHLOROBENZENE	5	UJ	NR	6	U		5	UJ	N	250	U		
2,2-DICHLOROPROPANE	5	UJ	R	6	U		5	U		250	U		
2-BUTANONE	26	UJ	R	29	U		25	U		1200	U		
2-CHLOROTOLUENE	5	UJ	NR	6	UJ	C	5	UJ	N	250	U		
2-HEXANONE	26	UJ	ER	29	U		25	UJ	E	1200	U		
4-CHLOROTOLUENE	5	UJ	NR	6	U		5	UJ	N	250	U		
4-ISOPROPYLTOLUENE	5	UJ	R	6	U		5	U		250	U		
4-METHYL-2-PENTANONE	26	UJ	R	29	U		25	U		1200	U		
ACETONE	1100	J	P	120	J	C	25	U		1200	UJ	C	
BENZENE	5	UJ	R	6	U		5	U		250	U		
BROMOBENZENE	5	UJ	NR	6	UJ	C	5	UJ	N	250	U		
BROMOCHLOROMETHANE	5	UJ	R	6	U		5	U		250	U		
BROMODICHLOROMETHANE	5	UJ	R	6	U		5	U		250	U		
BROMOFORM	5	UJ	ER	6	U		5	U	E	250	U		
BROMOMETHANE	10	UJ	R	12	U		10	U		500	U		
CARBON DISULFIDE	5	UJ	R	6	U		5	U		250	U		

PROJ_NO: 00816	NSAMPLE	DA-SSTB04-011508RA
SDG: CTO402-3	LAB_ID	SB0270-27RA
FRACTION: OV	SAMP_DATE	1/15/2008
MEDIA: SOIL	QC_TYPE	TB
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U	
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	UJ	C
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,1-DICHLOROPROPENE	5	U	
1,2,3-TRICHLOROBENZENE	5	U	
1,2,3-TRICHLOROPROPANE	5	UJ	C
1,2,4-TRICHLOROBENZENE	5	U	
1,2,4-TRIMETHYLBENZENE	5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	U	
1,2-DIBROMOETHANE	5	UJ	E
1,2-DICHLOROBENZENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
1,3,5-TRIMETHYLBENZENE	5	U	
1,3-DICHLOROBENZENE	5	U	
1,3-DICHLOROPROPANE	5	U	
1,4-DICHLOROBENZENE	5	U	
2,2-DICHLOROPROPANE	5	U	
2-BUTANONE	25	U	
2-CHLOROTOLUENE	5	UJ	C
2-HEXANONE	25	U	
4-CHLOROTOLUENE	5	U	
4-ISOPROPYLTOLUENE	5	U	
4-METHYL-2-PENTANONE	25	U	
ACETONE	25	UJ	C
BENZENE	5	U	
BROMOBENZENE	5	UJ	C
BROMOCHLOROMETHANE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508RA			DA-SS104-011508RA			DA-SS105-011508RA		
SDG: CTO402-3	LAB_ID	SB0270-17			SB0270-9RA			SB0270-15RA			SB0270-1RA		
FRACTION: OV	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	6	U		5	U		5	U		5	U	
CHLOROBENZENE	6	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE	6	U		5	U		5	U		5	U	
CHLOROETHANE	12	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CHLOROFORM	6	U		5	U		5	U		5	U	
CHLOROMETHANE	12	UJ	C	10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE	6	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE	6	U		5	U		5	U		5	U	
DIBROMOMETHANE	6	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE	12	U		10	U		10	U		10	U	
ETHYLBENZENE	6	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
ISOPROPYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
M+P-XYLENES	12	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER	6	U		5	U		5	U		5	U	
METHYLENE CHLORIDE	29	UJ	C	25	U		26	U		25	U	
N-BUTYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
N-PROPYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
O-XYLENE	6	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
STYRENE	6	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE	6	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
TETRACHLOROETHENE	6	U		5	U		5	U		5	U	
TOLUENE	6	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE	6	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	6	U		5	U		5	U		5	U	
TRICHLOROETHENE	6	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE	12	U		10	U		10	U		10	U	
VINYL CHLORIDE	12	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508RA			DA-SS108-011508RA			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-3			SB0270-21RA			SB0270-13RA			SB0244-1		
FRACTION: OV	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		6	U		5	U		5	U		5	U	
CHLOROBENZENE		6	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		6	U		5	U		5	U		5	U	
CHLOROETHANE		12	UJ	C	10	U		10	UJ	C	10	UJ	C
CHLOROFORM		6	U		5	U		5	U		5	U	
CHLOROMETHANE		12	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		6	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		6	U		5	U		5	U		5	U	
DIBROMOMETHANE		6	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		12	U		10	U		10	U		10	U	
ETHYLBENZENE		6	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
ISOPROPYLBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
M+P-XYLENES		12	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		6	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		30	U		25	U		25	U		25	U	
N-BUTYLBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
N-PROPYLBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
O-XYLENE		6	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		6	UJ	N	5	U		5	UJ	N	5	UJ	N
STYRENE		6	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		6	UJ	N	5	UJ	C	5	UJ	N	5	UJ	N
TETRACHLOROETHENE		6	U		5	U		5	U		5	U	
TOLUENE		6	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		6	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		6	U		5	U		5	U		5	U	
TRICHLOROETHENE		6	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		12	U		10	U		10	U		10	U	
VINYL CHLORIDE		12	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508RA			DA-SS110B-011508RA			DA-SS111B-011408			DA-SS126-011408		
SDG: CTO402-3	LAB_ID	SB0270-7RA			SB0270-23RA			SB0244-7			SB0244-9		
FRACTION: OV	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	UJ	C	10	U		10	UJ	C	10	UJ	C
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
ISOPROPYLBENZENE		5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		26	U		25	U		25	U	A	26	U	
N-BUTYLBENZENE		5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
N-PROPYLBENZENE		5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	UJ	N	5	UJ	N	5	UJ	N	5	UJ	N
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	UJ	N	5	UJ	CN	5	UJ	N	5	UJ	N
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508RA			DA-SS129-011408RA			DA-SS130-011508RA			DA-SS132-011408RA		
SDG: CTO402-3	LAB_ID	SB0270-5RA			SB0244-11RA			SB0270-3RA			SB0244-5RA		
FRACTION: OV	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	UJ	N	5	UJ	N	5	UJ	N
ISOPROPYLBENZENE		5	U		5	UJ	N	5	UJ	N	5	UJ	N
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		26	U		25	U		25	U	
N-BUTYLBENZENE		5	U		5	UJ	N	5	UJ	N	5	UJ	N
N-PROPYLBENZENE		5	U		5	UJ	N	5	UJ	N	5	UJ	N
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	UJ	N	5	UJ	N	5	UJ	N
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	UJ	N	5	UJ	N	5	UJ	N
TETRACHLOROETHENE		5	U		5	U		5	U		5	UJ	C
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-3 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SS133-011508RA			DA-SS134-011508RA			DA-SSDUP03-011508RA			DA-SSTB-03-011408DL		
	LAB_ID	SB0270-11RA			SB0270-25RA			SB0270-19RA			SB0244-13DL		
	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/14/2008		
	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.2			78.0			86.8			.0		
	DUP_OF							DA-SS103B-011508					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	UJ	R	6	U		5	U		250	U	
CHLOROBENZENE		5	UJ	R	6	U		5	U		250	U	
CHLORODIBROMOMETHANE		5	UJ	R	6	U		5	U		250	U	
CHLOROETHANE		10	UJ	CR	12	U		10	UJ	C	500	U	
CHLOROFORM		5	UJ	R	6	U		5	U		250	U	
CHLOROMETHANE		10	UJ	R	12	U		10	U		500	U	
CIS-1,2-DICHLOROETHENE		5	UJ	R	6	U		5	U		250	U	
CIS-1,3-DICHLOROPROPENE		5	UJ	R	6	U		5	U		250	U	
DIBROMOMETHANE		5	UJ	R	6	U		5	U		250	U	
DICHLORODIFLUOROMETHANE		10	UJ	R	12	U		10	U		500	UJ	C
ETHYLBENZENE		5	UJ	R	6	U		5	U		250	U	
HEXACHLOROBUTADIENE		5	UJ	NR	6	U		5	UJ	N	250	U	
ISOPROPYLBENZENE		5	UJ	NR	6	U		5	UJ	N	250	U	
M+P-XYLENES		10	UJ	R	12	U		10	U		500	U	
METHYL TERT-BUTYL ETHER		5	UJ	R	6	U		5	U		250	U	
METHYLENE CHLORIDE		26	UJ	R	29	U		25	U		1200	U	
N-BUTYLBENZENE		5	UJ	NR	6	U		5	UJ	N	250	U	
N-PROPYLBENZENE		5	UJ	NR	6	U		5	UJ	N	250	U	
O-XYLENE		5	UJ	R	6	U		5	U		250	U	
SEC-BUTYLBENZENE		5	UJ	NR	6	U		5	UJ	N	250	U	
STYRENE		5	UJ	R	6	U		5	U		250	U	
TERT-BUTYLBENZENE		5	UJ	NR	6	UJ	C	5	UJ	N	250	U	
TETRACHLOROETHENE		5	UJ	R	6	U		5	U		250	U	
TOLUENE		5	UJ	R	6	U		5	U		250	U	
TRANS-1,2-DICHLOROETHENE		5	UJ	R	6	U		5	U		250	U	
TRANS-1,3-DICHLOROPROPENE		5	UJ	R	6	U		5	U		250	U	
TRICHLOROETHENE		5	UJ	R	6	U		5	U		250	U	
TRICHLOROFLUOROMETHANE		10	UJ	R	12	U		10	U		500	U	
VINYL CHLORIDE		10	UJ	R	12	U		10	U		500	U	

PROJ_NO: 00816	NSAMPLE	DA-SSTB04-011508RA
SDG: CTO402-3	LAB_ID	SB0270-27RA
FRACTION: OV	SAMP_DATE	1/15/2008
MEDIA: SOIL	QC_TYPE	TB
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
DIBROMOMETHANE	5	U	
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	5	U	
HEXACHLOROBUTADIENE	5	U	
ISOPROPYLBENZENE	5	U	
M+P-XYLENES	10	U	
METHYL TERT-BUTYL ETHER	5	U	
METHYLENE CHLORIDE	25	U	
N-BUTYLBENZENE	5	U	
N-PROPYLBENZENE	5	U	A
O-XYLENE	5	U	
SEC-BUTYLBENZENE	5	U	
STYRENE	5	U	
TERT-BUTYLBENZENE	5	UJ	C
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPENE	5	U	
TRICHLOROETHENE	5	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508			DA-SS104-011508			DA-SS105-011508		
SDG: CTO402-3	LAB_ID	SB0270-17			SB0270-9			SB0270-15			SB0270-1		
FRACTION: OS	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		430	U		380	U		390	U		380	U	
1,2,4-TRICHLOROBENZENE		430	U		380	U		390	U		380	U	
1,2-DICHLOROBENZENE		430	U		380	U		390	U		380	U	
1,2-DIPHENYLHYDRAZINE		850	U		760	U		790	U		770	U	
1,3-DICHLOROBENZENE		430	U		380	U		390	U		380	U	
1,4-DICHLOROBENZENE		430	U		380	U		390	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		430	U		380	U		390	U		380	U	
2,4,5-TRICHLOROPHENOL		1100	U		940	U		980	U		950	U	
2,4,6-TRICHLOROPHENOL		430	U		380	U		390	U		380	U	
2,4-DICHLOROPHENOL		430	U		380	U		390	U		380	U	
2,4-DIMETHYLPHENOL		430	U		380	U		390	U		380	U	
2,4-DINITROPHENOL		1100	U		940	U		980	U		950	U	
2,4-DINITROTOLUENE		430	U		380	U		390	U		380	U	
2,6-DICHLOROPHENOL		430	U		380	U		390	U		380	U	
2,6-DINITROTOLUENE		1100	U		940	U		980	U		950	U	
2-CHLORONAPHTHALENE		430	U		380	U		390	U		380	U	
2-CHLOROPHENOL		430	U		380	U		390	U		380	U	
2-METHYLPHENOL		430	U		380	U		390	U		380	U	
2-NITROANILINE		1100	U		940	U		980	U		950	U	
2-NITROPHENOL		430	U		380	U		390	U		380	U	
3&4-METHYLPHENOL		430	U		380	U		390	U		380	U	
3,3'-DICHLOROBENZIDINE		430	U		380	U		390	U		380	U	
3-NITROANILINE		1100	U		940	U		980	U		950	U	
4,6-DINITRO-2-METHYLPHENOL		1100	U		940	U		980	U		950	U	
4-BROMOPHENYL PHENYL ETHER		430	U		380	U		390	U		380	U	
4-CHLORO-3-METHYLPHENOL		430	U		380	U		390	U		380	U	
4-CHLOROANILINE		430	U		380	U		390	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		430	U		380	U		390	U		380	U	
4-NITROANILINE		1100	U		940	U		980	U		950	U	
4-NITROPHENOL		1100	U		940	U		980	U		950	U	
BENZIDINE		1900	UJ	C	1700	UJ	C	1800	UJ	C	1700	UJ	C
BENZOIC ACID		1100	U		940	U		980	U		950	U	
BENZYL ALCOHOL		850	U		760	U		790	U		770	U	
BIS(2-CHLOROETHOXY)METHANE		430	U		380	U		390	U		380	U	
BIS(2-CHLOROETHYL)ETHER		430	U		380	U		390	U		380	U	

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508			DA-SS108-011508			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-3			SB0270-21			SB0270-13			SB0244-1		
FRACTION: OS	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		410	U		370	U		380	U		390	U	
1,2,4-TRICHLOROBENZENE		410	U		370	U		380	U		390	U	
1,2-DICHLOROBENZENE		410	U		370	U		380	U		390	U	
1,2-DIPHENYLHYDRAZINE		830	U		740	U		760	U		780	U	
1,3-DICHLOROBENZENE		410	U		370	U		380	U		390	U	
1,4-DICHLOROBENZENE		410	U		370	U		380	U		390	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		410	U		370	U		380	U		390	U	
2,4,5-TRICHLOROPHENOL		1000	U		920	U		940	U		960	U	
2,4,6-TRICHLOROPHENOL		410	U		370	U		380	U		390	U	
2,4-DICHLOROPHENOL		410	U		370	U		380	U		390	U	
2,4-DIMETHYLPHENOL		410	U		370	U		380	U		390	U	
2,4-DINITROPHENOL		1000	U		920	U		940	U		960	U	
2,4-DINITROTOLUENE		410	U		370	U		380	U		390	U	
2,6-DICHLOROPHENOL		410	U		370	U		380	U		390	U	
2,6-DINITROTOLUENE		1000	U		920	U		940	U		960	U	
2-CHLORONAPHTHALENE		410	U		370	U		380	U		390	U	
2-CHLOROPHENOL		410	U		370	U		380	U		390	U	
2-METHYLPHENOL		410	U		370	U		380	U		390	U	
2-NITROANILINE		1000	U		920	U		940	U		960	U	
2-NITROPHENOL		410	U		370	U		380	U		390	U	
3&4-METHYLPHENOL		410	U		370	U		380	U		390	U	
3,3'-DICHLOROBENZIDINE		410	U		370	U		380	U		390	U	
3-NITROANILINE		1000	U		920	U		940	U		960	U	
4,6-DINITRO-2-METHYLPHENOL		1000	U		920	U		940	U		960	U	
4-BROMOPHENYL PHENYL ETHER		410	U		370	U		380	U		390	U	
4-CHLORO-3-METHYLPHENOL		410	U		370	U		380	U		390	U	
4-CHLOROANILINE		410	U		370	U		380	U		390	U	
4-CHLOROPHENYL PHENYL ETHER		410	U		370	U		380	U		390	U	
4-NITROANILINE		1000	U		920	U		940	U		960	U	
4-NITROPHENOL		1000	U		920	U		940	U		960	U	
BENZIDINE		1900	UJ	C	1700	UJ	C	1700	UJ	C	1800	UJ	C
BENZOIC ACID		1000	U		920	U		940	U		960	U	
BENZYL ALCOHOL		830	U		740	U		760	U		780	U	
BIS(2-CHLOROETHOXY)METHANE		410	U		370	U		380	U		390	U	
BIS(2-CHLOROETHYL)ETHER		410	U		370	U		380	U		390	U	

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508			DA-SS110B-011508			DA-SS111B-011408			DA-SS126-011408		
SDG: CTO402-3	LAB_ID	SB0270-7			SB0270-23			SB0244-7			SB0244-9		
FRACTION: OS	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		390	U		400	U		390	U		400	U	
1,2,4-TRICHLOROBENZENE		390	U		400	U		390	U		400	U	
1,2-DICHLOROBENZENE		390	U		400	U		390	U		400	U	
1,2-DIPHENYLHYDRAZINE		780	U		790	U		780	U		810	U	
1,3-DICHLOROBENZENE		390	U		400	U		390	U		400	U	
1,4-DICHLOROBENZENE		390	U		400	U		390	U		400	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		390	U		400	U		390	U		400	U	
2,4,5-TRICHLOROPHENOL		970	U		980	U		970	U		1000	U	
2,4,6-TRICHLOROPHENOL		390	U		400	U		390	U		400	U	
2,4-DICHLOROPHENOL		390	U		400	U		390	U		400	U	
2,4-DIMETHYLPHENOL		390	U		400	U		390	U		400	U	
2,4-DINITROPHENOL		970	U		980	U		970	U		1000	U	
2,4-DINITROTOLUENE		390	U		400	U		390	U		400	U	
2,6-DICHLOROPHENOL		390	U		400	U		390	U		400	U	
2,6-DINITROTOLUENE		970	U		980	U		970	U		1000	U	
2-CHLORONAPHTHALENE		390	U		400	U		390	U		400	U	
2-CHLOROPHENOL		390	U		400	U		390	U		400	U	
2-METHYLPHENOL		390	U		400	U		390	U		400	U	
2-NITROANILINE		970	U		980	U		970	U		1000	U	
2-NITROPHENOL		390	U		400	U		390	U		400	U	
3&4-METHYLPHENOL		390	U		400	U		390	U		400	U	
3,3'-DICHLOROBENZIDINE		390	U		400	U		390	U		400	U	
3-NITROANILINE		970	U		980	U		970	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL		970	U		980	U		970	U		1000	U	
4-BROMOPHENYL PHENYL ETHER		390	U		400	U		390	U		400	U	
4-CHLORO-3-METHYLPHENOL		390	U		400	U		390	U		400	U	
4-CHLOROANILINE		390	U		400	U		390	U		400	U	
4-CHLOROPHENYL PHENYL ETHER		390	U		400	U		390	U		400	U	
4-NITROANILINE		970	U		980	U		970	U		1000	U	
4-NITROPHENOL		970	U		980	U		970	U		1000	U	
BENZIDINE		1800	UJ	C	1800	UJ	C	1800	UJ	C	1800	UJ	C
BENZOIC ACID		970	U		980	U		970	U		1000	U	
BENZYL ALCOHOL		780	U		790	U		780	U		810	U	
BIS(2-CHLOROETHOXY)METHANE		390	U		400	U		390	U		400	U	
BIS(2-CHLOROETHYL)ETHER		390	U		400	U		390	U		400	U	

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508			DA-SS129-011408			DA-SS130-011508			DA-SS132-011408		
SDG: CTO402-3	LAB_ID	SB0270-5			SB0244-11			SB0270-3			SB0244-5		
FRACTION: OS	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	660			440	U		390	U		400	U	
1,2,4-TRICHLOROBENZENE	380	U		440	U		390	U		400	U	
1,2-DICHLOROBENZENE	380	U		440	U		390	U		400	U	
1,2-DIPHENYLHYDRAZINE	750	U		870	U		780	U		800	U	
1,3-DICHLOROBENZENE	380	U		440	U		390	U		400	U	
1,4-DICHLOROBENZENE	380	U		440	U		390	U		400	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	380	U		440	U		390	U		400	U	
2,4,5-TRICHLOROPHENOL	940	U		1100	U		980	U		990	U	
2,4,6-TRICHLOROPHENOL	380	U		440	U		390	U		400	U	
2,4-DICHLOROPHENOL	380	U		440	U		390	U		400	U	
2,4-DIMETHYLPHENOL	380	U		440	U		390	U		400	U	
2,4-DINITROPHENOL	940	U		1100	U		980	U		990	U	
2,4-DINITROTOLUENE	380	U		440	U		390	U		400	U	
2,6-DICHLOROPHENOL	380	U		440	U		390	U		400	U	
2,6-DINITROTOLUENE	940	U		1100	U		980	U		990	U	
2-CHLORONAPHTHALENE	380	U		440	U		390	U		400	U	
2-CHLOROPHENOL	380	U		440	U		390	U		400	U	
2-METHYLPHENOL	380	U		440	U		390	U		400	U	
2-NITROANILINE	940	U		1100	U		980	U		990	U	
2-NITROPHENOL	380	U		440	U		390	U		400	U	
3&4-METHYLPHENOL	380	U		440	U		390	U		400	U	
3,3'-DICHLOROBENZIDINE	380	U		440	U		390	U		400	U	
3-NITROANILINE	940	U		1100	U		980	U		990	U	
4,6-DINITRO-2-METHYLPHENOL	940	U		1100	U		980	U		990	U	
4-BROMOPHENYL PHENYL ETHER	380	U		440	U		390	U		400	U	
4-CHLORO-3-METHYLPHENOL	380	U		440	U		390	U		400	U	
4-CHLOROANILINE	380	U		440	U		390	U		400	U	
4-CHLOROPHENYL PHENYL ETHER	380	U		440	U		390	U		400	U	
4-NITROANILINE	940	U		1100	U		980	U		990	U	
4-NITROPHENOL	940	U		1100	U		980	U		990	U	
BENZIDINE	1700	UJ	C	2000	UJ	C	1800	UJ	C	1800	UJ	C
BENZOIC ACID	940	U		1100	U		980	U		990	U	
BENZYL ALCOHOL	750	U		870	U		780	U		800	U	
BIS(2-CHLOROETHOXY)METHANE	380	U		440	U		390	U		400	U	
BIS(2-CHLOROETHYL)ETHER	380	U		440	U		390	U		400	U	

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508			DA-SS134-011508			DA-SSDUP03-011508		
SDG: CTO402-3	LAB_ID	SB0270-11			SB0270-25			SB0270-19		
FRACTION: OS	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.2			78.0			86.8		
	DUP_OF							DA-SS103B-011508		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		410	U		420	U		380	U	
1,2,4-TRICHLOROBENZENE		410	U		420	U		380	U	
1,2-DICHLOROBENZENE		410	U		420	U		380	U	
1,2-DIPHENYLHYDRAZINE		810	U		840	U		760	U	
1,3-DICHLOROBENZENE		410	U		420	U		380	U	
1,4-DICHLOROBENZENE		410	U		420	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		410	U		420	U		380	U	
2,4,5-TRICHLOROPHENOL		1000	U		1000	U		940	U	
2,4,6-TRICHLOROPHENOL		410	U		420	U		380	U	
2,4-DICHLOROPHENOL		410	U		420	U		380	U	
2,4-DIMETHYLPHENOL		410	U		420	U		380	U	
2,4-DINITROPHENOL		1000	U		1000	U		940	U	
2,4-DINITROTOLUENE		410	U		420	U		380	U	
2,6-DICHLOROPHENOL		410	U		420	U		380	U	
2,6-DINITROTOLUENE		1000	U		1000	U		940	U	
2-CHLORONAPHTHALENE		410	U		420	U		380	U	
2-CHLOROPHENOL		410	U		420	U		380	U	
2-METHYLPHENOL		410	U		420	U		380	U	
2-NITROANILINE		1000	U		1000	U		940	U	
2-NITROPHENOL		410	U		420	U		380	U	
3&4-METHYLPHENOL		410	U		420	U		380	U	
3,3'-DICHLOROBENZIDINE		410	U		420	U		380	U	
3-NITROANILINE		1000	U		1000	U		940	U	
4,6-DINITRO-2-METHYLPHENOL		1000	U		1000	U		940	U	
4-BROMOPHENYL PHENYL ETHER		410	U		420	U		380	U	
4-CHLORO-3-METHYLPHENOL		410	U		420	U		380	U	
4-CHLOROANILINE		410	U		420	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		410	U		420	U		380	U	
4-NITROANILINE		1000	U		1000	U		940	U	
4-NITROPHENOL		1000	U		1000	U		940	U	
BENZIDINE		1800	UJ	C	1900	UJ	C	1700	UJ	C
BENZOIC ACID		1000	U		1000	U		940	U	
BENZYL ALCOHOL		810	U		840	U		760	U	
BIS(2-CHLOROETHOXY)METHANE		410	U		420	U		380	U	
BIS(2-CHLOROETHYL)ETHER		410	U		420	U		380	U	

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508			DA-SS104-011508			DA-SS105-011508		
SDG: CTO402-3	LAB_ID	SB0270-17			SB0270-9			SB0270-15			SB0270-1		
FRACTION: OS	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		430	U		380	U		390	U		380	UJ	C
BUTYL BENZYL PHTHALATE		430	U		380	U		390	U		380	UJ	C
CARBAZOLE		430	U		380	U		400			380	U	
DIBENZOFURAN		430	U		380	U		210	J	P	380	U	
DIETHYL PHTHALATE		430	U		380	U		390	U		380	U	
DIMETHYL PHTHALATE		430	U		380	U		390	U		380	U	
DI-N-BUTYL PHTHALATE		430	U		380	U		390	U		380	U	
DI-N-OCTYL PHTHALATE		430	U		380	U		390	U		380	UJ	C
HEXACHLOROBENZENE		430	U		380	U		390	U		380	U	
HEXACHLOROBUTADIENE		430	U		380	U		390	U		380	U	
HEXACHLOROETHANE		430	U		380	U		390	U		380	U	
ISOPHORONE		430	U		380	U		390	U		380	U	
NITROBENZENE		430	U		380	U		390	U		380	U	
N-NITROSODIMETHYLAMINE		430	U		380	U		390	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		430	U		380	U		390	U		380	U	
N-NITROSODIPHENYLAMINE		430	U		380	U		390	U		380	U	
N-NITROSOPYRROLIDINE		430	U		380	U		390	U		380	U	
PENTACHLOROPHENOL		1100	U		940	U		980	U		950	U	
PHENOL		430	U		380	U		390	U		380	U	

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508			DA-SS108-011508			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-3			SB0270-21			SB0270-13			SB0244-1		
FRACTION: OS	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		410	UJ	C	370	U		380	U		390	UJ	C
BUTYL BENZYL PHTHALATE		410	UJ	C	370	U		380	U		390	UJ	C
CARBAZOLE		410	U		370	U		380	U		390	U	
DIBENZOFURAN		410	U		370	U		380	U		390	U	
DIETHYL PHTHALATE		410	U		370	U		380	U		390	U	
DIMETHYL PHTHALATE		410	U		370	U		380	U		390	U	
DI-N-BUTYL PHTHALATE		410	U		370	U		380	U		390	U	
DI-N-OCTYL PHTHALATE		410	UJ	C	370	U		380	U		390	UJ	C
HEXACHLOROBENZENE		410	U		370	U		380	U		390	U	
HEXACHLOROBUTADIENE		410	U		370	U		380	U		390	U	
HEXACHLOROETHANE		410	U		370	U		380	U		390	U	
ISOPHORONE		410	U		370	U		380	U		390	U	
NITROBENZENE		410	U		370	U		380	U		390	U	
N-NITROSODIMETHYLAMINE		410	U		370	U		380	U		390	U	
N-NITROSO-DI-N-PROPYLAMINE		410	U		370	U		380	U		390	U	
N-NITROSODIPHENYLAMINE		410	U		370	U		380	U		390	U	
N-NITROSOPYRROLIDINE		410	U		370	U		380	U		390	U	
PENTACHLOROPHENOL		1000	U		920	U		940	U		960	U	
PHENOL		410	U		370	U		380	U		390	U	

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508			DA-SS110B-011508			DA-SS111B-011408			DA-SS126-011408		
SDG: CTO402-3	LAB_ID	SB0270-7			SB0270-23			SB0244-7			SB0244-9		
FRACTION: OS	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		390	U		400	U		390	UJ	C	400	UJ	C
BUTYL BENZYL PHTHALATE		390	U		400	U		390	UJ	C	400	UJ	C
CARBAZOLE		390	U		400	U		390	U		1200		
DIBENZOFURAN		390	U		400	U		390	U		360	J	P
DIETHYL PHTHALATE		390	U		400	U		390	U		400	U	
DIMETHYL PHTHALATE		390	U		400	U		390	U		400	U	
DI-N-BUTYL PHTHALATE		390	U		400	U		390	U		400	U	
DI-N-OCTYL PHTHALATE		390	U		400	U		390	UJ	C	400	UJ	C
HEXACHLOROBENZENE		390	U		400	U		390	U		400	U	
HEXACHLOROBUTADIENE		390	U		400	U		390	U		400	U	
HEXACHLOROETHANE		390	U		400	U		390	U		400	U	
ISOPHORONE		390	U		400	U		390	U		400	U	
NITROBENZENE		390	U		400	U		390	U		400	U	
N-NITROSODIMETHYLAMINE		390	U		400	U		390	U		400	U	
N-NITROSO-DI-N-PROPYLAMINE		390	U		400	U		390	U		400	U	
N-NITROSODIPHENYLAMINE		390	U		400	U		390	U		400	U	
N-NITROSOPYRROLIDINE		390	U		400	U		390	U		400	U	
PENTACHLOROPHENOL		970	U		980	U		970	U		1000	U	
PHENOL		390	U		400	U		390	U		400	U	

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508			DA-SS129-011408			DA-SS130-011508			DA-SS132-011408		
SDG: CTO402-3	LAB_ID	SB0270-5			SB0244-11			SB0270-3			SB0244-5		
FRACTION: OS	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		620	J	CE	390	UJ	C	400	UJ	C
BUTYL BENZYL PHTHALATE		380	U		440	UJ	C	390	UJ	C	400	UJ	C
CARBAZOLE		7300			370	J	P	390	U		400	U	
DIBENZOFURAN		4700			440	U		390	U		400	U	
DIETHYL PHTHALATE		380	U		440	U		390	U		400	U	
DIMETHYL PHTHALATE		380	U		440	U		390	U		400	U	
DI-N-BUTYL PHTHALATE		380	U		440	U		390	U		400	U	
DI-N-OCTYL PHTHALATE		380	U		440	UJ	C	390	UJ	C	400	UJ	C
HEXACHLOROBENZENE		380	U		440	U		390	U		400	U	
HEXACHLOROBUTADIENE		380	U		440	U		390	U		400	U	
HEXACHLOROETHANE		380	U		440	U		390	U		400	U	
ISOPHORONE		380	U		440	U		390	U		400	U	
NITROBENZENE		380	U		440	U		390	U		400	U	
N-NITROSODIMETHYLAMINE		380	U		440	U		390	U		400	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		440	U		390	U		400	U	
N-NITROSODIPHENYLAMINE		380	U		440	U		390	U		400	U	
N-NITROSOPYRROLIDINE		380	U		440	U		390	U		400	U	
PENTACHLOROPHENOL		940	U		1100	U		980	U		990	U	
PHENOL		380	U		440	U		390	U		400	U	

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508			DA-SS134-011508			DA-SSDUP03-011508		
SDG: CTO402-3	LAB_ID	SB0270-11			SB0270-25			SB0270-19		
FRACTION: OS	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.2			78.0			86.8		
	DUP_OF							DA-SS103B-011508		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		410	U		420	U		380	U	
BUTYL BENZYL PHTHALATE		410	U		420	U		380	U	
CARBAZOLE		270	J	P	420	U		280	J	P
DIBENZOFURAN		410	U		420	U		380	U	
DIETHYL PHTHALATE		410	U		420	U		380	U	
DIMETHYL PHTHALATE		410	U		420	U		380	U	
DI-N-BUTYL PHTHALATE		410	U		420	U		380	U	
DI-N-OCTYL PHTHALATE		410	U		420	U		380	U	
HEXACHLOROBENZENE		410	U		420	U		380	U	
HEXACHLOROBUTADIENE		410	U		420	U		380	U	
HEXACHLOROETHANE		410	U		420	U		380	U	
ISOPHORONE		410	U		420	U		380	U	
NITROBENZENE		410	U		420	U		380	U	
N-NITROSODIMETHYLAMINE		410	U		420	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		410	U		420	U		380	U	
N-NITROSODIPHENYLAMINE		410	U		420	U		380	U	
N-NITROSOPYRROLIDINE		410	U		420	U		380	U	
PENTACHLOROPHENOL		1000	U		1000	U		940	U	
PHENOL		410	U		420	U		380	U	

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508			DA-SS104-011508			DA-SS105-011508		
SDG: CTO402-3	LAB_ID	SB0270-18			SB0270-10			SB0270-16			SB0270-2		
FRACTION: PAH	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		26	U		21	J	P	130			23	U	
ACENAPHTHENE		14	J	P	110			150			5.2	J	P
ACENAPHTHYLENE		6.7	J	P	7.4	J	P	24	U		10	J	P
ANTHRACENE		28	J		190	J	G	520			19	J	P
BENZO(A)ANTHRACENE		130			710			1400			90		
BENZO(A)PYRENE		120	J	N	880			720			79		
BENZO(B)FLUORANTHENE		96	J	N	690			600			49		
BENZO(G,H,I)PERYLENE		43	J	N	340	J	E	170			30	J	E
BENZO(K)FLUORANTHENE		78	J	N	590			580			44	J	C
CHRYSENE		120			730			1100			70		
DIBENZO(A,H)ANTHRACENE		28	J	CN	140	J	C	96	J	C	19	J	P
FLUORANTHENE		230			1300	J	G	3000			140		
FLUORENE		12	J	P	84			250			6	J	P
INDENO(1,2,3-CD)PYRENE		64	J	CN	300	J	C	200	J	C	45		
NAPHTHALENE		26	U		62	J	G	270			23	U	
PHENANTHRENE		120			790	J	G	2500			73		
PYRENE		180			1600			2900			120	J	C

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508			DA-SS108-011508			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-4			SB0270-22			SB0270-14			SB0244-2		
FRACTION: PAH	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		25	U		22	U		23	U		24	U	
ACENAPHTHENE		9.2	J	P	3	J	P	6.5	J	P	9.8	J	P
ACENAPHTHYLENE		4.2	J	P	22	U		5.2	J	P	3.8	J	P
ANTHRACENE		15	J	P	4	J	P	14	J	P	14	J	P
BENZO(A)ANTHRACENE		83			22	U		49			61		
BENZO(A)PYRENE		78			22	U		45	J	N	55		
BENZO(B)FLUORANTHENE		58			22	U		28	J	N	32		
BENZO(G,H,I)PERYLENE		35	J	E	6	J	P	22	J	ENP	25	J	E
BENZO(K)FLUORANTHENE		46	J	C	22	U		25	J	N	32	J	C
CHRYSENE		77			4.6	J	P	42			53		
DIBENZO(A,H)ANTHRACENE		20	J	P	22	UJ	C	11	J	CNP	14	J	P
FLUORANTHENE		140			7.1	J	P	70			93		
FLUORENE		7	J	P	22	U		5.7	J	P	7.3	J	P
INDENO(1,2,3-CD)PYRENE		49			22	UJ	C	29	J	CN	32		
NAPHTHALENE		25	U		22	U		23	U		24	U	
PHENANTHRENE		67			6.3	J	P	40			79		
PYRENE		130	J	C	22	U		54			100	J	C

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508			DA-SS110B-011508			DA-SS111B-011408			DA-SS126-011408		
SDG: CTO402-3	LAB_ID	SB0270-8			SB0270-24			SB0244-8			SB0244-10		
FRACTION: PAH	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		17	J	P	33			33			74		
ACENAPHTHENE		130			220			180			600	J	P
ACENAPHTHYLENE		13	J	P	38			24	U		96		
ANTHRACENE		310			410	J	P	380			1500		
BENZO(A)ANTHRACENE		1100			1200			1100			5100		
BENZO(A)PYRENE		880			1100			1000			3000		
BENZO(B)FLUORANTHENE		690			870			790			3300		
BENZO(G,H,I)PERYLENE		180	J	E	240			250	J	E	1100	J	EP
BENZO(K)FLUORANTHENE		620			780			800			2900		
CHRYSENE		970			1200			960			4700		
DIBENZO(A,H)ANTHRACENE		110	J	C	140	J	C	120			330		
FLUORANTHENE		2100			2400			2300			8700		
FLUORENE		130			200			150			540	J	CP
INDENO(1,2,3-CD)PYRENE		210	J	C	250	J	C	280			1500		
NAPHTHALENE		32			32			54			79		
PHENANTHRENE		1300			2300			1500			5900	J	C
PYRENE		2300			3000			2100			13000		

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508			DA-SS129-011408			DA-SS130-011508			DA-SS132-011408		
SDG: CTO402-3	LAB_ID	SB0270-6			SB0244-12			SB0270-4			SB0244-6		
FRACTION: PAH	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		2400	J	P	37			12	J	P	140		
ACENAPHTHENE		9500			210			60			240		
ACENAPHTHYLENE		23	U		15	J	P	12	J	P	24	U	
ANTHRACENE		13000			580			160			390		
BENZO(A)ANTHRACENE		20000			1400			370			870	J	P
BENZO(A)PYRENE		17000			1200			370			750	J	P
BENZO(B)FLUORANTHENE		12000			910			390			520	J	P
BENZO(G,H,I)PERYLENE		7400	J	E	320	J	E	160	J	E	230	J	E
BENZO(K)FLUORANTHENE		12000			930			340			390	J	C
CHRYSENE		17000			1300			540			970		
DIBENZO(A,H)ANTHRACENE		3500			140			91			110		
FLUORANTHENE		45000			2900			1100			1400		
FLUORENE		5900	J	C	260			56			190		
INDENO(1,2,3-CD)PYRENE		9200			310			180			200		
NAPHTHALENE		11000			40			24			36		
PHENANTHRENE		48000	J	C	2600			720			2500		
PYRENE		50000			2800			1300			3200		

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508			DA-SS134-011508			DA-SSDUP03-011508RA		
SDG: CTO402-3	LAB_ID	SB0270-12			SB0270-26			SB0270-20RA		
FRACTION: PAH	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.2			78.0			86.8		
	DUP_OF							DA-SS103B-011508		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		53			26	U		51		
ACENAPHTHENE		110			4.6	J	P	130		
ACENAPHTHYLENE		10	J	P	3.6	J	P	23	U	
ANTHRACENE		400			6.4	J	P	360	J	G
BENZO(A)ANTHRACENE		1200			21	J	P	1100		
BENZO(A)PYRENE		940			24	J	P	960		
BENZO(B)FLUORANTHENE		650			19	J	P	760		
BENZO(G,H,I)PERYLENE		300	J	E	15	J	P	340		
BENZO(K)FLUORANTHENE		610			19	J	P	640		
CHRYSENE		1100			22	J	P	1100		
DIBENZO(A,H)ANTHRACENE		160			26	UJ	C	160		
FLUORANTHENE		2300			38			2200	J	G
FLUORENE		130	J	C	26	U		110	J	C
INDENO(1,2,3-CD)PYRENE		280			17	J	CP	300		
NAPHTHALENE		66			26	U		130	J	CG
PHENANTHRENE		1600	J	C	18	J	P	1700	J	G
PYRENE		2600			26			2600		

PROJ_NO: 00816 SDG: CTO402-3 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508			DA-SS104-011508			DA-SS105-011508		
	LAB_ID	SB0270-17			SB0270-9			SB0270-15			SB0270-1		
	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4.3	U		3.8	U		2.1	J	P	3.8	U	
4,4'-DDE		4	J	P	5.9			5.1			1.2	J	P
4,4'-DDT		5.7			3.8	U		6.5			1.8	J	P
ALDRIN		2.2	U		2	U		2	U		2	U	
ALPHA-BHC		2.2	U		2	U		2	U		2	U	
ALPHA-CHLORDANE		2.2	U		2	U		2	U		2	U	
AROCLOR-1016		22	U		20	U		20	U		20	U	
AROCLOR-1221		22	U		20	U		20	U		20	U	
AROCLOR-1232		22	U		20	U		20	U		20	U	
AROCLOR-1242		22	U		20	U		20	U		20	U	
AROCLOR-1248		22	U		20	U		20	U		20	U	
AROCLOR-1254		22	U		20	U		20	U		20	U	
AROCLOR-1260		22	U		220	J	G	80			20	U	
AROCLOR-1268		22	U		880	J	G	20	U		20	U	
BETA-BHC		2.2	U		2	U		2	U		2	U	
DELTA-BHC		2.2	U		2	U		2	U		2	U	
DIELDRIN		4.3	U		3.8	U		3.9	U		3.8	U	
ENDOSULFAN I		2.2	U		2	U		2	U		2	U	
ENDOSULFAN II		4.3	U		3.8	U		3.9	U		3.8	U	
ENDOSULFAN SULFATE		4.3	U		3.8	U		3.9	U		3.8	UJ	C
ENDRIN		4.3	U		3.8	U		3.9	U		3.8	U	
ENDRIN ALDEHYDE		4.3	U		3.8	U		3.9	U		3.8	U	
ENDRIN KETONE		4.3	U		3.8	U		3.9	U		3.8	U	
GAMMA-BHC (LINDANE)		2.2	U		2	U		2	U		2	U	
GAMMA-CHLORDANE		2.2	U		2	U		2	U		2	U	
HEPTACHLOR		2.2	U		2	U		2	U		2	U	
HEPTACHLOR EPOXIDE		2.2	U		2	U		2	U		2	U	
METHOXYCHLOR		22	U		20	U		20	U		20	U	
TOXAPHENE		43	U		38	U		39	U		38	U	

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508			DA-SS108-011508			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-3			SB0270-21			SB0270-13			SB0244-1		
FRACTION: PEST/PCB	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4.1	U		3.7	U		3.8	U		3.9	U	
4,4'-DDE		5.9			3.7	U		1.1	J	P	1.7	J	P
4,4'-DDT		4.1	U		3.7	U		1.4	J	P	3.3	J	P
ALDRIN		2.1	U		1.9	U		2	U		2	U	
ALPHA-BHC		2.1	U		1.9	U		2	U		2	U	
ALPHA-CHLORDANE		2.1	U		1.9	U		2	U		2	U	
AROCLOR-1016		21	U		19	UJ	C	20	U		20	U	
AROCLOR-1221		21	U		19	U		20	U		20	U	
AROCLOR-1232		21	U		19	U		20	U		20	U	
AROCLOR-1242		21	U		19	U		20	U		20	U	
AROCLOR-1248		21	U		19	U		20	U		20	U	
AROCLOR-1254		21	U		19	U		20	U		20	U	
AROCLOR-1260		68			19	U		20	U		20	U	
AROCLOR-1268		21	U		19	U		20	U		20	U	
BETA-BHC		2.1	U		1.9	U		2	U		2	U	
DELTA-BHC		2.1	U		1.9	U		2	U		2	U	
DIELDRIN		4.1	U		3.7	U		3.8	U		3.9	U	
ENDOSULFAN I		2.1	U		1.9	U		2	U		2	U	
ENDOSULFAN II		4.1	U		3.7	U		3.8	U		3.9	U	
ENDOSULFAN SULFATE		4.1	UJ	C	3.7	U		3.8	U		3.9	UJ	C
ENDRIN		4.1	U		3.7	U		3.8	U		3.9	U	
ENDRIN ALDEHYDE		4.1	U		3.7	U		3.8	U		3.9	U	
ENDRIN KETONE		4.1	U		3.7	U		3.8	U		3.9	U	
GAMMA-BHC (LINDANE)		2.1	U		1.9	U		2	U		2	U	
GAMMA-CHLORDANE		2.1	U		1.9	U		2	U		2	U	
HEPTACHLOR		2.1	U		1.9	U		2	U		2	U	
HEPTACHLOR EPOXIDE		2.1	U		1.9	U		2	U		2	U	
METHOXYCHLOR		21	U		19	U		20	U		20	U	
TOXAPHENE		41	U		37	U		38	U		39	U	

PROJ_NO: 00816 SDG: CTO402-3 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SS110-011508			DA-SS110B-011508			DA-SS111B-011408			DA-SS126-011408		
	LAB_ID	SB0270-7			SB0270-23			SB0244-7			SB0244-9		
	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.9	U		4	U		3.9	U		4	U	
4,4'-DDE		3.9	U		6.6			3.9	U		4	U	
4,4'-DDT		3.9	U		18	J	U	3.9	U		4	U	
ALDRIN		2	U		2	U		2	U		2.1	U	
ALPHA-BHC		2	U		2	U		2	U		2.1	U	
ALPHA-CHLORDANE		2	U		2	U		2	U		2.1	U	
AROCLOR-1016		20	U		20	U		20	U		21	U	
AROCLOR-1221		20	U		20	U		20	U		21	U	
AROCLOR-1232		20	U		20	U		20	U		21	U	
AROCLOR-1242		20	U		20	U		20	U		21	U	
AROCLOR-1248		20	U		20	U		20	U		21	U	
AROCLOR-1254		20	U		20	U		20	U		21	U	
AROCLOR-1260		260			220			20	U		21	U	
AROCLOR-1268		20	U		620			20	U		21	U	
BETA-BHC		2	U		2	U		2	U		2.1	U	
DELTA-BHC		2	U		2	U		2	U		2.1	U	
DIELDRIN		3.9	U		4	U		3.9	U		4	U	
ENDOSULFAN I		2	U		2	U		2	U		2.1	U	
ENDOSULFAN II		3.9	U		4	U		3.9	U		4	U	
ENDOSULFAN SULFATE		3.9	UJ	C	4	U		3.9	UJ	C	4	UJ	C
ENDRIN		3.9	U		4	U		3.9	U		4	U	
ENDRIN ALDEHYDE		3.9	U		4	U		3.9	U		4	U	
ENDRIN KETONE		3.9	U		4	U		3.9	U		4	U	
GAMMA-BHC (LINDANE)		2	U		2	U		2	U		2.1	U	
GAMMA-CHLORDANE		2	U		2	U		2	U		2.1	U	
HEPTACHLOR		2	U		2	U		2	U		2.1	U	
HEPTACHLOR EPOXIDE		2	U		2	U		2	U		2.1	U	
METHOXYCHLOR		20	U		20	U		20	U		21	U	
TOXAPHENE		39	U		40	U		39	U		40	U	

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508			DA-SS129-011408			DA-SS130-011508			DA-SS132-011408		
SDG: CTO402-3	LAB_ID	SB0270-5			SB0244-11			SB0270-3			SB0244-5		
FRACTION: PEST/PCB	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	3.8	U		4.4	U		3.9	U		4	U	
4,4'-DDE	3.8	U		7.9			5.4			2.7	J	P
4,4'-DDT	3.8	U		12			16	J	U	5.4		
ALDRIN	1.9	U		2.2	U		2	U		2	U	
ALPHA-BHC	1.9	U		2.2	U		2	U		2	U	
ALPHA-CHLORDANE	1.9	U		2.2	U		2	U		2	U	
AROCLOR-1016	19	U		22	U		20	U		20	U	
AROCLOR-1221	19	U		22	U		20	U		20	U	
AROCLOR-1232	19	U		22	U		20	U		20	U	
AROCLOR-1242	19	U		22	U		20	U		20	U	
AROCLOR-1248	19	U		22	U		20	U		20	U	
AROCLOR-1254	19	U		22	U		20	U		20	U	
AROCLOR-1260	19	U		120			170			67		
AROCLOR-1268	19	U		280			460			290	J	U
BETA-BHC	1.9	U		2.2	U		2	U		2	U	
DELTA-BHC	1.9	U		2.2	U		2	U		2	U	
DIELDRIN	3.8	U		4.4	U		3.9	U		4	U	
ENDOSULFAN I	1.9	U		2.2	U		2	U		2	U	
ENDOSULFAN II	3.8	U		4.4	U		3.9	U		4	U	
ENDOSULFAN SULFATE	3.8	UJ	C	4.4	UJ	C	3.9	UJ	C	4	U	
ENDRIN	3.8	U		4.4	U		3.9	U		4	U	
ENDRIN ALDEHYDE	3.8	U		4.4	U		3.9	U		4	U	
ENDRIN KETONE	3.8	U		4.4	U		3.9	U		4	U	
GAMMA-BHC (LINDANE)	1.9	U		2.2	U		2	U		2	U	
GAMMA-CHLORDANE	1.9	U		2.2	U		2	U		2	U	
HEPTACHLOR	1.9	U		2.2	U		2	U		2	U	
HEPTACHLOR EPOXIDE	1.9	U		2.2	U		2	U		2	U	
METHOXYCHLOR	19	U		22	U		20	U		20	U	
TOXAPHENE	38	U		44	U		39	U		40	U	

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508			DA-SS134-011508			DA-SSDUP03-011508		
SDG: CTO402-3	LAB_ID	SB0270-11			SB0270-25			SB0270-19		
FRACTION: PEST/PCB	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.2			78.0			86.8		
	DUP_OF							DA-SS103B-011508		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4.1	U		4.2	U		3.8	U	
4,4'-DDE		2.2	J	P	1.6	J	P	4.8		
4,4'-DDT		4.1	U		1.7	J	P	9.1		
ALDRIN		2.1	U		2.2	U		2	U	
ALPHA-BHC		2.1	U		2.2	U		2	U	
ALPHA-CHLORDANE		2.1	U		2.2	U		2	U	
AROCLOR-1016		21	U		22	UJ	C	20	U	
AROCLOR-1221		21	U		22	U		20	U	
AROCLOR-1232		21	U		22	U		20	U	
AROCLOR-1242		21	U		22	U		20	U	
AROCLOR-1248		21	U		22	U		20	U	
AROCLOR-1254		21	U		22	U		20	U	
AROCLOR-1260		130			22	U		99	J	G
AROCLOR-1268		21	U		22	U		280		
BETA-BHC		2.1	U		2.2	U		2	U	
DELTA-BHC		2.1	U		2.2	U		2	U	
DIELDRIN		4.1	U		4.2	U		3.8	U	
ENDOSULFAN I		2.1	U		2.2	U		2	U	
ENDOSULFAN II		4.1	U		4.2	U		3.8	U	
ENDOSULFAN SULFATE		4.1	U		4.2	U		3.8	U	
ENDRIN		4.1	U		4.2	U		3.8	U	
ENDRIN ALDEHYDE		4.1	U		4.2	U		3.8	U	
ENDRIN KETONE		4.1	U		4.2	U		3.8	U	
GAMMA-BHC (LINDANE)		2.1	U		2.2	U		2	U	
GAMMA-CHLORDANE		2.1	U		2.2	U		2	U	
HEPTACHLOR		2.1	U		2.2	U		2	U	
HEPTACHLOR EPOXIDE		2.1	U		2.2	U		2	U	
METHOXYCHLOR		21	U		22	U		20	U	
TOXAPHENE		41	U		42	U		38	U	

PROJ_NO: 00816	NSAMPLE	DA-SS102B-011508			DA-SS103B-011508			DA-SS104-011508			DA-SS105-011508		
SDG: CTO402-3	LAB_ID	SB0270-17			SB0270-9			SB0270-15			SB0270-1		
FRACTION: PET	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/15/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	77.4			87.1			83.7			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.8	U	A	3	U	A	3	U	A	3.3	U	A
TPH (C09-C36)		89			91			23			19		

PROJ_NO: 00816	NSAMPLE	DA-SS106-011408			DA-SS107-011508			DA-SS108-011508			DA-SS109-011408		
SDG: CTO402-3	LAB_ID	SB0244-3			SB0270-21			SB0270-13			SB0244-1		
FRACTION: PET	SAMP_DATE	1/14/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.9			89.4			87.1			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.3	UJ	AR	2.5	U	A	2.8	U	A	3	U	A
TPH (C09-C36)		22			9.5	U	A	18			15		

PROJ_NO: 00816	NSAMPLE	DA-SS110-011508			DA-SS110B-011508			DA-SS111B-011408			DA-SS126-011408		
SDG: CTO402-3	LAB_ID	SB0270-7			SB0270-23			SB0244-7			SB0244-9		
FRACTION: PET	SAMP_DATE	1/15/2008			1/15/2008			1/14/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	84.5			83.4			84.2			81.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3	U	A	3	U	A	2.6	U	A	3.2	U	A
TPH (C09-C36)		260			150			35			260		

PROJ_NO: 00816	NSAMPLE	DA-SS127-011508			DA-SS129-011408			DA-SS130-011508			DA-SS132-011408		
SDG: CTO402-3	LAB_ID	SB0270-5			SB0244-11			SB0270-3			SB0244-5		
FRACTION: PET	SAMP_DATE	1/15/2008			1/14/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.6			75.8			84.0			82.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.5	U	A	3.2	U	A	2.8	U	A	3.2	U	A
TPH (C09-C36)		1600			86			42			90		

PROJ_NO: 00816	NSAMPLE	DA-SS133-011508			DA-SS134-011508			DA-SSDUP03-011508			DA-SSTB-03-011408		
SDG: CTO402-3	LAB_ID	SB0270-11			SB0270-25			SB0270-19			SB0244-13		
FRACTION: PET	SAMP_DATE	1/15/2008			1/15/2008			1/15/2008			1/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			TB		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.2			78.0			86.8			.0		
	DUP_OF							DA-SS103B-011508					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.2	U	A	3.7	U	A	3.2	U	A	2.5	U	A
TPH (C09-C36)		100			41			82					

PROJ_NO: 00816	NSAMPLE	DA-SSTB04-011508		
SDG: CTO402-3	LAB_ID	SB0270-27		
FRACTION: PET	SAMP_DATE	1/15/2008		
MEDIA: SOIL	QC_TYPE	TB		
	UNITS	MG/KG		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.5	U	A
TPH (C09-C36)				

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2690W

Date: April 11, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: Jim Forelli (w/enc.)

From: NF for Paula DiMattei (no copy)

Subject: Tier I/II Inorganic Data Validation, SDG CTO402-4
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum/pH/TOC/Grain Size:

3/Soils/	DA-SS105B-011608	DA-SS152-011608	DA-SS153-011608

TAL Metals and Molybdenum:

9/Soils/	DA-SS104B-011608	DA-SS112B-011608	DA-SS113B-011608
	DA-SS118B-011608	DA-SS119B-011608	DA-SS128-011608
	DA-SS131-011608	DA-SSDUP04-011608	DA-SSDUP05-011608

(Field Duplicates: DA-SS112B-011608/DA-SSDUP04-011608 and DA-SS119B-011608/DA-SSDUP05-011608)

1/Rinsate blank/ DA-SS-RB02

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area on January 16, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The metals analysis was performed according to USEPA SW-846 Methods 6010B/6020/7471A. Additionally, a Tier I data validation was performed on the pH, total organic carbon (TOC), and grain size analytical data from these soil samples. The pH analysis was performed according to USEPA SW-846 Method 9045C, the TOC analysis according to the Lloyd Kahn method, and the grain size analysis according to ASTM D422. The Tier I and Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Also enclosed are the particle size distribution graphs from the grain size analysis.

The data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- * ICP-MS Tuning
- * Calibration Verification
- Field and Laboratory Blank Analyses
- ICP Interference Check Sample Results
- Matrix Spike/Matrix Spike Duplicate
- NA Laboratory Duplicate Results

* • Laboratory Control Sample Results
* • Field Duplicate Precision
• ICP Serial Dilution Results
* • Internal Standard Performance
* • Reporting Limits
NA • Sample Quantitation

* - All quality control criteria were met for this parameter.
NA - Not applicable for this SDG or for a Tier II data validation.

Data Completeness

The laboratory was contacted on February 29, 2008 regarding clarification of the performance of the ICP-MS tune and regarding clarification of the internal standards assigned to the target analytes. The responses were received on February 29, 2008 and March 4, 2008. The laboratory was contacted on February 29, 2008 for the missing molybdenum data. This response was received on March 14, 2008.

For the Tier I data validation, all data completeness requirements were met.

Field and Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the aqueous rinsate blank sample:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Copper	0.47	2.4	DA-SS-RB02
Mercury	0.04	0.2	
Molybdenum	0.53	2.7	
Zinc	2.02	10.1	

The positive results below the blank action levels for copper, mercury, molybdenum, and zinc were changed to non-detected values (U) in the affected aqueous rinsate blank sample due to laboratory blank contamination.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Concentration (µg/L)	Action Level (mg/kg)	Affected Samples
Molybdenum	0.53	0.27	DA-SS112B-011608, DA-SS113B-011608, DA-SS118B-011608, DA-SS119B-011608, DA-SS152-011608, DA-SS153-011608, DA-SSDUP05-011608
Sodium	105	52.6	All soil samples

(Continued next page)

(Continued)

Analyte	Maximum Concentration (µg/L)	Action Level (mg/kg)	Affected Samples
Thallium	0.15	0.075	DA-SS104B-011608, DA-SS112B-011608, DA-SS118B-011608, DA-SS119B-011608, DA-SS128-011608, DA-SS131-011608, DA-SS152-011608, DA-SS153-011608, DA-SSDUP04-011608, DA-SSDUP05-011608

The positive results below the blank action level for molybdenum, sodium, and thallium were changed to non-detected values (U) at elevated reporting limits in the affected soil samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 1. The action level for each sample varies, based on the actual amount of soil sample analyzed, the percent solids for that sample, and the sample dilution factor.

Although molybdenum, selenium, sodium, and thallium contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample-specific elevated reporting limits, or because (in the case of sodium) there is no regulatory limit established for the metal in the soil samples. The results in the affected samples are usable as elevated reporting limits.

The rinsate blank was not used to establish blank action levels for the soil samples.

ICP Interference Check Sample Results

The following results were qualified in the affected soil samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Cadmium	J	UJ	Low	All samples
Molybdenum	J		Low	
Silver	J	UJ	Low	
Sodium	J		High	DA-SS104B-011608, DA-SS105B-011608, DA-SS152-01168, DA-SS153-011608
	UJ		High	DA-SS112B-01608, DA-SS113B-011608, DA-SS118B-011608, DA-SS119B-011608, DA-SS128-011608, DA-SS131-011608, DA-SSDUP04-011608, DA-SSDUP05-011608

The positive and nondetect results for cadmium, molybdenum, and silver in all affected samples were qualified as estimated (J and UJ, respectively) due to negative ICP interference attributed to iron. These results may be biased low.

The positive results for sodium were qualified as estimated (J) in the affected samples due to positive ICP interference attributed to iron. These results may be biased high.

Professional judgment was used to change the positive results for sodium in samples DA-SS112B-01608, DA-SS113B-011608, DA-SS118B-011608, DA-SS119B-011608, DA-SS128-011608, DA-SS131-011608, DA-SSDUP04-011608, and DA-SSDUP05-011608 to estimated, non-detected values (UJ), rather than reject these results as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥ 80%) to positive iron ICP interference. These results may be false positive.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive and nondetect results for cadmium, molybdenum, and silver in the affected samples are usable as estimated values and estimated quantitation limits that may be biased low. The positive results for sodium in the affected samples are usable as estimated values that may be biased high.

Although there were ICP interferences attributed to the high concentration of iron that might account entirely for the reported sodium concentrations in the samples listed above, the project sensitivity goals are not impacted since there is no regulatory limit established for sodium in the soil samples. The sodium results for the affected samples are usable as estimated non-detects at the elevated reporting limits.

Matrix Spike/Matrix Spike Duplicate

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were performed for sample DA-SS104B-011608. The results of the MS/MSD analyses were below the 75% recovery criterion for antimony. The nondetect results for antimony were qualified as estimated (UJ) in all soil samples due to the low MS/MSD recoveries. The results may be biased low.

Although the MS/MSD recovery QC criteria were not met for antimony, the accuracy project goals are only slightly impacted. The nondetect results for antimony in the affected samples are usable as estimated reporting limits that may be biased low.

ICP Serial Dilution Results

The percent difference for copper was above the 15 percent QC criterion for analyte concentrations greater than 50x the instrument detection limit (IDL) before dilution, in the ICP serial dilution analysis of sample DA-SS104B-011608. The positive results for copper were qualified as estimated (J) in all soil samples. Since the initial sample result for this metal was lower than the diluted sample result, the data may be biased low.

Although the ICP serial dilution percent difference criteria were not met for copper, the accuracy project goals are only slightly impacted. The positive results for copper in the affected samples are usable as estimated values that may be biased low.

Reporting Limits

The laboratory reported non-detected results down to the IDL. The laboratory reporting limits met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Field and Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for this data set with the following exceptions. Select analytes were qualified as estimated due to ICP interferences attributed to the high concentration of iron in the samples, low MS/MSD recoveries (antimony), and ICP serial dilution result exceedance (copper). Although specific method criteria were not met in these instances, the affected positive and nondetect results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for this data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for this data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables
Particle Size Distribution Graphs

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
SDG: CTO402-4	LAB_ID	SB0305-009			SB0305-001			SB0305-015			SB0305-007		
FRACTION: M	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11500			11900			13000			15800		
ANTIMONY		0.14	UJ	D	0.19	UJ	D	0.16	UJ	D	0.16	UJ	D
ARSENIC		18.8			22.4			23.9			26		
BARIUM		35.8			38.4			15.9			14.8		
BERYLLIUM		0.5	J	P	0.5	J	P	0.39	J	P	0.37	J	P
CADMIUM		0.57	J	KP	0.48	J	KP	0.02	UJ	K	0.02	UJ	K
CALCIUM		1480			8940			1050			1240		
CHROMIUM		22.8			16			17.1			18.3		
COBALT		12.9			17.6			15.3			17.1		
COPPER		26	J	I	39	J	I	26.8	J	I	23.9	J	I
IRON		24100			30000			32800			39400		
LEAD		36.5			53.2			11.8			13.3		
MAGNESIUM		3370			3770			3980			4950		
MANGANESE		333			416			440			606		
MERCURY		0.03	J	P	0.09			0.01	J	P	0.03	J	P
MOLYBDENUM		0.68	J	KP	0.66	J	KP	0.25	UJ	AKP	0.29	UJ	AKP
NICKEL		25.9			30.4			27.3			30.2		
POTASSIUM		476			496			465			426		
SELENIUM		0.62	J	P	0.66	J	P	0.6	J	P	0.28	U	
SILVER		0.07	UJ	K	2	J	KP	0.09	UJ	K	0.09	UJ	K
SODIUM		51.6	UJ	AKP	65	UJ	AKP	32.7	UJ	AKP	28.2	UJ	AKP
THALLIUM		0.06	UJ	AP	0.04	U		0.07	UJ	AP	0.03	U	
VANADIUM		20.1			19.9			18.5			21		
ZINC		371			152			67.8			76		

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608			DA-SS119B-011608			DA-SS128-011608			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-025			SB0305-023			SB0305-017			SB0305-019		
FRACTION: M	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11500			13300			10800			12800		
ANTIMONY		0.17	UJ	D	0.18	UJ	D	0.09	UJ	D	0.16	UJ	D
ARSENIC		23.8			29.4			9.4			15.6		
BARIUM		20.2			27.8			21.2			28.5		
BERYLLIUM		0.45	J	P	0.53	J	KP	0.31	J	P	0.44	J	P
CADMIUM		0.02	UJ	K	0.02	U		0.01	UJ	K	0.56	J	KP
CALCIUM		259			724			994			1320		
CHROMIUM		15.2			15.9			13.9			16.4		
COBALT		14.2			14.8			11.2			12.7		
COPPER		23.4	J	I	21.7	J	I	16.6	J	I	23.1	J	I
IRON		29400			35100			21600			27100		
LEAD		17.1			19.9			63.7			33.9		
MAGNESIUM		2850			3480			3270			3660		
MANGANESE		339			419			443			397		
MERCURY		0.02	J	P	0.03	J	P	0.05			0.06		
MOLYBDENUM		0.52	UJ	AKP	0.36	UJ	AKP	1.8	J	K	0.53	J	KP
NICKEL		25.6			25.8			18.3			23.3		
POTASSIUM		458			510			475			608		
SELENIUM		0.44	J	P	0.69	J	P	0.26	J	P	0.67	J	P
SILVER		0.09	UJ	K	0.09	UJ	K	0.05	UJ	K	0.58	J	KP
SODIUM		45.7	UJ	AKP	45.7	UJ	AKP	26.6	UJ	AKP	41.3	UJ	AKP
THALLIUM		0.05	UJ	AP	0.06	UJ	AP	0.07	UJ	AP	0.06	UJ	AP
VANADIUM		23.8			20.8			17.9			22.9		
ZINC		64.3			70.6			56			97.6		

PROJ_NO: 00816	NSAMPLE	DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608			DA-SSDUP05-011608		
SDG: CTO402-4	LAB_ID	SB0305-003			SB0305-005			SB0305-013			SB0305-021		
FRACTION: M	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	77.8			81.1			81.7			84.4		
	DUP_OF							DA-SS112B-011608			DA-SS119B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		14000			12100			13500			12600		
ANTIMONY		0.09	UJ	D	0.18	UJ	D	0.14	UJ	D	0.16	UJ	D
ARSENIC		6			31.6			24			30.2		
BARIUM		24.8			27.9			19.9			27.3		
BERYLLIUM		0.45	J	P	0.44	J	P	0.38	J	P	0.47	J	P
CADMIUM		0.08	J	KP	0.02	UJ	K	0.02	UJ	K	0.02	UJ	K
CALCIUM		602			1290			1210			796		
CHROMIUM		14.3			15			16.6			15.1		
COBALT		4.7			11.9			15.4			14.8		
COPPER		12.9	J	I	21.1	J	I	23	J	I	22.2	J	I
IRON		17700			27300			32700			32500		
LEAD		14.5			23.4			12.5			19		
MAGNESIUM		2270			3120			4190			3420		
MANGANESE		105			377			518			476		
MERCURY		0.32			0.04	J	P	0.01	J	P	0.03	J	P
MOLYBDENUM		0.34	UJ	AKP	0.44	UJ	AKP	0.53	J	KP	0.38	UJ	AKP
NICKEL		14.3			22.4			27.8			25.7		
POTASSIUM		320			500			532			512		
SELENIUM		0.6	J	P	0.58	J	P	0.28	J	P	0.28	J	P
SILVER		0.05	UJ	K	0.09	UJ	K	0.08	UJ	K	0.08	UJ	K
SODIUM		44.9	UJ	AKP	58.9	UJ	AKP	37.8	UJ	AKP	47.2	UJ	AKP
THALLIUM		0.1	UJ	AP	0.04	UJ	AP	0.13	U	A	0.06	UJ	AP
VANADIUM		22.7			19.2			19.4			18.8		
ZINC		58			68.8			64.9			68.4		

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02
SDG: CTO402-4	LAB_ID	SB0305-027
FRACTION: M	SAMP_DATE	1/16/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	130	J	P
ANTIMONY	0.87	U	
ARSENIC	1.3	U	
BARIUM	0.58	J	P
BERYLLIUM	0.12	U	
CADMIUM	0.1	U	
CALCIUM	33.5	J	P
CHROMIUM	0.82	J	P
COBALT	0.26	U	
COPPER	0.57	UJ	AP
IRON	232		
LEAD	1.4	J	P
MAGNESIUM	28	J	P
MANGANESE	5	J	P
MERCURY	0.04	UJ	AP
MOLYBDENUM	0.32	UJ	AP
NICKEL	4.5	J	P
POTASSIUM	86	U	
SELENIUM	2.3	J	P
SILVER	0.46	U	
SODIUM	124	J	P
THALLIUM	0.35	U	
VANADIUM	0.29	U	
ZINC	4.7	UJ	AP

PROJ_NO: 00816	NSAMPLE	DA-SS105B-011608						DA-SS152-011608					
SDG: CTO402-4	LAB_ID	SB0305-1						SB0305-3					
FRACTION: MISC	SAMP_DATE	1/16/2008						1/16/2008					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	85.3			85.3			77.8			77.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.2						5.2		
TOTAL ORGANIC CARBON		30000						72000					

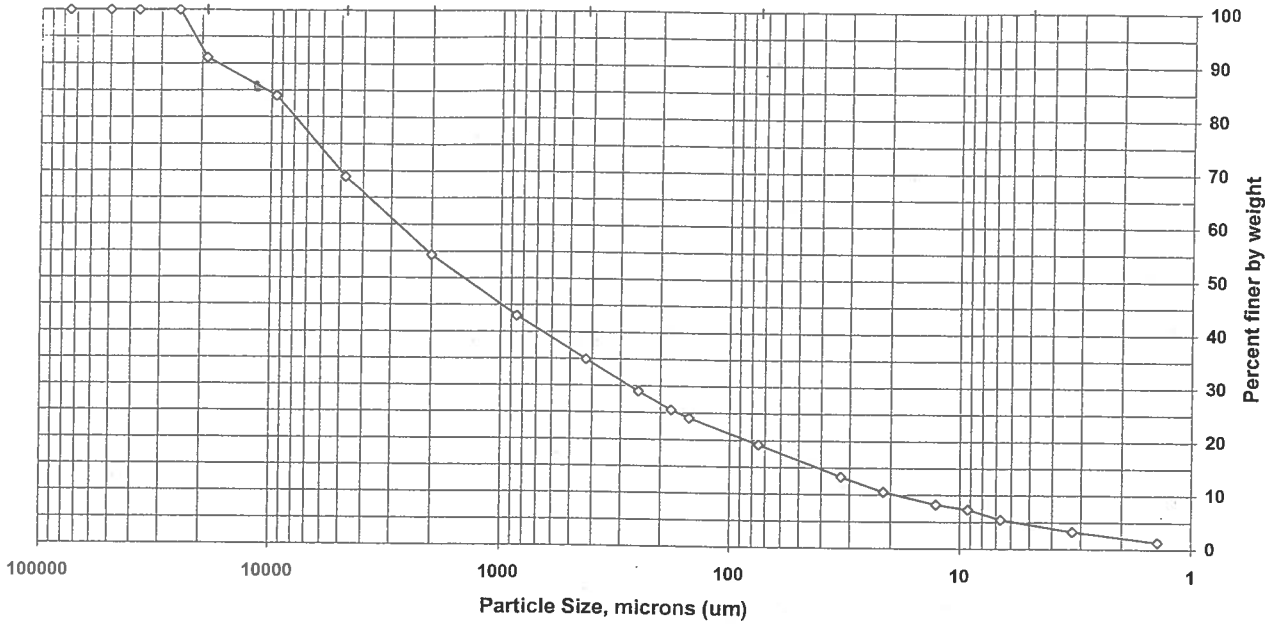
PROJ_NO: 00816 SDG: CTO402-4 FRACTION: MISC MEDIA: SOIL	NSAMPLE	DA-SS153-011608					
	LAB_ID	SB0305-5					
	SAMP_DATE	1/16/2008					
	QC_TYPE	NM					
	UNITS	MG/KG			S.U.		
	PCT_SOLIDS	81.1			81.1		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					5.3		
TOTAL ORGANIC CARBON		28000					

PROJ_NO: 00816	NSAMPLE	DA-SS105B-011608			DA-SS152-011608			DA-SS153-011608		
SDG: CTO402-4	LAB_ID	738543			738544			738545		
FRACTION: MISCO	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	%			%			%		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		1.9			2			3.1		
HYDROMETER-12.9UM		2.3			5.9			2.9		
HYDROMETER-20.5UM		2.8			10.9			5.9		
HYDROMETER-3.4UM		2.2			2.4			4		
HYDROMETER-30.5UM		5.9			38.6			11.5		
HYDROMETER-6.6UM		1.8			2.5			1.8		
HYDROMETER-9.1UM		0.9			2.5			2.9		
PERCENT CLAY		5.5			6.6			10.5		
PERCENT COARSE SAND		14.5			2			11.2		
PERCENT FINE SAND		15.7			19.9			19.1		
PERCENT GRAVEL		31.2			4.5			17.3		
PERCENT MEDIUM SAND		19.4			6.6			16.9		
PERCENT SILT		13.8			60.4			25		
SIEVE 1"		0			0			0		
SIEVE 1-1/2"		0			0			0		
SIEVE 2"		0			0			0		
SIEVE 3"		0			0			0		
SIEVE 3/4"		8.9			0			0		
SIEVE 3/8"		7.1			0			8.3		
SIEVE NO. 004		15.1			4.5			9.1		
SIEVE NO. 010		14.5			2			11.2		
SIEVE NO. 020		11.3			3.1			9.9		
SIEVE NO. 040		8			3.5			7		
SIEVE NO. 060		6			4			6.2		
SIEVE NO. 080		3.4			3.5			4.2		
SIEVE NO. 100		1.5			1.9			1.9		
SIEVE NO. 200		4.8			10.5			6.8		

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	C70402-4	**Date Received:**	1/18/2008
Sample ID:	DA-SS105B-011608	**ETR(s):**	123846	**Start Date:**	1/18/2008
Lab ID:	738543			**End Date:**	1/25/2008

Percent Solids:	86.6%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	91.1	8.9
3/8 inch	9500	84.0	7.1
#4	4750	68.8	15.1
#10	2000	54.3	14.5
#20	850	43.0	11.3
#40	425	35.0	8.0
#60	250	29.0	6.0
#80	180	25.6	3.4
#100	150	24.1	1.5
#200	75	19.2	4.8
Hydrometer	32.8	13.3	5.9
|	21.5	10.5	2.8
|	12.7	8.2	2.3
|	9.2	7.3	0.9
|	6.7	5.5	1.8
|	3.3	3.2	2.2
V	1.4	1.3	1.9

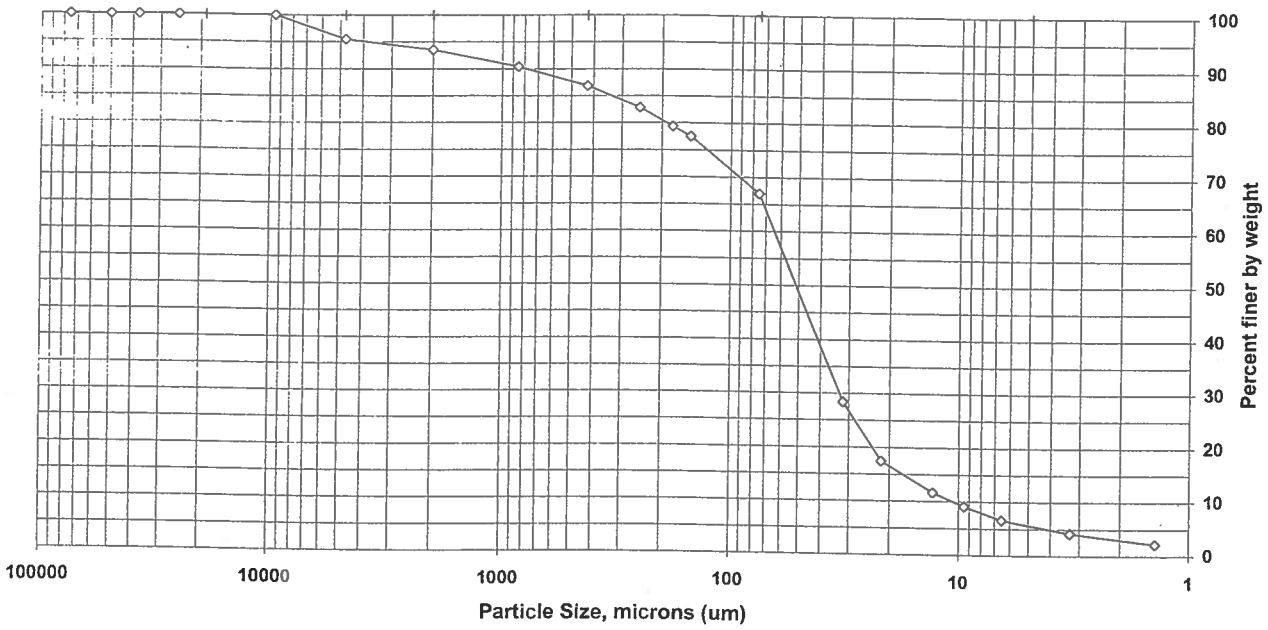
Soil Classification	Percent of Total Sample
Gravel	31.2
Sand	49.6
Coarse Sand	14.5
Medium Sand	19.4
Fine Sand	15.7
Silt	13.8
Clay	5.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	C70402-4	**Date Received:**	1/18/2008
Sample ID:	DA-SS152-011608	**ETR(s):**	123846	**Start Date:**	1/18/2008
Lab ID:	738544			**End Date:**	1/25/2008

Percent Solids:	78.3%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	95.5	4.5
#10	2000	93.5	2.0
#20	850	90.4	3.1
#40	425	86.9	3.5
#60	250	82.8	4.0
#80	180	79.4	3.5
#100	150	77.5	1.9
#200	75	67.0	10.5
Hydrometer	31.8	28.4	38.6
I	21.7	17.5	10.9
I	13.0	11.6	5.9
I	9.5	9.1	2.5
I	6.5	6.6	2.5
I	3.3	4.2	2.4
V	1.4	2.2	2.0

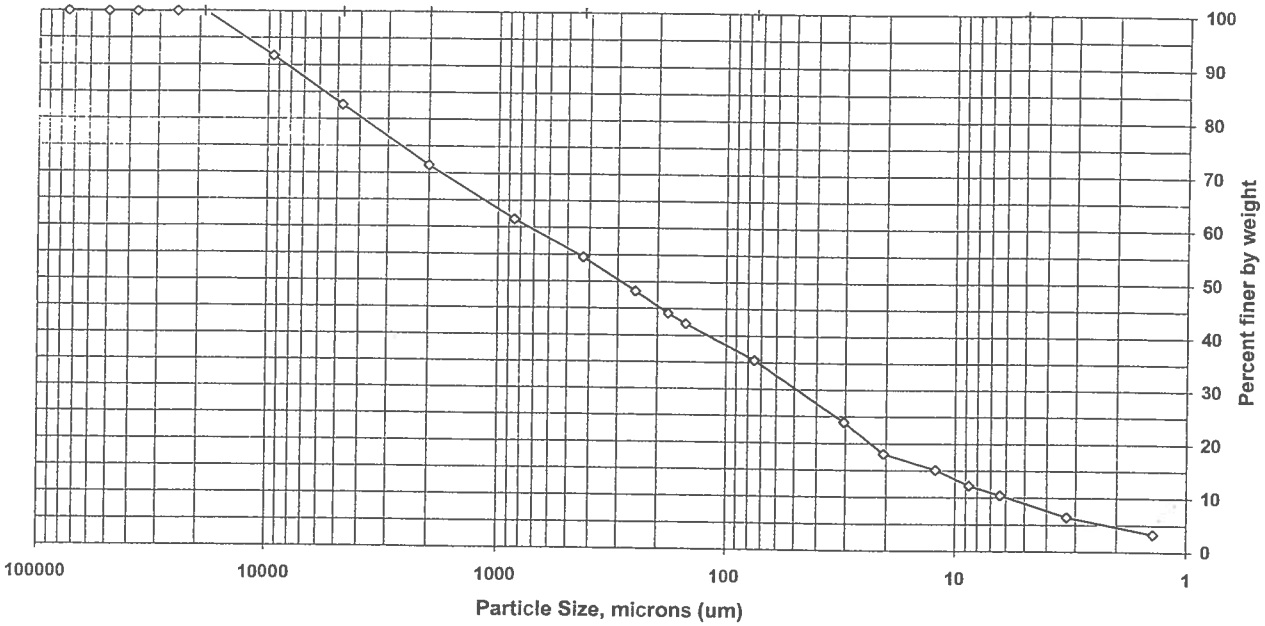
Soil Classification	Percent of Total Sample
Gravel	4.5
Sand	28.5
Coarse Sand	2.0
Medium Sand	6.6
Fine Sand	19.9
Silt	60.4
Clay	6.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	C70402-4	**Date Received:**	1/18/2008
Sample ID:	DA-SS153-011608	**ETR(s):**	123846	**Start Date:**	1/18/2008
Lab ID:	738545			**End Date:**	1/25/2008

Percent Solids:	83.5%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	91.7	8.3
#4	4750	82.7	9.1
#10	2000	71.4	11.2
#20	850	61.5	9.9
#40	425	54.5	7.0
#60	250	48.3	6.2
#80	180	44.1	4.2
#100	150	42.2	1.9
#200	75	35.4	6.8
Hydrometer	30.4	24.0	11.5
I	20.5	18.1	5.9
I	12.2	15.2	2.9
I	8.7	12.2	2.9
I	6.4	10.5	1.8
I	3.3	6.5	4.0
V	1.4	3.3	3.1

Soil Classification	Percent of Total Sample
Gravel	17.3
Sand	47.2
Coarse Sand	11.2
Medium Sand	16.9
Fine Sand	19.1
Silt	25.0
Clay	10.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2691W

Date: April 11, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO402-4
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

12/Soils/	DA-SS104B-011608	DA-SS105B-011608
	DA-SS112B-011608	DA-SS113B-011608
	DA-SS118B-011608	DA-SS119B-011608
	DA-SS128-011608	DA-SS131-011608
	DA-SS152-011608	DA-SS153-011608
	DA-SSDUP04-011608	DA-SSDUP05-011608
	(Field Duplicate Pairs: DA-SS112B-011608/DA-SSDUP04-011608, DA-SS119B-011608/DA-SSDUP05-011608)	
1/Rinsate Blank/	DA-SS-RB02	

VOC/GRO:

1/Soil/	DA-SS137-011608
1/Trip blank/	DA-SSTB05-011608

VOC:

1/Trip blank/	DA-SS-TB-RB

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on January 16, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analyses according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Pesticide Degradation
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- Analyte Identification
- * Percent Solids
- Reporting Limits

* All criteria were met for this parameter.

Data Completeness

Volatiles

The original volatiles data package did not include the Form I and corresponding chromatographs for sample DA-SS-RB02. On February 29, 2008, the laboratory submitted the appropriate pages.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acetone	-84.05	J	UJ	DA-SS-TB05-011608, DA-SS105B-011608, DA-SS152-011608, DA-SS113B-011608, DA-SS137-011608
Bromobenzene	26.13		UJ	DA-SS-TB05-011608, DA-SS105B-011608, DA-SS152-011608, DA-SS153-011608, DA-SS113B-011608, DA-SS104B-011608, DA-SS137-011608, DA-SSDUP04-011608, DA-SS112B-011608
1,1,2,2-Tetrachloroethane	27.36		UJ	
2-Chlorotoluene	26.85		UJ	
1,2,3-Trichloropropane	30.06		UJ	
tert-Butylbenzene	26.88		UJ	
Bromomethane	-39.52		UJ	DA-SS-RB02, DA-SS-TB-RB
Trichlorofluoromethane	41.17, 26.15		UJ	
Carbon tetrachloride	27.31		UJ	

Although the %D method criterion was outside of the QC limits for acetone, bromobenzene, 1,1,2,2-tetrachloroethane, 2-chlorotoluene, 1,2,3-trichloropropane, tert-butylbenzene, bromomethane, trichlorofluoromethane, and carbon tetrachloride; the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	44.56		UJ	All semivolatile samples

Although the %RSD method criterion was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
4-Nitrophenol	-36.79		UJ	DA-SS-RB02
Benzidine	82.60		UJ	DA-SS-RB02
3,3'-Dichlorobenzidine	-41.60		UJ	All soil samples
Butylbenzylphthalate	66.82, 56.16		UJ	All soil samples and DA-SS-RB02
Bis(2-ethylhexyl)phthalate	76.81, 60.24		UJ	
Di-n-octylphthalate	76.58, 71.90		UJ	

Although the %D method criterion was outside of the QC limits for 3,3'-dichlorobenzidine, butylbenzylphthalate and benzidine, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The project accuracy goals may be slightly impacted limits for bis(2-ethylhexyl)phthalate and di-n-octylphthalate since the project quantitation limits exceed the project action limits for these compounds as highlighted in the approved work plan. The non-detected results in the affected samples are usable as estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Phenanthrene	-26.61	J	UJ	DA-SS152-011608, DA-SSDUP04-011608, DA-SS128-011608
Fluorene	-28.76, -33.97	J	UJ	DA-SS152-011608, DA-SSDUP04-011608, DA-SS128-011608, DA-SS112B-011608, DA-SS119B-011608, DA-SS153-011608, DA-SS105B-011608
Chrysene	-26.06	J	UJ	DA-SS105B-011608(DL), DA-SS153-011608(DL), DA-SSDUP04-011608(DL)
Napthalene	34.41	J	UJ	DA-SS105B-011608
Benzo(k)fluoroanthene	-27.96	J	UJ	DA-SS105B-011608(DL), DA-SS131-011608

Although the %D method criterion was outside of the QC limits for phenanthrene, fluorene, chrysene, napthalene, and benzo(k)fluoroanthene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these

compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Endosulfan sulfate	32.00	29.20		UJ	DA-SS105B-011608, DA-SS152-011608, DA-SS153-011608, DA-SS113B-011608, DA-SSDUP04-011608, DA-SS112B-011608, DA-SS128-011608, DA-SS104B-011608

Although the %D method criterion was outside of the QC limits for endosulfan sulfate, the project accuracy goals were not impacted since there are no regulatory limits established for this compound. The non-detected endosulfan sulfate results in the affected samples are usable as estimated quantitation limits.

PCB

The following table summarizes the Aroclors that failed to meet the continuing calibration (CC) criterion of average %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	92.24, 28.80	86.97, 32.76		UJ	DA-SS152-011608, DA-SS153-011608, DA-SS113B-011608, DA-SSDUP04-011608, DA-SS112B-011608, DA-SS128-011608, DA-SS105B-011608
Aroclor-1260	80.08	82.60	J	UJ	DA-SS152-011608, DA-SS153-011608, DA-SS113B-011608, DA-SSDUP04-011608, DA-SS112B-011608, DA-SS128-011608

Although the %D method criterion was outside of the QC limits for Aroclor-1016 and Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these Aroclors. The non-detected Aroclor-1016 results in the affected samples are usable as estimated quantitation limits. The positive and non-detected Aroclor-1260 results in the affected samples are usable as estimated values and estimated quantitation limits.

GRO

The following table summarizes the GRO result that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
GRO	64.68		UJ	DA-SS-RB02

Although the %D method criterion was outside of the QC limits for GRO, the project accuracy goals were not impacted since there are no regulatory limits established for GRO. The non-detected result in the affected sample is usable as an estimated quantitation limit.

ExTPH

The following table summarizes the ExTPH results that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
ExTPH	31.20	J		DA-SS105B-011608(DL), DA-SS131-011608(DL)

Although the %D method criterion was outside of the QC limits for TPH, the project accuracy goals were not impacted since there are no regulatory limits established for TPH. The positive results in the affected samples are usable as estimated values.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory and field blanks associated with the samples.

Compound	Type of Blank	Maximum Conc.	Action Level	Affected Samples
Acetone	Method	5 ug/Kg	50 ug/Kg	DA-SS113B-011608, DA-SS131-011608, DA-SS152-011608, DA-SSDUP05-011608
Toluene	Method	2 ug/Kg	10 ug/Kg	DA-SS118B-011608(RA)
Methylene Chloride	Method	8 ug/Kg	80 ug/Kg	DA-SS131-011608
2-Butanone	Rinsate	6 ug/L	NA	DA-SS118B-011608(RA)

Blank actions were applied to the affected samples due to acetone, toluene, and methylene chloride method blank contamination and 2-butanone field blank contamination. (The 10x rule applies for the common laboratory contaminants acetone and methylene chloride, and the 5x rule applies for toluene). The positive results for acetone, toluene, and methylene chloride in the affected samples are changed to non-detected values at elevated reporting limits. The positive value for 2-butanone in the affected sample is estimated (J) due to possible field contamination detected in the rinsate blank.

Although acetone, toluene, and methylene chloride contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the elevated reporting limits do not exceed the project

action limits for these compounds. The results in the affected samples are usable with elevated detection limits which are all below the project action limits.

Although 2-butanone contamination was found in the field blank, the project accuracy goals are not impacted since the 2-butanone result in sample DA-SS118B-011608(RA) does not exceed the project action limits. The result in the affected sample is usable as an estimated value which may be biased high.

PAH

The following table summarizes the level of blank contamination detected in the field blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (ug/L)	Action Level	Affected Samples
2-Methylnapthalene	Rinsate	0.17	NA	DA-SS104B-011608, DA-SS105B-011608, DA-SS119B-011608, DA-SS131-011608, DA-SSDUP05-011608(RA)
Anthracene	Rinsate	0.46	NA	All soil samples
Napthalene	Rinsate	0.17	NA	All soil samples, except DA-SS128-011608 and DA-SS152-011608

Blank actions were applied to the affected samples due to 2-methylnapthalene, anthracene, and naphthalene rinsate blank contamination. The positive results in the affected samples are estimated (J) due to possible field contamination detected in the rinsate blank.

Although 2-methylnapthalene, anthracene, and naphthalene contamination was found in the field blank, the project accuracy goals are not impacted since the results in the affected samples do not exceed project action limits. The results in the affected samples are usable as estimated values which may be biased high.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	2.4	12	All soil samples

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

ExTPH

The following table summarizes the level of blank contamination detected in the field blank associated with the sample.

Compound	Type of Blank	Maximum Conc. (ug/L)	Action Level	Affected Sample
ExTPH	Rinsate	180	-	All soil samples

Blank actions were applied to the affected samples due to TPH rinsate blank contamination. The positive results in the affected samples are estimated (J) due to possible field contamination detected in the rinsate blank.

Although ExTPH contamination was found in the field blank, the project accuracy goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable as estimated values which may be biased high.

Surrogate Compounds

Volatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS104B-011608	BFB	52	70-130	J	UJ
DA-SS137-011608	BFB	66		J	UJ
DA-SSDUP04-011608	BFB	69		J	UJ
DA-SS131-011608	Toluene-d8	90	64-89	J	
	Dibromofluoromethane	114	61-98		

The surrogates p-bromofluorobenzene, toluene-d8, and dibromofluoromethane recovered above QC limits and p-bromofluorobenzene recovered below QC limits in the volatile samples shown in the table above. All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected samples due to low surrogate recoveries. All positive results are estimated (J) in the affected samples due to high surrogate recoveries.

Although the surrogate recovery QC criteria were not met for p-bromofluorobenzene, toluene-d8, and dibromofluoromethane, the project accuracy goals are slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low or high.

Semivolatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS-RB02	TPH-d14	158	45-133	J	

The surrogate terphenyl-d14 recovered above QC limits in the semivolatile sample shown in the table above. All positive results are estimated (J) in the affected sample due to high surrogate recoveries.

Although the surrogate recovery QC criteria were not met for terphenyl-d14, the project accuracy goals are slightly impacted. The positive results in the affected sample are usable as estimated values which may be biased high.

Internal Standards

Volatiles

The following table summarizes the volatile internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
CBZ	502342	558270-2233078	J	UJ	DA-SS104B-011608
DCB	106555	159765-639060	J	UJ	
	139231		J	UJ	DA-SS152-011608

The internal standard areas of chlorobenzene-d5 and 1,4-dichlorobenzene-d4 failed to meet the acceptable range for the above samples. The target compounds associated with chlorobenzene-d5 are 1,3-dichloropropane, tetrachloroethene, dibromochloromethane, chlorobenzene, 1,1,1,2-tetrachloroethene, ethylbenzene, xylenes(total), bromoform, styrene, and 2-hexanone. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

Although the QC criteria were not met for the internal standard areas of chlorobenzene-d5 and 1,4-dichlorobenzene-d4, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SS104B-011608 recovered the majority of the volatile compounds outside the compound-specific recovery limits and above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-SS104B-011608 due to high and low MS/MSD recoveries and MS/MSD imprecision.

Although the matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits, the project accuracy goals are only slightly impacted. The positive and non-detected results in sample DA-SS104B-011608 are usable as estimated values and estimated quantitation limits.

Although the matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits, the project precision goals are only slightly impacted. The positive and non-detected results in sample DA-SS104B-011608 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Semivolatiles

The matrix spike/matrix spike duplicate results for sample DA-SS104B-011608 recovered 0% benzidine. The non-detected benzidine result is qualified as rejected (R) in sample DA-SS104B-011608 due to no MS/MSD recovery. This result should not be used for project decisions.

PAH

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SS104B-011608 recovered naphthalene, 2-methylnaphthalene, fluorene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene above the compound-specific recovery limits, and naphthalene above the relative percent difference 50% QC limit. The positive naphthalene, 2-methylnaphthalene, fluorene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene results are estimated (J) in sample DA-SS104B-011608 due to high MS/MSD recoveries and MS/MSD imprecision.

Although the matrix spike/matrix spike duplicate recoveries for naphthalene, 2-methylnaphthalene, fluorene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene did not meet the QC limits, the project accuracy goals are only slightly impacted. The positive results in sample DA-SS104B-011608 are usable as estimated values which may be biased high.

Although the matrix spike/matrix spike duplicate relative percent differences for naphthalene did not meet the QC limits, the project precision goals are only slightly impacted. The positive naphthalene results in sample DA-SS104B-011608 are usable as estimated values for which the bias is indeterminate.

Pesticides

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SS104B-011608 recovered the majority of the pesticide compounds above the compound-specific recovery limits. All positive results are estimated (J) in sample DA-SS104B-011608 due to high MS/MSD recoveries.

Although the matrix spike/matrix spike duplicate recoveries for the majority of the pesticide compounds did not meet the QC limits, the project accuracy goals are only slightly impacted. The positive results in sample DA-SS104B-011608 are usable as estimated values which may be biased high.

PCBs

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SS104B-011608 recovered PCBs above the recovery limits. All positive results are estimated (J) in sample DA-SS104B-011608 due to high MS/MSD recoveries.

Although the matrix spike/matrix spike duplicate recoveries for PCBs exceeded the QC limits, the project accuracy goals are only slightly impacted. The positive results in sample DA-SS104B-011608 are usable as estimated values which may be biased high.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
1.2-Dibromoethane	88	89-119	J	UJ	DA-SSTB05-011608, DA-SS105B-011608, DA-SS152-011608, DA-SS153-011608, DA-SS113B-011608, DA-SS104B-011608, DA-SS137-011608, DA-SSDUP04-011608, DA-SS112B-011608
Bromobenzene	81	84-116	J	UJ	DA-SS128-011608(RA), DA-SSDUP05-011608(RA), DA-SS119B-011608(RA), DA-SS118B-011608(RA)
1,3,5-Trimethylbenzene	81	87-114	J	UJ	
Chloroethane	49	50-127	J	UJ	DA-SS131-011608
Trichlorofluoromethane	51	56-141	J	UJ	
Methyl tert-butyl ether	71	83-128	J	UJ	
cis-1,2-Dichloroethene	69	72-130	J	UJ	
2,2-Dichloropropane	72	76-132	J	UJ	
Bromochloromethane	78	81-127	J	UJ	
Chloroform	72	80-125	J	UJ	
1,1,1-Trichloroethane	70	83-130	J	UJ	
1,2-Dibromo-3-chloropropane	66	83-117	J	UJ	

The above compounds recovered below the QC limits in the laboratory control sample/laboratory control sample duplicate analysis. The positive results are estimated (J) and the non-detected results are estimated (UJ) in the affected samples. The results may be biased low.

Although the laboratory control sample recovery criteria were not met due to low LCS recoveries for 1,2-dibromoethane, bromobenzene, 1,3,5-trimethylbenzene, chloroethane, trichlorofluoromethane, methyl tert-butyl ether, cis-1,2-dichloroethene, 2,2-dichloropropane, bromochloromethane, chloroform, 1,1,1-trichloroethane, and 1,2-dibromo-3-chloropropane; the project accuracy goals were only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated detection limits which may be biased low

Field Duplicates

PAH

The field duplicates DA-SS112B-011608 and DA-SSDUP04-011608 exceeded the relative percent difference QC criterion of 50% for benzo(a)anthracene, benzo(b)fluoroanthene, chrysene, and phenanthrene. The positive results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for benzo(a)anthracene, benzo(b)fluoroanthene, chrysene, and phenanthrene exceeded the QC criterion, the project precision goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

The field duplicates DA-SS119B-011608 and DA-SSDUP05-011608 exceeded the relative percent difference QC criterion of 50% for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoroanthene, benzo(g,h,i)perylene, benzo(k)fluoroanthene, chrysene, fluoroanthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. The positive results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoroanthene, benzo(g,h,i)perylene, benzo(k)fluoroanthene, chrysene, fluoroanthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene exceeded the QC criterion, the project precision goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

ExTPH

The field duplicates DA-SS112B-011608 and DA-SSDUP04-011608 exceeded the relative percent difference QC criterion of 50% for ExTPH. The positive results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for ExTPH exceeded the QC criterion, the project precision goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for 4,4'-DDT in sample DA-SS128-011608. The positive results are estimated (J) in the affected samples due to instrument variability.

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples (DA-SS137-011608 and DA-SS152-011608).

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits, all reporting limits met project action limits.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, rinsate blank contamination, poor surrogate recoveries, low internal standard areas, poor matrix spike/matrix spike duplicate recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set with the following exception. Select compounds were qualified as estimated due to matrix spike/matrix spike duplicate imprecision. Although a specific method criterion were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. The reporting limit for vinyl chloride in select samples exceeded the project action limit. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and high surrogate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. The benzidine result in sample DA-SS104B-011608 is rejected due to 0% matrix spike recovery. Data usability is impacted; this result should not be used for project decisions.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, rinsate blank

contamination, and high matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to matrix spike/matrix spike duplicate imprecision and field duplicate imprecision. Although specific QC criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set. Data usability was not impacted with regards to sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, high surrogate recoveries, poor matrix spike/matrix spike duplicate recoveries, and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. Select compounds were qualified as estimated due instrument calibration variability and poor matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy were met for the GRO data set with the following exception. GRO results were qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the GRO data set. Data usability was not impacted with regards to precision and sensitivity.

ExTPH

The project goals with respect to accuracy were met for the TPH data set with the following exceptions. ExTPH results were qualified as estimated due to instrument calibration variability and rinsate blank contamination. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TPH data set with the following exception. ExTPH results for samples DA-SS112B-011608 and DA-SSDUP04-011608 were qualified as estimated due to field duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the TPH data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
SDG: CTO402-4	LAB_ID	SB0305-9			SB0305-1			SB0305-15			SB0305-7		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	UJ	DNR	5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	UJ	DR	5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	UJ	CDNR	5	UJ	C	5	UJ	C	5	UJ	C
1,1,2-TRICHLOROETHANE		5	UJ	DR	5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	UJ	DR	5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	UJ	DR	5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	UJ	DR	5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	UJ	DNR	5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	UJ	CDNR	5	UJ	C	5	UJ	C	5	UJ	C
1,2,4-TRICHLOROBENZENE		5	UJ	DNR	5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	UJ	DNR	5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	UJ	DNR	5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	UJ	DER	5	UJ	E	5	UJ	E	5	UJ	E
1,2-DICHLOROBENZENE		5	UJ	DNR	5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	UJ	DR	5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	UJ	DR	5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	UJ	DNR	5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	UJ	DNR	5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	UJ	DNR	5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	UJ	DNR	5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	UJ	DR	5	U		5	U		5	U	
2-BUTANONE		25	UJ	DR	25	U		25	U		25	U	
2-CHLOROTOLUENE		5	UJ	CDNR	5	UJ	C	5	UJ	C	5	UJ	C
2-HEXANONE		25	UJ	DNR	25	U		25	U		25	U	
4-CHLOROTOLUENE		5	UJ	DNR	5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	UJ	DR	5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	UJ	DR	25	U		25	U		25	U	
ACETONE		1700	U		25	UJ	C	1400	U		25	UJ	ACP
BENZENE		5	UJ	DR	5	U		5	U		5	U	
BROMOBENZENE		5	UJ	CDNR	5	UJ	C	5	UJ	C	5	UJ	C
BROMOCHLOROMETHANE		5	UJ	DR	5	U		5	U		5	U	
BROMODICHLOROMETHANE		5	UJ	DR	5	U		5	U		5	U	
BROMOFORM		5	UJ	DNR	5	U		5	U		5	U	
BROMOMETHANE		10	UJ	DR	10	U		10	U		10	U	
CARBON DISULFIDE		5	UJ	DR	5	U		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608RA			DA-SS119B-011608RA			DA-SS128-011608RA			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-25RA			SB0305-23RA			SB0305-17RA			SB0305-19		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	UJ	E
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	UJ	E
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	UJ	E	5	UJ	E	5	UJ	E	5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	UJ	E
2-BUTANONE		12	J	BP	25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		14			5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		160			98			93			25	UJ	APR
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	UJ	E	5	UJ	E	5	UJ	E	5	U	
BROMOCHLOROMETHANE		5	U		5	U		5	U		5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS137-011608			DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608		
SDG: CTO402-4	LAB_ID	SB0305-11			SB0305-3			SB0305-5			SB0305-13		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			77.8			81.1			81.7		
	DUP_OF										DA-SS112B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		6	UJ	R	6	U		5	U		5	UJ	R
1,1,1-TRICHLOROETHANE		6	UJ	R	6	U		5	U		5	UJ	R
1,1,2,2-TETRACHLOROETHANE		6	UJ	CR	6	UJ	CN	5	UJ	C	5	UJ	CR
1,1,2-TRICHLOROETHANE		6	UJ	R	6	U		5	U		5	UJ	R
1,1-DICHLOROETHANE		6	UJ	R	6	U		5	U		5	UJ	R
1,1-DICHLOROETHENE		6	UJ	R	6	U		5	U		5	UJ	R
1,1-DICHLOROPROPENE		6	UJ	R	6	U		5	U		5	UJ	R
1,2,3-TRICHLOROBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,2,3-TRICHLOROPROPANE		6	UJ	CR	6	UJ	CN	5	UJ	C	5	UJ	CR
1,2,4-TRICHLOROBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,2,4-TRIMETHYLBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,2-DIBROMOETHANE		6	UJ	ER	6	UJ	E	5	UJ	E	5	UJ	ER
1,2-DICHLOROBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,2-DICHLOROETHANE		6	UJ	R	6	U		5	U		5	UJ	R
1,2-DICHLOROPROPANE		6	UJ	R	6	U		5	U		5	UJ	R
1,3,5-TRIMETHYLBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,3-DICHLOROBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
1,3-DICHLOROPROPANE		6	UJ	R	6	U		5	U		5	UJ	R
1,4-DICHLOROBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
2,2-DICHLOROPROPANE		6	UJ	R	6	U		5	U		5	UJ	R
2-BUTANONE		30	UJ	R	30	U		25	U		25	UJ	R
2-CHLOROTOLUENE		6	UJ	CR	6	UJ	CN	5	UJ	C	5	UJ	CR
2-HEXANONE		30	UJ	R	30	U		25	U		25	UJ	R
4-CHLOROTOLUENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
4-ISOPROPYLTOLUENE		6	UJ	R	6	U		5	U		5	UJ	R
4-METHYL-2-PENTANONE		30	UJ	R	30	U		25	U		25	UJ	R
ACETONE		140	J	CR	30	UJ	ACP	1200	J	P	1500	U	
BENZENE		6	UJ	R	6	U		5	U		5	UJ	R
BROMOBENZENE		6	UJ	CR	6	UJ	CN	5	UJ	C	5	UJ	CR
BROMOCHLOROMETHANE		6	UJ	R	6	U		5	U		5	UJ	R
BROMODICHLOROMETHANE		6	UJ	R	6	U		5	U		5	UJ	R
BROMOFORM		6	UJ	R	6	U		5	U		5	UJ	R
BROMOMETHANE		12	UJ	R	12	U		10	U		10	UJ	R
CARBON DISULFIDE		6	UJ	R	6	U		5	U		5	UJ	R

PROJ_NO: 00816	NSAMPLE	DA-SSDUP05-011608RA			DA-SSTB05-011608		
SDG: CTO402-4	LAB_ID	SB0305-21RA			SB0305-12		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			TB		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	84.4			.0		
	DUP_OF	DA-SS119B-011608					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	UJ	C
1,1,2-TRICHLOROETHANE		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	UJ	C
1,2,4-TRICHLOROBENZENE		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	UJ	E
1,2-DICHLOROBENZENE		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	UJ	E	5	U	
1,3-DICHLOROBENZENE		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U	
2-BUTANONE		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	UJ	C
2-HEXANONE		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U	
ACETONE		25	U	A	25	UJ	C
BENZENE		5	U		5	U	
BROMOBENZENE		5	UJ	E	5	UJ	C
BROMOCHLOROMETHANE		5	U		5	U	
BROMODICHLOROMETHANE		5	U		5	U	
BROMOFORM		5	U		5	U	
BROMOMETHANE		10	U		10	U	
CARBON DISULFIDE		5	U		5	U	

PROJ_NO: 00816	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
SDG: CTO402-4	LAB_ID	SB0305-9			SB0305-1			SB0305-15			SB0305-7		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	UJ	DR	5	U		5	U		5	U	
CHLOROBENZENE	5	UJ	DNR	5	U		5	U		5	U	
CHLORODIBROMOMETHANE	5	UJ	DR	5	U		5	U		5	U	
CHLOROETHANE	10	UJ	DR	10	U		10	U		10	U	
CHLOROFORM	5	UJ	DR	5	U		5	U		5	U	
CHLOROMETHANE	10	UJ	DR	10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE	5	UJ	DR	5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE	5	UJ	DR	5	U		5	U		5	U	
DIBROMOMETHANE	5	UJ	DNR	5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE	10	UJ	DR	10	U		10	U		10	U	
ETHYLBENZENE	5	UJ	DNR	5	U		5	U		5	U	
HEXACHLOROBUTADIENE	5	UJ	DNR	5	U		5	U		5	U	
ISOPROPYLBENZENE	5	UJ	DNR	5	U		5	U		5	U	
M+P-XYLENES	10	UJ	DNR	10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER	5	UJ	DR	5	U		5	U		5	U	
METHYLENE CHLORIDE	25	UJ	DR	25	U		25	U		25	U	
N-BUTYLBENZENE	5	UJ	DNR	5	U		5	U		5	U	
N-PROPYLBENZENE	5	UJ	DNR	5	U		5	U		5	U	
O-XYLENE	5	UJ	DR	5	U		5	U		5	U	
SEC-BUTYLBENZENE	5	UJ	DR	5	U		5	U		5	U	
STYRENE	5	UJ	DNR	5	U		5	U		5	U	
TERT-BUTYLBENZENE	5	UJ	DNR	5	UJ	C	5	UJ	C	5	UJ	C
TETRACHLOROETHENE	5	UJ	CDNR	5	U		5	U		5	U	
TOLUENE	5	UJ	DNR	5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE	5	UJ	DR	5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	5	UJ	DR	5	U		5	U		5	U	
TRICHLOROETHENE	5	J	DR	5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE	10	UJ	DR	10	U		10	U		10	U	
VINYL CHLORIDE	10	UJ	DR	10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608RA			DA-SS119B-011608RA			DA-SS128-011608RA			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-25RA			SB0305-23RA			SB0305-17RA			SB0305-19		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	UJ	E
CHLOROFORM		5	U		5	U		5	U		5	UJ	E
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	UJ	E
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	UJ	E
METHYLENE CHLORIDE		25	U		25	U		25	U		25	UJ	APR
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U	A	5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	UJ	E
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS137-011608			DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608		
SDG: CTO402-4	LAB_ID	SB0305-11			SB0305-3			SB0305-5			SB0305-13		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			77.8			81.1			81.7		
	DUP_OF										DA-SS112B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		6	UJ	R	6	U		5	U		5	UJ	R
CHLOROBENZENE		6	UJ	R	6	U		5	U		5	UJ	R
CHLORODIBROMOMETHANE		6	UJ	R	6	U		5	U		5	UJ	R
CHLOROETHANE		12	UJ	R	12	U		10	U		10	UJ	R
CHLOROFORM		6	UJ	R	6	U		5	U		5	UJ	R
CHLOROMETHANE		12	UJ	R	12	U		10	U		10	UJ	R
CIS-1,2-DICHLOROETHENE		6	UJ	R	6	U		5	U		5	UJ	R
CIS-1,3-DICHLOROPROPENE		6	UJ	R	6	U		5	U		5	UJ	R
DIBROMOMETHANE		6	UJ	R	6	U		5	U		5	UJ	R
DICHLORODIFLUOROMETHANE		12	UJ	R	12	U		10	U		10	UJ	R
ETHYLBENZENE		6	UJ	R	6	U		5	U		5	UJ	R
HEXACHLOROBUTADIENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
ISOPROPYLBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
M+P-XYLENES		12	UJ	R	12	U		10	U		10	UJ	R
METHYL TERT-BUTYL ETHER		6	UJ	R	6	U		5	U		5	UJ	R
METHYLENE CHLORIDE		30	UJ	R	30	U		25	U		25	UJ	R
N-BUTYLBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
N-PROPYLBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
O-XYLENE		6	UJ	R	6	U		5	U		5	UJ	R
SEC-BUTYLBENZENE		6	UJ	R	6	UJ	N	5	U		5	UJ	R
STYRENE		6	UJ	R	6	U		5	U		5	UJ	R
TERT-BUTYLBENZENE		6	UJ	CR	6	UJ	CN	5	UJ	C	5	UJ	CR
TETRACHLOROETHENE		6	UJ	R	6	U		5	U		5	UJ	R
TOLUENE		6	UJ	R	6	U		5	U		5	UJ	R
TRANS-1,2-DICHLOROETHENE		6	UJ	R	6	U		5	U		5	UJ	R
TRANS-1,3-DICHLOROPROPENE		6	UJ	R	6	U		5	U		5	UJ	R
TRICHLOROETHENE		6	UJ	R	6	U		5	U		5	UJ	R
TRICHLOROFLUOROMETHANE		12	UJ	R	12	U		10	U		10	UJ	R
VINYL CHLORIDE		12	UJ	R	12	U		10	U		10	UJ	R

PROJ_NO: 00816	NSAMPLE	DA-SSDUP05-011608RA	DA-SSTB05-011608
SDG: CTO402-4	LAB_ID	SB0305-21RA	SB0305-12
FRACTION: OV	SAMP_DATE	1/16/2008	1/16/2008
MEDIA: SOIL	QC_TYPE	NM	TB
	UNITS	UG/KG	UG/KG
	PCT_SOLIDS	84.4	.0
	DUP_OF	DA-SS119B-011608	

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U		5	U	
CHLOROBENZENE	5	U		5	U	
CHLORODIBROMOMETHANE	5	U		5	U	
CHLOROETHANE	10	U		10	U	
CHLOROFORM	5	U		5	U	
CHLOROMETHANE	10	U		10	U	
CIS-1,2-DICHLOROETHENE	5	U		5	U	
CIS-1,3-DICHLOROPROPENE	5	U		5	U	
DIBROMOMETHANE	5	U		5	U	
DICHLORODIFLUOROMETHANE	10	U		10	U	
ETHYLBENZENE	5	U		5	U	
HEXACHLOROBUTADIENE	5	U		5	U	
ISOPROPYLBENZENE	5	U		5	U	
M+P-XYLENES	10	U		10	U	
METHYL TERT-BUTYL ETHER	5	U		5	U	
METHYLENE CHLORIDE	25	U		25	U	
N-BUTYLBENZENE	5	U		5	U	
N-PROPYLBENZENE	5	U		5	U	
O-XYLENE	5	U		5	U	
SEC-BUTYLBENZENE	5	U		5	U	
STYRENE	5	U		5	U	
TERT-BUTYLBENZENE	5	U		5	UJ	C
TETRACHLOROETHENE	5	U		5	U	
TOLUENE	5	U		5	U	
TRANS-1,2-DICHLOROETHENE	5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	5	U		5	U	
TRICHLOROETHENE	5	U		5	U	
TRICHLOROFLUOROMETHANE	10	U		10	U	
VINYL CHLORIDE	10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02			DA-SS-TB-RB		
SDG: CTO402-4	LAB_ID	SB0305-27			SB0305-29		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008		
MEDIA: WATER	QC_TYPE	RB			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U	
2-BUTANONE		6			5	U	
2-CHLOROTOLUENE		1	U		1	U	
2-HEXANONE		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U	
ACETONE		22			5	U	
BENZENE		1	U		1	U	
BROMOBENZENE		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U	
BROMOFORM		1	U		1	U	
BROMOMETHANE		2	UJ	C	2	UJ	C
CARBON DISULFIDE		1	U		1	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02			DA-SS-TB-RB		
SDG: CTO402-4	LAB_ID	SB0305-27			SB0305-29		
FRACTION: OV	SAMP_DATE	1/16/2008			1/16/2008		
MEDIA: WATER	QC_TYPE	RB			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	UJ	CE	1	UJ	CE
CHLOROBENZENE		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U	
CHLOROETHANE		2	U		2	U	
CHLOROFORM		1	U		1	U	
CHLOROMETHANE		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U	
DIBROMOMETHANE		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U	
ETHYLBENZENE		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U	
M+P-XYLENES		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U	
O-XYLENE		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U	
STYRENE		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U	
TOLUENE		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U	
TRICHLOROETHENE		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	UJ	C	2	UJ	C
VINYL CHLORIDE		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
SDG: CTO402-4	LAB_ID	SB0305-9			SB0305-1			SB0305-15			SB0305-7		
FRACTION: OS	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		400	U		390	U		410	U		410	U	
1,2,4-TRICHLOROBENZENE		400	U		390	U		410	U		410	U	
1,2-DICHLOROBENZENE		400	U		390	U		410	U		410	U	
1,2-DIPHENYLHYDRAZINE		800	U		770	U		810	U		820	U	
1,3-DICHLOROBENZENE		400	U		390	U		410	U		410	U	
1,4-DICHLOROBENZENE		400	U		390	U		410	U		410	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		400	U		390	U		410	U		410	U	
2,4,5-TRICHLOROPHENOL		990	U		960	U		1000	U		1000	U	
2,4,6-TRICHLOROPHENOL		400	U		390	U		410	U		410	U	
2,4-DICHLOROPHENOL		400	U		390	U		410	U		410	U	
2,4-DIMETHYLPHENOL		400	U		390	U		410	U		410	U	
2,4-DINITROPHENOL		990	U		960	U		1000	U		1000	U	
2,4-DINITROTOLUENE		400	U		390	U		410	U		410	U	
2,6-DICHLOROPHENOL		400	U		390	U		410	U		410	U	
2,6-DINITROTOLUENE		990	U		960	U		1000	U		1000	U	
2-CHLORONAPHTHALENE		400	U		390	U		410	U		410	U	
2-CHLOROPHENOL		400	U		390	U		410	U		410	U	
2-METHYLPHENOL		400	U		390	U		410	U		410	U	
2-NITROANILINE		990	U		960	U		1000	U		1000	U	
2-NITROPHENOL		400	U		390	U		410	U		410	U	
3&4-METHYLPHENOL		400	U		390	U		410	U		410	U	
3,3'-DICHLOROBENZIDINE		400	UJ	C	390	UJ	C	410	UJ	C	410	UJ	C
3-NITROANILINE		990	U		960	U		1000	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL		990	U		960	U		1000	U		1000	U	
4-BROMOPHENYL PHENYL ETHER		400	U		390	U		410	U		410	U	
4-CHLORO-3-METHYLPHENOL		400	U		390	U		410	U		410	U	
4-CHLOROANILINE		400	U		390	U		410	U		410	U	
4-CHLOROPHENYL PHENYL ETHER		400	U		390	U		410	U		410	U	
4-NITROANILINE		990	U		960	U		1000	U		1000	U	
4-NITROPHENOL		990	U		960	U		1000	U		1000	U	
BENZIDINE		1800	R	D	1800	UJ	C	1800	UJ	C	1800	UJ	C
BENZOIC ACID		990	U		960	U		1000	U		1000	U	
BENZYL ALCOHOL		800	U		770	U		810	U		820	U	
BIS(2-CHLOROETHOXY)METHANE		400	U		390	U		410	U		410	U	
BIS(2-CHLOROETHYL)ETHER		400	U		390	U		410	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608			DA-SS119B-011608			DA-SS128-011608			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-25			SB0305-23			SB0305-17			SB0305-19		
FRACTION: OS	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	400	U		380	U		410	U		400	U	
1,2,4-TRICHLOROBENZENE	400	U		380	U		410	U		400	U	
1,2-DICHLOROBENZENE	400	U		380	U		410	U		400	U	
1,2-DIPHENYLHYDRAZINE	790	U		770	U		820	U		810	U	
1,3-DICHLOROBENZENE	400	U		380	U		410	U		400	U	
1,4-DICHLOROBENZENE	400	U		380	U		410	U		400	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	400	U		380	U		410	U		400	U	
2,4,5-TRICHLOROPHENOL	980	U		950	U		1000	U		1000	U	
2,4,6-TRICHLOROPHENOL	400	U		380	U		410	U		400	U	
2,4-DICHLOROPHENOL	400	U		380	U		410	U		400	U	
2,4-DIMETHYLPHENOL	400	U		380	U		410	U		400	U	
2,4-DINITROPHENOL	980	U		950	U		1000	U		1000	U	
2,4-DINITROTOLUENE	400	U		380	U		410	U		400	U	
2,6-DICHLOROPHENOL	400	U		380	U		410	U		400	U	
2,6-DINITROTOLUENE	980	U		950	U		1000	U		1000	U	
2-CHLORONAPHTHALENE	400	U		380	U		410	U		400	U	
2-CHLOROPHENOL	400	U		380	U		410	U		400	U	
2-METHYLPHENOL	400	U		380	U		410	U		400	U	
2-NITROANILINE	980	U		950	U		1000	U		1000	U	
2-NITROPHENOL	400	U		380	U		410	U		400	U	
3&4-METHYLPHENOL	400	U		380	U		410	U		400	U	
3,3'-DICHLOROBENZIDINE	400	UJ	C	380	UJ	C	410	UJ	C	400	UJ	C
3-NITROANILINE	980	U		950	U		1000	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL	980	U		950	U		1000	U		1000	U	
4-BROMOPHENYL PHENYL ETHER	400	U		380	U		410	U		400	U	
4-CHLORO-3-METHYLPHENOL	400	U		380	U		410	U		400	U	
4-CHLOROANILINE	400	U		380	U		410	U		400	U	
4-CHLOROPHENYL PHENYL ETHER	400	U		380	U		410	U		400	U	
4-NITROANILINE	980	U		950	U		1000	U		1000	U	
4-NITROPHENOL	980	U		950	U		1000	U		1000	U	
BENZIDINE	1800	UJ	C	1700	UJ	C	1900	UJ	C	1800	UJ	C
BENZOIC ACID	600	J	P	950	U		1000	U		1000	U	
BENZYL ALCOHOL	790	U		770	U		820	U		810	U	
BIS(2-CHLOROETHOXY)METHANE	400	U		380	U		410	U		400	U	
BIS(2-CHLOROETHYL)ETHER	400	U		380	U		410	U		400	U	

PROJ_NO: 00816	NSAMPLE	DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608			DA-SSDUP05-011608		
SDG: CTO402-4	LAB_ID	SB0305-3			SB0305-5			SB0305-13			SB0305-21		
FRACTION: OS	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.8			81.1			81.7			84.4		
	DUP_OF							DA-SS112B-011608			DA-SS119B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		420	U		410	U		400	U		390	U	
1,2,4-TRICHLOROBENZENE		420	U		410	U		400	U		390	U	
1,2-DICHLOROBENZENE		420	U		410	U		400	U		390	U	
1,2-DIPHENYLHYDRAZINE		850	U		810	U		810	U		780	U	
1,3-DICHLOROBENZENE		420	U		410	U		400	U		390	U	
1,4-DICHLOROBENZENE		420	U		410	U		400	U		390	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		420	U		410	U		400	U		390	U	
2,4,5-TRICHLOROPHENOL		1000	U		1000	U		1000	U		970	U	
2,4,6-TRICHLOROPHENOL		420	U		410	U		400	U		390	U	
2,4-DICHLOROPHENOL		420	U		410	U		400	U		390	U	
2,4-DIMETHYLPHENOL		420	U		410	U		400	U		390	U	
2,4-DINITROPHENOL		1000	U		1000	U		1000	U		970	U	
2,4-DINITROTOLUENE		420	U		410	U		400	U		390	U	
2,6-DICHLOROPHENOL		420	U		410	U		400	U		390	U	
2,6-DINITROTOLUENE		1000	U		1000	U		1000	U		970	U	
2-CHLORONAPHTHALENE		420	U		410	U		400	U		390	U	
2-CHLOROPHENOL		420	U		410	U		400	U		390	U	
2-METHYLPHENOL		420	U		410	U		400	U		390	U	
2-NITROANILINE		1000	U		1000	U		1000	U		970	U	
2-NITROPHENOL		420	U		410	U		400	U		390	U	
3&4-METHYLPHENOL		420	U		410	U		400	U		390	U	
3,3'-DICHLOROBENZIDINE		420	UJ	C	410	UJ	C	400	UJ	C	390	UJ	C
3-NITROANILINE		1000	U		1000	U		1000	U		970	U	
4,6-DINITRO-2-METHYLPHENOL		1000	U		1000	U		1000	U		970	U	
4-BROMOPHENYL PHENYL ETHER		420	U		410	U		400	U		390	U	
4-CHLORO-3-METHYLPHENOL		420	U		410	U		400	U		390	U	
4-CHLOROANILINE		420	U		410	U		400	U		390	U	
4-CHLOROPHENYL PHENYL ETHER		420	U		410	U		400	U		390	U	
4-NITROANILINE		1000	U		1000	U		1000	U		970	U	
4-NITROPHENOL		1000	U		1000	U		1000	U		970	U	
BENZIDINE		1900	UJ	C	1800	UJ	C	1800	UJ	C	1800	UJ	C
BENZOIC ACID		1000	U		1000	U		1000	U		970	U	
BENZYL ALCOHOL		850	U		810	U		810	U		780	U	
BIS(2-CHLOROETHOXY)METHANE		420	U		410	U		400	U		390	U	
BIS(2-CHLOROETHYL)ETHER		420	U		410	U		400	U		390	U	

PROJ_NO: 00816	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
SDG: CTO402-4	LAB_ID	SB0305-9			SB0305-1			SB0305-15			SB0305-7		
FRACTION: OS	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		400	UJ	C	390	UJ	C	410	UJ	C	410	UJ	C
BUTYL BENZYL PHTHALATE		400	UJ	C	390	UJ	C	410	UJ	C	410	UJ	C
CARBAZOLE		400	U		390	U		410	U		410	U	
DIBENZOFURAN		400	U		390	U		410	U		410	U	
DIETHYL PHTHALATE		400	U		390	U		410	U		410	U	
DIMETHYL PHTHALATE		400	U		390	U		410	U		410	U	
DI-N-BUTYL PHTHALATE		400	U		390	U		410	U		410	U	
DI-N-OCTYL PHTHALATE		400	UJ	C	390	UJ	C	410	UJ	C	410	UJ	C
HEXACHLOROBENZENE		400	U		390	U		410	U		410	U	
HEXACHLOROBUTADIENE		400	U		390	U		410	U		410	U	
HEXACHLOROETHANE		400	U		390	U		410	U		410	U	
ISOPHORONE		400	U		390	U		410	U		410	U	
NITROBENZENE		400	U		390	U		410	U		410	U	
N-NITROSODIMETHYLAMINE		400	U		390	U		410	U		410	U	
N-NITROSO-DI-N-PROPYLAMINE		400	U		390	U		410	U		410	U	
N-NITROSODIPHENYLAMINE		400	U		390	U		410	U		410	U	
N-NITROSOPYRROLIDINE		400	U		390	U		410	U		410	U	
PENTACHLOROPHENOL		990	U		960	U		1000	U		1000	U	
PHENOL		400	U		390	U		410	U		410	U	

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608			DA-SS119B-011608			DA-SS128-011608			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-25			SB0305-23			SB0305-17			SB0305-19		
FRACTION: OS	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		400	UJ	C	380	UJ	C	410	UJ	C	400	UJ	C
BUTYL BENZYL PHTHALATE		400	UJ	C	380	UJ	C	410	UJ	C	400	UJ	C
CARBAZOLE		400	U		380	U		410	U		400	U	
DIBENZOFURAN		400	U		380	U		410	U		400	U	
DIETHYL PHTHALATE		400	U		380	U		410	U		400	U	
DIMETHYL PHTHALATE		400	U		380	U		410	U		400	U	
DI-N-BUTYL PHTHALATE		400	U		380	U		410	U		400	U	
DI-N-OCTYL PHTHALATE		400	UJ	C	380	UJ	C	410	UJ	C	400	UJ	C
HEXACHLOROBENZENE		400	U		380	U		410	U		400	U	
HEXACHLOROBUTADIENE		400	U		380	U		410	U		400	U	
HEXACHLOROETHANE		400	U		380	U		410	U		400	U	
ISOPHORONE		400	U		380	U		410	U		400	U	
NITROBENZENE		400	U		380	U		410	U		400	U	
N-NITROSODIMETHYLAMINE		400	U		380	U		410	U		400	U	
N-NITROSO-DI-N-PROPYLAMINE		400	U		380	U		410	U		400	U	
N-NITROSODIPHENYLAMINE		400	U		380	U		410	U		400	U	
N-NITROSOPYRROLIDINE		400	U		380	U		410	U		400	U	
PENTACHLOROPHENOL		980	U		950	U		1000	U		1000	U	
PHENOL		400	U		380	U		410	U		400	U	

PROJ_NO: 00816	NSAMPLE	DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608			DA-SSDUP05-011608		
SDG: CTO402-4	LAB_ID	SB0305-3			SB0305-5			SB0305-13			SB0305-21		
FRACTION: OS	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.8			81.1			81.7			84.4		
	DUP_OF							DA-SS112B-011608			DA-SS119B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		420	UJ	C	410	UJ	C	400	UJ	C	390	UJ	C
BUTYL BENZYL PHTHALATE		420	UJ	C	410	UJ	C	400	UJ	C	390	UJ	C
CARBAZOLE		420	U		410	U		400	U		390	U	
DIBENZOFURAN		420	U		410	U		400	U		390	U	
DIETHYL PHTHALATE		420	U		410	U		400	U		390	U	
DIMETHYL PHTHALATE		420	U		410	U		400	U		390	U	
DI-N-BUTYL PHTHALATE		420	U		410	U		400	U		390	U	
DI-N-OCTYL PHTHALATE		420	UJ	C	410	UJ	C	400	UJ	C	390	UJ	C
HEXACHLOROBENZENE		420	U		410	U		400	U		390	U	
HEXACHLOROBUTADIENE		420	U		410	U		400	U		390	U	
HEXACHLOROETHANE		420	U		410	U		400	U		390	U	
ISOPHORONE		420	U		410	U		400	U		390	U	
NITROBENZENE		420	U		410	U		400	U		390	U	
N-NITROSODIMETHYLAMINE		420	U		410	U		400	U		390	U	
N-NITROSO-DI-N-PROPYLAMINE		420	U		410	U		400	U		390	U	
N-NITROSODIPHENYLAMINE		420	U		410	U		400	U		390	U	
N-NITROSOPYRROLIDINE		420	U		410	U		400	U		390	U	
PENTACHLOROPHENOL		1000	U		1000	U		1000	U		970	U	
PHENOL		420	U		410	U		400	U		390	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02
SDG: CTO402-4	LAB_ID	SB0305-27
FRACTION: OS	SAMP_DATE	1/16/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DIPHENYLHYDRAZINE	20	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U	
2,4,5-TRICHLOROPHENOL	25	U	
2,4,6-TRICHLOROPHENOL	10	U	
2,4-DICHLOROPHENOL	10	U	
2,4-DIMETHYLPHENOL	10	U	
2,4-DINITROPHENOL	25	U	
2,4-DINITROTOLUENE	10	U	
2,6-DICHLOROPHENOL	10	U	
2,6-DINITROTOLUENE	10	U	
2-CHLORONAPHTHALENE	10	U	
2-CHLOROPHENOL	10	U	
2-METHYLPHENOL	10	U	
2-NITROANILINE	25	U	
2-NITROPHENOL	10	U	
3&4-METHYLPHENOL	10	U	
3,3'-DICHLOROBENZIDINE	10	U	
3-NITROANILINE	25	U	
4,6-DINITRO-2-METHYLPHENOL	25	U	
4-BROMOPHENYL PHENYL ETHER	10	U	
4-CHLORO-3-METHYLPHENOL	10	U	
4-CHLOROANILINE	10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U	
4-NITROANILINE	25	U	
4-NITROPHENOL	25	UJ	C
BENZIDINE	50	UJ	C
BENZOIC ACID	25	U	
BENZYL ALCOHOL	20	U	
BIS(2-CHLOROETHOXY)METHANE	10	U	
BIS(2-CHLOROETHYL)ETHER	10	U	

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02
SDG: CTO402-4	LAB_ID	SB0305-27
FRACTION: OS	SAMP_DATE	1/16/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE	10	UJ	C
BUTYL BENZYL PHTHALATE	10	UJ	C
CARBAZOLE	10	U	
DIBENZOFURAN	10	U	
DIETHYL PHTHALATE	8	J	PR
DIMETHYL PHTHALATE	10	U	
DI-N-BUTYL PHTHALATE	10	U	
DI-N-OCTYL PHTHALATE	10	UJ	C
HEXACHLOROBENZENE	10	U	
HEXACHLOROBUTADIENE	10	U	
HEXACHLOROETHANE	10	U	
ISOPHORONE	10	U	
NITROBENZENE	10	U	
N-NITROSODIMETHYLAMINE	10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U	
N-NITROSODIPHENYLAMINE	10	U	
N-NITROSOPYRROLIDINE	10	U	
PENTACHLOROPHENOL	25	U	
PHENOL	4	J	PR

PROJ_NO: 00816	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
SDG: CTO402-4	LAB_ID	SB0305-10			SB0305-2			SB0305-16			SB0305-8		
FRACTION: PAH	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		6.9	J	BDP	35	J	B	25	U		25	U	
ACENAPHTHENE		85			100			28			16	J	P
ACENAPHTHYLENE		8.5	J	P	6.9	J	P	4.6	J	P	3.4	J	P
ANTHRACENE		160	J	B	220	J	B	95	J	B	35	J	B
BENZO(A)ANTHRACENE		840			920			310	J	G	170		
BENZO(A)PYRENE		750			850			200			110		
BENZO(B)FLUORANTHENE		700			500			160	J	G	85		
BENZO(G,H,I)PERYLENE		280			220			74			43		
BENZO(K)FLUORANTHENE		750			490	J	C	170			82		
CHRYSENE		1200			800	J	C	360	J	G	140		
DIBENZO(A,H)ANTHRACENE		120	J	D	110			47			26		
FLUORANTHENE		2400			1400			1400			340		
FLUORENE		76	J	D	69	J	C	28	J	C	14	J	P
INDENO(1,2,3-CD)PYRENE		270	J	D	220			100			60		
NAPHTHALENE		7.8	J	BDP	28	J	BC	5.9	J	BP	4.2	J	BP
PHENANTHRENE		1300			1200			1000	J	G	220		
PYRENE		1600			2300			1200			380		

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608RA			DA-SS119B-011608			DA-SS128-011608			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-26RA			SB0305-24			SB0305-18			SB0305-20		
FRACTION: PAH	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	24	U		37	J	B	25	U		8.8	J	BP
ACENAPHTHENE	3.8	J	P	95			6.7	J	P	67		
ACENAPHTHYLENE	24	U		23	U		7.2	J	P	6.9	J	P
ANTHRACENE	3.6	J	BP	210	J	B	15	J	BP	140	J	B
BENZO(A)ANTHRACENE	26			320	J	G	96			380		
BENZO(A)PYRENE	22	J	P	260	J	G	85			270		
BENZO(B)FLUORANTHENE	20	J	P	200	J	G	55			280		
BENZO(G,H,I)PERYLENE	12	J	P	100	J	G	37			120		
BENZO(K)FLUORANTHENE	17	J	P	220	J	G	53			240	J	C
CHRYSENE	29			550	J	G	83			550		
DIBENZO(A,H)ANTHRACENE	24	U		59			24	J	P	70		
FLUORANTHENE	63			1100	J	G	140			1300		
FLUORENE	24	U		61	J	CG	5.3	J	CP	63		
INDENO(1,2,3-CD)PYRENE	15	J	P	140	J	G	51			150		
NAPHTHALENE	9	J	BP	140	J	B	25	U		16	J	BP
PHENANTHRENE	29			1000	J	G	52	J	C	840		
PYRENE	42			910	J	G	150			980		

PROJ_NO: 00816 SDG: CTO402-4 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608			DA-SSDUP05-011608RA		
	LAB_ID	SB0305-4			SB0305-6			SB0305-14			SB0305-22RA		
	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.8			81.1			81.7			84.4		
	DUP_OF							DA-SS112B-011608			DA-SS119B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		26	U		25	U		24	U		7.1	J	BP
ACENAPHTHENE		3.8	J	P	46			17	J	P	9.7	J	P
ACENAPHTHYLENE		3.1	J	P	5.6	J	P	7	J	P	2.1	J	P
ANTHRACENE		5	J	BP	180	J	B	93	J	B	15	J	BP
BENZO(A)ANTHRACENE		7.3	J	P	340			800	J	G	84	J	G
BENZO(A)PYRENE		9.3	J	P	260			300			79	J	G
BENZO(B)FLUORANTHENE		9.6	J	P	240			280	J	G	71	J	G
BENZO(G,H,I)PERYLENE		8.8	J	P	99			120			48	J	G
BENZO(K)FLUORANTHENE		10	J	P	220			280			74	J	G
CHRYSENE		9.6	J	P	380	J	C	610	J	CG	100	J	G
DIBENZO(A,H)ANTHRACENE		26	U		68			68			16	J	P
FLUORANTHENE		16	J	P	910			1200			180	J	G
FLUORENE		26	UJ	C	48	J	C	19	J	CP	5.2	J	GP
INDENO(1,2,3-CD)PYRENE		6.7	J	P	140			150			51	J	G
NAPHTHALENE		26	U		5.4	J	BP	3.5	J	BP	9.6	J	BP
PHENANTHRENE		10	J	CP	780			380	J	CG	99	J	G
PYRENE		11	J	P	1000			1700			130	J	G

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02
SDG: CTO402-4	LAB_ID	SB0305-28
FRACTION: PAH	SAMP_DATE	1/16/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	0.17	J	P
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.046	J	P
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.17	J	P
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

PROJ_NO: 00816 SDG: CTO402-4 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
	LAB_ID	SB0305-9			SB0305-1			SB0305-15			SB0305-7		
	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4	U		3.9	U		4.1	U		4.1	U	
4,4'-DDE		8.6	J	D	3.9	U		4.1	U		4.1	U	
4,4'-DDT		26	J	D	13			4.1	U		4.1	U	
ALDRIN		2.1	U		2	U		2.1	U		2.1	U	
ALPHA-BHC		2.1	U		2	U		2.1	U		2.1	U	
ALPHA-CHLORDANE		2.1	U		2	U		2.1	U		2.1	U	
AROCLOR-1016		21	U		20	UJ	C	21	UJ	C	21	UJ	C
AROCLOR-1221		21	U		20	U		21	U		21	U	
AROCLOR-1232		21	U		20	U		21	U		21	U	
AROCLOR-1242		21	U		20	U		21	U		21	U	
AROCLOR-1248		21	U		20	U		21	U		21	U	
AROCLOR-1254		21	U		20	U		21	U		21	U	
AROCLOR-1260		94	J	D	130			21	UJ	C	21	UJ	C
AROCLOR-1268		400	J	D	20	U		21	U		21	U	
BETA-BHC		2.1	U		2	U		2.1	U		2.1	U	
DELTA-BHC		2.1	U		2	U		2.1	U		2.1	U	
DIELDRIN		4	U		3.9	U		4.1	U		4.1	U	
ENDOSULFAN I		2.1	U		2	U		2.1	U		2.1	U	
ENDOSULFAN II		4	U		3.9	U		4.1	U		4.1	U	
ENDOSULFAN SULFATE		4	UJ	C	3.9	UJ	C	4.1	UJ	C	4.1	UJ	C
ENDRIN		4	U		3.9	U		4.1	U		4.1	U	
ENDRIN ALDEHYDE		4	U		3.9	U		4.1	U		4.1	U	
ENDRIN KETONE		4	U		3.9	U		4.1	U		4.1	U	
GAMMA-BHC (LINDANE)		2.1	U		2	U		2.1	U		2.1	U	
GAMMA-CHLORDANE		2.1	U		2	U		2.1	U		2.1	U	
HEPTACHLOR		2.1	U		2	U		2.1	U		2.1	U	
HEPTACHLOR EPOXIDE		2.1	U		2	U		2.1	U		2.1	U	
METHOXYCHLOR		21	U		20	U		21	U		21	U	
TOXAPHENE		40	U		39	U		41	U		41	U	

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608			DA-SS119B-011608			DA-SS128-011608			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-25			SB0305-23			SB0305-17			SB0305-19		
FRACTION: PEST/PCB	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	4	U		3.8	U		4.1	U		4	U	
4,4'-DDE	4	U		6.6			2	J	P	2.4	J	P
4,4'-DDT	4	U		3.8	U		4.2	J	P	4	U	
ALDRIN	2	U		2	U		2.1	U		2.1	U	
ALPHA-BHC	2	U		2	U		2.1	U		2.1	U	
ALPHA-CHLORDANE	2	U		2	U		2.1	U		2.1	U	
AROCLOR-1016	20	U		20	U		21	UJ	C	21	U	
AROCLOR-1221	20	U		20	U		21	U		21	U	
AROCLOR-1232	20	U		20	U		21	U		21	U	
AROCLOR-1242	20	U		20	U		21	U		21	U	
AROCLOR-1248	20	U		20	U		21	U		21	U	
AROCLOR-1254	20	U		20	U		21	U		21	U	
AROCLOR-1260	20	U		100			26	J	C	81		
AROCLOR-1268	20	U		440			21	U		160		
BETA-BHC	2	U		2	U		2.1	U		2.1	U	
DELTA-BHC	2	U		2	U		2.1	U		2.1	U	
DIELDRIN	4	U		3.8	U		4.1	U		4	U	
ENDOSULFAN I	2	U		2	U		2.1	U		2.1	U	
ENDOSULFAN II	4	U		3.8	U		4.1	U		4	U	
ENDOSULFAN SULFATE	4	U		3.8	U		4.1	UJ	C	4	U	
ENDRIN	4	U		3.8	U		4.1	U		4	U	
ENDRIN ALDEHYDE	4	U		3.8	U		4.1	U		4	U	
ENDRIN KETONE	4	U		3.8	U		4.1	U		4	U	
GAMMA-BHC (LINDANE)	2	U		2	U		2.1	U		2.1	U	
GAMMA-CHLORDANE	2	U		2	U		2.1	U		2.1	U	
HEPTACHLOR	2	U		2	U		2.1	U		2.1	U	
HEPTACHLOR EPOXIDE	2	U		2	U		2.1	U		2.1	U	
METHOXYCHLOR	20	U		20	U		21	U		21	U	
TOXAPHENE	40	U		38	U		41	U		40	U	

PROJ_NO: 00816 SDG: CTO402-4 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608			DA-SSDUP05-011608		
	LAB_ID	SB0305-3			SB0305-5			SB0305-13			SB0305-21		
	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.8			81.1			81.7			84.4		
	DUP_OF							DA-SS112B-011608			DA-SS119B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4.2	U		4.1	U		4	U		3.9	U	
4,4'-DDE		4.2	U		6			4	U		6.3		
4,4'-DDT		4.2	U		4.1	U		4	U		3.9	U	
ALDRIN		2.2	U		2.1	U		2.1	U		2	U	
ALPHA-BHC		2.2	U		2.1	U		2.1	U		2	U	
ALPHA-CHLORDANE		2.2	U		2.1	U		2.1	U		2	U	
AROCLOR-1016		22	UJ	C	21	UJ	C	21	UJ	C	20	U	
AROCLOR-1221		22	U		21	U		21	U		20	U	
AROCLOR-1232		22	U		21	U		21	U		20	U	
AROCLOR-1242		22	U		21	U		21	U		20	U	
AROCLOR-1248		22	U		21	U		21	U		20	U	
AROCLOR-1254		22	U		21	U		21	U		20	U	
AROCLOR-1260		22	UJ	C	510	J	C	21	UJ	C	61		
AROCLOR-1268		22	U		21	U		21	U		360		
BETA-BHC		2.2	U		2.1	U		2.1	U		2	U	
DELTA-BHC		2.2	U		2.1	U		2.1	U		2	U	
DIELDRIN		4.2	U		4.1	U		4	U		3.9	U	
ENDOSULFAN I		2.2	U		2.1	U		2.1	U		2	U	
ENDOSULFAN II		4.2	U		4.1	U		4	U		3.9	U	
ENDOSULFAN SULFATE		4.2	UJ	C	4.1	UJ	C	4	UJ	C	3.9	U	
ENDRIN		4.2	U		4.1	U		4	U		3.9	U	
ENDRIN ALDEHYDE		4.2	U		4.1	U		4	U		3.9	U	
ENDRIN KETONE		4.2	U		4.1	U		4	U		3.9	U	
GAMMA-BHC (LINDANE)		2.2	U		2.1	U		2.1	U		2	U	
GAMMA-CHLORDANE		2.2	U		2.1	U		2.1	U		2	U	
HEPTACHLOR		2.2	U		2.1	U		2.1	U		2	U	
HEPTACHLOR EPOXIDE		2.2	U		2.1	U		2.1	U		2	U	
METHOXYCHLOR		22	U		21	U		21	U		20	U	
TOXAPHENE		42	U		41	U		40	U		39	U	

PROJ_NO: 00816 SDG: CTO402-4 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SS-RB02
	LAB_ID	SB0305-27
	SAMP_DATE	1/16/2008
	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
4,4'-DDD	0.1	U	
4,4'-DDE	0.1	U	
4,4'-DDT	0.1	U	
ALDRIN	0.05	U	
ALPHA-BHC	0.05	U	
ALPHA-CHLORDANE	0.05	U	
AROCLOR-1016	0.5	U	
AROCLOR-1221	0.5	U	
AROCLOR-1232	0.5	U	
AROCLOR-1242	0.5	U	
AROCLOR-1248	0.5	U	
AROCLOR-1254	0.5	U	
AROCLOR-1260	0.5	U	
AROCLOR-1268	0.5	U	
BETA-BHC	0.05	U	
DELTA-BHC	0.05	U	
DIELDRIN	0.1	U	
ENDOSULFAN I	0.05	U	
ENDOSULFAN II	0.1	U	
ENDOSULFAN SULFATE	0.1	U	
ENDRIN	0.1	U	
ENDRIN ALDEHYDE	0.1	U	
ENDRIN KETONE	0.1	U	
GAMMA-BHC (LINDANE)	0.05	U	
GAMMA-CHLORDANE	0.05	U	
HEPTACHLOR	0.14		
HEPTACHLOR EPOXIDE	0.05	U	
METHOXYCHLOR	0.5	U	
TOXAPHENE	1	U	

PROJ_NO: 00816 SDG: CTO402-4 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SS104B-011608			DA-SS105B-011608			DA-SS112B-011608			DA-SS113B-011608		
	LAB_ID	SB0305-9			SB0305-1			SB0305-15			SB0305-7		
	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.5			85.3			81.0			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.4	U	A	2.6	U	A	2.8	U	A	3	U	A
TPH (C09-C36)		96	J	B	130	J	BC	19	J	BG	52	J	B

PROJ_NO: 00816	NSAMPLE	DA-SS118B-011608			DA-SS119B-011608			DA-SS128-011608			DA-SS131-011608		
SDG: CTO402-4	LAB_ID	SB0305-25			SB0305-23			SB0305-17			SB0305-19		
FRACTION: PET	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.2			86.0			80.2			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.9	U	A	2.8	U	A	3.2	U	A	3.2	U	A
TPH (C09-C36)		69	J	B	21	J	B	26	J	B	120	J	BC

PROJ_NO: 00816 SDG: CTO402-4 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SS137-011608			DA-SS152-011608			DA-SS153-011608			DA-SSDUP04-011608		
	LAB_ID	SB0305-11			SB0305-3			SB0305-5			SB0305-13		
	SAMP_DATE	1/16/2008			1/16/2008			1/16/2008			1/16/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	78.0			77.8			81.1			81.7		
	DUP_OF										DA-SS112B-011608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		4	U	A	3.6	U	A	3.1	U	A	2.9	U	A
TPH (C09-C36)					56	J	B	60	J	B	42	J	BG

PROJ_NO: 00816	NSAMPLE	DA-SSDUP05-011608			DA-SSTB05-011608		
SDG: CTO402-4	LAB_ID	SB0305-21			SB0305-12		
FRACTION: PET	SAMP_DATE	1/16/2008			1/16/2008		
MEDIA: SOIL	QC_TYPE	NM			TB		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	84.4			.0		
	DUP_OF	DA-SS119B-011608					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.6	U	A	2.5	U	A
TPH (C09-C36)		29	J	B			

PROJ_NO: 00816	NSAMPLE	DA-SS-RB02		
SDG: CTO402-4	LAB_ID	SB0305-27		
FRACTION: PET	SAMP_DATE	1/16/2008		
MEDIA: WATER	QC_TYPE	RB		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	UJ	C
TPH (C09-C36)		180		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2694W

Date: April 14, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO402-6
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum (Total):

10/Surface waters/	DA-SW-DUP01-012308	DA-SW01-012308
	DA-SW106-012308	DA-SW106QC-012308
	DA-SW107-012308	DA-SW108-012308
	DA-SW110-012308	DA-SW111-012308
	DA-SW112-012308	DA-SW133-012308

(Field Duplicate Pair: DA-SW110-012308/DA-SW-DUP01-012308)

TAL Metals and Molybdenum (Dissolved):

10/Surface waters/	DA-SW-DUP01F-012308	DA-SW01F-012308
	DA-SW106F-012308	DA-SW106QCF-012308
	DA-SW107F-012308	DA-SW108F-012308
	DA-SW110F-012308	DA-SW111F-012308
	DA-SW112F-012308	DA-SW133F-012308

(Field Duplicate Pair: DA-SW110F-012308/
DA-SW-DUP01F-012308)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the total and dissolved TAL metals and molybdenum analytical data from surface water samples collected at the Site 08-NUSC Disposal Area on January 23, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (arsenic and thallium). Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Total metals results are presented in the table with the header that identifies the fraction as "M" (total metals), and the dissolved metals in the table with the fraction "MF" (metals-filtered).

The metals data were evaluated based on the following parameters:

- Data Completeness
- Holding Times

*	•	ICP-MS Tune
	•	Calibration Verification
	•	Laboratory and Field Blank Analyses
*	•	ICP Interference Check Sample Results
*	•	Matrix Spike/Matrix Spike Duplicate
NA	•	Laboratory Duplicate Results
*	•	Laboratory Control Sample Results
*	•	Field Duplicate Precision
*	•	ICP Serial Dilution Results
	•	Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The data package summary forms did not include the molybdenum results. On March 13, 2008 the laboratory resubmitted all summary forms to include the molybdenum results.

Calibration Verification

The following table summarizes the analyte that recovered outside the QC limits of 70-130% recovery in the PQL standard:

Analyte	%R	2xCRDL (µg/L)	Action		Affected Samples
			(+)	NDs	
Zinc	223.7	50	J		All samples

The percent recovery for zinc was above the 130% recovery QC limits in the PQL standard. The positive results that are less than two times the CRDL are estimated (J) in the affected samples.

Although the recoveries were outside of the QC limits for zinc, the project accuracy goals were not impacted since the safety margin of greater than 300% was not exceeded. The positive zinc results in the affected samples are usable as estimated values which may be biased high.

Laboratory and Field Blank Analyses

The rinsate blank sample DA-SWRB-01F-012308 from SDG CTO402-7 is associated with the filtered surface water samples in this SDG. The following table summarizes the level of blank contamination detected in the laboratory and field blanks associated with the surface water samples:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Beryllium	0.14	0.7	DA-SW106QC-012308, DA-SW106QCF-012308, DA-SW112-012308
Chromium	0.43	2.15	DA-SW01-012308, DA-SW01F-012308, DA-SW106-012308, DA-SW106QC-012308, DA-SW106QCF-012308, DA-SW108F-012308, DA-SW110-012308, DA-SW110F-012308, DA-SW111-012308, DA-SW111F-012308, DA-SW112-012308, DA-SW112F-012308, DA-SW133-012308, DA-SW133F-012308, DA-SW-DUP01-012308, DA-SW-DUP01F-012308
Copper	0.26	1.3	DA-SW107-012308, DA-SW107F-012308, DA-SW108-012308, DA-SW108F-012308
Iron	8.35	41.75	DA-SW106F-012308, DA-SW106QCF-012308, DA-SW110F-012308, DA-SW111F-012308, DA-SW112F-012308
Molybdenum	0.69	3.45	All samples, except DA-SW107F-012308, DA-SW108-012308, DA-SW108F-012308
Selenium	2.02	10.1	DA-SW133-012308
Zinc	1.34	6.68	DA-SW107-012308, DA-SW107F-012308, DA-SW108-012308, DA-SW108F-012308
Thallium	0.15	3.75	DA-SW106F-012308

The positive results below the blank action levels for beryllium, chromium, copper, iron, molybdenum, selenium, zinc, and thallium in the affected samples were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination.

Although beryllium, chromium, copper, iron, molybdenum, selenium, and zinc contamination was found in the laboratory blank, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Thallium contamination was found in the laboratory blank; the project sensitivity goals for thallium in sample DA-SW106F-012308 are impacted since the elevated reporting limit exceeds the project action limit. In addition, the thallium project action limit was not achieved by the laboratory as noted in Table 4-1D of the approved work plan.

Reporting Limits

The laboratory reported non-detected results down to the IDL. The laboratory reporting limits met the project quantitation limits and project action limits, except for the reporting limits for arsenic, silver, and thallium, which met the project quantitation limits, but did not meet the project action limits. The project quantitation limits for these compounds exceeded the project action limits, as highlighted in Table 4-1D of the approved work plan.

Reporting limits were raised for some metals due to blank contamination. The possible effects on project sensitivity goals are discussed above in the Laboratory and Field Blank Analyses section.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exception. Zinc was qualified as estimated due to poor linearity near the CRQL. Although specific a method criterion was not met in this instance, the affected positive results are usable as estimated values which do not impact data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set with the following exception. Chromium, copper, iron, lead, nickel, and zinc were qualified as estimated due to field duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set with the following exceptions. The reporting limit for thallium in sample DA-SW106F-012308 was elevated due to laboratory blank contamination. Data usability is impacted since the elevated reporting limit exceeds the project action limit. The project action limits for arsenic, silver, and thallium were not achievable, as noted in the approved work plan.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: M MEDIA: WATER	NSAMPLE	DA-SW01-012308			DA-SW106-012308			DA-SW106QC-012308			DA-SW107-012308		
	LAB_ID	SB0433-011			SB0433-013			SB0433-020			SB0433-001		
	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19	U		19	U		19	U		19	U	
ANTIMONY		0.87	U		1.1	J	P	1.4	J	P	0.87	U	
ARSENIC		1.3	U		1.3	U		1.3	U		1.3	U	
BARIUM		13.8			12.7			12.9			6.8		
BERYLLIUM		0.12	U		0.12	U		0.16	UJ	AP	0.12	U	
CADMIUM		0.1	U		0.1	U		0.1	U		0.1	U	
CALCIUM		31600			33300			33400			21200		
CHROMIUM		0.91	UJ	AP	0.58	UJ	AP	0.54	UJ	AP	0.28	U	
COBALT		0.26	J	P	0.54	J	P	0.6	J	P	0.26	U	
COPPER		1.8	J	P	2.5	J	P	2	J	P	0.6	UJ	AP
IRON		161			113			114			155		
LEAD		0.91	U		0.91	U		0.91	U		0.91	U	
MAGNESIUM		8430			8350			8380			7550		
MANGANESE		220			165			166			74		
MERCURY		0.02	U		0.02	U		0.02	U		0.02	U	
MOLYBDENUM		0.99	UJ	AP	1.2	UJ	AP	1.2	UJ	AP	0.29	UJ	AP
NICKEL		1.4	J	P	1.4	J	P	1.1	J	P	0.79	J	P
POTASSIUM		4220			4120			4170			3020		
SELENIUM		1.5	U		1.5	U		1.5	U		1.5	U	
SILVER		0.46	U		0.46	U		0.46	U		0.46	U	
SODIUM		56500			57500			57600			14400		
THALLIUM		0.35	U		0.35	U		0.35	U		0.35	U	
VANADIUM		0.29	U		0.29	U		0.29	U		0.29	U	
ZINC		17.6	J	CP	15.1	J	CP	17.4	J	CP	5.4	UJ	ACP

PROJ_NO: 00816	NSAMPLE	DA-SW108-012308			DA-SW110-012308			DA-SW111-012308			DA-SW112-012308		
SDG: CTO402-6	LAB_ID	SB0433-003			SB0433-007			SB0433-015			SB0433-017		
FRACTION: M	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19	U		67.4	J	P	19	U		19	U	
ANTIMONY		0.87	U		0.87	U		0.87	U		0.87	U	
ARSENIC		1.3	U		1.3	U		1.3	U		1.3	U	
BARIUM		6.7			13.1			11.9			12		
BERYLLIUM		0.12	U		0.12	U		0.12	U		0.14	UJ	AP
CADMIUM		0.1	U		0.1	U		0.1	U		0.1	U	
CALCIUM		20200			33300			32900			32700		
CHROMIUM		0.28	U		1.6	UJ	AP	0.44	UJ	AP	0.53	UJ	AP
COBALT		0.35	J	P	0.71	J	P	0.59	J	P	0.43	J	P
COPPER		0.94	UJ	AP	3	J	P	2.4	J	P	2.1	J	P
IRON		190			229			70.6	J	P	80.4	J	P
LEAD		0.91	U		3.2	J	P	0.91	U		0.96	J	P
MAGNESIUM		7230			8420			8180			8060		
MANGANESE		78.5			169			109			110		
MERCURY		0.02	U		0.02	U		0.02	U		0.02	U	
MOLYBDENUM		0.2	U		1.1	UJ	AP	1.4	UJ	AP	1.3	UJ	AP
NICKEL		1.3	J	P	1.6	J	P	1.1	J	P	1.1	J	P
POTASSIUM		2890			4180			3970			3940		
SELENIUM		1.5	U		1.5	U		1.5	U		1.5	U	
SILVER		0.46	U		0.46	U		0.46	U		0.46	U	
SODIUM		13800			57000			57600			57100		
THALLIUM		0.35	U		0.35	U		0.35	U		0.35	U	
VANADIUM		0.29	U		0.29	U		0.29	U		0.29	U	
ZINC		6.5	UJ	ACP	17.5	J	CP	14.7	J	CP	15	J	CP

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: M MEDIA: WATER	NSAMPLE	DA-SW133-012308			DA-SW-DUP01-012308		
	LAB_ID	SB0433-009			SB0433-005		
	SAMP_DATE	1/23/2008			1/23/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF				DA-SW110-012308		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19	U		50.4	J	P
ANTIMONY		0.87	U		0.87	U	
ARSENIC		1.3	U		1.3	U	
BARIUM		13.2			12.8		
BERYLLIUM		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U	
CALCIUM		31500			32900		
CHROMIUM		0.38	UJ	AP	0.34	UJ	AP
COBALT		0.4	J	P	0.71	J	P
COPPER		2.4	J	P	2.3	J	P
IRON		134			195		
LEAD		0.91	U		2.6	J	P
MAGNESIUM		8370			8230		
MANGANESE		193			155		
MERCURY		0.02	U		0.02	U	
MOLYBDENUM		1.1	UJ	AP	1.1	UJ	AP
NICKEL		1.2	J	P	1.1	J	P
POTASSIUM		4070			4120		
SELENIUM		2.4	UJ	AP	1.5	U	
SILVER		0.46	U		0.46	U	
SODIUM		57500			55700		
THALLIUM		0.35	U		0.35	U	
VANADIUM		0.29	U		0.29	U	
ZINC		15.6	J	CP	15.9	J	CP

PROJ_NO: 00816	NSAMPLE	DA-SW01F-012308			DA-SW106F-012308			DA-SW106QCF-012308			DA-SW107F-012308		
SDG: CTO402-6	LAB_ID	SB0433-012			SB0433-014			SB0433-019			SB0433-002		
FRACTION: MF	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19	U		19	U		19	U		19	U	
ANTIMONY		0.87	U		0.87	U		0.87	U		0.87	U	
ARSENIC		1.3	U		1.3	U		1.3	U		1.3	U	
BARIUM		14.1			13.1			12.3			6.9		
BERYLLIUM		0.12	U		0.12	U		0.13	UJ	AP	0.12	U	
CADMIUM		0.1	U		0.1	U		0.1	U		0.1	U	
CALCIUM		31100			33900			33600			20800		
CHROMIUM		0.28	UJ	AP	0.28	U		0.41	UJ	AP	0.28	U	
COBALT		0.26	U		0.59	J	P	0.45	J	P	0.26	U	
COPPER		2.4	J	P	2.7	J	P	2.3	J	P	0.78	UJ	AP
IRON		81.8	J	P	35	UJ	AP	38.9	UJ	AP	58.3	J	P
LEAD		1	J	P	0.91	U		0.91	U		0.91	U	
MAGNESIUM		8320			8490			8440			7380		
MANGANESE		211			161			162			64.4		
MERCURY		0.02	U		0.02	U		0.02	U		0.02	U	
MOLYBDENUM		1.1	UJ	AP	1.2	UJ	AP	1.1	UJ	AP	0.2	U	
NICKEL		1.4	J	P	1.2	J	P	1	J	P	1.3	J	P
POTASSIUM		4110			4190			4140			2970		
SELENIUM		1.5	U		1.5	U		1.5	U		1.5	U	
SILVER		0.46	U		0.46	U		0.46	U		0.46	U	
SODIUM		55300			58000			57800			14000		
THALLIUM		0.35	U		1.4	UJ	AP	0.35	U		0.35	U	
VANADIUM		0.29	U		0.29	U		0.29	U		0.29	U	
ZINC		16.5	J	CP	15.8	J	CP	16.6	J	CP	6.5	UJ	ACP

PROJ_NO: 00816	NSAMPLE	DA-SW108F-012308			DA-SW110F-012308			DA-SW111F-012308			DA-SW112F-012308		
SDG: CTO402-6	LAB_ID	SB0433-004			SB0433-008			SB0433-016			SB0433-018		
FRACTION: MF	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19	U		19	U		19	U		19	U	
ANTIMONY		0.87	U		0.87	U		0.87	U		0.87	U	
ARSENIC		1.3	U		1.3	U		1.3	U		1.3	U	
BARIUM		6.8			12.9			11.5			12.4		
BERYLLIUM		0.12	U		0.12	U		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U		0.1	U		0.1	U	
CALCIUM		20600			33400			32100			33900		
CHROMIUM		0.63	UJ	AP	0.73	UJ	AP	0.64	UJ	AP	0.41	UJ	AP
COBALT		0.26	U		0.35	J	P	0.53	J	P	0.57	J	P
COPPER		1	UJ	AP	2	J	P	3.5	J	P	2.2	J	P
IRON		92.8	J	P	28.1	UJ	AP	31.4	UJ	AP	26	UJ	AP
LEAD		0.91	U		0.94	J	P	0.91	U		1.1	J	P
MAGNESIUM		7350			8400			7910			8380		
MANGANESE		71.2			131			106			112		
MERCURY		0.02	U		0.02	U		0.02	U		0.02	U	
MOLYBDENUM		0.2	U		1	UJ	AP	1.3	UJ	AP	1.2	UJ	AP
NICKEL		1.4	J	P	1.3	J	P	1.3	J	P	1	J	P
POTASSIUM		2920			4170			3880			4080		
SELENIUM		1.5	U		1.5	U		1.5	U		1.5	U	
SILVER		0.46	U		0.46	U		0.46	U		0.46	U	
SODIUM		14100			56800			55800			59000		
THALLIUM		0.35	U		0.35	U		0.35	U		0.35	U	
VANADIUM		0.29	U		0.29	U		0.29	U		0.29	U	
ZINC		6.5	UJ	ACP	18.9	J	CP	17.3	J	CP	15.1	J	CP

PROJ_NO: 00816	NSAMPLE	DA-SW133F-012308			DA-SW-DUP01F-012308		
SDG: CTO402-6	LAB_ID	SB0433-010			SB0433-006		
FRACTION: MF	SAMP_DATE	1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF				DA-SW110F-012308		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19	U		19	U	
ANTIMONY		0.87	U		0.87	U	
ARSENIC		1.3	U		1.3	U	
BARIUM		13.9			12.8		
BERYLLIUM		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U	
CALCIUM		32000			33200		
CHROMIUM		0.64	UJ	AP	0.47	UJ	AP
COBALT		0.4	J	P	0.58	J	P
COPPER		2.2	J	P	2.1	J	P
IRON		59	J	P	89.2	J	P
LEAD		0.91	U		1.6	J	P
MAGNESIUM		8400			8350		
MANGANESE		194			134		
MERCURY		0.02	U		0.02	U	
MOLYBDENUM		1	UJ	AP	1.2	UJ	AP
NICKEL		1.5	J	P	1.2	J	P
POTASSIUM		4140			4180		
SELENIUM		1.5	U		1.5	U	
SILVER		0.46	U		0.46	U	
SODIUM		57600			56500		
THALLIUM		0.35	U		0.35	U	
VANADIUM		0.29	U		0.29	U	
ZINC		14.9	J	CP	13.8	J	CP

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-03-08-2677W

Date: March 31, 2008

c: File G00816-4.10

D. Seiken (w/o enc.)

To: James Forrelli

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO402-6
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

SVOC/Pesticides/PCB:
9/Surface waters/

DA-SW01-012308
DA-SW106-012308
DA-SW107-012308
DA-SW108-012308
DA-SW110-012308
DA-SW111-012308
DA-SW112-012308
DA-SW133-012308
DA-SW-DUP01-012308

(Field Duplicate Pair: DA-SW110-012308/
DA-SW-DUP01-012308)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the semivolatile organic compounds (SVOCs), pesticide, and polychlorinated biphenyls (PCB) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on January 23, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The SVOC analysis was performed according to USEPA SW-846 Method 8270C. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively. The SVOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Preservation and Technical Holding Times
* • GC/MS Instrument Performance Check (Tuning)
• Initial and Continuing Calibrations
* • Blanks
• Surrogate Compounds

* • Internal Standards
  • Matrix Spike/Matrix Spike Duplicate
* • Laboratory Control Sample/Laboratory Control Sample Duplicate
* • Field Duplicates
* • Analyte Identification
  • Reporting Limits

* All criteria were met for this parameter.

Initial and Continuing Calibrations

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	44.56		UJ	All samples

Although the %D method criteria were outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzidine	32.85		UJ	All samples
Pyrene	30.34		UJ	
Butylbenzylphthalate	38.97		UJ	
3,3'-Dichlorobenzidine	-25.73		UJ	
bis(2-Ethylhexyl)phthalate	40.13		UJ	
Di-n-octylphthalate	48.40		UJ	

Although the %D method criteria were outside of the QC limits for benzidine, di-n-octylphthalate, and butylbenzylphthalate, the project accuracy goals are not impacted since there are no regulatory limits for these compounds. The %D method criteria were outside of the QC limits for pyrene, 3,3'-dichlorobenzidine, and bis(2-ethylhexyl)phthalate; the project accuracy goals may be impacted since the reporting limits exceed the project action limits for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action (+)	Action NDs	Affected Samples
4,4'-DDT	-31.60	-35.40		UJ	DA-SW106-012308, DA-SW107-012308
Methoxychlor	-28.60	-31.60		UJ	

Although the %D method criteria were outside of the QC limits for methoxychlor, the project accuracy goals were not impacted since there are no regulatory limits established for this compound. The %D method criteria were outside of the QC limits for 4,4'-DDT; the project accuracy goals may be impacted since the reporting limit for 4,4'-DDT is near the project action limit. The non-detected results in the affected samples are usable as estimated quantitation limits.

Surrogate Compounds

Pesticides

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action (+)	Action NDs
DA-SW110-012308	DCB, Column 1	109	13-102	J	
	DCB, Column 2	109			
DA-SW111-012308	DCB, Column 1	103		J	
	DCB, Column 2	108			
DA-SW112-012308	DCB, Column 1	108		J	
	DCB, Column 2	111			

The surrogate decachlorobiphenyl (DCB) recovered outside QC limits in the pesticide samples shown in the table above. All positive results are estimated (J) in the affected samples due to high surrogate recoveries.

Although the surrogate recovery QC criteria were not met for DCB, the project accuracy goals may be slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

Matrix Spike/Matrix Spike Duplicate

Semivolatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SW106-012308 recovered 0% benzoic acid. The non-detected benzoic acid result is qualified as rejected (R) in sample DA-SW106-012308 due to no MS/MSD recovery. This result should not be used for project decisions.

The relative percent differences (RPD) for the MS/MSD of sample DA-SW106-012308 for benzidine and indeno(1,2,3-cd)pyrene were above the 30% QC limit. The non-detected benzidine and indeno(1,2,3-cd)pyrene results are estimated (UJ) in sample DA-SW106-012308 due to MS/MSD imprecision.
Although the RPD for benzidine exceeded QC limit, the project precision goals are not impacted since there are no regulatory limits established for this compound. Although the RPD for indeno(1,2,3-cd)pyrene exceeded the QC limit, the project precision goals are only slightly impacted. The non-detected results are usable as estimated quantitation limits for which the bias is indeterminate.

Reporting Limits

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits, all reporting limits met project action limits except 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnapthalene, 3,3'-dichlorobenzidine, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

Pesticides

Reporting limits for all pesticide compounds met project quantitation limits. The project quantitation limits exceeded the project action limits for the compounds 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene as highlighted in the approved work plan.

PCBs

Reporting limits for all PCB compounds met project quantitation limits. The project quantitation limits exceeded the project action limits for all Aroclors as highlighted in the approved work plan.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. The benzoic acid result in sample DA-SW106-012308 is rejected due to 0% matrix spike recovery. Data usability is impacted; this result should not be used for project decisions.

The project goals with respect to precision were met for the semivolatiles data set with the following exceptions. Benzidine and indeno(1,2,3-cd)pyrene are qualified as estimated in sample DA-SW106-012308 due to matrix spike/matrix spike duplicate imprecision. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability for indeno(1,2,3-cd)pyrene, and which does not impact data usability for benzidine since there are no regulatory limits established for this compound.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for select compounds were not achievable as noted in the approved work plan.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and poor surrogate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set. However, the project action limits for select compounds were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy and precision were met for the PCBs data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were met for the PCBs data set. However, the project action limits for PCBs were not achievable as noted in the approved work plan.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW01-012308			DA-SW106-012308			DA-SW107-012308			DA-SW108-012308		
	LAB_ID	SB0433-11			SB0433-13			SB0433-1			SB0433-3		
	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		20	U		20	U		20	U	
1,3-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		25	U		25	U		25	U		25	U	
2,4,6-TRICHLOROPHENOL		10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL		10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL		10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL		25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U		10	U		10	U	
2-CHLOROPHENOL		10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE		10	U		10	U		10	U		10	U	
2-METHYLPHENOL		10	U		10	U		10	U		10	U	
2-NITROANILINE		25	U		25	U		25	U		25	U	
2-NITROPHENOL		10	U		10	U		10	U		10	U	
3&4-METHYLPHENOL		10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
3-NITROANILINE		25	U		25	U		25	U		25	U	
4,6-DINITRO-2-METHYLPHENOL		25	U		25	U		25	U		25	U	
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		10	U		10	U		10	U		10	U	
4-CHLOROANILINE		10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-NITROANILINE		25	U		25	U		25	U		25	U	
4-NITROPHENOL		25	U		25	U		25	U		25	U	
ACENAPHTHENE		10	U		10	U		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U		10	U		10	U	
ANTHRACENE		10	U		10	U		10	U		10	U	
BENZIDINE		50	UJ	C	50	UJ	CD	50	UJ	C	50	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SW110-012308			DA-SW111-012308			DA-SW112-012308			DA-SW133-012308		
SDG: CTO402-6	LAB_ID	SB0433-7			SB0433-15			SB0433-17			SB0433-9		
FRACTION: OS	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		20	U		20	U		20	U	
1,3-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		25	U		25	U		25	U		25	U	
2,4,6-TRICHLOROPHENOL		10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL		10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL		10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL		25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U		10	U		10	U	
2-CHLOROPHENOL		10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE		10	U		10	U		10	U		10	U	
2-METHYLPHENOL		10	U		10	U		10	U		10	U	
2-NITROANILINE		25	U		25	U		25	U		25	U	
2-NITROPHENOL		10	U		10	U		10	U		10	U	
3&4-METHYLPHENOL		10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
3-NITROANILINE		25	U		25	U		25	U		25	U	
4,6-DINITRO-2-METHYLPHENOL		25	U		25	U		25	U		25	U	
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		10	U		10	U		10	U		10	U	
4-CHLOROANILINE		10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-NITROANILINE		25	U		25	U		25	U		25	U	
4-NITROPHENOL		25	U		25	U		25	U		25	U	
ACENAPHTHENE		10	U		10	U		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U		10	U		10	U	
ANTHRACENE		10	U		10	U		10	U		10	U	
BENZIDINE		50	UJ	C	50	UJ	C	50	UJ	C	50	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SW-DUP01-012308
SDG: CTO402-6	LAB_ID	SB0433-5
FRACTION: OS	SAMP_DATE	1/23/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	DA-SW110-012308

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DIPHENYLHYDRAZINE	20	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U	
2,4,5-TRICHLOROPHENOL	25	U	
2,4,6-TRICHLOROPHENOL	10	U	
2,4-DICHLOROPHENOL	10	U	
2,4-DIMETHYLPHENOL	10	U	
2,4-DINITROPHENOL	25	U	
2,4-DINITROTOLUENE	10	U	
2,6-DICHLOROPHENOL	10	U	
2,6-DINITROTOLUENE	10	U	
2-CHLORONAPHTHALENE	10	U	
2-CHLOROPHENOL	10	U	
2-METHYLNAPHTHALENE	10	U	
2-METHYLPHENOL	10	U	
2-NITROANILINE	25	U	
2-NITROPHENOL	10	U	
3&4-METHYLPHENOL	10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C
3-NITROANILINE	25	U	
4,6-DINITRO-2-METHYLPHENOL	25	U	
4-BROMOPHENYL PHENYL ETHER	10	U	
4-CHLORO-3-METHYLPHENOL	10	U	
4-CHLOROANILINE	10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U	
4-NITROANILINE	25	U	
4-NITROPHENOL	25	U	
ACENAPHTHENE	10	U	
ACENAPHTHYLENE	10	U	
ANTHRACENE	10	U	
BENZIDINE	50	UJ	C

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW01-012308			DA-SW106-012308			DA-SW107-012308			DA-SW108-012308		
	LAB_ID	SB0433-11			SB0433-13			SB0433-1			SB0433-3		
	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZOIC ACID		25	U		25	UR	D	25	U		25	U	
BENZYL ALCOHOL		20	U		20	U		20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
BUTYL BENZYL PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CARBAZOLE		10	U		10	U		10	U		10	U	
CHRYSENE		10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		10	U		10	U	
DIBENZOFURAN		10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
FLUORANTHENE		10	U		10	U		10	U		10	U	
FLUORENE		10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	UJ	D	10	U		10	U	
ISOPHORONE		10	U		10	U		10	U		10	U	
NAPHTHALENE		10	U		10	U		10	U		10	U	
NITROBENZENE		10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL		25	U		25	U		25	U		25	U	
PHENANTHRENE		10	U		10	U		10	U		10	U	
PHENOL		10	U		10	U		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW110-012308			DA-SW111-012308			DA-SW112-012308			DA-SW133-012308		
	LAB_ID	SB0433-7			SB0433-15			SB0433-17			SB0433-9		
	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZOIC ACID		25	U		25	U		25	U		25	U	
BENZYL ALCOHOL		20	U		20	U		20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
BUTYL BENZYL PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CARBAZOLE		10	U		10	U		10	U		10	U	
CHRYSENE		10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		10	U		10	U	
DIBENZOFURAN		10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
FLUORANTHENE		10	U		10	U		10	U		10	U	
FLUORENE		10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		10	U		10	U	
ISOPHORONE		10	U		10	U		10	U		10	U	
NAPHTHALENE		10	U		10	U		10	U		10	U	
NITROBENZENE		10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL		25	U		25	U		25	U		25	U	
PHENANTHRENE		10	U		10	U		10	U		10	U	
PHENOL		10	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-DUP01-012308
SDG: CTO402-6	LAB_ID	SB0433-5
FRACTION: OS	SAMP_DATE	1/23/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	DA-SW110-012308

PARAMETER	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	10	U	
BENZO(A)PYRENE	10	U	
BENZO(B)FLUORANTHENE	10	U	
BENZO(G,H,I)PERYLENE	10	U	
BENZO(K)FLUORANTHENE	10	U	
BENZOIC ACID	25	U	
BENZYL ALCOHOL	20	U	
BIS(2-CHLOROETHOXY)METHANE	10	U	
BIS(2-CHLOROETHYL)ETHER	10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	10	UJ	C
BUTYL BENZYL PHTHALATE	10	UJ	C
CARBAZOLE	10	U	
CHRYSENE	10	U	
DIBENZO(A,H)ANTHRACENE	10	U	
DIBENZOFURAN	10	U	
DIETHYL PHTHALATE	10	U	
DIMETHYL PHTHALATE	10	U	
DI-N-BUTYL PHTHALATE	10	U	
DI-N-OCTYL PHTHALATE	10	UJ	C
FLUORANTHENE	10	U	
FLUORENE	10	U	
HEXACHLOROBENZENE	10	U	
HEXACHLOROBUTADIENE	10	U	
HEXACHLOROETHANE	10	U	
INDENO(1,2,3-CD)PYRENE	10	U	
ISOPHORONE	10	U	
NAPHTHALENE	10	U	
NITROBENZENE	10	U	
N-NITROSODIMETHYLAMINE	10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U	
N-NITROSODIPHENYLAMINE	10	U	
N-NITROSOPYRROLIDINE	10	U	
PENTACHLOROPHENOL	25	U	
PHENANTHRENE	10	U	
PHENOL	10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW01-012308			DA-SW106-012308			DA-SW107-012308			DA-SW108-012308		
SDG: CTO402-6	LAB_ID	SB0433-11			SB0433-13			SB0433-1			SB0433-3		
FRACTION: OS	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SW110-012308			DA-SW111-012308			DA-SW112-012308			DA-SW133-012308		
SDG: CTO402-6	LAB_ID	SB0433-7			SB0433-15			SB0433-17			SB0433-9		
FRACTION: OS	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SW-DUP01-012308		
SDG: CTO402-6	LAB_ID	SB0433-5		
FRACTION: OS	SAMP_DATE	1/23/2008		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF	DA-SW110-012308		
PARAMETER		RESULT	VQL	QLCD
PYRENE		10	UJ	C

PROJ_NO: 00816	NSAMPLE	DA-SW01-012308			DA-SW106-012308			DA-SW107-012308			DA-SW108-012308		
SDG: CTO402-6	LAB_ID	SB0433-11			SB0433-13			SB0433-1			SB0433-3		
FRACTION: PEST/PCB	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDE	0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDT	0.01	U		0.01	UJ	C	0.01	UJ	C	0.01	U	
ALDRIN	0.005	U		0.005	U		0.005	U		0.005	U	
ALPHA-BHC	0.005	U		0.005	U		0.005	U		0.005	U	
ALPHA-CHLORDANE	0.005	U		0.005	U		0.005	U		0.005	U	
AROCLOR-1016	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1221	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1232	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1242	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1248	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1254	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1260	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1268	0.05	U		0.05	U		0.05	U		0.05	U	
BETA-BHC	0.005	U		0.005	U		0.005	U		0.005	U	
DELTA-BHC	0.005	U		0.005	U		0.005	U		0.005	U	
DIELDRIN	0.0093			0.009			0.01	U		0.01	U	
ENDOSULFAN I	0.005	U		0.005	U		0.005	U		0.005	U	
ENDOSULFAN II	0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN SULFATE	0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN	0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN ALDEHYDE	0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN KETONE	0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-BHC (LINDANE)	0.005	U		0.005	U		0.005	U		0.005	U	
GAMMA-CHLORDANE	0.005	U		0.005	U		0.005	U		0.005	U	
HEPTACHLOR	0.005	U		0.005	U		0.005	U		0.005	U	
HEPTACHLOR EPOXIDE	0.005	U		0.005	U		0.005	U		0.005	U	
METHOXYCHLOR	0.05	U		0.05	UJ	C	0.05	UJ	C	0.05	U	
TOXAPHENE	0.1	U		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SW110-012308			DA-SW111-012308			DA-SW112-012308			DA-SW133-012308		
	LAB_ID	SB0433-7			SB0433-15			SB0433-17			SB0433-9		
	SAMP_DATE	1/23/2008			1/23/2008			1/23/2008			1/23/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDE		0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDT		0.0047	J	R	0.01	U		0.01	U		0.0045		
ALDRIN		0.005	U		0.005	U		0.005	U		0.005	U	
ALPHA-BHC		0.005	U		0.005	U		0.005	U		0.005	U	
ALPHA-CHLORDANE		0.005	U		0.005	U		0.005	U		0.005	U	
AROCLOR-1016		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1221		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1232		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1242		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1248		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1254		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1260		0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1268		0.05	U		0.05	U		0.05	U		0.05	U	
BETA-BHC		0.005	U		0.005	U		0.005	U		0.005	U	
DELTA-BHC		0.005	U		0.005	U		0.005	U		0.005	U	
DIELDRIN		0.012	J	R	0.0094	J	R	0.011	J	R	0.01		
ENDOSULFAN I		0.005	U		0.005	U		0.005	U		0.005	U	
ENDOSULFAN II		0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN SULFATE		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN ALDEHYDE		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN KETONE		0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-BHC (LINDANE)		0.005	U		0.005	U		0.005	U		0.005	U	
GAMMA-CHLORDANE		0.005	U		0.005	U		0.005	U		0.005	U	
HEPTACHLOR		0.005	U		0.005	U		0.005	U		0.005	U	
HEPTACHLOR EPOXIDE		0.005	U		0.005	U		0.005	U		0.005	U	
METHOXYCHLOR		0.05	U		0.05	U		0.05	U		0.05	U	
TOXAPHENE		0.1	U		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00816 SDG: CTO402-6 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SW-DUP01-012308		
	LAB_ID	SB0433-5		
	SAMP_DATE	1/23/2008		
	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF	DA-SW110-012308		
PARAMETER		RESULT	VQL	QLCD
4,4'-DDD		0.01	U	
4,4'-DDE		0.01	U	
4,4'-DDT		0.01	U	
ALDRIN		0.005	U	
ALPHA-BHC		0.005	U	
ALPHA-CHLORDANE		0.005	U	
AROCLOR-1016		0.05	U	
AROCLOR-1221		0.05	U	
AROCLOR-1232		0.05	U	
AROCLOR-1242		0.05	U	
AROCLOR-1248		0.05	U	
AROCLOR-1254		0.05	U	
AROCLOR-1260		0.05	U	
AROCLOR-1268		0.05	U	
BETA-BHC		0.005	U	
DELTA-BHC		0.005	U	
DIELDRIN		0.009		
ENDOSULFAN I		0.005	U	
ENDOSULFAN II		0.01	U	
ENDOSULFAN SULFATE		0.01	U	
ENDRIN		0.01	U	
ENDRIN ALDEHYDE		0.01	U	
ENDRIN KETONE		0.01	U	
GAMMA-BHC (LINDANE)		0.005	U	
GAMMA-CHLORDANE		0.005	U	
HEPTACHLOR		0.005	U	
HEPTACHLOR EPOXIDE		0.005	U	
METHOXYCHLOR		0.05	U	
TOXAPHENE		0.1	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-03-08-2676W

Date: March 31, 2008

c: File G00816-4.10

To: James Forrelli

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO402-8
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC:		
11/Groundwaters/	DA-DW01-013108	DA-DW02-013108
	DA-DW03-013108	DA-DW04-013108
	DA-DW05-013108	DA-DW06-013108
	DA-DW07-013108	DA-DW08-013108
	DA-DW09-013108	DA-DW10-013108
	DA-DWDUP-013108	
	(Field Duplicate Pair: DA-DW08-013108/ DA-DWDUP-013108)	
9/Surface waters/	DA-SW01-103108	DA-SW106-013108
	DA-SW107-013108	DA-SW108-013108
	DA-SW110-013108	DA-SW111-013108
	DA-SW112-013108	DA-SW133-013108
	DA-SW-DUP01-013108	
	(Field Duplicate Pair: DA-SW110-013108/ DA-SW-DUP01-013108)	
1/Trip Blank/	TB-013108	

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC) analytical data for the aqueous samples in this SDG. The groundwater (diffusion bags) and surface water samples were collected at the Site 08-NUSC Disposal Area on January 31, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The VOC analysis was performed according to USEPA SW-846 Method 8260B. The VOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

*	•	Data Completeness
*	•	Preservation and Technical Holding Times
*	•	GC/MS Instrument Performance Check (Tuning)
	•	Initial and Continuing Calibrations
	•	Blanks
*	•	Surrogate Compounds
*	•	Internal Standards
	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
*	•	Field Duplicates
	•	Reporting Limits

* All criteria were met for this parameter.

Continuing Calibrations

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Dichlorodifluoromethane	-34.07		UJ	DA-SW01-013108, DA-SW111-013108, DA-SW-DUP01-013108, DA-SW110-013108
2,2-Dichloropropane	-25.99		UJ	
Carbon tetrachloride	-30.30		UJ	
Tetrachloroethene	-28.33, 43.45		UJ	DA-SW01-013108, DA-SW111-013108, DA-SW-DUP01-013108, DA-SW110-013108, TB-013108, DA-SW112-013108
tert-Butylbenzene	-26.52		UJ	DA-SW01-013108, DA-SW111-013108, DA-SW-DUP01-013108, DA-SW110-013108
n-Butylbenzene	-25.96		UJ	
sec-Butylbenzene	-27.76		UJ	
1,2-Dibromo-3-chloropropane	50.23		UJ	
Hexachlorobutadiene	-40.47		UJ	
Trichlorofluoromethane	28.77		UJ	TB-013108, DA-SW112-013108
Acetone	30.92		UJ	

Although the %D method criterion was outside of the QC limits for dichlorodifluoromethane, 2,2-dichloropropane, carbon tetrachloride, tert-butylbenzene, n-butylbenzene, sec-butylbenzene, 1,2-dibromo-3-chloropropane, hexachlorobutadiene, trichlorofluoromethane, and acetone; the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100%

allocated or there are no regulatory limits established for the compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D method criteria were outside of the QC limits for tetrachloroethene, the project accuracy goals may be slightly impacted since the project quantitation limit is greater than the project action limit as highlighted in Table 4-1A of the approved work plan. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

The following table summarizes the level of blank contamination detected in the field blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Carbon disulfide	Trip	1	5	DA-DW04-013108, DA-DW07-013108, DA-DW08-013108, DA-DW09-013108, DA-DWDUP-013108, DA-SW106-013108, DA-SW109-013108, DA-SW108-103108, DA-SW107-013108, DA-SW110-013108, DA-SW111-013108, DA-SW112-013108, DA-SW-DUP01-013108
Methylene Chloride	Trip	0.9	9	DA-SW01-013108, DA-SW106-013108

Blank actions were applied to the affected samples due to carbon disulfide and methylene chloride field blank contamination. (The 10x rule applies for the common laboratory contaminant methylene chloride and the 5x rule applies to carbon disulfide). The positive results for carbon disulfide and methylene chloride in the affected samples are changed to non-detected values at elevated reporting limits.

Although carbon disulfide and methylene chloride contamination was found in the field blank, the project sensitivity goals may be slightly impacted since the project quantitation limits for these compounds exceed the project action limits as highlighted in the approved work plan. The results in the affected samples are usable with elevated detection limits.

Matrix Spike/Matrix Spike Duplicate

The matrix spike/matrix spike duplicate (MS/MSD) analysis of sample DA-SW106-013108 resulted high recoveries for the majority of the target compounds. All positive results for sample DA-SW106-013108 are estimated (J) due to high MS/MSD recoveries.

Although the MS/MSD recoveries were above the QC limits for sample DA-SW106-013108, the project accuracy goals are only slightly impacted. The positive results are usable as estimated values which may be biased high.

Laboratory Control Sample/Laboratory Control Sample Duplicates

The following table summarizes the volatile compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromochloromethane	52, 56, 59	80-132		UJ	All samples

The laboratory has demonstrated an inability to accurately recover bromochloromethane through low LCS recoveries. The non-detected bromochloromethane results are estimated (UJ) in all samples due to low LCS recoveries. The results may be biased low.

Although the laboratory control sample recovery criteria were not met due to low LCS recoveries for bromochloromethane; the project accuracy goals were only slightly impacted. The non-detected results in the affected samples are usable as estimated detection limits which may be biased low.

Reporting Limits

All project quantitation limits were met. However, the project quantitation limits for the following compounds exceed the project action limits as noted in Table 4-1A of the approved work plan: 1,2,4-trichlorobenzene, carbon disulfide, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, high matrix spike/matrix spike duplicate recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limits for methylene chloride and carbon disulfide were elevated in select samples due to blank actions. Data usability may be impacted for methylene chloride and carbon disulfide since the project quantitation limits exceed the project action limits. The project quantitation limits for the following compounds exceed the project action limits as noted in Table 4-1A of the approved work plan: 1,2,4-trichlorobenzene, carbon disulfide, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816 SDG: CTO402-8 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-DW01-013108			DA-DW02-013108			DA-DW03-013108			DA-DW04-013108		
	LAB_ID	SB0567-16			SB0567-15			SB0567-14			SB0567-13		
	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1			2			1	J	P	2		
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1			1			0.8	J	P	1		
1,1-DICHLOROETHENE		0.4	J	P	0.6	J	P	1	U		0.6	J	P
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	B

PROJ_NO: 00816 SDG: CTO402-8 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-DW05-013108			DA-DW06-013108			DA-DW07-013108			DA-DW08-013108		
	LAB_ID	SB0567-17			SB0567-18			SB0567-12			SB0567-10		
	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		2			1			1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1			2			1			0.7	J	P
1,1-DICHLOROETHENE		0.9	J	P	0.9	J	P	1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U	B	1	U	B

PROJ_NO: 00816 SDG: CTO402-8 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-DW09-013108			DA-DW10-013108			DA-DWDUP-013108			DA-SW01-013108		
	LAB_ID	SB0567-9			SB0567-7			SB0567-11			SB0567-1		
	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF							DA-DW08-013108					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		3			0.5	J	P	1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	UJ	C
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	UJ	C
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U	B	1	U		1	U	B	1	U	

PROJ_NO: 00816	NSAMPLE	DA-SW106-013108			DA-SW107-013108			DA-SW108-013108			DA-SW110-013108		
SDG: CTO402-8	LAB_ID	SB0567-4			SB0567-6			SB0567-8			SB0567-5		
FRACTION: OV	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	UJ	C
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	UJ	C
2-BUTANONE	5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	3	J	DP	5	U		5	U		5	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	UJ	BD	1	U	B	1	U	B	1	U	B

PROJ_NO: 00816	NSAMPLE	DA-SW111-013108			DA-SW112-013108			DA-SW133-013108			DA-SW-DUP01-013108		
SDG: CTO402-8	LAB_ID	SB0567-2			SB0567-20			SB0567-19			SB0567-3		
FRACTION: OV	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF										DA-SW110-013108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	UJ	C	1	U		1	U		1	UJ	C
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	UJ	C	1	U		1	U		1	UJ	C
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	UJ	C	5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U	B	1	U	B	1	U		1	U	B

PROJ_NO: 00816	NSAMPLE	TB-013108
SDG: CTO402-8	LAB_ID	SB0567-21
FRACTION: OV	SAMP_DATE	1/31/2008
MEDIA: WATER	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U	
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,1-DICHLOROPROPENE	1	U	
1,2,3-TRICHLOROBENZENE	1	U	
1,2,3-TRICHLOROPROPANE	1	U	
1,2,4-TRICHLOROBENZENE	1	U	
1,2,4-TRIMETHYLBENZENE	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,3-DICHLOROPROPANE	1	U	
1,4-DICHLOROBENZENE	1	U	
2,2-DICHLOROPROPANE	1	U	
2-BUTANONE	5	U	
2-CHLOROTOLUENE	1	U	
2-HEXANONE	5	U	
4-CHLOROTOLUENE	1	U	
4-ISOPROPYLTOLUENE	1	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	5	UJ	C
BENZENE	1	U	
BROMOBENZENE	1	U	
BROMOCHLOROMETHANE	1	UJ	E
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON DISULFIDE	1		

PROJ_NO: 00816	NSAMPLE	DA-DW01-013108			DA-DW02-013108			DA-DW03-013108			DA-DW04-013108		
SDG: CTO402-8	LAB_ID	SB0567-16			SB0567-15			SB0567-14			SB0567-13		
FRACTION: OV	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	J	P	1			0.9	J	P	1		
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		0.5	J	P	1	U		1	U		0.4	J	P
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		21			2			1			4		
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		0.3	J	P	1	U		0.6	J	P	1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		160			220			99			200		
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	DA-DW05-013108			DA-DW06-013108			DA-DW07-013108			DA-DW08-013108		
SDG: CTO402-8	LAB_ID	SB0567-17			SB0567-18			SB0567-12			SB0567-10		
FRACTION: OV	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1			1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE	1	U		1	U		1	U		1	U	
CHLOROETHANE	2	U		2	U		2	U		2	U	
CHLOROFORM	0.5	J	P	1	U		1	U		1	U	
CHLOROMETHANE	2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE	5			13			2			4		
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	2	U		2	U		2	U		2	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE	1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE	1	U		1	U		1	U		1	U	
M+P-XYLENES	2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
N-BUTYLBENZENE	1	U		1	U		1	U		1	U	
N-PROPYLBENZENE	1	U		1	U		1	U		1	U	
O-XYLENE	1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE	1	U		1	U		1	U		1	U	
STYRENE	1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	0.5	J	P	0.9	J	P	1	U		1	U	
TOLUENE	1	U		1	U		0.4	J	P	0.4	J	P
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	300			160			13			1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL CHLORIDE	2	U		2	U		2	U		2		

PROJ_NO: 00816	NSAMPLE	DA-DW09-013108			DA-DW10-013108			DA-DWDUP-013108			DA-SW01-013108		
SDG: CTO402-8	LAB_ID	SB0567-9			SB0567-7			SB0567-11			SB0567-1		
FRACTION: OV	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF							DA-DW08-013108					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	UJ	C
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		0.6	J	P	2			3			1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	UJ	C
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	B
N-BUTYLBENZENE		1	U		1	U		1	U		1	UJ	C
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	UJ	C
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	UJ	C
TETRACHLOROETHENE		1	U		2			1	U		1	UJ	C
TOLUENE		0.7	J	P	1	U		0.5	J	P	1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		3			1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	J	P	2	U	

PROJ_NO: 00816 SDG: CTO402-8 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-SW106-013108			DA-SW107-013108			DA-SW108-013108			DA-SW110-013108		
	LAB_ID	SB0567-4			SB0567-6			SB0567-8			SB0567-5		
	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	UJ	C
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	UJ	C
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U	B	5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	UJ	C
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	UJ	C
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	UJ	C
TETRACHLOROETHENE		1	U		1	U		1	U		1	UJ	C
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	DA-SW111-013108			DA-SW112-013108			DA-SW133-013108			DA-SW-DUP01-013108		
SDG: CTO402-8	LAB_ID	SB0567-2			SB0567-20			SB0567-19			SB0567-3		
FRACTION: OV	SAMP_DATE	1/31/2008			1/31/2008			1/31/2008			1/31/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF										DA-SW110-013108		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	UJ	C	1	U		1	U		1	UJ	C
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	UJ	C	2	U		2	U		2	UJ	C
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	C	1	U		1	U		1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	UJ	C	1	U		1	U		1	UJ	C
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	UJ	C	1	U		1	U		1	UJ	C
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	UJ	C	1	U		1	U		1	UJ	C
TETRACHLOROETHENE		1	UJ	C	1	UJ	C	1	U		1	UJ	C
TOLUENE		1	U		0.4	J	P	1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	UJ	C	2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	TB-013108
SDG: CTO402-8	LAB_ID	SB0567-21
FRACTION: OV	SAMP_DATE	1/31/2008
MEDIA: WATER	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
DIBROMOMETHANE	1	U	
DICHLORODIFLUOROMETHANE	2	U	
ETHYLBENZENE	1	U	
HEXACHLOROBUTADIENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	0.9	J	P
N-BUTYLBENZENE	1	U	
N-PROPYLBENZENE	1	U	
O-XYLENE	1	U	
SEC-BUTYLBENZENE	1	U	
STYRENE	1	U	
TERT-BUTYLBENZENE	1	U	
TETRACHLOROETHENE	1	UJ	C
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	2	UJ	C
VINYL CHLORIDE	2	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2827W

Date: July 21, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO402-9
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum/pH/TOC/Grain Size:

15/Sediments/	DA-SD01-0006*	DA-SD106-0006	DA-SD107-0006
	DA-SD108-0006	DA-SD110-0006	DA-SD111-0006
	DA-SD112-0006	DA-SD114-0006	DA-SD116-0006
	DA-SD119-0006	DA-SD121-0006	DA-SD125-0006
	DA-SD133-0006	DA-SD-DUP01	DA-SD-DUP02

(Field Duplicate Pairs: DA-SD106-0006/DA-SD-DUP01, DA-SD119-0006/DA-SD-DUP02)

* NOTE: SAMPLE SD01 I.D. CHANGED TO SD133-(INITIALLY MISIDENTIFIED) JRF

TAL Metals and Molybdenum:

2/Rinsate Blanks/	DA-SD-RB01	DA-SD-RB01-F

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from sediment samples collected at the Site 08-NUSC Disposal Area from May 19-21, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B/6020/7470A/7471A. Additionally, a Tier I data validation was performed on the pH, total organic carbon (TOC), and grain size analytical data from these sediment samples. The pH analysis was performed according to USEPA SW-846 Method 9045C, the TOC analysis according to the Lloyd Kahn method, and the grain size analysis according to ASTM D422. The Tier I data validation includes evaluation for completeness only. Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Also enclosed are the particle size distribution graphs from the grain size analysis. TOC and pH results are presented in tables with the fraction "Misc" and grain size results are presented in tables with the fraction "MiscO".

The data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- * ICP-MS Tuning

*	•	ICP-MS Internal Standard Performance
	•	Calibration Verification
	•	Laboratory Blank Analyses
	•	ICP Interference Check Sample Results
	•	Matrix Spike/Matrix Spike Duplicate
NA	•	Laboratory Duplicate Results
*	•	Laboratory Control Sample Results
	•	Field Duplicate Precision
	•	ICP Serial Dilution Results
*	•	Reporting Limits
NA	•	Sample Quantitation

* All quality control criteria were met for this parameter.
NA Not applicable for this SDG or for a Tier II data validation.

Data Completeness

The data package summary forms were missing the molybdenum results. On July 1, 2008 the laboratory resubmitted all summary forms to include the molybdenum results.

On July 21, 2008 the field sampler confirmed that all samples in this SDG are sediment samples since the chain-of-custody is mislabeled.

The pH, TOC, and grain size data are complete.

Calibration Verification

The following table summarizes the analyte that recovered above the 130% QC recovery limit in the PQL standard:

Analyte	%R	2xTrue Value (µg/L)	Action		Affected Sample
			(+)	NDs	
Cobalt	135.6, 139.3	60	J <2xTV		DA-SD-RB01

Although cobalt recovered above the 130% QC limit in the PQL check standard, the project accuracy goals are not impacted since there are no regulatory limits established for rinsate blank samples. The positive cobalt result in the affected field blank is usable as an estimated value which may be biased high.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the aqueous rinsate blank samples:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Barium	1.13	5.65	DA-SD-RB01, DA-SD-RB01-F
Calcium	34.46	172.3	
Cobalt	0.73	3.65	DA-SD-RB01
Copper	-2.87	14.35	DA-SD-RB01, DA-SD-RB01-F
Iron	33.99	170	
Manganese	1.14	5.7	DA-SD-RB01
Potassium	95.89	479.5	DA-SD-RB01, DA-SD-RB01-F
Arsenic	2.09	10.5	DA-SD-RB01
Sodium	-103.7	518.5	DA-SD-RB01, DA-SD-RB01-F
Thallium	0.28	1.4	DA-SD-RB01-F
Zinc	1.67	8.35	DA-SD-RB01, DA-SD-RB01-F

The positive results below the blank action levels for barium, calcium, cobalt, iron, manganese, potassium, arsenic, thallium, and zinc were changed to non-detected values (U) in the affected aqueous rinsate blank samples due to laboratory blank contamination. The positive results below the blank action levels and the non-detected results for copper and sodium are estimated (J, UJ) in the affected aqueous rinsate blank samples due to negative blank contamination.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the sediment samples:

Analyte	Maximum Conc.	Action Level (mg/kg)	Affected Samples
Antimony	1.73 µg/L	0.865	DA-SD106-0006, DA-SD107-0006, DA-SD108-0006, DA-SD111-0006, DA-SD112-0006, DA-SD114-0006, DA-SD116-0006, DA-SD125-0006, DA-SD-DUP01, DA-SD-DUP02
Cadmium	0.31 µg/L	0.155	DA-SD110-0006, DA-SD111-0006, DA-SD112-0006
Silver	0.85 µg/L	0.425	DA-SD106-0006, DA-SD119-0006, DA-SD-DUP02
Thallium	0.28 µg/L	0.14	All sediment samples
Sodium	11.45 mg/kg	57.25	DA-SD107-0006, DA-SD108-0006

The positive results below the blank action levels for antimony, cadmium, silver, thallium, and sodium were changed to non-detected values (U) at elevated reporting limits in the affected sediment samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 1. The action level for each sample varies, based on the actual amount of sample analyzed, the percent solids for that sample, and the sample dilution factor.

Although antimony, cadmium, silver, and thallium contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample-specific elevated reporting limits. The results in the affected samples are usable as elevated reporting limits.

Although sodium contamination was found in the laboratory blanks, the project sensitivity goals are not impacted since there are no regulatory limits established for sodium in the sediment samples. The results in the affected samples are usable as elevated reporting limits.

The rinsate blank was not used to establish blank action levels for the soil samples.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ		High	DA-SD106-0006, DA-SD107-0006, DA-SD108-0006, DA-SD111-0006, DA-SD112-0006, DA-SD114-0006, DA-SD116-0006, DA-SD125-0006, DA-SD-DUP01, DA-SD-DUP02
Cadmium	J	UJ	Low	All sediment samples
Selenium	J	UJ	Low	
Silver	J	UJ	Low	
Lead	J		High	DA-SD107-0006, DA-SD108-0006
Sodium	J		High	DA-SD01-0006, DA-SD106-0006, DA-SD107-0006, DA-SD108-0006, DA-SD110-0006, DA-SD111-0006, DA-SD112-0006, DA-SD114-0006, DA-SD121-0006, DA-SD125-0006, DA-SD-DUP01, DA-SD-DUP02
	UJ			DA-SD133-0006

The positive results for lead and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. The results may be biased high.

The positive and non-detected results for cadmium, selenium, and silver in the affected samples are qualified as estimated (J, UJ) due to negative ICP interference attributed to iron. The results may be biased low.

Professional judgment was used to change the positive antimony and sodium results to estimated, non-detected values (UJ) in the affected samples, rather than reject as provided in the data validation guidelines, because the reported concentration may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

There were ICP interferences for cadmium, selenium, silver, and lead attributed to the high concentration of iron in the samples listed above; therefore, the project accuracy goals may be impacted. The positive lead results in the affected samples are usable as estimated values which may be biased high. The positive and non-detected cadmium, selenium, and silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences for sodium attributed to the high concentration of iron resulting in the estimation of sodium results in the samples listed above, the project accuracy goals are not impacted since there are no regulatory limits established for sodium for the sediment samples. The positive sodium results are usable as estimated values which may be biased high.

Although there were ICP interferences for antimony and sodium attributed to the high concentration of iron resulting in the raising of the reporting limits for antimony and sodium in the samples listed above, the project sensitivity goals are not impacted since the elevated reporting limits for antimony do not exceed the project action limit for antimony for the sediment samples and there are no regulatory limits established for sodium for the sediment samples. The antimony and sodium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the metals in the matrix spike/matrix spike duplicate (MS/MSD) analysis of sample DA-SD107-0006 which were below the percent recovery criterion of 75%:

Compound	%Recovery	Action	
		(+)	NDs
Antimony	42.8, 45.7	J	UJ
Copper	48.9, 48.7	J	UJ

The positive and non-detected antimony and copper results are estimated (J, UJ) in all sediment samples.

The recoveries for antimony and copper did not meet the MS/MSD QC criterion; therefore, the project accuracy goals may be impacted. The positive and non-detected antimony and copper results in the affected sediment samples are usable as estimated values and estimated reporting limits which may be biased low.

Field Duplicate Precision

The following table summarizes the analyte that recovered outside of the 50% RPD QC limit in the analysis of the field duplicate pair DA-SD106-0006/DA-SD-DUP01:

Analyte	RPD	Action	
		(+)	NDs
Lead	70.0	J	

The positive lead results are estimated (J) in all sediment samples due to field duplicate imprecision.

The results of the field duplicate analysis exceeded the QC limits for lead; therefore, the project precision goals may be impacted. The positive lead results in all sediment samples are usable as estimated values for which the bias is indeterminate.

The following table summarizes the analyte that recovered outside of the 50% RPD QC limit in the analysis of the field duplicate pair DA-SD119-0006/DA-SD-DUP02:

Analyte	RPD	Action	
		(+)	NDs
Potassium	94.5	J	

Additionally, the absolute difference in the field duplicate pair results was greater than the 4x quantitation limit (QL) QC criterion.

The positive potassium results are estimated (J) in all sediment samples due to field duplicate imprecision.

Although the results of the field duplicate analysis exceeded the QC limits for potassium, the project precision goals are not impacted since there are no regulatory limits established for potassium for the sediment samples. The positive potassium results in sediment all samples are usable as estimated values for which the bias is indeterminate.

ICP Serial Dilution Results

The percent difference for potassium was above the 15 percent QC criterion for analyte concentrations greater than 50x the instrument detection limit (IDL) before dilution, in the ICP serial dilution analysis of sample DA-SD107-0006. The positive results for potassium were qualified as estimated (J) in all sediment samples. Since the initial sample result for this metal was greater than the diluted sample result, the results may be biased high.

Although the ICP serial dilution percent difference criteria were not met for potassium, the accuracy project goals are not impacted since there are no regulatory limits established for potassium for the sediment samples. The positive results for potassium in the affected samples are usable as estimated values which may be biased high.

Reporting Limits

The laboratory reported non-detected results down to the IDL. The laboratory reporting limits met the project quantitation limits and project action limits.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Reporting limits were elevated for antimony, cadmium, silver, thallium, and sodium due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals are not affected.

Reporting limits were elevated for antimony and sodium due to ICP interferences. As discussed above in the ICP Interference Check Sample Results section, the project sensitivity goals are not affected.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for this data set with the following exceptions. Cadmium, selenium, silver, and lead were qualified as estimated due to ICP interferences. The affected cadmium, selenium, and silver results may be biased low. The affected lead results may be biased high. Antimony and copper were qualified as estimated due to low MS/MSD recoveries. The affected antimony and copper results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits. Data usability may be impacted. Additionally, cobalt was qualified as estimated in sample DA-SD-

RB01 due to poor linearity near the reporting limit. Sodium was qualified as estimated due to ICP interferences. Potassium was qualified as estimated due to ICP serial dilution result exceedance. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to precision were met for this data set with the following exception. Lead was qualified as estimated in all samples due to field duplicate imprecision. Although specific QC criteria were not met in this instance, the affected positive results are usable as estimated values. Data usability may be impacted. Additionally, potassium was qualified as estimated due to field duplicate imprecision. Although specific QC criteria were not met in this instance, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to sensitivity were met for this data set. Data usability is not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables
Particle Size Distribution Graphs

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	~~DA-SD01-0006~~ DA-SD134-0006 *	DA-SD106-0006	DA-SD107-0006	DA-SD108-0006
SDG: CTO402-9	LAB_ID	SB2655-010	SB2655-004	SB2627-001	SB2627-003
FRACTION: M	SAMP_DATE	5/20/2008	5/20/2008	5/19/2008	5/19/2008
MEDIA: SEDIMENT	QC_TYPE	NM	NM	NM	NM
	UNITS	MG/KG	MG/KG	MG/KG	MG/KG
	PCT_SOLIDS	65.2	67.6	66.7	85.5
	DUP_OF				

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM	10300			13600			9170			6860		
ANTIMONY	0.24	UJ	D	0.27	UJ	ADKP	0.46	UJ	ADKP	0.37	UJ	ADKP
ARSENIC	10.6			12.9			15.7			14.8		
BARIUM	25			39			22.3			25.8		
BERYLLIUM	0.71			0.43			0.35	J	P	0.29		
CADMIUM	0.49	J	KP	0.42	J	KP	0.02	UJ	K	0.01	UJ	K
CALCIUM	1470			2400			1330			1010		
CHROMIUM	14.9			19.7			13.8			11.6		
COBALT	10			59.5			12.1			9.7		
COPPER	15.4	J	D	24	J	D	20.3	J	D	18.6	J	D
IRON	30500			30200			28800			23700		
LEAD	43.7	J	G	353	J	G	14.3	J	GK	9.4	J	GK
MAGNESIUM	2640			3400			3150			2790		
MANGANESE	500			1710			722			394		
MERCURY	0.06			0.09			0.02	J	P	0.01	U	
MOLYBDENUM	2.7			3.8			0.44	J	P	0.44	J	P
NICKEL	19.5			23.6			21.4			16.7		
POTASSIUM	303	J	GI	494	J	GI	512	J	GI	673	J	GI
SELENIUM	0.35	UJ	K	0.32	UJ	K	0.33	UJ	K	0.26	UJ	K
SILVER	0.09	UJ	K	0.31	UJ	AKP	0.08	UJ	K	0.06	UJ	K
SODIUM	64.3	J	KP	90	J	K	42.9	UJ	AKP	24.8	UJ	AKP
THALLIUM	0.05	UJ	AP	0.09	UJ	AP	0.06	UJ	AP	0.03	UJ	AP
VANADIUM	22			22.6			17.7			13.1		
ZINC	157			139			73.4			47.3		

* SAMPLE LOCATION MISIDENTIFIED INITIALLY.
JRJ

PROJ_NO: 00816	NSAMPLE	DA-SD110-0006			DA-SD111-0006			DA-SD112-0006			DA-SD114-0006		
SDG: CTO402-9	LAB_ID	SB2655-001			SB2627-005			SB2627-007			SB2655-016		
FRACTION: M	SAMP_DATE	5/20/2008			5/19/2008			5/19/2008			5/20/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	78.6			70.0			44.4			52.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		12000			11400			16400			14100		
ANTIMONY		0.18	UJ	D	0.55	UJ	ADKP	0.54	UJ	ADKP	0.21	UJ	ADKP
ARSENIC		12.1			13.2			9.4			10		
BARIUM		20.7			23.8			42.5			41.2		
BERYLLIUM		0.36			0.37			0.65			0.56		
CADMIUM		0.17	UJ	AKP	0.16	UJ	AKP	0.14	UJ	AKP	0.7	J	KP
CALCIUM		1440			1360			2370			2300		
CHROMIUM		16.5			16.3			21			19.3		
COBALT		93.9			60.7			21.1			23.8		
COPPER		22.4	J	D	33.6	J	D	31.6	J	D	24.1	J	D
IRON		31100			26800			21200			19900		
LEAD		799	J	G	1520	J	G	376	J	G	288	J	G
MAGNESIUM		3410			3030			3100			2780		
MANGANESE		733			269			147			177		
MERCURY		0.07			0.17			0.17			0.13		
MOLYBDENUM		3.1			1.2			1.5			0.56	J	P
NICKEL		22.3			20.6			21.7			20.4		
POTASSIUM		364	J	GI	286	J	GI	652	J	GI	498	J	GI
SELENIUM		0.26	UJ	K	0.48	J	KP	0.92	J	KP	0.2	UJ	K
SILVER		0.7	J	KP	3.8	J	K	2.2	J	K	0.96	J	KP
SODIUM		65	J	K	72.3	J	K	161	J	K	139	J	K
THALLIUM		0.07	UJ	AP	0.05	UJ	AP	0.19	UJ	AP	0.09	UJ	AP
VANADIUM		22.6			22.8			31.6			28.8		
ZINC		98.9			94			95.5			140		

PROJ_NO: 00816	NSAMPLE	DA-SD116-0006			DA-SD119-0006			DA-SD121-0006			DA-SD125-0006		
SDG: CTO402-9	LAB_ID	SB2655-013			SB2683-001			SB2683-007			SB2683-010		
FRACTION: M	SAMP_DATE	5/20/2008			5/21/2008			5/21/2008			5/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	46.9			34.1			31.2			31.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		17800			18600			29300			32400		
ANTIMONY		0.46	UJ	ADKP	0.22	UJ	D	0.43	UJ	D	0.83	UJ	ADKP
ARSENIC		10.4			14.2			21.8			22.5		
BARIUM		63.9			65.6			91			107		
BERYLLIUM		0.7			0.69	J	P	1			1.1		
CADMIUM		1.2	J	K	0.85	J	KP	0.8	J	KP	0.46	J	KP
CALCIUM		2960			2700			2970			2910		
CHROMIUM		25.3			25.2			38.2			40.4		
COBALT		27.6			37.6			43.1			37.3		
COPPER		38.4	J	D	39	J	D	51.7	J	D	50.9	J	D
IRON		20900			33400			50500			51100		
LEAD		562	J	G	246	J	G	224	J	G	167	J	G
MAGNESIUM		3180			3390			5020			5340		
MANGANESE		137			335			658			666		
MERCURY		0.24			0.23			0.27			0.28		
MOLYBDENUM		1.9			2			3.3			3.4		
NICKEL		23.8			26.6			39.6			40.9		
POTASSIUM		762	J	GI	946	J	GI	1350	J	GI	1540	J	GI
SELENIUM		0.22	UJ	K	0.32	UJ	K	0.64	UJ	K	0.62	UJ	K
SILVER		1.9	J	K	0.25	UJ	AKP	0.16	UJ	K	0.15	UJ	K
SODIUM		216			276			196	J	K	256	J	K
THALLIUM		0.14	UJ	AP	0.14	UJ	AP	0.25	UJ	AP	0.24	UJ	AP
VANADIUM		40.5			33.4			50.8			54.1		
ZINC		171			212			276			255		

PROJ_NO: 00816	NSAMPLE	DA-SD133-0006			DA-SD-DUP01			DA-SD-DUP02		
SDG: CTO402-9	LAB_ID	SB2655-007			SB2655-019			SB2683-004		
FRACTION: M	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.7			61.8			33.1		
	DUP_OF				DA-SD106-0006			DA-SD119-0006		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9450			12400			19500		
ANTIMONY		0.38	UJ	D	0.43	UJ	ADKP	0.34	UJ	ADKP
ARSENIC		15.7			15.4			15.5		
BARIUM		34.6			47.6			69.6		
BERYLLIUM		0.36			0.47			0.73		
CADMIUM		0.91	J	KP	0.45	J	KP	1	J	KP
CALCIUM		1330			2290			2810		
CHROMIUM		15.4			17.3			26.3		
COBALT		204			81.1			42		
COPPER		30.9	J	D	27.8	J	D	40.6	J	D
IRON		42800			29700			35000		
LEAD		1000	J	G	733	J	G	271	J	G
MAGNESIUM		3120			2720			3580		
MANGANESE		2360			2380			342		
MERCURY		0.02	J	P	0.09			0.21		
MOLYBDENUM		7.5			4.9			2.3		
NICKEL		24.4			22.7			28.7		
POTASSIUM		222	J	GI	484	J	GI	966	J	GI
SELENIUM		0.56	UJ	K	0.33	UJ	K	0.31	UJ	K
SILVER		1.5	J	KP	1.5	J	KP	0.29	UJ	AKP
SODIUM		40	UJ	KP	113	J	K	288	J	K
THALLIUM		0.04	UJ	AP	0.08	UJ	AP	0.14	UJ	AP
VANADIUM		17.2			21.7			35		
ZINC		130			155			226		

PROJ_NO: 00816	NSAMPLE	DA-SD-RB01
SDG: CTO402-9	LAB_ID	SB2683-013
FRACTION: M	SAMP_DATE	5/21/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	14	U	
ANTIMONY	1.5	U	
ARSENIC	3.3	UJ	AP
BARIUM	0.73	UJ	AP
BERYLLIUM	0.12	U	
CADMIUM	0.1	U	
CALCIUM	24	UJ	AP
CHROMIUM	0.38	U	
COBALT	0.34	UJ	ACP
COPPER	0.8	UJ	O
IRON	10.5	UJ	AP
LEAD	1.4	U	
MAGNESIUM	5.6	U	
MANGANESE	1.8	UJ	AP
MERCURY	0.02	U	
MOLYBDENUM	2	U	
NICKEL	0.3	U	
POTASSIUM	140	UJ	AP
SELENIUM	2.2	U	
SILVER	0.54	U	
SODIUM	71.7	J	OP
THALLIUM	0.3	U	
VANADIUM	0.52	U	
ZINC	4.8	UJ	AP

PROJ_NO: 00816	NSAMPLE	DA-SD-RB01-F
SDG: CTO402-9	LAB_ID	SB2683-015
FRACTION: MF	SAMP_DATE	5/21/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	14	U	
ANTIMONY	1.5	U	
ARSENIC	0.95	U	
BARIUM	0.7	UJ	AP
BERYLLIUM	0.12	U	
CADMIUM	0.1	U	
CALCIUM	24.3	UJ	AP
CHROMIUM	0.38	U	
COBALT	0.28	U	
COPPER	0.8	UJ	O
IRON	9.4	UJ	AP
LEAD	1.4	U	
MAGNESIUM	5.6	U	
MANGANESE	0.68	U	
MERCURY	0.02	U	
MOLYBDENUM	2	U	
NICKEL	0.3	U	
POTASSIUM	103	UJ	AP
SELENIUM	2.2	U	
SILVER	0.54	U	
SODIUM	24	J	OP
THALLIUM	0.39	UJ	AP
VANADIUM	0.52	U	
ZINC	6	UJ	AP

PROJ_NO: 00816	NSAMPLE	~~DA-SD01-0006~~ DA-SD134-0006						DA-SD106-0006					
SDG: CTO402-9	LAB_ID	SB2655-10						SB2655-4					
FRACTION: MISC	SAMP_DATE	5/20/2008						5/20/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	65.2			65.2			67.6			67.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					7						7.2		
TOTAL ORGANIC CARBON		24000						27000					

PROJ_NO: 00816	NSAMPLE	DA-SD107-0006						DA-SD108-0006					
SDG: CTO402-9	LAB_ID	SB2627-1						SB2627-3					
FRACTION: MISC	SAMP_DATE	5/19/2008						5/19/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	66.7			66.7			85.5			85.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.9						7		
TOTAL ORGANIC CARBON		14000						3700					

PROJ_NO: 00816	NSAMPLE	DA-SD110-0006						DA-SD111-0006					
SDG: CTO402-9	LAB_ID	SB2655-1						SB2627-5					
FRACTION: MISC	SAMP_DATE	5/20/2008						5/19/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	78.6			78.6			70.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					7.1						7		
TOTAL ORGANIC CARBON		96000						19000					

PROJ_NO: 00816	NSAMPLE	DA-SD112-0006						DA-SD114-0006					
SDG: CTO402-9	LAB_ID	SB2627-7						SB2655-16					
FRACTION: MISC	SAMP_DATE	5/19/2008						5/20/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	44.4			44.4			52.0			52.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.9						7		
TOTAL ORGANIC CARBON		64000						31000					

PROJ_NO: 00816	NSAMPLE	DA-SD116-0006						DA-SD119-0006					
SDG: CTO402-9	LAB_ID	SB2655-13						SB2683-1					
FRACTION: MISC	SAMP_DATE	5/20/2008						5/21/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	46.9			46.9			34.1			34.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					7						6.6		
TOTAL ORGANIC CARBON		55000						78000					

PROJ_NO: 00816	NSAMPLE	DA-SD121-0006						DA-SD125-0006					
SDG: CTO402-9	LAB_ID	SB2683-7						SB2683-10					
FRACTION: MISC	SAMP_DATE	5/21/2008						5/21/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	31.2			31.2			31.9			31.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.6						6.5		
TOTAL ORGANIC CARBON		63000						56000					

PROJ_NO: 00816	NSAMPLE	DA-SD133-0006						DA-SD-DUP01					
SDG: CTO402-9	LAB_ID	SB2655-7						SB2655-19					
FRACTION: MISC	SAMP_DATE	5/20/2008						5/20/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	88.7			88.7			61.8			61.8		
	DUP_OF							DA-SD106-0006			DA-SD106-0006		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					7.2						7.2		
TOTAL ORGANIC CARBON		25000						31000					

PROJ_NO: 00816	NSAMPLE	DA-SD-DUP02					
SDG: CTO402-9	LAB_ID	SB2683-4					
FRACTION: MISC	SAMP_DATE	5/21/2008					
MEDIA: SEDIMENT	QC_TYPE	NM					
	UNITS	MG/KG			S.U.		
	PCT_SOLIDS	33.1			33.1		
	DUP_OF	DA-SD119-0006			DA-SD119-0006		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.6		
TOTAL ORGANIC CARBON		63000					

PROJ_NO: 00816	NSAMPLE	~~DA-SD01-0006~~ DA-SD134-0006	DA-SD106-0006	DA-SD107-0006	DA-SD108-0006
SDG: CTO402-9	LAB_ID	753517	753515	753510	753511
FRACTION: MISCO	SAMP_DATE	5/20/2008	5/20/2008	5/19/2008	5/19/2008
MEDIA: SEDIMENT	QC_TYPE	NM	NM	NM	NM
	UNITS	%	%	%	%
	PCT_SOLIDS				
	DUP_OF				

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM	1.2			4.2			0.8			0.3		
HYDROMETER-12.9UM	0.6			5.6			1.6			0		
HYDROMETER-21.5UM	1.2			4.2			0.8			0		
HYDROMETER-3.4UM	1.8			5.6			1.6			0.3		
HYDROMETER-32.8UM	7.8			0.7			8.8			2.5		
HYDROMETER-6.6UM	1.8			4.2			0.8			0		
HYDROMETER-9.1UM	1.2			4.2			1.6			0.3		
PERCENT CLAY	4.5			15.7			4.3			0.6		
PERCENT COARSE SAND	10.2			8.4			11.3			7.7		
PERCENT FINE SAND	15.1			28.2			29.2			0.3		
PERCENT GRAVEL	33.6			8.8			8.1			85.8		
PERCENT MEDIUM SAND	23.9			20.2			33.4			2.8		
PERCENT SILT	12.8			18.7			13.7			2.7		
SIEVE 1"	0			0			0			6.1		
SIEVE 1-1/2"	0			0			0			0		
SIEVE 2"	0			0			0			0		
SIEVE 3"	0			0			0			0		
SIEVE 3/4"	13.6			0			0			0		
SIEVE 3/8"	6			0			3.2			56.3		
SIEVE NO. 004	14			8.8			4.8			23.4		
SIEVE NO. 010	10.2			8.4			11.3			7.7		
SIEVE NO. 020	13.4			9.3			15.9			2.2		
SIEVE NO. 040	10.5			10.9			17.5			0.6		
SIEVE NO. 060	6.1			8.6			12			0.1		
SIEVE NO. 080	4.8			8.6			8.2			0.1		
SIEVE NO. 100	1.1			2			2.1			0		
SIEVE NO. 200	3.1			9			6.9			0.1		

PROJ_NO: 00816	NSAMPLE	DA-SD110-0006			DA-SD111-0006			DA-SD112-0006			DA-SD114-0006		
SDG: CTO402-9	LAB_ID	753514			753512			753513			753519		
FRACTION: MISCO	SAMP_DATE	5/20/2008			5/19/2008			5/19/2008			5/20/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		1			1.4			4.2			3.3		
HYDROMETER-12.9UM		1.5			2.7			8.4			6.5		
HYDROMETER-21.5UM		1.5			1.4			8.4			4.3		
HYDROMETER-3.4UM		1.5			2.7			9.9			5.4		
HYDROMETER-32.8UM		6.4			6.1			34.5			26.2		
HYDROMETER-6.6UM		1			0			4.2			1.1		
HYDROMETER-9.1UM		1			2.7			5.6			4.3		
PERCENT CLAY		4.1			7.3			21.6			12.3		
PERCENT COARSE SAND		13			6.6			1.2			2.1		
PERCENT FINE SAND		14.5			35.4			12.2			26.4		
PERCENT GRAVEL		33.3			9.3			0.6			7.8		
PERCENT MEDIUM SAND		23.9			28.4			3.1			9		
PERCENT SILT		11.2			12.9			61.3			42.5		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			0			0			0		
SIEVE 3/8"		20.4			5.7			0			6.1		
SIEVE NO. 004		12.9			3.6			0.6			1.7		
SIEVE NO. 010		13			6.6			1.2			2.1		
SIEVE NO. 020		13.5			10.3			0.6			3.2		
SIEVE NO. 040		10.5			18.1			2.4			5.8		
SIEVE NO. 060		6.1			15			1.6			6.3		
SIEVE NO. 080		4			10.6			3			6.7		
SIEVE NO. 100		0.9			2.2			0.7			1.7		
SIEVE NO. 200		3.5			7.6			6.9			11.7		

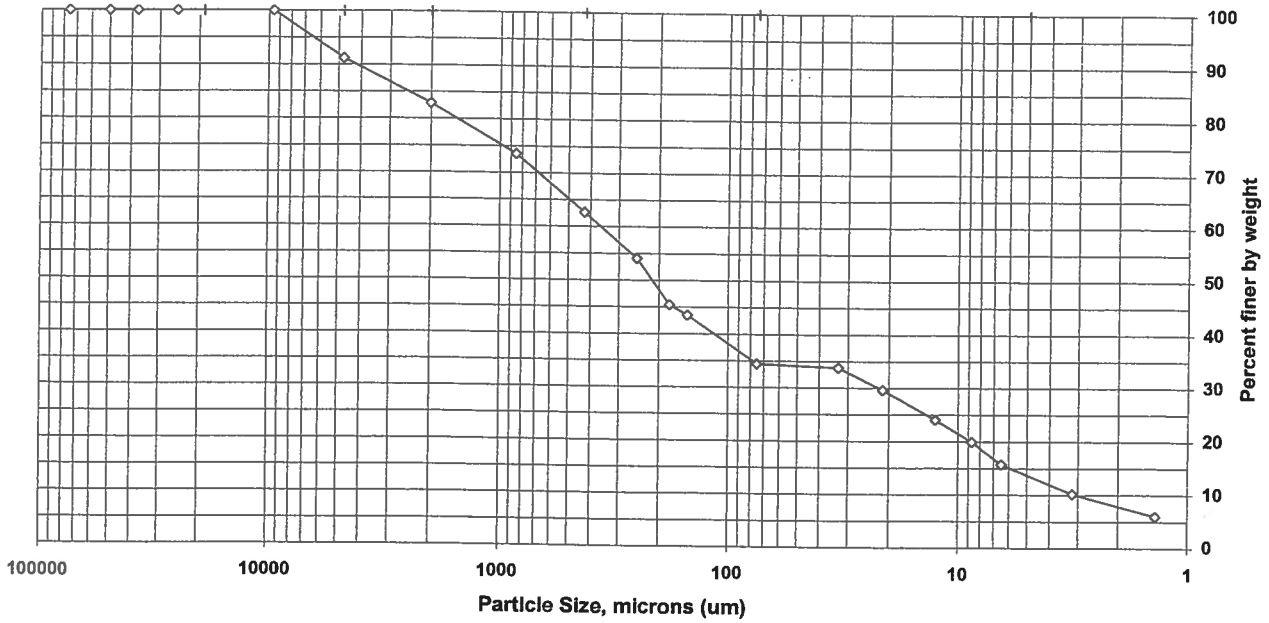
PROJ_NO: 00816	NSAMPLE	DA-SD116-0006			DA-SD119-0006			DA-SD121-0006			DA-SD125-0006		
SDG: CTO402-9	LAB_ID	753518			753521			753523			753524		
FRACTION: MISCO	SAMP_DATE	5/20/2008			5/21/2008			5/21/2008			5/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		4.7			1.9			6.8			9.6		
HYDROMETER-12.9UM		7.8			11.6			18.8			27.2		
HYDROMETER-21.5UM		7.8			15.5			22.2			13.4		
HYDROMETER-3.4UM		6.3			8.1			8.6			9.6		
HYDROMETER-32.8UM		38.9			33.3			17.8			8.4		
HYDROMETER-6.6UM		4.7			3.9			8.6			11.5		
HYDROMETER-9.1UM		7.8			7.7			12.3			15.4		
PERCENT CLAY		19.3			14.2			17.4			23.4		
PERCENT COARSE SAND		0.1			0.8			0			0		
PERCENT FINE SAND		11.7			9.8			2.3			0.7		
PERCENT GRAVEL		0.3			1.6			0			0		
PERCENT MEDIUM SAND		1.7			1.5			0.5			0.1		
PERCENT SILT		67			72			79.7			75.9		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			0			0			0		
SIEVE 3/8"		0			0			0			0		
SIEVE NO. 004		0.3			1.6			0			0		
SIEVE NO. 010		0.1			0.8			0			0		
SIEVE NO. 020		0.7			0.4			0.2			0		
SIEVE NO. 040		98			1.1			0.3			0.1		
SIEVE NO. 060		0.9			0.8			0.2			0.1		
SIEVE NO. 080		1.9			1.6			0.4			0.1		
SIEVE NO. 100		0.8			0.8			0.2			0.1		
SIEVE NO. 200		8.1			6.7			1.5			0.3		

PROJ_NO: 00816	NSAMPLE	DA-SD133-0006			DA-SD-DUP01			DA-SD-DUP02		
SDG: CTO402-9	LAB_ID	753516			753520			753522		
FRACTION: MISCO	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM		
	UNITS	%			%			%		
	PCT_SOLIDS									
	DUP_OF				DA-SD106-0006			DA-SD119-0006		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		0.6			3.1			3		
HYDROMETER-12.9UM		0.6			3.9			10.5		
HYDROMETER-21.5UM		0.6			3.1			12		
HYDROMETER-3.4UM		1.2			3.2			6.3		
HYDROMETER-32.8UM		0.2			4.8			44.2		
HYDROMETER-6.6UM		0.6			2.3			4.5		
HYDROMETER-9.1UM		1.2			3.1			4.5		
PERCENT CLAY		2.6			8			11		
PERCENT COARSE SAND		11.9			9.4			1.6		
PERCENT FINE SAND		3			18.8			8.5		
PERCENT GRAVEL		69.5			28.3			2.1		
PERCENT MEDIUM SAND		9.8			18.4			1		
PERCENT SILT		3.2			17.1			75.7		
SIEVE 1"		0			0			0		
SIEVE 1-1/2"		0			0			0		
SIEVE 2"		0			0			0		
SIEVE 3"		0			0			0		
SIEVE 3/4"		20.9			0			0		
SIEVE 3/8"		26.7			20.5			0		
SIEVE NO. 004		21.8			7.8			2.1		
SIEVE NO. 010		11.9			9.4			1.6		
SIEVE NO. 020		6.5			9.8			0.3		
SIEVE NO. 040		3.3			8.6			0.8		
SIEVE NO. 060		1.1			5.9			0.8		
SIEVE NO. 080		1			5.3			1.3		
SIEVE NO. 100		0.2			1.4			0.7		
SIEVE NO. 200		0.7			6.2			5.8		

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD106-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753515			**End Date:**	6/6/2008

Percent Solids:	51.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	91.2	8.8
#10	2000	82.8	8.4
#20	850	73.5	9.3
#40	425	62.7	10.9
#60	250	54.1	8.6
#80	180	45.4	8.6
#100	150	43.5	2.0
#200	75	34.5	9.0
Hydrometer	33.1	33.8	0.7
|	21.3	29.6	4.2
|	12.5	24.1	5.6
|	8.7	19.9	4.2
|	6.5	15.7	4.2
|	3.2	10.2	5.6
V	1.4	6.0	4.2

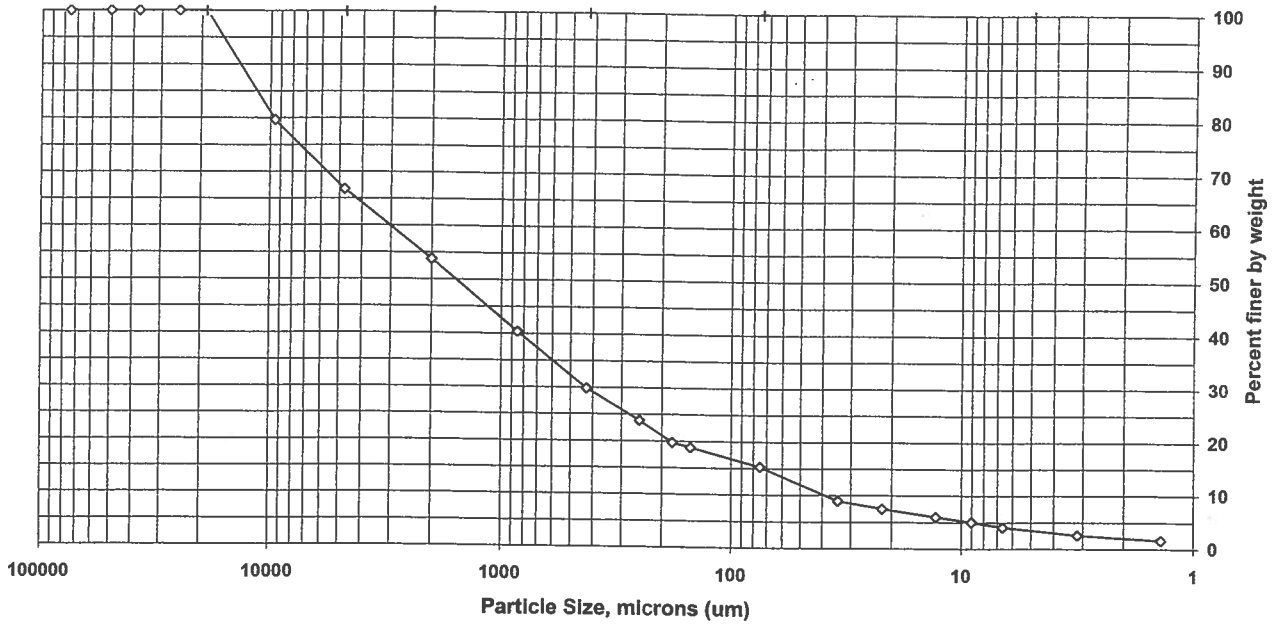
Soil Classification	Percent of Total Sample
Gravel	8.8
Sand	56.7
Coarse Sand	8.4
Medium Sand	20.2
Fine Sand	28.2
Silt	18.7
Clay	15.7

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddie.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD110-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753514			**End Date:**	6/6/2008

Percent Solids:	80.3%	**Non-soil material:**	rust
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	79.6	20.4
#4	4750	66.7	12.9
#10	2000	53.8	13.0
#20	850	40.3	13.5
#40	425	29.9	10.5
#60	250	23.8	6.1
#80	180	19.8	4.0
#100	150	18.8	0.9
#200	75	15.3	3.5
Hydrometer	34.2	9.0	6.4
|	22.0	7.5	1.5
|	12.9	6.0	1.5
|	9.0	5.1	1.0
|	6.6	4.1	1.0
|	3.2	2.6	1.5
V	1.4	1.6	1.0

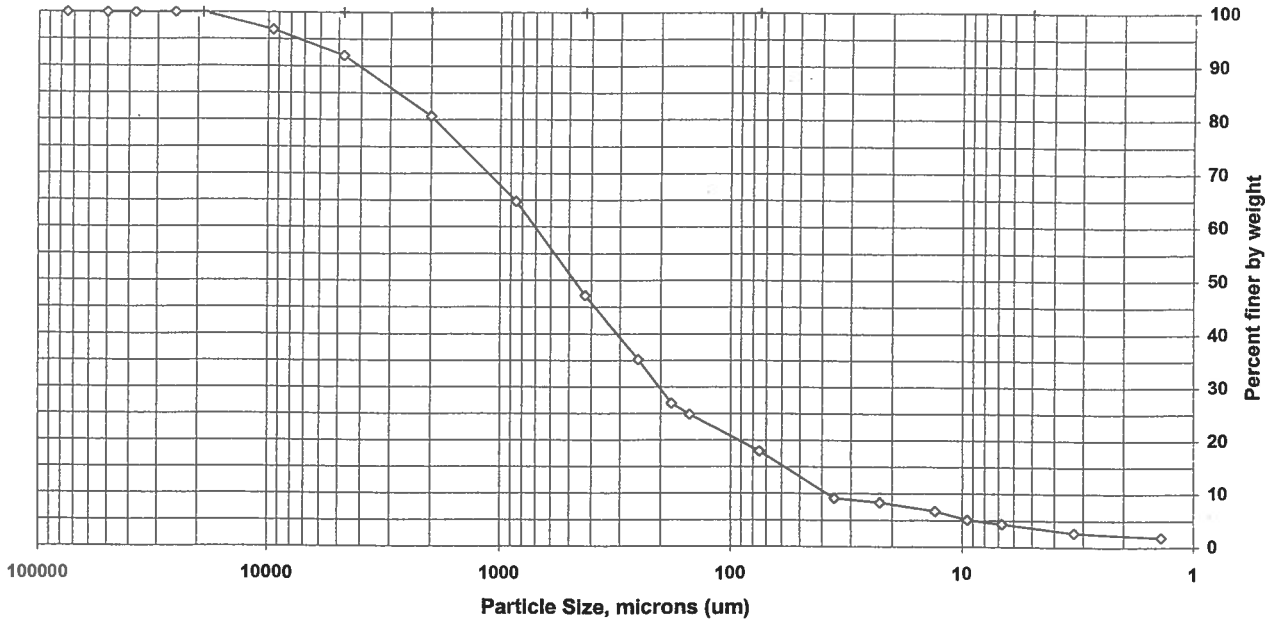
Soil Classification	Percent of Total Sample
Gravel	33.3
Sand	51.4
Coarse Sand	13.0
Medium Sand	23.9
Fine Sand	14.5
Silt	11.2
Clay	4.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD107-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753510			**End Date:**	6/6/2008

Percent Solids:	66.3%	**Non-soil material:**	wood,plant
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	96.8	3.2
#4	4750	91.9	4.8
#10	2000	80.7	11.3
#20	850	64.7	15.9
#40	425	47.2	17.5
#60	250	35.2	12.0
#80	180	26.9	8.2
#100	150	24.8	2.1
#200	75	18.0	6.9
Hydrometer	35.4	9.1	8.8
|	22.5	8.3	0.8
|	13.1	6.7	1.6
|	9.5	5.1	1.6
|	6.8	4.3	0.8
|	3.3	2.7	1.6
V	1.4	1.9	0.8

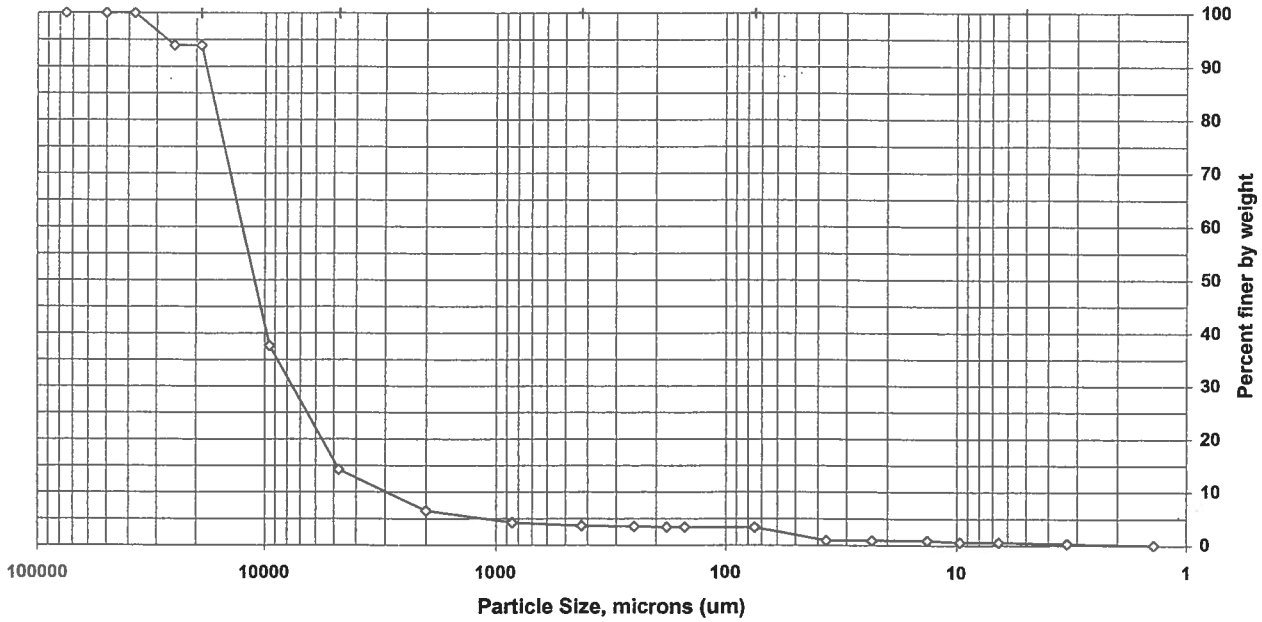
Soil Classification	Percent of Total Sample
Gravel	8.1
Sand	74.0
Coarse Sand	11.3
Medium Sand	33.4
Fine Sand	29.2
Silt	13.7
Clay	4.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD108-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753511			**End Date:**	6/6/2008

Percent Solids:	95.5%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	37.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	93.9	6.1
3/4 inch	19000	93.9	0.0
3/8 inch	9500	37.6	56.3
#4	4750	14.2	23.4
#10	2000	6.5	7.7
#20	850	4.3	2.2
#40	425	3.7	0.6
#60	250	3.5	0.1
#80	180	3.4	0.1
#100	150	3.4	0.0
#200	75	3.3	0.1
Hydrometer	36.7	0.9	2.5
|	23.2	0.9	0.0
|	13.4	0.9	0.0
|	9.7	0.6	0.3
|	6.6	0.6	0.0
|	3.3	0.4	0.3
V	1.4	0.1	0.3

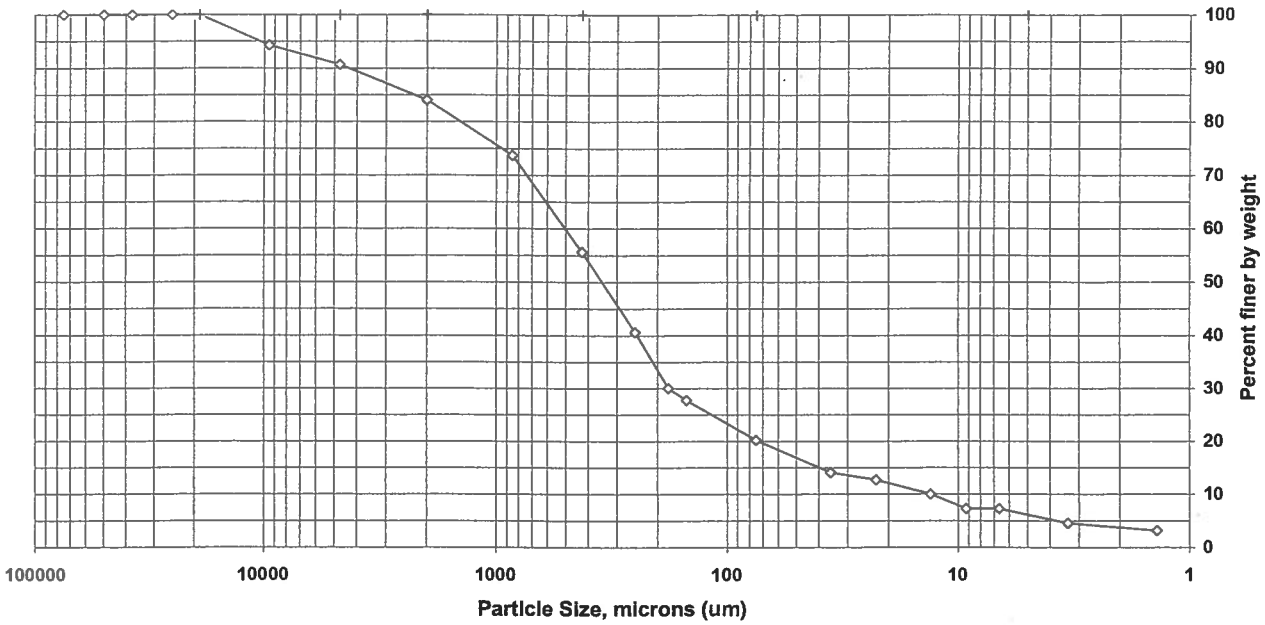
Soil Classification	Percent of Total Sample
Gravel	85.8
Sand	10.9
Coarse Sand	7.7
Medium Sand	2.8
Fine Sand	0.3
Silt	2.7
Clay	0.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD111-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753512			**End Date:**	6/6/2008

Percent Solids:	70.8%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	94.3	5.7
#4	4750	90.7	3.6
#10	2000	84.0	6.6
#20	850	73.7	10.3
#40	425	55.6	18.1
#60	250	40.6	15.0
#80	180	30.1	10.6
#100	150	27.8	2.2
#200	75	20.2	7.6
Hydrometer	35.6	14.1	6.1
|	22.6	12.7	1.4
|	13.2	10.0	2.7
|	9.2	7.3	2.7
|	6.6	7.3	0.0
|	3.4	4.6	2.7
V	1.4	3.2	1.4

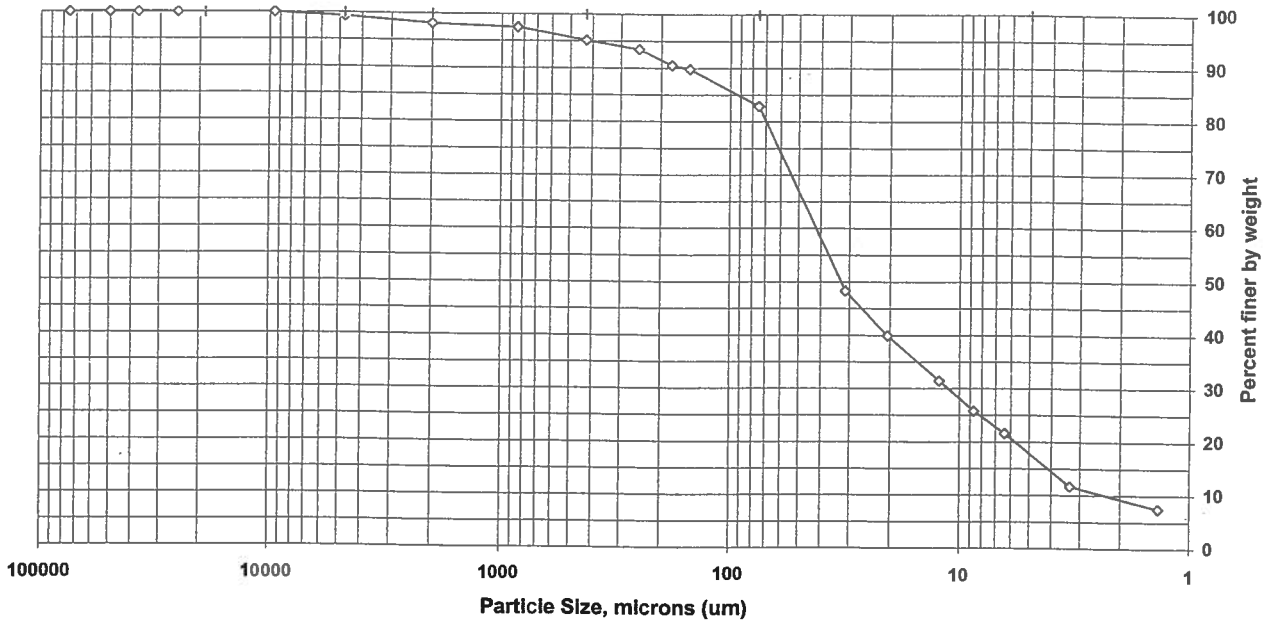
Soil Classification	Percent of Total Sample
Gravel	9.3
Sand	70.5
Coarse Sand	6.6
Medium Sand	28.4
Fine Sand	35.4
Silt	12.9
Clay	7.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD112-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753513			**End Date:**	6/6/2008

Percent Solids:	38.0%	**Non-soil material:**	wood,plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.4	0.6
#10	2000	98.2	1.2
#20	850	97.5	0.6
#40	425	95.1	2.4
#60	250	93.5	1.6
#80	180	90.5	3.0
#100	150	89.8	0.7
#200	75	82.9	6.9
Hydrometer	31.3	48.3	34.5
|	20.5	39.9	8.4
|	12.2	31.4	8.4
|	8.7	25.8	5.6
|	6.4	21.6	4.2
|	3.3	11.7	9.9
V	1.4	7.5	4.2

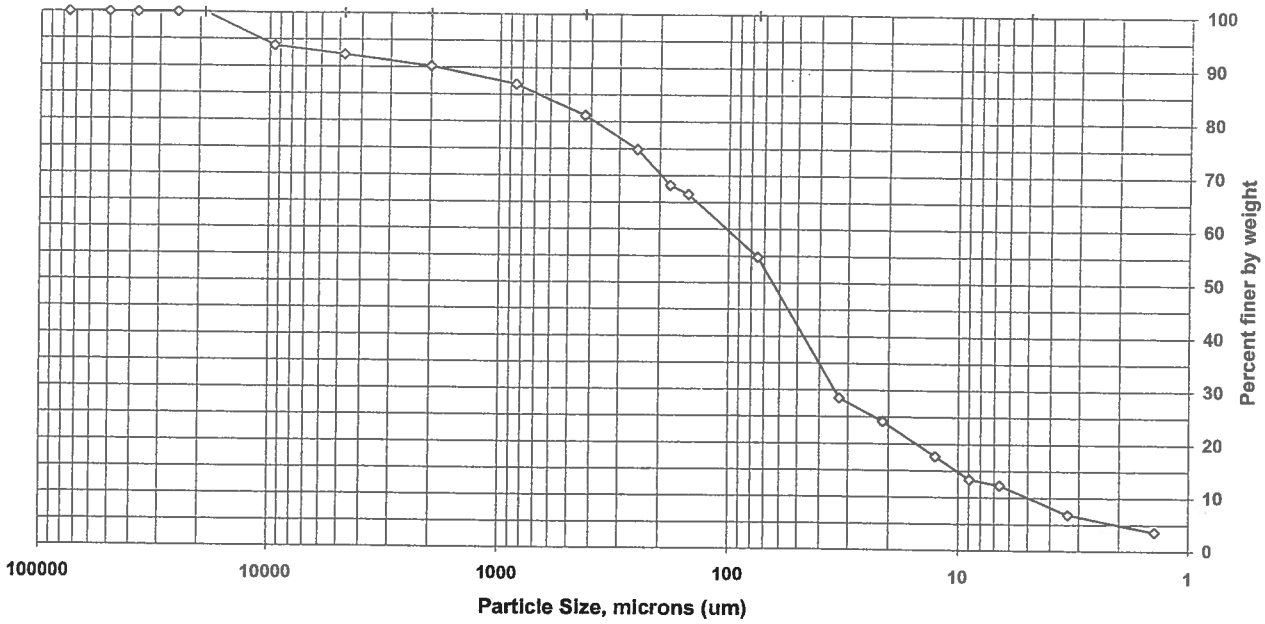
Soil Classification	Percent of Total Sample
Gravel	0.6
Sand	16.5
Coarse Sand	1.2
Medium Sand	3.1
Fine Sand	12.2
Silt	61.3
Clay	21.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD114-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753519			**End Date:**	6/6/2008

Percent Solids:	57.1%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	93.9	6.1
#4	4750	92.2	1.7
#10	2000	90.1	2.1
#20	850	86.9	3.2
#40	425	81.1	5.8
#60	250	74.9	6.3
#80	180	68.2	6.7
#100	150	66.5	1.7
#200	75	54.8	11.7
Hydrometer	32.8	28.5	26.2
|	21.2	24.2	4.3
|	12.6	17.7	6.5
|	8.9	13.4	4.3
|	6.6	12.3	1.1
|	3.3	6.9	5.4
V	1.4	3.6	3.3

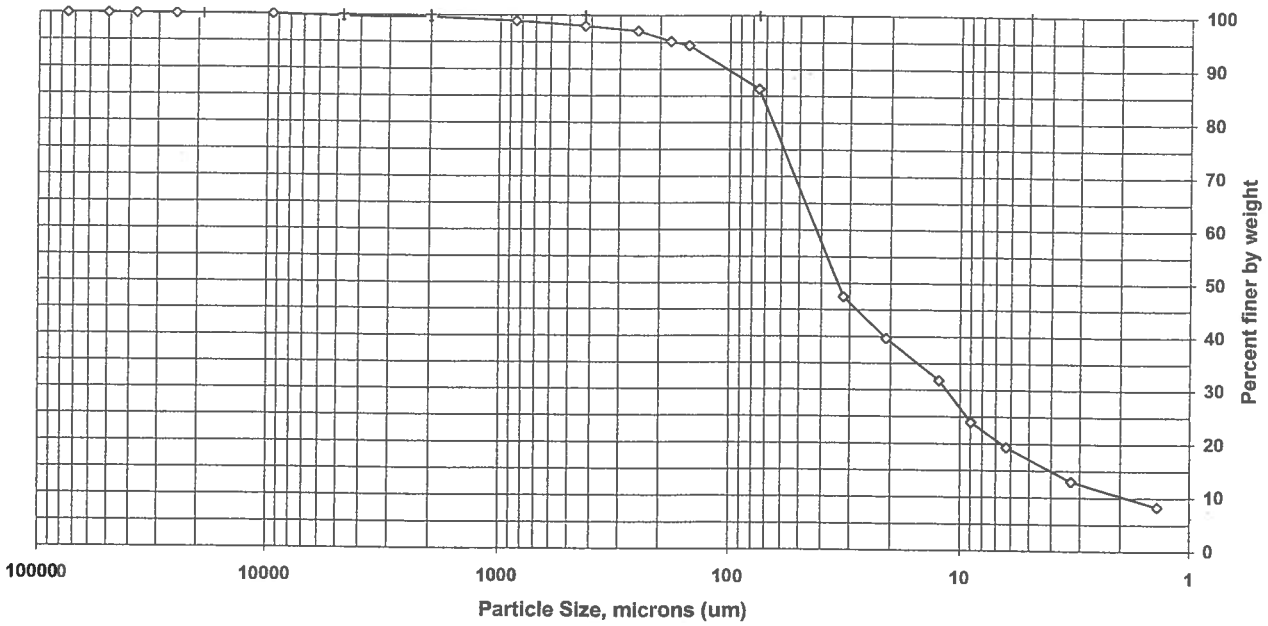
Soil Classification	Percent of Total Sample
Gravel	7.8
Sand	37.4
Coarse Sand	2.1
Medium Sand	9.0
Fine Sand	26.4
Silt	42.5
Clay	12.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD116-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753518			End Date:	6/6/2008

Percent Solids:	46.9%	Non-soil material:	plant
Specific Gravity:	2.650	Shape (> #10):	subangular
Maximum Particle Size:	9.5 mm	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.7	0.3
#10	2000	99.6	0.1
#20	850	98.9	0.7
#40	425	98.0	1.0
#60	250	97.1	0.9
#80	180	95.2	1.9
#100	150	94.4	0.8
#200	75	86.3	8.1
Hydrometer	32.0	47.5	38.9
I	20.8	39.7	7.8
I	12.4	31.8	7.8
I	9.0	24.0	7.8
I	6.3	19.3	4.7
I	3.3	13.0	6.3
V	1.4	8.3	4.7

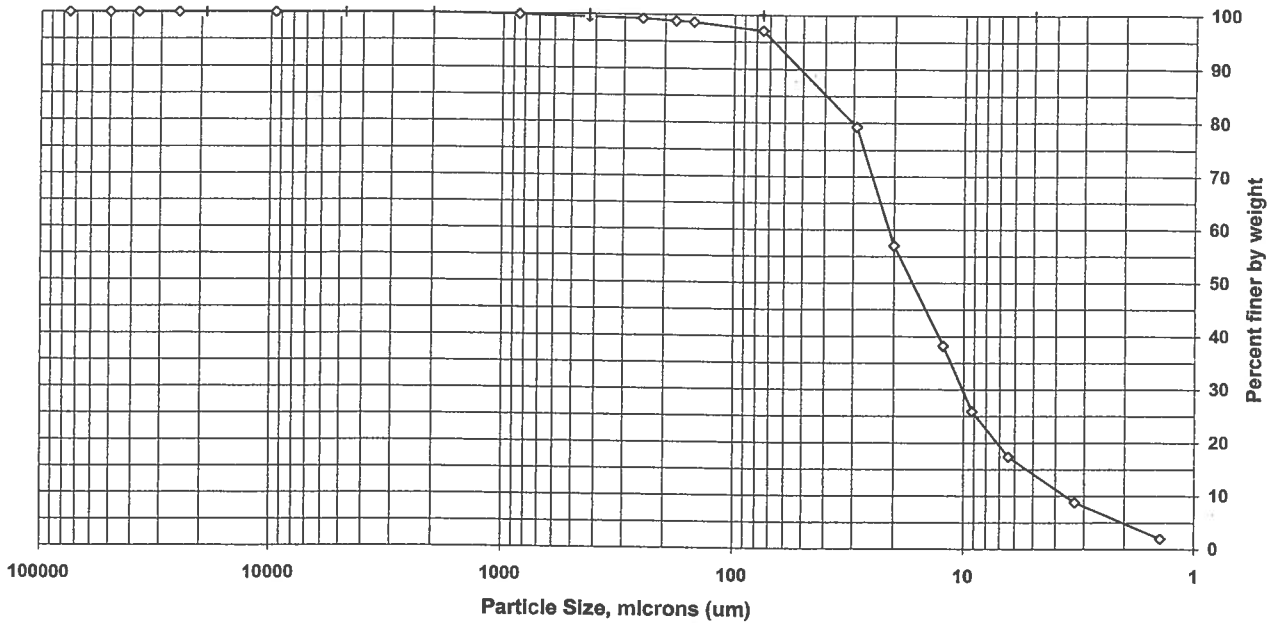
Soil Classification	Percent of Total Sample
Gravel	0.3
Sand	13.4
Coarse Sand	0.1
Medium Sand	1.7
Fine Sand	11.7
Silt	67.0
Clay	19.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD121-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753523			**End Date:**	6/5/2008

Percent Solids:	32.0%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.8	0.2
#40	425	99.5	0.3
#60	250	99.2	0.2
#80	180	98.8	0.4
#100	150	98.6	0.2
#200	75	97.1	1.5
Hydrometer	29.1	79.3	17.8
|	20.0	57.0	22.2
|	12.3	38.2	18.8
|	9.2	26.0	12.3
|	6.4	17.4	8.6
|	3.3	8.8	8.6
V	1.4	2.0	6.8

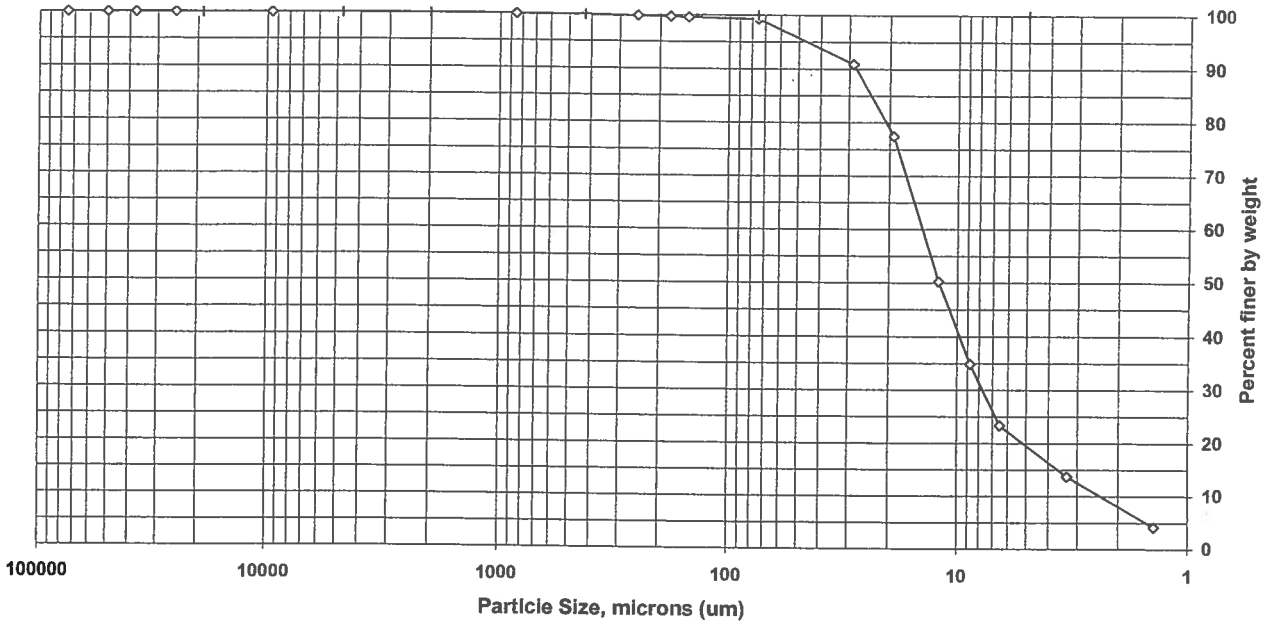
Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	2.9
Coarse Sand	0.0
Medium Sand	0.5
Fine Sand	2.3
Silt	79.7
Clay	17.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD125-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753524			**End Date:**	6/5/2008

Percent Solids:	34.7%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	100.0	0.0
#40	425	99.9	0.1
#60	250	99.8	0.1
#80	180	99.7	0.1
#100	150	99.6	0.1
#200	75	99.3	0.3
Hydrometer	28.8	90.8	8.4
I	19.1	77.4	13.4
I	12.1	50.2	27.2
I	8.8	34.9	15.4
I	6.5	23.4	11.5
I	3.3	13.8	9.6
V	1.4	4.2	9.6

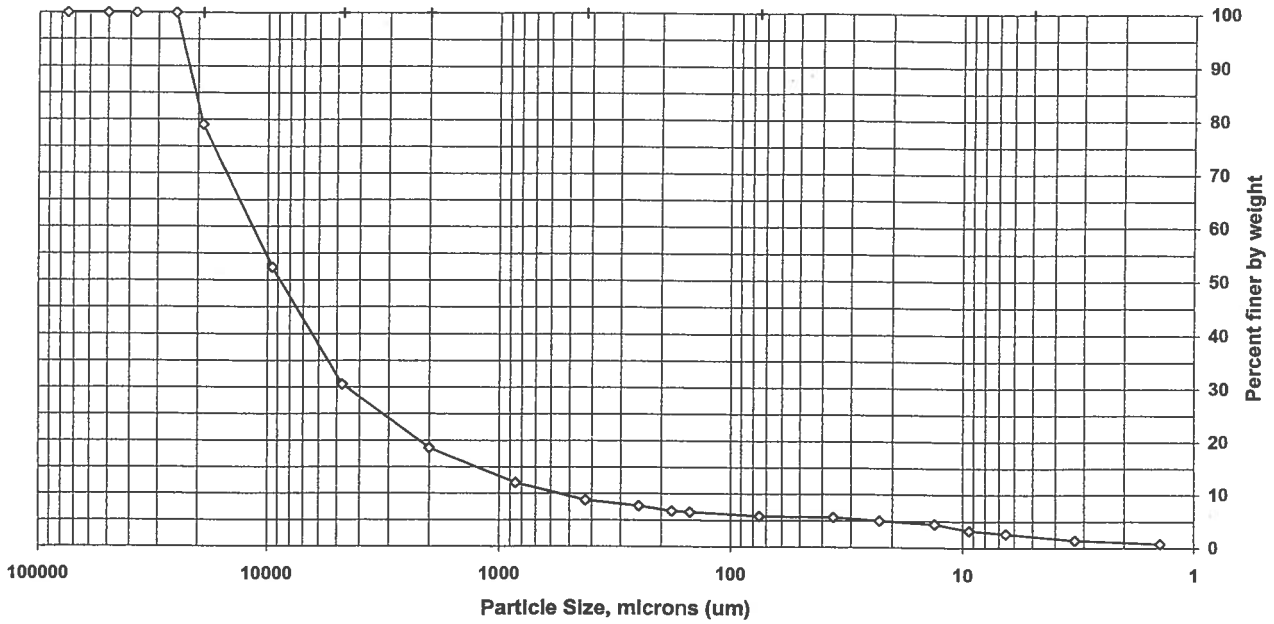
Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	0.7
Coarse Sand	0.0
Medium Sand	0.1
Fine Sand	0.7
Silt	75.9
Clay	23.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD133-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753516			**End Date:**	6/6/2008

Percent Solids:	84.9%	**Non-soil material:**	screen
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	79.1	20.9
3/8 inch	9500	52.4	26.7
#4	4750	30.5	21.8
#10	2000	18.6	11.9
#20	850	12.0	6.5
#40	425	8.8	3.3
#60	250	7.7	1.1
#80	180	6.7	1.0
#100	150	6.6	0.2
#200	75	5.8	0.7
Hydrometer	35.7	5.7	0.2
|	22.7	5.1	0.6
|	13.2	4.4	0.6
|	9.4	3.2	1.2
|	6.5	2.6	0.6
|	3.3	1.4	1.2
V	1.4	0.8	0.6

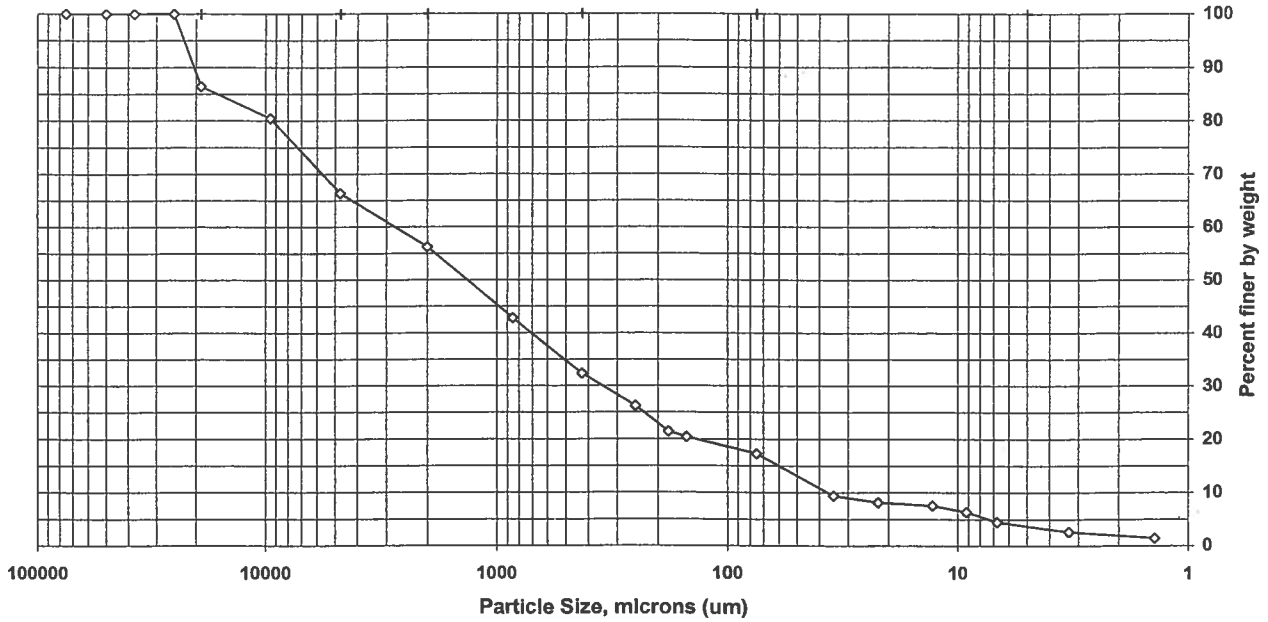
Soil Classification	Percent of Total Sample
Gravel	69.5
Sand	24.7
Coarse Sand	11.9
Medium Sand	9.8
Fine Sand	3.0
Silt	3.2
Clay	2.6

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	~~DA-SD01-0006~~ DA-SD134-0006	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753517			**End Date:**	6/6/2008

Percent Solids:	72.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	86.4	13.6
3/8 inch	9500	80.4	6.0
#4	4750	66.4	14.0
#10	2000	56.2	10.2
#20	850	42.8	13.4
#40	425	32.3	10.5
#60	250	26.2	6.1
#80	180	21.4	4.8
#100	150	20.4	1.1
#200	75	17.3	3.1
Hydrometer	34.7	9.4	7.8
|	22.2	8.2	1.2
|	12.9	7.6	0.6
|	9.2	6.3	1.2
|	6.8	4.5	1.8
|	3.3	2.7	1.8
V	1.4	1.4	1.2

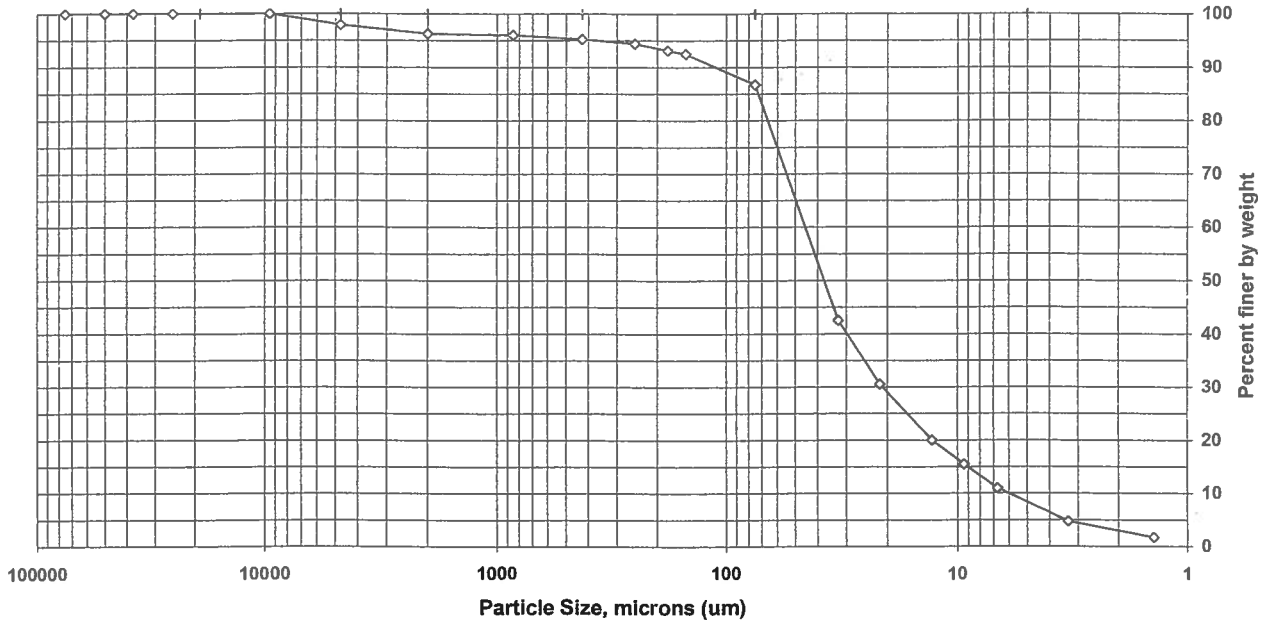
Soil Classification	Percent of Total Sample
Gravel	33.6
Sand	49.1
Coarse Sand	10.2
Medium Sand	23.9
Fine Sand	15.1
Silt	12.8
Clay	4.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT0402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD-DUP02	**ETR(s):**	125705	**Start Date:**	5/29/2008
Lab ID:	753522			**End Date:**	6/5/2008

Percent Solids:	35.2%	**Non-soil material:**	wood,plant
Specific Gravity:	2.650	**Shape (> #10):**	subrounded
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	97.9	2.1
#10	2000	96.3	1.6
#20	850	96.0	0.3
#40	425	95.3	0.8
#60	250	94.4	0.8
#80	180	93.1	1.3
#100	150	92.5	0.7
#200	75	86.7	5.8
Hydrometer	32.6	42.5	44.2
|	21.5	30.5	12.0
|	12.9	20.0	10.5
|	9.4	15.5	4.5
|	6.7	11.0	4.5
|	3.3	4.8	6.3
V	1.4	1.8	3.0

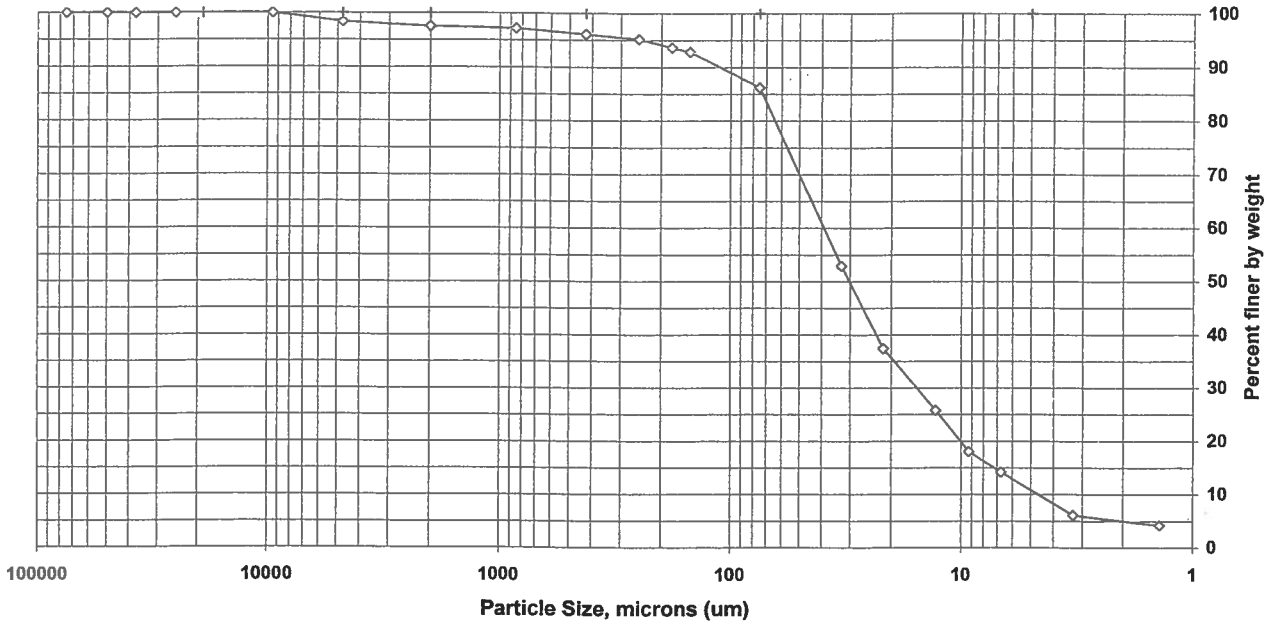
Soil Classification	Percent of Total Sample
Gravel	2.1
Sand	11.2
Coarse Sand	1.6
Medium Sand	1.0
Fine Sand	8.5
Silt	75.7
Clay	11.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	SDG:	CT0402-9	Date Received:	5/28/2008
Sample ID:	DA-SD119-0006	ETR(s):	125705	Start Date:	5/29/2008
Lab ID:	753521			End Date:	6/5/2008

Percent Solids:	34.0%	Non-soil material:	wood
Specific Gravity:	2.650	Shape (> #10):	na
Maximum Particle Size:	9.5 mm	Hardness (> #10):	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.4	1.6
#10	2000	97.6	0.8
#20	850	97.2	0.4
#40	425	96.1	1.1
#60	250	95.2	0.8
#80	180	93.7	1.6
#100	150	92.9	0.8
#200	75	86.2	6.7
Hydrometer	32.8	52.9	33.3
|	21.6	37.4	15.5
|	12.9	25.8	11.6
|	9.3	18.1	7.7
|	6.7	14.2	3.9
|	3.3	6.1	8.1
V	1.4	4.2	1.9

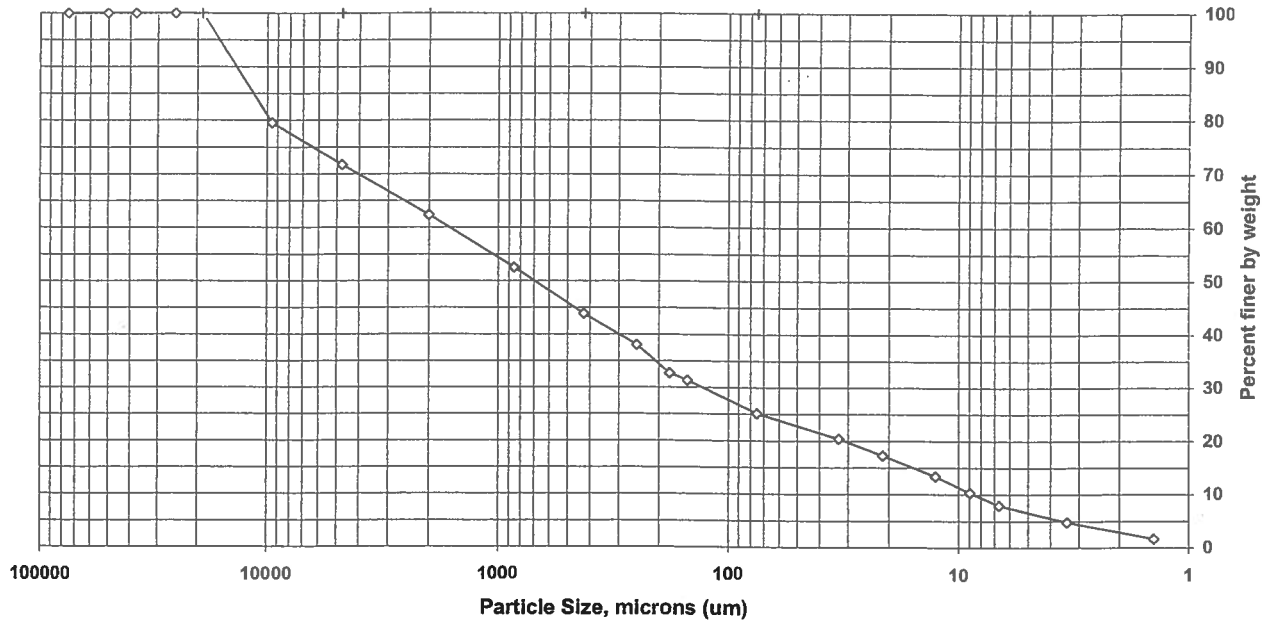
Soil Classification	Percent of Total Sample
Gravel	1.6
Sand	12.1
Coarse Sand	0.8
Medium Sand	1.5
Fine Sand	9.8
Silt	72.0
Clay	14.2

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CTO402-9	**Date Received:**	5/28/2008
Sample ID:	DA-SD-DUP01	**ETR(s):**	125705	**Start Date:**	6/6/2008
Lab ID:	753520			**End Date:**	6/9/2008

Percent Solids:	67.3%	**Non-soil material:**	wood
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	79.5	20.5
#4	4750	71.7	7.8
#10	2000	62.3	9.4
#20	850	52.5	9.8
#40	425	43.9	8.6
#60	250	38.0	5.9
#80	180	32.7	5.3
#100	150	31.3	1.4
#200	75	25.1	6.2
Hydrometer	32.9	20.4	4.8
|	21.3	17.3	3.1
|	12.6	13.4	3.9
|	8.9	10.3	3.1
|	6.7	8.0	2.3
|	3.4	4.8	3.2
V	1.4	1.7	3.1

Soil Classification	Percent of Total Sample
Gravel	28.3
Sand	46.6
Coarse Sand	9.4
Medium Sand	18.4
Fine Sand	18.8
Silt	17.1
Clay	8.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2832W

Date: July 22, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO402-10
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum (Total):

9/Surface waters/	DA-SW114-0508	DA-SW116-0508
	DA-SW119-0508	DA-SW121-0508
	DA-SW125-0508	DA-SW-DUP01
	DA-SW-RP01-0508	DA-SW-RP02-0508
	DA-SW-RP04-0508	

(Field Duplicate Pair: DA-SW116-0508/DA-SW-DUP01)

TAL Metals and Molybdenum (Dissolved):

9/Surface waters/	DA-SW114-0508-F	DA-SW116-0508-F
	DA-SW119-0508-F	DA-SW121-0508-F
	DA-SW125-0508-F	DA-SW-DUP01-F
	DA-SW-RP01-0508-F	DA-SW-RP02-0508-F
	DA-SW-RP04-0508-F	

(Field Duplicate Pair: DA-SW116-0508-F/DA-SW-DUP01-F)

1/Rinsate Blank/ DA-SW-RB01-F

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the total and dissolved TAL metals and molybdenum analytical data from surface water samples collected at the Site 08-NUSC Disposal Area from May 20-22, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7470A (mercury), and 6020 (arsenic and thallium). Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Total metals results are presented in the table with the header that identifies the fraction as "M" (total metals), and the dissolved metals in the table with the fraction "MF" (metals-filtered).

The metals data were evaluated based on the following parameters:

- Data Completeness

*	•	Holding Times
*	•	ICP-MS Tuning
*	•	ICP-MS Internal Standard Performance
	•	Calibration Verification
	•	Laboratory Blank Analyses
*	•	ICP Interference Check Sample Results
*	•	Matrix Spike/Matrix Spike Duplicate
NA	•	Laboratory Duplicate Results
*	•	Laboratory Control Sample Results
	•	Field Duplicate Precision
*	•	ICP Serial Dilution Results
	•	Reporting Limits
NA	•	Sample Quantitation

* All quality control criteria were met for this parameter.
NA Not available for this SDG or for Tier II data validation.

Data Completeness

On July 1, 2008 the laboratory resubmitted all QC summary forms to include molybdenum results since the original data package summary forms did not include the molybdenum results.

On July 17, 2008 the laboratory resubmitted select QC forms to report the results to the IDL since the original data package reporting was incorrect.

Calibration Verification

The following table summarizes the analytes that recovered outside the QC limits of 70-130% recovery in the quantitation limit (QL) standard:

Analyte	%R	2xTrue Value (TV) (µg/L)	Action		Affected Sample
			(+)	NDs	
Antimony	64.5, 56.4	16.0		UJ	DA-SW-RP02-0508
Cobalt	132.6	20.0	J <2xTV		
Nickel	137.0	80.0	J <2xTV		

The percent recoveries for antimony were below the 70% recovery QC limit in the QL standard; therefore, the project accuracy goals may be impacted. The non-detected antimony result in the affected sample is usable as an estimated reporting limit which may be biased low.

Although the percent recoveries for cobalt and nickel were above the 130% recovery QC limits in the PQL standard, the project accuracy goals are not impacted since the cobalt and nickel results in the affected samples are more than 5x lower than the project action limits. The positive cobalt and nickel results in the affected sample are usable as estimated values which may be biased high.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the surface water samples:

Analyte	Max. Conc. (µg/L)	Action Level* (µg/L)	Affected Samples
Aluminum	79.28	396.4	All samples, except DA-SW125-0508, DA-SW-RP02-0508, DA-SW-RB01-F
Arsenic	3.705	92.65	All samples
Barium	0.70	3.5	DA-SW-RP01-0508, DA-SW-RB01-F
Beryllium	0.41	2.05	DA-SW125-0508
Cadmium	0.31	1.55	DA-SW121-0508, DA-SW125-0508, DA-SW-RP02-0508
Chromium	0.94	4.7	DA-SW114-0508, DA-SW121-0508, DA-SW125-0508, DA-SW-DUP01, DA-SW-RP01-0508, DA-SW-RP02-0508, DA-SW121-0508-F
Iron	39.86	199.3	DA-SW116-0508, DA-SW-DUP01, DA-SW114-0508-F, DA-SW116-0508-F, DA-SW119-0508-F, DA-SW-DUP01-F
Mercury	-0.05	0.25	All samples, except DA-SW121-0508
Nickel	0.67	3.35	All samples, except DA-SW121-0508, DA-SW125-0508, DA-SW-RP02-0508
Potassium	136.3	681.5	DA-SW-RB01-F
Thallium	0.21	5.25	DA-SW121-0508, DA-SW-RP02-0508
Zinc	2.14	10.7	All samples, except DA-SW121-0508, DA-SW125-0508, DA-SW-RP01-0508, DA-SW-RP02-0508, DA-SW-RP04-0508, DA-SW-RP01-0508-F, DA-SW-RP04-0508-F

*Arsenic and thallium action levels are adjusted for a 5x dilution factor that is applicable for all samples.

The positive results below the blank action levels for aluminum, arsenic, barium, beryllium, cadmium, chromium, iron, nickel, potassium, thallium, and zinc in the affected samples were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive and non-detected mercury results are estimated (J, UJ) in the affected samples due to negative instrument drift as evidenced by the negative blank results.

Aluminum, arsenic, and thallium contamination was found in the laboratory blanks; therefore, the project sensitivity goals may be impacted since the project action limits for aluminum, arsenic, and thallium were exceeded by the elevated detection limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although barium, beryllium, cadmium, chromium, iron, nickel, zinc contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although potassium contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since there are no regulatory limits established for potassium for the surface water samples. The non-detected results in the affected samples are usable as elevated reporting limits.

Negative results for mercury were found in the laboratory blanks; therefore, the project accuracy goals may be impacted. The positive and non-detected mercury results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

The rinsate blank was not used to establish blank action levels for the groundwater samples.

Field Duplicate Precision

Total Metals

The following table summarizes the analyte that recovered outside of the 30% relative percent difference (RPD) QC limit in the analysis of the field duplicate pair DA-SW116-0508/DA-SW-DUP01:

Analyte	RPD	Action	
		(+)	NDs
Manganese	36.7	J	

The positive total manganese results are estimated (J) in all non-filtered surface water samples due to field duplicate imprecision.

The results of the field duplicate analysis exceeded the QC limits for total manganese; therefore, the project precision goals may be impacted. The positive total manganese results in all non-filtered surface water samples are usable as estimated values for which the bias is indeterminate.

Dissolved Metals

The following table summarizes the analyte that recovered outside of the 30% RPD QC limit in the analysis of the field duplicate pair DA-SW116-0508-F/DA-SW-DUP01-F:

Analyte	RPD	Action	
		(+)	NDs
Manganese	47	J	

Additionally, the absolute difference of the manganese results below 5x quantitation limit (QL) exceeded the 2xQL QC criterion for the field duplicate pair.

The positive dissolved manganese results are estimated (J) in all filtered surface water samples due to field duplicate imprecision.

The results of the field duplicate analysis exceeded the QC limits for dissolved manganese; therefore, the project precision goals may be impacted. The positive dissolved manganese results in all filtered surface water samples are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The laboratory reported non-detected results down to the instrument detection limit (IDL). The laboratory reporting limits met the project quantitation limits. Project action limits were not achievable for silver and thallium as highlighted in Table 4-1D of the approved work plan. Data usability may be impacted.

Reporting limits were raised for aluminum, arsenic, barium, beryllium, cadmium, chromium, iron, nickel, potassium, thallium, and zinc in select samples due to laboratory blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals for aluminum, arsenic, and thallium may be impacted.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the total and dissolved metals data set with the following exceptions. Antimony was qualified as estimated in sample DA-SW-RP02-0508 due to poor linearity near the reporting limit. The affected result may be biased low. Mercury was qualified as estimated in select samples due to negative instrument drift. The affected results may be biased low. Although specific QC criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits. Data usability may be impacted. Additionally, cobalt and nickel were qualified as estimated in sample DA-SW-RP02-0508 due to poor linearity near the reporting limit. Although specific QC criteria were not met in this instance, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to precision were met for the total and dissolved metals data set with the following exception. Total and dissolved manganese were qualified as estimated due to field duplicate imprecision. Although specific QC criteria were not met in this instance, the affected positive results are usable as estimated values. Data usability may be impacted.

The project goals with respect to sensitivity were met for the total and dissolved metals data set with the following exceptions. Due to blank actions, reporting limits were raised for aluminum, arsenic, and thallium in select samples. The elevated reporting limits exceeded the project action limits for aluminum, arsenic, and thallium. Project action limits were not achievable for silver and thallium as highlighted in Table 4-1D of the approved work plan. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SW114-0508			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
SDG: CTO402-10	LAB_ID	SB2658-003			SB2658-001			SB2685-001			SB2685-002		
FRACTION: M	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		261	UJ	AP	79.6	UJ	AP	310	U	A	386	U	A
ANTIMONY		1.5	U		1.5	U		1.5	U		1.5	U	
ARSENIC		5.2	U	A	2.8	UJ	AP	5.4	U	A	3.4	UJ	AP
BARIUM		8			10.7			11.1			11		
BERYLLIUM		0.12	U		0.12	U		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U		0.1	U		0.12	UJ	AP
CALCIUM		22500			37100			20100			19700		
CHROMIUM		0.41	UJ	AP	0.38	U		0.38	U		1.4	UJ	AP
COBALT		1.1	J	P	0.54	J	P	1	J	P	1.3	J	P
COPPER		1.9	J	P	3.1	J	P	2.9	J	P	4	J	P
IRON		652			150	U	A	977			1120		
LEAD		4.3	J	P	2.2	J	P	4.2	J	P	4.6	J	P
MAGNESIUM		7380			8930			5560			5430		
MANGANESE		86.8	J	G	36.4	J	G	193	J	G	187	J	G
MERCURY		0.02	UJ	O	0.02	UJ	O	0.02	UJ	O	0.59		
MOLYBDENUM		2	U		3.6	J	P	2	U		2.4	J	P
NICKEL		1.7	UJ	AP	1	UJ	AP	1.6	UJ	AP	3.7	J	P
POTASSIUM		3240			4130			2920			3120		
SELENIUM		2.2	U		2.2	U		2.2	U		2.2	U	
SILVER		0.54	U		0.54	U		0.54	U		0.54	U	
SODIUM		15500			50100			24100			23500		
THALLIUM		0.3	U		0.3	U		0.3	U		0.32	UJ	AP
VANADIUM		0.57	J	P	0.72	J	P	0.92	J	P	1.1	J	P
ZINC		7.8	UJ	AP	7.5	UJ	AP	10.5	UJ	AP	14.9	J	P

PROJ_NO: 00816	NSAMPLE	DA-SW125-0508			DA-SW-DUP01			DA-SW-RP01-0508			DA-SW-RP02-0508		
SDG: CTO402-10	LAB_ID	SB2685-003			SB2658-005			SB2711-001			SB2711-002		
FRACTION: M	SAMP_DATE	5/21/2008			5/20/2008			5/22/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		3160			81.2	UJ	AP	71.5	UJ	AP	714		
ANTIMONY		1.5	U		1.5	U		1.5	U		1.5	UJ	C
ARSENIC		5.9	U	A	3.8	UJ	AP	3.4	UJ	AP	3.4	UJ	AP
BARIUM		21.4			9.9			3.5	UJ	AP	17		
BERYLLIUM		0.15	UJ	AP	0.12	U		0.12	U		0.12	U	
CADMIUM		0.12	UJ	AP	0.1	U		0.1	U		0.11	UJ	AP
CALCIUM		18200			35400			14600			14300		
CHROMIUM		4.2	UJ	AP	0.47	UJ	AP	0.43	UJ	AP	2.3	UJ	AP
COBALT		4.4	J	P	0.3	J	P	0.39	J	P	0.99	J	CP
COPPER		14.2	J	P	2	J	P	3.3	J	P	21.9	J	P
IRON		5590			126	U	A	850			2660		
LEAD		21.5			2.4	J	P	1.5	J	P	5.7		
MAGNESIUM		5300			8580			2350			2460		
MANGANESE		253	J	G	25.1	J	G	98.1	J	G	144	J	G
MERCURY		0.17	J	OP	0.02	UJ	O	0.16	J	OP	0.24	J	O
MOLYBDENUM		2	U		3.1	J	P	2	U		2	U	
NICKEL		6.1	J	P	1.2	UJ	AP	2.1	UJ	AP	3.9	J	CP
POTASSIUM		2970			3950			3100			3140		
SELENIUM		2.2	U		2.2	U		2.2	U		2.2	U	
SILVER		0.54	U		0.54	U		0.54	U		0.54	U	
SODIUM		20600			47500			37400			36800		
THALLIUM		0.3	U		0.3	U		0.3	U		0.33	UJ	AP
VANADIUM		5.3	J	P	0.52	U		0.73	J	P	2.4	J	P
ZINC		35.5			7	UJ	AP	15.2	J	P	41.3		

PROJ_NO: 00816	NSAMPLE	DA-SW-RP04-0508
SDG: CTO402-10	LAB_ID	SB2711-003
FRACTION: M	SAMP_DATE	5/22/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	80.2	UJ	AP
ANTIMONY	1.5	U	
ARSENIC	3.1	UJ	AP
BARIUM	8.2		
BERYLLIUM	0.12	U	
CADMIUM	0.1	U	
CALCIUM	15300		
CHROMIUM	0.38	U	
COBALT	0.31	J	P
COPPER	2.5	J	P
IRON	638		
LEAD	1.7	J	P
MAGNESIUM	2500		
MANGANESE	72.2	J	G
MERCURY	0.02	UJ	O
MOLYBDENUM	2	U	
NICKEL	1.2	UJ	AP
POTASSIUM	3560		
SELENIUM	2.2	U	
SILVER	0.54	U	
SODIUM	37000		
THALLIUM	0.3	U	
VANADIUM	0.52	U	
ZINC	13.9	J	P

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-SW114-0508-F			DA-SW116-0508-F			DA-SW119-0508-F			DA-SW121-0508-F		
	LAB_ID	SB2658-009			SB2658-008			SB2685-005			SB2685-006		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		17.8	UJ	AP	22.5	UJ	AP	24.2	UJ	AP	51.2	UJ	AP
ANTIMONY		1.5	U		1.5	U		1.5	U		1.5	U	
ARSENIC		5.2	U	A	3.8	UJ	AP	4.8	UJ	AP	3.5	UJ	AP
BARIUM		6.9			10.4			9.3			9		
BERYLLIUM		0.12	U		0.12	U		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U		0.1	U		0.1	U	
CALCIUM		22700			36000			19700			19600		
CHROMIUM		0.38	U		0.38	U		0.38	U		0.38	UJ	AP
COBALT		0.28	U		0.44	J	P	0.6	J	P	0.74	J	P
COPPER		0.8	U		2.3	J	P	2.4	J	P	2.9	J	P
IRON		45.4	UJ	AP	15.5	UJ	AP	153	U	A	230		
LEAD		1.4	U		1.4	U		1.6	J	P	1.4	U	
MAGNESIUM		7350			8650			5370			5320		
MANGANESE		50.8	J	G	33.1	J	G	127	J	G	134	J	G
MERCURY		0.02	UJ	O	0.02	UJ	O	0.02	UJ	O	0.02	UJ	O
MOLYBDENUM		2	U		3.4	J	P	2	U		2	U	
NICKEL		1.4	UJ	AP	1.2	UJ	AP	1.3	UJ	AP	1.5	UJ	AP
POTASSIUM		3270			4030			2760			2910		
SELENIUM		2.2	U		2.2	U		2.2	U		2.2	U	
SILVER		0.54	U		0.54	U		0.54	U		0.54	U	
SODIUM		15100			48800			23300			23200		
THALLIUM		0.3	U		0.3	U		0.3	U		0.3	U	
VANADIUM		0.52	U		0.52	U		0.52	U		0.75	J	P
ZINC		5.1	UJ	AP	7.5	UJ	AP	5.2	UJ	AP	7.5	UJ	AP

PROJ_NO: 00816	NSAMPLE	DA-SW125-0508-F			DA-SW-DUP01-F			DA-SW-RB01-F			DA-SW-RP01-0508-F		
SDG: CTO402-10	LAB_ID	SB2685-007			SB2658-010			SB2685-008			SB2711-004		
FRACTION: MF	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508-F								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		86.5	UJ	AP	35.5	UJ	AP	14	U		35.1	UJ	AP
ANTIMONY		1.6	J	P	1.5	U		1.5	U		1.5	U	
ARSENIC		3.6	UJ	AP	4.6	UJ	AP	3	UJ	AP	3.4	UJ	AP
BARIUM		9			9.7			0.39	UJ	AP	5.1		
BERYLLIUM		0.12	U		0.12	U		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U		0.1	U		0.1	U	
CALCIUM		18300			34900			11	U		13900		
CHROMIUM		0.38	U		0.38	U		0.38	U		0.38	U	
COBALT		0.94	J	P	0.28	U		0.28	U		0.28	U	
COPPER		2.4	J	P	2.7	J	P	0.8	U		2.4	J	P
IRON		358			15.1	UJ	AP	6	U		788		
LEAD		1.4	U		1.4	U		1.4	U		1.4	U	
MAGNESIUM		4890			8410			5.6	U		2260		
MANGANESE		163	J	G	20.6	J	G	0.68	U		103	J	G
MERCURY		0.02	UJ	O	0.02	UJ	O	0.06	J	OP	0.02	UJ	O
MOLYBDENUM		2	U		2.9	J	P	2	U		2	U	
NICKEL		1.3	UJ	AP	0.99	UJ	AP	0.32	UJ	AP	1.5	UJ	AP
POTASSIUM		2820			3930			82.4	UJ	AP	3000		
SELENIUM		2.2	U		2.2	U		2.2	U		2.2	U	
SILVER		0.54	U		0.54	U		0.54	U		0.54	U	
SODIUM		21000			46900			18	U		36200		
THALLIUM		0.3	U		0.3	U		0.3	U		0.3	U	
VANADIUM		0.52	J	P	0.52	U		0.52	U		0.61	J	P
ZINC		6.8	UJ	AP	7.4	UJ	AP	1.8	UJ	AP	10.7	J	P

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-SW-RP02-0508-F			DA-SW-RP04-0508-F		
	LAB_ID	SB2711-005			SB2711-006		
	SAMP_DATE	5/22/2008			5/22/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		25.1	UJ	AP	29.6	UJ	AP
ANTIMONY		1.5	U		1.5	U	
ARSENIC		3.4	UJ	AP	3.5	UJ	AP
BARIUM		4.5	J	P	8.4		
BERYLLIUM		0.12	U		0.12	U	
CADMIUM		0.1	U		0.1	U	
CALCIUM		14400			15500		
CHROMIUM		0.38	U		0.38	U	
COBALT		0.28	U		0.28	U	
COPPER		2.8	J	P	1.7	J	P
IRON		470			264		
LEAD		1.4	U		1.4	U	
MAGNESIUM		2330			2540		
MANGANESE		60.4	J	G	34.9	J	G
MERCURY		0.02	UJ	O	0.02	UJ	O
MOLYBDENUM		2	U		2	U	
NICKEL		1.5	UJ	AP	0.82	UJ	AP
POTASSIUM		3040			3340		
SELENIUM		2.2	U		2.2	U	
SILVER		0.54	U		0.54	U	
SODIUM		36500			37000		
THALLIUM		0.3	U		0.3	U	
VANADIUM		0.52	U		0.52	U	
ZINC		10	UJ	AP	13	J	P

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2829W

Date: July 21, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO402-10
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/Pesticides/PCB:

9/Surface waters/	DA-SW114-0508	DA-SW116-0508	DA-SW119-0508
	DA-SW121-0508	DA-SW125-0508	DA-SW-DUP01
	DA-SW-RP01-0508	DA-SW-RP02-0508	DA-SW-RP04-0508

(Field Duplicate Pair: DA-SW116-0508/DA-SW-DUP01)

1/Rinsate Blank/ DA-SW-RB01

VOC:

3/Trip Blanks/	DA-SW-TB01	DA-SW-TB02	DA-SW-TB03-0508

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, and polychlorinated biphenyls (PCB) analytical data for the surface water samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from May 20-22, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively.

The VOC and SVOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- Preservation and Technical Holding Times

*	•	GC/MS Instrument Performance Check (Tuning)
*	•	Instrument Performance Check: Pesticide Degradation
	•	Initial and Continuing Calibrations
	•	Blanks
*	•	Surrogate Compounds
*	•	Internal Standards
	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
*	•	Field Duplicates
*	•	Analyte Identification/Quantitation
	•	Reporting Limits
NA	•	Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

Due to laboratory error, the MS/MSD was not performed for the volatiles analysis.

On July 21, 2008 the laboratory resubmitted Form 7B for the volatiles analysis calibration verification performed on May 30, 2008 since the trichloroethene result in the original data package was not fully integrated.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25 or RRF >0.05:

Compound	RRF	%D	Action		Affected Samples
			(+)	NDs	
Dichlorodifluoromethane	-	-44.63		UJ	DA-SW116-0508
Chloromethane	-	-29.89		UJ	
1,2,3-Trichloropropane	-	-52.04		UJ	
1,2-Dibromo-3-chloropropane	-	26.86		UJ	
tert-Butylbenzene	-	27.85		UJ	DA-SW-TB01, DA-SW114-0508, DA-SW-DUP01
Acetone	-	-35.74		UJ	DA-SW-TB03-0508, DA-SW-RP01-0508
2-Butanone	-	-30.41		UJ	
2-Hexanone	-	-27.13		UJ	

-Criterion met

Although the %D was outside of the QC limits for dichlorodifluoromethane, tert-butylbenzene, acetone, and 2-butanone; the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D was outside of the QC limits for chloromethane, 1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, and 2-hexanone; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30:

Compound	%D	Action		Affected Samples
		(+)	NDs	
3,3'-Dimethylbenzidine	35.961		UJ	DA-SW119-0508, DA-SW121-0508, DA-SW125-0508, DA-SW-RB01

Although the %RSD was outside of the QC limits for 3,3'-dimethylbenzidine, the project accuracy goals are not impacted since there are no regulatory limits established for 3,3'-dimethylbenzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzidine	-37.79, -33.92		UJ	DA-SW121-0508, DA-SW125-0508, DA-SW-RB01
3,3'-Dichlorobenzidine	-44.19, -47.18		UJ	All samples
Di-n-octylphthalate	29.53, 30.93		UJ	

-Criterion met

Although the %D was outside of the QC limits for benzidine and di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 3,3'-dichlorobenzidine; therefore, the project accuracy goals may be impacted since the project action limit for this compound was not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action (+)	Action NDs	Affected Samples
4,4'-DDT	-71.44, -91.30	-69.96, 90.50	J	UJ	DA-SW119-0508, DA-SW121-0508, DA-SW125-0508, DA-SW-RB01, DA-SW-RP01-0508, DA-SW-RP02-0508, DA-SW-RP04-0508
Methoxychlor	-67.84, -87.24	-66.36, -89.72		UJ	
Heptachlor	-48.60	-44.60		UJ	DA-SW-RP04-0508
4,4'-DDD	39.40	36.40		UJ	
Endrin ketone	-40.00	-51.00		UJ	

Although the %D was outside of the QC limits for methoxychlor, heptachlor, and endrin ketone, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 4,4'-DDT and 4,4'-DDD; therefore, the project accuracy goals may be impacted since the laboratory quantitation limits are almost equal to the project action limits for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Blanks

The rinsate blank was not used to establish blank action levels for the surface water samples.

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the sample:

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Methylene chloride	Method	0.4	4.0	DA-SW116-0508

Blank action was applied to the affected groundwater sample due to methylene chloride method blank contamination. The 10x rule is applies for this common laboratory contaminant. The positive result for methylene chloride in the affected sample was changed to a non-detected value at the QL.

Methylene chloride contamination was found in the laboratory blank; therefore, the project sensitivity goals may be impacted since the project action limit for methylene chloride was not achievable. The results in the affected samples are usable as non-detected values.

Matrix Spike/Matrix Spike Duplicate

Semivolatiles

The following table summarizes the results of the matrix spike and matrix spike duplicate (MS/MSD) analysis of sample DA-SW119-0508 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Benzoic acid	0, 0	10-125		UR
Benzidine	0, 0	10-94		UR

The percent recovery criterion was not met for benzoic acid and benzidine due to no MS/MSD recoveries; therefore, the project accuracy goals are impacted. The non-detected benzoic acid and benzidine results in sample DA-SW119-0508 are rejected (UR). These results are not usable for project decisions.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compound that failed to meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) QC recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Dichlorodifluoromethane	19	20-143		UJ	DA-SW119-0508, DA-SW121-0508, DA-SW125-0508, DA-SW-RB01, DA-SW-TB02

The LCS/LCSD recovery for dichlorodifluoromethane was below the QC limits; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) relative percent difference QC limits:

Compound	RPD	QC Limits	Action		Affected Samples
			(+)	NDs	
2-Methylnaphthalene	53	30		UJ	DA-SW116-0508, DA-SW114-0508, DA-SW-DUP01
4-Nitroaniline	43	30		UJ	DA-SW-RP01-0508, DA-SW-RP02-0508, DA-SW-RP04-0508
3,3'-Dichlorobenzidine	47	30		UJ	

The LCS relative percent difference for 2-methylnaphthalene, 4-nitroaniline, and 3,3'-dichlorobenzidine did not meet the QC limits; therefore, the project precision goals may be impacted since the project action limits for these compounds were not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

The following table summarizes the semivolatile compounds that failed to meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) QC recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Benzoic acid	0	10-125		UR	DA-SW116-0508, DA-SW114-0508, DA-SW-DUP01
Benzidine	0, 0	10-94		UR	DA-SW116-0508, DA-SW114-0508, DA-SW-DUP01, DA-SW-RP01-0508, DA-SW-RP02-0508, DA-SW-RP04-0508
3,3'-Dimethylbenzidine	0, 0	30-150		UR	

The percent recovery criterion was not met for benzoic acid, benzidine, and 3,3'-dimethylbenzidine due to no LCS/LCSD recoveries; therefore, the project accuracy goals are impacted. The non-detected benzoic acid, benzidine, and 3,3'-dimethylbenzidine results in the affected samples are rejected (UR). These results are not usable for project decisions.

PCBs

The following table summarizes the Aroclor that failed to meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) QC recovery limits:

Compound	%Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	65	72-119		UJ	DA-SW116-0508, DA-SW114-0508, DA-SW-DUP01

The LCS recovery for Aroclor-1016 did not meet the QC limits; therefore, the project accuracy goals may be impacted since the project action limit for this Aroclor was not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Reporting Limits

Volatiles

Blank actions were applied to sample DA-SW116-0508 due to methylene chloride blank contamination. The positive result for methylene chloride in the affected sample is changed to a non-detected value at the QL. As discussed above in the Blanks section, the project sensitivity goals may be impacted since the project action limit for methylene chloride was not achievable.

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane,

1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The laboratory did not meet the project quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2,4-dinitrophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-nitroaniline, 4-nitrophenol, benzidine, and pentachlorophenol.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The laboratory met all project quantitation limits, except for toxaphene. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The laboratory met all project quantitation limits. The project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Dichlorodifluoromethane was qualified as estimated in select samples due to a low LCS recovery. These results may be biased low. Although specific method criteria were not met in these instances, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. The positive result for methylene chloride in sample DA-SW116-0508 was changed to a non-detected value at the quantitation limit. Since the project action limit for methylene chloride was not achievable, data usability may be impacted. Additionally, project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exception. The compound 3,3'-dichlorobenzidine was qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. The benzoic acid and benzidine results in sample DA-SW119-0508 are rejected due to no MS/MSD recoveries. These results are not usable for project decisions. The benzoic acid, benzidine, and 3,3'-dimethylbenzidine results in select samples are rejected due to no LCS/LCSD recoveries. These results are not usable for project decisions. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. The compounds 2-methylnaphthalene, 4-nitroaniline, and 3,3'-dichlorobenzidine were qualified as estimated due to laboratory control sample/laboratory control sample duplicate imprecision. Although specific QC criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. The laboratory did not meet the project quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2,4-dinitrophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-nitroaniline, 4-nitrophenol, benzidine, and pentachlorophenol. Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exception. The compounds 4,4'-DDT and 4,4'-DDD were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additional pesticides were qualified as

estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, the affected non-detected results are usable as estimated quantitation limits which do not impact data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The laboratory met all project quantitation limits, except for toxaphene. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exception. Aroclor-1016 was qualified as estimated in select samples due to a low LCS recovery. These results may be biased low. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCBs data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the PCBs data set with the following exception. The project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SW114-0508RA			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
SDG: CTO402-10	LAB_ID	SB2658-3RA			SB2658-1			SB2685-1			SB2685-2		
FRACTION: OV	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	UJ	C	1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	UJ	C	1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	7			4	J	P	5	U		5	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	

PROJ_NO: 00816	NSAMPLE	DA-SW125-0508			DA-SW-DUP01RA			DA-SW-RB01			DA-SW-RP01-0508		
SDG: CTO402-10	LAB_ID	SB2685-3			SB2658-5RA			SB2685-4			SB2711-1		
FRACTION: OV	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	5	U		5	U		5			5	UJ	C
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	UJ	C
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	5	U		5	U		51			5	UJ	C
BENZENE	1	U		1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-RP02-0508			DA-SW-RP04-0508			DA-SW-TB01RA			DA-SW-TB02		
SDG: CTO402-10	LAB_ID	SB2711-2			SB2711-3			SB2658-7RA			SB2685-9		
FRACTION: OV	SAMP_DATE	5/22/2008			5/22/2008			5/20/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	13			5	U		5	U		5	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-SW-TB03-0508
	LAB_ID	SB2711-7
	SAMP_DATE	5/22/2008
	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U	
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,1-DICHLOROPROPENE	1	U	
1,2,3-TRICHLOROBENZENE	1	U	
1,2,3-TRICHLOROPROPANE	1	U	
1,2,4-TRICHLOROBENZENE	1	U	
1,2,4-TRIMETHYLBENZENE	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,3-DICHLOROPROPANE	1	U	
1,4-DICHLOROBENZENE	1	U	
2,2-DICHLOROPROPANE	1	U	
2-BUTANONE	5	UJ	C
2-CHLOROTOLUENE	1	U	
2-HEXANONE	5	UJ	C
4-CHLOROTOLUENE	1	U	
4-ISOPROPYLTOLUENE	1	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	5	UJ	C
BENZENE	1	U	
BROMOBENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON DISULFIDE	1	U	

PROJ_NO: 00816	NSAMPLE	DA-SW114-0508RA			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
SDG: CTO402-10	LAB_ID	SB2658-3RA			SB2658-1			SB2685-1			SB2685-2		
FRACTION: OV	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	UJ	C	2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		0.4	J	P	0.5	J	P
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	UJ	C	2	UJ	E	2	UJ	E
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U	A	5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	UJ	C	1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		0.8	J	P	1		
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	DA-SW125-0508			DA-SW-DUP01RA			DA-SW-RB01			DA-SW-RP01-0508		
SDG: CTO402-10	LAB_ID	SB2685-3			SB2658-5RA			SB2685-4			SB2711-1		
FRACTION: OV	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE	1	U		1	U		1	U		1	U	
CHLOROETHANE	2	U		2	U		2	U		2	U	
CHLOROFORM	1	U		1	U		0.5	J	P	1	U	
CHLOROMETHANE	2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	2	UJ	E	2	U		2	UJ	E	2	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE	1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE	1	U		1	U		1	U		1	U	
M+P-XYLENES	2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
N-BUTYLBENZENE	1	U		1	U		1	U		1	U	
N-PROPYLBENZENE	1	U		1	U		1	U		1	U	
O-XYLENE	1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE	1	U		1	U		1	U		1	U	
STYRENE	1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE	1	U		1	UJ	C	1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	0.6	J	P	1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL CHLORIDE	2	U		2	U		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-RP02-0508			DA-SW-RP04-0508			DA-SW-TB01RA			DA-SW-TB02		
SDG: CTO402-10	LAB_ID	SB2711-2			SB2711-3			SB2658-7RA			SB2685-9		
FRACTION: OV	SAMP_DATE	5/22/2008			5/22/2008			5/20/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE	1	U		1	U		1	U		1	U	
CHLOROETHANE	2	U		2	U		2	U		2	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	2	U		2	U		2	U		2	UJ	E
ETHYLBENZENE	1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE	1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE	1	U		1	U		1	U		1	U	
M+P-XYLENES	2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
N-BUTYLBENZENE	1	U		1	U		1	U		1	U	
N-PROPYLBENZENE	1	U		1	U		1	U		1	U	
O-XYLENE	1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE	1	U		1	U		1	U		1	U	
STYRENE	1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE	1	U		1	U		1	UJ	C	1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL CHLORIDE	2	U		2	U		2	U		2	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-SW-TB03-0508
	LAB_ID	SB2711-7
	SAMP_DATE	5/22/2008
	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
DIBROMOMETHANE	1	U	
DICHLORODIFLUOROMETHANE	2	U	
ETHYLBENZENE	1	U	
HEXACHLOROBUTADIENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	5	U	
N-BUTYLBENZENE	1	U	
N-PROPYLBENZENE	1	U	
O-XYLENE	1	U	
SEC-BUTYLBENZENE	1	U	
STYRENE	1	U	
TERT-BUTYLBENZENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	2	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 00816	NSAMPLE	DA-SW114-0508			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
SDG: CTO402-10	LAB_ID	SB2658-3			SB2658-1			SB2685-1			SB2685-2		
FRACTION: OS	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE	20	U		20	U		20	U		20	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	25	U		25	U		25	U		25	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	UJ	E	10	UJ	E	10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
3&4-METHYLPHENOL	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
3,3'-DIMETHYLBENZIDINE	10	UR	E	10	UR	E	10	UJ	C	10	UJ	C
3-NITROANILINE	25	U		25	U		25	U		25	U	
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW125-0508			DA-SW-DUP01			DA-SW-RB01			DA-SW-RP01-0508		
SDG: CTO402-10	LAB_ID	SB2685-3			SB2658-5			SB2685-4			SB2711-1		
FRACTION: OS	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE	20	U		20	U		21	U		20	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	25	U		25	U		26	U		25	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		26	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	UJ	E	10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		26	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
3&4-METHYLPHENOL	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	CE
3,3'-DIMETHYLBENZIDINE	10	UJ	C	10	UR	E	10	UJ	C	10	UR	E
3-NITROANILINE	25	U		25	U		26	U		25	U	
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		26	U		25	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		26	U		25	UJ	E
4-NITROPHENOL	25	U		25	U		26	U		25	U	
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW-RP02-0508			DA-SW-RP04-0508		
	LAB_ID	SB2711-2			SB2711-3		
	SAMP_DATE	5/22/2008			5/22/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	U		10	U	
1,2,4-TRICHLOROBENZENE		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		21	U	
1,3-DICHLOROBENZENE		10	U		10	U	
1,4-DICHLOROBENZENE		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U	
2,4,5-TRICHLOROPHENOL		25	U		26	U	
2,4,6-TRICHLOROPHENOL		10	U		10	U	
2,4-DICHLOROPHENOL		10	U		10	U	
2,4-DIMETHYLPHENOL		10	U		10	U	
2,4-DINITROPHENOL		25	U		26	U	
2,4-DINITROTOLUENE		10	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	U	
2,6-DINITROTOLUENE		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U	
2-CHLOROPHENOL		10	U		10	U	
2-METHYLNAPHTHALENE		10	U		10	U	
2-METHYLPHENOL		10	U		10	U	
2-NITROANILINE		25	U		26	U	
2-NITROPHENOL		10	U		10	U	
3&4-METHYLPHENOL		10	U		10	U	
3,3'-DICHLOROBENZIDINE		10	UJ	CE	10	UJ	CE
3,3'-DIMETHYLBENZIDINE		10	UR	E	10	UR	E
3-NITROANILINE		25	U		26	U	
4,6-DINITRO-2-METHYLPHENOL		25	U		26	U	
4-BROMOPHENYL PHENYL ETHER		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		10	U		10	U	
4-CHLOROANILINE		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U	
4-NITROANILINE		25	UJ	E	26	UJ	E
4-NITROPHENOL		25	U		26	U	
ACENAPHTHENE		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U	
ANTHRACENE		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW114-0508			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
	LAB_ID	SB2658-3			SB2658-1			SB2685-1			SB2685-2		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZIDINE		50	UR	E	50	UR	E	50	UR	D	50	UJ	C
BENZO(A)ANTHRACENE		10	U		10	U		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZOIC ACID		25	UR	E	25	UR	E	25	UR	D	25	U	
BENZYL ALCOHOL		20	U		20	U		20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE		10	U		10	U		10	U		10	U	
CARBAZOLE		10	U		10	U		10	U		10	U	
CHRYSENE		10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		10	U		10	U	
DIBENZOFURAN		10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
FLUORANTHENE		10	U		10	U		10	U		10	U	
FLUORENE		10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		10	U		10	U	
ISOPHORONE		10	U		10	U		10	U		10	U	
NAPHTHALENE		10	U		10	U		10	U		10	U	
NITROBENZENE		10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL		25	U		25	U		25	U		25	U	
PHENANTHRENE		10	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW125-0508			DA-SW-DUP01			DA-SW-RB01			DA-SW-RP01-0508		
SDG: CTO402-10	LAB_ID	SB2685-3			SB2658-5			SB2685-4			SB2711-1		
FRACTION: OS	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZIDINE	50	UJ	C	50	UR	E	52	UJ	C	50	UR	E
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZOIC ACID	25	U		25	UR	E	26	U		25	U	
BENZYL ALCOHOL	20	U		20	U		21	U		20	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	10	U		10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	25	U		25	U		26	U		25	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW-RP02-0508			DA-SW-RP04-0508		
	LAB_ID	SB2711-2			SB2711-3		
	SAMP_DATE	5/22/2008			5/22/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZIDINE		50	UR	E	53	UR	E
BENZO(A)ANTHRACENE		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U	
BENZOIC ACID		25	U		26	U	
BENZYL ALCOHOL		20	U		21	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U	
BUTYL BENZYL PHTHALATE		10	U		10	U	
CARBAZOLE		10	U		10	U	
CHRYSENE		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U	
DIBENZOFURAN		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	UJ	C	10	UJ	C
FLUORANTHENE		10	U		10	U	
FLUORENE		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U	
ISOPHORONE		10	U		10	U	
NAPHTHALENE		10	U		10	U	
NITROBENZENE		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U	
PENTACHLOROPHENOL		25	U		26	U	
PHENANTHRENE		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW114-0508			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
SDG: CTO402-10	LAB_ID	SB2658-3			SB2658-1			SB2685-1			SB2685-2		
FRACTION: OS	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PHENOL		10	U		10	U		10	U		10	U	
PYRENE		10	U		10	U		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW125-0508			DA-SW-DUP01			DA-SW-RB01			DA-SW-RP01-0508		
	LAB_ID	SB2685-3			SB2658-5			SB2685-4			SB2711-1		
	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PHENOL		10	U		10	U		10	U		10	U	
PYRENE		10	U		10	U		10	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-RP02-0508			DA-SW-RP04-0508		
SDG: CTO402-10	LAB_ID	SB2711-2			SB2711-3		
FRACTION: OS	SAMP_DATE	5/22/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PHENOL		10	U		10	U	
PYRENE		10	U		10	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SW114-0508			DA-SW116-0508			DA-SW119-0508			DA-SW121-0508		
	LAB_ID	SB2658-3			SB2658-1			SB2685-1			SB2685-2		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDE		0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDT		0.01	U		0.01	U		0.01	UJ	C	0.0043	J	CP
ALDRIN		0.0052	U		0.005	U		0.005	U		0.005	U	
ALPHA-BHC		0.0052	U		0.005	U		0.005	U		0.005	U	
ALPHA-CHLORDANE		0.0052	U		0.005	U		0.005	U		0.005	U	
AROCLOR-1016		0.05	UJ	E	0.055	UJ	E	0.05	U		0.053	U	
AROCLOR-1221		0.05	U		0.055	U		0.05	U		0.053	U	
AROCLOR-1232		0.05	U		0.055	U		0.05	U		0.053	U	
AROCLOR-1242		0.05	U		0.055	U		0.05	U		0.053	U	
AROCLOR-1248		0.05	U		0.055	U		0.05	U		0.053	U	
AROCLOR-1254		0.05	U		0.055	U		0.05	U		0.053	U	
AROCLOR-1260		0.05	U		0.055	U		0.05	U		0.053	U	
AROCLOR-1268		0.05	U		0.055	U		0.05	U		0.053	U	
BETA-BHC		0.0052	U		0.005	U		0.005	U		0.005	U	
DELTA-BHC		0.0052	U		0.005	U		0.005	U		0.005	U	
DIELDRIN		0.01	U		0.011			0.0064	J	P	0.0082	J	P
ENDOSULFAN I		0.0052	U		0.005	U		0.005	U		0.005	U	
ENDOSULFAN II		0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN SULFATE		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN ALDEHYDE		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN KETONE		0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-BHC (LINDANE)		0.0052	U		0.005	U		0.005	U		0.005	U	
GAMMA-CHLORDANE		0.0052	U		0.005	U		0.005	U		0.005	U	
HEPTACHLOR		0.0052	U		0.005	U		0.005	U		0.005	U	
HEPTACHLOR EPOXIDE		0.0052	U		0.005	U		0.005	U		0.005	U	
METHOXYCHLOR		0.052	U		0.05	U		0.05	UJ	C	0.05	UJ	C
TOXAPHENE		0.1	U		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00816 SDG: CTO402-10 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SW125-0508			DA-SW-DUP01			DA-SW-RB01			DA-SW-RP01-0508		
	LAB_ID	SB2685-3			SB2658-5			SB2685-4			SB2711-1		
	SAMP_DATE	5/21/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			RB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF				DA-SW116-0508								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDE		0.01	U		0.01	U		0.01	U		0.01	U	
4,4'-DDT		0.0059	J	CP	0.0051	J	P	0.01	UJ	C	0.01	UJ	C
ALDRIN		0.005	U		0.0053	U		0.005	U		0.005	U	
ALPHA-BHC		0.005	U		0.0053	U		0.005	U		0.005	U	
ALPHA-CHLORDANE		0.005	U		0.0053	U		0.005	U		0.005	U	
AROCLOR-1016		0.05	U		0.05	UJ	E	0.053	U		0.05	U	
AROCLOR-1221		0.05	U		0.05	U		0.053	U		0.05	U	
AROCLOR-1232		0.05	U		0.05	U		0.053	U		0.05	U	
AROCLOR-1242		0.05	U		0.05	U		0.053	U		0.05	U	
AROCLOR-1248		0.05	U		0.05	U		0.053	U		0.05	U	
AROCLOR-1254		0.05	U		0.05	U		0.053	U		0.05	U	
AROCLOR-1260		0.05	U		0.05	U		0.053	U		0.05	U	
AROCLOR-1268		0.05	U		0.05	U		0.053	U		0.05	U	
BETA-BHC		0.005	U		0.0053	U		0.005	U		0.005	U	
DELTA-BHC		0.005	U		0.0053	U		0.005	U		0.005	U	
DIELDRIN		0.0087	J	P	0.01	J	P	0.01	U		0.01	U	
ENDOSULFAN I		0.005	U		0.0053	U		0.005	U		0.005	U	
ENDOSULFAN II		0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN SULFATE		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN ALDEHYDE		0.01	U		0.01	U		0.01	U		0.01	U	
ENDRIN KETONE		0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-BHC (LINDANE)		0.005	U		0.0053	U		0.005	U		0.005	U	
GAMMA-CHLORDANE		0.005	U		0.0053	U		0.005	U		0.005	U	
HEPTACHLOR		0.005	U		0.0053	U		0.029			0.005	U	
HEPTACHLOR EPOXIDE		0.005	U		0.0053	U		0.005	U		0.005	U	
METHOXYCHLOR		0.05	UJ	C	0.053	U		0.05	UJ	C	0.05	UJ	C
TOXAPHENE		0.1	U		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-RP02-0508			DA-SW-RP04-0508		
SDG: CTO402-10	LAB_ID	SB2711-2			SB2711-3		
FRACTION: PEST/PCB	SAMP_DATE	5/22/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.01	U		0.01	UJ	C
4,4'-DDE		0.01	U		0.01	U	
4,4'-DDT		0.01	UJ	C	0.01	UJ	C
ALDRIN		0.005	U		0.0052	U	
ALPHA-BHC		0.005	U		0.0052	U	
ALPHA-CHLORDANE		0.005	U		0.0052	U	
AROCLOR-1016		0.05	U		0.055	U	
AROCLOR-1221		0.05	U		0.055	U	
AROCLOR-1232		0.05	U		0.055	U	
AROCLOR-1242		0.05	U		0.055	U	
AROCLOR-1248		0.05	U		0.055	U	
AROCLOR-1254		0.05	U		0.055	U	
AROCLOR-1260		0.05	U		0.055	U	
AROCLOR-1268		0.05	U		0.055	U	
BETA-BHC		0.005	U		0.0052	U	
DELTA-BHC		0.005	U		0.0052	U	
DIELDRIN		0.01	U		0.01	U	
ENDOSULFAN I		0.005	U		0.0052	U	
ENDOSULFAN II		0.01	U		0.01	U	
ENDOSULFAN SULFATE		0.01	U		0.01	U	
ENDRIN		0.01	U		0.01	U	
ENDRIN ALDEHYDE		0.01	U		0.01	U	
ENDRIN KETONE		0.01	U		0.01	UJ	C
GAMMA-BHC (LINDANE)		0.005	U		0.0052	U	
GAMMA-CHLORDANE		0.005	U		0.0052	U	
HEPTACHLOR		0.005	U		0.0052	UJ	C
HEPTACHLOR EPOXIDE		0.005	U		0.0052	U	
METHOXYCHLOR		0.05	UJ	C	0.052	UJ	C
TOXAPHENE		0.1	U		0.1	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2826W

Date: July 21, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO402-11
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum/pH/TOC/Grain Size:
5/Sediments/ DA-SD-RP01-0006 DA-SD-RP02-0006 DA-SD-RP03-0006
DA-SD-RP04-0006 DA-SD-RP05-0006

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from sediment samples collected at the Site 08-NUSC Disposal Area on May 22, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B/6020/7471A. Additionally, a Tier I data validation was performed on the pH, total organic carbon (TOC), and grain size analytical data from these sediment samples. The pH analysis was performed according to USEPA SW-846 Method 9045C, the TOC analysis according to the Lloyd Kahn method, and the grain size analysis according to ASTM D422. The Tier I data validation includes evaluation for completeness only. Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Also enclosed are the particle size distribution graphs from the grain size analysis. TOC and pH results are presented in tables with the fraction "Misc" and grain size results are presented in tables with the fraction "MiscO".

The data were evaluated based on the following parameters:

	• Data Completeness
*	• Holding Times
*	• ICP-MS Tuning
*	• ICP-MS Internal Standard Performance
	• Calibration Verification
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
NA	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
NA	• Field Duplicate Precision
NA	• ICP Serial Dilution Results

* • Reporting Limits
NA • Sample Quantitation

* All quality control criteria were met for this parameter.
NA Not applicable for this SDG or for a Tier II data validation.

Data Completeness

The data package summary forms were missing the molybdenum results. On July 1, 2008 the laboratory resubmitted all summary forms to include the molybdenum results.

The pH, TOC, and grain size data are complete.

Calibration Verification

The following table summarizes the analytes that recovered outside the QC limits of 70-130% recovery in the quantitation limit (QL) standard:

Analyte	%R	2xTrue value (TV) (µg/L)	Action		Affected Samples
			(+)	NDs	
Cobalt	132.7	60	J <2XTV		DA-SD-RP04-0006
Nickel	131.3	80	J <2XTV		

Although cobalt and nickel recovered above the 130% QC limit in the QL check standard, the project accuracy goals are not impacted since the sample results are more than five times below the project action limits. The positive cobalt and nickel results in the affected sample are usable as estimated values which may be biased high.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the sediment samples:

Analyte	Maximum Conc.	Action Level (mg/kg)	Affected Samples
Cadmium	0.22 µg/L	0.11	DA-SD-RP04-0006
Silver	0.59 µg/L	0.295	DA-SD-RP02-0006, DA-SD-RP04-0006
Thallium	0.23 µg/L	0.12	All samples
Arsenic	0.363 mg/kg	1.815	All samples, except DA-SD-RP03-0006

The positive results below the blank action level for cadmium, silver, thallium, and arsenic were changed to non-detected values (U) at elevated reporting limits in the affected sediment samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 1. The action level for each sample varies, based on the actual amount of sample analyzed, the percent solids for that sample, and the sample dilution factor.

Although cadmium, silver, and thallium contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample-

specific elevated reporting limits. The results in the affected samples are usable as elevated reporting limits.

Arsenic contamination was found in the laboratory blanks; therefore, the project sensitivity goals may be impacted since the elevated detection limits in the affected samples exceed the project action limit for arsenic in sediment samples. The results in the affected samples are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Cadmium	J		High	DA-SD-RP01-0006, DA-SD-RP02-0006, DA-SD-RP03-0006
	UJ			DA-SD-RP04-0006, DA-SD-RP05-0006
Lead	J		High	DA-SD-RP04-0006
Potassium	J		Low	
Silver	J	UJ	Low	All samples

The positive results for cadmium and lead in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. The results may be biased high.

The positive and non-detected results for potassium and silver in the affected samples are qualified as estimated (J, UJ) due to negative ICP interference attributed to iron. The results may be biased low.

Professional judgment was used to change the positive cadmium results to estimated, non-detected values (UJ) in the affected samples, rather than reject as provided in the data validation guidelines, because the reported concentration may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

There were ICP interferences for cadmium, lead, and silver attributed to the high concentration of iron that resulted in estimating the results in the samples listed above; therefore, the project accuracy goals may be impacted. The positive cadmium and lead results in the affected samples are usable as estimated values which may be biased high. The positive and non-detected silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences for potassium attributed to the high concentration of iron that resulted in estimating the result in sample DA-SD-RP04-0006, the project accuracy goals are not impacted since there are no regulatory limits established for potassium in the sediment samples. The positive potassium result is usable as an estimated value which may be biased low.

Although there were ICP interferences for cadmium attributed to the high concentration of iron that resulted in raising the reporting limits for cadmium in the samples listed above, the project sensitivity goals are not impacted since the elevated reporting limits do not exceed the project action limit for cadmium for the sediment samples. The cadmium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Reporting Limits

The laboratory reported non-detected results down to the instrument detection limit (IDL). The laboratory reporting limits met the project quantitation limits and project action limits.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Reporting limits were raised for cadmium, silver, and thallium due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals are not affected.

Reporting limits were raised for arsenic due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals may be impacted.

Reporting limits were raised for cadmium due to ICP interferences. As discussed above in the ICP Interference Check Sample Results section, the project sensitivity goals are not affected.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for this data set with the following exception. Cadmium, lead, and silver were qualified as estimated due to ICP interferences. The affected cadmium and lead results may be biased high. The affected silver results may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated reporting limits. Data usability may be impacted. Additionally, cobalt and nickel were qualified as estimated in sample DA-SD-RP04-0006 due to poor linearity near the reporting limit and potassium was qualified as estimated in this sample due to ICP interferences. Although specific QC criteria were not met in this instance, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to precision were met for this data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for this data set with the following exception. Reporting limits were elevated for arsenic in sample DA-SD-RP01-0006, DA-SD-RP02-0006, DA-SD-RP04-0006, and DA-SD-RP05-0006 due to blank contamination. The elevated reporting limits exceeded the project action limits for arsenic in the sediment samples. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables
Particle Size Distribution Graphs

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SD-RP01-0006			DA-SD-RP02-0006			DA-SD-RP03-0006			DA-SD-RP04-0006		
SDG: CTO402-11	LAB_ID	SB2709-001			SB2709-004			SB2709-007			SB2709-010		
FRACTION: M	SAMP_DATE	5/22/2008			5/22/2008			5/22/2008			5/22/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	62.2			35.5			48.7			71.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		8010			13500			9090			6960		
ANTIMONY		0.12	J	P	0.35	J	P	0.36	J	P	0.25	U	
ARSENIC		3.8	U	A	10.8	U	A	12.2			7.1	U	A
BARIUM		22.7			44.3			44.7			17.3		
BERYLLIUM		0.28	J	P	0.6	J	P	0.4	J	P	0.51		
CADMIUM		0.66	J	KP	1.4	J	KP	1.1	J	KP	0.1	UJ	AKP
CALCIUM		1050			2120			2730			864		
CHROMIUM		10.6			17			14.2			4.4		
COBALT		8.2			11.7			11.4			4.7	J	CP
COPPER		34			65.1			116			28.3		
IRON		14900			22600			24000			29200		
LEAD		20.1			74.4			39.3			5	J	K
MAGNESIUM		2740			2970			2580			907		
MANGANESE		166			331			530			352		
MERCURY		0.02	J	P	0.08	J	P	0.07			0.01	U	
MOLYBDENUM		0.16	U		0.56	J	P	1.1	J	P	0.43	J	P
NICKEL		13.8			21.9			18.3			8.5	J	C
POTASSIUM		413			829			707			289	J	K
SELENIUM		0.17	U		0.31	U		0.29	U		0.36	U	
SILVER		0.29	J	KP	0.36	UJ	AKP	0.68	J	KP	0.16	UJ	AKP
SODIUM		68.9	J	P	182			139			53.8	J	P
THALLIUM		0.03	UJ	AP	0.08	UJ	AP	0.04	UJ	AP	0.04	UJ	AP
VANADIUM		11.9			29.5			19			6.8		
ZINC		119			221			200			72.6		

PROJ_NO: 00816	NSAMPLE	DA-SD-RP05-0006
SDG: CTO402-11	LAB_ID	SB2709-013
FRACTION: M	SAMP_DATE	5/22/2008
MEDIA: SEDIMENT	QC_TYPE	NM
	UNITS	MG/KG
	PCT_SOLIDS	80.8
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	7800		
ANTIMONY	0.12	U	
ARSENIC	4.1	U	A
BARIUM	14.1		
BERYLLIUM	0.26	J	P
CADMIUM	0.22	UJ	KP
CALCIUM	992		
CHROMIUM	10.6		
COBALT	6.4		
COPPER	7.9		
IRON	16800		
LEAD	8.4		
MAGNESIUM	2860		
MANGANESE	174		
MERCURY	0.01	U	
MOLYBDENUM	0.17	J	P
NICKEL	14.5		
POTASSIUM	254		
SELENIUM	0.18	U	
SILVER	0.04	UJ	K
SODIUM	42.8	J	P
THALLIUM	0.03	UJ	AP
VANADIUM	11.3		
ZINC	53.4		

PROJ_NO: 00816	NSAMPLE	DA-SD-RP01-0006						DA-SD-RP02-0006					
SDG: CTO402-11	LAB_ID	SB2709-1						SB2709-4					
FRACTION: MISC	SAMP_DATE	5/22/2008						5/22/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	62.2			62.2			35.5			35.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.4						6.4		
TOTAL ORGANIC CARBON		16000						44000					

PROJ_NO: 00816	NSAMPLE	DA-SD-RP03-0006						DA-SD-RP04-0006					
SDG: CTO402-11	LAB_ID	SB2709-7						SB2709-10					
FRACTION: MISC	SAMP_DATE	5/22/2008						5/22/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	48.7			48.7			71.1			71.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.5						6.9		
TOTAL ORGANIC CARBON		75000						18000					

PROJ_NO: 00816	NSAMPLE	DA-SD-RP05-0006					
SDG: CTO402-11	LAB_ID	SB2709-13					
FRACTION: MISC	SAMP_DATE	5/22/2008					
MEDIA: SEDIMENT	QC_TYPE	NM					
	UNITS	MG/KG			S.U.		
	PCT_SOLIDS	80.8			80.8		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH					6.5		
TOTAL ORGANIC CARBON		16000					

PROJ_NO: 00816 SDG: CTO402-11 FRACTION: MISCO MEDIA: SEDIMENT	NSAMPLE	DA-SD-RP01-0006			DA-SD-RP02-0006			DA-SD-RP03-0006			DA-SD-RP04-0006		
	LAB_ID	753621			753622			753623			753624		
	SAMP_DATE	5/22/2008			5/22/2008			5/22/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HYDROMETER-1.4UM		0.5			1			1.1			0.2		
HYDROMETER-12.9UM		2			3.9			2.2			1.4		
HYDROMETER-21.5UM		3			5.8			11.2			0.5		
HYDROMETER-3.4UM		2			3.9			2.2			0.5		
HYDROMETER-32.8UM		15			58			29.3			6.6		
HYDROMETER-6.6UM		1			1.9			2.2			0.5		
HYDROMETER-9.1UM		1			1.9			0			0		
PERCENT CLAY		4.1			8.1			4.9			1		
PERCENT COARSE SAND		6.3			0.2			3			6.7		
PERCENT FINE SAND		46.6			17.6			34			30.8		
PERCENT GRAVEL		2			0.4			1.6			31.9		
PERCENT MEDIUM SAND		19			2.1			11.6			20.5		
PERCENT SILT		22			71.7			44.9			9		
SIEVE 1"		0			0			0			0		
SIEVE 1-1/2"		0			0			0			0		
SIEVE 2"		0			0			0			0		
SIEVE 3"		0			0			0			0		
SIEVE 3/4"		0			0			0			11.7		
SIEVE 3/8"		0			0			0			15.2		
SIEVE NO. 004		2			0.4			1.6			5		
SIEVE NO. 010		6.3			0.2			3			6.7		
SIEVE NO. 020		7.7			0.1			3.8			7.6		
SIEVE NO. 040		11.4			2			7.7			12.9		
SIEVE NO. 060		11.1			1.5			5.3			11.4		
SIEVE NO. 080		11.4			2.9			9			8.8		
SIEVE NO. 100		4			1.1			3.4			2.6		
SIEVE NO. 200		20			12.2			16.3			8		

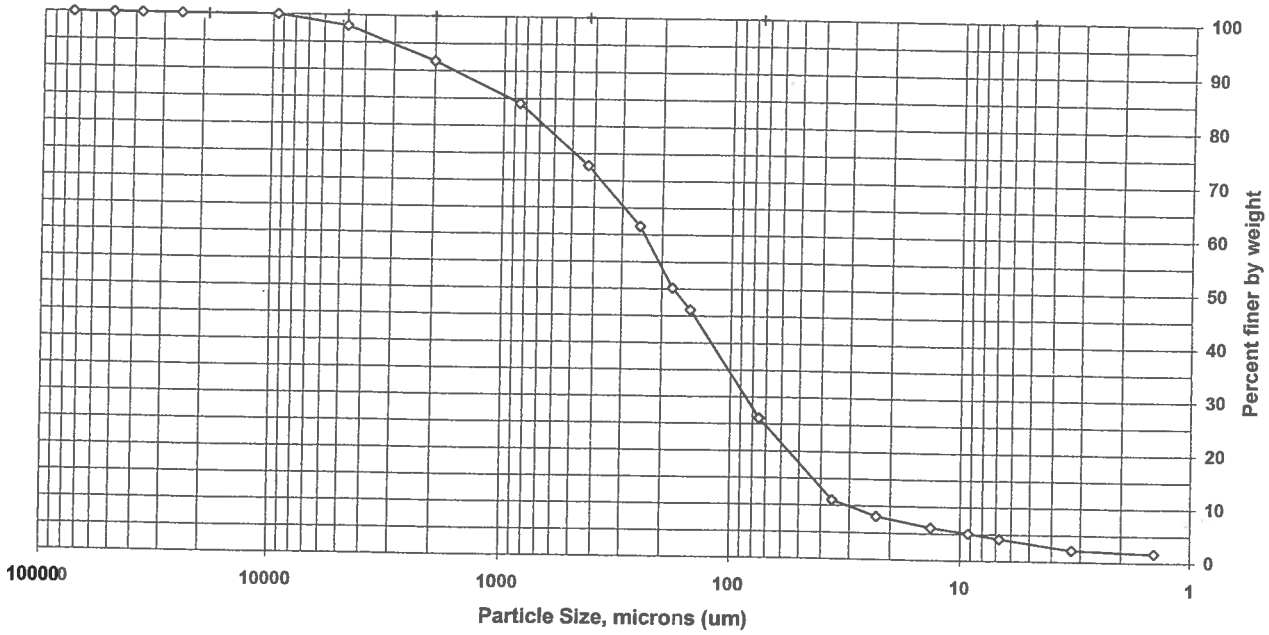
PROJ_NO: 00816	NSAMPLE	DA-SD-RP05-0006
SDG: CTO402-11	LAB_ID	753625
FRACTION: MISCO	SAMP_DATE	5/22/2008
MEDIA: SEDIMENT	QC_TYPE	NM
	UNITS	%
	PCT_SOLIDS	
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
HYDROMETER-1.4UM	0.8		
HYDROMETER-12.9UM	1		
HYDROMETER-21.5UM	1		
HYDROMETER-3.4UM	0.5		
HYDROMETER-32.8UM	0.2		
HYDROMETER-6.6UM	0.5		
HYDROMETER-9.1UM	0		
PERCENT CLAY	2.1		
PERCENT COARSE SAND	14.6		
PERCENT FINE SAND	29.6		
PERCENT GRAVEL	22		
PERCENT MEDIUM SAND	28.9		
PERCENT SILT	2.7		
SIEVE 1"	0		
SIEVE 1-1/2"	0		
SIEVE 2"	0		
SIEVE 3"	0		
SIEVE 3/4"	0		
SIEVE 3/8"	10.4		
SIEVE NO. 004	11.7		
SIEVE NO. 010	14.6		
SIEVE NO. 020	11		
SIEVE NO. 040	17.9		
SIEVE NO. 060	13.5		
SIEVE NO. 080	7.8		
SIEVE NO. 100	2.1		
SIEVE NO. 200	6.3		

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP01-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753621			**End Date:**	6/4/2008

Percent Solids:	48.1%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.0	2.0
#10	2000	91.8	6.3
#20	850	84.1	7.7
#40	425	72.7	11.4
#60	250	61.6	11.1
#80	180	50.2	11.4
#100	150	46.2	4.0
#200	75	26.1	20.0
Hydrometer	35.8	11.1	15.0
I	23.0	8.1	3.0
I	13.4	6.1	2.0
I	9.2	5.1	1.0
I	6.7	4.1	1.0
I	3.3	2.1	2.0
V	1.4	1.7	0.5

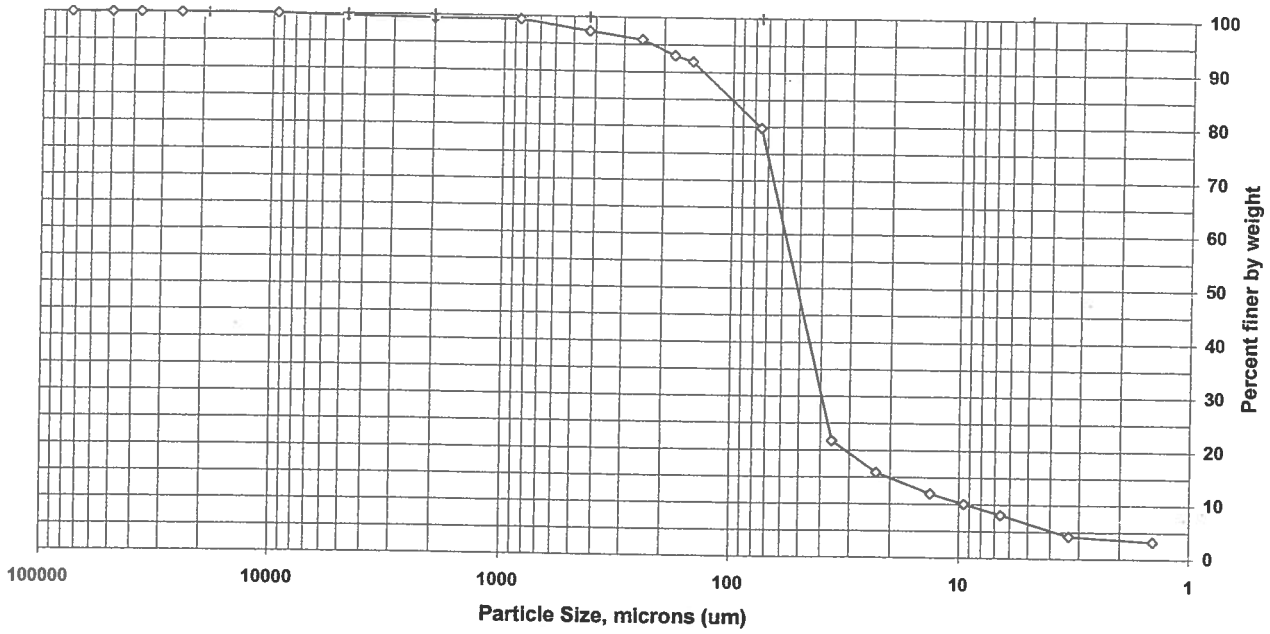
Soil Classification	Percent of Total Sample
Gravel	2.0
Sand	71.9
Coarse Sand	6.3
Medium Sand	19.0
Fine Sand	46.6
Silt	22.0
Clay	4.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP02-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753622			**End Date:**	6/4/2008

Percent Solids:	28.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	99.4	0.2
#20	850	99.3	0.1
#40	425	97.4	2.0
#60	250	95.9	1.5
#80	180	93.0	2.9
#100	150	91.9	1.1
#200	75	79.8	12.2
Hydrometer	35.8	21.7	58.0
|	23.0	15.9	5.8
|	13.4	12.0	3.9
|	9.5	10.1	1.9
|	6.6	8.1	1.9
|	3.3	4.2	3.9
V	1.4	3.2	1.0

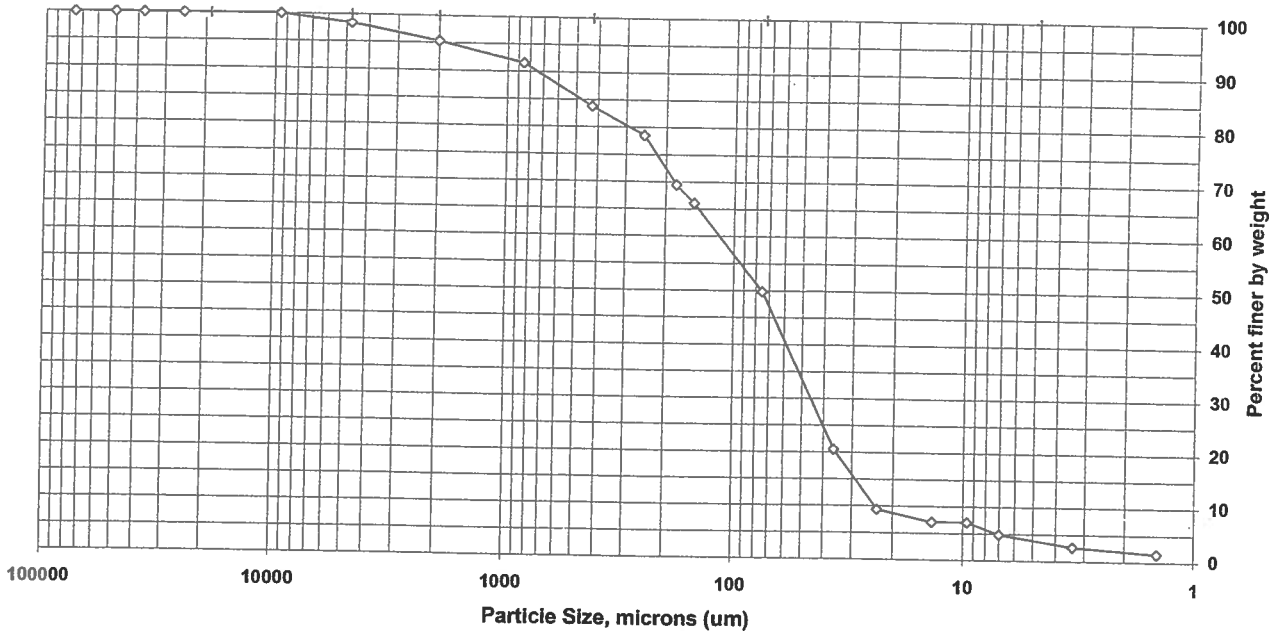
Soil Classification	Percent of Total Sample
Gravel	0.4
Sand	19.9
Coarse Sand	0.2
Medium Sand	2.1
Fine Sand	17.6
Silt	71.7
Clay	8.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP03-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753623			**End Date:**	6/4/2008

Percent Solids:	22.5%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.4	1.6
#10	2000	95.3	3.0
#20	850	91.5	3.8
#40	425	83.8	7.7
#60	250	78.5	5.3
#80	180	69.5	9.0
#100	150	66.1	3.4
#200	75	49.8	16.3
Hydrometer	36.1	20.6	29.3
|	23.4	9.3	11.2
|	13.6	7.1	2.2
|	9.6	7.1	0.0
|	7.0	4.9	2.2
|	3.4	2.6	2.2
V	1.4	1.5	1.1

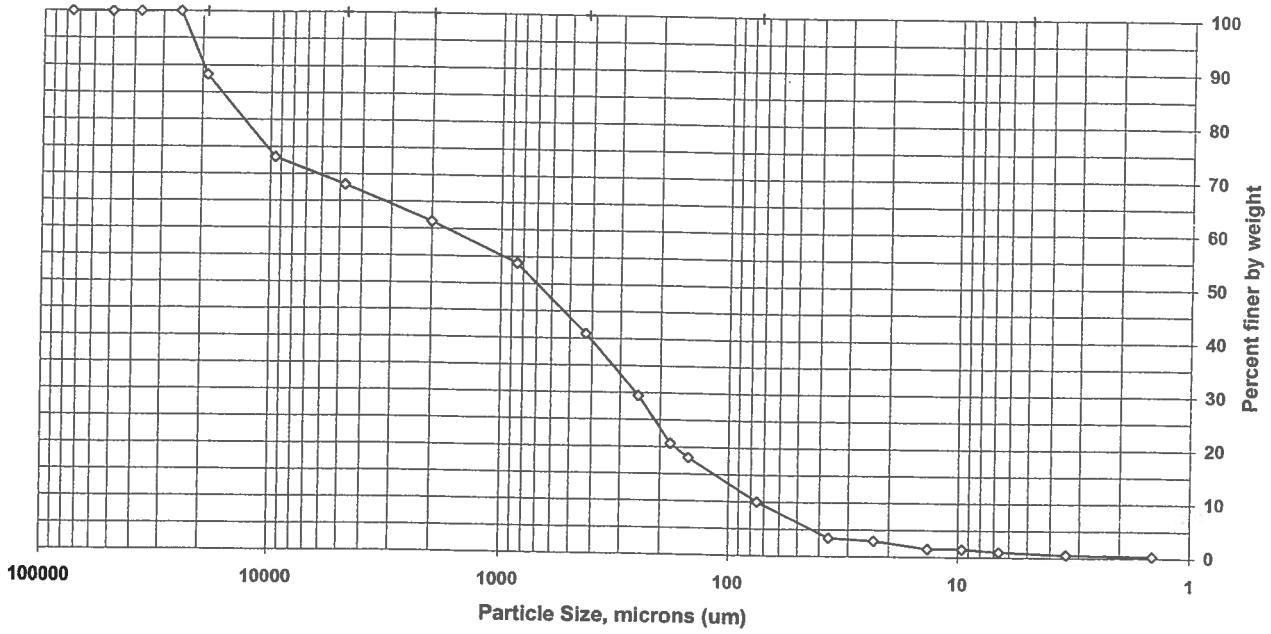
Soil Classification	Percent of Total Sample
Gravel	1.6
Sand	48.6
Coarse Sand	3.0
Medium Sand	11.6
Fine Sand	34.0
Silt	44.9
Clay	4.9

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP04-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753624			**End Date:**	6/4/2008

Percent Solids:	74.6%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	25 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	88.3	11.7
3/8 inch	9500	73.1	15.2
#4	4750	68.1	5.0
#10	2000	61.3	6.7
#20	850	53.8	7.6
#40	425	40.9	12.9
#60	250	29.4	11.4
#80	180	20.7	8.8
#100	150	18.1	2.6
#200	75	10.1	8.0
Hydrometer	36.5	3.4	6.6
|	23.2	3.0	0.5
|	13.6	1.5	1.4
|	9.6	1.5	0.0
|	6.6	1.0	0.5
|	3.4	0.6	0.5
V	1.4	0.3	0.2

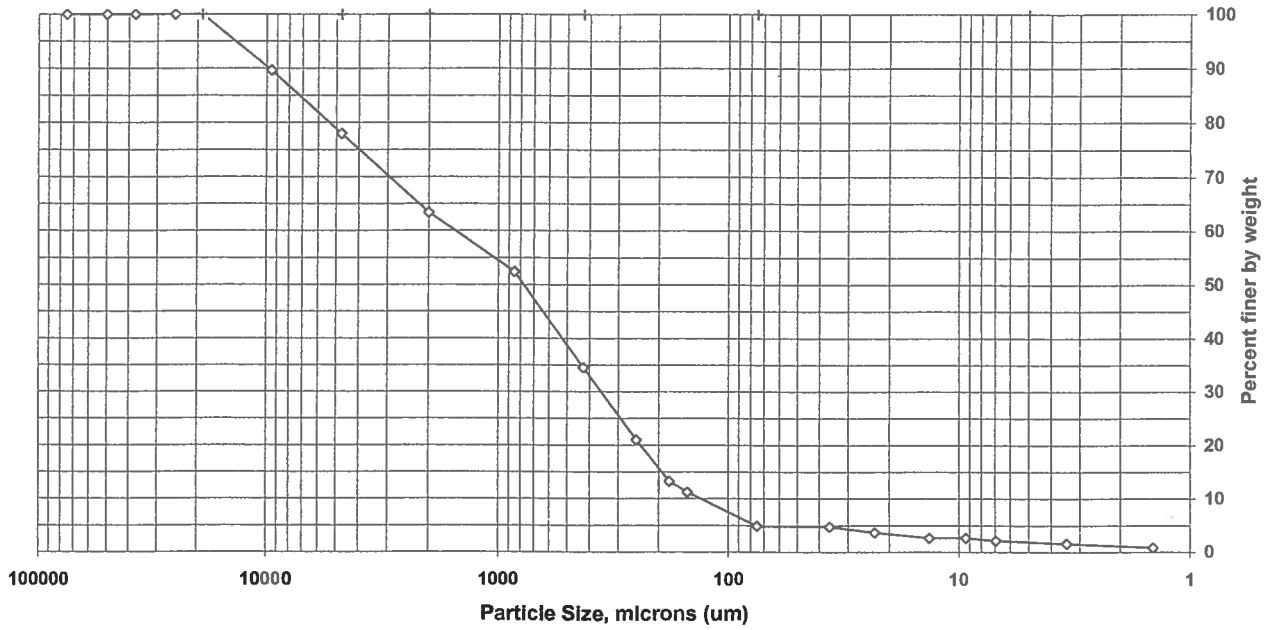
Soil Classification	Percent of Total Sample
Gravel	31.9
Sand	58.0
Coarse Sand	6.7
Medium Sand	20.5
Fine Sand	30.8
Silt	9.0
Clay	1.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	CT040211	**Date Received:**	5/29/2008
Sample ID:	DA-SD-RP05-0006	**ETR(s):**	125725	**Start Date:**	5/29/2008
Lab ID:	753625			**End Date:**	6/4/2008

Percent Solids:	74.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	89.6	10.4
#4	4750	78.0	11.7
#10	2000	63.4	14.6
#20	850	52.4	11.0
#40	425	34.5	17.9
#60	250	21.0	13.5
#80	180	13.3	7.8
#100	150	11.2	2.1
#200	75	4.9	6.3
Hydrometer	36.1	4.7	0.2
I	23.1	3.7	1.0
I	13.4	2.7	1.0
I	9.3	2.7	0.0
I	6.9	2.1	0.5
I	3.4	1.6	0.5
V	1.4	0.9	0.8

Soil Classification	Percent of Total Sample
Gravel	22.0
Sand	73.1
Coarse Sand	14.6
Medium Sand	28.9
Fine Sand	29.6
Silt	2.7
Clay	2.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2730W

Date: May 13, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO403-1
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:
17/Soils/

DA-SB121-0406	DA-SB122-0407	DA-SB123-0508
DA-SB126-1013	DA-SB128-0810	DA-SB129-0406
DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406
DA-SB134-0405	DA-SB135-1214	DA-SB136-0810
DA-SB137-0406	DA-SB138-0406	DA-SB139-1012
DA-SBDUP01	DA-SBDUP02	

(Field Duplicate Pairs: DA-SB138-0406/DA-SBDUP01, DA-SB128-0810/DA-SBDUP02)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from February 21-26, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

	• Data Completeness
*	• Holding Times
*	• Calibration Verification
*	• ICP-MS Tune
	• Laboratory and Field Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
	• Field Duplicate Precision
*	• ICP Serial Dilution Results
*	• Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The sample ID DA-SB139-1012 was incorrectly transcribed by the laboratory. On April 22, 2008, the laboratory resubmitted an updated narrative to reflect the correct sample ID.

Laboratory and Field Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory and field blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Thallium	0.17 µg/L	0.085 mg/kg	DA-SB121-0406, DA-SB122-0407, DA-SB128-0810, DA-SB129-0406, DA-SB130-1011.5, DA-SB131-0406, DA-SB132-0406, DA-SB137-0406, DA-SBDUP01
Sodium	6.183 mg/kg	30.9 mg/kg	DA-SB126-1013, DA-SB134-0405, DA-SB135-1214, DA-SB136-0810, DA-SBDUP02

The positive thallium and sodium results below the blank action level were changed to estimated, non-detected values (UJ) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids; 1 g (ICP metals) of sample analyzed; and a dilution factor of 5 (thallium). The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although thallium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits established for sodium. The non-detected results in the affected samples are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron and aluminum in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Silver	J	UJ	Low	All samples, except DA-SB136-0810
Antimony	UJ		High	DA-SB121-0406, DA-SB122-0407, DA-SB129-0406
	J			DA-SB132-0406
Cadmium	J	UJ	Low	All samples, except DA-SB132-0406
Molybdenum	J	UJ	Low	All samples

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Lead	J		High	DA-SB135-1214 and DA-SB139-1012

The positive results for antimony and lead in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron and aluminum. These results may be biased high.

The positive results are estimated (J) and the non-detected results are estimated (UJ) for silver, cadmium, and molybdenum in the affected samples due to negative ICP interference attributed to iron and aluminum. These results may be biased low.

Professional judgment was used to change the positive antimony results to estimated, non-detected values (UJ) in the affected samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron and aluminum ICP interference. The results may be false positive.

Although there were ICP interferences attributed to the high concentration of iron and aluminum in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for antimony and lead in the affected samples are usable as estimated values which may be biased high. The positive and non-detected silver, cadmium, and molybdenum results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences attributed to the high concentration of iron and aluminum in the samples listed above, the project sensitivity goals are not impacted. The positive results for antimony in samples DA-SB121-0406, DA-SB122-0407, and DA-SB129-0406 which had estimated interference greater than 80% may be entirely due to iron interference. However, the elevated reporting limits for these antimony results do not exceed the project action limit for antimony. The antimony results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB131-0406 that were outside of the 75-125% recovery QC limits:

Analyte	% Recovery	Action	
		(+)	NDs
Antimony	37.2, 34.1	J	UJ
Lead	130	J	
Silver	166	J	
Potassium	143	J	
Vanadium	126	J	

Although the percent recovery criteria were not met for antimony, lead, silver, and potassium, the project accuracy goals are only slightly impacted. The positive lead, silver, and potassium results are usable as estimated values which may be biased high. The positive and non-detected antimony results are usable as estimated values and estimated reporting limits which may be biased low.

The percent recovery criteria were not met for vanadium, therefore the project accuracy goals may be impacted since the project quantitation limit for vanadium exceeds the project action limit. The positive vanadium results are usable as estimated values which may be biased high.

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB135-1214 that were outside of the 75-125% recovery QC limits:

Analyte	% Recovery	Action	
		(+)	NDs
Antimony	25.5, 27.5	J	UJ
Chromium	142	J	
Copper	140	J	

Although the percent recovery criteria were not met for antimony and copper, the project accuracy goals are only slightly impacted. The positive copper results are usable as estimated values which may be biased high. The positive and non-detected antimony results are usable as estimated values and estimated reporting limits which may be biased low.

The percent recovery criteria were not met for chromium; therefore the project accuracy goals may be impacted since the project quantitation limit for chromium exceeds the project action limit. The positive vanadium results are usable as estimated values which may be biased high.

Field Duplicate Precision

The results for the field duplicate pair DA-SB128-0810/DA-SBDUP02 were above the 50 percent relative percent difference (RPD) criterion for molybdenum. The positive molybdenum results are estimated (J) in the affected samples.

Although the RPD in the field duplicate analyses did not meet QC limits for molybdenum, the project precision goals may be only slightly impacted. The positive molybdenum results are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The positive results below than the laboratory's quantitation limit and above the instrument detection limit are estimated (J) due to uncertainty below the quantitation limit.

The project action limits were achieved for all metals.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Select metals were qualified as estimated due to ICP interference due to high iron and aluminum concentration and poor matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results

are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set with the following exception. Molybdenum was qualified as estimated due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set. Data usability is not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-SB121-0406			DA-SB122-0407			DA-SB123-0508			DA-SB126-1013		
SDG: CTO403-1	LAB_ID	SB0983-001			SB0983-005			SB0959-011			SB0983-003		
FRACTION: M	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9600			11800			14800			16700		
ANTIMONY		0.06	UJ	DKP	0.22	UJ	DKP	0.11	UJ	D	0.11	UJ	D
ARSENIC		15.3			9.8			13.9			4.7		
BARIUM		14.7			42			16.8			12.9		
BERYLLIUM		0.42	J	P	0.55			0.42	J	P	0.28	J	P
CADMIUM		0.23	J	KP	0.17	J	KP	0.02	UJ	K	0.02	UJ	K
CALCIUM		5070			35700			1520			1170		
CHROMIUM		21.1	J	D	14.7	J	D	19.4	J	D	21.6	J	D
COBALT		8.8			7.7			16.5			18.6		
COPPER		17.8	J	D	17.7	J	D	31.8	J	D	20.5	J	D
IRON		21400			20000			35200			32800		
LEAD		9.7	J	D	13.9	J	D	18.4	J	D	15.1	J	D
MAGNESIUM		4700			4620			4700			5580		
MANGANESE		361			322			565			553		
MERCURY		0.02	J	P	0.02	J	P	0.01	U		0.01	U	
MOLYBDENUM		0.75	J	GKP	0.44	J	GKP	0.64	J	GKP	0.13	J	GKP
NICKEL		18.4			14.9			33.1			31.2		
POTASSIUM		732	J	D	907	J	D	406	J	D	240	J	D
SELENIUM		0.36	U		0.35	U		0.74	U		0.73	U	
SILVER		0.07	UJ	K	0.06	UJ	K	0.13	UJ	K	0.4	J	DKP
SODIUM		95	J	P	109			31.8	J	P	21.4	UJ	AP
THALLIUM		0.02	UJ	AP	0.02	UJ	AP	0.01	U		0.01	U	
VANADIUM		22.4	J	D	16.2	J	D	17.9	J	D	19.2	J	D
ZINC		48.6			47.6			69.8			66.6		

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SB128-0810			DA-SB129-0406			DA-SB130-1011.5			DA-SB131-0406		
	LAB_ID	SB0959-003			SB0983-007			SB0959-009			SB0959-007		
	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		17400			12500			12900			12500		
ANTIMONY		0.11	UJ	D	0.2	UJ	DKP	0.11	UJ	D	0.1	UJ	D
ARSENIC		9			16.1			26.2			17.7		
BARIUM		34.4			50.8			23.9			23.6		
BERYLLIUM		0.5			0.53			0.46	J	P	0.4	J	P
CADMIUM		0.29	J	KP	0.57	J	KP	0.02	UJ	K	0.01	UJ	K
CALCIUM		3360			9590			4050			7190		
CHROMIUM		23.3	J	D	15.7	J	D	17.2	J	D	16.9	J	D
COBALT		18.4			9.5			18.3			11.2		
COPPER		39.6	J	D	32	J	D	23.8	J	D	20.8	J	D
IRON		42200			22800			31600			28200		
LEAD		110	J	D	66.8	J	D	19.3	J	D	21.3	J	D
MAGNESIUM		5980			3090			3660			3630		
MANGANESE		1200			314			745			352		
MERCURY		0.02	J	P	0.12			0.02	J	P	0.03	J	P
MOLYBDENUM		1.9	J	GK	0.64	J	GKP	0.63	J	GKP	0.36	J	GKP
NICKEL		36.6			24.5			29.5			20.7		
POTASSIUM		338	J	D	627	J	D	384	J	D	460	J	D
SELENIUM		0.73	U		0.38	U		0.74	U		0.71	U	
SILVER		0.13	UJ	K	0.07	UJ	K	0.16	J	DKP	0.17	J	DKP
SODIUM		33.9	J	P	74.7	J	P	47	J	P	66.9	J	P
THALLIUM		0.02	UJ	AP	0.04	UJ	AP	0.03	UJ	AP	0.02	UJ	AP
VANADIUM		19.5	J	D	18.9	J	D	21.2	J	D	20	J	D
ZINC		86.8			144			62.3			54.1		

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SB132-0406			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
	LAB_ID	SB0959-001			SB0932-001			SB0983-009			SB0932-003		
	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		13800			23300			25900			17700		
ANTIMONY		1.6	J	DK	0.1	UJ	D	0.17	UJ	D	0.1	UJ	D
ARSENIC		15.6			5.2			4.5			7.9		
BARIUM		95.4			9.2			8			20.7		
BERYLLIUM		0.42	J	P	0.28	J	P	0.29	J	P	0.26	J	P
CADMIUM		8.8			0.01	UJ	K	0.02	UJ	K	0.01	UJ	K
CALCIUM		6010			1550			1310			244		
CHROMIUM		25.2	J	D	32	J	D	27.4	J	D	26	J	D
COBALT		14			21.1			15.9			22.6		
COPPER		132	J	D	26	J	D	15.2	J	D	21.7	J	D
IRON		31800			49400			61400			48600		
LEAD		926	J	D	13.2	J	D	10.4	J	DK	10.1	J	D
MAGNESIUM		4400			9250			8500			4990		
MANGANESE		560			647			363			870		
MERCURY		0.05			0.01	U		0.01	U		0.01	U	
MOLYBDENUM		2.2	J	GK	0.12	J	GKP	2.5	J	GK	0.9	J	GK
NICKEL		31.7			46			23.9			35.1		
POTASSIUM		379	J	D	174	J	D	196	J	D	253	J	D
SELENIUM		0.76	U		0.7	U		1.13	U		0.68	U	
SILVER		0.54	J	DKP	0.13	UJ	K	0.67	J	DKP	0.12	U	
SODIUM		77.8	J	P	20.3	UJ	AP	21.6	UJ	AP	27.5	UJ	AP
THALLIUM		0.07	UJ	AP	0.01	U		0.02	U		0.01	U	
VANADIUM		27.6	J	D	23.4	J	D	53.8	J	D	32.1	J	D
ZINC		381			84.9			86			83.2		

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012			DA-SBDUP01		
	LAB_ID	SB0920-001			SB0920-003			SB0920-005			SB0920-007		
	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		17400			11200			27200			12000		
ANTIMONY		0.14	UJ	D	0.1	UJ	D	0.14	UJ	D	0.1	UJ	D
ARSENIC		16.2			30.3			11.9			28.8		
BARIUM		17.3			25.1			9			21.8		
BERYLLIUM		0.7			0.5			0.34	J	P	0.48		
CADMIUM		0.02	UJ	K	0.01	UJ	K	0.02	UJ	K	0.01	UJ	K
CALCIUM		268			696			2350			503		
CHROMIUM		18.8	J	D	16.4	J	D	33.6	J	D	17.4	J	D
COBALT		25			18.1			30.5			18.8		
COPPER		22.7	J	D	26.6	J	D	29.5	J	D	35	J	D
IRON		54600			45100			69200			47100		
LEAD		12.3	J	D	9.6	J	D	10.7	J	DK	10.4	J	D
MAGNESIUM		4920			3760			9600			4110		
MANGANESE		978			786			1350			691		
MERCURY		0.01	J	P	0.01	U		0.01	U		0.01	U	
MOLYBDENUM		0.14	J	GKP	0.67	J	GKP	0.02	UJ	K	0.49	J	GKP
NICKEL		31.8			36.7			53.9			36.9		
POTASSIUM		294	J	D	650	J	D	333	J	D	489	J	D
SELENIUM		0.94	U		0.68	U		0.94	U		0.69	U	
SILVER		0.17	UJ	K	0.12	UJ	K	0.17	UJ	K	0.12	UJ	K
SODIUM		30.1	J	P	107			61	J	P	70.7	J	P
THALLIUM		0.06	UJ	AP	0.1	J	P	0.02	U		0.04	UJ	AP
VANADIUM		20.8	J	D	19.8	J	D	34.3	J	D	18.4	J	D
ZINC		96.4			81			106			82		

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SBDUP02		
	LAB_ID	SB0959-005		
	SAMP_DATE	2/25/2008		
	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	88.8		
	DUP_OF	DA-SB128-0810		
PARAMETER		RESULT	VQL	QLCD
ALUMINUM		16500		
ANTIMONY		0.11	UJ	D
ARSENIC		8.8		
BARIUM		46.4		
BERYLLIUM		0.42	J	P
CADMIUM		0.53	J	KP
CALCIUM		2430		
CHROMIUM		22.2	J	D
COBALT		20.3		
COPPER		26.5	J	D
IRON		35000		
LEAD		124	J	D
MAGNESIUM		5640		
MANGANESE		900		
MERCURY		0.02	J	P
MOLYBDENUM		0.61	J	GKP
NICKEL		36.8		
POTASSIUM		357	J	D
SELENIUM		0.77	U	
SILVER		0.14	UJ	K
SODIUM		31	UJ	AP
THALLIUM		0.02	U	
VANADIUM		20.2	J	D
ZINC		83		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2723W

Date: May 9, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-1
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

17/Soils/	DA-SB121-0406	DA-SB122-0407	DA-SB123-0508
	DA-SB126-1013	DA-SB128-0810	DA-SB129-0406
	DA-SB130-1011.5	DA-SB131-0406	DA-SB132-0406
	DA-SB134-0405	DA-SB135-1214	DA-SB136-0810
	DA-SB137-0406	DA-SB138-0406	DA-SB139-1012
	DA-SBDUP01	DA-SBDUP02	

(Field Duplicate Pairs: DA-SB138-0406/DA-SBDUP01, DA-SB128-0810/DA-SBDUP02)

VOC/GRO:

4/Trip Blanks/	TB-022108	DA-TB-022208	DA-SBTB0222508
	TB022608		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from February 21-26, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Instrument Performance Check: Pesticide Degradation
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- * Field Duplicates
- Analyte Identification/Quantitation
- * Percent Solids
- Reporting Limits

* All criteria were met for this parameter.

Data Completeness

On April 14, 2008, the laboratory submitted an addendum to the semivolatile SIM mode analysis for samples DA-SB-128-0810, DA-SBDUP02, and DA-SB130-1011.5.

The sample ID DA-SB139-1012 was incorrectly transcribed by the laboratory. On April 22, 2008, the laboratory resubmitted an updated narrative to reflect the correct sample ID.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Methylene chloride	-32.30	J	UJ	TB-022108, DA-TB-022208, DA-SB137-0406, DA-SB138-0406, DA-SB139-1012, DA-SBDUP01, DA-SB134-0405, DA-SB136-0810
trans-1,2-Dichloroethene	-28.19		UJ	
Tetrachloroethene	-27.86		UJ	
1,2,3-Trichlorobenzene	-26.16, -26.98		UJ	TB-022108, DA-TB-022208, DA-SB137-0406, DA-SB138-0406, DA-SB139-1012, DA-SBDUP01, DA-SB134-0405, DA-SB136-0810, DA-SBTB022508, DA-SB128-0810, DA-SBDUP02, DA-SB130-1011.5, DA-SB123-0508, DA-SB126-1013
1,2-Dibromo-3-chloropropane	60.68		UJ	DA-SB122-0407(RA), DA-SB126-1013(RA)

Although the %D was outside of the QC limits for methylene chloride, trans-1,2-dichloroethene, tetrachloroethene, 1,2,3-trichlorobenzene, and 1,2-dibromo-3-chloropropane, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the compounds or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	54.5		UJ	All semivolatile samples

Although the %RSD was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Pentachlorophenol	-29.27, -26.28, -26.39		UJ	DA-SB137-0406, DA-SB138-0406, DA-SBDUP01, DA-SB135-1214, DA-SB126-1013, DA-SB129-0406, DA-SB121-0406(RERA)
Benzidine	-53.42, -73.04, -60.88, -91.24, -83.92		UJ	DA-SB137-0406, DA-SB138-0406, DA-SBDUP01, DA-SB139-1012(RA), DA-SB134-0405, DA-SB136-0810, DA-SB123-0508, DA-SB131-0406, DA-SB130-1011.5, DA-SBDUP02, DA-SB132-0406, DA-SB128-0810, DA-SB135-1214, DA-SB126-1013, DA-SB129-0406, DA-SB122-0407, DA-SB121-0406(RERA)
3,3'-Dichlorobenzidine	-26.29, -28.72, -42.85		UJ	DA-SB137-0406, DA-SB138-0406, DA-SBDUP01, DA-SB139-1012(RA), DA-SB134-0405, DA-SB136-0810, DA-SB123-0508, DA-SB131-0406, DA-SB130-1011.5, DA-SBDUP02, DA-SB132-0406, DA-SB128-0810, DA-SB122-0407
Carbazole	28.25, 27.18	J	UJ	DA-SB139-1012(RA), DA-SB134-0405, DA-SB136-0810, DA-SB123-0508, DA-SB131-0406, DA-SB130-1011.5, DA-SBDUP02, DA-SB132-0406, DA-SB128-0810, DA-SB121-0406(RERA)
Benzoic acid	-27.27, -28.94		UJ	DA-SB135-1214, DA-SB126-1013, DA-SB129-0406, DA-SB122-0407
Pyrene	30.91	J		DA-SB121-0406(RERA)
Butylbenzylphthalate	28.64		UJ	

Although the %D method criterion was outside of the QC limits for pentachlorophenol, benzidine, 3,3'-dichlorobenzidine, carbazole, benzoic acid, pyrene, butylbenzylphthalate, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the compounds or there are no regulatory limits established for the affected compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Indeno(1,2,3-cd)pyrene	-43.41	J	UJ	DA-SB135-1214, DA-SB121-0406(RA)
Dibenzo(a,h)anthracene	-31.03, -31.22	J	UJ	DA-SB135-1214, DA-SB121-0406(RA), DA-SB130-1011.5
Benzo(g,h,i)perylene	-54.92, -37.10	J	UJ	
Benzo(a)anthracene	38.14	J		DA-SB130-1011.5

Although the %D method criterion was outside of the QC limits for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, and benzo(a)anthracene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
delta-BHC	-41.40, -27.00	-42.60, -25.80		UJ	DA-SB132-0406, DA-SB128-0810, DA-SB131-0406, DA-SB130-1011.5, DA-SB123-0508, DA-SB134-0405, DA-SB136-0810, DA-SB121-0406, DA-SB126-1013, DA-SB122-0407, DA-SB129-0406, DA-SB135-1214
4,4'-DDT	-27.60, -72.20	-28.00, -73.00	J	UJ	
Endosulfan sulfate	-45.80, -31.40	-48.40, -34.60	J	UJ	
Heptachlor	-29.40	-35.60	J	UJ	DA-SB131-0406, DA-SB130-1011.5, DA-SB123-0508, DA-SB134-0405, DA-SB136-0810, DA-SB121-0406, DA-SB126-1013, DA-SB122-0407, DA-SB129-0406, DA-SB135-1214
4,4'-DDD	51.00	52.20		UJ	
Methoxychlor	-56.60	-59.20		UJ	

Although the %D method criteria were outside of the QC limits for the above analytes, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the trip blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (ug/Kg)	Action Level (ug/Kg)	Affected Samples
Methylene chloride	Trip	3	30	DA-SB134-0405, DA-SBDUP01
Carbon disulfide	Trip	2	10	DA-SBDUP01

Blank actions were applied to the affected samples due to methylene chloride and carbon disulfide trip blank contamination. (The 10x rule applies for the common laboratory contaminant methylene chloride, and the 5x rule applies for carbon disulfide). The positive methylene chloride and carbon disulfide results below the blank action level in the affected samples are changed to non-detected values at elevated reporting limits.

Although methylene chloride and carbon disulfide contamination was found in the trip blank, the project sensitivity goals are not impacted since the elevated reporting limits do not exceed the project action limits for methylene chloride or carbon disulfide. The results in the affected samples are usable with elevated detection limits.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	1.2	6	All soil samples, except DA-SB121-0406

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there is no regulatory limit for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB122-0407(RA)	Dibromofluoromethane	42	61-98	J	UJ

The surrogate dibromofluoromethane recovered outside the QC limits in sample DA-SB122-0407(RA). The positive results are estimated (J) and the non-detected results are estimated (UJ) in sample DA-SB122-0407(RA) due to a low surrogate recovery.

Although the surrogate recovery QC criteria were not met for dibromofluoromethane, the project accuracy goals are only slightly impacted. The positive and non-detected results in sample DA-SB122-0407(RA) are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB121-0406(RERA)	TPH	164	45-133	J	
DA-SB122-0407	2-Fluorophenol	10	34-102	J	UJ
	TBP	8	28-117		

The surrogates terphenyl-d14 (TPH), 2-fluorophenol, and 2,4,6-tribromophenol (TBP) recovered outside the QC limits in the semivolatile samples above. All positive base neutral compound results are estimated (J) in sample DA-SB121-0406(RERA) due to a high surrogate recoveries. All phenolic compound positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-SB122-0407 due to low surrogate recoveries.

Although the surrogate recovery QC criteria were not met for terphenyl-d14, 2-fluorophenol, and 2,4,6-tribromophenol, the project accuracy goals are only slightly impacted. The positive base neutral results in sample DA-SB121-0406(RERA) are usable as estimated values which may be biased high. The positive and non-detected phenolic compound results in sample DA-SB122-0407 are usable as estimated values and estimated quantitation limits which may be biased low.

Internal Standards

Semivolatiles

The following table summarizes the semivolatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Perylene-d12	155203	215087-860348		UJ	DA-SB121-0406(RERA)

The internal standard area of perylene-d12 failed to meet the acceptable range for sample DA-SB121-0406(RERA). The target compound associated with perylene-d12 reported for this SVOC full scan analysis is di-n-octylphthalate. The non-detected result is estimated (UJ) in sample DA-SB121-0406(RERA).

Although the QC criteria were not met for the internal standard area of perylene-d12, the project accuracy goals are only slightly impacted. The non-detected di-n-octylphthalate result in the affected sample is usable as an estimated quantitation limit.

PAH

The following table summarizes the PAH internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Chrysene-d12	5556	9288-37150	J	UJ	DA-SB121-0406(RA)
Perylene-d12	3052	4879-19514	J	UJ	

The internal standard areas of chrysene-d12 and perylene-d12 failed to meet the acceptable range for sample DA-SB121-0406(RA). The target compound associated with chrysene-d12 reported from this SIM analysis is benzo(a)anthracene. The target compounds associated with perylene-d12 are benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in sample DA-SB121-0406(RA).

Although the QC criteria were not met for the internal standard areas of chrysene-d12 and perylene-d12, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected sample are usable as estimated values and estimated quantitation limits.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SB131-0406 recovered the majority of the volatile compounds below the compound-specific recovery limits and above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-SB131-0406 due to low MS/MSD recoveries and MS/MSD imprecision.

The project accuracy goals may be slightly impacted for sample DA-SB131-0406 because the matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-SB131-0406 are usable as estimated values and estimated quantitation limits which may be biased low.

The project precision goals may be slightly impacted for sample DA-SB131-0406 because the matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-SB131-0406 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Semivolatiles

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB131-0406 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Pyrene	142	50-114	J	
Benzo(a)anthracene	120	45-111	J	
Benzo(b)fluoranthene	116	47-114	J	
Benzo(a)pyrene	122	45-119	J	

Although the percent recovery criterion was exceeded for pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and benzo(a)pyrene, the project accuracy goals are only slightly impacted. The positive pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and benzo(a)pyrene results in sample DA-SB131-0406 are usable as estimated values and estimated quantitation limits which may be biased high.

PAH

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB131-0406 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Naphthalene	112, 157	33-103	J	
Acenaphthene	140	44-102	J	
Fluorene	163	48-120	J	
Anthracene	189	42-117	J	

Although the percent recovery criterion was exceeded for naphthalene, acenaphthene, fluorene, and anthracene, the project accuracy goals are only slightly impacted. The positive naphthalene, acenaphthene, fluorene, and anthracene results in sample DA-SB131-0406 are usable as estimated values and estimated quantitation limits which may be biased high.

ExTPH

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB131-0406 that were outside of the QC limits:

Analyte	% Rec.	% Rec. QC Limits	RPD	RPD QC Limits	Action	
					(+)	NDs
ExTPH	18	32-121	1000	50	J	

Although the percent recovery criterion was not met for ExTPH, the project accuracy goals are only slightly impacted. The positive ExTPH result in sample DA-SB131-0406 is usable as an estimated value which may be biased low.

Although the relative percent difference criterion was not met for ExTPH, the project precision goals are only slightly impacted. The positive ExTPH result in sample DA-SB131-0406 is usable as an estimated value for which the bias is indeterminate.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromochloromethane	46, 51, 49, 52	81-127		UJ	All samples
Toluene	85	86-120		UJ	TB-022108, DA-TB-022208, DA-SB137-0406, DA-SB139-1012, DA-SB134-0405, DA-SB138-0406, DA-SBDUP01, DA-SB136-0810
Ethylbenzene	86	88-114		UJ	

Although the LCS recoveries for bromochloromethane were below the QC limits, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Although the LCS recoveries for toluene and ethylbenzene were below the QC limits, the project accuracy goals are only slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Carbazole	128	51-119	J		DA-SB122-0407, DA-SB128-0810, DA-SB130-1011.5, DA-SB132-0406, DA-SBDUP02

Although the LCS recovery for carbazole was above the QC limits, the project accuracy goals are only slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

PAH

The following table summarizes the PAH compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Acenaphthylene	39	50-115		UJ	DA-SB135-1214

Although the LCS recovery for acenaphthylene was below the QC limits for sample DA-SB135-1214, the project accuracy goals are only slightly impacted. The non-detected result in the affected sample is usable as an estimated quantitation limit which may be biased low.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compounds in the following samples:

Sample	Analyte	%RPD	Action	
			(+)	NDs
DA-SB121-0406	Heptachlor	46.5	J	
DA-SB129-0406	4,4'-DDT	81.0	J	

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in Table 4-2B in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

PAH results beyond the linear calibration range of the instrument in the SVOC SIM analysis are reported in the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in Table 4-2C in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low surrogate recoveries, low matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set with the following exception. Sample DA-SB131-0406 results were qualified as estimated due to matrix spike/matrix spike duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, poor internal standard performance, high matrix spike recoveries, and high laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor internal standard performance, high matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PAH data set. Data usability was not impacted with regards to precision and sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCB and GRO

The project goals with respect to accuracy, precision, and sensitivity were met for the PCB and GRO data sets. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

ExTPH

The project goals with respect to accuracy were met for the ExTPH data set with the following exception. The ExTPH result for sample DA-SB131-0406 was qualified as estimated due to low matrix spike recoveries. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the ExTPH data set with the following exception. The ExTPH result for sample DA-SB131-0406 was qualified as estimated due to matrix spike imprecision. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the ExTPH data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB121-0406RA			DA-SB122-0407RA2			DA-SB123-0508			DA-SB126-1013RA		
	LAB_ID	SB0983-1RA			SB0983-5RA2			SB0959-11			SB0983-3RA		
	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	UJ	R	5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	UJ	R	5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	UJ	R	5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	UJ	R	5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	UJ	R	5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	UJ	R	5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	UJ	R	5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	UJ	R	5	UJ	C	5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	UJ	R	5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	UJ	R	5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	UJ	R	5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	UJ	CR	5	U		5	UJ	C
1,2-DIBROMOETHANE		5	U		5	UJ	R	5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	UJ	R	5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	UJ	R	5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	UJ	R	5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	UJ	R	5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	UJ	R	5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	UJ	R	5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	UJ	R	5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	UJ	R	5	U		5	U	
2-BUTANONE		26	U		25	UJ	R	25	U		27	U	
2-CHLOROTOLUENE		5	U		5	UJ	R	5	U		5	U	
2-HEXANONE		26	U		25	UJ	R	25	U		27	U	
4-CHLOROTOLUENE		5	U		5	UJ	R	5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	UJ	R	5	U		5	U	
4-METHYL-2-PENTANONE		26	U		25	UJ	R	25	U		27	U	
ACETONE		53			27	J	R	8	J	P	27		
BENZENE		5	U		5	UJ	R	5	U		5	U	
BROMOBENZENE		5	U		5	UJ	R	5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	ER	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	UJ	R	5	U		5	U	
BROMOFORM		5	U		5	UJ	R	5	U		5	U	
BROMOMETHANE		10	U		10	UJ	R	10	U		11	U	
CARBON DISULFIDE		5	U		5	UJ	R	5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406RA			DA-SB130-1011.5			DA-SB131-0406RA		
SDG: CTO403-1	LAB_ID	SB0959-3			SB0983-7RA			SB0959-9			SB0959-7RA		
FRACTION: OV	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	UJ	D
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	UJ	D
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	UJ	D
1,1,2-TRICHLOROETHANE	5	U		5	U		5	U		5	UJ	D
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	UJ	D
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	UJ	D
1,1-DICHLOROPROPENE	5	U		5	U		5	U		5	UJ	D
1,2,3-TRICHLOROBENZENE	5	UJ	C	5	U		5	UJ	C	5	UJ	D
1,2,3-TRICHLOROPROPANE	5	U		5	U		5	U		5	UJ	D
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	U		5	UJ	D
1,2,4-TRIMETHYLBENZENE	5	U		5	U		5	U		5	UJ	D
1,2-DIBROMO-3-CHLOROPROPANE	5	U		5	U		5	U		5	UJ	D
1,2-DIBROMOETHANE	5	U		5	U		5	U		5	UJ	D
1,2-DICHLOROBENZENE	5	U		5	U		5	U		5	UJ	D
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	UJ	D
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	UJ	D
1,3,5-TRIMETHYLBENZENE	5	U		5	U		5	U		5	UJ	D
1,3-DICHLOROBENZENE	5	U		5	U		5	U		5	UJ	D
1,3-DICHLOROPROPANE	5	U		5	U		5	U		5	UJ	D
1,4-DICHLOROBENZENE	5	U		5	U		5	U		5	UJ	D
2,2-DICHLOROPROPANE	5	U		5	U		5	U		5	UJ	D
2-BUTANONE	25	U		26	U		25	U		26	UJ	D
2-CHLOROTOLUENE	5	U		5	U		5	U		5	UJ	D
2-HEXANONE	25	U		26	U		25	U		26	UJ	D
4-CHLOROTOLUENE	5	U		5	U		5	U		5	UJ	D
4-ISOPROPYLTOLUENE	5	U		5	U		5	U		5	UJ	D
4-METHYL-2-PENTANONE	25	U		26	U		25	U		26	UJ	D
ACETONE	25	U		160			690			45	J	D
BENZENE	5	U		5	U		5	U		5	UJ	D
BROMOBENZENE	5	U		5	U		5	U		5	UJ	D
BROMOCHLOROMETHANE	5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	DE
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	UJ	D
BROMOFORM	5	U		5	U		5	U		5	UJ	D
BROMOMETHANE	10	U		10	U		10	U		10	UJ	D
CARBON DISULFIDE	5	U		5	U		5	U		5	UJ	D

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB132-0406RA			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
	LAB_ID	SB0959-1RA			SB0932-1			SB0983-9			SB0932-3		
	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		6	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		6	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		6	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		6	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		6	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		6	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		6	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		6	UJ	C	5	U		5	UJ	C
1,2,3-TRICHLOROPROPANE		5	U		6	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		6	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		6	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		6	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		6	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		6	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		6	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		6	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		6	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		6	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		6	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		6	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		6	U		5	U		5	U	
2-BUTANONE		25	U		30	U		26	U		27	U	
2-CHLOROTOLUENE		5	U		6	U		5	U		5	U	
2-HEXANONE		25	U		30	U		26	U		27	U	
4-CHLOROTOLUENE		5	U		6	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		6	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		30	U		26	U		27	U	
ACETONE		89			38			27			130		
BENZENE		5	U		6	U		5	U		5	U	
BROMOBENZENE		5	U		6	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	6	UJ	E	5	UJ	E	5	U	E
BROMODICHLOROMETHANE		5	U		6	U		5	U		5	U	
BROMOFORM		5	U		6	U		5	U		5	U	
BROMOMETHANE		10	U		12	U		10	U		11	U	
CARBON DISULFIDE		5	U		6	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012			DA-SBDUP01		
SDG: CTO403-1	LAB_ID	SB0920-1			SB0920-3			SB0920-5			SB0920-7		
FRACTION: OV	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		6	U		5	U	
1,1,1-TRICHLOROETHANE	5	U		5	U		6	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		6	U		5	U	
1,1,2-TRICHLOROETHANE	5	U		5	U		6	U		5	U	
1,1-DICHLOROETHANE	5	U		5	U		6	U		5	U	
1,1-DICHLOROETHENE	5	U		5	U		6	U		5	U	
1,1-DICHLOROPROPENE	5	U		5	U		6	U		5	U	
1,2,3-TRICHLOROBENZENE	5	UJ	C	5	UJ	C	6	UJ	C	5	UJ	C
1,2,3-TRICHLOROPROPANE	5	U		5	U		6	U		5	U	
1,2,4-TRICHLOROBENZENE	5	U		5	U		6	U		5	U	
1,2,4-TRIMETHYLBENZENE	5	U		5	U		6	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	U		5	U		6	U		5	U	
1,2-DIBROMOETHANE	5	U		5	U		6	U		5	U	
1,2-DICHLOROBENZENE	5	U		5	U		6	U		5	U	
1,2-DICHLOROETHANE	5	U		5	U		6	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		6	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	U		5	U		6	U		5	U	
1,3-DICHLOROBENZENE	5	U		5	U		6	U		5	U	
1,3-DICHLOROPROPANE	5	U		5	U		6	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	U		6	U		5	U	
2,2-DICHLOROPROPANE	5	U		5	U		6	U		5	U	
2-BUTANONE	26	U		25	U		28	U		25	U	
2-CHLOROTOLUENE	5	U		5	U		6	U		5	U	
2-HEXANONE	26	U		25	U		28	U		25	U	
4-CHLOROTOLUENE	5	U		5	U		6	U		5	U	
4-ISOPROPYLTOLUENE	5	U		5	U		6	U		5	U	
4-METHYL-2-PENTANONE	26	U		25	U		28	U		25	U	
ACETONE	26	U		25	U		28	U		9	J	P
BENZENE	5	U		5	U		6	U		5	U	
BROMOBENZENE	5	U		5	U		6	U		5	U	
BROMOCHLOROMETHANE	5	UJ	E	5	UJ	E	6	UJ	E	5	UJ	E
BROMODICHLOROMETHANE	5	U		5	U		6	U		5	U	
BROMOFORM	5	U		5	U		6	U		5	U	
BROMOMETHANE	10	U		10	U		11	U		10	U	
CARBON DISULFIDE	5	U		5	U		6	U		5	U	B

PROJ_NO: 00933	NSAMPLE	DA-SBDUP02			DA-SBTB022508			DA-TB-022208			TB-022108		
SDG: CTO403-1	LAB_ID	SB0959-5			SB0959-13			SB0932-5			SB0920-9		
FRACTION: OV	SAMP_DATE	2/25/2008			2/25/2008			2/22/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			TB			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			.0			.0			.0		
	DUP_OF	DA-SB128-0810											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	UJ	C	5	UJ	C	5	UJ	C	5	UJ	C
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		25	U		25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		25	U		25	U		25	U		25	U	
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	TB022608
SDG: CTO403-1	LAB_ID	SB0983-11
FRACTION: OV	SAMP_DATE	2/26/2008
MEDIA: SOIL	QC_TYPE	TB
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U	
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,1-DICHLOROPROPENE	5	U	
1,2,3-TRICHLOROBENZENE	5	U	
1,2,3-TRICHLOROPROPANE	5	U	
1,2,4-TRICHLOROBENZENE	5	U	
1,2,4-TRIMETHYLBENZENE	5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	U	
1,2-DIBROMOETHANE	5	U	
1,2-DICHLOROBENZENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
1,3,5-TRIMETHYLBENZENE	5	U	
1,3-DICHLOROBENZENE	5	U	
1,3-DICHLOROPROPANE	5	U	
1,4-DICHLOROBENZENE	5	U	
2,2-DICHLOROPROPANE	5	U	
2-BUTANONE	25	U	
2-CHLOROTOLUENE	5	U	
2-HEXANONE	25	U	
4-CHLOROTOLUENE	5	U	
4-ISOPROPYLTOLUENE	5	U	
4-METHYL-2-PENTANONE	25	U	
ACETONE	25	U	
BENZENE	5	U	
BROMOBENZENE	5	U	
BROMOCHLOROMETHANE	5	UJ	E
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	2	J	P

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB121-0406RA			DA-SB122-0407RA2			DA-SB123-0508			DA-SB126-1013RA		
	LAB_ID	SB0983-1RA			SB0983-5RA2			SB0959-11			SB0983-3RA		
	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	UJ	R	5	U		5	U	
CHLOROBENZENE		5	U		5	UJ	R	5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	UJ	R	5	U		5	U	
CHLOROETHANE		10	U		10	UJ	R	10	U		11	U	
CHLOROFORM		5	U		5	UJ	R	5	U		5	U	
CHLOROMETHANE		10	U		10	UJ	R	10	U		11	U	
CIS-1,2-DICHLOROETHENE		5	U		5	UJ	R	5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	UJ	R	5	U		5	U	
DIBROMOMETHANE		5	U		5	UJ	R	5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	UJ	R	10	U		11	U	
ETHYLBENZENE		5	U		5	UJ	R	5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	UJ	R	5	U		5	U	
ISOPROPYLBENZENE		5	U		5	UJ	R	5	U		5	U	
M+P-XYLENES		10	U		10	UJ	R	10	U		11	U	
METHYL TERT-BUTYL ETHER		5	U		5	UJ	R	5	U		5	U	
METHYLENE CHLORIDE		26	U		25	UJ	R	25	U		27	U	
N-BUTYLBENZENE		5	U		5	UJ	R	5	U		5	U	
N-PROPYLBENZENE		5	U		5	UJ	R	5	U		5	U	
O-XYLENE		5	U		5	UJ	R	5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	UJ	R	5	U		5	U	
STYRENE		5	U		5	UJ	R	5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	UJ	R	5	U		5	U	
TETRACHLOROETHENE		10			3	J	PR	5	U		5	U	
TOLUENE		5	U		5	UJ	R	5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	UJ	R	5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	UJ	R	5	U		5	U	
TRICHLOROETHENE		5	U		28	J	R	5	U		5	J	P
TRICHLOROFLUOROMETHANE		10	U		10	UJ	R	10	U		11	U	
VINYL CHLORIDE		10	U		10	UJ	R	10	U		11	U	

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406RA			DA-SB130-1011.5			DA-SB131-0406RA		
SDG: CTO403-1	LAB_ID	SB0959-3			SB0983-7RA			SB0959-9			SB0959-7RA		
FRACTION: OV	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	UJ	D
CHLOROBENZENE		5	U		5	U		5	U		5	UJ	D
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	UJ	D
CHLOROETHANE		10	U		10	U		10	U		10	UJ	D
CHLOROFORM		5	U		5	U		5	U		5	UJ	D
CHLOROMETHANE		10	U		10	U		10	U		10	UJ	D
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	UJ	D
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	UJ	D
DIBROMOMETHANE		5	U		5	U		5	U		5	UJ	D
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	UJ	D
ETHYLBENZENE		5	U		5	U		5	U		5	UJ	D
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	UJ	D
ISOPROPYLBENZENE		5	U		5	U		5	U		5	UJ	D
M+P-XYLENES		10	U		10	U		10	U		10	UJ	D
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	UJ	D
METHYLENE CHLORIDE		25	U		26	U		25	U		26	UJ	D
N-BUTYLBENZENE		5	U		5	U		5	U		5	UJ	D
N-PROPYLBENZENE		5	U		5	U		5	U		5	UJ	D
O-XYLENE		5	U		5	U		5	U		5	UJ	D
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	UJ	D
STYRENE		5	U		5	U		5	U		5	UJ	D
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	UJ	D
TETRACHLOROETHENE		5	U		5	U		4	J	P	5	UJ	D
TOLUENE		5	U		5	U		5	U		5	UJ	D
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	UJ	D
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	UJ	D
TRICHLOROETHENE		5	U		5	U		5	U		5	UJ	D
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	UJ	D
VINYL CHLORIDE		10	U		10	U		10	U		10	UJ	D

PROJ_NO: 00933	NSAMPLE	DA-SB132-0406RA			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
SDG: CTO403-1	LAB_ID	SB0959-1RA			SB0932-1			SB0983-9			SB0932-3		
FRACTION: OV	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		6	U		5	U		5	U	
CHLOROBENZENE		5	U		6	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		6	U		5	U		5	U	
CHLOROETHANE		10	U		12	U		10	U		11	U	
CHLOROFORM		5	U		6	U		5	U		5	U	
CHLOROMETHANE		10	U		12	U		10	U		11	U	
CIS-1,2-DICHLOROETHENE		5	U		6	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		6	U		5	U		5	U	
DIBROMOMETHANE		5	U		6	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		12	U		10	U		11	U	
ETHYLBENZENE		5	U		6	UJ	E	5	U		5	UJ	E
HEXACHLOROBUTADIENE		5	U		6	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		6	U		5	U		5	U	
M+P-XYLENES		10	U		12	U		10	U		11	U	
METHYL TERT-BUTYL ETHER		5	U		6	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		30	UJ	BC	26	U		27	UJ	C
N-BUTYLBENZENE		5	U		6	U		5	U		5	U	
N-PROPYLBENZENE		5	U		6	U		5	U		5	U	
O-XYLENE		5	U		6	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		6	U		5	U		5	U	
STYRENE		5	U		6	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		6	U		5	U		5	U	
TETRACHLOROETHENE		5	U		6	UJ	C	5	U		5	UJ	C
TOLUENE		5	U		6	UJ	E	5	U		5	UJ	E
TRANS-1,2-DICHLOROETHENE		5	U		6	UJ	C	5	U		5	UJ	C
TRANS-1,3-DICHLOROPROPENE		5	U		6	U		5	U		5	U	
TRICHLOROETHENE		5	U		6	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		12	U		10	U		11	U	
VINYL CHLORIDE		10	U		12	U		10	U		11	U	

PROJ_NO: 00933	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012			DA-SBDUP01		
SDG: CTO403-1	LAB_ID	SB0920-1			SB0920-3			SB0920-5			SB0920-7		
FRACTION: OV	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
CARBON TETRACHLORIDE	5	U		5	U		6	U		5	U		
CHLOROBENZENE	5	U		5	U		6	U		5	U		
CHLORODIBROMOMETHANE	5	U		5	U		6	U		5	U		
CHLOROETHANE	10	U		10	U		11	U		10	U		
CHLOROFORM	5	U		5	U		6	U		5	U		
CHLOROMETHANE	10	U		10	U		11	U		10	U		
CIS-1,2-DICHLOROETHENE	5	U		5	U		6	U		5	U		
CIS-1,3-DICHLOROPROPENE	5	U		5	U		6	U		5	U		
DIBROMOMETHANE	5	U		5	U		6	U		5	U		
DICHLORODIFLUOROMETHANE	10	U		10	U		11	U		10	U		
ETHYLBENZENE	5	UJ	E	5	UJ	E	6	UJ	E	5	UJ	E	
HEXACHLOROBUTADIENE	5	U		5	U		6	U		5	U		
ISOPROPYLBENZENE	5	U		5	U		6	U		5	U		
M+P-XYLENES	10	U		10	U		11	U		10	U		
METHYL TERT-BUTYL ETHER	5	U		5	U		6	U		5	U		
METHYLENE CHLORIDE	26	UJ	C	25	UJ	C	28	UJ	C	25	UJ	BC	
N-BUTYLBENZENE	5	U		5	U		6	U		5	U		
N-PROPYLBENZENE	5	U		5	U		6	U		5	U		
O-XYLENE	5	U		5	U		6	U		5	U		
SEC-BUTYLBENZENE	5	U		5	U		6	U		5	U		
STYRENE	5	U		5	U		6	U		5	U		
TERT-BUTYLBENZENE	5	U		5	U		6	U		5	U		
TETRACHLOROETHENE	5	UJ	C	5	UJ	C	6	UJ	C	5	UJ	C	
TOLUENE	5	UJ	E	5	UJ	E	6	UJ	E	5	UJ	E	
TRANS-1,2-DICHLOROETHENE	5	UJ	C	5	UJ	C	6	UJ	C	5	UJ	C	
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		6	U		5	U		
TRICHLOROETHENE	5	U		5	U		6	U		5	U		
TRICHLOROFLUOROMETHANE	10	U		10	U		11	U		10	U		
VINYL CHLORIDE	10	U		10	U		11	U		10	U		

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SBDUP02			DA-SBTB022508			DA-TB-022208			TB-022108		
	LAB_ID	SB0959-5			SB0959-13			SB0932-5			SB0920-9		
	SAMP_DATE	2/25/2008			2/25/2008			2/22/2008			2/21/2008		
	QC_TYPE	NM			TB			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			.0			.0			.0		
	DUP_OF	DA-SB128-0810											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	UJ	E	5	UJ	E
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		3	J	P	25	UJ	C	25	UJ	C
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	UJ	C	5	UJ	C
TOLUENE		5	U		5	U		5	UJ	E	5	UJ	E
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	UJ	C	5	UJ	C
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	TB022608
SDG: CTO403-1	LAB_ID	SB0983-11
FRACTION: OV	SAMP_DATE	2/26/2008
MEDIA: SOIL	QC_TYPE	TB
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
DIBROMOMETHANE	5	U	
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	5	U	
HEXACHLOROBUTADIENE	5	U	
ISOPROPYLBENZENE	5	U	
M+P-XYLENES	10	U	
METHYL TERT-BUTYL ETHER	5	U	
METHYLENE CHLORIDE	3	J	P
N-BUTYLBENZENE	5	U	
N-PROPYLBENZENE	5	U	
O-XYLENE	5	U	
SEC-BUTYLBENZENE	5	U	
STYRENE	5	U	
TERT-BUTYLBENZENE	5	U	
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPENE	5	U	
TRICHLOROETHENE	5	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB121-0406RERA			DA-SB122-0407			DA-SB123-0508			DA-SB126-1013		
SDG: CTO403-1	LAB_ID	SB0983-1RERA			SB0983-5			SB0959-11			SB0983-3		
FRACTION: OS	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		360	U		370	U		360	U	
1,2,4-TRICHLOROBENZENE		360	U		360	U		370	U		360	U	
1,2-DICHLOROBENZENE		360	U		360	U		370	U		360	U	
1,2-DIPHENYLHYDRAZINE		720	U		720	U		730	U		720	U	
1,3-DICHLOROBENZENE		360	U		360	U		370	U		360	U	
1,4-DICHLOROBENZENE		360	U		360	U		370	U		360	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	U		360	U		370	U		360	U	
2,4,5-TRICHLOROPHENOL		900	U		890	UJ	R	910	U		890	U	
2,4,6-TRICHLOROPHENOL		360	U		360	UJ	R	370	U		360	U	
2,4-DICHLOROPHENOL		360	U		360	UJ	R	370	U		360	U	
2,4-DIMETHYLPHENOL		360	U		360	UJ	R	370	U		360	U	
2,4-DINITROPHENOL		900	U		890	UJ	R	910	U		890	U	
2,4-DINITROTOLUENE		360	U		360	U		370	U		360	U	
2,6-DICHLOROPHENOL		360	U		360	UJ	R	370	U		360	U	
2,6-DINITROTOLUENE		900	U		890	U		910	U		890	U	
2-CHLORONAPHTHALENE		360	U		360	U		370	U		360	U	
2-CHLOROPHENOL		360	U		360	UJ	R	370	U		360	U	
2-METHYLPHENOL		360	U		360	UJ	R	370	U		360	U	
2-NITROANILINE		900	U		890	U		910	U		890	U	
2-NITROPHENOL		360	U		360	UJ	R	370	U		360	U	
3&4-METHYLPHENOL		360	U		360	UJ	R	370	U		360	U	
3,3'-DICHLOROBENZIDINE		360	U		360	UJ	C	370	UJ	C	360	U	
3-NITROANILINE		900	U		890	U		910	U		890	U	
4,6-DINITRO-2-METHYLPHENOL		900	U		890	UJ	R	910	U		890	U	
4-BROMOPHENYL PHENYL ETHER		360	U		360	U		370	U		360	U	
4-CHLORO-3-METHYLPHENOL		360	U		360	UJ	R	370	U		360	U	
4-CHLOROANILINE		360	U		360	U		370	U		360	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		360	U		370	U		360	U	
4-NITROANILINE		900	U		890	U		910	U		890	U	
4-NITROPHENOL		900	U		890	UJ	R	910	U		890	U	
ACENAPHTHENE													
ANTHRACENE					420								
BENZIDINE		1600	UJ	C	1600	UJ	C	1700	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE					1300								
BENZO(A)PYRENE					1200								

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406			DA-SB130-1011.5			DA-SB131-0406		
SDG: CTO403-1	LAB_ID	SB0959-3			SB0983-7			SB0959-9			SB0959-7		
FRACTION: OS	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		380	U		390	U		380	U	
1,2,4-TRICHLOROBENZENE		360	U		380	U		390	U		380	U	
1,2-DICHLOROBENZENE		360	U		380	U		390	U		380	U	
1,2-DIPHENYLHYDRAZINE		730	U		760	U		780	U		750	U	
1,3-DICHLOROBENZENE		360	U		380	U		390	U		380	U	
1,4-DICHLOROBENZENE		360	U		380	U		390	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	U		380	U		390	U		380	U	
2,4,5-TRICHLOROPHENOL		910	U		940	U		960	U		940	U	
2,4,6-TRICHLOROPHENOL		360	U		380	U		390	U		380	U	
2,4-DICHLOROPHENOL		360	U		380	U		390	U		380	U	
2,4-DIMETHYLPHENOL		360	U		380	U		390	U		380	U	
2,4-DINITROPHENOL		910	U		940	U		960	U		940	U	
2,4-DINITROTOLUENE		360	U		380	U		390	U		380	U	
2,6-DICHLOROPHENOL		360	U		380	U		390	U		380	U	
2,6-DINITROTOLUENE		910	U		940	U		960	U		940	U	
2-CHLORONAPHTHALENE		360	U		380	U		390	U		380	U	
2-CHLOROPHENOL		360	U		380	U		390	U		380	U	
2-METHYLPHENOL		360	U		380	U		390	U		380	U	
2-NITROANILINE		910	U		940	U		960	U		940	U	
2-NITROPHENOL		360	U		380	U		390	U		380	U	
3&4-METHYLPHENOL		360	U		380	U		390	U		380	U	
3,3'-DICHLOROBENZIDINE		360	UJ	C	380	U		390	UJ	C	380	UJ	C
3-NITROANILINE		910	U		940	U		960	U		940	U	
4,6-DINITRO-2-METHYLPHENOL		910	U		940	U		960	U		940	U	
4-BROMOPHENYL PHENYL ETHER		360	U		380	U		390	U		380	U	
4-CHLORO-3-METHYLPHENOL		360	U		380	U		390	U		380	U	
4-CHLOROANILINE		360	U		380	U		390	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		380	U		390	U		380	U	
4-NITROANILINE		910	U		940	U		960	U		940	U	
4-NITROPHENOL		910	U		940	U		960	U		940	U	
ACENAPHTHENE		1900						540					
ANTHRACENE		4500						650					
BENZIDINE		1600	UJ	C	1700	UJ	C	1800	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE		8900			410						600	J	D
BENZO(A)PYRENE		6300						820			520	J	D

PROJ_NO: 00933	NSAMPLE	DA-SB132-0406			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
SDG: CTO403-1	LAB_ID	SB0959-1			SB0932-1			SB0983-9			SB0932-3		
FRACTION: OS	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		370	U		370	U		350	U	
1,2,4-TRICHLOROBENZENE		380	U		370	U		370	U		350	U	
1,2-DICHLOROBENZENE		380	U		370	U		370	U		350	U	
1,2-DIPHENYLHYDRAZINE		750	U		740	U		730	U		700	U	
1,3-DICHLOROBENZENE		380	U		370	U		370	U		350	U	
1,4-DICHLOROBENZENE		380	U		370	U		370	U		350	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		370	U		370	U		350	U	
2,4,5-TRICHLOROPHENOL		930	U		920	U		910	U		870	U	
2,4,6-TRICHLOROPHENOL		380	U		370	U		370	U		350	U	
2,4-DICHLOROPHENOL		380	U		370	U		370	U		350	U	
2,4-DIMETHYLPHENOL		380	U		370	U		370	U		350	U	
2,4-DINITROPHENOL		930	U		920	U		910	U		870	U	
2,4-DINITROTOLUENE		380	U		370	U		370	U		350	U	
2,6-DICHLOROPHENOL		380	U		370	U		370	U		350	U	
2,6-DINITROTOLUENE		930	U		920	U		910	U		870	U	
2-CHLORONAPHTHALENE		380	U		370	U		370	U		350	U	
2-CHLOROPHENOL		380	U		370	U		370	U		350	U	
2-METHYLPHENOL		380	U		370	U		370	U		350	U	
2-NITROANILINE		930	U		920	U		910	U		870	U	
2-NITROPHENOL		380	U		370	U		370	U		350	U	
3&4-METHYLPHENOL		380	U		370	U		370	U		350	U	
3,3'-DICHLOROBENZIDINE		380	UJ	C	370	UJ	C	370	U		350	UJ	C
3-NITROANILINE		930	U		920	U		910	U		870	U	
4,6-DINITRO-2-METHYLPHENOL		930	U		920	U		910	U		870	U	
4-BROMOPHENYL PHENYL ETHER		380	U		370	U		370	U		350	U	
4-CHLORO-3-METHYLPHENOL		380	U		370	U		370	U		350	U	
4-CHLOROANILINE		380	U		370	U		370	U		350	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		370	U		370	U		350	U	
4-NITROANILINE		930	U		920	U		910	U		870	U	
4-NITROPHENOL		930	U		920	U		910	U		870	U	
ACENAPHTHENE													
ANTHRACENE		380											
BENZIDINE		1700	UJ	C	1700	UJ	C	1700	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE		1100											
BENZO(A)PYRENE		1100											

PROJ_NO: 00933	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012RA			DA-SBDUP01		
SDG: CTO403-1	LAB_ID	SB0920-1			SB0920-3			SB0920-5RA			SB0920-7		
FRACTION: OS	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		350	U		350	U		350	U	
1,2,4-TRICHLOROBENZENE		380	U		350	U		350	U		350	U	
1,2-DICHLOROBENZENE		380	U		350	U		350	U		350	U	
1,2-DIPHENYLHYDRAZINE		760	U		700	U		700	U		710	U	
1,3-DICHLOROBENZENE		380	U		350	U		350	U		350	U	
1,4-DICHLOROBENZENE		380	U		350	U		350	U		350	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		350	U		350	U		350	U	
2,4,5-TRICHLOROPHENOL		950	U		870	U		870	U		880	U	
2,4,6-TRICHLOROPHENOL		380	U		350	U		350	U		350	U	
2,4-DICHLOROPHENOL		380	U		350	U		350	U		350	U	
2,4-DIMETHYLPHENOL		380	U		350	U		350	U		350	U	
2,4-DINITROPHENOL		950	U		870	U		870	U		880	U	
2,4-DINITROTOLUENE		380	U		350	U		350	U		350	U	
2,6-DICHLOROPHENOL		380	U		350	U		350	U		350	U	
2,6-DINITROTOLUENE		950	U		870	U		870	U		880	U	
2-CHLORONAPHTHALENE		380	U		350	U		350	U		350	U	
2-CHLOROPHENOL		380	U		350	U		350	U		350	U	
2-METHYLPHENOL		380	U		350	U		350	U		350	U	
2-NITROANILINE		950	U		870	U		870	U		880	U	
2-NITROPHENOL		380	U		350	U		350	U		350	U	
3&4-METHYLPHENOL		380	U		350	U		350	U		350	U	
3,3'-DICHLOROBENZIDINE		380	UJ	C	350	UJ	C	350	UJ	C	350	UJ	C
3-NITROANILINE		950	U		870	U		870	U		880	U	
4,6-DINITRO-2-METHYLPHENOL		950	U		870	U		870	U		880	U	
4-BROMOPHENYL PHENYL ETHER		380	U		350	U		350	U		350	U	
4-CHLORO-3-METHYLPHENOL		380	U		350	U		350	U		350	U	
4-CHLOROANILINE		380	U		350	U		350	U		350	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		350	U		350	U		350	U	
4-NITROANILINE		950	U		870	U		870	U		880	U	
4-NITROPHENOL		950	U		870	U		870	U		880	U	
ACENAPHTHENE													
ANTHRACENE													
BENZIDINE		1700	UJ	C	1600	UJ	C	1600	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													

PROJ_NO: 00933	NSAMPLE	DA-SBDUP02
SDG: CTO403-1	LAB_ID	SB0959-5
FRACTION: OS	SAMP_DATE	2/25/2008
MEDIA: SOIL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	88.8
	DUP_OF	DA-SB128-0810

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	370	U	
1,2,4-TRICHLOROBENZENE	370	U	
1,2-DICHLOROBENZENE	370	U	
1,2-DIPHENYLHYDRAZINE	740	U	
1,3-DICHLOROBENZENE	370	U	
1,4-DICHLOROBENZENE	370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	370	U	
2,4,5-TRICHLOROPHENOL	920	U	
2,4,6-TRICHLOROPHENOL	370	U	
2,4-DICHLOROPHENOL	370	U	
2,4-DIMETHYLPHENOL	370	U	
2,4-DINITROPHENOL	920	U	
2,4-DINITROTOLUENE	370	U	
2,6-DICHLOROPHENOL	370	U	
2,6-DINITROTOLUENE	920	U	
2-CHLORONAPHTHALENE	370	U	
2-CHLOROPHENOL	370	U	
2-METHYLPHENOL	370	U	
2-NITROANILINE	920	U	
2-NITROPHENOL	370	U	
3&4-METHYLPHENOL	370	U	
3,3'-DICHLOROBENZIDINE	370	UJ	C
3-NITROANILINE	920	U	
4,6-DINITRO-2-METHYLPHENOL	920	U	
4-BROMOPHENYL PHENYL ETHER	370	U	
4-CHLORO-3-METHYLPHENOL	370	U	
4-CHLOROANILINE	370	U	
4-CHLOROPHENYL PHENYL ETHER	370	U	
4-NITROANILINE	920	U	
4-NITROPHENOL	920	U	
ACENAPHTHENE	1700		
ANTHRACENE	3900		
BENZIDINE	1700	UJ	C
BENZO(A)ANTHRACENE	9100	J	R
BENZO(A)PYRENE	6500		

PROJ_NO: 00933	NSAMPLE	DA-SB121-0406RERA			DA-SB122-0407			DA-SB123-0508			DA-SB126-1013		
SDG: CTO403-1	LAB_ID	SB0983-1RERA			SB0983-5			SB0959-11			SB0983-3		
FRACTION: OS	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE					1200								
BENZO(G,H,I)PERYLENE					630								
BENZO(K)FLUORANTHENE					1200								
BENZOIC ACID		900	U		890	UJ	C	910	U		890	UJ	C
BENZYL ALCOHOL		720	U		720	U		730	U		720	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		360	U		370	U		360	U	
BIS(2-CHLOROETHYL)ETHER		360	U		360	U		370	U		360	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		360	U		370	U		360	U	
BUTYL BENZYL PHTHALATE		360	UJ	C	360	U		370	U		360	U	
CARBAZOLE		360	UJ	C	340	J	EP	370	UJ	C	360	U	
CHRYSENE		520	J	R	1400								
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		360	U		360	U		370	U		360	U	
DIETHYL PHTHALATE		360	U		360	U		370	U		360	U	
DIMETHYL PHTHALATE		360	U		360	U		370	U		360	U	
DI-N-BUTYL PHTHALATE		360	U		360	U		370	U		360	U	
DI-N-OCTYL PHTHALATE		360	UJ	N	360	U		370	U		360	U	
FLUORANTHENE					2900								
FLUORENE													
HEXACHLOROBENZENE		360	U		360	U		370	U		360	U	
HEXACHLOROBUTADIENE		360	U		360	U		370	U		360	U	
HEXACHLOROETHANE		360	U		360	U		370	U		360	U	
INDENO(1,2,3-CD)PYRENE					660								
ISOPHORONE		360	U		360	U		370	U		360	U	
NAPHTHALENE													
NITROBENZENE		360	U		360	U		370	U		360	U	
N-NITROSODIMETHYLAMINE		360	U		360	U		370	U		360	U	
N-NITROSO-DI-N-PROPYLAMINE		360	U		360	U		370	U		360	U	
N-NITROSODIPHENYLAMINE		360	U		360	U		370	U		360	U	
N-NITROSOPYRROLIDINE		360	U		360	U		370	U		360	U	
PENTACHLOROPHENOL		900	UJ	C	890	UJ	R	910	U		890	UJ	C
PHENANTHRENE		600	J	R	2800								
PHENOL		360	U		360	U		370	U		360	U	
PYRENE		1200	J	CR	3000								

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406			DA-SB130-1011.5			DA-SB131-0406		
SDG: CTO403-1	LAB_ID	SB0959-3			SB0983-7			SB0959-9			SB0959-7		
FRACTION: OS	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE		5900						660			500	J	D
BENZO(G,H,I)PERYLENE		3300											
BENZO(K)FLUORANTHENE		6300						800			430		
BENZOIC ACID		910	U		940	UJ	C	960	U		940	U	
BENZYL ALCOHOL		730	U		760	U		780	U		750	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		380	U		390	U		380	U	
BIS(2-CHLOROETHYL)ETHER		360	U		380	U		390	U		380	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		380	U		390	U		380	U	
BUTYL BENZYL PHTHALATE		360	U		380	U		390	U		380	U	
CARBAZOLE		2800	J	CE	380	U		450	J	CE	380	UJ	C
CHRYSENE		8400			470			960			600		
DIBENZO(A,H)ANTHRACENE		1500											
DIBENZOFURAN		1200			380	U		260	J	P	380	U	
DIETHYL PHTHALATE		360	U		380	U		390	U		380	U	
DIMETHYL PHTHALATE		360	U		380	U		390	U		380	U	
DI-N-BUTYL PHTHALATE		360	U		380	U		390	U		380	U	
DI-N-OCTYL PHTHALATE		360	U		380	U		390	U		380	U	
FLUORANTHENE		17000			920			2100			1500		
FLUORENE		2300						380	J	P			
HEXACHLOROBENZENE		360	U		380	U		390	U		380	U	
HEXACHLOROBUTADIENE		360	U		380	U		390	U		380	U	
HEXACHLOROETHANE		360	U		380	U		390	U		380	U	
INDENO(1,2,3-CD)PYRENE		3200											
ISOPHORONE		360	U		380	U		390	U		380	U	
NAPHTHALENE		950						430					
NITROBENZENE		360	U		380	U		390	U		380	U	
N-NITROSODIMETHYLAMINE		360	U		380	U		390	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		360	U		380	U		390	U		380	U	
N-NITROSODIPHENYLAMINE		360	U		380	U		390	U		380	U	
N-NITROSOPYRROLIDINE		360	U		380	U		390	U		380	U	
PENTACHLOROPHENOL		910	U		940	UJ	C	960	U		940	U	
PHENANTHRENE		17000			710			2300			1100		
PHENOL		360	U		380	U		390	U		380	U	
PYRENE		18000			860			2200			1200	J	D

PROJ_NO: 00933	NSAMPLE	DA-SB132-0406			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
SDG: CTO403-1	LAB_ID	SB0959-1			SB0932-1			SB0983-9			SB0932-3		
FRACTION: OS	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE		1100											
BENZO(G,H,I)PERYLENE		580											
BENZO(K)FLUORANTHENE		770											
BENZOIC ACID		930	U		440	J	P	910	UJ	C	870	U	
BENZYL ALCOHOL		750	U		740	U		730	U		700	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		370	U		370	U		350	U	
BIS(2-CHLOROETHYL)ETHER		380	U		370	U		370	U		350	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		370	U		370	U		350	U	
BUTYL BENZYL PHTHALATE		380	U		370	U		370	U		350	U	
CARBAZOLE		250	J	CEP	370	UJ	C	370	U		350	UJ	C
CHRYSENE		1100											
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		380	U		370	U		370	U		350	U	
DIETHYL PHTHALATE		380	U		370	U		370	U		350	U	
DIMETHYL PHTHALATE		380	U		370	U		370	U		350	U	
DI-N-BUTYL PHTHALATE		380	U		370	U		370	U		350	U	
DI-N-OCTYL PHTHALATE		380	U		370	U		370	U		350	U	
FLUORANTHENE		1700											
FLUORENE													
HEXACHLOROBENZENE		380	U		370	U		370	U		350	U	
HEXACHLOROBUTADIENE		380	U		370	U		370	U		350	U	
HEXACHLOROETHANE		380	U		370	U		370	U		350	U	
INDENO(1,2,3-CD)PYRENE		570											
ISOPHORONE		380	U		370	U		370	U		350	U	
NAPHTHALENE													
NITROBENZENE		380	U		370	U		370	U		350	U	
N-NITROSODIMETHYLAMINE		380	U		370	U		370	U		350	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		370	U		370	U		350	U	
N-NITROSODIPHENYLAMINE		380	U		370	U		370	U		350	U	
N-NITROSOPYRROLIDINE		380	U		370	U		370	U		350	U	
PENTACHLOROPHENOL		930	U		920	U		910	UJ	C	870	U	
PHENANTHRENE		1500											
PHENOL		380	U		370	U		370	U		350	U	
PYRENE		2100											

PROJ_NO: 00933	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012RA			DA-SBDUP01		
SDG: CTO403-1	LAB_ID	SB0920-1			SB0920-3			SB0920-5RA			SB0920-7		
FRACTION: OS	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE													
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BENZOIC ACID		950	U		870	U		870	U		880	U	
BENZYL ALCOHOL		760	U		700	U		700	U		710	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		350	U		350	U		350	U	
BIS(2-CHLOROETHYL)ETHER		380	U		350	U		350	U		350	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		350	U		350	U		350	U	
BUTYL BENZYL PHTHALATE		380	U		350	U		350	U		350	U	
CARBAZOLE		380	U		350	U		350	UJ	C	350	U	
CHRYSENE													
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		380	U		350	U		350	U		350	U	
DIETHYL PHTHALATE		380	U		350	U		350	U		350	U	
DIMETHYL PHTHALATE		380	U		350	U		350	U		350	U	
DI-N-BUTYL PHTHALATE		380	U		350	U		350	U		350	U	
DI-N-OCTYL PHTHALATE		380	U		350	U		350	U		350	U	
FLUORANTHENE													
FLUORENE													
HEXACHLOROBENZENE		380	U		350	U		350	U		350	U	
HEXACHLOROBUTADIENE		380	U		350	U		350	U		350	U	
HEXACHLOROETHANE		380	U		350	U		350	U		350	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		380	U		350	U		350	U		350	U	
NAPHTHALENE													
NITROBENZENE		380	U		350	U		350	U		350	U	
N-NITROSODIMETHYLAMINE		380	U		350	U		350	U		350	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		350	U		350	U		350	U	
N-NITROSODIPHENYLAMINE		380	U		350	U		350	U		350	U	
N-NITROSOPYRROLIDINE		380	U		350	U		350	U		350	U	
PENTACHLOROPHENOL		950	UJ	C	870	UJ	C	870	U		880	UJ	C
PHENANTHRENE													
PHENOL		380	U		350	U		350	U		350	U	
PYRENE													

PROJ_NO: 00933	NSAMPLE	DA-SBDUP02
SDG: CTO403-1	LAB_ID	SB0959-5
FRACTION: OS	SAMP_DATE	2/25/2008
MEDIA: SOIL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	88.8
	DUP_OF	DA-SB128-0810

PARAMETER	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE	6900		
BENZO(G,H,I)PERYLENE	2900		
BENZO(K)FLUORANTHENE	5300		
BENZOIC ACID	920	U	
BENZYL ALCOHOL	740	U	
BIS(2-CHLOROETHOXY)METHANE	370	U	
BIS(2-CHLOROETHYL)ETHER	370	U	
BIS(2-ETHYLHEXYL)PHTHALATE	370	U	
BUTYL BENZYL PHTHALATE	370	U	
CARBAZOLE	2400	J	CE
CHRYSENE	8700	J	R
DIBENZO(A,H)ANTHRACENE	1700		
DIBENZOFURAN	1100		
DIETHYL PHTHALATE	370	U	
DIMETHYL PHTHALATE	370	U	
DI-N-BUTYL PHTHALATE	370	U	
DI-N-OCTYL PHTHALATE	370	U	
FLUORANTHENE	17000	J	R
FLUORENE	2000		
HEXACHLOROBENZENE	370	U	
HEXACHLOROBUTADIENE	370	U	
HEXACHLOROETHANE	370	U	
INDENO(1,2,3-CD)PYRENE	3100		
ISOPHORONE	370	U	
NAPHTHALENE	680		
NITROBENZENE	370	U	
N-NITROSODIMETHYLAMINE	370	U	
N-NITROSO-DI-N-PROPYLAMINE	370	U	
N-NITROSODIPHENYLAMINE	370	U	
N-NITROSOPYRROLIDINE	370	U	
PENTACHLOROPHENOL	920	U	
PHENANTHRENE	16000	J	R
PHENOL	370	U	
PYRENE	20000	J	R

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB121-0406RA			DA-SB122-0407			DA-SB123-0508			DA-SB126-1013		
	LAB_ID	SB0983-2RA			SB0983-6			SB0959-12			SB0983-4		
	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		28			25			22	U		22	U	
ACENAPHTHENE		12	J	P	290			2.1	J	P	7.4	J	P
ACENAPHTHYLENE		8.9	J	P	22	U		22	U		22	U	
ANTHRACENE		82						6.1	J	P	7.5	J	P
BENZO(A)ANTHRACENE		120	J	N				10	J	P	16	J	P
BENZO(A)PYRENE		210	J	N				6.2	J	P	13	J	P
BENZO(B)FLUORANTHENE		73	J	N				7.2	J	P	12	J	P
BENZO(G,H,I)PERYLENE		130	J	CN				22	U		22	U	
BENZO(K)FLUORANTHENE		200	J	N				7.3	J	P	12	J	P
CHRYSENE								11	J	P	17	J	P
DIBENZO(A,H)ANTHRACENE		42	J	CN	200			22	U		22	U	
FLUORANTHENE		280						24			35		
FLUORENE		38			230			2.8	J	P	5.7	J	P
INDENO(1,2,3-CD)PYRENE		91	J	CN				22	U		22	U	
NAPHTHALENE		16	J	P	32			22	U		9.5	J	P
PHENANTHRENE								18	J	P	29		
PYRENE								18	J	P	51		

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406			DA-SB130-1011.5			DA-SB131-0406		
SDG: CTO403-1	LAB_ID	SB0959-4			SB0983-8			SB0959-10			SB0959-8		
FRACTION: PAH	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		290			22	J	P	86			31		
ACENAPHTHENE					82						110	J	D
ACENAPHTHYLENE		22	U		23	U		23	U		23	U	
ANTHRACENE					140						200	J	D
BENZO(A)ANTHRACENE								140	J	C			
BENZO(A)PYRENE					300								
BENZO(B)FLUORANTHENE					280								
BENZO(G,H,I)PERYLENE					120			180	J	C	150		
BENZO(K)FLUORANTHENE					300								
CHRYSENE													
DIBENZO(A,H)ANTHRACENE					55			81	J	C	62		
FLUORANTHENE													
FLUORENE					58						110	J	D
INDENO(1,2,3-CD)PYRENE					120			260			170		
NAPHTHALENE					29						85	J	D
PHENANTHRENE													
PYRENE													

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB132-0406			DA-SB134-0405			DA-SB135-1214RE			DA-SB136-0810		
	LAB_ID	SB0959-2			SB0932-2			SB0983-10RE			SB0932-4		
	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		26			22	U		22	U		21	U	
ACENAPHTHENE		160			22	U		22	U		21	U	
ACENAPHTHYLENE		23	U		22	U		22	UJ	E	21	U	
ANTHRACENE					22	U		22	U		21	U	
BENZO(A)ANTHRACENE					22	U		22	U		21	U	
BENZO(A)PYRENE					22	U		22	U		21	U	
BENZO(B)FLUORANTHENE					22	U		22	U		21	U	
BENZO(G,H,I)PERYLENE					22	U		22	UJ	C	21	U	
BENZO(K)FLUORANTHENE					22	U		22	U		21	U	
CHRYSENE					22	U		22	U		21	U	
DIBENZO(A,H)ANTHRACENE		150			22	U		22	UJ	C	21	U	
FLUORANTHENE					22	U		22	U		5.2	J	P
FLUORENE		120			22	U		22	U		21	U	
INDENO(1,2,3-CD)PYRENE					22	U		22	UJ	C	21	U	
NAPHTHALENE		64			22	U		22	U		21	U	
PHENANTHRENE					22	U		22	U		21	U	
PYRENE					22	U		22	U		21	U	

PROJ_NO: 00933	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012			DA-SBDUP01		
SDG: CTO403-1	LAB_ID	SB0920-2			SB0920-4			SB0920-6			SB0920-8		
FRACTION: PAH	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		23	U		21	U		21	U		21	U	
ACENAPHTHENE		23	U		21	U		21	U		21	U	
ACENAPHTHYLENE		23	U		21	U		21	U		21	U	
ANTHRACENE		23	U		21	U		21	U		21	U	
BENZO(A)ANTHRACENE		3.2	J	P	21	U		21	U		21	U	
BENZO(A)PYRENE		23	U		21	U		21	U		21	U	
BENZO(B)FLUORANTHENE		23	U		21	U		21	U		21	U	
BENZO(G,H,I)PERYLENE		8.5	J	P	21	U		21	U		21	U	
BENZO(K)FLUORANTHENE		23	U		21	U		21	U		21	U	
CHRYSENE		3.3	J	P	21	U		21	U		21	U	
DIBENZO(A,H)ANTHRACENE		4.5	J	P	21	U		21	U		21	U	
FLUORANTHENE		23	U		21	U		21	U		21	U	
FLUORENE		23	U		21	U		21	U		21	U	
INDENO(1,2,3-CD)PYRENE		10	J	P	21	U		21	U		21	U	
NAPHTHALENE		23	U		21	U		21	U		21	U	
PHENANTHRENE		23	U		21	U		21	U		21	U	
PYRENE		23	U		21	U		21	U		21	U	

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SBDUP02		
	LAB_ID	SB0959-6		
	SAMP_DATE	2/25/2008		
	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	88.8		
	DUP_OF	DA-SB128-0810		
PARAMETER		RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		210		
ACENAPHTHENE				
ACENAPHTHYLENE		22	U	
ANTHRACENE				
BENZO(A)ANTHRACENE				
BENZO(A)PYRENE				
BENZO(B)FLUORANTHENE				
BENZO(G,H,I)PERYLENE				
BENZO(K)FLUORANTHENE				
CHRYSENE				
DIBENZO(A,H)ANTHRACENE				
FLUORANTHENE				
FLUORENE				
INDENO(1,2,3-CD)PYRENE				
NAPHTHALENE				
PHENANTHRENE				
PYRENE				

PROJ_NO: 00933	NSAMPLE	DA-SB121-0406			DA-SB122-0407			DA-SB123-0508			DA-SB126-1013		
SDG: CTO403-1	LAB_ID	SB0983-1			SB0983-5			SB0959-11			SB0983-3		
FRACTION: PEST/PCB	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.6	UJ	C	3.6	UJ	C	3.7	UJ	C	3.6	UJ	C
4,4'-DDE		3.6	U		3.6	U		3.7	U		3.6	U	
4,4'-DDT		3.6	UJ	C	3.6	UJ	C	3.7	UJ	C	3.6	UJ	C
ALDRIN		1.8	U		1.8	U		1.9	U		1.8	U	
ALPHA-BHC		1.8	U		1.8	U		1.9	U		1.8	U	
ALPHA-CHLORDANE		1.8	U		1.8	U		1.9	U		1.8	U	
AROCLOR-1016		18	U		18	U		19	U		18	U	
AROCLOR-1221		18	U		18	U		19	U		18	U	
AROCLOR-1232		18	U		18	U		19	U		18	U	
AROCLOR-1242		18	U		18	U		19	U		18	U	
AROCLOR-1248		18	U		18	U		19	U		18	U	
AROCLOR-1254		18	U		18	U		19	U		18	U	
AROCLOR-1260		18	U		18	U		19	U		18	U	
AROCLOR-1268		18	U		18	U		19	U		18	U	
BETA-BHC		1.8	U		1.8	U		1.9	U		1.8	U	
DELTA-BHC		1.8	UJ	C	1.8	UJ	C	1.9	UJ	C	1.8	UJ	C
DIELDRIN		3.6	U		3.6	U		3.7	U		3.6	U	
ENDOSULFAN I		1.8	U		1.8	U		1.9	U		1.8	U	
ENDOSULFAN II		3.6	U		3.6	U		3.7	U		3.6	U	
ENDOSULFAN SULFATE		3.6	UJ	C	3.6	UJ	C	3.7	UJ	C	3.6	UJ	C
ENDRIN		3.6	U		3.6	U		3.7	U		3.6	U	
ENDRIN ALDEHYDE		3.6	U		3.6	U		3.7	U		3.6	U	
ENDRIN KETONE		3.6	U		3.6	U		3.7	U		3.6	U	
GAMMA-BHC (LINDANE)		1.8	U		1.8	U		1.9	U		1.8	U	
GAMMA-CHLORDANE		1.8	U		1.8	U		1.9	U		1.8	U	
HEPTACHLOR		3	J	CU	1.8	UJ	C	1.9	UJ	C	1.8	UJ	C
HEPTACHLOR EPOXIDE		1.8	U		1.8	U		1.9	U		1.8	U	
METHOXYCHLOR		18	UJ	C	18	UJ	C	19	UJ	C	18	UJ	C
TOXAPHENE		36	U		36	U		37	U		36	U	

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406			DA-SB130-1011.5			DA-SB131-0406		
SDG: CTO403-1	LAB_ID	SB0959-3			SB0983-7			SB0959-9			SB0959-7		
FRACTION: PEST/PCB	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.6	U		3.8	UJ	C	3.9	UJ	C	3.8	UJ	C
4,4'-DDE		3.6	U		3.8	U		3.9	U		3.8	U	
4,4'-DDT		3.6	UJ	C	2.4	J	CPU	3.9	UJ	C	3.8	UJ	C
ALDRIN		1.9	U		2	U		2	U		1.9	U	
ALPHA-BHC		1.9	U		2	U		2	U		1.9	U	
ALPHA-CHLORDANE		1.9	U		2	U		2	U		1.9	U	
AROCLOR-1016		19	U		20	U		20	U		19	U	
AROCLOR-1221		19	U		20	U		20	U		19	U	
AROCLOR-1232		19	U		20	U		20	U		19	U	
AROCLOR-1242		19	U		20	U		20	U		19	U	
AROCLOR-1248		19	U		20	U		20	U		19	U	
AROCLOR-1254		19	U		20	U		20	U		19	U	
AROCLOR-1260		19	U		20	U		20	U		19	U	
AROCLOR-1268		19	U		150			20	U		19	U	
BETA-BHC		1.9	U		2	U		2	U		1.9	U	
DELTA-BHC		1.9	UJ	C	2	UJ	C	2	UJ	C	1.9	UJ	C
DIELDRIN		3.6	U		3.8	U		3.9	U		3.8	U	
ENDOSULFAN I		1.9	U		2	U		2	U		1.9	U	
ENDOSULFAN II		3.6	U		3.8	U		3.9	U		3.8	U	
ENDOSULFAN SULFATE		3.6	UJ	C	2	J	CP	3.9	UJ	C	3.8	UJ	C
ENDRIN		3.6	U		3.8	U		3.9	U		3.8	U	
ENDRIN ALDEHYDE		3.6	U		3.8	U		3.9	U		3.8	U	
ENDRIN KETONE		3.6	U		3.8	U		3.9	U		3.8	U	
GAMMA-BHC (LINDANE)		1.9	U		2	U		2	U		1.9	U	
GAMMA-CHLORDANE		1.9	U		2	U		2	U		1.9	U	
HEPTACHLOR		1.9	U		2	UJ	C	2	UJ	C	1.9	UJ	C
HEPTACHLOR EPOXIDE		1.9	U		2	U		2	U		1.9	U	
METHOXYCHLOR		19	U		20	UJ	C	20	UJ	C	19	UJ	C
TOXAPHENE		36	U		38	U		39	U		38	U	

PROJ_NO: 00933	NSAMPLE	DA-SB132-0406			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
SDG: CTO403-1	LAB_ID	SB0959-1			SB0932-1			SB0983-9			SB0932-3		
FRACTION: PEST/PCB	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	U		3.7	UJ	C	3.7	UJ	C	3.5	UJ	C
4,4'-DDE		3.8	U		3.7	U		3.7	U		3.5	U	
4,4'-DDT		3.8	UJ	C	3.7	UJ	C	3.7	UJ	C	3.5	UJ	C
ALDRIN		1.9	U		1.9	U		1.9	U		1.8	U	
ALPHA-BHC		1.9	U		1.9	U		1.9	U		1.8	U	
ALPHA-CHLORDANE		1.9	U		1.9	U		1.9	U		1.8	U	
AROCLOR-1016		19	U		19	U		19	U		18	U	
AROCLOR-1221		19	U		19	U		19	U		18	U	
AROCLOR-1232		19	U		19	U		19	U		18	U	
AROCLOR-1242		19	U		19	U		19	U		18	U	
AROCLOR-1248		19	U		19	U		19	U		18	U	
AROCLOR-1254		19	U		19	U		19	U		18	U	
AROCLOR-1260		19	U		19	U		19	U		45		
AROCLOR-1268		19	U		19	U		19	U		18	U	
BETA-BHC		1.9	U		1.9	U		1.9	U		1.8	U	
DELTA-BHC		1.9	UJ	C	1.9	UJ	C	1.9	UJ	C	1.8	UJ	C
DIELDRIN		3.8	U		3.7	U		3.7	U		3.5	U	
ENDOSULFAN I		1.9	U		1.9	U		1.9	U		1.8	U	
ENDOSULFAN II		3.8	U		3.7	U		3.7	U		3.5	U	
ENDOSULFAN SULFATE		3.8	UJ	C	3.7	UJ	C	3.7	UJ	C	3.5	UJ	C
ENDRIN		3.8	U		3.7	U		3.7	U		3.5	U	
ENDRIN ALDEHYDE		3.8	U		3.7	U		3.7	U		3.5	U	
ENDRIN KETONE		3.8	U		3.7	U		3.7	U		3.5	U	
GAMMA-BHC (LINDANE)		1.9	U		1.9	U		1.9	U		1.8	U	
GAMMA-CHLORDANE		1.9	U		1.9	U		1.9	U		1.8	U	
HEPTACHLOR		1.9	U		5.8	J	C	1.9	UJ	C	1.8	UJ	C
HEPTACHLOR EPOXIDE		1.9	U		1.9	U		1.9	U		1.8	U	
METHOXYCHLOR		19	U		19	UJ	C	19	UJ	C	18	UJ	C
TOXAPHENE		38	U		37	U		37	U		35	U	

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-0406			DA-SBDUP01		
	LAB_ID	SB0920-1			SB0920-3			SB0920-5			SB0920-7		
	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	U		3.5	U		3.5	U		3.5	U	
4,4'-DDE		3.8	U		3.5	U		3.5	U		3.5	U	
4,4'-DDT		3.8	U		3.5	U		3.5	U		3.5	U	
ALDRIN		2	U		1.8	U		1.8	U		1.8	U	
ALPHA-BHC		2	U		1.8	U		1.8	U		1.8	U	
ALPHA-CHLORDANE		2	U		1.8	U		1.8	U		1.8	U	
AROCLOR-1016		20	U		18	U		18	U		18	U	
AROCLOR-1221		20	U		18	U		18	U		18	U	
AROCLOR-1232		20	U		18	U		18	U		18	U	
AROCLOR-1242		20	U		18	U		18	U		18	U	
AROCLOR-1248		20	U		18	U		18	U		18	U	
AROCLOR-1254		20	U		18	U		18	U		18	U	
AROCLOR-1260		20	U		18	U		18	U		18	U	
AROCLOR-1268		20	U		18	U		18	U		18	U	
BETA-BHC		2	U		1.8	U		1.8	U		1.8	U	
DELTA-BHC		2	U		1.8	U		1.8	U		1.8	U	
DIELDRIN		3.8	U		3.5	U		3.5	U		3.5	U	
ENDOSULFAN I		2	U		1.8	U		1.8	U		1.8	U	
ENDOSULFAN II		3.8	U		3.5	U		3.5	U		3.5	U	
ENDOSULFAN SULFATE		3.8	U		3.5	U		3.5	U		3.5	U	
ENDRIN		3.8	U		3.5	U		3.5	U		3.5	U	
ENDRIN ALDEHYDE		3.8	U		3.5	U		3.5	U		3.5	U	
ENDRIN KETONE		3.8	U		3.5	U		3.5	U		3.5	U	
GAMMA-BHC (LINDANE)		2	U		1.8	U		1.8	U		1.8	U	
GAMMA-CHLORDANE		2	U		1.8	U		1.8	U		1.8	U	
HEPTACHLOR		2	U		1.8	U		1.8	U		1.8	U	
HEPTACHLOR EPOXIDE		2	U		1.8	U		1.8	U		1.8	U	
METHOXYCHLOR		20	U		18	U		18	U		18	U	
TOXAPHENE		38	U		35	U		35	U		35	U	

PROJ_NO: 00933	NSAMPLE	DA-SBDUP02
SDG: CTO403-1	LAB_ID	SB0959-5
FRACTION: PEST/PCB	SAMP_DATE	2/25/2008
MEDIA: SOIL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	88.8
	DUP_OF	DA-SB128-0810

PARAMETER	RESULT	VQL	QLCD
4,4'-DDD	3.7	U	
4,4'-DDE	3.7	U	
4,4'-DDT	3.7	U	
ALDRIN	1.9	U	
ALPHA-BHC	1.9	U	
ALPHA-CHLORDANE	1.9	U	
AROCLOR-1016	19	U	
AROCLOR-1221	19	U	
AROCLOR-1232	19	U	
AROCLOR-1242	19	U	
AROCLOR-1248	19	U	
AROCLOR-1254	19	U	
AROCLOR-1260	19	U	
AROCLOR-1268	19	U	
BETA-BHC	1.9	U	
DELTA-BHC	1.9	U	
DIELDRIN	3.7	U	
ENDOSULFAN I	1.9	U	
ENDOSULFAN II	3.7	U	
ENDOSULFAN SULFATE	3.7	U	
ENDRIN	3.7	U	
ENDRIN ALDEHYDE	3.7	U	
ENDRIN KETONE	3.7	U	
GAMMA-BHC (LINDANE)	1.9	U	
GAMMA-CHLORDANE	1.9	U	
HEPTACHLOR	1.9	U	
HEPTACHLOR EPOXIDE	1.9	U	
METHOXYCHLOR	19	U	
TOXAPHENE	37	U	

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB121-0406			DA-SB122-0407			DA-SB123-0508			DA-SB126-1013		
	LAB_ID	SB0983-1			SB0983-5			SB0959-11			SB0983-3		
	SAMP_DATE	2/26/2008			2/26/2008			2/25/2008			2/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	91.5			92.2			89.8			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		2800			530			2.6	J	P	200		
GASOLINE RANGE ORGANICS		3.4	U	A	5.4	U	A	2.5	U	A	2.8	U	A

PROJ_NO: 00933	NSAMPLE	DA-SB128-0810			DA-SB129-0406			DA-SB130-1011.5			DA-SB131-0406		
SDG: CTO403-1	LAB_ID	SB0959-3			SB0983-7			SB0959-9			SB0959-7		
FRACTION: PET	SAMP_DATE	2/25/2008			2/26/2008			2/25/2008			2/25/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.4			87.1			85.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		530			260			94			39	J	D
GASOLINE RANGE ORGANICS		2.7	U	A	3.2	U	A	2.9	U	A	2.9	U	A

PROJ_NO: 00933 SDG: CTO403-1 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB132-0406			DA-SB134-0405			DA-SB135-1214			DA-SB136-0810		
	LAB_ID	SB0959-1			SB0932-1			SB0983-9			SB0932-3		
	SAMP_DATE	2/25/2008			2/22/2008			2/26/2008			2/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.7			89.5			90.0			94.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		150			4.3	J	P	3.8	J	P	6		
GASOLINE RANGE ORGANICS		2.7	U	A	3.4	U	A	3.1	U	A	3.2	U	A

PROJ_NO: 00933	NSAMPLE	DA-SB137-0406			DA-SB138-0406			DA-SB139-1012			DA-SBDUP01		
SDG: CTO403-1	LAB_ID	SB0920-1			SB0920-3			SB0920-5			SB0920-7		
FRACTION: PET	SAMP_DATE	2/21/2008			2/21/2008			2/21/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.2			94.3			94.1			93.1		
	DUP_OF										DA-SB138-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		4.3	J	P	2.5	J	P	2.6	J	P	2.8	J	P
GASOLINE RANGE ORGANICS		3.1	U	A	2.5	U	A	2.8	U	A	3.1	U	A

PROJ_NO: 00933	NSAMPLE	DA-SBDUP02			DA-SBTB022508			DA-TB-022208			TB-022108		
SDG: CTO403-1	LAB_ID	SB0959-5			SB0959-13			SB0932-5			SB0920-9		
FRACTION: PET	SAMP_DATE	2/25/2008			2/25/2008			2/22/2008			2/21/2008		
MEDIA: SOIL	QC_TYPE	NM			TB			TB			TB		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.8			.0			.0			.0		
	DUP_OF	DA-SB128-0810											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		560											
GASOLINE RANGE ORGANICS		2.8	U	A	2.5	U	A	2.5	U	A	2.5	U	A

PROJ_NO: 00933	NSAMPLE	TB022608		
SDG: CTO403-1	LAB_ID	SB0983-11		
FRACTION: PET	SAMP_DATE	2/26/2008		
MEDIA: SOIL	QC_TYPE	TB		
	UNITS	MG/KG		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS				
GASOLINE RANGE ORGANICS		2.5	U	A

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2713W

Date: April 29, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO403-2
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:

14/Soils/	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608
	DA-SB107-0103	DA-SB108-0204	DA-SB109-0204
	DA-SB110-0810	DA-SB124-0608	DA-SB125-0810
	DA-SB127-0204	DA-SB133-0102	DA-SB133-0810
	DA-SB152-0204	DA-SB153-0204	
1/Rinsate Blank/	DA-SBRB01-022908		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from February 27-29, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• Calibration Verification
*	• ICP-MS Tune
*	• ICP-MS Internal Standard Relative Intensities
	• Laboratory and Field Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
NA	• Field Duplicate Precision
*	• ICP Serial Dilution Results

- Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Laboratory and Field Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory and field blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Antimony	-0.162 mg/kg	0.81 mg/kg	All soil samples
Selenium	-2.63 ug/L	1.32 mg/kg	All samples
Silver	0.73 ug/L	0.365 mg/kg	DA-SB105-0406, DA-SB106-0608, DA-SB127-0204, DA-SB152-0204
Thallium	0.24 ug/L	0.12 mg/kg	All samples, except DA-SB106-0608 and DA-SBRB01-022908
Potassium	86.01 ug/L	430 ug/L	DA-SBRB01-022908
Sodium	39.71 ug/L	199 ug/L	

The positive silver, thallium, potassium, and sodium results below the blank action level were changed to estimated, non-detected values (UJ) at elevated reporting limits due to laboratory blank contamination. The positive antimony and selenium results below the blank action level are estimated (J) and the non-detected antimony and selenium results are estimated (UJ) due to negative instrument drift as evidenced by the negative blank results.

The action levels in the table above are based on an assumption of 100 percent solids; 1 g (ICP metals) of sample analyzed; and a dilution factor of 5 (selenium and thallium). The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although silver and thallium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although potassium and sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits established for these metals. The non-detected results in the affected sample are usable as elevated reporting limits.

Negative results for antimony and selenium were found in the laboratory blank. The project accuracy goals may be impacted. The positive and non-detected antimony and selenium results in the affected samples may be biased low.

The rinsate blank was not used to establish blank action levels.

ICP Interference Check Sample Results

The ICS AB solution exceeded the percent recovery criterion for silver. Positive silver results are estimated (J) in all soil samples. The results may be biased high.

Although the percent recovery criterion was not met for silver in the interference check sample, the project accuracy goals may be only slightly impacted. The positive silver results in the affected samples are usable as estimated values which may be biased high.

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ J		High	DA-SB105-0406, DA-SB106-0608, DA-SB127-0204
Cadmium	J	UJ	Low	All soil samples, except DA-SB107-0103
Molybdenum	J		Low	All soil samples, except DA-SB106-0608
Silver	UJ J		High	All soil samples
Sodium	J		High	All soil samples, except DA-SB110-0810
Selenium	UJ		Low	All soil samples

The positive results for antimony, silver, and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive results are estimated (J) for molybdenum and selenium in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

The positive results are estimated (J) and the non-detected results are estimated (UJ) for cadmium in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive antimony and silver results to estimated, non-detected values (UJ) in the select samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for antimony, silver, and sodium in the affected samples are usable as estimated values which may be biased high. The positive molybdenum and selenium results in the affected samples are usable as estimated values which may be biased low. The positive and non-detected cadmium results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project sensitivity goals are not impacted. The positive results for antimony and silver in select samples, which had elevated reporting limits, do not exceed the project action limits for antimony and silver. The antimony and silver results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB152-0204 that did not meet the 75% recovery QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Antimony	38.0/38.8	75-125	J	UJ

The project accuracy goals may be slightly impacted due to low percent recovery for antimony. The positive and non-detected antimony results are estimated; results may be biased low.

Reporting Limits

All non-detected values met the project quantitation limits, except the non-detected selenium result in sample DA-SB106-0608 (due to 1:10 dilution). The project sensitivity goals may be impacted for the non-detected selenium result in sample DA-SB106-0608 since the project action limits are exceeded by the reporting limit.

The positive results below than the laboratory's quantitation limit and above the instrument detection limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Select metals were qualified as estimated due to negative blank contamination, low ICS AB silver recoveries, ICP interferences due to high iron concentration, and low antimony matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set with the following exception. The selenium reporting limit in sample DA-SB106-0608 exceeds the project action limit for selenium. Data usability may be impacted for this result.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SB104-0608			DA-SB105-0406			DA-SB106-0608			DA-SB107-0103		
	LAB_ID	SB1033-009			SB1046-011			SB1046-009			SB1046-005		
	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		16700			12500			11100			8120		
ANTIMONY		0.1	UJ	DO	0.11	UJ	DKOP	2.2	UJ	DKOP	0.05	UJ	DO
ARSENIC		9.4			20.2			26.3			6.8		
BARIUM		25.1			25.9			653			22.4		
BERYLLIUM		0.35	J	P	0.47			0.46			0.31	J	P
CADMIUM		0.01	UJ	K	0.33	J	KP	1.7	J	KP	1.6		
CALCIUM		1430			1260			9560			1210		
CHROMIUM		21.2			15.5			98.2			11.8		
COBALT		12.5			12.1			35.6			20		
COPPER		19.6			19.1			140			15.9		
IRON		28600			26500			134000			14800		
LEAD		24.8			23.3			4650			110		
MAGNESIUM		3720			2970			3700			1920		
MANGANESE		415			393			920			312		
MERCURY		0.06			0.02	J	P	0.06			0.02	J	P
MOLYBDENUM		0.36	J	KP	0.56	J	KP	58.8			0.32	J	KP
NICKEL		25			20.9			102			10.9		
POTASSIUM		346			542			275			681		
SELENIUM		0.65	UJ	OK	0.65	UJ	KO	2.63	UJ	KO	0.32	UJ	KO
SILVER		1.2	J	KP	0.35	UJ	AKP	1.9	UJ	AKP	1.3	J	KP
SODIUM		41	J	KP	56.4	J	KP	64.4	J	KP	45.2	J	KP
THALLIUM		0.04	UJ	AP	0.02	UJ	AP	0.04	U		0.06	UJ	AP
VANADIUM		23.6			16.3			28.6			14.2		
ZINC		67.9			53.5			148			63.3		

PROJ_NO: 00933	NSAMPLE	DA-SB108-0204			DA-SB109-0204			DA-SB110-0810			DA-SB124-0608		
SDG: CTO403-2	LAB_ID	SB1046-007			SB1033-007			SB1033-003			SB1010-001		
FRACTION: M	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4450			13200			14200			14800		
ANTIMONY		0.04	UJ	DO	0.09	UJ	DO	0.09	UJ	DO	0.11	UJ	DO
ARSENIC		2.9			14.5			17			14.5		
BARIUM		14.2			26.3			51.6			21.3		
BERYLLIUM		0.36			0.34	J	P	0.74			0.33	J	P
CADMIUM		0.66	J	K	0.01	UJ	K	0.01	UJ	K	0.02	UJ	K
CALCIUM		1230			946			12700			525		
CHROMIUM		4.9			17.4			16			19.5		
COBALT		14.7			10.3			11			19.4		
COPPER		6.5			21.5			20			27		
IRON		10500			24500			23400			37800		
LEAD		25.6			19.4			28.6			12.3		
MAGNESIUM		1160			3390			8280			4570		
MANGANESE		356			312			460			679		
MERCURY		0.01	U		0.03			0.04			0.01	U	
MOLYBDENUM		0.18	J	KP	0.49	J	KP	0.47	J	KP	0.44	J	KP
NICKEL		4.4			24.8			21.8			35		
POTASSIUM		1100			432			854			490		
SELENIUM		0.25	UJ	KO	0.63	UJ	KO	0.64	UJ	KO	0.72	UJ	KO
SILVER		0.31	J	KP	0.91	J	KP	0.77	J	KP	0.92	UJ	KP
SODIUM		29.3	J	KP	43.8	J	KP	266			37.7	J	KP
THALLIUM		0.07	UJ	AP	0.05	UJ	AP	0.07	UJ	AP	0.02	UJ	AP
VANADIUM		6.1			23.3			22.2			22.5		
ZINC		40.1			58.6			60.2			72.2		

PROJ_NO: 00933	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
SDG: CTO403-2	LAB_ID	SB1010-003			SB1010-005			SB1010-007			SB1010-009		
FRACTION: M	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		15700			10600			13600			14100		
ANTIMONY		0.1	UJ	DO	0.05	UJ	DKOP	0.1	UJ	DO	0.1	UJ	DO
ARSENIC		11.7			11.7			23.1			14.3		
BARIUM		23.1			27.9			23.5			26.8		
BERYLLIUM		0.28	J	P	0.26	J	P	0.43	J	P	0.36	J	P
CADMIUM		0.01	UJ	K	0.19	J	KP	0.01	UJ	K	0.01	UJ	K
CALCIUM		2040			3300			2440			11800		
CHROMIUM		20.9			11.5			16.5			18.6		
COBALT		14.2			7.6			13.6			10.8		
COPPER		19.9			14.4			19.4			17.6		
IRON		30700			18800			29400			26100		
LEAD		13.9			25.1			14.1			16.6		
MAGNESIUM		4260			2470			3590			4560		
MANGANESE		753			300			411			350		
MERCURY		0.02	U		0.09			0.08			0.02	J	P
MOLYBDENUM		0.63	J	KP	0.29	J	KP	0.34	J	KP	0.31	J	KP
NICKEL		26.9			13.1			24.3			22.9		
POTASSIUM		518			579			572			664		
SELENIUM		0.65	UJ	KO	0.35	UJ	KO	0.7	UJ	KO	0.66	UJ	KO
SILVER		0.74	UJ	KP	0.13	UJ	AKP	0.79	J	KP	0.74	J	KP
SODIUM		47.8	J	KP	47.6	J	KP	50.6	J	KP	74.9	J	KP
THALLIUM		0.04	UJ	AP	0.06	UJ	AP	0.03	UJ	AP	0.03	UJ	AP
VANADIUM		25.6			16.1			20.5			22.7		
ZINC		57.7			58.3			58.6			57.5		

PROJ_NO: 00933	NSAMPLE	DA-SB152-0204			DA-SB153-0204		
SDG: CTO403-2	LAB_ID	SB1033-001			SB1033-005		
FRACTION: M	SAMP_DATE	2/28/2008			2/28/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	87.8			82.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9500			11400		
ANTIMONY		0.08	UJ	DO	0.1	UJ	DO
ARSENIC		6			12.6		
BARIUM		18.1			29.6		
BERYLLIUM		0.36	J	P	0.31	J	P
CADMIUM		0.01	UJ	K	0.01	UJ	K
CALCIUM		573			757		
CHROMIUM		13.5			14.2		
COBALT		6.6			8.4		
COPPER		17.9			9.3		
IRON		19600			25200		
LEAD		9			10.5		
MAGNESIUM		2210			2850		
MANGANESE		122			367		
MERCURY		0.01	J	P	0.02	J	P
MOLYBDENUM		0.4	J	KP	0.2	J	KP
NICKEL		16.1			17.2		
POTASSIUM		379			393		
SELENIUM		0.55	UJ	KO	0.66	UJ	KO
SILVER		0.51	UJ	AKP	0.94	J	KP
SODIUM		32.1	J	KP	38.3	J	KP
THALLIUM		0.08	UJ	AP	0.04	UJ	AP
VANADIUM		23.3			21.2		
ZINC		40			46.4		

PROJ_NO: 00933	NSAMPLE	DA-SBRB01-022908
SDG: CTO403-2	LAB_ID	SB1046-001
FRACTION: M	SAMP_DATE	2/29/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	14.6	U	
ANTIMONY	0.78	U	
ARSENIC	1.45	U	
BARIUM	0.59	U	
BERYLLIUM	0.13	U	
CADMIUM	0.04	U	
CALCIUM	102		
CHROMIUM	0.53	J	P
COBALT	0.24	U	
COPPER	0.75	U	
IRON	72.2	J	P
LEAD	0.97	U	
MAGNESIUM	8.5	J	P
MANGANESE	1.5	J	P
MERCURY	0.03	U	
MOLYBDENUM	0.73	J	P
NICKEL	0.42	U	
POTASSIUM	61.3	UJ	AP
SELENIUM	0.96	UJ	O
SILVER	0.29	U	
SODIUM	121	UJ	AP
THALLIUM	0.6	U	
VANADIUM	0.38	U	
ZINC	2.4	J	P

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2711W

Date: April 29, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-2
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

14/Soils/	DA-SB104-0608	DA-SB105-0406	DA-SB106-0608
	DA-SB107-0103	DA-SB108-0204	DA-SB109-0204
	DA-SB110-0810	DA-SB124-0608	DA-SB125-0810
	DA-SB127-0204	DA-SB133-0102	DA-SB133-0810
	DA-SB152-0204	DA-SB153-0204	
1/Rinsate Blank/	DA-SBRB01-022908		

VOC/GRO:

3/Trip Blanks/	DA-TB-022708	SBTB-022908	TB-022808

VOC:

1/Trip Blank/	RB-TB-022908

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the soil samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from February 27-29, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
*	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
*	• Instrument Performance Check: Pesticide Degradation
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
*	• Internal Standards
	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	• Field Duplicates
	• Analyte Identification/Quantitation
*	• Percent Solids
	• Reporting Limits
*	• Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The laboratory did not receive low concentration vials for trip blank DA-TB-022708. Methanol trip blank samples were run at medium concentration.

The dibenzo(a,h)anthracene result in sample DA-SB110-0810 was reported as 0.00 ug/kg. On April 9, 2008, the laboratory resubmitted the corrected result as >1000 ug/kg. Due to software peak limitations, the large area for this compound could not be integrated.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
1,2-Dibromo-3-chloropropane	60.68		UJ	TB-022808, DA-SB152-0204, DA-SB110-0810, DA-SB153-0204
2-Hexanone	26.37		UJ	DA-SB109-0204, DA-SB104-0608
Acetone	37.81	J	UJ	
2-Butanone	31.78		UJ	
Trichlorofluoromethane	30.10		UJ	DA-SB105-0406
2,2-Dichloropropane	28.36		UJ	

Although the %D method criterion was outside of the QC limits for 1,2-dichloro-3-chloropropane, 2-hexanone, acetone, 2-butanone, trichlorofluoromethane, and 2,2-dichloropropane, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 500% allocated for these compounds or there is no regulatory limits established for the affected compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	54.5		UJ	All semivolatile samples

Although the %RSD method criterion was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzoic acid	-27.27, -28.94	J	UJ	DA-SB124-0608, DA-SB125-0810, DA-SB133-0102, DA-SBRB01-022908, DA-SB152-0204, DA-SB153-0204, DA-SB105-0406, DA-SB104-0608, DA-SB108-0204, DA-SB107-0103, DA-SB106-0608, DA-SB133-0810, DA-SB110-0810, DA-SB127-0204
Benzidine	-60.88, -91.24		UJ	
Pentachlorophenol	-26.28		UJ	DA-SB124-0608, DA-SB125-0810, DA-SB133-0102
3,3'-Dichlorobenzidine	-42.85		UJ	DA-SBRB01-022908, DA-SB152-0204, DA-SB153-0204, DA-SB105-0406, DA-SB104-0608, DA-SB108-0204, DA-SB107-0103, DA-SB106-0608, DA-SB133-0810, DA-SB110-0810, DA-SB127-0204
N-nitrosodimethylamine	25.26		UJ	DA-SB109-0204
4-Nitrophenol	25.18		UJ	

Although the %D method criterion was outside of the QC limits for benzoic acid, benzidine, pentachlorophenol, 3,3'-dichlroobenzidine, n-nitrosodimethylamine, and 4-nitrophenol, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there is no regulatory limits established for the affected compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acenaphthylene	-37.70, -42.87		UJ	DA-SB105-0406, DA-SB108-0204, DA-SB107-0103, DA-SB124-0608, DA-SB152-0204, DA-SB153-0204, DA-SB125-0810, DA-SB127-0204(DL), DA-SB133-0102, DA-SB133-0810(DL), DA-SB110-0810
Benzo(a)anthracene	31.05	J		DA-SB105-0406, DA-SB108-0204, DA-SB107-0103
Fluorene	-30.35	J	UJ	DA-SB124-0608, DA-SB152-0204, DA-SB153-0204, DA-SB125-0810, DA-SB133-0102
Indeno(1,2,3-cd)pyrene	-34.13, -43.41	J	UJ	DA-SB124-0608, DA-SB152-0204, DA-SB153-0204, DA-SB125-0810, DA-SB133-0102, DA-SB104-0608
Benzo(g,h,i)perylene	-38.59, -54.92	J	UJ	
Dibenzo(a,h)anthracene	-31.03	J		DA-SB104-0608

Although the %D method criterion was outside of the QC limits for acenaphthylene, benzo(a)anthracene, fluorene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, and dibenzo(a,h)anthracene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
alpha-BHC	-29.60	-33.20		UJ	DA-SB124-0608, DA-SB152-0204, DA-SB153-0204, DA-SB125-0810, DA-SB127-0204(DL), DA-SB133-0102, DA-SB133-0810(DL), DA-SB110-0810
gamma-BHC	-31.40	-32.00		UJ	
Heptachlor	-26.00	-29.40	J	UJ	
beta-BHC	-30.00	-33.60		UJ	
Aldrin	-30.00	-30.00		UJ	
delta-BHC	-95.46	-30.46		UJ	
Heptachlor epoxide	-28.20	-27.60		UJ	
Endosulfan I	-28.40	-27.80		UJ	
4,4'-DDE	-26.00	-25.20	J	UJ	
alpha-Chlordane	-29.40	-25.20		UJ	

Although the %D method criteria were outside of the QC limits for the above analytes, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds with the following exception. Data usability may be impacted for alpha chlordane in the affected samples since the project quantitation limits exceed the project action limits for this compound. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the PCB compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	30.52	32.28		UJ	DA-SB104-0608
Aroclor-1260	30.12	27.12		UJ	

Although the %D method criterion was outside of the QC limits for Aroclor-1016 and Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin

of greater than 100% allocated for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the trip blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (ug/Kg)	Action Level (ug/Kg)	Affected Samples
Methylene Chloride	Trip	3	30	DA-SB133-0102, DA-SB109-0204, DA-SB108-0204

Blank actions were applied to the affected samples due to methylene chloride trip blank contamination. The 10x rule applies for the common laboratory contaminant methylene chloride. The positive results below the blank action level for methylene chloride in the affected samples are changed to non-detected values at elevated reporting limits.

Although methylene chloride contamination was found in the trip blank, the project sensitivity goals are not impacted since the elevated reporting limits do not exceed the project action limits for methylene chloride. The results in the affected samples are usable with elevated detection limits.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	1.2	6	All soil samples

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

ExTPH

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
ExTPH	Method	2.7	13.5	DA-SB124-0608, DA-SB152-0204, DA-SB153-0204

Blank actions were applied to the affected samples due to ExTPH method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for ExTPH in the affected samples were changed to non-detected values at elevated reporting limits.

Although ExTPH contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

Surrogate Compounds

Semivolatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB110-0810	TPH	153	45-133	J	

The surrogate terphenyl-d14 recovered above the QC limits in the semivolatile sample DA-SB110-0810. All positive results are estimated (J) in the affected sample due to high surrogate recovery.

Although the surrogate recovery QC criteria were not met for terphenyl-d4, the project accuracy goals are only slightly impacted. The positive results in sample DA-SB110-0810 are usable as estimated values which may be biased high.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SB152-0204 recovered the majority of the volatile compounds below the compound-specific recovery limits and above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-SB152-0204 due to low MS/MSD recoveries and MS/MSD imprecision.

The project accuracy goals may be slightly impacted for sample DA-SB152-0204 because the matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC

limits. The positive and non-detected results in sample DA-SB152-0204 are usable as estimated values and estimated quantitation limits which may be biased low.

The project precision goals may be slightly impacted for sample DA-SB152-0204 because the matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-SB152-0204 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

PAH

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB152-0204 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Acenaphthylene	41, 43	66-136		UJ

Although the percent recovery criterion was not met for acenaphthylene, the project accuracy goals are only slightly impacted. The non-detected acenaphthylene result in sample DA-SB152-0204 is usable as an estimated quantitation limits which may be biased low.

PCB

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB152-0204 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Aroclor-1016	68	71-114		UJ

Although the percent recovery criterion was not met for Aroclor-1016, the project accuracy goals are only slightly impacted. The non-detected Aroclor-1016 result in sample DA-SB152-0204 is usable as an estimated quantitation limits which may be biased low.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromochloromethane	49, 52, 54, 57, 54, 57	81-127		UJ	All samples
	55	80-132			
1,2-Dibromo-3-chloropropane	80	83-117		UJ	DA-SB108-0204, DA-SB106-0608

The LCS recoveries for bromochloromethane and 1,2-dibromo-3-chloropropane were below the QC criteria. The non-detected results are estimated (UJ) for bromochloromethane and 1,2-dibromo-3-chloropropane in the affected samples.

Although the LCS/LCSD recoveries for bromochloromethane and 1,2-dibromo-3-chloropropane were below the QC limits, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Pyrene	115	50-114	J		DA-SB106-0608, DA-SB107-0103

The LCS recovery for pyrene was above the QC criterion. The positive pyrene results are estimated (J) in the affected samples.

Although the LCS recovery for pyrene was above the QC limit, the project accuracy goals may be only slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

PAH

The following table summarizes the PAH compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Acenaphthylene	39	50-115		UJ	DA-SB124-0608, DA-SB125-0810, DA-SB152-0204, DA-SB127-0204(DL), DA-SB153-0204, DA-SB133-0102, DA-SB133-0810(DL), DA-SB110-0810, DA-SB104-0608, DA-SB109-0204

The LCS recovery for acenaphthylene was below the QC criterion. The non-detected acenaphthylene results are estimated (UJ) in the affected samples.

Although the LCS recovery for acenaphthylene was below the QC limit, the project accuracy goals may be only slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action	
			(+)	NDs
DA-SB110-0810	Heptachlor	50.4	J	
DA-SB133-0810	4,4'-DDT	97.9	J	
	Endrin Aldehyde	47.9	J	

The analyte quantitation relative percent differences exceeded the QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in samples DA-SB104-0608, DA-SB106-0608, and DA-TB-022708.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples and analytical dilutions, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

The semivolatile sample DA-SB110-0810 was initially analyzed at a 1:5 dilution due to high PAH concentration, matrix interference, and/or sample viscosity. The laboratory quantitation limits are consequently elevated by a factor of 5.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples and analytical dilutions, all reporting limits met project action limits.

The PAH samples DA-SB127-0204, DA-SB133-0810, and DA-SB110-0810 were initially analyzed at 1:10, 1:2, and 1:5 dilutions, respectively, due to matrix interferences and/or sample viscosities. The laboratory quantitation limits are consequently elevated by factors of 10, 2, and 5, respectively. Acenaphthylene was the only non-detected PAH in these samples.

PAH results beyond the linear calibration range of the instrument in the SIM mode are reported from the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Tentatively Identified Compounds

Semivolatiles

The laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set with the following exception. Results for sample DA-SB152-0204 were qualified as estimated due to matrix spike/matrix spike duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples as described in the Reporting Limits section. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, high surrogate recoveries, and high laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan. In addition, quantitation limits for sample DA-SB110-0810 are elevated due to sample dilution.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PAH data set. Data usability was not impacted with regards to precision and sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. Aroclor-1016 and Aroclor-1260 in sample DA-SB104-0608 were qualified as estimated due to instrument calibration variability and low matrix spike recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO and ExTPH

The project goals with respect to accuracy, precision, and sensitivity were met for the GRO and ExTPH data sets. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB104-0608RA			DA-SB105-0406RA			DA-SB106-0608			DA-SB107-0103RA2		
	LAB_ID	SB1033-9RA			SB1046-11RA			SB1046-9			SB1046-5RA2		
	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	UJ	E	5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	UJ	C	5	U		5	U	
2-BUTANONE		26	UJ	C	25	U		27	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		26	UJ	C	25	U		27	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		26	U		25	U		27	U		25	U	
ACETONE		26	UJ	C	9	J	P	620			45		
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		11	U		10	U		11	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB108-0204			DA-SB109-0204RA			DA-SB110-0810			DA-SB124-0608		
	LAB_ID	SB1046-7			SB1033-7RA			SB1033-3			SB1010-1		
	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	UJ	E	5	U		5	UJ	C	5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		25	U		25	UJ	C	25	U		26	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	UJ	C	25	U		26	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		26	U	
ACETONE		530			13	J	CP	20	J	P	26	U	
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
	LAB_ID	SB1010-3			SB1010-5			SB1010-7			SB1010-9		
	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		25	U		25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		14	J	P	11	J	P	340			23	J	P
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB152-0204			DA-SB153-0204			DA-TB-022708DL			SBTB-022908		
	LAB_ID	SB1033-1			SB1033-5			SB1010-11DL			SB1046-4		
	SAMP_DATE	2/28/2008			2/28/2008			2/27/2008			2/29/2008		
	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.8			82.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	UJ	D	5	U		56	U		5	U	
1,1,1-TRICHLOROETHANE		5	UJ	D	5	U		56	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	UJ	D	5	U		56	U		5	U	
1,1,2-TRICHLOROETHANE		5	UJ	D	5	U		56	U		5	U	
1,1-DICHLOROETHANE		5	UJ	D	5	U		56	U		5	U	
1,1-DICHLOROETHENE		5	UJ	D	5	U		56	U		5	U	
1,1-DICHLOROPROPENE		5	UJ	D	5	U		56	U		5	U	
1,2,3-TRICHLOROBENZENE		5	UJ	D	5	U		56	U		5	U	
1,2,3-TRICHLOROPROPANE		5	UJ	D	5	U		56	U		5	U	
1,2,4-TRICHLOROBENZENE		5	UJ	D	5	U		56	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	UJ	D	5	U		56	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	UJ	CD	5	UJ	C	56	U		5	U	
1,2-DIBROMOETHANE		5	UJ	D	5	U		56	U		5	U	
1,2-DICHLOROBENZENE		5	UJ	D	5	U		56	U		5	U	
1,2-DICHLOROETHANE		5	UJ	D	5	U		56	U		5	U	
1,2-DICHLOROPROPANE		5	UJ	D	5	U		56	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	UJ	D	5	U		56	U		5	U	
1,3-DICHLOROBENZENE		5	UJ	D	5	U		56	U		5	U	
1,3-DICHLOROPROPANE		5	UJ	D	5	U		56	U		5	U	
1,4-DICHLOROBENZENE		5	UJ	D	5	U		56	U		5	U	
2,2-DICHLOROPROPANE		5	UJ	D	5	U		56	U		5	U	
2-BUTANONE		25	UJ	D	25	U		280	U		25	U	
2-CHLOROTOLUENE		5	UJ	D	5	U		56	U		5	U	
2-HEXANONE		25	UJ	D	25	U		280	U		25	U	
4-CHLOROTOLUENE		5	UJ	D	5	U		56	U		5	U	
4-ISOPROPYLTOLUENE		5	UJ	D	5	U		56	U		5	U	
4-METHYL-2-PENTANONE		25	UJ	D	25	U		280	U		25	U	
ACETONE		25	UJ	D	73			280	U		25	U	
BENZENE		5	UJ	D	5	U		56	U		5	U	
BROMOBENZENE		5	UJ	D	5	U		56	U		5	U	
BROMOCHLOROMETHANE		5	UJ	DE	5	UJ	E	56	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	UJ	D	5	U		56	U		5	U	
BROMOFORM		5	UJ	D	5	U		56	U		5	U	
BROMOMETHANE		10	UJ	D	10	U		110	U		10	U	
CARBON DISULFIDE		5	UJ	D	5	U		56	U		5	U	

PROJ_NO: 00933	NSAMPLE	TB-022808
SDG: CTO403-2	LAB_ID	SB1033-11
FRACTION: OV	SAMP_DATE	2/28/2008
MEDIA: SOIL	QC_TYPE	TB
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U	
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,1-DICHLOROPROPENE	5	U	
1,2,3-TRICHLOROBENZENE	5	U	
1,2,3-TRICHLOROPROPANE	5	U	
1,2,4-TRICHLOROBENZENE	5	U	
1,2,4-TRIMETHYLBENZENE	5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	UJ	C
1,2-DIBROMOETHANE	5	U	
1,2-DICHLOROBENZENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
1,3,5-TRIMETHYLBENZENE	5	U	
1,3-DICHLOROBENZENE	5	U	
1,3-DICHLOROPROPANE	5	U	
1,4-DICHLOROBENZENE	5	U	
2,2-DICHLOROPROPANE	5	U	
2-BUTANONE	25	U	
2-CHLOROTOLUENE	5	U	
2-HEXANONE	25	U	
4-CHLOROTOLUENE	5	U	
4-ISOPROPYLTOLUENE	5	U	
4-METHYL-2-PENTANONE	25	U	
ACETONE	25	U	
BENZENE	5	U	
BROMOBENZENE	5	U	
BROMOCHLOROMETHANE	5	UJ	E
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	5	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB104-0608RA			DA-SB105-0406RA			DA-SB106-0608			DA-SB107-0103RA2		
	LAB_ID	SB1033-9RA			SB1046-11RA			SB1046-9			SB1046-5RA2		
	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		11	U		10	U		11	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		11	U		10	U		11	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		11	U		10	U		11	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		11	U		10	U		11	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		26	U		25	U		27	U		25	U	
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		11	U		10	UJ	C	11	U		10	U	
VINYL CHLORIDE		11	U		10	U		11	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB108-0204			DA-SB109-0204RA			DA-SB110-0810			DA-SB124-0608		
SDG: CTO403-2	LAB_ID	SB1046-7			SB1033-7RA			SB1033-3			SB1010-1		
FRACTION: OV	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U	B	25	U	B	25	U		26	U	
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
	LAB_ID	SB1010-3			SB1010-5			SB1010-7			SB1010-9		
	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U		25	U	B	25	U	
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB152-0204			DA-SB153-0204			DA-TB-022708DL			SBTB-022908		
SDG: CTO403-2	LAB_ID	SB1033-1			SB1033-5			SB1010-11DL			SB1046-4		
FRACTION: OV	SAMP_DATE	2/28/2008			2/28/2008			2/27/2008			2/29/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.8			82.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	UJ	D	5	U		56	U		5	U	
CHLOROBENZENE		5	UJ	D	5	U		56	U		5	U	
CHLORODIBROMOMETHANE		5	UJ	D	5	U		56	U		5	U	
CHLOROETHANE		10	UJ	D	10	U		110	U		10	U	
CHLOROFORM		5	UJ	D	5	U		56	U		5	U	
CHLOROMETHANE		10	UJ	D	10	U		110	U		10	U	
CIS-1,2-DICHLOROETHENE		5	UJ	D	5	U		56	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	UJ	D	5	U		56	U		5	U	
DIBROMOMETHANE		5	UJ	D	5	U		56	U		5	U	
DICHLORODIFLUOROMETHANE		10	UJ	D	10	U		110	U		10	U	
ETHYLBENZENE		5	UJ	D	5	U		56	U		5	U	
HEXACHLOROBUTADIENE		5	UJ	D	5	U		56	U		5	U	
ISOPROPYLBENZENE		5	UJ	D	5	U		56	U		5	U	
M+P-XYLENES		10	UJ	D	10	U		110	U		10	U	
METHYL TERT-BUTYL ETHER		5	UJ	D	5	U		56	U		5	U	
METHYLENE CHLORIDE		25	UJ	D	25	U		280	U		3	J	P
N-BUTYLBENZENE		5	UJ	D	5	U		56	U		5	U	
N-PROPYLBENZENE		5	UJ	D	5	U		56	U		5	U	
O-XYLENE		5	UJ	D	5	U		56	U		5	U	
SEC-BUTYLBENZENE		5	UJ	D	5	U		56	U		5	U	
STYRENE		5	UJ	D	5	U		56	U		5	U	
TERT-BUTYLBENZENE		5	UJ	D	5	U		56	U		5	U	
TETRACHLOROETHENE		5	UJ	D	5	U		56	U		5	U	
TOLUENE		5	UJ	D	5	U		56	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	UJ	D	5	U		56	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	UJ	D	5	U		56	U		5	U	
TRICHLOROETHENE		5	UJ	D	5	U		56	U		5	U	
TRICHLOROFLUOROMETHANE		10	UJ	D	10	U		110	U		10	U	
VINYL CHLORIDE		10	UJ	D	10	U		110	U		10	U	

PROJ_NO: 00933	NSAMPLE	TB-022808
SDG: CTO403-2	LAB_ID	SB1033-11
FRACTION: OV	SAMP_DATE	2/28/2008
MEDIA: SOIL	QC_TYPE	TB
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
DIBROMOMETHANE	5	U	
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	5	U	
HEXACHLOROBUTADIENE	5	U	
ISOPROPYLBENZENE	5	U	
M+P-XYLENES	10	U	
METHYL TERT-BUTYL ETHER	5	U	
METHYLENE CHLORIDE	25	U	
N-BUTYLBENZENE	5	U	
N-PROPYLBENZENE	5	U	
O-XYLENE	5	U	
SEC-BUTYLBENZENE	5	U	
STYRENE	5	U	
TERT-BUTYLBENZENE	5	U	
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPENE	5	U	
TRICHLOROETHENE	5	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB104-0608			DA-SB105-0406			DA-SB106-0608			DA-SB107-0103		
SDG: CTO403-2	LAB_ID	SB1033-9			SB1046-11			SB1046-9			SB1046-5		
FRACTION: OS	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		400	U		380	U		390	U		380	U	
1,2,4-TRICHLOROBENZENE		400	U		380	U		390	U		380	U	
1,2-DICHLOROBENZENE		400	U		380	U		390	U		380	U	
1,2-DIPHENYLHYDRAZINE		800	U		760	U		770	U		770	U	
1,3-DICHLOROBENZENE		400	U		380	U		390	U		380	U	
1,4-DICHLOROBENZENE		400	U		380	U		390	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		400	U		380	U		390	U		380	U	
2,4,5-TRICHLOROPHENOL		1000	U		950	U		960	U		960	U	
2,4,6-TRICHLOROPHENOL		400	U		380	U		390	U		380	U	
2,4-DICHLOROPHENOL		400	U		380	U		390	U		380	U	
2,4-DIMETHYLPHENOL		400	U		380	U		390	U		380	U	
2,4-DINITROPHENOL		1000	U		950	U		960	U		960	U	
2,4-DINITROTOLUENE		400	U		380	U		390	U		380	U	
2,6-DICHLOROPHENOL		400	U		380	U		390	U		380	U	
2,6-DINITROTOLUENE		1000	U		950	U		960	U		960	U	
2-CHLORONAPHTHALENE		400	U		380	U		390	U		380	U	
2-CHLOROPHENOL		400	U		380	U		390	U		380	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		400	U		380	U		390	U		380	U	
2-NITROANILINE		1000	U		950	U		960	U		960	U	
2-NITROPHENOL		400	U		380	U		390	U		380	U	
3&4-METHYLPHENOL		400	U		380	U		390	U		380	U	
3,3'-DICHLOROBENZIDINE		400	UJ	C	380	UJ	C	390	UJ	C	380	UJ	C
3-NITROANILINE		1000	U		950	U		960	U		960	U	
4,6-DINITRO-2-METHYLPHENOL		1000	U		950	U		960	U		960	U	
4-BROMOPHENYL PHENYL ETHER		400	U		380	U		390	U		380	U	
4-CHLORO-3-METHYLPHENOL		400	U		380	U		390	U		380	U	
4-CHLOROANILINE		400	U		380	U		390	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		400	U		380	U		390	U		380	U	
4-NITROANILINE		1000	U		950	U		960	U		960	U	
4-NITROPHENOL		1000	U		950	U		960	U		960	U	
ACENAPHTHENE													
ANTHRACENE								640					
BENZIDINE		1800	UJ	C	1700	UJ	C	1800	UJ	C	1800	UJ	C
BENZO(A)ANTHRACENE								2000					

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB108-0204			DA-SB109-0204			DA-SB110-0810DL			DA-SB124-0608		
	LAB_ID	SB1046-7			SB1033-7RA			SB1033-3DL			SB1010-1		
	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		350	U		380	U		8300	J	R	380	U	
1,2,4-TRICHLOROBENZENE		350	U		380	U		1900	U		380	U	
1,2-DICHLOROBENZENE		350	U		380	U		1900	U		380	U	
1,2-DIPHENYLHYDRAZINE		700	U		760	U		3700	U		750	U	
1,3-DICHLOROBENZENE		350	U		380	U		1900	U		380	U	
1,4-DICHLOROBENZENE		350	U		380	U		1900	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		350	U		380	U		1900	U		380	U	
2,4,5-TRICHLOROPHENOL		860	U		940	U		4600	U		940	U	
2,4,6-TRICHLOROPHENOL		350	U		380	U		1900	U		380	U	
2,4-DICHLOROPHENOL		350	U		380	U		1900	U		380	U	
2,4-DIMETHYLPHENOL		350	U		380	U		1900	U		380	U	
2,4-DINITROPHENOL		860	U		940	U		4600	U		940	U	
2,4-DINITROTOLUENE		350	U		380	U		1900	U		380	U	
2,6-DICHLOROPHENOL		350	U		380	U		1900	U		380	U	
2,6-DINITROTOLUENE		860	U		940	U		4600	U		940	U	
2-CHLORONAPHTHALENE		350	U		380	U		1900	U		380	U	
2-CHLOROPHENOL		350	U		380	U		1900	U		380	U	
2-METHYLNAPHTHALENE								23000	J	R			
2-METHYLPHENOL		350	U		380	U		1900	U		380	U	
2-NITROANILINE		860	U		940	U		4600	U		940	U	
2-NITROPHENOL		350	U		380	U		1900	U		380	U	
3&4-METHYLPHENOL		350	U		380	U		2200	J	R	380	U	
3,3'-DICHLOROBENZIDINE		350	UJ	C	380	U		1900	UJ	C	380	U	
3-NITROANILINE		860	U		940	U		4600	U		940	U	
4,6-DINITRO-2-METHYLPHENOL		860	U		940	U		4600	U		940	U	
4-BROMOPHENYL PHENYL ETHER		350	U		380	U		1900	U		380	U	
4-CHLORO-3-METHYLPHENOL		350	U		380	U		1900	U		380	U	
4-CHLOROANILINE		350	U		380	U		1900	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		350	U		380	U		1900	U		380	U	
4-NITROANILINE		860	U		940	U		4600	U		940	U	
4-NITROPHENOL		860	U		940	UJ	C	4600	U		940	U	
ACENAPHTHENE								150000					
ANTHRACENE								270000					
BENZIDINE		1600	UJ	C	1700	UJ	C	8500	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE								490000					

PROJ_NO: 00933	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
SDG: CTO403-2	LAB_ID	SB1010-3			SB1010-5			SB1010-7			SB1010-9		
FRACTION: OS	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		390	U		1800			380	U		170	J	P
1,2,4-TRICHLOROBENZENE		390	U		380	U		380	U		370	U	
1,2-DICHLOROBENZENE		390	U		380	U		380	U		370	U	
1,2-DIPHENYLHYDRAZINE		770	U		760	U		750	U		730	U	
1,3-DICHLOROBENZENE		390	U		380	U		380	U		370	U	
1,4-DICHLOROBENZENE		390	U		380	U		380	U		370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		390	U		380	U		380	U		370	U	
2,4,5-TRICHLOROPHENOL		960	U		950	U		930	U		910	U	
2,4,6-TRICHLOROPHENOL		390	U		380	U		380	U		370	U	
2,4-DICHLOROPHENOL		390	U		380	U		380	U		370	U	
2,4-DIMETHYLPHENOL		390	U		390			380	U		370	U	
2,4-DINITROPHENOL		960	U		950	U		930	U		910	U	
2,4-DINITROTOLUENE		390	U		380	U		380	U		370	U	
2,6-DICHLOROPHENOL		390	U		380	U		380	U		370	U	
2,6-DINITROTOLUENE		960	U		950	U		930	U		910	U	
2-CHLORONAPHTHALENE		390	U		380	U		380	U		370	U	
2-CHLOROPHENOL		390	U		380	U		380	U		370	U	
2-METHYLNAPHTHALENE					5600						500		
2-METHYLPHENOL		390	U		380	U		380	U		370	U	
2-NITROANILINE		960	U		950	U		930	U		910	U	
2-NITROPHENOL		390	U		380	U		380	U		370	U	
3&4-METHYLPHENOL		390	U		740			380	U		370	U	
3,3'-DICHLOROBENZIDINE		390	U		380	UJ	C	380	U		370	UJ	C
3-NITROANILINE		960	U		950	U		930	U		910	U	
4,6-DINITRO-2-METHYLPHENOL		960	U		950	U		930	U		910	U	
4-BROMOPHENYL PHENYL ETHER		390	U		380	U		380	U		370	U	
4-CHLORO-3-METHYLPHENOL		390	U		380	U		380	U		370	U	
4-CHLOROANILINE		390	U		380	U		380	U		370	U	
4-CHLOROPHENYL PHENYL ETHER		390	U		380	U		380	U		370	U	
4-NITROANILINE		960	U		950	U		930	U		910	U	
4-NITROPHENOL		960	U		950	U		930	U		910	U	
ACENAPHTHENE					37000						2500		
ANTHRACENE					45000						4800		
BENZIDINE		1800	UJ	C	1700	UJ	C	1700	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE		350	J	P	63000			1100			10000		

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB152-0204			DA-SB153-0204		
	LAB_ID	SB1033-1			SB1033-5		
	SAMP_DATE	2/28/2008			2/28/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	87.8			82.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		400	U	
1,2,4-TRICHLOROBENZENE		380	U		400	U	
1,2-DICHLOROBENZENE		380	U		400	U	
1,2-DIPHENYLHYDRAZINE		750	U		800	U	
1,3-DICHLOROBENZENE		380	U		400	U	
1,4-DICHLOROBENZENE		380	U		400	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		400	U	
2,4,5-TRICHLOROPHENOL		930	U		1000	U	
2,4,6-TRICHLOROPHENOL		380	U		400	U	
2,4-DICHLOROPHENOL		380	U		400	U	
2,4-DIMETHYLPHENOL		380	U		400	U	
2,4-DINITROPHENOL		930	U		1000	U	
2,4-DINITROTOLUENE		380	U		400	U	
2,6-DICHLOROPHENOL		380	U		400	U	
2,6-DINITROTOLUENE		930	U		1000	U	
2-CHLORONAPHTHALENE		380	U		400	U	
2-CHLOROPHENOL		380	U		400	U	
2-METHYLNAPHTHALENE							
2-METHYLPHENOL		380	U		400	U	
2-NITROANILINE		930	U		1000	U	
2-NITROPHENOL		380	U		400	U	
3&4-METHYLPHENOL		380	U		400	U	
3,3'-DICHLOROBENZIDINE		380	UJ	C	400	UJ	C
3-NITROANILINE		930	U		1000	U	
4,6-DINITRO-2-METHYLPHENOL		930	U		1000	U	
4-BROMOPHENYL PHENYL ETHER		380	U		400	U	
4-CHLORO-3-METHYLPHENOL		380	U		400	U	
4-CHLOROANILINE		380	U		400	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		400	U	
4-NITROANILINE		930	U		1000	U	
4-NITROPHENOL		930	U		1000	U	
ACENAPHTHENE							
ANTHRACENE							
BENZIDINE		1700	UJ	C	1800	UJ	C
BENZO(A)ANTHRACENE							

PROJ_NO: 00933	NSAMPLE	DA-SB104-0608			DA-SB105-0406			DA-SB106-0608			DA-SB107-0103		
SDG: CTO403-2	LAB_ID	SB1033-9			SB1046-11			SB1046-9			SB1046-5		
FRACTION: OS	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE								1700					
BENZO(B)FLUORANTHENE								1500					
BENZO(G,H,I)PERYLENE								1000					
BENZO(K)FLUORANTHENE								1500					
BENZOIC ACID		1000	UJ	C	950	UJ	C	960	UJ	C	960	UJ	C
BENZYL ALCOHOL		800	U		760	U		770	U		770	U	
BIS(2-CHLOROETHOXY)METHANE		400	U		380	U		390	U		380	U	
BIS(2-CHLOROETHYL)ETHER		400	U		380	U		390	U		380	U	
BIS(2-ETHYLHEXYL)PHTHALATE		400	U		1900			390	U		380	U	
BUTYL BENZYL PHTHALATE		400	U		380	U		390	U		380	U	
CARBAZOLE		400	U		380	U		290	J	P	380	U	
CHRYSENE								1800					
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		400	U		380	U		400			380	U	
DIETHYL PHTHALATE		400	U		380	U		390	U		380	U	
DIMETHYL PHTHALATE		400	U		380	U		390	U		380	U	
DI-N-BUTYL PHTHALATE		400	U		380	U		390	U		380	U	
DI-N-OCTYL PHTHALATE		400	U		380	U		390	U		380	U	
FLUORANTHENE		210	J	P				3800			370	J	P
FLUORENE													
HEXACHLOROBENZENE		400	U		380	U		390	U		380	U	
HEXACHLOROBUTADIENE		400	U		380	U		390	U		380	U	
HEXACHLOROETHANE		400	U		380	U		390	U		380	U	
INDENO(1,2,3-CD)PYRENE								1000					
ISOPHORONE		400	U		380	U		390	U		380	U	
NAPHTHALENE													
NITROBENZENE		400	U		380	U		390	U		380	U	
N-NITROSODIMETHYLAMINE		400	U		380	U		390	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		400	U		380	U		390	U		380	U	
N-NITROSODIPHENYLAMINE		400	U		380	U		390	U		380	U	
N-NITROSOPYRROLIDINE		400	U		380	U		390	U		380	U	
PENTACHLOROPHENOL		1000	U		950	U		960	U		960	U	
PHENANTHRENE								3200					
PHENOL		400	U		380	U		390	U		380	U	
PYRENE								3700	J	E			

PROJ_NO: 00933	NSAMPLE	DA-SB108-0204			DA-SB109-0204			DA-SB110-0810DL			DA-SB124-0608		
SDG: CTO403-2	LAB_ID	SB1046-7			SB1033-7RA			SB1033-3DL			SB1010-1		
FRACTION: OS	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE								440000					
BENZO(B)FLUORANTHENE								410000					
BENZO(G,H,I)PERYLENE								250000					
BENZO(K)FLUORANTHENE								350000					
BENZOIC ACID		860	UJ	C	940	U		4600	UJ	C	940	UJ	C
BENZYL ALCOHOL		700	U		760	U		3700	U		750	U	
BIS(2-CHLOROETHOXY)METHANE		350	U		380	U		1900	U		380	U	
BIS(2-CHLOROETHYL)ETHER		350	U		380	U		1900	U		380	U	
BIS(2-ETHYLHEXYL)PHTHALATE		350	U		380	U		1900	U		380	U	
BUTYL BENZYL PHTHALATE		350	U		380	U		1900	U		380	U	
CARBAZOLE		350	U		380	U		170000			380	U	
CHRYSENE								460000					
DIBENZO(A,H)ANTHRACENE								90000					
DIBENZOFURAN		350	U		380	U		82000			380	U	
DIETHYL PHTHALATE		350	U		380	U		1900	U		380	U	
DIMETHYL PHTHALATE		350	U		380	U		1900	U		380	U	
DI-N-BUTYL PHTHALATE		350	U		380	U		1900	U		380	U	
DI-N-OCTYL PHTHALATE		350	U		380	U		1900	U		380	U	
FLUORANTHENE					380			1100000					
FLUORENE								150000					
HEXACHLOROBENZENE		350	U		380	U		1900	U		380	U	
HEXACHLOROBUTADIENE		350	U		380	U		1900	U		380	U	
HEXACHLOROETHANE		350	U		380	U		1900	U		380	U	
INDENO(1,2,3-CD)PYRENE								260000					
ISOPHORONE		350	U		380	U		1900	U		380	U	
NAPHTHALENE								78000					
NITROBENZENE		350	U		380	U		1900	U		380	U	
N-NITROSODIMETHYLAMINE		350	U		380	UJ	C	1900	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		350	U		380	U		1900	U		380	U	
N-NITROSODIPHENYLAMINE		350	U		380	U		1900	U		380	U	
N-NITROSOPYRROLIDINE		350	U		380	U		1900	U		380	U	
PENTACHLOROPHENOL		860	U		940	U		4600	U		940	UJ	C
PHENANTHRENE								900000					
PHENOL		350	U		380	U		1900	U		380	U	
PYRENE					420			890000					

PROJ_NO: 00933	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
SDG: CTO403-2	LAB_ID	SB1010-3			SB1010-5			SB1010-7			SB1010-9		
FRACTION: OS	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE					52000						8600		
BENZO(B)FLUORANTHENE					40000						6800		
BENZO(G,H,I)PERYLENE					28000						3700		
BENZO(K)FLUORANTHENE					46000						7200		
BENZOIC ACID		960	UJ	C	950	UJ	C	930	UJ	C	910	UJ	C
BENZYL ALCOHOL		770	U		760	U		750	U		730	U	
BIS(2-CHLOROETHOXY)METHANE		390	U		380	U		380	U		370	U	
BIS(2-CHLOROETHYL)ETHER		390	U		380	U		380	U		370	U	
BIS(2-ETHYLHEXYL)PHTHALATE		390	U		380	U		380	U		370	U	
BUTYL BENZYL PHTHALATE		390	U		380	U		380	U		370	U	
CARBAZOLE		390	U		32000			380			3100		
CHRYSENE		340	J	P	57000			1000			8900		
DIBENZO(A,H)ANTHRACENE					10000						1600		
DIBENZOFURAN		390	U		17000			380	U		1500		
DIETHYL PHTHALATE		390	U		380	U		380	U		370	U	
DIMETHYL PHTHALATE		390	U		380	U		380	U		370	U	
DI-N-BUTYL PHTHALATE		390	U		380	U		380	U		370	U	
DI-N-OCTYL PHTHALATE		390	U		380	U		380	U		370	U	
FLUORANTHENE		860			130000			2400			21000		
FLUORENE					29000						2500		
HEXACHLOROBENZENE		390	U		380	U		380	U		370	U	
HEXACHLOROBUTADIENE		390	U		380	U		380	U		370	U	
HEXACHLOROETHANE		390	U		380	U		380	U		370	U	
INDENO(1,2,3-CD)PYRENE					30000						4300		
ISOPHORONE		390	U		380	U		380	U		370	U	
NAPHTHALENE					22000						1200		
NITROBENZENE		390	U		380	U		380	U		370	U	
N-NITROSODIMETHYLAMINE		390	U		380	U		380	U		370	U	
N-NITROSO-DI-N-PROPYLAMINE		390	U		380	U		380	U		370	U	
N-NITROSODIPHENYLAMINE		390	U		380	U		380	U		370	U	
N-NITROSOPYRROLIDINE		390	U		380	U		380	U		370	U	
PENTACHLOROPHENOL		960	UJ	C	950	U		930	UJ	C	910	U	
PHENANTHRENE		680			140000			2100			18000		
PHENOL		390	U		380	J	P	380	U		370	U	
PYRENE		670			120000			2000			18000		

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB152-0204			DA-SB153-0204		
	LAB_ID	SB1033-1			SB1033-5		
	SAMP_DATE	2/28/2008			2/28/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	87.8			82.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE							
BENZO(B)FLUORANTHENE							
BENZO(G,H,I)PERYLENE							
BENZO(K)FLUORANTHENE							
BENZOIC ACID		1500	J	C	1000	UJ	C
BENZYL ALCOHOL		750	U		800	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		400	U	
BIS(2-CHLOROETHYL)ETHER		380	U		400	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		400	U	
BUTYL BENZYL PHTHALATE		380	U		400	U	
CARBAZOLE		380	U		400	U	
CHRYSENE							
DIBENZO(A,H)ANTHRACENE							
DIBENZOFURAN		380	U		400	U	
DIETHYL PHTHALATE		380	U		400	U	
DIMETHYL PHTHALATE		380	U		400	U	
DI-N-BUTYL PHTHALATE		380	U		400	U	
DI-N-OCTYL PHTHALATE		380	U		400	U	
FLUORANTHENE							
FLUORENE							
HEXACHLOROBENZENE		380	U		400	U	
HEXACHLOROBUTADIENE		380	U		400	U	
HEXACHLOROETHANE		380	U		400	U	
INDENO(1,2,3-CD)PYRENE							
ISOPHORONE		380	U		400	U	
NAPHTHALENE							
NITROBENZENE		380	U		400	U	
N-NITROSODIMETHYLAMINE		380	U		400	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		400	U	
N-NITROSODIPHENYLAMINE		380	U		400	U	
N-NITROSOPYRROLIDINE		380	U		400	U	
PENTACHLOROPHENOL		930	U		1000	U	
PHENANTHRENE							
PHENOL		380	U		400	U	
PYRENE							

PROJ_NO: 00933	NSAMPLE	DA-SBRB01-022908
SDG: CTO403-2	LAB_ID	SB1046-1
FRACTION: OS	SAMP_DATE	2/29/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DIPHENYLHYDRAZINE	20	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U	
2,4,5-TRICHLOROPHENOL	25	U	
2,4,6-TRICHLOROPHENOL	10	U	
2,4-DICHLOROPHENOL	10	U	
2,4-DIMETHYLPHENOL	10	U	
2,4-DINITROPHENOL	25	U	
2,4-DINITROTOLUENE	10	U	
2,6-DICHLOROPHENOL	10	U	
2,6-DINITROTOLUENE	10	U	
2-CHLORONAPHTHALENE	10	U	
2-CHLOROPHENOL	10	U	
2-METHYLPHENOL	10	U	
2-NITROANILINE	25	U	
2-NITROPHENOL	10	U	
3&4-METHYLPHENOL	10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C
3-NITROANILINE	25	U	
4,6-DINITRO-2-METHYLPHENOL	25	U	
4-BROMOPHENYL PHENYL ETHER	10	U	
4-CHLORO-3-METHYLPHENOL	10	U	
4-CHLOROANILINE	10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U	
4-NITROANILINE	25	U	
4-NITROPHENOL	25	U	
BENZIDINE	50	UJ	C
BENZOIC ACID	25	UJ	C
BENZYL ALCOHOL	20	U	
BIS(2-CHLOROETHOXY)METHANE	10	U	
BIS(2-CHLOROETHYL)ETHER	10	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SBRB01-022908
	LAB_ID	SB1046-1
	SAMP_DATE	2/29/2008
	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	
BUTYL BENZYL PHTHALATE	10	U	
CARBAZOLE	10	U	
DIBENZOFURAN	10	U	
DIETHYL PHTHALATE	10	U	
DIMETHYL PHTHALATE	10	U	
DI-N-BUTYL PHTHALATE	10	U	
DI-N-OCTYL PHTHALATE	10	U	
HEXACHLOROBENZENE	10	U	
HEXACHLOROBUTADIENE	10	U	
HEXACHLOROETHANE	10	U	
ISOPHORONE	10	U	
NITROBENZENE	10	U	
N-NITROSODIMETHYLAMINE	10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U	
N-NITROSODIPHENYLAMINE	10	U	
N-NITROSOPYRROLIDINE	10	U	
PENTACHLOROPHENOL	25	U	
PHENOL	10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB104-0608			DA-SB105-0406			DA-SB106-0608			DA-SB107-0103		
SDG: CTO403-2	LAB_ID	SB1033-10			SB1046-12			SB1046-10			SB1046-6		
FRACTION: PAH	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		7.4	J	P	23	U		97			23	U	
ACENAPHTHENE		40			2.5	J	P	130			18	J	P
ACENAPHTHYLENE		24	UJ	E	23	UJ	C	23	U		23	UJ	C
ANTHRACENE		66			5.1	J	P				31		
BENZO(A)ANTHRACENE		140			19	J	CP				180	J	C
BENZO(A)PYRENE		120			43						240		
BENZO(B)FLUORANTHENE		120			28						210		
BENZO(G,H,I)PERYLENE		43	J	C	60						200		
BENZO(K)FLUORANTHENE		120			24						160		
CHRYSENE		140			18	J	P				160		
DIBENZO(A,H)ANTHRACENE		16	J	CP	21	J	P	160			85		
FLUORANTHENE					32								
FLUORENE		32			23	U		120			15	J	P
INDENO(1,2,3-CD)PYRENE		51	J	C	71						230		
NAPHTHALENE		15	J	P	23	U		65			23	U	
PHENANTHRENE		240			15	J	P				160		
PYRENE		280			27						290		

PROJ_NO: 00933	NSAMPLE	DA-SB108-0204			DA-SB109-0204			DA-SB110-0810			DA-SB124-0608		
SDG: CTO403-2	LAB_ID	SB1046-8			SB1033-8RA			SB1033-4DL			SB1010-2		
FRACTION: PAH	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		21	U		8	J	P				23	U	
ACENAPHTHENE		2.6	J	P	23	J	P				23	U	
ACENAPHTHYLENE		21	UJ	C	23	UJ	E	110	UJ	CE	23	UJ	CE
ANTHRACENE		6.8	J	P	48						23	U	
BENZO(A)ANTHRACENE		40	J	C	200						23	U	
BENZO(A)PYRENE		72			220						23	U	
BENZO(B)FLUORANTHENE		60			250						23	U	
BENZO(G,H,I)PERYLENE		89			130						23	UJ	C
BENZO(K)FLUORANTHENE		42			200						23	U	
CHRYSENE		37			220						23	U	
DIBENZO(A,H)ANTHRACENE		30			60						23	U	
FLUORANTHENE		64									23	U	
FLUORENE		21	U		19	J	P				23	UJ	C
INDENO(1,2,3-CD)PYRENE		100			120						23	UJ	C
NAPHTHALENE		21	U		8.8	J	P				23	U	
PHENANTHRENE		26			300						23	U	
PYRENE		56									23	U	

PROJ_NO: 00933	NSAMPLE	DA-SB125-0810			DA-SB127-0204DL			DA-SB133-0102			DA-SB133-0810DL		
SDG: CTO403-2	LAB_ID	SB1010-4			SB1010-6DL			SB1010-8			SB1010-10DL		
FRACTION: PAH	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		17	J	P				13	J	P			
ACENAPHTHENE		120						76					
ACENAPHTHYLENE		23	UJ	CE	230	UJ	CE	23	UJ	CE	44	UJ	CE
ANTHRACENE		170						190					
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE		280						280					
BENZO(B)FLUORANTHENE		250						250					
BENZO(G,H,I)PERYLENE		140	J	C				130	J	C			
BENZO(K)FLUORANTHENE		280						280					
CHRYSENE													
DIBENZO(A,H)ANTHRACENE		47						52					
FLUORANTHENE													
FLUORENE		70	J	C				81	J	C			
INDENO(1,2,3-CD)PYRENE		140	J	C				140	J	C			
NAPHTHALENE		70						34					
PHENANTHRENE													
PYRENE													

PROJ_NO: 00933	NSAMPLE	DA-SB152-0204			DA-SB153-0204		
SDG: CTO403-2	LAB_ID	SB1033-2			SB1033-6		
FRACTION: PAH	SAMP_DATE	2/28/2008			2/28/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	87.8			82.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		23	U		24	U	
ACENAPHTHENE		23	U		7.5	J	P
ACENAPHTHYLENE		23	UJ	CDE	24	UJ	CE
ANTHRACENE		23	U		14	J	P
BENZO(A)ANTHRACENE		23	U		28		
BENZO(A)PYRENE		23	U		22	J	P
BENZO(B)FLUORANTHENE		23	U		23	J	P
BENZO(G,H,I)PERYLENE		23	UJ	C	5.4	J	CP
BENZO(K)FLUORANTHENE		23	U		23	J	P
CHRYSENE		23	U		33		
DIBENZO(A,H)ANTHRACENE		23	U		24	U	
FLUORANTHENE		23	U		80		
FLUORENE		23	UJ	C	5.4	J	CP
INDENO(1,2,3-CD)PYRENE		23	UJ	C	7.5	J	CP
NAPHTHALENE		23	U		24	U	
PHENANTHRENE		23	U		59		
PYRENE		23	U		59		

PROJ_NO: 00933	NSAMPLE	DA-SBRB01-022908
SDG: CTO403-2	LAB_ID	SB1046-2
FRACTION: PAH	SAMP_DATE	2/29/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB104-0608			DA-SB105-0406			DA-SB106-0608			DA-SB107-0103		
	LAB_ID	SB1033-9			SB1046-11			SB1046-9			SB1046-5		
	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4	U		3.8	U		3.1	J	P	3.8	U	
4,4'-DDE		1.3	J	P	3.8	U		3.9	U		3.8	U	
4,4'-DDT		4	U		3.8	U		3.9	U		3.8	U	
ALDRIN		2.1	U		2	U		2	U		2	U	
ALPHA-BHC		2.1	U		2	U		2	U		2	U	
ALPHA-CHLORDANE		2.1	U		2	U		2	U		2	U	
AROCLOR-1016		21	UJ	C	20	U		20	U		20	U	
AROCLOR-1221		21	U		20	U		20	U		20	U	
AROCLOR-1232		21	U		20	U		20	U		20	U	
AROCLOR-1242		21	U		20	U		20	U		20	U	
AROCLOR-1248		21	U		20	U		20	U		20	U	
AROCLOR-1254		21	U		20	U		20	U		20	U	
AROCLOR-1260		21	UJ	C	20	U		20	U		20	U	
AROCLOR-1268		21	U		20	U		20	U		20	U	
BETA-BHC		2.1	U		2	U		2	U		2	U	
DELTA-BHC		2.1	U		2	U		2	U		2	U	
DIELDRIN		4	U		3.8	U		3.9	U		3.8	U	
ENDOSULFAN I		2.1	U		2	U		2	U		2	U	
ENDOSULFAN II		4	U		3.8	U		3.9	U		3.8	U	
ENDOSULFAN SULFATE		4	U		3.8	U		3.9	U		3.8	U	
ENDRIN		4	U		3.8	U		3.9	U		3.8	U	
ENDRIN ALDEHYDE		4	U		3.8	U		3.9	U		3.8	U	
ENDRIN KETONE		4	U		3.8	U		3.9	U		3.8	U	
GAMMA-BHC (LINDANE)		2.1	U		2	U		2	U		2	U	
GAMMA-CHLORDANE		2.1	U		2	U		2	U		2	U	
HEPTACHLOR		2.1	U		2	U		2	U		2	U	
HEPTACHLOR EPOXIDE		2.1	U		2	U		2	U		2	U	
METHOXYCHLOR		21	U		20	U		20	U		20	U	
TOXAPHENE		40	U		38	U		39	U		38	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB108-0204			DA-SB109-0204			DA-SB110-0810			DA-SB124-0608		
	LAB_ID	SB1046-7			SB1033-7			SB1033-3			SB1010-1		
	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.5	U		3.8	U		3.7	U		3.8	U	
4,4'-DDE		3.5	U		3.8	U		3.7	UJ	C	3.8	UJ	C
4,4'-DDT		3.5	U		3.8	U		3.7	U		3.8	U	
ALDRIN		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
ALPHA-BHC		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
ALPHA-CHLORDANE		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
AROCLOR-1016		18	U		20	U		19	U		19	U	
AROCLOR-1221		18	U		20	U		19	U		19	U	
AROCLOR-1232		18	U		20	U		19	U		19	U	
AROCLOR-1242		18	U		20	U		19	U		19	U	
AROCLOR-1248		18	U		20	U		19	U		19	U	
AROCLOR-1254		18	U		20	U		19	U		19	U	
AROCLOR-1260		19			20	U		19	U		19	U	
AROCLOR-1268		18	U		20	U		19	U		19	U	
BETA-BHC		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
DELTA-BHC		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
DIELDRIN		3.5	U		3.8	U		3.7	U		3.8	U	
ENDOSULFAN I		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
ENDOSULFAN II		3.5	U		3.8	U		3.7	U		3.8	U	
ENDOSULFAN SULFATE		3.5	U		3.8	U		3.7	U		3.8	U	
ENDRIN		3.5	U		3.8	U		3.7	U		3.8	U	
ENDRIN ALDEHYDE		3.5	U		3.8	U		3.7	U		3.8	U	
ENDRIN KETONE		3.5	U		3.8	U		3.7	U		3.8	U	
GAMMA-BHC (LINDANE)		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
GAMMA-CHLORDANE		1.8	U		2	U		1.9	U		1.9	U	
HEPTACHLOR		1.8	U		2	U		52	J	CU	1.9	UJ	C
HEPTACHLOR EPOXIDE		1.8	U		2	U		1.9	UJ	C	1.9	UJ	C
METHOXYCHLOR		18	U		20	U		19	U		19	U	
TOXAPHENE		35	U		38	U		37	U		38	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
	LAB_ID	SB1010-3			SB1010-5			SB1010-7			SB1010-9		
	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.9	U		3.8	U		3.8	U		3.7	U	
4,4'-DDE		3.9	UJ	C	3.8	UJ	C	3.8	UJ	C	0.92	J	CP
4,4'-DDT		3.9	U		3.8	U		3.8	U		1.7	J	PU
ALDRIN		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
ALPHA-BHC		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
ALPHA-CHLORDANE		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
AROCLOR-1016		20	U		20	U		19	U		19	U	
AROCLOR-1221		20	U		20	U		19	U		19	U	
AROCLOR-1232		20	U		20	U		19	U		19	U	
AROCLOR-1242		20	U		20	U		19	U		19	U	
AROCLOR-1248		20	U		20	U		19	U		19	U	
AROCLOR-1254		20	U		20	U		19	U		19	U	
AROCLOR-1260		20	U		20	U		19	U		82		
AROCLOR-1268		20	U		20	U		19	U		19	U	
BETA-BHC		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
DELTA-BHC		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
DIELDRIN		3.9	U		3.8	U		3.8	U		3.7	U	
ENDOSULFAN I		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
ENDOSULFAN II		3.9	U		3.8	U		3.8	U		3.7	U	
ENDOSULFAN SULFATE		3.9	U		3.8	U		3.8	U		3.7	U	
ENDRIN		3.9	U		3.8	U		3.8	U		3.7	U	
ENDRIN ALDEHYDE		3.9	U		3.8	U		3.8	U		1.2	J	PU
ENDRIN KETONE		3.9	U		3.8	U		3.8	U		3.7	U	
GAMMA-BHC (LINDANE)		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
GAMMA-CHLORDANE		2	U		2	U		1.9	U		1.9	U	
HEPTACHLOR		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
HEPTACHLOR EPOXIDE		2	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	C
METHOXYCHLOR		20	U		20	U		19	U		19	U	
TOXAPHENE		39	U		38	U		38	U		37	U	

PROJ_NO: 00933	NSAMPLE	DA-SB152-0204			DA-SB153-0204		
SDG: CTO403-2	LAB_ID	SB1033-1			SB1033-5		
FRACTION: PEST/PCB	SAMP_DATE	2/28/2008			2/28/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	87.8			82.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	U		4	U	
4,4'-DDE		3.8	UJ	C	4	UJ	C
4,4'-DDT		3.8	U		4	U	
ALDRIN		1.9	UJ	C	2.1	UJ	C
ALPHA-BHC		1.9	UJ	C	2.1	UJ	C
ALPHA-CHLORDANE		1.9	UJ	C	2.1	UJ	C
AROCLOR-1016		19	UJ	D	21	U	
AROCLOR-1221		19	U		21	U	
AROCLOR-1232		19	U		21	U	
AROCLOR-1242		19	U		21	U	
AROCLOR-1248		19	U		21	U	
AROCLOR-1254		19	U		21	U	
AROCLOR-1260		19	U		21	U	
AROCLOR-1268		19	U		21	U	
BETA-BHC		1.9	UJ	C	2.1	UJ	C
DELTA-BHC		1.9	UJ	C	2.1	UJ	C
DIELDRIN		3.8	U		4	U	
ENDOSULFAN I		1.9	UJ	C	2.1	UJ	C
ENDOSULFAN II		3.8	U		4	U	
ENDOSULFAN SULFATE		3.8	U		4	U	
ENDRIN		3.8	U		4	U	
ENDRIN ALDEHYDE		3.8	U		4	U	
ENDRIN KETONE		3.8	U		4	U	
GAMMA-BHC (LINDANE)		1.9	UJ	C	2.1	UJ	C
GAMMA-CHLORDANE		1.9	U		2.1	U	
HEPTACHLOR		1.9	UJ	C	2.1	UJ	C
HEPTACHLOR EPOXIDE		1.9	UJ	C	2.1	UJ	C
METHOXYCHLOR		19	U		21	U	
TOXAPHENE		38	U		40	U	

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SBRB01-022908
	LAB_ID	SB1046-1
	SAMP_DATE	2/29/2008
	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
4,4'-DDD	0.1	U	
4,4'-DDE	0.1	U	
4,4'-DDT	0.1	U	
ALDRIN	0.05	U	
ALPHA-BHC	0.05	U	
ALPHA-CHLORDANE	0.05	U	
AROCLOR-1016	0.5	U	
AROCLOR-1221	0.5	U	
AROCLOR-1232	0.5	U	
AROCLOR-1242	0.5	U	
AROCLOR-1248	0.5	U	
AROCLOR-1254	0.5	U	
AROCLOR-1260	0.5	U	
AROCLOR-1268	0.5	U	
BETA-BHC	0.05	U	
DELTA-BHC	0.05	U	
DIELDRIN	0.1	U	
ENDOSULFAN I	0.05	U	
ENDOSULFAN II	0.1	U	
ENDOSULFAN SULFATE	0.1	U	
ENDRIN	0.1	U	
ENDRIN ALDEHYDE	0.1	U	
ENDRIN KETONE	0.1	U	
GAMMA-BHC (LINDANE)	0.05	U	
GAMMA-CHLORDANE	0.05	U	
HEPTACHLOR	0.05	U	
HEPTACHLOR EPOXIDE	0.05	U	
METHOXYCHLOR	0.5	U	
TOXAPHENE	1	U	

PROJ_NO: 00933	NSAMPLE	DA-SB104-0608			DA-SB105-0406			DA-SB106-0608			DA-SB107-0103		
SDG: CTO403-2	LAB_ID	SB1033-9			SB1046-11			SB1046-9			SB1046-5		
FRACTION: PET	SAMP_DATE	2/28/2008			2/29/2008			2/29/2008			2/29/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.4			86.4			85.3			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		22			16			220			38		
GASOLINE RANGE ORGANICS		3.3	U	A	2.9	U	A	3.1	U	A	2.8	U	A

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB108-0204			DA-SB109-0204			DA-SB110-0810			DA-SB124-0608		
	LAB_ID	SB1046-7			SB1033-7			SB1033-3			SB1010-1		
	SAMP_DATE	2/29/2008			2/28/2008			2/28/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	95.0			86.8			88.1			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		26			190			12000			5.7	U	A
GASOLINE RANGE ORGANICS		2.5	U	A	3.2	U	A	2.6	U	A	3	U	A

PROJ_NO: 00933	NSAMPLE	DA-SB125-0810			DA-SB127-0204			DA-SB133-0102			DA-SB133-0810		
SDG: CTO403-2	LAB_ID	SB1010-3			SB1010-5			SB1010-7			SB1010-9		
FRACTION: PET	SAMP_DATE	2/27/2008			2/27/2008			2/27/2008			2/27/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.4			86.7			87.9			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		34			1400			31					
GASOLINE RANGE ORGANICS		2.8	U	A	2.8	U	A	3.3	U	A	2.8	U	A

PROJ_NO: 00933 SDG: CTO403-2 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB133-0810DL			DA-SB152-0204			DA-SB153-0204			DA-TB-022708		
	LAB_ID	SB1010-9DL			SB1033-1			SB1033-5			SB1010-11		
	SAMP_DATE	2/27/2008			2/28/2008			2/28/2008			2/27/2008		
	QC_TYPE	NM			NM			NM			TB		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.0			87.8			82.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		490			5.7	U	A	7.2	U	A			
GASOLINE RANGE ORGANICS					3	U	A	2.8	U	A	2.5	U	A

PROJ_NO: 00933	NSAMPLE	SBTB-022908			TB-022808		
SDG: CTO403-2	LAB_ID	SB1046-4			SB1033-11		
FRACTION: PET	SAMP_DATE	2/29/2008			2/28/2008		
MEDIA: SOIL	QC_TYPE	TB			TB		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS							
GASOLINE RANGE ORGANICS		2.5	U	A	2.5	U	A

PROJ_NO: 00933	NSAMPLE	DA-SBRB01-022908		
SDG: CTO403-2	LAB_ID	SB1046-1		
FRACTION: PET	SAMP_DATE	2/29/2008		
MEDIA: WATER	QC_TYPE	RB		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		140		
GASOLINE RANGE ORGANICS		12		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2704W

Date: April 23, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO403-3
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:

18/Soils/	DA-SB100-0002	DA-SB100-0204	DA-SB101-0002
	DA-SB101-0608	DA-SB102-0002	DA-SB102-0305
	DA-SB113-0002	DA-SB113-0406	DA-SB114-0002
	DA-SB114-0406	DA-SB116-0002	DA-SB117-0002
	DA-SB117-0810	DA-SB151-0002	DA-SB151-0406
	DA-SB-DUP03	DA-SB-DUP04	DA-SB-DUP05

(Field Duplicate Pairs: DA-SB113-0406/DA-SB-DUP03, DA-SB101-0608/DA-SB-DUP04, DA-SB151-0408/DA-SB-DUP05)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from March 3-4, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• Calibration Verification
*	• ICP-MS Tune
*	• ICP-MS Internal Standard Relative Intensities
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results

- Field Duplicate Precision
* • ICP Serial Dilution Results
* • Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Silver	2.03 ug/L	1.02 mg/kg	DA-SB100-0204, DA-SB113-0002, DA-SB114-0002, DA-SB114-0406, DA-SB-DUP05
Sodium	18.43 mg/kg	92.2 mg/kg	DA-SB101-0608, DA-SB102-0002, DA-SB102-0305, DA-SB113-0002, DA-SB113-0406, DA-SB116-0002, DA-SB117-0002, DA-SB117-0810, DA-SB151-0002, DA-SB151-0406, DA-SB-DUP04, DA-SB-DUP05
Thallium	0.027 mg/kg	0.135 mg/kg	All samples, except DA-SB101-0608 and DA-SB-DUP04

The positive silver, thallium, and sodium results below the blank action level were changed to estimated, non-detected values (UJ) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids; 1 g (ICP metals) of sample analyzed; and a dilution factor of 5 (thallium). The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although silver and thallium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there is no regulatory limit established for sodium. The non-detected results in the affected samples are usable as elevated reporting limits.

The rinsate blank was not used to establish blank action levels.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ J		High	DA-SB113-0002, DA-SB113-0406, DA-SB114-0002, DA-SB114-0406, DA-SB117-0810, DA-SB-DUP03, DA-SB-DUP05
Cadmium	J	UJ	Low	All samples
Molybdenum	J	UJ	Low	
Silver	J	UJ	Low	
Selenium	J	UJ	Low	
Sodium	J		High	All samples, except DA-SB100-0002, DA-SB100-0204, DA-SB101-0002, DA-SB114-0002

The positive results for antimony and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive results are estimated (J) and the non-detected results are estimated (UJ) for cadmium, molybdenum, silver, and selenium in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive antimony results to estimated, non-detected values (UJ) in the select samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for antimony and sodium in the affected samples are usable as estimated values which may be biased high. The positive and non-detected cadmium, molybdenum, silver, and selenium results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project sensitivity goals are not impacted. The positive results for antimony in select samples, which had estimated interference greater than 80%, may be entirely due to iron interference. However, the elevated reporting limits for these antimony results do not exceed the project action limit for antimony. The antimony results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB117-0810 that did not meet the 75% recovery QC limits:

Analyte	% Recovery	Action	
		(+)	NDs
Antimony	41.5, 40.5	J	UJ

Although the percent recovery criterion was not met for antimony, the project accuracy goals may be only slightly impacted. The positive and non-detected antimony results are usable as estimated values and estimated reporting limits which may be biased low.

Field Duplicate Precision

The results for the field duplicate pair DA-SB113-0406/DA-SB-DUP03 were above the 50 percent relative percent difference (RPD) criterion for arsenic. The positive arsenic results are estimated (J) in all samples.

Although the RPD in the field duplicate analyses did not meet QC limits for arsenic, the project precision goals may be only slightly impacted. The positive arsenic results are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The laboratory reported non-detected results down to the MDL. The laboratory reporting limits met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results below than the laboratory's quantitation limit and above the method detection limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Select metals were qualified as estimated due to ICP interferences due to high iron concentration and low antimony matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set with the following exception. Arsenic was qualified as estimated due to field duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002			DA-SB101-0608		
SDG: CTO403-3	LAB_ID	SB1074-007			SB1074-011			SB1074-023			SB1074-005		
FRACTION: M	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11900			11500			11600			18300		
ANTIMONY		0.09	UJ	D	0.05	UJ	D	0.09	UJ	D	0.11	UJ	D
ARSENIC		11	J	G	9.6	J	G	14.2	J	G	2.2	J	G
BARIUM		36.5			31.9			28.8			13.7		
BERYLLIUM		0.44			0.33	J	P	0.45			0.37		
CADMIUM		0.16	J	KP	0.18	J	KP	0.01	UJ	K	0.02	UJ	K
CALCIUM		1560			733			1350			2070		
CHROMIUM		20.1			13.2			15.5			22		
COBALT		11.9			5.7			12.5			17.6		
COPPER		21			9.6			19.6			24.6		
IRON		23300			17000			24000			38800		
LEAD		31.2			9			22.7			14.6		
MAGNESIUM		4660			2310			3960			7050		
MANGANESE		361			171			325			320		
MERCURY		0.04			0.05			0.05			0.01	U	
MOLYBDENUM		0.43	J	KP	0.29	J	KP	0.53	J	KP	0.02	UJ	K
NICKEL		23.4			13.7			23.3			35.9		
POTASSIUM		1100			562			847			266		
SELENIUM		0.62	UJ	K	0.34	UJ	K	0.64	J	KP	0.75	UJ	K
SILVER		0.11	UJ	K	0.21	UJ	AKP	0.11	UJ	K	0.13	UJ	K
SODIUM		307			156			169			36.2	UJ	AKP
THALLIUM		0.04	UJ	AP	0.09	UJ	AP	0.05	UJ	AP	0.01	U	
VANADIUM		24			18.6			19.5			18.7		
ZINC		56.5			33.9			54.4			71.6		

PROJ_NO: 00933	NSAMPLE	DA-SB102-0002			DA-SB102-0305			DA-SB113-0002			DA-SB113-0406		
SDG: CTO403-3	LAB_ID	SB1074-015			SB1074-017			SB1074-001			SB1074-003		
FRACTION: M	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		14100			19400			5650			15200		
ANTIMONY		0.1	UJ	D	0.11	UJ	D	0.06	UJ	DKP	0.83	J	DKP
ARSENIC		16	J	G	14.2	J	G	3.7	J	G	220	J	G
BARIUM		25.6			33.7			14.6			17.2		
BERYLLIUM		0.43	J	P	0.55			0.48			1		
CADMIUM		0.14	J	KP	0.02	UJ	K	0.36	J	KP	0.02	UJ	K
CALCIUM		953			734			609			864		
CHROMIUM		18.8			20.9			6.6			20.3		
COBALT		28			21.5			4.8			23.5		
COPPER		18.7			20			9.1			27.4		
IRON		27700			39700			11800			49200		
LEAD		28.5			14.5			38.8			36.4		
MAGNESIUM		3940			4650			1600			4520		
MANGANESE		555			2820			179			563		
MERCURY		0.03	J	P	0.06			0.02	J	P	0.02	J	P
MOLYBDENUM		1.2	J	K	0.73	J	KP	0.53	J	KP	2.5	J	K
NICKEL		30.6			29.1			8.2			39.3		
POTASSIUM		460			384			607			371		
SELENIUM		0.66	UJ	K	0.85	J	KP	0.33	UJ	K	0.67	UJ	K
SILVER		0.12	UJ	K	0.14	UJ	K	0.14	UJ	AKP	0.18	UJ	K
SODIUM		63.8	UJ	AKP	56.7	UJ	AKP	78.3	UJ	AKP	74	UJ	AKP
THALLIUM		0.04	UJ	AP	0.06	UJ	AP	0.06	UJ	AP	0.03	UJ	AP
VANADIUM		24.3			25.7			10.1			23.1		
ZINC		94.7			75.8			41.4			96.9		

PROJ_NO: 00933	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002			DA-SB117-0002		
SDG: CTO403-3	LAB_ID	SB1074-021			SB1074-019			SB1104-011			SB1104-007		
FRACTION: M	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7610			13200			11900			10400		
ANTIMONY		0.07	UJ	DKP	0.12	UJ	DKP	0.08	UJ	D	0.09	UJ	D
ARSENIC		6	J	G	11.8	J	G	20.7	J	G	23.1	J	G
BARIUM		23.1			31.4			18.5			25.4		
BERYLLIUM		0.57			0.57			0.31	J	P	0.43	J	P
CADMIUM		0.36	J	KP	0.28	J	KP	0.01	UJ	K	0.01	UJ	K
CALCIUM		572			1110			709			940		
CHROMIUM		7.5			14.4			14.7			13.5		
COBALT		5.4			9.9			11.4			14.2		
COPPER		10.8			16.3			18.7			19.4		
IRON		14700			23300			28900			31200		
LEAD		54.8			17			13.3			8.5		
MAGNESIUM		1730			2710			3540			3450		
MANGANESE		246			344			345			646		
MERCURY		0.01	J	P	0.04			0.04			0.01	U	
MOLYBDENUM		0.67	J	KP	0.62	J	KP	0.38	J	KP	0.33	J	KP
NICKEL		10.2			18.6			22.2			24		
POTASSIUM		755			439			405			785		
SELENIUM		0.32	UJ	K	0.35	UJ	K	0.51	UJ	K	0.6	UJ	K
SILVER		0.17	UJ	AKP	0.26	UJ	AKP	0.09	UJ	K	0.11	UJ	K
SODIUM		122			133	J	K	40	UJ	AKP	54.6	UJ	AKP
THALLIUM		0.08	UJ	AP	0.04	UJ	AP	0.02	UJ	AP	0.03	UJ	AP
VANADIUM		13.2			19.8			17			21.2		
ZINC		48.9			53			53.3			58.9		

PROJ_NO: 00933	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
SDG: CTO403-3	LAB_ID	SB1104-003			SB1104-009			SB1104-005			SB1074-009		
FRACTION: M	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		10000			12900			11400			13600		
ANTIMONY		0.17	UJ	DKP	0.08	UJ	D	0.09	UJ	D	0.23	UJ	DKP
ARSENIC		20	J	G	17.6	J	G	11.4	J	G	23.2	J	G
BARIUM		22.4			24.4			24.8			20.1		
BERYLLIUM		0.31	J	P	0.31	J	P	0.35	J	P	0.52		
CADMIUM		0.01	UJ	K	0.01	UJ	K	0.01	UJ	K	0.01	UJ	K
CALCIUM		1260			636			852			968		
CHROMIUM		14.1			16.8			16			18.8		
COBALT		12.3			12.5			11			13.9		
COPPER		21.5			17.8			12.6			22		
IRON		33100			28200			30500			29900		
LEAD		10.6			9.5			8.4			22.2		
MAGNESIUM		3430			3660			3070			3900		
MANGANESE		1140			368			623			515		
MERCURY		0.01	U		0.02	J	P	0.02	J	P	0.02	J	P
MOLYBDENUM		0.32	J	KP	0.49	J	KP	0.41	J	KP	0.61	J	KP
NICKEL		28.6			23.5			21.2			25.8		
POTASSIUM		431			689			645			455		
SELENIUM		0.62	UJ	K	0.53	UJ	K	0.63	UJ	K	0.86	J	KP
SILVER		0.11	UJ	K	0.1	UJ	K	0.11	UJ	K	0.13	UJ	K
SODIUM		51.3	UJ	AKP	71.3	UJ	AKP	77.6	UJ	AKP	91.7	J	KP
THALLIUM		0.04	UJ	AP	0.04	UJ	AP	0.04	UJ	AP	0.02	UJ	AP
VANADIUM		17.9			20.8			22.3			20.8		
ZINC		66.9			54.6			77.5			63		

PROJ_NO: 00933	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05		
SDG: CTO403-3	LAB_ID	SB1074-013			SB1104-001		
FRACTION: M	SAMP_DATE	3/3/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	92.3			85.8		
	DUP_OF	DA-SB101-0608			DA-SB151-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19200			11400		
ANTIMONY		0.09	UJ	D	0.12	UJ	DKP
ARSENIC		2.3	J	G	9.2	J	G
BARIUM		15			25.1		
BERYLLIUM		0.37	J	P	0.27	J	P
CADMIUM		0.01	UJ	K	0.01	UJ	K
CALCIUM		1970			885		
CHROMIUM		22.5			15		
COBALT		17.4			10.7		
COPPER		23.4			11.9		
IRON		39200			22800		
LEAD		13.8			9.1		
MAGNESIUM		7190			2980		
MANGANESE		325			782		
MERCURY		0.01	U		0.02	J	P
MOLYBDENUM		0.03	UJ	K	0.4	J	KP
NICKEL		37			19.2		
POTASSIUM		316			607		
SELENIUM		1	J	KP	0.62	UJ	K
SILVER		0.11	UJ	K	0.15	UJ	AKP
SODIUM		39	UJ	AKP	74.8	UJ	AKP
THALLIUM		0.01	U		0.06	UJ	AP
VANADIUM		19.8			21.7		
ZINC		73.6			76		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2710W

Date: April 29, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-3
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

18/Soils/	DA-SB100-0002	DA-SB100-0204	DA-SB101-0002
	DA-SB101-0608	DA-SB102-0002	DA-SB102-0305
	DA-SB113-0002	DA-SB113-0406	DA-SB114-0002
	DA-SB114-0406	DA-SB116-0002	DA-SB117-0002
	DA-SB1170810	DA-SB151-0002	DA-SB151-0406
	DA-SB-DUP03	DA-SB-DUP-04	DA-SB-DUP05

(Field Duplicate Pairs: DA-SB113-0406/DA-SB-DUP03, DA-SB101-0608/DA-SB-DUP04, DA-SB151-0408/DA-SB-DUP05)

VOC/GRO:		
2/Trip Blanks/	DA-TB-030408	TB-030308

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from March 3-4, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	•	Data Completeness
*	•	Preservation and Technical Holding Times
*	•	GC/MS Instrument Performance Check (Tuning)
*	•	Instrument Performance Check: Pesticide Degradation
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Surrogate Compounds
	•	Internal Standards
	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
	•	Field Duplicates
	•	Analyte Identification/Quantitation
*	•	Percent Solids
	•	Reporting Limits
*	•	Tentatively Identified Compounds

* All criteria were met for this parameter.

Data Completeness

The original Form 5 for the volatile samples run on March 7, 2008 on the instrument GCMS-M did not list the continuing calibration standard associated with the samples. The corrected form was resubmitted by the laboratory.

On April 14, 2008, the laboratory submitted an addendum to the semivolatile SIM mode analysis including sample DA-SB100-0002, which was not analyzed by SIM mode in the original analysis.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Trichlorofluoromethane	30.10		UJ	TB-030308, DA-SB113-0406, DA-SB101-0608, DA-SB100-0002, DA-SB-DUP03, DA-SB100-0204
2,2-Dichloropropane	28.36		UJ	
Acetone	40.60		UJ	TB-030308(DL), DA-SB113-0406(DL), DA-SB102-0002(DL)
2-Butanone	28.63		UJ	TB-030308(DL)
1,2-Dibromo-3-chloropropane	28.66		UJ	

Although the %D was outside of the QC limits for trichlorofluoromethane, 2,2-dichloropropane, acetone, 2-butanone, and 1,2-dichloro-3-chloropropane, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 500% allocated for these compounds or there is no regulatory limits established for the affected compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	54.5, 86.2		UJ	All semivolatile samples

Although the %RSD were outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
4-Nitrophenol	30.61		UJ	DA-SB101-0608, DA-SB100-0204, DA-SB113-0002, DA-SB113-0406, DA-SB-DUP03
Carbazole	27.15, 33.43		UJ	DA-SB101-0608, DA-SB100-0204, DA-SB113-0002, DA-SB113-0406, DA-SB-DUP03, DA-SB-DUP04, DA-SB117-0810, DA-SB102-0305, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002, DA-SB114-0406, DA-SB102-0002
Benzidine	-38.45, -73.00, -93.24, -69.52		UJ	All samples
n-Nitrosodimethylamine	28.75, 29.65		UJ	DA-SB-DUP04, DA-SB117-0810, DA-SB102-0305, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002, DA-SB114-0406, DA-SB102-0002, DA-SB116-0002, DA-SB117-0002, DA-SB100-0002
Di-n-octylphthalate	31.30		UJ	DA-SB-DUP04, DA-SB117-0810, DA-SB102-0305, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002, DA-SB114-0406, DA-SB102-0002

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzoic Acid	-27.64, 30.26		UJ	DA-SB-DUP04, DA-SB117-0810, DA-SB102-0305, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002, DA-SB114-0406, DA-SB102-0002, DA-SB151-0406, DA-SB151-0002
Pentachlorophenol	-27.69, -25.74, -30.27		UJ	DA-SB-DUP04, DA-SB117-0810, DA-SB102-0305, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002, DA-SB114-0406, DA-SB102-0002, DA-SB151-0406, DA-SB151-0002, DA-SB116-0002, DA-SB117-0002, DA-SB100-0002
2,2'-Oxybis(1-chloropropane)	32.90, 26.44		UJ	DA-SB151-0406, DA-SB151-0002, DA-SB116-0002, DA-SB117-0002, DA-SB100-0002
3-Nitroaniline	-51.86		UJ	DA-SB151-0406, DA-SB151-0002
3,3'-Dichlorobenzidine	-46.92		UJ	
1,2-Diphenylhydrazine	38.31		UJ	DA-SB116-0002, DA-SB117-0002, DA-SB100-0002

Although the %D were outside of the QC limits for 4-nitrophenol, carbazole, benzidine, n-nitrosodimethylamine, di-n-octylphthalate, benzoic acid, pentachlorophenol, 2,2'-oxybis(1-chloropropane), 3-nitroaniline, 3,3'-dichlorobenzidine, and 1,2-diphenylhydrazine, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there is no regulatory limits established for the affected compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Indeno(1,2,3-cd)pyrene	29.93	J	UJ	DA-SB116-0002, DA-SB151-0002, DA-SB117-0810, DA-SB102-0305, DA-SB102-0002, DA-SB114-0406, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002
Dibenzo(a,h)anthracene	34.67, 31.22	J	UJ	DA-SB116-0002, DA-SB151-0002, DA-SB117-0810, DA-SB102-0305, DA-SB102-0002, DA-SB114-0406, DA-SB-DUP05, DA-SB114-0002, DA-SB101-0002, DA-SB100-0002
Benzo(k)fluoranthene	-27.74, -27.13	J		DA-SB151-0406, DA-SB-DUP03, DA-SB117-0002

Although the %D were outside of the QC limits for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(k)fluoranthene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and

non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
delta-BHC	-42.00	-37.40		UJ	DA-SB113-0406, DA-SB101-0608, DA-SB100-0002, DA-SB-DUP03, DA-SB100-0204, DA-SB-DUP04, DA-SB102-0002, DA-SB102-0305, DA-SB114-0406, DA-SB114-0002
Endosulfan sulfate	-58.00	-55.80		UJ	
4,4'-DDT	-59.00, -50.60	-57.80, -49.80	J	UJ	All samples, except DA-SB113-0002
Methoxychlor	-42.60, -35.00	-40.80, -35.80		UJ	

Although the %D were outside of the QC limits for the above analytes, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the PCB compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	45.41	41.85		UJ	DA-SB100-0002, DA-SB-DUP03, DA-SB100-0204, DA-SB-DUP04, DA-SB102-0002, DA-SB102-0305, DA-SB114-0406, DA-SB114-0002, DA-SB101-0002, DA-SB117-0810
Aroclor-1260	33.92, -33.04	29.38, -27.44		UJ	DA-SB100-0002, DA-SB-DUP03, DA-SB100-0204, DA-SB-DUP04, DA-SB102-0002, DA-SB102-0305, DA-SB114-0406, DA-SB114-0002, DA-SB101-0002, DA-SB117-0810, DA-SB117-0002, DA-SB-DUP05, DA-SB151-0406, DA-SB151-0002, DA-SB116-0002

Although the %D were outside of the QC limits for Aroclor-1016 and Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	2.2	11	All samples, except DA-SB101-0002

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

ExTPH

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
ExTPH	Method	3.4	17	DA-SB101-0608, DA-SB-DUP04, DA-SB102-0305

Blank actions were applied to the affected samples due to ExTPH method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for ExTPH in the affected samples were changed to non-detected values at elevated reporting limits.

Although ExTPH contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB100-0002	BFB	39	41-103	J	UJ

The surrogate p-bromofluorobenzene (BFB) recovered below the QC limits in the volatile sample DA-SB100-0002. All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected sample due to low surrogate recovery.

Although the surrogate recovery QC criterion was not met for p-bromofluorobenzene, the project accuracy goals are only slightly impacted. The positive and non-detected results in sample DA-SB100-0002 are usable as estimated values and estimated quantitation limits which may be biased low.

PAH

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB114-0406	Fluorene-d10	150	34-140	J	
DA-SB114-0002		185			
DA-SB101-0002		180			
DA-SB-DUP05		162			

The surrogate fluorene-d10 recovered above the QC limits in samples DA-SB114-0406, DA-SB114-0002, DA-SB101-0002, and DA-SB-DUP05. All positive results are estimated (J) in the affected sample due to high surrogate recoveries.

Although the surrogate recovery QC criterion was not met for fluorene-d10, the project accuracy goals are only slightly impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

Internal Standards

Volatiles

The following table summarizes the volatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
DCB	105221	107349-429396	J	UJ	DA-SB113-0406
	45851		J	UJ	DA-SB100-0002
	72833	125612-502446	J	UJ	DA-SB102-0002(RA)
	103941	138514-554054	J	UJ	DA-SB101-002(RA2)

The internal standard areas of 1,4-dichlorobenzene-d4 (DCB) failed to meet the acceptable range for the above samples. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

The QC criteria were not met due to low internal standard areas of 1,4-dichlorobenzene-d4, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Naphthalene-d8	75772	17446-69784	J		DA-SB100-0002
Acenaphthene-d10	41673	9481-37924	J		
Perylene-d12	2538	6567-26266	J		

The internal standard areas of naphthalene-d8, acenaphthene-d10, and perylene-d12 failed to meet the acceptable range for sample DA-SB100-0002. The target compounds associated with naphthalene-d8 are naphthalene and 2-methylnaphthalene. The target compounds associated with acenaphthene-d10 are acenaphthylene, acenaphthene, and fluorene. The target compound associated with perylene-d12 is dibenzo(a,h)anthracene. All positive results are estimated (J) for the corresponding target compounds in the affected sample.

The QC criteria were not met for the internal standard areas of naphthalene-d8, acenaphthene-d10, and perylene-d12, the project accuracy goals may be impacted. The affected positive results in sample DA-SB100-0002 are usable as estimated values.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-SB117-0810 recovered the majority of the volatile compounds below the compound-specific recovery limits and some compounds above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-SB117-0810 due to low MS/MSD recoveries and MS/MSD imprecision.

The project accuracy goals may be slightly impacted for sample DA-SB117-0810 because the matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-SB117-0810 are usable as estimated values and estimated quantitation limits which may be biased low.

The project precision goals may be slightly impacted for sample DA-SB117-0810 because the matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-SB117-0810 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Semivolatiles

The matrix spike/matrix spike duplicate results for sample DA-SB117-0810 recovered 0% for benzidine. The non-detected benzidine result is qualified as rejected (R) in sample DA-SB117-0810 due to no MS/MSD recovery. This result should not be used for project decisions.

PAH

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB117-0810 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Pyrene	33	36-108	J	
Benzo(k)fluoranthene	35	46-114	J	

Although the percent recovery criterion were not met for pyrene and benzo(k)fluoranthene, the project accuracy goals are only slightly impacted. The positive pyrene and benzo(k)fluoranthene results in sample DA-SB117-0810 are usable as estimated values which may be biased low.

Pesticides

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB117-0810 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
4,4'-DDT	58	60-117		UJ

Although the percent recovery criterion was not met for 4,4'-DDT, the project accuracy goals are only slightly impacted. The non-detected 4,4'-DDT result in sample DA-SB117-0810is usable as an estimated quantitation limits which may be biased low.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromochloromethane	54, 54, 57, 52	81-127		UJ	All samples

The laboratory control sample/laboratory control sample duplicate recovered bromochloromethane below QC limits. The non-detected results are estimated (UJ) for bromochloromethane in the affected samples.

Although the LCS/LCSD recoveries for bromochloromethane were below the QC limits, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Field Duplicates

Volatiles

The field duplicate pairs DA-SB113-0406/DA-SB-DUP03, DA-SB101-0608/DA-SB-DUP04, DA-SB151-0408/DA-SB-DUP05 exceeded the relative percent difference QC criterion of 50% for acetone. The field duplicate pair DA-SB101-0608/DA-SB-DUP04 exceeded the relative percent difference QC criterion of 50% for n-butylbenzene. The positive acetone results in all of the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision. The positive n-butylbenzene results in samples DA-SB101-0608 and DA-SB-DUP04 are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for acetone and n-butylbenzene exceeded the QC criterion, the project precision goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

PAH

The field duplicate pair DA-SB113-0406/DA-SB-DUP03 exceeded the relative percent difference QC criterion of 50% for fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. The positive results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene exceeded the QC criterion, the project precision goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action	
			(+)	NDs
DA-SB100-0002	Endosulfan II	40.6	J	
DA-SB113-0002	4,4'-DDD	69.0	J	

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

Although reporting limits for several samples did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

PAH results beyond the linear calibration range of the instrument in the SIM mode are reported from the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Tentatively Identified Compounds

Semivolatiles

The laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low surrogate recoveries, poor internal standard areas, low matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to matrix spike/matrix spike duplicate imprecision and field duplicate imprecision. Although specific QC criterion were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. The benzidine result in sample DA-SB117-0810 is rejected due to 0% matrix spike recovery. Data usability is impacted; this result should not be used for project decisions.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low matrix spike recoveries, poor internal standard performance, and high surrogate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PAH data set with the following exception. Select compounds were qualified as estimated due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set. Data usability was not impacted with regards to sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low matrix spike/matrix spike duplicate recoveries, and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exception. Aroclor-1016 and Aroclor-1260 were qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.
The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO and ExTPH

The project goals with respect to accuracy, precision, and sensitivity were met for the GRO and ExTPH data sets. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002RA2			DA-SB101-0608		
	LAB_ID	SB1074-7			SB1074-11			SB1074-23RA2			SB1074-5		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	UJ	R	6	U		6	U		5	U	
1,1,1-TRICHLOROETHANE		5	UJ	R	6	U		6	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,1,2-TRICHLOROETHANE		5	UJ	R	6	U		6	U		5	U	
1,1-DICHLOROETHANE		5	UJ	R	6	U		6	U		5	U	
1,1-DICHLOROETHENE		5	UJ	R	6	U		6	U		5	U	
1,1-DICHLOROPROPENE		5	UJ	R	6	U		6	U		5	U	
1,2,3-TRICHLOROBENZENE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,2,3-TRICHLOROPROPANE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,2,4-TRICHLOROBENZENE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,2,4-TRIMETHYLBENZENE		8	J	NR	6	U		6	UJ	N	2	J	P
1,2-DIBROMO-3-CHLOROPROPANE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,2-DIBROMOETHANE		5	UJ	R	6	U		6	U		5	U	
1,2-DICHLOROBENZENE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,2-DICHLOROETHANE		5	UJ	R	6	U		6	U		5	U	
1,2-DICHLOROPROPANE		5	UJ	R	6	U		6	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	J	NPR	6	U		6	UJ	N	5	U	
1,3-DICHLOROBENZENE		5	UJ	NR	6	U		6	UJ	N	5	U	
1,3-DICHLOROPROPANE		5	UJ	R	6	U		6	U		5	U	
1,4-DICHLOROBENZENE		5	UJ	NR	6	U		6	UJ	N	5	U	
2,2-DICHLOROPROPANE		5	UJ	CR	6	UJ	C	6	U		5	UJ	C
2-BUTANONE		17	J	PR	29	J	P	9	J	P	26	U	
2-CHLOROTOLUENE		5	UJ	NR	6	U		6	UJ	N	5	U	
2-HEXANONE		27	UJ	R	30	U		29	U		26	U	
4-CHLOROTOLUENE		5	UJ	NR	6	U		6	UJ	N	5	U	
4-ISOPROPYLTOLUENE		5	UJ	R	6	U		6	U		5	U	
4-METHYL-2-PENTANONE		27	UJ	R	30	U		29	U		26	U	
ACETONE		400	J	R	230			70			250	J	G
BENZENE		5	UJ	R	6	U		6	U		5	U	
BROMOBENZENE		5	UJ	NR	6	U		6	UJ	N	5	U	
BROMOCHLOROMETHANE		5	UJ	ER	6	UJ	E	6	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	UJ	R	6	U		6	U		5	U	
BROMOFORM		5	UJ	R	6	U		6	U		5	U	
BROMOMETHANE		11	UJ	R	12	U		11	U		10	U	
CARBON DISULFIDE		5	UJ	R	2	J	P	6	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB102-0002RA			DA-SB102-0305RA2			DA-SB113-0002RA2			DA-SB113-0406		
SDG: CTO403-3	LAB_ID	SB1074-15RA			SB1074-17RA2			SB1074-1RA2			SB1074-3		
FRACTION: OV	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	7	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE	7	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	7	UJ	N	5	U		5	U		5	UJ	N
1,1,2-TRICHLOROETHANE	7	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE	7	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	7	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE	7	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
1,2,3-TRICHLOROPROPANE	7	UJ	N	5	U		5	U		5	UJ	N
1,2,4-TRICHLOROBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
1,2,4-TRIMETHYLBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE	7	UJ	N	5	U		5	U		5	UJ	N
1,2-DIBROMOETHANE	7	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
1,2-DICHLOROETHANE	7	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	7	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
1,3-DICHLOROBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
1,3-DICHLOROPROPANE	7	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
2,2-DICHLOROPROPANE	7	U		5	U		5	U		5	UJ	C
2-BUTANONE	36	U		27	U		25	U		18	J	P
2-CHLOROTOLUENE	7	UJ	N	5	U		5	U		5	UJ	N
2-HEXANONE	36	U		27	U		25	U		26	U	
4-CHLOROTOLUENE	7	UJ	N	5	U		5	U		5	UJ	N
4-ISOPROPYLTOLUENE	7	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	36	U		27	U		25	U		26	U	
ACETONE	1600	UJ	C	670			8	J	P	120	J	G
BENZENE	7	U		5	U		5	U		5	U	
BROMOBENZENE	7	UJ	N	5	U		5	U		5	UJ	N
BROMOCHLOROMETHANE	7	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE	7	U		5	U		5	U		5	U	
BROMOFORM	7	U		5	U		5	U		5	U	
BROMOMETHANE	15	U		11	U		10	U		10	U	
CARBON DISULFIDE	7	U		5	U		5	U		5	U	

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002RA			DA-SB117-0002		
	LAB_ID	SB1074-21			SB1074-19			SB1104-11RA			SB1104-7		
	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		6	U		5	U		6	U		6	UJ	D
1,1,1-TRICHLOROETHANE		6	U		5	U		6	U		6	UJ	D
1,1,2,2-TETRACHLOROETHANE		6	U		5	U		6	U		6	UJ	D
1,1,2-TRICHLOROETHANE		6	U		5	U		6	U		6	UJ	D
1,1-DICHLOROETHANE		6	U		5	U		6	U		6	UJ	D
1,1-DICHLOROETHENE		6	U		5	U		6	U		6	UJ	D
1,1-DICHLOROPROPENE		6	U		5	U		6	U		6	UJ	D
1,2,3-TRICHLOROBENZENE		6	U		5	U		6	U		6	UJ	D
1,2,3-TRICHLOROPROPANE		6	U		5	U		6	U		6	UJ	D
1,2,4-TRICHLOROBENZENE		6	U		5	U		6	U		6	UJ	D
1,2,4-TRIMETHYLBENZENE		6	U		5	U		6	U		6	UJ	D
1,2-DIBROMO-3-CHLOROPROPANE		6	U		5	U		6	U		6	UJ	D
1,2-DIBROMOETHANE		6	U		5	U		6	U		6	UJ	D
1,2-DICHLOROBENZENE		6	U		5	U		6	U		6	UJ	D
1,2-DICHLOROETHANE		6	U		5	U		6	U		6	UJ	D
1,2-DICHLOROPROPANE		6	U		5	U		6	U		6	UJ	D
1,3,5-TRIMETHYLBENZENE		6	U		5	U		6	U		6	UJ	D
1,3-DICHLOROBENZENE		6	U		5	U		6	U		6	UJ	D
1,3-DICHLOROPROPANE		6	U		5	U		6	U		6	UJ	D
1,4-DICHLOROBENZENE		6	U		5	U		6	U		6	UJ	D
2,2-DICHLOROPROPANE		6	U		5	U		6	U		6	UJ	D
2-BUTANONE		28	U		25	U		30	U		30	UJ	D
2-CHLOROTOLUENE		6	U		5	U		6	U		6	UJ	D
2-HEXANONE		28	U		25	U		30	U		30	UJ	D
4-CHLOROTOLUENE		6	U		5	U		6	U		6	UJ	D
4-ISOPROPYLTOLUENE		6	U		5	U		6	U		6	UJ	D
4-METHYL-2-PENTANONE		28	U		25	U		30	U		30	UJ	D
ACETONE		12	J	P	35			97			27	J	DP
BENZENE		6	U		5	U		6	U		6	UJ	D
BROMOBENZENE		6	U		5	U		6	U		6	UJ	D
BROMOCHLOROMETHANE		6	UJ	E	5	UJ	E	6	UJ	E	6	UJ	DE
BROMODICHLOROMETHANE		6	U		5	U		6	U		6	UJ	D
BROMOFORM		6	U		5	U		6	U		6	UJ	D
BROMOMETHANE		11	U		10	U		12	U		12	UJ	D
CARBON DISULFIDE		6	U		5	U		6	U		6	UJ	D

PROJ_NO: 00933	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
SDG: CTO403-3	LAB_ID	SB1104-3			SB1104-9			SB1104-5			SB1074-9		
FRACTION: OV	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	UJ	C
2-BUTANONE		25	U		25	U		25	U		6	J	P
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		28			53			63	J	G	920	J	G
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05			DA-TB-030408			TB-030308		
SDG: CTO403-3	LAB_ID	SB1074-13			SB1104-1			SB1104-13			SB1074-25		
FRACTION: OV	SAMP_DATE	3/3/2008			3/4/2008			3/4/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.3			85.8			.0			.0		
	DUP_OF	DA-SB101-0608			DA-SB151-0406								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	UJ	C
2-BUTANONE		25	U		25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		130	J	G	110	J	G	25	U		25	U	
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002RA2			DA-SB101-0608		
SDG: CTO403-3	LAB_ID	SB1074-7			SB1074-11			SB1074-23RA2			SB1074-5		
FRACTION: OV	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	UJ	R	6	U		6	U		5	U	
CHLOROBENZENE		5	UJ	R	6	U		6	U		5	U	
CHLORODIBROMOMETHANE		5	UJ	R	6	U		6	U		5	U	
CHLOROETHANE		11	UJ	R	12	U		11	U		10	U	
CHLOROFORM		5	UJ	R	6	U		6	U		5	U	
CHLOROMETHANE		11	UJ	R	12	U		11	U		10	U	
CIS-1,2-DICHLOROETHENE		5	UJ	R	6	U		6	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	UJ	R	6	U		6	U		5	U	
DIBROMOMETHANE		5	UJ	R	6	U		6	U		5	U	
DICHLORODIFLUOROMETHANE		11	UJ	R	12	U		11	U		10	U	
ETHYLBENZENE		5	UJ	R	6	U		6	U		5	U	
HEXACHLOROBUTADIENE		5	UJ	NR	6	U		6	UJ	N	5	U	
ISOPROPYLBENZENE		5	UJ	NR	6	U		6	UJ	N	5	J	P
M+P-XYLENES		11	UJ	R	12	U		11	U		10	U	
METHYL TERT-BUTYL ETHER		5	UJ	R	6	U		6	U		5	U	
METHYLENE CHLORIDE		27	UJ	R	30	U		29	U		26	U	
N-BUTYLBENZENE		5	UJ	NR	6	U		6	UJ	N	13	J	G
N-PROPYLBENZENE		5	UJ	NR	6	U		6	UJ	N	8		
O-XYLENE		5	UJ	R	6	U		6	U		5	U	
SEC-BUTYLBENZENE		5	UJ	NR	6	U		6	UJ	N	23		
STYRENE		5	UJ	R	6	U		6	U		5	U	
TERT-BUTYLBENZENE		5	UJ	NR	6	U		6	UJ	N	2	J	P
TETRACHLOROETHENE		5	UJ	R	6	U		6	U		5	U	
TOLUENE		5	UJ	R	6	U		6	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	UJ	R	6	U		6	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	UJ	R	6	U		6	U		5	U	
TRICHLOROETHENE		5	UJ	R	6	U		6	U		5	U	
TRICHLOROFLUOROMETHANE		11	UJ	R	12	UJ	C	11	U		10	UJ	C
VINYL CHLORIDE		11	UJ	R	12	U		11	U		10	U	

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB102-0002RA			DA-SB102-0305RA2			DA-SB113-0002RA2			DA-SB113-0406		
	LAB_ID	SB1074-15RA			SB1074-17RA2			SB1074-1RA2			SB1074-3		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		7	U		5	U		5	U		5	U	
CHLOROBENZENE		7	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		7	U		5	U		5	U		5	U	
CHLOROETHANE		15	U		11	U		10	U		10	U	
CHLOROFORM		7	U		5	U		5	U		5	U	
CHLOROMETHANE		15	U		11	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		7	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		7	U		5	U		5	U		5	U	
DIBROMOMETHANE		7	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		15	U		11	U		10	U		10	U	
ETHYLBENZENE		2	J	P	5	U		5	U		5	U	
HEXACHLOROBUTADIENE		7	UJ	N	5	U		5	U		5	UJ	N
ISOPROPYLBENZENE		7	UJ	N	5	U		5	U		5	UJ	N
M+P-XYLENES		9	J	P	11	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		7	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		36	U		27	U		25	U		26	U	
N-BUTYLBENZENE		7	UJ	N	5	U		5	U		5	UJ	N
N-PROPYLBENZENE		7	UJ	N	5	U		5	U		5	UJ	N
O-XYLENE		2	J	P	5	U		5	U		5	U	
SEC-BUTYLBENZENE		7	UJ	N	5	U		5	U		5	UJ	N
STYRENE		7	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		7	UJ	N	5	U		5	U		5	UJ	N
TETRACHLOROETHENE		7	U		5	U		5	U		5	U	
TOLUENE		7	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		7	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		7	U		5	U		5	U		5	U	
TRICHLOROETHENE		7	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		15	U		11	U		10	U		10	UJ	C
VINYL CHLORIDE		15	U		11	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002RA			DA-SB117-0002		
SDG: CTO403-3	LAB_ID	SB1074-21			SB1074-19			SB1104-11RA			SB1104-7		
FRACTION: OV	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	6	U		5	U		6	U		6	UJ	D
CHLOROBENZENE	6	U		5	U		6	U		6	UJ	D
CHLORODIBROMOMETHANE	6	U		5	U		6	U		6	UJ	D
CHLOROETHANE	11	U		10	U		12	U		12	UJ	D
CHLOROFORM	6	U		5	U		6	U		6	UJ	D
CHLOROMETHANE	11	U		10	U		12	U		12	UJ	D
CIS-1,2-DICHLOROETHENE	6	U		5	U		6	U		6	UJ	D
CIS-1,3-DICHLOROPROPENE	6	U		5	U		6	U		6	UJ	D
DIBROMOMETHANE	6	U		5	U		6	U		6	UJ	D
DICHLORODIFLUOROMETHANE	11	U		10	U		12	U		12	UJ	D
ETHYLBENZENE	6	U		5	U		6	U		6	UJ	D
HEXACHLOROBUTADIENE	6	U		5	U		6	U		6	UJ	D
ISOPROPYLBENZENE	6	U		5	U		6	U		6	UJ	D
M+P-XYLENES	11	U		10	U		12	U		12	UJ	D
METHYL TERT-BUTYL ETHER	6	U		5	U		6	U		6	UJ	D
METHYLENE CHLORIDE	28	U		25	U		30	U		30	UJ	D
N-BUTYLBENZENE	6	U		5	U		6	U		6	UJ	D
N-PROPYLBENZENE	6	U		5	U		6	U		6	UJ	D
O-XYLENE	6	U		5	U		6	U		6	UJ	D
SEC-BUTYLBENZENE	6	U		5	U		6	U		6	UJ	D
STYRENE	6	U		5	U		6	U		6	UJ	D
TERT-BUTYLBENZENE	6	U		5	U		6	U		6	UJ	D
TETRACHLOROETHENE	6	U		5	U		6	U		6	UJ	D
TOLUENE	6	U		5	U		6	U		6	UJ	D
TRANS-1,2-DICHLOROETHENE	6	U		5	U		6	U		6	UJ	D
TRANS-1,3-DICHLOROPROPENE	6	U		5	U		6	U		6	UJ	D
TRICHLOROETHENE	6	U		5	U		6	U		6	UJ	D
TRICHLOROFLUOROMETHANE	11	U		10	U		12	U		12	UJ	D
VINYL CHLORIDE	11	U		10	U		12	U		12	UJ	D

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
	LAB_ID	SB1104-3			SB1104-9			SB1104-5			SB1074-9		
	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U		25	U		25	U	
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		12			5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	UJ	C
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05			DA-TB-030408			TB-030308		
	LAB_ID	SB1074-13			SB1104-1			SB1104-13			SB1074-25		
	SAMP_DATE	3/3/2008			3/4/2008			3/4/2008			3/3/2008		
	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.3			85.8			.0			.0		
	DUP_OF	DA-SB101-0608			DA-SB151-0406								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		4	J	P	5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U		25	U		2	J	P
N-BUTYLBENZENE		7	J	G	5	U		5	U		5	U	
N-PROPYLBENZENE		5			5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		16			5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		2	J	P	5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	UJ	C
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002			DA-SB101-0608		
SDG: CTO403-3	LAB_ID	SB1074-7			SB1074-11			SB1074-23			SB1074-5		
FRACTION: OS	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		380	U		360	U		360	U	
1,2,4-TRICHLOROBENZENE		360	U		380	U		360	U		360	U	
1,2-DICHLOROBENZENE		360	U		380	U		360	U		360	U	
1,2-DIPHENYLHYDRAZINE		730	UJ	C	770	U		720	U		710	U	
1,3-DICHLOROBENZENE		360	U		380	U		360	U		360	U	
1,4-DICHLOROBENZENE		360	U		380	U		360	U		360	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	UJ	C	380	U		360	U		360	U	
2,4,5-TRICHLOROPHENOL		900	U		960	U		890	U		890	U	
2,4,6-TRICHLOROPHENOL		360	U		380	U		360	U		360	U	
2,4-DICHLOROPHENOL		360	U		380	U		360	U		360	U	
2,4-DIMETHYLPHENOL		360	U		380	U		360	U		360	U	
2,4-DINITROPHENOL		900	U		960	U		890	U		890	U	
2,4-DINITROTOLUENE		360	U		380	U		360	U		360	U	
2,6-DICHLOROPHENOL		360	U		380	U		360	U		360	U	
2,6-DINITROTOLUENE		900	U		960	U		890	U		890	U	
2-CHLORONAPHTHALENE		360	U		380	U		360	U		360	U	
2-CHLOROPHENOL		360	U		380	U		360	U		360	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		360	U		380	U		360	U		360	U	
2-NITROANILINE		900	U		960	U		890	U		890	U	
2-NITROPHENOL		360	U		380	U		360	U		360	U	
3&4-METHYLPHENOL		360	U		380	U		360	U		360	U	
3,3'-DICHLOROBENZIDINE		360	U		380	U		360	U		360	U	
3-NITROANILINE		900	U		960	U		890	U		890	U	
4,6-DINITRO-2-METHYLPHENOL		900	U		960	U		890	U		890	U	
4-BROMOPHENYL PHENYL ETHER		360	U		380	U		360	U		360	U	
4-CHLORO-3-METHYLPHENOL		360	U		380	U		360	U		360	U	
4-CHLOROANILINE		360	U		380	U		360	U		360	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		380	U		360	U		360	U	
4-NITROANILINE		900	U		960	U		890	U		890	U	
4-NITROPHENOL		900	U		960	UJ	C	890	U		890	UJ	C
BENZIDINE		1600	UJ	C	1800	UJ	C	1600	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE		1100											
BENZO(A)PYRENE		960											
BENZO(B)FLUORANTHENE		1300											

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB102-0002			DA-SB102-0305			DA-SB113-0002			DA-SB113-0406		
	LAB_ID	SB1074-15			SB1074-17			SB1074-1			SB1074-3		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		410	U		360	U		370	U	
1,2,4-TRICHLOROBENZENE		380	U		410	U		360	U		370	U	
1,2-DICHLOROBENZENE		380	U		410	U		360	U		370	U	
1,2-DIPHENYLHYDRAZINE		770	U		820	U		720	U		740	U	
1,3-DICHLOROBENZENE		380	U		410	U		360	U		370	U	
1,4-DICHLOROBENZENE		380	U		410	U		360	U		370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		410	U		360	U		370	U	
2,4,5-TRICHLOROPHENOL		960	U		1000	U		890	U		920	U	
2,4,6-TRICHLOROPHENOL		380	U		410	U		360	U		370	U	
2,4-DICHLOROPHENOL		380	U		410	U		360	U		370	U	
2,4-DIMETHYLPHENOL		380	U		410	U		360	U		370	U	
2,4-DINITROPHENOL		960	U		1000	U		890	U		920	U	
2,4-DINITROTOLUENE		380	U		410	U		360	U		370	U	
2,6-DICHLOROPHENOL		380	U		410	U		360	U		370	U	
2,6-DINITROTOLUENE		960	U		1000	U		890	U		920	U	
2-CHLORONAPHTHALENE		380	U		410	U		360	U		370	U	
2-CHLOROPHENOL		380	U		410	U		360	U		370	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		380	U		410	U		360	U		370	U	
2-NITROANILINE		960	U		1000	U		890	U		920	U	
2-NITROPHENOL		380	U		410	U		360	U		370	U	
3&4-METHYLPHENOL		380	U		410	U		360	U		370	U	
3,3'-DICHLOROBENZIDINE		380	U		410	U		360	U		370	U	
3-NITROANILINE		960	U		1000	U		890	U		920	U	
4,6-DINITRO-2-METHYLPHENOL		960	U		1000	U		890	U		920	U	
4-BROMOPHENYL PHENYL ETHER		380	U		410	U		360	U		370	U	
4-CHLORO-3-METHYLPHENOL		380	U		410	U		360	U		370	U	
4-CHLOROANILINE		380	U		410	U		360	U		370	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		410	U		360	U		370	U	
4-NITROANILINE		960	U		1000	U		890	U		920	U	
4-NITROPHENOL		960	U		1000	U		890	UJ	C	920	UJ	C
BENZIDINE		1800	UJ	C	1900	UJ	C	1600	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE		470											
BENZO(A)PYRENE		500											
BENZO(B)FLUORANTHENE		460											

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002			DA-SB117-0002		
	LAB_ID	SB1074-21			SB1074-19			SB1104-11			SB1104-7		
	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		380	U		360	U		360	U	
1,2,4-TRICHLOROBENZENE		360	U		380	U		360	U		360	U	
1,2-DICHLOROBENZENE		360	U		380	U		360	U		360	U	
1,2-DIPHENYLHYDRAZINE		730	U		760	U		730	UJ	C	720	UJ	C
1,3-DICHLOROBENZENE		360	U		380	U		360	U		360	U	
1,4-DICHLOROBENZENE		360	U		380	U		360	U		360	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	U		380	U		360	UJ	C	360	UJ	C
2,4,5-TRICHLOROPHENOL		910	U		940	U		910	U		900	U	
2,4,6-TRICHLOROPHENOL		360	U		380	U		360	U		360	U	
2,4-DICHLOROPHENOL		360	U		380	U		360	U		360	U	
2,4-DIMETHYLPHENOL		360	U		380	U		360	U		360	U	
2,4-DINITROPHENOL		910	U		940	U		910	U		900	U	
2,4-DINITROTOLUENE		360	U		380	U		360	U		360	U	
2,6-DICHLOROPHENOL		360	U		380	U		360	U		360	U	
2,6-DINITROTOLUENE		910	U		940	U		910	U		900	U	
2-CHLORONAPHTHALENE		360	U		380	U		360	U		360	U	
2-CHLOROPHENOL		360	U		380	U		360	U		360	U	
2-METHYLNAPHTHALENE								390					
2-METHYLPHENOL		360	U		380	U		360	U		360	U	
2-NITROANILINE		910	U		940	U		910	U		900	U	
2-NITROPHENOL		360	U		380	U		360	U		360	U	
3&4-METHYLPHENOL		360	U		380	U		360	U		360	U	
3,3'-DICHLOROBENZIDINE		360	U		380	U		360	U		360	U	
3-NITROANILINE		910	U		940	U		910	U		900	U	
4,6-DINITRO-2-METHYLPHENOL		910	U		940	U		910	U		900	U	
4-BROMOPHENYL PHENYL ETHER		360	U		380	U		360	U		360	U	
4-CHLORO-3-METHYLPHENOL		360	U		380	U		360	U		360	U	
4-CHLOROANILINE		360	U		380	U		360	U		360	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		380	U		360	U		360	U	
4-NITROANILINE		910	U		940	U		910	U		900	U	
4-NITROPHENOL		910	U		940	U		910	U		900	U	
BENZIDINE		1700	UJ	C	1700	UJ	C	1700	UJ	C	1600	UR	D
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													
BENZO(B)FLUORANTHENE													

PROJ_NO: 00933	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
SDG: CTO403-3	LAB_ID	SB1104-3			SB1104-9			SB1104-5			SB1074-9		
FRACTION: OS	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		400	U		370	U		390	U		380	U	
1,2,4-TRICHLOROBENZENE		400	U		370	U		390	U		380	U	
1,2-DICHLOROBENZENE		400	U		370	U		390	U		380	U	
1,2-DIPHENYLHYDRAZINE		810	U		740	U		780	U		770	U	
1,3-DICHLOROBENZENE		400	U		370	U		390	U		380	U	
1,4-DICHLOROBENZENE		400	U		370	U		390	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		400	U		370	UJ	C	390	UJ	C	380	U	
2,4,5-TRICHLOROPHENOL		1000	U		920	U		970	U		950	U	
2,4,6-TRICHLOROPHENOL		400	U		370	U		390	U		380	U	
2,4-DICHLOROPHENOL		400	U		370	U		390	U		380	U	
2,4-DIMETHYLPHENOL		400	U		370	U		390	U		380	U	
2,4-DINITROPHENOL		1000	U		920	U		970	U		950	U	
2,4-DINITROTOLUENE		400	U		370	U		390	U		380	U	
2,6-DICHLOROPHENOL		400	U		370	U		390	U		380	U	
2,6-DINITROTOLUENE		1000	U		920	U		970	U		950	U	
2-CHLORONAPHTHALENE		400	U		370	U		390	U		380	U	
2-CHLOROPHENOL		400	U		370	U		390	U		380	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		400	U		370	U		390	U		380	U	
2-NITROANILINE		1000	U		920	U		970	U		950	U	
2-NITROPHENOL		400	U		370	U		390	U		380	U	
3&4-METHYLPHENOL		400	U		370	U		390	U		380	U	
3,3'-DICHLOROBENZIDINE		400	U		370	UJ	C	390	UJ	C	380	U	
3-NITROANILINE		1000	U		920	UJ	C	970	UJ	C	950	U	
4,6-DINITRO-2-METHYLPHENOL		1000	U		920	U		970	U		950	U	
4-BROMOPHENYL PHENYL ETHER		400	U		370	U		390	U		380	U	
4-CHLORO-3-METHYLPHENOL		400	U		370	U		390	U		380	U	
4-CHLOROANILINE		400	U		370	U		390	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		400	U		370	U		390	U		380	U	
4-NITROANILINE		1000	U		920	U		970	U		950	U	
4-NITROPHENOL		1000	U		920	U		970	U		950	UJ	C
BENZIDINE		1800	UJ	C	1700	UJ	C	1800	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													
BENZO(B)FLUORANTHENE													

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05		
	LAB_ID	SB1074-13			SB1104-1		
	SAMP_DATE	3/3/2008			3/4/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	92.3			85.8		
	DUP_OF	DA-SB101-0608			DA-SB151-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		380	U	
1,2,4-TRICHLOROBENZENE		360	U		380	U	
1,2-DICHLOROBENZENE		360	U		380	U	
1,2-DIPHENYLHYDRAZINE		720	U		770	U	
1,3-DICHLOROBENZENE		360	U		380	U	
1,4-DICHLOROBENZENE		360	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	U		380	U	
2,4,5-TRICHLOROPHENOL		890	U		960	U	
2,4,6-TRICHLOROPHENOL		360	U		380	U	
2,4-DICHLOROPHENOL		360	U		380	U	
2,4-DIMETHYLPHENOL		360	U		380	U	
2,4-DINITROPHENOL		890	U		960	U	
2,4-DINITROTOLUENE		360	U		380	U	
2,6-DICHLOROPHENOL		360	U		380	U	
2,6-DINITROTOLUENE		890	U		960	U	
2-CHLORONAPHTHALENE		360	U		380	U	
2-CHLOROPHENOL		360	U		380	U	
2-METHYLNAPHTHALENE							
2-METHYLPHENOL		360	U		380	U	
2-NITROANILINE		890	U		960	U	
2-NITROPHENOL		360	U		380	U	
3&4-METHYLPHENOL		360	U		380	U	
3,3'-DICHLOROBENZIDINE		360	U		380	U	
3-NITROANILINE		890	U		960	U	
4,6-DINITRO-2-METHYLPHENOL		890	U		960	U	
4-BROMOPHENYL PHENYL ETHER		360	U		380	U	
4-CHLORO-3-METHYLPHENOL		360	U		380	U	
4-CHLOROANILINE		360	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		380	U	
4-NITROANILINE		890	U		960	U	
4-NITROPHENOL		890	U		960	U	
BENZIDINE		1600	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE							
BENZO(A)PYRENE							
BENZO(B)FLUORANTHENE							

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002			DA-SB101-0608		
	LAB_ID	SB1074-7			SB1074-11			SB1074-23			SB1074-5		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(G,H,I)PERYLENE		480											
BENZO(K)FLUORANTHENE		1200											
BENZOIC ACID		900	U		960	U		890	UJ	C	890	U	
BENZYL ALCOHOL		730	U		770	U		720	U		710	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		380	U		360	U		360	U	
BIS(2-CHLOROETHYL)ETHER		360	U		380	U		360	U		360	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		380	U		360	U		360	U	
BUTYL BENZYL PHTHALATE		360	U		380	U		360	U		360	U	
CARBAZOLE		300	J	P	380	UJ	C	360	UJ	C	360	UJ	C
CHRYSENE		1300											
DIBENZOFURAN		360	U		380	U		360	U		360	U	
DIETHYL PHTHALATE		360	U		380	U		360	U		360	U	
DIMETHYL PHTHALATE		360	U		380	U		360	U		360	U	
DI-N-BUTYL PHTHALATE		360	U		380	U		360	U		360	U	
DI-N-OCTYL PHTHALATE		360	U		380	U		360	UJ	C	360	U	
FLUORANTHENE		2500											
HEXACHLOROBENZENE		360	U		380	U		360	U		360	U	
HEXACHLOROBUTADIENE		360	U		380	U		360	U		360	U	
HEXACHLOROETHANE		360	U		380	U		360	U		360	U	
INDENO(1,2,3-CD)PYRENE		530											
ISOPHORONE		360	U		380	U		360	U		360	U	
NITROBENZENE		360	U		380	U		360	U		360	U	
N-NITROSODIMETHYLAMINE		360	UJ	C	380	U		360	UJ	C	360	U	
N-NITROSO-DI-N-PROPYLAMINE		360	U		380	U		360	U		360	U	
N-NITROSODIPHENYLAMINE		360	U		380	U		360	U		360	U	
N-NITROSOPYRROLIDINE		360	U		380	U		360	U		360	U	
PENTACHLOROPHENOL		900	UJ	C	960	U		890	UJ	C	890	U	
PHENANTHRENE		2500											
PHENOL		360	U		380	U		360	U		360	U	
PYRENE		3500											

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB102-0002			DA-SB102-0305			DA-SB113-0002			DA-SB113-0406		
	LAB_ID	SB1074-15			SB1074-17			SB1074-1			SB1074-3		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(G,H,I)PERYLENE		380	U										
BENZO(K)FLUORANTHENE		550											
BENZOIC ACID		960	UJ	C	1000	UJ	C	890	U		920	U	
BENZYL ALCOHOL		770	U		820	U		720	U		740	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		410	U		360	U		370	U	
BIS(2-CHLOROETHYL)ETHER		380	U		410	U		360	U		370	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		410	U		360	U		370	U	
BUTYL BENZYL PHTHALATE		380	U		410	U		360	U		370	U	
CARBAZOLE		380	UJ	C	410	UJ	C	360	UJ	C	370	UJ	C
CHRYSENE		500											
DIBENZOFURAN		380	U		410	U		360	U		370	U	
DIETHYL PHTHALATE		380	U		410	U		360	U		370	U	
DIMETHYL PHTHALATE		380	U		410	U		360	U		370	U	
DI-N-BUTYL PHTHALATE		380	U		410	U		360	U		370	U	
DI-N-OCTYL PHTHALATE		380	UJ	C	410	UJ	C	360	U		370	U	
FLUORANTHENE		750						490					
HEXACHLOROBENZENE		380	U		410	U		360	U		370	U	
HEXACHLOROBUTADIENE		380	U		410	U		360	U		370	U	
HEXACHLOROETHANE		380	U		410	U		360	U		370	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		380	U		410	U		360	U		370	U	
NITROBENZENE		380	U		410	U		360	U		370	U	
N-NITROSODIMETHYLAMINE		380	UJ	C	410	UJ	C	360	U		370	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		410	U		360	U		370	U	
N-NITROSODIPHENYLAMINE		380	U		410	U		360	U		370	U	
N-NITROSOPYRROLIDINE		380	U		410	U		360	U		370	U	
PENTACHLOROPHENOL		960	UJ	C	1000	UJ	C	890	U		920	U	
PHENANTHRENE													
PHENOL		380	U		410	U		360	U		370	U	
PYRENE		910						400					

PROJ_NO: 00933	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002			DA-SB117-0002		
SDG: CTO403-3	LAB_ID	SB1074-21			SB1074-19			SB1104-11			SB1104-7		
FRACTION: OS	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BENZOIC ACID		910	UJ	C	940	UJ	C	910	U		900	U	
BENZYL ALCOHOL		730	U		760	U		730	U		720	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		380	U		360	U		360	U	
BIS(2-CHLOROETHYL)ETHER		360	U		380	U		360	U		360	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		380	U		360	U		360	U	
BUTYL BENZYL PHTHALATE		360	U		380	U		360	U		360	U	
CARBAZOLE		360	UJ	C	380	UJ	C	360	U		360	U	
CHRYSENE													
DIBENZOFURAN		360	U		380	U		360	U		360	U	
DIETHYL PHTHALATE		360	U		380	U		360	U		360	U	
DIMETHYL PHTHALATE		360	U		380	U		360	U		360	U	
DI-N-BUTYL PHTHALATE		360	U		380	U		360	U		360	U	
DI-N-OCTYL PHTHALATE		360	UJ	C	380	UJ	C	360	U		360	U	
FLUORANTHENE													
HEXACHLOROBENZENE		360	U		380	U		360	U		360	U	
HEXACHLOROBUTADIENE		360	U		380	U		360	U		360	U	
HEXACHLOROETHANE		360	U		380	U		360	U		360	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		360	U		380	U		360	U		360	U	
NITROBENZENE		360	U		380	U		360	U		360	U	
N-NITROSODIMETHYLAMINE		360	UJ	C	380	UJ	C	360	UJ	C	360	UJ	C
N-NITROSO-DI-N-PROPYLAMINE		360	U		380	U		360	U		360	U	
N-NITROSODIPHENYLAMINE		360	U		380	U		360	U		360	U	
N-NITROSOPYRROLIDINE		360	U		380	U		360	U		360	U	
PENTACHLOROPHENOL		910	UJ	C	940	UJ	C	910	UJ	C	900	UJ	C
PHENANTHRENE													
PHENOL		360	U		380	U		360	U		360	U	
PYRENE													

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
	LAB_ID	SB1104-3			SB1104-9			SB1104-5			SB1074-9		
	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BENZOIC ACID		1000	UJ	C	920	UJ	C	970	UJ	C	950	U	
BENZYL ALCOHOL		810	U		740	U		780	U		770	U	
BIS(2-CHLOROETHOXY)METHANE		400	U		370	U		390	U		380	U	
BIS(2-CHLOROETHYL)ETHER		400	U		370	U		390	U		380	U	
BIS(2-ETHYLHEXYL)PHTHALATE		400	U		370	U		390	U		380	U	
BUTYL BENZYL PHTHALATE		400	U		370	U		390	U		380	U	
CARBAZOLE		400	UJ	C	370	U		390	U		380	UJ	C
CHRYSENE													
DIBENZOFURAN		400	U		370	U		390	U		380	U	
DIETHYL PHTHALATE		400	U		370	U		390	U		380	U	
DIMETHYL PHTHALATE		400	U		370	U		390	U		380	U	
DI-N-BUTYL PHTHALATE		400	U		370	U		390	U		380	U	
DI-N-OCTYL PHTHALATE		400	UJ	C	370	U		390	U		380	U	
FLUORANTHENE													
HEXACHLOROBENZENE		400	U		370	U		390	U		380	U	
HEXACHLOROBUTADIENE		400	U		370	U		390	U		380	U	
HEXACHLOROETHANE		400	U		370	U		390	U		380	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		400	U		370	U		390	U		380	U	
NITROBENZENE		400	U		370	U		390	U		380	U	
N-NITROSODIMETHYLAMINE		400	UJ	C	370	U		390	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		400	U		370	U		390	U		380	U	
N-NITROSODIPHENYLAMINE		400	U		370	U		390	U		380	U	
N-NITROSOPYRROLIDINE		400	U		370	U		390	U		380	U	
PENTACHLOROPHENOL		1000	UJ	C	920	UJ	C	970	UJ	C	950	U	
PHENANTHRENE													
PHENOL		400	U		370	U		390	U		380	U	
PYRENE													

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05		
	LAB_ID	SB1074-13			SB1104-1		
	SAMP_DATE	3/3/2008			3/4/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	92.3			85.8		
	DUP_OF	DA-SB101-0608			DA-SB151-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(G,H,I)PERYLENE							
BENZO(K)FLUORANTHENE							
BENZOIC ACID		890	UJ	C	960	UJ	C
BENZYL ALCOHOL		720	U		770	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		380	U	
BIS(2-CHLOROETHYL)ETHER		360	U		380	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		380	U	
BUTYL BENZYL PHTHALATE		360	U		380	U	
CARBAZOLE		360	UJ	C	380	UJ	C
CHRYSENE							
DIBENZOFURAN		360	U		380	U	
DIETHYL PHTHALATE		360	U		380	U	
DIMETHYL PHTHALATE		360	U		380	U	
DI-N-BUTYL PHTHALATE		360	U		380	U	
DI-N-OCTYL PHTHALATE		360	UJ	C	380	UJ	C
FLUORANTHENE							
HEXACHLOROBENZENE		360	U		380	U	
HEXACHLOROBUTADIENE		360	U		380	U	
HEXACHLOROETHANE		360	U		380	U	
INDENO(1,2,3-CD)PYRENE							
ISOPHORONE		360	U		380	U	
NITROBENZENE		360	U		380	U	
N-NITROSODIMETHYLAMINE		360	UJ	C	380	UJ	C
N-NITROSO-DI-N-PROPYLAMINE		360	U		380	U	
N-NITROSODIPHENYLAMINE		360	U		380	U	
N-NITROSOPYRROLIDINE		360	U		380	U	
PENTACHLOROPHENOL		890	UJ	C	960	UJ	C
PHENANTHRENE							
PHENOL		360	U		380	U	
PYRENE							

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002			DA-SB101-0608		
	LAB_ID	SB1074-8			SB1074-12			SB1074-24			SB1074-6		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		21	J	NP	23	U		12	J	PR	6.5	J	P
ACENAPHTHENE		100	J	N	23	U		16	J	PR	3	J	P
ACENAPHTHYLENE		22	U		23	U		22	U		22	U	
ANTHRACENE		200			23	U		18	J	PR	22	U	
BENZO(A)ANTHRACENE					14	J	P	76	J	R	22	U	
BENZO(A)PYRENE					13	J	P	81	J	R	22	U	
BENZO(B)FLUORANTHENE					15	J	P	120	J	R	22	U	
BENZO(G,H,I)PERYLENE					4.5	J	P	44	J	R	22	U	
BENZO(K)FLUORANTHENE					7.7	J	P	50	J	R	22	U	
CHRYSENE					23	J	P	87	J	R	22	U	
DIBENZO(A,H)ANTHRACENE		140	J	CN	23	U		26	J	CR	22	U	
FLUORANTHENE					25			180	J	R	22	U	
FLUORENE		61	J	N	23	U		11	J	PR	4.4	J	P
INDENO(1,2,3-CD)PYRENE					9	J	P	55	J	CR	22	U	
NAPHTHALENE		12	J	NP	23	U		14	J	PR	7.9	J	P
PHENANTHRENE					22	J	P	120	J	R	22	U	
PYRENE					29			150	J	R	22	U	

PROJ_NO: 00933	NSAMPLE	DA-SB102-0002			DA-SB102-0305			DA-SB113-0002			DA-SB113-0406		
SDG: CTO403-3	LAB_ID	SB1074-16			SB1074-18			SB1074-2			SB1074-4		
FRACTION: PAH	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		11	J	P	3.6	J	P	6.8	J	P	6.2	J	P
ACENAPHTHENE		10	J	P	3.1	J	P	39			23		
ACENAPHTHYLENE		38			5.2	J	P	22	U		22	U	
ANTHRACENE		48			8.4	J	P	100			54		
BENZO(A)ANTHRACENE					56			240			170		
BENZO(A)PYRENE					59			170			170		
BENZO(B)FLUORANTHENE					48			170			170		
BENZO(G,H,I)PERYLENE		160			26			83			89		
BENZO(K)FLUORANTHENE					29			110			74		
CHRYSENE					44			260			180		
DIBENZO(A,H)ANTHRACENE		110	J	C	25	UJ	C	51			65		
FLUORANTHENE					71						250	J	G
FLUORENE		10	J	P	25	U		37			25		
INDENO(1,2,3-CD)PYRENE		240	J	C	33	J	C	91			87	J	G
NAPHTHALENE		5.3	J	P	25	U		16	J	P	7.5	J	P
PHENANTHRENE		210			47			270			210	J	G
PYRENE					74						290	J	G

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002			DA-SB117-0002		
	LAB_ID	SB1074-22			SB1074-20			SB1104-12			SB1104-8		
	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		22	U		23	U					22	U	
ACENAPHTHENE		3.9	J	PR	2.6	J	PR	22	U		22	U	
ACENAPHTHYLENE		3.6	J	PR	23	U		22	U		22	U	
ANTHRACENE		8.5	J	PR	9.1	J	PR	22	U		22	U	
BENZO(A)ANTHRACENE		69	J	R	53	J	R	17	J	P	16	J	P
BENZO(A)PYRENE		89	J	R	70	J	R	20	J	P	26		
BENZO(B)FLUORANTHENE		89	J	R	62	J	R	21	J	P	31		
BENZO(G,H,I)PERYLENE		50	J	R	35	J	R	14	J	P	10	J	P
BENZO(K)FLUORANTHENE		29	J	R	26	J	R	11	J	P	12	J	CP
CHRYSENE		76	J	R	52	J	R	24			21	J	P
DIBENZO(A,H)ANTHRACENE		40	J	CR	23	UJ	C	22	UJ	C	22	U	
FLUORANTHENE		57	J	R	64	J	R	31			18	J	P
FLUORENE		22	U		23	U		30			22	U	
INDENO(1,2,3-CD)PYRENE		37	J	CR	30	J	CR	18	J	CP	16	J	P
NAPHTHALENE		22	U		23	U		270			22	U	
PHENANTHRENE		55	J	R	60	J	R	64			9.7	J	P
PYRENE		80	J	R	66	J	R	39			22	J	P

PROJ_NO: 00933	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
SDG: CTO403-3	LAB_ID	SB1104-4			SB1104-10			SB1104-6			SB1074-10		
FRACTION: PAH	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		24	U		22	U		4.3	J	P	4.3	J	P
ACENAPHTHENE		9.5	J	P	1.8	J	P	24	U		5.6	J	P
ACENAPHTHYLENE		24	U		22	U		24	U		23	U	
ANTHRACENE		9	J	P	3.1	J	P	24	U		14	J	P
BENZO(A)ANTHRACENE		120			33			8.2	J	P	120		
BENZO(A)PYRENE		100			38			24	U		120		
BENZO(B)FLUORANTHENE		100			45			13	J	P	110		
BENZO(G,H,I)PERYLENE		56			22	J	P	24	U		56		
BENZO(K)FLUORANTHENE		55	J	D	21	J	P	4.5	J	CP	47	J	C
CHRYSENE		93			33			14	J	P	120		
DIBENZO(A,H)ANTHRACENE		30	J	C	22	UJ	C	24	U		37		
FLUORANTHENE		200			61			9.5	J	P	130	J	G
FLUORENE		6	J	P	22	U		24	U		2	J	P
INDENO(1,2,3-CD)PYRENE		64	J	C	30	J	C	24	U		48	J	G
NAPHTHALENE		2.4	J	P	22	U		24	U		23	U	
PHENANTHRENE		59			34			13	J	P	73	J	G
PYRENE		210	J	D	52			11	J	P	150	J	G

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05		
	LAB_ID	SB1074-14			SB1104-2		
	SAMP_DATE	3/3/2008			3/4/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	92.3			85.8		
	DUP_OF	DA-SB101-0608			DA-SB151-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		6.2	J	P	3.4	J	PR
ACENAPHTHENE		3	J	P	23	U	
ACENAPHTHYLENE		22	U		23	U	
ANTHRACENE		22	U		23	U	
BENZO(A)ANTHRACENE		22	U		23	U	
BENZO(A)PYRENE		22	U		23	U	
BENZO(B)FLUORANTHENE		22	U		23	U	
BENZO(G,H,I)PERYLENE		22	U		23	U	
BENZO(K)FLUORANTHENE		22	U		23	U	
CHRYSENE		22	U		15	J	PR
DIBENZO(A,H)ANTHRACENE		22	U		23	UJ	C
FLUORANTHENE		22	U		6	J	PR
FLUORENE		4.4	J	P	23	U	
INDENO(1,2,3-CD)PYRENE		22	U		23	UJ	C
NAPHTHALENE		7	J	P	23	U	
PHENANTHRENE		22	U		11	J	PR
PYRENE		22	U		23	U	

PROJ_NO: 00933	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002			DA-SB101-0608		
SDG: CTO403-3	LAB_ID	SB1074-7			SB1074-11			SB1074-23			SB1074-5		
FRACTION: PEST/PCB	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	3.6	U		3.8	U		3.6	U		3.6	U	
4,4'-DDE	3.6	U		3.8	U		3.6	U		3.6	U	
4,4'-DDT	3	J	CP	3.8	UJ	C	3.6	UJ	C	3.6	UJ	C
ALDRIN	1.9	U		2	U		1.8	U		1.8	U	
ALPHA-BHC	1.9	U		2	U		1.8	U		1.8	U	
ALPHA-CHLORDANE	1.9	U		2	U		1.8	U		1.8	U	
AROCLOR-1016	19	UJ	C	20	UJ	C	18	UJ	C	18	U	
AROCLOR-1221	19	U		20	U		18	U		18	U	
AROCLOR-1232	19	U		20	U		18	U		18	U	
AROCLOR-1242	19	U		20	U		18	U		18	U	
AROCLOR-1248	19	U		20	U		18	U		18	U	
AROCLOR-1254	19	U		20	U		18	U		18	U	
AROCLOR-1260	19	UJ	C	20	UJ	C	18	UJ	C	18	U	
AROCLOR-1268	19	U		20	U		18	U		18	U	
BETA-BHC	1.9	U		2	U		1.8	U		1.8	U	
DELTA-BHC	1.9	UJ	C	2	UJ	C	1.8	U		1.8	UJ	C
DIELDRIN	3.6	U		3.8	U		3.6	U		3.6	U	
ENDOSULFAN I	1.9	U		2	U		1.8	U		1.8	U	
ENDOSULFAN II	2.6	J	PU	3.8	U		3.6	U		3.6	U	
ENDOSULFAN SULFATE	3.6	UJ	C	3.8	UJ	C	3.6	U		3.6	UJ	C
ENDRIN	3.6	U		3.8	U		3.6	U		3.6	U	
ENDRIN ALDEHYDE	3.6	U		3.8	U		3.6	U		3.6	U	
ENDRIN KETONE	3.6	U		3.8	U		3.6	U		3.6	U	
GAMMA-BHC (LINDANE)	1.9	U		2	U		1.8	U		1.8	U	
GAMMA-CHLORDANE	1.9	U		2	U		1.8	U		1.8	U	
HEPTACHLOR	1.9	U		2	U		1.8	U		1.8	U	
HEPTACHLOR EPOXIDE	1.9	U		2	U		1.8	U		1.8	U	
METHOXYCHLOR	19	UJ	C	20	UJ	C	18	UJ	C	18	UJ	C
TOXAPHENE	36	U		38	U		36	U		36	U	

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB102-0002			DA-SB102-0305			DA-SB113-0002			DA-SB113-0406		
	LAB_ID	SB1074-15			SB1074-17			SB1074-1			SB1074-3		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			80.3			92.1			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	U		4.1	U		1.3	J	PU	1.4	J	P
4,4'-DDE		1.7	J	P	4.1	U		7.2			1.1	J	P
4,4'-DDT		3.1	J	PC	4.1	UJ	C	6.7			3.7	UJ	C
ALDRIN		2	U		2.1	U		1.8	U		1.9	U	
ALPHA-BHC		2	U		2.1	U		1.8	U		1.9	U	
ALPHA-CHLORDANE		2	U		2.1	U		1.8	U		1.9	U	
AROCLOR-1016		20	UJ	C	21	UJ	C	18	U		19	U	
AROCLOR-1221		20	U		21	U		18	U		19	U	
AROCLOR-1232		20	U		21	U		18	U		19	U	
AROCLOR-1242		20	U		21	U		18	U		19	U	
AROCLOR-1248		20	U		21	U		18	U		19	U	
AROCLOR-1254		20	U		21	U		18	U		19	U	
AROCLOR-1260		20	UJ	C	21	UJ	C	18	U		19	U	
AROCLOR-1268		20	U		21	U		18	U		19	U	
BETA-BHC		2	U		2.1	U		1.8	U		1.9	U	
DELTA-BHC		2	UJ	C	2.1	UJ	C	1.8	U		1.9	UJ	C
DIELDRIN		3.8	U		4.1	U		3.6	U		3.7	U	
ENDOSULFAN I		2	U		2.1	U		1.8	U		1.9	U	
ENDOSULFAN II		0.98	J	P	4.1	U		3.6	U		3.7	U	
ENDOSULFAN SULFATE		3.8	UJ	C	4.1	UJ	C	3.6	U		3.7	UJ	C
ENDRIN		3.8	U		4.1	U		3.6	U		3.7	U	
ENDRIN ALDEHYDE		3.8	U		4.1	U		3.6	U		3.7	U	
ENDRIN KETONE		3.8	U		4.1	U		3.6	U		3.7	U	
GAMMA-BHC (LINDANE)		2	U		2.1	U		1.8	U		1.9	U	
GAMMA-CHLORDANE		2	U		2.1	U		1.8	U		1.9	U	
HEPTACHLOR		2	U		2.1	U		1.8	U		1.9	U	
HEPTACHLOR EPOXIDE		2	U		2.1	U		1.8	U		1.9	U	
METHOXYCHLOR		20	UJ	C	21	UJ	C	18	U		19	UJ	C
TOXAPHENE		38	U		41	U		36	U		37	U	

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB114-0002			DA-SB114-0406			DA-SB116-0002			DA-SB117-0002		
	LAB_ID	SB1074-21			SB1074-19			SB1104-11			SB1104-7		
	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.2			87.3			90.2			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.6	U		3.8	U		3.6	U		3.6	U	
4,4'-DDE		3.6	U		3.8	U		3.6	U		3.6	U	
4,4'-DDT		3.6	UJ	C	3.8	UJ	C	3.6	UJ	C	3.6	UJ	C
ALDRIN		1.9	U		1.9	U		1.9	U		1.9	U	
ALPHA-BHC		1.9	U		1.9	U		1.9	U		1.9	U	
ALPHA-CHLORDANE		1.9	U		1.9	U		1.9	U		1.9	U	
AROCLOR-1016		19	UJ	C	19	UJ	C	19	U		19	U	
AROCLOR-1221		19	U		19	U		19	U		19	U	
AROCLOR-1232		19	U		19	U		19	U		19	U	
AROCLOR-1242		19	U		19	U		19	U		19	U	
AROCLOR-1248		43			19	U		19	U		19	U	
AROCLOR-1254		19	U		19	U		19	U		19	U	
AROCLOR-1260		19	UJ	C	19	UJ	C	19	UJ	C	19	UJ	C
AROCLOR-1268		19	U		19	U		19	U		19	U	
BETA-BHC		1.9	U		1.9	U		1.9	U		1.9	U	
DELTA-BHC		1.9	UJ	C	1.9	UJ	C	1.9	U		1.9	U	
DIELDRIN		3.6	U		3.8	U		3.6	U		3.6	U	
ENDOSULFAN I		1.9	U		1.9	U		1.9	U		1.9	U	
ENDOSULFAN II		3.6	U		3.8	U		3.6	U		3.6	U	
ENDOSULFAN SULFATE		3.6	UJ	C	3.8	UJ	C	3.6	U		3.6	U	
ENDRIN		3.6	U		3.8	U		3.6	U		3.6	U	
ENDRIN ALDEHYDE		3.6	U		3.8	U		3.6	U		3.6	U	
ENDRIN KETONE		3.6	U		3.8	U		3.6	U		3.6	U	
GAMMA-BHC (LINDANE)		1.9	U		1.9	U		1.9	U		1.9	U	
GAMMA-CHLORDANE		1.9	U		1.9	U		1.9	U		1.9	U	
HEPTACHLOR		1.9	U		1.9	U		1.9	U		1.9	U	
HEPTACHLOR EPOXIDE		1.9	U		1.9	U		1.9	U		1.9	U	
METHOXYCHLOR		19	UJ	C	19	UJ	C	19	UJ	C	19	UJ	C
TOXAPHENE		36	U		38	U		36	U		36	U	

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB117-0810			DA-SB151-0002			DA-SB151-0406			DA-SB-DUP03		
	LAB_ID	SB1104-3			SB1104-9			SB1104-5			SB1074-9		
	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/3/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.6			88.6			84.8			85.9		
	DUP_OF										DA-SB113-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4	U		3.7	U		3.9	U		3.8	U	
4,4'-DDE		4	U		3.7	U		3.9	U		0.96	J	P
4,4'-DDT		4	UJ	CD	3.7	UJ	C	3.9	UJ	C	3.8	UJ	C
ALDRIN		2.1	U		1.9	U		2	U		2	U	
ALPHA-BHC		2.1	U		1.9	U		2	U		2	U	
ALPHA-CHLORDANE		2.1	U		1.9	U		2	U		2	U	
AROCLOR-1016		21	UJ	C	19	U		20	U		20	UJ	C
AROCLOR-1221		21	U		19	U		20	U		20	U	
AROCLOR-1232		21	U		19	U		20	U		20	U	
AROCLOR-1242		21	U		19	U		20	U		20	U	
AROCLOR-1248		21	U		19	U		20	U		20	U	
AROCLOR-1254		21	U		19	U		20	U		20	U	
AROCLOR-1260		21	UJ	C	19	UJ	C	20	UJ	C	20	UJ	C
AROCLOR-1268		21	U		19	U		20	U		20	U	
BETA-BHC		2.1	U		1.9	U		2	U		2	U	
DELTA-BHC		2.1	U		1.9	U		2	U		2	UJ	C
DIELDRIN		4	U		3.7	U		3.9	U		3.8	U	
ENDOSULFAN I		2.1	U		1.9	U		2	U		2	U	
ENDOSULFAN II		4	U		3.7	U		3.9	U		3.8	U	
ENDOSULFAN SULFATE		4	U		3.7	U		3.9	U		3.8	UJ	C
ENDRIN		4	U		3.7	U		3.9	U		3.8	U	
ENDRIN ALDEHYDE		4	U		3.7	U		3.9	U		3.8	U	
ENDRIN KETONE		4	U		3.7	U		3.9	U		3.8	U	
GAMMA-BHC (LINDANE)		2.1	U		1.9	U		2	U		2	U	
GAMMA-CHLORDANE		2.1	U		1.9	U		2	U		2	U	
HEPTACHLOR		2.1	U		1.9	U		2	U		2	U	
HEPTACHLOR EPOXIDE		2.1	U		1.9	U		2	U		2	U	
METHOXYCHLOR		21	UJ	C	19	UJ	C	20	UJ	C	20	UJ	C
TOXAPHENE		40	U		37	U		39	U		38	U	

PROJ_NO: 00933	NSAMPLE	DA-SB-DUP04			DA-SB-DUP05		
SDG: CTO403-3	LAB_ID	SB1074-13			SB1104-1		
FRACTION: PEST/PCB	SAMP_DATE	3/3/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	92.3			85.8		
	DUP_OF	DA-SB101-0608			DA-SB151-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.6	U		3.8	U	
4,4'-DDE		3.6	U		3.8	U	
4,4'-DDT		3.6	UJ	C	3.8	UJ	C
ALDRIN		1.8	U		2	U	
ALPHA-BHC		1.8	U		2	U	
ALPHA-CHLORDANE		1.8	U		2	U	
AROCLOR-1016		18	UJ	C	20	U	
AROCLOR-1221		18	U		20	U	
AROCLOR-1232		18	U		20	U	
AROCLOR-1242		18	U		20	U	
AROCLOR-1248		18	U		20	U	
AROCLOR-1254		18	U		20	U	
AROCLOR-1260		18	UJ	C	20	UJ	C
AROCLOR-1268		18	U		20	U	
BETA-BHC		1.8	U		2	U	
DELTA-BHC		1.8	UJ	C	2	U	
DIELDRIN		3.6	U		3.8	U	
ENDOSULFAN I		1.8	U		2	U	
ENDOSULFAN II		3.6	U		3.8	U	
ENDOSULFAN SULFATE		3.6	UJ	C	3.8	U	
ENDRIN		3.6	U		3.8	U	
ENDRIN ALDEHYDE		3.6	U		3.8	U	
ENDRIN KETONE		3.6	U		3.8	U	
GAMMA-BHC (LINDANE)		1.8	U		2	U	
GAMMA-CHLORDANE		1.8	U		2	U	
HEPTACHLOR		1.8	U		2	U	
HEPTACHLOR EPOXIDE		1.8	U		2	U	
METHOXYCHLOR		18	UJ	C	20	UJ	C
TOXAPHENE		36	U		38	U	

PROJ_NO: 00933	NSAMPLE	DA-SB100-0002			DA-SB100-0204			DA-SB101-0002			DA-SB101-0608		
SDG: CTO403-3	LAB_ID	SB1074-7			SB1074-11			SB1074-23			SB1074-5		
FRACTION: PET	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.5			85.5			91.9			92.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		2200			320			270			9.5	U	A
GASOLINE RANGE ORGANICS		3.2	U	A	3.1	U	A	130			2.6	U	A

PROJ_NO: 00933	NSAMPLE	DA-SB102-0002			DA-SB102-0002DL			DA-SB102-0305			DA-SB113-0002		
SDG: CTO403-3	LAB_ID	SB1074-15			SB1074-15DL			SB1074-17			SB1074-1		
FRACTION: PET	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/3/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.6			85.6			80.3			92.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS					250			89	U	A	130		
GASOLINE RANGE ORGANICS		3.3	U	A				3.6	U	A	3	U	A

PROJ_NO: 00933 SDG: CTO403-3 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB113-0406			DA-SB114-0002			DA-SB114-0406			DA-SB116-0002		
	LAB_ID	SB1074-3			SB1074-21			SB1074-19			SB1104-11		
	SAMP_DATE	3/3/2008			3/3/2008			3/3/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.7			90.2			87.3			90.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		230			200			160			890		
GASOLINE RANGE ORGANICS		2.6	U	A	3	U	A	3.2	U	A	3.1	U	A

PROJ_NO: 00933	NSAMPLE	DA-SB117-0002			DA-SB117-0810			DA-SB151-0002			DA-SB151-0406		
SDG: CTO403-3	LAB_ID	SB1104-7			SB1104-3			SB1104-9			SB1104-5		
FRACTION: PET	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	91.4			81.6			88.6			84.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		200			200			250			190		
GASOLINE RANGE ORGANICS		3.3	U	A	3.3	U	A	3	U	A	2.8	U	A

PROJ_NO: 00933	NSAMPLE	DA-SB-DUP03			DA-SB-DUP04			DA-SB-DUP05			DA-TB-030408		
SDG: CTO403-3	LAB_ID	SB1074-9			SB1074-13			SB1104-1			SB1104-13		
FRACTION: PET	SAMP_DATE	3/3/2008			3/3/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			TB		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.9			92.3			85.8			.0		
	DUP_OF	DA-SB113-0406			DA-SB101-0608			DA-SB151-0406					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		210			7.6	U	A	280					
GASOLINE RANGE ORGANICS		3.2	U	A	3.2	U	A	5.4	U	A	2.5	U	A

PROJ_NO: 00933	NSAMPLE	TB-030308		
SDG: CTO403-3	LAB_ID	SB1074-25		
FRACTION: PET	SAMP_DATE	3/3/2008		
MEDIA: SOIL	QC_TYPE	TB		
	UNITS	MG/KG		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS				
GASOLINE RANGE ORGANICS		2.5	U	A

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2739W

Date: May 21, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO403-4
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:
16/Soils/

DA-SB111-0002	DA-SB111-0204	DA-SB112-0002
DA-SB112-0608	DA-SB115-0002	DA-SB115-0204
DA-SB116-0204	DA-SB118-0002	DA-SB118-0406
DA-SB119-0002	DA-SB119-0204	DA-SB120-0002
DA-SB120-0406	DA-SB150-0002	DA-SB150-0204
DA-SB-DUP06		

Field Duplicate Pair: DA-SB112-0608/DA-SB-DUP06

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from March 4-6, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
	• Calibration Verification
*	• ICP-MS Tune
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
	• Field Duplicate Precision
*	• ICP Serial Dilution Results
*	• Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Calibration Verification

The percent recovery for mercury in a continuing calibration verification was below the 90 percent QC criterion. The positive results are estimated (J) and the non-detected results are estimated (UJ) for samples DA-SB115-0002, DA-SB150-0002, DA-SB150-0204, DA-SB111-0204, DA-SB-DUP06, DA-SB112-0608, and DA-SB112-0002.

Although the %R for a continuing calibration verification was below QC limits for mercury, the project accuracy goals are not impacted since the instrument calibration variability is below the safety margin of greater than 100% for mercury. The mercury results in the affected samples are usable as estimated values and estimated quantitation limits.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Antimony	1.55 ug/L	0.78 mg/kg	DA-SB11-0204
Beryllium	0.48 ug/L	0.24 mg/kg	DA-SB119-0002
Mercury	0.03 ug/L	0.025 mg/kg	DA-SB112-0002, DA-SB112-0608, DA-SB115-0204, DA-SB119-0002, DA-SB119-0204, DA-SB111-0002, DA-SB120-0002, DA-SB120-0406, DA-SB115-0002, DA-SB111-0204, DA-SB116-0204
Thallium	0.047 mg/kg	0.24 mg/kg	All samples
Molybdenum	0.038 mg/kg	0.19 mg/kg	DA-SB118-0002

The positive antimony, beryllium, mercury, thallium, and molybdenum results below the blank action level were changed to estimated, non-detected values (UJ) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids and 1 g (ICP metals) or 0.6 g (mercury) of sample analyzed. The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although antimony, beryllium, mercury, thallium, and molybdenum contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ		High	DA-SB111-0204
Cadmium	J	UJ	Low	All samples, except DA-SB119-0002
Molybdenum	J		Low	
Silver	J	UJ	Low	
Sodium	UJ J		High	All samples, except DA-SB112-0002 and DA-SB119-0002

The positive results for sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive cadmium, molybdenum, and silver results are estimated (J) and the non-detected cadmium and silver results are estimated (UJ) in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive antimony result in sample DA-SB111-0204 and the positive sodium result in sample DA-SB120-0002 to estimated, non-detected values (UJ), rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for sodium in the affected samples are usable as estimated values which may be biased high. The positive cadmium, molybdenum, and silver results and the non-detected cadmium and silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project sensitivity goals are not impacted. The positive antimony result in sample DA-SB111-0204 and the positive sodium result in sample DA-SB120-0002, which had estimated interference greater than 80%, may be entirely due to iron interference. However, the elevated reporting limits for these antimony and sodium results do not exceed the project action limits for these compounds. The antimony and sodium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB120-0002 that did not meet the 75-125% recovery QC limits:

Analyte	% Recovery	Action	
		(+)	NDs
Antimony	28.3, 30.3	J	UJ
Calcium	174, 214	J	

Although the percent recovery criteria were not met for antimony and calcium, the project accuracy goals may be only slightly impacted. The positive and non-detected antimony results are usable as estimated values and estimated reporting limits which may be biased low. The positive calcium results are usable as estimated values which may be biased high.

Field Duplicate Precision

The results for the field duplicate pair DA-SB112-0608/DA-SB-DUP06 were above the 50 percent relative percent difference (RPD) criterion for calcium. The positive calcium results are estimated (J) in all samples.

Although the RPD in the field duplicate analyses did not meet QC limits for calcium, the project precision goals may be only slightly impacted. The positive calcium results are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The laboratory reported non-detected results down to the MDL. Sample-specific MDLs vary based on percent moisture, preparation weight, and dilution factor.

The positive results below than the laboratory's quantitation limit and above the method detection limit are estimated (J) due to uncertainty below the quantitation limit.

All non-detected values met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Select metals were qualified as estimated due to instrument calibration variability, ICP interferences due to high iron concentration, and poor matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set with the following exception. Calcium was qualified as estimated due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608		
	LAB_ID	SB1132-001			SB1132-011			SB1132-017			SB1132-015		
	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7980			8360			5380			9570		
ANTIMONY		0.05	UJ	D	0.07	UJ	ADKP	0.04	UJ	D	0.05	UJ	D
ARSENIC		15.1			11.6			5.3			11.8		
BARIUM		21.2			33.3			15.9			13.5		
BERYLLIUM		0.48			0.34	J	P	0.4			0.23	J	P
CADMIUM		0.29	J	KP	0.41	J	KP	0.77	J	KP	0.01	UJ	K
CALCIUM		1290	J	DG	9620	J	DG	1420	J	DG	2120	J	DG
CHROMIUM		10.2			103			6.9			15.3		
COBALT		9.9			15.2			4.5			7.2		
COPPER		17.2			26.4			12.1			13.8		
IRON		21600			17400			12000			20300		
LEAD		18.8			159			18			13.8		
MAGNESIUM		2160			2760			1420			3930		
MANGANESE		357			309			208			278		
MERCURY		0.02	UJ	AP	0.04	UJ	AC	0.01	UJ	ACP	0.01	UJ	ACP
MOLYBDENUM		0.5	J	KP	0.46	J	KP	0.44	J	KP	0.21	J	KP
NICKEL		17.5			16.5			8.1			17.2		
POTASSIUM		603			497			528			497		
SELENIUM		0.33	U		0.3	U		0.29	U		0.34	U	
SILVER		0.06	UJ	K	0.61	J	KP	0.05	UJ	K	0.06	UJ	K
SODIUM		50.7	J	KP	58.7	J	KP	93.5			80.2	J	KP
THALLIUM		0.08	UJ	AP	0.04	UJ	AP	0.07	UJ	AP	0.05	UJ	AP
VANADIUM		13			14.5			9.2			20.4		
ZINC		54.6			81.2			44.9			41.1		

PROJ_NO: 00933	NSAMPLE	DA-SB115-0002			DA-SB115-0204			DA-SB116-0204			DA-SB118-0002		
SDG: CTO403-4	LAB_ID	SB1132-005			SB1132-003			SB1105-001			SB1105-005		
FRACTION: M	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		12000			14000			12700			18000		
ANTIMONY		0.08	UJ	D	0.09	UJ	D	0.09	UJ	D	0.1	UJ	D
ARSENIC		25.4			16.8			11.4			45.8		
BARIUM		20.8			19.3			55.8			17.3		
BERYLLIUM		0.45			0.38	J	P	0.37	J	P	0.53		
CADMIUM		0.33	J	KP	0.01	UJ	K	0.01	UJ	K	0.01	UJ	K
CALCIUM		1580	J	DG	1370	J	DG	1010	J	DG	1610	J	DG
CHROMIUM		14.8			23.1			16.5			26.2		
COBALT		10.3			11.7			12.3			16.6		
COPPER		18			23			7.8			16.2		
IRON		24700			29300			28700			43000		
LEAD		16			44.7			10.9			13.1		
MAGNESIUM		3710			4610			3010			6240		
MANGANESE		292			306			870			633		
MERCURY		0.02	UJ	ACP	0.01	UJ	AP	0.02	UJ	AP	0.02	U	
MOLYBDENUM		0.36	J	KP	0.4	J	KP	0.32	J	KP	0.13	UJ	AKP
NICKEL		21.1			25			14.5			38.5		
POTASSIUM		472			351			446			338		
SELENIUM		0.52	U		0.62	U		0.61	U		0.69	U	
SILVER		0.13	J	KP	0.17	J	KP	0.23	J	KP	0.27	J	KP
SODIUM		38.6	J	KP	32.4	J	KP	52.1	J	KP	53	J	KP
THALLIUM		0.04	UJ	AP	0.03	UJ	AP	0.09	UJ	AP	0.04	UJ	AP
VANADIUM		16.3			19.8			29.1			31.9		
ZINC		52.2			53.7			41.4			80.9		

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406			DA-SB119-0002			DA-SB119-0204			DA-SB120-0002		
SDG: CTO403-4	LAB_ID	SB1105-003			SB1105-007			SB1105-009			SB1155-001		
FRACTION: M	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9690			4730			14100			14000		
ANTIMONY		0.07	UJ	D	0.04	UJ	D	0.09	UJ	D	0.1	UJ	D
ARSENIC		11.4			1.7			9.8			19.2		
BARIUM		22			29.3			30			21.1		
BERYLLIUM		0.3	J	P	0.15	UJ	AP	0.34	J	P	0.33	J	P
CADMIUM		0.01	UJ	K	0.01	U		0.01	UJ	K	0.01	UJ	K
CALCIUM		887	J	DG	1580	J	DG	660	J	DG	832	J	DG
CHROMIUM		13.9			9.6			16.3			18.3		
COBALT		10.8			2.7			9.4			15		
COPPER		13.2			8.5			13.4			20.1		
IRON		26100			8540			29400			35000		
LEAD		8.1			26			10.6			16.8		
MAGNESIUM		2780			1910			3280			4570		
MANGANESE		337			170			259			411		
MERCURY		0.01	U		0.01	UJ	AP	0.02	UJ	AP	0.02	UJ	AP
MOLYBDENUM		0.23	J	KP	0.54	J	P	0.5	J	KP	0.39	J	KP
NICKEL		18.6			9.7			17.9			27.2		
POTASSIUM		411			1200			505			431		
SELENIUM		0.46	U		0.3	U		1	J	P	0.66	U	
SILVER		0.14	J	KP	0.05	U		0.25	J	KP	0.27	J	KP
SODIUM		35	J	KP	98.5			43.3	J	KP	30.2	UJ	KP
THALLIUM		0.06	UJ	AP	0.06	UJ	AP	0.1	UJ	AP	0.04	UJ	AP
VANADIUM		19.4			38			25.7			21.4		
ZINC		42.5			29.4			50.9			60.2		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-SB120-0406			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06		
	LAB_ID	SB1155-003			SB1132-007			SB1132-009			SB1132-013		
	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		13500			10300			12000			9380		
ANTIMONY		0.11	UJ	D	0.09	UJ	D	0.08	UJ	D	0.09	UJ	D
ARSENIC		9.7			32.7			14.7			14.8		
BARIUM		37.8			17.6			25			13.1		
BERYLLIUM		0.34	J	P	0.28	J	P	0.34	J	P	0.24	J	P
CADMIUM		0.02	UJ	K	0.01	UJ	K	0.01	UJ	K	0.01	UJ	K
CALCIUM		551	J	DG	925	J	DG	540	J	DG	1250	J	DG
CHROMIUM		18.2			13.8			15.7			13.5		
COBALT		13.5			14.6			11.3			8.4		
COPPER		10.5			21			15			12.8		
IRON		30200			35000			23600			20700		
LEAD		10.2			9.6			10.6			11.8		
MAGNESIUM		3470			4050			3070			3610		
MANGANESE		1880			373			334			317		
MERCURY		0.03	UJ	AP	0.01	UJ	C	0.02	UJ	C	0.01	UJ	C
MOLYBDENUM		0.35	J	KP	0.18	J	KP	0.23	J	KP	0.16	J	KP
NICKEL		21.8			27			20.1			18		
POTASSIUM		381			1190			358			380		
SELENIUM		0.77	U		0.61	U		0.57	U		0.59	U	
SILVER		0.28	J	KP	0.18	J	KP	0.14	J	KP	0.18	J	KP
SODIUM		28.9	J	KP	39.4	J	KP	33.2	J	KP	63.7	J	KP
THALLIUM		0.06	UJ	AP	0.07	UJ	AP	0.05	UJ	AP	0.01	UJ	AP
VANADIUM		22.4			18			19.2			17		
ZINC		52.6			66.8			50.5			39.7		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2738W

Date: May 20, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-4
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

16/Soils/	DA-SB111-0002	DA-SB111-0204	DA-SB112-0002
	DA-SB112-0608	DA-SB115-0002	DA-SB115-0204
	DA-SB116-0204	DA-SB118-0002	DA-SB118-0406
	DA-SB119-0002	DA-SB119-0204	DA-SB120-0002
	DA-SB120-0406	DA-SB150-0002	DA-SB150-0204
	DA-SB-DUP06		

Field Duplicate Pair: DA-SB112-0608/DA-SB-DUP06

VOC/GRO:

2/Trip Blanks/	DA-TB-030508	DA-TB-030608

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from March 4-6, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
*	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
*	• Instrument Performance Check: Pesticide Degradation
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
	• Internal Standards
NA	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
	• Field Duplicates
	• Analyte Identification/Quantitation
*	• Percent Solids
	• Reporting Limits

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

On April 15, 2008, the laboratory submitted an addendum to the semivolatile SIM mode analysis including SIM results for samples DA-SB119-0002, DA-SB-DUP06, and DA-SB112-0608.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Chloroethane	28.85		UJ	DA-SB115-0204(RA), DA-SB115-0002(RA), DA-SB120-0002(RA)
Acetone	67.68		UJ	DA-SB119-0002(DL), DA-SB111-0002(DL)

Although the %D was outside of the QC limits for chloroethane and acetone, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 500% allocated for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	54.5, 86.2		UJ	All semivolatile samples

Although the %RSD was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
n-Nitrosodimethylamine	29.65		UJ	DA-SB116-0204, DA-SB118-0406
2,2'-Oxybis(1-chloropropane)	26.44		UJ	
1,2-Diphenylhydrazine	38.31		UJ	
Pentachlorophenol	-30.27		UJ	
Benzidine	-69.52, -35.10, -85.60, 76.54		UJ	All samples

Although the %D was outside of the QC limits for n-nitrosodimethylamine, 2,2'-oxybis(1-chloropropane), 1,2-diphenylhydrazine, pentachlorophenol, and benzidine, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there are no regulatory limits established for the affected compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Indeno(1,2,3-cd)pyrene	29.93	J		DA-SB150-0002, DA-SB115-0002, DA-SB115-0204, DA-SB111-0002, DA-SB111-0204
Dibenzo(a,h)anthracene	34.67, -31.22	J	UJ	DA-SB150-0002, DA-SB115-0002, DA-SB115-0204, DA-SB111-0002, DA-SB111-0204, DA-SB119-0002(RA), DA-SB-DUP06(RA), DA-SB112-0608
Benzo(k)fluoranthene	-27.13, -33.62	J		DA-SB119-0204, DA-SB119-0002(RA)
Pyrene	-25.12	J		DA-SB119-0002(RA)
Benzo(a)anthracene	38.14	J		
Benzo(b)fluoranthene	43.14	J		
Benzo(g,h,i)perylene	-37.10	J		DA-SB119-0002(RA), DA-SB112-0608

Although the %D was outside of the QC limits for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(k)fluoranthene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and benzo(g,h,i)perylene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
All compounds, except 4,4'-DDD	>25%	>25%	J	UJ	DA-SB116-0204, DA-SB118-0406, DA-SB118-0002, DA-SB119-0002, DA-SB119-0204, DA-SB111-0002, DA-SB115-0204, DA-SB115-0002, DA-SB150-0002, DA-SB150-0204(RA), DA-SB111-0204, DA-SB-DUP06, DA-SB112-0608
Heptachlor	-60.60	-60.40		UJ	DA-SB112-0002, DA-SB120-0002, DA-SB120-0406
Endrin	-35.20	-37.20		UJ	
4,4'-DDT	-92.46	-90.96		UJ	
Methoxychlor	-95.48	-84.72		UJ	
Endrin ketone	-57.60	-68.60		UJ	
gamma-BHC	-30.40	-28.80		UJ	

Although the %D were outside of the QC limits for the above analytes, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds with

the following exception. Data usability may be impacted for alpha-chlordane, dieldrin, and gamma-chlordane in the affected samples since the project quantitation limits exceed the project action limits for this compound. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the PCB compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1260	-33.04	-27.44		UJ	DA-SB119-0204(RA), DA-SB119-0002(RA)

Although the %D was outside of the QC limits for Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits.

GRO

The following table summarizes the GRO that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
GRO	-36.43	J		DA-SB116-0204, DA-SB118-0406, DA-SB118-0002, DA-SB119-0002, DA-SB119-0204, DA-SB112-0002, DA-SB120-0002, DA-SB120-0406

Although the %D was outside of the QC limits for GRO, the project accuracy goals were not impacted since there is no regulatory limit established for this hydrocarbon range. The detected results in the affected samples are usable as estimated values.

ExTPH

The following table summarizes the ExTPH that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
ExTPH	27.44	J		DA-SB150-0204, DA-SB115-0002, DA-SB150-0002

Although the %D was outside of the QC limits for ExTPH, the project accuracy goals were not impacted since there is no regulatory limit established for this hydrocarbon range. The detected results in the affected samples are usable as estimated values.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (ug/Kg)	Action Level (ug/Kg)	Affected Samples
Acetone	Method	9	90	DA-SB112-0002, DA-SB115-0002(RA), DA-SB118-0002(RA), DA-SB118-0406(RA), DA-SB120-0002(RA), DA-SB120-0406(RA2)

Blank actions were applied to the affected samples due to acetone method blank contamination. The 10x rule applies for the common laboratory contaminant acetone. The positive acetone results below the blank action level in the affected samples are changed to non-detected values at elevated reporting limits.

Although acetone contamination was found in the method blank, the project sensitivity goals are not impacted since the elevated reporting limits do not exceed the project action limit for acetone. The results in the affected samples are usable with elevated detection limits.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	2.0	10	All soil samples, except DA-SB116-0204

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there is no regulatory limit for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

ExTPH

The following table summarizes the level of blank contamination detected in the laboratory blank associated with this sample.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
ExTPH	Method	3.4	17	DA-SB120-0406

Blank action was applied to the affected sample due to ExTPH method blank contamination. The 5x rule applies for this hydrocarbon range. The positive result below the blank action level for ExTPH in the affected sample was changed to a non-detected value at an elevated reporting limit.

Although ExTPH contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there is no regulatory limit for this hydrocarbon range. The result in the affected sample is usable with an elevated detection limit.

Surrogate Compounds

Volatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB112-0608	BFB	50	70-130	J	UJ
DA-SB116-0204	BFB	306	41-103	J	
	TOL	96	64-89		
DA-SB116-0204(DL2)	BFB	130	67-127	J	

The surrogates p-bromofluorobenzene (BFB) and toluene-d8 (TOL) recovered outside the QC limits in the above samples. The positive results are estimated (J) and the non-detected results are estimated (UJ) in sample DA-SB112-0608 due to a low surrogate recovery. The positive results are estimated (J) in samples DA-SB116-0204 and DA-SB116-0204(DL2) due to high surrogate recoveries.

Although the surrogate recovery QC criteria were not met for p-bromofluorobenzene and toluene-d8, the project accuracy goals are only slightly impacted. The positive and non-detected results in sample DA-SB112-0608 are usable as estimated values and estimated quantitation limits which may be biased low. The positive results in samples DA-SB116-0204 and DA-SB116-0204(DL2) are usable as estimated values which may be biased high.

Semivolatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB116-0204	NBZ	123	28-106	J	

The surrogate nitrobenzene-d5 (NBZ) recovered above the QC limits in the semivolatile sample DA-SB116-0204. The positive result for 2-methylnaphthalene is estimated (J) in the affected sample due to a high surrogate recovery.

Although the surrogate recovery QC criteria were not met for nitrobenzene-d5, the project accuracy goals are only slightly impacted. The positive result for 2-methylnaphthalene in sample DA-SB116-0204 is usable as an estimated value which may be biased high.

PAH

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB-DUP06(RA)	Fluorene-d10	151	34-140	J	
DA-SB112-0608		155		J	

The surrogate fluorene-d10 recovered above the QC limits in samples DA-SB-DUP06(RA) and DA-SB112-0608. All positive results are estimated (J) in the affected samples due to high surrogate recoveries.

Although the surrogate recovery QC criteria were not met for fluorene-d10, the project accuracy goals are only slightly impacted. The positive results in samples DA-SB-DUP06(RA) and DA-SB112-0608 are usable as estimated values which may be biased high.

Pesticides

The following sample had a surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB112-0608	TCX	35, 37	41-116	J	UJ

The surrogate tetrachloro-m-xylene (TCX) recovered below the QC limits in the sample DA-SB112-0608. All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected sample due to low surrogate recoveries.

Although the surrogate recovery QC criteria were not met for tetrachloro-m-xylene, the project accuracy goals are only slightly impacted. The positive and non-detected results in sample DA-SB112-0608 are usable as estimated values and estimated detected limits which may be biased low.

Internal Standards

Volatiles

The following table summarizes the volatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
DCB	123212	257578-1030312	J	UJ	DA-SB112-0608
	257538		J	UJ	DA-SB112-0002
	63539	138514-554054	J	UJ	DA-SB119-0002(RA)
	109984	111593-446370	J	UJ	DA-SB115-0204(RA)

The internal standard areas of 1,4-dichlorobenzene-d4 (DCB) failed to meet the acceptable range for the above samples. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

Although the QC criteria were not met for the internal standard areas of 1,4-dichlorobenzene-d4, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Perylene-d12	633884	766862-3067446	J	UJ	DA-SB119-0002(DL2)

The internal standard area of perylene-d12 failed to meet the acceptable range for sample DA-SB119-0002(DL2). The target compounds associated with perylene-d12 are di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in sample DA-SB119-0002(DL2).

Although the QC criteria were not met for the internal standard area of perylene-d12, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected sample are usable as estimated values and estimated quantitation limits.

PAH

The following table summarizes the PAH internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Perylene-d12	21788	5065-20260	J		DA-SB118-0002
	5753	6567-26266	J	UJ	DA-SB119-0002(RA)
	4356		J	UJ	DA-SB-DUP06(RA)
	4876		J	UJ	DA-SB112-0608

The internal standard areas of perylene-d12 failed to meet the acceptable range for the above samples. The target compounds associated with perylene-d12 are benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. All positive results are estimated (J) for the corresponding target compounds in sample DA-SB118-0002. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in samples DA-SB119-0002(RA), DA-SB-DUP06(RA), and DA-SB112-0608.

Although the QC criteria were not met for the internal standard areas of perylene-d12, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromochloromethane	53, 57, 52, 55, 57, 58	81-127		UJ	All samples

The laboratory has demonstrated an inability to accurately recover bromochloromethane through poor LCS recoveries. The non-detected results are estimated (UJ) for bromochloromethane in all samples.

Although the LCS/LCSD recoveries for bromochloromethane were below the QC limits, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Field Duplicates

Pesticides

The field duplicate pair DA-SB112-0608 and DA-SB-DUP06 exceeded the relative percent difference QC criterion of 50% for 4,4'-DDD. The positive 4,4'-DDD results in the field duplicate samples are qualified as estimated (J) due to field duplicate imprecision.

Although the field duplicate relative percent difference for 4,4'-DDD exceeded the QC criterion, the project precision goals are only slightly impacted. The positive results in the affected samples are usable as estimated values for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compounds in the following samples:

Sample	Analyte	%RPD	Action	
			(+)	NDs
DA-SB119-0002	4,4'-DDT	49.5	J	
DA-SB-DUP06	4,4'-DDD	44.2	J	
DA-SB112-0608	4,4'-DDD	45.3	J	
DA-SB112-0002	4,4'-DDD	89.4	J	

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

PCB

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the Aroclor in the following sample:

Sample	Analyte	%RPD	Action	
			(+)	NDs
DA-SB112-0002	Aroclor-1260	49.5	J	

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive result in the affected sample is usable as an estimated value.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in Table 4-2B in the approved work plan.

Samples DA-SB112-0608, DA-SB119-0002, and DA-SB-DUP06 were analyzed at dilution due to matrix interference and/or sample viscosity. The laboratory quantitation limits are consequently elevated.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Sample DA-SB119-0002 was analyzed at dilution due to matrix interference and/or sample viscosity. The laboratory quantitation limits are consequently elevated.

PAH results beyond the linear range of the instrument are reported in the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in Table 4-2C in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, poor internal standard performance, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, and poor internal standard performance. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, and poor internal standard performance. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PAH data set. Data usability was not impacted with regards to precision and sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, poor surrogate recoveries, and analytical interferences detected in the dual column analysis. Although

specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set with the following exception. Select compounds were qualified as estimated due to field duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCB data set with the following exceptions. Select Aroclors were qualified as estimated due to instrument calibration variability and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PCB data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy were met for the GRO data set with the following exception. GRO was qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the GRO data set. Data usability was not impacted with regards to precision and sensitivity.

ExTPH

The project goals with respect to accuracy were met for the ExTPH data set with the following exception. ExTPH was qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the ExTPH data set. Data usability was not impacted with regards to precision and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608		
SDG: CTO403-4	LAB_ID	SB1132-1			SB1132-11			SB1132-17			SB1132-15		
FRACTION: OV	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		6	UJ	R
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		6	UJ	R
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	UJ	N	6	UJ	NR
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		6	UJ	R
1,1-DICHLOROETHANE		5	U		5	U		5	U		6	UJ	R
1,1-DICHLOROETHENE		5	U		5	U		5	U		6	UJ	R
1,1-DICHLOROPROPENE		5	U		5	U		5	U		6	UJ	R
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	UJ	N	6	UJ	NR
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	UJ	N	6	UJ	NR
1,2-DIBROMOETHANE		5	U		5	U		5	U		6	UJ	R
1,2-DICHLOROBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
1,2-DICHLOROETHANE		5	U		5	U		5	U		6	UJ	R
1,2-DICHLOROPROPANE		5	U		5	U		5	U		6	UJ	R
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
1,3-DICHLOROBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
1,3-DICHLOROPROPANE		5	U		5	U		5	U		6	UJ	R
1,4-DICHLOROBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
2,2-DICHLOROPROPANE		5	U		5	U		5	U		6	UJ	R
2-BUTANONE		25	U		25	U		25	U		30	UJ	R
2-CHLOROTOLUENE		5	U		5	U		5	UJ	N	6	UJ	NR
2-HEXANONE		25	U		25	U		25	U		30	UJ	R
4-CHLOROTOLUENE		5	U		5	U		5	UJ	N	6	UJ	NR
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		6	UJ	R
4-METHYL-2-PENTANONE		25	U		25	U		25	U		30	UJ	R
ACETONE		1600	UJ	C	300			25	U	A	1000	J	R
BENZENE		5	U		5	U		5	U		6	UJ	R
BROMOBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	6	UJ	ER
BROMODICHLOROMETHANE		5	U		5	U		5	U		6	UJ	R
BROMOFORM		5	U		5	U		5	U		6	UJ	R
BROMOMETHANE		10	U		10	U		10	U		12	UJ	R
CARBON DISULFIDE		5	U		5	U		5	U		6	UJ	R

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB115-0002RA			DA-SB115-0204RA			DA-SB116-0204			DA-SB118-0002RA		
	LAB_ID	SB1132-5RA			SB1132-3RA			SB1105-1			SB1105-5RA		
	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	UJ	N	5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	UJ	N	5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	UJ	N	5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	UJ	N	5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	UJ	N	14000	J	R	5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	UJ	N	5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	UJ	N	5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	UJ	N	7500	J	R	5	U	
1,3-DICHLOROBENZENE		5	U		5	UJ	N	5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	UJ	N	5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		27	U		25	U		27	U		25	U	
2-CHLOROTOLUENE		5	U		5	UJ	N	5	U		5	U	
2-HEXANONE		27	U		25	U		27	U		25	U	
4-CHLOROTOLUENE		5	U		5	UJ	N	5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		3000	J	R	5	U	
4-METHYL-2-PENTANONE		27	U		25	U		27	U		25	U	
ACETONE		80	U	A	140			300	J	R	25	U	A
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	UJ	N	5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		11	U		10	U		11	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406RA			DA-SB119-0002RA			DA-SB119-0204RA2			DA-SB120-0002RA		
SDG: CTO403-4	LAB_ID	SB1105-3RA			SB1105-7RA			SB1105-9RA2			SB1155-1RA		
FRACTION: OV	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		6	U		5	U		5	U	
1,1,1-TRICHLOROETHANE	5	U		6	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		6	UJ	N	5	U		5	U	
1,1,2-TRICHLOROETHANE	5	U		6	U		5	U		5	U	
1,1-DICHLOROETHANE	5	U		6	U		5	U		5	U	
1,1-DICHLOROETHENE	5	U		6	U		5	U		5	U	
1,1-DICHLOROPROPENE	5	U		6	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE	5	U		6	UJ	N	5	U		5	U	
1,2,3-TRICHLOROPROPANE	5	U		6	UJ	N	5	U		5	U	
1,2,4-TRICHLOROBENZENE	5	U		6	UJ	N	5	U		5	U	
1,2,4-TRIMETHYLBENZENE	5	U		6	UJ	N	5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	U		6	UJ	N	5	U		5	U	
1,2-DIBROMOETHANE	5	U		6	U		5	U		5	U	
1,2-DICHLOROBENZENE	5	U		6	UJ	N	5	U		5	U	
1,2-DICHLOROETHANE	5	U		6	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		6	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	U		6	UJ	N	5	U		5	U	
1,3-DICHLOROBENZENE	5	U		6	UJ	N	5	U		5	U	
1,3-DICHLOROPROPANE	5	U		6	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	U		6	UJ	N	5	U		5	U	
2,2-DICHLOROPROPANE	5	U		6	U		5	U		5	U	
2-BUTANONE	25	U		30	U		7	J	P	25	U	
2-CHLOROTOLUENE	5	U		6	UJ	N	5	U		5	U	
2-HEXANONE	25	U		30	U		25	U		25	U	
4-CHLOROTOLUENE	5	U		6	UJ	N	5	U		5	U	
4-ISOPROPYLTOLUENE	5	U		6	U		5	U		5	U	
4-METHYL-2-PENTANONE	25	U		30	U		25	U		25	U	
ACETONE	29	U	A	900	UJ	C	250			28	U	A
BENZENE	5	U		6	U		5	U		5	U	
BROMOBENZENE	5	U		6	UJ	N	5	U		5	U	
BROMOCHLOROMETHANE	5	UJ	E	6	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE	5	U		6	U		5	U		5	U	
BROMOFORM	5	U		6	U		5	U		5	U	
BROMOMETHANE	10	U		12	U		10	U		10	U	
CARBON DISULFIDE	5	U		6	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SB120-0406RA2			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06		
SDG: CTO403-4	LAB_ID	SB1155-3RA2			SB1132-7			SB1132-9			SB1132-13		
FRACTION: OV	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U		
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U		
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U		
1,1,2-TRICHLOROETHANE	5	U		5	U		5	U		5	U		
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	U		
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	U		
1,1-DICHLOROPROPENE	5	U		5	U		5	U		5	U		
1,2,3-TRICHLOROBENZENE	5	U		5	U		5	U		5	U		
1,2,3-TRICHLOROPROPANE	5	U		5	U		5	U		5	U		
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	U		5	U		
1,2,4-TRIMETHYLBENZENE	5	U		5	U		5	U		5	U		
1,2-DIBROMO-3-CHLOROPROPANE	5	U		5	U		5	U		5	U		
1,2-DIBROMOETHANE	5	U		5	U		5	U		5	U		
1,2-DICHLOROBENZENE	5	U		5	U		5	U		5	U		
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U		
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U		
1,3,5-TRIMETHYLBENZENE	5	U		5	U		5	U		5	U		
1,3-DICHLOROBENZENE	5	U		5	U		5	U		5	U		
1,3-DICHLOROPROPANE	5	U		5	U		5	U		5	U		
1,4-DICHLOROBENZENE	5	U		5	U		5	U		5	U		
2,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U		
2-BUTANONE	25	U		7	J	P	6	J	P	25	U		
2-CHLOROTOLUENE	5	U		5	U		5	U		5	U		
2-HEXANONE	25	U		25	U		25	U		25	U		
4-CHLOROTOLUENE	5	U		5	U		5	U		5	U		
4-ISOPROPYLTOLUENE	5	U		5	U		5	U		5	U		
4-METHYL-2-PENTANONE	25	U		25	U		25	U		25	U		
ACETONE	25	U	A	610			220			800			
BENZENE	5	U		5	U		5	U		5	U		
BROMOBENZENE	5	U		5	U		5	U		5	U		
BROMOCHLOROMETHANE	5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U		
BROMOFORM	5	U		5	U		5	U		5	U		
BROMOMETHANE	10	U		10	U		10	U		10	U		
CARBON DISULFIDE	5	U		2	J	P	5	U		5	U		

PROJ_NO: 00933	NSAMPLE	DA-TB-030508			DA-TB-030608		
SDG: CTO403-4	LAB_ID	SB1132-19			SB1155-5		
FRACTION: OV	SAMP_DATE	3/5/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	TB			TB		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U	
2-BUTANONE		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U	
2-HEXANONE		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U	
ACETONE		25	U		25	U	
BENZENE		5	U		5	U	
BROMOBENZENE		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U	
BROMOFORM		5	U		5	U	
BROMOMETHANE		10	U		10	U	
CARBON DISULFIDE		5	U		5	U	

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608		
	LAB_ID	SB1132-1			SB1132-11			SB1132-17			SB1132-15		
	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		6	UJ	R
CHLOROBENZENE		5	U		5	U		5	U		6	UJ	R
CHLORODIBROMOMETHANE		5	U		5	U		5	U		6	UJ	R
CHLOROETHANE		10	U		10	U		10	U		12	UJ	R
CHLOROFORM		5	U		5	U		5	U		6	UJ	R
CHLOROMETHANE		10	U		10	U		10	U		12	UJ	R
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		6	UJ	R
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		6	UJ	R
DIBROMOMETHANE		5	U		5	U		5	U		6	UJ	R
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		12	UJ	R
ETHYLBENZENE		5	U		5	U		5	U		6	UJ	R
HEXACHLOROBUTADIENE		5	U		5	U		5	UJ	N	6	UJ	NR
ISOPROPYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
M+P-XYLENES		10	U		10	U		10	U		12	UJ	R
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		6	UJ	R
METHYLENE CHLORIDE		25	U		25	U		25	U		30	UJ	R
N-BUTYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
N-PROPYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
O-XYLENE		5	U		5	U		5	U		6	UJ	R
SEC-BUTYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
STYRENE		5	U		5	U		5	U		6	UJ	R
TERT-BUTYLBENZENE		5	U		5	U		5	UJ	N	6	UJ	NR
TETRACHLOROETHENE		5	U		5	U		5	U		6	UJ	R
TOLUENE		5	U		5	U		5	U		6	UJ	R
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		6	UJ	R
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		6	UJ	R
TRICHLOROETHENE		5	U		5	U		5	U		6	UJ	R
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		12	UJ	R
VINYL CHLORIDE		10	U		10	U		10	U		12	UJ	R

PROJ_NO: 00933	NSAMPLE	DA-SB115-0002RA			DA-SB115-0204RA			DA-SB116-0204			DA-SB118-0002RA		
SDG: CTO403-4	LAB_ID	SB1132-5RA			SB1132-3RA			SB1105-1			SB1105-5RA		
FRACTION: OV	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		11	UJ	C	10	UJ	C	11	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		11	U		10	U		11	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		11	U		10	U		11	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	UJ	N	5	U		5	U	
ISOPROPYLBENZENE		5	U		5	UJ	N	120	J	R	5	U	
M+P-XYLENES		11	U		10	U		170	J	R	10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		27	U		25	U		27	U		25	U	
N-BUTYLBENZENE		5	U		5	UJ	N	2600	J	R	5	U	
N-PROPYLBENZENE		5	U		5	UJ	N	81	J	R	5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	UJ	N	2000	J	R	5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	UJ	N	110	J	R	5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		11	U		10	U		11	U		10	U	
VINYL CHLORIDE		11	U		10	U		11	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406RA			DA-SB119-0002RA			DA-SB119-0204RA2			DA-SB120-0002RA		
SDG: CTO403-4	LAB_ID	SB1105-3RA			SB1105-7RA			SB1105-9RA2			SB1155-1RA		
FRACTION: OV	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		6	U		5	U		5	U	
CHLOROBENZENE		5	U		6	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		6	U		5	U		5	U	
CHLOROETHANE		10	U		12	U		10	U		10	UJ	C
CHLOROFORM		5	U		6	U		5	U		5	U	
CHLOROMETHANE		10	U		12	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		6	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		6	U		5	U		5	U	
DIBROMOMETHANE		5	U		6	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		12	U		10	U		10	U	
ETHYLBENZENE		5	U		6	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		6	UJ	N	5	U		5	U	
ISOPROPYLBENZENE		5	U		6	UJ	N	5	U		5	U	
M+P-XYLENES		10	U		12	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		6	U		5	U		5	U	
METHYLENE CHLORIDE		2	J	P	30	U		25	U		25	U	
N-BUTYLBENZENE		5	U		6	UJ	N	5	U		5	U	
N-PROPYLBENZENE		5	U		6	UJ	N	5	U		5	U	
O-XYLENE		5	U		6	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		6	UJ	N	5	U		5	U	
STYRENE		5	U		6	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		6	UJ	N	5	U		5	U	
TETRACHLOROETHENE		5	U		6	U		5	U		5	U	
TOLUENE		5	U		6	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		6	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		6	U		5	U		5	U	
TRICHLOROETHENE		5	U		6	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		12	U		10	U		10	U	
VINYL CHLORIDE		10	U		12	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB120-0406RA2			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06		
SDG: CTO403-4	LAB_ID	SB1155-3RA2			SB1132-7			SB1132-9			SB1132-13		
FRACTION: OV	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
CARBON TETRACHLORIDE	5	U		5	U		5	U		5	U		
CHLOROBENZENE	5	U		5	U		5	U		5	U		
CHLORODIBROMOMETHANE	5	U		5	U		5	U		5	U		
CHLOROETHANE	10	U		10	U		10	U		10	U		
CHLOROFORM	5	U		5	U		5	U		5	U		
CHLOROMETHANE	10	U		10	U		10	U		10	U		
CIS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U		
CIS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U		
DIBROMOMETHANE	5	U		5	U		5	U		5	U		
DICHLORODIFLUOROMETHANE	10	U		10	U		10	U		10	U		
ETHYLBENZENE	5	U		5	U		5	U		5	U		
HEXACHLOROBUTADIENE	5	U		5	U		5	U		5	U		
ISOPROPYLBENZENE	5	U		5	U		5	U		5	U		
M+P-XYLENES	10	U		10	U		10	U		10	U		
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U		5	U		
METHYLENE CHLORIDE	2	J	P	25	U		25	U		25	U		
N-BUTYLBENZENE	5	U		5	U		5	U		5	U		
N-PROPYLBENZENE	5	U		5	U		5	U		5	U		
O-XYLENE	5	U		5	U		5	U		5	U		
SEC-BUTYLBENZENE	5	U		5	U		5	U		5	U		
STYRENE	5	U		5	U		5	U		5	U		
TERT-BUTYLBENZENE	5	U		5	U		5	U		5	U		
TETRACHLOROETHENE	5	U		5	U		5	U		5	U		
TOLUENE	5	U		5	U		5	U		5	U		
TRANS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U		
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U		
TRICHLOROETHENE	5	U		5	U		5	U		5	U		
TRICHLOROFLUOROMETHANE	10	U		10	U		10	U		10	U		
VINYL CHLORIDE	10	U		10	U		10	U		10	U		

PROJ_NO: 00933	NSAMPLE	DA-TB-030508			DA-TB-030608		
SDG: CTO403-4	LAB_ID	SB1132-19			SB1155-5		
FRACTION: OV	SAMP_DATE	3/5/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	TB			TB		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U	
CHLOROBENZENE		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U	
CHLOROETHANE		10	U		10	U	
CHLOROFORM		5	U		5	U	
CHLOROMETHANE		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U	
DIBROMOMETHANE		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U	
ETHYLBENZENE		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U	
M+P-XYLENES		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U	
N-BUTYLBENZENE		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U	
O-XYLENE		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U	
STYRENE		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U	
TOLUENE		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U	
TRICHLOROETHENE		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U	
VINYL CHLORIDE		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608DL		
SDG: CTO403-4	LAB_ID	SB1132-1			SB1132-11			SB1132-17			SB1132-15DL		
FRACTION: OS	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		370	U		380	U		360	U		1800	U	
1,2,4-TRICHLOROBENZENE		370	U		380	U		360	U		1800	U	
1,2-DICHLOROBENZENE		370	U		380	U		360	U		1800	U	
1,2-DIPHENYLHYDRAZINE		750	U		760	U		730	U		3700	U	
1,3-DICHLOROBENZENE		370	U		380	U		360	U		1800	U	
1,4-DICHLOROBENZENE		370	U		380	U		360	U		1800	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		370	U		380	U		360	U		1800	U	
2,4,5-TRICHLOROPHENOL		930	U		940	U		900	U		4600	U	
2,4,6-TRICHLOROPHENOL		370	U		380	U		360	U		1800	U	
2,4-DICHLOROPHENOL		370	U		380	U		360	U		1800	U	
2,4-DIMETHYLPHENOL		370	U		380	U		360	U		1800	U	
2,4-DINITROPHENOL		930	U		940	U		900	U		4600	U	
2,4-DINITROTOLUENE		370	U		380	U		360	U		1800	U	
2,6-DICHLOROPHENOL		370	U		380	U		360	U		1800	U	
2,6-DINITROTOLUENE		930	U		940	U		900	U		4600	U	
2-CHLORONAPHTHALENE		370	U		380	U		360	U		1800	U	
2-CHLOROPHENOL		370	U		380	U		360	U		1800	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		370	U		380	U		360	U		1800	U	
2-NITROANILINE		930	U		940	U		900	U		4600	U	
2-NITROPHENOL		370	U		380	U		360	U		1800	U	
3&4-METHYLPHENOL		370	U		380	U		360	U		1800	U	
3,3'-DICHLOROBENZIDINE		370	U		380	U		360	U		1800	U	
3-NITROANILINE		930	U		940	U		900	U		4600	U	
4,6-DINITRO-2-METHYLPHENOL		930	U		940	U		900	U		4600	U	
4-BROMOPHENYL PHENYL ETHER		370	U		380	U		360	U		1800	U	
4-CHLORO-3-METHYLPHENOL		370	U		380	U		360	U		1800	U	
4-CHLOROANILINE		370	U		380	U		360	U		1800	U	
4-CHLOROPHENYL PHENYL ETHER		370	U		380	U		360	U		1800	U	
4-NITROANILINE		930	U		940	U		900	U		4600	U	
4-NITROPHENOL		930	U		940	U		900	U		4600	U	
ACENAPHTHENE													
ANTHRACENE													
BENZIDINE		1700	UJ	C	1700	UJ	C	1600	UJ	C	8300	UJ	C
BENZO(A)ANTHRACENE								890			7000		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB115-0002			DA-SB115-0204			DA-SB116-0204			DA-SB118-0002		
	LAB_ID	SB1132-5			SB1132-3			SB1105-1			SB1105-5		
	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		370	U		380	U		310	J	PR	380	U	
1,2,4-TRICHLOROBENZENE		370	U		380	U		400	U		380	U	
1,2-DICHLOROBENZENE		370	U		380	U		400	U		380	U	
1,2-DIPHENYLHYDRAZINE		740	U		760	U		800	UJ	C	760	U	
1,3-DICHLOROBENZENE		370	U		380	U		400	U		380	U	
1,4-DICHLOROBENZENE		370	U		380	U		400	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		370	U		380	U		400	UJ	C	380	U	
2,4,5-TRICHLOROPHENOL		920	U		940	U		1000	U		940	U	
2,4,6-TRICHLOROPHENOL		370	U		380	U		400	U		380	U	
2,4-DICHLOROPHENOL		370	U		380	U		400	U		380	U	
2,4-DIMETHYLPHENOL		370	U		380	U		400	U		380	U	
2,4-DINITROPHENOL		920	U		940	U		1000	U		940	U	
2,4-DINITROTOLUENE		370	U		380	U		400	U		380	U	
2,6-DICHLOROPHENOL		370	U		380	U		400	U		380	U	
2,6-DINITROTOLUENE		920	U		940	U		1000	U		940	U	
2-CHLORONAPHTHALENE		370	U		380	U		400	U		380	U	
2-CHLOROPHENOL		370	U		380	U		400	U		380	U	
2-METHYLNAPHTHALENE								2600	J	R			
2-METHYLPHENOL		370	U		380	U		400	U		380	U	
2-NITROANILINE		920	U		940	U		1000	U		940	U	
2-NITROPHENOL		370	U		380	U		400	U		380	U	
3&4-METHYLPHENOL		370	U		380	U		400	U		380	U	
3,3'-DICHLOROBENZIDINE		370	U		380	U		400	U		380	U	
3-NITROANILINE		920	U		940	U		1000	U		940	U	
4,6-DINITRO-2-METHYLPHENOL		920	U		940	U		1000	U		940	U	
4-BROMOPHENYL PHENYL ETHER		370	U		380	U		400	U		380	U	
4-CHLORO-3-METHYLPHENOL		370	U		380	U		400	U		380	U	
4-CHLOROANILINE		370	U		380	U		400	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		370	U		380	U		400	U		380	U	
4-NITROANILINE		920	U		940	U		1000	U		940	U	
4-NITROPHENOL		920	U		940	U		1000	U		940	U	
ACENAPHTHENE											1400		
ANTHRACENE											2000		
BENZIDINE		1700	UJ	C	1700	UJ	C	1800	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE											2600		

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406			DA-SB119-0002DL2			DA-SB119-0204			DA-SB120-0002		
SDG: CTO403-4	LAB_ID	SB1105-3			SB1105-7DL2			SB1105-9			SB1155-1		
FRACTION: OS	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		720	U		380	U		370	U	
1,2,4-TRICHLOROBENZENE		380	U		720	U		380	U		370	U	
1,2-DICHLOROBENZENE		380	U		720	U		380	U		370	U	
1,2-DIPHENYLHYDRAZINE		760	UJ	C	1400	U		760	U		740	U	
1,3-DICHLOROBENZENE		380	U		720	U		380	U		370	U	
1,4-DICHLOROBENZENE		380	U		720	U		380	U		370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	UJ	C	720	U		380	U		370	U	
2,4,5-TRICHLOROPHENOL		940	U		1800	U		940	U		920	U	
2,4,6-TRICHLOROPHENOL		380	U		720	U		380	U		370	U	
2,4-DICHLOROPHENOL		380	U		720	U		380	U		370	U	
2,4-DIMETHYLPHENOL		380	U		720	U		380	U		370	U	
2,4-DINITROPHENOL		940	U		1800	U		940	U		920	U	
2,4-DINITROTOLUENE		380	U		720	U		380	U		370	U	
2,6-DICHLOROPHENOL		380	U		720	U		380	U		370	U	
2,6-DINITROTOLUENE		940	U		1800	U		940	U		920	U	
2-CHLORONAPHTHALENE		380	U		720	U		380	U		370	U	
2-CHLOROPHENOL		380	U		720	U		380	U		370	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		380	U		720	U		380	U		370	U	
2-NITROANILINE		940	U		1800	U		940	U		920	U	
2-NITROPHENOL		380	U		720	U		380	U		370	U	
3&4-METHYLPHENOL		380	U		720	U		380	U		370	U	
3,3'-DICHLOROBENZIDINE		380	U		720	U		380	U		370	U	
3-NITROANILINE		940	U		1800	U		940	U		920	U	
4,6-DINITRO-2-METHYLPHENOL		940	U		1800	U		940	U		920	U	
4-BROMOPHENYL PHENYL ETHER		380	U		720	U		380	U		370	U	
4-CHLORO-3-METHYLPHENOL		380	U		720	U		380	U		370	U	
4-CHLOROANILINE		380	U		720	U		380	U		370	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		720	U		380	U		370	U	
4-NITROANILINE		940	U		1800	U		940	U		920	U	
4-NITROPHENOL		940	U		1800	U		940	U		920	U	
ACENAPHTHENE													
ANTHRACENE		400									450		
BENZIDINE		1700	UJ	C	3300	UJ	C	1700	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE		500									1100		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB120-0406			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06DL		
	LAB_ID	SB1155-3			SB1132-7			SB1132-9			SB1132-13DL		
	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		390	U		360	U		390	U		1800	U	
1,2,4-TRICHLOROBENZENE		390	U		360	U		390	U		1800	U	
1,2-DICHLOROBENZENE		390	U		360	U		390	U		1800	U	
1,2-DIPHENYLHYDRAZINE		790	U		720	U		790	U		3700	U	
1,3-DICHLOROBENZENE		390	U		360	U		390	U		1800	U	
1,4-DICHLOROBENZENE		390	U		360	U		390	U		1800	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		390	U		360	U		390	U		1800	U	
2,4,5-TRICHLOROPHENOL		980	U		900	U		980	U		4600	U	
2,4,6-TRICHLOROPHENOL		390	U		360	U		390	U		1800	U	
2,4-DICHLOROPHENOL		390	U		360	U		390	U		1800	U	
2,4-DIMETHYLPHENOL		390	U		360	U		390	U		1800	U	
2,4-DINITROPHENOL		980	U		900	U		980	U		4600	U	
2,4-DINITROTOLUENE		390	U		360	U		390	U		1800	U	
2,6-DICHLOROPHENOL		390	U		360	U		390	U		1800	U	
2,6-DINITROTOLUENE		980	U		900	U		980	U		4600	U	
2-CHLORONAPHTHALENE		390	U		360	U		390	U		1800	U	
2-CHLOROPHENOL		390	U		360	U		390	U		1800	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		390	U		360	U		390	U		1800	U	
2-NITROANILINE		980	U		900	U		980	U		4600	U	
2-NITROPHENOL		390	U		360	U		390	U		1800	U	
3&4-METHYLPHENOL		390	U		360	U		390	U		1800	U	
3,3'-DICHLOROBENZIDINE		390	U		360	U		390	U		1800	U	
3-NITROANILINE		980	U		900	U		980	U		4600	U	
4,6-DINITRO-2-METHYLPHENOL		980	U		900	U		980	U		4600	U	
4-BROMOPHENYL PHENYL ETHER		390	U		360	U		390	U		1800	U	
4-CHLORO-3-METHYLPHENOL		390	U		360	U		390	U		1800	U	
4-CHLOROANILINE		390	U		360	U		390	U		1800	U	
4-CHLOROPHENYL PHENYL ETHER		390	U		360	U		390	U		1800	U	
4-NITROANILINE		980	U		900	U		980	U		4600	U	
4-NITROPHENOL		980	U		900	U		980	U		4600	U	
ACENAPHTHENE													
ANTHRACENE													
BENZIDINE		1800	UJ	C	1600	UJ	C	1800	UJ	C	8300	UJ	C
BENZO(A)ANTHRACENE											8400		

PROJ_NO: 00933	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608DL		
SDG: CTO403-4	LAB_ID	SB1132-1			SB1132-11			SB1132-17			SB1132-15DL		
FRACTION: OS	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE								760			5200		
BENZO(B)FLUORANTHENE								740			5700		
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE								670			4900		
BENZOIC ACID		930	U		940	U		900	U		4600	U	
BENZYL ALCOHOL		750	U		760	U		730	U		3700	U	
BIS(2-CHLOROETHOXY)METHANE		370	U		380	U		360	U		1800	U	
BIS(2-CHLOROETHYL)ETHER		370	U		380	U		360	U		1800	U	
BIS(2-ETHYLHEXYL)PHTHALATE		370	U		380	U		360	U		1800	U	
BUTYL BENZYL PHTHALATE		370	U		380	U		360	U		1800	U	
CARBAZOLE		370	U		380	U		360	U		1800	U	
CHRYSENE								910			6800		
DIBENZOFURAN		370	U		380	U		360	U		1800	U	
DIETHYL PHTHALATE		370	U		380	U		360	U		1800	U	
DIMETHYL PHTHALATE		370	U		380	U		360	U		1800	U	
DI-N-BUTYL PHTHALATE		370	U		380	U		360	U		1800	U	
DI-N-OCTYL PHTHALATE		370	U		380	U		360	U		1800	U	
FLUORANTHENE					440			1800			11000		
FLUORENE													
HEXACHLOROBENZENE		370	U		380	U		360	U		1800	U	
HEXACHLOROBUTADIENE		370	U		380	U		360	U		1800	U	
HEXACHLOROETHANE		370	U		380	U		360	U		1800	U	
INDENO(1,2,3-CD)PYRENE								420			2700		
ISOPHORONE		370	U		380	U		360	U		1800	U	
NAPHTHALENE													
NITROBENZENE		370	U		380	U		360	U		1800	U	
N-NITROSODIMETHYLAMINE		370	U		380	U		360	U		1800	U	
N-NITROSO-DI-N-PROPYLAMINE		370	U		380	U		360	U		1800	U	
N-NITROSODIPHENYLAMINE		370	U		380	U		360	U		1800	U	
N-NITROSOPYRROLIDINE		370	U		380	U		360	U		1800	U	
PENTACHLOROPHENOL		930	U		940	U		900	U		4600	U	
PHENANTHRENE								1300			2900		
PHENOL		370	U		380	U		360	U		1800	U	
PYRENE					340	J	P	1500			10000		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB115-0002			DA-SB115-0204			DA-SB116-0204			DA-SB118-0002		
	LAB_ID	SB1132-5			SB1132-3			SB1105-1			SB1105-5		
	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE											2000		
BENZO(B)FLUORANTHENE											1800		
BENZO(G,H,I)PERYLENE											950		
BENZO(K)FLUORANTHENE											2000		
BENZOIC ACID		920	U		940	U		1000	U		940	U	
BENZYL ALCOHOL		740	U		760	U		800	U		760	U	
BIS(2-CHLOROETHOXY)METHANE		370	U		380	U		400	U		380	U	
BIS(2-CHLOROETHYL)ETHER		370	U		380	U		400	U		380	U	
BIS(2-ETHYLHEXYL)PHTHALATE		370	U		380	U		400	U		380	U	
BUTYL BENZYL PHTHALATE		370	U		380	U		400	U		380	U	
CARBAZOLE		370	U		380	U		400	U		1000		
CHRYSENE											2300		
DIBENZOFURAN		370	U		380	U		400	U		750		
DIETHYL PHTHALATE		370	U		380	U		400	U		380	U	
DIMETHYL PHTHALATE		370	U		380	U		400	U		380	U	
DI-N-BUTYL PHTHALATE		370	U		380	U		400	U		380	U	
DI-N-OCTYL PHTHALATE		370	U		380	U		400	U		380	U	
FLUORANTHENE		1300									6000		
FLUORENE											1100		
HEXACHLOROBENZENE		370	U		380	U		400	U		380	U	
HEXACHLOROBUTADIENE		370	U		380	U		400	U		380	U	
HEXACHLOROETHANE		370	U		380	U		400	U		380	U	
INDENO(1,2,3-CD)PYRENE								400	U		1000		
ISOPHORONE		370	U		380	U		400	U		380	U	
NAPHTHALENE											1000		
NITROBENZENE		370	U		380	U		400	U		380	U	
N-NITROSODIMETHYLAMINE		370	U		380	U		400	UJ	C	380	U	
N-NITROSO-DI-N-PROPYLAMINE		370	U		380	U		400	U		380	U	
N-NITROSODIPHENYLAMINE		370	U		380	U		400	U		380	U	
N-NITROSOPYRROLIDINE		370	U		380	U		400	U		380	U	
PENTACHLOROPHENOL		920	U		940	U		1000	UJ	C	940	U	
PHENANTHRENE		1000									6000		
PHENOL		370	U		380	U		400	U		380	U	
PYRENE		1200									5000		

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406			DA-SB119-0002DL2			DA-SB119-0204			DA-SB120-0002		
SDG: CTO403-4	LAB_ID	SB1105-3			SB1105-7DL2			SB1105-9			SB1155-1		
FRACTION: OS	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE											860		
BENZO(B)FLUORANTHENE											940		
BENZO(G,H,I)PERYLENE											480		
BENZO(K)FLUORANTHENE		400									760		
BENZOIC ACID		940	U		1800	U		940	U		920	U	
BENZYL ALCOHOL		760	U		1400	U		760	U		740	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		720	U		380	U		370	U	
BIS(2-CHLOROETHYL)ETHER		380	U		720	U		380	U		370	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		720	U		380	U		370	U	
BUTYL BENZYL PHTHALATE		380	U		720	U		380	U		370	U	
CARBAZOLE		250	J	P	720	U		380	U		370	U	
CHRYSENE		460									1100		
DIBENZOFURAN		380	U		720	U		380	U		370	U	
DIETHYL PHTHALATE		380	U		720	U		380	U		370	U	
DIMETHYL PHTHALATE		380	U		720	U		380	U		370	U	
DI-N-BUTYL PHTHALATE		380	U		720	U		380	U		370	U	
DI-N-OCTYL PHTHALATE		380	U		720	UJ	N	380	U		370	U	
FLUORANTHENE		1200									2300		
FLUORENE													
HEXACHLOROBENZENE		380	U		720	U		380	U		370	U	
HEXACHLOROBUTADIENE		380	U		720	U		380	U		370	U	
HEXACHLOROETHANE		380	U		720	U		380	U		370	U	
INDENO(1,2,3-CD)PYRENE											480		
ISOPHORONE		380	U		720	U		380	U		370	U	
NAPHTHALENE		330	J	P									
NITROBENZENE		380	U		720	U		380	U		370	U	
N-NITROSODIMETHYLAMINE		380	UJ	C	720	U		380	U		370	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		720	U		380	U		370	U	
N-NITROSODIPHENYLAMINE		380	U		720	U		380	U		370	U	
N-NITROSOPYRROLIDINE		380	U		720	U		380	U		370	U	
PENTACHLOROPHENOL		940	UJ	C	1800	U		940	U		920	U	
PHENANTHRENE		1300									1800		
PHENOL		380	U		720	U		380	U		370	U	
PYRENE		1000									2000		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SB120-0406			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06DL		
	LAB_ID	SB1155-3			SB1132-7			SB1132-9			SB1132-13DL		
	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE											6200		
BENZO(B)FLUORANTHENE											7300		
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE											5800		
BENZOIC ACID		980	U		900	U		980	U		4600	U	
BENZYL ALCOHOL		790	U		720	U		790	U		3700	U	
BIS(2-CHLOROETHOXY)METHANE		390	U		360	U		390	U		1800	U	
BIS(2-CHLOROETHYL)ETHER		390	U		360	U		390	U		1800	U	
BIS(2-ETHYLHEXYL)PHTHALATE		390	U		360	U		390	U		1800	U	
BUTYL BENZYL PHTHALATE		390	U		360	U		390	U		1800	U	
CARBAZOLE		390	U		360	U		390	U		1800	U	
CHRYSENE											8300		
DIBENZOFURAN		390	U		360	U		390	U		1800	U	
DIETHYL PHTHALATE		390	U		360	U		390	U		1800	U	
DIMETHYL PHTHALATE		390	U		360	U		390	U		1800	U	
DI-N-BUTYL PHTHALATE		390	U		360	U		390	U		1800	U	
DI-N-OCTYL PHTHALATE		390	U		360	U		390	U		1800	U	
FLUORANTHENE											12000		
FLUORENE													
HEXACHLOROBENZENE		390	U		360	U		390	U		1800	U	
HEXACHLOROBUTADIENE		390	U		360	U		390	U		1800	U	
HEXACHLOROETHANE		390	U		360	U		390	U		1800	U	
INDENO(1,2,3-CD)PYRENE											2800		
ISOPHORONE		390	U		360	U		390	U		1800	U	
NAPHTHALENE													
NITROBENZENE		390	U		360	U		390	U		1800	U	
N-NITROSODIMETHYLAMINE		390	U		360	U		390	U		1800	U	
N-NITROSO-DI-N-PROPYLAMINE		390	U		360	U		390	U		1800	U	
N-NITROSODIPHENYLAMINE		390	U		360	U		390	U		1800	U	
N-NITROSOPYRROLIDINE		390	U		360	U		390	U		1800	U	
PENTACHLOROPHENOL		980	U		900	U		980	U		4600	U	
PHENANTHRENE											3300		
PHENOL		390	U		360	U		390	U		1800	U	
PYRENE											13000		

PROJ_NO: 00933	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608DL		
SDG: CTO403-4	LAB_ID	SB1132-2			SB1132-12			SB1132-18			SB1132-16DL		
FRACTION: PAH	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		6.6	J	P	23	U		11	J	P	55	J	PR
ACENAPHTHENE		23	U		19	J	P	140			61	J	PR
ACENAPHTHYLENE		23	U		23	U		22	U		660	J	R
ANTHRACENE		23	U		49			250			620	J	R
BENZO(A)ANTHRACENE		23	U		210								
BENZO(A)PYRENE		16	J	P	190								
BENZO(B)FLUORANTHENE		14	J	P	220								
BENZO(G,H,I)PERYLENE		8.3	J	P	91			280			1200	J	CNR
BENZO(K)FLUORANTHENE		6.8	J	P	140								
CHRYSENE		14	J	P	190								
DIBENZO(A,H)ANTHRACENE		23	UJ	C	67	J	C	140			690	J	CNR
FLUORANTHENE		12	J	P									
FLUORENE		23	U		13	J	P	110			160	J	R
INDENO(1,2,3-CD)PYRENE		9	J	CP	90	J	C						
NAPHTHALENE		23	U		23	U		18	J	P	13	J	PR
PHENANTHRENE		17	J	P	180								
PYRENE		12	J	P									

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB115-0002			DA-SB115-0204			DA-SB116-0204			DA-SB118-0002		
	LAB_ID	SB1132-6			SB1132-4			SB1105-2			SB1105-6		
	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		9.6	J	P	23	U					220		
ACENAPHTHENE		100			14	J	P	24	U				
ACENAPHTHYLENE		22	U		23	U		24	U		23	U	
ANTHRACENE		130			32			24	U				
BENZO(A)ANTHRACENE		240			110			24	U				
BENZO(A)PYRENE		200			130			24	U				
BENZO(B)FLUORANTHENE		210			140			24	U				
BENZO(G,H,I)PERYLENE		61			51			24	U				
BENZO(K)FLUORANTHENE		130			73			24	U				
CHRYSENE		230			94			17	J	P			
DIBENZO(A,H)ANTHRACENE		55	J	C	52	J	C	24	U		270	J	N
FLUORANTHENE					150			13	J	P			
FLUORENE		120			10	J	P	68					
INDENO(1,2,3-CD)PYRENE		78	J	C	64	J	C	24	U				
NAPHTHALENE		10	J	P	23	U							
PHENANTHRENE					120			140					
PYRENE					170			22	J	P			

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406			DA-SB119-0002DLRA			DA-SB119-0204			DA-SB120-0002		
SDG: CTO403-4	LAB_ID	SB1105-4			SB1105-8DLRA			SB1105-10			SB1155-2		
FRACTION: PAH	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		82			110	U		5.3	J	P	14	J	P
ACENAPHTHENE		280			110	U		23	U		150		
ACENAPHTHYLENE		23	U		18	J	P	23	U		22	U	
ANTHRACENE					19	J	P	23	U				
BENZO(A)ANTHRACENE					130	J	C	10	J	P			
BENZO(A)PYRENE		300			850	J	N	16	J	P			
BENZO(B)FLUORANTHENE		250			1200	J	CN	17	J	P			
BENZO(G,H,I)PERYLENE		160			270	J	CN	7.7	J	P			
BENZO(K)FLUORANTHENE					340	J	CN	5.4	J	CP			
CHRYSENE					94	J	P	14	J	P			
DIBENZO(A,H)ANTHRACENE		68			130	J	CN	6.9	J	P	170		
FLUORANTHENE					110			9.5	J	P			
FLUORENE		260			110	U		23	U		180		
INDENO(1,2,3-CD)PYRENE		170			340	J	N	9.7	J	P			
NAPHTHALENE					110	U		23	U		25		
PHENANTHRENE					110			15	J	P			
PYRENE					120	J	C	13	J	P			

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SB120-0406			DA-SB150-0002			DA-SB150-0204RA			DA-SB-DUP06DLRA		
	LAB_ID	SB1155-4			SB1132-8			SB1132-10RA			SB1132-14DLRA		
	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		24	U		22	U		24	U		43	J	PR
ACENAPHTHENE		24	U		2.7	J	P	24	U		70	J	PR
ACENAPHTHYLENE		24	U		22	U		24	U		680	J	R
ANTHRACENE		24	U		5.6	J	P	24	U		840	J	R
BENZO(A)ANTHRACENE		24	U		37			11	J	P			
BENZO(A)PYRENE		24	U		33			14	J	P			
BENZO(B)FLUORANTHENE		24	U		41			16	J	P			
BENZO(G,H,I)PERYLENE		24	U		11	J	P	7.9	J	P	1500	J	NR
BENZO(K)FLUORANTHENE		24	U		20	J	P	10	J	P			
CHRYSENE		3.3	J	P	35			11	J	P			
DIBENZO(A,H)ANTHRACENE		24	U		10	J	CP	24	U		710	J	CNR
FLUORANTHENE		24	U		66			27					
FLUORENE		24	U		22	U		24	U		180	J	R
INDENO(1,2,3-CD)PYRENE		24	U		20	J	CP	17	J	P			
NAPHTHALENE		24	U		22	U		24	U		17	J	PR
PHENANTHRENE		24	U		39			13	J	P			
PYRENE		24	U		55			16	J	P			

PROJ_NO: 00933	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608		
SDG: CTO403-4	LAB_ID	SB1132-1			SB1132-11			SB1132-17			SB1132-15		
FRACTION: PEST/PCB	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.7	U		3.8	U		1.2	J	PU	6.4	J	GUR
4,4'-DDE		0.96	J	CP	3.8	UJ	C	1.8	J	P	3.7	UJ	CR
4,4'-DDT		3.7	UJ	C	3.8	UJ	C	4.5	J	C	3.7	UJ	CR
ALDRIN		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
ALPHA-BHC		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
ALPHA-CHLORDANE		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
AROCLOR-1016		19	U		200	U		19	U		19	U	
AROCLOR-1221		19	U		200	U		19	U		19	U	
AROCLOR-1232		19	U		200	U		19	U		19	U	
AROCLOR-1242		19	U		200	U		19	U		19	U	
AROCLOR-1248		19	U		200	U		19	U		19	U	
AROCLOR-1254		19	U		200	U		19	U		19	U	
AROCLOR-1260		44			1500			28	J	U	19	U	
AROCLOR-1268		19	U		200	U		19	U		19	U	
BETA-BHC		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
DELTA-BHC		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
DIELDRIN		3.7	UJ	C	3.8	UJ	C	3.6	U		3.7	UJ	CR
ENDOSULFAN I		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
ENDOSULFAN II		3.7	UJ	C	3.8	UJ	C	3.6	U		3.7	UJ	CR
ENDOSULFAN SULFATE		3.7	UJ	C	3.8	UJ	C	3.6	U		3.7	UJ	CR
ENDRIN		3.7	UJ	C	3.8	UJ	C	3.6	UJ	C	3.7	UJ	CR
ENDRIN ALDEHYDE		3.7	UJ	C	3.8	UJ	C	3.6	U		3.7	UJ	CR
ENDRIN KETONE		3.7	UJ	C	3.8	UJ	C	3.6	UJ	C	3.7	UJ	CR
GAMMA-BHC (LINDANE)		1.9	UJ	C	2	UJ	C	1.9	UJ	C	1.9	UJ	CR
GAMMA-CHLORDANE		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
HEPTACHLOR		1.9	UJ	C	2	UJ	C	1.9	UJ	C	1.3	J	CPR
HEPTACHLOR EPOXIDE		1.9	UJ	C	2	UJ	C	1.9	U		1.9	UJ	CR
METHOXYCHLOR		19	UJ	C	20	UJ	C	19	UJ	C	19	UJ	CR
TOXAPHENE		37	UJ	C	38	UJ	C	36	U		37	UJ	CR

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB115-0002			DA-SB115-0204			DA-SB116-0204			DA-SB118-0002		
	LAB_ID	SB1132-5			SB1132-3			SB1105-1			SB1105-5		
	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.7	U		3.8	U		4	U		3.8	U	
4,4'-DDE		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
4,4'-DDT		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
ALDRIN		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
ALPHA-BHC		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
ALPHA-CHLORDANE		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
AROCLOR-1016		19	U		20	U		21	U		20	U	
AROCLOR-1221		19	U		20	U		21	U		20	U	
AROCLOR-1232		19	U		20	U		21	U		20	U	
AROCLOR-1242		19	U		20	U		21	U		20	U	
AROCLOR-1248		19	U		20	U		21	U		20	U	
AROCLOR-1254		19	U		20	U		21	U		20	U	
AROCLOR-1260		19	U		20	U		21	U		20	U	
AROCLOR-1268		19	U		20	U		21	U		20	U	
BETA-BHC		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
DELTA-BHC		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
DIELDRIN		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
ENDOSULFAN I		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
ENDOSULFAN II		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
ENDOSULFAN SULFATE		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
ENDRIN		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
ENDRIN ALDEHYDE		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
ENDRIN KETONE		3.7	UJ	C	3.8	UJ	C	4	UJ	C	3.8	UJ	C
GAMMA-BHC (LINDANE)		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
GAMMA-CHLORDANE		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
HEPTACHLOR		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
HEPTACHLOR EPOXIDE		1.9	UJ	C	2	UJ	C	2.1	UJ	C	2	UJ	C
METHOXYCHLOR		19	UJ	C	20	UJ	C	21	UJ	C	20	UJ	C
TOXAPHENE		37	UJ	C	38	UJ	C	40	UJ	C	38	UJ	C

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406			DA-SB119-0002			DA-SB119-0204			DA-SB120-0002		
SDG: CTO403-4	LAB_ID	SB1105-3			SB1105-7			SB1105-9			SB1155-1		
FRACTION: PEST/PCB	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	3.8	U		3.6	U		3.8	U		3.7	U	
4,4'-DDE	3.8	UJ	C	1.3	J	CP	3.8	UJ	C	3.7	U	
4,4'-DDT	3.8	UJ	C	1.5	J	CPU	3.8	UJ	C	3.7	UJ	C
ALDRIN	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
ALPHA-BHC	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
ALPHA-CHLORDANE	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
AROCLOR-1016	20	U		18	U		19	U		19	U	
AROCLOR-1221	20	U		18	U		19	U		19	U	
AROCLOR-1232	20	U		18	U		19	U		19	U	
AROCLOR-1242	20	U		18	U		19	U		19	U	
AROCLOR-1248	20	U		18	U		19	U		19	U	
AROCLOR-1254	20	U		18	U		19	U		19	U	
AROCLOR-1260	20	U		18	UJ	C	19	UJ	C	19	U	
AROCLOR-1268	20	U		18	U		19	U		19	U	
BETA-BHC	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
DELTA-BHC	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
DIELDRIN	3.8	UJ	C	3.6	UJ	C	3.8	UJ	C	3.7	U	
ENDOSULFAN I	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
ENDOSULFAN II	3.8	UJ	C	3.6	UJ	C	3.8	UJ	C	3.7	U	
ENDOSULFAN SULFATE	3.8	UJ	C	3.6	UJ	C	3.8	UJ	C	3.7	U	
ENDRIN	3.8	UJ	C	3.6	UJ	C	3.8	UJ	C	3.7	UJ	C
ENDRIN ALDEHYDE	3.8	UJ	C	3.6	UJ	C	3.8	UJ	C	3.7	U	
ENDRIN KETONE	3.8	UJ	C	3.6	UJ	C	3.8	UJ	C	3.7	UJ	C
GAMMA-BHC (LINDANE)	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	UJ	C
GAMMA-CHLORDANE	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
HEPTACHLOR	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	UJ	C
HEPTACHLOR EPOXIDE	2	UJ	C	1.8	UJ	C	1.9	UJ	C	1.9	U	
METHOXYCHLOR	20	UJ	C	18	UJ	C	19	UJ	C	19	UJ	C
TOXAPHENE	38	UJ	C	36	UJ	C	38	UJ	C	37	U	

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-SB120-0406			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06		
	LAB_ID	SB1155-3			SB1132-7			SB1132-9			SB1132-13		
	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.9	U		2.7	J	P	3.9	U		12	J	GU
4,4'-DDE		3.9	U		1.2	J	CP	3.9	UJ	C	3.7	UJ	C
4,4'-DDT		3.9	UJ	C	3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
ALDRIN		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
ALPHA-BHC		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
ALPHA-CHLORDANE		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
AROCLOR-1016		20	U		19	U		20	U		19	U	
AROCLOR-1221		20	U		19	U		20	U		19	U	
AROCLOR-1232		20	U		19	U		20	U		19	U	
AROCLOR-1242		20	U		19	U		20	U		19	U	
AROCLOR-1248		20	U		19	U		20	U		19	U	
AROCLOR-1254		20	U		19	U		20	U		19	U	
AROCLOR-1260		20	U		19	U		20	U		19	U	
AROCLOR-1268		20	U		19	U		20	U		19	U	
BETA-BHC		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
DELTA-BHC		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
DIELDRIN		3.9	U		3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
ENDOSULFAN I		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
ENDOSULFAN II		3.9	U		3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
ENDOSULFAN SULFATE		3.9	U		3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
ENDRIN		3.9	UJ	C	3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
ENDRIN ALDEHYDE		3.9	U		3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
ENDRIN KETONE		3.9	UJ	C	3.6	UJ	C	3.9	UJ	C	3.7	UJ	C
GAMMA-BHC (LINDANE)		2	UJ	C	1.9	UJ	C	2	UJ	C	1.9	UJ	C
GAMMA-CHLORDANE		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
HEPTACHLOR		2	UJ	C	1.9	UJ	C	2	UJ	C	1.9	UJ	C
HEPTACHLOR EPOXIDE		2	U		1.9	UJ	C	2	UJ	C	1.9	UJ	C
METHOXYCHLOR		20	UJ	C	19	UJ	C	20	UJ	C	19	UJ	C
TOXAPHENE		39	U		36	UJ	C	39	UJ	C	37	UJ	C

PROJ_NO: 00933	NSAMPLE	DA-SB111-0002			DA-SB111-0204			DA-SB112-0002			DA-SB112-0608		
SDG: CTO403-4	LAB_ID	SB1132-1			SB1132-11			SB1132-17			SB1132-15		
FRACTION: PET	SAMP_DATE	3/5/2008			3/5/2008			3/5/2008			3/5/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.0			87.0			90.5			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.2	U	A	2.6	U	A	2.9	UJ	AC	2.9	U	A
TPH (C09-C36)		110			200			130			950		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB115-0002			DA-SB115-0204			DA-SB116-0204			DA-SB118-0002		
	LAB_ID	SB1132-5			SB1132-3			SB1105-1DL			SB1105-5		
	SAMP_DATE	3/5/2008			3/5/2008			3/4/2008			3/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	89.1			87.0			82.0			87.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.8	U	A	2.5	U	A	820	J	C	2.8	UJ	AC
TPH (C09-C36)		93	J	C	160			1900			160		

PROJ_NO: 00933	NSAMPLE	DA-SB118-0406			DA-SB119-0002			DA-SB119-0204			DA-SB120-0002		
SDG: CTO403-4	LAB_ID	SB1105-3			SB1105-7			SB1105-9			SB1155-1		
FRACTION: PET	SAMP_DATE	3/4/2008			3/4/2008			3/4/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.8			92.0			87.3			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		3.6	UJ	AC	3.4	UJ	AC	2.8	UJ	AC	2.5	UJ	AC
TPH (C09-C36)		31			1200			150			170		

PROJ_NO: 00933 SDG: CTO403-4 FRACTION: PET MEDIA: SOIL	NSAMPLE	DA-SB120-0406			DA-SB150-0002			DA-SB150-0204			DA-SB-DUP06		
	LAB_ID	SB1155-3			SB1132-7			SB1132-9			SB1132-13		
	SAMP_DATE	3/6/2008			3/5/2008			3/5/2008			3/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.8			91.2			83.6			90.1		
	DUP_OF										DA-SB112-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.8	UJ	AC	2.8	U	A	3.2	U	A	2.6	U	A
TPH (C09-C36)		9.4	U	A	71	J	C	28	J	C	1400		

PROJ_NO: 00933	NSAMPLE	DA-TB-030508			DA-TB-030608		
SDG: CTO403-4	LAB_ID	SB1132-19			SB1155-5		
FRACTION: PET	SAMP_DATE	3/5/2008			3/6/2008		
MEDIA: SOIL	QC_TYPE	TB			TB		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.5	U	A	2.5	U	A
TPH (C09-C36)							

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2752W

Date: May 28, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG CTO403-5
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:
18/Soils/

DA-B100B-0002	DA-B100B-0608	DA-B101B-0002
DA-B101B-0406	DA-B106B-0002	DA-B106B-0406
DA-B107B-0002	DA-B107B-0608	DA-B108B-0002
DA-B108B-0406	DA-B109B-0002	DA-B109B-0204
DA-B118B-0608	DA-SB-DUP06A	

(Field Duplicate Pairs: DA-B100B-0002/DA-SB-DUP06A)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from March 18-21, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

	• Data Completeness
*	• Holding Times
*	• Calibration Verification
*	• ICP-MS Tune
*	• ICP-MS Internal Standard Relative Intensities
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
*	• Field Duplicate Precision
	• ICP Serial Dilution Results

- Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The sample ID DA-SB-DUP06 was used in another data package for this project. Due to field sampler error, the sample ID was used again in this SDG. To differentiate between the sample results, the sample ID has been changed in this SDG to DA-SB-DUP06A.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Cadmium	0.22 ug/L	0.11 mg/kg	DA-B109B-0204
Mercury	0.05 ug/L	0.04 mg/kg	DA-B101B-0406, DA-B108B-0002, DA-B108B-0406, DA-B109B-0002, DA-B100B-0608
Sodium	7.82 mg/kg	39.1 mg/kg	DA-B118B-0608
Thallium	0.17 ug/L	0.09 mg/kg	All samples
Molybdenum	0.04 mg/kg	0.22 mg/kg	DA-B100B-0002

The positive cadmium, mercury, sodium, thallium, and molybdenum results below the blank action level were changed to estimated, non-detected values (UJ) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids and 1 g (ICP metals) or 0.6 g (mercury) of sample analyzed. The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although cadmium, mercury, thallium, and molybdenum contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there is no regulatory limit established for sodium. The non-detected results in the affected samples are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ		High	All samples
Cadmium	UJ		High	DA-B108B-0406, DA-B109B-0002, DA-B109B-0204
Molybdenum	J		Low	All samples
Sodium	J UJ		High	

The positive results for sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive molybdenum results are estimated (J) and the non-detected results are estimated (UJ) in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive antimony, cadmium, and sodium results to estimated, non-detected values (UJ) in the select samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for sodium in the affected samples are usable as estimated values which may be biased high. The positive and non-detected molybdenum results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project sensitivity goals are not impacted. The positive results for antimony, cadmium, and sodium in select samples, which had estimated interference greater than 80%, may be entirely due to iron interference. However, the elevated reporting limits for these antimony, cadmium, and sodium results do not exceed the project action limits for these metals. The antimony, cadmium, and sodium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample DA-B109B-0002 that did not meet the QC limits:

Analyte	% Recovery (QC Limits: 75-125%)	RPD (QC Limits: 35%)	Action	
			(+)	NDs
Antimony	41, 45	-	J	
Calcium	-	131	J	
Chromium	71	-	J	
Magnesium	-	71	J	
Potassium	150	-	J	

-Criterion met

The percent recovery criterion was not met for antimony and chromium; therefore, the project accuracy goals may be slightly impacted. The positive antimony and chromium results are usable as estimated values which may be biased low.

Although the percent recovery criterion was exceeded for potassium, the project accuracy goals are not impacted since there are no regulatory limits established for potassium. The positive potassium results are usable as estimated values which may be biased high.

Although the relative percent difference criterion was not met for calcium and magnesium, the project precision goals are not impacted since there are no regulatory limits established for calcium and magnesium. The positive calcium and magnesium results are usable as estimated values for which the bias is indeterminate.

ICP Serial Dilution Results

The percent difference for arsenic was above the 15 percent QC criterion for analyte concentrations greater than 50x the instrument detection limit (IDL) before dilution, in the ICP serial dilution analysis of sample DA-B108B-0406. The positive results for arsenic were qualified as estimated (J) in all soil samples. Since the initial sample result for this metal was lower than the diluted sample result, the data may be biased low.

Although the ICP serial dilution percent difference criteria were not met for arsenic, the accuracy project goals are only slightly impacted. The positive results for arsenic in the affected samples are usable as estimated values that may be biased low.

Reporting Limits

All non-detected values met project quantitation limits.

The laboratory reported non-detected results down to the CRDL. The laboratory reporting limits met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results below than the laboratory's quantitation limit and above the method detection limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Select metals were qualified as estimated due to ICP interferences due to high iron concentration and high and low matrix spike/matrix spike duplicate recoveries. Arsenic was qualified as estimated due ICP serial dilution result exceedance. Although specific method criteria were

not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set. Calcium and magnesium were qualified as estimated due to matrix spike/matrix spike duplicate imprecision. Data usability is not impacted since there are no regulatory limits established for calcium and magnesium.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set. Data usability is not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002			DA-B100B-0608			DA-B101B-0002			DA-B101B-0406		
SDG: CTO403-5	LAB_ID	SB1469-005			SB1469-007			SB1469-001			SB1469-003		
FRACTION: M	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		15900			20700			19500			11600		
ANTIMONY		0.13	UJ	DKP	0.25	UJ	DKP	0.24	UJ	DKP	0.35	UJ	DKP
ARSENIC		3.1	J	I	14.4	J	I	6	J	I	8.9	J	I
BARIUM		14.7			32.8			17.6			24.4		
BERYLLIUM		0.22	J	P	0.59			0.32	J	P	0.2	J	P
CADMIUM		0.01	U		0.01	U		0.01	U		0.01	U	
CALCIUM		2160	J	D	672	J	D	2480	J	D	2150	J	D
CHROMIUM		20.5	J	D	21.5	J	D	24.2	J	D	19.5	J	D
COBALT		13			13.8			16.4			9.3		
COPPER		15.5			11.4			25.2			16.2		
IRON		32800			40000			38900			23400		
LEAD		15.6			16.3			16.3			12.4		
MAGNESIUM		5420	J	D	3410	J	D	6020	J	D	3930	J	D
MANGANESE		486			733			827			373		
MERCURY		0.01	U		0.04	U	A	0.01	U		0.02	UJ	AP
MOLYBDENUM		0.17	UJ	AKP	0.65	J	KP	0.21	J	KP	0.59	J	KP
NICKEL		23.3			26.4			34.2			20		
POTASSIUM		647	J	D	410	J	D	727	J	D	1080	J	D
SELENIUM		0.61	U		0.51	U		0.68	U		0.61	U	
SILVER		0.13	J	P	0.09	U		0.2	J	P	0.11	U	
SODIUM		136	J	K	110	J	K	144	J	K	147	J	K
THALLIUM		0.02	UJ	AP	0.07	UJ	AP	0.05	UJ	AP	0.06	UJ	AP
VANADIUM		25.9			25.2			22.8			19.2		
ZINC		56.8			63.7			71.1			42.4		

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-B106B-0002			DA-B106B-0406			DA-B107B-0002			DA-B107B-0608		
	LAB_ID	SB1469-013			SB1469-015			SB1469-021			SB1469-023		
	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9390			10200			8130			11100		
ANTIMONY		0.14	UJ	DKP	0.11	UJ	DKP	0.32	UJ	DKP	0.31	UJ	DKP
ARSENIC		7.6	J	I	9.8	J	I	15.9	J	I	14.1	J	I
BARIUM		20.4			23.8			25.4			25.3		
BERYLLIUM		0.21	J	P	0.28	J	P	0.34	J	P	0.39	J	P
CADMIUM		0.01	U		0.01	U		0.01	U		0.01	U	
CALCIUM		893	J	D	1190	J	D	1050	J	D	821	J	D
CHROMIUM		16.4	J	D	14	J	D	17.2	J	D	16.1	J	D
COBALT		7.9			11.2			8			12.6		
COPPER		11.5			15			12.2			20.6		
IRON		17600			25400			22100			30200		
LEAD		6.3			7.6			10.1			9.9		
MAGNESIUM		2760	J	D	2900	J	D	2670	J	D	3170	J	D
MANGANESE		282			248			348			312		
MERCURY		0.01	U		0.01	U		0.01	U		0.01	U	
MOLYBDENUM		0.28	J	KP	0.28	J	KP	0.38	J	KP	0.44	J	KP
NICKEL		13.7			20.3			14.9			22.8		
POTASSIUM		638	J	D	589	J	D	956	J	D	692	J	D
SELENIUM		0.27	U		0.57	U		0.63	U		0.6	U	
SILVER		0.18	J	P	0.26	J	P	0.36	J	P	0.44	J	P
SODIUM		45	J	KP	44.4	J	KP	48.1	J	KP	44.8	J	KP
THALLIUM		0.03	UJ	AP	0.08	UJ	AP	0.05	UJ	AP	0.04	UJ	AP
VANADIUM		15.8			18.8			17.2			18.1		
ZINC		32.8			44.3			46			55.4		

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002			DA-B108B-0406			DA-B109B-0002			DA-B109B-0204		
SDG: CTO403-5	LAB_ID	SB1469-025			SB1469-027			SB1469-009			SB1469-011		
FRACTION: M	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		12100			9530			6650			16100		
ANTIMONY		0.14	UJ	DKP	0.07	UJ	DKP	0.06	UJ	DKP	0.35	UJ	DKP
ARSENIC		15.2	J	I	8.2	J	I	2.6	J	I	28.6	J	I
BARIUM		19.6			25.2			23.3			22.8		
BERYLLIUM		0.32	J	P	0.25	J	P	0.21	J	P	0.38	J	P
CADMIUM		0.01	U		0.18	UJ	KP	0.12	UJ	KP	0.05	UJ	AKP
CALCIUM		879	J	D	822	J	D	1550	J	D	2080	J	D
CHROMIUM		15.8	J	D	16.8	J	D	12.3	J	D	22.1	J	D
COBALT		10.7			7.2			4			15.2		
COPPER		16.2			14.6			8			25.4		
IRON		26600			19600			11100			33000		
LEAD		13.3			8.3			7.3			22.2		
MAGNESIUM		3410	J	D	2720	J	D	2420	J	D	4660	J	D
MANGANESE		324			375			289			382		
MERCURY		0.02	UJ	AP	0.02	UJ	AP	0.02	UJ	AP	0.12		
MOLYBDENUM		0.44	J	KP	1.5	J	K	0.39	J	KP	0.64	J	KP
NICKEL		21.3			15.6			8.3			31		
POTASSIUM		558	J	D	906	J	D	1070	J	D	514	J	D
SELENIUM		0.62	U		0.3	U		0.26	U		0.6	U	
SILVER		0.4	J	P	0.23	J	P	0.15	J	P	0.46	J	P
SODIUM		33.4	J	KP	44.5	J	KP	57.7	J	KP	63.2	J	KP
THALLIUM		0.04	UJ	AP	0.05	UJ	AP	0.05	UJ	AP	0.02	UJ	AP
VANADIUM		17.8			17.4			14.3			29.4		
ZINC		49.1			38.3			27.5			59.5		

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A		
	LAB_ID	SB1469-017			SB1469-005		
	SAMP_DATE	3/18/2008			3/20/2008		
	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	90.3			95.1		
	DUP_OF				DA-B100B-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		14300			18100		
ANTIMONY		0.16	UJ	DKP	0.31	UJ	DKP
ARSENIC		20.1	J	I	4.3	J	I
BARIUM		20.2			11.9		
BERYLLIUM		0.44			0.24	J	P
CADMIUM		0.01	U		0.01	U	
CALCIUM		233	J	D	1930	J	D
CHROMIUM		17.2	J	D	26.1	J	D
COBALT		14.8			14.2		
COPPER		22.4			18.1		
IRON		38200			36700		
LEAD		10			15.3		
MAGNESIUM		3750	J	D	5750	J	D
MANGANESE		466			573		
MERCURY		0.01	U		0.01	U	
MOLYBDENUM		0.4	J	KP	0.25	J	KP
NICKEL		29.5			26		
POTASSIUM		536	J	D	446	J	D
SELENIUM		0.62	U		0.61	U	
SILVER		0.45	J	P	0.31	J	P
SODIUM		29.6	UJ	AKP	141	J	K
THALLIUM		0.04	UJ	AP	0.02	UJ	AP
VANADIUM		19.9			26.1		
ZINC		65.3			63.4		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2753W

Date: May 28, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-5
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

18/Soils/	DA-B100B-0002	DA-B100B-0608	DA-B101B-0002
	DA-B101B-0406	DA-B106B-0002	DA-B106B-0406
	DA-B107B-0002	DA-B107B-0608	DA-B108B-0002
	DA-B108B-0406	DA-B109B-0002	DA-B109B-0204
	DA-B118B-0608	DA-SB-DUP06A	

(Field Duplicate Pair: DA-B100B-0002/DA-SB-DUP06A)

VOC/GRO:
1/Trip Blank/ DA-TB-031808

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH, C_9-C_{36}) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from March 18-21, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Instrument Performance Check: Pesticide Degradation
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- * Analyte Identification/Quantitation
- * Percent Solids
- Reporting Limits
- * Tentatively Identified Compounds

* All criteria were met for this parameter.

Data Completeness

The sample ID DA-SB-DUP06 was used in another data package for this project. Due to field sampler error, the sample ID was used again in this SDG. To differentiate between the sample results, the sample ID has been changed in this SDG to DA-SB-DUP06A.

Preservation and Technical Holding Times

Pesticides

Sample DA-B106B-0002 was re-extracted 6 days beyond the 14-day technical holding time criterion and sample DA-B107B-0608 was re-extracted 4 days beyond the 14-day technical holding time criterion because the surrogate compounds were not spiked in the initial analysis. The non-detected results are estimated (UJ) for all pesticide results for the re-extracted samples DA-B106B-0002 and DA-B107B-0608 due the exceeded holding time criterion.

Although the method required holding time criterion was not met for these samples, the project accuracy goals are only slightly impacted due to the persistent nature of the pesticide target analytes. The non-detected pesticide results in these samples are usable as estimated quantitation limits which may be biased low.

PCBs

Sample DA-B106B-0002 was re-extracted 6 days beyond the 14-day technical holding time criterion and sample DA-B107B-0608 was re-extracted 4 days beyond the 14-day technical holding time criterion because the surrogate compounds were not spiked in the initial analysis. The non-detected results are

estimated (UJ) for all PCB results for the re-extracted samples DA-B106B-0002 and DA-B107B-0608 due the exceeded holding time criterion.

Although the method required holding time criterion was not met for these samples, the project accuracy goals are only slightly impacted due to the persistent nature of the PCBs. The non-detected PCB results in these samples are usable as estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Chloromethane	25.27		UJ	DA-B100B-0002(RA), DA-B100B-0608(RA), DA-B109B-0204(RA), DA-SB-DUP06A(RA), DA-B108B-0002, DA-B108B-0406(RA)
Chloroethane	33.56		UJ	
1,2-Dichloroethane	31.60		UJ	

Although the %D were outside of the QC limits for chloromethane, chloroethane, and 1,2-dichloroethane, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there are no regulatory limits established for the affected compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	86.2		UJ	All semivolatile samples

Although the %RSD was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzidine	-54.23, -85.42		UJ	All samples
2,2'-Oxybis(1-chloropropane)	27.49, 32.32		UJ	
3-Nitroaniline	-27.81, -34.11		UJ	
3,3'-Dichlorobenzidine	-35.50		UJ	All samples, except DA-B118B-0608, DA-B107B-0608

Although the %D were outside of the QC limits for benzidine, 2,2'-oxybis(1-chloropropane), 3-nitroaniline, 3,3'-dichlorobenzidine, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there is no regulatory limits established for the affected compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Phenanthrene	26.77	J	UJ	DA-B100B-0608(RA), DA-B109B-0204, DA-B100B-0002, DA-B108B-0406, DA-B107B-0002, DA-SB-DUP06A(RA)
Benzo(a)anthracene	53.28	J		
Benzo(b)fluoranthene	57.19	J	UJ	
Dibenzo(a,h)anthracene	-31.08	J	UJ	DA-B100B-0608(RA), DA-B109B-0204, DA-B100B-0002, DA-B108B-0406, DA-B107B-0002, DA-SB-DUP06A(RA), DA-B108B-0002
Benzo(g,h,i)perylene	-37.94	J		DA-B100B-0608(RA), DA-B109B-0204, DA-B100B-0002, DA-B108B-0406, DA-B107B-0002, DA-SB-DUP06A(RA)

Although the %D were outside of the QC limits for the above compounds, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action (+)	Action NDs	Affected Samples
4,4'-DDT	-39.60	-40.20	J	UJ	DA-B109B-0002, DA-B101B-0002, DA-B101B-0406, DA-B100B-0002, DA-B109B-0204
Methoxychlor	-29.80	-30.00		UJ	

Although the %D were outside of the QC limits for 4,4'-DDT and methoxychlor, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the PCB compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action (+)	Action NDs	Affected Samples
Aroclor-1260	28.32	28.68		UJ	DA-B106B-0002(RA), DA-B107B-0406(RA)

Although the %D were outside of the QC limits for Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this Aroclor. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	2.0	10	All samples, except DA-B101B-0002, DA-B109B-0204

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-B101B-0002	BFB	57	70-130	J	UJ

The surrogate p-bromofluorobenzene (BFB) recovered below the QC limits in the volatile sample DA-B101B-0002. All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected sample due to a low surrogate recovery.

Although the surrogate recovery QC criterion was not met for p-bromofluorobenzene, the project accuracy goals are only slightly impacted. The positive and non-detected results in sample DA-B101B-0002 are usable as estimated values and estimated quantitation limits which may be biased low.

Internal Standards

Volatiles

The following table summarizes the volatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
DCB	197563	302428-1209710		UJ	DA-B101B-0002
	267346			UJ	DA-B101B-0406
	234896	271401-1085602		UJ	DA-B108B-0406(RA)

The internal standard areas of 1,4-dichlorobenzene-d4 (DCB) failed to meet the acceptable range for the above samples. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

The project accuracy goals may be impacted due to low internal standard areas of 1,4-dichlorobenzene-d4. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

PAH

The following table summarizes the PAH internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
Perylene-d12	8492	8769-35074	J		DA-SB-DUP06A(RA)
Chrysene-d12	13318	14452-57808	J		DA-B107B-0002

The internal standard areas of perylene-d12 and chrysene-d12 failed to meet the acceptable range for the above samples. The affected target compounds in sample DA-SB-DUP06A(RA) associated with perylene-d12 are benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The affected target compounds in sample DA-B107B-0002 associated with chrysene-d12 are benzo(a)anthracene, chrysene, and pyrene. All positive results are estimated (J) for the corresponding target compounds in the affected samples.

The QC criteria were not met for the internal standard areas of perylene-d12 and chrysene-d12; therefore, the project accuracy goals may be slightly impacted. The affected positive results in samples DA-SB-DUP06A(RA) and DA-B107B-0002 are usable as estimated values for which the bias is indeterminate.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-B109B-0002 recovered the majority of the volatile compounds below the compound-specific recovery limits and some compounds above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-B109B-0002 due to low MS/MSD recoveries and MS/MSD imprecision.

The project accuracy goals may be slightly impacted for sample DA-B109B-0002 because the matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-B109B-0002 are usable as estimated values and estimated quantitation limits which may be biased low.

The project precision goals may be slightly impacted for sample DA-B109B-0002 because the matrix spike/matrix spike duplicate relative percent differences for several volatile compounds did not meet the QC limits. The positive and non-detected results in sample DA-B109B-0002 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Semivolatiles

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample DA-B109B-0002 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Phenanthrene	9	50-121	J	
Benzidine	0, 0*	10-150		R
Benzo(a)anthracene	31	45-111	J	
Chrysene	27	45-124	J	
Benzo(b)fluoranthene	33	47-114	J	
Benzo(k)fluoranthene	35	46-125	J	
Benzo(a)pyrene	31	45-119	J	
Indeno(1,2,3-cd)pyrene	36	38-131	J	
Benzo(g,h,i)perylene	29	37-133	J	

The percent recovery criterion was not met for the above compounds; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in sample DA-B109B-0002 are usable as estimated values and estimated quantitation limits which may be biased low. The benzidine result in sample DA-B109B-0002 is not usable for project decisions.

PCB

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample DA-B109B-0002 that were outside of the QC limits:

Analyte	% Recovery	% Recovery QC Limits	RPD	RPD QC Limits	Action	
					(+)	NDs
Aroclor-1016	38	71-114	89	50		UJ
Aroclor-1260	26	71-119	120	50		UJ

The percent recovery criteria were not met for Aroclor-1016 and Aroclor-1260; therefore, the project accuracy goals may be slightly impacted. The non-detected Aroclor-1016 and Aroclor-1260 results in sample DA-B109B-0002 are usable as estimated quantitation limits which may be biased low.

The relative percent difference criterion was not met for Aroclor-1016 and Aroclor-1260; therefore, the project precision goals may be slightly impacted. The non-detected Aroclor-1016 and Aroclor-1260 results in sample DA-B109B-0002 are usable as estimated quantitation limits for which the bias is indeterminate.

Laboratory Control Sample/Laboratory Control Sample Duplicate

Volatiles

The following table summarizes the volatile compounds that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromochloromethane	47, 49	81-127		UJ	All samples

The laboratory control sample/laboratory control sample duplicate recovered bromochloromethane below QC limits. The non-detected results are estimated (UJ) for bromochloromethane in the affected samples.

Although the LCS/LCSD recoveries for bromochloromethane were below the QC limits, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Field Duplicates

PAH

The field duplicate pair DA-B100B-0002/DA-SB-DUP06A exceeded the relative percent difference QC criterion of 50% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
Benzo(a)pyrene	51	J	
Benzo(b)fluoranthene	59	J	
Indeno(1,2,3-cd)pyrene	52	J	

The field duplicate relative percent difference for the above compounds exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results in samples DA-B100B-0002 and DA-SB-DUP06A are usable as estimated values for which the bias is indeterminate.

ExTPH

The field duplicate pair DA-B100B-0002/DA-SB-DUP06A exceeded the relative percent difference QC criterion of 50% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
ExTPH	86	J	

The field duplicate relative percent difference for extractable TPH exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results in samples DA-B100B-0002 and DA-SB-DUP06A are usable as estimated values for which the bias is indeterminate.

Reporting Limits

Volatiles

Although reporting limits for several samples did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in some samples.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

PAH results beyond the linear calibration range of the instrument in the SIM mode are reported from the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

GRO

GRO reporting limits were raised for select samples due to blank contamination. As discussed above in the Blanks section, the project sensitivity goals are not affected.

Tentatively Identified Compounds

Semivolatiles

The laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low surrogate recoveries, poor internal standard performance, low matrix spike recoveries, and low laboratory control sample recoveries. Although specific method criteria was not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set with the following exception. Select compounds were qualified as estimated in sample DA-B109B-0002 due to matrix spike/matrix spike duplicate imprecision. Although a specific QC criterion were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for select samples. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and low matrix spike recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. The benzidine result in sample DA-B109B-0002 was rejected and is not usable for project decisions.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and poor internal standard performance. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PAH data set with the following exception. Select compounds were qualified as estimated in samples DA-B100B-0002 and DA-SB-DUP06A due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set. Data usability was not impacted with regards to sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Results for samples DA-B106B-0002 and DA-B107B-0608 were qualified as estimated due to analytical holding time exceedence. Select compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. Results for samples DA-B106B-0002 and DA-B107B-0608 were qualified as estimated due to analytical holding time exceedence. Select Aroclors were qualified as estimated due to instrument calibration variability and low matrix spike recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCBs data set with the following exception. Select Aroclors were qualified as estimated in sample DA-B109B-0002 due to matrix spike imprecision. Although a specific QC criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy, precision, and sensitivity were met for the GRO data set. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

ExTPH

The project goals with respect to accuracy and sensitivity were met for the ExTPH data set. Data usability was not impacted with regards to accuracy and sensitivity.

The project goals with respect to precision were met for the ExTPH data set with the following exception. ExTPH was qualified as estimated in samples DA-B100B-0002 and DA-SB-DUP06A due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002RA			DA-B100B-0608RA			DA-B101B-0002			DA-B101B-0406		
SDG: CTO403-5	LAB_ID	SB1469-5RA			SB1469-7RA			SB1469-1			SB1469-3		
FRACTION: OV	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		6	U		5	UJ	R	5	U	
1,1,1-TRICHLOROETHANE	5	U		6	U		5	UJ	R	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		6	U		5	UJ	NR	5	UJ	N
1,1,2-TRICHLOROETHANE	5	U		6	U		5	UJ	R	5	U	
1,1-DICHLOROETHANE	5	U		6	U		5	UJ	R	5	U	
1,1-DICHLOROETHENE	5	U		6	U		5	UJ	R	5	U	
1,1-DICHLOROPROPENE	5	U		6	U		5	UJ	R	5	U	
1,2,3-TRICHLOROBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
1,2,3-TRICHLOROPROPANE	5	U		6	U		5	UJ	NR	5	UJ	N
1,2,4-TRICHLOROBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
1,2,4-TRIMETHYLBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE	5	U		6	U		5	UJ	NR	5	UJ	N
1,2-DIBROMOETHANE	5	U		6	U		5	UJ	R	5	U	
1,2-DICHLOROBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
1,2-DICHLOROETHANE	5	UJ	C	6	UJ	C	5	UJ	R	5	U	
1,2-DICHLOROPROPANE	5	U		6	U		5	UJ	R	5	U	
1,3,5-TRIMETHYLBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
1,3-DICHLOROBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
1,3-DICHLOROPROPANE	5	U		6	U		5	UJ	R	5	U	
1,4-DICHLOROBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
2,2-DICHLOROPROPANE	5	U		6	U		5	UJ	R	5	U	
2-BUTANONE	25	U		48			25	UJ	R	25	U	
2-CHLOROTOLUENE	5	U		6	U		5	UJ	NR	5	UJ	N
2-HEXANONE	25	U		30	U		25	UJ	R	25	U	
4-CHLOROTOLUENE	5	U		6	U		5	UJ	NR	5	UJ	N
4-ISOPROPYLTOLUENE	5	U		6	U		5	UJ	R	5	U	
4-METHYL-2-PENTANONE	25	U		30	U		25	UJ	R	25	U	
ACETONE	12	J	P	140			25	J	R	25	U	
BENZENE	5	U		6	U		5	UJ	R	5	U	
BROMOBENZENE	5	U		6	U		5	UJ	NR	5	UJ	N
BROMOCHLOROMETHANE	5	UJ	E	6	UJ	E	5	UJ	ER	5	UJ	E
BROMODICHLOROMETHANE	5	U		6	U		5	UJ	R	5	U	
BROMOFORM	5	U		6	U		5	UJ	R	5	U	
BROMOMETHANE	10	U		12	U		10	UJ	R	10	U	
CARBON DISULFIDE	5	U		2	J	P	5	UJ	R	5	U	

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-B106B-0002			DA-B106B-0406			DA-B107B-0002			DA-B107B-0608		
	LAB_ID	SB1469-13			SB1469-15			SB1469-21			SB1469-23		
	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		1	J	P	5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		6	J	P	25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		82			48			32			390		
BENZENE		2	J	P	5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		4	J	P

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002			DA-B108B-0406RA			DA-B109B-0002			DA-B109B-0204RA		
SDG: CTO403-5	LAB_ID	SB1469-25			SB1469-27RA			SB1469-9			SB1469-11RA		
FRACTION: OV	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	UJ	D	5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	UJ	D	5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	UJ	N	5	UJ	D	5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	UJ	D	5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	UJ	D	5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	UJ	D	5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	UJ	D	5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	UJ	N	5	UJ	D	5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	UJ	N	5	UJ	D	5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	UJ	D	5	U	
1,2-DICHLOROBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
1,2-DICHLOROETHANE		5	UJ	C	5	UJ	C	5	UJ	D	5	UJ	C
1,2-DICHLOROPROPANE		5	U		5	U		5	UJ	D	5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
1,3-DICHLOROBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	UJ	D	5	U	
1,4-DICHLOROBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	UJ	D	5	U	
2-BUTANONE		25	U		25	U		25	UJ	D	25	U	
2-CHLOROTOLUENE		5	U		5	UJ	N	5	UJ	D	5	U	
2-HEXANONE		25	U		25	U		25	UJ	D	25	U	
4-CHLOROTOLUENE		5	U		5	UJ	N	5	UJ	D	5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	UJ	D	5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	UJ	D	25	U	
ACETONE		14	J	P	38			25	UJ	D	34		
BENZENE		5	U		5	U		5	UJ	D	5	U	
BROMOBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	DE	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	UJ	D	5	U	
BROMOFORM		5	U		5	U		5	UJ	D	5	U	
BROMOMETHANE		10	U		10	U		10	UJ	D	10	U	
CARBON DISULFIDE		5	U		2	J	P	5	UJ	D	5	U	

PROJ_NO: 00933	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A			DA-TB-031808		
SDG: CTO403-5	LAB_ID	SB1469-17			SB1469-19RA			SB1469-29		
FRACTION: OV	SAMP_DATE	3/18/2008			3/20/2008			3/18/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.3			95.1			.0		
	DUP_OF				DA-B100B-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	UJ	C	5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U	
2-BUTANONE		25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U	
ACETONE		25	U		25	U		25	U	
BENZENE		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	UJ	E	5	UJ	E	5	UJ	E
BROMODICHLOROMETHANE		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002RA			DA-B100B-0608RA			DA-B101B-0002			DA-B101B-0406		
SDG: CTO403-5	LAB_ID	SB1469-5RA			SB1469-7RA			SB1469-1			SB1469-3		
FRACTION: OV	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		6	U		5	UJ	R	5	U	
CHLOROBENZENE		5	U		6	U		5	UJ	R	5	U	
CHLORODIBROMOMETHANE		5	U		6	U		5	UJ	R	5	U	
CHLOROETHANE		10	UJ	C	12	UJ	C	10	UJ	R	10	U	
CHLOROFORM		5	U		6	U		5	UJ	R	5	U	
CHLOROMETHANE		10	UJ	C	12	UJ	C	10	UJ	R	10	U	
CIS-1,2-DICHLOROETHENE		5	U		6	U		5	UJ	R	5	U	
CIS-1,3-DICHLOROPROPENE		5	U		6	U		5	UJ	R	5	U	
DIBROMOMETHANE		5	U		6	U		5	UJ	R	5	U	
DICHLORODIFLUOROMETHANE		10	U		12	U		10	UJ	R	10	U	
ETHYLBENZENE		5	U		6	U		5	UJ	R	5	U	
HEXACHLOROBUTADIENE		5	U		6	U		5	UJ	NR	5	UJ	N
ISOPROPYLBENZENE		5	U		6			5	UJ	NR	5	UJ	N
M+P-XYLENES		10	U		12	U		10	UJ	R	10	U	
METHYL TERT-BUTYL ETHER		5	U		6	U		5	UJ	R	5	U	
METHYLENE CHLORIDE		25	U		30	U		25	UJ	R	25	U	
N-BUTYLBENZENE		5	U		5	J	P	5	UJ	NR	5	UJ	N
N-PROPYLBENZENE		5	U		2	J	P	5	UJ	NR	5	UJ	N
O-XYLENE		5	U		6	U		5	UJ	R	5	U	
SEC-BUTYLBENZENE		5	U		66			5	UJ	NR	5	UJ	N
STYRENE		5	U		6	U		5	UJ	R	5	U	
TERT-BUTYLBENZENE		5	U		12			5	UJ	NR	5	UJ	N
TETRACHLOROETHENE		5	U		6	U		5	UJ	R	5	U	
TOLUENE		5	U		6	U		5	UJ	R	5	U	
TRANS-1,2-DICHLOROETHENE		5	U		6	U		5	UJ	R	5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		6	U		5	UJ	R	5	U	
TRICHLOROETHENE		5	U		6	U		3	J	PR	2	J	P
TRICHLOROFLUOROMETHANE		10	U		12	U		10	UJ	R	10	U	
VINYL CHLORIDE		10	U		12	U		10	UJ	R	10	U	

PROJ_NO: 00933	NSAMPLE	DA-B106B-0002			DA-B106B-0406			DA-B107B-0002			DA-B107B-0608		
SDG: CTO403-5	LAB_ID	SB1469-13			SB1469-15			SB1469-21			SB1469-23		
FRACTION: OV	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U		25	U		25	U	
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		4	J	P	5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002			DA-B108B-0406RA			DA-B109B-0002			DA-B109B-0204RA		
SDG: CTO403-5	LAB_ID	SB1469-25			SB1469-27RA			SB1469-9			SB1469-11RA		
FRACTION: OV	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	UJ	D	5	U	
CHLOROBENZENE		5	U		5	U		5	UJ	D	5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	UJ	D	5	U	
CHLOROETHANE		10	UJ	C	10	UJ	C	10	UJ	D	10	UJ	C
CHLOROFORM		5	U		5	U		5	UJ	D	5	U	
CHLOROMETHANE		10	UJ	C	10	UJ	C	10	UJ	D	10	UJ	C
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	UJ	D	2	J	P
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	UJ	D	5	U	
DIBROMOMETHANE		5	U		5	U		5	UJ	D	5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	UJ	D	10	U	
ETHYLBENZENE		5	U		5	U		5	UJ	D	5	U	
HEXACHLOROBUTADIENE		5	U		5	UJ	N	5	UJ	D	5	U	
ISOPROPYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
M+P-XYLENES		10	U		10	U		10	UJ	D	10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	UJ	D	5	U	
METHYLENE CHLORIDE		25	U		25	U		25	UJ	D	25	U	
N-BUTYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
N-PROPYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
O-XYLENE		5	U		5	U		5	UJ	D	5	U	
SEC-BUTYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
STYRENE		5	U		5	U		5	UJ	D	5	U	
TERT-BUTYLBENZENE		5	U		5	UJ	N	5	UJ	D	5	U	
TETRACHLOROETHENE		5	U		5	U		5	UJ	D	5	U	
TOLUENE		5	U		2	J	P	5	UJ	D	5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	UJ	D	5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	UJ	D	5	U	
TRICHLOROETHENE		5	U		5	U		5	UJ	D	5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	UJ	D	10	U	
VINYL CHLORIDE		10	U		10	U		10	UJ	D	3	J	P

PROJ_NO: 00933	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A			DA-TB-031808		
SDG: CTO403-5	LAB_ID	SB1469-17			SB1469-19RA			SB1469-29		
FRACTION: OV	SAMP_DATE	3/18/2008			3/20/2008			3/18/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.3			95.1			.0		
	DUP_OF				DA-B100B-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	UJ	C	10	U	
CHLOROFORM		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	UJ	C	10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U		25	U	
N-BUTYLBENZENE		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	U	
STYRENE		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002			DA-B100B-0608RA			DA-B101B-0002RA			DA-B101B-0406RA		
SDG: CTO403-5	LAB_ID	SB1469-5			SB1469-7RA			SB1469-1RA			SB1469-3RA		
FRACTION: OS	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		340	U		410	U		360	U		370	U	
1,2,4-TRICHLOROBENZENE		340	U		410	U		360	U		370	U	
1,2-DICHLOROBENZENE		340	U		410	U		360	U		370	U	
1,2-DIPHENYLHYDRAZINE		690	U		820	U		720	U		730	U	
1,3-DICHLOROBENZENE		340	U		410	U		360	U		370	U	
1,4-DICHLOROBENZENE		340	U		410	U		360	U		370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		340	UJ	C	410	UJ	C	360	UJ	C	370	UJ	C
2,4,5-TRICHLOROPHENOL		860	U		1000	U		900	U		910	U	
2,4,6-TRICHLOROPHENOL		340	U		410	U		360	U		370	U	
2,4-DICHLOROPHENOL		340	U		410	U		360	U		370	U	
2,4-DIMETHYLPHENOL		340	U		410	U		360	U		370	U	
2,4-DINITROPHENOL		860	U		1000	U		900	U		910	U	
2,4-DINITROTOLUENE		340	U		410	U		360	U		370	U	
2,6-DICHLOROPHENOL		340	U		410	U		360	U		370	U	
2,6-DINITROTOLUENE		860	U		1000	U		900	U		910	U	
2-CHLORONAPHTHALENE		340	U		410	U		360	U		370	U	
2-CHLOROPHENOL		340	U		410	U		360	U		370	U	
2-METHYLPHENOL		340	U		410	U		360	U		370	U	
2-NITROANILINE		860	U		1000	U		900	U		910	U	
2-NITROPHENOL		340	U		410	U		360	U		370	U	
3&4-METHYLPHENOL		340	U		410	U		360	U		370	U	
3,3'-DICHLOROBENZIDINE		340	UJ	C	410	UJ	C	360	UJ	C	370	UJ	C
3-NITROANILINE		860	UJ	C	1000	UJ	C	900	UJ	C	910	UJ	C
4,6-DINITRO-2-METHYLPHENOL		860	U		1000	U		900	U		910	U	
4-BROMOPHENYL PHENYL ETHER		340	U		410	U		360	U		370	U	
4-CHLORO-3-METHYLPHENOL		340	U		410	U		360	U		370	U	
4-CHLOROANILINE		340	U		410	U		360	U		370	U	
4-CHLOROPHENYL PHENYL ETHER		340	U		410	U		360	U		370	U	
4-NITROANILINE		860	U		1000	U		900	U		910	U	
4-NITROPHENOL		860	U		1000	U		900	U		910	U	
ACENAPHTHENE													
ANTHRACENE													
BENZIDINE		1600	UJ	C	1900	UJ	C	1600	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													

PROJ_NO: 00933	NSAMPLE	DA-B106B-0002RA			DA-B106B-0406RA			DA-B107B-0002			DA-B107B-0608		
SDG: CTO403-5	LAB_ID	SB1469-13RA			SB1469-15RA			SB1469-21			SB1469-23		
FRACTION: OS	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		370	U		360	U		360	U	
1,2,4-TRICHLOROBENZENE		380	U		370	U		360	U		360	U	
1,2-DICHLOROBENZENE		380	U		370	U		360	U		360	U	
1,2-DIPHENYLHYDRAZINE		750	U		740	U		720	U		720	U	
1,3-DICHLOROBENZENE		380	U		370	U		360	U		360	U	
1,4-DICHLOROBENZENE		380	U		370	U		360	U		360	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	UJ	C	370	UJ	C	360	UJ	C	360	UJ	C
2,4,5-TRICHLOROPHENOL		940	U		920	U		890	U		900	U	
2,4,6-TRICHLOROPHENOL		380	U		370	U		360	U		360	U	
2,4-DICHLOROPHENOL		380	U		370	U		360	U		360	U	
2,4-DIMETHYLPHENOL		380	U		370	U		360	U		360	U	
2,4-DINITROPHENOL		940	U		920	U		890	U		900	U	
2,4-DINITROTOLUENE		380	U		370	U		360	U		360	U	
2,6-DICHLOROPHENOL		380	U		370	U		360	U		360	U	
2,6-DINITROTOLUENE		940	U		920	U		890	U		900	U	
2-CHLORONAPHTHALENE		380	U		370	U		360	U		360	U	
2-CHLOROPHENOL		380	U		370	U		360	U		360	U	
2-METHYLPHENOL		380	U		370	U		360	U		360	U	
2-NITROANILINE		940	U		920	U		890	U		900	U	
2-NITROPHENOL		380	U		370	U		360	U		360	U	
3&4-METHYLPHENOL		380	U		370	U		360	U		360	U	
3,3'-DICHLOROBENZIDINE		380	UJ	C	370	UJ	C	360	UJ	C	360	U	
3-NITROANILINE		940	UJ	C	920	UJ	C	890	UJ	C	900	UJ	C
4,6-DINITRO-2-METHYLPHENOL		940	U		920	U		890	U		900	U	
4-BROMOPHENYL PHENYL ETHER		380	U		370	U		360	U		360	U	
4-CHLORO-3-METHYLPHENOL		380	U		370	U		360	U		360	U	
4-CHLOROANILINE		380	U		370	U		360	U		360	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		370	U		360	U		360	U	
4-NITROANILINE		940	U		920	U		890	U		900	U	
4-NITROPHENOL		940	U		920	U		890	U		900	U	
ACENAPHTHENE													
ANTHRACENE													
BENZIDINE		1700	UJ	C	1700	UJ	C	1600	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002RA			DA-B108B-0406			DA-B109B-0002			DA-B109B-0204RA		
SDG: CTO403-5	LAB_ID	SB1469-25RA			SB1469-27			SB1469-9			SB1469-11RA		
FRACTION: OS	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		370	U		350	U		360	U	
1,2,4-TRICHLOROBENZENE		360	U		370	U		350	U		360	U	
1,2-DICHLOROBENZENE		360	U		370	U		350	U		360	U	
1,2-DIPHENYLHYDRAZINE		710	U		740	U		700	U		730	U	
1,3-DICHLOROBENZENE		360	U		370	U		350	U		360	U	
1,4-DICHLOROBENZENE		360	U		370	U		350	U		360	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	UJ	C	370	UJ	C	350	UJ	C	360	UJ	C
2,4,5-TRICHLOROPHENOL		890	U		910	U		880	U		900	U	
2,4,6-TRICHLOROPHENOL		360	U		370	U		350	U		360	U	
2,4-DICHLOROPHENOL		360	U		370	U		350	U		360	U	
2,4-DIMETHYLPHENOL		360	U		370	U		350	U		360	U	
2,4-DINITROPHENOL		890	U		910	U		880	U		900	U	
2,4-DINITROTOLUENE		360	U		370	U		350	U		360	U	
2,6-DICHLOROPHENOL		360	U		370	U		350	U		360	U	
2,6-DINITROTOLUENE		890	U		910	U		880	U		900	U	
2-CHLORONAPHTHALENE		360	U		370	U		350	U		360	U	
2-CHLOROPHENOL		360	U		370	U		350	U		360	U	
2-METHYLPHENOL		360	U		370	U		350	U		360	U	
2-NITROANILINE		890	U		910	U		880	U		900	U	
2-NITROPHENOL		360	U		370	U		350	U		360	U	
3&4-METHYLPHENOL		360	U		370	U		350	U		360	U	
3,3'-DICHLOROBENZIDINE		360	UJ	C	370	UJ	C	350	UJ	C	360	UJ	C
3-NITROANILINE		890	UJ	C	910	UJ	C	880	UJ	C	900	UJ	C
4,6-DINITRO-2-METHYLPHENOL		890	U		910	U		880	U		900	U	
4-BROMOPHENYL PHENYL ETHER		360	U		370	U		350	U		360	U	
4-CHLORO-3-METHYLPHENOL		360	U		370	U		350	U		360	U	
4-CHLOROANILINE		360	U		370	U		350	U		360	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		370	U		350	U		360	U	
4-NITROANILINE		890	U		910	U		880	U		900	U	
4-NITROPHENOL		890	U		910	U		880	U		900	U	
ACENAPHTHENE		890						710					
ANTHRACENE		890						2000					
BENZIDINE		1600	UJ	C	1700	UJ	C	1600	UR	D	1600	UJ	C
BENZO(A)ANTHRACENE		2200						5600	J	D			
BENZO(A)PYRENE		1800						4800	J	D			

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A		
	LAB_ID	SB1469-17			SB1469-19		
	SAMP_DATE	3/18/2008			3/20/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	90.3			95.1		
	DUP_OF				DA-B100B-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		360	U		350	U	
1,2,4-TRICHLOROBENZENE		360	U		350	U	
1,2-DICHLOROBENZENE		360	U		350	U	
1,2-DIPHENYLHYDRAZINE		730	U		690	U	
1,3-DICHLOROBENZENE		360	U		350	U	
1,4-DICHLOROBENZENE		360	U		350	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		360	UJ	C	350	UJ	C
2,4,5-TRICHLOROPHENOL		910	U		860	U	
2,4,6-TRICHLOROPHENOL		360	U		350	U	
2,4-DICHLOROPHENOL		360	U		350	U	
2,4-DIMETHYLPHENOL		360	U		350	U	
2,4-DINITROPHENOL		910	U		860	U	
2,4-DINITROTOLUENE		360	U		350	U	
2,6-DICHLOROPHENOL		360	U		350	U	
2,6-DINITROTOLUENE		910	U		860	U	
2-CHLORONAPHTHALENE		360	U		350	U	
2-CHLOROPHENOL		360	U		350	U	
2-METHYLPHENOL		360	U		350	U	
2-NITROANILINE		910	U		860	U	
2-NITROPHENOL		360	U		350	U	
3&4-METHYLPHENOL		360	U		350	U	
3,3'-DICHLOROBENZIDINE		360	U		350	UJ	C
3-NITROANILINE		910	UJ	C	860	UJ	C
4,6-DINITRO-2-METHYLPHENOL		910	U		860	U	
4-BROMOPHENYL PHENYL ETHER		360	U		350	U	
4-CHLORO-3-METHYLPHENOL		360	U		350	U	
4-CHLOROANILINE		360	U		350	U	
4-CHLOROPHENYL PHENYL ETHER		360	U		350	U	
4-NITROANILINE		910	U		860	U	
4-NITROPHENOL		910	U		860	U	
ACENAPHTHENE							
ANTHRACENE							
BENZIDINE		1700	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE							
BENZO(A)PYRENE							

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-B100B-0002			DA-B100B-0608RA			DA-B101B-0002RA			DA-B101B-0406RA		
	LAB_ID	SB1469-5			SB1469-7RA			SB1469-1RA			SB1469-3RA		
	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE													
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BENZOIC ACID		860	U		1000	U		900	U		910	U	
BENZYL ALCOHOL		690	U		820	U		720	U		730	U	
BIS(2-CHLOROETHOXY)METHANE		340	U		410	U		360	U		370	U	
BIS(2-CHLOROETHYL)ETHER		340	U		410	U		360	U		370	U	
BIS(2-ETHYLHEXYL)PHTHALATE		340	U		410	U		360	U		370	U	
BUTYL BENZYL PHTHALATE		340	U		410	U		360	U		370	U	
CARBAZOLE		340	U		410	U		360	U		370	U	
CHRYSENE													
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		340	U		410	U		360	U		370	U	
DIETHYL PHTHALATE		340	U		410	U		360	U		370	U	
DIMETHYL PHTHALATE		340	U		410	U		360	U		370	U	
DI-N-BUTYL PHTHALATE		340	U		410	U		360	U		370	U	
DI-N-OCTYL PHTHALATE		340	U		410	U		360	U		370	U	
FLUORANTHENE													
FLUORENE													
HEXACHLOROBENZENE		340	U		410	U		360	U		370	U	
HEXACHLOROBUTADIENE		340	U		410	U		360	U		370	U	
HEXACHLOROETHANE		340	U		410	U		360	U		370	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		340	U		410	U		360	U		370	U	
NAPHTHALENE													
NITROBENZENE		340	U		410	U		360	U		370	U	
N-NITROSODIMETHYLAMINE		340	U		410	U		360	U		370	U	
N-NITROSO-DI-N-PROPYLAMINE		340	U		410	U		360	U		370	U	
N-NITROSODIPHENYLAMINE		340	U		410	U		360	U		370	U	
N-NITROSOPYRROLIDINE		340	U		410	U		360	U		370	U	
PENTACHLOROPHENOL		860	U		1000	U		900	U		910	U	
PHENANTHRENE													
PHENOL		340	U		410	U		360	U		370	U	
PYRENE													

PROJ_NO: 00933	NSAMPLE	DA-B106B-0002RA			DA-B106B-0406RA			DA-B107B-0002			DA-B107B-0608		
SDG: CTO403-5	LAB_ID	SB1469-13RA			SB1469-15RA			SB1469-21			SB1469-23		
FRACTION: OS	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE													
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BENZOIC ACID		940	U		920	U		890	U		900	U	
BENZYL ALCOHOL		750	U		740	U		720	U		720	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		370	U		360	U		360	U	
BIS(2-CHLOROETHYL)ETHER		380	U		370	U		360	U		360	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		370	U		360	U		360	U	
BUTYL BENZYL PHTHALATE		380	U		370	U		360	U		360	U	
CARBAZOLE		380	U		370	U		360	U		360	U	
CHRYSENE													
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		380	U		370	U		360	U		360	U	
DIETHYL PHTHALATE		380	U		370	U		360	U		360	U	
DIMETHYL PHTHALATE		380	U		370	U		360	U		360	U	
DI-N-BUTYL PHTHALATE		380	U		370	U		360	U		360	U	
DI-N-OCTYL PHTHALATE		380	U		370	U		360	U		360	U	
FLUORANTHENE													
FLUORENE													
HEXACHLOROBENZENE		380	U		370	U		360	U		360	U	
HEXACHLOROBUTADIENE		380	U		370	U		360	U		360	U	
HEXACHLOROETHANE		380	U		370	U		360	U		360	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		380	U		370	U		360	U		360	U	
NAPHTHALENE													
NITROBENZENE		380	U		370	U		360	U		360	U	
N-NITROSODIMETHYLAMINE		380	U		370	U		360	U		360	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		370	U		360	U		360	U	
N-NITROSODIPHENYLAMINE		380	U		370	U		360	U		360	U	
N-NITROSOPYRROLIDINE		380	U		370	U		360	U		360	U	
PENTACHLOROPHENOL		940	U		920	U		890	U		900	U	
PHENANTHRENE													
PHENOL		380	U		370	U		360	U		360	U	
PYRENE													

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-B108B-0002RA			DA-B108B-0406			DA-B109B-0002			DA-B109B-0204RA		
	LAB_ID	SB1469-25RA			SB1469-27			SB1469-9			SB1469-11RA		
	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE		2000						5700	J	D			
BENZO(G,H,I)PERYLENE		700						2000	J	D			
BENZO(K)FLUORANTHENE		1700						3900	J	D			
BENZOIC ACID		890	U		910	U		880	U		900	U	
BENZYL ALCOHOL		710	U		740	U		700	U		730	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		370	U		350	U		360	U	
BIS(2-CHLOROETHYL)ETHER		360	U		370	U		350	U		360	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		370	U		350	U		360	U	
BUTYL BENZYL PHTHALATE		360	U		370	U		350	U		360	U	
CARBAZOLE		610			370	U		800			360	U	
CHRYSENE		2000						5700	J	D			
DIBENZO(A,H)ANTHRACENE								760					
DIBENZOFURAN		270	J	P	370	U		350	J	P	360	U	
DIETHYL PHTHALATE		360	U		370	U		350	U		360	U	
DIMETHYL PHTHALATE		360	U		370	U		350	U		360	U	
DI-N-BUTYL PHTHALATE		360	U		370	U		350	U		360	U	
DI-N-OCTYL PHTHALATE		360	U		370	U		350	U		360	U	
FLUORANTHENE		5100			310	J	P	10000			350	J	P
FLUORENE		450						870					
HEXACHLOROBENZENE		360	U		370	U		350	U		360	U	
HEXACHLOROBUTADIENE		360	U		370	U		350	U		360	U	
HEXACHLOROETHANE		360	U		370	U		350	U		360	U	
INDENO(1,2,3-CD)PYRENE		760						2200	J	D			
ISOPHORONE		360	U		370	U		350	U		360	U	
NAPHTHALENE		340	J	P									
NITROBENZENE		360	U		370	U		350	U		360	U	
N-NITROSODIMETHYLAMINE		360	U		370	U		350	U		360	U	
N-NITROSO-DI-N-PROPYLAMINE		360	U		370	U		350	U		360	U	
N-NITROSODIPHENYLAMINE		360	U		370	U		350	U		360	U	
N-NITROSOPYRROLIDINE		360	U		370	U		350	U		360	U	
PENTACHLOROPHENOL		890	U		910	U		880	U		900	U	
PHENANTHRENE		3500						8500					
PHENOL		360	U		370	U		350	U		360	U	
PYRENE		4800						13000					

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A		
	LAB_ID	SB1469-17			SB1469-19		
	SAMP_DATE	3/18/2008			3/20/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	90.3			95.1		
	DUP_OF				DA-B100B-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(B)FLUORANTHENE							
BENZO(G,H,I)PERYLENE							
BENZO(K)FLUORANTHENE							
BENZOIC ACID		910	U		860	U	
BENZYL ALCOHOL		730	U		690	U	
BIS(2-CHLOROETHOXY)METHANE		360	U		350	U	
BIS(2-CHLOROETHYL)ETHER		360	U		350	U	
BIS(2-ETHYLHEXYL)PHTHALATE		360	U		350	U	
BUTYL BENZYL PHTHALATE		360	U		350	U	
CARBAZOLE		360	U		350	U	
CHRYSENE							
DIBENZO(A,H)ANTHRACENE							
DIBENZOFURAN		360	U		350	U	
DIETHYL PHTHALATE		360	U		350	U	
DIMETHYL PHTHALATE		360	U		350	U	
DI-N-BUTYL PHTHALATE		360	U		350	U	
DI-N-OCTYL PHTHALATE		360	U		350	U	
FLUORANTHENE							
FLUORENE							
HEXACHLOROBENZENE		360	U		350	U	
HEXACHLOROBUTADIENE		360	U		350	U	
HEXACHLOROETHANE		360	U		350	U	
INDENO(1,2,3-CD)PYRENE							
ISOPHORONE		360	U		350	U	
NAPHTHALENE							
NITROBENZENE		360	U		350	U	
N-NITROSODIMETHYLAMINE		360	U		350	U	
N-NITROSO-DI-N-PROPYLAMINE		360	U		350	U	
N-NITROSODIPHENYLAMINE		360	U		350	U	
N-NITROSOPYRROLIDINE		360	U		350	U	
PENTACHLOROPHENOL		910	U		860	U	
PHENANTHRENE							
PHENOL		360	U		350	U	
PYRENE							

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002			DA-B100B-0608RA			DA-B101B-0002			DA-B101B-0406		
SDG: CTO403-5	LAB_ID	SB1469-6			SB1469-8RA			SB1469-2			SB1469-4		
FRACTION: PAH	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		6.7	J	P	5.9	J	P	6.9	J	P	8.9	J	P
ACENAPHTHENE		3	J	P	25	U		3.3	J	P	2.7	J	P
ACENAPHTHYLENE		21	U		25	U		22	U		22	U	
ANTHRACENE		21	U		25	U		12	J	P	22	U	
BENZO(A)ANTHRACENE		69	J	C	5.4	J	CP	46			45		
BENZO(A)PYRENE		51	J	G	25	U		28			29		
BENZO(B)FLUORANTHENE		93	J	CG	25	UJ	C	58			64		
BENZO(G,H,I)PERYLENE		21	J	CP	4.1	J	CP	22	U		14	J	P
BENZO(K)FLUORANTHENE		31			25	U		19	J	P	20	J	P
CHRYSENE		39			25	U		29			33		
DIBENZO(A,H)ANTHRACENE		21	UJ	C	25	UJ	C	22	U		22	U	
FLUORANTHENE		100			5	J	P	78			57		
FLUORENE		21	U		25	U		4	J	P	2.9	J	P
INDENO(1,2,3-CD)PYRENE		27	J	G	25	U		22	U		16	J	P
NAPHTHALENE		21	U		25	U		2.9	J	P	3.8	J	P
PHENANTHRENE		41	J	C	25	U	C	45			43		
PYRENE		78			25	U		48			43		

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-B106B-0002			DA-B106B-0406			DA-B107B-0002			DA-B107B-0608		
	LAB_ID	SB1469-14			SB1469-16			SB1469-22			SB1469-24		
	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		8.6	J	P	7	J	P	8.9	J	P	22	U	
ACENAPHTHENE		23	U		22	U		4.5	J	P	22	U	
ACENAPHTHYLENE		23	U		22	U		3.1	J	P	22	U	
ANTHRACENE		23	U		2.9	J	P	9.5	J	P	22	U	
BENZO(A)ANTHRACENE		15	J	P	19	J	P	130	J	CN	22	U	
BENZO(A)PYRENE		23	U		20	J	P	72			22	U	
BENZO(B)FLUORANTHENE		23	U		43			150	J	C	22	U	
BENZO(G,H,I)PERYLENE		23	U		22	U		31	J	C	22	U	
BENZO(K)FLUORANTHENE		23	U		14	J	P	35			22	U	
CHRYSENE		13	J	P	14	J	P	90	J	N	22	U	
DIBENZO(A,H)ANTHRACENE		23	U		22	U		17	J	CP	22	U	
FLUORANTHENE		22	J	P	32			110			5.5	J	P
FLUORENE		23	U		22	U		3.8	J	P	22	U	
INDENO(1,2,3-CD)PYRENE		23	U		22	U		33			22	U	
NAPHTHALENE		23	U		22	U		22	U		22	U	
PHENANTHRENE		17	J	P	16	J	P	69	J	C	4.8	J	P
PYRENE		16	J	P	24			170	J	N	22	U	

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002			DA-B108B-0406			DA-B109B-0002			DA-B109B-0204		
SDG: CTO403-5	LAB_ID	SB1469-26			SB1469-28			SB1469-10			SB1469-12		
FRACTION: PAH	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		120			7.8	J	P	42			31		
ACENAPHTHENE					30						9.3	J	P
ACENAPHTHYLENE		22	U		22	U		21	U		22	U	
ANTHRACENE					50						29		
BENZO(A)ANTHRACENE					190	J	C				210	J	C
BENZO(A)PYRENE					110						120		
BENZO(B)FLUORANTHENE					170	J	C				210	J	C
BENZO(G,H,I)PERYLENE					39	J	C				43	J	C
BENZO(K)FLUORANTHENE					74						74		
CHRYSENE					92						130		
DIBENZO(A,H)ANTHRACENE		150	J	C	18	J	CP				22	UJ	C
FLUORANTHENE													
FLUORENE					18	J	P				5.5	J	P
INDENO(1,2,3-CD)PYRENE					47						52		
NAPHTHALENE					9.2	J	P	52			24		
PHENANTHRENE					210	J	C				200	J	C
PYRENE					270						280		

PROJ_NO: 00933	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A		
SDG: CTO403-5	LAB_ID	SB1469-18			SB1469-20RA		
FRACTION: PAH	SAMP_DATE	3/18/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	90.3			95.1		
	DUP_OF				DA-B100B-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		5.6	J	P	7.3	J	P
ACENAPHTHENE		22	U		2.3	J	P
ACENAPHTHYLENE		22	U		21	U	
ANTHRACENE		22	U		21	U	
BENZO(A)ANTHRACENE		22	U		78	J	C
BENZO(A)PYRENE		22	U		86	J	GN
BENZO(B)FLUORANTHENE		22	U		170	J	CGN
BENZO(G,H,I)PERYLENE		22	U		42	J	CN
BENZO(K)FLUORANTHENE		22	U		38	J	N
CHRYSENE		22	U		41		
DIBENZO(A,H)ANTHRACENE		22	U		22	J	CN
FLUORANTHENE		22	U		81		
FLUORENE		22	U		2	J	P
INDENO(1,2,3-CD)PYRENE		22	U		46	J	GN
NAPHTHALENE		22	U		21	U	
PHENANTHRENE		22	U		35	J	C
PYRENE		22	U		67		

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002			DA-B100B-0608			DA-B101B-0002			DA-B101B-0406		
SDG: CTO403-5	LAB_ID	SB1469-5			SB1469-7			SB1469-1			SB1469-3		
FRACTION: PEST/PCB	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.4	U		4.1	U		3.6	U		1.4	J	P
4,4'-DDE		3.4	U		4.1	U		3.6	U		3.7	U	
4,4'-DDT		3.4	UJ	C	4.1	U		3.6	UJ	C	1	J	CP
ALDRIN		1.8	U		2.1	U		1.9	U		1.9	U	
ALPHA-BHC		1.8	U		2.1	U		1.9	U		1.9	U	
ALPHA-CHLORDANE		1.8	U		2.1	U		1.9	U		1.9	U	
AROCLOR-1016		18	U		21	U		19	U		19	U	
AROCLOR-1221		18	U		21	U		19	U		19	U	
AROCLOR-1232		18	U		21	U		19	U		19	U	
AROCLOR-1242		18	U		21	U		19	U		19	U	
AROCLOR-1248		18	U		21	U		19	U		19	U	
AROCLOR-1254		18	U		21	U		19	U		19	U	
AROCLOR-1260		18	U		21	U		19	U		19	U	
AROCLOR-1268		18	U		21	U		19	U		19	U	
BETA-BHC		1.8	U		2.1	U		1.9	U		1.9	U	
DELTA-BHC		1.8	U		2.1	U		1.9	U		1.9	U	
DIELDRIN		3.4	U		4.1	U		3.6	U		3.7	U	
ENDOSULFAN I		1.8	U		2.1	U		1.9	U		1.9	U	
ENDOSULFAN II		3.4	U		4.1	U		3.6	U		3.7	U	
ENDOSULFAN SULFATE		3.4	U		4.1	U		3.6	U		3.7	U	
ENDRIN		3.4	U		4.1	U		3.6	U		3.7	U	
ENDRIN ALDEHYDE		3.4	U		4.1	U		3.6	U		3.7	U	
ENDRIN KETONE		3.4	U		4.1	U		3.6	U		3.7	U	
GAMMA-BHC (LINDANE)		1.8	U		2.1	U		1.9	U		1.9	U	
GAMMA-CHLORDANE		1.8	U		2.1	U		1.9	U		1.9	U	
HEPTACHLOR		1.8	U		2.1	U		1.9	U		1.9	U	
HEPTACHLOR EPOXIDE		1.8	U		2.1	U		1.9	U		1.9	U	
METHOXYCHLOR		18	UJ	C	21	U		19	UJ	C	19	UJ	C
TOXAPHENE		34	U		41	U		36	U		37	U	

PROJ_NO: 00933	NSAMPLE	DA-B106B-0002RE			DA-B106B-0406			DA-B107B-0002			DA-B107B-0608RE		
SDG: CTO403-5	LAB_ID	SB1469-13RE			SB1469-15			SB1469-21			SB1469-23RE		
FRACTION: PEST/PCB	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	UJ	H	3.7	U		1.9	J	P	3.6	UJ	H
4,4'-DDE		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
4,4'-DDT		3.8	UJ	H	3.7	U		1.3	J	P	3.6	UJ	H
ALDRIN		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
ALPHA-BHC		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
ALPHA-CHLORDANE		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
AROCLOR-1016		19	UJ	H	19	U		18	U		18	UJ	H
AROCLOR-1221		19	UJ	H	19	U		18	U		18	UJ	H
AROCLOR-1232		19	UJ	H	19	U		18	U		18	UJ	H
AROCLOR-1242		19	UJ	H	19	U		18	U		18	UJ	H
AROCLOR-1248		19	UJ	H	19	U		18	U		18	UJ	H
AROCLOR-1254		19	UJ	H	19	U		18	U		18	UJ	H
AROCLOR-1260		19	UJ	CH	19	U		18	U		18	UJ	CH
AROCLOR-1268		19	UJ	H	19	U		18	U		18	UJ	H
BETA-BHC		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
DELTA-BHC		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
DIELDRIN		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
ENDOSULFAN I		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
ENDOSULFAN II		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
ENDOSULFAN SULFATE		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
ENDRIN		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
ENDRIN ALDEHYDE		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
ENDRIN KETONE		3.8	UJ	H	3.7	U		3.6	U		3.6	UJ	H
GAMMA-BHC (LINDANE)		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
GAMMA-CHLORDANE		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
HEPTACHLOR		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
HEPTACHLOR EPOXIDE		1.9	UJ	H	1.9	U		1.8	U		1.8	UJ	H
METHOXYCHLOR		19	UJ	H	19	U		18	U		18	UJ	H
TOXAPHENE		38	UJ	H	37	U		36	U		36	UJ	H

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002			DA-B108B-0406			DA-B109B-0002			DA-B109B-0204		
SDG: CTO403-5	LAB_ID	SB1469-25			SB1469-27			SB1469-9			SB1469-11		
FRACTION: PEST/PCB	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	3.6	U		3.7	U		3.5	U		3.6	U	
4,4'-DDE	3.6	U		3.7	U		3.5	U		3.6	U	
4,4'-DDT	3.6	U		3.7	U		3.5	UJ	C	3.6	UJ	C
ALDRIN	1.8	U		1.9	U		1.8	U		1.9	U	
ALPHA-BHC	1.8	U		1.9	U		1.8	U		1.9	U	
ALPHA-CHLORDANE	1.8	U		1.9	U		1.8	U		1.9	U	
AROCLOR-1016	18	U		19	U		18	UJ	D	19	U	
AROCLOR-1221	18	U		19	U		18	U		19	U	
AROCLOR-1232	18	U		19	U		18	U		19	U	
AROCLOR-1242	18	U		19	U		18	U		19	U	
AROCLOR-1248	18	U		19	U		18	U		19	U	
AROCLOR-1254	18	U		19	U		18	U		19	U	
AROCLOR-1260	18	U		19	U		18	UJ	D	19	U	
AROCLOR-1268	18	U		19	U		18	U		19	U	
BETA-BHC	1.8	U		1.9	U		1.8	U		1.9	U	
DELTA-BHC	1.8	U		1.9	U		1.8	U		1.9	U	
DIELDRIN	3.6	U		3.7	U		3.5	U		3.6	U	
ENDOSULFAN I	1.8	U		1.9	U		1.8	U		1.9	U	
ENDOSULFAN II	3.6	U		3.7	U		3.5	U		3.6	U	
ENDOSULFAN SULFATE	3.6	U		3.7	U		3.5	U		3.6	U	
ENDRIN	3.6	U		3.7	U		3.5	U		3.6	U	
ENDRIN ALDEHYDE	3.6	U		3.7	U		3.5	U		3.6	U	
ENDRIN KETONE	3.6	U		3.7	U		3.5	U		3.6	U	
GAMMA-BHC (LINDANE)	1.8	U		1.9	U		1.8	U		1.9	U	
GAMMA-CHLORDANE	1.8	U		1.9	U		1.8	U		1.9	U	
HEPTACHLOR	1.8	U		1.9	U		1.8	U		1.9	U	
HEPTACHLOR EPOXIDE	1.8	U		1.9	U		1.8	U		1.9	U	
METHOXYCHLOR	18	U		19	U		18	UJ	C	19	UJ	C
TOXAPHENE	36	U		37	U		35	U		36	U	

PROJ_NO: 00933 SDG: CTO403-5 FRACTION: PEST/PCB MEDIA: SOIL	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A		
	LAB_ID	SB1469-17			SB1469-5		
	SAMP_DATE	3/18/2008			3/20/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	90.3			95.1		
	DUP_OF				DA-B100B-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.6	U		3.5	U	
4,4'-DDE		3.6	U		3.5	U	
4,4'-DDT		3.6	U		3.5	U	
ALDRIN		1.9	U		1.8	U	
ALPHA-BHC		1.9	U		1.8	U	
ALPHA-CHLORDANE		1.9	U		1.8	U	
AROCLOR-1016		19	U		18	U	
AROCLOR-1221		19	U		18	U	
AROCLOR-1232		19	U		18	U	
AROCLOR-1242		19	U		18	U	
AROCLOR-1248		19	U		18	U	
AROCLOR-1254		19	U		18	U	
AROCLOR-1260		19	U		18	U	
AROCLOR-1268		19	U		18	U	
BETA-BHC		1.9	U		1.8	U	
DELTA-BHC		1.9	U		1.8	U	
DIELDRIN		3.6	U		3.5	U	
ENDOSULFAN I		1.9	U		1.8	U	
ENDOSULFAN II		3.6	U		3.5	U	
ENDOSULFAN SULFATE		3.6	U		3.5	U	
ENDRIN		3.6	U		3.5	U	
ENDRIN ALDEHYDE		3.6	U		3.5	U	
ENDRIN KETONE		3.6	U		3.5	U	
GAMMA-BHC (LINDANE)		1.9	U		1.8	U	
GAMMA-CHLORDANE		1.9	U		1.8	U	
HEPTACHLOR		1.9	U		1.8	U	
HEPTACHLOR EPOXIDE		1.9	U		1.8	U	
METHOXYCHLOR		19	U		18	U	
TOXAPHENE		36	U		35	U	

PROJ_NO: 00933	NSAMPLE	DA-B100B-0002			DA-B100B-0608			DA-B101B-0002			DA-B101B-0406		
SDG: CTO403-5	LAB_ID	SB1469-5			SB1469-7			SB1469-1			SB1469-3		
FRACTION: PET	SAMP_DATE	3/20/2008			3/20/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	95.5			80.6			91.2			89.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.9	U	A	7.4	U	A	47			2.6	U	A
TPH (C09-C36)		250	J	D	23			92			370		

PROJ_NO: 00933	NSAMPLE	DA-B106B-0002			DA-B106B-0406			DA-B107B-0002			DA-B107B-0608		
SDG: CTO403-5	LAB_ID	SB1469-13			SB1469-15			SB1469-21			SB1469-23		
FRACTION: PET	SAMP_DATE	3/19/2008			3/19/2008			3/21/2008			3/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.6			88.6			92.1			91.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.7	U	A	2.7	U	A	2.8	U	A	2.6	U	A
TPH (C09-C36)		230			73			470			30		

PROJ_NO: 00933	NSAMPLE	DA-B108B-0002			DA-B108B-0406			DA-B109B-0002			DA-B109B-0204		
SDG: CTO403-5	LAB_ID	SB1469-25			SB1469-27			SB1469-9			SB1469-11		
FRACTION: PET	SAMP_DATE	3/21/2008			3/21/2008			3/20/2008			3/20/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.4			89.7			93.7			90.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.5	U	A	2.6	U	A	2.8	U	A	40		
TPH (C09-C36)		200			240			550			180		

PROJ_NO: 00933	NSAMPLE	DA-B118B-0608			DA-SB-DUP06A			DA-TB-031808		
SDG: CTO403-5	LAB_ID	SB1469-17			SB1469-19DL			SB1469-29		
FRACTION: PET	SAMP_DATE	3/18/2008			3/20/2008			3/18/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	90.3			95.1			.0		
	DUP_OF				DA-B100B-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.7	U	A	2.5	U	A	2.5	U	A
TPH (C09-C36)		2.3	J	P	100	J	D			

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2760W

Date: May 30, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO403-6
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:

10/Soils/	DA-B103B-0810	DA-B104B-0406	DA-B105B-0204
	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608
	DA-B114B-0204	DA-B116B-0305	DA-B120B-0204
	DA-SB-DUP07		

(Field Duplicate Pair: DA-B104B-0406/DA-SB-DUP07)

Grain Size/pH/TOC:

1/Soil/	DA-B104B-1012

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from March 31 to April 11, 2008 and a Tier I data validation on the grain size, pH, and TOC analytical data from the soil sample collected on April 9, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The grain size analysis was performed according to ASTM-D422, total organic carbon analysis according to Lloyd Kahn, and pH analysis according to SW 9045C. Tier I data validation includes evaluation for completeness only. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verification
* • ICP-MS Tune
* • ICP-MS Internal Standard Relative Intensities
  • Laboratory Blank Analyses
  • ICP Interference Check Sample Results

- Matrix Spike/Matrix Spike Duplicate
NA • Laboratory Duplicate Results
* • Laboratory Control Sample Results
* • Field Duplicate Precision
* • ICP Serial Dilution Results
- Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Cadmium	0.57 ug/L	0.285 mg/kg	DA-SB-DUP07, DA-B104B-0406, DA-B105B-0204, DA-B111B-0406
Silver	0.55 ug/L	0.275 mg/kg	DA-B105B-0204
Sodium	6.44 mg/kg	32.2 mg/kg	DA-B114B-0204
Thallium	0.04 mg/kg	0.2 mg/kg	All samples, except DA-B114B-0204
Molybdenum	0.035 mg/kg	0.175 mg/kg	DA-B114B-0204

The positive cadmium, silver, sodium, thallium, and molybdenum results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids and 1 g of sample analyzed. The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although cadmium, silver, thallium, and molybdenum contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits established for sodium. The non-detected result in the affected sample is usable as an elevated reporting limit.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron and/or aluminum in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ		High	DA-B105B-0204, DA-B111B-0406, DA-B112B-0608, DA-B120B-0204
Cadmium	UJ		High	DA-B104B-0406, DA-B105B-0204, DA-B111B-0406, DA-B112B-0608, DA-SB-DUP07
Molybdenum	J		Low	All samples
Potassium	J		High	DA-B114B-0204
Silver	J	UJ	Low	All samples
Sodium	J UJ		High	

The positive results for potassium and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron and/or aluminum. These results may be biased high.

The positive results for molybdenum and silver are estimated (J) and the non-detected silver are estimated (UJ) in the affected samples due to negative ICP interference attributed to iron and/or aluminum. These results may be biased low.

Professional judgment was used to change the positive antimony, cadmium, and sodium results to estimated, non-detected values (UJ) in the select samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron and/or aluminum ICP interference. The results may be false positive.

Although there were ICP interferences for molybdenum and silver attributed to the high concentration of iron and/or aluminum in the samples listed above, the project accuracy goals are only slightly impacted. The positive molybdenum results in the affected samples are usable as estimated values which may be biased low. The positive and non-detected silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences for potassium and sodium attributed to the high concentration of iron and/or aluminum in the samples listed above, the project accuracy goals for sodium and potassium are not impacted since there are no regulatory limits established for these metals. The positive results for potassium and sodium in the affected samples are usable as estimated values which may be biased high.

Although there were ICP interferences for antimony, cadmium, and sodium attributed to the high concentration of iron and/or aluminum in the samples listed above, the project sensitivity goals are not impacted. The positive results for antimony, cadmium, and sodium in select samples, which had elevated reporting limits, do not exceed the project action limits. The antimony, cadmium, and sodium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-B116B-0305 that did not meet the 75% recovery QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
Antimony	43.8, 43.5	75-125	J	UJ

The project accuracy goals may be slightly impacted due to low percent recovery for antimony. The positive and non-detected antimony results are estimated; results may be biased low.

Reporting Limits

All non-detected values met project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results below than the laboratory's quantitation limit and above the method detection limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Select metals were qualified as estimated due to ICP interferences due to high iron and/or aluminum concentration and antimony was qualified as estimated due to antimony matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to precision and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-007			SB1850-003			SB1850-007			SB1850-005		
FRACTION: M	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		13800			13500			10200			12900		
ANTIMONY		0.108	UJ	D	0.096	UJ	D	0.23	UJ	DKP	0.16	UJ	DKP
ARSENIC		18.8			21.3			10.8			21.7		
BARIUM		23			25.3			28			25.1		
BERYLLIUM		0.35	J	P	0.46			0.39			0.41	J	P
CADMIUM		0.015	U		0.16	UJ	AKP	0.26	UJ	AKP	0.04	UJ	AKP
CALCIUM		1300			1100			6110			1280		
CHROMIUM		16.3			16.2			13			15.8		
COBALT		12.5			11.6			14.6			11.4		
COPPER		19.1			25.5			19.1			18.6		
IRON		27300			29100			22800			29900		
LEAD		14.8			15.6			43.2			19.5		
MAGNESIUM		3480			3180			2890			3330		
MANGANESE		335			382			483			440		
MERCURY		0.02	J	P	0.02	J	P	0.22			0.07		
MOLYBDENUM		0.39	J	KP	0.34	J	KP	0.48	J	KP	0.48	J	KP
NICKEL		23.2			21.9			19.3			23.6		
POTASSIUM		512			511			520			407		
SELENIUM		0.728	U		0.649	U		0.554	U		0.711	U	
SILVER		0.131	UJ	K	0.116	UJ	K	0.1	UJ	AKP	0.128	UJ	K
SODIUM		47.2	J	KP	51.7	J	KP	51.8	J	KP	44.8	J	KP
THALLIUM		0.07	UJ	AP	0.06	UJ	AP	0.04	UJ	AP	0.04	UJ	AP
VANADIUM		19.8			20.3			20.9			18.4		
ZINC		54.3			60.3			61.3			98.1		

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B114B-0204			DA-B116B-0305		
SDG: CTO403-6	LAB_ID	SB1850-009			SB1850-001			SB1647-001			SB1647-005		
FRACTION: M	SAMP_DATE	4/10/2008			4/10/2008			3/31/2008			4/1/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.4			88.5			89.0			88.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		13900			15400			26800			12500		
ANTIMONY		0.13	UJ	DKP	0.103	UJ	D	0.149	UJ	D	0.099	UJ	D
ARSENIC		16.6			22.8			6.6			27.5		
BARIUM		28.2			21.7			8.1			17.1		
BERYLLIUM		0.48			0.43	J	P	0.28	J	P	0.44		
CADMIUM		0.32	UJ	KP	0.014	U		0.02	U		0.014	U	
CALCIUM		1380			1820			1410			226		
CHROMIUM		17.7			18.7			32			16.3		
COBALT		11.9			14.2			26.3			15.9		
COPPER		23.2			20.5			29.2			26.3		
IRON		29000			33100			58200			37600		
LEAD		28.9			11.4			14.6			11		
MAGNESIUM		3200			3980			9760			3580		
MANGANESE		399			424			600			428		
MERCURY		0.03	J	P	0.015	U		0.014	U		0.015	U	
MOLYBDENUM		0.77	J	KP	0.36	J	KP	0.11	UJ	AKP	0.39	J	KP
NICKEL		52.3			26.6			51.2			27.2		
POTASSIUM		523			495			262	J	K	467		
SELENIUM		0.679	U		0.693	U		1	U		0.665	U	
SILVER		0.122	UJ	K	0.062	UJ	K	0.18	UJ	K	0.119	UJ	K
SODIUM		50.1	J	KP	48.7	J	KP	17.3	UJ	AKP	31.4	J	KP
THALLIUM		0.1	UJ	AP	0.06	UJ	AP	0.011	U		0.03	UJ	AP
VANADIUM		19.4			20.9			23			16.9		
ZINC		69.4			59.3			90.2			61.7		

PROJ_NO: 00933 SDG: CTO403-6 FRACTION: M MEDIA: SOIL	NSAMPLE	DA-B120B-0204			DA-SB-DUP07		
	LAB_ID	SB1850-011			SB1850-013		
	SAMP_DATE	4/8/2008			4/11/2008		
	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	88.2			88.1		
	DUP_OF				DA-B104B-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		20100			12800		
ANTIMONY		0.15	UJ	DKP	0.091	UJ	D
ARSENIC		21.7			20.2		
BARIUM		18.8			20		
BERYLLIUM		0.45			0.41		
CADMIUM		0.016	U		0.13	UJ	AKP
CALCIUM		290			924		
CHROMIUM		23.2			18.7		
COBALT		19.8			10.1		
COPPER		25.5			28.2		
IRON		48000			28700		
LEAD		13.8			13.3		
MAGNESIUM		5030			3310		
MANGANESE		677			332		
MERCURY		0.014	U		0.02	J	P
MOLYBDENUM		0.38	J	KP	0.72	J	KP
NICKEL		35.2			21.2		
POTASSIUM		351			364		
SELENIUM		0.763	U		0.611	U	
SILVER		0.137	UJ	K	0.11	UJ	K
SODIUM		40.5	J	KP	38.7	J	KP
THALLIUM		0.03	UJ	AP	0.04	UJ	AP
VANADIUM		24			17.7		
ZINC		74.4			63.8		

PROJ_NO: 00933	NSAMPLE	DA-B104B-1012					
SDG: CTO403-6	LAB_ID	SB1850-16					
FRACTION: MISC	SAMP_DATE	4/9/2008					
MEDIA: SOIL	QC_TYPE	NM					
	UNITS	%			MG/KG		
	PCT_SOLIDS	86.2			86.2		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH		6.8					
TOTAL ORGANIC CARBON					18000		

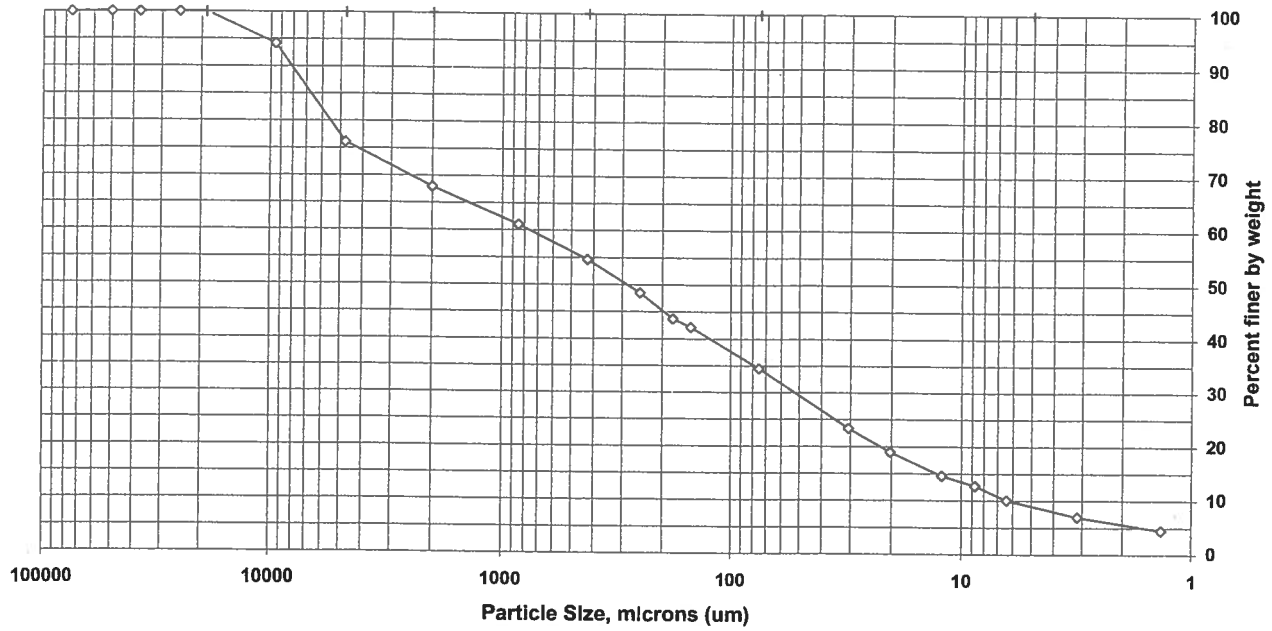
PROJ_NO: 00933	NSAMPLE	DA-B104B-1012
SDG: CTO403-6	LAB_ID	749616
FRACTION: MISCO	SAMP_DATE	4/9/2008
MEDIA: SOIL	QC_TYPE	NM
	UNITS	%
	PCT_SOLIDS	
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
HYDROMETER-1.4UM	4.5		
HYDROMETER-12.9UM	14.6		
HYDROMETER-21.5UM	19		
HYDROMETER-3.4UM	7		
HYDROMETER-32.8UM	23.4		
HYDROMETER-6.6UM	10.1		
HYDROMETER-9.1UM	12.7		
PERCENT CLAY	10.1		
PERCENT COARSE SAND	8.2		
PERCENT FINE SAND	20.1		
PERCENT GRAVEL	23.9		
PERCENT MEDIUM SAND	13.3		
PERCENT SILT	24.4		
SIEVE 1"	100		
SIEVE 1-1/2"	100		
SIEVE 2"	100		
SIEVE 3"	100		
SIEVE 3/4"	100		
SIEVE 3/8"	94.2		
SIEVE NO. 004	76.1		
SIEVE NO. 010	67.9		
SIEVE NO. 020	61		
SIEVE NO. 040	54.6		
SIEVE NO. 060	48.5		
SIEVE NO. 080	43.7		
SIEVE NO. 100	42.1		
SIEVE NO. 200	34.5		

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	125118	**Date Received:**	4/23/2008
Sample ID:	SA-B104B-1012	**ETR(s):**	125118	**Start Date:**	4/23/2008
Lab ID:	749616			**End Date:**	4/30/2008

Percent Solids:	87.2%	**Non-soil material:**	n/a
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	94.2	5.8
#4	4750	76.1	18.0
#10	2000	67.9	8.2
#20	850	61.0	6.9
#40	425	54.6	6.4
#60	250	48.5	6.1
#80	180	43.7	4.8
#100	150	42.1	1.6
#200	75	34.5	7.6
Hydrometer	30.7	23.4	11.1
I	20.2	19.0	4.4
I	12.2	14.6	4.4
I	8.7	12.7	1.9
I	6.4	10.1	2.6
I	3.1	7.0	3.1
V	1.4	4.5	2.5

Soil Classification	Percent of Total Sample
Gravel	23.9
Sand	41.6
Coarse Sand	8.2
Medium Sand	13.3
Fine Sand	20.1
Silt	24.4
Clay	10.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2761W

Date: May 30, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-6
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

10/Soils/	DA-B103B-0810	DA-B104B-0406	DA-B105B-0204
	DA-B111B-0406	DA-B112B-0608	DA-B113B-0608
	DA-B114B-0204	DA-B116B-0305	DA-B120B-0204
	DA-SB-DUP07		

(Field Duplicate Pair: DA-B104B-0406/DA-SB-DUP07)

VOC/GRO:

2/Trip Blanks/	DA-TB-033108	DA-TB-041108

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the soil samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from March 31 to April 11, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

*	•	Data Completeness
	•	Preservation and Technical Holding Times
*	•	GC/MS Instrument Performance Check (Tuning)
*	•	Instrument Performance Check: Pesticide Degradation
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Surrogate Compounds
	•	Internal Standards
NA	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
	•	Field Duplicates
	•	Analyte Identification/Quantitation
*	•	Percent Solids
	•	Reporting Limits
*	•	Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Preservation and Technical Holding Times

Pesticides

Sample DA-B114B-0204 was re-extracted 7 days beyond the 14-day technical holding time criterion because the surrogate recoveries for the initial analysis were <30%. The non-detected results are estimated (UJ) for all pesticide results for the re-extracted sample DA-B114B-0204 due the exceeded holding time criterion.

Although the method required holding time criterion was not met for sample DA-B114B-0204, the project accuracy goals are only slightly impacted due to the persistent nature of the pesticide target analytes. The non-detected pesticide results in the affected sample are usable as estimated quantitation limits which may be biased low.

PCBs

Sample DA-B114B-0204 was re-extracted 7 days beyond the 14-day technical holding time criterion because the surrogate recoveries for the initial analysis were <30%. The non-detected results are estimated (UJ) for all PCB results for the re-extracted sample DA-B114B-0204 due the exceeded holding time criterion.

Although the method required holding time criterion was not met for sample DA-B114B-0204, the project accuracy goals are only slightly impacted due to the persistent nature of the PCBs. The non-detected PCB results in the affected sample are usable as estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acetone	27.86	J		DA-SB-DUP07

Although the %D was outside of the QC limits for acetone, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 500% allocated for acetone. The positive result in the affected sample is usable as an estimated value.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	62.71		UJ	DA-B120B-0204, DA-B104B-0406, DA-SB-DUP07, DA-B112B-0608, DA-B111B-0406, DA-B113B-0608, DA-B105B-0204
2,4-Dinitrophenol	35.23		UJ	DA-B114B-0204, DA-B116B-0305, DA-B103B-0810

Although the %RSD was outside of the QC limits for benzidine and 2,4-dnitrophenol, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine and the instrument calibration variability is below the safety margin of greater than 500% allocated for 2,4-dinitrophenol. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
2,2'-Oxybis(1-chloropropane)	39.79		UJ	DA-B120B-0204, DA-B104B-0406, DA-SB-DUP07, DA-B112B-0608, DA-B111B-0406, DA-B113B-0608, DA-B105B-0204
Benzoic acid	-41.19		UJ	
3-Nitroaniline	-49.09		UJ	
2,4-Dinitrophenol	-42.28		UJ	
4,6-Dinitro-2-methylphenol	-31.16		UJ	
Benzidine	-65.88		UJ	
Carbazole	-54.36	J	UJ	DA-B120B-0204, DA-B104B-0406, DA-SB-DUP07, DA-B112B-0608, DA-B111B-0406, DA-B105B-0204

Although the %D method criterion was outside of the QC limits for the above compounds, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there is no regulatory limits established for the affected compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
4,4'-DDT	-43.00	-40.60	J	UJ	DA-B116B-0305, DA-B104B-0406, DA-B111B-0406, DA-B105B-0204, DA-B112B-0608
Methoxychlor	-32.60	-28.20		UJ	

Although the %D method criteria were outside of the QC limits for the 4,4'-DDT and methoxychlor, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for 4,4'-DDT and there is no regulatory limit established for methoxychlor. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the PCB Aroclors that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1260	27.44, 31.84, 32.84	27.60, 26.96, 30.20		UJ	DA-B114B-0204(RE), DA-B116B-0305, DA-B113B-0608, DA-SB-DUP07

Although the %D method criterion was outside of the QC limits for Aroclor-1260, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this Aroclor. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	1.7	8.5	All samples, except DA-B112B-0608 and DA-B120B-0204

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level for GRO in the affected samples were changed to non-detected values at elevated reporting limits.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable with elevated detection limits.

Surrogate Compounds

Semivolatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-B113B-0608	TPH	166	45-133	J	

The surrogate terphenyl-d14 recovered above the QC limits in the semivolatile sample DA-B113B-0608. All positive base-neutral results are estimated (J) in the affected sample due to high surrogate recovery.

Although the surrogate recovery QC criteria were not met for terphenyl-d4, the project accuracy goals are only slightly impacted. The positive base-neutral results in sample DA-B113B-0608 are usable as estimated values which may be biased high.

Internal Standards

Semivolatiles

The following table summarizes the semivolatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Sample
			(+)	NDs	
Perylene-d12	411706	542442-2169766	J	UJ	DA-B105B-0204

The internal standard area of perylene-d12 failed to meet the acceptable range for sample DA-B105B-0204. The target compounds associated with perylene-d12 reported for this sample are di-n-octylphthalate and benzo(a)pyrene. The positive benzo(a) pyrene result is estimated (J) and the non-detected di-n-octylphthalate result is estimated (UJ) in sample DA-B105B-0204.

Although the QC criteria were not met for the internal standard area of perylene-d12, the project accuracy goals are only slightly impacted. The positive benzo(a)pyrene result and the non-detected di-n-octylphthalate result in the affected sample are usable as an estimated value and an estimated quantitation limit.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
1,1-Dichloropropene	85	86-127		UJ	DA-TB-033108, DA-B114B-0204, DA-B116B-0305, DA-B103B-0810
Trichloroethene	83	86-121		UJ	
cis-1,3-Dichloropropene	84	91-121		UJ	
Toluene	83	86-120		UJ	
1,1,2-Trichloroethane	82	85-116		UJ	
1,2-Dibromoethane	84	89-119		UJ	
1,3,5-Trimethylbenzene	83	87-114		UJ	
2-Chlorotoluene	80	83-117		UJ	
1,2,4-Trimethylbenzene	80	87-115		UJ	
Sec-butylbenzene	85	87-115		UJ	

The LCS/LCSD recoveries for the 1,1-dichloropropene, trichloroethene, cis-1,3-dichloropropene, toluene, 1,1,2-trichloroethane, 1,2-dibromoethane, 1,3,5-trimethylbenzene, 2-chlorotoluene, 1,2,4-trimethylbenzene, and sec-butylbenzene were below the QC limits; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
1,1'-Biphenyl	61	64-130	J	UJ	DA-B120B-0204, DA-B104B-0406, DA-B111B-0406, DA-SB-DUP07, DA-B112B-0608, DA-B113B-0608, DA-B105B-0204
2,6-Dinitrotoluene	56	58-106		UJ	

The LCS recovery for 1,1'-biphenyl was below the QC limit; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected 1,1'-biphenyl results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Although the LCS recovery for 2,6-dinitrotoluene was below the QC limit, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected 2,6-dinitrotoluene results in the affected samples are usable as estimated quantitation limits which may be biased low.

PAH

The following table summarizes the PAH compound that failed to meet the LCS recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
2-Methylnaphthalene	65	66-136	J	UJ	DA-B120B-0204, DA-B104B-0406, DA-B111B-0406, DA-B112B-0608, DA-SB-DUP07, DA-B105B-0204

The LCS recovery for 2-methylnaphthalene was below the QC limit; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected 2-methylnaphthalene results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Field Duplicates

Semivolatiles

The field duplicate pair DA-B104B-0406/DA-SB-DUP07 exceeded the relative percent difference QC criterion of 50% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
Benzo(a)anthracene	53.73	J	
Chrysene	57.14	J	
Phenanthrene	54.55	J	

The field duplicate relative percent difference for benzo(a)anthracene, chrysene, and phenanthrene exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results for the affected compounds in samples DA-B104B-0406 and DA-SB-DUP07 are usable as estimated values for which the bias is indeterminate.

PAH

The field duplicate pair DA-B104B-0406/DA-SB-DUP07 exceeded the relative percent difference QC criterion of 50% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
2-Methylnaphthalene	62.75	J	
Naphthalene	59.46	J	

The field duplicate relative percent difference for 2-methylnaphthalene and naphthalene exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results for the affected compounds in samples DA-B104B-0406 and DA-SB-DUP07 are usable as estimated values for which the bias is indeterminate.

PCBs

The field duplicate pair DA-B104B-0406/DA-SB-DUP07 exceeded the relative percent difference QC criterion of 50% for the following Aroclor:

Analyte	RPD	Action	
		(+)	NDs
Aroclor-1268	166	J	

The field duplicate relative percent difference for the Aroclor-1268 exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results for Aroclor-1268 in samples DA-B104B-0406 and DA-SB-DUP07 are usable as estimated values for which the bias is indeterminate

ExTPH

The field duplicate pair DA-B104B-0406/DA-SB-DUP07 exceeded the relative percent difference QC criterion of 50% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
ExTPH	104	J	

The field duplicate relative percent difference for extractable TPH exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results for ExTPH in samples DA-B104B-0406 and DA-SB-DUP07 are usable as estimated values for which the bias is indeterminate.

Analyte Identification/Quantitation

PCBs

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following sample:

Sample	Analyte	%RPD	Action
			(+)
DA-SB-DUP07	Aroclor-1268	42.9	J

The analyte quantitation relative percent differences exceeded the QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive result in the affected sample is usable as an estimated value.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples and analytical dilutions, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples and analytical dilutions, all reporting limits met project action limits.

The PAH samples DA-B113B-0608 and DA-B103B-0810 were analyzed at 5x dilutions due to matrix interferences and/or sample viscosities. The laboratory quantitation limits are consequently elevated by a factor of 5. The only non-detected compounds in these PAH samples were acenaphthylene in both

samples and 2-methylnaphthalene in sample DA-B103B-0810. However, the project action limits were met for these compounds.

PAH results beyond the linear calibration range of the instrument in the SIM mode are reported from the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Tentatively Identified Compounds

Semivolatiles

The laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the volatiles data set. Data usability was not impacted with regards to precision and sensitivity.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, high surrogate recoveries, poor internal standard performance, and low laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. The compounds benzo(a)anthracene, chrysene, and phenanthrene were qualified as estimated in samples DA-B104B-0406 and DA-SB-DUP07 due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exception. The compound 2-methylnaphthalene was qualified as estimated due to low laboratory control sample recoveries. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PAH data set with the following exception. The compounds 2-methylnaphthalene and naphthalene were qualified as estimated in samples DA-B104B-0406 and DA-SB-DUP07 due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set. Data usability was not impacted with regards to sensitivity.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Results for sample DA-B114B-0204 were qualified as estimated due to analytical holding time exceedence. Select compounds were qualified as estimated due instrument calibration variability. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. Results for sample DA-B114B-0204 were qualified as estimated due to analytical holding time exceedence. Select compounds were qualified as estimated due to instrument calibration variability and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCBs data set with the following exception. Aroclor-1268 was qualified as estimated in samples DA-B104B-0406 and DA-SB-DUP07 due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PCBs data set. Data usability was not impacted with regards to sensitivity.

GRO

The project goals with respect to accuracy, precision, and sensitivity were met for the GRO data set. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

ExTPH

The project goals with respect to accuracy and sensitivity were met for the ExTPH data set. Data usability was not impacted with regards to accuracy and sensitivity.

The project goals with respect to precision were met for the ExTPH data set with the following exception. Extractable TPH was qualified as estimated in samples DA-B104B-0406 and DA-SB-DUP07 due to field duplicate imprecision. Although a specific QC criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-7			SB1850-3			SB1850-7			SB1850-5		
FRACTION: OV	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	UJ	E	5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	UJ	E	5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	UJ	E	5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	UJ	E	5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	UJ	E	5	U		5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		25	U		25	U		25	U		26	U	
2-CHLOROTOLUENE		5	UJ	E	5	U		5	U		5	U	
2-HEXANONE		25	U		25	U		25	U		26	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		26	U	
ACETONE		16	J	P	34			15	J	P	26	U	
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B114B-0204			DA-B116B-0305		
SDG: CTO403-6	LAB_ID	SB1850-9			SB1850-1			SB1647-1			SB1647-5		
FRACTION: OV	SAMP_DATE	4/10/2008			4/10/2008			3/31/2008			4/1/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			88.5			89.0			88.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	UJ	E	5	UJ	E
1,1-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	UJ	E	5	UJ	E
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		5	U		5	U		5	UJ	E	5	UJ	E
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	UJ	E	5	UJ	E
1,2-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		5	U		5	U		5	UJ	E	5	UJ	E
1,3-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U		5	U	
2-BUTANONE		25	U		25	U		25	U		25	U	
2-CHLOROTOLUENE		5	U		5	U		5	UJ	E	5	UJ	E
2-HEXANONE		25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE		25	U		25	U		25	U		25	U	
ACETONE		120			8	J	P	25	U		25	U	
BENZENE		5	U		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE		5	U		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U		5	U	
BROMOMETHANE		10	U		10	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-B120B-0204			DA-SB-DUP07			DA-TB-033108			DA-TB-041108		
SDG: CTO403-6	LAB_ID	SB1850-11			SB1850-13			SB1647-9			SB1850-15		
FRACTION: OV	SAMP_DATE	4/8/2008			4/11/2008			3/31/2008			4/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.2			88.1			.0			.0		
	DUP_OF				DA-B104B-0406								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE	5	U		5	U		5	UJ	E	5	U	
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE	5	U		5	U		5	UJ	E	5	U	
1,2,3-TRICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE	5	U		5	U		5	UJ	E	5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	U		5	U		5	U		5	U	
1,2-DIBROMOETHANE	5	U		5	U		5	UJ	E	5	U	
1,2-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	U		5	U		5	UJ	E	5	U	
1,3-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,3-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
2,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
2-BUTANONE	25	U		25	U		25	U		25	U	
2-CHLOROTOLUENE	5	U		5	U		5	UJ	E	5	U	
2-HEXANONE	25	U		25	U		25	U		25	U	
4-CHLOROTOLUENE	5	U		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	25	U		25	U		25	U		25	U	
ACETONE	25	U		16	J	CP	25	U		25	U	
BENZENE	5	U		5	U		5	U		5	U	
BROMOBENZENE	5	U		5	U		5	U		5	U	
BROMOCHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMOFORM	5	U		5	U		5	U		5	U	
BROMOMETHANE	10	U		10	U		10	U		10	U	
CARBON DISULFIDE	5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-7			SB1850-3			SB1850-7			SB1850-5		
FRACTION: OV	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U		5	U		5	U		5	U	
CHLOROBENZENE	5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE	5	U		5	U		5	U		5	U	
CHLOROETHANE	10	U		10	U		10	U		10	U	
CHLOROFORM	5	U		5	U		5	U		5	U	
CHLOROMETHANE	10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE	5	UJ	E	5	U		5	U		5	U	
DIBROMOMETHANE	5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE	10	U		10	U		10	U		10	U	
ETHYLBENZENE	5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE	5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE	5	U		5	U		5	U		5	U	
M+P-XYLENES	10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE	25	U		25	U		25	U		26	U	
N-BUTYLBENZENE	5	U		5	U		5	U		5	U	
N-PROPYLBENZENE	5	U		5	U		5	U		5	U	
O-XYLENE	5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE	5	UJ	E	5	U		5	U		5	U	
STYRENE	5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	5	U		5	U		5	U		5	U	
TOLUENE	5	UJ	E	5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
TRICHLOROETHENE	5	UJ	E	5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE	10	U		10	U		10	U		10	U	
VINYL CHLORIDE	10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B114B-0204			DA-B116B-0305		
SDG: CTO403-6	LAB_ID	SB1850-9			SB1850-1			SB1647-1			SB1647-5		
FRACTION: OV	SAMP_DATE	4/10/2008			4/10/2008			3/31/2008			4/1/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			88.5			89.0			88.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U		5	U	
CHLOROETHANE		10	U		10	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U		5	U	
CHLOROMETHANE		10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	UJ	E	5	UJ	E
DIBROMOMETHANE		5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		10	U		10	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U		5	U	
M+P-XYLENES		10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		25	U		25	U		25	U		25	U	
N-BUTYLBENZENE		5	U		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE		5	U		5	U		5	UJ	E	5	UJ	E
STYRENE		5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U		5	U	
TETRACHLOROETHENE		5	U		5	U		5	U		5	U	
TOLUENE		5	U		5	U		5	UJ	E	5	UJ	E
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	UJ	E	5	UJ	E
TRICHLOROFLUOROMETHANE		10	U		10	U		10	U		10	U	
VINYL CHLORIDE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-B120B-0204			DA-SB-DUP07			DA-TB-033108			DA-TB-041108		
SDG: CTO403-6	LAB_ID	SB1850-11			SB1850-13			SB1647-9			SB1850-15		
FRACTION: OV	SAMP_DATE	4/8/2008			4/11/2008			3/31/2008			4/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.2			88.1			.0			.0		
	DUP_OF				DA-B104B-0406								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U		5	U		5	U		5	U	
CHLOROBENZENE	5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE	5	U		5	U		5	U		5	U	
CHLOROETHANE	10	U		10	U		10	U		10	U	
CHLOROFORM	5	U		5	U		5	U		5	U	
CHLOROMETHANE	10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE	5	U		5	U		5	UJ	E	5	U	
DIBROMOMETHANE	5	U		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE	10	U		10	U		10	U		10	U	
ETHYLBENZENE	5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE	5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE	5	U		5	U		5	U		5	U	
M+P-XYLENES	10	U		10	U		10	U		10	U	
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE	25	U		25	U		25	U		25	U	
N-BUTYLBENZENE	5	U		5	U		5	U		5	U	
N-PROPYLBENZENE	5	U		5	U		5	U		5	U	
O-XYLENE	5	U		5	U		5	U		5	U	
SEC-BUTYLBENZENE	5	U		5	U		5	UJ	E	5	U	
STYRENE	5	U		5	U		5	U		5	U	
TERT-BUTYLBENZENE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	5	U		5	U		5	U		5	U	
TOLUENE	5	U		5	U		5	UJ	E	5	U	
TRANS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
TRICHLOROETHENE	5	U		5	U		5	UJ	E	5	U	
TRICHLOROFLUOROMETHANE	10	U		10	U		10	U		10	U	
VINYL CHLORIDE	10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-7			SB1850-3			SB1850-7			SB1850-5		
FRACTION: OS	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		380	U		380	UJ	E	360	UJ	E	390	UJ	E
1,2,4-TRICHLOROBENZENE		380	U		380	U		360	U		390	U	
1,2-DICHLOROBENZENE		380	U		380	U		360	U		390	U	
1,2-DIPHENYLHYDRAZINE		770	U		760	U		720	U		780	U	
1,3-DICHLOROBENZENE		380	U		380	U		360	U		390	U	
1,4-DICHLOROBENZENE		380	U		380	U		360	U		390	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		380	U		380	UJ	C	360	UJ	C	390	UJ	C
2,4,5-TRICHLOROPHENOL		960	U		940	U		890	U		970	U	
2,4,6-TRICHLOROPHENOL		380	U		380	U		360	U		390	U	
2,4-DICHLOROPHENOL		380	U		380	U		360	U		390	U	
2,4-DIMETHYLPHENOL		380	U		380	U		360	U		390	U	
2,4-DINITROPHENOL		960	UJ	C	940	UJ	C	890	UJ	C	970	UJ	C
2,4-DINITROTOLUENE		380	U		380	U		360	U		390	U	
2,6-DICHLOROPHENOL		380	U		380	U		360	U		390	U	
2,6-DINITROTOLUENE		960	U		940	UJ	E	890	UJ	E	970	UJ	E
2-CHLORONAPHTHALENE		380	U		380	U		360	U		390	U	
2-CHLOROPHENOL		380	U		380	U		360	U		390	U	
2-METHYLNAPHTHALENE													
2-METHYLPHENOL		380	U		380	U		360	U		390	U	
2-NITROANILINE		960	U		940	U		890	U		970	U	
2-NITROPHENOL		380	U		380	U		360	U		390	U	
3&4-METHYLPHENOL		380	U		380	U		360	U		390	U	
3,3'-DICHLOROBENZIDINE		380	U		380	U		360	U		390	U	
3-NITROANILINE		960	U		940	UJ	C	890	UJ	C	970	UJ	C
4,6-DINITRO-2-METHYLPHENOL		960	U		940	UJ	C	890	UJ	C	970	UJ	C
4-BROMOPHENYL PHENYL ETHER		380	U		380	U		360	U		390	U	
4-CHLORO-3-METHYLPHENOL		380	U		380	U		360	U		390	U	
4-CHLOROANILINE		380	U		380	U		360	U		390	U	
4-CHLOROPHENYL PHENYL ETHER		380	U		380	U		360	U		390	U	
4-NITROANILINE		960	U		940	U		890	U		970	U	
4-NITROPHENOL		960	U		940	U		890	U		970	U	
ACENAPHTHENE													
ANTHRACENE					640								
BENZIDINE		1800	U		1700	UJ	C	1600	UJ	C	1800	UJ	C
BENZO(A)ANTHRACENE					980	J	G	440			420		

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B113B-0608DL			DA-B114B-0204		
SDG: CTO403-6	LAB_ID	SB1850-9			SB1850-1			SB1850-1DL			SB1647-1		
FRACTION: OS	SAMP_DATE	4/10/2008			4/10/2008			4/10/2008			3/31/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			88.5			88.5			89.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		390	UJ	E	660	J	ER				370	U	
1,2,4-TRICHLOROBENZENE		390	U		370	U					370	U	
1,2-DICHLOROBENZENE		390	U		370	U					370	U	
1,2-DIPHENYLHYDRAZINE		770	U		740	U					740	U	
1,3-DICHLOROBENZENE		390	U		370	U					370	U	
1,4-DICHLOROBENZENE		390	U		370	U					370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		390	UJ	C	370	UJ	C				370	U	
2,4,5-TRICHLOROPHENOL		960	U		930	U					920	U	
2,4,6-TRICHLOROPHENOL		390	U		370	U					370	U	
2,4-DICHLOROPHENOL		390	U		370	U					370	U	
2,4-DIMETHYLPHENOL		390	U		370	U					370	U	
2,4-DINITROPHENOL		960	UJ	C	930	UJ	C				920	UJ	C
2,4-DINITROTOLUENE		390	U		370	U					370	U	
2,6-DICHLOROPHENOL		390	U		370	U					370	U	
2,6-DINITROTOLUENE		960	UJ	E	930	UJ	E				920	U	
2-CHLORONAPHTHALENE		390	U		370	U					370	U	
2-CHLOROPHENOL		390	U		370	U					370	U	
2-METHYLNAPHTHALENE					2500	J	R						
2-METHYLPHENOL		390	U		370	U					370	U	
2-NITROANILINE		960	U		930	U					920	U	
2-NITROPHENOL		390	U		370	U					370	U	
3&4-METHYLPHENOL		390	U		370	U					370	U	
3,3'-DICHLOROBENZIDINE		390	U		370	U					370	U	
3-NITROANILINE		960	UJ	C	930	UJ	C				920	U	
4,6-DINITRO-2-METHYLPHENOL		960	UJ	C	930	UJ	C				920	U	
4-BROMOPHENYL PHENYL ETHER		390	U		370	U					370	U	
4-CHLORO-3-METHYLPHENOL		390	U		370	U					370	U	
4-CHLOROANILINE		390	U		370	U					370	U	
4-CHLOROPHENYL PHENYL ETHER		390	U		370	U					370	U	
4-NITROANILINE		960	U		930	U					920	U	
4-NITROPHENOL		960	U		930	U					920	U	
ACENAPHTHENE								13000	J	P			
ANTHRACENE								32000					
BENZIDINE		1800	UJ	C	1700	UJ	C				1700	U	
BENZO(A)ANTHRACENE								59000					

PROJ_NO: 00933	NSAMPLE	DA-B116B-0305			DA-B120B-0204			DA-SB-DUP07		
SDG: CTO403-6	LAB_ID	SB1647-5			SB1850-11			SB1850-13		
FRACTION: OS	SAMP_DATE	4/1/2008			4/8/2008			4/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.6			88.2			88.1		
	DUP_OF							DA-B104B-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		370	U		370	UJ	E	370	UJ	E
1,2,4-TRICHLOROBENZENE		370	U		370	U		370	U	
1,2-DICHLOROBENZENE		370	U		370	U		370	U	
1,2-DIPHENYLHYDRAZINE		740	U		750	U		750	U	
1,3-DICHLOROBENZENE		370	U		370	U		370	U	
1,4-DICHLOROBENZENE		370	U		370	U		370	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		370	U		370	UJ	C	370	UJ	C
2,4,5-TRICHLOROPHENOL		920	U		930	U		930	U	
2,4,6-TRICHLOROPHENOL		370	U		370	U		370	U	
2,4-DICHLOROPHENOL		370	U		370	U		370	U	
2,4-DIMETHYLPHENOL		370	U		370	U		370	U	
2,4-DINITROPHENOL		920	UJ	C	930	UJ	C	930	UJ	C
2,4-DINITROTOLUENE		370	U		370	U		370	U	
2,6-DICHLOROPHENOL		370	U		370	U		370	U	
2,6-DINITROTOLUENE		920	U		930	UJ	E	930	UJ	E
2-CHLORONAPHTHALENE		370	U		370	U		370	U	
2-CHLOROPHENOL		370	U		370	U		370	U	
2-METHYLNAPHTHALENE										
2-METHYLPHENOL		370	U		370	U		370	U	
2-NITROANILINE		920	U		930	U		930	U	
2-NITROPHENOL		370	U		370	U		370	U	
3&4-METHYLPHENOL		370	U		370	U		370	U	
3,3'-DICHLOROBENZIDINE		370	U		370	U		370	U	
3-NITROANILINE		920	U		930	UJ	C	930	UJ	C
4,6-DINITRO-2-METHYLPHENOL		920	U		930	UJ	C	930	UJ	C
4-BROMOPHENYL PHENYL ETHER		370	U		370	U		370	U	
4-CHLORO-3-METHYLPHENOL		370	U		370	U		370	U	
4-CHLOROANILINE		370	U		370	U		370	U	
4-CHLOROPHENYL PHENYL ETHER		370	U		370	U		370	U	
4-NITROANILINE		920	U		930	U		930	U	
4-NITROPHENOL		920	U		930	U		930	U	
ACENAPHTHENE								340	J	P
ANTHRACENE								1300		
BENZIDINE		1700	U		1700	UJ	C	1700	UJ	C
BENZO(A)ANTHRACENE								1700	J	G

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-7			SB1850-3			SB1850-7			SB1850-5		
FRACTION: OS	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE					620			640	J	N	370	J	P
BENZO(B)FLUORANTHENE					720						500		
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BENZOIC ACID		960	U		940	UJ	C	890	UJ	C	970	UJ	C
BENZYL ALCOHOL		770	U		760	U		720	U		780	U	
BIS(2-CHLOROETHOXY)METHANE		380	U		380	U		360	U		390	U	
BIS(2-CHLOROETHYL)ETHER		380	U		380	U		360	U		390	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	U		380	U		280	J	P	390	U	
BUTYL BENZYL PHTHALATE		380	U		380	U		360	U		390	U	
CARBAZOLE		380	U		590	J	C	360	UJ	C	390	UJ	C
CHRYSENE					1000	J	G	570			470		
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN		380	U		380	U		360	U		390	U	
DIETHYL PHTHALATE		380	U		380	U		360	U		390	U	
DIMETHYL PHTHALATE		380	U		380	U		360	U		390	U	
DI-N-BUTYL PHTHALATE		380	U		380	U		360	U		390	U	
DI-N-OCTYL PHTHALATE		380	U		380	U		360	UJ	N	390	U	
FLUORANTHENE					3100			970			1200		
FLUORENE													
HEXACHLOROBENZENE		380	U		380	U		360	U		390	U	
HEXACHLOROBUTADIENE		380	U		380	U		360	U		390	U	
HEXACHLOROETHANE		380	U		380	U		360	U		390	U	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE		380	U		380	U		360	U		390	U	
NAPHTHALENE													
NITROBENZENE		380	U		380	U		360	U		390	U	
N-NITROSODIMETHYLAMINE		380	U		380	U		360	U		390	U	
N-NITROSO-DI-N-PROPYLAMINE		380	U		380	U		360	U		390	U	
N-NITROSODIPHENYLAMINE		380	U		380	U		360	U		390	U	
N-NITROSOPYRROLIDINE		380	U		380	U		360	U		390	U	
PENTACHLOROPHENOL		960	U		940	U		890	U		970	U	
PHENANTHRENE					2400	J	G	790			720		
PHENOL		380	U		380	U		360	U		390	U	
PYRENE					2100			1100			750		

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B113B-0608DL			DA-B114B-0204		
SDG: CTO403-6	LAB_ID	SB1850-9			SB1850-1			SB1850-1DL			SB1647-1		
FRACTION: OS	SAMP_DATE	4/10/2008			4/10/2008			4/10/2008			3/31/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			88.5			88.5			89.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE								30000					
BENZO(B)FLUORANTHENE								42000					
BENZO(G,H,I)PERYLENE					6500	J	R						
BENZO(K)FLUORANTHENE								16000					
BENZOIC ACID		960	UJ	C	930	UJ	C				920	U	
BENZYL ALCOHOL		770	U		740	U					740	U	
BIS(2-CHLOROETHOXY)METHANE		390	U		370	U					370	U	
BIS(2-CHLOROETHYL)ETHER		390	U		370	U					370	U	
BIS(2-ETHYLHEXYL)PHTHALATE		390	U		240	J	PR				370	U	
BUTYL BENZYL PHTHALATE		390	U		370	U					370	U	
CARBAZOLE		390	UJ	C				41000			370	U	
CHRYSENE								53000					
DIBENZO(A,H)ANTHRACENE					1800	J	R						
DIBENZOFURAN		390	U					12000	J	P	370	U	
DIETHYL PHTHALATE		390	U		370	U					370	U	
DIMETHYL PHTHALATE		390	U		370	U					370	U	
DI-N-BUTYL PHTHALATE		390	U		370	U					370	U	
DI-N-OCTYL PHTHALATE		390	U		370	U					370	U	
FLUORANTHENE		450						180000					
FLUORENE								17000					
HEXACHLOROBENZENE		390	U		370	U					370	U	
HEXACHLOROBUTADIENE		390	U		370	U					370	U	
HEXACHLOROETHANE		390	U		370	U					370	U	
INDENO(1,2,3-CD)PYRENE					7000	J	R						
ISOPHORONE		390	U		370	U					370	U	
NAPHTHALENE					5600	J	R						
NITROBENZENE		390	U		370	U					370	U	
N-NITROSODIMETHYLAMINE		390	U		370	U					370	U	
N-NITROSO-DI-N-PROPYLAMINE		390	U		370	U					370	U	
N-NITROSODIPHENYLAMINE		390	U		370	U					370	U	
N-NITROSOPYRROLIDINE		390	U		370	U					370	U	
PENTACHLOROPHENOL		960	U		930	U					920	U	
PHENANTHRENE								160000					
PHENOL		390	U		370	U					370	U	
PYRENE								120000					

PROJ_NO: 00933	NSAMPLE	DA-B116B-0305			DA-B120B-0204			DA-SB-DUP07		
SDG: CTO403-6	LAB_ID	SB1647-5			SB1850-11			SB1850-13		
FRACTION: OS	SAMP_DATE	4/1/2008			4/8/2008			4/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.6			88.2			88.1		
	DUP_OF							DA-B104B-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE								990		
BENZO(B)FLUORANTHENE								1300		
BENZO(G,H,I)PERYLENE								430		
BENZO(K)FLUORANTHENE								560		
BENZOIC ACID		920	U		930	UJ	C	930	UJ	C
BENZYL ALCOHOL		740	U		750	U		750	U	
BIS(2-CHLOROETHOXY)METHANE		370	U		370	U		370	U	
BIS(2-CHLOROETHYL)ETHER		370	U		370	U		370	U	
BIS(2-ETHYLHEXYL)PHTHALATE		370	U		370	U		370	U	
BUTYL BENZYL PHTHALATE		370	U		370	U		370	U	
CARBAZOLE		370	U		370	UJ	C	1200	J	C
CHRYSENE								1800	J	G
DIBENZO(A,H)ANTHRACENE								370	U	
DIBENZOFURAN		370	U		370	U		290	J	P
DIETHYL PHTHALATE		370	U		370	U		370	U	
DIMETHYL PHTHALATE		370	U		370	U		370	U	
DI-N-BUTYL PHTHALATE		370	U		370	U		370	U	
DI-N-OCTYL PHTHALATE		370	U		370	U		370	U	
FLUORANTHENE								5100		
FLUORENE								550		
HEXACHLOROBENZENE		370	U		370	U		370	U	
HEXACHLOROBUTADIENE		370	U		370	U		370	U	
HEXACHLOROETHANE		370	U		370	U		370	U	
INDENO(1,2,3-CD)PYRENE								500		
ISOPHORONE		370	U		370	U		370	U	
NAPHTHALENE										
NITROBENZENE		370	U		370	U		370	U	
N-NITROSODIMETHYLAMINE		370	U		370	U		370	U	
N-NITROSO-DI-N-PROPYLAMINE		370	U		370	U		370	U	
N-NITROSODIPHENYLAMINE		370	U		370	U		370	U	
N-NITROSOPYRROLIDINE		370	U		370	U		370	U	
PENTACHLOROPHENOL		920	U		930	U		930	U	
PHENANTHRENE								4200	J	G
PHENOL		370	U		370	U		370	U	
PYRENE								3500		

PROJ_NO: 00933 SDG: CTO403-6 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-B103B-0810DL			DA-B104B-0406RA			DA-B105B-0204RA			DA-B111B-0406RA		
	LAB_ID	SB1647-8DL			SB1850-4RA			SB1850-8RA			SB1850-6RA		
	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		120	U		35	J	EG	15	J	EP	12	J	EP
ACENAPHTHENE		41	J	P	170			110			110		
ACENAPHTHYLENE		120	U		6.8	J	P	2.5	J	P	1.9	J	P
ANTHRACENE		87	J	P				160			170		
BENZO(A)ANTHRACENE		240											
BENZO(A)PYRENE		190											
BENZO(B)FLUORANTHENE		170						210					
BENZO(G,H,I)PERYLENE		110	J	P	220			220			170		
BENZO(K)FLUORANTHENE		160			280			180			210		
CHRYSENE		210											
DIBENZO(A,H)ANTHRACENE		34	J	P	88			43			54		
FLUORANTHENE		600											
FLUORENE		42	J	P	280			87			78		
INDENO(1,2,3-CD)PYRENE		100	J	P	260			110			180		
NAPHTHALENE		21	J	P	65	J	G	26			33		
PHENANTHRENE		380											
PYRENE		380											

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608RA			DA-B113B-0608DL			DA-B114B-0204			DA-B116B-0305		
SDG: CTO403-6	LAB_ID	SB1850-10RA			SB1850-2DL			SB1647-2			SB1647-6		
FRACTION: PAH	SAMP_DATE	4/10/2008			4/10/2008			3/31/2008			4/1/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			88.5			89.0			88.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		9.2	J	EP				22	U		22	U	
ACENAPHTHENE		19	J	P				22	U		22	U	
ACENAPHTHYLENE		2.2	J	P	110	U		22	U		22	U	
ANTHRACENE		38						22	U		22	U	
BENZO(A)ANTHRACENE		230						22	U		22	U	
BENZO(A)PYRENE		160						22	U		22	U	
BENZO(B)FLUORANTHENE		240						22	U		22	U	
BENZO(G,H,I)PERYLENE		69						22	U		22	U	
BENZO(K)FLUORANTHENE		75						22	U		22	U	
CHRYSENE		210						22	U		22	U	
DIBENZO(A,H)ANTHRACENE		17	J	P				22	U		22	U	
FLUORANTHENE								4.8	J	P	22	U	
FLUORENE		23	J	P				22	U		22	U	
INDENO(1,2,3-CD)PYRENE		73						22	U		22	U	
NAPHTHALENE		19	J	P				22	U		22	U	
PHENANTHRENE		240						22	U		22	U	
PYRENE		270						22	U		22	U	

PROJ_NO: 00933 SDG: CTO403-6 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-B120B-0204RA			DA-SB-DUP07RA		
	LAB_ID	SB1850-12RA			SB1850-14RA		
	SAMP_DATE	4/8/2008			4/11/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.2			88.1		
	DUP_OF				DA-B104B-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		23	UJ	E	67	J	EG
ACENAPHTHENE		23	U				
ACENAPHTHYLENE		23	U		4.1	J	P
ANTHRACENE		23	U				
BENZO(A)ANTHRACENE		23	U				
BENZO(A)PYRENE		23	U				
BENZO(B)FLUORANTHENE		23	U				
BENZO(G,H,I)PERYLENE		23	U				
BENZO(K)FLUORANTHENE		23	U				
CHRYSENE		23	U				
DIBENZO(A,H)ANTHRACENE		23	U		110		
FLUORANTHENE		23	U				
FLUORENE		23	U				
INDENO(1,2,3-CD)PYRENE		23	U				
NAPHTHALENE		23	U		120	J	G
PHENANTHRENE		23	U				
PYRENE		23	U				

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-7			SB1850-3			SB1850-7			SB1850-5		
FRACTION: PEST/PCB	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.8	U		3.8	U		3.6	U		3.9	U	
4,4'-DDE		3.8	U		3.8	U		3.6	U		3.9	U	
4,4'-DDT		3.8	U		3.8	UJ	C	7.8	J	C	3.9	UJ	C
ALDRIN		2	U		1.9	U		1.8	U		2	U	
ALPHA-BHC		2	U		1.9	U		1.8	U		2	U	
ALPHA-CHLORDANE		2	U		1.9	U		1.8	U		2	U	
AROCLOR-1016		20	U		19	U		18	U		20	U	
AROCLOR-1221		20	U		19	U		18	U		20	U	
AROCLOR-1232		20	U		19	U		18	U		20	U	
AROCLOR-1242		20	U		19	U		18	U		20	U	
AROCLOR-1248		20	U		19	U		18	U		20	U	
AROCLOR-1254		40			19	U		18	U		20	U	
AROCLOR-1260		20	U		19	U		18	U		20	U	
AROCLOR-1268		83			220	J	G	18	U		310		
BETA-BHC		2	U		1.9	U		1.8	U		2	U	
DELTA-BHC		2	U		1.9	U		1.8	U		2	U	
DIELDRIN		3.8	U		3.8	U		3.6	U		3.9	U	
ENDOSULFAN I		2	U		1.9	U		1.8	U		2	U	
ENDOSULFAN II		3.8	U		3.8	U		3.6	U		3.9	U	
ENDOSULFAN SULFATE		3.8	U		3.8	U		3.6	U		3.9	U	
ENDRIN		3.8	U		3.8	U		3.6	U		3.9	U	
ENDRIN ALDEHYDE		3.8	U		3.8	U		3.6	U		3.9	U	
ENDRIN KETONE		3.8	U		3.8	U		3.6	U		3.9	U	
GAMMA-BHC (LINDANE)		2	U		1.9	U		1.8	U		2	U	
GAMMA-CHLORDANE		2	U		1.9	U		1.8	U		2	U	
HEPTACHLOR		2	U		1.6	J	P	1.8	U		1.5	J	P
HEPTACHLOR EPOXIDE		2	U		1.9	U		1.8	U		2	U	
METHOXYCHLOR		20	U		19	UJ	C	18	UJ	C	20	UJ	C
TOXAPHENE		38	U		38	U		36	U		39	U	

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B114B-0204RE			DA-B116B-0305		
SDG: CTO403-6	LAB_ID	SB1850-9			SB1850-1			SB1647-1RE			SB1647-5		
FRACTION: PEST/PCB	SAMP_DATE	4/10/2008			4/10/2008			3/31/2008			4/1/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.4			88.5			89.0			88.6		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
4,4'-DDE	2.1	J	P	3.7	U		3.7	UJ	H	3.7	U	
4,4'-DDT	3.9	UJ	C	3.7	U		3.7	UJ	H	3.7	UJ	C
ALDRIN	2	U		1.9	U		1.9	UJ	H	1.9	U	
ALPHA-BHC	2	U		1.9	U		1.9	UJ	H	1.9	U	
ALPHA-CHLORDANE	2	U		1.9	U		1.9	UJ	H	1.9	U	
AROCLOR-1016	20	U		19	U		19	UJ	H	19	U	
AROCLOR-1221	20	U		19	U		19	UJ	H	19	U	
AROCLOR-1232	20	U		19	U		19	UJ	H	19	U	
AROCLOR-1242	20	U		19	U		19	UJ	H	19	U	
AROCLOR-1248	20	U		19	U		19	UJ	H	19	U	
AROCLOR-1254	20	U		19	U		19	UJ	H	19	U	
AROCLOR-1260	20	U		19	UJ	C	19	UJ	CH	19	UJ	C
AROCLOR-1268	79			19	U		19	UJ	H	19	U	
BETA-BHC	2	U		1.9	U		1.9	UJ	H	1.9	U	
DELTA-BHC	2	U		1.9	U		1.9	UJ	H	1.9	U	
DIELDRIN	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
ENDOSULFAN I	2	U		1.9	U		1.9	UJ	H	1.9	U	
ENDOSULFAN II	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
ENDOSULFAN SULFATE	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
ENDRIN	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
ENDRIN ALDEHYDE	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
ENDRIN KETONE	3.9	U		3.7	U		3.7	UJ	H	3.7	U	
GAMMA-BHC (LINDANE)	2	U		1.9	U		1.9	UJ	H	1.9	U	
GAMMA-CHLORDANE	2	U		1.9	U		1.9	UJ	H	1.9	U	
HEPTACHLOR	2	U		21			1.9	UJ	H	1.9	U	
HEPTACHLOR EPOXIDE	2	U		1.9	U		1.9	UJ	H	1.9	U	
METHOXYCHLOR	20	UJ	C	19	U		19	UJ	H	19	UJ	C
TOXAPHENE	39	U		37	U		37	UJ	H	37	U	

PROJ_NO: 00933	NSAMPLE	DA-B120B-0204			DA-SB-DUP07		
SDG: CTO403-6	LAB_ID	SB1850-11			SB1850-13		
FRACTION: PEST/PCB	SAMP_DATE	4/8/2008			4/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.2			88.1		
	DUP_OF				DA-B104B-0406		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.7	U		3.7	U	
4,4'-DDE		3.7	U		3.7	U	
4,4'-DDT		3.7	U		3.7	U	
ALDRIN		1.9	U		1.9	U	
ALPHA-BHC		1.9	U		1.9	U	
ALPHA-CHLORDANE		1.9	U		1.9	U	
AROCLOR-1016		19	U		96	U	
AROCLOR-1221		19	U		96	U	
AROCLOR-1232		19	U		96	U	
AROCLOR-1242		19	U		96	U	
AROCLOR-1248		19	U		96	U	
AROCLOR-1254		19	U		96	U	
AROCLOR-1260		19	U		96	UJ	C
AROCLOR-1268		19	U		7900	J	GU
BETA-BHC		1.9	U		1.9	U	
DELTA-BHC		1.9	U		1.9	U	
DIELDRIN		3.7	U		3.7	U	
ENDOSULFAN I		1.9	U		1.9	U	
ENDOSULFAN II		3.7	U		3.7	U	
ENDOSULFAN SULFATE		3.7	U		3.7	U	
ENDRIN		3.7	U		3.7	U	
ENDRIN ALDEHYDE		3.7	U		3.7	U	
ENDRIN KETONE		3.7	U		3.7	U	
GAMMA-BHC (LINDANE)		1.9	U		1.9	U	
GAMMA-CHLORDANE		1.9	U		1.9	U	
HEPTACHLOR		1.9	U		1.9	U	
HEPTACHLOR EPOXIDE		1.9	U		1.9	U	
METHOXYCHLOR		19	U		19	U	
TOXAPHENE		37	U		37	U	

PROJ_NO: 00933	NSAMPLE	DA-B103B-0810			DA-B104B-0406			DA-B105B-0204			DA-B111B-0406		
SDG: CTO403-6	LAB_ID	SB1647-7			SB1850-3			SB1850-7			SB1850-5		
FRACTION: PET	SAMP_DATE	4/1/2008			4/11/2008			4/8/2008			4/8/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.6			87.4			92.0			84.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.9	U	A	2.8	U	A	2.6	U	A	2.9	U	A
TPH (C09-C36)		27			28	J	G	980			30		

PROJ_NO: 00933	NSAMPLE	DA-B112B-0608			DA-B113B-0608			DA-B114B-0204			DA-B116B-0305		
SDG: CTO403-6	LAB_ID	SB1850-9			SB1850-1			SB1647-1			SB1647-5		
FRACTION: PET	SAMP_DATE	4/10/2008			4/10/2008			3/31/2008			4/1/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.4			88.5			89.0			88.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		15			2.5	U	A	2.7	U	A	2.7	U	A
TPH (C09-C36)		67			2500			6			3	J	P

PROJ_NO: 00933	NSAMPLE	DA-B120B-0204			DA-SB-DUP07			DA-TB-033108			DA-TB-041108		
SDG: CTO403-6	LAB_ID	SB1850-11			SB1850-13			SB1647-9			SB1850-15		
FRACTION: PET	SAMP_DATE	4/8/2008			4/11/2008			3/31/2008			4/11/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB			TB		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.2			88.1			.0			.0		
	DUP_OF				DA-B104B-0406								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		11			2.8	U	A	2.5	U	A	2.5	U	A
TPH (C09-C36)		3.8	J	P	83	J	G						

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2755W

Date: May 29, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO403-7
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:
2/Soils/ DA-B110B-1012 DA-B119B-0204

1/Rinsate Blank/ DA-MWRB041708

Grain Size/pH/TOC:
1/Soil/ DA-B110B-1012

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from soil samples collected at the Site 08-NUSC Disposal Area from April 11-14, 2008 and a Tier I data validation on the grain size, pH, and TOC analytical data from the soil sample collected on April 11, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (thallium and arsenic). The grain size analysis was performed according to ASTM-D422, total organic carbon analysis according to Lloyd Kahn, and pH analysis according to SW 9045C. Tier I data validation includes evaluation for completeness only. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• Calibration Verification
*	• ICP-MS Tune
*	• ICP-MS Internal Standard Relative Intensities
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
NA	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results

NA • Field Duplicate Precision
NA • ICP Serial Dilution Results
• Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Antimony	0.064 mg/kg	0.32 mg/kg	DA-B119B-0204
Cadmium	0.43 µg/l	0.215 mg/kg	DA-B119B-0204
Sodium	11.08 mg/kg	55.4 mg/kg	DA-B119B-0204
Thallium	0.21 µg/l	0.11 mg/kg	DA-B110B-1012

The positive antimony, cadmium, sodium, and thallium results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids and 1g of sample analyzed. The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although antimony, cadmium, and thallium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there is no regulatory limit established for sodium. The non-detected results in the affected samples are usable as elevated reporting limits.

The aqueous rinsate blank was not used to establish blank action levels for the soil sample.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the rinsate blank sample:

Analyte	Maximum Conc.	Action Level	Affected Samples
Cadmium	0.43 µg/l	2.15 µg/l	DA-MWRB041708
Sodium	110 µg/l	550 µg/l	

The positive cadmium and sodium results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination.

Although cadmium and sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted for the rinsate blank sample. The non-detected results in the affected sample are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	J		High	DA-B110B-1012, DA-B119B-0204
Cadmium	UJ		High	DA-B119B-0204
Molybdenum	J		Low	DA-B110B-1012, DA-B119B-0204
Selenium		UJ	Low	
Silver	J		High	DA-B110B-1012
Sodium	J		High	DA-B110B-1012, DA-B119B-0204

The positive results for antimony, silver, and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive molybdenum results are estimated (J) and the non-detected selenium results are estimated (UJ) in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive cadmium result to estimated, non-detected values (UJ) in sample DA-B119B-0204, rather than reject it as provided in the data validation guidelines, because the reported concentration may be due entirely (≥80%) to positive iron ICP interference. The result may be false positive.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project accuracy goals are only slightly impacted. The positive results for antimony, silver, and sodium in the affected samples are usable as estimated values which may be biased high. The positive molybdenum results in the affected samples are usable as estimated values which may be biased low. The non-detected selenium results in the affected samples are usable as estimated reporting limits which may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in the samples listed above, the project sensitivity goals are not impacted. The positive results for cadmium in sample DA-B119B-0204, which had estimated interference greater than 80%, may be entirely due to iron interference. However, the elevated reporting limit for this cadmium result does not exceed the project action limit for cadmium. The cadmium result in the affected sample is usable as an estimated, non-detected value which may be false positive.

Reporting Limits

All non-detected values met project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results below than the laboratory's quantitation limit and above the method detection limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exception. Select metals were qualified as estimated due to ICP interferences due to high iron concentration. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to precision and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012			DA-B119B-0204		
SDG: CTO403-7	LAB_ID	SB2006-004			SB2006-006		
FRACTION: M	SAMP_DATE	4/11/2008			4/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	83.1			95.2		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9120			12800		
ANTIMONY		1	J	K	0.1	UJ	AKP
ARSENIC		10.8			10.3		
BARIUM		60.2			16.1		
BERYLLIUM		0.21	J	P	0.27	J	P
CADMIUM		5.6			0.08	UJ	AKP
CALCIUM		12600			3700		
CHROMIUM		50.7			13.3		
COBALT		16.7			15.2		
COPPER		46.9			18.5		
IRON		20100			29600		
LEAD		4540			78.3		
MAGNESIUM		3310			3710		
MANGANESE		330			482		
MERCURY		0.12			0.06		
MOLYBDENUM		0.74	J	KP	0.61	J	KP
NICKEL		18.4			23.8		
POTASSIUM		770			392		
SELENIUM		0.38	UJ	K	0.7	UJ	K
SILVER		0.77	J	KP	0.13	U	
SODIUM		106	J	K	51.8	UJ	AKP
THALLIUM		0.04	UJ	AP	0.01	U	
VANADIUM		13.9			15.2		
ZINC		9840			60.5		

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708
SDG: CTO403-7	LAB_ID	SB2006-001
FRACTION: M	SAMP_DATE	4/17/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	14.6	U	
ANTIMONY	0.78	U	
ARSENIC	1.6	J	P
BARIUM	0.59	U	
BERYLLIUM	0.13	U	
CADMIUM	0.04	UJ	AP
CALCIUM	29.8	U	
CHROMIUM	0.41	U	
COBALT	0.24	U	
COPPER	0.75	U	
IRON	9	U	
LEAD	0.97	U	
MAGNESIUM	4.33	U	
MANGANESE	1.09	U	
MERCURY	0.03	U	
MOLYBDENUM	0.3	U	
NICKEL	0.42	U	
POTASSIUM	40.8	U	
SELENIUM	1	J	P
SILVER	0.29	U	
SODIUM	91.4	UJ	AP
THALLIUM	0.6	U	
VANADIUM	0.38	U	
ZINC	2.22	U	

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012					
SDG: CTO403-7	LAB_ID	SB2006-4					
FRACTION: MISC	SAMP_DATE	4/11/2008					
MEDIA: SOIL	QC_TYPE	NM					
	UNITS	%			MG/KG		
	PCT_SOLIDS	83.1			83.1		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PH		7.8					
TOTAL ORGANIC CARBON					29000		

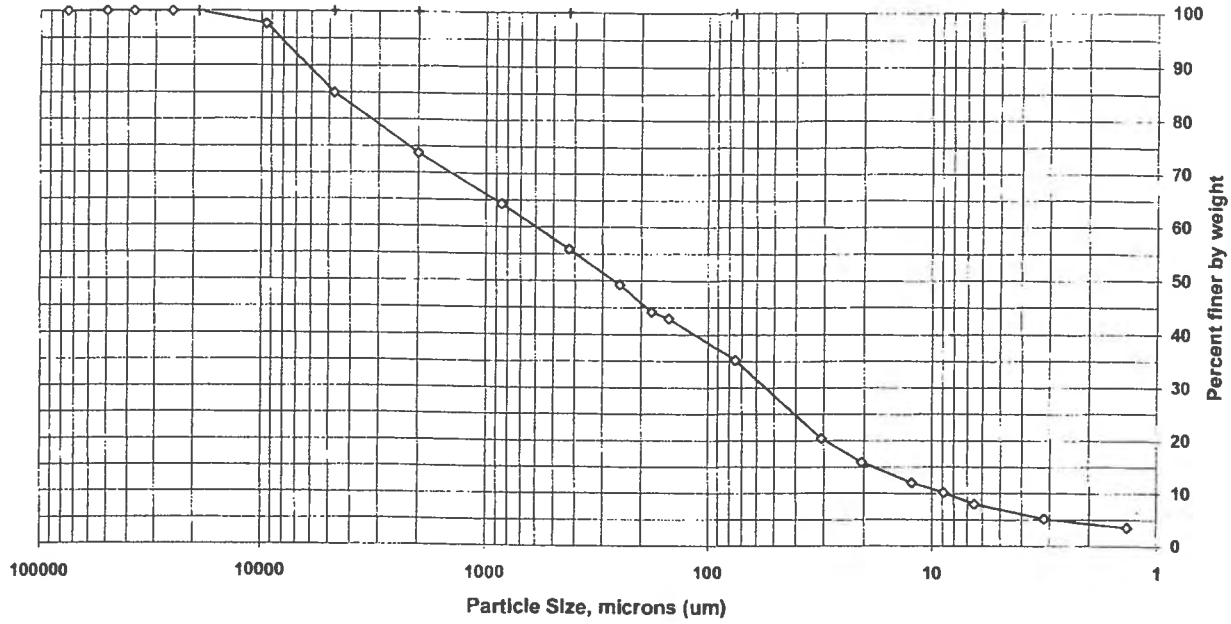
PROJ_NO: 00933	NSAMPLE	DA-B110B-1012
SDG: CTO403-7	LAB_ID	749617
FRACTION: MISCO	SAMP_DATE	4/11/2008
MEDIA: SOIL	QC_TYPE	NM
	UNITS	%
	PCT_SOLIDS	
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
HYDROMETER-1.4UM	3.5		
HYDROMETER-12.9UM	12		
HYDROMETER-21.5UM	15.9		
HYDROMETER-3.4UM	5.1		
HYDROMETER-32.8UM	20.4		
HYDROMETER-6.6UM	8		
HYDROMETER-9.1UM	10.2		
PERCENT CLAY	8		
PERCENT COARSE SAND	11.3		
PERCENT FINE SAND	20.6		
PERCENT GRAVEL	15		
PERCENT MEDIUM SAND	17.9		
PERCENT SILT	27.3		
SIEVE 1"	100		
SIEVE 1-1/2"	100		
SIEVE 2"	100		
SIEVE 3"	100		
SIEVE 3/4"	100		
SIEVE 3/8"	97.6		
SIEVE NO. 004	85		
SIEVE NO. 010	73.7		
SIEVE NO. 020	64.3		
SIEVE NO. 040	55.8		
SIEVE NO. 060	49.2		
SIEVE NO. 080	44.2		
SIEVE NO. 100	43		
SIEVE NO. 200	35.3		

Particle Size of Soils by ASTM D422

Client Code:	KATANA	**SDG:**	125118	**Date Received:**	4/23/2008
Sample ID:	DA-B110B-1012	**ETR(s):**	125118	**Start Date:**	4/23/2008
Lab ID:	749617			**End Date:**	4/30/2008

Percent Solids:	83.5%	**Non-soil material:**	plant, glass, brick, tar
Specific Gravity:	2.650	**Shape (> #10):**	angular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.6	2.4
#4	4750	85.0	12.7
#10	2000	73.7	11.3
#20	850	64.3	9.4
#40	425	55.8	8.5
#60	250	49.2	6.6
#80	180	44.2	5.0
#100	150	43.0	1.2
#200	75	35.3	7.7
Hydrometer	30.9	20.4	14.8
|	20.5	15.9	4.5
|	12.3	12.0	3.9
|	8.9	10.2	1.8
|	6.5	8.0	2.2
|	3.2	5.1	2.8
V	1.4	3.5	1.7

Soil Classification	Percent of Total Sample
Gravel	15.0
Sand	49.7
Coarse Sand	11.3
Medium Sand	17.9
Fine Sand	20.6
Silt	27.3
Clay	8.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-05-08-2756W

Date: May 29, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-7
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

2/Soils/	DA-B110B-1012	DA-B119-0204
1/Rinsate Blank/	DA-MWRB041708	

VOC/GRO:

1/Trip Blank/	TB-041808

Pesticides/PCB:

1/Soil/	DA-SB103-0103

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the soil samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from April 11-18, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

*	•	Data Completeness
*	•	Preservation and Technical Holding Times
*	•	GC/MS Instrument Performance Check (Tuning)
*	•	Instrument Performance Check: Pesticide Degradation
	•	Initial and Continuing Calibrations
	•	Blanks
*	•	Surrogate Compounds
*	•	Internal Standards
NA	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	•	Field Duplicates
	•	Analyte Identification/Quantitation
*	•	Percent Solids
	•	Reporting Limits
*	•	Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Methylene chloride	39.19		UJ	TB-041808, DA-B110B-1012
Acetone	39.05, 33.46		UJ	TB-041808, DA-B119B-0204
2-Chlorotoluene	26.18		UJ	TB-041808, DA-B110B-1012

Although the %D was outside of the QC limits for methylene chloride, acetone, and 2-chlorotoluene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 500% allocated for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzidine	69.81		UJ	DA-B119B-0204, DA-B110B-1012

Although the %RSD was outside of the QC limits for benzidine, the project accuracy goals were not impacted since there are no regulatory limits established for benzidine. The non-detected results in the affected samples are usable as estimated quantitation limits.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Carbazole	-31.05	J		DA-B119B-0204, DA-B110B-1012
Benzidine	-53.23		UJ	
Di-n-octylphthalate	-37.50		UJ	

Although the %D was outside of the QC limits for carbazole, benzidine, and di-n-octylphthalate, the project accuracy goals were not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds or there is no regulatory limits established for the affected compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
4,4'-DDD	36.60	65.40		UJ	All soil samples
4,4'-DDT	-85.88	-86.82	J	UJ	
Methoxychlor	-82.50	-86.12		UJ	
Endrin ketone	-34.40	-52.40		UJ	

Although the %D were outside of the QC limits for the above analytes, the project accuracy goals are not impacted since either the instrument calibration variability is below safety margin of greater than 100% allocated for the pesticide compounds or there are no regulatory limits established for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCB

The following table summarizes the Aroclor that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1260	32.84	30.20		UJ	DA-MWRB041708

Although the %D was outside of the QC limits for Aroclor-1260, the project accuracy goals are not impacted for the rinsate blank DA-MWRB041708.

Blanks

The aqueous rinsate blank was not used to establish blank action levels for these soil samples.

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Sample
Methylene Chloride	Method	1	10	DA-MWRB041708

Blank action was applied to the affected sample due to methylene chloride laboratory blank contamination. The 10x rule applies for the common laboratory contaminant methylene chloride. The positive result below the blank action level for methylene chloride in the affected sample is changed to a non-detected value at an elevated reporting limit.

Although methylene chloride contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the affected sample is the rinsate blank. The result in the affected sample is usable with an elevated detection limit.

GRO

The following table summarizes the level of blank contamination detected in the trip blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Sample
GRO	Trip	3.2	16	DA-B119B-0204

Blank action was applied to the affected sample due to GRO trip blank contamination. The 5x rule applies for this hydrocarbon range. The positive result below the blank action level for GRO in the affected sample was changed to a non-detected value at an elevated reporting limit.

Although GRO contamination was found in the trip blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The result in the affected sample is usable with an elevated detection limit.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the LCS recovery limits:

Compound	% Rec.	% Rec. QC Limits	RPD	RPD QC Limits	Action (+)	Action NDs	Affected Sample
1,1'-Biphenyl	59	60-129	-	-		UJ	DA-MWRB041708
2,4-Dinitrophenol	-	-	32	30		UJ	
Benzidine	-	-	33	30		UJ	

-Criterion met

Although the LCS recovery for 1,1'-biphenyl was above the QC limit, the project accuracy goals are not impacted for the rinsate blank.

Although the LCS/LCSD relative percent differences for 2,4-dinitrophenol and benzidine were above the QC limits, the project precision goals are not impacted for the rinsate blank.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action (+)
DA-B110B-1012	4,4'-DDT	64.4	J
DA-B119B-0204	Alpha-chlordane	48.3	J

The analyte quantitation relative percent differences exceeded the QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits; except for vinyl chloride which exceeded the project action limit in sample DA-B110B-1012.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except bis(2-ethylhexyl)phthalate and diethylphthalate. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PAH

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

PAH results beyond the linear calibration range of the instrument in the SIM mode are reported from the semivolatiles full scan analysis.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

Tentatively Identified Compounds

Semivolatiles

The laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exception. Select compounds were qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The reporting limit for vinyl chloride exceeded the project action limit for sample DA-B110B-1012 as described in the Reporting Limits section. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exception. Select compounds were qualified as estimated due to instrument calibration variability. Although a specific method criterion was not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability and analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PAH, PCBs, GRO, ExTPH

The project goals with respect to accuracy, precision, and sensitivity were met for the PAH, PCBs, GRO, ExTPH data sets. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-7 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-B110B-1012			DA-B119B-0204RA			TB-041808		
	LAB_ID	SB2006-4			SB2006-6RA			SB2006-8		
	SAMP_DATE	4/11/2008			4/14/2008			4/18/2008		
	QC_TYPE	NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.1			95.2			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	U		5	U	
1,1,1-TRICHLOROETHANE		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE		5	U		5	U		5	U	
1,1-DICHLOROETHANE		5	U		5	U		5	U	
1,1-DICHLOROETHENE		5	U		5	U		5	U	
1,1-DICHLOROPROPENE		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE		5	U		5	U		5	U	
1,2,3-TRICHLOROPROPANE		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE		5	U		5	U		5	U	
1,2,4-TRIMETHYLBENZENE		46			5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	U		5	U	
1,2-DIBROMOETHANE		5	U		5	U		5	U	
1,2-DICHLOROBENZENE		5	U		5	U		5	U	
1,2-DICHLOROETHANE		5	U		5	U		5	U	
1,2-DICHLOROPROPANE		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE		20			5	U		5	U	
1,3-DICHLOROBENZENE		5	U		5	U		5	U	
1,3-DICHLOROPROPANE		5	U		5	U		5	U	
1,4-DICHLOROBENZENE		5	U		5	U		5	U	
2,2-DICHLOROPROPANE		5	U		5	U		5	U	
2-BUTANONE		27	U		25	U		25	U	
2-CHLOROTOLUENE		5	UJ	C	5	U		5	UJ	C
2-HEXANONE		27	U		25	U		25	U	
4-CHLOROTOLUENE		5	U		5	U		5	U	
4-ISOPROPYLTOLUENE		11			5	U		5	U	
4-METHYL-2-PENTANONE		27	U		25	U		25	U	
ACETONE		1000	J	P	25	UJ	C	25	UJ	C
BENZENE		5	U		5	U		5	U	
BROMOBENZENE		5	U		5	U		5	U	
BROMOCHLOROMETHANE		5	U		5	U		5	U	
BROMODICHLOROMETHANE		5	U		5	U		5	U	
BROMOFORM		5	U		5	U		5	U	
BROMOMETHANE		11	U		10	U		10	U	
CARBON DISULFIDE		5	U		5	U		5	U	

PROJ_NO: 00933 SDG: CTO403-7 FRACTION: OV MEDIA: SOIL	NSAMPLE	DA-B110B-1012			DA-B119B-0204RA			TB-041808		
	LAB_ID	SB2006-4			SB2006-6RA			SB2006-8		
	SAMP_DATE	4/11/2008			4/14/2008			4/18/2008		
	QC_TYPE	NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.1			95.2			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	U		5	U	
CHLOROBENZENE		5	U		5	U		5	U	
CHLORODIBROMOMETHANE		5	U		5	U		5	U	
CHLOROETHANE		11	U		10	U		10	U	
CHLOROFORM		5	U		5	U		5	U	
CHLOROMETHANE		11	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE		5	U		5	U		5	U	
DIBROMOMETHANE		5	U		5	U		5	U	
DICHLORODIFLUOROMETHANE		11	U		10	U		10	U	
ETHYLBENZENE		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U	
ISOPROPYLBENZENE		5	U		5	U		5	U	
M+P-XYLENES		11	U		10	U		10	U	
METHYL TERT-BUTYL ETHER		5	U		5	U		5	U	
METHYLENE CHLORIDE		27	UJ	C	25	U		25	UJ	C
N-BUTYLBENZENE		5	U		5	U		5	U	
N-PROPYLBENZENE		5	U		5	U		5	U	
O-XYLENE		5	U		5	U		5	U	
SEC-BUTYLBENZENE		4	J	P	5	U		5	U	
STYRENE		5	U		5	U		5	U	
TERT-BUTYLBENZENE		5	U		5	U		5	U	
TETRACHLOROETHENE		2	J	P	5	U		5	U	
TOLUENE		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE		5	U		5	U		5	U	
TRICHLOROETHENE		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE		11	U		10	U		10	U	
VINYL CHLORIDE		11	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708
SDG: CTO403-7	LAB_ID	SB2006-1
FRACTION: OV	SAMP_DATE	4/17/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U	
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,1-DICHLOROPROPENE	1	U	
1,2,3-TRICHLOROBENZENE	1	U	
1,2,3-TRICHLOROPROPANE	1	U	
1,2,4-TRICHLOROBENZENE	1	U	
1,2,4-TRIMETHYLBENZENE	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,3-DICHLOROPROPANE	1	U	
1,4-DICHLOROBENZENE	1	U	
2,2-DICHLOROPROPANE	1	U	
2-BUTANONE	4	J	P
2-CHLOROTOLUENE	1	U	
2-HEXANONE	5	U	
4-CHLOROTOLUENE	1	U	
4-ISOPROPYLTOLUENE	1	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	24		
BENZENE	1	U	
BROMOBENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON DISULFIDE	1	U	

PROJ_NO: 00933 SDG: CTO403-7 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MWRB041708
	LAB_ID	SB2006-1
	SAMP_DATE	4/17/2008
	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	0.4	J	P
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
DIBROMOMETHANE	1	U	
DICHLORODIFLUOROMETHANE	2	U	
ETHYLBENZENE	1	U	
HEXACHLOROBUTADIENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	5	U	A
N-BUTYLBENZENE	1	U	
N-PROPYLBENZENE	1	U	
O-XYLENE	1	U	
SEC-BUTYLBENZENE	1	U	
STYRENE	1	U	
TERT-BUTYLBENZENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	2	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012			DA-B119B-0204		
SDG: CTO403-7	LAB_ID	SB2006-4			SB2006-6		
FRACTION: OS	SAMP_DATE	4/11/2008			4/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	83.1			95.2		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		400	U		350	U	
1,2,4-TRICHLOROBENZENE		400	U		350	U	
1,2-DICHLOROBENZENE		400	U		350	U	
1,2-DIPHENYLHYDRAZINE		790	U		690	U	
1,3-DICHLOROBENZENE		400	U		350	U	
1,4-DICHLOROBENZENE		400	U		350	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		400	U		350	U	
2,4,5-TRICHLOROPHENOL		990	U		860	U	
2,4,6-TRICHLOROPHENOL		400	U		350	U	
2,4-DICHLOROPHENOL		400	U		350	U	
2,4-DIMETHYLPHENOL		400	U		350	U	
2,4-DINITROPHENOL		990	U		860	U	
2,4-DINITROTOLUENE		400	U		350	U	
2,6-DICHLOROPHENOL		400	U		350	U	
2,6-DINITROTOLUENE		990	U		860	U	
2-CHLORONAPHTHALENE		400	U		350	U	
2-CHLOROPHENOL		400	U		350	U	
2-METHYLNAPHTHALENE					260	J	P
2-METHYLPHENOL		400	U		350	U	
2-NITROANILINE		990	U		860	U	
2-NITROPHENOL		400	U		350	U	
3&4-METHYLPHENOL		400	U		350	U	
3,3'-DICHLOROBENZIDINE		400	U		350	U	
3-NITROANILINE		990	U		860	U	
4,6-DINITRO-2-METHYLPHENOL		990	U		860	U	
4-BROMOPHENYL PHENYL ETHER		400	U		350	U	
4-CHLORO-3-METHYLPHENOL		400	U		350	U	
4-CHLOROANILINE		400	U		350	U	
4-CHLOROPHENYL PHENYL ETHER		400	U		350	U	
4-NITROANILINE		990	U		860	U	
4-NITROPHENOL		990	U		860	U	
ACENAPHTHENE					710		
ANTHRACENE		390	J	P	1600		
BENZIDINE		1800	UJ	C	1600	UJ	C
BENZO(A)ANTHRACENE		1100			3800		

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012			DA-B119B-0204		
SDG: CTO403-7	LAB_ID	SB2006-4			SB2006-6		
FRACTION: OS	SAMP_DATE	4/11/2008			4/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	83.1			95.2		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)PYRENE		1000			3000		
BENZO(B)FLUORANTHENE		1400			3700		
BENZO(G,H,I)PERYLENE		720			1900		
BENZO(K)FLUORANTHENE		370	J	P	1000		
BENZOIC ACID		990	U		860	U	
BENZYL ALCOHOL		790	U		690	U	
BIS(2-CHLOROETHOXY)METHANE		400	U		350	U	
BIS(2-CHLOROETHYL)ETHER		400	U		350	U	
BIS(2-ETHYLHEXYL)PHTHALATE		380	J	P	350	U	
BUTYL BENZYL PHTHALATE		400	U		350	U	
CARBAZOLE		400	J	C	1300	J	C
CHRYSENE		1100			3100		
DIBENZO(A,H)ANTHRACENE					340	J	P
DIBENZOFURAN		400	U		590		
DIETHYL PHTHALATE		400	U		350	U	
DIMETHYL PHTHALATE		400	U		350	U	
DI-N-BUTYL PHTHALATE		400	U		350	U	
DI-N-OCTYL PHTHALATE		400	UJ	C	350	UJ	C
FLUORANTHENE		2000			8000		
FLUORENE					710		
HEXACHLOROBENZENE		400	U		350	U	
HEXACHLOROBUTADIENE		400	U		350	U	
HEXACHLOROETHANE		400	U		350	U	
INDENO(1,2,3-CD)PYRENE		610			1800		
ISOPHORONE		400	U		350	U	
NAPHTHALENE					600		
NITROBENZENE		400	U		350	U	
N-NITROSODIMETHYLAMINE		400	U		350	U	
N-NITROSO-DI-N-PROPYLAMINE		400	U		350	U	
N-NITROSODIPHENYLAMINE		400	U		350	U	
N-NITROSOPYRROLIDINE		400	U		350	U	
PENTACHLOROPHENOL		990	U		860	U	
PHENANTHRENE		1700			6500		
PHENOL		400	U		350	U	
PYRENE		2200			5600		

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708
SDG: CTO403-7	LAB_ID	SB2006-1
FRACTION: OS	SAMP_DATE	4/17/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	10	UJ	E
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DIPHENYLHYDRAZINE	20	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U	
2,4,5-TRICHLOROPHENOL	25	U	
2,4,6-TRICHLOROPHENOL	10	U	
2,4-DICHLOROPHENOL	10	U	
2,4-DIMETHYLPHENOL	10	U	
2,4-DINITROPHENOL	25	UJ	E
2,4-DINITROTOLUENE	10	U	
2,6-DICHLOROPHENOL	10	U	
2,6-DINITROTOLUENE	10	U	
2-CHLORONAPHTHALENE	10	U	
2-CHLOROPHENOL	10	U	
2-METHYLNAPHTHALENE	10	U	
2-METHYLPHENOL	10	U	
2-NITROANILINE	25	U	
2-NITROPHENOL	10	U	
3&4-METHYLPHENOL	10	U	
3,3'-DICHLOROBENZIDINE	10	U	
3-NITROANILINE	25	U	
4,6-DINITRO-2-METHYLPHENOL	25	U	
4-BROMOPHENYL PHENYL ETHER	10	U	
4-CHLORO-3-METHYLPHENOL	10	U	
4-CHLOROANILINE	10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U	
4-NITROANILINE	25	U	
4-NITROPHENOL	25	U	
ACENAPHTHENE	10	U	
ACENAPHTHYLENE	10	U	
ANTHRACENE	10	U	
BENZIDINE	50	UJ	E

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708
SDG: CTO403-7	LAB_ID	SB2006-1
FRACTION: OS	SAMP_DATE	4/17/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	10	U	
BENZO(A)PYRENE	10	U	
BENZO(B)FLUORANTHENE	10	U	
BENZO(G,H,I)PERYLENE	10	U	
BENZO(K)FLUORANTHENE	10	U	
BENZOIC ACID	25	U	
BENZYL ALCOHOL	20	U	
BIS(2-CHLOROETHOXY)METHANE	10	U	
BIS(2-CHLOROETHYL)ETHER	10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	
BUTYL BENZYL PHTHALATE	10	U	
CARBAZOLE	10	U	
CHRYSENE	10	U	
DIBENZO(A,H)ANTHRACENE	10	U	
DIBENZOFURAN	10	U	
DIETHYL PHTHALATE	10	U	
DIMETHYL PHTHALATE	10	U	
DI-N-BUTYL PHTHALATE	10	U	
DI-N-OCTYL PHTHALATE	10	U	
FLUORANTHENE	10	U	
FLUORENE	10	U	
HEXACHLOROBENZENE	10	U	
HEXACHLOROBUTADIENE	10	U	
HEXACHLOROETHANE	10	U	
INDENO(1,2,3-CD)PYRENE	10	U	
ISOPHORONE	10	U	
NAPHTHALENE	10	U	
NITROBENZENE	10	U	
N-NITROSODIMETHYLAMINE	10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U	
N-NITROSODIPHENYLAMINE	10	U	
N-NITROSOPYRROLIDINE	10	U	
PENTACHLOROPHENOL	25	U	
PHENANTHRENE	10	U	
PHENOL	10	U	

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708		
SDG: CTO403-7	LAB_ID	SB2006-1		
FRACTION: OS	SAMP_DATE	4/17/2008		
MEDIA: WATER	QC_TYPE	RB		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PYRENE		10	U	

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012			DA-B119B-0204		
SDG: CTO403-7	LAB_ID	SB2006-5			SB2006-7		
FRACTION: PAH	SAMP_DATE	4/11/2008			4/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	83.1			95.2		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		60					
ACENAPHTHENE		170					
ACENAPHTHYLENE		24	U		21	U	
BENZO(G,H,I)PERYLENE		290					
DIBENZO(A,H)ANTHRACENE		160					
FLUORENE		190					
NAPHTHALENE		100					

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708
SDG: CTO403-7	LAB_ID	SB2006-2
FRACTION: PAH	SAMP_DATE	4/17/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	0.14	J	P
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.13	J	P
PHENANTHRENE	0.043	J	P
PYRENE	0.2	U	

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012			DA-B119B-0204			DA-SB103-0103		
SDG: CTO403-7	LAB_ID	SB2006-4			SB2006-6			SB2006-3		
FRACTION: PEST/PCB	SAMP_DATE	4/11/2008			4/14/2008			4/14/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.1			95.2			89.7		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		4	UJ	C	3.5	UJ	C	3.7	UJ	C
4,4'-DDE		4	U		3.5	U		3.7	U	
4,4'-DDT		18	J	CU	3.3	J	CP	3.7	UJ	C
ALDRIN		2	U		1.8	U		1.9	U	
ALPHA-BHC		2	U		1.8	U		1.9	U	
ALPHA-CHLORDANE		2	U		15	J	U	1.9	U	
AROCLOR-1016		20	U		18	U		19	U	
AROCLOR-1221		20	U		18	U		19	U	
AROCLOR-1232		20	U		18	U		19	U	
AROCLOR-1242		20	U		18	U		19	U	
AROCLOR-1248		20	U		18	U		19	U	
AROCLOR-1254		20	U		18	U		19	U	
AROCLOR-1260		260			18	U		96		
AROCLOR-1268		61			18	U		19	U	
BETA-BHC		2	U		1.8	U		1.9	U	
DELTA-BHC		2	U		1.8	U		1.9	U	
DIELDRIN		4	U		3.5	U		3.7	U	
ENDOSULFAN I		2	U		1.8	U		1.9	U	
ENDOSULFAN II		4	U		3.5	U		3.7	U	
ENDOSULFAN SULFATE		4	U		3.5	U		3.7	U	
ENDRIN		4	U		3.5	U		3.7	U	
ENDRIN ALDEHYDE		4	U		3.5	U		3.7	U	
ENDRIN KETONE		4	UJ	C	3.5	UJ	C	3.7	UJ	C
GAMMA-BHC (LINDANE)		2	U		1.8	U		1.9	U	
GAMMA-CHLORDANE		2	U		20			1.9	U	
HEPTACHLOR		2	U		1.8	U		1.9	U	
HEPTACHLOR EPOXIDE		2	U		1.8	U		1.9	U	
METHOXYCHLOR		20	UJ	C	18	UJ	C	19	UJ	C
TOXAPHENE		40	U		35	U		37	U	

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708
SDG: CTO403-7	LAB_ID	SB2006-1
FRACTION: PEST/PCB	SAMP_DATE	4/17/2008
MEDIA: WATER	QC_TYPE	RB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
4,4'-DDD	0.1	U	
4,4'-DDE	0.1	U	
4,4'-DDT	0.1	U	
ALDRIN	0.05	U	
ALPHA-BHC	0.05	U	
ALPHA-CHLORDANE	0.05	U	
AROCLOR-1016	0.5	U	
AROCLOR-1221	0.5	U	
AROCLOR-1232	0.5	U	
AROCLOR-1242	0.5	U	
AROCLOR-1248	0.5	U	
AROCLOR-1254	0.5	U	
AROCLOR-1260	0.5	UJ	C
AROCLOR-1268	0.5	U	
BETA-BHC	0.05	U	
DELTA-BHC	0.05	U	
DIELDRIN	0.1	U	
ENDOSULFAN I	0.05	U	
ENDOSULFAN II	0.1	U	
ENDOSULFAN SULFATE	0.1	U	
ENDRIN	0.1	U	
ENDRIN ALDEHYDE	0.1	U	
ENDRIN KETONE	0.1	U	
GAMMA-BHC (LINDANE)	0.05	U	
GAMMA-CHLORDANE	0.05	U	
HEPTACHLOR	0.05	U	
HEPTACHLOR EPOXIDE	0.05	U	
METHOXYCHLOR	0.5	U	
TOXAPHENE	1	U	

PROJ_NO: 00933	NSAMPLE	DA-B110B-1012			DA-B119B-0204			TB-041808		
SDG: CTO403-7	LAB_ID	SB2006-4			SB2006-6			SB2006-8		
FRACTION: PET	SAMP_DATE	4/11/2008			4/14/2008			4/18/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			TB		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.1			95.2			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		24			5.1	U	A	3.2		
TPH (C09-C36)		170			200					

PROJ_NO: 00933	NSAMPLE	DA-MWRB041708		
SDG: CTO403-7	LAB_ID	SB2006-1		
FRACTION: PET	SAMP_DATE	4/17/2008		
MEDIA: WATER	QC_TYPE	RB		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		7.3	J	P
TPH (C09-C36)		130		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-06-08-2793W

Date: July 24, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO403-8
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

Total and Dissolved Iron:

8/Groundwaters/	DA-MW109-1924	DA-MW109-3035	DA-MW109-3641
	DA-MW114-2934	DA-MW114-3439	DA-MW114-5261
	DA-MW115-1924	DA-MW115-2631	

TAL Metals and Molybdenum (Total)/Ammonia/Nitrate/Nitrite/Orthophosphate/Sulfate/ Sulfide/TOC:

2/Groundwaters/	DA-MW119B-51408	DA-MW120B-51408

TAL Metals and Molybdenum (Dissolved):

2/Groundwaters/	DA-MW119B-51408F	DA-MW120B-51408F

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the iron, TAL metals and molybdenum analytical data from groundwater samples collected at the Site 08-NUSC Disposal Area from May 5-14, 2008 and a Tier I data validation on the ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC analytical data from the groundwater samples collected on May 14, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B and 7470A (mercury). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. The wet chemistry analyses (ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC) were performed according to EPA 600/4-79-020 (E350.1, E353.2, E353.2, E365.2, E375.2, E376.1, E415.1; respectively). Tier I data validation includes evaluation for completeness only.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verification
• Laboratory Blank Analyses
* • ICP Interference Check Sample Results

*	•	Matrix Spike/Matrix Spike Duplicate
NA	•	Laboratory Duplicate Results
*	•	Laboratory Control Sample Results
NA	•	Field Duplicate Precision
*	•	ICP Serial Dilution Results
	•	Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The non-detected metals data were incorrectly reported down to the laboratory's quantitation limit, rather than the method detection limit (MDL) as required in the technical specification. The laboratory resubmitted the applicable corrected summary forms on July 23, 2008, and the metals data package is complete.

The ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC data are complete. The laboratory flagged as estimated (J) the positive results above the method detection limit and below the quantitation limit for these analytes. The "J" flags are presented in VQL column of the data summary tables.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Arsenic	2.72	13.6	All samples
Selenium	-2.56	12.8	

The positive arsenic results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The non-detected selenium results are estimated (UJ) due to negative instrument drift as evidenced by the negative blank results.

Arsenic contamination was found in the laboratory blank; therefore, the project sensitivity goals may be impacted since the project action limits were exceeded by the elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Negative results for selenium were found in the laboratory blank; therefore, the project accuracy goals may be impacted. The non-detected selenium results in the affected samples are usable as estimated reporting limits which may be biased low.

Reporting Limits

The positive results above the MDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Non-detected results were reported down to the MDL. The reporting limits for all non-detected results met the project action limits except for thallium. The project action limit for thallium was not achievable, as highlighted in the approved work plan. Data usability may be impacted.

Reporting limits were raised for arsenic in all samples due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals may be affected since the project action limits were exceeded by the elevated reporting limits. Data usability may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exception. Selenium results were qualified as estimated due to negative instrument drift. Although specific QC criteria were not met in this instance, the affected non-detected results are usable as estimated reporting limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set with the following exceptions. Reporting limits were raised for arsenic due to blank contamination. The project action limits were exceeded by the elevated reporting limits. The project action limit was not achievable for the thallium as highlighted in the approved work plan. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
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U = Value is not detected
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H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW109-1924			DA-MW109-3035			DA-MW109-3641			DA-MW114-2934		
	LAB_ID	SB2439-012			SB2439-014			SB2439-016			SB2439-002		
	SAMP_DATE	5/8/2008			5/8/2008			5/8/2008			5/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM													
ANTIMONY													
ARSENIC													
BARIUM													
BERYLLIUM													
CADMIUM													
CALCIUM													
CHROMIUM													
COBALT													
COPPER													
IRON		15000			17200			15300			1230		
LEAD													
MAGNESIUM													
MANGANESE													
MERCURY													
MOLYBDENUM													
NICKEL													
POTASSIUM													
SELENIUM													
SILVER													
SODIUM													
THALLIUM													
VANADIUM													
ZINC													

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW114-3439			DA-MW114-5261			DA-MW115-1924			DA-MW115-2631		
	LAB_ID	SB2439-004			SB2439-006			SB2439-008			SB2439-010		
	SAMP_DATE	5/5/2008			5/6/2008			5/7/2008			5/7/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM													
ANTIMONY													
ARSENIC													
BARIUM													
BERYLLIUM													
CADMIUM													
CALCIUM													
CHROMIUM													
COBALT													
COPPER													
IRON		9290			9950			13900			17300		
LEAD													
MAGNESIUM													
MANGANESE													
MERCURY													
MOLYBDENUM													
NICKEL													
POTASSIUM													
SELENIUM													
SILVER													
SODIUM													
THALLIUM													
VANADIUM													
ZINC													

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408		
	LAB_ID	SB2509-001			SB2509-003		
	SAMP_DATE	5/14/2008			5/14/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		31.4	J	P	415		
ANTIMONY		1.2	J	P	0.78	U	
ARSENIC		12.4	U	A	6.6	UJ	AP
BARIUM		24.5			21.7		
BERYLLIUM		0.13	U		0.27	J	P
CADMIUM		0.04	U		0.04	U	
CALCIUM		34700			37400		
CHROMIUM		0.41	U		1.5	J	P
COBALT		0.98	J	P	12.9	J	P
COPPER		0.89	J	P	9.8	J	P
IRON		7670			17000		
LEAD		0.97	U		1.5	J	P
MAGNESIUM		12200			24900		
MANGANESE		454			1620		
MERCURY		0.03	U		0.03	U	
MOLYBDENUM		1.4	J	P	0.3	U	
NICKEL		0.42	U		29.2	J	P
POTASSIUM		2430			711	J	P
SELENIUM		0.96	UJ	O	0.96	UJ	O
SILVER		0.29	U		0.29	U	
SODIUM		38200			24600		
THALLIUM		2.3	J	P	1.64	U	
VANADIUM		0.38	U		0.38	U	
ZINC		4.4	J	P	14.8	J	P

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW109-1924			DA-MW109-3035			DA-MW109-3641			DA-MW114-2934		
	LAB_ID	SB2439-013			SB2439-015			SB2439-017			SB2439-003		
	SAMP_DATE	5/8/2008			5/8/2008			5/8/2008			5/5/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM													
ANTIMONY													
ARSENIC													
BARIUM													
BERYLLIUM													
CADMIUM													
CALCIUM													
CHROMIUM													
COBALT													
COPPER													
IRON		10400			6050			8070			918		
LEAD													
MAGNESIUM													
MANGANESE													
MERCURY													
MOLYBDENUM													
NICKEL													
POTASSIUM													
SELENIUM													
SILVER													
SODIUM													
THALLIUM													
VANADIUM													
ZINC													

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW114-3439			DA-MW114-5261			DA-MW115-1924			DA-MW115-2631		
	LAB_ID	SB2439-005			SB2439-007			SB2439-009			SB2439-011		
	SAMP_DATE	5/5/2008			5/6/2008			5/7/2008			5/7/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM													
ANTIMONY													
ARSENIC													
BARIUM													
BERYLLIUM													
CADMIUM													
CALCIUM													
CHROMIUM													
COBALT													
COPPER													
IRON		3520			3030			5600			4890		
LEAD													
MAGNESIUM													
MANGANESE													
MERCURY													
MOLYBDENUM													
NICKEL													
POTASSIUM													
SELENIUM													
SILVER													
SODIUM													
THALLIUM													
VANADIUM													
ZINC													

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW119B-51408F			DA-MW120B-51408F		
	LAB_ID	SB2509-002			SB2509-004		
	SAMP_DATE	5/14/2008			5/14/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		22.1	J	P	17.6	J	P
ANTIMONY		0.78	U		0.78	U	
ARSENIC		12.4	U	A	6	UJ	AP
BARIUM		24.1			19.2		
BERYLLIUM		0.13	U		0.24	J	P
CADMIUM		0.04	U		0.04	U	
CALCIUM		33900			36400		
CHROMIUM		0.41	U		0.41	U	
COBALT		1	J	P	12.2	J	P
COPPER		0.75	U		0.75	U	
IRON		7280			15000		
LEAD		0.97	U		0.97	U	
MAGNESIUM		11900			24200		
MANGANESE		439			1570		
MERCURY		0.03	U		0.03	U	
MOLYBDENUM		1.3	J	P	0.3	U	
NICKEL		0.42	U		26.7	J	P
POTASSIUM		2390			660	J	P
SELENIUM		0.96	U	O	0.96	UJ	O
SILVER		0.29	U		0.29	U	
SODIUM		37200			23800		
THALLIUM		1.64	U		1.8	J	P
VANADIUM		0.38	U		0.38	U	
ZINC		4.6	J	P	11.7	J	P

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408		
	LAB_ID	SB2509-1			SB2509-3		
	SAMP_DATE	5/14/2008			5/14/2008		
	QC_TYPE	NM			NM		
	UNITS	MG/L			MG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		1.1			0.1	U	
NITRATE-N		0.05	U		0.05	U	
NITRITE-N		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.12			0.046	J	
SULFATE		5			65		
SULFIDE		3.1			1	U	
TOTAL ORGANIC CARBON		2.1			0.49	J	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2810W

Date: July 14, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-8
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/Pesticides/PCB/GRO/ExTPH/MEE:

2/Groundwaters/	DA-MW119B-51408	DA-MW120B-51408

VOC:

9/Groundwaters/	DA-MW100B-DNAPL	DA-MW109-1924
	DA-MW109-3035	DA-MW109-3641
	DA-MW114-2934	DA-MW114-3439
	DA-MW114-5261	DA-MW115-1924
	DA-MW115-2631	
1/Trip Blank/	DA-MW-TB01	

VOC/GRO:

3/Trip Blanks/	DA-MW-TB04	DA-MW-TB05
	DA-MW-TB06	

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile organic compounds (VOC), semivolatile organic compounds (SVOCs), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), extractable total petroleum hydrocarbons (ExTPH), and methane/ethane/ethene (MEE) analytical data for the groundwater samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from May 5-14, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M. The MEE analysis was performed according to USEPA Method RSK174.

The VOC, SVOC, GRO, ExTPH, and MEE data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
*	• Instrument Performance Check: Pesticide Degradation
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
*	• Internal Standards
NA	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	• Field Duplicates
*	• Analyte Identification/Quantitation
	• Reporting Limits
*	• Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

Sample DA-MW100B-DNAPL was written incorrectly on the chain-of-custody. The laboratory confirmed with correct sample ID with the field sampler.

Sample DA-MW100B-DNAPL was not analyzed for GRO, SVOC, pesticides, PCBs, and extractable TPH as written on the chain-of-custody. This change was issued by the project manager (D. Seiken).

Preservation and Technical Holding Times

Volatiles

Samples DA-MW114-2934, DA-MW114-3439, and DA-MW114-5261 were re-analyzed 1-2 days beyond the 14-day technical holding time criterion because of auto-sampler error. The positive and non-detected results are estimated (J, UJ) for all volatile compounds for the samples due to the exceeded holding time criterion.

The method required holding time criterion was not met for samples DA-MW114-2934, DA-MW114-3439, and DA-MW114-5261; therefore, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acetone	-33.62		UJ	DA-MW-TB04, DA-MW-TB05, DA-MW-TB06, DA-MW119B-51408, DA-MW120B-51408
Dichlorodifluoromethane	43.3		UJ	DA-MW-TB01
Trichlorotrifluoromethane	45.78		UJ	
Carbon tetrachloride	55.87		UJ	
1,1,1-Trichloroethane	30.62		UJ	
1,2-Dichloroethane	33.24		UJ	
Bromodichloromethane	32.20		UJ	
Dibromochloromethane	25.10		UJ	
2-Hexanone	26.94		UJ	
Bromoform	25.62		UJ	
1,2-Dibromo-3-chloropropane	40.10		UJ	
Chloroethane	29.67, -37.97		UJ	DA-MW-TB01, DA-MW114-2934, DA-MW114-3439, DA-MW114-5261, DA-MW115-1924, DA-MW115-2631, DA-MW109-1924, DA-MW109-3035, DA-MW109-3641

Although the %D was outside of the QC limits for acetone, dichlorodifluoromethane, trichlorotrifluoromethane, and 1,1,1-trichloroethane; the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D was outside of the QC limits for carbon tetrachloride, bromodichloromethane, dibromochloromethane, 2-hexanone, bromoform, and 1,2-dibromo-3-chloropropane; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds in the monitoring well samples. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 1,2-dichloroethane and chloroethane; therefore, the project accuracy goals may be impacted since the project action limits for these compounds were not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzidine	-37.79		UJ	DA-MW119B-51408, DA-MW120B-51408
3,3'-Dichlorobenzidine	-44.19		UJ	
Di-n-octylphthalate	29.53		UJ	

Although the %D was outside of the QC limits for benzidine and di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 3,3'-dichlorobenzidine; therefore, the project accuracy goals may be impacted since the project action limit for this compound was not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the trip blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Methylene chloride	Trip	0.8	8.0	DA-MW114-5261, DA-MW115-1924

Blank actions are applied to the affected groundwater samples due to methylene chloride trip blank contamination. The 10x rule applies for this common laboratory contaminant. The positive results for methylene chloride in the affected samples are changed to non-detected values at the laboratory's quantitation limits (QL).

Methylene chloride contamination was found in the trip blank; therefore, the project sensitivity goals may be impacted since the project action limit for methylene chloride is exceeded by the quantitation limit. The results in the affected samples are usable as non-detected values.

GRO

The following table summarizes the level of blank contamination detected in the trip blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
GRO	Trip	14	70	DA-MW119B-51408

Blank action was applied to the affected sample due to GRO trip blank contamination. The 5x rule applies for this hydrocarbon range. The positive result below the blank action level for GRO in the affected sample was changed to a non-detected value at the CRQL.

Although GRO contamination was found in the trip blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The result in the affected sample is usable as a non-detected value.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW-TB01	1,2-Dichloroethane-d_4	130	71-128	J	

The surrogate 1,2-dichloroethane-d_4 recovered above the QC limits in the sample DA-MW-TB01. All positive results are estimated (J) in the affected sample due to high surrogate recovery.

The surrogate recovery QC criteria were not met for 1,2-dichloroethane-d_4; therefore, the project accuracy goals may be impacted. The positive results in sample DA-MW-TB01 are usable as estimated values which may be biased high.

Semivolatiles

The following sample had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW120B-51408	Phenol-d_6	0	34-105		R
	2-Fluorophenol	2	10-115		R
	2,4,6-Tribromophenol	3	51-144		R

The surrogates phenol-d_6, 2-fluorophenol, and 2,4,6-tribromophenol recovered below the QC limits in the semivolatile sample DA-MW120B-51408. All non-detected phenol and acid results are rejected (UJ) in the affected sample due to extremely low surrogate recoveries.

The surrogate recovery QC criteria were not met for phenol-d_6, 2-fluorophenol, and 2,4,6-tribromophenol; therefore, the project accuracy goals are impacted. The non-detected phenol and acid results in sample DA-MW120B-51408 are not usable for project decisions.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compound that failed to meet the laboratory control sample (LCS) QC recovery limits:

Compound	% Recovery	QC Limits	Action		Affected Samples
			(+)	NDs	
Tetrachloroethane	149	71-137	J		DA-MW115-2631, DA-MW109-1924, DA-MW109-3035, DA-MW109-3641

The LCS recovery for tetrachloroethane was above the QC limits; therefore, the project accuracy goals may be impacted. The positive results in the affected samples are usable as estimated values which may be biased high.

A volatiles LCS duplicate sample was not analyzed. Therefore, the data were not evaluated for precision based on this parameter.

Semivolatiles

There was no recovery for the spiked analyte benzoic acid in the LCS/LCSD WG52148-2 and 3 and WG51672-1RA and 3RA. The non-detected results are rejected (UR) for benzoic acid in all samples.

Although there were no recoveries for benzoic acid in the LCS, the project goals are not impacted since there are no regulatory limits established for these compounds. The non-detected benzoic acid results in the affected samples are not usable for project decisions.

The following table summarizes the semivolatile compounds that failed to meet the LCS QC recovery limits or the relative percent difference QC limits:

Compound	% Rec.	RPD	QC Limits	Action		Affected Samples
				(+)	NDs	
Bis(2-chloroethyl)ether	-	35	30		UJ	DA-MW119B-51408, DA-MW120B-51408
1,4-Dichlorobenzene	-	31	30		UJ	
Benzyl alcohol	-	36	30		UJ	
2,2'-Oxybis(1-chloropropane)	-	32	30		UJ	
2-Methylnaphthalene	-	31	30		UJ	
1,1'-Biphenyl	58	-	60-129		UJ	

-Criterion met

Although the LCS relative percent differences for bis(2-chloroethyl)ether, 1,4-dichlorobenzene, benzyl alcohol, and 2,2'-oxybis(1-chloropropane) did not meet the QC limits, the project precision goals are not impacted since there are no regulatory limits established for these compounds. The non-detected

results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

The LCS relative percent difference for 2-methylnaphthalene did not meet the QC limits; therefore, the project precision goals may be impacted since the project action limit for 2-methylnaphthalene was not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

The LCS recovery for 1,1'-biphenyl did not meet QC limits; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased high.

Reporting Limits

Volatiles

Blank actions were applied to select samples due to methylene chloride blank contamination. As discussed above in the Blanks section, the project sensitivity goals may be impacted.

Sample DA-MW100B-DNAPL was only analyzed at 1:50 dilution due to the high concentration of target analytes in the sample. All non-detected results in DA-MW100B-DNAPL exceed project quantitation limits.

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The laboratory did not meet the project quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-nitrophenol, and benzidine. However, the project sensitivity goals are not impacted since there are no regulatory limits established for these compounds.

The laboratory did not meet the project quantitation limits for the following compounds: 2,4-dinitrophenol, 4-nitroaniline, and pentachlorophenol. Since the project action limits were exceeded by the laboratory's quantitation limits, data usability may be impacted.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, isophorone, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The laboratory did not meet the project quantitation limits for all of the Aroclors. The project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO

Blank actions were applied to sample DA-MW119B-51408 due to GRO blank contamination. The positive result for GRO in the affected sample is changed to a non-detected value at the QL. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

Tentatively Identified Compounds

Semivolatiles

The laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate, 2-nitrodiphenylamine, or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. All compounds in samples DA-MW114-2934, DA-MW114-3439, and DA-MW114-5261 were qualified as estimated due to holding time exceedances. The results may be biased low. The compounds 1,2-dichloroethane and chloroethane were qualified as estimated due to instrument calibration variability. The positive results in sample DA-MW-TB01 were qualified as estimated due to high surrogate recoveries. Tetrachloroethane was qualified as estimated due to high LCS recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which do not impact data usability.

A LCS duplicate was not analyzed for volatiles and matrix spike/matrix spike duplicate analyses were not performed for this SDG. Therefore, the project goals with respect to precision could not be evaluated.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. Blank actions were applied to select samples due to methylene chloride blank contamination. Sample DA-MW100B-DNAPL was only analyzed at 1:50 dilution due to the high concentration of target analytes in the sample. All non-detected results in DA-MW100B-DNAPL exceed project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. The compound 3,3'-dichlorobenzidine was qualified as estimated due to instrument calibration variability. The compound 1,1'-biphenyl was qualified as estimate due to low LCS recoveries. The results may be biased low. Although specific method criteria were not met in these instances, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. The acid and phenol results in sample DA-MW120B-51408 were rejected due to extremely low surrogate recoveries. These results are not usable for project decisions. The non-detected benzoic acid results in all samples were qualified as rejected due to no LCS recoveries. These results are not usable for project decisions. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. The compound 2-methylnaphthalene was qualified as estimated due to laboratory control sample/laboratory control sample duplicate imprecision. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. Additional compounds were qualified as estimated due to laboratory control sample/laboratory control sample duplicate imprecision. Although specific method criteria were not met in this instance, the affected positive results are usable as estimated values which do not impact data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, isophorone, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The project goals with respect to accuracy and precision were met for the pesticides data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The project goals with respect to accuracy and precision were met for the PCBs data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were met for the PCBs data set with the following exception. The project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO, ExTPH, MEE

The project goals with respect to accuracy and precision were met for the GRO, ExTPH, and MEE data sets. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity could not be evaluated for the GRO, ExTPH, and MEE data sets because no regulatory limits have been established for these analyses.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW100B-DNAPLDL2			DA-MW109-1924RA			DA-MW109-3035RA			DA-MW109-3641RA		
	LAB_ID	SB2509-8DL2			SB2439-12RA			SB2439-14RA			SB2439-16RA		
	SAMP_DATE	5/13/2008			5/8/2008			5/8/2008			5/8/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		50	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		50	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		50	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		50	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		310			1	U		1	U		1	U	
1,1-DICHLOROETHENE		50	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		50	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		50	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		50	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		50	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		810			1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		50	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		50	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		50	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		50	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		50	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		290			1	U		1	U		1	U	
1,3-DICHLOROBENZENE		50	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		50	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		50	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		50	U		1	U		1	U		1	U	
2-BUTANONE		250	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		50	U		1	U		1	U		1	U	
2-HEXANONE		250	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		50	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		110			1	U		1	U		1	U	
4-METHYL-2-PENTANONE		250	U		5	U		5	U		5	U	
ACETONE		250	U		5	J	P	5	U		5	U	
BENZENE		50	U		1	U		1	U		1	U	
BROMOBENZENE		50	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		50	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		50	U		1	U		1	U		1	U	
BROMOFORM		50	U		1	U		1	U		1	U	
BROMOMETHANE		100	U		2	U		2	U		2	U	
CARBON DISULFIDE		50	U		0.6	J	P	1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW114-2934RA			DA-MW114-3439RA			DA-MW114-5261RA			DA-MW115-1924RA		
SDG: CTO403-8	LAB_ID	SB2439-2RA			SB2439-4RA			SB2439-6RA			SB2439-8RA		
FRACTION: OV	SAMP_DATE	5/5/2008			5/5/2008			5/6/2008			5/7/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,1,1-TRICHLOROETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,1,2,2-TETRACHLOROETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,1,2-TRICHLOROETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,1-DICHLOROETHANE	1	J	H	1	UJ	H	1	UJ	H	0.7	J	P
1,1-DICHLOROETHENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,1-DICHLOROPROPENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2,3-TRICHLOROBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2,3-TRICHLOROPROPANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2,4-TRICHLOROBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2,4-TRIMETHYLBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2-DIBROMOETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2-DICHLOROBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2-DICHLOROETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,2-DICHLOROPROPANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,3,5-TRIMETHYLBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,3-DICHLOROBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,3-DICHLOROPROPANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
1,4-DICHLOROBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
2,2-DICHLOROPROPANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
2-BUTANONE	5	UJ	H	5	UJ	H	5	UJ	H	5	U	
2-CHLOROTOLUENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
2-HEXANONE	5	UJ	H	5	UJ	H	5	UJ	H	5	U	
4-CHLOROTOLUENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
4-ISOPROPYLTOLUENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
4-METHYL-2-PENTANONE	5	UJ	H	5	UJ	H	5	UJ	H	5	U	
ACETONE	5	UJ	H	4	J	HP	5	J	HP	8		
BENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
BROMOBENZENE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
BROMOCHLOROMETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
BROMODICHLOROMETHANE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
BROMOFORM	1	UJ	H	1	UJ	H	1	UJ	H	1	U	
BROMOMETHANE	2	UJ	H	2	UJ	H	2	UJ	H	2	U	
CARBON DISULFIDE	1	UJ	H	1	UJ	H	1	UJ	H	1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW115-2631RA			DA-MW119B-51408			DA-MW120B-51408			DA-MW-TB01		
SDG: CTO403-8	LAB_ID	SB2439-10RA			SB2509-1			SB2509-3			SB2439-1		
FRACTION: OV	SAMP_DATE	5/7/2008			5/14/2008			5/14/2008			5/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	UJ	C
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	0.6	J	P	1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	UJ	C
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	UJ	C
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	UJ	C
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	5	J	P	5	UJ	C	5	UJ	C	5	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	UJ	C
BROMOFORM	1	U		1	U		1	U		1	UJ	C
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW-TB04			DA-MW-TB05			DA-MW-TB06		
SDG: CTO403-8	LAB_ID	SB2509-5			SB2509-6			SB2509-7		
FRACTION: OV	SAMP_DATE	5/14/2008			5/14/2008			5/13/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U	
ACETONE		5	UJ	C	5	UJ	C	5	UJ	C
BENZENE		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW100B-DNAPLDL2			DA-MW109-1924RA			DA-MW109-3035RA			DA-MW109-3641RA		
SDG: CTO403-8	LAB_ID	SB2509-8DL2			SB2439-12RA			SB2439-14RA			SB2439-16RA		
FRACTION: OV	SAMP_DATE	5/13/2008			5/8/2008			5/8/2008			5/8/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		50	U		1	U		1	U		1	U	
CHLOROBENZENE		50	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		50	U		1	U		1	U		1	U	
CHLOROETHANE		130			2	UJ	C	2	UJ	C	2	UJ	C
CHLOROFORM		50	U		1	U		1	U		1	U	
CHLOROMETHANE		100	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		50	U		4			6			4		
CIS-1,3-DICHLOROPROPENE		50	U		1	U		1	U		1	U	
DIBROMOMETHANE		50	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		100	U		2	U		2	U		2	U	
ETHYLBENZENE		58			1	U		1	U		1	U	
HEXACHLOROBUTADIENE		50	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		94			1	U		1	U		1	U	
M+P-XYLENES		60	J	P	2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		50	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		250	U		5	U		5	U		5	U	
N-BUTYLBENZENE		98			1	U		1	U		1	U	
N-PROPYLBENZENE		140			1	U		1	U		1	U	
O-XYLENE		37	J	P	1	U		1	U		1	U	
SEC-BUTYLBENZENE		84			1	U		1	U		1	U	
STYRENE		50	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		50	U		1	U		1	U		1	U	
TETRACHLOROETHENE		50	U		2	J	E	5	J	E	4	J	E
TOLUENE		50	U		41			9			4		
TRANS-1,2-DICHLOROETHENE		50	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		50	U		1	U		1	U		1	U	
TRICHLOROETHENE		50	U		1			2			1		
TRICHLOROFLUOROMETHANE		100	U		2	U		2	U		2	U	
VINYL CHLORIDE		100	U		2	U		0.6	J	P	2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW114-2934RA			DA-MW114-3439RA			DA-MW114-5261RA			DA-MW115-1924RA		
SDG: CTO403-8	LAB_ID	SB2439-2RA			SB2439-4RA			SB2439-6RA			SB2439-8RA		
FRACTION: OV	SAMP_DATE	5/5/2008			5/5/2008			5/6/2008			5/7/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
CHLOROBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
CHLORODIBROMOMETHANE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
CHLOROETHANE		2	UJ	CH	2	UJ	CH	2	UJ	CH	2	UJ	C
CHLOROFORM		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
CHLOROMETHANE		2	UJ	H	2	UJ	H	2	UJ	H	2	U	
CIS-1,2-DICHLOROETHENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
CIS-1,3-DICHLOROPROPENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
DIBROMOMETHANE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
DICHLORODIFLUOROMETHANE		2	UJ	H	2	UJ	H	2	UJ	H	2	U	
ETHYLBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
HEXACHLOROBUTADIENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
ISOPROPYLBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
M+P-XYLENES		2	UJ	H	2	UJ	H	2	UJ	H	2	U	
METHYL TERT-BUTYL ETHER		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
METHYLENE CHLORIDE		5	UJ	H	5	UJ	H	5	UJ	BH	5	U	B
N-BUTYLBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
N-PROPYLBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
O-XYLENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
SEC-BUTYLBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
STYRENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
TERT-BUTYLBENZENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
TETRACHLOROETHENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
TOLUENE		14	J	H	5	J	H	6	J	H	0.6	J	P
TRANS-1,2-DICHLOROETHENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
TRANS-1,3-DICHLOROPROPENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
TRICHLOROETHENE		1	UJ	H	1	UJ	H	1	UJ	H	1	U	
TRICHLOROFLUOROMETHANE		2	UJ	H	2	UJ	H	2	UJ	H	2	U	
VINYL CHLORIDE		2	UJ	H	2	UJ	H	2	UJ	H	2	U	

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW115-2631RA			DA-MW119B-51408			DA-MW120B-51408			DA-MW-TB01		
	LAB_ID	SB2439-10RA			SB2509-1			SB2509-3			SB2439-1		
	SAMP_DATE	5/7/2008			5/14/2008			5/14/2008			5/5/2008		
	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	UJ	C
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	UJ	C
CHLOROETHANE		2	UJ	C	2	U		2	U		2	UJ	C
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	UJ	C
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		0.8	J	PR
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		0.5	J	EP	1	U		1	U		1	U	
TOLUENE		2			1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	UJ	C
VINYL CHLORIDE		2	U		2	J	P	2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW-TB04			DA-MW-TB05			DA-MW-TB06		
SDG: CTO403-8	LAB_ID	SB2509-5			SB2509-6			SB2509-7		
FRACTION: OV	SAMP_DATE	5/14/2008			5/14/2008			5/13/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		0.6	J	P
N-BUTYLBENZENE		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408		
SDG: CTO403-8	LAB_ID	SB2509-1			SB2509-3		
FRACTION: OS	SAMP_DATE	5/14/2008			5/14/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	UJ	E	10	UJ	E
1,2,4-TRICHLOROBENZENE		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		20	U	
1,3-DICHLOROBENZENE		10	U		10	U	
1,4-DICHLOROBENZENE		10	UJ	E	10	UJ	E
2,2'-OXYBIS(1-CHLOROPROPANE)		10	UJ	E	10	UJ	E
2,4,5-TRICHLOROPHENOL		25	U		25	UR	R
2,4,6-TRICHLOROPHENOL		10	U		10	UR	R
2,4-DICHLOROPHENOL		10	U		10	UR	R
2,4-DIMETHYLPHENOL		10	U		10	UR	R
2,4-DINITROPHENOL		25	U		25	UR	R
2,4-DINITROTOLUENE		10	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	UR	R
2,6-DINITROTOLUENE		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U	
2-CHLOROPHENOL		10	U		10	UR	R
2-METHYLNAPHTHALENE		10	UJ	E	10	UJ	E
2-METHYLPHENOL		10	U		10	UR	R
2-NITROANILINE		25	U		25	U	
2-NITROPHENOL		10	U		10	UR	R
3&4-METHYLPHENOL		10	U		10	UR	R
3,3'-DICHLOROBENZIDINE		10	UJ	C	10	UJ	C
3-NITROANILINE		25	U		25	U	
4,6-DINITRO-2-METHYLPHENOL		25	U		25	UR	R
4-BROMOPHENYL PHENYL ETHER		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		25	U		25	UR	R
4-CHLOROANILINE		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U	
4-NITROANILINE		25	U		25	U	
4-NITROPHENOL		25	U		25	UR	R
ACENAPHTHENE		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U	
ANTHRACENE		10	U		10	U	
BENZIDINE		50	UJ	C	50	UJ	C

PROJ_NO: 00933	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408		
SDG: CTO403-8	LAB_ID	SB2509-1			SB2509-3		
FRACTION: OS	SAMP_DATE	5/14/2008			5/14/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U	
BENZOIC ACID		25	UR	E	25	UR	ER
BENZYL ALCOHOL		20	UJ	E	20	UJ	E
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	UJ	E	10	UJ	E
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U	
BUTYL BENZYL PHTHALATE		10	U		10	U	
CARBAZOLE		10	U		10	U	
CHRYSENE		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U	
DIBENZOFURAN		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	UJ	C	10	UJ	C
FLUORANTHENE		10	U		10	U	
FLUORENE		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U	
ISOPHORONE		10	U		10	U	
NAPHTHALENE		10	U		10	U	
NITROBENZENE		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U	
PENTACHLOROPHENOL		25	U		25	UR	R
PHENANTHRENE		10	U		10	U	
PHENOL		10	U		10	UR	R

PROJ_NO: 00933	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408		
SDG: CTO403-8	LAB_ID	SB2509-1			SB2509-3		
FRACTION: OS	SAMP_DATE	5/14/2008			5/14/2008		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U	

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408		
	LAB_ID	SB2509-1			SB2509-3		
	SAMP_DATE	5/14/2008			5/14/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	U		0.02	U	
4,4'-DDE		0.02	U		0.02	U	
4,4'-DDT		0.02	U		0.02	U	
ALDRIN		0.01	U		0.01	U	
ALPHA-BHC		0.01	U		0.01	U	
ALPHA-CHLORDANE		0.01	U		0.01	U	
AROCLOR-1016		0.1	U		0.11	U	
AROCLOR-1221		0.1	U		0.11	U	
AROCLOR-1232		0.1	U		0.11	U	
AROCLOR-1242		0.1	U		0.11	U	
AROCLOR-1248		0.1	U		0.11	U	
AROCLOR-1254		0.1	U		0.11	U	
AROCLOR-1260		0.1	U		0.11	U	
AROCLOR-1268		0.1	U		0.11	U	
BETA-BHC		0.01	U		0.01	U	
DELTA-BHC		0.01	U		0.01	U	
DIELDRIN		0.02	U		0.02	U	
ENDOSULFAN I		0.01	U		0.01	U	
ENDOSULFAN II		0.02	U		0.02	U	
ENDOSULFAN SULFATE		0.02	U		0.02	U	
ENDRIN		0.02	U		0.02	U	
ENDRIN ALDEHYDE		0.02	U		0.02	U	
ENDRIN KETONE		0.02	U		0.02	U	
GAMMA-BHC (LINDANE)		0.01	U		0.01	U	
GAMMA-CHLORDANE		0.01	U		0.01	U	
HEPTACHLOR		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE		0.01	U		0.01	U	
METHOXYCHLOR		0.1	U		0.1	U	
TOXAPHENE		0.2	U		0.2	U	

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: PET MEDIA: WATER	NSAMPLE	DA-MW119B-51408			DA-MW120B-51408			DA-MW-TB04			DA-MW-TB05		
	LAB_ID	SB2509-1			SB2509-3			SB2509-5			SB2509-6		
	SAMP_DATE	5/14/2008			5/14/2008			5/14/2008			5/14/2008		
	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U	B	10	U		10	U		14		
TPH (C09-C36)		75	U		75	U							

PROJ_NO: 00933	NSAMPLE	DA-MW-TB06		
SDG: CTO403-8	LAB_ID	SB2509-7		
FRACTION: PET	SAMP_DATE	5/13/2008		
MEDIA: WATER	QC_TYPE	TB		
	UNITS	UG/L		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U	
TPH (C09-C36)				

PROJ_NO: 00933 SDG: CTO403-8 FRACTION: OVG MEDIA: WATER	NSAMPLE	DA-MW119B-51408DL			DA-MW120B-51408		
	LAB_ID	SB2509-1DL			SB2509-3		
	SAMP_DATE	5/14/2008			5/14/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		50	U		10	U	
ETHENE		50	U		10	U	
METHANE		2300			2	J	P

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2842W

Date: July 28, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO403-9
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum (Total)/Ammonia/Nitrate/Nitrite/Orthophosphate/ Sulfate/Sulfide/TOC:

19/Groundwaters/ DA-MW03B-52208 DA-MW04B-52308 DA-MW103B-52308
DA-MW103S-52608 DA-MW104B-52008 DA-MW105B-52008
DA-MW106B-52108 DA-MW106S-52208 DA-MW110B-51908
DA-MW111B-51608 DA-MW112B-51608 DA-MW112S-51908
DA-MW113B-51608 DA-MW114B-51608 DA-MW115B-51508
DA-MW116B-51508 DA-MW117B-51508 DA-MW118B-51508
DA-MW-DUP01

(Field Duplicate Pair: DA-MW112B-51608/DA-MW-DUP01)

TAL Metals and Molybdenum (Dissolved):

19/Groundwaters/ DA-MW03B-52208F DA-MW04B-52308F DA-MW103B-52308F
DA-MW103S-52608F DA-MW104B-52008F DA-MW105B-52008F
DA-MW106B-52108F DA-MW106S-52208F DA-MW110B-51908F
DA-MW111B-51608F DA-MW112B-51608F DA-MW112S-51908F
DA-MW113B-51608F DA-MW114B-51608F DA-MW115B-51508F
DA-MW116B-51508F DA-MW117B-51508F DA-MW118B-51508F
DA-MW-DUP01F

(Field Duplicate Pair: DA-MW112B-51608F/DA-MW-DUP01F)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the Target Analyte List (TAL) metals and molybdenum analytical data from groundwater samples collected at the Site 08-NUSC Disposal Area from May 15-26, 2008 and a Tier I data validation on the ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC analytical data from the groundwater samples collected from May 15-26, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B and 7470A (mercury). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. The wet chemistry analyses (ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC) were performed according to EPA 600/4-79-020 (E350.1, E353.2, E353.2, E365.2, E375.4, E376.1, E415.1; respectively). Tier I data validation includes evaluation for completeness only.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
	• Calibration Verification
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
*	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
NA	• Field Duplicate Precision
*	• ICP Serial Dilution Results
	• Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The metals data package is complete.

The ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC data are complete. The laboratory flagged as estimated (J) the positive results above the method detection limit and below the quantitation limit for these analytes. The "J" flags are presented in VQL column of the data summary tables.

Sample DA-MW106S-52208 was incorrectly labeled on the chain-of-custody form as DA-MW106B-52208. The laboratory logged in the sample with the incorrect sample number but reported the data using the correct sample number per instructions from TtNUS.

Calibration Verification

The following table summarizes the calibration verification results which were above the 110% QC recovery limit:

Analyte	%Recovery	Action		Affected Samples
		(+)	NDs	
Lead	111.0, 112.1	J		DA-MW105B-52008, DA-MW112S-51908
Zinc	111.6, 112.5	J		DA-MW110B-51908F, DA-MW112S-51908, DA-MW112S-51908F, DA-MW104B-52008, DA-MW104B-52008F, DA-MW105B-52008, DA-MW105B-52008F, DA-MW03B-52208, DA-MW03B-52208F, DA-MW106S-52208, DA-MW106S-52208F, DA-MW04B-52308, DA-MW04B-52308F, DA-MW103B-52308, DA-MW103B-52308F

Lead and zinc exceeded the calibration verification QC criterion; therefore, the project accuracy goals may be impacted. The positive lead and zinc results in the affected samples are usable as estimated values.

The following table summarizes the analytes that recovered above the 130% QC limit in the reporting limit check standard:

Analyte	%R	2xTrue Value (TV) (µg/L)	Action		Affected Sample
			(+)	NDs	
Cobalt	134.1, 137.1	30.0	J < 2x TV		All samples, except DA-MW103S-52608
Nickel	140.5	80.0	J < 2x TV		DA-MW118B-51508, DA-MW118B-51508F, DA-MW117B-51508, DA-MW117B-51508F, DA-MW116B-51508, DA-MW116B-51508F, DA-MW115B-51508, DA-MW114B-51608, DA-MW114B-51608F, DA-MW111B-51608, DA-MW111B-51608F, DA-MW-DUP01

Cobalt and nickel exceeded the QC recovery criterion in the reporting limit check standard; therefore, the project accuracy goals may be impacted. The positive cobalt and nickel results in the affected samples are usable as estimated values which may be biased high.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Analyte	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Mercury	0.07	0.35	DA-MW111B-51608, DA-MW111B-51608F, DA-MW112B-51608, DA-MW112B-51608F, DA-MW113B-51608, DA-MW113B-51608F, DA-MW114B-51608, DA-MW114B-51608F, DA-MW115B-51508, DA-MW115B-51508F, DA-MW-DUP01, DA-MW-DUP01F, DA-MW116B-51508F, DA-MW117B-51508F, DA-MW118B-51508F

Analyte	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Aluminum	19.81	99.05	DA-MW03B-52208, DA-MW03B-52208F, DA-MW114B-51608, DA-MW116B-51508, DA-MW116B-51508F, DA-MW117B-51508, DA-MW117B-51508F, DA-MW118B-51508, DA-MW118B-51508F, DA-MW-DUP01F, DA-MW04B-52308F, DA-MW103B-52308F, DA-MW104-52008F, DA-MW105B-52008F, DA-MW106B-52108F, DA-MW106S-52208F, DA-MW110B-51908F, DA-MW111B-51608F, DA-MW112B-51608F, DA-MW113B-51608F, DA-MW114B-51608F, DA-MW115B-51508F
Antimony	0.899	4.495	DA-MW03B-52208, DA-MW103B-52308, DA-MW103B-52308F, DA-MW104B-52208, DA-MW104B-52208F, DA-MW106S-52208, DA-MW110B-51908, DA-MW110B-51908F, DA-MW111B-51608, DA-MW111B-51608F, DA-MW112B-51608, DA-MW112B-51608F, DA-MW112S-51908, DA-MW115B-51508, DA-MW115B-51508F, DA-MW-DUP01, DA-MW-DUP01F, DA-MW04B-52308F, DA-MW103S-52608F, DA-MW105B-52008F, DA-MW113B-51608F, DA-MW117B-51508F, DA-MW118B-51508F
Barium	0.60	3.0	DA-MW04B-52308, DA-MW112B-51608, DA-MW112B-51608F, DA-MW114B-51608, DA-MW114B-51608F, DA-MW118B-51508, DA-MW118B-51508F, DA-MW-DUP01, DA-MW-DUP01F, DA-MW104B-52008F, DA-MW105B-52008F, DA-MW110B-51908F
Cadmium	0.44	2.2	DA-MW106B-52108, DA-MW106B-52108F, DA-MW110B-51908, DA-MW111B-51608, DA-MW111B051608F, DA-MW112B-51608, DA-MW112B-51608F, DA-MW113B-51608, DA-MW113B-51608F, DA-MW114B-51608, DA-MW114B-51608F, DA-MW115B-51508, DA-MW115B-51508F, DA-MW116B-51508, DA-MW116B-51508F, DA-MW117B-51508, DA-MW117B-51508F, DA-MW118B-51508, DA-MW118B-51508F, DA-MW-DUP01, DA-MW-DUP01F
Chromium	0.84	4.2	DA-MW04B-52308, DA-MW04B-052308F, DA-MW103B-52308, DA-MW103B-52308F, DA-MW104B-52208, DA-MW104B-52208F, DA-MW105B-52008, DA-MW105B-52008F, DA-MW106S-52208, DA-MW106S-52208F, DA-MW110B-51908, DA-MW110B-51908F, DA-MW111B-51608, DA-MW112B-51608, DA-MW112B-51608F, DA-MW113B-51608, DA-MW113B-51608F, DA-MW115B-51508, DA-MW115B-51508F, DA-MW116B-51508, DA-MW117B-51508, DA-MW-DUP01, DA-MW103S-52608F, DA-MW106B-52108F, DA-MW112S-51908F
Cobalt	0.72	3.6	All samples except DA-MW103S-52608, DA-MW103S-52608F, DA-MW106B-52108, DA-MW106S-52208, DA-MW106S-52208F, DA-MW112S-51908, DA-MW116B-51508, DA-MW116B-51508F, DA-MW117B-51508, DA-MW117B-51508F
Copper	-1.98	9.9	All samples except DA-MW103S-52608, DA-MW103S-52608F, DA-MW106B-52108
Iron	16.81	84.05	DA-MW03B-52208, DA-MW118B-51508, DA-MW04B-52308F, DA-MW105B-52008F, DA-MW112B-51608F, DA-MW114B-51608F, DA-MW-DUP01F
Lead	-2.09	10.45	All samples except DA-MW103S-52608, DA-MW103S-52608F

Analyte	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Potassium	218	1090	DA-MW04B-52308, DA-MW04B-52408F, DA-MW105B-52008, DA-MW105B-52008F, DA-MW111B-51608, DA-MW111B-51608F, DA-MW112B-51608, DA-MW112B-51608F, DA-MW113B-51608, DA-MW113B-51608F, DA-MW114B-51608, DA-MW114B-51608F, DA-MW115B-51508, DA-MW115-51508F, DA-MW116B-51508, DA-MW116B-51508F, DA-MW117B-51508, DA-MW117B-51508F, DA-MW118B-51508, DA-MW118B-51508F, DA-MW-DUP01, DA-MW-DUP01F
Silver	0.71	3.55	All samples except DA-MW03B-52208, DA-MW03B-52208F, DA-MW103S-52608, DA-MW112B-51608, DA-MW112S-51908, DA-MW117B-51508, DA-MW117B-51508F, DA-MW-DUP01, DA-MW114B-51608F, DA-MW118B-51508F
Vanadium	0.62	1.24	All samples except DA-MW103S-52608, DA-MW103S-52608F, DA-MW105B-52008, DA-MW105B-52008F, DA-MW106B-52108, DA-MW112S-51908, DA-MW113B-51608, DA-MW113B-51608F, DA-MW114B-51608, DA-MW114B-51608F, DA-MW115B-51508, DA-MW117B-51508, DA-MW117B-51508F, DA-MW04B-52308F, DA-MW103B-52308F, DA-MW104B-52008F, DA-MW106S-52208F, DA-MW110B-51908F, DA-MW116B-51508F, DA-MW-DUP01F
Zinc	2.37	11.85	All samples except DA-MW103B-52308, DA-MW103S-52608, DA-MW103S-52608F, DA-MW104B-52008, DA-MW104B-52008F, DA-MW106B-52108, DA-MW112S-51908, DA-MW115B-51508, DA-MW116B-51508, DA-MW116B-51508F
Molybdenum	0.411	2.055	DA-MW04B-52308, DA-MW04B-52308F, DA-MW103B-52308, DA-MW103B-52308F, DA-MW104B-52008, DA-MW104B-52008F, DA-MW105B-52008, DA-MW105-52008F, DA-MW110B-51908, DA-MW110B-51908F, DA-MW112B-51608, DA-MW112B-51608F, DA-MW112S-51908, DA-MW113B-51608, DA-MW113B-51608F, DA-MW114B-51608, DA-MW115B-51508, DA-MW115-51508F, DA-MW116B-51508, DA-MW116B-51508F, DA-MW117B-51508, DA-MW118B-51508, DA-MW118B-51508F, DA-MW-DUP01, DA-MW-DUP01F, DA-MW106B-52108F

The positive mercury, aluminum, antimony, barium, cadmium, chromium, cobalt, iron, potassium, silver, vanadium, zinc, and molybdenum results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive copper and lead results below the blank action level and the non-detected copper and lead results are estimated (J, UJ) due to negative instrument drift as evidenced by the negative blank results.

Although mercury, aluminum, barium, chromium, cobalt, iron, vanadium, zinc, and molybdenum contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the elevated detection limits do not exceed the project action limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although potassium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits established for potassium. The non-detected results in the affected samples are usable as elevated reporting limits.

Antimony, cadmium, silver contamination was found in the laboratory blank; therefore, the project sensitivity goals may be impacted since the elevated reporting limits in select samples exceed the project action limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Negative results for copper and lead were found in the laboratory blank; therefore, the project accuracy goals may be impacted. The positive and non-detected copper and lead results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

ICP Interference Check Sample Results

The ICS AB solution recovery was slightly below the 80% QC criterion for lead. The non-detected lead results are estimated (UJ) in samples DA-MW105B-52008F, DA-MW03B-52208, DA-MW03B-52208F, DA-MW106S-52208, DA-MW106S-52208F, DA-MW04B-52308, DA-MW04B-52308F, DA-MW103B-52308, DA-MW103B-52308F.

The percent recovery criteria were not met for lead; therefore, the project accuracy goals may be slightly impacted. The non-detected lead results in the affected samples are usable as estimated reporting limits which may be biased low.

The following results were qualified in the affected sample due to ICP interference attributed to the high concentration of iron in the sample:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ		High	DA-MW103S-52608
Arsenic	J		Low	
Selenium	J		Low	
Silver		UJ	Low	
Molybdenum	J		Low	

The positive results for arsenic, selenium, and molybdenum in the affected sample are qualified as estimated (J) due to negative ICP interference attributed to iron. The results may be biased low.

The non-detected result for silver in the affected sample is qualified as estimated (UJ) due to negative ICP interference attributed to iron. The result may be biased low.

Professional judgment was used to change the positive antimony result to an estimated, non-detected value (UJ) in the affected sample, rather than reject as provided in the data validation guidelines, because the reported concentration may be due entirely (≥80%) to positive iron ICP interference. The result may be false positive.

There were ICP interferences for arsenic, selenium, silver, and molybdenum attributed to the high concentration of iron in sample DA-MW103S-52608; therefore, the project accuracy goals may be impacted. The positive arsenic, selenium, and molybdenum results in the affected sample are usable

as estimated values which may be biased low. The non-detected silver result in the affected sample is usable as an estimated reporting limit which may be biased low.

There was ICP interference for antimony attributed to the high concentration of iron in sample DA-MW103S-52608 listed above; therefore, the project sensitivity goals may be impacted since the elevated reporting limit exceeds the project action level for antimony. The antimony result in the affected sample is usable as an estimated, non-detected value which may be false positive.

Reporting Limits

The positive results below the laboratory's quantitation limit and above the method detection limit (MDL) are estimated (J) due to uncertainty below the quantitation limit.

Non-detected results were reported down to the MDL. The reporting limits for all non-detected results met the project action limits except for arsenic and thallium; the project action limits for arsenic and thallium were not achievable, as highlighted in the approved work plan. Data usability may be impacted.

Reporting limits were raised for antimony, cadmium, and silver in select samples due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals may be affected since the project action limits were exceeded by the elevated detection limits. Data usability may be impacted.

The reporting limit for antimony was raised in sample DA-MW103S-52608 due to ICP interference. As discussed in the ICP Interference Check Sample Results section, the project sensitivity goals may be affected since the project action limit was exceeded by the elevated detection limit. Data usability may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Lead and zinc were qualified as estimated due to instrument calibration variability. The results may be biased high. Lead was estimated due to poor ICS AB recovery. The results may be biased low. Cobalt and nickel were qualified as estimated due to poor linearity near the QL. The affected cobalt and nickel results may be biased high. Copper and lead were qualified as estimated (biased low) due to negative instrument drift. Arsenic, selenium, silver, and molybdenum in sample DA-MW103S-52608 were qualified as estimated due to ICP interferences. The affected arsenic, selenium, silver, and molybdenum results may be biased low. Although specific QC criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability.
The project goals with respect to precision were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set with the following exceptions. Reporting limits were raised for antimony, cadmium, and silver in select samples due to blank contamination. The elevated detection limits exceed project action limits. The

reporting limit for antimony was raised in sample DA-MW103S-52608 due to ICP interference. The elevated detection limit exceeds the antimony project action limit. The project action limits were not achievable for arsenic and thallium as highlighted in the approved work plan. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
SDG: CTO403-9	LAB_ID	SB2710-001			SB2716-001			SB2716-003			SB2734-001		
FRACTION: M	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		18.4	UJ	AP	140	J	P	102	J	P	564000		
ANTIMONY		0.98	UJ	AP	0.78	U		1.3	UJ	AP	49.4	UJ	KP
ARSENIC		1.69	U		2.5	J	P	1.69	U		503	J	K
BARIUM		6.2			1.5	UJ	AP	3.4	J	P	1390		
BERYLLIUM		0.13	U		0.13	U		0.13	U		17.8	J	P
CADMIUM		0.04	U		0.04	U		0.04	U		0.4	U	
CALCIUM		26600			42700			52700			226000		
CHROMIUM		0.41	U		0.78	UJ	AP	1.1	UJ	AP	868		
COBALT		0.31	UJ	ACP	1.1	UJ	ACP	2.4	UJ	ACP	637		
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O	1440		
IRON		9.2	UJ	AP	1330			5650			1210000		
LEAD		0.97	UJ	KO	0.97	UJ	KO	0.97	UJ	KO	1890		
MAGNESIUM		7820			11500			7010			195000		
MANGANESE		56			1210			2010			13800		
MERCURY		0.03	U		0.03	U		0.03	U		1.9		
MOLYBDENUM		0.3	U		0.84	UJ	AP	0.65	UJ	AP	20.3	J	K
NICKEL		0.42	U		0.42	U		0.7	J	P	1160		
POTASSIUM		2370			637	UJ	AP	3600			41800		
SELENIUM		0.96	U		1.7	J	P	0.96	U		13.8	J	KP
SILVER		0.29	U		0.48	UJ	AP	0.85	UJ	AP	2.9	UJ	K
SODIUM		16100			11500			15400			16800		
THALLIUM		1.64	U		1.64	U		1.64	U		16.4	U	
VANADIUM		0.49	UJ	AP	0.61	UJ	AP	0.43	UJ	AP	832		
ZINC		4.7	UJ	ACP	5.9	UJ	ACP	16.9	J	CP	3990		

PROJ_NO: 00933	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
SDG: CTO403-9	LAB_ID	SB2657-001			SB2657-003			SB2682-001			SB2710-003		
FRACTION: M	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		784			193	J	P	1210			336		
ANTIMONY		0.89	UJ	AP	0.78	U		0.78	U		0.88	UJ	AP
ARSENIC		1.69	U		3.9	J	P	8	J	P	7.7	J	P
BARIUM		5.3			5	J	P	51.2			9.6		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.04	U		0.15	UJ	AP	0.04	U	
CALCIUM		48100			46000			46800			20300		
CHROMIUM		3.1	UJ	AP	1.2	UJ	AP	9.9	J	P	1.1	UJ	AP
COBALT		1.7	UJ	ACP	1.9	UJ	ACP	3.6	J	CP	7.7	J	CP
COPPER		0.75	UJ	O	0.75	UJ	O	10.4	J	P	0.75	UJ	O
IRON		6740			937			9420			3120		
LEAD		0.97	UJ	O	1.3	J	COP	1.4	J	OP	0.97	UJ	KO
MAGNESIUM		10300			11700			14400			10500		
MANGANESE		1750			2550			448			535		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.82	UJ	AP	0.74	UJ	AP	2.6	J	P	0.3	U	
NICKEL		3	J	P	0.84	J	P	5.9	J	P	8.1	J	P
POTASSIUM		1250			654	UJ	AP	1280			2040		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.59	UJ	AP	0.59	UJ	AP	0.54	UJ	AP	0.52	UJ	AP
SODIUM		12900			13300			8940			12000		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		1.2	UJ	AP	0.38	U		2.1	J	P	0.85	UJ	AP
ZINC		23.8	J	CP	9.5	UJ	ACP	28.5			7.9	UJ	ACP

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
	LAB_ID	SB2628-001			SB2586-003			SB2586-005			SB2628-003		
	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		820			106	J	P	384			3420		
ANTIMONY		1.9	UJ	AP	0.94	UJ	AP	1.2	UJ	AP	1.2	UJ	AP
ARSENIC		2.3	J	P	1.69	U		1.8	J	P	2.7	J	P
BARIUM		5.5			5.1			2.7	UJ	AP	17.6		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.28	UJ	AP	0.09	UJ	AP	0.06	UJ	AP	0.04	U	
CALCIUM		44000			19600			39800			26200		
CHROMIUM		3.3	UJ	AP	0.79	UJ	AP	1.2	UJ	AP	5.2	J	P
COBALT		1.7	UJ	ACP	0.67	UJ	ACP	1.2	UJ	ACP	3.7	J	CP
COPPER		1.6	J	OP	0.75	UJ	O	0.75	UJ	O	6.5	J	OP
IRON		8680			2930			928			6040		
LEAD		1.1	J	OP	0.97	UJ	O	0.97	UJ	O	3.6	J	COP
MAGNESIUM		12500			8070			12000			8600		
MANGANESE		2700			56.6			1280			501		
MERCURY		0.03	U		0.06	UJ	AP	0.06	UJ	AP	0.03	U	
MOLYBDENUM		1.5	UJ	AP	0.3	U		0.44	UJ	AP	0.52	UJ	AP
NICKEL		1.9	J	P	8.4	J	CP	0.42	U		6.5	J	P
POTASSIUM		2020			754	UJ	AP	733	UJ	AP	1550		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.89	UJ	AP	0.5	UJ	AP	0.29	U		0.29	U	
SODIUM		12100			11800			11200			10400		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		1	UJ	AP	0.61	UJ	AP	0.72	UJ	AP	3.8	J	P
ZINC		9.7	UJ	AP	6	UJ	AP	5.4	UJ	AP	22.6	J	CP

PROJ_NO: 00933	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
SDG: CTO403-9	LAB_ID	SB2586-009			SB2586-001			SB2552-007			SB2552-003		
FRACTION: M	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		275	J	P	53.8	UJ	AP	952			84.6	UJ	AP
ANTIMONY		0.78	U		0.78	U		0.86	UJ	AP	0.78	U	
ARSENIC		7.4	J	P	1.69	U		15.3			17.8		
BARIUM		5.5			2.3	UJ	AP	11.6			9.1		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.36	UJ	AP	0.14	UJ	AP	0.18	UJ	AP	0.14	UJ	AP
CALCIUM		32200			12200			31600			20200		
CHROMIUM		2.2	UJ	AP	0.41	U		2.4	UJ	AP	0.61	UJ	P
COBALT		1.3	UJ	ACP	1.8	UJ	ACP	2.9	UJ	ACP	6.7	J	CP
COPPER		4.8	J	OP	0.75	UJ	O	6.5	J	OP	0.75	UJ	O
IRON		10800			138			3960			8580		
LEAD		0.97	UJ	O	0.97	UJ	O	1.1	J	OP	0.97	UJ	O
MAGNESIUM		10500			5660			10500			8860		
MANGANESE		1100			723			711			1140		
MERCURY		0.06	UJ	AP	0.06	UJ	AP	0.06	UJ	AP	0.03	U	
MOLYBDENUM		0.98	UJ	AP	0.33	UJ	AP	1.3	UJ	AP	0.48	UJ	AP
NICKEL		2.1	J	P	2.1	J	CP	2.3	J	CP	4.7	J	CP
POTASSIUM		772	UJ	AP	848	UJ	AP	835	UJ	AP	646	UJ	AP
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.67	UJ	AP	0.41	UJ	AP	0.6	UJ	AP	0.43	UJ	AP
SODIUM		10800			8680			9560			10600		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.38	U		1.5	J	P	0.43	UJ	AP
ZINC		11.1	UJ	AP	6.6	UJ	AP	15.6	J	P	14.4	J	P

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
	LAB_ID	SB2552-005			SB2552-001			SB2586-007		
	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		15	UJ	AP	32.8	UJ	AP	468		
ANTIMONY		0.78	U		0.78	U		1.9	UJ	AP
ARSENIC		9.2			1.69	U		2.6	J	P
BARIUM		8.5			1.2	UJ	AP	2.7	UJ	AP
BERYLLIUM		0.13	U		0.13	U		0.13	U	
CADMIUM		0.16	UJ	AP	0.12	UJ	AP	0.12	UJ	AP
CALCIUM		23200			15600			41000		
CHROMIUM		0.5	UJ	AP	0.41	U		2	UJ	AP
COBALT		6.5	J	CP	1.2	UJ	ACP	1.3	UJ	ACP
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O
IRON		2620			76.3	UJ	AP	1100		
LEAD		0.97	UJ	O	0.97	UJ	O	0.97	UJ	O
MAGNESIUM		8840			8730			12300		
MANGANESE		914			496			1320		
MERCURY		0.03	U		0.03	U		0.06	UJ	AP
MOLYBDENUM		0.53	UJ	AP	0.56	UJ	AP	0.62	UJ	AP
NICKEL		10	J	CP	1	J	CP	0.46	J	CP
POTASSIUM		720	UJ	AP	832	UJ	AP	673	UJ	AP
SELENIUM		0.96	U		0.96	U		0.96	U	
SILVER		0.29	U		0.54	UJ	AP	0.29	U	
SODIUM		9900			9800			11400		
THALLIUM		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.43	UJ	AP	0.87	UJ	AP
ZINC		11.1	UJ	AP	4.7	UJ	AP	7.7	UJ	AP

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208F			DA-MW04B-52308F			DA-MW103B-52308F			DA-MW103S-52608F		
SDG: CTO403-9	LAB_ID	SB2710-002			SB2716-002			SB2716-004			SB2734-002		
FRACTION: MF	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		15.8	UJ	AP	19.4	UJ	AP	19.7	UJ	AP	5900		
ANTIMONY		0.78	U		1.4	UJ	AP	1.2	UJ	AP	1.8	UJ	AP
ARSENIC		1.69	U		1.69	U		1.69	U		20.2		
BARIUM		6.7			0.59	U		3.1	J	P	90.7		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.04	U		0.04	U		0.04	U	
CALCIUM		27400			42600			53400			143000		
CHROMIUM		0.41	U		0.8	UJ	AP	1	UJ	AP	8.6	UJ	AP
COBALT		0.28	UJ	ACP	0.48	UJ	ACP	2.3	UJ	ACP	6.8	J	CP
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O	19	J	P
IRON		9	U		23	UJ	AP	4360			38200		
LEAD		0.97	UJ	KO	0.97	UJ	KO	0.97	UJ	KO	19.9		
MAGNESIUM		8020			11500			7100			14800		
MANGANESE		56.2			1090			2040			1910		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.3	U		0.83	UJ	AP	0.8	UJ	AP	2.3	J	P
NICKEL		0.42	U		0.42	U		0.42	U		10.6	J	P
POTASSIUM		2460			618	UJ	AP	3710			24300		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.29	U		0.54	UJ	AP	0.73	UJ	AP	1.8	UJ	AP
SODIUM		16700			11500			15600			17600		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.66	UJ	AP	0.38	U		0.38	U		7.5	J	P
ZINC		5.9	UJ	ACP	5	UJ	ACP	8.5	UJ	ACP	41		

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW104B-52008F			DA-MW105B-52008F			DA-MW106B-52108F			DA-MW106S-52208F		
	LAB_ID	SB2657-002			SB2657-004			SB2682-002			SB2710-004		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		33.8	UJ	AP	24.5	UJ	AP	28.2	UJ	AP	21.5	UJ	AP
ANTIMONY		1.4	UJ	AP	0.78	UJ	AP	0.78	U		0.78	U	
ARSENIC		2	J	P	3.3	J	P	4.5	J	P	5.8	J	P
BARIUM		2.3	UJ	AP	0.83	UJ	AP	47.4			7.9		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.04	U		0.11	UJ	AP	0.04	U	
CALCIUM		48400			45100			45400			20700		
CHROMIUM		0.95	UJ	AP	0.98	UJ	AP	0.72	UJ	AP	0.6	UJ	AP
COBALT		1.1	UJ	ACP	0.58	UJ	ACP	0.79	UJ	ACP	7	J	CP
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O	0.75	UJ	O
IRON		1960			18.3	UJ	AP	4340			2420		
LEAD		0.97	UJ	O	0.97	UJ	KO	0.97	UJ	O	0.97	UJ	KO
MAGNESIUM		10300			11500			14100			10600		
MANGANESE		1750			2140			384			519		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.61	UJ	AP	0.57	UJ	AP	1.1	UJ	AP	0.3	U	
NICKEL		1.3	J	P	0.42	U		0.46	J	P	7.5	J	P
POTASSIUM		1210			650	UJ	AP	1320			2010		
SELENIUM		0.96	U		0.96	U		0.96	U		1.3	J	P
SILVER		0.29	UJ	AP	0.59	UJ	AP	0.3	UJ	AP	0.41	UJ	AP
SODIUM		13100			13100			8980			12200		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.38	U		0.44	UJ	AP	0.38	U	
ZINC		16.3	J	CP	6.1	UJ	ACP	6.6	UJ	AP	7.3	UJ	ACP

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW110B-51908F			DA-MW111B-51608F			DA-MW112B-51608F			DA-MW112S-51908F		
	LAB_ID	SB2628-002			SB2586-004			SB2586-006			SB2628-004		
	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		47.9	UJ	AP	27.8	UJ	AP	23	UJ	AP	181	J	P
ANTIMONY		1.5	UJ	AP	0.97	UJ	AP	1.2	UJ	AP	0.78	U	
ARSENIC		1.69	U		1.69	U		1.9	J	P	1.69	U	
BARIUM		1.9	UJ	AP	5.3			1	UJ	AP	9.2		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.12	UJ	AP	0.08	UJ	AP	0.04	U	
CALCIUM		41600			20200			39300			25800		
CHROMIUM		1.2	UJ	AP	0.41	U		0.69	UJ	AP	0.93	UJ	AP
COBALT		1.3	UJ	ACP	0.65	UJ	ACP	1.1	UJ	ACP	0.68	UJ	ACP
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O	0.75	UJ	O
IRON		4950			774			64.4	UJ	AP	288		
LEAD		0.97	UJ	O	0.97	UJ	O	0.97	UJ	O	0.97	UJ	O
MAGNESIUM		11800			8210			11800			8130		
MANGANESE		2540			53.5			1310			240		
MERCURY		0.03	U		0.06	UJ	AP	0.06	UJ	AP	0.03	U	
MOLYBDENUM		0.93	UJ	AP	0.3	U		0.43	UJ	AP	0.3	U	
NICKEL		0.42	U		1.2	J	CP	0.42	U		0.42	U	
POTASSIUM		1870			809	UJ	AP	689	UJ	AP	1260		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.35	UJ	AP	0.49	UJ	AP	0.46	UJ	AP	0.39	UJ	AP
SODIUM		11600			12200			11200			10900		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.39	UJ	AP	0.48	UJ	AP	0.47	UJ	AP
ZINC		7.2	UJ	ACP	8.1	UJ	AP	3.4	UJ	AP	6.2	UJ	ACP

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW113B-51608F			DA-MW114B-51608F			DA-MW115B-51508F			DA-MW116B-51508F		
	LAB_ID	SB2586-010			SB2586-002			SB2552-008			SB2552-004		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		24	UJ	AP	14.6	U		24.9	UJ	AP	17.4	UJ	AP
ANTIMONY		1.4	UJ	AP	0.78	U		1.7	UJ	AP	0.78	U	
ARSENIC		2.8	J	P	1.69	U		14.1			18.4		
BARIUM		4.2	J	P	2.3	UJ	AP	9.4			9		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.26	UJ	AP	0.12	UJ	AP	0.1	UJ	AP	0.16	UJ	AP
CALCIUM		32000			12800			32800			20400		
CHROMIUM		0.5	UJ	AP	0.41	U		0.44	UJ	AP	0.41	U	
COBALT		1.4	UJ	ACP	1.9	UJ	ACP	1.7	UJ	ACP	6.8	J	CP
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O	0.75	UJ	O
IRON		998			29.5	UJ	AP	1860			8470		
LEAD		0.97	UJ	O	0.97	UJ	O	0.97	UJ	O	0.97	UJ	O
MAGNESIUM		10500			5840			10600			8990		
MANGANESE		1070			747			684			1140		
MERCURY		0.06	UJ	AP	0.06	UJ	AP	0.06	UJ	AP	0.06	UJ	AP
MOLYBDENUM		0.41	UJ	AP	0.3	U		0.95	UJ	AP	0.36	UJ	AP
NICKEL		1.4	J	P	2.1	J	CP	0.42	U		4.9	J	CP
POTASSIUM		808	UJ	AP	795	UJ	AP	775	UJ	AP	667	UJ	AP
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.29	UJ	AP	0.29	U		0.62	UJ	AP	0.63	UJ	AP
SODIUM		10900			8930			9720			10700		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.38	U		0.46	UJ	AP	0.38	U	
ZINC		5.7	UJ	AP	6.9	UJ	AP	7.4	UJ	AP	15.5	J	P

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW117B-51508F			DA-MW118B-51508F			DA-MW-DUP01F		
	LAB_ID	SB2552-006			SB2552-002			SB2586-008		
	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608F		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		28.3	UJ	AP	14.6	U		31.8	UJ	AP
ANTIMONY		1.8	UJ	AP	1.8	UJ	AP	1	UJ	AP
ARSENIC		9.2			1.69	U		1.69	U	
BARIUM		8.3			1.1	UJ	AP	1.7	UJ	AP
BERYLLIUM		0.13	U		0.13	U		0.13	U	
CADMIUM		0.07	UJ	AP	0.1	UJ	AP	0.12	UJ	AP
CALCIUM		23500			16000			39000		
CHROMIUM		0.41	U		0.41	U		0.41	U	
COBALT		6.4	J	CP	1.1	UJ	ACP	0.83	UJ	ACP
COPPER		0.75	UJ	O	0.75	UJ	O	0.75	UJ	O
IRON		2610			9	U		66.8	UJ	AP
LEAD		0.97	UJ	O	0.97	UJ	O	0.97	UJ	O
MAGNESIUM		8940			8880			11700		
MANGANESE		925			502			1300		
MERCURY		0.06	UJ	AP	0.06	UJ	AP	0.06	UJ	AP
MOLYBDENUM		0.3	U		0.67	UJ	AP	0.42	UJ	AP
NICKEL		3.5	J	CP	0.76	J	CP	0.42	U	
POTASSIUM		720	UJ	AP	836	UJ	AP	615	UJ	AP
SELENIUM		0.96	U		0.96	U		0.96	U	
SILVER		0.29	U		0.29	U		0.38	UJ	AP
SODIUM		10000			10000			11000		
THALLIUM		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.48	UJ	AP	0.38	U	
ZINC		11.4	UJ	AP	5.5	UJ	AP	5.9	UJ	AP

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.1	U		0.06	J		1.8		
NITRATE-N		1.1			0.05	U		0.81			0.05	U	
NITRITE-N		0.05	U		0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.07			0.016	J		0.05	U		0.032	J	
SULFATE		25			30			11			46		
SULFIDE		1	U		1	U		1	U		1	U	
TOTAL ORGANIC CARBON		1.3			0.41	J		1.7			14		

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.1	U		0.1	U		0.042	J	
NITRATE-N		0.3			0.048	J		0.05	U		4.9		
NITRITE-N		0.037	J		0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.061			0.023	J		0.061			0.05	U	
SULFATE		19			28			41			34		
SULFIDE		1.4			1	U		1.3			1	U	
TOTAL ORGANIC CARBON		0.94	J		0.96	J		0.83	J		0.64	J	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.1	U		0.1	U		0.084	J	
NITRATE-N		0.078			1.7			0.05	U		2.7		
NITRITE-N		0.0064	J		0.05	U		0.05	U		0.1	U	
ORTHOPHOSPHATE-P		0.063			0.034	J		0.026	J		0.048	J	
SULFATE		33			27			33			27		
SULFIDE		2			1	U		1	U		1.4		
TOTAL ORGANIC CARBON		0.59	J		1.3			0.53	J		1.1		

PROJ_NO: 00933	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
SDG: CTO403-9	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
FRACTION: MISC	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.047	J		0.1	U		0.1	U		0.1	U	
NITRATE-N		0.55			0.25			0.05	U		0.05	U	
NITRITE-N		0.05	U		0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.02	J		0.12			0.022	J		0.038	J	
SULFATE		32			16			25			29		
SULFIDE		1	U		1	U		3.1			1	U	
TOTAL ORGANIC CARBON		0.67	J		1.1			0.38	J		0.28	J	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
	LAB_ID	SB2552-5			SB2552-1			SB2586-7		
	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.1	U		0.1	U	
NITRATE-N		0.05	U		0.05	U		0.05	U	
NITRITE-N		0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.032	J		0.063			0.02	J	
SULFATE		23			14			33		
SULFIDE		1	U		1	U		1	U	
TOTAL ORGANIC CARBON		0.41	J		0.28	J		0.65	J	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2840W

Date: July 28, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-9
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/Pesticides/PCB/GRO/ExTPH/MEE:

19/Groundwaters/	DA-MW03B-52208	DA-MW04B-52308	DA-MW103B-52308
	DA-MW103S-52608	DA-MW104B-52008	DA-MW105B-52008
	DA-MW106B-52108	DA-MW106S-52208	DA-MW110B-51908
	DA-MW111B-51608	DA-MW112B-51608	DA-MW112S-51908
	DA-MW113B-51608	DA-MW114B-51608	DA-MW115B-51508
	DA-MW116B-51508	DA-MW117B-51508	DA-MW118B-51508
	DA-MW-DUP01		

(Field Duplicate Pair: DA-MW112B-51608/DA-MW-DUP01)

VOC/GRO:

18/Trip Blanks/	DA-MW-TB07	DA-MW-TB08	DA-MW-TB09
	DA-MW-TB10	DA-MW-TB11	DA-MW-TB12
	DA-MW-TB13	DA-MW-TB14	DA-MW-TB15
	DA-MW-TB16	DA-MW-TB17	DA-MW-TB18
	DA-MW-TB19	DA-MW-TB20	DA-MW-TB21
	DA-MW-TB22	DA-MW-TB23	DA-MW-TB24

VOC:
1/Trip Blank/ DA-MW-TB25

GRO:
1/Trip Blank/ DA-MW-TB26

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), extractable total petroleum hydrocarbons (ExTPH), and methane/ethane/ethane (MEE) analytical data for the groundwater samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from May 15-26, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH (C_9 – C_{36}) analyses were performed

according to USEPA SW-846 Method 8015M. The MEE analysis was performed according to RSKSOP174.

The VOC, SVOC, GRO, ExTPH, and MEE data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
*	• Instrument Performance Check: Pesticide Degradation
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
*	• Internal Standards
NA	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
*	• Field Duplicates
*	• Analyte Identification/Quantitation
	• Reporting Limits
*	• Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

Sample DA-MW106S-52208 was incorrectly labeled on the chain-of-custody form as DA-MW106B-52208. The laboratory logged in the sample with the incorrect sample number, but reported the data using the correct sample number per instructions from Tetra Tech (except in the MEE section of the data package). On July 2, 2008 the laboratory resubmitted the QC forms the MEE analysis of sample DA-MW106S-52208 since the sample ID was incorrectly transcribed in the original data package.

On July 23, 2008, the laboratory resubmitted Form 7B for the volatiles analysis calibration verification performed on May 30, 2008 since the trichloroethene result in the original data package was not fully integrated.

On July 25, 2008, the laboratory submitted a revised narrative to include an explanation regarding the Tentatively Identified Compounds analysis.

Preservation and Technical Holding Times

Volatiles

Samples DA-MW100B-51908, DA-MW113B-51608 and DA-MW112S-51908 were re-analyzed 14 and 12 days, respectively, beyond the 14-day technical holding time criterion because of analyst error. The positive and non-detected results are estimated (J, UJ) for all volatile compounds for these samples due to the exceeded holding time criterion.

The method required holding time criterion was not met for samples DA-MW113B-51608 and DA-MW112S-51908; therefore, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Volatiles and GRO

The cooler temperature for samples DA-MW110B-51908 and DA-MW-TB17 was 8.6 °C, above the required value of 4 °C (±2 °C). The positive and non-detected results are estimated (J, UJ). The project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles, Pesticides, PCBs, ExTPH, MEE

The cooler temperature for sample DA-MW110B-51908 was 8.6 °C, above the required value of 4 °C (±2 °C). The positive and non-detected results are estimated (J, UJ). The project accuracy goals may be impacted. The positive and non-detected results in the affected sample are usable as estimated values and estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Bromomethane	-51.71		UJ	DA-MW-TB11, DA-MW-TB12, DA-MW-TB13, DA-MW-TB14, DA-MW-TB15, DA-MW-TB16, DA-MW-TB17, DA-MW-112B-51608, DA-MW-DUP01
2-Butanone	30.34, -30.41		UJ	DA-MW-TB11, DA-MW-TB12, DA-MW-TB13, DA-MW-TB14, DA-MW-TB15, DA-MW-TB16, DA-MW-TB17, DA-MW-112B-51608, DA-MW-DUP01, DA-MW-TB21, DA-MW-TB22, DA-MW03B-52208, DA-MW106S-52208

Compound	%D	Action		Affected Samples
		(+)	NDs	
Tetrachloroethene	47.11	J	UJ	DA-MW-TB11, DA-MW-TB12, DA-MW-TB13, DA-MW-TB14, DA-MW-TB15, DA-MW-TB16, DA-MW-TB17, DA-MW-112B-51608, DA-MW-DUP01
Hexachlorobutadiene	-29.18		UJ	
1,2,3-Trichlorobenzene	26.94, -25.26		UJ	DA-MW-TB11, DA-MW-TB12, DA-MW-TB13, DA-MW-TB14, DA-MW-TB15, DA-MW-TB16, DA-MW-TB17, DA-MW-112B-51608, DA-MW-DUP01, DA-MW113B-51608(RA), DA-MW112S-51908(RA), DA-MW110B-51908(RA)
Dichlorodifluoromethane	-44.63		UJ	DA-MW105B-52008, DA-MW-TB19, DA-MW-TB18
Chloromethane	-29.89		UJ	
1,2,3-Trichloropropane	-52.04		UJ	
1,2-Dibromo-3-chloropropane	26.86		UJ	
tert-Butylbenzene	27.85		UJ	DA-MW104B-52008(RA)
Acetone	-31.54, -35.74	J	UJ	DA-MW106B-52108, DA-MW-TB20, DA-MW-TB21, DA-MW-TB22, DA-MW03B-52208, DA-MW106S-52208
2-Hexanone	-27.13		UJ	DA-MW-TB21, DA-MW-TB22, DA-MW03B-52208, DA-MW106S-52208
Chloroethane	-28.94		UJ	DA-MW-TB07, DA-MW-TB08, DA-MW118B-51508, DA-MW117B-51508, DA-MW116B-51508
Carbon tetrachloride	35.56		UJ	
Bromoform	31.50		UJ	

Although the %D was outside of the QC limits for 2-butanone, dichlorodifluoromethane, tert-butylbenzene, chloroethane, and acetone; the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Although the %D was outside of the QC limits for bromomethane, hexachlorobutadiene, 1,2,3-trichlorobenzene, chloromethane, 1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, 2-hexanone, carbon tetrachloride, and bromoform; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for tetrachloroethene; therefore, the project accuracy goals may be impacted since the project action limit for this compound was not achievable. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
3,3'-Dichlorobenzidine	-44.19, -47.18		UJ	DA-MW112S-51908, DA-MW104B-52008, DA-MW105B-52008, DA-MW106B-52108, DA-MW103S-52608
Di-n-octylphthalate	29.53, 30.93, 27.09		UJ	DA-MW112S-51908, DA-MW104B-52008, DA-MW105B-52008, DA-MW106B-52108, DA-MW103S-52608, DA-MW04B-52308, DA-MW103B-52308
4-Nitrophenol	32.21		UJ	DA-MW03B-52208, DA-MW106S-52208
4,6-Dinitro-2-methylphenol	25.86		UJ	

Although the %D was outside of the limits for di-n-octylphthalate, 4-nitrophenol, and 4,6-dinitro-2-methylphenol, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 3,3'-dichlorobenzidine; therefore, the project accuracy goals may be impacted since the project action limit for this compound was not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the trip blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Methylene chloride	Trip	0.8	8.0	DA-MW03B-52208, DA-MW103B-52308, DA-MW105B-52008

Blank action is applied to the affected groundwater sample due to methylene chloride trip blank contamination. The 10x rule is applies for this common laboratory contaminant. The positive results for methylene chloride in the affected samples are changed to non-detected values at the QL.

Methylene chloride contamination was found in the trip blank; therefore, the project sensitivity goals may be impacted since the project action limit for methylene chloride was not achievable. The results in the affected samples are usable as non-detected values.

GRO

The following table summarizes the level of blank contamination detected in the trip blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
GRO	Trip	26	130	DA-MW03B-52208, DA-MW104B-52008, DA-MW105B-52008, DA-MW103B-52308, DA-MW118B-51508

Blank actions were applied to the affected samples due to GRO trip blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level were changed to non-detected values. The positive results below the blank action level and below the QL in the affected samples were changed to a non-detected value at the QL.

Although GRO contamination was found in the trip blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable as non-detected values.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW-DUP01	Toluene-d8	73	74-117	J	UJ

The surrogate toluene-d8 recovered below the QC limits in the sample DA-MW-DUP01. All positive and non-detected results are estimated (J, UJ) in the affected sample due to a low surrogate recovery.

The surrogate recovery QC criteria were not met toluene-d8; therefore, the project accuracy goals may be impacted. The positive and non-detected results in sample DA-MW-DUP01 are usable as estimated values and estimated quantitation limits which may be slightly biased low.

Semivolatiles

The following samples had a surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW116B-51508	2FP	2	34-105	J	UR
	PHL	0	10-115		
	TBP	5	51-144		
DA-MW117B-51508	2FP	2	34-105	J	UR
	PHL	0	10-115		
	TBP	36	51-144		
DA-MW115B-51508	2FP	5	34-105	J	UR
	PHL	2	10-115		
	TBP	49	51-144		
DA-MW112B-51608	2FP	29	34-105	J	UJ
	TBP	50	51-144		
DA-MW-DUP01	2FP	29	34-105	J	UJ
	TBP	48	51-144		
DA-MW110B-51908	2FP	19	34-105	J	UJ
	TBP	45	51-144		
DA-MW112S-51908	2FP	20	34-105	J	UR
	PHL	9	10-115		
DA-MW104B-52008	2FP	26	34-105	J	UJ
	TBP	48	51-144		
DA-MW105B-52008	2FP	13	34-105	J	UR
	PHL	5	10-115		
	TBP	33	51-144		
DA-MW04B-52308	2FP	11	34-105	J	UR
	PHL	5	10-115		
	TBP	38	51-144		
DA-MW103B-52308	2FP	4	34-105	J	UR
	PHL	1	10-115		
	TBP	29	51-144		

The acid surrogates 2-fluorophenol (2FP), phenol-d6 (PHL), and 2,4,6-tribromophenol (TBP) recovered below the QC limits in the semivolatile samples shown above. All positive results are estimated (J) and all non-detected phenolic compounds are estimated (UJ) or rejected (UR) (see above) in the affected samples due to low or extremely low surrogate recoveries, respectively.

The surrogate recovery QC criteria were not met for 2-fluorophenol (2FP), phenol-d6 (PHL), 2-fluorobiphenyl (FBP), and 2,4,6-tribromophenol (TBP); therefore, the project accuracy goals may be impacted. The positive and non-detected phenolic compound results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low, except for the non-detected results in samples DA-MW116B-51508, DA-MW117B-51508, DA-MW115B-51508, DA-MW112S-51908, DA-MW105B-52008, DA-MW04-52308, and DA-MW103B-52308 for which the phenolic non-detected results are not usable for project decisions.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the LCS QC recovery limits or the relative percent difference QC limits:

Compound	% Rec	RPD	QC Limits	Action		Affected Samples
				(+)	NDs	
Bis(2-chloroethyl)ether	-	35	30		UJ	DA-MW118B-51508, DA-MW116B-51508, DA-MW117B-51508, DA-MW115B-51508, DA-MW114B-51608, DA-MW11B-51608
1,4-Dichlorobenzene	-	31	30		UJ	
Benzyl alcohol	-	36	30		UJ	
2-Methylnaphthalene	-	31, 53	30		UJ	DA-MW118B-51508, DA-MW116B-51508, DA-MW117B-51508, DA-MW115B-51508, DA-MW114B-51608, DA-MW11B-51608, DA-MW104B-52008, DA-MW105B-52008
1,1'-Biphenyl	58, 59	-	60-129		UJ	DA-MW118B-51508, DA-MW116B-51508, DA-MW117B-51508, DA-MW115B-51508, DA-MW114B-51608, DA-MW11B-51608, DA-MW112B-51608, DA-MW113B-51608, DA-MW-DUP01, DA-MW110B-51908, DA-MW112S-51908
2,4-Dinitrophenol	-	64	30		UJ	DA-MW112B-51608, DA-MW113B-51608, DA-MW-DUP01, DA-MW110B-51908
3,3'-Dichlorobenzidine	-	47	30		UJ	DA-MW103S-52608, DA-MW04B-52308, DA-MW103B-52308, DA-MW03B-52208, DA-MW106S-52208
4-Nitroaniline	-	43	30		UJ	
Benzoic acid	0, 0	-	10-125		R	All samples
Benzidine	0, 0	-	10-94		R	

-Criterion met

Although the LCS relative percent differences for bis(2-chloroethyl)ether, 1,4-dichlorobenzene, and benzyl alcohol did not meet the QC limits, the project precision goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

The LCS relative percent difference for 2-methylnaphthalene, 2,4-dinitrophenol, 3,3'-dichlorobenzidine, and 4-nitroaniline did not meet the QC limits; therefore, the project precision goals may be impacted since the project action limits for these compounds were not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

The LCS recovery for 1,1'-biphenyl did not meet QC limits; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be slightly biased low.

Benzoic acid and benzidine did not recover (0%) in several LCS/LCSD analyses; therefore, these results for benzoic acid and benzidine are rejected. The project accuracy and completeness goals are impacted and these results are not usable for project decisions.

Reporting Limits

Volatiles

Blank actions were applied to select samples due to methylene chloride blank contamination. The positive results for methylene chloride in the affected samples are changed to non-detected values at the QL. As discussed above in the Blanks section, the project sensitivity goals may be affected since the project action limit for methylene chloride was not achievable. Data usability may be impacted.

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The laboratory reporting limits for all compounds were slightly above the quantitation limits due to sample-specific preparation factors for samples DA-MW103B-52308, DA-MW103S-52608, and DA-MW104B-52008.

The laboratory did not meet the project quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-nitrophenol, and pentachlorophenol. However, the project sensitivity goals are not impacted since there are no regulatory limits for these compounds.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, isophorone, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The laboratory met all project quantitation limits, except for methoxychlor and toxaphene. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO

Blank actions were applied to select samples due to GRO blank contamination. The positive results for GRO in the affected samples are changed to non-detected values at the QL. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

Tentatively Identified Compounds

Semivolatiles

The laboratory searched specifically for propylene glycol dinitrate and also the laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. All compounds in the re-analyzed samples DA-MW110B-51908, DA-MW113B-51608 and DA-MW112S-51908 were qualified as estimated due to holding time exceedances. The results in these samples may be biased low. The positive and non-detected results in samples DA-MW110B-51908 and DA-MW-TB17 were qualified as estimated due to improper temperature preservation. Tetrachloroethene was qualified as estimated due to instrument calibration variability. All compounds in sample DA-MW-DUP01 were qualified as estimated due to a low surrogate recovery. The results in this sample may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which do not impact data usability.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to sensitivity.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. The positive results for methylene chloride in select samples were changed to non-detected values at the quantitation limit. Since the project action limit for methylene chloride was not achievable, data usability may be impacted. Additionally, project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. The positive and non-detected results in sample DA-MW110B-51908 were qualified as estimated due to improper temperature preservation. The compound 3,3'-dichlorobenzidine was qualified as estimated due to instrument calibration variability. The phenolic compounds in samples DA-MW104B-52008, DA-MW110B-51908, DA-MW-DUP01, and DA-MW112B-51608 were qualified as estimated due to low surrogate recoveries. The results in these samples may be biased low. The positive phenolic compounds in samples DA-MW116B-51508, DA-MW117B-51508, DA-MW115B-51508, DA-MW112S-51908, DA-MW105B-52008, DA-MW04-52308, and DA-MW103B-52308 were qualified as estimated due to low surrogate recoveries. The non-detected results in these samples were rejected and are not usable for project decisions due to extremely low surrogate recoveries. Benzoic acid and benzidine were rejected in all samples due to no recovery in the LCS/LCSD analysis. These results are not usable for project decisions. The compound 1,1-biphenyl was qualified as estimated due to low LCS recoveries. The results in the affected samples may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. The project completeness goals are affected due to rejected results for phenolic compounds in select samples and benzoic acid and benzidine in all samples. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which do not impact data usability.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. The compounds 2-methylnaphthalene, 2,4-dinitrophenol, 3,3'-dichlorobenzidine, and 4-nitroaniline were qualified as estimated due to laboratory control sample/laboratory control sample duplicate imprecision. Although specific QC criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. Additional compounds were qualified as estimated due to laboratory control sample/laboratory control sample duplicate imprecision. Although specific QC criteria were not met in this instance, the affected positive results are usable as estimated values which do not impact data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, isophorone, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exception. The results in sample DA-MW110B-51908 were qualified as estimated due to improper temperature preservation. The results in this sample may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The laboratory met all project quantitation limits, except for methoxychlor and toxaphene. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exception. The results in sample DA-MW110B-51908 were qualified as estimated due to improper temperature preservation. The results in this sample may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCBs data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were not met for the PCBs data set since the project action limits were not achievable for any of the Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO

The project goals with respect to accuracy were met for the GRO data set with the following exception. The results in samples DA-MW110B-51908 and DA-MW-TB17 were qualified as estimated due to improper temperature preservation. The results in these samples may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the GRO data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity could not be evaluated for the GRO data set because no regulatory limits have been established for this analysis.

ExTPH, MEE

The project goals with respect to accuracy were met for the ExTPH and MEE data sets with the following exception. The results in sample DA-MW110B-51908 were qualified as estimated due to improper temperature preservation. The results in this sample may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the ExTPH, and MEE data sets. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity could not be evaluated for the ExTPH, and MEE data sets because no regulatory limits have been established for these analyses.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
SDG: CTO403-9	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
FRACTION: OV	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		2			0.4	J	P	1			1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		2			23			19			1	U	
1,1-DICHLOROETHENE		0.5	J	P	1			1			1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	UJ	C	5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	UJ	C	5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	UJ	C	5	U		5	U		8		
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW104B-52008RA			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1RA			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		4			3			1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		130			100			1	U		1	U	
1,1-DICHLOROETHENE		7			5			1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	UJ	C	1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	UJ	C	1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	UJ	C
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	UJ	C
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	UJ	C	10	J	C
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW110B-51908RA			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908RA		
SDG: CTO403-9	LAB_ID	SB2628-1RA			SB2586-3			SB2586-5			SB2628-3RA		
FRACTION: OV	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,1,1-TRICHLOROETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,1,2,2-TETRACHLOROETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,1,2-TRICHLOROETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,1-DICHLOROETHANE	0.7	J	HMP	1	U		1			1	UJ	H
1,1-DICHLOROETHENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,1-DICHLOROPROPENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2,3-TRICHLOROBENZENE	1	UJ	CHM	1	U		1	UJ	C	1	UJ	CH
1,2,3-TRICHLOROPROPANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2,4-TRICHLOROBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2,4-TRIMETHYLBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2-DIBROMOETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2-DICHLOROBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2-DICHLOROETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,2-DICHLOROPROPANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,3,5-TRIMETHYLBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,3-DICHLOROBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
1,3-DICHLOROPROPANE	1	UJ	HM	1	U		1	U		1	UJ	H
1,4-DICHLOROBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
2,2-DICHLOROPROPANE	1	UJ	HM	1	U		1	U		1	UJ	H
2-BUTANONE	5	UJ	CHM	5	U		5	UJ	C	5	UJ	H
2-CHLOROTOLUENE	1	UJ	HM	1	U		1	U		1	UJ	H
2-HEXANONE	5	UJ	HM	5	U		5	U		5	UJ	H
4-CHLOROTOLUENE	1	UJ	HM	1	U		1	U		1	UJ	H
4-ISOPROPYLTOLUENE	1	UJ	HM	1	U		1	U		1	UJ	H
4-METHYL-2-PENTANONE	5	UJ	HM	5	U		5	U		5	UJ	H
ACETONE	13	J	HM	5	U		5	U		5	UJ	H
BENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
BROMOBENZENE	1	UJ	HM	1	U		1	U		1	UJ	H
BROMOCHLOROMETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
BROMODICHLOROMETHANE	1	UJ	HM	1	U		1	U		1	UJ	H
BROMOFORM	1	UJ	HM	1	U		1	U		1	UJ	H
BROMOMETHANE	2	UJ	CHM	2	U		2	UJ	C	2	UJ	H
CARBON DISULFIDE	1	UJ	HM	1	U		1	U		1	UJ	H

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW113B-51608RA			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9RA			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	UJ	H	1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	UJ	H	1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	UJ	H	1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	UJ	H	1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	UJ	H	0.4	J	P	0.8	J	P	1	U	
1,1-DICHLOROETHENE		1	UJ	H	1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	UJ	H	1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	UJ	CH	1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	UJ	H	1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	UJ	H	1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	UJ	H	1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	UJ	H	1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	UJ	H	1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	UJ	H	1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	UJ	H	1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	UJ	H	1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	UJ	H	1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	UJ	H	1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	UJ	H	1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	UJ	H	1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	UJ	H	1	U		1	U		1	U	
2-BUTANONE		5	UJ	H	5	U		5	U		5	U	
2-CHLOROTOLUENE		1	UJ	H	1	U		1	U		1	U	
2-HEXANONE		5	UJ	H	5	U		5	U		5	U	
4-CHLOROTOLUENE		1	UJ	H	1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	UJ	H	1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	UJ	H	5	U		5	U		5	U	
ACETONE		5	UJ	H	5	U		5	U		5	U	
BENZENE		1	UJ	H	1	U		1	U		1	U	
BROMOBENZENE		1	UJ	H	1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	UJ	H	1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	UJ	H	1	U		1	U		1	U	
BROMOFORM		1	UJ	H	1	U		1	U		1	UJ	C
BROMOMETHANE		2	UJ	H	2	U		2	U		2	U	
CARBON DISULFIDE		1	UJ	H	1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW117B-51508			DA-MW117B-51508DL			DA-MW118B-51508			DA-MW-DUP01		
	LAB_ID	SB2552-5			SB2552-5DL			SB2552-1			SB2586-7		
	SAMP_DATE	5/15/2008			5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF										DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U					1	U		1	UJ	R
1,1,1-TRICHLOROETHANE		1	U					1	U		1	UJ	R
1,1,2,2-TETRACHLOROETHANE		1	U					1	U		1	UJ	R
1,1,2-TRICHLOROETHANE		1	U					1	U		1	UJ	R
1,1-DICHLOROETHANE		0.4	J	P				1	U		1	J	R
1,1-DICHLOROETHENE		1	J	P				1	U		1	UJ	R
1,1-DICHLOROPROPENE		1	U					1	U		1	UJ	R
1,2,3-TRICHLOROBENZENE		1	U					1	U		1	UJ	CR
1,2,3-TRICHLOROPROPANE		1	U					1	U		1	UJ	R
1,2,4-TRICHLOROBENZENE		1	U					1	U		1	UJ	R
1,2,4-TRIMETHYLBENZENE		1	U					1	U		1	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE		1	U					1	U		1	UJ	R
1,2-DIBROMOETHANE		1	U					1	U		1	UJ	R
1,2-DICHLOROBENZENE		1	U					1	U		1	UJ	R
1,2-DICHLOROETHANE		1	U					1	U		1	UJ	R
1,2-DICHLOROPROPANE		1	U					1	U		1	UJ	R
1,3,5-TRIMETHYLBENZENE		1	U					1	U		1	UJ	R
1,3-DICHLOROBENZENE		1	U					1	U		1	UJ	R
1,3-DICHLOROPROPANE		1	U					1	U		1	UJ	R
1,4-DICHLOROBENZENE		1	U					1	U		1	UJ	R
2,2-DICHLOROPROPANE		1	U					1	U		1	UJ	R
2-BUTANONE		5	U					5	U		5	UJ	CR
2-CHLOROTOLUENE		1	U					1	U		1	UJ	R
2-HEXANONE		5	U					5	U		5	UJ	R
4-CHLOROTOLUENE		1	U					1	U		1	UJ	R
4-ISOPROPYLTOLUENE		1	U					1	U		1	UJ	R
4-METHYL-2-PENTANONE		5	U					5	U		5	UJ	R
ACETONE		5	U					5	U		5	UJ	R
BENZENE		1	U					1	U		1	UJ	R
BROMOBENZENE		1	U					1	U		1	UJ	R
BROMOCHLOROMETHANE		1	U					1	U		1	UJ	R
BROMODICHLOROMETHANE		1	U					1	U		1	UJ	R
BROMOFORM		1	UJ	C				1	UJ	C	1	UJ	R
BROMOMETHANE		2	U					2	U		2	UJ	CR
CARBON DISULFIDE		1	U					1	U		1	UJ	R

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB07			DA-MW-TB08			DA-MW-TB09			DA-MW-TB10		
	LAB_ID	SB2552-9			SB2552-10			SB2552-11			SB2552-12		
	SAMP_DATE	5/15/2008			5/15/2008			5/15/2008			5/15/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	UJ	C	1	UJ	C	1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB11			DA-MW-TB12			DA-MW-TB13			DA-MW-TB14		
	LAB_ID	SB2586-11			SB2586-12			SB2586-13			SB2586-14		
	SAMP_DATE	5/16/2008			5/16/2008			5/16/2008			5/16/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	UJ	C	5	UJ	C	5	UJ	C	5	UJ	C
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	UJ	C	2	UJ	C	2	UJ	C	2	UJ	C
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB15			DA-MW-TB16			DA-MW-TB17			DA-MW-TB18		
	LAB_ID	SB2586-15			SB2628-5			SB2628-6			SB2657-6		
	SAMP_DATE	5/16/2008			5/19/2008			5/19/2008			5/20/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	UJ	M	1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	UJ	M	1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	UJ	M	1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	UJ	M	1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	UJ	M	1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	UJ	M	1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	UJ	M	1	U	
1,2,3-TRICHLOROBENZENE		1	UJ	C	1	UJ	C	1	UJ	CM	1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	UJ	M	1	UJ	C
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	UJ	M	1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	UJ	M	1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	UJ	M	1	UJ	C
1,2-DIBROMOETHANE		1	U		1	U		1	UJ	M	1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	UJ	M	1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	UJ	M	1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	UJ	M	1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	UJ	M	1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	UJ	M	1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	UJ	M	1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	UJ	M	1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	UJ	M	1	U	
2-BUTANONE		5	UJ	C	5	UJ	C	5	UJ	CM	5	U	
2-CHLOROTOLUENE		1	U		1	U		1	UJ	M	1	U	
2-HEXANONE		5	U		5	U		5	UJ	M	5	U	
4-CHLOROTOLUENE		1	U		1	U		1	UJ	M	1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	UJ	M	1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	UJ	M	5	U	
ACETONE		5	U		5	U		5	UJ	M	5	U	
BENZENE		1	U		1	U		1	UJ	M	1	U	
BROMOBENZENE		1	U		1	U		1	UJ	M	1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	UJ	M	1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	UJ	M	1	U	
BROMOFORM		1	U		1	U		1	UJ	M	1	U	
BROMOMETHANE		2	UJ	C	2	UJ	C	2	UJ	CM	2	U	
CARBON DISULFIDE		1	U		1	U		1	UJ	M	1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB19			DA-MW-TB20			DA-MW-TB21			DA-MW-TB22		
	LAB_ID	SB2657-5			SB2682-3			SB2710-5			SB2710-6		
	SAMP_DATE	5/20/2008			5/21/2008			5/22/2008			5/22/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	UJ	C	1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	UJ	C	1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	UJ	C	5	UJ	C
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	UJ	C	5	UJ	C
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	UJ	C	5	UJ	C	5	UJ	C
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB23			DA-MW-TB24			DA-MW-TB25		
	LAB_ID	SB2716-5			SB2716-6			SB2734-3		
	SAMP_DATE	5/23/2008			5/23/2008			5/26/2008		
	QC_TYPE	TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		2			1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	J	P	0.6	J	P	4			1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U	B	5	U		5	U	B	5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		190			1	U		6			1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW104B-52008RA			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1RA			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	UJ	C	2	U		2	U	
CIS-1,2-DICHLOROETHENE		8			3			1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	UJ	C	2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U	B	5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	UJ	C	1	U		1	U		1	U	
TETRACHLOROETHENE		0.5	J	P	3			1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		7			2			1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		1	J	P	0.6	J	P	2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW110B-51908RA			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908RA		
	LAB_ID	SB2628-1RA			SB2586-3			SB2586-5			SB2628-3RA		
	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	UJ	HM	1	U		1	U		1	UJ	H
CHLOROBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
CHLORODIBROMOMETHANE		1	UJ	HM	1	U		1	U		1	UJ	H
CHLOROETHANE		2	UJ	HM	2	U		2	U		2	UJ	H
CHLOROFORM		1	UJ	HM	1	U		1	U		1	UJ	H
CHLOROMETHANE		2	UJ	HM	2	U		2	U		2	UJ	H
CIS-1,2-DICHLOROETHENE		2	J	HM	1	U		1	U		1	UJ	H
CIS-1,3-DICHLOROPROPENE		1	UJ	HM	1	U		1	U		1	UJ	H
DIBROMOMETHANE		1	UJ	HM	1	U		1	U		1	UJ	H
DICHLORODIFLUOROMETHANE		2	UJ	HM	2	U		2	U		2	UJ	H
ETHYLBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
HEXACHLOROBUTADIENE		1	UJ	CHM	1	U		1	UJ	C	1	UJ	H
ISOPROPYLBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
M+P-XYLENES		2	UJ	HM	2	U		2	U		2	UJ	H
METHYL TERT-BUTYL ETHER		1	UJ	HM	1	U		1	U		1	UJ	H
METHYLENE CHLORIDE		5	UJ	HM	5	U		5	U		5	UJ	H
N-BUTYLBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
N-PROPYLBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
O-XYLENE		1	UJ	HM	1	U		1	U		1	UJ	H
SEC-BUTYLBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
STYRENE		1	UJ	HM	1	U		1	U		1	UJ	H
TERT-BUTYLBENZENE		1	UJ	HM	1	U		1	U		1	UJ	H
TETRACHLOROETHENE		7	J	CEHM	1	U		1	UJ	C	0.5	J	HP
TOLUENE		1	UJ	HM	1	U		1	U		1	UJ	H
TRANS-1,2-DICHLOROETHENE		1	UJ	HM	1	U		1	U		1	UJ	H
TRANS-1,3-DICHLOROPROPENE		1	UJ	HM	1	U		1	U		1	UJ	H
TRICHLOROETHENE		3	J	HM	1	U		1	U		1	UJ	H
TRICHLOROFLUOROMETHANE		2	UJ	HM	2	U		2	U		2	UJ	H
VINYL CHLORIDE		2	UJ	HM	2	U		2	U		2	UJ	H

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW113B-51608RA			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9RA			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	UJ	H	1	U		1	U		1	UJ	C
CHLOROBENZENE		1	UJ	H	1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	UJ	H	1	U		1	U		1	U	
CHLOROETHANE		2	UJ	H	2	U		2	U		2	UJ	C
CHLOROFORM		1	UJ	H	1	U		1	U		1	U	
CHLOROMETHANE		2	UJ	H	2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	UJ	H	1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	UJ	H	1	U		1	U		1	U	
DIBROMOMETHANE		1	UJ	H	1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	UJ	H	2	U		2	U		2	U	
ETHYLBENZENE		1	UJ	H	1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	H	1	U		1	U		1	U	
ISOPROPYLBENZENE		1	UJ	H	1	U		1	U		1	U	
M+P-XYLENES		2	UJ	H	2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	UJ	H	1	U		1	U		1	U	
METHYLENE CHLORIDE		5	UJ	H	5	U		5	U		5	U	
N-BUTYLBENZENE		1	UJ	H	1	U		1	U		1	U	
N-PROPYLBENZENE		1	UJ	H	1	U		1	U		1	U	
O-XYLENE		1	UJ	H	1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	UJ	H	1	U		1	U		1	U	
STYRENE		1	UJ	H	1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	UJ	H	1	U		1	U		1	U	
TETRACHLOROETHENE		0.6	J	HP	1	U		1	U		1	U	
TOLUENE		1	UJ	H	1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	UJ	H	1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	UJ	H	1	U		1	U		1	U	
TRICHLOROETHENE		1	UJ	H	1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	UJ	H	2	U		2	U		2	U	
VINYL CHLORIDE		2	UJ	H	2	U		2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW117B-51508			DA-MW117B-51508DL			DA-MW118B-51508			DA-MW-DUP01		
SDG: CTO403-9	LAB_ID	SB2552-5			SB2552-5DL			SB2552-1			SB2586-7		
FRACTION: OV	SAMP_DATE	5/15/2008			5/15/2008			5/15/2008			5/16/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF										DA-MW112B-51608		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	UJ	C				1	U		1	UJ	R
CHLOROBENZENE	1	U					1	U		1	UJ	R
CHLORODIBROMOMETHANE	1	U					1	U		1	UJ	R
CHLOROETHANE	2	UJ	C				2	U		2	UJ	R
CHLOROFORM	1	U					1	U		1	UJ	R
CHLOROMETHANE	2	U					2	U		2	UJ	R
CIS-1,2-DICHLOROETHENE	2						0.4	J	P	1	UJ	R
CIS-1,3-DICHLOROPROPENE	1	U					1	U		1	UJ	R
DIBROMOMETHANE	1	U					1	U		1	UJ	R
DICHLORODIFLUOROMETHANE	2	U					2	U		2	UJ	R
ETHYLBENZENE	1	U					1	U		1	UJ	R
HEXACHLOROBUTADIENE	1	U					1	U		1	UJ	CR
ISOPROPYLBENZENE	1	U					1	U		1	UJ	R
M+P-XYLENES	2	U					2	U		2	UJ	R
METHYL TERT-BUTYL ETHER	1	U					1	U		1	UJ	R
METHYLENE CHLORIDE	5	U					5	U		5	UJ	R
N-BUTYLBENZENE	1	U					1	U		1	UJ	R
N-PROPYLBENZENE	1	U					1	U		1	UJ	R
O-XYLENE	1	U					1	U		1	UJ	R
SEC-BUTYLBENZENE	1	U					1	U		1	UJ	R
STYRENE	1	U					1	U		1	UJ	R
TERT-BUTYLBENZENE	1	U					1	U		1	UJ	R
TETRACHLOROETHENE	1	U					1	U		1	UJ	CR
TOLUENE	1	U					1	U		1	UJ	R
TRANS-1,2-DICHLOROETHENE	1	U					1	U		1	UJ	R
TRANS-1,3-DICHLOROPROPENE	1	U					1	U		1	UJ	R
TRICHLOROETHENE				730			18			1	UJ	R
TRICHLOROFLUOROMETHANE	2	U					2	U		2	UJ	R
VINYL CHLORIDE	2	U					2	U		2	UJ	R

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB07			DA-MW-TB08			DA-MW-TB09			DA-MW-TB10		
	LAB_ID	SB2552-9			SB2552-10			SB2552-11			SB2552-12		
	SAMP_DATE	5/15/2008			5/15/2008			5/15/2008			5/15/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	UJ	C	1	UJ	C	1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	UJ	C	2	UJ	C	2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		0.8	J	P	5	U		0.8	J	P	0.8	J	P
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB11			DA-MW-TB12			DA-MW-TB13			DA-MW-TB14		
	LAB_ID	SB2586-11			SB2586-12			SB2586-13			SB2586-14		
	SAMP_DATE	5/16/2008			5/16/2008			5/16/2008			5/16/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB15			DA-MW-TB16			DA-MW-TB17			DA-MW-TB18		
	LAB_ID	SB2586-15			SB2628-5			SB2628-6			SB2657-6		
	SAMP_DATE	5/16/2008			5/19/2008			5/19/2008			5/20/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	UJ	M	1	U	
CHLOROBENZENE		1	U		1	U		1	UJ	M	1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	UJ	M	1	U	
CHLOROETHANE		2	U		2	U		2	UJ	M	2	U	
CHLOROFORM		1	U		1	U		1	UJ	M	1	U	
CHLOROMETHANE		2	U		2	U		2	UJ	M	2	UJ	C
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	UJ	M	1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	UJ	M	1	U	
DIBROMOMETHANE		1	U		1	U		1	UJ	M	1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	UJ	M	2	UJ	C
ETHYLBENZENE		1	U		1	U		1	UJ	M	1	U	
HEXACHLOROBUTADIENE		1	UJ	C	1	UJ	C	1	UJ	CM	1	U	
ISOPROPYLBENZENE		1	U		1	U		1	UJ	M	1	U	
M+P-XYLENES		2	U		2	U		2	UJ	M	2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	UJ	M	1	U	
METHYLENE CHLORIDE		5	U		5	U		5	UJ	M	5	U	
N-BUTYLBENZENE		1	U		1	U		1	UJ	M	1	U	
N-PROPYLBENZENE		1	U		1	U		1	UJ	M	1	U	
O-XYLENE		1	U		1	U		1	UJ	M	1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	UJ	M	1	U	
STYRENE		1	U		1	U		1	UJ	M	1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	UJ	M	1	U	
TETRACHLOROETHENE		1	UJ	C	1	UJ	C	1	UJ	CM	1	U	
TOLUENE		1	U		1	U		1	UJ	M	1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	UJ	M	1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	UJ	M	1	U	
TRICHLOROETHENE		1	U		1	U		1	UJ	M	1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	UJ	M	2	U	
VINYL CHLORIDE		2	U		2	U		2	UJ	M	2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW-TB19			DA-MW-TB20			DA-MW-TB21			DA-MW-TB22		
SDG: CTO403-9	LAB_ID	SB2657-5			SB2682-3			SB2710-5			SB2710-6		
FRACTION: OV	SAMP_DATE	5/20/2008			5/21/2008			5/22/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	UJ	C	2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	UJ	C	2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW-TB23			DA-MW-TB24			DA-MW-TB25		
	LAB_ID	SB2716-5			SB2716-6			SB2734-3		
	SAMP_DATE	5/23/2008			5/23/2008			5/26/2008		
	QC_TYPE	TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
SDG: CTO403-9	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
FRACTION: OS	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	U		10	U		11	U		12	U	
1,2,4-TRICHLOROBENZENE		10	U		10	U		11	U		12	U	
1,2-DICHLOROBENZENE		10	U		10	U		11	U		12	U	
1,2-DIPHENYLHYDRAZINE		20	U		20	U		22	U		24	U	
1,3-DICHLOROBENZENE		10	U		10	U		11	U		12	U	
1,4-DICHLOROBENZENE		10	U		10	U		11	U		12	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		11	U		12	U	
2,4,5-TRICHLOROPHENOL		25	U		25	UR	R	27	UR	R	29	U	
2,4,6-TRICHLOROPHENOL		10	U		10	UR	R	11	UR	R	12	U	
2,4-DICHLOROPHENOL		10	U		10	UR	R	11	UR	R	12	U	
2,4-DIMETHYLPHENOL		10	U		10	UR	R	11	UR	R	12	U	
2,4-DINITROPHENOL		25	U		25	UR	R	27	UR	R	29	U	
2,4-DINITROTOLUENE		10	U		10	U		11	U		12	U	
2,6-DICHLOROPHENOL		10	U		10	UR	R	11	UR	R	12	U	
2,6-DINITROTOLUENE		10	U		10	U		11	U		12	U	
2-CHLORONAPHTHALENE		10	U		10	U		11	U		12	U	
2-CHLOROPHENOL		10	U		10	UR	R	11	UR	R	12	U	
2-METHYLNAPHTHALENE		10	U		10	U		11	U		12	U	
2-METHYLPHENOL		10	U		10	UR	R	11	UR	R	12	U	
2-NITROANILINE		25	U		25	U		27	U		29	U	
2-NITROPHENOL		10	U		10	UR	R	11	UR	R	12	U	
3&4-METHYLPHENOL		10	U		10	UR	R	11	UR	R	12	U	
3,3'-DICHLOROBENZIDINE		10	UJ	E	10	UJ	E	11	UJ	E	12	UJ	CE
3-NITROANILINE		25	U		25	U		27	U		29	U	
4,6-DINITRO-2-METHYLPHENOL		25	UJ	C	25	UR	R	27	UR	R	29	U	
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		11	U		12	U	
4-CHLORO-3-METHYLPHENOL		25	U		25	UR	R	27	UR	R	29	U	
4-CHLOROANILINE		10	U		10	U		11	UJ	E	12	UJ	E
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		11	U		12	U	
4-NITROANILINE		25	UJ	E	25	UJ	E	27	U		29	U	
4-NITROPHENOL		25	UJ	C	25	UR	R	27	UR	R	29	U	
ACENAPHTHENE		10	U		10	U		11	U		12	U	
ACENAPHTHYLENE		10	U		10	U		11	U		12	U	
ANTHRACENE		10	U		10	U		11	U		12	U	
BENZIDINE		50	UR	E	50	UR	E	54	UR	E	59	UR	E

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		11	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE		11	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE		11	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		22	U		21	U		20	U		20	U	
1,3-DICHLOROBENZENE		11	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE		11	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		11	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		28	UJ	R	26	UR	R	25	U		25	U	
2,4,6-TRICHLOROPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
2,4-DICHLOROPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
2,4-DIMETHYLPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
2,4-DINITROPHENOL		28	UJ	R	26	UR	R	25	U		25	U	
2,4-DINITROTOLUENE		11	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
2,6-DINITROTOLUENE		11	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE		11	U		10	U		10	U		10	U	
2-CHLOROPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
2-METHYLNAPHTHALENE		11	UJ	E	10	UJ	E	10	U		10	U	
2-METHYLPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
2-NITROANILINE		28	U		26	U		25	U		25	U	
2-NITROPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
3&4-METHYLPHENOL		11	UJ	R	10	UR	R	10	U		10	U	
3,3'-DICHLOROBENZIDINE		11	UJ	C	10	UJ	C	10	UJ	C	10	UJ	E
3-NITROANILINE		28	U		26	U		25	U		25	U	
4,6-DINITRO-2-METHYLPHENOL		28	UJ	R	26	UR	R	25	U		25	UJ	C
4-BROMOPHENYL PHENYL ETHER		11	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		28	UJ	R	26	UR	R	25	U		25	U	
4-CHLOROANILINE		11	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		11	U		10	U		10	U		10	U	
4-NITROANILINE		28	U		26	U		25	U		25	UJ	E
4-NITROPHENOL		28	UJ	R	26	UR	R	25	U		25	UJ	C
ACENAPHTHENE		11	U		10	U		10	U		10	U	
ACENAPHTHYLENE		11	U		10	U		10	U		10	U	
ANTHRACENE		11	U		10	U		10	U		10	U	
BENZIDINE		56	UR	E	52	UR	E	50	UR	E	50	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
SDG: CTO403-9	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
FRACTION: OS	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	UJ	EM	10	UJ	E	10	UJ	E	10	UJ	E
1,2,4-TRICHLOROBENZENE		10	UJ	M	10	U		10	U		10	U	
1,2-DICHLOROBENZENE		10	UJ	M	10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		21	UJ	M	20	U		20	U		20	U	
1,3-DICHLOROBENZENE		10	UJ	M	10	U		10	U		10	U	
1,4-DICHLOROBENZENE		10	UJ	M	10	UJ	E	10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	UJ	M	10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		26	UJ	MR	25	U		25	UJ	R	26	UR	R
2,4,6-TRICHLOROPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
2,4-DICHLOROPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
2,4-DIMETHYLPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
2,4-DINITROPHENOL		26	UJ	EMR	25	U		25	UJ	ER	26	UR	R
2,4-DINITROTOLUENE		10	UJ	M	10	U		10	U		10	U	
2,6-DICHLOROPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
2,6-DINITROTOLUENE		10	UJ	M	10	U		10	U		10	U	
2-CHLORONAPHTHALENE		10	UJ	M	10	U		10	U		10	U	
2-CHLOROPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
2-METHYLNAPHTHALENE		10	UJ	M	10	UJ	E	10	U		10	U	
2-METHYLPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
2-NITROANILINE		26	UJ	M	25	U		25	U		26	U	
2-NITROPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
3&4-METHYLPHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R
3,3'-DICHLOROBENZIDINE		10	UJ	M	10	U		10	U		10	UJ	C
3-NITROANILINE		26	UJ	M	25	U		25	U		26	U	
4,6-DINITRO-2-METHYLPHENOL		26	UJ	MR	25	U		25	UJ	R	26	UR	R
4-BROMOPHENYL PHENYL ETHER		10	UJ	M	10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		26	UJ	MR	25	U		25	UJ	R	26	UR	R
4-CHLOROANILINE		10	UJ	M	10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	UJ	M	10	U		10	U		10	U	
4-NITROANILINE		26	UJ	M	25	U		25	U		26	U	
4-NITROPHENOL		26	UJ	MR	25	U		25	UJ	R	26	UR	R
ACENAPHTHENE		10	UJ	M	10	U		10	U		10	U	
ACENAPHTHYLENE		10	UJ	M	10	U		10	U		10	U	
ANTHRACENE		10	UJ	M	10	U		10	U		10	U	
BENZIDINE		52	UR	E	50	UR	E	50	UR	E	51	UR	E

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	UJ	E	10	UJ	E	10	UJ	E	10	UJ	E
1,2,4-TRICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		21	U		20	U		20	U	
1,3-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE		10	U		10	UJ	E	10	UJ	E	10	UJ	E
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		25	U		26	U		25	UR	R	26	UR	R
2,4,6-TRICHLOROPHENOL		10	U		10	U		10	UR	R	10	UR	R
2,4-DICHLOROPHENOL		10	U		10	U		10	UR	R	10	UR	R
2,4-DIMETHYLPHENOL		10	U		10	U		10	UR	R	10	UR	R
2,4-DINITROPHENOL		25	U		26	U		25	UR	R	26	UR	R
2,4-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	U		10	UR	R	10	UR	R
2,6-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U		10	U		10	U	
2-CHLOROPHENOL		10	U		10	U		10	UR	R	10	UR	R
2-METHYLNAPHTHALENE		10	U		10	UJ	E	10	UJ	E	10	UJ	E
2-METHYLPHENOL		10	U		10	U		10	UR	R	10	UR	R
2-NITROANILINE		25	U		26	U		25	U		26	U	
2-NITROPHENOL		10	U		10	U		10	UR	R	10	UR	R
3&4-METHYLPHENOL		10	U		10	U		10	UR	R	10	UR	R
3,3'-DICHLOROBENZIDINE		10	U		10	U		10	U		10	U	
3-NITROANILINE		25	U		26	U		25	U		26	U	
4,6-DINITRO-2-METHYLPHENOL		25	U		26	U		25	UR	R	26	UR	R
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		25	U		26	U		25	UR	R	26	UR	R
4-CHLOROANILINE		10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-NITROANILINE		25	U		26	U		25	U		26	U	
4-NITROPHENOL		25	U		26	U		25	UR	R	26	UR	R
ACENAPHTHENE		10	U		10	U		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U		10	U		10	U	
ANTHRACENE		10	U		10	U		10	U		10	U	
BENZIDINE		50	UR	E	52	UR	E	50	UR	E	51	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
SDG: CTO403-9	LAB_ID	SB2552-5			SB2552-1			SB2586-7		
FRACTION: OS	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	UJ	E	10	UJ	E	10	UJ	E
1,2,4-TRICHLOROBENZENE		10	U		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		21	U		20	U		20	U	
1,3-DICHLOROBENZENE		10	U		10	U		10	U	
1,4-DICHLOROBENZENE		10	UJ	E	10	UJ	E	10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		26	UR	R	25	U		25	UJ	R
2,4,6-TRICHLOROPHENOL		10	UR	R	10	U		10	UJ	R
2,4-DICHLOROPHENOL		10	UR	R	10	U		10	UJ	R
2,4-DIMETHYLPHENOL		10	UR	R	10	U		10	UJ	R
2,4-DINITROPHENOL		26	UR	R	25	U		25	UJ	ER
2,4-DINITROTOLUENE		10	U		10	U		10	U	
2,6-DICHLOROPHENOL		10	UR	R	10	U		10	UJ	R
2,6-DINITROTOLUENE		10	U		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U		10	U	
2-CHLOROPHENOL		10	UR	R	10	U		10	UJ	R
2-METHYLNAPHTHALENE		10	UJ	E	10	UJ	E	10	U	
2-METHYLPHENOL		10	UR	R	10	U		10	UJ	R
2-NITROANILINE		26	U		25	U		25	U	
2-NITROPHENOL		10	UR	R	10	U		10	UJ	R
3&4-METHYLPHENOL		10	UR	R	10	U		10	UJ	R
3,3'-DICHLOROBENZIDINE		10	U		10	U		10	U	
3-NITROANILINE		26	U		25	U		25	U	
4,6-DINITRO-2-METHYLPHENOL		26	UR	R	25	U		25	UJ	R
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		26	UR	R	25	U		25	UJ	R
4-CHLOROANILINE		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		10	U	
4-NITROANILINE		26	U		25	U		25	U	
4-NITROPHENOL		26	UR	R	25	U		25	UJ	R
ACENAPHTHENE		10	U		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U		10	U	
ANTHRACENE		10	U		10	U		10	U	
BENZIDINE		52	UR	E	50	UR	E	50	UR	E

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		11	U		12	U	
BENZO(A)PYRENE		10	U		10	U		11	U		12	U	
BENZO(B)FLUORANTHENE		10	U		10	U		11	U		12	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		11	U		12	U	
BENZO(K)FLUORANTHENE		10	U		10	U		11	U		12	U	
BENZOIC ACID		25	UR	E	25	UR	ER	27	UR	ER	29	UR	E
BENZYL ALCOHOL		20	U		20	U		22	U		24	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		11	U		12	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U		11	U		12	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U		11	U		3	J	
BUTYL BENZYL PHTHALATE		10	U		10	U		11	U		12	U	
CARBAZOLE		10	U		10	U		11	U		12	U	
CHRYSENE		10	U		10	U		11	U		12	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		11	U		12	U	
DIBENZOFURAN		10	U		10	U		11	U		12	U	
DIETHYL PHTHALATE		10	U		10	U		11	U		12	U	
DIMETHYL PHTHALATE		10	U		10	U		11	U		12	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		11	U		12	U	
DI-N-OCTYL PHTHALATE		10	U		10	UJ	C	11	UJ	C	12	UJ	C
FLUORANTHENE		10	U		10	U		11	U		12	U	
FLUORENE		10	U		10	U		11	U		12	U	
HEXACHLOROBENZENE		10	U		10	U		11	U		12	U	
HEXACHLOROBUTADIENE		10	U		10	U		11	U		12	U	
HEXACHLOROETHANE		10	U		10	U		11	U		12	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		11	U		12	U	
ISOPHORONE		10	U		10	U		11	U		12	U	
NAPHTHALENE		10	U		10	U		11	U		12	U	
NITROBENZENE		10	U		10	U		11	U		12	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		11	U		12	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		11	U		12	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		11	U		12	U	
N-NITROSOPYRROLIDINE		10	U		10	U		11	U		12	U	
PENTACHLOROPHENOL		25	U		25	UR	R	27	UR	R	29	U	
PHENANTHRENE		10	U		10	U		11	U		3	J	P
PHENOL		10	U		10	UR	R	11	UR	R	12	U	

PROJ_NO: 00933	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
SDG: CTO403-9	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
FRACTION: OS	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		11	U		10	U		10	U		10	U	
BENZO(A)PYRENE		11	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		11	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		11	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		11	U		10	U		10	U		10	U	
BENZOIC ACID		28	UR	E	26	UR	ER	25	UR	E	25	UR	E
BENZYL ALCOHOL		22	U		21	U		20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE		11	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		11	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		11	U		10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE		11	U		10	U		10	U		10	U	
CARBAZOLE		11	U		10	U		10	U		10	U	
CHRYSENE		11	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		11	U		10	U		10	U		10	U	
DIBENZOFURAN		11	U		10	U		10	U		10	U	
DIETHYL PHTHALATE		11	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE		11	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		11	U		10	U		3	J	P	10	U	
DI-N-OCTYL PHTHALATE		11	UJ	C	10	UJ	C	10	UJ	C	10	U	
FLUORANTHENE		11	U		10	U		10	U		10	U	
FLUORENE		11	U		10	U		10	U		10	U	
HEXACHLOROBENZENE		11	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		11	U		10	U		10	U		10	U	
HEXACHLOROETHANE		11	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		11	U		10	U		10	U		10	U	
ISOPHORONE		11	U		10	U		10	U		10	U	
NAPHTHALENE		11	U		10	U		10	U		10	U	
NITROBENZENE		11	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		11	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		11	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		11	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		11	U		10	U		10	U		10	U	
PENTACHLOROPHENOL		28	UJ	R	26	UR	R	25	U		25	U	
PHENANTHRENE		11	U		10	U		10	U		10	U	
PHENOL		11	UJ	R	10	UR	R	10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
SDG: CTO403-9	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
FRACTION: OS	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	UJ	M	10	U		10	U		10	U	
BENZO(A)PYRENE		10	UJ	M	10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	UJ	M	10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	UJ	M	10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	UJ	M	10	U		10	U		10	U	
BENZOIC ACID		26	UR	E	25	UR	E	25	UR	E	26	UR	ER
BENZYL ALCOHOL		21	UJ	M	20	UJ	E	20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE		10	UJ	M	10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	UJ	M	10	UJ	E	10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	UJ	M	10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE		10	UJ	M	10	U		10	U		10	U	
CARBAZOLE		10	UJ	M	10	U		10	U		10	U	
CHRYSENE		10	UJ	M	10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	UJ	M	10	U		10	U		10	U	
DIBENZOFURAN		10	UJ	M	10	U		10	U		10	U	
DIETHYL PHTHALATE		10	UJ	M	10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	UJ	M	10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	UJ	M	10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	UJ	M	10	U		10	U		10	UJ	C
FLUORANTHENE		10	UJ	M	10	U		10	U		10	U	
FLUORENE		10	UJ	M	10	U		10	U		10	U	
HEXACHLOROBENZENE		10	UJ	M	10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	UJ	M	10	U		10	U		10	U	
HEXACHLOROETHANE		10	UJ	M	10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	UJ	M	10	U		10	U		10	U	
ISOPHORONE		10	UJ	M	10	U		10	U		10	U	
NAPHTHALENE		10	UJ	M	10	U		10	U		10	U	
NITROBENZENE		10	UJ	M	10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	UJ	M	10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	UJ	M	10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	UJ	M	10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	UJ	M	10	U		10	U		10	U	
PENTACHLOROPHENOL		26	UJ	MR	25	U		25	UJ	R	26	UR	R
PHENANTHRENE		10	UJ	M	10	U		10	U		10	U	
PHENOL		10	UJ	MR	10	U		10	UJ	R	10	UR	R

PROJ_NO: 00933	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
SDG: CTO403-9	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
FRACTION: OS	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZOIC ACID		25	UR	E	26	UR	E	25	UR	ER	26	UR	ER
BENZYL ALCOHOL		20	U		21	UJ	E	20	UJ	E	20	UJ	E
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	UJ	E	10	UJ	E	10	UJ	E
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE		10	U		10	U		10	U		10	U	
CARBAZOLE		10	U		10	U		10	U		10	U	
CHRYSENE		10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		10	U		10	U	
DIBENZOFURAN		10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	U		10	U		10	U		10	U	
FLUORANTHENE		10	U		10	U		10	U		10	U	
FLUORENE		10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		10	U		10	U	
ISOPHORONE		10	U		10	U		10	U		10	U	
NAPHTHALENE		10	U		10	U		10	U		10	U	
NITROBENZENE		10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL		25	U		26	U		25	UJ	R	26	UR	R
PHENANTHRENE		10	U		10	U		10	U		10	U	
PHENOL		10	U		10	U		10	UJ	R	10	UR	R

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
	LAB_ID	SB2552-5			SB2552-1			SB2586-7		
	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		10	U	
BENZOIC ACID		26	UR	ER	25	UR	E	25	UR	E
BENZYL ALCOHOL		21	UJ	E	20	UJ	E	20	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	UJ	E	10	UJ	E	10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE		10	U		10	U		10	U	
CARBAZOLE		10	U		10	U		10	U	
CHRYSENE		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		10	U	
DIBENZOFURAN		10	U		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	U		10	U		10	U	
FLUORANTHENE		10	U		10	U		10	U	
FLUORENE		10	U		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		10	U	
ISOPHORONE		10	U		10	U		10	U	
NAPHTHALENE		10	U		10	U		10	U	
NITROBENZENE		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		10	U	
PENTACHLOROPHENOL		26	UR	R	25	U		25	UJ	R
PHENANTHRENE		10	U		10	U		10	U	
PHENOL		10	UR	R	10	U		10	UJ	R

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
SDG: CTO403-9	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
FRACTION: OS	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		11	U		12	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		11	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
SDG: CTO403-9	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
FRACTION: OS	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	UJ	M	10	U		10	U		10	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
SDG: CTO403-9	LAB_ID	SB2552-5			SB2552-1			SB2586-7		
FRACTION: OS	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		10	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	U		0.02	U		0.022	U		0.024	U	
4,4'-DDE		0.02	U		0.02	U		0.022	U		0.024	U	
4,4'-DDT		0.02	U		0.02	U		0.022	U		0.024	U	
ALDRIN		0.01	U		0.01	U		0.011	U		0.012	U	
ALPHA-BHC		0.01	U		0.01	U		0.011	U		0.012	U	
ALPHA-CHLORDANE		0.01	U		0.01	U		0.011	U		0.012	U	
AROCLOR-1016		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1221		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1232		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1242		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1248		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1254		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1260		0.1	U		0.11	U		0.1	U		0.1	U	
AROCLOR-1268		0.1	U		0.11	U		0.1	U		0.1	U	
BETA-BHC		0.01	U		0.01	U		0.011	U		0.012	U	
DELTA-BHC		0.01	U		0.01	U		0.011	U		0.012	U	
DIELDRIN		0.02	U		0.02	U		0.022	U		0.024	U	
ENDOSULFAN I		0.01	U		0.01	U		0.011	U		0.012	U	
ENDOSULFAN II		0.02	U		0.02	U		0.022	U		0.024	U	
ENDOSULFAN SULFATE		0.02	U		0.02	U		0.022	U		0.024	U	
ENDRIN		0.02	U		0.02	U		0.022	U		0.024	U	
ENDRIN ALDEHYDE		0.02	U		0.02	U		0.022	U		0.024	U	
ENDRIN KETONE		0.02	U		0.02	U		0.022	U		0.024	U	
GAMMA-BHC (LINDANE)		0.01	U		0.01	U		0.011	U		0.012	U	
GAMMA-CHLORDANE		0.01	U		0.01	U		0.011	U		0.012	U	
HEPTACHLOR		0.01	U		0.01	U		0.011	U		0.012	U	
HEPTACHLOR EPOXIDE		0.01	U		0.01	U		0.011	U		0.012	U	
METHOXYCHLOR		0.1	U		0.1	U		0.11	U		0.12	U	
TOXAPHENE		0.2	U		0.2	U		0.22	U		0.24	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.021	U		0.02	U		0.02	U		0.02	U	
4,4'-DDE		0.021	U		0.02	U		0.02	U		0.02	U	
4,4'-DDT		0.021	U		0.02	U		0.02	U		0.02	U	
ALDRIN		0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-BHC		0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE		0.01	U		0.01	U		0.01	U		0.01	U	
AROCLOR-1016		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1221		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1232		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1242		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1248		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1254		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1260		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1268		0.1	U		0.1	U		0.1	U		0.1	U	
BETA-BHC		0.01	U		0.01	U		0.01	U		0.01	U	
DELTA-BHC		0.01	U		0.01	U		0.01	U		0.01	U	
DIELDRIN		0.021	U		0.02	U		0.02	U		0.02	U	
ENDOSULFAN I		0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II		0.021	U		0.02	U		0.02	U		0.02	U	
ENDOSULFAN SULFATE		0.021	U		0.02	U		0.02	U		0.02	U	
ENDRIN		0.021	U		0.02	U		0.02	U		0.02	U	
ENDRIN ALDEHYDE		0.021	U		0.02	U		0.02	U		0.02	U	
ENDRIN KETONE		0.021	U		0.02	U		0.02	U		0.02	U	
GAMMA-BHC (LINDANE)		0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE		0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR		0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE		0.01	U		0.01	U		0.01	U		0.01	U	
METHOXYCHLOR		0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE		0.21	U		0.2	U		0.2	U		0.2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
4,4'-DDE		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
4,4'-DDT		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
ALDRIN		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
ALPHA-BHC		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
AROCLOR-1016		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1221		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1232		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1242		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1248		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1254		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1260		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
AROCLOR-1268		0.1	UJ	M	0.1	U		0.11	U		0.1	U	
BETA-BHC		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
DELTA-BHC		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
DIELDRIN		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
ENDOSULFAN I		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
ENDOSULFAN II		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
ENDOSULFAN SULFATE		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
ENDRIN		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
ENDRIN ALDEHYDE		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
ENDRIN KETONE		0.02	UJ	M	0.02	U		0.02	U		0.021	U	
GAMMA-BHC (LINDANE)		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
HEPTACHLOR		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE		0.01	UJ	M	0.01	U		0.01	U		0.01	U	
METHOXYCHLOR		0.1	UJ	M	0.1	U		0.1	U		0.1	U	
TOXAPHENE		0.2	UJ	M	0.2	U		0.2	U		0.21	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	U		0.021	U		0.02	U		0.02	U	
4,4'-DDE		0.02	U		0.021	U		0.02	U		0.02	U	
4,4'-DDT		0.02	U		0.021	U		0.02	U		0.02	U	
ALDRIN		0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-BHC		0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE		0.01	U		0.01	U		0.01	U		0.01	U	
AROCLOR-1016		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1221		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1232		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1242		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1248		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1254		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1260		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1268		0.1	U		0.1	U		0.1	U		0.1	U	
BETA-BHC		0.01	U		0.01	U		0.01	U		0.01	U	
DELTA-BHC		0.01	U		0.01	U		0.01	U		0.01	U	
DIELDRIN		0.02	U		0.021	U		0.02	U		0.02	U	
ENDOSULFAN I		0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II		0.02	U		0.021	U		0.02	U		0.02	U	
ENDOSULFAN SULFATE		0.02	U		0.021	U		0.02	U		0.02	U	
ENDRIN		0.02	U		0.021	U		0.02	U		0.02	U	
ENDRIN ALDEHYDE		0.02	U		0.021	U		0.02	U		0.02	U	
ENDRIN KETONE		0.02	U		0.021	U		0.02	U		0.02	U	
GAMMA-BHC (LINDANE)		0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE		0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR		0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE		0.01	U		0.01	U		0.01	U		0.01	U	
METHOXYCHLOR		0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE		0.2	U		0.21	U		0.2	U		0.2	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
	LAB_ID	SB2552-5			SB2552-1			SB2586-7		
	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	U		0.02	U		0.02	U	
4,4'-DDE		0.02	U		0.02	U		0.02	U	
4,4'-DDT		0.02	U		0.02	U		0.02	U	
ALDRIN		0.01	U		0.01	U		0.01	U	
ALPHA-BHC		0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE		0.01	U		0.01	U		0.01	U	
AROCLOR-1016		0.1	U		0.1	U		0.1	U	
AROCLOR-1221		0.1	U		0.1	U		0.1	U	
AROCLOR-1232		0.1	U		0.1	U		0.1	U	
AROCLOR-1242		0.1	U		0.1	U		0.1	U	
AROCLOR-1248		0.1	U		0.1	U		0.1	U	
AROCLOR-1254		0.1	U		0.1	U		0.1	U	
AROCLOR-1260		0.1	U		0.1	U		0.1	U	
AROCLOR-1268		0.1	U		0.1	U		0.1	U	
BETA-BHC		0.01	U		0.01	U		0.01	U	
DELTA-BHC		0.01	U		0.01	U		0.01	U	
DIELDRIN		0.02	U		0.02	U		0.02	U	
ENDOSULFAN I		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II		0.02	U		0.02	U		0.02	U	
ENDOSULFAN SULFATE		0.02	U		0.02	U		0.02	U	
ENDRIN		0.02	U		0.02	U		0.02	U	
ENDRIN ALDEHYDE		0.02	U		0.02	U		0.02	U	
ENDRIN KETONE		0.02	U		0.02	U		0.02	U	
GAMMA-BHC (LINDANE)		0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE		0.01	U		0.01	U		0.01	U	
HEPTACHLOR		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE		0.01	U		0.01	U		0.01	U	
METHOXYCHLOR		0.1	U		0.1	U		0.1	U	
TOXAPHENE		0.2	U		0.2	U		0.2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
SDG: CTO403-9	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
FRACTION: PET	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		47	U	B	10	U		10	U	B	10	U	
TPH (C09-C36)		79	U		85	U		83	U		220		

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PET MEDIA: WATER	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		25	U	B	16	U	B	10	U		10	U	
TPH (C09-C36)		69	J	P	84	U		75	U		75	U	

PROJ_NO: 00933	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
SDG: CTO403-9	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
FRACTION: PET	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	UJ	M	10	U		10	U		10	U	
TPH (C09-C36)		77	UJ	M	51	J	P	54	J	P	82	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: PET MEDIA: WATER	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U		10	U		10	U	
TPH (C09-C36)		49	J	P	76	U		75	U		75	U	

PROJ_NO: 00933	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01			DA-MW-TB07		
SDG: CTO403-9	LAB_ID	SB2552-5			SB2552-1			SB2586-7			SB2552-9		
FRACTION: PET	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008			5/15/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF							DA-MW112B-51608					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		180			10	U	B	10	U		10	U	
TPH (C09-C36)		75	U		79	U		82	U				

PROJ_NO: 00933	NSAMPLE	DA-MW-TB08			DA-MW-TB09			DA-MW-TB10			DA-MW-TB11		
SDG: CTO403-9	LAB_ID	SB2552-10			SB2552-11			SB2552-12			SB2586-11		
FRACTION: PET	SAMP_DATE	5/15/2008			5/15/2008			5/15/2008			5/16/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U		10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-MW-TB12			DA-MW-TB13			DA-MW-TB14			DA-MW-TB15		
SDG: CTO403-9	LAB_ID	SB2586-12			SB2586-13			SB2586-14			SB2586-15		
FRACTION: PET	SAMP_DATE	5/16/2008			5/16/2008			5/16/2008			5/16/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U		10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-MW-TB16			DA-MW-TB17			DA-MW-TB18			DA-MW-TB19		
SDG: CTO403-9	LAB_ID	SB2628-5			SB2628-6			SB2657-6			SB2657-5		
FRACTION: PET	SAMP_DATE	5/19/2008			5/19/2008			5/20/2008			5/20/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	UJ	M	10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-MW-TB20			DA-MW-TB21			DA-MW-TB22			DA-MW-TB23		
SDG: CTO403-9	LAB_ID	SB2682-3			SB2710-5			SB2710-6			SB2716-5		
FRACTION: PET	SAMP_DATE	5/21/2008			5/22/2008			5/22/2008			5/23/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		26			10	U		10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-MW-TB24			DA-MW-TB26		
SDG: CTO403-9	LAB_ID	SB2716-6			SB2734-4		
FRACTION: PET	SAMP_DATE	5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	TB			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	.0			.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U	
TPH (C09-C36)							

PROJ_NO: 00933	NSAMPLE	DA-MW03B-52208			DA-MW04B-52308			DA-MW103B-52308			DA-MW103S-52608		
SDG: CTO403-9	LAB_ID	SB2710-1			SB2716-1			SB2716-3			SB2734-1		
FRACTION: OVG	SAMP_DATE	5/22/2008			5/23/2008			5/23/2008			5/26/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		10	U		8.8	J	P	49			150		

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OVG MEDIA: WATER	NSAMPLE	DA-MW104B-52008			DA-MW105B-52008			DA-MW106B-52108			DA-MW106S-52208		
	LAB_ID	SB2657-1			SB2657-3			SB2682-1			SB2710-3		
	SAMP_DATE	5/20/2008			5/20/2008			5/21/2008			5/22/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		9.8	J	P	14			10	U		1.8	J	P

PROJ_NO: 00933	NSAMPLE	DA-MW110B-51908			DA-MW111B-51608			DA-MW112B-51608			DA-MW112S-51908		
SDG: CTO403-9	LAB_ID	SB2628-1			SB2586-3			SB2586-5			SB2628-3		
FRACTION: OVG	SAMP_DATE	5/19/2008			5/16/2008			5/16/2008			5/19/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	UJ	M	10	U		10	U		10	U	
ETHENE		10	UJ	M	10	U		10	U		10	U	
METHANE		8.7	J	MP	10	U		4.6	J	P	72		

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OVG MEDIA: WATER	NSAMPLE	DA-MW113B-51608			DA-MW114B-51608			DA-MW115B-51508			DA-MW116B-51508		
	LAB_ID	SB2586-9			SB2586-1			SB2552-7			SB2552-3		
	SAMP_DATE	5/16/2008			5/16/2008			5/15/2008			5/15/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0			.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		2.4	J	P	10	U		1.3	J	P	10	U	

PROJ_NO: 00933 SDG: CTO403-9 FRACTION: OVG MEDIA: WATER	NSAMPLE	DA-MW117B-51508			DA-MW118B-51508			DA-MW-DUP01		
	LAB_ID	SB2552-5			SB2552-1			SB2586-7		
	SAMP_DATE	5/15/2008			5/15/2008			5/16/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	.0			.0			.0		
	DUP_OF							DA-MW112B-51608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U	
METHANE		10	U		10	U		4.9	J	P

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-08-08-2866W

Date: August 20, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG CTO403-10
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum (Total)/Ammonia/Nitrate/Nitrite/Orthophosphate/ Sulfate/Sulfide/TOC:

15/Groundwaters/	DA-HD-SB01	DA-MW02-52708	DA-MW07A-52808
	DA-MW07B-52908	DA-MW09B-52808	DA-MW101B-53008
	DA-MW102B-52708	DA-MW107B-6408	DA-MW108B-6308
	DA-MW109B-6208	DA-MW122B-6308	DA-MW123B-6408
	DA-MWDUP02	DA-MW-DUP03	DA-MW-DUP04

(Field Duplicate Pairs: DA-MW101B-53008/DA-MWDUP02,
DA-MW108B-6308/DA-MW-DUP03,
DA-MW122B-6308/DA-MW-DUP04)

1/Rinsate Blank/ DA-RB02

TAL Metals and Molybdenum (Dissolved):

15/Groundwaters/	DA-HD-SB01F	DA-MW02-52708F	DA-MW07A-52808F
	DA-MW07B-52908F	DA-MW09B-52808F	DA-MW101B-53008F
	DA-MW102B-52708F	DA-MW107B-6408F	DA-MW108B-6308F
	DA-MW109B-6208F	DA-MW122B-6308F	DA-MW123B-6408F
	DA-MWDUP02F	DA-MW-DUP03F	DA-MW-DUP04F

(Field Duplicate Pairs: DA-MW101B-53008F/DA-MWDUP02F,
DA-MW108B-6308F/DA-MW-DUP03F,
DA-MW122B-6308F/DA-MW-DUP04F)

1/Rinsate Blank/ DA-RB02F

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the Target Analyte List (TAL) metals and molybdenum analytical data and a Tier I data validation on the ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC analytical data from groundwater samples collected at the Site 08-NUSC Disposal Area from May 27 to June 5, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B and 7470A (mercury). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. The wet chemistry analyses (ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC) were

performed according to EPA 600/4-79-020 (E350.1, E353.2, E353.2, E365.2, E375.4, E376.1, E415.1; respectively). Tier I data validation includes evaluation for completeness only.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

	• Data Completeness
*	• Holding Times
	• Calibration Verification
	• Laboratory Blank Analyses
*	• ICP Interference Check Sample Results
*	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
*	• Field Duplicate Precision
	• ICP Serial Dilution Results
	• Reporting Limits

* All quality control criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The metals data package is complete.

The ammonia, nitrate, nitrite, orthophosphate, sulfate, sulfide, and TOC data are complete. The laboratory flagged as estimated (J) the positive results above the method detection limit and below the quantitation limit for these analytes. The "J" flags are presented in VQL column of the data summary tables.

On July 17, 2008, the laboratory resubmitted select metals QC forms due to sample ID transcription errors.

Calibration Verification

The following table summarizes the calibration verification results which were above the 110% QC recovery limit:

Analyte	%Recovery	Action		Affected Sample
		(+)	NDs	
Cadmium	111.0	J		DA-MW109B-6208F
Molybdenum	112.2	J		

Cadmium and molybdenum exceeded the calibration verification QC criterion; therefore, the project accuracy goals may be impacted. The positive cadmium and molybdenum results in sample DA-MW109B-6208F are usable as estimated values that may be biased high.

The following table summarizes the analytes that recovered above the 130% QC limit in the reporting limit check standard:

Analyte	%R	2xTrue Value (TV) (µg/L)	Action		Affected Samples
			(+)	NDs	
Cobalt	138, 139	60.0	J<2xTV		DA-MW102B-52708, DA-MW102B-52708F, DA-MW109B-6208, DA-MW109B-6208F, DA-MW02-052708, DA-MW02-52708F

Cobalt exceeded the QC recovery criterion in the reporting limit check standard; therefore, the project accuracy goals may be impacted. The positive cobalt results in the affected samples are usable as estimated values which may be biased high.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Analyte	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Aluminum	30.83	154	DA-HD-SB01, DA-HD-SB01F, DA-MW07A-52808, DA-MW07A-52808F, DA-MW09B-52808, DA-MW101B-53008F, DA-MW109B-6208, DA-MW107B-6408F, DA-MW122B-6308, DA-MW108B-6308F, DA-MW123B-6408, DA-MWDUP02F, DA-MW-DUP04, DA-MW-DUP03F, DA-RB02, DA-RB02F
Antimony	1.532	7.7	All samples except DA-MW02-52708, DA-MW02-52708F, DA-MW102B-52708, DA-MW102B-52708F, DA-MW109B-6208, DA-MW109B-6208F, DA-MWDUP02, DA-RB02, DA-RB02F, DA-MW07A-52808F, DA-MW09-52808F
Barium	1.683	8.4	DA-MW102B-52708, DA-HD-SB01F, DA-MW101B-53008F, DA-MW102B-52708F, DA-MWDUP02F, DA-RB02F
Beryllium	0.29	1.5	DA-MW101B-53008, DA-MW107B-6408
Cadmium	0.36	1.8	All samples except DA-HD-SB01, DA-HD-SB01F, DA-MW107B-6408, DA-MW107B-6408F, DA-MW108B-6308, DA-MW108B-6308F, DA-MW123B-6408, DA-MW123B-6408F, DA-MWDUP02, DA-MWDUP02F, DA-RB02, DA-RB02F, DA-MW101B-53008F, DA-MW102B-52708F, DA-MW107B-6408F, DA-MW122B-6308F, DA-MW-DUP03F
Calcium	24.15	121	DA-RB02F
Chromium	0.48	2.4	DA-MW07A-52808, DA-MW07A-52808F, DA-MW07B-52908, DA-MW07B-52908F, DA-MW09B-52808, DA-MW09B-52808F, DA-MW107B-6408, DA-MW123B-6408, DA-MW123B-6408F, DA-MW-DUP04, DA-MW-DUP04F, DA-MW02-52708F, DA-MW101B-53008F, DA-MW102B-52708F, DA-MW108B-6308F, DA-MW109B-6208F, DA-MW122B-6308F, DA-MWDUP02F, DA-MW-DUP03F

Analyte	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Cobalt	0.54	2.7	DA-HD-SB01, DA-MW07B-52908, DA-MW07B-52908F, DA-MW107B-6408, DA-MW107B-6408F, DA-MW108B-6308, DA-MW108B-6308F, DA-MW109B-6208, DA-MW109B-6208F, DA-MW122B-6308, DA-MW122B-6308F, DA-MW123B-6408, DA-MW123B-6408F, DA-MW-DUP03, DA-MW-DUP03F, DA-MW-DUP04, DA-MW-DUP04F, DA-MW09B-52808F, DA-MW101B-53008F, DA-MW102B-52708F, DA-MW-DUP02F
Copper	2.99	15.0	DA-MW02-52708, DA-MW02-52708F, DA-MW07B-52908, DA-MW09B-52808, DA-MW101B-53008, DA-MW108B-6308, DA-MW109B-6208, DA-MW109B-6208F, DA-MW122B-6308, DA-MW122B-6308F, DA-MWDUP02, DA-MW-DUP03, DA-HD-SB01F, DA-MW102B-52708F, DA-MW-DUP04F
Iron	-24.92	125	DA-MW122B-6308, DA-MW122B-6308F, DA-MW123B-6408, DA-MW123B-6408F, DA-MW-DUP04, DA-MW-DUP04F, DA-RB02, DA-RB02F, DA-HD-SB01F, DA-MW101B-53008F, DA-MWDUP02F
Magnesium	31.72	159	DA-RB02F
Manganese	-1.85	9.3	DA-MW122B-6308, DA-MW122B-6308F, DA-MW-DUP04, DA-MW-DUP04F, DA-RB02, DA-RB02F, DA-HD-SB01F
Nickel	0.68	3.4	DA-MW02-52708, DA-MW02-52708F, DA-MW07A-52808, DA-MW07A-52808F, DA-MW09B-52808, DA-MW107B-6408, DA-MW107B-6408F, DA-MW108B-6308, DA-MW108B-6308F, DA-MW122B-6308, DA-MW122B-6308F, DA-MW123B-6408, DA-MW123B-6408F, DA-MW-DUP03, DA-MW-DUP03F, DA-MW-DUP04, DA-MW-DUP04F, DA-HD-SB01F, DA-MW07B-52908F, DA-MW102B-52708F, DA-MW109B-6208F
Sodium	-108.3	542	DA-RB02, DA-RB02F
Thallium	3.32	16.6	DA-MW122B-6308
Vanadium	0.80	4.0	DA-MW07B-52908, DA-MW102B-52708, DA-MW107B-6408, DA-MW108B-6308, DA-MW-DUP03, DA-HD-SB01F, DA-MW09B-52808F, DA-MW101B-53008F, DA-MW122B-6308F, DA-MWDUP02F, DA-MW-DUP03F
Zinc	2.277	11.4	DA-MW02-052708, DA-MW07A-52808, DA-MW107B-6408, DA-MW122B-6308, DA-MW123B-6408, DA-MW-DUP04, DA-HD-SB01F, DA-MW07A-52808F, DA-MW07B-52908F, DA-MW09B-52808F, DA-MW101B-53008F, DA-MW102B-52708F, DA-MW107B-6408F, DA-MW108B-6308F, DA-MW109B-6208F, DA-MW122B-6308F, DA-MW123B-6408F, DA-MWDUP02F, DA-MW-DUP03F, DA-MW-DUP04F, DA-RB02F
Molybdenum	0.384	1.9	DA-MW02-52708, DA-MW02-52708F, DA-MW09B-52808, DA-MW09B-52808F, DA-MW101B-53008, DA-MW101B-53008F, DA-MW102B-52708, DA-MW107B-6408, DA-MW107B-6408F, DA-MW123B-6408, DA-MWDUP02, DA-MWDUP02F, DA-MW07B-52908F

The positive aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, magnesium, nickel, thallium, vanadium, zinc, and molybdenum results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive and nondetect iron, manganese, and sodium results below the blank action level are estimated (J, UJ) due to negative instrument drift as evidenced by the negative blank results.

Although chromium, cobalt, nickel, vanadium, zinc, and molybdenum contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the elevated detection limits do not exceed the project action limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Although calcium and magnesium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits established for calcium and magnesium. The non-detected results in the affected samples are usable as elevated reporting limits.

Aluminum, antimony, barium, beryllium, cadmium, copper, and thallium contamination was found in the laboratory blank; therefore, the project sensitivity goals may be impacted since the elevated reporting limits in select samples exceed the project action limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Negative results for iron and manganese were found in the laboratory blank; therefore, the project accuracy goals may be impacted. The positive and non-detected iron and manganese results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although negative results for sodium were found in the laboratory blank, the project accuracy goals are not impacted since there are no regulatory limits established for sodium. The positive and non-detected sodium results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

ICP Serial Dilution Results

The percent difference for barium was above the 15 percent QC criterion for analyte concentrations greater than 50x the instrument detection limit (IDL) before dilution, in the ICP serial dilution analysis of sample DA-MW107B-6408. The positive and non-detected barium results are estimated (J, UJ) in all non-filtered groundwater samples. Since the initial sample result for this metal was lower than the diluted sample result, the data may be biased low.

The ICP serial dilution percent difference criteria were not met for barium; therefore, the accuracy project goals may be impacted. The positive and non-detected barium results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Reporting Limits

The positive results below the laboratory's quantitation limit and above the method detection limit (MDL) are estimated (J) due to uncertainty below the quantitation limit.

Non-detected results were reported down to the MDL. The reporting limits for all non-detected results met the project action limits except for arsenic and thallium; the project action limits for arsenic and thallium were not achievable, as highlighted in the approved work plan. Data usability may be impacted.

Reporting limits were raised for aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, magnesium, nickel, thallium, vanadium, zinc, and molybdenum in select samples due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals may be affected for aluminum, antimony, barium, beryllium, cadmium, copper, and thallium since the project action limits were exceeded by the elevated detection limits. Data usability may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Cadmium and molybdenum were qualified as estimated in select samples due to instrument calibration variability. The affected results may be biased high. Cobalt was qualified as estimated in select samples due to poor linearity near the quantitation limit. The affected results may be biased high. Iron and manganese were qualified as estimated due to negative instrument drift. The affected results may be biased low. Barium was qualified as estimated in all non-filtered samples due ICP serial dilution result exceedance. The affected results may be biased low. Although specific QC criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits. Data usability may be impacted. Additionally, sodium was qualified as estimated due to negative instrument drift. Although specific QC criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated reporting limits.

The project goals with respect to precision were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set with the following exceptions. Reporting limits were raised for aluminum, antimony, barium, beryllium, cadmium, copper, and thallium in select samples due to blank contamination and these elevated detection limits exceed project action limits. The project action limits were not achievable for arsenic and thallium as highlighted in the approved work plan. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: M MEDIA: WATER	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
	LAB_ID	SB2963-005			SB2765-003			SB2796-001			SB2829-001		
	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		61	UJ	AP	14.6	U		35.4	UJ	AP	1320		
ANTIMONY		2.4	UJ	AP	0.78	U		1.4	UJ	AP	2.8	UJ	AP
ARSENIC		1.69	U		17.2			5.8	J	P	34.4		
BARIUM		33.4	J	I	25.9	J	I	80.8	J	I	72.8	J	I
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.38	UJ	AP	0.1	UJ	AP	0.19	UJ	AP
CALCIUM		20200			12100			53900			56000		
CHROMIUM		0.41	U		2.4	J	P	1.2	UJ	AP	2.2	UJ	AP
COBALT		0.34	UJ	AP	15.6	J	CP	14.5	J	P	1.7	UJ	AP
COPPER		50.6			1.7	UJ	AP	0.75	U		2.3	UJ	AP
IRON		2960			26700			12200			44800		
LEAD		22.8			1.4	J	P	1.7	J	P	1.8	J	P
MAGNESIUM		3820			1850			6090			8900		
MANGANESE		93.6			8370			5280			1200		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.3	U		0.37	UJ	AP	0.3	U		2	J	P
NICKEL		4.1	J	P	1.8	UJ	AP	2.1	UJ	AP	7.7	J	P
POTASSIUM		3160			1170			14500			1110		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.43	J	P	0.29	U		0.55	J	P	0.62	J	P
SODIUM		17500			13100			64600			37200		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.38	U		0.38	U		2	UJ	AP
ZINC		74.8			9.3	UJ	AP	8.5	UJ	AP	17.2	J	P

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
	LAB_ID	SB2796-003			SB2832-001			SB2765-001			SB2963-001		
	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		38	UJ	AP	4900			1950			376		
ANTIMONY		1.7	UJ	AP	1.4	UJ	AP	0.78	U		1.5	UJ	AP
ARSENIC		1.69	U		2	J	P	1.69	U		6.4	J	P
BARIUM		19.1	J	I	13.4	J	I	6.5	UJ	AI	23.8	J	I
BERYLLIUM		0.13	U		0.15	UJ	AP	0.13	U		0.21	UJ	AP
CADMIUM		0.09	UJ	AP	0.06	UJ	AP	0.42	UJ	AP	0.04	U	
CALCIUM		50100			76500			57000			45300		
CHROMIUM		0.66	UJ	AP	7.6	J	P	5.6	J	P	1.6	UJ	AP
COBALT		0.24	U		4.2	J	P	4.1	J	CP	0.66	UJ	AP
COPPER		6.7	UJ	AP	8.8	UJ	AP	17.3	J	P	0.75	U	
IRON		28300			10200			23200			7600		
LEAD		1.8	J	P	3.8	J	P	3.5	J	P	0.97	U	
MAGNESIUM		7790			13700			9950			13200		
MANGANESE		547			246			3050			351		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.48	UJ	AP	1.3	UJ	AP	0.86	UJ	AP	0.69	UJ	AP
NICKEL		1.2	UJ	AP	7.4	J	P	6	J	P	2	UJ	AP
POTASSIUM		1850			1470			1330			722	J	P
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.69	J	P	0.29	U		0.29	U		0.29	U	
SODIUM		47100			32500			21200			9400		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		7.7	J	P	2	UJ	AP	0.67	UJ	AP
ZINC		42			23	J	P	21.5	J	P	6.2	UJ	AP

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: M MEDIA: WATER	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
	LAB_ID	SB2929-001			SB2887-001			SB2929-003			SB2963-003		
	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		561			129	UJ	AP	36.3	UJ	AP	31.7	UJ	AP
ANTIMONY		1.2	UJ	AP	0.78	U		1.8	UJ	AP	1.7	UJ	AP
ARSENIC		4.5	J	P	9.1			1.69	U		1.69	U	
BARIUM		21	J	I	10.5	J	I	14.7	J	I	9.5	J	I
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.6	UJ	AP	0.04	UJ	AP	0.04	U	
CALCIUM		53100			45800			41800			43700		
CHROMIUM		3.3	J	P	2.4	J	P	0.41	U		0.57	UJ	AP
COBALT		0.98	UJ	AP	1.1	UJ	ACP	1.2	UJ	AP	0.38	UJ	AP
COPPER		8.4	UJ	AP	4.6	UJ	AP	0.77	UJ	AP	0.75	U	
IRON		12900			5760			28.8	J	OP	19.4	J	OP
LEAD		1.3	J	P	1.2	J	P	0.97	U		0.97	U	
MAGNESIUM		13800			13000			9680			6210		
MANGANESE		1460			1700			1.4	J	OP	904		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		3.1	J	P	3.8	J	P	4.4	J	P	0.38	UJ	AP
NICKEL		2	UJ	AP	3.7	J	P	0.93	UJ	AP	0.53	UJ	AP
POTASSIUM		3360			1060			4250			1300		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.29	U		0.29	U		0.29	U		0.29	U	
SODIUM		14000			14400			56900			10300		
THALLIUM		1.64	U		1.64	U		2	UJ	AP	1.64	U	
VANADIUM		1.3	UJ	AP	0.38	U		0.38	U		0.38	U	
ZINC		14.5	J	P	15.7	J	P	6.8	UJ	AP	3.4	UJ	AP

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-003			SB2929-005			SB2929-007			SB2963-007		
FRACTION: M	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4940			517			27	UJ	AP	29.9	UJ	AP
ANTIMONY		0.78	U		1.2	UJ	AP	0.93	UJ	AP	0.78	U	
ARSENIC		2.9	J	P	4.1	J	P	1.69	U		1.69	U	
BARIUM		14.7	J	I	20.7	J	I	14.7	J	I	0.59	UJ	I
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.07	UJ	AP	0.06	UJ	AP	0.04	U	
CALCIUM		78800			53500			40700			29.8	U	
CHROMIUM		7.2	J	P	3.5	J	P	0.63	UJ	AP	0.41	U	
COBALT		3.9	J	P	0.87	UJ	AP	1.1	UJ	AP	0.24	U	
COPPER		9.8	UJ	AP	7	UJ	AP	0.75	U		0.75	U	
IRON		10100			12400			27.5	J	OP	9	UJ	O
LEAD		3.6	J	P	2.2	J	P	0.97	U		0.97	U	
MAGNESIUM		14200			13900			9440			4.33	U	
MANGANESE		249			1480			1.09	UJ	O	1.09	UJ	O
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		1.3	UJ	AP	3.1	J	P	4.5	J	P	0.3	U	
NICKEL		7.4	J	P	2.1	UJ	AP	0.81	UJ	AP	0.42	U	
POTASSIUM		1560			3220			4140			101	J	P
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.39	J	P	0.64	J	P	0.29	U		0.29	U	
SODIUM		33700			14000			55800			15	UJ	O
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		7.6	J	P	1	UJ	AP	0.38	U		0.38	U	
ZINC		45.3			12.2	J	P	7.6	UJ	AP	2.22	U	

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01F			DA-MW02-52708F			DA-MW07A-52808F			DA-MW07B-52908F		
SDG: CTO403-10	LAB_ID	SB2963-006			SB2765-004			SB2796-002			SB2829-002		
FRACTION: MF	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		106	UJ	AP	14.6	U		19.4	UJ	AP	14.6	U	
ANTIMONY		2.8	UJ	AP	0.78	U		0.78	U		1.3	UJ	AP
ARSENIC		1.69	U		16.4			4.3	J	P	24.7		
BARIUM		6.4	U	A	25.6			76			45.2		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.37	UJ	AP	0.05	UJ	AP	0.04	U	
CALCIUM		23500			12200			52100			54500		
CHROMIUM		0.41	U		2.3	UJ	AP	1.1	UJ	AP	0.46	UJ	AP
COBALT		0.24	U		15.6	J	CP	12.3	J	P	0.51	UJ	AP
COPPER		2	UJ	AP	1.8	UJ	AP	0.75	U		0.75	U	
IRON		20.8	J	OP	26600			10600			748		
LEAD		0.97	U		1.8	J	P	2.2	J	P	0.97	U	
MAGNESIUM		3830			1870			6120			8500		
MANGANESE		6.7	J	O	8220			5400			957		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.3	U		0.43	UJ	AP	0.3	U		1.1	UJ	AP
NICKEL		0.73	UJ	AP	2.1	UJ	AP	1.8	UJ	AP	0.45	UJ	AP
POTASSIUM		3120			1110			13400			1020		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.29	U		0.61	J	P	0.42	J	P	0.29	U	
SODIUM		16700			13100			60400			38000		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.57	UJ	AP	0.38	U		0.38	U		0.38	U	
ZINC		3.5	UJ	AP	12.3	J	P	8.1	UJ	AP	5.3	UJ	AP

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW09B-52808F			DA-MW101B-53008F			DA-MW102B-52708F			DA-MW107B-6408F		
	LAB_ID	SB2796-004			SB2832-002			SB2765-002			SB2963-002		
	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		14.6	U		37.9	UJ	AP	186	J	P	42.2	UJ	AP
ANTIMONY		0.78	U		2.4	UJ	AP	0.78	U		1.4	UJ	AP
ARSENIC		1.69	U		1.69	U		1.69	U		6.1	J	P
BARIUM		17.9			4.9	UJ	AP	2.4	UJ	AP	21.6		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	UJ	AP	0.04	U		0.04	U		0.04	U	
CALCIUM		49600			78400			55100			44600		
CHROMIUM		0.74	UJ	AP	0.6	UJ	AP	1	UJ	AP	0.41	U	
COBALT		0.25	UJ	AP	0.52	UJ	AP	2.6	UJ	ACP	0.48	UJ	AP
COPPER		0.75	U		0.75	U		3.9	UJ	AP	0.75	U	
IRON		556			9	UJ	O	5320			4730		
LEAD		0.97	U		0.97	U		0.97	U		0.97	U	
MAGNESIUM		7740			12800			9130			12900		
MANGANESE		385			82.6			2860			334		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		0.36	UJ	AP	1.4	UJ	AP	0.3	U		0.43	UJ	AP
NICKEL		0.42	U		0.42	U		2	UJ	AP	0.89	UJ	AP
POTASSIUM		1780			1270			1260			685	J	P
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.29	U		0.29	U		0.29	U		0.29	U	
SODIUM		47300			34300			20400			9210		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.43	UJ	AP	0.72	UJ	AP	0.38	U		0.38	U	
ZINC		5.2	UJ	AP	4.6	UJ	AP	8.1	UJ	AP	4.3	UJ	AP

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: MF MEDIA: WATER	NSAMPLE	DA-MW108B-6308F			DA-MW109B-6208F			DA-MW122B-6308F			DA-MW123B-6408F		
	LAB_ID	SB2929-002			SB2887-002			SB2929-004			SB2963-004		
	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		116	UJ	AP	14.6	U		14.6	U		14.6	U	
ANTIMONY		1.6	UJ	AP	0.78	U		1.5	UJ	AP	1.1	UJ	AP
ARSENIC		4.7	J	P	9.3			1.69	U		1.69	U	
BARIUM		18.4			10.9			14.2			10.7		
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.05	UJ	ACP	0.04	U		0.04	U	
CALCIUM		52100			46700			41200			46400		
CHROMIUM		1.1	UJ	AP	0.53	UJ	AP	0.58	UJ	AP	0.61	UJ	AP
COBALT		0.7	UJ	AP	1.2	UJ	ACP	1.1	UJ	AP	0.27	UJ	AP
COPPER		0.75	U		3.4	UJ	AP	1.1	UJ	AP	0.75	U	
IRON		8480			2800			9	UJ	O	18.2	J	OP
LEAD		0.98	J	P	0.97	U		0.97	U		0.97	U	
MAGNESIUM		13500			13400			9510			6360		
MANGANESE		1440			1740			1.09	UJ	O	978		
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		2.2	J	P	2	J	CP	4.5	J	P	0.3	U	
NICKEL		0.85	UJ	AP	0.88	UJ	AP	1.2	UJ	AP	0.64	UJ	AP
POTASSIUM		2710			706	J	P	4310			1380		
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.33	J	P	0.29	U		0.29	U		0.29	U	
SODIUM		13500			14100			56100			10500		
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.38	U		0.38	U		0.41	UJ	AP	0.38	U	
ZINC		4.7	UJ	AP	7.8	UJ	AP	8.6	UJ	AP	4.2	UJ	AP

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02F			DA-MW-DUP03F			DA-MW-DUP04F			DA-RB02F		
SDG: CTO403-10	LAB_ID	SB2832-004			SB2929-006			SB2929-008			SB2963-008		
FRACTION: MF	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008F			DA-MW108B-6308F			DA-MW122B-6308F					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		16.6	UJ	AP	118	UJ	AP	14.6	U		17.3	UJ	AP
ANTIMONY		1.8	UJ	AP	1.3	UJ	AP	1	UJ	AP	0.78	U	
ARSENIC		1.69	U		5.8	J	P	1.69	U		1.69	U	
BARIUM		4.8	UJ	AP	18			14.7			0.9	UJ	AP
BERYLLIUM		0.13	U		0.13	U		0.13	U		0.13	U	
CADMIUM		0.04	U		0.04	U		0.06	UJ	AP	0.04	U	
CALCIUM		76300			51500			40900			54.5	U	A
CHROMIUM		0.48	UJ	AP	1.2	UJ	AP	1.1	UJ	AP	0.41	U	
COBALT		0.43	UJ	AP	0.75	UJ	AP	0.92	UJ	AP	0.24	U	
COPPER		0.75	U		0.75	U		2	UJ	AP	0.75	U	
IRON		9	UJ	O	8410			9.7	J	OP	9	UJ	O
LEAD		0.97	U		0.97	U		0.97	U		0.97	U	
MAGNESIUM		12500			13400			9490			10.1	UJ	AP
MANGANESE		80.4			1430			1.09	UJ	O	1.09	UJ	O
MERCURY		0.03	U		0.03	U		0.03	U		0.03	U	
MOLYBDENUM		1.3	UJ	AP	2.3	J	P	4.4	J	P	0.3	U	
NICKEL		0.42	U		0.5	UJ	AP	1	UJ	AP	0.42	U	
POTASSIUM		1200			2590			4320			40.8	U	
SELENIUM		0.96	U		0.96	U		0.96	U		0.96	U	
SILVER		0.69	J	P	0.29	U		0.56	J	P	0.29	U	
SODIUM		33400			13400			56000			183	J	OP
THALLIUM		1.64	U		1.64	U		1.64	U		1.64	U	
VANADIUM		0.51	UJ	AP	0.55	UJ	AP	0.38	U		0.38	U	
ZINC		5	UJ	AP	5.6	UJ	AP	6.7	UJ	AP	2.9	UJ	AP

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.12			3			2.1			0.1	U	
NITRATE-N		0.81			0.05	U		0.05	U		0.05	U	
NITRITE-N		0.018	J	P	0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.017	J	P	0.055			0.019	J	P	0.079		
SULFATE		40			6.5			9.5			11		
SULFIDE		1	J	P	1	U		1	U		1	U	
TOTAL ORGANIC CARBON		2.8			5			5.8			1.3		

PROJ_NO: 00933	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
SDG: CTO403-10	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
FRACTION: MISC	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.1	U		0.1	U		0.1	U	
NITRATE-N		0.05	U		0.031	J	P	0.05	U		0.05	U	
NITRITE-N		0.05	U		0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.018	J	P	0.11			0.024	J	P	0.049	J	P
SULFATE		2			14			5.1			44		
SULFIDE		1	U		1	U		0.8	J	P	1	U	
TOTAL ORGANIC CARBON		0.92	J	P	0.63	J	P	1.3			0.36	J	P

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1			SB2887-1			SB2929-3			SB2963-3		
FRACTION: MISC	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.04	J	P	0.1	U		0.1	U	
NITRATE-N		0.05	U		0.05	U		1.7			0.34		
NITRITE-N		0.05	U		0.05	U		0.05	U		0.014	J	P
ORTHOPHOSPHATE-P		0.024	J	P	0.025	J	P	0.039	J	P	0.049	J	P
SULFATE		29			36			24			26		
SULFIDE		1	U		1.2			1	U		1	J	P
TOTAL ORGANIC CARBON		1.8			1.1			2.2			1.9		

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: MISC MEDIA: WATER	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
	QC_TYPE	NM			NM			NM			RB		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.1	U		0.1	U		0.1	U		0.1	U	
NITRATE-N		0.032	J	P	0.05	U		1.7			0.05	U	
NITRITE-N		0.05	U		0.05	U		0.05	U		0.05	U	
ORTHOPHOSPHATE-P		0.049	J	P	0.05	U		0.047	J	P	0.034	J	P
SULFATE		14			29			24			1	U	
SULFIDE		1.6			1	U		1	U		1.2		
TOTAL ORGANIC CARBON		0.6	J	P	1.8			2.2			0.49	J	P

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-08-08-2865W

Date: August 20, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-10
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/Pesticides/PCB/GRO/ExTPH/MEE:

15/Groundwaters/	DA-HD-SB01	DA-MW02-52708	DA-MW07A-52808
	DA-MW07B-52908	DA-MW09B-52808	DA-MW101B-53008
	DA-MW102B-52708	DA-MW107B-6408	DA-MW108B-6308
	DA-MW109B-6208	DA-MW122B-6308	DA-MW123B-6408
	DA-MWDUP02	DA-MW-DUP03	DA-MW-DUP04

(Field Duplicate Pairs: DA-MW101B-53008/DA-MWDUP02,
DA-MW108B-6308/DA-MW-DUP03,
DA-MW122B-6308/DA-MW-DUP04)

1/Rinsate Blank/ DA-RB02

VOC/GRO:

13/Trip Blanks/	DA-TB27	DA-TB28	DA-TB29
	DA-TB30	DA-TB31	DA-TB32
	DA-TB33	DA-TB34	DA-TB35
	DA-TB36	DA-TB37	DA-TB38
	DA-TB39		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), extractable total petroleum hydrocarbons (ExTPH), and methane/ethane/ethene (MEE) analytical data for the groundwater samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from May 27-June 5, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH (C_9 – C_{36}) analyses were performed according to USEPA SW-846 Method 8015M. The MEE analysis was performed according to RSKSOP175.

The VOC, SVOC, GRO, ExTPH, and MEE data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
*	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
*	• Instrument Performance Check: Pesticide Degradation
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
*	• Internal Standards
	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
*	• Field Duplicates
*	• Analyte Identification/Quantitation
	• Reporting Limits
*	• Tentatively Identified Compounds

*	All criteria were met for this parameter.
NA	Not available for this SDG.

Data Completeness

On July 23, 2008, the laboratory resubmitted all TPH QC summary forms due to sample ID transcription errors.

On July 25, 2008, the laboratory submitted a revised narrative to include an explanation regarding the Tentatively Identified Compounds analysis.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Hexachlorobutadiene	-29.72, -29.96, -28.20, -27.65		UJ	DA-TB27, DA-TB28, DA-HD-SB01, DA-MW102B-52908, DA-MW02-52708, DA-MW07A-52808, DA-TB29, DA-TB30, DA-MW09B-52808, DA-MW07B-52908, DA-MW101B-53008, DA-MWDUP02, DA-TB33, DA-TB32, DA-TB31, DA-MW109B-6208, DA-TB34
1,2,4-Trichlorobenzene	-25.82		UJ	DA-TB31
Bromomethane	-34.26		UJ	DA-TB35, DA-TB36, DA-TB37, DA-TB38, DA-MW108B-6308, DA-MW122B-6308, DA-MW-DUP03, DA-MW-DUP04, DA-MW107B-6408
2,2-Dichloropropane	-35.06, -49.52		UJ	DA-TB35, DA-TB36, DA-TB37, DA-TB38, DA-MW108B-6308, DA-MW122B-6308, DA-MW-DUP03, DA-MW-DUP04, DA-MW107B-6408, DA-TB39, DA-RB02, DA-MW123B-6408, DA-HD-SB01
Methyl-tert-butyl ether	-43.03		UJ	DA-TB39, DA-RB02, DA-MW123B-6408, DA-HD-SB01
1,2-Dibromo-3-chloropropane	-33.86		UJ	

Although the %D was outside of the QC limits for hexachlorobutadiene, bromomethane, 2,2-dichloropropane, methyl-tert-butyl ether, and 1,2-dibromo-3-chloropropane; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 1,2,4-trichlorobenzene; therefore, the project accuracy goals may be impacted since the project action limit for this compound was not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration (IC) criterion of %RSD <30 or the continuing calibration (CC) criterion of %D <25:

Compound	%RSD or %D	Action		Affected Samples
		(+)	NDs	
4-Nitrophenol	29.28, -51.59, -50.80		UJ	All samples
3-Nitroaniline	-30.04, -31.88		UJ	
2,4-Dinitrophenol	-39.76, -35.34		UJ	
4-Nitroaniline	-39.18, -59.81		UJ	
3,3'-Dichlorobenzidine	-33.78, -28.47		UJ	

Although the %D was outside of the limits for 4-nitrophenol, and 3-nitroaniline, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 2,4-dinitrophenol, 4-nitroaniline, and 3,3'-dichlorobenzidine; therefore, the project accuracy goals may be impacted since the project action limit for these compounds were not achievable. The non-detected results in the affected samples are usable as estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Delta-BHC	42.60	40.80		UJ	DA-HD-SB01, DA-RB02, DA-MW109B-6208, DA-MW07B-52908, DA-MW101B-53008, DA-MWDUP02

Although the %D was outside of the limits for delta-BHC, the project accuracy goals are not impacted since there are no regulatory limits established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

The rinsate blank was not used to establish blank action levels; the results are provided for informational purposes only.

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Compound	Type of Blank	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Carbon disulfide	Method	0.3	1.5	DA-TB35
Methylene chloride	Method	0.3	3.0	DA-HD-SB01

Blank actions are applied to the affected groundwater samples due to carbon disulfide and methylene chloride method blank contamination. The 5x rule applies for carbon disulfide and the 10x rule is applies for methylene chloride. The positive results for carbon disulfide and methylene chloride in the affected samples are changed to non-detected values at the QL.

Although carbon disulfide and methylene chloride contamination was found in the method blank; the project sensitivity goals are not impacted since the non-detected values do not exceed the project

action limits for these compounds. The results in the affected samples are usable as non-detected values.

Semivolatiles

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Compound	Type of Blank	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Benzyl alcohol	Method	12	60	DA-HD-SB01, DA-MW107B-6408
Bis(2-ethylhexyl)phthalate	Method	3	30	DA-RB02, DA-MW123B-6408, DA-MW107B-6408, DA-HD-SB01

Blank actions are applied to the affected groundwater samples due to benzyl alcohol and bis(2-ethylhexyl)phthalate method blank contamination. The 5x rule applies for benzyl alcohol and the 10x rule applies for bis(2-ethylhexyl)phthalate. The positive results for benzyl alcohol below the blank action level are changed to non-detected values (U) at elevated detection limits. The positive results for bis(2-ethylhexyl)phthalate in the affected samples are changed to non-detected values at the QL.

Although benzyl alcohol contamination was found in the method blank; the project sensitivity goals are not impacted since there are no regulatory limits established for benzyl alcohol. The results in the affected samples are usable as elevated detection limits.

Bis(2-ethylhexyl)phthalate contamination was found in the method blank; therefore, the project sensitivity goals may be impacted since the project action limits are exceeded by the non-detected values. The results in the affected samples are usable as non-detected values.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
GRO	Method	8.6	43	DA-MW09B-52808, DA-MW102B-52708, DA-MW108B-6308, DA-MW-DUP03

Blank actions were applied to the affected samples due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level were changed to non-detected values at the reported result or at the QL.

Although GRO contamination was found in the method blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable as non-detected values at the QL or at an elevated reporting limit.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW07B-52908	Dibromofluoromethane	117	76-114	J	

The surrogate dibromofluoromethane recovered above the QC limits in the sample DA-MW07B-52908. All positive results are estimated (J) in the affected sample due to a high surrogate recovery.

The surrogate recovery QC criteria were not met; therefore, the project accuracy goals may be impacted. The positive results in sample DA-MW07B-52908 are usable as estimated values which may be biased high.

Semivolatiles

The following samples had a surrogate spike recoveries outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW102B-52708	2FP	16	34-105	J	UJ
	TBP	28	51-144		
DA-MW09B-52808	2FP	18	34-105	J	UJ
	TBP	50	51-144		
DA-MW07B-52908	2FP	20	34-105	J	UJ
	TBP	49	51-144		
DA-MW02-52708	2FP	3	34-105	J	UR
	PHL	1	10-115		
	TBP	14	51-144		
DA-MW07A-52808	2FP	6	34-105	J	UR
	PHL	2	10-115		
	TBP	34	51-144		
DA-MW109B-6208	2FP	2	34-105	J	UR
	PHL	1	10-115		
	TBP	19	51-144		
DA-MW-DUP03	2FP	3	34-105	J	UR
	PHL	2	10-115		
	TBP	23	51-144		
DA-MW108B-6308	2FP	1	34-105	J	UR
	PHL	0	10-115		
	TBP	12	51-144		

The surrogate recovery QC criteria were not met for 2-fluorophenol (2FP), phenol-d6 (PHL), and 2,4,6-tribromophenol (TBP); therefore, the project accuracy goals may be impacted. The positive and non-detected phenolic compound results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low, except for the non-detected results in samples DA-MW02-52708, DA-MW07A-52808, DA-MW109B-6208, DA-MW-DUP03, and DA-MW108B-6308 for which the phenolic non-detected results are not usable for project decisions.

Pesticides

The following sample had a surrogate spike recovery outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery Column 1	% Recovery Column 2	QC Limits	Action	
					(+)	NDs
DA-MW102B-52708	TCX	46	45	49-102	J	UJ

The surrogate recovery QC criteria were not met for tetrachloro-m-xylene (TCX); therefore, the project accuracy goals may be impacted. The positive and non-detected results in sample DA-MW102B-52708 are usable as estimated values and estimated detected limits which may be biased low.

Matrix Spike/Matrix Spike Duplicate

Semivolatiles

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-MW107B-6408 that were outside of the statistically derived laboratory QC limits:

Analyte	MSD % Rec.	RPD	%Rec. QC Limits	RPD QC Limits	Action	
					(+)	NDs
Benzyl alcohol	152	42	13-134	30	J	

Although the MSD percent recovery criterion was not met for benzyl alcohol, the project accuracy goals are not impacted since there are no regulatory limits established for benzyl alcohol. The positive result in sample DA-MW107B-6408 is usable as an estimated value which may be biased high.

Although the relative percent difference (RPD) criterion was not met for benzyl alcohol, the project precision goals are not impacted since there are no regulatory limits established for benzyl alcohol. The positive result in sample DA-MW107B-6408 is usable as an estimated value for which the bias is indeterminate.

Pesticides

The matrix spike/matrix spike duplicate (MS/MSD) results for sample DA-MW109B-6208 exceeded the relative percent difference statistically derived laboratory QC limit (30%) for the majority of compounds.

All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample DA-MW109B-6208 due to MS/MSD imprecision.

The project precision goals may be impacted for sample DA-MW109B-6208 because the matrix spike/matrix spike duplicate relative percent differences for the majority of the pesticide compounds did not meet the QC limits. The positive and non-detected results in sample DA-MW109B-6208 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the statistically derived laboratory LCS QC recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Methyl-tert-butyl ether	53	71-140		UJ	DA-TB39, DA-RB02, DA-MW123B-6408, DA-HD-SB01
2,2-Dichloropropane	47	55-140		UJ	

Although the LCS recoveries for methyl-tert-butyl ether and 2,2-dichloropropane did not meet the QC limits, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the statistically derived laboratory LCS and/or LCSD recovery or relative percent difference QC limits:

Compound	% Rec.	RPD	QC Limits	Action		Affected Samples
				(+)	NDs	
2,4,6-Trichlorophenol	64	NA	69-105		UJ	DA-MW101B-53008, DA-MWDUP02
1,1'-Biphenyl	54	NA	30-129		UJ	DA-MW101B-53008, DA-MWDUP02, DA-MW109B-6208
4-Nitrophenol	-	33	30		UJ	DA-MW122B-6308, DA-MW-DUP04,
4,6-Dinitro-2-methylphenol	-	31	30		UJ	DA-MW122B-6308, DA-MW-DUP04
Bis(2-ethylhexyl)phthalate	126	-	39-125	J		DA-MW107B-6408, DA-MW123B-6408, DA-RB02, DA-HD-SB01
2,4-Dinitrophenol	0/0	-	15-140		UR	DA-MW122B-6308, DA-MW108B-6308, DA-MW-DUP03, DA-MW-DUP04
Benzoic acid	0/0	-	10-125		UR	All samples
Benzidine	0/0	-	10-94		UR	

-Criterion met
NA- Not applicable since only an LCS was analyzed.

Although the LCS recoveries for 2,4,6-trichlorophenol did not meet the QC limits, the project accuracy goals are not impacted since there are no regulatory limits established for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

The LCS recoveries for 1,1'-biphenyl and bis(2-ethylhexyl)phthalate did not meet the QC limits; therefore, the project accuracy goals may be impacted. The non-detected 1,1'-biphenyl results in the affected samples are usable as estimated quantitation limits which may be biased low. The positive bis(2-ethylhexyl)phthalate results in the affected samples are usable as estimated values which may be biased high.

Although the LCS relative percent differences for 4-nitrophenol and 4,6-dinitro-2-methylphenol did not meet the QC limits, the project precision goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

2,4-Dinitrophenol, benzoic acid, and benzidine were not recovered (0%) in several LCS/LCSD analyses; therefore, these results for 2,4-dinitrophenol, benzoic acid, and benzidine are rejected in the affected samples. The project accuracy and completeness goals are impacted and these results are not usable for project decisions.

Reporting Limits

Volatiles

Blank actions were applied to select samples due to carbon disulfide and methylene chloride blank contamination. The positive results for carbon disulfide and methylene chloride in the affected samples are changed to non-detected values at the QL. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, carbon disulfide, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

Blank actions were applied to select samples due to benzyl alcohol and bis(2-ethylhexyl)phthalate blank contamination. The positive results for benzyl alcohol below the blank action level are changed to non-detected values at elevated detection limits. The positive results for bis(2-ethylhexyl)phthalate in the affected samples are changed to non-detected values at the QL. As discussed above in the Blanks section, the project sensitivity goals may be impacted for bis(2-ethylhexyl)phthalate. Data usability may be impacted.

The laboratory did not meet the project quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-nitrophenol, benzidine, and benzoic acid. However, the project sensitivity goals are not impacted since the project action limits are not exceeded.

The laboratory did not meet the project quantitation limits for the following compounds: 2,4-dinitrophenol, 4-nitroaniline, and pentachlorophenol. The project sensitivity goals may be impacted since the project action limits are exceeded. Data usability may be impacted.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The laboratory met all project quantitation limits, except for toxaphene. The project sensitivity goals may be impacted since the project action limits are exceeded. Data usability may be impacted.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The laboratory did not meet the project quantitation limits for all Aroclors and the project action limits were not achievable for all Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO

Blank actions were applied to select samples due to GRO blank contamination. The positive results for GRO in the affected samples are changed to non-detected values at the QL. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

Tentatively Identified Compounds

Semivolatiles

The laboratory searched specifically for propylene glycol dinitrate and also the laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. The compound 1,2,4-trichlorobenzene was qualified as estimated in select samples due to instrument calibration variability. The positive results in sample DA-MW07B-52908 were qualified as estimated due to a high surrogate recovery. Select positive results in this sample may be biased high. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability. Additionally, hexachlorobutadiene, bromomethane, 2,2-dichloropropane, methyl-tert-butyl ether, and 1,2-dibromo-3-chloropropane were qualified as estimated in select samples due to instrument calibration variability. Methyl-tert-butyl ether and 2,2-dichloropropane were qualified as estimated in select samples due to low LCS recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, carbon disulfide, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. The compounds 2,4-dinitrophenol, 4-nitroaniline, and 3,3'-dichlorobenzidine were qualified as estimated in select samples due to instrument calibration variability. The phenolic compounds in samples DA-MW102B-52708, DA-MW09B-52808, and DA-MW07B-52908 were qualified as estimated due to low surrogate recoveries. The results in these samples may be biased low. The non-detected results in samples DA-MW02-52708, DA-MW07A-52808, DA-MW109B-6208, DA-MW-DUP03, and DA-MW108B-6308 were rejected and are not usable for project decisions due to extremely low surrogate recoveries. The compound 1,1'-biphenyl was qualified as estimated in select samples due to the low LCS recovery. The affected results may be biased low. Bis(2-ethylhexyl)phthalate was qualified as estimated in select samples due to the high LCS recovery. The affected results may be biased high. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability. Benzoic acid and benzidine were rejected in all samples due to no recovery in the LCS/LCSD analyses. These results are not usable for project decisions. The compound 2,4-dinitrophenol was rejected in select samples due to no recovery in the LCS/LCSD analyses. These

results are not usable for project decisions. The project completeness goals are affected due to rejected results for phenolic compounds, benzidine, benzoic acid, and 2,4-dinitrophenol in select samples. Additionally, 4-nitrophenol, and 3-nitroaniline were qualified as estimated in select samples due to instrument calibration variability. Benzyl alcohol was qualified as estimated in sample DA-MW107B-6408 due to the high MSD recovery. The compound 2,4,6-trichlorophenol was qualified as estimated due to low LCS recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set with the following exceptions. Benzyl alcohol was qualified as estimated in sample DA-MW107B-6408 due to MS/MSD imprecision. The compounds 4-nitrophenol and 4,6-dinitro-2-methylphenol were qualified as estimated in select samples due to LCS imprecision. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. Blank actions were applied to select samples due to bis(2-ethylhexyl)phthalate blank contamination. The non-detected bis(2-ethylhexyl)phthalate values exceed the project action limits. The laboratory did not meet the project quantitation limits for the following compounds: 2,4-dinitrophenol, 4-nitroaniline, and pentachlorophenol. The project sensitivity goals may be impacted since the project action limits are exceeded. Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exception. The results in sample DA-MW102B-52708 were qualified as estimated due to low surrogate recoveries. The results in this sample may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability. Additionally, delta-BHC was qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the pesticides data set with the following exceptions. All pesticide compounds in sample DA-MW109B-6208 were qualified as estimated due to MS/MSD imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability.

The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The laboratory met all project quantitation limits, except for toxaphene. Project action limits

were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

PCBs

The project goals with respect to accuracy and precision were met for the PCBs data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were not met for the PCBs data set since the project action limits were not achievable for any of the Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO, ExTPH, MEE

The project goals with respect to accuracy and precision were met for the GRO, ExTPH, and MEE data sets. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity could not be evaluated for the GRO, ExTPH, and MEE data sets because no regulatory limits have been established for this analysis.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07A-52808DL		
SDG: CTO403-10	LAB_ID	SB2963-5RA			SB2765-3			SB2796-1			SB2796-1DL		
FRACTION: OV	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/28/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U				
1,1,1-TRICHLOROETHANE	1	U		1	U					260		
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U				
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U				
1,1-DICHLOROETHANE	1	U		1	U					380		
1,1-DICHLOROETHENE	1	U		1	U		4					
1,1-DICHLOROPROPENE	1	U		1	U		1	U				
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U				
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U				
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U				
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U				
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	U		1	U				
1,2-DIBROMOETHANE	1	U		1	U		1	U				
1,2-DICHLOROBENZENE	1	U		1	U		1	U				
1,2-DICHLOROETHANE	1	U		1	U		1	U				
1,2-DICHLOROPROPANE	1	U		1	U		1	U				
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U				
1,3-DICHLOROBENZENE	1	U		1	U		1	U				
1,3-DICHLOROPROPANE	1	U		1	U		1	U				
1,4-DICHLOROBENZENE	1	U		1	U		1	U				
2,2-DICHLOROPROPANE	1	UJ	CE	1	U		1	U				
2-BUTANONE	5	U		5	U		5	U				
2-CHLOROTOLUENE	1	U		1	U		1	U				
2-HEXANONE	5	U		5	U		5	U				
4-CHLOROTOLUENE	1	U		1	U		1	U				
4-ISOPROPYLTOLUENE	1	U		1	U		1	U				
4-METHYL-2-PENTANONE	5	U		5	U		5	U				
ACETONE	8			5	U		9					
BENZENE	1	U		1	U		1	U				
BROMOBENZENE	1	U		1	U		1	U				
BROMOCHLOROMETHANE	0.4	J	P	1	U		1	U				
BROMODICHLOROMETHANE	8			1	U		1	U				
BROMOFORM	0.4	J	P	1	U		1	U				
BROMOMETHANE	2	U		2	U		2	U				
CARBON DISULFIDE	1	U		1	U		1	U				

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW07B-52908			DA-MW07B-52908DL			DA-MW09B-52808			DA-MW101B-53008		
	LAB_ID	SB2829-1			SB2829-1DL			SB2796-3RA			SB2832-1		
	SAMP_DATE	5/29/2008			5/29/2008			5/28/2008			5/30/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U					1	U		1	U	
1,1,1-TRICHLOROETHANE					1600			76			110		
1,1,2,2-TETRACHLOROETHANE		1	U					1	U		1	U	
1,1,2-TRICHLOROETHANE		0.3	J	PR				1	U		1	U	
1,1-DICHLOROETHANE					1000			47					
1,1-DICHLOROETHENE		58	J	R				14			78		
1,1-DICHLOROPROPENE		1	U					1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U					1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U					1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U					1	U		1	U	
1,2,4-TRIMETHYLBENZENE		5	J	R				1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U					1	U		1	U	
1,2-DIBROMOETHANE		1	U					1	U		1	U	
1,2-DICHLOROBENZENE		1	U					1	U		1	U	
1,2-DICHLOROETHANE		1	U					1	U		1	U	
1,2-DICHLOROPROPANE		1	U					1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	J	R				1	U		1	U	
1,3-DICHLOROBENZENE		1	U					1	U		1	U	
1,3-DICHLOROPROPANE		1	U					1	U		1	U	
1,4-DICHLOROBENZENE		1	U					1	U		1	U	
2,2-DICHLOROPROPANE		1	U					1	U		1	U	
2-BUTANONE		5	U					5	U		5	U	
2-CHLOROTOLUENE		1	U					1	U		1	U	
2-HEXANONE		5	U					5	U		5	U	
4-CHLOROTOLUENE		1	U					1	U		1	U	
4-ISOPROPYLTOLUENE		1	U					1	U		1	U	
4-METHYL-2-PENTANONE		5	U					5	U		5	U	
ACETONE		3	J	PR				14			5	U	
BENZENE		1	U					1	U		1	U	
BROMOBENZENE		1	U					1	U		1	U	
BROMOCHLOROMETHANE		1	U					1	U		1	U	
BROMODICHLOROMETHANE		1	U					1	U		1	U	
BROMOFORM		1	U					1	U		1	U	
BROMOMETHANE		2	U					2	U		2	U	
CARBON DISULFIDE		1	U					1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW101B-53008DL			DA-MW102B-52708			DA-MW107B-6408			DA-MW108B-6308		
SDG: CTO403-10	LAB_ID	SB2832-1DL			SB2765-1			SB2963-1			SB2929-1		
FRACTION: OV	SAMP_DATE	5/30/2008			5/27/2008			6/4/2008			6/3/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE				1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE				1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE				1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE				1	U		1	U		1	U	
1,1-DICHLOROETHANE	800			1			1	U		1	U	
1,1-DICHLOROETHENE				1	U		1	U		1	U	
1,1-DICHLOROPROPENE				1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE				1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE				1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE				1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE				1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE				1	U		1	U		1	U	
1,2-DIBROMOETHANE				1	U		1	U		1	U	
1,2-DICHLOROBENZENE				1	U		1	U		1	U	
1,2-DICHLOROETHANE				1	U		1	U		1	U	
1,2-DICHLOROPROPANE				1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE				1	U		1	U		1	U	
1,3-DICHLOROBENZENE				1	U		1	U		1	U	
1,3-DICHLOROPROPANE				1	U		1	U		1	U	
1,4-DICHLOROBENZENE				1	U		1	U		1	U	
2,2-DICHLOROPROPANE				1	U		1	UJ	C	1	UJ	C
2-BUTANONE				5	U		5	U		5	U	
2-CHLOROTOLUENE				1	U		1	U		1	U	
2-HEXANONE				5	U		5	U		5	U	
4-CHLOROTOLUENE				1	U		1	U		1	U	
4-ISOPROPYLTOLUENE				1	U		1	U		1	U	
4-METHYL-2-PENTANONE				5	U		5	U		5	U	
ACETONE				3	J	P	5	U		4	J	P
BENZENE				1	U		1	U		1	U	
BROMOBENZENE				1	U		1	U		1	U	
BROMOCHLOROMETHANE				1	U		1	U		1	U	
BROMODICHLOROMETHANE				1	U		1	U		1	U	
BROMOFORM				1	U		1	U		1	U	
BROMOMETHANE				2	U		2	UJ	C	2	UJ	C
CARBON DISULFIDE				1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408			DA-MWDUP02		
	LAB_ID	SB2887-1			SB2929-3			SB2963-3RA			SB2832-3		
	SAMP_DATE	6/2/2008			6/3/2008			6/4/2008			5/30/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										DA-MW101B-53008		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1			1	U		110		
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		0.4	J	P	1	U				
1,1-DICHLOROETHENE		1	U		1	U		1	U		80		
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	UJ	C	1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	UJ	C	1	UJ	CE	1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	UJ	C	2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MWDUP02DL			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
	LAB_ID	SB2832-3DL			SB2929-5			SB2929-7			SB2963-7		
	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE					1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE					1	U		1			1	U	
1,1,2,2-TETRACHLOROETHANE					1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE					1	U		1	U		1	U	
1,1-DICHLOROETHANE		810			1	U		0.4	J	P	1	U	
1,1-DICHLOROETHENE					1	U		1	U		1	U	
1,1-DICHLOROPROPENE					1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE					1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE					1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE					1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE					1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE					1	U		1	U		1	UJ	C
1,2-DIBROMOETHANE					1	U		1	U		1	U	
1,2-DICHLOROBENZENE					1	U		1	U		1	U	
1,2-DICHLOROETHANE					1	U		1	U		1	U	
1,2-DICHLOROPROPANE					1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE					1	U		1	U		1	U	
1,3-DICHLOROBENZENE					1	U		1	U		1	U	
1,3-DICHLOROPROPANE					1	U		1	U		1	U	
1,4-DICHLOROBENZENE					1	U		1	U		1	U	
2,2-DICHLOROPROPANE					1	UJ	C	1	UJ	C	1	UJ	CE
2-BUTANONE					5	U		5	U		4	J	P
2-CHLOROTOLUENE					1	U		1	U		1	U	
2-HEXANONE					5	U		5	U		2	J	P
4-CHLOROTOLUENE					1	U		1	U		1	U	
4-ISOPROPYLTOLUENE					1	U		1	U		1	U	
4-METHYL-2-PENTANONE					5	U		5	U		5	U	
ACETONE					4	J	P	2	J	P	47		
BENZENE					1	U		1	U		1	U	
BROMOBENZENE					1	U		1	U		1	U	
BROMOCHLOROMETHANE					1	U		1	U		1	U	
BROMODICHLOROMETHANE					1	U		1	U		1	U	
BROMOFORM					1	U		1	U		1	U	
BROMOMETHANE					2	UJ	C	2	UJ	C	2	U	
CARBON DISULFIDE					1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-TB27			DA-TB28			DA-TB29			DA-TB30		
SDG: CTO403-10	LAB_ID	SB2765-5			SB2765-6			SB2796-5			SB2796-6		
FRACTION: OV	SAMP_DATE	5/27/2008			5/27/2008			5/28/2008			5/28/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-TB31			DA-TB32			DA-TB33			DA-TB34		
	LAB_ID	SB2829-3RA			SB2832-6			SB2832-5			SB2887-3		
	SAMP_DATE	5/29/2008			5/30/2008			5/30/2008			6/2/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	UJ	C	1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-TB35			DA-TB36			DA-TB37			DA-TB38		
SDG: CTO403-10	LAB_ID	SB2929-9			SB2929-10			SB2929-11			SB2929-12		
FRACTION: OV	SAMP_DATE	6/3/2008			6/3/2008			6/3/2008			6/3/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	UJ	C	2	UJ	C	2	UJ	C	2	UJ	C
CARBON DISULFIDE		1	U	A	1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-TB39
SDG: CTO403-10	LAB_ID	SB2963-9RA
FRACTION: OV	SAMP_DATE	6/4/2008
MEDIA: WATER	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U	
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,1-DICHLOROPROPENE	1	U	
1,2,3-TRICHLOROBENZENE	1	U	
1,2,3-TRICHLOROPROPANE	1	U	
1,2,4-TRICHLOROBENZENE	1	U	
1,2,4-TRIMETHYLBENZENE	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,3-DICHLOROPROPANE	1	U	
1,4-DICHLOROBENZENE	1	U	
2,2-DICHLOROPROPANE	1	UJ	CE
2-BUTANONE	5	U	
2-CHLOROTOLUENE	1	U	
2-HEXANONE	5	U	
4-CHLOROTOLUENE	1	U	
4-ISOPROPYLTOLUENE	1	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	5	U	
BENZENE	1	U	
BROMOBENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON DISULFIDE	1	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07A-52808DL		
	LAB_ID	SB2963-5RA			SB2765-3			SB2796-1			SB2796-1DL		
	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/28/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U				
CHLOROBENZENE		1	U		1	U		1	U				
CHLORODIBROMOMETHANE		3			1	U		1	U				
CHLOROETHANE		2	U		2	U		85					
CHLOROFORM		33			1	U		1	U				
CHLOROMETHANE		2	U		2	U		2	U				
CIS-1,2-DICHLOROETHENE		1	U		0.3	J	P	1					
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U				
DIBROMOMETHANE		1	U		1	U		1	U				
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U				
ETHYLBENZENE		1	U		1	U		1	U				
HEXACHLOROBUTADIENE		1	U		1	UJ	C	1	UJ	C			
ISOPROPYLBENZENE		1	U		1	U		1	U				
M+P-XYLENES		2	U		2	U		2	U				
METHYL TERT-BUTYL ETHER		1	UJ	CE	1	U		1	U				
METHYLENE CHLORIDE		5	U	A	5	U		5	U				
N-BUTYLBENZENE		1	U		1	U		1	U				
N-PROPYLBENZENE		1	U		1	U		1	U				
O-XYLENE		1	U		1	U		0.3	J	P			
SEC-BUTYLBENZENE		1	U		2			1	U				
STYRENE		1	U		1	U		1	U				
TERT-BUTYLBENZENE		1	U		1	U		1	U				
TETRACHLOROETHENE		1	U		1	U		2					
TOLUENE		1	U		1	U		1	U				
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U				
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U				
TRICHLOROETHENE		1	U		1	U		0.9	J	P			
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U				
VINYL CHLORIDE		2	U		2	U		2	U				

PROJ_NO: 00933	NSAMPLE	DA-MW07B-52908			DA-MW07B-52908DL			DA-MW09B-52808			DA-MW101B-53008		
SDG: CTO403-10	LAB_ID	SB2829-1			SB2829-1DL			SB2796-3RA			SB2832-1		
FRACTION: OV	SAMP_DATE	5/29/2008			5/29/2008			5/28/2008			5/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U					1	U		1	U	
CHLOROBENZENE		1	U					1	U		1	U	
CHLORODIBROMOMETHANE		1	U					1	U		1	U	
CHLOROETHANE		22	J	R				0.4	J	P			
CHLOROFORM		1	U					1	U		1	U	
CHLOROMETHANE		2	U					2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U					1	U		0.4	J	P
CIS-1,3-DICHLOROPROPENE		1	U					1	U		1	U	
DIBROMOMETHANE		1	U					1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U					2	U		2	U	
ETHYLBENZENE		1	J	R				1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	C				1	UJ	C	1	UJ	C
ISOPROPYLBENZENE		0.5	J	PR				1	U		1	U	
M+P-XYLENES		1	J	PR				2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U					1	U		1	U	
METHYLENE CHLORIDE		5	U					5	U		5	U	
N-BUTYLBENZENE		2	J	R				1	U		1	U	
N-PROPYLBENZENE		1	J	PR				1	U		1	U	
O-XYLENE		1	J	R				1	U		1	U	
SEC-BUTYLBENZENE		0.5	J	PR				1	U		1	U	
STYRENE		1	U					1	U		1	U	
TERT-BUTYLBENZENE		1	U					1	U		1	U	
TETRACHLOROETHENE		2	J	R				1	U		1	U	
TOLUENE		2	J	R				1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U					1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U					1	U		1	U	
TRICHLOROETHENE		4	J	R				0.5	J	P	4		
TRICHLOROFLUOROMETHANE		2	U					2	U		2	U	
VINYL CHLORIDE		0.8	J	PR				2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW101B-53008DL			DA-MW102B-52708			DA-MW107B-6408			DA-MW108B-6308		
SDG: CTO403-10	LAB_ID	SB2832-1DL			SB2765-1			SB2963-1			SB2929-1		
FRACTION: OV	SAMP_DATE	5/30/2008			5/27/2008			6/4/2008			6/3/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE					1	U		1	U		1	U	
CHLOROBENZENE					1	U		1	U		1	U	
CHLORODIBROMOMETHANE					1	U		1	U		1	U	
CHLOROETHANE		270			2	U		2	U		2	U	
CHLOROFORM					1	U		1	U		1	U	
CHLOROMETHANE					2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE					2			1	U		9		
CIS-1,3-DICHLOROPROPENE					1	U		1	U		1	U	
DIBROMOMETHANE					1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE					2	U		2	U		2	U	
ETHYLBENZENE					1	U		1	U		1	U	
HEXACHLOROBUTADIENE					1	UJ	C	1	U		1	U	
ISOPROPYLBENZENE					1	U		1	U		1	U	
M+P-XYLENES					2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER					1	U		1	U		1	U	
METHYLENE CHLORIDE					5	U		5	U		5	U	
N-BUTYLBENZENE					1	U		1	U		1	U	
N-PROPYLBENZENE					1	U		1	U		1	U	
O-XYLENE					1	U		1	U		1	U	
SEC-BUTYLBENZENE					1	U		1	U		1	U	
STYRENE					1	U		1	U		1	U	
TERT-BUTYLBENZENE					1	U		1	U		1	U	
TETRACHLOROETHENE					1	U		1	U		7		
TOLUENE					1	U		1	U		0.6	J	P
TRANS-1,2-DICHLOROETHENE					1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE					1	U		1	U		1	U	
TRICHLOROETHENE					5			1	U		2		
TRICHLOROFLUOROMETHANE					2	U		2	U		2	U	
VINYL CHLORIDE					2	U		2	U		0.4	J	P

PROJ_NO: 00933	NSAMPLE	DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408			DA-MWDUP02		
SDG: CTO403-10	LAB_ID	SB2887-1			SB2929-3			SB2963-3RA			SB2832-3		
FRACTION: OV	SAMP_DATE	6/2/2008			6/3/2008			6/4/2008			5/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										DA-MW101B-53008		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U				
CHLOROFORM		1			1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		3			1	U		0.4	J	P	0.4	J	P
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	C	1	U		1	U		1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	UJ	CE	1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		3			1	U		2			1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1			1	U		0.9	J	P	4		
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		0.4	J	P	2	U		2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02DL			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-3DL			SB2929-5			SB2929-7			SB2963-7		
FRACTION: OV	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE					1	U		1	U		1	U	
CHLOROBENZENE					1	U		1	U		1	U	
CHLORODIBROMOMETHANE					1	U		1	U		1	U	
CHLOROETHANE		270			2	U		2	U		2	U	
CHLOROFORM					1	U		1	U		1	U	
CHLOROMETHANE					2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE					10			1	U		1	U	
CIS-1,3-DICHLOROPROPENE					1	U		1	U		1	U	
DIBROMOMETHANE					1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE					2	U		2	U		2	U	
ETHYLBENZENE					1	U		1	U		1	U	
HEXACHLOROBUTADIENE					1	U		1	U		1	U	
ISOPROPYLBENZENE					1	U		1	U		1	U	
M+P-XYLENES					2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER					1	U		1	U		1	UJ	CE
METHYLENE CHLORIDE					5	U		5	U		4	J	P
N-BUTYLBENZENE					1	U		1	U		1	U	
N-PROPYLBENZENE					1	U		1	U		1	U	
O-XYLENE					1	U		1	U		1	U	
SEC-BUTYLBENZENE					1	U		1	U		1	U	
STYRENE					1	U		1	U		1	U	
TERT-BUTYLBENZENE					1	U		1	U		1	U	
TETRACHLOROETHENE					7			1	U		1	U	
TOLUENE					0.6	J	P	1	U		1	U	
TRANS-1,2-DICHLOROETHENE					1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE					1	U		1	U		1	U	
TRICHLOROETHENE					2			1	U		1	U	
TRICHLOROFLUOROMETHANE					2	U		2	U		2	U	
VINYL CHLORIDE					0.4	J	P	2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-TB27			DA-TB28			DA-TB29			DA-TB30		
SDG: CTO403-10	LAB_ID	SB2765-5			SB2765-6			SB2796-5			SB2796-6		
FRACTION: OV	SAMP_DATE	5/27/2008			5/27/2008			5/28/2008			5/28/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-TB31			DA-TB32			DA-TB33			DA-TB34		
	LAB_ID	SB2829-3RA			SB2832-6			SB2832-5			SB2887-3		
	SAMP_DATE	5/29/2008			5/30/2008			5/30/2008			6/2/2008		
	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		0.3	J	P	0.3	J	P	2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-TB35			DA-TB36			DA-TB37			DA-TB38		
SDG: CTO403-10	LAB_ID	SB2929-9			SB2929-10			SB2929-11			SB2929-12		
FRACTION: OV	SAMP_DATE	6/3/2008			6/3/2008			6/3/2008			6/3/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	U		2	U		2	U		2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-TB39
	LAB_ID	SB2963-9RA
	SAMP_DATE	6/4/2008
	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
DIBROMOMETHANE	1	U	
DICHLORODIFLUOROMETHANE	2	U	
ETHYLBENZENE	1	U	
HEXACHLOROBUTADIENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	1	UJ	CE
METHYLENE CHLORIDE	5	U	
N-BUTYLBENZENE	1	U	
N-PROPYLBENZENE	1	U	
O-XYLENE	1	U	
SEC-BUTYLBENZENE	1	U	
STYRENE	1	U	
TERT-BUTYLBENZENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	2	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
SDG: CTO403-10	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
FRACTION: OS	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U		10	U		10	U		11	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		11	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		11	U	
1,2-DIPHENYLHYDRAZINE	20	U		20	U		20	U		22	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		11	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		11	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		11	U	
2,4,5-TRICHLOROPHENOL	25	U		25	UR	R	25	UR	R	27	UJ	R
2,4,6-TRICHLOROPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
2,4-DICHLOROPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
2,4-DIMETHYLPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
2,4-DINITROPHENOL	25	UJ	C	25	UR	R	25	UR	R	27	UJ	CR
2,4-DINITROTOLUENE	10	U		10	U		10	U		11	U	
2,6-DICHLOROPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
2,6-DINITROTOLUENE	10	U		10	U		10	U		11	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		11	U	
2-CHLOROPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
2-METHYLNAPHTHALENE	10	U		10	U		10	U		11	U	
2-METHYLPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
2-NITROANILINE	25	U		25	U		25	U		27	U	
2-NITROPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
3&4-METHYLPHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R
3,3'-DICHLOROBENZIDINE	10	UJ	C	10	UJ	C	10	UJ	C	11	UJ	C
3-NITROANILINE	25	UJ	C	25	UJ	C	25	UJ	C	27	UJ	C
4,6-DINITRO-2-METHYLPHENOL	25	U		25	UR	R	25	UR	R	27	UJ	R
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		11	U	
4-CHLORO-3-METHYLPHENOL	25	U		25	UR	R	25	UR	R	27	UJ	R
4-CHLOROANILINE	10	U		10	U		10	U		11	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		11	U	
4-NITROANILINE	25	UJ	C	25	UJ	C	25	UJ	C	27	UJ	C
4-NITROPHENOL	25	UJ	C	25	UR	R	25	UR	R	27	UJ	CR
ACENAPHTHENE	10	U		10	U		10	U		11	U	
ACENAPHTHYLENE	10	U		10	U		10	U		11	U	
ANTHRACENE	10	U		10	U		10	U		11	U	
BENZIDINE	50	UR	E	50	UR	E	50	UR	E	54	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
SDG: CTO403-10	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
FRACTION: OS	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U		10	UJ	E	10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE	20	U		20	U		21	U		20	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	25	UJ	R	25	U		26	UJ	R	25	U	
2,4,6-TRICHLOROPHENOL	10	UJ	R	10	UJ	E	10	UJ	R	10	U	
2,4-DICHLOROPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
2,4-DIMETHYLPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
2,4-DINITROPHENOL	25	UJ	CR	25	UJ	C	26	UJ	CR	25	UJ	C
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
2-NITROANILINE	25	U		25	U		26	U		25	U	
2-NITROPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
3&4-METHYLPHENOL	10	UJ	R	10	U		10	UJ	R	10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
3-NITROANILINE	25	UJ	C	25	UJ	C	26	UJ	C	25	UJ	C
4,6-DINITRO-2-METHYLPHENOL	25	UJ	R	25	U		26	UJ	R	25	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	25	UJ	R	25	U		26	UJ	R	25	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	UJ	C	25	UJ	C	26	UJ	C	25	UJ	C
4-NITROPHENOL	25	UJ	CR	25	UJ	C	26	UJ	CR	25	UJ	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
BENZIDINE	50	UR	E	50	UR	E	53	UR	E	50	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1RA			SB2887-1			SB2929-3			SB2963-3		
FRACTION: OS	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U		12	UJ	E	11	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		12	U		11	U		10	U	
1,2-DICHLOROBENZENE	10	U		12	U		11	U		10	U	
1,2-DIPHENYLHYDRAZINE	20	U		24	U		22	U		21	U	
1,3-DICHLOROBENZENE	10	U		12	U		11	U		10	U	
1,4-DICHLOROBENZENE	10	U		12	U		11	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		12	U		11	U		10	U	
2,4,5-TRICHLOROPHENOL	25	UR	R	29	UR	R	27	U		26	U	
2,4,6-TRICHLOROPHENOL	10	UR	R	12	UR	R	11	U		10	U	
2,4-DICHLOROPHENOL	10	UR	R	12	UR	R	11	U		10	U	
2,4-DIMETHYLPHENOL	10	UR	R	12	UR	R	11	U		10	U	
2,4-DINITROPHENOL	25	UR	ER	29	UR	R	27	UR	E	26	UJ	C
2,4-DINITROTOLUENE	10	U		12	U		11	U		10	U	
2,6-DICHLOROPHENOL	10	UR	R	12	UR	R	11	U		10	U	
2,6-DINITROTOLUENE	10	U		12	U		11	U		10	U	
2-CHLORONAPHTHALENE	10	U		12	U		11	U		10	U	
2-CHLOROPHENOL	10	UR	R	12	UR	R	11	U		10	U	
2-METHYLNAPHTHALENE	10	U		12	U		11	U		10	U	
2-METHYLPHENOL	10	UR	R	12	UR	R	11	U		10	U	
2-NITROANILINE	25	U		29	U		27	U		26	U	
2-NITROPHENOL	10	UR	R	12	UR	R	11	U		10	U	
3&4-METHYLPHENOL	10	UR	R	12	UR	R	11	UJ	C	10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C	12	UJ	C	11	UJ	C	10	UJ	C
3-NITROANILINE	25	UJ	C	29	UJ	C	27	UJ	E	26	UJ	C
4,6-DINITRO-2-METHYLPHENOL	25	UR	R	29	UR	R	27	U		26	U	
4-BROMOPHENYL PHENYL ETHER	10	U		12	U		11	U		10	U	
4-CHLORO-3-METHYLPHENOL	25	UR	R	29	UR	R	27	U		26	U	
4-CHLOROANILINE	10	U		12	U		11	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		12	U		11	U		10	U	
4-NITROANILINE	25	UJ	C	29	UJ	C	27	UJ	C	26	UJ	C
4-NITROPHENOL	25	UR	R	29	UR	R	27	UJ	CE	26	UJ	C
ACENAPHTHENE	10	U		12	U		11	U		10	U	
ACENAPHTHYLENE	10	U		12	U		11	U		10	U	
ANTHRACENE	10	U		12	U		11	U		10	U	
BENZIDINE	50	UR	E	59	UR	E	54	UR	E	53	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
FRACTION: OS	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	UJ	E	10	U		11	U		10	U	
1,2,4-TRICHLOROBENZENE		10	U		10	U		11	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U		11	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		21	U		22	U		21	U	
1,3-DICHLOROBENZENE		10	U		10	U		11	U		10	U	
1,4-DICHLOROBENZENE		10	U		10	U		11	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		11	U		10	U	
2,4,5-TRICHLOROPHENOL		26	U		26	UR	R	28	U		26	U	
2,4,6-TRICHLOROPHENOL		10	UJ	E	10	UR	R	11	U		10	U	
2,4-DICHLOROPHENOL		10	U		10	UR	R	11	U		10	U	
2,4-DIMETHYLPHENOL		10	U		10	UR	R	11	U		10	U	
2,4-DINITROPHENOL		26	UJ	C	26	UR	ER	28	UR	E	26	UJ	C
2,4-DINITROTOLUENE		10	U		10	U		11	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	UR	R	11	U		10	U	
2,6-DINITROTOLUENE		10	U		10	U		11	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	UR	R	11	U		10	U	
2-CHLOROPHENOL		10	U		10	U		11	U		10	U	
2-METHYLNAPHTHALENE		10	U		10	U		11	U		10	U	
2-METHYLPHENOL		10	U		10	UR	R	11	U		10	U	
2-NITROANILINE		26	U		26	U		28	U		26	U	
2-NITROPHENOL		10	U		10	UR	R	11	U		10	U	
3&4-METHYLPHENOL		10	U		10	UR	R	11	U		10	U	
3,3'-DICHLOROBENZIDINE		10	UJ	C	10	UJ	C	11	UJ	C	10	UJ	C
3-NITROANILINE		26	UJ	C	26	UJ	C	28	UJ	C	26	UJ	C
4,6-DINITRO-2-METHYLPHENOL		26	U		26	UR	R	28	UJ	E	26	U	
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		11	U		10	U	
4-CHLORO-3-METHYLPHENOL		26	U		26	UR	R	28	U		26	U	
4-CHLOROANILINE		10	U		10	U		11	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		11	U		10	U	
4-NITROANILINE		26	UJ	C	26	UJ	C	28	UJ	C	26	UJ	C
4-NITROPHENOL		26	UJ	C	26	UR	R	28	UJ	CE	26	UJ	C
ACENAPHTHENE		10	U		10	U		11	U		10	U	
ACENAPHTHYLENE		10	U		10	U		11	U		10	U	
ANTHRACENE		10	U		10	U		11	U		10	U	
BENZIDINE		51	UR	E	53	UR	E	56	UR	E	52	UR	E

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
SDG: CTO403-10	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
FRACTION: OS	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	10	U		10	U		10	U		11	U	
BENZO(A)PYRENE	10	U		10	U		10	U		11	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		11	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		11	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		11	U	
BENZOIC ACID	25	UR	E	25	UR	ER	25	UR	ER	27	UR	E
BENZYL ALCOHOL	56	U	A	20	U		20	U		22	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		11	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		11	U	
BIS(2-ETHYLHEXYL)PHTHALATE	10	UJ	AE	10	U		10	U		11	U	
BUTYL BENZYL PHTHALATE	10	U		10	U		10	U		11	U	
CARBAZOLE	10	U		10	U		10	U		11	U	
CHRYSENE	10	U		10	U		10	U		11	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		11	U	
DIBENZOFURAN	10	U		10	U		10	U		11	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		11	U	
DIMETHYL PHTHALATE	10	U		10	U		10	U		11	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		11	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		11	U	
FLUORANTHENE	10	U		10	U		10	U		11	U	
FLUORENE	10	U		10	U		10	U		11	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		11	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		11	U	
HEXACHLOROETHANE	10	U		10	U		10	U		11	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		11	U	
ISOPHORONE	10	U		10	U		10	U		11	U	
NAPHTHALENE	10	U		10	U		10	U		11	U	
NITROBENZENE	10	U		10	U		10	U		11	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		11	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		11	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		11	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		11	U	
PENTACHLOROPHENOL	25	U		25	UR	R	25	UR	R	27	UJ	R
PHENANTHRENE	10	U		10	U		10	U		11	U	
PHENOL	10	U		10	UR	R	10	UR	R	11	UJ	R

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		10	U		10	U	
BENZO(A)PYRENE		10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		10	U		10	U	
BENZOIC ACID		25	UR	E	25	UR	E	26	UR	E	25	UR	E
BENZYL ALCOHOL		20	U		20	U		21	U		53	UJ	AD
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U		10	U		10	UJ	AE
BUTYL BENZYL PHTHALATE		10	U		10	U		10	U		10	U	
CARBAZOLE		10	U		10	U		10	U		10	U	
CHRYSENE		10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		10	U		10	U	
DIBENZOFURAN		10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE		10	U		10	U		10	U		10	U	
FLUORANTHENE		10	U		10	U		10	U		10	U	
FLUORENE		10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		10	U		10	U	
HEXACHLOROETHANE		10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		10	U		10	U	
ISOPHORONE		10	U		10	U		10	U		10	U	
NAPHTHALENE		10	U		10	U		10	U		10	U	
NITROBENZENE		10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL		25	UJ	R	25	U		26	UJ	R	25	U	
PHENANTHRENE		10	U		10	U		10	U		10	U	
PHENOL		10	UJ	R	10	U		10	UJ	R	10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1RA			SB2887-1			SB2929-3			SB2963-3		
FRACTION: OS	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		12	U		11	U		10	U	
BENZO(A)PYRENE		10	U		12	U		11	U		10	U	
BENZO(B)FLUORANTHENE		10	U		12	U		11	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		12	U		11	U		10	U	
BENZO(K)FLUORANTHENE		10	U		12	U		11	U		10	U	
BENZOIC ACID		25	UR	ER	29	UR	ER	27	UR	E	26	UR	E
BENZYL ALCOHOL		20	U		24	U		22	U		110		
BIS(2-CHLOROETHOXY)METHANE		10	U		12	U		11	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		12	U		11	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		12	U		11	U		10	UJ	AE
BUTYL BENZYL PHTHALATE		10	U		12	U		11	U		10	U	
CARBAZOLE		10	U		12	U		11	U		10	U	
CHRYSENE		10	U		12	U		11	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		12	U		11	U		10	U	
DIBENZOFURAN		10	U		12	U		11	U		10	U	
DIETHYL PHTHALATE		10	U		12	U		11	U		10	U	
DIMETHYL PHTHALATE		10	U		12	U		11	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		12	U		11	U		10	U	
DI-N-OCTYL PHTHALATE		10	U		12	U		11	U		10	U	
FLUORANTHENE		10	U		12	U		11	U		10	U	
FLUORENE		10	U		12	U		11	U		10	U	
HEXACHLOROBENZENE		10	U		12	U		11	U		10	U	
HEXACHLOROBUTADIENE		10	U		12	U		11	U		10	U	
HEXACHLOROETHANE		10	U		12	U		11	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		12	U		11	U		10	U	
ISOPHORONE		10	U		12	U		11	U		10	U	
NAPHTHALENE		10	U		12	U		11	U		10	U	
NITROBENZENE		10	U		12	U		11	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		12	U		11	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		12	U		11	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		12	U		11	U		10	U	
N-NITROSOPYRROLIDINE		10	U		12	U		11	U		10	U	
PENTACHLOROPHENOL		25	UR	R	29	UR	R	27	U		26	U	
PHENANTHRENE		10	U		12	U		11	U		10	U	
PHENOL		10	UR	R	12	UR	R	11	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
FRACTION: OS	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U		11	U		10	U	
BENZO(A)PYRENE		10	U		10	U		11	U		10	U	
BENZO(B)FLUORANTHENE		10	U		10	U		11	U		10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U		11	U		10	U	
BENZO(K)FLUORANTHENE		10	U		10	U		11	U		10	U	
BENZOIC ACID		26	UR	E	26	UR	E	28	UR	E	26	UR	E
BENZYL ALCOHOL		20	U		21	U		22	U		180		
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U		11	U		10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U		11	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U		11	U		10	UJ	AE
BUTYL BENZYL PHTHALATE		10	U		10	U		11	U		10	U	
CARBAZOLE		10	U		10	U		11	U		10	U	
CHRYSENE		10	U		10	U		11	U		10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U		11	U		10	U	
DIBENZOFURAN		10	U		10	U		11	U		10	U	
DIETHYL PHTHALATE		10	U		10	U		11	U		10	U	
DIMETHYL PHTHALATE		10	U		10	U		11	U		10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U		11	U		10	U	
DI-N-OCTYL PHTHALATE		10	U		10	U		11	U		10	U	
FLUORANTHENE		10	U		10	U		11	U		10	U	
FLUORENE		10	U		10	U		11	U		10	U	
HEXACHLOROBENZENE		10	U		10	U		11	U		10	U	
HEXACHLOROBUTADIENE		10	U		10	U		11	U		10	U	
HEXACHLOROETHANE		10	U		10	U		11	U		10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U		11	U		10	U	
ISOPHORONE		10	U		10	U		11	U		10	U	
NAPHTHALENE		10	U		10	U		11	U		10	U	
NITROBENZENE		10	U		10	U		11	U		10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U		11	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U		11	U		10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U		11	U		10	U	
N-NITROSOPYRROLIDINE		10	U		10	U		11	U		10	U	
PENTACHLOROPHENOL		26	U		26	UR	R	28	U		26	U	
PHENANTHRENE		10	U		10	U		11	U		10	U	
PHENOL		10	U		10	UR	R	11	U		2	J	

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
SDG: CTO403-10	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
FRACTION: OS	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		10	U		11	U	

PROJ_NO: 00933	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
SDG: CTO403-10	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
FRACTION: OS	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1RA			SB2887-1			SB2929-3			SB2963-3		
FRACTION: OS	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		12	U		11	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
FRACTION: OS	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		11	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
SDG: CTO403-10	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
FRACTION: PEST/PCB	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	0.021	U		0.02	U		0.02	U		0.02	U	
4,4'-DDE	0.021	U		0.02	U		0.02	U		0.02	U	
4,4'-DDT	0.021	U		0.02	U		0.02	U		0.02	U	
ALDRIN	0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
AROCLOR-1016	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1221	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1232	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1242	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1248	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1254	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1260	0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1268	0.1	U		0.1	U		0.1	U		0.1	U	
BETA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
DELTA-BHC	0.01	UJ	C	0.01	U		0.01	U		0.01	UJ	C
DIELDRIN	0.021	U		0.02	U		0.02	U		0.02	U	
ENDOSULFAN I	0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II	0.021	U		0.02	U		0.02	U		0.02	U	
ENDOSULFAN SULFATE	0.018	J	P	0.02	U		0.02	U		0.02	U	
ENDRIN	0.021	U		0.02	U		0.02	U		0.02	U	
ENDRIN ALDEHYDE	0.021	U		0.02	U		0.02	U		0.02	U	
ENDRIN KETONE	0.021	U		0.02	U		0.02	U		0.02	U	
GAMMA-BHC (LINDANE)	0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE	0.01	U		0.01	U		0.01	U		0.01	U	
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	0.21	U		0.2	U		0.2	U		0.2	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
4,4'-DDE		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
4,4'-DDT		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
ALDRIN		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
ALPHA-BHC		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
ALPHA-CHLORDANE		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
AROCLOR-1016		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1221		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1232		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1242		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1248		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1254		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1260		0.11	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1268		0.11	U		0.1	U		0.1	U		0.1	U	
BETA-BHC		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
DELTA-BHC		0.01	U		0.01	UJ	C	0.011	UJ	R	0.01	U	
DIELDRIN		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
ENDOSULFAN I		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
ENDOSULFAN II		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
ENDOSULFAN SULFATE		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
ENDRIN		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
ENDRIN ALDEHYDE		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
ENDRIN KETONE		0.02	U		0.02	U		0.022	UJ	R	0.02	U	
GAMMA-BHC (LINDANE)		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
GAMMA-CHLORDANE		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
HEPTACHLOR		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
HEPTACHLOR EPOXIDE		0.01	U		0.01	U		0.011	UJ	R	0.01	U	
METHOXYCHLOR		0.1	U		0.1	U		0.11	UJ	R	0.1	U	
TOXAPHENE		0.2	U		0.2	U		0.22	UJ	R	0.2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1			SB2887-1			SB2929-3			SB2963-3		
FRACTION: PEST/PCB	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
4,4'-DDE	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
4,4'-DDT	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
ALDRIN	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
ALPHA-BHC	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
ALPHA-CHLORDANE	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
AROCLOR-1016	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1221	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1232	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1242	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1248	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1254	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1260	0.1	U		0.1	U		0.11	U		0.11	U	
AROCLOR-1268	0.1	U		0.1	U		0.11	U		0.11	U	
BETA-BHC	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
DELTA-BHC	0.01	U		0.01	UJ	CD	0.01	U		0.01	U	
DIELDRIN	0.02	U		0.02	UJ	D	0.012	J	P	0.02	U	
ENDOSULFAN I	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
ENDOSULFAN II	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
ENDOSULFAN SULFATE	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
ENDRIN	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
ENDRIN ALDEHYDE	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
ENDRIN KETONE	0.02	U		0.02	UJ	D	0.021	U		0.02	U	
GAMMA-BHC (LINDANE)	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
GAMMA-CHLORDANE	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
HEPTACHLOR	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
HEPTACHLOR EPOXIDE	0.01	U		0.01	UJ	D	0.01	U		0.01	U	
METHOXYCHLOR	0.1	U		0.1	UJ	D	0.1	U		0.1	U	
TOXAPHENE	0.2	U		0.2	UJ	D	0.21	U		0.2	U	

PROJ_NO: 00933 SDG: CTO403-10 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-0608					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.02	U		0.022	U		0.024	U		0.022	U	
4,4'-DDE		0.02	U		0.022	U		0.024	U		0.022	U	
4,4'-DDT		0.02	U		0.022	U		0.024	U		0.022	U	
ALDRIN		0.01	U		0.011	U		0.012	U		0.011	U	
ALPHA-BHC		0.01	U		0.011	U		0.012	U		0.011	U	
ALPHA-CHLORDANE		0.01	U		0.011	U		0.012	U		0.011	U	
AROCLOR-1016		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1221		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1232		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1242		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1248		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1254		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1260		0.1	U		0.11	U		0.12	U		0.11	U	
AROCLOR-1268		0.1	U		0.11	U		0.12	U		0.11	U	
BETA-BHC		0.01	U		0.011	U		0.012	U		0.011	U	
DELTA-BHC		0.01	UJ	C	0.011	U		0.012	U		0.011	UJ	C
DIELDRIN		0.02	U		0.022	U		0.0097	J	P	0.022	U	
ENDOSULFAN I		0.01	U		0.011	U		0.012	U		0.011	U	
ENDOSULFAN II		0.02	U		0.022	U		0.024	U		0.022	U	
ENDOSULFAN SULFATE		0.02	U		0.022	U		0.024	U		0.022	U	
ENDRIN		0.02	U		0.022	U		0.024	U		0.022	U	
ENDRIN ALDEHYDE		0.02	U		0.022	U		0.024	U		0.022	U	
ENDRIN KETONE		0.02	U		0.022	U		0.024	U		0.022	U	
GAMMA-BHC (LINDANE)		0.01	U		0.011	U		0.012	U		0.011	U	
GAMMA-CHLORDANE		0.01	U		0.011	U		0.012	U		0.011	U	
HEPTACHLOR		0.01	U		0.011	U		0.012	U		0.011	U	
HEPTACHLOR EPOXIDE		0.01	U		0.011	U		0.012	U		0.011	U	
METHOXYCHLOR		0.1	U		0.11	U		0.12	U		0.11	U	
TOXAPHENE		0.2	U		0.22	U		0.24	U		0.22	U	

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
SDG: CTO403-10	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
FRACTION: PET	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		74			140			510		
TPH (C09-C36)		75	U		190			570			200		

PROJ_NO: 00933	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
SDG: CTO403-10	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
FRACTION: PET	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		19	U	A	110			10	U	A	10	U	
TPH (C09-C36)		82	U		99	J	P	81			75	U	

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1			SB2887-1			SB2929-3			SB2963-3		
FRACTION: PET	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U	A	10	U		10	U		10	U	
TPH (C09-C36)		92			52	J	P	79	U		81	U	

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
FRACTION: PET	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-6308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		100			10	U	A	10	U		10	U	
TPH (C09-C36)		82	U		67	J	P	85	U		81	U	

PROJ_NO: 00933	NSAMPLE	DA-TB27			DA-TB28			DA-TB29			DA-TB30		
SDG: CTO403-10	LAB_ID	SB2765-5			SB2765-6			SB2796-5			SB2796-6		
FRACTION: PET	SAMP_DATE	5/27/2008			5/27/2008			5/28/2008			5/28/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U		10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-TB31			DA-TB32			DA-TB33			DA-TB34		
SDG: CTO403-10	LAB_ID	SB2829-3			SB2832-6			SB2832-5			SB2887-3		
FRACTION: PET	SAMP_DATE	5/29/2008			5/30/2008			5/30/2008			6/2/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U		10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-TB35			DA-TB36			DA-TB37			DA-TB38		
SDG: CTO403-10	LAB_ID	SB2929-9			SB2929-10			SB2929-11			SB2929-12		
FRACTION: PET	SAMP_DATE	6/3/2008			6/3/2008			6/3/2008			6/3/2008		
MEDIA: WATER	QC_TYPE	TB			TB			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U		10	U		10	U	
TPH (C09-C36)													

PROJ_NO: 00933	NSAMPLE	DA-TB39		
SDG: CTO403-10	LAB_ID	SB2963-9		
FRACTION: PET	SAMP_DATE	6/4/2008		
MEDIA: WATER	QC_TYPE	TB		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U	
TPH (C09-C36)				

PROJ_NO: 00933	NSAMPLE	DA-HD-SB01			DA-MW02-52708			DA-MW07A-52808			DA-MW07B-52908		
SDG: CTO403-10	LAB_ID	SB2963-5			SB2765-3			SB2796-1			SB2829-1		
FRACTION: OVG	SAMP_DATE	6/5/2008			5/27/2008			5/28/2008			5/29/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		10	U		260			3.2	J	P	22		

PROJ_NO: 00933	NSAMPLE	DA-MW09B-52808			DA-MW101B-53008			DA-MW102B-52708			DA-MW107B-6408		
SDG: CTO403-10	LAB_ID	SB2796-3			SB2832-1			SB2765-1			SB2963-1		
FRACTION: OVG	SAMP_DATE	5/28/2008			5/30/2008			5/27/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		500			770			2.8	J	P	10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW108B-6308			DA-MW109B-6208			DA-MW122B-6308			DA-MW123B-6408		
SDG: CTO403-10	LAB_ID	SB2929-1			SB2887-1			SB2929-3			SB2963-3		
FRACTION: OVG	SAMP_DATE	6/3/2008			6/2/2008			6/3/2008			6/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		1.3	J	P	13			10	U		4.9	J	P

PROJ_NO: 00933	NSAMPLE	DA-MWDUP02			DA-MW-DUP03			DA-MW-DUP04			DA-RB02		
SDG: CTO403-10	LAB_ID	SB2832-3			SB2929-5			SB2929-7			SB2963-7		
FRACTION: OVG	SAMP_DATE	5/30/2008			6/3/2008			6/3/2008			6/5/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			RB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-MW101B-53008			DA-MW108B-5308			DA-MW122B-6308					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		10	U		10	U		10	U		10	U	
ETHENE		10	U		10	U		10	U		10	U	
METHANE		850			1.4	J	P	10	U		10	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-09-08-2894W

Date: September 22, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG CTO403-12
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PCB/GRO/ExTPH:

11/Groundwaters/	DA-GW-DUP05	DA-GW-MW101B-073108
	DA-GW-MW102B-080408	DA-GW-MW13S-080408
	DA-MW124B-1020	DA-MW124B-3545
	DA-MW125B-2636	DA-MW125B-3646
	DA-MW126B-2227	DA-MW126B-4246
	DA-MW126B-5055	

(Field Duplicate Pair: DA-GW-MW13S-080408/ DA-GW-DUP05)

VOC/GRO:

4/Trip Blanks/	DA-GW-TB42	DA-GW-TB43
	DA-TB40	DA-TB41

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the groundwater samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from July 31 – August 4, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The PCB analysis was performed according to USEPA SW-846 Method 8082. The GRO and ExTPH (C_9 – C_{36}) analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
*	• Internal Standards
	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
*	• Field Duplicates
*	• Analyte Identification/Quantitation
	• Reporting Limits
	• Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The laboratory was contacted regarding the identification of the compound propylene glycol dinitrate in the semivolatile tentatively identified compound (TIC) analysis. The laboratory clarified that propylene glycol dinitrate was identified by the automated TIC analysis as "unknown"; however the analyst was able to manually identify the peak retained around 10.2 minutes as propylene glycol dinitrate.

Preservation and Technical Holding Times

Semivolatiles

The holding time was exceeded by 8 days for sample DA-MW126B-4246(RE). Only the phenolic compounds were reported for this re-extraction. The non-detected phenolic compound results are estimated (UJ). The affected result may be biased low.

The method required holding time criterion was not met for sample DA-MW126B-4246(RE); therefore, the project accuracy goals may be impacted. The non-detected phenolic compound results in the affected sample are usable as estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Chloromethane	38.42, 27.73	J	UJ	DA-GW-MW13S-080408, DA-GW-MW102B-080408, DA-TB43, DA-GW-DUP05
Acetone	-36.91	J	UJ	DA-GW-MW13S-080408, DA-GW-MW102B-080408, DA-TB43
2,2-Dichloropropane	30.42		UJ	
2-Butanone	-30.50	J	UJ	
Tetrachloroethene	-28.43, -34.12		UJ	DA-GW-MW13S-080408, DA-GW-MW102B-080408, DA-TB43, DA-GW-DUP05
1,2-Dibromo-3-chloropropane	-26.44, -27.22, -26.85		UJ	DA-GW-MW13S-080408, DA-GW-MW102B-080408, DA-TB43, DA-GW-DUP05, DA-MW126B-2227, DA-MW126B-4246

Although the %D was outside of the QC limits for chloromethane, 2,2-dichloropropane, and 1,2-dibromo-3-chloropropane; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The positive and non-detected results in the affected samples are usable as estimated value and estimated quantitation limits.

Although the %D was outside of the QC limits for 2-butanone and acetone; the project accuracy goals are not impacted since the instrument calibration variability is within the allocated safety margin of greater than 100%. The positive and non-detected results in the affected samples are usable as estimated value and estimated quantitation limits.

The %D was outside of the QC limits for tetrachloroethene; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
3-Nitroaniline	-43.86, -37.60, -34.20		UJ	All samples
4-Nitroaniline	-37.71, -26.13, -30.25		UJ	
Carbazole	-33.63		UJ	DA-MW126B-2227, DA-MW126B-4246, DA-MW126B-5055, DA-MW125B-2636, DA-GW-MW101B-073108, DA-MW125B-3646, DA-MW124B-1020
Benzidine	-75.83, -57.96, -90.38		UJ	All samples
3,3'-Dichlorobenzidine	-52.71, -53.28, -76.45		UJ	
4-Nitrophenol	-32.96		UJ	DA-MW126B-4246(RE)

Although the %D was outside of the QC limits for 3-nitroaniline, benzidine, and 4-nitrophenol, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was outside of the QC limits for 4-nitroaniline, carbazole, and 3,3'-dichlorobenzidine; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits.

PCBs

The following table summarizes the Aroclors that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	35.36	34.28		UJ	DA-MW126B-5055, DA-MW125B-2636, DA-GW-MW101B-073108, DA-MW125B-3646
Aroclor-1260	39.40	40.24		UJ	

The %D was outside of the limits for Aroclor-1016 and Aroclor-1260; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory and trip blanks associated with the groundwater samples:

Compound	Type of Blank	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Chloroform	Method	0.2	1.0	DA-MW125B-2636, DA-MW125B-3646, DA-MW126B-5055, DA-MW126B-4246
Methylene chloride	Trip	0.5	5.0	DA-MW126B-2227, DA-MW126B-4246
2-Butanone	Trip	9	90	DA-MW124B-1020, DA-MW124B-3545
Acetone	Trip	580	5800	DA-GW-MW101B-073108, DA-GW-MW102B-080408, DA-MW124B-1020, DA-MW124B-3545, DA-MW125B-2636, DA-MW125B-3646, DA-MW126B-2227, DA-MW126B-4246
Chloromethane	Trip	0.6	3.0	DA-GW-MW13S-080408, DA-MW125B-2636, DA-MW125B-3646, DA-MW126B-2227, DA-MW126B-4246, DA-MW124B-3545

Blank actions are applied to the affected groundwater samples due to chloroform method blank contamination and methylene chloride, 2-butanone, acetone, and chloromethane trip blank contamination. The 5x rule applies for chloroform and chloromethane, and the 10x rule is applies for the common laboratory contaminants methylene chloride, 2-butanone, and acetone. The positive results below the blank action level were changed to non-detected values at the reported result or at the quantitation limit (QL).

Chloroform contamination was found in the method blank and methylene chloride contamination was found in the trip blank; therefore, the project sensitivity goals may be impacted since the project action limits for these compounds are exceeded by the non-detected values. The results in the affected samples are usable as non-detected values.

Although 2-butanone and acetone contamination was found in the trip blanks, the project sensitivity goals are not impacted since the non-detected values do not exceed the project action limits for these compounds. The results in the affected samples are usable as non-detected values.

Although chloromethane contamination was found in the trip blanks, the project sensitivity goals are not impacted since there are no regulatory limits established for chloromethane for the groundwater samples. The results in the affected samples are usable as non-detected values.

GRO

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
GRO	Trip	9	45	DA-GW-MW13S-080408, DA-MW126B-2227, DA-MW126B-4246, DA-MW126B-5055

Blank actions were applied to the affected samples due to GRO trip blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level were changed to non-detected values at the QL.

Although GRO contamination was found in the trip blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable as non-detected values at the QL.

Surrogate Compounds

Semivolatiles

The following sample had surrogate spike recoveries outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW124B-3545	2FP	2	12-62	J	UR
	PHL	7	10-42		
	TBP	25	32-109		

The surrogate recovery QC criteria were not met for 2-fluorophenol (2FP), phenol-d6 (PHL), and 2,4,6-tribromophenol (TBP); therefore, the project accuracy goals may be impacted. The positive phenolic compound results in the affected sample are usable as estimated values which may be biased low. The non-detected results in the affected sample are rejected and are not usable for project decisions. The data completeness goals may be impacted.

PCBs

The following sample had surrogate spike recoveries outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery Column 1	% Recovery Column 2	QC Limits	Action	
					(+)	NDs
DA-MW125B-3436	DCB	35	33	44-135	J	UJ

The surrogate recovery QC criteria were not met for decachlorobiphenyl (DCB); therefore, the project accuracy goals may be impacted. The positive and non-detected results in sample DA-MW125B-3436 are usable as estimated values and estimated detected limits which may be biased low.

ExTPH

The following samples had surrogate spike recoveries outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-MW124B-3545	o-Terphenyl	396	46-116	J	
DA-MW124B-1020(DL)		1555		J	

The surrogate o-terphenyl recovered above the QC limits in the samples listed above. All positive results are estimated (J) in the affected sample due to high surrogate recoveries.

Although the surrogate recovery QC criteria were not met, the project accuracy goals are not impacted since there are no regulatory limits established for ExTPH. The positive results in samples DA-MW124B-3545 and DA-MW124B-1020(DL) are usable as estimated values which may be biased high.

Matrix Spike/Matrix Spike Duplicate

Semivolatiles

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-MW124B-3545 that were outside of the statistically derived laboratory QC limits:

Analyte	MSD % Rec.	%Rec. QC Limits	Action	
			(+)	NDs
4-Chloroaniline	6, 0	29-98		UR
3-Nitroaniline	14, 15	20-125		UJ
Benzidine	0, 0	10-94		UR
3,3'-Dichlorobenzidine	0, 0	38-101		UR

Although the MS/MSD percent recovery criterion was not met for 3-nitroaniline, the project accuracy goals are not impacted since there are no regulatory limits established for 3-nitroanilne for the groundwater samples. The non-detected result in sample DA-MW124B-3545 is usable as an estimated quantitation limit which may be biased low.

The compounds 4-chloroaniline, benzidine, and 3,3'-dichlorobenzidine had very low or no recovery in the MS/MSD. The non-detected 4-chloroaniline, benzidine, and 3,3'-dichlorobenzidine results are rejected in sample DA-MW124B-3545 and are not usable for project decisions. The data completeness goals may be impacted.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the statistically derived laboratory LCS QC recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Tetrachloroethene	65, 70	71-137		UJ	DA-GW-MW13S-080408, DA-GW-MW102B-080408, DA-TB43, DA-GW-DUP05

The LCS recoveries for tetrachloroethene did not meet the QC limits; therefore, the project accuracy goals are impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the statistically derived laboratory LCS and/or LCSD recovery or relative percent difference QC limits:

Compound	% Rec.	RPD	QC Limits	Action (+)	Action NDs	Affected Samples
Benzoic acid	0, 0	-	10-125		UR	All samples
Benzidine	0	-	10-94		UR	DA-MW126B-2227, DA-MW126B-4246, DA-MW126B-5055, DA-MW125B-2636, DA-MW125B-3436, DA-MW124B-1020, DA-GW-MW101B-073108
2,4-Dinitrophenol	-	56	30		UJ	DA-MW126B-4246(RE)

-Criterion met

The relative percent difference (RPD) for compound 2,4-dinitrophenol did not meet the QC criterion; therefore the project precision goals may be impacted. The non-detected result in sample DA-MW126B-4246(RE) is usable as an estimated quantitation limits for which the bias is indeterminate.

Benzoic acid, and benzidine were not recovered (0%) in several LCS/LCSD analyses; therefore, the non-detected results for benzoic acid, and benzidine are rejected in the affected samples. The project completeness goals are impacted and these results are not usable for project decisions.

Reporting Limits

Volatiles

Blank actions were applied to select samples due to chloroform, methylene chloride, 2-butanone, acetone, and chloromethane blank contamination. As discussed above in the Blanks section, the project sensitivity goals may be impacted for chloroform and methylene chloride in the affected samples.

The laboratory met all required project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, tetrachloroethene, trichloroethene, methylene chloride, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The laboratory did not meet the required project quantitation limits for select compounds. Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 4-nitroaniline, bis(2-ethylhexyl)phthalate, carbazole, dibenzofuran, pentachlorophenol, phenol, and all PAH compounds. In addition, the project action limits were not achieved for benzoic acid and benzyl alcohol. Data usability may be impacted.

PCBs

The laboratory did not meet the required project quantitation limits for all Aroclors. The project action limits were not achievable for all Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO

Blank actions were applied to select samples due to GRO blank contamination. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

Tentatively Identified Compounds

Semivolatiles

The laboratory searched specifically for propylene glycol dinitrate and also the laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. The Otto Fuel components propylene glycol dinitrate and dibutyl sebacate were detected and reported at estimated concentrations in the following samples:

Sample	Compound	Estimated Concentration (µg/L)
DA-MW124B-1020	propylene glycol dinitrate	4.0
	dibutyl sebacate	4.0
DA-MW124B-3545	propylene glycol dinitrate	5.0
	dibutyl sebacate	30

Note: Propylene glycol dinitrate was identified by the laboratory as the "unknown" TIC at ~10.2 minutes retention time.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity, and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Tetrachloroethene was qualified as estimated in select samples due to instrument calibration variability and low LCS/LCSD recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability. Additional compounds were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. Blank actions were applied to select samples due to chloroform and methylene chloride contamination. The non-detected values exceed the project action limits for these compounds. Data usability may be impacted. Project action limits were not achievable for 1,2,4-trichlorobenzene, 1,2-

dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, tetrachloroethene, trichloroethene, methylene chloride, and vinyl chloride. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. The phenolic compounds in sample DA-MW126B-4246(RE) were qualified as estimated due to holding time exceedance. The compounds 4-nitroaniline, carbazole, and 3,3'-dichlorobenzidine were qualified as estimated in select samples due to instrument calibration variability. The positive phenolic compound results in sample DA-MW124B-3545 were qualified as estimated due to low surrogate recoveries. The affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability. Additional compounds were qualified as estimated in select samples due to instrument calibration variability and low MS/MSD recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. The compound 2,4-dinitrophenol was qualified as estimated in sample DA-MW126B-4246(RE) due to LCS/LCSD imprecision. Although specific method criteria were not met in this instance, the affected non-detected result is usable as an estimated quantitation limit which may impact data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. Project action limits were not achievable for 2,4-dimethylphenol, 2,4-dinitrophenol, 4-nitroaniline, bis(2-ethylhexyl)phthalate, carbazole, dibenzofuran, pentachlorophenol, phenol, and all PAH compounds. Data usability may be impacted.

The project goals with respect to completeness were met for the semivolatiles data set with the following exceptions. The non-detected phenolic compound results in sample DA-MW124B-3545 were rejected due to extremely low surrogate recoveries. The compounds 4-chloroaniline, benzidine, and 3,3'-dichlorobenzidine were rejected in sample DA-MW124B-3545 due to no MS/MSD recoveries. Benzoic acid and benzidine were rejected in select samples due to no recovery in the LCS/LCSD. These affected results are not usable for project decisions. Data usability may be impacted.

PCBs

The project goals with respect to accuracy were met for the PCB data set with the following exceptions. Aroclor-1016 and Aroclor-1260 were qualified as estimated in select samples due to instrument calibration variability. The results in sample DA-MW125B-3436 were qualified as estimated due to low surrogate recoveries. The results in this sample may be biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may impact data usability.

The project goals with respect to precision were met for the PCB data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the PCB data set with the following exceptions. The project action limits were not achievable for all Aroclors. Data usability may be impacted.

GRO

The project goals with respect to accuracy and precision were met for the GRO data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity could not be evaluated for the GRO data set because no regulatory limits have been established for this analysis.

ExTPH

The project goals with respect to accuracy were met for the ExTPH data set. ExTPH results in samples DA-MW124B-3545 and DA-MW124B-1020(DL) were qualified as estimated due to high surrogate recoveries. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to precision were met for the ExTPH data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity could not be evaluated for the ExTPH data set because no regulatory limits have been established for this analysis.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-GW-DUP05RA			DA-GW-MW101B-073108			DA-GW-MW101B-073108DL			DA-GW-MW102B-080408		
SDG: CTO403-12	LAB_ID	SB4271-3RA			SB4214-2			SB4214-2DL			SB4271-2		
FRACTION: OV	SAMP_DATE	8/4/2008			7/31/2008			7/31/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-GW-MW13S-080408											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U					1	U	
1,1,1-TRICHLOROETHANE		1	U		88						1	U	
1,1,2,2-TETRACHLOROETHANE		1	Ц		1	U					1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U					1	U	
1,1-DICHLOROETHANE		1	U					740			2		
1,1-DICHLOROETHENE		1	U		78						1	U	
1,1-DICHLOROPROPENE		1	U		1	U					1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U					1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U					1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U					1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U					1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	UJ	C	1	U					1	UJ	C
1,2-DIBROMOETHANE		1	U		1	U					1	U	
1,2-DICHLOROBENZENE		1	U		1	U					1	U	
1,2-DICHLOROETHANE		1	U		1	U					1	U	
1,2-DICHLOROPROPANE		1	U		1	U					1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U					1	U	
1,3-DICHLOROBENZENE		1	U		1	U					1	U	
1,3-DICHLOROPROPANE		1	U		1	U					1	U	
1,4-DICHLOROBENZENE		1	U		1	U					1	U	
2,2-DICHLOROPROPANE		1	U		1	U					1	UJ	C
2-BUTANONE		5	U		5	U					5	UJ	C
2-CHLOROTOLUENE		1	U		1	U					1	U	
2-HEXANONE		5	U		5	U					5	U	
4-CHLOROTOLUENE		1	U		1	U					1	U	
4-ISOPROPYLTOLUENE		1	U		1	U					1	U	
4-METHYL-2-PENTANONE		5	U		5	U					5	U	
ACETONE		5	U		5	U	B				7	UJ	BC
BENZENE		1	U		1	U					1	U	
BROMOBENZENE		1	U		1	U					1	U	
BROMOCHLOROMETHANE		1	U		1	U					1	U	
BROMODICHLOROMETHANE		1	U		1	U					1	U	
BROMOFORM		1	U		1	U					1	U	
BROMOMETHANE		2	U		2	U					2	U	
CARBON DISULFIDE		1	U		1	U					1	U	

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-GW-MW13S-080408			DA-GW-TB42			DA-GW-TB43			DA-MW124B-1020		
	LAB_ID	SB4271-1			SB4236-2			SB4271-4			SB4236-1		
	SAMP_DATE	8/4/2008			8/1/2008			8/1/2008			8/1/2008		
	QC_TYPE	NM			TB			TB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1		
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	UJ	C	1	U		1	UJ	C	1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		0.3	J	P
2,2-DICHLOROPROPANE		1	UJ	C	1	U		1	UJ	C	1	U	
2-BUTANONE		5	UJ	C	7			9	J	C	5	U	B
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	UJ	C	460			580	J	C	46	U	B
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2	U		2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW124B-3545			DA-MW125B-2636			DA-MW125B-3646RA			DA-MW126B-2227		
SDG: CTO403-12	LAB_ID	SB4236-3			SB4214-1			SB4214-4RA			SB4187-1		
FRACTION: OV	SAMP_DATE	8/4/2008			7/31/2008			8/1/2008			7/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	18			1	U		0.5	J	P	1	U	
1,1-DICHLOROETHENE	0.8	J	P	1	U		1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		0.3	J	P	1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	UJ	C
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	5	U	B	5	U		5	U		5	U	
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	49	U	B	11	U	B	5	U	B	7	U	B
BENZENE	0.4	J	P	1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW126B-4246			DA-MW126B-5055RA			DA-TB40			DA-TB41		
	LAB_ID	SB4187-2			SB4187-3RA			SB4187-4			SB4214-3		
	SAMP_DATE	7/30/2008			7/30/2008			7/30/2008			7/31/2008		
	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	UJ	C	1	U		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
2-BUTANONE		5	U		5	U		5	U		5	U	
2-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
2-HEXANONE		5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U		5	U		5	U	
ACETONE		5	U	B	5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
BROMOBENZENE		1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U		1	U		1	U	
BROMOFORM		1	U		1	U		1	U		1	U	
BROMOMETHANE		2	U		2			2	U		2	U	
CARBON DISULFIDE		1	U		1	U		1	U		1	U	

PROJ_NO: 00933	NSAMPLE	DA-GW-DUP05RA			DA-GW-MW101B-073108			DA-GW-MW101B-073108DL			DA-GW-MW102B-080408		
SDG: CTO403-12	LAB_ID	SB4271-3RA			SB4214-2			SB4214-2DL			SB4271-2		
FRACTION: OV	SAMP_DATE	8/4/2008			7/31/2008			7/31/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-GW-MW13S-080408											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U					1	U	
CHLOROBENZENE		1	U		1	U					1	U	
CHLORODIBROMOMETHANE		1	U		1	U					1	U	
CHLOROETHANE		2	U					240			2	U	
CHLOROFORM		1	U		1	U					1	U	
CHLOROMETHANE		2	UJ	C	4						2	UJ	C
CIS-1,2-DICHLOROETHENE		1	U		0.4	J	P				3		
CIS-1,3-DICHLOROPROPENE		1	U		1	U					1	U	
DIBROMOMETHANE		1	U		1	U					1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U					2	U	
ETHYLBENZENE		1	U		1	U					1	U	
HEXACHLOROBUTADIENE		1	U		1	U					1	U	
ISOPROPYLBENZENE		1	U		1	U					1	U	
M+P-XYLENES		2	U		2	U					2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U					1	U	
METHYLENE CHLORIDE		5	U		5	U					5	U	
N-BUTYLBENZENE		1	U		1	U					1	U	
N-PROPYLBENZENE		1	U		1	U					1	U	
O-XYLENE		1	U		1	U					1	U	
SEC-BUTYLBENZENE		1	U		1	U					1	U	
STYRENE		1	U		1	U					1	U	
TERT-BUTYLBENZENE		1	U		1	U					1	U	
TETRACHLOROETHENE		1	UJ	CE	1	U					1	UJ	CE
TOLUENE		1	U		1	U					1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U					1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U					1	U	
TRICHLOROETHENE		0.4	J	P	5						11		
TRICHLOROFLUOROMETHANE		2	U		2	U					2	U	
VINYL CHLORIDE		2	U		6						0.4	J	P

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-GW-MW13S-080408			DA-GW-TB42			DA-GW-TB43			DA-MW124B-1020		
	LAB_ID	SB4271-1			SB4236-2			SB4271-4			SB4236-1		
	SAMP_DATE	8/4/2008			8/1/2008			8/1/2008			8/1/2008		
	QC_TYPE	NM			TB			TB			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U		1	U		1	U		1	U	
CHLOROMETHANE		2	UJ	BC	2	U		2	UJ	C	2	U	
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		5		
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	UJ	C	1	U		1	UJ	CE	1	U	
TOLUENE		1	U		1	U		1	U		5		
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		0.5	J	P
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		2		
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		1	J	P

PROJ_NO: 00933	NSAMPLE	DA-MW124B-3545			DA-MW125B-2636			DA-MW125B-3646RA			DA-MW126B-2227		
SDG: CTO403-12	LAB_ID	SB4236-3			SB4214-1			SB4214-4RA			SB4187-1		
FRACTION: OV	SAMP_DATE	8/4/2008			7/31/2008			8/1/2008			7/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	J	P	2	U		2	U		2	U	
CHLOROFORM	1	U		1	U	A	1	U	A	7		
CHLOROMETHANE	3	U	B	2	U	B	2	U	B	2	U	B
CIS-1,2-DICHLOROETHENE	26			4			3			1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	2	U		2	U		2	U		2	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE	1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE	1	U		1	U		1	U		1	U	
M+P-XYLENES	2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	B
N-BUTYLBENZENE	1	U		1	U		1	U		1	U	
N-PROPYLBENZENE	1	U		1	U		1	U		1	U	
O-XYLENE	1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE	0.4	J	P	1	U		1	U		1	U	
STYRENE	1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE	0.4	J	P	1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		12			8			1	U	
TOLUENE	18			12			11			2		
TRANS-1,2-DICHLOROETHENE	3			1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	16			4			2			1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL CHLORIDE	19			0.3	J	P	2	U		2	U	

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-MW126B-4246			DA-MW126B-5055RA			DA-TB40			DA-TB41		
	LAB_ID	SB4187-2			SB4187-3RA			SB4187-4			SB4214-3		
	SAMP_DATE	7/30/2008			7/30/2008			7/30/2008			7/31/2008		
	QC_TYPE	NM			NM			TB			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		1	U	A	1	U	A	1	U		1	U	
CHLOROMETHANE		2	U	B	16			2	U		0.6	J	P
CIS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE		5	U	B	5	U		0.5	J	P	0.4	J	P
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		1	U	
TOLUENE		4			2			1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00933	NSAMPLE	DA-GW-DUP05RA	DA-GW-MW101B-073108	DA-GW-MW102B-080408RA	DA-GW-MW13S-080408RA
SDG: CTO403-12	LAB_ID	SB4271-3RA	SB4214-2	SB4271-2RA	SB4271-1RA
FRACTION: OS	SAMP_DATE	8/4/2008	7/31/2008	8/1/2008	8/4/2008
MEDIA: WATER	QC_TYPE	NM	NM	NM	NM
	UNITS	UG/L	UG/L	UG/L	UG/L
	PCT_SOLIDS	0.0	0.0	0.0	0.0
	DUP_OF	DA-GW-MW13S-080408			

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	9	U		10	U		9	U		9	U	
1,2,4-TRICHLOROBENZENE	9	U		10	U		9	U		9	U	
1,2-DICHLOROBENZENE	9	U,		10	U		9	U		9	U	
1,2-DIPHENYLHYDRAZINE	19	U		20	U		19	U		19	U	
1,3-DICHLOROBENZENE	9	U		10	U		9	U		9	U	
1,4-DICHLOROBENZENE	9	U		10	U		9	U		9	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	9	U		10	U		9	U		9	U	
2,4,5-TRICHLOROPHENOL	24	U		25	U		24	U		24	U	
2,4,6-TRICHLOROPHENOL	9	U		10	U		9	U		9	U	
2,4-DICHLOROPHENOL	9	U		10	U		9	U		9	U	
2,4-DIMETHYLPHENOL	9	U		10	U		9	U		9	U	
2,4-DINITROPHENOL	24	U		25	U		24	U		24	U	
2,4-DINITROTOLUENE	9	U		10	U		9	U		9	U	
2,6-DICHLOROPHENOL	9	U		10	U		9	U		9	U	
2,6-DINITROTOLUENE	9	U		10	U		9	U		9	U	
2-CHLORONAPHTHALENE	9	U		10	U		9	U		9	U	
2-CHLOROPHENOL	9	U		10	U		9	U		9	U	
2-METHYLNAPHTHALENE	9	U		10	U		9	U		9	U	
2-METHYLPHENOL	9	U		10	U		9	U		9	U	
2-NITROANILINE	24	U		25	U		24	U		24	U	
2-NITROPHENOL	9	U		10	U		9	U		9	U	
3&4-METHYLPHENOL	9	U		10	U		9	U		9	U	
3,3'-DICHLOROBENZIDINE	9	UJ	C	10	UJ	C	9	UJ	C	9	UJ	C
3-NITROANILINE	24	UJ	C	25	UJ	C	24	UJ	C	24	UJ	C
4,6-DINITRO-2-METHYLPHENOL	24	U		25	U		24	U		24	U	
4-BROMOPHENYL PHENYL ETHER	9	U		10	U		9	U		9	U	
4-CHLORO-3-METHYLPHENOL	9	U		10	U		9	U		9	U	
4-CHLOROANILINE	9	U		10	U		9	U		9	U	
4-CHLOROPHENYL PHENYL ETHER	9	U		10	U		9	U		9	U	
4-NITROANILINE	24	UJ	C	25	UJ	C	24	UJ	C	24	UJ	C
4-NITROPHENOL	24	U		25	U		24	U		24	U	
ACENAPHTHENE	9	U		10	U		9	U		9	U	
ACENAPHTHYLENE	9	U		10	U		9	U		9	U	
ANTHRACENE	9	U		10	U		9	U		9	U	
BENZIDINE	47	UJ	C	50	UR	E	47	UJ	C	47	UJ	C

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW124B-1020			DA-MW124B-3545			DA-MW125B-2636			DA-MW125B-3646		
	LAB_ID	SB4236-1			SB4236-3			SB4214-1			SB4214-4		
	SAMP_DATE	8/1/2008			8/4/2008			7/31/2008			8/1/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,2-DIPHENYLHYDRAZINE		20	U		20	U		20	U		20	U	
1,3-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE		10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL		25	U		25	UR	R	25	U		25	U	
2,4,6-TRICHLOROPHENOL		10	U		10	UR	R	10	U		10	U	
2,4-DICHLOROPHENOL		10	U		10	UR	R	10	U		10	U	
2,4-DIMETHYLPHENOL		10	U		10	UR	R	10	U		10	U	
2,4-DINITROPHENOL		25	U		25	UR	R	25	U		25	U	
2,4-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL		10	U		10	UR	R	10	U		10	U	
2,6-DINITROTOLUENE		10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE		10	U		10	U		10	U		10	U	
2-CHLOROPHENOL		10	U		10	UR	R	10	U		10	U	
2-METHYLNAPHTHALENE		10	U		10	U		10	U		10	U	
2-METHYLPHENOL		10	U		10	UR	R	10	U		10	U	
2-NITROANILINE		25	U		25	U		25	U		25	U	
2-NITROPHENOL		10	U		10	UR	R	10	U		10	U	
3&4-METHYLPHENOL		10	U		10	UR	R	10	U		10	U	
3,3'-DICHLOROBENZIDINE		10	UJ	C	10	UR	D	10	UJ	C	10	UJ	C
3-NITROANILINE		25	UJ	C	25	UJ	CD	25	UJ	C	25	UJ	C
4,6-DINITRO-2-METHYLPHENOL		25	U		25	UR	R	25	U		25	U	
4-BROMOPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL		10	U		10	UR	R	10	U		10	U	
4-CHLOROANILINE		10	U		10	UR	D	10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER		10	U		10	U		10	U		10	U	
4-NITROANILINE		25	UJ	C	25	UJ	C	25	UJ	C	25	UJ	C
4-NITROPHENOL		25	U		25	UR	R	25	U		25	U	
ACENAPHTHENE		10	U		10	U		10	U		10	U	
ACENAPHTHYLENE		10	U		10	U		10	U		10	U	
ANTHRACENE		10	U		10	U		10	U		10	U	
BENZIDINE		50	UR	E	50	UR	D	50	UR	E	50	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MW126B-2227			DA-MW126B-4246			DA-MW126B-4246RE			DA-MW126B-5055		
SDG: CTO403-12	LAB_ID	SB4187-1			SB4187-2			SB4187-2RE			SB4187-3		
FRACTION: OS	SAMP_DATE	7/30/2008			7/30/2008			7/30/2008			7/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	10	U		10	U					10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U					10	U	
1,2-DICHLOROBENZENE	10	U		10	U					10	U	
1,2-DIPHENYLHYDRAZINE	20	U		20	U					20	U	
1,3-DICHLOROBENZENE	10	U		10	U					10	U	
1,4-DICHLOROBENZENE	10	U		10	U					10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U					10	U	
2,4,5-TRICHLOROPHENOL	25	U					24	UJ	H	25	U	
2,4,6-TRICHLOROPHENOL	10	U					9	UJ	H	10	U	
2,4-DICHLOROPHENOL	10	U					9	UJ	H	10	U	
2,4-DIMETHYLPHENOL	10	U					9	UJ	H	10	U	
2,4-DINITROPHENOL	25	U					24	UJ	EH	25	U	
2,4-DINITROTOLUENE	10	U		10	U					10	U	
2,6-DICHLOROPHENOL	10	U					9	UJ	H	10	U	
2,6-DINITROTOLUENE	10	U		10	U					10	U	
2-CHLORONAPHTHALENE	10	U		10	U					10	U	
2-CHLOROPHENOL	10	U					9	UJ	H	10	U	
2-METHYLNAPHTHALENE	10	U		10	U					10	U	
2-METHYLPHENOL	10	U					9	UJ	H	10	U	
2-NITROANILINE	25	U		25	U					25	U	
2-NITROPHENOL	10	U					9	UJ	H	10	U	
3&4-METHYLPHENOL	10	U					9	UJ	H	10	U	
3,3'-DICHLOROBENZIDINE	10	UJ	C	10	UJ	C				10	UJ	C
3-NITROANILINE	25	UJ	C	25	UJ	C				25	UJ	C
4,6-DINITRO-2-METHYLPHENOL	25	U					24	UJ	H	25	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U					10	U	
4-CHLORO-3-METHYLPHENOL	10	U					9	UJ	H	10	U	
4-CHLOROANILINE	10	U		10	U					10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U					10	U	
4-NITROANILINE	25	UJ	C	25	UJ	C				25	UJ	C
4-NITROPHENOL	25	U					24	UJ	CH	25	U	
ACENAPHTHENE	10	U		10	U					10	U	
ACENAPHTHYLENE	10	U		10	U					10	U	
ANTHRACENE	10	U		10	U					10	U	
BENZIDINE	50	UR	E	50	UR	E				50	UR	E

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-GW-DUP05RA			DA-GW-MW101B-073108			DA-GW-MW102B-080408RA			DA-GW-MW13S-080408RA		
	LAB_ID	SB4271-3RA			SB4214-2			SB4271-2RA			SB4271-1RA		
	SAMP_DATE	8/4/2008			7/31/2008			8/1/2008			8/4/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-GW-MW13S-080408											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		9	U		10	U		9	U		9	U	
BENZO(A)PYRENE		9	U		10	U		9	U		9	U	
BENZO(B)FLUORANTHENE		9	U		10	U		9	U		9	U	
BENZO(G,H,I)PERYLENE		9	U		10	U		9	U		9	U	
BENZO(K)FLUORANTHENE		9	U		10	U		9	U		9	U	
BENZOIC ACID		24	UR	E	25	UR	E	24	UR	E	24	UR	E
BENZYL ALCOHOL		19	U		20	U		19	U		19	U	
BIS(2-CHLOROETHOXY)METHANE		9	U		10	U		9	U		9	U	
BIS(2-CHLOROETHYL)ETHER		9	U		10	U		9	U		9	U	
BIS(2-ETHYLHEXYL)PHTHALATE		9	U		10	U		9	U		9	U	
BUTYL BENZYL PHTHALATE		9	U		10	U		9	U		9	U	
CARBAZOLE		9	U		10	UJ	C	9	U		9	U	
CHRYSENE		9	U		10	U		9	U		9	U	
DIBENZO(A,H)ANTHRACENE		9	U		10	U		9	U		9	U	
DIBENZOFURAN		9	U		10	U		9	U		9	U	
DIETHYL PHTHALATE		9	U		10	U		9	U		9	U	
DIMETHYL PHTHALATE		9	U		10	U		9	U		9	U	
DI-N-BUTYL PHTHALATE		9	U		10	U		9	U		9	U	
DI-N-OCTYL PHTHALATE		9	U		10	U		9	U		9	U	
FLUORANTHENE		9	U		10	U		9	U		9	U	
FLUORENE		9	U		10	U		9	U		9	U	
HEXACHLOROBENZENE		9	U		10	U		9	U		9	U	
HEXACHLOROBUTADIENE		9	U		10	U		9	U		9	U	
HEXACHLOROETHANE		9	U		10	U		9	U		9	U	
INDENO(1,2,3-CD)PYRENE		9	U		10	U		9	U		9	U	
ISOPHORONE		9	U		10	U		9	U		9	U	
NAPHTHALENE		9	U		10	U		9	U		9	U	
NITROBENZENE		9	U		10	U		9	U		9	U	
N-NITROSODIMETHYLAMINE		9	U		10	U		9	U		9	U	
N-NITROSO-DI-N-PROPYLAMINE		9	U		10	U		9	U		9	U	
N-NITROSODIPHENYLAMINE		9	U		10	U		9	U		9	U	
N-NITROSOPYRROLIDINE		9	U		10	U		9	U		9	U	
PENTACHLOROPHENOL		24	U		25	U		24	U		24	U	
PHENANTHRENE		9	U		10	U		9	U		9	U	
PHENOL		9	U		10	U		9	U		9	U	

PROJ_NO: 00933	NSAMPLE	DA-MW124B-1020			DA-MW124B-3545			DA-MW125B-2636			DA-MW125B-3646		
SDG: CTO403-12	LAB_ID	SB4236-1			SB4236-3			SB4214-1			SB4214-4		
FRACTION: OS	SAMP_DATE	8/1/2008			8/4/2008			7/31/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		4	J	P	10	U		10	U	
BENZOIC ACID	25	UR	E	25	UR	ER	25	UR	E	25	UR	E
BENZYL ALCOHOL	20	U		20	U		20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	10	U		10	U		10	U		10	U	
BUTYL BENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	UJ	C	10	U		10	UJ	C	10	UJ	C
CHRYSENE	10	U		10	U		10	U		10	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	3	J	P	5	J	P	10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	25	U		25	UR	R	25	U		25	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	UR	R	10	U		10	U	

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW126B-2227			DA-MW126B-4246			DA-MW126B-4246RE			DA-MW126B-5055		
	LAB_ID	SB4187-1			SB4187-2			SB4187-2RE			SB4187-3		
	SAMP_DATE	7/30/2008			7/30/2008			7/30/2008			7/30/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE		10	U		10	U					10	U	
BENZO(A)PYRENE		10	U		10	U					10	U	
BENZO(B)FLUORANTHENE		10	U		10	U					10	U	
BENZO(G,H,I)PERYLENE		10	U		10	U					10	U	
BENZO(K)FLUORANTHENE		10	U		10	U					10	U	
BENZOIC ACID		25	UR	E				24	UR	E	25	UR	E
BENZYL ALCOHOL		20	U		20	U					20	U	
BIS(2-CHLOROETHOXY)METHANE		10	U		10	U					10	U	
BIS(2-CHLOROETHYL)ETHER		10	U		10	U					10	U	
BIS(2-ETHYLHEXYL)PHTHALATE		10	U		10	U					10	U	
BUTYL BENZYL PHTHALATE		10	U		10	U					10	U	
CARBAZOLE		10	UJ	C	10	UJ	C				10	UJ	C
CHRYSENE		10	U		10	U					10	U	
DIBENZO(A,H)ANTHRACENE		10	U		10	U					10	U	
DIBENZOFURAN		10	U		10	U					10	U	
DIETHYL PHTHALATE		10	U		10	U					10	U	
DIMETHYL PHTHALATE		10	U		10	U					10	U	
DI-N-BUTYL PHTHALATE		10	U		10	U					10	U	
DI-N-OCTYL PHTHALATE		10	U		10	U					10	U	
FLUORANTHENE		10	U		10	U					10	U	
FLUORENE		10	U		10	U					10	U	
HEXACHLOROBENZENE		10	U		10	U					10	U	
HEXACHLOROBUTADIENE		10	U		10	U					10	U	
HEXACHLOROETHANE		10	U		10	U					10	U	
INDENO(1,2,3-CD)PYRENE		10	U		10	U					10	U	
ISOPHORONE		10	U		10	U					10	U	
NAPHTHALENE		10	U		10	U					10	U	
NITROBENZENE		10	U		10	U					10	U	
N-NITROSODIMETHYLAMINE		10	U		10	U					10	U	
N-NITROSO-DI-N-PROPYLAMINE		10	U		10	U					10	U	
N-NITROSODIPHENYLAMINE		10	U		10	U					10	U	
N-NITROSOPYRROLIDINE		10	U		10	U					10	U	
PENTACHLOROPHENOL		25	U					24	UJ	H	25	U	
PHENANTHRENE		10	U		10	U					10	U	
PHENOL		10	U					9	UJ	H	10	U	

PROJ_NO: 00933	NSAMPLE	DA-GW-DUP05RA			DA-GW-MW101B-073108			DA-GW-MW102B-080408RA			DA-GW-MW13S-080408RA		
SDG: CTO403-12	LAB_ID	SB4271-3RA			SB4214-2			SB4271-2RA			SB4271-1RA		
FRACTION: OS	SAMP_DATE	8/4/2008			7/31/2008			8/1/2008			8/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-GW-MW13S-080408											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		9	U		10	U		9	U		9	U	

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-MW124B-1020			DA-MW124B-3545			DA-MW125B-2636			DA-MW125B-3646		
	LAB_ID	SB4236-1			SB4236-3			SB4214-1			SB4214-4		
	SAMP_DATE	8/1/2008			8/4/2008			7/31/2008			8/1/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW126B-2227			DA-MW126B-4246			DA-MW126B-4246RE			DA-MW126B-5055		
SDG: CTO403-12	LAB_ID	SB4187-1			SB4187-2			SB4187-2RE			SB4187-3		
FRACTION: OS	SAMP_DATE	7/30/2008			7/30/2008			7/30/2008			7/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PYRENE		10	U		10	U					10	U	

PROJ_NO: 00933	NSAMPLE	DA-GW-DUP05			DA-GW-MW101B-073108			DA-GW-MW102B-080408			DA-GW-MW13S-080408		
SDG: CTO403-12	LAB_ID	SB4271-3			SB4214-2			SB4271-2			SB4271-1		
FRACTION: PEST/PCB	SAMP_DATE	8/4/2008			7/31/2008			8/1/2008			8/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-GW-MW13S-080408											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.1	U		0.1	UJ	C	0.1	U		0.1	U	
AROCLOR-1221		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1232		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1242		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1248		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1254		0.1	U		0.1	U		0.1	U		0.1	U	
AROCLOR-1260		0.1	U		0.1	UJ	C	0.1	U		0.1	U	
AROCLOR-1268		0.1	U		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW124B-1020			DA-MW124B-3545			DA-MW125B-2636			DA-MW125B-3646		
SDG: CTO403-12	LAB_ID	SB4236-1			SB4236-3			SB4214-1			SB4214-4		
FRACTION: PEST/PCB	SAMP_DATE	8/1/2008			8/4/2008			7/31/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.1	U		0.1	U		0.1	UJ	C	0.1	UJ	CR
AROCLOR-1221		0.1	U		0.1	U		0.1	U		0.1	UJ	R
AROCLOR-1232		0.1	U		0.1	U		0.1	U		0.1	UJ	R
AROCLOR-1242		0.1	U		0.1	U		0.1	U		0.1	UJ	R
AROCLOR-1248		0.1	U		0.1	U		0.1	U		0.1	UJ	R
AROCLOR-1254		0.1	U		0.1	U		0.1	U		0.1	UJ	R
AROCLOR-1260		0.1	U		0.1	U		0.1	UJ	C	0.1	UJ	CR
AROCLOR-1268		0.1	U		0.1	U		0.1	U		0.1	UJ	R

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-MW126B-2227			DA-MW126B-4246			DA-MW126B-5055		
	LAB_ID	SB4187-1			SB4187-2			SB4187-3		
	SAMP_DATE	7/30/2008			7/30/2008			7/30/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.1	U		0.1	U		0.1	UJ	C
AROCLOR-1221		0.1	U		0.1	U		0.1	U	
AROCLOR-1232		0.1	U		0.1	U		0.1	U	
AROCLOR-1242		0.1	U		0.1	U		0.1	U	
AROCLOR-1248		0.1	U		0.1	U		0.1	U	
AROCLOR-1254		0.1	U		0.1	U		0.1	U	
AROCLOR-1260		0.1	U		0.1	U		0.1	UJ	C
AROCLOR-1268		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00933	NSAMPLE	DA-GW-DUP05			DA-GW-MW101B-073108			DA-GW-MW102B-080408			DA-GW-MW13S-080408		
SDG: CTO403-12	LAB_ID	SB4271-3			SB4214-2			SB4271-2			SB4271-1		
FRACTION: PET	SAMP_DATE	8/4/2008			7/31/2008			8/1/2008			8/4/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	DA-GW-MW13S-080408											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		83			22			10	U	B
TPH (C09-C36)		58	J	P	75	U		75	U		75	U	

PROJ_NO: 00933 SDG: CTO403-12 FRACTION: PET MEDIA: WATER	NSAMPLE	DA-GW-TB42			DA-GW-TB43			DA-MW124B-1020			DA-MW124B-3545		
	LAB_ID	SB4236-2			SB4271-4			SB4236-1			SB4236-3		
	SAMP_DATE	8/1/2008			8/1/2008			8/1/2008			8/4/2008		
	QC_TYPE	TB			TB			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		9	J	P	25			61		
TPH (C09-C36)								1100	J	R	1300	J	R

PROJ_NO: 00933	NSAMPLE	DA-MW125B-2636			DA-MW125B-3646			DA-MW126B-2227			DA-MW126B-4246		
SDG: CTO403-12	LAB_ID	SB4214-1			SB4214-4			SB4187-1			SB4187-2		
FRACTION: PET	SAMP_DATE	7/31/2008			8/1/2008			7/30/2008			7/30/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		19			18			10	U	B	10	U	B
TPH (C09-C36)		270			220			360			270		

PROJ_NO: 00933	NSAMPLE	DA-MW126B-5055			DA-TB40			DA-TB41		
SDG: CTO403-12	LAB_ID	SB4187-3			SB4187-4			SB4214-3		
FRACTION: PET	SAMP_DATE	7/30/2008			7/30/2008			7/31/2008		
MEDIA: WATER	QC_TYPE	NM			TB			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U	B	10	U		10	U	
TPH (C09-C36)		180								

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-04-08-2693W

Date: April 14, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG SB0695
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

TAL Metals and Molybdenum:

1/Soil DA-SB-TP103-0506

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data for a soil sample collected at the Site 08-NUSC Disposal Area on February 7, 2008. The metals analyses were performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (arsenic and thallium). Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

	• Data Completeness
*	• Holding Times
*	• ICP-MS Tune
*	• Calibration Verification
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
NA	• Field Duplicate Precision
*	• ICP Serial Dilution Results
*	• Reporting Limits

* All quality control criteria were met for this parameter.
NA Not applicable for this SDG.

Data Completeness

The data package summary forms were missing the molybdenum results. On March 14, 2008 the laboratory resubmitted all summary forms to include the molybdenum results.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil sample:

Analyte	Maximum Conc.	Action Level	Affected Samples
Thallium	0.32 µg/L	0.8 mg/kg	DA-SB-TP103-0506
Sodium	25.13 mg/kg	251.3 mg/kg	

The positive results below the blank action levels for thallium and sodium in the affected sample were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination.

Although blank actions were applied due to thallium contamination found in the laboratory blank; the project sensitivity goals are not impacted since the project action limit was not exceeded by the sample specific elevated reporting limit. Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since there are no regulatory limits established for sodium. The non-detected results in the affected sample are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	J		High	DA-SB-TP103-0506
Molybdenum	J		Low	
Silver	J		Low	
Sodium	J		High	

The positive results for antimony and sodium in sample DA-SB-TP103-0506 are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive results for molybdenum and silver in sample DA-SB-TP103-0506 are qualified as estimated (J) due to negative ICP interference attributed to iron. These results may be biased low.

Although there were ICP interferences attributed to the high concentration of iron in sample DA-SB-TP103-0506, the project accuracy goal for sodium is not affected because there is no regulatory limit established for sodium. The project accuracy goals for antimony, molybdenum, and silver are only slightly impacted. The positive results for antimony and sodium in the affected samples are usable as estimated values which may be biased high. The positive results for molybdenum and silver in the affected samples are usable as estimated values which may be biased low.

Matrix Spike/Matrix Spike Duplicate

The results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SB-TP103-0506 were above the 125% recovery criterion for chromium, potassium, copper, and mercury. The positive chromium, potassium, copper, and mercury results are estimated (J) in the soil sample due to high MS and MSD recoveries.

The results in the MS and MSD analyses of sample DA-SB-TP103-0506 were below the 75% recovery criterion for antimony. The positive antimony result is estimated (J) in the soil sample due to low MS and MSD recoveries.

Although the percent recovery criteria were not met for antimony, chromium, copper, and mercury, the project accuracy goals may be only slightly impacted. Although the percent recovery criteria were not met for potassium, the project accuracy goals are not impacted since there are no regulatory limits established for potassium. The positive chromium, copper, postassium, and mercury results are usable as estimated values which may be biased high. The positive antimony result is usable as an estimated value which may be biased low.

The results for the matrix spike/matrix spike duplicate analyses of sample DA-SB-TP103-0506 were above the 35 percent relative percent difference (RPD) criterion for chromium, copper, lead, and zinc. The positive chromium, copper, lead, and zinc results are estimated (J) in the soil sample.

Although the RPD in the laboratory duplicate did not meet QC criteria for chromium, copper, lead, and zinc, the project precision goals may be only slightly impacted. The positive chromium, copper, lead, and zinc results are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The laboratory reported non-detected results down to the IDL. The laboratory reporting limits met the project quantitation limits and project action limits.

Reporting limits were raised for some metals due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals are not affected.

The positive results below than the laboratory's quantitation limit and above the instrument detection limit are estimated (J) due to uncertainty below the quantitation limit.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

The project goals with respect to accuracy were met for the TAL metals and molybdenum data set with the following exceptions. Antimony, molybdenum, silver, and sodium were qualified as estimated due to ICP interference due to high iron concentration. Chromium, potassium, copper, and mercury were qualified as estimated due to high matrix spike/matrix spike duplicate recoveries. Antimony was qualified as estimated due to low matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to precision were met for the TAL metals and molybdenum data set with the following exception. Chromium, copper, lead, and zinc were qualified as estimated due to matrix spike/matrix spike duplicate imprecision. Although a specific method criterion was not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the TAL metals and molybdenum data set. Data usability was not impacted with regards to sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SB-TP103-0506
SDG: SB0695	LAB_ID	SB0695-001
FRACTION: M	SAMP_DATE	2/7/2008
MEDIA: SOIL	QC_TYPE	NM
	UNITS	MG/KG
	PCT_SOLIDS	81.7
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ALUMINUM	13700		
ANTIMONY	0.69	J	DKP
ARSENIC	22.5		
BARIUM	90.6		
BERYLLIUM	0.42	J	P
CADMIUM	2.4		
CALCIUM	5680		
CHROMIUM	25.3	J	DF
COBALT	27.1		
COPPER	92.6	J	DF
IRON	29900		
LEAD	653	J	F
MAGNESIUM	3490		
MANGANESE	374		
MERCURY	0.09	J	D
MOLYBDENUM	1.3	J	KP
NICKEL	33.8		
POTASSIUM	764	J	D
SELENIUM	0.31	U	
SILVER	0.93	J	KP
SODIUM	119	UJ	AKP
THALLIUM	0.14	UJ	AP
VANADIUM	23.1		
ZINC	414	J	F

INTERNAL CORRESPONDENCE

C-NAVY-03-08-2674W

Date: March 31, 2008 c: File G00816-4.10

To: James Forrelli

From: Jennifer Cardinal (no copy)

Subject: Tier II Organic Data Validation, SDG SB0695
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:
1/Soil DA-SB-TP103-0506

VOC/GRO:
1/Trip blank DA-TB-01

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (TPH C_9-C_{36}) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on February 7, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analyses according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively. The GRO and extractable TPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Preservation and Technical Holding Times
  • GC/MS Instrument Performance Check (Tuning)
  • Initial and Continuing Calibrations
  • Blanks

	•	Surrogate Compounds
	•	Internal Standards
NA	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	•	Field Duplicates
	•	Analyte Identification
*	•	Percent Solids
	•	Reporting Limits

* All criteria were met for this parameter.
NA Not available for this SDG.

GC/MS Instrument Performance Check (Tuning)

The low concentration sample DA-SB-TP103-0506 was analyzed 44 minutes outside the 12-hour GC/MS tune. The second volatile sample vial was damaged; therefore the laboratory analyzed the sample at medium concentration. Since the medium concentration results for select compounds exceed the project action limits, professional judgment is used to report the qualified results of the low concentration analysis of sample DA-SB-TP103-0506. Furthermore, the laboratory also checked the tune using the continuing calibration standard. Sample DA-SB-TB103-0506 was analyzed within 12 hours of an acceptable tune.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Methylene Chloride	-30.40		UJ	DA-SB-TP103-0506, DA-TB-01

Although the %D method criterion was outside of the QC limits for methylene chloride, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
4-Nitrophenol	30.60		UJ	DA-SB-TP103-0506

Although the %RSD method criterion was outside of the QC limits for 4-nitrophenol, the project accuracy goals were not impacted since there are no regulatory limits established for 4-nitrophenol. The non-detected result in the affected sample is usable as an estimated quantitation limit.

The following table summarizes the semivolatile compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
2,4-Dinitrophenol	-26.60		UJ	DA-SB-TP103-0506

Although the %D method criterion was outside of the QC limits for 2,4-dinitrophenol, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this compound. The non-detected result in the affected sample is usable as an estimated quantitation limit.

PAH

The following table summarizes the PAH compound that failed to meet the initial calibration (IC) criterion of %RSD <30%:

Compound	%RSD	Action		Affected Samples
		(+)	NDs	
Benzo(b)fluoranthene	37.87		UJ	DA-SB-TP103-0506(DL)

Although the %RSD method criteria were outside of the QC limits for benzo(b)fluoranthene, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for this compound. The non-detected result in the affected sample is usable as an estimated quantitation limit.

Blanks

GRO

The following table summarizes the level of blank contamination detected in the laboratory blank associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
GRO	Method	1.8	9.0	DA-TB-01

Blank actions were applied to sample DA-TB-01 due to GRO method blank contamination. The 5x rule applies for this hydrocarbon range. The positive result for GRO (trace amount) in the affected sample was changed to non-detected values at the project quantitation limit.

Although GRO contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the corrected reporting limit for this trip blank is at the required quantitation limit for GRO. The result in the affected sample is usable with an elevated reporting limit.

Surrogate Compounds

PCBs

The following sample had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SB-TP103-0506	DCB, Column 1	0	31-128	J	UJ*

*Professional judgment is used to estimated the non-detected results rather than reject because the recovery on column 2 was within the QC limits.

The surrogate decachlorobiphenyl (DCB) was not recovered on column 1 for sample DA-SB-TP103-0506. The positive PCB results are estimated (J) and the non-detected results are estimated (UJ) in sample DA-SB-TP103-0506.

Although the surrogate recovery QC criteria were not met for DCB, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected sample are usable as estimated values and estimated quantitation limits which may be biased low.

Internal Standards

Volatiles

The following table summarizes the volatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
1,4-Dichlorobenzene-D4	93793	124970-499880	J	UJ	DA-SB-TP103-0506

The internal standard area of 1,4-dichlorobenzene-d4 failed to meet the acceptable range for sample DA-SB-TP103-0506. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. The positive results are estimated (J) and the non-detected results are estimated (UJ) for the corresponding target compounds in the affected sample.

Although the QC criteria were not met for the internal standard area of 1,4-dichlorobenzene-d4, the project accuracy goals are only slightly impacted. The positive and non-detected results in the affected sample are usable as estimated values and estimated quantitation limits which may be biased low.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The non-detected result for bromochloromethane in sample DA-SB-TP103-0506 is estimated (UJ) due to low laboratory control sample recovery.

Although the LCS recovery for bromochloromethane was below the QC limit, the project accuracy goals are not impacted since there is no regulatory limit established for this compound. The non-detected bromochloromethane result in the affected sample is usable as an estimated quantitation limit which may be biased low.

Semivolatiles

The laboratory control sample/laboratory control sample duplicate relative percent differences for 4-chloroaniline and 3,3'-dichlorobenzidine were above the QC limits. The non-detected results for 4-chloroaniline and 3,3'-dichlorobenzidine in sample DA-SB-TP103-0506 are estimated (UJ) due to high laboratory control sample relative percent differences.

Although the LCS/LCSD relative percent differences 4-chloroaniline and 3,3'-dichlorobenzidine were above the QC limit, the project precision goals are not impacted for 4-chloroaniline since there is no regulatory limit for this compound, and the project precision goals for 3,3'-dichlorobenzidine are only slightly impacted. The non-detected results for 4-chloroaniline and 3,3'-dichlorobenzidine in the affected sample are usable as estimated quantitation limits for which the bias is indeterminate.

Analyte Identification

PCBs

The %D between the results of columns 1 and 2 exceeded the 25% QC criterion for aroclor-1268 in sample DA-SB-TP103-0506. The positive result is estimated (J) due to column variability.

Although the analyte identification percent difference was not within QC limits, the project precision goals are only slightly impacted. The positive result in the affected samples is usable as an estimated value.

Reporting Limits

Volatiles

Although reporting limits for select volatile compounds did not meet project quantitation limits, all reporting limits met project action limits.

Semivolatiles

Although reporting limits for select semivolatile compounds did not meet project quantitation limits, all reporting limits met project action limits except for bis(2-ethylhexyl)phthalate and diethylphthalate. The

project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits, all reporting limits met project action limits except dieldrin, gamma-chlordane, and alpha-chlordane. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan.

PCBs

Although reporting limits for select PCB compounds did not meet project quantitation limits, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Select compounds were qualified as estimated due to instrument calibration variability, low internal standard areas, and poor laboratory control sample recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the volatiles data set. Data usability was not impacted with regards to precision and sensitivity.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exception. The compound 4-nitrophenol was qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, the affected non-detected result is usable as an estimated quantitation limit.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. Select compounds were qualified as estimated due to laboratory control sample/laboratory control sample duplicate imprecision. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. The project action for bis(2-ethylhexyl)phthalate and diethylphthalate were not achievable as noted in the approved work plan.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exception. Benzo(k)fluoranthene was qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, the non-detected benzo(k)fluoranthene result is usable as an estimated quantitation limit which may have a minor impact on data usability.

The project goals with respect to precision and sensitivity were met for the PAH data set. Data usability was not impacted with regards to precision and sensitivity.

Pesticides

The project goals with respect to accuracy and precision were met for the pesticides data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exceptions. The project action limits for dieldrin, gamma-chlordane, and alpha-chlordane were not achievable as noted in the approved work plan.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exception. PCB results were qualified as estimated due to poor surrogate recoveries. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCB data set with the following exception. Aroclor 1268 was qualified as estimated due to poor analyte identification. Although specific method criteria were not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PCBs data set. Data usability was not impacted with regards to sensitivity.

GRO and Extractable TPH (C_9-C_{36})

The project goals with respect to accuracy, precision, and sensitivity were met for the GRO and ExTPH (C_9-C_{36}) data sets. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-07-08-2795W

Date: July 1, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB2474
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/Pesticides/PCB/GRO/ExTPH:
1/Free Product/ DA-MW100B-PRODUCT

VOC:
1/Trip Blank/ DA-MW-TB02

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on May 13, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Instrument Performance Check: Pesticide Degradation
- Initial and Continuing Calibrations
- * Blanks

	•	Surrogate Compounds
*	•	Internal Standards
NA	•	Matrix Spike/Matrix Spike Duplicate
*	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	•	Field Duplicates
*	•	Analyte Identification/Quantitation
NA	•	Reporting Limits
NA	•	Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

Per the field sampler, samples were collected on May 13, 2008, not May 12, 2008 as listed on the chain-of-custody.

Initial and Continuing Calibrations

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration (IC) criterion of %RSD <30:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzidine	31.62		UJ	DA-MW100B-PRODUCT

Although the %RSD was outside of the QC limits for benzidine, the project accuracy goals are not impacted since there are no regulatory limits established for the free product sample. The non-detected benzidine result in the affected sample is usable as an estimated quantitation limit.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzoic acid	-61.85		UJ	DA-MW100B-PRODUCT
Benzidine	-46.36		UJ	
Bis(2-ethylhexyl)phthalate	-28.65		UJ	
Di-n-octylphthalate	-35.25		UJ	

Although the %D was outside of the QC limits for benzoic acid, benzidine, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for the free product sample. The non-detected results in the affected sample are usable as estimated quantitation limits.

PCBs

The following table summarizes the Aroclors that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	38.04	48.68		UJ	DA-MW100B-PRODUCT
Aroclor-1260	53.08	57.32		UJ	

Although the %D was outside of the QC limits for Aroclor-1016 and Aroclor-1260, the project accuracy goals are not impacted since there are no regulatory limits established for the free product sample. The non-detected results in the affected sample are usable as estimated quantitation limits.

Surrogate Compounds

GRO

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Rec.	QC Limits	Action	
				(+)	NDs
DA-MW100B-PRODUCT	4-Bromofluorobenzene	56	65-129	J	

The surrogate 4-bromofluorobenzene recovered below the QC limits in the sample DA-MW100B-PRODUCT. The positive GRO result is estimated (J) in the affected sample due to low surrogate recovery.

Although the surrogate recovery QC criteria were not met 4-bromofluorobenzene, the project accuracy goals are not impacted since there are no regulatory limits established for the free product sample. The positive GRO result in the affected sample is usable as an estimated value which may be biased high.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles/Pesticides/ExTPH

The project goals with respect to accuracy, precision, and sensitivity were met for the volatiles, pesticides, and ExTPH data sets. Data usability was not impacted with regards to accuracy, precision, and sensitivity for the free product sample.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set. Select compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, the affected non-detected results are usable as estimated quantitation limits which do not impact data usability.

The project goals with respect to precision and sensitivity were met for the semivolatiles data set. Data usability was not impacted with regards to precision and sensitivity.

PCBs

The project goals with respect to accuracy were met for the PCBs data set. Select compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, the affected non-detected results are usable as estimated quantitation limits which do not impact data usability.

The project goals with respect to precision and sensitivity were met for the PCBs data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy were met for the GRO data set. GRO in sample DA-MW100B-PRODUCT was qualified as estimated due to a low surrogate recovery. Although specific method criteria were not met in these instances, the affected non-detected results are usable as estimated quantitation limits which do not impact data usability.

The project goals with respect to precision and sensitivity were met for the GRO data set. Data usability was not impacted with regards to precision and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCTDLRA
SDG: SB2474	LAB_ID	SB2474-1DLRA
FRACTION: OV	SAMP_DATE	5/13/2008
MEDIA: NAPL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	250000	U	
1,1,1-TRICHLOROETHANE	250000	U	
1,1,2,2-TETRACHLOROETHANE	250000	U	
1,1,2-TRICHLOROETHANE	250000	U	
1,1-DICHLOROETHANE	250000	U	
1,1-DICHLOROETHENE	250000	U	
1,1-DICHLOROPROPENE	250000	U	
1,2,3-TRICHLOROBENZENE	250000	U	
1,2,3-TRICHLOROPROPANE	250000	U	
1,2,4-TRICHLOROBENZENE	250000	U	
1,2,4-TRIMETHYLBENZENE	4400000		
1,2-DIBROMO-3-CHLOROPROPANE	250000	U	
1,2-DIBROMOETHANE	250000	U	
1,2-DICHLOROBENZENE	250000	U	
1,2-DICHLOROETHANE	250000	U	
1,2-DICHLOROPROPANE	250000	U	
1,3,5-TRIMETHYLBENZENE	1700000		
1,3-DICHLOROBENZENE	250000	U	
1,3-DICHLOROPROPANE	250000	U	
1,4-DICHLOROBENZENE	250000	U	
2,2-DICHLOROPROPANE	250000	U	
2-BUTANONE	1200000	U	
2-CHLOROTOLUENE	250000	U	
2-HEXANONE	1200000	U	
4-CHLOROTOLUENE	250000	U	
4-ISOPROPYLTOLUENE	990000		
4-METHYL-2-PENTANONE	1200000	U	
ACETONE	1200000	U	
BENZENE	250000	U	
BROMOBENZENE	250000	U	
BROMOCHLOROMETHANE	250000	U	
BROMODICHLOROMETHANE	250000	U	
BROMOFORM	250000	U	
BROMOMETHANE	500000	U	
CARBON DISULFIDE	250000	U	

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCTDLRA
SDG: SB2474	LAB_ID	SB2474-1DLRA
FRACTION: OV	SAMP_DATE	5/13/2008
MEDIA: NAPL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	250000	U	
CHLOROBENZENE	250000	U	
CHLORODIBROMOMETHANE	250000	U	
CHLOROETHANE	500000	U	
CHLOROFORM	250000	U	
CHLOROMETHANE	500000	U	
CIS-1,2-DICHLOROETHENE	250000	U	
CIS-1,3-DICHLOROPROPENE	250000	U	
DIBROMOMETHANE	250000	U	
DICHLORODIFLUOROMETHANE	500000	U	
ETHYLBENZENE	80000	J	P
HEXACHLOROBUTADIENE	250000	U	
ISOPROPYLBENZENE	400000		
M+P-XYLENES	500000	U	
METHYL TERT-BUTYL ETHER	250000	U	
METHYLENE CHLORIDE	92000	J	P
N-BUTYLBENZENE	1200000		
N-PROPYLBENZENE	840000		
O-XYLENE	250000	U	
SEC-BUTYLBENZENE	710000		
STYRENE	250000	U	
TERT-BUTYLBENZENE	250000	U	
TETRACHLOROETHENE	250000	U	
TOLUENE	250000	U	
TRANS-1,2-DICHLOROETHENE	250000	U	
TRANS-1,3-DICHLOROPROPENE	250000	U	
TRICHLOROETHENE	250000	U	
TRICHLOROFLUOROMETHANE	500000	U	
VINYL CHLORIDE	500000	U	

PROJ_NO: 00933	NSAMPLE	DA-MW-TB02
SDG: SB2474	LAB_ID	SB2474-2
FRACTION: OV	SAMP_DATE	5/13/2008
MEDIA: WATER	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U	
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,1-DICHLOROPROPENE	1	U	
1,2,3-TRICHLOROBENZENE	1	U	
1,2,3-TRICHLOROPROPANE	1	U	
1,2,4-TRICHLOROBENZENE	1	U	
1,2,4-TRIMETHYLBENZENE	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,3-DICHLOROPROPANE	1	U	
1,4-DICHLOROBENZENE	1	U	
2,2-DICHLOROPROPANE	1	U	
2-BUTANONE	5	U	
2-CHLOROTOLUENE	1	U	
2-HEXANONE	5	U	
4-CHLOROTOLUENE	1	U	
4-ISOPROPYLTOLUENE	1	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	5	U	
BENZENE	1	U	
BROMOBENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON DISULFIDE	1	U	

PROJ_NO: 00933	NSAMPLE	DA-MW-TB02
SDG: SB2474	LAB_ID	SB2474-2
FRACTION: OV	SAMP_DATE	5/13/2008
MEDIA: WATER	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
DIBROMOMETHANE	1	U	
DICHLORODIFLUOROMETHANE	2	U	
ETHYLBENZENE	1	U	
HEXACHLOROBUTADIENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	5	U	
N-BUTYLBENZENE	1	U	
N-PROPYLBENZENE	1	U	
O-XYLENE	1	U	
SEC-BUTYLBENZENE	1	U	
STYRENE	1	U	
TERT-BUTYLBENZENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	2	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCT
SDG: SB2474	LAB_ID	SB2474-1
FRACTION: OS	SAMP_DATE	5/13/2008
MEDIA: NAPL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	990000	U	
1,2,4-TRICHLOROBENZENE	990000	U	
1,2-DICHLOROBENZENE	990000	U	
1,2-DIPHENYLHYDRAZINE	2000000	U	
1,3-DICHLOROBENZENE	990000	U	
1,4-DICHLOROBENZENE	990000	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	990000	U	
2,4,5-TRICHLOROPHENOL	2500000	U	
2,4,6-TRICHLOROPHENOL	990000	U	
2,4-DICHLOROPHENOL	990000	U	
2,4-DIMETHYLPHENOL	990000	U	
2,4-DINITROPHENOL	2500000	U	
2,4-DINITROTOLUENE	990000	U	
2,6-DICHLOROPHENOL	990000	U	
2,6-DINITROTOLUENE	990000	U	
2-CHLORONAPHTHALENE	990000	U	
2-CHLOROPHENOL	990000	U	
2-METHYLNAPHTHALENE	630000	J	P
2-METHYLPHENOL	990000	U	
2-NITROANILINE	2500000	U	
2-NITROPHENOL	990000	U	
3&4-METHYLPHENOL	990000	U	
3,3'-DICHLOROBENZIDINE	990000	U	
3-NITROANILINE	2500000	U	
4,6-DINITRO-2-METHYLPHENOL	2500000	U	
4-BROMOPHENYL PHENYL ETHER	990000	U	
4-CHLORO-3-METHYLPHENOL	990000	U	
4-CHLOROANILINE	990000	U	
4-CHLOROPHENYL PHENYL ETHER	990000	U	
4-NITROANILINE	2500000	U	
4-NITROPHENOL	2500000	U	
ACENAPHTHENE	990000	U	
ACENAPHTHYLENE	990000	U	
ANTHRACENE	990000	U	
BENZIDINE	4500000	UJ	C

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCT
SDG: SB2474	LAB_ID	SB2474-1
FRACTION: OS	SAMP_DATE	5/13/2008
MEDIA: NAPL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	990000	U	
BENZO(A)PYRENE	990000	U	
BENZO(B)FLUORANTHENE	990000	U	
BENZO(G,H,I)PERYLENE	990000	U	
BENZO(K)FLUORANTHENE	990000	U	
BENZOIC ACID	2500000	UJ	C
BENZYL ALCOHOL	2000000	U	
BIS(2-CHLOROETHOXY)METHANE	990000	U	
BIS(2-CHLOROETHYL)ETHER	990000	U	
BIS(2-ETHYLHEXYL)PHTHALATE	990000	UJ	C
BUTYL BENZYL PHTHALATE	990000	U	
CARBAZOLE	990000	U	
CHRYSENE	990000	U	
DIBENZO(A,H)ANTHRACENE	990000	U	
DIBENZOFURAN	990000	U	
DIETHYL PHTHALATE	990000	U	
DIMETHYL PHTHALATE	990000	U	
DI-N-BUTYL PHTHALATE	990000	U	
DI-N-OCTYL PHTHALATE	990000	UJ	C
FLUORANTHENE	990000	U	
FLUORENE	990000	U	
HEXACHLOROBENZENE	990000	U	
HEXACHLOROBUTADIENE	990000	U	
HEXACHLOROETHANE	990000	U	
INDENO(1,2,3-CD)PYRENE	990000	U	
ISOPHORONE	990000	U	
NAPHTHALENE	520000	J	P
NITROBENZENE	990000	U	
N-NITROSODIMETHYLAMINE	990000	U	
N-NITROSO-DI-N-PROPYLAMINE	990000	U	
N-NITROSODIPHENYLAMINE	990000	U	
N-NITROSOPYRROLIDINE	990000	U	
PENTACHLOROPHENOL	2500000	U	
PHENANTHRENE	990000	U	
PHENOL	990000	U	

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCT		
SDG: SB2474	LAB_ID	SB2474-1		
FRACTION: OS	SAMP_DATE	5/13/2008		
MEDIA: NAPL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PYRENE		990000	U	

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCT
SDG: SB2474	LAB_ID	SB2474-1
FRACTION: PEST/PCB	SAMP_DATE	5/13/2008
MEDIA: NAPL	QC_TYPE	NM
	UNITS	MG/KG
	PCT_SOLIDS	.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
4,4'-DDD	1	U	
4,4'-DDE	1	U	
4,4'-DDT	1	U	
ALDRIN	0.5	U	
ALPHA-BHC	0.5	U	
ALPHA-CHLORDANE	0.5	U	
AROCLOR-1016	5	UJ	C
AROCLOR-1221	5	U	
AROCLOR-1232	5	U	
AROCLOR-1242	5	U	
AROCLOR-1248	5	U	
AROCLOR-1254	5	U	
AROCLOR-1260	5	UJ	C
AROCLOR-1268	5	U	
BETA-BHC	0.5	U	
DELTA-BHC	0.5	U	
DIELDRIN	1	U	
ENDOSULFAN I	0.5	U	
ENDOSULFAN II	1	U	
ENDOSULFAN SULFATE	1	U	
ENDRIN	1	U	
ENDRIN ALDEHYDE	1	U	
ENDRIN KETONE	1	U	
GAMMA-BHC (LINDANE)	0.5	U	
GAMMA-CHLORDANE	0.5	U	
HEPTACHLOR	0.5	U	
HEPTACHLOR EPOXIDE	0.5	U	
METHOXYCHLOR	0.5	U	
TOXAPHENE	10	U	

PROJ_NO: 00933	NSAMPLE	DA-MW100B-PRODUCTDL		
SDG: SB2474	LAB_ID	SB2474-1DL		
FRACTION: PET	SAMP_DATE	5/13/2008		
MEDIA: NAPL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		260000	J	R
TPH (C09-C36)		530000		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-08-08-2864W

Date: August 25, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB3985
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/GRO/ExTPH:

6/Soils/	DA-SO-B126B-0608-072208	DA-SO-DUP05
	DA-SS-B124B-0103-072108	DA-SS-B125B-0103-072108
	DA-SS-B125B-0304-072108	DA-SS-B126B-0103-072208

(Field Duplicate Pair: DA-SS-B125B-0103-072108/DA-SO-DUP05)

VOC/GRO:

1/Trip Blank/	DA-SO-TB40

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile organic compounds (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the soil samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from July 21-22, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The GRO and ExTPH (C_9 – C_{36}) analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Preservation and Technical Holding Times
* • GC/MS Instrument Performance Check (Tuning)

- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- * Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- Reporting Limits
- * Tentatively Identified Compounds

* All criteria were met for this parameter.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acetone	-35.85		UJ	DA-SO-TB40
2-Butanone	-31.78		UJ	
2-Hexanone	-28.16		UJ	
Tetrachloroethene	-29.76		UJ	
1,2-Dibromo-3-chloropropane	-33.47		UJ	

Although the %D was outside of the QC limits for acetone, 2-butanone, 2-hexanone, tetrachloroethene, and 1,2-dibromo-3-chloropropane; the project accuracy goals are not impacted for the aqueous trip blank sample. The non-detected results in the affected aqueous trip blank sample are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25 or RRF >0.05:

Compound	RRF	%D	Action		Affected Samples
			(+)	NDs	
Benzoic acid	-	-37.88		UJ	DA-SS-B124B-0103-072108
2,4-Dinitrophenol	-	-30.10		UJ	
4-Nitroaniline	-	-25.01		UJ	
3,3'-Dichlorobenzidine	-	-43.65, -43.52, -53.69		UJ	All soil samples
Benzidine	0.038, 0.033, 0.0421	-81.39, -82.70, -80.35		UR	
Di-n-octylphthalate	-	44.15, 47.48		UJ	All soil samples, except DA-SS-B124B-0103-072108

-Criterion met

Although the %D was outside of the QC limits for benzoic acid and di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D was outside of the QC limits for 2,4-dinitrophenol, 4-nitroaniline, and 3,3'-dichlorobenzidine, the project accuracy goals are not impacted since the instrument calibration variability is within the allocated safety margin of greater than 100%. The non-detected results in the affected samples are usable as estimated quantitation limits.

There was insufficient instrument response (RRF <0.05) for benzidine; therefore, the project accuracy goals are impacted. The non-detected results in the affected samples are rejected. The affected results are not usable for project decisions and the data completeness goals may be impacted.

PAH

The following table summarizes the PAH compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Benzo(k)fluoranthene	-32.92	J	UJ	All samples
Dibenzo(a,h)anthracene	43.40	J	UJ	

Although the %D was outside of the QC limits for benzo(k)fluoranthene and dibenzo(a,h)anthracene, the project accuracy goals are not impacted since the instrument calibration variability is within the allocated safety margin of greater than 100%. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Blanks

GRO

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with these samples.

Compound	Type of Blank	Maximum Conc. (mg/kg)	Action Level (mg/kg)	Affected Samples
GRO	Method	0.88	4.4	All soil samples

Blank actions were applied to the affected samples due to GRO laboratory method blank contamination. The 5x rule applies for this hydrocarbon range. The positive results below the blank action level were changed to non-detected values. The positive results below the blank action level in the affected samples were changed to a non-detected value at the QL or at the reported sample result.

Although GRO contamination was found in the laboratory method blank, the project sensitivity goals are not impacted since there are no regulatory limits for this hydrocarbon range. The results in the affected samples are usable as non-detected values.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the statistically derived laboratory recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SS-B126B-0103-072208(RA)	Bromofluorobenzene	56	70-130	J	UJ

The surrogate bromofluorobenzene recovered below the QC limits in the sample DA-SS-B126B-0103-072208(RA). All positive and non-detected results are estimated (J, UJ) in the affected sample due to a low surrogate recovery.

The surrogate recovery QC criteria were not met for bromofluorobenzene; therefore, the project accuracy goals may be impacted. The positive and non-detected results in sample DA-SS-B126B-0103-072208(RA) are usable as estimated values and estimated quantitation limits which may be biased low.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike and/or matrix spike duplicate results for sample DA-SS-B124B-0103-072108 were below the statistically derived laboratory recovery criteria for the following compounds: trichloroethene, dibromomethane, cis-1,3-dichloropropene, toluene, 4-methyl-2-pentanone, trans-1,3-dichloropropene, 1,1,2-trichloroethane, dibromochloromethane, 1,3-dichloropropane, 1,2-dibromoethane, 2-hexanone, chlorobenzene, ethylbenzene, 1,1,1,2-tetrachloroethane, m+p-xylenes, o-xylene, styrene, bromoform, bromobenzene, n-propylbenzene, 4-chlorotoluene, 1,2,4-trimethylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, sec-butylbenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, hexachlorobutadiene, 1,2,4-trichlorobenzene, and 1,2,3-trichlorobenzene. All positive and non-detected results for the above compounds are estimated (J, UJ) in sample DA-SS-B124B-0103-072108 due to low matrix spike and/or matrix spike duplicate recoveries.

The above compounds did not meet the statistically derived laboratory QC criteria for the matrix spike and/or matrix spike duplicate; therefore, project accuracy goals may be impacted. The affected positive and non-detected results in sample DA-SS-B124B-0103-072108 are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SS-B124B-0103-072108 that were outside of the statistically derived laboratory QC limits:

Compound	MS/MSD % Rec.	%Rec. QC Limits	Action	
			(+)	NDs
Benzidine	0/0	10-150		UR

The MS/MSD recovery criteria were not met for benzidine; therefore, the project accuracy goals are impacted. The non-detected benzidine result in sample DA-SS-B124B-0103-072108 is rejected due to no matrix spike/matrix spike duplicate recoveries. The affected result is not usable for project decisions and the data completeness goals may be impacted.

PAH

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample DA-SS-B124B-0103-072108 that were outside of the statistically derived laboratory QC limits:

Compound	MS % Rec.	%Rec. QC Limits	Action	
			(+)	NDs
Phenanthrene	176	39-132	J	
Fluoranthene	221	32-154	J	
Pyrene	193	36-108	J	

Compound	MS % Rec.	%Rec. QC Limits	Action	
			(+)	NDs
Benzo(a)anthracene	154	37-153	J	
Chrysene	133	28-121	J	
Benzo(a)pyrene	116	47-109	J	

The MS recovery criteria were not met for phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, and benzo(a)pyrene; therefore, the project accuracy goals may be impacted. The positive results in sample DA-SS-B124B-0103-072108 are usable as estimated values which may be biased high.

ExTPH

The following table summarizes the results of the matrix spike/matrix spike duplicate (MS/MSD) analyses of sample DA-SS-B124B-0103-072108 that were outside of the statistically derived laboratory QC limits:

Compound	RPD	RPD QC Limits	Action	
			(+)	NDs
ExTPH	41	20	J	

Although the relative percent difference (RPD) QC criterion was not met for extractable TPH, the project precision goals are not impacted since there are no regulatory limits established for ExTPH. The positive result in sample DA-SS-B124B-0103-072108 is usable as an estimated value for which the bias is indeterminate.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that failed to meet the statistically derived laboratory control sample (LCS) QC recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Tetrachloroethene	65	71-137		UJ	DA-SO-TB40
4-Methyl-2-pentanone	76, 81	84-122		UJ	All soil samples
o-Xylene	89	90-119		UJ	DA-SS-B124B-0103-072108, DA-SS-B125B-0304-072108, DA-SO-DUP05
Dibromomethane	88	90-124		UJ	DA-SO-B126B-0608-072208(RA), DA-SS-B125B-0103-072108(RA), DA-SS-B126B-0103-072208(RA)

Although the LCS recovery for tetrachloroethene did not meet the QC limits, the project accuracy goals are not impacted for the aqueous trip blank sample. The non-detected result in the trip blank sample is usable as an estimated quantitation limit which may be biased low.

Although the LCS recoveries for 4-methyl-2-pentanone and dibromomethane did not meet the QC limits, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

The LCS recovery for o-xylene did not meet QC limits; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the statistically derived laboratory control sample/laboratory control sample duplicate (LCS/LCSD) QC recovery limits:

Compound	LCS/LCSD % Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Benzidine	0/0	10-94		UR	All soil samples

The LCS/LCSD recovery criterion was not met for benzidine; therefore, the project accuracy goals are impacted. The non-detected benzidine results in all soil samples are rejected due to the lack of LCS and LCSD recovery. The affected results are not usable for project decisions and the data completeness goals may be impacted.

Field Duplicates

Volatiles

The field duplicate pair DA-SS-B125B-0103-072108/DA-SO-DUP05 exceeded the field duplicate RPD QC criterion of 50% for the following compound:

Analyte	RPD	Action	
		(+)	NDs
Acetone	110	J	

The RPD for acetone exceeded the field duplicate QC criterion; therefore, the project precision goals may be slightly impacted. The positive acetone results in samples DA-SS-B125B-0103-072108 and DA-SO-DUP05 are usable as estimated values for which the bias is indeterminate.

Reporting Limits

Volatiles

The laboratory reporting limits (adjusted for sample specific preparation factors) met project action limits.

Semivolatiles

The laboratory reporting limits (adjusted for sample specific preparation factors) met project action limits with the following exceptions. Project action limits were not achievable for bis(2-ethylhexyl)phthalate and diethylphthalate as noted in the approved work plan. Data usability may be impacted.

PAH

The laboratory reporting limits (adjusted for sample specific preparation factors) met project action limits.

GRO

Blank actions were applied to select samples due to GRO blank contamination. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

Tentatively Identified Compounds

Semivolatiles

The laboratory searched specifically for propylene glycol dinitrate and also the laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Sample DA-SS-B126B-0103-072208(RA) was qualified as estimated due to a low surrogate recovery. The affected results in this sample may be biased low. Select compounds in sample DA-SS-B124B-0103-072108 were qualified as estimated due to low MS and/or MSD recoveries. The affected results may be biased low. o-Xylene was qualified as estimated in select samples due to the low LCS recovery. The affected results may be biased low. Although specific method criteria were not met in

these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, acetone, 2-butanone, 2-hexanone, tetrachloroethene, and 1,2-dibromo-3-chloropropane were qualified as estimated in one sample due to instrument calibration variability. Tetrachloroethene, 4-methyl-2-pentanone and dibromomethane were qualified as estimated in select samples due to low LCS recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set with the following exception. Acetone was qualified as estimated in samples DA-SS-B125B-0103-072108 and DA-SO-DUP05 due to field duplicate imprecision. Although specific method criteria were not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set. Data usability was not impacted with regards to sensitivity.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. Benzidine was rejected in all samples due to very low relative response factors in the instrument calibration and due to the lack of recovery in the LCS/LCSD analyses. These results are not usable for project decisions. Also, benzidine was rejected in sample DA-SS-B124B-0103-072108 due to the lack of recovery in the MS and MSD analyses. The affected benzidine results are not usable for project decisions. The project completeness goals may be affected due to rejected benzidine results. Additionally, benzoic acid, di-n-octylphthalate, 4-dinitrophenol, 4-nitroaniline, and 3,3'-dichlorobenzidine were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. Project action limits were not achievable for bis(2-ethylhexyl)phthalate and diethylphthalate. Data usability may be impacted.

PAH

The project goals with respect to accuracy were met for the PAH data set with the following exceptions. Select compounds in sample DA-SS-B124B-0103-072108 were qualified as estimated due to high MS/MSD recoveries. The affected results in this sample may be biased high. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability. Additionally, benzo(k)fluoranthene and dibenzo(a,h)anthracene were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision and sensitivity were met for the PAH data set. Data usability was not impacted with regards to precision and sensitivity.

GRO

The project goals with respect to accuracy and precision were met for the GRO data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity are not impacted for the GRO data set because no regulatory limits have been established for this analysis.

ExTPH

The project goals with respect to accuracy were met for the ExTPH data set. Data usability was not impacted with regards to accuracy.

The project goals with respect to precision were met for the ExTPH data set. ExTPH was qualified as estimated in sample DA-SS-B124B-0103-072108 due to MS/MSD imprecision. Although specific method criteria were not met in this instance, data usability is not impacted the affected positive result is usable as an estimated value.

The project goals with respect to sensitivity are not impacted for the ExTPH data set because no regulatory limits have been established for this analysis.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-SO-B126B-0608-072208RA			DA-SO-DUP05			DA-SS-B124B-0103-072108			DA-SS-B125B-0103-072108RA		
SDG: SB3985	LAB_ID	SB3985-6RA			SB3985-4			SB3985-1			SB3985-2RA		
FRACTION: OV	SAMP_DATE	7/22/2008			7/21/2008			7/21/2008			7/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			86.9			87.6			84.1		
	DUP_OF				DA-SS-B125B-0103-072108								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	5	U		5	U		5	UJ	D	5	U	
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE	5	U		5	U		5	UJ	D	5	U	
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	U	
1,1-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
1,2,3-TRICHLOROBENZENE	5	U		5	U		5	UJ	D	5	U	
1,2,3-TRICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	UJ	D	5	U	
1,2,4-TRIMETHYLBENZENE	5	U		5	U		5	UJ	D	5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	U		5	U		5	UJ	D	5	U	
1,2-DIBROMOETHANE	5	U		5	U		5	UJ	D	5	U	
1,2-DICHLOROBENZENE	5	U		5	U		5	UJ	D	5	U	
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,3,5-TRIMETHYLBENZENE	5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE	5	U		5	U		5	UJ	D	5	U	
1,3-DICHLOROPROPANE	5	U		5	U		5	UJ	D	5	U	
1,4-DICHLOROBENZENE	5	U		5	U		5	UJ	D	5	U	
2,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
2-BUTANONE	25	U		25	U		25	U		16	J	P
2-CHLOROTOLUENE	5	U		5	U		5	U		5	U	
2-HEXANONE	25	U		25	U		25	UJ	D	25	U	
4-CHLOROTOLUENE	5	U		5	U		5	UJ	D	5	U	
4-ISOPROPYLTOLUENE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	25	UJ	E	25	UJ	E	25	UJ	DE	25	UJ	E
ACETONE	25	U		26	J	G	27			76	J	G
BENZENE	5	U		5	U		5	U		5	U	
BROMOBENZENE	5	U		5	U		5	UJ	D	5	U	
BROMOCHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMOFORM	5	U		5	U		5	UJ	D	5	U	
BROMOMETHANE	10	U		10	U		10	U		10	U	
CARBON DISULFIDE	5	U		5	U		5	U		5	U	

PROJ_NO: 00933	NSAMPLE	DA-SS-B125B-0304-072108			DA-SS-B126B-0103-072208RA		
SDG: SB3985	LAB_ID	SB3985-3			SB3985-5RA		
FRACTION: OV	SAMP_DATE	7/21/2008			7/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.4			87.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		5	U		5	UJ	R
1,1,1-TRICHLOROETHANE		5	U		5	UJ	R
1,1,2,2-TETRACHLOROETHANE		5	U		5	UJ	R
1,1,2-TRICHLOROETHANE		5	U		5	UJ	R
1,1-DICHLOROETHANE		5	U		5	UJ	R
1,1-DICHLOROETHENE		5	U		5	UJ	R
1,1-DICHLOROPROPENE		5	U		5	UJ	R
1,2,3-TRICHLOROBENZENE		5	U		5	UJ	R
1,2,3-TRICHLOROPROPANE		5	U		5	UJ	R
1,2,4-TRICHLOROBENZENE		5	U		5	UJ	R
1,2,4-TRIMETHYLBENZENE		5	U		5	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE		5	U		5	UJ	R
1,2-DIBROMOETHANE		5	U		5	UJ	R
1,2-DICHLOROBENZENE		5	U		5	UJ	R
1,2-DICHLOROETHANE		5	U		5	UJ	R
1,2-DICHLOROPROPANE		5	U		5	UJ	R
1,3,5-TRIMETHYLBENZENE		5	U		5	UJ	R
1,3-DICHLOROBENZENE		5	U		5	UJ	R
1,3-DICHLOROPROPANE		5	U		5	UJ	R
1,4-DICHLOROBENZENE		5	U		5	UJ	R
2,2-DICHLOROPROPANE		5	U		5	UJ	R
2-BUTANONE		25	U		31	J	R
2-CHLOROTOLUENE		5	U		5	UJ	R
2-HEXANONE		25	U		25	UJ	R
4-CHLOROTOLUENE		5	U		5	UJ	R
4-ISOPROPYLTOLUENE		5	U		5	UJ	R
4-METHYL-2-PENTANONE		25	UJ	E	25	UJ	ER
ACETONE		31			160	J	R
BENZENE		5	U		5	UJ	R
BROMOBENZENE		5	U		5	UJ	R
BROMOCHLOROMETHANE		5	U		5	UJ	R
BROMODICHLOROMETHANE		5	U		5	UJ	R
BROMOFORM		5	U		5	UJ	R
BROMOMETHANE		10	U		10	UJ	R
CARBON DISULFIDE		5	U		2	J	PR

PROJ_NO: 00933	NSAMPLE	DA-SO-B126B-0608-072208RA			DA-SO-DUP05			DA-SS-B124B-0103-072108			DA-SS-B125B-0103-072108RA		
SDG: SB3985	LAB_ID	SB3985-6RA			SB3985-4			SB3985-1			SB3985-2RA		
FRACTION: OV	SAMP_DATE	7/22/2008			7/21/2008			7/21/2008			7/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			86.9			87.6			84.1		
	DUP_OF				DA-SS-B125B-0103-072108								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	5	U		5	U		5	U		5	U	
CHLOROBENZENE	5	U		5	U		5	UJ	D	5	U	
CHLORODIBROMOMETHANE	5	U		5	U		5	UJ	D	5	U	
CHLOROETHANE	10	U		10	U		10	U		10	U	
CHLOROFORM	5	U		5	U		5	U		5	U	
CHLOROMETHANE	10	U		10	U		10	U		10	U	
CIS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
CIS-1,3-DICHLOROPROPENE	5	U		5	U		5	UJ	D	5	U	
DIBROMOMETHANE	5	UJ	E	5	U		5	UJ	D	5	UJ	E
DICHLORODIFLUOROMETHANE	10	U		10	U		10	U		10	U	
ETHYLBENZENE	5	U		5	U		5	UJ	D	5	U	
HEXACHLOROBUTADIENE	5	U		5	U		5	UJ	D	5	U	
ISOPROPYLBENZENE	5	U		5	U		5	U		5	U	
M+P-XYLENES	10	U		10	U		10	UJ	D	10	U	
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE	25	U		25	U		25	U		25	U	
N-BUTYLBENZENE	5	U		5	U		5	U		5	U	
N-PROPYLBENZENE	5	U		5	U		2	J	DP	5	U	
O-XYLENE	5	U		5	UJ	E	5	UJ	DE	5	U	
SEC-BUTYLBENZENE	5	U		5	U		6	J	D	1	J	P
STYRENE	5	U		5	U		5	UJ	D	5	U	
TERT-BUTYLBENZENE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	5	U		5	U		5	U		5	U	
TOLUENE	5	U		5	U		5	UJ	D	5	U	
TRANS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		5	UJ	D	5	U	
TRICHLOROETHENE	5	U		5	U		5	UJ	D	5	U	
TRICHLOROFLUOROMETHANE	10	U		10	U		10	U		10	U	
VINYL CHLORIDE	10	U		10	U		10	U		10	U	

PROJ_NO: 00933	NSAMPLE	DA-SS-B125B-0304-072108			DA-SS-B126B-0103-072208RA		
SDG: SB3985	LAB_ID	SB3985-3			SB3985-5RA		
FRACTION: OV	SAMP_DATE	7/21/2008			7/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.4			87.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		5	U		5	UJ	R
CHLOROBENZENE		5	U		5	UJ	R
CHLORODIBROMOMETHANE		5	U		5	UJ	R
CHLOROETHANE		10	U		10	UJ	R
CHLOROFORM		5	U		5	UJ	R
CHLOROMETHANE		10	U		10	UJ	R
CIS-1,2-DICHLOROETHENE		5	U		5	UJ	R
CIS-1,3-DICHLOROPROPENE		5	U		5	UJ	R
DIBROMOMETHANE		5	U		5	UJ	ER
DICHLORODIFLUOROMETHANE		10	U		10	UJ	R
ETHYLBENZENE		5	U		5	UJ	R
HEXACHLOROBUTADIENE		5	U		5	UJ	R
ISOPROPYLBENZENE		5	U		5	UJ	R
M+P-XYLENES		10	U		10	UJ	R
METHYL TERT-BUTYL ETHER		5	U		5	UJ	R
METHYLENE CHLORIDE		25	U		25	UJ	R
N-BUTYLBENZENE		5	U		5	UJ	R
N-PROPYLBENZENE		5	U		5	UJ	R
O-XYLENE		5	UJ	E	5	UJ	R
SEC-BUTYLBENZENE		5	U		5	UJ	R
STYRENE		5	U		5	UJ	R
TERT-BUTYLBENZENE		5	U		5	UJ	R
TETRACHLOROETHENE		5	U		5	UJ	R
TOLUENE		5	U		5	UJ	R
TRANS-1,2-DICHLOROETHENE		5	U		5	UJ	R
TRANS-1,3-DICHLOROPROPENE		5	U		5	UJ	R
TRICHLOROETHENE		5	U		5	UJ	R
TRICHLOROFLUOROMETHANE		10	U		10	UJ	R
VINYL CHLORIDE		10	U		10	UJ	R

PROJ_NO: 00933 SDG: SB3985 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-SO-TB40
	LAB_ID	SB3985-7
	SAMP_DATE	7/21/2008
	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U	
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,1-DICHLOROPROPENE	1	U	
1,2,3-TRICHLOROBENZENE	1	U	
1,2,3-TRICHLOROPROPANE	1	U	
1,2,4-TRICHLOROBENZENE	1	U	
1,2,4-TRIMETHYLBENZENE	1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,3-DICHLOROPROPANE	1	U	
1,4-DICHLOROBENZENE	1	U	
2,2-DICHLOROPROPANE	1	U	
2-BUTANONE	5	UJ	C
2-CHLOROTOLUENE	1	U	
2-HEXANONE	5	UJ	C
4-CHLOROTOLUENE	1	U	
4-ISOPROPYLTOLUENE	1	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	5	UJ	C
BENZENE	1	U	
BROMOBENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON DISULFIDE	1	U	

PROJ_NO: 00933	NSAMPLE	DA-SO-TB40
SDG: SB3985	LAB_ID	SB3985-7
FRACTION: OV	SAMP_DATE	7/21/2008
MEDIA: WATER	QC_TYPE	TB
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
DIBROMOMETHANE	1	U	
DICHLORODIFLUOROMETHANE	2	U	
ETHYLBENZENE	1	U	
HEXACHLOROBUTADIENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	0.5	J	P
N-BUTYLBENZENE	1	U	
N-PROPYLBENZENE	1	U	
O-XYLENE	1	U	
SEC-BUTYLBENZENE	1	U	
STYRENE	1	U	
TERT-BUTYLBENZENE	1	U	
TETRACHLOROETHENE	1	UJ	CE
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	2	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 00933 SDG: SB3985 FRACTION: OS MEDIA: SOIL	NSAMPLE	DA-SO-B126B-0608-072208			DA-SO-DUP05			DA-SS-B124B-0103-072108			DA-SS-B125B-0103-072108		
	LAB_ID	SB3985-6			SB3985-4			SB3985-1			SB3985-2		
	SAMP_DATE	7/22/2008			7/21/2008			7/21/2008			7/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			86.9			87.6			84.1		
	DUP_OF				DA-SS-B125B-0103-072108								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		370	U		380	U		380	U		390	U	
1,2,4-TRICHLOROBENZENE		370	U		380	U		380	U		390	U	
1,2-DICHLOROBENZENE		370	U		380	U		380	U		390	U	
1,2-DIPHENYLHYDRAZINE		740	U		760	U		750	U		780	U	
1,3-DICHLOROBENZENE		370	U		380	U		380	U		390	U	
1,4-DICHLOROBENZENE		370	U		380	U		380	U		390	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		370	U		380	U		380	U		390	U	
2,4,5-TRICHLOROPHENOL		920	U		940	U		940	U		980	U	
2,4,6-TRICHLOROPHENOL		370	U		380	U		380	U		390	U	
2,4-DICHLOROPHENOL		370	U		380	U		380	U		390	U	
2,4-DIMETHYLPHENOL		370	U		380	U		380	U		390	U	
2,4-DINITROPHENOL		920	U		940	U		940	UJ	C	980	U	
2,4-DINITROTOLUENE		370	U		380	U		380	U		390	U	
2,6-DICHLOROPHENOL		370	U		380	U		380	U		390	U	
2,6-DINITROTOLUENE		920	U		940	U		940	U		980	U	
2-CHLORONAPHTHALENE		370	U		380	U		380	U		390	U	
2-CHLOROPHENOL		370	U		380	U		380	U		390	U	
2-METHYLPHENOL		370	U		380	U		380	U		390	U	
2-NITROANILINE		920	U		940	U		940	U		980	U	
2-NITROPHENOL		370	U		380	U		380	U		390	U	
3&4-METHYLPHENOL		370	U		380	U		380	U		390	U	
3,3'-DICHLOROBENZIDINE		370	UJ	C	380	UJ	C	380	UJ	C	390	UJ	C
3-NITROANILINE		920	U		940	U		940	U		980	U	
4,6-DINITRO-2-METHYLPHENOL		920	U		940	U		940	U		980	U	
4-BROMOPHENYL PHENYL ETHER		370	U		380	U		380	U		390	U	
4-CHLORO-3-METHYLPHENOL		370	U		380	U		380	U		390	U	
4-CHLOROANILINE		370	U		380	U		380	U		390	U	
4-CHLOROPHENYL PHENYL ETHER		370	U		380	U		380	U		390	U	
4-NITROANILINE		920	U		940	U		940	UJ	C	980	U	
4-NITROPHENOL		920	U		940	U		940	U		980	U	
BENZIDINE		1700	UR	CE	1700	UR	CE	1700	UR	CDE	1800	UR	CE
BENZOIC ACID		920	U		940	U		940	UJ	C	980	U	
BENZYL ALCOHOL		740	U		760	U		750	U		780	U	
BIS(2-CHLOROETHOXY)METHANE		370	U		380	U		380	U		390	U	
BIS(2-CHLOROETHYL)ETHER		370	U		380	U		380	U		390	U	

PROJ_NO: 00933	NSAMPLE	DA-SS-B125B-0304-072108			DA-SS-B126B-0103-072208		
SDG: SB3985	LAB_ID	SB3985-3			SB3985-5		
FRACTION: OS	SAMP_DATE	7/21/2008			7/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.4			87.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		370	U		380	U	
1,2,4-TRICHLOROBENZENE		370	U		380	U	
1,2-DICHLOROBENZENE		370	U		380	U	
1,2-DIPHENYLHYDRAZINE		750	U		750	U	
1,3-DICHLOROBENZENE		370	U		380	U	
1,4-DICHLOROBENZENE		370	U		380	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		370	U		380	U	
2,4,5-TRICHLOROPHENOL		930	U		940	U	
2,4,6-TRICHLOROPHENOL		370	U		380	U	
2,4-DICHLOROPHENOL		370	U		380	U	
2,4-DIMETHYLPHENOL		370	U		380	U	
2,4-DINITROPHENOL		930	U		940	U	
2,4-DINITROTOLUENE		370	U		380	U	
2,6-DICHLOROPHENOL		370	U		380	U	
2,6-DINITROTOLUENE		930	U		940	U	
2-CHLORONAPHTHALENE		370	U		380	U	
2-CHLOROPHENOL		370	U		380	U	
2-METHYLPHENOL		370	U		380	U	
2-NITROANILINE		930	U		940	U	
2-NITROPHENOL		370	U		380	U	
3&4-METHYLPHENOL		370	U		380	U	
3,3'-DICHLOROBENZIDINE		370	UJ	C	380	UJ	C
3-NITROANILINE		930	U		940	U	
4,6-DINITRO-2-METHYLPHENOL		930	U		940	U	
4-BROMOPHENYL PHENYL ETHER		370	U		380	U	
4-CHLORO-3-METHYLPHENOL		370	U		380	U	
4-CHLOROANILINE		370	U		380	U	
4-CHLOROPHENYL PHENYL ETHER		370	U		380	U	
4-NITROANILINE		930	U		940	U	
4-NITROPHENOL		930	U		940	U	
BENZIDINE		1700	UR	CE	1700	UR	CE
BENZOIC ACID		930	U		940	U	
BENZYL ALCOHOL		750	U		750	U	
BIS(2-CHLOROETHOXY)METHANE		370	U		380	U	
BIS(2-CHLOROETHYL)ETHER		370	U		380	U	

PROJ_NO: 00933	NSAMPLE	DA-SO-B126B-0608-072208			DA-SO-DUP05			DA-SS-B124B-0103-072108			DA-SS-B125B-0103-072108		
SDG: SB3985	LAB_ID	SB3985-6			SB3985-4			SB3985-1			SB3985-2		
FRACTION: OS	SAMP_DATE	7/22/2008			7/21/2008			7/21/2008			7/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			86.9			87.6			84.1		
	DUP_OF				DA-SS-B125B-0103-072108								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		370	U		380	U		380	U		390	U	
BUTYL BENZYL PHTHALATE		370	U		380	U		380	U		390	U	
CARBAZOLE		370	U		380	U		380	U		390	U	
DIBENZOFURAN		370	U		380	U		380	U		390	U	
DIETHYL PHTHALATE		370	U		380	U		380	U		390	U	
DIMETHYL PHTHALATE		370	U		380	U		380	U		390	U	
DI-N-BUTYL PHTHALATE		370	U		380	U		380	U		390	U	
DI-N-OCTYL PHTHALATE		370	UJ	C	380	UJ	C	380	U		390	UJ	C
HEXACHLOROBENZENE		370	U		380	U		380	U		390	U	
HEXACHLOROBUTADIENE		370	U		380	U		380	U		390	U	
HEXACHLOROETHANE		370	U		380	U		380	U		390	U	
ISOPHORONE		370	U		380	U		380	U		390	U	
NITROBENZENE		370	U		380	U		380	U		390	U	
N-NITROSODIMETHYLAMINE		370	U		380	U		380	U		390	U	
N-NITROSO-DI-N-PROPYLAMINE		370	U		380	U		380	U		390	U	
N-NITROSODIPHENYLAMINE		370	U		380	U		380	U		390	U	
N-NITROSOPYRROLIDINE		370	U		380	U		380	U		390	U	
PENTACHLOROPHENOL		920	U		940	U		940	U		980	U	
PHENOL		370	U		380	U		380	U		390	U	

PROJ_NO: 00933	NSAMPLE	DA-SS-B125B-0304-072108			DA-SS-B126B-0103-072208		
SDG: SB3985	LAB_ID	SB3985-3			SB3985-5		
FRACTION: OS	SAMP_DATE	7/21/2008			7/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.4			87.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		370	U		380	U	
BUTYL BENZYL PHTHALATE		370	U		380	U	
CARBAZOLE		370	U		380	U	
DIBENZOFURAN		370	U		380	U	
DIETHYL PHTHALATE		370	U		380	U	
DIMETHYL PHTHALATE		370	U		380	U	
DI-N-BUTYL PHTHALATE		370	U		380	U	
DI-N-OCTYL PHTHALATE		370	UJ	C	380	UJ	C
HEXACHLOROBENZENE		370	U		380	U	
HEXACHLOROBUTADIENE		370	U		380	U	
HEXACHLOROETHANE		370	U		380	U	
ISOPHORONE		370	U		380	U	
NITROBENZENE		370	U		380	U	
N-NITROSODIMETHYLAMINE		370	U		380	U	
N-NITROSO-DI-N-PROPYLAMINE		370	U		380	U	
N-NITROSODIPHENYLAMINE		370	U		380	U	
N-NITROSOPYRROLIDINE		370	U		380	U	
PENTACHLOROPHENOL		930	U		940	U	
PHENOL		370	U		380	U	

PROJ_NO: 00933 SDG: SB3985 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DA-SO-B126B-0608-072208			DA-SO-DUP05			DA-SS-B124B-0103-072108			DA-SS-B125B-0103-072108		
	LAB_ID	SB3985-13			SB3985-11			SB3985-8			SB3985-9		
	SAMP_DATE	7/22/2008			7/21/2008			7/21/2008			7/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.8			86.9			87.6			84.1		
	DUP_OF				DA-SS-B125B-0103-072108								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		22	U		23	U		3.9	J	P	24	U	
ACENAPHTHENE		22	U		23	U		4.7	J	P	24	U	
ACENAPHTHYLENE		22	U		23	U		23	U		24	U	
ANTHRACENE		22	U		23	U		7.2	J	P	1.8	J	P
BENZO(A)ANTHRACENE		22	U		23	U		52	J	D	8.4	J	P
BENZO(A)PYRENE		5.6	J	P	6.7	J	P	53	J	D	12	J	P
BENZO(B)FLUORANTHENE		22	U		23	U		65			24	U	
BENZO(G,H,I)PERYLENE		3.4	J	P	23	U		38			4	J	P
BENZO(K)FLUORANTHENE		22	UJ	C	23	UJ	C	40	J	C	24	UJ	C
CHRYSENE		22	U		3.3	J	P	63	J	D	8.8	J	P
DIBENZO(A,H)ANTHRACENE		22	UJ	C	23	UJ	C	16	J	CP	24	UJ	C
FLUORANTHENE		22	U		4.9	J	P	120	J	D	12	J	P
FLUORENE		22	U		23	U		23	U		24	U	
INDENO(1,2,3-CD)PYRENE		22	U		23	U		48			5	J	P
NAPHTHALENE		22	U		23	U		4.5	J	P	24	U	
PHENANTHRENE		22	U		3	J	P	62	J	D	6.2	J	P
PYRENE		22	U		2.8	J	P	100	J	D	10	J	P

PROJ_NO: 00933	NSAMPLE	DA-SS-B125B-0304-072108			DA-SS-B126B-0103-072208		
SDG: SB3985	LAB_ID	SB3985-10			SB3985-12		
FRACTION: PAH	SAMP_DATE	7/21/2008			7/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.4			87.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		3.5	J	P	23	U	
ACENAPHTHENE		5	J	P	23	U	
ACENAPHTHYLENE		23	U		23	U	
ANTHRACENE		7.8	J	P	23	U	
BENZO(A)ANTHRACENE		70			2.6	J	P
BENZO(A)PYRENE		84			7.3	J	P
BENZO(B)FLUORANTHENE		110			23	U	
BENZO(G,H,I)PERYLENE		48			3	J	P
BENZO(K)FLUORANTHENE		67	J	C	23	UJ	C
CHRYSENE		84			2.8	J	P
DIBENZO(A,H)ANTHRACENE		23	UJ	C	23	UJ	C
FLUORANTHENE		140			4.4	J	P
FLUORENE		23	U		23	U	
INDENO(1,2,3-CD)PYRENE		63			23	U	
NAPHTHALENE		23	U		23	U	
PHENANTHRENE		57			23	U	
PYRENE		120			3.3	J	P

PROJ_NO: 00933	NSAMPLE	DA-SO-B126B-0608-072208			DA-SO-DUP05			DA-SS-B124B-0103-072108			DA-SS-B125B-0103-072108		
SDG: SB3985	LAB_ID	SB3985-6			SB3985-4			SB3985-1			SB3985-2		
FRACTION: PET	SAMP_DATE	7/22/2008			7/21/2008			7/21/2008			7/21/2008		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.8			86.9			87.6			84.1		
	DUP_OF				DA-SS-B125B-0103-072108								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.5	U	A	2.7	U	A	3.5	U	A	2.8	U	A
TPH (C09-C36)		2.7	J	P	93			130	J	D	130		

PROJ_NO: 00933	NSAMPLE	DA-SS-B125B-0304-072108			DA-SS-B126B-0103-072208		
SDG: SB3985	LAB_ID	SB3985-3			SB3985-5		
FRACTION: PET	SAMP_DATE	7/21/2008			7/22/2008		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	88.4			87.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		2.5	U	A	2.6	U	A
TPH (C09-C36)		210			30		

PROJ_NO: 00933	NSAMPLE	DA-SO-TB40		
SDG: SB3985	LAB_ID	SB3985-7		
FRACTION: PET	SAMP_DATE	7/21/2008		
MEDIA: WATER	QC_TYPE	TB		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-09-08-2883W

Date: September 8, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB4237
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC:

7/Groundwaters/	DA-DW-01-080108	DA-DW-02-080108
	DA-DW-11-080108	DA-DW-12-080108
	DA-DW-13-080108	DA-DW-14-080108
	DA-DW-DUP02	
	(Field Duplicate Pair: DA-DW-14-080108/ DA-DW-DUP02)	
1/Rinsate Blank/	DA-RB-BB02	

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC) analytical data for the groundwater samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on August 1, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC analysis was performed according to USEPA SW-846 Method 8260B. The VOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Preservation and Technical Holding Times
* • GC/MS Instrument Performance Check (Tuning)
• Initial and Continuing Calibrations
* • Blanks
* • Surrogate Compounds
* • Internal Standards
• Matrix Spike/Matrix Spike Duplicate
* • Laboratory Control Sample/Laboratory Control Sample Duplicate

- Field Duplicates
- Reporting Limits

NA • Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Initial and Continuing Calibrations

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Sample
		(+)	NDs	
Tetrachloroethene	-26.74		UJ	DA-DW-14-080108
1,1,2,2-Tetrachloroethane	30.75		UJ	

The %D was outside of the QC limits for tetrachloroethene; therefore, the project accuracy goals may be impacted. The non-detected result in the affected sample is usable as an estimated quantitation limit.

Although the %D was outside of the QC limits for 1,1,2,2-tetrachlrooethane; the project accuracy goals are not impacted since there are no regulatory limits established for this compound for the groundwater samples. The non-detected result in the affected sample is usable as an estimated quantitation limit.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the results of the matrix spike and matrix spike duplicate (MS/MSD) analysis of sample DA-DW-13-080108 that were outside of the QC limits:

Analyte	RPD	RPD QC Limits	Action	
			(+)	NDs
Bromomethane	30	20		UJ
Carbon disulfide	30	20		UJ
Methyl tert-butyl ether	43	20		UJ
Tetrachloroethene	37	20		UJ

The relative percent difference criterion was not met for carbon disulfide and tetrachloroethene; therefore, the project precision goals may be impacted. The non-detected results in sample DA-DW-13-080108 are usable as estimated quantitation limits for which the bias is indeterminate.

Although the relative percent difference criterion was not met for bromomethane and methyl tert-butyl ether, the project precision goals are not impacted since there are no regulatory limits established for these compounds for the groundwater samples. The non-detected results in sample DA-DW-13-080108 are usable as estimated quantitation limits for which the bias is indeterminate.

Field Duplicates

The field duplicate pair DA-DW-14-080108/DA-DW-DUP02 exceeded the relative percent difference QC criterion of 30% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
Chloromethane	57	J	
cis-1,2-Dichloroethene	73	J	
2-Butanone	33	J	
Trichloroethene	69	J	

The field duplicate relative percent difference for cis-1,2-dichloroethene, 2-butanone, and trichloroethene exceeded the QC criterion; therefore, the project precision goals may be impacted. The positive results in samples DA-DW-14-080108 and DA-DW-DUP02 are usable as estimated values for which the bias is indeterminate.

Although the field duplicate relative percent difference for chloromethane exceeded the QC criterion, the project precision goals are not impacted since there are no regulatory limits established for this compound for the groundwater samples. The positive results in samples DA-DW-14-080108 and DA-DW-DUP02 are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, carbon disulfide, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Tetrachloroethene was qualified as estimated in sample DA-DW-14-080108 due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected non-detected result is usable as an estimated quantitation limit which may have a minor impact on data usability. Additionally, 1,1,2,2-tetrachlrooethane was qualified as estimated in sample DA-DW-14-080108 due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected non-detected result is usable as an estimated quantitation limit.

The project goals with respect to precision were met for the volatiles data set with the following exceptions. Carbon disulfide and tetrachloroethene were qualified as estimated in sample DA-DW-13-

080108 due to MS/MSD imprecision. Cis-1,2-dichloroethene, 2-butanone, and trichloroethene were qualified as estimated in samples DA-DW-14-080108 and DA-DW-DUP02 due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, bromomethane and methyl tert-butyl ether were qualified as estimated in sample DA-DW-13-080108 due to MS/MSD imprecision. Chloromethane was qualified as estimated in samples DA-DW-14-080108 and DA-DW-DUP02 due to field duplicate imprecision. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. Project action limits were not achievable for 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, carbon disulfide, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-DW-01-080108			DA-DW-01-080108DL			DA-DW-02-080108			DA-DW-02-080108DL		
SDG: SB4237	LAB_ID	SB4237-1			SB4237-1DL			SB4237-2			SB4237-2DL		
FRACTION: OV	SAMP_DATE	8/1/2008			8/1/2008			8/1/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U					1	U				
1,1,1-TRICHLOROETHANE		2						1	J				
1,1,2,2-TETRACHLOROETHANE		1	U					1	U				
1,1,2-TRICHLOROETHANE		1	U					1	U				
1,1-DICHLOROETHANE		3						2					
1,1-DICHLOROETHENE		0.7	J	P				0.5	J	P			
1,1-DICHLOROPROPENE		1	U					1	U				
1,2,3-TRICHLOROBENZENE		1	U					1	U				
1,2,3-TRICHLOROPROPANE		1	U					1	U				
1,2,4-TRICHLOROBENZENE		1	U					1	U				
1,2,4-TRIMETHYLBENZENE		1	U					1	U				
1,2-DIBROMO-3-CHLOROPROPANE		1	U					1	U				
1,2-DIBROMOETHANE		1	U					1	U				
1,2-DICHLOROBENZENE		1	U					1	U				
1,2-DICHLOROETHANE		1	U					1	U				
1,2-DICHLOROPROPANE		1	U					1	U				
1,3,5-TRIMETHYLBENZENE		1	U					1	U				
1,3-DICHLOROBENZENE		1	U					1	U				
1,3-DICHLOROPROPANE		1	U					1	U				
1,4-DICHLOROBENZENE		1	U					1	U				
2,2-DICHLOROPROPANE		1	U					1	U				
2-BUTANONE		6						6					
2-CHLOROTOLUENE		1	U					1	U				
2-HEXANONE		5	U					5	U				
4-CHLOROTOLUENE		1	U					1	U				
4-ISOPROPYLTOLUENE		1	U					1	U				
4-METHYL-2-PENTANONE		5	U					5	U				
ACETONE		440						420					
BENZENE		1	U					1	U				
BROMOBENZENE		1	U					1	U				
BROMOCHLOROMETHANE		1	U					1	U				
BROMODICHLOROMETHANE		1	U					1	U				
BROMOFORM		1	U					1	U				
BROMOMETHANE		2	U					2	U				
CARBON DISULFIDE		1	U					1	U				

PROJ_NO: 00816	NSAMPLE	DA-DW-11-080108			DA-DW-12-080108			DA-DW-13-080108			DA-DW-14-080108RA		
SDG: SB4237	LAB_ID	SB4237-6			SB4237-5			SB4237-4			SB4237-3RA		
FRACTION: OV	SAMP_DATE	8/1/2008			8/1/2008			8/1/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	0.7	J	P	0.8	J	P	0.6	J	P	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	UJ	C
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1			2			1			0.6	J	P
1,1-DICHLOROETHENE	0.5	J	P	0.5	J	P	1	U		1	U	
1,1-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2,4-TRICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2,4-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3,5-TRIMETHYLBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
2,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	7			7			7			5	J	G
2-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-CHLOROTOLUENE	1	U		1	U		1	U		1	U	
4-ISOPROPYLTOLUENE	1	U		1	U		1	U		1	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	500			490			480			440		
BENZENE	1	U		1	U		1	U		1	U	
BROMOBENZENE	1	U		1	U		1	U		1	U	
BROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	UJ	D	2	U	
CARBON DISULFIDE	1	U		1	U		1	UJ	D	1	U	

PROJ_NO: 00816 SDG: SB4237 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-DW-DUP02			DA-RB-BB02		
	LAB_ID	SB4237-7			SB4237-8		
	SAMP_DATE	8/1/2008			8/1/2008		
	QC_TYPE	NM			RB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF	DA-DW-14-080108					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U	
1,1-DICHLOROETHANE		1	J	P	1	U	
1,1-DICHLOROETHENE		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U	
2-BUTANONE		7	J	G	7		
2-CHLOROTOLUENE		1	U		1	U	
2-HEXANONE		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U	
ACETONE		510			460		
BENZENE		1	U		1	U	
BROMOBENZENE		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U	
BROMOFORM		1	U		1	U	
BROMOMETHANE		2	U		2	U	
CARBON DISULFIDE		1	U		1	U	

PROJ_NO: 00816	NSAMPLE	DA-DW-01-080108			DA-DW-01-080108DL			DA-DW-02-080108			DA-DW-02-080108DL		
SDG: SB4237	LAB_ID	SB4237-1			SB4237-1DL			SB4237-2			SB4237-2DL		
FRACTION: OV	SAMP_DATE	8/1/2008			8/1/2008			8/1/2008			8/1/2008		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		0.8	J	P				0.4	J	P			
CHLOROBENZENE		1	U					1	U				
CHLORODIBROMOMETHANE		1	U					1	U				
CHLOROETHANE		2	U					2	U				
CHLOROFORM		0.3	J	P				0.4	J	P			
CHLOROMETHANE		3						4					
CIS-1,2-DICHLOROETHENE		7						37					
CIS-1,3-DICHLOROPROPENE		1	U					1	U				
DIBROMOMETHANE		1	U					1	U				
DICHLORODIFLUOROMETHANE		2	U					2	U				
ETHYLBENZENE		1	U					1	U				
HEXACHLOROBUTADIENE		1	U					1	U				
ISOPROPYLBENZENE		1	U					1	U				
M+P-XYLENES		2	U					2	U				
METHYL TERT-BUTYL ETHER		1	U					1	U				
METHYLENE CHLORIDE		5	U					5	U				
N-BUTYLBENZENE		1	U					1	U				
N-PROPYLBENZENE		1	U					1	U				
O-XYLENE		1	U					1	U				
SEC-BUTYLBENZENE		1	U					1	U				
STYRENE		1	U					1	U				
TERT-BUTYLBENZENE		1	U					1	U				
TETRACHLOROETHENE		0.6	J	P				1	U				
TOLUENE		1	U					1	U				
TRANS-1,2-DICHLOROETHENE		1	U					0.4	J	P			
TRANS-1,3-DICHLOROPROPENE		1	U					1	U				
TRICHLOROETHENE					350						220		
TRICHLOROFLUOROMETHANE		2	U					2	U				
VINYL CHLORIDE		2	U					2	U				

PROJ_NO: 00816 SDG: SB4237 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-DW-11-080108			DA-DW-12-080108			DA-DW-13-080108			DA-DW-14-080108RA		
	LAB_ID	SB4237-6			SB4237-5			SB4237-4			SB4237-3RA		
	SAMP_DATE	8/1/2008			8/1/2008			8/1/2008			8/1/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U		1	U		1	U	
CHLOROETHANE		2	U		2	U		2	U		2	U	
CHLOROFORM		0.3	J	P	1	U		0.3	J	P	1	U	
CHLOROMETHANE		0.4	J	P	2	U		2	U		5	J	G
CIS-1,2-DICHLOROETHENE		43			26			27			43	J	G
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DIBROMOMETHANE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U		2	U		2	U	
ETHYLBENZENE		1	U		1	U		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U		1	UJ	D	1	U	
METHYLENE CHLORIDE		5	U		5	U		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U		1	U		0.4	J	P
O-XYLENE		1	U		1	U		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U		1	U		1	U	
STYRENE		1	U		1	U		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	UJ	D	1	UJ	C
TOLUENE		1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		0.4	J	P
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		140			190			140			17	J	G
TRICHLOROFLUOROMETHANE		2	U		2	U		2	U		2	U	
VINYL CHLORIDE		2	U		2	U		2	U		2	U	

PROJ_NO: 00816 SDG: SB4237 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-DW-DUP02			DA-RB-BB02		
	LAB_ID	SB4237-7			SB4237-8		
	SAMP_DATE	8/1/2008			8/1/2008		
	QC_TYPE	NM			RB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF	DA-DW-14-080108					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U	
CHLOROBENZENE		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U	
CHLOROETHANE		2	U		2	U	
CHLOROFORM		1	U		1	U	
CHLOROMETHANE		9	J	G	2	U	
CIS-1,2-DICHLOROETHENE		93	J	G	1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U	
DIBROMOMETHANE		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U	
ETHYLBENZENE		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U	
M+P-XYLENES		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U	
O-XYLENE		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U	
STYRENE		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U	
TOLUENE		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		0.8	J	P	1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U	
TRICHLOROETHENE		35	J	G	1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U	
VINYL CHLORIDE		2	U		2	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2937W

Date: October 30, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG SB4590
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum/Percent Lipids:
11/Fish Tissue/

DA-FT-DUP01-081208	DA-FT-ET01-BGF-081208
DA-FT-ET01-BGW-081208	DA-FT-ET01-BHF-081208
DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208
DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208
DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
DA-FT-RP01-BHF-081308	

(Field Duplicate Pair: DA-FT-ET03-BHF-081208/
DA-FT-DUP01-081208)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data and a Tier I data validation on the percent lipids analytical data from fish tissue samples collected at the Site 08-NUSC Disposal Area from August 12-13, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6020A/7474. Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. The percent lipids analysis was performed according to USEPA SW-846 Method 8290. The Tier I data validation includes evaluation for completeness only.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Results are reported on a wet weight basis.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • ICP-MS Tuning
* • ICP-MS Internal Standard Performance
* • Calibration Verification
• Laboratory Blank Analyses

* • ICP Interference Check Sample Results

* • Matrix Spike Results
* • Laboratory Duplicate Results
  • Laboratory Control Sample Results
  • Field Duplicate Precision
* • ICP Serial Dilution Results
  • Reporting Limits
NA • Sample Quantitation

* All quality control criteria were met for this parameter.
NA Not applicable for this SDG or for a Tier II data validation.

Data Completeness

The percent lipids data are complete.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the fish tissue samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Calcium	-177 µg/L	177 mg/kg	DA-FT-DUP01-081208, DA-FT-ET01-BHF-081208, DA-FT-ET02-BHF-081208, DA-FT-ET03-BHF-081208, DA-FT-RP01-BHF-081308
Vanadium	-0.81 µg/L	0.81 mg/kg	All samples

The positive results below the blank action levels for calcium and vanadium were estimated (J) and the non-detected vanadium results were estimated (UJ) due to negative instrument drift.

The action levels in the table above are based on an assumption of 1 g of sample analyzed and a dilution factor of 2. The action level for each sample varies based on the actual amount of sample analyzed.

Although negative calcium contamination was found in the laboratory blanks, the project accuracy goals are not affected since there are no regulatory limits established for calcium for the fish tissue samples. The results in the affected samples are usable as estimated values which may be biased low.

Negative vanadium contamination was found in the laboratory blanks; therefore, the project accuracy goals may be impacted. The results in the affected samples are usable as estimated values which may be biased low.

Laboratory Control Sample Results

The following table summarizes the metal in the laboratory control sample (LCS) analysis which were below the percent recovery criterion of 80%:

Compound	%Recovery	Action	
		(+)	NDs
Silver	73		UJ

The non-detected silver results are estimated (UJ) in all fish tissue samples.

The LCS recovery for silver did not meet the QC criterion; therefore, the project accuracy goals may be impacted. The non-detected silver results in the fish tissue samples are usable as estimated quantitation limits which may be biased low.

Field Duplicate Precision

The following table summarizes the analyte that recovered outside of the 50% relative percent difference (RPD) QC limit in the analysis of the field duplicate pair DA-FT-ET03-BHF-081208/DA-FT-DUP01-081208:

Analyte	RPD	Action	
		(+)	NDs
Chromium	100	J	
Nickel	109	J	

The positive chromium and nickel results are estimated (J) in all samples due to field duplicate imprecision.

The results of the field duplicate analysis exceeded the QC limits for chromium and nickel; therefore, the project precision goals may be impacted. The positive chromium and nickel results in the fish tissue samples are usable as estimated values for which the bias is indeterminate.

Reporting Limits

The laboratory reported non-detected results down to the method detection limit (MDL). The positive results above the MDL and below the laboratory's reporting limit are estimated (J) due to uncertainty below the reporting limit.

The laboratory reporting limits met the project required quantitation limits. The project action limits were not achievable for arsenic and thallium. Data usability may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the metals data set with the following exceptions. Vanadium was qualified as estimated in select samples due to negative instrument drift. The affected results may be biased low. Silver was qualified as estimated in all samples due to a low LCS recovery. The affected results may be biased low. Although specific QC criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits.

Data usability may be impacted. Additionally, calcium qualified as estimated in select samples due to negative instrument drift. Although specific QC criteria were not met in this instance, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to precision were met for the metals data set with the following exception. Chromium and nickel were qualified as estimated due to field duplicate imprecision. Although specific QC criteria were not met in this instance, the affected positive results are usable as estimated values. Data usability may be impacted.

The project goals with respect to sensitivity were met for the metals data set with the following exceptions. Project action limits were not achievable for arsenic and thallium. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816 SDG: SB4590 FRACTION: M MEDIA: TISSUE	NSAMPLE	DA-FT-DUP01-081208			DA-FT-ET01-BGF-081208			DA-FT-ET01-BGW-081208			DA-FT-ET01-BHF-081208		
	LAB_ID	0808076-11			0808076-10			0808076-09			0808076-04		
	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-FT-ET03-BHF-081208											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		1.26	J	P	1.49	J	P	106			0.887	J	P
ANTIMONY		0.00505	U		0.00515	U		0.00486	U		0.00515	U	
ARSENIC		0.0373	J	P	0.124			0.377			0.0286	J	P
BARIUM		0.0216	J	P	0.246			3.64			0.0434	J	P
BERYLLIUM		0.0152	U		0.0155	U		0.0147	U		0.0155	U	
CADMIUM		0.00638	U		0.00651	U		0.0862			0.00651	U	
CALCIUM		109	J	O	3120			19000			123	J	O
CHROMIUM		1.57	J	G	4.19	J	G	2.98	J	G	0.529	J	G
COBALT		0.0303	J	P	0.0845			0.596			0.0232	J	P
COPPER		0.355			0.345			0.892			0.295		
IRON		11.2			38			357			6.8	J	P
LEAD		0.00655	J	P	0.0354			1.32			0.00795	J	P
MAGNESIUM		270			295			586			292		
MANGANESE		0.409			5.03			173			0.428		
MERCURY		0.0208			0.112			0.0313			0.0156		
MOLYBDENUM		0.102			0.324			0.428			0.0295	J	P
NICKEL		0.79	J	G	2.36	J	G	2.3	J	G	0.168	J	GP
POTASSIUM		4510			3660			2600			4530		
SELENIUM		0.247			0.426			0.617			0.213		
SILVER		0.0114	UJ	E	0.0116	UJ	E	0.011	UJ	E	0.0116	UJ	E
SODIUM		377			544			1240			368		
THALLIUM		0.0059	U		0.00602	U		0.00569	U		0.00602	U	
VANADIUM		0.0133	UJ	O	0.0136	UJ	O	0.252	J	OP	0.0136	UJ	O
ZINC		4.91			16.8			33.7			5.23		

PROJ_NO: 00816	NSAMPLE	DA-FT-ET02-BGW-081208			DA-FT-ET02-BHF-081208			DA-FT-ET02-WPF-081208			DA-FT-ET03-BHF-081208		
SDG: SB4590	LAB_ID	0808076-08			0808076-06			0808076-07			0808076-05		
FRACTION: M	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		98.5			0.822	J	P	0.91	J	P	1.32	J	P
ANTIMONY		0.005	U		0.00482	U		0.0051	U		0.00491	U	
ARSENIC		0.251			0.0503	J	P	0.14			0.0638	J	P
BARIUM		3.09			0.022	J	P	0.0465	J	P	0.0293	J	P
BERYLLIUM		0.0151	U		0.0145	U		0.0154	U		0.0148	U	
CADMIUM		0.0824			0.00609	U		0.00644	U		0.0062	U	
CALCIUM		19300			96.8	J	O	252			95.4	J	O
CHROMIUM		3.04	J	G	1.81	J	G	2.1	J	G	0.523	J	G
COBALT		0.382			0.0338	J	P	0.022	J	P	0.0256	J	P
COPPER		0.869			0.373			0.392			0.296		
IRON		304			13.1			12.1			9.12	J	P
LEAD		1.08			0.00514	J	P	0.00504	J	P	0.0067	J	P
MAGNESIUM		591			265			250			266		
MANGANESE		96.1			0.368			0.473			0.338		
MERCURY		0.0362			0.0254			0.101			0.0262		
MOLYBDENUM		0.508			0.066			0.115			0.0425	J	P
NICKEL		2.28	J	G	0.853	J	G	1.09	J	G	0.234	J	G
POTASSIUM		2680			4470			4240			4370		
SELENIUM		0.591			0.239			0.612			0.33		
SILVER		0.0113	UJ	E	0.0109	UJ	E	0.0115	UJ	E	0.0111	UJ	E
SODIUM		1230			391			382			399		
THALLIUM		0.00585	U		0.00564	U		0.00596	U		0.00574	U	
VANADIUM		0.222	J	OP	0.0127	UJ	O	0.0135	UJ	O	0.0222	J	OP
ZINC		37.1			6.17			9.29			4.84		

PROJ_NO: 00816 SDG: SB4590 FRACTION: M MEDIA: TISSUE	NSAMPLE	DA-FT-RP01-BGF-081308			DA-FT-RP01-BGW-081308			DA-FT-RP01-BHF-081308		
	LAB_ID	0808076-03			0808076-02			0808076-01		
	SAMP_DATE	8/13/2008			8/13/2008			8/13/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		2.09	J	P	16.5			1.56	J	P
ANTIMONY		0.00495	U		0.00525	U		0.00486	U	
ARSENIC		0.0575	J	P	0.156			0.0229	U	
BARIUM		0.073			2.42			0.0271	J	P
BERYLLIUM		0.015	U		0.0158	U		0.0147	U	
CADMIUM		0.00626	U		0.0128	J	P	0.00615	U	
CALCIUM		546			14900			84.4	J	O
CHROMIUM		2.11	J	G	1.16	J	G	1.59	J	G
COBALT		0.0147	J	P	0.1			0.0128	U	
COPPER		0.262			1.33			0.347		
IRON		14.8			188			19.1		
LEAD		0.00911	J	P	0.12			0.0076	J	P
MAGNESIUM		278			508			272		
MANGANESE		0.522			15.8			0.261		
MERCURY		0.0479			0.0394			0.0328		
MOLYBDENUM		0.0742			0.113			0.0624		
NICKEL		0.921	J	G	0.948	J	G	0.715	J	G
POTASSIUM		3880			2750			4350		
SELENIUM		0.48			0.537			0.243		
SILVER		0.0112	UJ	E	0.0119	UJ	E	0.011	UJ	E
SODIUM		497			1110			410		
THALLIUM		0.00579	U		0.00614	U		0.00569	U	
VANADIUM		0.0324	J	OP	0.0729	J	OP	0.0142	J	OP
ZINC		11			27.8			5.56		

PROJ_NO: 00816	NSAMPLE	DA-FT-DUP01-081208			DA-FT-ET01-BGF-081208			DA-FT-ET01-BGW-081208			DA-FT-ET01-BHF-081208		
SDG: SB4590	LAB_ID	0808076-11			0808076-10			0808076-09			0808076-04		
FRACTION: MISC	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF	DA-FT-ET03-BHF-081208											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LIPIDS		0.746			0.715			1.86			0.88		

PROJ_NO: 00816	NSAMPLE	DA-FT-ET02-BGW-081208			DA-FT-ET02-BHF-081208			DA-FT-ET02-WPF-081208			DA-FT-ET03-BHF-081208		
SDG: SB4590	LAB_ID	0808076-08			0808076-06			0808076-07			0808076-05		
FRACTION: MISC	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LIPIDS		1.94			0.814			1.73			0.673		

PROJ_NO: 00816	NSAMPLE	DA-FT-RP01-BGF-081308			DA-FT-RP01-BGW-081308			DA-FT-RP01-BHF-081308		
SDG: SB4590	LAB_ID	0808076-03			0808076-02			0808076-01		
FRACTION: MISC	SAMP_DATE	8/13/2008			8/13/2008			8/13/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM		
	UNITS	%			%			%		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LIPIDS		0.975			1.85			0.507		

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2938W

Date: October 30, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB4590
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

SVOC/PAH/Pesticides/PCB:
11/Fish Tissue/

DA-FT-DUP01-081208	DA-FT-ET01-BGF-081208
DA-FT-ET01-BGW-081208	DA-FT-ET01-BHF-081208
DA-FT-ET02-BGW-081208	DA-FT-ET02-BHF-081208
DA-FT-ET02-WPF-081208	DA-FT-ET03-BHF-081208
DA-FT-RP01-BGF-081308	DA-FT-RP01-BGW-081308
DA-FT-RP01-BHF-081308	

(Field Duplicate Pair: DA-FT-ET03-BHF-081208/ DA-FT-DUP01-081208)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the semivolatile organic compounds (SVOC), polynuclear aromatic hydrocarbons (PAH), pesticides, and polychlorinated biphenyls (PCB) analytical data for the fish tissue samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from August 12-13, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The SVOC analysis was performed according to USEPA SW-846 Method 8270C, and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively.

The SVOC and PAH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Results are reported on a wet weight basis.

The data were evaluated based on the following parameters:

- Data Completeness

	•	Preservation and Technical Holding Times
*	•	GC/MS Instrument Performance Check (Tuning)
*	•	Instrument Performance Check: Pesticide Degradation
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Surrogate Compounds
*	•	Internal Standards
	•	Matrix Spike/Matrix Spike Duplicate
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
*	•	Field Duplicates
	•	Analyte Identification/Quantitation
NA	•	Percent Solids
	•	Reporting Limits

* All criteria were met for this parameter.
NA Not available for this SDG or not applicable for Tier II data validation.

Data Completeness

On October 21, 2008, the laboratory submitted the PCB quantitation report for sample DA-FT-ET01-BHF-081208 since it was missing from the original data package.

On October 30, 2008, the laboratory submitted the SVOC re-analysis results for samples DA-FT-RP01-BGW-081308, DA-FT-ET02-BHF-081208, and DA-FT-ET01-BGF-081208 since the surrogate recoveries were extremely low in the original analysis.

Preservation and Technical Holding Times

Semivolatiles

Sample DA-FT-RP01-BGW-081308 was re-extracted 12 days beyond the 60-day technical holding time criterion because of surrogate recoveries below the QC limits in the original sample. The non-detected phenolic compound results are estimated (UJ) for the re-extracted sample DA-FT-RP01-BGW-081308 due the exceeded holding time criterion.

The method required holding time criterion was not met for this sample; therefore, the project accuracy goals may be impacted. The non-detected phenolic compound results in this sample are usable as estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration criterion of %RSD >30% or the continuing calibration (CC) criterion of %D <25:

Compound	%RSD or %D	Action		Affected Samples
		(+)	NDs	
2,4-Dinitrophenol	47.0, 76.4		UJ	All samples except DA-FT-RP01-BGW-081308
4,6-Dinitro-2-methylphenol	41.5, 72.4		UJ	
Benzidine	36.9, 47.7		UJ	All samples
Hexachlorocyclopentadiene	73.5		UJ	DA-FT-RP01-BHF-081308, DA-FT-RP01-BGW-081308, DA-FT-RP01-BGF-081308, DA-FT-ET01-BHF-081208, DA-FT-ET02-BHF-081208
Bis(2-chloroethyl)ether	26.3		UJ	DA-FT-ET03-BHF-081208, DA-FT-ET02-WPF-081208, DA-FT-ET02-BGW-081208, DA-FT-ET01-BGW-081208, DA-FT-DUP01-081208, DA-FT-ET01-BGF-081208
Hexachlorobutadiene	32.2		UJ	
4-Nitrophenol	29.2		UJ	
4-Bromophenyl-phenylether	25.1		UJ	
Hexachlorobenzene	44.8		UJ	
Carbazole	30.0		UJ	

Although the %RSD or %D was outside of the QC limits for benzidine, hexachlorocyclopentadiene, bis(2-chloroethyl)ether, hexachlorobutadiene, 4-nitrophenol, 4-bromophenyl-phenylether, hexachlorobenzene, and carbazole; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds for the fish tissue samples. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %RSD and %D were outside of the QC limits for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
4,4'-DDD	27.2	Criteria met	J		DA-FT-RP01-BGW-081308, DA-FT-RP01-BGF-081308, DA-FT-ET02-WPF-081208

The %D was outside of the QC limits for 4,4'-DDD; therefore, the project accuracy goals may be impacted since the laboratory quantitation limit is almost equal to the project action limit for this compound. The positive results in the affected samples are usable as estimated values.

Blanks

Semivolatiles

The following table summarizes the level of blank contamination detected in the method blank associated with the samples:

Compound	Type of Blank	Maximum Conc. (µg/kg)	Action Level (µg/kg)	Affected Samples
Bis(2-ethylhexyl)phthalate	Method	216	2160	All samples except DA-FT-RP01-BGW-081308

Blank action was applied to the affected samples due to bis(2-ethylhexyl)phthalate method blank contamination. The 10x rule applies for this compound. The positive results below the blank action level and below the QL are changed to non-detected values at the sample-specific QL. The positive results below the blank action level and above the QL are changed to non-detected values at elevated reporting limits.

Although bis(2-ethylhexyl)phthalate contamination was found in the method blank, the project sensitivity goals are not impacted since the non-detected values do not exceed the project action limit. The results in the affected samples are usable as non-detected values.

Surrogate Compounds

Semivolatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-FT-RP01-BGW-081308(RE)	2-Fluorophenol	14	30-130		UJ
	2,4,6-Tribromophenol	12	30-130		
	Phenol-d5	28	30-130		

The surrogates 2-fluorophenol, 2,4,6-tribromophenol, and phenol-d5 recovered below the QC limits; therefore the project accuracy goals may be impacted. The non-detected phenol compound results in sample DA-FT-RP01-BGW-081308 are usable as estimated quantitation limits.

Matrix Spike/Matrix Spike Duplicate

Semivolatiles

The following table summarizes the results of the matrix spike and matrix spike duplicate (MS/MSD) analysis of sample DA-FT-ET03-BHF-081208 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
4-Nitrophenol	0, 0	30-130		UR

The percent recovery criterion was not met for 4-nitrophenol due to no MS/MSD recoveries. The non-detected 4-nitrophenol result in sample DA-FT-ET03-BHF-081208 is rejected (UR) and is not usable for project decision. The data completeness goals may be impacted.

Pesticides

The following table summarizes the results of the matrix spike and matrix spike duplicate (MS/MSD) analysis of sample DA-FT-RP01-BHF-081308 that were outside of the QC limits:

Analyte	% Recovery	QC Limits	Action	
			(+)	NDs
4,4'-DDE	156	40-140	J	

The percent recovery criterion was not met for 4,4'-DDE in the MS/MSD analysis; therefore, the project accuracy goals may be impacted. The positive 4,4'-DDE result in sample DA-FT-RP01-BHF-081308 is estimated (J) due to a high MSD recovery. The positive result in the affected sample is usable as an estimated quantitation limit which may be biased high.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) QC recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Pentachlorophenol	19	30-130		UJ	DA-FT-RP01-BGW-081308

Although the LCS/LCSD recovery for pentachlorophenol was below the QC limits, the project accuracy goals are not impacted since there are no regulatory limits established for pentachlorophenol for the fish tissue samples. The non-detected result in the affected sample is usable as an estimated quantitation limit which may be biased low.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compounds in the following samples:

Sample	Analyte	%RPD	Action (+)
DA-FT-RP01-BHF-081308	Dieldrin	55	J
DA-FT-RP01-BGW-081308	4,4'-DDT	141	UJ at 3.12*
	Endosulfan sulfate	47	J
DA-FT-RP01-BGW-081308	4,4'-DDT	119	UJ at 1.64*
DA-FT-ET01-BHF-081208	4,4'-DDT	118	UJ at 10.1*
DA-FT-ET03-BHF-81208	4,4'-DDT	132	UJ at 7.72*
	Aldrin	51	J
DA-FT-ET02-BHF-081208	4,4'-DDT	120	UJ at 10.8*
	Aldrin	52	J
DA-FT-ET02-WPF-081208	4,4'-DDT	86	J
	Aldrin	83	J
	Heptachlor epoxide	179	UJ at 0.838*
DA-FT-ET02-BGW-81208	4,4'-DDT	102	UJ at 52.5*
	Heptachlor epoxide	173	UJ at1.23*
DA-FT-ET01-BGW-081208	4,4'-DDT	133	UJ at 52.7*
	Heptachlor epoxide	175	UJ at 0.732*
DA-FT-ET01-BGW-081208	4,4'-DDT	129	UJ at15.0*
	Gamma-chlordane	75	J
DA-FT-DUP01-081208	4,4'-DDT	133	UJ at 8.56*

*Professional judgment used to report the higher of the two results as an estimated, non-detected value.

The analyte quantitation relative percent differences exceeded the 40% QC limits for dieldrin, endosulfan sulfate, aldrin, 4,4'-DDT, and gamma-chlordane in the above samples, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

The analyte quantitation relative percent differences exceeded 100% for 4,4'-DDT in the samples noted above. The project sensitivity goals maybe impacted for samples DA-FT-ET01-BHF-081208, DA-FT-ET02-BHF-081208, DA-FT-ET02-BGW-81208, DA-FT-ET01-BGW-081208, and DA-FT-ET01-BGW-081208 since the elevated reporting limits exceeds the project action limit for 4,4'-DDT. The elevated reporting limits in the remaining samples did not exceed the project action limit for 4,4'-DDT and the project sensitivity goals are not impacted. The non-detected results in the affected samples are usable as estimated reporting limits.

Although the analyte quantitation relative percent differences exceeded 100% for heptachlor epoxide in the samples noted above, the project sensitivity goals are not impacted since there are no regulatory limits for heptachlor epoxide for the fish tissue samples. The non-detected results in the affected samples are usable as estimated reporting limits.

PCBs

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action (+)
DA-FT-RP01-BGW-081308	Aroclor-1254	47	J
DA-FT-ET03-BHF-081208	Aroclor-1254	53	J
DA-FT-ET01-BGF-081208	Aroclor-1254	51	J

The analyte quantitation relative percent differences exceeded the QC limits in the above samples, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Semivolatiles

The laboratory reporting limits did not meet the project required quantitation limits for pentachlorophenol, however the project sensitivity goals are not impacted since there are no regulatory limits established for this compound. The project action limits were not achievable for 3,3'-dichlorobenzdine, 4,6-dinitro-2-methylphenol, and 4-nitroaniline. The project sensitivity goals may be impacted.

Blank action was taken on select samples due to bis(2-ethylhexyl)phthalate method blank contamination. As discussed above the Blanks section, the project sensitivity goals are not impacted.

PAH

The laboratory reporting limits met the project required quantitation limits. The project action limits were not achievable for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The project sensitivity goals may be impacted.

Pesticides

The laboratory reporting limits met the project required quantitation limits. The project action limits were not achievable for toxaphene and dieldrin. The project sensitivity goals may be impacted.

PCBs

The laboratory reporting limits met the project required quantitation limits. The project action limits were not achievable for all Aroclors. The project sensitivity goals may be impacted.

Data Usability Assessment

The data usability assessment was performed to determine the data accuracy, precision, sensitivity, and data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exception. The phenolic compound results in sample DA-FT-RP01-BGW-081308 were qualified as estimated due to holding time exceedances and due to low surrogate recoveries. The affected results may be biased low. 2,4-Dinitrophenol and 4,6-dinitro-2-methylphenol were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. Additional compounds were qualified as estimated due to instrument calibration variability and low LCS recoveries. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set. Data usability is not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. The project action limits were not achievable for 3,3'-dichlorobenzdine, 4,6-dinitro-2-methylphenol, and 4-nitroaniline. Data usability may be impacted.

4-Nitrophenol in sample DA-FT-ET03-BHF-081208 was rejected due to no recovery in the MS/MSD analysis. The affected results are not usable for project decisions and the data completeness goals may be impacted.

PAH

The project goals with respect to accuracy and precision were met for the PAH data set. Data usability is not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were met for the PAH data set with the following exceptions. The project action limits were not achievable for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Data usability may be impacted.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. 4,4'-DDD was qualified as estimated in select samples due to instrument calibration variability. The compound 4,4'-DDE was qualified as estimated in sample DA-FT-RP01-BHF-081308 due to high MS/MSD recoveries. The affected result may be biased high. Although specific method criteria were not met in this instance, the affected positive result is usable as an estimated value which may have a minor impact on data usability. Select compounds were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the pesticides data set. Data usability is not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exceptions. The positive results for 4,4'-DDT in samples DA-FT-ET01-BHF-081208, DA-FT-ET02-BHF-081208, DA-FT-ET02-BGW-81208, DA-FT-ET01-BGW-081208, and DA-FT-ET01-BGW-081208 were changed to non-detected values due to analyte quantitation relative percent differences exceeding 100%. Data usability may be impacted since the elevated reporting limits exceed the project action limits. Additionally, the project action limits were not achievable for toxaphene and dieldrin. Data usability may be impacted.

PCBs

The project goals with respect to accuracy were met for the PCB data set with the following exception. Select compounds were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in this instance, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCB data set. Data usability is not impacted with regards to precision.

The project goals with respect to sensitivity were met for the PCB data set with the following exceptions. The project action limits were not achievable for all Aroclors. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables
Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816 SDG: SB4590 FRACTION: OS MEDIA: TISSUE	NSAMPLE	DA-FT-DUP01-081208			DA-FT-ET01-BGF-081208			DA-FT-ET01-BGW-081208			DA-FT-ET01-BHF-081208		
	LAB_ID	0808076-11			0808076-10			0808076-09			0808076-04		
	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-FT-ET03-BHF-081208											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		185	U		194	U		179	U		188	U	
1,2,4-TRICHLOROBENZENE		185	U		194	U		179	U		188	U	
1,2-DICHLOROBENZENE		185	U		194	U		179	U		188	U	
1,3-DICHLOROBENZENE		185	U		194	U		179	U		188	U	
1,4-DICHLOROBENZENE		185	U		194	U		179	U		188	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		185	U		194	U		179	U		188	U	
2,4,5-TRICHLOROPHENOL		185	U		194	U		179	U		188	U	
2,4,6-TRICHLOROPHENOL		185	U		194	U		179	U		188	U	
2,4-DICHLOROPHENOL		185	U		194	U		179	U		188	U	
2,4-DIMETHYLPHENOL		185	U		194	U		179	U		188	U	
2,4-DINITROPHENOL		185	UJ	C	194	UJ	C	179	UJ	C	753	UJ	C
2,4-DINITROTOLUENE		185	U		194	U		179	U		188	U	
2,6-DINITROTOLUENE		185	U		194	U		179	U		188	U	
2-CHLORONAPHTHALENE		185	U		194	U		179	U		188	U	
2-CHLOROPHENOL		185	U		194	U		179	U		188	U	
2-METHYLPHENOL		185	U		194	U		179	U		188	U	
2-NITROANILINE		185	U		194	U		179	U		188	U	
2-NITROPHENOL		185	U		194	U		179	U		188	U	
3,3'-DICHLOROBENZIDINE		185	U		194	U		179	U		188	U	
3-NITROANILINE		185	U		194	U		179	U		188	U	
4,6-DINITRO-2-METHYLPHENOL		739	UJ	C	775	UJ	C	717	UJ	C	377	UJ	C
4-BROMOPHENYL PHENYL ETHER		185	UJ	C	194	UJ	C	179	UJ	C	188	U	
4-CHLORO-3-METHYLPHENOL		185	U		194	U		179	U		188	U	
4-CHLOROANILINE		185	U		194	U		179	U		188	U	
4-CHLOROPHENYL PHENYL ETHER		185	U		194	U		179	U		188	U	
4-METHYLPHENOL		185	U		194	U		179	U		188	U	
4-NITROANILINE		185	U		194	U		179	U		188	U	
4-NITROPHENOL		185	UJ	C	194	UJ	C	179	UJ	C	188	U	
BENZIDINE		185	UJ	C	194	UJ	C	179	UJ	C	188	UJ	C
BIS(2-CHLOROETHOXY)METHANE		185	U		194	U		179	U		188	U	
BIS(2-CHLOROETHYL)ETHER		185	UJ	C	194	UJ	C	179	UJ	C	188	U	
BIS(2-ETHYLHEXYL)PHTHALATE		185	U	A	194	U	A	179	U	A	188	U	A
BUTYL BENZYL PHTHALATE		185	U		194	U		179	U		188	U	
CARBAZOLE		185	UJ	C	194	UJ	C	179	UJ	C	188	U	
DIBENZOFURAN		185	U		194	U		179	U		188	U	

PROJ_NO: 00816 SDG: SB4590 FRACTION: OS MEDIA: TISSUE	NSAMPLE	DA-FT-ET02-BGW-081208			DA-FT-ET02-BHF-081208			DA-FT-ET02-WPF-081208			DA-FT-ET03-BHF-081208		
	LAB_ID	0808076-08			0808076-06			0808076-07			0808076-05		
	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		180	U		192	U		182	U		193	U	
1,2,4-TRICHLOROBENZENE		180	U		192	U		182	U		193	U	
1,2-DICHLOROBENZENE		180	U		192	U		182	U		193	U	
1,3-DICHLOROBENZENE		180	U		192	U		182	U		193	U	
1,4-DICHLOROBENZENE		180	U		192	U		182	U		193	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		180	U		192	U		182	U		193	U	
2,4,5-TRICHLOROPHENOL		180	U		192	U		182	U		193	U	
2,4,6-TRICHLOROPHENOL		180	U		192	U		182	U		193	U	
2,4-DICHLOROPHENOL		180	U		192	U		182	U		193	U	
2,4-DIMETHYLPHENOL		180	U		192	U		182	U		193	U	
2,4-DINITROPHENOL		180	UJ	C	769	UJ	C	182	UJ	C	193	UJ	C
2,4-DINITROTOLUENE		180	U		192	U		182	U		193	U	
2,6-DINITROTOLUENE		180	U		192	U		182	U		193	U	
2-CHLORONAPHTHALENE		180	U		192	U		182	U		193	U	
2-CHLOROPHENOL		180	U		192	U		182	U		193	U	
2-METHYLPHENOL		180	U		192	U		182	U		193	U	
2-NITROANILINE		180	U		192	U		182	U		193	U	
2-NITROPHENOL		180	U		192	U		182	U		193	U	
3,3'-DICHLOROBENZIDINE		180	U		192	U		182	U		193	U	
3-NITROANILINE		180	U		192	U		182	U		193	U	
4,6-DINITRO-2-METHYLPHENOL		718	UJ	C	385	UJ	C	730	UJ	C	771	UJ	C
4-BROMOPHENYL PHENYL ETHER		180	UJ	C	192	U		182	UJ	C	193	UJ	C
4-CHLORO-3-METHYLPHENOL		180	U		192	U		182	U		193	U	
4-CHLOROANILINE		180	U		192	U		182	U		193	U	
4-CHLOROPHENYL PHENYL ETHER		180	U		192	U		182	U		193	U	
4-METHYLPHENOL		180	U		192	U		182	U		193	U	
4-NITROANILINE		180	U		192	U		182	U		193	U	
4-NITROPHENOL		180	UJ	C	192	U		182	UJ	C	193	UR	D
BENZIDINE		180	UJ	C	192	UJ	C	182	UJ	C	193	UJ	C
BIS(2-CHLOROETHOXY)METHANE		180	U		192	U		182	U		193	U	
BIS(2-CHLOROETHYL)ETHER		180	U	JC	192	U		182	UJ	C	193	UJ	C
BIS(2-ETHYLHEXYL)PHTHALATE		219	U	A	192	U	A	204	U	A	193	U	A
BUTYL BENZYL PHTHALATE		180	U		192	U		182	U		193	U	
CARBAZOLE		180	UJ	C	192	U		182	UJ	C	193	UJ	C
DIBENZOFURAN		180	U		192	U		182	U		193	U	

PROJ_NO: 00816	NSAMPLE	DA-FT-RP01-BGF-081308			DA-FT-RP01-BGW-081308			DA-FT-RP01-BHF-081308		
SDG: SB4590	LAB_ID	0808076-03			0808076-02			0808076-01		
FRACTION: OS	SAMP_DATE	8/13/2008			8/13/2008			8/13/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		178	U		189	U		193	U	
1,2,4-TRICHLOROBENZENE		178	U		189	U		193	U	
1,2-DICHLOROBENZENE		178	U		189	U		193	U	
1,3-DICHLOROBENZENE		178	U		189	U		193	U	
1,4-DICHLOROBENZENE		178	U		189	U		193	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		178	U		189	U		193	U	
2,4,5-TRICHLOROPHENOL		178	U		3660	UJ	R	193	U	
2,4,6-TRICHLOROPHENOL		178	U		3660	UJ	R	193	U	
2,4-DICHLOROPHENOL		178	U		3660	UJ	R	193	U	
2,4-DIMETHYLPHENOL		178	U		3660	UJ	R	193	U	
2,4-DINITROPHENOL		712	UJ	C	14600	UJ	R	772	UJ	C
2,4-DINITROTOLUENE		178	U		189	U		193	U	
2,6-DINITROTOLUENE		178	U		189	U		193	U	
2-CHLORONAPHTHALENE		178	U		189	U		193	U	
2-CHLOROPHENOL		178	U		3660	UJ	R	193	U	
2-METHYLPHENOL		178	U		3660	UJ	R	193	U	
2-NITROANILINE		178	U		189	U		193	U	
2-NITROPHENOL		178	U		3660	UJ	R	193	U	
3,3'-DICHLOROBENZIDINE		178	U		189	U		193	U	
3-NITROANILINE		178	U		189	U		193	U	
4,6-DINITRO-2-METHYLPHENOL		356	UJ	C	14600	UJ	R	386	UJ	C
4-BROMOPHENYL PHENYL ETHER		178	U		189	U		193	U	
4-CHLORO-3-METHYLPHENOL		178	U		3660	UJ	R	193	U	
4-CHLOROANILINE		178	U		189	U		193	U	
4-CHLOROPHENYL PHENYL ETHER		178	U		189	U		193	U	
4-METHYLPHENOL		178	U		3660	UJ	R	193	U	
4-NITROANILINE		178	U		189	U		193	U	
4-NITROPHENOL		178	U		14600	UJ	R	193	U	
BENZIDINE		178	UJ	C	189	UJ	C	193	UJ	C
BIS(2-CHLOROETHOXY)METHANE		178	U		189	U		193	U	
BIS(2-CHLOROETHYL)ETHER		178	U		189	U		193	U	
BIS(2-ETHYLHEXYL)PHTHALATE		178	U	A	189	U		193	U	A
BUTYL BENZYL PHTHALATE		178	U		189	U		193	U	
CARBAZOLE		178	U		189	U		193	U	
DIBENZOFURAN		178	U		189	U		193	U	

PROJ_NO: 00816 SDG: SB4590 FRACTION: OS MEDIA: TISSUE	NSAMPLE	DA-FT-DUP01-081208			DA-FT-ET01-BGF-081208			DA-FT-ET01-BGW-081208			DA-FT-ET01-BHF-081208		
	LAB_ID	0808076-11			0808076-10			0808076-09			0808076-04		
	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-FT-ET03-BHF-081208											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DIETHYL PHTHALATE		185	U		194	U		179	U		188	U	
DIMETHYL PHTHALATE		185	U		194	U		179	U		188	U	
DI-N-BUTYL PHTHALATE		185	U		194	U		179	U		188	U	
DI-N-OCTYL PHTHALATE		185	U		194	U		179	U		188	U	
HEXACHLOROBENZENE		185	UJ	C	194	UJ	C	179	UJ	C	188	U	
HEXACHLOROBUTADIENE		185	UJ	C	194	UJ	C	179	UJ	C	188	U	
HEXACHLOROCYCLOPENTADIENE		739	U		775	U		717	U		188	UJ	C
HEXACHLOROETHANE		185	U		194	U		179	U		188	U	
ISOPHORONE		185	U		194	U		179	U		188	U	
NITROBENZENE		185	U		194	U		179	U		188	U	
N-NITROSODIMETHYLAMINE		185	U		194	U		179	U		188	U	
N-NITROSO-DI-N-PROPYLAMINE		185	U		194	U		179	U		188	U	
N-NITROSODIPHENYLAMINE		185	U		194	U		179	U		188	U	
PENTACHLOROPHENOL		739	U		775	U		717	U		188	U	
PHENOL		185	U		194	U		179	U		188	U	

PROJ_NO: 00816	NSAMPLE	DA-FT-ET02-BGW-081208			DA-FT-ET02-BHF-081208			DA-FT-ET02-WPF-081208			DA-FT-ET03-BHF-081208		
SDG: SB4590	LAB_ID	0808076-08			0808076-06			0808076-07			0808076-05		
FRACTION: OS	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DIETHYL PHTHALATE		180	U		192	U		182	U		193	U	
DIMETHYL PHTHALATE		180	U		192	U		182	U		193	U	
DI-N-BUTYL PHTHALATE		180	U		192	U		182	U		193	U	
DI-N-OCTYL PHTHALATE		180	U		192	U		182	U		193	U	
HEXACHLOROBENZENE		180	UJ	C	192	U		182	UJ	C	193	UJ	C
HEXACHLOROBUTADIENE		180	UJ	C	192	U		182	UJ	C	193	UJ	C
HEXACHLOROCYCLOPENTADIENE		718	U		192	UJ	C	730	U		771	U	
HEXACHLOROETHANE		180	U		192	U		182	U		193	U	
ISOPHORONE		180	U		192	U		182	U		193	U	
NITROBENZENE		180	U		192	U		182	U		193	U	
N-NITROSODIMETHYLAMINE		180	U		192	U		182	U		193	U	
N-NITROSO-DI-N-PROPYLAMINE		180	U		192	U		182	U		193	U	
N-NITROSODIPHENYLAMINE		180	U		192	U		182	U		193	U	
PENTACHLOROPHENOL		718	U		192	U		730	U		771	U	
PHENOL		180	U		192	U		182	U		193	U	

PROJ_NO: 00816 SDG: SB4590 FRACTION: OS MEDIA: TISSUE	NSAMPLE	DA-FT-RP01-BGF-081308			DA-FT-RP01-BGW-081308			DA-FT-RP01-BHF-081308		
	LAB_ID	0808076-03			0808076-02			0808076-01		
	SAMP_DATE	8/13/2008			8/13/2008			8/13/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DIETHYL PHTHALATE		178	U		189	U		193	U	
DIMETHYL PHTHALATE		178	U		189	U		193	U	
DI-N-BUTYL PHTHALATE		178	U		189	U		193	U	
DI-N-OCTYL PHTHALATE		178	U		189	U		193	U	
HEXACHLOROBENZENE		178	U		189	U		193	U	
HEXACHLOROBUTADIENE		178	U		189	U		193	U	
HEXACHLOROCYCLOPENTADIENE		178	UJ	C	189	UJ	C	193	UJ	C
HEXACHLOROETHANE		178	U		189	U		193	U	
ISOPHORONE		178	U		189	U		193	U	
NITROBENZENE		178	U		189	U		193	U	
N-NITROSODIMETHYLAMINE		178	U		189	U		193	U	
N-NITROSO-DI-N-PROPYLAMINE		178	U		189	U		193	U	
N-NITROSODIPHENYLAMINE		178	U		189	U		193	U	
PENTACHLOROPHENOL		178	U		14600	UJ	ER	193	U	
PHENOL		178	U		3660	UJ	R	193	U	

PROJ_NO: 00816	NSAMPLE	DA-FT-DUP01-081208			DA-FT-ET01-BGF-081208			DA-FT-ET01-BGW-081208			DA-FT-ET01-BHF-081208		
SDG: SB4590	LAB_ID	0808076-11			0808076-10			0808076-09			0808076-04		
FRACTION: PAH	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-FT-ET03-BHF-081208											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		7.77	U		7.77	U		7.62	U		7.72	U	
ACENAPHTHENE		7.77	U		7.77	U		7.62	U		7.72	U	
ACENAPHTHYLENE		7.77	U		7.77	U		7.62	U		7.72	U	
ANTHRACENE		7.77	U		7.77	U		7.62	U		7.72	U	
BENZO(A)ANTHRACENE		7.77	U		7.77	U		7.62	U		7.72	U	
BENZO(A)PYRENE		7.77	U		7.77	U		7.62	U		7.72	U	
BENZO(B)FLUORANTHENE		7.77	U		7.77	U		7.62	U		7.72	U	
BENZO(G,H,I)PERYLENE		7.77	U		7.77	U		7.62	U		7.72	U	
BENZO(K)FLUORANTHENE		7.77	U		7.77	U		7.62	U		7.72	U	
CHRYSENE		7.77	U		7.77	U		7.62	U		7.72	U	
DIBENZO(A,H)ANTHRACENE		7.77	U		7.77	U		7.62	U		7.72	U	
FLUORANTHENE		7.77	U		7.77	U		7.62	U		7.72	U	
FLUORENE		7.77	U		7.77	U		7.62	U		7.72	U	
INDENO(1,2,3-CD)PYRENE		7.77	U		7.77	U		7.62	U		7.72	U	
NAPHTHALENE		7.77	U		7.77	U		7.62	U		7.72	U	
PHENANTHRENE		7.77	U		7.77	U		7.62	U		7.72	U	
PYRENE		7.77	U		7.77	U		7.62	U		7.72	U	

PROJ_NO: 00816	NSAMPLE	DA-FT-ET02-BGW-081208			DA-FT-ET02-BHF-081208			DA-FT-ET02-WPF-081208			DA-FT-ET03-BHF-081208		
SDG: SB4590	LAB_ID	0808076-08			0808076-06			0808076-07			0808076-05		
FRACTION: PAH	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		7.56	U		7.14	U		7.41	U		7.83	U	
ACENAPHTHENE		7.56	U		7.14	U		7.41	U		7.83	U	
ACENAPHTHYLENE		7.56	U		7.14	U		7.41	U		7.83	U	
ANTHRACENE		7.56	U		7.14	U		7.41	U		7.83	U	
BENZO(A)ANTHRACENE		7.56	U		7.14	U		7.41	U		7.83	U	
BENZO(A)PYRENE		7.56	U		7.14	U		7.41	U		7.83	U	
BENZO(B)FLUORANTHENE		7.56	U		7.14	U		7.41	U		7.83	U	
BENZO(G,H,I)PERYLENE		7.56	U		7.14	U		7.41	U		7.83	U	
BENZO(K)FLUORANTHENE		7.56	U		7.14	U		7.41	U		7.83	U	
CHRYSENE		7.56	U		7.14	U		7.41	U		7.83	U	
DIBENZO(A,H)ANTHRACENE		7.56	U		7.14	U		7.41	U		7.83	U	
FLUORANTHENE		7.56	U		7.14	U		7.41	U		7.83	U	
FLUORENE		7.56	U		7.14	U		7.41	U		7.83	U	
INDENO(1,2,3-CD)PYRENE		7.56	U		7.14	U		7.41	U		7.83	U	
NAPHTHALENE		7.56	U		7.14	U		7.41	U		7.83	U	
PHENANTHRENE		7.56	U		7.14	U		7.41	U		7.83	U	
PYRENE		7.56	U		7.14	U		7.41	U		7.83	U	

PROJ_NO: 00816 SDG: SB4590 FRACTION: PAH MEDIA: TISSUE	NSAMPLE	DA-FT-RP01-BGF-081308			DA-FT-RP01-BGW-081308			DA-FT-RP01-BHF-081308		
	LAB_ID	0808076-03			0808076-02			0808076-01		
	SAMP_DATE	8/13/2008			8/13/2008			8/13/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		7.07	U		7.07	U		7.68	U	
ACENAPHTHENE		7.07	U		7.07	U		7.68	U	
ACENAPHTHYLENE		7.07	U		7.07	U		7.68	U	
ANTHRACENE		7.07	U		7.07	U		7.68	U	
BENZO(A)ANTHRACENE		7.07	U		7.07	U		7.68	U	
BENZO(A)PYRENE		7.07	U		7.07	U		7.68	U	
BENZO(B)FLUORANTHENE		7.07	U		7.07	U		7.68	U	
BENZO(G,H,I)PERYLENE		7.07	U		7.07	U		7.68	U	
BENZO(K)FLUORANTHENE		7.07	U		7.07	U		7.68	U	
CHRYSENE		7.07	U		7.07	U		7.68	U	
DIBENZO(A,H)ANTHRACENE		7.07	U		7.07	U		7.68	U	
FLUORANTHENE		7.07	U		7.07	U		7.68	U	
FLUORENE		7.07	U		7.07	U		7.68	U	
INDENO(1,2,3-CD)PYRENE		7.07	U		7.07	U		7.68	U	
NAPHTHALENE		7.07	U		7.07	U		7.68	U	
PHENANTHRENE		7.07	U		7.07	U		7.68	U	
PYRENE		7.07	U		7.07	U		7.68	U	

PROJ_NO: 00816	NSAMPLE	DA-FT-DUP01-081208			DA-FT-DUP01-081208DL			DA-FT-ET01-BGF-081208			DA-FT-ET01-BGF-081208DL		
SDG: SB4590	LAB_ID	0808076-11			0808076-11E			0808076-10			0808076-10E		
FRACTION: PEST/PCB	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-FT-ET03-BHF-081208			DA-FT-ET03-BHF-081208								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		13.5						6.06					
4,4'-DDE					203						247		
4,4'-DDT		8.56	UJ	U				15	UJ	U			
ALDRIN		1.33						0.398	U				
ALPHA-BHC		0.364	U					0.398	U				
ALPHA-CHLORDANE		15.4						2.12					
AROCLOR-1016		14.6	U					15.9	U				
AROCLOR-1221		14.6	U					15.9	U				
AROCLOR-1232		14.6	U					15.9	U				
AROCLOR-1242		14.6	U					15.9	U				
AROCLOR-1248		14.6	U					15.9	U				
AROCLOR-1254		83.5						173	J	U			
AROCLOR-1260		60.1						100					
AROCLOR-1268		14.6	U					15.9	U				
BETA-BHC		0.364	U					0.398	U				
DELTA-BHC		0.364	U					0.398	U				
DIELDRIN		9.38						6.27					
ENDOSULFAN I		0.364	U					0.398	U				
ENDOSULFAN II		0.364	U					0.398	U				
ENDOSULFAN SULFATE		0.364	U					0.398	U				
ENDRIN		0.364	U					0.398	U				
ENDRIN ALDEHYDE		0.364	U					0.398	U				
ENDRIN KETONE		0.364	U					0.398	U				
GAMMA-BHC (LINDANE)		0.364	U					0.398	U				
GAMMA-CHLORDANE		7.73						1.1	J	U			
HEPTACHLOR		0.364	U					0.398	U				
HEPTACHLOR EPOXIDE		0.364	U					0.398	U				
HEXACHLOROBENZENE		0.364	U					0.398	U				
METHOXYCHLOR		3.64	U					3.98	U				
TOXAPHENE		18.2	U					19.9	U				

PROJ_NO: 00816	NSAMPLE	DA-FT-ET01-BGW-081208			DA-FT-ET01-BGW-081208DL			DA-FT-ET01-BHF-081208			DA-FT-ET01-BHF-081208DL		
SDG: SB4590	LAB_ID	0808076-09			0808076-09E			0808076-04			0808076-04E		
FRACTION: PEST/PCB	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		36.5						19.3					
4,4'-DDE					638						212		
4,4'-DDT		52.7	UJ	U				10.1	UJ	U			
ALDRIN		0.352	U					1.33					
ALPHA-BHC		0.352	U					0.36	U				
ALPHA-CHLORDANE		17.9						20.6					
AROCLOR-1016		14.1	U					14.4	U				
AROCLOR-1221		14.1	U					14.4	U				
AROCLOR-1232		14.1	U					14.4	U				
AROCLOR-1242		14.1	U					14.4	U				
AROCLOR-1248		14.1	U					14.4	U				
AROCLOR-1254		513						93.6					
AROCLOR-1260		342						64.1					
AROCLOR-1268		14.1	U					14.4	U				
BETA-BHC		0.352	U					0.36	U				
DELTA-BHC		0.352	U					0.36	U				
DIELDRIN		22.9						11.8					
ENDOSULFAN I		0.352	U					0.36	U				
ENDOSULFAN II		0.352	U					0.36	U				
ENDOSULFAN SULFATE		0.352	U					0.36	U				
ENDRIN		0.352	U					0.36	U				
ENDRIN ALDEHYDE		0.352	U					0.36	U				
ENDRIN KETONE		0.352	U					0.36	U				
GAMMA-BHC (LINDANE)		0.352	U					0.36	U				
GAMMA-CHLORDANE		6.91						9.9					
HEPTACHLOR		0.352	U					0.36	U				
HEPTACHLOR EPOXIDE		0.732	UJ	U				0.36	U				
HEXACHLOROBENZENE		0.352	U					0.36	U				
METHOXYCHLOR		3.52	U					3.6	U				
TOXAPHENE		17.6	U					18	U				

PROJ_NO: 00816 SDG: SB4590 FRACTION: PEST/PCB MEDIA: TISSUE	NSAMPLE	DA-FT-ET02-BGW-081208			DA-FT-ET02-BGW-081208DL			DA-FT-ET02-BHF-081208			DA-FT-ET02-BHF-081208DL		
	LAB_ID	0808076-08			0808076-08E			0808076-06			0808076-06E		
	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		53.8						24					
4,4'-DDE					740						262		
4,4'-DDT		52.5	UJ	U				10.8	UJ	U			
ALDRIN		0.376	U					1.53	J	U			
ALPHA-BHC		0.376	U					0.353	U				
ALPHA-CHLORDANE		19						24.2					
AROCLOR-1016		15	U					14.1	U				
AROCLOR-1221		15	U					14.1	U				
AROCLOR-1232		15	U					14.1	U				
AROCLOR-1242		15	U					14.1	U				
AROCLOR-1248		15	U					14.1	U				
AROCLOR-1254		403						123					
AROCLOR-1260		277						65.8					
AROCLOR-1268		15	U					14.1	U				
BETA-BHC		0.376	U					0.353	U				
DELTA-BHC		0.376	U					0.353	U				
DIELDRIN		36.9						8.75					
ENDOSULFAN I		0.376	U					0.353	U				
ENDOSULFAN II		0.376	U					0.353	U				
ENDOSULFAN SULFATE		0.376	U					0.353	U				
ENDRIN		0.376	U					0.353	U				
ENDRIN ALDEHYDE		0.376	U					0.353	U				
ENDRIN KETONE		0.376	U					0.353	U				
GAMMA-BHC (LINDANE)		0.376	U					0.353	U				
GAMMA-CHLORDANE		8.86						11.8					
HEPTACHLOR		0.376	U					0.353	U				
HEPTACHLOR EPOXIDE		1.23	UJ	U				0.353	U				
HEXACHLOROBENZENE		0.376	U					0.353	U				
METHOXYCHLOR		3.76	U					3.53	U				
TOXAPHENE		18.8	U					17.6	U				

PROJ_NO: 00816	NSAMPLE	DA-FT-ET02-WPF-081208			DA-FT-ET02-WPF-081208DL			DA-FT-ET03-BHF-081208			DA-FT-ET03-BHF-081208DL		
SDG: SB4590	LAB_ID	0808076-07			0808076-07E			0808076-05			0808076-05E		
FRACTION: PEST/PCB	SAMP_DATE	8/12/2008			8/12/2008			8/12/2008			8/12/2008		
MEDIA: TISSUE	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		83.3	J	C				11.1					
4,4'-DDE					652						170		
4,4'-DDT		20.7	J	U				7.72	UJ	U			
ALDRIN		1.55	J	U				1.47	J	U			
ALPHA-BHC		0.355	U					0.375	U				
ALPHA-CHLORDANE		58.1						12.3					
AROCLOR-1016		14.2	U					15	U				
AROCLOR-1221		14.2	U					15	U				
AROCLOR-1232		14.2	U					15	U				
AROCLOR-1242		14.2	U					15	U				
AROCLOR-1248		14.2	U					15	U				
AROCLOR-1254		446						123	J	U			
AROCLOR-1260		208						59					
AROCLOR-1268		14.2	U					15	U				
BETA-BHC		0.355	U					0.375	U				
DELTA-BHC		0.355	U					0.375	U				
DIELDRIN		40.3						7.53					
ENDOSULFAN I		0.355	U					0.375	U				
ENDOSULFAN II		0.355	U					0.375	U				
ENDOSULFAN SULFATE		0.355	U					0.375	U				
ENDRIN		0.355	U					0.375	U				
ENDRIN ALDEHYDE		0.355	U					0.375	U				
ENDRIN KETONE		0.355	U					0.375	U				
GAMMA-BHC (LINDANE)		0.355	U					0.375	U				
GAMMA-CHLORDANE		13.8						5.7					
HEPTACHLOR		0.355	U					0.375	U				
HEPTACHLOR EPOXIDE		0.838	UJ	U				0.375	U				
HEXACHLOROBENZENE		0.355	U					0.375	U				
METHOXYCHLOR		3.55	U					3.75	U				
TOXAPHENE		17.8	U					18.8	U				

PROJ_NO: 00816 SDG: SB4590 FRACTION: PEST/PCB MEDIA: TISSUE	NSAMPLE	DA-FT-RP01-BGF-081308			DA-FT-RP01-BGW-081308			DA-FT-RP01-BHF-081308		
	LAB_ID	0808076-03			0808076-02			0808076-01		
	SAMP_DATE	8/13/2008			8/13/2008			8/13/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS									
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		3.72	J	C	6.42	J	C	6.08		
4,4'-DDE		23.6			54.1			75.7	J	D
4,4'-DDT		1.64	UJ	U	3.12	UJ	U	0.372	U	
ALDRIN		0.36	U		0.373	U		0.372	U	
ALPHA-BHC		0.36	U		0.373	U		0.372	U	
ALPHA-CHLORDANE		0.36	U		0.425			0.439		
AROCLOR-1016		14.4	U		14.9	U		14.9	U	
AROCLOR-1221		14.4	U		14.9	U		14.9	U	
AROCLOR-1232		14.4	U		14.9	U		14.9	U	
AROCLOR-1242		14.4	U		14.9	U		14.9	U	
AROCLOR-1248		14.4	U		14.9	U		14.9	U	
AROCLOR-1254		14.4	U		42.6	J	U	40.1		
AROCLOR-1260		14.4	U		26.3			49.2		
AROCLOR-1268		14.4	U		14.9	U		14.9	U	
BETA-BHC		0.36	U		0.373	U		0.372	U	
DELTA-BHC		0.36	U		0.373	U		0.372	U	
DIELDRIN		2.42			2.94			0.864	J	U
ENDOSULFAN I		0.36	U		0.373	U		0.372	U	
ENDOSULFAN II		0.36	U		0.373	U		0.372	U	
ENDOSULFAN SULFATE		0.36	U		0.664	J	U	0.372	U	
ENDRIN		0.36	U		0.373	U		0.372	U	
ENDRIN ALDEHYDE		0.36	U		0.373	U		0.372	U	
ENDRIN KETONE		0.36	U		0.373	U		0.372	U	
GAMMA-BHC (LINDANE)		0.36	U		0.373	U		0.372	U	
GAMMA-CHLORDANE		0.389			0.373	U		0.924		
HEPTACHLOR		0.36	U		0.373	U		0.372	U	
HEPTACHLOR EPOXIDE		0.36	U		0.373	U		0.372	U	
HEXACHLOROBENZENE		0.36	U		0.373	U		0.372	U	
METHOXYCHLOR		3.6	U		3.73	U		3.72	U	
TOXAPHENE		18	U		18.7	U		18.6	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2919W

Date: October 9, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier I/II Inorganic Data Validation, SDG SB4591
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum/Percent Lipids:

12/Earthworms/	DA-EW-DUP01-080608	DA-EW-MW103-080708
	DA-EW-MW105-080708	DA-EW-MW113-080608
	DA-EW-MW115-080608	DA-EW-SB104-080708
	DA-EW-SB108-080708	DA-EW-SB121-080708
	DA-EW-SB123-080608	DA-EW-SB130-080708
	DA-EW-SB134-080608	DA-EW-SB153-080708

(Field Duplicate Pair: DA-EW-SB134-080608/
DA-EW-DUP01-080608)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data and a Tier I data validation on the percent lipids analytical data from earthworm samples collected at the Site 08-NUSC Disposal Area from August 6-7, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6020A/7474. Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. The percent lipids analysis was performed according to USEPA SW-846 Method 8290. The Tier I data validation includes evaluation for completeness only.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Results are reported on a wet weight basis.

The data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- * ICP-MS Tuning
- * ICP-MS Internal Standard Performance
- * Calibration Verification
- Laboratory Blank Analyses
- ICP Interference Check Sample Results
- Matrix Spike Results

*	•	Laboratory Duplicate Results
	•	Laboratory Control Sample Results
*	•	Field Duplicate Precision
	•	ICP Serial Dilution Results
*	•	Reporting Limits
NA	•	Sample Quantitation

* All quality control criteria were met for this parameter.
NA Not applicable for this SDG or for a Tier II data validation.

Data Completeness

On September 17, 2008, the laboratory submitted the ICP-MS tune report since it was not included in the original data package.

On September 18, 2008, the TtNUS project manager confirmed that there are no project action limits established for the earthworm samples.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the earthworm samples:

Analyte	Maximum Conc.	Action Level	Affected Samples
Thallium	0.085 µg/L	0.043 mg/kg	All samples

The positive results below the blank action levels for thallium were changed to non-detected values (U) at elevated reporting limits in the affected samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 1 g of sample analyzed and a dilution factor of 2. The action level for each sample varies based on the actual amount of sample analyzed.

Although thallium contamination was found in the laboratory blanks, the project sensitivity goals are not evaluated since there are no regulatory limits established for thallium for the earthworm samples. The results in the affected samples are usable as elevated reporting limits.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of aluminum and/or iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	J		High	DA-EW-DUP01-080608, DA-EW-MW113-080608
Cadmium	J		High	
Thallium	UJ		High	

The positive results for antimony and cadmium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to aluminum and/or iron. The results may be biased high.

Professional judgment was used to change the positive thallium results to estimated, non-detected values (UJ) in the affected samples, rather than reject as provided in the data validation guidelines, because the reported concentration may be due entirely (≥80%) to positive aluminum and/or iron ICP interference. The results may be false positive.

Although there were ICP interferences attributed to the high concentration of aluminum and/or iron resulting in the estimation of antimony and cadmium results in the samples listed above, the project accuracy goals are not evaluated since there are no regulatory limits established for antimony and cadmium for the earthworm samples. The positive antimony and cadmium results are usable as estimated values which may be biased high.

Although there were ICP interferences attributed to the high concentration of aluminum and/or iron resulting in the raising of the reporting limit for thallium in the samples listed above, the project sensitivity goals are not evaluated since there are no regulatory limits established for thallium for the earthworm samples. The thallium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike Results

The following table summarizes the metal in the matrix spike (MS) analysis of sample DA-EW-SB134-080608 which were below the percent recovery criterion of 75%:

Compound	%Recovery	Action	
		(+)	NDs
Antimony	26	J	

The positive antimony results are estimated (J) in all earthworm samples.

Although the recovery for antimony did not meet the MS QC criterion, the project accuracy goals are not evaluated since there are no regulatory limits established for antimony for the earthworm samples. The positive antimony results in the earthworm samples are usable as estimated values which may be biased low.

Laboratory Control Sample Results

The following table summarizes the metal in the laboratory control sample (LCS) analysis which were below the percent recovery criterion of 80%:

Compound	%Recovery	Action	
		(+)	NDs
Silver	74	J	

The positive silver results are estimated (J) in all earthworm samples.

Although the recovery for silver did not meet the LCS QC criterion, the project accuracy goals are not evaluated since there are no regulatory limits established for silver for the earthworm samples. The positive silver results in the earthworm samples are usable as estimated values which may be biased low.

ICP Serial Dilution Results

The percent differences for aluminum, barium, and calcium were above the 15 percent QC criterion for analyte concentrations greater than 50x the method detection limit (MDL) before dilution, in the ICP serial dilution analysis of sample DA-EW-SB134-080608. The positive results for aluminum, barium, and calcium were qualified as estimated (J) in all earthworm samples. Since the initial sample result for this metal was less than the diluted sample result, the results may be biased low.

Although the ICP serial dilution percent difference criteria were not met for aluminum, barium, and calcium, the accuracy project goals are not evaluated since there are no regulatory limits established for aluminum, barium, and calcium for the earthworm samples. The positive aluminum, barium, and calcium results in the affected samples are usable as estimated values which may be biased low,

Reporting Limits

The laboratory reported non-detected results down to the method detection limit (MDL). The positive results above the MDL and below the laboratory's reporting limit are estimated (J) due to uncertainty below the reporting limit.

Reporting limits were elevated for thallium due to blank contamination and ICP interferences. As discussed above in the Laboratory Blank Analyses section and the ICP Interference Check Sample Results section, the project sensitivity goals are not evaluated.

Data Usability Assessment

The data usability assessment was performed to determine the data accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The following accuracy problems were found for this data set. Antimony and cadmium were qualified as estimated in select samples due to ICP interferences. Antimony was qualified as estimated in all samples due to a low matrix spike recovery. Silver was qualified in all samples due to a low CLS recovery. Aluminum, barium, and calcium were qualified as estimated due to ICP serial dilution exceedances. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The data have no precision and sensitivity problems. Data usability was not impacted with regards to precision and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-EW-DUP01-080608			DA-EW-MW103-080708			DA-EW-MW105-080708			DA-EW-MW113-080608		
SDG: SB4591	LAB_ID	0808048-12			0808048-05			0808048-11			0808048-04		
FRACTION: M	SAMP_DATE	8/6/2008			8/7/2008			8/7/2008			8/6/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-EW-SB134-080608											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		2790	J	I	1300	J	I	2340	J	I	3000	J	I
ANTIMONY		0.0185	J	DKP	0.0264	J	DP	0.0147	J	DP	0.0151	J	DKP
ARSENIC		3.08			1.38			4.05			6.55		
BARIUM		15.4	J	I	9.26	J	I	12.4	J	I	11.7	J	I
BERYLLIUM		0.083			0.0642			0.0924			0.0801		
CADMIUM		0.56	J	K	4.55			2.96			0.739	J	K
CALCIUM		1010	J	I	2150	J	I	2010	J	I	1400	J	I
CHROMIUM		26.6			8.17			41			19.1		
COBALT		2.08			2.07			4.01			4.91		
COPPER		6.63			5.77			9.66			7.62		
IRON		4580			2840			5090			8570		
LEAD		8.03			6.31			17.8			3.44		
MAGNESIUM		576			562			713			889		
MANGANESE		81.5			71.9			121			125		
MERCURY		0.0326			0.0297			0.0666			0.0335		
MOLYBDENUM		1.4			0.626			2.29			1.55		
NICKEL		16.9			6.58			24.2			14.9		
POTASSIUM		1430			1250			1210			1270		
SELENIUM		0.452			0.35			0.425			0.294		
SILVER		0.129	J	E	0.0378	J	EP	0.255	J	E	0.0319	J	EP
SODIUM		531			465			437			514		
THALLIUM		0.0226	U	AK	0.015	UJ	AP	0.0198	U	A	0.0185	UJ	AKP
VANADIUM		6.62			2.97			4.95			4.96		
ZINC		27			42.1			48.2			28.5		

PROJ_NO: 00816	NSAMPLE	DA-EW-MW115-080608			DA-EW-SB104-080708			DA-EW-SB108-080708			DA-EW-SB121-080708		
SDG: SB4591	LAB_ID	0808048-01			0808048-09			0808048-07			0808048-10		
FRACTION: M	SAMP_DATE	8/6/2008			8/7/2008			8/7/2008			8/7/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		175	J	I	2250	J	I	1730	J	I	1380	J	I
ANTIMONY		0.0136	J	DP	0.107	J	DP	0.0119	J	DP	0.0413	J	DP
ARSENIC		0.685			3.06			1.17			3.34		
BARIUM		3.37	J	I	9.56	J	I	11.2	J	I	6.71	J	I
BERYLLIUM		0.0148	U		0.082			0.14			0.0602		
CADMIUM		34.1			4.48			4.24			134		
CALCIUM		525	J	I	1340	J	I	973	J	I	855	J	I
CHROMIUM		2.01			6.59			36.9			14.8		
COBALT		1.6			3.02			1.95			1.85		
COPPER		1.93			7.35			5.53			9.62		
IRON		324			4450			3180			2960		
LEAD		141			12.4			24.3			17.7		
MAGNESIUM		163			618			464			446		
MANGANESE		8.26			64.7			60.6			53.3		
MERCURY		0.0996			0.0368			0.0217			0.0873		
MOLYBDENUM		0.184			0.48			2.36			1.01		
NICKEL		1.17			5.68			20.2			11.6		
POTASSIUM		1370			1310			1460			1440		
SELENIUM		3.37			0.475			0.362			1.77		
SILVER		0.0457	J	EP	0.0635	J	E	0.0587	J	E	0.0391	J	EP
SODIUM		754			535			501			692		
THALLIUM		0.014	UJ	AP	0.0205	U	A	0.0238	U	A	0.0134	UJ	AP
VANADIUM		0.408	J	P	4.68			3.73			2.91		
ZINC		111			36.7			27.6			296		

PROJ_NO: 00816	NSAMPLE	DA-EW-SB123-080608			DA-EW-SB130-080708			DA-EW-SB134-080608			DA-EW-SB153-080708		
SDG: SB4591	LAB_ID	0808048-03			0808048-06			0808048-02			0808048-08		
FRACTION: M	SAMP_DATE	8/6/2008			8/7/2008			8/6/2008			8/7/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		1830	J	I	1060	J	I	2300	J	I	1360	J	I
ANTIMONY		0.0327	J	DP	0.0171	J	DP	0.0131	J	DP	0.0184	J	DP
ARSENIC		2.76			2.67			2.62			4.27		
BARIUM		17	J	I	9.78	J	I	11	J	I	8.49	J	I
BERYLLIUM		0.0626			0.0378	J	P	0.0805			0.0486	J	P
CADMIUM		1.56			2.17			0.56			1.64		
CALCIUM		1450	J	I	1610	J	I	838	J	I	1580	J	I
CHROMIUM		48.3			3.57			17.9			3.3		
COBALT		1.96			1.56			2.06			2.08		
COPPER		7.05			6.65			6.41			5.11		
IRON		3710			2190			4330			3490		
LEAD		5.13			3.73			8.99			3.38		
MAGNESIUM		445			424			557			524		
MANGANESE		61.1			39.4			84.3			82.8		
MERCURY		0.0307			0.314			0.0241			0.0426		
MOLYBDENUM		3.09			0.288			1.33			0.217		
NICKEL		27.4			3.08			12.1			4.01		
POTASSIUM		1310			1340			1240			1260		
SELENIUM		0.325			0.317			0.324			0.318		
SILVER		0.0592	J	E	0.041	J	EP	0.12	J	E	0.0238	J	EP
SODIUM		556			574			562			476		
THALLIUM		0.0208	U	A	0.0103	UJ	AP	0.0207	U	A	0.0111	UJ	AP
VANADIUM		3.6			2.05			5.84			2.51		
ZINC		25.7			38.9			26.7			32		

PROJ_NO: 00816	NSAMPLE	DA-EW-DUP01-080608			DA-EW-MW103-080708			DA-EW-MW105-080708			DA-EW-MW113-080608		
SDG: SB4591	LAB_ID	0808048-12			0808048-05			0808048-11			0808048-04		
FRACTION: MISC	SAMP_DATE	8/6/2008			8/7/2008			8/7/2008			8/6/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF	DA-EW-SB134-080608											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LIPIDS		0.1	U		0.1	U		0.1	U		0.1	U	

PROJ_NO: 00816	NSAMPLE	DA-EW-MW115-080608			DA-EW-SB104-080708			DA-EW-SB108-080708			DA-EW-SB121-080708		
SDG: SB4591	LAB_ID	0808048-01			0808048-09			0808048-07			0808048-10		
FRACTION: MISC	SAMP_DATE	8/6/2008			8/7/2008			8/7/2008			8/7/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LIPIDS		0.1	U		0.1	U		0.1	U		0.121		

PROJ_NO: 00816	NSAMPLE	DA-EW-SB123-080608			DA-EW-SB130-080708			DA-EW-SB134-080608			DA-EW-SB153-080708		
SDG: SB4591	LAB_ID	0808048-03			0808048-06			0808048-02			0808048-08		
FRACTION: MISC	SAMP_DATE	8/6/2008			8/7/2008			8/6/2008			8/7/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LIPIDS		0.1	U		0.1	U		0.1	U		0.1	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2971W

Date: October 9, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB4591
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

Pesticides/PCB:
12/Earthworm samples/ DA-EW-DUP01-080608, DA-EW-MW103-080708, DA-EW-MW105-080708, DA-EW-MW113-080608, DA-EW-MW115-080608, DA-EW-SB104-080708, DA-EW-SB108-080708, DA-EW-SB121-080708, DA-EW-SB123-080608, DA-EW-SB130-080708, DA-EW-SB134-080608, DA-EW-SB153-080708

(Field Duplicate Pair: DA-EW-SB134-080608/ DA-EW-DUP01-080608)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the pesticide and polychlorinated biphenyls (PCB) analytical data for the earthworm samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area from August 6-7, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. Results are reported on a wet weight basis.

The data were evaluated based on the following parameters:

- Data Completeness
* • Preservation and Technical Holding Times
* • Instrument Performance Check: Pesticide Degradation
* • Initial and Continuing Calibrations
* • Blanks
* • Surrogate Compounds
* • Internal Standards

NA	•	Matrix Spike/Matrix Spike Duplicate
*	•	Laboratory Control Sample/Laboratory Control Sample Duplicate
	•	Field Duplicates
	•	Analyte Identification/Quantitation
NA	•	Percent Solids
*	•	Reporting Limits
NA	•	Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG or not applicable for Tier II data validation.

Data Completeness

The laboratory was contacted regarding the initial calibration summary form for the PCB analysis. A summary form was not provided in the data package since the initial calibration is based on a quadratic curve fit. The initial calibration information is found in the data package beginning on p. 201.

On September 18, 2008, the TtNUS project manager confirmed that there are no project action limits established for the earthworm samples.

On October 6, 2008, the laboratory confirmed that the r^2 values provided on the PCB initial calibration graphs are actually the coefficient of determination (COD), which is used to determine "goodness of fit".

Field Duplicates

The alpha-chlordane results of the field duplicate pair DA-EW-SB134-080608/DA-EW-DUP01-080608 did not meet QC criteria since one result was non-detect and the other result was greater than two times the quantitation limit. The positive result is estimated (J) and the non-detected result is estimated (UJ) due to field duplicate imprecision.

Although the field duplicate pair DA-EW-SB134-080608/DA-EW-DUP01-080608 did not meet QC criteria for alpha-chlordane; the project precision goals are not evaluated since there are no regulatory limits established for the earthworm samples. The positive and non-detected results in samples DA-EW-SB134-080608 and DA-EW-DUP01-080608 are usable as an estimated value and an estimated quantitation limit for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action (+)
DA-EW-MW115-080608	4,4'-DDT	185	UJ*
DA-EW-SB123-080608	4,4'-DDE	45	J

Sample	Analyte	%RPD	Action (+)
DA-EW-SB121-080708	4,4'-DDE	114	UJ*
DA-EW-MW105-080708	4,4'-DDE	45	J
DA-EW-DUP01-080608	Alpha-chlordane	41	J

*Professional judgment used to report the higher of the two results as a non-detected, estimated value.

Although the analyte quantitation relative percent differences exceeded the QC limits in the above samples, the project accuracy goals are not evaluated since there are no regulatory limits established for the earthworm samples. The positive results in the affected samples are usable as estimated values.

Although the analyte quantitation relative percent differences exceeded 100% for 4,4'-DDT in sample DA-EW-MW115-080608 and for 4,4'-DDE in sample DA-EW-SB121-080708, the project sensitivity goals are not evaluated since there are no regulatory limits established for the earthworm samples. The non-detected results in the affected samples are usable as estimated reporting limits.

Data Usability Assessment

The data usability assessment was performed to determine the data accuracy, precision, sensitivity, and data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details. There are no regulatory limits applicable to the earthworm samples.

Pesticides

No accuracy issues were found for the pesticides data set. Data usability was not impacted with regards to accuracy.

The following precision issues were found for the pesticides data set. Alpha-chlordane was qualified as estimated in samples DA-EW-SB134-080608 and DA-EW-DUP01-080608 due to field duplicate imprecision. Select compounds were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The following sensitivity issues were found for the pesticides data set. The positive results for 4,4'-DDT in sample DA-EW-MW115-080608 and for 4,4'-DDE in sample DA-EW-SB121-080708 were changed to non-detected values due to analyte quantitation relative percent differences exceeding 100%.

PCBs

The PCB data have no accuracy, precision, and sensitivity non-compliances. Data usability was not impacted with regards to accuracy, precision, and sensitivity.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables
Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816 SDG: SB4591 FRACTION: PEST/PCB MEDIA: WORM	NSAMPLE	DA-EW-DUP01-080608			DA-EW-MW103-080708			DA-EW-MW105-080708			DA-EW-MW113-080608		
	LAB_ID	0808048-12			0808048-05			0808048-11			0808048-04		
	SAMP_DATE	8/6/2008			8/7/2008			8/7/2008			8/6/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF	DA-EW-SB134-080608											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.363	U		0.372	U		0.38	U		0.384	U	
4,4'-DDE		1.26			1.07			7.92	J	U	0.384	U	
4,4'-DDT		0.363	U		0.372	U		0.38	U		0.384	U	
ALDRIN		0.363	U		0.372	U		0.38	U		0.384	U	
ALPHA-BHC		0.363	U		0.372	U		0.38	U		0.384	U	
ALPHA-CHLORDANE		0.849	J	GU	0.372	U		0.38	U		0.384	U	
AROCLOR-1016		14.5	U		14.9	U		15.2	U		15.4	U	
AROCLOR-1221		14.5	U		14.9	U		15.2	U		15.4	U	
AROCLOR-1232		14.5	U		14.9	U		15.2	U		15.4	U	
AROCLOR-1242		14.5	U		14.9	U		15.2	U		15.4	U	
AROCLOR-1248		14.5	U		14.9	U		15.2	U		15.4	U	
AROCLOR-1254		14.5	U		14.9	U		15.2	U		15.4	U	
AROCLOR-1260		14.5	U		14.9	U		76.3			15.4	U	
AROCLOR-1268		14.5	U		14.9	U		15.2	U		15.4	U	
BETA-BHC		0.363	U		0.372	U		0.38	U		0.384	U	
DELTA-BHC		0.363	U		0.372	U		0.38	U		0.384	U	
DIELDRIN		0.363	U		4.6			0.38	U		0.384	U	
ENDOSULFAN I		0.363	U		0.372	U		0.38	U		0.384	U	
ENDOSULFAN II		0.363	U		0.372	U		0.38	U		0.384	U	
ENDOSULFAN SULFATE		0.363	U		0.372	U		0.38	U		0.384	U	
ENDRIN		0.363	U		0.372	U		0.38	U		0.384	U	
ENDRIN ALDEHYDE		0.363	U		0.372	U		0.38	U		0.384	U	
ENDRIN KETONE		0.363	U		0.372	U		0.38	U		0.384	U	
GAMMA-BHC (LINDANE)		0.363	U		0.372	U		0.38	U		0.384	U	
GAMMA-CHLORDANE		0.363	U		0.372	U		0.38	U		0.384	U	
HEPTACHLOR		0.363	U		0.372	U		0.38	U		0.384	U	
HEPTACHLOR EPOXIDE		0.363	U		0.372	U		0.38	U		0.384	U	
HEXACHLOROBENZENE		0.363	U		0.372	U		0.38	U		0.384	U	
METHOXYCHLOR		0.726	U		0.743	U		0.759	U		0.768	U	
TOXAPHENE		18.2	U		18.6	U		19	U		19.2	U	

PROJ_NO: 00816	NSAMPLE	DA-EW-MW115-080608			DA-EW-SB104-080708			DA-EW-SB108-080708			DA-EW-SB121-080708		
SDG: SB4591	LAB_ID	0808048-01			0808048-09			0808048-07			0808048-10		
FRACTION: PEST/PCB	SAMP_DATE	8/6/2008			8/7/2008			8/7/2008			8/7/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.381	U		0.372	U		0.379	U		0.38	U	
4,4'-DDE		0.663			2.35			1.08			1.96	UJ	U
4,4'-DDT		11.4	UJ	U	0.372	U		0.379	U		0.38	U	
ALDRIN		0.381	U		0.372	U		0.379	U		0.38	U	
ALPHA-BHC		0.381	U		0.372	U		0.379	U		0.38	U	
ALPHA-CHLORDANE		0.381	U		0.916			0.485			0.38	U	
AROCLOR-1016		15.2	U		14.9	U		15.2	U		15.2	U	
AROCLOR-1221		15.2	U		14.9	U		15.2	U		15.2	U	
AROCLOR-1232		15.2	U		14.9	U		15.2	U		15.2	U	
AROCLOR-1242		15.2	U		14.9	U		15.2	U		15.2	U	
AROCLOR-1248		15.2	U		14.9	U		15.2	U		15.2	U	
AROCLOR-1254		15.2	U		39.6			15.2	U		15.2	U	
AROCLOR-1260		117			14.9	U		15.2	U		66.4		
AROCLOR-1268		15.2	U		32.6			15.2	U		15.2	U	
BETA-BHC		0.381	U		0.372	U		0.379	U		0.38	U	
DELTA-BHC		0.381	U		0.372	U		0.379	U		0.38	U	
DIELDRIN		0.381	U		0.372	U		0.379	U		0.38	U	
ENDOSULFAN I		0.381	U		0.372	U		0.379	U		0.38	U	
ENDOSULFAN II		0.381	U		0.372	U		0.379	U		0.38	U	
ENDOSULFAN SULFATE		0.381	U		0.372	U		0.379	U		0.38	U	
ENDRIN		0.381	U		0.372	U		0.379	U		0.38	U	
ENDRIN ALDEHYDE		0.381	U		0.372	U		0.379	U		0.38	U	
ENDRIN KETONE		0.381	U		0.372	U		0.379	U		0.38	U	
GAMMA-BHC (LINDANE)		0.381	U		0.372	U		0.379	U		0.38	U	
GAMMA-CHLORDANE		0.381	U		0.372	U		0.379	U		0.38	U	
HEPTACHLOR		0.381	U		0.372	U		0.379	U		0.38	U	
HEPTACHLOR EPOXIDE		0.381	U		0.372	U		0.379	U		0.38	U	
HEXACHLOROBENZENE		0.381	U		0.372	U		0.379	U		0.38	U	
METHOXYCHLOR		0.762	U		0.745	U		0.758	U		0.759	U	
TOXAPHENE		19	U		18.6	U		18.9	U		19	U	

PROJ_NO: 00816	NSAMPLE	DA-EW-SB123-080608			DA-EW-SB130-080708			DA-EW-SB134-080608			DA-EW-SB153-080708		
SDG: SB4591	LAB_ID	0808048-03			0808048-06			0808048-02			0808048-08		
FRACTION: PEST/PCB	SAMP_DATE	8/6/2008			8/7/2008			8/6/2008			8/7/2008		
MEDIA: WORM	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.38	U		0.361	U		0.382	U		0.381	U	
4,4'-DDE		0.721	J	U	1.22			1.09			0.716		
4,4'-DDT		0.38	U		0.361	U		0.382	U		0.381	U	
ALDRIN		0.38	U		0.361	U		0.382	U		0.381	U	
ALPHA-BHC		0.38	U		0.361	U		0.382	U		0.381	U	
ALPHA-CHLORDANE		0.38	U		0.361	U		0.382	UJ	G	0.381	U	
AROCLOR-1016		15.2	U		14.4	U		15.3	U		15.2	U	
AROCLOR-1221		15.2	U		14.4	U		15.3	U		15.2	U	
AROCLOR-1232		15.2	U		14.4	U		15.3	U		15.2	U	
AROCLOR-1242		15.2	U		14.4	U		15.3	U		15.2	U	
AROCLOR-1248		15.2	U		14.4	U		15.3	U		15.2	U	
AROCLOR-1254		15.2	U		14.4	U		15.3	U		15.2	U	
AROCLOR-1260		15.2	U		14.4	U		15.3	U		71.2		
AROCLOR-1268		15.2	U		14.4	U		15.3	U		15.2	U	
BETA-BHC		0.38	U		0.361	U		0.382	U		0.381	U	
DELTA-BHC		0.38	U		0.361	U		0.382	U		0.381	U	
DIELDRIN		0.38	U		0.361	U		0.382	U		0.381	U	
ENDOSULFAN I		0.38	U		0.361	U		0.382	U		0.381	U	
ENDOSULFAN II		0.38	U		0.361	U		0.382	U		0.381	U	
ENDOSULFAN SULFATE		0.38	U		0.361	U		0.382	U		0.381	U	
ENDRIN		0.38	U		0.361	U		0.382	U		0.381	U	
ENDRIN ALDEHYDE		0.38	U		0.361	U		0.382	U		0.381	U	
ENDRIN KETONE		0.38	U		0.361	U		0.382	U		0.381	U	
GAMMA-BHC (LINDANE)		0.38	U		0.361	U		0.382	U		0.381	U	
GAMMA-CHLORDANE		0.38	U		0.361	U		0.382	U		0.381	U	
HEPTACHLOR		0.38	U		0.361	U		0.382	U		0.381	U	
HEPTACHLOR EPOXIDE		0.38	U		0.361	U		0.382	U		0.381	U	
HEXACHLOROBENZENE		0.38	U		0.361	U		0.382	U		0.381	U	
METHOXYCHLOR		0.759	U		0.722	U		0.765	U		0.762	U	
TOXAPHENE		19	U		18	U		19.1	U		19	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2916W

Date: October 8, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Inorganic Data Validation, SDG SB4716
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island

TAL Metals and Molybdenum (Total):

7/Sediments/	DA-SD-117-082108	DA-SD-119-0424
	DA-SD-125-0424	DA-SD-128-082108
	DA-SD-129-082108	DA-SD-130-082108
	DA-SD-131-082108	
1/Surface water/	DA-SW-117-082108	

TAL Metals and Molybdenum (Dissolved):

1/Surface water/	DA-SW-117F-082108

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals and molybdenum analytical data from sediment and surface water samples collected at the Site 08-NUSC Disposal Area on August 21, 2008. Sample collection and analysis were performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The metals analysis was performed according to USEPA SW-846 Methods 6010B/6020/7470A/7471A. Tier II data validations were performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• ICP-MS Tuning
*	• ICP-MS Internal Standard Performance
	• Calibration Verification
	• Laboratory Blank Analyses
	• ICP Interference Check Sample Results
*	• Matrix Spike/Matrix Spike Duplicate
NA	• Laboratory Duplicate Results
*	• Laboratory Control Sample Results
NA	• Field Duplicate Precision

* • ICP Serial Dilution Results
• Reporting Limits
NA • Sample Quantitation
* All quality control criteria were met for this parameter.
NA Not applicable for this SDG or for a Tier II data validation.

Calibration Verification

The percent recovery for magnesium in the initial calibration verification was below the 90 percent QC criterion. The positive results are estimated (J) for samples DA-SW-117-082108 and DA-SW-117F-082108.

Although the %R for a continuing calibration verification was below QC limits for magnesium, the project accuracy goals are not impacted since there are no regulatory limits established for magnesium for the surface water samples. The magnesium results in the affected samples are usable as estimated values which may be biased low.

The following table summarizes the analyte that recovered above the 130% QC recovery limit in the PQL standard:

Analyte	%R	2xTrue Value (TV) (µg/L)	Action		Affected Samples
			(+)	NDs	
Lead	134.4	10	J <2xTV		DA-SW-117-082018, DA-SW-117F-082108

Lead recovered above the 130% QC limit in the PQL check standard; therefore, the project accuracy goals may be impacted. The positive lead results in the affected samples are usable as estimated values which may be biased high.

Laboratory Blank Analyses

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the sediment samples:

Analyte	Maximum Conc.	Action Level (mg/kg)	Affected Samples
Thallium	0.30 µg/L	0.15	All sediment samples
Selenium	2.24 µg/L	1.12	DA-SD-125-0424
Sodium	15.76 mg/kg	78.8	DA-SD-131-082108

The positive results below the blank action levels for thallium, selenium, and sodium were changed to non-detected values (U) at elevated reporting limits in the affected sediment samples due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 1. The action level for each sample varies, based on the actual amount of sample analyzed, the percent solids for that sample, and the sample dilution factor.

Although thallium, selenium, and sodium contamination was found in the laboratory blanks, the project sensitivity goals were not impacted since the project action limits for thallium and selenium were not

exceeded by the sample-specific elevated reporting limits, and since no project action limits have been established for sodium. The results in the affected samples are usable as elevated reporting limits.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the surface water samples:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Aluminum	43.71	218.6	DA-SW-117-082018, DA-SW-117F-082108
Chromium	3.05	15.2	
Cobalt	0.35	1.75	DA-SW-117-082018
Lead	1.74	8.70	DA-SW-117-082018, DA-SW-117F-082108
Mercury	-0.05	0.25	DA-SW-117-082018, DA-SW-117F-082108
Vanadium	0.82	4.10	
Zinc	1.48	7.40	DA-SW-117F-082108
Molybdenum	1.92	9.61	DA-SW-117-082018, DA-SW-117F-082108

The positive results below the blank action levels for aluminum, chromium, cobalt, lead, vanadium, zinc and molybdenum were changed to non-detected values (U) in the affected samples due to laboratory blank contamination. The non-detected results for mercury are estimated (UJ) in the affected due to negative instrument drift.

Although chromium, cobalt, vanadium, zinc and molybdenum contamination was found in the laboratory blank, the project sensitivity goals were not impacted since the project action limits were not exceeded by the sample-specific elevated reporting limits. The results in the affected samples are usable as elevated reporting limits.

Aluminum and lead contamination was found in the laboratory blank; therefore, the project sensitivity goals are impacted since the project action limits were exceeded by the elevated reporting limits for sample DA-SW-117-082108. The results in the affected samples are usable as elevated reporting limits.

Negative mercury contamination was found in the laboratory blank; therefore, the project accuracy goals may be impacted. The non-detected mercury results in the affected samples are usable as estimated reporting limits which may be biased low.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ		High	DA-SD-119-0424, DA-SD-125-0424, DA-SD-128-082108, DA-SD-129-082108, DA-SD-130-082108, DA-SD-131-082108
Cadmium	J		High	DA-SD-117-082108, DA-SD-119-0424, DA-SD-125-0424, DA-SD-129-082108, DA-SD-130-082108, DA-SD-131-082108
	UJ			DA-SD-128-082108
Molybdenum	J		Low	DA-SD-117-082108, DA-SD-119-0424, DA-SD-125-0424, DA-SD-128-082108, DA-SD-129-082108, DA-SD-130-082108
Selenium	J	UJ	Low	All sediment samples
Silver	J		Low	
Sodium	J		High	DA-SD-119-0424, DA-SD-125-0424, DA-SD-128-082108, DA-SD-129-082108, DA-SD-130-082108, DA-SD-131-082108

The positive results for cadmium and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. The results may be biased high.

The positive and non-detected results for molybdenum, selenium, and silver in the affected samples are qualified as estimated (J, UJ) due to negative ICP interference attributed to iron. The results may be biased low.

Professional judgment was used to change the positive antimony and cadmium results to estimated, non-detected values (UJ) in the affected samples, rather than reject as provided in the data validation guidelines, because the reported concentration may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

There were ICP interferences for cadmium, molybdenum, selenium, and silver attributed to the high concentration of iron resulting in the estimation of results for these metals in the samples listed above; therefore, the project accuracy goals may be impacted. The positive cadmium results in the affected samples are usable as estimated values which may be biased high. The positive and non-detected molybdenum, selenium, and silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were ICP interferences for sodium attributed to the high concentration of iron resulting in the estimation of sodium results in the samples listed above, the project accuracy goals are not impacted since there are no regulatory limits established for sodium for the sediment samples. The positive sodium results are usable as estimated values which may be biased high.

Although there were ICP interferences for antimony and cadmium attributed to the high concentration of iron resulting in the raising of the reporting limits for antimony and cadmium in the samples listed above, the project sensitivity goals are not impacted since the elevated reporting limits for antimony and cadmium do not exceed the project action limits for the sediment samples. The antimony and cadmium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Reporting Limits

The laboratory reported non-detected results down to the IDL. The laboratory reporting limits met the sediment project quantitation limits and project action limits. The surface water project action limits were not achievable for antimony, beryllium, silver, and thallium. Data usability may be impacted.

The positive results above the IDL and below the laboratory's quantitation limit are estimated (J) due to uncertainty below the quantitation limit.

Reporting limits were elevated for thallium, selenium, sodium, aluminum, chromium, cobalt, lead, vanadium, zinc and molybdenum due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals are not affected except for aluminum and lead in sample DA-SW-117-082108 for which the project action limits were exceeded by the elevated reporting limits.

Reporting limits were elevated for antimony and cadmium due to ICP interferences. As discussed above in the ICP Interference Check Sample Results section, the project sensitivity goals are not affected.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for this data set with the following exceptions. Lead was qualified as estimated in the surface water samples due to poor linearity near the reporting limit. Mercury was qualified as estimated in the surface water samples due to negative instrument drift. Cadmium, molybdenum, selenium, and silver were qualified as estimated in select sediment samples due to ICP interferences. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits. Data usability may be impacted. Magnesium was qualified as estimated due to instrument calibration variability and sodium due to ICP interference. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated reporting limits.

The project goals with respect to precision were met for this data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for this data set with the following exceptions. The surface water project action limits were not achievable for antimony, beryllium, silver, and thallium. Blank actions resulting in elevated reporting limits for aluminum and lead in sample DA-SW-117-082108 exceeded surface water project action limits. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SD-117-082108			DA-SD-119-0424			DA-SD-125-0424			DA-SD-128-082108		
SDG: SB4716	LAB_ID	SB4716-008			SB4716-005			SB4716-011			SB4716-017		
FRACTION: M	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	32.8			42.3			38.0			77.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		21100			18000			26500			12600		
ANTIMONY		0.34	U		0.35	UJ	KP	0.62	UJ	KP	0.39	UJ	KP
ARSENIC		15.8			18.8			19.4			16.1		
BARIUM		81.4			59.3			127			18.1		
BERYLLIUM		0.55	J	P	0.46	J	P	0.66	J	P	0.29	J	P
CADMIUM		1.5	J	KP	1.1	J	KP	1.5	J	K	0.43	UJ	KP
CALCIUM		2340			1560			2070			1380		
CHROMIUM		27.7			21			28.8			19.1		
COBALT		40.1			35.9			73.1			14.4		
COPPER		47.8			27.4			37.9			20.1		
IRON		33900			28700			34400			29800		
LEAD		264			149			216			44.9		
MAGNESIUM		3800			3330			4410			3660		
MANGANESE		398			255			397			485		
MERCURY		0.21			0.2			0.25			0.08		
MOLYBDENUM		2.6	J	K	0.9	J	KP	1.4	J	KP	0.55	J	KP
NICKEL		31.3			25			36.7			26.8		
POTASSIUM		1260			794			1300			387		
SELENIUM		0.45	UJ	K	0.27	UJ	K	0.65	UJ	AKP	0.39	UJ	K
SILVER		0.91	J	KP	0.78	J	KP	1	J	KP	0.32	J	KP
SODIUM		289			149	J	K	202	J	K	74.3	J	KP
THALLIUM		0.16	UJ	AP	0.14	UJ	AP	0.18	UJ	AP	0.09	UJ	AP
VANADIUM		37.1			31.5			51.3			32		
ZINC		228			149			206			67.6		

PROJ_NO: 00816	NSAMPLE	DA-SD-129-082108			DA-SD-130-082108			DA-SD-131-082108		
SDG: SB4716	LAB_ID	SB4716-020			SB4716-023			SB4716-014		
FRACTION: M	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	76.7			65.9			77.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		19000			13400			13700		
ANTIMONY		0.44	UJ	KP	0.47	UJ	KP	0.75	UJ	KP
ARSENIC		17.4			13			16.3		
BARIUM		67.6			54.6			49.6		
BERYLLIUM		0.47	J	P	0.33	J	P	0.38	J	P
CADMIUM		1.4	J	K	1.5	J	K	1.2	J	KP
CALCIUM		3240			7040			2280		
CHROMIUM		23.5			19.2			20.9		
COBALT		32			17.7			82.1		
COPPER		30.2			36.2			31.3		
IRON		30600			26400			31400		
LEAD		137			86			580		
MAGNESIUM		4000			3730			3780		
MANGANESE		1300			632			2500		
MERCURY		0.16			0.19			0.11		
MOLYBDENUM		2.5	J	K	0.85	J	KP	5.9		
NICKEL		26.6			29.6			26.6		
POTASSIUM		1040			697			686		
SELENIUM		0.26	UJ	K	0.26	UJ	K	0.41	UJ	K
SILVER		0.51	J	KP	0.26	J	KP	0.85	J	KP
SODIUM		108	J	KP	105	J	KP	74.3	UJ	AKP
THALLIUM		0.17	UJ	AP	0.07	UJ	AP	0.08	UJ	AP
VANADIUM		34.1			33			28		
ZINC		139			111			144		

PROJ_NO: 00816 SDG: SB4716 FRACTION: M MEDIA: WATER	NSAMPLE	DA-SW-117-082108			DA-SW-117F-082108		
	LAB_ID	SB4716-001			SB4716-002		
	SAMP_DATE	8/21/2008			8/21/2008		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		103	UJ	AP	35.5	UJ	AP
ANTIMONY		1.92	U		1.6	U	
ARSENIC		4.9	J	P	3	J	P
BARIUM		10.9			7.4		
BERYLLIUM		0.18	U		0.15	U	
CADMIUM		0.12	U		0.1	U	
CALCIUM		21100			20900		
CHROMIUM		0.62	UJ	AP	0.74	UJ	AP
COBALT		1	UJ	AP	0.25	U	
COPPER		1.04	U		1.1	J	P
IRON		1180			251		
LEAD		5.5	UJ	ACP	1.8	UJ	ACP
MAGNESIUM		4850	J	C	4760	J	C
MANGANESE		352			85.4		
MERCURY		0.02	UJ	O	0.02	UJ	O
MOLYBDENUM		3.7	UJ	AP	3.6	UJ	AP
NICKEL		1.2	J	P	0.53	J	P
POTASSIUM		3390			3130		
SELENIUM		2.52	U		2.1	U	
SILVER		0.62	U		0.52	U	
SODIUM		26100			24700		
THALLIUM		0.36	U		0.3	U	
VANADIUM		1.4	UJ	AP	0.93	UJ	AP
ZINC		7.5	J	P	6.2	UJ	AP

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2924W

Date: October 10, 2008

c: File G00816-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB4716
Katahdin Analytical Services, Inc.
CTO 402, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

VOC/SVOC/PAH/Pesticides/PCB/GRO/ExTPH:

7/Sediments/	DA-SD-117-082108	DA-SD-119-0424
	DA-SD-125-0424	DA-SD-128-082108
	DA-SD-129-082108	DA-SD-130-082108
	DA-SD-131-082108	

VOC/SVOC/Pesticides/PCB/GRO/ExTPH:

1/Surface water/	DA-SW-117-082108	

VOC/GRO:

2/Trip Blanks/	DA-TB-082108S	DA-TB-082108A

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile organic compounds (VOC), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAH), pesticide, polychlorinated biphenyls (PCB), gasoline range organics (GRO), and extractable total petroleum hydrocarbons (ExTPH) analytical data for the sediment samples in this SDG. The samples were collected at the Site 08-NUSC Disposal Area on August 21, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively; and the PAH analysis according to USEPA SW-846 Method 8270C in the selective ion monitoring (SIM) mode. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081A and 8082, respectively. The GRO and ExTPH analyses were performed according to USEPA SW-846 Method 8015M.

The VOC, SVOC, PAH, GRO, and ExTPH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
*	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
*	• Instrument Performance Check: Pesticide Degradation
	• Initial and Continuing Calibrations
	• Blanks
	• Surrogate Compounds
	• Internal Standards
NA	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	• Field Duplicates
	• Analyte Identification/Quantitation
*	• Percent Solids
	• Reporting Limits
NA	• Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG or not applicable for Tier II data validation.

Data Completeness

The trip blank DA-TB-082108A was not marked for GRO analysis on the chain of custody. On August 25, 2008, the TtNUS project manager informed the laboratory that the trip blanks should be analyzed for GRO.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Acetone	38.26	J	UJ	DA-SD-129-082108(RA), DA-SD-130-082108

The %D was outside of the QC limits for acetone; therefore, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated quantitation limits and estimated values.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration criterion of %RSD >30%, the continuing calibration (CC) criterion of %D <25, or the criterion of RRF >0.05:

Compound	RRF	%D	Action		Affected Samples
			(+)	NDs	
3-Nitroaniline	-	59.22		UJ	All sediment samples
Benzidine	0.049	111.9		UR	
Benzoic acid	-	-29.33	J	UJ	
Di-n-octylphthalate	-	29.02		UJ	
2,2'-Oxybis(1-chloropropane)	-	28.80		UJ	DA-SW-117-082108
Benzoic acid	-	-35.26		UJ	
2,4-Dinitrophenol	-	-26.06		UJ	
Di-n-butylphthalate	-	26.72		UJ	
Butylbenzylphthalate	-	41.42		UJ	
Bis(2-ethylhexyl)phthalate	-	51.07		UJ	
Di-n-octylphthalate	-	58.34		UJ	
Indeno(1,2,3-cd)pyrene	-	-34.97		UJ	
Dibenzo(a,h)anthracene	-	-36.89		UJ	
Benzo(g,h,i)perylene	-	-34.30		UJ	

-Criterion met

Although the %D was outside of the QC limits for 3-nitroaniline and di-n-octylphthalate, the sediment project accuracy goals are not impacted since there are no regulatory limits established for these compounds for the sediment samples. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D was slightly outside of the QC limits for benzoic acid in the sediment samples, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

The RRF and %D were outside of the QC limits for benzidine and the benzidine results for all sediment samples are rejected. The affected results are not usable for project decisions. The data completeness goals may be impacted, however there are no regulatory limits for this compound in the sediment samples.

Although the %D was outside of the QC limits for 2,2'-oxybis(1-chloropropane), butylbenzylphthalate, and di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds for the surface water samples. The non-detected results in the affected sample are usable as estimated quantitation limits.

Although the %D was outside of the QC limits for benzoic acid and di-n-butylphthalate, the surface water project accuracy goals are not impacted since the instrument calibration variability is below safety margin

of greater than 100% allocated for these compounds for the surface water samples. The non-detected results in the affected sample are usable as estimated quantitation limits.

The %D was outside of the QC limits for 2,4-dinitrophenol, bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene; therefore, the surface water project accuracy goals are impacted. The non-detected results in the affected sample are usable as estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Heptachlor	-43.80	-41.40		UJ	All samples
4,4'-DDT	-87.04	-87.64	J	UJ	
Methoxychlor	-87.74	-84.48		UJ	
Endrin ketone	-37.80	-43.80		UJ	

Although the %D was outside of the QC limits for heptachlor, methoxychlor, and endrin ketone, the project accuracy goals are not impacted since there are no regulatory limits established for these compounds for the sediment or surface water samples. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D was outside of the QC limits for 4,4'-DDT, the project accuracy goals are not impacted since the instrument calibration variability is below the safety margin of greater than 100% allocated for this compound for the sediment samples. The project accuracy goals may be impacted for the surface water sample. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

PCBs

The following table summarizes the Aroclors that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	39.05, 37.88	51.46, 45.72		UJ	DA-SD-119-0424, DA-SD-117-082108, DA-SD-131-082108, DA-SD-128-082108, DA-SD-129-082108
Aroclor-1260	37.46, 30.92	43.53, 40.72		UJ	

Although the %D was outside of the QC limits for Aroclor-1016 and Aroclor-1260, the project accuracy goals are not impacted for these samples (except sample DA-SD-117-082108) since the instrument calibration variability is below the safety margin of greater than 75% allocated for these Aroclors for the

sediment samples. Data usability may be impacted for sample DA-SD-117-082108. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

Pesticides

The following table summarizes the level of blank contamination detected in the method blank associated with the sample:

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
4,4'-DDD	Method	0.0016	0.008	DA-SW-117-082108

Blank action was applied to the affected sample due to 4,4'-DDD method blank contamination. The 5x rule is applies for this pesticide compound. The positive result for 4,4'-DDD in the affected sample is changed to a non-detected value at the sample-specific QL.

4,4'-DDD contamination was found in the method blank; however, the surface water project sensitivity goals are not impacted since the elevated reporting limit for the surface water sample does not exceed the project action limit. The result in the affected sample is usable as a non-detected value.

Surrogate Compounds

Volatiles

The following sample had a surrogate spike recovery outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
DA-SD-130-082108	p-Bromofluorobenzene	51	53-122	J	UJ

The surrogate p-bromofluorobenzene recovered below the QC limits in the sample DA-SD-130-082108. All results are estimated (J, UJ) in the affected sample due to a low surrogate recovery.

The surrogate recovery QC criteria were not met p-bromofluorobenzene; therefore, the project accuracy goals may be impacted. The positive and non-detected results in sample DA-SD-130-082108 are usable as estimated values and estimated quantitation limits which may be biased low.

Internal Standards

Volatiles

The following table summarizes the volatile internal standard that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
1,4-Dichlorobenzene-d4	302640	305822-1223286	J	UJ	DA-SD-129-082108(RA)
	194663		J	UJ	DA-SD-130-082108

The internal standard areas of 1,4-dichlorobenzene-d4 failed to meet the acceptable range for the samples listed above. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, isopropylbenzene, bromobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, 1,2,3-trichlorobenzene, and n-butylbenzene. All positive results are estimated (J) and all non-detected results are estimated (UJ) for the corresponding target compounds in the affected samples.

The QC criteria were not met for the internal standard areas of 1,4-dichlorobenzene-d4 for the above listed samples; therefore, the project accuracy goals may be impacted. The positive and non-detected results for the affected compounds in the affected samples are usable as estimated values and estimated quantitation limits.

Laboratory Control Sample/Laboratory Control Sample Duplicates

Volatiles

The following table summarizes the volatile compounds that did not meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery QC limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Dichlorodifluormethane	70	72-196		UJ	DA-TB-082108, DA-SD-119-0424, DA-SD-125-0424, DA-SD-117-082108, DA-SD-131-082108, DA-SD-128-082018
1,2,4-Trichlorobenzene	73, 78	79-129		UJ	All sediment samples
1,2,3-Trichlorobenzene	76, 80	82-124		UJ	

The LCS/LCSD recoveries for dichlorodifluoromethane and 1,2,3-trichlorobenzene were below the QC limits; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Although the LCS/LCSD recovery for 1,2,4-trichlorobenzene was below the QC limits, the project accuracy goals are not impacted since there are no regulatory limits established for this compound for the sediment samples. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that did not meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery QC limits or the relative percent difference (RPD) QC limits:

Compound	RPD	% Rec.	QC Limits	Action		Affected Samples
				(+)	NDs	
1,1'-Biphenyl	-	63, 63	64-130		UJ	All sediment samples
Benzidine	200	0	30/10-94		UR	DA-SW-117-082108

-Criterion met

1,1'-Biphenyl recovered below the LCS/LCSD QC limits; therefore, the project accuracy goals may be impacted for the sediment samples. The non-detected 1,1'-biphenyl results in the affected samples are usable as estimated quantitation limits which may be biased low.

There was no recovery for the spiked analyte benzidine in the aqueous LCS/LCSD. The non-detected result is rejected (UR) for benzidine in the surface water sample DA-SW-117-082108. The affected result is not usable for project decisions. The data completeness goals may be impacted.

PCBs

The following table summarizes the Aroclor that did not meet the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery QC limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Aroclor-1016	71	82-117		UJ	DA-SW-117-082108

The aqueous LCS/LCSD recovery for Aroclor-1016 was below the QC limits; therefore, the project accuracy goals may be impacted. The non-detected result in the affected sample is usable as an estimated quantitation limit which may be biased low.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compounds in the following samples:

Sample	Analyte	%RPD	Action (+)
DA-SD-119-0424	Alpha-chlordane	40.9	J
	4,4'-DDT	85.3	J
DA-SD-117-082108	4,4'-DDT	54.3	J
DA-SD-125-0424	4,4'-DDT	103.0	*UJ at 28.2

Sample	Analyte	%RPD	Action (+)
DA-SD-128-082108	Alpha-chlordane	71.5	J
	4,4'-DDT	42.9	J
DA-SD-129-082108	Alpha-chlordane	43.5	J
DA-SD-130-082108	Dieldrin	48.5	J
	4,4'-DDD	48.7	J
	4,4'-DDT	104.5	*UJ at 8.6

*Professional judgment used to report the higher of the two results as an estimated, non-detected value.

The analyte quantitation relative percent differences exceeded the QC limits in the above samples, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

The analyte quantitation relative percent differences exceeded 100% for 4,4'-DDT in samples DA-SD-125-0424 and DA-SD-130-082108; therefore, the project sensitivity goals may be impacted since the elevated reporting limit exceeds the project action limit for 4,4'-DDT for sediment samples. The non-detected results in the affected samples are usable as estimated reporting limits.

PCBs

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action (+)
DA-SD-125-0424	Aroclor-1260	41.3	J

The analyte quantitation relative percent difference exceeded the QC limits in the above sample, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive result in the affected sample is usable as an estimated value.

Reporting Limits

Volatiles (Surface Water)

The laboratory met all project quantitation limits. Project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. Data usability may be impacted.

Volatiles (Sediments)

Although reporting limits for select volatile compounds did not meet project quantitation limits due to percent moisture of the sediment samples, all reporting limits met project action limits; except for vinyl

chloride in select samples. Additionally, acetone, carbon disulfide, and xylenes project action limits were not achievable as highlighted in Table 4-3A of the approved work plan.

Semivolatiles (Surface Water)

The laboratory did not meet the project required quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2,4-dinitrophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-nitroaniline, 4-nitrophenol, benzidine, benzyl alcohol, and pentachlorophenol.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, benzyl alcohol, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Semivolatiles (Sediment)

Although reporting limits for select semivolatile compounds did not meet project quantitation limits due to percent moisture of the sediment samples, all reporting limits met project action limits except for 2,4-dimethylphenol, 3&4-methylphenols, pentachlorophenol, and phenol. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan. Also the project action limits for 1,1-biphenyl and diethylphthalate were not met in select samples. Data usability may be impacted.

PAH (Sediment)

Although reporting limits for select PAH compounds did not meet project quantitation limits due to percent moisture of the sediment samples, all reporting limits met project action limits except for 2-methylnaphthalene, fluorene, and naphthalene in select samples. The project quantitation limits for this compound exceeded the project action limits as highlighted in the approved work plan.

Pesticides (Surface Water)

The laboratory met all project quantitation limits, except for toxaphene. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene. Data usability may be impacted.

Blank actions were applied to sample DA-SW-117-082108 due to 4,4'-DDD blank contamination. As discussed above in the Blanks section, the project sensitivity goals are not impacted.

The positive results for 4,4'-DDT in samples DA-SD-125-0424 and DA-SD-130-082108 were changed to non-detected values due to analyte quantitation relative percent differences exceeding 100%. As discussed above in the Analyte Quantitation section, the project sensitivity goals may be impacted.

Pesticides (Sediment)

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the sediment samples, all reporting limits met project action limits except for toxaphene. The project quantitation limit for this compound exceeded the project action limit as highlighted in the approved work plan. Data usability may be impacted.

PCBs (Surface Water)

The laboratory met all required project quantitation limits. The project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

PCBs (Sediment)

Although reporting limits for select PCB compounds did not meet project quantitation limits due to percent moisture of the sediment samples, all reporting limits met project action limits.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity, and data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Acetone was qualified as estimated in select sediment samples due to instrument calibration variability. Sample DA-SD-130-082108 was qualified as estimated due to a low surrogate recovery. The affected results may be biased low. Select samples were qualified as estimated due to poor internal standard performance. Dichlorodifluoromethane and 1,2,3-trichlorobenzene were qualified as estimated in select samples due to low LCS/LCSD recoveries. The affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits. Data usability may be impacted. Additional compounds were qualified as estimated due to low LCS/LCSD recoveries. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the volatiles data set with the following exceptions. The surface water project action limits were not achievable for the following compounds as noted in the approved work plan: 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. All laboratory reporting limits met sediment project action limits except for vinyl chloride in select samples.

Additionally, acetone, carbon disulfide, and xylenes project action limits were not achievable as highlighted in Table 4-3A of the approved work plan. Data usability may be impacted.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. The compounds 2,4-dinitrophenol, bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene were qualified as estimated in sample DA-SW-117-082108 due to instrument calibration variability. Benzoic acid was qualified as estimated in the sediment samples due to instrument calibration variability. 1,1'-Biphenyl was qualified as estimated in select samples due to low LCS/LCSD recoveries. The affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits. Data usability may be impacted. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. Project action limits were not achievable for the following surface water compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, dibenzofuran, fluoranthene, fluorene, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, benzyl alcohol, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. All reporting limits met the sediment project action limits except for 2,4-dimethylphenol, 3&4-methylphenols, pentachlorophenol, and phenol. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan. Also the project action limits for 1,1-biphenyl and diethylphthalate were not met in select samples. Data usability may be impacted.

The project goals with respect to data completeness were met for the semivolatiles data set with the following exceptions. The benzidine results in all sediment samples were rejected due to instrument calibration variability. The benzidine result in sample DA-SW-117-082108 was rejected due to no LCS/LCSD recovery. The affected results are not usable for project decisions, however there are no regulatory limits established for benzidine for the sediment or surface water samples.

PAH

The project goals with respect to accuracy and precision were met for the PAH data set. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity were met for the PAH data set with the following exception. All reporting limits met the sediment project action limits except for 2-methylnaphthalene, fluorene, and naphthalene in select samples. The project quantitation limits for this compound exceeded the project action limits as highlighted in the approved work plan. Data usability may be impacted.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. The compound 4,4'-DDT was qualified as estimated in sample DA-SW-117-082108 due to instrument calibration variability. Select compounds were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits. Data usability may be impacted. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the pesticides data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the pesticides data set with the following exceptions. The positive results for 4,4'-DDT in samples DA-SD-125-0424 and DA-SD-130-082108 were changed to estimated, non-detected values due to analyte quantitation relative percent differences exceeding 100%. The elevated reporting limits exceed the project action limit. Project action limits were not achievable for the following compounds as noted in the approved work plan: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, gamma-chlordane, and toxaphene. All sediment reporting limits met project action limits except for toxaphene. The project quantitation limits for these compounds exceeded the project action limits as highlighted in the approved work plan. Data usability may be impacted.

PCBs

The project goals with respect to accuracy were met for the PCB data set with the following exception. Aroclor-1016 and Aroclor-1260 were qualified as estimated in sample DA-SD-117-082108 due to instrument calibration variability. Aroclor-1016 was qualified as estimated in sample DA-SW-117-082108 due to low LCS/LCSD recoveries. The affected result may be biased low. Aroclor-1260 in sample DA-SD-125-0424 was qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits. Data usability may be impacted. Additional compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the PCBs data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the PCBs data set with the following exception. The surface water project action limits were not achievable for all of the Aroclors as noted in the approved work plan. Data usability may be impacted.

GRO and ExTPH

No qualifications affecting accuracy and precision were applied for the GRO and ExTPH data sets. Data usability was not impacted with regards to accuracy and precision.

The project goals with respect to sensitivity could not be evaluated for the GRO and ExTPH data sets because no regulatory limits have been established for this analysis.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00816	NSAMPLE	DA-SD-117-082108			DA-SD-119-0424			DA-SD-125-0424			DA-SD-128-082108		
SDG: SB4716	LAB_ID	SB4716-10			SB4716-7			SB4716-13			SB4716-19		
FRACTION: OV	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	31.0			41.9			39.1			85.5		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	6	U		12	U		13	U		5	U	
1,1,1-TRICHLOROETHANE	6	U		12	U		13	U		5	U	
1,1,2,2-TETRACHLOROETHANE	6	U		12	U		13	U		5	U	
1,1,2-TRICHLOROETHANE	6	U		12	U		13	U		5	U	
1,1-DICHLOROETHANE	6	U		12	U		13	U		5	U	
1,1-DICHLOROETHENE	6	U		12	U		13	U		5	U	
1,1-DICHLOROPROPENE	6	U		12	U		13	U		5	U	
1,2,3-TRICHLOROBENZENE	6	UJ	E	12	UJ	E	13	UJ	E	5	UJ	E
1,2,3-TRICHLOROPROPANE	6	U		12	U		13	U		5	U	
1,2,4-TRICHLOROBENZENE	6	UJ	E	12	UJ	E	13	UJ	E	5	UJ	E
1,2,4-TRIMETHYLBENZENE	6	U		12	U		13	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	6	U		12	U		13	U		5	U	
1,2-DIBROMOETHANE	6	U		12	U		13	U		5	U	
1,2-DICHLOROBENZENE	6	U		12	U		13	U		5	U	
1,2-DICHLOROETHANE	6	U		12	U		13	U		5	U	
1,2-DICHLOROPROPANE	6	U		12	U		13	U		5	U	
1,3,5-TRIMETHYLBENZENE	6	U		12	U		13	U		5	U	
1,3-DICHLOROBENZENE	6	U		12	U		13	U		5	U	
1,3-DICHLOROPROPANE	6	U		12	U		13	U		5	U	
1,4-DICHLOROBENZENE	6	U		12	U		13	U		5	U	
2,2-DICHLOROPROPANE	6	U		12	U		13	U		5	U	
2-BUTANONE	33			200			190			26	U	
2-CHLOROTOLUENE	6	U		12	U		13	U		5	U	
2-HEXANONE	30	U		59	U		66	U		26	U	
4-CHLOROTOLUENE	6	U		12	U		13	U		5	U	
4-ISOPROPYLTOLUENE	6	U		12	U		13	U		5	U	
4-METHYL-2-PENTANONE	30	U		59	U		66	U		26	U	
ACETONE	95			670			650			13	J	P
BENZENE	6	U		12	U		13	U		5	U	
BROMOBENZENE	6	U		12	U		13	U		5	U	
BROMOCHLOROMETHANE	6	U		12	U		13	U		5	U	
BROMODICHLOROMETHANE	6	U		12	U		13	U		5	U	
BROMOFORM	6	U		12	U		13	U		5	U	
BROMOMETHANE	12	U		24	U		26	U		10	U	
CARBON DISULFIDE	6	U		13			7	J	P	5	U	

PROJ_NO: 00816	NSAMPLE	DA-SD-129-082108RA			DA-SD-130-082108			DA-SD-131-082108			DA-TB-082108S		
SDG: SB4716	LAB_ID	SB4716-22RA			SB4716-25			SB4716-16			SB4716-4		
FRACTION: OV	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.0			60.9			79.0			100.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	7	U		12	UJ	R	6	U		5	U	
1,1,1-TRICHLOROETHANE	7	U		12	UJ	R	6	U		5	U	
1,1,2,2-TETRACHLOROETHANE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,1,2-TRICHLOROETHANE	7	U		12	UJ	R	6	U		5	U	
1,1-DICHLOROETHANE	7	U		12	UJ	R	6	U		5	U	
1,1-DICHLOROETHENE	7	U		12	UJ	R	6	U		5	U	
1,1-DICHLOROPROPENE	7	U		12	UJ	R	6	U		5	U	
1,2,3-TRICHLOROBENZENE	7	UJ	EN	12	UJ	ENR	6	UJ	E	5	UJ	E
1,2,3-TRICHLOROPROPANE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,2,4-TRICHLOROBENZENE	7	UJ	EN	12	UJ	ENR	6	UJ	E	5	UJ	E
1,2,4-TRIMETHYLBENZENE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,2-DIBROMOETHANE	7	U		12	UJ	R	6	U		5	U	
1,2-DICHLOROBENZENE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,2-DICHLOROETHANE	7	U		12	UJ	R	6	U		5	U	
1,2-DICHLOROPROPANE	7	U		12	UJ	R	6	U		5	U	
1,3,5-TRIMETHYLBENZENE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,3-DICHLOROBENZENE	7	UJ	N	12	UJ	NR	6	U		5	U	
1,3-DICHLOROPROPANE	7	U		12	UJ	R	6	U		5	U	
1,4-DICHLOROBENZENE	7	UJ	N	12	UJ	NR	6	U		5	U	
2,2-DICHLOROPROPANE	7	U		12	UJ	R	6	U		5	U	
2-BUTANONE	37	U		59	UJ	R	29	U		25	U	
2-CHLOROTOLUENE	7	UJ	N	12	UJ	NR	6	U		5	U	
2-HEXANONE	37	U		59	UJ	R	29	U		25	U	
4-CHLOROTOLUENE	7	UJ	N	12	UJ	NR	6	U		5	U	
4-ISOPROPYLTOLUENE	7	UJ	N	12	UJ	NR	6	U		5	U	
4-METHYL-2-PENTANONE	37	U		59	UJ	R	29	U		25	U	
ACETONE	37	UJ	C	100	J	CR	29	U		25	U	
BENZENE	7	U		12	UJ	R	6	U		5	U	
BROMOBENZENE	7	UJ	N	12	UJ	NR	6	U		5	U	
BROMOCHLOROMETHANE	7	U		12	UJ	R	6	U		5	U	
BROMODICHLOROMETHANE	7	U		12	UJ	R	6	U		5	U	
BROMOFORM	7	U		12	UJ	R	6	U		5	U	
BROMOMETHANE	15	U		23	UJ	R	12	U		10	U	
CARBON DISULFIDE	7	U		12	UJ	R	6	U		5	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	DA-SD-117-082108			DA-SD-119-0424			DA-SD-125-0424			DA-SD-128-082108		
	LAB_ID	SB4716-10			SB4716-7			SB4716-13			SB4716-19		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	31.0			41.9			39.1			85.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		6	U		12	U		13	U		5	U	
CHLOROBENZENE		6	U		12	U		13	U		5	U	
CHLORODIBROMOMETHANE		6	U		12	U		13	U		5	U	
CHLOROETHANE		12	U		24	U		26	U		10	U	
CHLOROFORM		6	U		12	U		13	U		5	U	
CHLOROMETHANE		12	U		24	U		26	U		10	U	
CIS-1,2-DICHLOROETHENE		6	U		12	U		13	U		5	U	
CIS-1,3-DICHLOROPROPENE		6	U		12	U		13	U		5	U	
DIBROMOMETHANE		6	U		12	U		13	U		5	U	
DICHLORODIFLUOROMETHANE		12	UJ	E	24	UJ	E	26	UJ	E	10	UJ	E
ETHYLBENZENE		6	U		12	U		13	U		5	U	
HEXACHLOROBUTADIENE		6	U		12	U		13	U		5	U	
ISOPROPYLBENZENE		6	U		12	U		13	U		5	U	
M+P-XYLENES		12	U		24	U		26	U		10	U	
METHYL TERT-BUTYL ETHER		6	U		12	U		13	U		5	U	
METHYLENE CHLORIDE		30	U		59	U		66	U		26	U	
N-BUTYLBENZENE		6	U		12	U		13	U		5	U	
N-PROPYLBENZENE		6	U		12	U		13	U		5	U	
O-XYLENE		6	U		12	U		13	U		5	U	
SEC-BUTYLBENZENE		6	U		12	U		13	U		5	U	
STYRENE		6	U		12	U		13	U		5	U	
TERT-BUTYLBENZENE		6	U		12	U		13	U		5	U	
TETRACHLOROETHENE		6	U		12	U		13	U		5	U	
TOLUENE		6	U		12	U		13	U		5	U	
TRANS-1,2-DICHLOROETHENE		6	U		12	U		13	U		5	U	
TRANS-1,3-DICHLOROPROPENE		6	U		12	U		13	U		5	U	
TRICHLOROETHENE		6	U		12	U		13	U		5	U	
TRICHLOROFLUOROMETHANE		12	U		24	U		26	U		10	U	
VINYL CHLORIDE		12	U		24	U		26	U		10	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	DA-SD-129-082108RA			DA-SD-130-082108			DA-SD-131-082108			DA-TB-082108S		
	LAB_ID	SB4716-22RA			SB4716-25			SB4716-16			SB4716-4		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.0			60.9			79.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		7	U		12	UJ	R	6	U		5	U	
CHLOROBENZENE		7	U		12	UJ	R	6	U		5	U	
CHLORODIBROMOMETHANE		7	U		12	UJ	R	6	U		5	U	
CHLOROETHANE		15	U		23	UJ	R	12	U		10	U	
CHLOROFORM		7	U		12	UJ	R	6	U		5	U	
CHLOROMETHANE		15	U		23	UJ	R	12	U		10	U	
CIS-1,2-DICHLOROETHENE		7	U		12	UJ	R	6	U		5	U	
CIS-1,3-DICHLOROPROPENE		7	U		12	UJ	R	6	U		5	U	
DIBROMOMETHANE		7	U		12	UJ	R	6	U		5	U	
DICHLORODIFLUOROMETHANE		15	U		23	UJ	R	6	U		5	U	
ETHYLBENZENE		7	U		12	UJ	R	12	UJ	E	10	UJ	E
HEXACHLOROBUTADIENE		7	UJ	N	12	UJ	NR	6	U		5	U	
ISOPROPYLBENZENE		7	UJ	N	12	UJ	NR	6	U		5	U	
M+P-XYLENES		15	U		23	UJ	R	12	U		10	U	
METHYL TERT-BUTYL ETHER		7	U		12	UJ	R	6	U		5	U	
METHYLENE CHLORIDE		37	U		59	UJ	R	29	U		25	U	
N-BUTYLBENZENE		7	UJ	N	12	UJ	NR	6	U		5	U	
N-PROPYLBENZENE		7	UJ	N	12	UJ	NR	6	U		5	U	
O-XYLENE		7	U		12	UJ	R	6	U		5	U	
SEC-BUTYLBENZENE		7	UJ	N	12	UJ	NR	6	U		5	U	
STYRENE		7	U		12	UJ	R	6	U		5	U	
TERT-BUTYLBENZENE		7	UJ	N	12	UJ	NR	6	U		5	U	
TETRACHLOROETHENE		7	U		12	UJ	R	6	U		5	U	
TOLUENE		7	U		12	UJ	R	6	U		5	U	
TRANS-1,2-DICHLOROETHENE		7	U		12	UJ	R	6	U		5	U	
TRANS-1,3-DICHLOROPROPENE		7	U		12	UJ	R	6	U		5	U	
TRICHLOROETHENE		7	U		12	UJ	R	6	U		5	U	
TRICHLOROFLUOROMETHANE		15	U		23	UJ	R	12	U		10	U	
VINYL CHLORIDE		15	U		23	UJ	R	12	U		10	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-117-082108			DA-TB-082108A		
SDG: SB4716	LAB_ID	SB4716-1			SB4716-3		
FRACTION: OV	SAMP_DATE	8/21/2008			8/21/2008		
MEDIA: WATER	QC_TYPE	NM			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		1	U		1	U	
1,1,1-TRICHLOROETHANE		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U	
1,1-DICHLOROPROPENE		1	U		1	U	
1,2,3-TRICHLOROBENZENE		1	U		1	U	
1,2,3-TRICHLOROPROPANE		1	U		1	U	
1,2,4-TRICHLOROBENZENE		1	U		1	U	
1,2,4-TRIMETHYLBENZENE		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE		1	U		1	U	
1,2-DIBROMOETHANE		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U	
1,2-DICHLOROPROPANE		1	U		1	U	
1,3,5-TRIMETHYLBENZENE		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U	
2,2-DICHLOROPROPANE		1	U		1	U	
2-BUTANONE		5	U		2	J	P
2-CHLOROTOLUENE		1	U		1	U	
2-HEXANONE		5	U		5	U	
4-CHLOROTOLUENE		1	U		1	U	
4-ISOPROPYLTOLUENE		1	U		1	U	
4-METHYL-2-PENTANONE		5	U		5	U	
ACETONE		7			5	U	
BENZENE		1	U		1	U	
BROMOBENZENE		1	U		1	U	
BROMOCHLOROMETHANE		1	U		1	U	
BROMODICHLOROMETHANE		1	U		1	U	
BROMOFORM		1	U		1	U	
BROMOMETHANE		2	U		2	U	
CARBON DISULFIDE		1	U		1	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: OV MEDIA: WATER	NSAMPLE	DA-SW-117-082108			DA-TB-082108A		
	LAB_ID	SB4716-1			SB4716-3		
	SAMP_DATE	8/21/2008			8/21/2008		
	QC_TYPE	NM			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		1	U		1	U	
CHLOROBENZENE		1	U		1	U	
CHLORODIBROMOMETHANE		1	U		1	U	
CHLOROETHANE		2	U		2	U	
CHLOROFORM		1	U		1	U	
CHLOROMETHANE		2	U		2	U	
CIS-1,2-DICHLOROETHENE		0.6	J	P	1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U	
DIBROMOMETHANE		1	U		1	U	
DICHLORODIFLUOROMETHANE		2	U		2	U	
ETHYLBENZENE		1	U		1	U	
HEXACHLOROBUTADIENE		1	U		1	U	
ISOPROPYLBENZENE		1	U		1	U	
M+P-XYLENES		2	U		2	U	
METHYL TERT-BUTYL ETHER		1	U		1	U	
METHYLENE CHLORIDE		5	U		5	U	
N-BUTYLBENZENE		1	U		1	U	
N-PROPYLBENZENE		1	U		1	U	
O-XYLENE		1	U		1	U	
SEC-BUTYLBENZENE		1	U		1	U	
STYRENE		1	U		1	U	
TERT-BUTYLBENZENE		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U	
TOLUENE		1	U		1	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U	
TRICHLOROETHENE		0.4	J	P	1	U	
TRICHLOROFLUOROMETHANE		2	U		2	U	
VINYL CHLORIDE		2	U		2	U	

PROJ_NO: 00816	NSAMPLE	DA-SD-117-082108			DA-SD-119-0424			DA-SD-125-0424			DA-SD-128-082108		
SDG: SB4716	LAB_ID	SB4716-8			SB4716-5			SB4716-11			SB4716-17		
FRACTION: OS	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	32.8			42.3			38.0			77.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		1000	UJ	E	780	UJ	E	870	UJ	E	430	UJ	E
1,2,4-TRICHLOROBENZENE		1000	U		780	U		870	U		430	U	
1,2-DICHLOROBENZENE		1000	U		780	U		870	U		430	U	
1,2-DIPHENYLHYDRAZINE		2000	U		1600	U		1700	U		850	U	
1,3-DICHLOROBENZENE		1000	U		780	U		870	U		430	U	
1,4-DICHLOROBENZENE		1000	U		780	U		870	U		430	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		1000	U		780	U		870	U		430	U	
2,4,5-TRICHLOROPHENOL		2500	U		1900	U		2200	U		1100	U	
2,4,6-TRICHLOROPHENOL		1000	U		780	U		870	U		430	U	
2,4-DICHLOROPHENOL		1000	U		780	U		870	U		430	U	
2,4-DIMETHYLPHENOL		1000	U		780	U		870	U		430	U	
2,4-DINITROPHENOL		2500	U		1900	U		2200	U		1100	U	
2,4-DINITROTOLUENE		1000	U		780	U		870	U		430	U	
2,6-DICHLOROPHENOL		1000	U		780	U		870	U		430	U	
2,6-DINITROTOLUENE		1000	U		780	U		870	U		430	U	
2-CHLORONAPHTHALENE		1000	U		780	U		870	U		430	U	
2-CHLOROPHENOL		1000	U		780	U		870	U		430	U	
2-METHYLPHENOL		1000	U		780	U		870	U		430	U	
2-NITROANILINE		2500	U		1900	U		2200	U		1100	U	
2-NITROPHENOL		1000	U		780	U		870	U		430	U	
3&4-METHYLPHENOL		1000	U		780	U		870	U		430	U	
3,3'-DICHLOROBENZIDINE		1000	U		780	U		870	U		430	U	
3-NITROANILINE		2500	UJ	C	1900	UJ	C	2200	UJ	C	1100	UJ	C
4,6-DINITRO-2-METHYLPHENOL		2500	U		1900	U		2200	U		1100	U	
4-BROMOPHENYL PHENYL ETHER		1000	U		780	U		870	U		430	U	
4-CHLORO-3-METHYLPHENOL		1000	U		780	U		870	U		430	U	
4-CHLOROANILINE		1000	U		780	U		870	U		430	U	
4-CHLOROPHENYL PHENYL ETHER		1000	U		780	U		870	U		430	U	
4-NITROANILINE		2500	U		1900	U		2200	U		1100	U	
4-NITROPHENOL		2500	U		1900	U		2200	U		1100	U	
BENZIDINE		4600	UR	C	3500	UR	C	3900	UR	C	1900	UR	C
BENZOIC ACID		2500	UJ	C	1900	UJ	C	2200	UJ	C	1100	UJ	C
BENZYL ALCOHOL		2000	U		1600	U		1700	U		850	U	
BIS(2-CHLOROETHOXY)METHANE		1000	U		780	U		870	U		430	U	
BIS(2-CHLOROETHYL)ETHER		1000	U		780	U		870	U		430	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	DA-SD-129-082108			DA-SD-130-082108			DA-SD-131-082108		
	LAB_ID	SB4716-20			SB4716-23			SB4716-14		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	76.7			65.9			77.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		430	UJ	E	500	UJ	E	430	UJ	E
1,2,4-TRICHLOROBENZENE		430	U		500	U		430	U	
1,2-DICHLOROBENZENE		430	U		500	U		430	U	
1,2-DIPHENYLHYDRAZINE		860	U		1000	U		860	U	
1,3-DICHLOROBENZENE		430	U		500	U		430	U	
1,4-DICHLOROBENZENE		430	U		500	U		430	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		430	U		500	U		430	U	
2,4,5-TRICHLOROPHENOL		1100	U		1200	U		1100	U	
2,4,6-TRICHLOROPHENOL		430	U		500	U		430	U	
2,4-DICHLOROPHENOL		430	U		500	U		430	U	
2,4-DIMETHYLPHENOL		430	U		500	U		430	U	
2,4-DINITROPHENOL		1100	U		1200	U		1100	U	
2,4-DINITROTOLUENE		430	U		500	U		430	U	
2,6-DICHLOROPHENOL		430	U		500	U		430	U	
2,6-DINITROTOLUENE		430	U		500	U		430	U	
2-CHLORONAPHTHALENE		430	U		500	U		430	U	
2-CHLOROPHENOL		430	U		500	U		430	U	
2-METHYLPHENOL		430	U		500	U		430	U	
2-NITROANILINE		1100	U		1200	U		1100	U	
2-NITROPHENOL		430	U		500	U		430	U	
3&4-METHYLPHENOL		430	U		500	U		430	U	
3,3'-DICHLOROBENZIDINE		430	U		500	U		430	U	
3-NITROANILINE		1100	UJ	C	1200	UJ	C	1100	UJ	C
4,6-DINITRO-2-METHYLPHENOL		1100	U		1200	U		1100	U	
4-BROMOPHENYL PHENYL ETHER		430	U		500	U		430	U	
4-CHLORO-3-METHYLPHENOL		430	U		500	U		430	U	
4-CHLOROANILINE		430	U		500	U		430	U	
4-CHLOROPHENYL PHENYL ETHER		430	U		500	U		430	U	
4-NITROANILINE		1100	U		1200	U		1100	U	
4-NITROPHENOL		1100	U		1200	U		1100	U	
BENZIDINE		2000	UR	C	2300	UR	C	1900	UR	C
BENZOIC ACID		1900	J	C	760	J	CP	1100	UJ	C
BENZYL ALCOHOL		860	U		1000	U		860	U	
BIS(2-CHLOROETHOXY)METHANE		430	U		500	U		430	U	
BIS(2-CHLOROETHYL)ETHER		430	U		500	U		430	U	

PROJ_NO: 00816	NSAMPLE	DA-SD-117-082108			DA-SD-119-0424			DA-SD-125-0424			DA-SD-128-082108		
SDG: SB4716	LAB_ID	SB4716-8			SB4716-5			SB4716-11			SB4716-17		
FRACTION: OS	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	32.8			42.3			38.0			77.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		470	J	P	310	J	P	310	J	P	430	U	
BUTYL BENZYL PHTHALATE		1000	U		780	U		870	U		430	U	
CARBAZOLE		1000	U		780	U		870	U		430	U	
DIBENZOFURAN		1000	U		780	U		870	U		430	U	
DIETHYL PHTHALATE		1000	U		780	U		870	U		430	U	
DIMETHYL PHTHALATE		1000	U		780	U		870	U		430	U	
DI-N-BUTYL PHTHALATE		1000	U		780	U		870	U		430	U	
DI-N-OCTYL PHTHALATE		1000	UJ	C	780	UJ	C	870	UJ	C	430	UJ	C
HEXACHLOROBENZENE		1000	U		780	U		870	U		430	U	
HEXACHLOROBUTADIENE		1000	U		780	U		870	U		430	U	
HEXACHLOROETHANE		1000	U		780	U		870	U		430	U	
ISOPHORONE		1000	U		780	U		870	U		430	U	
NITROBENZENE		1000	U		780	U		870	U		430	U	
N-NITROSODIMETHYLAMINE		1000	U		780	U		870	U		430	U	
N-NITROSO-DI-N-PROPYLAMINE		1000	U		780	U		870	U		430	U	
N-NITROSODIPHENYLAMINE		1000	U		780	U		870	U		430	U	
N-NITROSOPYRROLIDINE		1000	U		780	U		870	U		430	U	
PENTACHLOROPHENOL		2500	U		1900	U		2200	U		1100	U	
PHENOL		1000	U		780	U		870	U		430	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	DA-SD-129-082108			DA-SD-130-082108			DA-SD-131-082108		
	LAB_ID	SB4716-20			SB4716-23			SB4716-14		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	76.7			65.9			77.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BIS(2-ETHYLHEXYL)PHTHALATE		430	U		500	U		430	U	
BUTYL BENZYL PHTHALATE		430	U		500	U		430	U	
CARBAZOLE		430	U,		500	U		430	U	
DIBENZOFURAN		430	U		500	U		430	U	
DIETHYL PHTHALATE		430	U		500	U		430	U	
DIMETHYL PHTHALATE		430	U		500	U		430	U	
DI-N-BUTYL PHTHALATE		430	U		500	U		430	U	
DI-N-OCTYL PHTHALATE		430	UJ	C	500	UJ	C	430	UJ	C
HEXACHLOROBENZENE		430	U		500	U		430	U	
HEXACHLOROBUTADIENE		430	U		500	U		430	U	
HEXACHLOROETHANE		430	U		500	U		430	U	
ISOPHORONE		430	U		500	U		430	U	
NITROBENZENE		430	U		500	U		430	U	
N-NITROSODIMETHYLAMINE		430	U		500	U		430	U	
N-NITROSO-DI-N-PROPYLAMINE		430	U		500	U		430	U	
N-NITROSODIPHENYLAMINE		430	U		500	U		430	U	
N-NITROSOPYRROLIDINE		430	U		500	U		430	U	
PENTACHLOROPHENOL		1100	U		1200	U		1100	U	
PHENOL		430	U		500	U		430	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-117-082108
SDG: SB4716	LAB_ID	SB4716-1
FRACTION: OS	SAMP_DATE	8/21/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	9	U	
1,2,4-TRICHLOROBENZENE	9	U	
1,2-DICHLOROBENZENE	9	U	
1,2-DIPHENYLHYDRAZINE	19	U	
1,3-DICHLOROBENZENE	9	U	
1,4-DICHLOROBENZENE	9	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	9	UJ	C
2,4,5-TRICHLOROPHENOL	24	U	
2,4,6-TRICHLOROPHENOL	9	U	
2,4-DICHLOROPHENOL	9	U	
2,4-DIMETHYLPHENOL	9	U	
2,4-DINITROPHENOL	24	UJ	C
2,4-DINITROTOLUENE	9	U	
2,6-DICHLOROPHENOL	9	U	
2,6-DINITROTOLUENE	9	U	
2-CHLORONAPHTHALENE	9	U	
2-CHLOROPHENOL	9	U	
2-METHYLNAPHTHALENE	9	U	
2-METHYLPHENOL	9	U	
2-NITROANILINE	24	U	
2-NITROPHENOL	9	U	
3&4-METHYLPHENOL	9	U	
3,3'-DICHLOROBENZIDINE	9	U	
3-NITROANILINE	24	U	
4,6-DINITRO-2-METHYLPHENOL	24	U	
4-BROMOPHENYL PHENYL ETHER	9	U	
4-CHLORO-3-METHYLPHENOL	9	U	
4-CHLOROANILINE	9	U	
4-CHLOROPHENYL PHENYL ETHER	9	U	
4-NITROANILINE	24	U	
4-NITROPHENOL	24	U	
ACENAPHTHENE	9	U	
ACENAPHTHYLENE	9	U	
ANTHRACENE	9	U	
BENZIDINE	47	UR	E

PROJ_NO: 00816 SDG: SB4716 FRACTION: OS MEDIA: WATER	NSAMPLE	DA-SW-117-082108
	LAB_ID	SB4716-1
	SAMP_DATE	8/21/2008
	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	9	U	
BENZO(A)PYRENE	9	U	
BENZO(B)FLUORANTHENE	9	U	
BENZO(G,H,I)PERYLENE	9	UJ	C
BENZO(K)FLUORANTHENE	9	U	
BENZOIC ACID	24	UJ	C
BENZYL ALCOHOL	19	U	
BIS(2-CHLOROETHOXY)METHANE	9	U	
BIS(2-CHLOROETHYL)ETHER	9	U	
BIS(2-ETHYLHEXYL)PHTHALATE	9	U	
BUTYL BENZYL PHTHALATE	9	UJ	C
CARBAZOLE	9	U	
CHRYSENE	9	U	
DIBENZO(A,H)ANTHRACENE	9	UJ	C
DIBENZOFURAN	9	U	
DIETHYL PHTHALATE	9	U	
DIMETHYL PHTHALATE	9	U	
DI-N-BUTYL PHTHALATE	9	UJ	C
DI-N-OCTYL PHTHALATE	9	UJ	C
FLUORANTHENE	9	U	
FLUORENE	9	U	
HEXACHLOROBENZENE	9	U	
HEXACHLOROBUTADIENE	9	U	
HEXACHLOROETHANE	9	U	
INDENO(1,2,3-CD)PYRENE	9	UJ	C
ISOPHORONE	9	U	
NAPHTHALENE	9	U	
NITROBENZENE	9	U	
N-NITROSODIMETHYLAMINE	9	U	
N-NITROSO-DI-N-PROPYLAMINE	9	U	
N-NITROSODIPHENYLAMINE	9	U	
N-NITROSOPYRROLIDINE	9	U	
PENTACHLOROPHENOL	24	U	
PHENANTHRENE	9	U	
PHENOL	9	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-117-082108		
SDG: SB4716	LAB_ID	SB4716-1		
FRACTION: OS	SAMP_DATE	8/21/2008		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PYRENE		9	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: PAH MEDIA: SEDIMENT	NSAMPLE	DA-SD-117-082108DL3			DA-SD-117-082108RA			DA-SD-119-0424RA			DA-SD-125-0424DL3		
	LAB_ID	SB4716-9DL3			SB4716-9RA			SB4716-6RA			SB4716-12DL3		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	32.8			32.8			42.3			38.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE					61	U		8.2	J	P			
ACENAPHTHENE					24	J	P	18	J	P			
ACENAPHTHYLENE					12	J	P	13	J	P			
ANTHRACENE					62			40	J	P			
BENZO(A)ANTHRACENE					520			270					
BENZO(A)PYRENE					650			270					
BENZO(B)FLUORANTHENE		760						350					
BENZO(G,H,I)PERYLENE					310			180					
BENZO(K)FLUORANTHENE					710			240					
CHRYSENE		870						350					
DIBENZO(A,H)ANTHRACENE					130			56					
FLUORANTHENE		1600						600			960		
FLUORENE					35	J	P	28	J	P			
INDENO(1,2,3-CD)PYRENE					380			170					
NAPHTHALENE					61	U		47	U				
PHENANTHRENE					520			260					
PYRENE		1200						560			720		

PROJ_NO: 00816 SDG: SB4716 FRACTION: PAH MEDIA: SEDIMENT	NSAMPLE	DA-SD-125-0424RA			DA-SD-128-082108RA			DA-SD-129-082108DL3			DA-SD-129-082108RA		
	LAB_ID	SB4716-12RA			SB4716-18RA			SB4716-21DL3			SB4716-21RA		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	38.0			77.3			76.7			76.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		11	J	P	26	U					3.1	J	P
ACENAPHTHENE		27	J	P	12	J	P				18	J	P
ACENAPHTHYLENE		19	J	P	6.4	J	P				26	U	
ANTHRACENE		47	J	P	24	J	P				41		
BENZO(A)ANTHRACENE		340			160						320		
BENZO(A)PYRENE		360			160			420					
BENZO(B)FLUORANTHENE		430			170			530					
BENZO(G,H,I)PERYLENE		180			72						200		
BENZO(K)FLUORANTHENE		350			160			410					
CHRYSENE		460			190			510					
DIBENZO(A,H)ANTHRACENE		74			31						97		
FLUORANTHENE					340			890					
FLUORENE		48	J	P	12	J	P				18	J	P
INDENO(1,2,3-CD)PYRENE		200			92						250		
NAPHTHALENE		53	U		26	U					4.6	J	P
PHENANTHRENE		310			170						300		
PYRENE					290			670					

PROJ_NO: 00816 SDG: SB4716 FRACTION: PAH MEDIA: SEDIMENT	NSAMPLE	DA-SD-130-082108DL3			DA-SD-130-082108RA			DA-SD-131-082108DL3			DA-SD-131-082108RA		
	LAB_ID	SB4716-24DL3			SB4716-24RA			SB4716-15DL3			SB4716-15RA		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	65.9			65.9			77.0			77.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE					3.8	J	P				26	U	
ACENAPHTHENE					26	J	P				6.5	J	P
ACENAPHTHYLENE					9	J	P				4.5	J	P
ANTHRACENE					51						17	J	P
BENZO(A)ANTHRACENE					300						150		
BENZO(A)PYRENE					280						200		
BENZO(B)FLUORANTHENE					310						270		
BENZO(G,H,I)PERYLENE					110						120		
BENZO(K)FLUORANTHENE					270						220		
CHRYSENE					330						240		
DIBENZO(A,H)ANTHRACENE					52						48		
FLUORANTHENE		740						430					
FLUORENE					26	J	P				7	J	P
INDENO(1,2,3-CD)PYRENE					150						140		
NAPHTHALENE					6.1	J	P				26	U	
PHENANTHRENE					360						130		
PYRENE		600									300		

PROJ_NO: 00816	NSAMPLE	DA-SD-117-082108			DA-SD-119-0424			DA-SD-125-0424			DA-SD-128-082108		
SDG: SB4716	LAB_ID	SB4716-8			SB4716-5			SB4716-11			SB4716-17		
FRACTION: PEST/PCB	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008			8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	32.8			42.3			38.0			77.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		40			22			78			6.4		
4,4'-DDE		140			56			160			14		
4,4'-DDT		23	J,	CU	20	J	CU	28	UJ	U	5.4	J	CU
ALDRIN		5.2	U		4	U		4.5	U		2.2	U	
ALPHA-BHC		5.2	U		4	U		4.5	U		2.2	U	
ALPHA-CHLORDANE		53			15	J	U	42			6.8	J	U
AROCLOR-1016		52	UJ	C	40	UJ	C	45	U		22	UJ	C
AROCLOR-1221		52	U		40	U		45	U		22	U	
AROCLOR-1232		52	U		40	U		45	U		22	U	
AROCLOR-1242		52	U		40	U		45	U		22	U	
AROCLOR-1248		52	U		40	U		45	U		22	U	
AROCLOR-1254		52	U		200			45	U		22	U	
AROCLOR-1260		52	UJ	C	40	UJ	C	410	J	U	22	UJ	C
AROCLOR-1268		52	U		40	U		45	U		22	U	
BETA-BHC		5.2	U		4	U		4.5	U		2.2	U	
DELTA-BHC		5.2	U		4	U		4.5	U		2.2	U	
DIELDRIN		30			11			29			11		
ENDOSULFAN I		5.2	U		4	U		4.5	U		2.2	U	
ENDOSULFAN II		10	U		7.8	U		8.7	U		4.3	U	
ENDOSULFAN SULFATE		10	U		7.8	U		8.7	U		4.3	U	
ENDRIN		10	U		7.8	U		8.7	U		4.3	U	
ENDRIN ALDEHYDE		10	U		7.8	U		8.7	U		4.3	U	
ENDRIN KETONE		10	UJ	C	7.8	UJ	C	8.7	UJ	C	4.3	UJ	C
GAMMA-BHC (LINDANE)		5.2	U		4	U		4.5	U		2.2	U	
GAMMA-CHLORDANE		37			12			35			5.3		
HEPTACHLOR		5.2	UJ	C	4	UJ	C	4.5	UJ	C	2.2	UJ	C
HEPTACHLOR EPOXIDE		5.2	U		4	U		4.5	U		2.2	U	
METHOXYCHLOR		52	UJ	C	40	UJ	C	45	UJ	C	22	UJ	C
TOXAPHENE		100	U		78	U		87	U		43	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: PEST/PCB MEDIA: SEDIMENT	NSAMPLE	DA-SD-129-082108			DA-SD-130-082108			DA-SD-131-082108		
	LAB_ID	SB4716-20			SB4716-23			SB4716-14		
	SAMP_DATE	8/21/2008			8/21/2008			8/21/2008		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	76.7			65.9			77.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		36			9.6	J	U	36		
4,4'-DDE		100			9.5			89		
4,4'-DDT		34	J,	C	8.6	UJ	U	37	J	C
ALDRIN		2.2	U		2.6	U		2.2	U	
ALPHA-BHC		2.2	U		2.6	U		2.2	U	
ALPHA-CHLORDANE		38	J	U	2.6	U		34		
AROCLOR-1016		22	UJ	C	26	U		22	UJ	C
AROCLOR-1221		22	U		26	U		22	U	
AROCLOR-1232		22	U		26	U		22	U	
AROCLOR-1242		22	U		26	U		22	U	
AROCLOR-1248		22	U		26	U		22	U	
AROCLOR-1254		22	U		26	U		22	U	
AROCLOR-1260		22	UJ	C	86			22	UJ	C
AROCLOR-1268		22	U		26	U		22	U	
BETA-BHC		2.2	U		2.6	U		2.2	U	
DELTA-BHC		2.2	U		2.6	U		2.2	U	
DIELDRIN		64			11	J	U	66		
ENDOSULFAN I		2.2	U		2.6	U		2.2	U	
ENDOSULFAN II		4.3	U		5	U		4.3	U	
ENDOSULFAN SULFATE		4.3	U		5	U		4.3	U	
ENDRIN		4.3	U		5	U		4.3	U	
ENDRIN ALDEHYDE		4.3	U		5	U		4.3	U	
ENDRIN KETONE		4.3	UJ	C	5	UJ	C	4.3	UJ	C
GAMMA-BHC (LINDANE)		2.2	U		2.6	U		2.2	U	
GAMMA-CHLORDANE		26			2.6	U		23		
HEPTACHLOR		2.2	UJ	C	2.6	UJ	C	2.2	UJ	C
HEPTACHLOR EPOXIDE		2.2	U		2.6	U		2.2	U	
METHOXYCHLOR		22	UJ	C	26	UJ	C	22	UJ	C
TOXAPHENE		43	U		50	U		43	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: PEST/PCB MEDIA: WATER	NSAMPLE	DA-SW-117-082108
	LAB_ID	SB4716-1
	SAMP_DATE	8/21/2008
	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
4,4'-DDD	0.0094	U	A
4,4'-DDE	0.0094	U	
4,4'-DDT	0.0094	UJ	C
ALDRIN	0.0047	U	
ALPHA-BHC	0.0047	U	
ALPHA-CHLORDANE	0.0047	U	
AROCLOR-1016	0.047	UJ	E
AROCLOR-1221	0.047	U	
AROCLOR-1232	0.047	U	
AROCLOR-1242	0.047	U	
AROCLOR-1248	0.047	U	
AROCLOR-1254	0.047	U	
AROCLOR-1260	0.047	U	
AROCLOR-1268	0.047	U	
BETA-BHC	0.0047	U	
DELTA-BHC	0.0047	U	
DIELDRIN	0.0033	J	P
ENDOSULFAN I	0.0047	U	
ENDOSULFAN II	0.0094	U	
ENDOSULFAN SULFATE	0.0094	U	
ENDRIN	0.0094	U	
ENDRIN ALDEHYDE	0.0094	U	
ENDRIN KETONE	0.0094	UJ	C
GAMMA-BHC (LINDANE)	0.0047	U	
GAMMA-CHLORDANE	0.0047	U	
HEPTACHLOR	0.0047	UJ	C
HEPTACHLOR EPOXIDE	0.0047	U	
METHOXYCHLOR	0.047	UJ	C
TOXAPHENE	0.094	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	DA-SD-117-082108						DA-SD-119-0424					
	LAB_ID	SB4716-10						SB4716-5DL					
	SAMP_DATE	8/21/2008						8/21/2008					
	QC_TYPE	NM						NM					
	UNITS	MG/KG						MG/KG					
	PCT_SOLIDS	31.0			32.8			41.9			42.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS					740						820		
GASOLINE RANGE ORGANICS		10	U					9.4	U				

PROJ_NO: 00816	NSAMPLE	DA-SD-125-0424						DA-SD-128-082108					
SDG: SB4716	LAB_ID	SB4716-11DL2						SB4716-17DL2					
FRACTION: PET	SAMP_DATE	8/21/2008						8/21/2008					
MEDIA: SEDIMENT	QC_TYPE	NM						NM					
	UNITS	MG/KG						MG/KG					
	PCT_SOLIDS	38.0			39.1			77.3			85.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		910						95					
GASOLINE RANGE ORGANICS					14	U					3.1	U	

PROJ_NO: 00816 SDG: SB4716 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	DA-SD-129-082108						DA-SD-130-082108					
	LAB_ID	SB4716-20DL						SB4716-23DL2					
	SAMP_DATE	8/21/2008						8/21/2008					
	QC_TYPE	NM						NM					
	UNITS	MG/KG						MG/KG					
	PCT_SOLIDS	74.0			76.7			60.9			65.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS					120						270		
GASOLINE RANGE ORGANICS		4.8	U					7.4	U				

PROJ_NO: 00816	NSAMPLE	DA-SD-131-082108						DA-TB-082108S		
SDG: SB4716	LAB_ID	SB4716-14DL						SB4716-4		
FRACTION: PET	SAMP_DATE	8/21/2008						8/21/2008		
MEDIA: SEDIMENT	QC_TYPE	NM						TB		
	UNITS	MG/KG						MG/KG		
	PCT_SOLIDS	77.0			79.0			100.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS		150								
GASOLINE RANGE ORGANICS					4			2.5	U	

PROJ_NO: 00816	NSAMPLE	DA-SW-117-082108			DA-TB-082108A		
SDG: SB4716	LAB_ID	SB4716-1			SB4716-3		
FRACTION: PET	SAMP_DATE	8/21/2008			8/21/2008		
MEDIA: WATER	QC_TYPE	NM			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
GASOLINE RANGE ORGANICS		10	U		10	U	

TETRA TECH

INTERNAL CORRESPONDENCE

C-NAVY-10-08-2928W

Date: October 14, 2008

c: File G00933-4.10 (w/enc.-original)
D. Seiken (w/o enc.)

To: James Forrelli (w/enc.)

From: Jennifer Cardinal (no copy) JC

Subject: Tier II Organic Data Validation, SDG SB5295
Katahdin Analytical Services, Inc.
CTO 403, Site 08-NUSC Disposal Area, Naval Station Newport, Middletown, RI

SVOC:
1/Groundwater/ DA-MW-100B-091908

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the semivolatile organic compounds (SVOCs) analytical data for the groundwater sample in this SDG. The sample was collected at the Site 08-NUSC Disposal Area on September 18, 2008. Sample collection and analysis was performed according to the requirements of the Work Plan for Remedial Investigation, Revision 2, dated January 2007.

The SVOC analysis was performed according to USEPA SW-846 Method 8270C. The data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

	• Data Completeness
*	• Preservation and Technical Holding Times
*	• GC/MS Instrument Performance Check (Tuning)
	• Initial and Continuing Calibrations
	• Blanks
*	• Surrogate Compounds
*	• Internal Standards
NA	• Matrix Spike/Matrix Spike Duplicate
	• Laboratory Control Sample/Laboratory Control Sample Duplicate
NA	• Field Duplicates
	• Reporting Limits
*	• Tentatively Identified Compounds

* All criteria were met for this parameter.
NA Not available for this SDG.

Data Completeness

The field sampler recorded an incorrect sample collection date on the chain of custody for sample DA-MW-100B-091908. The sample collection logs and field forms confirm that the sample was actually collected on September 18, 2008.

Initial and Continuing Calibrations

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Nitrobenzene	25.96		UJ	DA-MW-100B-091908
Di-n-octylphthalate	27.72		UJ	

Although the %D was slightly outside of the QC limits for nitrobenzene and di-n-octylphthalate; the project accuracy goals are not impacted since there are no regulatory limits established for these compounds for the groundwater samples. The non-detected results in the affected sample are usable as estimated quantitation limits.

Blanks

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the groundwater sample:

Compound	Type of Blank	Max. Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Bis(2-ethylhexyl) phthalate	Method	4	40	DA-MW-100B-091908

Blank action is applied to the affected groundwater sample due to bis(2-ethylhexyl) phthalate method blank contamination. The 10x rule applies for this common laboratory contaminant. The positive result below the blank action level is changed to a non-detected value at the quantitation limit (QL).

Bis(2-ethylhexyl) phthalate contamination was found in the method blank; therefore, the project sensitivity goals may be impacted since the project action limits for these compounds are exceeded by the non-detected values. The results in the affected samples are usable as non-detected values.

Laboratory Control Sample/Laboratory Control Sample Duplicates

The following table summarizes the semivolatile compounds that failed to meet the statistically derived laboratory LCS and/or LCSD recovery or relative percent difference QC limits:

Compound	% Rec.	RPD	QC Limits	Action		Affected Samples
				(+)	NDs	
Benzoic acid	0, 0	-	10-125		UR	DA-MW-100B-091908
Benzidine	0	200	10-94		UR	
Phenol	-	32	30		UJ	
4-Nitrophenol	-	33	30		UJ	

-Criterion met

The relative percent difference (RPD) for phenol did not meet the QC criterion; therefore the project precision goals may be impacted. The non-detected result in sample DA-MW-100B-091908 is usable as an estimated quantitation limit for which the bias is indeterminate.

Although the relative percent difference (RPD) for 4-nitrophenol did not meet the QC criterion, the project precision goals are not impacted since there are no regulatory limits established for this compound. The non-detected result in sample DA-MW-100B-091908 is usable as an estimated quantitation limit for which the bias is indeterminate.

Benzoic acid and benzidine were not recovered (0%) in several LCS/LCSD analyses; therefore, the non-detected results for benzoic acid, and benzidine are rejected in the affected samples. The project completeness goals are impacted and these results are not usable for project decisions.

Reporting Limits

Blank action was applied to sample DA-MW-100B-091908 due to bis(2-ethylhexyl) phthalate blank contamination. As discussed above in the Blanks section, the project sensitivity goals may be impacted.

The laboratory did not meet the project required quantitation limits for the following compounds: 1,2-diphenylhydrazine, 2,4,5-trichlorophenol, 2-nitroaniline, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-nitrophenol, benzidine, and benzoic acid. However, the project sensitivity goals are not impacted since the project action limits are not exceeded.

The laboratory did not meet the project required quantitation limits for the following compounds: 2,4-dinitrophenol, 4-nitroaniline, and pentachlorophenol. The project sensitivity goals may be impacted since the project action limits are exceeded. Data usability may be impacted.

Project action limits were not achievable for the following compounds as noted in the approved work plan: 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methylnaphthalene, 3,3'-dichlorobenzidine, 4-nitroaniline, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pentachlorophenol, phenanthrene, phenol, and pyrene. Data usability may be impacted.

Tentatively Identified Compounds

The laboratory searched specifically for propylene glycol dinitrate and also the laboratory reported up to 20 non-target tentatively identified compounds (TICs) for the semivolatile full-scan analysis. Most of the TICs reported are PAHs and other hydrocarbons, but the Otto Fuel components: propylene glycol dinitrate; 2-nitrodiphenylamine; or dibutyl sebacate were not reported for any sample.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity, and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the semivolatiles data set. Select compounds were qualified as estimated due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set with the following exception. Phenol was qualified as estimated due to LCS/LCSD imprecision. Although specific method criteria were not met in this instance, the affected non-detected result is usable as an estimated quantitation limit which may impact data usability. Additionally, 4-nitrophenol was qualified as estimated due to LCS/LCSD imprecision. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected result is usable as an estimated quantitation limit.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exceptions. The bis(2-ethylhexyl)phthalate result in sample DA-MW-100B-091908 was changed to a non-detected value due to method blank contamination. The non-detected value exceeds the project action limit for bis(2-ethylhexyl)phthalate. Project action limits were not achievable for 2,4-dimethylphenol, 2,4-dinitrophenol, 4-nitroaniline, 3,3'-dichlorobenzidine bis(2-ethylhexyl)phthalate, carbazole, dibenzofuran, pentachlorophenol, phenol, and all PAH compounds. Data usability may be impacted.

The project goals with respect to completeness were met for the semivolatiles data set with the following exceptions. Benzoic acid and benzidine were rejected due to no recovery in the LCS/LCSD. These affected results are not usable for project decisions. Data usability may be impacted.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifiers and Codes

Data Validation Qualifiers:

= No qualifier attached to value (positive hit)
J = Value is estimated
U = Value is not detected
UJ = Value is not detected and estimated
R = Value (positive hit) is not usable
UR = Value was reported as ND but is not usable

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00933	NSAMPLE	DA-MW-100B-091908
SDG: SB5295	LAB_ID	SB5295-1
FRACTION: OS	SAMP_DATE	9/18/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1-BIPHENYL	9	U	
1,2,4-TRICHLOROBENZENE	9	U	
1,2-DICHLOROBENZENE	9	U,	
1,2-DIPHENYLHYDRAZINE	19	U	
1,3-DICHLOROBENZENE	9	U	
1,4-DICHLOROBENZENE	9	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	9	U	
2,4,5-TRICHLOROPHENOL	24	U	
2,4,6-TRICHLOROPHENOL	9	U	
2,4-DICHLOROPHENOL	9	U	
2,4-DIMETHYLPHENOL	9	U	
2,4-DINITROPHENOL	24	U	
2,4-DINITROTOLUENE	9	U	
2,6-DICHLOROPHENOL	9	U	
2,6-DINITROTOLUENE	9	U	
2-CHLORONAPHTHALENE	9	U	
2-CHLOROPHENOL	9	U	
2-METHYLNAPHTHALENE	9	U	
2-METHYLPHENOL	9	U	
2-NITROANILINE	24	U	
2-NITROPHENOL	9	U	
3&4-METHYLPHENOL	9	U	
3,3'-DICHLOROBENZIDINE	9	U	
3-NITROANILINE	24	U	
4,6-DINITRO-2-METHYLPHENOL	24	U	
4-BROMOPHENYL PHENYL ETHER	9	U	
4-CHLORO-3-METHYLPHENOL	9	U	
4-CHLOROANILINE	9	U	
4-CHLOROPHENYL PHENYL ETHER	9	U	
4-NITROANILINE	24	U	
4-NITROPHENOL	24	UJ	E
ACENAPHTHENE	9	U	
ACENAPHTHYLENE	9	U	
ANTHRACENE	9	U	
BENZIDINE	47	UR	E

PROJ_NO: 00933	NSAMPLE	DA-MW-100B-091908
SDG: SB5295	LAB_ID	SB5295-1
FRACTION: OS	SAMP_DATE	9/18/2008
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
BENZO(A)ANTHRACENE	9	U	
BENZO(A)PYRENE	9	U	
BENZO(B)FLUORANTHENE	9	U	
BENZO(G,H,I)PERYLENE	9	U	
BENZO(K)FLUORANTHENE	9	U	
BENZOIC ACID	24	UR	E
BENZYL ALCOHOL	19	U	
BIS(2-CHLOROETHOXY)METHANE	9	U	
BIS(2-CHLOROETHYL)ETHER	9	U	
BIS(2-ETHYLHEXYL)PHTHALATE	9	U	A
BUTYL BENZYL PHTHALATE	9	U	
CARBAZOLE	9	U	
CHRYSENE	9	U	
DIBENZO(A,H)ANTHRACENE	9	U	
DIBENZOFURAN	9	U	
DIETHYL PHTHALATE	9	U	
DIMETHYL PHTHALATE	9	U	
DI-N-BUTYL PHTHALATE	9	U	
DI-N-OCTYL PHTHALATE	9	UJ	C
FLUORANTHENE	9	U	
FLUORENE	9	U	
HEXACHLOROBENZENE	9	U	
HEXACHLOROBUTADIENE	9	U	
HEXACHLOROETHANE	9	U	
INDENO(1,2,3-CD)PYRENE	9	U	
ISOPHORONE	9	U	
NAPHTHALENE	9	U	
NITROBENZENE	9	UJ	C
N-NITROSODIMETHYLAMINE	9	U	
N-NITROSO-DI-N-PROPYLAMINE	9	U	
N-NITROSODIPHENYLAMINE	9	U	
N-NITROSOPYRROLIDINE	9	U	
PENTACHLOROPHENOL	24	U	
PHENANTHRENE	9	U	
PHENOL	9	UJ	E

PROJ_NO: 00933	NSAMPLE	DA-MW-100B-091908		
SDG: SB5295	LAB_ID	SB5295-1		
FRACTION: OS	SAMP_DATE	9/18/2008		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PYRENE		9	U	

APPENDIX H

SUPPORTING INFORMATION FOR HEALTH RISK ASSESSMENT

H.1 RAGS Part D Tables
H.2 Risks for Only Site-Related COPCs
H.3 Samples Used in Calculation of EPCs
H.4 ProUCL Outputs
H.5 Sample Calculations
H.6 Vapor Intrusion Modeling Results
H.7 Lead Modeling Results

APPENDIX H.1

RAGS PART D TABLES

RAGS Part D Table 1

Selection Of Exposure Pathways

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Soil	Surface Soil	Site 08	Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Industrial workers may contact surface soil during normal work activities.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Trespassers may contact surface soil while at the site.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may contact surface soil while at the site.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational users may contact surface soil while at the site.
		Air	Site 08	Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to fugitive dust and volatile emissions during work activities.
				Trespassers	Adolescents	Inhalation	Quant	Adolescent trespassers may be exposed to fugitive dust and volatile emissions while at the site.
				Recreational Users	Child	Inhalation	Quant	Child recreational users may be exposed to fugitive dust and volatile emissions while at the site.
					Adult	Inhalation	Quant	Adult recreational users may be exposed to fugitive dust and volatile emissions while at the site.
	Subsurface Soil	Subsurface Soil	Site 08	Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adolescent trespassers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by child recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adult recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
		Air	Site 08	Industrial Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Trespassers	Adolescents	Inhalation	Quant	Although exposures to subsurface soil by adolescent trespassers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Recreational Users	Child	Inhalation	Quant	Although exposures to subsurface soil by child recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	Although exposures to subsurface soil by adult recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
Current/Future	Groundwater	Groundwater	Site 08	Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to have contact with groundwater.
				Trespassers	Adolescents	Ingestion Dermal	None None	Adolescent trespassers are not expected to be exposed to groundwater.
				Recreational Users	Child	Ingestion Dermal	None None	Child recreational user are not expected to be exposed to groundwater.
					Adult	Ingestion Dermal	None None	Adult recreational user are not expected to be exposed to groundwater.
		Air	Site 08	Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to COPCs that have volatilized from groundwater.
				Trespassers	Adolescents	Inhalation	None	Adolescent Trespassers are not expected to be exposed to COPCs that have volatilized from groundwater.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Groundwater	Air	Site 08	Recreational Users	Child	Inhalation	None	Child recreational user are not expected to be exposed to COPCs that have volatilized from groundwater.
					Adult	Inhalation	None	Adult recreational user are not expected to be exposed to COPCs that have volatilized from groundwater.
			Vapor Intrusion	Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to COPCs that have volatilized from groundwater and migrated through building foundations into indoor air
	Surface Water	Surface Water	Site 08	Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to be exposed to surface water.
				Trespassers	Adolescents	Ingestion Dermal	None Quant	Adolescent trespassers may have dermal contact with surface water.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may contact surface water.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational users may contact surface water.
		Fish	Site 08	Recreational Users	Child	Ingestion	Quant	Ingestion of fish from the pond is possible.
					Adult	Ingestion	Quant	Ingestion of fish from the pond is possible.
	Sediment	Sediment	Site 08	Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to be exposed to sediment.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Adolescent trespassers may contact sediment.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may contact sediment.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational users may contact sediment.
Future	Surface Soil	Surface Soil	Site 08	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with surface soil during excavation activities.
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 08	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions during construction activities.
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Subsurface Soil	Subsurface Soil	Site 08	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Subsurface Soil	Air	Site 08	Construction Workers	Adult	Inhalation	Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Groundwater	Groundwater	Site 08	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with ground water during excavation activities.
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 08	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to COPCs that have volatilized from groundwater during excavation activities.
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
			Vapor Intrusion	Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Surface Water	Surface Water	Site 08	Construction Workers	Adult	Ingestion Dermal	None None	Construction workers are not expected to be exposed to surface water.
				Residents	Child	Ingestion Dermal	None None	Child and adult residents are not expected to be exposed to surface water at Site 08. If they are exposed to surface water then exposures are expected to be similar to those of the child and adult recreational users.
					Adult	Ingestion Dermal	None None	
	Sediment	Sediment	Site 08	Construction Workers	Adult	Ingestion Dermal	None None	Construction workers are not expected to be exposed to sediment.
				Residents	Child	Ingestion Dermal	None None	Child and adult residents are not expected to be exposed to sediment at Site 08. If they are exposed to sediment then exposures are expected to be similar to those of the child and adult recreational users.
					Adult	Ingestion Dermal	None None	

Notes:
Quant - Quantitative.

RAGS Part D Table 2

Occurrence, Distribution And Selection Of Chemicals Of Potential Concern

LIST OF TABLES
RAGS PART D TABLE 2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Table No.	
2.1	Surface Soil - Direct Contact - Exposed Area
2.2	Surface Soil - Migration From Soil to Groundwater - Exposed Area
2.3	Subsurface Soil - Direct Contact - Exposed Area
2.4	Subsurface Soil - Migration From Soil to Groundwater - Exposed Area
2.5	Surface Soil - Direct Contact - Paved Area
2.6	Surface Soil - Migration From Soil to Groundwater - Paved Area
2.7	Subsurface Soil - Direct Contact - Paved Area
2.8	Subsurface Soil - Migration From Soil to Groundwater - Paved Area
2.9	Groundwater - Direct Contact - Overburden Bedrock Interface
2.10	Groundwater - Vapor Intrusion - Overburden Bedrock Interface
2.11	Groundwater - Direct Contact - Bedrock
2.12	Groundwater - Vapor Intrusion - Bedrock
2.13	Surface Water
2.14	Sediment
2.15	Fish Tissue

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Exposed Soil	Volatile Organic Compounds													
	95-63-6	1,2,4-Trimethylbenzene	1 J	1,600	UG/KG	DA-S-TP01-0001-01	4/74	0.19 - 590	1,600	Yes	6,700 N	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	860 J	860 J	UG/KG	DA-S-TP01-0001-01	1/74	0.16 - 590	860	Yes	4,700 N	NA	No	BSL
	78-93-3	2-Butanone	2.8 J	12 J	UG/KG	DA-MW118B-0001-LOCDEPTHMAX	3/74	0.24 - 1200	12	Yes	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	8	290	UG/KG	DA-S-SB03-0102-01	5/74	0.2 - 9.5	290	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.9	7,900 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	48/74	4 - 2200	7,900	Yes	6,100,000 N	7,800,000	No	BSL
	71-43-2	Benzene	2 J	2 J	UG/KG	DA-B106B-0002	1/74	0.17 - 120	2	Yes	1,100 C	2,500	No	BSL
	--	m+p-Xylenes	0.79 J	350	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	350	Yes	450,000 N[8]	NA	No	BSL
	75-09-2	Methylene Chloride	3 J	3 J	UG/KG	DA-SB141-0001-LOCDEPTHMAX	1/74	4.2 - 1200	3	Yes	11,000 C	45,000	No	BSL
	104-51-8	N-Butylbenzene	190	260	UG/KG	DA-S-TP01-0001-01	2/74	0.23 - 9.5	260	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	300	UG/KG	DA-S-TP01-0001-01	2/74	0.21 - 120	300	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	230	230	UG/KG	DA-S-TP01-0001-01	1/74	0.36 - 120	230	Yes	530,000 N	NA	No	BSL
	135-98-8	sec-Butylbenzene	6 J	6 J	UG/KG	DA-SS-B124B-0103-072108	1/74	0.2 - 160	6	Yes	NA	NA	No	NTX
	108-88-3	Toluene	4 J	4 J	UG/KG	DA-B106B-0002	1/74	0.18 - 180	4	Yes	500,000 N	190,000	No	BSL
	1330-20-7	Total Xylenes	0.79	580	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	580	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	4 J	8.5 J	UG/KG	DA-SB135-0001-LOCDEPTHMAX	3/74	0.22 - 130	8.5	Yes	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	660	660	UG/KG	DA-SB127-0001-LOCDEPTHMAX	1/55	345 - 720	660	Yes	390,000 N	NA	No	BSL
	91-57-6	2-Methylnaphthalene	3 J	2,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	40/74	22 - 4300	2,400	Yes	31,000 N	123,000	No	BSL
	91-94-1	3,3'-Dichlorobenzidine	110 J	110 J	UG/KG	DA-S-TP12-0001-01	1/73	98 - 27000	110	Yes	1,100 C	1,400	No	BSL
	83-32-9	Acenaphthene	2.4 J	9,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	57/74	22 - 2700	9,500	Yes	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	2.05 J	290 J	UG/KG	DA-S-TP12A-0001-01	39/74	21 - 2700	290	Yes	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	3.6 J	13,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	21 - 2700	13,000	Yes	1,700,000 N	35,000	No	BSL
	56-55-3	Benzo(a)anthracene	15 J	20,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	20,000	Yes	150 C	900	Yes	ASL
	50-32-8	Benzo(a)pyrene	18 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	17,000	Yes	15 C	400	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	24.5	15,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	15,000	Yes	150 C	900	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	12 J	7,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	22 - 2700	7,400	Yes	170,000 N[10]	800	Yes	ASL
	207-08-9	Benzo(k)fluoranthene	13 J	12,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/74	22 - 2700	12,000	Yes	1,500 C	900	Yes	ASL
	65-85-0	Benzoic Acid	520 J	5,900 J	UG/KG	DA-S-TP09-0001-01	10/73	220 - 27000	5,900	Yes	24,000,000 N	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	280 J	4,500 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	13/73	110 - 5400	4,500	Yes	35,000 C	46,000	No	BSL
	85-68-7	Butyl Benzyl Phthalate	270 J	270 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	1/73	100 - 2700	270	Yes	26,000 N	NA	No	BSL
	86-74-8	Carbazole	160 J	7,300	UG/KG	DA-SB127-0001-LOCDEPTHMAX	15/73	73 - 2700	7,300	Yes	NA	NA	No	NTX
	218-01-9	Chrysene	13 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	81 - 2700	17,000	Yes	15,000 C	400	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	5.4 J	3,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	48/74	22 - 2700	3,500	Yes	15 C	400	Yes	ASL
	132-64-9	Dibenzofuran	200 J	4,700	UG/KG	DA-SB127-0001-LOCDEPTHMAX	6/73	120 - 2700	4,700	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	22 J	45,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	66 - 2700	45,000	Yes	230,000 N	20,000	Yes	ASL
	86-73-7	Fluorene	2.3 J	5,900 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	51/74	22 - 2700	5,900	Yes	230,000 N	28,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	15	9,200	UG/KG	DA-SB127-0001-LOCDEPTHMAX	61/74	22 - 3800	9,200	Yes	150 C	900	Yes	ASL
	91-20-3	Naphthalene	2.3 J	11,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	45/74	3.4 - 560	11,000	Yes	3,900 C	54,000	Yes	ASL
	86-30-6	N-Nitrosodiphenylamine	400 J	400 J	UG/KG	DA-SB146-0001-LOCDEPTHMAX	1/73	97 - 1700	400	Yes	99,000 C	NA	No	BSL
	85-01-8	Phenanthrene	12 J	48,000 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	23 - 2700	48,000	Yes	170,000 N[10]	40,000	Yes	ASL
	129-00-0	Pyrene	16 J	50,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	50,000	Yes	170,000 N	13,000	Yes	ASL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	2.1 J	5.2 J	UG/KG	DA-SS149-011708	4/74	1.03 - 215	5.2	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	1.1 J	216	UG/KG	DA-S-TP07-0001-01	31/74	0.92 - 215	216	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1.2 J	184 J	UG/KG	DA-S-TP01-0001-01	26/74	1.26 - 215	184	Yes	1,700 C	NA	No	BSL
	5103-71-9	alpha-Chlordane	3.2 J	235	UG/KG	DA-S-TP07-0001-01	3/74	0.575 - 108	235	Yes	1,600 C[11]	500 [11]	No	BSL
	11097-69-1	Aroclor-1254	152 J	5,220 J	UG/KG	DA-S-TP07-0001-01	2/74	18 - 56.8	5,220	Yes	110 N[13]	10,000 [12]	Yes	ASL
	11096-82-5	Aroclor-1260	26 J	350 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	32/74	12.1 - 56.8	350	Yes	220 C	10,000 [12]	Yes	ASL
	11100-14-4	Aroclor-1268	134	620	UG/KG	DA-MW110B-0001-LOCDEPTHMAX	9/74	18 - 56.8	620	Yes	220 C[14]	10,000 [12]	Yes	ASL
	60-57-1	Dieldrin	1.3 J	23	UG/KG	DA-SS149-011708	3/74	0.804 - 215	23	Yes	30 C	40	No	BSL
	72-20-8	Endrin	2.4 J	2.4 J	UG/KG	DA-SB143-0001-LOCDEPTHMAX	1/74	0.92 - 215	2.4	Yes	1,800 N	NA	No	BSL
	5103-74-2	gamma-Chlordane	3.2	10	UG/KG	DA-SS149-011708	2/74	0.575 - 108	10	Yes	1,600 C[11]	500 [11]	No	BSL
	76-44-8	Heptachlor	1.2 J	1.7 J	UG/KG	DA-MW115B-0001-LOCDEPTHMAX	2/74	0.69 - 108	1.7	Yes	110 C	NA	No	BSL
	--	Total Aroclor	26 J	5,220 J	UG/KG	DA-S-TP07-0001-01	34/74	18 - 57	5,220	Yes	220 C[15]	10,000	Yes	ASL
	Metals													
	7429-90-5	Aluminum	1,800	20,700	MG/KG	DA-SS148-011708	72/72	-	20,700	Yes	7,700 N	NA	Yes	ASL
	7440-36-0	Antimony	0.19 J	5.5 J	MG/KG	DA-S-TP10-0001-01	5/72	0.04 - 1.1	5.5	Yes	3.1 N	10	Yes	ASL
	7440-38-2	Arsenic	0.29	90	MG/KG	DA-S-TP13-0001-01	72/72	-	90	Yes	0.39 C	7	Yes	ASL
	7440-39-3	Barium	7.4	42.8	MG/KG	DA-SB145-0001-LOCDEPTHMAX	72/72	-	42.8	No	1,500 N	5,500	No	BSL, BKG
	7440-41-7	Beryllium	0.21 J	0.74 J	MG/KG	DA-SS148-011708	72/72	0.15 - 0.15	0.74	Yes	16 N	0.4	Yes	ASL

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7440-43-9	Cadmium	0.09	11	MG/KG	DA-S-TP01-0001-01	38/72	0.01 - 0.3	11	Yes	7 N	39	Yes	ASL
	7440-70-2	Calcium	39	8,940	MG/KG	DA-MW105B-0001-LOCDEPTHMAX	72/72	-	8,940	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	1 J	64 J	MG/KG	DA-S-TP10-0001-01	72/72	-	64	Yes	23 N[13,16]	390 [16]	Yes	ASL
	7440-48-4	Cobalt	0.82 J	218	MG/KG	DA-SS149-011708	72/72	-	218	Yes	2.3 N	NA	Yes	ASL
	7440-50-8	Copper	6.7	560	MG/KG	DA-S-TP10-0001-01	71/72	2.3 - 2.3	560	Yes	310 N	3,100	Yes	ASL
	7439-89-6	Iron	5,270	43,700	MG/KG	DA-SS149-011708	72/72	-	43,700	Yes	5,500 N	NA	Yes	ASL
	7439-92-1	Lead	4.2	2,870	MG/KG	DA-SS149-011708	72/72	-	2,870	Yes	400	150	Yes	ASL
	7439-95-4	Magnesium	407	6,240	MG/KG	DA-SB118-0002	72/72	-	6,240	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	79.8 J	2,020	MG/KG	DA-SS149-011708	72/72	-	2,020	Yes	180 N	390	Yes	ASL
	7439-97-8	Mercury	0.00821 J	2	MG/KG	DA-SB133-0001-LOCDEPTHMAX	67/72	0.00724 - 0.02	2	No	2.3 N	23	No	BSL, BKG
	7439-98-7	Molybdenum	0.22 J	7.6	MG/KG	DA-SS149-011708	46/72	0.1 - 0.72	7.6	Yes	39 N	NA	No	BSL
	7440-02-0	Nickel	0.98 J	38.5	MG/KG	DA-SB118-0002	72/72	-	38.5	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	125	886	MG/KG	DA-SB109-0001-LOCDEPTHMAX	72/72	92 - 92	886	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.19 J	0.67 J	MG/KG	DA-SB131-0001-LOCDEPTHMAX	8/72	0.1 - 0.91	0.67	Yes	39 N	390	No	BSL
	7440-22-4	Silver	0.16 J	2	MG/KG	DA-MW105B-0001-LOCDEPTHMAX, DA-S-TP01-0001-01	21/72	0.03 - 0.57	2	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	30 J	306	MG/KG	DA-SB146-0001-LOCDEPTHMAX	37/72	17 - 78.3	306	Yes	NA	NA	No	NUT
	7440-28-0	Thallium	0.3 J	0.3 J	MG/KG	DA-S-SB03-0102-01	1/72	0.02 - 0.97	0.3	Yes	0.51 N	5.5	No	BSL
	7440-62-2	Vanadium	1.5 J	47.2	MG/KG	DA-SB139-0001-LOCDEPTHMAX	72/72	-	47.2	No	39 N	550	Yes	ASL, BKG
	7440-66-6	Zinc	13.8	663	MG/KG	DA-SB122-0001-LOCDEPTHMAX	72/72	-	663	Yes	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	11,000	1,600,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/73	9500 - 62000	1,600,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.56 J	60	MG/KG	DA-SB122-0001-LOCDEPTHMAX	15/74	2.5 - 8.6	60	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for Chlordane.
12 - Value is for total PCBs.
13 - Ten percent of noncarcinogenic screening level is less than the carcinogenic screening level, therefore the noncarcinogenic value is presented.
14 - Value is for Aroclor-1260.
15 - Value is for high risk polychlorinated biphenyls.
16 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Associated Samples

DA-MW103B-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX
DA-MW104B-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX
DA-MW105B-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
DA-B106B-0002	DA-SB132-0001-LOCDEPTHMAX
DA-MW110B-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX
DA-MW111B-0001-LOCDEPTHMAX	DA-SB133-0102
DA-MW112B-0001-LOCDEPTHMAX	DA-SB134-0001-LOCDEPTHMAX
DA-MW113B-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX
DA-MW114B-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX
DA-MW115B-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
DA-MW116B-0001-LOCDEPTHMAX	DA-SB138-0001-LOCDEPTHMAX
DA-MW117B-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX
DA-MW118B-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX
DA-MW119B-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX
DA-MW120B-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX
DA-SS-B124B-0103-072108	DA-SB143-0001-LOCDEPTHMAX
DA-S-SB03-0102-01	DA-SB144-0001-LOCDEPTHMAX
DA-S-SB07-0102-01	DA-SB145-0001-LOCDEPTHMAX
DA-SB102B-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX
DA-SS103-011708	DA-SS147-011708-AVG
DA-SB103-0103	DA-SS148-011708
DA-SB104-0001-LOCDEPTHMAX	DA-SS149-011708
DA-SB105-0001-LOCDEPTHMAX	DA-S-TP01-0001-01
DA-SB106-0001-LOCDEPTHMAX	DA-S-TP05-0001-01
DA-SB107-0001-LOCDEPTHMAX	DA-S-TP06-0001-01
DA-SB107-0103	DA-S-TP07-0001-01
DA-SB108-0001-LOCDEPTHMAX	DA-S-TP08-0001-01
DA-SB109-0001-LOCDEPTHMAX	DA-S-TP09-0001-01
DA-SB110-0001-LOCDEPTHMAX	DA-S-TP09-0102-01-AVG
DA-SB118-0002	DA-S-TP10-0001-01
DA-SB121-0001-LOCDEPTHMAX	DA-S-TP10-0102-01
DA-SB122-0001-LOCDEPTHMAX	DA-S-TP11-0001-01
DA-SB123-0001-LOCDEPTHMAX	DA-S-TP12-0001-01
DA-SB124-0001-LOCDEPTHMAX	DA-S-TP12-0102-01
DA-SB125-0001-LOCDEPTHMAX	DA-S-TP12A-0001-01
DA-SB126-0001-LOCDEPTHMAX	DA-S-TP12B-0001-01
DA-SB127-0001-LOCDEPTHMAX	DA-S-TP13-0001-01
DA-SB128-0001-LOCDEPTHMAX	DA-S-TP15-0001-01

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Exposed Soil	Volatile Organic Compounds													
	95-63-6	1,2,4-Trimethylbenzene	1 J	1,600	UG/KG	DA-S-TP01-0001-01	4/74	0.19 - 590	1,600	Yes	24	NA	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	860 J	860 J	UG/KG	DA-S-TP01-0001-01	1/74	0.16 - 590	860	Yes	20	NA	Yes	ASL
	78-93-3	2-Butanone	2.8 J	12 J	UG/KG	DA-MW118B-0001-LOCDEPTHMAX	3/74	0.24 - 1200	12	Yes	1,500	NA	No	BSL
	99-87-6	4-Isopropyltoluene	8	290	UG/KG	DA-S-SB03-0102-01	5/74	0.2 - 9.5	290	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.9	7,900 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	48/74	4 - 2200	7,900	Yes	4,400	NA	Yes	ASL
	71-43-2	Benzene	2 J	2 J	UG/KG	DA-B106B-0002	1/74	0.17 - 120	2	Yes	0.23	200	Yes	ASL
	--	m+p-Xylenes	0.79 J	350	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	350	Yes	1,600 [8]	NA	No	BSL
	75-09-2	Methylene Chloride	3 J	3 J	UG/KG	DA-SB141-0001-LOCDEPTHMAX	1/74	4.2 - 1200	3	Yes	1.2	NA	Yes	ASL
	104-51-8	N-Butylbenzene	190	260	UG/KG	DA-S-TP01-0001-01	2/74	0.23 - 9.5	260	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	300	UG/KG	DA-S-TP01-0001-01	2/74	0.21 - 120	300	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	230	230	UG/KG	DA-S-TP01-0001-01	1/74	0.36 - 120	230	Yes	1,600	NA	No	BSL
	135-98-8	sec-Butylbenzene	6 J	6 J	UG/KG	DA-SS-B124B-0103-072108	1/74	0.2 - 160	6	Yes	NA	NA	No	NTX
	108-88-3	Toluene	4 J	4 J	UG/KG	DA-B106B-0002	1/74	0.18 - 180	4	Yes	1,700	32,000	No	BSL
	1330-20-7	Total Xylenes	0.79	580	UG/KG	DA-S-TP01-0001-01	3/74	0.45 - 120	580	Yes	230	540,000	Yes	ASL
	79-01-6	Trichloroethene	4 J	8.5 J	UG/KG	DA-SB135-0001-LOCDEPTHMAX	3/74	0.22 - 130	8.5	Yes	0.61	200	Yes	ASL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	660	660	UG/KG	DA-SB127-0001-LOCDEPTHMAX	1/55	345 - 720	660	Yes	23,000	NA	No	BSL
	91-57-6	2-Methylnaphthalene	3 J	2,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	40/74	22 - 4300	2,400	Yes	900	NA	Yes	ASL
	91-94-1	3,3'-Dichlorobenzidine	110 J	110 J	UG/KG	DA-S-TP12-0001-01	1/73	98 - 27000	110	Yes	2.3	NA	Yes	ASL
	83-32-9	Acenaphthene	2.4 J	9,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	57/74	22 - 2700	9,500	Yes	27,000	NA	No	BSL
	208-96-8	Acenaphthylene	2.05 J	290 J	UG/KG	DA-S-TP12A-0001-01	39/74	21 - 2700	290	Yes	27,000 [9]	NA	No	BSL
	120-12-7	Anthracene	3.6 J	13,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	21 - 2700	13,000	Yes	450,000	NA	No	BSL
	56-55-3	Benzo(a)anthracene	15 J	20,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	20,000	Yes	14	NA	Yes	ASL
	50-32-8	Benzo(a)pyrene	18 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	17,000	Yes	4.6	240,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	24.5	15,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	64/74	22 - 2700	15,000	Yes	47	NA	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	12 J	7,400 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	62/74	22 - 2700	7,400	Yes	150,000 [10]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	13 J	12,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/74	22 - 2700	12,000	Yes	460	NA	Yes	ASL
	65-85-0	Benzoic Acid	520 J	5,900 J	UG/KG	DA-S-TP09-0001-01	10/73	220 - 27000	5,900	Yes	33,000	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	280 J	4,500 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	13/73	110 - 5400	4,500	Yes	1,600	NA	Yes	ASL
	85-68-7	Butyl Benzyl Phthalate	270 J	270 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	1/73	100 - 2700	270	Yes	670	NA	No	BSL
	86-74-8	Carbazole	160 J	7,300	UG/KG	DA-SB127-0001-LOCDEPTHMAX	15/73	73 - 2700	7,300	Yes	NA	NA	No	NTX
	218-01-9	Chrysene	13 J	17,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	81 - 2700	17,000	Yes	1,400	NA	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	5.4 J	3,500	UG/KG	DA-SB127-0001-LOCDEPTHMAX	48/74	22 - 2700	3,500	Yes	15	NA	Yes	ASL
	132-64-9	Dibenzofuran	200 J	4,700	UG/KG	DA-SB127-0001-LOCDEPTHMAX	6/73	120 - 2700	4,700	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	22 J	45,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	66 - 2700	45,000	Yes	210,000	NA	No	BSL
	86-73-7	Fluorene	2.3 J	5,900 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	51/74	22 - 2700	5,900	Yes	33,000	NA	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	15	9,200	UG/KG	DA-SB127-0001-LOCDEPTHMAX	61/74	22 - 3800	9,200	Yes	160	NA	Yes	ASL
	91-20-3	Naphthalene	2.3 J	11,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	45/74	3.4 - 560	11,000	Yes	0.55	800	Yes	ASL
	86-30-6	N-Nitrosodiphenylamine	400 J	400 J	UG/KG	DA-SB146-0001-LOCDEPTHMAX	1/73	97 - 1700	400	Yes	170	NA	Yes	ASL
	85-01-8	Phenanthrene	12 J	48,000 J	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	23 - 2700	48,000	Yes	150,000 [10]	NA	No	BSL
	129-00-0	Pyrene	16 J	50,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	67/74	22 - 2700	50,000	Yes	150,000	NA	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	2.1 J	5.2 J	UG/KG	DA-SS149-011708	4/74	1.03 - 215	5.2	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	1.1 J	216	UG/KG	DA-S-TP07-0001-01	31/74	0.92 - 215	216	Yes	60	NA	Yes	ASL
	50-29-3	4,4'-DDT	1.2 J	184 J	UG/KG	DA-S-TP01-0001-01	26/74	1.26 - 215	184	Yes	87	NA	Yes	ASL
	5103-71-9	alpha-Chlordane	3.2 J	235	UG/KG	DA-S-TP07-0001-01	3/74	0.575 - 108	235	Yes	33 [11]	1,400 [11]	Yes	ASL
	11097-69-1	Aroclor-1254	152 J	5,220 J	UG/KG	DA-S-TP07-0001-01	2/74	18 - 56.8	5,220	Yes	5.1	10,000 [12]	Yes	ASL
	11096-82-5	Aroclor-1260	26 J	350 J	UG/KG	DA-SB145-0001-LOCDEPTHMAX	32/74	12.1 - 56.8	350	Yes	14	10,000 [12]	Yes	ASL
	11100-14-4	Aroclor-1268	134	620	UG/KG	DA-MW110B-0001-LOCDEPTHMAX	9/74	18 - 56.8	620	Yes	14 [13]	10,000 [12]	Yes	ASL
	60-57-1	Dieldrin	1.3 J	23	UG/KG	DA-SS149-011708	3/74	0.804 - 215	23	Yes	0.09	NA	Yes	ASL
	72-20-8	Endrin	2.4 J	2.4 J	UG/KG	DA-SB143-0001-LOCDEPTHMAX	1/74	0.92 - 215	2.4	Yes	230	NA	No	BSL
	5103-74-2	gamma-Chlordane	3.2	10	UG/KG	DA-SS149-011708	2/74	0.575 - 108	10	Yes	33 [11]	1,400 [11]	No	BSL
	76-44-8	Heptachlor	1.2 J	1.7 J	UG/KG	DA-MW115B-0001-LOCDEPTHMAX	2/74	0.69 - 108	1.7	Yes	1.6	NA	Yes	ASL
	--	Total Aroclor	26 J	5,220 J	UG/KG	DA-S-TP07-0001-01	34/74	18 - 57	5,220	Yes	NA	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	1,800	20,700	MG/KG	DA-SS148-011708	72/72	-	20,700	Yes	55,000	NA	No	BSL
	7440-36-0	Antimony	0.19 J	5.5 J	MG/KG	DA-S-TP10-0001-01	5/72	0.04 - 1.1	5.5	Yes	0.66	[14]	Yes	ASL
	7440-38-2	Arsenic	0.29	90	MG/KG	DA-S-TP13-0001-01	72/72	-	90	Yes	0.0013	NA	Yes	ASL
	7440-39-3	Barium	7.4	42.8	MG/KG	DA-SB145-0001-LOCDEPTHMAX	72/72	-	42.8	No	300	[14]	No	BSL, BKG
	7440-41-7	Beryllium	0.21 J	0.74 J	MG/KG	DA-SS148-011708	72/72	0.15 - 0.15	0.74	Yes	58	[14]	No	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surfece Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Retionale for Contaminant Deletion or Selection[7]
	7440-43-9	Cadmium	0.09	11	MG/KG	DA-S-TP01-0001-01	38/72	0.01 - 0.3	11	Yes	1.4	[14]	Yes	ASL
	7440-70-2	Calcium	39	8,940	MG/KG	DA-MW105B-0001-LOCDEPTHMAX	72/72	-	8,940	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	1 J	64 J	MG/KG	DA-S-TP10-0001-01	72/72	-	64	Yes	2.1 [15]	[14]	Yes	ASL
	7440-48-4	Cobalt	0.82 J	218	MG/KG	DA-SS149-011708	72/72	-	218	Yes	0.49	NA	Yes	ASL
	7440-50-8	Copper	6.7	560	MG/KG	DA-S-TP10-0001-01	71/72	2.3 - 2.3	560	Yes	51	NA	Yes	ASL
	7439-89-6	Iron	5,270	43,700	MG/KG	DA-SS149-011708	72/72	-	43,700	Yes	640	NA	Yes	ASL
	7439-92-1	Lead	4.2	2,870	MG/KG	DA-SS149-011708	72/72	-	2,870	Yes	NA	[14]	No	NTX
	7439-95-4	Magnesium	407	6,240	MG/KG	DA-SB118-0002	72/72	-	6,240	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	79.8 J	2,020	MG/KG	DA-SS149-011708	72/72	-	2,020	Yes	57	NA	Yes	ASL
	7439-97-6	Mercury	0.00821 J	2	MG/KG	DA-SB133-0001-LOCDEPTHMAX	67/72	0.00724 - 0.02	2	No	0.57	[14]	Yes	ASL, BKG
	7439-98-7	Molybdenum	0.22 J	7.6	MG/KG	DA-SS149-011708	46/72	0.1 - 0.72	7.6	Yes	3.7	NA	Yes	ASL
	7440-02-0	Nickel	0.98 J	38.5	MG/KG	DA-SB118-0002	72/72	-	38.5	Yes	48	[14]	No	BSL
	7440-09-7	Potassium	125	886	MG/KG	DA-SB109-0001-LOCDEPTHMAX	72/72	92 - 92	886	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.19 J	0.67 J	MG/KG	DA-SB131-0001-LOCDEPTHMAX	8/72	0.1 - 0.91	0.67	Yes	0.95	[14]	No	BSL
	7440-22-4	Silver	0.16 J	2	MG/KG	DA-MW105B-0001-LOCDEPTHMAX, DA-S-TP01-0001-01	21/72	0.03 - 0.57	2	Yes	1.6	NA	Yes	ASL
	7440-23-5	Sodium	30 J	306	MG/KG	DA-SB146-0001-LOCDEPTHMAX	37/72	17 - 78.3	306	Yes	NA	NA	No	NUT
	7440-28-0	Thallium	0.3 J	0.3 J	MG/KG	DA-S-SB03-0102-01	1/72	0.02 - 0.97	0.3	Yes	0.17	[14]	Yes	ASL
	7440-62-2	Vanadium	1.5 J	47.2	MG/KG	DA-SB139-0001-LOCDEPTHMAX	72/72	-	47.2	No	180	NA	No	BSL, BKG
	7440-66-6	Zinc	13.8	663	MG/KG	DA-SB122-0001-LOCDEPTHMAX	72/72	-	663	Yes	680	NA	No	BSL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	11,000	1,600,000	UG/KG	DA-SB127-0001-LOCDEPTHMAX	65/73	9500 - 62000	1,600,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.56 J	60	MG/KG	DA-SB122-0001-LOCDEPTHMAX	15/74	2.5 - 8.6	60	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for Chlordane.
12 - Value is for total PCBs.
13 - Value is for Aroclor-1260.
14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
15 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Associated Samples

DA-MW103B-0001-LOCDEPTHMAX	DA-SB129-0001-LOCDEPTHMAX
DA-MW104B-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX
DA-MW105B-0001-LOCDEPTHMAX	DA-SB131-0001-LOCDEPTHMAX
DA-B106B-0002	DA-SB132-0001-LOCDEPTHMAX
DA-MW110B-0001-LOCDEPTHMAX	DA-SB133-0001-LOCDEPTHMAX
DA-MW111B-0001-LOCDEPTHMAX	DA-SB133-0102
DA-MW112B-0001-LOCDEPTHMAX	DA-SB134-0001-LOCDEPTHMAX
DA-MW113B-0001-LOCDEPTHMAX	DA-SB135-0001-LOCDEPTHMAX
DA-MW114B-0001-LOCDEPTHMAX	DA-SB136-0001-LOCDEPTHMAX
DA-MW115B-0001-LOCDEPTHMAX	DA-SB137-0001-LOCDEPTHMAX
DA-MW116B-0001-LOCDEPTHMAX	DA-SB138-0001-LOCDEPTHMAX
DA-MW117B-0001-LOCDEPTHMAX	DA-SB139-0001-LOCDEPTHMAX
DA-MW118B-0001-LOCDEPTHMAX	DA-SB140-0001-LOCDEPTHMAX
DA-MW119B-0001-LOCDEPTHMAX	DA-SB141-0001-LOCDEPTHMAX
DA-MW120B-0001-LOCDEPTHMAX	DA-SB142-0001-LOCDEPTHMAX
DA-SS-B124B-0103-072108	DA-SB143-0001-LOCDEPTHMAX
DA-S-SB03-0102-01	DA-SB144-0001-LOCDEPTHMAX
DA-S-SB07-0102-01	DA-SB145-0001-LOCDEPTHMAX
DA-SB102B-0001-LOCDEPTHMAX	DA-SB146-0001-LOCDEPTHMAX
DA-SS103-011708	DA-SS147-011708-AVG
DA-SB103-0103	DA-SS148-011708
DA-SB104-0001-LOCDEPTHMAX	DA-SS149-011708
DA-SB105-0001-LOCDEPTHMAX	DA-S-TP01-0001-01
DA-SB106-0001-LOCDEPTHMAX	DA-S-TP05-0001-01
DA-SB107-0001-LOCDEPTHMAX	DA-S-TP06-0001-01
DA-SB107-0103	DA-S-TP07-0001-01
DA-SB108-0001-LOCDEPTHMAX	DA-S-TP08-0001-01
DA-SB109-0001-LOCDEPTHMAX	DA-S-TP09-0001-01
DA-SB110-0001-LOCDEPTHMAX	DA-S-TP09-0102-01-AVG
DA-SB118-0002	DA-S-TP10-0001-01
DA-SB121-0001-LOCDEPTHMAX	DA-S-TP10-0102-01
DA-SB122-0001-LOCDEPTHMAX	DA-S-TP11-0001-01
DA-SB123-0001-LOCDEPTHMAX	DA-S-TP12-0001-01
DA-SB124-0001-LOCDEPTHMAX	DA-S-TP12-0102-01
DA-SB125-0001-LOCDEPTHMAX	DA-S-TP12A-0001-01
DA-SB126-0001-LOCDEPTHMAX	DA-S-TP12B-0001-01
DA-SB127-0001-LOCDEPTHMAX	DA-S-TP13-0001-01
DA-SB128-0001-LOCDEPTHMAX	DA-S-TP15-0001-01

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Exposed Soil	Volatile Organic Compounds													
	95-63-6	1,2,4-Trimethylbenzene	1.1 J	46	UG/KG	DA-B110B-1012	2/65	0.23 - 900	46	Yes	6,700 N	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	20	20	UG/KG	DA-B110B-1012	1/65	0.2 - 960	20	Yes	4,700 N	NA	No	BSL
	78-93-3	2-Butanone	5.1 J	7.9	UG/KG	DA-S-SB03-0304-01	2/65	0.29 - 5900	7.9	Yes	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	2.7	11	UG/KG	DA-B110B-1012	2/65	0.24 - 1200	11	Yes	NA	NA	No	NTX
	67-64-1	Acetone	8	1,000 J	UG/KG	DA-B110B-1012	30/65	4.8 - 5300	1,000	Yes	6,100,000 N	7,800,000	No	BSL
	75-15-0	Carbon Disulfide	2.4 J	2.4 J	UG/KG	DA-S-SB03-0607-01	1/65	0.31 - 970	2.4	Yes	67,000 N	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.28 - 650	1.3	Yes	78,000 N	630,000	No	BSL
	--	m+p-Xylenes	0.78 J	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	450,000 N[8]	NA	No	BSL
	75-09-2	Methylene Chloride	2 J	670 J	UG/KG	DA-S-TP15A-0506-01	2/65	5.1 - 1300	670	Yes	11,000 C	45,000	No	BSL
	104-51-8	N-Butylbenzene	1.8	1.8	UG/KG	DA-S-SB03-0607-01	1/65	0.28 - 1400	1.8	Yes	NA	NA	No	NTX
	135-98-8	sec-Butylbenzene	1.4	4 J	UG/KG	DA-B110B-1012	3/65	0.24 - 1400	4	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.93 J	1.2 J	UG/KG	DA-S-SB03-0304-01	2/65	0.25 - 1000	1.2	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.64 J	11	UG/KG	DA-SB-TP103-0506	12/65	0.24 - 1500	11	Yes	570 C	12,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.26 - 920	1.3	Yes	70,000 N	NA	No	BSL
	1330-20-7	Total Xylenes	0.78	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	1.7	30	UG/KG	DA-SB-TP103-0506	7/65	0.27 - 1200	30	Yes	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	170 J	8,300 J	UG/KG	DA-SB110-0810	4/40	350 - 400	8,300	Yes	390,000 N	NA	No	BSL
	105-67-9	2,4-Dimethylphenol	390	390	UG/KG	DA-SB127-0204	1/64	350 - 270000	390	Yes	120,000 N	NA	No	BSL
	51-28-5	2,4-Dinitrophenol	310 J	310 J	UG/KG	DA-S-TP14-0910-01	1/65	140 - 74000	310	Yes	12,000 N	160,000	No	BSL
	91-57-6	2-Methylnaphthalene	5.6 J	23,000 J	UG/KG	DA-SB110-0810	27/65	21 - 110000	23,000	Yes	31,000 N	123,000	No	BSL
	--	3&4-Methylphenol	740	2,200 J	UG/KG	DA-SB110-0810	2/65	180 - 95000	2,200	Yes	31,000 N[9]	NA	No	BSL
	91-94-1	3,3'-Dichlorobenzidine	220 J	220 J	UG/KG	DA-S-TP14-0910-01	1/65	99 - 53000	220	Yes	1,100 C	1,400	No	BSL
	534-52-1	4,6-Dinitro-2-Methylphenol	260 J	260 J	UG/KG	DA-S-TP14-0910-01	1/65	110 - 61000	260	Yes	610 N	NA	No	BSL
	100-01-6	4-Nitroaniline	420 J	420 J	UG/KG	DA-S-TP14-0910-01	1/65	180 - 99000	420	Yes	18,000 N[10]	NA	No	BSL
	100-02-7	4-Nitrophenol	520 J	520 J	UG/KG	DA-S-TP14-0910-01	1/65	230 - 120000	520	Yes	NA	NA	No	NTX
	83-32-9	Acenaphthene	2.1 J	480,000	UG/KG	DA-S-TP15A-0506-01	39/65	21 - 620	480,000	Yes	340,000 N	43,000	Yes	ASL
	208-96-8	Acenaphthylene	1.9 J	3,500 J	UG/KG	DA-S-TP08-0708-01	9/65	21 - 45000	3,500	Yes	340,000 N[11]	23,000	No	BSL
	120-12-7	Anthracene	2.9 J	970,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	970,000	Yes	1,700,000 N	35,000	Yes	ASL
	56-55-3	Benzo(a)anthracene	3.2 J	1,900,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,900,000	Yes	150 C	900	Yes	ASL
	50-32-8	Benzo(a)pyrene	6.2 J	1,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	1,500,000	Yes	15 C	400	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	7.2 J	1,300,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,300,000	Yes	150 C	900	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	8.5 J	830,000	UG/KG	DA-S-TP15A-0506-01	42/65	21 - 620	830,000	Yes	170,000 N[12]	800	Yes	ASL
	207-08-9	Benzo(k)fluoranthene	7.3 J	1,200,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,200,000	Yes	1,500 C	900	Yes	ASL
	65-85-0	Benzoic Acid	440 J	2,300 J	UG/KG	DA-S-TP14-0910-01	3/65	220 - 120000	2,300	Yes	24,000,000 N	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	240 J	1,900	UG/KG	DA-SB105-0406	14/65	110 - 58000	1,900	Yes	35,000 C	46,000	No	BSL
	86-74-8	Carbazole	92 J	490,000	UG/KG	DA-S-TP15A-0506-01	26/65	74 - 620	490,000	Yes	NA	NA	No	NTX
	218-01-9	Chrysene	3.3 J	1,700,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,700,000	Yes	15,000 C	400	Yes	ASL
	84-74-2	di-n-Butyl Phthalate	120 J	120 J	UG/KG	DA-S-TP15A-0506-01	1/65	74 - 40000	120	Yes	610 N	NA	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	4.5 J	330,000	UG/KG	DA-S-TP15A-0506-01	35/65	21 - 620	330,000	Yes	15 C	400	Yes	ASL
	132-64-9	Dibenzofuran	230 J	250,000 J	UG/KG	DA-S-MW04B-1416-01	17/65	120 - 620	250,000	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	4.8 J	4,600,000	UG/KG	DA-S-TP15A-0506-01	46/65	21 - 620	4,600,000	Yes	230,000 N	20,000	Yes	ASL
	86-73-7	Fluorene	2.8 J	480,000	UG/KG	DA-S-TP15A-0506-01	37/65	21 - 620	480,000	Yes	230,000 N	28,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	10 J	850,000	UG/KG	DA-S-TP15A-0506-01	40/65	21 - 860	850,000	Yes	150 C	900	Yes	ASL
	91-20-3	Naphthalene	8.8 J	220,000 J	UG/KG	DA-S-TP15A-0506-01	33/65	3.7 - 23	220,000	Yes	3,900 C	54,000	Yes	ASL
	87-86-5	Pentachlorophenol	410 J	410 J	UG/KG	DA-S-TP06-0304-01	1/65	380 - 200000	410	Yes	3,000 C	5,300	No	BSL
	85-01-8	Phenanthrene	15 J	3,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	3,500,000	Yes	170,000 N[12]	40,000	Yes	ASL
	108-95-2	Phenol	380 J	380 J	UG/KG	DA-SB127-0204	1/65	100 - 56000	380	Yes	1,800,000 N	6,000,000	No	BSL
	129-00-0	Pyrene	18 J	3,600,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	3,600,000	Yes	170,000 N	13,000	Yes	ASL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	3.1 J	3.1 J	UG/KG	DA-SB106-0608	1/65	1.01 - 410	3.1	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	0.92 J	2.1 J	UG/KG	DA-B112B-0608	3/65	0.889 - 193	2.1	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1.7 J	347 J	UG/KG	DA-S-TP07-0304-01	9/65	1.24 - 386	347	Yes	1,700 C	NA	No	BSL
	5103-71-9	alpha-Chlordane	15 J	15 J	UG/KG	DA-B119B-0204	1/65	0.562 - 144	15	Yes	1,600 C[13]	500 [13]	No	BSL
	12672-29-6	Aroclor-1248	132 J	2,190 J	UG/KG	DA-S-TP07-0910-01	2/65	18 - 229	2,190	Yes	220 C	10,000 [14]	Yes	ASL
	11097-69-1	Aroclor-1254	40	44.5 J	UG/KG	DA-S-TP15A-0910-01	2/65	18 - 229	44.5	Yes	110 N[5]	10,000 [14]	No	BSL
	11096-82-5	Aroclor-1260	19	1,100 J	UG/KG	DA-SB-TP103-0506	6/65	12.2 - 129	1,100	Yes	220 C	10,000 [14]	Yes	ASL
	11100-14-4	Aroclor-1268	27.4 J	4,060 J	UG/KG	DA-B104B-0406-AVG	10/65	18 - 229	4,060	Yes	220 C[15]	10,000 [14]	Yes	ASL
	33213-65-9	Endosulfan Sulfate	2 J	2 J	UG/KG	DA-SB129-0406	1/65	1.01 - 265	2	Yes	37,000 N[16]	NA	No	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	72-20-8	Endrin Aldehyde	1.2 J	1.2 J	UG/KG	DA-SB133-0810	1/65	1.44 - 313	1.2	Yes	1,800 N[17]	NA	No	BSL
	5103-74-2	gamma-Chlordane	20	20	UG/KG	DA-B119B-0204	1/65	0.556 - 120	20	Yes	1,600 C[13]	500 [15]	No	BSL
	76-44-8	Heptachlor	1.28 J	52 J	UG/KG	DA-SB110-0810	6/65	0.667 - 144	52	Yes	110 C	NA	No	BSL
	--	Total Aroclor	19	4,060 J	UG/KG	DA-B104B-0406-AVG	16/65	18 - 220	4,060	Yes	220 C[18]	10,000	Yes	ASL
	Metals													
	7429-90-5	Aluminum	4,450	27,200	MG/KG	DA-SB139-1012	65/65	-	27,200	Yes	7,700 N	NA	Yes	ASL
	7440-36-0	Antimony	0.26	6.2	MG/KG	DA-S-TP07-0910-01	7/65	0.04 - 2.2	6.2	Yes	3.1 N	10	Yes	ASL
	7440-38-2	Arsenic	2.7 J	40	MG/KG	DA-S-TP13-0203-01	65/65	-	40	Yes	0.39 C	7	Yes	ASL
	7440-39-3	Barium	6.9	653	MG/KG	DA-SB106-0608	65/65	-	653	Yes	1,500 N	5,500	No	BSL
	7440-41-7	Beryllium	0.2t J	2.5	MG/KG	DA-S-TP15A-0203-01	65/65	-	2.5	No	16 N	0.4	Yes	ASL, BKG
	7440-43-9	Cadmium	0.17	8.8	MG/KG	DA-SB132-0406	24/65	0.01 - 0.32	8.8	Yes	7 N	39	Yes	ASL
	7440-70-2	Calcium	70	53,000 J	MG/KG	DA-S-TP15A-0203-01	65/65	-	53,000	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	2.6	98.2	MG/KG	DA-SB106-0608	65/65	-	98.2	Yes	23 N[10,19]	390 [11]	Yes	ASL
	7440-48-4	Cobalt	3.4 J	35.6	MG/KG	DA-SB106-0608	65/65	-	35.6	Yes	2.3 N	NA	Yes	ASL
	7440-50-8	Copper	2.1	2,600	MG/KG	DA-S-TP07-0910-01	65/65	-	2,600	Yes	310 N	3,100	Yes	ASL
	7439-89-6	Iron	3,800	134,000	MG/KG	DA-SB106-0608	65/65	-	134,000	Yes	5,500 N	NA	Yes	ASL
	7439-92-1	Lead	6.2	4,650	MG/KG	DA-SB106-0608	65/65	-	4,650	Yes	400	150	Yes	ASL
	7439-95-4	Magnesium	1,160	24,000	MG/KG	DA-S-TP15A-0203-01	65/65	-	24,000	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	180	3,300	MG/KG	DA-S-SB03-0304-01	65/65	-	3,300	No	180 N	390	Yes	ASL, BKG
	7439-97-6	Mercury	0.0088 J	0.22	MG/KG	DA-B105B-0204	43/65	0.007 - 0.02	0.22	Yes	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.12 J	58.8	MG/KG	DA-SB106-0608	43/65	0.02 - 0.41	58.8	Yes	39 N	NA	Yes	ASL
	7440-02-0	Nickel	4.4	102	MG/KG	DA-SB106-0608	65/65	-	102	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	81	3,400	MG/KG	DA-S-TP15A-0506-01	65/65	-	3,400	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.32 J	0.36 J	MG/KG	DA-S-TP15A-0506-01	2/65	0.11 - 2.63	0.36	No	39 N	390	No	BSL, BKG
	7440-22-4	Silver	0.12	2.5	MG/KG	DA-S-TP07-0910-01	21/65	0.031 - 1.9	2.5	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	24.7 J	1,500	MG/KG	DA-S-TP15A-0506-01	35/65	16 - 119	1,500	No	NA	NA	No	NUT, BKG
	7440-28-0	Thallium	0.06 J	0.89 J	MG/KG	DA-S-TP05-0607-01	2/65	0.01 - 0.89	0.89	No	0.51 N	5.5	Yes	ASL, BLG
	7440-62-2	Vanadium	6.1	53.8 J	MG/KG	DA-SB135-1214	65/65	-	53.8	Yes	39 N	550	Yes	ASL
	7440-66-6	Zinc	30	9,840	MG/KG	DA-B110B-1012	65/65	-	9,840	Yes	2,300 N	6,000	Yes	ASL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	2,300 J	63,000,000	UG/KG	DA-S-TP15A-0506-01	52/63	5700 - 62000	63,000,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.79 J	51	MG/KG	DA-S-TP15A-0203-01	23/65	0.86 - 8.75	51	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for 4-methylphenol.
10 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.
11 - Value is for acenaphthene.
12 - Value is for pyrene.
13 - Value is for Chlordane.
14 - Value is for total PCBs.
15 - Value is for Aroclor-1260.
16 - Value is for Endosulfan.
17 - Value is for Endrin.
18 - Value is for high risk polychlorinated biphenyls.
19 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Associated Samples

DA-B103B-0810	DA-SB134-0405
DA-B104B-0406-AVG	DA-SB135-1214
DA-B104B-1012	DA-SB136-0810
DA-B105B-0204	DA-SB137-0406
DA-B106B-0406	DA-SB138-0406-AVG
DA-B110B-1012	DA-SB139-0406
DA-B111B-0406	DA-SB139-1012
DA-B112B-0608	DA-SB-TP103-0506
DA-B113B-0608	DA-S-MW04B-0810-01
DA-B114B-0204	DA-S-MW04B-1416-01
DA-B116B-0305	DA-S-SB03-0304-01
DA-B118B-0608	DA-S-SB03-0607-01
DA-B119B-0204	DA-S-TP01-0304-01
DA-B120B-0204	DA-S-TP01-0607-01
DA-SB104-0608	DA-S-TP05-0607-01
DA-SB105-0406	DA-S-TP05-0910-01-AVG
DA-SB106-0608	DA-S-TP06-0304-01
DA-SB108-0204	DA-S-TP06-0910-01
DA-SB109-0204	DA-S-TP07-0304-01
DA-SB110-0810	DA-S-TP07-0910-01
DA-SB118-0406	DA-S-TP08-0304-01-AVG
DA-SB121-0406	DA-S-TP08-0708-01
DA-SB122-0407	DA-S-TP11-0203-01-AVG
DA-SB123-0508	DA-S-TP11-0304-01
DA-SB124-0608	DA-S-TP12-0203-01
DA-SB125-0810	DA-S-TP13-0203-01
DA-SB126-1013	DA-S-TP13-0405-01
DA-SB127-0204	DA-S-TP14-0910-01
DA-SB128-0810-AVG	DA-S-TP15-0203-01
DA-SB129-0406	DA-S-TP15-0506-01
DA-SB130-1011.5	DA-S-TP15A-0203-01
DA-SB131-0406	DA-S-TP15A-0506-01
DA-SB132-0406	DA-S-TP15A-0910-01
DA-SB133-0810	

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Exposed Soil	Volatile Organic Compounds													
	95-63-6	1,2,4-Trimethylbenzene	1.1 J	46	UG/KG	DA-B110B-1012	2/65	0.23 - 900	46	Yes	24	NA	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	20	20	UG/KG	DA-B110B-1012	1/65	0.2 - 960	20	Yes	20	NA	No	BSL
	78-93-3	2-Butanone	5.1 J	7.9	UG/KG	DA-S-SB03-0304-01	2/65	0.29 - 5900	7.9	Yes	1,500	NA	No	BSL
	99-87-6	4-Isopropyltoluene	2.7	11	UG/KG	DA-B110B-1012	2/65	0.24 - 1200	11	Yes	NA	NA	No	NTX
	67-64-1	Acetone	8	1,000 J	UG/KG	DA-B110B-1012	30/65	4.8 - 5300	1,000	Yes	4,400	NA	No	BSL
	75-15-0	Carbon Disulfide	2.4 J	2.4 J	UG/KG	DA-S-SB03-0607-01	1/65	0.31 - 970	2.4	Yes	270	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.28 - 650	1.3	Yes	110	1,700	No	BSL
	--	m+p-Xylenes	0.78 J	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	1,600 [8]	NA	No	BSL
	75-09-2	Methylene Chloride	2 J	670 J	UG/KG	DA-S-TP15A-0506-01	2/65	5.1 - 1300	670	Yes	1.2	NA	Yes	ASL
	104-51-8	N-Butylbenzene	1.8	1.8	UG/KG	DA-S-SB03-0607-01	1/65	0.28 - 1400	1.8	Yes	NA	NA	No	NTX
	135-98-8	sec-Butylbenzene	1.4	4 J	UG/KG	DA-B110B-1012	3/65	0.24 - 1400	4	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.93 J	1.2 J	UG/KG	DA-S-SB03-0304-01	2/65	0.25 - 1000	1.2	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.64 J	11	UG/KG	DA-SB-TP103-0506	12/65	0.24 - 1500	11	Yes	0.052	100	Yes	ASL
	540-59-0	Total 1,2-Dichloroethene	1.3	1.3	UG/KG	DA-S-MW04B-1416-01	1/65	0.26 - 920	1.3	Yes	99	NA	No	BSL
	1330-20-7	Total Xylenes	0.78	1.4	UG/KG	DA-S-SB03-0607-01	3/65	0.54 - 1400	1.4	Yes	230	540,000	No	BSL
	79-01-6	Trichloroethene	1.7	30	UG/KG	DA-SB-TP103-0506	7/65	0.27 - 1200	30	Yes	0.61	200	Yes	ASL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	170 J	8,300 J	UG/KG	DA-SB110-0810	4/40	350 - 400	8,300	Yes	23,000	NA	No	BSL
	105-67-9	2,4-Dimethylphenol	390	390	UG/KG	DA-SB127-0204	1/64	350 - 270000	390	Yes	1,200	NA	No	BSL
	51-28-5	2,4-Dinitrophenol	310 J	310 J	UG/KG	DA-S-TP14-0910-01	1/65	140 - 74000	310	Yes	68	NA	Yes	ASL
	91-57-6	2-Methylnaphthalene	5.6 J	23,000 J	UG/KG	DA-SB110-0810	27/65	21 - 110000	23,000	Yes	900	NA	Yes	ASL
	--	3&4-Methylphenol	740	2,200 J	UG/KG	DA-SB110-0810	2/65	180 - 95000	2,200	Yes	190 [9]	NA	Yes	ASL
	91-94-1	3,3'-Dichlorobenzidine	220 J	220 J	UG/KG	DA-S-TP14-0910-01	1/65	99 - 53000	220	Yes	2.3	NA	Yes	ASL
	534-52-1	4,6-Dinitro-2-Methylphenol	260 J	260 J	UG/KG	DA-S-TP14-0910-01	1/65	110 - 61000	260	Yes	5.1	NA	Yes	ASL
	100-01-6	4-Nitroaniline	420 J	420 J	UG/KG	DA-S-TP14-0910-01	1/65	180 - 99000	420	Yes	0.97	NA	Yes	ASL
	100-02-7	4-Nitrophenol	520 J	520 J	UG/KG	DA-S-TP14-0910-01	1/65	230 - 120000	520	Yes	NA	NA	No	NTX
	83-32-9	Acenaphthene	2.1 J	480,000	UG/KG	DA-S-TP15A-0506-01	39/65	21 - 620	480,000	Yes	27,000	NA	Yes	ASL
	208-96-8	Acenaphthylene	1.9 J	3,500 J	UG/KG	DA-S-TP08-0708-01	9/65	21 - 45000	3,500	Yes	27,000 [10]	NA	No	BSL
	120-12-7	Anthracene	2.9 J	970,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	970,000	Yes	450,000	NA	Yes	ASL
	56-55-3	Benzo(a)anthracene	3.2 J	1,900,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,900,000	Yes	14	NA	Yes	ASL
	50-32-8	Benzo(a)pyrene	6.2 J	1,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	1,500,000	Yes	4.6	240,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	7.2 J	1,300,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,300,000	Yes	47	NA	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	8.5 J	830,000	UG/KG	DA-S-TP15A-0506-01	42/65	21 - 620	830,000	Yes	150,000 [11]	NA	Yes	ASL
	207-08-9	Benzo(k)fluoranthene	7.3 J	1,200,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	1,200,000	Yes	460	NA	Yes	ASL
	65-85-0	Benzoic Acid	440 J	2,300 J	UG/KG	DA-S-TP14-0910-01	3/65	220 - 120000	2,300	Yes	33,000	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	240 J	1,900	UG/KG	DA-SB105-0406	14/65	110 - 58000	1,900	Yes	1,600	NA	Yes	ASL
	86-74-8	Carbazole	92 J	490,000	UG/KG	DA-S-TP15A-0506-01	26/65	74 - 620	490,000	Yes	NA	NA	No	NTX
	218-01-9	Chrysene	3.3 J	1,700,000	UG/KG	DA-S-TP15A-0506-01	45/65	21 - 620	1,700,000	Yes	1,400	NA	Yes	ASL
	84-74-2	di-n-Butyl Phthalate	120 J	120 J	UG/KG	DA-S-TP15A-0506-01	1/65	74 - 40000	120	Yes	11,000	NA	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	4.5 J	330,000	UG/KG	DA-S-TP15A-0506-01	35/65	21 - 620	330,000	Yes	15	NA	Yes	ASL
	132-64-9	Dibenzofuran	230 J	250,000 J	UG/KG	DA-S-MW04B-1416-01	17/65	120 - 620	250,000	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	4.8 J	4,600,000	UG/KG	DA-S-TP15A-0506-01	46/65	21 - 620	4,600,000	Yes	210,000	NA	Yes	ASL
	86-73-7	Fluorene	2.8 J	480,000	UG/KG	DA-S-TP15A-0506-01	37/65	21 - 620	480,000	Yes	33,000	NA	Yes	ASL
	193-39-5	Indeno(1,2,3-cd)pyrene	10 J	850,000	UG/KG	DA-S-TP15A-0506-01	40/65	21 - 860	850,000	Yes	160	NA	Yes	ASL
	91-20-3	Naphthalene	8.8 J	220,000 J	UG/KG	DA-S-TP15A-0506-01	33/65	3.7 - 23	220,000	Yes	0.55	800	Yes	ASL
	87-86-5	Pentachlorophenol	410 J	410 J	UG/KG	DA-S-TP06-0304-01	1/65	380 - 200000	410	Yes	3.9	7,100	Yes	ASL
	85-01-8	Phenanthrene	15 J	3,500,000	UG/KG	DA-S-TP15A-0506-01	43/65	21 - 620	3,500,000	Yes	150,000 [11]	NA	Yes	ASL
	108-95-2	Phenol	380 J	380 J	UG/KG	DA-SB127-0204	1/65	100 - 56000	380	Yes	8,100	NA	No	BSL
	129-00-0	Pyrene	18 J	3,600,000	UG/KG	DA-S-TP15A-0506-01	44/65	21 - 620	3,600,000	Yes	150,000	NA	Yes	ASL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	3.1 J	3.1 J	UG/KG	DA-SB106-0608	1/65	1.01 - 410	3.1	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	0.92 J	2.1 J	UG/KG	DA-B112B-0608	3/65	0.889 - 193	2.1	Yes	60	NA	No	BSL
	50-29-3	4,4'-DDT	1.7 J	347 J	UG/KG	DA-S-TP07-0304-01	9/65	1.24 - 386	347	Yes	87	NA	Yes	ASL
	5103-71-9	alpha-Chlordane	15 J	15 J	UG/KG	DA-B119B-0204	1/65	0.562 - 144	15	Yes	33 [12]	1,400 [12]	No	BSL
	12672-29-6	Aroclor-1248	132 J	2,190 J	UG/KG	DA-S-TP07-0910-01	2/65	18 - 229	2,190	Yes	3	10,000 [13]	Yes	ASL
	11097-69-1	Aroclor-1254	40	44.5 J	UG/KG	DA-S-TP15A-0910-01	2/65	18 - 229	44.5	Yes	5.1	10,000 [13]	Yes	ASL
	11096-82-5	Aroclor-1260	19	1,100 J	UG/KG	DA-SB-TP103-0506	6/65	12.2 - 129	1,100	Yes	14	10,000 [13]	Yes	ASL
	11100-14-4	Aroclor-1268	27.4 J	4,060 J	UG/KG	DA-B104B-0406-AVG	10/65	18 - 229	4,060	Yes	14 [14]	10,000 [13]	Yes	ASL
	1031-07-8	Endosulfan Sulfate	2 J	2 J	UG/KG	DA-SB129-0406	1/65	1.01 - 265	2	Yes	9,700 [15]	NA	No	BSL

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7421-93-4	Endrin Aldehyde	1.2 J	1.2 J	UG/KG	DA-SB133-0810	1/65	1.44 - 313	1.2	Yes	230 [16]	NA	No	BSL
	5103-74-2	gamma-Chlordane	20	20	UG/KG	DA-B119B-0204	1/65	0.556 - 120	20	Yes	33 [12]	1,400 [12]	No	BSL
	76-44-8	Heptachlor	1.28 J	52 J	UG/KG	DA-SB110-0810	6/65	0.667 - 144	52	Yes	1.6	NA	Yes	ASL
	--	Total Aroclor	19	4,060 J	UG/KG	DA-B104B-0406-AVG	16/65	18 - 220	4,060	Yes	NA	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	4,450	27,200	MG/KG	DA-SB139-1012	65/65	-	27,200	Yes	55,000	NA	No	BSL
	7440-36-0	Antimony	0.26	6.2	MG/KG	DA-S-TP07-0910-01	7/65	0.04 - 2.2	6.2	Yes	0.66	[17]	Yes	ASL
	7440-38-2	Arsenic	2.7 J	40	MG/KG	DA-S-TP13-0203-01	65/65	-	40	Yes	0.0013	NA	Yes	ASL
	7440-39-3	Barium	6.9	653	MG/KG	DA-SB106-0608	65/65	-	653	Yes	300	[17]	Yes	ASL
	7440-41-7	Beryllium	0.21 J	2.5	MG/KG	DA-S-TP15A-0203-01	65/65	-	2.5	No	58	[17]	No	BSL, BKG
	7440-43-9	Cadmium	0.17	8.8	MG/KG	DA-SB132-0406	24/65	0.01 - 0.32	8.8	Yes	1.4	[17]	Yes	ASL
	7440-70-2	Calcium	70	53,000 J	MG/KG	DA-S-TP15A-0203-01	65/65	-	53,000	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	2.6	98.2	MG/KG	DA-SB106-0608	65/65	-	98.2	Yes	2.1 [18]	[17]	Yes	ASL
	7440-48-4	Cobalt	3.4 J	35.6	MG/KG	DA-SB106-0608	65/65	-	35.6	Yes	0.49	NA	Yes	ASL
	7440-50-8	Copper	2.1	2,600	MG/KG	DA-S-TP07-0910-01	65/65	-	2,600	Yes	51	NA	Yes	ASL
	7439-89-6	Iron	3,800	134,000	MG/KG	DA-SB106-0608	65/65	-	134,000	Yes	640	NA	Yes	ASL
	7439-92-1	Lead	6.2	4,650	MG/KG	DA-SB106-0608	65/65	-	4,650	Yes	NA	[17]	No	NTX
	7439-95-4	Magnesium	1,160	24,000	MG/KG	DA-S-TP15A-0203-01	65/65	-	24,000	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	180	3,300	MG/KG	DA-S-SB03-0304-01	65/65	-	3,300	No	57	NA	Yes	ASL, BKG
	7439-97-6	Mercury	0.0088 J	0.22	MG/KG	DA-B105B-0204	43/65	0.007 - 0.02	0.22	Yes	0.57	[17]	No	BSL
	7439-98-7	Molybdenum	0.12 J	58.8	MG/KG	DA-SB106-0608	43/65	0.02 - 0.41	58.8	Yes	3.7	NA	Yes	ASL
	7440-02-0	Nickel	4.4	102	MG/KG	DA-SB106-0608	65/65	-	102	Yes	48	[17]	Yes	ASL
	7440-09-7	Potassium	81	3,400	MG/KG	DA-S-TP15A-0506-01	65/65	-	3,400	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.32 J	0.36 J	MG/KG	DA-S-TP15A-0506-01	2/65	0.11 - 2.63	0.36	No	0.95	[17]	No	BSL, BKG
	7440-22-4	Silver	0.12	2.5	MG/KG	DA-S-TP07-0910-01	21/65	0.031 - 1.9	2.5	Yes	1.6	NA	Yes	ASL
	7440-23-5	Sodium	24.7 J	1,500	MG/KG	DA-S-TP15A-0506-01	35/65	16 - 119	1,500	No	NA	NA	No	NUT, BKG
	7440-28-0	Thallium	0.06 J	0.89 J	MG/KG	DA-S-TP05-0607-01	2/65	0.01 - 0.89	0.89	No	0.17	[17]	Yes	ASL, BKG
	7440-62-2	Vanadium	6.1	53.8 J	MG/KG	DA-SB135-1214	65/65	-	53.8	Yes	180	NA	No	BSL
	7440-66-6	Zinc	30	9,840	MG/KG	DA-B110B-1012	65/65	-	9,840	Yes	680	NA	Yes	ASL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	2,300 J	63,000,000	UG/KG	DA-S-TP15A-0506-01	52/63	5700 - 62000	63,000,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.79 J	51	MG/KG	DA-S-TP15A-0203-01	23/65	0.86 - 8.75	51	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for 4-methylphenol.
10 - Value is for acenaphthene.
11 - Value is for pyrene.
12 - Value is for Chlordane.
13 - Value is for total PCBs.
14 - Value is for Aroclor-1260.
15 - Value is for Endosulfan.
16 - Value is for Endrin.
17 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
18 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Associated Samples

DA-B103B-0810	DA-SB134-0405
DA-B104B-0406-AVG	DA-SB135-1214
DA-B104B-1012	DA-SB136-0810
DA-B105B-0204	DA-SB137-0406
DA-B106B-0406	DA-SB138-0406-AVG
DA-B110B-1012	DA-SB139-0406
DA-B111B-0406	DA-SB139-1012
DA-B112B-0608	DA-SB-TP103-0506
DA-B113B-0608	DA-S-MW04B-0810-01
DA-B114B-0204	DA-S-MW04B-1416-01
DA-B116B-0305	DA-S-SB03-0304-01
DA-B118B-0608	DA-S-SB03-0607-01
DA-B119B-0204	DA-S-TP01-0304-01
DA-B120B-0204	DA-S-TP01-0607-01
DA-SB104-0608	DA-S-TP05-0607-01
DA-SB105-0406	DA-S-TP05-0910-01-AVG
DA-SB106-0608	DA-S-TP06-0304-01
DA-SB108-0204	DA-S-TP06-0910-01
DA-SB109-0204	DA-S-TP07-0304-01
DA-SB110-0810	DA-S-TP07-0910-01
DA-SB118-0406	DA-S-TP08-0304-01-AVG
DA-SB121-0406	DA-S-TP08-0708-01
DA-SB122-0407	DA-S-TP11-0203-01-AVG
DA-SB123-0508	DA-S-TP11-0304-01
DA-SB124-0608	DA-S-TP12-0203-01
DA-SB125-0810	DA-S-TP13-0203-01
DA-SB126-1013	DA-S-TP13-0405-01
DA-SB127-0204	DA-S-TP14-0910-01
DA-SB128-0810-AVG	DA-S-TP15-0203-01
DA-SB129-0406	DA-S-TP15-0506-01
DA-SB130-1011.5	DA-S-TP15A-0203-01
DA-SB131-0406	DA-S-TP15A-0506-01
DA-SB132-0406	DA-S-TP15A-0910-01
DA-SB133-0810	

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Paved Soil	Volatile Organic Compounds													
	95-63-6	1,2,4-Trimethylbenzene	8 J	8 J	UG/KG	DA-SB100-0002	1/27	0.19 - 7	8	Yes	6,700 N	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	5 J	5 J	UG/KG	DA-SB100-0002	1/27	0.16 - 7	5	Yes	4,700 N	NA	No	BSL
	78-93-3	2-Butanone	1.8 J	31 J	UG/KG	DA-SS-B126B-0103-072208	8/27	0.24 - 36	31	Yes	2,800,000 N	10,000,000	No	BSL
	67-64-1	Acetone	8 J	610	UG/KG	DA-SB150-0002	18/27	4 - 1600	610	Yes	6,100,000 N	7,800,000	No	BSL
	75-15-0	Carbon Disulfide	0.95 J	2	UG/KG	DA-SS-B126B-0103-072208, DA-SB150-0002	3/27	0.26 - 7.6	2	Yes	67,000 N	NA	No	BSL
	67-66-3	Chloroform	0.76 J	0.76 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	0.76	Yes	300 C	1,200	No	BSL
	100-41-4	Ethylbenzene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.21 - 6	2	Yes	5,700 C	71,000	No	BSL
	--	m+p-Xylenes	0.61 J	9 J	UG/KG	DA-SB102-0002	2/27	0.45 - 12	9	Yes	450,000 N[8]	NA	No	BSL
	95-47-6	o-Xylene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.36 - 6	2	Yes	530,000 N	NA	No	BSL
	135-98-8	sec-Butylbenzene	0.97	1.75 J	UG/KG	DA-SS-B125B-0103-072108-AVG	2/27	0.2 - 7	1.75	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	1.1 J	1.1 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	1.1	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	2.4	2.4	UG/KG	DA-S-SB02-0102-01	1/27	0.2 - 7	2.4	Yes	570 C	12,000	No	BSL
	1330-20-7	Total Xylenes	0.61	11 J	UG/KG	DA-SB102-0002	2/27	0.45 - 9	11	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	3 J	3 J	UG/KG	DA-B101B-0002	1/27	0.22 - 7	3	Yes	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	91-57-6	2-Methylnaphthalene	6.6 J	390	UG/KG	DA-SB116-0002	14/27	22 - 4300	390	Yes	31,000 N	123,000	No	BSL
	83-32-9	Acenaphthene	1.8 J	890	UG/KG	DA-B108B-0002	15/27	22 - 2700	890	Yes	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	3.1 J	38	UG/KG	DA-SB102-0002	4/27	21 - 2700	38	Yes	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	3.1 J	2,000	UG/KG	DA-B109B-0002	18/27	21 - 2700	2,000	Yes	1,700,000 N	35,000	No	BSL
	56-55-3	Benzo(a)anthracene	2.6 J	5,600 J	UG/KG	DA-B109B-0002	24/27	23 - 2700	5,600	Yes	150 C	900	Yes	ASL
	50-32-8	Benzo(a)pyrene	7.3 J	4,800 J	UG/KG	DA-B109B-0002	25/27	86 - 2700	4,800	Yes	15 C	400	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	14 J	5,700 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	5,700	Yes	150 C	900	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	3 J	2,000 J	UG/KG	DA-B109B-0002	21/27	22 - 2700	2,000	Yes	170,000 N[10]	800	Yes	ASL
	207-08-9	Benzo(k)fluoranthene	6.8 J	3,900 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	3,900	Yes	1,500 C	900	Yes	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-0102-01, DA-S-SB08-0102-01	2/27	345 - 5400	410	Yes	35,000 C	46,000	No	BSL
	86-74-8	Carbazole	300 J	800	UG/KG	DA-B109B-0002	3/27	73 - 2700	800	Yes	NA	NA	No	NTX
	218-01-9	Chrysene	2.8 J	5,700 J	UG/KG	DA-B109B-0002	25/27	85 - 2700	5,700	Yes	15,000 C	400	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	10 J	760	UG/KG	DA-B109B-0002	14/27	22 - 2700	760	Yes	15 C	400	Yes	ASL
	132-64-9	Dibenzofuran	270 J	350 J	UG/KG	DA-B109B-0002	2/27	120 - 2700	350	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	4.4 J	10,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	10,000	Yes	230,000 N	20,000	No	BSL
	86-73-7	Fluorene	3.8 J	870	UG/KG	DA-B109B-0002	13/27	22 - 2700	870	Yes	230,000 N	28,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	8.25 J	2,200 J	UG/KG	DA-B109B-0002	19/27	22 - 3800	2,200	Yes	150 C	900	Yes	ASL
	91-20-3	Naphthalene	2.9 J	340 J	UG/KG	DA-B108B-0002	11/27	3 - 110	340	Yes	3,900 C	54,000	No	BSL
	85-01-8	Phenanthrene	4.6 J	8,500	UG/KG	DA-B109B-0002	25/27	23 - 2700	8,500	Yes	170,000 N[10]	40,000	No	BSL
	129-00-0	Pyrene	3.3 J	13,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	13,000	Yes	170,000 N	13,000	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.2 J	2.7 J	UG/KG	DA-SB150-0002	4/25	3.45 - 215	2.7	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	0.96 J	7.2	UG/KG	DA-SB113-0002	6/25	3.45 - 215	7.2	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1.3 J	6.7	UG/KG	DA-SB113-0002	6/25	3.45 - 215	6.7	Yes	1,700 C	NA	No	BSL
	12672-29-6	Aroclor-1248	43	43	UG/KG	DA-SB114-0002	1/25	18 - 56.8	43	Yes	220 C	10,000 [11]	No	BSL
	11096-82-5	Aroclor-1260	28 J	44	UG/KG	DA-SB111-0002	2/25	12.1 - 56.8	44	Yes	220 C	10,000 [11]	No	BSL
	11100-14-4	Aroclor-1268	94.1	117	UG/KG	DA-S-SB06-0515-01	2/25	18 - 56.8	117	Yes	220 C[12]	10,000 [11]	No	BSL
	33213-65-9	Endosulfan II	0.98 J	2.6 J	UG/KG	DA-SB100-0002	2/25	3.45 - 215	2.6	Yes	37,000 N[13]	NA	No	BSL
	--	Total Aroclor	28 J	117	UG/KG	DA-S-SB06-0515-01	5/25	18 - 57	117	Yes	220 C[14]	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	4,100	19,500	MG/KG	DA-B101B-0002	25/25	-	19,500	Yes	7,700 N	NA	Yes	ASL
	7440-38-2	Arsenic	1.7	41 J	MG/KG	DA-S-SB04-0102-01	25/25	-	41	Yes	0.39 C	7	Yes	ASL
	7440-39-3	Barium	10	36.5	MG/KG	DA-SB100-0002	25/25	-	36.5	No	1,500 N	5,500	No	BSL
	7440-41-7	Beryllium	0.21 J	0.57	MG/KG	DA-SB114-0002	24/25	0.15 - 0.15	0.57	Yes	16 N	0.4	Yes	ASL
	7440-43-9	Cadmium	0.14 J	0.77 J	MG/KG	DA-SB112-0002	8/25	0.01 - 0.14	0.77	Yes	7 N	39	No	BSL
	7440-70-2	Calcium	330	2,480 J	MG/KG	DA-B101B-0002	25/25	-	2,480	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	5.6 J	24.2 J	MG/KG	DA-B101B-0002	25/25	-	24.2	Yes	23 N[15,16]	390 [16]	Yes	ASL
	7440-48-4	Cobalt	2.7	28	MG/KG	DA-SB102-0002	25/25	-	28	Yes	2.3 N	NA	Yes	ASL
	7440-50-8	Copper	8	26	MG/KG	DA-S-SB01-0102-01	25/25	-	26	Yes	310 N	3,100	No	BSL
	7439-89-6	Iron	8,540	38,900	MG/KG	DA-B101B-0002	25/25	-	38,900	Yes	5,500 N	NA	Yes	ASL
	7439-92-1	Lead	7.3	54.8	MG/KG	DA-SB114-0002	25/25	-	54.8	Yes	400	150	No	BSL
	7439-95-4	Magnesium	920	6,020 J	MG/KG	DA-B101B-0002	25/25	-	6,020	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	150	827	MG/KG	DA-B101B-0002	25/25	-	827	Yes	180 N	390	Yes	ASL

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7439-97-6	Mercury	0.01 J	0.05	MG/KG	DA-SB101-0002	10/25	0.00724 - 0.02	0.05	No	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.168 J	1.2 J	MG/KG	DA-SB102-0002	20/25	0.39 - 0.7	1.2	Yes	39 N	NA	No	BSL
	7440-02-0	Nickel	7.4	34.2	MG/KG	DA-B101B-0002	25/25	-	34.2	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	130	1,200	MG/KG	DA-SB119-0002	24/25	92 - 92	1,200	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.64 J	0.64 J	MG/KG	DA-SB101-0002	1/25	0.1 - 0.68	0.64	Yes	39 N	390	No	BSL
	7440-22-4	Silver	0.034 J	0.82	MG/KG	DA-S-SB02-0102-01	12/25	0.03 - 0.17	0.82	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	33.4 J	307	MG/KG	DA-SB100-0002	14/25	26 - 78.3	307	Yes	NA	NA	No	NUT
	7440-28-0	Thalllum	0.18 J	0.38	MG/KG	DA-S-SB04-0102-01	3/25	0.02 - 0.16	0.38	Yes	0.51 N	5.5	No	BSL
	7440-62-2	Vanadium	8.2	38	MG/KG	DA-SB119-0002	25/25	-	38	No	39 N	550	No	BSL
	7440-66-6	Zinc	27.5	94.7	MG/KG	DA-SB102-0002	25/25	-	94.7	Yes	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	23000 J	2,200,000	UG/KG	DA-SB100-0002	27/27	-	2,200,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.58 J	130	MG/KG	DA-SB101-0002	5/27	0.74 - 3.4	130	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Value is for Aroclor-1260.
13 - Value is for Endosulfan.
14 - Value is for high risk polychlorinated biphenyls.
15 - Ten percent of noncarcinogenic screening level is less than the carcinogenic screening level, therefore the noncarcinogenic value is presented.
16 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples
DA-B100B-0002-AVG
DA-B101B-0002
DA-B107B-0002
DA-B108B-0002
DA-B109B-0002
DA-SS-B125B-0103-072108-AVG
DA-SS-B126B-0103-072208
DA-S-SB01-0102-01
DA-S-SB02-0102-01
DA-S-SB04-0102-01
DA-S-SB05-0102-01
DA-S-SB06-0515-01
DA-S-SB08-0102-01
DA-SB100-0002
DA-SB101-0002
DA-SB102-0002
DA-SB111-0002
DA-SB112-0002
DA-SB113-0002
DA-SB114-0002
DA-SB115-0002
DA-SB116-0002
DA-SB117-0002
DA-SB119-0002
DA-SB120-0002
DA-SB150-0002
DA-SB151-0002

TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[35]	Screening Toxicity Value[36]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Paved Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	8 J	8 J	UG/KG	DA-SB100-0002	1/27	0.19 - 7	8	Yes	24	NA	No	BSL
	108-67-8	1,3,5-Trimethylbenzene	5 J	5 J	UG/KG	DA-SB100-0002	1/27	0.16 - 7	5	Yes	20	NA	No	BSL
	78-93-3	2-Butanone	1.8 J	31 J	UG/KG	DA-SS-B126B-0103-072208	8/27	0.24 - 36	31	Yes	1,500	NA	No	BSL
	67-64-1	Acetone	8 J	610	UG/KG	DA-SB150-0002	18/27	4 - 1600	610	Yes	4,400	NA	No	BSL
	75-15-0	Carbon Disulfide	0.95 J	2	UG/KG	DA-SS-B126B-0103-072208, DA-SB150-0002	3/27	0.26 - 7.6	2	Yes	270	NA	No	BSL
	67-66-3	Chloroform	0.76 J	0.76 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	0.76	Yes	0.055	NA	Yes	ASL
	100-41-4	Ethylbenzene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.21 - 6	2	Yes	1.9	27,000	Yes	ASL
	--	m+p-Xylenes	0.61 J	9 J	UG/KG	DA-SB102-0002	2/27	0.45 - 12	9	Yes	1,600 [8]	NA	No	BSL
	95-47-6	o-Xylene	2 J	2 J	UG/KG	DA-SB102-0002	1/27	0.36 - 6	2	Yes	1,600	NA	No	BSL
	135-98-8	sec-Butylbenzene	0.97	1.75 J	UG/KG	DA-SS-B125B-0103-072108-AVG	2/27	0.2 - 7	1.75	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	1.1 J	1.1 J	UG/KG	DA-S-SB01-0102-01	1/27	0.21 - 7	1.1	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	2.4	2.4	UG/KG	DA-S-SB02-0102-01	1/27	0.2 - 7	2.4	Yes	0.052	100	Yes	ASL
	1330-20-7	Total Xylenes	0.61	11 J	UG/KG	DA-SB102-0002	2/27	0.45 - 9	11	Yes	230	540,000	No	BSL
	79-01-6	Trichloroethene	3 J	3 J	UG/KG	DA-B101B-0002	1/27	0.22 - 7	3	Yes	0.61	200	Yes	ASL
	Semivolatile Organic Compounds													
	91-57-6	2-Methylnaphthalene	6.6 J	390	UG/KG	DA-SB116-0002	14/27	22 - 4300	390	Yes	900	NA	No	BSL
	83-32-9	Acenaphthene	1.8 J	890	UG/KG	DA-B108B-0002	15/27	22 - 2700	890	Yes	27,000	NA	No	BSL
	208-96-8	Acenaphthylene	3.1 J	38	UG/KG	DA-SB102-0002	4/27	21 - 2700	38	Yes	27,000 [9]	NA	No	BSL
	120-12-7	Anthracene	3.1 J	2,000	UG/KG	DA-B109B-0002	18/27	21 - 2700	2,000	Yes	450,000	NA	No	BSL
	56-55-3	Benzo(a)anthracene	2.6 J	5,600 J	UG/KG	DA-B109B-0002	24/27	23 - 2700	5,600	Yes	14	NA	Yes	ASL
	50-32-8	Benzo(a)pyrene	7.3 J	4,800 J	UG/KG	DA-B109B-0002	25/27	86 - 2700	4,800	Yes	4.6	240,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	14 J	5,700 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	5,700	Yes	47	NA	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	3 J	2,000 J	UG/KG	DA-B109B-0002	21/27	22 - 2700	2,000	Yes	150,000 [10]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	6.8 J	3,900 J	UG/KG	DA-B109B-0002	23/27	23 - 2700	3,900	Yes	460	NA	Yes	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	4 to	UG/KG	DA-S-SB01-0102-01, DA-S-SB08-0102-01	2/27	345 - 5400	410	Yes	1,600	NA	No	BSL
	86-74-8	Carbazole	300 J	800	UG/KG	DA-B109B-0002	3/27	73 - 2700	800	Yes	NA	NA	No	NTX
	218-01-9	Chrysene	2.8 J	5,700 J	UG/KG	DA-B109B-0002	25/27	85 - 2700	5,700	Yes	1,400	NA	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	10 J	760	UG/KG	DA-B109B-0002	14/27	22 - 2700	760	Yes	15	NA	Yes	ASL
	132-64-9	Dibenzofuran	270 J	350 J	UG/KG	DA-B109B-0002	2/27	120 - 2700	350	Yes	NA	NA	No	NTX
	206-44-0	Fluoranthene	4.4 J	10,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	10,000	Yes	210,000	NA	No	BSL
	86-73-7	Fluorene	3.8 J	870	UG/KG	DA-B109B-0002	13/27	22 - 2700	870	Yes	33,000	NA	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	8.25 J	2,200 J	UG/KG	DA-B109B-0002	19/27	22 - 3800	2,200	Yes	160	NA	Yes	ASL
	91-20-3	Naphthalene	2.9 J	340 J	UG/KG	DA-B108B-0002	11/27	3 - 110	340	Yes	0.55	800	Yes	ASL
	85-01-8	Phenanthrene	4.6 J	8,500	UG/KG	DA-B109B-0002	25/27	23 - 2700	8,500	Yes	150,000 [10]	NA	No	BSL
	129-00-0	Pyrene	3.3 J	13,000	UG/KG	DA-B109B-0002	26/27	2700 - 2700	13,000	Yes	150,000	NA	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.2 J	2.7 J	UG/KG	DA-SB150-0002	4/25	3.45 - 215	2.7	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	0.96 J	7.2	UG/KG	DA-SB113-0002	6/25	3.45 - 215	7.2	Yes	60	NA	No	BSL
	50-29-3	4,4'-DDT	1.3 J	6.7	UG/KG	DA-SB113-0002	6/25	3.45 - 215	6.7	Yes	87	NA	No	BSL
	12672-29-6	Aroclor-1248	43	43	UG/KG	DA-SB114-0002	1/25	18 - 56.8	43	Yes	3	10,000 [11]	Yes	ASL
	11096-82-5	Aroclor-1260	28 J	44	UG/KG	DA-SB111-0002	2/25	12.1 - 56.8	44	Yes	14	10,000 [11]	Yes	ASL
	11100-14-4	Aroclor-1268	94.1	117	UG/KG	DA-S-SB06-0515-01	2/25	18 - 56.8	117	Yes	14 [12]	10,000 [11]	Yes	ASL
	33213-65-9	Endosulfan II	0.98 J	2.6 J	UG/KG	DA-SB100-0002	2/25	3.45 - 215	2.6	Yes	9,700 [13]	NA	No	BSL
	--	Total Aroclor	28 J	117	UG/KG	DA-S-SB06-0515-01	5/25	18 - 57	117	Yes	NA	10,000	No	BSL
	Metals													
	7429-90-5	Aluminum	4,100	19,500	MG/KG	DA-B101B-0002	25/25	-	19,500	Yes	55,000	NA	No	BSL
	7440-38-2	Arsenic	1.7	41 J	MG/KG	DA-S-SB04-0102-01	25/25	-	41	Yes	0.0013	NA	Yes	ASL
	7440-39-3	Barium	10	36.5	MG/KG	DA-SB100-0002	25/25	-	36.5	No	300	[14]	No	BSL, BKG
	7440-41-7	Beryllium	0.21 J	0.57	MG/KG	DA-SB114-0002	24/25	0.15 - 0.15	0.57	Yes	58	[14]	No	BSL
	7440-43-9	Cadmium	0.14 J	0.77 J	MG/KG	DA-SB112-0002	8/25	0.01 - 0.14	0.77	Yes	1.4	[14]	No	BSL
	7440-70-2	Calcium	330	2,480 J	MG/KG	DA-B101B-0002	25/25	-	2,480	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	5.6 J	24.2 J	MG/KG	DA-B101B-0002	25/25	-	24.2	Yes	2.1 [15]	[14]	Yes	ASL
	7440-48-4	Cobalt	2.7	28	MG/KG	DA-SB102-0002	25/25	-	28	Yes	0.49	NA	Yes	ASL
	7440-50-8	Copper	8	26	MG/KG	DA-S-SB01-0102-01	25/25	-	26	Yes	51	NA	No	BSL
	7439-89-6	Iron	8,540	38,900	MG/KG	DA-B101B-0002	25/25	-	38,900	Yes	640	NA	Yes	ASL
	7439-92-1	Lead	7.3	54.8	MG/KG	DA-SB114-0002	25/25	-	54.8	Yes	NA	[14]	No	NTX
	7439-95-4	Magnesium	920	6,020 J	MG/KG	DA-B101B-0002	25/25	-	6,020	Yes	NA	NA	No	NUT

TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7439-96-5	Manganese	150	827	MG/KG	DA-B101B-0002	25/25	-	827	Yes	57	NA	Yes	ASL
	7439-97-6	Mercury	0.01 J	0.05	MG/KG	DA-SB101-0002	10/25	0.00724 - 0.02	0.05	No	0.57	[14]	No	BSL, BKG
	7439-98-7	Molybdenum	0.168 J	1.2 J	MG/KG	DA-SB102-0002	20/25	0.39 - 0.7	1.2	Yes	3.7	NA	No	BSL
	7440-02-0	Nickel	7.4	34.2	MG/KG	DA-B101B-0002	25/25	-	34.2	Yes	48	[14]	No	BSL
	7440-09-7	Potassium	130	1,200	MG/KG	DA-SB119-0002	24/25	92 - 92	1,200	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.64 J	0.64 J	MG/KG	DA-SB101-0002	1/25	0.1 - 0.68	0.64	Yes	0.95	[14]	No	BSL
	7440-22-4	Silver	0.034 J	0.82	MG/KG	DA-S-SB02-0102-01	12/25	0.03 - 0.17	0.82	Yes	1.6	NA	No	BSL
	7440-23-5	Sodium	33.4 J	307	MG/KG	DA-SB100-0002	14/25	26 - 78.3	307	Yes	NA	NA	No	NUT
	7440-28-0	Thallium	0.18 J	0.38	MG/KG	DA-S-SB04-0102-01	3/25	0.02 - 0.16	0.38	Yes	0.17	[14]	Yes	ASL
	7440-62-2	Vanadium	8.2	38	MG/KG	DA-SB119-0002	25/25	-	38	No	180	NA	No	BSL, BKG
	7440-66-6	Zinc	27.5	94.7	MG/KG	DA-SB102-0002	25/25	-	94.7	Yes	680	NA	No	BSL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	23000 J	2,200,000	UG/KG	DA-SB100-0002	27/27	-	2,200,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.58 J	130	MG/KG	DA-SB101-0002	5/27	0.74 - 3.4	130	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Value is for Aroclor-1260.
13 - Value is for Endosulfan.
14 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
15 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples
DA-B100B-0002-AVG
DA-B101B-0002
DA-B107B-0002
DA-B108B-0002
DA-B109B-0002
DA-SS-B125B-0103-072108-AVG
DA-SS-B126B-0103-072208
DA-S-SB01-0102-01
DA-S-SB02-0102-01
DA-S-SB04-0102-01
DA-S-SB05-0102-01
DA-S-SB06-0515-01
DA-S-SB08-0102-01
DA-SB100-0002
DA-SB101-0002
DA-SB102-0002
DA-SB111-0002
DA-SB112-0002
DA-SB113-0002
DA-SB114-0002
DA-SB115-0002
DA-SB116-0002
DA-SB117-0002
DA-SB119-0002
DA-SB120-0002
DA-SB150-0002
DA-SB151-0002

TABLE 2.7
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Paved Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	2.25 J	17,000	UG/KG	DA-S-SB04-2535-01	3/31	0.22 - 230	17,000	Yes	6,700 N	NA	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	74 J	7,500 J	UG/KG	DA-SB116-0204	2/31	0.19 - 560	7,500	Yes	4,700 N	NA	Yes	ASL
	78-93-3	2-Butanone	2.8 J	48	UG/KG	DA-B100B-0608	9/31	0.32 - 3400	48	Yes	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	2.5	6,400	UG/KG	DA-S-SB04-2535-01	4/31	0.23 - 6	6,400	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.2	900 J	UG/KG	DA-SB112-0608-AVG	25/31	8 - 3100	900	Yes	6,100,000 N	7,800,000	No	BSL
	75-15-0	Carbon Disulfide	0.93 J	4 J	UG/KG	DA-B107B-0608	7/31	0.3 - 570	4	Yes	67,000 N	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.27 - 380	2	Yes	78,000 N	630,000	No	BSL
	100-41-4	Ethylbenzene	0.82	1,600	UG/KG	DA-S-SB04-2535-01	3/31	0.25 - 6	1,600	Yes	5,700 C	71,000	No	BSL
	98-82-8	Isopropylbenzene	0.58 J	2,800	UG/KG	DA-S-SB04-2535-01	6/31	0.27 - 6	2,800	Yes	220,000 N	NA	No	BSL
	--	m+p-Xylenes	0.61 J	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	450,000 N[8]	NA	No	BSL
	75-09-2	Methylene Chloride	2 J	2 J	UG/KG	DA-SB120-0406	1/31	5 - 760	2	Yes	11,000 C	45,000	No	BSL
	104-51-8	N-Butylbenzene	5 J	8,100	UG/KG	DA-S-SB04-2535-01	5/31	0.27 - 6	8,100	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	6,100	UG/KG	DA-S-SB04-2535-01	5/31	0.24 - 6	6,100	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	0.575	1.4	UG/KG	DA-S-SB05-0304-01	3/31	0.42 - 630	1.4	Yes	530,000 N	NA	No	BSL
	135-98-8	sec-Butylbenzene	1.1 J	4,700	UG/KG	DA-S-SB04-2535-01	10/31	0.24 - 6	4,700	Yes	NA	NA	No	NTX
	98-06-8	Tert-Butylbenzene	0.54 J	110 J	UG/KG	DA-SB116-0204	6/31	0.24 - 600	110	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.64 J	0.64 J	UG/KG	DA-S-SB02-5565-01	1/31	0.24 - 890	0.64	Yes	570 C	12,000	No	BSL
	108-88-3	Toluene	2 J	2 J	UG/KG	DA-B108B-0406	1/31	0.21 - 650	2	Yes	500,000 N	190,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.24 - 540	2	Yes	70,000 N	NA	No	BSL
	1330-20-7	Total Xylenes	0.61	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	2 J	2 J	UG/KG	DA-B101B-0406	1/31	0.26 - 700	2	Yes	2,800 C	13,000	No	BSL
	75-01-4	Vinyl Chloride	3 J	3 J	UG/KG	DA-B109B-0204	1/31	0.4 - 560	3	Yes	60 C	20	No	BSL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	310 J	310 J	UG/KG	DA-SB116-0204	1/21	360 - 1800	310	Yes	390,000 N	NA	No	BSL
	91-57-6	2-Methylnaphthalene	3.5 J	2,600 J	UG/KG	DA-SB116-0204	12/31	22 - 4900	2,600	Yes	31,000 N	123,000	No	BSL
	83-32-9	Acenaphthene	2.6 J	65.5 J	UG/KG	DA-SB112-0608-AVG	12/31	22 - 3000	65.5	Yes	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	5.2 J	670 J	UG/KG	DA-SB112-0608-AVG	2/31	22 - 3000	670	Yes	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	7.8 J	730 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	730	Yes	1,700,000 N	35,000	No	BSL
	56-55-3	Benzo(a)anthracene	5.4 J	7,700	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	7,700	Yes	150 C	900	Yes	ASL
	50-32-8	Benzo(a)pyrene	5.6 J	5,700	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,700	Yes	15 C	400	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	12.2 J	6,500	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	6,500	Yes	150 C	900	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	3.4 J	1,350 J	UG/KG	DA-SB112-0608-AVG	16/31	22 - 3000	1,350	Yes	170,000 N[10]	800	Yes	ASL
	207-08-9	Benzo(k)fluoranthene	5.4 J	5,350	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,350	Yes	1,500 C	900	Yes	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-5575-01, DA-S-SB05-0203-01	2/31	110 - 6100	410	Yes	35,000 C	46,000	No	BSL
	218-01-9	Chrysene	3.3 J	7,550	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	7,550	Yes	15,000 C	400	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	6.9 J	700 J	UG/KG	DA-SB112-0608-AVG	7/31	22 - 3000	700	Yes	15 C	400	Yes	ASL
	206-44-0	Fluoranthene	5 J	11,500	UG/KG	DA-SB112-0608-AVG	19/31	22 - 620	11,500	Yes	230,000 N	20,000	No	BSL
	86-73-7	Fluorene	2.9 J	170 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	170	Yes	230,000 N	28,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	9 J	2,750	UG/KG	DA-SB112-0608-AVG	14/31	22 - 4300	2,750	Yes	150 C	900	Yes	ASL
	91-20-3	Naphthalene	2.4 J	125 J	UG/KG	DA-S-SB04-0910-01-AVG	8/30	3.4 - 84	125	Yes	3,900 C	54,000	No	BSL
	85-01-8	Phenanthrene	4.8 J	3,100	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	3,100	Yes	170,000 N[10]	40,000	No	BSL
	129-00-0	Pyrene	11.2 J	11,500	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	11,500	Yes	170,000 N	13,000	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.4 J	9.2 J	UG/KG	DA-SB112-0608-AVG	3/29	1.93 - 244	9.2	Yes	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	1.03 J	1.03 J	UG/KG	DA-SB113-0406-AVG	1/29	0.909 - 244	1.03	Yes	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	1 J	1 J	UG/KG	DA-B101B-0406	1/29	1.82 - 244	1	Yes	1,700 C	NA	No	BSL
	11096-82-5	Aroclor-1260	1,500	1,500	UG/KG	DA-SB111-0204	1/29	12.5 - 305	1,500	Yes	220 C	10,000 [11]	Yes	ASL
	76-44-8	Heptachlor	1.12 J	1.12 J	UG/KG	DA-SB112-0608-AVG	1/29	0.682 - 122	1.12	Yes	110 C	NA	No	BSL
	--	Total Aroclor	1,500	1,500	UG/KG	DA-SB111-0204	1/29	18 - 300	1,500	Yes	220 C[12]	10,000	Yes	ASL
	8001-35-2	Toxaphene	45.9 J	45.9 J	UG/KG	DA-S-SB02-0304-01	1/29	36 - 4640	45.9	Yes	440 C	NA	No	BSL
	Metals													
	7429-90-5	Aluminum	3,800	20,700	MG/KG	DA-B100B-0608	29/29	-	20,700	Yes	7,700 N	NA	Yes	ASL
	7440-36-0	Antimony	0.472 J	0.472 J	MG/KG	DA-SB113-0406-AVG	1/29	0.05 - 0.5	0.472	Yes	3.1 N	10	No	BSL
	7440-38-2	Arsenic	2.25 J	122 J	MG/KG	DA-SB113-0406-AVG	29/29	-	122	Yes	0.39 C	7	Yes	ASL
	7440-39-3	Barium	8.5	55.8	MG/KG	DA-SB116-0204	29/29	-	55.8	Yes	1,500 N	5,500	No	BSL
	7440-41-7	Beryllium	0.2 J	0.76	MG/KG	DA-SB113-0406-AVG	28/29	0.26 - 0.26	0.76	No	16 N	0.4	Yes	ASL, BKG
	7440-43-9	Cadmium	0.18 J	0.41 J	MG/KG	DA-SB111-0204	3/29	0.01 - 0.18	0.41	Yes	7 N	39	No	BSL
	7440-70-2	Calcium	160	9,620 J	MG/KG	DA-SB111-0204	29/29	-	9,620	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	6.8	103	MG/KG	DA-SB111-0204	29/29	-	103	Yes	23 N[13,14]	390 [14]	Yes	ASL

TABLE 2.7
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7440-48-4	Cobalt	5.7	21.5	MG/KG	DA-SB102-0305	29/29	-	21.5	Yes	2.3 N	NA	Yes	ASL
	7440-50-8	Copper	7.8	26.4	MG/KG	DA-SB111-0204	29/29	-	26.4	Yes	310 N	3,100	No	BSL
	7439-89-6	Iron	13,000	40,000	MG/KG	DA-B100B-0608	29/29	-	40,000	Yes	5,500 N	NA	Yes	ASL
	7439-92-1	Lead	6.9	159	MG/KG	DA-SB111-0204	29/29	-	159	Yes	400	150	Yes	ASL
	7439-95-4	Magnesium	960	7,120	MG/KG	DA-SB101-0608-AVG	29/29	-	7,120	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	171	2,820	MG/KG	DA-SB102-0305	29/29	-	2,820	No	180 N	390	Yes	ASL, BKG
	7439-97-6	Mercury	0.00808	0.12	MG/KG	DA-B109B-0204	10/29	0.00749 - 0.04	0.12	Yes	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.185 J	1.56 J	MG/KG	DA-SB113-0406-AVG	21/29	0.025 - 0.49	1.56	Yes	39 N	NA	No	BSL
	7440-02-0	Nickel	8	36.4	MG/KG	DA-SB101-0608-AVG	29/29	-	36.4	Yes	160 N	1,000	No	BSL
	7440-09-7	Potassium	120	1,080 J	MG/KG	DA-B101B-0406	29/29	-	1,080	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.598 J	1 J	MG/KG	DA-SB119-0204	4/29	0.11 - 0.77	1	No	39 N	390	No	BSL, BKG
	7440-22-4	Silver	0.034 J	0.61 J	MG/KG	DA-SB111-0204	12/29	0.032 - 0.26	0.61	Yes	39 N	200	No	BSL
	7440-23-5	Sodium	28.9 J	156	MG/KG	DA-SB100-0204	15/29	25.5 - 76.2	156	No	NA	NA	No	NUT, BKG
	7440-28-0	Thallium	0.2 J	0.28 J	MG/KG	DA-S-SB01-0809-01	4/29	0.01 - 0.8	0.28	No	0.51 N	5.5	No	BSL, BKG
	7440-62-2	Vanadium	9.4	29.4	MG/KG	DA-B109B-0204	29/29	-	29.4	Yes	39 N	550	No	BSL
	7440-66-6	Zinc	23 J	81.2	MG/KG	DA-SB111-0204	29/29	-	81.2	Yes	2,300 N	6,000	No	BSL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	2,700 J	1,900,000	UG/KG	DA-SB116-0204	22/31	8550 - 89000	1,900,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.39 J	920	MG/KG	DA-S-SB04-2535-01	9/31	0.58 - 7.4	920	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Value is for high risk polychlorinated biphenyls.
13 - Ten percent of noncarcinogenic screening level is less than the carcinogenic screening level, therefore the noncarcinogenic value is presented.
14 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-B100B-0608	DA-SB120-0406
DA-B101B-0406	DA-SB150-0204
DA-B107B-0608	DA-SB151-0406-AVG
DA-B108B-0406	DA-SO-B126B-0608-072208
DA-B109B-0204	DA-S-SB01-0809-01
DA-SB100-0204	DA-S-SB01-5575-01
DA-SB101-0608-AVG	DA-S-SB02-0304-01
DA-SB102-0305	DA-S-SB02-5565-01
DA-SB111-0204	DA-S-SB04-0910-01-AVG
DA-SB112-0608-AVG	DA-S-SB04-2535-01
DA-SB113-0406-AVG	DA-S-SB05-0203-01
DA-SB114-0406	DA-S-SB05-0304-01
DA-SB115-0204	DA-S-SB06-2535-01
DA-SB116-0204	DA-S-SB08-0607-01-AVG
DA-SB117-0810	DA-SS-B125B-0304-072108
DA-SB119-0204	

TABLE 2.8
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Paved Soil	**Volatile Organic Compounds**													
	95-63-6	1,2,4-Trimethylbenzene	2.25 J	17,000	UG/KG	DA-S-SB04-2535-01	3/31	0.22 - 230	17,000	Yes	24	NA	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	74 J	7,500 J	UG/KG	DA-SB116-0204	2/31	0.19 - 560	7,500	Yes	20	NA	Yes	ASL
	78-93-3	2-Butanone	2.8 J	48	UG/KG	DA-B100B-0608	9/31	0.32 - 3400	48	Yes	1,500	NA	No	BSL
	99-87-6	4-Isopropyltoluene	2.5	6,400	UG/KG	DA-S-SB04-2535-01	4/31	0.23 - 6	6,400	Yes	NA	NA	No	NTX
	67-64-1	Acetone	9.2	900 J	UG/KG	DA-SB112-0608-AVG	25/31	8 - 3100	900	Yes	4,400	NA	No	BSL
	75-15-0	Carbon Disulfide	0.93 J	4 J	UG/KG	DA-B107B-0608	7/31	0.3 - 570	4	Yes	270	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.27 - 380	2	Yes	110	1,700	No	BSL
	100-41-4	Ethylbenzene	0.82	1,600	UG/KG	DA-S-SB04-2535-01	3/31	0.25 - 6	1,600	Yes	1.9	27,000	Yes	ASL
	98-82-8	Isopropylbenzene	0.58 J	2,800	UG/KG	DA-S-SB04-2535-01	6/31	0.27 - 6	2,800	Yes	1,300	NA	Yes	ASL
	--	m+p-Xylenes	0.61 J	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	1,600 [8]	NA	No	BSL
	75-09-2	Methylene Chloride	2 J	2 J	UG/KG	DA-SB120-0406	1/31	5 - 760	2	Yes	1.2	NA	Yes	ASL
	104-51-8	N-Butylbenzene	5 J	8,100	UG/KG	DA-S-SB04-2535-01	5/31	0.27 - 6	8,100	Yes	NA	NA	No	NTX
	103-65-1	N-Propylbenzene	2 J	6,100	UG/KG	DA-S-SB04-2535-01	5/31	0.24 - 6	6,100	Yes	NA	NA	No	NTX
	95-47-6	o-Xylene	0.575	1.4	UG/KG	DA-S-SB05-0304-01	3/31	0.42 - 630	1.4	Yes	1,600	NA	No	BSL
	135-98-8	sec-Butylbenzene	1.1 J	4,700	UG/KG	DA-S-SB04-2535-01	10/31	0.24 - 6	4,700	Yes	NA	NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.54 J	110 J	UG/KG	DA-SB116-0204	6/31	0.24 - 600	110	Yes	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.64 J	0.64 J	UG/KG	DA-S-SB02-5565-01	1/31	0.24 - 890	0.64	Yes	0.052	100	Yes	ASL
	108-88-3	Toluene	2 J	2 J	UG/KG	DA-B108B-0406	1/31	0.21 - 650	2	Yes	1,700	32,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	2 J	2 J	UG/KG	DA-B109B-0204	1/31	0.24 - 540	2	Yes	99	NA	No	BSL
	1330-20-7	Total Xylenes	0.61	170 J	UG/KG	DA-SB116-0204	5/31	0.53 - 800	170	Yes	230	540,000	No	BSL
	79-01-6	Trichloroethene	2 J	2 J	UG/KG	DA-B101B-0406	1/31	0.26 - 700	2	Yes	0.61	200	Yes	ASL
	75-01-4	Vinyl Chloride	3 J	3 J	UG/KG	DA-B109B-0204	1/31	0.4 - 560	3	Yes	0.0056	300	Yes	ASL
	Semivolatile Organic Compounds													
	92-52-4	1,1-Biphenyl	310 J	310 J	UG/KG	DA-SB116-0204	1/21	360 - 1800	310	Yes	23,000	NA	No	BSL
	91-57-6	2-Methylnaphthalene	3.5 J	2,600 J	UG/KG	DA-SB116-0204	12/31	22 - 4900	2,600	Yes	900	NA	Yes	ASL
	83-32-9	Acenaphthene	2.6 J	65.5 J	UG/KG	DA-SB112-0608-AVG	12/31	22 - 3000	65.5	Yes	27,000	NA	No	BSL
	208-96-8	Acenaphthylene	5.2 J	670 J	UG/KG	DA-SB112-0608-AVG	2/31	22 - 3000	670	Yes	27,000 [9]	NA	No	BSL
	120-12-7	Anthracene	7.8 J	730 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	730	Yes	450,000	NA	No	BSL
	56-55-3	Benzo(a)anthracene	5.4 J	7,700	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	7,700	Yes	14	NA	Yes	ASL
	50-32-8	Benzo(a)pyrene	5.6 J	5,700	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,700	Yes	4.6	240,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	12.2 J	6,500	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	6,500	Yes	47	NA	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	3.4 J	1,350 J	UG/KG	DA-SB112-0608-AVG	16/31	22 - 3000	1,350	Yes	150,000 [10]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	5.4 J	5,350	UG/KG	DA-SB112-0608-AVG	15/31	22 - 3000	5,350	Yes	460	NA	Yes	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	410	410	UG/KG	DA-S-SB01-5575-01, DA-S-SB05-0203-01	2/31	110 - 6100	410	Yes	1,600	NA	No	BSL
	218-01-9	Chrysene	3.3 J	7,550	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	7,550	Yes	1,400	NA	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	6.9 J	700 J	UG/KG	DA-SB112-0608-AVG	7/31	22 - 3000	700	Yes	15	NA	Yes	ASL
	206-44-0	Fluoranthene	5 J	11,500	UG/KG	DA-SB112-0608-AVG	19/31	22 - 620	11,500	Yes	210,000	NA	No	BSL
	86-73-7	Fluorene	2.9 J	170 J	UG/KG	DA-SB112-0608-AVG	10/31	22 - 3000	170	Yes	33,000	NA	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	9 J	2,750	UG/KG	DA-SB112-0608-AVG	14/31	22 - 4300	2,750	Yes	160	NA	Yes	ASL
	91-20-3	Naphthalene	2.4 J	125 J	UG/KG	DA-S-SB04-0910-01-AVG	8/30	3.4 - 84	125	Yes	0.55	800	Yes	ASL
	85-01-8	Phenanthrene	4.8 J	3,100	UG/KG	DA-SB112-0608-AVG	18/31	22 - 620	3,100	Yes	150,000 [10]	NA	No	BSL
	129-00-0	Pyrene	11.2 J	11,500	UG/KG	DA-SB112-0608-AVG	17/31	22 - 620	11,500	Yes	150,000	NA	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	1.4 J	9.2 J	UG/KG	DA-SB112-0608-AVG	3/29	1.93 - 244	9.2	Yes	86	NA	No	BSL
	72-55-9	4,4'-DDE	1.03 J	1.03 J	UG/KG	DA-SB113-0406-AVG	1/29	0.909 - 244	1.03	Yes	60	NA	No	BSL
	50-29-3	4,4'-DDT	1 J	1 J	UG/KG	DA-B101B-0406	1/29	1.82 - 244	1	Yes	87	NA	No	BSL
	11096-82-5	Aroclor-1260	1,500	1,500	UG/KG	DA-SB111-0204	1/29	12.5 - 305	1,500	Yes	14	10,000 [11]	Yes	ASL
	76-44-8	Heptachlor	1.12 J	1.12 J	UG/KG	DA-SB112-0608-AVG	1/29	0.682 - 122	1.12	Yes	1.6	NA	No	BSL
	--	Total Aroclor	1,500	1,500	UG/KG	DA-SB111-0204	1/29	18 - 300	1,500	Yes	NA	10,000	No	BSL
	8001-35-2	Toxaphene	45.9 J	45.9 J	UG/KG	DA-S-SB02-0304-01	1/29	36 - 4640	45.9	Yes	12	NA	Yes	ASL
	Metals													
	7429-90-5	Aluminum	3,800	20,700	MG/KG	DA-B100B-0608	29/29	-	20,700	Yes	55,000	NA	No	BSL
	7440-36-0	Antimony	0.472 J	0.472 J	MG/KG	DA-SB113-0406-AVG	1/29	0.05 - 0.5	0.472	Yes	0.66	[12]	No	BSL
	7440-38-2	Arsenic	2.25 J	122 J	MG/KG	DA-SB113-0406-AVG	29/29	-	122	Yes	0.0013	NA	Yes	ASL
	7440-39-3	Barium	8.5	55.8	MG/KG	DA-SB116-0204	29/29	-	55.8	Yes	300	[12]	No	BSL
	7440-41-7	Beryllium	0.2 J	0.76	MG/KG	DA-SB113-0406-AVG	28/29	0.26 - 0.26	0.76	No	58	[12]	No	BSL, BKG
	7440-43-9	Cadmium	0.18 J	0.41 J	MG/KG	DA-SB111-0204	3/29	0.01 - 0.18	0.41	Yes	1.4	[12]	No	BSL
	7440-70-2	Calcium	160	9,620 J	MG/KG	DA-SB111-0204	29/29	-	9,620	Yes	NA	NA	No	NUT
	7440-47-3	Chromium	6.8	103	MG/KG	DA-SB111-0204	29/29	-	103	Yes	2.1 [13]	[12]	Yes	ASL

TABLE 2.8
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7440-48-4	Cobalt	5.7	21.5	MG/KG	DA-SB102-0305	29/29	-	21.5	Yes	0.49	NA	Yes	ASL
	7440-50-8	Copper	7.8	26.4	MG/KG	DA-SB111-0204	29/29	-	26.4	Yes	51	NA	No	BSL
	7439-89-6	Iron	13,000	40,000	MG/KG	DA-B100B-0608	29/29	-	40,000	Yes	640	NA	Yes	ASL
	7439-92-1	Lead	6.9	159	MG/KG	DA-SB111-0204	29/29	-	159	Yes	NA	[12]	No	NTX
	7439-95-4	Magnesium	960	7,120	MG/KG	DA-SB101-0608-AVG	29/29	-	7,120	Yes	NA	NA	No	NUT
	7439-96-5	Manganese	171	2,820	MG/KG	DA-SB102-0305	29/29	-	2,820	No	57	NA	Yes	ASL, BKG
	7439-97-6	Mercury	0.00808	0.12	MG/KG	DA-B109B-0204	10/29	0.00749 - 0.04	0.12	Yes	0.57	[12]	No	BSL
	7439-98-7	Molybdenum	0.185 J	1.56 J	MG/KG	DA-SB113-0406-AVG	21/29	0.025 - 0.49	1.56	Yes	3.7	NA	No	BSL
	7440-02-0	Nickel	8	36.4	MG/KG	DA-SB101-0608-AVG	29/29	-	36.4	Yes	48	[12]	No	BSL
	7440-09-7	Potassium	120	1,080 J	MG/KG	DA-B101B-0406	29/29	-	1,080	Yes	NA	NA	No	NUT
	7782-49-2	Selenium	0.598 J	1 J	MG/KG	DA-SB119-0204	4/29	0.11 - 0.77	1	No	0.95	[12]	Yes	ASL, BKG
	7440-22-4	Silver	0.034 J	0.61 J	MG/KG	DA-SB111-0204	12/29	0.032 - 0.26	0.61	Yes	1.6	NA	No	BSL
	7440-23-5	Sodium	28.9 J	156	MG/KG	DA-SB100-0204	15/29	25.5 - 76.2	156	No	NA	NA	No	NUT
	7440-28-0	Thallium	0.2 J	0.28 J	MG/KG	DA-S-SB01-0809-01	4/29	0.01 - 0.8	0.28	No	0.17	[12]	Yes	ASL, BKG
	7440-62-2	Vanadium	9.4	29.4	MG/KG	DA-B109B-0204	29/29	-	29.4	Yes	180	NA	No	BSL
	7440-66-6	Zinc	23 J	81.2	MG/KG	DA-SB111-0204	29/29	-	81.2	Yes	680	NA	No	BSL
	Petroleum Hydrocarbons													
	--	Extractable Petroleum Hydrocarbons	2,700 J	1,900,000	UG/KG	DA-SB116-0204	22/31	8550 - 89000	1,900,000	Yes	NA	500,000	Yes	ASL
	--	Gasoline Range Organics	0.39 J	920	MG/KG	DA-S-SB04-2535-01	9/31	0.58 - 7.4	920	Yes	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - EPA Soil Screening Levels. EPA Internet Site at http://risk.lsd.ornl.gov/calc_start.shtml.
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for total PCBs.
12 - Leachability criteria for inorganics are based on SPLP/TCLP analysis.
13 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-B100B-0608	DA-SB120-0406
DA-B101B-0406	DA-SB150-0204
DA-B107B-0608	DA-SB151-0406-AVG
DA-B108B-0406	DA-SO-B126B-0608-072208
DA-B109B-0204	DA-S-SB01-0809-01
DA-SB100-0204	DA-S-SB01-5575-01
DA-SB101-0608-AVG	DA-S-SB02-0304-01
DA-SB102-0305	DA-S-SB02-5565-01
DA-SB111-0204	DA-S-SB04-0910-01-AVG
DA-SB112-0608-AVG	DA-S-SB04-2535-01
DA-SB113-0406-AVG	DA-S-SB05-0203-01
DA-SB114-0406	DA-S-SB05-0304-01
DA-SB115-0204	DA-S-SB06-2535-01
DA-SB116-0204	DA-S-SB08-0607-01-AVG
DA-SB117-0810	DA-SS-B125B-0304-072108
DA-SB119-0204	

TABLE 2.9
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Overburden-Bedrock Interface	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	1	1	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	1	260 - 260	910 N	200 200	EPA-MCL RIDEM	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	0.4 J	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	0.4	380 - 380	2.4 C	NA NA	NA NA	No	BSL
	67-64-1	Acetone	2.25 J	8	UG/L	DA-MW103S-2008LOCMAX	2/4	5 - 5	8	9 - 10	2,200 N	NA NA	NA NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	1 - 1	37 N	70 70	EPA-MCL RIDEM	No	BSL
	127-18-4	Tetrachloroethene	0.5 J	2	UG/L	DA-MW123-2008LOCMAX	2/4	1 - 1	2	2 - 2	0.11 C	5 5	EPA-MCL RIDEM	Yes	ASL
	540-59-0	Total 1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	1 - 1	33 N	NA NA	NA NA	No	BSL
	79-01-6	Trichloroethene	0.9 J	0.9 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.9	0.4 - 0.9	1.7 C	5 5	EPA-MCL RIDEM	No	BSL
	Semivolatile Organic Compounds														
	100-51-6	Benzyl Alcohol	110	110	UG/L	DA-MW123-2008LOCMAX	1/4	20 - 24	110	NA	1,800 N	NA NA	NA NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	4.8 C	6 6	EPA-MCL RIDEM	No	BSL
	85-01-8	Phenanthrene	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	110 N[7]	NA NA	NA NA	No	BSL
	Pesticides/PCBs														
	60-57-1	Dieldrin	0.0108 J	0.0108 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.02 - 0.024	0.0108	NA	0.0042 C	NA NA	NA NA	Yes	ASL
	Metals														
	7429-90-5	Aluminum	3,420	564,000	UG/L	DA-MW103S-2008LOCMAX	2/4	31.6 - 31.7	564,000	336 - 336	3,700 N	50 NA	EPA-SMCL NA	Yes	ASL
	7440-38-2	Arsenic	2.7 J	503 J	UG/L	DA-MW103S-2008LOCMAX	2/4	1.69 - 1.69	503	5.8 - 7.7	0.045 C	10 NA	EPA-MCL NA	Yes	ASL
	7440-39-3	Barium	9.5 J	1,390	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,390	9.6 - 80.8	730 N	2,000 2,000	EPA-MCL RIDEM	Yes	ASL
	7440-41-7	Beryllium	17.8 J	17.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.13 - 0.13	17.8	NA	7.3 N	4 4	EPA-MCL RIDEM	Yes	ASL
	7440-70-2	Calcium	26,200	226,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	226,000	20300 - 53900	NA	NA NA	NA NA	No	NUT
	7440-47-3	Chromium	5.2 J	868	UG/L	DA-MW103S-2008LOCMAX	2/4	0.52 - 0.57	868	NA	11 N[8]	100 100	EPA-MCL RIDEM	Yes	ASL
	7440-48-4	Cobalt	3.7 J	637	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 1.15	637	7.7 - 14.5	1.1 N	NA NA	NA NA	Yes	ASL
	7440-50-8	Copper	6.5 J	1,440	UG/L	DA-MW103S-2008LOCMAX	2/4	0.75 - 0.76	1,440	NA	150 N	1,300 NA	EPA-MCL NA	Yes	ASL
	7439-89-6	Iron	19.4 J	1,210,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,210,000	3120 - 12200	2,600 N	300 NA	EPA-SMCL NA	Yes	ASL
	7439-92-1	Lead	3.6 J	1,890	UG/L	DA-MW103S-2008LOCMAX	2/4	0.97 - 0.97	1,890	1.7 - 1.7	NA	15 15	EPA-MCL RIDEM	Yes	ASL
	7439-95-4	Magnesium	6,210	195,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	195,000	6090 - 10500	NA	NA NA	NA NA	No	NUT
	7439-96-5	Manganese	0.972 J	13,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	13,800	535 - 5280	88 N	50 NA	EPA-SMCL NA	Yes	ASL
	7439-97-6	Mercury	1.9	1.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.03 - 0.03	1.9	NA	1.1 N	2 2	EPA-MCL RIDEM	Yes	ASL
	7439-98-7	Molybdenum	4.45 J	20.3 J	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.52	20.3	NA	18 N	NA NA	NA NA	Yes	ASL
	7440-02-0	Nickel	6.5 J	1,160	UG/L	DA-MW103S-2008LOCMAX	2/4	0.53 - 0.87	1,160	8.1 - 8.1	73 N	NA 100	NA RIDEM	Yes	ASL
	7440-09-7	Potassium	1,300	41,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	41,800	2040 - 14500	NA	NA NA	NA NA	No	NUT
	7782-49-2	Selenium	3.8 J	13.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.96 - 0.96	13.8	NA	18 N	50 50	EPA-MCL RIDEM	No	BSL
	7440-23-5	Sodium	10,300	56,400	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,400	NA	NA	NA NA	NA NA	No	NUT

TABLE 2.9
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7440-62-2	Vanadium	3.8 J	832	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.38	832	NA	18 N	NA NA	NA NA	Yes	ASL
	7440-66-6	Zinc	22.6 J	3,990	UG/L	DA-MW103S-2008LOCMAX	2/4	3.4 - 7.2	3,990	NA	1,100 N	5,000 NA	EPA-SMCL NA	Yes	ASL
	Dissolved Metals														
	7429-90-5	Aluminum	181 J	5,900	UG/L	DA-MW103S-2008LOCMAX	2/4	14.6 - 14.6	5,900	NA	3,700 N	50 NA	EPA-SMCL NA	Yes	ASL
	7440-38-2	Arsenic	20.2	20.2	UG/L	DA-MW103S-2008LOCMAX	1/4	1.69 - 1.69	20.2	4.3 - 5.8	0.045 C	10 NA	EPA-MCL NA	Yes	ASL
	7440-39-3	Barium	9.2	90.7	UG/L	DA-MW103S-2008LOCMAX	4/4	-	90.7	7.9 - 76	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	25,800	143,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	143,000	20700 - 52100	NA	NA NA	NA NA	No	NUT
	7440-48-4	Cobalt	6.8 J	6.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.27 - 1.01	6.8	7 - 12.3	1.1 N	NA NA	NA NA	Yes	ASL
	7440-50-8	Copper	19 J	19 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.75 - 1.55	19	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	Iron	7.1 J	38,200	UG/L	DA-MW103S-2008LOCMAX	4/4	-	38,200	2420 - 10600	2,600 N	300 NA	EPA-SMCL NA	Yes	ASL
	7439-92-1	Lead	19.9	19.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.97 - 0.97	19.9	2.2 - 2.2	NA	15 15	EPA-MCL RIDEM	Yes	ASL
	7439-95-4	Magnesium	6,360	14,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	14,800	6120 - 10600	NA	NA NA	NA NA	No	NUT
	7439-96-5	Manganese	240	1,910	UG/L	DA-MW103S-2008LOCMAX	3/4	1.09 - 1.09	1,910	519 - 5400	88 N	50 NA	EPA-SMCL NA	Yes	ASL
	7439-98-7	Molybdenum	2.3 J	4.45 J	UG/L	DA-MW122-2008LOCMAX	2/4	0.3 - 0.3	4.45	NA	18 N	NA NA	NA NA	No	BSL
	7440-02-0	Nickel	10.6 J	10.6 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.42 - 1.1	10.6	7.5 - 7.5	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	1,260	24,300	UG/L	DA-MW103S-2008LOCMAX	4/4	-	24,300	2010 - 13400	NA	NA NA	NA NA	No	NUT
	7440-22-4	Silver	0.352 J	0.352 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.29 - 1.8	0.352	0.42 - 0.42	18 N	100 NA	EPA-SMCL NA	No	BSL
	7440-23-5	Sodium	10,500	56,000	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,000	12200 - 60400	NA	NA NA	NA NA	No	NUT
	7440-62-2	Vanadium	7.5 J	7.5 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.38 - 0.47	7.5	NA	18 N	NA NA	NA NA	No	BSL
	7440-66-6	Zinc	41	41	UG/L	DA-MW103S-2008LOCMAX	1/4	4.2 - 7.65	41	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Miscellaneous Parameters														
	--	Ammonia-N	0.084 J	1.8	MG/L	DA-MW103S-2008LOCMAX	2/4	0.1 - 0.1	1.8	0.042 - 2.1	NA	NA NA	NA NA	No	NTX
		Methane	4.9 J	150	UG/L	DA-MW103S-2008LOCMAX	3/4	10 - 10	150	1.8 - 3.2	NA	NA NA	NA NA	No	NTX
	--	Nitrate-N	0.34	2.7	MG/L	DA-MW112S-2008LOCMAX	3/4	0.05 - 0.05	2.7	NA	5.8 N	10 NA	EPA-MCL NA	No	BSL
	--	Nitrite-N	0.014 J	0.014 J	MG/L	DA-MW123-2008LOCMAX	1/4	0.05 - 0.1	0.014	NA	0.37 N	1 NA	EPA-MCL NA	No	BSL
	--	Orthophosphate-P	0.032 J	0.049 J	MG/L	DA-MW123-2008LOCMAX	4/4	-	0.049	0.019 - 0.019	NA	NA NA	NA NA	No	NTX
	14808-79-8	Sulfate	24	46	MG/L	DA-MW103S-2008LOCMAX	4/4	-	46	9.5 - 34	NA	250 NA	EPA-SMCL NA	No	BSL
	18496-25-8	Sulfide	1 J	1.4	MG/L	DA-MW112S-2008LOCMAX	2/4	1 - 1	1.4	NA	NA	NA NA	NA NA	No	NTX
	--	Total Organic Carbon	1.1	14	MG/L	DA-MW103S-2008LOCMAX	4/4	-	14	NA	NA	NA NA	NA NA	No	NTX
	Petroleum Hydrocarbons														
	--	TPH (C09-C36)	220	220	UG/L	DA-MW103S-2008LOCMAX	1/4	81 - 82	220	58 - 570	NA	NA NA	NA NA	No	NTX

TABLE 2.9
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Footnotes:
t - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - To determine whether chemical concentrations were within background levels, a statistical analysis was conducted using the site and background datasets.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for pyrene.
8 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-MWt03S-2008LOCMAX
DA-MWt12S-2008LOCMAX
DA-MW122-2008LOCMAX
DA-MW123-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
EPA-MCL = US Environmental Protection Agency Maximum Contaminant Level (USEPA, 2006)
EPA-SMCL = US Environmental Protection Agency Secondary Maximum Contaminant Level (USEPA, 2006)
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Perchlorinated Biphenyl
RIDEM = Rhode Island Department of Environmental Management GA Groundwater Objective (2/2004).

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.10
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Overburden-Bedrock Interface	**Volatile Organic Compounds**														
	71-55-6	1,1,1-Trichloroethane	1	1	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	1	NA	3,100 N	NA	NA	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	0.4 J	UG/L	DA-MW122-2008LOCMAX	1/4	1 - 1	0.4	NA	2,200 N	NA	NA	No	BSL
	67-64-1	Acetone	2.25 J	8	UG/L	DA-MW103S-2008LOCMAX	2/4	5 - 5	8	NA	220,000 N	NA	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	NA	210 N	NA	NA	No	BSL
	127-18-4	Tetrachloroethene	0.5 J	2	UG/L	DA-MW123-2008LOCMAX	2/4	1 - 1	2	NA	0.55 C[7]	NA	NA	Yes	ASL
	540-59-0	Total 1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.4	NA	NA	NA	NA	No	NTX
	79-01-6	Trichloroethene	0.9 J	0.9 J	UG/L	DA-MW123-2008LOCMAX	1/4	1 - 1	0.9	NA	2.89 C[7]	NA	NA	No	BSL
	Semivolatile Organic Compounds														
	100-51-6	Benzyl Alcohol	110	110	UG/L	DA-MW123-2008LOCMAX	1/4	20 - 24	110	NA	NA	NA	NA	No	NTX
	117-81-7	Bis(2-ethylhexyl)phthalate	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	NA	NA	NA	No	NTX
	85-01-8	Phenanthrene	3 J	3 J	UG/L	DA-MW103S-2008LOCMAX	1/4	10 - 11	3	NA	NA	NA	NA	No	NTX
	Pesticides/PCBs														
	60-57-1	Dieldrin	0.0108 J	0.0108 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.02 - 0.024	0.0108	NA	0.86 C	NA	NA	No	BSL
	Metals														
	7429-90-5	Aluminum	3,420	564,000	UG/L	DA-MW103S-2008LOCMAX	2/4	31.6 - 31.7	564,000	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	2.7 J	503 J	UG/L	DA-MW103S-2008LOCMAX	2/4	1.69 - 1.69	503	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	9.5 J	1,390	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,390	NA	NA	NA	NA	No	NTX
	7440-41-7	Beryllium	17.8 J	17.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.13 - 0.13	17.8	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	26,200	226,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	226,000	NA	NA	NA	NA	No	NUT
	7440-47-3	Chromium	5.2 J	868	UG/L	DA-MW103S-2008LOCMAX	2/4	0.52 - 0.57	868	NA	NA	NA	NA	No	NTX
	7440-48-4	Cobalt	3.7 J	637	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 1.15	637	NA	NA	NA	NA	No	NTX
	7440-50-8	Copper	6.5 J	1,440	UG/L	DA-MW103S-2008LOCMAX	2/4	0.75 - 0.76	1,440	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	19.4 J	1,210,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	1,210,000	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	3.6 J	1,890	UG/L	DA-MW103S-2008LOCMAX	2/4	0.97 - 0.97	1,890	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	6,210	195,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	195,000	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	0.972 J	13,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	13,800	NA	NA	NA	NA	No	NTX
	7439-97-6	Mercury	1.9	1.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.03 - 0.03	1.9	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	4.45 J	20.3 J	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.52	20.3	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	6.5 J	1,160	UG/L	DA-MW103S-2008LOCMAX	2/4	0.53 - 0.87	1,160	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	1,300	41,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	41,800	NA	NA	NA	NA	No	NUT
	7782-49-2	Selenium	13.8 J	13.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.96 - 0.96	13.8	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	10,300	56,400	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,400	NA	NA	NA	NA	No	NUT
	7440-62-2	Vanadium	3.8 J	832	UG/L	DA-MW103S-2008LOCMAX	2/4	0.38 - 0.38	832	NA	NA	NA	NA	No	NTX
	7440-66-6	Zinc	22.6 J	3,990	UG/L	DA-MW103S-2008LOCMAX	2/4	3.4 - 7.2	3,990	NA	NA	NA	NA	No	NTX
	Dissolved Metals														
	7429-90-5	Aluminum	181 J	5,900	UG/L	DA-MW103S-2008LOCMAX	2/4	14.6 - 14.6	5,900	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	20.2	20.2	UG/L	DA-MW103S-2008LOCMAX	1/4	1.69 - 1.69	20.2	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	9.2	90.7	UG/L	DA-MW103S-2008LOCMAX	4/4	-	90.7	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	25,800	143,000	UG/L	DA-MW103S-2008LOCMAX	4/4	-	143,000	NA	NA	NA	NA	No	NUT
	7440-48-4	Cobalt	6.8 J	6.8 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.27 - 1.01	6.8	NA	NA	NA	NA	No	NTX
	7440-50-8	Copper	19 J	19 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.75 - 1.55	19	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	7.1 J	38,200	UG/L	DA-MW103S-2008LOCMAX	4/4	-	38,200	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	19.9	19.9	UG/L	DA-MW103S-2008LOCMAX	1/4	0.97 - 0.97	19.9	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	6,360	14,800	UG/L	DA-MW103S-2008LOCMAX	4/4	-	14,800	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	240	1,910	UG/L	DA-MW103S-2008LOCMAX	3/4	1.09 - 1.09	1,910	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	2.3 J	4.45 J	UG/L	DA-MW122-2008LOCMAX	2/4	0.3 - 0.3	4.45	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	10.6 J	10.6 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.42 - 1.1	10.6	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	1,260	24,300	UG/L	DA-MW103S-2008LOCMAX	4/4	-	24,300	NA	NA	NA	NA	No	NUT
	7440-22-4	Silver	0.352 J	0.352 J	UG/L	DA-MW122-2008LOCMAX	1/4	0.29 - 1.8	0.352	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	10,500	56,000	UG/L	DA-MW122-2008LOCMAX	4/4	-	56,000	NA	NA	NA	NA	No	NUT
	7440-62-2	Vanadium	7.5 J	7.5 J	UG/L	DA-MW103S-2008LOCMAX	1/4	0.38 - 0.47	7.5	NA	NA	NA	NA	No	NTX
	7440-66-6	Zinc	41	41	UG/L	DA-MW103S-2008LOCMAX	1/4	4.2 - 7.65	41	NA	NA	NA	NA	No	NTX
	Miscellaneous Parameters														
	--	Ammonia-N	0.084 J	1.8	MG/L	DA-MW103S-2008LOCMAX	2/4	0.1 - 0.1	1.8	NA	NA	NA	NA	No	NTX
		Methane	4.9 J	150	UG/L	DA-MW103S-2008LOCMAX	3/4	10 - 10	150	NA	NA	NA	NA	No	NTX
	--	Nitrate-N	0.34	2.7	MG/L	DA-MW112S-2008LOCMAX	3/4	0.05 - 0.05	2.7	NA	NA	NA	NA	No	NTX
	--	Nitrite-N	0.014 J	0.014 J	MG/L	DA-MW123-2008LOCMAX	1/4	0.05 - 0.1	0.014	NA	NA	NA	NA	No	NTX
	--	Orthophosphate-P	0.032 J	0.049 J	MG/L	DA-MW123-2008LOCMAX	4/4	-	0.049	NA	NA	NA	NA	No	NTX
	14808-79-8	Sulfate	24	46	MG/L	DA-MW103S-2008LOCMAX	4/4	-	46	NA	NA	NA	NA	No	NTX
	18496-25-8	Sulfide	1 J	1.4	MG/L	DA-MW112S-2008LOCMAX	2/4	1 - 1	1.4	NA	NA	NA	NA	No	NTX
	--	Total Organic Carbon	1.1	14	MG/L	DA-MW103S-2008LOCMAX	4/4	-	14	NA	NA	NA	NA	No	NTX

TABLE 2.10
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	Petroleum Hydrocarbons														
	--	TPH (C09-C36)	220	220	UG/L	DA-MW103S-2008LOCMAX	1/4	81 - 82	220	NA	NA	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for groundwater.
5 - Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. November 2002. EPA530-F-02-052. Values are from Table 2c and correspond to a target cancer risk level of 1E-6 or HI =1 and an attenuation factor of 0.001.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - The value presented in Table 2c of the draft vapor intrusion guidance is based on the MCL. USEPA Region I requires the screening criteria for vapor intrusion to be risk-based. Therefore, the value from Table 2a adjusted for a 1E-6 cancer risk level is presented here.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-MW103S-2008LOCMAX
DA-MW112S-2008LOCMAX
DA-MW122-2008LOCMAX
DA-MW123-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Perchlorinated Biphenyl

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.11
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Bedrock	Volatile Organic Compounds														
	71-55-6	1,1,1-Trichloroethane	0.4 J	4	UG/L	DA-MW104B-2008LOCMAX	5/24	1 - 50	4	NA	910 N	200 200	EPA-MCL RIDEM	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	310	UG/L	DA-MW100B-2008LOCMAX	14/24	1 - 1	310	NA	2.4 C	NA NA	NA NA	Yes	ASL
	75-35-4	1,1-Dichloroethene	0.5 J	7	UG/L	DA-MW104B-2008LOCMAX	7/24	1 - 50	7	NA	34 N	7 7	EPA-MCL RIDEM	No	BSL
	95-63-6	1,2,4-Trimethylbenzene	0.3 J	810	UG/L	DA-MW100B-2008LOCMAX	2/24	1 - 1	810	NA	1.5 N	NA NA	NA NA	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	290	290	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	290	NA	1.2 N	NA NA	NA NA	Yes	ASL
	106-46-7	1,4-Dichlorobenzene	0.3 J	0.3 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 9	0.3	NA	0.43 C	75 75	EPA-MCL RIDEM	No	BSL
	103-65-1	4-Isopropyltoluene	110	110	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	110	NA	NA	NA NA	NA NA	No	NTX
	67-64-1	Acetone	3 J	13 J	UG/L	DA-MW110B-2008LOCMAX	6/24	5 - 250	13	NA	2,200 N	NA NA	NA NA	No	BSL
	71-43-2	Benzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	0.41 C	5 5	EPA-MCL RIDEM	No	BSL
	74-83-9	Bromomethane	2	2	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	2	NA	0.87 N	NA NA	NA NA	Yes	ASL
	75-15-0	Carbon Disulfide	0.6 J	0.6 J	UG/L	DA-MW109B-2008LOCMAX	1/24	1 - 50	0.6	NA	100 N	NA NA	NA NA	No	BSL
	56-23-5	Carbon Tetrachloride	2	2	UG/L	DA-MW03B-2008LOCMAX	1/24	1 - 50	2	NA	0.2 C	5 5	EPA-MCL RIDEM	Yes	ASL
	75-00-3	Chloroethane	1 J	130	UG/L	DA-MW100B-2008LOCMAX	2/24	2 - 2	130	NA	2,100 N	NA NA	NA NA	No	BSL
	67-66-3	Chloroform	1	7	UG/L	DA-MW126B-2008LOCMAX	2/24	1 - 50	7	NA	0.19 C	80 NA	EPA-MCL NA	Yes	ASL
	74-87-3	Chloromethane	16	16	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	16	NA	1.8 C	NA NA	NA NA	Yes	ASL
	156-59-2	cis-1,2-Dichloroethene	0.3 J	26	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	26	NA	37 N	70 70	EPA-MCL RIDEM	No	BSL
	100-41-4	Ethylbenzene	58	58	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	58	NA	1.5 C	700 700	EPA-MCL RIDEM	Yes	ASL
	98-82-8	Isopropylbenzene	94	94	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	94	NA	68 N	NA NA	NA NA	Yes	ASL
	--	m+p-Xylenes	60 J	60 J	UG/L	DA-MW100B-2008LOCMAX	1/24	2 - 2	60	NA	NA	10,000 10,000	EPA-MCL[7] RIDEM[27]	No	BSL
	104-51-8	N-Butylbenzene	98	98	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	98	NA	NA	NA NA	NA NA	No	NTX
	103-65-1	N-Propylbenzene	140	140	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	140	NA	NA	NA NA	NA NA	No	NTX
	95-47-6	o-Xylene	37 J	37 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	37	NA	140 N	10,000 10,000	EPA-MCL[7] RIDEM[7]	No	BSL
	135-98-8	sec-Butylbenzene	0.4 J	84	UG/L	DA-MW100B-2008LOCMAX	3/24	1 - 1	84	NA	NA	NA NA	NA NA	No	NTX
	98-06-6	Tert-Butylbenzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	NA	NA NA	NA NA	No	NTX
	127-18-4	Tetrachloroethene	0.5	12	UG/L	DA-MW125B-2008LOCMAX	8/24	1 - 50	12	NA	0.11 C	5 5	EPA-MCL RIDEM	Yes	ASL
	108-88-3	Toluene	0.6 J	41	UG/L	DA-MW109B-2008LOCMAX	7/24	1 - 50	41	NA	230 N	1,000 1,000	EPA-MCL RIDEM	No	BSL
	540-59-0	Total 1,2-Dichloroethene	0.3 J	29	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	29	NA	33 N	NA NA	NA NA	No	BSL
	1330-20-7	Total Xylenes	97 J	97 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1.5 - 1.5	97	NA	20 N	10,000 10,000	EPA-MCL RIDEM	Yes	ASL
	156-60-5	trans-1,2-Dichloroethene	3	3	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	3	NA	11 N	100 100	EPA-MCL RIDEM	No	BSL
	79-01-6	Trichloroethene	2	730	UG/L	DA-MW117B-2008LOCMAX	12/24	1 - 50	730	NA	1.7 C	5 5	EPA-MCL RIDEM	Yes	ASL

TABLE 2.11
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[4]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[5]
	75-01-4	Vinyl Chloride	0.3 J	19	UG/L	DA-MW124B-2008LOCMAX	8/24	2 - 100	19	NA	0.016 C	2 2	EPA-MCL RIDEM	Yes	ASL
	Semivolatile Organic Compounds														
	207-08-9	Benzo(k)fluoranthene	4 J	4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	4	NA	0.29 C	NA NA	NA NA	Yes	ASL
	84-74-2	di-n-Butyl Phthalate	5 J	5 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	5	NA	370 N	NA NA	NA NA	No	BSL
	Metals														
	7429-90-5	Aluminum	31.4 J	1,950	UG/L	DA-MW102B-2008LOCMAX	13/20	14.6 - 129	1,950	NA	3,700 N	50 NA	EPA-SMCL NA	Yes	ASL
	7440-36-0	Antimony	1.2 J	1.2 J	UG/L	DA-MW119B-2008LOCMAX	1/20	0.78 - 1.9	1.2	NA	1.5 N	6 6	EPA-MCL RIDEM	No	BSL
	7440-38-2	Arsenic	2.2 J	17.8	UG/L	DA-MW116B-2008LOCMAX	12/20	1.69 - 12.4	17.8	NA	0.045 C	10 NA	EPA-MCL NA	Yes	ASL
	7440-39-3	Barium	3.4 J	25.9 J	UG/L	DA-MW02B-2008LOCMAX	15/20	1.2 - 6.5	25.9	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	12,100	57,000	UG/L	DA-MW102B-2008LOCMAX	20/20	-	57,000	NA	NA	NA NA	NA NA	No	NUT
	7440-47-3	Chromium	2.4	5.6 J	UG/L	DA-MW102B-2008LOCMAX	4/20	0.41 - 3.3	5.6	NA	11 N[6]	100 100	EPA-MCL RIDEM	No	BSL
	7440-48-4	Cobalt	0.98 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	5/20	0.31 - 2.9	15.6	NA	1.1 N	NA NA	NA NA	Yes	ASL
	7440-50-8	Copper	0.89 J	17.3 J	UG/L	DA-MW102B-2008LOCMAX	5/20	0.75 - 7.7	17.3	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	Iron	937	26,700	UG/L	DA-MW02B-2008LOCMAX	18/20	9.2 - 76.3	26,700	NA	2,600 N	300 NA	EPA-SMCL NA	Yes	ASL
	7439-92-1	Lead	1.1	3.5 J	UG/L	DA-MW102B-2008LOCMAX	7/20	0.97 - 0.97	3.5	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	1,850	13,800	UG/L	DA-MW108B-2008LOCMAX	20/20	-	13,800	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	Manganese	56	8,370	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,370	NA	88 N	50 NA	EPA-SMCL NA	Yes	ASL
	7439-98-7	Molybdenum	1.4 J	3.8 J	UG/L	DA-MW109B-2008LOCMAX	3/20	0.3 - 1.5	3.8	NA	18 N	NA NA	NA NA	No	BSL
	7440-02-0	Nickel	0.335 J	10 J	UG/L	DA-MW117B-2008LOCMAX	14/20	0.42 - 2.05	10	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	722 J	3,600	UG/L	DA-MW103B-2008LOCMAX	10/20	637 - 848	3,600	NA	NA	NA NA	NA NA	No	NUT
	7782-49-2	Selenium	1.7 J	1.7 J	UG/L	DA-MW04B-2008LOCMAX	1/20	0.96 - 0.96	1.7	NA	18 N	50 50	EPA-MCL RIDEM	No	BSL
	7440-22-4	Silver	0.392 J	0.392 J	UG/L	DA-MW108B-2008LOCMAX	1/20	0.29 - 0.89	0.392	NA	18 N	100 NA	EPA-SMCL NA	No	BSL
	7440-23-5	Sodium	8,680	38,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	38,200	NA	NA	NA NA	NA NA	No	NUT
	7440-28-0	Thallium	2.3 J	2.3 J	UG/L	DA-MW119B-2008LOCMAX	1/20	1.64 - 1.64	2.3	NA	0.24 N	2 2	EPA-MCL RIDEM	Yes	ASL
	7440-62-2	Vanadium	1.5 J	1.5 J	UG/L	DA-MW115B-2008LOCMAX	1/20	0.38 - 2	1.5	NA	18 N	NA NA	NA NA	No	BSL
	7440-66-6	Zinc	4.4 J	23.8 J	UG/L	DA-MW104B-2008LOCMAX	8/20	4.7 - 11.1	23.8	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Dissolved Metals														
	7429-90-5	Aluminum	22.1 J	186 J	UG/L	DA-MW102B-2008LOCMAX	2/20	14.6 - 117	186	NA	3,700 N	50 NA	EPA-SMCL NA	Yes	ASL
	7440-38-2	Arsenic	1.37 J	18.4	UG/L	DA-MW116B-2008LOCMAX	11/20	1.69 - 12.4	18.4	NA	0.045 C	10 NA	EPA-MCL NA	Yes	ASL
	7440-39-3	Barium	3.1 J	25.6	UG/L	DA-MW02B-2008LOCMAX	12/20	0.59 - 2.4	25.6	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	12,200	55,100	UG/L	DA-MW102B-2008LOCMAX	20/20	-	55,100	NA	NA	NA NA	NA NA	No	NUT
	7440-48-4	Cobalt	1 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	4/20	0.28 - 2.6	15.6	NA	1.1 N	NA NA	NA NA	Yes	ASL

TABLE 2.11
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7439-89-6	Iron	774	26,600	UG/L	DA-MW02B-2008LOCMAX	15/20	9 - 65.6	26,600	NA	2,600 N	300 NA	EPA-SMCL NA	Yes	ASL
	7439-92-1	Lead	0.732 J	1.8 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.97 - 0.97	1.8	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	1,870	13,400	UG/L	DA-MW108B-2008LOCMAX DA-MW109B-2008LOCMAX	20/20	-	13,400	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	Manganese	53.5	8,220	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,220	NA	88 N	50 NA	EPA-SMCL NA	Yes	ASL
	7439-98-7	Molybdenum	1.3 J	2.25 J	UG/L	DA-MW108B-2008LOCMAX	3/20	0.3 - 0.95	2.25	NA	18 N	NA NA	NA NA	No	BSL
	7440-02-0	Nickel	0.76 J	4.9 J	UG/L	DA-MW116B-2008LOCMAX	7/20	0.42 - 2.1	4.9	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	685 J	3,710	UG/L	DA-MW103B-2008LOCMAX	10/20	618 - 836	3,710	NA	NA	NA NA	NA NA	No	NUT
	7440-22-4	Silver	0.238 J	0.61 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.29 - 0.73	0.61	NA	18 N	100 NA	EPA-SMCL NA	No	BSL
	7440-23-5	Sodium	8,930	37,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	37,200	NA	NA	NA NA	NA NA	No	NUT
	7440-66-6	Zinc	4.6 J	16.3 J	UG/L	DA-MW104B-2008LOCMAX	4/20	4.3 - 11.4	16.3	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Miscellaneous Parameters														
	--	Ammonia-N	0.04 J	3	MG/L	DA-MW02B-2008LOCMAX	5/20	0.1 - 0.1	3	NA	NA	NA NA	NA NA	No	NTX
		Methane	1.3 J	2,300		DA-MW119B-2008LOCMAX	13/20	10 - 10	2,300	NA	NA	NA NA	NA NA	No	NTX
	--	Nitrate-N	0.048 J	1.7	MG/L	DA-MW111B-2008LOCMAX	8/20	0.05 - 0.05	1.7	NA	5.8 N	10 NA	EPA-MCL NA	No	BSL
	--	Nitrite-N	0.0064 J	0.037 J	MG/L	DA-MW104B-2008LOCMAX	2/20	0.05 - 0.05	0.037	NA	0.37 N	1 NA	EPA-MCL NA	No	BSL
	--	Orthophosphate-P	0.016 J	0.12	MG/L	DA-MW114B-2008LOCMAX DA-MW119B-2008LOCMAX	19/20	0.05 - 0.05	0.12	NA	NA	NA NA	NA NA	No	NTX
	14808-79-8	Sulfate	5	44	MG/L	DA-MW107B-2008LOCMAX	20/20	-	44	NA	NA	250 NA	EPA-SMCL NA	No	BSL
	18496-25-8	Sulfide	0.8 J	3.1	MG/L	DA-MW115B-2008LOCMAX DA-MW119B-2008LOCMAX	6/20	1 - 1	3.1	NA	NA	NA NA	NA NA	No	NTX
	--	Total Organic Carbon	0.28	5	MG/L	DA-MW02B-2008LOCMAX	20/20	-	5	NA	NA	NA NA	NA NA	No	NTX
	Petroleum Hydrocarbons														
	--	Gasoline Range Organics	19	180	UG/L	DA-MW117B-2008LOCMAX	5/23	10 - 47	180	NA	NA	NA NA	NA NA	No	NTX
	--	TPH (C09-C36)	47.5 J	1,300 J	UG/L	DA-MW124B-2008LOCMAX	11/23	75 - 85	1,300	NA	NA	NA NA	NA NA	No	NTX

TABLE 2.11
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for groundwater.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for total xylenes.
8 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-MW02B-2008LOCMAX
DA-MW03B-2008LOCMAX
DA-MW04B-2008LOCMAX
DA-MW100B-2008LOCMAX
DA-MW102B-2008LOCMAX
DA-MW103B-2008LOCMAX
DA-MW104B-2008LOCMAX
DA-MW105B-2008LOCMAX
DA-MW107B-2008LOCMAX
DA-MW108B-2008LOCMAX
DA-MW109B-2008LOCMAX
DA-MW110B-2008LOCMAX
DA-MW111B-2008LOCMAX
DA-MW112B-2008LOCMAX
DA-MW113B-2008LOCMAX
DA-MW114B-2008LOCMAX
DA-MW115B-2008LOCMAX
DA-MW116B-2008LOCMAX
DA-MW117B-2008LOCMAX
DA-MW118B-2008LOCMAX
DA-MW119B-2008LOCMAX
DA-MW124B-2008LOCMAX
DA-MW125B-2008LOCMAX
DA-MW126B-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
EPA-MCL = US Environmental Protection Agency Maximum Contaminant Level (USEPA, 2006)
EPA-SMCL = US Environmental Protection Agency Secondary Maximum Contaminant Level (USEPA, 2006)
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Perchlorinated Biphenyl
RIDEM = Rhode Island Department of Environmental Management GA Groundwater Objective (2/2004).

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.12
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Bedrock	Volatile Organic Compounds														
	71-55-6	1,1,1-Trichloroethane	0.4 J	4	UG/L	DA-MW104B-2008LOCMAX	5/24	1 - 50	4	NA	3,100 N	NA	NA	No	BSL
	75-34-3	1,1-Dichloroethane	0.4 J	310	UG/L	DA-MW100B-2008LOCMAX	14/24	1 - 1	310	NA	2,200 N	NA	NA	No	BSL
	75-35-4	1,1-Dichloroethene	0.5 J	7	UG/L	DA-MW104B-2008LOCMAX	7/24	1 - 50	7	NA	190 N	NA	NA	No	BSL
	95-63-6	1,2,4-Trimethylbenzene	0.3 J	810	UG/L	DA-MW100B-2008LOCMAX	2/24	1 - 1	810	NA	24 N	NA	NA	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	290	290	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	290	NA	25 N	NA	NA	Yes	ASL
	106-46-7	1,4-Dichlorobenzene	0.3 J	0.3 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 9	0.3	NA	8,200 N	NA	NA	No	BSL
	103-65-1	4-Isopropyltoluene	110	110	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	110	NA	NA	NA	NA	No	NTX
	67-64-1	Acetone	3 J	13 J	UG/L	DA-MW110B-2008LOCMAX	6/24	5 - 250	13	NA	220,000 N	NA	NA	No	BSL
	71-43-2	Benzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	1.4 C[7]	NA	NA	No	BSL
	74-83-9	Bromomethane	2	2	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	2	NA	20 N	NA	NA	No	BSL
	75-15-0	Carbon Disulfide	0.6 J	0.6 J	UG/L	DA-MW109B-2008LOCMAX	1/24	1 - 50	0.6	NA	560 N	NA	NA	No	BSL
	56-23-5	Carbon Tetrachloride	2	2	UG/L	DA-MW03B-2008LOCMAX	1/24	1 - 50	2	NA	0.13 C[7]	NA	NA	Yes	ASL
	75-00-3	Chloroethane	1 J	130	UG/L	DA-MW100B-2008LOCMAX	2/24	2 - 2	130	NA	28,000 N	NA	NA	No	BSL
	67-66-3	Chloroform	1	7	UG/L	DA-MW126B-2008LOCMAX	2/24	1 - 50	7	NA	0.71 C[7]	NA	NA	Yes	ASL
	74-87-3	Chloromethane	16	16	UG/L	DA-MW126B-2008LOCMAX	1/24	2 - 100	16	NA	6.7 C	NA	NA	Yes	ASL
	156-59-2	cis-1,2-Dichloroethene	0.3 J	26	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	26	NA	210 N	NA	NA	No	BSL
	100-41-4	Ethylbenzene	58	58	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	58	NA	3.04 N[7]	NA	NA	Yes	ASL
	98-82-8	Isopropylbenzene	94	94	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	94	NA	8.4 N	NA	NA	Yes	ASL
	--	m+p-Xylenes	60 J	60 J	UG/L	DA-MW100B-2008LOCMAX	1/24	2 - 2	60	NA	NA	NA	NA	No	NTX
	104-51-8	N-Butylbenzene	98	98	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	98	NA	260 N	NA	NA	No	BSL
	103-65-1	N-Propylbenzene	140	140	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	140	NA	320 N	NA	NA	No	BSL
	95-47-6	o-Xylene	37 J	37 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1 - 1	37	NA	33,000 N	NA	NA	No	BSL
	135-98-8	sec-Butylbenzene	0.4 J	84	UG/L	DA-MW100B-2008LOCMAX	3/24	1 - 1	84	NA	250 N	NA	NA	No	BSL
	98-06-6	Tert-Butylbenzene	0.4 J	0.4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	0.4	NA	290 N	NA	NA	No	BSL
	127-18-4	Tetrachloroethene	0.5	12	UG/L	DA-MW125B-2008LOCMAX	8/24	1 - 50	12	NA	0.55 C[7]	NA	NA	Yes	ASL
	108-88-3	Toluene	0.6 J	41	UG/L	DA-MW109B-2008LOCMAX	7/24	1 - 50	41	NA	1,500 N	NA	NA	No	BSL
	540-59-0	Total 1,2-Dichloroethene	0.3 J	29	UG/L	DA-MW124B-2008LOCMAX	14/24	1 - 50	29	NA	NA	NA	NA	No	NTX
	1330-20-7	Total Xylenes	97 J	97 J	UG/L	DA-MW100B-2008LOCMAX	1/24	1.5 - 1.5	97	NA	22,000 N[8]	NA	NA	No	BSL
	156-60-5	trans-1,2-Dichloroethene	3	3	UG/L	DA-MW124B-2008LOCMAX	1/24	1 - 50	3	NA	180 N	NA	NA	No	BSL
	79-01-6	Trichloroethene	2	730	UG/L	DA-MW117B-2008LOCMAX	12/24	1 - 50	730	NA	2.89 C[7]	NA	NA	Yes	ASL
	75-01-4	Vinyl Chloride	0.3 J	19	UG/L	DA-MW124B-2008LOCMAX	8/24	2 - 100	19	NA	0.32 C[7]	NA	NA	Yes	ASL
	Semivolatile Organic Compounds														
	207-08-9	Benzo(k)fluoranthene	4 J	4 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	4	NA	NA	NA	NA	No	BSL
	84-74-2	di-n-Butyl Phthalate	5 J	5 J	UG/L	DA-MW124B-2008LOCMAX	1/24	9 - 12	5	NA	NA	NA	NA	No	BSL
	Metals														
	7429-90-5	Aluminum	31.4 J	1,950	UG/L	DA-MW102B-2008LOCMAX	13/20	14.6 - 129	1,950	NA	NA	NA	NA	No	NTX
	7440-36-0	Antimony	1.2 J	1.2 J	UG/L	DA-MW119B-2008LOCMAX	1/20	0.78 - 1.9	1.2	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	2.2 J	17.8	UG/L	DA-MW116B-2008LOCMAX	12/20	1.69 - 12.4	17.8	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	3.4 J	25.9 J	UG/L	DA-MW02B-2008LOCMAX	15/20	1.2 - 6.5	25.9	NA	NA	NA	NA	No	NTX
	7440-70-2	Calcium	12,100	57,000	UG/L	DA-MW102B-2008LOCMAX	20/20	-	57,000	NA	NA	NA	NA	No	NUT
	7440-47-3	Chromium	2.4	5.6 J	UG/L	DA-MW102B-2008LOCMAX	4/20	0.41 - 3.3	5.6	NA	NA	NA	NA	No	NTX
	7440-48-4	Cobalt	0.98 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	5/20	0.31 - 2.9	15.6	NA	NA	NA	NA	No	NTX
	7440-50-8	Copper	0.89 J	17.3 J	UG/L	DA-MW102B-2008LOCMAX	5/20	0.75 - 7.7	17.3	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	937	26,700	UG/L	DA-MW02B-2008LOCMAX	18/20	9.2 - 76.3	26,700	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	1.1	3.5 J	UG/L	DA-MW102B-2008LOCMAX	7/20	0.97 - 0.97	3.5	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	1,850	13,800	UG/L	DA-MW108B-2008LOCMAX	20/20	-	13,800	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	56	8,370	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,370	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	1.4 J	3.8 J	UG/L	DA-MW109B-2008LOCMAX	3/20	0.3 - 1.5	3.8	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	0.335 J	10 J	UG/L	DA-MW117B-2008LOCMAX	14/20	0.42 - 2.05	10	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	722 J	3,600	UG/L	DA-MW103B-2008LOCMAX	10/20	637 - 848	3,600	NA	NA	NA	NA	No	NUT
	7782-49-2	Selenium	1.7 J	1.7 J	UG/L	DA-MW04B-2008LOCMAX	1/20	0.96 - 0.96	1.7	NA	NA	NA	NA	No	NTX
	7440-22-4	Silver	0.392 J	0.392 J	UG/L	DA-MW108B-2008LOCMAX	1/20	0.29 - 0.89	0.392	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	8,680	38,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	38,200	NA	NA	NA	NA	No	NUT
	7440-28-0	Thallium	2.3 J	2.3 J	UG/L	DA-MW119B-2008LOCMAX	1/20	1.64 - 1.64	2.3	NA	NA	NA	NA	No	NTX
	7440-62-2	Vanadium	1.5 J	1.5 J	UG/L	DA-MW115B-2008LOCMAX	1/20	0.38 - 2	1.5	NA	NA	NA	NA	No	NTX
	7440-66-6	Zinc	4.4 J	23.8 J	UG/L	DA-MW104B-2008LOCMAX	8/20	4.7 - 11.1	23.8	NA	NA	NA	NA	No	NTX
	Dissolved Metals														
	7429-90-5	Aluminum	22.1 J	186 J	UG/L	DA-MW102B-2008LOCMAX	2/20	14.6 - 117	186	NA	NA	NA	NA	No	NTX
	7440-38-2	Arsenic	1.37 J	18.4	UG/L	DA-MW116B-2008LOCMAX	11/20	1.69 - 12.4	18.4	NA	NA	NA	NA	No	NTX
	7440-39-3	Barium	3.1 J	25.6	UG/L	DA-MW02B-2008LOCMAX	12/20	0.59 - 2.4	25.6	NA	NA	NA	NA	No	NTX

TABLE 2.12
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7440-70-2	Calcium	12,200	55,100	UG/L	DA-MW102B-2008LOCMAX	20/20	-	55,100	NA	NA	NA	NA	No	NUT
	7440-48-4	Cobalt	1 J	15.6 J	UG/L	DA-MW02B-2008LOCMAX	4/20	0.28 - 2.6	15.6	NA	NA	NA	NA	No	NTX
	7439-89-6	Iron	774	26,600	UG/L	DA-MW02B-2008LOCMAX	15/20	9 - 65.6	26,600	NA	NA	NA	NA	No	NTX
	7439-92-1	Lead	0.732 J	1.8 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.97 - 0.97	1.8	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	1,870	13,400	UG/L	DA-MW108B-2008LOCMAX	20/20	-	13,400	NA	NA	NA	NA	No	NUT
	7439-96-5	Manganese	53.5	8,220	UG/L	DA-MW02B-2008LOCMAX	20/20	-	8,220	NA	NA	NA	NA	No	NTX
	7439-98-7	Molybdenum	1.3 J	2.25 J	UG/L	DA-MW108B-2008LOCMAX	3/20	0.3 - 0.95	2.25	NA	NA	NA	NA	No	NTX
	7440-02-0	Nickel	0.76 J	4.9 J	UG/L	DA-MW116B-2008LOCMAX	7/20	0.42 - 2.1	4.9	NA	NA	NA	NA	No	NTX
	7440-09-7	Potassium	685 J	3,710	UG/L	DA-MW103B-2008LOCMAX	10/20	618 - 836	3,710	NA	NA	NA	NA	No	NUT
	7440-22-4	Silver	0.238 J	0.61 J	UG/L	DA-MW02B-2008LOCMAX	2/20	0.29 - 0.73	0.61	NA	NA	NA	NA	No	NTX
	7440-23-5	Sodium	8,930	37,200	UG/L	DA-MW119B-2008LOCMAX	20/20	-	37,200	NA	NA	NA	NA	No	NUT
	7440-66-6	Zinc	4.6 J	16.3 J	UG/L	DA-MW104B-2008LOCMAX	4/20	4.3 - 11.4	16.3	NA	NA	NA	NA	No	NTX
	Miscellaneous Parameters														
	--	Ammonia-N	0.04 J	3	MG/L	DA-MW02B-2008LOCMAX	5/20	0.1 - 0.1	3	NA	NA	NA	NA	No	NTX
	--	Methane	1.3 J	2,300		DA-MW119B-2008LOCMAX	13/20	10 - 10	2,300	NA	NA	NA	NA	No	NTX
	--	Nitrate-N	0.048 J	1.7	MG/L	DA-MW111B-2008LOCMAX	8/20	0.05 - 0.05	1.7	NA	NA	NA	NA	No	NTX
	--	Nitrite-N	0.0064 J	0.037 J	MG/L	DA-MW104B-2008LOCMAX	2/20	0.05 - 0.05	0.037	NA	NA	NA	NA	No	NTX
	--	Orthophosphate-P	0.016 J	0.12	MG/L	DA-MW114B-2008LOCMAX	19/20	0.05 - 0.05	0.12	NA	NA	NA	NA	No	NTX
	14808-79-8	Sulfate	5	44	MG/L	DA-MW107B-2008LOCMAX	20/20	-	44	NA	NA	NA	NA	No	NTX
	18496-25-8	Sulfide	0.8 J	3.1	MG/L	DA-MW115B-2008LOCMAX	6/20	1 - 1	3.1	NA	NA	NA	NA	No	NTX
	Petroleum Hydrocarbons														
	--	Gasoline Range Organics	19	180	UG/L	DA-MW117B-2008LOCMAX	5/23	10 - 47	180	NA	NA	NA	NA	No	NTX
	--	TPH (C09-C36)	47.5 J	1,300 J	UG/L	DA-MW124B-2008LOCMAX	11/23	75 - 85	1,300	NA	NA	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for groundwater.
5 - Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. November 2002. EPA530-F-02-052. Values are from Table 2c and correspond to a target cancer risk level of 1E-6 or HI =1 and an attenuation factor of 0.001.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - The value presented in Table 2c of the draft vapor intrusion guidance is based on the MCL. USEPA Region I requires the screening criteria for vapor intrusion to be risk-based. Therefore, the value from Table 2a adjusted for a 1E-6 cancer risk level is presented here.
8 - Value is for p-xylenes.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

DA-MW02B-2008LOCMAX	DA-MW111B-2008LOCMAX
DA-MW03B-2008LOCMAX	DA-MW112B-2008LOCMAX
DA-MW04B-2008LOCMAX	DA-MW113B-2008LOCMAX
DA-MW100B-2008LOCMAX	DA-MW114B-2008LOCMAX
DA-MW102B-2008LOCMAX	DA-MW115B-2008LOCMAX
DA-MW103B-2008LOCMAX	DA-MW116B-2008LOCMAX
DA-MW104B-2008LOCMAX	DA-MW117B-2008LOCMAX
DA-MW105B-2008LOCMAX	DA-MW118B-2008LOCMAX
DA-MW107B-2008LOCMAX	DA-MW119B-2008LOCMAX
DA-MW108B-2008LOCMAX	DA-MW124B-2008LOCMAX
DA-MW109B-2008LOCMAX	DA-MW125B-2008LOCMAX
DA-MW110B-2008LOCMAX	DA-MW126B-2008LOCMAX

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Perchlorinated Biphenyl

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.13
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	Volatile Organic Compounds														
	71-55-6	1,1,1-Trichloroethane	0.92 J	2.4 J	UG/L	DA-A-SW02-01-AVG	4/16	0.25 - 1	2.4	NA	910 N	200 200	EPA-MCL RIDEM	No	BSL
	75-34-3	1,1-Dichloroethane	0.7 J	1.6 J	UG/L	DA-A-SW02-01-AVG	4/16	0.19 - 1	1.6	NA	2.4 C	NA NA	NA NA	No	BSL
	67-64-1	Acetone	3 J	7	UG/L	DA-SW114-0508 DA-SW-117-082108	4/16	1.5 - 5	7	NA	2,200 N	NA NA	NA NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.6 J	0.6 J	UG/L	DA-SW-117-082108	1/16	0.18 - 1	0.6	NA	37 N	70 70	EPA-MCL RIDEM	No	BSL
	540-59-0	Total 1,2-Dichloroethene	0.4 J	0.4 J	UG/L	DA-SW112-LOCDEPTHMAX	1/16	0.31 - 1	0.4	NA	33 N	NA NA	NA NA	No	BSL
	108-88-3	Toluene	0.6 J	0.6 J	UG/L	DA-SW-117-082108	1/16	0.26 - 1	0.6	NA	230 N	1,000 1,000	EPA-MCL RIDEM	No	BSL
	79-01-6	Trichloroethene	0.4 J	0.4 J	UG/L	DA-SW-117-082108	1/16	0.34 - 1	0.4	NA	1.7 C	5 5	EPA-MCL RIDEM	No	BSL
	Semivolatile Organic Compounds														
	117-81-7	Bis(2-ethylhexyl)phthalate	3.6 J	3.9 J	UG/L	DA-A-SW03-01	4/16	3.8 - 10	3.9	NA	4.8 C	6 6	EPA-MCL RIDEM	No	BSL
	Pesticides/PCBs														
	72-55-9	4,4'-DDE	0.0139 J	0.0139 J	UG/L	DA-A-SW02-01-AVG	1/16	0.003 - 0.01	0.0139	NA	0.2 C	NA NA	NA NA	No	BSL
	50-29-3	4,4'-DDT	0.0045	0.017925 J	UG/L	DA-A-SW02-01-AVG	4/16	0.002 - 0.01	0.017925	NA	0.2 C	NA NA	NA NA	No	BSL
	60-57-1	Dieldrin	0.0033 J	0.0218 J	UG/L	DA-A-SW02-01-AVG	11/16	0.003 - 0.01	0.0218	NA	0.0042 C	NA NA	NA NA	Yes	ASL
	Metals														
	7429-90-5	Aluminum	36 J	350	UG/L	DA-A-SW03-01	4/16	19 - 261	350	NA	3,700 N	50 NA	EPA-SMCL NA	Yes	ASL
	7440-36-0	Antimony	1.1 J	1.1 J	UG/L	DA-SW106-LOCDEPTHMAX	1/16	0.87 - 4.5	1.1	NA	1.5 N	6 6	EPA-MCL RIDEM	No	BSL
	7440-38-2	Arsenic	1.235 J	4.9 J	UG/L	DA-SW-117-082108	5/16	1.3 - 5.2	4.9	NA	0.045 C	10 NA	NA NA	Yes	ASL
	7440-39-3	Barium	3.7	13.8	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	13.8	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	20,200	36,500	UG/L	DA-A-SW02-01-AVG	16/16	-	36,500	NA	NA	NA NA	NA NA	No	NUT
	7440-48-4	Cobalt	0.26 J	2.5	UG/L	DA-A-SW03-01	12/16	0.26 - 1	2.5	NA	1.1 N	NA NA	NA NA	Yes	ASL
	7440-50-8	Copper	1.8 J	3.2 J	UG/L	DA-A-SW06-01	10/16	0.6 - 2.5	3.2	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	Iron	70.6 J	1,180	UG/L	DA-SW-117-082108	15/16	138 - 138	1,180	NA	2,600 N	300 NA	EPA-SMCL NA	Yes	ASL
	7439-92-1	Lead	0.96 J	11.3	UG/L	DA-A-SW03-01	5/16	0.8 - 5.5	11.3	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	4,850 J	9,200	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	9,200	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	Manganese	17	352	UG/L	DA-SW-117-082108	16/16	-	352	NA	88 N	50 NA	EPA-SMCL NA	Yes	ASL
	7439-97-6	Mercury	0.009 J	0.018 J	UG/L	DA-A-SW03-01	3/16	0.012 - 0.02	0.018	NA	1.1 N	2 2	EPA-MCL RIDEM	No	BSL
	7439-98-7	Molybdenum	3.35 J	81	UG/L	DA-A-SW03-01	6/16	0.2 - 3.7	81	NA	18 N	NA NA	NA NA	Yes	ASL
	7440-02-0	Nickel	0.79 J	3.44 J	UG/L	DA-A-SW03-01	13/16	1.1 - 2.1	3.44	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	2,800	4,900	UG/L	DA-A-SW06-01	16/16	-	4,900	NA	NA	NA NA	NA NA	No	NUT
	7440-23-5	Sodium	13,800	57,600	UG/L	DA-SW111-LOCDEPTHMAX	16/16	-	57,600	NA	NA	NA NA	NA NA	No	NUT
	7440-28-0	Thallium	3.53 J	3.53 J	UG/L	DA-A-SW04-01	1/16	0.3 - 3.2	3.53	NA	0.24 N	2 2	EPA-MCL RIDEM	Yes	ASL
	7440-62-2	Vanadium	0.49 J	0.57 J	UG/L	DA-SW114-0508	2/16	0.29 - 1.6	0.57	NA	18 N	NA NA	NA NA	No	BSL

TABLE 2.13
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe:
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	7440-66-6	Zinc	6.4 J	17.6 J	UG/L	DA-SW-01-LOCDEPTHMAX	9/16	4.6 - 7.8	17.6	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL
	Dissolved Metals														
	7429-90-5	Aluminum	37 J	370	UG/L	DA-A-SW03-01	3/16	17.8 - 97	370	NA	3,700 N	50 NA	EPA-SMCL NA	Yes	ASL
	7440-38-2	Arsenic	3 J	3 J	UG/L	DA-SW-117-082108	1/16	1.3 - 5.2	3	NA	0.045 C	10 NA	EPA-MCL NA	Yes	ASL
	7440-39-3	Barium	3.4	14.1	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	14.1	NA	730 N	2,000 2,000	EPA-MCL RIDEM	No	BSL
	7440-70-2	Calcium	20,600	36,000	UG/L	DA-A-SW02-01-AVG	16/16	-	36,000	NA	NA	NA NA	NA NA	No	NUT
	7440-47-3	Chromium	1.2 J	1.2 J	UG/L	DA-A-SW03-01	1/16	0.28 - 1.2	1.2	NA	11 N[7]	100 100	EPA-MCL RIDEM	No	BSL
	7440-48-4	Cobalt	0.29 J	2.6	UG/L	DA-A-SW03-01	9/16	0.25 - 1	2.6	NA	1.1 N	NA NA	NA NA	Yes	ASL
	7440-50-8	Copper	1.1 J	4.2 J	UG/L	DA-SW-01-LOCDEPTHMAX	10/16	0.78 - 2.5	4.2	NA	150 N	1,300 NA	EPA-MCL NA	No	BSL
	7439-89-6	Iron	51.6 J	720	UG/L	DA-A-SW03-01	11/16	15.3 - 45.4	720	NA	2,600 N	300 NA	EPA-SMCL NA	Yes	ASL
	7439-92-1	Lead	1 J	12.4	UG/L	DA-A-SW03-01	4/16	0.8 - 3.82	12.4	NA	NA	15 15	EPA-MCL RIDEM	No	BSL
	7439-95-4	Magnesium	4,760 J	9,300	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	9,300	NA	NA	NA NA	NA NA	No	NUT
	7439-96-5	Manganese	17	211	UG/L	DA-SW-01-LOCDEPTHMAX	16/16	-	211	NA	88 N	50 NA	EPA-SMCL NA	Yes	ASL
	7439-97-6	Mercury	0.01 J	0.012 J	UG/L	DA-A-SW06-01	2/16	0.012 - 0.02	0.012	NA	1.1 N	2 2	EPA-MCL RIDEM	No	BSL
	7439-98-7	Molybdenum	3.15 J	78	UG/L	DA-A-SW03-01	6/16	0.2 - 3.6	78	NA	18 N	NA NA	NA NA	Yes	ASL
	7440-02-0	Nickel	0.53 J	7.045 J	UG/L	DA-A-SW02-01-AVG	14/16	1.1 - 1.4	7.045	NA	73 N	NA 100	NA RIDEM	No	BSL
	7440-09-7	Potassium	2,600	4,600	UG/L	DA-A-SW03-01 DA-A-SW06-01	16/16	-	4,600	NA	NA	NA NA	NA NA	No	NUT
	7440-23-5	Sodium	13,000	59,000	UG/L	DA-SW112-LOCDEPTHMAX	16/16	-	59,000	NA	NA	NA NA	NA NA	No	NUT
	7440-66-6	Zinc	9.2	17.3 J	UG/L	DA-SW111-LOCDEPTHMAX	7/16	4.6 - 7.45	17.3	NA	1,100 N	5,000 NA	EPA-SMCL NA	No	BSL

Footnotes:
1 - Sample and duplicate are averaged and considered as one sample when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for surface water.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

DA-A-SW02-01-AVG	DA-SW106-LOCDEPTHMAX	DA-SW125-0508
DA-A-SW03-01	DA-SW107-LOCDEPTHMAX	DA-SW133-LOCDEPTHMAX
DA-A-SW04-01	DA-SW108-LOCDEPTHMAX	
DA-A-SW05-01	DA-SW110-LOCDEPTHMAX	
DA-A-SW06-01	DA-SW111-LOCDEPTHMAX	
DA-A-SW07-01	DA-SW112-LOCDEPTHMAX	
DA-A-SW08-01	DA-SW114-0508	
DA-A-SW09-01	DA-SW116-0508-AVG	
DA-SW-01-LOCDEPTHMAX	DA-SW119-0508	
DA-SW-117-082108	DA-SW121-0508	

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
EPA-MCL = US Environmental Protection Agency Maximum Contaminant Level (USEPA, 2006)
EPA-SMCL = US Environmental Protection Agency Secondary Maximum Contaminant Level (USEPA, 2006)
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PCB = Perchlorinated Biphenyl
RIDEM = Rhode Island Department of Environmental Management GA Groundwater Objective (February, 2004).

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level/ARAR/TBC

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.14
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Screening Toxicity Value[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 08	Volatile Organic Compounds													
	71-55-6	1,1,1-Trichloroethane	0.95	5 J	UG/KG	DA-SD133-LOCDEPTHMAX	7/22	0.36 - 12	5	NA	90,000 N	540,000	No	BSL
	75-34-3	1,1-Dichloroethane	0.71 J	0.71 J	UG/KG	DA-S-SD02-01	1/22	0.32 - 12	0.71	NA	3,400 C	920,000	No	BSL
	120-82-1	1,2,4-Trichlorobenzene	4 J	4 J	UG/KG	DA-SD114-LOCDEPTHMAX	1/22	0.25 - 12	4	NA	8,700 N	96,000	No	BSL
	78-93-3	2-Butanone	7 J	69 J	UG/KG	DA-S-SD07-01	4/22	0.31 - 59	69	NA	2,800,000 N	10,000,000	No	BSL
	99-87-6	4-Isopropyltoluene	0.79 J	18	UG/KG	DA-SD111-LOCDEPTHMAX	2/22	0.26 - 12	18	NA	NA	NA	No	NTX
	67-64-1	Acetone	13 J	180 J	UG/KG	DA-S-SD07-01	10/22	5.2 - 37	180	NA	6,100,000 N	7,800,000	No	BSL
	75-00-3	Chloroethane	1.6 J	1.6 J	UG/KG	DA-S-SD01-01	1/22	0.23 - 23	1.6	NA	1,500,000 N	NA	No	BSL
	156-59-2	cis-1,2-Dichloroethene	4 J	4 J	UG/KG	DA-SD114-LOCDEPTHMAX	1/22	0.3 - 12	4	NA	78,000 N	630,000	No	BSL
	75-71-8	Dichlorodifluoromethane	2.4 J	66 J	UG/KG	DA-S-SD01-01	4/22	0.42 - 23	66	NA	19,000 N	NA	No	BSL
	--	m+p-Xylenes	2.2 J	2.2 J	UG/KG	DA-S-SD01-01	1/22	0.58 - 23	2.2	NA	450,000 N[8]	NA	No	BSL
	127-18-4	Tetrachloroethene	3 J	33 J	UG/KG	DA-SD114-LOCDEPTHMAX	3/22	0.26 - 12	33	NA	570 C	12,000	No	BSL
	108-88-3	Toluene	38 J	38 J		DA-S-SD07-01	1/22	0.23 - 12	38	NA	500000 N	190,000	No	BSL
	540-59-0	Total 1,2-Dichloroethene	4 J	4 J	UG/KG	DA-SD114-LOCDEPTHMAX	1/22	0.28 - 12	4	NA	70,000 N	NA	No	BSL
	1330-20-7	Total Xylenes	2.2	2.2	UG/KG	DA-S-SD01-01	1/22	0.58 - 18	2.2	NA	60,000 N	110,000	No	BSL
	79-01-6	Trichloroethene	2 J	39 J	UG/KG	DA-SD114-LOCDEPTHMAX	4/22	0.29 - 12	39	NA	2,800 C	13,000	No	BSL
	Semivolatile Organic Compounds													
	91-57-6	2-Methylnaphthalene	3.1 J	200	UG/KG	DA-SD111-LOCDEPTHMAX	9/22	22 - 460	200	NA	31,000 N	123,000	No	BSL
	83-32-9	Acenaphthene	3.9 J	1,000	UG/KG	DA-SD111-LOCDEPTHMAX	14/22	22 - 140	1,000	NA	340,000 N	43,000	No	BSL
	208-96-8	Acenaphthylene	1.8 J	17 J	UG/KG	DA-SD112-LOCDEPTHMAX	11/22	22 - 180	17	NA	340,000 N[9]	23,000	No	BSL
	120-12-7	Anthracene	12 J	2,000	UG/KG	DA-SD111-LOCDEPTHMAX, DA-S-SD03-01	16/22	22 - 140	2,000	NA	1,700,000 N	35,000	No	BSL
	56-55-3	Benzo(a)anthracene	16 J	3,400	UG/KG	DA-S-SD03-01	19/22	96 - 430	3,400	NA	150 C	900	Yes	ASL
	50-32-8	Benzo(a)pyrene	15 J	2,600	UG/KG	DA-S-SD03-01	18/22	99 - 360	2,600	NA	15 C	400	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	27	2,300	UG/KG	DA-S-SD03-01	16/22	120 - 700	2,300	NA	150 C	900	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	10 J	1,900	UG/KG	DA-S-SD03-01	18/22	140 - 270	1,900	NA	170,000 N[10]	800	Yes	ASL
	207-08-9	Benzo(k)fluoranthene	2.8 J	2,300	UG/KG	DA-SD111-LOCDEPTHMAX, DA-S-SD03-01	20/22	93 - 310	2,300	NA	1,500 C	900	Yes	ASL
	65-85-0	Benzoic Acid	760 J	1,900 J	UG/KG	DA-SD-129-082108, DA-S-SD07-01	8/12	300 - 2500	1,900	NA	24,000,000 N	NA	No	BSL
	100-51-6	Benzyl Alcohol	400 J	400 J	UG/KG	DA-S-SD01-01	1/22	230 - 2000	400	NA	3,100,000 N	NA	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	470 J	1200 J	UG/KG	DA-S-SD07-01	7/22	370 - 980	1200	NA	35,000 C	46,000	No	BSL
	86-74-8	Carbazole	1,300	1,300	UG/KG	DA-SD111-LOCDEPTHMAX, DA-S-SD03-01	2/22	92 - 1000	1,300	NA	NA	NA	No	NTX
	218-01-9	Chrysene	8.7 J	3,300	UG/KG	DA-S-SD03-01	20/22	98 - 420	3,300	NA	15,000 C	400	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	11 J	640 J	UG/KG	DA-S-SD03-01	15/22	23 - 300	640	NA	15 C	400	Yes	ASL
	132-64-9	Dibenzofuran	550 J	580	UG/KG	DA-SD111-LOCDEPTHMAX	2/22	23 - 1000	580	NA	NA	NA	No	NTX
	84-66-2	Diethyl Phthalate	420 J	1000 J	UG/KG	DA-S-SD07-01	2/22	83 - 1000	1000	NA	4,900,000 N	340,000	No	BSL
	84-74-2	di-n-Butyl Phthalate	100 J	100 J	UG/KG	DA-S-SD03-01	1/22	93 - 1000	100	NA	610,000 N	NA	No	BSL
	206-44-0	Fluoranthene	24	8,500	UG/KG	DA-S-SD03-01	21/22	80 - 80	8,500	NA	230,000 N	20,000	No	BSL
	86-73-7	Fluorene	4.2 J	1,300	UG/KG	DA-SD111-LOCDEPTHMAX	14/22	22 - 140	1,300	NA	230,000 N	28,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	9.5 J	1,700	UG/KG	DA-S-SD03-01	17/22	190 - 270	1,700	NA	150 C	900	Yes	ASL
	91-20-3	Naphthalene	4.6 J	200	UG/KG	DA-SD111-LOCDEPTHMAX	8/22	3.9 - 61	200	NA	3,900 C	54,000	No	BSL
	85-01-8	Phenanthrene	11 J	8,000	UG/KG	DA-S-SD03-01	19/22	80 - 550	8,000	NA	170,000 N[10]	40,000	No	BSL
	129-00-0	Pyrene	21 J	7,000	UG/KG	DA-S-SD03-01	20/22	87 - 820	7,000	NA	170,000 N	13,000	No	BSL
	Pesticides/PCBs													
	72-54-8	4,4'-DDD	4.7 J	56 J	UG/KG	DA-SD116-LOCDEPTHMAX	13/22	3.9 - 69.1	56	NA	2,000 C	NA	No	BSL
	72-55-9	4,4'-DDE	2.2 J	140	UG/KG	DA-SD-117-082108	15/22	3.9 - 77.2	140	NA	1,400 C	NA	No	BSL
	50-29-3	4,4'-DDT	5.4 J	47 J	UG/KG	DA-SD116-LOCDEPTHMAX	8/22	3.9 - 65	47	NA	1,700 C	NA	No	BSL
	5103-71-9	alpha-Chlordane	4.5 J	53	UG/KG	DA-SD-117-082108	12/22	2 - 24.4	53	NA	1,600 C[11]	500 [11]	No	BSL
	11096-82-5	Aroclor-1260	35	550	UG/KG	DA-SD116-LOCDEPTHMAX	13/22	19 - 52	550	NA	220 C	10,000 [12]	Yes	ASL
	11100-14-4	Aroclor-1268	64.4 J	2480	UG/KG	DA-S-SD07-01	2/22	19 - 63.7	2480	NA	220 C[13]	10,000 [12]	No	BSL
	60-57-1	Dieldrin	2.2 J	66	UG/KG	DA-SD-131-082108	15/22	3.9 - 19.4	66	NA	30 C	40	Yes	ASL
	5103-74-2	gamma-Chlordane	3.3	37	UG/KG	DA-SD-117-082108	11/22	2 - 20.3	37	NA	1,600 C[11]	500 [11]	No	BSL
	--	Total Aroclor	35	2930 J	UG/KG	DA-S-SD07-01	13/22	19 - 60	2930	NA	240 C[13]	10,000	Yes	ASL
	Metals													
	7429-90-5	Aluminum	5,000	21,100	MG/KG	DA-SD-117-082108	22/22	- - -	21,100	NA	7,700 N	NA	Yes	ASL
	7440-38-2	Arsenic	9.4	18	MG/KG	DA-S-SD01-01, DA-S-SD07-01	22/22	- - -	18	NA	0.39 C	7	Yes	ASL
	7440-39-3	Barium	17	81.4	MG/KG	DA-SD-117-082108	22/22	- - -	81.4	NA	1,500 N	5,500	No	BSL
	7440-41-7	Beryllium	0.29	0.71	MG/KG	DA-SD134-0006	22/22	- - -	0.71	NA	16 N	0.4	Yes	ASL
	7440-43-9	Cadmium	0.17 J	2.4 J	MG/KG	DA-S-SD06-01	16/22	0.01 - 0.43	2.4	NA	7 N	39	No	BSL

TABLE 2.14
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT - SEDIMENT
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5f]	Screening Toxicity Value[6f]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
	7440-70-2	Calcium	710	7,040	MG/KG	DA-SD-130-082108	22/22	- - -	7,040	NA	NA	NA	No	NUT
	7440-47-3	Chromium	6.5	27.7	MG/KG	DA-SD-117-082108	22/22	- - -	27.7	NA	23 N[15,16]	390 [16]	Yes	ASL
	7440-48-4	Cobalt	8.1	204	MG/KG	DA-SD133-LOCDEPTHMAX	22/22	- - -	204	NA	2.3 N	NA	Yes	ASL
	7440-50-8	Copper	9.1	52	MG/KG	DA-S-SD06-01	22/22	- - -	52	NA	310 N	3,100	No	BSL
	7439-89-6	Iron	14,000	42,800	MG/KG	DA-SD133-LOCDEPTHMAX	22/22	- - -	42,800	NA	5,500 N	NA	Yes	ASL
	7439-92-1	Lead	14	27,200	MG/KG	DA-SD100-071207	33/33	- - -	27,200	NA	400	150	Yes	ASL
	7439-95-4	Magnesium	1,000	4,000	MG/KG	DA-SD-129-082108	22/22	- - -	4,000	NA	NA	NA	No	NUT
	7439-96-5	Manganese	137	2,800	MG/KG	DA-S-SD07-01	22/22	- - -	2,800	NA	180 N	390	Yes	ASL
	7439-97-6	Mercury	0.02 J	0.24	MG/KG	DA-SD116-LOCDEPTHMAX	21/22	0.01 - 0.01	0.24	NA	2.3 N	23	No	BSL
	7439-98-7	Molybdenum	0.44 J	7.5	MG/KG	DA-SD133-LOCDEPTHMAX	21/22	0.21 - 0.21	7.5	NA	39 N	NA	No	BSL
	7440-02-0	Nickel	11	31.3	MG/KG	DA-SD-117-082108	22/22	- - -	31.3	NA	160 N	1,000	No	BSL
	7440-09-7	Potassium	150	1,260	MG/KG	DA-SD-117-082108	21/22	83 - 83	1,260	NA	NA	NA	No	NUT
	7782-49-2	Selenium	0.48 J	0.92 J	MG/KG	DA-SD112-LOCDEPTHMAX	2/22	0.069 - 0.56	0.92	NA	39 N	390	No	BSL
	7440-22-4	Silver	0.16 J	4.8 J	MG/KG	DA-S-SD03-01	19/22	0.06 - 0.09	4.8	NA	39 N	200	No	BSL
	7440-23-5	Sodium	64.3 J	289	MG/KG	DA-SD-117-082108	11/22	24.8 - 130	289	NA	NA	NA	No	NUT
	7440-62-2	Vanadium	12	40.5	MG/KG	DA-SD116-LOCDEPTHMAX	22/22	- - -	40.5	NA	39 N	550	Yes	ASL
	7440-66-6	Zinc	36	228	MG/KG	DA-SD-117-082108	22/22	- - -	228	NA	2,300 N	6,000	No	BSL
	Petroleum Hydrocerbons													
	--	Extractable Petroleum Hydrocarbons	53	1800	MG/KG	DA-SD116-LOCDEPTHMAX	15/15	- - -	1800	NA	NA	500	Yes	ASL
	--	Gasoline Range Organics	4	4	MG/KG	DA-SD-131-082108	1/15	3.1 - 10	4	NA	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for sediment.
5 - Oak Ridge National Laboratory (ORNL) Regional Screening Level. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (ORNL, September 12, 2008).
6 - Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for Chlordane.
12 - Value is for total PCBs.
13 - Value is for Aroclor-1260.
14 - Value is for high risk polychlorinated biphenyls.
15 - Ten percent of noncarcinogenic screening level is less then the carcinogenic screening level, therefore the noncarcinogenic value is presented.
16 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
BKG = Background
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

DA-SD100-071207	DA-SD-117-082108
DA-SD101-071207	DA-SD118-071107
DA-SD102-071207-AVG	DA-SD-128-082108
DA-SD103-071107	DA-SD-129-082108
DA-SD104-071107	DA-SD-130-082108
DA-SD105-071107	DA-SD-131-082108
DA-SD106-LOCDEPTHMAX	DA-SD132-071207
DA-SD107-LOCDEPTHMAX	DA-SD133-LOCDEPTHMAX
DA-SD108-LOCDEPTHMAX	DA-SD134-0006
DA-SD109-071107	DA-S-SD01-01
DA-SD110-LOCDEPTHMAX	DA-S-SD02-01-AVG
DA-SD111-LOCDEPTHMAX	DA-S-SD03-01
DA-SD112-LOCDEPTHMAX	DA-S-SD04-01
DA-SD113-071107	DA-S-SD05-01
DA-SD114-LOCDEPTHMAX	DA-S-SD06-01
DA-SD115-071107	DA-S-SD07-01
DA-SD116-LOCDEPTHMAX	

TABLE 2.15
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Fish Fillets
Exposure Medium: Fish Fillets

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Above Background Concentration?[4]	Screening Toxicity Value[5]	Potential ARAR/TBC	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
	Pesiticides/PCBs														
	72-54-8	4,4'-DDD	6.06	83.3 J	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	6.06	NA	13.1 C	NA	NA	No	BSL
	72-55-9	4,4'-DDE	186	652	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	186	NA	9.28 C	NA	NA	Yes	ASL
	50-29-3	4,4'-DDT	20.7 J	20.7 J	ug/kg	DA-FT-ET02-WPF-081208	1/5	8.14 - 15	20.7	NA	9.28 C	NA	NA	Yes	ASL
	309-00-2	Aldrin	1.33	1.55 J	ug/kg	DA-FT-ET02-WPF-081208	4/5	0.398 - 0.398	1.33	NA	0.186 C	NA	NA	Yes	ASL
	5103-71-9	alpha-Chlordane	2.12	58.1	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	2.12	NA	9.01 C[7]	NA	NA	No	BSL
	11097-69-1	Aroclor-1254	93.6	446	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	93.6	NA	1.58 C	NA	NA	Yes	ASL
	11096-82-5	Aroclor-1260	59.6	208	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	59.6	NA	1.58 C	NA	NA	Yes	ASL
	60-57-1	Dieldrin	6.27	40.3	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	6.27	NA	0.197 C	NA	NA	Yes	ASL
	5103-74-2	gamma-Chlordane	1.1 J	13.8	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	1.1	NA	9.01 C[7]	NA	NA	No	BSL
	1336-36-3	Total Aroclor	157.7	654	ug/kg	DA-FT-ET02-WPF-081208	5/5	-	157.7	NA	1.58 C	NA	NA	Yes	ASL
	Metals														
	7429-90-5	Aluminum	0.822 J	1.49 J	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.822	NA	135 N	NA	NA	No	BSL
	7440-38-2	Arsenic	0.001144 J	0.0056	mg/kg	DA-FT-ET02-WPF-081208	5/5	-	0.0056	NA	0.0021 C	NA	NA	Yes	ASL
	7440-39-3	Barium	0.022 J	0.246	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.022	NA	27 N	NA	NA	No	BSL
	7440-70-2	Calcium	96.8 J	3,120	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	96.8	NA	NA	NA	NA	No	NTX
	7440-47-3	Chromium	0.529 J	4.19 J	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.529	NA	0.406 N[8]	NA	NA	Yes	ASL
	7440-48-4	Cobalt	0.022 J	0.0845	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.022	NA	0.0406 N	NA	NA	No	BSL
	7440-50-8	Copper	0.295	0.392	mg/kg	DA-FT-ET02-WPF-081208	5/5	-	0.295	NA	5.41 N	NA	NA	No	BSL
	7439-89-6	Iron	6.8 J	38	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	6.8	NA	94.6 N	NA	NA	No	BSL
	7439-92-1	Lead	0.00504 J	0.0354	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.00504	NA	NA	NA	NA	No	NTX
	7439-95-4	Magnesium	250	295	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	250	NA	NA	NA	NA	No	NTX
	7439-96-5	Manganese	0.368	5.03	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.368	NA	18.9 N	NA	NA	No	BSL
	7439-97-6	Mercury	0.0156	0.112	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.0156	NA	0.0135 N[9]	NA	NA	Yes	ASL
	7439-98-7	Molybdenum	0.0295 J	0.324	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.0295	NA	0.676 N	NA	NA	No	BSL
	7440-02-0	Nickel	0.168 J	2.36 J	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	0.168	NA	2.7 N	NA	NA	No	BSL
	7440-09-7	Potassium	3,660	4,530	mg/kg	DA-FT-ET01-BHF-081208	5/5	-	3,660	NA	NA	NA	NA	No	NTX
	7782-49-2	Selenium	0.213	0.612	mg/kg	DA-FT-ET02-WPF-081208	5/5	-	0.213	NA	0.676 N	NA	NA	No	BSL
	7440-23-5	Sodium	368	544	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	368	NA	NA	NA	NA	No	NTX
	7440-62-2	Vanadium	0.0144 J	0.0144 J	mg/kg	DA-FT-ET03-BHF-081208-AVG	1/5	0.0127 - 0.0136	0.0144	NA	0.681 N	NA	NA	No	BSL
	7440-66-6	Zinc	4.88	16.8	mg/kg	DA-FT-ET01-BGF-081208	5/5	-	4.88	NA	40.6 N	NA	NA	No	BSL

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison was not performed for fish tissue.
5 - The USEPA Region 3 Fish Tissue Screening Levels are presented. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag) (USEPA Region III, May, 2008).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for chlordane.
8 - Value is for hexavalent chromium.
9 - Value is for methyl mercury.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
DA-FT-ET01-BGF-081208
DA-FT-ET01-BHF-081208
DA-FT-ET02-BHF-081208
DA-FT-ET02-WPF-081208
DA-FT-ET03-BHF-081208-AVG

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

RAGS Part D Table 3

Medium-Specific Exposure Point Concentration Summary

LIST OF TABLES
RAGS PART D TABLE 3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Table No.	
	Reasonable Maximum/Central Tendency Exposures
3.1.RME	Surface Soil Exposed Area
3.2.RME	Subsurface Soil Exposed Area
3.3.RME	Surface Soil Paved Area
3.4.RME	Subsurface Soil Paved Area
3.5.RME	Groundwater
3.5.CTE	Groundwater
3.6.RME	Surface Water
3.7.RME	Sediment
3.8.RME	Fish Tissue

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean[1]	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Exposed Area	Benzo(a)anthracene	mg/kg	1.21	3.22 (L)	20	3.22	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Benzo(a)pyrene	mg/kg	0.875	2.44 (NP)	17	2.440	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Benzo(b)fluoranthene	mg/kg	0.971	2.55 (L)	15	2.550	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Benzo(g,h,i)perylene	mg/kg	0.445	0.96 (L)	7.4 J	0.960	mg/kg	95% KM (Chebyshev) UCL	Pro UCL 4.04
	Benzo(k)fluoranthene	mg/kg	0.719	1.88 (L)	12	1.880	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Chrysene	mg/kg	1.11	2.87 (L)	17	2.870	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Dibenzo(a,h)anthracene	mg/kg	0.183	0.40 (L)	3.5	0.400	mg/kg	95% KM (Chebyshev) UCL	Pro UCL 4.04
	Fluoranthene	mg/kg	2.74	7.3 (L)	45	7.30	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Indeno(1,2,3-cd)pyrene	mg/kg	0.511	1.10 (L)	9.2	1.100	mg/kg	95% KM (Chebyshev) UCL	Pro UCL 4.04
	Naphthalene	mg/kg	0.234	1.2 (L)	11	1.200	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Phenanthrene	mg/kg	2.18	6.66 (L)	48 J	6.66	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Pyrene	mg/kg	2.44	7.1 (L)	50	7.10	mg/kg	97.5% KM (Chebyshev) UCL	Pro UCL 4.04
	Total Aroclors	mg/kg	0.179	0.332 (L)	5.22 J	0.332	mg/kg	95% KM (BCA) UCL	Pro UCL 4.04
	Aluminum	mg/kg	11579	12256 (N)	20700	12256	mg/kg	Student-t UCL	Pro UCL 4.04
	Antimony	mg/kg	0.22	0.436 (G)	5.5 J	0.436	mg/kg	95% KM(T) UCL	Pro UCL 4.04
	Arsenic	mg/kg	18.0	23.9 (NP)	90	23.9	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04
	Beryllium	mg/kg	0.415	0.434 (N)	0.74 J	0.434	mg/kg	Student-t UCL	Pro UCL 4.04
	Cadmium	mg/kg	0.698	1.51 (L)	11	1.51	mg/kg	95% KM (Chebyshev) UCL	Pro UCL 4.04
	Chromium	mg/kg	16.4	20.5 (NP)	64 J	20.5	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04
	Cobalt	mg/kg	14.6	27.1 (NP)	218	27.1	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04
	Copper	mg/kg	32.1	47.4 (NP)	560	47.4	mg/kg	95% KM (BCA) UCL	Pro UCL 4.04
	Iron	mg/kg	26050	27468 (N)	43700	27468	mg/kg	Student-t UCL	Pro UCL 4.04
	Lead	mg/kg	73.1	243 (NP)	2870	73.1	mg/kg	Arithmetic Mean Concentration	(1)
	Manganese (Soil)	mg/kg	387	436 (NP)	2020	436	mg/kg	Student-t UCL	Pro UCL 4.04
	Vanadium	mg/kg	20.9	22.3 (N)	47.2	22.3	mg/kg	Student-t UCL	Pro UCL 4.04

1 - For duplicate sample results, the average value was used in the calculation.
G = Gamma
L = Lognormal
N = Normal
NP = Non-parametric
1 - Mean concentration is used as exposure point concentration for evaluating exposures to lead.
USEPA, 1994:Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for lead in Children

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean[1]	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Exposed Area	Acenaphthene	mg/kg	16.9	76.6 (NP)	480	76.6	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Anthracene	mg/kg	33.3	153 (NP)	970	153	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Benzo(a)anthracene	mg/kg	64.6	302 (L)	1900	302	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Benzo(a)pyrene	mg/kg	52.1	243 (NP)	1500	243	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Benzo(b)fluoranthene	mg/kg	45.5	210 (NP)	1300	210	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Benzo(g,h,i)perylene	mg/kg	28.8	134 (NP)	830	134	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Benzo(k)fluoranthene	mg/kg	42.6	199 (NP)	1200	199	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Chrysene	mg/kg	57.8	269 (L)	1700	269	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Dibenzo(a,h)anthracene	mg/kg	11.1	52.7 (NP)	330	52.7	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Fluoranthene	mg/kg	154	723 (L)	4600	723	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Indeno(1,2,3-cd)pyrene	mg/kg	29.6	138 (NP)	850	138	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Naphthalene	mg/kg	7.90	35.1 (NP)	220	35.1	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Phenanthrene	mg/kg	122	563 (NP)	3500	563	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Pyrene	mg/kg	122	569 (NP)	3600	569	mg/kg	97.5% KM(Chebyshev) UCL	Pro UCL 4.04
	Total Aroclors	mg/kg	0.171	0.535 (NP)	4.06	0.535	mg/kg	95% KM(Chebyshev) UCL	Pro UCL 4.04
	Aluminum	mg/kg	12527	13532 (N)	27200	13532	mg/kg	Student-t UCL	Pro UCL 4.04
	Antimony	mg/kg	0.272	0.574 (G)	6.20	0.574	mg/kg	95% KM(T) UCL	Pro UCL 4.04
	Arsenic	mg/kg	16.2	17.7 (N)	40.0	17.7	mg/kg	Student-t UCL	Pro UCL 4.04
	Beryllium	mg/kg	0.436	0.518 (NP)	2.50	0.518	mg/kg	95% Modified t UCL	Pro UCL 4.04
	Cadmium	mg/kg	0.531	0.907 (NP)	8.80	0.91	mg/kg	95% KM(BCA) UCL	Pro UCL 4.04
	Chromium	mg/kg	17.4	19.6 (L)	98.2	19.6	mg/kg	H-UCL	Pro UCL 4.04
	Cobalt	mg/kg	14.7	16.1 (G)	35.6	16.1	mg/kg	Approximate Gamma 95% UCL	Pro UCL 4.04
	Copper	mg/kg	65.0	235 (NP)	2600	235	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04
	Iron	mg/kg	31485	41374 (NP)	134000	41374	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04
	Lead	mg/kg	190	803(NP)	4650	190	mg/kg	Arithmetic Mean Concentration	(1)
	Manganese (Soil)	mg/kg	565	835 (NP)	3300	835	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04
	Molybdenum	mg/kg	1.33	3.1 (NP)	58.8	3.100	mg/kg	95% KM(BCA) UCL	Pro UCL 4.04
	Thallium	mg/kg	0.175	0.15 (NP)	0.890	0.150	mg/kg	95% KM(Chebyshev) UCL	Pro UCL 4.04
	Vanadium	mg/kg	19.7	21.2 (G)	53.8	21.2	mg/kg	Approximate Gamma 95% UCL	Pro UCL 4.04
	Zinc	mg/kg	239	888 (NP)	9840	888	mg/kg	95% Chebyshev(Mean, Std) UCL	Pro UCL 4.04

1 - For duplicate sample results, the average value was used in the calculation.
G = Gamma
L = Lognormal
N = Normal
NP = Non-parametric
1 - Mean concentration is used as exposure point concentration for evaluating exposures to lead.
USEPA, 1994:Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for lead in Children

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.3.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean [1]	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Paved Area	Benzo(a)anthracene	mg/kg	0.55	2.69 (L)	5.6 J	2.69	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(a)pyrene	mg/kg	0.497	2.32 (L)	4.8 J	2.32	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(b)fluoranthene	mg/kg	0.578	2.75(L)	5.7 J	2.75	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(g,h,i)perylene	mg/kg	0.231	0.551 (G)	2 J	0.551	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(k)fluoranthene	mg/kg	0.437	1.1 (G)	3.9 J	1.1	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Chrysene	mg/kg	0.566	1.5 (G)	5.7 J	1.5	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Dibenzo(a,h)anthracene	mg/kg	0.149	0.141 (G)	0.76	0.141	mg/kg	95% KM(BCA) UCL	PRO UCL 4.04
	Indeno(1,2,3-cd)pyrene	mg/kg	0.309	1.12 (L)	2.2 J	1.12	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Aluminum	mg/kg	9529	10938 (N)	19500	10938	mg/kg	Student-t UCL	PRO UCL 4.04
	Arsenic	mg/kg	15.1	18.6 (N)	41 J	18.6	mg/kg	Student-t UCL	PRO UCL 4.04
	Beryllium	mg/kg	0.359	0.395 (N)	0.57	0.395	mg/kg	95% KM(T) UCL	PRO UCL 4.04
	Chromium	mg/kg	13.6	15.4 (N)	24.2 J	15.4	mg/kg	Student-t UCL	PRO UCL 4.04
	Cobalt	mg/kg	11.0	12.9 (N)	28	12.9	mg/kg	Student-t UCL	PRO UCL 4.04
	Iron	mg/kg	23086	26054 (N)	38900	26054	mg/kg	Student-t UCL	PRO UCL 4.04
	Manganese (Soil)	mg/kg	362	418 (G)	827	418	mg/kg	Approximate Gamma 95% UCL	PRO UCL 4.04

For duplicate sample results, the average value was used in the calculation.
G = Gamma
L = Lognormal
N = Normal

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.4.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean[1]	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Paved Area	1,2,4-Trimethylbenzene	mg/kg	1.01	2.4 (NP)	17	2.4	mg/kg	95% KM(T) UCL	PRO UCL 4.04
	1,3,5-Trimethylbenzene	mg/kg	0.26	3.6 (NP)	7.5 J	3.6	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(a)anthracene	mg/kg	0.35	2.8 (NP)	7.7	2.8	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(a)pyrene	mg/kg	0.31	1.4 (L)	5.7	1.4	mg/kg	97.5% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(b)fluoranthene	mg/kg	0.35	1.59 (NP)	6.5	1.59	mg/kg	97.5% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(g,h,i)perylene	mg/kg	0.16	0.520 (L)	1.35 J	0.52	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(k)fluoranthene	mg/kg	0.29	1.30 (NP)	5.35	1.3	mg/kg	97.5% KM(Chebyshev) UCL	PRO UCL 4.04
	Chrysene	mg/kg	0.34	2.75 (L)	7.55	2.75	mg/kg	99% KM(Chebyshev) UCL	PRO UCL 4.04
	Dibenzo(a,h)anthracene	mg/kg	0.13	0.108 (L)	0.7 J	0.108	mg/kg	95% KM(BCA) UCL	PRO UCL 4.04
	Indeno(1,2,3-cd)pyrene	mg/kg	0.24	0.317 (NP)	2.75	0.317	mg/kg	95% KM(BCA) UCL	PRO UCL 4.04
	Total Aroclors	mg/kg	(1)	(1)	1.5	1.5	mg/kg	Maximum Detected Concentration	(1)
	Aluminum	mg/kg	11220	12570 (N)	20700	12570	mg/kg	Student-t UCL	PRO UCL 4.04
	Arsenic	mg/kg	18.0	35 (NP)	122 J	35	mg/kg	95% Chebyshev(Mean, Std) UCL	PRO UCL 4.04
	Beryllium	mg/kg	0.370	0.47 (L)	0.76	0.47	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Chromium	mg/kg	18.5	24.3(NP)	103	24.3	mg/kg	95% Modified T UCL	PRO UCL 4.04
	Cobalt	mg/kg	12.4	13.5 (N)	21.5	13.5	mg/kg	Student-t UCL	PRO UCL 4.04
	Iron	mg/kg	26728	29083 (N)	40000	29083	mg/kg	Student-t UCL	PRO UCL 4.04
	Lead	mg/kg	18	40.9 (NP)	159	18	mg/kg	Arithmetic Mean Concentration	(2)
	Manganese (Soil)	mg/kg	599	1100 (NP)	2820	1100	mg/kg	95% Chebyshev(Mean, Std) UCL	PRO UCL 4.04

For duplicate sample results, the average value was used in the calculation.
L = Lognormal
N = Normal
NP = Non-parametric
1 - Only one detected concentration. Meaningful statistics cannot be computed.
2 - Mean concentration is used as exposure point concentration for evaluating exposures to lead.
USEPA, 1994:Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for lead in Children

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.5.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 8	1,1-Dichloroethane	ug/L	22.0	142 (NP)	310	310	ug/L	Maximum Detected Concentration	(1)
	1,2,4-Trimethylbenzene	ug/L	29.4	317 (NP)	810	810	ug/L	Maximum Detected Concentration	(1)
	1,3,5-Trimethylbenzene	ug/L	10.8	114 (NP)	290	290	ug/L	Maximum Detected Concentration	(1)
	Bromomethane	ug/L	2.79	10.4 (NP)	2	2	ug/L	Maximum Detected Concentration	(1)
	Carbon Tetrachloride	ug/L	1.43	5.24 (NP)	2	2	ug/L	Maximum Detected Concentration	(1)
	Chloroform	ug/L	1.63	5.53 (NP)	7	7	ug/L	Maximum Detected Concentration	(1)
	Chloromethane	ug/L	3.29	11.2 (NP)	16	16	ug/L	Maximum Detected Concentration	(1)
	Ethylbenzene	ug/L	2.55	11.5 (NP)	58	58	ug/L	Maximum Detected Concentration	(1)
	Isopropylbenzene	ug/L	3.84	18.4 (NP)	94	94	ug/L	Maximum Detected Concentration	(1)
	Tetrachloroethene	ug/L	2.56	12.3 (NP)	12	12	ug/L	Maximum Detected Concentration	(1)
	Total Xylenes	ug/L	4.19	19.2 (NP)	97 J	97	ug/L	Maximum Detected Concentration	(1)
	Trichloroethene	ug/L	36.6	301 (NP)	730	730	ug/L	Maximum Detected Concentration	(1)
	Vinyl Chloride	ug/L	3.33	21.7 (NP)	19	19	ug/L	Maximum Detected Concentration	(1)
	Benzo(k)fluoranthene	ug/L	5.02	5.13 (NP)	4 J	4	ug/L	Maximum Detected Concentration	(1)
	Dieldrin	ug/L	0.010	0.01 (NP)	0.0108 J	0.0108	ug/L	Maximum Detected Concentration	(1)
	Aluminum	ug/L	23930	257571 (NP)	564000	564000	ug/L	Maximum Detected Concentration	(1)
	Antimony	ug/L	1.55	5.95 (NP)	1.2 J	1.2	ug/L	Maximum Detected Concentration	(1)
	Arsenic	ug/L	25.7	232 (NP)	503 J	503	ug/L	Maximum Detected Concentration	(1)
	Barium	ug/L	67.1	640 (NP)	1390	1390	ug/L	Maximum Detected Concentration	(1)
	Beryllium	ug/L	0.806	8.16 (NP)	17.8 J	17.8	ug/L	Maximum Detected Concentration	(1)
	Chromium	ug/L	37.4	397 (NP)	868	868	ug/L	Maximum Detected Concentration	(1)
	Cobalt	ug/L	28.6	292 (NP)	637	637	ug/L	Maximum Detected Concentration	(1)
	Copper	ug/L	62.1	658 (NP)	1440	1440	ug/L	Maximum Detected Concentration	(1)
	Iron	ug/L	57818	556480 (NP)	1210000	1210000	ug/L	Maximum Detected Concentration	(1)
	Lead	ug/L	79.7	863 (NP)	1890	1890	ug/L	Maximum Detected Concentration	(1)
	Manganese (Water)	ug/L	1972	3236 (G)	13800	13800	ug/L	Maximum Detected Concentration	(1)
	Mercury	ug/L	0.097	0.438 (NP)	1.9	1.9	ug/L	Maximum Detected Concentration	(1)
	Molybdenum	ug/L	1.64	10.1 (NP)	20.3 J	20.3	ug/L	Maximum Detected Concentration	(1)
	Nickel	ug/L	50.7	531 (NP)	1160	1160	ug/L	Maximum Detected Concentration	(1)
	Thallium	ug/L	1.19	2.54 (NP)	2.3 J	2.3	ug/L	Maximum Detected Concentration	(1)
	Vanadium	ug/L	35.2	380 (NP)	832	832	ug/L	Maximum Detected Concentration	(1)
	Zinc	ug/L	175	1825 (NP)	3990	3990	ug/L	Maximum Detected Concentration	(1)

For duplicate sample results, the average value was used in the calculation.
G = Gamma
NP = Non-parametric
1 - USEPA Region I guidance recommends the maximum detected concentration be used as the exposure point concentration for reasonable maximum exposures.

TABLE 3.5.CTE
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 8	1,1-Dichloroethane	ug/L	22.0	142 (NP)	310	22.0	ug/L	Average Concentration	(1)
	1,2,4-Trimethylbenzene	ug/L	29.4	317 (NP)	810	29.4	ug/L	Average Concentration	(1)
	1,3,5-Trimethylbenzene	ug/L	10.8	114 (NP)	290	10.8	ug/L	Average Concentration	(1)
	Bromomethane	ug/L	2.79	10.4 (NP)	2	2.79	ug/L	Average Concentration	(1)
	Carbon Tetrachloride	ug/L	1.43	5.24 (NP)	2	1.43	ug/L	Average Concentration	(1)
	Chloroform	ug/L	1.63	5.53 (NP)	7	1.63	ug/L	Average Concentration	(1)
	Chloromethane	ug/L	3.29	11.2 (NP)	16	3.29	ug/L	Average Concentration	(1)
	Ethylbenzene	ug/L	2.55	11.5 (NP)	58	2.55	ug/L	Average Concentration	(1)
	Isopropylbenzene	ug/L	3.84	18.4 (NP)	94	3.84	ug/L	Average Concentration	(1)
	Tetrachloroethene	ug/L	2.56	12.3 (NP)	12	2.56	ug/L	Average Concentration	(1)
	Total Xylenes	ug/L	4.19	19.2 (NP)	97 J	4.19	ug/L	Average Concentration	(1)
	Trichloroethene	ug/L	36.6	301 (NP)	730	36.6	ug/L	Average Concentration	(1)
	Vinyl Chloride	ug/L	3.33	21.7 (NP)	19	3.33	ug/L	Average Concentration	(1)
	Benzo(k)fluoranthene	ug/L	5.02	5.13 (NP)	4 J	5.02	ug/L	Average Concentration	(1)
	Dieldrin	ug/L	0.010	0.01 (NP)	0.0108 J	0.010	ug/L	Average Concentration	(1)
	Aluminum	ug/L	23930	257571 (NP)	564000	23930	ug/L	Average Concentration	(1)
	Antimony	ug/L	1.55	5.95 (NP)	1.2 J	1.55	ug/L	Average Concentration	(1)
	Arsenic	ug/L	25.7	232 (NP)	503 J	25.7	ug/L	Average Concentration	(1)
	Barium	ug/L	67.1	640 (NP)	1390	67.1	ug/L	Average Concentration	(1)
	Beryllium	ug/L	0.806	8.16 (NP)	17.8 J	0.806	ug/L	Average Concentration	(1)
	Chromium	ug/L	37.4	397 (NP)	868	37.4	ug/L	Average Concentration	(1)
	Cobalt	ug/L	28.6	292 (NP)	637	28.6	ug/L	Average Concentration	(1)
	Copper	ug/L	62.1	658 (NP)	1440	62.1	ug/L	Average Concentration	(1)
	Iron	ug/L	57818	556480 (NP)	1210000	57818	ug/L	Average Concentration	(1)
	Lead	ug/L	79.7	863 (NP)	1890	79.7	ug/L	Average Concentration	(1)
	Manganese (Water)	ug/L	1972	3236 (G)	13800	1972	ug/L	Average Concentration	(1)
	Mercury	ug/L	0.097	0.438 (NP)	1.9	0.097	ug/L	Average Concentration	(1)
	Molybdenum	ug/L	1.64	10.1 (NP)	20.3 J	1.64	ug/L	Average Concentration	(1)
	Nickel	ug/L	50.7	531 (NP)	1160	50.7	ug/L	Average Concentration	(1)
	Thallium	ug/L	1.19	2.54 (NP)	2.3 J	1.19	ug/L	Average Concentration	(1)
	Vanadium	ug/L	35.2	380 (NP)	832	35.2	ug/L	Average Concentration	(1)
	Zinc	ug/L	175	1825 (NP)	3990	175	ug/L	Average Concentration	(1)

For duplicate sample results, the average value was used in the calculation.
G = Gamma
NP = Non-parametric
1 - USEPA Region I guidance recommends the average concentration be used as the exposure point concentration for central tendency exposures.

TABLE 3.6.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean[1]	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 8	Dieldrin	ug/L	0.009	0.013 (N)	0.0218 J	0.013	ug/L	95% KM(Percentile Bootstrap)	PRO UCL 4.04
	Aluminum	ug/L	55.6	96.7 G)	350	96.7	ug/L	95% KM(T)	PRO UCL 4.04
	Arsenic	ug/L	1.46	2.7 (N)	4.9 J	2.7	ug/L	95% KM(Percentile Bootstrap)	PRO UCL 4.04
	Cobalt	ug/L	0.777	1.1 (G)	2.5	1.1	ug/L	95% KM(Percentile Bootstrap)	PRO UCL 4.04
	Iron	ug/L	285	612 (G)	1180	612	ug/L	95% KM(Chebyshev)	PRO UCL 4.04
	Manganese (Water)	ug/L	118	156 (N)	352	156	ug/L	Student-t	PRO UCL 4.04
	Lead	ug/L	2.0	4.2 (NP)	11.3	2	ug/L	Arithmetic Mean Concentration	(1)
	Molybdenum	ug/L	21.2	67.2(N)	81	67.2	ug/L	95% KM(Percentile Bootstrap)	PRO UCL 4.04
	Thallium	ug/L	NA	NA	3.53 J	3.53	ug/L	Maximum Detected Concentration	(2)

1 - For duplicate sample results, the average value was used in the calculation.
G = Gamma
N = Normal
NP = Non-parametric
1 - Mean concentration is used as exposure point concentration for evaluating exposures to lead.
USEPA, 1994:Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for lead in Children
2 - Only one detected concentration. Meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.7.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 8	Benzo(a)anthracene	mg/kg	0.545	1.37 (G)	3.40	1.37	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(a)pyrene	mg/kg	0.474	1.13 (G)	2.60	1.13	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(b)fluoranthene	mg/kg	0.499	1.06 (G)	2.30	1.06	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(g,h,i)perylene	mg/kg	0.332	0.764 (G)	1.90	0.764	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Benzo(k)fluoranthene	mg/kg	0.412	1.01 (G)	2.30	1.01	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Chrysene	mg/kg	0.586	1.38 (G)	3.30	1.38	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Dibenzo(a,h)anthracene	mg/kg	0.110	0.140 (G)	0.64 J	0.14	mg/kg	95% KM(BCA) UCL	PRO UCL 4.04
	Indeno(1,2,3-cd)pyrene	mg/kg	0.292	0.677 (G)	1.70	0.677	mg/kg	95% KM(Chebyshev) UCL	PRO UCL 4.04
	Dieldrin	mg/kg	0.019	0.027 (G)	0.066	0.027	mg/kg	95% KM(Percentile Bootstrap) UCL	PRO UCL 4.04
	Total Aroclors	mg/kg	0.227	0.456 (G)	2.93 J	0.456	mg/kg	95% KM(BCA) UCL	PRO UCL 4.04
	Aluminum	mg/kg	11558	13141 (N)	21100	13141	mg/kg	Student-t UCL	PRO UCL 4.04
	Arsenic	mg/kg	14.2	15.2 (N)	18.0	15.2	mg/kg	Student-t UCL	PRO UCL 4.04
	Beryllium	mg/kg	0.43	0.48 (NP)	0.710	0.48	mg/kg	95% Modified-t UCL	PRO UCL 4.04
	Chromium	mg/kg	16.3	18.3 (N)	27.7	18.3	mg/kg	Student-t UCL	PRO UCL 4.04
	Cobalt	mg/kg	62.1	88.1(G)	204	88.1	mg/kg	Approximate Gamma 95% UCL	PRO UCL 4.04
	Iron	mg/kg	25309	27909 (N)	42800	27909	mg/kg	Student-t UCL	PRO UCL 4.04
	Lead	mg/kg	1797	5829 (L)	27200	1797	mg/kg	Arithmetic Mean	(1)
	Manganese (Soil)	mg/kg	928	1301 (G)	2500	1301	mg/kg	Approximate Gamma 95% UCL	PRO UCL 4.04
	Vanadium	mg/kg	22.9	27.2 (N)	40.5	27.2	mg/kg	Student-t UCL	PRO UCL 4.04

For duplicate sample results, the average value was used in the calculation.
G = Gamma
N = Normal
NP = Non-parametric
L = Lognormal
1 - Mean concentration is used as exposure point concentration for evaluating exposures to lead.
USEPA, 1994:Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for lead in Children

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.8.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Fish Tissue

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean[1]	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 8	4,4'-DDE	mg/kg	0.312	0.648 (L)	0.652	0.648	mg/kg	Student's-t UCL	PRO UCL 4.04
	4,4'-DDT	mg/kg	NA	NA	0.021 J	0.021	mg/kg	Maximum Detected Concentration	(1)
	Aldrin	mg/kg	0.001	0.002 (NP)	0.002 J	0.002	mg/kg	95% KM(T) UCL	PRO UCL 4.04
	Dieldrin	mg/kg	0.015	0.039 (G)	0.040	0.039	mg/kg	Approximate Gamma 95% UCL	PRO UCL 4.04
	Total Aroclors	mg/kg	0.287	0.608 (G)	0.654	0.608	mg/kg	Approximate Gamma 95% UCL	PRO UCL 4.04
	Arsenic	mg/kg	0.003	0.005 (N)	0.006	0.005	mg/kg	Student's-t UCL	PRO UCL 4.04
	Chromium	mg/kg	1.94	3.27 (N)	4.19 J	3.27	mg/kg	Student's-t UCL	PRO UCL 4.04
	Mercury	mg/kg	0.056	0.100 (N)	0.112	0.1	mg/kg	Student's-t UCL	PRO UCL 4.04

For duplicate sample results, the average value was used in the calculation.
G = Gamma
L = Lognormal
N = Normal
NP = Non-parametric
1 - Only one detected concentration. Meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

RAGS Part D Table 4

Values Used For Daily Intake Calculations

LIST OF TABLES
RAGS PART D TABLE 4
VALUES USED FOR DAILY INTAKE CALCULATIONS

Table No.

Reasonable Maximum Exposures

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4.2.RME Construction Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.3.RME Construction Workers Exposed to Groundwater
4.4.RME Construction Workers Exposed to Volatile Emissions from Groundwater
4.5.RME Industrial Workers Exposed to Surface Soil/Subsurface Soil
4.6.RME Industrial Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.7.RME Adolescent Trespassers Exposed to Surface Soil/Subsurface Soil
4.8.RME Adolescent Trespassers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.9.RME Adolescent Trespassers Exposed to Surface Water
4.10.RME Adolescent Trespassers Exposed to Sediment
4.11.RME Child Recreational Users Exposed to Surface Soil/Subsurface Soil
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4.15.RME Child Recreational Users Exposed to via Ingestion of Fish
4.16.RME Adult Recreational Users Exposed to Surface Soil/Subsurface Soil
4.17.RME Adult Recreational Users Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.18.RME Adult Recreational Users Exposed to Surface Water
4.19.RME Adult Recreational Users Exposed to Sediment
4.20.RME Adult Recreational Users Exposed to via Ingestion of Fish
4.21.RME Child Residents Exposed to Surface Soil/Subsurface Soil
4.22.RME Child Residents Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.23.RME Child Residents Exposed to Groundwater
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4.25.RME Adult Residents Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.26.RME Adult Residents Exposed to Groundwater

Central Tendency Exposures

4.1.RME Construction Workers Exposed to Surface Soil/Subsurface Soil
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4.3.RME Construction Workers Exposed to Groundwater
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4.6.RME Industrial Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.7.RME Adolescent Trespassers Exposed to Surface Soil/Subsurface Soil
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4.12.RME Child Recreational Users Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.13.RME Child Recreational Users Exposed to Surface Water
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4.15.RME Child Recreational Users Exposed to via ingestion of fish
4.16.RME Adult Recreational Users Exposed to Surface Soil/Subsurface Soil
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4.21.RME Child Residents Exposed to Surface Soil/Subsurface Soil
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4.24.RME Adult Residents Exposed to Surface Soil/Subsurface Soil
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4.27 Dermal Worksheet

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS- SOILS

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	330	mg/day	USEPA, 2002b	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	130	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.3	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	130	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes 5 days a week over six months.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual. Part A.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10. December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 2.40E-08 Cancer Dermal Intake = 7.20E-08

Noncancer Ingestion Intake = 1.68E-06 Noncancer Dermal Intake = 5.04E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	130	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	$CA = (1/PEF + 1/VF) \times Cs$
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.40E+06	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	

Notes:

1 - Professional judgment. Assumes 5 days a week over six months.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 1.70E-03 Noncancer Unit Exposure Concentration = 1.19E-01

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - GROUNDWATER
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	Site 08	CGW	Chemical Concentration in Groundwater	Maximum	ug/L	USEPA Region I, 1999	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	0.05	L/day	(1)	CGW x CF x IR-GW x EF x ED / BW x AT
				EF	Exposure Frequency	130	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	Site 08	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA / BW x AT
				CF	Conversion factor	0.001	L/cm^3	--	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t^*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	8	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t^*
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt((6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	130	days/year	(1)	For organics if tevent > t^*
				ED	Exposure Duration	1	years	(1)	DAevent =FA x Kp x Cw x CF x (tevent/(t+B) +
				BW	Body Weight	70	kg	USEPA, 1997	2 x τ +(t + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes 5 days a week over six months.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA Region I, 1999. Risk Updates, Number 5.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Dermal Intake = 2.40E-01 Noncancer Dermal Intake = 1.68E+01

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.4.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - GROUNDWATER TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	VDEQ, 2004	Exposure Concentration (mg/m^3) =
				CW	Chemical concentration in water.	Average	ug/L	--	
				CF	Conversion Factor	0.001	mg/ug	--	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				ET	Exposure Time	8	hours/day	(1)	
				EF	Exposure Frequency	130	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	CA = CW x CF x VF
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				VF	Volatilization Factor	Calculated	(mg/m3)/(mg/L)	VDEQ, 2004	

Notes:

1 - Professional judgment. Assumes 5 days a week over six months.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

VDEQ, 2004: Virginia Department of Environmental Quality (VDEQ, online- http://www.deq.state.va.us/vrprisk/homepage.html).

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 1.70E-06 Noncancer Unit Exposure Concentration = 1.19E-04

Cancer risk from inhalation = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from inhalation = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.5.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2004	BW x AT
				EF	Exposure Frequency	250	days/year	USEPA, 2004; RIDEM, 2004	
				ED	Exposure Duration	25	years	USEPA, 1997; RIDEM, 2004	
				BW	Body Weight	70	kg	USEPA, 1997; RIDEM, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989; RIDEM, 2004	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989; RIDEM, 2004	
Dermal	Industrial Worker	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	250	days/year	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

RIDEM, 2004: Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 3.49E-07 Cancer Dermal Intake = 2.31E-06

Noncancer Ingestion Intake = 9.78E-07 Noncancer Dermal Intake = 6.46E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Worker	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$
				EF	Exposure Frequency	250	days/year	USEPA, 1997	
				ED	Exposure Duration	25	years		
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x CS
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatillzation Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Length of typical work day.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT)

Cancer Unit Exposure Concentration = 8.15E-02 Noncancer Unit Exposure Concentration = 2.28E-01

Cancer risk from Ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.7.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADOLESCENT TRESPASSERS - SOILS

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	Site 08	.CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1997	BW x AT
				EF	Exposure Frequency	48	days/year	(1)	
				ED	Exposure Duration	12	years	(2)	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4380	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	4050	cm2	(3)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.4	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	48	days/year	(1)	
				ED	Exposure Duration	12	years	(2)	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4380	days	USEPA, 1989	

Notes:

1 - Assumes four days a week for 12 weeks.

2 - Older child from age 7 to 18.

3 - Assumes 31 percent of the average total surface area of 1.31 m^2 for females and males, ages 7 through 17 years.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 4.51E-08 Cancer Dermal Intake = 7.30E-07

Noncancer Ingestion Intake = 2.63E-07 Noncancer Dermal Intake = 4.26E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.8.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADOLESCENT TRESPASSERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespasser	Adolescent	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	48	days/year	(1)	
				ED	Exposure Duration	12	years	(2)	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,380	days	USEPA, 1989	CA = (1/PEF + 1/VF) x CS
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Assumes four days a week for 12 weeks.

2 - Older child from age 7 to 18.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 7.51E-03 Noncancer Unit Exposure Concentration = 4.38E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.9.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Trespasser	Adolescent	Site 08	DAevent	Absorbed dose per event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Water	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	$\frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	t	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	4,050	cm2	(2)	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	48	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	12	years	(3)	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,380	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes one hour a day for four days a week over 12 weeks.

2 - Assumes 31 percent of the average total surface area of 1.31 m^2 for females and males, ages 7 through 17 years.

3 - Older child from age 7 to 18.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund [Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (CR x CF x ET x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 0.00E+00

Noncancer Ingestion Intake = 0.00E+00

Cancer Dermal Intake = 1.83E+00

Noncancer Dermal Intake = 1.07E+01

Cancer risk from dermal contact = Surface Water concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from dermal contact = Surface Water concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.10.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(1)	BW x AT
				EF	Exposure Frequency	48	days/year	(1)	
				ED	Exposure Duration	12	years	(2)	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,380	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	4,050	cm2	(3)	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	1.0	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	(1)	
				EF	Exposure Frequency	48	days/year	(1)	
				ED	Exposure Duration	12	years	(2)	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,380	days	USEPA, 1989	

Notes:

1 - Assumes four days a week for 12 weeks.

2 - Older child from age 7 to 18.

3 - Assumes 31 percent of the average total surface area of 1.31 m^2 for females and males, ages 7 through 17 years.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 4.51E-08

Noncancer Ingestion Intake = 2.63E-07

Cancer Dermal Intake = 1.83E-06

Noncancer Dermal Intake = 1.07E-05

TABLE 4.t1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
Dermal	Recreational User	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - Assumes four days for twelve weeks.

2 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1889: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 1.50E-07 Cancer Dermal Intake (Age 0 - 6) = 4.21E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 5.01E-08 Cancer Dermal Intake (Age 0 - 2) = 1.40E-07

Cancer Ingestion Intake (Age 2 - 6) = 1.00E-07 Cancer Dermal Intake (Age 2 - 6) = 2.81E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.75E-06 Noncancer Dermal Intake = 4.91E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.12.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Child	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times IR \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x CS
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Assumes four days for twelve weeks.

2 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 0 - 6) = 3.76E-03

Noncarcinogenic Chemicals

Noncancer Unit Exposure Concentration = 4.38E-02

Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 0 - 2) = 3.01E-02

Cancer Unit Exposure Concencentration (Age 2 - 6) = 6.01E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.13.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SURFACE WATER

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Child	Site 08	DAevent	Absorbed dose per event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Water	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA / BW x AT
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	1	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	48	days/year	(1)	For organics if tevent > t*
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes one hour a day for four days a week over 12 weeks.

2 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10. December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (CR x CF x ET x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 0.00E+00 Cancer Dermal Intake (Age 0 - 6) = 2.10E+00

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 0.00E+00 Cancer Dermal Intake (Age 0 - 2) = 7.01E-01

Cancer Ingestion Intake (Age 2 - 6) = 0.00E+00 Cancer Dermal Intake (Age 2 - 6) = 1.40E+00

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 0.00E+00 Noncancer Dermal Intake = 2.45E+01

Cancer risk from ingestion = Surface Water concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Surface Water concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Surface Water concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Surface Water concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.14.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SEDIMENT
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Recreational User	Child	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes four days a week over 12 weeks.

2 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005)

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285 6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 1.50E-07 Cancer Dermal Intake (Age 0 - 2) = 4.21E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 5.01E-08 Cancer Dermal Intake (Age 0 - 2) = 1.40E-07

Cancer Ingestion Intake (Age 2 - 6) = 1.00E-07 Cancer Dermal Intake (Age 2 - 6) = 2.81E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.75E-06 Noncancer Dermal Intake = 4.91E-06

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.15.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Finfish/Shellfish

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 08	CFish	Chemical Concentration in Fish	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR	Ingestion Rate of fish/shellfish	0.00433	kg/meal	(1)	$\frac{CFish \times IR \times FI \times EF \times ED}{BW \times AT}$
				FI	Fraction ingested from source	1	unitless	(2)	
				EF	Exposure Frequency	350	meals/year	USEPA, 1997	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes

1 -Adult fish ingestion rates represent the 90th percentile and arithmetic mean ingestion rates for recreational freshwater anglers (all waters, all household consumers sharing catch) reported in the E.S. Ebert et al, "Estimating Consumption of Freshwater Fish among Maine Anglers" North American Journal of Fisheries Management 13: 737-745, 1993., Child ingestion rates represent 1/3 of the adult ingestion rate.

2 - Professional judgment. Assumes 3 meals per week during summer months.

3 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. U.S. EPA/540/1-86/060.

U.S. EPA, 1997: Exposure Factors Handbook. U.S. EPA/600/P-95/002Fa.

U.S. EPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Ingestion Intake = (IR x FI x EF x ED)/(BW x AT)

Cancer Ingestion Intake (Age 0 - 2) = 7.91E-06

Cancer Ingestion Intake Age 2 - 6) = 1.58E-05

Noncancer Ingestion Intake = 2.77E-04

Cancer risk from ingestion = Fish tissue concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Hazard Index from ingestion = Fish tissue concentration x Noncancer Ingestion Intake / Oral Reference Dose

TABLE 4.16.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1987	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1987	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Assumes four days for twelve weeks.

2 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 6.44E-08 Cancer Dermal Intake (Age 6 - 30) = 2.57E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 2.68E-08 Cancer Dermal Intake (Age 6 - 16) = 1.07E-07

Cancer Ingestion Intake Age 16 - 30) = 3.76E-08 Cancer Dermal Intake (Age 16 - 30) = 1.50E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.88E-07 Noncancer Dermal Intake = 7.50E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.17.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times IR \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x CS
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Assumes four days for twelve weeks.

2 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 6 - 30) = 1.50E-02

Noncarcinogenic Chemicals

Noncancer Unit Exposure Concentration = 4.38E-02

Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 6 - 16) = 6.26E-03

Cancer Unit Exposure Concencentration (Age 16 - 30) = 8.77E-03

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.18.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SURFACE WATER

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Site 08	DAevent	Absorbed dose per event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Water	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA / BW x AT
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	1	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	6,880	cm2	(2)	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	48	days/year	(1)	For organics if tevent > t*
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	2 x τ +{1 + 3B + $3B^2$)/(1+B^2)}
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Avaraging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Assumes one hour a day for four days over twelve weeks.

2 - Assumes 38 percent of the total body surface area.

3 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10. December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (CR x CF x ET x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 0.00E+00 Cancer Dermal Intake (Age 6 - 30) = 4.43E+00

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 0.00E+00 Cancer Dermal Intake (Age 6 - 16) = 1.85E+00

Cancer Ingestion Intake (Age 16 - 30) = 0.00E+00 Cancer Dermal Intake (Age 16 - 30) = 2.59E+00

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 0.00E+00 Noncancer Dermal Intake = 1.29E+01

Cancer risk from ingestion = Surface Water concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Surface Water concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Surface Water concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Surface Water concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.19.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SEDIMENT
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CSx IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	6,880	cm2	(3)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	48	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Assumes four days for twelve weeks.

2 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

3 - Assumes 38 percent of total body surface area.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 6.44E-08 Cancer Dermal Intake (Age 6 - 30) = 3.10E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 2.68E-08 Cancer Dermal Intake (Age 6 - 16) = 1.29E-07

Cancer Ingestion Intake Age 16 - 30) = 3.76E-08 Cancer Dermal Intake Age 16 - 30) = 1.81E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.88E-07 Noncancer Dermal Intake = 9.05E-07

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.20.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Finfish/Shellfish

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 08	CFish	Chemical Concentration in Fish	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR	Ingestion Rate of fish/shellfish	0.013	kg/meal	(1)	$\frac{CFish \times IR \times FI \times EF \times ED}{BW \times AT}$
				FI	Fraction Ingested from source	1	unitless	(2)	
				EF	Exposure Frequency	350	meals/year	USEPA, 1997	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	

Notes

1 -Adult fish ingestion rates represent the 90th percentile ingestion rates for recreational freshwater anglers (all waters, all household consumers sharing catch) reported in the E.S. Ebert et al, "Estimating Consumption of Freshwater Fish among Maine Anglers" North American Journal of Fisheries Management 13: 737-745, 1993.

2 - Professional judgment. Assumes 3 meals per week during summer months.

3 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. U.S. EPA/540/1-86/060.

U.S. EPA, 1997: Exposure Factors Handbook. U.S. EPA/600/P-95/002Fa.

U.S. EPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Ingestion Intake = (IR x FI x EF x ED)/(BW x AT)

Cancer Ingestion Intake (Age 6 - 16) = 2.54E-05

Cancer Ingestion Intake Age 16 - 30) = 3.56E-05

Noncancer Ingestion Intake = 1.78E-04

Cancer risk from ingestion = Fish tissue concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Hazard Index from ingestion = Fish tissue concentration x Noncancer Ingestion Intake / Oral Reference Dose

TABLE 4.21.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1997;RIDEM, 2004	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2004;RIDEM, 2004	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997;RIDEM, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989;RIDEM, 2004	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989;RIDEM, 2004	
Dermal	Resident	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children were evaluated as one age group (0 - 8 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

RIDEM, 2004: Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.

Unit Intake Calculetfons

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 8) = 1.10E-06 Cancer Dermal Intake (Age 0 - 6) = 3.07E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 3.65E-07 Cancer Dermal Intake (Age 0 - 2) = 1.02E-06

Cancer Ingestion Intake (Age 2 - 6) = 7.31E-07 Cancer Dermal Intake (Age 2 - 6) = 2.05E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.28E-05 Noncancer Dermal Intake = 3.58E-05

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.22.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 2002a	$\frac{CA \times IET \times EF \times ED}{AT \times 24 \text{ hours/day}}$
				EF	Exposure Frequency	350	days/year	USEPA, 2002a;RIDEM, 2004	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x CS
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Philadelphia, Pennsylvania.

RIDEM, 2004: Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 0 - 6) = 8.22E-02

Noncarcinogenic Chemicals

Noncancer Unit Exposure Concentration = 9.59E-01

Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 0 - 2) = 2.74E-02

Cancer Unit Exposure Concencentration (Age 2 - 6) = 5.48E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.23.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - GROUNDWATER
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Child	Site 08	CGW	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	1.4	L/day	USEPA, 1997	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1987	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Residents	Child	Site 08	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	1.0	hr/event	USEPA, 2004	
				B	Bunge modal constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi)
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	For organics if tevent > t*
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x (tevent/(1+B) +
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	2 x τ +(t + 3B + 3B^2)/(1+B^2)
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A, EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 7.67E-06 Cancer Dermal Intake (Age 0 - 6) = 3.62E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 2.56E-06 Cancer Dermal Intake (Age 0 - 2) = 1.21E+01

Cancer Ingestion Intake (Age 2 - 6) = 5.11E-06 Cancer Dermal Intake (Age 2 - 6) = 2.41E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 8.95E-05 Noncancer Dermal Intake = 4.22E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.24.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997; RIDEM, 2004	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1997; RIDEM, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989; RIDEM, 2004	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989; RIDEM, 2004	
Dermal	Resident	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1997: Exposure Factors Handbook, EPA/600/8-95/002FA.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

RIDEM, 2004: Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x EO)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 4.70E-07 Cancer Dermal Intake (Age 6 - 30) = 1.87E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.96E-07 Cancer Dermal Intake (Age 6 - 16) = 7.81E-07

Cancer Ingestion Intake (Age 16 - 30) = 2.74E-07 Cancer Dermal Intake (Age 16 - 30) = 1.09E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.37E-06 Noncancer Dermal Intake = 5.47E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.25.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 2002a	CA x ET x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2002a; RIDEM, 2004	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x CS
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol I: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

RIDEM, 2004: Rhode Island Department of Environmental Management, DEM-DSR-01-93, February 2004.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 6 - 30) = 3.29E-01

Noncarcinogenic Chemicals

Noncancer Unit Exposure Concentration = 9.59E-01

Mutagenic Chemicals

Cancer Unit Exposure Concencentration (Age 6 - 16) = 1.37E-01

Cancer Unit Exposure Concencentration (Age 16 - 30) = 1.92E-01

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.26 RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - GROUNDWATER
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Adult	Site 08	CGW	Chemical Concentration in Groundwater	95% UCL or Max	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	2	L/day	USEPA, 1997	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Residents	Adult	Site 08	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.58	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	For organics if tevent > t*
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 9.39E-06 Cancer Dermal Intake (Age 6 - 30) = 8.45E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 3.91E-06 Cancer Dermal Intake (Age 6 - 16) = 3.52E+01

Cancer Ingestion Intake (Age 16 - 30) = 5.48E-06 Cancer Dermal Intake (Age 16 - 30) = 4.93E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.74E-05 Noncancer Dermal Intake = 2.47E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.1.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - SOILS

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	330	mg/day	USEPA, 2002b	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	t	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	52	days/year	(1)	
				ED	Exposure Duration	t	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.00000t	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2002b	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.t	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(t)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes 2 days a week over six months.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 9.59E-09 Cancer Dermal Intake = 9.59E-09

Noncancer Ingestion Intake = 6.72E-07 Noncancer Dermal Intake = 6.72E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$
				EF	Exposure Frequency	52	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.40E+06	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	

Notes:

1 - Professional judgment. Assumes 2 days a week over six months.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 6.78E-04 Noncancer Unit Exposure Concentration = 4.75E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.3.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - GROUNDWATER

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	Site 08	CGW	Chemical Concentration in Groundwater	Average	ug/L	USEPA Region I, 1999	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	0.025	L/day	(1)	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	52	days/year	(1)	BW x AT
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	Site 08	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	DAevent x EV x EF x ED x SA
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	BW x AT
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	For inorganics
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				t^*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	
				tevent	Duration of event	4	hr/event	(1)	For organics if tevent <= t^*
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi[
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	52	days/year	(1)	For organics if tevent > t^*
				ED	Exposure Duration	1	years	(1)	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	70	kg	USEPA, 1989	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes 5 days a week over six months.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA Region I, 1999. Risk Updates, Number 5.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Dermal Intake = 9.59E-02 Noncancer Dermal Intake = 6.72E+00

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.4.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - GROUNDWATER TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	VDEQ, 2004	Exposure Concentration (mg/m^3) =
				CW	Chemical concentration in water.	Average	ug/L	--	
				CF1	Conversion Factor	0.001	mg/ug	--	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				ET	Exposure Time	4	hours/day	(1)	
				EF	Exposure Frequency	52	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	CA = CW x CF x VF
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				VF	Volatilization Factor	Calculated	(mg/m3)/(mg/L)	VDEQ, 2004	

Notes:

1 - Professional judgment. Assumes 5 days a week over six months.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

VDEQ, 2004: Virginia Department of Environmental Quality (VDEQ, online- http://www.deq.state.va.us/vrprisk/homepage.html).

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 3.39E-07 Noncancer Unit Exposure Concentration = 2.37E-05

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.5.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	219	days/year	USEPA, 1993	
				ED	Exposure Duration	9	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
Dermal	Industrial Worker	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	219	days/year	USEPA, 1993	
				ED	Exposure Duration	9	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 5.51E-08 Cancer Dermal Intake = 7.27E-08

Noncancer Ingestion Intake = 4.29E-07 Noncancer Dermal Intake = 5.66E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Worker	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	219	days/year	USEPA, 1997	
				ED	Exposure Duration	9	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	$CA = (t/PEF + t/VF) \times CS$
				AT-N	Averaging Time (Non-Cancer)	3,285	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Length of typical work day.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 2.57E-02 Noncancer Unit Exposure Concentration = 2.00E-01

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADOLESCENT TRESPASSERS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1997	BW x AT
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	6	years	USEPA, 1997	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	4050	cm2	(2)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	6	years	USEPA, 1997	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - Assumes two days a week for 12 weeks.

2 - Assumes 31 percent of the average total surface area of 1.31 m^2 for females and males, ages 7 through 17 years.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 5.64E-09 Cancer Dermal Intake = 1.83E-08

Noncancer Ingestion Intake = 6.58E-08 Noncancer Dermal Intake = 2.13E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.8.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADOLESCENT TRESPASSERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespasser	Adolescent	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	12	years	(2)	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x CS
				AT-N	Averaging Time (Non-Cancer)	4,380	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Assumes two days a week for 12 weeks.

2 - Older child from age 7 to 18.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.88E-03 Noncancer Unit Exposure Concentration = 1.10E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.9.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Trespasser	Adolescent	Site 08	DAevent	Absorbed dose per event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Water	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	$\frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.5	hours/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	4,050	cm2	(2)	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	24	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	6	years	USEPA, 1997	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	50	kg	USEPA, 1997	2 x τ +(t + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes half an hour a day for two days a week over 12 weeks.

2 - Assumes 31 percent of the average total surface area of 1.31 m^2 for females and males, ages 7 through 17 years.

Sources:

U.S. EPA, 1988: Superfund Exposure Assessment Manual. EPA/540/1-99/001.

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

U.S. EPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (CR x CF x ET x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 0.00E+00

Noncancer Ingestion Intake = 0.00E+00

Cancer Dermal Intake = 4.57E-01

Noncancer Dermal Intake = 5.33E+00

Cancer risk from dermal contact = Surface Water concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from dermal contact = Surface Water concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.10.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(1)	BW x AT
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	6	years	USEPA, 1997	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	4,050	cm2	(2)	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	1.0	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	(1)	
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	6	years	USEPA, 1997	
				BW	Body Weight	50	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Assumes two days a week for 12 weeks.

2 - Assumes 31 percent of the average total surface area of 1.31 m^2 for females and males, ages 7 through 17 years.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 5.64E-09 Cancer Dermal Intake = 4.57E-07

Noncancer Ingestion Intake = 6.58E-08 Noncancer Dermal Intake = 5.33E-06

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.11.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Recreational User	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	50	days/year	(1)	
				ED	Exposure Duration	6	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - Assumes two days for twelve weeks.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 1.25E-08 Cancer Dermal Intake = 8.77E-08

Noncancer Ingestion Intake = 4.38E-07 Noncancer Dermal Intake = 1.02E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.12.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Child	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	2	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	$CA = (1/PEF + 1/VF) \times CS$
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Assumes two days for twelve weeks.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 3.13E-04 Noncancer Unit Exposure Concentration = 1.10E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.13.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SURFACE WATER/SEEPS

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Child	Site 08	DAevent	Absorbed dose per event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Water	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	$\frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.5	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	24	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	2	years	USEPA, 1997	DAevent =FA x Kp x Cw x CF x {tevent/(1+B) +
				BW	Body Weight	15	kg	USEPA, 1997	2 x τ +(t + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes half an hour a day for two days a week over 12 weeks.

Sources:

USEPA, 1988: Superfund Exposure Assessment Manual. EPA/540/1-99/001.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (CR x CF x ET x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT]

Cancer Ingestion Intake = 0.00E+00

Noncancer Ingestion Intake = 0.00E+00

Cancer Dermal Intake = 3.51E-01

Noncancer Dermal Intake = 1.23E+01

Cancer risk from ingestion = Surface Water concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Surface Water concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from Ingestion = Surface Water concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Surface Water concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.14.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SEDIMENT
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Recreational User	Child	Site 08	CS	Chemical concentration in sediment	Max or 85% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes two days a week over 12 weeks.

Sources:

USEPA, 1888: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 1.25E-08 Cancer Dermal Intake = 1.40E-08

Noncancer Ingestion Intake = 4.38E-07 Noncancer Dermal Intake = 4.91E-07

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.15.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Finfish/Shellfish

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 08	CFish	Chemical Concentration in Fish	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR	Ingestion Rate of fish/shellfish	0.00213	kg/meal	(1)	$\frac{CFish \times IR \times FI \times EF \times ED}{BW \times AT}$
				FI	Fraction ingested from source	1	unitless	(2)	
				EF	Exposure Frequency	350	meals/year	USEPA, 1997	
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes

1 -Adult fish ingestion rates represent the 90th percentile and arithmetic mean ingestion rates for recreational freshwater anglers (all waters, all household consumers sharing catch) reported in the E.S. Ebert et al, "Estimating Consumption of Freshwater Fish among Maine Anglers" North American Journal of Fisheries Management 13: 737-745, 1993., Child ingestion rates represent 1/3 of the adult ingestion rate.

2 - Professional judgment. Assumes 3 meals per week during summer months.

Sources:

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. U.S. EPA/540/1-86/060.

U.S. EPA, 1997: Exposure Factors Handbook. U.S. EPA/600/P-95/002Fa.

U.S. EPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Ingestion Intake = (IR x FI x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 8.34E-07 Noncancer Ingestion Intake = 2.92E-05

Cancer risk from ingestion = Fish tissue concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Hazard Index from ingestion = Fish tissue concentration x Noncancer Ingestion Intake / Oral Reference Dose

TABLE 4.16.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, t997	
				CF3	Conversion Factor 3	t.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	t	unitless	--	BW x AT
				EF	Exposure Frequency	24	days/year	(t)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, t997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, t997	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational User	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.0t	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	t	events/day	USEPA, 2004	
				EF	Exposure Frequency	24	days/year	(t)	
				ED	Exposure Duration	7	years	USEPA, t997	
				BW	Body Weight	70	kg	USEPA, t997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, t989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, t989	

Notes:

t - Assumes two days for twelve weeks.

Sources:

USEPA, t989: Risk Assessment Guidance for Superfund. Vol t: Human Health Evaluation Manual, Part A. EPA/540/t-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-t0, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 4.70E-09 Cancer Dermal Intake = 5.35E-09

Noncancer Ingestion Intake = 4.70E-08 Noncancer Dermal Intake = 5.35E-08

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.17.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	$\frac{CA \times IR \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x CS
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Notes:

1 - Assumes two days for twelve weeks.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 1.10E-03 Noncancer Unit Exposure Concentration = 1.10E-02

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.18.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SURFACE WATER

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Site 08	DAevent	Absorbed dose per event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Water	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	$\frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t^*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.5	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	
				SA	Skin Surface Available for Contact	6,880	cm2	(2)	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	For organics if tevent <= t^*
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	7	years	USEPA, 1997	For organics if tevent > t^*
				BW	Body Weight	70	kg	USEPA, 1997	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	$2 \times \tau \times (1 + 3B + 3B^2)/(1+B^2)$
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Assumes half an hour a day for two days over twelve weeks.

2 - Assumes 38 percent of the total body surface area.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (CR x CF x ET x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 0.00E+00

Noncancer Ingestion Intake = 0.00E+00

Cancer Dermal Intake = 6.46E-01

Noncancer Dermal Intake = 6.46E+00

Cancer risk from ingestion = Surface Water concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Surface Water concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Surface Water concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Surface Water concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.19.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SEDIMENT
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational User	Adult	Site 08	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	6,880	cm2	(2)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	7	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Assumes 2 days a week for 12 weeks.

2 - Assumes 38 percent of total body surface area.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 4.70E-09 Cancer Dermal Intake = 2.59E-08

Noncancer Ingestion Intake = 4.70E-08 Noncancer Dermal Intake = 2.59E-07

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.20.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Finfish/Shellfish

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 08	CFish	Chemical Concentration in Fish	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR	Ingestion Rate of fish/shellfish	0.0064	kg/meal	(1)	$\frac{CFish \times IR \times FI \times EF \times ED}{BW \times AT}$
				FI	Fraction ingested from source	t	unitless	(2)	
				EF	Exposure Frequency	350	meals/year	USEPA, 1997	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	

Notes

1 -Adult fish ingestion rates represent the arithmetic mean ingestion rates for recreational freshwater anglers (all waters, all household consumers sharing catch) reported in the E.S. Ebert et al, "Estimating Consumption of Freshwater Fish among Maine Anglers" North American Journal of Fisheries Management 13: 737-745, 1993.

2 - Professional judgment. Assumes 3 meals per week during summer months.

Sources:

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. U.S. EPA/540/1-86/060.

U.S. EPA, 1997: Exposure Factors Handbook. U.S. EPA/600/P-95/002Fa.

U.S. EPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Ingestion Intake = (IR x FI x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 8.77E-06 Noncancer Ingestion Intake = 8.77E-05

Cancer risk from ingestion = Fish tissue concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Hazard Index from ingestion = Fish tissue concentration x Noncancer Ingestion Intake / Oral Reference Dose

TABLE 4.21.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - SOILS

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 2002b	
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Resident	Child	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 2002b	
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 1.22E-07 Cancer Dermal Intake = 1.37E-07

Noncancer Ingestion Intake = 4.27E-06 Noncancer Dermal Intake = 4.79E-06

Cancer risk from Ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from Ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.22.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 2002a	CA x ET x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 2002a	AT x 24 hours/day
				ED	Exposure Duration	2	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x CS
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Philadelphia, Pennsylvania.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 1.83E-02 Noncancer Unit Exposure Concentration = 6.41E-01

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.23.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - GROUNDWATER

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE tSLAND

Scenario Timetrame: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Child	Site 08	CGW	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				tR-GW	Ingestion Rate of Groundwater	0.74	t/day	USEPA, 1997	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED	Exposure Duration	2	years	USEPA, 1997	
				BW	Body Weight	15	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Residents	Child	Site 08	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Frection Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	t/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration ot event	0.33	hr/event	USEPA, 1997	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available tor Contact	6,600	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	For organics if tevent > t*
				ED	Exposure Ouration	2	years	USEPA, 1997	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	15	kg	USEPA, 1997	2 x τ +(1 + 3B + 3B^2)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund, Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa

USEPA, 2002: Calculating Upper Confidence Limits tor Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, Decernber.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance tor Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 1.35E-06 Cancer Dermal Intake = 1.21E+01

Noncancer Ingestion Intake = 4.73E-05 Noncancer Dermal Intake = 4.22E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.24.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - SOILS
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Site 08	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	--	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 2002b	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Resident	Adult	Site 08	CS	Chemical concentration in soil	Mex or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 2002b	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 4.58E-08 Cancer Dermal Intake = 5.22E-08

Noncancer Ingestion Intake = 4.58E-07 Noncancer Dermal Intake = 5.22E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.25.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - SOILS TO AIR

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Site 08	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 2002a	$\frac{CA \times ET \times EF \times ED}{AT \times 24\ hours/day}$
				EF	Exposure Frequency	234	days/year	USEPA, 2002b	
				ED	Exposure Duration	7	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	$CA = (1/PEF + 1/VF) \times CS$
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2009	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	USEPA 2009	
				Um	Mean annual wind speed	3.84	m/sec	USEPA 2009	
				V	Fraction of vegetative cover	0.5	unitless	USEPA 2009	
				F(x)	Function dependent of Um/Ut	0.0345	unitless	USEPA 2009	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2009: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Unit Exposure Concentration = 6.41E-02 Noncancer Unit Exposure Concentration = 6.41E-01

Cancer risk from ingestion = Air concentration x Cancer Unit Exposure Concentration x Inhalation Unit Risk

Hazard Index from ingestion = Air concentration x Noncancer Unit Exposure Concentration / Inhalation Reference Concentration

TABLE 4.26.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - GROUNDWATER
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Adult	Site 08	CGW	Chemical Concentration in Groundwater	95% UCL or Max	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	1.29	L/day	USEPA, 1997	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Residents	Adult	Site 08	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	--	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.25	hr/event	USEPA, 1997	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi[
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	For organics if tevent > t*
				ED	Exposure Duration	7	years	USEPA, 1997	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	70	kg	USEPA, 1997	2 x τ +(1 + 3B + 3B^2)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 1.77E-06

Noncancer Ingestion Intake = 1.77E-05

Cancer Dermal Intake = 2.47E+01

Noncancer Dermal Intake = 2.47E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.27

INTERMEDIATE VARIABLES FOR CALCULATING DA(EVENT)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
			Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Volatile Organic Compounds												
1,1-Dichloroethane	Groundwater	NA	1	6.7E-03	cm/hr	(1)	hr	3.8E-01	hr	9.2E-01	hr	2.6E-02
1,2,4-Trimethylbenzene	Soil, Groundwater	0	1	8.4E-02	cm/hr	(1)	hr	4.9E-01	hr	1.2E+00	hr	3.5E-01
1,3,5-Trimethylbenzene	Soil, Groundwater	0	1	6.1E-02	cm/hr	(1)	hr	4.9E-01	hr	1.2E+00	hr	2.6E-01
Bromomethane	Groundwater	NA	1	2.8E-03	cm/hr	(1)	hr	3.6E-01	hr	8.7E-01	hr	1.1E-02
Carbon Tetrachloride	Groundwater	NA	1	1.6E-02	cm/hr	(1)	hr	7.8E-01	hr	1.9E+00	hr	7.8E-02
Chloroform	Groundwater	NA	1	6.8E-03	cm/hr	(1)	hr	5.0E-01	hr	1.2E+00	hr	2.9E-02
Chloromethane	Groundwater	NA	1	3.3E-03	cm/hr	(1)	hr	2.0E-01	hr	4.9E-01	hr	9.0E-03
Ethylbenzene	Groundwater	NA	1	4.9E-02	cm/hr	(1)	hr	4.2E-01	hr	1.0E+00	hr	2.0E-01
Isopropylbenzene	Groundwater	NA	1	8.8E-02	cm/hr	(1)	hr	4.9E-01	hr	1.2E+00	hr	3.7E-01
Tetrachloroethene	Groundwater	NA	1	3.3E-02	cm/hr	(1)	hr	9.1E-01	hr	2.2E+00	hr	1.7E-01
Total Xylenes	Groundwater	NA	1	4.6E-02	cm/hr	(1)	hr	4.1E-01	hr	9.9E-01	hr	1.8E-01
Trichloroethene	Groundwater	NA	1	1.2E-02	cm/hr	(1)	hr	5.8E-01	hr	1.4E+00	hr	5.1E-02
Vinyl Chloride	Groundwater	NA	1	5.6E-03	cm/hr	(1)	hr	2.4E-01	hr	5.7E-01	hr	1.7E-02
Semivolatile Organic Compounds												
Acenaphthene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	Soil, Groundwater, Sediment	0.13	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]	NA[(2)]
Benzo(g,h,i)perylene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	Soil, Sediment	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Soil	0.13	1	4.7E-02	cm/hr	(1)	hr	5.6E-01	hr	1.3E+00	hr	2.0E-01
Phenanthrene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	Soil	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs												
Dieldrin	Groundwater, Surface Water, Sediment	0.1	0.8	1.2E-02	cm/hr	(1)	hr	1.5E+01	hr	3.5E+01	hr	9.2E-02
Total Aroclors	Soil, Sediment	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4.27

INTERMEDIATE VARIABLES FOR CALCULATING DA(EVENT)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
			Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Inorganics												
Aluminum	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Antimony	Soil	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	Soil, Groundwater, Surface Water, Sediment	0.03	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Barium	Groundwater	NA	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Beryllium	Soil, Groundwater, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Cadmium	Soil	0.001	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Chromium	Soil, Groundwater, Sediment	0	1	2.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Cobalt	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Copper	Soil, Groundwater	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Iron	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Lead	Soil, Groundwater, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Manganese	Soil, Groundwater, Surface Water, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Mercury	Groundwater	NA	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Molybdenum	Soil, Groundwater, Surface Water	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Nickel	Groundwater	NA	1	2.0E-04	cm/hr	NA	NA	NA	NA	NA	NA	NA
Thallium	Soil, Groundwater, Surface Water	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Vanadium	Soil, Groundwater, Sediment	0	1	1.0E-03	cm/hr	NA	NA	NA	NA	NA	NA	NA
Zinc	Soil, Groundwater	0	1	6.0E-04	cm/hr	NA	NA	NA	NA	NA	NA	NA

Notes:
All values from EPA's Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004.
1 - T(event) is 8 hrs for RME and 2 hrs for CTE for the construction worker, 1 hr for RME and 0.5 hrs for and recreational users and adolescent trespassers; and 0.33 hrs for RME and 0.25 hr for CTE for hypothetical residents.
2 - RAGS Part E recommends not attempting to quantify risk because contaminants are outside the effective predictive domain of the model.
FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water
T(event) = Event Duration
Tau = Lag Time
T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis
NA = Not applicable.

RAGS Part D Table 5

Non-Cancer Toxicity Data

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RAGS PART D TABLE 5
NON-CANCER TOXICITY DATA

Table No.

5-1	Non-Cancer Toxicity Data - Oral/Dermal
5-2	Non-Cancer Toxicity Data - Inhalation

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds										
1,1-Dichloroethane	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Kidney, CNS	3000/1	PPRTV	9/27/2006
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	Chronic	5.0E-02	mg/kg/day	1	5.0E-02	mg/kg/day	Body Weight, Kidney, Liver	3000/1	PPRTV	8/2003
Bromomethane	Chronic	1.4E-03	mg/kg/day	1	1.4E-03	mg/kg/day	GS	1000/1	IRIS	2/2/2009
Carbon Tetrachloride	Chronic	7.0E-04	mg/kg/day	1	7.0E-04	mg/kg/day	Liver	1000/1	IRIS	2/2/2009
Chloroform	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	100/1	IRIS	2/2/2009
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	Chronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver, Kidney	1000/1	IRIS	2/2/2009
Isopropylbenzene	Chronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Kidney	1000/1	IRIS	2/2/2009
Tetrachloroethene	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	1000/1	IRIS	2/2/2009
Total Xylenes	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Body Weight	1000/1	IRIS	2/2/2009
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	Chronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Liver	30/1	IRIS	2/2/2009
Semivolatile Organic Compounds										
Acenaphthene	Chronic	6.0E-02	mg/kg/day	1	6.0E-02	mg/kg/day	Blood	3000/1	IRIS	2/2/2009
Anthracene	Chronic	3.0E-01	mg/kg/day	1	3.0E-01	mg/kg/day	None Reported	3000/1	IRIS	2/2/2009
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene[3]	Chronic	3.0E-02	mg/kg/day	1	3.0E-02	mg/kg/day	Kidney	3000/1	IRIS	2/2/2009
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	Chronic	4.0E-02	mg/kg/day	1	4.0E-02	mg/kg/day	Liver	3000/1	IRIS	2/2/2009
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Chronic	2.0E-02	mg/kg/day	1	2.0E-02	mg/kg/day	Body Weight	3000/1	IRIS	2/2/2009
Phenanthrene[3]	Chronic	3.0E-02	mg/kg/day	1	3.0E-02	mg/kg/day	Kidney	3000/1	IRIS	2/2/2009
Pyrene	Chronic	3.0E-02	mg/kg/day	1	3.0E-02	mg/kg/day	Kidney	3000/1	IRIS	2/2/2009
Pesticides/PCBs										
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	Chronic	5.0E-04	mg/kg/day	1	5.0E-04	mg/kg/day	Liver	100/1	IRIS	2/2/2009
Aldrin	Chronic	3.0E-05	mg/kg/day	1	3.0E-05	mg/kg/day	Liver	1000/1	IRIS	2/2/2009
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	Chronic	2.0E-05	mg/kg/day	1	2.0E-05	mg/kg/day	Immune	300/1	IRIS	2/2/2009
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	Chronic	5.0E-05	mg/kg/day	1	5.0E-05	mg/kg/day	Liver	100/1	IRIS	2/2/2009
Inorganics										
Aluminum	Chronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	CNS	100	PPRTV	10/23/2006
Antimony										2/2/2009
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, CVS	3/1	IRIS	2/2/2009
Barium	Chronic	2.0E-01	mg/kg/day	0.07	1.4E-02	mg/kg/day	Kidney	300/1	IRIS	2/2/2009
Beryllium	Chronic	2.0E-03	mg/kg/day	0.007	1.4E-05	mg/kg/day	GS	300/1	IRIS	2/2/2009
Cadmium[4]	Chronic	5.0E-04	mg/kg/day	0.05	2.5E-05	mg/kg/day	Kidney	10/1	IRIS	2/2/2009
Chromium[5]	Chronic	3.0E-03	mg/kg/day	0.025	7.5E-05	mg/kg/day	Fetotoxicity, GS, Bone	300/3	IRIS	2/2/2009
Cobalt	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Blood	NA	ORNL	9/12/2008
Copper	Chronic	4.0E-02	mg/kg/day	1	4.0E-02	mg/kg/day	GS	NA	HEAST	7/1997

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Inorganics (continued)										
Iron	Chronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	GS	1.5	PPRTV	9/11/2006
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (soil)[6]	Chronic	7.0E-02	mg/kg/day	0.04	2.8E-03	mg/kg/day	CNS	1/1	IRIS	2/2/2009
Manganese (water)[6]	Chronic	2.4E-02	mg/kg/day	0.04	9.6E-04	mg/kg/day	CNS	1/3	IRIS	2/2/2009
Mercury[7]	Chronic	3.0E-04	mg/kg/day	0.07	2.1E-05	mg/kg/day	Autoimmune	1000/1	IRIS	2/2/2009
Methyl Mercury	Chronic	1.0E-04	mg/kg/day	1	1.0E-04	mg/kg/day	CNS	10/1	IRIS	2/2/2009
Molybdenum	Chronic	5.0E-03	mg/kg/day	1	5.0E-03	mg/kg/day	Gout	30/1	IRIS	2/2/2009
Nickel	Chronic	2.0E-02	mg/kg/day	0.04	8.0E-04	mg/kg/day	Body Weight	300/1	IRIS	2/2/2009
Thallium	Chronic	6.5E-05	mg/kg/day	1	6.5E-05	mg/kg/day	Blood	3000/1	ORNL	9/12/2008
Vanadium	Chronic	5.0E-03	mg/kg/day	0.026	1.3E-04	mg/kg/day	Kidney	300	ORNL	9/12/2008
Zinc	Chronic	3.0E-01	mg/kg/day	1	3.0E-01	mg/kg/day	Blood	3/1	IRIS	2/2/2009

Notes:
1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.
3 - Values are for pyrene.
4 - Values are for cadmium - water.
5 - Values are for hexavalent chromium.
6 - Adjusted IRIS value in accordance with USEPA Region I Risk Update Number 4, November 1996.
7 - Values are for mercuric chloride.

Definitions:
CNS = Central Nervous System
CVS = Cardiovascular system
GS = Gastrointestinal
HEAST = Health Effects Assessment Summary Tables
IRIS = Integrated Risk Information System
NA = Not Available.
ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds									
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	Chronic	7.0E-03	mg/m3	2.0E-03	(mg/kg/day)	Blood	3000/1	PPRTV	6/11/2007
1,3,5-Trimethylbenzene	Chronic	6.0E-03	mg/m3	1.7E-03	(mg/kg/day)	CNS	3000/1	PPRTV	8/2003
Bromomethane	Chronic	5.0E-03	mg/m3	1.4E-03	(mg/kg/day)	Respiratory	100/1	IRIS	2/2/2009
Carbon Tetrachloride	Chronic	1.9E-01	mg/m3	5.4E-02	(mg/kg/day)	Liver	NA	ATSDR	9/12/2008
Chloroform	Chronic	9.8E-02	mg/m3	2.8E-02	(mg/kg/day)	Liver	NA	ATSDR	9/12/2008
Chloromethane	Chronic	9.0E-02	mg/m3	2.6E-02	(mg/kg/day)	CNS	1000/1	IRIS	2/2/2009
Ethylbenzene	Chronic	1.0E+00	mg/m3	2.9E-01	(mg/kg/day)	Developmental	300/1	IRIS	2/2/2009
Isopropylbenzene	Chronic	4.0E-01	mg/m3	1.1E-01	(mg/kg/day)	Kidney	1000/1	IRIS	2/2/2009
Tetrachloroethene	Chronic	2.7E-01	mg/m3	7.7E-02	(mg/kg/day)	Liver	NA	ORNL	9/12/2008
Total Xylenes	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	CNS	300/1	IRIS	2/2/2009
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Liver	30/1	IRIS	2/2/2009
Semivolatile Organic Compounds									
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene[3]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Chronic	3.0E-03	mg/m^3	8.6E-04	(mg/kg/day)	Respiratory	3000/1	IRIS	2/2/2009
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs									
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[(1)]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Pesticides/PCBs (continued)									
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics									
Aluminum	Chronic	5.0E-03	mg/m3	1.4E-03	(mg/kg/day)	CNS	300	PPRTV	10/23/2006
Arsenic	Chronic	3.00E-05	mg/m3	8.6E-06	(mg/kg/day)	NA	NA	ORNL	9/12/2008
Barium	Chronic	5.0E-04	mg/m3	1.4E-04	(mg/kg/day)	Fetotoxicity	1000/1	HEAST	9/97
Beryllium	Chronic	2.0E-05	mg/m3	5.7E-06	(mg/kg/day)	Respiratory	10/1	IRIS	2/2/2009
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	300/1	IRIS	2/2/2009
Cobalt	Chronic	6.0E-06	mg/m^3	1.7E-06	(mg/kg/day)	Respiratory	NA	ORNL	9/12/2008
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	(mg/kg/day)	CNS	1000/1	IRIS	2/2/2009
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 - Extrapolated RfD = RfC *$20m^3$/day / 70 kg

Definitions:

CNS = Central Nervous System

HEAST= Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

NA = Not Applicable

ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.

RAGS Part D Table 6

Cancer Toxicity Data

LIST OF TABLES
RAGS PART D TABLE 6
CANCER TOXICITY DATA

Table No.

6-1	Cancer Toxicity Data - Oral/Dermal
6-2	Cancer Toxicity Data - Inhalation

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds								
1,1-Dichloroethane	5.7E-03	$(mg/kg/day)^{-1}$	1	5.7E-03	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	ORNL	9/12/2008
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Carbon Tetrachloride	1.3E-01	$(mg/kg/day)^{-1}$	1	1.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Chloroform	3.1E-02	$(mg/kg/day)^{-1}$	1	3.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	ORNL	9/12/2008
Chloromethane	1.3E-02	$(mg/kg/day)^{-1}$	1	1.3E-02	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	HEAST	7/1997
Ethylbenzene	1.1E-02	$(mg/kg/day)^{-1}$	1	1.1E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Isopropylbenzene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Tetrachloroethene	5.4E-01	$(mg/kg/day)^{-1}$	1	5.4E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	1.3E-02	$(mg/kg/day)^{-1}$	1	1.3E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Vinyl Chloride (early life)	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Vinyl Chloride (adult)	7.2E-01	$(mg/kg/day)^{-1}$	1	7.2E-01	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Semivolatile Organic Compounds								
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(a)anthracene[3]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(a)pyrene[3]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Benzo(b)fluoranthene[3]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(k)fluoranthene[3]	7.3E-02	$(mg/kg/day)^{-1}$	1	7.3E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Chrysene[3]	7.3E-03	$(mg/kg/day)^{-1}$	1	7.3E-03	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dibenzo(a,h)anthracene[3]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Fluoranthene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Indeno(1,2,3-cd)pyrene[3]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Naphthalene	NA	NA	NA	NA	NA	C / Inadequate data of carcinogenicity in humans	IRIS	2/2/2009
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Pesticides/PCBs								
4,4'-DDE	3.4E-01	$(mg/kg/day)^{-1}$	1	3.4E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
4,4'-DDT	3.4E-01	$(mg/kg/day)^{-1}$	1	3.4E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aldrin	1.7E+01	$(mg/kg/day)^{-1}$	1	1.7E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aroclor-1248	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1254	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1260	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1268	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Dieldrin	1.6E+01	$(mg/kg/day)^{-1}$	1	1.6E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Inorganics								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A	IRIS	2/2/2009
Barium	NA	NA	NA	NA	NA	D (Not classifiable as to human carcinogenicity)	IRIS	2/2/2009
Beryllium	NA	NA	NA	NA	NA	B1 / Probable human carcinogen	IRIS	2/2/2009
Cadmium	NA	NA	NA	NA	NA	B1 / Probable human carcinogen	IRIS	2/2/2009
Chromium	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	B2 / Probable human carcinogen	IRIS	2/2/2009
Manganese	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Mercury	NA	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Methyl Mercury	NA	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)

Notes:

1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral Absorption Efficiency for Dermal.

3 - The carcinogenic PAHs are considered to act vla the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

HEAST = Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System.

NA = Not Available.

ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 12, 2008.

USEPA(1) = USEPA, Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993, EPA/600/R-93/089.

USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds							
1,1-Dichloroethane	1.6E-06	$(ug/m^3)^{-1}$	5.6E-03	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	ORNL	9/12/2008
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Carbon Tetrachloride	1.5E-05	$(ug/m^3)^{-1}$	5.3E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Chloromethane	1.8E-06	$(ug/m^3)^{-1}$	6.3E-03	$(mg/kg/day)^{-1}$	C / (Possible Human Carcinogen)	HEAST	7/1997
Ethylbenzene	2.5E-06	$(ug/m^3)^{-1}$	8.8E-03	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Isopropylbenzene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Tetrachloroethene	5.9E-06	$(ug/m^3)^{-1}$	2.1E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Total Xylenes	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	2.0E-06	$(ug/m^3)^{-1}$	7.0E-03	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Vinyl Chloride (early life)	8.8E-06	$(ug/m^3)^{-1}$	3.1E-02	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Vinyl Chloride (adult)	4.4E-06	$(ug/m^3)^{-1}$	1.5E-02	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	2/2/2009
Semivolatile Organic Compounds							
Acenaphthene	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(a)anthracene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Benzo(a)pyrene[2]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Benzo(b)fluoranthene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Benzo(g,h,i)perylene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Benzo(k)fluoranthene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Chrysene[2]	1.1E-05	$(ug/m^3)^{-1}$	3.9E-02	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Dibenzo(a,h)anthracene[2]	1.2E-03	$(ug/m^3)^{-1}$	4.2E+00	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Fluoranthene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Indeno(1,2,3-cd)pyrene[2]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Naphthalene	3.4E-05	$(ug/m3)^{-1}$	1.2E-01	$(mg/kg/day)^{-1}$	C/ Possible Human Carcinogen	ORNL	9/12/2008

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
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Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Semivolatile Organic Compounds (continued)							
Phenanthrene	NA	NA	NA	NA	NA	NA	9/12/2008
Pyrene	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Pesticides/PCBs							
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	9.7E-05	$(ug/m3)^{-1}$	3.4E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aldrin	4.9E-03	$(ug/m3)^{-1}$	1.7E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Aroclor-1248	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1254	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1260	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Aroclor-1268	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Dieldrin	4.6E-03	$(ug/m3)^{-1}$	1.6E+01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	2/2/2009
Inorganics							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	2/2/2009
Barium	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Beryllium	2.4E-03	$(ug/m^3)^{-1}$	8.4E+00	$(mg/kg/day)^{-1}$	Carcinogenic potential cannot be determined (Oral route)	IRIS	2/2/2009
Cadmium	1.8E-03	$(ug/m^3)^{-1}$	6.3E+00	$(mg/kg/day)^{-1}$	B1 / Probable human carcinogen	IRIS	2/2/2009
Chromium	1.2E-02	$(ug/m^3)^{-1}$	4.2E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	2/2/2009
Cobalt	9.0E-03	$(ug/m^3)^{-1}$	3.2E+01	$(mg/kg/day)^{-1}$	NA	ORNL	9/12/2008
Copper	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	B2 / Probable human carcinogen	IRIS	2/2/2009
Manganese	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Mercury	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Methyl Mercury	NA	NA	NA	NA	C/ Possible Human Carcinogen	IRIS	2/2/2009
Molybdenum	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Inorganics (continued)							
Thallium	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	2/2/2009

Notes:

1 - Inhalation CSF = Unit Risk * 70 kg / 20m^3/day.

2 - The carcinogenic PAHs are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Definitions:

IRIS = Integrated Risk Information System.

NA = Not Available.

ORNL = Oak Ridge National Laboratory, Regional Screening Levels for Chemical Contaminants at Superfund Sites, July 7, 2008.

USEPA(1) = OSWER Directive No.9285.7-75.

USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

RAGS Part D Table 7

Calculation Of Cancer Risks and Non-Cancer Hazards

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RAGS PART D TABLE 7
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

Table No.	
	REASONABLE MAXIMUM EXPOSURES
7.1.RME	Construction Workers
7.2.RME	Industrial Workers
7.3.RME	Adolescent Trespassers
7.4.RME	Child Recreational Users
7.5.RME	Adult Recreational Users
7.6.RME	Child Residents
7.7.RME	Adult Residents
	CENTRAL TENDENCY EXPOSURES
7.1.CTE	Construction Workers
7.2.CTE	Industrial Workers
7.3.CTE	Adolescent Trespassers
7.4.CTE	Child Recreational Users
7.5.CTE	Adult Recreational Users
7.6.CTE	Child Residents
7.7.CTE	Adult Residents

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	7.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-08	5.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	5.9E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.3E-07	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	6.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.5E-08	4.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00005
				Benzo(k)fluoranthene	1.88	mg/kg	4.5E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.3E-09	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	6.9E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.0E-10	4.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	9.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.0E-08	6.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0003
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0001
				Phenanthrene	6.66	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Pyrene	7.10	mg/kg	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Total Aroclors	0.332	mg/kg	8.0E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.6E-08	5.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	2.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	0.436	mg/kg	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.002
				Arsenic	23.9	mg/kg	5.7E-07	(mg/kg/dey)	1.5E+00	(mg/kg/day)$^{-1}$	8.6E-07	4.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.434	mg/kg	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Cadmium	1.51	mg/kg	3.6E-08	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	2.5E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.005
				Chromium	20.5	mg/kg	4.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	27.1	mg/kg	6.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Copper	47.4	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.0E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Iron	27468	mg/kg	6.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.07
				Lead	73.1	mg/kg	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	438	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-04	(mg/kg/day)	7.2E-02	(mg/kg/dey)	0.01
				Vanadium	22.3	mg/kg	5.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.007
			Exp. Route Total								1.5E-06					0.4
			Dermal	Benzo(a)anthracene	3.22	mg/kg	3.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.2E-08	2.1E-06	(mg/kg/dey)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-07	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	2.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.7E-08	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	9.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.88	mg/kg	1.8E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.3E-09	1.2E-06	(mg/kg/day)	NA	(mg/kg/dey)	--
				Chrysene	2.87	mg/kg	2.7E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.0E-10	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	3.7E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.7E-08	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.5E-09	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-07	(mg/kg/dey)	2.0E-02	(mg/kg/day)	0.00004
				Phenanthrene	6.66	mg/kg	6.2E-08	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	4.4E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	7.10	mg/kg	6.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Total Aroclors	0.332	mg/kg	3.3E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.7E-09	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	5.2E-08	(mg/kg/dey)	1.5E+00	(mg/kg/day)$^{-1}$	7.7E-08	3.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	1.1E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								3.3E-07					0.01
		Exposure Point Total									1.8E-06					0.4
	Exposure Medium Total										1.8E-06					0.4
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.3E-6	mg/m^3	3.9E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.3E-10	2.7E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.7E-6	mg/m^3	3.0E-09	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.3E-09	2.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.8E-6	mg/m^3	3.1E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.4E-10	2.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	6.9E-7	mg/m^3	1.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.3E-6	mg/m^3	2.3E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.5E-10	1.6E-07	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.1E-6	mg/m^3	3.5E-09	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	3.8E-11	2.4E-07	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.9E-7	mg/m^3	4.8E-10	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	5.8E-10	3.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	5.2E-6	mg/m^3	8.8E-09	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	6.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Indano(1,2,3-cd)pyrene	7.9E-7	mg/m^3	1.3E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.5E-10	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.7E-6	mg/m^3	1.6E-08	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	5.6E-10	1.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.5E-5	mg/m^3	5.9E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.1E-6	mg/m^3	8.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	2.4E-7	mg/m^3	4.0E-10	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.8E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	0.009	mg/m^3	1.5E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.0E-03	(mg/m^3)	5.0E-03	(mg/m^3)	0.2
				Antimony	3.1E-7	mg/m^3	5.3E-10	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	3.7E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.7E-5	mg/m^3	2.9E-08	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.2E-07	2.0E-06	(mg/m^3)	3.0E-05	(mg/m^3)	0.07
				Beryllium	3.1E-7	mg/m^3	5.3E-10	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.3E-09	3.7E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.002
				Cadmium	1.1E-6	mg/m^3	1.8E-09	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	3.3E-09	1.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.5E-5	mg/m^3	2.5E-08	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	3.0E-07	1.7E-06	(mg/m^3)	1.0E-04	(mg/m^3)	0.02
				Cobalt	1.9E-5	mg/m^3	3.3E-08	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	3.0E-07	2.3E-06	(mg/m^3)	6.0E-06	(mg/m^3)	0.4
				Copper	3.4E-5	mg/m^3	5.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.0E-06	(mg/m^3)	NA	(mg/m^3)	--
				Iron	0.020	mg/m^3	3.3E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.3E-03	(mg/m^3)	NA	(mg/m^3)	--
				Lead	5.2E-5	mg/m^3	8.9E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.1E-4	mg/m^3	5.3E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.7E-05	(mg/m^3)	5.0E-05	(mg/m^3)	0.7
				Vanadium	1.6E-5	mg/m^3	2.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								7.3E-07					1.4
		Exposure Point Total									7.3E-07					1.4
	Exposure Medium Total										7.3E-07					1.4
Medium Total											2.6E-06					1.8
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	1.8E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-04	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.002
				Anthracene	153	mg/kg	3.7E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0009
				Benzo(a)anthracene	302	mg/kg	7.2E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.3E-06	5.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	5.8E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.3E-05	4.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	5.0E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.7E-06	3.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	3.2E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.2E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.007
				Benzo(k)fluoranthene	199	mg/kg	4.8E-06	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	3.5E-07	3.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	6.5E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.7E-08	4.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.3E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.2E-06	8.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	1.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.03
				Indeno(1,2,3-cd)pyrene	138	mg/kg	3.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.4E-06	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	8.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.003
				Phenanthrene	563	mg/kg	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.03
				Pyrene	569	mg/kg	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.03
				Total Aroclors	0.535	mg/kg	1.3E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.6E-08	9.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	3.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	0.574	mg/kg	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.002
				Arsenic	17.7	mg/kg	4.2E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.4E-07	3.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.10
				Beryllium	0.518	mg/kg	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.7E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Cadmium	0.91	mg/kg	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.003
				Chromium	19.6	mg/kg	4.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	16.1	mg/kg	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
				Copper	235	mg/kg	5.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.010
				Iron	41374	mg/kg	9.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.10
				Lead	190	mg/kg	4.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.02
				Molybdenum	3.100	mg/kg	7.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
				Thallium	0.150	mg/kg	3.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.004
				Vanadium	21.2	mg/kg	5.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.007
				Zinc	888	mg/kg	2.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.005
			Exp. Route Total								6.4E-05					0.5
			Dermal	Acenaphthene	77	mg/kg	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0008
				Anthracene	153	mg/kg	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0003
				Benzo(a)anthracene	302	mg/kg	2.8E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.1E-06	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	2.3E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-05	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.0E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-06	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.3E-06	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	8.8E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Benzo(k)fluoranthene	199	mg/kg	1.9E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.4E-07	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	2.5E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.8E-08	1.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	4.9E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.6E-06	3.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	6.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.4E-07	9.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.001
				Phenanthrene	563	mg/kg	5.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Pyrene	569	mg/kg	5.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Total Aroclors	0.535	mg/kg	5.4E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.1E-08	3.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	3.8E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.7E-08	2.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.009
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	6.5E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.5E-05					0.05
		Exposure Point Total									8.9E-05					0.5
	Exposure Medium Total										8.9E-05					0.5
	Air	Exposed Area	Inhalation	Acenaphthene	2.0E-4	mg/m^3	3.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	1.3E-4	mg/m^3	2.2E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.2E-4	mg/m^3	3.7E-07	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.0E-08	2.6E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.7E-4	mg/m^3	2.9E-07	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.2E-07	2.1E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-4	mg/m^3	2.5E-07	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.8E-08	1.8E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	9.6E-5	mg/m^3	1.6E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.4E-4	mg/m^3	2.4E-07	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.7E-08	1.7E-05	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.9E-4	mg/m^3	3.3E-07	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	3.6E-09	2.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.8E-5	mg/m^3	6.4E-08	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	7.7E-08	4.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	5.2E-4	mg/m^3	8.8E-07	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	6.1E-05	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	9.9E-5	mg/m^3	1.7E-07	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.8E-08	1.2E-05	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.8E-4	mg/m^3	4.8E-07	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	1.6E-08	3.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	1.1E-3	mg/m^3	1.9E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	4.1E-4	mg/m^3	6.9E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.8E-05	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.8E-7	mg/m^3	6.5E-10	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	4.5E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	0.010	mg/m^3	1.6E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-03	(mg/m^3)	5.0E-03	(mg/m^3)	0.2
				Antimony	4.1E-7	mg/m^3	7.0E-10	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	4.9E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.3E-5	mg/m^3	2.1E-08	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	9.2E-08	1.5E-06	(mg/m^3)	3.0E-05	(mg/m^3)	0.05
				Beryllium	3.7E-7	mg/m^3	6.3E-10	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.5E-09	4.4E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.002
				Cadmium	6.5E-7	mg/m^3	1.1E-09	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	2.0E-09	7.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.4E-5	mg/m^3	2.4E-08	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	2.8E-07	1.7E-06	(mg/m^3)	1.0E-04	(mg/m^3)	0.02
				Cobalt	1.2E-5	mg/m^3	2.0E-08	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.8E-07	1.4E-06	(mg/m^3)	6.0E-06	(mg/m^3)	0.2
				Copper	1.7E-4	mg/m^3	2.8E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Iron	0.030	mg/m^3	5.0E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.5E-03	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.4E-4	mg/m^3	2.3E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.6E-05	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	6.0E-4	mg/m^3	1.0E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.1E-05	(mg/m^3)	5.0E-05	(mg/m^3)	1.4
				Molybdenum	2.2E-6	mg/m^3	3.8E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.6E-07	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.1E-7	mg/m^3	1.8E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.5E-5	mg/m^3	2.6E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.8E-06	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	6.3E-4	mg/m^3	1.1E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.5E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.1E-06					1.9
		Exposure Point Total									1.1E-06					1.9
	Exposure Medium Total										9.0E-05					2.5
Medium Total											9.0E-05					2.5

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concantration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	8.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-08	4.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	5.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.1E-07	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	6.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.8E-08	4.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	1.3E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.10	mg/kg	2.6E-08	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	1.9E-09	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	3.6E-08	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	2.6E-10	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	3.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.5E-08	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	2.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-08	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	2.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	18.6	mg/kg	4.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.7E-07	3.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.395	mg/kg	9.5E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0003
				Chromium	15.4	mg/kg	3.7E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	12.9	mg/kg	3.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.07
				Iron	26054	mg/kg	6.2E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.4E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Manganese (Soil)	418	mg/kg	1.0E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.010
			Exp. Route Total								1.2E-06					0.3
			Dermal	Benzo(a)anthracene	2.69	mg/kg	2.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.2E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	5.2E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.6E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.10	mg/kg	1.0E-08	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	7.5E-10	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.4E-08	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	1.0E-10	9.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.6E-09	9.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.6E-09	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	4.0E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.0E-08	2.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.009
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.7E-07					0.009
		Exposure Point Total									1.5E-06					0.3
	Exposure Medium Total										1.5E-06					0.3
	Air	Paved Area	Inhalation	Benzo(a)anthracene	1.9E-6	mg/m^3	3.3E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.6E-10	2.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.7E-6	mg/m^3	2.8E-09	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.1E-09	2.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.0E-6	mg/m^3	3.3E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.7E-10	2.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	3.9E-7	mg/m^3	6.7E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	7.9E-7	mg/m^3	1.3E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.5E-10	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.1E-6	mg/m^3	1.8E-09	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	2.0E-11	1.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.0E-7	mg/m^3	1.7E-10	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.0E-10	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	8.0E-7	mg/m^3	1.4E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.5E-10	9.5E-08	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	0.008	mg/m^3	1.3E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.2
				Arsenic	1.3E-5	mg/m^3	2.3E-08	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	9.7E-08	1.6E-06	(mg/m^3)	3.0E-05	(mg/m^3)	0.05
				Beryllium	2.8E-7	mg/m^3	4.8E-10	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.1E-09	3.3E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.002
				Chromium	1.1E-5	mg/m^3	1.9E-08	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	2.2E-07	1.3E-06	(mg/m^3)	1.0E-04	(mg/m^3)	0.01

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Inteke/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cobalt	9.2E-6	mg/m³	1.6E-08	(mg/m³)	9.0E-03	(ug/m³)⁻¹	1.4E-07	1.1E-06	(mg/m³)	6.0E-06	(mg/m³)	0.2
				Iron	0.019	mg/m³	3.2E-05	(mg/m³)	NA	(ug/m³)⁻¹	--	2.2E-03	(mg/m³)	NA	(mg/m³)	--
				Manganese (Soil)	3.0E-4	mg/m³	5.1E-07	(mg/m³)	NA	(ug/m³)⁻¹	--	3.5E-05	(mg/m³)	5.0E-05	(mg/m³)	0.7
			Exp. Route Total								4.7E-07					1.1
		Exposure Point Total									4.7E-07					1.1
	Exposure Medium Total										4.7E-07					1.1
Medium Total											2.0E-06					1.4
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	5.8E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	8.6E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	6.0E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.0001
				Benzo(a)anthracene	2.80	mg/kg	6.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	4.9E-08	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	3.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	2.5E-07	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	3.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	2.8E-08	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	8.7E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.30	mg/kg	3.1E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)⁻¹	2.3E-09	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	6.6E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)⁻¹	4.8E-10	4.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	2.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	1.9E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	7.6E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	5.6E-09	5.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	3.6E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)⁻¹	7.2E-08	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	3.0E-04	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	35.0	mg/kg	8.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)⁻¹	1.3E-06	5.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Beryllium	0.470	mg/kg	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	7.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Chromium	24.3	mg/kg	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.1E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	13.5	mg/kg	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Iron	29083	mg/kg	7.0E-04	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.9E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.07
				Lead	18.0	mg/kg	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	3.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	1.8E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.03
			Exp. Route Total								1.7E-06					0.4
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	1.9E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	9.6E-08	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	1.1E-08	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	4.9E-09	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	3.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.30	mg/kg	1.2E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)⁻¹	8.9E-10	8.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	2.6E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)⁻¹	1.9E-10	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	7.4E-09	7.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	3.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	2.2E-09	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.5E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)⁻¹	3.0E-08	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	7.6E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)⁻¹	1.1E-07	5.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/dey)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/dey)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.8E-07					
		Exposure Point Total									2.0E-06					0.02
	Exposure Medium Total										2.0E-06					0.4
	Air	Paved Area	Inhalation	1;2,4-Trimethylbenzene	5.0E-5	mg/m^3	8.5E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.9E-06	(mg/m^3)	7.0E-03	(mg/m^3)	0.0008
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	2.2E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-05	(mg/m^3)	6.0E-03	(mg/m^3)	0.003
				Benzo(a)anthracene	2.0E-6	mg/m^3	3.4E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.7E-10	2.4E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-6	mg/m^3	1.7E-09	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.9E-09	1.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.1E-6	mg/m^3	1.9E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.1E-10	1.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	3.7E-7	mg/m^3	6.3E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	9.3E-7	mg/m^3	1.6E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-10	1.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.0E-6	mg/m^3	3.3E-09	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	3.7E-11	2.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	7.7E-8	mg/m^3	1.3E-10	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.6E-10	9.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.3E-7	mg/m^3	3.8E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.2E-11	2.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.1E-6	mg/m^3	1.8E-09	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.3E-07	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	0.009	mg/m^3	1.5E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-03	(mg/m^3)	5.0E-03	(mg/m^3)	0.2
				Arsenic	2.5E-5	mg/m^3	4.2E-08	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.8E-07	3.0E-06	(mg/m^3)	3.0E-05	(mg/m^3)	0.10
				Beryllium	3.4E-7	mg/m^3	5.7E-10	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	1.4E-09	4.0E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.002
				Chromium	1.7E-5	mg/m^3	2.9E-08	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	3.5E-07	2.1E-06	(mg/m^3)	1.0E-04	(mg/m^3)	0.02
				Cobalt	9.6E-6	mg/m^3	1.6E-08	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.5E-07	1.1E-06	(mg/m^3)	6.0E-06	(mg/m^3)	0.2
				Iron	0.021	mg/m^3	3.5E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.5E-03	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.3E-5	mg/m^3	2.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.9E-4	mg/m^3	1.3E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.3E-05	(mg/m^3)	5.0E-05	(mg/m^3)	1.9
			Exp. Route Total								6.9E-07					2.4
		Exposure Point Total									6.9E-07					2.4
	Exposure Medium Total										2.6E-06					2.8
Medium Total											2.6E-06					2.8
Groundwater	Groundwater	Site 08	Ingestion	1,1-Dichloroethane	310	ug/L	1.1E-06	(mg/kg/day)	5.7E-03	(mg/kg/dey)$^{-1}$	6.4E-09	7.9E-05	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0004
				1,2,4-Trimethylbenzene	810	ug/L	2.9E-06	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	2.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-05	(mg/kg/day)	5.0E-02	(mg/kg/dey)	0.001
				Bromomethane	2.00	ug/L	7.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-07	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.0004
				Carbon Tetrachloride	2.00	ug/L	7.3E-09	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	9.4E-10	5.1E-07	(mg/kg/day)	7.0E-04	(mg/kg/dey)	0.0007
				Chloroform	7.00	ug/L	2.5E-08	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	7.9E-10	1.8E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0002
				Chloromethane	16.0	ug/L	5.8E-08	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	7.6E-10	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	2.1E-07	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	2.3E-09	1.5E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0001
				Isopropylbenzene	94.0	ug/L	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0002
				Tetrachloroethene	12.0	ug/L	4.4E-08	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	2.4E-08	3.1E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0003
				Total Xylenes	97.0	ug/L	3.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-05	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0001
				Trichloroethene	730	ug/L	2.7E-06	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	3.4E-08	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	6.9E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.0E-07	4.8E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Benzo(k)fluoranthene	4.00	ug/L	1.5E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.1E-09	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	3.9E-11	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	6.3E-10	2.7E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00005
				Aluminum	564000	ug/L	2.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.1

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cencer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Ingestion	Antimony	1.20	ug/L	4.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0008
				Arsenic	503	ug/L	1.8E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.7E-06	1.3E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.4
				Barium	1390	ug/L	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				Beryllium	17.8	ug/L	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.002
				Chromium	868	ug/L	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.07
				Cobalt	637	ug/L	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.5
				Copper	1440	ug/L	5.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.009
				Iron	1210000	ug/L	4.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.4
				Lead	1890	ug/L	6.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	5.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-03	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.1
				Mercury	1.90	ug/L	6.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Molybdenum	20.3	ug/L	7.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
				Nickel	1160	ug/L	4.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-04	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.01
				Thallium	2.30	ug/L	8.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.009
				Vanadium	832	ug/L	3.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.04
				Zinc	3990	ug/L	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.003
			Exp. Route Total								2.9E-08					1.9
			Dermal	1,1-Dichloroethane	310	ug/L	4.3E-06	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	2.5E-08	3.0E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				1,2,4-Trimethylbenzene	810	ug/L	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	3.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.05
				Bromomethane	2.00	ug/L	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-07	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.0006
				Carbon Tetrachloride	2.00	ug/L	7.1E-08	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	9.3E-09	5.0E-06	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.007
				Chloroform	7.00	ug/L	1.0E-07	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	3.1E-09	7.1E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0007
				Chloromethane	16.0	ug/L	1.1E-07	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.4E-09	7.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	5.3E-06	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	5.8E-08	3.7E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.004
				Isopropylbenzene	94.0	ug/L	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.9E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.010
				Tetrachloroethene	12.0	ug/L	8.6E-07	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	4.7E-07	6.0E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.006
				Total Xylenes	97.0	ug/L	8.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.003
				Trichloroethene	730	ug/L	1.8E-05	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	2.3E-07	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	2.1E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.2E-07	1.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	7.6E-10	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.2E-08	5.3E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.001
				Aluminum	564000	ug/L	1.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.08
				Antimony	1.20	ug/L	2.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-07	(mg/kg/day)	6.0E-05	(mg/kg/day)	0.003
				Arsenic	503	ug/L	9.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.4E-06	6.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Barium	1390	ug/L	2.7E-06	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	1.4E-02	(mg/kg/day)	0.01
				Beryllium	17.8	ug/L	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-08	(mg/kg/day)	1.4E-05	(mg/kg/day)	0.2
				Chromium	868	ug/L	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-04	(mg/kg/day)	7.5E-05	(mg/kg/day)	3.1
				Cobalt	637	ug/L	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Copper	1440	ug/L	2.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.005
				Iron	1210000	ug/L	2.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Lead	1890	ug/L	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	9.6E-04	(mg/kg/day)	1.9
				Mercury	1.90	ug/L	3.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-07	(mg/kg/day)	2.1E-05	(mg/kg/day)	0.01
				Molybdenum	20.3	ug/L	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0005
				Nickel	1160	ug/L	4.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-05	(mg/kg/day)	8.0E-04	(mg/kg/day)	0.04

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Dermal	Thallium	2.30	ug/L	4.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.005
				Vanadium	832	ug/L	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	1.3E-04	(mg/kg/day)	0.9
				Zinc	3990	ug/L	4.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								2.6E-06					7.1
		Exposure Point Total									5.5E-06					8.9
	Exposure Medium Total										5.5E-06					8.9
	Air	Site 08	Inhalation	1,1-Dichloroethane	11.4	mg/m3	1.9E-05	(mg/m^3)	1.6E-06	(ug/m^3)$^{-1}$	3.1E-08	1.4E-03	(mg/m^3)	NA	(mg/m^3)	--
				1,2,4-Trimethylbenzene	27.2	mg/m3	4.6E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.2E-03	(mg/m^3)	7.0E-03	(mg/m^3)	0.5
				1,3,5-Trimethylbenzene	9.75	mg/m3	1.7E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-03	(mg/m^3)	6.0E-03	(mg/m^3)	0.2
				Bromomethane	0.075	mg/m3	1.3E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.0E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.002
				Carbon Tetrachloride	0.060	mg/m3	1.0E-07	(mg/m^3)	1.5E-05	(ug/m^3)$^{-1}$	1.5E-09	7.1E-06	(mg/m^3)	1.9E-01	(mg/m^3)	0.00004
				Chloroform	0.234	mg/m3	4.0E-07	(mg/m^3)	2.3E-05	(ug/m^3)$^{-1}$	9.1E-09	2.8E-05	(mg/m^3)	9.8E-02	(mg/m^3)	0.0003
				Chloromethane	0.830	mg/m3	1.4E-06	(mg/m^3)	1.8E-06	(ug/m^3)$^{-1}$	2.5E-09	9.8E-05	(mg/m^3)	9.0E-02	(mg/m^3)	0.001
				Ethylbenzene	2.07	mg/m3	3.5E-06	(mg/m^3)	2.5E-06	(ug/m^3)$^{-1}$	8.8E-09	2.5E-04	(mg/m^3)	1.0E+00	(mg/m^3)	0.0002
				Isopropylbenzene	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	4.0E-01	(mg/m^3)	--
				Tetrachloroethene	0.345	mg/m3	5.8E-07	(mg/m^3)	5.9E-06	(ug/m^3)$^{-1}$	3.5E-09	4.1E-05	(mg/m^3)	2.7E-01	(mg/m^3)	0.0002
				Total Xylenes	3.46	mg/m3	5.9E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.1E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.004
				Trichloroethene	23.5	mg/m3	4.0E-05	(mg/m^3)	2.0E-06	(ug/m^3)$^{-1}$	8.0E-08	2.8E-03	(mg/m^3)	NA	(mg/m^3)	--
				Vinyl Chloride	0.890	mg/m3	1.5E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	6.6E-09	1.1E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.001
				Benzo(k)fluoranthene	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Dieldrin	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	4.6E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-03	(mg/m^3)	--
				Antimony	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-05	(mg/m^3)	--
				Barium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-04	(mg/m^3)	--
				Beryllium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	2.0E-05	(mg/m^3)	--
				Chromium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	1.0E-04	(mg/m^3)	--
				Cobalt	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	6.0E-06	(mg/m^3)	--
				Copper	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Iron	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Lead	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Water)	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Mercury	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Molybdenum	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Nickel	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.4E-07					0.7
		Exposure Point Total									1.4E-07					0.7
	Exposure Medium Total										1.4E-07					0.7
Medium Total											5.6E-06					9.6
										Total of Receptor Risks Across All Media	1.0E-04			Total of Receptor Hazards Across All Media		18

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	1.1E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.2E-07	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	8.5E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.2E-06	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	8.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.5E-07	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.88	mg/kg	6.6E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.8E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.0E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	7.3E-09	2.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	1.4E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.0E-06	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0002
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	3.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	4.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00006
				Phenanthrene	6.66	mg/kg	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Pyrene	7.10	mg/kg	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Total Aroclors	0.332	mg/kg	1.2E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.3E-07	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	4.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Antimony	0.436	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.3E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.001
				Arsenic	23.9	mg/kg	8.4E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-05	2.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Beryllium	0.434	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0002
				Cadmium	1.51	mg/kg	5.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.003
				Chromium	20.5	mg/kg	7.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.007
				Cobalt	27.1	mg/kg	9.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
				Copper	47.4	mg/kg	1.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.001
				Iron	27468	mg/kg	9.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
				Lead	73.1	mg/kg	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.3E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.006
				Vanadium	22.3	mg/kg	7.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.004
			Exp. Route Total								2.2E-05					0.2
			Dermal	Benzo(a)anthracene	3.22	mg/kg	9.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.0E-07	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	7.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.3E-06	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	7.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-07	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.88	mg/kg	5.6E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.1E-08	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	8.6E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.3E-09	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	1.2E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.8E-07	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0002
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	3.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.4E-07	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00005
				Phenanthrene	6.66	mg/kg	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Pyrene	7.10	mg/kg	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Total Aroclors	0.332	mg/kg	1.1E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.1E-07	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	1.7E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.5E-06	4.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	3.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0004
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.0E-05					0.02
		Exposure Point Total									3.2E-05					0.3
	Exposure Medium Total										3.2E-05					0.3
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	2.4E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.6E-12	6.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	1.8E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	2.0E-11	5.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	1.9E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.1E-12	5.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	7.1E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	1.4E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.5E-12	3.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	2.1E-11	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	2.3E-13	6.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	3.0E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.6E-12	8.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	5.4E-11	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	8.2E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.0E-13	2.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	7.5E-07	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	2.6E-08	2.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	2.6E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	5.3E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	2.5E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	6.9E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	9.1E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.5E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Antimony	4.0E-11	mg/m^3	3.2E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	9.0E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	1.8E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	7.6E-10	5.0E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.00002
				Beryllium	3.9E-11	mg/m^3	3.2E-12	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	7.7E-12	9.0E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000005
				Cadmium	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	2.0E-11	3.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	1.5E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.8E-09	4.3E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000004
				Cobalt	2.5E-9	mg/m^3	2.0E-10	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.8E-09	5.6E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00009
				Copper	4.3E-9	mg/m^3	3.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	2.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.7E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	5.4E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	3.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.0E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.0002
				Vanadium	2.0E-9	mg/m^3	1.7E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.6E-10	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.0E-08					0.0003
		Exposure Point Total									3.0E-08					0.0003
	Exposure Medium Total										3.0E-08					0.0003
Medium Total											3.2E-05					0.3
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	2.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.001
				Anthracene	153	mg/kg	5.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0005
				Benzo(a)anthracene	302	mg/kg	1.1E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.7E-05	3.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	8.5E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.2E-04	2.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	7.3E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.4E-05	2.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	4.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.004
				Benzo(k)fluoranthene	199	mg/kg	7.0E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.1E-08	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	9.4E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.9E-07	2.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.8E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-04	5.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	2.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.02
				Indeno(1,2,3-cd)pyrene	138	mg/kg	4.8E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.5E-05	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.002
				Phenanthrene	563	mg/kg	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.02
				Pyrene	569	mg/kg	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.02
				Total Aroclors	0.535	mg/kg	1.9E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.7E-07	5.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	4.7E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Antimony	0.574	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.001
				Arsenic	17.7	mg/kg	6.2E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	9.3E-06	1.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Beryllium	0.518	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0003
				Cadmium	0.91	mg/kg	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.002
				Chromium	19.6	mg/kg	6.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.006
				Cobalt	16.1	mg/kg	5.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
				Copper	235	mg/kg	8.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.006
				Iron	41374	mg/kg	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Lead	190	mg/kg	6.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	2.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.01
				Molybdenum	3.100	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	3.0E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0006
				Thallium	0.150	mg/kg	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.002
				Vanadium	21.2	mg/kg	7.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.004
				Zinc	888	mg/kg	3.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.7E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.003
			Exp. Route Total								9.4E-04					0.3
			Dermal	Acenaphthene	77	mg/kg	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.001
				Anthracene	153	mg/kg	4.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0004
				Benzo(a)anthracene	302	mg/kg	9.1E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.6E-05	2.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	7.3E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.3E-04	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	6.3E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.6E-05	1.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	4.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.004
				Benzo(k)fluoranthene	199	mg/kg	6.0E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.4E-06	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	8.1E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.9E-07	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.6E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-04	4.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	2.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.02
				Indano(1,2,3-cd)pyrene	138	mg/kg	4.1E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.0E-05	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.001
				Phenanthrene	563	mg/kg	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.02
				Pyrene	569	mg/kg	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.02
				Total Aroclors	0.535	mg/kg	1.7E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.5E-07	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	1.2E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.8E-06	3.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	2.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								8.0E-04					0.07
		Exposure Point Total									1.7E-03					0.3
	Exposure Medium Total										1.7E-03					0.3
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	1.2E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	1.7E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.7E-06	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	2.2E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.5E-10	6.3E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	1.8E-09	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.0E-09	5.0E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	1.6E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.7E-10	4.4E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	9.9E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	1.5E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.6E-10	4.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	2.0E-09	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	2.2E-11	5.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	3.9E-10	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	4.7E-10	1.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Fluorenthene	6.6E-8	mg/m^3	5.4E-09	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.5E-08	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	1.0E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-10	2.9E-09	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	2.2E-05	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	7.5E-07	6.2E-05	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	6.2E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-04	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	4.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	4.0E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.1E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	1.0E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.8E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00006
				Antimony	5.2E-11	mg/m^3	4.3E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.2E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	1.3E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.6E-10	3.7E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.00001
				Beryllium	4.7E-11	mg/m^3	3.8E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	9.2E-12	1.1E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000005
				Cadmium	8.2E-11	mg/m^3	6.7E-12	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	1.2E-11	1.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	1.5E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	1.7E-09	4.1E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000004
				Cobalt	1.5E-9	mg/m^3	1.2E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.1E-09	3.3E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Copper	2.1E-8	mg/m^3	1.7E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.9E-09	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	3.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.6E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	1.4E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.9E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	6.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0003
				Molybdenum	2.8E-10	mg/m^3	2.3E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	1.1E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	1.6E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	6.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.8E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								7.6E-07					0.0005
		Exposure Point Total									7.6E-07					0.0005
	Exposure Medium Total										1.7E-03					0.3
Medium Total											1.7E-03					0.3

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposura Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	9.4E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.9E-07	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	8.1E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.9E-06	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	9.6E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.0E-07	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	1.9E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.10	mg/kg	3.8E-07	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	2.8E-08	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	5.2E-07	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	3.8E-09	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	4.9E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.6E-07	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	3.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.9E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	3.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Arsenic	18.6	mg/kg	6.5E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	9.7E-06	1.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Beryllium	0.395	mg/kg	1.4E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0002
				Chromium	15.4	mg/kg	5.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Cobalt	12.9	mg/kg	4.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	26054	mg/kg	9.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.5E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
				Manganese (Soil)	418	mg/kg	1.5E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.006
			Exp. Route Total								1.8E-05					0.2
			Dermal	Benzo(a)anthracene	2.69	mg/kg	8.1E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.9E-07	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	7.0E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.1E-06	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	8.2E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.0E-07	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	1.7E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.6E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.10	mg/kg	3.3E-07	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	2.4E-08	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	4.5E-07	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	3.3E-09	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	4.2E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.1E-07	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	3.4E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.5E-07	9.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	1.3E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.9E-06	3.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								8.8E-06					0.01
		Exposure Point Total									2.7E-05					0.2
	Exposure Medium Total										2.7E-05					0.2
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	2.0E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.2E-12	5.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	1.7E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.9E-11	4.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	2.0E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.2E-12	5.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	4.1E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	8.2E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.0E-13	2.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.2E-13	3.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	1.0E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.3E-12	2.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	8.3E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.1E-13	2.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	8.1E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.3E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Arsenic	1.7E-9	mg/m^3	1.4E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.9E-10	3.9E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.00001
				Beryllium	3.6E-11	mg/m^3	2.9E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	7.0E-12	8.2E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000004
				Chromium	1.4E-9	mg/m^3	1.1E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	1.4E-09	3.2E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000003

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m³	9.6E-11	(mg/m³)	9.0E-03	(ug/m³)⁻¹	8.6E-10	2.7E-10	(mg/m³)	6.0E-06	(mg/m³)	0.00004
				Iron	2.4E-6	mg/m³	1.9E-07	(mg/m³)	NA	(ug/m³)⁻¹	--	5.4E-07	(mg/m³)	NA	(mg/m³)	--
				Manganese (Soil)	3.8E-8	mg/m³	3.1E-09	(mg/m³)	NA	(ug/m³)⁻¹	--	8.7E-09	(mg/m³)	5.0E-05	(mg/m³)	0.0002
			Exp. Route Total								2.9E-09					0.0003
		Exposure Point Total									2.9E-09					0.0003
	Exposure Medium Total										2.9E-09					0.0003
Medium Total											2.7E-05					0.2
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	8.4E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	3.5E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00007
				Benzo(a)anthracene	2.80	mg/kg	9.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	7.1E-07	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	4.9E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	3.6E-06	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	5.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	4.1E-07	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	5.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.30	mg/kg	4.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)⁻¹	3.3E-08	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	9.6E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)⁻¹	7.0E-09	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	3.8E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	2.8E-07	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.1E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	8.1E-08	3.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	5.2E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)⁻¹	1.0E-06	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	4.4E-03	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	1.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Arsenic	35.0	mg/kg	1.2E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)⁻¹	1.8E-05	3.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.470	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.6E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0002
				Chromium	24.3	mg/kg	8.5E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.008
				Cobalt	13.5	mg/kg	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	1.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	29083	mg/kg	1.0E-02	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
				Lead	18.0	mg/kg	6.3E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	3.8E-04	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	1.1E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.01
			Exp. Route Total								2.4E-05					0.2
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	8.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	6.1E-07	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	4.2E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	3.1E-06	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	4.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	3.5E-07	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.30	mg/kg	3.9E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)⁻¹	2.8E-08	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	8.2E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)⁻¹	6.0E-09	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	3.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	2.4E-07	9.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	9.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	6.9E-08	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	4.8E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)⁻¹	9.7E-07	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	2.4E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)⁻¹	3.6E-06	6.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								9.0E-06					0.02
		Exposure Point Total									3.3E-05					0.3
	Exposure Medium Total										3.3E-05					0.3
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	4.1E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.2E-05	(mg/m^3)	7.0E-03	(mg/m^3)	0.002
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	1.1E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.0E-05	(mg/m^3)	6.0E-03	(mg/m^3)	0.005
				Benzo(a)anthracene	2.5E-10	mg/m^3	2.1E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.3E-12	5.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	1.0E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-11	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	1.2E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.3E-12	3.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	3.9E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	9.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-12	2.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	2.0E-11	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	2.2E-13	5.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	8.0E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	9.6E-13	2.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	2.3E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.6E-13	6.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	3.1E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	9.3E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.6E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Arsenic	3.2E-9	mg/m^3	2.6E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.1E-09	7.3E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.00002
				Beryllium	4.3E-11	mg/m^3	3.5E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	8.4E-12	9.8E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000005
				Chromium	2.2E-9	mg/m^3	1.8E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	2.2E-09	5.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000005
				Cobalt	1.2E-9	mg/m^3	1.0E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	9.0E-10	2.8E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00005
				Iron	2.6E-6	mg/m^3	2.2E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	1.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	8.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.3E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0005
			Exp. Route Total								4.2E-09					0.007
		Exposure Point Total									4.2E-09					0.007
	Exposure Medium Total										3.3E-05					0.3
Medium Total											3.3E-05					0.3
										Total of Receptor Risks Across All Media	1.8E-03			Total of Receptor Hazards Across All Media		1

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	4.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.2E-07	8.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	3.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.4E-06	6.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	3.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/dey)$^{-1}$	2.5E-07	6.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	4.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000008
				Benzo(k)fluoranthene	1.88	mg/kg	2.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.9E-08	4.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	3.9E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.8E-09	7.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	5.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.9E-07	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00005
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	5.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00002
				Phenanthrene	6.66	mg/kg	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00006
				Pyrene	7.10	mg/kg	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00006
				Total Aroclors	0.332	mg/kg	1.5E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.0E-08	8.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	5.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Antimony	0.436	mg/kg	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0003
				Arsenic	23.9	mg/kg	1.1E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.8E-06	6.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.434	mg/kg	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00006
				Cadmium	1.51	mg/kg	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0008
				Chromium	20.5	mg/kg	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	27.1	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Copper	47.4	mg/kg	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0003
				Iron	27468	mg/kg	1.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Lead	73.1	mg/kg	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.002
				Vanadium	22.3	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
			Exp. Route Total								5.2E-06					0.06
			Dermal	Benzo(a)anthracene	3.22	mg/kg	9.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.7E-07	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	7.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.1E-06	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	7.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.3E-07	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	9.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.88	mg/kg	5.4E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.9E-08	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	8.2E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.0E-09	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.3E-07	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	3.1E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-07	8.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00003
				Phenanthrene	6.66	mg/kg	6.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	7.10	mg/kg	6.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Total Aroclors	0.332	mg/kg	3.4E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.8E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	5.2E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.9E-07	3.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	1.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								8.2E-06					0.01
		Exposure Point Total									1.3E-05					0.08
	Exposure Medium Total										1.3E-05					0.08
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	6.6E-12	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	7.3E-13	1.3E-11	(mg/m3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	5.0E-12	(mg/m3)	1.1E-03	$(ug/m^3)^{-1}$	5.5E-12	9.7E-12	(mg/m3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	5.2E-12	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	5.7E-13	1.0E-11	(mg/m3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	6.6E-13	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	3.8E-12	(mg/m3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	3.9E-12	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	4.2E-13	7.5E-12	(mg/m3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	5.9E-12	(mg/m3)	1.1E-05	$(ug/m^3)^{-1}$	6.5E-14	1.1E-11	(mg/m3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	8.2E-13	(mg/m3)	1.2E-03	$(ug/m^3)^{-1}$	9.8E-13	1.6E-12	(mg/m3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	5.0E-12	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.9E-11	(mg/m3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.3E-12	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	2.5E-13	4.4E-12	(mg/m3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	6.9E-08	(mg/m3)	3.4E-05	$(ug/m^3)^{-1}$	2.4E-09	4.1E-07	(mg/m3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	2.4E-07	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.4E-06	(mg/m3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	4.9E-12	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	2.8E-11	(mg/m3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	2.3E-13	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.3E-12	(mg/m3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	8.4E-09	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	4.9E-08	(mg/m3)	5.0E-03	(mg/m^3)	0.000010
				Antimony	4.0E-11	mg/m^3	3.0E-13	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.7E-12	(mg/m3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	1.6E-11	(mg/m3)	4.3E-03	$(ug/m^3)^{-1}$	7.0E-11	9.5E-11	(mg/m3)	3.0E-05	(mg/m^3)	0.000003
				Beryllium	3.9E-11	mg/m^3	3.0E-13	(mg/m3)	2.4E-03	$(ug/m^3)^{-1}$	7.1E-13	1.7E-12	(mg/m3)	2.0E-05	(mg/m^3)	0.00000009
				Cadmium	1.4E-10	mg/m^3	1.0E-12	(mg/m3)	1.8E-03	$(ug/m^3)^{-1}$	1.9E-12	6.0E-12	(mg/m3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	1.4E-11	(mg/m3)	1.2E-02	$(ug/m^3)^{-1}$	1.7E-10	8.2E-11	(mg/m3)	1.0E-04	(mg/m^3)	0.0000008
				Cobalt	2.5E-9	mg/m^3	1.9E-11	(mg/m3)	9.0E-03	$(ug/m^3)^{-1}$	1.7E-10	1.1E-10	(mg/m3)	6.0E-06	(mg/m^3)	0.00002
				Copper	4.3E-9	mg/m^3	3.2E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.9E-10	(mg/m3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	1.9E-08	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.1E-07	(mg/m3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	5.0E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	2.9E-10	(mg/m3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	3.0E-10	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.7E-09	(mg/m3)	5.0E-05	(mg/m^3)	0.00003
				Vanadium	2.0E-9	mg/m^3	1.5E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	8.9E-11	(mg/m3)	NA	(mg/m^3)	--
			Exp. Route Total								2.8E-09					0.00007
		Exposure Point Total									2.8E-09					0.00007
	Exposure Medium Total										2.8E-09					0.00007
Medium Total											1.3E-05					0.08
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	3.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.0E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0003
				Anthracene	153	mg/kg	6.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.0E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0001
				Benzo(a)anthracene	302	mg/kg	4.1E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.0E-05	7.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	3.3E-05	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-04	6.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.8E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-05	5.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	6.0E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Benzo(k)fluoranthene	199	mg/kg	2.7E-05	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	2.0E-06	5.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	3.6E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.7E-07	7.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	7.1E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.2E-05	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.005
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.9E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-05	3.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.2E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0005
				Phenanthrene	563	mg/kg	2.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.005
				Pyrene	569	mg/kg	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.005
				Total Aroclors	0.535	mg/kg	2.4E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.8E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	6.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.004
				Antimony	0.574	mg/kg	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0004
				Arsenic	17.7	mg/kg	8.0E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-06	4.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.518	mg/kg	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00007
				Cadmium	0.91	mg/kg	4.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0005
				Chromium	19.6	mg/kg	8.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	16.1	mg/kg	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Copper	235	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Iron	41374	mg/kg	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	190	mg/kg	8.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	3.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
				Molybdenum	3.100	mg/kg	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0002
				Thallium	0.150	mg/kg	6.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-08	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.0006
				Vanadium	21.2	mg/kg	9.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
				Zinc	888	mg/kg	4.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0008
			Exp. Route Total								3.6E-04					0.08
			Dermal	Acenaphthene	77	mg/kg	7.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0007
				Anthracene	153	mg/kg	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.5E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0003
				Benzo(a)anthracene	302	mg/kg	8.6E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.3E-05	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	6.9E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.1E-04	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	6.0E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.4E-05	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Benzo(k)fluoranthene	199	mg/kg	5.7E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.1E-06	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	7.7E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.6E-07	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.5E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.1E-04	2.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	6.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Indeno(1,2,3-cd)pyrene	138	mg/kg	3.9E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-05	7.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0010
				Phenanthrene	563	mg/kg	5.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Pyrene	569	mg/kg	5.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Total Aroclors	0.535	mg/kg	5.5E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.1E-07	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	3.9E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.8E-07	2.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	6.6E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								7.6E-04					0.04
		Exposure Point Total									1.1E-03					0.1
	Exposure Medium Total										1.1E-03					0.1
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	1.1E-06	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	6.6E-06	(mg/m3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	1.5E-07	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	8.9E-07	(mg/m3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	6.2E-10	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	6.8E-11	1.2E-09	(mg/m3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	5.0E-10	(mg/m3)	1.1E-03	$(ug/m^3)^{-1}$	5.5E-10	9.7E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	4.3E-10	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	4.7E-11	8.4E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	9.2E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	5.3E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	4.1E-10	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	4.5E-11	7.9E-10	(mg/m3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	5.5E-10	(mg/m3)	1.1E-05	$(ug/m^3)^{-1}$	6.1E-12	1.1E-09	(mg/m3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	1.1E-10	(mg/m3)	1.2E-03	$(ug/m^3)^{-1}$	1.3E-10	2.1E-10	(mg/m3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	4.9E-10	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.9E-09	(mg/m3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	2.8E-10	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	3.1E-11	5.5E-10	(mg/m3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	2.0E-06	(mg/m3)	3.4E-05	$(ug/m^3)^{-1}$	6.9E-08	1.2E-05	(mg/m3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	5.7E-06	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	3.3E-05	(mg/m3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	3.9E-10	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	2.3E-09	(mg/m3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	3.7E-13	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.1E-12	(mg/m3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	9.2E-09	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	5.4E-08	(mg/m3)	5.0E-03	(mg/m^3)	0.00001
				Antimony	5.2E-11	mg/m^3	3.9E-13	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.3E-12	(mg/m3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	1.2E-11	(mg/m3)	4.3E-03	$(ug/m^3)^{-1}$	5.2E-11	7.1E-11	(mg/m3)	3.0E-05	(mg/m^3)	0.000002
				Beryllium	4.7E-11	mg/m^3	3.5E-13	(mg/m3)	2.4E-03	$(ug/m^3)^{-1}$	8.5E-13	2.1E-12	(mg/m3)	2.0E-05	(mg/m^3)	0.0000001
				Cadmium	8.2E-11	mg/m^3	6.2E-13	(mg/m3)	1.8E-03	$(ug/m^3)^{-1}$	1.1E-12	3.6E-12	(mg/m3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	1.3E-11	(mg/m3)	1.2E-02	$(ug/m^3)^{-1}$	1.6E-10	7.8E-11	(mg/m3)	1.0E-04	(mg/m^3)	0.0000008
				Cobalt	1.5E-9	mg/m^3	1.1E-11	(mg/m3)	9.0E-03	$(ug/m^3)^{-1}$	9.9E-11	6.4E-11	(mg/m3)	6.0E-06	(mg/m^3)	0.00001
				Copper	2.1E-8	mg/m^3	1.6E-10	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	9.4E-10	(mg/m3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	2.8E-08	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.6E-07	(mg/m3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	1.3E-10	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	7.6E-10	(mg/m3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	5.7E-10	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	3.3E-09	(mg/m3)	5.0E-05	(mg/m^3)	0.00007
				Molybdenum	2.8E-10	mg/m^3	2.1E-12	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.2E-11	(mg/m3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	1.0E-13	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	6.0E-13	(mg/m3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	1.4E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	8.4E-11	(mg/m3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	6.1E-10	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	3.5E-09	(mg/m3)	NA	(mg/m^3)	--
			Exp. Route Total								7.0E-08					0.00009
		Exposure Point Total									7.0E-08					0.00009
	Exposure Medium Total										1.1E-03					0.1
Medium Total											1.1E-03					0.1

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	3.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-07	7.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	3.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.3E-06	6.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	3.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-07	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000005
				Benzo(k)fluoranthene	1.10	mg/kg	1.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.1E-08	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	2.0E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.5E-09	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.9E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-07	3.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	4.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Arsenic	18.6	mg/kg	8.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-06	4.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.395	mg/kg	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00005
				Chromium	15.4	mg/kg	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Cobalt	12.9	mg/kg	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Iron	26054	mg/kg	1.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.010
				Manganese (Soil)	418	mg/kg	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.002
			Exp. Route Total								4.3E-06					0.04
			Dermal	Benzo(a)anthracene	2.69	mg/kg	7.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	6.6E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.8E-06	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	7.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.7E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.10	mg/kg	3.1E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.3E-08	6.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	4.3E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	3.1E-09	8.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	4.0E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.9E-07	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	3.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-07	6.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	4.1E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.1E-07	2.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								7.1E-06					0.008
		Exposure Point Total									1.1E-05					0.05
	Exposure Medium Total										1.1E-05					0.05
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	5.5E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.1E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	4.8E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	5.2E-12	9.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	5.6E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.2E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	3.8E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	2.3E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.5E-13	4.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	3.1E-12	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	3.4E-14	6.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	2.9E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.5E-13	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.3E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.5E-13	4.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	7.5E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.4E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000009
				Arsenic	1.7E-9	mg/m^3	1.3E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.5E-11	7.4E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000002
				Beryllium	3.6E-11	mg/m^3	2.7E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	6.5E-13	1.6E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000008
				Chromium	1.4E-9	mg/m^3	1.1E-11	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.3E-10	6.1E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000006

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenerio Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	8.8E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	7.9E-11	5.1E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000009
				Iron	2.4E-6	mg/m^3	1.8E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	2.9E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.7E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
			Exp. Route Total								2.7E-10					0.00005
		Exposure Point Total									2.7E-10					0.00005
	Exposure Medium Total										2.7E-10					0.00005
Medium Total											1.1E-05					0.05
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.5E-07	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00002
				Benzo(e)anthracene	2.80	mg/kg	3.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-07	7.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.9E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-06	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	2.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-07	4.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000005
				Benzo(k)fluoranthene	1.30	mg/kg	1.8E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.3E-08	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	3.7E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.7E-09	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)enthracene	0.108	mg/kg	1.5E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.1E-07	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	4.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.1E-08	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	6.8E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.4E-07	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	5.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Arsenic	35.0	mg/kg	1.6E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.4E-06	9.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.470	mg/kg	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00006
				Chromium	24.3	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	13.5	mg/kg	6.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Iron	29083	mg/kg	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Lead	18.0	mg/kg	8.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	5.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.004
			Exp. Route Total								4.5E-06					0.06
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	8.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.8E-07	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	4.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.9E-06	7.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	4.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.3E-07	8.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	4.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000010
				Benzo(k)fluoranthene	1.30	mg/kg	3.7E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.7E-08	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	7.8E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.7E-09	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	3.1E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-07	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	9.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.6E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.5E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.1E-07	8.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	7.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-06	4.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								5.6E-06					0.01
		Exposure Point Total									1.0E-05					0.08
	Exposure Medium Total										1.0E-05					0.08
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	3.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.2E-06	(mg/m^3)	7.0E-03	(mg/m^3)	0.0003
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	1.0E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.8E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.0010
				Benzo(a)anthracene	2.5E-10	mg/m^3	5.7E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.3E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(e)pyrene	1.3E-10	mg/m^3	2.9E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	3.2E-12	5.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	3.3E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.6E-13	6.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	3.6E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	2.7E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.9E-13	5.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	5.6E-12	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	6.2E-14	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	2.2E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.7E-13	4.3E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indano(1,2,3-cd)pyrene	2.9E-11	mg/m^3	6.5E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.1E-14	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	1.0E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	6.0E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	8.6E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Arsenic	3.2E-9	mg/m^3	2.4E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.0E-10	1.4E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.000005
				Beryllium	4.3E-11	mg/m^3	3.2E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	7.7E-13	1.9E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000009
				Chromium	2.2E-9	mg/m^3	1.7E-11	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	2.0E-10	9.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000010
				Cobalt	1.2E-9	mg/m^3	9.2E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	8.3E-11	5.4E-11	(mg/m^3)	6.0E-08	(mg/m^3)	0.000009
				Iron	2.6E-6	mg/m^3	2.0E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	1.2E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	7.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00009
			Exp. Route Total								3.9E-10					0.001
		Exposure Point Total									3.9E-10					0.001
	Exposure Medium Total										1.0E-05					0.08
Medium Total											1.0E-05					0.08
Surface Water	Surface Water	Site 08	Dermal	Dieldrin	0.013	ug/L	2.5E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	3.9E-08	1.4E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0003
				Aluminum	96.7	ug/L	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.000001
				Arsenic	2.70	ug/L	4.9E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.4E-09	2.9E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00010
				Cobalt	1.10	ug/L	2.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00004
				Iron	612	ug/L	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-06	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.000009
				Manganese (Water)	156	ug/L	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-06	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.002
				Lead	2.0	ug/L	7.3E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Molybdenum	67.20	ug/L	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								4.7E-08					0.002
		Exposure Point Total									4.7E-08					0.002
	Exposure Medium Total										4.7E-08					0.002
Medium Total											4.7E-08					0.002

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timaframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 08	Ingestion	Benzo(a)anthracene	1.37	mg/kg	1.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-07	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	1.5E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.1E-06	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	1.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-07	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.784	mg/kg	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000007
				Benzo(k)fluoranthene	1.010	mg/kg	1.4E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.0E-08	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	1.9E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-09	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	1.9E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-07	3.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	9.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.7E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	1.2E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.9E-08	7.1E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0001
				Total Aroclors	0.456	mg/kg	2.1E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.1E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	5.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Arsenic	15.2	mg/kg	6.9E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.0E-06	4.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.480	mg/kg	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00006
				Chromium	18.3	mg/kg	8.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	88.1	mg/kg	4.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Iron	27909	mg/kg	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Lead	1797	mg/kg	8.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganesa (Soil)	1301	mg/kg	5.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.005
				Vanadium	27.2	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
			Exp. Route Total								2.7E-06					0.1
			Dermal	Benzo(a)anthracene	1.37	mg/kg	9.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.1E-07	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	8.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.9E-06	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	7.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.5E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	3.0E-02	(mg/kg/dey)	0.00004
				Benzo(k)fluoranthene	1.010	mg/kg	7.2E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.3E-08	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	9.8E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	7.2E-09	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracana	0.140	mg/kg	1.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.3E-07	1.9E-07	(mg/kg/day)	NA	(mg/kg/dey)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	4.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.5E-07	9.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	4.9E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	7.9E-08	2.9E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0006
				Total Aroclors	0.456	mg/kg	1.2E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.3E-07	6.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	15.2	mg/kg	8.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/dey)$^{-1}$	1.2E-06	4.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.480	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	18.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	88.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	27909	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1797	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	27.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								9.8E-06					0.02
		Exposure Point Total									1.2E-05					0.1
	Exposure Medium Total										1.2E-05					0.1
Medium Total											1.2E-05					0.1
										Total of Receptor Risks Across All Media	1.2E-03			Total of Receptor Hazards Across All Media		0.5

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timetrama: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Madium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	2.6E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-06	5.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.0E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-05	4.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	2.0E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.5E-06	4.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00006
				Benzo(k)fluoranthene	1.88	mg/kg	1.5E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.1E-07	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	2.3E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.7E-08	5.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	3.2E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.3E-06	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0003
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	8.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.4E-07	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0001
				Phenanthrene	6.66	mg/kg	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Pyrene	7.10	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Total Aroclors	0.332	mg/kg	5.0E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.0E-07	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	1.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	0.436	mg/kg	6.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.002
				Arsenic	23.9	mg/kg	3.6E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.4E-06	4.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.434	mg/kg	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Cadmium	1.51	mg/kg	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.005
				Chromium	20.5	mg/kg	3.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	27.1	mg/kg	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Copper	47.4	mg/kg	7.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.3E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Iron	27468	mg/kg	4.1E-03	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	4.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.07
				Lead	73.1	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	6.6E-05	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	7.6E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.01
				Vanadium	22.3	mg/kg	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.008
			Exp. Route Total								2.6E-05					0.4
			Dermal	Benzo(a)anthracene	3.22	mg/kg	9.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.9E-07	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	7.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.2E-06	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	7.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.4E-07	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/dey)	0.00002
				Benzo(k)fluoranthene	1.88	mg/kg	5.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.0E-08	1.2E-06	(mg/kg/dey)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	8.4E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.1E-09	1.8E-06	(mg/kg/dey)	NA	(mg/kg/day)	--
				Oibenzo(a,h)anthracene	0.400	mg/kg	1.2E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.5E-07	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	4.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-06	(mg/kg/dey)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	3.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-07	7.0E-07	(mg/kg/dey)	NA	(mg/kg/day)	--
				Naphthelene	1.20	mg/kg	6.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.7E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00004
				Phenanthrene	6.66	mg/kg	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	7.10	mg/kg	3.9E-07	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	4.5E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Total Aroclors	0.332	mg/kg	2.0E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.9E-08	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	3.0E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.5E-07	3.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	6.4E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								8.1E-06					0.01
		Exposure Point Total									3.4E-05					0.4
	Exposure Medium Total										3.4E-05					0.4
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	5.9E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.5E-13	1.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	4.4E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	4.9E-12	9.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	4.6E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.1E-13	1.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	3.3E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	3.4E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.8E-13	7.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	5.2E-12	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	5.8E-14	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	7.3E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	8.7E-13	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	2.5E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.2E-13	4.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	3.5E-08	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	1.2E-09	4.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	1.2E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	2.4E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	1.1E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.3E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	4.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.9E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000010
				Antimony	4.0E-11	mg/m^3	1.5E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.7E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	8.2E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	3.5E-11	9.5E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000003
				Beryllium	3.9E-11	mg/m^3	1.5E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	3.6E-13	1.7E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000009
				Cadmium	1.4E-10	mg/m^3	5.2E-13	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	9.3E-13	6.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	7.0E-12	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	8.4E-11	8.2E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000008
				Cobalt	2.5E-9	mg/m^3	9.3E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	8.3E-11	1.1E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00002
				Copper	4.3E-9	mg/m^3	1.6E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	9.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	2.5E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	1.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.7E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Vanadium	2.0E-9	mg/m^3	7.6E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.9E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.4E-09					0.00007
		Exposure Point Total									1.4E-09					0.00007
	Exposure Medium Total										1.4E-09					0.00007
Medium Total											3.4E-05					0.4
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-04	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.002
				Anthracene	153	mg/kg	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0009
				Benzo(a)anthracene	302	mg/kg	2.4E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-04	5.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.9E-04	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-03	4.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.7E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-04	3.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.008
				Benzo(k)fluoranthene	199	mg/kg	1.6E-04	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.2E-05	3.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	2.2E-04	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.6E-06	4.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	4.2E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.1E-04	9.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.03
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.1E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.1E-05	2.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	5.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.003
				Phenanthrene	563	mg/kg	8.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.9E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.03
				Pyrene	569	mg/kg	8.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.03
				Total Aroclors	0.535	mg/kg	8.0E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.6E-07	9.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	2.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	0.574	mg/kg	8.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.003
				Arsenic	17.7	mg/kg	2.7E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.0E-06	3.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.518	mg/kg	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0005
				Cadmium	0.91	mg/kg	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.003
				Chromium	19.6	mg/kg	2.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	16.1	mg/kg	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
				Copper	235	mg/kg	3.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Iron	41374	mg/kg	6.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.1
				Lead	190	mg/kg	2.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.02
				Molybdenum	3.100	mg/kg	4.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
				Thallium	0.150	mg/kg	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.004
				Vanadium	21.2	mg/kg	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.007
				Zinc	888	mg/kg	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.005
			Exp. Route Total								2.1E-03					0.5
			Dermal	Acenephthene	77	mg/kg	4.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0008
				Anthracene	153	mg/kg	8.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0003
				Benzo(a)anthracene	302	mg/kg	8.8E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.4E-05	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(e)pyrene	243.0	mg/kg	7.1E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.2E-04	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	6.1E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.5E-05	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	7.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Benzo(k)fluoranthene	199	mg/kg	5.8E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.2E-06	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	7.8E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.7E-07	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.5E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.1E-04	3.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	4.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Indeno(1,2,3-cd)pyrene	138	mg/kg	4.0E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-05	8.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.001
				Phenanthrene	563	mg/kg	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Pyrene	569	mg/kg	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Total Aroclors	0.535	mg/kg	3.2E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.3E-08	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	2.2E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.4E-07	2.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.009
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	3.8E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								7.7E-04					0.05
		Exposure Point Total									2.9E-03					0.6
	Exposure Medium Total										2.9E-03					0.6
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	5.7E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	7.7E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.9E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	5.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.1E-11	1.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	4.4E-10	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	4.9E-10	9.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	3.8E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.2E-11	8.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	4.6E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	3.6E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.0E-11	7.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	4.9E-10	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	5.4E-12	1.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	9.6E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.2E-10	2.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	2.5E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.9E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	2.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.8E-11	5.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	1.0E-06	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	3.5E-08	1.2E-05	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	2.9E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	1.9E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.3E-09	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	1.8E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.1E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	4.6E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.4E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Antimony	5.2E-11	mg/m^3	2.0E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.3E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	6.0E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.6E-11	7.1E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000002
				Beryllium	4.7E-11	mg/m^3	1.8E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	4.2E-13	2.1E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000001
				Cadmium	8.2E-11	mg/m^3	3.1E-13	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	5.6E-13	3.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	6.7E-12	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	8.0E-11	7.8E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000008
				Cobalt	1.5E-9	mg/m^3	5.5E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	4.9E-11	6.4E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.00001
				Copper	2.1E-8	mg/m^3	8.0E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	1.4E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.6E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	6.5E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	2.9E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00007
				Molybdenum	2.8E-10	mg/m^3	1.1E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	5.1E-14	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	7.2E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	3.0E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.5E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.5E-08					0.00009
		Exposure Point Total									3.5E-08					0.00009
	Exposure Medium Total										2.9E-03					0.6
Medium Total											2.9E-03					0.6

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	2.2E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-06	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.9E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-05	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	2.2E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-06	4.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.10	mg/kg	8.8E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.4E-08	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.2E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	8.8E-09	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.3E-07	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	9.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.6E-07	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	1.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	18.6	mg/kg	2.8E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.2E-06	3.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.395	mg/kg	5.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0003
				Chromium	15.4	mg/kg	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	12.9	mg/kg	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Iron	26054	mg/kg	3.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.07
				Manganese (Soil)	418	mg/kg	6.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.01
			Exp. Route Total								2.3E-05					0.3
			Dermal	Benzo(a)anthracene	2.69	mg/kg	7.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.7E-07	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	6.8E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.9E-06	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	8.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.9E-07	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.10	mg/kg	3.2E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.3E-08	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	4.4E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	3.2E-09	9.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	4.1E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.0E-07	9.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	3.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.4E-07	7.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	2.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.5E-07	2.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.009
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								7.0E-06					0.009
		Exposure Point Total									3.0E-05					0.3
	Exposure Medium Total										3.0E-05					0.3
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	4.9E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.4E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	4.2E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	4.6E-12	9.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	5.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.5E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	1.9E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	2.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.2E-13	4.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	2.7E-12	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	3.0E-14	6.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	2.6E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.1E-13	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.2E-13	4.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	3.7E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.4E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000009
				Arsenic	1.7E-9	mg/m^3	6.4E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.7E-11	7.4E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000002
				Beryllium	3.6E-11	mg/m^3	1.3E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	3.2E-13	1.6E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000008
				Chromium	1.4E-9	mg/m^3	5.3E-12	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	6.3E-11	6.1E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000006

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m³	4.4E-12	(mg/m³)	9.0E-03	(ug/m³)⁻¹	4.0E-11	5.1E-11	(mg/m³)	6.0E-06	(mg/m³)	0.000009
				Iron	2.4E-6	mg/m³	8.9E-09	(mg/m³)	NA	(ug/m³)⁻¹	--	1.0E-07	(mg/m³)	NA	(mg/m³)	--
				Manganese (Soil)	3.8E-8	mg/m³	1.4E-10	(mg/m³)	NA	(ug/m³)⁻¹	--	1.7E-09	(mg/m³)	5.0E-05	(mg/m³)	0.00003
			Exp. Route Total								1.4E-10					0.00005
		Exposure Point Total									1.4E-10					0.00005
	Exposure Medium Total										1.4E-10					0.00005
Medium Total											3.0E-05					0.3
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	5.4E-07	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	6.3E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.0001
				Benzo(a)anthracene	2.80	mg/kg	2.2E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	1.6E-06	4.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.1E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	8.2E-08	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	9.3E-07	2.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	9.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.30	mg/kg	1.0E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)⁻¹	7.6E-08	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysena	2.750	mg/kg	2.2E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)⁻¹	1.6E-08	4.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	8.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	6.3E-07	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	2.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	1.9E-07	5.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	2.3E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)⁻¹	4.5E-07	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	35.0	mg/kg	5.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)⁻¹	7.9E-06	6.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Beryllium	0.470	mg/kg	7.1E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	8.2E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Chromium	24.3	mg/kg	3.7E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	4.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	13.5	mg/kg	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	2.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Iron	29083	mg/kg	4.4E-03	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	5.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.07
				Lead	18.0	mg/kg	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	3.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	1.9E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.03
			Exp. Route Total								2.0E-05					0.4
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracena	2.80	mg/kg	8.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	6.0E-07	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	4.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	3.0E-06	8.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	4.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	3.4E-07	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	3.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthane	1.30	mg/kg	3.8E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)⁻¹	2.8E-08	8.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	8.0E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)⁻¹	5.9E-09	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	3.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)⁻¹	2.3E-07	6.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	9.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)⁻¹	6.8E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	8.8E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)⁻¹	1.8E-07	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	4.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)⁻¹	6.6E-07	5.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)⁻¹	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk	Non-Cancer Hazard Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								5.1E-06					
		Exposure Point Total									2.5E-05					0.02
	Exposure Medium Total										2.5E-05					0.4
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	1.9E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.2E-06	(mg/m^3)	7.0E-03	(mg/m^3)	0.0003
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	5.0E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.8E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.0010
				Benzo(a)anthracene	2.5E-10	mg/m^3	5.1E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.6E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	2.6E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.8E-12	5.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	2.9E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.2E-13	6.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	1.8E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	2.4E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.6E-13	5.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	5.0E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	5.5E-14	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	2.0E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.4E-13	4.3E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	5.8E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.4E-14	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	5.1E-13	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	6.0E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	4.3E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Arsenic	3.2E-9	mg/m^3	1.2E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.1E-11	1.4E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.000005
				Beryllium	4.3E-11	mg/m^3	1.6E-13	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	3.9E-13	1.9E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000009
				Chromium	2.2E-9	mg/m^3	8.3E-12	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	1.0E-10	9.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000010
				Cobalt	1.2E-9	mg/m^3	4.6E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	4.2E-11	5.4E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000009
				Iron	2.6E-6	mg/m^3	9.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	6.1E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	3.8E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00009
			Exp. Route Total								2.0E-10					0.001
		Exposure Point Total									2.0E-10					0.001
	Exposure Medium Total										2.5E-05					0.4
Medium Total											2.5E-05					0.4
Surface Water	Surface Water	Site 08	Dermal	Dieldrin	0.013	ug/L	2.8E-09	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	4.5E-08	3.3E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0007
				Aluminum	96.7	ug/L	2.0E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.4E-06	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.000002
				Arsenic	2.70	ug/L	5.7E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.5E-09	6.6E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Cobalt	1.10	ug/L	2.3E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.7E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00009
				Iron	612	ug/L	1.3E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.5E-05	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.00002
				Manganese (Water)	156	ug/L	3.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.8E-06	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.004
				Lead	2.0	ug/L	8.4E-10	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Molybdenum	67.20	ug/L	1.4E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.6E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								5.4E-08					0.005
		Exposure Point Total									5.4E-08					0.005
	Exposure Medium Total										5.4E-08					0.005
Medium Total											5.4E-08					0.005

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 08	Ingestion	Benzo(a)anthracene	1.37	mg/kg	1.1E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.0E-07	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	9.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.6E-06	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	8.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.2E-07	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00004
				Benzo(k)fluoranthene	1.010	mg/kg	8.1E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.9E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	1.1E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	8.1E-09	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.2E-07	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	5.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.0E-07	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	4.1E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	6.5E-08	4.7E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0009
				Total Aroclors	0.456	mg/kg	6.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.4E-07	8.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	2.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	15.2	mg/kg	2.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.4E-06	2.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
				Beryllium	0.480	mg/kg	7.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Chromium	18.3	mg/kg	2.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-05	(mg/kg/day)	3.0E-03	(mg/kg/dey)	0.01
				Cobalt	88.1	mg/kg	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.5
				Iron	27909	mg/kg	4.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.07
				Lead	1797	mg/kg	2.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.03
				Vanadium	27.2	mg/kg	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.010
			Exp. Route Total								1.3E-05					0.8
			Dermal	Benzo(a)anthracene	1.37	mg/kg	4.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-07	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	3.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.4E-06	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	3.1E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-07	6.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	4.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.010	mg/kg	2.9E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.2E-08	6.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	4.0E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.9E-09	8.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	4.1E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.0E-07	8.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	2.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-07	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	1.1E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.8E-08	1.3E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0003
				Total Aroclors	0.456	mg/kg	2.7E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.4E-08	3.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	15.2	mg/kg	1.9E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.9E-07	2.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.007
				Beryllium	0.480	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	18.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	88.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	27909	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1797	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	27.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								3.8E-06					0.008
		Exposure Point Total									1.7E-05					0.8
	Exposure Medium Total										1.7E-05					0.8
Medium Total											1.7E-05					0.8

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Finfish/Shellfish	Site 08	Ingestion	4,4'-DDE	0.648	mg/kg	1.5E-05	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	5.2E-06	1.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				4,4'-DDT	0.021	mg/kg	5.0E-07	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	1.7E-07	5.8E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.01
				Aldrin	0.002	mg/kg	4.7E-08	(mg/kg/day)	1.7E+01	$(mg/kg/day)^{-1}$	8.1E-07	5.5E-07	(mg/kg/day)	3.0E-05	(mg/kg/day)	0.02
				Dieldrin	0.039	mg/kg	9.3E-07	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	1.5E-05	1.1E-05	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.2
				Total Aroclors	0.608	mg/kg	1.4E-05	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	2.9E-05	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	0.005	mg/kg	1.2E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.8E-07	1.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0
				Chromium	3.27	mg/kg	7.8E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.1E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.3
				Mercury	0.100	mg/kg	2.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
			Exp. Route Total								5.0E-05					0.6
		Exposure Point Total									5.0E-05					0.6
	Exposure Medium Total										5.0E-05					0.6
Medium Total											5.0E-05					0.6
										Total of Receptor Risks Across All Media	3.1E-03			Total of Receptor Hazards Across All Media		3.1

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	3.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-07	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.9E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.1E-06	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	3.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.2E-07	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000006
				Benzo(k)fluorenthene	1.88	mg/kg	2.2E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.6E-08	3.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	3.4E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.5E-09	5.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	4.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.4E-07	7.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	4.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00003
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.5E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	7.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00001
				Phenanthrene	6.66	mg/kg	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/dey)	0.00004
				Pyrene	7.10	mg/kg	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00004
				Total Aroclors	0.332	mg/kg	2.1E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.3E-08	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	7.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Antimony	0.436	mg/kg	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-08	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0002
				Arsenic	23.9	mg/kg	1.5E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.3E-06	4.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.434	mg/kg	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00004
				Cadmium	1.51	mg/kg	9.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0006
				Chromium	20.5	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Cobalt	27.1	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Copper	47.4	mg/kg	3.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0002
				Iron	27468	mg/kg	1.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.007
				Lead	73.1	mg/kg	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.001
				Vanadium	22.3	mg/kg	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0008
			Exp. Route Total								5.4E-06					0.05
			Dermal	Benzo(a)anthracene	3.22	mg/kg	2.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-07	3.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.5E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.1E-06	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	3.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.4E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000003
				Benzo(k)fluoranthene	1.88	mg/kg	1.2E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	8.4E-09	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.8E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.3E-09	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	2.5E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.8E-07	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00002
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	6.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.9E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	4.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000006
				Phenanthrene	6.68	mg/kg	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Pyrene	7.10	mg/kg	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Total Aroclors	0.332	mg/kg	1.2E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.4E-08	3.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	1.8E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.8E-07	5.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	3.9E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00005
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.9E-08					0.002
		Exposure Point Total									7.3E-06					0.05
	Exposure Medium Total										7.3E-06					0.05
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	8.1E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.9E-13	1.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	6.1E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	6.7E-12	9.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	6.4E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.0E-13	1.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	1.3E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	4.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.2E-13	7.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	7.2E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	7.9E-14	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	1.0E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.2E-12	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	1.0E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.0E-13	4.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	1.4E-07	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	4.7E-09	4.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	4.8E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	9.7E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	4.5E-13	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.3E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	1.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.9E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000010
				Antimony	4.0E-11	mg/m^3	6.0E-13	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.7E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	3.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.4E-10	9.5E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000003
				Beryllium	3.9E-11	mg/m^3	5.9E-13	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.4E-12	1.7E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000009
				Cadmium	1.4E-10	mg/m^3	2.1E-12	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	3.7E-12	6.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	2.8E-11	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	3.4E-10	8.2E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000008
				Cobalt	2.5E-9	mg/m^3	3.7E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	3.3E-10	1.1E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00002
				Copper	4.3E-9	mg/m^3	6.5E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	3.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	1.0E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	6.0E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Vanadium	2.0E-9	mg/m^3	3.0E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.9E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								5.6E-09					0.00007
		Exposure Point Total									5.6E-09					0.00007
	Exposure Medium Total										5.6E-09					0.00007
Medium Total											7.3E-06					0.05
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	4.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.4E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0002
				Anthracene	153	mg/kg	9.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.9E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00010
				Benzo(a)anthracene	302	mg/kg	3.6E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-05	5.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	2.9E-05	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.1E-04	4.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.5E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-05	3.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	8.6E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0008
				Benzo(k)fluoranthene	199	mg/kg	2.3E-05	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	1.7E-06	3.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	3.2E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.3E-07	5.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	6.2E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.5E-05	9.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	4.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.003
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.6E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-05	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0003
				Phenanthrene	563	mg/kg	3.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.004
				Pyrene	569	mg/kg	3.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.004
				Total Aroclors	0.535	mg/kg	3.4E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.9E-08	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	8.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Antimony	0.574	mg/kg	3.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0003
				Arsenic	17.7	mg/kg	1.1E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.7E-06	3.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.518	mg/kg	3.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00005
				Cadmium	0.91	mg/kg	5.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0003
				Chromium	19.6	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Cobalt	16.1	mg/kg	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Copper	235	mg/kg	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.001
				Iron	41374	mg/kg	2.7E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Lead	190	mg/kg	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	5.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.002
				Molybdenum	3.100	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0001
				Thallium	0.150	mg/kg	9.7E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-08	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.0004
				Vanadium	21.2	mg/kg	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0008
				Zinc	888	mg/kg	5.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0006
			Exp. Route Total								3.1E-04					0.05
			Dermal	Acenaphthene	77	mg/kg	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0001
				Anthracene	153	mg/kg	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00005
				Benzo(a)anthracene	302	mg/kg	1.8E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-05	2.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.5E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.1E-04	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.3E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.4E-06	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	4.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Benzo(k)fluoranthene	199	mg/kg	1.2E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	8.9E-07	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	1.6E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-07	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	3.2E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.4E-05	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.0E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Indeno(1,2,3-cd)pyrene	138	mg/kg	8.5E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.2E-06	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0002
				Phenanthrene	563	mg/kg	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Pyrene	569	mg/kg	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Total Aroclors	0.535	mg/kg	1.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.8E-08	5.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	1.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-07	4.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	2.3E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.8E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00003
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.6E-04					0.008
		Exposure Point Total									4.8E-04					0.06
	Exposure Medium Total										4.8E-04					0.06
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	2.3E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	3.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.9E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	7.6E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.3E-11	1.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	6.1E-10	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	6.7E-10	9.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	5.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.8E-11	8.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	1.8E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	5.0E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.5E-11	7.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	6.7E-10	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	7.4E-12	1.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	1.3E-10	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.6E-10	2.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	9.9E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.9E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	3.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.8E-11	5.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	4.1E-06	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	1.4E-07	1.2E-05	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	1.1E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	7.8E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.3E-09	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	7.3E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.1E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	1.8E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.4E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Antimony	5.2E-11	mg/m^3	7.8E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.3E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	2.4E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.0E-10	7.1E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000002
				Beryllium	4.7E-11	mg/m^3	7.1E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	1.7E-12	2.1E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000001
				Cadmium	8.2E-11	mg/m^3	1.2E-12	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	2.2E-12	3.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	2.7E-11	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	3.2E-10	7.8E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000008
				Cobalt	1.5E-9	mg/m^3	2.2E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	2.0E-10	6.4E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.00001
				Copper	2.1E-8	mg/m^3	3.2E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	5.7E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.6E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	2.6E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	1.1E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00007
				Molybdenum	2.8E-10	mg/m^3	4.2E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	2.0E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	2.9E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	1.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.5E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.4E-07					0.00009
		Exposure Point Total									1.4E-07					0.00009
	Exposure Medium Total										4.8E-04					0.06
Medium Total											4.8E-04					0.06

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	3.2E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-07	5.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.7E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.0E-06	4.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	3.2E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.4E-07	5.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	3.5E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000003
				Benzo(k)fluoranthene	1.10	mg/kg	1.3E-07	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	9.5E-09	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.8E-07	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	1.3E-09	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-07	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.7E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	7.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	18.6	mg/kg	1.2E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.8E-06	3.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.395	mg/kg	2.5E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.4E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00004
				Chromium	15.4	mg/kg	9.9E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.9E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0010
				Cobalt	12.9	mg/kg	8.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Iron	26054	mg/kg	1.7E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.9E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.007
				Manganese (Soil)	418	mg/kg	2.7E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.9E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.001
			Exp. Route Total								4.5E-06					0.03
			Dermal	Benzo(a)anthracene	2.69	mg/kg	1.6E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-07	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.4E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-06	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.7E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-07	2.7E-07	(mg/kg/dey)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	1.8E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.4E-08	(mg/kg/day)	3.0E-02	(mg/kg/dey)	0.000002
				Benzo(k)fluoranthene	1.10	mg/kg	6.7E-08	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	4.9E-09	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	9.2E-08	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	6.7E-10	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	8.6E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.3E-08	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	6.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.0E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	1.4E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-07	4.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								1.6E-06					0.001
		Exposure Point Total									6.1E-06					0.03
	Exposure Medium Total										6.1E-06					0.03
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	6.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.4E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	5.8E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	6.4E-12	9.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	6.9E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.6E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	7.5E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	2.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.0E-13	4.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	3.8E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	4.1E-14	6.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	3.5E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	4.2E-13	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.1E-13	4.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	1.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.4E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000009
				Arsenic	1.7E-9	mg/m^3	2.5E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.1E-10	7.4E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000002
				Beryllium	3.6E-11	mg/m^3	5.4E-13	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.3E-12	1.6E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000008
				Chromium	1.4E-9	mg/m^3	2.1E-11	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	2.5E-10	6.1E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000006

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk	Non-Cancer Hazard Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	1.8E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.6E-10	5.1E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000009
				Iron	2.4E-6	mg/m^3	3.6E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	5.7E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.7E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
			Exp. Route Total								5.3E-10					0.00005
		Exposure Point Total									5.3E-10					0.00005
	Exposure Medium Total										5.3E-10					0.00005
Medium Total											6.1E-06					0.03
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.8E-07	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00001
				Benzo(a)anthracene	2.80	mg/kg	3.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.4E-07	5.3E-07	(mg/kg/dey)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.7E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-06	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthane	1.59	mg/kg	1.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-07	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	3.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000003
				Benzo(k)fluoranthene	1.30	mg/kg	1.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.1E-08	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	3.2E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.4E-09	5.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.3E-08	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	3.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-08	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	9.7E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.9E-07	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	8.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	35.0	mg/kg	2.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.4E-06	6.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.470	mg/kg	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.8E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00004
				Chromium	24.3	mg/kg	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	13.5	mg/kg	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Iron	29083	mg/kg	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.008
				Lead	18.0	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	7.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
			Exp. Route Total								5.3E-06					0.04
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(e)anthracene	2.80	mg/kg	1.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-07	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	8.6E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.3E-07	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	9.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.1E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.30	mg/kg	8.0E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.8E-09	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	1.7E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-09	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	6.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.8E-08	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.9E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-08	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	5.4E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.1E-07	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	2.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/dey)$^{-1}$	4.0E-07	7.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								1.4E-06					0.003
		Exposure Point Total									6.7E-06					0.05
	Exposure Medium Total										6.7E-06					0.05
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	7.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.2E-06	(mg/m^3)	7.0E-03	(mg/m^3)	0.0003
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	2.0E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.8E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.0010
				Benzo(a)anthracene	2.5E-10	mg/m^3	7.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.7E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	3.5E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	3.9E-12	5.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	4.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.4E-13	6.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	7.1E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	3.3E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.6E-13	5.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	6.9E-12	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	7.6E-14	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	2.7E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.2E-13	4.3E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	7.9E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.7E-14	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	2.0E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	6.0E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	1.7E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Arsenic	3.2E-9	mg/m^3	4.8E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.1E-10	1.4E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.000005
				Beryllium	4.3E-11	mg/m^3	6.4E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	1.5E-12	1.9E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000009
				Chromium	2.2E-9	mg/m^3	3.3E-11	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	4.0E-10	9.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000010
				Cobalt	1.2E-9	mg/m^3	1.8E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.7E-10	5.4E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000009
				Iron	2.6E-6	mg/m^3	4.0E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	2.5E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	1.5E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00009
			Exp. Route Total								7.8E-10					0.001
		Exposure Point Total									7.8E-10					0.001
	Exposure Medium Total										6.7E-06					0.05
Medium Total											6.7E-06					0.05
Surface Water	Surface Water	Site 08	Dermal	Dieldrin	0.013	ug/L	6.0E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	9.5E-08	1.7E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0003
				Aluminum	96.7	ug/L	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-06	(mg/kg/day)	1.0E+00	(mg/kg/dey)	0.000001
				Arsenic	2.70	ug/L	1.2E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.8E-08	3.5E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0001
				Cobalt	1.10	ug/L	4.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00005
				Iron	612	ug/L	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-06	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.00001
				Manganese (Water)	156	ug/L	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-06	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.002
				Lead	2.0	ug/L	1.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Molybdenum	67.20	ug/L	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.7E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								1.1E-07					0.003
		Exposure Point Total									1.1E-07					0.003
	Exposure Medium Total										1.1E-07					0.003
Medium Total											1.1E-07					0.003

TABLE 7 5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 08	Ingestion	Benzo(a)anthracene	1.37	mg/kg	1.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-07	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	1.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.7E-07	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.1E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	4.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000005
				Benzo(k)fluoranthene	1.010	mg/kg	1.2E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	8.7E-09	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	1.6E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-09	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	1.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-07	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	8.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.8E-08	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	1.7E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	2.8E-08	5.1E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0001
				Total Aroclors	0.456	mg/kg	2.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.9E-08	8.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	8.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	15.2	mg/kg	9.8E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-06	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Beryllium	0.480	mg/kg	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.0E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00005
				Chromium	18.3	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Cobalt	88.1	mg/kg	5.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Iron	27909	mg/kg	1.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.007
				Lead	1797	mg/kg	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	8.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
				Vanadium	27.2	mg/kg	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
			Exp. Route Total								2.9E-06					0.08
			Dermal	Benzo(a)anthracene	1.37	mg/kg	1.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.4E-08	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrena	1.130	mg/kg	8.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.1E-07	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	7.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.7E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.0E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000003
				Benzo(k)fluoranthene	1.010	mg/kg	7.5E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.5E-09	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	1.0E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	7.4E-10	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	1.0E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.6E-08	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	5.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.7E-08	8.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	8.4E-10	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.3E-08	2.4E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00005
				Total Aroclors	0.456	mg/kg	2.0E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.0E-08	5.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	15.2	mg/kg	1.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.1E-07	4.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.480	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	18.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	88.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	27909	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1797	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	27.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.1E-06					0.001
		Exposure Point Total									4.1E-06					0.08
	Exposure Medium Total										4.1E-06					0.08
Medium Total											4.1E-06					0.08

TABLE 7.5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Finfish/Shellfish	Site 08	Ingestion	4,4'-DDE	0.648	mg/kg	4.0E-05	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	1.3E-05	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				4,4'-DDT	0.021	mg/kg	1.3E-06	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	4.4E-07	3.7E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.007
				Aldrin	0.002	mg/kg	1.2E-07	(mg/kg/day)	1.7E+01	$(mg/kg/day)^{-1}$	2.1E-06	3.6E-07	(mg/kg/day)	3.0E-05	(mg/kg/day)	0.01
				Dieldrin	0.039	mg/kg	2.4E-06	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	3.8E-05	6.9E-06	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.1
				Total Aroclors	0.608	mg/kg	3.7E-05	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	7.4E-05	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	0.005	mg/kg	3.1E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.6E-07	9.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00
				Chromium	3.27	mg/kg	2.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.8E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.2
				Mercury	0.100	mg/kg	6.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
			Exp. Route Total								1.3E-04					0.4
		Exposure Point Total									1.3E-04					0.4
	Exposure Medium Total										1.3E-04					0.4
Medium Total											1.3E-04					0.4
										Total of Receptor Risks Across All Media	6.3E-04			Total of Receptor Hazards Across All Media		0.7

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	1.9E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-05	4.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.4E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.0E-04	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.5E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-05	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Benzo(k)fluoranthene	1.88	mg/kg	1.1E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	8.0E-07	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.7E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-07	3.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	2.3E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-05	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	8.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.3E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	6.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.7E-06	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0008
				Phenanthrene	6.66	mg/kg	7.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Pyrene	7.10	mg/kg	7.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Total Aroclors	0.332	mg/kg	3.6E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	7.3E-07	4.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	1.3E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.2
				Antimony	0.436	mg/kg	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-06	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.01
				Arsenic	23.9	mg/kg	2.6E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.9E-05	3.1E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	1.0
				Beryllium	0.434	mg/kg	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.003
				Cadmium	1.51	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.04
				Chromium	20.5	mg/kg	2.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.09
				Cobalt	27.1	mg/kg	3.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	1.2
				Copper	47.4	mg/kg	5.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.02
				Iron	27468	mg/kg	3.0E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.5
				Lead	73.1	mg/kg	8.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	4.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.08
				Vanadium	22.3	mg/kg	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.06
			Exp. Route Total								1.9E-04					3.1
			Dermal	Benzo(a)anthracene	3.22	mg/kg	6.9E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.0E-06	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	5.2E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.8E-05	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluorenthene	2.55	mg/kg	5.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.0E-06	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)peryiene	0.96	mg/kg	3.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Benzo(k)fluoranthene	1.88	mg/kg	4.0E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.9E-07	8.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	6.1E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.5E-08	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	8.5E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.2E-06	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	2.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0008
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	2.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.7E-06	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0003
				Phenanthrene	6.66	mg/kg	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Pyrene	7.10	mg/kg	2.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Total Aroclors	0.332	mg/kg	1.4E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.9E-07	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	2.2E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.3E-06	2.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	4.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-08	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.002
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanedium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								5.9E-05					0.09
		Exposure Point Total									2.5E-04					3.2
	Exposure Medium Total										2.5E-04					3.2
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	1.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.4E-11	2.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	9.7E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.1E-10	2.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	1.0E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.1E-11	2.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	7.2E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	7.5E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.2E-12	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	1.1E-10	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.3E-12	2.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	1.6E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.9E-11	3.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	5.5E-11	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	6.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	4.4E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.8E-12	9.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	7.6E-07	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	2.6E-08	8.9E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	2.6E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	5.3E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	2.5E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.9E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	9.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Antimony	4.0E-11	mg/m^3	3.3E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	3.8E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	1.8E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	7.7E-10	2.1E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00007
				Beryllium	3.9E-11	mg/m^3	3.2E-12	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	7.8E-12	3.8E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Cadmium	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	2.0E-11	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	1.5E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.8E-09	1.8E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
				Cobalt	2.5E-9	mg/m^3	2.0E-10	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.8E-09	2.4E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0004
				Copper	4.3E-9	mg/m^3	3.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	2.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	5.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.4E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	3.3E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.8E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0008
				Vanadium	2.0E-9	mg/m^3	1.7E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.9E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.0E-08					0.001
		Exposure Point Total									3.0E-08					0.001
	Exposure Medium Total										3.0E-08					0.001
Medium Total											2.5E-04					3.2
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	8.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-04	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.02
				Anthracene	153	mg/kg	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.007
				Benzo(a)anthracene	302	mg/kg	1.8E-03	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-03	3.9E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.4E-03	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.0E-02	3.1E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.2E-03	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.0E-04	2.7E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.06
				Benzo(k)fluoranthene	199	mg/kg	1.2E-03	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	8.5E-05	2.5E-03	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timaframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposura Point	Exposura Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	1.6E-03	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.1E-05	3.4E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	3.1E-04	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-03	6.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthana	723	mg/kg	7.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.2E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.2
				Indeno(1,2,3-cd)pyrena	138	mg/kg	8.1E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.9E-04	1.8E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	3.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-04	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.02
				Phenanthrena	563	mg/kg	6.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.2
				Pyrene	569	mg/kg	6.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.2
				Total Aroclors	0.535	mg/kg	5.9E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.2E-06	6.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	1.5E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.2
				Antimony	0.574	mg/kg	6.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-06	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.02
				Arsenic	17.7	mg/kg	1.9E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.9E-05	2.3E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.8
				Beryllium	0.518	mg/kg	5.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.003
				Cadmium	0.91	mg/kg	9.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.02
				Chromium	19.6	mg/kg	2.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.08
				Cobalt	16.1	mg/kg	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.7
				Copper	235	mg/kg	2.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.08
				Iron	41374	mg/kg	4.5E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.8
				Lead	190	mg/kg	2.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	9.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-02	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.1
				Molybdenum	3.100	mg/kg	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.008
				Thallium	0.150	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-06	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.03
				Vanadium	21.2	mg/kg	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.05
				Zinc	888	mg/kg	9.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-02	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.04
			Exp. Route Total								1.5E-02					3.7
			Dermal	Acenaphthene	77	mg/kg	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-04	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.006
				Anthracene	153	mg/kg	6.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.002
				Benzo(a)anthracene	302	mg/kg	6.4E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.7E-04	1.4E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	5.2E-04	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.8E-03	1.1E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	4.5E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.3E-04	9.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Banzo(g,h,i)parylene	134	mg/kg	5.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.02
				Benzo(k)fluoranthene	199	mg/kg	4.2E-04	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.1E-05	9.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	5.7E-04	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.2E-06	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.1E-04	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.2E-04	2.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	2.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.08
				Indeno(1,2,3-cd)pyrena	138	mg/kg	2.9E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.1E-04	6.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-04	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.008
				Phananthrene	563	mg/kg	2.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.09
				Pyrana	569	mg/kg	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.09
				Total Aroclors	0.535	mg/kg	2.3E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.6E-07	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	1.6E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.4E-06	1.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	2.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-08	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.001
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Aree	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								5.6E-03					0.4
		Exposure Point Total									2.1E-02					4.0
	Exposure Medium Total										2.1E-02					4.0
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	1.2E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.4E-04	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	1.7E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	1.2E-08	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-09	2.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	9.7E-09	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.1E-08	2.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	8.4E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.2E-10	1.8E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	1.0E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluorenthene	1.8E-8	mg/m^3	7.9E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.7E-10	1.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	1.1E-08	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.2E-10	2.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthrecene	4.8E-9	mg/m^3	2.1E-09	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.5E-09	4.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	5.4E-09	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	6.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	5.5E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.0E-10	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	2.2E-05	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	7.6E-07	2.6E-04	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	6.3E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	4.3E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	4.0E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	4.7E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	1.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Antimony	5.2E-11	mg/m^3	4.3E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	5.0E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	1.3E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.7E-10	1.5E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00005
				Beryllium	4.7E-11	mg/m^3	3.9E-12	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	9.3E-12	4.5E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Cadmium	8.2E-11	mg/m^3	6.8E-12	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	1.2E-11	7.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	1.5E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.8E-09	1.7E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
				Cobalt	1.5E-9	mg/m^3	1.2E-10	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.1E-09	1.4E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Copper	2.1E-8	mg/m^3	1.8E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	3.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	1.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	6.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.3E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.001
				Molybdenum	2.8E-10	mg/m^3	2.3E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	1.1E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	1.6E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	6.6E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.7E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								7.8E-07					0.002
		Exposure Point Total									7.8E-07					0.002
	Exposure Medium Total										2.1E-02					4.0
Medium Total											2.1E-02					4.0

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	1.6E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-05	3.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.4E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.9E-05	3.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.6E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-05	3.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.0E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Benzo(k)fluoranthene	1.10	mg/kg	6.4E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.7E-07	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	8.8E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.4E-08	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	8.2E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.0E-06	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	6.5E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.8E-06	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	1.2E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.1
				Arsenic	18.6	mg/kg	2.0E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.1E-05	2.4E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.8
				Beryllium	0.395	mg/kg	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.003
				Chromium	15.4	mg/kg	1.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.07
				Cobalt	12.9	mg/kg	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.5
				Iron	26054	mg/kg	2.9E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.5
				Manganese (Soil)	418	mg/kg	4.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.07
			Exp. Route Total								1.6E-04					2.1
			Dermal	Benzo(a)anthracene	2.69	mg/kg	5.7E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.2E-06	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	4.9E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.6E-05	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	5.9E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.3E-06	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00009
				Benzo(k)fluoranthene	1.10	mg/kg	2.3E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.7E-07	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	3.2E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.3E-08	7.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	3.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-06	6.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	2.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.7E-06	5.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	1.7E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.6E-06	2.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.07
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								5.1E-05					0.07
		Exposure Point Total									2.2E-04					2.2
	Exposura Medium Total										2.2E-04					2.2
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	1.1E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-11	2.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	9.2E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.0E-10	2.0E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	1.1E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-11	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	4.1E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	4.4E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.8E-12	9.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	6.0E-11	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	6.6E-13	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	5.6E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	6.7E-12	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	4.5E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.9E-12	9.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	8.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.5E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Arsenic	1.7E-9	mg/m^3	1.4E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	6.0E-10	1.6E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00005
				Beryllium	3.6E-11	mg/m^3	3.0E-12	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	7.1E-12	3.4E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Chromium	1.4E-9	mg/m^3	1.2E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.4E-09	1.3E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	9.6E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	8.7E-10	1.1E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Iron	2.4E-6	mg/m^3	1.9E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	3.1E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.6E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0007
			Exp. Route Total								3.0E-09					0.001
		Exposure Point Total									3.0E-09					0.001
	Exposure Medium Total										3.0E-09					0.001
Medium Total											2.2E-04					2.2
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-05	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.0009
				Benzo(a)anthracene	2.80	mg/kg	1.6E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-05	3.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	8.2E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.0E-05	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	9.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.8E-06	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	5.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Benzo(k)fluoranthene	1.30	mg/kg	7.6E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.5E-07	1.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	1.6E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-07	3.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	6.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.6E-06	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.9E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-06	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.6E-06	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.3E-06	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.2
				Arsenic	35.0	mg/kg	3.8E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.8E-05	4.5E-04	(mg/kg/day)	3.0E-04	(mg/kg/dey)	1.5
				Beryllium	0.470	mg/kg	5.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.003
				Chromium	24.3	mg/kg	2.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.1
				Cobalt	13.5	mg/kg	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.6
				Iron	29083	mg/kg	3.2E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.5
				Lead	18.0	mg/kg	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	1.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-02	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.2
			Exp. Route Total								1.5E-04					3.1
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	6.0E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.3E-06	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	3.0E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-05	6.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	3.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-06	7.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00008
				Benzo(k)fluoranthene	1.30	mg/kg	2.8E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.0E-07	6.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	5.9E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.3E-08	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	2.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-06	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	6.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.9E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	6.4E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.3E-06	7.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	3.2E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.8E-06	3.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								3.7E-05					0.1
		Exposure Point Total									1.8E-04					3.2
	Exposure Medium Total										1.8E-04					3.2
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzane	5.1E-5	mg/m^3	4.2E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.9E-05	(mg/m^3)	7.0E-03	(mg/m^3)	0.007
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	1.1E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-04	(mg/m^3)	6.0E-03	(mg/m^3)	0.02
				Benzo(a)anthracene	2.5E-10	mg/m^3	1.1E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.2E-11	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(e)pyrene	1.3E-10	mg/m^3	5.6E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	6.1E-11	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	6.3E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.0E-12	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	3.9E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	5.2E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.7E-12	1.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	1.1E-10	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.2E-12	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.6E-12	mg/m^3	4.3E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	5.2E-12	9.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	1.3E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.4E-12	2.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.3E-10	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	9.4E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Arsenic	3.2E-9	mg/m^3	2.6E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.1E-09	3.1E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.0001
				Beryllium	4.3E-11	mg/m^3	3.5E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	8.4E-12	4.1E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Chromium	2.2E-9	mg/m^3	1.8E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	2.2E-09	2.1E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
				Cobalt	1.2E-9	mg/m^3	1.0E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	9.1E-10	1.2E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Iron	2.6E-6	mg/m^3	2.2E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	1.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	8.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.8E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.002
			Exp. Route Total								4.3E-09					0.03
		Exposure Point Total									4.3E-09					0.03
	Exposure Medium Total										1.8E-04					3.2
Medium Total											1.8E-04					3.2
Groundwater	Groundwater	Site 08	Ingestion	1,1-Dichloroethane	310	ug/L	2.4E-03	(mg/kg/day)	5.7E-03	$(mg/kg/day)^{-1}$	1.4E-05	2.8E-02	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.1
				1,2,4-Trimethylbenzene	810	ug/L	8.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.2E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	2.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-02	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.5
				Bromomethane	2.00	ug/L	1.5E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-04	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.1
				Carbon Tetrachloride	2.00	ug/L	1.5E-05	(mg/kg/day)	1.3E-01	$(mg/kg/day)^{-1}$	2.0E-06	1.8E-04	(mg/kg/day)	7.0E-04	(mg/kg/dey)	0.3
				Chloroform	7.00	ug/L	5.4E-05	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	1.7E-06	6.3E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.06
				Chloromethane	16.0	ug/L	1.2E-04	(mg/kg/day)	1.3E-02	$(mg/kg/day)^{-1}$	1.6E-06	1.4E-03	(mg/kg/dey)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	4.4E-04	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	4.9E-06	5.2E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.05
				Isopropylbenzene	94.0	ug/L	7.2E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.4E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.08
				Tetrachloroethene	12.0	ug/L	9.2E-05	(mg/kg/day)	5.4E-01	$(mg/kg/day)^{-1}$	5.0E-05	1.1E-03	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.1
				Total Xylenes	97.0	ug/L	7.4E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.7E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.04
				Trichloroethene	730	ug/L	5.6E-03	(mg/kg/day)	1.3E-02	$(mg/kg/day)^{-1}$	7.3E-05	6.5E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	1.5E-04	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-04	1.7E-03	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.6
				Benzo(k)fluoranthene	4.00	ug/L	1.6E-04	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	1.2E-05	3.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	8.3E-08	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	1.3E-06	9.7E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.02

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Ingestion	Aluminum	564000	ug/L	4.3E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E+01	(mg/kg/day)	1.0E+00	(mg/kg/day)	50
				Antimony	1.20	ug/L	9.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.3
				Arsenic	503	ug/L	3.9E-03	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.8E-03	4.5E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	150
				Barium	1390	ug/L	1.1E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-01	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.6
				Beryllium	17.8	ug/L	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-03	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.8
				Chromium	868	ug/L	6.7E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.8E-02	(mg/kg/day)	3.0E-03	(mg/kg/day)	26
				Cobalt	637	ug/L	4.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	190
				Coppar	1440	ug/L	1.1E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-01	(mg/kg/day)	4.0E-02	(mg/kg/day)	3.2
				Iron	1210000	ug/L	9.3E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E+02	(mg/kg/day)	7.0E-01	(mg/kg/day)	155
				Lead	1890	ug/L	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-01	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganesa (Water)	13800	ug/L	1.1E-01	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E+00	(mg/kg/day)	2.4E-02	(mg/kg/day)	51
				Mercury	1.90	ug/L	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.6
				Molybdenum	20.3	ug/L	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-03	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.4
				Nickel	1160	ug/L	8.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-01	(mg/kg/day)	2.0E-02	(mg/kg/day)	5.2
				Thallium	2.30	ug/L	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-04	(mg/kg/day)	6.5E-05	(mg/kg/day)	3.2
				Vanadium	832	ug/L	6.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-02	(mg/kg/day)	5.0E-03	(mg/kg/day)	15
				Zinc	3990	ug/L	3.1E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-01	(mg/kg/day)	3.0E-01	(mg/kg/day)	1.2
			Exp. Route Total								6.2E-03					655
			Dermal	1,1-Dichloroethane	310	ug/L	1.3E-04	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	7.6E-07	1.6E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.008
				1,2,4-Trimethylbenzene	810	ug/L	4.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	1.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-02	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.3
				Bromomethane	2.00	ug/L	3.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-06	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.003
				Carbon Tetrachloride	2.00	ug/L	2.9E-06	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	3.7E-07	3.4E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.05
				Chlorotorm	7.00	ug/L	3.4E-06	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	1.0E-07	3.9E-05	(mg/kg/day)	1.0E-02	(mg/kg/dey)	0.004
				Chloromathane	16.0	ug/L	2.7E-06	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	3.5E-08	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	1.8E-04	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	2.0E-06	2.2E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.02
				Isopropylbenzene	94.0	ug/L	5.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.8E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.07
				Tetrachloroethene	12.0	ug/L	3.8E-05	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	2.1E-05	4.5E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.04
				Total Xylenes	97.0	ug/L	2.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.02
				Trichloroethene	730	ug/L	6.5E-04	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	8.4E-06	7.6E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	5.6E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.5E-06	6.6E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.02
				Benzo(k)fluoranthana	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dialdrin	0.011	ug/L	4.0E-08	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	6.5E-07	4.7E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.009
				Aluminum	564000	ug/L	2.0E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.2
				Antimony	1.20	ug/L	4.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-07	(mg/kg/day)	6.0E-05	(mg/kg/day)	0.008
				Arsenic	503	ug/L	1.8E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.7E-05	2.1E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.7
				Barium	1390	ug/L	5.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-04	(mg/kg/day)	1.4E-02	(mg/kg/day)	0.04
				Beryllium	17.8	ug/L	6.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-06	(mg/kg/day)	1.4E-05	(mg/kg/day)	0.5
				Chromium	868	ug/L	8.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-04	(mg/kg/day)	7.5E-05	(mg/kg/day)	9.8
				Cobalt	837	ug/L	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-04	(mg/kg/dey)	3.0E-04	(mg/kg/day)	0.9
				Copper	1440	ug/L	5.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.02
				Iron	1210000	ug/L	4.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.7
				Lead	1890	ug/L	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	5.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-03	(mg/kg/day)	9.6E-04	(mg/kg/day)	6.1
				Mercury	1.90	ug/L	6.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.0E-07	(mg/kg/day)	2.1E-05	(mg/kg/day)	0.04
				Molybdenum	20.3	ug/L	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Dermal	Nickel	1160	ug/L	8.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-05	(mg/kg/day)	8.0E-04	(mg/kg/day)	0.1
				Thallium	2.30	ug/L	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.01
				Vanadium	832	ug/L	3.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-04	(mg/kg/day)	1.3E-04	(mg/kg/day)	2.7
				Zinc	3990	ug/L	8.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.003
			Exp. Route Total								6.9E-05					22
		Exposure Point Total									6.2E-03					877
	Exposure Medium Total										6.2E-03					677
	Air	Site 08	Inhalation	1,1-Dichloroethane	310	ug/L	2.4E-03	(mg/m^3)	5.7E-03	(mg/kg/day)$^{-1}$	1.4E-05	2.8E-02	(mg/m^3)	2.0E-01	(mg/kg/day)	0.1
				1,2,4-Trimethylbenzene	810	ug/L	6.2E-03	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	7.2E-02	(mg/m^3)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	2.2E-03	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	2.6E-02	(mg/m^3)	5.0E-02	(mg/kg/day)	0.5
				Bromomethane	2.00	ug/L	1.5E-05	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	1.8E-04	(mg/m^3)	1.4E-03	(mg/kg/day)	0.1
				Carbon Tetrachloride	2.00	ug/L	1.5E-05	(mg/m^3)	1.3E-01	(mg/kg/day)$^{-1}$	2.0E-06	1.8E-04	(mg/m^3)	7.0E-04	(mg/kg/day)	0.3
				Chloroform	7.00	ug/L	5.4E-05	(mg/m^3)	3.1E-02	(mg/kg/day)$^{-1}$	1.7E-06	6.3E-04	(mg/m^3)	1.0E-02	(mg/kg/day)	0.06
				Chloromethane	16.0	ug/L	1.2E-04	(mg/m^3)	1.3E-02	(mg/kg/day)$^{-1}$	1.6E-06	1.4E-03	(mg/m^3)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	4.4E-04	(mg/m^3)	1.1E-02	(mg/kg/day)$^{-1}$	4.9E-06	5.2E-03	(mg/m^3)	1.0E-01	(mg/kg/day)	0.05
				Isopropylbenzene	94.0	ug/L	7.2E-04	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	8.4E-03	(mg/m^3)	1.0E-01	(mg/kg/day)	0.08
				Tetrachloroethene	12.0	ug/L	9.2E-05	(mg/m^3)	5.4E-01	(mg/kg/day)$^{-1}$	5.0E-05	1.1E-03	(mg/m^3)	1.0E-02	(mg/kg/day)	0.1
				Total Xylenes	97.0	ug/L	7.4E-04	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	8.7E-03	(mg/m^3)	2.0E-01	(mg/kg/day)	0.04
				Trichloroethene	730	ug/L	5.6E-03	(mg/m^3)	1.3E-02	(mg/kg/day)$^{-1}$	7.3E-05	6.5E-02	(mg/m^3)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	1.5E-04	(mg/m^3)	1.5E+00	(mg/kg/day)$^{-1}$	2.2E-04	1.7E-03	(mg/m^3)	3.0E-03	(mg/kg/day)	0.6
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/m^3)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	0.0E+00	(mg/m^3)	1.6E+01	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-05	(mg/kg/day)	--
				Aluminum	564000	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	1.0E+00	(mg/kg/day)	--
				Antimony	1.20	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	4.0E-04	(mg/kg/day)	--
				Arsenic	503	ug/L	0.0E+00	(mg/m^3)	1.5E+00	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-04	(mg/kg/day)	--
				Barium	1390	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	2.0E-01	(mg/kg/day)	--
				Beryllium	17.8	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	2.0E-03	(mg/kg/day)	--
				Chromium	868	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-03	(mg/kg/day)	--
				Cobalt	637	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-04	(mg/kg/day)	--
				Copper	1440	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	4.0E-02	(mg/kg/day)	--
				Iron	1210000	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	7.0E-01	(mg/kg/day)	--
				Lead	1890	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	2.4E-02	(mg/kg/day)	--
				Mercury	1.90	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-04	(mg/kg/day)	--
				Molybdenum	20.3	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-03	(mg/kg/day)	--
				Nickel	1160	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	2.0E-02	(mg/kg/day)	--
				Thallium	2.30	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	6.5E-05	(mg/kg/day)	--
				Vanadium	832	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-03	(mg/kg/day)	--
				Zinc	3990	ug/L	0.0E+00	(mg/m^3)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								3.6E-04					2.0
		Exposure Point Total									3.6E-04					2.0
	Exposure Medium Total										3.6E-04					2.0
Medium Total											6.6E-03					679
										Total of Receptor Risks Across All Media	2.8E-02			Total of Receptor Hazards Across All Media		692

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	2.8E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.0E-06	4.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.1E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.5E-05	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	2.2E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-06	3.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	4.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00004
				Benzo(k)fluoranthene	1.88	mg/kg	1.6E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.2E-07	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	2.5E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.8E-08	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	3.4E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.5E-06	5.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0003
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	9.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.9E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	5.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00008
				Phenanthrene	6.66	mg/kg	3.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0003
				Pyrene	7.10	mg/kg	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0003
				Total Aroclors	0.332	mg/kg	1.6E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.1E-07	4.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12258	mg/kg	5.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	0.436	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.001
				Arsenic	23.9	mg/kg	1.1E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.7E-05	3.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Beryllium	0.434	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0003
				Cadmium	1.51	mg/kg	7.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.004
				Chromium	20.5	mg/kg	9.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	27.1	mg/kg	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Copper	47.4	mg/kg	2.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Iron	27468	mg/kg	1.3E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Lead	73.1	mg/kg	3.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.008
				Vanadium	22.3	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.006
			Exp. Route Total								3.9E-05					0.3
			Dermal	Benzo(a)anthracene	3.22	mg/kg	1.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-06	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.1E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.0E-06	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.1E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.3E-07	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.8E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.88	mg/kg	8.4E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.1E-08	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.3E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.4E-09	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	1.8E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-06	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	4.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.6E-07	7.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.5E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00004
				Phenanthrene	6.66	mg/kg	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Pyrene	7.10	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Total Aroclors	0.332	mg/kg	8.7E-08	(mg/kg/day)	2.0E+00	(mg/kg/dey)$^{-1}$	1.7E-07	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12258	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	1.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-06	3.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	2.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.3E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Exp. Route Total	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
			Dermal	Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.4E-05					0.01
		Exposure Point Total									5.3E-05					0.3
	Exposure Medium Total										5.3E-05					0.3
	Air	Exposed Area	Inhalation	Benzo(e)anthracene	2.9E-10	mg/m^3	1.8E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.9E-11	2.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	1.3E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-10	2.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	1.4E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.5E-11	2.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	2.9E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	1.0E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-11	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	1.6E-10	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.7E-12	2.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	2.2E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.6E-11	3.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	2.2E-10	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	6.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	6.0E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.6E-12	9.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	3.0E-06	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	1.0E-07	8.9E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	1.0E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	2.1E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	9.9E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.9E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	3.7E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Antimony	4.0E-11	mg/m^3	1.3E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	3.8E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	7.1E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.1E-09	2.1E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00007
				Beryllium	3.9E-11	mg/m^3	1.3E-11	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	3.1E-11	3.8E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Cadmium	1.4E-10	mg/m^3	4.5E-11	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	8.1E-11	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	6.1E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	7.4E-09	1.8E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
				Cobalt	2.5E-9	mg/m^3	8.1E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	7.3E-09	2.4E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0004
				Copper	4.3E-9	mg/m^3	1.4E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	8.2E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	2.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-6	mg/m^3	1.3E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.8E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0008
				Vanadium	2.0E-9	mg/m^3	6.7E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.2E-07					0.001
		Exposure Point Total									1.2E-07					0.001
	Exposure Medium Total										1.2E-07					0.001
Medium Total											5.3E-05					0.4
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	3.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-04	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.002
				Anthracene	153	mg/kg	7.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0007
				Benzo(a)anthracene	302	mg/kg	2.6E-04	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-04	4.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	2.1E-04	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.5E-03	3.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.8E-04	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-04	2.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	6.3E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.006
				Benzo(k)fluoranthene	199	mg/kg	1.7E-04	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	1.3E-05	2.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposura Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	2.3E-04	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.7E-06	3.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	4.5E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.3E-04	7.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	3.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.9E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.02
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.2E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.7E-05	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.002
				Phenanthrene	563	mg/kg	2.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.7E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.03
				Pyrene	569	mg/kg	2.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.8E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.03
				Total Aroclors	0.535	mg/kg	2.5E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.0E-07	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	6.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	0.574	mg/kg	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.002
				Arsenic	17.7	mg/kg	8.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-05	2.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Beryllium	0.518	mg/kg	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0004
				Cadmium	0.91	mg/kg	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.002
				Chromium	19.6	mg/kg	9.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	16.1	mg/kg	7.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.07
				Copper	235	mg/kg	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.008
				Iron	41374	mg/kg	1.9E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.08
				Lead	190	mg/kg	8.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	3.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.02
				Molybdanum	3.100	mg/kg	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0008
				Thallium	0.150	mg/kg	7.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.003
				Vanadium	21.2	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.006
				Zinc	888	mg/kg	4.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.004
			Exp. Route Total								2.3E-03					0.4
			Dermal	Acenaphthene	77	mg/kg	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0009
				Anthracene	153	mg/kg	3.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0004
				Benzo(a)anthracene	302	mg/kg	1.3E-04	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.8E-05	2.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.1E-04	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.9E-04	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	9.4E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.8E-05	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Benzo(k)fluoranthene	199	mg/kg	8.9E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.5E-06	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	1.2E-04	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	8.8E-07	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	2.4E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-04	3.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	1.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Indeno(1,2,3-cd)pyrene	138	mg/kg	6.2E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.5E-05	9.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthelene	35.1	mg/kg	8.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.001
				Phenanthrene	563	mg/kg	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Pyrene	569	mg/kg	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Total Aroclors	0.535	mg/kg	1.4E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.8E-07	4.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	1.0E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-06	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.2E-03					0.06
		Exposure Point Total									3.5E-03					0.4
	Exposure Medium Total										3.5E-03					0.4
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	4.9E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-04	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	6.7E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	1.7E-08	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.8E-09	2.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	1.3E-08	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-08	2.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	1.2E-08	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.3E-09	1.8E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	4.0E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	1.1E-08	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.2E-09	1.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	1.5E-08	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.6E-10	2.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	2.9E-09	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.5E-09	4.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	2.2E-08	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	6.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	7.6E-09	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.3E-10	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	8.9E-05	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	3.0E-06	2.6E-04	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	2.5E-04	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	1.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	1.6E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	4.7E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	4.0E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.2E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Antimony	5.2E-11	mg/m^3	1.7E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	5.0E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	5.3E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.3E-09	1.5E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00005
				Beryllium	4.7E-11	mg/m^3	1.5E-11	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	3.7E-11	4.5E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Cadmium	8.2E-11	mg/m^3	2.7E-11	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	4.9E-11	7.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	5.9E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	7.0E-09	1.7E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
				Cobalt	1.5E-9	mg/m^3	4.8E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	4.3E-09	1.4E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Copper	2.1E-8	mg/m^3	7.0E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	1.2E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	5.7E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	2.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.3E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.001
				Molybdenum	2.8E-10	mg/m^3	9.3E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	4.5E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	6.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	2.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.7E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-06					0.002
		Exposure Point Total									3.1E-06					0.002
	Exposure Medium Total										3.5E-03					0.5
Medium Total											3.5E-03					0.5

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	2.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.7E-06	3.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.0E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.5E-05	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	2.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.7E-06	3.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	1.10	mg/kg	9.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.9E-08	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.3E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.4E-09	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.2E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.9E-07	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indano(1,2,3-cd)pyrene	1.120	mg/kg	9.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.0E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	5.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Arsenic	18.6	mg/kg	8.7E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-05	2.5E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Beryllium	0.395	mg/kg	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0003
				Chromium	15.4	mg/kg	7.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.007
				Cobalt	12.9	mg/kg	6.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/dey)	0.06
				Iron	26054	mg/kg	1.2E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Manganese (Soil)	418	mg/kg	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.008
			Exp. Route Total								3.3E-05					0.2
			Dermal	Benzo(a)anthracene	2.69	mg/kg	1.2E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.8E-07	1.9E-06	(mg/kg/dey)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.0E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.6E-06	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.2E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.0E-07	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.10	mg/kg	4.9E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.6E-08	7.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	6.7E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.9E-09	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	6.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.6E-07	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	5.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.7E-07	8.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	1.0E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.8E-06	3.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								1.2E-05					0.01
		Exposure Point Total									4.5E-05					0.2
	Exposure Medium Total										4.5E-05					0.2
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	1.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.6E-11	2.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	1.3E-10	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.4E-10	2.0E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	1.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-11	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	1.6E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Banzo(k)fluoranthene	1.0E-10	mg/m^3	6.0E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.6E-12	9.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	8.2E-11	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	9.0E-13	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	7.7E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	9.3E-12	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	6.1E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.8E-12	9.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	3.3E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.5E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Arsenic	1.7E-9	mg/m^3	5.6E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.4E-09	1.6E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00005
				Baryllium	3.8E-11	mg/m^3	1.2E-11	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	2.8E-11	3.4E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Chromium	1.4E-9	mg/m^3	4.6E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	5.5E-09	1.3E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	3.9E-10	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	3.5E-09	1.1E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Iron	2.4E-6	mg/m^3	7.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	1.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.6E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0007
			Exp. Route Total								1.2E-08					0.001
		Exposure Point Total									1.2E-08					0.001
	Exposure Medium Total										1.2E-08					0.001
Medium Total											4.5E-05					0.2
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00010
				Benzo(a)anthracene	2.80	mg/kg	2.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-06	3.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.2E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.8E-06	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-06	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.30	mg/kg	1.1E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	8.2E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	2.4E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.7E-08	3.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	9.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.8E-07	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	2.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.0E-07	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	7.0E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.4E-06	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	5.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	35.0	mg/kg	1.6E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.5E-05	4.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Beryllium	0.470	mg/kg	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0003
				Chromium	24.3	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	13.5	mg/kg	6.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Iron	29083	mg/kg	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Lead	18.0	mg/kg	8.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	5.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.02
			Exp. Route Total								3.9E-05					0.3
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.60	mg/kg	1.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.1E-07	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	6.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.6E-06	9.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	7.1E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.2E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.30	mg/kg	5.8E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.2E-08	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysena	2.750	mg/kg	1.2E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.0E-09	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	4.8E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.5E-07	7.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-07	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	3.9E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	7.9E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	2.0E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.0E-06	5.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								1.0E-05					0.02
		Exposure Point Total									4.9E-05					0.3
	Exposure Medium Total										4.9E-05					0.3
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	1.7E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.9E-05	(mg/m^3)	7.0E-03	(mg/m^3)	0.007
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	4.4E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.3E-04	(mg/m^3)	6.0E-03	(mg/m^3)	0.02
				Benzo(a)anthracene	2.5E-10	mg/m^3	1.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-11	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	7.7E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	8.4E-11	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	8.7E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.6E-12	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	1.6E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	7.1E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.8E-12	1.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	1.5E-10	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.7E-12	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	5.9E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	7.1E-12	9.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	1.7E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.9E-12	2.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	4.5E-11	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.3E-10	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	3.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Arsenic	3.2E-9	mg/m^3	1.0E-09	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	4.5E-09	3.1E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.0001
				Beryllium	4.3E-11	mg/m^3	1.4E-11	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	3.4E-11	4.1E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Chromium	2.2E-9	mg/m^3	7.3E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	8.7E-09	2.1E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
				Cobalt	1.2E-9	mg/m^3	4.0E-10	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	3.6E-09	1.2E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Iron	2.6E-6	mg/m^3	8.7E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	5.4E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	3.3E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.6E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.002
			Exp. Route Total								1.7E-08					0.03
		Exposure Point Total									1.7E-08					0.03
	Exposure Medium Total										4.9E-05					0.4
Medium Total											4.9E-05					0.4
Groundwater	Groundwater	Site 08	Ingestion	1,1-Dichloroethane	310	ug/L	2.9E-03	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	1.7E-05	8.5E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.04
				1,2,4-Trimethylbenzene	810	ug/L	7.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	2.7E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.2
				Bromomethane	2.00	ug/L	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-05	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.04
				Carbon Tetrachloride	2.00	ug/L	1.9E-05	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	2.4E-06	5.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.08
				Chloroform	7.00	ug/L	6.6E-05	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	2.0E-06	1.9E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.02
				Chloromethane	16.0	ug/L	1.5E-04	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	2.0E-06	4.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	5.4E-04	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	6.0E-06	1.6E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.02
				Isopropylbenzene	94.0	ug/L	8.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.03
				Tetrachloroethene	12.0	ug/L	1.1E-04	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	6.1E-05	3.3E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.03
				Total Xylenes	97.0	ug/L	9.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.01
				Trichloroethene	730	ug/L	6.9E-03	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	8.9E-05	2.0E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	1.8E-04	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.7E-04	5.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.2
				Benzo(k)fluoranthene	4.00	ug/L	6.9E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.0E-06	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	1.0E-07	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.6E-06	3.0E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.006

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Ingestion	Aluminum	564000	ug/L	5.3E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E+01	(mg/kg/day)	1.0E+00	(mg/kg/day)	15
				Antimony	1.20	ug/L	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-05	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.08
				Arsenic	503	ug/L	4.7E-03	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.1E-03	1.4E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	46
				Barium	1390	ug/L	1.3E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-02	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.2
				Beryllium	17.8	ug/L	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.2
				Chromium	868	ug/L	8.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-02	(mg/kg/day)	3.0E-03	(mg/kg/day)	7.9
				Cobalt	637	ug/L	6.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	58
				Copper	1440	ug/L	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-02	(mg/kg/day)	4.0E-02	(mg/kg/day)	1.0
				Iron	1210000	ug/L	1.1E+01	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E+01	(mg/kg/day)	7.0E-01	(mg/kg/day)	47
				Lead	1890	ug/L	1.8E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	1.3E-01	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-01	(mg/kg/day)	2.4E-02	(mg/kg/day)	16
				Mercury	1.90	ug/L	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Molybdenum	20.3	ug/L	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.1
				Nickel	1160	ug/L	1.1E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-02	(mg/kg/day)	2.0E-02	(mg/kg/day)	1.6
				Thallium	2.30	ug/L	2.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.3E-05	(mg/kg/day)	6.5E-05	(mg/kg/day)	1.0
				Vanadium	832	ug/L	7.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-02	(mg/kg/day)	5.0E-03	(mg/kg/day)	4.6
				Zinc	3990	ug/L	3.7E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-01	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.4
			Exp. Route Total								7.5E-03					200
			Dermal	1,1-Dichloroethane	3.10	ug/L	2.3E-04	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	1.3E-06	6.7E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.003
				1,2,4-Trimethylbenzene	8.10	ug/L	8.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	2.90	ug/L	2.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.1
				Bromomethane	2.00	ug/L	6.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-06	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.001
				Carbon Tetrachloride	2.00	ug/L	5.1E-06	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	6.7E-07	1.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.02
				Chloroform	7.00	ug/L	6.0E-06	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	1.9E-07	1.7E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.002
				Chloromethane	16.0	ug/L	4.4E-06	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	5.7E-08	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	3.3E-04	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	3.6E-06	9.6E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.010
				Isopropylbenzene	94.0	ug/L	1.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.03
				Tetrachloroethene	12.0	ug/L	6.8E-05	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	3.7E-05	2.0E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.02
				Total Xylenes	97.0	ug/L	5.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.007
				Trichloroethene	730	ug/L	1.2E-03	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.5E-05	3.4E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	9.5E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.4E-05	2.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	7.2E-08	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.2E-06	2.1E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.004
				Aluminum	564000	ug/L	2.8E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.08
				Antimony	1.20	ug/L	5.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-07	(mg/kg/day)	6.0E-05	(mg/kg/day)	0.003
				Arsenic	503	ug/L	2.5E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.7E-05	7.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Barium	1390	ug/L	6.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-04	(mg/kg/day)	1.4E-02	(mg/kg/day)	0.01
				Beryllium	17.8	ug/L	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-06	(mg/kg/day)	1.4E-05	(mg/kg/day)	0.2
				Chromium	868	ug/L	8.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-04	(mg/kg/day)	7.5E-05	(mg/kg/day)	3.3
				Cobalt	637	ug/L	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Copper	1440	ug/L	7.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.005
				Iron	1210000	ug/L	5.9E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Lead	1890	ug/L	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	6.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-03	(mg/kg/day)	9.6E-04	(mg/kg/day)	2.1
				Mercury	1.90	ug/L	9.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-07	(mg/kg/day)	2.1E-05	(mg/kg/day)	0.01
				Molybdenum	20.3	ug/L	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0006

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Dermal	Nickel	1160	ug/L	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-05	(mg/kg/day)	8.0E-04	(mg/kg/day)	0.04
				Thallium	2.30	ug/L	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.005
				Vanadium	832	ug/L	4.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-04	(mg/kg/day)	1.3E-04	(mg/kg/day)	0.9
				Zinc	3990	ug/L	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								1.1E-04					7.7
		Exposure Point Total									7.7E-03					208
	Exposure Medium Total										7.7E-03					208
	Air	Site 08	Inhalation	1,1-Dichloroethane	310	ug/L	2.9E-03	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	1.7E-05	8.5E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.04
				1,2,4-Trimethylbenzene	810	ug/L	7.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	2.7E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.2
				Bromomethane	2.00	ug/L	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-05	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.04
				Carbon Tetrachloride	2.00	ug/L	1.9E-05	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	2.4E-06	5.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.08
				Chloroform	7.00	ug/L	6.6E-05	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	2.0E-06	1.9E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.02
				Chloromethane	16.0	ug/L	1.5E-04	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	2.0E-06	4.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	5.4E-04	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	6.0E-06	1.6E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.02
				Isopropylbenzene	94.0	ug/L	8.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.03
				Tetrachloroethene	12.0	ug/L	1.1E-04	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	6.1E-05	3.3E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.03
				Total Xylenes	97.0	ug/L	9.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.01
				Trichloroethene	730	ug/L	6.9E-03	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	8.9E-05	2.0E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	1.8E-04	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.7E-04	5.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.2
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	0.0E+00	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-05	(mg/kg/day)	--
				Aluminum	564000	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	1.20	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-04	(mg/kg/day)	--
				Arsenic	503	ug/L	0.0E+00	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Barium	1390	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-01	(mg/kg/day)	--
				Beryllium	17.8	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-03	(mg/kg/day)	--
				Chromium	668	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Cobalt	637	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	1440	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	1210000	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1890	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.4E-02	(mg/kg/day)	--
				Mercury	1.90	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Molybdenum	20.3	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Nickel	1160	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-02	(mg/kg/day)	--
				Thallium	2.30	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	832	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Zinc	3990	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.5E-04					0.6
		Exposure Point Total									4.5E-04					0.6
	Exposure Medium Total										4.5E-04					0.6
Medium Total											8.1E-03					209
										Total of Receptor Risks Across All Media	1.2E-02			Total of Receptor Hazards Across All Media		210

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	3.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-08	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-07	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	2.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-08	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	9.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.88	mg/kg	1.8E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.3E-09	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	2.8E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.0E-10	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	3.8E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.8E-08	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	7.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.7E-09	7.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00004
				Phenanthrene	6.66	mg/kg	6.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	7.10	mg/kg	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Total Aroclors	0.332	mg/kg	3.2E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.4E-09	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.008
				Antimony	0.436	mg/kg	4.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0007
				Arsenic	23.9	mg/kg	2.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.4E-07	1.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
				Beryllium	0.434	mg/kg	4.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Cadmium	1.51	mg/kg	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.002
				Chromium	20.5	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Cobalt	27.1	mg/kg	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Copper	47.4	mg/kg	4.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0008
				Iron	27468	mg/kg	2.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	73.1	mg/kg	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	4.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.004
				Vanadium	22.3	mg/kg	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.003
			Exp. Route Total								6.0E-07					0.2
			Dermal	Benzo(a)anthracene	3.22	mg/kg	4.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-09	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	3.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	3.2E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-09	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000003
				Benzo(k)fluoranthene	1.88	mg/kg	2.3E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.7E-10	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	3.6E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.6E-11	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	5.0E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.6E-09	3.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	9.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00002
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.4E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-09	9.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000005
				Phenanthrene	6.66	mg/kg	8.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Pyrene	7.10	mg/kg	8.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Total Aroclors	0.332	mg/kg	4.5E-10	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	8.9E-10	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	6.9E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.0E-08	4.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	1.4E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00004
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--

TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								4.4E-08					0.002
		Exposure Point Total									6.4E-07					0.2
	Exposure Medium Total										6.4E-07					0.2
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.3E-6	mg/m^3	1.6E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-10	1.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.7E-6	mg/m^3	1.2E-09	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.3E-09	8.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.8E-6	mg/m^3	1.2E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.4E-10	8.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	6.9E-7	mg/m^3	4.7E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.3E-6	mg/m^3	9.1E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.0E-10	6.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.1E-6	mg/m^3	1.4E-09	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.5E-11	9.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibanzo(a,h)anthracene	2.9E-7	mg/m^3	1.9E-10	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.3E-10	1.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	5.2E-6	mg/m^3	3.5E-09	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.5E-07	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	7.9E-7	mg/m^3	5.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.9E-11	3.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	4.9E-5	mg/m^3	3.3E-08	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	1.1E-09	2.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	1.7E-4	mg/m^3	1.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.0E-06	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.1E-6	mg/m^3	3.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-07	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	2.4E-7	mg/m^3	1.6E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.1E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	0.009	mg/m^3	5.9E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.2E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.08
				Antimony	3.1E-7	mg/m^3	2.1E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.5E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.7E-5	mg/m^3	1.2E-08	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.0E-08	8.1E-07	(mg/m^3)	3.0E-05	(mg/m^3)	0.03
				Beryllium	3.1E-7	mg/m^3	2.1E-10	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	5.0E-10	1.5E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.0007
				Cadmium	1.1E-6	mg/m^3	7.3E-10	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	1.3E-09	5.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.5E-5	mg/m^3	9.9E-09	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.2E-07	7.0E-07	(mg/m^3)	1.0E-04	(mg/m^3)	0.007
				Cobalt	1.9E-5	mg/m^3	1.3E-08	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.2E-07	9.2E-07	(mg/m^3)	6.0E-06	(mg/m^3)	0.2
				Copper	3.4E-5	mg/m^3	2.3E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Iron	0.020	mg/m^3	1.3E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Lead	5.2E-5	mg/m^3	3.5E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.1E-4	mg/m^3	2.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-05	(mg/m^3)	5.0E-05	(mg/m^3)	0.3
				Vanadium	1.6E-5	mg/m^3	1.1E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.6E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.9E-07					0.6
		Exposure Point Total									2.9E-07					0.6
	Exposure Medium Total										2.9E-07					0.6
Medium Total											9.3E-07					0.7
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0009
				Anthracene	153	mg/kg	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0003
				Benzo(a)anthracene	302	mg/kg	2.9E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.1E-06	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	2.3E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-05	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.0E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.5E-06	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.0E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Benzo(k)fluoranthene	199	mg/kg	1.9E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.4E-07	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	2.6E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.9E-08	1.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	5.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.7E-06	3.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Fluoranthene	723	mg/kg	6.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.7E-07	9.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.001
				Phenanthrene	563	mg/kg	5.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Pyrene	569	mg/kg	5.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Total Aroclors	0.535	mg/kg	5.1E-09	(mg/kg/dey)	2.0E+00	(mg/kg/day)$^{-1}$	1.0E-08	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.009
				Antimony	0.574	mg/kg	5.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0010
				Arsenic	17.7	mg/kg	1.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.5E-07	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Beryllium	0.518	mg/kg	5.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0002
				Cadmium	0.91	mg/kg	8.7E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.001
				Chromium	19.6	mg/kg	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.004
				Cobalt	16.1	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Copper	235	mg/kg	2.3E-06	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	1.6E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.004
				Iron	41374	mg/kg	4.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
				Lead	190	mg/kg	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	8.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.008
				Molybdenum	3.100	mg/kg	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0004
				Thallium	0.150	mg/kg	1.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.002
				Vanadium	21.2	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.003
				Zinc	888	mg/kg	8.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.002
			Exp. Route Total								2.6E-05					0.2
			Dermal	Acenaphthene	77	mg/kg	9.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.7E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0001
				Anthracene	153	mg/kg	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00004
				Benzo(a)anthracene	302	mg/kg	3.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-07	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	3.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-06	2.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-07	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0004
				Benzo(k)fluoranthene	199	mg/kg	2.5E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.8E-08	1.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	3.4E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.4E-09	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	6.6E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.8E-07	4.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	9.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.3E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.7E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-07	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	4.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0002
				Phenanthrene	563	mg/kg	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Pyrene	569	mg/kg	7.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Total Aroclors	0.535	mg/kg	7.2E-10	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.4E-09	5.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	5.1E-09	(mg/kg/day)	1.5E+00	(mg/kg/dey)$^{-1}$	7.6E-09	3.6E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	8.7E-12	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								3.3E-06					0.007
		Exposure Point Total									2.9E-05					0.2
	Exposure Medium Total										2.9E-05					0.2
	Air	Exposed Area	Inhalation	Acenaphthene	2.0E-4	mg/m^3	1.3E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	1.3E-4	mg/m^3	8.7E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.2E-4	mg/m^3	1.5E-07	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.8E-08	1.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.7E-4	mg/m^3	1.2E-07	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.3E-07	8.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-4	mg/m^3	1.0E-07	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.1E-08	7.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	9.6E-5	mg/m^3	6.5E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.4E-4	mg/m^3	9.6E-08	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.1E-08	6.8E-06	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.9E-4	mg/m^3	1.3E-07	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.4E-09	9.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.8E-5	mg/m^3	2.6E-08	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.1E-08	1.8E-06	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	5.2E-4	mg/m^3	3.5E-07	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	2.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	9.9E-5	mg/m^3	6.7E-08	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.4E-09	4.7E-06	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.8E-4	mg/m^3	1.9E-07	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	6.5E-09	1.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	1.1E-3	mg/m^3	7.7E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	4.1E-4	mg/m^3	2.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.9E-05	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.8E-7	mg/m^3	2.6E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.8E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	0.010	mg/m^3	6.6E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.6E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.09
				Antimony	4.1E-7	mg/m^3	2.8E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.9E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.3E-5	mg/m^3	8.6E-09	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	3.7E-08	6.0E-07	(mg/m^3)	3.0E-05	(mg/m^3)	0.02
				Beryllium	3.7E-7	mg/m^3	2.5E-10	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	6.0E-10	1.8E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.0009
				Cadmium	6.5E-7	mg/m^3	4.4E-10	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	7.9E-10	3.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.4E-5	mg/m^3	9.5E-09	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.1E-07	6.6E-07	(mg/m^3)	1.0E-04	(mg/m^3)	0.007
				Cobalt	1.2E-5	mg/m^3	7.8E-09	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	7.0E-08	5.5E-07	(mg/m^3)	6.0E-06	(mg/m^3)	0.09
				Copper	1.7E-4	mg/m^3	1.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.0E-06	(mg/m^3)	NA	(mg/m^3)	--
				Iron	0.030	mg/m^3	2.0E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.4E-03	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.4E-4	mg/m^3	9.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	6.0E-4	mg/m^3	4.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.8E-05	(mg/m^3)	5.0E-05	(mg/m^3)	0.6
				Molybdenum	2.2E-6	mg/m^3	1.5E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.1E-7	mg/m^3	7.3E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.5E-5	mg/m^3	1.0E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	6.3E-4	mg/m^3	4.3E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.0E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.4E-07					0.8
		Exposure Point Total									4.4E-07					0.8
	Exposure Medium Total										2.9E-05					1.0
Medium Total											2.9E-05					1.0
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.6E-07	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-08	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(g,h,i)perylene	0.551	mg/kg	5.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.10	mg/kg	1.1E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	7.7E-10	7.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.4E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.1E-10	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.9E-09	9.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.8E-09	7.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	1.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.007
				Arsenic	18.6	mg/kg	1.8E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.7E-07	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Beryllium	0.395	mg/kg	3.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Chromium	15.4	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	12.9	mg/kg	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Iron	26054	mg/kg	2.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Manganese (Soil)	418	mg/kg	4.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.004
			Exp. Route Total								4.9E-07					0.1
			Dermal	Benzo(a)anthracene	2.69	mg/kg	3.4E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.4E-09	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.9E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.1E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	3.4E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-09	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	6.9E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.10	mg/kg	1.4E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.0E-10	9.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.9E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-11	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.8E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-09	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.4E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-09	9.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	5.4E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.0E-09	3.7E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	28054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								3.7E-08					0.001
		Exposure Point Total									5.2E-07					0.1
	Exposure Medium Total										5.2E-07					0.1
	Air	Paved Area	Inhalation	Benzo(a)anthracene	1.9E-6	mg/m^3	1.3E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.4E-10	9.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.7E-6	mg/m^3	1.1E-09	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.2E-09	7.9E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.0E-6	mg/m^3	1.3E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.5E-10	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	3.9E-7	mg/m^3	2.7E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.9E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	7.9E-7	mg/m^3	5.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.9E-11	3.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.1E-6	mg/m^3	7.3E-10	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	8.0E-12	5.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.0E-7	mg/m^3	6.8E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	8.2E-11	4.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	8.0E-7	mg/m^3	5.4E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.0E-11	3.8E-08	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	0.008	mg/m^3	5.3E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.7E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.07
				Arsenic	1.3E-5	mg/m^3	9.0E-09	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	3.9E-08	6.3E-07	(mg/m^3)	3.0E-05	(mg/m^3)	0.02
				Beryllium	2.8E-7	mg/m^3	1.9E-10	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	4.6E-10	1.3E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.0007
				Chromium	1.1E-5	mg/m^3	7.5E-09	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	9.0E-08	5.2E-07	(mg/m^3)	1.0E-04	(mg/m^3)	0.005
				Cobalt	9.2E-6	mg/m^3	6.3E-09	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	5.6E-08	4.4E-07	(mg/m^3)	6.0E-06	(mg/m^3)	0.07

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Iron	0.019	mg/m^3	1.3E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.8E-04	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.0E-4	mg/m^3	2.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.4E-05	(mg/m^3)	5.0E-05	(mg/m^3)	0.3
			Exp. Route Total								1.9E-07					0.5
		Exposure Point Total									1.9E-07					0.5
	Exposure Medium Total										1.9E-07					0.5
Medium Total											7.1E-07					0.6
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	3.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00005
				Benzo(a)anthracene	2.80	mg/kg	2.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.0E-08	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.8E-08	9.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-08	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	5.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.30	mg/kg	1.2E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.1E-10	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	2.6E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.9E-10	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.6E-09	7.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	3.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.2E-09	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.4E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.9E-08	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.008
				Arsenic	35.0	mg/kg	3.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.0E-07	2.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Beryllium	0.470	mg/kg	4.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0002
				Chromium	24.3	mg/kg	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Cobalt	13.5	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Iron	29083	mg/kg	2.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	18.0	mg/kg	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.01
			Exp. Route Total								6.7E-07					0.2
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	3.5E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-09	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.7E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	2.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-09	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	6.5E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.30	mg/kg	1.6E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.2E-10	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	3.4E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.5E-11	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.3E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.8E-10	9.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	4.0E-10	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-10	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	2.0E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.0E-09	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	1.0E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-08	7.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								3.7E-08					0.002
		Exposure Point Total									7.1E-07					0.2
	Exposure Medium Total										7.1E-07					0.2
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.0E-5	mg/m^3	3.4E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-06	(mg/m^3)	7.0E-03	(mg/m^3)	0.0003
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	8.8E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.1E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.001
				Benzo(e)anthracene	2.0E-6	mg/m^3	1.4E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.5E-10	9.5E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-6	mg/m^3	6.8E-10	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	7.5E-10	4.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.1E-6	mg/m^3	7.7E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.5E-11	5.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	3.7E-7	mg/m^3	2.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.8E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	9.3E-7	mg/m^3	6.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.9E-11	4.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.0E-6	mg/m^3	1.3E-09	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.5E-11	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	7.7E-8	mg/m^3	5.2E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	6.3E-11	3.7E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.3E-7	mg/m^3	1.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-11	1.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.1E-6	mg/m^3	7.3E-10	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	5.1E-08	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	0.009	mg/m^3	6.1E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.3E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.09
				Arsenic	2.5E-5	mg/m^3	1.7E-08	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	7.3E-08	1.2E-06	(mg/m^3)	3.0E-05	(mg/m^3)	0.04
				Beryllium	3.4E-7	mg/m^3	2.3E-10	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	5.5E-10	1.6E-08	(mg/m^3)	2.0E-05	(mg/m^3)	0.0008
				Chromium	1.7E-5	mg/m^3	1.2E-08	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.4E-07	8.2E-07	(mg/m^3)	1.0E-04	(mg/m^3)	0.008
				Cobalt	9.6E-6	mg/m^3	6.5E-09	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	5.9E-08	4.6E-07	(mg/m^3)	6.0E-06	(mg/m^3)	0.08
				Iron	0.021	mg/m^3	1.4E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.9E-04	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.3E-5	mg/m^3	8.7E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.9E-4	mg/m^3	5.3E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.7E-05	(mg/m^3)	5.0E-05	(mg/m^3)	0.7
			Exp. Route Total								2.7E-07					1.0
		Exposure Point Total									2.7E-07					1.0
	Exposure Medium Total										9.8E-07					1.1
Medium Total											9.8E-07					1.1
Groundwater	Groundwater	Site 08	Ingestion	1,1-Dichloroethane	310	ug/L	2.3E-07	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	1.3E-09	1.6E-05	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.00008
				1,2,4-Trimethylbenzene	810	ug/L	5.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.0003
				Bromomethane	2.00	ug/L	1.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-07	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.00007
				Carbon Tetrachloride	2.00	ug/L	1.5E-09	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	1.9E-10	1.0E-07	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.0001
				Chloroform	7.00	ug/L	5.1E-09	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	1.6E-10	3.6E-07	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.00004
				Chloromethane	16.0	ug/L	1.2E-08	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.5E-10	8.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	4.2E-08	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	4.6E-10	3.0E-06	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.00003
				Isopropylbenzene	94.0	ug/L	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-06	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.00005
				Tetrachloroethene	12.0	ug/L	8.7E-09	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	4.7E-09	6.1E-07	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.00006
				Total Xylenes	97.0	ug/L	7.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-06	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.00002
				Trichloroethene	730	ug/L	5.3E-07	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	6.9E-09	3.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	1.4E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.1E-08	9.7E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0003
				Benzo(k)fluoranthene	4.00	ug/L	2.9E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.1E-10	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	7.9E-12	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.3E-10	5.5E-10	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00001

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Ingestion	Aluminum	564000	ug/L	4.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.03
				Antimony	1.20	ug/L	8.7E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-08	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0002
				Arsenic	503	ug/L	3.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.5E-07	2.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.09
				Barium	1390	ug/L	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-05	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0004
				Beryllium	17.8	ug/L	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0005
				Chromium	868	ug/L	6.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Cobalt	637	ug/L	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Copper	1440	ug/L	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Iron	1210000	ug/L	8.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.09
				Lead	1890	ug/L	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Mangenese (Water)	13800	ug/L	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.0E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.03
				Mercury	1.90	ug/L	1.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0003
				Molybdenum	20.3	ug/L	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0002
				Nickel	1160	ug/L	8.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.003
				Thallium	2.30	ug/L	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.002
				Vanadium	832	ug/L	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.008
				Zinc	3990	ug/L	2.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0007
			Exp. Route Total								5.8E-07					0.4
			Dermal	1,1-Dichloroethene	310	ug/L	9.4E-07	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	5.4E-09	6.6E-05	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0003
				1,2,4-Trimethylbenzene	810	ug/L	2.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	7.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-04	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.01
				Bromomethane	2.00	ug/L	2.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-07	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.0001
				Carbon Tetrachloride	2.00	ug/L	1.7E-08	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	2.2E-09	1.2E-06	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.002
				Chloroform	7.00	ug/L	2.3E-08	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	7.0E-10	1.6E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0002
				Chloromethane	16.0	ug/L	2.2E-08	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	2.9E-10	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	1.2E-06	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	1.3E-08	8.3E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0008
				Isopropylbenzene	94.0	ug/L	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.002
				Tetrachloroethene	12.0	ug/L	2.1E-07	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	1.2E-07	1.5E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.001
				Total Xylenes	97.0	ug/L	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0007
				Trichloroethene	730	ug/L	4.1E-06	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	5.3E-08	2.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	4.5E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.8E-08	3.2E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	2.1E-10	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	3.4E-09	1.5E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0003
				Aluminum	564000	ug/L	2.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Antimony	1.20	ug/L	4.6E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-08	(mg/kg/day)	6.0E-05	(mg/kg/day)	0.0005
				Arsenic	503	ug/L	1.9E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.9E-07	1.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
				Banum	1390	ug/L	5.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-05	(mg/kg/day)	1.4E-02	(mg/kg/day)	0.003
				Beryllium	17.8	ug/L	6.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-07	(mg/kg/day)	1.4E-05	(mg/kg/day)	0.03
				Chromium	868	ug/L	6.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-05	(mg/kg/day)	7.5E-05	(mg/kg/day)	0.6
				Cobalt	637	ug/L	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Copper	1440	ug/L	5.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0010
				Iron	1210000	ug/L	4.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Lead	1890	ug/L	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	5.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-04	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.4
				Mercury	1.90	ug/L	7.3E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-08	(mg/kg/day)	2.1E-05	(mg/kg/day)	0.002
				Molybdenum	20.3	ug/L	7.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0001

TABLE 7.1 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Dermal	Nickel	1160	ug/L	8.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-06	(mg/kg/day)	8.0E-04	(mg/kg/day)	0.008
				Thallium	2.30	ug/L	8.8E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-08	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.0010
				Vanadium	832	ug/L	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-05	(mg/kg/day)	1.3E-04	(mg/kg/day)	0.2
				Zinc	3990	ug/L	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0002
			Exp. Route Total								5.5E-07					1.4
		Exposure Point Total									1.1E-06					1.8
	Exposure Medium Total										1.1E-06					1.8
	Air	Site 08	Inhalation	1,1-Dichloroethane	11.4	mg/m3	3.9E-06	(mg/m^3)	1.6E-06	(ug/m^3)$^{-1}$	6.2E-09	2.7E-04	(mg/m^3)	NA	(mg/m^3)	--
				1,2,4-Trimethylbenzene	27.2	mg/m3	9.2E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	6.5E-04	(mg/m^3)	7.0E-03	(mg/m^3)	0.09
				1,3,5-Trimethylbenzene	9.75	mg/m3	3.3E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.3E-04	(mg/m^3)	6.0E-03	(mg/m^3)	0.04
				Bromomethane	0.075	mg/m3	2.6E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.8E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0004
				Carbon Tetrachloride	0.060	mg/m3	2.0E-08	(mg/m^3)	1.5E-05	(ug/m^3)$^{-1}$	3.0E-10	1.4E-06	(mg/m^3)	1.9E-01	(mg/m^3)	0.000007
				Chloroform	0.234	mg/m3	7.9E-08	(mg/m^3)	2.3E-05	(ug/m^3)$^{-1}$	1.8E-09	5.6E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00006
				Chloromethene	0.830	mg/m3	2.8E-07	(mg/m^3)	1.8E-06	(ug/m^3)$^{-1}$	5.1E-10	2.0E-05	(mg/m^3)	9.0E-02	(mg/m^3)	0.0002
				Ethylbenzene	2.07	mg/m3	7.0E-07	(mg/m^3)	2.5E-06	(ug/m^3)$^{-1}$	1.8E-09	4.9E-05	(mg/m^3)	1.0E+00	(mg/m^3)	0.00005
				Isopropylbenzene	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	4.0E-01	(mg/m^3)	--
				Tetrachloroethene	0.345	mg/m3	1.2E-07	(mg/m^3)	5.9E-06	(ug/m^3)$^{-1}$	6.9E-10	8.2E-06	(mg/m^3)	2.7E-01	(mg/m^3)	0.00003
				Total Xylenes	3.46	mg/m3	1.2E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.2E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0008
				Trichloroethene	23.5	mg/m3	8.0E-06	(mg/m^3)	2.0E-06	(ug/m^3)$^{-1}$	1.6E-08	5.6E-04	(mg/m^3)	NA	(mg/m^3)	--
				Vinyl Chloride	0.890	mg/m3	3.0E-07	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	1.3E-09	2.1E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0002
				Benzo(k)fluoranthene	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Dieldrin	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	4.6E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-03	(mg/m^3)	--
				Antimony	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	3.0E-05	(mg/m^3)	--
				Barium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	5.0E-04	(mg/m^3)	--
				Beryllium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	2.0E-05	(mg/m^3)	--
				Chromium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	1.0E-04	(mg/m^3)	--
				Cobalt	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	6.0E-06	(mg/m^3)	--
				Copper	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Iron	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Lead	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Water)	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Mercury	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Molybdenum	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Nickel	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	0.0E+0	mg/m3	0.0E+00	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.9E-08					0.1
		Exposure Point Total									2.9E-08					0.1
	Exposure Medium Total										2.9E-08					1.9
Medium Total											1.2E-06					3.7
										Total of Receptor Risks Across All Media	3.3E-05			Total of Receptor Hazards Across All Media		7.1

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	1.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-07	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.8E-07	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.88	mg/kg	1.0E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	7.6E-09	8.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.6E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-09	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	2.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.6E-07	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	4.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00008
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	6.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.4E-08	4.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	6.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00003
				Phenanthrene	6.66	mg/kg	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00010
				Pyrene	7.10	mg/kg	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Total Aroclors	0.332	mg/kg	1.8E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.7E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	6.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.005
				Antimony	0.436	mg/kg	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0005
				Arsenic	23.9	mg/kg	1.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-06	1.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.434	mg/kg	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00009
				Cadmium	1.51	mg/kg	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.001
				Chromium	20.5	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.8E-08	(mg/kg/dey)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	27.1	mg/kg	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Copper	47.4	mg/kg	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0005
				Iron	27468	mg/kg	1.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-02	(mg/kg/dey)	7.0E-01	(mg/kg/day)	0.02
				Lead	73.1	mg/kg	4.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
				Vanadium	22.3	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								3.4E-06					0.1
			Dermal	Benzo(a)anthracene	3.22	mg/kg	3.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.2E-08	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-07	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	2.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-08	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	9.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.88	mg/kg	1.8E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.3E-09	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	2.7E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.0E-10	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	3.8E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.8E-08	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	6.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.6E-09	8.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.8E-08	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000004
				Phenanthrene	6.66	mg/kg	6.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Pyrene	7.10	mg/kg	6.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Total Aroclors	0.332	mg/kg	3.4E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.8E-09	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	5.2E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.8E-08	4.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	1.1E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.5E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								3.3E-07					0.001
		Exposure Point Total									3.8E-06					0.1
	Exposure Medium Total										3.6E-06					0.1
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	7.5E-12	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	8.3E-13	5.9E-11	(mg/kg/dey)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	5.7E-12	(mg/kg/day)	1.1E-03	$(ug/m^3)^{-1}$	6.3E-12	4.4E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	6.0E-12	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	6.6E-13	4.6E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	2.2E-12	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.7E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	4.4E-12	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	4.8E-13	3.4E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	6.7E-12	(mg/kg/day)	1.1E-05	$(ug/m^3)^{-1}$	7.4E-14	5.2E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	9.4E-13	(mg/kg/day)	1.2E-03	$(ug/m^3)^{-1}$	1.1E-12	7.3E-12	(mg/kg/day)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	1.7E-11	(mg/kg/day)	0.0E+00	$(ug/m^3)^{-1}$	--	1.3E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.6E-12	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	2.8E-13	2.0E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	2.4E-07	(mg/kg/day)	3.4E-05	$(ug/m^3)^{-1}$	8.1E-09	1.8E-06	(mg/kg/day)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	8.1E-07	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	6.3E-06	(mg/kg/day)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	1.7E-11	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.3E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	7.8E-13	(mg/kg/day)	0.0E+00	$(ug/m^3)^{-1}$	--	6.0E-12	(mg/kg/day)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	2.9E-08	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	2.2E-07	(mg/kg/day)	5.0E-03	(mg/m^3)	0.00004
				Antimony	4.0E-11	mg/m^3	1.0E-12	(mg/kg/day)	0.0E+00	$(ug/m^3)^{-1}$	--	7.9E-12	(mg/kg/day)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	5.6E-11	(mg/kg/day)	4.3E-03	$(ug/m^3)^{-1}$	2.4E-10	4.3E-10	(mg/kg/day)	3.0E-05	(mg/m^3)	0.00001
				Beryllium	3.9E-11	mg/m^3	1.0E-12	(mg/kg/day)	2.4E-03	$(ug/m^3)^{-1}$	2.4E-12	7.9E-12	(mg/kg/day)	2.0E-05	(mg/m^3)	0.0000004
				Cadmium	1.4E-10	mg/m^3	3.5E-12	(mg/kg/day)	1.8E-03	$(ug/m^3)^{-1}$	6.4E-12	2.7E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	4.8E-11	(mg/kg/day)	1.2E-02	$(ug/m^3)^{-1}$	5.8E-10	3.7E-10	(mg/kg/day)	1.0E-04	(mg/m^3)	0.000004
				Cobalt	2.5E-9	mg/m^3	6.3E-11	(mg/kg/day)	9.0E-03	$(ug/m^3)^{-1}$	5.7E-10	4.9E-10	(mg/kg/day)	6.0E-06	(mg/m^3)	0.00008
				Copper	4.3E-9	mg/m^3	1.1E-10	(mg/kg/dey)	NA	$(ug/m^3)^{-1}$	--	8.6E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	6.4E-08	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	5.0E-07	(mg/kg/day)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	1.7E-10	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.3E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	1.0E-09	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	7.9E-09	(mg/kg/day)	5.0E-05	(mg/m^3)	0.0002
				Vanadium	2.0E-9	mg/m^3	5.2E-11	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	4.1E-10	(mg/kg/day)	NA	(mg/m^3)	--
			Exp. Route Total								9.5E-09					0.0003
		Exposure Point Total									9.5E-09					0.0003
	Exposure Medium Total										9.5E-09					0.0003
Medium Total											3.8E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	4.2E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0005
				Anthracene	153	mg/kg	8.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0002
				Benzo(a)anthracene	302	mg/kg	1.7E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-05	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.3E-05	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.8E-05	1.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.2E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.4E-06	9.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	7.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.7E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Benzo(k)fluoranthene	199	mg/kg	1.1E-05	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	8.0E-07	8.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	1.5E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.1E-07	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	2.9E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.1E-05	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	4.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.008
				Indeno(1,2,3-cd)pyrene	138	mg/kg	7.6E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-06	5.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0008
				Phenanthrene	563	mg/kg	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.008
				Pyrene	569	mg/kg	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.008
				Total Aroclors	0.535	mg/kg	2.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.9E-08	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	7.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Antimony	0.574	mg/kg	3.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0006
				Arsenic	17.7	mg/kg	9.8E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-06	7.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.518	mg/kg	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Cadmium	0.91	mg/kg	5.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0008
				Chromium	19.6	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	16.1	mg/kg	8.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Copper	235	mg/kg	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.003
				Iron	41374	mg/kg	2.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	190	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	4.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.005
				Molybdenum	3.100	mg/kg	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
				Thallium	0.150	mg/kg	8.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-08	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.0010
				Vanadium	21.2	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	9.1E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
				Zinc	888	mg/kg	4.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								1.5E-04					0.1
			Dermal	Acenaphthene	77	mg/kg	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.00009
				Anthracene	153	mg/kg	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00004
				Benzo(a)anthracene	302	mg/kg	2.9E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.1E-06	2.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	2.3E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.7E-05	1.8E-05	(mg/kg/day)	NA	(mg/kg/dey)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.0E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-06	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0003
				Benzo(k)fluoranthene	199	mg/kg	1.9E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.4E-07	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	2.5E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.9E-08	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	5.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.6E-06	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	6.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.001
				Indano(1,2,3-cd)pyrene	138	mg/kg	1.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.5E-07	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0001
				Phenanthrena	563	mg/kg	5.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Pyrene	569	mg/kg	5.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Total Aroclors	0.535	mg/kg	5.4E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.1E-08	4.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	3.9E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.8E-08	3.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Barylium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	6.6E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.5E-05					0.006
		Exposure Point Total									1.7E-04					0.1
	Exposure Medium Total										1.7E-04					0.1
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	3.9E-06	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	3.0E-05	(mg/kg/day)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	5.2E-07	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	4.1E-06	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	7.1E-10	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	7.8E-11	5.5E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	5.7E-10	(mg/kg/day)	1.1E-03	$(ug/m^3)^{-1}$	6.2E-10	4.4E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(b)fluoranthena	1.9E-8	mg/m^3	4.9E-10	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	5.4E-11	3.8E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	3.1E-10	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	2.4E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	4.7E-10	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	5.1E-11	3.6E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	6.3E-10	(mg/kg/day)	1.1E-05	$(ug/m^3)^{-1}$	6.9E-12	4.9E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	1.2E-10	(mg/kg/day)	1.2E-03	$(ug/m^3)^{-1}$	1.5E-10	9.6E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	1.7E-09	(mg/kg/day)	0.0E+00	$(ug/m^3)^{-1}$	--	1.3E-08	(mg/kg/day)	NA	(mg/m^3)	--
				Indano(1,2,3-cd)pyrana	1.3E-8	mg/m^3	3.2E-10	(mg/kg/day)	1.1E-04	$(ug/m^3)^{-1}$	3.5E-11	2.5E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	7.0E-06	(mg/kg/day)	3.4E-05	$(ug/m^3)^{-1}$	2.4E-07	5.4E-05	(mg/kg/day)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	2.0E-05	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.5E-04	(mg/kg/day)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	1.3E-09	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.0E-08	(mg/kg/day)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	1.3E-12	(mg/kg/day)	0.0E+00	$(ug/m^3)^{-1}$	--	9.7E-12	(mg/kg/day)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	3.2E-08	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	2.5E-07	(mg/kg/day)	5.0E-03	(mg/m^3)	0.00005
				Antimony	5.2E-11	mg/m^3	1.3E-12	(mg/kg/day)	0.0E+00	$(ug/m^3)^{-1}$	--	1.0E-11	(mg/kg/day)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	4.1E-11	(mg/kg/day)	4.3E-03	$(ug/m^3)^{-1}$	1.8E-10	3.2E-10	(mg/kg/day)	3.0E-05	(mg/m^3)	0.00001
				Beryllium	4.7E-11	mg/m^3	1.2E-12	(mg/kg/day)	2.4E-03	$(ug/m^3)^{-1}$	2.9E-12	9.4E-12	(mg/kg/day)	2.0E-05	(mg/m^3)	0.0000005
				Cadmium	8.2E-11	mg/m^3	2.1E-12	(mg/kg/day)	1.8E-03	$(ug/m^3)^{-1}$	3.8E-12	1.6E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	4.6E-11	(mg/kg/day)	1.2E-02	$(ug/m^3)^{-1}$	5.5E-10	3.6E-10	(mg/kg/day)	1.0E-04	(mg/m^3)	0.000004
				Cobalt	1.5E-9	mg/m^3	3.8E-11	(mg/kg/day)	9.0E-03	$(ug/m^3)^{-1}$	3.4E-10	2.9E-10	(mg/kg/day)	6.0E-06	(mg/m^3)	0.00005
				Copper	2.1E-8	mg/m^3	5.5E-10	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	4.3E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	9.7E-08	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	7.5E-07	(mg/kg/day)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	4.4E-10	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	3.5E-09	(mg/kg/day)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	2.0E-09	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.5E-08	(mg/kg/day)	5.0E-05	(mg/m^3)	0.0003
				Molybdenum	2.8E-10	mg/m^3	7.2E-12	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	5.6E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	3.5E-13	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	2.7E-12	(mg/kg/day)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	5.0E-11	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	3.9E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	2.1E-09	(mg/kg/day)	NA	$(ug/m^3)^{-1}$	--	1.6E-08	(mg/kg/day)	NA	(mg/m^3)	--
			Exp. Route Total								2.4E-07					0.0004
		Exposure Point Total									2.4E-07					0.0004
	Exposure Medium Total										1.7E-04					0.1
Medium Total											1.7E-04					0.1

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.3E-07	9.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000008
				Benzo(k)fluoranthene	1.10	mg/kg	6.1E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.4E-09	4.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	8.3E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.0E-10	6.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	7.8E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.7E-08	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	6.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.5E-08	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	6.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.005
				Arsenic	18.6	mg/kg	1.0E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-06	8.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.395	mg/kg	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00008
				Chromium	15.4	mg/kg	8.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	12.9	mg/kg	7.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	26054	mg/kg	1.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Manganese (Soil)	418	mg/kg	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.002
			Exp. Route Total								2.8E-06					0.07
			Dermal	Benzo(a)anthracene	2.69	mg/kg	2.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.6E-07	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	5.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.10	mg/kg	1.0E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	7.6E-10	8.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.4E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.0E-10	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.3E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.7E-09	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.7E-09	8.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	4.1E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.1E-08	3.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/dey)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.8E-07					0.001
		Exposure Point Total									3.1E-06					0.07
	Exposure Medium Total										3.1E-06					0.07
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	6.3E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.9E-13	4.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	5.4E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	6.0E-12	4.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	6.4E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.1E-13	5.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	1.3E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	2.6E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.8E-13	2.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	3.5E-12	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	3.9E-14	2.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	3.3E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	4.0E-13	2.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	2.6E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.9E-13	2.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	2.8E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.0E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00004
				Arsenic	1.7E-9	mg/m^3	4.3E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.9E-10	3.4E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.00001
				Beryllium	3.6E-11	mg/m^3	9.2E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	2.2E-12	7.2E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000004
				Chromium	1.4E-9	mg/m^3	3.6E-11	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	4.3E-10	2.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000003

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	3.0E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	2.7E-10	2.3E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00004
				Iron	2.4E-6	mg/m^3	6.1E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.7E-07	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	9.8E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.6E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.0002
			Exp. Route Total								9.0E-10					0.0002
		Exposure Point Total									9.0E-10					0.0002
	Exposure Medium Total										9.0E-10					0.0002
Medium Total											3.1E-06					0.07
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00003
				Benzo(a)anthracene	2.80	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrena	1.40	mg/kg	7.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.6E-07	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	8.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.4E-08	6.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000007
				Benzo(k)fluoranthene	1.30	mg/kg	7.2E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.2E-09	5.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	1.5E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.1E-09	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	6.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.3E-08	4.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	8.3E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.7E-07	6.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	6.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.005
				Arsenic	35.0	mg/kg	1.9E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.9E-06	1.5E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
				Beryllium	0.470	mg/kg	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Chromium	24.3	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	13.5	mg/kg	7.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	29083	mg/kg	1.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	18.0	mg/kg	9.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	6.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.007
			Exp. Route Total								3.9E-06					0.1
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.7E-08	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthane	1.59	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/dey)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	4.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.30	mg/kg	1.2E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.0E-10	9.6E-08	(mg/kg/day)	NA	(mg/kg/dey)	--
				Chrysane	2.750	mg/kg	2.6E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.9E-10	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.5E-09	7.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	3.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.2E-09	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.5E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.1E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	7.6E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.1E-07	5.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.8E-07					0.002
		Exposure Point Total									4.1E-06					0.1
	Exposure Medium Total										4.1E-06					0.1
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	1.3E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.0E-05	(mg/m^3)	7.0E-03	(mg/m^3)	0.001
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	3.4E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.6E-05	(mg/m^3)	6.0E-03	(mg/m^3)	0.004
				Benzo(a)anthracene	2.5E-10	mg/m^3	6.5E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.2E-13	5.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	3.3E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.6E-12	2.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthane	1.4E-10	mg/m^3	3.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.1E-13	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	1.2E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	3.0E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.3E-13	2.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	6.4E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	7.1E-14	5.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	2.5E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.0E-13	2.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	7.4E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.2E-14	5.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	3.5E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.7E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	2.9E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.3E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Arsenic	3.2E-9	mg/m^3	8.2E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.5E-10	6.4E-10	(mg/m^3)	3.0E-05	(mg/m^3)	0.00002
				Beryllium	4.3E-11	mg/m^3	1.1E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	2.6E-12	8.5E-12	(mg/m^3)	2.0E-05	(mg/m^3)	0.0000004
				Chromium	2.2E-9	mg/m^3	5.7E-11	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	6.8E-10	4.4E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000004
				Cobalt	1.2E-9	mg/m^3	3.2E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.8E-10	2.5E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00004
				Iron	2.6E-6	mg/m^3	6.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	4.2E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	2.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
			Exp. Route Total								1.3E-09					0.006
		Exposure Point Total									1.3E-09					0.006
	Exposure Medium Total										4.1E-06					0.1
Medium Total											4.1E-06					0.1
										Total of Receptor Risks Across All Media	1.8E-04			Total of Receptor Hazards Across All Media		0.4

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	1.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.0E-07	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-08	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	5.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.3E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.88	mg/kg	1.1E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	7.7E-10	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.6E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-10	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)enthracene	0.400	mg/kg	2.3E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.6E-08	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	4.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	6.2E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.5E-09	7.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	6.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-08	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000004
				Phenanthrene	6.66	mg/kg	3.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Pyrene	7.10	mg/kg	4.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Total Aroclors	0.332	mg/kg	1.9E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.7E-09	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	6.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0008
				Antimony	0.436	mg/kg	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-08	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.00007
				Arsenic	23.9	mg/kg	1.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-07	1.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.005
				Beryllium	0.434	mg/kg	2.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00001
				Cadmium	1.51	mg/kg	8.5E-09	(mg/kg/dey)	NA	(mg/kg/day)$^{-1}$	--	9.9E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0002
				Chromium	20.5	mg/kg	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0004
				Cobalt	27.1	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.006
				Copper	47.4	mg/kg	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00008
				Iron	27468	mg/kg	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
				Lead	73.1	mg/kg	4.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0004
				Vanadium	22.3	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
			Exp. Route Total								3.5E-07					0.02
			Dermal	Benzo(a)enthracene	3.22	mg/kg	7.6E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-09	8.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	5.8E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.2E-08	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	6.1E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.4E-09	7.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	2.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000009
				Benzo(k)fluoranthene	1.88	mg/kg	4.5E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.3E-10	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	6.8E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.0E-11	7.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	9.5E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.9E-09	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.000005
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	2.6E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-09	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	2.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-08	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000002
				Phenanthrene	6.68	mg/kg	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000006
				Pyrene	7.10	mg/kg	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000007
				Total Aroclors	0.332	mg/kg	8.5E-10	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.7E-09	9.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	1.3E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-08	1.5E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0005
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	2.8E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00001
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								8.3E-08					0.0005
		Exposure Point Total									4.3E-07					0.02
	Exposure Medium Total										4.3E-07					0.02
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	5.5E-13	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	6.0E-14	3.2E-12	(mg/m3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	4.2E-13	(mg/m3)	1.1E-03	$(ug/m^3)^{-1}$	4.6E-13	2.4E-12	(mg/m3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	4.4E-13	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	4.8E-14	2.5E-12	(mg/m3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	1.6E-13	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	9.6E-13	(mg/m3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	3.2E-13	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	3.5E-14	1.9E-12	(mg/m3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	4.9E-13	(mg/m3)	1.1E-05	$(ug/m^3)^{-1}$	5.4E-15	2.9E-12	(mg/m3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	6.8E-14	(mg/m3)	1.2E-03	$(ug/m^3)^{-1}$	8.2E-14	4.0E-13	(mg/m3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	1.2E-12	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	7.3E-12	(mg/m3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	1.9E-13	(mg/m3)	1.1E-04	$(ug/m^3)^{-1}$	2.1E-14	1.1E-12	(mg/m3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	1.7E-08	(mg/m3)	3.4E-05	$(ug/m^3)^{-1}$	5.9E-10	1.0E-07	(mg/m3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	5.9E-08	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	3.5E-07	(mg/m3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	1.2E-12	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	7.1E-12	(mg/m3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	5.7E-14	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	3.3E-13	(mg/m3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	2.1E-09	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	1.2E-08	(mg/m3)	5.0E-03	(mg/m^3)	0.000002
				Antimony	4.0E-11	mg/m^3	7.4E-14	(mg/m3)	0.0E+00	$(ug/m^3)^{-1}$	--	4.3E-13	(mg/m3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	4.1E-12	(mg/m3)	4.3E-03	$(ug/m^3)^{-1}$	1.8E-11	2.4E-11	(mg/m3)	3.0E-05	(mg/m^3)	0.0000008
				Beryllium	3.9E-11	mg/m^3	7.4E-14	(mg/m3)	2.4E-03	$(ug/m^3)^{-1}$	1.8E-13	4.3E-13	(mg/m3)	2.0E-05	(mg/m^3)	0.00000002
				Cadmium	1.4E-10	mg/m^3	2.6E-13	(mg/m3)	1.8E-03	$(ug/m^3)^{-1}$	4.6E-13	1.5E-12	(mg/m3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	3.5E-12	(mg/m3)	1.2E-02	$(ug/m^3)^{-1}$	4.2E-11	2.0E-11	(mg/m3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	2.5E-9	mg/m^3	4.6E-12	(mg/m3)	9.0E-03	$(ug/m^3)^{-1}$	4.2E-11	2.7E-11	(mg/m3)	8.0E-06	(mg/m^3)	0.000004
				Copper	4.3E-9	mg/m^3	8.1E-12	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	4.7E-11	(mg/m3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	4.7E-09	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	2.7E-08	(mg/m3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	1.2E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	7.3E-11	(mg/m3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	7.4E-11	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	4.3E-10	(mg/m3)	5.0E-05	(mg/m^3)	0.000009
				Vanadium	2.0E-9	mg/m^3	3.8E-12	(mg/m3)	NA	$(ug/m^3)^{-1}$	--	2.2E-11	(mg/m3)	NA	(mg/m^3)	--
			Exp. Route Total								6.9E-10					0.00002
		Exposure Point Total									6.9E-10					0.00002
	Exposure Medium Total										6.9E-10					0.00002
Medium Total											4.4E-07					0.02
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	4.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.0E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.00008
				Anthracene	153	mg/kg	8.6E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00003
				Benzo(a)anthracene	302	mg/kg	1.7E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-06	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.4E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-05	1.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.2E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.6E-07	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	7.6E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.8E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0003
				Benzo(k)fluoranthene	199	mg/kg	1.1E-06	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	8.2E-08	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	1.5E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.1E-08	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	3.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-06	3.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.001
				Indeno(1,2,3-cd)pyrene	138	mg/kg	7.8E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.7E-07	9.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0001
				Phenanthrene	563	mg/kg	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Pyrene	569	mg/kg	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Total Aroclors	0.535	mg/kg	3.0E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	6.0E-09	3.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	7.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0009
				Antimony	0.574	mg/kg	3.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-08	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.00009
				Arsenic	17.7	mg/kg	1.0E-07	(mg/kg/dey)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Beryllium	0.518	mg/kg	2.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00002
				Cadmium	0.91	mg/kg	5.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0001
				Chromium	19.6	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-03	(mg/kg/dey)	0.0004
				Cobalt	16.1	mg/kg	9.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Copper	235	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0004
				Iron	41374	mg/kg	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.004
				Lead	190	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0008
				Molybdenum	3.100	mg/kg	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.00004
				Thallium	0.150	mg/kg	8.5E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.9E-09	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.0002
				Vanadium	21.2	mg/kg	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
				Zinc	888	mg/kg	5.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0002
			Exp. Route Total								1.5E-05					0.02
			Dermal	Acenaphthene	77	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.00004
				Anthracene	153	mg/kg	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-06	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00001
				Benzo(a)anthracene	302	mg/kg	7.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.2E-07	8.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	5.8E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.2E-06	6.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	5.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.6E-07	5.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Benzo(k)fluoranthene	199	mg/kg	4.7E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.4E-08	5.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	6.4E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.7E-09	7.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	1.3E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.1E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0005
				Indeno(1,2,3-cd)pyrene	138	mg/kg	3.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.4E-07	3.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00005
				Phenanthrene	563	mg/kg	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0005
				Pyrene	569	mg/kg	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0005
				Total Aroclors	0.535	mg/kg	1.4E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.7E-09	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	9.7E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-08	1.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	1.7E-11	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	1.9E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.000008
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RtC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								6.3E-06					0.002
		Exposure Point Total									2.1E-05					0.02
	Exposure Medium Total										2.1E-05					0.02
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	2.8E-07	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	1.6E-06	(mg/m3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	3.8E-08	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	2.2E-07	(mg/m3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	5.2E-11	(mg/m3)	1.1E-04	(ug/m^3)$^{-1}$	5.7E-12	3.0E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	4.2E-11	(mg/m3)	1.1E-03	(ug/m^3)$^{-1}$	4.6E-11	2.4E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	3.6E-11	(mg/m3)	1.1E-04	(ug/m^3)$^{-1}$	3.9E-12	2.1E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	2.3E-11	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	1.3E-10	(mg/m3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	3.4E-11	(mg/m3)	1.1E-04	(ug/m^3)$^{-1}$	3.7E-12	2.0E-10	(mg/m3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	4.6E-11	(mg/m3)	1.1E-05	(ug/m^3)$^{-1}$	5.1E-13	2.7E-10	(mg/m3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	9.0E-12	(mg/m3)	1.2E-03	(ug/m^3)$^{-1}$	1.1E-11	5.3E-11	(mg/m3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	1.2E-10	(mg/m3)	0.0E+00	(ug/m^3)$^{-1}$	--	7.2E-10	(mg/m3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	2.4E-11	(mg/m3)	1.1E-04	(ug/m^3)$^{-1}$	2.6E-12	1.4E-10	(mg/m3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	5.1E-07	(mg/m3)	3.4E-05	(ug/m^3)$^{-1}$	1.7E-08	3.0E-06	(mg/m3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	1.4E-06	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	8.3E-06	(mg/m3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	9.7E-11	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	5.7E-10	(mg/m3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	9.1E-14	(mg/m3)	0.0E+00	(ug/m^3)$^{-1}$	--	5.3E-13	(mg/m3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	2.3E-09	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	1.3E-08	(mg/m3)	5.0E-03	(mg/m^3)	0.000003
				Antimony	5.2E-11	mg/m^3	9.8E-14	(mg/m3)	0.0E+00	(ug/m^3)$^{-1}$	--	5.7E-13	(mg/m3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	3.0E-12	(mg/m3)	4.3E-03	(ug/m^3)$^{-1}$	1.3E-11	1.8E-11	(mg/m3)	3.0E-05	(mg/m^3)	0.0000006
				Beryllium	4.7E-11	mg/m^3	8.8E-14	(mg/m3)	2.4E-03	(ug/m^3)$^{-1}$	2.1E-13	5.2E-13	(mg/m3)	2.0E-05	(mg/m^3)	0.00000003
				Cadmium	8.2E-11	mg/m^3	1.5E-13	(mg/m3)	1.8E-03	(ug/m^3)$^{-1}$	2.8E-13	9.0E-13	(mg/m3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	3.3E-12	(mg/m3)	1.2E-02	(ug/m^3)$^{-1}$	4.0E-11	2.0E-11	(mg/m3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	1.5E-9	mg/m^3	2.7E-12	(mg/m3)	9.0E-03	(ug/m^3)$^{-1}$	2.5E-11	1.6E-11	(mg/m3)	6.0E-06	(mg/m^3)	0.000003
				Copper	2.1E-8	mg/m^3	4.0E-11	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	2.3E-10	(mg/m3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	7.1E-09	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	4.1E-08	(mg/m3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	3.2E-11	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	1.9E-10	(mg/m3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	1.4E-10	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	8.3E-10	(mg/m3)	5.0E-05	(mg/m^3)	0.00002
				Molybdenum	2.8E-10	mg/m^3	5.3E-13	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	3.1E-12	(mg/m3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	2.6E-14	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	1.5E-13	(mg/m3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	3.6E-12	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	2.1E-11	(mg/m3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	1.5E-10	(mg/m3)	NA	(ug/m^3)$^{-1}$	--	8.8E-10	(mg/m3)	NA	(mg/m^3)	--
			Exp. Route Total								1.7E-08					0.00002
		Exposure Point Total									1.7E-08					0.00002
	Exposure Medium Total										2.1E-05					0.02
Medium Total											2.1E-05					0.02

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(e)pyrene	2.32	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.5E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	3.1E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.6E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.10	mg/kg	6.2E-09	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	4.5E-10	7.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	8.5E-09	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	6.2E-11	9.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	7.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.8E-09	9.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	6.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.6E-09	7.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	6.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.2E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0007
				Arsenic	18.6	mg/kg	1.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.6E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Beryllium	0.395	mg/kg	2.2E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00001
				Chromium	15.4	mg/kg	8.7E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0003
				Cobalt	12.9	mg/kg	7.3E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.5E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Iron	26054	mg/kg	1.5E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.7E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
				Manganese (Soil)	418	mg/kg	2.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.7E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0004
			Exp. Route Total								2.9E-07					0.01
			Dermal	Benzo(a)anthracene	2.69	mg/kg	6.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-09	7.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	5.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-08	6.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	6.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.8E-09	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	1.3E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.5E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000005
				Benzo(k)fluoranthene	1.10	mg/kg	2.6E-09	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	1.9E-10	3.0E-08	(mg/kg/day)	NA	(mg/kg/dey)	--
				Chrysene	1.50	mg/kg	3.6E-09	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	2.6E-11	4.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	3.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-09	3.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	2.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	1.0E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.5E-08	1.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								7.0E-08					0.0004
		Exposure Point Total									3.6E-07					0.01
	Exposure Medium Total										3.6E-07					0.01
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	4.6E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.1E-14	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	4.0E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	4.4E-13	2.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	4.7E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.2E-14	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	9.4E-14	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	1.9E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.1E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	2.6E-13	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	2.8E-15	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	2.4E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.9E-14	1.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	1.9E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.1E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	1.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000002
				Arsenic	1.7E-9	mg/m^3	3.2E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.4E-11	1.9E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.0000006
				Beryllium	3.6E-11	mg/m^3	6.7E-14	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.6E-13	3.9E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Chromium	1.4E-9	mg/m^3	2.6E-12	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	3.2E-11	1.5E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	2.2E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	2.0E-11	1.3E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000002
				Iron	2.4E-6	mg/m^3	4.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	7.1E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.2E-10	(mg/m^3)	5.0E-05	(mg/m^3)	0.000008
			Exp. Route Total								6.6E-11					0.00001
		Exposure Point Total									6.6E-11					0.00001
	Exposura Medium Total										6.6E-11					0.00001
Medium Total											3.6E-07					0.01
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.000005
				Benzo(a)anthracene	2.80	mg/kg	1.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	7.9E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.8E-08	9.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	9.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.5E-09	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.30	mg/kg	7.3E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.3E-10	8.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	1.5E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.1E-10	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	6.1E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.4E-09	7.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-09	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	8.5E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.7E-08	9.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	7.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.3E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0008
				Arsenic	35.0	mg/kg	2.0E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.0E-07	2.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Beryllium	0.470	mg/kg	2.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00002
				Chromium	24.3	mg/kg	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0005
				Cobalt	13.5	mg/kg	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Iron	29083	mg/kg	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
				Lead	18.0	mg/kg	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	6.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.001
			Exp. Route Total								3.9E-07					0.02
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	6.6E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.9E-09	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	3.3E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.4E-08	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	3.8E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-09	4.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	1.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000005
				Benzo(k)fluoranthene	1.30	mg/kg	3.1E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.3E-10	3.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	6.5E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	4.8E-11	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	2.6E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.9E-09	3.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	7.5E-10	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.5E-10	8.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	3.8E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	7.7E-09	4.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	1.9E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.9E-08	2.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0007
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenerio Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								7.1E-08					0.0007
		Exposure Point Total									4.7E-07					0.02
	Exposure Medium Total										4.7E-07					0.02
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	9.5E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.5E-07	(mg/m^3)	7.0E-03	(mg/m^3)	0.00008
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	2.5E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.0002
				Benzo(a)anthracene	2.5E-10	mg/m^3	4.8E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.3E-14	2.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(e)pyrene	1.3E-10	mg/m^3	2.4E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	2.6E-13	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	2.7E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.0E-14	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	8.9E-14	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	2.2E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.4E-14	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	4.7E-13	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	5.2E-15	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	1.8E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.2E-14	1.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	5.4E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.0E-15	3.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	2.6E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	1.5E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	2.1E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.3E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000003
				Arsenic	3.2E-9	mg/m^3	6.0E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.6E-11	3.5E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000001
				Beryllium	4.3E-11	mg/m^3	8.0E-14	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	1.9E-13	4.7E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Chromium	2.2E-9	mg/m^3	4.2E-12	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	5.0E-11	2.4E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	1.2E-9	mg/m^3	2.3E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	2.1E-11	1.3E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000002
				Iron	2.6E-6	mg/m^3	5.0E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.9E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	3.1E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	1.9E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00002
			Exp. Route Total								9.7E-11					0.0003
		Exposure Point Total									9.7E-11					0.0003
	Exposure Medium Total										4.7E-07					0.02
Medium Total											4.7E-07					0.02
Surface Water	Surface Water	Site 08	Dermal	Dieldrin	0.013	ug/L	4.3E-10	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	6.9E-09	5.1E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0001
				Aluminum	96.7	ug/L	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-07	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0000003
				Arsenic	2.70	ug/L	6.2E-10	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	9.2E-10	7.2E-09	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00002
				Cobalt	1.10	ug/L	2.5E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-09	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.000010
				Iron	612	ug/L	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.000002
				Manganese (Water)	156	ug/L	3.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-07	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.0004
				Lead	2.0	ug/L	9.1E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Molybdenum	67.20	ug/L	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								7.9E-09					0.0006
		Exposure Point Total									7.9E-09					0.0006
	Exposure Medium Total										7.9E-09					0.0006
Medium Total											7.9E-09					0.0006

TABLE 7.3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 08	Ingestion	Benzo(a)anthracene	1.37	mg/kg	7.7E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-09	9.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	6.4E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.6E-08	7.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	6.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.4E-09	7.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	4.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-08	(mg/kg/dey)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.010	mg/kg	5.7E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.2E-10	6.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	7.8E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.7E-11	9.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	7.9E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.8E-09	9.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	3.8E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-09	4.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	1.5E-10	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	2.4E-09	1.8E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00004
				Total Aroclors	0.456	mg/kg	2.6E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.1E-09	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	7.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0009
				Arsenic	15.2	mg/kg	8.6E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-07	1.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Beryllium	0.480	mg/kg	2.7E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00002
				Chromium	18.3	mg/kg	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0004
				Cobalt	88.1	mg/kg	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	27909	mg/kg	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
				Lead	1797	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	7.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.001
				Vanadium	27.2	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0004
			Exp. Route Total								2.0E-07					0.03
			Dermal	Benzo(a)anthracene	1.37	mg/kg	8.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.9E-08	9.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	6.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.9E-07	7.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	6.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.6E-08	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	4.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.010	mg/kg	6.0E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.4E-09	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	8.2E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	6.0E-10	9.6E-07	(mg/kg/day)	NA	(mg/kg/dey)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	8.3E-09	(mg/kg/day)	7.3E+00	(mg/kg/dey)$^{-1}$	6.1E-08	9.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	4.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-08	4.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	1.2E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	2.0E-08	1.4E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0003
				Total Aroclors	0.456	mg/kg	2.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.8E-08	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	15.2	mg/kg	2.1E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.1E-07	2.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Beryllium	0.480	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	18.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	88.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	27909	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1797	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	27.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.1E-06					0.008
		Exposure Point Total									1.3E-06					0.04
	Exposure Medium Total										1.3E-06					0.04
Medium Total											1.3E-06					0.04
										Total of Receptor Risks Across All Media	2.4E-05			Total of Receptor Hazards Across All Media		0.1

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	4.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-08	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	3.1E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	3.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-08	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.88	mg/kg	2.4E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.7E-09	8.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	3.6E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.6E-10	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	5.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.7E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	9.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00008
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-08	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00003
				Phenanthrene	6.66	mg/kg	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00010
				Pyrene	7.10	mg/kg	8.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Total Aroclors	0.332	mg/kg	4.2E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	8.3E-09	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.005
				Antimony	0.436	mg/kg	5.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0005
				Arsenic	23.9	mg/kg	3.0E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.5E-07	1.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.434	mg/kg	5.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00010
				Cadmium	1.51	mg/kg	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.001
				Chromium	20.5	mg/kg	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.0E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	27.1	mg/kg	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Copper	47.4	mg/kg	5.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0005
				Iron	27468	mg/kg	3.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	73.1	mg/kg	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	5.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
				Vanadium	22.3	mg/kg	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								7.8E-07					0.1
			Dermal	Benzo(a)anthracene	3.22	mg/kg	3.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-08	4.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	2.8E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.0E-07	3.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	2.9E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.1E-08	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000004
				Benzo(k)fluoranthene	1.88	mg/kg	2.1E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.6E-09	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	3.3E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.4E-10	3.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	4.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.3E-08	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	8.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00002
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.2E-09	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000008
				Phenanthrene	6.66	mg/kg	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Pyrene	7.10	mg/kg	8.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Total Aroclors	0.332	mg/kg	4.1E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	8.1E-09	4.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	6.3E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	9.4E-08	7.3E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	1.3E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00006
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.4 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk	Non-Cancer Hazard Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								4.0E-07					0.003
		Exposure Point Total									1.2E-06					0.1
	Exposure Medium Total										1.2E-06					0.1
	Air	Exposed Area	Inhalation	Benzo(a)anthrecene	2.9E-10	mg/m^3	9.2E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.0E-14	3.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	8.9E-14	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	7.6E-14	2.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	7.3E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.0E-15	2.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	2.7E-14	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	5.4E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.9E-15	1.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	8.2E-14	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	9.0E-16	2.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	1.1E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.4E-14	4.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	2.1E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	7.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	3.1E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.4E-15	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	2.9E-09	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	9.8E-11	1.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	9.9E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.5E-07	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	2.0E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	9.5E-15	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	3.3E-13	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	3.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000002
				Antimony	4.0E-11	mg/m^3	1.2E-14	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	4.3E-13	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	6.8E-13	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.9E-12	2.4E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.0000008
				Beryllium	3.9E-11	mg/m^3	1.2E-14	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	3.0E-14	4.3E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Cadmium	1.4E-10	mg/m^3	4.3E-14	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	7.7E-14	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	5.8E-13	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	7.0E-12	2.0E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	2.5E-9	mg/m^3	7.7E-13	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	6.9E-12	2.7E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Copper	4.3E-9	mg/m^3	1.3E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	7.8E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	2.1E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	1.2E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.3E-10	(mg/m^3)	5.0E-05	(mg/m^3)	0.000009
				Vanadium	2.0E-9	mg/m^3	6.3E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.2E-10					0.00002
		Exposure Point Total									1.2E-10					0.00002
	Exposure Medium Total										1.2E-10					0.00002
Medium Total											1.2E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	9.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0006
				Anthracene	153	mg/kg	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.7E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0002
				Benzo(a)anthracene	302	mg/kg	3.8E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-06	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	3.0E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-05	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-06	9.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Benzo(k)fluoranthene	199	mg/kg	2.5E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.8E-07	8.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RIC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	3.4E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.5E-08	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	6.6E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.8E-06	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	9.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.008
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.7E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-06	6.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	4.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0008
				Phenanthrene	563	mg/kg	7.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.008
				Pyrene	569	mg/kg	7.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.008
				Total Aroclors	0.535	mg/kg	6.7E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.3E-08	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Antimony	0.574	mg/kg	7.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0006
				Arsenic	17.7	mg/kg	2.2E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.3E-07	7.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.518	mg/kg	6.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Cadmium	0.91	mg/kg	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0008
				Chromium	19.6	mg/kg	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	16.1	mg/kg	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Copper	235	mg/kg	2.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.003
				Iron	41374	mg/kg	5.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	190	mg/kg	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.7E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.005
				Molybdenum	3.100	mg/kg	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
				Thallium	0.150	mg/kg	1.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-08	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.001
				Vanadium	21.2	mg/kg	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.3E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
				Zinc	888	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								3.4E-05					0.1
			Dermal	Acenaphthene	77	mg/kg	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0002
				Anthracene	153	mg/kg	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00007
				Benzo(a)anthracene	302	mg/kg	3.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-06	4.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(e)pyrene	243.0	mg/kg	2.8E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.0E-05	3.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.7E-06	2.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0006
				Benzo(k)fluoranthene	199	mg/kg	2.3E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.7E-07	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	3.1E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.2E-08	3.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	6.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.4E-06	7.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	8.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.6E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-06	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	4.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0002
				Phenanthrene	563	mg/kg	6.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Pyrene	569	mg/kg	6.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Total Aroclors	0.535	mg/kg	6.6E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.3E-08	7.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	4.7E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.0E-08	5.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	8.0E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.3E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00004
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	8.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								3.0E-05					
		Exposure Point Total									6.4E-05					0.01
	Exposure Medium Total										6.4E-05					0.1
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	4.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	6.4E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.2E-07	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	8.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.5E-13	3.0E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	6.9E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	7.6E-12	2.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	6.0E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.6E-13	2.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	3.8E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Banzo(k)fluoranthene	1.8E-8	mg/m^3	5.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.2E-13	2.0E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	7.7E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	8.4E-14	2.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	1.5E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.8E-12	5.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	2.1E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	7.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	3.9E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.3E-13	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	8.5E-08	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	2.9E-09	3.0E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	2.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	1.6E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	1.5E-14	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	5.3E-13	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	3.9E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000003
				Antimony	5.2E-11	mg/m^3	1.6E-14	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	5.7E-13	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	5.0E-13	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.2E-12	1.8E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.0000006
				Beryllium	4.7E-11	mg/m^3	1.5E-14	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	3.5E-14	5.2E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000003
				Cadmium	8.2E-11	mg/m^3	2.6E-14	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	4.6E-14	9.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	5.6E-13	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	6.7E-12	2.0E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	1.5E-9	mg/m^3	4.6E-13	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	4.1E-12	1.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000003
				Copper	2.1E-8	mg/m^3	6.7E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-8	mg/m^3	1.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	5.4E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	2.4E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.3E-10	(mg/m^3)	5.0E-05	(mg/m^3)	0.00002
				Molybdenum	2.8E-10	mg/m^3	8.8E-14	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	4.3E-15	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	6.0E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	2.5E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.8E-10	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.9E-09					0.00002
		Exposure Point Total									2.9E-09					0.00002
	Exposure Medium Total										6.4E-05					0.1
Medium Total											6.4E-05					0.1

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	3.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-08	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.9E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.1E-07	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	3.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-08	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	6.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000008
				Benzo(k)fluoranthene	1.10	mg/kg	1.4E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.0E-09	4.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.9E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-10	6.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.8E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-08	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-08	4.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.005
				Arsenic	18.6	mg/kg	2.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.5E-07	8.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.395	mg/kg	4.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00009
				Chromium	15.4	mg/kg	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.8E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	12.9	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	26054	mg/kg	3.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Manganese (Soil)	418	mg/kg	5.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
			Exp. Route Total								6.4E-07					0.07
			Dermal	Benzo(a)anthracene	2.69	mg/kg	3.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.2E-08	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.6E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.9E-07	3.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	3.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-08	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	6.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.3E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.10	mg/kg	1.3E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.2E-10	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.7E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.2E-10	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(e,h)anthracene	0.141	mg/kg	1.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-08	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.3E-09	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	4.9E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.3E-08	5.7E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								3.3E-07					0.002
		Exposure Point Total									9.7E-07					0.07
	Exposure Medium Total										9.7E-07					0.07
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	7.7E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.4E-15	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	6.6E-14	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	7.3E-14	2.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	7.8E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.6E-15	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	1.6E-14	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	3.1E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.4E-15	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	4.3E-14	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	4.7E-16	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	4.0E-15	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	4.8E-15	1.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	3.2E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.5E-15	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	3.1E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000002
				Arsenic	1.7E-9	mg/m^3	5.3E-13	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.3E-12	1.9E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.0000006
				Beryllium	3.6E-11	mg/m^3	1.1E-14	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	2.7E-14	3.9E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Chromium	1.4E-9	mg/m^3	4.4E-13	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	5.3E-12	1.5E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	3.7E-13	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	3.3E-12	1.3E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000002
				Iron	2.4E-6	mg/m^3	7.4E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	1.2E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.2E-10	(mg/m^3)	5.0E-05	(mg/m^3)	0.000008
			Exp. Route Total								1.1E-11					0.00001
		Exposure Point Total									1.1E-11					0.00001
	Exposure Medium Total										1.1E-11					0.00001
Medium Total											9.7E-07					0.07
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	4.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00003
				Benzo(a)anthracene	2.80	mg/kg	3.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.6E-08	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.8E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-07	6.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	2.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.5E-08	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	6.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000008
				Benzo(k)fluoranthene	1.30	mg/kg	1.6E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.2E-09	5.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	3.4E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.5E-10	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.9E-09	4.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	4.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-09	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.8E-08	6.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Arsenic	35.0	mg/kg	4.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.6E-07	1.5E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
				Beryllium	0.470	mg/kg	5.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Chromium	24.3	mg/kg	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.004
				Cobalt	13.5	mg/kg	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	29083	mg/kg	3.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	18.0	mg/kg	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.007
			Exp. Route Total								8.8E-07					0.1
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	3.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-08	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.6E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-07	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	5.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.30	mg/kg	1.5E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.1E-09	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	3.1E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.3E-10	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.0E-09	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	3.6E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.6E-09	4.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.8E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.7E-08	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	9.2E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.4E-07	1.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								3.4E-07					0.004
		Exposure Point Total									1.2E-06					0.1
	Exposure Medium Total										1.2E-06					0.1
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	1.6E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.5E-07	(mg/m^3)	7.0E-03	(mg/m^3)	0.00008
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	4.1E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.0002
				Benzo(a)anthracene	2.5E-10	mg/m^3	8.0E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.8E-15	2.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	4.0E-14	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	4.4E-14	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	4.5E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.0E-15	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	1.5E-14	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	3.7E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.1E-15	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	7.8E-14	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	8.6E-16	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	3.1E-15	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.7E-15	1.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	9.0E-15	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.9E-16	3.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	4.3E-14	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.5E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	3.6E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000003
				Arsenic	3.2E-9	mg/m^3	1.0E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	4.3E-12	3.5E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000001
				Beryllium	4.3E-11	mg/m^3	1.3E-14	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	3.2E-14	4.7E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Chromium	2.2E-9	mg/m^3	6.9E-13	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	8.3E-12	2.4E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	1.2E-9	mg/m^3	3.8E-13	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	3.5E-12	1.3E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000002
				Iron	2.6E-6	mg/m^3	8.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.9E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	5.1E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	3.1E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00002
			Exp. Route Total								1.6E-11					0.0003
		Exposure Point Total									1.6E-11					0.0003
	Exposure Medium Total										1.2E-06					0.1
Medium Total											1.2E-06					0.1
Surface Water	Surface Water	Site 08	Dermal	Dieldrin	0.013	ug/L	3.3E-10	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	5.3E-09	1.2E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0002
				Aluminum	96.7	ug/L	1.7E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.9E-07	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0000006
				Arsenic	2.70	ug/L	4.7E-10	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	7.1E-10	1.7E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00006
				Cobalt	1.10	ug/L	1.9E-10	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.8E-09	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00002
				Iron	612	ug/L	1.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.8E-06	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.000005
				Manganese (Water)	156	ug/L	2.7E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.6E-07	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.0010
				Lead	2.0	ug/L	7.0E-11	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Molybdenum	87.20	ug/L	1.2E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								6.0E-09					0.001
		Exposure Point Total									6.0E-08					0.001
	Exposure Medium Total										6.0E-09					0.001
Medium Total											6.0E-09					0.001

TABLE 7.4 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 08	Ingestion	Benzo(a)anthracene	1.37	mg/kg	1.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-08	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	1.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.0E-07	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.7E-09	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	9.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.010	mg/kg	1.3E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.2E-10	4.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	1.7E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.3E-10	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	1.8E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-08	6.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	8.5E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.2E-09	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	3.4E-10	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	5.4E-09	1.2E-08	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0002
				Total Aroclors	0.456	mg/kg	5.7E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.1E-08	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	1.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Arsenic	15.2	mg/kg	1.9E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.9E-07	6.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.480	mg/kg	6.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Chromium	18.3	mg/kg	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.0E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	88.1	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Iron	27909	mg/kg	3.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	1797	mg/kg	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	1.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.008
				Vanadium	27.2	mg/kg	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								4.5E-07					0.2
			Dermal	Benzo(a)anthrecene	1.37	mg/kg	2.5E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-09	8.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	2.1E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.5E-08	7.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	1.9E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-09	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	1.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.010	mg/kg	1.8E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.3E-10	6.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	2.5E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.8E-11	8.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	2.6E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.9E-09	8.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	1.2E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.0E-10	4.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	3.8E-11	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	6.1E-10	1.3E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00003
				Total Aroclors	0.456	mg/kg	9.0E-10	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.8E-09	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	15.2	mg/kg	6.4E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	9.6E-09	2.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0007
				Beryllium	0.480	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	18.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	88.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	27909	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1797	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	27.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								3.3E-08					0.0008
		Exposure Point Total									4.8E-07					0.2
	Exposure Medium Total										4.8E-07					0.2
Medium Total											4.8E-07					0.2

TABLE 7.4.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Finfish/Shellfish	Site 08	Ingestion	4,4'-DDE	0.648	mg/kg	5.4E-07	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	1.8E-07	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				4,4'-DDT	0.021	mg/kg	1.8E-08	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	6.0E-09	6.1E-07	(mg/kg/day)	5.0E-04	(mg/kg/dey)	0.001
				Aldrin	0.002	mg/kg	1.7E-09	(mg/kg/day)	1.7E+01	$(mg/kg/day)^{-1}$	2.8E-08	5.8E-08	(mg/kg/day)	3.0E-05	(mg/kg/day)	0.002
				Dieldrin	0.039	mg/kg	3.3E-08	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	5.2E-07	1.1E-06	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.02
				Total Aroclors	0.608	mg/kg	5.1E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.0E-06	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	0.005	mg/kg	4.2E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.3E-09	1.5E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00
				Chromium	3.27	mg/kg	2.7E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.03
				Mercury	0.100	mg/kg	8.3E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
			Exp. Route Total								1.8E-06					0.07
		Exposure Point Total									1.8E-06					0.07
	Exposure Medium Total										1.8E-06					0.07
Medium Total											1.8E-06					0.07
										Total of Receptor Risks Across All Media	6.9E-05			Total of Receptor Hazards Across All Media		0.69

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concantration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.1E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.4E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.7E-09	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	4.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.88	mg/kg	8.8E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.4E-10	8.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.3E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.8E-11	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	1.9E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-08	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.000009
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	5.2E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.8E-09	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	5.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-08	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000003
				Phenanthrene	6.66	mg/kg	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Pyrene	7.10	mg/kg	3.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Total Aroclors	0.332	mg/kg	1.6E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.1E-09	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	5.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0006
				Antimony	0.436	mg/kg	2.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-08	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.00005
				Arsenic	23.9	mg/kg	1.1E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.7E-07	1.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Beryllium	0.434	mg/kg	2.0E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00001
				Cadmium	1.51	mg/kg	7.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0001
				Chromium	20.5	mg/kg	9.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0003
				Cobalt	27.1	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Copper	47.4	mg/kg	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00006
				Iron	27468	mg/kg	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
				Lead	73.1	mg/kg	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0003
				Vanadium	22.3	mg/kg	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0002
			Exp. Route Total								2.9E-07					0.01
			Dermal	Benzo(a)anthracene	3.22	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-09	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.7E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-08	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-09	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	6.7E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.7E-09	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000002
				Benzo(k)fluoranthene	1.88	mg/kg	1.3E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.6E-11	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	2.0E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.5E-11	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	2.8E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.0E-09	2.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	5.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-08	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.000001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	7.7E-10	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.6E-10	7.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	8.4E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-09	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0000004
				Phenanthrene	6.66	mg/kg	4.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Pyrene	7.10	mg/kg	4.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Total Aroclors	0.332	mg/kg	2.5E-10	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.0E-10	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	3.8E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.8E-09	3.8E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0001
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	8.1E-12	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-11	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.000003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.4E-08					0.0001
		Exposure Point Total									3.2E-07					0.01
	Exposure Medium Total										3.2E-07					0.01
	Air	Exposed Area	Inhalation	Benzo(a)enthrecene	2.9E-10	mg/m^3	3.2E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.5E-14	3.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	2.4E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	2.7E-13	2.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	2.5E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.8E-14	2.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	9.6E-14	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	9.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	1.9E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.1E-14	1.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	2.9E-13	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	3.1E-15	2.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	4.0E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	4.8E-14	4.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	7.3E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	- -	7.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	1.1E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	1.0E-08	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	3.4E-10	1.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	3.5E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.5E-07	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	7.1E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	3.3E-14	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	- -	3.3E-13	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	1.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.2E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000002
				Antimony	4.0E-11	mg/m^3	4.3E-14	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	- -	4.3E-13	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	2.4E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.0E-11	2.4E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.0000008
				Beryllium	3.9E-11	mg/m^3	4.3E-14	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	1.0E-13	4.3E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Cadmium	1.4E-10	mg/m^3	1.5E-13	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	2.7E-13	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	2.0E-12	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	2.5E-11	2.0E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	2.5E-9	mg/m^3	2.7E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	2.4E-11	2.7E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Copper	4.3E-9	mg/m^3	4.7E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	2.7E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	7.3E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	4.3E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.3E-10	(mg/m^3)	5.0E-05	(mg/m^3)	0.000009
				Vanadium	2.0E-9	mg/m^3	2.2E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.0E-10					0.00002
		Exposure Point Total									4.0E-10					0.00002
	Exposure Medium Total										4.0E-10					0.00002
Medium Total											3.2E-07					0.01
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.6E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.00006
				Anthracene	153	mg/kg	7.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	7.2E-06	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.00002
				Benzo(a)anthracene	302	mg/kg	1.4E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-06	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.1E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.3E-06	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	9.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.2E-07	9.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	6.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	6.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0002
				Benzo(k)fluoranthene	199	mg/kg	9.3E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.8E-08	9.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	1.3E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.2E-09	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	2.5E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.8E-06	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0008
				Indeno(1,2,3-cd)pyrene	138	mg/kg	6.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.7E-07	6.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00008
				Phenanthrene	563	mg/kg	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0009
				Pyrene	569	mg/kg	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0009
				Total Aroclors	0.535	mg/kg	2.5E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.0E-09	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	6.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0006
				Antimony	0.574	mg/kg	2.7E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E-08	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.00007
				Arsenic	17.7	mg/kg	8.3E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-07	8.3E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Beryllium	0.518	mg/kg	2.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00001
				Cadmium	0.91	mg/kg	4.3E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.3E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00009
				Chromium	19.6	mg/kg	9.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.2E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0003
				Cobalt	16.1	mg/kg	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.6E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Copper	235	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0003
				Iron	41374	mg/kg	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
				Lead	190	mg/kg	8.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0005
				Molybdenum	3.100	mg/kg	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.00003
				Thallium	0.150	mg/kg	7.0E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.0E-09	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.0001
				Vanadium	21.2	mg/kg	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0002
				Zinc	888	mg/kg	4.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0001
			Exp. Route Total								1.3E-05					0.01
			Dermal	Acenaphthene	77	mg/kg	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-07	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.000009
				Anthracene	153	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.000004
				Benzo(a)anthracene	302	mg/kg	2.1E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.5E-07	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.7E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-06	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	9.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.3E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00003
				Benzo(k)fluoranthene	199	mg/kg	1.4E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.0E-08	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	1.9E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-09	1.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(e,h)anthracene	52.7	mg/kg	3.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.7E-07	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	138	mg/kg	9.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.0E-08	9.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00001
				Phenanthrene	563	mg/kg	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	569	mg/kg	4.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.0E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Total Aroclors	0.535	mg/kg	4.0E-10	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	8.0E-10	4.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	2.8E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.3E-09	2.8E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00009
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	4.9E-12	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-11	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.000002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.8E-06					0.0005
		Exposure Point Total									1.4E-05					0.01
	Exposure Medium Total										1.4E-05					0.01
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	1.6E-07	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	1.6E-06	(mg/kg/day)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	2.2E-08	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	2.2E-07	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(e)anthracene	2.7E-8	mg/m^3	3.0E-11	(mg/kg/day)	1.1E-04	(ug/m^3)$^{-1}$	3.3E-12	3.0E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	2.4E-11	(mg/kg/day)	1.1E-03	(ug/m^3)$^{-1}$	2.7E-11	2.4E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	2.1E-11	(mg/kg/day)	1.1E-04	(ug/m^3)$^{-1}$	2.3E-12	2.1E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	1.3E-11	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	1.3E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	2.0E-11	(mg/kg/day)	1.1E-04	(ug/m^3)$^{-1}$	2.2E-12	2.0E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	2.7E-11	(mg/kg/day)	1.1E-05	(ug/m^3)$^{-1}$	2.9E-13	2.7E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	5.3E-12	(mg/kg/day)	1.2E-03	(ug/m^3)$^{-1}$	6.3E-12	5.3E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	7.2E-11	(mg/kg/day)	0.0E+00	(ug/m^3)$^{-1}$	--	7.2E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	1.4E-11	(mg/kg/day)	1.1E-04	(ug/m^3)$^{-1}$	1.5E-12	1.4E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	3.0E-07	(mg/kg/day)	3.4E-05	(ug/m^3)$^{-1}$	1.0E-08	3.0E-06	(mg/kg/day)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	8.3E-07	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	8.3E-06	(mg/kg/day)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	5.7E-11	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	5.7E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	5.3E-14	(mg/kg/day)	0.0E+00	(ug/m^3)$^{-1}$	--	5.3E-13	(mg/kg/day)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	1.3E-09	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	1.3E-08	(mg/kg/day)	5.0E-03	(mg/m^3)	0.000003
				Antimony	5.2E-11	mg/m^3	5.7E-14	(mg/kg/day)	0.0E+00	(ug/m^3)$^{-1}$	--	5.7E-13	(mg/kg/day)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	1.8E-12	(mg/kg/day)	4.3E-03	(ug/m^3)$^{-1}$	7.6E-12	1.8E-11	(mg/kg/day)	3.0E-05	(mg/m^3)	0.0000006
				Beryllium	4.7E-11	mg/m^3	5.2E-14	(mg/kg/day)	2.4E-03	(ug/m^3)$^{-1}$	1.2E-13	5.2E-13	(mg/kg/day)	2.0E-05	(mg/m^3)	0.00000003
				Cadmium	8.2E-11	mg/m^3	9.0E-14	(mg/kg/day)	1.8E-03	(ug/m^3)$^{-1}$	1.6E-13	9.0E-13	(mg/kg/day)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	2.0E-12	(mg/kg/day)	1.2E-02	(ug/m^3)$^{-1}$	2.3E-11	2.0E-11	(mg/kg/day)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	1.5E-9	mg/m^3	1.6E-12	(mg/kg/day)	9.0E-03	(ug/m^3)$^{-1}$	1.4E-11	1.6E-11	(mg/kg/day)	6.0E-06	(mg/m^3)	0.000003
				Copper	2.1E-8	mg/m^3	2.3E-11	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	2.3E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	4.1E-09	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	4.1E-08	(mg/kg/day)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	1.9E-11	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	1.9E-10	(mg/kg/day)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	8.3E-11	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	8.3E-10	(mg/kg/day)	5.0E-05	(mg/m^3)	0.00002
				Molybdenum	2.8E-10	mg/m^3	3.1E-13	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	3.1E-12	(mg/kg/day)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	1.5E-14	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	1.5E-13	(mg/kg/day)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	2.1E-12	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	2.1E-11	(mg/kg/day)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	8.8E-11	(mg/kg/day)	NA	(ug/m^3)$^{-1}$	--	8.8E-10	(mg/kg/day)	NA	(mg/m^3)	--
			Exp. Route Total								1.0E-08					0.00002
		Exposure Point Total									1.0E-08					0.00002
	Exposure Medium Total										1.4E-05					0.01
Medium Total											1.4E-05					0.01

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.2E-09	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.1E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.0E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.4E-09	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	2.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000009
				Benzo(k)fluoranthene	1.10	mg/kg	5.2E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	3.8E-10	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	7.0E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	5.1E-11	7.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	6.6E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.8E-09	6.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	5.3E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.8E-09	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	5.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0005
				Arsenic	18.6	mg/kg	8.7E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-07	8.7E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Beryllium	0.395	mg/kg	1.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.000009
				Chromium	15.4	mg/kg	7.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0002
				Cobalt	12.9	mg/kg	6.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Iron	26054	mg/kg	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
				Menganese (Soil)	418	mg/kg	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0003
			Exp. Route Total								2.4E-07					0.008
			Dermal	Benzo(a)anthracene	2.69	mg/kg	1.9E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-09	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-08	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.9E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-09	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	3.8E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-09	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000001
				Benzo(k)fluoranthene	1.10	mg/kg	7.7E-10	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	5.6E-11	7.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.0E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	7.6E-12	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	9.8E-11	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.2E-10	9.8E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	7.8E-10	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.7E-10	7.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	3.0E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.5E-09	3.0E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00010
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.0E-08					0.00010
		Exposure Point Total									2.6E-07					0.008
	Exposure Medium Total										2.6E-07					0.008
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	2.7E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.9E-14	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	2.3E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	2.5E-13	2.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	2.7E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.0E-14	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	5.5E-14	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthane	1.0E-10	mg/m^3	1.1E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	1.5E-13	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.6E-15	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)enthracene	1.3E-11	mg/m^3	1.4E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.7E-14	1.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	1.1E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	1.1E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000002
				Arsenic	1.7E-9	mg/m^3	1.9E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	8.0E-12	1.9E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.0000006
				Beryllium	3.6E-11	mg/m^3	3.9E-14	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	9.4E-14	3.9E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Chromium	1.4E-9	mg/m^3	1.5E-12	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.8E-11	1.5E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002

TABLE 7.5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Aga: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentretion		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	1.3E-12	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.2E-11	1.3E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000002
				Iron	2.4E-6	mg/m^3	2.6E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	4.2E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.2E-10	(mg/m^3)	5.0E-05	(mg/m^3)	0.000008
			Exp. Route Total								3.8E-11					0.00001
		Exposure Point Total									3.8E-11					0.00001
	Exposure Medium Total										3.8E-11					0.00001
Medium Total											2.6E-07					0.008
Subsurface Soil	Subsurfece Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzena	2.40	mg/kg	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-07	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.000003
				Benzo(a)enthracene	2.80	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.6E-09	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	6.6E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.8E-08	6.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	7.5E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.5E-09	7.5E-08	(mg/kg/dey)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylena	0.520	mg/kg	2.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000008
				Benzo(k)fluoranthene	1.30	mg/kg	6.1E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.5E-10	6.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysane	2.750	mg/kg	1.3E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.4E-11	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	5.1E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.7E-09	5.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.5E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	7.0E-09	(mg/kg/day)	2.0E+00	(mg/kg/dey)$^{-1}$	1.4E-08	7.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	5.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.9E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0006
				Arsenic	35.0	mg/kg	1.6E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.5E-07	1.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.005
				Beryllium	0.470	mg/kg	2.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00001
				Chromium	24.3	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0004
				Cobalt	13.5	mg/kg	6.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.3E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Iron	29083	mg/kg	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
				Lead	18.0	mg/kg	8.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	5.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0007
			Exp. Route Total								3.3E-07					0.01
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracane	2.80	mg/kg	1.9E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-09	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	9.7E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.1E-09	9.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.1E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.1E-10	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	3.6E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-09	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000001
				Benzo(k)fluoranthene	1.30	mg/kg	9.0E-10	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.6E-11	9.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysane	2.750	mg/kg	1.9E-09	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-11	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	7.5E-11	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.5E-10	7.5E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	2.2E-10	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-10	2.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.1E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.2E-09	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	5.6E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.4E-09	5.6E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.1E-08					0.0002
		Exposure Point Total									3.5E-07					0.01
	Exposure Medium Total										3.5E-07					0.01
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	5.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.5E-07	(mg/m^3)	7.0E-03	(mg/m^3)	0.00008
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	1.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-06	(mg/m^3)	6.0E-03	(mg/m^3)	0.0002
				Benzo(a)anthracene	2.5E-10	mg/m^3	2.8E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.1E-14	2.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	1.4E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-13	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	1.6E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.7E-14	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	5.2E-14	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	1.3E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.4E-14	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	2.7E-13	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	3.0E-15	2.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	1.1E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.3E-14	1.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indano(1,2,3-cd)pyrene	2.9E-11	mg/m^3	3.2E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.5E-15	3.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	1.5E-13	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.5E-12	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	1.3E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000003
				Arsenic	3.2E-9	mg/m^3	3.5E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.5E-11	3.5E-11	(mg/m^3)	3.0E-05	(mg/m^3)	0.000001
				Beryllium	4.3E-11	mg/m^3	4.7E-14	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.1E-13	4.7E-13	(mg/m^3)	2.0E-05	(mg/m^3)	0.00000002
				Chromium	2.2E-9	mg/m^3	2.4E-12	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	2.9E-11	2.4E-11	(mg/m^3)	1.0E-04	(mg/m^3)	0.0000002
				Cobalt	1.2E-9	mg/m^3	1.3E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.2E-11	1.3E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000002
				Iron	2.6E-6	mg/m^3	2.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.9E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	1.8E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	1.1E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00002
			Exp. Route Total								5.6E-11					0.0003
		Exposure Point Total									5.6E-11					0.0003
	Exposure Medium Total										3.5E-07					0.01
Medium Total											3.5E-07					0.01
Surface Water	Surface Water	Site 08	Dermal	Dieldrin	0.013	ug/L	6.1E-10	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	9.8E-09	6.1E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.0001
				Aluminum	96.7	ug/L	3.1E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-07	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0000003
				Arsenic	2.70	ug/L	8.7E-10	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.3E-09	8.7E-09	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00003
				Cobalt	1.10	ug/L	3.6E-10	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.6E-09	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00001
				Iron	612	ug/L	2.0E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.0E-06	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.000003
				Manganese (Water)	156	ug/L	5.0E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.0E-07	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.0005
				Lead	2.0	ug/L	1.3E-10	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Molybdenum	67.20	ug/L	2.2E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.2E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								1.1E-08					0.0007
		Exposure Point Total									1.1E-08					0.0007
	Exposure Medium Total										1.1E-08					0.0007
Medium Total											1.1E-08					0.0007

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 08	Ingestion	Benzo(a)anthracene	1.37	mg/kg	6.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-09	6.4E-08	(mg/kg/day)	NA	(mg/kg/dey)	--
				Benzo(a)pyrene	1.130	mg/kg	5.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.9E-08	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	5.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.6E-09	5.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	3.6E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.6E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.010	mg/kg	4.7E-09	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	3.5E-10	4.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	6.5E-09	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	4.7E-11	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	6.6E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.8E-09	6.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	3.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-09	3.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	1.3E-10	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	2.0E-09	1.3E-09	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00003
				Total Aroclors	0.456	mg/kg	2.1E-09	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	4.3E-09	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	6.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.2E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0006
				Arsenic	15.2	mg/kg	7.1E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.1E-07	7.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.480	mg/kg	2.3E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.3E-08	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00001
				Chromium	18.3	mg/kg	8.6E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.6E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0003
				Cobalt	88.1	mg/kg	4.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Iron	27909	mg/kg	1.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
				Lead	1797	mg/kg	8.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	6.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.1E-05	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.0008
				Vanadium	27.2	mg/kg	1.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
			Exp. Route Total								1.7E-07					0.02
			Dermal	Benzo(e)anthracene	1.37	mg/kg	4.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-09	4.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.130	mg/kg	3.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.8E-08	3.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.060	mg/kg	3.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-09	3.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.764	mg/kg	2.6E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0000009
				Benzo(k)fluoranthene	1.010	mg/kg	3.4E-09	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	2.5E-10	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.380	mg/kg	4.6E-09	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	3.4E-11	4.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.140	mg/kg	4.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.4E-09	4.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.677	mg/kg	2.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-09	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.027	mg/kg	7.0E-11	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	1.1E-09	7.0E-10	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.00001
				Total Aroclors	0.456	mg/kg	1.7E-09	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.3E-09	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13141	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	15.2	mg/kg	1.2E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.8E-08	1.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
				Beryllium	0.480	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	18.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	88.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	27909	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1797	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1301	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	27.2	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								6.1E-08					0.0004
		Exposure Point Total									2.3E-07					0.02
	Exposure Medium Total										2.3E-07					0.02
Medium Total											2.3E-07					0.02

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenerio Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Finfish/Shellfish	Site 08	Ingestion	4,4'-DDE	0.648	mg/kg	5.7E-06	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	1.9E-06	5.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				4,4'-DDT	0.021	mg/kg	1.8E-07	(mg/kg/day)	3.4E-01	$(mg/kg/day)^{-1}$	6.3E-08	1.8E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.004
				Aldrin	0.002	mg/kg	1.8E-08	(mg/kg/day)	1.7E+01	$(mg/kg/day)^{-1}$	3.0E-07	1.8E-07	(mg/kg/day)	3.0E-05	(mg/kg/day)	0.006
				Dieldrin	0.039	mg/kg	3.4E-07	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	5.5E-06	3.4E-06	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.07
				Total Aroclors	0.608	mg/kg	5.3E-06	(mg/kg/dey)	2.0E+00	$(mg/kg/day)^{-1}$	1.1E-05	5.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	0.005	mg/kg	4.4E-08	(mg/kg/dey)	1.5E+00	$(mg/kg/day)^{-1}$	6.6E-08	4.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	3.27	mg/kg	2.9E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.9E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.10
				Mercury	0.100	mg/kg	8.8E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
			Exp. Route Total								1.8E-05					0.2
		Exposure Point Total									1.8E-05					0.2
	Exposure Medium Total										1.8E-05					0.2
Medium Total											1.8E-05					0.2
										Total of Receptor Risks Across All Media	3.4E-05			Total of Receptor Hazerds Across All Media		0.3

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	3.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.9E-07	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	3.0E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-06	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	3.1E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.3E-07	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Benzo(k)fluoranthene	1.88	mg/kg	2.3E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.7E-08	8.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	3.5E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.6E-09	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	4.9E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.6E-07	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	8.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0008
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.8E-08	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0003
				Phenanthrene	6.66	mg/kg	8.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0009
				Pyrene	7.10	mg/kg	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Total Aroclors	0.332	mg/kg	4.1E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	8.1E-08	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	1.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.05
				Antimony	0.436	mg/kg	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-06	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.005
				Arsenic	23.9	mg/kg	2.9E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.4E-06	1.0E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Beryllium	0.434	mg/kg	5.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0009
				Cadmium	1.51	mg/kg	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.01
				Chromium	20.5	mg/kg	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.03
				Cobalt	27.1	mg/kg	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.4
				Copper	47.4	mg/kg	5.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.005
				Iron	27468	mg/kg	3.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Lead	73.1	mg/kg	8.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	5.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.03
				Vanadium	22.3	mg/kg	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.5E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.02
			Exp. Route Total								7.6E-06					1.0
			Dermal	Benzo(a)anthracene	3.22	mg/kg	5.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.2E-08	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	4.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.2E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	4.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.3E-08	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.0E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Benzo(k)fluoranthene	1.88	mg/kg	3.3E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.4E-09	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	5.1E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	3.7E-10	1.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	7.1E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.2E-08	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	2.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-08	6.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.00004
				Phenenthrene	6.66	mg/kg	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	7.10	mg/kg	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Total Aroclors	0.332	mg/kg	6.4E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.3E-08	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	9.8E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-07	3.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	2.1E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.2E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								6.2E-07					0.01
		Exposure Point Total									8.2E-06					1.1
	Exposure Medium Total										8.2E-06					1.1
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	5.4E-12	(mg/m^3)$^{-1}$	1.1E-04	(ug/m^3)$^{-1}$	5.9E-13	1.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	4.1E-12	(mg/m^3)$^{-1}$	1.1E-03	(ug/m^3)$^{-1}$	4.5E-12	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	4.2E-12	(mg/m^3)$^{-1}$	1.1E-04	(ug/m^3)$^{-1}$	4.7E-13	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	1.6E-12	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	5.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	3.1E-12	(mg/m^3)$^{-1}$	1.1E-04	(ug/m^3)$^{-1}$	3.4E-13	1.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	4.8E-12	(mg/m^3)$^{-1}$	1.1E-05	(ug/m^3)$^{-1}$	5.3E-14	1.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)enthrecene	3.6E-11	mg/m^3	6.7E-13	(mg/m^3)$^{-1}$	1.2E-03	(ug/m^3)$^{-1}$	8.0E-13	2.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	1.2E-11	(mg/m^3)$^{-1}$	0.0E+00	(ug/m^3)$^{-1}$	--	4.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	1.8E-12	(mg/m^3)$^{-1}$	1.1E-04	(ug/m^3)$^{-1}$	2.0E-13	6.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	1.7E-07	(mg/m^3)$^{-1}$	3.4E-05	(ug/m^3)$^{-1}$	5.8E-09	5.9E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	5.8E-07	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	2.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	1.2E-11	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	4.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	5.5E-13	(mg/m^3)$^{-1}$	0.0E+00	(ug/m^3)$^{-1}$	--	1.9E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	2.0E-08	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	7.1E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Antimony	4.0E-11	mg/m^3	7.3E-13	(mg/m^3)$^{-1}$	0.0E+00	(ug/m^3)$^{-1}$	--	2.5E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	4.0E-11	(mg/m^3)$^{-1}$	4.3E-03	(ug/m^3)$^{-1}$	1.7E-10	1.4E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00005
				Beryllium	3.9E-11	mg/m^3	7.2E-13	(mg/m^3)$^{-1}$	2.4E-03	(ug/m^3)$^{-1}$	1.7E-12	2.5E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000001
				Cadmium	1.4E-10	mg/m^3	2.5E-12	(mg/m^3)$^{-1}$	1.8E-03	(ug/m^3)$^{-1}$	4.5E-12	8.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	3.4E-11	(mg/m^3)$^{-1}$	1.2E-02	(ug/m^3)$^{-1}$	4.1E-10	1.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Cobalt	2.5E-9	mg/m^3	4.5E-11	(mg/m^3)$^{-1}$	9.0E-03	(ug/m^3)$^{-1}$	4.1E-10	1.6E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0003
				Copper	4.3E-9	mg/m^3	7.9E-11	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	2.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	4.6E-08	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	1.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	1.2E-10	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	4.3E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	7.3E-10	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	2.5E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0005
				Vanadium	2.0E-9	mg/m^3	3.7E-11	(mg/m^3)$^{-1}$	NA	(ug/m^3)$^{-1}$	--	1.3E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								6.8E-09					0.0010
		Exposure Point Total									6.8E-09					0.0010
	Exposure Medium Total										6.8E-09					0.0010
Medium Total											8.2E-06					1.1
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	9.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-04	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.005
				Anthracene	153	mg/kg	1.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.002
				Benzo(a)anthracene	302	mg/kg	3.7E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-05	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	3.0E-05	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.2E-04	1.0E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	2.6E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.9E-05	9.0E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	1.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.02
				Benzo(k)fluoranthene	199	mg/kg	2.4E-05	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.8E-06	8.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Araa	Ingestion	Chrysene	269	mg/kg	3.3E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.4E-07	1.1E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	6.4E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.7E-05	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	8.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.08
				Indeno(1,2,3-cd)pyrene	138	mg/kg	1.7E-05	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-05	5.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	4.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-04	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.008
				Phenanthrene	563	mg/kg	6.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.08
				Pyrene	569	mg/kg	6.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-03	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.08
				Total Aroclors	0.535	mg/kg	6.5E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.3E-07	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	1.7E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.06
				Antimony	0.574	mg/kg	7.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-06	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.006
				Arsenic	17.7	mg/kg	2.2E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.2E-06	7.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Beryllium	0.518	mg/kg	6.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-06	(mg/kg/day)	2.0E-03	(mg/kg/dey)	0.001
				Cadmium	0.91	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.008
				Chromium	19.6	mg/kg	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.03
				Cobalt	16.1	mg/kg	2.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Copper	235	mg/kg	2.9E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-03	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.03
				Iron	41374	mg/kg	5.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.8E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.3
				Lead	190	mg/kg	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	1.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.05
				Molybdenum	3.100	mg/kg	3.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.003
				Thallium	0.150	mg/kg	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.4E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.010
				Vanadium	21.2	mg/kg	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.02
				Zinc	888	mg/kg	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-03	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.01
			Exp. Route Total								3.3E-04					1.2
			Dermal	Acenaphthene	77	mg/kg	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0008
				Anthracene	153	mg/kg	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.5E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0003
				Benzo(a)anthracene	302	mg/kg	5.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.9E-06	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	4.3E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.2E-05	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	3.7E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-06	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.3E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.003
				Benzo(k)fluoranthene	199	mg/kg	3.5E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	2.6E-07	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	4.8E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	3.5E-08	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	9.4E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.8E-06	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	1.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.01
				Indeno(1,2,3-cd)pyrene	138	mg/kg	2.5E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-06	8.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	6.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.001
				Phenanthrane	563	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Pyrene	569	mg/kg	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.01
				Total Aroclors	0.535	mg/kg	1.0E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.0E-08	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	7.3E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.1E-07	2.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	1.2E-10	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.3E-09	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.0002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposad Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.7E-05					0.05
		Exposure Point Total									3.7E-04					1.3
	Exposure Medium Total										3.7E-04					1.3
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	2.8E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.6E-05	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	3.7E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	5.0E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.5E-11	1.8E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	4.0E-10	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	4.5E-10	1.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	3.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.8E-11	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	2.2E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	3.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.6E-11	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	4.5E-10	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	4.9E-12	1.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	8.8E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.1E-10	3.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	1.2E-09	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	4.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	2.3E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.5E-11	8.0E-09	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	5.0E-06	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	1.7E-07	1.7E-04	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	1.4E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.9E-04	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	9.5E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	8.9E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	3.1E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	2.3E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.9E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Antimony	5.2E-11	mg/m^3	9.6E-13	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	3.3E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	2.9E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.3E-10	1.0E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00003
				Beryllium	4.7E-11	mg/m^3	8.6E-13	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	2.1E-12	3.0E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Cadmium	8.2E-11	mg/m^3	1.5E-12	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	2.7E-12	5.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	3.3E-11	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	3.9E-10	1.1E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Cobalt	1.5E-9	mg/m^3	2.7E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	2.4E-10	9.4E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Copper	2.1E-8	mg/m^3	3.9E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	6.9E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	3.2E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	1.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.9E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0010
				Molybdenum	2.8E-10	mg/m^3	5.2E-12	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	2.5E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	3.5E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	1.5E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.2E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.7E-07					0.001
		Exposure Point Total									1.7E-07					0.001
	Exposure Medium Total										3.7E-04					1.3
Medium Total											3.7E-04					1.3

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	3.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.4E-07	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	2.8E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.1E-06	9.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	3.4E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.5E-07	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	6.7E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.4E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00008
				Benzo(k)fluoranthene	1.10	mg/kg	1.3E-07	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	9.8E-09	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.8E-07	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	1.3E-09	6.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	1.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-07	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	1.4E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.0E-07	4.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	1.3E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.7E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.05
				Arsenic	18.6	mg/kg	2.3E-06	(mg/kg/day)	1.5E+00	$(mg/kg/dey)^{-1}$	3.4E-06	7.9E-05	(mg/kg/dey)	3.0E-04	(mg/kg/day)	0.3
				Beryllium	0.395	mg/kg	4.8E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.7E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0008
				Chromium	15.4	mg/kg	1.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.02
				Cobalt	12.9	mg/kg	1.6E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.5E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	26054	mg/kg	3.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Manganese (Soil)	418	mg/kg	5.1E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.02
			Exp. Route Total								8.2E-06					0.7
			Dermal	Benzo(a)anthracene	2.69	mg/kg	4.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.5E-08	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	4.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.0E-07	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	4.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.6E-08	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	9.8E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.10	mg/kg	2.0E-08	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	1.4E-09	6.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	2.7E-08	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	1.9E-10	9.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	2.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-08	8.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	2.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.5E-08	7.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	7.6E-08	(mg/kg/dey)	1.5E+00	$(mg/kg/day)^{-1}$	1.1E-07	2.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.009
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								5.2E-07					0.009
		Exposure Point Total									6.7E-06					0.7
	Exposure Medium Total										6.7E-06					0.7
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	4.5E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.9E-13	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	3.9E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	4.2E-12	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	4.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.0E-13	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	5.0E-11	mg/m^3	9.2E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	1.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.0E-13	6.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	2.5E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	2.7E-14	8.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	2.3E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.8E-13	8.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	1.9E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.1E-13	6.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	1.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	1.7E-9	mg/m^3	3.1E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.3E-10	1.1E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00004
				Beryllium	3.6E-11	mg/m^3	6.6E-13	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.6E-12	2.3E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000001
				Chromium	1.4E-9	mg/m^3	2.6E-11	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	3.1E-10	9.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000009

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Area	Inhalation	Cobalt	1.2E-9	mg/m^3	2.1E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	1.9E-10	7.5E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.0001
				Iron	2.4E-6	mg/m^3	4.3E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	7.0E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0005
			Exp. Route Total								6.4E-10					0.0008
		Exposure Point Total									6.4E-10					0.0008
	Exposure Medium Total										6.4E-10					0.0008
Medium Total											6.7E-06					0.7
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	4.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-05	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.0003
				Benzo(a)anthracene	2.80	mg/kg	3.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.5E-07	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	1.7E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-06	6.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.9E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-07	6.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	6.3E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00007
				Benzo(k)fluoranthene	1.30	mg/kg	1.6E-07	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.2E-08	5.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	3.4E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	2.5E-09	1.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.6E-08	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	3.9E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.8E-08	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.8E-07	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.7E-07	6.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	1.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.4E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.05
				Arsenic	35.0	mg/kg	4.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.4E-06	1.5E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.5
				Beryllium	0.470	mg/kg	5.7E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.001
				Chromium	24.3	mg/kg	3.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.03
				Cobalt	13.5	mg/kg	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	29083	mg/kg	3.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Lead	18.0	mg/kg	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-03	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.07
			Exp. Route Total								8.6E-06					1.0
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	5.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.6E-08	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	2.5E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.8E-07	8.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	2.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.1E-08	9.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	9.2E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.30	mg/kg	2.3E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	1.7E-09	8.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	4.9E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	3.6E-10	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	1.9E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-08	6.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	5.6E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.1E-09	2.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	2.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	5.7E-08	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	1.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.2E-07	5.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								5.3E-07					0.02
		Exposure Point Total									9.1E-06					1.0
	Exposure Medium Total										9.1E-06					1.0
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	9.3E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.2E-05	(mg/m^3)	7.0E-03	(mg/m^3)	0.005
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	2.4E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.5E-05	(mg/m^3)	6.0E-03	(mg/m^3)	0.01
				Benzo(a)anthracene	2.5E-10	mg/m^3	4.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.1E-13	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	2.3E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.6E-12	8.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	2.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.9E-13	9.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	8.7E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	2.2E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.4E-13	7.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	4.6E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	5.0E-14	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	9.8E-12	mg/m^3	1.8E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.2E-13	6.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	5.3E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.8E-14	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	2.5E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	8.7E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	2.1E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.3E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	3.2E-9	mg/m^3	5.8E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.5E-10	2.0E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00007
				Beryllium	4.3E-11	mg/m^3	7.8E-13	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	1.9E-12	2.7E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000001
				Chromium	2.2E-9	mg/m^3	4.0E-11	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	4.9E-10	1.4E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Cobalt	1.2E-9	mg/m^3	2.2E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.0E-10	7.9E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.0001
				Iron	2.6E-6	mg/m^3	4.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	3.0E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.0E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	1.8E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.001
			Exp. Route Total								9.4E-10					0.02
		Exposure Point Total									9.4E-10					0.02
	Exposure Medium Total										9.1E-06					1.1
Medium Total											9.1E-06					1.1
Groundwater	Groundwater	Site 08	Ingestion	1,1-Dichloroethene	310	ug/L	4.2E-04	(mg/kg/day)	5.7E-03	$(mg/kg/day)^{-1}$	2.4E-06	1.5E-02	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.07
				1,2,4-Trimethylbenzene	810	ug/L	1.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.8E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	3.9E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.4E-02	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.3
				Bromomethane	2.00	ug/L	2.7E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.5E-05	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.07
				Carbon Tetrachloride	2.00	ug/L	2.7E-06	(mg/kg/day)	1.3E-01	$(mg/kg/day)^{-1}$	3.5E-07	9.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.1
				Chloroform	7.00	ug/L	9.5E-06	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	2.9E-07	3.3E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.03
				Chloromethane	16.0	ug/L	2.2E-05	(mg/kg/day)	1.3E-02	$(mg/kg/day)^{-1}$	2.8E-07	7.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	7.8E-05	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	8.6E-07	2.7E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.03
				Isopropylbenzene	94.0	ug/L	1.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.4E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.04
				Tetrachloroethene	12.0	ug/L	1.6E-05	(mg/kg/day)	5.4E-01	$(mg/kg/day)^{-1}$	8.8E-06	5.7E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.06
				Total Xylenes	97.0	ug/L	1.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.6E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.02
				Trichloroethene	730	ug/L	9.9E-04	(mg/kg/day)	1.3E-02	$(mg/kg/day)^{-1}$	1.3E-05	3.5E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	2.6E-05	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	3.9E-05	9.0E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.3
				Benzo(k)fluoranthene	4.00	ug/L	5.4E-06	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	3.9E-07	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	1.5E-08	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	2.3E-07	5.1E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.01

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RtD/RtC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Ingestion	Aluminum	564000	ug/L	7.6E-01	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.7E+01	(mg/kg/day)	1.0E+00	(mg/kg/dey)	27
				Antimony	1.20	ug/L	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E-05	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.1
				Arsenic	503	ug/L	6.8E-04	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.0E-03	2.4E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	79
				Barium	1390	ug/L	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.6E-02	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.3
				Beryllium	17.8	ug/L	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.4E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.4
				Chromium	868	ug/L	1.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-02	(mg/kg/day)	3.0E-03	(mg/kg/day)	14
				Cobalt	637	ug/L	8.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	100
				Copper	1440	ug/L	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.8E-02	(mg/kg/day)	4.0E-02	(mg/kg/day)	1.7
				Iron	1210000	ug/L	1.6E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.7E+01	(mg/kg/day)	7.0E-01	(mg/kg/day)	82
				Lead	1890	ug/L	2.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	1.9E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-01	(mg/kg/day)	2.4E-02	(mg/kg/day)	27
				Mercury	1.90	ug/L	2.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Molybdenum	20.3	ug/L	2.7E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.6E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.2
				Nickel	1160	ug/L	1.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-02	(mg/kg/dey)	2.0E-02	(mg/kg/day)	2.7
				Thallium	2.30	ug/L	3.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	6.5E-05	(mg/kg/day)	1.7
				Vanadium	832	ug/L	1.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-02	(mg/kg/day)	5.0E-03	(mg/kg/day)	7.9
				Zinc	3990	ug/L	5.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-01	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.6
			Exp. Route Total								1.1E-03					346
			Dermal	1,1-Dichloroethane	310	ug/L	2.5E-05	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	1.4E-07	8.7E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.004
				1,2,4-Trimethylbenzene	810	ug/L	9.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-02	(mg/kg/dey)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	2.4E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.3E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.2
				Bromomethane	2.00	ug/L	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-06	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.002
				Carbon Tetrachloride	2.00	ug/L	5.5E-07	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	7.2E-08	1.9E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.03
				Chlorotorm	7.00	ug/L	6.5E-07	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	2.0E-08	2.3E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.002
				Chloromethane	16.0	ug/L	4.5E-07	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	5.9E-09	1.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	3.5E-05	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	3.9E-07	1.2E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.01
				Isopropylbenzene	94.0	ug/L	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.04
				Tetrachloroethene	12.0	ug/L	7.3E-06	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	3.9E-06	2.6E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.03
				Total Xylenes	97.0	ug/L	5.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.010
				Trichloroethene	730	ug/L	1.2E-04	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.6E-06	4.3E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	9.9E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-06	3.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	7.7E-09	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	1.2E-07	2.7E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.005
				Aluminum	564000	ug/L	2.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.08
				Antimony	1.20	ug/L	4.8E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-07	(mg/kg/day)	6.0E-05	(mg/kg/day)	0.003
				Arsenic	503	ug/L	2.0E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.0E-06	7.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Barium	1390	ug/L	5.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-04	(mg/kg/day)	1.4E-02	(mg/kg/day)	0.01
				Beryllium	17.8	ug/L	7.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-06	(mg/kg/day)	1.4E-05	(mg/kg/day)	0.2
				Chromium	868	ug/L	6.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-04	(mg/kg/day)	7.5E-05	(mg/kg/day)	3.2
				Cobalt	637	ug/L	2.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Copper	1440	ug/L	5.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.005
				Iron	1210000	ug/L	4.8E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Lead	1890	ug/L	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	5.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-03	(mg/kg/day)	9.6E-04	(mg/kg/day)	2.0
				Mercury	1.90	ug/L	7.6E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-07	(mg/kg/day)	2.1E-05	(mg/kg/day)	0.01
				Molybdenum	20.3	ug/L	8.1E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.8E-06	(mg/kg/day)	5.0E-03	(mg/kg/dey)	0.0006

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Dermal	Nickel	1160	ug/L	9.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-05	(mg/kg/day)	8.0E-04	(mg/kg/day)	0.04
				Thallium	2.30	ug/L	9.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.2E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.005
				Vanadium	832	ug/L	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-04	(mg/kg/day)	1.3E-04	(mg/kg/day)	0.9
				Zinc	3990	ug/L	9.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								1.1E-05					7.5
		Exposure Point Total									1.1E-03					354
	Exposure Medium Total										1.1E-03					354
	Air	Site 08	Inhalation	1,1-Dichloroethane	310	ug/L	4.2E-04	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	2.4E-06	1.5E-02	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.07
				1,2,4-Trimethylbenzene	810	ug/L	1.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	3.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-02	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.3
				Bromomethane	2.00	ug/L	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.5E-05	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.07
				Carbon Tetrachloride	2.00	ug/L	2.7E-06	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	3.5E-07	9.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.1
				Chloroform	7.00	ug/L	9.5E-06	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	2.9E-07	3.3E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.03
				Chloromethane	16.0	ug/L	2.2E-05	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	2.8E-07	7.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	7.8E-05	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	8.8E-07	2.7E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.03
				Isopropylbenzena	94.0	ug/L	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.04
				Tetrachloroethene	12.0	ug/L	1.6E-05	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	8.8E-06	5.7E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.06
				Total Xylenes	97.0	ug/L	1.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.6E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.02
				Trichloroethene	730	ug/L	9.9E-04	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.3E-05	3.5E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	2.6E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.9E-05	9.0E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.3
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	0.0E+00	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-05	(mg/kg/day)	--
				Aluminum	564000	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	1.20	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-04	(mg/kg/day)	--
				Arsenic	503	ug/L	0.0E+00	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Barium	1390	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-01	(mg/kg/day)	--
				Beryllium	17.8	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-03	(mg/kg/day)	--
				Chromium	868	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Cobalt	637	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	1440	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	1210000	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1890	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganesa (Water)	13800	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.4E-02	(mg/kg/day)	--
				Marcury	1.90	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Molybdenum	20.3	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Nickel	1160	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-02	(mg/kg/day)	--
				Thallium	2.30	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	832	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Zinc	3990	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								6.4E-05					1.0
		Exposure Point Total									6.4E-05					1.0
	Exposure Medium Total										6.4E-05					355
Medium Total											1.2E-03					708
										Total of Receptor Risks Across All Media	1.6E-03			Total of Receptor Hazards Across All Media		713

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RtC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Ingestion	Benzo(a)anthracene	3.22	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.1E-07	1.5E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.2E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.2E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	8.5E-08	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	4.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00001
				Benzo(k)fluoranthene	1.88	mg/kg	8.6E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.3E-09	8.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.3E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.6E-10	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	1.8E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.3E-07	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-06	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00008
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	5.0E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	3.7E-08	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	5.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.5E-07	(mg/kg/dey)	2.0E-02	(mg/kg/day)	0.00003
				Phenanthrene	8.66	mg/kg	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Pyrene	7.10	mg/kg	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0001
				Total Aroclors	0.332	mg/kg	1.5E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	3.0E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	5.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.6E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Antimony	0.436	mg/kg	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0005
				Arsenic	23.9	mg/kg	1.1E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.6E-08	1.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Beryllium	0.434	mg/kg	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00010
				Cadmium	1.51	mg/kg	6.9E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.001
				Chromium	20.5	mg/kg	9.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	27.1	mg/kg	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Copper	47.4	mg/kg	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.0005
				Iron	27468	mg/kg	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	73.1	mg/kg	3.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
				Vanadium	22.3	mg/kg	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								2.9E-06					0.1
			Dermal	Benzo(a)anthracene	3.22	mg/kg	2.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-08	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.44	mg/kg	1.7E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-07	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.55	mg/kg	1.7E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.3E-08	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.96	mg/kg	6.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.5E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000002
				Benzo(k)fluoranthene	1.88	mg/kg	1.3E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.3E-10	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.87	mg/kg	1.9E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-10	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.400	mg/kg	2.7E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.0E-08	2.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	7.30	mg/kg	5.0E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-07	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.00001
				Indeno(1,2,3-cd)pyrene	1.10	mg/kg	7.5E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.4E-09	7.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	1.20	mg/kg	8.1E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.1E-08	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000004
				Phenanthrene	6.66	mg/kg	4.5E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Pyrene	7.10	mg/kg	4.8E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.8E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.00002
				Total Aroclors	0.332	mg/kg	2.4E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.9E-09	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12256	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.436	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	23.9	mg/kg	3.7E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.6E-08	3.7E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Beryllium	0.434	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	1.51	mg/kg	7.9E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.9E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00003
				Chromium	20.5	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Exposed Area	Dermal	Cobalt	27.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	47.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	27468	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	73.1	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	436	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Vanadium	22.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.4E-07					0.001
		Exposure Point Total									3.1E-06					0.1
	Exposure Medium Total										3.1E-06					0.1
	Air	Exposed Area	Inhalation	Benzo(a)anthracene	2.9E-10	mg/m^3	1.9E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.1E-12	1.9E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-10	mg/m^3	1.4E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.6E-11	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.3E-10	mg/m^3	1.5E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.6E-12	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	8.7E-11	mg/m^3	5.6E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.7E-10	mg/m^3	1.1E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.2E-12	1.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.6E-10	mg/m^3	1.7E-11	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.8E-13	1.7E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	3.6E-11	mg/m^3	2.3E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.8E-12	2.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-10	mg/m^3	4.3E-11	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	4.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	6.4E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.1E-13	6.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	9.2E-6	mg/m^3	5.9E-07	(mg/m^3)	3.4E-05	$(ug/m^3)^{-1}$	2.0E-08	5.9E-06	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	3.2E-5	mg/m^3	2.0E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	6.5E-10	mg/m^3	4.1E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	3.0E-11	mg/m^3	1.9E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	1.9E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	7.1E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.1E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Antimony	4.0E-11	mg/m^3	2.5E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	2.5E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	2.2E-9	mg/m^3	1.4E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	6.0E-10	1.4E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00005
				Beryllium	3.9E-11	mg/m^3	2.5E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	6.1E-12	2.5E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000001
				Cadmium	1.4E-10	mg/m^3	8.8E-12	(mg/m^3)	1.8E-03	$(ug/m^3)^{-1}$	1.6E-11	8.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.9E-9	mg/m^3	1.2E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	1.4E-09	1.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Cobalt	2.5E-9	mg/m^3	1.6E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.4E-09	1.6E-09	(mg/m^3)	6.0E-06	(mg/m^3)	0.0003
				Copper	4.3E-9	mg/m^3	2.8E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Iron	2.5E-6	mg/m^3	1.6E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.6E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	6.6E-9	mg/m^3	4.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.3E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	4.0E-8	mg/m^3	2.5E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.5E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0005
				Vanadium	2.0E-9	mg/m^3	1.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.4E-08					0.0010
		Exposure Point Total									2.4E-08					0.0010
	Exposure Medium Total										2.4E-08					0.0010
Medium Total											3.1E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Acenaphthene	77	mg/kg	3.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.5E-05	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.0006
				Anthracene	153	mg/kg	7.0E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-05	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0002
				Benzo(a)anthracene	302	mg/kg	1.4E-05	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.0E-05	1.4E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.1E-05	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.1E-05	1.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	9.6E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.0E-06	9.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	6.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.1E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.002
				Benzo(k)fluoranthene	199	mg/kg	9.1E-06	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	6.7E-07	9.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Ingestion	Chrysene	269	mg/kg	1.2E-05	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.0E-08	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	2.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.8E-05	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.008
				Indeno(1,2,3-cd)pyrene	138	mg/kg	6.3E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.6E-06	6.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0008
				Phenanthrene	563	mg/kg	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.009
				Pyrene	569	mg/kg	2.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-04	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.009
				Total Aroclors	0.535	mg/kg	2.4E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	4.9E-08	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	6.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Antimony	0.574	mg/kg	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.6E-07	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.0007
				Arsenic	17.7	mg/kg	8.1E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-06	8.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.518	mg/kg	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Cadmium	0.91	mg/kg	4.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0008
				Chromium	19.6	mg/kg	9.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.0E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Cobalt	16.1	mg/kg	7.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/dey)	0.02
				Copper	235	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.003
				Iron	41374	mg/kg	1.9E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.9E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	190	mg/kg	8.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.7E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	3.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.005
				Molybdenum	3.100	mg/kg	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
				Thallium	0.150	mg/kg	6.9E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.9E-08	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.001
				Vanadium	21.2	mg/kg	9.7E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.7E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
				Zinc	888	mg/kg	4.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								1.2E-04					0.1
			Dermal	Acenaphthene	77	mg/kg	5.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.2E-06	(mg/kg/day)	6.0E-02	(mg/kg/day)	0.00009
				Anthrecene	153	mg/kg	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E-05	(mg/kg/dey)	3.0E-01	(mg/kg/dey)	0.00003
				Benzo(a)anthracene	302	mg/kg	2.0E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.5E-06	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	243.0	mg/kg	1.6E-06	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.2E-05	1.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	210.0	mg/kg	1.4E-06	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.0E-06	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	134	mg/kg	9.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.1E-06	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.0003
				Benzo(k)fluoranthene	199	mg/kg	1.4E-06	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	9.9E-08	1.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	269	mg/kg	1.8E-06	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.3E-08	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	52.7	mg/kg	3.6E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.6E-06	3.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Fluoranthene	723	mg/kg	4.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.9E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.001
				Indeno(1,2,3-cd)pyrene	138	mg/kg	9.4E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.8E-07	9.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Naphthalene	35.1	mg/kg	2.4E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0001
				Phananthrene	563	mg/kg	3.8E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.8E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Pyrene	569	mg/kg	3.9E-06	(mg/kg/day)	NA	(mg/kg/dey)$^{-1}$	--	3.9E-05	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.001
				Total Aroclors	0.535	mg/kg	3.9E-09	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	7.8E-09	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	13532	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	0.574	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.0E-05	(mg/kg/day)	--
				Arsenic	17.7	mg/kg	2.8E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.2E-08	2.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0009
				Beryllium	0.518	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Cadmium	0.91	mg/kg	4.7E-11	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.7E-10	(mg/kg/day)	2.5E-05	(mg/kg/day)	0.00002
				Chromium	19.6	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Exposed Area	Dermal	Cobalt	16.1	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	235	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	41374	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	190	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	835	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
				Molybdenum	3.100	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Thallium	0.150	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	21.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Zinc	888	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.8E-05					0.005
		Exposure Point Total									1.4E-04					0.1
	Exposure Medium Total										1.4E-04					0.1
	Air	Exposed Area	Inhalation	Acenaphthene	1.5E-4	mg/m^3	9.6E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	9.6E-05	(mg/m^3)	NA	(mg/m^3)	--
				Anthracene	2.0E-5	mg/m^3	1.3E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)anthracene	2.7E-8	mg/m^3	1.8E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.9E-10	1.8E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.2E-8	mg/m^3	1.4E-09	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.6E-09	1.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.9E-8	mg/m^3	1.2E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-10	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	1.2E-8	mg/m^3	7.8E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.8E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.8E-8	mg/m^3	1.2E-09	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-10	1.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.4E-8	mg/m^3	1.6E-09	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	1.7E-11	1.6E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	4.8E-9	mg/m^3	3.1E-10	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.7E-10	3.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Fluoranthene	6.6E-8	mg/m^3	4.2E-09	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	4.2E-08	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.3E-8	mg/m^3	8.0E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.8E-11	8.0E-09	(mg/m^3)	NA	(mg/m^3)	--
				Naphthalene	2.7E-4	mg/m^3	1.7E-05	(mg/m^3)	3.4E-05	(ug/m^3)$^{-1}$	5.9E-07	1.7E-04	(mg/m^3)	NA	(mg/m^3)	--
				Phenanthrene	7.6E-4	mg/m^3	4.9E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.9E-04	(mg/m^3)	NA	(mg/m^3)	--
				Pyrene	5.2E-8	mg/m^3	3.3E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	4.9E-11	mg/m^3	3.1E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	3.1E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.2E-6	mg/m^3	7.9E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.9E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0002
				Antimony	5.2E-11	mg/m^3	3.3E-12	(mg/m^3)	0.0E+00	(ug/m^3)$^{-1}$	--	3.3E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Arsenic	1.6E-9	mg/m^3	1.0E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	4.4E-10	1.0E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00003
				Beryllium	4.7E-11	mg/m^3	3.0E-12	(mg/m^3)	2.4E-03	(ug/m^3)$^{-1}$	7.2E-12	3.0E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000002
				Cadmium	8.2E-11	mg/m^3	5.3E-12	(mg/m^3)	1.8E-03	(ug/m^3)$^{-1}$	9.5E-12	5.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chromium	1.8E-9	mg/m^3	1.1E-10	(mg/m^3)	1.2E-02	(ug/m^3)$^{-1}$	1.4E-09	1.1E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Cobalt	1.5E-9	mg/m^3	9.4E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	8.4E-10	9.4E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.0002
				Copper	2.1E-8	mg/m^3	1.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Iron	3.8E-6	mg/m^3	2.4E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.7E-8	mg/m^3	1.1E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	7.6E-8	mg/m^3	4.9E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.9E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0010
				Molybdenum	2.8E-10	mg/m^3	1.8E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Thallium	1.4E-11	mg/m^3	8.7E-13	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	8.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.9E-9	mg/m^3	1.2E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Zinc	8.1E-8	mg/m^3	5.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	5.2E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								5.9E-07					0.001
		Exposure Point Total									5.9E-07					0.001
	Exposure Medium Total										1.4E-04					0.1
Medium Total											1.4E-04					0.1

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Paved Area	Ingestion	Benzo(a)anthracene	2.69	mg/kg	1.2E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.0E-08	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.8E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.2E-08	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	2.5E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.5E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000008
				Benzo(k)fluoranthene	1.10	mg/kg	5.0E-08	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	3.7E-09	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	6.9E-08	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	5.0E-10	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	6.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.7E-08	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	5.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.7E-08	5.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	5.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.0E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.005
				Arsenic	18.6	mg/kg	8.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.3E-06	8.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Beryllium	0.395	mg/kg	1.8E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.00009
				Chromium	15.4	mg/kg	7.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.1E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Cobalt	12.9	mg/kg	5.9E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	26054	mg/kg	1.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Manganese (Soil)	418	mg/kg	1.9E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.9E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.003
			Exp. Route Total								2.3E-06					0.08
			Dermal	Benzo(a)anthracene	2.69	mg/kg	1.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	2.32	mg/kg	1.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-07	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	2.75	mg/kg	1.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.4E-08	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.551	mg/kg	3.7E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.7E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.10	mg/kg	7.5E-09	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	5.4E-10	7.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	1.50	mg/kg	1.0E-08	(mg/kg/day)	7.3E-03	$(mg/kg/day)^{-1}$	7.4E-11	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.141	mg/kg	9.6E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.0E-09	9.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	1.120	mg/kg	7.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.5E-09	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	10938	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	18.6	mg/kg	2.9E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.4E-08	2.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0010
				Beryllium	0.395	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--
				Chromium	15.4	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	12.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	26054	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese (Soil)	418	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.0E-07					0.0010
		Exposure Point Total									2.5E-06					0.08
	Exposure Medium Total										2.5E-06					0.08
	Air	Paved Area	Inhalation	Benzo(a)anthracene	2.4E-10	mg/m^3	1.6E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.7E-12	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	2.1E-10	mg/m^3	1.4E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-11	1.4E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	2.5E-10	mg/m^3	1.6E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.8E-12	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)parylene	5.0E-11	mg/m^3	3.2E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.0E-10	mg/m^3	6.4E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.1E-13	6.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	1.4E-10	mg/m^3	8.7E-12	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	9.6E-14	8.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.3E-11	mg/m^3	8.2E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	9.9E-13	8.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	1.0E-10	mg/m^3	6.5E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.2E-13	6.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	9.9E-7	mg/m^3	6.4E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	1.7E-9	mg/m^3	1.1E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	4.7E-10	1.1E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00004
				Beryllium	3.6E-11	mg/m^3	2.3E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	5.5E-12	2.3E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000001
				Chromium	1.4E-9	mg/m^3	9.0E-11	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	1.1E-09	9.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000009

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	Paved Aree	Inhalation	Cobalt	1.2E-9	mg/m^3	7.5E-11	(mg/m^3)	9.0E-03	(ug/m^3)$^{-1}$	6.8E-10	7.5E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.0001
				Iron	2.4E-6	mg/m^3	1.5E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	1.5E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	3.8E-8	mg/m^3	2.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	2.4E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0005
			Exp. Route Total								2.2E-09					0.0008
		Exposure Point Total									2.2E-09					0.0008
	Exposure Medium Total										2.2E-09					0.0008
Medium Total											2.5E-06					0.08
Subsurface Soil	Subsurface Soil	Paved Area	Ingestion	1,2,4-Trimethylbenzene	2.40	mg/kg	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-06	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.00003
				Benzo(a)anthracene	2.80	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.4E-08	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	6.4E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.7E-07	6.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	7.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.3E-08	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-07	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000008
				Benzo(k)fluoranthene	1.30	mg/kg	6.0E-08	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	4.3E-09	6.0E-07	(mg/kg/day)	NA	(mg/kg/dey)	--
				Chrysene	2.750	mg/kg	1.3E-07	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	9.2E-10	1.3E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	4.9E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	3.6E-08	4.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	(mg/kg/dey)$^{-1}$	1.1E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	6.9E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	1.4E-07	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	12570	mg/kg	5.8E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.8E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Arsenic	35.0	mg/kg	1.6E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.4E-06	1.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
				Beryllium	0.470	mg/kg	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.2E-07	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0001
				Chromium	24.3	mg/kg	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.004
				Cobalt	13.5	mg/kg	6.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	6.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	29083	mg/kg	1.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Lead	18.0	mg/kg	8.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	5.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.0E-04	(mg/kg/day)	7.2E-02	(mg/kg/day)	0.007
			Exp. Route Total								3.2E-06					0.1
			Dermal	1,2,4-Trimethylbenzene	2.40	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	3.60	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-02	(mg/kg/day)	--
				Benzo(a)anthracene	2.80	mg/kg	1.9E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-08	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	1.40	mg/kg	9.5E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.9E-08	9.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	1.59	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.9E-09	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(g,h,i)perylene	0.520	mg/kg	3.5E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-08	(mg/kg/day)	3.0E-02	(mg/kg/day)	0.000001
				Benzo(k)fluoranthene	1.30	mg/kg	8.8E-09	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	6.4E-10	8.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Chrysene	2.750	mg/kg	1.9E-08	(mg/kg/day)	7.3E-03	(mg/kg/day)$^{-1}$	1.4E-10	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.108	mg/kg	7.3E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	5.4E-09	7.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.32	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.6E-09	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Total Aroclors	1.500	mg/kg	1.1E-08	(mg/kg/day)	2.0E+00	(mg/kg/day)$^{-1}$	2.2E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/dey)	--
				Aluminum	12570	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	35.0	mg/kg	5.5E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.2E-08	5.5E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Beryllium	0.470	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.4E-05	(mg/kg/day)	--

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Paved Area	Dermal	Chromium	24.3	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	13.5	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	29083	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	18.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Soil)	1100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	2.9E-03	(mg/kg/day)	--
			Exp. Route Total								2.0E-07					0.002
		Exposure Point Total									3.4E-06					0.1
	Exposure Medium Total										3.4E-06					0.1
	Air	Paved Area	Inhalation	1,2,4-Trimethylbenzene	5.1E-5	mg/m^3	3.2E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.2E-05	(mg/m^3)	7.0E-03	(mg/m^3)	0.005
				1,3,5-Trimethylbenzene	1.3E-4	mg/m^3	8.5E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.5E-05	(mg/m^3)	6.0E-03	(mg/m^3)	0.01
				Benzo(a)anthracene	2.5E-10	mg/m^3	1.6E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.8E-12	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.3E-10	mg/m^3	8.2E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	9.0E-12	8.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.4E-10	mg/m^3	9.3E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.0E-12	9.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(g,h,i)perylene	4.7E-11	mg/m^3	3.0E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(k)fluoranthene	1.2E-10	mg/m^3	7.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.3E-13	7.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Chrysene	2.5E-10	mg/m^3	1.6E-11	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.8E-13	1.6E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(e,h)anthracene	9.8E-12	mg/m^3	6.3E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	7.6E-13	6.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	2.9E-11	mg/m^3	1.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.0E-13	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Total Aroclors	1.4E-10	mg/m^3	8.7E-12	(mg/m^3)	0.0E+00	$(ug/m^3)^{-1}$	--	8.7E-11	(mg/m^3)	0.0E+00	(mg/m^3)	--
				Aluminum	1.1E-6	mg/m^3	7.3E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.3E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	3.2E-9	mg/m^3	2.0E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	8.8E-10	2.0E-09	(mg/m^3)	3.0E-05	(mg/m^3)	0.00007
				Beryllium	4.3E-11	mg/m^3	2.7E-12	(mg/m^3)	2.4E-03	$(ug/m^3)^{-1}$	6.6E-12	2.7E-11	(mg/m^3)	2.0E-05	(mg/m^3)	0.000001
				Chromium	2.2E-9	mg/m^3	1.4E-10	(mg/m^3)	1.2E-02	$(ug/m^3)^{-1}$	1.7E-09	1.4E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Cobalt	1.2E-9	mg/m^3	7.9E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	7.1E-10	7.9E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.0001
				Iron	2.6E-6	mg/m^3	1.7E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	1.6E-9	mg/m^3	1.0E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.0E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese (Soil)	1.0E-7	mg/m^3	6.4E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.001
			Exp. Route Total								3.3E-09					0.02
		Exposure Point Total									3.3E-09					0.02
	Exposure Medium Total										3.4E-06					0.1
Medium Total											3.4E-06					0.1
Groundwater	Groundwater	Site 08	Ingestion	1,1-Dichloroethane	310	ug/L	5.5E-04	(mg/kg/day)	5.7E-03	$(mg/kg/day)^{-1}$	3.1E-06	5.5E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.03
				1,2,4-Trimethylbenzene	810	ug/L	1.4E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	5.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.1E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.1
				Bromomethane	2.00	ug/L	3.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.5E-05	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.03
				Carbon Tetrachloride	2.00	ug/L	3.5E-06	(mg/kg/day)	1.3E-01	$(mg/kg/day)^{-1}$	4.6E-07	3.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.05
				Chloroform	7.00	ug/L	1.2E-05	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	3.8E-07	1.2E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.01
				Chloromethane	16.0	ug/L	2.8E-05	(mg/kg/day)	1.3E-02	$(mg/kg/day)^{-1}$	3.7E-07	2.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	1.0E-04	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	1.1E-06	1.0E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.01
				Isopropylbenzene	94.0	ug/L	1.7E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.7E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.02
				Tetrachloroethene	12.0	ug/L	2.1E-05	(mg/kg/day)	5.4E-01	$(mg/kg/day)^{-1}$	1.1E-05	2.1E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.02
				Total Xylenes	97.0	ug/L	1.7E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.7E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.009
				Trichloroethene	730	ug/L	1.3E-03	(mg/kg/day)	1.3E-02	$(mg/kg/day)^{-1}$	1.7E-05	1.3E-02	(mg/kg/dey)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	3.4E-05	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	5.0E-05	3.4E-04	(mg/kg/dey)	3.0E-03	(mg/kg/day)	0.1
				Benzo(k)fluoranthene	4.00	ug/L	7.1E-06	(mg/kg/day)	7.3E-02	$(mg/kg/day)^{-1}$	5.2E-07	7.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	1.9E-08	(mg/kg/day)	1.6E+01	$(mg/kg/day)^{-1}$	3.1E-07	1.9E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.004

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Ingestion	Aluminum	564000	ug/L	1.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.0E+01	(mg/kg/day)	1.0E+00	(mg/kg/day)	10.0
				Antimony	1.20	ug/L	2.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-05	(mg/kg/day)	4.0E-04	(mg/kg/day)	0.05
				Arsenic	503	ug/L	8.9E-04	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-03	8.9E-03	(mg/kg/day)	3.0E-04	(mg/kg/day)	30
				Barium	1390	ug/L	2.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-02	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.1
				Beryllium	17.8	ug/L	3.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.1E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.2
				Chromium	868	ug/L	1.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-02	(mg/kg/day)	3.0E-03	(mg/kg/day)	5.1
				Cobalt	637	ug/L	1.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-02	(mg/kg/day)	3.0E-04	(mg/kg/day)	38
				Copper	1440	ug/L	2.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-02	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.6
				Iron	1210000	ug/L	2.1E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E+01	(mg/kg/day)	7.0E-01	(mg/kg/day)	31
				Lead	1890	ug/L	3.3E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.3E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	2.4E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-01	(mg/kg/day)	2.4E-02	(mg/kg/day)	10
				Mercury	1.90	ug/L	3.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Molybdenum	20.3	ug/L	3.6E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.6E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.07
				Nickel	1160	ug/L	2.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-02	(mg/kg/day)	2.0E-02	(mg/kg/day)	1.0
				Thallium	2.30	ug/L	4.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.1E-05	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.6
				Vanadium	832	ug/L	1.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-02	(mg/kg/day)	5.0E-03	(mg/kg/day)	2.9
				Zinc	3990	ug/L	7.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.1E-02	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.2
			Exp. Route Total								1.4E-03					129
			Dermal	1,1-Dichloroethane	310	ug/L	4.4E-05	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	2.5E-07	4.4E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				1,2,4-Trimethylbenzene	810	ug/L	1.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.6E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	4.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.2E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.08
				Bromomethane	2.00	ug/L	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-06	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.0008
				Carbon Tatrachlorida	2.00	ug/L	9.8E-07	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	1.3E-07	9.8E-06	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.01
				Chloroform	7.00	ug/L	1.1E-06	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	3.6E-08	1.1E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.001
				Chloromethane	16.0	ug/L	8.1E-07	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.1E-08	8.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	6.3E-05	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	6.9E-07	6.3E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.006
				Isopropylbenzene	94.0	ug/L	2.0E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.0E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.02
				Tetrachloroethene	12.0	ug/L	1.3E-05	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	7.0E-06	1.3E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.01
				Total Xylenes	97.0	ug/L	9.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	9.8E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.005
				Trichloroethana	730	ug/L	2.2E-04	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	2.9E-06	2.2E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	1.8E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.7E-06	1.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.006
				Benzo(k)fluoranthane	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	1.4E-08	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	2.2E-07	1.4E-07	(mg/kg/day)	5.0E-05	(mg/kg/day)	0.003
				Aluminum	564000	ug/L	3.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.03
				Antimony	1.20	ug/L	7.4E-09	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.4E-08	(mg/kg/day)	6.0E-05	(mg/kg/day)	0.001
				Arsenic	503	ug/L	3.1E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.7E-06	3.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Barium	1390	ug/L	8.6E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.6E-05	(mg/kg/day)	1.4E-02	(mg/kg/day)	0.006
				Beryllium	17.8	ug/L	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-06	(mg/kg/day)	1.4E-05	(mg/kg/day)	0.08
				Chromium	868	ug/L	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.1E-04	(mg/kg/day)	7.5E-05	(mg/kg/day)	1.4
				Cobalt	637	ug/L	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.1
				Copper	1440	ug/L	8.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.9E-05	(mg/kg/day)	4.0E-02	(mg/kg/day)	0.002
				Iron	1210000	ug/L	7.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	7.5E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.1
				Lead	1890	ug/L	2.3E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	8.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	8.5E-04	(mg/kg/day)	9.6E-04	(mg/kg/day)	0.9
				Marcury	1.90	ug/L	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.2E-07	(mg/kg/day)	2.1E-05	(mg/kg/day)	0.006
				Molybdenum	20.3	ug/L	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.3E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 08	Dermal	Nickel	1160	ug/L	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-05	(mg/kg/day)	8.0E-04	(mg/kg/day)	0.02
				Thallium	2.30	ug/L	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-07	(mg/kg/day)	6.5E-05	(mg/kg/day)	0.002
				Vanadium	832	ug/L	5.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-05	(mg/kg/day)	1.3E-04	(mg/kg/day)	0.4
				Zinc	3990	ug/L	1.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.5E-04	(mg/kg/day)	3.0E-01	(mg/kg/day)	0.0005
			Exp. Route Total								1.9E-05					3.4
		Exposure Point Total									1.4E-03					133
	Exposure Medium Total										1.4E-03					133
	Air	Site 08	Inhalation	1,1-Dichloroethane	310	ug/L	5.5E-04	(mg/kg/day)	5.7E-03	(mg/kg/day)$^{-1}$	3.1E-06	5.5E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.03
				1,2,4-Trimethylbenzene	810	ug/L	1.4E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				1,3,5-Trimethylbenzene	290	ug/L	5.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	5.1E-03	(mg/kg/day)	5.0E-02	(mg/kg/day)	0.1
				Bromomethane	2.00	ug/L	3.5E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.5E-05	(mg/kg/day)	1.4E-03	(mg/kg/day)	0.03
				Carbon Tetrachloride	2.00	ug/L	3.5E-06	(mg/kg/day)	1.3E-01	(mg/kg/day)$^{-1}$	4.6E-07	3.5E-05	(mg/kg/day)	7.0E-04	(mg/kg/day)	0.05
				Chloroform	7.00	ug/L	1.2E-05	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	3.8E-07	1.2E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.01
				Chloromethane	16.0	ug/L	2.8E-05	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	3.7E-07	2.8E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Ethylbenzene	58.0	ug/L	1.0E-04	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	1.1E-06	1.0E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.01
				Isopropylbenzene	94.0	ug/L	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-03	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.02
				Tetrachloroethene	12.0	ug/L	2.1E-05	(mg/kg/day)	5.4E-01	(mg/kg/day)$^{-1}$	1.1E-05	2.1E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.02
				Total Xylenes	97.0	ug/L	1.7E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.7E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.009
				Trichloroethene	730	ug/L	1.3E-03	(mg/kg/day)	1.3E-02	(mg/kg/day)$^{-1}$	1.7E-05	1.3E-02	(mg/kg/day)	NA	(mg/kg/day)	--
				Vinyl Chloride	19.0	ug/L	3.4E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.0E-05	3.4E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.1
				Benzo(k)fluoranthene	4.00	ug/L	0.0E+00	(mg/kg/day)	7.3E-02	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Dieldrin	0.011	ug/L	0.0E+00	(mg/kg/day)	1.6E+01	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-05	(mg/kg/day)	--
				Aluminum	564000	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Antimony	1.20	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-04	(mg/kg/day)	--
				Arsenic	503	ug/L	0.0E+00	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Barium	1390	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-01	(mg/kg/day)	--
				Beryllium	17.8	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-03	(mg/kg/day)	--
				Chromium	868	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Cobalt	637	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Copper	1440	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	4.0E-02	(mg/kg/day)	--
				Iron	1210000	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	1890	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese (Water)	13800	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.4E-02	(mg/kg/day)	--
				Mercury	1.90	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Molybdenum	20.3	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Nickel	1160	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	2.0E-02	(mg/kg/day)	--
				Thallium	2.30	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	6.5E-05	(mg/kg/day)	--
				Vanadium	832	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
				Zinc	3990	ug/L	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-01	(mg/kg/day)	--
			Exp. Route Total								8.4E-05					0.4
		Exposure Point Total									8.4E-05					0.4
	Exposure Medium Total										8.4E-05					133
Medium Total											1.5E-03					266
										Total of Receptor Risks Across All Media	1.7E-03			Total of Receptor Hazards Across All Media		266

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

RAGS Part D Table 9

Summary Of Receptor Risks And Hazards For COPCs

LIST OF TABLES
RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

Table No.

REASONABLE MAXIMUM EXPOSURES

9.1.RME Construction Workers
9.2.RME Industrial Workers
9.3.RME Adolescent Trespassers
9.4.RME Child Recreational Users
9.5.RME Adult Recreational Users
9.6.RME Lifelong Recreational Users
9.7.RME Child Residents
9.8.RME Adult Residents
9.9.RME Lifelong Residents

CENTRAL TENDENCY EXPOSURES

9.1.CTE Construction Workers
9.2.CTE Industrial Workers
9.3.CTE Adolescent Trespassers
9.4.CTE Child Recreational Users
9.5.CTE Adult Recreational Users
9.6.CTE Lifelong Recreational Users
9.7.CTE Child Residents
9.8.CTE Adult Residents
9.9.CTE Lifelong Residents

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	6E-08	--	2E-08	--	8E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-08	--	2E-08	--	6E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00005	--	0.00002	0.00007
			Benzo(k)fluoranthene	3E-09	--	1E-09	--	5E-09	NA	--	--	--	--
			Chrysene	5E-10	--	2E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	7E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0003	--	0.0001	0.0004
			Indeno(1,2,3-cd)pyrene	2E-08	--	8E-09	--	3E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0001	--	0.00004	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0004	--	0.0001	0.0005
			Pyrene	--	--	--	--	--	Kidney	0.0004	--	0.0002	0.0006
			Total Aroclors	2E-08	--	7E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	9E-07	--	8E-08	--	9E-07	Skin, CVS	0.1	--	0.01	0.1
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Cadmium	--	--	--	--	--	Kidney	0.005	--	0.0003	0.005
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Vanadium	--	--	--	--	--	Kidney	0.007	--	--	0.007
			Chemical Total	1E-06	--	3E-07	--	2E-06		0.4	--	0.01	0.4
		Exposure Point Total						2E-06					0.4
	Exposure Medium Total							2E-06					0.4
	Air	Exposed Area	Benzo(a)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-10	--	--	3E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-10	--	--	3E-10	NA	--	--	--	--
			Chrysene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Naphthalene	--	6E-10	--	--	6E-10	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	1E-07	--	--	1E-07	NA	--	0.07	--	0.07
			Beryllium	--	1E-09	--	--	1E-09	Respiratory	--	0.002	--	0.002
			Cadmium	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Chromium	--	3E-07	--	--	3E-07	Respiratory	--	0.02	--	0.02
			Cobalt	--	3E-07	--	--	3E-07	Respiratory	--	0.4	--	0.4
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.7	--	0.7
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	7E-07	--	--	7E-07		--	1	--	1
		Exposure Point Total						7E-07					1
	Exposure Medium Total							7E-07					1
Medium Total								3E-06					2
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.002	--	0.0008	0.003
			Anthracene	--	--	--	--	--	None Reported	0.0009	--	0.0003	0.001
			Benzo(a)anthracene	5E-06	--	2E-06	--	7E-06	NA	--	--	--	--
			Benzo(a)pyrene	4E-05	--	2E-05	--	6E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-06	--	1E-06	--	5E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.007	--	0.003	0.01
			Benzo(k)fluoranthene	3E-07	--	1E-07	--	5E-07	NA	--	--	--	--
			Chrysene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-06	--	4E-06	--	1E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.03	--	0.01	0.04
			Indeno(1,2,3-cd)pyrene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.003	--	0.001	0.004
			Phenanthrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Pyrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Total Aroclors	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	6E-07	--	6E-08	--	7E-07	Skin, CVS	0.10	--	0.009	0.1
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Cadmium	--	--	--	--	--	Kidney	0.003	--	0.0002	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.09	--	--	0.09
			Copper	--	--	--	--	--	GS	0.010	--	--	0.010
			Iron	--	--	--	--	--	GS	0.10	--	--	0.10
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	0.02	--	--	0.02
			Molybdenum	--	--	--	--	--	Gout	0.001	--	--	0.001
			Thallium	--	--	--	--	--	Blood	0.004	--	--	0.004
			Vanadium	--	--	--	--	--	Kidney	0.007	--	--	0.007
			Zinc	--	--	--	--	--	Blood	0.005	--	--	0.005
			Chemical Total	6E-05	--	2E-05	--	9E-05		0.5	--	0.05	0.5
		Exposure Point Total						9E-05					0.5
	Exposure Medium Total							9E-05					0.5
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	4E-08	--	--	4E-08	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-07	--	--	3E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-08	--	--	3E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-08	--	--	3E-08	NA	--	--	--	--
			Chrysene	--	4E-09	--	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-08	--	--	8E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-08	--	--	2E-08	NA	--	--	--	--
			Naphthalene	--	2E-08	--	--	2E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	9E-08	--	--	9E-08	NA	--	0.05	--	0.05
			Beryllium	--	2E-09	--	--	2E-09	Respiratory	--	0.002	--	0.002
			Cadmium	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Chromium	--	3E-07	--	--	3E-07	Respiratory	--	0.02	--	0.02
			Cobalt	--	2E-07	--	--	2E-07	Respiratory	--	0.2	--	0.2
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	1	--	1

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-06	--	--	1E-06		--	2	--	2
		Exposure Point Total						1E-06					2
	Exposure Medium Total							1E-06					2
Medium Total								9E-05					2
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	2E-09	--	8E-10	--	3E-09	NA	--	--	--	--
			Chrysene	3E-10	--	1E-10	--	4E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-08	--	8E-09	--	3E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	7E-07	--	6E-08	--	7E-07	Skin, CVS	0.1	--	0.009	0.1
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.07	--	--	0.07
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Manganese (Soil)	--	--	--	--	--	CNS	0.010	--	--	0.010
			Chemical Total	1E-06	--	3E-07	--	1E-06		0.3	--	0.009	0.3
		Exposure Point Total						1E-06					0.3
	Exposure Medium Total							1E-06					0.3
	Air	Paved Area	Benzo(a)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Arsenic	--	1E-07	--	--	1E-07	NA	--	0.05	--	0.05
			Beryllium	--	1E-09	--	--	1E-09	Respiratory	--	0.002	--	0.002

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	2E-07	--	--	2E-07	Respiratory	--	0.01	--	0.01
			Cobalt	--	1E-07	--	--	1E-07	Respiratory	--	0.2	--	0.2
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.7	--	0.7
			Chemical Total	--	5E-07	--	--	5E-07		--	1	--	1
		Exposure Point Total						5E-07					1
	Exposure Medium Total							5E-07					1
Medium Total								2E-06					1
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.0001	--	--	0.0001
			Benzo(a)anthracene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	2E-09	--	9E-10	--	3E-09	NA	--	--	--	--
			Chrysene	5E-10	--	2E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	7E-09	--	3E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Total Aroclors	7E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	1E-06	--	1E-07	--	1E-06	Skin, CVS	0.2	--	0.02	0.2
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.03	--	--	0.03
			Chemical Total	2E-06	--	3E-07	--	2E-06		0.4	--	0.02	0.4
		Exposure Point Total						2E-06					0.4
	Exposure Medium Total							2E-06					0.4
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0008	--	0.0008
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.003	--	0.003
			Benzo(a)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Chrysene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Arsenic	--	2E-07	--	--	2E-07	NA	--	0.10	--	0.10
			Beryllium	--	1E-09	--	--	1E-09	Respiratory	--	0.002	--	0.002
			Chromium	--	4E-07	--	--	4E-07	Respiratory	--	0.02	--	0.02
			Cobalt	--	1E-07	--	--	1E-07	Respiratory	--	0.2	--	0.2
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	2	--	2
			Chemical Total	--	7E-07	--	--	7E-07		--	2	--	2
		Exposure Point Total						7E-07					2
	Exposure Medium Total							7E-07					2
Medium Total								3E-06					3
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	6E-09	--	2E-08	--	3E-08	Kidney, CNS	0.0004	--	0.002	0.002
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.001	--	0.05	0.05
			Bromomethane	--	--	--	--	--	GS	0.0004	--	0.0006	0.0010
			Carbon Tetrachloride	9E-10	--	9E-09	--	1E-08	Liver	0.0007	--	0.007	0.008
			Chloroform	8E-10	--	3E-09	--	4E-09	Liver	0.0002	--	0.0007	0.0009
			Chloromethane	8E-10	--	1E-09	--	2E-09	NA	--	--	--	--
			Ethylbenzene	2E-09	--	6E-08	--	6E-08	Liver, Kidney	0.0001	--	0.004	0.004
			Isopropylbenzene	--	--	--	--	--	Kidney	0.0002	--	0.010	0.01
			Tetrachloroethene	2E-08	--	5E-07	--	5E-07	Liver	0.0003	--	0.006	0.006
			Total Xylenes	--	--	--	--	--	Body Weight	0.0001	--	0.003	0.003
			Trichloroethene	3E-08	--	2E-07	--	3E-07	NA	--	--	--	--
			Vinyl Chloride	1E-07	--	3E-07	--	4E-07	Liver	0.002	--	0.005	0.007
			Benzo(k)fluoranthene	1E-09	--	--	--	1E-09	NA	--	--	--	--
			Dieldrin	6E-10	--	1E-08	--	1E-08	Liver	0.00005	--	0.001	0.001
			Aluminum	--	--	--	--	--	CNS	0.1	--	0.08	0.2
			Antimony	--	--	--	--	--	Blood	0.0008	--	0.003	0.003
			Arsenic	3E-06	--	1E-06	--	4E-06	Skin, CVS	0.4	--	0.2	0.7
			Barium	--	--	--	--	--	Kidney	0.002	--	0.01	0.02
			Beryllium	--	--	--	--	--	GS	0.002	--	0.2	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.07	--	3	3
			Cobalt	--	--	--	--	--	Blood	0.5	--	0.3	0.8
			Copper	--	--	--	--	--	GS	0.009	--	0.005	0.01
			Iron	--	--	--	--	--	GS	0.4	--	0.2	0.7

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	0.1	--	2	2
			Mercury	--	--	--	--	--	Autoimmune	0.002	--	0.01	0.01
			Molybdenum	--	--	--	--	--	Gout	0.001	--	0.0005	0.002
			Nickel	--	--	--	--	--	Body Weight	0.01	--	0.04	0.05
			Thallium	--	--	--	--	--	Blood	0.009	--	0.005	0.01
			Vanadium	--	--	--	--	--	Kidney	0.04	--	0.9	0.9
			Zinc	--	--	--	--	--	Blood	0.003	--	0.001	0.004
			Chemical Total	3E-06	--	3E-06	--	5E-06		2	--	7	9
		Exposure Point Total						5E-06					9
	Exposure Medium Total							5E-06					9
	Groundwater	Site 08	t, t-Dichloroethane	--	3E-08	--	--	3E-08	NA	--	--	--	--
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.5	--	0.5
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.2	--	0.2
			Bromomethane	--	--	--	--	--	Respiratory	--	0.002	--	0.002
			Carbon Tetrachloride	--	2E-09	--	--	2E-09	Liver	--	0.00004	--	0.00004
			Chloroform	--	9E-09	--	--	9E-09	Liver	--	0.0003	--	0.0003
			Chloromethane	--	3E-09	--	--	3E-09	CNS	--	0.001	--	0.001
			Ethylbenzene	--	9E-09	--	--	9E-09	Developmental	--	0.0002	--	0.0002
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	--	--
			Tetrachloroethene	--	3E-09	--	--	3E-09	Liver	--	0.0002	--	0.0002
			Total Xylenes	--	--	--	--	--	CNS	--	0.004	--	0.004
			Trichloroethene	--	8E-08	--	--	8E-08	NA	--	--	--	--
			Vinyl Chlorida	--	7E-09	--	--	7E-09	Liver	--	0.001	--	0.001
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-07	--	--	1E-07		--	0.7	--	0.7
		Exposure Point Total						1E-07					0.7
	Exposure Medium Total							1E-07					0.7
Medium Total								6E-06					10
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	18

Total Blood HI	2
Total Body Weight HI	0.1
Total CNS HI	8
Total CVS HI	1
Total GS HI	4
Total Kidney HI	1
Total Liver HI	0.1
Total Skin HI	1
Total Developmental HI	0.0002
Total None Reported HI	0.001
Total Fetotoxicity HI	3
Total Bone HI	3
Total Respiratory HI	1

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	8E-07	--	7E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00003	0.00006
			Benzo(k)fluoranthene	5E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Chrysene	7E-09	--	6E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-06	--	9E-07	--	2E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0002	--	0.0002	0.0003
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00006	--	0.00005	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0002	--	0.0002	0.0004
			Pyrene	--	--	--	--	--	Kidney	0.0002	--	0.0002	0.0004
			Total Aroclors	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	1E-05	--	2E-06	--	2E-05	Skin, CVS	0.08	--	0.02	0.09
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Cadmium	--	--	--	--	--	Kidney	0.003	--	0.0004	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.007	--	--	0.007
			Cobalt	--	--	--	--	--	Blood	0.09	--	--	0.09
			Copper	--	--	--	--	--	GS	0.001	--	--	0.001
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.006	--	--	0.006
			Vanadium	--	--	--	--	--	Kidney	0.004	--	--	0.004
			Chemical Total	2E-05	--	1E-05	--	3E-05		0.2	--	0.02	0.3
		Exposure Point Total						3E-05					0.3
	Exposure Medium Total							3E-05					0.3
	Air	Exposed Area	Benzo(a)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Naphthalene	--	3E-08	--	--	3E-08	Respiratory	--	--	--	--

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	8E-10	--	--	8E-10	NA	--	0.00002	--	0.00002
			Beryllium	--	8E-12	--	--	8E-12	Respiratory	--	0.0000005	--	0.0000005
			Cadmium	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	2E-09	--	--	2E-09	Respiratory	--	0.00009	--	0.00009
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		--	0.0003	--	0.0003
		Exposure Point Total						3E-08					0.0003
	Exposure Medium Total							3E-08					0.0003
Medium Total								3E-05					0.3
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.001	--	0.001	0.002
			Anthracene	--	--	--	--	--	None Reported	0.0005	--	0.0004	0.0009
			Benzo(a)anthracene	8E-05	--	7E-05	--	1E-04	NA	--	--	--	--
			Benzo(a)pyrene	6E-04	--	5E-04	--	1E-03	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-05	--	5E-05	--	1E-04	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.004	--	0.004	0.008
			Benzo(k)fluoranthene	5E-06	--	4E-06	--	9E-06	NA	--	--	--	--
			Chrysene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-04	--	1E-04	--	2E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.02	--	0.02	0.03
			Indeno(1,2,3-cd)pyrene	4E-05	--	3E-05	--	7E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.002	--	0.001	0.003
			Phenanthrene	--	--	--	--	--	Kidney	0.02	--	0.02	0.03
			Pyrene	--	--	--	--	--	Kidney	0.02	--	0.02	0.03
			Total Aroclors	4E-07	--	3E-07	--	7E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	9E-06	--	2E-06	--	1E-05	Skin, CVS	0.06	--	0.01	0.07
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Cadmium	--	--	--	--	--	Kidney	0.002	--	0.0002	0.002

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.006	--	--	0.006
			Cobalt	--	--	--	--	--	Blood	0.05	--	--	0.05
			Copper	--	--	--	--	--	GS	0.006	--	--	0.006
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Molybdenum	--	--	--	--	--	Gout	0.0006	--	--	0.0006
			Thalllum	--	--	--	--	--	Blood	0.002	--	--	0.002
			Vanadium	--	--	--	--	--	Kidney	0.004	--	--	0.004
			Zinc	--	--	--	--	--	Blood	0.003	--	--	0.003
			Chemical Total	9E-04	--	8E-04	--	2E-03		0.3	--	0.07	0.3
		Exposure Point Total						2E-03					0.3
	Exposure Medium Total							2E-03					0.3
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-10	--	--	5E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Naphthalene	--	7E-07	--	--	7E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00006	--	0.00006
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	9E-12	--	--	9E-12	Respiratory	--	0.0000005	--	0.0000005
			Cadmium	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00006	--	0.00006

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0003	--	0.0003
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	8E-07	--	--	8E-07		--	0.0005	--	0.0005
		Exposure Point Total						8E-07					0.0005
	Exposure Medium Total							8E-07					0.0005
Medium Total								2E-03					0.3
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.00002	0.00003
			Benzo(k)fluoranthene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Chrysene	4E-09	--	3E-09	--	7E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-07	--	3E-07	--	7E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Arsenic	1E-05	--	2E-06	--	1E-05	Skin, CVS	0.06	--	0.01	0.07
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Manganese (Soil)	--	--	--	--	--	CNS	0.006	--	--	0.006
			Chemical Total	2E-05	--	9E-06	--	3E-05		0.2	--	0.01	0.2
		Exposure Point Total						3E-05					0.2
	Exposure Medium Total							3E-05					0.2
	Air	Paved Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Chrysene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	7E-12	--	--	7E-12	Respiratory	--	0.0000004	--	0.0000004
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.000003	--	0.000003
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.00004	--	0.00004
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Chemical Total	--	3E-09	--	--	3E-09		--	0.0003	--	0.0003
		Exposure Point Total						3E-09					0.0003
	Exposure Medium Total							3E-09					0.0003
Medium Total								3E-05					0.2
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00007	--	--	0.00007
			Benzo(a)anthracene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	4E-06	--	3E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-07	--	3E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.00001	0.00003
			Benzo(k)fluoranthene	3E-08	--	3E-08	--	6E-08	NA	--	--	--	--
			Chrysene	7E-09	--	6E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8E-08	--	7E-08	--	2E-07	NA	--	--	--	--
			Total Aroclors	1E-06	--	1E-06	--	2E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Arsenic	2E-05	--	4E-06	--	2E-05	Skin, CVS	0.1	--	0.02	0.1
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.008	--	--	0.008
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Chemical Total	2E-05	--	9E-06	--	3E-05		0.2	--	0.02	0.3
		Exposure Point Total						3E-05					0.3
	Exposure Medium Total							3E-05					0.3
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.002	--	0.002
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.005	--	0.005
			Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Arsenic	--	1E-09	--	--	1E-09	NA	--	0.00002	--	0.00002
			Beryllium	--	8E-12	--	--	8E-12	Respiratory	--	0.0000005	--	0.0000005
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.000005	--	0.000005
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.00005	--	0.00005
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	4E-09	--	--	4E-09		--	0.007	--	0.007
		Exposure Point Total						4E-09					0.007
	Exposure Medium Total							4E-09					0.007
Medium Total								3E-05					0.3
Receptor Total							Receptor Risk Total	2E-03				Receptor HI Total	1

Total Blood HI	0.2
Total Body Weight HI	0.003
Total CNS HI	0.04
Total CVS HI	0.2
Total GS HI	0.1
Total Kidney HI	0.09
Total Liver HI	0.03
Total Skin HI	0.2
Total Respiratory HI	0.0002
Total None Reported HI	0.0009
Total Fetotoxicity HI	0.01
Total Bone HI	0.01

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-07	--	7E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	5E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-07	--	5E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.00002	0.00003
			Benzo(k)fluoranthene	2E-08	--	4E-08	--	6E-08	NA	--	--	--	--
			Chrysene	3E-09	--	6E-09	--	9E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-07	--	8E-07	--	1E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00005	--	0.0001	0.0001
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00002	--	0.00003	0.00005
			Phenanthrene	--	--	--	--	--	Kidney	0.00006	--	0.0001	0.0002
			Pyrene	--	--	--	--	--	Kidney	0.00006	--	0.0001	0.0002
			Total Aroclors	3E-08	--	7E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Antimony	--	--	--	--	--	Blood	0.0003	--	--	0.0003
			Arsenic	2E-06	--	8E-07	--	2E-06	Skin, CVS	0.02	--	0.01	0.03
			Beryllium	--	--	--	--	--	GS	0.00006	--	--	0.00006
			Cadmium	--	--	--	--	--	Kidney	0.0008	--	0.0003	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Iron	--	--	--	--	--	GS	0.01	--	--	0.01
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.002	--	--	0.002
			Vanadium	--	--	--	--	--	Kidney	0.001	--	--	0.001
			Chemical Total	5E-06	--	8E-06	--	1E-05		0.06	--	0.01	0.08
		Exposure Point Total						1E-05					0.08
	Exposure Medium Total							1E-05					0.08
	Air	Exposed Area	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Chrysene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Naphthalene	--	2E-09	--	--	2E-09	Respiratory	--	--	--	--

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	7E-11	--	--	7E-11	NA	--	0.000003	--	0.000003
			Beryllium	--	7E-13	--	--	7E-13	Respiratory	--	0.00000009	--	0.00000009
			Cadmium	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chromium	--	2E-10	--	--	2E-10	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.00002	--	0.00002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-09	--	--	3E-09		--	0.00007	--	0.00007
		Exposure Point Total						3E-09					0.00007
	Exposure Medium Total							3E-09					0.00007
Medium Total								1E-05					0.08
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0003	--	0.0007	0.001
			Anthracene	--	--	--	--	--	None Reported	0.0001	--	0.0003	0.0004
			Benzo(a)anthracene	3E-05	--	6E-05	--	9E-05	NA	--	--	--	--
			Benzo(a)pyrene	2E-04	--	5E-04	--	7E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-05	--	4E-05	--	6E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.001	--	0.002	0.004
			Benzo(k)fluoranthene	2E-06	--	4E-06	--	6E-06	NA	--	--	--	--
			Chrysene	3E-07	--	6E-07	--	8E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-05	--	1E-04	--	2E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.005	--	0.01	0.01
			Indeno(1,2,3-cd)pyrene	1E-05	--	3E-05	--	4E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0005	--	0.0010	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.005	--	0.01	0.02
			Pyrene	--	--	--	--	--	Kidney	0.005	--	0.01	0.02
			Total Aroclors	5E-08	--	1E-07	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.004	--	--	0.004
			Antimony	--	--	--	--	--	Blood	0.0004	--	--	0.0004
			Arsenic	1E-06	--	6E-07	--	2E-06	Skin, CVS	0.02	--	0.008	0.02
			Beryllium	--	--	--	--	--	GS	0.00007	--	--	0.00007
			Cadmium	--	--	--	--	--	Kidney	0.0005	--	0.0002	0.0006

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.002	- -	--	0.002
			Cobalt	- -	--	- -	--	- -	Blood	0.01	- -	--	0.01
			Copper	- -	--	- -	--	- -	GS	0.002	- -	--	0.002
			Iron	- -	--	- -	--	- -	GS	0.02	- -	--	0.02
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.003	- -	--	0.003
			Molybdenum	- -	--	- -	--	- -	Gout	0.0002	- -	--	0.0002
			Thallium	- -	--	- -	--	- -	Blood	0.0006	- -	--	0.0006
			Vanadium	- -	--	- -	--	- -	Kidney	0.001	- -	--	0.001
			Zinc	- -	--	- -	--	- -	Blood	0.0008	- -	--	0.0008
			Chemical Total	4E-04	--	8E-04	--	1E-03		0.08	- -	0.04	0.1
		Exposure Point Total						1E-03					0.1
	Exposure Medium Total							1E-03					0.1
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	7E-11	--	--	7E-11	NA	- -	--	- -	--
			Benzo(a)pyrene	--	5E-10	--	--	5E-10	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	5E-11	--	--	5E-11	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Chrysene	--	6E-12	--	--	6E-12	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	3E-11	--	--	3E-11	NA	- -	--	- -	--
			Naphthalene	--	7E-08	--	--	7E-08	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00001	- -	0.00001
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	5E-11	--	--	5E-11	NA	- -	0.000002	- -	0.000002
			Beryllium	--	8E-13	--	--	8E-13	Respiratory	- -	0.0000001	- -	0.0000001
			Cadmium	--	1E-12	--	--	1E-12	NA	- -	--	- -	--
			Chromium	--	2E-10	--	--	2E-10	Respiratory	- -	0.0000008	- -	0.0000008
			Cobalt	--	1E-10	--	--	1E-10	Respiratory	- -	0.00001	- -	0.00001

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00007	--	0.00007
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	7E-08	--	--	7E-08		--	0.00009	--	0.00009
		Exposure Point Total						7E-08					0.00009
	Exposure Medium Total							7E-08					0.00009
Medium Total								1E-03					0.1
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	3E-07	--	6E-07	--	8E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	5E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-07	--	6E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000005	--	0.00001	0.00002
			Benzo(k)fluoranthene	1E-08	--	2E-08	--	3E-08	NA	--	--	--	--
			Chrysene	1E-09	--	3E-09	--	5E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	3E-07	--	4E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Arsenic	1E-06	--	6E-07	--	2E-06	Skin, CVS	0.02	--	0.008	0.02
			Beryllium	--	--	--	--	--	GS	0.00005	--	--	0.00005
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.001	--	--	0.001
			Cobalt	--	--	--	--	--	Blood	0.01	--	--	0.01
			Iron	--	--	--	--	--	GS	0.010	--	--	0.010
			Manganese (Soil)	--	--	--	--	--	CNS	0.002	--	--	0.002
			Chemical Total	4E-06	--	7E-06	--	1E-05		0.04	--	0.008	0.05
		Exposure Point Total						1E-05					0.05
	Exposure Medium Total							1E-05					0.05
	Air	Paved Area	Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	5E-11	--	--	5E-11	NA	--	0.000002	--	0.000002
			Beryllium	--	6E-13	--	--	6E-13	Respiratory	--	0.00000008	--	0.00000008
			Chromium	--	1E-10	--	--	1E-10	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	3E-10	--	--	3E-10		--	0.00005	--	0.00005
		Exposure Point Total						3E-10					0.00005
	Exposure Medium Total							3E-10					0.00005
Medium Total								1E-05					0.05
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00002	--	--	0.00002
			Benzo(a)anthracene	3E-07	--	6E-07	--	9E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	3E-06	--	4E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	3E-07	--	5E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000005	--	0.000010	0.00001
			Benzo(k)fluoranthene	1E-08	--	3E-08	--	4E-08	NA	--	--	--	--
			Chrysene	3E-09	--	6E-09	--	8E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	7E-08	--	1E-07	NA	--	--	--	--
			Total Aroclors	1E-07	--	3E-07	--	4E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Arsenic	2E-06	--	1E-06	--	4E-06	Skin, CVS	0.03	--	0.01	0.05
			Beryllium	--	--	--	--	--	GS	0.00006	--	--	0.00006
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.01	--	--	0.01
			Iron	--	--	--	--	--	GS	0.01	--	--	0.01
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.004	--	--	0.004
			Chemical Total	4E-06	--	6E-06	--	1E-05		0.06	--	0.01	0.08
		Exposure Point Total						1E-05					0.08
	Exposure Medium Total							1E-05					0.08
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0003	--	0.0003
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0010	--	0.0010
			Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00001	--	0.00001
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.000005	--	0.000005
			Beryllium	--	8E-13	--	--	8E-13	Respiratory	--	0.00000009	--	0.00000009
			Chromium	--	2E-10	--	--	2E-10	Respiratory	--	0.0000010	--	0.0000010
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00009	--	0.00009
			Chemical Total	--	4E-10	--	--	4E-10		--	0.001	--	0.001
		Exposure Point Total						4E-10					0.001
	Exposure Medium Total							4E-10					0.001
Medium Total								1E-05					0.08
Surface Water	Surface Water	Site 08	Dieldrin	--	--	4E-08	--	4E-08	Liver	--	--	0.0003	0.0003
			Aluminum	--	--	--	--	--	CNS	--	--	0.000001	0.000001
			Arsenic	--	--	7E-09	--	7E-09	Skin, CVS	--	--	0.00010	0.00010
			Cobalt	--	--	--	--	--	Blood	--	--	0.00004	0.00004
			Iron	--	--	--	--	--	GS	--	--	0.000009	0.000009
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.002	0.002
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	--	--	--	--
			Chemical Total	--	--	5E-08	--	5E-08		--	--	0.002	0.002
		Exposure Point Total						5E-08					0.002
	Exposure Medium Total							5E-08					0.002
Medium Total								5E-08					0.002

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-07	--	7E-07	--	8E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	6E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	tE-07	--	6E-07	--	7E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000007	--	0.00004	0.00004
			Benzo(k)fluoranthene	1E-08	--	5E-08	--	6E-08	NA	--	--	--	--
			Chrysene	tE-09	--	7E-09	--	9E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	7E-07	--	9E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	7E-08	--	4E-07	--	4E-07	NA	--	--	--	--
			Dieldrin	2E-08	--	8E-08	--	1E-07	Liver	0.0001	--	0.0006	0.0007
			Total Aroclors	4E-08	--	2E-07	--	3E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Arsenic	1E-06	--	1E-06	--	2E-06	Skin, CVS	0.01	--	0.02	0.03
			Beryllium	--	--	--	--	--	GS	0.00006	--	--	0.00006
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.01	--	--	0.01
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.005	--	--	0.005
			Vanadium	--	--	--	--	--	Kidney	0.001	--	--	0.001
			Chemical Total	3E-06	--	1E-05	--	1E-05		0.1	--	0.02	0.1
		Exposure Point Total						tE-05					0.1
	Exposure Medium Total							1E-05					0.1
Medium Total								1E-05					0.1
Receptor Total							Receptor Risk Total	1E-03				Receptor HI Total	0.5

Total Blood HI	0.1
Total Body Weight HI	0.002
Total CNS HI	0.03
Total CVS HI	0.2
Total GS HI	0.07
Total Kidney HI	0.04
Total Liver HI	0.02
Total Skin HI	0.2
Total Respiratory HI	0.00005
Total None Reported HI	0.0004
Total Fetotoxicity HI	0.009
Total Bone HI	0.009

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-06	--	7E-07	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	5E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00006	--	0.00002	0.00008
			Benzo(k)fluoranthene	1E-07	--	4E-08	--	2E-07	NA	--	--	--	--
			Chrysene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0003	--	0.0001	0.0004
			Indeno(1,2,3-cd)pyrene	6E-07	--	2E-07	--	9E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0001	--	0.00004	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0004	--	0.0001	0.0005
			Pyrene	--	--	--	--	--	Kidney	0.0004	--	0.0002	0.0006
			Total Aroclors	1E-07	--	4E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	5E-06	--	5E-07	--	6E-06	Skin, CVS	0.1	--	0.01	0.2
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Cadmium	--	--	--	--	--	Kidney	0.005	--	0.0003	0.006
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Vanadium	--	--	--	--	--	Kidney	0.008	--	--	0.008
			Chemical Total	3E-05	--	8E-06	--	3E-05		0.4	--	0.01	0.4
		Exposure Point Total						3E-05					0.4
	Exposure Medium Total							3E-05					0.4
	Air	Exposed Area	Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Chrysene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Naphthalene	--	1E-09	--	--	1E-09	Respiratory	--	--	--	--

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	4E-11	--	--	4E-11	NA	--	0.000003	--	0.000003
			Beryllium	--	4E-13	--	--	4E-13	Respiratory	--	0.00000009	--	0.00000009
			Cadmium	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Chromium	--	8E-11	--	--	8E-11	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.00002	--	0.00002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-09	--	--	1E-09		--	0.00007	--	0.00007
		Exposure Point Total						1E-09					0.00007
	Exposure Medium Total							1E-09					0.00007
Medium Total								3E-05					0.4
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.002	--	0.0008	0.003
			Anthracene	--	--	--	--	--	None Reported	0.0009	--	0.0003	0.001
			Benzo(a)anthracene	2E-04	--	6E-05	--	2E-04	NA	--	--	--	--
			Benzo(a)pyrene	1E-03	--	5E-04	--	2E-03	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-04	--	4E-05	--	2E-04	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.008	--	0.003	0.01
			Benzo(k)fluoranthene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Chrysene	2E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-04	--	1E-04	--	4E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.03	--	0.01	0.04
			Indeno(1,2,3-cd)pyrene	8E-05	--	3E-05	--	1E-04	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.003	--	0.001	0.004
			Phenanthrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Pyrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.05
			Total Aroclors	2E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.003	--	--	0.003
			Arsenic	4E-06	--	3E-07	--	4E-06	Skin, CVS	0.1	--	0.009	0.1
			Beryllium	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Cadmium	--	--	--	--	--	Kidney	0.003	--	0.0002	0.003

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.01	- -	--	0.01
			Cobalt	- -	--	- -	--	- -	Blood	0.09	- -	--	0.09
			Copper	- -	--	- -	--	- -	GS	0.01	- -	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.1	- -	--	0.1
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.02	- -	--	0.02
			Molybdenum	- -	--	- -	--	- -	Gout	0.001	- -	--	0.001
			Thallium	- -	--	- -	--	- -	Blood	0.004	- -	--	0.004
			Vanadium	- -	--	- -	--	- -	Kidney	0.007	- -	--	0.007
			Zinc	- -	--	- -	--	- -	Blood	0.005	- -	--	0.005
			Chemical Total	2E-03	--	8E-04	--	3E-03		0.5	- -	0.05	0.6
		Exposure Point Total						3E-03					0.6
	Exposure Medium Total							3E-03					0.6
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	6E-11	--	--	6E-11	NA	- -	--	- -	--
			Benzo(a)pyrene	--	5E-10	--	--	5E-10	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Chrysene	--	5E-12	--	--	5E-12	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	3E-11	--	--	3E-11	NA	- -	--	- -	--
			Naphthalene	--	3E-08	--	--	3E-08	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00001	- -	0.00001
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	3E-11	--	--	3E-11	NA	- -	0.000002	- -	0.000002
			Beryllium	--	4E-13	--	--	4E-13	Respiratory	- -	0.0000001	- -	0.0000001
			Cadmium	--	6E-13	--	--	6E-13	NA	- -	--	- -	--
			Chromium	--	8E-11	--	--	8E-11	Respiratory	- -	0.0000008	- -	0.0000008
			Cobalt	--	5E-11	--	--	5E-11	Respiratory	- -	0.00001	- -	0.00001

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Manganese (Soil)	--	- -	--	--	- -	CNS	- -	0.00007	- -	0.00007
			Molybdenum	--	- -	--	--	- -	NA	- -	--	- -	--
			Thallium	--	- -	--	--	- -	NA	- -	--	- -	--
			Vanadium	--	- -	--	--	- -	NA	- -	--	- -	--
			Zinc	--	- -	--	--	- -	NA	- -	--	- -	--
			Chemical Total	--	4E-08	--	--	4E-08		- -	0.00009	- -	0.00009
		Exposure Point Total						4E-08					0.00009
	Exposure Medium Total							4E-08					0.00009
Medium Total								3E-03					0.6
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-06	--	6E-07	--	2E-06	NA	--	- -	--	--
			Benzo(a)pyrene	1E-05	--	5E-06	--	2E-05	NA	--	- -	--	--
			Benzo(b)fluoranthene	2E-06	--	6E-07	--	2E-06	NA	--	- -	--	--
			Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.00003	- -	0.00001	0.00004
			Benzo(k)fluoranthene	6E-08	--	2E-08	--	9E-08	NA	--	- -	--	--
			Chrysene	9E-09	--	3E-09	--	1E-08	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	8E-07	--	3E-07	--	1E-06	NA	--	- -	--	--
			Indeno(1,2,3-cd)pyrene	7E-07	--	2E-07	--	9E-07	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.02	- -	--	0.02
			Arsenic	4E-06	--	4E-07	--	5E-06	Skin, CVS	0.1	- -	0.009	0.1
			Beryllium	- -	--	- -	--	- -	GS	0.0003	- -	--	0.0003
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.009	- -	--	0.009
			Cobalt	- -	--	- -	--	- -	Blood	0.08	- -	--	0.08
			Iron	- -	--	- -	--	- -	GS	0.07	- -	--	0.07
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.01	- -	--	0.01
			Chemical Total	2E-05	--	7E-06	--	3E-05		0.3	--	0.009	0.3
		Exposure Point Total						3E-05					0.3
	Exposure Medium Total							3E-05					0.3
	Air	Paved Area	Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	- -	--	- -	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	- -	--	- -	--
			Chrysene	--	3E-14	--	--	3E-14	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	- -	--	- -	--

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	3E-11	--	--	3E-11	NA	--	0.000002	--	0.000002
			Beryllium	--	3E-13	--	--	3E-13	Respiratory	--	0.00000008	--	0.00000008
			Chromium	--	6E-11	--	--	6E-11	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	4E-11	--	--	4E-11	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	1E-10	--	--	1E-10		--	0.00005	--	0.00005
		Exposure Point Total						1E-10					0.00005
	Exposure Medium Total							1E-10					0.00005
Medium Total								3E-05					0.3
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.0001	--	--	0.0001
			Benzo(a)anthracene	2E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	8E-06	--	3E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	8E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Chrysene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-07	--	2E-07	--	9E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-07	--	7E-08	--	3E-07	NA	--	--	--	--
			Total Aroclors	5E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	8E-06	--	7E-07	--	9E-06	Skin, CVS	0.2	--	0.02	0.2
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.03	--	--	0.03
			Chemical Total	2E-05	--	5E-06	--	3E-05		0.4	--	0.02	0.4
		Exposure Point Total						3E-05					0.4
	Exposure Medium Total							3E-05					0.4
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0003	--	0.0003
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0010	--	0.0010
			Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	3E-13	--	--	3E-13	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	- -	--	- -	--
			Chrysene	--	6E-14	--	--	6E-14	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	6E-14	--	--	6E-14	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00001	- -	0.00001
			Arsenic	--	5E-11	--	--	5E-11	NA	- -	0.000005	- -	0.000005
			Beryllium	--	4E-13	--	--	4E-13	Respiratory	- -	0.00000009	- -	0.00000009
			Chromium	--	1E-10	--	--	1E-10	Respiratory	- -	0.0000010	- -	0.0000010
			Cobalt	--	4E-11	--	--	4E-11	Respiratory	- -	0.000009	- -	0.000009
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Manganese (Soil)	--	- -	--	--	- -	CNS	- -	0.00009	- -	0.00009
			Chemical Total	--	2E-10	--	--	2E-10		- -	0.001	- -	0.001
		Exposure Point Total						2E-10					0.001
	Exposure Medium Total							2E-10					0.001
Medium Total								3E-05					0.4
Surface Water	Surface Water	Site 08	Dieldrin	- -	--	5E-08	--	5E-08	Liver	--	- -	0.0007	0.0007
			Aluminum	- -	--	- -	--	- -	CNS	--	- -	0.000002	0.000002
			Arsenic	- -	--	9E-09	--	9E-09	Skin, CVS	--	- -	0.0002	0.0002
			Cobalt	- -	--	- -	--	- -	Blood	--	- -	0.00009	0.00009
			Iron	- -	--	- -	--	- -	GS	--	- -	0.00002	0.00002
			Manganese (Water)	- -	--	- -	--	- -	CNS	--	- -	0.004	0.004
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Molybdenum	- -	--	- -	--	- -	Gout	--	- -	--	--
			Chemical Total	- -	--	5E-08	--	5E-08		--	- -	0.005	0.005
		Exposure Point Total						5E-08					0.005
	Exposure Medium Total							5E-08					0.005
Medium Total								5E-08					0.005
Sediment	Sediment	Site 08	Benzo(a)anthracene	8E-07	--	3E-07	--	1E-06	NA	--	- -	--	--
			Benzo(a)pyrene	7E-06	--	2E-06	--	9E-06	NA	--	- -	--	--
			Benzo(b)fluoranthene	6E-07	--	2E-07	--	8E-07	NA	--	- -	--	--

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.00004	- -	0.00002	0.00006
			Benzo(k)fluoranthene	6E-08	--	2E-08	--	8E-08	NA	--	- -	--	--
			Chrysene	8E-09	--	3E-09	--	1E-08	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	8E-07	--	3E-07	--	1E-06	NA	--	- -	--	--
			Indeno(1,2,3-cd)pyrene	4E-07	--	1E-07	--	5E-07	NA	--	- -	--	--
			Dieldrin	6E-08	--	2E-08	--	8E-08	Liver	0.0009	- -	0.0003	0.001
			Total Aroclors	1E-07	--	5E-08	--	2E-07	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.02	- -	--	0.02
			Arsenic	3E-06	--	3E-07	--	4E-06	Skin, CVS	0.09	- -	0.007	0.10
			Beryllium	- -	--	- -	--	- -	GS	0.0004	- -	--	0.0004
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.01	- -	--	0.01
			Cobalt	- -	--	- -	--	- -	Blood	0.5	- -	--	0.5
			Iron	- -	--	- -	--	- -	GS	0.07	- -	--	0.07
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.03	- -	--	0.03
			Vanadium	- -	--	- -	--	- -	Kidney	0.010	- -	--	0.010
			Chemical Total	1E-05	--	4E-06	--	2E-05		0.8	- -	0.008	0.8
		Exposure Point Total						2E-05					0.8
	Exposure Medium Total							2E-05					0.8
Medium Total								2E-05					0.8
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	5E-06	--	- -	--	5E-06	NA	--	- -	- -	--
			4,4'-DDT	2E-07	--	- -	--	2E-07	Liver	0.01	- -	- -	0.01
			Aldrin	8E-07	--	- -	--	8E-07	Liver	0.02	- -	- -	0.02
			Dieldrin	1E-05	--	- -	--	1E-05	Liver	0.2	- -	- -	0.2
			Total Aroclors	3E-05	--	- -	--	3E-05	NA	--	- -	- -	--
			Arsenic	2E-07	--	- -	--	2E-07	Skin, CVS	0.0	- -	- -	0.0
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.3	- -	- -	0.3
			Mercury	- -	--	- -	--	- -	Autoimmune	0.09	- -	- -	0.09
			Chemical Total	5E-05	--	- -	--	5E-05		0.6	- -	- -	0.6
		Exposure Point Total						5E-05					0.6
	Exposure Medium Total							5E-05					0.6
Medium Total								5E-05					0.6
Receptor Total							Receptor Risk Total	3E-03				Receptor HI Total	3

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	0.9
Total Body Weight HI	0.004
Total CNS HI	0.2
Total CVS HI	0.7
Total GS HI	0.8
Total Kidney HI	0.1
Total Liver HI	0.3
Total Skin HI	0.7
Total Respiratory HI	0.00005
Total None Reported HI	0.001
Total Fetotoxicity HI	0.4
Total Bone HI	0.4

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000006	--	0.000003	0.000009
			Benzo(k)fluoranthene	2E-08	--	8E-09	--	2E-08	NA	--	--	--	--
			Chrysene	2E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00003	--	0.00002	0.00005
			Indeno(1,2,3-cd)pyrene	9E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00001	--	0.000006	0.00002
			Phenanthrene	--	--	--	--	--	Kidney	0.00004	--	0.00002	0.00006
			Pyrene	--	--	--	--	--	Kidney	0.00004	--	0.00002	0.00007
			Total Aroclors	4E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Antimony	--	--	--	--	--	Blood	0.0002	--	--	0.0002
			Arsenic	2E-06	--	3E-07	--	3E-06	Skin, CVS	0.01	--	0.002	0.02
			Beryllium	--	--	--	--	--	GS	0.00004	--	--	0.00004
			Cadmium	--	--	--	--	--	Kidney	0.0006	--	0.00005	0.0006
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.001	--	--	0.001
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Iron	--	--	--	--	--	GS	0.007	--	--	0.007
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Vanadium	--	--	--	--	--	Kidney	0.0008	--	--	0.0008
			Chemical Total	5E-06	--	2E-06	--	7E-06		0.05	--	0.002	0.05
		Exposure Point Total						7E-06					0.05
	Exposure Medium Total							7E-06					0.05
	Air	Exposed Area	Benzo(a)anthracene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Chrysene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Naphthalene	--	5E-09	--	--	5E-09	Respiratory	--	--	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.000003	--	0.000003
			Beryllium	--	1E-12	--	--	1E-12	Respiratory	--	0.00000009	--	0.00000009
			Cadmium	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Chromium	--	3E-10	--	--	3E-10	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00002	--	0.00002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	6E-09	--	--	6E-09		--	0.00007	--	0.00007
		Exposure Point Total						6E-09					0.00007
	Exposure Medium Total							6E-09					0.00007
Medium Total								7E-06					0.05
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0002	--	0.0001	0.0004
			Anthracene	--	--	--	--	--	None Reported	0.00010	--	0.00005	0.0001
			Benzo(a)anthracene	3E-05	--	1E-05	--	4E-05	NA	--	--	--	--
			Benzo(a)pyrene	2E-04	--	1E-04	--	3E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-05	--	9E-06	--	3E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0008	--	0.0004	0.001
			Benzo(k)fluoranthene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Chrysene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-05	--	2E-05	--	7E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.003	--	0.002	0.005
			Indeno(1,2,3-cd)pyrene	1E-05	--	6E-06	--	2E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0003	--	0.0002	0.0005
			Phenanthrene	--	--	--	--	--	Kidney	0.004	--	0.002	0.005
			Pyrene	--	--	--	--	--	Kidney	0.004	--	0.002	0.005
			Total Aroclors	7E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Antimony	--	--	--	--	--	Blood	0.0003	--	--	0.0003
			Arsenic	2E-06	--	2E-07	--	2E-06	Skin, CVS	0.01	--	0.001	0.01
			Beryllium	--	--	--	--	--	GS	0.00005	--	--	0.00005
			Cadmium	--	--	--	--	--	Kidney	0.0003	--	0.00003	0.0004

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.001	- -	--	0.001
			Cobalt	- -	--	- -	--	- -	Blood	0.01	- -	--	0.01
			Copper	- -	--	- -	--	- -	GS	0.001	- -	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.01	- -	--	0.01
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.002	- -	--	0.002
			Molybdenum	- -	--	- -	--	- -	Gout	0.0001	- -	--	0.0001
			Thallium	- -	--	- -	--	- -	Blood	0.0004	- -	--	0.0004
			Vanadium	- -	--	- -	--	- -	Kidney	0.0008	- -	--	0.0008
			Zinc	- -	--	- -	--	- -	Blood	0.0006	- -	--	0.0006
			Chemical Total	3E-04	--	2E-04	--	5E-04		0.05	- -	0.008	0.06
		Exposure Point Total						5E-04					0.06
	Exposure Medium Total							5E-04					0.06
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	8E-11	--	--	8E-11	NA	- -	--	- -	--
			Benzo(a)pyrene	--	7E-10	--	--	7E-10	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	6E-11	--	--	6E-11	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	5E-11	--	--	5E-11	NA	- -	--	- -	--
			Chrysene	--	7E-12	--	--	7E-12	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Naphthalene	--	1E-07	--	--	1E-07	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00001	- -	0.00001
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	1E-10	--	--	1E-10	NA	- -	0.000002	- -	0.000002
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	- -	0.0000001	- -	0.0000001
			Cadmium	--	2E-12	--	--	2E-12	NA	- -	--	- -	--
			Chromium	--	3E-10	--	--	3E-10	Respiratory	- -	0.0000008	- -	0.0000008
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	- -	0.00001	- -	0.00001

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00007	--	0.00007
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thalllium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-07	--	--	1E-07		--	0.00009	--	0.00009
		Exposure Point Total						1E-07					0.00009
	Exposure Medium Total							1E-07					0.00009
Medium Total								5E-04					0.06
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000003	--	0.000002	0.000005
			Benzo(k)fluoranthene	9E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Chrysene	1E-09	--	7E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-07	--	5E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Arsenic	2E-06	--	2E-07	--	2E-06	Skin, CVS	0.01	--	0.001	0.01
			Beryllium	--	--	--	--	--	GS	0.00004	--	--	0.00004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0010	--	--	0.0010
			Cobalt	--	--	--	--	--	Blood	0.008	--	--	0.008
			Iron	--	--	--	--	--	GS	0.007	--	--	0.007
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Chemical Total	4E-06	--	2E-06	--	6E-06		0.03	--	0.001	0.03
		Exposure Point Total						6E-06					0.03
	Exposure Medium Total							6E-06					0.03
	Air	Paved Area	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.000002	--	0.000002
			Beryllium	--	1E-12	--	--	1E-12	Respiratory	--	0.00000008	--	0.00000008
			Chromium	--	3E-10	--	--	3E-10	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	5E-10	--	--	5E-10		--	0.00005	--	0.00005
		Exposure Point Total						5E-10					0.00005
	Exposure Medium Total							5E-10					0.00005
Medium Total								6E-06					0.03
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00001	--	--	0.00001
			Benzo(a)anthracene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	7E-08	--	2E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000003	--	0.000002	0.000005
			Benzo(k)fluoranthene	1E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Chrysene	2E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Total Aroclors	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Arsenic	3E-06	--	4E-07	--	4E-06	Skin, CVS	0.02	--	0.003	0.02
			Beryllium	--	--	--	--	--	GS	0.00004	--	--	0.00004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.008	--	--	0.008
			Iron	--	--	--	--	--	GS	0.008	--	--	0.008
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	5E-06	--	1E-06	--	7E-06		0.04	--	0.003	0.05
		Exposure Point Total						7E-06					0.05
	Exposure Medium Total							7E-06					0.05
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0003	--	0.0003
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0010	--	0.0010
			Benzo(a)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Chrysene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-14	--	--	9E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00001	--	0.00001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.000005	--	0.000005
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.00000009	--	0.00000009
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.0000010	--	0.0000010
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00009	--	0.00009
			Chemical Total	--	8E-10	--	--	8E-10		--	0.001	--	0.001
		Exposure Point Total						8E-10					0.001
	Exposure Medium Total							8E-10					0.001
Medium Total								7E-06					0.05
Surface Water	Surface Water	Site 08	Dieldrin	--	--	1E-07	--	1E-07	Liver	--	--	0.0003	0.0003
			Aluminum	--	--	--	--	--	CNS	--	--	0.000001	0.000001
			Arsenic	--	--	2E-08	--	2E-08	Skin, CVS	--	--	0.0001	0.0001
			Cobalt	--	--	--	--	--	Blood	--	--	0.00005	0.00005
			Iron	--	--	--	--	--	GS	--	--	0.00001	0.00001
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.002	0.002
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	--	--	--	--
			Chemical Total	--	--	1E-07	--	1E-07		--	--	0.003	0.003
		Exposure Point Total						1E-07					0.003
	Exposure Medium Total							1E-07					0.003
Medium Total								1E-07					0.003
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-07	--	7E-08	--	2E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-08	--	6E-08	--	1E-07	NA	--	--	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.000005	- -	0.000003	0.000008
			Benzo(k)fluoranthene	9E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Chrysene	1E-09	--	7E-10	--	2E-09	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	1E-07	--	8E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Dieldrin	3E-08	--	1E-08	--	4E-08	Liver	0.0001	- -	0.00005	0.0002
			Total Aroclors	6E-08	--	4E-08	--	1E-07	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.002	- -	--	0.002
			Arsenic	1E-06	--	2E-07	--	2E-06	Skin, CVS	0.010	- -	0.001	0.01
			Beryllium	- -	--	- -	--	- -	GS	0.00005	- -	--	0.00005
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.001	- -	--	0.001
			Cobalt	- -	--	- -	--	- -	Blood	0.06	- -	--	0.06
			Iron	- -	--	- -	--	- -	GS	0.007	- -	--	0.007
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.003	- -	--	0.003
			Vanadium	- -	--	- -	--	- -	Kidney	0.001	- -	--	0.001
			Chemical Total	3E-06	--	1E-06	--	4E-06		0.08	- -	0.001	0.08
		Exposure Point Total						4E-06					0.08
	Exposure Medium Total							4E-06					0.08
Medium Total								4E-06					0.08
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	1E-05	--	- -	--	1E-05	NA	--	- -	- -	--
			4,4'-DDT	4E-07	--	- -	--	4E-07	Liver	0.007	- -	- -	0.007
			Aldrin	2E-06	--	- -	--	2E-06	Liver	0.01	- -	- -	0.01
			Dieldrin	4E-05	--	- -	--	4E-05	Liver	0.1	- -	- -	0.1
			Total Aroclors	7E-05	--	- -	--	7E-05	NA	--	- -	- -	--
			Arsenic	5E-07	--	- -	--	5E-07	Skin, CVS	0.00	- -	- -	0.00
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.2	- -	- -	0.2
			Mercury	- -	--	- -	--	- -	Autoimmune	0.06	- -	- -	0.06
			Chemical Total	1E-04	--	- -	--	1E-04		0.4	- -	- -	0.4
		Exposure Point Total						1E-04					0.4
	Exposure Medium Total							1E-04					0.4
Medium Total								1E-04					0.4
Receptor Total							Receptor Risk Total	6E-04				Receptor HI Total	0.7

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	0.1
Total Body Weight HI	0.0005
Total CNS HI	0.03
Total CVS HI	0.08
Total GS HI	0.2
Total Kidney HI	0.02
Total Liver HI	0.2
Total Respiratory HI	0.00005
Total Skin HI	0.08
Total None Reported HI	0.0001
Total Fetotoxiclty HI	0.2
Total Bone HI	0.2

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-06	--	8E-07	--	3E-06					
			Benzo(a)pyrene	2E-05	--	6E-06	--	2E-05					
			Benzo(b)fluoranthene	2E-06	--	7E-07	--	2E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-07	--	5E-08	--	2E-07					
			Chrysene	2E-08	--	7E-09	--	3E-08					
			Dibenzo(a,h)anthracene	3E-06	--	1E-06	--	4E-06					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	7E-07	--	3E-07	--	1E-06					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-07	--	6E-08	--	2E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	8E-06	--	7E-07	--	8E-06					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	3E-05	--	1E-05	--	4E-05					
		Exposure Point Total						4E-05					
	Exposure Medium Total							4E-05					
	Air	Exposed Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12					
			Benzo(a)pyrene	--	1E-11	--	--	1E-11					
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	9E-13	--	--	9E-13					
			Chrysene	--	1E-13	--	--	1E-13					
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	5E-13	--	--	5E-13					
			Naphthalene	--	6E-09	--	--	6E-09					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	2E-10	--	--	2E-10					
			Beryllium	--	2E-12	--	--	2E-12					
			Cadmium	--	5E-12	--	--	5E-12					
			Chromium	--	4E-10	--	--	4E-10					
			Cobalt	--	4E-10	--	--	4E-10					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	--	7E-09	--	--	7E-09					
		Exposure Point Total						7E-09					
	Exposure Medium Total							7E-09					
Medium Total								4E-05					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	2E-04	--	8E-05	--	3E-04					
			Benzo(a)pyrene	2E-03	--	6E-04	--	2E-03					
			Benzo(b)fluoranthene	1E-04	--	5E-05	--	2E-04					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-05	--	5E-06	--	2E-05					
			Chrysene	2E-06	--	7E-07	--	2E-06					
			Dibenzo(a,h)anthracene	4E-04	--	1E-04	--	5E-04					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	9E-05	--	4E-05	--	1E-04					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	2E-07	--	1E-07	--	3E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	6E-06	--	5E-07	--	6E-06					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	2E-03	--	9E-04	--	3E-03					
		Exposure Point Total						3E-03					
	Exposure Medium Total							3E-03					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	1E-10	--	--	1E-10					
			Benzo(a)pyrene	--	1E-09	--	--	1E-09					
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	9E-11	--	--	9E-11					
			Chrysene	--	1E-11	--	--	1E-11					
			Dibenzo(a,h)anthracene	--	3E-10	--	--	3E-10					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	7E-11	--	--	7E-11					
			Naphthalene	--	2E-07	--	--	2E-07					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	1E-10	--	--	1E-10					
			Beryllium	--	2E-12	--	--	2E-12					
			Cadmium	--	3E-12	--	--	3E-12					
			Chromium	--	4E-10	--	--	4E-10					
			Cobalt	--	2E-10	--	--	2E-10					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	2E-07	--	--	2E-07					
		Exposure Point Total						2E-07					
	Exposure Medium Total							2E-07					
Medium Total								3E-03					
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-06	--	7E-07	--	2E-06					
			Benzo(a)pyrene	2E-05	--	6E-06	--	2E-05					
			Benzo(b)fluoranthene	2E-06	--	7E-07	--	3E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	7E-08	--	3E-08	--	1E-07					
			Chrysene	1E-08	--	4E-09	--	1E-08					
			Dibenzo(a,h)anthracene	9E-07	--	4E-07	--	1E-06					
			Indeno(1,2,3-cd)pyrene	8E-07	--	3E-07	--	1E-06					
			Aluminum	--	--	--	--	--					
			Arsenic	6E-06	--	6E-07	--	7E-06					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	3E-05	--	9E-06	--	4E-05					
		Exposure Point Total						4E-05					
	Exposure Medium Total							4E-05					
	Air	Paved Area	Benzo(a)anthracene	--	1E-12	--	--	1E-12					
			Benzo(a)pyrene	--	1E-11	--	--	1E-11					
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	5E-13	--	--	5E-13					
			Chrysene	--	7E-14	--	--	7E-14					
			Dibenzo(a,h)anthracene	--	7E-13	--	--	7E-13					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	5E-13	--	--	5E-13					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	1E-10	--	--	1E-10					
			Beryllium	--	2E-12	--	--	2E-12					
			Chromium	--	3E-10	--	--	3E-10					
			Cobalt	--	2E-10	--	--	2E-10					
			Iron	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	7E-10	--	--	7E-10					
		Exposure Point Total						7E-10					
	Exposure Medium Total							7E-10					
Medium Total								4E-05					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	- -	--	--	--	- -					
			1,3,5-Trimethylbenzene	- -	--	- -	--	- -					
			Benzo(a)anthracene	2E-06	--	7E-07	--	3E-06					
			Benzo(a)pyrene	9E-06	--	4E-06	--	1E-05					
			Benzo(b)fluoranthene	1E-06	--	4E-07	--	1E-06					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	9E-08	--	3E-08	--	1E-07					
			Chrysene	2E-08	--	7E-09	--	3E-08					
			Dibenzo(a,h)anthracene	7E-07	--	3E-07	--	1E-06					
			Indeno(1,2,3-cd)pyrene	2E-07	--	8E-08	--	3E-07					
			Total Aroclors	6E-07	--	3E-07	--	9E-07					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	1E-05	--	1E-06	--	1E-05					
			Beryllium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Chemical Total	3E-05	--	6E-06	--	3E-05					
		Exposure Point Total						3E-05					
	Exposure Medium Total							3E-05					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	- -	--	--	- -					
			1,3,5-Trimethylbenzene	--	- -	--	--	- -					
			Benzo(a)anthracene	--	1E-12	--	--	1E-12					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	7E-12	--	--	7E-12					
			Benzo(b)fluoranthene	--	8E-13	--	--	8E-13					
			Benzo(g,h,i)perylene	--	- -	--	--	- -					
			Benzo(k)fluoranthene	--	6E-13	--	--	6E-13					
			Chrysene	--	1E-13	--	--	1E-13					
			Dibenzo(a,h)anthracene	--	6E-13	--	--	6E-13					
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13					
			Total Aroclors	--	- -	--	--	- -					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	3E-10	--	--	3E-10					
			Beryllium	--	2E-12	--	--	2E-12					
			Chromium	--	5E-10	--	--	5E-10					
			Cobalt	--	2E-10	--	--	2E-10					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	1E-09	--	--	1E-09					
		Exposure Point Total						1E-09					
	Exposure Medium Total							1E-09					
Medium Total								3E-05					
Surface Water	Surface Water	Site 08	Dieldrin	--	--	1E-07	--	1E-07					
			Aluminum	--	--	- -	--	- -					
			Arsenic	--	--	3E-08	--	3E-08					
			Cobalt	--	--	- -	--	- -					
			Iron	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Molybdenum	--	--	- -	--	- -					
			Chemical Total	--	--	2E-07	--	2E-07					
		Exposure Point Total						2E-07					
	Exposure Medium Total							2E-07					
Medium Total								2E-07					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(a)anthracene	9E-07	--	4E-07	--	1E-06					
			Benzo(a)pyrene	8E-06	--	3E-06	--	1E-05					
			Benzo(b)fluoranthene	7E-07	--	3E-07	--	1E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	7E-08	--	3E-08	--	9E-08					
			Chrysene	9E-09	--	4E-09	--	1E-08					
			Dibenzo(a,h)anthracene	9E-07	--	4E-07	--	1E-06					
			Indeno(1,2,3-cd)pyrene	5E-07	--	2E-07	--	6E-07					
			Dieldrin	9E-08	--	3E-08	--	1E-07					
			Total Aroclors	2E-07	--	9E-08	--	3E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	5E-06	--	5E-07	--	5E-06					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	2E-05	--	5E-06	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
Medium Total								2E-05					
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-05	--	--	--	2E-05					
			4,4'-DDT	6E-07	--	--	--	6E-07					
			Aldrin	3E-06	--	--	--	3E-06					
			Dieldrin	5E-05	--	--	--	5E-05					
			Total Aroclors	1E-04	--	--	--	1E-04					
			Arsenic	6E-07	--	--	--	6E-07					
			Chromium	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Chemical Total	2E-04	--	--	--	2E-04					
		Exposure Point Total						2E-04					
	Exposure Medium Total							2E-04					
Medium Total								2E-04					
Receptor Total							Receptor Risk Total	4E-03					

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-05	--	5E-06	--	2E-05	NA	--	--	--	--
			Benzo(a)pyrene	1E-04	--	4E-05	--	1E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-05	--	4E-06	--	1E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0004	--	0.0001	0.0006
			Benzo(k)fluoranthene	8E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Chrysene	1E-07	--	4E-08	--	2E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-05	--	6E-06	--	2E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.002	--	0.0008	0.003
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	6E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0008	--	0.0003	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.003	--	0.001	0.004
			Pyrene	--	--	--	--	--	Kidney	0.003	--	0.001	0.004
			Total Aroclors	7E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.2	--	--	0.2
			Antimony	--	--	--	--	--	Blood	0.01	--	--	0.01
			Arsenic	4E-05	--	3E-06	--	4E-05	Skin, CVS	1	--	0.09	1
			Beryllium	--	--	--	--	--	GS	0.003	--	--	0.003
			Cadmium	--	--	--	--	--	Kidney	0.04	--	0.002	0.04
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.09	--	--	0.09
			Cobalt	--	--	--	--	--	Blood	1	--	--	1
			Copper	--	--	--	--	--	GS	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.5	--	--	0.5
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.08	--	--	0.08
			Vanadium	--	--	--	--	--	Kidney	0.06	--	--	0.06
			Chemical Total	2E-04	--	6E-05	--	3E-04		3	--	0.09	3
		Exposure Point Total						3E-04					3
	Exposure Medium Total							3E-04					3
	Air	Exposed Area	Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Chrysene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Naphthalene	--	3E-08	--	--	3E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	8E-10	--	--	8E-10	NA	--	0.00007	--	0.00007
			Beryllium	--	8E-12	--	--	8E-12	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	2E-09	--	--	2E-09	Respiratory	--	0.0004	--	0.0004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0008	--	0.0008
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		--	0.001	--	0.001
		Exposure Point Total						3E-08					0.001
	Exposure Medium Total							3E-08					0.001
Medium Total								3E-04					3
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.02	--	0.006	0.02
			Anthracene	--	--	--	--	--	None Reported	0.007	--	0.002	0.009
			Benzo(a)anthracene	1E-03	--	5E-04	--	2E-03	NA	--	--	--	--
			Benzo(a)pyrene	1E-02	--	4E-03	--	1E-02	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-04	--	3E-04	--	1E-03	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.06	--	0.02	0.08
			Benzo(k)fluoranthene	8E-05	--	3E-05	--	1E-04	NA	--	--	--	--
			Chrysene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-03	--	8E-04	--	3E-03	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.2	--	0.08	0.3
			Indeno(1,2,3-cd)pyrene	6E-04	--	2E-04	--	8E-04	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.02	--	0.008	0.03
			Phenanthrene	--	--	--	--	--	Kidney	0.2	--	0.09	0.3
			Pyrene	--	--	--	--	--	Kidney	0.2	--	0.09	0.3
			Total Aroclors	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.2	--	--	0.2
			Antimony	--	--	--	--	--	Blood	0.02	--	--	0.02
			Arsenic	3E-05	--	2E-06	--	3E-05	Skin, CVS	0.8	--	0.06	0.8
			Beryllium	--	--	--	--	--	GS	0.003	--	--	0.003
			Cadmium	--	--	--	--	--	Kidney	0.02	--	0.001	0.02
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.08	--	--	0.08
			Cobalt	--	--	--	--	--	Blood	0.7	--	--	0.7
			Copper	--	--	--	--	--	GS	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.8	--	--	0.8
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	0.1	--	--	0.1
			Molybdenum	--	--	--	--	--	Gout	0.008	--	--	0.008
			Thallium	--	--	--	--	--	Blood	0.03	--	--	0.03
			Vanadium	--	--	--	--	--	Kidney	0.05	--	--	0.05
			Zinc	--	--	--	--	--	Blood	0.04	--	--	0.04
			Chemical Total	2E-02	--	6E-03	--	2E-02		4	--	0.4	4
		Exposure Point Total						2E-02					4
	Exposure Medium Total							2E-02					4
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	--	9E-10	--	--	9E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	9E-10	--	--	9E-10	NA	--	--	--	--
			Chrysene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Naphthalene	--	8E-07	--	--	8E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	9E-12	--	--	9E-12	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	--	0.001	--	0.001
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	8E-07	--	--	8E-07		--	0.002	--	0.002
		Exposure Point Total						8E-07					0.002
	Exposure Medium Total							8E-07					0.002
Medium Total								2E-02					4
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Benzo(a)pyrene	1E-04	--	4E-05	--	1E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0002	--	0.00009	0.0003
			Benzo(k)fluoranthene	5E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Chrysene	6E-08	--	2E-08	--	9E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-06	--	2E-06	--	8E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	7E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.1	--	--	0.1
			Arsenic	3E-05	--	3E-06	--	3E-05	Skin, CVS	0.8	--	0.07	0.9
			Beryllium	--	--	--	--	--	GS	0.003	--	--	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.07	--	--	0.07
			Cobalt	--	--	--	--	--	Blood	0.5	--	--	0.5
			Iron	--	--	--	--	--	GS	0.5	--	--	0.5
			Manganese (Soil)	--	--	--	--	--	CNS	0.07	--	--	0.07
			Chemical Total	2E-04	--	5E-05	--	2E-04		2	--	0.07	2
		Exposure Point Total						2E-04					2
	Exposure Medium Total							2E-04					2
	Air	Paved Area	Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Chrysene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	7E-12	--	--	7E-12	Respiratory	--	0.000002	--	0.000002

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0007	--	0.0007
			Chemical Total	--	3E-09	--	--	3E-09		--	0.001	--	0.001
		Exposure Point Total						3E-09					0.001
	Exposure Medium Total							3E-09					0.001
Medium Total								2E-04					2
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.0009	--	--	0.0009
			Benzo(a)anthracene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Benzo(a)pyrene	6E-05	--	2E-05	--	8E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-06	--	2E-06	--	9E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0002	--	0.00008	0.0003
			Benzo(k)fluoranthene	6E-07	--	2E-07	--	8E-07	NA	--	--	--	--
			Chrysene	1E-07	--	4E-08	--	2E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-06	--	2E-06	--	6E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Total Aroclors	3E-06	--	1E-06	--	5E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.2	--	--	0.2
			Arsenic	6E-05	--	5E-06	--	6E-05	Skin, CVS	1	--	0.1	2
			Beryllium	--	--	--	--	--	GS	0.003	--	--	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.1	--	--	0.1
			Cobalt	--	--	--	--	--	Blood	0.6	--	--	0.6
			Iron	--	--	--	--	--	GS	0.5	--	--	0.5
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.2	--	--	0.2
			Chemical Total	1E-04	--	4E-05	--	2E-04		3	--	0.1	3
		Exposure Point Total						2E-04					3
	Exposure Medium Total							2E-04					3
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.007	--	0.007
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.02	--	0.02
			Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Chrysene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-12	--	--	5E-12	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	1E-09	--	--	1E-09	NA	--	0.0001	--	0.0001
			Beryllium	--	8E-12	--	--	8E-12	Respiratory	--	0.000002	--	0.000002
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.002	--	0.002
			Chemical Total	--	4E-09	--	--	4E-09		--	0.03	--	0.03
		Exposure Point Total						4E-09					0.03
	Exposure Medium Total							4E-09					0.03
Medium Total								2E-04					3
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	1E-05	--	8E-07	--	1E-05	Kidney, CNS	0.1	--	0.008	0.1
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.5	--	0.3	0.8
			Bromomethane	--	--	--	--	--	GS	0.1	--	0.003	0.1
			Carbon Tetrachloride	2E-06	--	4E-07	--	2E-06	Liver	0.3	--	0.05	0.3
			Chloroform	2E-06	--	1E-07	--	2E-06	Liver	0.06	--	0.004	0.07
			Chloromethane	2E-06	--	3E-08	--	2E-06	NA	--	--	--	--
			Ethylbenzene	5E-06	--	2E-06	--	7E-06	Liver, Kidney	0.05	--	0.02	0.07
			Isopropylbenzene	--	--	--	--	--	Kidney	0.08	--	0.07	0.2
			Tetrachloroethene	5E-05	--	2E-05	--	7E-05	Liver	0.1	--	0.04	0.2
			Total Xylenes	--	--	--	--	--	Body Weight	0.04	--	0.02	0.06
			Trichloroethene	7E-05	--	8E-06	--	8E-05	NA	--	--	--	--
			Vinyl Chloride	2E-04	--	8E-06	--	2E-04	Liver	0.6	--	0.02	0.6
			Benzo(k)fluoranthene	1E-05	--	--	--	1E-05	NA	--	--	--	--
			Dieldrin	1E-06	--	6E-07	--	2E-06	Liver	0.02	--	0.009	0.03
			Aluminum	--	--	--	--	--	CNS	50	--	0.2	51
			Antimony	--	--	--	--	--	Blood	0.3	--	0.008	0.3
			Arsenic	6E-03	--	3E-05	--	6E-03	Skin, CVS	150	--	0.7	151
			Barium	--	--	--	--	--	Kidney	0.6	--	0.04	0.7
			Beryllium	--	--	--	--	--	GS	0.8	--	0.5	1
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	26	--	10	36
			Cobalt	--	--	--	--	--	Blood	190	--	0.9	191
			Copper	--	--	--	--	--	GS	3	--	0.02	3
			Iron	--	--	--	--	--	GS	155	--	0.7	155

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	5t	--	6	58
			Mercury	--	--	--	--	--	Autoimmune	0.6	--	0.04	0.6
			Molybdenum	--	--	--	--	--	Gout	0.4	--	0.002	0.4
			Nickel	--	--	--	--	--	Body Weight	5	--	0.1	5
			Thallium	--	--	--	--	--	Blood	3	--	0.01	3
			Vanadium	--	--	--	--	--	Kidney	15	--	3	18
			Zinc	--	--	--	--	--	Blood	1	--	0.003	t
			Chemical Total	6E-03	--	7E-05	--	6E-03		655	--	22	677
		Exposure Point Total						6E-03					677
	Exposure Medium Total							6E-03					677
	Groundwater	Site 08	1,1-Dichloroethane	--	1E-05	--	--	1E-05	NA	--	0.1	--	0.1
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.5	--	0.5
			Bromomethane	--	--	--	--	--	Respiratory	--	0.1	--	0.1
			Carbon Tetrachloride	--	2E-06	--	--	2E-06	Liver	--	0.3	--	0.3
			Chloroform	--	2E-06	--	--	2E-06	Liver	--	0.06	--	0.06
			Chloromethane	--	2E-06	--	--	2E-06	CNS	--	--	--	--
			Ethylbenzene	--	5E-06	--	--	5E-06	Developmental	--	0.05	--	0.05
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.08	--	0.08
			Tetrachloroethene	--	5E-05	--	--	5E-05	Liver	--	0.1	--	0.1
			Total Xylenes	--	--	--	--	--	CNS	--	0.04	--	0.04
			Trichloroethene	--	7E-05	--	--	7E-05	NA	--	--	--	--
			Vinyl Chloride	--	2E-04	--	--	2E-04	Liver	--	0.6	--	0.6
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-04	--	--	4E-04		--	2	--	2
		Exposure Point Total						4E-04					2
	Exposure Medium Total							4E-04					2
Medium Total								7E-03					679
Receptor Total							Receptor Risk Total	3E-02				Receptor HI Total	692

Note:

Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

Total Blood HI	199
Total Body Weight HI	6
Total CNS HI	110
Total CVS HI	155
Total GS HI	199
Total Kidney HI	20
Total Liver HI	3
Total Skin HI	155
Total Respiratory HI	0.1
Total Developmental HI	0.05
Total None Reported HI	0.009
Total Fetotoxicity HI	36
Total Bone HI	36

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-05	--	8E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	8E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00004	--	0.00002	0.00007
			Benzo(k)fluoranthene	1E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Chrysene	2E-08	--	9E-09	--	3E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-06	--	1E-06	--	4E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0003	--	0.0001	0.0004
			Indeno(1,2,3-cd)pyrene	7E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00008	--	0.00004	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0003	--	0.0002	0.0005
			Pyrene	--	--	--	--	--	Kidney	0.0003	--	0.0002	0.0005
			Total Aroclors	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	2E-05	--	2E-06	--	2E-05	Skin, CVS	0.1	--	0.01	0.1
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Cadmium	--	--	--	--	--	Kidney	0.004	--	0.0003	0.004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.1	--	--	0.1
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.05	--	--	0.05
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.008	--	--	0.008
			Vanadium	--	--	--	--	--	Kidney	0.006	--	--	0.006
			Chemical Total	4E-05	--	1E-05	--	5E-05		0.3	--	0.01	0.3
		Exposure Point Total						5E-05					0.3
	Exposure Medium Total							5E-05					0.3
	Air	Exposed Area	Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chrysene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Naphthalene	--	1E-07	--	--	1E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	3E-09	--	--	3E-09	NA	--	0.00007	--	0.00007
			Beryllium	--	3E-11	--	--	3E-11	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Chromium	--	7E-09	--	--	7E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	7E-09	--	--	7E-09	Respiratory	--	0.0004	--	0.0004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0008	--	0.0008
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-07	--	--	1E-07		--	0.001	--	0.001
		Exposure Point Total						1E-07					0.001
	Exposure Medium Total							1E-07					0.001
Medium Total								5E-05					0.4
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.002	--	0.0009	0.003
			Anthracene	--	--	--	--	--	None Reported	0.0007	--	0.0004	0.001
			Benzo(a)anthracene	2E-04	--	1E-04	--	3E-04	NA	--	--	--	--
			Benzo(a)pyrene	2E-03	--	8E-04	--	2E-03	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-04	--	7E-05	--	2E-04	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.006	--	0.003	0.009
			Benzo(k)fluoranthene	1E-05	--	6E-06	--	2E-05	NA	--	--	--	--
			Chrysene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-04	--	2E-04	--	5E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.02	--	0.01	0.04
			Indeno(1,2,3-cd)pyrene	9E-05	--	4E-05	--	1E-04	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.002	--	0.001	0.004
			Phenanthrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Pyrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Total Aroclors	5E-07	--	3E-07	--	8E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	1E-05	--	1E-06	--	1E-05	Skin, CVS	0.08	--	0.010	0.09
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Cadmium	--	--	--	--	--	Kidney	0.002	--	0.0002	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.07	--	--	0.07
			Copper	--	--	--	--	--	GS	0.008	--	--	0.008
			Iron	--	--	--	--	--	GS	0.08	--	--	0.08
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	0.02	--	--	0.02
			Molybdenum	--	--	--	--	--	Gout	0.0008	--	--	0.0008
			Thallium	--	--	--	--	--	Blood	0.003	--	--	0.003
			Vanadium	--	--	--	--	--	Kidney	0.006	--	--	0.006
			Zinc	--	--	--	--	--	Blood	0.004	--	--	0.004
			Chemical Total	2E-03	--	1E-03	--	3E-03		0.4	--	0.06	0.4
		Exposure Point Total						3E-03					0.4
	Exposure Medium Total							3E-03					0.4
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Chrysene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-10	--	--	8E-10	NA	--	--	--	--
			Naphthalene	--	3E-06	--	--	3E-06	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-09	--	--	2E-09	NA	--	0.00005	--	0.00005
			Beryllium	--	4E-11	--	--	4E-11	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Chromium	--	7E-09	--	--	7E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	4E-09	--	--	4E-09	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	--	0.001	--	0.001
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-06	--	--	3E-06		--	0.002	--	0.002
		Exposure Point Total						3E-06					0.002
	Exposure Medium Total							3E-06					0.002
Medium Total								3E-03					0.5
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	8E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	7E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Chrysene	9E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-07	--	5E-07	--	1E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	7E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Arsenic	1E-05	--	2E-06	--	1E-05	Skin, CVS	0.08	--	0.01	0.10
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.007	--	--	0.007
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Iron	--	--	--	--	--	GS	0.05	--	--	0.05
			Manganese (Soil)	--	--	--	--	--	CNS	0.008	--	--	0.008
			Chemical Total	3E-05	--	1E-05	--	4E-05		0.2	--	0.01	0.2
		Exposure Point Total						4E-05					0.2
	Exposure Medium Total							4E-05					0.2
	Air	Paved Area	Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Chrysene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	2E-09	--	--	2E-09	NA	--	0.00005	--	0.00005
			Beryllium	--	3E-11	--	--	3E-11	Respiratory	--	0.000002	--	0.000002

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	6E-09	--	--	6E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	3E-09	--	--	3E-09	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0007	--	0.0007
			Chemical Total	--	1E-08	--	--	1E-08		--	0.001	--	0.001
		Exposure Point Total						1E-08					0.001
	Exposure Medium Total							1E-08					0.001
Medium Total								4E-05					0.2
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00010	--	--	0.00010
			Benzo(a)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	9E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.00001	0.00004
			Benzo(k)fluoranthene	8E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Chrysene	2E-08	--	9E-09	--	3E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	7E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Total Aroclors	1E-06	--	8E-07	--	2E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	2E-05	--	3E-06	--	3E-05	Skin, CVS	0.2	--	0.02	0.2
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.02	--	--	0.02
			Chemical Total	4E-05	--	1E-05	--	5E-05		0.3	--	0.02	0.3
		Exposure Point Total						5E-05					0.3
	Exposure Medium Total							5E-05					0.3
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.007	--	0.007
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.02	--	0.02
			Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Chrysene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-12	--	--	7E-12	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	4E-09	--	--	4E-09	NA	--	0.0001	--	0.0001
			Beryllium	--	3E-11	--	--	3E-11	Respiratory	--	0.000002	--	0.000002
			Chromium	--	9E-09	--	--	9E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	4E-09	--	--	4E-09	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.002	--	0.002
			Chemical Total	--	2E-08	--	--	2E-08		--	0.03	--	0.03
		Exposure Point Total						2E-08					0.03
	Exposure Medium Total							2E-08					0.03
Medium Total								5E-05					0.4
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	2E-05	--	1E-06	--	2E-05	Kidney, CNS	0.04	--	0.003	0.05
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.2	--	0.1	0.3
			Bromomethane	--	--	--	--	--	GS	0.04	--	0.001	0.04
			Carbon Tetrachloride	2E-06	--	7E-07	--	3E-06	Liver	0.08	--	0.02	0.10
			Chloroform	2E-06	--	2E-07	--	2E-06	Liver	0.02	--	0.002	0.02
			Chloromethane	2E-06	--	6E-08	--	2E-06	NA	--	--	--	--
			Ethylbenzene	6E-06	--	4E-06	--	1E-05	Liver, Kidney	0.02	--	0.010	0.03
			Isopropylbenzene	--	--	--	--	--	Kidney	0.03	--	0.03	0.06
			Tetrachloroethene	6E-05	--	4E-05	--	1E-04	Liver	0.03	--	0.02	0.05
			Total Xylenes	--	--	--	--	--	Body Weight	0.01	--	0.007	0.02
			Trichloroethene	9E-05	--	1E-05	--	1E-04	NA	--	--	--	--
			Vinyl Chloride	3E-04	--	1E-05	--	3E-04	Liver	0.2	--	0.009	0.2
			Benzo(k)fluoranthene	5E-06	--	--	--	5E-06	NA	--	--	--	--
			Dieldrin	2E-06	--	1E-06	--	3E-06	Liver	0.006	--	0.004	0.01
			Aluminum	--	--	--	--	--	CNS	15	--	0.08	16
			Antimony	--	--	--	--	--	Blood	0.08	--	0.003	0.09
			Arsenic	7E-03	--	4E-05	--	7E-03	Skin, CVS	46	--	0.2	46
			Barium	--	--	--	--	--	Kidney	0.2	--	0.01	0.2
			Beryllium	--	--	--	--	--	GS	0.2	--	0.2	0.4
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	8	--	3	11
			Cobalt	--	--	--	--	--	Blood	58	--	0.3	58
			Copper	--	--	--	--	--	GS	1.0	--	0.005	1.0
			Iron	--	--	--	--	--	GS	47	--	0.2	48

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	16	--	2	18
			Mercury	--	--	--	--	--	Autoimmune	0.2	--	0.01	0.2
			Molybdenum	--	--	--	--	--	Gout	0.1	--	0.0006	0.1
			Nickel	--	--	--	--	--	Body Weight	2	--	0.04	2
			Thallium	--	--	--	--	--	Blood	1.0	--	0.005	1.0
			Vanadium	--	--	--	--	--	Kidney	5	--	0.9	5
			Zinc	--	--	--	--	--	Blood	0.4	--	0.001	0.4
			Chemical Total	8E-03	--	1E-04	--	8E-03		200	--	8	208
		Exposure Point Total						8E-03					208
	Exposure Medium Total							8E-03					208
	Groundwater	Site 08	1,1-Dichloroethane	--	2E-05	--	--	2E-05	NA	--	0.04	--	0.04
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.2	--	0.2
			Bromomethane	--	--	--	--	--	Respiratory	--	0.04	--	0.04
			Carbon Tetrachloride	--	2E-06	--	--	2E-06	Liver	--	0.08	--	0.08
			Chloroform	--	2E-06	--	--	2E-06	Liver	--	0.02	--	0.02
			Chloromethane	--	2E-06	--	--	2E-06	CNS	--	--	--	--
			Ethylbenzene	--	6E-06	--	--	6E-06	Developmental	--	0.02	--	0.02
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.03	--	0.03
			Tetrachloroethene	--	6E-05	--	--	6E-05	Liver	--	0.03	--	0.03
			Total Xylenes	--	--	--	--	--	CNS	--	0.01	--	0.01
			Trichloroethene	--	9E-05	--	--	9E-05	NA	--	--	--	--
			Vinyl Chloride	--	3E-04	--	--	3E-04	Liver	--	0.2	--	0.2
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-04	--	--	4E-04		--	0.6	--	0.6
		Exposure Point Total						4E-04					0.6
	Exposure Medium Total							4E-04					0.6
Medium Total								8E-03					209
Receptor Total							Receptor Risk Total	tE-02				Receptor HI Total	210

Note:

Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

Total Blood HI	60
Total Body Weight HI	2
Total CNS HI	34
Total CVS HI	47
Total GS HI	61
Total Kidney HI	6
Total Liver HI	t
Total Skin HI	47
Total Respiratory HI	0.04
Total Developmental HI	0.02
Total None Reported HI	0.001
Total Fetotoxicity HI	11
Total Bone HI	t t

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-05	--	6E-06	--	2E-05					
			Benzo(a)pyrene	1E-04	--	5E-05	--	2E-04					
			Benzo(b)fluoranthene	1E-05	--	5E-06	--	2E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	9E-07	--	4E-07	--	1E-06					
			Chrysene	1E-07	--	5E-08	--	2E-07					
			Dibenzo(a,h)anthracene	2E-05	--	8E-06	--	3E-05					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	7E-06					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-06	--	5E-07	--	1E-06					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	6E-05	--	5E-06	--	6E-05					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	2E-04	--	7E-05	--	3E-04					
		Exposure Point Total						3E-04					
	Exposure Medium Total							3E-04					
	Air	Exposed Area	Benzo(a)anthracene	--	3E-11	--	--	3E-11					
			Benzo(a)pyrene	--	3E-10	--	--	3E-10					
			Benzo(b)fluoranthena	--	3E-11	--	--	3E-11					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-11	--	--	2E-11					
			Chrysene	--	3E-12	--	--	3E-12					
			Dibenzo(a,h)anthracene	--	5E-11	--	--	5E-11					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	1E-11	--	--	1E-11					
			Naphthalene	--	1E-07	--	--	1E-07					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	4E-09	--	--	4E-09					
			Beryllium	--	4E-11	--	--	4E-11					
			Cadmium	--	1E-10	--	--	1E-10					
			Chromium	--	9E-09	--	--	9E-09					
			Cobalt	--	9E-09	--	--	9E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	--	2E-07	--	--	2E-07					
		Exposure Point Total						2E-07					
	Exposure Medium Total							2E-07					
Medium Total								3E-04					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	1E-03	--	6E-04	--	2E-03					
			Benzo(a)pyrene	1E-02	--	5E-03	--	2E-02					
			Benzo(b)fluoranthene	1E-03	--	4E-04	--	1E-03					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-04	--	4E-05	--	1E-04					
			Chrysene	1E-05	--	5E-06	--	2E-05					
			Dibenzo(a,h)anthracene	3E-03	--	1E-03	--	4E-03					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	7E-04	--	3E-04	--	9E-04					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	2E-06	--	7E-07	--	2E-06					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	4E-05	--	4E-06	--	5E-05					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	2E-02	--	7E-03	--	2E-02					
		Exposure Point Total						2E-02					
	Exposure Medium Total							2E-02					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	3E-09	--	--	3E-09					
			Benzo(a)pyrene	--	3E-08	--	--	3E-08					
			Benzo(b)fluoranthene	--	2E-09	--	--	2E-09					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-09	--	--	2E-09					
			Chrysene	--	3E-10	--	--	3E-10					
			Dibenzo(a,h)anthracene	--	6E-09	--	--	6E-09					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	1E-09	--	--	1E-09					
			Naphthalene	--	4E-06	--	--	4E-06					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	3E-09	--	--	3E-09					
			Beryllium	--	5E-11	--	--	5E-11					
			Cadmium	--	6E-11	--	--	6E-11					
			Chromium	--	9E-09	--	--	9E-09					
			Cobalt	--	5E-09	--	--	5E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	4E-06	--	--	4E-06					
		Exposure Point Total						4E-06					
	Exposure Medium Total							4E-06					
Medium Total								2E-02					
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-05	--	5E-06	--	2E-05					
			Benzo(a)pyrene	1E-04	--	4E-05	--	2E-04					
			Benzo(b)fluoranthene	1E-05	--	5E-06	--	2E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	5E-07	--	2E-07	--	7E-07					
			Chrysene	7E-08	--	3E-08	--	1E-07					
			Dibenzo(a,h)anthracene	7E-06	--	3E-06	--	1E-05					
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	8E-06					
			Aluminum	--	--	--	--	--					
			Arsenic	4E-05	--	4E-06	--	5E-05					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	2E-04	--	6E-05	--	3E-04					
		Exposure Point Total						3E-04					
	Exposure Medium Total							3E-04					
	Air	Paved Area	Benzo(a)anthracene	--	3E-11	--	--	3E-11					
			Benzo(a)pyrene	--	2E-10	--	--	2E-10					
			Benzo(b)fluoranthene	--	3E-11	--	--	3E-11					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11					
			Chrysene	--	2E-12	--	--	2E-12					
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11					
			Indeno(1,2,3-cd)pyrene	--	1E-11	--	--	1E-11					
			Aluminum	--	--	--	--	--					
			Arsenic	--	3E-09	--	--	3E-09					
			Beryllium	--	4E-11	--	--	4E-11					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	7E-09	--	--	7E-09					
			Cobalt	--	4E-09	--	--	4E-09					
			Iron	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	1E-08	--	--	1E-08					
		Exposure Point Total						1E-08					
	Exposure Medium Total							1E-08					
Medium Total								3E-04					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	- -	--	- -	--	- -					
			1,3,5-Trimethylbenzene	- -	--	- -	--	- -					
			Benzo(a)anthracene	1E-05	--	5E-06	--	2E-05					
			Benzo(a)pyrene	7E-05	--	3E-05	--	9E-05					
			Benzo(b)fluoranthene	8E-06	--	3E-06	--	1E-05					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	6E-07	--	2E-07	--	9E-07					
			Chrysene	1E-07	--	5E-08	--	2E-07					
			Dibenzo(a,h)anthracene	5E-06	--	2E-06	--	7E-06					
			Indeno(1,2,3-cd)pyrene	2E-06	--	6E-07	--	2E-06					
			Total Aroclors	5E-06	--	2E-06	--	7E-06					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	8E-05	--	8E-06	--	9E-05					
			Beryllium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Chemical Total	2E-04	--	5E-05	--	2E-04					
		Exposure Point Total						2E-04					
	Exposure Medium Total							2E-04					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	- -	--	--	- -					
			1,3,5-Trimethylbenzene	--	- -	--	--	- -					
			Benzo(a)anthracene	--	3E-11	--	--	3E-11					
			Benzo(a)pyrene	--	1E-10	--	--	1E-10					
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11					
			Benzo(g,h,i)perylene	--	- -	--	--	- -					
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11					
			Chrysene	--	3E-12	--	--	3E-12					
			Dibenzo(a,h)anthracene	--	1E-11	--	--	1E-11					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Arsenic	--	6E-09	--	--	6E-09					
			Beryllium	--	4E-11	--	--	4E-11					
			Chromium	--	1E-08	--	--	1E-08					
			Cobalt	--	5E-09	--	--	5E-09					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	2E-08	--	--	2E-08					
		Exposure Point Total						2E-08					
	Exposure Medium Total							2E-08					
Medium Total								2E-04					
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	3E-05	--	2E-06	--	3E-05					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					
			Carbon Tetrachloride	4E-06	--	1E-06	--	5E-06					
			Chloroform	4E-06	--	3E-07	--	4E-06					
			Chloromethane	4E-06	--	9E-08	--	4E-06					
			Ethylbenzene	1E-05	--	6E-06	--	2E-05					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	1E-04	--	6E-05	--	2E-04					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	2E-04	--	2E-05	--	2E-04					
			Vinyl Chloride	5E-04	--	2E-05	--	5E-04					
			Benzo(k)fluoranthene	2E-05	--	--	--	2E-05					
			Dieldrin	3E-06	--	2E-06	--	5E-06					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	1E-02	--	6E-05	--	1E-02					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	1E-02	--	2E-04	--	1E-02					
		Exposure Point Total						1E-02					
	Exposure Medium Total							1E-02					
	Groundwater	Site 08	1,1-Dichloroethane	--	3E-05	--	--	3E-05					
			t,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					
			Carbon Tetrachloride	--	4E-06	--	--	4E-06					
			Chloroform	--	4E-06	--	--	4E-06					
			Chloromethane	--	4E-06	--	--	4E-06					
			Ethylbenzene	--	1E-05	--	--	1E-05					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	--	1E-04	--	--	1E-04					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	--	2E-04	--	--	2E-04					
			Vinyl Chloride	--	5E-04	--	--	5E-04					
			Benzo(k)fluoranthene	--	--	--	--	--					
			Dieldrin	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	--	--	--	--					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	8E-04	--	--	8E-04					
		Exposure Point Total						8E-04					
	Exposure Medium Total							8E-04					
Medium Total								1E-02					
Receptor Total							Receptor Risk Total	4E-02					

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-08	--	3E-09	--	3E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.000003	0.00002
			Benzo(k)fluoranthene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Chrysene	2E-10	--	3E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-08	--	4E-09	--	3E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0001	--	0.00002	0.0001
			Indeno(1,2,3-cd)pyrene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00004	--	0.000005	0.00005
			Phenanthrene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0002
			Pyrene	--	--	--	--	--	Kidney	0.0002	--	0.00002	0.0002
			Total Aroclors	6E-09	--	9E-10	--	7E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.008	--	--	0.008
			Antimony	--	--	--	--	--	Blood	0.0007	--	--	0.0007
			Arsenic	3E-07	--	1E-08	--	4E-07	Skin, CVS	0.05	--	0.002	0.06
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Cadmium	--	--	--	--	--	Kidney	0.002	--	0.00004	0.002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Copper	--	--	--	--	--	GS	0.0008	--	--	0.0008
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.004	--	--	0.004
			Vanadium	--	--	--	--	--	Kidney	0.003	--	--	0.003
			Chemical Total	6E-07	--	4E-08	--	6E-07		0.2	--	0.002	0.2
		Exposure Point Total						6E-07					0.2
	Exposure Medium Total							6E-07					0.2
	Air	Exposed Area	Benzo(a)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Naphthalene	--	1E-09	--	--	1E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--	CNS	--	0.08	--	0.08
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	5E-08	--	--	5E-08	NA	--	0.03	--	0.03
			Beryllium	--	5E-10	--	--	5E-10	Respiratory	--	0.0007	--	0.0007
			Cadmium	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Chromium	--	1E-07	--	--	1E-07	Respiratory	--	0.007	--	0.007
			Cobalt	--	1E-07	--	--	1E-07	Respiratory	--	0.2	--	0.2
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.3	--	0.3
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-07	--	--	3E-07		--	0.6	--	0.6
		Exposure Point Total						3E-07					0.6
	Exposure Medium Total							3E-07					0.6
Medium Total								9E-07					0.7
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0009	--	0.0001	0.0010
			Anthracene	--	--	--	--	--	None Reported	0.0003	--	0.00004	0.0004
			Benzo(a)anthracene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-05	--	2E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-06	--	2E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.003	--	0.0004	0.003
			Benzo(k)fluoranthene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Chrysene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-06	--	5E-07	--	4E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.01	--	0.002	0.01
			Indeno(1,2,3-cd)pyrene	1E-06	--	1E-07	--	1E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.001	--	0.0002	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.01	--	0.002	0.01
			Pyrene	--	--	--	--	--	Kidney	0.01	--	0.002	0.01
			Total Aroclors	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.009	--	--	0.009
			Antimony	--	--	--	--	--	Blood	0.0010	--	--	0.0010
			Arsenic	3E-07	--	8E-09	--	3E-07	Skin, CVS	0.04	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00002	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.004	--	--	0.004
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	0.008	--	--	0.008
			Molybdenum	--	--	--	--	--	Gout	0.0004	--	--	0.0004
			Thallium	--	--	--	--	--	Blood	0.002	--	--	0.002
			Vanadium	--	--	--	--	--	Kidney	0.003	--	--	0.003
			Zinc	--	--	--	--	--	Blood	0.002	--	--	0.002
			Chemical Total	3E-05	--	3E-06	--	3E-05		0.2	--	0.007	0.2
		Exposure Point Total						3E-05					0.2
	Exposure Medium Total							3E-05					0.2
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-08	--	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-07	--	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Chrysene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-08	--	--	3E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-09	--	--	7E-09	NA	--	--	--	--
			Naphthalene	--	7E-09	--	--	7E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.09	--	0.09
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	4E-08	--	--	4E-08	NA	--	0.02	--	0.02
			Beryllium	--	6E-10	--	--	6E-10	Respiratory	--	0.0009	--	0.0009
			Cadmium	--	8E-10	--	--	8E-10	NA	--	--	--	--
			Chromium	--	1E-07	--	--	1E-07	Respiratory	--	0.007	--	0.007
			Cobalt	--	7E-08	--	--	7E-08	Respiratory	--	0.09	--	0.09
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	--	0.6	--	0.6
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-07	--	--	4E-07		--	0.8	--	0.8
		Exposure Point Total						4E-07					0.8
	Exposure Medium Total							4E-07					0.8
Medium Total								3E-05					1.0
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	3E-09	--	2E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Benzo(k)fluoranthene	8E-10	--	1E-10	--	9E-10	NA	--	--	--	--
			Chrysene	1E-10	--	1E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.007	--	--	0.007
			Arsenic	3E-07	--	8E-09	--	3E-07	Skin, CVS	0.04	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.03	--	--	0.03
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.004	--	--	0.004
			Chemical Total	5E-07	--	4E-08	--	5E-07		0.1	--	0.001	0.1
		Exposure Point Total						5E-07					0.1
	Exposure Medium Total							5E-07					0.1
	Air	Paved Area	Benzo(a)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Chrysene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.07	--	0.07
			Arsenic	--	4E-08	--	--	4E-08	NA	--	0.02	--	0.02

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Beryllium	--	5E-10	--	--	5E-10	Respiratory	--	0.0007	--	0.0007
			Chromium	--	9E-08	--	--	9E-08	Respiratory	--	0.005	--	0.005
			Cobalt	--	6E-08	--	--	6E-08	Respiratory	--	0.07	--	0.07
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.3	--	0.3
			Chemical Total	--	2E-07	--	--	2E-07		--	0.5	--	0.5
		Exposure Point Total						2E-07					0.5
	Exposure Medium Total							2E-07					0.5
Medium Total								7E-07					0.6
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00005	--	--	0.00005
			Benzo(a)anthracene	2E-08	--	3E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Benzo(k)fluoranthene	9E-10	--	1E-10	--	1E-09	NA	--	--	--	--
			Chrysene	2E-10	--	3E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	3E-10	--	3E-09	NA	--	--	--	--
			Total Aroclors	3E-08	--	4E-09	--	3E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.008	--	--	0.008
			Arsenic	5E-07	--	2E-08	--	5E-07	Skin, CVS	0.08	--	0.002	0.08
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Blood	0.03	--	--	0.03
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Chemical Total	7E-07	--	4E-08	--	7E-07		0.2	--	0.002	0.2
		Exposure Point Total						7E-07					0.2
	Exposure Medium Total							7E-07					0.2
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0003	--	0.0003
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.001	--	0.001
			Benzo(a)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-10	--	--	7E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Chrysene	--	1E-11	--	--	1E-11	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Dibenzo(a,h)anthracene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.09	--	0.09
			Arsenic	--	7E-08	--	--	7E-08	NA	--	0.04	--	0.04
			Beryllium	--	5E-10	--	--	5E-10	Respiratory	--	0.0008	--	0.0008
			Chromium	--	1E-07	--	--	1E-07	Respiratory	--	0.008	--	0.008
			Cobalt	--	6E-08	--	--	6E-08	Respiratory	--	0.08	--	0.08
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.7	--	0.7
			Chemical Total	--	3E-07	--	--	3E-07		--	1.0	--	1.0
		Exposure Point Total						3E-07					1.0
	Exposure Medium Total							3E-07					1.0
Medium Total								1E-06					1
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	1E-09	--	5E-09	--	7E-09	Kidney, CNS	0.00008	--	0.0003	0.0004
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.0003	--	0.01	0.01
			Bromomethane	--	--	--	--	--	GS	0.00007	--	0.0001	0.0002
			Carbon Tetrachloride	2E-10	--	2E-09	--	2E-09	Liver	0.0001	--	0.002	0.002
			Chloroform	2E-10	--	7E-10	--	9E-10	Liver	0.00004	--	0.0002	0.0002
			Chloromethane	2E-10	--	3E-10	--	4E-10	NA	--	--	--	--
			Ethylbenzene	5E-10	--	1E-08	--	1E-08	Liver, Kidney	0.00003	--	0.0008	0.0009
			Isopropylbenzene	--	--	--	--	--	Kidney	0.00005	--	0.002	0.002
			Tetrachloroethene	5E-09	--	1E-07	--	1E-07	Liver	0.00006	--	0.001	0.002
			Total Xylenes	--	--	--	--	--	Body Weight	0.00002	--	0.0007	0.0007
			Trichloroethene	7E-09	--	5E-08	--	6E-08	NA	--	--	--	--
			Vinyl Chloride	2E-08	--	7E-08	--	9E-08	Liver	0.0003	--	0.001	0.001
			Benzo(k)fluoranthene	2E-10	--	--	--	2E-10	NA	--	--	--	--
			Dieldrin	1E-10	--	3E-09	--	4E-09	Liver	0.00001	--	0.0003	0.0003
			Aluminum	--	--	--	--	--	CNS	0.03	--	0.02	0.04
			Antimony	--	--	--	--	--	Blood	0.0002	--	0.0005	0.0007
			Arsenic	5E-07	--	3E-07	--	8E-07	Skin, CVS	0.09	--	0.05	0.1
			Barium	--	--	--	--	--	Kidney	0.0004	--	0.003	0.003
			Beryllium	--	--	--	--	--	GS	0.0005	--	0.03	0.03
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	0.6	0.6
			Cobalt	--	--	--	--	--	Blood	0.1	--	0.06	0.2
			Copper	--	--	--	--	--	GS	0.002	--	0.0010	0.003

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Iron	--	--	--	--	--	GS	0.09	--	0.05	0.1
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	0.03	--	0.4	0.4
			Mercury	--	--	--	--	--	Autoimmune	0.0003	--	0.002	0.003
			Molybdenum	--	--	--	--	--	Gout	0.0002	--	0.0001	0.0003
			Nickel	--	--	--	--	--	Body Weight	0.003	--	0.008	0.01
			Thallium	--	--	--	--	--	Blood	0.002	--	0.0010	0.003
			Vanadium	--	--	--	--	--	Kidney	0.008	--	0.2	0.2
			Zinc	--	--	--	--	--	Blood	0.0007	--	0.0002	0.0009
			Chemical Total	6E-07	--	6E-07	--	1E-06		0.4	--	t	2
		Exposure Point Total						1E-06					2
	Exposure Medium Total							1E-06					2
	Groundwater	Site 08	t,t-Dichloroethane	--	6E-09	--	--	6E-09	NA	--	--	--	--
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.09	--	0.09
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.04	--	0.04
			Bromomethane	--	--	--	--	--	Respiratory	--	0.0004	--	0.0004
			Carbon Tetrachloride	--	3E-10	--	--	3E-10	Liver	--	0.000007	--	0.000007
			Chloroform	--	2E-09	--	--	2E-09	Liver	--	0.00006	--	0.00006
			Chloromethane	--	5E-10	--	--	5E-10	CNS	--	0.0002	--	0.0002
			Ethylbenzene	--	2E-09	--	--	2E-09	Developmental	--	0.00005	--	0.00005
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	--	--
			Tetrachloroethene	--	7E-10	--	--	7E-10	Liver	--	0.00003	--	0.00003
			Total Xylenes	--	--	--	--	--	CNS	--	0.0008	--	0.0008
			Trichloroethene	--	2E-08	--	--	2E-08	NA	--	--	--	--
			Vinyl Chloride	--	1E-09	--	--	1E-09	Liver	--	0.0002	--	0.0002
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		--	0.1	--	0.1
		Exposure Point Total						3E-08					0.1
	Exposure Medium Total							3E-08					0.1
Medium Total								1E-06					2
Receptor Total							Receptor Risk Total	3E-05				Raceptor HI Total	5

Total Blood HI	0.4
Total Body Weight HI	0.02
Total CNS HI	3
Total CVS HI	0.3
Total GS HI	1.0
Total Kidney HI	0.2
Total Liver HI	0.03
Total Skin HI	0.3
Total Developmental HI	0.00005
Total None Reported HI	0.0004
Total Fetotoxicity HI	0.7
Total Bone HI	0.7
Total Respiratory HI	0.4

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00002
			Benzo(k)fluoranthene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Chrysene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	3E-08	--	2E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00008	--	0.00001	0.00009
			Indeno(1,2,3-cd)pyrene	4E-08	--	8E-09	--	5E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00003	--	0.000004	0.00003
			Phenanthrene	--	--	--	--	--	Kidney	0.00010	--	0.00002	0.0001
			Pyrene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0001
			Total Aroclors	4E-08	--	7E-09	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Antimony	--	--	--	--	--	Blood	0.0005	--	--	0.0005
			Arsenic	2E-06	--	8E-08	--	2E-06	Skin, CVS	0.03	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.00009	--	--	0.00009
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00003	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Chemical Total	3E-06	--	3E-07	--	4E-06		0.1	--	0.001	0.1
		Exposure Point Total						4E-06					0.1
	Exposure Medium Total							4E-06					0.1
	Air	Exposed Area	Benzo(a)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Chrysene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Naphthalene	--	8E-09	--	--	8E-09	Respiratory	--	--	--	--

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00004	--	0.00004
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.0000004	--	0.0000004
			Cadmium	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Chromium	--	6E-10	--	--	6E-10	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	6E-10	--	--	6E-10	Respiratory	--	0.00008	--	0.00008
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	9E-09	--	--	9E-09		--	0.0003	--	0.0003
		Exposure Point Total						9E-09					0.0003
	Exposure Medium Total							9E-09					0.0003
Medium Total								4E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0005	--	0.00009	0.0006
			Anthracene	--	--	--	--	--	None Reported	0.0002	--	0.00004	0.0003
			Benzo(a)anthracene	1E-05	--	2E-06	--	1E-05	NA	--	--	--	--
			Benzo(a)pyrene	1E-04	--	2E-05	--	1E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	8E-06	--	1E-06	--	1E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.002	--	0.0003	0.002
			Benzo(k)fluoranthene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Chrysene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.008	--	0.001	0.009
			Indeno(1,2,3-cd)pyrene	6E-06	--	1E-06	--	7E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0008	--	0.0001	0.0009
			Phenanthrene	--	--	--	--	--	Kidney	0.008	--	0.001	0.009
			Pyrene	--	--	--	--	--	Kidney	0.008	--	0.001	0.010
			Total Aroclors	6E-08	--	1E-08	--	7E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0006	--	--	0.0006
			Arsenic	1E-06	--	6E-08	--	2E-06	Skin, CVS	0.03	--	0.001	0.03
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Cadmium	--	--	--	--	--	Kidney	0.0008	--	0.00002	0.0008

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.005	--	--	0.005
			Molybdenum	--	--	--	--	--	Gout	0.0003	--	--	0.0003
			Thallium	--	--	--	--	--	Blood	0.0010	--	--	0.0010
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Zinc	--	--	--	--	--	Blood	0.001	--	--	0.001
			Chemical Total	1E-04	--	3E-05	--	2E-04		0.1	--	0.006	0.1
		Exposure Point Total						2E-04					0.1
	Exposure Medium Total							2E-04					0.1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Chrysene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Naphthalene	--	2E-07	--	--	2E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	3E-12	--	--	3E-12	Respiratory	--	0.0000005	--	0.0000005
			Cadmium	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Chromium	--	5E-10	--	--	5E-10	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00005	--	0.00005

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0003	--	0.0003
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-07	--	--	2E-07		--	0.0004	--	0.0004
		Exposure Point Total						2E-07					0.0004
	Exposure Medium Total							2E-07					0.0004
Medium Total								2E-04					0.1
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	9E-07	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.000001	0.000009
			Benzo(k)fluoranthene	4E-09	--	8E-10	--	5E-09	NA	--	--	--	--
			Chrysene	6E-10	--	1E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-08	--	1E-08	--	7E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-08	--	8E-09	--	5E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	2E-06	--	6E-08	--	2E-06	Skin, CVS	0.03	--	0.001	0.03
			Beryllium	--	--	--	--	--	GS	0.00008	--	--	0.00008
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.002	--	--	0.002
			Chemical Total	3E-06	--	3E-07	--	3E-06		0.07	--	0.001	0.07
		Exposure Point Total						3E-06					0.07
	Exposure Medium Total							3E-06					0.07
	Air	Paved Area	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00004	--	0.00004
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.0000004	--	0.0000004
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.000003	--	0.000003
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00004	--	0.00004
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Chemical Total	--	9E-10	--	--	9E-10		--	0.0002	--	0.0002
		Exposure Point Total						9E-10					0.0002
	Exposure Medium Total							9E-10					0.0002
Medium Total								3E-06					0.07
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00003	--	--	0.00003
			Benzo(a)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	6E-07	--	1E-07	--	7E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	6E-08	--	1E-08	--	7E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000007	--	0.000001	0.000009
			Benzo(k)fluoranthene	5E-09	--	9E-10	--	6E-09	NA	--	--	--	--
			Chrysene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	7E-09	--	5E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Total Aroclors	2E-07	--	3E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	3E-06	--	1E-07	--	3E-06	Skin, CVS	0.05	--	0.002	0.05
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.007	--	--	0.007
			Chemical Total	4E-06	--	3E-07	--	4E-06		0.1	--	0.002	0.1
		Exposure Point Total						4E-06					0.1
	Exposure Medium Total							4E-06					0.1
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.001	--	0.001
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.004	--	0.004
			Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	- -	--	- -	--
			Chrysene	--	7E-14	--	--	7E-14	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	8E-14	--	--	8E-14	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00005	- -	0.00005
			Arsenic	--	4E-10	--	--	4E-10	NA	- -	0.00002	- -	0.00002
			Beryllium	--	3E-12	--	--	3E-12	Respiratory	- -	0.0000004	- -	0.0000004
			Chromium	--	7E-10	--	--	7E-10	Respiratory	- -	0.000004	- -	0.000004
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	- -	0.00004	- -	0.00004
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Manganese (Soil)	--	- -	--	--	- -	CNS	- -	0.0004	- -	0.0004
			Chemical Total	--	1E-09	--	--	1E-09		- -	0.006	- -	0.006
		Exposure Point Total						1E-09					0.006
	Exposure Medium Total							1E-09					0.006
Medium Total								4E-06					0.1
Receptor Total							Receptor Risk Total	2E-04				Receptor HI Total	0.4

Total Blood HI	0.07
Total Body Weight HI	0.0009
Total CNS HI	0.02
Total CVS HI	0.06
Total GS HI	0.05
Total Kidney HI	0.03
Total Liver HI	0.009
Total Skin HI	0.06
Total Respiratory HI	0.0001
Total None Reported HI	0.0003
Total Fetotoxicity HI	0.006
Total Bone HI	0.006

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	4E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	4E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000002	--	0.0000009	0.000003
			Benzo(k)fluoranthene	8E-10	--	3E-10	--	1E-09	NA	--	--	--	--
			Chrysene	1E-10	--	5E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	7E-09	--	2E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00001	--	0.000005	0.00002
			Indeno(1,2,3-cd)pyrene	5E-09	--	2E-09	--	6E-09	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.000004	--	0.000002	0.000006
			Phenanthrene	--	--	--	--	--	Kidney	0.00001	--	0.000006	0.00002
			Pyrene	--	--	--	--	--	Kidney	0.00002	--	0.000007	0.00002
			Total Aroclors	4E-09	--	2E-09	--	5E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0008	--	--	0.0008
			Antimony	--	--	--	--	--	Blood	0.00007	--	--	0.00007
			Arsenic	2E-07	--	2E-08	--	2E-07	Skin, CVS	0.005	--	0.0005	0.006
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Cadmium	--	--	--	--	--	Kidney	0.0002	--	0.00001	0.0002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.006	--	--	0.006
			Copper	--	--	--	--	--	GS	0.00008	--	--	0.00008
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0004	--	--	0.0004
			Vanadium	--	--	--	--	--	Kidney	0.0003	--	--	0.0003
			Chemical Total	4E-07	--	8E-08	--	4E-07		0.02	--	0.0005	0.02
		Exposure Point Total						4E-07					0.02
	Exposure Medium Total							4E-07					0.02
	Air	Exposed Area	Benzo(a)anthracene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(g,h,I)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Chrysene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Naphthalene	--	6E-10	--	--	6E-10	Respiratory	--	--	--	--

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-11	--	--	2E-11	NA	--	0.0000008	--	0.0000008
			Beryllium	--	2E-13	--	--	2E-13	Respiratory	--	0.00000002	--	0.00000002
			Cadmium	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Chromium	--	4E-11	--	--	4E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	4E-11	--	--	4E-11	Respiratory	--	0.000004	--	0.000004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	7E-10	--	--	7E-10		--	0.00002	--	0.00002
		Exposure Point Total						7E-10					0.00002
	Exposure Medium Total							7E-10					0.00002
Medium Total								4E-07					0.02
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.00008	--	0.00004	0.0001
			Anthracene	--	--	--	--	--	None Reported	0.00003	--	0.00001	0.00005
			Benzo(a)anthracene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	4E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0003	--	0.0001	0.0004
			Benzo(k)fluoranthene	8E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Chrysene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.001	--	0.0005	0.002
			Indeno(1,2,3-cd)pyrene	6E-07	--	2E-07	--	8E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0001	--	0.00005	0.0002
			Phenanthrene	--	--	--	--	--	Kidney	0.001	--	0.0005	0.002
			Pyrene	--	--	--	--	--	Kidney	0.001	--	0.0005	0.002
			Total Aroclors	6E-09	--	3E-09	--	9E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0009	--	--	0.0009
			Antimony	--	--	--	--	--	Blood	0.00009	--	--	0.00009
			Arsenic	1E-07	--	1E-08	--	2E-07	Skin, CVS	0.004	--	0.0004	0.004
			Beryllium	--	--	--	--	--	GS	0.00002	--	--	0.00002
			Cadmium	--	--	--	--	--	Kidney	0.0001	--	0.000008	0.0001

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.004	--	--	0.004
			Copper	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Iron	--	--	--	--	--	GS	0.004	--	--	0.004
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0008	--	--	0.0008
			Molybdenum	--	--	--	--	--	Gout	0.00004	--	--	0.00004
			Thallium	--	--	--	--	--	Blood	0.0002	--	--	0.0002
			Vanadium	--	--	--	--	--	Kidney	0.0003	--	--	0.0003
			Zinc	--	--	--	--	--	Blood	0.0002	--	--	0.0002
			Chemical Total	2E-05	--	6E-06	--	2E-05		0.02	--	0.002	0.02
		Exposure Point Total						2E-05					0.02
	Exposure Medium Total							2E-05					0.02
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Chrysene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Naphthalene	--	2E-08	--	--	2E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.0000006	--	0.0000006
			Beryllium	--	2E-13	--	--	2E-13	Respiratory	--	0.00000003	--	0.00000003
			Cadmium	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chromium	--	4E-11	--	--	4E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000003	--	0.000003

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-08	--	--	2E-08		--	0.00002	--	0.00002
		Exposure Point Total						2E-08					0.00002
	Exposure Medium Total							2E-08					0.00002
Medium Total								2E-05					0.02
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	4E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000001	--	0.0000005	0.000002
			Benzo(k)fluoranthene	5E-10	--	2E-10	--	6E-10	NA	--	--	--	--
			Chrysene	6E-11	--	3E-11	--	9E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-09	--	2E-09	--	7E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0007	--	--	0.0007
			Arsenic	2E-07	--	2E-08	--	2E-07	Skin, CVS	0.004	--	0.0004	0.004
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0003	--	--	0.0003
			Cobalt	--	--	--	--	--	Blood	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Manganese (Soil)	--	--	--	--	--	CNS	0.0004	--	--	0.0004
			Chemical Total	3E-07	--	7E-08	--	4E-07		0.01	--	0.0004	0.01
		Exposure Point Total						4E-07					0.01
	Exposure Medium Total							4E-07					0.01
	Air	Paved Area	Benzo(a)anthracene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Chrysene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.0000006	--	0.0000006
			Beryllium	--	2E-13	--	--	2E-13	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	3E-11	--	--	3E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000008	--	0.000008
			Chemical Total	--	7E-11	--	--	7E-11		--	0.00001	--	0.00001
		Exposure Point Total						7E-11					0.00001
	Exposure Medium Total							7E-11					0.00001
Medium Total								4E-07					0.01
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.000005	--	--	0.000005
			Benzo(a)anthracene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	6E-08	--	2E-08	--	8E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-09	--	3E-09	--	9E-09	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000001	--	0.0000005	0.000002
			Benzo(k)fluoranthene	5E-10	--	2E-10	--	8E-10	NA	--	--	--	--
			Chrysene	1E-10	--	5E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-09	--	2E-09	--	6E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	5E-10	--	2E-09	NA	--	--	--	--
			Total Aroclors	2E-08	--	8E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0008	--	--	0.0008
			Arsenic	3E-07	--	3E-08	--	3E-07	Skin, CVS	0.008	--	0.0007	0.008
			Beryllium	--	--	--	--	--	GS	0.00002	--	--	0.00002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0005	--	--	0.0005
			Cobalt	--	--	--	--	--	Blood	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Chemical Total	4E-07	--	7E-08	--	5E-07		0.02	--	0.0007	0.02
		Exposure Point Total						5E-07					0.02
	Exposure Medium Total							5E-07					0.02
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.00008	--	0.00008
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Benzo(a)anthracene	--	5E-14	--	--	5E-14	NA	--	--	--	--

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Chrysene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-15	--	--	6E-15	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Arsenic	--	3E-11	--	--	3E-11	NA	--	0.000001	--	0.000001
			Beryllium	--	2E-13	--	--	2E-13	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	5E-11	--	--	5E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Chemical Total	--	1E-10	--	--	1E-10		--	0.0003	--	0.0003
		Exposure Point Total						1E-10					0.0003
	Exposure Medium Total							1E-10					0.0003
Medium Total								5E-07					0.02
Surface Water	Surface Water	Site 08	Dieldrin	--	--	7E-09	--	7E-09	Liver	--	--	0.0001	0.0001
			Aluminum	--	--	--	--	--	CNS	--	--	0.0000003	0.0000003
			Arsenic	--	--	9E-10	--	9E-10	Skin, CVS	--	--	0.00002	0.00002
			Cobalt	--	--	--	--	--	Blood	--	--	0.000010	0.000010
			Iron	--	--	--	--	--	GS	--	--	0.000002	0.000002
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.0004	0.0004
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	--	--	--	--
			Chemical Total	--	--	8E-09	--	8E-09		--	--	0.0006	0.0006
		Exposure Point Total						8E-09					0.0006
	Exposure Medium Total							8E-09					0.0006
Medium Total								8E-09					0.0006

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(a)anthracene	6E-09	--	6E-08	--	6E-08	NA	--	--	--	--
			Benzo(a)pyrene	5E-08	--	5E-07	--	5E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-09	--	5E-08	--	5E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000002	--	0.00002	0.00002
			Benzo(k)fluoranthene	4E-10	--	4E-09	--	5E-09	NA	--	--	--	--
			Chrysene	6E-11	--	6E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-09	--	6E-08	--	7E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	3E-08	--	3E-08	NA	--	--	--	--
			Dieldrin	2E-09	--	2E-08	--	2E-08	Liver	0.00004	--	0.0003	0.0003
			Total Aroclors	5E-09	--	6E-08	--	6E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0009	--	--	0.0009
			Arsenic	1E-07	--	3E-07	--	4E-07	Skin, CVS	0.003	--	0.008	0.01
			Beryllium	--	--	--	--	--	GS	0.00002	--	--	0.00002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Vanadium	--	--	--	--	--	Kidney	0.0004	--	--	0.0004
			Chemical Total	2E-07	--	1E-06	--	1E-06		0.03	--	0.008	0.04
		Exposure Point Total						1E-06					0.04
	Exposure Medium Total							1E-06					0.04
Medium Total								1E-06					0.04
Receptor Total							Receptor Risk Total	2E-05				Receptor HI Total	0.1

Total Blood HI	0.04
Total Body Weight HI	0.0002
Total CNS HI	0.009
Total CVS HI	0.03
Total GS HI	0.02
Total Kidney HI	0.005
Total Liver HI	0.002
Total Skin HI	0.03
Total Respiratory HI	0.000012
Total None Reported HI	0.00005
Total Fetotoxicity HI	0.002
Total Bone HI	0.002

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-08	--	3E-08	--	6E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000004	0.00002
			Benzo(k)fluoranthene	2E-09	--	2E-09	--	3E-09	NA	--	--	--	--
			Chrysene	3E-10	--	2E-10	--	5E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	3E-08	--	7E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00008	--	0.00002	0.0001
			Indeno(1,2,3-cd)pyrene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00003	--	0.000008	0.00003
			Phenanthrene	--	--	--	--	--	Kidney	0.00010	--	0.00003	0.0001
			Pyrene	--	--	--	--	--	Kidney	0.0001	--	0.00003	0.0001
			Total Aroclors	8E-09	--	8E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Antimony	--	--	--	--	--	Blood	0.0005	--	--	0.0005
			Arsenic	4E-07	--	9E-08	--	5E-07	Skin, CVS	0.03	--	0.002	0.04
			Beryllium	--	--	--	--	--	GS	0.00010	--	--	0.00010
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00006	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Chemical Total	8E-07	--	4E-07	--	1E-06		0.1	--	0.003	0.1
		Exposure Point Total						1E-06					0.1
	Exposure Medium Total							1E-06					0.1
	Air	Exposed Area	Benzo(a)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-15	--	--	6E-15	NA	--	--	--	--
			Chrysene	--	9E-16	--	--	9E-16	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Naphthalene	--	1E-10	--	--	1E-10	Respiratory	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	3E-12	--	--	3E-12	NA	--	0.0000008	--	0.0000008
			Beryllium	--	3E-14	--	--	3E-14	Respiratory	--	0.00000002	--	0.00000002
			Cadmium	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Chromium	--	7E-12	--	--	7E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	7E-12	--	--	7E-12	Respiratory	--	0.000004	--	0.000004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-10	--	--	1E-10		--	0.00002	--	0.00002
		Exposure Point Total						1E-10					0.00002
	Exposure Medium Total							1E-10					0.00002
Medium Total								1E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0006	--	0.0002	0.0007
			Anthracene	--	--	--	--	--	None Reported	0.0002	--	0.00007	0.0003
			Benzo(a)anthracene	3E-06	--	3E-06	--	5E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-05	--	2E-05	--	4E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	2E-06	--	4E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.002	--	0.0006	0.003
			Benzo(k)fluoranthene	2E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Chrysene	2E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-06	--	4E-06	--	9E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.008	--	0.002	0.01
			Indeno(1,2,3-cd)pyrene	1E-06	--	1E-06	--	2E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0008	--	0.0002	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.008	--	0.002	0.01
			Pyrene	--	--	--	--	--	Kidney	0.008	--	0.003	0.01
			Total Aroclors	1E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0006	--	--	0.0006
			Arsenic	3E-07	--	7E-08	--	4E-07	Skin, CVS	0.03	--	0.002	0.03
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Cadmium	--	--	--	--	--	Kidney	0.0008	--	0.00004	0.0008

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.005	--	--	0.005
			Molybdenum	--	--	--	--	--	Gout	0.0003	--	--	0.0003
			Thallium	--	--	--	--	--	Blood	0.001	--	--	0.001
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Zinc	--	--	--	--	--	Blood	0.001	--	--	0.001
			Chemical Total	3E-05	--	3E-05	--	6E-05		0.1	--	0.01	0.1
		Exposure Point Total						6E-05					0.1
	Exposure Medium Total							6E-05					0.1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Chrysene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Naphthalene	--	3E-09	--	--	3E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-12	--	--	2E-12	NA	--	0.0000006	--	0.0000006
			Beryllium	--	4E-14	--	--	4E-14	Respiratory	--	0.00000003	--	0.00000003
			Cadmium	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Chromium	--	7E-12	--	--	7E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	4E-12	--	--	4E-12	Respiratory	--	0.000003	--	0.000003

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-09	--	--	3E-09		--	0.00002	--	0.00002
		Exposure Point Total						3E-09					0.00002
	Exposure Medium Total							3E-09					0.00002
Medium Total								6E-05					0.0
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.000002	0.00001
			Benzo(k)fluoranthene	1E-09	--	9E-10	--	2E-09	NA	--	--	--	--
			Chrysene	1E-10	--	1E-10	--	3E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	1E-08	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	3E-07	--	7E-08	--	4E-07	Skin, CVS	0.03	--	0.002	0.03
			Beryllium	--	--	--	--	--	GS	0.00009	--	--	0.00009
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	6E-07	--	3E-07	--	1E-06		0.07	--	0.002	0.07
		Exposure Point Total						1E-06					0.07
	Exposure Medium Total							1E-06					0.07
	Air	Paved Area	Benzo(a)anthracene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	9E-15	--	--	9E-15	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Chrysene	--	5E-16	--	--	5E-16	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-15	--	--	5E-15	NA	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	4E-15	--	--	4E-15	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Arsenic	--	2E-12	--	--	2E-12	NA	--	0.0000006	--	0.0000006
			Beryllium	--	3E-14	--	--	3E-14	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	5E-12	--	--	5E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	3E-12	--	--	3E-12	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000008	--	0.000008
			Chemical Total	--	1E-11	--	--	1E-11		--	0.00001	--	0.00001
		Exposure Point Total						1E-11					0.00001
	Exposure Medium Total							1E-11					0.00001
Medium Total								1E-06					0.07
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00003	--	--	0.00003
			Benzo(a)anthracene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	1E-07	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.000002	0.000010
			Benzo(k)fluoranthene	1E-09	--	1E-09	--	2E-09	NA	--	--	--	--
			Chrysene	3E-10	--	2E-10	--	5E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	3E-09	--	6E-09	NA	--	--	--	--
			Total Aroclors	4E-08	--	4E-08	--	7E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Arsenic	7E-07	--	1E-07	--	8E-07	Skin, CVS	0.05	--	0.004	0.05
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.007	--	--	0.007
			Chemical Total	9E-07	--	3E-07	--	1E-06		0.1	--	0.004	0.1
		Exposure Point Total						1E-06					0.1
	Exposure Medium Total							1E-06					0.1
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.00008	--	0.00008
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Benzo(a)anthracene	--	9E-15	--	--	9E-15	NA	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-15	--	--	4E-15	NA	--	--	--	--
			Chrysene	--	9E-16	--	--	9E-16	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-15	--	--	4E-15	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-15	--	--	1E-15	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Arsenic	--	4E-12	--	--	4E-12	NA	--	0.000001	--	0.000001
			Beryllium	--	3E-14	--	--	3E-14	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	8E-12	--	--	8E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	3E-12	--	--	3E-12	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Chemical Total	--	2E-11	--	--	2E-11		--	0.0003	--	0.0003
		Exposure Point Total						2E-11					0.0003
	Exposure Medium Total							2E-11					0.0003
Medium Total								1E-06					0.1
Surface Water	Surface Water	Site 08	Dieldrin	--	--	5E-09	--	5E-09	Liver	--	--	0.0002	0.0002
			Aluminum	--	--	--	--	--	CNS	--	--	0.0000006	0.0000006
			Arsenic	--	--	7E-10	--	7E-10	Skin, CVS	--	--	0.00006	0.00006
			Cobalt	--	--	--	--	--	Blood	--	--	0.00002	0.00002
			Iron	--	--	--	--	--	GS	--	--	0.000005	0.000005
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.0010	0.0010
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	--	--	--	--
			Chemical Total	--	--	6E-09	--	6E-09		--	--	0.001	0.001
		Exposure Point Total						6E-09					0.001
	Exposure Medium Total							6E-09					0.001
Medium Total								6E-09					0.001
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Benzo(k)fluoranthene	9E-10	--	1E-10	--	1E-09	NA	--	--	--	--
			Chrysene	1E-10	--	2E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-09	--	9E-10	--	7E-09	NA	--	--	--	--
			Dieldrin	5E-09	--	6E-10	--	6E-09	Liver	0.0002	--	0.00003	0.0003
			Total Aroclors	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Arsenic	3E-07	--	1E-08	--	3E-07	Skin, CVS	0.02	--	0.0007	0.02
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.1	--	--	0.1
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.008	--	--	0.008
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Chemical Total	4E-07	--	3E-08	--	5E-07		0.2	--	0.0008	0.2
		Exposure Point Total						5E-07					0.2
	Exposure Medium Total							5E-07					0.2
Medium Total								5E-07					0.2
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-07	--	--	--	2E-07	NA	--	--	--	--
			4,4'-DDT	6E-09	--	--	--	6E-09	Liver	0.001	--	--	0.001
			Aldrin	3E-08	--	--	--	3E-08	Liver	0.002	--	--	0.002
			Dieldrin	5E-07	--	--	--	5E-07	Liver	0.02	--	--	0.02
			Total Aroclors	1E-06	--	--	--	1E-06	NA	--	--	--	--
			Arsenic	6E-09	--	--	--	6E-09	Skin, CVS	0.00	--	--	0.00
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Mercury	--	--	--	--	--	Autoimmune	0.010	--	--	0.010
			Chemical Total	2E-06	--	--	--	2E-06		0.07	--	--	0.07
		Exposure Point Total						2E-06					0.07
	Exposure Medium Total							2E-06					0.07
Medium Total								2E-06					0.07
Receptor Total							Receptor Risk Total	7E-05				Receptor HI Total	0.4

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	0.2
Total Body Weight HI	0.001
Total CNS HI	0.05
Total CVS HI	0.2
Total GS HI	0.1
Total Kidney HI	0.03
Total Liver HI	0.04
Total Skin HI	0.2
Total Respiratory HI	0.00001
Total None Reported HI	0.0003
Total Fetotoxicity HI	0.05
Total Bone HI	0.05

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	8E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000002	--	0.0000002	0.000002
			Benzo(k)fluoranthene	6E-10	--	1E-10	--	7E-10	NA	--	--	--	--
			Chrysene	1E-10	--	1E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.000009	--	0.000001	0.000010
			Indeno(1,2,3-cd)pyrene	4E-09	--	6E-10	--	4E-09	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.000003	--	0.0000004	0.000003
			Phenanthrene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Pyrene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Total Aroclors	3E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0006	--	--	0.0006
			Antimony	--	--	--	--	--	Blood	0.00005	--	--	0.00005
			Arsenic	2E-07	--	6E-09	--	2E-07	Skin, CVS	0.004	--	0.0001	0.004
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Cadmium	--	--	--	--	--	Kidney	0.0001	--	0.000003	0.0001
			Chromium	--	--	--	--	--	Felotoxicity, GS, Bone	0.0003	--	--	0.0003
			Cobalt	--	--	--	--	--	Blood	0.004	--	--	0.004
			Copper	--	--	--	--	--	GS	0.00006	--	--	0.00006
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0003	--	--	0.0003
			Vanadium	--	--	--	--	--	Kidney	0.0002	--	--	0.0002
			Chemical Total	3E-07	--	2E-08	--	3E-07		0.01	--	0.0001	0.01
		Exposure Point Total						3E-07					0.01
	Exposure Medium Total							3E-07					0.01
	Air	Exposed Area	Benzo(a)anthracene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Chrysene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Naphthalene	--	3E-10	--	--	3E-10	Respiratory	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.0000008	--	0.0000008
			Beryllium	--	1E-13	--	--	1E-13	Respiratory	--	0.00000002	--	0.00000002
			Cadmium	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chromium	--	2E-11	--	--	2E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000004	--	0.000004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-10	--	--	4E-10		--	0.00002	--	0.00002
		Exposure Point Total						4E-10					0.00002
	Exposure Medium Total							4E-10					0.00002
Medium Total								3E-07					0.01
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.00006	--	0.000009	0.00007
			Anthracene	--	--	--	--	--	None Reported	0.00002	--	0.000004	0.00003
			Benzo(a)anthracene	1E-06	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	8E-06	--	1E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	1E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0002	--	0.00003	0.0002
			Benzo(k)fluoranthene	7E-08	--	1E-08	--	8E-08	NA	--	--	--	--
			Chrysene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0008	--	0.0001	0.0010
			Indeno(1,2,3-cd)pyrene	5E-07	--	7E-08	--	5E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00008	--	0.00001	0.00009
			Phenanthrene	--	--	--	--	--	Kidney	0.0009	--	0.0001	0.001
			Pyrene	--	--	--	--	--	Kidney	0.0009	--	0.0001	0.001
			Total Aroclors	5E-09	--	8E-10	--	6E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0006	--	--	0.0006
			Antimony	--	--	--	--	--	Blood	0.00007	--	--	0.00007
			Arsenic	1E-07	--	4E-09	--	1E-07	Skin, CVS	0.003	--	0.00009	0.003
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Cadmium	--	--	--	--	--	Kidney	0.00009	--	0.000002	0.00009

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0003	--	--	0.0003
			Cobalt	--	--	--	--	--	Blood	0.003	--	--	0.003
			Copper	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0005	--	--	0.0005
			Molybdenum	--	--	--	--	--	Gout	0.00003	--	--	0.00003
			Thallium	--	--	--	--	--	Blood	0.0001	--	--	0.0001
			Vanadium	--	--	--	--	--	Kidney	0.0002	--	--	0.0002
			Zinc	--	--	--	--	--	Blood	0.0001	--	--	0.0001
			Chemical Total	1E-05	--	2E-06	--	1E-05		0.01	--	0.0005	0.01
		Exposure Point Total						1E-05					0.01
	Exposure Medium Total							1E-05					0.01
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chrysene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Naphthalene	--	1E-08	--	--	1E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	8E-12	--	--	8E-12	NA	--	0.0000006	--	0.0000006
			Beryllium	--	1E-13	--	--	1E-13	Respiratory	--	0.00000003	--	0.00000003
			Cadmium	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chromium	--	2E-11	--	--	2E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	1E-11	--	--	1E-11	Respiratory	--	0.000003	--	0.000003

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-08	--	--	1E-08		--	0.00002	--	0.00002
		Exposure Point Total						1E-08					0.00002
	Exposure Medium Total							1E-08					0.00002
Medium Total								1E-05					0.01
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	8E-08	--	1E-08	--	9E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0000009	--	0.0000001	0.0000010
			Benzo(k)fluoranthene	4E-10	--	6E-11	--	4E-10	NA	--	--	--	--
			Chrysene	5E-11	--	8E-12	--	6E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-09	--	7E-10	--	6E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-09	--	6E-10	--	4E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0005	--	--	0.0005
			Arsenic	1E-07	--	4E-09	--	1E-07	Skin, CVS	0.003	--	0.00010	0.003
			Beryllium	--	--	--	--	--	GS	0.000009	--	--	0.000009
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0002	--	--	0.0002
			Cobalt	--	--	--	--	--	Blood	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Manganese (Soil)	--	--	--	--	--	CNS	0.0003	--	--	0.0003
			Chemical Total	2E-07	--	2E-08	--	3E-07		0.008	--	0.00010	0.008
		Exposure Point Total						3E-07					0.008
	Exposure Medium Total							3E-07					0.008
	Air	Paved Area	Benzo(a)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Chrysene	--	2E-15	--	--	2E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14	NA	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Arsenic	--	8E-12	--	--	8E-12	NA	--	0.0000006	--	0.0000006
			Beryllium	--	9E-14	--	--	9E-14	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	2E-11	--	--	2E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	1E-11	--	--	1E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000008	--	0.000008
			Chemical Total	--	4E-11	--	--	4E-11		--	0.00001	--	0.00001
		Exposure Point Total						4E-11					0.00001
	Exposure Medium Total							4E-11					0.00001
Medium Total								3E-07					0.008
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.000003	--	--	0.000003
			Benzo(a)anthracene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	5E-08	--	7E-09	--	6E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-09	--	8E-10	--	6E-09	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0000008	--	0.0000001	0.0000009
			Benzo(k)fluoranthene	4E-10	--	7E-11	--	5E-10	NA	--	--	--	--
			Chrysene	9E-11	--	1E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Total Aroclors	1E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0006	--	--	0.0006
			Arsenic	2E-07	--	8E-09	--	3E-07	Skin, CVS	0.005	--	0.0002	0.006
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0007	--	--	0.0007
			Chemical Total	3E-07	--	2E-08	--	3E-07		0.01	--	0.0002	0.01
		Exposure Point Total						3E-07					0.01
	Exposure Medium Total							3E-07					0.01
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.00008	--	0.00008
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Benzo(a)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Chrysene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.000001	--	0.000001
			Beryllium	--	1E-13	--	--	1E-13	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	3E-11	--	--	3E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	1E-11	--	--	1E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Chemical Total	--	6E-11	--	--	6E-11		--	0.0003	--	0.0003
		Exposure Point Total						6E-11					0.0003
	Exposure Medium Total							6E-11					0.0003
Medium Total								3E-07					0.01
Surface Water	Surface Water	Site 08	Dieldrin	--	--	1E-08	--	1E-08	Liver	--	--	0.0001	0.0001
			Aluminum	--	--	--	--	--	CNS	--	--	0.0000003	0.0000003
			Arsenic	--	--	1E-09	--	1E-09	Skin, CVS	--	--	0.00003	0.00003
			Cobalt	--	--	--	--	--	Blood	--	--	0.00001	0.00001
			Iron	--	--	--	--	--	GS	--	--	0.000003	0.000003
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.0005	0.0005
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	--	--	--	--
			Chemical Total	--	--	1E-08	--	1E-08		--	--	0.0007	0.0007
		Exposure Point Total						1E-08					0.0007
	Exposure Medium Total							1E-08					0.0007
Medium Total								1E-08					0.0007
Sediment	Sediment	Site 08	Benzo(a)anthracene	5E-09	--	3E-09	--	8E-09	NA	--	--	--	--
			Benzo(a)pyrene	4E-08	--	3E-08	--	7E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-09	--	3E-09	--	6E-09	NA	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.000001	- -	0.0000009	0.000002
			Benzo(k)fluoranthene	3E-10	--	2E-10	--	6E-10	NA	--	- -	--	--
			Chrysene	5E-11	--	3E-11	--	8E-11	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	5E-09	--	3E-09	--	8E-09	NA	--	- -	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	2E-09	--	4E-09	NA	--	- -	--	--
			Dieldrin	2E-09	--	1E-09	--	3E-09	Liver	0.00003	- -	0.00001	0.00004
			Total Aroclors	4E-09	--	3E-09	--	8E-09	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0006	- -	--	0.0006
			Arsenic	1E-07	--	2E-08	--	1E-07	Skin, CVS	0.002	- -	0.0004	0.003
			Beryllium	- -	--	- -	--	- -	GS	0.00001	- -	--	0.00001
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.0003	- -	--	0.0003
			Cobalt	- -	--	- -	--	- -	Blood	0.01	- -	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.002	- -	--	0.002
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.0008	- -	--	0.0008
			Vanadium	- -	--	- -	--	- -	Kidney	0.0003	- -	--	0.0003
			Chemical Total	2E-07	--	6E-08	--	2E-07		0.02	- -	0.0004	0.02
		Exposure Point Total						2E-07					0.02
	Exposure Medium Total							2E-07					0.02
Medium Total								2E-07					0.02
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-06	--	- -	--	2E-06	NA	--	- -	- -	--
			4,4'-DDT	6E-08	--	- -	--	6E-08	Liver	0.004	- -	- -	0.004
			Aldrin	3E-07	--	- -	--	3E-07	Liver	0.006	- -	- -	0.006
			Dieldrin	5E-06	--	- -	--	5E-06	Liver	0.07	- -	- -	0.07
			Total Aroclors	1E-05	--	- -	--	1E-05	NA	--	- -	- -	--
			Arsenic	7E-08	--	- -	--	7E-08	Skin, CVS	0.00	- -	- -	0.00
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.10	- -	- -	0.10
			Mercury	- -	--	- -	--	- -	Autoimmune	0.03	- -	- -	0.03
			Chemical Total	2E-05	--	- -	--	2E-05		0.2	- -	- -	0.2
		Exposure Point Total						2E-05					0.2
	Exposure Medium Total							2E-05					0.2
Medium Total								2E-05					0.2
Receptor Total							Receptor Risk Total	3E-05				Receptor HI Total	0.3

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	0.03
Total Body Weight HI	0.0001
Total CNS HI	0.006
Total CVS HI	0.02
Total GS HI	0.1
Total Kidney HI	0.003
Total Liver HI	0.08
Total Liver HI	0.08
Total Respiratory HI	0.00001
Total Skin HI	0.02
Total None Reported HI	0.00003
Total Fetotoxicity HI	0.1
Total Bone HI	0.1

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	4E-08	--	3E-08	--	7E-08					
			Benzo(a)pyrene	3E-07	--	2E-07	--	5E-07					
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	5E-08					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	2E-09	--	2E-09	--	4E-09					
			Chrysene	4E-10	--	3E-10	--	6E-10					
			Dibenzo(a,h)anthracene	5E-08	--	4E-08	--	9E-08					
			Fluoranthene	- -	--	- -	--	- -					
			Indeno(1,2,3-cd)pyrene	1E-08	--	1E-08	--	2E-08					
			Naphthalene	- -	--	- -	--	- -					
			Phenanthrene	- -	--	- -	--	- -					
			Pyrene	- -	--	- -	--	- -					
			Total Aroclors	1E-08	--	9E-09	--	2E-08					
			Aluminum	- -	--	- -	--	- -					
			Antimony	- -	--	- -	--	- -					
			Arsenic	6E-07	--	1E-07	--	7E-07					
			Beryllium	- -	--	- -	--	- -					
			Cadmium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Copper	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	1E-06	--	4E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	Exposed Area	Benzo(a)anthracene	--	5E-14	--	--	5E-14					
			Benzo(a)pyrene	--	3E-13	--	--	3E-13					
			Benzo(b)fluoranthene	--	4E-14	--	--	4E-14					
			Benzo(g,h,i)perylene	--	- -	--	--	- -					
			Benzo(k)fluoranthene	--	3E-14	--	--	3E-14					
			Chrysene	--	4E-15	--	--	4E-15					
			Dibenzo(a,h)anthracene	--	6E-14	--	--	6E-14					
			Fluoranthene	--	- -	--	--	- -					
			Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14					
			Naphthalene	--	4E-10	--	--	4E-10					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	1E-11	--	--	1E-11					
			Beryllium	--	1E-13	--	--	1E-13					
			Cadmium	--	3E-13	--	--	3E-13					
			Chromium	--	3E-11	--	--	3E-11					
			Cobalt	--	3E-11	--	--	3E-11					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	--	5E-10	--	--	5E-10					
		Exposure Point Total						5E-10					
	Exposure Medium Total							5E-10					
Medium Total								1E-06					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	4E-06	--	3E-06	--	6E-06					
			Benzo(a)pyrene	3E-05	--	2E-05	--	5E-05					
			Benzo(b)fluoranthene	3E-06	--	2E-06	--	4E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	3E-07	--	2E-07	--	4E-07					
			Chrysene	3E-08	--	2E-08	--	6E-08					
			Dibenzo(a,h)anthracene	7E-06	--	5E-06	--	1E-05					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	2E-06	--	1E-06	--	3E-06					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	2E-08	--	1E-08	--	3E-08					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	5E-07	--	7E-08	--	5E-07					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	5E-05	--	3E-05	--	8E-05					
		Exposure Point Total						8E-05					
	Exposure Medium Total							8E-05					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	4E-12	--	--	4E-12					
			Benzo(a)pyrene	--	3E-11	--	--	3E-11					
			Benzo(b)fluoranthene	--	3E-12	--	--	3E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	3E-12	--	--	3E-12					
			Chrysene	--	4E-13	--	--	4E-13					
			Dibenzo(a,h)anthracene	--	8E-12	--	--	8E-12					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12					
			Naphthalene	--	1E-08	--	--	1E-08					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	1E-11	--	--	1E-11					
			Beryllium	--	2E-13	--	--	2E-13					
			Cadmium	--	2E-13	--	--	2E-13					
			Chromium	--	3E-11	--	--	3E-11					
			Cobalt	--	2E-11	--	--	2E-11					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	1E-08	--	--	1E-08					
		Exposure Point Total						1E-08					
	Exposure Medium Total							1E-08					
Medium Total								8E-05					
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	3E-08	--	2E-08	--	6E-08					
			Benzo(a)pyrene	3E-07	--	2E-07	--	5E-07					
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	6E-08					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-09	--	1E-09	--	2E-09					
			Chrysene	2E-10	--	1E-10	--	3E-10					
			Dibenzo(a,h)anthracene	2E-08	--	1E-08	--	3E-08					
			Indeno(1,2,3-cd)pyrene	1E-08	--	1E-08	--	2E-08					
			Aluminum	--	--	--	--	--					
			Arsenic	5E-07	--	8E-08	--	6E-07					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	9E-07	--	4E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	Paved Area	Benzo(a)anthracene	--	4E-14	--	--	4E-14					
			Benzo(a)pyrene	--	3E-13	--	--	3E-13					
			Benzo(b)fluoranthene	--	4E-14	--	--	4E-14					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14					
			Chrysene	--	2E-15	--	--	2E-15					
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	1E-11	--	--	1E-11					
			Beryllium	--	1E-13	--	--	1E-13					
			Chromium	--	2E-11	--	--	2E-11					
			Cobalt	--	1E-11	--	--	1E-11					
			Iron	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	5E-11	--	--	5E-11					
		Exposure Point Total						5E-11					
	Exposure Medium Total							5E-11					
Medium Total								1E-06					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	- -	--	- -	--	- -					
			1,3,5-Trimethylbenzene	- -	--	- -	--	- -					
			Benzo(a)anthracene	4E-08	--	2E-08	--	6E-08					
			Benzo(a)pyrene	2E-07	--	1E-07	--	3E-07					
			Benzo(b)fluoranthene	2E-08	--	1E-08	--	3E-08					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	2E-09	--	1E-09	--	3E-09					
			Chrysene	3E-10	--	2E-10	--	6E-10					
			Dibenzo(a,h)anthracene	1E-08	--	1E-08	--	2E-08					
			Indeno(1,2,3-cd)pyrene	4E-09	--	3E-09	--	7E-09					
			Total Aroclors	5E-08	--	4E-08	--	9E-08					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	9E-07	--	1E-07	--	1E-06					
			Beryllium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Chemical Total	1E-06	--	4E-07	--	2E-06					
		Exposure Point Total						2E-06					
	Exposure Medium Total							2E-06					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	- -	--	--	- -					
			1,3,5-Trimethylbenzene	--	- -	--	--	- -					
			Benzo(a)anthracene	--	4E-14	--	--	4E-14					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(a)pyrene	--	2E-13	--	--	2E-13					
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14					
			Chrysene	--	4E-15	--	--	4E-15					
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14					
			Indeno(1,2,3-cd)pyrene	--	4E-15	--	--	4E-15					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Arsenic	--	2E-11	--	--	2E-11					
			Beryllium	--	1E-13	--	--	1E-13					
			Chromium	--	4E-11	--	--	4E-11					
			Cobalt	--	2E-11	--	--	2E-11					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	7E-11	--	--	7E-11					
		Exposure Point Total						7E-11					
	Exposure Medium Total							7E-11					
Medium Total								2E-06					
Surface Water	Surface Water	Site 08	Dieldrin	--	--	2E-08	--	2E-08					
			Aluminum	--	--	--	--	--					
			Arsenic	--	--	2E-09	--	2E-09					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Chemical Total	--	--	2E-08	--	2E-08					
		Exposure Point Total						2E-08					
	Exposure Medium Total							2E-08					
Medium Total								2E-08					
Sediment	Sediment	Site 08	Benzo(a)anthracene	2E-08	--	5E-09	--	2E-08					
			Benzo(a)pyrene	1E-07	--	4E-08	--	2E-07					
			Benzo(b)fluoranthene	1E-08	--	4E-09	--	2E-08					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	1E-09	--	4E-10	--	2E-09					
			Chrysene	2E-10	--	5E-11	--	2E-10					
			Dibenzo(a,h)anthracene	2E-08	--	5E-09	--	2E-08					
			Indeno(1,2,3-cd)pyrene	9E-09	--	3E-09	--	1E-08					
			Dieldrin	7E-09	--	2E-09	--	9E-09					
			Total Aroclors	2E-08	--	5E-09	--	2E-08					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	4E-07	--	3E-08	--	4E-07					
			Beryllium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	6E-07	--	9E-08	--	7E-07					
		Exposure Point Total						7E-07					
	Exposure Medium Total							7E-07					
Medium Total								7E-07					
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-06	--	- -	--	2E-06					
			4,4'-DDT	6E-08	--	- -	--	6E-08					
			Aldrin	3E-07	--	- -	--	3E-07					
			Dieldrin	5E-06	--	- -	--	5E-06					
			Total Aroclors	1E-05	--	- -	--	1E-05					
			Arsenic	7E-08	--	- -	--	7E-08					
			Chromium	- -	--	- -	--	- -					
			Mercury	- -	--	- -	--	- -					
			Chemical Total	2E-05	--	- -	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
Medium Total								2E-05					
Receptor Total							Receptor Risk Total	1E-04					

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-07	--	4E-08	--	3E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	3E-08	--	3E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0002
			Benzo(k)fluoranthene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Chrysene	3E-09	--	4E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-07	--	5E-08	--	4E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0008	--	0.0001	0.0009
			Indeno(1,2,3-cd)pyrene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0003	--	0.00004	0.0003
			Phenanthrene	--	--	--	--	--	Kidney	0.0009	--	0.0001	0.001
			Pyrene	--	--	--	--	--	Kidney	0.001	--	0.0001	0.001
			Total Aroclors	8E-08	--	1E-08	--	9E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.05	--	--	0.05
			Antimony	--	--	--	--	--	Blood	0.005	--	--	0.005
			Arsenic	4E-06	--	1E-07	--	5E-06	Skin, CVS	0.3	--	0.01	0.4
			Beryllium	--	--	--	--	--	GS	0.0009	--	--	0.0009
			Cadmium	--	--	--	--	--	Kidney	0.01	--	0.0003	0.01
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Cobalt	--	--	--	--	--	Blood	0.4	--	--	0.4
			Copper	--	--	--	--	--	GS	0.005	--	--	0.005
			Iron	--	--	--	--	--	GS	0.2	--	--	0.2
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.03	--	--	0.03
			Vanadium	--	--	--	--	--	Kidney	0.02	--	--	0.02
			Chemical Total	8E-06	--	6E-07	--	8E-06		1	--	0.01	1
		Exposure Point Total						8E-06					1
	Exposure Medium Total							8E-06					1
	Air	Exposed Area	Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Naphthalene	--	6E-09	--	--	6E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.000001	--	0.000001
			Cadmium	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	4E-10	--	--	4E-10	Respiratory	--	0.0003	--	0.0003
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	7E-09	--	--	7E-09		--	0.0010	--	0.0010
		Exposure Point Total						7E-09					0.0010
	Exposure Medium Total							7E-09					0.0010
Medium Total								8E-06					1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.005	--	0.0008	0.006
			Anthracene	--	--	--	--	--	None Reported	0.002	--	0.0003	0.002
			Benzo(a)anthracene	3E-05	--	4E-06	--	3E-05	NA	--	--	--	--
			Benzo(a)pyrene	2E-04	--	3E-05	--	2E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.02	--	0.003	0.02
			Benzo(k)fluoranthene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Chrysene	2E-07	--	3E-08	--	3E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-05	--	7E-06	--	5E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.08	--	0.01	0.09
			Indeno(1,2,3-cd)pyrene	1E-05	--	2E-06	--	1E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.008	--	0.001	0.009
			Phenanthrene	--	--	--	--	--	Kidney	0.08	--	0.01	0.09
			Pyrene	--	--	--	--	--	Kidney	0.08	--	0.01	0.09
			Total Aroclors	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.06	--	--	0.06
			Antimony	--	--	--	--	--	Blood	0.006	--	--	0.006
			Arsenic	3E-06	--	1E-07	--	3E-06	Skin, CVS	0.3	--	0.008	0.3
			Beryllium	--	--	--	--	--	GS	0.001	--	--	0.001
			Cadmium	--	--	--	--	--	Kidney	0.008	--	0.0002	0.008
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Copper	--	--	--	--	--	GS	0.03	--	--	0.03
			Iron	--	--	--	--	--	GS	0.3	--	--	0.3
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	0.05	--	--	0.05
			Molybdenum	--	--	--	--	--	Gout	0.003	--	--	0.003
			Thallium	--	--	--	--	--	Blood	0.010	--	--	0.010
			Vanadium	--	--	--	--	--	Kidney	0.02	--	--	0.02
			Zinc	--	--	--	--	--	Blood	0.01	--	--	0.01
			Chemical Total	3E-04	--	5E-05	--	4E-04		1	--	0.05	1
		Exposure Point Total						4E-04					1
	Exposure Medium Total							4E-04					1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Chrysene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Naphthalene	--	2E-07	--	--	2E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.00003	--	0.00003
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	--	0.0010	--	0.0010
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-07	--	--	2E-07		--	0.001	--	0.001
		Exposure Point Total						2E-07					0.001
	Exposure Medium Total							2E-07					0.001
Medium Total								4E-04					1
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-07	--	3E-08	--	3E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	4E-08	--	3E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00008	--	0.00001	0.00009
			Benzo(k)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Chrysene	1E-09	--	2E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.05	--	--	0.05
			Arsenic	3E-06	--	1E-07	--	4E-06	Skin, CVS	0.3	--	0.009	0.3
			Beryllium	--	--	--	--	--	GS	0.0008	--	--	0.0008
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.02	--	--	0.02
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Iron	--	--	--	--	--	GS	0.2	--	--	0.2
			Manganese (Soil)	--	--	--	--	--	CNS	0.02	--	--	0.02
			Chemical Total	6E-06	--	5E-07	--	7E-06		0.7	--	0.009	0.7
		Exposure Point Total						7E-06					0.7
	Exposure Medium Total							7E-06					0.7
	Air	Paved Area	Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.00004	--	0.00004
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.000001	--	0.000001

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	3E-10	--	--	3E-10	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	6E-10	--	--	6E-10		--	0.0008	--	0.0008
		Exposure Point Total						6E-10					0.0008
	Exposure Medium Total							6E-10					0.0008
Medium Total								7E-06					0.7
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.0003	--	--	0.0003
			Benzo(a)anthracene	2E-07	--	4E-08	--	3E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00007	--	0.00001	0.00008
			Benzo(k)fluoranthene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Chrysene	2E-09	--	4E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	4E-09	--	3E-08	NA	--	--	--	--
			Total Aroclors	4E-07	--	6E-08	--	4E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.05	--	--	0.05
			Arsenic	6E-06	--	2E-07	--	7E-06	Skin, CVS	0.5	--	0.02	0.5
			Beryllium	--	--	--	--	--	GS	0.001	--	--	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Iron	--	--	--	--	--	GS	0.2	--	--	0.2
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.07	--	--	0.07
			Chemical Total	9E-06	--	5E-07	--	9E-06		1	--	0.02	1
		Exposure Point Total						9E-06					1
	Exposure Medium Total							9E-06					1
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.005	--	0.005
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.01	--	0.01
			Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(g,h,i)perytene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	3E-10	--	--	3E-10	NA	--	0.00007	--	0.00007
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.000001	--	0.000001
			Chromium	--	5E-10	--	--	5E-10	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.001	--	0.001
			Chemical Total	--	9E-10	--	--	9E-10		--	0.02	--	0.02
		Exposure Point Total						9E-10					0.02
	Exposure Medium Total							9E-10					0.02
Medium Total								9E-06					1
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	2E-06	--	1E-07	--	3E-06	Kidney, CNS	0.07	--	0.004	0.08
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.3	--	0.2	0.4
			Bromomethane	--	--	--	--	--	GS	0.07	--	0.002	0.07
			Carbon Tetrachloride	4E-07	--	7E-08	--	4E-07	Liver	0.1	--	0.03	0.2
			Chloroform	3E-07	--	2E-08	--	3E-07	Liver	0.03	--	0.002	0.04
			Chloromethane	3E-07	--	6E-09	--	3E-07	NA	--	--	--	--
			Ethylbenzene	9E-07	--	4E-07	--	1E-06	Liver, Kidney	0.03	--	0.01	0.04
			Isopropylbenzene	--	--	--	--	--	Kidney	0.04	--	0.04	0.08
			Tetrachloroethene	9E-06	--	4E-06	--	1E-05	Liver	0.06	--	0.03	0.08
			Total Xylenes	--	--	--	--	--	Body Weight	0.02	--	0.010	0.03
			Trichloroethene	1E-05	--	2E-06	--	1E-05	NA	--	--	--	--
			Vinyl Chloride	4E-05	--	1E-06	--	4E-05	Liver	0.3	--	0.01	0.3
			Benzo(k)fluoranthene	4E-07	--	--	--	4E-07	NA	--	--	--	--
			Dieldrin	2E-07	--	1E-07	--	4E-07	Liver	0.01	--	0.005	0.02
			Aluminum	--	--	--	--	--	CNS	27	--	0.08	27
			Antimony	--	--	--	--	--	Blood	0.1	--	0.003	0.1
			Arsenic	1E-03	--	3E-06	--	1E-03	Skin, CVS	79	--	0.2	80
			Barium	--	--	--	--	--	Kidney	0.3	--	0.01	0.3
			Beryllium	--	--	--	--	--	GS	0.4	--	0.2	0.6
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	14	--	3	17
			Cobalt	--	--	--	--	--	Blood	100	--	0.3	101
			Copper	--	--	--	--	--	GS	2	--	0.005	2
			Iron	--	--	--	--	--	GS	82	--	0.2	82

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	27	--	2	29
			Mercury	--	--	--	--	--	Autoimmune	0.3	--	0.01	0.3
			Molybdenum	--	--	--	--	--	Gout	0.2	--	0.0006	0.2
			Nickel	--	--	--	--	--	Body Weight	3	--	0.04	3
			Thallium	--	--	--	--	--	Blood	2	--	0.005	2
			Vanadium	--	--	--	--	--	Kidney	8	--	0.9	9
			Zinc	--	--	--	--	--	Blood	0.6	--	0.001	0.6
			Chemical Total	1E-03	--	1E-05	--	1E-03		346	--	8	354
		Exposure Point Total						1E-03					354
	Exposure Medium Total							1E-03					354
	Groundwater	Site 08	1,1-Dichloroethane	--	2E-06	--	--	2E-06	NA	--	0.07	--	0.07
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.3	--	0.3
			Bromomethane	--	--	--	--	--	Respiratory	--	0.07	--	0.07
			Carbon Tetrachloride	--	4E-07	--	--	4E-07	Liver	--	0.1	--	0.1
			Chloroform	--	3E-07	--	--	3E-07	Liver	--	0.03	--	0.03
			Chloromethane	--	3E-07	--	--	3E-07	CNS	--	--	--	--
			Ethylbenzene	--	9E-07	--	--	9E-07	Developmental	--	0.03	--	0.03
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.04	--	0.04
			Tetrachloroethene	--	9E-06	--	--	9E-06	Liver	--	0.06	--	0.06
			Total Xylenes	--	--	--	--	--	CNS	--	0.02	--	0.02
			Trichloroethene	--	1E-05	--	--	1E-05	NA	--	--	--	--
			Vinyl Chloride	--	4E-05	--	--	4E-05	Liver	--	0.3	--	0.3
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	6E-05	--	--	6E-05		--	1	--	1
		Exposure Point Total						6E-05					1
	Exposure Medium Total							6E-05					1
Medium Total								1E-03					355
Receptor Total							Receptor Risk Total	2E-03				Receptor HI Total	359

Note:

Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

Total Blood HI	104
Total Body Weight HI	3
Total CNS HI	57
Total CVS HI	81
Total GS HI	102
Total Kidney HI	10
Total Liver HI	2
Total Skin HI	81
Total Respiratory HI	0.07
Total Developmental HI	0.03
Total None Reported HI	0.002
Total Fetotoxicity HI	17
Total Bone HI	17

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00002
			Benzo(k)fluoranthene	6E-09	--	9E-10	--	7E-09	NA	--	--	--	--
			Chrysene	1E-09	--	1E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00008	--	0.00001	0.00010
			Indeno(1,2,3-cd)pyrene	4E-08	--	5E-09	--	4E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00003	--	0.000004	0.00003
			Phenanthrene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0001
			Pyrene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0001
			Total Aroclors	3E-08	--	5E-09	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0005	--	--	0.0005
			Arsenic	2E-06	--	6E-08	--	2E-06	Skin, CVS	0.04	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.00010	--	--	0.00010
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00003	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Chemical Total	3E-06	--	2E-07	--	3E-06		0.1	--	0.001	0.1
		Exposure Point Total						3E-06					0.1
	Exposure Medium Total							3E-06					0.1
	Air	Exposed Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Naphthalene	--	2E-08	--	--	2E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	6E-12	--	--	6E-12	Respiratory	--	0.000001	--	0.000001
			Cadmium	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.0003	--	0.0003
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-08	--	--	2E-08		--	0.0010	--	0.0010
		Exposure Point Total						2E-08					0.0010
	Exposure Medium Total							2E-08					0.0010
Medium Total								3E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0006	--	0.00009	0.0007
			Anthracene	--	--	--	--	--	None Reported	0.0002	--	0.00003	0.0003
			Benzo(a)anthracene	1E-05	--	1E-06	--	1E-05	NA	--	--	--	--
			Benzo(a)pyrene	8E-05	--	1E-05	--	9E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-06	--	1E-06	--	8E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.002	--	0.0003	0.002
			Benzo(k)fluoranthene	7E-07	--	1E-07	--	8E-07	NA	--	--	--	--
			Chrysene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.008	--	0.001	0.010
			Indeno(1,2,3-cd)pyrene	5E-06	--	7E-07	--	5E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0008	--	0.0001	0.0009
			Phenanthrene	--	--	--	--	--	Kidney	0.009	--	0.001	0.010
			Pyrene	--	--	--	--	--	Kidney	0.009	--	0.001	0.010
			Total Aroclors	5E-08	--	8E-09	--	6E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0007	--	--	0.0007
			Arsenic	1E-06	--	4E-08	--	1E-06	Skin, CVS	0.03	--	0.0009	0.03
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Cadmium	--	--	--	--	--	Kidney	0.0008	--	0.00002	0.0008
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	0.005	--	--	0.005
			Molybdenum	--	--	--	--	--	Gout	0.0003	--	--	0.0003
			Thallium	--	--	--	--	--	Blood	0.001	--	--	0.001
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Zinc	--	--	--	--	--	Blood	0.001	--	--	0.001
			Chemical Total	1E-04	--	2E-05	--	1E-04		0.1	--	0.005	0.1
		Exposure Point Total						1E-04					0.1
	Exposure Medium Total							1E-04					0.1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-11	--	--	9E-11	NA	--	--	--	--
			Naphthalene	--	6E-07	--	--	6E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	4E-10	--	--	4E-10	NA	--	0.00003	--	0.00003
			Beryllium	--	7E-12	--	--	7E-12	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	8E-10	--	--	8E-10	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Manganese (Soil)	--	--	--	--	--	CNS	--	0.0010	--	0.0010
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	6E-07	--	--	6E-07		--	0.001	--	0.001
		Exposure Point Total						6E-07					0.001
	Exposure Medium Total							6E-07					0.001
Medium Total								1E-04					0.1
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.000001	0.000010
			Benzo(k)fluoranthene	4E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Chrysene	5E-10	--	7E-11	--	6E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-08	--	7E-09	--	5E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-08	--	6E-09	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	1E-06	--	4E-08	--	1E-06	Skin, CVS	0.03	--	0.0010	0.03
			Beryllium	--	--	--	--	--	GS	0.00009	--	--	0.00009
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	2E-06	--	2E-07	--	3E-06		0.08	--	0.0010	0.08
		Exposure Point Total						3E-06					0.08
	Exposure Medium Total							3E-06					0.08
	Air	Paved Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Chrysene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	5E-10	--	--	5E-10	NA	--	0.00004	--	0.00004
			Beryllium	--	6E-12	--	--	6E-12	Respiratory	--	0.000001	--	0.000001
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.000009	--	0.000009

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Cobalt	--	7E-10	--	--	7E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	2E-09	--	--	2E-09		--	0.0008	--	0.0008
		Exposure Point Total						2E-09					0.0008
	Exposure Medium Total							2E-09					0.0008
Medium Total								3E-06					0.08
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00003	--	--	0.00003
			Benzo(a)anthracene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	5E-07	--	7E-08	--	5E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	8E-09	--	6E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.000001	0.000009
			Benzo(k)fluoranthene	4E-09	--	6E-10	--	5E-09	NA	--	--	--	--
			Chrysene	9E-10	--	1E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	5E-09	--	4E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Total Aroclors	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Arsenic	2E-06	--	8E-08	--	2E-06	Skin, CVS	0.05	--	0.002	0.06
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.007	--	--	0.007
			Chemical Total	3E-06	--	2E-07	--	3E-06		0.1	--	0.002	0.1
		Exposure Point Total						3E-06					0.1
	Exposure Medium Total							3E-06					0.1
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.005	--	0.005
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.01	--	0.01
			Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	9E-10	--	--	9E-10	NA	--	0.00007	--	0.00007
			Beryllium	--	7E-12	--	--	7E-12	Respiratory	--	0.000001	--	0.000001
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	7E-10	--	--	7E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.001	--	0.001
			Chemical Total	--	3E-09	--	--	3E-09		--	0.02	--	0.02
		Exposure Point Total						3E-09					0.02
	Exposure Medium Total							3E-09					0.02
Medium Total								3E-06					0.1
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	3E-06	--	3E-07	--	3E-06	Kidney, CNS	0.03	--	0.002	0.03
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.1	--	0.08	0.2
			Bromomethane	--	--	--	--	--	GS	0.03	--	0.0008	0.03
			Carbon Tetrachloride	5E-07	--	1E-07	--	6E-07	Liver	0.05	--	0.01	0.06
			Chloroform	4E-07	--	4E-08	--	4E-07	Liver	0.01	--	0.001	0.01
			Chloromethane	4E-07	--	1E-08	--	4E-07	NA	--	--	--	--
			Ethylbenzene	1E-06	--	7E-07	--	2E-06	Liver, Kidney	0.01	--	0.006	0.02
			Isopropylbenzene	--	--	--	--	--	Kidney	0.02	--	0.02	0.04
			Tetrachloroethene	1E-05	--	7E-06	--	2E-05	Liver	0.02	--	0.01	0.03
			Total Xylenes	--	--	--	--	--	Body Weight	0.009	--	0.005	0.01
			Trichloroethene	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Vinyl Chloride	5E-05	--	3E-06	--	5E-05	Liver	0.1	--	0.006	0.1
			Benzo(k)fluoranthene	5E-07	--	--	--	5E-07	NA	--	--	--	--
			Dieldrin	3E-07	--	2E-07	--	5E-07	Liver	0.004	--	0.003	0.007
			Aluminum	--	--	--	--	--	CNS	10	--	0.03	10
			Antimony	--	--	--	--	--	Blood	0.05	--	0.001	0.05
			Arsenic	1E-03	--	5E-06	--	1E-03	Skin, CVS	30	--	0.1	30
			Barium	--	--	--	--	--	Kidney	0.1	--	0.006	0.1
			Beryllium	--	--	--	--	--	GS	0.2	--	0.08	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	5	--	1	7
			Cobalt	--	--	--	--	--	Blood	38	--	0.1	38
			Copper	--	--	--	--	--	GS	0.6	--	0.002	0.6
			Iron	--	--	--	--	--	GS	31	--	0.1	31

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	10	--	0.9	11
			Mercury	--	--	--	--	--	Autoimmune	0.1	--	0.006	0.1
			Molybdenum	--	--	--	--	--	Gout	0.07	--	0.0003	0.07
			Nickel	--	--	--	--	--	Body Weight	1	--	0.02	1
			Thallium	--	--	--	--	--	Blood	0.6	--	0.002	0.6
			Vanadium	--	--	--	--	--	Kidney	3	--	0.4	3
			Zinc	--	--	--	--	--	Blood	0.2	--	0.0005	0.2
			Chemical Total	1E-03	--	2E-05	--	1E-03		129	--	3	133
		Exposure Point Total						1E-03					133
	Exposure Medium Total							1E-03					133
	Groundwater	Site 08	1,1-Dichloroethane	--	3E-06	--	--	3E-06	NA	--	0.03	--	0.03
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.1	--	0.1
			Bromomethane	--	--	--	--	--	Respiratory	--	0.03	--	0.03
			Carbon Tetrachloride	--	5E-07	--	--	5E-07	Liver	--	0.05	--	0.05
			Chloroform	--	4E-07	--	--	4E-07	Liver	--	0.01	--	0.01
			Chloromethane	--	4E-07	--	--	4E-07	CNS	--	--	--	--
			Ethylbenzene	--	1E-06	--	--	1E-06	Developmental	--	0.01	--	0.01
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.02	--	0.02
			Tetrachloroethene	--	1E-05	--	--	1E-05	Liver	--	0.02	--	0.02
			Total Xylenes	--	--	--	--	--	CNS	--	0.009	--	0.009
			Trichloroethene	--	2E-05	--	--	2E-05	NA	--	--	--	--
			Vinyl Chloride	--	5E-05	--	--	5E-05	Liver	--	0.1	--	0.1
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	8E-05	--	--	8E-05		--	0.4	--	0.4
		Exposure Point Total						8E-05					0.4
	Exposure Medium Total							8E-05					0.4
Medium Total								2E-03					133
Receptor Total							Receptor Risk Total	2E-03				Receptor HI Total	134

Note:

Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

Total Blood HI	39
Total Body Weight HI	1
Total CNS HI	21
Total CVS HI	30
Total GS HI	38
Total Kidney HI	4
Total Liver HI	0.6
Total Skin HI	30
Total Respiratory HI	0.03
Total Developmental HI	0.01
Total None Reported HI	0.0003
Total Fetotoxicity HI	7
Total Bone HI	7

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	4E-07	--	6E-08	--	5E-07					
			Benzo(a)pyrene	3E-06	--	4E-07	--	3E-06					
			Benzo(b)fluoranthene	3E-07	--	5E-08	--	4E-07					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-08	--	3E-09	--	3E-08					
			Chrysene	4E-09	--	5E-10	--	4E-09					
			Dibenzo(a,h)anthracene	5E-07	--	7E-08	--	6E-07					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-08	--	2E-07					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-07	--	2E-08	--	1E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	6E-06	--	2E-07	--	6E-06					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	1E-05	--	9E-07	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	Exposed Area	Benzo(a)anthracene	--	3E-12	--	--	3E-12					
			Benzo(a)pyrene	--	2E-11	--	--	2E-11					
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-12	--	--	2E-12					
			Chrysene	--	2E-13	--	--	2E-13					
			Dibenzo(a,h)anthracene	--	4E-12	--	--	4E-12					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13					
			Naphthalene	--	3E-08	--	--	3E-08					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	8E-10	--	--	8E-10					
			Beryllium	--	8E-12	--	--	8E-12					
			Cadmium	--	2E-11	--	--	2E-11					
			Chromium	--	2E-09	--	--	2E-09					
			Cobalt	--	2E-09	--	--	2E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	--	3E-08	--	--	3E-08					
		Exposure Point Total						3E-08					
	Exposure Medium Total							3E-08					
Medium Total								tE-05					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	4E-05	--	5E-06	--	4E-05					
			Benzo(a)pyrene	3E-04	--	4E-05	--	3E-04					
			Benzo(b)fluoranthene	3E-05	--	4E-06	--	3E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-06	--	4E-07	--	3E-06					
			Chrysene	3E-07	--	5E-08	--	4E-07					
			Dibenzo(a,h)anthracene	6E-05	--	9E-06	--	7E-05					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	2E-05	--	2E-06	--	2E-05					
			Nephthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	2E-07	--	3E-08	--	2E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	4E-06	--	2E-07	--	5E-06					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	4E-04	--	7E-05	--	5E-04					
		Exposure Point Total						5E-04					
	Exposure Medium Total							5E-04					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	2E-10	--	--	2E-10					
			Benzo(a)pyrene	--	2E-09	--	--	2E-09					
			Benzo(b)fluoranthene	--	2E-10	--	--	2E-10					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-10	--	--	2E-10					
			Chrysene	--	2E-11	--	--	2E-11					
			Dibenzo(a,h)anthracene	--	5E-10	--	--	5E-10					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10					
			Naphthalene	--	8E-07	--	--	8E-07					
			Phenanthrene	--	--	--	--	--					
			Pyrane	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	6E-10	--	--	6E-10					
			Beryllium	--	9E-12	--	--	9E-12					
			Cadmium	--	1E-11	--	--	1E-11					
			Chromium	--	2E-09	--	--	2E-09					
			Cobalt	--	1E-09	--	--	1E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Manganese (Soil)	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	8E-07	--	--	8E-07					
		Exposure Point Total						8E-07					
	Exposure Medium Total							8E-07					
Medium Total								5E-04					
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	3E-07	--	5E-08	--	4E-07					
			Benzo(a)pyrene	3E-06	--	4E-07	--	3E-06					
			Benzo(b)fluoranthene	3E-07	--	5E-08	--	4E-07					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-08	--	2E-09	--	2E-08					
			Chrysene	2E-09	--	3E-10	--	2E-09					
			Dibenzo(a,h)anthracene	2E-07	--	3E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-08	--	2E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	5E-06	--	2E-07	--	5E-06					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	9E-06	--	7E-07	--	9E-06					
		Exposure Point Total						9E-06					
	Exposure Medium Total							9E-06					
	Air	Paved Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12					
			Benzo(a)pyrene	--	2E-11	--	--	2E-11					
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	9E-13	--	--	9E-13					
			Chrysene	--	1E-13	--	--	1E-13					
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12					
			Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13					
			Aluminum	--	--	--	--	--					
			Arsenic	--	6E-10	--	--	6E-10					
			Beryllium	--	7E-12	--	--	7E-12					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	1E-09	--	--	1E-09					
			Cobalt	--	9E-10	--	--	9E-10					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	3E-09	--	--	3E-09					
		Exposure Point Total						3E-09					
	Exposure Medium Total							3E-09					
Medium Total								9E-06					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	3E-07	--	5E-08	--	4E-07					
			Benzo(a)pyrene	2E-06	--	3E-07	--	2E-06					
			Benzo(b)fluoranthene	2E-07	--	3E-08	--	2E-07					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-08	--	2E-09	--	2E-08					
			Chrysene	3E-09	--	5E-10	--	4E-09					
			Dibenzo(a,h)anthracene	1E-07	--	2E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	4E-08	--	6E-09	--	4E-08					
			Total Aroclors	5E-07	--	8E-08	--	6E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	9E-06	--	3E-07	--	9E-06					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	1E-05	--	7E-07	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	--	2E-12	--	--	2E-12					
			Benzo(a)pyrene	--	1E-11	--	--	1E-11					
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12					
			Chrysene	--	2E-13	--	--	2E-13					
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Arsenic	--	1E-09	--	--	1E-09					
			Beryllium	--	8E-12	--	--	8E-12					
			Chromium	--	2E-09	--	--	2E-09					
			Cobalt	--	9E-10	--	--	9E-10					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	4E-09	--	--	4E-09					
		Exposure Point Total						4E-09					
	Exposure Medium Total							4E-09					
Medium Total								1E-05					
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	6E-06	--	4E-07	--	6E-06					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					
			Carbon Tetrachloride	8E-07	--	2E-07	--	1E-06					
			Chloroform	7E-07	--	6E-08	--	7E-07					
			Chloromethane	6E-07	--	2E-08	--	7E-07					
			Ethylbenzene	2E-06	--	1E-06	--	3E-06					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	2E-05	--	1E-05	--	3E-05					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	3E-05	--	4E-06	--	3E-05					
			Vinyl Chloride	9E-05	--	4E-06	--	9E-05					
			Benzo(k)fluoranthene	9E-07	--	--	--	9E-07					
			Dieldrin	5E-07	--	3E-07	--	9E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	2E-03	--	8E-06	--	2E-03					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	3E-03	--	3E-05	--	3E-03					
		Exposure Point Total						3E-03					
	Exposure Medium Total							3E-03					
	Groundwater	Site 08	1,1-Dichloroethane	--	6E-06	--	--	6E-06					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					
			Carbon Tetrachloride	--	8E-07	--	--	8E-07					
			Chloroform	--	7E-07	--	--	7E-07					
			Chloromethane	--	6E-07	--	--	6E-07					
			Ethylbenzene	--	2E-06	--	--	2E-06					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	--	2E-05	--	--	2E-05					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	--	3E-05	--	--	3E-05					
			Vinyl Chloride	--	9E-05	--	--	9E-05					
			Benzo(k)fluoranthene	--	--	--	--	--					
			Dieldrin	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	--	--	--	--					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	1E-04	--	--	1E-04					
		Exposure Point Total						1E-04					
	Exposure Medium Total							1E-04					
Medium Total								3E-03					
Receptor Total							Receptor Risk Total	3E-03					

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

APPENDIX H.2

RISKS FOR ONLY SITE-RELATED COPCS

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	6E-08	--	2E-08	--	8E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-08	--	2E-08	--	6E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00005	--	0.00002	0.00007
			Benzo(k)fluoranthene	3E-09	--	1E-09	--	5E-09	NA	--	--	--	--
			Chrysene	5E-10	--	2E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	7E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0003	--	0.0001	0.0004
			Indeno(1,2,3-cd)pyrene	2E-08	--	8E-09	--	3E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00010	--	0.00004	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0004	--	0.0001	0.0005
			Pyrene	--	--	--	--	--	Kidney	0.0004	--	0.0002	0.0006
			Total Aroclors	2E-08	--	7E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	9E-07	--	8E-08	--	9E-07	Skin, CVS	0.1	--	0.01	0.1
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Cadmium	--	--	--	--	--	Kidney	0.005	--	0.0003	0.005
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Chemical Total	1E-06	--	3E-07	--	2E-06		0.4	--	0.01	0.4
		Exposure Point Total						2E-06					0.4
	Exposure Medium Total							2E-06					0.4
	Air	Exposed Area	Benzo(a)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-10	--	--	3E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-10	--	--	3E-10	NA	--	--	--	--
			Chrysene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Naphthalene	--	1E-09	--	--	1E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	1E-07	--	--	1E-07	NA	--	0.07	--	0.07
			Beryllium	--	1E-09	--	--	1E-09	Respiratory	--	0.002	--	0.002
			Cadmium	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Chromium	--	3E-07	--	--	3E-07	Respiratory	--	0.02	--	0.02
			Cobalt	--	3E-07	--	--	3E-07	Respiratory	--	0.4	--	0.4
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.7	--	0.7
			Chemical Total	--	7E-07	--	--	7E-07		--	1	--	1
		Exposure Point Total						7E-07					1
	Exposure Medium Total							7E-07					1
Medium Total								3E-06					2
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.002	--	0.001	0.003
			Anthracene	--	--	--	--	--	None Reported	0.001	--	0.0003	0.001
			Benzo(a)anthracene	5E-06	--	2E-06	--	7E-06	NA	--	--	--	--
			Benzo(a)pyrene	4E-05	--	2E-05	--	6E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-06	--	1E-06	--	5E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.01	--	0.003	0.01
			Benzo(k)fluoranthene	3E-07	--	1E-07	--	5E-07	NA	--	--	--	--
			Chrysene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-06	--	4E-06	--	1E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.03	--	0.01	0.04
			Indeno(1,2,3-cd)pyrene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.003	--	0.001	0.004
			Phenanthrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Pyrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Total Aroclors	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	6E-07	--	6E-08	--	7E-07	Skin, CVS	0.10	--	0.009	0.1
			Cadmium	--	--	--	--	--	Kidney	0.003	--	0.0002	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.09	--	--	0.09
			Copper	--	--	--	--	--	GS	0.01	--	--	0.01
			Iron	--	--	--	--	--	GS	0.10	--	--	0.10
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.0010	--	--	0.0010
			Vanadium	--	--	--	--	--	Kidney	0.007	--	--	0.007
			Zinc	--	--	--	--	--	Blood	0.005	--	--	0.005
			Chemical Total	6E-05	--	2E-05	--	9E-05		0.5	--	0.05	0.5
		Exposure Point Total						9E-05					0.5
	Exposure Medium Total							9E-05					0.5
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	4E-08	--	--	4E-08	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-07	--	--	3E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-08	--	--	3E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-08	--	--	3E-08	NA	--	--	--	--
			Chrysene	--	4E-09	--	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-08	--	--	8E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-08	--	--	2E-08	NA	--	--	--	--
			Naphthalene	--	3E-08	--	--	3E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	9E-08	--	--	9E-08	NA	--	0.05	--	0.05
			Cadmium	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Chromium	--	3E-07	--	--	3E-07	Respiratory	--	0.02	--	0.02
			Cobalt	--	2E-07	--	--	2E-07	Respiratory	--	0.2	--	0.2
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	tE-06	--	--	tE-06		--	0.5	--	0.5
		Exposure Point Total						tE-06					0.5
	Exposure Medium Total							tE-06					0.5
Medium Total								9E-05					1

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	2E-09	--	8E-10	--	3E-09	NA	--	--	--	--
			Chrysene	3E-10	--	1E-10	--	4E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-08	--	8E-09	--	3E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	7E-07	--	6E-08	--	7E-07	Skin, CVS	0.1	--	0.009	0.1
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.07	--	--	0.07
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Manganese (Soil)	--	--	--	--	--	CNS	0.010	--	--	0.010
			Chemical Total	1E-06	--	3E-07	--	1E-06		0.3	--	0.009	0.3
		Exposure Point Total						1E-06					0.3
	Exposure Medium Total							1E-06					0.3
	Air	Paved Area	Benzo(a)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Arsenic	--	1E-07	--	--	1E-07	NA	--	0.05	--	0.05
			Beryllium	--	1E-09	--	--	1E-09	Respiratory	--	0.002	--	0.002
			Chromium	--	2E-07	--	--	2E-07	Respiratory	--	0.01	--	0.01
			Cobalt	--	1E-07	--	--	1E-07	Respiratory	--	0.2	--	0.2
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.7	--	0.7
			Chemical Total	--	5E-07	--	--	5E-07		--	1	--	1
		Exposure Point Total						5E-07					1
	Exposure Medium Total							5E-07					1
Medium Total								2E-06					1
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzena	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00012	--	--	0.00012
			Benzo(a)anthracene	5E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.000011	0.00004
			Benzo(k)fluoranthene	2E-09	--	9E-10	--	3E-09	NA	--	--	--	--
			Chrysene	5E-10	--	2E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	7E-09	--	3E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Total Aroclors	7E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	1E-06	--	1E-07	--	1E-06	Skin, CVS	0.2	--	0.02	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	2E-06	--	3E-07	--	2E-06		0.4	--	0.02	0.4
		Exposure Point Total						2E-06					0.4
	Exposure Medium Total							2E-06					0.4
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.002	--	0.002
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.006	--	0.006
			Benzo(a)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Chrysene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.2	--	0.2
			Arsenic	--	2E-07	--	--	2E-07	NA	--	0.10	--	0.10
			Chromium	--	4E-07	--	--	4E-07	Respiratory	--	0.02	--	0.02
			Cobalt	--	1E-07	--	--	1E-07	Respiratory	--	0.2	--	0.2
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	7E-07	--	--	7E-07		--	0.5	--	0.5
		Exposure Point Total						7E-07					0.5
	Exposure Medium Total							7E-07					0.5
Medium Total								3E-06					0.9

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	6E-09	--	2E-08	--	3E-08	Kidney, CNS	0.0004	--	0.002	0.002
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.001	--	0.05	0.05
			Bromomethane	--	--	--	--	--	GS	0.0004	--	0.0006	0.0010
			Carbon Tetrachloride	9E-10	--	9E-09	--	1E-08	Liver	0.0007	--	0.007	0.008
			Chloroform	8E-10	--	3E-09	--	4E-09	Liver	0.0002	--	0.0007	0.0009
			Chloromethane	8E-10	--	1E-09	--	2E-09	NA	--	--	--	--
			Ethylbenzene	2E-09	--	6E-08	--	6E-08	Liver, Kidney	0.0001	--	0.004	0.004
			Isopropylbenzene	--	--	--	--	--	Kidney	0.0002	--	0.010	0.01
			Tetrachloroethene	2E-08	--	5E-07	--	5E-07	Liver	0.0003	--	0.006	0.006
			Total Xylenes	--	--	--	--	--	Body Weight	0.0001	--	0.003	0.003
			Trichloroethene	3E-08	--	2E-07	--	3E-07	NA	--	--	--	--
			Vinyl Chloride	1E-07	--	3E-07	--	4E-07	Liver	0.002	--	0.005	0.007
			Benzo(k)fluoranthene	1E-09	--	--	--	1E-09	NA	--	--	--	--
			Dieldrin	6E-10	--	1E-08	--	1E-08	Liver	0.00005	--	0.001	0.001
			Aluminum	--	--	--	--	--	CNS	0.1	--	0.08	0.2
			Antimony	--	--	--	--	--	Blood	0.0008	--	0.003	0.003
			Arsenic	3E-06	--	1E-06	--	4E-06	Skin, CVS	0.4	--	0.2	0.7
			Barium	--	--	--	--	--	Kidney	0.002	--	0.01	0.02
			Beryllium	--	--	--	--	--	GS	0.002	--	0.2	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.07	--	3	3
			Cobalt	--	--	--	--	--	Blood	0.5	--	0.3	0.8
			Copper	--	--	--	--	--	GS	0.009	--	0.005	0.01
			Iron	--	--	--	--	--	GS	0.4	--	0.2	0.7
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	0.1	--	2	2
			Mercury	--	--	--	--	--	Autoimmune	0.002	--	0.01	0.01
			Molybdenum	--	--	--	--	--	Gout	0.001	--	0.0005	0.002
			Nickel	--	--	--	--	--	Body Weight	0.01	--	0.04	0.05
			Thallium	--	--	--	--	--	Blood	0.009	--	0.005	0.01
			Vanadium	--	--	--	--	--	Kidney	0.04	--	0.9	0.9
			Zinc	--	--	--	--	--	Blood	0.003	--	0.001	0.004
			Chemical Total	3E-06	--	3E-06	--	5E-06		2	--	7	9
		Exposure Point Total						5E-06					9
	Exposure Medium Total							5E-06					9
	Groundwater	Site 08	1,1-Dichloroethane	--	3E-11	--	--	3E-11	NA	--	--	--	--
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.5	--	0.5
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.2	--	0.2

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Bromomethane	--	--	--	--	--	Respiratory	--	0.002	--	0.002
			Carbon Tetrachloride	--	2E-12	--	--	2E-12	Liver	--	0.00004	--	0.00004
			Chloroform	--	9E-12	--	--	9E-12	Liver	--	0.0003	--	0.0003
			Chloromethane	--	3E-12	--	--	3E-12	CNS	--	0.001	--	0.001
			Ethylbenzene	--	9E-12	--	--	9E-12	Developmental	--	0.0002	--	0.0002
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	--	--
			Tetrachloroethene	--	3E-12	--	--	3E-12	Liver	--	0.0002	--	0.0002
			Total Xylenes	--	--	--	--	--	CNS	--	0.004	--	0.004
			Trichloroethene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Vinyl Chloride	--	7E-12	--	--	7E-12	Liver	--	0.001	--	0.001
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-10	--	--	1E-10		--	0.7	--	0.7
		Exposure Point Total						1E-10					0.7
	Exposure Medium Total							1E-10					0.7
Medium Total								5E-06					10
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	15

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	2
Total Body Weight HI	0.1
Total CNS HI	5
Total CVS HI	t
Total GS HI	4
Total Kidney HI	1
Total Liver HI	0.1
Total Skin HI	1
Total Developmental HI	0.0002
Totet None Reported HI	0.00 t
Total Fetotoxicity HI	3
Total Bone HI	3
Total Respiratory HI	t

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	8E-07	--	7E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00003	0.00006
			Benzo(k)fluoranthene	5E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Chrysene	7E-09	--	6E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-06	--	9E-07	--	2E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0002	--	0.0002	0.0003
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00006	--	0.00005	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0002	--	0.0002	0.0004
			Pyrene	--	--	--	--	--	Kidney	0.0002	--	0.0002	0.0004
			Total Aroclors	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	1E-05	--	2E-06	--	2E-05	Skin, CVS	0.08	--	0.02	0.09
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Cadmium	--	--	--	--	--	Kidney	0.003	--	0.0004	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.007	--	--	0.007
			Cobalt	--	--	--	--	--	Blood	0.09	--	--	0.09
			Copper	--	--	--	--	--	GS	0.001	--	--	0.001
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.006	--	--	0.006
			Vanadium	--	--	--	--	--	Kidney	--	--	--	--
			Chemical Total	2E-05	--	1E-05	--	3E-05		0.2	--	0.02	0.3
		Exposure Point Total						3E-05					0.3
	Exposure Medium Total							3E-05					0.3
	Air	Exposed Area	Benzo(a)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Naphthalene	--	6E-08	--	--	6E-08	Respiratory	--	--	--	--

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	8E-10	--	--	8E-10	NA	--	0.00002	--	0.00002
			Beryllium	--	8E-12	--	--	8E-12	Respiratory	--	0.0000005	--	0.0000005
			Cadmium	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	2E-09	--	--	2E-09	Respiratory	--	0.00009	--	0.00009
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	6E-08	--	--	6E-08		--	0.0003	--	0.0003
		Exposure Point Total						6E-08					0.0003
	Exposure Medium Total							6E-08					0.0003
Medium Total								3E-05					0.3
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.001	--	0.001	0.002
			Anthracene	--	--	--	--	--	None Reported	0.0005	--	0.0004	0.001
			Benzo(a)anthracene	8E-05	--	7E-05	--	1E-04	NA	--	--	--	--
			Benzo(a)pyrene	6E-04	--	5E-04	--	1E-03	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-05	--	5E-05	--	1E-04	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.004	--	0.004	0.01
			Benzo(k)fluoranthene	5E-06	--	4E-06	--	9E-06	NA	--	--	--	--
			Chrysene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-04	--	1E-04	--	2E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.02	--	0.02	0.03
			Indeno(1,2,3-cd)pyrene	4E-05	--	3E-05	--	7E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.002	--	0.001	0.003
			Phenanthrene	--	--	--	--	--	Kidney	0.02	--	0.02	0.03
			Pyrene	--	--	--	--	--	Kidney	0.02	--	0.02	0.03
			Total Aroclors	4E-07	--	3E-07	--	7E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	9E-06	--	2E-06	--	1E-05	Skin, CVS	0.06	--	0.01	0.07
			Beryllium	--	--	--	--	--	GS	--	--	--	--
			Cadmium	--	--	--	--	--	Kidney	0.002	--	0.0002	0.002

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.006	--	--	0.006
			Cobalt	--	--	--	--	--	Blood	0.05	--	--	0.05
			Copper	--	--	--	--	--	GS	0.006	--	--	0.006
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	0.0006	--	--	0.0006
			Thallium	--	--	--	--	--	Blood	--	--	--	--
			Vanadium	--	--	--	--	--	Kidney	0.004	--	--	0.004
			Zinc	--	--	--	--	--	Blood	0.003	--	--	0.003
			Chemical Total	9E-04	--	8E-04	--	2E-03		0.3	--	0.07	0.3
		Exposure Point Total						2E-03					0.3
	Exposure Medium Total							2E-03					0.3
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-10	--	--	5E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Naphthalene	--	2E-06	--	--	2E-06	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00006	--	0.00006
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Cadmium	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00006	--	0.00006

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-06	--	--	2E-06		--	0.0001	--	0.0001
		Exposure Point Total						2E-06					0.0001
	Exposure Medium Total							2E-06					0.0001
Medium Total								2E-03					0.3
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.00002	0.00003
			Benzo(k)fluoranthene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Chrysene	4E-09	--	3E-09	--	7E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-07	--	3E-07	--	7E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Arsenic	1E-05	--	2E-06	--	1E-05	Skin, CVS	0.06	--	0.01	0.07
			Beryllium	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Manganese (Soil)	--	--	--	--	--	CNS	0.006	--	--	0.006
			Chemical Total	2E-05	--	9E-06	--	3E-05		0.2	--	0.01	0.2
		Exposure Point Total						3E-05					0.2
	Exposure Medium Total							3E-05					0.2
	Air	Paved Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Chrysene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	7E-12	--	--	7E-12	Respiratory	--	0.0000004	--	0.0000004
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.000003	--	0.000003
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.00004	--	0.00004
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Chemical Total	--	3E-09	--	--	3E-09		--	0.0003	--	0.0003
		Exposure Point Total						3E-09					0.0003
	Exposure Medium Total							3E-09					0.0003
Medium Total								3E-05					0.2
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00007	--	--	0.00007
			Benzo(a)anthracene	7E-07	--	6E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	4E-06	--	3E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-07	--	3E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.000015	0.00003
			Benzo(k)fluoranthene	3E-08	--	3E-08	--	6E-08	NA	--	--	--	--
			Chrysene	7E-09	--	6E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8E-08	--	7E-08	--	2E-07	NA	--	--	--	--
			Total Aroclors	1E-06	--	1E-06	--	2E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Arsenic	2E-05	--	4E-06	--	2E-05	Skin, CVS	0.1	--	0.02	0.1
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.008	--	--	0.008
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	2E-05	--	9E-06	--	3E-05		0.2	--	0.02	0.2
		Exposure Point Total						3E-05					0.2
	Exposure Medium Total							3E-05					0.2
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.00	--	0.00
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.011	--	0.011
			Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Arsenic	--	1E-09	--	--	1E-09	NA	--	0.00002	--	0.00002
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.000005	--	0.000005
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.00005	--	0.00005
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	4E-09	--	--	4E-09		--	0.01	--	0.01
		Exposure Point Total						4E-09					0.01
	Exposure Medium Total							4E-09					0.01
Medium Total								3E-05					0.3
Receptor Total							Receptor Risk Total	2E-03				Receptor HI Total	1

Total Blood HI	0.1
Total Body Weight HI	0.003
Total CNS HI	0.03
Total CVS HI	0.2
Total GS HI	0.1
Total Kidney HI	0.09
Total Liver HI	0.03
Total Skin HI	0.2
Total Respiratory HI	0.0002
Total None Reported HI	0.0009
Total Fetotoxicity HI	0.01
Total Bone HI	0.01

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-07	--	7E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	5E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-07	--	5E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.00002	0.00003
			Benzo(k)fluoranthene	2E-08	--	4E-08	--	6E-08	NA	--	--	--	--
			Chrysene	3E-09	--	6E-09	--	9E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-07	--	8E-07	--	1E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00005	--	0.00010	0.0001
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00002	--	0.00003	0.00005
			Phenanthrene	--	--	--	--	--	Kidney	0.00006	--	0.0001	0.0002
			Pyrene	--	--	--	--	--	Kidney	0.00006	--	0.0001	0.0002
			Total Aroclors	3E-08	--	7E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Antimony	--	--	--	--	--	Blood	0.0003	--	--	0.0003
			Arsenic	2E-06	--	8E-07	--	2E-06	Skin, CVS	0.02	--	0.01	0.03
			Beryllium	--	--	--	--	--	GS	0.00006	--	--	0.00006
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.0003	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Iron	--	--	--	--	--	GS	0.01	--	--	0.01
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.002	--	--	0.002
			Chemical Total	5E-06	--	8E-06	--	1E-05		0.06	--	0.01	0.07
		Exposure Point Total						1E-05					0.07
	Exposure Medium Total							1E-05					0.07
	Air	Exposed Area	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Chrysene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Naphthalene	--	5E-09	--	--	5E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	7E-11	--	--	7E-11	NA	--	0.000003	--	0.000003
			Beryllium	--	7E-13	--	--	7E-13	Respiratory	--	0.00000009	--	0.00000009
			Cadmium	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chromium	--	2E-10	--	--	2E-10	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.00002	--	0.00002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	6E-09	--	--	6E-09		--	0.00007	--	0.00007
		Exposure Point Total						6E-09					0.00007
	Exposure Medium Total							6E-09					0.00007
Medium Total								1E-05					0.07
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0003	--	0.001	0.001
			Anthracene	--	--	--	--	--	None Reported	0.0001	--	0.0003	0.0004
			Benzo(a)anthracene	3E-05	--	6E-05	--	9E-05	NA	--	--	--	--
			Benzo(a)pyrene	2E-04	--	5E-04	--	7E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-05	--	4E-05	--	6E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.001	--	0.002	0.004
			Benzo(k)fluoranthene	2E-06	--	4E-06	--	6E-06	NA	--	--	--	--
			Chrysene	3E-07	--	6E-07	--	8E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-05	--	1E-04	--	2E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.005	--	0.01	0.01
			Indeno(1,2,3-cd)pyrene	1E-05	--	3E-05	--	4E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0005	--	0.001	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.005	--	0.01	0.02
			Pyrene	--	--	--	--	--	Kidney	0.005	--	0.01	0.02
			Total Aroclors	5E-08	--	1E-07	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.004	--	--	0.004
			Antimony	--	--	--	--	--	Blood	0.0004	--	--	0.0004
			Arsenic	1E-06	--	6E-07	--	2E-06	Skin, CVS	0.02	--	0.008	0.02
			Cadmium	--	--	--	--	--	Kidney	0.000	--	0.0002	0.001
			Chromium	--	--	--	--	--	Fetoloxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.01	--	--	0.01
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.00016	--	--	0.00016
			Vanadium	--	--	--	--	--	Kidney	0.001	--	--	0.001
			Zinc	--	--	--	--	--	Blood	0.0008	--	--	0.0008
			Chemical Total	4E-04	--	8E-04	--	1E-03		0.07	--	0.04	0.1
		Exposure Point Total						1E-03					0.1
	Exposure Medium Total							1E-03					0.1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-10	--	--	5E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Chrysene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Naphthalene	--	2E-07	--	--	2E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00001	--	0.00001
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	5E-11	--	--	5E-11	NA	--	0.000002	--	0.000002
			Cadmium	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Chromium	--	2E-10	--	--	2E-10	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	1E-10	--	--	1E-10	Respiratory	--	0.00001	--	0.00001
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-07	--	--	2E-07		--	0.00002	--	0.00002
		Exposure Point Total						2E-07					0.00002
	Exposure Medium Total							2E-07					0.00002
Medium Total								1E-03					0.1

TABLE 9.3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	3E-07	--	6E-07	--	8E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	5E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-07	--	6E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000005	--	0.00001	0.00002
			Benzo(k)fluoranthene	1E-08	--	2E-08	--	3E-08	NA	--	--	--	--
			Chrysene	1E-09	--	3E-09	--	5E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	3E-07	--	4E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Arsenic	1E-06	--	6E-07	--	2E-06	Skin, CVS	0.02	--	0.008	0.02
			Beryllium	--	--	--	--	--	GS	0.00005	--	--	0.00005
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.001	--	--	0.001
			Cobalt	--	--	--	--	--	Blood	0.01	--	--	0.01
			Iron	--	--	--	--	--	GS	0.010	--	--	0.010
			Manganese (Soil)	--	--	--	--	--	CNS	0.002	--	--	0.002
			Chemical Total	4E-06	--	7E-06	--	1E-05		0.04	--	0.008	0.05
		Exposure Point Total						1E-05					0.05
	Exposure Medium Total							1E-05					0.05
	Air	Paved Area	Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	5E-11	--	--	5E-11	NA	--	0.000002	--	0.000002
			Beryllium	--	6E-13	--	--	6E-13	Respiratory	--	0.00000008	--	0.00000008
			Chromium	--	1E-10	--	--	1E-10	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	3E-10	--	--	3E-10		--	0.00005	--	0.00005
		Exposure Point Total						3E-10					0.00005
	Exposure Medium Total							3E-10					0.00005
Medium Total								1E-05					0.05

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00002	--	--	0.00002
			Benzo(a)anthracene	3E-07	--	6E-07	--	9E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	3E-06	--	4E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	3E-07	--	5E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000005	--	0.000010	0.00001
			Benzo(k)fluoranthene	1E-08	--	3E-08	--	4E-08	NA	--	--	--	--
			Chrysene	3E-09	--	6E-09	--	8E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	7E-08	--	1E-07	NA	--	--	--	--
			Total Aroclors	1E-07	--	3E-07	--	4E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Arsenic	2E-06	--	1E-06	--	4E-06	Skin, CVS	0.03	--	0.01	0.05
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.01	--	--	0.01
			Iron	--	--	--	--	--	GS	0.01	--	--	0.01
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	4E-06	--	6E-06	--	1E-05		0.06	--	0.01	0.3
		Exposure Point Total						1E-05					0.3
	Exposure Medium Total							1E-05					0.3
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.001	--	0.001
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.002	--	0.002
			Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00001	--	0.00001
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.000005	--	0.000005
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	2E-10	--	--	2E-10	Respiratory	--	0.0000010	--	0.0000010
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000009	--	0.000009

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	4E-10	--	--	4E-10		--	0.003	--	0.003
		Exposure Point Total						4E-10					0.003
	Exposure Medium Total							4E-10					0.003
Medium Total								1E-05					0.3
Surface Water	Surface Water	Site 08	Dieldrin	--	--	4E-08	--	4E-08	Liver	--	--	0.0003	0.0003
			Aluminum	--	--	--	--	--	CNS	--	--	0.0000010	0.0000010
			Arsenic	--	--	7E-09	--	7E-09	Skin, CVS	--	--	0.00010	0.00010
			Cobalt	--	--	--	--	--	Blood	--	--	0.00004	0.00004
			Iron	--	--	--	--	--	GS	--	--	0.000009	0.000009
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.002	0.002
			Lead	--	--	--	--	--	NA	--	--	0.0000	0.0000
			Molybdenum	--	--	--	--	--	Gout	--	--	0.0001	0.0001
			Chemical Total	--	--	5E-08	--	5E-08		--	--	0.002	0.002
		Exposure Point Total						5E-08					0.002
	Exposure Medium Total							5E-08					0.002
Medium Total								5E-08					0.002
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-07	--	7E-07	--	8E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	6E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	6E-07	--	7E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000007	--	0.00004	0.00004
			Benzo(k)fluoranthene	1E-08	--	5E-08	--	6E-08	NA	--	--	--	--
			Chrysene	1E-09	--	7E-09	--	9E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	7E-07	--	9E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	7E-08	--	4E-07	--	4E-07	NA	--	--	--	--
			Dieldnn	2E-08	--	8E-08	--	1E-07	Liver	0.0001	--	0.0006	0.0007
			Total Aroclors	4E-08	--	2E-07	--	3E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.003	--	--	0.003
			Arsenic	1E-06	--	1E-06	--	2E-06	Skin, CVS	0.01	--	0.02	0.03
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Iron	--	--	--	--	--	GS	0.0 t	--	--	0.0 t
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.005	--	--	0.005
			Vanadium	--	--	--	--	--	Kidney	0.00 t	--	--	0.001
			Chemical Total	3E-06	--	1E-05	--	1E-05		0. t	--	0.02	0. t
		Exposure Point Total						1E-05					0. t
	Exposure Medium Total							1E-05					0.1
Medium Total								1E-05					0.1
Receptor Total							Receptor Risk Total	1E-03				Receptor HI Total	0.3

Total Blood HI	0.1
Total Body Weight HI	0.002
Total CNS HI	0.03
Total CVS HI	0.2
Total GS HI	0.07
Total Kidney HI	0.04
Total Liver HI	0.02
Total Skin HI	0.2
Total Respiratory HI	0.00005
Total None Reported HI	0.0004
Total Fetotoxicity HI	0.009
Total Bone HI	0.009

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-06	--	7E-07	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	5E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00006	--	0.00002	0.00008
			Benzo(k)fluoranthene	1E-07	--	4E-08	--	2E-07	NA	--	--	--	--
			Chrysene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0003	--	0.0001	0.0004
			Indeno(1,2,3-cd)pyrene	6E-07	--	2E-07	--	9E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0001	--	0.00004	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0004	--	0.0001	0.0005
			Pyrene	--	--	--	--	--	Kidney	0.0004	--	0.0002	0.0006
			Total Aroclors	1E-07	--	4E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	5E-06	--	5E-07	--	6E-06	Skin, CVS	0.1	--	0.01	0.2
			Beryllium	--	--	--	--	--	GS	0.0004	--	--	0.0004
			Cadmium	--	--	--	--	--	Kidney	0.005	--	0.0003	0.006
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Chemical Total	3E-05	--	8E-06	--	3E-05		0.4	--	0.01	0.4
		Exposure Point Total						3E-05					0.4
	Exposure Medium Total							3E-05					0.4
	Air	Exposed Area	Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Chrysene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Naphthalene	--	3E-09	--	--	3E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	4E-11	--	--	4E-11	NA	--	0.000003	--	0.000003
			Beryllium	--	4E-13	--	--	4E-13	Respiratory	--	0.00000009	--	0.00000009
			Cadmium	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Chromium	--	8E-11	--	--	8E-11	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.00002	--	0.00002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	3E-09	--	--	3E-09		--	0.00007	--	0.00007
		Exposure Point Total						3E-09					0.00007
	Exposure Medium Total							3E-09					0.00007
Medium Total								3E-05					0.4
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.002	--	0.001	0.003
			Anthracene	--	--	--	--	--	None Reported	0.001	--	0.0003	0.001
			Benzo(a)anthracene	2E-04	--	6E-05	--	2E-04	NA	--	--	--	--
			Benzo(a)pyrene	1E-03	--	5E-04	--	2E-03	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-04	--	4E-05	--	2E-04	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.01	--	0.003	0.01
			Benzo(k)fluoranthene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Chrysene	2E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-04	--	1E-04	--	4E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.03	--	0.01	0.04
			Indeno(1,2,3-cd)pyrene	8E-05	--	3E-05	--	1E-04	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.003	--	0.001	0.004
			Phenanthrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Pyrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.05
			Total Aroclors	2E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.003	--	--	0.003
			Arsenic	4E-06	--	3E-07	--	4E-06	Skin, CVS	0.1	--	0.009	0.1
			Cadmium	--	--	--	--	--	Kidney	0.003	--	0.0002	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.09	--	--	0.09
			Copper	--	--	--	--	--	GS	0.01	--	--	0.01

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Iron	- -	--	- -	--	- -	GS	0.10	- -	--	0.10
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Molybdenum	- -	--	- -	--	- -	Gout	0.0011	- -	--	0.0011
			Vanadium	- -	--	- -	--	- -	Kidney	0.007	- -	--	0.007
			Zinc	- -	--	- -	--	- -	Blood	0.005	- -	--	0.005
			Chemical Total	2E-03	--	8E-04	--	3E-03		0.5	- -	0.05	0.5
		Exposure Point Total						3E-03					0.5
	Exposure Medium Total							3E-03					0.5
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	6E-11	--	--	6E-11	NA	- -	--	- -	--
			Benzo(a)pyrene	--	5E-10	--	--	5E-10	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Chrysene	--	5E-12	--	--	5E-12	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	3E-11	--	--	3E-11	NA	- -	--	- -	--
			Naphthalene	--	8E-08	--	--	8E-08	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00001	- -	0.00001
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	3E-11	--	--	3E-11	NA	- -	0.000002	- -	0.000002
			Cadmium	--	6E-13	--	--	6E-13	NA	- -	--	- -	--
			Chromium	--	8E-11	--	--	8E-11	Respiratory	- -	0.0000008	- -	0.0000008
			Cobalt	--	5E-11	--	--	5E-11	Respiratory	- -	0.00001	- -	0.00001
			Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	8E-08	--	--	8E-08		--	0.00002	--	0.00002
		Exposure Point Total						8E-08					0.00002
	Exposure Medium Total							8E-08					0.00002
Medium Total								3E-03					0.5
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	5E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	6E-08	--	2E-08	--	9E-08	NA	--	--	--	--
			Chrysene	9E-09	--	3E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	7E-07	--	2E-07	--	9E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	4E-06	--	4E-07	--	5E-06	Skin, CVS	0.1	--	0.009	0.1
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Manganese (Soil)	--	--	--	--	--	CNS	0.01	--	--	0.01
			Chemical Total	2E-05	--	7E-06	--	3E-05		0.3	--	0.009	0.3
		Exposure Point Total						3E-05					0.3
	Exposure Medium Total							3E-05					0.3
	Air	Paved Area	Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	3E-11	--	--	3E-11	NA	--	0.000002	--	0.000002
			Beryllium	--	3E-13	--	--	3E-13	Respiratory	--	0.00000008	--	0.00000008

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	6E-11	--	--	6E-11	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	4E-11	--	--	4E-11	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	1E-10	--	--	1E-10		--	0.00005	--	0.00005
		Exposure Point Total						1E-10					0.00005
	Exposure Medium Total							1E-10					0.00005
Medium Total								3E-05					0.3
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00013	--	--	0.00013
			Benzo(a)anthracene	2E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	8E-06	--	3E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.000011	0.00004
			Benzo(k)fluoranthene	8E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Chrysene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-07	--	2E-07	--	9E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-07	--	7E-08	--	3E-07	NA	--	--	--	--
			Total Aroclors	5E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	8E-06	--	7E-07	--	9E-06	Skin, CVS	0.2	--	0.02	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.07	--	--	0.07
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	2E-05	--	5E-06	--	3E-05		0.4	--	0.02	0.4
		Exposure Point Total						3E-05					0.4
	Exposure Medium Total							3E-05					0.4
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.001	--	0.001
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.002	--	0.002
			Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Chrysene	--	6E-14	--	--	6E-14	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	6E-14	--	--	6E-14	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.00001	- -	0.00001
			Arsenic	--	5E-11	--	--	5E-11	NA	- -	0.000005	- -	0.000005
			Chromium	--	1E-10	--	--	1E-10	Respiratory	- -	0.0000010	- -	0.0000010
			Cobalt	--	4E-11	--	--	4E-11	Respiratory	- -	0.000009	- -	0.000009
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Manganese (Soil)	--	- -	--	--	- -	CNS	- -	--	- -	--
			Chemical Total	--	2E-10	--	--	2E-10		- -	0.003	- -	0.003
		Exposure Point Total						2E-10					0.003
	Exposure Medium Total							2E-10					0.003
Medium Total								3E-05					0.4
Surface Water	Surface Water	Site 08	Dieldrin	- -	--	5E-08	--	5E-08	Liver	--	- -	0.0007	0.0007
			Aluminum	- -	--	- -	--	- -	CNS	--	- -	0.000002	0.000002
			Arsenic	- -	--	9E-09	--	9E-09	Skin, CVS	--	- -	0.0002	0.0002
			Cobalt	- -	--	- -	--	- -	Blood	--	- -	0.0001	0.0001
			Iron	- -	--	- -	--	- -	GS	--	- -	0.00002	0.00002
			Manganese (Water)	- -	--	- -	--	- -	CNS	--	- -	0.004	0.004
			Lead	- -	--	- -	--	- -	NA	--	- -	0.0000	0.0000
			Molybdenum	- -	--	- -	--	- -	Gout	--	- -	0.000	0.000
			Chemical Total	- -	--	5E-08	--	5E-08		--	- -	0.005	0.005
		Exposure Point Total						5E-08					0.005
	Exposure Medium Total							5E-08					0.005
Medium Total								5E-08					0.005
Sediment	Sediment	Site 08	Benzo(a)anthracene	8E-07	--	3E-07	--	1E-06	NA	--	- -	--	--
			Benzo(a)pyrene	7E-06	--	2E-06	--	9E-06	NA	--	- -	--	--
			Benzo(b)fluoranthene	6E-07	--	2E-07	--	8E-07	NA	--	- -	--	--
			Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.00004	- -	0.00002	0.00006
			Benzo(k)fluoranthene	6E-08	--	2E-08	--	8E-08	NA	--	- -	--	--
			Chrysene	8E-09	--	3E-09	--	1E-08	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	8E-07	--	3E-07	--	1E-06	NA	--	- -	--	--
			Indeno(1,2,3-cd)pyrene	4E-07	--	1E-07	--	5E-07	NA	--	- -	--	--
			Dieldrin	6E-08	--	2E-08	--	8E-08	Liver	0.0009	- -	0.0003	0.001
			Total Aroclors	1E-07	--	5E-08	--	2E-07	NA	--	- -	--	--

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Aluminum	- -	--	- -	--	- -	CNS	0.02	- -	--	0.02
			Arsenic	3E-06	--	3E-07	--	4E-06	Skin, CVS	0.09	- -	0.007	0.10
			Beryllium	- -	--	- -	--	- -	GS	0.0004	- -	--	0.0004
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.01	- -	--	0.01
			Cobalt	- -	--	- -	--	- -	Blood	0.5	- -	--	0.5
			Iron	- -	--	- -	--	- -	GS	0.07	- -	--	0.07
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.03	- -	--	0.03
			Vanadium	- -	--	- -	--	- -	Kidney	0.010	- -	--	0.010
			Chemical Total	1E-05	--	4E-06	--	2E-05		0.8	- -	0.008	0.8
		Exposure Point Total						2E-05					0.8
	Exposure Medium Total							2E-05					0.8
Medium Total								2E-05					0.8
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	5E-06	--	- -	--	5E-06	NA	--	- -	- -	--
			4,4'-DDT	2E-07	--	- -	--	2E-07	Liver	0.01	- -	- -	0.01
			Aldrin	8E-07	--	- -	--	8E-07	Liver	0.02	- -	- -	0.02
			Dieldrin	1E-05	--	- -	--	1E-05	Liver	0.2	- -	- -	0.2
			Total Aroclors	3E-05	--	- -	--	3E-05	NA	--	- -	- -	--
			Arsenic	2E-07	--	- -	--	2E-07	Skin, CVS	0.005	- -	- -	0.005
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.3	- -	- -	0.3
			Mercury	- -	--	- -	--	- -	Autoimmune	0.09	- -	- -	0.09
			Chemical Total	5E-05	--	- -	--	5E-05		0.6	- -	- -	0.6
		Exposure Point Total						5E-05					0.6
	Exposure Medium Total							5E-05					0.6
Medium Total								5E-05					0.6
Receptor Total							Receptor Risk Total	3E-03				Receptor HI Total	3

Total Blood HI	0.9
Total Body Weight HI	0.004
Total CNS HI	0.2
Total CVS HI	0.7
Total GS HI	0.8
Total Kidney HI	0.1
Total Liver HI	0.3
Total Skin HI	0.7
Total Respiratory HI	0.00005
Total None Reported HI	0.001
Total Fetotoxicity HI	0.4
Total Bone HI	0.4

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000006	--	0.000003	0.00001
			Benzo(k)fluoranthene	2E-08	--	8E-09	--	2E-08	NA	--	--	--	--
			Chrysene	2E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00003	--	0.00002	0.00005
			Indeno(1,2,3-cd)pyrene	9E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00001	--	0.000006	0.00002
			Phenanthrene	--	--	--	--	--	Kidney	0.00004	--	0.00002	0.00006
			Pyrene	--	--	--	--	--	Kidney	0.00004	--	0.00002	0.00007
			Total Aroclors	4E-08	--	2E-08	--	7E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Antimony	--	--	--	--	--	Blood	0.0002	--	--	0.0002
			Arsenic	2E-06	--	3E-07	--	3E-06	Skin, CVS	0.01	--	0.002	0.02
			Beryllium	--	--	--	--	--	GS	0.00004	--	--	0.00004
			Cadmium	--	--	--	--	--	Kidney	0.0006	--	0.00005	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.001	--	--	0.001
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.0002	--	--	0.0002
			Iron	--	--	--	--	--	GS	0.007	--	--	0.007
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Chemical Total	5E-06	--	2E-06	--	7E-06		0.05	--	0.002	0.05
		Exposure Point Total						7E-06					0.05
	Exposure Medium Total							7E-06					0.05
	Air	Exposed Area	Benzo(a)anthracene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Chrysene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Naphthalene	--	1E-08	--	--	1E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	1E-10	--	--	1E-10	NA	- -	0.000003	- -	0.000003
			Beryllium	--	1E-12	--	--	1E-12	Respiratory	- -	0.00000009	- -	0.00000009
			Cadmium	--	4E-12	--	--	4E-12	NA	- -	--	- -	--
			Chromium	--	3E-10	--	--	3E-10	Respiratory	- -	0.0000008	- -	0.0000008
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	- -	0.00002	- -	0.00002
			Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Manganese (Soil)	--	- -	--	--	- -	CNS	- -	0.00003	- -	0.00003
			Chemical Total	--	1E-08	--	--	1E-08		- -	0.00007	- -	0.00007
		Exposure Point Total						1E-08					0.00007
	Exposure Medium Total							1E-08					0.00007
Medium Total								7E-06					0.05
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	- -	--	- -	--	- -	Blood	0.0002	- -	0.0001	0.0004
			Anthracene	- -	--	- -	--	- -	None Reported	0.0001	- -	0.00005	0.0001
			Benzo(a)anthracene	3E-05	--	1E-05	--	4E-05	NA	--	- -	--	--
			Benzo(a)pyrene	2E-04	--	1E-04	--	3E-04	NA	--	- -	--	--
			Benzo(b)fluoranthene	2E-05	--	9E-06	--	3E-05	NA	--	- -	--	--
			Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.001	- -	0.0004	0.001
			Benzo(k)fluoranthene	2E-06	--	9E-07	--	3E-06	NA	--	- -	--	--
			Chrysene	2E-07	--	1E-07	--	4E-07	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	5E-05	--	2E-05	--	7E-05	NA	--	- -	--	--
			Fluoranthene	- -	--	- -	--	- -	Liver	0.003	- -	0.002	0.005
			Indeno(1,2,3-cd)pyrene	1E-05	--	6E-06	--	2E-05	NA	--	- -	--	--
			Naphthalene	- -	--	- -	--	- -	Body Weight	0.0003	- -	0.0002	0.0005
			Phenanthrene	- -	--	- -	--	- -	Kidney	0.004	- -	0.002	0.005
			Pyrene	- -	--	- -	--	- -	Kidney	0.004	- -	0.002	0.005
			Total Aroclors	7E-08	--	4E-08	--	1E-07	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.003	- -	--	0.003
			Antimony	- -	--	- -	--	- -	Blood	0.0003	- -	--	0.0003
			Arsenic	2E-06	--	2E-07	--	2E-06	Skin, CVS	0.01	- -	0.001	0.01
			Cadmium	- -	--	- -	--	- -	Kidney	0.0003	- -	0.00003	0.0004
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.001	- -	--	0.001
			Cobalt	- -	--	- -	--	- -	Blood	0.01	- -	--	0.01
			Copper	- -	--	- -	--	- -	GS	0.001	- -	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.011	- -	--	0.011
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.00012	--	--	0.00012
			Vanadium	--	--	--	--	--	Kidney	0.0008	--	--	0.0008
			Zinc	--	--	--	--	--	Blood	0.0006	--	--	0.0006
			Chemical Total	3E-04	--	2E-04	--	5E-04		0.05	--	0.01	0.06
		Exposure Point Total						5E-04					0.06
	Exposure Medium Total							5E-04					0.06
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-10	--	--	7E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Chrysene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Naphthalene	--	3E-07	--	--	3E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00001	--	0.00001
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.000002	--	0.000002
			Cadmium	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chromium	--	3E-10	--	--	3E-10	Respiratory	--	0.0000008	--	0.0000008
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.00001	--	0.00001
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-07	--	--	3E-07		--	0.00002	--	0.00002
		Exposure Point Total						3E-07					0.00002
	Exposure Medium Total							3E-07					0.00002
Medium Total								5E-04					0.06

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000003	--	0.000002	0.000005
			Benzo(k)fluoranthene	9E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Chrysene	1E-09	--	7E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-07	--	5E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Arsenic	2E-06	--	2E-07	--	2E-06	Skin, CVS	0.01	--	0.001	0.01
			Beryllium	--	--	--	--	--	GS	0.00004	--	--	0.00004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0010	--	--	0.0010
			Cobalt	--	--	--	--	--	Blood	0.008	--	--	0.008
			Iron	--	--	--	--	--	GS	0.007	--	--	0.007
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Chemical Total	4E-06	--	2E-06	--	6E-06		0.03	--	0.001	0.03
		Exposure Point Total						6E-06					0.03
	Exposure Medium Total							6E-06					0.03
	Air	Paved Area	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.000002	--	0.000002
			Beryllium	--	1E-12	--	--	1E-12	Respiratory	--	0.00000008	--	0.00000008
			Chromium	--	3E-10	--	--	3E-10	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	5E-10	--	--	5E-10		--	0.00005	--	0.00005
		Exposure Point Total						5E-10					0.00005
	Exposure Medium Total							5E-10					0.00005
Medium Total								6E-06					0.03
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.000014	--	--	0.000014
			Benzo(a)anthracene	2E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	6E-07	--	2E-06	NA	--	--	--	--

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	1E-07	--	7E-08	--	2E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000003	--	0.000002	0.000005
			Benzo(k)fluoranthene	1E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Chrysene	2E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Total Aroclors	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Arsenic	3E-06	--	4E-07	--	4E-06	Skin, CVS	0.02	--	0.003	0.02
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.008	--	--	0.008
			Iron	--	--	--	--	--	GS	0.008	--	--	0.008
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	5E-06	--	1E-06	--	7E-06		0.04	--	0.003	0.04
		Exposure Point Total						7E-06					0.04
	Exposure Medium Total							7E-06					0.04
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.001	--	0.001
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.002	--	0.002
			Benzo(a)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Chrysene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-14	--	--	9E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00001	--	0.00001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.000005	--	0.000005
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.0000010	--	0.0000010
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.000009	--	0.000009
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	8E-10	--	--	8E-10		--	0.003	--	0.003
		Exposure Point Total						8E-10					0.003
	Exposure Medium Total							8E-10					0.003
Medium Total								7E-06					0.05

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Site 08	Dieldrin	--	--	1E-07	--	1E-07	Liver	--	--	0.0003	0.0003
			Aluminum	--	--	--	--	--	CNS	--	--	0.000001	0.000001
			Arsenic	--	--	2E-08	--	2E-08	Skin, CVS	--	--	0.0001	0.0001
			Cobalt	--	--	--	--	--	Blood	--	--	0.00005	0.00005
			Iron	--	--	--	--	--	GS	--	--	0.000011	0.000011
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.002	0.002
			Lead	--	--	--	--	--	NA	--	--	0.0000	0.0000
			Molybdenum	--	--	--	--	--	Gout	--	--	0.0002	0.0002
			Chemical Total	--	--	tE-07	--	1E-07		--	--	0.003	0.003
		Exposure Point Total						1E-07					0.003
	Exposure Medium Total							1E-07					0.003
Medium Total								1E-07					0.003
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-07	--	7E-08	--	2E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	6E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000005	--	0.000003	0.000008
			Benzo(k)fluoranthene	9E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Chrysene	1E-09	--	7E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	8E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Dieldrin	3E-08	--	1E-08	--	4E-08	Liver	0.0001	--	0.00005	0.0002
			Total Aroclors	6E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Arsenic	1E-06	--	2E-07	--	2E-06	Skin, CVS	0.010	--	0.001	0.01
			Beryllium	--	--	--	--	--	GS	0.00005	--	--	0.00005
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.001	--	--	0.001
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Iron	--	--	--	--	--	GS	0.007	--	--	0.007
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Vanadium	--	--	--	--	--	Kidney	0.001	--	--	0.001
			Chemical Total	3E-06	--	1E-06	--	4E-06		0.08	--	0.001	0.08
		Exposure Point Total						4E-06					0.08
	Exposure Medium Total							4E-06					0.08
Medium Total								4E-06					0.08
Surface Weter	Finfish/Shellfish	Site 08	4,4'-DDE	1E-05	--	--	--	1E-05	NA	--	--	--	--
			4,4'-DDT	4E-07	--	--	--	4E-07	Liver	0.007	--	--	0.007
			Aldrin	2E-06	--	--	--	2E-06	Liver	0.01	--	--	0.01
			Dieldrin	4E-05	--	--	--	4E-05	Liver	0.1	--	--	0.1

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Finfish/Shellfish	Site 08	Total Aroclors	7E-05	--	--	--	7E-05	NA	--	--	--	--
			Arsenic	5E-07	--	--	--	5E-07	Skin, CVS	0.003	--	--	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.2	--	--	0.2
			Mercury	--	--	--	--	--	Autoimmune	0.06	--	--	0.06
			Chemical Total	1E-04	--	--	--	1E-04		0.4	--	--	0.4
		Exposure Point Total						1E-04					0.4
	Exposure Medium Total							1E-04					0.4
Medium Total								1E-04					0.4
Receptor Total							Receptor Risk Total	6E-04				Receptor HI Total	0.6

Total Blood HI	0.10
Total Body Weight HI	0.0005
Total CNS HI	0.02
Total CVS HI	0.08
Total GS HI	0.2
Total Kidney HI	0.02
Total Liver HI	0.2
Total Respiratory HI	0.00005
Total Skin HI	0.08
Total None Reported HI	0.0001
Total Fetotoxicity HI	0.2
Total Bone HI	0.2

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-06	--	8E-07	--	3E-06					
			Benzo(a)pyrene	2E-05	--	6E-06	--	2E-05					
			Benzo(b)fluoranthene	2E-06	--	7E-07	--	2E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-07	--	5E-08	--	2E-07					
			Chrysene	2E-08	--	7E-09	--	3E-08					
			Dibenzo(a,h)anthracene	3E-06	--	1E-06	--	4E-06					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	7E-07	--	3E-07	--	1E-06					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-07	--	6E-08	--	2E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	8E-06	--	7E-07	--	8E-06					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	3E-05	--	1E-05	--	4E-05					
		Exposure Point Total						4E-05					
	Exposure Medium Total							4E-05					
	Air	Exposed Area	Benzo(a)anthracene	--	6E-12	--	--	6E-12					
			Benzo(a)pyrene	--	7E-12	--	--	7E-12					
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	6E-13	--	--	6E-13					
			Chrysene	--	1E-12	--	--	1E-12					
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	3E-09	--	--	3E-09					
			Naphthalene	--	1E-08	--	--	1E-08					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	1E-10	--	--	1E-10					
			Beryllium	--	2E-12	--	--	2E-12					
			Cadmium	--	9E-11	--	--	9E-11					
			Chromium	--	4E-10	--	--	4E-10					
			Cobalt	--	3E-10	--	--	3E-10					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	1E-08	--	--	1E-08					
		Exposure Point Total						1E-08					
	Exposure Medium Total							1E-08					
Medium Total								1E-08					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	1E-04	--	6E-05	--	2E-04					
			Benzo(a)pyrene	2E-04	--	1E-04	--	3E-04					
			Benzo(b)fluoranthene	3E-05	--	1E-05	--	4E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	3E-04	--	1E-04	--	4E-04					
			Chrysene	2E-07	--	1E-07	--	4E-07					
			Dibenzo(a,h)anthracene	1E-04	--	5E-05	--	2E-04					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	1E-05	--	6E-06	--	2E-05					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	7E-08	--	4E-08	--	1E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	2E-06	--	2E-07	--	2E-06					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	8E-04	--	4E-04	--	1E-03					
		Exposure Point Total						1E-03					
	Exposure Medium Total							1E-03					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	9E-11	--	--	9E-11					
			Benzo(a)pyrene	--	8E-10	--	--	8E-10					
			Benzo(b)fluoranthene	--	6E-11	--	--	6E-11					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	8E-08	--	--	8E-08					
			Chrysene	--	7E-12	--	--	7E-12					
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11					
			Naphthalene	--	3E-07	--	--	3E-07					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	1E-10	--	--	1E-10					
			Cadmium	--	2E-12	--	--	2E-12					
			Chromium	--	3E-10	--	--	3E-10					
			Cobalt	--	2E-10	--	--	2E-10					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Zinc	--	- -	--	--	- -					
			Chemical Total	--	4E-07	--	--	4E-07					
		Exposure Point Total						4E-07					
	Exposure Medium Total							4E-07					
Medium Total								1E-03					
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-06	--	7E-07	--	2E-06					
			Benzo(a)pyrene	2E-05	--	6E-06	--	2E-05					
			Benzo(b)fluoranthene	2E-06	--	7E-07	--	3E-06					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	7E-08	--	3E-08	--	1E-07					
			Chrysene	1E-08	--	4E-09	--	1E-08					
			Dibenzo(a,h)anthracene	9E-07	--	4E-07	--	1E-06					
			Indeno(1,2,3-cd)pyrene	8E-07	--	3E-07	--	1E-06					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	6E-06	--	6E-07	--	7E-06					
			Beryllium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Chemical Total	3E-05	--	9E-06	--	4E-05					
		Exposure Point Total						4E-05					
	Exposure Medium Total							4E-05					
	Air	Paved Area	Benzo(a)anthracene	--	1E-12	--	--	1E-12					
			Benzo(a)pyrene	--	1E-11	--	--	1E-11					
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12					
			Benzo(g,h,i)perylene	--	- -	--	--	- -					
			Benzo(k)fluoranthene	--	5E-13	--	--	5E-13					
			Chrysene	--	7E-14	--	--	7E-14					
			Dibenzo(a,h)anthracene	--	7E-13	--	--	7E-13					
			Indeno(1,2,3-cd)pyrene	--	5E-13	--	--	5E-13					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	1E-10	--	--	1E-10					
			Beryllium	--	2E-12	--	--	2E-12					
			Chromium	--	3E-10	--	--	3E-10					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Cobalt	--	2E-10	--	--	2E-10					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	7E-10	--	--	7E-10					
		Exposure Point Total						7E-10					
	Exposure Medium Total							7E-10					
Medium Total								4E-05					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	2E-06	--	7E-07	--	3E-06					
			Benzo(a)pyrene	9E-06	--	4E-06	--	1E-05					
			Benzo(b)fluoranthene	1E-06	--	4E-07	--	1E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	9E-08	--	3E-08	--	1E-07					
			Chrysene	2E-08	--	7E-09	--	3E-08					
			Dibenzo(a,h)anthracene	7E-07	--	3E-07	--	1E-06					
			Indeno(1,2,3-cd)pyrene	2E-07	--	8E-08	--	3E-07					
			Total Aroclors	6E-07	--	3E-07	--	9E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	1E-05	--	1E-06	--	1E-05					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	3E-05	--	6E-06	--	3E-05					
		Exposure Point Total						3E-05					
	Exposure Medium Total							3E-05					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	--	1E-12	--	--	1E-12					
			Benzo(a)pyrene	--	7E-12	--	--	7E-12					
			Benzo(b)fluoranthene	--	8E-13	--	--	8E-13					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	6E-13	--	--	6E-13					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Chrysene	--	1E-13	--	--	1E-13					
			Dibenzo(a,h)anthracene	--	6E-13	--	--	6E-13					
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13					
			Total Aroclors	--	- -	--	--	- -					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	3E-10	--	--	3E-10					
			Chromium	--	5E-10	--	--	5E-10					
			Cobalt	--	2E-10	--	--	2E-10					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	1E-09	--	--	1E-09					
		Exposure Point Total						1E-09					
	Exposure Medium Total							1E-09					
Medium Total								1E-09					
								3E-05					
Surface Water	Surface Water	Site 08	Dieldrin	- -	--	1E-07	--	1E-07					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	- -	--	2E-08	--	2E-08					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Manganese (Water)	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Molybdenum	- -	--	- -	--	- -					
			Chemical Total	- -	--	1E-07	--	1E-07					
		Exposure Point Total						1E-07					
	Exposure Medium Total							1E-07					
Medium Total								1E-07					
Sediment	Sediment	Site 08	Benzo(a)anthracene	2E-07	--	9E-08	--	3E-07					
			Benzo(a)pyrene	1E-06	--	7E-07	--	2E-06					
			Benzo(b)fluoranthene	9E-08	--	6E-08	--	1E-07					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	9E-09	--	5E-09	--	1E-08					
			Chrysene	1E-09	--	7E-10	--	2E-09					
			Dibenzo(a,h)anthracene	1E-07	--	8E-08	--	2E-07					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Indeno(1,2,3-cd)pyrene	6E-08	--	4E-08	--	9E-08					
			Dieldrin	3E-08	--	1E-08	--	4E-08					
			Total Aroclors	6E-08	--	4E-08	--	1E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	1E-05	--	4E-06	--	2E-05					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Chemical Total	2E-05	--	5E-06	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
Medium Total								2E-05					
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	1E-05	--	--	--	1E-05					
			4,4'-DDT	5E-07	--	--	--	5E-07					
			Aldrin	3E-06	--	--	--	3E-06					
			Dieldrin	4E-05	--	--	--	4E-05					
			Total Aroclors	7E-05	--	--	--	7E-05					
			Arsenic	5E-07	--	--	--	5E-07					
			Chromium	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Chemical Total	1E-04	--	--	--	1E-04					
		Exposure Point Total						1E-04					
	Exposure Medium Total							1E-04					
Medium Total								1E-04					
Receptor Total							Receptor Risk Total	1E-03					

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-05	--	5E-06	--	2E-05	NA	--	--	--	--
			Benzo(a)pyrene	1E-04	--	4E-05	--	1E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-05	--	4E-06	--	1E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0004	--	0.0001	0.0006
			Benzo(k)fluoranthene	8E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Chrysene	1E-07	--	4E-08	--	2E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-05	--	6E-06	--	2E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.002	--	0.0008	0.003
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	6E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0008	--	0.0003	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.003	--	0.001	0.004
			Pyrene	--	--	--	--	--	Kidney	0.003	--	0.0011	0.004
			Total Aroclors	7E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.2	--	--	0.2
			Antimony	--	--	--	--	--	Blood	0.01	--	--	0.01
			Arsenic	4E-05	--	3E-06	--	4E-05	Skin, CVS	1	--	0.09	1
			Beryllium	--	--	--	--	--	GS	0.003	--	--	0.003
			Cadmium	--	--	--	--	--	Kidney	0.04	--	0.002	0.04
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.09	--	--	0.09
			Cobalt	--	--	--	--	--	Blood	1	--	--	1
			Copper	--	--	--	--	--	GS	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.5	--	--	0.5
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.08	--	--	0.08
			Chemical Total	2E-04	--	6E-05	--	3E-04		3	--	0.09	3
		Exposure Point Total						3E-04					3
	Exposure Medium Total							3E-04					3
	Air	Exposed Area	Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Chrysene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Naphthalene	--	6E-08	--	--	6E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	8E-10	--	--	8E-10	NA	--	0.00007	--	0.00007
			Beryllium	--	8E-12	--	--	8E-12	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	2E-09	--	--	2E-09	Respiratory	--	0.0004	--	0.0004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0008	--	0.0008
			Chemical Total	--	6E-08	--	--	6E-08		--	0.001	--	0.001
		Exposure Point Total						6E-08					0.001
	Exposure Medium Total							6E-08					0.001
Medium Total								3E-04					3
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.02	--	0.006	0.02
			Anthracene	--	--	--	--	--	None Reported	0.007	--	0.002	0.01
			Benzo(a)anthracene	1E-03	--	5E-04	--	2E-03	NA	--	--	--	--
			Benzo(a)pyrene	1E-02	--	4E-03	--	1E-02	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-04	--	3E-04	--	1E-03	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.06	--	0.02	0.1
			Benzo(k)fluoranthene	8E-05	--	3E-05	--	1E-04	NA	--	--	--	--
			Chrysene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-03	--	8E-04	--	3E-03	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.2	--	0.1	0.3
			Indeno(1,2,3-cd)pyrene	6E-04	--	2E-04	--	8E-04	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.02	--	0.01	0.03
			Phenanthrene	--	--	--	--	--	Kidney	0.2	--	0.1	0.3
			Pyrene	--	--	--	--	--	Kidney	0.2	--	0.1	0.3
			Total Aroclors	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.2	--	--	0.2
			Antimony	--	--	--	--	--	Blood	0.02	--	--	0.02
			Arsenic	3E-05	--	2E-06	--	3E-05	Skin, CVS	0.8	--	0.06	0.8
			Cadmium	--	--	--	--	--	Kidney	0.02	--	0.001	0.02
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.08	--	--	0.08
			Cobalt	--	--	--	--	--	Blood	0.7	--	--	0.7
			Copper	--	--	--	--	--	GS	0.08	--	--	0.08
			Iron	--	--	--	--	--	GS	0.8	--	--	0.8
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.008	--	--	0.008
			Vanadium	--	--	--	--	--	Kidney	0.05	--	--	0.05
			Zinc	--	--	--	--	--	Blood	0.04	--	--	0.04
			Chemical Total	2E-02	--	6E-03	--	2E-02		3	--	0.4	4
		Exposure Point Total						2E-02					4
	Exposure Medium Total							2E-02					4
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	--	9E-10	--	--	9E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	9E-10	--	--	9E-10	NA	--	--	--	--
			Chrysene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Naphthalene	--	2E-06	--	--	2E-06	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00005	--	0.00005
			Cadmium	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-06	--	--	2E-06		--	0.0005	--	0.0005
		Exposure Point Total						2E-06					0.0005
	Exposure Medium Total							2E-06					0.0005
Medium Total								2E-02					4

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surfaca Soil	Paved Area	Benzo(a)anthracene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Benzo(a)pyrene	1E-04	--	4E-05	--	1E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0002	--	0.0001	0.0003
			Benzo(k)fluoranthene	5E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Chrysene	6E-08	--	2E-08	--	9E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracane	6E-06	--	2E-06	--	8E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	7E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.1	--	--	0.1
			Arsenic	3E-05	--	3E-06	--	3E-05	Skin, CVS	0.8	--	0.07	0.9
			Beryllium	--	--	--	--	--	GS	0.003	--	--	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.07	--	--	0.07
			Cobalt	--	--	--	--	--	Blood	0.5	--	--	0.5
			Iron	--	--	--	--	--	GS	0.5	--	--	0.5
			Manganese (Soil)	--	--	--	--	--	CNS	0.07	--	--	0.07
			Chemical Total	2E-04	--	5E-05	--	2E-04		2	--	0.07	2
		Exposure Point Total						2E-04					2
	Exposure Medium Total							2E-04					2
	Air	Paved Area	Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Chrysene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	7E-12	--	--	7E-12	Respiratory	--	0.000002	--	0.000002
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0007	--	0.0007
			Chemical Total	--	3E-09	--	--	3E-09		--	0.001	--	0.001
		Exposure Point Total						3E-09					0.001
	Exposure Medium Total							3E-09					0.001
Medium Total								2E-04					2
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.0009	--	--	0.0009
			Benzo(a)anthracene	1E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Benzo(a)pyrene	6E-05	--	2E-05	--	8E-05	NA	--	--	--	--

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	7E-06	--	2E-06	--	9E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0002	--	0.00008	0.0003
			Benzo(k)fluoranthene	6E-07	--	2E-07	--	8E-07	NA	--	--	--	--
			Chrysene	1E-07	--	4E-08	--	2E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-06	--	2E-06	--	6E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Total Aroclors	3E-06	--	1E-06	--	5E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.2	--	--	0.2
			Arsenic	6E-05	--	5E-06	--	6E-05	Skin, CVS	1	--	0.1	2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.1	--	--	0.1
			Cobalt	--	--	--	--	--	Blood	0.6	--	--	0.6
			Iron	--	--	--	--	--	GS	0.5	--	--	0.5
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	1E-04	--	4E-05	--	2E-04		3	--	0.1	3
		Exposure Point Total						2E-04					3
	Exposure Medium Total							2E-04					3
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.02	--	0.02
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.05	--	0.05
			Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Chrysene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	1E-09	--	--	1E-09	NA	--	0.0001	--	0.0001
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	9E-10	--	--	9E-10	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	4E-09	--	--	4E-09		--	0.06	--	0.06
		Exposure Point Total						4E-09					0.06
	Exposure Medium Total							4E-09					0.06
Medium Total								2E-04					3

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	1E-05	--	8E-07	--	1E-05	Kidney, CNS	0.1	--	0.008	0.1
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.5	--	0.3	0.8
			Bromomethane	--	--	--	--	--	GS	0.1	--	0.003	0.1
			Carbon Tetrachloride	2E-06	--	4E-07	--	2E-06	Liver	0.3	--	0.05	0.3
			Chloroform	2E-06	--	1E-07	--	2E-06	Liver	0.06	--	0.004	0.07
			Chloromethane	2E-06	--	3E-08	--	2E-06	NA	--	--	--	--
			Ethylbenzene	5E-06	--	2E-06	--	7E-06	Liver, Kidney	0.05	--	0.02	0.07
			Isopropylbenzene	--	--	--	--	--	Kidney	0.08	--	0.07	0.2
			Tetrachloroethene	5E-05	--	2E-05	--	7E-05	Liver	0.1	--	0.04	0.2
			Total Xylenes	--	--	--	--	--	Body Weight	0.04	--	0.02	0.06
			Trichloroethene	7E-05	--	8E-06	--	8E-05	NA	--	--	--	--
			Vinyl Chloride	2E-04	--	8E-06	--	2E-04	Liver	0.6	--	0.02	0.6
			Benzo(k)fluoranthene	1E-05	--	--	--	1E-05	NA	--	--	--	--
			Dieldrin	1E-06	--	6E-07	--	2E-06	Liver	0.02	--	0.009	0.03
			Aluminum	--	--	--	--	--	CNS	50	--	0.2	51
			Antimony	--	--	--	--	--	Blood	0.3	--	0.008	0.3
			Arsenic	6E-03	--	3E-05	--	6E-03	Skin, CVS	150	--	0.7	151
			Barium	--	--	--	--	--	Kidney	0.6	--	0.04	0.7
			Beryllium	--	--	--	--	--	GS	0.8	--	0.5	f
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	26	--	10	36
			Cobalt	--	--	--	--	--	Blood	190	--	0.9	191
			Copper	--	--	--	--	--	GS	3	--	0.02	3
			Iron	--	--	--	--	--	GS	155	--	0.7	155
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	51	--	6	58
			Mercury	--	--	--	--	--	Autoimmune	0.6	--	0.04	0.6
			Molybdenum	--	--	--	--	--	Gout	0.4	--	0.002	0.4
			Nickel	--	--	--	--	--	Body Weight	5	--	0.1	5
			Thallium	--	--	--	--	--	Blood	3	--	0.01	3
			Vanadium	--	--	--	--	--	Kidney	15	--	3	18
			Zinc	--	--	--	--	--	Blood	1	--	0.003	1
			Chemical Total	6E-03	--	7E-05	--	6E-03		655	--	22	677
		Exposure Point Total						6E-03					677
	Exposure Medium Total							6E-03					677
	Groundwater	Site 08	1,1-Dichloroethane	--	1E-05	--	--	1E-05	NA	--	0.1	--	0.1
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.5	--	0.5
			Bromomethane	--	--	--	--	--	Respiratory	--	0.1	--	0.1

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Carbon Tetrachloride	--	2E-06	--	--	2E-06	Liver	--	0.3	--	0.3
			Chloroform	--	2E-06	--	--	2E-06	Liver	--	0.06	--	0.06
			Chloromethane	--	2E-06	--	--	2E-06	CNS	--	--	--	--
			Ethylbenzene	--	5E-06	--	--	5E-06	Developmental	--	0.05	--	0.05
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.08	--	0.08
			Tetrachloroethene	--	5E-05	--	--	5E-05	Liver	--	0.1	--	0.1
			Total Xylenes	--	--	--	--	--	CNS	--	0.04	--	0.04
			Trichloroethene	--	7E-05	--	--	7E-05	NA	--	--	--	--
			Vinyl Chloride	--	2E-04	--	--	2E-04	Liver	--	0.6	--	0.6
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-04	--	--	4E-04		--	2	--	2
		Exposure Point Total						4E-04					2
	Exposure Medium Total							4E-04					2
Medium Total								7E-03					679
Receptor Total							Receptor Risk Total	3E-02				Receptor HI Total	691

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	199
Total Body Weight HI	6
Total CNS HI	110
Total CVS HI	155
Total GS HI	198
Total Kidney HI	20
Total Liver HI	3
Total Skin HI	155
Total Respiratory HI	0.1
Total Developmental HI	0.05
Total None Reported HI	0.009
Total Fetotoxicity HI	36
Total Bone HI	36

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-05	--	8E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	8E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00004	--	0.00002	0.00007
			Benzo(k)fluoranthene	1E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Chrysene	2E-08	--	9E-09	--	3E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-06	--	1E-06	--	4E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0003	--	0.0001	0.0004
			Indeno(1,2,3-cd)pyrene	7E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00008	--	0.00004	0.0001
			Phenanthrene	--	--	--	--	--	Kidney	0.0003	--	0.0002	0.0005
			Pyrene	--	--	--	--	--	Kidney	0.0003	--	0.0002	0.0005
			Total Aroclors	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	2E-05	--	2E-06	--	2E-05	Skin, CVS	0.1	--	0.01	0.1
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Cadmium	--	--	--	--	--	Kidney	0.004	--	0.0003	0.004
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.1	--	--	0.1
			Copper	--	--	--	--	--	GS	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.05	--	--	0.05
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.008	--	--	0.008
			Chemical Total	4E-05	--	1E-05	--	5E-05		0.3	--	0.01	0.3
		Exposure Point Total						5E-05					0.3
	Exposure Medium Total							5E-05					0.3
	Air	Exposed Area	Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chrysene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Naphthalene	--	2E-07	--	--	2E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	3E-09	--	--	3E-09	NA	--	0.00007	--	0.00007
			Beryllium	--	3E-11	--	--	3E-11	Respiratory	--	0.000002	--	0.000002
			Cadmium	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Chromium	--	7E-09	--	--	7E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	7E-09	--	--	7E-09	Respiratory	--	0.0004	--	0.0004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0008	--	0.0008
			Chemical Total	--	2E-07	--	--	2E-07		--	0.001	--	0.001
		Exposure Point Total						2E-07					0.001
	Exposure Medium Total							2E-07					0.001
Medium Total								5E-05					0.3
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.002	--	0.001	0.003
			Anthracene	--	--	--	--	--	None Reported	0.001	--	0.0004	0.001
			Benzo(a)anthracene	2E-04	--	1E-04	--	3E-04	NA	--	--	--	--
			Benzo(a)pyrene	2E-03	--	8E-04	--	2E-03	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-04	--	7E-05	--	2E-04	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.006	--	0.003	0.01
			Benzo(k)fluoranthene	1E-05	--	6E-06	--	2E-05	NA	--	--	--	--
			Chrysene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-04	--	2E-04	--	5E-04	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.02	--	0.01	0.04
			Indeno(1,2,3-cd)pyrene	9E-05	--	4E-05	--	1E-04	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.002	--	0.001	0.004
			Phenanthrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Pyrene	--	--	--	--	--	Kidney	0.03	--	0.01	0.04
			Total Aroclors	5E-07	--	3E-07	--	8E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Antimony	--	--	--	--	--	Blood	0.002	--	--	0.002
			Arsenic	1E-05	--	1E-06	--	1E-05	Skin, CVS	0.08	--	0.010	0.09
			Cadmium	--	--	--	--	--	Kidney	0.002	--	0.0002	0.003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Blood	0.07	--	--	0.07
			Copper	--	--	--	--	--	GS	0.008	--	--	0.008
			Iron	--	--	--	--	--	GS	0.08	--	--	0.08
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.0008	--	--	0.0008
			Vanadium	--	--	--	--	--	Kidney	0.006	--	--	0.006
			Zinc	--	--	--	--	--	Blood	0.004	--	--	0.004
			Chemical Total	2E-03	--	1E-03	--	3E-03		0.4	--	0.06	0.4
		Exposura Point Total						3E-03					0.4
	Exposure Medium Total							3E-03					0.4
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Chrysene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-10	--	--	8E-10	NA	--	--	--	--
			Naphthalene	--	7E-06	--	--	7E-06	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-09	--	--	2E-09	NA	--	0.00005	--	0.00005
			Cadmium	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Chromium	--	7E-09	--	--	7E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	4E-09	--	--	4E-09	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	7E-06	--	--	7E-06		--	0.0005	--	0.0005
		Exposure Point Total						7E-06					0.0005
	Exposure Medium Total							7E-06					0.0005
Medium Total								3E-03					0.4

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	8E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00003	--	0.00001	0.00004
			Benzo(k)fluoranthene	7E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Chrysene	9E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-07	--	5E-07	--	1E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	7E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.01	--	--	0.01
			Arsenic	1E-05	--	2E-06	--	1E-05	Skin, CVS	0.08	--	0.01	0.10
			Beryllium	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.007	--	--	0.007
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Iron	--	--	--	--	--	GS	0.05	--	--	0.05
			Manganese (Soil)	--	--	--	--	--	CNS	0.008	--	--	0.008
			Chemical Total	3E-05	--	1E-05	--	4E-05		0.2	--	0.01	0.2
		Exposure Point Total						4E-05					0.2
	Exposure Medium Total							4E-05					0.2
	Air	Paved Area	Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Chrysene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	2E-09	--	--	2E-09	NA	--	0.00005	--	0.00005
			Beryllium	--	3E-11	--	--	3E-11	Respiratory	--	0.000002	--	0.000002
			Chromium	--	6E-09	--	--	6E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	3E-09	--	--	3E-09	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0007	--	0.0007
			Chemical Total	--	1E-08	--	--	1E-08		--	0.001	--	0.001
		Exposure Point Total						1E-08					0.001
	Exposure Medium Total							1E-08					0.001
Medium Total								4E-05					0.2
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00010	--	--	0.00010
			Benzo(a)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Benzo(a)pyrene	9E-06	--	5E-06	--	1E-05	NA	--	--	--	--

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.000012	0.00004
			Benzo(k)fluoranthene	8E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Chrysene	2E-08	--	9E-09	--	3E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	7E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Total Aroclors	1E-06	--	8E-07	--	2E-06	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	2E-05	--	3E-06	--	3E-05	Skin, CVS	0.2	--	0.02	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.01	--	--	0.01
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	4E-05	--	1E-05	--	5E-05		0.3	--	0.02	0.3
		Exposure Point Total						5E-05					0.3
	Exposure Medium Total							5E-05					0.3
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.02	--	0.02
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.05	--	0.05
			Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Chrysene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Arsenic	--	4E-09	--	--	4E-09	NA	--	0.0001	--	0.0001
			Chromium	--	9E-09	--	--	9E-09	Respiratory	--	0.00002	--	0.00002
			Cobalt	--	4E-09	--	--	4E-09	Respiratory	--	0.0002	--	0.0002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	2E-08	--	--	2E-08		--	0.06	--	0.06
		Exposure Point Total						2E-08					0.06
	Exposure Medium Total							2E-08					0.06
Medium Total								5E-05					0.4

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	2E-05	--	1E-06	--	2E-05	Kidney, CNS	0.04	--	0.003	0.05
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.2	--	0.1	0.3
			Bromomethane	--	--	--	--	--	GS	0.04	--	0.001	0.04
			Carbon Tetrachloride	2E-06	--	7E-07	--	3E-06	Liver	0.08	--	0.02	0.10
			Chloroform	2E-06	--	2E-07	--	2E-06	Liver	0.02	--	0.002	0.02
			Chloromethane	2E-06	--	6E-08	--	2E-06	NA	--	--	--	--
			Ethylbenzene	6E-06	--	4E-06	--	1E-05	Liver, Kidney	0.02	--	0.010	0.03
			Isopropylbenzene	--	--	--	--	--	Kidney	0.03	--	0.03	0.06
			Tetrachloroethene	6E-05	--	4E-05	--	1E-04	Liver	0.03	--	0.02	0.05
			Total Xylenes	--	--	--	--	--	Body Weight	0.01	--	0.007	0.02
			Trichloroethene	9E-05	--	1E-05	--	1E-04	NA	--	--	--	--
			Vinyl Chloride	3E-04	--	1E-05	--	3E-04	Liver	0.2	--	0.009	0.2
			Benzo(k)fluoranthene	5E-06	--	--	--	5E-06	NA	--	--	--	--
			Dieldrin	2E-06	--	1E-06	--	3E-06	Liver	0.006	--	0.004	0.01
			Aluminum	--	--	--	--	--	CNS	15	--	0.08	16
			Antimony	--	--	--	--	--	Blood	0.08	--	0.003	0.09
			Arsenic	7E-03	--	4E-05	--	7E-03	Skin, CVS	46	--	0.2	46
			Barium	--	--	--	--	--	Kidney	0.2	--	0.01	0.2
			Beryllium	--	--	--	--	--	GS	0.2	--	0.2	0.4
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	8	--	3	11
			Cobalt	--	--	--	--	--	Blood	58	--	0.3	58
			Copper	--	--	--	--	--	GS	1.0	--	0.005	1.0
			Iron	--	--	--	--	--	GS	47	--	0.2	48
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	16	--	2	18
			Mercury	--	--	--	--	--	Autoimmune	0.2	--	0.01	0.2
			Molybdenum	--	--	--	--	--	Gout	0.1	--	0.0006	0.1
			Nickel	--	--	--	--	--	Body Weight	2	--	0.04	2
			Thallium	--	--	--	--	--	Blood	1.0	--	0.005	1.0
			Vanadium	--	--	--	--	--	Kidney	5	--	0.9	5
			Zinc	--	--	--	--	--	Blood	0.4	--	0.001	0.4
			Chemical Total	8E-03	--	1E-04	--	8E-03		200	--	8	208
		Exposure Point Total						8E-03					208
	Exposure Medium Total							8E-03					208
	Groundwater	Site 08	1,1-Dichloroethane	--	2E-05	--	--	2E-05	NA	--	0.04	--	0.04
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.2	--	0.2
			Bromomethane	--	--	--	--	--	Respiratory	--	0.04	--	0.04

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Carbon Tetrachloride	--	2E-06	--	--	2E-06	Liver	--	0.08	--	0.08
			Chloroform	--	2E-06	--	--	2E-06	Liver	--	0.02	--	0.02
			Chloromethane	--	2E-06	--	--	2E-06	CNS	--	--	--	--
			Ethylbenzene	--	6E-06	--	--	6E-06	Developmental	--	0.02	--	0.02
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.03	--	0.03
			Tetrachloroethene	--	6E-05	--	--	6E-05	Liver	--	0.03	--	0.03
			Total Xylenes	--	--	--	--	--	CNS	--	0.01	--	0.01
			Trichloroethene	--	9E-05	--	--	9E-05	NA	--	--	--	--
			Vinyl Chloride	--	3E-04	--	--	3E-04	Liver	--	0.2	--	0.2
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-04	--	--	4E-04		--	0.6	--	0.6
		Exposure Point Total						4E-04					0.6
	Exposure Medium Total							4E-04					0.6
Medium Total								8E-03					209
Receptor Total							Receptor Risk Total	1E-02				Receptor HI Total	210

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	60
Total Body Weight HI	2
Total CNS HI	34
Total CVS HI	47
Total GS HI	6t
Total Kidney HI	6
Total Liver HI	1
Total Skin HI	47
Total Respiratory HI	0.04
Total Developmental HI	0.02
Total None Reported HI	0.001
Total Fetotoxicity HI	11
Total Bone HI	11

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-05	--	6E-06	--	2E-05					
			Benzo(a)pyrene	1E-04	--	5E-05	--	2E-04					
			Benzo(b)fluoranthene	1E-05	--	5E-06	--	2E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	9E-07	--	4E-07	--	1E-06					
			Chrysene	1E-07	--	5E-08	--	2E-07					
			Dibenzo(a,h)anthracene	2E-05	--	8E-06	--	3E-05					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	7E-06					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-06	--	5E-07	--	1E-06					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	6E-05	--	5E-06	--	6E-05					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	2E-04	--	7E-05	--	3E-04					
		Exposure Point Total						3E-04					
	Exposure Medium Total							3E-04					
	Air	Exposed Area	Benzo(a)anthracene	--	1E-10	--	--	1E-10					
			Benzo(a)pyrene	--	2E-10	--	--	2E-10					
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11					
			Chrysene	--	2E-11	--	--	2E-11					
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	6E-08	--	--	6E-08					
			Naphthalene	--	2E-07	--	--	2E-07					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	3E-09	--	--	3E-09					
			Beryllium	--	5E-11	--	--	5E-11					
			Cadmium	--	2E-09	--	--	2E-09					
			Chromium	--	9E-09	--	--	9E-09					
			Cobalt	--	7E-09	--	--	7E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	3E-07	--	--	3E-07					
		Exposure Point Total						3E-07					
	Exposure Medium Total							3E-07					
Medium Total								3E-07					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	1E-03	--	4E-04	--	2E-03					
			Benzo(a)pyrene	2E-03	--	8E-04	--	2E-03					
			Benzo(b)fluoranthene	2E-04	--	1E-04	--	3E-04					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-03	--	8E-04	--	3E-03					
			Chrysene	2E-06	--	9E-07	--	3E-06					
			Dibenzo(a,h)anthracene	9E-04	--	4E-04	--	1E-03					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	9E-05	--	4E-05	--	1E-04					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	5E-07	--	3E-07	--	8E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	1E-05	--	1E-06	--	1E-05					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	6E-03	--	3E-03	--	9E-03					
		Exposure Point Total						9E-03					
	Exposure Medium Total							9E-03					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	2E-09	--	--	2E-09					
			Benzo(a)pyrene	--	2E-08	--	--	2E-08					
			Benzo(b)fluoranthene	--	1E-09	--	--	1E-09					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-06	--	--	2E-06					
			Chrysene	--	2E-10	--	--	2E-10					
			Dibenzo(a,h)anthracene	--	3E-09	--	--	3E-09					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	8E-10	--	--	8E-10					
			Naphthalene	--	7E-06	--	--	7E-06					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	2E-09	--	--	2E-09					
			Cadmium	--	5E-11	--	--	5E-11					
			Chromium	--	7E-09	--	--	7E-09					
			Cobalt	--	4E-09	--	--	4E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	8E-06	--	--	8E-06					
		Exposure Point Total						8E-06					
	Exposure Medium Total							8E-06					
Medium Total								9E-03					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-05	--	5E-06	--	2E-05					
			Benzo(a)pyrene	1E-04	--	4E-05	--	2E-04					
			Benzo(b)fluoranthene	1E-05	--	5E-06	--	2E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	5E-07	--	2E-07	--	7E-07					
			Chrysene	7E-08	--	3E-08	--	1E-07					
			Dibenzo(a,h)anthracene	7E-06	--	3E-06	--	1E-05					
			Indeno(1,2,3-cd)pyrene	5E-06	--	2E-06	--	8E-06					
			Aluminum	--	--	--	--	--					
			Arsenic	4E-05	--	4E-06	--	5E-05					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	2E-04	--	6E-05	--	3E-04					
		Exposure Point Total						3E-04					
	Exposure Medium Total							3E-04					
	Air	Paved Area	Benzo(a)anthracene	--	3E-11	--	--	3E-11					
			Benzo(a)pyrene	--	2E-10	--	--	2E-10					
			Benzo(b)fluoranthene	--	3E-11	--	--	3E-11					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11					
			Chrysene	--	2E-12	--	--	2E-12					
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11					
			Indeno(1,2,3-cd)pyrene	--	1E-11	--	--	1E-11					
			Aluminum	--	--	--	--	--					
			Arsenic	--	3E-09	--	--	3E-09					
			Beryllium	--	4E-11	--	--	4E-11					
			Chromium	--	7E-09	--	--	7E-09					
			Cobalt	--	4E-09	--	--	4E-09					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	1E-08	--	--	1E-08					
		Exposure Point Total						1E-08					
	Exposure Medium Total							1E-08					
Medium Total								3E-04					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	1E-05	--	5E-06	--	2E-05					
			Benzo(a)pyrene	7E-05	--	3E-05	--	9E-05					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Derrnal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	8E-06	--	3E-06	--	1E-05					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	6E-07	--	2E-07	--	9E-07					
			Chrysene	1E-07	--	5E-08	--	2E-07					
			Dibenzo(a,h)anthracene	5E-06	--	2E-06	--	7E-06					
			Indeno(1,2,3-cd)pyrene	2E-06	--	6E-07	--	2E-06					
			Total Aroclors	5E-06	--	2E-06	--	7E-06					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	8E-05	--	8E-06	--	9E-05					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Chemical Total	2E-04	--	5E-05	--	2E-04					
		Exposure Point Total						2E-04					
	Exposure Medium Total							2E-04					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	- -	--	--	- -					
			1,3,5-Trimethylbenzene	--	- -	--	--	- -					
			Benzo(a)anthracene	--	3E-11	--	--	3E-11					
			Benzo(a)pyrene	--	1E-10	--	--	1E-10					
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11					
			Benzo(g,h,i)perylene	--	- -	--	--	- -					
			Benzo(k)fluoranthene	--	1E-11	--	--	1E-11					
			Chrysene	--	3E-12	--	--	3E-12					
			Dibenzo(a,h)anthracene	--	1E-11	--	--	1E-11					
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12					
			Total Aroclors	--	- -	--	--	- -					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	6E-09	--	--	6E-09					
			Chromium	--	1E-08	--	--	1E-08					
			Cobalt	--	5E-09	--	--	5E-09					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	2E-08	--	--	2E-08					
		Exposure Point Total						2E-08					
	Exposure Medium Total							2E-08					
Medium Total								2E-04					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	3E-05	--	2E-06	--	3E-05					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					
			Carbon Tetrachloride	4E-06	--	1E-06	--	5E-06					
			Chloroform	4E-06	--	3E-07	--	4E-06					
			Chloromethane	4E-06	--	9E-08	--	4E-06					
			Ethylbenzene	1E-05	--	6E-06	--	2E-05					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	1E-04	--	6E-05	--	2E-04					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	2E-04	--	2E-05	--	2E-04					
			Vinyl Chloride	5E-04	--	2E-05	--	5E-04					
			Benzo(k)fluoranthene	2E-05	--	--	--	2E-05					
			Dieldrin	3E-06	--	2E-06	--	5E-06					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	1E-02	--	6E-05	--	1E-02					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	1E-02	--	2E-04	--	1E-02					
		Exposure Point Total						1E-02					
	Exposure Medium Total							1E-02					
	Groundwater	Site 08	1,1-Dichloroethane	--	3E-05	--	--	3E-05					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Carbon Tetrachloride	--	4E-06	--	--	4E-06					
			Chloroform	--	4E-06	--	--	4E-06					
			Chloromethane	--	4E-06	--	--	4E-06					
			Ethylbenzene	--	1E-05	--	--	1E-05					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	--	1E-04	--	--	1E-04					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	--	2E-04	--	--	2E-04					
			Vinyl Chloride	--	5E-04	--	--	5E-04					
			Benzo(k)fluoranthene	--	--	--	--	--					
			Dieldrin	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	--	--	--	--					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	8E-04	--	--	8E-04					
		Exposure Point Total						8E-04					
	Exposure Medium Total							8E-04					
Medium Total								8E-04					
Receptor Total								1E-02					
								Receptor Risk Total 2E-02					

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	2E-08	--	3E-09	--	3E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00002	--	0.000003	0.00002
			Benzo(k)fluoranthene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Chrysene	2E-10	--	3E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-08	--	4E-09	--	3E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0001	--	0.00002	0.0001
			Indeno(1,2,3-cd)pyrene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00004	--	0.000005	0.00005
			Phenanthrene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0002
			Pyrene	--	--	--	--	--	Kidney	0.0002	--	0.00002	0.0002
			Total Aroclors	6E-09	--	9E-10	--	7E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.008	--	--	0.008
			Antimony	--	--	--	--	--	Blood	0.0007	--	--	0.0007
			Arsenic	3E-07	--	1E-08	--	4E-07	Skin, CVS	0.05	--	0.002	0.06
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Cadmium	--	--	--	--	--	Kidney	0.002	--	0.00004	0.002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Blood	0.06	--	--	0.06
			Copper	--	--	--	--	--	GS	0.001	--	--	0.001
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.004	--	--	0.004
			Chemical Total	6E-07	--	4E-08	--	6E-07		0.2	--	0.002	0.2
		Exposure Point Total						6E-07					0.2
	Exposure Medium Total							6E-07					0.2
	Air	Exposed Area	Benzo(a)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Naphthalene	--	2E-09	--	--	2E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.08	--	0.08
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	5E-08	--	--	5E-08	NA	--	0.03	--	0.03
			Beryllium	--	5E-10	--	--	5E-10	Respiratory	--	0.0007	--	0.0007
			Cadmium	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Chromium	--	1E-07	--	--	1E-07	Respiratory	--	0.007	--	0.007
			Cobalt	--	1E-07	--	--	1E-07	Respiratory	--	0.2	--	0.2
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.3	--	0.3
			Chemical Total	--	3E-07	--	--	3E-07		--	0.6	--	0.6
		Exposure Point Total						3E-07					0.6
	Exposure Medium Total							3E-07					0.6
Medium Total								9E-07					0.7
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.001	--	0.0001	0.001
			Anthracene	--	--	--	--	--	None Reported	0.0003	--	0.00004	0.0004
			Benzo(a)anthracene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-05	--	2E-06	--	2E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-06	--	2E-07	--	2E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.003	--	0.0004	0.003
			Benzo(k)fluoranthene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Chrysene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-06	--	5E-07	--	4E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.01	--	0.002	0.01
			Indeno(1,2,3-cd)pyrene	1E-06	--	1E-07	--	1E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.001	--	0.0002	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.01	--	0.002	0.01
			Pyrene	--	--	--	--	--	Kidney	0.01	--	0.002	0.01
			Total Aroclors	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.009	--	--	0.009
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	3E-07	--	8E-09	--	3E-07	Skin, CVS	0.04	--	0.001	0.04
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00002	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.004	--	--	0.004
			Iron	--	--	--	--	--	GS	0.04	--	--	0.04
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	- -	--	- -	--	- -	Gout	0.0004	- -	--	0.0004
			Vanadium	- -	--	- -	--	- -	Kidney	0.003	- -	--	0.003
			Zinc	- -	--	- -	--	- -	Blood	0.002	- -	--	0.002
			Chemical Total	3E-05	--	3E-06	--	3E-05		0.2	- -	0.007	0.2
		Exposure Point Total						3E-05					0.2
	Exposure Medium Total							3E-05					0.2
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	2E-08	--	--	2E-08	NA	- -	--	- -	--
			Benzo(a)pyrene	--	1E-07	--	--	1E-07	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	1E-08	--	--	1E-08	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	1E-08	--	--	1E-08	NA	- -	--	- -	--
			Chrysene	--	1E-09	--	--	1E-09	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	3E-08	--	--	3E-08	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	7E-09	--	--	7E-09	NA	- -	--	- -	--
			Naphthalene	--	1E-08	--	--	1E-08	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.09	- -	0.09
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	4E-08	--	--	4E-08	NA	- -	0.02	- -	0.02
			Cadmium	--	8E-10	--	--	8E-10	NA	- -	--	- -	--
			Chromium	--	1E-07	--	--	1E-07	Respiratory	- -	0.007	- -	0.007
			Cobalt	--	7E-08	--	--	7E-08	Respiratory	- -	0.09	- -	0.09
			Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Molybdenum	--	- -	--	--	- -	NA	- -	--	- -	--
			Vanadium	--	- -	--	--	- -	NA	- -	--	- -	--
			Zinc	--	- -	--	--	- -	NA	- -	--	- -	--
			Chemical Total	--	4E-07	--	--	4E-07		- -	0.2	- -	0.2
		Exposure Point Total						4E-07					0.2
	Exposure Medium Total							4E-07					0.2
Medium Total								3E-05					0.4

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	3E-09	--	2E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Benzo(k)fluoranthene	8E-10	--	1E-10	--	9E-10	NA	--	--	--	--
			Chrysene	1E-10	--	1E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.007	--	--	0.007
			Arsenic	3E-07	--	8E-09	--	3E-07	Skin, CVS	0.04	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.03	--	--	0.03
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.004	--	--	0.004
			Chemical Total	5E-07	--	4E-08	--	5E-07		0.1	--	0.001	0.1
		Exposure Point Total						5E-07					0.1
	Exposure Medium Total							5E-07					0.1
	Air	Paved Area	Benzo(a)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Chrysene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.07	--	0.07
			Arsenic	--	4E-08	--	--	4E-08	NA	--	0.02	--	0.02
			Beryllium	--	5E-10	--	--	5E-10	Respiratory	--	0.0007	--	0.0007
			Chromium	--	9E-08	--	--	9E-08	Respiratory	--	0.005	--	0.005
			Cobalt	--	6E-08	--	--	6E-08	Respiratory	--	0.07	--	0.07
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.3	--	0.3
			Chemical Total	--	2E-07	--	--	2E-07		--	0.5	--	0.5
		Exposure Point Total						2E-07					0.5
	Exposure Medium Total							2E-07					0.5
Medium Total								7E-07					0.6
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00005	--	--	0.00005
			Benzo(a)anthracene	2E-08	--	3E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000012	--	0.0000015	0.000013
			Benzo(k)fluoranthene	9E-10	--	1E-10	--	1E-09	NA	--	--	--	--
			Chrysene	2E-10	--	3E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	3E-10	--	3E-09	NA	--	--	--	--
			Total Aroclors	3E-08	--	4E-09	--	3E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.008	--	--	0.008
			Arsenic	5E-07	--	2E-08	--	5E-07	Skin, CVS	0.08	--	0.002	0.08
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Blood	0.03	--	--	0.03
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	7E-07	--	4E-08	--	7E-07		0.2	--	0.002	0.2
		Exposure Point Total						7E-07					0.2
	Exposure Medium Total							7E-07					0.2
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.001	--	0.001
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.002	--	0.002
			Benzo(a)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-10	--	--	7E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Chrysene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.09	--	0.09
			Arsenic	--	7E-08	--	--	7E-08	NA	--	0.04	--	0.04
			Chromium	--	1E-07	--	--	1E-07	Respiratory	--	0.008	--	0.008
			Cobalt	--	6E-08	--	--	6E-08	Respiratory	--	0.08	--	0.08
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	3E-07	--	--	3E-07		--	0.2	--	0.2
		Exposure Point Total						3E-07					0.2
	Exposure Medium Total							3E-07					0.2
Medium Total								1E-06					0.4

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	1E-09	--	5E-09	--	7E-09	Kidney, CNS	0.00008	- -	0.0003	0.0004
			1,2,4-Trimethylbenzene	- -	--	- -	--	- -	NA	--	- -	--	--
			1,3,5-Trimethylbenzene	- -	--	- -	--	- -	Body Weight, Kidney, Liver	0.0003	- -	0.01	0.01
			Bromomethane	- -	--	- -	--	- -	GS	0.00007	- -	0.0001	0.0002
			Carbon Tetrachloride	2E-10	--	2E-09	--	2E-09	Liver	0.0001	- -	0.002	0.002
			Chloroform	2E-10	--	7E-10	--	9E-10	Liver	0.00004	- -	0.0002	0.0002
			Chloromethane	2E-10	--	3E-10	--	4E-10	NA	--	- -	--	--
			Ethylbenzene	5E-10	--	1E-08	--	1E-08	Liver, Kidney	0.00003	- -	0.0008	0.0009
			Isopropylbenzene	- -	--	- -	--	- -	Kidney	0.00005	- -	0.002	0.002
			Tetrachloroethene	5E-09	--	1E-07	--	1E-07	Liver	0.00006	- -	0.001	0.002
			Total Xylenes	- -	--	- -	--	- -	Body Weight	0.00002	- -	0.0007	0.0007
			Trichloroethene	7E-09	--	5E-08	--	6E-08	NA	--	- -	--	--
			Vinyl Chloride	2E-08	--	7E-08	--	9E-08	Liver	0.0003	- -	0.001	0.001
			Benzo(k)fluoranthene	2E-10	--	- -	--	2E-10	NA	--	- -	--	--
			Dieldrin	1E-10	--	3E-09	--	4E-09	Liver	0.00001	- -	0.0003	0.0003
			Aluminum	- -	--	- -	--	- -	CNS	0.03	- -	0.02	0.04
			Antimony	- -	--	- -	--	- -	Blood	0.0002	- -	0.0005	0.0007
			Arsenic	5E-07	--	3E-07	--	8E-07	Skin, CVS	0.09	- -	0.05	0.1
			Barium	- -	--	- -	--	- -	Kidney	0.0004	- -	0.003	0.003
			Beryllium	- -	--	- -	--	- -	GS	0.0005	- -	0.03	0.03
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.01	- -	0.6	0.6
			Cobalt	- -	--	- -	--	- -	Blood	0.1	- -	0.06	0.2
			Copper	- -	--	- -	--	- -	GS	0.002	- -	0.0010	0.003
			Iron	- -	--	- -	--	- -	GS	0.09	- -	0.05	0.1
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Water)	- -	--	- -	--	- -	CNS	0.03	- -	0.4	0.4
			Mercury	- -	--	- -	--	- -	Autoimmune	0.0003	- -	0.002	0.003
			Molybdenum	- -	--	- -	--	- -	Gout	0.0002	- -	0.0001	0.0003
			Nickel	- -	--	- -	--	- -	Body Weight	0.003	- -	0.008	0.01
			Thallium	- -	--	- -	--	- -	Blood	0.002	- -	0.0010	0.003
			Vanadium	- -	--	- -	--	- -	Kidney	0.008	- -	0.2	0.2
			Zinc	- -	--	- -	--	- -	Blood	0.0007	- -	0.0002	0.0009
			Chemical Total	6E-07	--	6E-07	--	1E-06		0.4	- -	1	2
		Exposure Point Total						1E-06					2
	Exposure Medium Total							1E-06					2
	Groundwater	Site 08	1,1-Dichloroethane	--	6E-12	--	--	6E-12	NA	- -	--	- -	--
			1,2,4-Trimethylbenzene	--	- -	--	--	- -	Blood	- -	0.09	- -	0.09
			1,3,5-Trimethylbenzene	--	- -	--	--	- -	CNS	- -	0.04	- -	0.04

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Bromomethane	--	--	--	--	--	Respiratory	--	0.0004	--	0.0004
			Carbon Tetrachloride	--	3E-13	--	--	3E-13	Liver	--	0.000007	--	0.000007
			Chloroform	--	2E-12	--	--	2E-12	Liver	--	0.00006	--	0.00006
			Chloromethane	--	5E-13	--	--	5E-13	CNS	--	0.0002	--	0.0002
			Ethylbenzene	--	2E-12	--	--	2E-12	Developmental	--	0.00005	--	0.00005
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	--	--
			Tetrachloroethene	--	7E-13	--	--	7E-13	Liver	--	0.00003	--	0.00003
			Total Xylenes	--	--	--	--	--	CNS	--	0.0008	--	0.0008
			Trichloroethene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Vinyl Chloride	--	1E-12	--	--	1E-12	Liver	--	0.0002	--	0.0002
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-11	--	--	3E-11		--	0.1	--	0.1
		Exposure Point Total						3E-11					0.1
	Exposure Medium Total							3E-11					0.1
Medium Total								1E-06					2
Receptor Total							Receptor Risk Total	3E-05				Receptor HI Total	4

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	0.4
Total Body Weight HI	0.02
Total CNS HI	1
Total CVS HI	0.3
Total GS HI	1.0
Total Kidney HI	0.2
Total Liver HI	0.03
Total Skin HI	0.3
Total Developmental HI	0.00005
Total None Reported HI	0.0004
Total Fetotoxicity HI	0.7
Total Bone HI	0.7
Total Respiratory HI	0.4

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00002
			Benzo(k)fluoranthene	8E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Chrysene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	3E-08	--	2E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00008	--	0.00001	0.00009
			Indeno(1,2,3-cd)pyrene	4E-08	--	8E-09	--	5E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00003	--	0.000004	0.00003
			Phenanthrene	--	--	--	--	--	Kidney	0.00010	--	0.00002	0.0001
			Pyrene	--	--	--	--	--	Kidney	0.00010	--	0.00002	0.0001
			Total Aroclors	4E-08	--	7E-09	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Antimony	--	--	--	--	--	Blood	0.0005	--	--	0.0005
			Arsenic	2E-06	--	8E-08	--	2E-06	Skin, CVS	0.03	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.00009	--	--	0.00009
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00003	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Vanadium	--	--	--	--	--	Kidney	--	--	--	--
			Chemical Total	3E-06	--	3E-07	--	4E-06		0.1	--	0.001	0.1
		Exposure Point Total						4E-06					0.1
	Exposure Medium Total							4E-06					0.1
	Air	Exposed Area	Benzo(a)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Chrysene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Naphthalene	--	2E-08	--	--	2E-08	Respiratory	--	--	--	--

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00004	--	0.00004
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.0000004	--	0.0000004
			Cadmium	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Chromium	--	6E-10	--	--	6E-10	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	6E-10	--	--	6E-10	Respiratory	--	0.00008	--	0.00008
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-08	--	--	2E-08		--	0.0003	--	0.0003
		Exposure Point Total						2E-08					0.0003
	Exposure Medium Total							2E-08					0.0003
Medium Total								4E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0005	--	0.0001	0.0006
			Anthracene	--	--	--	--	--	None Reported	0.0002	--	0.00004	0.0003
			Benzo(a)anthracene	1E-05	--	2E-06	--	1E-05	NA	--	--	--	--
			Benzo(a)pyrene	1E-04	--	2E-05	--	1E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	8E-06	--	1E-06	--	1E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.002	--	0.0003	0.002
			Benzo(k)fluoranthene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Chrysene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-05	--	4E-06	--	2E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.01	--	0.001	0.01
			Indeno(1,2,3-cd)pyrene	6E-06	--	1E-06	--	7E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.001	--	0.0001	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.01	--	0.001	0.01
			Pyrene	--	--	--	--	--	Kidney	0.01	--	0.001	0.01
			Total Aroclors	6E-08	--	1E-08	--	7E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0006	--	--	0.0006
			Arsenic	1E-06	--	6E-08	--	2E-06	Skin, CVS	0.03	--	0.001	0.03
			Beryllium	--	--	--	--	--	GS	--	--	--	--
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00002	0.001

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Molybdenum	--	--	--	--	--	Gout	0.00027	--	--	0.00027
			Thallium	--	--	--	--	--	Blood	--	--	--	--
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Zinc	--	--	--	--	--	Blood	0.001	--	--	0.001
			Chemical Total	1E-04	--	3E-05	--	2E-04		0.1	--	0.006	0.1
		Exposure Point Total						2E-04					0.1
	Exposure Medium Total							2E-04					0.1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	8E-11	--	--	8E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Chrysene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Naphthalene	--	5E-07	--	--	5E-07	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Cadmium	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Chromium	--	5E-10	--	--	5E-10	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00005	--	0.00005

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	5E-07	--	--	5E-07		--	0.0001	--	0.0001
		Exposure Point Total						5E-07					0.0001
	Exposure Medium Total							5E-07					0.0001
Medium Total								2E-04					0.1
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	9E-07	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000001	0.00001
			Benzo(k)fluoranthene	4E-09	--	8E-10	--	5E-09	NA	--	--	--	--
			Chrysene	6E-10	--	1E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-08	--	1E-08	--	7E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-08	--	8E-09	--	5E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	2E-06	--	6E-08	--	2E-06	Skin, CVS	0.03	--	0.001	0.03
			Beryllium	--	--	--	--	--	GS	0.00008	--	--	0.00008
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.002	--	--	0.002
			Chemical Total	3E-06	--	3E-07	--	3E-06		0.07	--	0.001	0.07
		Exposure Point Total						3E-06					0.07
	Exposure Medium Total							3E-06					0.07
	Air	Paved Area	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00004	--	0.00004
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00001	--	0.00001
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.0000004	--	0.0000004
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.000003	--	0.000003
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00004	--	0.00004
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Chemical Total	--	9E-10	--	--	9E-10		--	0.0002	--	0.0002
		Exposure Point Total						9E-10					0.0002
	Exposure Medium Total							9E-10					0.0002
Medium Total								3E-06					0.07
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00003	--	--	0.00003
			Benzo(a)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	6E-07	--	1E-07	--	7E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	6E-08	--	1E-08	--	7E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000007	--	0.0000013	0.000009
			Benzo(k)fluoranthene	5E-09	--	9E-10	--	6E-09	NA	--	--	--	--
			Chrysene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	7E-09	--	5E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Total Aroclors	2E-07	--	3E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	3E-06	--	1E-07	--	3E-06	Skin, CVS	0.05	--	0.002	0.05
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	4E-06	--	3E-07	--	4E-06		0.10	--	0.002	0.10
		Exposure Point Total						4E-06					0.10
	Exposure Medium Total							4E-06					0.10
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.00	--	0.00
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.010	--	0.010
			Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.00005	--	0.00005
			Arsenic	--	4E-10	--	--	4E-10	NA	--	0.00002	--	0.00002
			Chromium	--	7E-10	--	--	7E-10	Respiratory	--	0.000004	--	0.000004
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00004	--	0.00004
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	1E-09	--	--	1E-09		--	0.01	--	0.01
		Exposure Point Total						1E-09					0.01
	Exposure Medium Total							1E-09					0.01
Medium Total								4E-06					0.1
Receptor Total							Receptor Risk Total	2E-04				Receptor HI Total	0.4

Total Blood HI	0.06
Total Body Weight HI	0.0009
Total CNS HI	0.01
Total CVS HI	0.06
Total GS HI	0.05
Total Kidney HI	0.03
Total Liver HI	0.009
Total Skin HI	0.06
Total Respiratory HI	0.0001
Total None Reported HI	0.0003
Total Fetotoxicity HI	0.006
Total Bone HI	0.006

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	4E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	4E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000002	--	0.000001	0.000003
			Benzo(k)fluoranthene	8E-10	--	3E-10	--	1E-09	NA	--	--	--	--
			Chrysene	1E-10	--	5E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	7E-09	--	2E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00001	--	0.000005	0.00002
			Indeno(1,2,3-cd)pyrene	5E-09	--	2E-09	--	6E-09	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.000004	--	0.000002	0.000006
			Phenanthrene	--	--	--	--	--	Kidney	0.00001	--	0.000006	0.00002
			Pyrene	--	--	--	--	--	Kidney	0.00002	--	0.000007	0.00002
			Total Aroclors	4E-09	--	2E-09	--	5E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0008	--	--	0.0008
			Antimony	--	--	--	--	--	Blood	0.00007	--	--	0.00007
			Arsenic	2E-07	--	2E-08	--	2E-07	Skin, CVS	0.005	--	0.0005	0.006
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Cadmium	--	--	--	--	--	Kidney	0.0002	--	0.00001	0.0002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.006	--	--	0.006
			Copper	--	--	--	--	--	GS	0.0001	--	--	0.0001
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0004	--	--	0.0004
			Chemical Total	4E-07	--	8E-08	--	4E-07		0.02	--	0.0005	0.02
		Exposure Point Total						4E-07					0.02
	Exposure Medium Total							4E-07					0.02
	Air	Exposed Area	Benzo(a)anthracene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Chrysene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Naphthalene	--	1E-09	--	--	1E-09	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--

TABLE 9.3.CTE

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	2E-11	--	--	2E-11	NA	--	0.0000008	--	0.0000008
			Beryllium	--	2E-13	--	--	2E-13	Respiratory	--	0.00000002	--	0.00000002
			Cadmium	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Chromium	--	4E-11	--	--	4E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	4E-11	--	--	4E-11	Respiratory	--	0.000004	--	0.000004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Chemical Total	--	1E-09	--	--	1E-09		--	0.00002	--	0.00002
		Exposure Point Total						1E-09					0.00002
	Exposure Medium Total							1E-09					0.00002
Medium Total								4E-07					0.02
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0001	--	0.00004	0.0001
			Anthracene	--	--	--	--	--	None Reported	0.00003	--	0.00001	0.00005
			Benzo(a)anthracene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Benzo(a)pyrene	1E-05	--	4E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0003	--	0.0001	0.0004
			Benzo(k)fluoranthene	8E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Chrysene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-06	--	9E-07	--	3E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.001	--	0.0005	0.002
			Indeno(1,2,3-cd)pyrene	6E-07	--	2E-07	--	8E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0001	--	0.00005	0.0002
			Phenanthrene	--	--	--	--	--	Kidney	0.001	--	0.0005	0.002
			Pyrene	--	--	--	--	--	Kidney	0.001	--	0.0005	0.002
			Total Aroclors	6E-09	--	3E-09	--	9E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0009	--	--	0.0009
			Antimony	--	--	--	--	--	Blood	0.0001	--	--	0.0001
			Arsenic	1E-07	--	1E-08	--	2E-07	Skin, CVS	0.004	--	0.0004	0.004
			Cadmium	--	--	--	--	--	Kidney	0.0001	--	0.00001	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.004	--	--	0.004
			Copper	--	--	--	--	--	GS	0.0004	--	--	0.0004

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Iron	- -	--	- -	--	- -	GS	0.004	- -	--	0.004
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Molybdenum	- -	--	- -	--	- -	Gout	0.00004	- -	--	0.00004
			Vanadium	- -	--	- -	--	- -	Kidney	0.0003	- -	--	0.0003
			Zinc	- -	--	- -	--	- -	Blood	0.0002	- -	--	0.0002
			Chemical Total	2E-05	--	6E-06	--	2E-05		0.02	- -	0.002	0.02
		Exposure Point Total						2E-05					0.02
	Exposure Medium Total							2E-05					0.02
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	6E-12	--	--	6E-12	NA	- -	--	- -	--
			Benzo(a)pyrene	--	5E-11	--	--	5E-11	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	4E-12	--	--	4E-12	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	4E-12	--	--	4E-12	NA	- -	--	- -	--
			Chrysene	--	5E-13	--	--	5E-13	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	1E-11	--	--	1E-11	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12	NA	- -	--	- -	--
			Naphthalene	--	4E-08	--	--	4E-08	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.000003	- -	0.000003
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	1E-11	--	--	1E-11	NA	- -	0.0000006	- -	0.0000006
			Cadmium	--	3E-13	--	--	3E-13	NA	- -	--	- -	--
			Chromium	--	4E-11	--	--	4E-11	Respiratory	- -	0.0000002	- -	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	- -	0.000003	- -	0.000003
			Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-08	--	--	4E-08		--	0.000006	--	0.000006
		Exposure Point Total						4E-08					0.000006
	Exposure Medium Total							4E-08					0.000006
Medium Total								2E-05					0.02
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	4E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	5E-09	--	2E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000001	--	0.0000005	0.000002
			Benzo(k)fluoranthene	5E-10	--	2E-10	--	6E-10	NA	--	--	--	--
			Chrysene	6E-11	--	3E-11	--	9E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-09	--	2E-09	--	7E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0007	--	--	0.0007
			Arsenic	2E-07	--	2E-08	--	2E-07	Skin, CVS	0.004	--	0.0004	0.004
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0003	--	--	0.0003
			Cobalt	--	--	--	--	--	Blood	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Manganese (Soil)	--	--	--	--	--	CNS	0.0004	--	--	0.0004
			Chemical Total	3E-07	--	7E-08	--	4E-07		0.01	--	0.0004	0.01
		Exposure Point Total						4E-07					0.01
	Exposure Medium Total							4E-07					0.01
	Air	Paved Area	Benzo(a)anthracene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Chrysene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.0000006	--	0.0000006
			Beryllium	--	2E-13	--	--	2E-13	Respiratory	--	0.00000002	--	0.00000002

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	3E-11	--	--	3E-11	Respiratory	- -	0.0000002	- -	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	- -	0.000002	- -	0.000002
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Manganese (Soil)	--	- -	--	--	- -	CNS	- -	0.000008	- -	0.000008
			Chemical Total	--	7E-11	--	--	7E-11		- -	0.00001	- -	0.00001
		Exposure Point Total						7E-11					0.00001
	Exposure Medium Total							7E-11					0.00001
Medium Total								4E-07					0.01
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	- -	--	- -	--	- -	NA	--	- -	--	--
			1,3,5-Trimethylbenzene	- -	--	- -	--	- -	Body Weight, Kidney, Live	0.000005	- -	--	0.000005
			Benzo(a)anthracene	1E-08	--	5E-09	--	2E-08	NA	--	- -	--	--
			Benzo(a)pyrene	6E-08	--	2E-08	--	8E-08	NA	--	- -	--	--
			Benzo(b)fluoranthene	7E-09	--	3E-09	--	9E-09	NA	--	- -	--	--
			Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.0000011	- -	0.0000005	0.000002
			Benzo(k)fluoranthene	5E-10	--	2E-10	--	8E-10	NA	--	- -	--	--
			Chrysene	1E-10	--	5E-11	--	2E-10	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	4E-09	--	2E-09	--	6E-09	NA	--	- -	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	5E-10	--	2E-09	NA	--	- -	--	--
			Total Aroclors	2E-08	--	8E-09	--	2E-08	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0008	- -	--	0.0008
			Arsenic	3E-07	--	3E-08	--	3E-07	Skin, CVS	0.008	- -	0.0007	0.008
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.0005	--	--	0.0005
			Cobalt	- -	--	- -	--	- -	Blood	0.003	- -	--	0.003
			Iron	- -	--	- -	--	- -	GS	0.003	- -	--	0.003
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	--	- -	--	--
			Chemical Total	4E-07	--	7E-08	--	5E-07		0.01	- -	0.0007	0.02
		Exposure Point Total						5E-07					0.02
	Exposure Medium Total							5E-07					0.02
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	- -	Blood	- -	0.0002	- -	0.0002
			1,3,5-Trimethylbenzene	--	- -	--	--	- -	CNS	- -	0.0005	--	0.0005
			Benzo(a)anthracene	--	5E-14	--	--	5E-14	NA	- -	--	- -	--
			Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	- -	--	--	--
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14	NA	--	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	--	--	--	--

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Benzo(k)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Chrysene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-15	--	--	6E-15	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Arsenic	--	3E-11	--	--	3E-11	NA	--	0.000001	--	0.000001
			Chromium	--	5E-11	--	--	5E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	1E-10	--	--	1E-10		--	0.0007	--	0.0007
		Exposure Point Total						1E-10					0.0007
	Exposure Medium Total							1E-10					0.0007
Medium Total								5E-07					0.02
Surface Water	Surface Water	Site 08	Dieldrin	--	--	7E-09	--	7E-09	Liver	--	--	0.00010	0.00010
			Aluminum	--	--	--	--	--	CNS	--	--	0.0000003	0.0000003
			Arsenic	--	--	9E-10	--	9E-10	Skin, CVS	--	--	0.00002	0.00002
			Cobalt	--	--	--	--	--	Blood	--	--	0.00001	0.00001
			Iron	--	--	--	--	--	GS	--	--	0.000002	0.000002
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.0004	0.0004
			Lead	--	--	--	--	--	NA	--	--	0.00000	0.00000
			Molybdenum	--	--	--	--	--	Gout	--	--	0.0000	0.0000
			Chemical Total	--	--	8E-09	--	8E-09		--	--	0.0006	0.0006
		Exposure Point Total						8E-09					0.0006
	Exposure Medium Total							8E-09					0.0006
Medium Total								8E-09					0.0006

TABLE 9.3.CTE

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURES

NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Benzo(a)anthracene	6E-09	--	6E-08	--	6E-08	NA	--	--	--	--
			Benzo(a)pyrene	5E-08	--	5E-07	--	5E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-09	--	5E-08	--	5E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000002	--	0.00002	0.00002
			Benzo(k)fluoranthene	4E-10	--	4E-09	--	5E-09	NA	--	--	--	--
			Chrysene	6E-11	--	6E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-09	--	6E-08	--	7E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	3E-08	--	3E-08	NA	--	--	--	--
			Dieldrin	2E-09	--	2E-08	--	2E-08	Liver	0.00004	--	0.0003	0.0003
			Total Aroclors	5E-09	--	6E-08	--	6E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0009	--	--	0.0009
			Arsenic	1E-07	--	3E-07	--	4E-07	Skin, CVS	0.003	--	0.008	0.01
			Beryllium	--	--	--	--	--	GS	0.00002	--	--	0.00002
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.001	--	--	0.001
			Vanadium	--	--	--	--	--	Kidney	0.0004	--	--	0.0004
			Chemical Total	2E-07	--	1E-06	--	1E-06		0.03	--	0.008	0.04
		Exposure Point Total						1E-06					0.04
	Exposure Medium Total							1E-06					0.04
Medium Total								1E-06					0.04
Receptor Total							Receptor Risk Total	2E-05				Receptor HI Total	0.07

Total Blood HI	0.04
Total Body Weight HI	0.0002
Total CNS HI	0.007
Total CVS HI	0.03
Total GS HI	0.02
Total Kidney HI	0.005
Total Liver HI	0.002
Total Skin HI	0.03
Total Respiratory HI	0.000012
Total None Reported HI	0.00005
Total Fetotoxicity HI	0.002
Total Bone HI	0.002

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-08	--	3E-08	--	6E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000004	0.00002
			Benzo(k)fluoranthene	2E-09	--	2E-09	--	3E-09	NA	--	--	--	--
			Chrysene	3E-10	--	2E-10	--	5E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	3E-08	--	7E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00008	--	0.00002	0.0001
			Indeno(1,2,3-cd)pyrene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00003	--	0.000008	0.00003
			Phenanthrene	--	--	--	--	--	Kidney	0.00010	--	0.00003	0.0001
			Pyrene	--	--	--	--	--	Kidney	0.00010	--	0.00003	0.0001
			Total Aroclors	8E-09	--	8E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Antimony	--	--	--	--	--	Blood	0.0005	--	--	0.0005
			Arsenic	4E-07	--	9E-08	--	5E-07	Skin, CVS	0.03	--	0.002	0.04
			Beryllium	--	--	--	--	--	GS	0.00010	--	--	0.00010
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.0001	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	8E-07	--	4E-07	--	1E-06		0.1	--	0.003	0.1
		Exposure Point Total						1E-06					0.1
	Exposure Medium Total							1E-06					0.1
	Air	Exposed Area	Benzo(a)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	6E-15	--	--	6E-15	NA	--	--	--	--
			Chrysene	--	9E-16	--	--	9E-16	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Naphthalene	--	2E-10	--	--	2E-10	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreationat Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	3E-12	--	--	3E-12	NA	--	0.0000008	--	0.0000008
			Beryllium	--	3E-14	--	--	3E-14	Respiratory	--	0.00000002	--	0.00000002
			Cadmium	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Chromium	--	7E-12	--	--	7E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	7E-12	--	--	7E-12	Respiratory	--	0.000004	--	0.000004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Chemical Total	--	2E-10	--	--	2E-10		--	0.00002	--	0.00002
		Exposure Point Total						2E-10					0.00002
	Exposure Medium Total							2E-10					0.00002
Medium Total								1E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0006	--	0.0002	0.001
			Anthracene	--	--	--	--	--	None Reported	0.0002	--	0.0001	0.0003
			Benzo(a)anthracene	3E-06	--	3E-06	--	5E-06	NA	--	--	--	--
			Benzo(a)pyrene	2E-05	--	2E-05	--	4E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-06	--	2E-06	--	4E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.002	--	0.0006	0.003
			Benzo(k)fluoranthene	2E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Chrysene	2E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-06	--	4E-06	--	9E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.01	--	0.002	0.01
			Indeno(1,2,3-cd)pyrene	1E-06	--	1E-06	--	2E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.001	--	0.0002	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.01	--	0.002	0.01
			Pyrene	--	--	--	--	--	Kidney	0.01	--	0.003	0.01
			Total Aroclors	1E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0006	--	--	0.0006
			Arsenic	3E-07	--	7E-08	--	4E-07	Skin, CVS	0.03	--	0.002	0.03
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00004	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.003	--	--	0.003

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Iron	- -	--	- -	--	- -	GS	0.03	- -	--	0.03
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Molybdenum	- -	--	- -	--	- -	Gout	0.00027	- -	--	0.00027
			Vanadium	- -	--	- -	--	- -	Kidney	0.002	- -	--	0.002
			Zinc	- -	--	- -	--	- -	Blood	0.001	- -	--	0.001
			Chemical Total	3E-05	--	3E-05	--	6E-05		0.1	- -	0.01	0.1
		Exposure Point Total						6E-05					0.1
	Exposure Medium Total							6E-05					0.1
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	9E-13	--	--	9E-13	NA	- -	--	- -	--
			Benzo(a)pyrene	--	8E-12	--	--	8E-12	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	7E-13	--	--	7E-13	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	6E-13	--	--	6E-13	NA	- -	--	- -	--
			Chrysene	--	8E-14	--	--	8E-14	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	4E-13	--	--	4E-13	NA	- -	--	- -	--
			Naphthalene	--	6E-09	--	--	6E-09	Respiratory	- -	--	- -	--
			Phenanthrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.000003	- -	0.000003
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	2E-12	--	--	2E-12	NA	- -	0.0000006	- -	0.0000006
			Cadmium	--	5E-14	--	--	5E-14	NA	- -	--	- -	--
			Chromium	--	7E-12	--	--	7E-12	Respiratory	- -	0.0000002	- -	0.0000002
			Cobalt	--	4E-12	--	--	4E-12	Respiratory	- -	0.000003	- -	0.000003
			Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	6E-09	--	--	6E-09		--	0.000006	--	0.000006
		Exposure Point Total						6E-09					0.000006
	Exposure Medium Total							6E-09					0.000006
Medium Total								6E-05					0.1
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Benzo(k)fluoranthene	1E-09	--	9E-10	--	2E-09	NA	--	--	--	--
			Chrysene	1E-10	--	1E-10	--	3E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	1E-08	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	3E-07	--	7E-08	--	4E-07	Skin, CVS	0.03	--	0.002	0.03
			Beryllium	--	--	--	--	--	GS	0.00009	--	--	0.00009
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	6E-07	--	3E-07	--	1E-06		0.07	--	0.002	0.07
		Exposure Point Total						1E-06					0.07
	Exposure Medium Total							1E-06					0.07
	Air	Paved Area	Benzo(a)anthracene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	9E-15	--	--	9E-15	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Chrysene	--	5E-16	--	--	5E-16	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-15	--	--	4E-15	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Arsenic	--	2E-12	--	--	2E-12	NA	--	0.0000006	--	0.0000006
			Beryllium	--	3E-14	--	--	3E-14	Respiratory	--	0.00000002	--	0.00000002

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Chromium	--	5E-12	--	--	5E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	3E-12	--	--	3E-12	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000008	--	0.000008
			Chemical Total	--	1E-11	--	--	1E-11		--	0.00001	--	0.00001
		Exposure Point Total						1E-11					0.00001
	Exposure Medium Total							1E-11					0.00001
Medium Total								1E-06					0.07
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Live	0.00003	--	--	0.00003
			Benzo(a)anthracene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	1E-07	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.000002	0.000010
			Benzo(k)fluoranthene	1E-09	--	1E-09	--	2E-09	NA	--	--	--	--
			Chrysene	3E-10	--	2E-10	--	5E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	3E-09	--	6E-09	NA	--	--	--	--
			Total Aroclors	4E-08	--	4E-08	--	7E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Arsenic	7E-07	--	1E-07	--	8E-07	Skin, CVS	0.05	--	0.004	0.05
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	9E-07	--	3E-07	--	1E-06		0.10	--	0.004	0.1
		Exposure Point Total						1E-06					0.1
	Exposure Medium Total							1E-06					0.1
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0002	--	0.0002
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Benzo(a)anthracene	--	9E-15	--	--	9E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	4E-15	--	--	4E-15	NA	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Chrysene	--	9E-16	--	--	9E-16	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-15	--	--	4E-15	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-15	--	--	1E-15	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Arsenic	--	4E-12	--	--	4E-12	NA	--	0.000001	--	0.000001
			Chromium	--	8E-12	--	--	8E-12	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	3E-12	--	--	3E-12	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		--	0.0007	--	0.0007
		Exposure Point Total						2E-11					0.0007
	Exposure Medium Total							2E-11					0.0007
Medium Total								1E-06					0.1
Surface Water	Surface Water	Site 08	Dieldrin	--	--	5E-09	--	5E-09	Liver	--	--	0.0002	0.0002
			Aluminum	--	--	--	--	--	CNS	--	--	0.0000006	0.0000006
			Arsenic	--	--	7E-10	--	7E-10	Skin, CVS	--	--	0.00006	0.00006
			Cobalt	--	--	--	--	--	Blood	--	--	0.00002	0.00002
			Iron	--	--	--	--	--	GS	--	--	0.000005	0.000005
			Manganese (Water)	--	--	--	--	--	CNS	--	--	0.0010	0.0010
			Lead	--	--	--	--	--	NA	--	--	0.00000	0.00000
			Molybdenum	--	--	--	--	--	Gout	--	--	0.0001	0.0001
			Chemical Total	--	--	6E-09	--	6E-09		--	--	0.001	0.001
		Exposure Point Total						6E-09					0.001
	Exposure Medium Total							6E-09					0.001
Medium Total								6E-09					0.001
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000011	--	0.000002	0.000013
			Benzo(k)fluoranthene	9E-10	--	1E-10	--	1E-09	NA	--	--	--	--
			Chrysene	1E-10	--	2E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-09	--	9E-10	--	7E-09	NA	--	--	--	--

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Dieldrin	5E-09	--	6E-10	--	6E-09	Liver	0.0002	- -	0.00003	0.0003
			Total Aroclors	1E-08	--	2E-09	--	1E-08	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.006	- -	--	0.006
			Arsenic	3E-07	--	1E-08	--	3E-07	Skin, CVS	0.02	- -	0.0007	0.02
			Beryllium	- -	--	- -	--	- -	GS	0.0001	- -	--	0.0001
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.003	- -	--	0.003
			Cobalt	- -	--	- -	--	- -	Blood	0.1	- -	--	0.1
			Iron	- -	--	- -	--	- -	GS	0.02	- -	--	0.02
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.008	- -	--	0.008
			Vanadium	- -	--	- -	--	- -	Kidney	0.002	- -	--	0.002
			Chemical Total	4E-07	--	3E-08	--	5E-07		0.2	- -	0.0008	0.2
		Exposure Point Total						5E-07					0.2
	Exposure Medium Total							5E-07					0.2
Medium Total								5E-07					0.2
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-07	--	- -	--	2E-07	NA	--	- -	- -	--
			4,4'-DDT	6E-09	--	- -	--	6E-09	Liver	0.001	- -	- -	0.001
			Aldrin	3E-08	--	- -	--	3E-08	Liver	0.002	- -	- -	0.002
			Dieldrin	5E-07	--	- -	--	5E-07	Liver	0.02	- -	- -	0.02
			Total Aroclors	1E-06	--	- -	--	1E-06	NA	--	- -	- -	--
			Arsenic	6E-09	--	- -	--	6E-09	Skin, CVS	0.0005	- -	- -	0.0005
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.03	- -	- -	0.03
			Mercury	- -	--	- -	--	- -	Autoimmune	0.010	- -	- -	0.010
			Chemical Total	2E-06	--	- -	--	2E-06		0.07	- -	- -	0.07
		Exposure Point Total						2E-06					0.07
	Exposure Medium Total							2E-06					0.07
Medium Total								2E-06					0.07
Receptor Total							Receptor Risk Total	7E-05				Receptor HI Total	0.7

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	0.2
Total Body Weight HI	0.001
Total CNS HI	0.04
Total CVS HI	0.2
Total GS HI	0.1
Total Kidney HI	0.03
Total Liver HI	0.04
Total Skin HI	0.2
Total Respiratory HI	0.00001
Total None Reported HI	0.0003
Total Fetotoxicity HI	0.05
Total Bone HI	0.05

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	8E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000002	--	0.0000002	0.000002
			Benzo(k)fluoranthene	6E-10	--	1E-10	--	7E-10	NA	--	--	--	--
			Chrysene	1E-10	--	1E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.000009	--	0.000001	0.000010
			Indeno(1,2,3-cd)pyrene	4E-09	--	6E-10	--	4E-09	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.000003	--	0.0000004	0.000003
			Phenanthrene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00001
			Pyrene	--	--	--	--	--	Kidney	0.000011	--	0.000002	0.00001
			Total Aroclors	3E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0006	--	--	0.0006
			Antimony	--	--	--	--	--	Blood	0.00005	--	--	0.00005
			Arsenic	2E-07	--	6E-09	--	2E-07	Skin, CVS	0.004	--	0.0001	0.004
			Beryllium	--	--	--	--	--	GS	0.00001	--	--	0.00001
			Cadmium	--	--	--	--	--	Kidney	0.0001	--	0.000003	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0003	--	--	0.0003
			Cobalt	--	--	--	--	--	Blood	0.004	--	--	0.004
			Copper	--	--	--	--	--	GS	0.00006	--	--	0.00006
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.0003	--	--	0.0003
			Chemical Total	3E-07	--	2E-08	--	3E-07		0.01	--	0.0001	0.01
		Exposure Point Total						3E-07					0.01
	Exposure Medium Total							3E-07					0.01
	Air	Exposed Area	Benzo(a)anthracene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Chrysene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Naphthalene	--	8E-10	--	--	8E-10	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	1E-11	--	--	1E-11	NA	--	0.0000008	--	0.0000008
			Beryllium	--	1E-13	--	--	1E-13	Respiratory	--	0.00000002	--	0.00000002
			Cadmium	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chromium	--	2E-11	--	--	2E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000004	--	0.000004
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Chemical Total	--	8E-10	--	--	8E-10		--	0.00002	--	0.00002
		Exposure Point Total						8E-10					0.00002
	Exposure Medium Total							8E-10					0.00002
Medium Total								3E-07					0.01
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.00006	--	0.00001	0.0001
			Anthracene	--	--	--	--	--	None Reported	0.00002	--	0.000004	0.00003
			Benzo(a)anthracene	1E-06	--	2E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	8E-06	--	1E-06	--	1E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	1E-07	--	8E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0002	--	0.00003	0.0002
			Benzo(k)fluoranthene	7E-08	--	1E-08	--	8E-08	NA	--	--	--	--
			Chrysene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.001	--	0.0001	0.001
			Indeno(1,2,3-cd)pyrene	5E-07	--	7E-08	--	5E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0001	--	0.00001	0.0001
			Phenanthrane	--	--	--	--	--	Kidney	0.001	--	0.0001	0.001
			Pyrene	--	--	--	--	--	Kidney	0.001	--	0.0001	0.001
			Total Aroclors	5E-09	--	8E-10	--	6E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0006	--	--	0.0006
			Antimony	--	--	--	--	--	Blood	0.0001	--	--	0.0001
			Arsenic	1E-07	--	4E-09	--	1E-07	Skin, CVS	0.003	--	0.00009	0.003
			Cadmium	--	--	--	--	--	Kidney	0.0001	--	0.000002	0.0001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0003	--	--	0.0003
			Cobalt	--	--	--	--	--	Blood	0.003	--	--	0.003
			Copper	--	--	--	--	--	GS	0.0003	--	--	0.0003
			Iron	--	--	--	--	--	GS	0.003	--	--	0.003
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.000029	--	--	0.000029
			Vanadium	--	--	--	--	--	Kidney	0.0002	--	--	0.0002
			Zinc	--	--	--	--	--	Blood	0.0001	--	--	0.0001
			Chemical Total	1E-05	--	2E-06	--	1E-05		0.01	--	0.0005	0.01
		Exposure Point Total						1E-05					0.01
	Exposure Medium Total							1E-05					0.01
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Chrysene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Naphthalene	--	2E-08	--	--	2E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	8E-12	--	--	8E-12	NA	--	0.0000006	--	0.0000006
			Cadmium	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chromium	--	2E-11	--	--	2E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	1E-11	--	--	1E-11	Respiratory	--	0.000003	--	0.000003
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-08	--	--	2E-08		--	0.000006	--	0.000006
		Exposure Point Total						2E-08					0.000006
	Exposure Medium Total							2E-08					0.000006
Medium Total								1E-05					0.01

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	8E-08	--	1E-08	--	9E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000001	--	0.0000001	0.000001
			Benzo(k)fluoranthene	4E-10	--	6E-11	--	4E-10	NA	--	--	--	--
			Chrysene	5E-11	--	8E-12	--	6E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-09	--	7E-10	--	6E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-09	--	6E-10	--	4E-09	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0005	--	--	0.0005
			Arsenic	1E-07	--	4E-09	--	1E-07	Skin, CVS	0.003	--	0.00010	0.003
			Beryllium	--	--	--	--	--	GS	0.000009	--	--	0.000009
			Chromium	--	--	--	--	--	Fetoloxicity, GS, Bone	0.0002	--	--	0.0002
			Cobalt	--	--	--	--	--	Blood	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Manganese (Soil)	--	--	--	--	--	CNS	0.0003	--	--	0.0003
			Chemical Total	2E-07	--	2E-08	--	3E-07		0.008	--	0.00010	0.008
		Exposure Point Total						3E-07					0.008
	Exposure Medium Total							3E-07					0.008
	Air	Paved Area	Benzo(a)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Chrysene	--	2E-15	--	--	2E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			Arsenic	--	8E-12	--	--	8E-12	NA	--	0.0000006	--	0.0000006
			Beryllium	--	9E-14	--	--	9E-14	Respiratory	--	0.00000002	--	0.00000002
			Chromium	--	2E-11	--	--	2E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	1E-11	--	--	1E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.000008	--	0.000008
			Chemical Total	--	4E-11	--	--	4E-11		--	0.00001	--	0.00001
		Exposure Point Total						4E-11					0.00001
	Exposure Medium Total							4E-11					0.00001
Medium Total								3E-07					0.008
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.000003	--	--	0.000003
			Benzo(a)anthracene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	5E-08	--	7E-09	--	6E-08	NA	--	--	--	--

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	5E-09	--	8E-10	--	6E-09	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0000008	--	0.00000012	0.0000009
			Benzo(k)fluoranthene	4E-10	--	7E-11	--	5E-10	NA	--	--	--	--
			Chrysene	9E-11	--	1E-11	--	1E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	2E-10	--	1E-09	NA	--	--	--	--
			Total Aroclors	1E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.0006	--	--	0.0006
			Arsenic	2E-07	--	8E-09	--	3E-07	Skin, CVS	0.005	--	0.0002	0.006
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.0004	--	--	0.0004
			Cobalt	--	--	--	--	--	Blood	0.002	--	--	0.002
			Iron	--	--	--	--	--	GS	0.002	--	--	0.002
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	3E-07	--	2E-08	--	3E-07		0.01	--	0.0002	0.01
		Exposure Point Total						3E-07					0.01
	Exposure Medium Total							3E-07					0.01
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.0002	--	0.0002
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Benzo(a)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Chrysene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.000003	--	0.000003
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.000001	--	0.000001
			Chromium	--	3E-11	--	--	3E-11	Respiratory	--	0.0000002	--	0.0000002
			Cobalt	--	1E-11	--	--	1E-11	Respiratory	--	0.000002	--	0.000002
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	6E-11	--	--	6E-11		--	0.0007	--	0.0007
		Exposure Point Total						6E-11					0.0007
	Exposure Medium Total							6E-11					0.0007
Medium Total								3E-07					0.01

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Site 08	Dieldrin	- -	--	1E-08	--	1E-08	Liver	--	- -	0.0001	0.0001
			Aluminum	- -	--	- -	--	- -	CNS	--	- -	0.0000003	0.0000003
			Arsenic	- -	--	1E-09	--	1E-09	Skin, CVS	--	- -	0.00003	0.00003
			Cobalt	- -	--	- -	--	- -	Blood	--	- -	0.00001	0.00001
			Iron	- -	--	- -	--	- -	GS	--	- -	0.000003	0.000003
			Manganese (Water)	- -	--	- -	--	- -	CNS	--	- -	0.0005	0.0005
			Lead	- -	--	- -	--	- -	NA	--	- -	0.00000	0.00000
			Molybdenum	- -	--	- -	--	- -	Gout	--	- -	0.0000	0.0000
			Chemical Total	- -	--	1E-08	--	1E-08		--	- -	0.0007	0.0007
		Exposure Point Total						1E-08					0.0007
	Exposure Medium Total							1E-08					0.0007
Medium Total								1E-08					0.0007
Sediment	Sediment	Site 08	Benzo(a)anthracene	5E-09	--	3E-09	--	8E-09	NA	--	- -	--	--
			Benzo(a)pyrene	4E-08	--	3E-08	--	7E-08	NA	--	- -	--	--
			Benzo(b)fluoranthene	4E-09	--	3E-09	--	6E-09	NA	--	- -	--	--
			Benzo(g,h,i)perylene	- -	--	- -	--	- -	Kidney	0.0000012	- -	0.0000009	0.000002
			Benzo(k)fluoranthene	3E-10	--	2E-10	--	6E-10	NA	--	- -	--	--
			Chrysene	5E-11	--	3E-11	--	8E-11	NA	--	- -	--	--
			Dibenzo(a,h)anthracene	5E-09	--	3E-09	--	8E-09	NA	--	- -	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	2E-09	--	4E-09	NA	--	- -	--	--
			Dieldrin	2E-09	--	1E-09	--	3E-09	Liver	0.00003	- -	0.00001	0.00004
			Total Aroclors	4E-09	--	3E-09	--	8E-09	NA	--	- -	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0006	- -	--	0.0006
			Arsenic	1E-07	--	2E-08	--	1E-07	Skin, CVS	0.002	- -	0.0004	0.003
			Beryllium	- -	--	- -	--	- -	GS	0.00001	- -	--	0.00001
			Chromium	- -	--	- -	--	- -	Fetotoxicity, GS, Bone	0.0003	- -	--	0.0003
			Cobalt	- -	--	- -	--	- -	Blood	0.01	- -	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.002	- -	--	0.002
			Lead	- -	--	- -	--	- -	NA	--	- -	--	--
			Manganese (Soil)	- -	--	- -	--	- -	CNS	0.0008	- -	--	0.0008
			Vanadium	- -	--	- -	--	- -	Kidney	0.0003	- -	--	0.0003
			Chemical Total	2E-07	--	6E-08	--	2E-07		0.02	- -	0.0004	0.02
		Exposure Point Total						2E-07					0.02
	Exposure Medium Total							2E-07					0.02
Medium Total								2E-07					0.02
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-06	--	- -	--	2E-06	NA	--	- -	- -	--
			4,4'-DDT	6E-08	--	- -	--	6E-08	Liver	0.004	- -	- -	0.004
			Aldrin	3E-07	--	- -	--	3E-07	Liver	0.006	- -	- -	0.006
			Dieldrin	5E-06	--	- -	--	5E-06	Liver	0.07	- -	- -	0.07

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Finfish/Shellfish	Site 08	Total Aroclors	1E-05	--	--	--	1E-05	NA	--	--	--	--
			Arsenic	7E-08	--	--	--	7E-08	Skin, CVS	0.001	--	--	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.10	--	--	0.10
			Mercury	--	--	--	--	--	Autoimmune	0.03	--	--	0.03
			Chemical Total	2E-05	--	--	--	2E-05		0.2	--	--	0.2
		Exposure Point Total						2E-05					0.2
	Exposure Medium Total							2E-05					0.2
Medium Total								2E-05					0.2
Receptor Total							Receptor Risk Total	3E-05				Receptor HI Total	0.3

Total Blood HI	0.03
Total Body Weight HI	0.0001
Total CNS HI	0.005
Total CVS HI	0.02
Total GS HI	0.1
Total Kidney HI	0.003
Total Liver HI	0.08
Total Liver HI	0.08
Total Respiratory HI	0.000012
Total Skin HI	0.02
Total None Reported HI	0.00003
Total Fetotoxicity HI	0.10
Total Bone HI	0.10

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	4E-08	--	3E-08	--	7E-08					
			Benzo(a)pyrene	3E-07	--	2E-07	--	5E-07					
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	5E-08					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-09	--	2E-09	--	4E-09					
			Chrysene	4E-10	--	3E-10	--	6E-10					
			Dibenzo(a,h)anthracene	5E-08	--	4E-08	--	9E-08					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	1E-08	--	1E-08	--	2E-08					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-08	--	9E-09	--	2E-08					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	6E-07	--	1E-07	--	7E-07					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	1E-06	--	4E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	Exposed Area	Benzo(a)anthracene	--	1E-13	--	--	1E-13					
			Benzo(a)pyrene	--	3E-13	--	--	3E-13					
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14					
			Chrysene	--	2E-14	--	--	2E-14					
			Dibenzo(a,h)anthracene	--	5E-14	--	--	5E-14					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	2E-10	--	--	2E-10					
			Naphthalene	--	8E-10	--	--	8E-10					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	1E-11	--	--	1E-11					
			Beryllium	--	2E-13	--	--	2E-13					
			Cadmium	--	7E-12	--	--	7E-12					
			Chromium	--	3E-11	--	--	3E-11					
			Cobalt	--	2E-11	--	--	2E-11					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	1E-09	--	--	1E-09					
		Exposure Point Total						1E-09					
	Exposure Medium Total							1E-09					
Medium Total								1E-06					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	3E-06	--	2E-06	--	5E-06					
			Benzo(a)pyrene	8E-06	--	1E-06	--	1E-05					
			Benzo(b)fluoranthene	9E-07	--	3E-07	--	1E-06					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	5E-06	--	4E-06	--	9E-06					
			Chrysene	9E-09	--	1E-09	--	1E-08					
			Dibenzo(a,h)anthracene	3E-06	--	1E-06	--	4E-06					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	5E-07	--	7E-08	--	5E-07					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	5E-09	--	8E-10	--	6E-09					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	1E-07	--	4E-09	--	1E-07					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	2E-05	--	9E-06	--	3E-05					
		Exposure Point Total						3E-05					
	Exposure Medium Total							3E-05					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	3E-12	--	--	3E-12					
			Benzo(a)pyrene	--	3E-11	--	--	3E-11					
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	6E-09	--	--	6E-09					
			Chrysene	--	3E-13	--	--	3E-13					
			Dibenzo(a,h)anthracene	--	6E-12	--	--	6E-12					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12					
			Naphthalene	--	2E-08	--	--	2E-08					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	8E-12	--	--	8E-12					
			Cadmium	--	2E-13	--	--	2E-13					
			Chromium	--	2E-11	--	--	2E-11					
			Cobalt	--	1E-11	--	--	1E-11					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Exposed Area	Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	3E-08	--	--	3E-08					
		Exposure Point Total						3E-08					
	Exposure Medium Total							3E-08					
Medium Total								3E-05					
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	3E-08	--	2E-08	--	6E-08					
			Benzo(a)pyrene	3E-07	--	2E-07	--	5E-07					
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	6E-08					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-09	--	1E-09	--	2E-09					
			Chrysene	2E-10	--	1E-10	--	3E-10					
			Dibenzo(a,h)anthracene	2E-08	--	1E-08	--	3E-08					
			Indeno(1,2,3-cd)pyrene	1E-08	--	1E-08	--	2E-08					
			Aluminum	--	--	--	--	--					
			Arsenic	5E-07	--	8E-08	--	6E-07					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	9E-07	--	4E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	Paved Area	Benzo(a)anthracene	--	4E-14	--	--	4E-14					
			Benzo(a)pyrene	--	3E-13	--	--	3E-13					
			Benzo(b)fluoranthene	--	4E-14	--	--	4E-14					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14					
			Chrysene	--	2E-15	--	--	2E-15					
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14					
			Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14					
			Aluminum	--	--	--	--	--					
			Arsenic	--	1E-11	--	--	1E-11					
			Beryllium	--	1E-13	--	--	1E-13					
			Chromium	--	2E-11	--	--	2E-11					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Paved Area	Cobalt	--	1E-11	--	--	1E-11					
			Iron	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	5E-11	--	--	5E-11					
		Exposure Point Total						5E-11					
	Exposure Medium Total							5E-11					
Medium Total								1E-06					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	- -	--	- -	--	- -					
			1,3,5-Trimethylbenzene	- -	--	- -	--	- -					
			Benzo(a)anthracene	4E-08	--	2E-08	--	6E-08					
			Benzo(a)pyrene	2E-07	--	1E-07	--	3E-07					
			Benzo(b)fluoranthene	2E-08	--	1E-08	--	3E-08					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	2E-09	--	1E-09	--	3E-09					
			Chrysene	3E-10	--	2E-10	--	6E-10					
			Dibenzo(a,h)anthracene	1E-08	--	1E-08	--	2E-08					
			Indeno(1,2,3-cd)pyrene	4E-09	--	3E-09	--	7E-09					
			Total Aroclors	5E-08	--	4E-08	--	9E-08					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	9E-07	--	1E-07	--	1E-06					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Chemical Total	1E-06	--	4E-07	--	2E-06					
		Exposure Point Total						2E-06					
	Exposure Medium Total							2E-06					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	- -	--	--	- -					
			1,3,5-Trimethylbenzene	--	- -	--	--	- -					
			Benzo(a)anthracene	--	4E-14	--	--	4E-14					
			Benzo(a)pyrene	--	2E-13	--	--	2E-13					
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14					
			Benzo(g,h,i)perylene	--	- -	--	--	- -					
			Benzo(k)fluoranthene	--	2E-14	--	--	2E-14					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Air	Paved Area	Chrysene	--	4E-15	--	--	4E-15					
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14					
			Indeno(1,2,3-cd)pyrene	--	4E-15	--	--	4E-15					
			Total Aroclors	--	- -	--	--	- -					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	2E-11	--	--	2E-11					
			Chromium	--	4E-11	--	--	4E-11					
			Cobalt	--	2E-11	--	--	2E-11					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese (Soil)	--	- -	--	--	- -					
			Chemical Total	--	7E-11	--	--	7E-11					
		Exposure Point Total						7E-11					
	Exposure Medium Total							7E-11					
Medium Total								2E-06					
Surface Water	Surface Water	Site 08	Dieldrin	- -	--	1E-08	--	1E-08					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	- -	--	1E-09	--	1E-09					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Manganese (Water)	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Molybdenum	- -	--	- -	--	- -					
			Chemical Total	- -	--	1E-08	--	1E-08					
		Exposure Point Total						1E-08					
	Exposure Medium Total							1E-08					
Medium Total								1E-08					
Sediment	Sediment	Site 08	Benzo(a)anthracene	1E-08	--	4E-09	--	1E-08					
			Benzo(a)pyrene	5E-08	--	3E-08	--	8E-08					
			Benzo(b)fluoranthene	4E-09	--	3E-09	--	6E-09					
			Benzo(g,h,i)perylene	- -	--	- -	--	- -					
			Benzo(k)fluoranthene	3E-10	--	2E-10	--	6E-10					
			Chrysene	5E-11	--	3E-11	--	8E-11					
			Dibenzo(a,h)anthracene	5E-09	--	3E-09	--	8E-09					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Current
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Site 08	Indeno(1,2,3-cd)pyrene	2E-09	--	2E-09	--	4E-09					
			Dieldrin	2E-09	--	1E-09	--	3E-09					
			Total Aroclors	4E-09	--	3E-09	--	8E-09					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	6E-07	--	5E-08	--	6E-07					
			Beryllium	- -	--	- -	--	- -					
			Chromium	- -	--	- -	--	- -					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese (Soil)	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	6E-07	--	1E-07	--	7E-07					
		Exposure Point Total						7E-07					
	Exposure Medium Total							7E-07					
Medium Total								7E-07					
Surface Water	Finfish/Shellfish	Site 08	4,4'-DDE	2E-06	--	- -	--	2E-06					
			4,4'-DDT	6E-08	--	- -	--	6E-08					
			Aldrin	3E-07	--	- -	--	3E-07					
			Dieldrin	5E-06	--	- -	--	5E-06					
			Total Aroclors	1E-05	--	- -	--	1E-05					
			Arsenic	7E-08	--	- -	--	7E-08					
			Chromium	- -	--	- -	--	- -					
			Mercury	- -	--	- -	--	- -					
			Chemical Total	2E-05	--	- -	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
Medium Total								2E-05					
Receptor Total							Receptor Risk Total	5E-05					

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	3E-07	--	4E-08	--	3E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	3E-08	--	3E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0002
			Benzo(k)fluoranthene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Chrysene	3E-09	--	4E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-07	--	5E-08	--	4E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.0008	--	0.0001	0.0009
			Indeno(1,2,3-cd)pyrene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.0003	--	0.00004	0.0003
			Phenanthrene	--	--	--	--	--	Kidney	0.0009	--	0.0001	0.001
			Pyrene	--	--	--	--	--	Kidney	0.0010	--	0.0001	0.0012
			Total Aroclors	8E-08	--	1E-08	--	9E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.05	--	--	0.05
			Antimony	--	--	--	--	--	Blood	0.005	--	--	0.005
			Arsenic	4E-06	--	1E-07	--	5E-06	Skin, CVS	0.3	--	0.01	0.4
			Beryllium	--	--	--	--	--	GS	0.0009	--	--	0.0009
			Cadmium	--	--	--	--	--	Kidney	0.01	--	0.0003	0.01
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Cobalt	--	--	--	--	--	Blood	0.4	--	--	0.4
			Copper	--	--	--	--	--	GS	0.005	--	--	0.005
			Iron	--	--	--	--	--	GS	0.2	--	--	0.2
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.03	--	--	0.03
			Chemical Total	8E-06	--	6E-07	--	8E-06		1	--	0.01	1
		Exposure Point Total						8E-06					1
	Exposure Medium Total							8E-06					1
	Air	Exposed Area	Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Chrysene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Naphthalene	--	1E-08	--	--	1E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.000001	--	0.000001
			Cadmium	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Chromium	--	4E-10	--	--	4E-10	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	4E-10	--	--	4E-10	Respiratory	--	0.0003	--	0.0003
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	1E-08	--	--	1E-08		--	0.0010	--	0.0010
		Exposure Point Total						1E-08					0.0010
	Exposure Medium Total							1E-08					0.0010
Medium Total								8E-06					1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.005	--	0.001	0.006
			Anthracene	--	--	--	--	--	None Reported	0.002	--	0.0003	0.002
			Benzo(a)anthracene	3E-05	--	4E-06	--	3E-05	NA	--	--	--	--
			Benzo(a)pyrene	2E-04	--	3E-05	--	2E-04	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.02	--	0.003	0.02
			Benzo(k)fluoranthene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Chrysene	2E-07	--	3E-08	--	3E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-05	--	7E-06	--	5E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.1	--	0.01	0.1
			Indeno(1,2,3-cd)pyrene	1E-05	--	2E-06	--	1E-05	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.01	--	0.001	0.01
			Phenanthrene	--	--	--	--	--	Kidney	0.1	--	0.01	0.1
			Pyrene	--	--	--	--	--	Kidney	0.1	--	0.01	0.1
			Total Aroclors	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.06	--	--	0.06
			Antimony	--	--	--	--	--	Blood	0.006	--	--	0.006
			Arsenic	3E-06	--	1E-07	--	3E-06	Skin, CVS	0.3	--	0.008	0.3
			Cadmium	--	--	--	--	--	Kidney	0.01	--	0.0002	0.01
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Copper	--	--	--	--	--	GS	0.03	--	--	0.03
			Iron	--	--	--	--	--	GS	0.3	--	--	0.3
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframa: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	- -	--	- -	--	- -	Gout	0.0026	- -	--	0.0026
			Vanadium	- -	--	- -	--	- -	Kidney	0.02	- -	--	0.02
			Zinc	- -	--	- -	--	- -	Blood	0.01	- -	--	0.01
			Chemical Total	3E-04	--	5E-05	--	4E-04		1	- -	0.05	1
		Exposure Point Total						4E-04					1
	Exposure Medium Total							4E-04					1
	Air	Exposed Area	Acenaphthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Anthracene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(a)anthracene	--	6E-11	--	--	6E-11	NA	- -	--	- -	--
			Benzo(a)pyrene	--	4E-10	--	--	4E-10	NA	- -	--	- -	--
			Benzo(b)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Benzo(g,h,i)perylene	--	- -	--	--	- -	NA	- -	--	- -	--
			Benzo(k)fluoranthene	--	4E-11	--	--	4E-11	NA	- -	--	- -	--
			Chrysene	--	5E-12	--	--	5E-12	NA	- -	--	- -	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	- -	--	- -	--
			Fluoranthene	--	- -	--	--	- -	NA	- -	--	- -	--
			Indeno(1,2,3-cd)pyrene	--	3E-11	--	--	3E-11	NA	- -	--	- -	--
			Naphthalene	--	4E-07	--	--	4E-07	Respiratory	- -	--	- -	--
			Phenanthrane	--	- -	--	--	- -	NA	- -	--	- -	--
			Pyrene	--	- -	--	--	- -	NA	- -	--	- -	--
			Total Aroclors	--	- -	--	--	- -	NA	- -	--	- -	--
			Aluminum	--	- -	--	--	- -	CNS	- -	0.0002	- -	0.0002
			Antimony	--	- -	--	--	- -	NA	- -	--	- -	--
			Arsenic	--	1E-10	--	--	1E-10	NA	- -	0.00003	- -	0.00003
			Cadmium	--	3E-12	--	--	3E-12	NA	- -	--	- -	--
			Chromium	--	4E-10	--	--	4E-10	Respiratory	- -	0.00001	- -	0.00001
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	- -	0.0002	- -	0.0002
			Copper	--	- -	--	--	- -	NA	- -	--	- -	--
			Iron	--	- -	--	--	- -	NA	- -	--	- -	--
			Lead	--	- -	--	--	- -	NA	- -	--	- -	--
			Molybdenum	--	- -	--	--	- -	NA	- -	--	- -	--
			Vanadium	--	- -	--	--	- -	NA	- -	--	- -	--
			Zinc	--	- -	--	--	- -	NA	- -	--	- -	--
			Chemical Total	--	4E-07	--	--	4E-07		- -	0.0004	- -	0.0004
		Exposure Point Total						4E-07					0.0004
	Exposure Madium Total							4E-07					0.0004
Medium Total								4E-04					1

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	2E-07	--	3E-08	--	3E-07	NA	--	--	--	--
			Benzo(a)pyrene	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-07	--	4E-08	--	3E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.0001	--	0.00001	0.0001
			Benzo(k)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Chrysene	1E-09	--	2E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.05	--	--	0.05
			Arsenic	3E-06	--	1E-07	--	4E-06	Skin, CVS	0.3	--	0.009	0.3
			Beryllium	--	--	--	--	--	GS	0.0008	--	--	0.0008
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.02	--	--	0.02
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Iron	--	--	--	--	--	GS	0.2	--	--	0.2
			Manganese (Soil)	--	--	--	--	--	CNS	0.02	--	--	0.02
			Chemical Total	6E-06	--	5E-07	--	7E-06		0.7	--	0.009	0.7
		Exposure Point Total						7E-06					0.7
	Exposure Medium Total							7E-06					0.7
	Air	Paved Area	Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.00004	--	0.00004
			Beryllium	--	2E-12	--	--	2E-12	Respiratory	--	0.000001	--	0.000001
			Chromium	--	3E-10	--	--	3E-10	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	6E-10	--	--	6E-10		--	0.0008	--	0.0008
		Exposure Point Total						6E-10					0.0008
	Exposure Medium Total							6E-10					0.0008
Medium Total								7E-06					0.7
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.0003	--	--	0.0003
			Benzo(a)anthracene	2E-07	--	4E-08	--	3E-07	NA	--	--	--	--
			Benzo(a)pyrene	1E-06	--	2E-07	--	1E-06	NA	--	--	--	--

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00007	--	0.000011	0.00008
			Benzo(k)fluoranthene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Chrysene	2E-09	--	4E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	4E-09	--	3E-08	NA	--	--	--	--
			Total Aroclors	4E-07	--	6E-08	--	4E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.05	--	--	0.05
			Arsenic	6E-06	--	2E-07	--	7E-06	Skin, CVS	0.5	--	0.02	0.5
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.03	--	--	0.03
			Cobalt	--	--	--	--	--	Blood	0.2	--	--	0.2
			Iron	--	--	--	--	--	GS	0.2	--	--	0.2
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	9E-06	--	5E-07	--	9E-06		1.0	--	0.02	1.0
		Exposure Point Total						9E-06					1.0
	Exposure Medium Total							9E-06					1.0
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.01	--	0.01
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.03	--	0.03
			Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chrysene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	3E-10	--	--	3E-10	NA	--	0.00007	--	0.00007
			Chromium	--	5E-10	--	--	5E-10	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	2E-10	--	--	2E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	9E-10	--	--	9E-10		--	0.04	--	0.04
		Exposure Point Total						9E-10					0.04
	Exposure Medium Total							9E-10					0.04
Medium Total								9E-06					1

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	2E-06	--	1E-07	--	3E-06	Kidney, CNS	0.07	--	0.004	0.08
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.3	--	0.2	0.4
			Bromomethane	--	--	--	--	--	GS	0.07	--	0.002	0.07
			Carbon Tetrachloride	4E-07	--	7E-08	--	4E-07	Liver	0.1	--	0.03	0.2
			Chloroform	3E-07	--	2E-08	--	3E-07	Liver	0.03	--	0.002	0.04
			Chloromethane	3E-07	--	6E-09	--	3E-07	NA	--	--	--	--
			Ethylbenzene	9E-07	--	4E-07	--	1E-06	Liver, Kidney	0.03	--	0.01	0.04
			Isopropylbenzene	--	--	--	--	--	Kidney	0.04	--	0.04	0.08
			Tetrachloroethene	9E-06	--	4E-06	--	1E-05	Liver	0.06	--	0.03	0.08
			Total Xylenes	--	--	--	--	--	Body Weight	0.02	--	0.010	0.03
			Trichloroethene	1E-05	--	2E-06	--	1E-05	NA	--	--	--	--
			Vinyl Chloride	4E-05	--	1E-06	--	4E-05	Liver	0.3	--	0.01	0.3
			Benzo(k)fluoranthene	4E-07	--	--	--	4E-07	NA	--	--	--	--
			Dieldrin	2E-07	--	1E-07	--	4E-07	Liver	0.01	--	0.005	0.02
			Aluminum	--	--	--	--	--	CNS	27	--	0.08	27
			Antimony	--	--	--	--	--	Blood	0.1	--	0.003	0.1
			Arsenic	1E-03	--	3E-06	--	1E-03	Skin, CVS	79	--	0.2	80
			Barium	--	--	--	--	--	Kidney	0.3	--	0.01	0.3
			Beryllium	--	--	--	--	--	GS	0.4	--	0.2	0.6
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	14	--	3	17
			Cobalt	--	--	--	--	--	Blood	100	--	0.3	101
			Copper	--	--	--	--	--	GS	2	--	0.005	2
			Iron	--	--	--	--	--	GS	82	--	0.2	82
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	27	--	2	29
			Mercury	--	--	--	--	--	Autoimmune	0.3	--	0.01	0.3
			Molybdenum	--	--	--	--	--	Gout	0.2	--	0.0006	0.2
			Nickel	--	--	--	--	--	Body Weight	3	--	0.04	3
			Thallium	--	--	--	--	--	Blood	2	--	0.005	2
			Vanadium	--	--	--	--	--	Kidney	8	--	0.9	9
			Zinc	--	--	--	--	--	Blood	0.6	--	0.001	0.6
			Chemical Total	1E-03	--	1E-05	--	1E-03		346	--	8	354
		Exposure Point Total						1E-03					354
	Exposure Medium Total							1E-03					354
	Groundwater	Site 08	1,1-Dichloroethane	--	2E-06	--	--	2E-06	NA	--	0.07	--	0.07
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.3	--	0.3
			Bromomethane	--	--	--	--	--	Respiratory	--	0.07	--	0.07

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Carbon Tetrachloride	--	4E-07	--	--	4E-07	Liver	--	0.1	--	0.1
			Chloroform	--	3E-07	--	--	3E-07	Liver	--	0.03	--	0.03
			Chloromethane	--	3E-07	--	--	3E-07	CNS	--	--	--	--
			Ethylbenzene	--	9E-07	--	--	9E-07	Developmental	--	0.03	--	0.03
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.04	--	0.04
			Tetrachloroethene	--	9E-06	--	--	9E-06	Liver	--	0.06	--	0.06
			Total Xylenes	--	--	--	--	--	CNS	--	0.02	--	0.02
			Trichloroethene	--	1E-05	--	--	1E-05	NA	--	--	--	--
			Vinyl Chloride	--	4E-05	--	--	4E-05	Liver	--	0.3	--	0.3
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	6E-05	--	--	6E-05		--	1	--	1
		Exposure Point Total						6E-05					1
	Exposure Medium Total							6E-05					1
Medium Total								1E-03					355
Receptor Total								2E-03					359
								Receptor Risk Total					Receptor HI Total

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	104
Total Body Weight HI	3
Total CNS HI	57
Total CVS HI	81
Total GS HI	102
Total Kidney HI	10
Total Liver HI	2
Total Skin HI	81
Total Respiratory HI	0.07
Total Developmental HI	0.03
Total None Reported HI	0.002
Total Fetotoxicity HI	17
Total Bone HI	17

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000002	0.00002
			Benzo(k)fluoranthene	6E-09	--	9E-10	--	7E-09	NA	--	--	--	--
			Chrysene	1E-09	--	1E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.00008	--	0.00001	0.00010
			Indeno(1,2,3-cd)pyrene	4E-08	--	5E-09	--	4E-08	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.00003	--	0.000004	0.00003
			Phenanthrene	--	--	--	--	--	Kidney	0.0001	--	0.00002	0.0001
			Pyrene	--	--	--	--	--	Kidney	0.00011	--	0.00002	0.0001
			Total Aroclors	3E-08	--	5E-09	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.0005	--	--	0.0005
			Arsenic	2E-06	--	6E-08	--	2E-06	Skin, CVS	0.04	--	0.001	0.04
			Beryllium	--	--	--	--	--	GS	0.00010	--	--	0.00010
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00003	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.04	--	--	0.04
			Copper	--	--	--	--	--	GS	0.0005	--	--	0.0005
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	3E-06	--	2E-07	--	3E-06		0.1	--	0.001	0.1
		Exposure Point Total						3E-06					0.1
	Exposure Medium Total							3E-06					0.1
	Air	Exposed Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Naphthalene	--	4E-08	--	--	4E-08	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Antimony	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	6E-10	--	--	6E-10	NA	--	0.00005	--	0.00005
			Beryllium	--	6E-12	--	--	6E-12	Respiratory	--	0.000001	--	0.000001
			Cadmium	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.0003	--	0.0003
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	5E-08	--	--	5E-08		--	0.0010	--	0.0010
		Exposure Point Total						5E-08					0.0010
	Exposure Medium Total							5E-08					0.0010
Medium Total								3E-06					0.1
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--	Blood	0.0006	--	0.0001	0.0007
			Anthracene	--	--	--	--	--	None Reported	0.0002	--	0.00003	0.0003
			Benzo(a)anthracene	1E-05	--	1E-06	--	1E-05	NA	--	--	--	--
			Benzo(a)pyrene	8E-05	--	1E-05	--	9E-05	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-06	--	1E-06	--	8E-06	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.002	--	0.0003	0.002
			Benzo(k)fluoranthene	7E-07	--	1E-07	--	8E-07	NA	--	--	--	--
			Chrysene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	Liver	0.01	--	0.001	0.01
			Indeno(1,2,3-cd)pyrene	5E-06	--	7E-07	--	5E-06	NA	--	--	--	--
			Naphthalene	--	--	--	--	--	Body Weight	0.001	--	0.0001	0.001
			Phenanthrene	--	--	--	--	--	Kidney	0.01	--	0.001	0.01
			Pyrene	--	--	--	--	--	Kidney	0.01	--	0.001	0.01
			Total Aroclors	5E-08	--	8E-09	--	6E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Antimony	--	--	--	--	--	Blood	0.001	--	--	0.001
			Arsenic	1E-06	--	4E-08	--	1E-06	Skin, CVS	0.03	--	0.0009	0.03
			Cadmium	--	--	--	--	--	Kidney	0.001	--	0.00002	0.001
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.003	--	--	0.003
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Copper	--	--	--	--	--	GS	0.003	--	--	0.003
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--	Gout	0.00028	--	--	0.00028
			Vanadium	--	--	--	--	--	Kidney	0.002	--	--	0.002
			Zinc	--	--	--	--	--	Blood	0.001	--	--	0.001
			Chemical Total	1E-04	--	2E-05	--	1E-04		0.1	--	0.005	0.1
		Exposure Point Total						1E-04					0.1
	Exposure Medium Total							1E-04					0.1
	Air	Exposed Area	Acenaphthene	--	--	--	--	--	NA	--	--	--	--
			Anthracene	--	--	--	--	--	NA	--	--	--	--
			Benzo(a)anthracene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Chrysene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-10	--	--	4E-10	NA	--	--	--	--
			Fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-11	--	--	9E-11	NA	--	--	--	--
			Naphthalene	--	1E-06	--	--	1E-06	Respiratory	--	--	--	--
			Phenanthrene	--	--	--	--	--	NA	--	--	--	--
			Pyrene	--	--	--	--	--	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0002	--	0.0002
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	4E-10	--	--	4E-10	NA	--	0.00003	--	0.00003
			Cadmium	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	8E-10	--	--	8E-10	Respiratory	--	0.0002	--	0.0002
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	1E-06	--	--	1E-06		--	0.0004	--	0.0004
		Exposure Point Total						1E-06					0.0004
	Exposure Medium Total							1E-06					0.0004
Medium Total								1E-04					0.1

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.00001	--	0.000001	0.00001
			Benzo(k)fluoranthene	4E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Chrysene	5E-10	--	7E-11	--	6E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-08	--	7E-09	--	5E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-08	--	6E-09	--	4E-08	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.005	--	--	0.005
			Arsenic	1E-06	--	4E-08	--	1E-06	Skin, CVS	0.03	--	0.0010	0.03
			Beryllium	--	--	--	--	--	GS	0.00009	--	--	0.00009
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.002	--	--	0.002
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Manganese (Soil)	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	2E-06	--	2E-07	--	3E-06		0.08	--	0.0010	0.08
		Exposure Point Total						3E-06					0.08
	Exposure Medium Total							3E-06					0.08
	Air	Paved Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Chrysene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	5E-10	--	--	5E-10	NA	--	0.00004	--	0.00004
			Beryllium	--	6E-12	--	--	6E-12	Respiratory	--	0.000001	--	0.000001
			Chromium	--	1E-09	--	--	1E-09	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	7E-10	--	--	7E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	0.0005	--	0.0005
			Chemical Total	--	2E-09	--	--	2E-09		--	0.0008	--	0.0008
		Exposure Point Total						2E-09					0.0008
	Exposure Medium Total							2E-09					0.0008
Medium Total								3E-06					0.08
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.00003	--	--	0.00003
			Benzo(a)anthracene	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	5E-07	--	7E-08	--	5E-07	NA	--	--	--	--

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	5E-08	--	8E-09	--	6E-08	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	0.000008	--	0.0000012	0.000009
			Benzo(k)fluoranthene	4E-09	--	6E-10	--	5E-09	NA	--	--	--	--
			Chrysene	9E-10	--	1E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	5E-09	--	4E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Total Aroclors	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	0.006	--	--	0.006
			Arsenic	2E-06	--	8E-08	--	2E-06	Skin, CVS	0.05	--	0.002	0.06
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Blood	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.02	--	--	0.02
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	3E-06	--	2E-07	--	3E-06		0.1	--	0.002	0.1
		Exposure Point Total						3E-06					0.1
	Exposure Medium Total							3E-06					0.1
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	0.01	--	0.01
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.03	--	0.03
			Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	NA	--	--	--	--
			Benzo(k)fluoranthene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Chrysene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Total Aroclors	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	9E-10	--	--	9E-10	NA	--	0.00007	--	0.00007
			Chromium	--	2E-09	--	--	2E-09	Respiratory	--	0.00001	--	0.00001
			Cobalt	--	7E-10	--	--	7E-10	Respiratory	--	0.0001	--	0.0001
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Soil)	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	3E-09	--	--	3E-09		--	0.04	--	0.04
		Exposure Point Total						3E-09					0.04
	Exposure Medium Total							3E-09					0.04
Medium Total								3E-06					0.1

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	3E-06	--	3E-07	--	3E-06	Kidney, CNS	0.03	--	0.002	0.03
			1,2,4-Trimethylbenzene	--	--	--	--	--	NA	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	Body Weight, Kidney, Liver	0.1	--	0.08	0.2
			Bromomethane	--	--	--	--	--	GS	0.03	--	0.0008	0.03
			Carbon Tetrachloride	5E-07	--	1E-07	--	6E-07	Liver	0.05	--	0.01	0.06
			Chloroform	4E-07	--	4E-08	--	4E-07	Liver	0.01	--	0.001	0.01
			Chloromethane	4E-07	--	1E-08	--	4E-07	NA	--	--	--	--
			Ethylbenzene	1E-06	--	7E-07	--	2E-06	Liver, Kidney	0.01	--	0.006	0.02
			Isopropylbenzene	--	--	--	--	--	Kidney	0.02	--	0.02	0.04
			Tetrachloroethene	1E-05	--	7E-06	--	2E-05	Liver	0.02	--	0.01	0.03
			Total Xylenes	--	--	--	--	--	Body Weight	0.009	--	0.005	0.01
			Trichloroethene	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Vinyl Chloride	5E-05	--	3E-06	--	5E-05	Liver	0.1	--	0.006	0.1
			Benzo(k)fluoranthene	5E-07	--	--	--	5E-07	NA	--	--	--	--
			Dieldrin	3E-07	--	2E-07	--	5E-07	Liver	0.004	--	0.003	0.007
			Aluminum	--	--	--	--	--	CNS	10	--	0.03	10
			Antimony	--	--	--	--	--	Blood	0.05	--	0.001	0.05
			Arsenic	1E-03	--	5E-06	--	1E-03	Skin, CVS	30	--	0.1	30
			Barium	--	--	--	--	--	Kidney	0.1	--	0.006	0.1
			Beryllium	--	--	--	--	--	GS	0.2	--	0.08	0.2
			Chromium	--	--	--	--	--	Fetotoxicity, GS, Bone	5	--	1	7
			Cobalt	--	--	--	--	--	Blood	38	--	0.1	38
			Copper	--	--	--	--	--	GS	0.6	--	0.002	0.6
			Iron	--	--	--	--	--	GS	31	--	0.1	31
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	CNS	10	--	0.9	11
			Mercury	--	--	--	--	--	Autoimmune	0.1	--	0.006	0.1
			Molybdenum	--	--	--	--	--	Gout	0.07	--	0.0003	0.07
			Nickel	--	--	--	--	--	Body Weight	1	--	0.02	1
			Thallium	--	--	--	--	--	Blood	0.8	--	0.002	0.6
			Vanadium	--	--	--	--	--	Kidney	3	--	0.4	3
			Zinc	--	--	--	--	--	Blood	0.2	--	0.0005	0.2
			Chemical Total	1E-03	--	2E-05	--	1E-03		129	--	3	133
		Exposure Point Total						1E-03					133
	Exposure Medium Total							1E-03					133
	Groundwater	Site 08	1,1-Dichloroethane	--	3E-06	--	--	3E-06	NA	--	0.03	--	0.03
			1,2,4-Trimethylbenzene	--	--	--	--	--	Blood	--	--	--	--
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	0.1	--	0.1
			Bromomethane	--	--	--	--	--	Respiratory	--	0.03	--	0.03

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Carbon Tetrachloride	--	5E-07	--	--	5E-07	Liver	--	0.05	--	0.05
			Chloroform	--	4E-07	--	--	4E-07	Liver	--	0.01	--	0.01
			Chloromethane	--	4E-07	--	--	4E-07	CNS	--	--	--	--
			Ethylbenzene	--	1E-06	--	--	1E-06	Developmental	--	0.01	--	0.01
			Isopropylbenzene	--	--	--	--	--	Kidney	--	0.02	--	0.02
			Tetrachloroethene	--	1E-05	--	--	1E-05	Liver	--	0.02	--	0.02
			Total Xylenes	--	--	--	--	--	CNS	--	0.009	--	0.009
			Trichloroethene	--	2E-05	--	--	2E-05	NA	--	--	--	--
			Vinyl Chloride	--	5E-05	--	--	5E-05	Liver	--	0.1	--	0.1
			Benzo(k)fluoranthene	--	--	--	--	--	NA	--	--	--	--
			Dieldrin	--	--	--	--	--	NA	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Antimony	--	--	--	--	--	NA	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Barium	--	--	--	--	--	Fetotoxicity	--	--	--	--
			Beryllium	--	--	--	--	--	Respiratory	--	--	--	--
			Chromium	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Copper	--	--	--	--	--	NA	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese (Water)	--	--	--	--	--	NA	--	--	--	--
			Mercury	--	--	--	--	--	NA	--	--	--	--
			Molybdenum	--	--	--	--	--	NA	--	--	--	--
			Nickel	--	--	--	--	--	NA	--	--	--	--
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Zinc	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	8E-05	--	--	8E-05		--	0.4	--	0.4
		Exposure Point Total						8E-05					0.4
	Exposure Medium Total							8E-05					0.4
Medium Total								2E-03					133
Receptor Total							Receptor Risk Total	2E-03				Receptor HI Total	134

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Blood HI	39
Total Body Weight HI	1
Total CNS HI	21
Total CVS HI	30
Total GS HI	38
Total Kidney HI	4
Total Liver HI	0.6
Total Skin HI	30
Total Respiratory HI	0.03
Total Developmental HI	0.01
Total None Reported HI	0.0003
Total Fetotoxicity HI	7
Total Bone HI	7

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Exposed Area	Benzo(a)anthracene	4E-07	--	6E-08	--	5E-07					
			Benzo(a)pyrene	3E-06	--	4E-07	--	3E-06					
			Benzo(b)fluoranthene	3E-07	--	5E-08	--	4E-07					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-08	--	3E-09	--	3E-08					
			Chrysene	4E-09	--	5E-10	--	4E-09					
			Dibenzo(a,h)anthracene	5E-07	--	7E-08	--	6E-07					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-08	--	2E-07					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	1E-07	--	2E-08	--	1E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	6E-06	--	2E-07	--	6E-06					
			Beryllium	--	--	--	--	--					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	1E-05	--	9E-07	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	Exposed Area	Benzo(a)anthracene	--	7E-12	--	--	7E-12					
			Benzo(a)pyrene	--	2E-11	--	--	2E-11					
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12					
			Chrysene	--	1E-12	--	--	1E-12					
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	1E-08	--	--	1E-08					
			Naphthalene	--	4E-08	--	--	4E-08					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Air	Exposed Area	Arsenic	--	6E-10	--	--	6E-10					
			Beryllium	--	1E-11	--	--	1E-11					
			Cadmium	--	4E-10	--	--	4E-10					
			Chromium	--	2E-09	--	--	2E-09					
			Cobalt	--	1E-09	--	--	1E-09					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	6E-08	--	--	6E-08					
		Exposure Point Total						6E-08					
	Exposure Medium Total							6E-08					
Medium Total								1E-05					
Subsurface Soil	Subsurface Soil	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	3E-05	--	4E-06	--	3E-05					
			Benzo(a)pyrene	8E-05	--	1E-05	--	9E-05					
			Benzo(b)fluoranthene	9E-06	--	1E-06	--	1E-05					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	5E-05	--	7E-06	--	5E-05					
			Chrysene	9E-08	--	1E-08	--	1E-07					
			Dibenzo(a,h)anthracene	3E-05	--	4E-06	--	3E-05					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	5E-06	--	7E-07	--	5E-06					
			Naphthalene	--	--	--	--	--					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	5E-08	--	8E-09	--	6E-08					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	1E-06	--	4E-08	--	1E-06					
			Cadmium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Exposed Area	Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	2E-04	--	3E-05	--	2E-04					
		Exposure Point Total						2E-04					
	Exposure Medium Total							2E-04					
	Air	Exposed Area	Acenaphthene	--	--	--	--	--					
			Anthracene	--	--	--	--	--					
			Benzo(a)anthracene	--	2E-10	--	--	2E-10					
			Benzo(a)pyrene	--	2E-09	--	--	2E-09					
			Benzo(b)fluoranthene	--	1E-10	--	--	1E-10					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	4E-07	--	--	4E-07					
			Chrysene	--	2E-11	--	--	2E-11					
			Dibenzo(a,h)anthracene	--	4E-10	--	--	4E-10					
			Fluoranthene	--	--	--	--	--					
			Indeno(1,2,3-cd)pyrene	--	9E-11	--	--	9E-11					
			Naphthalene	--	1E-06	--	--	1E-06					
			Phenanthrene	--	--	--	--	--					
			Pyrene	--	--	--	--	--					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	4E-10	--	--	4E-10					
			Cadmium	--	1E-11	--	--	1E-11					
			Chromium	--	1E-09	--	--	1E-09					
			Cobalt	--	8E-10	--	--	8E-10					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	2E-06	--	--	2E-06					
		Exposure Point Total						2E-06					
	Exposure Medium Total							2E-06					
Medium Total								2E-04					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
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NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Paved Area	Benzo(a)anthracene	3E-07	--	5E-08	--	4E-07					
			Benzo(a)pyrene	3E-06	--	4E-07	--	3E-06					
			Benzo(b)fluoranthene	3E-07	--	5E-08	--	4E-07					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	1E-08	--	2E-09	--	2E-08					
			Chrysene	2E-09	--	3E-10	--	2E-09					
			Dibenzo(a,h)anthracene	2E-07	--	3E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-08	--	2E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	5E-06	--	2E-07	--	5E-06					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	9E-06	--	7E-07	--	9E-06					
		Exposure Point Total						9E-06					
	Exposure Medium Total							9E-06					
	Air	Paved Area	Benzo(a)anthracene	--	2E-12	--	--	2E-12					
			Benzo(a)pyrene	--	2E-11	--	--	2E-11					
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	9E-13	--	--	9E-13					
			Chrysene	--	1E-13	--	--	1E-13					
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12					
			Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13					
			Aluminum	--	--	--	--	--					
			Arsenic	--	6E-10	--	--	6E-10					
			Beryllium	--	7E-12	--	--	7E-12					
			Chromium	--	1E-09	--	--	1E-09					
			Cobalt	--	9E-10	--	--	9E-10					
			Iron	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	3E-09	--	--	3E-09					
		Exposure Point Total						3E-09					
	Exposure Medium Total							3E-09					
Medium Total								9E-06					
Subsurface Soil	Subsurface Soil	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	3E-07	--	5E-08	--	4E-07					
			Benzo(a)pyrene	2E-06	--	3E-07	--	2E-06					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Paved Area	Benzo(b)fluoranthene	2E-07	--	3E-08	--	2E-07					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	2E-08	--	2E-09	--	2E-08					
			Chrysene	3E-09	--	5E-10	--	4E-09					
			Dibenzo(a,h)anthracene	1E-07	--	2E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	4E-08	--	6E-09	--	4E-08					
			Total Aroclors	5E-07	--	8E-08	--	6E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	9E-06	--	3E-07	--	9E-06					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	1E-05	--	7E-07	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	Paved Area	1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Benzo(a)anthracene	--	2E-12	--	--	2E-12					
			Benzo(a)pyrene	--	1E-11	--	--	1E-11					
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12					
			Benzo(g,h,i)perylene	--	--	--	--	--					
			Benzo(k)fluoranthene	--	1E-12	--	--	1E-12					
			Chrysene	--	2E-13	--	--	2E-13					
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12					
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13					
			Total Aroclors	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Arsenic	--	1E-09	--	--	1E-09					
			Chromium	--	2E-09	--	--	2E-09					
			Cobalt	--	9E-10	--	--	9E-10					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Soil)	--	--	--	--	--					
			Chemical Total	--	4E-09	--	--	4E-09					
		Exposure Point Total						4E-09					
	Exposure Medium Total							4E-09					
Medium Total								1E-05					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	1,1-Dichloroethane	6E-06	--	4E-07	--	6E-06					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					
			Carbon Tetrachloride	8E-07	--	2E-07	--	1E-06					
			Chloroform	7E-07	--	6E-08	--	7E-07					
			Chloromethane	6E-07	--	2E-08	--	7E-07					
			Ethylbenzene	2E-06	--	1E-06	--	3E-06					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	2E-05	--	1E-05	--	3E-05					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	3E-05	--	4E-06	--	3E-05					
			Vinyl Chloride	9E-05	--	4E-06	--	9E-05					
			Benzo(k)fluoranthene	9E-07	--	--	--	9E-07					
			Dieldrin	5E-07	--	3E-07	--	9E-07					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	2E-03	--	8E-06	--	2E-03					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	3E-03	--	3E-05	--	3E-03					
		Exposure Point Total						3E-03					
	Exposure Medium Total							3E-03					
	Groundwater	Site 08	1,1-Dichloroethane	--	6E-06	--	--	6E-06					
			1,2,4-Trimethylbenzene	--	--	--	--	--					
			1,3,5-Trimethylbenzene	--	--	--	--	--					
			Bromomethane	--	--	--	--	--					

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Site 08	Carbon Tetrachloride	--	8E-07	--	--	8E-07					
			Chloroform	--	7E-07	--	--	7E-07					
			Chloromethane	--	6E-07	--	--	6E-07					
			Ethylbenzene	--	2E-06	--	--	2E-06					
			Isopropylbenzene	--	--	--	--	--					
			Tetrachloroethene	--	2E-05	--	--	2E-05					
			Total Xylenes	--	--	--	--	--					
			Trichloroethene	--	3E-05	--	--	3E-05					
			Vinyl Chloride	--	9E-05	--	--	9E-05					
			Benzo(k)fluoranthene	--	--	--	--	--					
			Dieldrin	--	--	--	--	--					
			Aluminum	--	--	--	--	--					
			Antimony	--	--	--	--	--					
			Arsenic	--	--	--	--	--					
			Barium	--	--	--	--	--					
			Beryllium	--	--	--	--	--					
			Chromium	--	--	--	--	--					
			Cobalt	--	--	--	--	--					
			Copper	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese (Water)	--	--	--	--	--					
			Mercury	--	--	--	--	--					
			Molybdenum	--	--	--	--	--					
			Nickel	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Vanadium	--	--	--	--	--					
			Zinc	--	--	--	--	--					
			Chemical Total	--	1E-04	--	--	1E-04					
		Exposure Point Total						1E-04					
	Exposure Medium Total							1E-04					
Medium Total								3E-03					
Receptor Total							Receptor Risk Total	3E-03					

Note:
Inhalation exposures are assumed to be equal to the exposures from ingestion of groundwater.

APPENDIX H.3

SAMPLES USED IN CALCULATION OF EPCS

TABLE H.3-1
SAMPLES USED TO CALCULATE EPCs
EXPOSED AREA - SURFACE SOIL

DA-MW103B-LOCDEPTHMAX
DA-MW104B-LOCDEPTHMAX
DA-MW105B-LOCDEPTHMAX
DA-B106B-0002
DA-MW110B-LOCDEPTHMAX
DA-MW111B-LOCDEPTHMAX
DA-MW112B-LOCDEPTHMAX
DA-MW113B-LOCDEPTHMAX
DA-MW114B-LOCDEPTHMAX
DA-MW115B-LOCDEPTHMAX
DA-MW116B-LOCDEPTHMAX
DA-MW117B-LOCDEPTHMAX
DA-MW118B-LOCDEPTHMAX
DA-MW119B-LOCDEPTHMAX
DA-MW120B-LOCDEPTHMAX
DA-SS-B124B-0103-072108
DA-S-SB03-0102-01
DA-S-SB07-0102-01
DA-SB102B-LOCDEPTHMAX
DA-SS103-011708
DA-SB103-0103
DA-SB104-LOCDEPTHMAX
DA-SB105-LOCDEPTHMAX
DA-SB106-LOCDEPTHMAX
DA-SB107-LOCDEPTHMAX
DA-SB107-0103
DA-SB108-LOCDEPTHMAX
DA-SB109-LOCDEPTHMAX
DA-SB110-LOCDEPTHMAX
DA-SB118-0002
DA-SB121-LOCDEPTHMAX
DA-SB122-LOCDEPTHMAX
DA-SB123-LOCDEPTHMAX
DA-SB124-LOCDEPTHMAX
DA-SB125-LOCDEPTHMAX
DA-SB126-LOCDEPTHMAX
DA-SB127-LOCDEPTHMAX
DA-SB128-LOCDEPTHMAX
DA-SS153-011608
DA-SB129-LOCDEPTHMAX
DA-SB130-LOCDEPTHMAX
DA-SB131-LOCDEPTHMAX
DA-SB132-LOCDEPTHMAX
DA-SB133-LOCDEPTHMAX
DA-SB133-0102
DA-SB134-LOCDEPTHMAX
DA-SB135-LOCDEPTHMAX
DA-SB136-LOCDEPTHMAX
DA-SB137-LOCDEPTHMAX
DA-SB138-LOCDEPTHMAX
DA-SB139-LOCDEPTHMAX
DA-SB140-LOCDEPTHMAX
DA-SB141-LOCDEPTHMAX
DA-SB142-LOCDEPTHMAX
DA-SB143-LOCDEPTHMAX
DA-SB144-LOCDEPTHMAX
DA-SB145-LOCDEPTHMAX
DA-SB146-LOCDEPTHMAX
DA-SS147-011708-AVG
DA-SS148-011708
DA-SS149-011708
DA-S-TP01-0001-01
DA-S-TP05-0001-01
DA-S-TP06-0001-01
DA-S-TP07-0001-01
DA-S-TP08-0001-01
DA-S-TP09-0001-01
DA-S-TP09-0102-01-AVG
DA-S-TP10-0001-01
DA-S-TP10-0102-01
DA-S-TP11-0001-01
DA-S-TP12-0001-01
DA-S-TP12-0102-01
DA-S-TP12A-0001-01
DA-S-TP12B-0001-01
DA-S-TP13-0001-01
DA-S-TP15-0001-01

TABLE H.3-2
SAMPLES USED TO CALCULATE EPCs
EXPOSED AREA - SUBSURFACE SOIL

DA-S-MW04B-0810-01
DA-S-MW04B-1416-01
DA-B103B-0810
DA-B104B-1012
DA-B104B-0406-AVG
DA-B105B-0204
DA-B106B-0406
DA-B110B-1012
DA-B111B-0406
DA-B112B-0608
DA-B113B-0608
DA-B114B-0204
DA-B116B-0305
DA-B118B-0608
DA-B119B-0204
DA-B120B-0204
DA-S-SB03-0304-01
DA-S-SB03-0607-01
DA-SB-TP103-0506
DA-SB104-0608
DA-SB105-0406
DA-SB106-0608
DA-SB108-0204
DA-SB109-0204
DA-SB110-0810
DA-SB118-0406
DA-SB121-0406
DA-SB122-0407
DA-SB123-0508
DA-SB124-0608
DA-SB125-0810
DA-SB126-1013
DA-SB127-0204
DA-SB128-0810-AVG
DA-SB129-0406
DA-SB130-1011.5
DA-SB131-0406
DA-SB132-0406
DA-SB133-0810
DA-SB134-0405
DA-SB135-1214
DA-SB136-0810
DA-SB137-0406
DA-SB138-0406-AVG
DA-SB139-0406
DA-SB139-1012
DA-S-TP01-0304-01
DA-S-TP01-0607-01
DA-S-TP05-0607-01
DA-S-TP05-0910-01-AVG
DA-S-TP06-0304-01
DA-S-TP06-0910-01
DA-S-TP07-0304-01
DA-S-TP07-0910-01
DA-S-TP08-0708-01
DA-S-TP08-0304-01-AVG
DA-S-TP11-0304-01
DA-S-TP11-0203-01-AVG
DA-S-TP12-0203-01
DA-S-TP13-0203-01
DA-S-TP13-0405-01
DA-S-TP14-0910-01
DA-S-TP15-0203-01
DA-S-TP15-0506-01
DA-S-TP15A-0203-01
DA-S-TP15A-0506-01
DA-S-TP15A-0910-01
DA-SB153-0204

TABLE H.3-3
SAMPLES USED TO CALCULATE EPCs
PAVED AREA - SURFACE SOIL

DA-B100B-0002-AVG
DA-B101B-0002
DA-B107B-0002
DA-B108B-0002
DA-B109B-0002
DA-SS-B125B-0103-072108-AVG
DA-SS-B126B-0103-072208
DA-S-SB01-0102-01
DA-S-SB02-0102-01
DA-S-SB04-0102-01
DA-S-SB05-0102-01
DA-S-SB06-0515-01
DA-S-SB08-0102-01
DA-SB100-0002
DA-SB101-0002
DA-SB102-0002
DA-SB111-0002
DA-SB112-0002
DA-SB113-0002
DA-SB114-0002
DA-SB115-0002
DA-SB116-0002
DA-SB117-0002
DA-SB119-0002
DA-SB120-0002
DA-SB150-0002
DA-SB151-0002

TABLE H.3-4
SAMPLES USED TO CALCULATE EPCs
PAVED AREA - SUBSURFACE SOIL

DA-B100B-0608
DA-B101B-0406
DA-B107B-0608
DA-B108B-0406
DA-B109B-0204
DA-SB100-0204
DA-SB101-0608-AVG
DA-SB102-0305
DA-SB111-0204
DA-SB112-0608-AVG
DA-SB113-0406-AVG
DA-SB114-0406
DA-SB115-0204
DA-SB116-0204
DA-SB117-0810
DA-SB119-0204
DA-SB120-0406
DA-SB150-0204
DA-SB151-0406-AVG
DA-SO-B126B-0608-072208
DA-S-SB01-0809-01
DA-S-SB01-5575-01
DA-S-SB02-0304-01
DA-S-SB02-5565-01
DA-S-SB04-0910-01-AVG
DA-S-SB04-2535-01
DA-S-SB05-0203-01
DA-S-SB05-0304-01
DA-S-SB06-2535-01
DA-S-SB08-0607-01-AVG
DA-SS-B125B-0304-072108

TABLE H.3-5
SAMPLES USED TO CALCULATE EPCs
GROUNDWATER

DA-MW103S-2008LOCMAX
DA-MW112S-2008LOCMAX
DA-MW122-2008LOCMAX
DA-MW123-2008LOCMAX
DA-MW02B-2008LOCMAX
DA-MW03B-2008LOCMAX
DA-MW04B-2008LOCMAX
DA-MW100B-2008LOCMAX
DA-MW102B-2008LOCMAX
DA-MW103B-2008LOCMAX
DA-MW104B-2008LOCMAX
DA-MW105B-2008LOCMAX
DA-MW107B-2008LOCMAX
DA-MW108B-2008LOCMAX
DA-MW109B-2008LOCMAX
DA-MW110B-2008LOCMAX
DA-MW111B-2008LOCMAX
DA-MW112B-2008LOCMAX
DA-MW113B-2008LOCMAX
DA-MW114B-2008LOCMAX
DA-MW115B-2008LOCMAX
DA-MW116B-2008LOCMAX
DA-MW117B-2008LOCMAX
DA-MW118B-2008LOCMAX
DA-MW119B-2008LOCMAX
DA-MW124B-2008LOCMAX
DA-MW125B-2008LOCMAX
DA-MW126B-2008LOCMAX

TABLE H.3-6
SAMPLES USED TO CALCULATE EPCs
SURFACE WATER

DA-SW-01-LOCDEPTHMAX
DA-A-SW02-01-AVG
DA-A-SW03-01
DA-A-SW04-01
DA-A-SW05-01
DA-A-SW06-01
DA-SW106-LOCDEPTHMAX
DA-SW107-LOCDEPTHMAX
DA-SW108-LOCDEPTHMAX
DA-SW110-LOCDEPTHMAX
DA-SW111-LOCDEPTHMAX
DA-SW112-LOCDEPTHMAX
DA-SW114-0508
DA-SW116-0508-AVG
DA-SW-117-082108
DA-SW133-LOCDEPTHMAX

TABLE H.3-7
SAMPLES USED TO CALCULATE EPCs
SEDIMENT

DA-S-SD01-01
DA-SD100-071207
DA-SD101-071207
DA-SD102-071207-AVG
DA-SD103-071107
DA-SD104-071107
DA-SD105-071107
DA-SD106-LOCDEPTHMAX
DA-SD107-LOCDEPTHMAX
DA-SD108-LOCDEPTHMAX
DA-SD109-071107
DA-SD110-LOCDEPTHMAX
DA-SD111-LOCDEPTHMAX
DA-SD112-LOCDEPTHMAX
DA-SD113-071107
DA-SD114-LOCDEPTHMAX
DA-SD115-071107
DA-SD116-LOCDEPTHMAX
DA-SD-117-082108
DA-SD118-071107
DA-SD-128-082108
DA-SD-129-082108
DA-SD-130-082108
DA-SD-131-082108
DA-SD132-071207
DA-SD133-LOCDEPTHMAX
DA-SD134-0006
DA-S-SD02-01-AVG
DA-S-SD03-01
DA-S-SD04-01
DA-S-SD05-01
DA-S-SD06-01
DA-S-SD07-01

TABLE H.3-8
SAMPLES USED TO CALCULATE EPCs
FISH TISSUE

DA-FT-ET01-BGF-081208
DA-FT-ET01-BHF-081208
DA-FT-ET02-BHF-081208
DA-FT-ET02-WPF-081208
DA-FT-ET03-BHF-081208-AVG

APPENDIX H.4

PROUCL OUTPUTS

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

BENZO(A)ANTHRACENE

General Statistics

Number of Valid Data	75	Number of Detected Data	68
Number of Distinct Detected Data	58	Number of Non-Detect Data	7
Number of Missing Values	2	Percent Non-Detects	9.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	20000	Maximum Detected	9.903
Mean of Detected	1324	Mean of Detected	5.873
SD of Detected	2915	SD of Detected	1.689
Minimum Non-Detect	79	Minimum Non-Detect	4.369
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	44
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	31
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	58.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.327	Lilliefors Test Statistic	0.0781
5% Lilliefors Critical Value	0.107	5% Lilliefors Critical Value	0.107
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

BENZO(A)ANTHRACENE (Continued)

Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	1207
SD	2797
95% DL/2 (t) UCL	1745
Maximum Likelihood Estimate(MLE) Method	N/A
MLE yields a negative mean	

Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	5.697
SD	1.712
95% H-Stat (DL/2) UCL	1922
Log ROS Method	
Mean in Log Scale	5.686
SD in Log Scale	1.716
Mean in Original Scale	1205
SD in Original Scale	2798
95% Percentile Bootstrap UCL	1773
95% BCA Bootstrap UCL	1978

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.474
Theta Star	2794
nu star	64.42
A-D Test Statistic	1.937
5% A-D Critical Value	0.82
K-S Test Statistic	0.82
5% K-S Critical Value	0.115
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	20000
Mean	1200
Median	210
SD	2800
k star	0.2
Theta star	6000
Nu star	30
AppChi2	18.49
95% Gamma Approximate UCL	1947
95% Adjusted Gamma UCL	1966

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1205
SD	2779
SE of Mean	323.3
95% KM (t) UCL	1744
95% KM (z) UCL	1737
95% KM (jackknife) UCL	1743
95% KM (bootstrap t) UCL	2230
95% KM (BCA) UCL	1859
95% KM (Percentile Bootstrap) UCL	1801
95% KM (Chebyshev) UCL	2614
97.5% KM (Chebyshev) UCL	3224
99% KM (Chebyshev) UCL	4422
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	3224

Note: DL/2 is not a recommended method.

BENZO(A)PYRENE

General Statistics

Number of Valid Data	75	Number of Detected Data	65
Number of Distinct Detected Data	53	Number of Non-Detect Data	10
Number of Missing Values	2	Percent Non-Detects	13.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	18	Minimum Detected	2.89
Maximum Detected	17000	Maximum Detected	9.741
Mean of Detected	999.9	Mean of Detected	5.726
SD of Detected	2313	SD of Detected	1.559
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	50
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	25
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	66.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.336	Lilliefors Test Statistic	0.0797
5% Lilliefors Critical Value	0.11	5% Lilliefors Critical Value	0.11
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	875.1	Mean	5.473
SD	2175	SD	1.611
95% DL/2 (t) UCL	1293	95% H-Stat (DL/2) UCL	1160
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.46
		SD in Log Scale	1.616
		Mean in Original Scale	873
		SD in Original Scale	2175
		95% Percentile Bootstrap UCL	1349
		95% BCA Bootstrap UCL	1514

BENZO(A)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.518	Data appear Lognormal at 5% Significance Level	
Theta Star	1929		
nu star	67.37		
A-D Test Statistic	1.785	Nonparametric Statistics	
5% A-D Critical Value	0.813	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.813	Mean	873.4
5% K-S Critical Value	0.117	SD	2161
Data not Gamma Distributed at 5% Significance Level		SE of Mean	251.4
		95% KM (t) UCL	1292
Assuming Gamma Distribution		95% KM (z) UCL	1287
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1292
Minimum	1E-09	95% KM (bootstrap t) UCL	1756
Maximum	17000	95% KM (BCA) UCL	1421
Mean	868.4	95% KM (Percentile Bootstrap) UCL	1346
Median	230	95% KM (Chebyshev) UCL	1969
SD	2177	97.5% KM (Chebyshev) UCL	2444
k star	0.179	99% KM (Chebyshev) UCL	3375
Theta star	4845		
Nu star	26.88	Potential UCLs to Use	
AppChi2	16.06	97.5% KM (Chebyshev) UCL	2444
95% Gamma Approximate UCL	1453		
95% Adjusted Gamma UCL	1468		

Note: DL/2 is not a recommended method.

BENZO(B)FLUORANTHENE

General Statistics

Number of Valid Data	75	Number of Detected Data	65
Number of Distinct Detected Data	57	Number of Non-Detect Data	10
Number of Missing Values	2	Percent Non-Detects	13.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	24.5	Minimum Detected	3.199
Maximum Detected	15000	Maximum Detected	9.616
Mean of Detected	1109	Mean of Detected	5.861
SD of Detected	2316	SD of Detected	1.541
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	49
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	26
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	65.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.32	Lilliefors Test Statistic	0.0674
5% Lilliefors Critical Value	0.11	5% Lilliefors Critical Value	0.11
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	970.9	Mean	5.61
SD	2183	SD	1.593
95% DL/2 (t) UCL	1391	95% H-Stat (DL/2) UCL	1282
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.56
		SD in Log Scale	1.661
		Mean in Original Scale	968.1
		SD in Original Scale	2184
		95% Percentile Bootstrap UCL	1440
		95% BCA Bootstrap UCL	1539

BENZO(B)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.53
Theta Star	2093
nu star	68.9
A-D Test Statistic	1.869
5% A-D Critical Value	0.812
K-S Test Statistic	0.812
5% K-S Critical Value	0.117
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	15000
Mean	963.1
Median	240
SD	2187
k star	0.18
Theta star	5361
Nu star	26.95
AppChi2	16.11
95% Gamma Approximate UCL	1611
95% Adjusted Gamma UCL	1628

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	968.8
SD	2170
SE of Mean	252.5
95% KM (t) UCL	1389
95% KM (z) UCL	1384
95% KM (jackknife) UCL	1389
95% KM (bootstrap t) UCL	1802
95% KM (BCA) UCL	1452
95% KM (Percentile Bootstrap) UCL	1418
95% KM (Chebyshev) UCL	2069
97.5% KM (Chebyshev) UCL	2546
99% KM (Chebyshev) UCL	3481
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	2546

Note: DL/2 is not a recommended method.

BENZO(G,H,I)PERYLENE

General Statistics

Number of Valid Data	75	Number of Detected Data	63
Number of Distinct Detected Data	54	Number of Non-Detect Data	12
Number of Missing Values	2	Percent Non-Detects	16.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	12	Minimum Detected	2.485
Maximum Detected	7400	Maximum Detected	8.909
Mean of Detected	516.2	Mean of Detected	5.145
SD of Detected	1096	SD of Detected	1.494
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	62
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	13
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	82.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.323	Lilliefors Test Statistic	0.072
5% Lilliefors Critical Value	0.112	5% Lilliefors Critical Value	0.112
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	445.9	Mean	4.98
SD	1017	SD	1.444
95% DL/2 (t) UCL	641.4	95% H-Stat (DL/2) UCL	536.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.923
		SD in Log Scale	1.488
		Mean in Original Scale	442.2
		SD in Original Scale	1018
		95% Percentile Bootstrap UCL	653.9
		95% BCA Bootstrap UCL	746.4

BENZO(G,H,I)PERYLENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.549
Theta Star	939.8
nu star	69.21
A-D Test Statistic	1.767
5% A-D Critical Value	0.81
K-S Test Statistic	0.81
5% K-S Critical Value	0.118
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	7400
Mean	454.5
Median	140
SD	1015
k star	0.259
Theta star	1752
Nu star	38.92
AppChi2	25.63
95% Gamma Approximate UCL	690.2
95% Adjusted Gamma UCL	695.9

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	442.5
SD	1011
SE of Mean	117.7
95% KM (t) UCL	638.5
95% KM (z) UCL	636.1
95% KM (jackknife) UCL	638.3
95% KM (bootstrap t) UCL	871.7
95% KM (BCA) UCL	661.8
95% KM (Percentile Bootstrap) UCL	658.5
95% KM (Chebyshev) UCL	955.5
97.5% KM (Chebyshev) UCL	1178
99% KM (Chebyshev) UCL	1614
Potential UCLs to Use	
95% KM (Chebyshev) UCL	955.5

Note: DL/2 is not a recommended method.

BENZO(K)FLUORANTHENE

General Statistics

Number of Valid Data	75	Number of Detected Data	66
Number of Distinct Detected Data	57	Number of Non-Detect Data	9
Number of Missing Values	2	Percent Non-Detects	12.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	13	Minimum Detected	2.565
Maximum Detected	12000	Maximum Detected	9.393
Mean of Detected	808.3	Mean of Detected	5.487
SD of Detected	1703	SD of Detected	1.611
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	51
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	24
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.32	Lilliefors Test Statistic	0.0704
5% Lilliefors Critical Value	0.109	5% Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	718.9	Mean	5.281
SD	1615	SD	1.633
95% DL/2 (t) UCL	1029	95% H-Stat (DL/2) UCL	1058
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.259
		SD in Log Scale	1.643
		Mean in Original Scale	716.3
		SD in Original Scale	1615
		95% Percentile Bootstrap UCL	1055
		95% BCA Bootstrap UCL	1214

BENZO(K)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.509
Theta Star	1589
nu star	67.13
A-D Test Statistic	1.752
5% A-D Critical Value	0.814
K-S Test Statistic	0.814
5% K-S Critical Value	0.116
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	12000
Mean	712.7
Median	160
SD	1617
k star	0.192
Theta star	3714
Nu star	28.79
AppChi2	17.54
95% Gamma Approximate UCL	1170
95% Adjusted Gamma UCL	1181

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	716.6
SD	1605
SE of Mean	186.7
95% KM (t) UCL	1028
95% KM (z) UCL	1024
95% KM (jackknife) UCL	1027
95% KM (bootstrap t) UCL	1319
95% KM (BCA) UCL	1067
95% KM (Percentile Bootstrap) UCL	1043
95% KM (Chebyshev) UCL	1530
97.5% KM (Chebyshev) UCL	1883
99% KM (Chebyshev) UCL	2574
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	1883

Note: DL/2 is not a recommended method.

CHRYSENE

General Statistics

Number of Valid Data	75	Number of Detected Data	68
Number of Distinct Detected Data	61	Number of Non-Detect Data	7
Number of Missing Values	2	Percent Non-Detects	9.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	13	Minimum Detected	2.565
Maximum Detected	17000	Maximum Detected	9.741
Mean of Detected	1225	Mean of Detected	5.882
SD of Detected	2525	SD of Detected	1.653
Minimum Non-Detect	81	Minimum Non-Detect	4.394
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	44
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	31
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	58.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.316	Lilliefors Test Statistic	0.0815
5% Lilliefors Critical Value	0.107	5% Lilliefors Critical Value	0.107
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1118	Mean	5.708
SD	2426	SD	1.678
95% DL/2 (t) UCL	1584	95% H-Stat (DL/2) UCL	1806
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.7
		SD in Log Scale	1.678
		Mean in Original Scale	1116
		SD in Original Scale	2427
		95% Percentile Bootstrap UCL	1606
		95% BCA Bootstrap UCL	1780

CHRYSENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.502
Theta Star	2441
nu star	68.26
A-D Test Statistic	1.608
5% A-D Critical Value	0.815
K-S Test Statistic	0.815
5% K-S Critical Value	0.114
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	17000
Mean	1111
Median	290
SD	2429
k star	0.204
Theta star	5446
Nu star	30.59
AppChi2	18.96
95% Gamma Approximate UCL	1792
95% Adjusted Gamma UCL	1809

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1116
SD	2410
SE of Mean	280.4
95% KM (t) UCL	1583
95% KM (z) UCL	1577
95% KM (jackknife) UCL	1583
95% KM (bootstrap t) UCL	1866
95% KM (BCA) UCL	1593
95% KM (Percentile Bootstrap) UCL	1586
95% KM (Chebyshev) UCL	2338
97.5% KM (Chebyshev) UCL	2867
99% KM (Chebyshev) UCL	3906
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	2867

Note: DL/2 is not a recommended method.

DIBENZO(A,H)ANTHRACENE

General Statistics

Number of Valid Data	75	Number of Detected Data	49
Number of Distinct Detected Data	42	Number of Non-Detect Data	26
Number of Missing Values	2	Percent Non-Detects	34.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.4	Minimum Detected	1.686
Maximum Detected	3500	Maximum Detected	8.161
Mean of Detected	240.6	Mean of Detected	4.443
SD of Detected	540.7	SD of Detected	1.385
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	840	Maximum Non-Detect	6.733
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	71
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	94.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.434	Shapiro Wilk Test Statistic	0.983
5% Shapiro Wilk Critical Value	0.947	5% Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	183.2	Mean	4.22
SD	445.7	SD	1.316
95% DL/2 (t) UCL	268.9	95% H-Stat (DL/2) UCL	195.3
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.992
		SD in Log Scale	1.362
		Mean in Original Scale	168.1
		SD in Original Scale	447.1
		95% Percentile Bootstrap UCL	265.1
		95% BCA Bootstrap UCL	303.6

DIBENZO(A,H)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.572
Theta Star	420.6
nu star	56.06
A-D Test Statistic	2.089
5% A-D Critical Value	0.806
K-S Test Statistic	0.806
5% K-S Critical Value	0.133
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	5.4
Maximum	3500
Mean	232.7
Median	170.1
SD	436.7
k star	0.828
Theta star	280.9
Nu star	124.3
AppChi2	99.51
95% Gamma Approximate UCL	290.6
95% Adjusted Gamma UCL	291.9

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	170.4
SD	444
SE of Mean	51.9
95% KM (t) UCL	256.8
95% KM (z) UCL	255.7
95% KM (jackknife) UCL	256.5
95% KM (bootstrap t) UCL	372.7
95% KM (BCA) UCL	263.1
95% KM (Percentile Bootstrap) UCL	266.9
95% KM (Chebyshev) UCL	396.6
97.5% KM (Chebyshev) UCL	494.4
99% KM (Chebyshev) UCL	686.7
Potential UCLs to Use	
95% KM (Chebyshev) UCL	396.6

Note: DL/2 is not a recommended method.

FLUORANTHENE

General Statistics

Number of Valid Data	75	Number of Detected Data	68
Number of Distinct Detected Data	57	Number of Non-Detect Data	7
Number of Missing Values	2	Percent Non-Detects	9.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	22	Minimum Detected	3.091
Maximum Detected	45000	Maximum Detected	10.71
Mean of Detected	3010	Mean of Detected	6.633
SD of Detected	6656	SD of Detected	1.752
Minimum Non-Detect	66	Minimum Non-Detect	4.19
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	38
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	37
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	50.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.336	Lilliefors Test Statistic	0.0777
5% Lilliefors Critical Value	0.107	5% Lilliefors Critical Value	0.107
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2735	Mean	6.371
SD	6392	SD	1.872
95% DL/2 (t) UCL	3965	95% H-Stat (DL/2) UCL	5156
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	6.361
		SD in Log Scale	1.882
		Mean in Original Scale	2733
		SD in Original Scale	6393
		95% Percentile Bootstrap UCL	3988
		95% BCA Bootstrap UCL	4577

FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.456	Data appear Lognormal at 5% Significance Level	
Theta Star	6606		
nu star	61.96		
A-D Test Statistic	1.936	Nonparametric Statistics	
5% A-D Critical Value	0.825	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.825	Mean	2734
5% K-S Critical Value	0.115	SD	6349
Data not Gamma Distributed at 5% Significance Level		SE of Mean	738.6
		95% KM (t) UCL	3965
Assuming Gamma Distribution		95% KM (z) UCL	3949
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3964
Minimum	1E-09	95% KM (bootstrap t) UCL	4976
Maximum	45000	95% KM (BCA) UCL	4047
Mean	2729	95% KM (Percentile Bootstrap) UCL	4087
Median	470	95% KM (Chebyshev) UCL	5954
SD	6395	97.5% KM (Chebyshev) UCL	7347
k star	0.194	99% KM (Chebyshev) UCL	10084
Theta star	14047		
Nu star	29.14	Potential UCLs to Use	
AppChi2	17.82	97.5% KM (Chebyshev) UCL	7347
95% Gamma Approximate UCL	4463		
95% Adjusted Gamma UCL	4506		

Note: DL/2 is not a recommended method.

INDENO(1,2,3-CD)PYRENE

General Statistics

Number of Valid Data	75	Number of Detected Data	62
Number of Distinct Detected Data	49	Number of Non-Detect Data	13
Number of Missing Values	2	Percent Non-Detects	17.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	9200	Maximum Detected	9.127
Mean of Detected	591.6	Mean of Detected	5.282
SD of Detected	1295	SD of Detected	1.478
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	920	Maximum Non-Detect	6.824
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	65
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	10
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	86.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.328	Lilliefors Test Statistic	0.056
5% Lilliefors Critical Value	0.113	5% Lilliefors Critical Value	0.113
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	511.7	Mean	5.151
SD	1190	SD	1.417
95% DL/2 (t) UCL	740.5	95% H-Stat (DL/2) UCL	609.3
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.059
		SD in Log Scale	1.46
		Mean in Original Scale	500.7
		SD in Original Scale	1192
		95% Percentile Bootstrap UCL	747.3
		95% BCA Bootstrap UCL	865.4

INDENO(1,2,3-CD)PYRENE (Continued)			
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.55	Data appear Lognormal at 5% Significance Level	
Theta Star	1076		
nu star	68.17		
A-D Test Statistic	1.921	Nonparametric Statistics	
5% A-D Critical Value	0.81	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.81	Mean	502.3
5% K-S Critical Value	0.119	SD	1184
Data not Gamma Distributed at 5% Significance Level		SE of Mean	137.9
		95% KM (t) UCL	732
Assuming Gamma Distribution		95% KM (z) UCL	729.2
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	731.7
Minimum	1E-09	95% KM (bootstrap t) UCL	1003
Maximum	9200	95% KM (BCA) UCL	742.5
Mean	513.3	95% KM (Percentile Bootstrap) UCL	755
Median	180	95% KM (Chebyshev) UCL	1103
SD	1190	97.5% KM (Chebyshev) UCL	1364
k star	0.215	99% KM (Chebyshev) UCL	1875
Theta star	2387		
Nu star	32.26	Potential UCLs to Use	
AppChi2	20.28	95% KM (Chebyshev) UCL	1103
95% Gamma Approximate UCL	816.7		
95% Adjusted Gamma UCL	824.2		
Note: DL/2 is not a recommended method.			

NAPHTHALENE

General Statistics

Number of Valid Data	75	Number of Detected Data	46
Number of Distinct Detected Data	41	Number of Non-Detect Data	29
Number of Missing Values	2	Percent Non-Detects	38.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.3	Minimum Detected	0.833
Maximum Detected	11000	Maximum Detected	9.306
Mean of Detected	371.8	Mean of Detected	3.64
SD of Detected	1622	SD of Detected	1.886
Minimum Non-Detect	3.4	Minimum Non-Detect	1.224
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	70
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.234	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	234.2	Mean	2.898
SD	1278	SD	1.872
95% DL/2 (t) UCL	480	95% H-Stat (DL/2) UCL	130.4
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.567
		SD in Log Scale	2.083
		Mean in Original Scale	229.5
		SD in Original Scale	1278
		95% Percentile Bootstrap UCL	518.3
		95% BCA Bootstrap UCL	694.6

NAPHTHALENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.297
Theta Star	1252
nu star	27.33
A-D Test Statistic	4.401
5% A-D Critical Value	0.861
K-S Test Statistic	0.861
5% K-S Critical Value	0.142
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	2.3
Maximum	11000
Mean	387.9
Median	220
SD	1266
k star	0.449
Theta star	862.9
Nu star	67.42
AppChi2	49.53
95% Gamma Approximate UCL	528.1
95% Adjusted Gamma UCL	531.3

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	230.2
SD	1269
SE of Mean	148.2
95% KM (t) UCL	477.1
95% KM (z) UCL	474
95% KM (jackknife) UCL	476
95% KM (bootstrap t) UCL	1655
95% KM (BCA) UCL	538.2
95% KM (Percentile Bootstrap) UCL	514.6
95% KM (Chebyshev) UCL	876.2
97.5% KM (Chebyshev) UCL	1156
99% KM (Chebyshev) UCL	1705
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	1156

PHENANTHRENE

General Statistics

Number of Valid Data	75	Number of Detected Data	68
Number of Distinct Detected Data	58	Number of Non-Detect Data	7
Number of Missing Values	2	Percent Non-Detects	9.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	12	Minimum Detected	2.485
Maximum Detected	48000	Maximum Detected	10.78
Mean of Detected	2392	Mean of Detected	6.099
SD of Detected	6501	SD of Detected	1.946
Minimum Non-Detect	66	Minimum Non-Detect	4.19
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	41
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	34
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	54.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.357	Lilliefors Test Statistic	0.0735
5% Lilliefors Critical Value	0.107	5% Lilliefors Critical Value	0.107
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2175	Mean	5.887
SD	6223	SD	1.98
95% DL/2 (t) UCL	3372	95% H-Stat (DL/2) UCL	4340
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.881
		SD in Log Scale	1.98
		Mean in Original Scale	2173
		SD in Original Scale	6224
		95% Percentile Bootstrap UCL	3625
		95% BCA Bootstrap UCL	4162

PHENANTHRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.385
Theta Star	6210
nu star	52.38
A-D Test Statistic	2.221
5% A-D Critical Value	0.843
K-S Test Statistic	0.843
5% K-S Critical Value	0.116
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	48000
Mean	2168
Median	300
SD	6226
k star	0.184
Theta star	11770
Nu star	27.63
AppChi2	16.64
95% Gamma Approximate UCL	3600
95% Adjusted Gamma UCL	3637

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	2173
SD	6182
SE of Mean	719.2
95% KM (t) UCL	3371
95% KM (z) UCL	3356
95% KM (jackknife) UCL	3370
95% KM (bootstrap t) UCL	4844
95% KM (BCA) UCL	3819
95% KM (Percentile Bootstrap) UCL	3411
95% KM (Chebyshev) UCL	5308
97.5% KM (Chebyshev) UCL	6664
99% KM (Chebyshev) UCL	9329
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	6664

PYRENE

General Statistics

Number of Valid Data	75	Number of Detected Data	68
Number of Distinct Detected Data	55	Number of Non-Detect Data	7
Number of Missing Values	2	Percent Non-Detects	9.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	16	Minimum Detected	2.773
Maximum Detected	50000	Maximum Detected	10.82
Mean of Detected	2685	Mean of Detected	6.455
SD of Detected	6702	SD of Detected	1.797
Minimum Non-Detect	72	Minimum Non-Detect	4.277
Maximum Non-Detect	560	Maximum Non-Detect	6.328
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	39
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	36
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	52.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.345	Lilliefors Test Statistic	0.0903
5% Lilliefors Critical Value	0.107	5% Lilliefors Critical Value	0.107
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2441	Mean	6.217
SD	6423	SD	1.878
95% DL/2 (t) UCL	3676	95% H-Stat (DL/2) UCL	4613
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	6.228
		SD in Log Scale	1.857
		Mean in Original Scale	2440
		SD in Original Scale	6423
		95% Percentile Bootstrap UCL	3821
		95% BCA Bootstrap UCL	4422

PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.438
Theta Star	6122
nu star	59.64
A-D Test Statistic	1.816
5% A-D Critical Value	0.829
K-S Test Statistic	0.829
5% K-S Critical Value	0.115
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	50000
Mean	2434
Median	490
SD	6425
k star	0.192
Theta star	12657
Nu star	28.85
AppChi2	17.59
95% Gamma Approximate UCL	3992
95% Adjusted Gamma UCL	4032

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	2440
SD	6380
SE of Mean	742.2
95% KM (t) UCL	3676
95% KM (z) UCL	3661
95% KM (jackknife) UCL	3675
95% KM (bootstrap t) UCL	5197
95% KM (BCA) UCL	3837
95% KM (Percentile Bootstrap) UCL	3785
95% KM (Chebyshev) UCL	5675
97.5% KM (Chebyshev) UCL	7075
99% KM (Chebyshev) UCL	9825
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	7075

TOTAL AROCLOR

General Statistics

Number of Valid Data	75	Number of Detected Data	35
Number of Distinct Detected Data	32	Number of Non-Detect Data	40
Number of Missing Values	2	Percent Non-Detects	53.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	26	Minimum Detected	3.258
Maximum Detected	5220	Maximum Detected	8.56
Mean of Detected	372.1	Mean of Detected	5.127
SD of Detected	869.4	SD of Detected	1.101
Minimum Non-Detect	19	Minimum Non-Detect	2.944
Maximum Non-Detect	56	Maximum Non-Detect	4.025

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	45
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	30
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	60.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.356	Shapiro Wilk Test Statistic	0.957
5% Shapiro Wilk Critical Value	0.934	5% Shapiro Wilk Critical Value	0.934
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	179.5	Mean	3.662
SD	616.6	SD	1.573
95% DL/2 (t) UCL	298.1	95% H-Stat (DL/2) UCL	134.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.524
		SD in Log Scale	1.809
		Mean in Original Scale	179.9
		SD in Original Scale	616.5
		95% Percentile Bootstrap UCL	316.6
		95% BCA Bootstrap UCL	418.7

TOTAL AROCLOR (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.709
Theta Star	524.7
nu star	49.65
A-D Test Statistic	1.927
5% A-D Critical Value	0.787
K-S Test Statistic	0.787
5% K-S Critical Value	0.155
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	26
Maximum	5220
Mean	372.1
Median	340.8
SD	590.4
k star	1.431
Theta star	260.1
Nu star	214.6
AppChi2	181.7
95% Gamma Approximate UCL	439.5
95% Adjusted Gamma UCL	440.9

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	187.6
SD	610.3
SE of Mean	71.5
95% KM (t) UCL	306.7
95% KM (z) UCL	305.2
95% KM (jackknife) UCL	302.7
95% KM (bootstrap t) UCL	552.2
95% KM (BCA) UCL	332.8
95% KM (Percentile Bootstrap) UCL	321
95% KM (Chebyshev) UCL	499.2
97.5% KM (Chebyshev) UCL	634.1
99% KM (Chebyshev) UCL	899
Potential UCLs to Use	
95% KM (BCA) UCL	332.8

ANTIMONY

General Statistics

Number of Valid Data	73	Number of Detected Data	5
Number of Distinct Detected Data	4	Number of Non-Detect Data	68
Number of Missing Values	4	Percent Non-Detects	93.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.19	Minimum Detected	-1.661
Maximum Detected	5.5	Maximum Detected	1.705
Mean of Detected	1.744	Mean of Detected	-0.055
SD of Detected	2.159	SD of Detected	1.275
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	1.1	Maximum Non-Detect	0.0953
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	70
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	95.89%

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.75	Shapiro Wilk Test Statistic	0.965
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.22	Mean	-2.245
SD	0.662	SD	0.869
95% DL/2 (t) UCL	0.349	95% H-Stat (DL/2) UCL	0.179
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	4.001	Mean in Log Scale	-7.293
SD	1.98	SD in Log Scale	2.681
95% MLE (t) UCL	4.387	Mean in Original Scale	0.121
95% MLE (Tiku) UCL	5.848	SD in Original Scale	0.675
		95% Percentile Bootstrap UCL	0.269
		95% BCA Bootstrap UCL	0.409

ANTIMONY (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.513	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	3.397		
nu star	5.134		
A-D Test Statistic	0.332	Nonparametric Statistics	
5% A-D Critical Value	0.693	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.693	Mean	0.297
5% K-S Critical Value	0.365	SD	0.64
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0837
		95% KM (t) UCL	0.436
Assuming Gamma Distribution		95% KM (z) UCL	0.434
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.468
Minimum	0.19	95% KM (bootstrap t) UCL	0.659
Maximum	5.5	95% KM (BCA) UCL	1.415
Mean	2.119	95% KM (Percentile Bootstrap) UCL	1.415
Median	2.056	95% KM (Chebyshev) UCL	0.662
SD	0.843	97.5% KM (Chebyshev) UCL	0.82
k star	5.565	99% KM (Chebyshev) UCL	1.13
Theta star	0.381		
Nu star	812.5	Potential UCLs to Use	
AppChi2	747.3	95% KM (t) UCL	0.436
95% Gamma Approximate UCL	2.303		
95% Adjusted Gamma UCL	2.307		

Note: DL/2 is not a recommended method.

CADMIUM

General Statistics

Number of Valid Data	73	Number of Detected Data	38
Number of Distinct Detected Data	31	Number of Non-Detect Data	35
Number of Missing Values	4	Percent Non-Detects	47.95%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.09	Minimum Detected	-2.408
Maximum Detected	11	Maximum Detected	2.398
Mean of Detected	1.3	Mean of Detected	-0.295
SD of Detected	1.978	SD of Detected	1.008
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.3	Maximum Non-Detect	-1.204
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	41
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	32
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	56.16%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.535	Shapiro Wilk Test Statistic	0.977
5% Shapiro Wilk Critical Value	0.938	5% Shapiro Wilk Critical Value	0.938
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.698	Mean	-1.968
SD	1.553	SD	2.069
95% DL/2 (t) UCL	1.001	95% H-Stat (DL/2) UCL	1.275
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.513
		SD in Log Scale	1.522
		Mean in Original Scale	0.709
		SD in Original Scale	1.548
		95% Percentile Bootstrap UCL	1.041
		95% BCA Bootstrap UCL	1.203

CADMIUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.968
Theta Star	1.344
nu star	73.55
A-D Test Statistic	1.3
5% A-D Critical Value	0.777
K-S Test Statistic	0.777
5% K-S Critical Value	0.147
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	11
Mean	1.184
Median	0.94
SD	1.504
k star	0.427
Theta star	2.773
Nu star	62.34
AppChi2	45.17
95% Gamma Approximate UCL	1.634
95% Adjusted Gamma UCL	1.644

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.721
SD	1.532
SE of Mean	0.182
95% KM (t) UCL	1.023
95% KM (z) UCL	1.02
95% KM (jackknife) UCL	1.022
95% KM (bootstrap t) UCL	1.33
95% KM (BCA) UCL	1.109
95% KM (Percentile Bootstrap) UCL	1.055
95% KM (Chebyshev) UCL	1.513
97.5% KM (Chebyshev) UCL	1.856
99% KM (Chebyshev) UCL	2.529
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1.513

Note: DL/2 is not a recommended method.

COPPER

General Statistics

Number of Valid Data	73	Number of Detected Data	72
Number of Distinct Detected Data	57	Number of Non-Detect Data	1
Number of Missing Values	4	Percent Non-Detects	1.37%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	6.7	Minimum Detected	1.902
Maximum Detected	560	Maximum Detected	6.328
Mean of Detected	32.53	Mean of Detected	3.151
SD of Detected	65.12	SD of Detected	0.586
Minimum Non-Detect	2.3	Minimum Non-Detect	0.833
Maximum Non-Detect	2.3	Maximum Non-Detect	0.833

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.362	Lilliefors Test Statistic	0.215
5% Lilliefors Critical Value	0.104	5% Lilliefors Critical Value	0.104
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	32.1	Mean	3.11
SD	64.77	SD	0.68
95% DL/2 (t) UCL	44.73	95% H-Stat (DL/2) UCL	32.14
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	31.53	Mean in Log Scale	3.132
SD	64.9	SD in Log Scale	0.603
95% MLE (t) UCL	44.19	Mean in Original Scale	32.16
95% MLE (Tiku) UCL	42.83	SD in Original Scale	64.74
		95% Percentile Bootstrap UCL	46.42
		95% BCA Bootstrap UCL	57.49

COPPER (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	1.596
Theta Star	20.38
nu star	229.9
A-D Test Statistic	8.876
5% A-D Critical Value	0.767
K-S Test Statistic	0.767
5% K-S Critical Value	0.107
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	560
Mean	32.08
Median	21.4
SD	64.78
k star	0.878
Theta star	36.54
Nu star	128.2
AppChi2	103
95% Gamma Approximate UCL	39.92
95% Adjusted Gamma UCL	40.09

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	32.18
SD	64.29
SE of Mean	7.577
95% KM (t) UCL	44.8
95% KM (z) UCL	44.64
95% KM (jackknife) UCL	44.78
95% KM (bootstrap t) UCL	94.43
95% KM (BCA) UCL	47.35
95% KM (Percentile Bootstrap) UCL	46.44
95% KM (Chebyshev) UCL	65.2
97.5% KM (Chebyshev) UCL	79.5
99% KM (Chebyshev) UCL	107.6
Potential UCLs to Use	
95% KM (BCA) UCL	47.35

Note: DL/2 is not a recommended method.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ALUMINUM

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	54
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	1800	Minimum of Log Data	7.496
Maximum	20700	Maximum of Log Data	9.938
Mean	11579	Mean of log Data	9.301
Median	11900	SD of log Data	0.372
SD	3471		
Coefficient of Variation	0.3		
Skewness	-0.0806		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0874	Lilliefors Test Statistic	0.13
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12256	95% H-UCL	12679
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14004
95% Adjusted-CLT UCL	12243	97.5% Chebyshev (MVUE) UCL	14994
95% Modified-t UCL	12256	99% Chebyshev (MVUE) UCL	16939

ALUMINUM (Continued)

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.673	**Data appear Normal at 5% Significance Level**	
Theta Star	1335		
MLE of Mean	11579		
MLE of Standard Deviation	3932		
nu star	1266		
Approximate Chi Square Value (.05)	1185	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	12247
Adjusted Chi Square Value	1183	95% Jackknife UCL	12256
		95% Standard Bootstrap UCL	12257
Anderson-Darling Test Statistic	1.095	95% Bootstrap-t UCL	12259
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL	12266
Kolmogorov-Smirnov Test Statistic	0.106	95% Percentile Bootstrap UCL	12262
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	12244
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	13350
		97.5% Chebyshev(Mean, Sd) UCL	14116
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15621
95% Approximate Gamma UCL	12377		
95% Adjusted Gamma UCL	12394		
Potential UCL to Use		Use 95% Student's-t UCL	12256

ARSENIC

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	61
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	0.29	Minimum of Log Data	-1.238
Maximum	90	Maximum of Log Data	4.5
Mean	18	Mean of log Data	2.702
Median	16.8	SD of log Data	0.742
SD	11.45		
Coefficient of Variation	0.636		
Skewness	3.619		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.163	Lilliefors Test Statistic	0.194
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	20.24	95% H-UCL	23.43
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	27.76
95% Adjusted-CLT UCL	20.82	97.5% Chebyshev (MVUE) UCL	31.32
95% Modified-t UCL	20.33	99% Chebyshev (MVUE) UCL	38.31
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.696	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.677		
MLE of Mean	18		
MLE of Standard Deviation	10.96		
nu star	393.6		
Approximate Chi Square Value (.05)	348.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0467	95% CLT UCL	20.21
Adjusted Chi Square Value	347.8	95% Jackknife UCL	20.24
		95% Standard Bootstrap UCL	20.18
Anderson-Darling Test Statistic	2.046	95% Bootstrap-t UCL	21.33
Anderson-Darling 5% Critical Value	0.759	95% Hall's Bootstrap UCL	24.18
Kolmogorov-Smirnov Test Statistic	0.145	95% Percentile Bootstrap UCL	20.45
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	20.84
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	23.85
		97.5% Chebyshev(Mean, Sd) UCL	26.37
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	31.34
95% Approximate Gamma UCL	20.33		
95% Adjusted Gamma UCL	20.38		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	23.85

BERYLLIUM

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	36
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	0.21	Minimum of Log Data	-1.561
Maximum	0.74	Maximum of Log Data	-0.301
Mean	0.415	Mean of log Data	-0.905
Median	0.415	SD of log Data	0.235
SD	0.0951		
Coefficient of Variation	0.229		
Skewness	0.421		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0572	Lilliefors Test Statistic	0.0837
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.434	95% H-UCL	0.436
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.466
95% Adjusted-CLT UCL	0.434	97.5% Chebyshev (MVUE) UCL	0.488
95% Modified-t UCL	0.434	99% Chebyshev (MVUE) UCL	0.531
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	18.3	Data appear Normal at 5% Significance Level	
Theta Star	0.0227		
MLE of Mean	0.415		
MLE of Standard Deviation	0.0971		
nu star	2671		
Approximate Chi Square Value (.05)	2552	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	0.434
Adjusted Chi Square Value	2550	95% Jackknife UCL	0.434
		95% Standard Bootstrap UCL	0.434
Anderson-Darling Test Statistic	0.235	95% Bootstrap-t UCL	0.434
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	0.435
Kolmogorov-Smirnov Test Statistic	0.0682	95% Percentile Bootstrap UCL	0.434
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	0.434
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.464
		97.5% Chebyshev(Mean, Sd) UCL	0.485
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.526
95% Approximate Gamma UCL	0.435		
95% Adjusted Gamma UCL	0.435		
Potential UCL to Use		Use 95% Student's-t UCL	0.434

CHROMIUM

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	53
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	1	Minimum of Log Data	0
Maximum	64	Maximum of Log Data	4.159
Mean	16.41	Mean of log Data	2.693
Median	16.1	SD of log Data	0.507
SD	7.947		
Coefficient of Variation	0.484		
Skewness	3.084		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.193	Lilliefors Test Statistic	0.154
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.96	95% H-UCL	18.77
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.35
95% Adjusted-CLT UCL	18.29	97.5% Chebyshev (MVUE) UCL	23.33
95% Modified-t UCL	18.01	99% Chebyshev (MVUE) UCL	27.22
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.729	Data do not follow a Discernable Distribution (0.05)	
Theta Star	3.469		
MLE of Mean	16.41		
MLE of Standard Deviation	7.544		
nu star	690.4		
Approximate Chi Square Value (.05)	630.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	17.94
Adjusted Chi Square Value	629.3	95% Jackknife UCL	17.96
		95% Standard Bootstrap UCL	17.9
Anderson-Darling Test Statistic	2.096	95% Bootstrap-t UCL	18.35
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	19.65
Kolmogorov-Smirnov Test Statistic	0.14	95% Percentile Bootstrap UCL	17.97
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	18.4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	20.46
		97.5% Chebyshev(Mean, Sd) UCL	22.21
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25.66
95% Approximate Gamma UCL	17.97		
95% Adjusted Gamma UCL	18		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	20.46

COBALT

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	59
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	0.82	Minimum of Log Data	-0.198
Maximum	218	Maximum of Log Data	5.384
Mean	14.53	Mean of log Data	2.383
Median	11.4	SD of log Data	0.66
SD	24.66		
Coefficient of Variation	1.697		
Skewness	8.009		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.36	Lilliefors Test Statistic	0.15
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	19.34	95% H-UCL	15.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	18.36
95% Adjusted-CLT UCL	22.17	97.5% Chebyshev (MVUE) UCL	20.49
95% Modified-t UCL	19.79	99% Chebyshev (MVUE) UCL	24.69
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.789	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	8.124		
MLE of Mean	14.53		
MLE of Standard Deviation	10.87		
nu star	261.1		
Approximate Chi Square Value (.05)	224.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	19.28
Adjusted Chi Square Value	224	95% Jackknife UCL	19.34
		95% Standard Bootstrap UCL	19.14
Anderson-Darling Test Statistic	5.566	95% Bootstrap-t UCL	32.88
Anderson-Darling 5% Critical Value	0.765	95% Hall's Bootstrap UCL	39.02
Kolmogorov-Smirnov Test Statistic	0.195	95% Percentile Bootstrap UCL	19.88
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	23.28
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	27.11
		97.5% Chebyshev(Mean, Sd) UCL	32.56
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	43.25
95% Approximate Gamma UCL	16.89		
95% Adjusted Gamma UCL	16.94		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	27.11

IRON

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	59
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	5270	Minimum of Log Data	8.57
Maximum	43700	Maximum of Log Data	10.69
Mean	26050	Mean of log Data	10.12
Median	27100	SD of log Data	0.356
SD	7269		
Coefficient of Variation	0.279		
Skewness	-0.394		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0999	Lilliefors Test Statistic	0.164
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	27468	95% H-UCL	28409
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	31270
95% Adjusted-CLT UCL	27408	97.5% Chebyshev (MVUE) UCL	33401
95% Modified-t UCL	27462	99% Chebyshev (MVUE) UCL	37586
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	9.507	Data appear Normal at 5% Significance Level	
Theta Star	2740		
MLE of Mean	26050		
MLE of Standard Deviation	8449		
nu star	1388		
Approximate Chi Square Value (.05)	1303	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	27450
Adjusted Chi Square Value	1301	95% Jackknife UCL	27468
		95% Standard Bootstrap UCL	27442
Anderson-Darling Test Statistic	2.109	95% Bootstrap-t UCL	27452
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL	27383
Kolmogorov-Smirnov Test Statistic	0.14	95% Percentile Bootstrap UCL	27411
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	27414
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	29759
		97.5% Chebyshev(Mean, Sd) UCL	31364
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	34516
95% Approximate Gamma UCL	27761		
95% Adjusted Gamma UCL	27796		
Potential UCL to Use		Use 95% Student's-t UCL	27468

LEAD

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	68
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	4.2	Minimum of Log Data	1.435
Maximum	2870	Maximum of Log Data	7.962
Mean	73.15	Mean of log Data	3.317
Median	23.4	SD of log Data	0.925
SD	333.2		
Coefficient of Variation	4.555		
Skewness	8.444		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.418	Lilliefors Test Statistic	0.106
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	138.1	95% H-UCL	53.64
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	65.02
95% Adjusted-CLT UCL	178.5	97.5% Chebyshev (MVUE) UCL	75.01
95% Modified-t UCL	144.6	99% Chebyshev (MVUE) UCL	94.62
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.612	Data do not follow a Discernable Distribution (0.05)	
Theta Star	119.5		
MLE of Mean	73.15		
MLE of Standard Deviation	93.49		
nu star	89.38		
Approximate Chi Square Value (.05)	68.58	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	137.3
Adjusted Chi Square Value	68.22	95% Jackknife UCL	138.1
		95% Standard Bootstrap UCL	136.6
Anderson-Darling Test Statistic	9.439	95% Bootstrap-t UCL	662.2
Anderson-Darling 5% Critical Value	0.805	95% Hall's Bootstrap UCL	385
Kolmogorov-Smirnov Test Statistic	0.265	95% Percentile Bootstrap UCL	150.8
Kolmogorov-Smirnov 5% Critical Value	0.109	95% BCA Bootstrap UCL	231.4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	243.1
		97.5% Chebyshev(Mean, Sd) UCL	316.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	461.2
95% Approximate Gamma UCL	95.33		
95% Adjusted Gamma UCL	95.84		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	243.1

MANGANESE

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	66
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	79.8	Minimum of Log Data	4.38
Maximum	2020	Maximum of Log Data	7.611
Mean	386.5	Mean of log Data	5.845
Median	354	SD of log Data	0.442
SD	251.2		
Coefficient of Variation	0.65		
Skewness	4.502		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.28	Lilliefors Test Statistic	0.159
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	435.5	95% H-UCL	418.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	469.7
95% Adjusted-CLT UCL	451.5	97.5% Chebyshev (MVUE) UCL	508.5
95% Modified-t UCL	438.1	99% Chebyshev (MVUE) UCL	584.5
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.416	Data do not follow a Discernable Distribution (0.05)	
Theta Star	87.52		
MLE of Mean	386.5		
MLE of Standard Deviation	183.9		
nu star	644.8		
Approximate Chi Square Value (.05)	586.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	434.9
Adjusted Chi Square Value	585.8	95% Jackknife UCL	435.5
		95% Standard Bootstrap UCL	434.6
Anderson-Darling Test Statistic	3.511	95% Bootstrap-t UCL	479.6
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	666.9
Kolmogorov-Smirnov Test Statistic	0.198	95% Percentile Bootstrap UCL	435.4
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	460
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	514.7
		97.5% Chebyshev(Mean, Sd) UCL	570.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	679.1
95% Approximate Gamma UCL	424.7		
95% Adjusted Gamma UCL	425.5		
Potential UCL to Use		Use 95% Student's-t UCL	435.5
		or 95% Modified-t UCL	438.1

VANADIUM

General Statistics

Number of Valid Observations	73	Number of Distinct Observations	55
Number of Missing Values	4		

Raw Statistics		Log-transformed Statistics	
Minimum	1.5	Minimum of Log Data	0.405
Maximum	47.2	Maximum of Log Data	3.854
Mean	20.85	Mean of log Data	2.962
Median	20	SD of log Data	0.447
SD	7.287		
Coefficient of Variation	0.35		
Skewness	0.702		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0998	Lilliefors Test Statistic	0.154
Lilliefors Critical Value	0.104	Lilliefors Critical Value	0.104
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	22.27	95% H-UCL	23.52
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	26.42
95% Adjusted-CLT UCL	22.33	97.5% Chebyshev (MVUE) UCL	28.61
95% Modified-t UCL	22.28	99% Chebyshev (MVUE) UCL	32.93
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	6.534	Data appear Normal at 5% Significance Level	
Theta Star	3.191		
MLE of Mean	20.85		
MLE of Standard Deviation	8.156		
nu star	954		
Approximate Chi Square Value (.05)	883.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0467	95% CLT UCL	22.25
Adjusted Chi Square Value	882	95% Jackknife UCL	22.27
		95% Standard Bootstrap UCL	22.23
Anderson-Darling Test Statistic	1.274	95% Bootstrap-t UCL	22.38
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	22.45
Kolmogorov-Smirnov Test Statistic	0.117	95% Percentile Bootstrap UCL	22.21
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	22.27
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	24.57
		97.5% Chebyshev(Mean, Sd) UCL	26.17
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	29.33
95% Approximate Gamma UCL	22.52		
95% Adjusted Gamma UCL	22.55		
Potential UCL to Use		Use 95% Student's-t UCL	22.27

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Exposed Subsurface Soil Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ACENAPHTHENE

General Statistics

Number of Valid Data	66	Number of Detected Data	40
Number of Distinct Detected Data	37	Number of Non-Detect Data	26
Number of Missing Values	2	Percent Non-Detects	39.39%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.1	Minimum Detected	0.742
Maximum Detected	480000	Maximum Detected	13.08
Mean of Detected	27801	Mean of Detected	5.71
SD of Detected	98238	SD of Detected	3.048
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	55
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	83.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.324	Shapiro Wilk Test Statistic	0.938
5% Shapiro Wilk Critical Value	0.94	5% Shapiro Wilk Critical Value	0.94
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	16867	Mean	4.72
SD	77312	SD	2.73
95% DL/2 (t) UCL	32747	95% H-Stat (DL/2) UCL	9272
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.087
		SD in Log Scale	3.208
		Mean in Original Scale	16853
		SD in Original Scale	77315
		95% Percentile Bootstrap UCL	34207
		95% BCA Bootstrap UCL	42223

ACENAPHTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.171
Theta Star	162244
nu star	13.71
A-D Test Statistic	5.11
5% A-D Critical Value	0.922
K-S Test Statistic	0.922
5% K-S Critical Value	0.156
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	480000
Mean	17331
Median	88
SD	77233
k star	0.0762
Theta star	227443
Nu star	10.06
AppChi2	3.978
95% Gamma Approximate UCL	43819
95% Adjusted Gamma UCL	44779

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	16856
SD	76727
SE of Mean	9565
95% KM (t) UCL	32816
95% KM (z) UCL	32588
95% KM (jackknife) UCL	32736
95% KM (bootstrap t) UCL	73547
95% KM (BCA) UCL	36658
95% KM (Percentile Bootstrap) UCL	32684
95% KM (Chebyshev) UCL	58548
97.5% KM (Chebyshev) UCL	76588
99% KM (Chebyshev) UCL	112024
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	76588

Note: DL/2 is not a recommended method.

ANTHRACENE

General Statistics

Number of Valid Data	66	Number of Detected Data	45
Number of Distinct Detected Data	41	Number of Non-Detect Data	21
Number of Missing Values	2	Percent Non-Detects	31.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.9	Minimum Detected	1.065
Maximum Detected	970000	Maximum Detected	13.79
Mean of Detected	48805	Mean of Detected	6.175
SD of Detected	186896	SD of Detected	2.993
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	48
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	18
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.296	Shapiro Wilk Test Statistic	0.938
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	33290	Mean	5.156
SD	155463	SD	2.935
95% DL/2 (t) UCL	65221	95% H-Stat (DL/2) UCL	28327
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.724
		SD in Log Scale	3.337
		Mean in Original Scale	33279
		SD in Original Scale	155466
		95% Percentile Bootstrap UCL	65995
		95% BCA Bootstrap UCL	86759

ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.168
Theta Star	290474
nu star	15.12
A-D Test Statistic	6.092
5% A-D Critical Value	0.928
K-S Test Statistic	0.928
5% K-S Critical Value	0.147
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	970000
Mean	33276
Median	91
SD	155466
k star	0.0736
Theta star	452153
Nu star	9.715
AppChi2	3.764
95% Gamma Approximate UCL	85880
95% Adjusted Gamma UCL	87806

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	33281
SD	154283
SE of Mean	19206
95% KM (t) UCL	65328
95% KM (z) UCL	64871
95% KM (jackknife) UCL	65213
95% KM (bootstrap t) UCL	164649
95% KM (BCA) UCL	68202
95% KM (Percentile Bootstrap) UCL	70415
95% KM (Chebyshev) UCL	116996
97.5% KM (Chebyshev) UCL	153220
99% KM (Chebyshev) UCL	224374
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	153220

BENZO(A)ANTHRACENE

General Statistics

Number of Valid Data	66	Number of Detected Data	46
Number of Distinct Detected Data	40	Number of Non-Detect Data	20
Number of Missing Values	2	Percent Non-Detects	30.30%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.2	Minimum Detected	1.163
Maximum Detected	1900000	Maximum Detected	14.46
Mean of Detected	92726	Mean of Detected	6.939
SD of Detected	366021	SD of Detected	2.931
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	44
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	22
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	66.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.284	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	64643	Mean	5.819
SD	307557	SD	3.034
95% DL/2 (t) UCL	127814	95% H-Stat (DL/2) UCL	77367
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.51
		SD in Log Scale	3.334
		Mean in Original Scale	64632
		SD in Original Scale	307559
		95% Percentile Bootstrap UCL	130655
		95% BCA Bootstrap UCL	170304

BENZO(A)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.172
Theta Star	540479
nu star	15.78
A-D Test Statistic	6.202
5% A-D Critical Value	0.926
K-S Test Statistic	0.926
5% K-S Critical Value	0.146
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1900000
Mean	64628
Median	265
SD	307560
k star	0.0749
Theta star	863280
Nu star	9.882
AppChi2	3.868
95% Gamma Approximate UCL	165106
95% Adjusted Gamma UCL	168767

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	64636
SD	305219
SE of Mean	37985
95% KM (t) UCL	128019
95% KM (z) UCL	127115
95% KM (jackknife) UCL	127807
95% KM (bootstrap t) UCL	345592
95% KM (BCA) UCL	137123
95% KM (Percentile Bootstrap) UCL	136162
95% KM (Chebyshev) UCL	230209
97.5% KM (Chebyshev) UCL	301852
99% KM (Chebyshev) UCL	442582
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	301852

Note: DL/2 is not a recommended method.

BENZO(A)PYRENE

General Statistics

Number of Valid Data	66	Number of Detected Data	44
Number of Distinct Detected Data	40	Number of Non-Detect Data	22
Number of Missing Values	2	Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	6.2	Minimum Detected	1.825
Maximum Detected	1500000	Maximum Detected	14.22
Mean of Detected	78177	Mean of Detected	6.994
SD of Detected	300069	SD of Detected	2.761
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	24
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	63.64%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.291	Shapiro Wilk Test Statistic	0.943
5% Shapiro Wilk Critical Value	0.944	5% Shapiro Wilk Critical Value	0.944
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	52135	Mean	5.754
SD	246867	SD	2.921
95% DL/2 (t) UCL	102841	95% H-Stat (DL/2) UCL	41600
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.35
		SD in Log Scale	3.307
		Mean in Original Scale	52122
		SD in Original Scale	246870
		95% Percentile Bootstrap UCL	107343
		95% BCA Bootstrap UCL	138387

BENZO(A)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.179
Theta Star	437032
nu star	15.74
A-D Test Statistic	6.254
5% A-D Critical Value	0.92
K-S Test Statistic	0.92
5% K-S Critical Value	0.149
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1500000
Mean	52118
Median	215
SD	246870
k star	0.0722
Theta star	721529
Nu star	9.535
AppChi2	3.653
95% Gamma Approximate UCL	136030
95% Adjusted Gamma UCL	139120

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	52126
SD	244991
SE of Mean	30505
95% KM (t) UCL	103028
95% KM (z) UCL	102303
95% KM (jackknife) UCL	102832
95% KM (bootstrap t) UCL	253958
95% KM (BCA) UCL	104547
95% KM (Percentile Bootstrap) UCL	103827
95% KM (Chebyshev) UCL	185095
97.5% KM (Chebyshev) UCL	242630
99% KM (Chebyshev) UCL	355647
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	242630

Note: DL/2 is not a recommended method.

BENZO(B)FLUORANTHENE

General Statistics

Number of Valid Data	66	Number of Detected Data	45
Number of Distinct Detected Data	39	Number of Non-Detect Data	21
Number of Missing Values	2	Percent Non-Detects	31.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	7.2	Minimum Detected	1.974
Maximum Detected	1300000	Maximum Detected	14.08
Mean of Detected	66703	Mean of Detected	6.929
SD of Detected	255580	SD of Detected	2.716
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	23
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	65.15%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.293	Shapiro Wilk Test Statistic	0.941
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	45497	Mean	5.773
SD	212593	SD	2.875
95% DL/2 (t) UCL	89162	95% H-Stat (DL/2) UCL	38644
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.294
		SD in Log Scale	3.373
		Mean in Original Scale	45483
		SD in Original Scale	212596
		95% Percentile Bootstrap UCL	92335
		95% BCA Bootstrap UCL	114159

BENZO(B)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.182
Theta Star	366491
nu star	16.38
A-D Test Statistic	6.362
5% A-D Critical Value	0.919
K-S Test Statistic	0.919
5% K-S Critical Value	0.147
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1300000
Mean	45480
Median	245
SD	212597
k star	0.0745
Theta star	610335
Nu star	9.836
AppChi2	3.84
95% Gamma Approximate UCL	116508
95% Adjusted Gamma UCL	119099

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	45487
SD	210979
SE of Mean	26263
95% KM (t) UCL	89311
95% KM (z) UCL	88686
95% KM (jackknife) UCL	89153
95% KM (bootstrap t) UCL	204193
95% KM (BCA) UCL	94066
95% KM (Percentile Bootstrap) UCL	93073
95% KM (Chebyshev) UCL	159966
97.5% KM (Chebyshev) UCL	209501
99% KM (Chebyshev) UCL	306802
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	209501

Note: DL/2 is not a recommended method.

BENZO(G,H,I)PERYLENE

General Statistics

Number of Valid Data	66	Number of Detected Data	43
Number of Distinct Detected Data	38	Number of Non-Detect Data	23
Number of Missing Values	2	Percent Non-Detects	34.85%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.4	Minimum Detected	1.686
Maximum Detected	830000	Maximum Detected	13.63
Mean of Detected	44232	Mean of Detected	6.559
SD of Detected	168162	SD of Detected	2.597
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	48
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	18
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.294	Shapiro Wilk Test Statistic	0.914
5% Shapiro Wilk Critical Value	0.943	5% Shapiro Wilk Critical Value	0.943
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	28836	Mean	5.414
SD	136829	SD	2.696
95% DL/2 (t) UCL	56940	95% H-Stat (DL/2) UCL	16133
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.838
		SD in Log Scale	3.262
		Mean in Original Scale	28821
		SD in Original Scale	136832
		95% Percentile Bootstrap UCL	59015
		95% BCA Bootstrap UCL	71688

BENZO(G,H,I)PERYLENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.184
Theta Star	240994
nu star	15.78
A-D Test Statistic	6.77
5% A-D Critical Value	0.916
K-S Test Statistic	0.916
5% K-S Critical Value	0.15
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	830000
Mean	28818
Median	130
SD	136833
k star	0.0718
Theta star	401592
Nu star	9.472
AppChi2	3.615
95% Gamma Approximate UCL	75517
95% Adjusted Gamma UCL	77240

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	28825
SD	135791
SE of Mean	16913
95% KM (t) UCL	57046
95% KM (z) UCL	56644
95% KM (jackknife) UCL	56930
95% KM (bootstrap t) UCL	134916
95% KM (BCA) UCL	63600
95% KM (Percentile Bootstrap) UCL	60431
95% KM (Chebyshev) UCL	102545
97.5% KM (Chebyshev) UCL	134444
99% KM (Chebyshev) UCL	197103
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	134444

Note: DL/2 is not a recommended method.

BENZO(K)FLUORANTHENE

General Statistics

Number of Valid Data	66	Number of Detected Data	45
Number of Distinct Detected Data	42	Number of Non-Detect Data	21
Number of Missing Values	2	Percent Non-Detects	31.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	7.3	Minimum Detected	1.988
Maximum Detected	1200000	Maximum Detected	14
Mean of Detected	62444	Mean of Detected	6.745
SD of Detected	243173	SD of Detected	2.725
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	45
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	21
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.18%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.285	Shapiro Wilk Test Statistic	0.932
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	42591	Mean	5.614
SD	202204	SD	2.853
95% DL/2 (t) UCL	84123	95% H-Stat (DL/2) UCL	31321
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.213
		SD in Log Scale	3.246
		Mean in Original Scale	42579
		SD in Original Scale	202206
		95% Percentile Bootstrap UCL	88380
		95% BCA Bootstrap UCL	106751

BENZO(K)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.178
Theta Star	350811
nu star	16.02
A-D Test Statistic	6.658
5% A-D Critical Value	0.921
K-S Test Statistic	0.921
5% K-S Critical Value	0.147
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	7.3
Maximum	1200000
Mean	61438
Median	2450
SD	200077
k star	0.242
Theta star	253365
Nu star	32.01
AppChi2	20.08
95% Gamma Approximate UCL	97941
95% Adjusted Gamma UCL	98982

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	42583
SD	200668
SE of Mean	24980
95% KM (t) UCL	84265
95% KM (z) UCL	83671
95% KM (jackknife) UCL	84115
95% KM (bootstrap t) UCL	210777
95% KM (BCA) UCL	88473
95% KM (Percentile Bootstrap) UCL	84423
95% KM (Chebyshev) UCL	151467
97.5% KM (Chebyshev) UCL	198581
99% KM (Chebyshev) UCL	291127
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	198581

Note: DL/2 is not a recommended method.

CHRYSENE

General Statistics

Number of Valid Data	66	Number of Detected Data	46
Number of Distinct Detected Data	39	Number of Non-Detect Data	20
Number of Missing Values	2	Percent Non-Detects	30.30%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.3	Minimum Detected	1.194
Maximum Detected	1700000	Maximum Detected	14.35
Mean of Detected	82891	Mean of Detected	7.003
SD of Detected	325136	SD of Detected	2.862
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	23
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	65.15%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.286	Shapiro Wilk Test Statistic	0.949
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	57788	Mean	5.866
SD	273236	SD	3.003
95% DL/2 (t) UCL	113909	95% H-Stat (DL/2) UCL	70791
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.606
		SD in Log Scale	3.256
		Mean in Original Scale	57778
		SD in Original Scale	273238
		95% Percentile Bootstrap UCL	117400
		95% BCA Bootstrap UCL	150850

CHRYSENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.177	Data appear Lognormal at 5% Significance Level	
Theta Star	468048		
nu star	16.29		
A-D Test Statistic	6.263	Nonparametric Statistics	
5% A-D Critical Value	0.923	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.923	Mean	57781
5% K-S Critical Value	0.146	SD	271160
Data not Gamma Distributed at 5% Significance Level		SE of Mean	33746
		95% KM (t) UCL	114091
Assuming Gamma Distribution		95% KM (z) UCL	113288
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	113902
Minimum	1E-09	95% KM (bootstrap t) UCL	296705
Maximum	1700000	95% KM (BCA) UCL	123325
Mean	57772	95% KM (Percentile Bootstrap) UCL	116916
Median	335	95% KM (Chebyshev) UCL	204877
SD	273240	97.5% KM (Chebyshev) UCL	268526
k star	0.0756	99% KM (Chebyshev) UCL	393552
Theta star	764148		
Nu star	9.98	Potential UCLs to Use	
AppChi2	3.929	97.5% KM (Chebyshev) UCL	268526
95% Gamma Approximate UCL	146740		
95% Adjusted Gamma UCL	149972		

Note: DL/2 is not a recommended method.

DIBENZO(A,H)ANTHRACENE

General Statistics

Number of Valid Data	66	Number of Detected Data	35
Number of Distinct Detected Data	31	Number of Non-Detect Data	31
Number of Missing Values	2	Percent Non-Detects	46.97%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.5	Minimum Detected	1.504
Maximum Detected	330000	Maximum Detected	12.71
Mean of Detected	20930	Mean of Detected	5.733
SD of Detected	72818	SD of Detected	2.712
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	55
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	83.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.324	Shapiro Wilk Test Statistic	0.895
5% Shapiro Wilk Critical Value	0.934	5% Shapiro Wilk Critical Value	0.934
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	11128	Mean	4.679
SD	53701	SD	2.389
95% DL/2 (t) UCL	22158	95% H-Stat (DL/2) UCL	3292
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.852
		SD in Log Scale	3.016
		Mean in Original Scale	11107
		SD in Original Scale	53705
		95% Percentile Bootstrap UCL	23289
		95% BCA Bootstrap UCL	27903

DIBENZO(A,H)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.182
Theta Star	115281
nu star	12.71
A-D Test Statistic	5.271
5% A-D Critical Value	0.912
K-S Test Statistic	0.912
5% K-S Critical Value	0.165
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	4.5
Maximum	330000
Mean	22663
Median	11726
SD	52821
k star	0.299
Theta star	75822
Nu star	39.46
AppChi2	26.07
95% Gamma Approximate UCL	34305
95% Adjusted Gamma UCL	34628

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	11111
SD	53296
SE of Mean	6656
95% KM (t) UCL	22218
95% KM (z) UCL	22059
95% KM (jackknife) UCL	22142
95% KM (bootstrap t) UCL	197172
95% KM (BCA) UCL	23686
95% KM (Percentile Bootstrap) UCL	23691
95% KM (Chebyshev) UCL	40124
97.5% KM (Chebyshev) UCL	52678
99% KM (Chebyshev) UCL	77338
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	52678

FLUORANTHENE

General Statistics

Number of Valid Data	66	Number of Detected Data	47
Number of Distinct Detected Data	44	Number of Non-Detect Data	19
Number of Missing Values	2	Percent Non-Detects	28.79%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.8	Minimum Detected	1.569
Maximum Detected	4600000	Maximum Detected	15.34
Mean of Detected	216705	Mean of Detected	7.642
SD of Detected	868475	SD of Detected	3.081
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	32
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	34
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	48.48%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.279	Shapiro Wilk Test Statistic	0.958
5% Shapiro Wilk Critical Value	0.946	5% Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	154335	Mean	6.367
SD	737256	SD	3.331
95% DL/2 (t) UCL	305764	95% H-Stat (DL/2) UCL	382906
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.957
		SD in Log Scale	3.778
		Mean in Original Scale	154323
		SD in Original Scale	737259
		95% Percentile Bootstrap UCL	317138
		95% BCA Bootstrap UCL	416153

FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.167
Theta Star	1296423
nu star	15.71
A-D Test Statistic	6.042
5% A-D Critical Value	0.93
K-S Test Statistic	0.93
5% K-S Critical Value	0.145
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	4600000
Mean	154320
Median	655
SD	737259
k star	0.0751
Theta star	2055089
Nu star	9.912
AppChi2	3.887
95% Gamma Approximate UCL	393537
95% Adjusted Gamma UCL	402244

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	154325
SD	731652
SE of Mean	91034
95% KM (t) UCL	306227
95% KM (z) UCL	304062
95% KM (jackknife) UCL	305754
95% KM (bootstrap t) UCL	877992
95% KM (BCA) UCL	339584
95% KM (Percentile Bootstrap) UCL	325250
95% KM (Chebyshev) UCL	551132
97.5% KM (Chebyshev) UCL	722830
99% KM (Chebyshev) UCL	1060099
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	722830

Note: DL/2 is not a recommended method.

INDENO(1,2,3-CD)PYRENE

General Statistics

Number of Valid Data	66	Number of Detected Data	41
Number of Distinct Detected Data	35	Number of Non-Detect Data	25
Number of Missing Values	2	Percent Non-Detects	37.88%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	7.5	Minimum Detected	2.015
Maximum Detected	850000	Maximum Detected	13.65
Mean of Detected	47645	Mean of Detected	6.654
SD of Detected	176536	SD of Detected	2.634
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	860	Maximum Non-Detect	6.757
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	50
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	16
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	75.76%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.302	Shapiro Wilk Test Statistic	0.918
5% Shapiro Wilk Critical Value	0.941	5% Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	29626	Mean	5.461
SD	140425	SD	2.689
95% DL/2 (t) UCL	58469	95% H-Stat (DL/2) UCL	15631
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.878
		SD in Log Scale	3.218
		Mean in Original Scale	29604
		SD in Original Scale	140430
		95% Percentile Bootstrap UCL	62286
		95% BCA Bootstrap UCL	75995

INDENO(1,2,3-CD)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.184
Theta Star	258363
nu star	15.12
A-D Test Statistic	6.159
5% A-D Critical Value	0.915
K-S Test Statistic	0.915
5% K-S Critical Value	0.153
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	7.5
Maximum	850000
Mean	34371
Median	4700
SD	139670
k star	0.252
Theta star	136649
Nu star	33.2
AppChi2	21.03
95% Gamma Approximate UCL	54271
95% Adjusted Gamma UCL	54836

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	29611
SD	139360
SE of Mean	17367
95% KM (t) UCL	58591
95% KM (z) UCL	58178
95% KM (jackknife) UCL	58454
95% KM (bootstrap t) UCL	139025
95% KM (BCA) UCL	62174
95% KM (Percentile Bootstrap) UCL	59907
95% KM (Chebyshev) UCL	105313
97.5% KM (Chebyshev) UCL	138069
99% KM (Chebyshev) UCL	202412
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	138069

NAPHTHALENE

General Statistics

Number of Valid Data	66	Number of Detected Data	33
Number of Distinct Detected Data	32	Number of Non-Detect Data	33
Number of Missing Values	2	Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.8	Minimum Detected	2.175
Maximum Detected	220000	Maximum Detected	12.3
Mean of Detected	15829	Mean of Detected	5.635
SD of Detected	48746	SD of Detected	2.831
Minimum Non-Detect	3.7	Minimum Non-Detect	1.308
Maximum Non-Detect	24	Maximum Non-Detect	3.178
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	39
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	27
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	59.09%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.377	Shapiro Wilk Test Statistic	0.885
5% Shapiro Wilk Critical Value	0.931	5% Shapiro Wilk Critical Value	0.931
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	7918	Mean	3.611
SD	35119	SD	2.903
95% DL/2 (t) UCL	15131	95% H-Stat (DL/2) UCL	4017
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.116
		SD in Log Scale	4.233
		Mean in Original Scale	7915
		SD in Original Scale	35120
		95% Percentile Bootstrap UCL	15457
		95% BCA Bootstrap UCL	19326

NAPHTHALENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.188
Theta Star	84156
nu star	12.41
A-D Test Statistic	4.287
5% A-D Critical Value	0.907
K-S Test Statistic	0.907
5% K-S Critical Value	0.17
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	8.8
Maximum	220000
Mean	15756
Median	15572
SD	34203
k star	0.33
Theta star	47675
Nu star	43.62
AppChi2	29.48
95% Gamma Approximate UCL	23316
95% Adjusted Gamma UCL	23524

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	7919
SD	34851
SE of Mean	4356
95% KM (t) UCL	15189
95% KM (z) UCL	15085
95% KM (jackknife) UCL	15132
95% KM (bootstrap t) UCL	32219
95% KM (BCA) UCL	15333
95% KM (Percentile Bootstrap) UCL	15472
95% KM (Chebyshev) UCL	26909
97.5% KM (Chebyshev) UCL	35125
99% KM (Chebyshev) UCL	51265
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	35125

PHENANTHRENE

General Statistics

Number of Valid Data	66	Number of Detected Data	44
Number of Distinct Detected Data	41	Number of Non-Detect Data	22
Number of Missing Values	2	Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	3500000	Maximum Detected	15.07
Mean of Detected	183161	Mean of Detected	7.677
SD of Detected	693486	SD of Detected	2.971
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	36
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	30
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	54.55%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.297	Shapiro Wilk Test Statistic	0.939
5% Shapiro Wilk Critical Value	0.944	5% Shapiro Wilk Critical Value	0.944
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	122123	Mean	6.179
SD	570714	SD	3.275
95% DL/2 (t) UCL	239345	95% H-Stat (DL/2) UCL	233103
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.87
		SD in Log Scale	3.597
		Mean in Original Scale	122112
		SD in Original Scale	570717
		95% Percentile Bootstrap UCL	241803
		95% BCA Bootstrap UCL	319040

PHENANTHRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.173
Theta Star	1055928
nu star	15.26
A-D Test Statistic	5.728
5% A-D Critical Value	0.924
K-S Test Statistic	0.924
5% K-S Critical Value	0.149
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3500000
Mean	122107
Median	460
SD	570718
k star	0.0706
Theta star	1730140
Nu star	9.316
AppChi2	3.519
95% Gamma Approximate UCL	323263
95% Adjusted Gamma UCL	330721

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	122116
SD	566376
SE of Mean	70522
95% KM (t) UCL	239791
95% KM (z) UCL	238114
95% KM (jackknife) UCL	239338
95% KM (bootstrap t) UCL	636281
95% KM (BCA) UCL	237953
95% KM (Percentile Bootstrap) UCL	252685
95% KM (Chebyshev) UCL	429514
97.5% KM (Chebyshev) UCL	562526
99% KM (Chebyshev) UCL	823801
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	562526

Note: DL/2 is not a recommended method.

PYRENE

General Statistics

Number of Valid Data	66	Number of Detected Data	45
Number of Distinct Detected Data	40	Number of Non-Detect Data	21
Number of Missing Values	2	Percent Non-Detects	31.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	18	Minimum Detected	2.89
Maximum Detected	3600000	Maximum Detected	15.1
Mean of Detected	178430	Mean of Detected	7.788
SD of Detected	696958	SD of Detected	2.812
Minimum Non-Detect	21	Minimum Non-Detect	3.045
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	33
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	50.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.287	Shapiro Wilk Test Statistic	0.939
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	121672	Mean	6.317
SD	579504	SD	3.222
95% DL/2 (t) UCL	240700	95% H-Stat (DL/2) UCL	222380
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.949
		SD in Log Scale	3.633
		Mean in Original Scale	121661
		SD in Original Scale	579506
		95% Percentile Bootstrap UCL	249998
		95% BCA Bootstrap UCL	292741

PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.178
Theta Star	1003672
nu star	16
A-D Test Statistic	6.244
5% A-D Critical Value	0.922
K-S Test Statistic	0.922
5% K-S Critical Value	0.147
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3600000
Mean	121657
Median	610
SD	579507
k star	0.0727
Theta star	1672837
Nu star	9.6
AppChi2	3.693
95% Gamma Approximate UCL	316226
95% Adjusted Gamma UCL	323376

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	121666
SD	575098
SE of Mean	71590
95% KM (t) UCL	241123
95% KM (z) UCL	239421
95% KM (jackknife) UCL	240692
95% KM (bootstrap t) UCL	668341
95% KM (BCA) UCL	259398
95% KM (Percentile Bootstrap) UCL	263808
95% KM (Chebyshev) UCL	433718
97.5% KM (Chebyshev) UCL	568743
99% KM (Chebyshev) UCL	833974
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	568743

Note: DL/2 is not a recommended method.

TOTAL AROCLOR

General Statistics

Number of Valid Data	66	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	50
Number of Missing Values	2	Percent Non-Detects	75.76%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	19	Minimum Detected	2.944
Maximum Detected	4060	Maximum Detected	8.309
Mean of Detected	664.8	Mean of Detected	5.088
SD of Detected	1230	SD of Detected	1.634
Minimum Non-Detect	18	Minimum Non-Detect	2.89
Maximum Non-Detect	220	Maximum Non-Detect	5.394
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	61
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	92.42%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.575	Shapiro Wilk Test Statistic	0.886
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	170.9	Mean	3.046
SD	654.8	SD	1.447
95% DL/2 (t) UCL	305.3	95% H-Stat (DL/2) UCL	63.58
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.753
		SD in Log Scale	3.118
		Mean in Original Scale	162.7
		SD in Original Scale	656.7
		95% Percentile Bootstrap UCL	302.7
		95% BCA Bootstrap UCL	380.6

TOTAL AROCLOR (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.413	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1611		
nu star	13.2		
A-D Test Statistic	1.705	Nonparametric Statistics	
5% A-D Critical Value	0.805	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.805	Mean	175.8
5% K-S Critical Value	0.228	SD	648.5
Data not Gamma Distributed at 5% Significance Level		SE of Mean	82.44
		95% KM (t) UCL	313.3
Assuming Gamma Distribution		95% KM (z) UCL	311.4
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	304.4
Minimum	19	95% KM (bootstrap t) UCL	413.3
Maximum	4060	95% KM (BCA) UCL	343.8
Mean	732.6	95% KM (Percentile Bootstrap) UCL	319.1
Median	651.7	95% KM (Chebyshev) UCL	535.1
SD	620	97.5% KM (Chebyshev) UCL	690.6
k star	1.437	99% KM (Chebyshev) UCL	996.1
Theta star	509.9		
Nu star	189.6	Potential UCLs to Use	
AppChi2	158.8	95% KM (Chebyshev) UCL	535.1
95% Gamma Approximate UCL	875		
95% Adjusted Gamma UCL	878.5		

Note: DL/2 is not a recommended method.

ANTIMONY

General Statistics

Number of Valid Data	66	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	59
Number of Missing Values	2	Percent Non-Detects	89.39%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.26	Minimum Detected	-1.347
Maximum Detected	6.2	Maximum Detected	1.825
Mean of Detected	1.631	Mean of Detected	-0.0222
SD of Detected	2.071	SD of Detected	1.045
Minimum Non-Detect	0.04	Minimum Non-Detect	-3.219
Maximum Non-Detect	2.2	Maximum Non-Detect	0.788

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	65
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	98.48%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.673	Shapiro Wilk Test Statistic	0.961
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.272	Mean	-2.262
SD	0.8	SD	1.066
95% DL/2 (t) UCL	0.436	95% H-Stat (DL/2) UCL	0.206
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.274
		SD in Log Scale	1.816
		Mean in Original Scale	0.186
		SD in Original Scale	0.805
		95% Percentile Bootstrap UCL	0.369
		95% BCA Bootstrap UCL	0.465

ANTIMONY (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.732
Theta Star	2.229
nu star	10.25
A-D Test Statistic	0.425
5% A-D Critical Value	0.726
K-S Test Statistic	0.726
5% K-S Critical Value	0.319
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.26
Maximum	6.2
Mean	1.64
Median	1.629
SD	0.642
k star	8.502
Theta star	0.193
Nu star	1122
AppChi2	1045
95% Gamma Approximate UCL	1.76
95% Adjusted Gamma UCL	1.763

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.407
SD	0.754
SE of Mean	0.1
95% KM (t) UCL	0.574
95% KM (z) UCL	0.572
95% KM (jackknife) UCL	0.538
95% KM (bootstrap t) UCL	0.883
95% KM (BCA) UCL	1.255
95% KM (Percentile Bootstrap) UCL	0.926
95% KM (Chebyshev) UCL	0.844
97.5% KM (Chebyshev) UCL	1.034
99% KM (Chebyshev) UCL	1.406
Potential UCLs to Use	
95% KM (t) UCL	0.574

Note: DL/2 is not a recommended method.

CADMIUM

General Statistics

Number of Valid Data	66	Number of Detected Data	24
Number of Distinct Detected Data	21	Number of Non-Detect Data	42
Number of Missing Values	2	Percent Non-Detects	63.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.17	Minimum Detected	-1.772
Maximum Detected	8.8	Maximum Detected	2.175
Mean of Detected	1.417	Mean of Detected	-0.375
SD of Detected	2.052	SD of Detected	1.18
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.32	Maximum Non-Detect	-1.139
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	49
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	17
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	74.24%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.646	Shapiro Wilk Test Statistic	0.923
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.531	Mean	-2.945
SD	1.395	SD	2.237
95% DL/2 (t) UCL	0.817	95% H-Stat (DL/2) UCL	0.933
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.663
		SD in Log Scale	2.044
		Mean in Original Scale	0.533
		SD in Original Scale	1.394
		95% Percentile Bootstrap UCL	0.854
		95% BCA Bootstrap UCL	0.928

CADMIUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.743
Theta Star	1.906
nu star	35.68
A-D Test Statistic	1.141
5% A-D Critical Value	0.78
K-S Test Statistic	0.78
5% K-S Critical Value	0.184
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.17
Maximum	8.8
Mean	1.419
Median	1.397
SD	1.233
k star	1.918
Theta star	0.74
Nu star	253.2
AppChi2	217.3
95% Gamma Approximate UCL	1.653
95% Adjusted Gamma UCL	1.659

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.624
SD	1.351
SE of Mean	0.17
95% KM (t) UCL	0.907
95% KM (z) UCL	0.903
95% KM (jackknife) UCL	0.903
95% KM (bootstrap t) UCL	1.131
95% KM (BCA) UCL	0.907
95% KM (Percentile Bootstrap) UCL	0.908
95% KM (Chebyshev) UCL	1.364
97.5% KM (Chebyshev) UCL	1.685
99% KM (Chebyshev) UCL	2.314
Potential UCLs to Use	
95% KM (BCA) UCL	0.907

MOLYBDENUM

General Statistics

Number of Valid Data	66	Number of Detected Data	44
Number of Distinct Detected Data	35	Number of Non-Detect Data	22
Number of Missing Values	2	Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.12	Minimum Detected	-2.12
Maximum Detected	58.8	Maximum Detected	4.074
Mean of Detected	1.93	Mean of Detected	-0.609
SD of Detected	8.786	SD of Detected	0.971
Minimum Non-Detect	0.02	Minimum Non-Detect	-3.912
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	38
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	28
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	57.58%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.186	Shapiro Wilk Test Statistic	0.797
5% Shapiro Wilk Critical Value	0.944	5% Shapiro Wilk Critical Value	0.944
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.329	Mean	-1.142
SD	7.197	SD	1.164
95% DL/2 (t) UCL	2.807	95% H-Stat (DL/2) UCL	0.615
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.173
		SD in Log Scale	1.143
		Mean in Original Scale	1.322
		SD in Original Scale	7.198
		95% Percentile Bootstrap UCL	3.087
		95% BCA Bootstrap UCL	4.063

MOLYBDENUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.482
Theta Star	4
nu star	42.45
A-D Test Statistic	8.671
5% A-D Critical Value	0.813
K-S Test Statistic	0.813
5% K-S Critical Value	0.141
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	58.8
Mean	1.316
Median	0.39
SD	7.2
k star	0.128
Theta star	10.26
Nu star	16.93
AppChi2	8.625
95% Gamma Approximate UCL	2.585
95% Adjusted Gamma UCL	2.625

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.336
SD	7.141
SE of Mean	0.889
95% KM (t) UCL	2.82
95% KM (z) UCL	2.799
95% KM (jackknife) UCL	2.812
95% KM (bootstrap t) UCL	21.01
95% KM (BCA) UCL	3.126
95% KM (Percentile Bootstrap) UCL	3.111
95% KM (Chebyshev) UCL	5.212
97.5% KM (Chebyshev) UCL	6.889
99% KM (Chebyshev) UCL	10.18
Potential UCLs to Use	
95% KM (BCA) UCL	3.126

THALLIUM

General Statistics

Number of Valid Data	66	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	64
Number of Missing Values	2	Percent Non-Detects	96.97%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.06	Minimum Detected	-2.813
Maximum Detected	0.89	Maximum Detected	-0.117
Mean of Detected	0.475	Mean of Detected	-1.465
SD of Detected	0.587	SD of Detected	1.907
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.89	Maximum Non-Detect	-0.117

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	65
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	98.48%

Warning: Data set has only 2 Distinct Detected Values.

This may not be adequate enough to compute meaningful and reliable test statistics and estimates.

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.

However, results obtained using 4 to 9 distinct values may not be reliable.

It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

THALLIUM (Continued)

Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	0.175
SD	0.207
95% DL/2 (t) UCL	0.218
Maximum Likelihood Estimate(MLE) Method	N/A
MLE method failed to converge properly	

Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	-2.859
SD	1.668
95% H-Stat (DL/2) UCL	0.409
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
95% Gamma Approximate UCL	N/A
95% Adjusted Gamma UCL	N/A

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0726
SD	0.101
SE of Mean	0.0176
95% KM (t) UCL	0.102
95% KM (z) UCL	0.102
95% KM (jackknife) UCL	0.611
95% KM (bootstrap t) UCL	N/A
95% KM (BCA) UCL	0.89
95% KM (Percentile Bootstrap) UCL	0.89
95% KM (Chebyshev) UCL	0.15
97.5% KM (Chebyshev) UCL	0.183
99% KM (Chebyshev) UCL	0.248
Potential UCLs to Use	
95% KM (Chebyshev) UCL	0.15

Note: DL/2 is not a recommended method.

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Exposed Subsurface Soil Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ALUMINUM

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	51
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	4450	Minimum of Log Data	8.401
Maximum	27200	Maximum of Log Data	10.21
Mean	12527	Mean of log Data	9.363
Median	12500	SD of log Data	0.385
SD	4896		
Coefficient of Variation	0.391		
Skewness	1.046		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.101	Lilliefors Test Statistic	0.102
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13532	95% H-UCL	13678
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15210
95% Adjusted-CLT UCL	13601	97.5% Chebyshev (MVUE) UCL	16367
95% Modified-t UCL	13545	99% Chebyshev (MVUE) UCL	18639

ALUMINUM (Continued)

Gamma Distribution Test	
k star (bias corrected)	6.78
Theta Star	1848
MLE of Mean	12527
MLE of Standard Deviation	4811
nu star	895
Approximate Chi Square Value (.05)	826.6
Adjusted Level of Significance	0.0464
Adjusted Chi Square Value	825.1
Anderson-Darling Test Statistic	0.417
Anderson-Darling 5% Critical Value	0.753
Kolmogorov-Smirnov Test Statistic	0.078
Kolmogorov-Smirnov 5% Critical Value	0.11
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	13564
95% Adjusted Gamma UCL	13588
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	13518
95% Jackknife UCL	13532
95% Standard Bootstrap UCL	13498
95% Bootstrap-t UCL	13633
95% Hall's Bootstrap UCL	13660
95% Percentile Bootstrap UCL	13520
95% BCA Bootstrap UCL	13561
95% Chebyshev(Mean, Sd) UCL	15153
97.5% Chebyshev(Mean, Sd) UCL	16290
99% Chebyshev(Mean, Sd) UCL	18523
Use 95% Student's-t UCL	13532

ARSENIC

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	54
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	2.7	Minimum of Log Data	0.993
Maximum	40	Maximum of Log Data	3.689
Mean	16.19	Mean of log Data	2.653
Median	15.8	SD of log Data	0.564
SD	7.555		
Coefficient of Variation	0.467		
Skewness	0.599		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0936	Lilliefors Test Statistic	0.151
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.74	95% H-UCL	19.02
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.95
95% Adjusted-CLT UCL	17.79	97.5% Chebyshev (MVUE) UCL	24.27
95% Modified-t UCL	17.75	99% Chebyshev (MVUE) UCL	28.82
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.808	Data appear Normal at 5% Significance Level	
Theta Star	4.251		
MLE of Mean	16.19		
MLE of Standard Deviation	8.296		
nu star	502.6		
Approximate Chi Square Value (.05)	451.6	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	17.72
Adjusted Chi Square Value	450.6	95% Jackknife UCL	17.74
		95% Standard Bootstrap UCL	17.7
Anderson-Darling Test Statistic	0.65	95% Bootstrap-t UCL	17.83
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	17.86
Kolmogorov-Smirnov Test Statistic	0.116	95% Percentile Bootstrap UCL	17.72
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	17.8
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	20.24
		97.5% Chebyshev(Mean, Sd) UCL	22
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25.44
95% Approximate Gamma UCL	18.02		
95% Adjusted Gamma UCL	18.06		
Potential UCL to Use		Use 95% Student's-t UCL	17.74

BERYLLIUM

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	36
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	0.21	Minimum of Log Data	-1.561
Maximum	2.5	Maximum of Log Data	0.916
Mean	0.436	Mean of log Data	-0.97
Median	0.35	SD of log Data	0.437
SD	0.377		
Coefficient of Variation	0.865		
Skewness	4.818		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.322	Lilliefors Test Statistic	0.162
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.514	95% H-UCL	0.46
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.518
95% Adjusted-CLT UCL	0.542	97.5% Chebyshev (MVUE) UCL	0.562
95% Modified-t UCL	0.518	99% Chebyshev (MVUE) UCL	0.648
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.554	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.123		
MLE of Mean	0.436		
MLE of Standard Deviation	0.231		
nu star	469.2		
Approximate Chi Square Value (.05)	420	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	0.513
Adjusted Chi Square Value	418.9	95% Jackknife UCL	0.514
		95% Standard Bootstrap UCL	0.511
Anderson-Darling Test Statistic	5.721	95% Bootstrap-t UCL	0.672
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL	0.916
Kolmogorov-Smirnov Test Statistic	0.224	95% Percentile Bootstrap UCL	0.52
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	0.559
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.639
		97.5% Chebyshev(Mean, Sd) UCL	0.726
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.898
95% Approximate Gamma UCL	0.487		
95% Adjusted Gamma UCL	0.489		
Potential UCL to Use		Use 95% Student's-t UCL	0.514
		or 95% Modified-t UCL	0.518

CHROMIUM

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	51
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	2.6	Minimum of Log Data	0.956
Maximum	98.2	Maximum of Log Data	4.587
Mean	17.37	Mean of log Data	2.698
Median	15.6	SD of log Data	0.545
SD	12.74		
Coefficient of Variation	0.734		
Skewness	4.311		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.206	Lilliefors Test Statistic	0.0973
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	19.99	95% H-UCL	19.59
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.52
95% Adjusted-CLT UCL	20.84	97.5% Chebyshev (MVUE) UCL	24.83
95% Modified-t UCL	20.13	99% Chebyshev (MVUE) UCL	29.37
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.21	Data appear Lognormal at 5% Significance Level	
Theta Star	5.412		
MLE of Mean	17.37		
MLE of Standard Deviation	9.697		
nu star	423.7		
Approximate Chi Square Value (.05)	377	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	19.95
Adjusted Chi Square Value	376	95% Jackknife UCL	19.99
		95% Standard Bootstrap UCL	19.81
Anderson-Darling Test Statistic	1.451	95% Bootstrap-t UCL	21.73
Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL	31.93
Kolmogorov-Smirnov Test Statistic	0.118	95% Percentile Bootstrap UCL	20.21
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	21.15
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	24.21
		97.5% Chebyshev(Mean, Sd) UCL	27.17
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	32.98
95% Approximate Gamma UCL	19.52		
95% Adjusted Gamma UCL	19.58		
Potential UCL to Use		Use 95% H-UCL	19.59

COBALT

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	48
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	3.4	Minimum of Log Data	1.224
Maximum	35.6	Maximum of Log Data	3.572
Mean	14.71	Mean of log Data	2.603
Median	13.5	SD of log Data	0.424
SD	6.282		
Coefficient of Variation	0.427		
Skewness	1.291		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.131	Lilliefors Test Statistic	0.0866
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	16	95% H-UCL	16.26
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	18.24
95% Adjusted-CLT UCL	16.11	97.5% Chebyshev (MVUE) UCL	19.74
95% Modified-t UCL	16.02	99% Chebyshev (MVUE) UCL	22.7
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.766	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2.551		
MLE of Mean	14.71		
MLE of Standard Deviation	6.126		
nu star	761.1		
Approximate Chi Square Value (.05)	698	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	15.98
Adjusted Chi Square Value	696.7	95% Jackknife UCL	16
		95% Standard Bootstrap UCL	15.94
Anderson-Darling Test Statistic	0.534	95% Bootstrap-t UCL	16.13
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	16.13
Kolmogorov-Smirnov Test Statistic	0.0817	95% Percentile Bootstrap UCL	16.09
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	16.11
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	18.08
		97.5% Chebyshev(Mean, Sd) UCL	19.54
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	22.4
95% Approximate Gamma UCL	16.04		
95% Adjusted Gamma UCL	16.07		
Potential UCL to Use		Use 95% Approximate Gamma UCL	16.04

COPPER

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	55
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	2.1	Minimum of Log Data	0.742
Maximum	2600	Maximum of Log Data	7.863
Mean	64.95	Mean of log Data	3.137
Median	20.65	SD of log Data	0.833
SD	317.6		
Coefficient of Variation	4.89		
Skewness	8.062		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.464	Lilliefors Test Statistic	0.257
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	130.2	95% H-UCL	40.58
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	48.77
95% Adjusted-CLT UCL	170.7	97.5% Chebyshev (MVUE) UCL	55.87
95% Modified-t UCL	136.7	99% Chebyshev (MVUE) UCL	69.83
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.579	Data do not follow a Discernable Distribution (0.05)	
Theta Star	112.1		
MLE of Mean	64.95		
MLE of Standard Deviation	85.34		
nu star	76.47		
Approximate Chi Square Value (.05)	57.33	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	129.3
Adjusted Chi Square Value	56.96	95% Jackknife UCL	130.2
		95% Standard Bootstrap UCL	129.9
Anderson-Darling Test Statistic	14.85	95% Bootstrap-t UCL	931.2
Anderson-Darling 5% Critical Value	0.807	95% Hall's Bootstrap UCL	682
Kolmogorov-Smirnov Test Statistic	0.432	95% Percentile Bootstrap UCL	142.7
Kolmogorov-Smirnov 5% Critical Value	0.115	95% BCA Bootstrap UCL	187
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	235.4
		97.5% Chebyshev(Mean, Sd) UCL	309.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	454
95% Approximate Gamma UCL	86.64		
95% Adjusted Gamma UCL	87.21		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	235.4

IRON

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	56
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	3800	Minimum of Log Data	8.243
Maximum	134000	Maximum of Log Data	11.81
Mean	31485	Mean of log Data	10.22
Median	28100	SD of log Data	0.54
SD	18431		
Coefficient of Variation	0.585		
Skewness	2.957		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.192	Lilliefors Test Statistic	0.112
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	35270	95% H-UCL	36140
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	41522
95% Adjusted-CLT UCL	36099	97.5% Chebyshev (MVUE) UCL	45749
95% Modified-t UCL	35408	99% Chebyshev (MVUE) UCL	54050
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.701	Data do not follow a Discernable Distribution (0.05)	
Theta Star	8507		
MLE of Mean	31485		
MLE of Standard Deviation	16366		
nu star	488.5		
Approximate Chi Square Value (.05)	438.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	35216
Adjusted Chi Square Value	437.2	95% Jackknife UCL	35270
		95% Standard Bootstrap UCL	35142
Anderson-Darling Test Statistic	1.303	95% Bootstrap-t UCL	36820
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	38511
Kolmogorov-Smirnov Test Statistic	0.123	95% Percentile Bootstrap UCL	35436
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	35789
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	41374
		97.5% Chebyshev(Mean, Sd) UCL	45653
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	54058
95% Approximate Gamma UCL	35095		
95% Adjusted Gamma UCL	35180		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	41374

LEAD

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	58
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	6.2	Minimum of Log Data	1.825
Maximum	4650	Maximum of Log Data	8.445
Mean	189.7	Mean of log Data	3.22
Median	16.8	SD of log Data	1.325
SD	797.6		
Coefficient of Variation	4.204		
Skewness	5.355		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.465	Lilliefors Test Statistic	0.22
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	353.6	95% H-UCL	86.35
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	112.8
95% Adjusted-CLT UCL	420.4	97.5% Chebyshev (MVUE) UCL	136.2
95% Modified-t UCL	364.3	99% Chebyshev (MVUE) UCL	182.2
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.329	Data do not follow a Discernable Distribution (0.05)	
Theta Star	576.2		
MLE of Mean	189.7		
MLE of Standard Deviation	330.6		
nu star	43.47		
Approximate Chi Square Value (.05)	29.35	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	351.2
Adjusted Chi Square Value	29.09	95% Jackknife UCL	353.6
		95% Standard Bootstrap UCL	349.9
Anderson-Darling Test Statistic	14.94	95% Bootstrap-t UCL	1151
Anderson-Darling 5% Critical Value	0.856	95% Hall's Bootstrap UCL	1126
Kolmogorov-Smirnov Test Statistic	0.405	95% Percentile Bootstrap UCL	375.4
Kolmogorov-Smirnov 5% Critical Value	0.119	95% BCA Bootstrap UCL	444.6
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	617.7
		97.5% Chebyshev(Mean, Sd) UCL	802.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1167
95% Approximate Gamma UCL	281		
95% Adjusted Gamma UCL	283.5		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	802.9

MANGANESE

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	56
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	180	Minimum of Log Data	5.193
Maximum	3300	Maximum of Log Data	8.102
Mean	564.7	Mean of log Data	6.141
Median	396	SD of log Data	0.553
SD	503.8		
Coefficient of Variation	0.892		
Skewness	3.825		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.232	Lilliefors Test Statistic	0.152
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	668.1	95% H-UCL	617.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	710.7
95% Adjusted-CLT UCL	697.9	97.5% Chebyshev (MVUE) UCL	784.5
95% Modified-t UCL	673	99% Chebyshev (MVUE) UCL	929.5
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.608	Data do not follow a Discernable Distribution (0.05)	
Theta Star	216.5		
MLE of Mean	564.7		
MLE of Standard Deviation	349.6		
nu star	344.3		
Approximate Chi Square Value (.05)	302.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	666.7
Adjusted Chi Square Value	301.4	95% Jackknife UCL	668.1
		95% Standard Bootstrap UCL	666.6
Anderson-Darling Test Statistic	3.55	95% Bootstrap-t UCL	739.2
Anderson-Darling 5% Critical Value	0.759	95% Hall's Bootstrap UCL	1174
Kolmogorov-Smirnov Test Statistic	0.185	95% Percentile Bootstrap UCL	669.3
Kolmogorov-Smirnov 5% Critical Value	0.111	95% BCA Bootstrap UCL	714.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	835
		97.5% Chebyshev(Mean, Sd) UCL	951.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1182
95% Approximate Gamma UCL	643.1		
95% Adjusted Gamma UCL	645		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	835

VANADIUM

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	52
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	6.1	Minimum of Log Data	1.808
Maximum	53.8	Maximum of Log Data	3.985
Mean	19.67	Mean of log Data	2.919
Median	19.15	SD of log Data	0.35
SD	7.376		
Coefficient of Variation	0.375		
Skewness	1.856		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.146	Lilliefors Test Statistic	0.0932
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	21.19	95% H-UCL	21.26
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	23.45
95% Adjusted-CLT UCL	21.39	97.5% Chebyshev (MVUE) UCL	25.09
95% Modified-t UCL	21.22	99% Chebyshev (MVUE) UCL	28.31
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.025	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	2.452		
MLE of Mean	19.67		
MLE of Standard Deviation	6.945		
nu star	1059		
Approximate Chi Square Value (.05)	984.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	21.17
Adjusted Chi Square Value	983.2	95% Jackknife UCL	21.19
		95% Standard Bootstrap UCL	21.19
Anderson-Darling Test Statistic	0.66	95% Bootstrap-t UCL	21.44
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	21.88
Kolmogorov-Smirnov Test Statistic	0.104	95% Percentile Bootstrap UCL	21.29
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	21.42
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	23.63
		97.5% Chebyshev(Mean, Sd) UCL	25.34
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	28.71
95% Approximate Gamma UCL	21.16		
95% Adjusted Gamma UCL	21.2		
Potential UCL to Use		Use 95% Approximate Gamma UCL	21.16

ZINC

General Statistics

Number of Valid Observations	66	Number of Distinct Observations	59
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	30	Minimum of Log Data	3.401
Maximum	9840	Maximum of Log Data	9.194
Mean	238.6	Mean of log Data	4.267
Median	59.15	SD of log Data	0.852
SD	1210		
Coefficient of Variation	5.069		
Skewness	7.939		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.469	Lilliefors Test Statistic	0.255
Lilliefors Critical Value	0.109	Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	487.1	95% H-UCL	128.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	154.9
95% Adjusted-CLT UCL	639	97.5% Chebyshev (MVUE) UCL	177.8
95% Modified-t UCL	511.3	99% Chebyshev (MVUE) UCL	223
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.509	Data do not follow a Discernable Distribution (0.05)	
Theta Star	469		
MLE of Mean	238.6		
MLE of Standard Deviation	334.5		
nu star	67.15		
Approximate Chi Square Value (.05)	49.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0464	95% CLT UCL	483.5
Adjusted Chi Square Value	48.95	95% Jackknife UCL	487.1
		95% Standard Bootstrap UCL	479.3
Anderson-Darling Test Statistic	16.4	95% Bootstrap-t UCL	4379
Anderson-Darling 5% Critical Value	0.814	95% Hall's Bootstrap UCL	2474
Kolmogorov-Smirnov Test Statistic	0.424	95% Percentile Bootstrap UCL	531.9
Kolmogorov-Smirnov 5% Critical Value	0.116	95% BCA Bootstrap UCL	810.2
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	887.6
		97.5% Chebyshev(Mean, Sd) UCL	1168
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1720
95% Approximate Gamma UCL	325.1		
95% Adjusted Gamma UCL	327.3		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	887.6

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Paved Surface Soil Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

BENZO(A)ANTHRACENE

General Statistics

Number of Valid Data	27	Number of Detected Data	24
Number of Distinct Detected Data	20	Number of Non-Detect Data	3
		Percent Non-Detects	11.11%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.6	Minimum Detected	0.956
Maximum Detected	5600	Maximum Detected	8.631
Mean of Detected	557.9	Mean of Detected	4.929
SD of Detected	1190	SD of Detected	1.801
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.30%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.49	Shapiro Wilk Test Statistic	0.991
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	547.9	Mean	4.877
SD	1139	SD	1.833
95% DL/2 (t) UCL	921.8	95% H-Stat (DL/2) UCL	2903
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.763
		SD in Log Scale	1.789
		Mean in Original Scale	501.2
		SD in Original Scale	1131
		95% Percentile Bootstrap UCL	876.2
		95% BCA Bootstrap UCL	1129

BENZO(A)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.431
Theta Star	1294
nu star	20.7
A-D Test Statistic	0.871
5% A-D Critical Value	0.815
K-S Test Statistic	0.815
5% K-S Critical Value	0.189
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	5600
Mean	507.9
Median	130
SD	1129
k star	0.227
Theta star	2239
Nu star	12.25
AppChi2	5.394
95% Gamma Approximate UCL	1154
95% Adjusted Gamma UCL	1219

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	509.3
SD	1112
SE of Mean	219.4
95% KM (t) UCL	883.4
95% KM (z) UCL	870.1
95% KM (jackknife) UCL	882.7
95% KM (bootstrap t) UCL	1627
95% KM (BCA) UCL	945.8
95% KM (Percentile Bootstrap) UCL	895.7
95% KM (Chebyshev) UCL	1465
97.5% KM (Chebyshev) UCL	1879
99% KM (Chebyshev) UCL	2692
Potential UCLs to Use	
99% KM (Chebyshev) UCL	2692

BENZO(A)PYRENE

General Statistics

Number of Valid Data	27	Number of Detected Data	25
Number of Distinct Detected Data	24	Number of Non-Detect Data	2
		Percent Non-Detects	7.41%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	7.3	Minimum Detected	1.988
Maximum Detected	4800	Maximum Detected	8.476
Mean of Detected	481.1	Mean of Detected	4.84
SD of Detected	998.1	SD of Detected	1.696
Minimum Non-Detect	86	Minimum Non-Detect	4.454
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.30%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.502	Shapiro Wilk Test Statistic	0.973
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	497.1	Mean	4.887
SD	977.6	SD	1.706
95% DL/2 (t) UCL	818	95% H-Stat (DL/2) UCL	2223
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.783
		SD in Log Scale	1.651
		Mean in Original Scale	450.7
		SD in Original Scale	965.2
		95% Percentile Bootstrap UCL	796.8
		95% BCA Bootstrap UCL	972.6

BENZO(A)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.448
Theta Star	1075
nu star	22.39
A-D Test Statistic	1.057
5% A-D Critical Value	0.812
K-S Test Statistic	0.812
5% K-S Critical Value	0.185
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	4800
Mean	454.7
Median	130
SD	964.2
k star	0.301
Theta star	1509
Nu star	16.28
AppChi2	8.157
95% Gamma Approximate UCL	907.2
95% Adjusted Gamma UCL	950

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	457.6
SD	948.8
SE of Mean	187.1
95% KM (t) UCL	776.7
95% KM (z) UCL	765.3
95% KM (jackknife) UCL	776.3
95% KM (bootstrap t) UCL	1275
95% KM (BCA) UCL	822.1
95% KM (Percentile Bootstrap) UCL	800.9
95% KM (Chebyshev) UCL	1273
97.5% KM (Chebyshev) UCL	1626
99% KM (Chebyshev) UCL	2319
Potential UCLs to Use	
99% KM (Chebyshev) UCL	2319

Note: DL/2 is not a recommended method.

BENZO(B)FLUORANTHENE

General Statistics

Number of Valid Data	27	Number of Detected Data	23
Number of Distinct Detected Data	21	Number of Non-Detect Data	4
		Percent Non-Detects	14.81%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	14	Minimum Detected	2.639
Maximum Detected	5700	Maximum Detected	8.648
Mean of Detected	616.1	Mean of Detected	5.27
SD of Detected	1222	SD of Detected	1.53
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.30%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.513	Shapiro Wilk Test Statistic	0.975
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	577.8	Mean	5.087
SD	1150	SD	1.662
95% DL/2 (t) UCL	955.2	95% H-Stat (DL/2) UCL	2211
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.993
		SD in Log Scale	1.604
		Mean in Original Scale	532
		SD in Original Scale	1142
		95% Percentile Bootstrap UCL	937.4
		95% BCA Bootstrap UCL	1202

BENZO(B)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.502
Theta Star	1228
nu star	23.08
A-D Test Statistic	1.082
5% A-D Critical Value	0.801
K-S Test Statistic	0.801
5% K-S Critical Value	0.191
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	5700
Mean	543.6
Median	150
SD	1141
k star	0.194
Theta star	2796
Nu star	10.5
AppChi2	4.257
95% Gamma Approximate UCL	1341
95% Adjusted Gamma UCL	1425

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	540.2
SD	1123
SE of Mean	221.8
95% KM (t) UCL	918.5
95% KM (z) UCL	905
95% KM (jackknife) UCL	917.3
95% KM (bootstrap t) UCL	1507
95% KM (BCA) UCL	928.9
95% KM (Percentile Bootstrap) UCL	937.1
95% KM (Chebyshev) UCL	1507
97.5% KM (Chebyshev) UCL	1925
99% KM (Chebyshev) UCL	2747
Potential UCLs to Use	
99% KM (Chebyshev) UCL	2747

Note: DL/2 is not a recommended method.

BENZO(G,H,I)PERYLENE

General Statistics

Number of Valid Data	27	Number of Detected Data	21
Number of Distinct Detected Data	20	Number of Non-Detect Data	6
		Percent Non-Detects	22.22%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3	Minimum Detected	1.099
Maximum Detected	2000	Maximum Detected	7.601
Mean of Detected	231.7	Mean of Detected	4.114
SD of Detected	449	SD of Detected	1.738
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	27
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.541	Shapiro Wilk Test Statistic	0.976
5% Shapiro Wilk Critical Value	0.908	5% Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	256	Mean	4.274
SD	455	SD	1.721
95% DL/2 (t) UCL	405.4	95% H-Stat (DL/2) UCL	1944
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.93
		SD in Log Scale	1.602
		Mean in Original Scale	187.9
		SD in Original Scale	402.8
		95% Percentile Bootstrap UCL	320.5
		95% BCA Bootstrap UCL	380.6

BENZO(G,H,I)PERYLENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.443
Theta Star	522.8
nu star	18.62
A-D Test Statistic	0.76
5% A-D Critical Value	0.809
K-S Test Statistic	0.809
5% K-S Critical Value	0.201
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2000
Mean	204
Median	44
SD	403.6
k star	0.236
Theta star	864.7
Nu star	12.74
AppChi2	5.719
95% Gamma Approximate UCL	454.5
95% Adjusted Gamma UCL	479.6

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	197.4
SD	402.4
SE of Mean	81.31
95% KM (t) UCL	336.1
95% KM (z) UCL	331.2
95% KM (jackknife) UCL	335.6
95% KM (bootstrap t) UCL	520.1
95% KM (BCA) UCL	355.6
95% KM (Percentile Bootstrap) UCL	339.9
95% KM (Chebyshev) UCL	551.9
97.5% KM (Chebyshev) UCL	705.2
99% KM (Chebyshev) UCL	1006
Potential UCLs to Use	
95% KM (Chebyshev) UCL	551.9

BENZO(K)FLUORANTHENE

General Statistics

Number of Valid Data	27	Number of Detected Data	23
Number of Distinct Detected Data	22	Number of Non-Detect Data	4
		Percent Non-Detects	14.81%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	6.8	Minimum Detected	1.917
Maximum Detected	3900	Maximum Detected	8.269
Mean of Detected	451.2	Mean of Detected	4.727
SD of Detected	866.1	SD of Detected	1.784
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.30%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.557	Shapiro Wilk Test Statistic	0.964
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	436.7	Mean	4.612
SD	828.9	SD	1.832
95% DL/2 (t) UCL	708.8	95% H-Stat (DL/2) UCL	2676
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.502
		SD in Log Scale	1.753
		Mean in Original Scale	389.3
		SD in Original Scale	811.1
		95% Percentile Bootstrap UCL	654.8
		95% BCA Bootstrap UCL	782.7

BENZO(K)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.432
Theta Star	1044
nu star	19.89
A-D Test Statistic	0.82
5% A-D Critical Value	0.813
K-S Test Statistic	0.813
5% K-S Critical Value	0.193
Data follow Appr. Gamma Distribution at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3900
Mean	396.3
Median	110
SD	809.8
k star	0.188
Theta star	2103
Nu star	10.18
AppChi2	4.054
95% Gamma Approximate UCL	995.2
95% Adjusted Gamma UCL	1059

Data Distribution Test with Detected Values Only	
Data Follow Appr. Gamma Distribution at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	396
SD	798
SE of Mean	157.8
95% KM (t) UCL	665.2
95% KM (z) UCL	655.6
95% KM (jackknife) UCL	664.4
95% KM (bootstrap t) UCL	1029
95% KM (BCA) UCL	652.5
95% KM (Percentile Bootstrap) UCL	662.4
95% KM (Chebyshev) UCL	1084
97.5% KM (Chebyshev) UCL	1382
99% KM (Chebyshev) UCL	1966
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1084

Note: DL/2 is not a recommended method.

CHRYSENE

General Statistics

Number of Valid Data	27	Number of Detected Data	25
Number of Distinct Detected Data	25	Number of Non-Detect Data	2
		Percent Non-Detects	7.41%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.8	Minimum Detected	1.03
Maximum Detected	5700	Maximum Detected	8.648
Mean of Detected	555.7	Mean of Detected	4.841
SD of Detected	1180	SD of Detected	1.881
Minimum Non-Detect	85	Minimum Non-Detect	4.443
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.30%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.497	Shapiro Wilk Test Statistic	0.988
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	566.1	Mean	4.888
SD	1149	SD	1.877
95% DL/2 (t) UCL	943.2	95% H-Stat (DL/2) UCL	3848
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.773
		SD in Log Scale	1.835
		Mean in Original Scale	519.3
		SD in Original Scale	1141
		95% Percentile Bootstrap UCL	909.6
		95% BCA Bootstrap UCL	1132

CHRYSENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.413
Theta Star	1347
nu star	20.63
A-D Test Statistic	0.762
5% A-D Critical Value	0.821
K-S Test Statistic	0.821
5% K-S Critical Value	0.186
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	5700
Mean	523.6
Median	94
SD	1140
k star	0.287
Theta star	1824
Nu star	15.5
AppChi2	7.614
95% Gamma Approximate UCL	1066
95% Adjusted Gamma UCL	1118

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	527.7
SD	1122
SE of Mean	221.1
95% KM (t) UCL	904.9
95% KM (z) UCL	891.5
95% KM (jackknife) UCL	904.4
95% KM (bootstrap t) UCL	1570
95% KM (BCA) UCL	876.1
95% KM (Percentile Bootstrap) UCL	939.2
95% KM (Chebyshev) UCL	1492
97.5% KM (Chebyshev) UCL	1909
99% KM (Chebyshev) UCL	2728
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1492

Note: DL/2 is not a recommended method.

DIBENZO(A,H)ANTHRACENE

General Statistics

Number of Valid Data	27	Number of Detected Data	14
Number of Distinct Detected Data	13	Number of Non-Detect Data	13
		Percent Non-Detects	48.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	10	Minimum Detected	2.303
Maximum Detected	760	Maximum Detected	6.633
Mean of Detected	129.7	Mean of Detected	4.217
SD of Detected	190.2	SD of Detected	1.176
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	2700	Maximum Non-Detect	7.901
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	27
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.569	Shapiro Wilk Test Statistic	0.95
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	149.2	Mean	3.974
SD	284.6	SD	1.415
95% DL/2 (t) UCL	242.6	95% H-Stat (DL/2) UCL	432.4
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.621
		SD in Log Scale	1.12
		Mean in Original Scale	78.36
		SD in Original Scale	145.3
		95% Percentile Bootstrap UCL	129.6
		95% BCA Bootstrap UCL	163.5

DIBENZO(A,H)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.756
Theta Star	171.4
nu star	21.18
A-D Test Statistic	0.582
5% A-D Critical Value	0.764
K-S Test Statistic	0.764
5% K-S Critical Value	0.236
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	760
Mean	126.5
Median	101.9
SD	150.9
k star	0.435
Theta star	291
Nu star	23.47
AppChi2	13.45
95% Gamma Approximate UCL	220.8
95% Adjusted Gamma UCL	229.1

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	82.36
SD	145.7
SE of Mean	30
95% KM (t) UCL	133.5
95% KM (z) UCL	131.7
95% KM (jackknife) UCL	132.8
95% KM (bootstrap t) UCL	200.1
95% KM (BCA) UCL	140.5
95% KM (Percentile Bootstrap) UCL	132.5
95% KM (Chebyshev) UCL	213.1
97.5% KM (Chebyshev) UCL	269.7
99% KM (Chebyshev) UCL	380.9
Potential UCLs to Use	
95% KM (BCA) UCL	140.5

Note: DL/2 is not a recommended method.

INDENO(1,2,3-CD)PYRENE

General Statistics

Number of Valid Data	27	Number of Detected Data	19
Number of Distinct Detected Data	19	Number of Non-Detect Data	8
		Percent Non-Detects	29.63%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.25	Minimum Detected	2.11
Maximum Detected	2200	Maximum Detected	7.696
Mean of Detected	284.3	Mean of Detected	4.425
SD of Detected	514.6	SD of Detected	1.644
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	3800	Maximum Non-Detect	8.243
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	27
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.573	Shapiro Wilk Test Statistic	0.941
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	309.4	Mean	4.499
SD	543	SD	1.655
95% DL/2 (t) UCL	487.6	95% H-Stat (DL/2) UCL	2191
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.127
		SD in Log Scale	1.502
		Mean in Original Scale	212
		SD in Original Scale	443.3
		95% Percentile Bootstrap UCL	363.9
		95% BCA Bootstrap UCL	443.1

INDENO(1,2,3-CD)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.47
Theta Star	605.5
nu star	17.84
A-D Test Statistic	0.914
5% A-D Critical Value	0.801
K-S Test Statistic	0.801
5% K-S Critical Value	0.21
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2200
Mean	258.2
Median	78
SD	447.6
k star	0.243
Theta star	1062
Nu star	13.12
AppChi2	5.977
95% Gamma Approximate UCL	567
95% Adjusted Gamma UCL	597.7

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	223.8
SD	444.3
SE of Mean	90.36
95% KM (t) UCL	377.9
95% KM (z) UCL	372.4
95% KM (jackknife) UCL	377
95% KM (bootstrap t) UCL	562.8
95% KM (BCA) UCL	405.7
95% KM (Percentile Bootstrap) UCL	387
95% KM (Chebyshev) UCL	617.6
97.5% KM (Chebyshev) UCL	788.1
99% KM (Chebyshev) UCL	1123
Potential UCLs to Use	
99% KM (Chebyshev) UCL	1123

BERYLLIUM

General Statistics

Number of Valid Data	25	Number of Detected Data	24
Number of Distinct Detected Data	16	Number of Non-Detect Data	1
Number of Missing Values	2	Percent Non-Detects	4.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.21	Minimum Detected	-1.561
Maximum Detected	0.57	Maximum Detected	-0.562
Mean of Detected	0.37	Mean of Detected	-1.02
SD of Detected	0.0867	SD of Detected	0.242
Minimum Non-Detect	0.15	Minimum Non-Detect	-1.897
Maximum Non-Detect	0.15	Maximum Non-Detect	-1.897

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.975	Shapiro Wilk Test Statistic	0.97
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.359	Mean	-1.083
SD	0.103	SD	0.393
95% DL/2 (t) UCL	0.394	95% H-Stat (DL/2) UCL	0.396
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.36	Mean in Log Scale	-1.044
SD	0.0972	SD in Log Scale	0.265
95% MLE (t) UCL	0.393	Mean in Original Scale	0.364
95% MLE (Tiku) UCL	0.394	SD in Original Scale	0.0915
		95% Percentile Bootstrap UCL	0.395
		95% BCA Bootstrap UCL	0.392

BERYLLIUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	16.26
Theta Star	0.0228
nu star	780.4
A-D Test Statistic	0.302
5% A-D Critical Value	0.743
K-S Test Statistic	0.743
5% K-S Critical Value	0.178
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.145
Maximum	0.57
Mean	0.361
Median	0.35
SD	0.0961
k star	11.46
Theta star	0.0315
Nu star	573.1
AppChi2	518.5
95% Gamma Approximate UCL	0.399
95% Adjusted Gamma UCL	0.402

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.364
SD	0.0889
SE of Mean	0.0182
95% KM (t) UCL	0.395
95% KM (z) UCL	0.394
95% KM (jackknife) UCL	0.395
95% KM (bootstrap t) UCL	0.394
95% KM (BCA) UCL	0.394
95% KM (Percentile Bootstrap) UCL	0.394
95% KM (Chebyshev) UCL	0.443
97.5% KM (Chebyshev) UCL	0.477
99% KM (Chebyshev) UCL	0.545
Potential UCLs to Use	
95% KM (t) UCL	0.395
95% KM (Percentile Bootstrap) UCL	0.394

Note: DL/2 is not a recommended method.

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Paved Surface Soil Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ALUMINUM

General Statistics

Number of Valid Observations	25	Number of Distinct Observations	24
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	4100	Minimum of Log Data	8.319
Maximum	19500	Maximum of Log Data	9.878
Mean	9529	Mean of log Data	9.071
Median	8130	SD of log Data	0.442
SD	4116		
Coefficient of Variation	0.432		
Skewness	0.629		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.936	Shapiro Wilk Test Statistic	0.958
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	10938	95% H-UCL	11398
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13352
95% Adjusted-CLT UCL	10994	97.5% Chebyshev (MVUE) UCL	14997
95% Modified-t UCL	10955	99% Chebyshev (MVUE) UCL	18229

ALUMINUM (Continued)

Gamma Distribution Test	
k star (bias corrected)	4.977
Theta Star	1915
MLE of Mean	9529
MLE of Standard Deviation	4271
nu star	248.9
Approximate Chi Square Value (.05)	213.3
Adjusted Level of Significance	0.0395
Adjusted Chi Square Value	211.1
Anderson-Darling Test Statistic	0.409
Anderson-Darling 5% Critical Value	0.747
Kolmogorov-Smirnov Test Statistic	0.133
Kolmogorov-Smirnov 5% Critical Value	0.175
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	11116
95% Adjusted Gamma UCL	11234
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	10883
95% Jackknife UCL	10938
95% Standard Bootstrap UCL	10860
95% Bootstrap-t UCL	11041
95% Hall's Bootstrap UCL	10996
95% Percentile Bootstrap UCL	10799
95% BCA Bootstrap UCL	10918
95% Chebyshev(Mean, Sd) UCL	13117
97.5% Chebyshev(Mean, Sd) UCL	14670
99% Chebyshev(Mean, Sd) UCL	17720
Use 95% Student's-t UCL	10938

ARSENIC

General Statistics

Number of Valid Observations	25	Number of Distinct Observations	23
Number of Missing Values	2		

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.7	Minimum of Log Data	0.531
Maximum	41	Maximum of Log Data	3.714
Mean	15.11	Mean of log Data	2.445
Median	15.1	SD of log Data	0.828
SD	10.12		
Coefficient of Variation	0.67		
Skewness	0.804		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.94	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	18.58	95% H-UCL	23.89
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.61
95% Adjusted-CLT UCL	18.79	97.5% Chebyshev (MVUE) UCL	34.09
95% Modified-t UCL	18.63	99% Chebyshev (MVUE) UCL	44.85
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.784	**Data appear Normal at 5% Significance Level**	
Theta Star	8.472		
MLE of Mean	15.11		
MLE of Standard Deviation	11.32		
nu star	89.18		
Approximate Chi Square Value (.05)	68.41	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0395	95% CLT UCL	18.44
Adjusted Chi Square Value	67.17	95% Jackknife UCL	18.58
		95% Standard Bootstrap UCL	18.47
Anderson-Darling Test Statistic	0.256	95% Bootstrap-t UCL	19.02
Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL	19.25
Kolmogorov-Smirnov Test Statistic	0.12	95% Percentile Bootstrap UCL	18.5
Kolmogorov-Smirnov 5% Critical Value	0.177	95% BCA Bootstrap UCL	18.5
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	23.94
		97.5% Chebyshev(Mean, Sd) UCL	27.76
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	35.26
95% Approximate Gamma UCL	19.7		
95% Adjusted Gamma UCL	20.06		
Potential UCL to Use		Use 95% Student's-t UCL	18.58

CHROMIUM

General Statistics

Number of Valid Observations	25	Number of Distinct Observations	25
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	5.6	Minimum of Log Data	1.723
Maximum	24.2	Maximum of Log Data	3.186
Mean	13.58	Mean of log Data	2.528
Median	13.8	SD of log Data	0.42
SD	5.333		
Coefficient of Variation	0.393		
Skewness	0.28		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.954	Shapiro Wilk Test Statistic	0.952
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15.4	95% H-UCL	16.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	18.77
95% Adjusted-CLT UCL	15.4	97.5% Chebyshev (MVUE) UCL	21
95% Modified-t UCL	15.41	99% Chebyshev (MVUE) UCL	25.36
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.646	Data appear Normal at 5% Significance Level	
Theta Star	2.405		
MLE of Mean	13.58		
MLE of Standard Deviation	5.715		
nu star	282.3		
Approximate Chi Square Value (.05)	244.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0395	95% CLT UCL	15.33
Adjusted Chi Square Value	242	95% Jackknife UCL	15.4
		95% Standard Bootstrap UCL	15.28
Anderson-Darling Test Statistic	0.397	95% Bootstrap-t UCL	15.5
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL	15.38
Kolmogorov-Smirnov Test Statistic	0.111	95% Percentile Bootstrap UCL	15.33
Kolmogorov-Smirnov 5% Critical Value	0.175	95% BCA Bootstrap UCL	15.42
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	18.23
		97.5% Chebyshev(Mean, Sd) UCL	20.24
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	24.19
95% Approximate Gamma UCL	15.69		
95% Adjusted Gamma UCL	15.84		
Potential UCL to Use		Use 95% Student's-t UCL	15.4

COBALT

General Statistics

Number of Valid Observations	25	Number of Distinct Observations	23
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	2.7	Minimum of Log Data	0.993
Maximum	28	Maximum of Log Data	3.332
Mean	10.96	Mean of log Data	2.262
Median	10.7	SD of log Data	0.55
SD	5.524		
Coefficient of Variation	0.504		
Skewness	1.026		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.927	Shapiro Wilk Test Statistic	0.952
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12.85	95% H-UCL	13.98
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.67
95% Adjusted-CLT UCL	13.02	97.5% Chebyshev (MVUE) UCL	19.08
95% Modified-t UCL	12.88	99% Chebyshev (MVUE) UCL	23.82
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.51	Data appear Normal at 5% Significance Level	
Theta Star	3.121		
MLE of Mean	10.96		
MLE of Standard Deviation	5.848		
nu star	175.5		
Approximate Chi Square Value (.05)	145.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0395	95% CLT UCL	12.77
Adjusted Chi Square Value	144	95% Jackknife UCL	12.85
		95% Standard Bootstrap UCL	12.77
Anderson-Darling Test Statistic	0.397	95% Bootstrap-t UCL	13.17
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	13.51
Kolmogorov-Smirnov Test Statistic	0.101	95% Percentile Bootstrap UCL	12.75
Kolmogorov-Smirnov 5% Critical Value	0.175	95% BCA Bootstrap UCL	12.88
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	15.77
		97.5% Chebyshev(Mean, Sd) UCL	17.86
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	21.95
95% Approximate Gamma UCL	13.18		
95% Adjusted Gamma UCL	13.35		
Potential UCL to Use		Use 95% Student's-t UCL	12.85

IRON

General Statistics

Number of Valid Observations	25	Number of Distinct Observations	24
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	8540	Minimum of Log Data	9.053
Maximum	38900	Maximum of Log Data	10.57
Mean	23086	Mean of log Data	9.967
Median	23300	SD of log Data	0.43
SD	8674		
Coefficient of Variation	0.376		
Skewness	-0.0371		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.964	Shapiro Wilk Test Statistic	0.929
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	26054	95% H-UCL	27608
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	32255
95% Adjusted-CLT UCL	25925	97.5% Chebyshev (MVUE) UCL	36142
95% Modified-t UCL	26052	99% Chebyshev (MVUE) UCL	43777
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.656	**Data appear Normal at 5% Significance Level**	
Theta Star	4081		
MLE of Mean	23086		
MLE of Standard Deviation	9707		
nu star	282.8		
Approximate Chi Square Value (.05)	244.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0395	95% CLT UCL	25939
Adjusted Chi Square Value	242.5	95% Jackknife UCL	26054
		95% Standard Bootstrap UCL	25882
Anderson-Darling Test Statistic	0.463	95% Bootstrap-t UCL	25896
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL	25944
Kolmogorov-Smirnov Test Statistic	0.127	95% Percentile Bootstrap UCL	25792
Kolmogorov-Smirnov 5% Critical Value	0.175	95% BCA Bootstrap UCL	25802
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	30648
		97.5% Chebyshev(Mean, Sd) UCL	33920
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	40347
95% Approximate Gamma UCL	26663		
95% Adjusted Gamma UCL	26928		
Potential UCL to Use		Use 95% Student's-t UCL	26054

MANGANESE

General Statistics

Number of Valid Observations	25	Number of Distinct Observations	25
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	150	Minimum of Log Data	5.011
Maximum	827	Maximum of Log Data	6.718
Mean	361.8	Mean of log Data	5.811
Median	348	SD of log Data	0.409
SD	153.1		
Coefficient of Variation	0.423		
Skewness	1.302		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.892	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	414.1	95% H-UCL	425
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	494.4
95% Adjusted-CLT UCL	420.6	97.5% Chebyshev (MVUE) UCL	551.7
95% Modified-t UCL	415.5	99% Chebyshev (MVUE) UCL	664.4

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.675	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	63.75		
MLE of Mean	361.8		
MLE of Standard Deviation	151.9		
nu star	283.7		
Approximate Chi Square Value (.05)	245.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0395	95% CLT UCL	412.1
Adjusted Chi Square Value	243.3	95% Jackknife UCL	414.1
		95% Standard Bootstrap UCL	411
Anderson-Darling Test Statistic	0.511	95% Bootstrap-t UCL	427.9
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL	441.9
Kolmogorov-Smirnov Test Statistic	0.162	95% Percentile Bootstrap UCL	413.7
Kolmogorov-Smirnov 5% Critical Value	0.175	95% BCA Bootstrap UCL	420
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	495.2
		97.5% Chebyshev(Mean, Sd) UCL	552.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	666.3
95% Approximate Gamma UCL	417.7		
95% Adjusted Gamma UCL	421.9		
Potential UCL to Use		Use 95% Approximate Gamma UCL	417.7

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Paved Subsurface Soil Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

1,2,4-TRIMETHYLBENZENE

General Statistics

Number of Valid Data	31	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	28
		Percent Non-Detects	90.32%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.25	Minimum Detected	0.811
Maximum Detected	17000	Maximum Detected	9.741
Mean of Detected	10334	Mean of Detected	6.7
SD of Detected	9072	SD of Detected	5.101
Minimum Non-Detect	0.22	Minimum Non-Detect	-1.514
Maximum Non-Detect	230	Maximum Non-Detect	5.438
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	29
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.55%

Warning: There are only 3 Distinct Detected Values in this data set

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.

However, results obtained using 4 to 9 distinct values may not be reliable.

It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.878	Shapiro Wilk Test Statistic	0.766
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

1,2,4-TRIMETHYLBENZENE (Continued)

Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	1006
SD	3889
95% DL/2 (t) UCL	2191
Maximum Likelihood Estimate(MLE) Method	N/A
MLE method failed to converge properly	

Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	1.27
SD	2.522
95% H-Stat (DL/2) UCL	401.9
Log ROS Method	
Mean in Log Scale	-6.36
SD in Log Scale	6.779
Mean in Original Scale	1001
SD in Original Scale	3890
95% Percentile Bootstrap UCL	2099
95% BCA Bootstrap UCL	2743

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
95% Gamma Approximate UCL	N/A
95% Adjusted Gamma UCL	N/A

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1002
SD	3826
SE of Mean	841.7
95% KM (t) UCL	2431
95% KM (z) UCL	2387
95% KM (jackknife) UCL	9907
95% KM (bootstrap t) UCL	1612
95% KM (BCA) UCL	17000
95% KM (Percentile Bootstrap) UCL	17000
95% KM (Chebyshev) UCL	4671
97.5% KM (Chebyshev) UCL	6258
99% KM (Chebyshev) UCL	9377
Potential UCLs to Use	
95% KM (t) UCL	2431
95% KM (Percentile Bootstrap) UCL	17000

Note: DL/2 is not a recommended method.

1,3,5-TRIMETHYLBENZENE

General Statistics

Number of Valid Data	31	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	29
		Percent Non-Detects	93.55%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	74	Minimum Detected	4.304
Maximum Detected	7500	Maximum Detected	8.923
Mean of Detected	3787	Mean of Detected	6.613
SD of Detected	5251	SD of Detected	3.266
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	560	Maximum Non-Detect	6.328

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	96.77%

Warning: Data set has only 2 Distinct Detected Values.

This may not be adequate enough to compute meaningful and reliable test statistics and estimates.

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.

However, results obtained using 4 to 9 distinct values may not be reliable.

It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

1,3,5-TRIMETHYLBENZENE (Continued)

Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	255.3
SD	1346
95% DL/2 (t) UCL	665.5
Maximum Likelihood Estimate(MLE) Method	N/A
MLE method failed to converge properly	

Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	1.091
SD	2.061
95% H-Stat (DL/2) UCL	74.43
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A
Data not Gamma Distributed at 5% Significance Level	

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
95% Gamma Approximate UCL	N/A
95% Adjusted Gamma UCL	N/A

Data Distribution Test with Detected Values Only
Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	313.5
SD	1312
SE of Mean	333.3
95% KM (t) UCL	879.2
95% KM (z) UCL	861.7
95% KM (jackknife) UCL	5178
95% KM (bootstrap t) UCL	N/A
95% KM (BCA) UCL	N/A
95% KM (Percentile Bootstrap) UCL	N/A
95% KM (Chebyshev) UCL	1766
97.5% KM (Chebyshev) UCL	2395
99% KM (Chebyshev) UCL	3629

Potential UCLs to Use	
99% KM (Chebyshev) UCL	3629

Note: DL/2 is not a recommended method.

BENZO(A)ANTHRACENE

General Statistics

Number of Valid Data	31	Number of Detected Data	17
Number of Distinct Detected Data	16	Number of Non-Detect Data	14
		Percent Non-Detects	45.16%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.4	Minimum Detected	1.686
Maximum Detected	7700	Maximum Detected	8.949
Mean of Detected	561.1	Mean of Detected	4.299
SD of Detected	1845	SD of Detected	1.794
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.315	Shapiro Wilk Test Statistic	0.928
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	353.4	Mean	4.076
SD	1370	SD	1.6
95% DL/2 (t) UCL	771	95% H-Stat (DL/2) UCL	418
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.614
		SD in Log Scale	1.599
		Mean in Original Scale	317.1
		SD in Original Scale	1375
		95% Percentile Bootstrap UCL	807.3
		95% BCA Bootstrap UCL	1079

BENZO(A)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.314
Theta Star	1787
nu star	10.68
A-D Test Statistic	2.014
5% A-D Critical Value	0.834
K-S Test Statistic	0.834
5% K-S Critical Value	0.226
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	5.4
Maximum	7700
Mean	568.2
Median	331.1
SD	1349
k star	0.525
Theta star	1082
Nu star	32.56
AppChi2	20.51
95% Gamma Approximate UCL	901.8
95% Adjusted Gamma UCL	925.8

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	321
SD	1352
SE of Mean	250.4
95% KM (t) UCL	746
95% KM (z) UCL	732.8
95% KM (jackknife) UCL	740.1
95% KM (bootstrap t) UCL	5595
95% KM (BCA) UCL	821.2
95% KM (Percentile Bootstrap) UCL	811.3
95% KM (Chebyshev) UCL	1412
97.5% KM (Chebyshev) UCL	1885
99% KM (Chebyshev) UCL	2812
Potential UCLs to Use	
99% KM (Chebyshev) UCL	2812

BENZO(A)PYRENE

General Statistics

Number of Valid Data	31	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	16
		Percent Non-Detects	51.61%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.6	Minimum Detected	1.723
Maximum Detected	5700	Maximum Detected	8.648
Mean of Detected	452.4	Mean of Detected	4.244
SD of Detected	1453	SD of Detected	1.619
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	3000	Maximum Non-Detect	8.006
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.318	Shapiro Wilk Test Statistic	0.883
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	313.6	Mean	4.097
SD	1035	SD	1.571
95% DL/2 (t) UCL	629.3	95% H-Stat (DL/2) UCL	436.7
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.489
		SD in Log Scale	1.406
		Mean in Original Scale	229
		SD in Original Scale	1017
		95% Percentile Bootstrap UCL	592.3
		95% BCA Bootstrap UCL	786.5

BENZO(A)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.331
Theta Star	1367
nu star	9.928
A-D Test Statistic	2.322
5% A-D Critical Value	0.823
K-S Test Statistic	0.823
5% K-S Critical Value	0.238
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	5700
Mean	457.1
Median	251.4
SD	999.8
k star	0.363
Theta star	1260
Nu star	22.49
AppChi2	12.71
95% Gamma Approximate UCL	809.1
95% Adjusted Gamma UCL	836

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	233
SD	999.5
SE of Mean	185.9
95% KM (t) UCL	548.5
95% KM (z) UCL	538.7
95% KM (jackknife) UCL	542.8
95% KM (bootstrap t) UCL	4226
95% KM (BCA) UCL	608.3
95% KM (Percentile Bootstrap) UCL	597
95% KM (Chebyshev) UCL	1043
97.5% KM (Chebyshev) UCL	1394
99% KM (Chebyshev) UCL	2082
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	1394

Note: DL/2 is not a recommended method.

BENZO(B)FLUORANTHENE

General Statistics

Number of Valid Data	31	Number of Detected Data	15
Number of Distinct Detected Data	14	Number of Non-Detect Data	16
		Percent Non-Detects	51.61%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	12.2	Minimum Detected	2.501
Maximum Detected	6500	Maximum Detected	8.78
Mean of Detected	521.6	Mean of Detected	4.455
SD of Detected	1655	SD of Detected	1.564
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	3000	Maximum Non-Detect	8.006
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.321	Shapiro Wilk Test Statistic	0.862
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	348.7	Mean	4.231
SD	1173	SD	1.553
95% DL/2 (t) UCL	706.2	95% H-Stat (DL/2) UCL	446.4
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.725
		SD in Log Scale	1.375
		Mean in Original Scale	265.7
		SD in Original Scale	1159
		95% Percentile Bootstrap UCL	681.1
		95% BCA Bootstrap UCL	897.6

BENZO(B)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.34
Theta Star	1533
nu star	10.21
A-D Test Statistic	2.316
5% A-D Critical Value	0.821
K-S Test Statistic	0.821
5% K-S Critical Value	0.238
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	12.2
Maximum	6500
Mean	518.2
Median	301.3
SD	1136
k star	0.625
Theta star	828.5
Nu star	38.78
AppChi2	25.52
95% Gamma Approximate UCL	787.6
95% Adjusted Gamma UCL	806.5

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	269.4
SD	1139
SE of Mean	211.9
95% KM (t) UCL	629.1
95% KM (z) UCL	618
95% KM (jackknife) UCL	622.6
95% KM (bootstrap t) UCL	4533
95% KM (BCA) UCL	697.7
95% KM (Percentile Bootstrap) UCL	681.8
95% KM (Chebyshev) UCL	1193
97.5% KM (Chebyshev) UCL	1593
99% KM (Chebyshev) UCL	2378
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	1593

BENZO(G,H,I)PERYLENE

General Statistics

Number of Valid Data	31	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	15
		Percent Non-Detects	48.39%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.4	Minimum Detected	1.224
Maximum Detected	1350	Maximum Detected	7.208
Mean of Detected	115.8	Mean of Detected	3.31
SD of Detected	330.2	SD of Detected	1.506
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	3000	Maximum Non-Detect	8.006
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	31
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.341	Shapiro Wilk Test Statistic	0.908
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	157.2	Mean	3.732
SD	350.7	SD	1.567
95% DL/2 (t) UCL	264.1	95% H-Stat (DL/2) UCL	353.5
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.919
		SD in Log Scale	1.25
		Mean in Original Scale	67.51
		SD in Original Scale	239.1
		95% Percentile Bootstrap UCL	152.3
		95% BCA Bootstrap UCL	195.3

BENZO(G,H,I)PERYLENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.406
Theta Star	285.5
nu star	12.98
A-D Test Statistic	1.766
5% A-D Critical Value	0.807
K-S Test Statistic	0.807
5% K-S Critical Value	0.229
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1350
Mean	120.1
Median	39
SD	259.2
k star	0.185
Theta star	649.6
Nu star	11.46
AppChi2	4.873
95% Gamma Approximate UCL	282.3
95% Adjusted Gamma UCL	296.8

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	70.99
SD	238.8
SE of Mean	45.15
95% KM (t) UCL	147.6
95% KM (z) UCL	145.3
95% KM (jackknife) UCL	146.5
95% KM (bootstrap t) UCL	543.4
95% KM (BCA) UCL	164
95% KM (Percentile Bootstrap) UCL	157.5
95% KM (Chebyshev) UCL	267.8
97.5% KM (Chebyshev) UCL	353
99% KM (Chebyshev) UCL	520.2
Potential UCLs to Use	
99% KM (Chebyshev) UCL	520.2

BENZO(K)FLUORANTHENE

General Statistics

Number of Valid Data	31	Number of Detected Data	15
Number of Distinct Detected Data	14	Number of Non-Detect Data	16
		Percent Non-Detects	51.61%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.4	Minimum Detected	1.686
Maximum Detected	5350	Maximum Detected	8.585
Mean of Detected	400	Mean of Detected	3.765
SD of Detected	1370	SD of Detected	1.672
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	3000	Maximum Non-Detect	8.006
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.306	Shapiro Wilk Test Statistic	0.84
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	287.9	Mean	3.853
SD	978.1	SD	1.596
95% DL/2 (t) UCL	586	95% H-Stat (DL/2) UCL	410.3
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.213
		SD in Log Scale	1.36
		Mean in Original Scale	203.1
		SD in Original Scale	955.7
		95% Percentile Bootstrap UCL	545.1
		95% BCA Bootstrap UCL	723.2

BENZO(K)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.291
Theta Star	1374
nu star	8.733
A-D Test Statistic	2.733
5% A-D Critical Value	0.834
K-S Test Statistic	0.834
5% K-S Critical Value	0.24
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	5350
Mean	407
Median	60.5
SD	1043
k star	0.134
Theta star	3035
Nu star	8.313
AppChi2	2.918
95% Gamma Approximate UCL	1160
95% Adjusted Gamma UCL	1234

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	205.9
SD	939.8
SE of Mean	174.8
95% KM (t) UCL	502.5
95% KM (z) UCL	493.4
95% KM (jackknife) UCL	497.2
95% KM (bootstrap t) UCL	5496
95% KM (BCA) UCL	553
95% KM (Percentile Bootstrap) UCL	544.7
95% KM (Chebyshev) UCL	967.7
97.5% KM (Chebyshev) UCL	1297
99% KM (Chebyshev) UCL	1945
Potential UCLs to Use	
97.5% KM (Chebyshev) UCL	1297

CHRYSENE

General Statistics

Number of Valid Data	31	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	13
		Percent Non-Detects	41.94%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.3	Minimum Detected	1.194
Maximum Detected	7550	Maximum Detected	8.929
Mean of Detected	510.8	Mean of Detected	4.144
SD of Detected	1762	SD of Detected	1.724
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	620	Maximum Non-Detect	6.43
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.301	Shapiro Wilk Test Statistic	0.927
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	342.1	Mean	4.05
SD	1344	SD	1.552
95% DL/2 (t) UCL	751.8	95% H-Stat (DL/2) UCL	446.7
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.564
		SD in Log Scale	1.541
		Mean in Original Scale	305
		SD in Original Scale	1349
		95% Percentile Bootstrap UCL	774.3
		95% BCA Bootstrap UCL	1264

CHRYSENE (Continued)

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.308	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1658		
nu star	11.09		
A-D Test Statistic	2.502	**Nonparametric Statistics**	
5% A-D Critical Value	0.837	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.837	Mean	308.3
5% K-S Critical Value	0.22	SD	1327
Data not Gamma Distributed at 5% Significance Level		SE of Mean	245.3
		95% KM (t) UCL	724.6
Assuming Gamma Distribution		95% KM (z) UCL	711.7
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	719.6
Minimum	1E-09	95% KM (bootstrap t) UCL	7167
Maximum	7550	95% KM (BCA) UCL	792.3
Mean	458.6	95% KM (Percentile Bootstrap) UCL	783.1
Median	44	95% KM (Chebyshev) UCL	1377
SD	1402	97.5% KM (Chebyshev) UCL	1840
k star	0.121	99% KM (Chebyshev) UCL	2749
Theta star	3790		
Nu star	7.502	**Potential UCLs to Use**	
AppChi2	2.45	99% KM (Chebyshev) UCL	2749
95% Gamma Approximate UCL	1404		
95% Adjusted Gamma UCL	1501		

Note: DL/2 is not a recommended method.

DIBENZO(A,H)ANTHRACENE

General Statistics

Number of Valid Data	31	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	24
		Percent Non-Detects	77.42%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	6.9	Minimum Detected	1.932
Maximum Detected	700	Maximum Detected	6.551
Mean of Detected	132.1	Mean of Detected	3.837
SD of Detected	251.3	SD of Detected	1.428
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	3000	Maximum Non-Detect	8.006

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	31
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.534	Shapiro Wilk Test Statistic	0.919
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	132.4	Mean	3.628
SD	292.8	SD	1.465
95% DL/2 (t) UCL	221.7	95% H-Stat (DL/2) UCL	206.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.629
		SD in Log Scale	1.094
		Mean in Original Scale	39.1
		SD in Original Scale	123.6
		95% Percentile Bootstrap UCL	82.3
		95% BCA Bootstrap UCL	108.1

DIBENZO(A,H)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.433
Theta Star	304.9
nu star	6.067
A-D Test Statistic	0.819
5% A-D Critical Value	0.746
K-S Test Statistic	0.746
5% K-S Critical Value	0.326
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	752
Mean	173.8
Median	83.84
SD	203.3
k star	0.154
Theta star	1130
Nu star	9.533
AppChi2	3.652
95% Gamma Approximate UCL	453.7
95% Adjusted Gamma UCL	480.1

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	42.63
SD	123.2
SE of Mean	24.59
95% KM (t) UCL	84.36
95% KM (z) UCL	83.07
95% KM (jackknife) UCL	82.87
95% KM (bootstrap t) UCL	222.4
95% KM (BCA) UCL	108.1
95% KM (Percentile Bootstrap) UCL	89.54
95% KM (Chebyshev) UCL	149.8
97.5% KM (Chebyshev) UCL	196.2
99% KM (Chebyshev) UCL	287.2
Potential UCLs to Use	
95% KM (BCA) UCL	108.1

Note: DL/2 is not a recommended method.

INDENO(1,2,3-CD)PYRENE

General Statistics

Number of Valid Data	31	Number of Detected Data	14
Number of Distinct Detected Data	13	Number of Non-Detect Data	17
		Percent Non-Detects	54.84%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	9	Minimum Detected	2.197
Maximum Detected	2750	Maximum Detected	7.919
Mean of Detected	236.6	Mean of Detected	3.848
SD of Detected	723.8	SD of Detected	1.391
Minimum Non-Detect	22	Minimum Non-Detect	3.091
Maximum Non-Detect	4300	Maximum Non-Detect	8.366
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	31
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.328	Shapiro Wilk Test Statistic	0.798
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	244.2	Mean	4.021
SD	607.3	SD	1.556
95% DL/2 (t) UCL	429.3	95% H-Stat (DL/2) UCL	420.1
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.301
		SD in Log Scale	1.157
		Mean in Original Scale	118.7
		SD in Original Scale	488.9
		95% Percentile Bootstrap UCL	294
		95% BCA Bootstrap UCL	383.4

INDENO(1,2,3-CD)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.366
Theta Star	645.9
nu star	10.26
A-D Test Statistic	2.647
5% A-D Critical Value	0.812
K-S Test Statistic	0.812
5% K-S Critical Value	0.245
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2750
Mean	321.4
Median	63
SD	631.5
k star	0.141
Theta star	2284
Nu star	8.722
AppChi2	3.16
95% Gamma Approximate UCL	887
95% Adjusted Gamma UCL	941.8

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	123.2
SD	488.4
SE of Mean	92.59
95% KM (t) UCL	280.4
95% KM (z) UCL	275.5
95% KM (jackknife) UCL	277.3
95% KM (bootstrap t) UCL	1991
95% KM (BCA) UCL	316.8
95% KM (Percentile Bootstrap) UCL	301.2
95% KM (Chebyshev) UCL	526.8
97.5% KM (Chebyshev) UCL	701.4
99% KM (Chebyshev) UCL	1044
Potential UCLs to Use	
95% KM (BCA) UCL	316.8

Note: DL/2 is not a recommended method.

TOTAL AROCLOR

General Statistics

Number of Valid Data	29	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	28
Number of Missing Values	1	Percent Non-Detects	96.55%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable TOTAL AROCLOR was not processed!

BERYLLIUM

General Statistics

Number of Valid Data	29	Number of Detected Data	28
Number of Distinct Detected Data	19	Number of Non-Detect Data	1
Number of Missing Values	1	Percent Non-Detects	3.45%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.2	Minimum Detected	-1.609
Maximum Detected	0.76	Maximum Detected	-0.274
Mean of Detected	0.378	Mean of Detected	-1.013
SD of Detected	0.118	SD of Detected	0.283
Minimum Non-Detect	0.26	Minimum Non-Detect	-1.347
Maximum Non-Detect	0.26	Maximum Non-Detect	-1.347

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.842	Shapiro Wilk Test Statistic	0.93
5% Shapiro Wilk Critical Value	0.924	5% Shapiro Wilk Critical Value	0.924
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.37	Mean	-1.048
SD	0.125	SD	0.337
95% DL/2 (t) UCL	0.409	95% H-Stat (DL/2) UCL	0.408
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.368	Mean in Log Scale	-1.029
SD	0.126	SD in Log Scale	0.29
95% MLE (t) UCL	0.408	Mean in Original Scale	0.373
95% MLE (Tiku) UCL	0.407	SD in Original Scale	0.12
		95% Percentile Bootstrap UCL	0.409
		95% BCA Bootstrap UCL	0.419

BERYLLIUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	11.16
Theta Star	0.0339
nu star	624.9
A-D Test Statistic	1.252
5% A-D Critical Value	0.745
K-S Test Statistic	0.745
5% K-S Critical Value	0.165
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.2
Maximum	0.76
Mean	0.372
Median	0.35
SD	0.121
k star	10.3
Theta star	0.0361
Nu star	597.4
AppChi2	541.7
95% Gamma Approximate UCL	0.411
95% Adjusted Gamma UCL	0.413

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Lognormal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.373
SD	0.118
SE of Mean	0.0222
95% KM (t) UCL	0.411
95% KM (z) UCL	0.41
95% KM (jackknife) UCL	0.411
95% KM (bootstrap t) UCL	0.42
95% KM (BCA) UCL	0.411
95% KM (Percentile Bootstrap) UCL	0.41
95% KM (Chebyshev) UCL	0.47
97.5% KM (Chebyshev) UCL	0.512
99% KM (Chebyshev) UCL	0.594
Potential UCLs to Use	
95% KM (Chebyshev) UCL	0.47

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Paved Subsurface Soil Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ALUMINUM

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	27
Number of Missing Values	1		

Raw Statistics		**Log-transformed Statistics**	
Minimum	3800	Minimum of Log Data	8.243
Maximum	20700	Maximum of Log Data	9.938
Mean	11220	Mean of log Data	9.247
Median	11400	SD of log Data	0.422
SD	4274		
Coefficient of Variation	0.381		
Skewness	0.348		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Test Statistic	0.943
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12570	95% H-UCL	13174
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15275
95% Adjusted-CLT UCL	12580	97.5% Chebyshev (MVUE) UCL	16996
95% Modified-t UCL	12578	99% Chebyshev (MVUE) UCL	20376

ALUMINUM (Continued)

Gamma Distribution Test	
k star (bias corrected)	5.87
Theta Star	1911
MLE of Mean	11220
MLE of Standard Deviation	4631
nu star	340.5
Approximate Chi Square Value (.05)	298.7
Adjusted Level of Significance	0.0407
Adjusted Chi Square Value	296.4
Anderson-Darling Test Statistic	0.432
Anderson-Darling 5% Critical Value	0.747
Kolmogorov-Smirnov Test Statistic	0.118
Kolmogorov-Smirnov 5% Critical Value	0.163
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	12788
95% Adjusted Gamma UCL	12889
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	12525
95% Jackknife UCL	12570
95% Standard Bootstrap UCL	12503
95% Bootstrap-t UCL	12584
95% Hall's Bootstrap UCL	12559
95% Percentile Bootstrap UCL	12526
95% BCA Bootstrap UCL	12522
95% Chebyshev(Mean, Sd) UCL	14679
97.5% Chebyshev(Mean, Sd) UCL	16176
99% Chebyshev(Mean, Sd) UCL	19116
Use 95% Student's-t UCL	12570

ARSENIC

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	28
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	2.25	Minimum of Log Data	0.811
Maximum	122	Maximum of Log Data	4.804
Mean	18.02	Mean of log Data	2.636
Median	13.5	SD of log Data	0.64
SD	20.96		
Coefficient of Variation	1.163		
Skewness	4.661		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.444	Shapiro Wilk Test Statistic	0.871
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	24.64	95% H-UCL	22.01
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	26.4
95% Adjusted-CLT UCL	28.02	97.5% Chebyshev (MVUE) UCL	30.48
95% Modified-t UCL	25.2	99% Chebyshev (MVUE) UCL	38.48
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.915	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	9.411		
MLE of Mean	18.02		
MLE of Standard Deviation	13.02		
nu star	111		
Approximate Chi Square Value (.05)	87.72	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	24.42
Adjusted Chi Square Value	86.49	95% Jackknife UCL	24.64
		95% Standard Bootstrap UCL	24.18
Anderson-Darling Test Statistic	2.206	95% Bootstrap-t UCL	37.89
Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL	49.97
Kolmogorov-Smirnov Test Statistic	0.237	95% Percentile Bootstrap UCL	25.58
Kolmogorov-Smirnov 5% Critical Value	0.165	95% BCA Bootstrap UCL	30.18
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	34.98
		97.5% Chebyshev(Mean, Sd) UCL	42.32
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	56.74
95% Approximate Gamma UCL	22.81		
95% Adjusted Gamma UCL	23.14		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	34.98

CHROMIUM

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	27
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	6.8	Minimum of Log Data	1.917
Maximum	103	Maximum of Log Data	4.635
Mean	18.48	Mean of log Data	2.751
Median	15.7	SD of log Data	0.499
SD	16.93		
Coefficient of Variation	0.916		
Skewness	4.716		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.445	Shapiro Wilk Test Statistic	0.85
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	23.83	95% H-UCL	21.32
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	25.1
95% Adjusted-CLT UCL	26.59	97.5% Chebyshev (MVUE) UCL	28.33
95% Modified-t UCL	24.29	99% Chebyshev (MVUE) UCL	34.66
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.874	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	6.429		
MLE of Mean	18.48		
MLE of Standard Deviation	10.9		
nu star	166.7		
Approximate Chi Square Value (.05)	137.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	23.65
Adjusted Chi Square Value	136.3	95% Jackknife UCL	23.83
		95% Standard Bootstrap UCL	23.53
Anderson-Darling Test Statistic	1.973	95% Bootstrap-t UCL	33.05
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	45.04
Kolmogorov-Smirnov Test Statistic	0.24	95% Percentile Bootstrap UCL	24.33
Kolmogorov-Smirnov 5% Critical Value	0.164	95% BCA Bootstrap UCL	28.28
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	32.19
		97.5% Chebyshev(Mean, Sd) UCL	38.12
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	49.77
95% Approximate Gamma UCL	22.35		
95% Adjusted Gamma UCL	22.6		
Potential UCL to Use		Use 95% Student's-t UCL	23.83
		or 95% Modified-t UCL	24.29

COBALT

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	23
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	5.7	Minimum of Log Data	1.74
Maximum	21.5	Maximum of Log Data	3.068
Mean	12.39	Mean of log Data	2.479
Median	12.3	SD of log Data	0.286
SD	3.419		
Coefficient of Variation	0.276		
Skewness	0.516		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.977	Shapiro Wilk Test Statistic	0.98
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13.47	95% H-UCL	13.69
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15.32
95% Adjusted-CLT UCL	13.5	97.5% Chebyshev (MVUE) UCL	16.58
95% Modified-t UCL	13.48	99% Chebyshev (MVUE) UCL	19.05
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.98	**Data appear Normal at 5% Significance Level**	
Theta Star	1.034		
MLE of Mean	12.39		
MLE of Standard Deviation	3.579		
nu star	694.6		
Approximate Chi Square Value (.05)	634.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	13.43
Adjusted Chi Square Value	631	95% Jackknife UCL	13.47
		95% Standard Bootstrap UCL	13.39
Anderson-Darling Test Statistic	0.206	95% Bootstrap-t UCL	13.6
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	13.65
Kolmogorov-Smirnov Test Statistic	0.0904	95% Percentile Bootstrap UCL	13.43
Kolmogorov-Smirnov 5% Critical Value	0.162	95% BCA Bootstrap UCL	13.42
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	15.15
		97.5% Chebyshev(Mean, Sd) UCL	16.35
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	18.7
95% Approximate Gamma UCL	13.56		
95% Adjusted Gamma UCL	13.63		
Potential UCL to Use		Use 95% Student's-t UCL	13.47

IRON

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	27
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	13000	Minimum of Log Data	9.473
Maximum	40000	Maximum of Log Data	10.6
Mean	26728	Mean of log Data	10.15
Median	26600	SD of log Data	0.292
SD	7458		
Coefficient of Variation	0.279		
Skewness	0.214		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.962
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	29083	95% H-UCL	29601
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	33179
95% Adjusted-CLT UCL	29064	97.5% Chebyshev (MVUE) UCL	35954
95% Modified-t UCL	29093	99% Chebyshev (MVUE) UCL	41405
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.5	**Data appear Normal at 5% Significance Level**	
Theta Star	2323		
MLE of Mean	26728		
MLE of Standard Deviation	7880		
nu star	667.2		
Approximate Chi Square Value (.05)	608.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	29006
Adjusted Chi Square Value	605	95% Jackknife UCL	29083
		95% Standard Bootstrap UCL	28983
Anderson-Darling Test Statistic	0.308	95% Bootstrap-t UCL	29371
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	29145
Kolmogorov-Smirnov Test Statistic	0.12	95% Percentile Bootstrap UCL	28997
Kolmogorov-Smirnov 5% Critical Value	0.162	95% BCA Bootstrap UCL	29103
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	32764
		97.5% Chebyshev(Mean, Sd) UCL	35376
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	40507
95% Approximate Gamma UCL	29317		
95% Adjusted Gamma UCL	29479		
Potential UCL to Use		Use 95% Student's-t UCL	29083

LEAD

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	26
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	6.9	Minimum of Log Data	1.932
Maximum	159	Maximum of Log Data	5.069
Mean	18.04	Mean of log Data	2.545
Median	10.6	SD of log Data	0.647
SD	28.2		
Coefficient of Variation	1.563		
Skewness	4.8		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.37	Shapiro Wilk Test Statistic	0.752
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	26.95	95% H-UCL	20.24
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	24.29
95% Adjusted-CLT UCL	31.65	97.5% Chebyshev (MVUE) UCL	28.06
95% Modified-t UCL	27.73	99% Chebyshev (MVUE) UCL	35.48
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.442	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	12.52		
MLE of Mean	18.04		
MLE of Standard Deviation	15.03		
nu star	83.61		
Approximate Chi Square Value (.05)	63.54	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	26.66
Adjusted Chi Square Value	62.49	95% Jackknife UCL	26.95
		95% Standard Bootstrap UCL	26.67
Anderson-Darling Test Statistic	3.76	95% Bootstrap-t UCL	56.37
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	57.78
Kolmogorov-Smirnov Test Statistic	0.285	95% Percentile Bootstrap UCL	27.79
Kolmogorov-Smirnov 5% Critical Value	0.165	95% BCA Bootstrap UCL	34.27
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	40.87
		97.5% Chebyshev(Mean, Sd) UCL	50.75
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	70.15
95% Approximate Gamma UCL	23.75		
95% Adjusted Gamma UCL	24.14		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	40.87

MANGANESE

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	28
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	171	Minimum of Log Data	5.142
Maximum	2820	Maximum of Log Data	7.944
Mean	598.6	Mean of log Data	6.09
Median	370	SD of log Data	0.707
SD	618.8		
Coefficient of Variation	1.034		
Skewness	2.497		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.63	Shapiro Wilk Test Statistic	0.87
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	794.1	95% H-UCL	753.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	907.7
95% Adjusted-CLT UCL	844.5	97.5% Chebyshev (MVUE) UCL	1058
95% Modified-t UCL	802.9	99% Chebyshev (MVUE) UCL	1353
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.629	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	367.5		
MLE of Mean	598.6		
MLE of Standard Deviation	469		
nu star	94.48		
Approximate Chi Square Value (.05)	73.06	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	787.6
Adjusted Chi Square Value	71.93	95% Jackknife UCL	794.1
		95% Standard Bootstrap UCL	782.7
Anderson-Darling Test Statistic	2.431	95% Bootstrap-t UCL	902.5
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	860.7
Kolmogorov-Smirnov Test Statistic	0.273	95% Percentile Bootstrap UCL	796.3
Kolmogorov-Smirnov 5% Critical Value	0.165	95% BCA Bootstrap UCL	843.9
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1099
		97.5% Chebyshev(Mean, Sd) UCL	1316
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1742
95% Approximate Gamma UCL	774.1		
95% Adjusted Gamma UCL	786.2		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	1099

General UCL Statistics for Data Sets with Non-Detects	
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

DIELDRIN

General Statistics

Number of Valid Data	16	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	5
		Percent Non-Detects	31.25%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0033	Minimum Detected	-5.714
Maximum Detected	0.0218	Maximum Detected	-3.826
Mean of Detected	0.0119	Mean of Detected	-4.522
SD of Detected	0.00481	SD of Detected	0.481
Minimum Non-Detect	0.003	Minimum Non-Detect	-5.809
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	50.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.936	Shapiro Wilk Test Statistic	0.865
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00931	Mean	-4.908
SD	0.00565	SD	0.779
95% DL/2 (t) UCL	0.0118	95% H-Stat (DL/2) UCL	0.0127
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.00956	Mean in Log Scale	-4.789
SD	0.00544	SD in Log Scale	0.584
95% MLE (t) UCL	0.0119	Mean in Original Scale	0.00966
95% MLE (Tiku) UCL	0.0125	SD in Original Scale	0.00525
		95% Percentile Bootstrap UCL	0.0118
		95% BCA Bootstrap UCL	0.012

DIELDRIN (Continured)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	4.235
Theta Star	0.00281
nu star	93.18
A-D Test Statistic	0.496
5% A-D Critical Value	0.731
K-S Test Statistic	0.731
5% K-S Critical Value	0.256
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0033
Maximum	0.0218
Mean	0.0109
Median	0.0105
SD	0.00453
k star	4.723
Theta star	0.0023
Nu star	151.1
AppChi2	123.7
95% Gamma Approximate UCL	0.0133
95% Adjusted Gamma UCL	0.0136

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.00964
SD	0.00524
SE of Mean	0.00144
95% KM (t) UCL	0.0122
95% KM (z) UCL	0.012
95% KM (jackknife) UCL	0.0123
95% KM (bootstrap t) UCL	0.0121
95% KM (BCA) UCL	0.013
95% KM (Percentile Bootstrap) UCL	0.0126
95% KM (Chebyshev) UCL	0.0159
97.5% KM (Chebyshev) UCL	0.0186
99% KM (Chebyshev) UCL	0.0239
Potential UCLs to Use	
95% KM (t) UCL	0.0122
95% KM (Percentile Bootstrap) UCL	0.0126

ARSENIC

General Statistics

Number of Valid Data	16	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	11
		Percent Non-Detects	68.75%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.235	Minimum Detected	0.211
Maximum Detected	4.9	Maximum Detected	1.589
Mean of Detected	2.633	Mean of Detected	0.855
SD of Detected	1.437	SD of Detected	0.528
Minimum Non-Detect	1.3	Minimum Non-Detect	0.262
Maximum Non-Detect	5.2	Maximum Non-Detect	1.649
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Test Statistic	0.989
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.463	Mean	0.129
SD	1.215	SD	0.693
95% DL/2 (t) UCL	1.996	95% H-Stat (DL/2) UCL	1.838
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.328
		SD in Log Scale	0.53
		Mean in Original Scale	1.609
		SD in Original Scale	1.066
		95% Percentile Bootstrap UCL	2.07
		95% BCA Bootstrap UCL	2.227

ARSENIC (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	1.963
Theta Star	1.341
nu star	19.63
A-D Test Statistic	0.212
5% A-D Critical Value	0.681
K-S Test Statistic	0.681
5% K-S Critical Value	0.358
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1.235
Maximum	4.9
Mean	2.968
Median	3.099
SD	0.907
k star	8.261
Theta star	0.359
Nu star	264.3
AppChi2	227.7
95% Gamma Approximate UCL	3.446
95% Adjusted Gamma UCL	3.506

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.718
SD	0.996
SE of Mean	0.291
95% KM (t) UCL	2.227
95% KM (z) UCL	2.196
95% KM (jackknife) UCL	2.191
95% KM (bootstrap t) UCL	2.353
95% KM (BCA) UCL	3.429
95% KM (Percentile Bootstrap) UCL	2.672
95% KM (Chebyshev) UCL	2.985
97.5% KM (Chebyshev) UCL	3.533
99% KM (Chebyshev) UCL	4.609
Potential UCLs to Use	
95% KM (t) UCL	2.227
95% KM (Percentile Bootstrap) UCL	2.672

COBALT

General Statistics			
Number of Valid Data	16	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	4
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.26	Minimum Detected	-1.347
Maximum Detected	2.5	Maximum Detected	0.916
Mean of Detected	0.9	Mean of Detected	-0.374
SD of Detected	0.758	SD of Detected	0.732
Minimum Non-Detect	0.26	Minimum Non-Detect	-1.347
Maximum Non-Detect	1	Maximum Non-Detect	0
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	75.00%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.764	Shapiro Wilk Test Statistic	0.916
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.777	Mean	-0.538
SD	0.691	SD	0.755
95% DL/2 (t) UCL	1.08	95% H-Stat (DL/2) UCL	1.305
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.129	Mean in Log Scale	-0.576
SD	1.293	SD in Log Scale	0.788
95% MLE (t) UCL	0.696	Mean in Original Scale	0.766
95% MLE (Tiku) UCL	1.266	SD in Original Scale	0.699
		95% Percentile Bootstrap UCL	1.07
		95% BCA Bootstrap UCL	1.125

COBALT (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	1.566
Theta Star	0.575
nu star	37.59
A-D Test Statistic	0.691
5% A-D Critical Value	0.741
K-S Test Statistic	0.741
5% K-S Critical Value	0.249
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.26
Maximum	2.5
Mean	0.866
Median	0.614
SD	0.672
k star	1.937
Theta star	0.447
Nu star	61.98
AppChi2	44.87
95% Gamma Approximate UCL	1.197
95% Adjusted Gamma UCL	1.243

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.774
SD	0.67
SE of Mean	0.176
95% KM (t) UCL	1.082
95% KM (z) UCL	1.063
95% KM (jackknife) UCL	1.075
95% KM (bootstrap t) UCL	1.417
95% KM (BCA) UCL	1.098
95% KM (Percentile Bootstrap) UCL	1.081
95% KM (Chebyshev) UCL	1.54
97.5% KM (Chebyshev) UCL	1.872
99% KM (Chebyshev) UCL	2.523
Potential UCLs to Use	
95% KM (Percentile Bootstrap) UCL	1.081

IRON

General Statistics

Number of Valid Data	16	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	1
		Percent Non-Detects	6.25%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	70.6	Minimum Detected	4.257
Maximum Detected	1180	Maximum Detected	7.073
Mean of Detected	299.8	Mean of Detected	5.365
SD of Detected	303.1	SD of Detected	0.796
Minimum Non-Detect	138	Minimum Non-Detect	4.927
Maximum Non-Detect	138	Maximum Non-Detect	4.927

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.706	Shapiro Wilk Test Statistic	0.932
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	285.4	Mean	5.294
SD	298.5	SD	0.819
95% DL/2 (t) UCL	416.2	95% H-Stat (DL/2) UCL	400.4
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	189.2	Mean in Log Scale	5.314
SD	392.2	SD in Log Scale	0.795
95% MLE (t) UCL	361.1	Mean in Original Scale	287
95% MLE (Tiku) UCL	378.3	SD in Original Scale	297.3
		95% Percentile Bootstrap UCL	411.5
		95% BCA Bootstrap UCL	447.8

IRON (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	1.343
Theta Star	223.2
nu star	40.3
A-D Test Statistic	0.859
5% A-D Critical Value	0.752
K-S Test Statistic	0.752
5% K-S Critical Value	0.225
Data follow Appr. Gamma Distribution at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	61.43
Maximum	1180
Mean	284.9
Median	172.5
SD	298.8
k star	1.271
Theta star	224.1
Nu star	40.68
AppChi2	27.06
95% Gamma Approximate UCL	428.2
95% Adjusted Gamma UCL	449.2

Data Distribution Test with Detected Values Only	
Data Follow Appr. Gamma Distribution at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	287.7
SD	287.5
SE of Mean	74.41
95% KM (t) UCL	418.1
95% KM (z) UCL	410.1
95% KM (jackknife) UCL	417.8
95% KM (bootstrap t) UCL	526.4
95% KM (BCA) UCL	408.5
95% KM (Percentile Bootstrap) UCL	415.9
95% KM (Chebyshev) UCL	612
97.5% KM (Chebyshev) UCL	752.4
99% KM (Chebyshev) UCL	1028
Potential UCLs to Use	
95% KM (Chebyshev) UCL	612

Note: DL/2 is not a recommended method.

LEAD

General Statistics

Number of Valid Data	16	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	11
		Percent Non-Detects	68.75%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.96	Minimum Detected	-0.0408
Maximum Detected	11.3	Maximum Detected	2.425
Mean of Detected	4.352	Mean of Detected	1.148
SD of Detected	4.065	SD of Detected	0.901
Minimum Non-Detect	0.8	Minimum Non-Detect	-0.223
Maximum Non-Detect	5.5	Maximum Non-Detect	1.705
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.75%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.818	Shapiro Wilk Test Statistic	0.987
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.969	Mean	0.0727
SD	2.76	SD	1.067
95% DL/2 (t) UCL	3.179	95% H-Stat (DL/2) UCL	3.674
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.482
		SD in Log Scale	1.347
		Mean in Original Scale	1.601
		SD in Original Scale	2.846
		95% Percentile Bootstrap UCL	2.854
		95% BCA Bootstrap UCL	3.477

LEAD (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.812
Theta Star	5.357
nu star	8.123
A-D Test Statistic	0.269
5% A-D Critical Value	0.686
K-S Test Statistic	0.686
5% K-S Critical Value	0.361
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.96
Maximum	11.3
Mean	4.012
Median	3.551
SD	2.196
k star	3.751
Theta star	1.069
Nu star	120
AppChi2	95.75
95% Gamma Approximate UCL	5.03
95% Adjusted Gamma UCL	5.163

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	2.078
SD	2.568
SE of Mean	0.724
95% KM (t) UCL	3.347
95% KM (z) UCL	3.268
95% KM (jackknife) UCL	3.243
95% KM (bootstrap t) UCL	4.156
95% KM (BCA) UCL	4.738
95% KM (Percentile Bootstrap) UCL	4.15
95% KM (Chebyshev) UCL	5.233
97.5% KM (Chebyshev) UCL	6.599
99% KM (Chebyshev) UCL	9.281
Potential UCLs to Use	
95% KM (t) UCL	3.347
95% KM (Percentile Bootstrap) UCL	4.15

Note: DL/2 is not a recommended method.

MOLYBDENUM

General Statistics

Number of Valid Data	16	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	10
		Percent Non-Detects	62.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.35	Minimum Detected	1.209
Maximum Detected	81	Maximum Detected	4.394
Mean of Detected	55.31	Mean of Detected	3.65
SD of Detected	30.86	SD of Detected	1.241
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	3.7	Maximum Non-Detect	1.308
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.75%

Warning: There are only 6 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.846	Shapiro Wilk Test Statistic	0.689
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	21.18	Mean	0.983
SD	32.6	SD	2.35
95% DL/2 (t) UCL	35.47	95% H-Stat (DL/2) UCL	143.1
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	65.73	Mean in Log Scale	1.706
SD	17.45	SD in Log Scale	1.729
95% MLE (t) UCL	73.38	Mean in Original Scale	21.86
95% MLE (Tiku) UCL	79.41	SD in Original Scale	32.15
		95% Percentile Bootstrap UCL	35.07
		95% BCA Bootstrap UCL	38.09

MOLYBDENUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.872
Theta Star	63.45
nu star	10.46
A-D Test Statistic	0.828
5% A-D Critical Value	0.708
K-S Test Statistic	0.708
5% K-S Critical Value	0.337
Data follow Appr. Gamma Distribution at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	3.35
Maximum	81
Mean	55.41
Median	55.26
SD	17.94
k star	3.137
Theta star	17.67
Nu star	100.4
AppChi2	78.27
95% Gamma Approximate UCL	71.07
95% Adjusted Gamma UCL	73.15

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	22.83
SD	30.5
SE of Mean	8.353
95% KM (t) UCL	37.48
95% KM (z) UCL	36.57
95% KM (jackknife) UCL	41.64
95% KM (bootstrap t) UCL	34.55
95% KM (BCA) UCL	74.25
95% KM (Percentile Bootstrap) UCL	67.22
95% KM (Chebyshev) UCL	59.25
97.5% KM (Chebyshev) UCL	75
99% KM (Chebyshev) UCL	105.9
Potential UCLs to Use	
95% KM (t) UCL	37.48
95% KM (Percentile Bootstrap) UCL	67.22

Note: DL/2 is not a recommended method.

THALLIUM

General Statistics

Number of Valid Data	16	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	15
		Percent Non-Detects	93.75%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable THALLIUM was not processed!

ALUMINUM

General Statistics

Number of Valid Data	16	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	12
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	36	Minimum Detected	3.584
Maximum Detected	350	Maximum Detected	5.858
Mean of Detected	121.7	Mean of Detected	4.314
SD of Detected	152.5	SD of Detected	1.05
Minimum Non-Detect	19	Minimum Non-Detect	2.944
Maximum Non-Detect	261	Maximum Non-Detect	5.565
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.75%

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.685	Shapiro Wilk Test Statistic	0.793
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	54.57	Mean	3.346
SD	84.82	SD	1.099
95% DL/2 (t) UCL	91.74	95% H-Stat (DL/2) UCL	76.77
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.309
		SD in Log Scale	1.454
		Mean in Original Scale	35.22
		SD in Original Scale	85.56
		95% Percentile Bootstrap UCL	76.74
		95% BCA Bootstrap UCL	100.7

ALUMINUM (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.457
Theta Star	266.1
nu star	3.659
A-D Test Statistic	0.673
5% A-D Critical Value	0.665
K-S Test Statistic	0.665
5% K-S Critical Value	0.401
Data follow Appr. Gamma Distribution at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	775.1
Mean	315.5
Median	326.7
SD	240.9
k star	0.32
Theta star	986.1
Nu star	10.24
AppChi2	4.091
95% Gamma Approximate UCL	789.5
95% Adjusted Gamma UCL	N/A

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data Follow Appr. Gamma Distribution at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	58.33
SD	75.6
SE of Mean	21.87
95% KM (t) UCL	96.67
95% KM (z) UCL	94.3
95% KM (jackknife) UCL	89.86
95% KM (bootstrap t) UCL	280.6
95% KM (BCA) UCL	350
95% KM (Percentile Bootstrap) UCL	113.5
95% KM (Chebyshev) UCL	153.7
97.5% KM (Chebyshev) UCL	194.9
99% KM (Chebyshev) UCL	275.9
Potential UCLs to Use	
95% KM (t) UCL	96.67

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

MANGANESE

General Statistics

Number of Valid Observations	16	Number of Distinct Observations	16

Raw Statistics		Log-transformed Statistics	
Minimum	17	Minimum of Log Data	2.833
Maximum	352	Maximum of Log Data	5.864
Mean	117.8	Mean of log Data	4.494
Median	99	SD of log Data	0.825
SD	86.15		
Coefficient of Variation	0.732		
Skewness	1.377		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.893	Shapiro Wilk Test Statistic	0.958
Shapiro Wilk Critical Value	0.887	Shapiro Wilk Critical Value	0.887
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	155.5	95% H-UCL	211.8
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	240.7
95% Adjusted-CLT UCL	161.1	97.5% Chebyshev (MVUE) UCL	291.9
95% Modified-t UCL	156.7	99% Chebyshev (MVUE) UCL	392.4

MANGANESE (Continued)

Gamma Distribution Test	
k star (bias corrected)	1.641
Theta Star	71.76
MLE of Mean	117.8
MLE of Standard Deviation	91.93
nu star	52.51
Approximate Chi Square Value (.05)	36.87
Adjusted Level of Significance	0.0335
Adjusted Chi Square Value	35.38
Anderson-Darling Test Statistic	0.184
Anderson-Darling 5% Critical Value	0.751
Kolmogorov-Smirnov Test Statistic	0.11
Kolmogorov-Smirnov 5% Critical Value	0.218
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	167.7
95% Adjusted Gamma UCL	174.8
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	153.2
95% Jackknife UCL	155.5
95% Standard Bootstrap UCL	153.5
95% Bootstrap-t UCL	168.4
95% Hall's Bootstrap UCL	183
95% Percentile Bootstrap UCL	154.1
95% BCA Bootstrap UCL	160.1
95% Chebyshev(Mean, Sd) UCL	211.6
97.5% Chebyshev(Mean, Sd) UCL	252.3
99% Chebyshev(Mean, Sd) UCL	332
Use 95% Student's-t UCL	155.5

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Sediment Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TOLUENE

General Statistics

Number of Valid Data	3	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	2
Number of Missing Values	14	Percent Non-Detects	66.67%

Warning: This data set only has 3 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable TOLUENE was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

BENZO(A)ANTHRACENE

General Statistics

Number of Valid Data	22	Number of Detected Data	19
Number of Distinct Detected Data	18	Number of Non-Detect Data	3
Number of Missing Values	11	Percent Non-Detects	13.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	16	Minimum Detected	2.773
Maximum Detected	3400	Maximum Detected	8.132
Mean of Detected	614	Mean of Detected	5.68
SD of Detected	937.6	SD of Detected	1.26
Minimum Non-Detect	96	Minimum Non-Detect	4.564
Maximum Non-Detect	430	Maximum Non-Detect	6.064
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	7
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.18%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.572	Shapiro Wilk Test Statistic	0.957
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	544.5	Mean	5.504
SD	886.8	SD	1.28
95% DL/2 (t) UCL	869.8	95% H-Stat (DL/2) UCL	1169
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.477
		SD in Log Scale	1.292
		Mean in Original Scale	540.6
		SD in Original Scale	888.5
		95% Percentile Bootstrap UCL	888.8
		95% BCA Bootstrap UCL	974.5

BENZO(A)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.71
Theta Star	864.2
nu star	27
A-D Test Statistic	0.952
5% A-D Critical Value	0.777
K-S Test Statistic	0.777
5% K-S Critical Value	0.206
Data follow Appr. Gamma Distribution at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3400
Mean	543
Median	280.4
SD	888.5
k star	0.235
Theta star	2309
Nu star	10.35
AppChi2	4.161
95% Gamma Approximate UCL	1351
95% Adjusted Gamma UCL	1452

Data Distribution Test with Detected Values Only	
Data Follow Appr. Gamma Distribution at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	542.8
SD	867.4
SE of Mean	190.1
95% KM (t) UCL	869.9
95% KM (z) UCL	855.4
95% KM (jackknife) UCL	868.7
95% KM (bootstrap t) UCL	1773
95% KM (BCA) UCL	893.9
95% KM (Percentile Bootstrap) UCL	870.9
95% KM (Chebyshev) UCL	1371
97.5% KM (Chebyshev) UCL	1730
99% KM (Chebyshev) UCL	2434
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1371

Note: DL/2 is not a recommended method.

BENZO(A)PYRENE

General Statistics

Number of Valid Data	22	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	4
Number of Missing Values	11	Percent Non-Detects	18.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	2600	Maximum Detected	7.863
Mean of Detected	561	Mean of Detected	5.655
SD of Detected	756.3	SD of Detected	1.256
Minimum Non-Detect	99	Minimum Non-Detect	4.595
Maximum Non-Detect	360	Maximum Non-Detect	5.886

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	7
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.18%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.635	Shapiro Wilk Test Statistic	0.966
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	474	Mean	5.396
SD	706.7	SD	1.285
95% DL/2 (t) UCL	733.2	95% H-Stat (DL/2) UCL	1048
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.326
		SD in Log Scale	1.358
		Mean in Original Scale	468.9
		SD in Original Scale	709.4
		95% Percentile Bootstrap UCL	724.3
		95% BCA Bootstrap UCL	820.6

BENZO(A)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.762
Theta Star	736.3
nu star	27.43
A-D Test Statistic	0.597
5% A-D Critical Value	0.773
K-S Test Statistic	0.773
5% K-S Critical Value	0.21
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2600
Mean	474.2
Median	255
SD	708.9
k star	0.188
Theta star	2526
Nu star	8.258
AppChi2	2.886
95% Gamma Approximate UCL	1357
95% Adjusted Gamma UCL	1476

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	470.1
SD	693
SE of Mean	152.1
95% KM (t) UCL	731.9
95% KM (z) UCL	720.3
95% KM (jackknife) UCL	730.6
95% KM (bootstrap t) UCL	1195
95% KM (BCA) UCL	792.3
95% KM (Percentile Bootstrap) UCL	751.1
95% KM (Chebyshev) UCL	1133
97.5% KM (Chebyshev) UCL	1420
99% KM (Chebyshev) UCL	1984
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1133

Note: DL/2 is not a recommended method.

BENZO(B)FLUORANTHENE

General Statistics

Number of Valid Data	22	Number of Detected Data	16
Number of Distinct Detected Data	15	Number of Non-Detect Data	6
Number of Missing Values	11	Percent Non-Detects	27.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	27	Minimum Detected	3.296
Maximum Detected	2300	Maximum Detected	7.741
Mean of Detected	622.9	Mean of Detected	5.932
SD of Detected	660.6	SD of Detected	1.111
Minimum Non-Detect	120	Minimum Non-Detect	4.787
Maximum Non-Detect	700	Maximum Non-Detect	6.551
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	77.27%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.764	Shapiro Wilk Test Statistic	0.965
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	499.2	Mean	5.638
SD	598.9	SD	1.133
95% DL/2 (t) UCL	718.9	95% H-Stat (DL/2) UCL	872.2
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.568
		SD in Log Scale	1.151
		Mean in Original Scale	483.6
		SD in Original Scale	605.5
		95% Percentile Bootstrap UCL	711.8
		95% BCA Bootstrap UCL	757.4

BENZO(B)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.962
Theta Star	647.7
nu star	30.78
A-D Test Statistic	0.346
5% A-D Critical Value	0.761
K-S Test Statistic	0.761
5% K-S Critical Value	0.221
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	27
Maximum	2300
Mean	555.8
Median	330
SD	579.9
k star	1.13
Theta star	491.8
Nu star	49.72
AppChi2	34.53
95% Gamma Approximate UCL	800.3
95% Adjusted Gamma UCL	822.8

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	490.3
SD	590.4
SE of Mean	130.7
95% KM (t) UCL	715.2
95% KM (z) UCL	705.3
95% KM (jackknife) UCL	714.2
95% KM (bootstrap t) UCL	915
95% KM (BCA) UCL	735.5
95% KM (Percentile Bootstrap) UCL	725.9
95% KM (Chebyshev) UCL	1060
97.5% KM (Chebyshev) UCL	1307
99% KM (Chebyshev) UCL	1791
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1060

BENZO(G,H,I)PERYLENE

General Statistics

Number of Valid Data	22	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	4
Number of Missing Values	11	Percent Non-Detects	18.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	10	Minimum Detected	2.303
Maximum Detected	1900	Maximum Detected	7.55
Mean of Detected	386.5	Mean of Detected	5.249
SD of Detected	495.8	SD of Detected	1.314
Minimum Non-Detect	140	Minimum Non-Detect	4.942
Maximum Non-Detect	270	Maximum Non-Detect	5.598

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	7
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.18%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.719	Shapiro Wilk Test Statistic	0.988
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	332.4	Mean	5.103
SD	461.4	SD	1.23
95% DL/2 (t) UCL	501.6	95% H-Stat (DL/2) UCL	780.6
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.053
		SD in Log Scale	1.264
		Mean in Original Scale	328.6
		SD in Original Scale	463.5
		95% Percentile Bootstrap UCL	509.3
		95% BCA Bootstrap UCL	558.3

BENZO(G,H,I)PERYLENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.731
Theta Star	528.4
nu star	26.33
A-D Test Statistic	0.288
5% A-D Critical Value	0.774
K-S Test Statistic	0.774
5% K-S Critical Value	0.211
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1900
Mean	341.5
Median	210
SD	459
k star	0.352
Theta star	970.4
Nu star	15.48
AppChi2	7.599
95% Gamma Approximate UCL	695.8
95% Adjusted Gamma UCL	735.5

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	330.8
SD	452
SE of Mean	99.3
95% KM (t) UCL	501.7
95% KM (z) UCL	494.2
95% KM (jackknife) UCL	500.9
95% KM (bootstrap t) UCL	656.1
95% KM (BCA) UCL	497.3
95% KM (Percentile Bootstrap) UCL	496.9
95% KM (Chebyshev) UCL	763.7
97.5% KM (Chebyshev) UCL	951
99% KM (Chebyshev) UCL	1319
Potential UCLs to Use	
95% KM (Chebyshev) UCL	763.7

BENZO(K)FLUORANTHENE

General Statistics

Number of Valid Data	22	Number of Detected Data	20
Number of Distinct Detected Data	18	Number of Non-Detect Data	2
Number of Missing Values	11	Percent Non-Detects	9.09%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.8	Minimum Detected	1.03
Maximum Detected	2300	Maximum Detected	7.741
Mean of Detected	443.3	Mean of Detected	5.208
SD of Detected	669.5	SD of Detected	1.519
Minimum Non-Detect	93	Minimum Non-Detect	4.533
Maximum Non-Detect	310	Maximum Non-Detect	5.737

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.609	Shapiro Wilk Test Statistic	0.947
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	412.2	Mean	5.138
SD	645	SD	1.474
95% DL/2 (t) UCL	648.8	95% H-Stat (DL/2) UCL	1441
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.095
		SD in Log Scale	1.499
		Mean in Original Scale	408.6
		SD in Original Scale	646.7
		95% Percentile Bootstrap UCL	657
		95% BCA Bootstrap UCL	735.9

BENZO(K)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.615
Theta Star	721.2
nu star	24.59
A-D Test Statistic	0.609
5% A-D Critical Value	0.786
K-S Test Statistic	0.786
5% K-S Critical Value	0.202
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2300
Mean	410.9
Median	172.3
SD	645.9
k star	0.323
Theta star	1271
Nu star	14.23
AppChi2	6.729
95% Gamma Approximate UCL	869.1
95% Adjusted Gamma UCL	921.5

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	410.9
SD	631
SE of Mean	138.1
95% KM (t) UCL	648.5
95% KM (z) UCL	638
95% KM (jackknife) UCL	648
95% KM (bootstrap t) UCL	1057
95% KM (BCA) UCL	667.5
95% KM (Percentile Bootstrap) UCL	655
95% KM (Chebyshev) UCL	1013
97.5% KM (Chebyshev) UCL	1273
99% KM (Chebyshev) UCL	1785
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1013

CHRYSENE

General Statistics

Number of Valid Data	22	Number of Detected Data	20
Number of Distinct Detected Data	20	Number of Non-Detect Data	2
Number of Missing Values	11	Percent Non-Detects	9.09%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.7	Minimum Detected	2.163
Maximum Detected	3300	Maximum Detected	8.102
Mean of Detected	631.4	Mean of Detected	5.707
SD of Detected	880.1	SD of Detected	1.353
Minimum Non-Detect	98	Minimum Non-Detect	4.585
Maximum Non-Detect	420	Maximum Non-Detect	6.04
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	63.64%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.643	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	585.8	Mean	5.608
SD	850.5	SD	1.345
95% DL/2 (t) UCL	897.8	95% H-Stat (DL/2) UCL	1596
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.578
		SD in Log Scale	1.365
		Mean in Original Scale	581.8
		SD in Original Scale	852.5
		95% Percentile Bootstrap UCL	887
		95% BCA Bootstrap UCL	1024

CHRYSENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.714
Theta Star	884.5
nu star	28.55
A-D Test Statistic	0.525
5% A-D Critical Value	0.777
K-S Test Statistic	0.777
5% K-S Critical Value	0.201
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3300
Mean	583.3
Median	267.5
SD	852.1
k star	0.338
Theta star	1725
Nu star	14.88
AppChi2	7.177
95% Gamma Approximate UCL	1209
95% Adjusted Gamma UCL	1280

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	584.3
SD	832
SE of Mean	182.1
95% KM (t) UCL	897.6
95% KM (z) UCL	883.8
95% KM (jackknife) UCL	896.9
95% KM (bootstrap t) UCL	1365
95% KM (BCA) UCL	920.3
95% KM (Percentile Bootstrap) UCL	891.2
95% KM (Chebyshev) UCL	1378
97.5% KM (Chebyshev) UCL	1721
99% KM (Chebyshev) UCL	2396
Potential UCLs to Use	
95% KM (Chebyshev) UCL	1378

DIBENZO(A,H)ANTHRACENE

General Statistics

Number of Valid Data	22	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	7
Number of Missing Values	11	Percent Non-Detects	31.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	11	Minimum Detected	2.398
Maximum Detected	640	Maximum Detected	6.461
Mean of Detected	109.7	Mean of Detected	4.104
SD of Detected	159.8	SD of Detected	1.057
Minimum Non-Detect	23	Minimum Non-Detect	3.135
Maximum Non-Detect	300	Maximum Non-Detect	5.704

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	21
Number treated as Detected	1
Single DL Non-Detect Percentage	95.45%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.593	Shapiro Wilk Test Statistic	0.973
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	104.4	Mean	4.177
SD	132.7	SD	0.983
95% DL/2 (t) UCL	153.1	95% H-Stat (DL/2) UCL	283.2
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.961
		SD in Log Scale	0.927
		Mean in Original Scale	88.22
		SD in Original Scale	134.7
		95% Percentile Bootstrap UCL	143
		95% BCA Bootstrap UCL	170

DIBENZO(A,H)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.824
Theta Star	133.1
nu star	24.73
A-D Test Statistic	0.683
5% A-D Critical Value	0.764
K-S Test Statistic	0.764
5% K-S Critical Value	0.228
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	11
Maximum	640
Mean	106.2
Median	80.82
SD	131.6
k star	1.175
Theta star	90.37
Nu star	51.7
AppChi2	36.18
95% Gamma Approximate UCL	151.7
95% Adjusted Gamma UCL	155.9

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	90.85
SD	132.5
SE of Mean	29.77
95% KM (t) UCL	142.1
95% KM (z) UCL	139.8
95% KM (jackknife) UCL	141.6
95% KM (bootstrap t) UCL	214.3
95% KM (BCA) UCL	140.4
95% KM (Percentile Bootstrap) UCL	141.6
95% KM (Chebyshev) UCL	220.6
97.5% KM (Chebyshev) UCL	276.8
99% KM (Chebyshev) UCL	387.1
Potential UCLs to Use	
95% KM (BCA) UCL	140.4

Note: DL/2 is not a recommended method.

INDENO(1,2,3-CD)PYRENE

General Statistics

Number of Valid Data	22	Number of Detected Data	17
Number of Distinct Detected Data	15	Number of Non-Detect Data	5
Number of Missing Values	11	Percent Non-Detects	22.73%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	9.5	Minimum Detected	2.251
Maximum Detected	1700	Maximum Detected	7.438
Mean of Detected	346.4	Mean of Detected	5.154
SD of Detected	454.3	SD of Detected	1.288
Minimum Non-Detect	190	Minimum Non-Detect	5.247
Maximum Non-Detect	270	Maximum Non-Detect	5.598
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.693	Shapiro Wilk Test Statistic	0.981
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	292.3	Mean	5.045
SD	409.6	SD	1.144
95% DL/2 (t) UCL	442.5	95% H-Stat (DL/2) UCL	646.1
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.982
		SD in Log Scale	1.178
		Mean in Original Scale	286.8
		SD in Original Scale	412.3
		95% Percentile Bootstrap UCL	436.5
		95% BCA Bootstrap UCL	472.7

INDENO(1,2,3-CD)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.739
Theta Star	468.9
nu star	25.12
A-D Test Statistic	0.414
5% A-D Critical Value	0.772
K-S Test Statistic	0.772
5% K-S Critical Value	0.216
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	9.5
Maximum	1700
Mean	329.1
Median	215
SD	400.4
k star	0.922
Theta star	356.7
Nu star	40.59
AppChi2	26.99
95% Gamma Approximate UCL	494.9
95% Adjusted Gamma UCL	510.5

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	290.9
SD	401.7
SE of Mean	88.57
95% KM (t) UCL	443.3
95% KM (z) UCL	436.6
95% KM (jackknife) UCL	442.3
95% KM (bootstrap t) UCL	622.7
95% KM (BCA) UCL	453.6
95% KM (Percentile Bootstrap) UCL	449
95% KM (Chebyshev) UCL	676.9
97.5% KM (Chebyshev) UCL	844
99% KM (Chebyshev) UCL	1172
Potential UCLs to Use	
95% KM (Chebyshev) UCL	676.9

Note: DL/2 is not a recommended method.

DIELDRIN

General Statistics

Number of Valid Data	22	Number of Detected Data	15
Number of Distinct Detected Data	12	Number of Non-Detect Data	7
Number of Missing Values	11	Percent Non-Detects	31.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.2	Minimum Detected	0.788
Maximum Detected	66	Maximum Detected	4.19
Mean of Detected	25.73	Mean of Detected	2.88
SD of Detected	21.88	SD of Detected	0.941
Minimum Non-Detect	3.9	Minimum Non-Detect	1.361
Maximum Non-Detect	19.4	Maximum Non-Detect	2.965

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	7
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.18%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.818	Shapiro Wilk Test Statistic	0.93
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19.12	Mean	2.427
SD	20.49	SD	1.071
95% DL/2 (t) UCL	26.64	95% H-Stat (DL/2) UCL	27.68
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.531	Mean in Log Scale	2.391
SD	36.59	SD in Log Scale	1.08
95% MLE (t) UCL	15.96	Mean in Original Scale	18.84
95% MLE (Tiku) UCL	24.76	SD in Original Scale	20.65
		95% Percentile Bootstrap UCL	26.22
		95% BCA Bootstrap UCL	27.37

DIELDRIN (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	1.249
Theta Star	20.59
nu star	37.48
A-D Test Statistic	0.555
5% A-D Critical Value	0.754
K-S Test Statistic	0.754
5% K-S Critical Value	0.225
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	2.2
Maximum	66
Mean	22.75
Median	12.9
SD	18.79
k star	1.628
Theta star	13.97
Nu star	71.64
AppChi2	53.15
95% Gamma Approximate UCL	30.66
95% Adjusted Gamma UCL	31.36

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	18.76
SD	20.31
SE of Mean	4.496
95% KM (t) UCL	26.49
95% KM (z) UCL	26.15
95% KM (jackknife) UCL	25.8
95% KM (bootstrap t) UCL	28.52
95% KM (BCA) UCL	28.65
95% KM (Percentile Bootstrap) UCL	26.52
95% KM (Chebyshev) UCL	38.35
97.5% KM (Chebyshev) UCL	46.83
99% KM (Chebyshev) UCL	63.49
Potential UCLs to Use	
95% KM (Percentile Bootstrap) UCL	26.52

TOTAL AROCLOR

General Statistics

Number of Valid Data	22	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	9
Number of Missing Values	11	Percent Non-Detects	40.91%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	35	Minimum Detected	3.555
Maximum Detected	2930	Maximum Detected	7.983
Mean of Detected	372	Mean of Detected	4.932
SD of Detected	783.4	SD of Detected	1.256
Minimum Non-Detect	19	Minimum Non-Detect	2.944
Maximum Non-Detect	60	Maximum Non-Detect	4.094
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	9
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	59.09%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.462	Shapiro Wilk Test Statistic	0.889
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	227.3	Mean	4.069
SD	618.4	SD	1.451
95% DL/2 (t) UCL	454.2	95% H-Stat (DL/2) UCL	292.4
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.766
		SD in Log Scale	1.756
		Mean in Original Scale	223.6
		SD in Original Scale	619.7
		95% Percentile Bootstrap UCL	475.2
		95% BCA Bootstrap UCL	641.1

TOTAL AROCLOR (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	0.53
Theta Star	701.8
nu star	13.78
A-D Test Statistic	1.275
5% A-D Critical Value	0.78
K-S Test Statistic	0.78
5% K-S Critical Value	0.248
Data follow Appr. Gamma Distribution at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	35
Maximum	2930
Mean	359.4
Median	320.6
SD	592.5
k star	0.884
Theta star	406.6
Nu star	38.89
AppChi2	25.6
95% Gamma Approximate UCL	545.8
95% Adjusted Gamma UCL	563.5

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data Follow Appr. Gamma Distribution at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	234.5
SD	601.7
SE of Mean	133.5
95% KM (t) UCL	464.3
95% KM (z) UCL	454.2
95% KM (jackknife) UCL	458
95% KM (bootstrap t) UCL	1489
95% KM (BCA) UCL	495.7
95% KM (Percentile Bootstrap) UCL	487.8
95% KM (Chebyshev) UCL	816.6
97.5% KM (Chebyshev) UCL	1068
99% KM (Chebyshev) UCL	1563
Potential UCLs to Use	
95% KM (BCA) UCL	495.7

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Sediment Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ALUMINUM

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	22
Number of Missing Values	11		

Raw Statistics		**Log-transformed Statistics**	
Minimum	5000	Minimum of Log Data	8.517
Maximum	21100	Maximum of Log Data	9.957
Mean	11558	Mean of log Data	9.287
Median	11200	SD of log Data	0.384
SD	4314		
Coefficient of Variation	0.373		
Skewness	0.56		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Test Statistic	0.982
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13141	95% H-UCL	13624
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15806
95% Adjusted-CLT UCL	13189	97.5% Chebyshev (MVUE) UCL	17634
95% Modified-t UCL	13159	99% Chebyshev (MVUE) UCL	21226

ALUMINUM (Continued)

Gamma Distribution Test	
k star (bias corrected)	6.504
Theta Star	1777
MLE of Mean	11558
MLE of Standard Deviation	4532
nu star	286.2
Approximate Chi Square Value (.05)	248
Adjusted Level of Significance	0.0386
Adjusted Chi Square Value	245.4
Anderson-Darling Test Statistic	0.151
Anderson-Darling 5% Critical Value	0.745
Kolmogorov-Smirnov Test Statistic	0.0928
Kolmogorov-Smirnov 5% Critical Value	0.186
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	13338
95% Adjusted Gamma UCL	13482
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	13071
95% Jackknife UCL	13141
95% Standard Bootstrap UCL	13042
95% Bootstrap-t UCL	13277
95% Hall's Bootstrap UCL	13262
95% Percentile Bootstrap UCL	13067
95% BCA Bootstrap UCL	13101
95% Chebyshev(Mean, Sd) UCL	15568
97.5% Chebyshev(Mean, Sd) UCL	17303
99% Chebyshev(Mean, Sd) UCL	20710
Use 95% Student's-t UCL	13141

ARSENIC

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	19
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	9.4	Minimum of Log Data	2.241
Maximum	18	Maximum of Log Data	2.89
Mean	14.21	Mean of log Data	2.635
Median	15.25	SD of log Data	0.205
SD	2.751		
Coefficient of Variation	0.194		
Skewness	-0.364		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.922	Shapiro Wilk Test Statistic	0.906
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15.22	95% H-UCL	15.42
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.95
95% Adjusted-CLT UCL	15.13	97.5% Chebyshev (MVUE) UCL	18.14
95% Modified-t UCL	15.22	99% Chebyshev (MVUE) UCL	20.46
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	22.55	Data appear Normal at 5% Significance Level	
Theta Star	0.63		
MLE of Mean	14.21		
MLE of Standard Deviation	2.993		
nu star	992.3		
Approximate Chi Square Value (.05)	920.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	15.18
Adjusted Chi Square Value	915	95% Jackknife UCL	15.22
		95% Standard Bootstrap UCL	15.15
Anderson-Darling Test Statistic	0.807	95% Bootstrap-t UCL	15.16
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL	15.15
Kolmogorov-Smirnov Test Statistic	0.219	95% Percentile Bootstrap UCL	15.17
Kolmogorov-Smirnov 5% Critical Value	0.185	95% BCA Bootstrap UCL	15.11
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	16.77
		97.5% Chebyshev(Mean, Sd) UCL	17.88
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	20.05
95% Approximate Gamma UCL	15.33		
95% Adjusted Gamma UCL	15.41		
Potential UCL to Use		Use 95% Student's-t UCL	15.22

BERYLLIUM

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	17
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	0.29	Minimum of Log Data	-1.238
Maximum	0.71	Maximum of Log Data	-0.342
Mean	0.43	Mean of log Data	-0.881
Median	0.375	SD of log Data	0.273
SD	0.128		
Coefficient of Variation	0.297		
Skewness	1.107		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.856	Shapiro Wilk Test Statistic	0.91
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.477	95% H-UCL	0.479
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.54
95% Adjusted-CLT UCL	0.482	97.5% Chebyshev (MVUE) UCL	0.587
95% Modified-t UCL	0.478	99% Chebyshev (MVUE) UCL	0.681
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.66	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.0369		
MLE of Mean	0.43		
MLE of Standard Deviation	0.126		
nu star	512.8		
Approximate Chi Square Value (.05)	461.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	0.475
Adjusted Chi Square Value	457.7	95% Jackknife UCL	0.477
		95% Standard Bootstrap UCL	0.474
Anderson-Darling Test Statistic	0.911	95% Bootstrap-t UCL	0.491
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	0.482
Kolmogorov-Smirnov Test Statistic	0.194	95% Percentile Bootstrap UCL	0.475
Kolmogorov-Smirnov 5% Critical Value	0.185	95% BCA Bootstrap UCL	0.479
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.549
		97.5% Chebyshev(Mean, Sd) UCL	0.601
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.702
95% Approximate Gamma UCL	0.478		
95% Adjusted Gamma UCL	0.482		
Potential UCL to Use		Use 95% Student's-t UCL	0.477
		or 95% Modified-t UCL	0.478

CHROMIUM

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	21
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	6.5	Minimum of Log Data	1.872
Maximum	27.7	Maximum of Log Data	3.321
Mean	16.27	Mean of log Data	2.728
Median	15.85	SD of log Data	0.373
SD	5.52		
Coefficient of Variation	0.339		
Skewness	0.192		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.984	Shapiro Wilk Test Statistic	0.957
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	18.3	95% H-UCL	19.14
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.15
95% Adjusted-CLT UCL	18.26	97.5% Chebyshev (MVUE) UCL	24.66
95% Modified-t UCL	18.31	99% Chebyshev (MVUE) UCL	29.59
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	7.201	**Data appear Normal at 5% Significance Level**	
Theta Star	2.26		
MLE of Mean	16.27		
MLE of Standard Deviation	6.064		
nu star	316.8		
Approximate Chi Square Value (.05)	276.6	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	18.21
Adjusted Chi Square Value	273.8	95% Jackknife UCL	18.3
		95% Standard Bootstrap UCL	18.17
Anderson-Darling Test Statistic	0.204	95% Bootstrap-t UCL	18.27
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	18.34
Kolmogorov-Smirnov Test Statistic	0.0979	95% Percentile Bootstrap UCL	18.22
Kolmogorov-Smirnov 5% Critical Value	0.186	95% BCA Bootstrap UCL	18.19
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	21.4
		97.5% Chebyshev(Mean, Sd) UCL	23.62
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	27.98
95% Approximate Gamma UCL	18.64		
95% Adjusted Gamma UCL	18.83		
Potential UCL to Use		Use 95% Student's-t UCL	18.3

COBALT

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	22
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	8.1	Minimum of Log Data	2.092
Maximum	204	Maximum of Log Data	5.318
Mean	60.25	Mean of log Data	3.619
Median	35	SD of log Data	1.029
SD	59.36		
Coefficient of Variation	0.985		
Skewness	1.265		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.815	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	82.03	95% H-UCL	114.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	127.5
95% Adjusted-CLT UCL	84.72	97.5% Chebyshev (MVUE) UCL	156.2
95% Modified-t UCL	82.6	99% Chebyshev (MVUE) UCL	212.5

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.05	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	57.36		
MLE of Mean	60.25		
MLE of Standard Deviation	58.79		
nu star	46.22		
Approximate Chi Square Value (.05)	31.62	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	81.07
Adjusted Chi Square Value	30.72	95% Jackknife UCL	82.03
		95% Standard Bootstrap UCL	80.87
Anderson-Darling Test Statistic	0.572	95% Bootstrap-t UCL	87.54
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL	83.61
Kolmogorov-Smirnov Test Statistic	0.129	95% Percentile Bootstrap UCL	81.35
Kolmogorov-Smirnov 5% Critical Value	0.19	95% BCA Bootstrap UCL	83.71
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	115.4
		97.5% Chebyshev(Mean, Sd) UCL	139.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	186.2
95% Approximate Gamma UCL	88.07		
95% Adjusted Gamma UCL	90.66		
Potential UCL to Use		Use 95% Approximate Gamma UCL	88.07

IRON

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	20
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	14000	Minimum of Log Data	9.547
Maximum	42800	Maximum of Log Data	10.66
Mean	25309	Mean of log Data	10.1
Median	25700	SD of log Data	0.289
SD	7086		
Coefficient of Variation	0.28		
Skewness	0.378		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.959
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	27909	95% H-UCL	28495
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	32236
95% Adjusted-CLT UCL	27924	97.5% Chebyshev (MVUE) UCL	35221
95% Modified-t UCL	27929	99% Chebyshev (MVUE) UCL	41084
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.33	Data appear Normal at 5% Significance Level	
Theta Star	2234		
MLE of Mean	25309		
MLE of Standard Deviation	7519		
nu star	498.5		
Approximate Chi Square Value (.05)	447.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	27794
Adjusted Chi Square Value	444.1	95% Jackknife UCL	27909
		95% Standard Bootstrap UCL	27761
Anderson-Darling Test Statistic	0.374	95% Bootstrap-t UCL	27921
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL	28130
Kolmogorov-Smirnov Test Statistic	0.124	95% Percentile Bootstrap UCL	27705
Kolmogorov-Smirnov 5% Critical Value	0.185	95% BCA Bootstrap UCL	27791
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	31894
		97.5% Chebyshev(Mean, Sd) UCL	34743
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	40340
95% Approximate Gamma UCL	28179		
95% Adjusted Gamma UCL	28407		
Potential UCL to Use		Use 95% Student's-t UCL	27909

LEAD

General Statistics

Number of Valid Observations	33	Number of Distinct Observations	33

Raw Statistics		Log-transformed Statistics	
Minimum	14	Minimum of Log Data	2.639
Maximum	27200	Maximum of Log Data	10.21
Mean	1797	Mean of log Data	5.746
Median	350	SD of log Data	1.733
SD	5314		
Coefficient of Variation	2.957		
Skewness	4.168		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.357	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.931	Shapiro Wilk Critical Value	0.931
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3364	95% H-UCL	4037
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3478
95% Adjusted-CLT UCL	4036	97.5% Chebyshev (MVUE) UCL	4433
95% Modified-t UCL	3476	99% Chebyshev (MVUE) UCL	6311
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.365	Data appear Lognormal at 5% Significance Level	
Theta Star	4920		
MLE of Mean	1797		
MLE of Standard Deviation	2974		
nu star	24.11		
Approximate Chi Square Value (.05)	13.93	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0419	95% CLT UCL	3319
Adjusted Chi Square Value	13.53	95% Jackknife UCL	3364
		95% Standard Bootstrap UCL	3323
Anderson-Darling Test Statistic	3.171	95% Bootstrap-t UCL	9455
Anderson-Darling 5% Critical Value	0.838	95% Hall's Bootstrap UCL	10976
Kolmogorov-Smirnov Test Statistic	0.326	95% Percentile Bootstrap UCL	3474
Kolmogorov-Smirnov 5% Critical Value	0.165	95% BCA Bootstrap UCL	4153
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5829
		97.5% Chebyshev(Mean, Sd) UCL	7574
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	11001
95% Approximate Gamma UCL	3110		
95% Adjusted Gamma UCL	3202		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	5829

MANGANESE

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	22
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	137	Minimum of Log Data	4.92
Maximum	2800	Maximum of Log Data	7.937
Mean	928.1	Mean of log Data	6.455
Median	616	SD of log Data	0.918
SD	820.5		
Coefficient of Variation	0.884		
Skewness	1.196		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.823	Shapiro Wilk Test Statistic	0.955
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1229	95% H-UCL	1590
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1839
95% Adjusted-CLT UCL	1264	97.5% Chebyshev (MVUE) UCL	2226
95% Modified-t UCL	1237	99% Chebyshev (MVUE) UCL	2987
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.297	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	715.5		
MLE of Mean	928.1		
MLE of Standard Deviation	814.9		
nu star	57.08		
Approximate Chi Square Value (.05)	40.71	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	1216
Adjusted Chi Square Value	39.68	95% Jackknife UCL	1229
		95% Standard Bootstrap UCL	1206
Anderson-Darling Test Statistic	0.502	95% Bootstrap-t UCL	1287
Anderson-Darling 5% Critical Value	0.759	95% Hall's Bootstrap UCL	1245
Kolmogorov-Smirnov Test Statistic	0.179	95% Percentile Bootstrap UCL	1236
Kolmogorov-Smirnov 5% Critical Value	0.189	95% BCA Bootstrap UCL	1267
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1691
		97.5% Chebyshev(Mean, Sd) UCL	2021
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2669
95% Approximate Gamma UCL	1301		
95% Adjusted Gamma UCL	1335		
Potential UCL to Use		Use 95% Approximate Gamma UCL	1301

VANADIUM

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	22
Number of Missing Values	11		

Raw Statistics		Log-transformed Statistics	
Minimum	12	Minimum of Log Data	2.485
Maximum	40.5	Maximum of Log Data	3.701
Mean	24.21	Mean of log Data	3.13
Median	22.9	SD of log Data	0.352
SD	8.124		
Coefficient of Variation	0.336		
Skewness	0.279		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Test Statistic	0.959
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	27.19	95% H-UCL	28.11
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	32.37
95% Adjusted-CLT UCL	27.17	97.5% Chebyshev (MVUE) UCL	35.88
95% Modified-t UCL	27.21	99% Chebyshev (MVUE) UCL	42.76

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	7.757	**Data appear Normal at 5% Significance Level**	
Theta Star	3.121		
MLE of Mean	24.21		
MLE of Standard Deviation	8.694		
nu star	341.3		
Approximate Chi Square Value (.05)	299.5	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	27.06
Adjusted Chi Square Value	296.6	95% Jackknife UCL	27.19
		95% Standard Bootstrap UCL	27.03
Anderson-Darling Test Statistic	0.282	95% Bootstrap-t UCL	27.62
Anderson-Darling 5% Critical Value	0.744	95% Hall's Bootstrap UCL	27.21
Kolmogorov-Smirnov Test Statistic	0.114	95% Percentile Bootstrap UCL	27.08
Kolmogorov-Smirnov 5% Critical Value	0.185	95% BCA Bootstrap UCL	27.03
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	31.76
		97.5% Chebyshev(Mean, Sd) UCL	35.03
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	41.45
95% Approximate Gamma UCL	27.59		
95% Adjusted Gamma UCL	27.87		
Potential UCL to Use		Use 95% Student's-t UCL	27.19

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Fish Tissue Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

4,4'-DDT

General Statistics

Number of Valid Data	5	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	4
		Percent Non-Detects	80.00%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 4,4'-DDT was not processed!

ALDRIN

General Statistics

Number of Valid Data	5	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	1
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.33	Minimum Detected	0.285
Maximum Detected	1.55	Maximum Detected	0.438
Mean of Detected	1.453	Mean of Detected	0.371
SD of Detected	0.105	SD of Detected	0.0731
Minimum Non-Detect	0.398	Minimum Non-Detect	-0.921
Maximum Non-Detect	0.398	Maximum Non-Detect	-0.921

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.899	Shapiro Wilk Test Statistic	0.9
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.202	Mean	-0.0259
SD	0.568	SD	0.89
95% DL/2 (t) UCL	1.743	95% H-Stat (DL/2) UCL	10.44
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.195	Mean in Log Scale	0.334
SD	0.529	SD in Log Scale	0.106
95% MLE (t) UCL	1.699	Mean in Original Scale	1.402
95% MLE (Tiku) UCL	1.743	SD in Original Scale	0.145
		95% Percentile Bootstrap UCL	1.498
		95% BCA Bootstrap UCL	1.476

ALDRIN (Continued)

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	62.94
Theta Star	0.0231
nu star	503.5
A-D Test Statistic	0.376
5% A-D Critical Value	0.657
K-S Test Statistic	0.657
5% K-S Critical Value	0.394
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1.314
Maximum	1.55
Mean	1.425
Median	1.4
SD	0.11
k star	84.33
Theta star	0.0169
Nu star	843.3
AppChi2	776.9
95% Gamma Approximate UCL	1.547
95% Adjusted Gamma UCL	N/A

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.428
SD	0.0952
SE of Mean	0.0491
95% KM (t) UCL	1.533
95% KM (z) UCL	1.509
95% KM (jackknife) UCL	1.534
95% KM (bootstrap t) UCL	1.497
95% KM (BCA) UCL	1.534
95% KM (Percentile Bootstrap) UCL	1.534
95% KM (Chebyshev) UCL	1.642
97.5% KM (Chebyshev) UCL	1.735
99% KM (Chebyshev) UCL	1.917
Potential UCLs to Use	
95% KM (t) UCL	1.533
95% KM (Percentile Bootstrap) UCL	1.534

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	H:\UCL Calculations\Newport NUSC\ProUCL - Fish Tissue Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ARSENIC

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	0.0286	Minimum of Log Data	-3.554
Maximum	0.14	Maximum of Log Data	-1.966
Mean	0.0787	Mean of log Data	-2.716
Median	0.0506	SD of log Data	0.672
SD	0.0498		
Coefficient of Variation	0.633		
Skewness	0.515		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.85	Shapiro Wilk Test Statistic	0.897
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

ARSENIC (Continued)

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.126	95% H-UCL	0.274
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.18
95% Adjusted-CLT UCL	0.121	97.5% Chebyshev (MVUE) UCL	0.224
95% Modified-t UCL	0.127	99% Chebyshev (MVUE) UCL	0.31
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.344	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0586		
MLE of Mean	0.0787		
MLE of Standard Deviation	0.0679		
nu star	13.44		
Approximate Chi Square Value (.05)	6.187	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0086	95% CLT UCL	0.115
Adjusted Chi Square Value	4.218	95% Jackknife UCL	0.126
		95% Standard Bootstrap UCL	0.112
Anderson-Darling Test Statistic	0.447	95% Bootstrap-t UCL	0.244
Anderson-Darling 5% Critical Value	0.683	95% Hall's Bootstrap UCL	0.724
Kolmogorov-Smirnov Test Statistic	0.298	95% Percentile Bootstrap UCL	0.116
Kolmogorov-Smirnov 5% Critical Value	0.359	95% BCA Bootstrap UCL	0.115
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.176
		97.5% Chebyshev(Mean, Sd) UCL	0.218
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.3
95% Approximate Gamma UCL	0.171		
95% Adjusted Gamma UCL	0.251		
Potential UCL to Use		Use 95% Student's-t UCL	0.126

CHROMIUM

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	0.529	Minimum of Log Data	-0.637
Maximum	4.19	Maximum of Log Data	1.433
Mean	1.935	Mean of log Data	0.435
Median	1.81	SD of log Data	0.777
SD	1.405		
Coefficient of Variation	0.726		
Skewness	1.2		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.915	Shapiro Wilk Test Statistic	0.986
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.274	95% H-UCL	9.765
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.834
95% Adjusted-CLT UCL	3.329	97.5% Chebyshev (MVUE) UCL	6.082
95% Modified-t UCL	3.331	99% Chebyshev (MVUE) UCL	8.533

CHROMIUM (Continued)

Gamma Distribution Test	
k star (bias corrected)	1.084
Theta Star	1.785
MLE of Mean	1.935
MLE of Standard Deviation	1.858
nu star	10.84
Approximate Chi Square Value (.05)	4.475
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	2.873
Anderson-Darling Test Statistic	0.197
Anderson-Darling 5% Critical Value	0.684
Kolmogorov-Smirnov Test Statistic	0.165
Kolmogorov-Smirnov 5% Critical Value	0.36
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	4.689
95% Adjusted Gamma UCL	7.302
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	2.968
95% Jackknife UCL	3.274
95% Standard Bootstrap UCL	2.867
95% Bootstrap-t UCL	3.873
95% Hall's Bootstrap UCL	7.861
95% Percentile Bootstrap UCL	2.933
95% BCA Bootstrap UCL	3.085
95% Chebyshev(Mean, Sd) UCL	4.674
97.5% Chebyshev(Mean, Sd) UCL	5.859
99% Chebyshev(Mean, Sd) UCL	8.186
Use 95% Student's-t UCL	3.274

MERCURY

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	0.0156	Minimum of Log Data	-4.16
Maximum	0.112	Maximum of Log Data	-2.189
Mean	0.0555	Mean of log Data	-3.213
Median	0.0254	SD of log Data	0.907
SD	0.0469		
Coefficient of Variation	0.844		
Skewness	0.611		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.78	Shapiro Wilk Test Statistic	0.839
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.1	95% H-UCL	0.47
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.149
95% Adjusted-CLT UCL	0.0961	97.5% Chebyshev (MVUE) UCL	0.19
95% Modified-t UCL	0.101	99% Chebyshev (MVUE) UCL	0.27

MERCURY (Continued)

Gamma Distribution Test	
k star (bias corrected)	0.814
Theta Star	0.0682
MLE of Mean	0.0555
MLE of Standard Deviation	0.0615
nu star	8.138
Approximate Chi Square Value (.05)	2.815
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	1.638
Anderson-Darling Test Statistic	0.603
Anderson-Darling 5% Critical Value	0.686
Kolmogorov-Smirnov Test Statistic	0.336
Kolmogorov-Smirnov 5% Critical Value	0.361
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	0.16
95% Adjusted Gamma UCL	0.276
Potential UCL to Use	

Data Distribution	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	0.09
95% Jackknife UCL	0.1
95% Standard Bootstrap UCL	0.0871
95% Bootstrap-t UCL	0.4
95% Hall's Bootstrap UCL	0.795
95% Percentile Bootstrap UCL	0.0899
95% BCA Bootstrap UCL	0.0899
95% Chebyshev(Mean, Sd) UCL	0.147
97.5% Chebyshev(Mean, Sd) UCL	0.186
99% Chebyshev(Mean, Sd) UCL	0.264
Use 95% Student's-t UCL	0.1

4,4'-DDE

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	186.5	Minimum of Log Data	5.228
Maximum	652	Maximum of Log Data	6.48
Mean	311.9	Mean of log Data	5.629
Median	247	SD of log Data	0.494
SD	192.4		
Coefficient of Variation	0.617		
Skewness	2.104		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.698	Shapiro Wilk Test Statistic	0.798
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	495.3	95% H-UCL	648.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	598.9
95% Adjusted-CLT UCL	540	97.5% Chebyshev (MVUE) UCL	725.4
95% Modified-t UCL	508.8	99% Chebyshev (MVUE) UCL	974.1

4,4'-DDE (Continued)

Gamma Distribution Test	
k star (bias corrected)	1.95
Theta Star	160
MLE of Mean	311.9
MLE of Standard Deviation	223.4
nu star	19.5
Approximate Chi Square Value (.05)	10.48
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	7.758
Anderson-Darling Test Statistic	0.715
Anderson-Darling 5% Critical Value	0.681
Kolmogorov-Smirnov Test Statistic	0.38
Kolmogorov-Smirnov 5% Critical Value	0.358
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	580.2
95% Adjusted Gamma UCL	783.9
Potential UCL to Use	

Data Distribution
Data appear Lognormal at 5% Significance Level

Nonparametric Statistics	
95% CLT UCL	453.4
95% Jackknife UCL	495.3
95% Standard Bootstrap UCL	439.8
95% Bootstrap-t UCL	1094
95% Hall's Bootstrap UCL	1262
95% Percentile Bootstrap UCL	418
95% BCA Bootstrap UCL	493
95% Chebyshev(Mean, Sd) UCL	687
97.5% Chebyshev(Mean, Sd) UCL	849.3
99% Chebyshev(Mean, Sd) UCL	1168
Use 95% Student's-t UCL	495.3
or 95% Modified-t UCL	508.8
or 95% H-UCL	648.3

DIELDRIN

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	6.27	Minimum of Log Data	1.836
Maximum	40.3	Maximum of Log Data	3.696
Mean	15.12	Mean of log Data	2.461
Median	8.75	SD of log Data	0.726
SD	14.22		
Coefficient of Variation	0.941		
Skewness	2.131		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.679	Shapiro Wilk Test Statistic	0.823
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	28.67	95% H-UCL	59.79
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	34.28
95% Adjusted-CLT UCL	32.05	97.5% Chebyshev (MVUE) UCL	42.9
95% Modified-t UCL	29.68	99% Chebyshev (MVUE) UCL	59.83

DIELDRIN (Continued)

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.979	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	15.44		
MLE of Mean	15.12		
MLE of Standard Deviation	15.28		
nu star	9.786		
Approximate Chi Square Value (.05)	3.809	Nonparametric Statistics	
Adjusted Level of Significance	0.0086	95% CLT UCL	25.57
Adjusted Chi Square Value	2.367	95% Jackknife UCL	28.67
		95% Standard Bootstrap UCL	24.47
Anderson-Darling Test Statistic	0.704	95% Bootstrap-t UCL	99.69
Anderson-Darling 5% Critical Value	0.684	95% Hall's Bootstrap UCL	98.27
Kolmogorov-Smirnov Test Statistic	0.344	95% Percentile Bootstrap UCL	27.13
Kolmogorov-Smirnov 5% Critical Value	0.36	95% BCA Bootstrap UCL	28.29
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	42.83
		97.5% Chebyshev(Mean, Sd) UCL	54.82
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	78.37
95% Approximate Gamma UCL	38.84		
95% Adjusted Gamma UCL	62.49		
Potential UCL to Use		Use 95% Approximate Gamma UCL	38.84

Total Aroclor

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		Log-transformed Statistics	
Minimum	157.7	Minimum of Log Data	5.061
Maximum	654	Maximum of Log Data	6.483
Mean	287.3	Mean of log Data	5.497
Median	188.8	SD of log Data	0.593
SD	210.2		
Coefficient of Variation	0.732		
Skewness	1.987		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.719	Shapiro Wilk Test Statistic	0.815
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	487.6	95% H-UCL	764.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	599.1
95% Adjusted-CLT UCL	531.1	97.5% Chebyshev (MVUE) UCL	737.3
95% Modified-t UCL	501.5	99% Chebyshev (MVUE) UCL	1009

Total Aroclor (Continued)

Gamma Distribution Test	
k star (bias corrected)	1.422
Theta Star	201.9
MLE of Mean	287.3
MLE of Standard Deviation	240.9
nu star	14.22
Approximate Chi Square Value (.05)	6.726
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	4.65
Anderson-Darling Test Statistic	0.632
Anderson-Darling 5% Critical Value	0.682
Kolmogorov-Smirnov Test Statistic	0.296
Kolmogorov-Smirnov 5% Critical Value	0.359
Data appear Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
95% Approximate Gamma UCL	607.6
95% Adjusted Gamma UCL	878.7
Potential UCL to Use	

Data Distribution	
Data appear Gamma Distributed at 5% Significance Level	
Nonparametric Statistics	
95% CLT UCL	441.9
95% Jackknife UCL	487.6
95% Standard Bootstrap UCL	421.6
95% Bootstrap-t UCL	1867
95% Hall's Bootstrap UCL	1659
95% Percentile Bootstrap UCL	455.5
95% BCA Bootstrap UCL	479.6
95% Chebyshev(Mean, Sd) UCL	696.9
97.5% Chebyshev(Mean, Sd) UCL	874.2
99% Chebyshev(Mean, Sd) UCL	1222
Use 95% Approximate Gamma UCL	607.6

APPENDIX H.5

SAMPLE CALCULATIONS

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CONSTRUCTION WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of surface soil from the exposed area.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1E-06 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	23.9	mg/kg	Chemical: Arsenic
IR	=	330	mg/day	
EF	=	130	days/year	
ED	=	1	years	
FI	=	1		
CF	=	1E-06	kg/mg	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	365	days	
CSFo	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDo	=	3.0E-04	(mg/kg/day)	

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CONSTRUCTION WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{23.9\ mg/kg \times 330\ mg/day \times 130\ days/year \times 1\ years \times 1 \times 1E\text{-}06\ kg/mg}{70\ kg \times 25550\ days}$$

IEXc = 5.73E-07 mg/kg/day

ILCR = 5.73E-07 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 8.6E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{23.9\ mg/kg \times 330\ mg/day \times 130\ days/year \times 1\ years \times 1 \times 1E\text{-}06\ kg/mg}{70\ kg \times 365\ days}$$

IEXnc = 4.01E-05 mg/kg/day

HQ = 4.01E-05 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 1.3E-01

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CONSTRUCTION WORKERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with surface soil from the exposed area.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1E-06 kg/mg)
SA	=	skin surface available for contact (cm2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	23.9	mg/kg	Chemical: Arsenic
CF	=	1E-06	kg/mg	
SA	=	3300	cm^2/day	
AF	=	0.3	mg/cm^2	
ABS	=	0.03		
EF	=	130	days/year	
ED	=	1	years	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	365	days	
CSFd	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDd	=	3.0E-04	(mg/kg/day)	

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CONSTRUCTION WORKERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{23.9 \text{ mg/kg} \times 1E\text{-}06 \text{ kg/mg} \times 3300 \text{ cm2/day} \times 0.3 \text{ mg/cm2} \times 0.03 \times 130 \text{ days/year} \times 1 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}}$$

DEXc = 5.16E-08 mg/kg/day

ILCR = 5.16E-08 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 7.7E-08

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{23.9 \text{ mg/kg} \times 1E\text{-}06 \text{ kg/mg} \times 3300 \text{ cm2/day} \times 0.3 \text{ mg/cm2} \times 0.03 \times 130 \text{ days/year} \times 1 \text{ years}}{70 \text{ kg} \times 365 \text{ days}}$$

DEXnc = 3.61E-06 mg/kg/day

HQ = 3.61E-06 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 1.2E-02

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS CONSTRUCTION WORKERS		
BASED ON: USEPA, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of surface soil from the exposed area.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT}$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfC	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentratin (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFCi (mg/m3)

ASSUMPTIONS:

Cs	=	23.9	mg/kg	Chemical: Arsenic
PEF	=	1.40E+06	m3/kg	
Ca	=	1.71E-05	mg/m3	
ET	=	8	hours	
EF	=	130	days/year	
ED	=	1	years	
ATc	=	613200	hours	
ATnc	=	8760	hours	
CSF	=	4.3E-03	$(ug/m3)^{-1}$	
RfD	=	3.0E-05	(mg/m3)	

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS CONSTRUCTION WORKERS		
BASED ON: USEPA, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{1.71E\text{-}05 \text{ mg/m3} \times 8 \text{ hours} \times 130 \text{ days/year} \times 1 \text{ years}}{613200 \text{ hours}}$$

IEXc = 2.90E-08 mg/m3

ILCR = 2.90E-08 mg/m3 x 4.30E-03 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 1.2E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{1.71E\text{-}05 \text{ mg/m3} \times 8 \text{ hours} \times 130 \text{ days/year} \times 1 \text{ years}}{8760 \text{ hours}}$$

IEXnc = 2.03E-06 mg/m3

HQ = 2.03E-06 mg/m3 / 3.00E-05 (mg/m3) = Hazard Quotient

HQ **6.8E-02**

CLIENT:	JOB NUMBER:
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND	2124
SUBJECT: CALCULATION OF PARTICUALATE EMISSION FACTOR FOR CONSTRUCTION WORKERS	
BASED ON: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, December 2002)	
BY: R. JUPIN	**CHECKED BY:** RJM / **DATE:** 11/11/2009

Equation 5-5
Derivation of the Particulate Emission Factor
Construction Scenario - Construction Worker

$$PEF_{sc} = Q/C_{sr} \times \frac{1}{F_D} \times \left[\frac{T \times A_R}{556 \times (W/3)^{0.4} \times \frac{(365d/yr - p)}{365d/yr} \times \Sigma VKT} \right]$$

Parameter/Definition (units)	Default
PEF_{sc}/subchronic road particulate emission factor (m^3/kg)	site-specific
Q/C_{sr}/ inverse of the ratio of the 1-h geometric mean air concentration to the emission flux along a straight road segment bisecting a square site (g/m^2-s per kg/m^2)	23.02[a] (Equation 5-6)
F_D/dispersion correction factor (unitless)	0.185 (Appendix E)
T/total time over which construction occurs (s)	site-specific
A_R/surface area of contaminated road segment (m^2) L_R/length of road segment (ft) W_R/width of road segment (ft)	274.213 ($A_R = L_R \times W_R \times 0.092903 m^2/ft^2$)
W/mean vehicle weight (tons)	site-specific
p/number of days with at least 0.01 inches of precipitation (days/year)	site-specific (Exhibit 5-2)
ΣVKT/sum of fleet vehicle kilometers traveled during the exposure duration (km)	site-specific

[a] Assumes a 0.5 acre site

Calculation of PEF for Construction Workers

Q/C	23.02	(g/m^2-s per kg/m^3)	
Fd	0.185	dispersion correction factor (unitless)	
T	3.74E+06	sec	3600 sec/hr x 8hr/day x 130 days/yr
Area (A)	274.213	m^2	
W	8	tons	
p	135	day/year	
VKT	175.5	km	30 vehicles x 0.045 km/day x 130 days

PEF = 1.40E+06 m^3/kg

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF THE PARTICULATE EMISSION FACTOR (PEF) FOR RESIDENTIAL AND COMMERCIAL/INDUSTRIAL EXPOSURES		
BASED ON: SUPPLEMENTAL GUIDANCE FOR DEVELOPING SOIL SCREENING LEVELS FOR SUPERFUND SITES (USEPA, DECEMBER, 2002)		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To calculate the particulate emission factor for residential and commercial/industrial exposure scenarios.

EQUATIONS:

$$PEF = Q/C_{wind} \times \frac{3600 \text{ sec/hr}}{0.036 \times (1 - V) \times (U_m/U_t)^3 \times F(x)}$$

$$Q/C_{wind} = A \times \exp\left[\frac{(\ln A_{site} - B)^2}{C}\right]$$

Where:

PEF	=	particulate emission factor (m^3/kg)
Q/C_{wind}	=	Inverse of mean conc. at center of source (g/m^2-s per kg/m^3).
V	=	fraction of vegetative cover (unitless)
U_m	=	mean annual windspeed (m/sec)
U_t	=	equivalent threshold value of windspeed at 7m (m/sec)
F(x)	=	function dependent on Um/Ut derived using Cowherd et al. (1985) (unitless)
A,B,C	=	constants based on air dispersion modeling for specific climate zones
A_{site}	=	areal extent of the site or contamination (acres)

ASSUMPTIONS:

V	=	0.5	unitless	
U_m	=	3.84	m/sec	Values are for Hartford, Connecticut.
U_t	=	11.32	m/sec	
F(x)	=	0.0345	unitless	
A	=	12.5907	unitless	
B	=	18.8368	unitless	
C	=	215.4377	unitless	
A_{site}	=	0.5	acres	

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISL		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF THE PARTICULATE EMISSION FACTOR (PEF) FOR RESIDENTIAL AND COMMERCIAL/INDUSTRIAL EXPOSURES		
BASED ON: SUPPLEMENTAL GUIDANCE FOR DEVELOPING SOIL SCREENING LEVELS FOR SUPERFUND SITES (USEPA, DECEMBER, 2002)		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CALCULATION FOR Q/C_{wind}

Q/C_{wind} = 12.5907 x exp[(ln(0.5) - 18.8368)^2 / 215.4377]

Q/C_{wind} = 73.95045 g/m2-s per kg/m3

EXAMPLE CALCULATION FOR PEF

$$PEF = 73.95045 \times \frac{3600}{0.036 \times (1 - 0.5) \times (3.84/11.32)^3 \times 0.0345}$$

PEF = 1.10E+10 m^3/kg

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of surface soil at the exopsed area.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	2.44	mg/kg	Chemical: Benzo(a)pyrene
IR	=	200	mg/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	15	kg	
AT	=	25550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{2.44\ mg/kg \times 200\ mg/day \times 350\ days/year \times 2\ years \times 1 \times 1.0E\text{-}06\ kg/mg}{15\ kg \times 25550\ days} \times 10$$

IEX_1 = 8.91E-06 mg/kg/day

$$IEX_2 = \frac{2.44\ mg/kg \times 200\ mg/day \times 350\ days/year \times 4\ years \times 1 \times 1.0E\text{-}06\ kg/mg}{15\ kg \times 25550\ days} \times 3$$

IEX_2 = 5.35E-06 mg/kg/day

ILCR = (8.91E-06 mg/kg/day + 5.35E-06 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 1.0E-04

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with surface soil at the exopsed area.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	2.44	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	2800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
BW	=	15	kg	
AT	=	25550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{2.44\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 350\ days/year \times 2\ years}{15\ kg \times 25550\ days} \times 10$$

DEXc = 3.24E-06 mg/kg/day

$$DEXc = \frac{2.44\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 350\ days/year \times 4\ years}{15\ kg \times 25550\ days} \times 3$$

DEXc = 1.95E-06 mg/kg/day

ILCR = (3.24E-06 mg/kg/day + 1.95E-06 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 3.8E-05

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of surface soil at the exopsed area.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT} \times ADAF$$

Where:

EC	=	estimated exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IUR	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	2.44	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.10E+10	m3/kg	
Ca	=	2.22E-10	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
ATc	=	613200	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{2.22E\text{-}10 \text{ mg/m3} \times 24 \text{ hr/day} \times 350 \text{ days/year} \times 2 \text{ years}}{613200 \text{ days}} \times 10$$

EC = 6.08E-11 mg/m3

$$EC = \frac{2.22E\text{-}10 \text{ mg/m3} \times 24 \text{ hr/day} \times 350 \text{ days/year} \times 4 \text{ years}}{613200 \text{ days}} \times 3$$

EC = 3.65E-11 mg/m3

ILCR = (6.08E-11 mg/m3 + 3.65E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 1.1E-10

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of surface soil at the exopsed area.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	2.44	mg/kg	Chemical: Benzo(a)pyrene
IR	=	100	mg/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
AT	=	25550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{2.44\ mg/kg \times 100\ mg/day \times 350\ days/year \times 10\ years \times 1 \times 1.0E\text{-}06\ kg/mg}{70\ kg \times 25550\ days} \times 3$$

IEX_1 = 1.43E-06 mg/kg/day

$$IEX_2 = \frac{2.44\ mg/kg \times 100\ mg/day \times 350\ days/year \times 14\ years \times 1 \times 1.0E\text{-}06\ kg/mg}{70\ kg \times 25550\ days} \times 1$$

IEX_2 = 6.68E-07 mg/kg/day

ILCR = (1.43E-06 mg/kg/day + 6.68E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 1.5E-05

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with surface soil at the exopsed area.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	2.44	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	5700	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
BW	=	70	kg	
AT	=	25550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{2.44\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 5700\ cm2/day \times 0.07\ mg/cm2 \times 0.13 \times 350\ days/year \times 10\ years}{70\ kg \times 25550\ days} \times 3$$

DEXc = 7.43E-07 mg/kg/day

$$DEXc = \frac{2.44\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 5700\ cm2/day \times 0.07\ mg/cm2 \times 0.13 \times 350\ days/year \times 14\ years}{70\ kg \times 25550\ days} \times 1$$

DEXc = 3.47E-07 mg/kg/day

ILCR = (7.43E-07 mg/kg/day + 3.47E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 8.0E-06

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of surface soil at the exopsed area.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT} \times ADAF$$

Where:

EC	=	estimated exposure intake (mg/kg/day)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
IR	=	inhlation rate (m3/hr)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IURi	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	2.44	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.10E+10	m3/kg	
Ca	=	2.22E-10	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
ATc	=	613200	hours	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{2.22E\text{-}10 \text{ mg/m3} \times 24 \text{ hr/day} \times 350 \text{ days/year} \times 10 \text{ years}}{613200 \text{ hours}} \times 3$$

EC = 9.12E-11 mg/m3

$$EC = \frac{2.22E\text{-}10 \text{ mg/m3} \times 24 \text{ hr/day} \times 350 \text{ days/year} \times 14 \text{ years}}{613200 \text{ hours}} \times 1$$

EC = 4.25E-11 mg/m3

ILCR = (9.12E-11 mg/m3 + 4.25E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 1.5E-10

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from ingestion of groundwater.

EQUATION:

$$IEX = \frac{Cgw \times CF \times IF \times EF \times ED}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cgw	=	exposure point concentration in groundwater (ug/L)
CF	=	conversion factor (1.0E-3 mg/ug)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cgw	=	19	ug/L	Chemical: Vinyl Chloride
IR	=	2	L/day	
CF	=	1.0E-03	mg/ug	
EF	=	350	days/year	
ED	=	24	years	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	8760	days	
CSFo	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDo	=	3.0E-03	(mg/kg/day)	

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{19\ ug/L \times 0.001\ mg/ug \times 2\ L/day \times 350\ days/year \times 24\ years}{70\ kg \times 25550\ days}$$

IEXc = 1.78E-04 mg/kg/day

ILCR = 1.78E-04 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.7E-04

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{19\ ug/L \times 0.001\ mg/ug \times 2\ L/day \times 350\ days/year \times 24\ years}{70\ kg \times 8760\ days}$$

IEXnc = 5.21E-04 mg/kg/day

$$HQ = \frac{5.21E\text{-}04\ mg/kg/day}{3.00E\text{-}03\ (mg/kg/day)} = \text{Hazard Quotient}$$

HQ = 1.7E-01

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with groundwater from the Developed Area.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed does per event (mg/cm^2/event)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
A	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ((mg/kg/day)$^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = DAD (mg/kg/day) / RFDd (mg/kg/day)

EQUATIONS for DAevent:

For Inorganics:

DAevent = Kp x Cw x CF x tevent

For Organics:

$$\text{If } tevent \le t^*, \text{ then: } DAevent = 2 \times FA \times Kp \times Cw \times CF \times \sqrt{\frac{6 \times tau \times tevent}{\pi}}$$

$$\text{If } tevent > t^*, \text{ then: } DAevent = FA \times Kp \times Cw \times CF \times \left[\frac{tevent}{1+B} + 2 \times tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

Where:

Kp	=	permeability coefficient from water (cm/hr)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	0.019	mg/L	Chemical: Vinyl Chloride
Kp	=	5.60E-03	cm/hr	
FA	=	1	unitless	
tevent	=	0.58	hr/event	
CF	=	0.001	L/cm^3	
t*	=	0.57	hr/event	
τ	=	0.24	hr/event	
B	=	0.017		

tevent < t*, therefore,

DAevent = (2 x 0.0056 cm/hr) (1) (0.019 mg/L) (0.001 L/cm3) x

$$\sqrt{\frac{6 \times 0.24 \text{ hr/event} \times 0.58 \text{ hr/event}}{\pi}}$$

DAevent = 1.10E-07 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

A	=	18000	cm^2/day
EV	=	1	event/day
ED	=	24	years
EF	=	350	days/year
BW	=	70	kg
ATc	=	25550	days
ATnc	=	8760	days
CSFd	=	1.5E+00	$(mg/kg/day)^{-1}$
RfDd	=	3.0E-03	(mg/kg/day)

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{1.10E\text{-}07 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 24 \text{ years} \times 350 \text{ days/year} \times 18000 \text{ cm2/day}}{70 \text{ kg} \times 25550 \text{ days}}$$

DADc = 9.28E-06 mg/kg/day

DADc = 9.28E-06 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 1.4E-05

EXAMPLE NONCARCINOGENIC CALCULATION

$$DADnc = \frac{1.10E\text{-}07 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 24 \text{ years} \times 350 \text{ days/year} \times 18000 \text{ cm2/day}}{70 \text{ kg} \times 8760 \text{ days}}$$

DADnc = 2.71E-05 mg/kg/day

HQ = 2.71E-05 mg/kg/day / 3.00E-03 (mg/kg/day) = Hazard Quotient

HQ = 9.0E-03

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: ESTIMATION OF AMBIENT AIR CONCENTRATIONS IN A TRENCH RESULTING FROM VOLATILE EMISSIONS FROM GROUNDWATER.		
BASED ON: VDEQ, 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To calculate ambient air concentrations resulting from volatilization of trichloroethene from groundwater in the developed area.

Ctrench = CGW x VF

Where:

Ctrench = concentration of contaminant in the trench µg/m^3
CGW = concentration of contaminant in groundwater µg/L
VF = volatilization factor L/m^3

1. Calculate kiG (gas-phase mass transfer coefficient of component i)

$kiG = (MWH2O/MWi)^{0.335} \times (T/298)^{1.005} \times kG, H2O$

Where:

kiG = gas-phase mass transfer coefficient of component i cm/s
MW_{H2O} = molecular weight of water = 18 g/mol
MW_{VC} = molecular weight of Vinyl Chloride = 62.5 g/mol
kG,H_2O = gas-phase mass transfer coefficient of water vapor at 25°C cm/s = 0.833 cm/s
T = average system absolute temperature = 298
The value of kG, H_2O is 0.833 cm/s (Superfund Exposure Assessment Manual, U. S. EPA, April 1988)

$kiG = (18/762.5)^{0.335} \times (298/298)^{1.005} \times 0.833$ cm/s = 5.49E-01 cm/s

2. Calculate kiL (liquid-phase mass transfer coefficient of component i)

$kiL = (MWO_2/MWi)^{0.5} \times (T/298) \times kL, O_2$

Where:
kiL = liquid-phase mass transfer coefficient of component i cm/s
MW_{O2} = molecular weight of O_2 = 32 g/mol
MW_{VC} = molecular weight of Vinyl Chloride = 62.5 g/mol
T = average system absolute temperature = 298
kL, O_2 = liquid-phase mass transfer coefficient of oxygen at 25°C cm/s = 0.002 cm/s

$kiL = (32/62.5)^{0.5} \times (298/298) \times 0.002$ cm/s = 1.43E-03 cm/s

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		JOB NUMBER: 2124
SUBJECT: ESTIMATION OF AMBIENT AIR CONCENTRATIONS IN A TRENCH RESULTING FROM VOLATILE EMISSIONS FROM GROUNDWATER.		
BASED ON: VDEQ, 2004		
BY: R. JUPIN	CHECKED BY:	DATE: 11/11/2009

3. Calculate Ki (overall mass transfer coefficient of contaminant)

$Ki = 1 / \{(1/kiL) + [(RT) / (Hi \times kiG)]\}$

Where:

kiL = liquid-phase mass transfer coefficient of i cm/s =	1.43E-03
R = ideal gas constant atm-m^3/mole-°K =	8.20E-05
T = average system absolute temperature =	298
Hi = Henry's Law constant of VC (atm-m^3/mol) =	2.71E-02
KiG = gas-phase mass transfer coefficient of i cm/s	5.49E-01

$Ki = 1 / \{(1/1.43E\text{-}3) + [(298 \times 8.2E\text{-}5) / (2.71E\text{-}2 \times 0.549]\}$ = 1.43E-03 cm/s

4. Calculation of VF (Volatilization Factor)

$VF = (Ki \times A \times F \times 10^{-3} \times 10^{4} \times 3{,}600) / (ACH \times V)$

Where:

VF = volatilization factor (L/m^3)		
Ki = overall mass transfer coefficient of contaminant =		1.43E-03 cm/s
A = area of the trench =		8.18 m^2
F = fraction of floor through which contaminant can enter (unitless) =		1
ACH = air changes per hour =		360 h^{-1}
V = volume of trench =		24.92 m^3
10^{-3} = conversion factor L/cm^3	0.001	
10^{4} = conversion factor cm^2/m^2	10000	
3,600 = conversion factor seconds/hr	3600	

$VF = (9.82E\text{-}4 \times 8.18 \times 1 \times 10^{-3} \times 10^{4} \times 3{,}600) / (360 \times 24.92)$ = 4.68E-02 L/m^3

5. Calculation of C_{trench} (concentration of contaminant in the trench)

$C_{trench} = C_{GW} \times VF$

Where:

C_{trench} = concentration of contaminant in the trench ($\mu g/m^3$)	
C_{GW} = concentration of Vinyl Chloride in groundwater =	19 µg/L
VF = volatilization factor =	4.68E-02 L/m^3

C_{trench} = 19 µg/L x 4.68E-02 L/m3 = **8.90E-01 $\mu g/m^3$**

8.90E-04 mg/m^3

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES FROM GROUNDWATER - CONSTRUCTION WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of volatiles from groundwater at the undeveloped area.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day}$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (days)
IURi	=	inhalation unit risk $((ug/m3)^{-1})$
RfCi	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentratin (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFCi (mg/m3)

ASSUMPTIONS:

Ca	=	8.90E-04	mg/m3	Chemical: Vinyl Chloride
ET	=	8	hr/day	
EF	=	130	days/year	
ED	=	1	years	
ATc	=	25550	days	
ATnc	=	365	days	
IURi	=	4.4E-06	$(ug/m^3)^{-1}$	
RfCi	=	1.0E-01	mg/m^3	

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE I		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES FROM GROUNDWATER - CONSTRUCTION WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{8.90E\text{-}04 \text{ mg/m3} \times 8 \text{ hr/day} \times 130 \text{ days/year} \times 1 \text{ years}}{25550 \text{ days} \times 24 \text{ hours/day}}$$

IEXc = 1.51E-06 mg/m3

ILCR = 1.51E-06 mg/m3 x 4.40E-06 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 6.6E-09

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{8.90E\text{-}04 \text{ mg/m3} \times 8 \text{ hr/day} \times 130 \text{ days/year} \times 1 \text{ years}}{365 \text{ days} \times 24 \text{ hours/day}}$$

IEXnc = 1.06E-04 mg/m3

HQ = 1.06E-04 mg/m3 / 1.00E-01 mg/m3 = Hazard Quotient

HQ **1.1E-03**

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with surface water.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed does per event (mg/cm^2/event)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
A	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ((mg/kg/day)$^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = DAD (mg/kg/day) / RFDd (mg/kg/day)

EQUATIONS for DAevent:

For Inorganics:

DAevent = Kp x Cw x CF x tevent

For Organics:

$$\text{If } tevent \le t^*, \text{ then: } DAevent = 2 \times FA \times Kp \times Cw \times CF \times \sqrt{\frac{6 \times tau \times tevent}{\pi}}$$

$$\text{If } tevent > t^*, \text{ then: } DAevent = FA \times Kp \times Cw \times CF \times \left[\frac{tevent}{1+B} + 2 \times tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

Where:

Kp	=	permeability coefficient from water (cm/hr)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	0.000013	mg/L	Chemical: Dieldrin
Kp	=	1.22E-02	cm/hr	
FA	=	0.8	unitless	
tevent	=	1	hr/event	
CF	=	0.001	L/cm^3	
t*	=	35.10	hr/event	
τ	=	14.60	hr/event	
B	=	0.0918		

tevent < t*, therefore,

$$DAevent = (2 \times 0.0122\ cm/hr)\ (0.8)\ (0.000013\ mg/L)\ (0.001\ L/cm3) \times \sqrt{\frac{6 \times 14.6\ hr/event \times 1\ hr/event}{\pi}}$$

DAevent = 1.34E-09 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

A	=	6880	cm^2/day
EV	=	1	event/day
ED	=	24	years
EF	=	48	days/year
BW	=	70	kg
ATc	=	25550	days
ATnc	=	8760	days
CSFd	=	1.6E+01	$(mg/kg/day)^{-1}$
RfDd	=	5.0E-05	(mg/kg/day)

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE	**JOB NUMBER:** 2124	
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{1.34E\text{-}09 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 24 \text{ years} \times 48 \text{ days/year} \times 6880 \text{ cm2/day}}{70 \text{ kg} \times 25550 \text{ days}}$$

DADc = 5.94E-09 mg/kg/day

DADc = 5.94E-09 mg/kg/day x 1.60E+01 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 9.5E-08

EXAMPLE NONCARCINOGENIC CALCULATION

$$DADnc = \frac{1.34E\text{-}09 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 24 \text{ years} \times 48 \text{ days/year} \times 6880 \text{ cm2/day}}{70 \text{ kg} \times 8760 \text{ days}}$$

DADnc = 1.73E-08 mg/kg/day

HQ = 1.73E-08 mg/kg/day / 5.00E-05 (mg/kg/day) = Hazard Quotient

HQ = 3.5E-04

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of sediment.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	15.2	mg/kg	Chemical: Arsenic
IR	=	100	mg/day	
EF	=	48	days/year	
ED	=	24	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	8760	days	
CSFo	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDo	=	3.0E-04	(mg/kg/day)	

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{15.2 \text{ mg/kg} \times 100 \text{ mg/day} \times 48 \text{ days/year} \times 24 \text{ years} \times 1.0E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 25550 \text{ days}}$$

IEXc = 9.79E-07 mg/kg/day

ILCR = 9.79E-07 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 1.5E-06

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{15.2 \text{ mg/kg} \times 100 \text{ mg/day} \times 48 \text{ days/year} \times 24 \text{ years} \times 1.0E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 8760 \text{ days}}$$

IEXnc = 2.86E-06 mg/kg/day

HQ = 2.86E-06 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 9.5E-03

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with sediment.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	15.2	mg/kg	Chemical: Arsenic
CF	=	1.0E-06	kg/mg	
SA	=	6880	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.03		
EF	=	48	days/year	
ED	=	24	years	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	8760	days	
CSFd	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDd	=	3.0E-04	(mg/kg/day)	

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{15.2\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 6880\ cm2/day \times 0.07\ mg/cm2 \times 0.03 \times 48\ days/year \times 24\ years}{70\ kg \times 25550\ days}$$

DEXc = 1.41E-07 mg/kg/day

ILCR = 1.41E-07 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.1E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{15.2\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 6880\ cm2/day \times 0.07\ mg/cm2 \times 0.03 \times 48\ days/year \times 24\ years}{70\ kg \times 8760\ days}$$

DEXnc = 4.13E-07 mg/kg/day

HQ = 4.13E-07 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 1.4E-03

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT FOR MUTAGENIC CHEMICALS - CHILD RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from incidental ingestion of sediment.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	1.13	mg/kg	Chemical: Benzo(a)pyrene
IR	=	200	mg/day	
EF	=	48	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	15	kg	
ATc	=	25550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT FOR MUTAGENIC CHEMICALS - CHILD RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{1.13\ mg/kg \times 200\ mg/day \times 48\ days/year \times 2\ years \times 1.0E\text{-}06\ kg/mg}{15\ kg \times 25550\ days} \times 10$$

IEXc = 5.66E-07 mg/kg/day

$$IEXc = \frac{1.13\ mg/kg \times 200\ mg/day \times 48\ days/year \times 4\ years \times 1.0E\text{-}06\ kg/mg}{15\ kg \times 25550\ days} \times 3$$

IEXc = 3.40E-07 mg/kg/day

ILCR = (5.66E-07 mg/kg/day + 3.40E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 6.6E-06

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT FOR MUTAGENIC CHEMICALS - CHILD RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from dermal contact with sediment.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	1.13	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	2800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.13		
EF	=	48	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
BW	=	15	kg	
ATc	=	25550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT FOR MUTAGENIC CHEMICALS - CHILD RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{1.13\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 48\ days/year \times 2\ years}{15\ kg \times 25550\ days} \times 10$$

DEXc = 2.06E-07 mg/kg/day

$$DEXc = \frac{1.13\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 48\ days/year \times 4\ years}{15\ kg \times 25550\ days} \times 3$$

DEXc = 1.24E-07 mg/kg/day

ILCR = (2.06E-07 mg/kg/day + 1.24E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 2.4E-06

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT FOR MUTAGENIC CHEMICALS - ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from incidental ingestion of sediment.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	1.13	mg/kg	Chemical: Benzo(a)pyrene
IR	=	100	mg/day	
EF	=	48	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
ATc	=	25550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT FOR MUTAGENIC CHEMICALS - ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{1.13\ mg/kg \times 100\ mg/day \times 48\ days/year \times 10\ years \times 1.0E\text{-}06\ kg/mg}{70\ kg \times 25550\ days} \times 3$$

IEXc = 9.10E-08 mg/kg/day

$$IEXc = \frac{1.13\ mg/kg \times 100\ mg/day \times 48\ days/year \times 14\ years \times 1.0E\text{-}06\ kg/mg}{70\ kg \times 25550\ days} \times 1$$

IEXc = 4.25E-08 mg/kg/day

ILCR = (9.10E-08 mg/kg/day + 4.25E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 9.7E-07

CALCULATION WORKSHEET

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT FOR MUTAGENIC CHEMICALS - ADULT RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from dermal contact with sediment.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	1.13	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	6880	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.13		
EF	=	48	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
BW	=	70	kg	
ATc	=	25550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND		**JOB NUMBER:** 2124
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT FOR MUTAGENIC CHEMICALS - ADULT RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/11/2009

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{1.13\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 6880\ cm2/day \times 0.07\ mg/cm2 \times 0.13 \times 48\ days/year \times 10\ years}{70\ kg \times 25550\ days} \times 3$$

DEXc = 5.70E-08 mg/kg/day

$$DEXc = \frac{1.13\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 6880\ cm2/day \times 0.07\ mg/cm2 \times 0.13 \times 48\ days/year \times 14\ years}{70\ kg \times 25550\ days} \times 1$$

DEXc = 2.66E-08 mg/kg/day

ILCR = (5.70E-08 mg/kg/day + 2.66E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 6.1E-07

APPENDIX H.6

VAPOR INTRUSION MODELING RESULTS

Residential

GW-SCREEN Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION
(enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
127184	2.00E+00	Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER SCS soil type directly above water table	ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
15	300	LS	11	5

MORE ↓

ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vandose zone soil vapor permeability, k_v (cm^2)	ENTER Vadose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^V (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)
LS			LS	1.62	0.39	0.076

MORE ↓

ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
1.0E-06	1	70	30	30	350

Used to calculate risk-based groundwater concentration.

ABC

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	6.0E-01

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^v (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
285	0.314	0.079	1.63E-08	0.957	1.56E-08	18.75	0.39	0.087	0.303	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_v (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)
1.69E+04	1.00E+06	4.00E-04	15	9,543	8.30E-03	3.56E-01	1.76E-04	1.00E-02	1.44E-04	1.82E-03

Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
285	15	7.12E+02	0.10	8.33E+01	1.00E-02	4.00E+02	3.03E+90	3.50E-04	2.49E-01	5.9E-06	6.0E-01

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	NA	NA	2.00E+05	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
6.0E-07	4.0E-04

MESSAGE SUMMARY BELOW:

END

Industrial

DATA ENTRY SHEET

GW-SCREEN Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
127184	2.00E+00	Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER SCS soil type directly above water table	ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
15	300	LS	11	5

MORE ↓

ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vandose zone soil vapor permeability, k_v (cm^2)	ENTER Vadose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^v (g/cm^3)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm^3/cm^3)
LS			LS	1.62	0.39	0.076

MORE ↓

ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
1.0E-06	1	70	25	25	250

Used to calculate risk-based groundwater concentration.

CHEMICAL PROPERTIES SHEET

ABC

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	6.0E-01

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^v (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
285	0.314	0.079	1.63E-08	0.957	1.56E-08	18.75	0.39	0.087	0.303	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_v (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)
1.69E+04	1.00E+06	4.00E-04	15	9,543	8.30E-03	3.56E-01	1.76E-04	1.00E-02	1.44E-04	1.82E-03

Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
285	15	7.12E+02	0.10	8.33E+01	1.00E-02	4.00E+02	3.03E+90	3.50E-04	2.49E-01	5.9E-06	6.0E-01

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	NA	NA	2.00E+05	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.6E-07	2.8E-04

MESSAGE SUMMARY BELOW:

END

APPENDIX H.7

LEAD MODELING RESULTS

IEUBK Modeling Results

LEAD MODEL FOR WINDOWS Version 1.1

Model Version: 1.1 Build9 (Page 1 of 3)
Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Exposed Area Surface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment

Soil/Dust Data
Average concentration of lead in surface soil at the Exposed Area = 73.1 mg/kg.

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Exposed Area Surface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 61.170 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	73.100	61.170
1-2	73.100	61.170
2-3	73.100	61.170
3-4	73.100	61.170
4-5	73.100	61.170
5-6	73.100	61.170
6-7	73.100	61.170

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

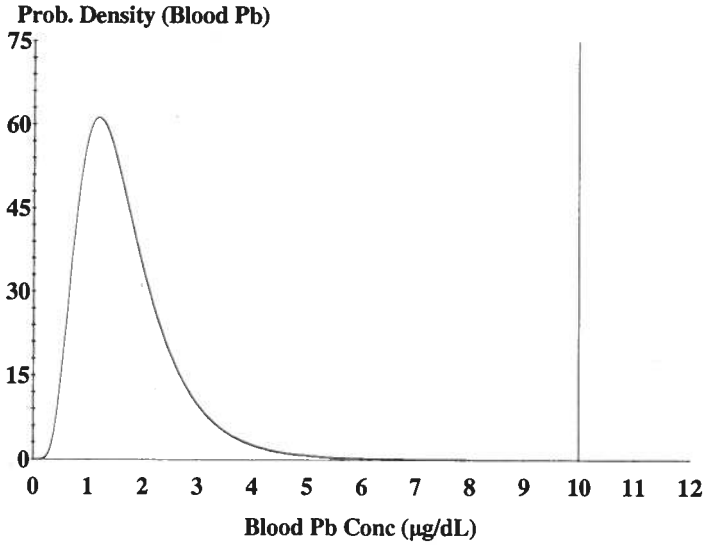
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.091	0.000	0.386
1-2	0.034	0.942	0.000	0.962
2-3	0.062	1.029	0.000	1.005
3-4	0.067	0.991	0.000	1.029
4-5	0.067	0.954	0.000	1.076
5-6	0.093	1.006	0.000	1.138
6-7	0.093	1.091	0.000	1.160

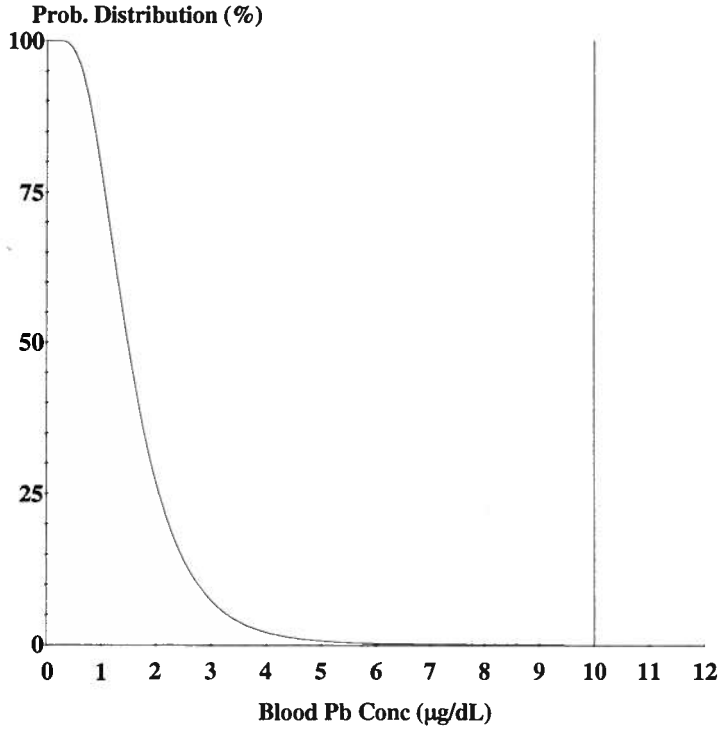
Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	1.638	3.136	1.7
1-2	2.591	4.530	1.9
2-3	2.604	4.700	1.8
3-4	2.617	4.704	1.7
4-5	1.953	4.050	1.4
5-6	1.763	4.000	1.3
6-7	1.668	4.011	1.1



Cutoff = 10.000 µg/dl
Geo Mean = 1.546
GSD = 1.600
% Above = 0.004
% Below = 99.996

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Exposed Area Surface Soil



Cutoff = 10.000 µg/dl
Geo Mean = 1.546
GSD = 1.600
% Above = 0.004

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Exposed Area Surface Soil

LEAD MODEL FOR WINDOWS Version 1.1

Model Version: 1.1 Build9 (Page 1 of 3)
Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Exposed Area Subsurface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment

Soil/Dust Data
Average concentration of lead in subsurface soil at the Exposed Area = 190 mg/kg.

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Exposed Area Subsurface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 143.000 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	190.000	143.000
1-2	190.000	143.000
2-3	190.000	143.000
3-4	190.000	143.000
4-5	190.000	143.000
5-6	190.000	143.000
6-7	190.000	143.000

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

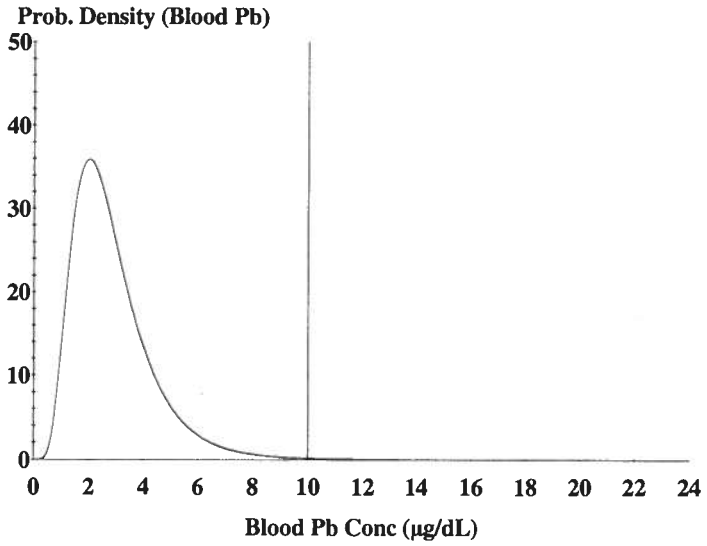
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.063	0.000	0.376
1-2	0.034	0.913	0.000	0.932
2-3	0.062	1.002	0.000	0.978
3-4	0.067	0.968	0.000	1.006
4-5	0.067	0.940	0.000	1.060
5-6	0.093	0.994	0.000	1.125
6-7	0.093	1.079	0.000	1.147

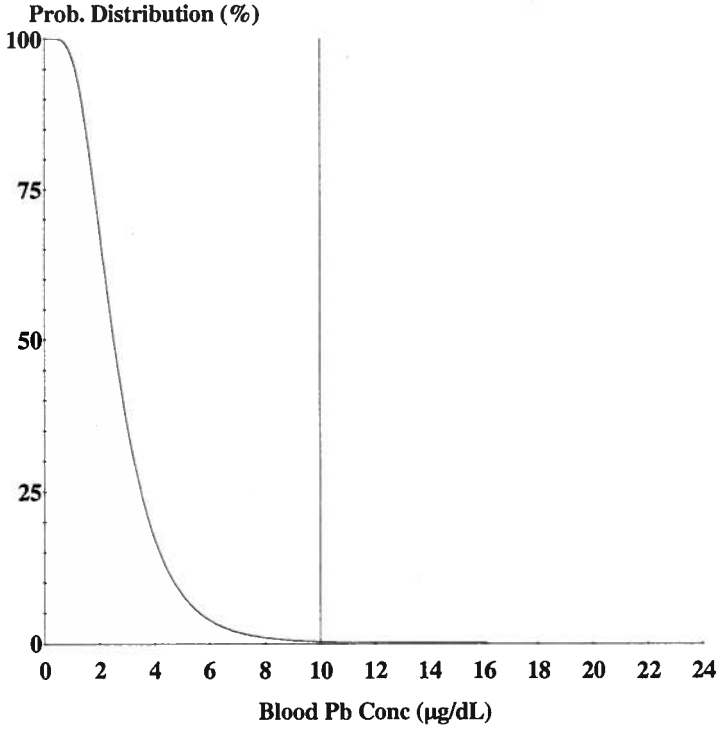
Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	3.937	5.397	2.9
1-2	6.195	8.075	3.3
2-3	6.253	8.294	3.1
3-4	6.307	8.347	2.9
4-5	4.746	6.813	2.4
5-6	4.296	6.508	2.1
6-7	4.070	6.391	1.8



Cutoff = 10.000 µg/dl
Geo Mean = 2.639
GSD = 1.600
% Above = 0.229
% Below = 99.771

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Exposed Area Subsurface Soil



Cutoff = 10.000 µg/dl
Geo Mean = 2.639
GSD = 1.600
% Above = 0.229

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Exposed Area Subsurface Soil

LEAD MODEL FOR WINDOWS Version 1.1

Model Version: 1.1 Build9 (Page 1 of 3)
Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Paved Area Subsurface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment

Soil/Dust Data
Average concentration of lead in paved area subsurface soil = 18 mg/kg.

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Paved Area Subsurface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 22.600 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	18.000	22.600
1-2	18.000	22.600
2-3	18.000	22.600
3-4	18.000	22.600
4-5	18.000	22.600
5-6	18.000	22.600
6-7	18.000	22.600

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

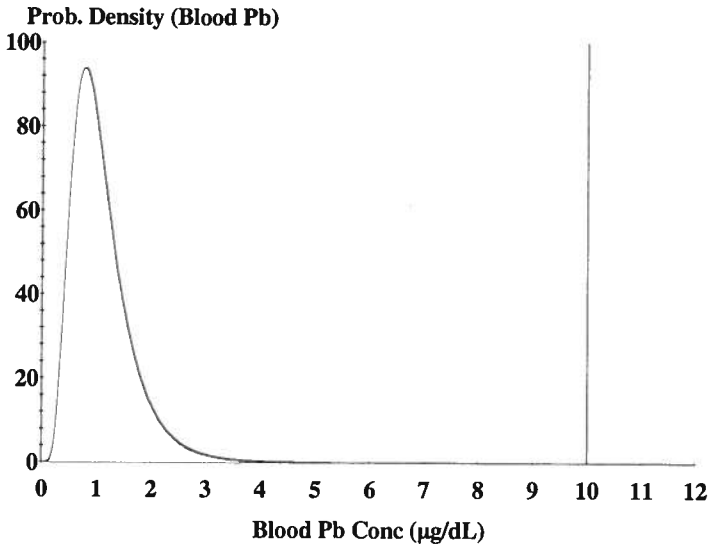
Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.105	0.000	0.391
1-2	0.034	0.957	0.000	0.976
2-3	0.062	1.043	0.000	1.018
3-4	0.067	1.002	0.000	1.041
4-5	0.067	0.961	0.000	1.084
5-6	0.093	1.012	0.000	1.145
6-7	0.093	1.096	0.000	1.166

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	0.512	2.029	1.1
1-2	0.812	2.780	1.2
2-3	0.814	2.937	1.1
3-4	0.817	2.926	1.0
4-5	0.607	2.719	0.9
5-6	0.547	2.797	0.9
6-7	0.517	2.872	0.8

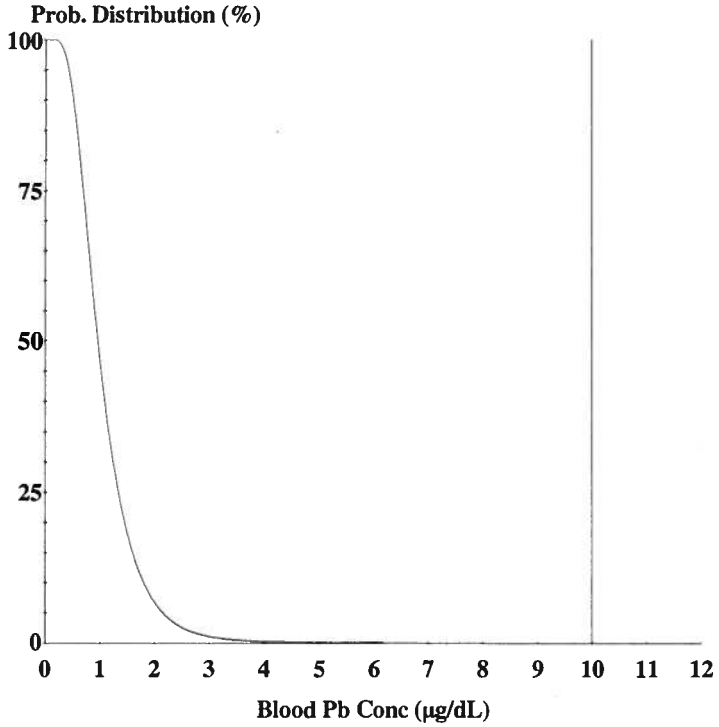
Location: Naval Station Newport, Middletown, Rhode Island
Site Name: Site 08, NUSC Disposal Area - Paved Area Subsurface Soil
Date: 11/04/2009
Run Mode: Site Risk Assessment



Cutoff = 10.000 µg/dl
Geo Mean = 1.009
GSD = 1.600
% Above = 0.000
% Below = 100.000

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Paved Area Subsurface Soil



Cutoff = 10.000 µg/dl
Geo Mean = 1.009
GSD = 1.600
% Above = 0.000

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Paved Area Subsurface Soil

Adult Lead Model Results

SITE NAME: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
LOCATION: SITE 08, NUSC DISPOSAL AREA
RECEPTOR: CONSTRUCTION WORKERS
MEDIA: SURFACE SOIL - EXPOSED AREA
DATE: NOVEMBER 4, 2009

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	73.1
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.100
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S.D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S.D}$	Exposure frequency (same for soil and dust)	days/yr	130
$AT_{S.D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.1**
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.7
PbB_t	Target PbB level of concern (e.g.. 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.005%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

SITE NAME: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
LOCATION: SITE 08, NUSC DISPOSAL AREA
RECEPTOR: CONSTRUCTION WORKERS
MEDIA: SUBSURFACE SOIL - EXPOSED AREA
DATE: NOVEMBER 4, 2009

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	190
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.100
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor: fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S.D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S.D}$	Exposure frequency (same for soil and dust)	days/yr	130
$AT_{S.D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.3**
$PbB_{fetal.0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	3.1
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.01%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

SITE NAME: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
LOCATION: SITE 08, NUSC DISPOSAL AREA
RECEPTOR: CONSTRUCTION WORKERS
MEDIA: SUBSURFACE SOIL - PAVED AREA
DATE: NOVEMBER 4, 2009

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	18
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.100
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor: fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	130
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.0**
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.4
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.003%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

SITE NAME: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
LOCATION: SITE 08, NUSC DISPOSAL AREA
RECEPTOR: INDUSTRIAL WORKERS
MEDIA: SURFACE SOIL - EXPOSED AREA
DATE: NOVEMBER 4, 2009

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	73.1
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S.D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S.D}$	Exposure frequency (same for soil and dust)	days/yr	219
$AT_{S.D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.1**
$PbB_{fetal.0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.6
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.004%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

SITE NAME: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
LOCATION: SITE 08, NUSC DISPOSAL AREA
RECEPTOR: INDUSTRIAL WORKERS
MEDIA: SUBSURFACE SOIL - EXPOSED AREA
DATE: NOVEMBER 4, 2009

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	190
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S.D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S.D}$	Exposure frequency (same for soil and dust)	days/yr	219
$AT_{S.D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.3**
$PbB_{fetal.0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	3.0
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.01%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

SITE NAME: NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND
LOCATION: SITE 08, NUSC DISPOSAL AREA
RECEPTOR: INDUSTRIAL WORKERS
MEDIA: SUBSURFACE SOIL - PAVED AREA
DATE: NOVEMBER 4, 2009

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	18
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.0**
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.4
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.003%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

APPENDIX I

ECOLOGICAL RISK ASSESSMENT SUPPORT

APPENDIX I.1

CHEMICAL SPECIFIC DATA

APPENDIX I.1

SOIL TO PLANT AND EARTHWORM
BIOACCUMULATION FACTORS

This attachment presents the bioaccumulation factors (BAFs) that were used in the food chain models. Earthworm and fish were collected from the site for chemical analysis so BAFs were not needed for most parameters. However, in accordance with the Work Plan, the earthworm samples were not analyzed for semi-volatile organic compounds (SVOCs). Therefore, the following source was used for BAFs for SVOCs:

- Soil Invertebrate BAFs: EPA Guidance for Developing Ecological Soil Screening Levels, Attachment 4-1 (USEPA, 2007).

The attached table presents the BAFs that were used in the food-chain models for the SVOCs that were detected in the soil at the Site. BAFs were only available for the PAHs. A default BAF of 1.0 was used for the other SVOCs.

Site specific soil to earthworm BAFs for PAHs were developed using the methodology and chemical specific factors provided in the EPA Ecological Soil Screening Level (Eco SSL) Guidance Document (Attachment 4-1, Table 5) (EPA, 2007), which assumed a percent total organic carbon (TOC) content of 1. The Eco SSL document allows for the calculation of BAFs using site-specific TOC values. The attached table presents the BAF calculation for each parameter using the average site percent TOC of 2.89. The calculations for 2-methylnaphthalene used the above referenced methodology (EPA, 2007) using the K_{ow} from Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures (US EPA, 2003).

References

EPA. 2003. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures. EPA/600/R-02/013. November.

EPA, 2007. Guidance for Developing Ecological Soil Screening Levels Attachment 4-1. Office of Solid Waste and Emergency and Response. OSWER Directive 92857-55. February.

DRY WEIGHT BAFS FOR EARTHWORMS

Chemicals	Earthworm BAFs[1]	
	Conservative[2]	Average[2]
Semivolatile Organics		
1,1-Biphenyl	1.00E+00	1.00E+00
2-Methylnaphthalene	7.92E-01	7.92E-01
3,3'-Dichlorobenzidine	1.00E+00	1.00E+00
Acenaphthene	5.11E-01	5.11E-01
Acenaphthylene	7.93E+00	7.93E+00
Anthracene	8.36E-01	8.36E-01
Benzo(a)anthracene	5.50E-01	5.50E-01
Benzo(a)pyrene	4.61E-01	4.61E-01
Benzo(b)fluoranthene	9.00E-01	9.00E-01
Benzo(g,h,i)perylene	1.02E+00	1.02E+00
Benzo(k)Fluoranthene	9.00E-01	9.00E-01
Bis(2-ethylhexyl)phthalate	1.00E+00	1.00E+00
Butyl benzyl Phthalate	1.00E+00	1.00E+00
Carbazole	1.00E+00	1.00E+00
Chrysene	7.94E-01	7.94E-01
Dibenzo(a,h)Anthracene	7.98E-01	7.98E-01
Dibenzofuran	1.00E+00	1.00E+00
Fluoranthene	1.05E+00	1.05E+00
Fluorene	3.31E+00	3.31E+00
Indeno(1,2,3-cd)pyrene	9.88E-01	9.88E-01
Naphthalene	1.52E+00	1.52E+00
N-Nitrosodiphenylamine	1.00E+00	1.00E+00
Phenanthrene	5.96E-01	5.96E-01
Pyrene	6.07E-01	6.07E-01
Benzoic acid	1.00E+00	1.00E+00

Calculation of Earthworm Bioaccumulation Factors for PAHs

Parameter	K_{WW}[1]	K_{OC}[1]	f_{OC}	K_d[1]	BAF[2]
Low Molecular Weight PAHs					
ACENAPHTHENE	161	10900	0.0289	315	0.51
ACENAPHTHYLENE	217	947	0.0289	27.4	7.93
ANTHRACENE	568	23500	0.0289	679.15	0.84
FLUORANTHENE	1270	41700	0.0289	1205	1.05
FLUORENE	271	2830	0.0289	81.8	3.31
PHENANTHRENE	568	33000	0.0289	953.7	0.60
2-METHYLNAPHTHALENE	142	6190	0.0289	178.9	0.79
NAPHTHALENE	52.4	1190	0.0289	34.4	1.52
High Molecular Weight PAHs					
BENZO(A)ANTHRACENE	5690	358000	0.0289	10346	0.55
BENZO(A)PYRENE	12900	969000	0.0289	28004	0.46
BENZO(B)FLUORANTHENE	15500	596000	0.0289	17224	0.90
BENZO(K)FLUORANTHENE	15500	596000	0.0289	17224	0.90
BENZO(G,H,I)PERYLENE	42200	1430000	0.0289	41327	1.02
CHRYSENE	5690	248000	0.0289	7167	0.79
DIBENZO(A,H)ANTHRACENE	41300	1790000	0.0289	51731	0.80
INDENO(1,2,3-CD)PYRENE	33400	1170000	0.0289	33813	0.99
PYRENE	1100	62700	0.0289	1812	0.61
TOTAL PAHS			**Average of PAH BAFs**		1.39

1 - These values were obtained from Table 5 in USEPA (2007) except for 2-methylnaphthalene (see bel
2 - These values were calculated as described in Table 5 in USEPA (2007).

Parameter	log K_{OW}[1]	log K_{WW}[2]	$K_{WW(wet\ wt)}$[2]	$K_{WW(dry\ wt)}$[2]
2-methylnaphthalene	3.9	1.4	22.7	142

1 - Source of this value is USEPA, 2003 (PAH Mixtures)
2 - These values were calculated as described in Table 5 in USEPA (2007).

Notes:

BAF - Bioaccumulation Factor
Default value of 1 is assigned to parameters without uptake factors

1 - Source and derivation of the BAFs arepresented in the adjacent table.
See BAF text in appendix for derivation discussion and references.
2 - Conservative and average refers to the exposure scenarios for which the uptake factors are used

NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE

PARAMETER	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
VOLATILES				
1,1,1-Trichloroethane	1000	10000	NV	NV
1,1,2,2-Tetrachloroethane	76	108	NV	NV
1,1,2-Trichloroethane	0.39	4.4	NV	NV
1,1-Dichloroethane	475	4750	NV	NV
1,2,4-Trichlorobenzene	1.48	14.8	NV	NV
1,2,4-Trimethylbenzene	NV	NV	NV	NV
1,2-Dichloroethane	50	500	17.2	34.4
1,3,5-Trimethylbenzene	NV	NV	NV	NV
2-Butanone	1771	4571	NV	NV
4-Isopropyltoluene	NV	NV	NV	NV
Acetone	10	50	20.1	201
Benzene	26.36	263.6	NV	NV
Carbon Disulfide	12.6	25.6	NV	NV
Chloroethane	NV	NV	NV	NV
cis-1,2-Dichloroethene	45.2	452	NV	NV
Dichlorodifluoromethane	2310	23100	NV	NV
M+P-Xylenes	2.06	2.58	107	1070
Methylene Chloride	5.85	50	NV	NV
N-Butylbenzene	NV	NV	NV	NV
N-Propylbenzene	NV	NV	NV	NV
O-Xylene	2.06	2.58	107	1070
Sec-Butylbenzene	NV	NV	NV	NV
Tetrachloroethene	1.4	7	NV	NV
Toluene	26	260	NV	NV
Total 1,2-Dichloroethene	45.2	452	NV	NV
Total Xylenes	2.06	2.58	107	1070
Trichloroethene	0.7	7	NV	NV
SEMIVOLATILES				
1,1-Biphenyl	5	25	NV	NV
2-Methylnaphthalene	65.6	356	2	20
3,3'-Dichlorobenzidine	NV	NV	NV	NV
Acenaphthene	65.6	356	2	20
Acenaphthylene	65.6	356	2	20
Anthracene	65.6	356	2	20
Benzo(a)anthracene	0.615	38.4	2	20
Benzo(a)pyrene	0.615	38.4	2	20
Benzo(b)fluoranthene	0.615	38.4	2	20
Benzo(g,h,i)perylene	0.615	38.4	2	20
Benzo(k)fluoranthene	0.615	38.4	2	20
Benzoic Acid	NV	NV	NV	NV
Benzyl Alcohol	NV	NV	NV	NV
Bis(2-Ethylhexyl)phthalate	18.3	183	1.11	11.1
Butyl benzyl Phthalate	15.9	47	NV	NV
Carbazole	0.615	38.4	2	20
Chrysene	0.615	38.4	2	20
Dibenzo(a,h)anthracene	0.615	38.4	2	20
Dibenzofuran	0.615	38.4	2	20
Diethyl phthalate	4583	45830	NV	NV
Di-n-butyl phthalate	550	1833	NV	NV
Fluoranthene	65.6	356	2	20
Fluorene	65.6	356	2	20
Indeno(1,2,3-cd)pyrene	0.615	38.4	2	20

NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE

PARAMETER	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
Naphthalene	65.6	356	2	20
N-Nitrosodiphenylamine	NV	NV	NV	NV
Phenanthrene	65.6	356	2	20
Pyrene	0.615	38.4	2	20
Low Molecular Weight PAHs	65.6	356	2	20
High Molecular Weight PAHs	0.615	38.4	2	20
Total PAHs	0.615	38.4	2	20
PESTICIDES/PCBs				
4,4'-DDD	0.147	0.274	0.227	0.281
4,4'-DDE	0.147	0.274	0.227	0.281
4,4'-DDT	0.147	0.274	0.227	0.281
Alpha-Chlordane	4.58	9.16	2.14	10.7
Aroclor-1254	0.068	0.68	0.18	1.8
Aroclor-1260	0.068	0.68	0.18	1.8
Aroclor-1268	0.068	0.68	0.18	1.8
Dieldrin	0.015	1.27	0.0709	0.8
Endrin	0.092	0.92	0.01035	0.1035
Gamma-Chlordane	4.58	9.16	2.14	10.7
Heptachlor	0.1	1	NV	NV
Heptachlor Epoxide	0.1	1	NV	NV
Total Aroclor	0.068	0.68	0.18	1.8
Total DDD/DDE/DDT	0.147	0.274	0.227	0.281
INORGANICS				
Aluminum	1.93	19.3	109.7	1097
Antimony	0.059	2.76	NV	NV
Arsenic	1.04	4.55	2.24	4.51
Barium	51.8	82.7	20.8	41.7
Beryllium	0.532	0.673	NV	NV
Cadmium	0.8	6.9	1.5	6.3
Chromium	2.40	58.17	2.66	15.63
Cobalt	7.33	18.90	7.61	18.34
Copper	5.8	81.4	4.05	34.76
Iron	50	500	100	1000
Lead	4.7	186.4	1.63	44.63
Manganese	51.5	145.67	179	376.6
Mercury	0.032	0.16	0.0064	0.064
Molybdenum	NV	NV	NV	NV
Nickel	1.70	14.77	6.71	18.57
Selenium	0.2	0.33	0.4	0.8
Silver	6.02	118.6	2.02	60.47
Thallium	0.0074	0.074	NV	NV
Vanadium	4.16	7.74	0.34	1.69
Zinc	75.4	297.58	66.1	171.44

Notes:

The sources of these NOAELs and LOAELs are presented in the table titled "Sources and Endpoints for NOAELs and LOAELs for Terrestrial Wildlife" in this appendix.

The NOAELs and LOAELs in the source table were divided by 10 if a subchronic study was the basis for the value. Also, if only a NOAEL was available, the value was multiplied by 10 to estimate the LOAEL. If only a LOAEL was available, the value was divided by 10 to estimate the NOAEL.

NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE

PARAMETER	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL

The NOAELs and LOAELs for the following PAHs are based on the Low Molecular Weight PAH Values: acenapthylene, acenaphthene, anthracene, fluoranthene, fluorene, phenanthrene, 2-methylnaphthalene, and naphthalene.

The NOAELs and LOAELs for the following PAHs are based on the High Molecular Weight (HMW) PAH Values: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-c,d)pyrene, and pyrene.

The NOAELs and LOAELs for the PAHs, carbazole, and dibenzofuran for birds were based on 7,12-dimethylbenz(a)anthracene.

The NOAEL and LOAEL for Aroclor-1254 were used as surrogates for Aroclors-1260 and 1268.

The NOAELs and LOAELs for dibenzofuran and carbazole for mammals are based on the HMW PAH values.

The LOAELs used for several metals were calculated as the geometric mean of growth and reproduction data from the Ecological Soil Screening Levels (EPA, 2005, 2006, 2007, 2008).

SOURCES AND ENDPOINTS FOR NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Volatile Organics							
1,1,1-Trichloroethane	1000	NOAEL	reproductive	chronic	mouse	Lane, et al., 1982	Sample et.al., 1996
1,1-Dichloroethane	475	NOAEL	mortality	chronic	mouse	Klaunig, et. al., 1986	ATSDR, 1989
1,2,4-Trichlorobenzene	14.8	NOAEL	reproduction	subchronic	rat	IT Corporation, 1997	LANL, 2004
1,2-Dichloroethane	50	NOAEL	reproductive	chronic	mouse	Lane et al., 1982	Sample et.al., 1996
1,2-Dichloroethane	17.2	NOAEL	reproductive	chronic	chicken	Alumot et al., 1976b	Sample et.al., 1996
1,2-Dichloroethane	34.4	LOAEL	reproductive	chronic	chicken	Alumot et al., 1976b	Sample et.al., 1996
1,2-Dichloroethene (total)	452	NOAEL	systemic	subchronic	mouse	Palmer et al., 1979	Sample et.al., 1996
cis-1,2-Dichloroethene	452	NOAEL	systemic	subchronic	mouse	Palmer et al., 1979	Sample et.al., 1996
2-Butanone	1771	NOAEL	reproduction	chronic	rat	Cox et al., 1975	Sample et.al., 1996
2-Butanone	4571	LOAEL	reproduction	chronic	rat	Cox et al., 1975	Sample et.al., 1996
Acetone	100	NOEL	systemic	subchronic	rat	USEPA, 1986	Sample et.al., 1996
Acetone	500	LOAEL	systemic	subchronic	rat	USEPA, 1986	Sample et.al., 1996
Acetone	20089	NOAEL	mortality	chronic	Japanese quail	Hill, 1986	LANL, 2000
Benzene	263.6	LOAEL	reproduction	chronic	mouse	Nawrot and Staples, 1989	Sample et.al., 1996
Carbon Disulfide	126	NOAEL	systemic	subchronic	rat	Hoffman and Klapperstuck, 1990	ASTDR, 1996
Carbon Disulfide	256	LOAEL	systemic	subchronic	rat	Hoffman and Klapperstuck, 1990	ASTDR, 1996
Dichlorodifluoromethane	2310	NOAEL	mortality	chronic	rat	Maltoni et al., 1988	LANL, 2004
Methylene Chloride	5.85	NOAEL	systemic	chronic	rat	NCA, 1982	Sample et.al., 1996
Methylene Chloride	50	LOAEL	systemic	chronic	rat	NCA, 1982	Sample et.al., 1996
Tetrachloroethene	14	NOAEL	systemic	subchronic	mouse	Buben and O'Flaherty, 1985	Sample et.al., 1996
Tetrachloroethene	70	LOAEL	systemic	subchronic	mouse	Buben and O'Flaherty, 1985	Sample et.al., 1996
Toluene	260	LOAEL	reproductive	chronic	mouse	Nawrot and Staples, 1989	Sample et.al., 1996
Trichloroethene	70	LOAEL	hepatoxicity	subchronic	mouse	Buben and O'Flaherty, 1985	Sample et.al., 1996
Xylene	2.06	NOAEL	reproduction	chronic	mouse	Marks et al., 1982	Sample et.al., 1996
Xylene	2.58	LOAEL	reproduction	chronic	mouse	Marks et al., 1982	Sample et.al., 1996
Xylene	107	NOAEL	mortality	chronic	Japanese quail	Gallegos, 1997	LANL, 2002
Semivolatiles Organics							
1,1-Biphenyl	50	NOAEL	systemic	subchronic	rat	Ambrose et al., 1960	IRIS, 2009
1,1-Biphenyl	250	LOAEL	systemic	subchronic	rat	Ambrose et al., 1960	IRIS, 2009
Low Molecular Weight PAHs	65.6	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Low Molecular Weight PAHs	356	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
High Molecular Weight PAHs	0.615	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
High Molecular Weight PAHs	38.4	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Bis(2-ethylhexyl)phthalate	18.33	NOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Bis(2-ethylhexyl)phthalate	183.3	LOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Butylbenzylphthalate	159	NOAEL	systemic	subchronic	rat	NTP, 1985a	IRIS, 2002
Butylbenzylphthalate	470	LOAEL	systemic	subchronic	rat	NTP, 1985a	IRIS, 2002
7,12-Dimethylbenz(a)anthracene	2	NOAEL	systemic	chronic	nestling/starlings	Trust et al., 1994	
7,12-Dimethylbenz(a)anthracene	20	LOAEL	systemic	chronic	nestling/starlings	Trust et al., 1994	
Diethyl phthalate	4583	NOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Di-n-butylphthalate	550	NOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Di-n-butylphthalate	1833	LOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Pesticides/PCBs							
Chlordane	2.14	NOAEL	mortality	chronic	red-winged blackbird	Stickel et al., 1983	Sample et.al., 1996
Chlordane	10.7	LOAEL	mortality	chronic	red-winged blackbird	Stickel et al., 1983	Sample et.al., 1996
Chlordane	4.58	NOAEL	reproduction	chronic	mouse	WHO, 1984	Sample et.al., 1996
Chlordane	9.16	LOAEL	reproduction	chronic	mouse	WHO, 1984	Sample et.al., 1996
4,4'-DDT	0.147	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
4,4'-DDT	5.56	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
4,4'-DDT	0.227	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
4,4'-DDT	2.7	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Dieldrin	0.0709	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Dieldrin	0.8	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Dieldrin	0.015	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Dieldrin	1.27	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Endrin	0.92	LOAEL	reproduction	chronic	mouse	Good and Ware, 1969	Sample et.al., 1996
Endrin	0.1035	LOAEL	reproduction	chronic	screech owl	Fleming et al., 1982	Sample et.al., 1996
Heptachlor	1	LOAEL	reproduction	chronic	mink	Crum et al., 1993	Sample et.al., 1996
Aroclor-1254	1.8	LOAEL	reproductive	chronic	pheasant	Dahlgren et al., 1972	Sample et.al., 1996
Aroclor-1254	0.68	LOAEL	reproduction	chronic	mouse	McCoy et al., 1995	Sample et.al., 1996

SOURCES AND ENDPOINTS FOR NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Inorganics							
Aluminum	109.7	NOAEL	reproductive	chronic	ringed dove	Carriere et al., 1986	Sample et.al., 1996
Aluminum	19.3	LOAEL	reproductive	chronic	mouse	Ondreicka et al., 1966	Sample et.al., 1996
Antimony	0.059	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Antimony	2.76	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2006	
Arsenic	2.24	NOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Arsenic	4.51	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Arsenic	1.04	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Arsenic	4.55	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Barium	51.8	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Barium	82.7	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Beryllium	0.532	NOAEL	Survival	chronic	rat	USEPA, 2005	
Beryllium	0.673	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Cadmium	1.47	NOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Cadmium	6.35	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Cadmium	0.77	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Cadmium	6.9	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Chromium(III)	2.66	NOAEL	reproduction & growth	chronic	birds	USEPA, 2008	
Chromium(III)	15.63	LOAEL	reproduction & growth	chronic	birds	USEPA, 2008	
Chromium(III)	2.4	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2008	
Chromium(III)	58.17	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2008	
Chromium(VI)	5.66	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2008	
Chromium(VI)	38.37	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2008	
Cobalt	7.61	NOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Cobalt	18.34	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Cobalt	7.33	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Cobalt	18.9	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Copper	4.05	NOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Copper	34.87	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Copper	5.6	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Copper	82.7	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Iron	500	LOAEL	unknown	chronic	rabbit	NAS, 1980	
Iron	1000	LOAEL	unknown	chronic	poultry	NAS, 1980	
Lead	1.63	NOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Lead	44.6	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Lead	4.7	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Lead	186.4	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Manganese	179	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Manganese	376.6	LOAEL	growth	chronic	birds	USEPA, 2007	
Manganese	51.5	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Manganese	145.67	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Mercury	0.064	LOAEL	reproductive	chronic	mallard duck	Heinz, 1979	Sample et.al., 1996
Mercury	0.032	NOAEL	reproductive	chronic	rat	Verschuuren et al., 1976	Sample et.al., 1996
Mercury	0.16	LOAEL	reproductive	chronic	rat	Verschuuren et al., 1976	Sample et.al., 1996
Nickel	6.71	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Nickel	18.57	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Nickel	1.7	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	

SOURCES AND ENDPOINTS FOR NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Nickel	14.77	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Selenium	0.29	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Selenium	0.819	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Selenium	0.143	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Selenium	0.661	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Silver	2.02	NOAEL	reproduction & growth	chronic	birds	USEPA, 2006	
Silver	60.47	LOAEL	reproduction & growth	chronic	birds	USEPA, 2006	
Silver	6.02	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2006	
Silver	118.62	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2006	
Thallium	0.74	LOAEL	reproductive	subchronic	rat	Formigli et al., 1986	Sample et.al., 1996
Vanadium	0.344	NOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Vanadium	1.686	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Vanadium	4.16	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Vanadium	9.436	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Zinc	75.4	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Zinc	297.58	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Zinc	66.1	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Zinc	171.44	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	

Notes:

NOAEL = No Observed Adverse Effects Level

LOAEL = Lowest Observed Adverse Effects Level

The NOAELS and LOAELS for the following PAHs are based on the Low Molecular Weight PAH values: acenapthylene, acenaphthene, anthracene, fluoranthene, fluorene, phenanthrene, 2-methylnaphthalene, and naphthalene.

The NOAELS and LOAELS for the following PAHs are based on the High Molecular Weight PAH values: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-c,d)pyrene, and pyrene.

The NOAELS and LOAELS for the PAHs for birds were based on 7,12-dimethylbenz(a)anthracene.

The LOAELs used for several metals were calculated as the geometric mean of growth and reproduction data from the Ecological Soil Screening Levels (U.S. EPA, 2005, 2006, 2007).

The LOAELs for Aroclor-1254 were used as surrogates for Aroclor-1260.

References for the NOAELS and LOAELs are presented in this Attachment and Titled "TRV Source and Endpoint References".

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APPENDIX I.2

RECEPTOR PROFILES AND EXPOSURE FACTORS

DRY WEIGHT DERIVATION OF BODY WEIGHT, FOOD INTAKE, AND WATER INTAKE FACTORS FOR TERRESTRIAL FOOD CHAIN MODELS
AREA A WETLAND
NAVAL SUBMARINE BASE, NEW LONDON, GROTON, CONNECTICUT

Data from EPA (1993)				Derivation of Factors for Modeling			
Species/Factor	Age/Sex/ Cond./Seas.	Value	Study Average	Calculation of Values			Notes
American Robin							
Body Weight (g)	A B	77.3	77.3	Minimum Value	0.0773	kg	
				Maximum Value	0.0862	kg	
	A M nonbreeding	86.2		Overall Study Average	0.0804	kg	
	A F nonbreeding	83.6	84.9				
	A M breeding	77.4					
	A F breeding	80.6	79				
Food Ingestion Rate (g/g-day)	B B free-living	0.89		*For Eating Mostly Fruit*			
				Conservative value:	0.0281	kg/day	Maximum ingestion rate * Average Body weight * 0.23[(1)]
	- B free-living	1.52					
				Average value	0.0223	kg/day	Average ingestion rate * Average Body weight * 0.23[(1)]
							[(1)] - 0.23 = percent solids in fruit to convert to a dry weight ingestion rate
	Overall Study Average		1.21				
				Based on Metabolic Scaling			
					0.01247	kg/day	Used maximum body weight in below equation
					0.01188	kg/day	Used average body weight in below equation
							Food ingestion rates were calculated from Nagy et al., (1999) for insectivores as follows: FI = (9.7*BW(g)$^{0.705}$)/18kJ/g/1000
Water Ingestion Rate (g/g-day)	A B	0.14		Conservative value:	0.012	L/day	Ingestion rate * Maximum Body weight
				Average value	0.011	L/day	Ingestion rate * Average Body weight
Short-Tailed Shrew							
Body Weight (g)	A B	15	15	Minimum Value	0.0150	kg	
				Maximum Value	0.01921	kg	
	M summer	19.21	17.27	Overall Study Average	0.01613	kg	
	F summer	17.4					
	M fall	16.87					
	M fall	15.58					
Food Ingestion Rate (g/g-day)	A B	0.49		Conservative value:	0.0016	kg/day	Maximum ingestion rate * Average Body weight * 0.16[(1)]
	A B	0.62		Average value	0.00143	kg/day	Average ingestion rate * Average Body weight * 0.16[(1)]
	Overall Study Average		0.555				[(1)] - 0.16 = percent solids in earthworms to convert to a dry weight ingestion rate
Water Ingestion Rate (g/g-day)	A B	0.223		Conservative value:	0.00428	L/day	Ingestion rate * Maximum Body weight
				Average value	0.00360	L/day	Ingestion rate * Average Body weight
Great Blue Heron							
Body Weight (g)	A B	2229	2229	Minimum Value	2.204	kg	
				Maximum Value	2.576	kg	
	A F	2204	2390	Overall Study Average	2.310	kg	
	A M	2576					
Food Ingestion Rate (g/g-day)	A B	0.18		Conservative value:	0.116	kg/day	Ingestion rate * Maximum Body weight * 0.25[(1)]
				Average value	0.104	kg/day	Ingestion rate * Average Body weight * 0.25[(1)]
							[(1)] - 0.25 = percent solids in fish to convert to a dry weight ingestion rate

DRY WEIGHT DERIVATION OF BODY WEIGHT, FOOD INTAKE, AND WATER INTAKE FACTORS FOR TERRESTRIAL FOOD CHAIN MODELS
AREA A WETLAND
NAVAL SUBMARINE BASE, NEW LONDON, GROTON, CONNECTICUT

Data from EPA (1993)				Derivation of Factors for Modeling			
Species/Factor	Age/Sex/ Cond./Seas.	Value	Study Average	Calculation of Values			Notes
Water Ingestion Rate (g/g-day)	A B	0.045		Conservative value:	0.116	L/day	Ingestion rate * Maximum Body weight
				Average value	0.104	L/day	Ingestion rate * Average Body weight
Mink							
Body Weight (g)	A M spring	1734	1354	Minimum Value	0.550	kg	
	A F spring	974		Maximum Value	1.734	kg	
				Overall Study Average	1.1031	kg	
	A M summer	1040	852				
	A M fall	1233					
	A F summer	550					
	A F fall	586					
Food Ingestion Rate (g/g-day)	A M summer	0.13	0.13	Conservative value:	0.0607	kg/day	Maximum ingestion rate * Average Body weight * 0.25[(1)]
	A M winter	0.12	0.14	Average value	0.04504	kg/day	Average ingestion rate * Average Body weight * 0.25[(1)]
	A F winter	0.16					
	A M yr-round	0.22	0.22				
	Overall Study Average		0.163				[(1)] - 0.25 = percent solids in fish to convert to a dry weight ingestion rate
Water Ingestion Rate (g/g-day)	A F	0.11	0.105	Conservative value:	0.1213	kg/day	Maximum ingestion rate * Average Body weight
	A M	0.099					
				Average value	0.07308	kg/day	Average ingestion rate * Average Body weight
	A F	0.028	0.028				
	Overall Study Average		0.0663				

Notes:
A = Adult
F = Female, M = Male, B = Both
BW = Body Weight

RECEPTOR PROFILES

The following sections present the receptor profiles for the short-tailed shrew, American robin, mink, and great blue heron. The majority of the information for the profiles was obtained from the Wildlife Exposure Factors Handbook (USEPA, 1993). The data for the incidental soil ingestion rates were obtained from the Estimates of Soil Ingestion by Wildlife (Beyer, 1994) or the USEPA Ecological Soil Screening Guidance (USEPA, 2007).

The food and water ingestion rates are listed in g/g (of body weight)-day on a wet weight basis but were converted to dry weight for the ERA. The home ranges are presented in hectares in USEPA (December 1993) but were converted to acres by multiplying the number of hectares by 2.471. Also note that the estimated percent of soil in the diets are listed in dry weight. The attached table presents the calculation of the exposure parameters and how the calculations were done.

Short-Tailed Shrew (*Blarina brevicauda*)

Shrews inhabit a wide variety of habitats and are common in areas with abundant vegetative cover. They need cool, moist habitats because of their high metabolic and water-loss rates. The short-tailed shrew is primarily carnivorous, eating insects such as earthworms, slugs, and snails.

The adult body weight for the short-tailed shrew in various habitats ranged from 0.015 to 0.01921 kg with an average of 0.0161 kg. The listed food ingestion rates for shrews are 0.49 and 0.62 g/g-day (wet-weight). The water ingestion rate was listed as 0.223 g/g-day. The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in the attached table. The food ingestion rates were then multiplied by 0.16, which is the percent solids of worms (Sample et al., 1997) to convert the ingestion rate from a wet-weight value to a dry-weight value. The incidental soil ingestion rate was calculated by multiplying the ingestion rate by the percentage of soil that is incidentally ingested (assumed 3 percent for conservative food chain model and 0.9 percent for the average food chain model) from USEPA (2007). 3 percent is the 90th percentile value and 0.9 percent is the 50th percentile value from USEPA (2007).

The home range for the shrew (0. 9699 acres) was calculated using data from a tamarek bog in Manitoba (only value available).

American Robin (*Turdus migratorius*)

American robins' habitats include parks, lawns, moist forests, swamps, open woodlands, and orchards. Robins forage on the ground in open areas, along habitat edges, or the edges of streams. They also may forage above ground in shrubs and within the lower branches of trees. In the months preceding and during the breeding season, robins feed primarily on invertebrates and on some fruits. During the rest of the year their diet consists

primarily of fruits.

The adult body weight for the American robin in New York woodlands and forests and in Pennsylvania ranged from 0.0773 to 0.0862 kg with an average of 0.0804 kg. The only listed food ingestion rates were for robins in Kansas (1.52 g/g-day) and California (0.89 g/g-day), with an average of 1.205 g/g-day. The water ingestion rate was estimated as 0.14 g/g-day. Studies calculating ingestion rates for the robin included in the USEPA (December 1993) are based on a diet comprised of berries. However, because it is assumed that 100 percent of the robin's diet is worms for the food chain models, the ingestion rate for the robin was calculated using field metabolism scaling as presented on the attached table (Nagy et al., 1999). These are the values that were used in the food chain model for this site. The incidental soil ingestion rate was calculated by multiplying the ingestion rate by the percentage of soil that is incidentally ingested (assumed 16.4 percent for conservative food chain model and 6.4 percent for the average food chain model) from USEPA (2007). The 16.4 percent and 6.4 percent values are based on the American woodcock.

The home range for the robin was calculated using data from Tennessee and a New York dense conifer forest. The values ranged from 0.27 to 1.04 acres with an average home range of 0.61 acres.

Great Blue Heron (*Ardea herodias*)

Great blue herons inhabit a variety of freshwater and marine areas, including lakes, rivers, marshes, and coastal wetlands, particularly where small fish are plentiful in shallow waters. Fish are the preferred prey, but they also eat amphibians, reptiles, crustaceans, insects, birds, and mammals. The majority of the fish they consume are less than 25 cm (10 inches) in length.

The adult body weights range from 2.204 to 2.576 kg with an average of 2.310 kg. The food ingestion rate is listed as 0.18 g/g-day (wet-weight), while the water ingestion rate is listed as 0.045 g/g-day. The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in the attached table. The food ingestion rates were then multiplied by 0.25, which is the percent solids of fish (Sample et al., 1997) to convert the ingestion rate from a wet-weight value to a dry-weight value. The incidental soil ingestion rate is calculated by multiplying the ingestion rate by the percentage of sediment that is incidentally ingested (3.3 percent) based on the mallard (Beyer, 1994). The 3.3 percent is based on the incidental sediment ingestion rate of a mallard (Beyer, 1994), which also consumes aquatic organisms, because an incidental sediment ingestion rate was not available for the heron.

The range of feeding range sizes for the heron is 1.5 to 21 acres for an average feeding range of 11 acres.

Mink (Mustela vison)

Minks are the most abundant and widespread carnivorous mammals in North America. They are found associated with every type of aquatic habitat including waterways such as rivers, streams, lakes, ditches, swamps, marshes, and backwater areas. Minks prefer irregular shorelines and tend to use brushy or wooded cover adjacent to the water, where prey is abundant and downfall and debris provide den sites. Mammals are minks' most important prey year round in many parts of their range, but they also hunt aquatic species such as fish, amphibians, and crustaceans.

The adult body weight for the mink in various habitats ranged from 0.55 to 1.734 kg with an average of 1.103 kg. The listed food ingestion rates for minks range from 0.12 to 0.22 g/g-day (wet-weight). The water ingestion rates range from 0.028 to 0.11 g/g-day. The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in the attached table. The food ingestion rates were then multiplied by 0.25, which is the percent solids of fish (Sample et al., 1997) to convert the ingestion rate from a wet-weight value to a dry-weight value. The incidental sediment ingestion rate of was calculated by multiplying the ingestion rate by the percentage of sediment that is incidentally ingested (9.4 percent). The 9.4 percent is based on the incidental sediment ingestion rate of a raccoon (Beyer, 1994), which also consumes aquatic organisms, because an incidental sediment ingestion rate was not available for the mink.

The home range for the mink in riverine areas ranged from 19.3 to 50.4 acres, with an average of 34.85 acres.

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APPENDIX I.3

FOOD CHAIN MODEL

EARTHWORM TISSUE ANALYTICAL SUMMARY TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	Background Concentration[4]
Pesticides/PCBs (µg/kg)							
4,4'-DDE	8/10	4.14	49.5 J	DA-EWDRY-MW105-080708	10.9	12.7	4.48
ALPHA-CHLORDANE	3/10	3.03	5.72	DA-EWDRY-SB104-080708	2.02	4	ND
AROCLOR-1254	1/10	248	248	DA-EWDRY-SB104-080708	67.2	248	ND
AROCLOR-1260	3/10	415	731	DA-EWDRY-MW115-080608	195	541	445
AROCLOR-1268	1/10	204	204	DA-EWDRY-SB104-080708	62.8	204	ND
DIELDRIN	1/10	28.8	28.8	DA-EWDRY-MW103-080708	3.94	28.8	ND
TOTAL AROCLOR	4/10	415	731	DA-EWDRY-MW115-080608	235	518	445
TOTAL DDD/DDE/DDT	8/10	4.14 J	49.5 J	DA-EWDRY-MW105-080708	10.5	12.7	4.48
Inorganics (mg/kg)							
ALUMINUM	10/10	1090 J	18800 J	DA-EWDRY-MW113-080608	11000	11000	8500
ANTIMONY	10/10	0.0744 J	0.669 J	DA-EWDRY-SB104-080708	0.185	0.185	0.115
ARSENIC	10/10	4.28	40.9	DA-EWDRY-MW113-080608	17.8	17.8	26.7
BARIUM	10/10	21.1 J	106 J	DA-EWDRY-SB123-080608	65.1	65.1	53.1
BERYLLIUM	9/10	0.236 J	0.875	DA-EWDRY-SB108-080708	0.443	0.487	0.304
CADMIUM	10/10	3.5 J	838	DA-EWDRY-SB121-080708	118	118	10.2
CALCIUM	10/10	3280 J	13400 J	DA-EWDRY-MW103-080708	8280	8280	9880
CHROMIUM	10/10	12.6	302	DA-EWDRY-SB123-080608	127	127	20.6
COBALT	10/10	9.75	30.7	DA-EWDRY-MW113-080608	15.6	15.6	13
COPPER	10/10	12.1	60.4	DA-EWDRY-MW105-080708	42.3	42.3	31.9
IRON	10/10	2020	53600	DA-EWDRY-MW113-080608	23600	23600	21800
LEAD	10/10	21.5	881	DA-EWDRY-MW115-080608	150	150	21.1
MAGNESIUM	10/10	1020	5560	DA-EWDRY-MW113-080608	3310	3310	3280
MANGANESE	10/10	51.6	781	DA-EWDRY-MW113-080608	430	430	518
MERCURY	10/10	0.136	1.96	DA-EWDRY-SB130-080708	0.468	0.468	0.266
MOLYBDENUM	10/10	1.15	19.3	DA-EWDRY-SB123-080608	8.28	8.28	1.36
NICKEL	10/10	7.31	171	DA-EWDRY-SB123-080608	80.7	80.7	25.1
POTASSIUM	10/10	7560	9120	DA-EWDRY-SB108-080708	8310	8310	7880
SELENIUM	10/10	1.84	21.1	DA-EWDRY-MW115-080608	5.06	5.06	1.99
SILVER	10/10	0.199 J	1.59 J	DA-EWDRY-MW105-080708	0.472	0.472	0.149
SODIUM	10/10	2730	4710	DA-EWDRY-MW115-080608	3480	3480	2980
VANADIUM	10/10	2.55 J	38.9	DA-EWDRY-SB134-080608-AVG	22.8	22.8	15.7
ZINC	10/10	161	1850	DA-EWDRY-SB121-080708	426	426	200
Miscellaneous Parameters (%)							
LIPIDS	1/10	0.756	0.756	DA-EWDRY-SB121-080708	0.357	0.756	ND

Results are presented on a dry-weight basis
1 - Sample and duplicate are considered as one sample when determining the minimum and maximum concentrations detected concentrations and frequency of detection.
2 - Average of all analytical results are calculated using half of the detection limit for nondetects.
3 - Average of positive analytical results only.
4 - Background concentration from sample DA-EWDRY-SB153-080708.
TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
TOTAL AROCLOR = Sum of positive detections of individual Aroclors.
ND = Not detected.

ANALYTICAL RESULTS - SURFACE SOIL COLLECTED ADJACENT TO EARTHWORM SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	SAMPLE ID	DA-SS153-011608 (Background Sample)	DA-MW103B-0001-	DA-MW105B-0001-	DA-MW113B-0001-	DA-MW115B-0001-	DA-SB104-0001-LOCDEPTHMAX	DA-SB108-0001-LOCDEPTHMAX	DA-SB121-0001-LOCDEPTHMAX	DA-SB123-0001-LOCDEPTHMAX	DA-SB130-0001-LOCDEPTHMAX	DA-SB134-0001-LOCDEPTHMAX
	LOCATION ID	DA-SB153	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
	TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH	1	1	1	1	1	1	1	1	1	1	1
FRACTION (UNITS)	SAMPLE DATE	01/16/08	01/15/08	01/16/08	01/16/08	01/10/08	01/15/08	01/15/08	01/10/08	01/10/08	01/15/08	01/15/08
METALS (MG/KG)	ALUMINUM	12100	12000	11900	15800	15400	13100	4940	10800	13100	12600	16900
	ANTIMONY	ND	0.145 U	0.19 UJ	0.16 UJ	0.17 UJ	0.13 U	0.19 J	0.19 UJ	0.18 UJ	0.19 U	0.21 U
	ARSENIC	31.6	16.4	22.4	26	14.2	14.5	6.2	23.9	18.6	17.6	15.1
	BARIUM	27.9	26	38.4	14.8	26.3	28.3	32.4	26.3	42.7	22.6	26.4
	BERYLLIUM	0.44 J	0.415 J	0.5 J	0.37 J	0.58 J	0.42 J	0.4	0.4 J	0.48 J	0.36 J	0.48 J
	CADMIUM	0.02 UJ	**1.5 J**	**0.48 J**	0.02 UJ	0.24 UJ	**0.6 J**	**1.4**	**2.4 J**	**0.43 J**	**0.44 J**	**0.46 J**
	CHROMIUM	15	19	16	18.3	28.8	14.6	6.5	19.6	17.2	15.9	19.4
	COBALT	11.9	27.7	17.6	17.1	11.4	11.1	3.6	11	10.9	11.7	13.2
	COPPER	21.1 J	24.8	39 J	23.9 J	24 J	18.7	38.2	26.5 J	24.3 J	21.4	30.1
	IRON	27300	27400	30000	39400	29200	21800	15400	25800	28900	27200	32100
	LEAD	23.4	**61.4**	**53.2**	13.3	32.2	33.1	44.1	25.4	23	22.8	20.8
	MANGANESE	377	409	416	606	292 J	369	368	355 J	395 J	363	326
	MERCURY	0.04 J	0.035 J	0.09	0.03 J	0.02 J	0.05	0.03 J	0.03 J	0.04	0.04	0.04
	MOLYBDENUM	NA	0.635 J	0.66 J	0.29 UJ	0.66 J	0.40 J	0.72 UJ	0.47 J	0.57 J	0.38 J	0.41 J
	NICKEL	22.4	22.2	30.4	30.2	28.9	17.4	28.9	25.9	23.2	22.6	27.3
	SELENIUM	0.58 J	0.255 U	0.66 J	0.28 U	0.3 U	0.23 U	0.12 U	0.16 U	0.37 UJ	0.33 U	0.36 U
	SILVER	ND	0.78 J	2 J	0.09 UJ	0.09 UJ	0.44 UJ	0.21 UJ	0.05 UJ	0.09 UJ	0.57 UJ	0.74 J
	THALLIUM	ND	0.045 UJ	0.04 U	0.03 U	0.06 UJ	0.08 U	0.06 UJ	0.04 U	0.04 UJ	0.04 U	0.05 UJ
	VANADIUM	19.2	19.7	19.9	21	29.2	22.5	9.5	17.9	23.2	19.6	25
	ZINC	68.8	105	152	76	58.2	52.2	86	144	64.6	80.7	62.7
MISCELLANEOUS PARAMETERS (%)	PERCENT CLAY	10.5	8.4	5.5	NA	NA	7.9	8	NA	NA	9.6	10.8
	PERCENT COARSE SAND	11.2	9.3	14.5	NA	NA	5.7	16.2	NA	NA	8.9	7.6
	PERCENT FINE SAND	19.1	23.3	15.7	NA	NA	20.7	18.6	NA	NA	17.9	14.8
	PERCENT GRAVEL	17.3	15.1	31.2	NA	NA	23.9	15.9	NA	NA	23.1	10.6
	PERCENT MEDIUM SAND	16.9	15.1	19.4	NA	NA	11	15.6	NA	NA	14.2	11.1
	PERCENT SILT	25	28.8	13.8	NA	NA	30.7	25.7	NA	NA	26.2	45.1
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON	28000	19000	30000	NA	NA	22000	4900	NA	NA	30000	40000
MISCELLANEOUS PARAMETERS (S.U.)	PH	5.3	5.45	5.2	NA	NA	5.5	5.4	NA	NA	5.6	5.1

NA - Not analyzed

ND - Not detected

Shaded cells are concentrations more than two times the background concentration. This evaluation was only conducted for the following metals retained for further evaluation in Section 7.4.4:

- cadmium, chromium, copper, lead, nickel, and selenium

U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; NA - NOT ANALYZED

FISH TISSUE WHOLE BODY ANALYTICAL SUMMARY TABLE
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	Background Concentration[4]
Pesticides/PCBs (µg/kg)							
4,4'-DDD	2/2	146	215	DA-FTDRY-ET02-BGW-081208	180	180	25.7
4,4'-DDE	2/2	2550	2960	DA-FTDRY-ET02-BGW-081208	2760	2760	216
ALPHA-CHLORDANE	2/2	71.6	76	DA-FTDRY-ET02-BGW-081208	73.8	73.8	1.7
AROCLOR-1254	2/2	1610	2050	DA-FTDRY-ET01-BGW-081208	1830	1830	170
AROCLOR-1260	2/2	1110	1370	DA-FTDRY-ET01-BGW-081208	1240	1240	105
DIELDRIN	2/2	91.6	148	DA-FTDRY-ET02-BGW-081208	120	120	11.8
GAMMA-CHLORDANE	2/2	27.6	35.4	DA-FTDRY-ET02-BGW-081208	31.5	31.5	ND
TOTAL AROCLOR	2/2	2720	3420	DA-FTDRY-ET01-BGW-081208	3070	3070	276
TOTAL DDD/DDE/DDT	2/2	2700 J	3180 J	DA-FTDRY-ET02-BGW-081208	2940	2940	242
Inorganics (mg/kg)							
ALUMINUM	2/2	394	424	DA-FTDRY-ET01-BGW-081208	409	409	66
ARSENIC	2/2	1	1.51	DA-FTDRY-ET01-BGW-081208	1.26	1.26	0.624
BARIUM	2/2	12.4	14.6	DA-FTDRY-ET01-BGW-081208	13.5	13.5	9.68
CADMIUM	2/2	0.33	0.345	DA-FTDRY-ET01-BGW-081208	0.338	0.338	0.0512
CALCIUM	2/2	76000	77200	DA-FTDRY-ET02-BGW-081208	76600	76600	59600
CHROMIUM	2/2	11.9 J	12.2 J	DA-FTDRY-ET02-BGW-081208	12	12	4.64
COBALT	2/2	1.53	2.38	DA-FTDRY-ET01-BGW-081208	1.96	1.96	0.4
COPPER	2/2	3.48	3.57	DA-FTDRY-ET01-BGW-081208	3.52	3.52	5.32
IRON	2/2	1220	1430	DA-FTDRY-ET01-BGW-081208	1320	1320	752
LEAD	2/2	4.32	5.28	DA-FTDRY-ET01-BGW-081208	4.8	4.8	0.48
MAGNESIUM	2/2	2340	2360	DA-FTDRY-ET02-BGW-081208	2350	2350	2030
MANGANESE	2/2	384	692	DA-FTDRY-ET01-BGW-081208	538	538	63.2
MERCURY	2/2	0.125	0.145	DA-FTDRY-ET02-BGW-081208	0.135	0.135	0.158
MOLYBDENUM	2/2	1.71	2.03	DA-FTDRY-ET02-BGW-081208	1.87	1.87	0.452
NICKEL	2/2	9.12 J	9.2 J	DA-FTDRY-ET01-BGW-081208	9.16	9.16	3.79
POTASSIUM	2/2	10400	10700	DA-FTDRY-ET02-BGW-081208	10600	10600	11000
SELENIUM	2/2	2.36	2.47	DA-FTDRY-ET01-BGW-081208	2.42	2.42	2.15
SODIUM	2/2	4920	4960	DA-FTDRY-ET01-BGW-081208	4940	4940	4440
VANADIUM	2/2	0.888 J	1.01 J	DA-FTDRY-ET01-BGW-081208	0.949	0.949	0.292
ZINC	2/2	135	148	DA-FTDRY-ET02-BGW-081208	142	142	111
Miscellaneous Parameters (%)							
LIPIDS	2/2	7.44	7.76	DA-FTDRY-ET02-BGW-081208	7.6	7.6	7.4

Results are presented on a dry-weight basis
1 - Sample and duplicate are considered as one sample when determining the minimum and maximum concentrations detected concentrations and frequency of detection.
2 - Average of all analytical results are calculated using half of the detection limit for nondetects.
3 - Average of positive analytical results only.
4 - Background concentration from sample DA-FTDRY-RP01-BGW-081308.
TOTAL DDD/DDE/DDT = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
TOTAL AROCLOR = Sum of positive detections of individual Aroclors.
ND = Not detected.

TABLE

CHEMICAL CONCENTRATIONS IN SURFACE SOIL, SEDIMENT, AND TISSUE

	Surface Soil Concentrations (mg/kg)					Surface Water Concentrations (mg/L)					Earthworm Bioaccumulation Factors[3]		Earthworm Concentrations (mg/kg)[4]	
Chemical	Maximum Detection	Average All	Average of Positive Detections	95% UCL	Average/UCL[1]	Maximum Detection	Average All	Average of Positive Detections	95% UCL	Average/UCL[1]	Conservative	Average	Maximum Detection (Conservative)	Average
Volatile Organics														
1,2,4-TRIMETHYLBENZENE	1.60E+00	2.77E-02	4.01E-01	1.64E-01	1.64E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
1,3,5-TRIMETHYLBENZENE	8.60E-01	1.77E-02	8.60E-01	9.39E-02	9.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
2-BUTANONE	1.20E-02	2.30E-02	6.93E-03	7.94E-02	6.93E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
4-ISOPROPYLTOLUENE	2.90E-01	1.07E-02	1.29E-01	4.35E-02	4.35E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
ACETONE	7.90E+00	3.19E-01	3.66E-01	1.02E+00	1.02E+00	7.00E-03	2.25E-03	5.06E-03	3.92E-03	3.92E-03			0.00E+00	0.00E+00
BENZENE	2.00E-03	3.72E-03	2.00E-03	1.06E-02	2.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
M+P-XYLENES	3.50E-01	9.79E-03	1.17E-01	3.93E-02	3.93E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
METHYLENE CHLORIDE	3.00E-03	2.01E-02	3.00E-03	5.50E-02	3.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
N-BUTYLBENZENE	2.60E-01	8.19E-03	2.25E-01	3.50E-02	3.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
N-PROPYLBENZENE	3.00E-01	6.97E-03	1.51E-01	3.25E-02	3.25E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
O-XYLENE	2.30E-01	6.05E-03	2.30E-01	2.58E-02	2.58E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
SEC-BUTYLBENZENE	6.00E-03	4.05E-03	6.00E-03	1.22E-02	4.05E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
TOLUENE	4.00E-03	4.15E-03	4.00E-03	1.30E-02	4.00E-03	4.00E-04	3.54E-04	4.00E-04	5.13E-04	3.54E-04			0.00E+00	0.00E+00
TOTAL XYLENES	5.80E-01	1.19E-02	1.94E-01	6.07E-02	6.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
TRICHLOROETHENE	8.50E-03	3.91E-03	5.83E-03	1.11E-02	3.91E-03	1.00E-03	4.01E-04	7.00E-04	6.17E-04	6.17E-04			0.00E+00	0.00E+00
Semivolatile Organics														
1,1-BIPHENYL	6.60E-01	2.10E-01	6.60E-01	2.26E-01	2.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	6.60E-01	2.26E-01
2-METHYLNAPHTHALENE	2.40E+00	9.25E-02	1.04E-01	3.00E-01	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.792	0.792	1.90E+00	2.38E-01
3,3'-DICHLOROBENZIDINE	1.10E-01	2.07E-01	1.10E-01	3.67E-01	1.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	1.10E-01	3.67E-01
ACENAPHTHENE	9.50E+00	2.93E-01	3.64E-01	4.32E-01	4.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.511	0.511	4.86E+00	2.21E-01
ACENAPHTHYLENE	2.90E-01	2.97E-02	1.99E-02	6.91E-02	6.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.929	7.929	2.30E+00	5.48E-01
ANTHRACENE	1.30E+01	5.62E-01	6.63E-01	1.78E+00	1.78E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.836	0.836	1.09E+01	1.49E+00
BENZO(A)ANTHRACENE	2.00E+01	1.22E+00	1.34E+00	2.43E+00	2.43E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.550	0.550	1.10E+01	1.34E+00
BENZO(A)PYRENE	1.70E+01	8.83E-01	1.01E+00	2.47E+00	2.47E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.461	0.461	7.83E+00	1.14E+00
BENZO(B)FLUORANTHENE	1.50E+01	9.81E-01	1.12E+00	1.71E+00	1.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.900	0.900	1.35E+01	1.54E+00
BENZO(G,H,I)PERYLENE	7.40E+00	4.51E-01	5.23E-01	1.19E+00	1.19E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.021	1.021	7.56E+00	1.22E+00
BENZO(K)FLUORANTHENE	1.20E+01	7.26E-01	8.17E-01	1.90E+00	1.90E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.900	0.900	1.08E+01	1.71E+00
BENZOIC ACID	5.90E+00	6.57E-01	1.74E+00	1.06E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	5.90E+00	1.06E+00
BIS(2-ETHYLHEXYL)PHTHALATE	4.50E+00	3.43E-01	1.08E+00	6.98E-01	6.98E-01	5.00E-03	4.37E-03	3.97E-03	4.72E-03	4.72E-03	1.000	1.000	4.50E+00	6.98E-01
BUTYL BENZYL PHTHALATE	2.70E-01	1.73E-01	2.70E-01	2.07E-01	2.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	2.70E-01	2.07E-01
CARBAZOLE	7.30E+00	3.57E-01	1.07E+00	8.13E-01	8.13E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	7.30E+00	8.13E-01
CHRYSENE	1.70E+01	1.13E+00	1.24E+00	2.27E+00	2.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.794	0.794	1.35E+01	1.80E+00
DIBENZO(A,H)ANTHRACENE	3.50E+00	1.85E-01	2.44E-01	5.10E-01	5.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.798	0.798	2.79E+00	4.07E-01
DIBENZOFURAN	4.70E+00	2.55E-01	1.15E+00	5.30E-01	5.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	4.70E+00	5.30E-01
FLUORANTHENE	4.50E+01	2.76E+00	3.04E+00	7.01E+00	7.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.054	1.054	4.74E+01	7.38E+00
FLUORENE	5.90E+00	2.52E-01	3.46E-01	8.10E-01	8.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.313	3.313	1.95E+01	2.68E+00
INDENO(1,2,3-CD)PYRENE	9.20E+00	5.17E-01	5.99E-01	1.39E+00	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.988	0.988	9.09E+00	1.37E+00
N-NITROSODIPHENYLAMINE	4.00E-01	1.82E-01	4.00E-01	2.36E-01	2.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.000	1.000	4.00E-01	2.36E-01
NAPHTHALENE	1.10E+01	2.37E-01	3.80E-01	1.17E+00	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.524	1.524	1.68E+01	1.78E+00
PHENANTHRENE	4.80E+01	2.19E+00	2.42E+00	6.74E+00	6.74E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.596	0.596	2.86E+01	4.01E+00
PYRENE	5.00E+01	2.46E+00	2.71E+00	6.07E+00	6.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.607	0.607	3.04E+01	3.68E+00
Pesticides/PCBs														
4,4'-DDD	5.20E-03	5.70E-03	3.75E-03	1.15E-02	3.75E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
4,4'-DDE	2.16E-01	7.09E-03	1.12E-02	1.99E-02	1.99E-02	1.39E-05	4.34E-06	1.39E-05	6.74E-06	6.74E-06			4.95E-02	1.27E-02
4,4'-DDT	1.84E-01	9.54E-03	1.55E-02	2.64E-02	2.64E-02	1.79E-05	4.25E-06	7.09E-06	7.53E-06	7.53E-06			0.00E+00	0.00E+00
ALPHA-CHLORDANE	2.35E-01	5.45E-03	8.47E-02	2.53E-02	2.53E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			5.72E-03	4.00E-03
AROCLOR-1254	5.22E+00	8.32E-02	2.69E+00	3.90E-01	3.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			2.48E-01	2.48E-01
AROCLOR-1260	3.50E-01	5.70E-02	1.19E-01	1.10E-01	1.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			7.31E-01	5.41E-01
AROCLOR-1268	6.20E-01	5.46E-02	3.69E-01	1.49E-01	1.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			2.04E-01	2.04E-01
DIELDRIN	2.30E-02	3.55E-03	9.47E-03	6.11E-03	6.11E-03	2.18E-05	8.24E-06	1.10E-05	1.02E-05	1.02E-05			2.88E-02	2.88E-02
ENDRIN	2.40E-03	3.48E-03	2.40E-03	6.11E-03	2.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
GAMMA-CHLORDANE	1.00E-02	2.15E-03	6.60E-03	3.89E-03	3.89E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
HEPTACHLOR	1.70E-03	2.26E-03	1.45E-03	4.28E-03	1.45E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00
TOTAL AROCLOR	5.22E+00	1.75E-01	3.68E-01	6.25E-01	6.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			7.31E-01	5.18E-01
TOTAL DDD/DDE/DDT	2.16E-01	1.33E-02	2.25E-02	3.77E-02	3.77E-02	3.18E-05	5.39E-06	9.40E-06	1.10E-05	1.10E-05			4.95E-02	1.27E-02
Inorganics														
ALUMINUM	2.07E+04	1.16E+04	1.16E+04	1.23E+04	1.23E+04	3.16E+00	2.13E-01	6.39E-01	1.62E+00	1.62E+00			1.88E+04	1.10E+04
ANTIMONY	5.50E+00	2.22E-01	1.74E+00	5.64E-01	5.64E-01	1.10E-03	1.22E-03	1.10E-03	1.98E-03	1.10E-03			6.69E-01	1.85E-01
ARSENIC	9.00E+01	1.78E+01	1.78E+01	2.37E+01	2.37E+01	4.90E-03	1.74E-03	2.83E-03	2.89E-03	2.89E-03			4.09E+01	1.78E+01
BARIUM	4.28E+01	2.37E+01	2.37E+01	2.53E+01	2.53E+01	2.14E-02	1.04E-02	1.04E-02	1.18E-02	1.18E-02			1.06E+02	6.51E+01
BERYLLIUM	7.40E-01	4.15E-01	4.15E-01	4.34E-01	4.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			8.75E-01	4.87E-01

TABLE

CHEMICAL CONCENTRATIONS IN SURFACE SOIL, SEDIMENT, AND TISSUE

Chemical	Surface Soil Concentrations (mg/kg)					Surface Water Concentrations (mg/L)					Earthworm Bioaccumulation Factors[3]		Earthworm Concentrations (mg/kg)[4]	
	Maximum Detection	Average All	Average of Positive Detections	95% UCL	Average/UCL[1]	Maximum Detection	Average All	Average of Positive Detections	95% UCL	Average/UCL[1]	Conservative	Average	Maximum Detection (Conservative)	Average
Volatile Organics														
CADMIUM	1.10E+01	7.08E-01	1.30E+00	2.54E+00	2.54E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			8.38E+02	1.18E+02
CHROMIUM	6.40E+01	1.64E+01	1.64E+01	2.05E+01	2.05E+01	1.30E-03	5.46E-04	1.25E-03	7.28E-04	7.28E-04			3.02E+02	1.27E+02
COBALT	2.18E+02	1.46E+01	1.46E+01	2.73E+01	2.73E+01	4.40E-03	1.20E-03	1.38E-03	1.68E-03	1.68E-03			3.07E+01	1.56E+01
COPPER	5.60E+02	3.23E+01	3.27E+01	6.57E+01	6.57E+01	1.42E-02	2.58E-03	3.37E-03	5.15E-03	5.15E-03			6.04E+01	4.23E+01
IRON	4.37E+04	2.60E+04	2.60E+04	2.75E+04	2.75E+04	5.59E+00	6.79E-01	7.08E-01	1.08E+00	1.08E+00			5.36E+04	2.36E+04
LEAD	2.87E+03	7.38E+01	7.38E+01	5.43E+01	5.43E+01	2.15E-02	2.93E-03	6.51E-03	4.72E-03	4.72E-03			8.81E+02	1.50E+02
MANGANESE	2.02E+03	3.87E+02	3.87E+02	4.39E+02	4.39E+02	6.00E-01	1.80E-01	1.80E-01	2.50E-01	2.50E-01			7.81E+02	4.30E+02
MERCURY	2.00E+00	7.64E-02	8.17E-02	1.96E-01	1.96E-01	5.90E-04	4.37E-05	1.18E-04	3.12E-04	3.12E-04			1.96E+00	4.68E-01
MOLYBDENUM	7.60E+00	5.60E-01	7.77E-01	6.31E-01	6.31E-01	8.10E-02	1.85E-02	3.97E-02	7.87E-02	7.87E-02			1.93E+01	8.28E+00
NICKEL	3.85E+01	2.11E+01	2.11E+01	2.25E+01	2.25E+01	6.10E-03	2.10E-03	2.38E-03	2.69E-03	2.69E-03			1.71E+02	8.07E+01
SELENIUM	6.70E-01	1.73E-01	4.71E-01	2.47E-01	2.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			2.11E+01	5.06E+00
SILVER	2.00E+00	2.82E-01	8.01E-01	6.11E-01	6.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			1.59E+00	4.72E-01
THALLIUM	3.00E-01	1.22E-01	3.00E-01	2.46E-01	2.46E-01	3.53E-03	7.97E-04	3.53E-03	2.79E-03	2.79E-03			0.00E+00	0.00E+00
VANADIUM	4.72E+01	2.09E+01	2.09E+01	2.23E+01	2.23E+01	5.30E-03	7.56E-04	1.68E-03	1.75E-03	1.75E-03			3.89E+01	2.28E+01
ZINC	6.63E+02	8.67E+01	8.67E+01	1.32E+02	1.32E+02	3.55E-02	9.36E-03	1.37E-02	1.28E-02	1.28E-02			1.85E+03	4.26E+02

(1) Value is the 95% UCL unless the value is greater than the maximum detection. In that case the value is the average of all unless the value is greater than the maximum detection.
In that case the value is the average of positive detections.
(2) Value is the 95% UCL unless the value is greater than the maximum detection. In that case the value is the average of all.
(3) Biaccumulation factors were only used for chemicals not analyzed for in the tissue samples (except VOCs). Bioaccumulation of VOCs in tissue was not included in the food chain model for reasons presented in the text.
(4) Earthworm concentrations are either actual tissue concentrations or were calaculated by multiplying the bioaccumulation factors by the soil concentrations. The average concentrations are the average of positive detections.
Non-detected parameters are assigned a value of 0.

TABLE

CHEMICAL CONCENTRATIONS IN SURFACE SOIL, SEDIMENT, AND TISSUE

Chemical	Sediment Concentrations (mg/kg)					Surface Water Concentrations (mg/L)				Fish Tissue Concentrations (mg/kg)[3]	
	Maximum Detection	Average All	Average of Positive Detections	95% UCL	Average/UCL[1]	Maximum Detection	Average All	95% UCL	Average/UCL[2]	Maximum Detection (Conservative)	Average
Volatile Organics											
1,1,1-TRICHLOROETHANE	5.00E-03	7.49E-03	2.02E-03	1.13E-02	2.02E-03	2.40E-03	6.11E-04	1.12E-03	1.12E-03	0	0
1,1-DICHLOROETHANE	4.35E-04	7.53E-03	4.35E-04	5.65E-02	4.35E-04	1.60E-03	5.22E-04	8.61E-04	8.61E-04	0	0
1,2,4-TRICHLOROBENZENE	6.20E-03	7.83E-03	5.10E-03	5.66E-02	5.10E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
2-BUTANONE	1.90E-01	5.21E-02	6.19E-02	3.04E-01	5.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
4-ISOPROPYLTOLUENE	1.80E-02	8.12E-03	9.40E-03	5.72E-02	8.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
ACETONE	7.40E-01	9.92E-02	1.65E-01	2.42E-01	2.42E-01	7.00E-03	2.25E-03	3.92E-03	3.92E-03	0	0
CARBON DISULFIDE	5.50E-03	7.48E-03	4.10E-03	5.64E-02	4.10E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
CHLOROETHANE	1.60E-03	1.51E-02	1.60E-03	1.15E-01	1.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
CIS-1,2-DICHLOROETHENE	7.50E-03	7.46E-03	5.75E-03	5.64E-02	7.46E-03	6.00E-04	3.32E-04	5.26E-04	5.26E-04	0	0
DICHLORODIFLUOROMETHANE	6.60E-02	2.02E-02	2.25E-02	1.21E-01	2.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
M+P-XYLENES	2.20E-03	1.52E-02	2.20E-03	1.15E-01	2.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
TETRACHLOROETHENE	3.30E-02	9.12E-03	1.70E-02	5.90E-02	9.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
TOLUENE	3.80E-02	8.93E-03	3.80E-02	5.92E-02	8.93E-03	4.00E-04	3.54E-04	5.13E-04	3.54E-04	0	0
TOTAL 1,2-DICHLOROETHENE	7.50E-03	7.45E-03	5.75E-03	5.64E-02	7.45E-03	6.00E-04	3.49E-04	5.24E-04	5.24E-04	0	0
TOTAL XYLENES	2.20E-03	1.16E-02	2.20E-03	8.68E-02	2.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
TRICHLOROETHENE	3.90E-02	9.65E-03	1.68E-02	2.43E-02	2.43E-02	1.00E-03	4.01E-04	6.17E-04	6.17E-04	0	0
Semivolatile Organics											
2-METHYLNAPHTHALENE	2.00E-01	7.52E-02	2.54E-02	2.67E-01	7.52E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
ACENAPHTHENE	1.00E+00	9.76E-02	1.24E-01	5.59E-01	5.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
ACENAPHTHYLENE	2.40E-02	3.19E-02	1.14E-02	4.65E-02	1.14E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
ANTHRACENE	2.00E+00	2.11E-01	2.77E-01	1.24E+00	1.24E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZO(A)ANTHRACENE	3.40E+00	5.79E-01	6.41E-01	8.66E-01	8.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZO(A)PYRENE	2.60E+00	5.75E-01	6.64E-01	8.62E-01	8.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZO(B)FLUORANTHENE	2.30E+00	6.48E-01	7.92E-01	9.38E-01	9.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZO(G,H,I)PERYLENE	1.90E+00	4.14E-01	4.74E-01	6.17E-01	6.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZO(K)FLUORANTHENE	2.30E+00	4.96E-01	5.29E-01	7.62E-01	7.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZOIC ACID	2.70E+00	1.29E+00	1.51E+00	1.62E+00	1.62E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BENZYL ALCOHOL	4.00E-01	4.76E-01	4.00E-01	5.99E-01	4.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
BIS(2-ETHYLHEXYL)PHTHALATE	2.30E+00	5.75E-01	1.00E+00	1.06E+00	1.06E+00	5.00E-03	4.37E-03	4.72E-03	4.72E-03	0	0
CARBAZOLE	1.30E+00	3.14E-01	1.30E+00	4.32E-01	4.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
CHRYSENE	3.30E+00	7.17E-01	7.66E-01	1.08E+00	1.08E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
DI-N-BUTYL PHTHALATE	1.00E-01	2.27E-01	1.00E-01	2.92E-01	1.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
DIBENZO(A,H)ANTHRACENE	6.40E-01	1.15E-01	1.14E-01	1.58E-01	1.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
DIBENZOFURAN	5.80E-01	2.67E-01	5.65E-01	3.44E-01	3.44E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
DIETHYL PHTHALATE	2.00E+00	4.12E-01	1.26E+00	8.04E-01	8.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
FLUORANTHENE	8.50E+00	1.44E+00	1.49E+00	2.19E+00	2.19E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
FLUORENE	1.30E+00	1.21E-01	1.59E-01	7.20E-01	7.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
INDENO(1,2,3-CD)PYRENE	1.70E+00	3.72E-01	4.21E-01	5.43E-01	5.43E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
NAPHTHALENE	2.00E-01	2.24E-02	4.10E-02	1.10E-01	1.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
PHENANTHRENE	8.00E+00	9.42E-01	1.05E+00	2.51E+00	2.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
PYRENE	7.00E+00	1.26E+00	1.36E+00	1.94E+00	1.94E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
Pesticides/PCBs											
4,4'-DDD	1.70E-01	3.25E-02	4.03E-02	4.66E-02	4.66E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.215	0.18
4,4'-DDE	4.30E-01	6.47E-02	8.52E-02	1.04E-01	1.04E-01	1.39E-05	4.34E-06	6.74E-06	6.74E-06	2.96	2.76
4,4'-DDT	7.70E-02	2.15E-02	3.16E-02	3.06E-02	3.06E-02	1.79E-05	4.25E-06	7.53E-06	7.53E-06	0	0
ALPHA-CHLORDANE	1.80E-01	2.88E-02	4.51E-02	4.52E-02	4.52E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.076	0.0738
AROCLOR-1260	5.50E-01	1.13E-01	1.73E-01	1.71E-01	1.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37	1.24
AROCLOR-1268	2.48E+00	1.17E-01	1.27E+00	1.06E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
DIELDRIN	1.40E-01	2.78E-02	3.64E-02	4.08E-02	4.08E-02	2.18E-05	8.24E-06	1.02E-05	1.02E-05	0.148	0.12
GAMMA-CHLORDANE	1.30E-01	2.12E-02	3.48E-02	3.31E-02	3.31E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0354	0.0315
TOTAL AROCLOR	2.93E+00	2.14E-01	3.32E-01	3.81E-01	3.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42	3.07
TOTAL DDD/DDE/DDT	6.77E-01	1.04E-01	1.40E-01	1.68E-01	1.68E-01	3.18E-05	5.39E-06	1.10E-05	1.10E-05	3.18	2.94

TABLE

CHEMICAL CONCENTRATIONS IN SURFACE SOIL, SEDIMENT, AND TISSUE

Chemical	Sediment Concentrations (mg/kg)					Surface Water Concentrations (mg/L)				Fish Tissue Concentrations (mg/kg)[3]	
	Maximum Detection	Average All	Average of Positive Detections	95% UCL	Average/UCL[1]	Maximum Detection	Average All	95% UCL	Average/UCL[2]	Maximum Detection (Conservative)	Average
Inorganics											
ALUMINUM	3.24E+04	1.40E+04	1.40E+04	1.64E+04	1.64E+04	3.16E+00	2.13E-01	1.62E+00	1.62E+00	424	409
ARSENIC	2.50E+01	1.57E+01	1.57E+01	1.71E+01	1.71E+01	4.90E-03	1.74E-03	2.89E-03	2.89E-03	1.51	1.26
BARIUM	1.07E+02	4.86E+01	4.86E+01	5.72E+01	5.72E+01	2.14E-02	1.04E-02	1.18E-02	1.18E-02	14.6	13.5
BERYLLIUM	1.10E+00	5.11E-01	5.11E-01	5.86E-01	5.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
CADMIUM	2.40E+00	7.94E-01	1.01E+00	9.94E-01	9.94E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.345	0.338
CHROMIUM	4.04E+01	1.90E+01	1.90E+01	2.17E+01	2.17E+01	1.30E-03	5.46E-04	7.28E-04	7.28E-04	12.2	12
COBALT	2.04E+02	5.80E+01	5.80E+01	7.89E+01	7.89E+01	4.40E-03	1.20E-03	1.68E-03	1.68E-03	2.38	1.96
COPPER	5.80E+01	3.44E+01	3.44E+01	3.87E+01	3.87E+01	1.42E-02	2.58E-03	5.15E-03	5.15E-03	3.57	3.52
IRON	5.11E+04	2.89E+04	2.89E+04	3.22E+04	3.22E+04	5.59E+00	6.79E-01	1.08E+00	1.08E+00	1430	1320
LEAD	2.72E+04	1.41E+03	1.41E+03	8.53E+03	8.53E+03	2.15E-02	2.93E-03	4.72E-03	4.72E-03	5.28	4.8
MANGANESE	2.80E+03	8.72E+02	8.72E+02	1.16E+03	1.16E+03	6.00E-01	1.80E-01	2.50E-01	2.50E-01	692	538
MERCURY	3.30E-01	1.53E-01	1.59E-01	1.83E-01	1.83E-01	5.90E-04	4.37E-05	3.12E-04	3.12E-04	0.145	0.135
MOLYBDENUM	8.80E+00	3.20E+00	3.33E+00	4.00E+00	4.00E+00	8.10E-02	1.85E-02	7.87E-02	7.87E-02	2.03	1.87
NICKEL	4.09E+01	2.39E+01	2.39E+01	2.62E+01	2.62E+01	6.10E-03	2.10E-03	2.69E-03	2.69E-03	9.2	9.16
SELENIUM	9.20E-01	1.80E-01	7.00E-01	2.40E-01	2.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47	2.42
SILVER	4.80E+00	1.10E+00	1.34E+00	1.65E+00	1.65E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0
VANADIUM	5.41E+01	2.80E+01	2.80E+01	3.18E+01	3.18E+01	5.30E-03	7.56E-04	1.75E-03	1.75E-03	1.01	0.949
ZINC	2.76E+02	1.38E+02	1.38E+02	1.60E+02	1.60E+02	3.55E-02	9.36E-03	1.28E-02	1.28E-02	148	142

(1) Value is the 95% UCL unless the value is greater than the maximum detection. In that case the value is the average of all unless the value is greater than the maximum detection. In that case the value is the average of positive detections.
(2) Value is the 95% UCL unless the value is greater than the maximum detection. In that case the value is the average of all.
(3) Fish concentrations are actual tissue concentrations. The average concentrations are the average of positive detections.
Non-detected parameters are assigned a value of 0.

SHORT-TAILED SHREW - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:			Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
				Soil	Surface Water	Invert.				NOAEL	LOAEL
Volatile Organics											
1,2,4-TRIMETHYLBENZENE	1.60E+00	0.00E+00	0.00E+00	5.12E-03	0.00E+00	0.00E+00	5.12E-03	NV	NV	#VALUE!	#VALUE!
1,3,5-TRIMETHYLBENZENE	8.60E-01	0.00E+00	0.00E+00	2.75E-03	0.00E+00	0.00E+00	2.75E-03	NV	NV	#VALUE!	#VALUE!
2-BUTANONE	1.20E-02	0.00E+00	0.00E+00	3.84E-05	0.00E+00	0.00E+00	3.84E-05	1.77E+03	4.57E+03	2.2E-08	8.4E-09
4-ISOPROPYLTOLUENE	2.90E-01	0.00E+00	0.00E+00	9.28E-04	0.00E+00	0.00E+00	9.28E-04	NV	NV	#VALUE!	#VALUE!
ACETONE	7.90E+00	7.00E-03	0.00E+00	2.53E-02	2.00E-03	0.00E+00	2.73E-02	1.00E+01	5.00E+01	2.7E-03	5.5E-04
BENZENE	2.00E-03	0.00E+00	0.00E+00	6.40E-06	0.00E+00	0.00E+00	6.40E-06	2.64E+01	2.64E+02	2.4E-07	2.4E-08
M+P-XYLENES	3.50E-01	0.00E+00	0.00E+00	1.12E-03	0.00E+00	0.00E+00	1.12E-03	2.06E+00	2.58E+00	5.4E-04	4.3E-04
METHYLENE CHLORIDE	3.00E-03	0.00E+00	0.00E+00	9.60E-06	0.00E+00	0.00E+00	9.60E-06	5.85E+00	5.00E+01	1.6E-06	1.9E-07
N-BUTYLBENZENE	2.60E-01	0.00E+00	0.00E+00	8.32E-04	0.00E+00	0.00E+00	8.32E-04	NV	NV	#VALUE!	#VALUE!
N-PROPYLBENZENE	3.00E-01	0.00E+00	0.00E+00	9.60E-04	0.00E+00	0.00E+00	9.60E-04	NV	NV	#VALUE!	#VALUE!
O-XYLENE	2.30E-01	0.00E+00	0.00E+00	7.36E-04	0.00E+00	0.00E+00	7.36E-04	2.06E+00	2.58E+00	3.6E-04	2.9E-04
TOLUENE	4.00E-03	4.00E-04	0.00E+00	1.28E-05	1.14E-04	0.00E+00	1.27E-04	2.60E+01	2.60E+02	4.9E-06	4.9E-07
TOTAL XYLENES	5.80E-01	0.00E+00	0.00E+00	1.86E-03	0.00E+00	0.00E+00	1.86E-03	2.06E+00	2.58E+00	9.0E-04	7.2E-04
TRICHLOROETHENE	8.50E-03	1.00E-03	0.00E+00	2.72E-05	2.85E-04	0.00E+00	3.13E-04	7.00E-01	7.00E+00	4.5E-04	4.5E-05
Semivolatile Organics											
1,1-BIPHENYL	6.60E-01	0.00E+00	6.60E-01	2.11E-03	0.00E+00	7.04E-02	7.25E-02	5.00E+00	5.00E+01	1.5E-02	1.5E-03
2-METHYLNAPHTHALENE	2.40E+00	0.00E+00	1.90E+00	7.68E-03	0.00E+00	2.03E-01	2.11E-01	6.56E+01	3.56E+02	3.2E-03	5.9E-04
3,3'-DICHLOROBENZIDINE	1.10E-01	0.00E+00	1.10E-01	3.52E-04	0.00E+00	1.17E-02	1.21E-02	NV	NV	#VALUE!	#VALUE!
ACENAPHTHENE	9.50E+00	0.00E+00	4.86E+00	3.04E-02	0.00E+00	5.18E-01	5.48E-01	6.56E+01	3.56E+02	8.4E-03	1.5E-03
ACENAPHTHYLENE	2.90E-01	0.00E+00	2.30E+00	9.28E-04	0.00E+00	2.45E-01	2.46E-01	6.56E+01	3.56E+02	3.8E-03	6.9E-04
ANTHRACENE	1.30E+01	0.00E+00	1.09E+01	4.16E-02	0.00E+00	1.16E+00	1.20E+00	6.56E+01	3.56E+02	1.8E-02	3.4E-03
BENZO(A)ANTHRACENE	2.00E+01	0.00E+00	1.10E+01	6.40E-02	0.00E+00	1.17E+00	1.24E+00	6.15E-01	3.84E+01	2.0E+00	3.2E-02
BENZO(A)PYRENE	1.70E+01	0.00E+00	7.83E+00	5.44E-02	0.00E+00	8.35E-01	8.90E-01	6.15E-01	3.84E+01	1.4E+00	2.3E-02
BENZO(B)FLUORANTHENE	1.50E+01	0.00E+00	1.35E+01	4.80E-02	0.00E+00	1.44E+00	1.49E+00	6.15E-01	3.84E+01	2.4E+00	3.9E-02
BENZO(G,H,I)PERYLENE	7.40E+00	0.00E+00	7.56E+00	2.37E-02	0.00E+00	8.06E-01	8.30E-01	6.15E-01	3.84E+01	1.3E+00	2.2E-02
BENZO(K)FLUORANTHENE	1.20E+01	0.00E+00	1.08E+01	3.84E-02	0.00E+00	1.15E+00	1.19E+00	6.15E-01	3.84E+01	1.9E+00	3.1E-02
BENZOIC ACID	5.90E+00	0.00E+00	5.90E+00	1.89E-02	0.00E+00	6.29E-01	6.48E-01	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	4.50E+00	5.00E-03	4.50E+00	1.44E-02	1.43E-03	4.80E-01	4.96E-01	1.83E+01	1.83E+02	2.7E-02	2.7E-03
BUTYL BENZYL PHTHALATE	2.70E-01	0.00E+00	2.70E-01	8.64E-04	0.00E+00	2.88E-02	2.97E-02	1.59E+01	4.70E+01	1.9E-03	6.3E-04
CARBAZOLE	7.30E+00	0.00E+00	7.30E+00	2.34E-02	0.00E+00	7.79E-01	8.02E-01	6.15E-01	3.84E+01	1.3E+00	2.1E-02
CHRYSENE	1.70E+01	0.00E+00	1.35E+01	5.44E-02	0.00E+00	1.44E+00	1.49E+00	6.15E-01	3.84E+01	2.4E+00	3.9E-02
DIBENZO(A,H)ANTHRACENE	3.50E+00	0.00E+00	2.79E+00	1.12E-02	0.00E+00	2.98E-01	3.09E-01	6.15E-01	3.84E+01	5.0E-01	8.1E-03
DIBENZOFURAN	4.70E+00	0.00E+00	4.70E+00	1.50E-02	0.00E+00	5.01E-01	5.16E-01	6.15E-01	3.84E+01	8.4E-01	1.3E-02
FLUORANTHENE	4.50E+01	0.00E+00	4.74E+01	1.44E-01	0.00E+00	5.06E+00	5.20E+00	6.56E+01	3.56E+02	7.9E-02	1.5E-02
FLUORENE	5.90E+00	0.00E+00	1.95E+01	1.89E-02	0.00E+00	2.09E+00	2.10E+00	6.56E+01	3.56E+02	3.2E-02	5.9E-03
INDENO(1,2,3-CD)PYRENE	9.20E+00	0.00E+00	9.09E+00	2.94E-02	0.00E+00	9.70E-01	9.99E-01	6.15E-01	3.84E+01	1.6E+00	2.6E-02
N-NITROSODIPHENYLAMINE	4.00E-01	0.00E+00	4.00E-01	1.28E-03	0.00E+00	4.27E-02	4.40E-02	NV	NV	#VALUE!	#VALUE!
NAPHTHALENE	1.10E+01	0.00E+00	1.68E+01	3.52E-02	0.00E+00	1.79E+00	1.82E+00	6.56E+01	3.56E+02	2.8E-02	5.1E-03
PHENANTHRENE	4.80E+01	0.00E+00	2.86E+01	1.54E-01	0.00E+00	3.05E+00	3.20E+00	6.56E+01	3.56E+02	4.9E-02	9.0E-03
PYRENE	5.00E+01	0.00E+00	3.04E+01	1.60E-01	0.00E+00	3.24E+00	3.40E+00	6.15E-01	3.84E+01	5.5E+00	8.8E-02
Pesticides/PCBs											
4,4'-DDD	5.20E-03	0.00E+00	0.00E+00	1.66E-05	0.00E+00	0.00E+00	1.66E-05	1.47E-01	2.74E-01	1.1E-04	6.1E-05

SHORT-TAILED SHREW - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
4,4'-DDE	2.16E-01	1.39E-05	4.95E-02	6.91E-04	3.97E-06	5.28E-03	5.98E-03	1.47E-01	2.74E-01	4.1E-02	2.2E-02
4,4'-DDT	1.84E-01	1.79E-05	0.00E+00	5.89E-04	5.11E-06	0.00E+00	5.94E-04	1.47E-01	2.74E-01	4.0E-03	2.2E-03
ALPHA-CHLORDANE	2.35E-01	0.00E+00	5.72E-03	7.52E-04	0.00E+00	6.10E-04	1.36E-03	4.58E+00	9.16E+00	3.0E-04	1.5E-04
AROCLOR-1254	5.22E+00	0.00E+00	2.48E-01	1.67E-02	0.00E+00	2.65E-02	4.32E-02	6.80E-02	6.80E-01	6.3E-01	6.3E-02
AROCLOR-1260	3.50E-01	0.00E+00	7.31E-01	1.12E-03	0.00E+00	7.80E-02	7.91E-02	6.80E-02	6.80E-01	1.2E+00	1.2E-01
AROCLOR-1268	6.20E-01	0.00E+00	2.04E-01	1.98E-03	0.00E+00	2.18E-02	2.37E-02	6.80E-02	6.80E-01	3.5E-01	3.5E-02
DIELDRIN	2.30E-02	2.18E-05	2.88E-02	7.36E-05	6.22E-06	3.07E-03	3.15E-03	1.50E-02	1.27E+00	2.1E-01	2.5E-03
ENDRIN	2.40E-03	0.00E+00	0.00E+00	7.68E-06	0.00E+00	0.00E+00	7.68E-06	9.20E-02	9.20E-01	8.3E-05	8.3E-06
GAMMA-CHLORDANE	1.00E-02	0.00E+00	0.00E+00	3.20E-05	0.00E+00	0.00E+00	3.20E-05	4.58E+00	9.16E+00	7.0E-06	3.5E-06
HEPTACHLOR	1.70E-03	0.00E+00	0.00E+00	5.44E-06	0.00E+00	0.00E+00	5.44E-06	1.00E-01	1.00E+00	5.4E-05	5.4E-06
TOTAL AROCLOR	5.22E+00	0.00E+00	7.31E-01	1.67E-02	0.00E+00	7.80E-02	9.47E-02	6.80E-02	6.80E-01	1.4E+00	1.4E-01
TOTAL DDD/DDE/DDT	2.16E-01	3.18E-05	4.95E-02	6.91E-04	9.08E-06	5.28E-03	5.98E-03	1.47E-01	2.74E-01	4.1E-02	2.2E-02
Inorganics											
ALUMINUM	2.07E+04	3.16E+00	1.88E+04	6.63E+01	9.02E-01	2.01E+03	2.07E+03	1.93E+00	1.93E+01	1.1E+03	1.1E+02
ANTIMONY	5.50E+00	1.10E-03	6.69E-01	1.76E-02	3.14E-04	7.14E-02	8.93E-02	5.90E-02	2.76E+00	1.5E+00	3.2E-02
ARSENIC	9.00E+01	4.90E-03	4.09E+01	2.88E-01	1.40E-03	4.36E+00	4.65E+00	1.04E+00	4.55E+00	4.5E+00	1.0E+00
BARIUM	4.28E+01	2.14E-02	1.06E+02	1.37E-01	6.11E-03	1.13E+01	1.15E+01	5.18E+01	8.27E+01	2.2E-01	1.4E-01
BERYLLIUM	7.40E-01	0.00E+00	8.75E-01	2.37E-03	0.00E+00	9.34E-02	9.57E-02	5.32E-01	6.73E-01	1.8E-01	1.4E-01
CADMIUM	1.10E+01	0.00E+00	8.38E+02	3.52E-02	0.00E+00	8.94E+01	8.94E+01	7.70E-01	6.90E+00	1.2E+02	1.3E+01
CHROMIUM	6.40E+01	1.30E-03	3.02E+02	2.05E-01	3.71E-04	3.22E+01	3.24E+01	2.40E+00	5.82E+01	1.3E+01	5.6E-01
COBALT	2.18E+02	4.40E-03	3.07E+01	6.98E-01	1.26E-03	3.28E+00	3.97E+00	7.33E+00	1.89E+01	5.4E-01	2.1E-01
COPPER	5.60E+02	1.42E-02	6.04E+01	1.79E+00	4.05E-03	6.44E+00	8.24E+00	5.82E+00	8.14E+01	1.4E+00	1.0E-01
IRON	4.37E+04	5.59E+00	5.36E+04	1.40E+02	1.60E+00	5.72E+03	5.86E+03	5.00E+01	5.00E+02	1.2E+02	1.2E+01
LEAD	2.87E+03	2.15E-02	8.81E+02	9.19E+00	6.13E-03	9.40E+01	1.03E+02	4.70E+00	1.86E+02	2.2E+01	5.5E-01
MANGANESE	2.02E+03	6.00E-01	7.81E+02	6.47E+00	1.71E-01	8.33E+01	9.00E+01	5.15E+01	1.46E+02	1.7E+00	6.2E-01
MERCURY	2.00E+00	5.90E-04	1.96E+00	6.40E-03	1.68E-04	2.09E-01	2.16E-01	3.20E-02	1.60E-01	6.7E+00	1.3E+00
MOLYBDENUM	7.60E+00	8.10E-02	1.93E+01	2.43E-02	2.31E-02	2.06E+00	2.11E+00	NV	NV	#VALUE!	#VALUE!
NICKEL	3.85E+01	6.10E-03	1.71E+02	1.23E-01	1.74E-03	1.82E+01	1.84E+01	1.70E+00	1.48E+01	1.1E+01	1.2E+00
SELENIUM	6.70E-01	0.00E+00	2.11E+01	2.14E-03	0.00E+00	2.25E+00	2.25E+00	2.00E-01	3.30E-01	1.1E+01	6.8E+00
SILVER	2.00E+00	0.00E+00	1.59E+00	6.40E-03	0.00E+00	1.70E-01	1.76E-01	6.02E+00	1.19E+02	2.9E-02	1.5E-03
THALLIUM	3.00E-01	3.53E-03	0.00E+00	9.60E-04	1.01E-03	0.00E+00	1.97E-03	7.40E-03	7.40E-02	2.7E-01	2.7E-02
VANADIUM	4.72E+01	5.30E-03	3.89E+01	1.51E-01	1.51E-03	4.15E+00	4.30E+00	4.16E+00	7.74E+00	1.0E+00	5.6E-01
ZINC	6.63E+02	3.55E-02	1.85E+03	2.12E+00	1.01E-02	1.97E+02	2.00E+02	7.54E+01	2.98E+02	2.6E+00	6.7E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.50E-02	kg
Food Ingestion Rate = (If)	1.60E-03	kg/day
Water Ingestion Rate = (Iw)	4.28E-03	L/day
Soil Ingestion Rate = (Is)	4.80E-05	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Cw = Contaminant concentration in water
Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

SHORT-TAILED SHREW - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:			Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
				Soil	Surface Water	Invert.				NOAEL	LOAEL
Volatile Organics											
1,2,4-TRIMETHYLBENZENE	1.64E-01	0.00E+00	0.00E+00	1.32E-04	0.00E+00	0.00E+00	1.32E-04	NV	NV	#VALUE!	#VALUE!
1,3,5-TRIMETHYLBENZENE	9.39E-02	0.00E+00	0.00E+00	7.52E-05	0.00E+00	0.00E+00	7.52E-05	NV	NV	#VALUE!	#VALUE!
2-BUTANONE	6.93E-03	0.00E+00	0.00E+00	5.55E-06	0.00E+00	0.00E+00	5.55E-06	1.77E+03	4.57E+03	3.1E-09	1.2E-09
4-ISOPROPYLTOLUENE	4.35E-02	0.00E+00	0.00E+00	3.49E-05	0.00E+00	0.00E+00	3.49E-05	NV	NV	#VALUE!	#VALUE!
ACETONE	1.02E+00	3.92E-03	0.00E+00	8.20E-04	8.76E-04	0.00E+00	1.70E-03	1.00E+01	5.00E+01	1.7E-04	3.4E-05
BENZENE	2.00E-03	0.00E+00	0.00E+00	1.60E-06	0.00E+00	0.00E+00	1.60E-06	2.64E+01	2.64E+02	6.1E-08	6.1E-09
M+P-XYLENES	3.93E-02	0.00E+00	0.00E+00	3.15E-05	0.00E+00	0.00E+00	3.15E-05	2.06E+00	2.58E+00	1.5E-05	1.2E-05
METHYLENE CHLORIDE	3.00E-03	0.00E+00	0.00E+00	2.40E-06	0.00E+00	0.00E+00	2.40E-06	5.85E+00	5.00E+01	4.1E-07	4.8E-08
N-BUTYLBENZENE	3.50E-02	0.00E+00	0.00E+00	2.80E-05	0.00E+00	0.00E+00	2.80E-05	NV	NV	#VALUE!	#VALUE!
N-PROPYLBENZENE	3.25E-02	0.00E+00	0.00E+00	2.60E-05	0.00E+00	0.00E+00	2.60E-05	NV	NV	#VALUE!	#VALUE!
O-XYLENE	2.58E-02	0.00E+00	0.00E+00	2.07E-05	0.00E+00	0.00E+00	2.07E-05	2.06E+00	2.58E+00	1.0E-05	8.0E-06
TOLUENE	4.00E-03	5.13E-04	0.00E+00	3.20E-06	1.15E-04	0.00E+00	1.18E-04	2.60E+01	2.60E+02	4.5E-06	4.5E-07
TOTAL XYLENES	6.07E-02	0.00E+00	0.00E+00	4.86E-05	0.00E+00	0.00E+00	4.86E-05	2.06E+00	2.58E+00	2.4E-05	1.9E-05
TRICHLOROETHENE	3.91E-03	6.17E-04	0.00E+00	3.13E-06	1.38E-04	0.00E+00	1.41E-04	7.00E-01	7.00E+00	2.0E-04	2.0E-05
Semivolatile Organics											
1,1-BIPHENYL	2.26E-01	0.00E+00	2.26E-01	1.81E-04	0.00E+00	2.01E-02	2.03E-02	5.00E+00	5.00E+01	4.1E-03	4.1E-04
2-METHYLNAPHTHALENE	3.00E-01	0.00E+00	2.38E-01	2.41E-04	0.00E+00	2.12E-02	2.14E-02	6.56E+01	3.56E+02	3.3E-04	6.0E-05
3,3'-DICHLOROBENZIDINE	1.10E-01	0.00E+00	3.67E-01	8.81E-05	0.00E+00	3.27E-02	3.28E-02	NV	NV	#VALUE!	#VALUE!
ACENAPHTHENE	4.32E-01	0.00E+00	2.21E-01	3.46E-04	0.00E+00	1.96E-02	2.00E-02	6.56E+01	3.56E+02	3.0E-04	5.6E-05
ACENAPHTHYLENE	6.91E-02	0.00E+00	5.48E-01	5.54E-05	0.00E+00	4.88E-02	4.88E-02	6.56E+01	3.56E+02	7.4E-04	1.4E-04
ANTHRACENE	1.78E+00	0.00E+00	1.49E+00	1.43E-03	0.00E+00	1.33E-01	1.34E-01	6.56E+01	3.56E+02	2.0E-03	3.8E-04
BENZO(A)ANTHRACENE	2.43E+00	0.00E+00	1.34E+00	1.95E-03	0.00E+00	1.19E-01	1.21E-01	6.15E-01	3.84E+01	2.0E-01	3.1E-03
BENZO(A)PYRENE	2.47E+00	0.00E+00	1.14E+00	1.98E-03	0.00E+00	1.01E-01	1.03E-01	6.15E-01	3.84E+01	1.7E-01	2.7E-03
BENZO(B)FLUORANTHENE	1.71E+00	0.00E+00	1.54E+00	1.37E-03	0.00E+00	1.37E-01	1.38E-01	6.15E-01	3.84E+01	2.2E-01	3.6E-03
BENZO(G,H,I)PERYLENE	1.19E+00	0.00E+00	1.22E+00	9.55E-04	0.00E+00	1.08E-01	1.09E-01	6.15E-01	3.84E+01	1.8E-01	2.8E-03
BENZO(K)FLUORANTHENE	1.90E+00	0.00E+00	1.71E+00	1.53E-03	0.00E+00	1.53E-01	1.54E-01	6.15E-01	3.84E+01	2.5E-01	4.0E-03
BENZOIC ACID	1.06E+00	0.00E+00	1.06E+00	8.47E-04	0.00E+00	9.41E-02	9.49E-02	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	6.98E-01	4.72E-03	6.98E-01	5.59E-04	1.06E-03	6.21E-02	6.37E-02	1.83E+01	1.83E+02	3.5E-03	3.5E-04
BUTYL BENZYL PHTHALATE	2.07E-01	0.00E+00	2.07E-01	1.65E-04	0.00E+00	1.84E-02	1.85E-02	1.59E+01	4.70E+01	1.2E-03	3.9E-04
CARBAZOLE	8.13E-01	0.00E+00	8.13E-01	6.51E-04	0.00E+00	7.24E-02	7.30E-02	6.15E-01	3.84E+01	1.2E-01	1.9E-03
CHRYSENE	2.27E+00	0.00E+00	1.80E+00	1.81E-03	0.00E+00	1.60E-01	1.62E-01	6.15E-01	3.84E+01	2.6E-01	4.2E-03
DIBENZO(A,H)ANTHRACENE	5.10E-01	0.00E+00	4.07E-01	4.09E-04	0.00E+00	3.63E-02	3.67E-02	6.15E-01	3.84E+01	6.0E-02	9.5E-04
DIBENZOFURAN	5.30E-01	0.00E+00	5.30E-01	4.24E-04	0.00E+00	4.71E-02	4.75E-02	6.15E-01	3.84E+01	7.7E-02	1.2E-03
FLUORANTHENE	7.01E+00	0.00E+00	7.38E+00	5.61E-03	0.00E+00	6.57E-01	6.63E-01	6.56E+01	3.56E+02	1.0E-02	1.9E-03
FLUORENE	8.10E-01	0.00E+00	2.68E+00	6.49E-04	0.00E+00	2.39E-01	2.39E-01	6.56E+01	3.56E+02	3.7E-03	6.7E-04
INDENO(1,2,3-CD)PYRENE	1.39E+00	0.00E+00	1.37E+00	1.11E-03	0.00E+00	1.22E-01	1.23E-01	6.15E-01	3.84E+01	2.0E-01	3.2E-03
N-NITROSODIPHENYLAMINE	2.36E-01	0.00E+00	2.36E-01	1.89E-04	0.00E+00	2.10E-02	2.12E-02	NV	NV	#VALUE!	#VALUE!
NAPHTHALENE	1.17E+00	0.00E+00	1.78E+00	9.38E-04	0.00E+00	1.59E-01	1.60E-01	6.56E+01	3.56E+02	2.4E-03	4.5E-04
PHENANTHRENE	6.74E+00	0.00E+00	4.01E+00	5.40E-03	0.00E+00	3.57E-01	3.63E-01	6.56E+01	3.56E+02	5.5E-03	1.0E-03
PYRENE	6.07E+00	0.00E+00	3.68E+00	4.86E-03	0.00E+00	3.28E-01	3.33E-01	6.15E-01	3.84E+01	5.4E-01	8.7E-03
Pesticides/PCBs											
4,4'-DDD	3.75E-03	0.00E+00	0.00E+00	3.00E-06	0.00E+00	0.00E+00	3.00E-06	1.47E-01	2.74E-01	2.0E-05	1.1E-05

SHORT-TAILED SHREW - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
4,4'-DDE	1.99E-02	6.74E-06	1.27E-02	1.59E-05	1.51E-06	1.13E-03	1.15E-03	1.47E-01	2.74E-01	7.8E-03	4.2E-03
4,4'-DDT	2.64E-02	7.53E-06	0.00E+00	2.12E-05	1.68E-06	0.00E+00	2.29E-05	1.47E-01	2.74E-01	1.6E-04	8.3E-05
ALPHA-CHLORDANE	2.53E-02	0.00E+00	4.00E-03	2.03E-05	0.00E+00	3.56E-04	3.76E-04	4.58E+00	9.16E+00	8.2E-05	4.1E-05
AROCLOR-1254	3.90E-01	0.00E+00	2.48E-01	3.12E-04	0.00E+00	2.21E-02	2.24E-02	6.80E-02	6.80E-01	3.3E-01	3.3E-02
AROCLOR-1260	1.10E-01	0.00E+00	5.41E-01	8.83E-05	0.00E+00	4.81E-02	4.82E-02	6.80E-02	6.80E-01	7.1E-01	7.1E-02
AROCLOR-1268	1.49E-01	0.00E+00	2.04E-01	1.20E-04	0.00E+00	1.82E-02	1.83E-02	6.80E-02	6.80E-01	2.7E-01	2.7E-02
DIELDRIN	6.11E-03	1.02E-05	2.88E-02	4.89E-06	2.27E-06	2.56E-03	2.57E-03	1.50E-02	1.27E+00	1.7E-01	2.0E-03
ENDRIN	2.40E-03	0.00E+00	0.00E+00	1.92E-06	0.00E+00	0.00E+00	1.92E-06	9.20E-02	9.20E-01	2.1E-05	2.1E-06
GAMMA-CHLORDANE	3.89E-03	0.00E+00	0.00E+00	3.11E-06	0.00E+00	0.00E+00	3.11E-06	4.58E+00	9.16E+00	6.8E-07	3.4E-07
HEPTACHLOR	1.45E-03	0.00E+00	0.00E+00	1.16E-06	0.00E+00	0.00E+00	1.16E-06	1.00E-01	1.00E+00	1.2E-05	1.2E-06
TOTAL AROCLOR	6.25E-01	0.00E+00	5.18E-01	5.00E-04	0.00E+00	4.61E-02	4.66E-02	6.80E-02	6.80E-01	6.9E-01	6.9E-02
TOTAL DDD/DDE/DDT	3.77E-02	1.10E-05	1.27E-02	3.02E-05	2.46E-06	1.13E-03	1.16E-03	1.47E-01	2.74E-01	7.9E-03	4.2E-03
Inorganics											
ALUMINUM	1.23E+04	1.62E+00	1.10E+04	9.82E+00	3.62E-01	9.79E+02	9.89E+02	1.93E+00	1.93E+01	5.1E+02	5.1E+01
ANTIMONY	5.64E-01	1.98E-03	1.85E-01	4.52E-04	4.43E-04	1.65E-02	1.74E-02	5.90E-02	2.76E+00	2.9E-01	6.3E-03
ARSENIC	2.37E+01	2.89E-03	1.78E+01	1.90E-02	6.46E-04	1.58E+00	1.60E+00	1.04E+00	4.55E+00	1.5E+00	3.5E-01
BARIUM	2.53E+01	1.18E-02	6.51E+01	2.03E-02	2.63E-03	5.79E+00	5.82E+00	5.18E+01	8.27E+01	1.1E-01	7.0E-02
BERYLLIUM	4.34E-01	0.00E+00	4.87E-01	3.47E-04	0.00E+00	4.33E-02	4.37E-02	5.32E-01	6.73E-01	8.2E-02	6.5E-02
CADMIUM	2.54E+00	0.00E+00	1.18E+02	2.03E-03	0.00E+00	1.05E+01	1.05E+01	7.70E-01	6.90E+00	1.4E+01	1.5E+00
CHROMIUM	2.05E+01	7.28E-04	1.27E+02	1.64E-02	1.63E-04	1.13E+01	1.13E+01	2.40E+00	5.82E+01	4.7E+00	1.9E-01
COBALT	2.73E+01	1.68E-03	1.56E+01	2.19E-02	3.76E-04	1.39E+00	1.41E+00	7.33E+00	1.89E+01	1.9E-01	7.5E-02
COPPER	6.57E+01	5.15E-03	4.23E+01	5.27E-02	1.15E-03	3.76E+00	3.82E+00	5.82E+00	8.14E+01	6.6E-01	4.7E-02
IRON	2.75E+04	1.08E+00	2.36E+04	2.20E+01	2.41E-01	2.10E+03	2.12E+03	5.00E+01	5.00E+02	4.2E+01	4.2E+00
LEAD	5.43E+01	4.72E-03	1.50E+02	4.35E-02	1.05E-03	1.33E+01	1.34E+01	4.70E+00	1.86E+02	2.8E+00	7.2E-02
MANGANESE	4.39E+02	2.50E-01	4.30E+02	3.52E-01	5.60E-02	3.83E+01	3.87E+01	5.15E+01	1.46E+02	7.5E-01	2.7E-01
MERCURY	1.96E-01	3.12E-04	4.68E-01	1.57E-04	6.99E-05	4.16E-02	4.19E-02	3.20E-02	1.60E-01	1.3E+00	2.6E-01
MOLYBDENUM	6.31E-01	7.87E-02	8.28E+00	5.05E-04	1.76E-02	7.37E-01	7.55E-01	NV	NV	#VALUE!	#VALUE!
NICKEL	2.25E+01	2.69E-03	8.07E+01	1.80E-02	6.01E-04	7.18E+00	7.20E+00	1.70E+00	1.48E+01	4.2E+00	4.9E-01
SELENIUM	2.47E-01	0.00E+00	5.06E+00	1.98E-04	0.00E+00	4.50E-01	4.50E-01	2.00E-01	3.30E-01	2.3E+00	1.4E+00
SILVER	6.11E-01	0.00E+00	4.72E-01	4.90E-04	0.00E+00	4.20E-02	4.25E-02	6.02E+00	1.19E+02	7.1E-03	3.6E-04
THALLIUM	2.46E-01	2.79E-03	0.00E+00	1.97E-04	6.23E-04	0.00E+00	8.20E-04	7.40E-03	7.40E-02	1.1E-01	1.1E-02
VANADIUM	2.23E+01	1.75E-03	2.28E+01	1.79E-02	3.91E-04	2.03E+00	2.05E+00	4.16E+00	7.74E+00	4.9E-01	2.6E-01
ZINC	1.32E+02	1.28E-02	4.26E+02	1.06E-01	2.87E-03	3.79E+01	3.80E+01	7.54E+01	2.98E+02	5.0E-01	1.3E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.61E-02	kg
Food Ingestion Rate = (If)	1.43E-03	kg/day
Water Ingestion Rate = (Iw)	3.60E-03	L/day
Soil Ingestion Rate = (Is)	1.29E-05	kg/day
Home Range = (HR)	9.70E-01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Cw = Contaminant concentration in water
Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

AMERICAN ROBIN - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
1,2,4-TRIMETHYLBENZENE	1.60E+00	0.00E+00	0.00E+00	4.23E-02	0.00E+00	0.00E+00	4.23E-02	NV	NV	#VALUE!	#VALUE!
1,3,5-TRIMETHYLBENZENE	8.60E-01	0.00E+00	0.00E+00	2.28E-02	0.00E+00	0.00E+00	2.28E-02	NV	NV	#VALUE!	#VALUE!
2-BUTANONE	1.20E-02	0.00E+00	0.00E+00	3.18E-04	0.00E+00	0.00E+00	3.18E-04	NV	NV	#VALUE!	#VALUE!
4-ISOPROPYLTOLUENE	2.90E-01	0.00E+00	0.00E+00	7.68E-03	0.00E+00	0.00E+00	7.68E-03	NV	NV	#VALUE!	#VALUE!
ACETONE	7.90E+00	7.00E-03	0.00E+00	2.09E-01	1.09E-03	0.00E+00	2.10E-01	2.01E+01	2.01E+02	1.0E-02	1.0E-03
BENZENE	2.00E-03	0.00E+00	0.00E+00	5.29E-05	0.00E+00	0.00E+00	5.29E-05	NV	NV	#VALUE!	#VALUE!
M+P-XYLENES	3.50E-01	0.00E+00	0.00E+00	9.26E-03	0.00E+00	0.00E+00	9.26E-03	1.07E+02	1.07E+03	8.7E-05	8.7E-06
METHYLENE CHLORIDE	3.00E-03	0.00E+00	0.00E+00	7.94E-05	0.00E+00	0.00E+00	7.94E-05	NV	NV	#VALUE!	#VALUE!
N-BUTYLBENZENE	2.60E-01	0.00E+00	0.00E+00	6.88E-03	0.00E+00	0.00E+00	6.88E-03	NV	NV	#VALUE!	#VALUE!
N-PROPYLBENZENE	3.00E-01	0.00E+00	0.00E+00	7.94E-03	0.00E+00	0.00E+00	7.94E-03	NV	NV	#VALUE!	#VALUE!
O-XYLENE	2.30E-01	0.00E+00	0.00E+00	6.09E-03	0.00E+00	0.00E+00	6.09E-03	1.07E+02	1.07E+03	5.7E-05	5.7E-06
TOLUENE	4.00E-03	4.00E-04	0.00E+00	1.06E-04	6.24E-05	0.00E+00	1.68E-04	NV	NV	#VALUE!	#VALUE!
TOTAL XYLENES	5.80E-01	0.00E+00	0.00E+00	1.54E-02	0.00E+00	0.00E+00	1.54E-02	1.07E+02	1.07E+03	1.4E-04	1.4E-05
TRICHLOROETHENE	8.50E-03	1.00E-03	0.00E+00	2.25E-04	1.56E-04	0.00E+00	3.81E-04	NV	NV	#VALUE!	#VALUE!
Semivolatile Organics											
1,1-BIPHENYL	6.60E-01	0.00E+00	6.60E-01	1.75E-02	0.00E+00	1.07E-01	1.24E-01	NV	NV	#VALUE!	#VALUE!
2-METHYLNAPHTHALENE	2.40E+00	0.00E+00	1.90E+00	6.35E-02	0.00E+00	3.07E-01	3.70E-01	2.00E+00	2.00E+01	1.9E-01	1.9E-02
3,3'-DICHLOROBENZIDINE	1.10E-01	0.00E+00	1.10E-01	2.91E-03	0.00E+00	1.78E-02	2.07E-02	NV	NV	#VALUE!	#VALUE!
ACENAPHTHENE	9.50E+00	0.00E+00	4.86E+00	2.51E-01	0.00E+00	7.84E-01	1.04E+00	2.00E+00	2.00E+01	5.2E-01	5.2E-02
ACENAPHTHYLENE	2.90E-01	0.00E+00	2.30E+00	7.68E-03	0.00E+00	3.71E-01	3.79E-01	2.00E+00	2.00E+01	1.9E-01	1.9E-02
ANTHRACENE	1.30E+01	0.00E+00	1.09E+01	3.44E-01	0.00E+00	1.75E+00	2.10E+00	2.00E+00	2.00E+01	1.0E+00	1.0E-01
BENZO(A)ANTHRACENE	2.00E+01	0.00E+00	1.10E+01	5.29E-01	0.00E+00	1.78E+00	2.30E+00	2.00E+00	2.00E+01	1.2E+00	1.2E-01
BENZO(A)PYRENE	1.70E+01	0.00E+00	7.83E+00	4.50E-01	0.00E+00	1.26E+00	1.71E+00	2.00E+00	2.00E+01	8.6E-01	8.6E-02
BENZO(B)FLUORANTHENE	1.50E+01	0.00E+00	1.35E+01	3.97E-01	0.00E+00	2.18E+00	2.58E+00	2.00E+00	2.00E+01	1.3E+00	1.3E-01
BENZO(G,H,I)PERYLENE	7.40E+00	0.00E+00	7.56E+00	1.96E-01	0.00E+00	1.22E+00	1.42E+00	2.00E+00	2.00E+01	7.1E-01	7.1E-02
BENZO(K)FLUORANTHENE	1.20E+01	0.00E+00	1.08E+01	3.18E-01	0.00E+00	1.74E+00	2.06E+00	2.00E+00	2.00E+01	1.0E+00	1.0E-01
BENZOIC ACID	5.90E+00	0.00E+00	5.90E+00	1.56E-01	0.00E+00	9.52E-01	1.11E+00	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	4.50E+00	5.00E-03	4.50E+00	1.19E-01	7.81E-04	7.26E-01	8.46E-01	1.11E+00	1.11E+01	7.6E-01	7.6E-02
BUTYL BENZYL PHTHALATE	2.70E-01	0.00E+00	2.70E-01	7.15E-03	0.00E+00	4.36E-02	5.07E-02	NV	NV	#VALUE!	#VALUE!
CARBAZOLE	7.30E+00	0.00E+00	7.30E+00	1.93E-01	0.00E+00	1.18E+00	1.37E+00	2.00E+00	2.00E+01	6.9E-01	6.9E-02
CHRYSENE	1.70E+01	0.00E+00	1.35E+01	4.50E-01	0.00E+00	2.18E+00	2.63E+00	2.00E+00	2.00E+01	1.3E+00	1.3E-01
DIBENZO(A,H)ANTHRACENE	3.50E+00	0.00E+00	2.79E+00	9.26E-02	0.00E+00	4.51E-01	5.44E-01	2.00E+00	2.00E+01	2.7E-01	2.7E-02
DIBENZOFURAN	4.70E+00	0.00E+00	4.70E+00	1.24E-01	0.00E+00	7.58E-01	8.83E-01	2.00E+00	2.00E+01	4.4E-01	4.4E-02
FLUORANTHENE	4.50E+01	0.00E+00	4.74E+01	1.19E+00	0.00E+00	7.65E+00	8.84E+00	2.00E+00	2.00E+01	4.4E+00	4.4E-01
FLUORENE	5.90E+00	0.00E+00	1.95E+01	1.56E-01	0.00E+00	3.15E+00	3.31E+00	2.00E+00	2.00E+01	1.7E+00	1.7E-01
INDENO(1,2,3-CD)PYRENE	9.20E+00	0.00E+00	9.09E+00	2.43E-01	0.00E+00	1.47E+00	1.71E+00	2.00E+00	2.00E+01	8.6E-01	8.6E-02
N-NITROSODIPHENYLAMINE	4.00E-01	0.00E+00	4.00E-01	1.06E-02	0.00E+00	6.46E-02	7.51E-02	NV	NV	#VALUE!	#VALUE!
NAPHTHALENE	1.10E+01	0.00E+00	1.68E+01	2.91E-01	0.00E+00	2.70E+00	3.00E+00	2.00E+00	2.00E+01	1.5E+00	1.5E-01
PHENANTHRENE	4.80E+01	0.00E+00	2.86E+01	1.27E+00	0.00E+00	4.61E+00	5.88E+00	2.00E+00	2.00E+01	2.9E+00	2.9E-01
PYRENE	5.00E+01	0.00E+00	3.04E+01	1.32E+00	0.00E+00	4.90E+00	6.22E+00	2.00E+00	2.00E+01	3.1E+00	3.1E-01
Pesticides/PCBs											
4,4'-DDD	5.20E-03	0.00E+00	0.00E+00	1.38E-04	0.00E+00	0.00E+00	1.38E-04	2.27E-01	2.81E-01	6.1E-04	4.9E-04

AMERICAN ROBIN - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
4,4'-DDE	2.16E-01	1.39E-05	4.95E-02	5.72E-03	2.17E-06	7.99E-03	1.37E-02	2.27E-01	2.81E-01	6.0E-02	4.9E-02
4,4'-DDT	1.84E-01	1.79E-05	0.00E+00	4.87E-03	2.80E-06	0.00E+00	4.87E-03	2.27E-01	2.81E-01	2.1E-02	1.7E-02
ALPHA-CHLORDANE	2.35E-01	0.00E+00	5.72E-03	6.22E-03	0.00E+00	9.23E-04	7.14E-03	2.14E+00	1.07E+01	3.3E-03	6.7E-04
AROCLOR-1254	5.22E+00	0.00E+00	2.48E-01	1.38E-01	0.00E+00	4.00E-02	1.78E-01	1.80E-01	1.80E+00	9.9E-01	9.9E-02
AROCLOR-1260	3.50E-01	0.00E+00	7.31E-01	9.26E-03	0.00E+00	1.18E-01	1.27E-01	1.80E-01	1.80E+00	7.1E-01	7.1E-02
AROCLOR-1268	6.20E-01	0.00E+00	2.04E-01	1.64E-02	0.00E+00	3.29E-02	4.93E-02	1.80E-01	1.80E+00	2.7E-01	2.7E-02
DIELDRIN	2.30E-02	2.18E-05	2.88E-02	6.09E-04	3.40E-06	4.65E-03	5.26E-03	7.09E-02	8.00E-01	7.4E-02	6.6E-03
ENDRIN	2.40E-03	0.00E+00	0.00E+00	6.35E-05	0.00E+00	0.00E+00	6.35E-05	1.04E-02	1.04E-01	6.1E-03	6.1E-04
GAMMA-CHLORDANE	1.00E-02	0.00E+00	0.00E+00	2.65E-04	0.00E+00	0.00E+00	2.65E-04	2.14E+00	1.07E+01	1.2E-04	2.5E-05
HEPTACHLOR	1.70E-03	0.00E+00	0.00E+00	4.50E-05	0.00E+00	0.00E+00	4.50E-05	NV	NV	#VALUE!	#VALUE!
TOTAL AROCLOR	5.22E+00	0.00E+00	7.31E-01	1.38E-01	0.00E+00	1.18E-01	2.56E-01	1.80E-01	1.80E+00	1.4E+00	1.4E-01
TOTAL DDD/DDE/DDT	2.16E-01	3.18E-05	4.95E-02	5.72E-03	4.97E-06	7.99E-03	1.37E-02	2.27E-01	2.81E-01	6.0E-02	4.9E-02
Inorganics											
ALUMINUM	2.07E+04	3.16E+00	1.88E+04	5.48E+02	4.93E-01	3.03E+03	3.58E+03	1.10E+02	1.10E+03	3.3E+01	3.3E+00
ANTIMONY	5.50E+00	1.10E-03	6.69E-01	1.46E-01	1.72E-04	1.08E-01	2.54E-01	NV	NV	#VALUE!	#VALUE!
ARSENIC	9.00E+01	4.90E-03	4.09E+01	2.38E+00	7.65E-04	6.60E+00	8.98E+00	2.24E+00	4.51E+00	4.0E+00	2.0E+00
BARIUM	4.28E+01	2.14E-02	1.06E+02	1.13E+00	3.34E-03	1.71E+01	1.82E+01	2.08E+01	4.17E+01	8.8E-01	4.4E-01
BERYLLIUM	7.40E-01	0.00E+00	8.75E-01	1.96E-02	0.00E+00	1.41E-01	1.61E-01	NV	NV	#VALUE!	#VALUE!
CADMIUM	1.10E+01	0.00E+00	8.38E+02	2.91E-01	0.00E+00	1.35E+02	1.36E+02	1.47E+00	6.35E+00	9.2E+01	2.1E+01
CHROMIUM	6.40E+01	1.30E-03	3.02E+02	1.69E+00	2.03E-04	4.87E+01	5.04E+01	2.66E+00	1.56E+01	1.9E+01	3.2E+00
COBALT	2.18E+02	4.40E-03	3.07E+01	5.77E+00	6.87E-04	4.95E+00	1.07E+01	7.61E+00	1.83E+01	1.4E+00	5.8E-01
COPPER	5.60E+02	1.42E-02	6.04E+01	1.48E+01	2.22E-03	9.75E+00	2.46E+01	4.05E+00	3.48E+01	6.1E+00	7.1E-01
IRON	4.37E+04	5.59E+00	5.36E+04	1.16E+03	8.73E-01	8.65E+03	9.81E+03	1.00E+02	1.00E+03	9.8E+01	9.8E+00
LEAD	2.87E+03	2.15E-02	8.81E+02	7.60E+01	3.36E-03	1.42E+02	2.18E+02	1.63E+00	4.46E+01	1.3E+02	4.9E+00
MANGANESE	2.02E+03	6.00E-01	7.81E+02	5.35E+01	9.37E-02	1.26E+02	1.80E+02	1.79E+02	3.77E+02	1.0E+00	4.8E-01
MERCURY	2.00E+00	5.90E-04	1.96E+00	5.29E-02	9.21E-05	3.16E-01	3.69E-01	6.40E-03	6.40E-02	5.8E+01	5.8E+00
MOLYBDENUM	7.60E+00	8.10E-02	1.93E+01	2.01E-01	1.26E-02	3.11E+00	3.33E+00	NV	NV	#VALUE!	#VALUE!
NICKEL	3.85E+01	6.10E-03	1.71E+02	1.02E+00	9.52E-04	2.76E+01	2.86E+01	6.71E+00	1.86E+01	4.3E+00	1.5E+00
SELENIUM	6.70E-01	0.00E+00	2.11E+01	1.77E-02	0.00E+00	3.41E+00	3.42E+00	4.00E-01	8.00E-01	8.6E+00	4.3E+00
SILVER	2.00E+00	0.00E+00	1.59E+00	5.29E-02	0.00E+00	2.57E-01	3.10E-01	2.02E+00	6.05E+01	1.5E-01	5.1E-03
THALLIUM	3.00E-01	3.53E-03	0.00E+00	7.94E-03	5.51E-04	0.00E+00	8.49E-03	NV	NV	#VALUE!	#VALUE!
VANADIUM	4.72E+01	5.30E-03	3.89E+01	1.25E+00	8.27E-04	6.28E+00	7.53E+00	3.44E-01	1.69E+00	2.2E+01	4.5E+00
ZINC	6.63E+02	3.55E-02	1.85E+03	1.75E+01	5.54E-03	2.99E+02	3.16E+02	6.61E+01	1.71E+02	4.8E+00	1.8E+00

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	7.73E-02	kg
Food Ingestion Rate = (If)	1.25E-02	kg/day
Water Ingestion Rate = (Iw)	1.21E-02	L/day
Soil Ingestion Rate = (Is)	2.05E-03	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Cw = Contaminant concentration in water
Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water
NV - No Value
VALUE - Value could not be calculated

AMERICAN ROBIN - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:			Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
				Soil	Surface Water	Invert.				NOAEL	LOAEL
Volatile Organics											
1,2,4-TRIMETHYLBENZENE	1.64E-01	0.00E+00	0.00E+00	1.56E-03	0.00E+00	0.00E+00	3.89E-04	NV	NV	#VALUE!	#VALUE!
1,3,5-TRIMETHYLBENZENE	9.39E-02	0.00E+00	0.00E+00	8.88E-04	0.00E+00	0.00E+00	8.88E-04	NV	NV	#VALUE!	#VALUE!
2-BUTANONE	6.93E-03	0.00E+00	0.00E+00	6.55E-05	0.00E+00	0.00E+00	6.55E-05	NV	NV	#VALUE!	#VALUE!
4-ISOPROPYLTOLUENE	4.35E-02	0.00E+00	0.00E+00	4.12E-04	0.00E+00	0.00E+00	4.12E-04	NV	NV	#VALUE!	#VALUE!
ACETONE	1.02E+00	3.92E-03	0.00E+00	9.68E-03	5.52E-04	0.00E+00	1.02E-02	2.01E+01	2.01E+02	5.1E-04	5.1E-05
BENZENE	2.00E-03	0.00E+00	0.00E+00	1.89E-05	0.00E+00	0.00E+00	1.89E-05	NV	NV	#VALUE!	#VALUE!
M+P-XYLENES	3.93E-02	0.00E+00	0.00E+00	3.72E-04	0.00E+00	0.00E+00	3.72E-04	1.07E+02	1.07E+03	3.5E-06	3.5E-07
METHYLENE CHLORIDE	3.00E-03	0.00E+00	0.00E+00	2.84E-05	0.00E+00	0.00E+00	2.84E-05	NV	NV	#VALUE!	#VALUE!
N-BUTYLBENZENE	3.50E-02	0.00E+00	0.00E+00	3.30E-04	0.00E+00	0.00E+00	3.30E-04	NV	NV	#VALUE!	#VALUE!
N-PROPYLBENZENE	3.25E-02	0.00E+00	0.00E+00	3.07E-04	0.00E+00	0.00E+00	3.07E-04	NV	NV	#VALUE!	#VALUE!
O-XYLENE	2.58E-02	0.00E+00	0.00E+00	2.44E-04	0.00E+00	0.00E+00	2.44E-04	1.07E+02	1.07E+03	2.3E-06	2.3E-07
TOLUENE	4.00E-03	5.13E-04	0.00E+00	3.78E-05	7.24E-05	0.00E+00	1.10E-04	NV	NV	#VALUE!	#VALUE!
TOTAL XYLENES	6.07E-02	0.00E+00	0.00E+00	5.74E-04	0.00E+00	0.00E+00	5.74E-04	1.07E+02	1.07E+03	5.4E-06	5.4E-07
TRICHLOROETHENE	3.91E-03	6.17E-04	0.00E+00	3.70E-05	8.70E-05	0.00E+00	1.24E-04	NV	NV	#VALUE!	#VALUE!
Semivolatile Organics											
1,1-BIPHENYL	2.26E-01	0.00E+00	2.26E-01	2.14E-03	0.00E+00	3.34E-02	3.55E-02	NV	NV	#VALUE!	#VALUE!
2-METHYLNAPHTHALENE	3.00E-01	0.00E+00	2.38E-01	2.84E-03	0.00E+00	3.51E-02	3.80E-02	2.00E+00	2.00E+01	1.9E-02	1.9E-03
3,3'-DICHLOROBENZIDINE	1.10E-01	0.00E+00	3.67E-01	1.04E-03	0.00E+00	5.42E-02	5.53E-02	NV	NV	#VALUE!	#VALUE!
ACENAPHTHENE	4.32E-01	0.00E+00	2.21E-01	4.09E-03	0.00E+00	3.26E-02	3.67E-02	2.00E+00	2.00E+01	1.8E-02	1.8E-03
ACENAPHTHYLENE	6.91E-02	0.00E+00	5.48E-01	6.54E-04	0.00E+00	8.10E-02	8.16E-02	2.00E+00	2.00E+01	4.1E-02	4.1E-03
ANTHRACENE	1.78E+00	0.00E+00	1.49E+00	1.69E-02	0.00E+00	2.20E-01	2.37E-01	2.00E+00	2.00E+01	1.2E-01	1.2E-02
BENZO(A)ANTHRACENE	2.43E+00	0.00E+00	1.34E+00	2.30E-02	0.00E+00	1.97E-01	2.20E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
BENZO(A)PYRENE	2.47E+00	0.00E+00	1.14E+00	2.34E-02	0.00E+00	1.68E-01	1.92E-01	2.00E+00	2.00E+01	9.6E-02	9.6E-03
BENZO(B)FLUORANTHENE	1.71E+00	0.00E+00	1.54E+00	1.61E-02	0.00E+00	2.27E-01	2.43E-01	2.00E+00	2.00E+01	1.2E-01	1.2E-02
BENZO(G,H,I)PERYLENE	1.19E+00	0.00E+00	1.22E+00	1.13E-02	0.00E+00	1.80E-01	1.91E-01	2.00E+00	2.00E+01	9.6E-02	9.6E-03
BENZO(K)FLUORANTHENE	1.90E+00	0.00E+00	1.71E+00	1.80E-02	0.00E+00	2.53E-01	2.71E-01	2.00E+00	2.00E+01	1.4E-01	1.4E-02
BENZOIC ACID	1.06E+00	0.00E+00	1.06E+00	9.99E-03	0.00E+00	1.56E-01	1.66E-01	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	6.98E-01	4.72E-03	6.98E-01	6.60E-03	6.66E-04	1.03E-01	1.10E-01	1.11E+00	1.11E+01	9.9E-02	9.9E-03
BUTYL BENZYL PHTHALATE	2.07E-01	0.00E+00	2.07E-01	1.95E-03	0.00E+00	3.05E-02	3.25E-02	NV	NV	#VALUE!	#VALUE!
CARBAZOLE	8.13E-01	0.00E+00	8.13E-01	7.69E-03	0.00E+00	1.20E-01	1.28E-01	2.00E+00	2.00E+01	6.4E-02	6.4E-03
CHRYSENE	2.27E+00	0.00E+00	1.80E+00	2.14E-02	0.00E+00	2.66E-01	2.87E-01	2.00E+00	2.00E+01	1.4E-01	1.4E-02
DIBENZO(A,H)ANTHRACENE	5.10E-01	0.00E+00	4.07E-01	4.83E-03	0.00E+00	6.02E-02	6.50E-02	2.00E+00	2.00E+01	3.3E-02	3.3E-03
DIBENZOFURAN	5.30E-01	0.00E+00	5.30E-01	5.01E-03	0.00E+00	7.82E-02	8.32E-02	2.00E+00	2.00E+01	4.2E-02	4.2E-03
FLUORANTHENE	7.01E+00	0.00E+00	7.38E+00	6.62E-02	0.00E+00	1.09E+00	1.16E+00	2.00E+00	2.00E+01	5.8E-01	5.8E-02
FLUORENE	8.10E-01	0.00E+00	2.68E+00	7.66E-03	0.00E+00	3.96E-01	4.04E-01	2.00E+00	2.00E+01	2.0E-01	2.0E-02
INDENO(1,2,3-CD)PYRENE	1.39E+00	0.00E+00	1.37E+00	1.31E-02	0.00E+00	2.02E-01	2.15E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
N-NITROSODIPHENYLAMINE	2.36E-01	0.00E+00	2.36E-01	2.23E-03	0.00E+00	3.48E-02	3.70E-02	NV	NV	#VALUE!	#VALUE!
NAPHTHALENE	1.17E+00	0.00E+00	1.78E+00	1.11E-02	0.00E+00	2.64E-01	2.75E-01	2.00E+00	2.00E+01	1.4E-01	1.4E-02
PHENANTHRENE	6.74E+00	0.00E+00	4.01E+00	6.37E-02	0.00E+00	5.93E-01	6.57E-01	2.00E+00	2.00E+01	3.3E-01	3.3E-02
PYRENE	6.07E+00	0.00E+00	3.68E+00	5.74E-02	0.00E+00	5.44E-01	6.02E-01	2.00E+00	2.00E+01	3.0E-01	3.0E-02
Pesticides/PCBs											
4,4'-DDD	3.75E-03	0.00E+00	0.00E+00	3.55E-05	0.00E+00	0.00E+00	3.55E-05	2.27E-01	2.81E-01	1.6E-04	1.3E-04

AMERICAN ROBIN - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:			Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
				Soil	Surface Water	Invert.				NOAEL	LOAEL
4,4'-DDE	1.99E-02	6.74E-06	1.27E-02	1.88E-04	9.51E-07	1.88E-03	2.06E-03	2.27E-01	2.81E-01	9.1E-03	7.3E-03
4,4'-DDT	2.64E-02	7.53E-06	0.00E+00	2.50E-04	1.06E-06	0.00E+00	2.51E-04	2.27E-01	2.81E-01	1.1E-03	8.9E-04
ALPHA-CHLORDANE	2.53E-02	0.00E+00	4.00E-03	2.39E-04	0.00E+00	5.91E-04	8.30E-04	2.14E+00	1.07E+01	3.9E-04	7.8E-05
AROCLOR-1254	3.90E-01	0.00E+00	2.48E-01	3.69E-03	0.00E+00	3.66E-02	4.03E-02	1.80E-01	1.80E+00	2.2E-01	2.2E-02
AROCLOR-1260	1.10E-01	0.00E+00	5.41E-01	1.04E-03	0.00E+00	7.99E-02	8.10E-02	1.80E-01	1.80E+00	4.5E-01	4.5E-02
AROCLOR-1268	1.49E-01	0.00E+00	2.04E-01	1.41E-03	0.00E+00	3.01E-02	3.15E-02	1.80E-01	1.80E+00	1.8E-01	1.8E-02
DIELDRIN	6.11E-03	1.02E-05	2.88E-02	5.77E-05	1.43E-06	4.25E-03	4.31E-03	7.09E-02	8.00E-01	6.1E-02	5.4E-03
ENDRIN	2.40E-03	0.00E+00	0.00E+00	2.27E-05	0.00E+00	0.00E+00	2.27E-05	1.04E-02	1.04E-01	2.2E-03	2.2E-04
GAMMA-CHLORDANE	3.89E-03	0.00E+00	0.00E+00	3.67E-05	0.00E+00	0.00E+00	3.67E-05	2.14E+00	1.07E+01	1.7E-05	3.4E-06
HEPTACHLOR	1.45E-03	0.00E+00	0.00E+00	1.37E-05	0.00E+00	0.00E+00	1.37E-05	NV	NV	#VALUE!	#VALUE!
TOTAL AROCLOR	6.25E-01	0.00E+00	5.18E-01	5.91E-03	0.00E+00	7.65E-02	8.24E-02	1.80E-01	1.80E+00	4.6E-01	4.6E-02
TOTAL DDD/DDE/DDT	3.77E-02	1.10E-05	1.27E-02	3.56E-04	1.55E-06	1.88E-03	2.23E-03	2.27E-01	2.81E-01	9.8E-03	7.9E-03
Inorganics											
ALUMINUM	1.23E+04	1.62E+00	1.10E+04	1.16E+02	2.29E-01	1.62E+03	1.74E+03	1.10E+02	1.10E+03	1.6E+01	1.6E+00
ANTIMONY	5.64E-01	1.98E-03	1.85E-01	5.34E-03	2.79E-04	2.73E-02	3.29E-02	NV	NV	#VALUE!	#VALUE!
ARSENIC	2.37E+01	2.89E-03	1.78E+01	2.24E-01	4.07E-04	2.63E+00	2.85E+00	2.24E+00	4.51E+00	1.3E+00	6.3E-01
BARIUM	2.53E+01	1.18E-02	6.51E+01	2.39E-01	1.66E-03	9.62E+00	9.86E+00	2.08E+01	4.17E+01	4.7E-01	2.4E-01
BERYLLIUM	4.34E-01	0.00E+00	4.87E-01	4.10E-03	0.00E+00	7.19E-02	7.60E-02	NV	NV	#VALUE!	#VALUE!
CADMIUM	2.54E+00	0.00E+00	1.18E+02	2.40E-02	0.00E+00	1.74E+01	1.75E+01	1.47E+00	6.35E+00	1.2E+01	2.7E+00
CHROMIUM	2.05E+01	7.28E-04	1.27E+02	1.94E-01	1.03E-04	1.88E+01	1.90E+01	2.66E+00	1.56E+01	7.1E+00	1.2E+00
COBALT	2.73E+01	1.68E-03	1.56E+01	2.58E-01	2.37E-04	2.30E+00	2.56E+00	7.61E+00	1.83E+01	3.4E-01	1.4E-01
COPPER	6.57E+01	5.15E-03	4.23E+01	6.22E-01	7.26E-04	6.25E+00	6.87E+00	4.05E+00	3.48E+01	1.7E+00	2.0E-01
IRON	2.75E+04	1.08E+00	2.36E+04	2.60E+02	1.52E-01	3.49E+03	3.75E+03	1.00E+02	1.00E+03	3.7E+01	3.7E+00
LEAD	5.43E+01	4.72E-03	1.50E+02	5.13E-01	6.66E-04	2.22E+01	2.27E+01	1.63E+00	4.46E+01	1.4E+01	5.1E-01
MANGANESE	4.39E+02	2.50E-01	4.30E+02	4.15E+00	3.53E-02	6.35E+01	6.77E+01	1.79E+02	3.77E+02	3.8E-01	1.8E-01
MERCURY	1.96E-01	3.12E-04	4.68E-01	1.85E-03	4.41E-05	6.91E-02	7.10E-02	6.40E-03	6.40E-02	1.1E+01	1.1E+00
MOLYBDENUM	6.31E-01	7.87E-02	8.28E+00	5.97E-03	1.11E-02	1.22E+00	1.24E+00	NV	NV	#VALUE!	#VALUE!
NICKEL	2.25E+01	2.69E-03	8.07E+01	2.13E-01	3.79E-04	1.19E+01	1.21E+01	6.71E+00	1.86E+01	1.8E+00	6.5E-01
SELENIUM	2.47E-01	0.00E+00	5.06E+00	2.34E-03	0.00E+00	7.47E-01	7.50E-01	4.00E-01	8.00E-01	1.9E+00	9.4E-01
SILVER	6.11E-01	0.00E+00	4.72E-01	5.78E-03	0.00E+00	6.97E-02	7.55E-02	2.02E+00	6.05E+01	3.7E-02	1.2E-03
THALLIUM	2.46E-01	2.79E-03	0.00E+00	2.32E-03	3.93E-04	0.00E+00	2.72E-03	NV	NV	#VALUE!	#VALUE!
VANADIUM	2.23E+01	1.75E-03	2.28E+01	2.11E-01	2.47E-04	3.37E+00	3.58E+00	3.44E-01	1.69E+00	1.0E+01	2.1E+00
ZINC	1.32E+02	1.28E-02	4.26E+02	1.25E+00	1.81E-03	6.29E+01	6.42E+01	6.61E+01	1.71E+02	9.7E-01	3.7E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	8.04E-02	kg
Food Ingestion Rate = (If)	1.19E-02	kg/day
Water Ingestion Rate = (Iw)	1.13E-02	L/day
Soil Ingestion Rate = (Is)	7.60E-04	kg/day
Home Range = (HR)	6.10E-01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Cw = Contaminant concentration in water
Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water
NV - No Value
VALUE - Value could not be calculated

MINK - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Max Sed Conc. (mg/kg)	Max SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
1,1,1-TRICHLOROETHANE	5.00E-03	2.40E-03	0.00E+00	5.18E-05	5.30E-04	0.00E+00	5.81E-04	1.00E+03	1.00E+04	5.8E-07	5.8E-08
1,1-DICHLOROETHANE	4.35E-04	1.60E-03	0.00E+00	4.51E-06	3.53E-04	0.00E+00	3.58E-04	4.75E+02	4.75E+03	7.5E-07	7.5E-08
1,2,4-TRICHLOROBENZENE	6.20E-03	0.00E+00	0.00E+00	6.43E-05	0.00E+00	0.00E+00	6.43E-05	1.48E+00	1.48E+01	4.3E-05	4.3E-06
2-BUTANONE	1.90E-01	0.00E+00	0.00E+00	1.97E-03	0.00E+00	0.00E+00	1.97E-03	1.77E+03	4.57E+03	1.1E-06	4.3E-07
4-ISOPROPYLTOLUENE	1.80E-02	0.00E+00	0.00E+00	1.87E-04	0.00E+00	0.00E+00	1.87E-04	NV	NV	#VALUE!	#VALUE!
ACETONE	7.40E-01	7.00E-03	0.00E+00	7.67E-03	1.54E-03	0.00E+00	9.22E-03	1.00E+01	5.00E+01	9.2E-04	1.8E-04
CARBON DISULFIDE	5.50E-03	0.00E+00	0.00E+00	5.70E-05	0.00E+00	0.00E+00	5.70E-05	1.26E+01	2.56E+01	4.5E-06	2.2E-06
CHLOROETHANE	1.60E-03	0.00E+00	0.00E+00	1.66E-05	0.00E+00	0.00E+00	1.66E-05	NV	NV	#VALUE!	#VALUE!
CIS-1,2-DICHLOROETHENE	7.50E-03	6.00E-04	0.00E+00	7.78E-05	1.32E-04	0.00E+00	2.10E-04	4.52E+01	4.52E+02	4.6E-06	4.6E-07
DICHLORODIFLUOROMETHANE	6.60E-02	0.00E+00	0.00E+00	6.84E-04	0.00E+00	0.00E+00	6.84E-04	2.31E+03	2.31E+04	3.0E-07	3.0E-08
M+P-XYLENES	2.20E-03	0.00E+00	0.00E+00	2.28E-05	0.00E+00	0.00E+00	2.28E-05	2.06E+00	2.58E+00	1.1E-05	8.8E-06
TETRACHLOROETHENE	3.30E-02	0.00E+00	0.00E+00	3.42E-04	0.00E+00	0.00E+00	3.42E-04	1.40E+00	7.00E+00	2.4E-04	4.9E-05
TOLUENE	3.80E-02	4.00E-04	0.00E+00	3.94E-04	8.83E-05	0.00E+00	4.82E-04	2.60E+01	2.60E+02	1.9E-05	1.9E-06
TOTAL 1,2-DICHLOROETHENE	7.50E-03	6.00E-04	0.00E+00	7.78E-05	1.32E-04	0.00E+00	2.10E-04	4.52E+01	4.52E+02	4.6E-06	4.6E-07
TOTAL XYLENES	2.20E-03	0.00E+00	0.00E+00	2.28E-05	0.00E+00	0.00E+00	2.28E-05	2.06E+00	2.58E+00	1.1E-05	8.8E-06
TRICHLOROETHENE	3.90E-02	1.00E-03	0.00E+00	4.04E-04	2.21E-04	0.00E+00	6.25E-04	7.00E-01	7.00E+00	8.9E-04	8.9E-05
Semivolatile Organics											
2-METHYLNAPHTHALENE	2.00E-01	0.00E+00	0.00E+00	2.07E-03	0.00E+00	0.00E+00	2.07E-03	6.56E+01	3.56E+02	3.2E-05	5.8E-06
ACENAPHTHENE	1.00E+00	0.00E+00	0.00E+00	1.04E-02	0.00E+00	0.00E+00	1.04E-02	6.56E+01	3.56E+02	1.6E-04	2.9E-05
ACENAPHTHYLENE	2.40E-02	0.00E+00	0.00E+00	2.49E-04	0.00E+00	0.00E+00	2.49E-04	6.56E+01	3.56E+02	3.8E-06	7.0E-07
ANTHRACENE	2.00E+00	0.00E+00	0.00E+00	2.07E-02	0.00E+00	0.00E+00	2.07E-02	6.56E+01	3.56E+02	3.2E-04	5.8E-05
BENZO(A)ANTHRACENE	3.40E+00	0.00E+00	0.00E+00	3.53E-02	0.00E+00	0.00E+00	3.53E-02	6.15E-01	3.84E+01	5.7E-02	9.2E-04
BENZO(A)PYRENE	2.60E+00	0.00E+00	0.00E+00	2.70E-02	0.00E+00	0.00E+00	2.70E-02	6.15E-01	3.84E+01	4.4E-02	7.0E-04
BENZO(B)FLUORANTHENE	2.30E+00	0.00E+00	0.00E+00	2.38E-02	0.00E+00	0.00E+00	2.38E-02	6.15E-01	3.84E+01	3.9E-02	6.2E-04
BENZO(G,H,I)PERYLENE	1.90E+00	0.00E+00	0.00E+00	1.97E-02	0.00E+00	0.00E+00	1.97E-02	6.15E-01	3.84E+01	3.2E-02	5.1E-04
BENZO(K)FLUORANTHENE	2.30E+00	0.00E+00	0.00E+00	2.38E-02	0.00E+00	0.00E+00	2.38E-02	6.15E-01	3.84E+01	3.9E-02	6.2E-04
BENZOIC ACID	2.70E+00	0.00E+00	0.00E+00	2.80E-02	0.00E+00	0.00E+00	2.80E-02	NV	NV	#VALUE!	#VALUE!
BENZYL ALCOHOL	4.00E-01	0.00E+00	0.00E+00	4.15E-03	0.00E+00	0.00E+00	4.15E-03	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	2.30E+00	5.00E-03	0.00E+00	2.38E-02	1.10E-03	0.00E+00	2.50E-02	1.83E+01	1.83E+02	1.4E-03	1.4E-04
CARBAZOLE	1.30E+00	0.00E+00	0.00E+00	1.35E-02	0.00E+00	0.00E+00	1.35E-02	6.15E-01	3.84E+01	2.2E-02	3.5E-04
CHRYSENE	3.30E+00	0.00E+00	0.00E+00	3.42E-02	0.00E+00	0.00E+00	3.42E-02	6.15E-01	3.84E+01	5.6E-02	8.9E-04
DI-N-BUTYL PHTHALATE	1.00E-01	0.00E+00	0.00E+00	1.04E-03	0.00E+00	0.00E+00	1.04E-03	5.50E+02	1.83E+03	1.9E-06	5.7E-07
DIBENZO(A,H)ANTHRACENE	6.40E-01	0.00E+00	0.00E+00	6.64E-03	0.00E+00	0.00E+00	6.64E-03	6.15E-01	3.84E+01	1.1E-02	1.7E-04
DIBENZOFURAN	5.80E-01	0.00E+00	0.00E+00	6.01E-03	0.00E+00	0.00E+00	6.01E-03	6.15E-01	3.84E+01	9.8E-03	1.6E-04
DIETHYL PHTHALATE	2.00E+00	0.00E+00	0.00E+00	2.07E-02	0.00E+00	0.00E+00	2.07E-02	4.58E+03	4.58E+04	4.5E-06	4.5E-07
FLUORANTHENE	8.50E+00	0.00E+00	0.00E+00	8.81E-02	0.00E+00	0.00E+00	8.81E-02	6.56E+01	3.56E+02	1.3E-03	2.5E-04
FLUORENE	1.30E+00	0.00E+00	0.00E+00	1.35E-02	0.00E+00	0.00E+00	1.35E-02	6.56E+01	3.56E+02	2.1E-04	3.8E-05
INDENO(1,2,3-CD)PYRENE	1.70E+00	0.00E+00	0.00E+00	1.76E-02	0.00E+00	0.00E+00	1.76E-02	6.15E-01	3.84E+01	2.9E-02	4.6E-04
NAPHTHALENE	2.00E-01	0.00E+00	0.00E+00	2.07E-03	0.00E+00	0.00E+00	2.07E-03	6.56E+01	3.56E+02	3.2E-05	5.8E-06
PHENANTHRENE	8.00E+00	0.00E+00	0.00E+00	8.30E-02	0.00E+00	0.00E+00	8.30E-02	6.56E+01	3.56E+02	1.3E-03	2.3E-04
PYRENE	7.00E+00	0.00E+00	0.00E+00	7.26E-02	0.00E+00	0.00E+00	7.26E-02	6.15E-01	3.84E+01	1.2E-01	1.9E-03
Pesticides/PCBs											
4,4'-DDD	1.70E-01	0.00E+00	2.15E-01	1.76E-03	0.00E+00	2.37E-02	2.55E-02	1.47E-01	2.74E-01	1.7E-01	9.3E-02
4,4'-DDE	4.30E-01	1.39E-05	2.96E+00	4.46E-03	3.07E-06	3.27E-01	3.31E-01	1.47E-01	2.74E-01	2.3E+00	1.2E+00
4,4'-DDT	7.70E-02	1.79E-05	0.00E+00	7.98E-04	3.95E-06	0.00E+00	8.02E-04	1.47E-01	2.74E-01	5.5E-03	2.9E-03
ALPHA-CHLORDANE	1.80E-01	0.00E+00	7.60E-02	1.87E-03	0.00E+00	8.38E-03	1.03E-02	4.58E+00	9.16E+00	2.2E-03	1.1E-03
AROCLOR-1260	5.50E-01	0.00E+00	1.37E+00	5.70E-03	0.00E+00	1.51E-01	1.57E-01	6.80E-02	6.80E-01	2.3E+00	2.3E-01
AROCLOR-1268	2.48E+00	0.00E+00	0.00E+00	2.57E-02	0.00E+00	0.00E+00	2.57E-02	6.80E-02	6.80E-01	3.8E-01	3.8E-02
DIELDRIN	1.40E-01	2.18E-05	1.48E-01	1.45E-03	4.81E-06	1.63E-02	1.78E-02	1.50E-02	1.27E+00	1.2E+00	1.4E-02
GAMMA-CHLORDANE	1.30E-01	0.00E+00	3.54E-02	1.35E-03	0.00E+00	3.91E-03	5.25E-03	4.58E+00	9.16E+00	1.1E-03	5.7E-04
TOTAL AROCLOR	2.93E+00	0.00E+00	3.42E+00	3.04E-02	0.00E+00	3.77E-01	4.08E-01	6.80E-02	6.80E-01	6.0E+00	6.0E-01
TOTAL DDD/DDE/DDT	6.77E-01	3.18E-05	3.18E+00	7.02E-03	7.02E-06	3.51E-01	3.58E-01	1.47E-01	2.74E-01	2.4E+00	1.3E+00
Inorganics											
ALUMINUM	3.24E+04	3.16E+00	4.24E+02	3.36E+02	6.97E-01	4.68E+01	3.83E+02	1.93E+00	1.93E+01	2.0E+02	2.0E+01
ARSENIC	2.50E+01	4.90E-03	1.51E+00	2.59E-01	1.08E-03	1.67E-01	4.27E-01	1.04E+00	4.55E+00	4.1E-01	9.4E-02
BARIUM	1.07E+02	2.14E-02	1.46E+01	1.11E+00	4.72E-03	1.61E+00	2.72E+00	5.18E+01	8.27E+01	5.3E-02	3.3E-02
BERYLLIUM	1.10E+00	0.00E+00	0.00E+00	1.14E-02	0.00E+00	0.00E+00	1.14E-02	5.32E-01	6.73E-01	2.1E-02	1.7E-02
CADMIUM	2.40E+00	0.00E+00	3.45E-01	2.49E-02	0.00E+00	3.81E-02	6.29E-02	7.70E-01	6.90E+00	8.2E-02	9.1E-03
CHROMIUM	4.04E+01	1.30E-03	1.22E+01	4.19E-01	2.87E-04	1.35E+00	1.77E+00	2.40E+00	5.82E+01	7.3E-01	3.0E-02
COBALT	2.04E+02	4.40E-03	2.38E+00	2.12E+00	9.71E-04	2.63E-01	2.38E+00	7.33E+00	1.89E+01	3.2E-01	1.3E-01
COPPER	5.80E+01	1.42E-02	3.57E+00	6.01E-01	3.13E-03	3.94E-01	9.98E-01	5.82E+00	8.14E+01	1.7E-01	1.2E-02
IRON	5.11E+04	5.59E+00	1.43E+03	5.30E+02	1.23E+00	1.58E+02	6.89E+02	5.00E+01	5.00E+02	1.4E+01	1.4E+00
LEAD	2.72E+04	2.15E-02	5.28E+00	2.82E+02	4.74E-03	5.82E-01	2.83E+02	4.70E+00	1.86E+02	6.0E+01	1.5E+00
MANGANESE	2.80E+03	6.00E-01	6.92E+02	2.90E+01	1.32E-01	7.63E+01	1.06E+02	5.15E+01	1.46E+02	2.0E+00	7.2E-01
MERCURY	3.30E-01	5.90E-04	1.45E-01	3.42E-03	1.30E-04	1.60E-02	1.95E-02	3.20E-02	1.60E-01	6.1E-01	1.2E-01
MOLYBDENUM	8.80E+00	8.10E-02	2.03E+00	9.13E-02	1.79E-02	2.24E-01	3.33E-01	NV	NV	#VALUE!	#VALUE!
NICKEL	4.09E+01	6.10E-03	9.20E+00	4.24E-01	1.35E-03	1.01E+00	1.44E+00	1.70E+00	1.48E+01	8.5E-01	9.7E-02
SELENIUM	9.20E-01	0.00E+00	2.47E+00	9.54E-03	0.00E+00	2.72E-01	2.82E-01	2.00E-01	3.30E-01	1.4E+00	8.5E-01
SILVER	4.80E+00	0.00E+00	0.00E+00	4.98E-02	0.00E+00	0.00E+00	4.98E-02	6.02E+00	1.19E+02	8.3E-03	4.2E-04
VANADIUM	5.41E+01	5.30E-03	1.01E+00	5.61E-01	1.17E-03	1.11E-01	6.74E-01	4.16E+00	7.74E+00	1.6E-01	8.7E-02
ZINC	2.76E+02	3.55E-02	1.48E+02	2.86E+00	7.83E-03	1.63E+01	1.92E+01	7.54E+01	2.98E+02	2.5E-01	6.5E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	5.50E-01	kg
Food Ingestion Rate = (If)	6.07E-02	kg/day
Water Ingestion Rate = (Iw)	1.21E-01	L/day
Sediment Ingestion Rate = (Is)	5.70E-03	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (fish) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in fish
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (fish) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water

MINK - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Avg Sed Conc. (mg/kg)	Avg SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
1,1,1-TRICHLOROETHANE	2.02E-03	1.12E-03	0.00E+00	7.75E-06	7.40E-05	0.00E+00	8.17E-05	1.00E+03	1.00E+04	8.2E-08	8.2E-09
1,1-DICHLOROETHANE	4.35E-04	8.61E-04	0.00E+00	1.67E-06	5.70E-05	0.00E+00	5.87E-05	4.75E+02	4.75E+03	1.2E-07	1.2E-08
1,2,4-TRICHLOROBENZENE	5.10E-03	0.00E+00	0.00E+00	1.96E-05	0.00E+00	0.00E+00	1.96E-05	1.48E+00	1.48E+01	1.3E-05	1.3E-06
2-BUTANONE	5.21E-02	0.00E+00	0.00E+00	2.00E-04	0.00E+00	0.00E+00	2.00E-04	1.77E+03	4.57E+03	1.1E-07	4.4E-08
4-ISOPROPYLTOLUENE	8.12E-03	0.00E+00	0.00E+00	3.12E-05	0.00E+00	0.00E+00	3.12E-05	NV	NV	#VALUE!	#VALUE!
ACETONE	2.42E-01	3.92E-03	0.00E+00	9.28E-04	2.59E-04	0.00E+00	1.19E-03	1.00E+01	5.00E+01	1.2E-04	2.4E-05
CARBON DISULFIDE	4.10E-03	0.00E+00	0.00E+00	1.57E-05	0.00E+00	0.00E+00	1.57E-05	1.26E+01	2.56E+01	1.2E-06	6.1E-07
CHLOROETHANE	1.60E-03	0.00E+00	0.00E+00	6.14E-06	0.00E+00	0.00E+00	6.14E-06	NV	NV	#VALUE!	#VALUE!
CIS-1,2-DICHLOROETHENE	7.46E-03	5.26E-04	0.00E+00	2.86E-05	3.49E-05	0.00E+00	6.35E-05	4.52E+01	4.52E+02	1.4E-06	1.4E-07
DICHLORODIFLUOROMETHANE	2.02E-02	0.00E+00	0.00E+00	7.75E-05	0.00E+00	0.00E+00	7.75E-05	2.31E+03	2.31E+04	3.4E-08	3.4E-09
M+P-XYLENES	2.20E-03	0.00E+00	0.00E+00	8.44E-06	0.00E+00	0.00E+00	8.44E-06	2.06E+00	2.58E+00	4.1E-06	3.3E-06
TETRACHLOROETHENE	9.12E-03	0.00E+00	0.00E+00	3.50E-05	0.00E+00	0.00E+00	3.50E-05	1.40E+00	7.00E+00	2.5E-05	5.0E-06
TOLUENE	8.93E-03	3.54E-04	0.00E+00	3.43E-05	2.35E-05	0.00E+00	5.77E-05	2.60E+01	2.60E+02	2.2E-06	2.2E-07
TOTAL 1,2-DICHLOROETHENE	7.45E-03	5.24E-04	0.00E+00	2.86E-05	3.47E-05	0.00E+00	6.33E-05	4.52E+01	4.52E+02	1.4E-06	1.4E-07
TOTAL XYLENES	2.20E-03	0.00E+00	0.00E+00	8.44E-06	0.00E+00	0.00E+00	8.44E-06	2.06E+00	2.58E+00	4.1E-06	3.3E-06
TRICHLOROETHENE	2.43E-02	6.17E-04	0.00E+00	9.32E-05	4.08E-05	0.00E+00	1.34E-04	7.00E-01	7.00E+00	1.9E-04	1.9E-05
Semivolatile Organics											
2-METHYLNAPHTHALENE	7.52E-02	0.00E+00	0.00E+00	2.89E-04	0.00E+00	0.00E+00	2.89E-04	6.56E+01	3.56E+02	4.4E-06	8.1E-07
ACENAPHTHENE	5.59E-01	0.00E+00	0.00E+00	2.15E-03	0.00E+00	0.00E+00	2.15E-03	6.56E+01	3.56E+02	3.3E-05	6.0E-06
ACENAPHTHYLENE	1.14E-02	0.00E+00	0.00E+00	4.38E-05	0.00E+00	0.00E+00	4.38E-05	6.56E+01	3.56E+02	6.7E-07	1.2E-07
ANTHRACENE	1.24E+00	0.00E+00	0.00E+00	4.77E-03	0.00E+00	0.00E+00	4.77E-03	6.56E+01	3.56E+02	7.3E-05	1.3E-05
BENZO(A)ANTHRACENE	8.66E-01	0.00E+00	0.00E+00	3.32E-03	0.00E+00	0.00E+00	3.32E-03	6.15E-01	3.84E+01	5.4E-03	8.7E-05
BENZO(A)PYRENE	8.62E-01	0.00E+00	0.00E+00	3.31E-03	0.00E+00	0.00E+00	3.31E-03	6.15E-01	3.84E+01	5.4E-03	8.6E-05
BENZO(B)FLUORANTHENE	9.38E-01	0.00E+00	0.00E+00	3.60E-03	0.00E+00	0.00E+00	3.60E-03	6.15E-01	3.84E+01	5.9E-03	9.4E-05
BENZO(G,H,I)PERYLENE	6.17E-01	0.00E+00	0.00E+00	2.37E-03	0.00E+00	0.00E+00	2.37E-03	6.15E-01	3.84E+01	3.8E-03	6.2E-05
BENZO(K)FLUORANTHENE	7.62E-01	0.00E+00	0.00E+00	2.92E-03	0.00E+00	0.00E+00	2.92E-03	6.15E-01	3.84E+01	4.8E-03	7.6E-05
BENZOIC ACID	1.62E+00	0.00E+00	0.00E+00	6.22E-03	0.00E+00	0.00E+00	6.22E-03	NV	NV	#VALUE!	#VALUE!
BENZYL ALCOHOL	4.00E-01	0.00E+00	0.00E+00	1.54E-03	0.00E+00	0.00E+00	1.54E-03	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	1.06E+00	4.72E-03	0.00E+00	4.08E-03	3.13E-04	0.00E+00	4.40E-03	1.83E+01	1.83E+02	2.4E-04	2.4E-05
CARBAZOLE	4.32E-01	0.00E+00	0.00E+00	1.66E-03	0.00E+00	0.00E+00	1.66E-03	6.15E-01	3.84E+01	2.7E-03	4.3E-05
CHRYSENE	1.08E+00	0.00E+00	0.00E+00	4.13E-03	0.00E+00	0.00E+00	4.13E-03	6.15E-01	3.84E+01	6.7E-03	1.1E-04
DI-N-BUTYL PHTHALATE	1.00E-01	0.00E+00	0.00E+00	3.84E-04	0.00E+00	0.00E+00	3.84E-04	5.50E+02	1.83E+03	7.0E-07	2.1E-07
DIBENZO(A,H)ANTHRACENE	1.58E-01	0.00E+00	0.00E+00	6.08E-04	0.00E+00	0.00E+00	6.08E-04	6.15E-01	3.84E+01	9.9E-04	1.6E-05
DIBENZOFURAN	3.44E-01	0.00E+00	0.00E+00	1.32E-03	0.00E+00	0.00E+00	1.32E-03	6.15E-01	3.84E+01	2.1E-03	3.4E-05
DIETHYL PHTHALATE	8.04E-01	0.00E+00	0.00E+00	3.09E-03	0.00E+00	0.00E+00	3.09E-03	4.58E+03	4.58E+04	6.7E-07	6.7E-08
FLUORANTHENE	2.19E+00	0.00E+00	0.00E+00	8.42E-03	0.00E+00	0.00E+00	8.42E-03	6.56E+01	3.56E+02	1.3E-04	2.4E-05
FLUORENE	7.20E-01	0.00E+00	0.00E+00	2.76E-03	0.00E+00	0.00E+00	2.76E-03	6.56E+01	3.56E+02	4.2E-05	7.8E-06
INDENO(1,2,3-CD)PYRENE	5.43E-01	0.00E+00	0.00E+00	2.08E-03	0.00E+00	0.00E+00	2.08E-03	6.15E-01	3.84E+01	3.4E-03	5.4E-05
NAPHTHALENE	1.10E-01	0.00E+00	0.00E+00	4.22E-04	0.00E+00	0.00E+00	4.22E-04	6.56E+01	3.56E+02	6.4E-06	1.2E-06
PHENANTHRENE	2.51E+00	0.00E+00	0.00E+00	9.63E-03	0.00E+00	0.00E+00	9.63E-03	6.56E+01	3.56E+02	1.5E-04	2.7E-05
PYRENE	1.94E+00	0.00E+00	0.00E+00	7.43E-03	0.00E+00	0.00E+00	7.43E-03	6.15E-01	3.84E+01	1.2E-02	1.9E-04
Pesticides/PCBs											
4,4'-DDD	4.66E-02	0.00E+00	1.80E-01	1.79E-04	0.00E+00	7.35E-03	7.53E-03	1.47E-01	2.74E-01	5.1E-02	2.7E-02
4,4'-DDE	1.04E-01	6.74E-06	2.76E+00	4.00E-04	4.47E-07	1.13E-01	1.13E-01	1.47E-01	2.74E-01	7.7E-01	4.1E-01
4,4'-DDT	3.06E-02	7.53E-06	0.00E+00	1.18E-04	4.99E-07	0.00E+00	1.18E-04	1.47E-01	2.74E-01	8.0E-04	4.3E-04
ALPHA-CHLORDANE	4.52E-02	0.00E+00	7.38E-02	1.74E-04	0.00E+00	3.01E-03	3.19E-03	4.58E+00	9.16E+00	7.0E-04	3.5E-04
AROCLOR-1260	1.71E-01	0.00E+00	1.24E+00	6.58E-04	0.00E+00	5.06E-02	5.13E-02	6.80E-02	6.80E-01	7.5E-01	7.5E-02
AROCLOR-1268	1.06E+00	0.00E+00	0.00E+00	4.06E-03	0.00E+00	0.00E+00	4.06E-03	6.80E-02	6.80E-01	6.0E-02	6.0E-03
DIELDRIN	4.08E-02	1.02E-05	1.20E-01	1.56E-04	6.74E-07	4.90E-03	5.06E-03	1.50E-02	1.27E+00	3.4E-01	4.0E-03
GAMMA-CHLORDANE	3.31E-02	0.00E+00	3.15E-02	1.27E-04	0.00E+00	1.29E-03	1.41E-03	4.58E+00	9.16E+00	3.1E-04	1.5E-04
TOTAL AROCLOR	3.81E-01	0.00E+00	3.07E+00	1.46E-03	0.00E+00	1.25E-01	1.27E-01	6.80E-02	6.80E-01	1.9E+00	1.9E-01
TOTAL DDD/DDE/DDT	1.68E-01	1.10E-05	2.94E+00	6.45E-04	7.28E-07	1.20E-01	1.21E-01	1.47E-01	2.74E-01	8.2E-01	4.4E-01
Inorganics											
ALUMINUM	1.64E+04	1.62E+00	4.09E+02	6.31E+01	1.07E-01	1.67E+01	7.99E+01	1.93E+00	1.93E+01	4.1E+01	4.1E+00
ARSENIC	1.71E+01	2.89E-03	1.26E+00	6.56E-02	1.91E-04	5.15E-02	1.17E-01	1.04E+00	4.55E+00	1.1E-01	2.6E-02
BARIUM	5.72E+01	1.18E-02	1.35E+01	2.19E-01	7.80E-04	5.51E-01	7.71E-01	5.18E+01	8.27E+01	1.5E-02	9.3E-03
BERYLLIUM	5.86E-01	0.00E+00	0.00E+00	2.25E-03	0.00E+00	0.00E+00	2.25E-03	5.32E-01	6.73E-01	4.2E-03	3.3E-03
CADMIUM	9.94E-01	0.00E+00	3.38E-01	3.82E-03	0.00E+00	1.38E-02	1.76E-02	7.70E-01	6.90E+00	2.3E-02	2.6E-03
CHROMIUM	2.17E+01	7.28E-04	1.20E+01	8.35E-02	4.83E-05	4.90E-01	5.74E-01	2.40E+00	5.82E+01	2.4E-01	9.9E-03
COBALT	7.89E+01	1.68E-03	1.96E+00	3.03E-01	1.11E-04	8.00E-02	3.83E-01	7.33E+00	1.89E+01	5.2E-02	2.0E-02
COPPER	3.87E+01	5.15E-03	3.52E+00	1.48E-01	3.41E-04	1.44E-01	2.92E-01	5.82E+00	8.14E+01	5.0E-02	3.6E-03
IRON	3.22E+04	1.08E+00	1.32E+03	1.23E+02	7.14E-02	5.39E+01	1.77E+02	5.00E+01	5.00E+02	3.5E+00	3.5E-01
LEAD	8.53E+03	4.72E-03	4.80E+00	3.27E+01	3.13E-04	1.96E-01	3.29E+01	4.70E+00	1.86E+02	7.0E+00	1.8E-01
MANGANESE	1.16E+03	2.50E-01	5.38E+02	4.47E+00	1.66E-02	2.20E+01	2.65E+01	5.15E+01	1.46E+02	5.1E-01	1.8E-01
MERCURY	1.83E-01	3.12E-04	1.35E-01	7.04E-04	2.07E-05	5.51E-03	6.24E-03	3.20E-02	1.60E-01	1.9E-01	3.9E-02
MOLYBDENUM	4.00E+00	7.87E-02	1.87E+00	1.53E-02	5.22E-03	7.64E-02	9.69E-02	NV	NV	#VALUE!	#VALUE!
NICKEL	2.62E+01	2.69E-03	9.16E+00	1.01E-01	1.78E-04	3.74E-01	4.75E-01	1.70E+00	1.48E+01	2.8E-01	3.2E-02
SELENIUM	2.40E-01	0.00E+00	2.42E+00	9.21E-04	0.00E+00	9.88E-02	9.97E-02	2.00E-01	3.30E-01	5.0E-01	3.0E-01
SILVER	1.65E+00	0.00E+00	0.00E+00	6.33E-03	0.00E+00	0.00E+00	6.33E-03	6.02E+00	1.19E+02	1.1E-03	5.3E-05
VANADIUM	3.18E+01	1.75E-03	9.49E-01	1.22E-01	1.16E-04	3.88E-02	1.61E-01	4.16E+00	7.74E+00	3.9E-02	2.1E-02
ZINC	1.60E+02	1.28E-02	1.42E+02	6.13E-01	8.50E-04	5.80E+00	6.41E+00	7.54E+01	2.98E+02	8.5E-02	2.2E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.10E+00	kg
Food Ingestion Rate = (If)	4.50E-02	kg/day
Water Ingestion Rate = (Iw)	7.31E-02	L/day
Sediment Ingestion Rate = (Is)	4.23E-03	kg/day
Home Range = (HR)	3.50E+01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (fish) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in fish
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (fish) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water

GREAT BLUE HERON - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Max Sed. Conc. (mg/kg)	Max SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
1,1,1-TRICHLOROETHANE	5.00E-03	2.40E-03	0.00E+00	8.68E-06	1.26E-04	0.00E+00	1.35E-04	NV	NV	#VALUE!	#VALUE!
1,1-DICHLOROETHANE	4.35E-04	1.60E-03	0.00E+00	7.55E-07	8.42E-05	0.00E+00	8.49E-05	NV	NV	#VALUE!	#VALUE!
1,2,4-TRICHLOROBENZENE	6.20E-03	0.00E+00	0.00E+00	1.08E-05	0.00E+00	0.00E+00	1.08E-05	NV	NV	#VALUE!	#VALUE!
2-BUTANONE	1.90E-01	0.00E+00	0.00E+00	3.30E-04	0.00E+00	0.00E+00	3.30E-04	NV	NV	#VALUE!	#VALUE!
4-ISOPROPYLTOLUENE	1.80E-02	0.00E+00	0.00E+00	3.12E-05	0.00E+00	0.00E+00	3.12E-05	NV	NV	#VALUE!	#VALUE!
ACETONE	7.40E-01	7.00E-03	0.00E+00	1.28E-03	3.68E-04	0.00E+00	1.65E-03	2.01E+01	2.01E+02	8.2E-05	8.2E-06
CARBON DISULFIDE	5.50E-03	0.00E+00	0.00E+00	9.55E-06	0.00E+00	0.00E+00	9.55E-06	NV	NV	#VALUE!	#VALUE!
CHLOROETHANE	1.60E-03	0.00E+00	0.00E+00	2.78E-06	0.00E+00	0.00E+00	2.78E-06	NV	NV	#VALUE!	#VALUE!
CIS-1,2-DICHLOROETHENE	7.50E-03	6.00E-04	0.00E+00	1.30E-05	3.16E-05	0.00E+00	4.46E-05	NV	NV	#VALUE!	#VALUE!
DICHLORODIFLUOROMETHANE	6.60E-02	0.00E+00	0.00E+00	1.15E-04	0.00E+00	0.00E+00	1.15E-04	NV	NV	#VALUE!	#VALUE!
M+P-XYLENES	2.20E-03	0.00E+00	0.00E+00	3.82E-06	0.00E+00	0.00E+00	3.82E-06	1.07E+02	1.07E+03	3.6E-08	3.6E-09
TETRACHLOROETHENE	3.30E-02	0.00E+00	0.00E+00	5.73E-05	0.00E+00	0.00E+00	5.73E-05	NV	NV	#VALUE!	#VALUE!
TOLUENE	3.80E-02	4.00E-04	0.00E+00	6.60E-05	2.10E-05	0.00E+00	8.70E-05	NV	NV	#VALUE!	#VALUE!
TOTAL 1,2-DICHLOROETHENE	7.50E-03	6.00E-04	0.00E+00	1.30E-05	3.16E-05	0.00E+00	4.46E-05	NV	NV	#VALUE!	#VALUE!
TOTAL XYLENES	2.20E-03	0.00E+00	0.00E+00	3.82E-06	0.00E+00	0.00E+00	3.82E-06	1.07E+02	1.07E+03	3.6E-08	3.6E-09
TRICHLOROETHENE	3.90E-02	1.00E-03	0.00E+00	6.77E-05	5.26E-05	0.00E+00	1.20E-04	NV	NV	#VALUE!	#VALUE!
Semivolatile Organics											
2-METHYLNAPHTHALENE	2.00E-01	0.00E+00	0.00E+00	3.47E-04	0.00E+00	0.00E+00	3.47E-04	2.00E+00	2.00E+01	1.7E-04	1.7E-05
ACENAPHTHENE	1.00E+00	0.00E+00	0.00E+00	1.74E-03	0.00E+00	0.00E+00	1.74E-03	2.00E+00	2.00E+01	8.7E-04	8.7E-05
ACENAPHTHYLENE	2.40E-02	0.00E+00	0.00E+00	4.17E-05	0.00E+00	0.00E+00	4.17E-05	2.00E+00	2.00E+01	2.1E-05	2.1E-06
ANTHRACENE	2.00E+00	0.00E+00	0.00E+00	3.47E-03	0.00E+00	0.00E+00	3.47E-03	2.00E+00	2.00E+01	1.7E-03	1.7E-04
BENZO(A)ANTHRACENE	3.40E+00	0.00E+00	0.00E+00	5.90E-03	0.00E+00	0.00E+00	5.90E-03	2.00E+00	2.00E+01	3.0E-03	3.0E-04
BENZO(A)PYRENE	2.60E+00	0.00E+00	0.00E+00	4.51E-03	0.00E+00	0.00E+00	4.51E-03	2.00E+00	2.00E+01	2.3E-03	2.3E-04
BENZO(B)FLUORANTHENE	2.30E+00	0.00E+00	0.00E+00	3.99E-03	0.00E+00	0.00E+00	3.99E-03	2.00E+00	2.00E+01	2.0E-03	2.0E-04
BENZO(G,H,I)PERYLENE	1.90E+00	0.00E+00	0.00E+00	3.30E-03	0.00E+00	0.00E+00	3.30E-03	2.00E+00	2.00E+01	1.6E-03	1.6E-04
BENZO(K)FLUORANTHENE	2.30E+00	0.00E+00	0.00E+00	3.99E-03	0.00E+00	0.00E+00	3.99E-03	2.00E+00	2.00E+01	2.0E-03	2.0E-04
BENZOIC ACID	2.70E+00	0.00E+00	0.00E+00	4.69E-03	0.00E+00	0.00E+00	4.69E-03	NV	NV	#VALUE!	#VALUE!
BENZYL ALCOHOL	4.00E-01	0.00E+00	0.00E+00	6.94E-04	0.00E+00	0.00E+00	6.94E-04	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	2.30E+00	5.00E-03	0.00E+00	3.99E-03	2.63E-04	0.00E+00	4.25E-03	1.11E+00	1.11E+01	3.8E-03	3.8E-04
CARBAZOLE	1.30E+00	0.00E+00	0.00E+00	2.26E-03	0.00E+00	0.00E+00	2.26E-03	2.00E+00	2.00E+01	1.1E-03	1.1E-04
CHRYSENE	3.30E+00	0.00E+00	0.00E+00	5.73E-03	0.00E+00	0.00E+00	5.73E-03	2.00E+00	2.00E+01	2.9E-03	2.9E-04
DI-N-BUTYL PHTHALATE	1.00E-01	0.00E+00	0.00E+00	1.74E-04	0.00E+00	0.00E+00	1.74E-04	NV	NV	#VALUE!	#VALUE!
DIBENZO(A,H)ANTHRACENE	6.40E-01	0.00E+00	0.00E+00	1.11E-03	0.00E+00	0.00E+00	1.11E-03	2.00E+00	2.00E+01	5.6E-04	5.6E-05
DIBENZOFURAN	5.80E-01	0.00E+00	0.00E+00	1.01E-03	0.00E+00	0.00E+00	1.01E-03	2.00E+00	2.00E+01	5.0E-04	5.0E-05
DIETHYL PHTHALATE	2.00E+00	0.00E+00	0.00E+00	3.47E-03	0.00E+00	0.00E+00	3.47E-03	NV	NV	#VALUE!	#VALUE!
FLUORANTHENE	8.50E+00	0.00E+00	0.00E+00	1.48E-02	0.00E+00	0.00E+00	1.48E-02	2.00E+00	2.00E+01	7.4E-03	7.4E-04
FLUORENE	1.30E+00	0.00E+00	0.00E+00	2.26E-03	0.00E+00	0.00E+00	2.26E-03	2.00E+00	2.00E+01	1.1E-03	1.1E-04
INDENO(1,2,3-CD)PYRENE	1.70E+00	0.00E+00	0.00E+00	2.95E-03	0.00E+00	0.00E+00	2.95E-03	2.00E+00	2.00E+01	1.5E-03	1.5E-04
NAPHTHALENE	2.00E-01	0.00E+00	0.00E+00	3.47E-04	0.00E+00	0.00E+00	3.47E-04	2.00E+00	2.00E+01	1.7E-04	1.7E-05
PHENANTHRENE	8.00E+00	0.00E+00	0.00E+00	1.39E-02	0.00E+00	0.00E+00	1.39E-02	2.00E+00	2.00E+01	6.9E-03	6.9E-04
PYRENE	7.00E+00	0.00E+00	0.00E+00	1.21E-02	0.00E+00	0.00E+00	1.21E-02	2.00E+00	2.00E+01	6.1E-03	6.1E-04
Pesticides/PCBs											
4,4'-DDD	1.70E-01	0.00E+00	2.15E-01	2.95E-04	0.00E+00	1.13E-02	1.16E-02	2.27E-01	2.81E-01	5.1E-02	4.1E-02
4,4'-DDE	4.30E-01	1.39E-05	2.96E+00	7.46E-04	7.31E-07	1.56E-01	1.56E-01	2.27E-01	2.81E-01	6.9E-01	5.6E-01
4,4'-DDT	7.70E-02	1.79E-05	0.00E+00	1.34E-04	9.43E-07	0.00E+00	1.35E-04	2.27E-01	2.81E-01	5.9E-04	4.8E-04
ALPHA-CHLORDANE	1.80E-01	0.00E+00	7.60E-02	3.12E-04	0.00E+00	4.00E-03	4.31E-03	2.14E+00	1.07E+01	2.0E-03	4.0E-04
AROCLOR-1260	5.50E-01	0.00E+00	1.37E+00	9.55E-04	0.00E+00	7.21E-02	7.30E-02	1.80E-01	1.80E+00	4.1E-01	4.1E-02
AROCLOR-1268	2.48E+00	0.00E+00	0.00E+00	4.30E-03	0.00E+00	0.00E+00	4.30E-03	1.80E-01	1.80E+00	2.4E-02	2.4E-03
DIELDRIN	1.40E-01	2.18E-05	1.48E-01	2.43E-04	1.15E-06	7.78E-03	8.03E-03	7.09E-02	8.00E-01	1.1E-01	1.0E-02
GAMMA-CHLORDANE	1.30E-01	0.00E+00	3.54E-02	2.26E-04	0.00E+00	1.86E-03	2.09E-03	2.14E+00	1.07E+01	9.8E-04	2.0E-04
TOTAL AROCLOR	2.93E+00	0.00E+00	3.42E+00	5.09E-03	0.00E+00	1.80E-01	1.85E-01	1.80E-01	1.80E+00	1.0E+00	1.0E-01
TOTAL DDD/DDE/DDT	6.77E-01	3.18E-05	3.18E+00	1.18E-03	1.67E-06	1.67E-01	1.68E-01	2.27E-01	2.81E-01	7.4E-01	6.0E-01
Inorganics											
ALUMINUM	3.24E+04	3.16E+00	4.24E+02	5.62E+01	1.66E-01	2.23E+01	7.87E+01	1.10E+02	1.10E+03	7.2E-01	7.2E-02
ARSENIC	2.50E+01	4.90E-03	1.51E+00	4.34E-02	2.58E-04	7.94E-02	1.23E-01	2.24E+00	4.51E+00	5.5E-02	2.7E-02
BARIUM	1.07E+02	2.14E-02	1.46E+01	1.86E-01	1.13E-03	7.68E-01	9.55E-01	2.08E+01	4.17E+01	4.6E-02	2.3E-02
BERYLLIUM	1.10E+00	0.00E+00	0.00E+00	1.91E-03	0.00E+00	0.00E+00	1.91E-03	NV	NV	#VALUE!	#VALUE!
CADMIUM	2.40E+00	0.00E+00	3.45E-01	4.17E-03	0.00E+00	1.81E-02	2.23E-02	1.47E+00	6.35E+00	1.5E-02	3.5E-03
CHROMIUM	4.04E+01	1.30E-03	1.22E+01	7.01E-02	6.84E-05	6.42E-01	7.12E-01	2.66E+00	1.56E+01	2.7E-01	4.6E-02
COBALT	2.04E+02	4.40E-03	2.38E+00	3.54E-01	2.31E-04	1.25E-01	4.79E-01	7.61E+00	1.83E+01	6.3E-02	2.6E-02
COPPER	5.80E+01	1.42E-02	3.57E+00	1.01E-01	7.47E-04	1.88E-01	2.89E-01	4.05E+00	3.48E+01	7.1E-02	8.3E-03
IRON	5.11E+04	5.59E+00	1.43E+03	8.87E+01	2.94E-01	7.52E+01	1.64E+02	1.00E+02	1.00E+03	1.6E+00	1.6E-01
LEAD	2.72E+04	2.15E-02	5.28E+00	4.72E+01	1.13E-03	2.78E-01	4.75E+01	1.63E+00	4.46E+01	2.9E+01	1.1E+00
MANGANESE	2.80E+03	6.00E-01	6.92E+02	4.86E+00	3.16E-02	3.64E+01	4.13E+01	1.79E+02	3.77E+02	2.3E-01	1.1E-01
MERCURY	3.30E-01	5.90E-04	1.45E-01	5.73E-04	3.10E-05	7.63E-03	8.23E-03	6.40E-03	6.40E-02	1.3E+00	1.3E-01
MOLYBDENUM	8.80E+00	8.10E-02	2.03E+00	1.53E-02	4.26E-03	1.07E-01	1.26E-01	NV	NV	#VALUE!	#VALUE!
NICKEL	4.09E+01	6.10E-03	9.20E+00	7.10E-02	3.21E-04	4.84E-01	5.55E-01	6.71E+00	1.86E+01	8.3E-02	3.0E-02
SELENIUM	9.20E-01	0.00E+00	2.47E+00	1.60E-03	0.00E+00	1.30E-01	1.32E-01	4.00E-01	8.00E-01	3.3E-01	1.6E-01
SILVER	4.80E+00	0.00E+00	0.00E+00	8.33E-03	0.00E+00	0.00E+00	8.33E-03	2.02E+00	6.05E+01	4.1E-03	1.4E-04
VANADIUM	5.41E+01	5.30E-03	1.01E+00	9.39E-02	2.79E-04	5.31E-02	1.47E-01	3.44E-01	1.69E+00	4.3E-01	8.7E-02
ZINC	2.76E+02	3.55E-02	1.48E+02	4.79E-01	1.87E-03	7.78E+00	8.27E+00	6.61E+01	1.71E+02	1.3E-01	4.8E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	2.20E+00	kg
Food Ingestion Rate = (If)	1.16E-01	kg/day
Water Ingestion Rate = (Iw)	1.16E-01	L/day
Sediment Ingestion Rate = (Is)	3.83E-03	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (fish) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in fish
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (fish) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water
NV - No Value
VALUE - Value could not be calculated

GREAT BLUE HERON - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
SITE 08, NUSC DISPOSAL AREA, NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Chemical	Avg Sed. Conc. (mg/kg)	Avg SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
1,1,1-TRICHLOROETHANE	2.02E-03	1.12E-03	0.00E+00	3.00E-06	5.03E-05	0.00E+00	5.33E-05	NV	NV	#VALUE!	#VALUE!
1,1-DICHLOROETHANE	4.35E-04	8.61E-04	0.00E+00	6.46E-07	3.87E-05	0.00E+00	3.94E-05	NV	NV	#VALUE!	#VALUE!
1,2,4-TRICHLOROBENZENE	5.10E-03	0.00E+00	0.00E+00	7.57E-06	0.00E+00	0.00E+00	7.57E-06	NV	NV	#VALUE!	#VALUE!
2-BUTANONE	5.21E-02	0.00E+00	0.00E+00	7.74E-05	0.00E+00	0.00E+00	7.74E-05	NV	NV	#VALUE!	#VALUE!
4-ISOPROPYLTOLUENE	8.12E-03	0.00E+00	0.00E+00	1.21E-05	0.00E+00	0.00E+00	1.21E-05	NV	NV	#VALUE!	#VALUE!
ACETONE	2.42E-01	3.92E-03	0.00E+00	3.59E-04	1.76E-04	0.00E+00	5.35E-04	2.01E+01	2.01E+02	2.7E-05	2.7E-06
CARBON DISULFIDE	4.10E-03	0.00E+00	0.00E+00	6.09E-06	0.00E+00	0.00E+00	6.09E-06	NV	NV	#VALUE!	#VALUE!
CHLOROETHANE	1.60E-03	0.00E+00	0.00E+00	2.38E-06	0.00E+00	0.00E+00	2.38E-06	NV	NV	#VALUE!	#VALUE!
CIS-1,2-DICHLOROETHENE	7.46E-03	5.26E-04	0.00E+00	1.11E-05	2.37E-05	0.00E+00	3.48E-05	NV	NV	#VALUE!	#VALUE!
DICHLORODIFLUOROMETHANE	2.02E-02	0.00E+00	0.00E+00	3.00E-05	0.00E+00	0.00E+00	3.00E-05	NV	NV	#VALUE!	#VALUE!
M+P-XYLENES	2.20E-03	0.00E+00	0.00E+00	3.27E-06	0.00E+00	0.00E+00	3.27E-06	1.07E+02	1.07E+03	3.1E-08	3.1E-09
TETRACHLOROETHENE	9.12E-03	0.00E+00	0.00E+00	1.35E-05	0.00E+00	0.00E+00	1.35E-05	NV	NV	#VALUE!	#VALUE!
TOLUENE	8.93E-03	3.54E-04	0.00E+00	1.33E-05	1.59E-05	0.00E+00	2.92E-05	NV	NV	#VALUE!	#VALUE!
TOTAL 1,2-DICHLOROETHENE	7.45E-03	5.24E-04	0.00E+00	1.11E-05	2.36E-05	0.00E+00	3.46E-05	NV	NV	#VALUE!	#VALUE!
TOTAL XYLENES	2.20E-03	0.00E+00	0.00E+00	3.27E-06	0.00E+00	0.00E+00	3.27E-06	1.07E+02	1.07E+03	3.1E-08	3.1E-09
TRICHLOROETHENE	2.43E-02	6.17E-04	0.00E+00	3.60E-05	2.77E-05	0.00E+00	6.38E-05	NV	NV	#VALUE!	#VALUE!
Semivolatile Organics											
2-METHYLNAPHTHALENE	7.52E-02	0.00E+00	0.00E+00	1.12E-04	0.00E+00	0.00E+00	1.12E-04	2.00E+00	2.00E+01	5.6E-05	5.6E-06
ACENAPHTHENE	5.59E-01	0.00E+00	0.00E+00	8.30E-04	0.00E+00	0.00E+00	8.30E-04	2.00E+00	2.00E+01	4.2E-04	4.2E-05
ACENAPHTHYLENE	1.14E-02	0.00E+00	0.00E+00	1.69E-05	0.00E+00	0.00E+00	1.69E-05	2.00E+00	2.00E+01	8.5E-06	8.5E-07
ANTHRACENE	1.24E+00	0.00E+00	0.00E+00	1.85E-03	0.00E+00	0.00E+00	1.85E-03	2.00E+00	2.00E+01	9.2E-04	9.2E-05
BENZO(A)ANTHRACENE	8.66E-01	0.00E+00	0.00E+00	1.29E-03	0.00E+00	0.00E+00	1.29E-03	2.00E+00	2.00E+01	6.4E-04	6.4E-05
BENZO(A)PYRENE	8.62E-01	0.00E+00	0.00E+00	1.28E-03	0.00E+00	0.00E+00	1.28E-03	2.00E+00	2.00E+01	6.4E-04	6.4E-05
BENZO(B)FLUORANTHENE	9.38E-01	0.00E+00	0.00E+00	1.39E-03	0.00E+00	0.00E+00	1.39E-03	2.00E+00	2.00E+01	7.0E-04	7.0E-05
BENZO(G,H,I)PERYLENE	6.17E-01	0.00E+00	0.00E+00	9.16E-04	0.00E+00	0.00E+00	9.16E-04	2.00E+00	2.00E+01	4.6E-04	4.6E-05
BENZO(K)FLUORANTHENE	7.62E-01	0.00E+00	0.00E+00	1.13E-03	0.00E+00	0.00E+00	1.13E-03	2.00E+00	2.00E+01	5.7E-04	5.7E-05
BENZOIC ACID	1.62E+00	0.00E+00	0.00E+00	2.41E-03	0.00E+00	0.00E+00	2.41E-03	NV	NV	#VALUE!	#VALUE!
BENZYL ALCOHOL	4.00E-01	0.00E+00	0.00E+00	5.94E-04	0.00E+00	0.00E+00	5.94E-04	NV	NV	#VALUE!	#VALUE!
BIS(2-ETHYLHEXYL)PHTHALATE	1.06E+00	4.72E-03	0.00E+00	1.58E-03	2.12E-04	0.00E+00	1.79E-03	1.11E+00	1.11E+01	1.6E-03	1.6E-04
CARBAZOLE	4.32E-01	0.00E+00	0.00E+00	6.42E-04	0.00E+00	0.00E+00	6.42E-04	2.00E+00	2.00E+01	3.2E-04	3.2E-05
CHRYSENE	1.08E+00	0.00E+00	0.00E+00	1.60E-03	0.00E+00	0.00E+00	1.60E-03	2.00E+00	2.00E+01	8.0E-04	8.0E-05
DI-N-BUTYL PHTHALATE	1.00E-01	0.00E+00	0.00E+00	1.49E-04	0.00E+00	0.00E+00	1.49E-04	NV	NV	#VALUE!	#VALUE!
DIBENZO(A,H)ANTHRACENE	1.58E-01	0.00E+00	0.00E+00	2.35E-04	0.00E+00	0.00E+00	2.35E-04	2.00E+00	2.00E+01	1.2E-04	1.2E-05
DIBENZOFURAN	3.44E-01	0.00E+00	0.00E+00	5.10E-04	0.00E+00	0.00E+00	5.10E-04	2.00E+00	2.00E+01	2.6E-04	2.6E-05
DIETHYL PHTHALATE	8.04E-01	0.00E+00	0.00E+00	1.19E-03	0.00E+00	0.00E+00	1.19E-03	NV	NV	#VALUE!	#VALUE!
FLUORANTHENE	2.19E+00	0.00E+00	0.00E+00	3.26E-03	0.00E+00	0.00E+00	3.26E-03	2.00E+00	2.00E+01	1.6E-03	1.6E-04
FLUORENE	7.20E-01	0.00E+00	0.00E+00	1.07E-03	0.00E+00	0.00E+00	1.07E-03	2.00E+00	2.00E+01	5.3E-04	5.3E-05
INDENO(1,2,3-CD)PYRENE	5.43E-01	0.00E+00	0.00E+00	8.06E-04	0.00E+00	0.00E+00	8.06E-04	2.00E+00	2.00E+01	4.0E-04	4.0E-05
NAPHTHALENE	1.10E-01	0.00E+00	0.00E+00	1.63E-04	0.00E+00	0.00E+00	1.63E-04	2.00E+00	2.00E+01	8.2E-05	8.2E-06
PHENANTHRENE	2.51E+00	0.00E+00	0.00E+00	3.73E-03	0.00E+00	0.00E+00	3.73E-03	2.00E+00	2.00E+01	1.9E-03	1.9E-04
PYRENE	1.94E+00	0.00E+00	0.00E+00	2.88E-03	0.00E+00	0.00E+00	2.88E-03	2.00E+00	2.00E+01	1.4E-03	1.4E-04
Pesticides/PCBs											
4,4'-DDD	4.66E-02	0.00E+00	1.80E-01	6.92E-05	0.00E+00	8.10E-03	8.17E-03	2.27E-01	2.81E-01	3.6E-02	2.9E-02
4,4'-DDE	1.04E-01	6.74E-06	2.76E+00	1.55E-04	3.03E-07	1.24E-01	1.24E-01	2.27E-01	2.81E-01	5.5E-01	4.4E-01
4,4'-DDT	3.06E-02	7.53E-06	0.00E+00	4.55E-05	3.39E-07	0.00E+00	4.58E-05	2.27E-01	2.81E-01	2.0E-04	1.6E-04
ALPHA-CHLORDANE	4.52E-02	0.00E+00	7.38E-02	6.71E-05	0.00E+00	3.32E-03	3.39E-03	2.14E+00	1.07E+01	1.6E-03	3.2E-04
AROCLOR-1260	1.71E-01	0.00E+00	1.24E+00	2.55E-04	0.00E+00	5.58E-02	5.61E-02	1.80E-01	1.80E+00	3.1E-01	3.1E-02
AROCLOR-1268	1.06E+00	0.00E+00	0.00E+00	1.57E-03	0.00E+00	0.00E+00	1.57E-03	1.80E-01	1.80E+00	8.7E-03	8.7E-04
DIELDRIN	4.08E-02	1.02E-05	1.20E-01	6.05E-05	4.58E-07	5.40E-03	5.46E-03	7.09E-02	8.00E-01	7.7E-02	6.8E-03
GAMMA-CHLORDANE	3.31E-02	0.00E+00	3.15E-02	4.92E-05	0.00E+00	1.42E-03	1.47E-03	2.14E+00	1.07E+01	6.9E-04	1.4E-04
TOTAL AROCLOR	3.81E-01	0.00E+00	3.07E+00	5.66E-04	0.00E+00	1.38E-01	1.39E-01	1.80E-01	1.80E+00	7.7E-01	7.7E-02
TOTAL DDD/DDE/DDT	1.68E-01	1.10E-05	2.94E+00	2.49E-04	4.95E-07	1.32E-01	1.33E-01	2.27E-01	2.81E-01	5.8E-01	4.7E-01
Inorganics											
ALUMINUM	1.64E+04	1.62E+00	4.09E+02	2.44E+01	7.29E-02	1.84E+01	4.29E+01	1.10E+02	1.10E+03	3.9E-01	3.9E-02
ARSENIC	1.71E+01	2.89E-03	1.26E+00	2.54E-02	1.30E-04	5.67E-02	8.22E-02	2.24E+00	4.51E+00	3.7E-02	1.8E-02
BARIUM	5.72E+01	1.18E-02	1.35E+01	8.49E-02	5.30E-04	6.08E-01	6.93E-01	2.08E+01	4.17E+01	3.3E-02	1.7E-02
BERYLLIUM	5.86E-01	0.00E+00	0.00E+00	8.70E-04	0.00E+00	0.00E+00	8.70E-04	NV	NV	#VALUE!	#VALUE!
CADMIUM	9.94E-01	0.00E+00	3.38E-01	1.48E-03	0.00E+00	1.52E-02	1.67E-02	1.47E+00	6.35E+00	1.1E-02	2.6E-03
CHROMIUM	2.17E+01	7.28E-04	1.20E+01	3.23E-02	3.28E-05	5.40E-01	5.72E-01	2.66E+00	1.56E+01	2.2E-01	3.7E-02
COBALT	7.89E+01	1.68E-03	1.96E+00	1.17E-01	7.57E-05	8.82E-02	2.05E-01	7.61E+00	1.83E+01	2.7E-02	1.1E-02
COPPER	3.87E+01	5.15E-03	3.52E+00	5.74E-02	2.32E-04	1.58E-01	2.16E-01	4.05E+00	3.48E+01	5.3E-02	6.2E-03
IRON	3.22E+04	1.08E+00	1.32E+03	4.78E+01	4.85E-02	5.94E+01	1.07E+02	1.00E+02	1.00E+03	1.1E+00	1.1E-01
LEAD	8.53E+03	4.72E-03	4.80E+00	1.27E+01	2.12E-04	2.16E-01	1.29E+01	1.63E+00	4.46E+01	7.9E+00	2.9E-01
MANGANESE	1.16E+03	2.50E-01	5.38E+02	1.73E+00	1.13E-02	2.42E+01	2.60E+01	1.79E+02	3.77E+02	1.4E-01	6.9E-02
MERCURY	1.83E-01	3.12E-04	1.35E-01	2.72E-04	1.41E-05	6.08E-03	6.36E-03	6.40E-03	6.40E-02	9.9E-01	9.9E-02
MOLYBDENUM	4.00E+00	7.87E-02	1.87E+00	5.94E-03	3.54E-03	8.42E-02	9.36E-02	NV	NV	#VALUE!	#VALUE!
NICKEL	2.62E+01	2.69E-03	9.16E+00	3.89E-02	1.21E-04	4.12E-01	4.51E-01	6.71E+00	1.86E+01	6.7E-02	2.4E-02
SELENIUM	2.40E-01	0.00E+00	2.42E+00	3.56E-04	0.00E+00	1.09E-01	1.09E-01	4.00E-01	8.00E-01	2.7E-01	1.4E-01
SILVER	1.65E+00	0.00E+00	0.00E+00	2.45E-03	0.00E+00	0.00E+00	2.45E-03	2.02E+00	6.05E+01	1.2E-03	4.0E-05
VANADIUM	3.18E+01	1.75E-03	9.49E-01	4.72E-02	7.87E-05	4.27E-02	8.99E-02	3.44E-01	1.69E+00	2.6E-01	5.3E-02
ZINC	1.60E+02	1.28E-02	1.42E+02	2.37E-01	5.78E-04	6.39E+00	6.63E+00	6.61E+01	1.71E+02	1.0E-01	3.9E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	2.31E+00	kg
Food Ingestion Rate = (If)	1.04E-01	kg/day
Water Ingestion Rate = (Iw)	1.04E-01	L/day
Sediment Ingestion Rate = (Is)	3.43E-03	kg/day
Home Range = (HR)	0.00E+00	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (fish) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in fish
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (fish) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water
NV - No Value
VALUE - Value could not be calculated

ANALYTICAL RESULTS - EARTHWORM SAMPLES
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	SAMPLE ID	DA-EWDRY-SB153-080708 (background sample)	DA-EWDRY-MW103-080708	DA-EWDRY-MW105-080708	DA-EWDRY-MW113-080608	DA-EWDRY-MW115-080608	DA-EWDRY-SB104-080708	DA-EWDRY-SB108-080708	DA-EWDRY-SB121-080708	DA-EWDRY-SB123-080608	DA-EWDRY-SB130-080708	DA-EWDRY-SB134-080608-AVG
	LOCATION ID	DA-SB152	DA-MW103B	DA-MW105B	DA-MW113B	DA-MW115B	DA-SB104	DA-SB108	DA-SB121	DA-SB123	DA-SB130	DA-SB134
FRACTION (UNITS)	SAMPLE DATE	08/07/08	08/07/08	08/07/08	08/06/08	08/06/08	08/07/08	08/07/08	08/07/08	08/06/08	08/07/08	08/06/08
PESTICIDES/PCBS (UG/KG)	4,4'-DDE	4.48	6.69	49.5 J	2.4 U	4.14	14.7	6.75	12.2 UJ	4.51 J	7.62	7.38
	ALPHA-CHLORDANE	ND	2.32 U	2.38 U	2.4 U	2.38 U	5.72	3.03	2.38 U	2.38 U	2.26 U	3.25 J
	AROCLOR-1254	ND	93.1 U	95 U	96.2 U	95 U	248	95 U	95 U	95 U	90 U	93.1 U
	AROCLOR-1260	445	93.1 U	477	96.2 U	731	93.1 U	95 U	415	95 U	90 U	93.1 U
	AROCLOR-1268	ND	93.1 U	95 U	96.2 U	95 U	204	95 U	95 U	95 U	90 U	93.1 U
	DIELDRIN	ND	28.8	2.38 U	2.4 U	2.38 U	2.32 U	2.37 U	2.38 U	2.38 U	2.26 U	2.32 U
	TOTAL AROCLOR	445	93.8 U	477	93.8 U	731	451	93.8 U	415	93.8 U	87.5 U	93.8 U
	TOTAL DDD/DDE/DDT	4.48	6.69	49.5 J	2.38 U	4.14 J	14.7	6.75	5.69 UJ	4.51 J	7.62	7.38
METALS (MG/KG)	ALUMINUM	8500 J	8120 J	14600 J	18800 J	1090 J	14100 J	10800 J	8620 J	11400 J	6620 J	15900 J
	ANTIMONY	0.115 J	0.165 J	0.0919 J	0.0944 J	0.085 J	0.669 J	0.0744 J	0.258 J	0.204 J	0.107 J	0.0988 J
	ARSENIC	26.7	8.62	25.3	40.9	4.28	19.1	7.31	20.9	17.2	16.7	17.8
	BARIUM	53.1 J	57.9 J	77.5 J	73.1 J	21.1 J	59.8 J	70 J	41.9 J	106 J	61.1 J	82.5 J
	BERYLLIUM	0.304 J	0.401	0.578	0.501	0.0925 U	0.512	0.875	0.376	0.391	0.236 J	0.511
	CADMIUM	10.2	**28.4**	18.5	4.62 J	**213**	**28**	**26.5**	**838**	9.75	13.6	3.5 J
	CHROMIUM	20.6	**51.1**	**256**	**119**	12.6	41.2	**231**	**92.5**	**302**	22.3	**139**
	COBALT	13	12.9	25.1	30.7	10	18.9	12.2	11.6	12.2	9.75	12.9
	COPPER	31.9	36.1	60.4	47.6	12.1	45.9	34.6	60.1	44.1	41.6	40.8
	IRON	21800	17800	31800	53600	2020	27800	19900	18500	23200	13700	27900
	LEAD	21.1	39.4	**111**	21.5	**881**	**77.5**	**152**	**111**	32.1	23.3	**53.2**
	MANGANESE	518	449	756	781	51.6	404	379	333	382	246	518
	MERCURY	0.266	0.186	0.416	0.209	0.622	0.23	0.136	0.546	0.192	1.96	0.178
	MOLYBDENUM	1.36	3.91	14.3	9.69	1.15	3	14.8	6.31	19.3	1.8	8.5
	NICKEL	25.1	41.1	**151**	**93.1**	7.31	35.5	**126**	**72.5**	**171**	19.2	**90.6**
	SELENIUM	1.99	2.19	2.66	1.84	**21.1**	2.97	2.26	**11.1**	2.03	1.98	2.42
	SILVER	0.149 J	0.236 J	1.59 J	0.199 J	0.286 J	0.397 J	0.367 J	0.244 J	0.37 J	0.256 J	0.775 J
	VANADIUM	15.7	18.6	30.9	31	2.55 J	29.2	23.3	18.2	22.5	12.8	38.9
	ZINC	200	263	301	178	694	229	172	1850	161	243	168
MISCELLANEOUS PARAMETERS (%)	LIPIDS	ND	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.625 U	0.756	0.625 U	0.625 U	0.625 U

ND - Not detected

Shaded cells are concentrations more than two times the background concentration. This evaluation was only conducted for the following metals retained for further evaluation in Section 7.4.4:

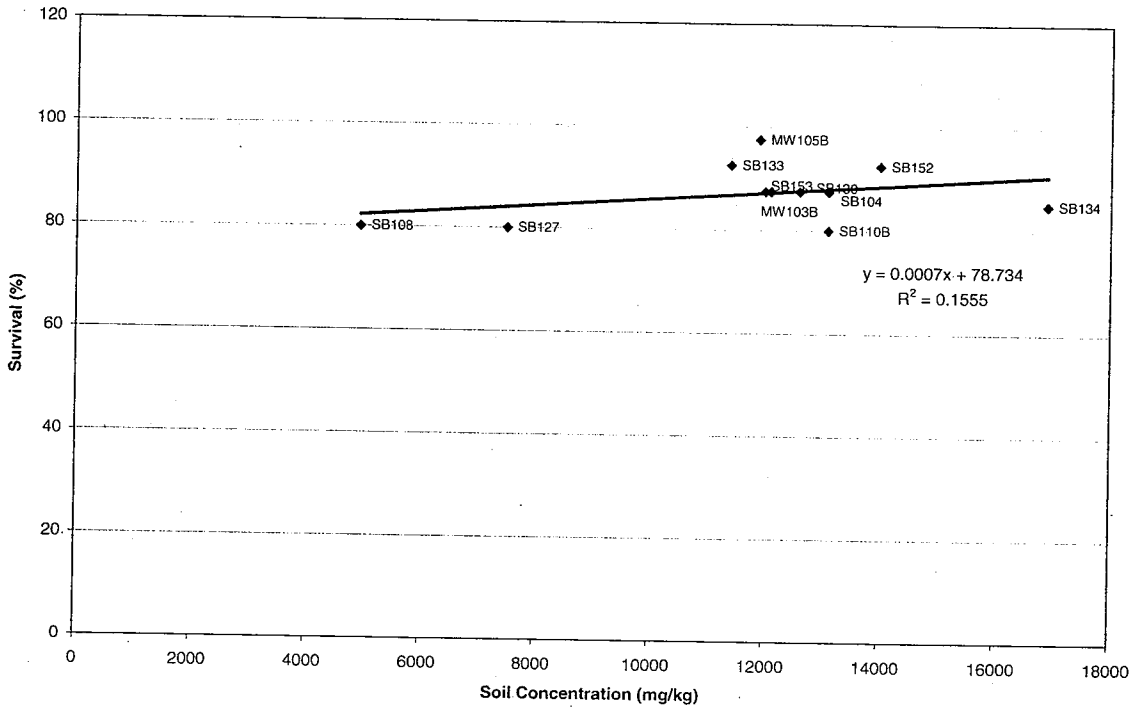
- cadmium, chromium, copper, lead, nickel, and selenium

U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; NA - NOT ANALYZED

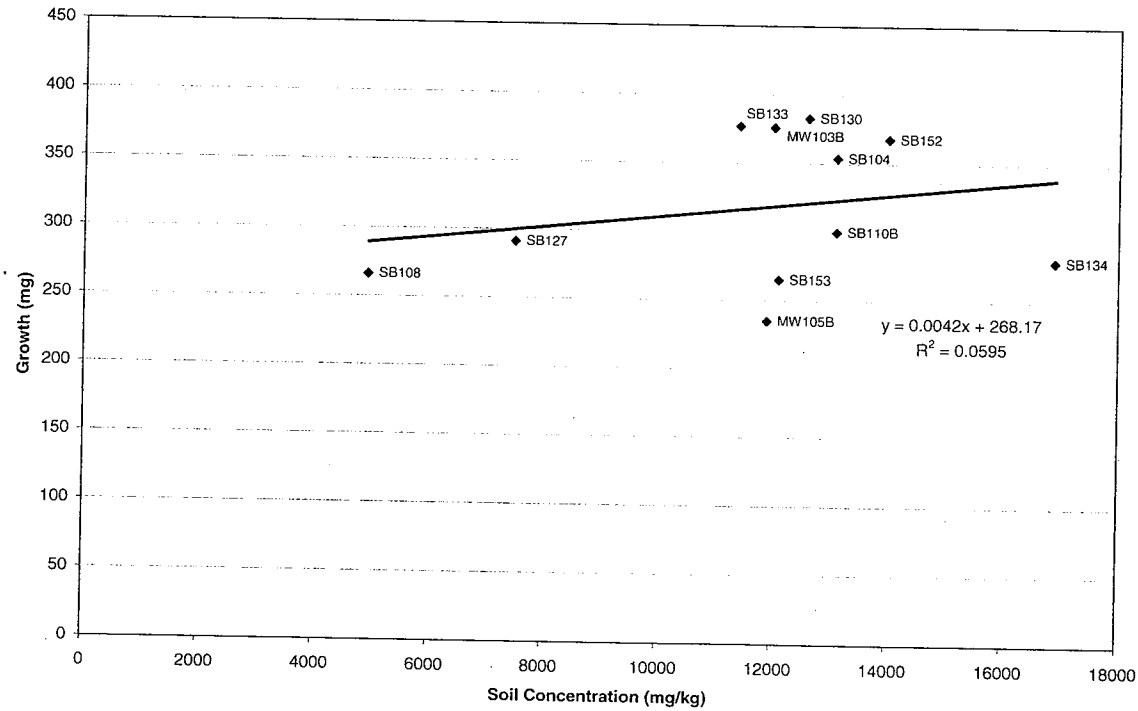
APPENDIX I.4

TOXICITY TESTS PLOTS

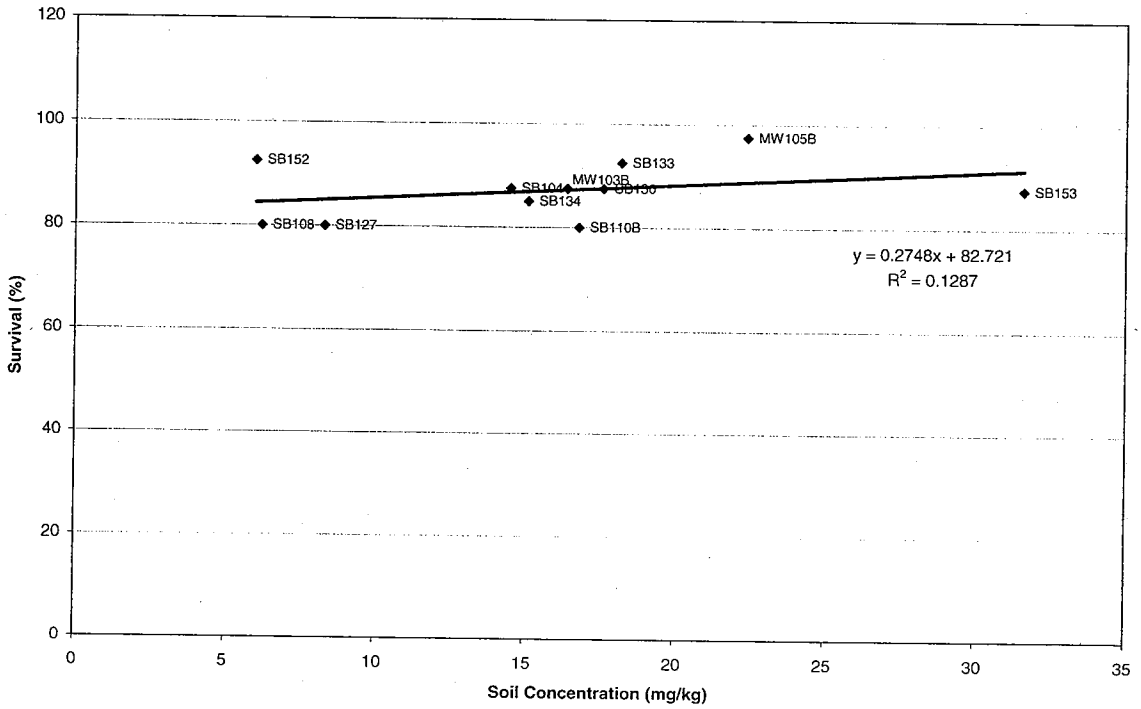
Concentration of Aluminum in Soil vs Survival of Eisenia Fetida



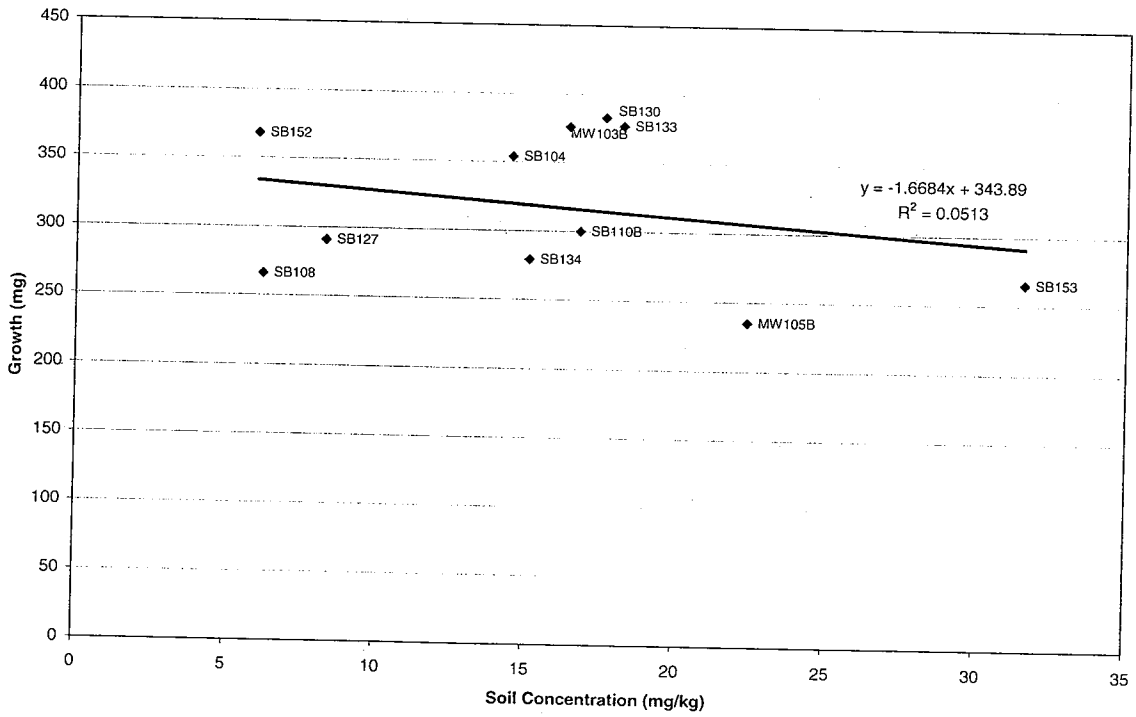
Concentration of Aluminum in Soil vs Growth of Eisenia Fetida



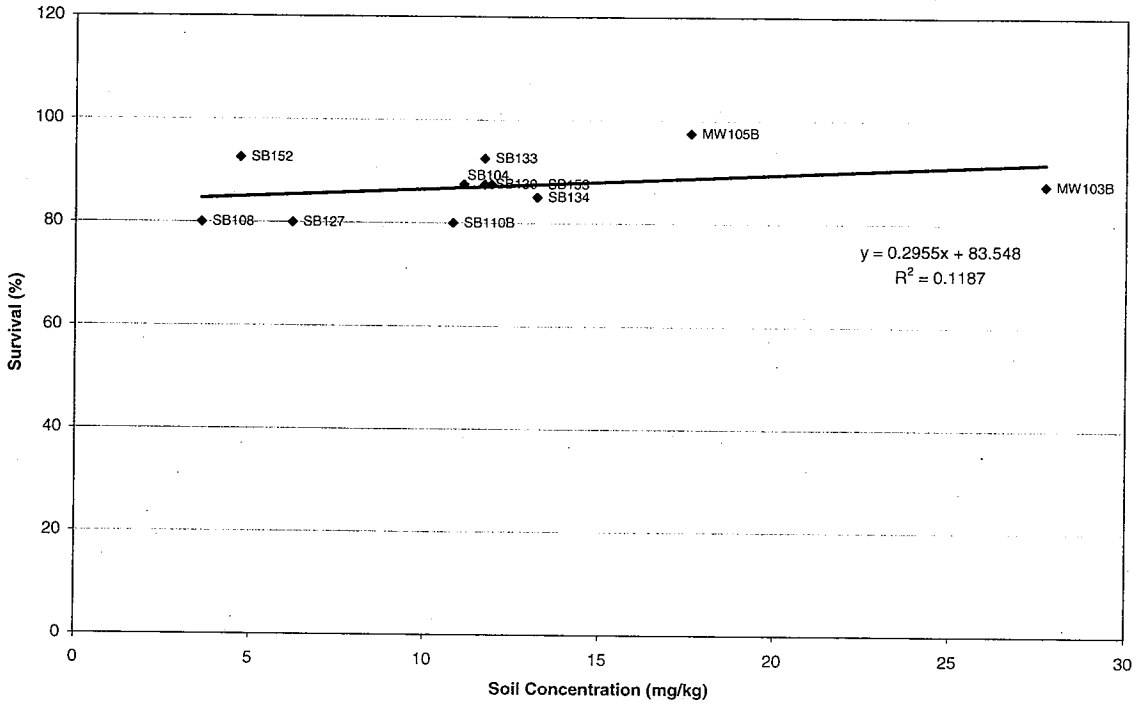
Concentration of Arsenic in Soil vs Survival of Eisenia Fetida



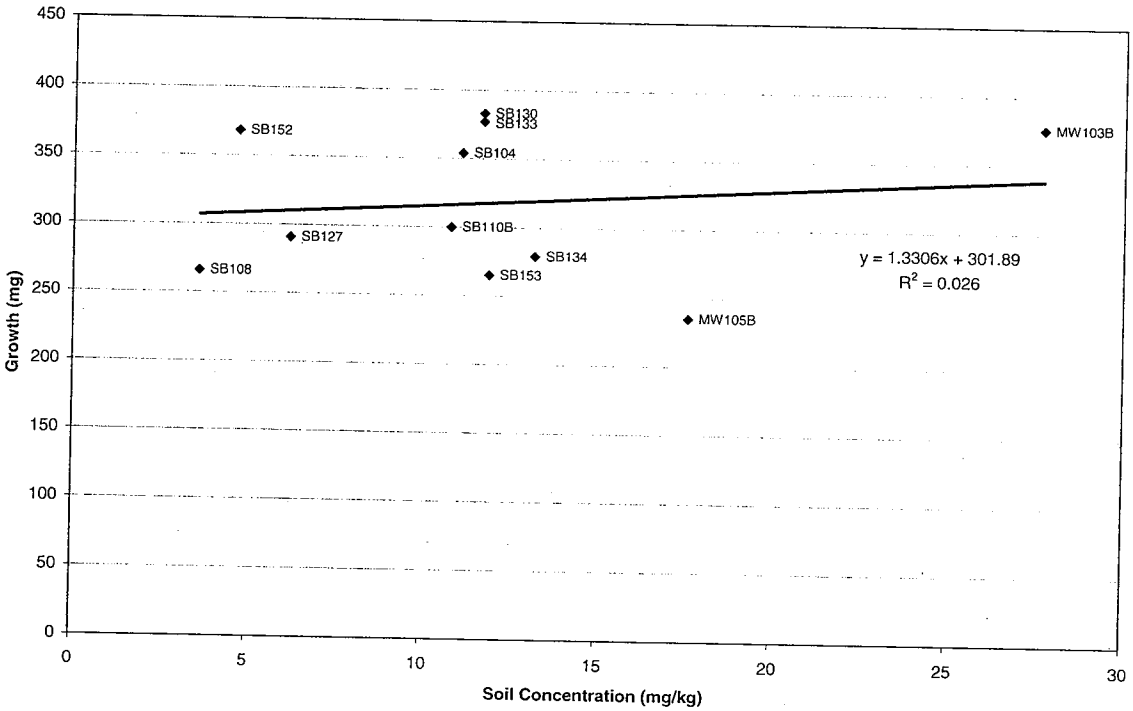
Concentration of Arsenic in Soil vs Growth of Eisenia Fetida



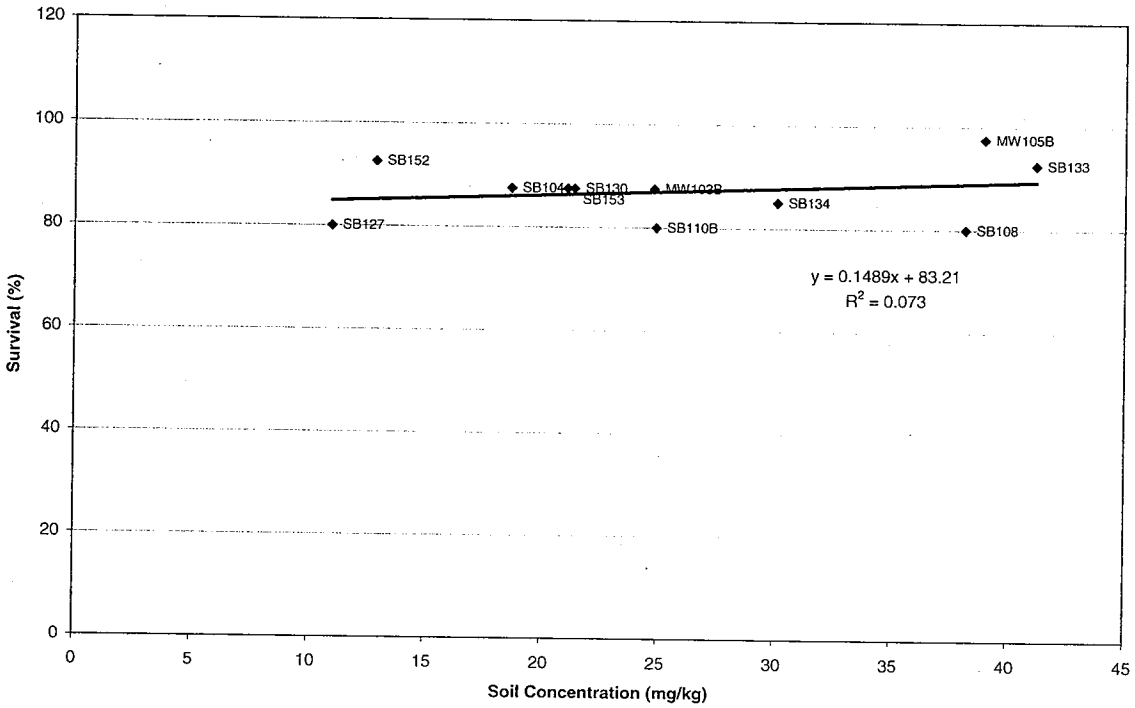
Concentration of Cobalt in Soil vs Survival of Eisenia Fetida



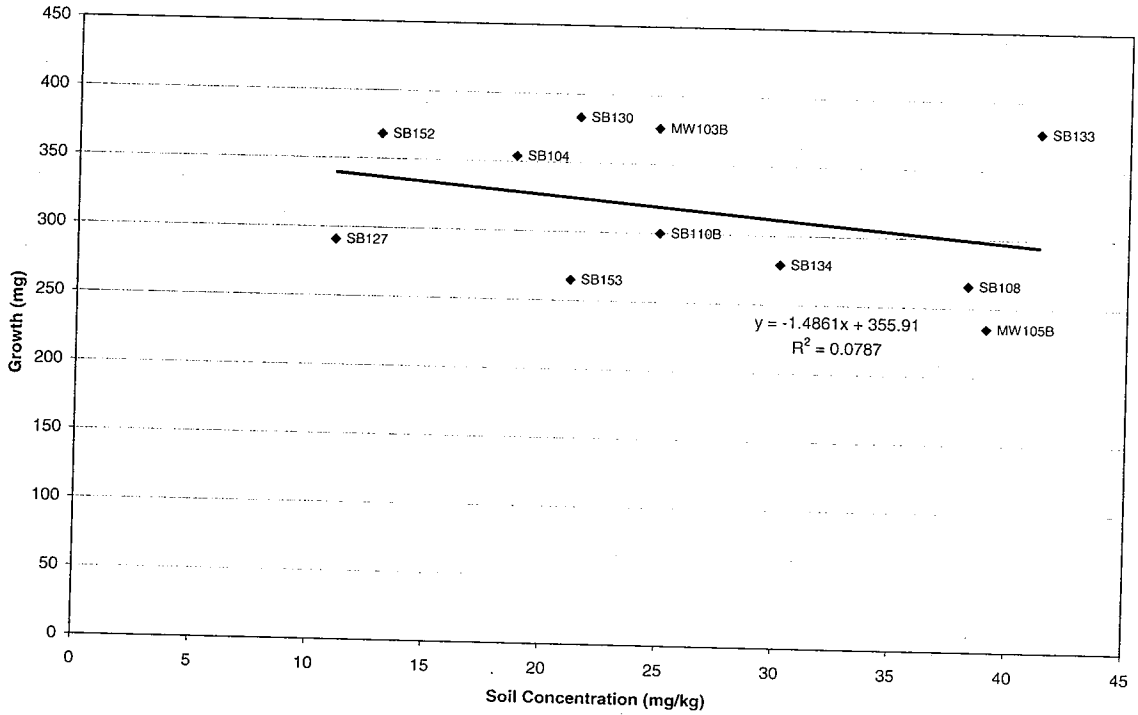
Concentration of Cobalt in Soil vs Growth of Eisenia Fetida



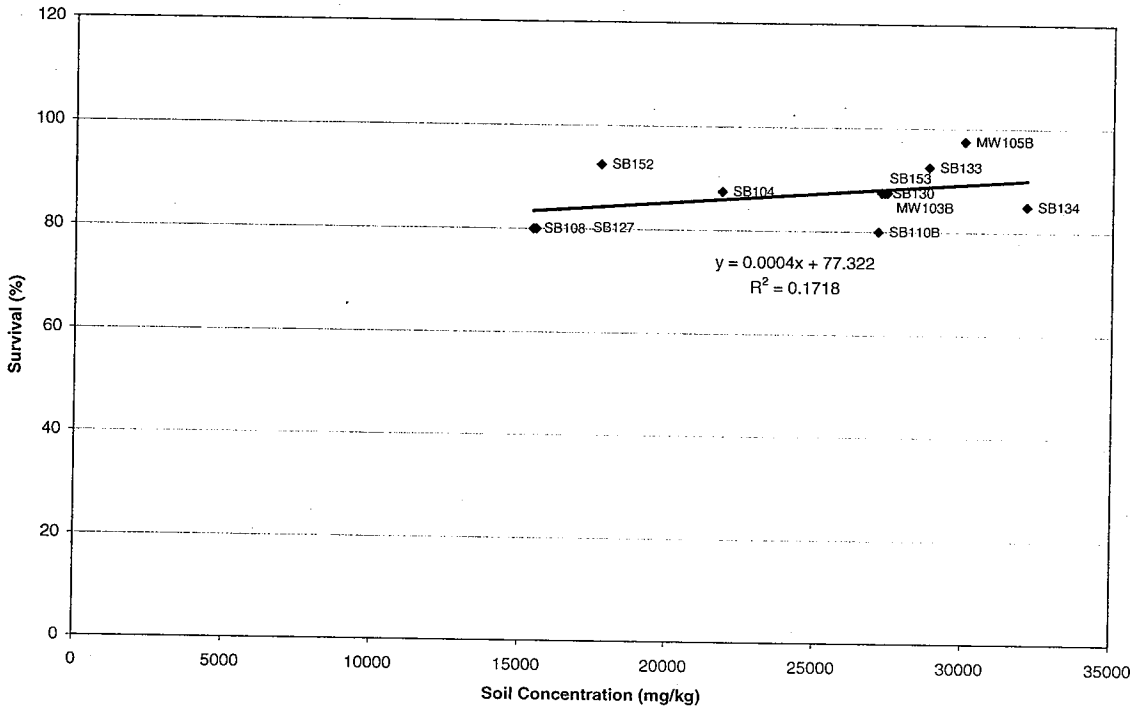
Concentration of Copper in Soil vs Survival of Eisenia Fetida



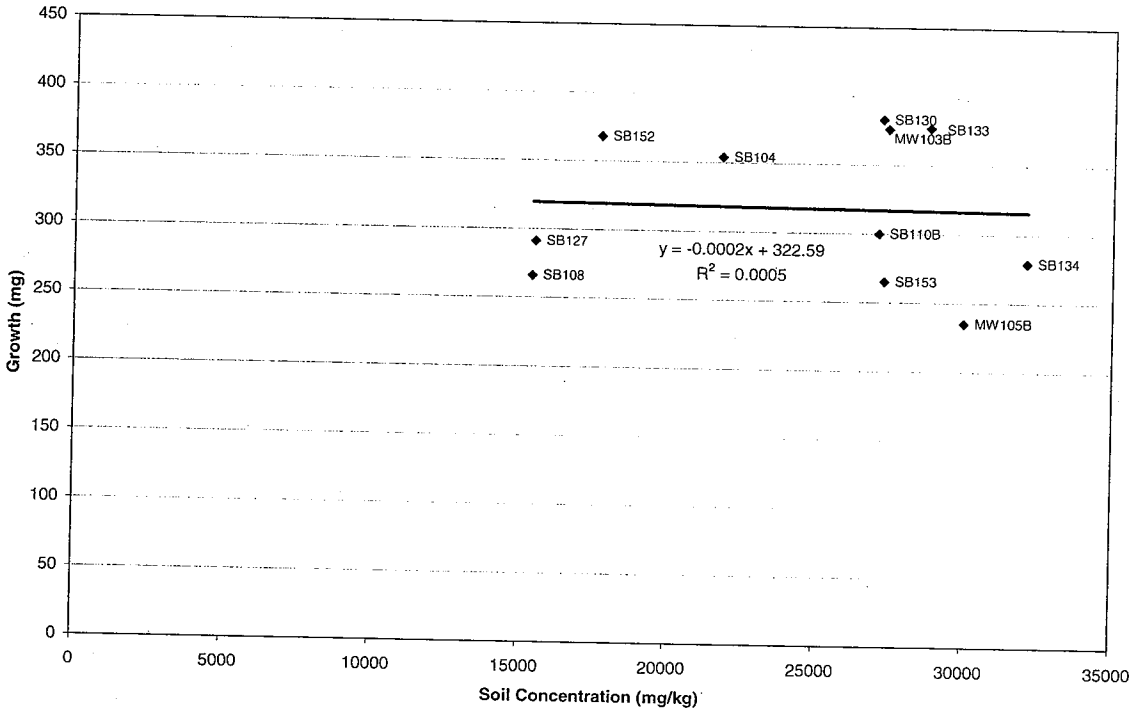
Concentration of Copper in Soil vs Growth of Eisenia Fetida



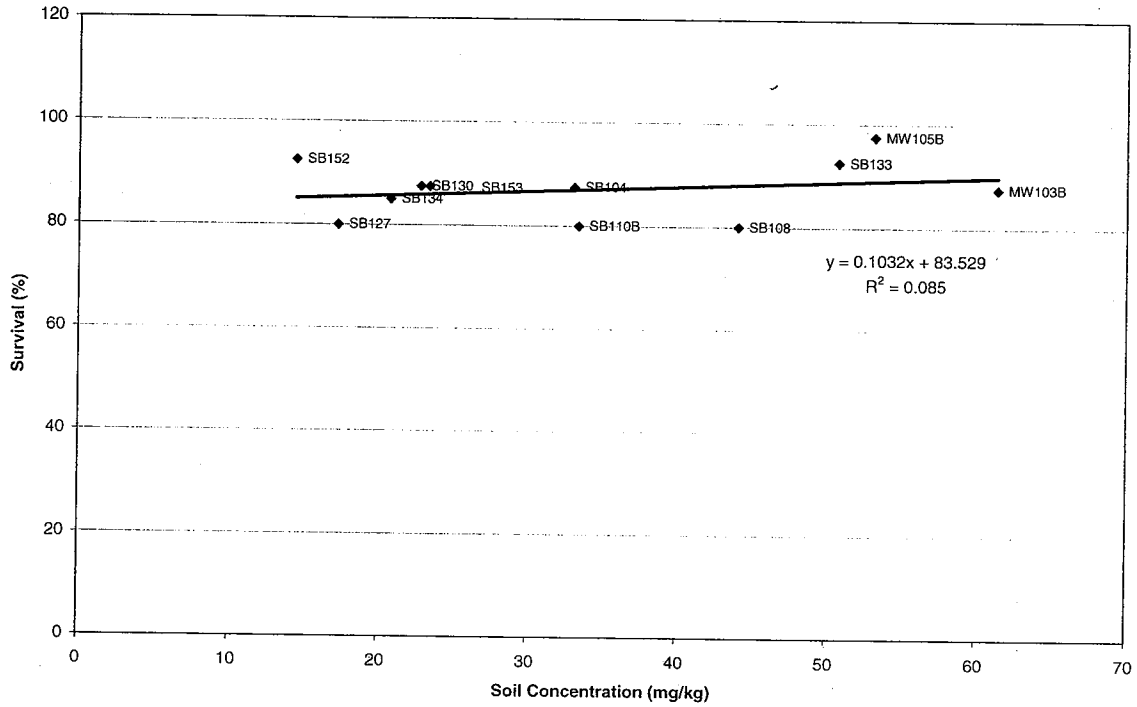
Concentration of Iron in Soil vs Survival of Eisenia Fetida



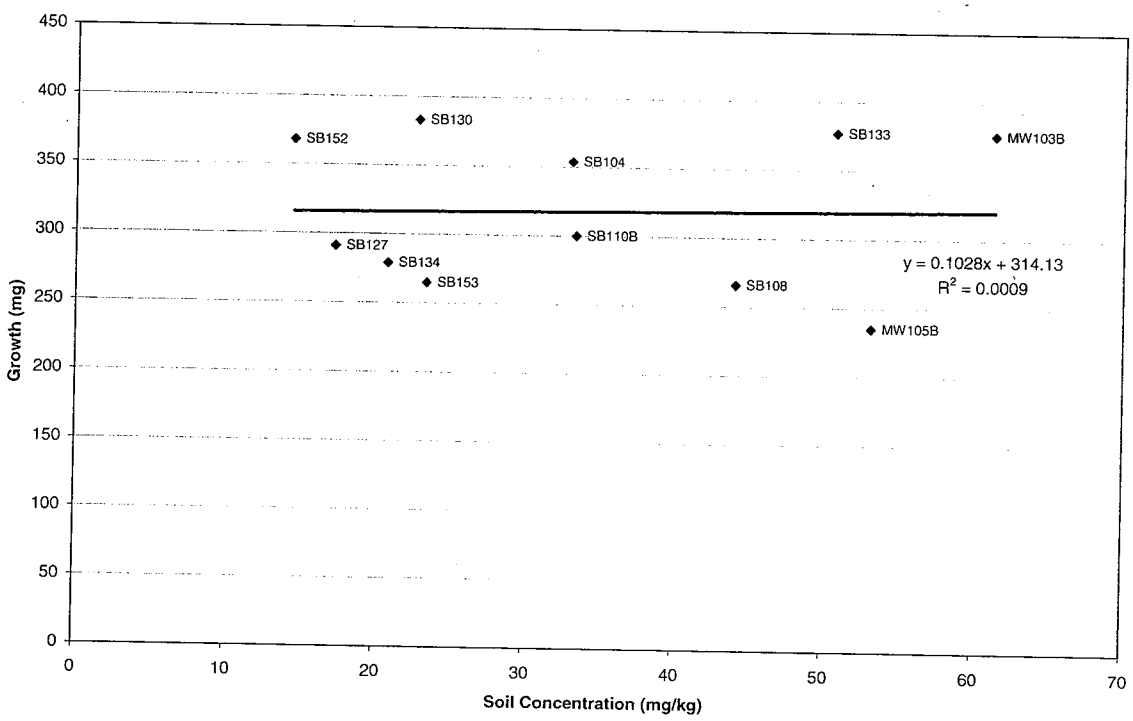
Concentration of Iron in Soil vs Growth of Eisenia Fetida



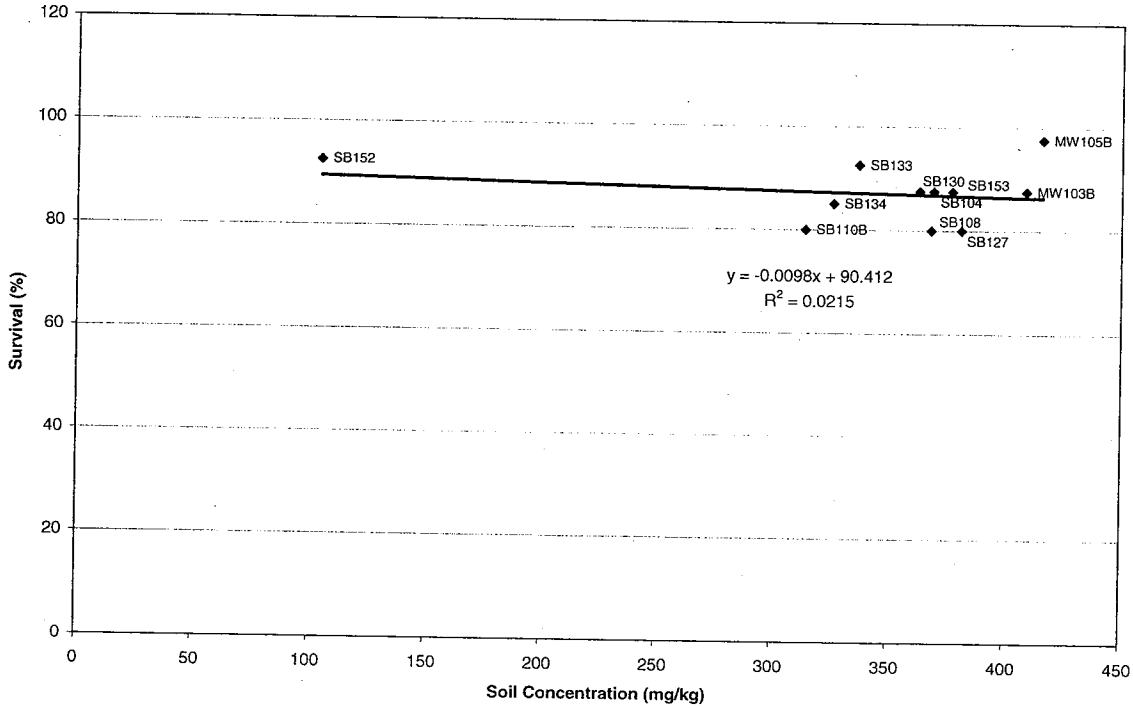
Concentration of Lead in Soil vs Survival of Eisenia Fetida



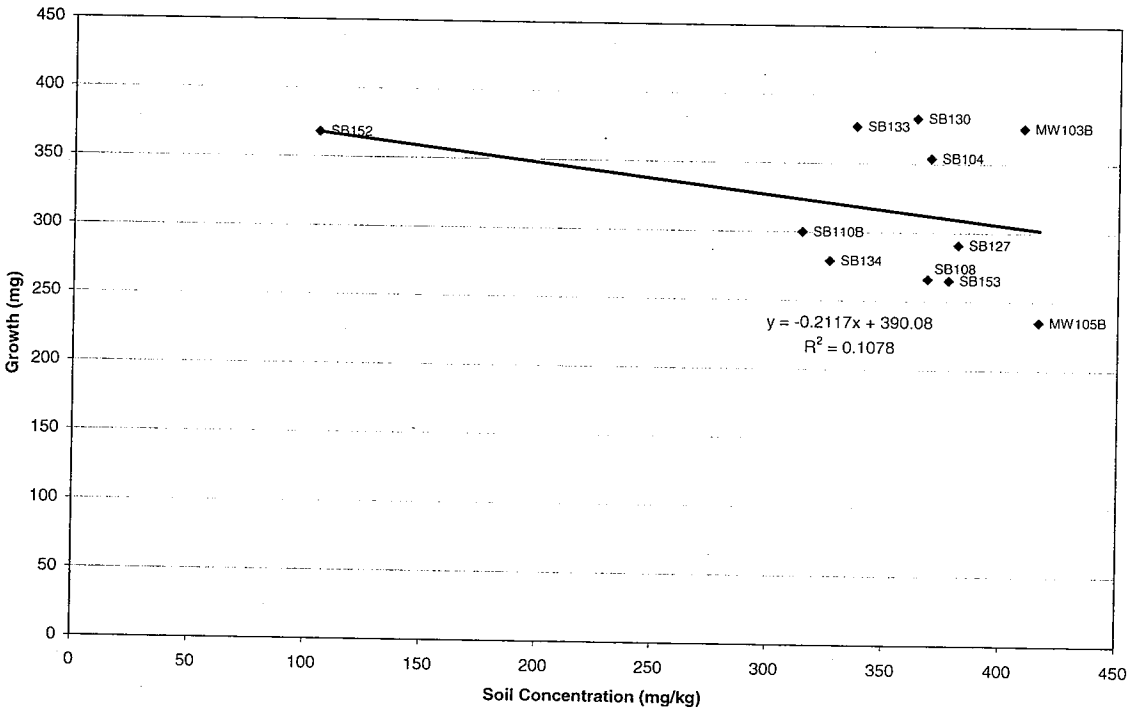
Concentration of Lead in Soil vs Growth of Eisenia Fetida



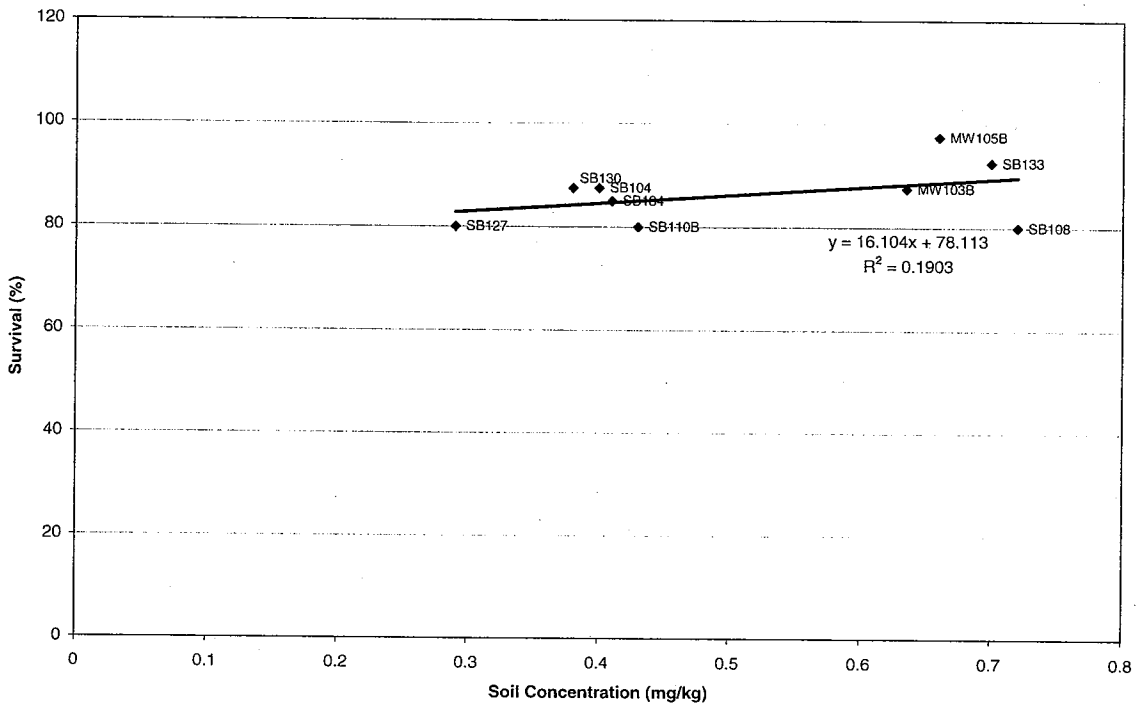
Concentration of Manganese in Soil vs Survival of Eisenia Fetida



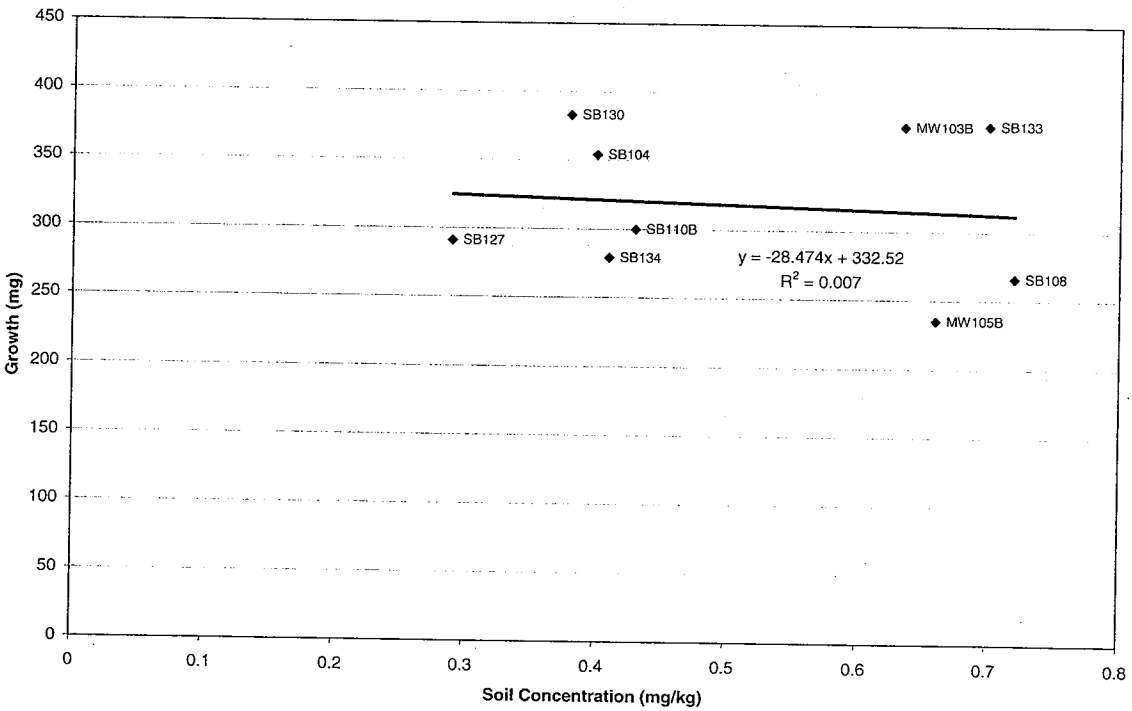
Concentration of Manganese in Soil vs Growth of Eisenia Fetida



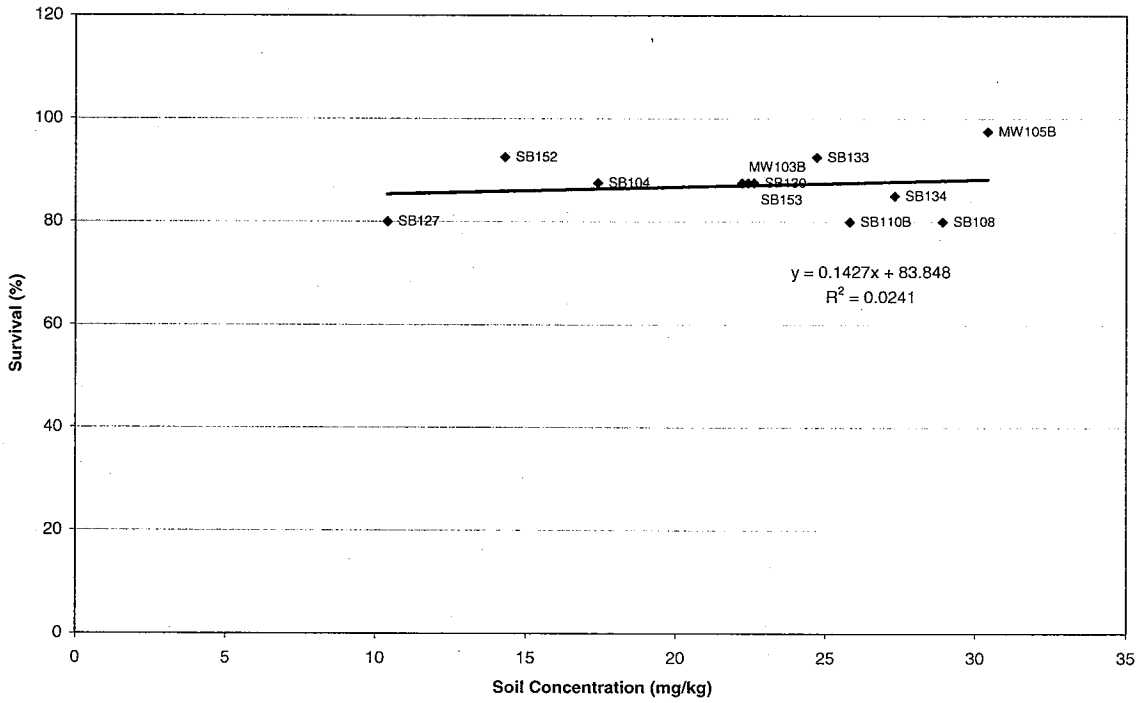
Concentration of Molybdenum in Soil vs Survival of Eisenia Fetida



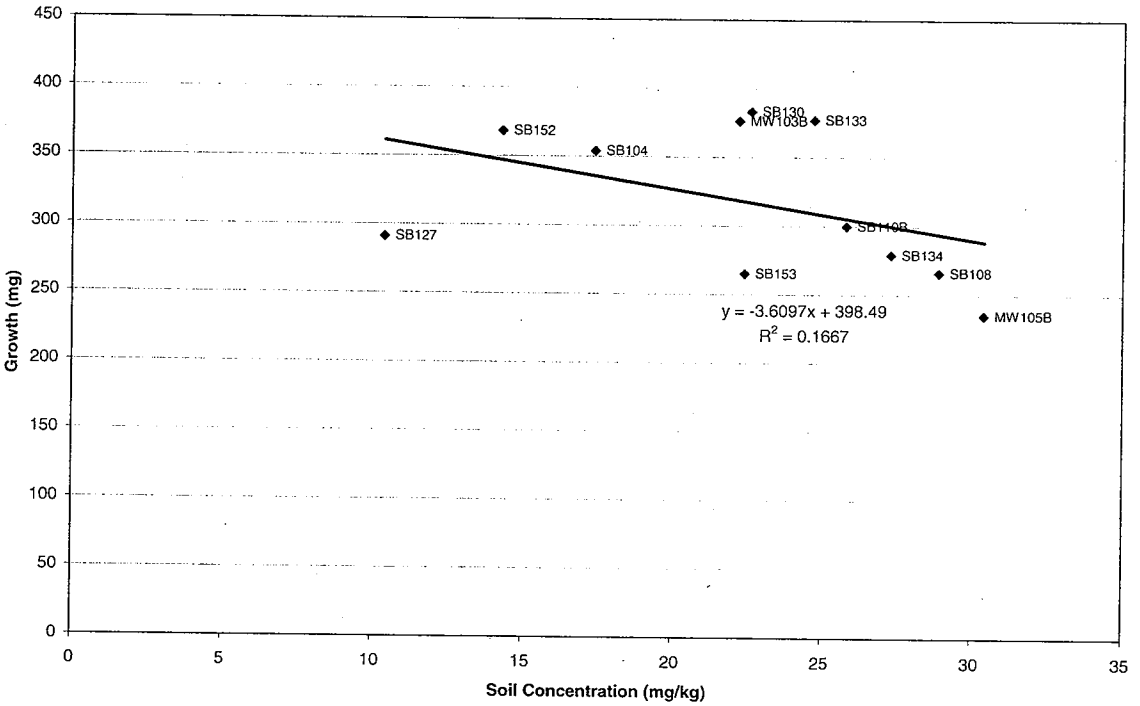
Concentration of Molybdenum in Soil vs Growth of Eisenia Fetida



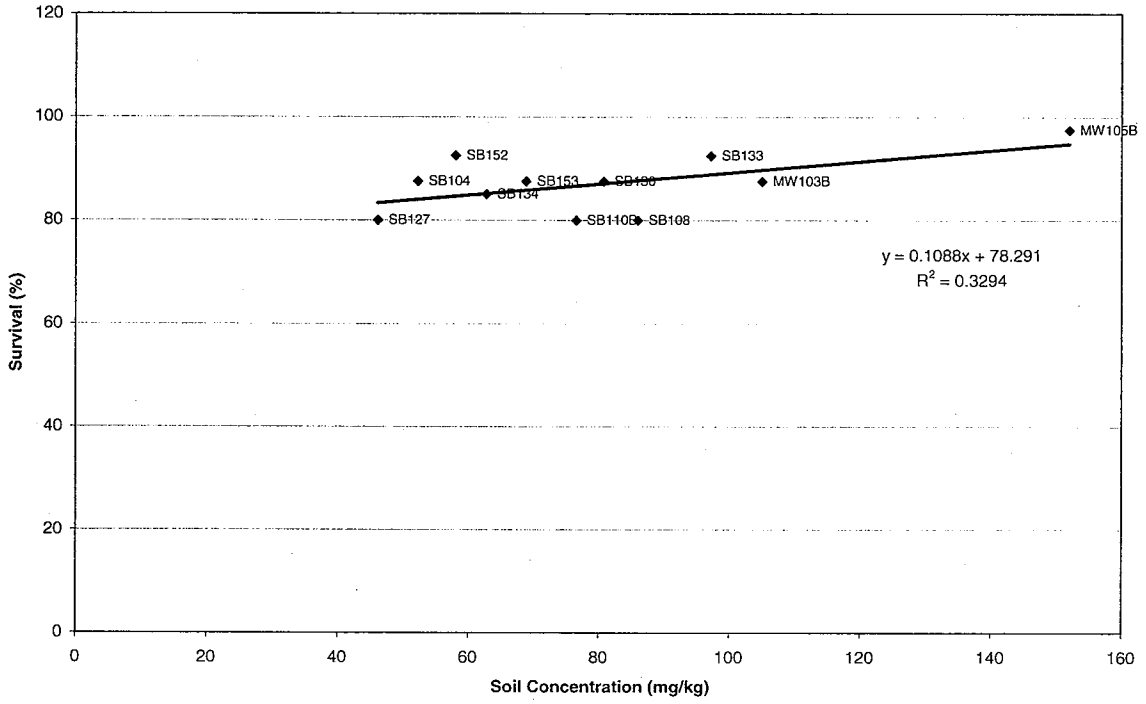
Concentration of Nickel in Soil vs Survival of Eisenia Fetida



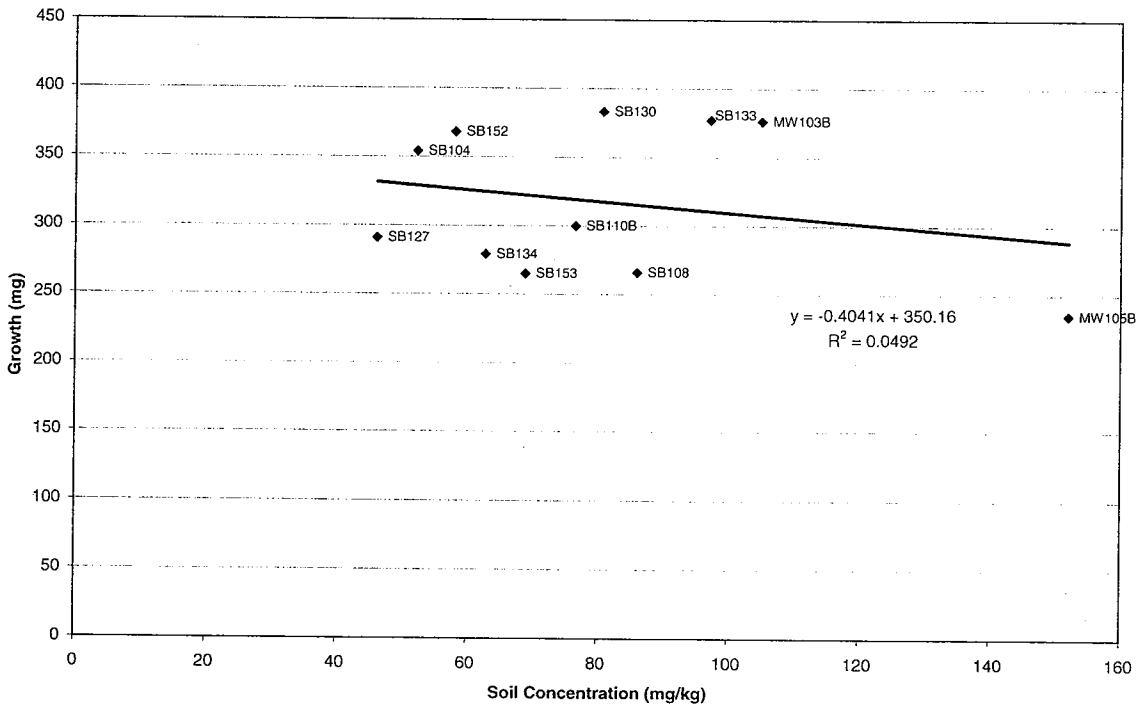
Concentration of Nickel in Soil vs Growth of Eisenia Fetida



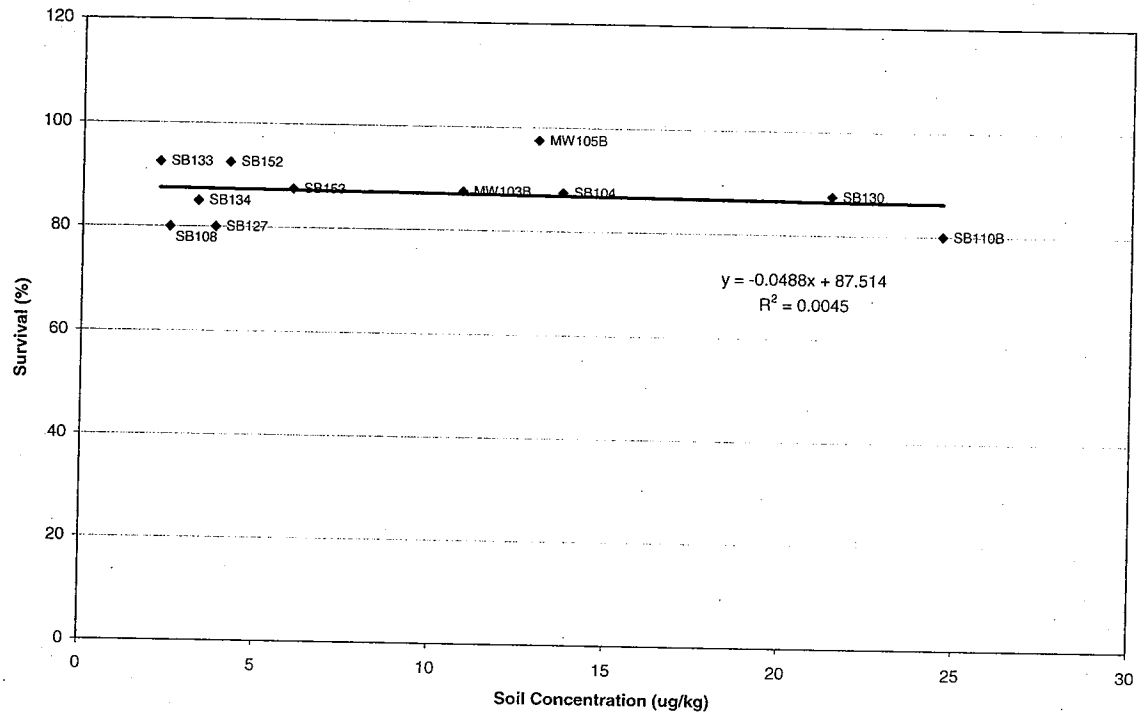
Concentration of Zinc in Soil vs Survival of Eisenia Fetida



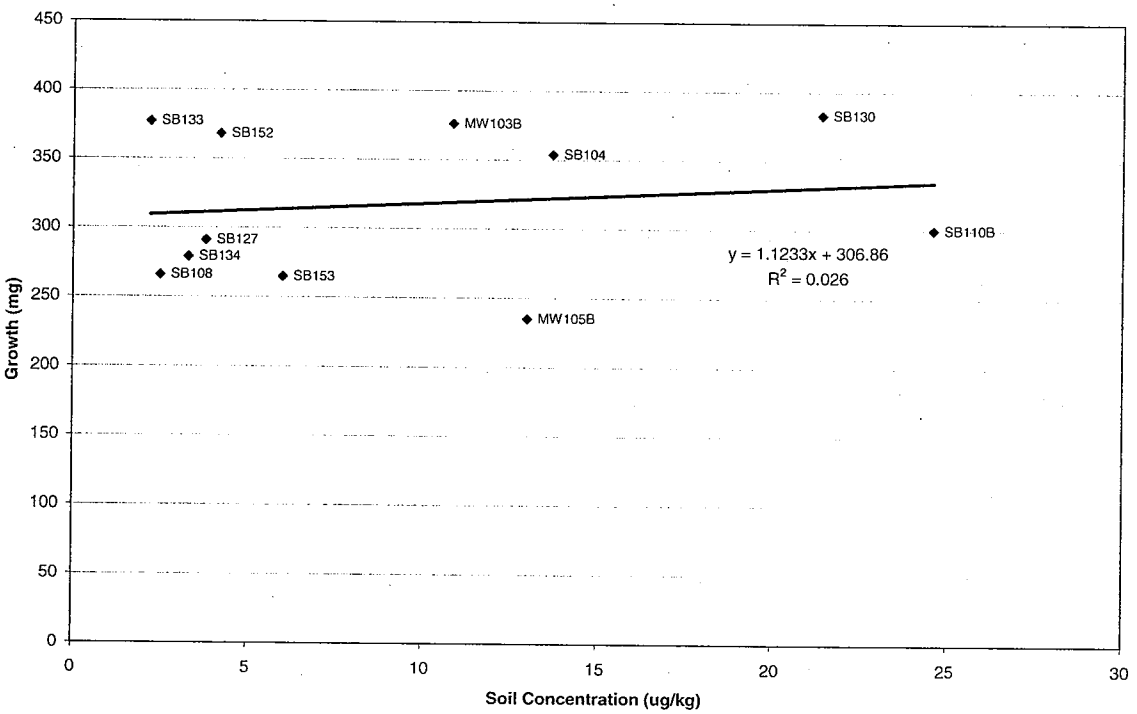
Concentration of Zinc in Soil vs Growth of Eisenia Fetida



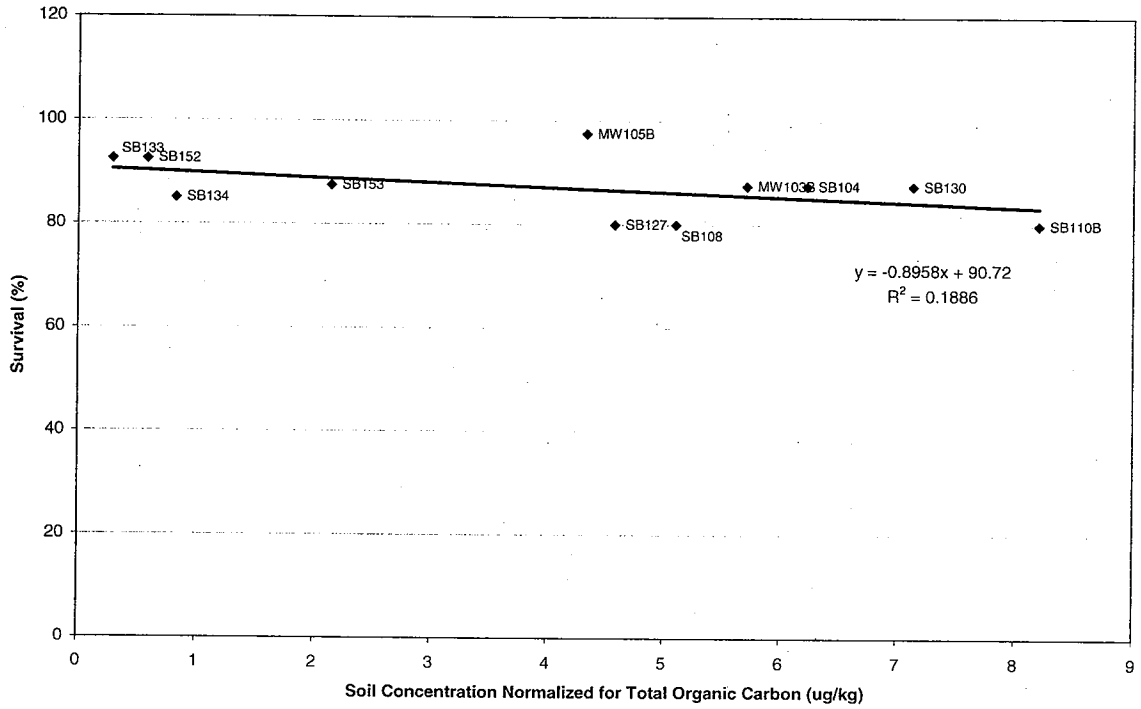
Concentration of Total DDD, DDE, DDT in Soil vs Survival of Eisenia Fetida



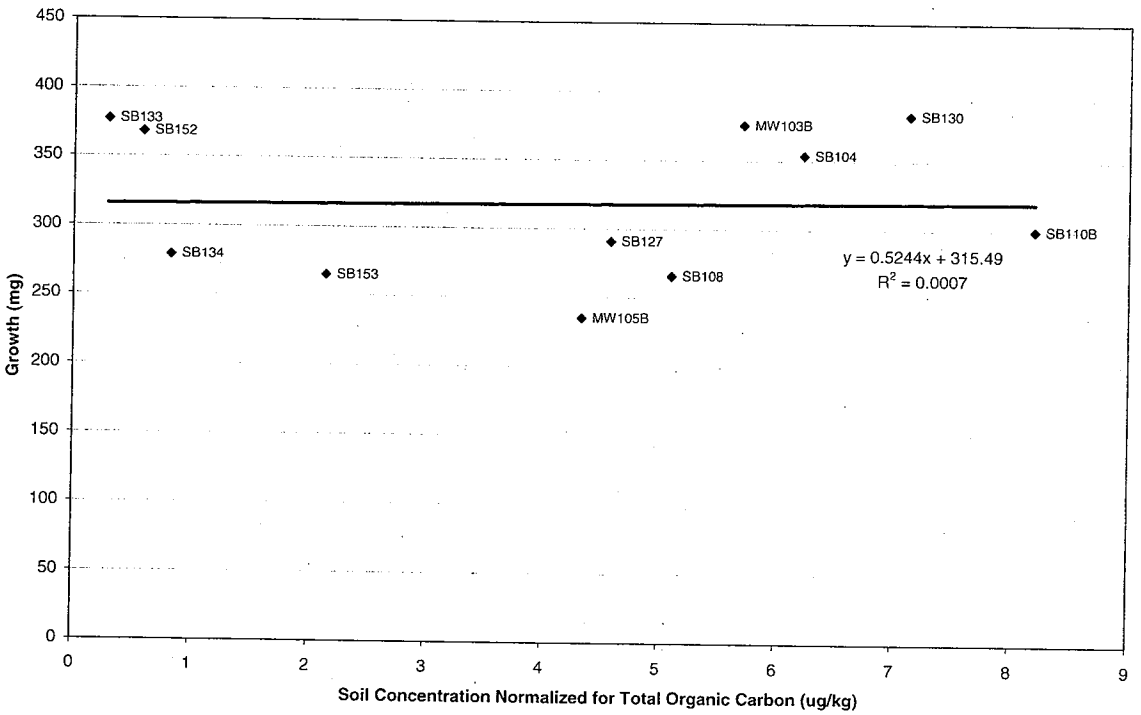
Concentration of Total DDD, DDE, DDT in Soil vs Growth of Eisenia Fetida



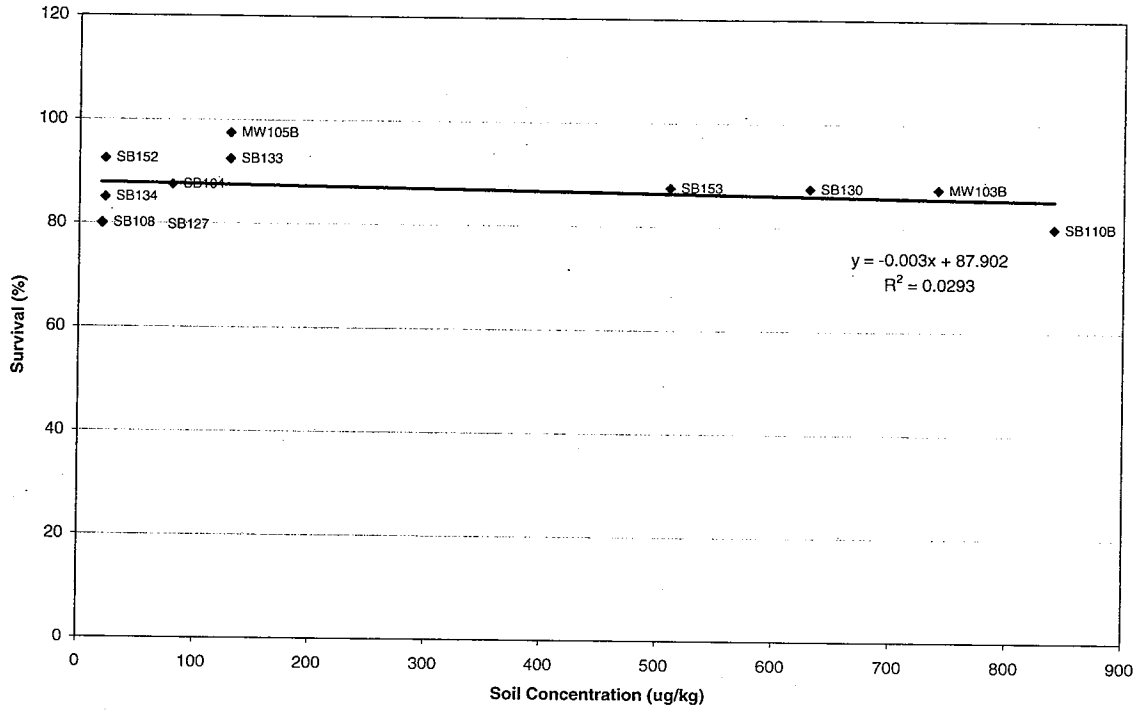
Normalized Concentration of Total DDD, DDE, DDT in Soil vs Survival of Eisenia Fetida



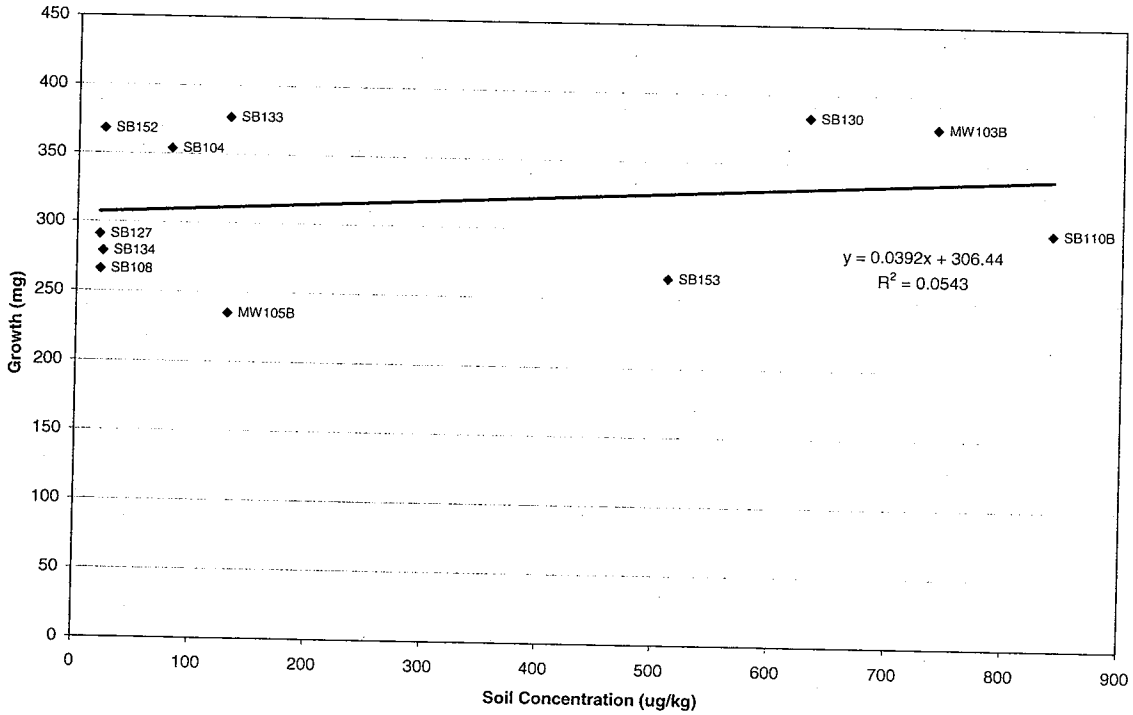
Normalized Concentration of Total DDD, DDE, DDT in Soil vs Growth of Eisenia Fetida



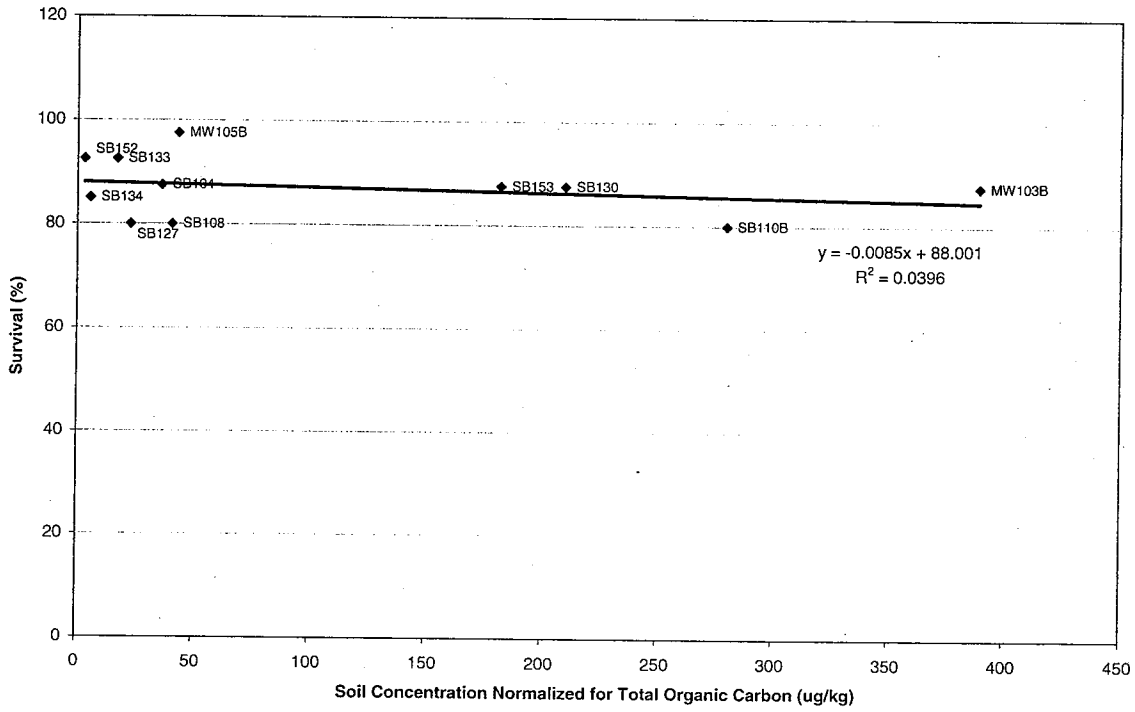
Concentration of Total PCBs in Soil vs Survival of Eisenia Fetida



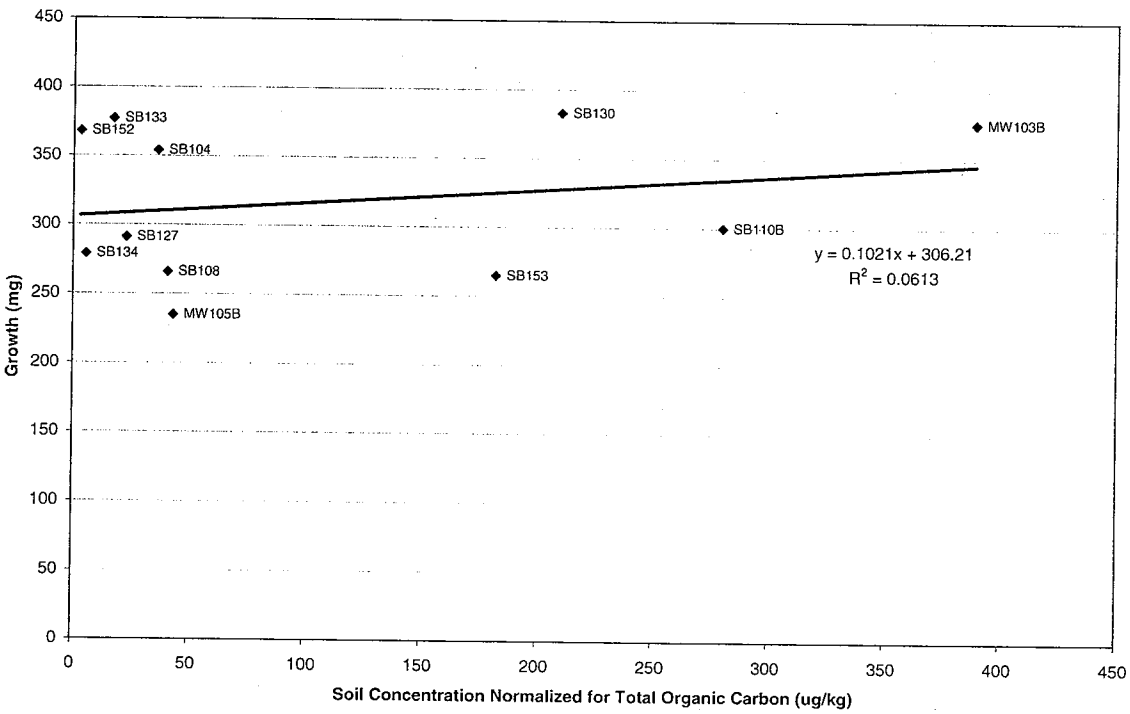
Concentration of Total PCBs in Soil vs Growth of Eisenia Fetida



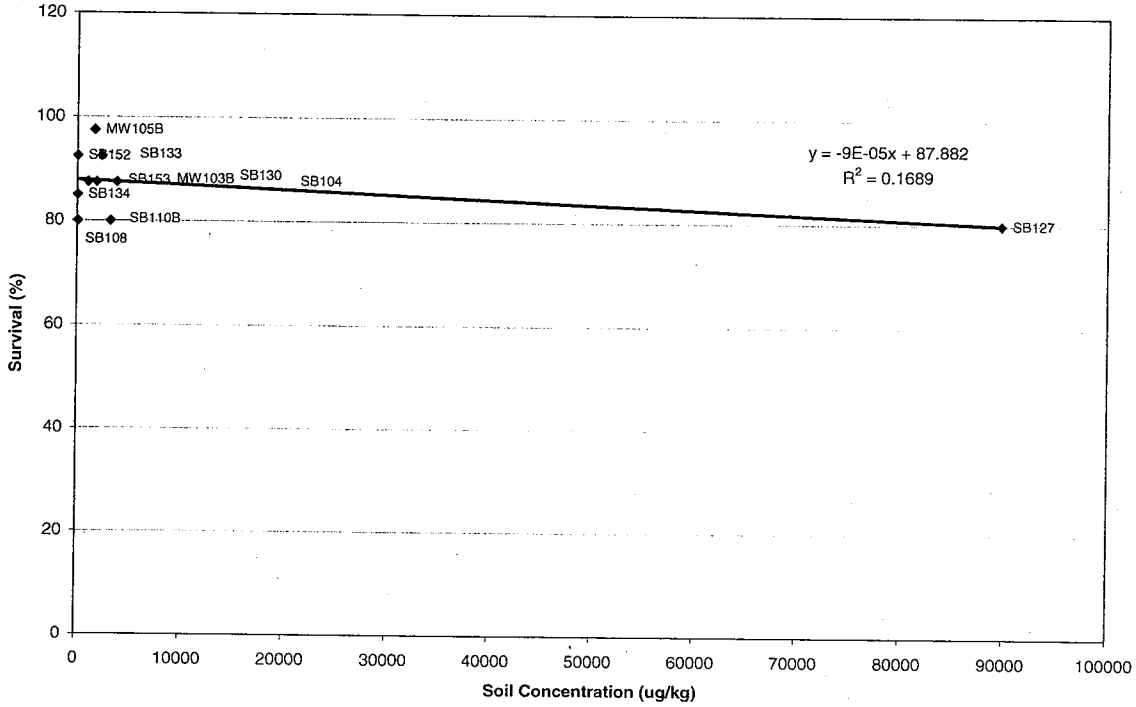
Normalized Concentration of Total PCBs in Soil vs Survival of Eisenia Fetida



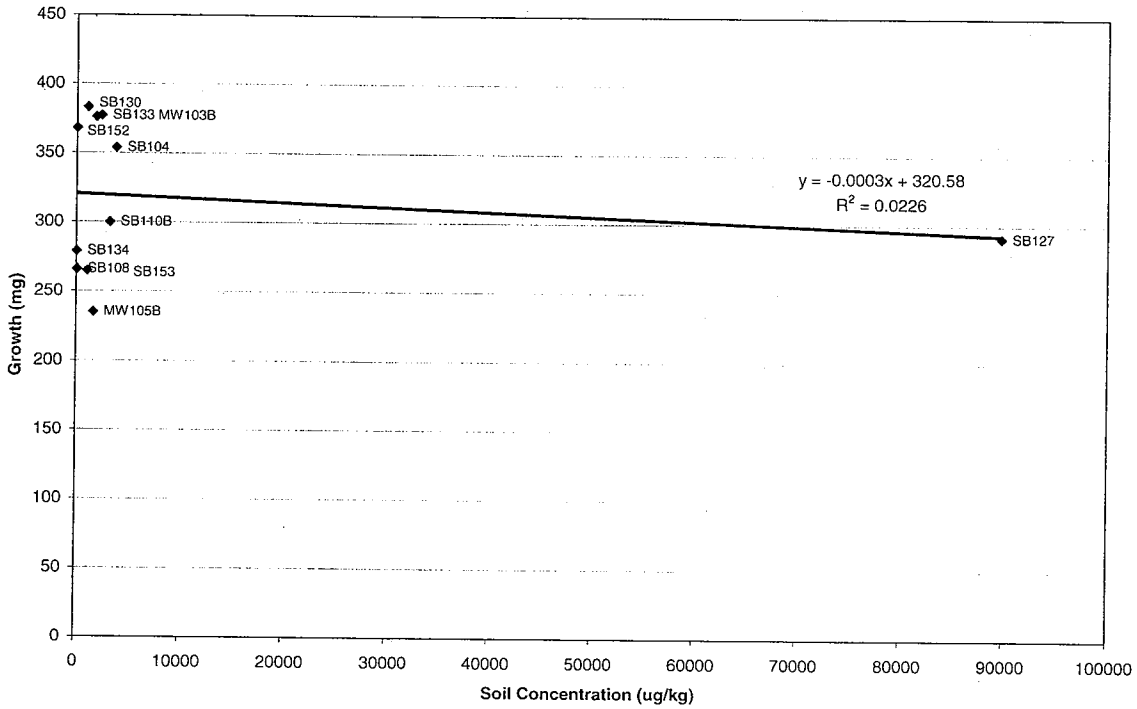
Normalized Concentration of Total PCBs in Soil vs Growth of Eisenia Fetida



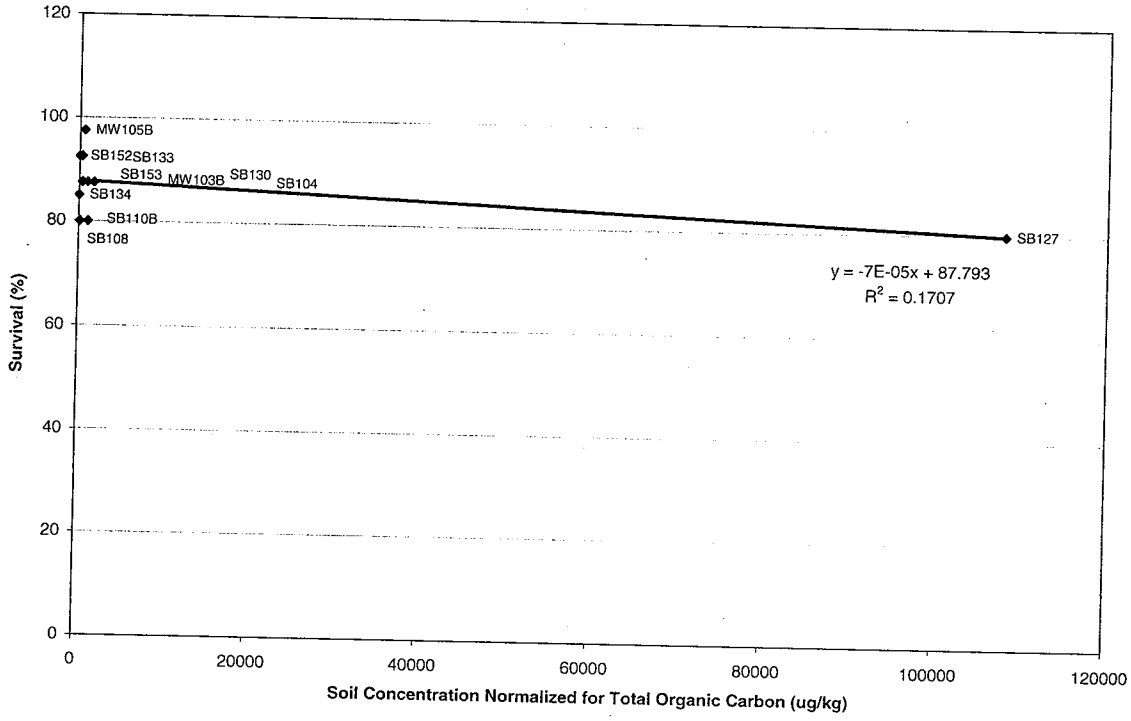
Concentration of LMW PAHs in Soil vs Survival of Eisenia Fetida



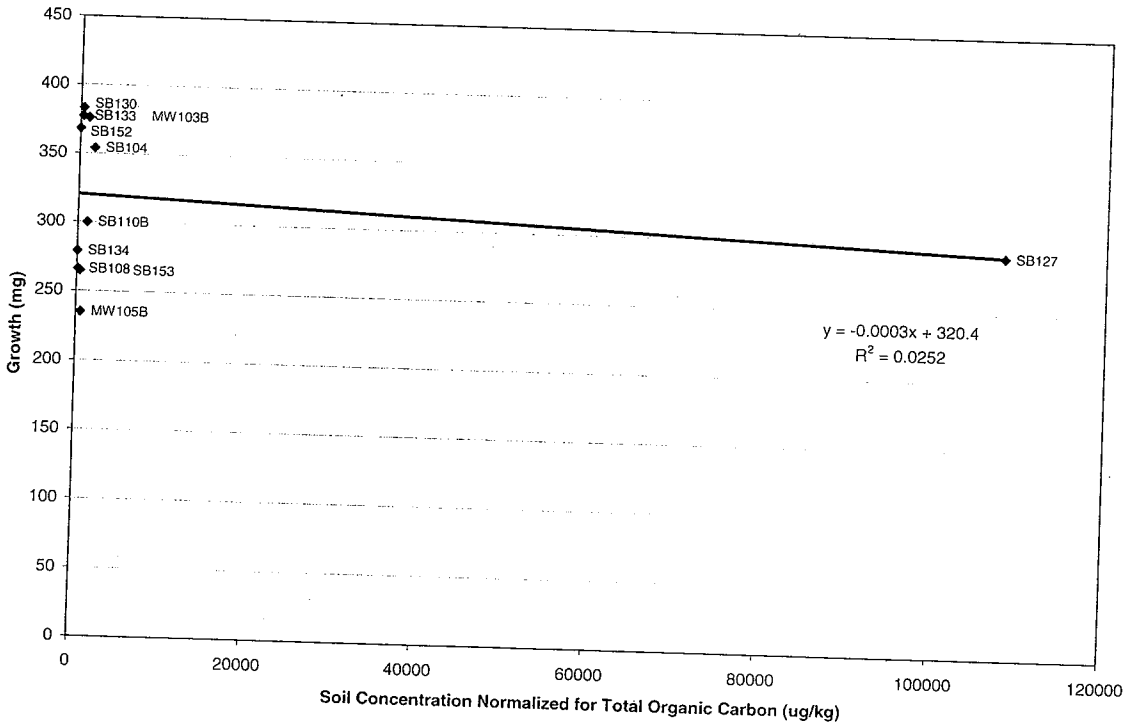
Concentration of LMW PAHs in Soil vs Growth of Eisenia Fetida



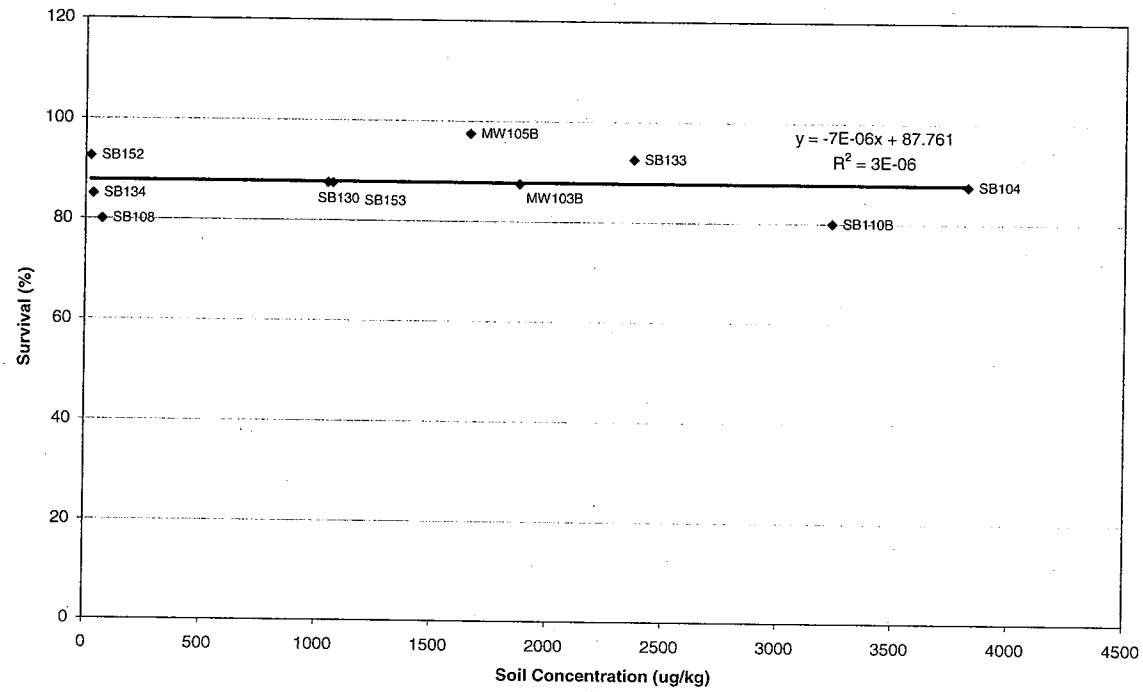
Normalized Concentration of LMW PAHs in Soil vs Survival of Eisenia Fetida



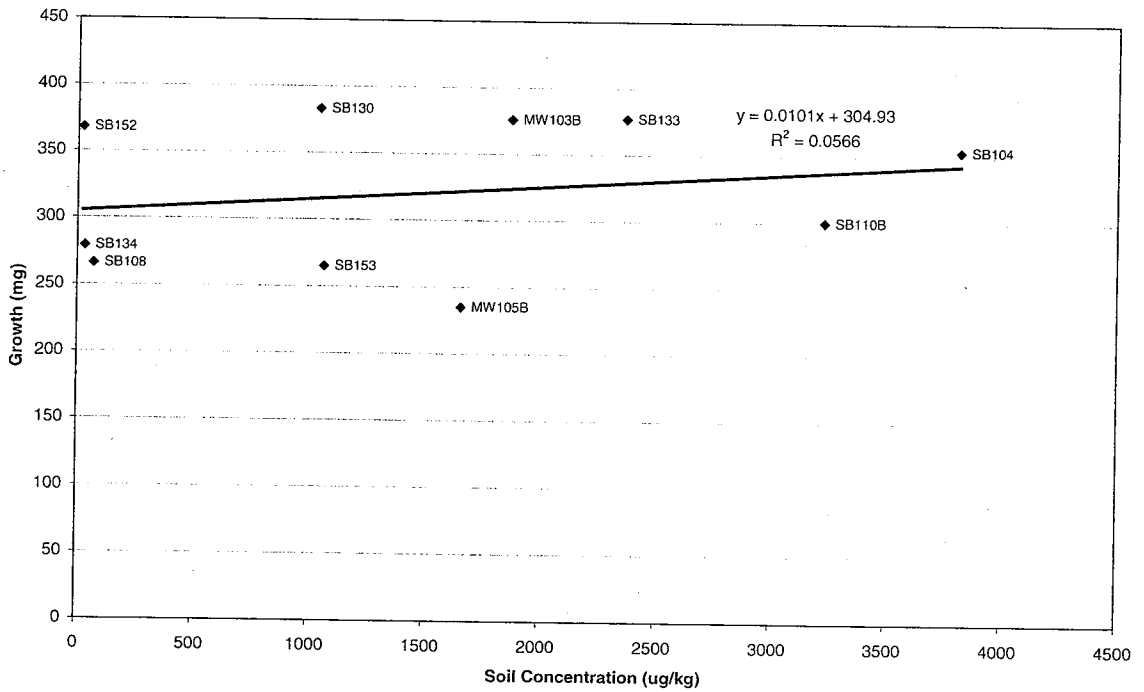
Normalized Concentration of LMW PAHs in Soil vs Growth of Eisenia Fetida



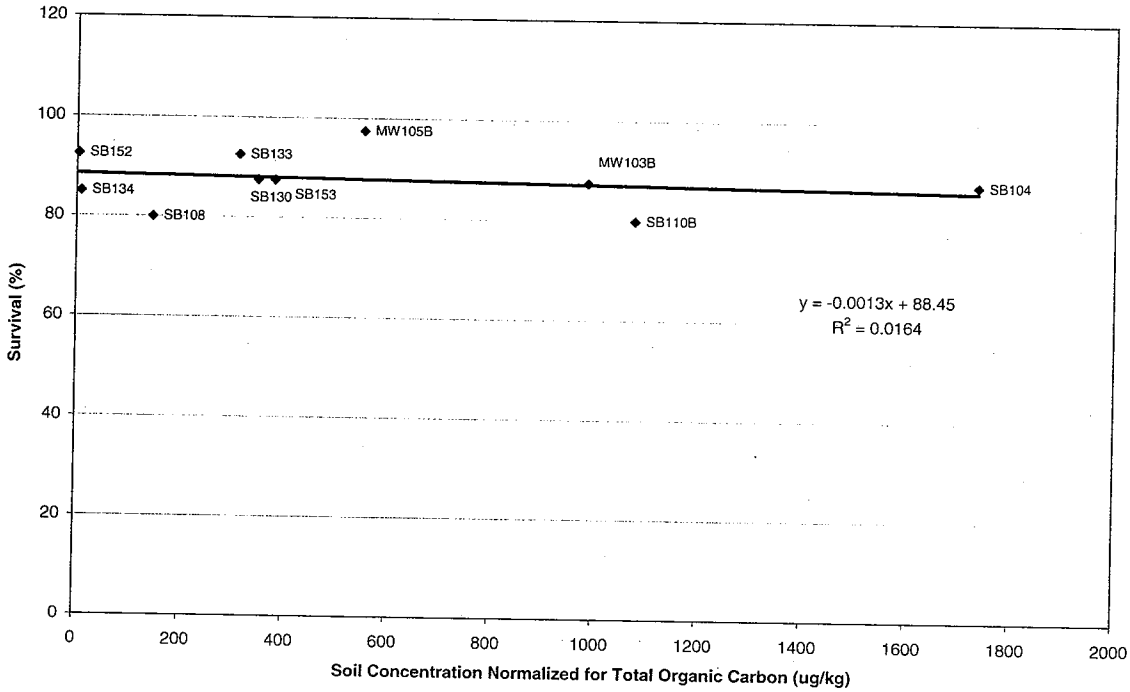
Concentration of LMW PAHs in Soil vs Survival of Eisenia Fetida
(Excluding Sample SB127)



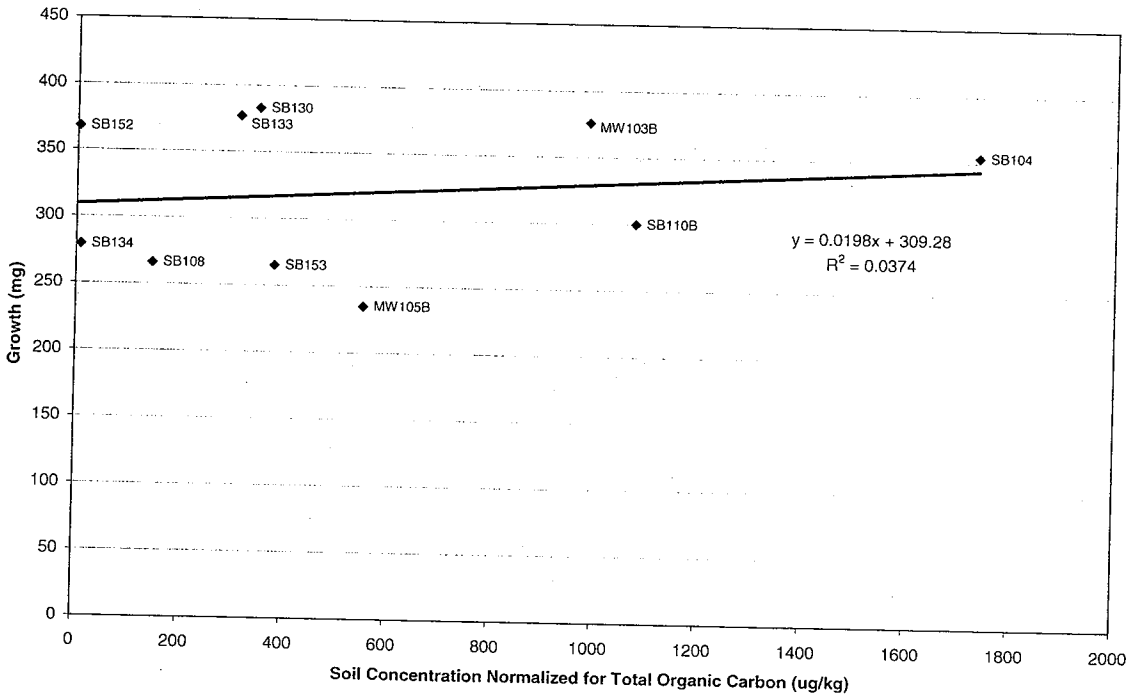
Concentration of LMW PAHs in Soil vs Growth of Eisenia Fetida
(Excluding Sample SB127)



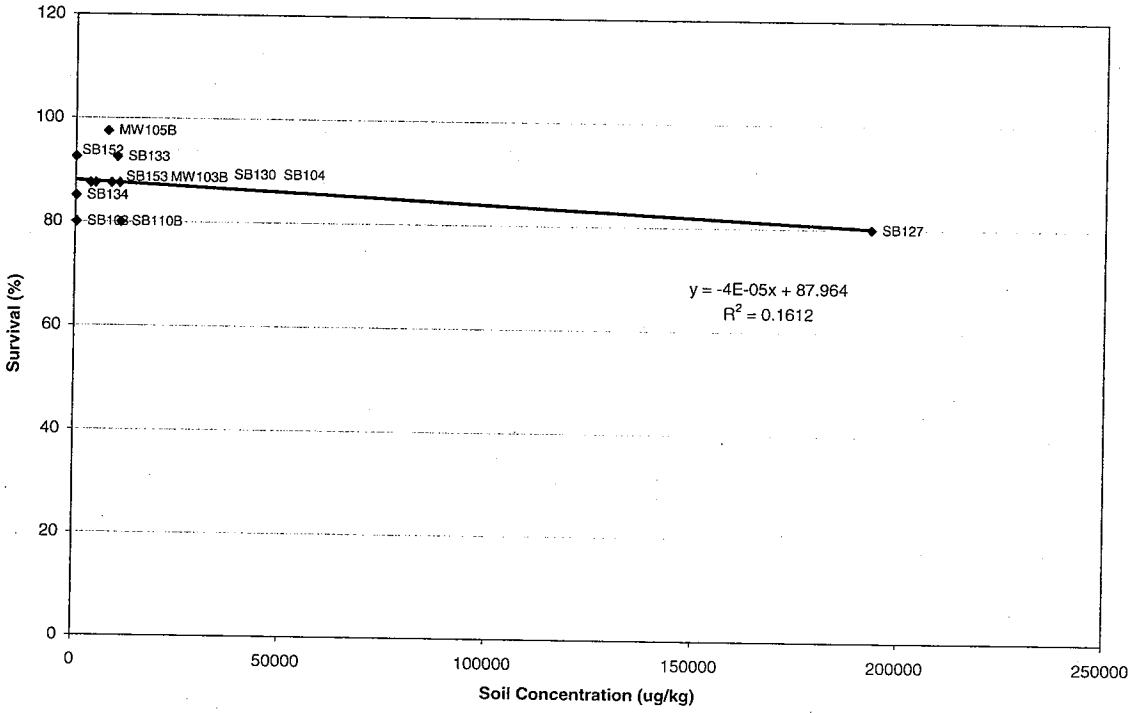
Normalized Concentration of LMW PAHs in Soil vs Survival of Eisenia Fetida
(Excluding Sample SB127)



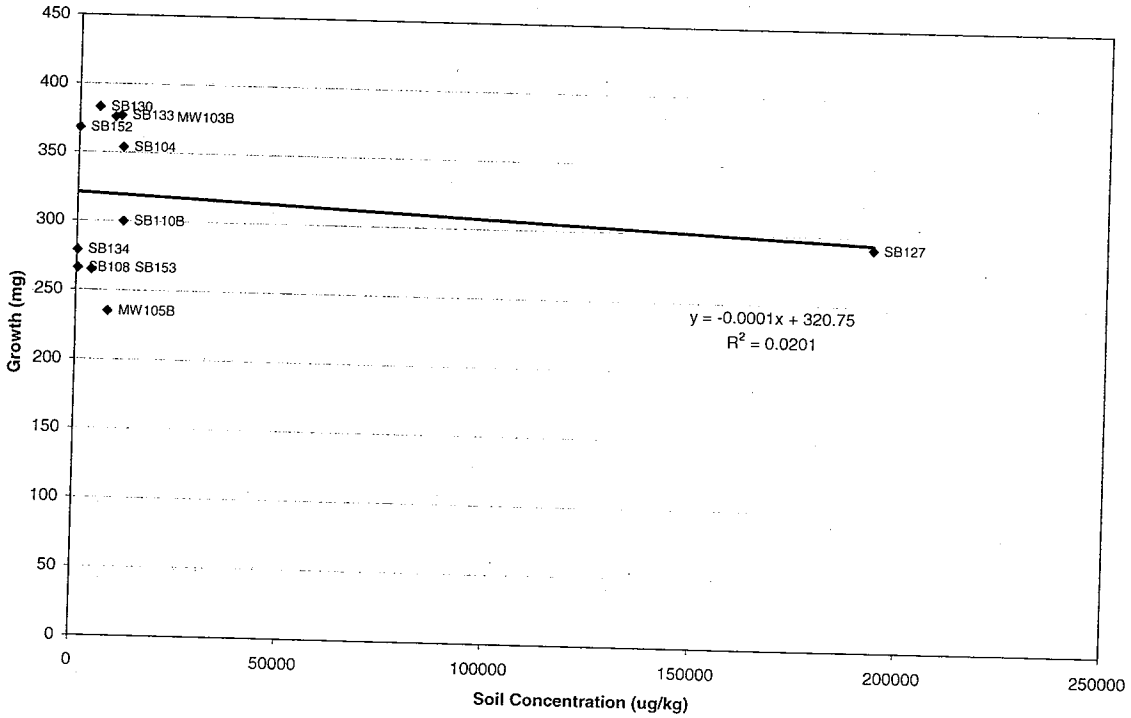
Normalized Concentration of LMW PAHs in Soil vs Growth of Eisenia Fetida
(Excluding Sample SB127)



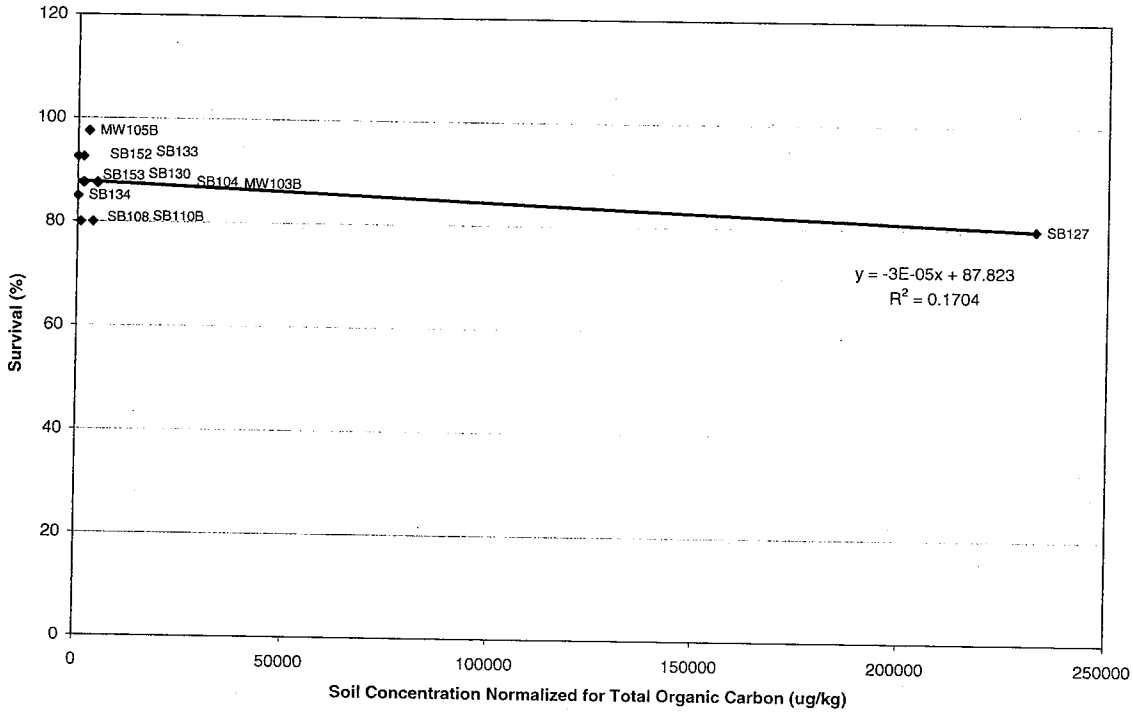
Concentration of HMW PAHs in Soil vs Survival of Eisenia Fetida



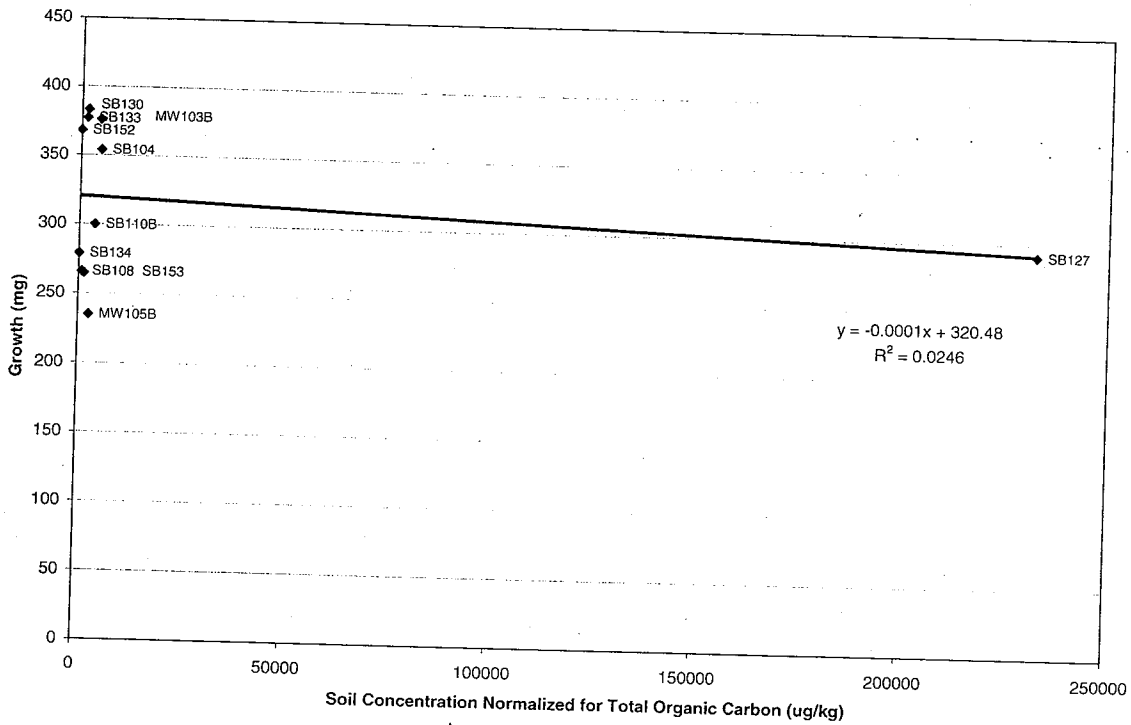
Concentration of HMW PAHs in Soil vs Growth of Eisenia Fetida



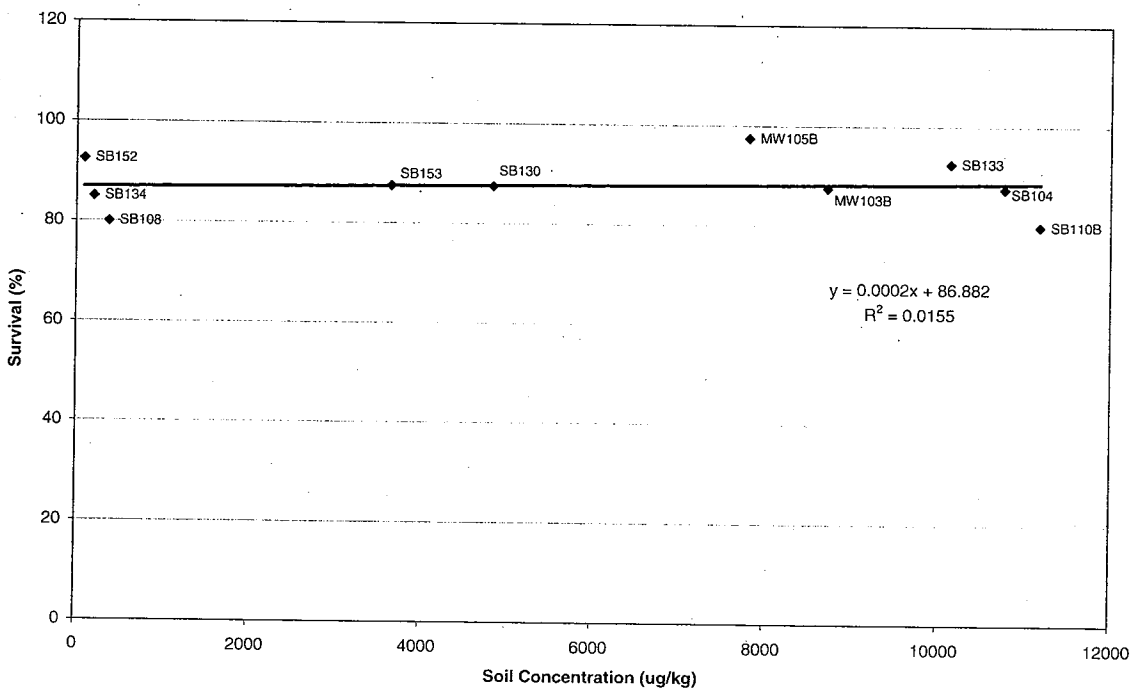
Normalized Concentration of HMW PAHs in Soil vs Survival of Eisenia Fetida



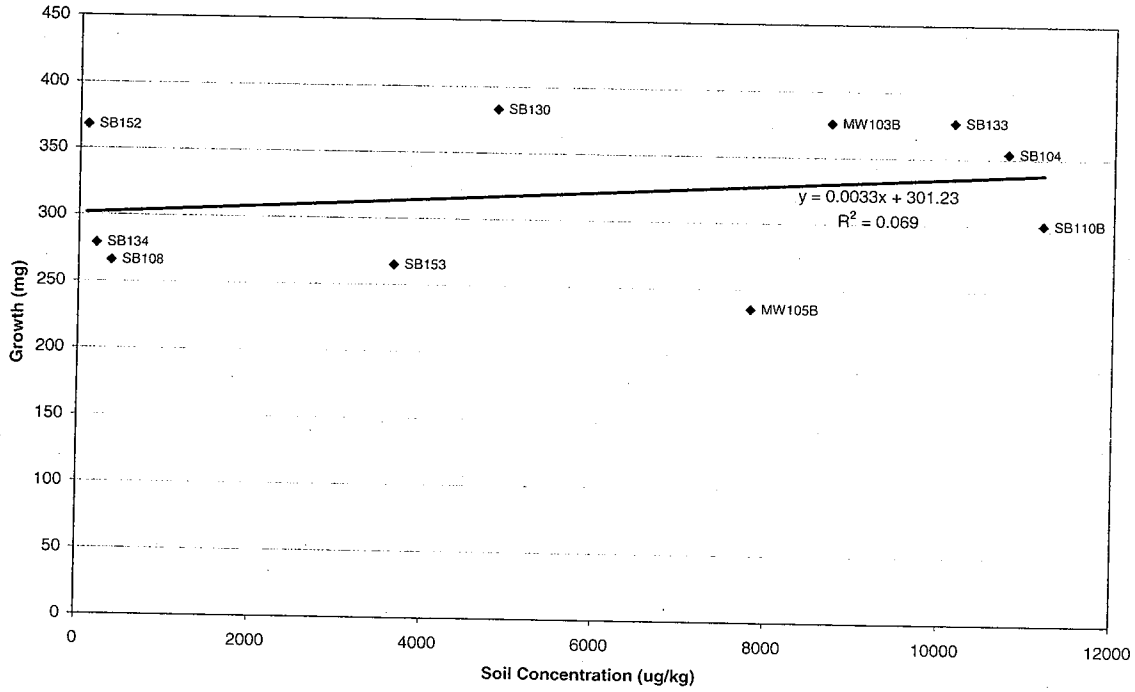
Normalized Concentration of HMW PAHs in Soil vs Growth of Eisenia Fetida



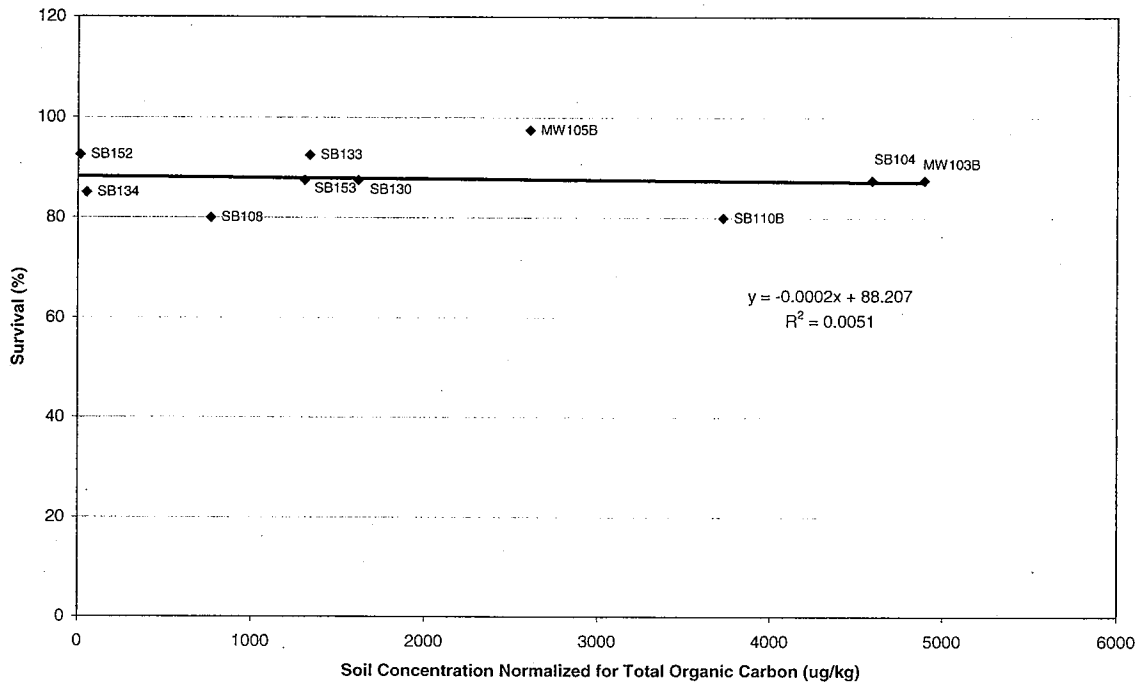
Concentration of HMW PAHs in Soil vs Survival of Eisenia Fetida
(Excluding Sample SB127)



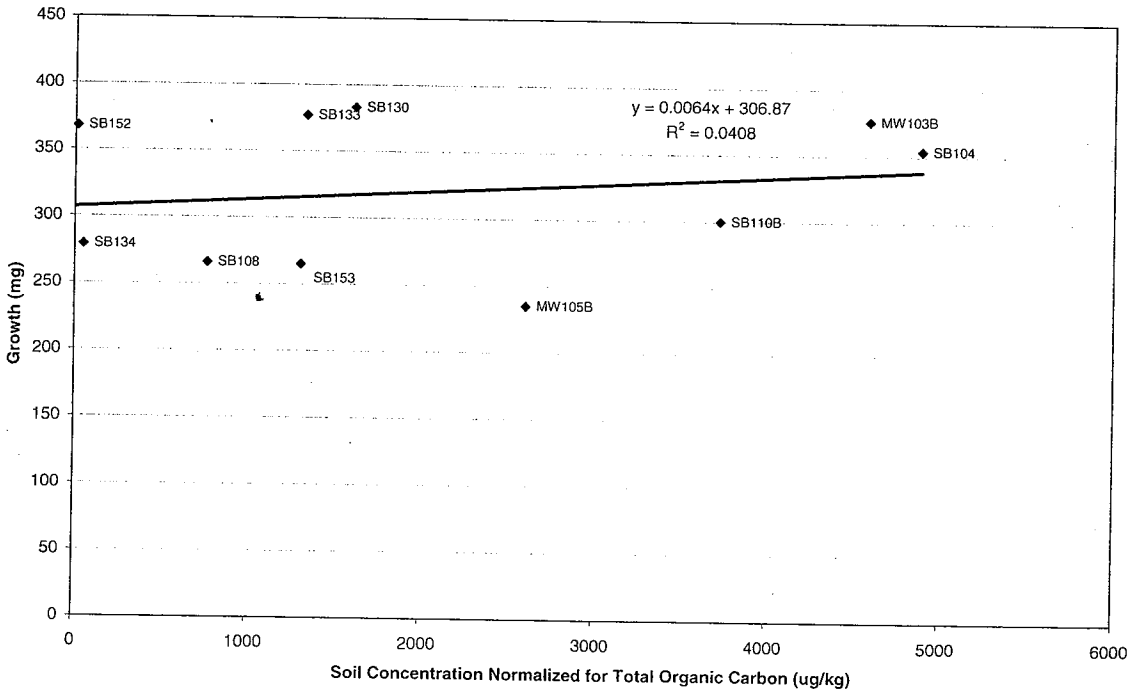
Concentration of HMW PAHs in Soil vs Growth of Eisenia Fetida
(Excluding Sample SB127)



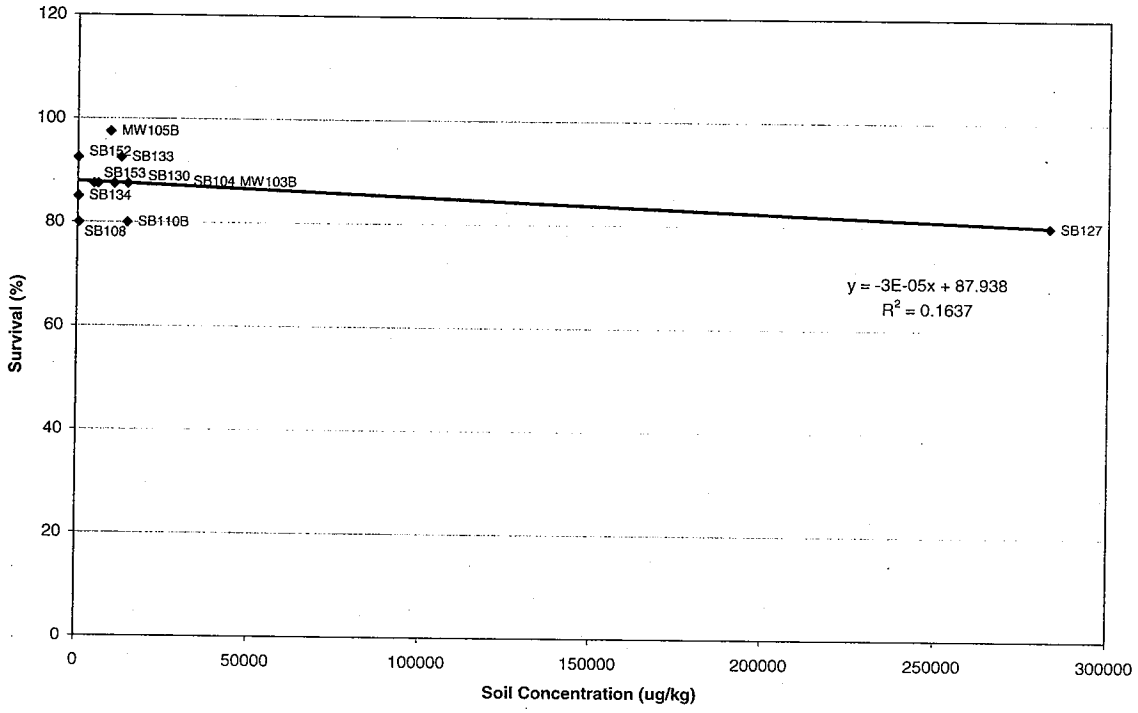
Normalized Concentration of HMW PAHs in Soil vs Survival of Eisenia Fetida
(Excluding Sample SB127)



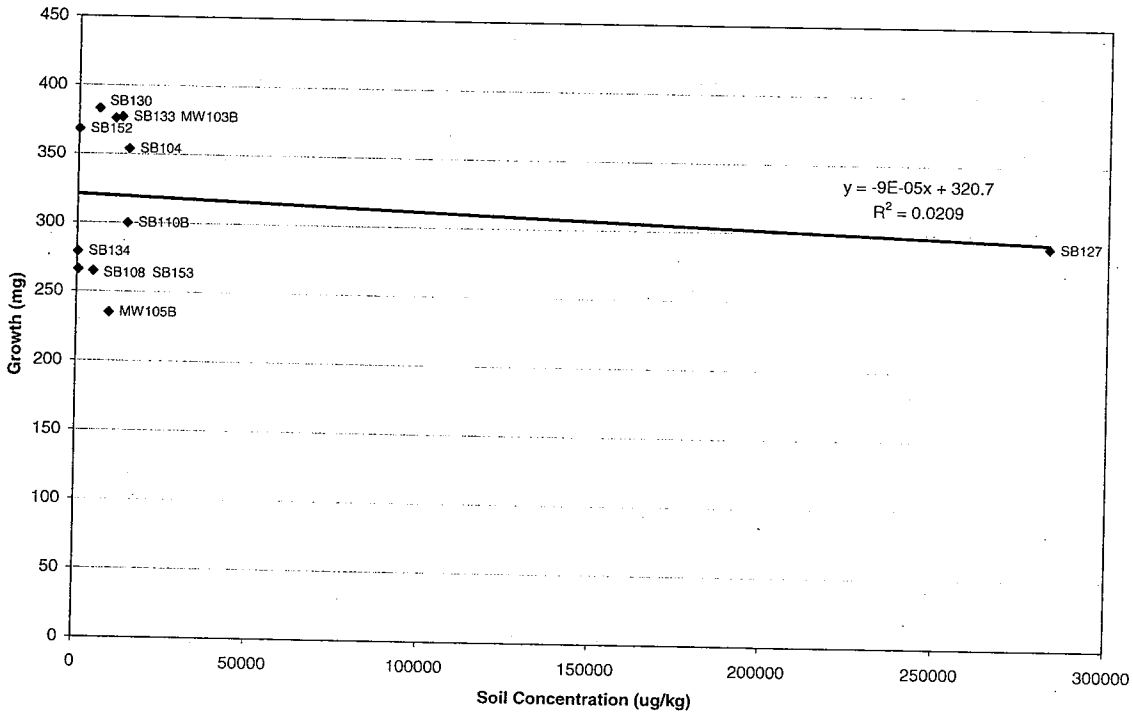
Normalized Concentration of HMW PAHs in Soil vs Growth of Eisenia Fetida
(Excluding Sample SB127)



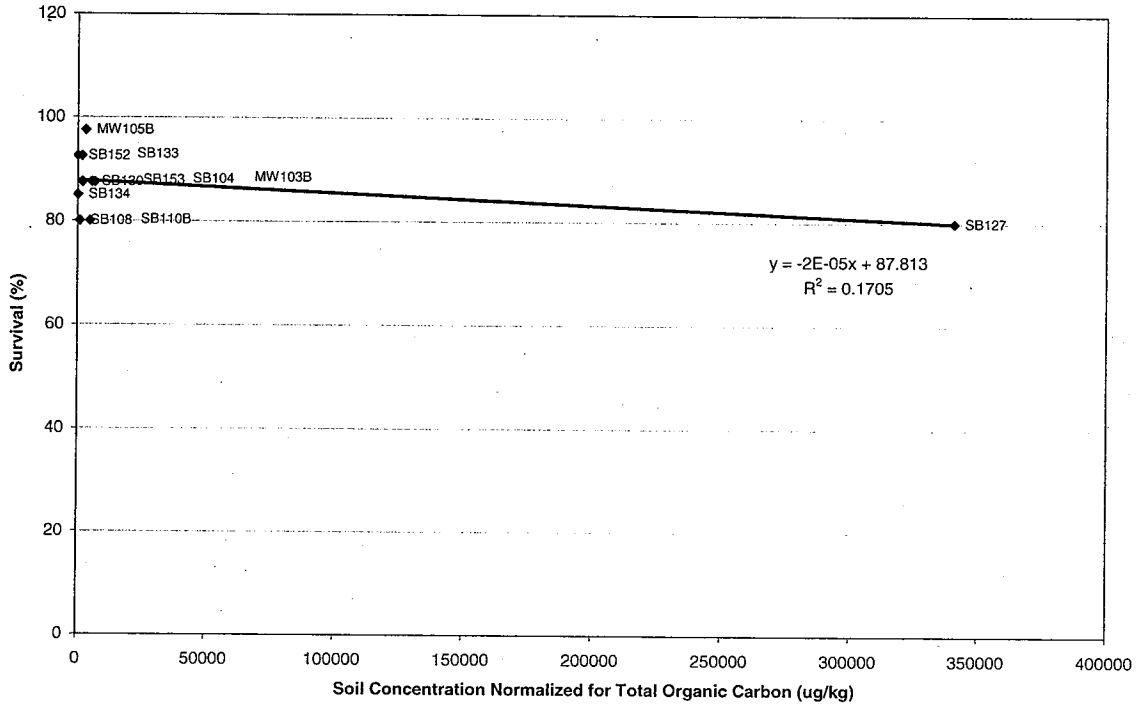
Concentration of Total PAHs in Soil vs Survival of Eisenia Fetida



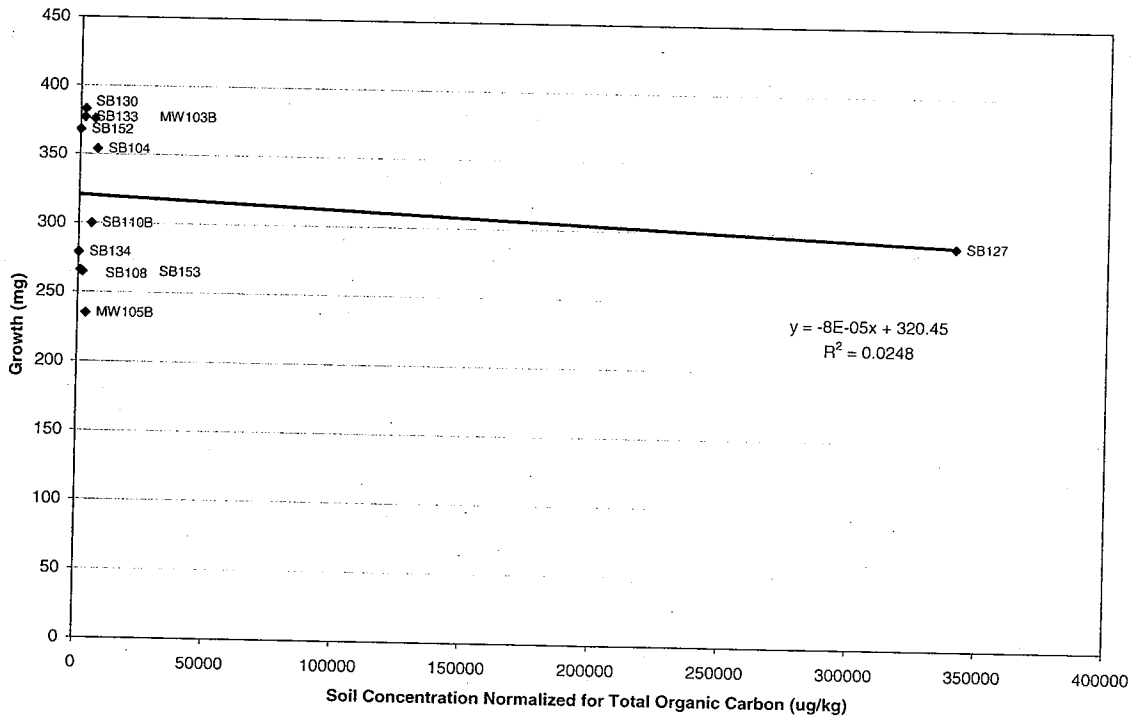
Concentration of Total PAHs in Soil vs Growth of Eisenia Fetida



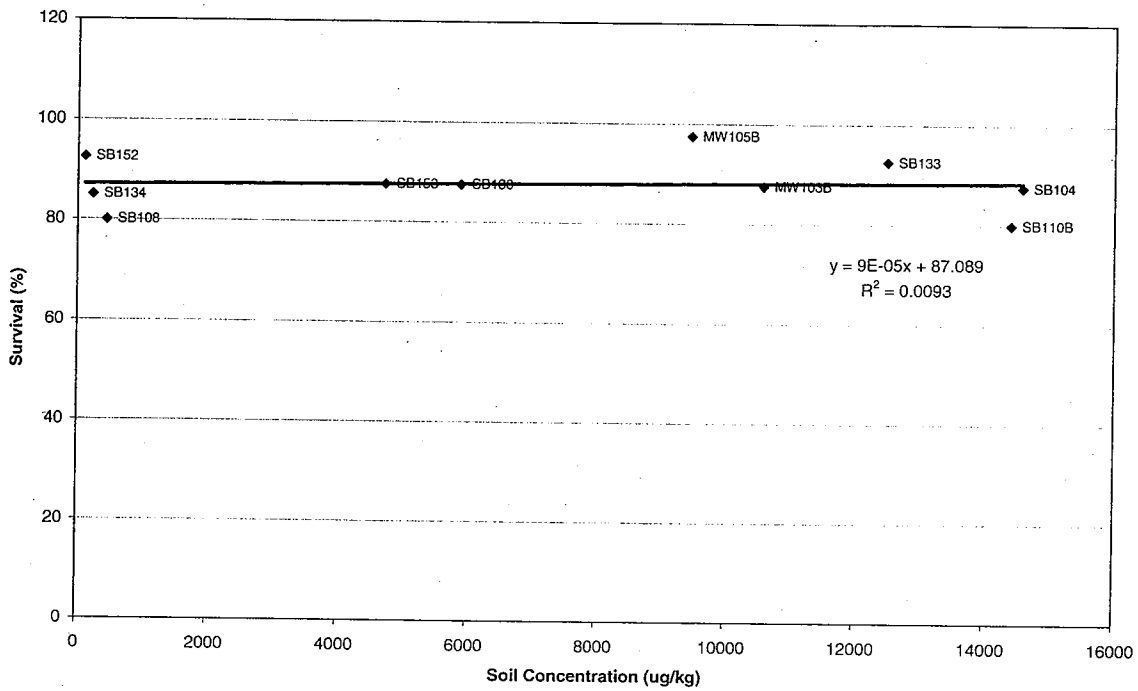
Normalized Concentration of Total PAHs in Soil vs Survival of Eisenia Fetida



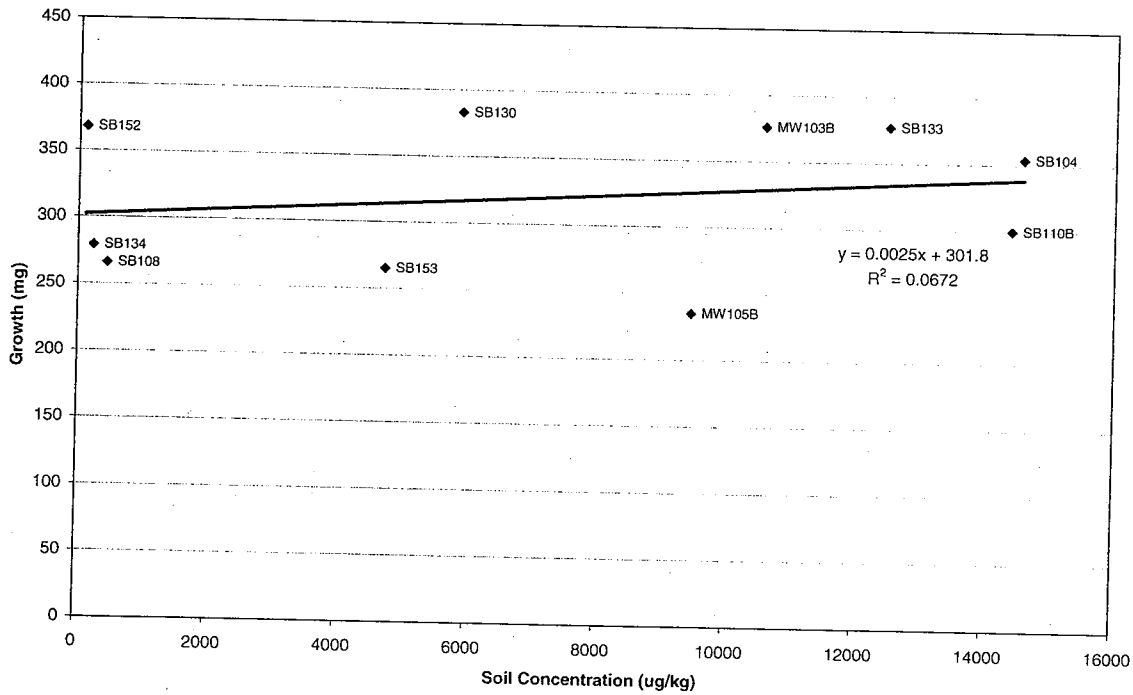
Normalized Concentration of Total PAHs in Soil vs Growth of Eisenia Fetida



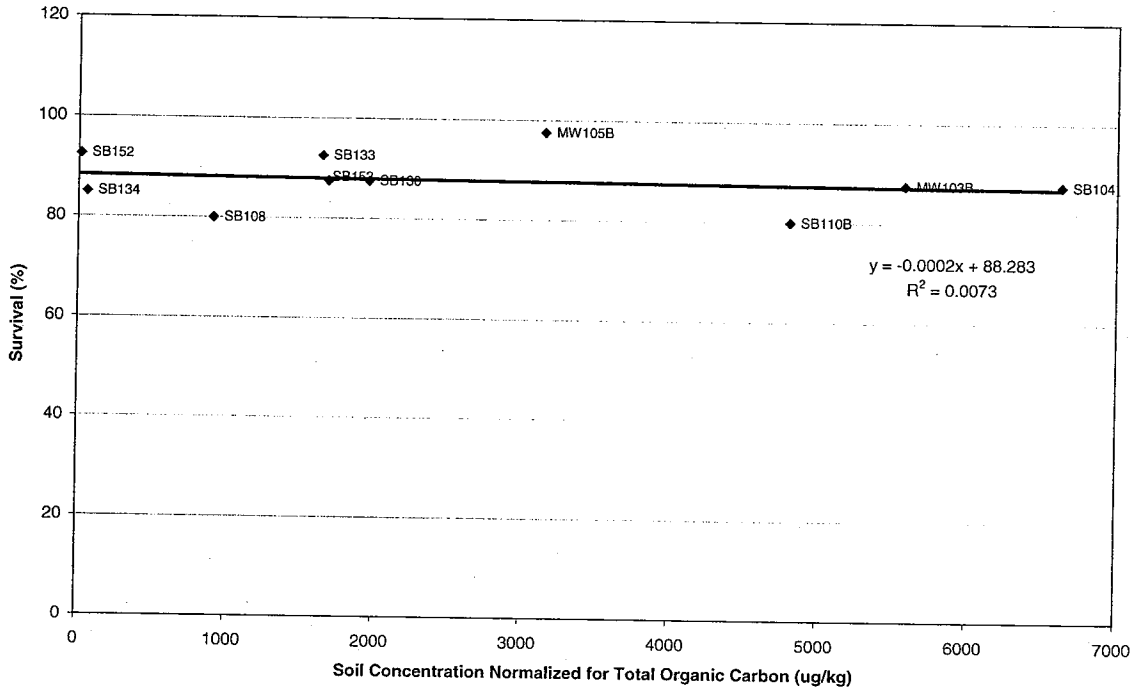
Concentration of Total PAHs in Soil vs Survival of Eisenia Fetida
(Excluding Sample SB127)



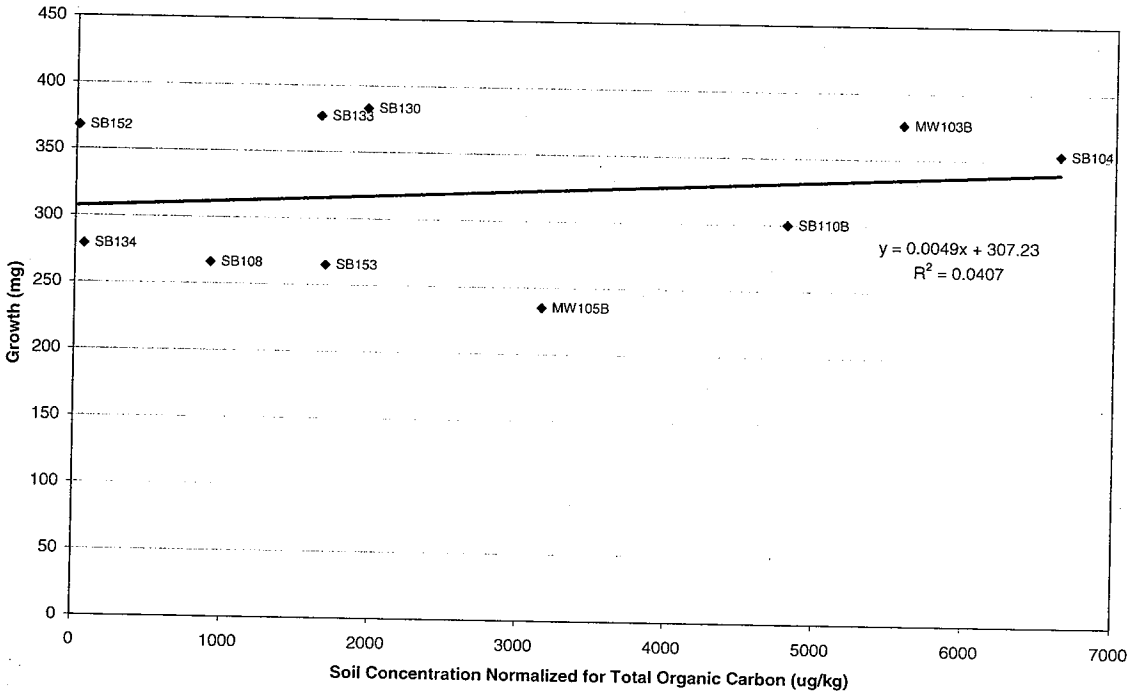
Concentration of Total PAHs in Soil vs Growth of Eisenia Fetida
(Excluding Sample SB127)



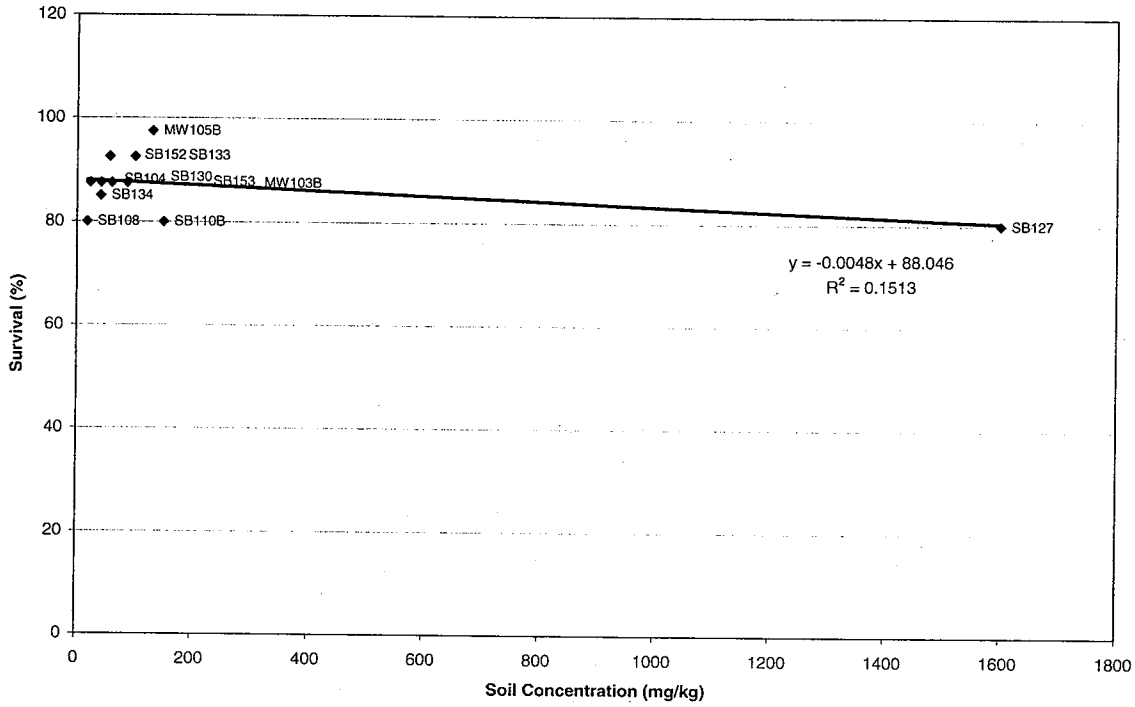
Normalized Concentration of Total PAHs in Soil vs Survival of Eisenia Fetida
(Excluding Sample SB127)



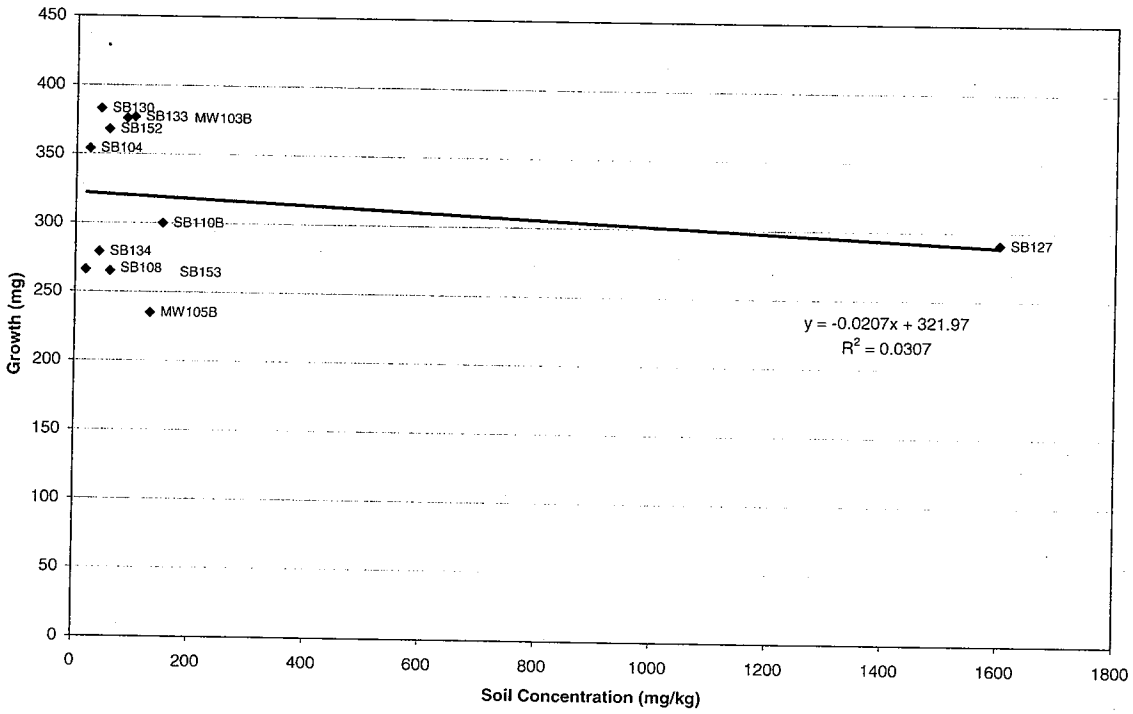
Normalized Concentration of Total PAHs in Soil vs Growth of Eisenia Fetida
(Excluding Sample SB127)



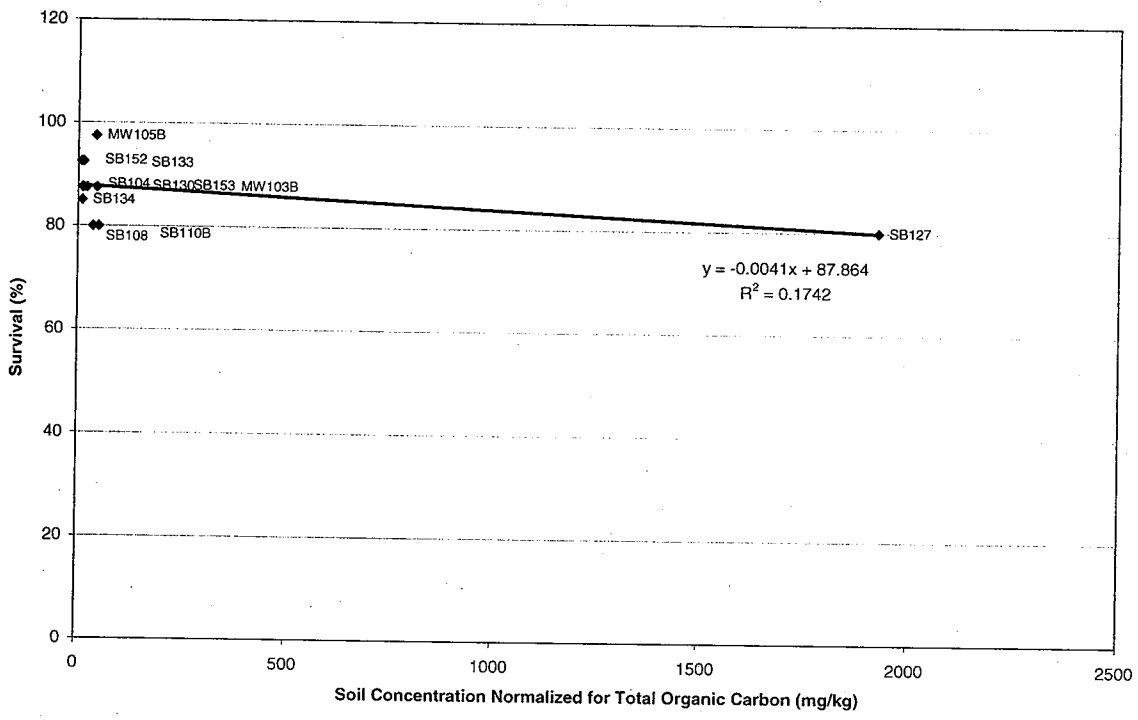
Concentration of TPH in Soil vs Survival of Eisenia Fetida



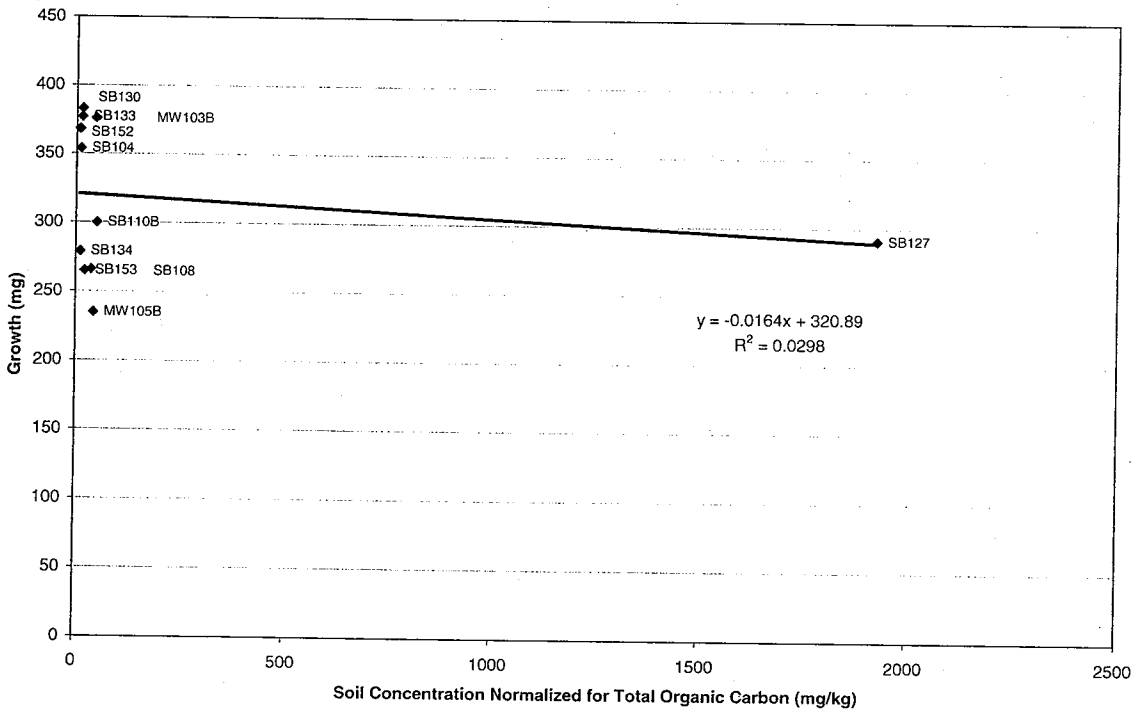
Concentration of TPH in Soil vs Growth of Eisenia Fetida



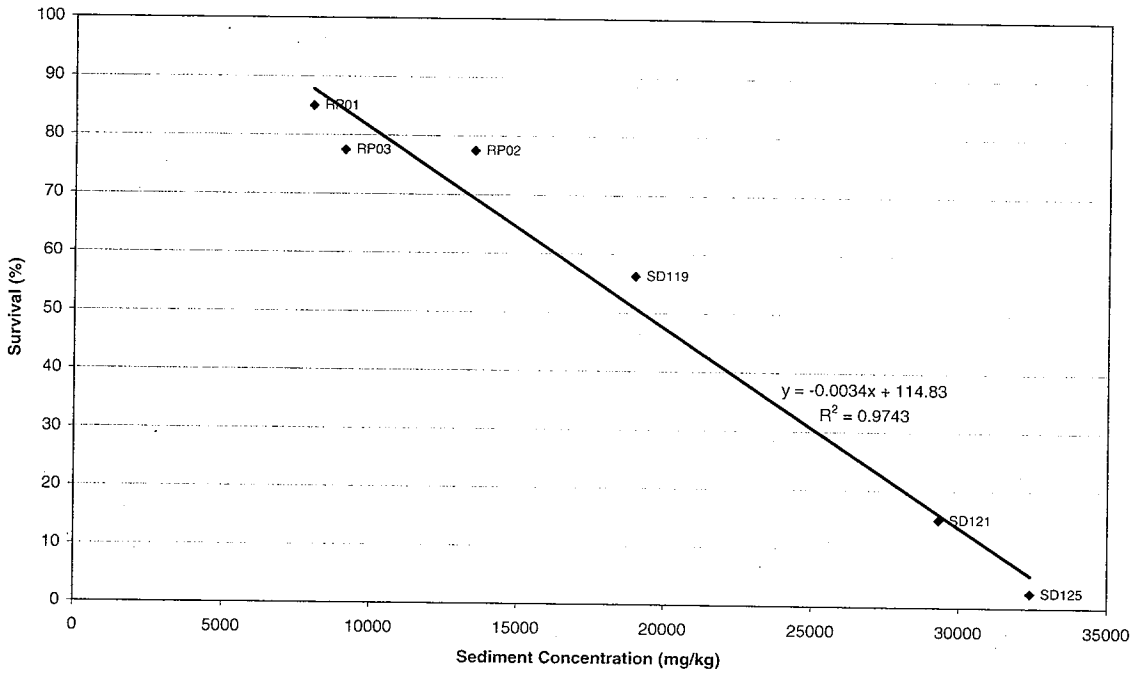
Normalized Concentration of TPH in Soil vs Survival of Eisenia Fetida



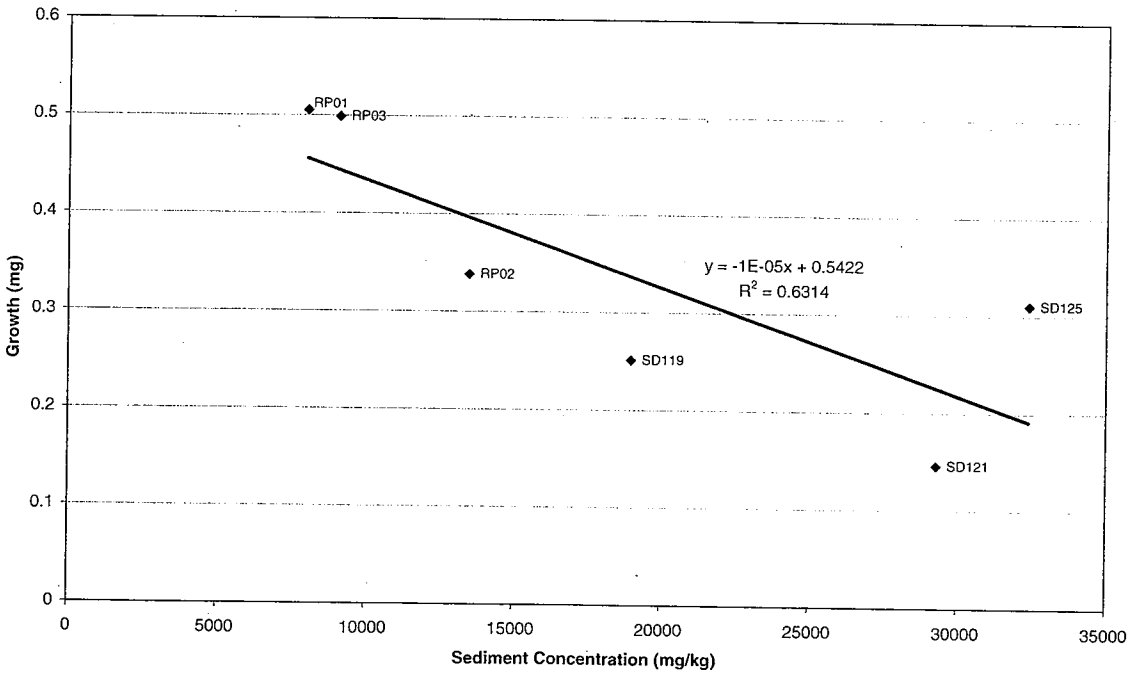
Normalized Concentration of TPH in Soil vs Growth of Eisenia Fetida



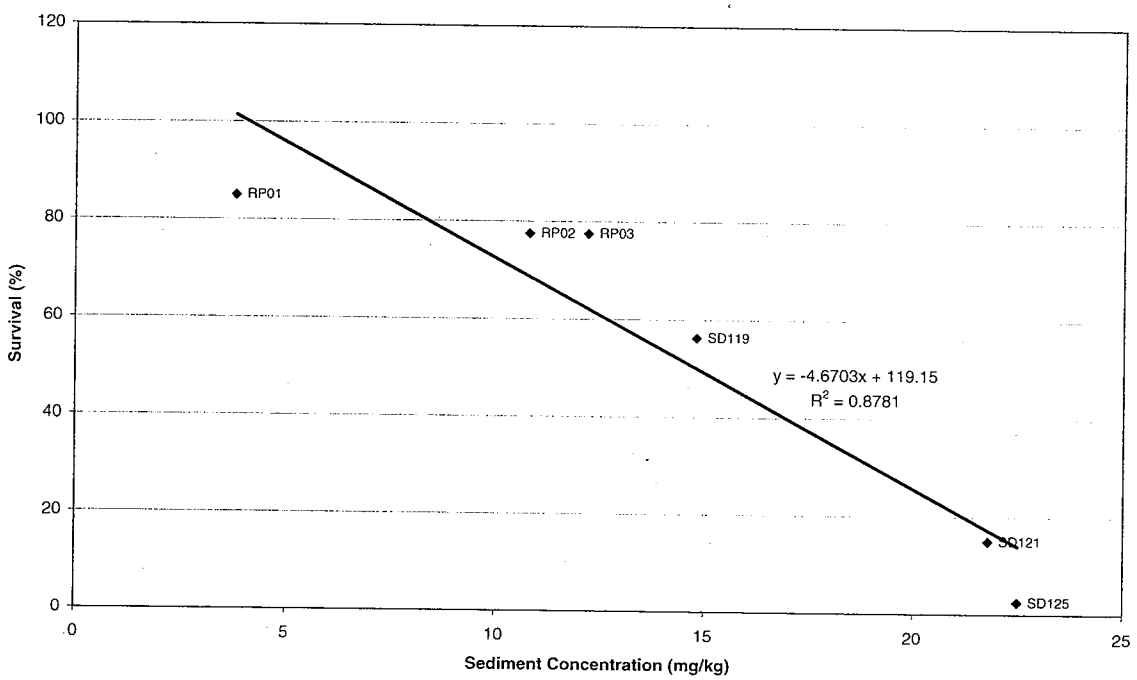
Concentration of Aluminum in Sediment vs Survival of Hyallella Azteca
Pond Samples



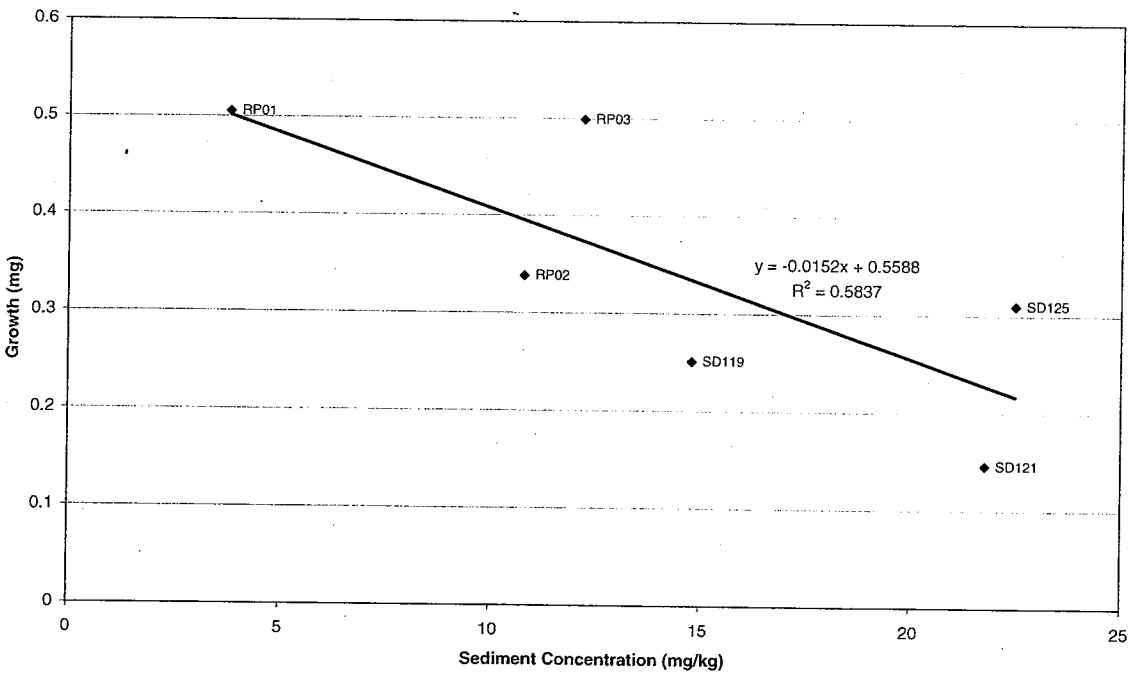
Concentration of Aluminum in Sediment vs Growth of Hyallella Azteca
Pond Samples



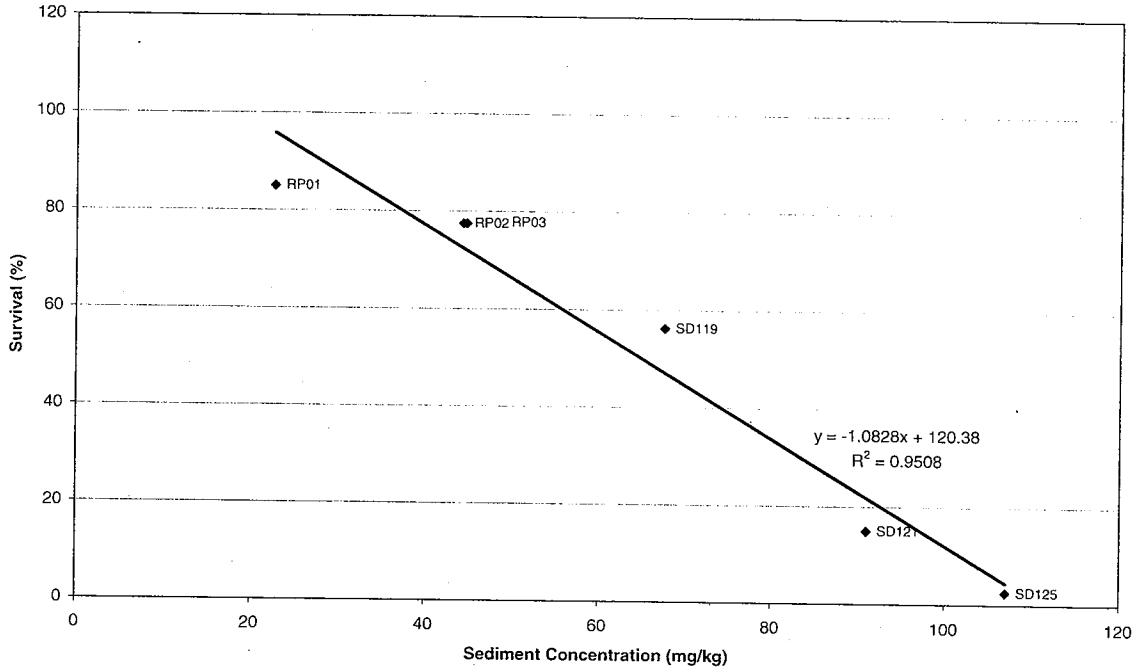
Concentration of Arsenic in Sediment vs Survival of Hyallella Azteca
Pond Samples



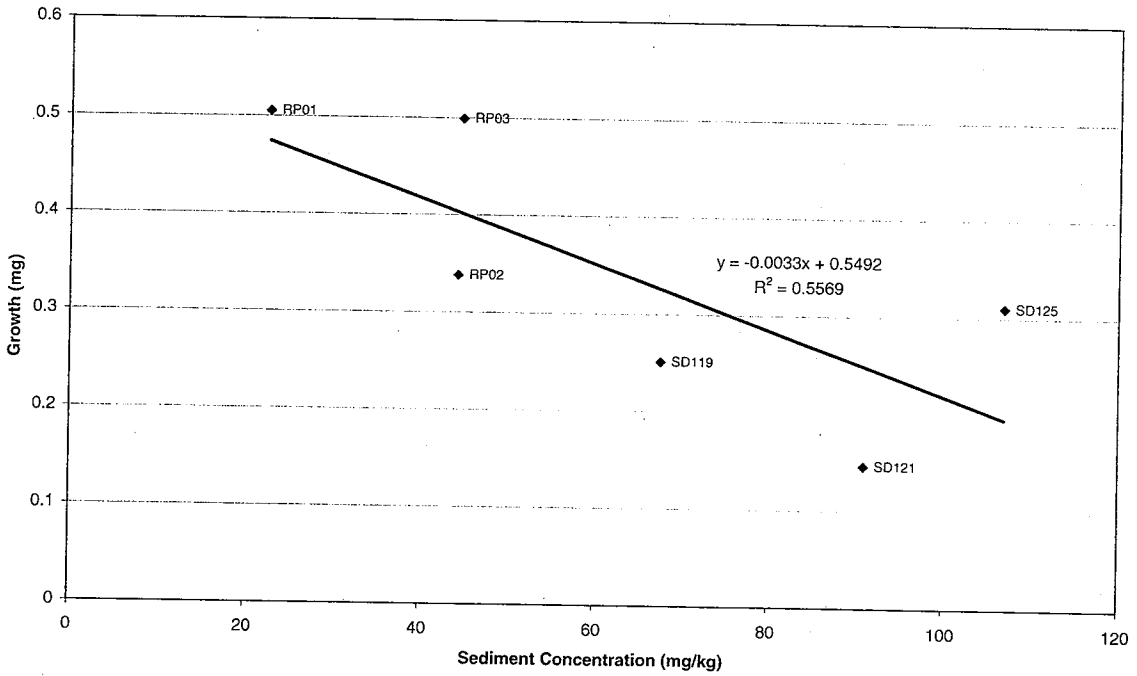
Concentration of Arsenic in Sediment vs Growth of Hyallella Azteca
Pond Samples



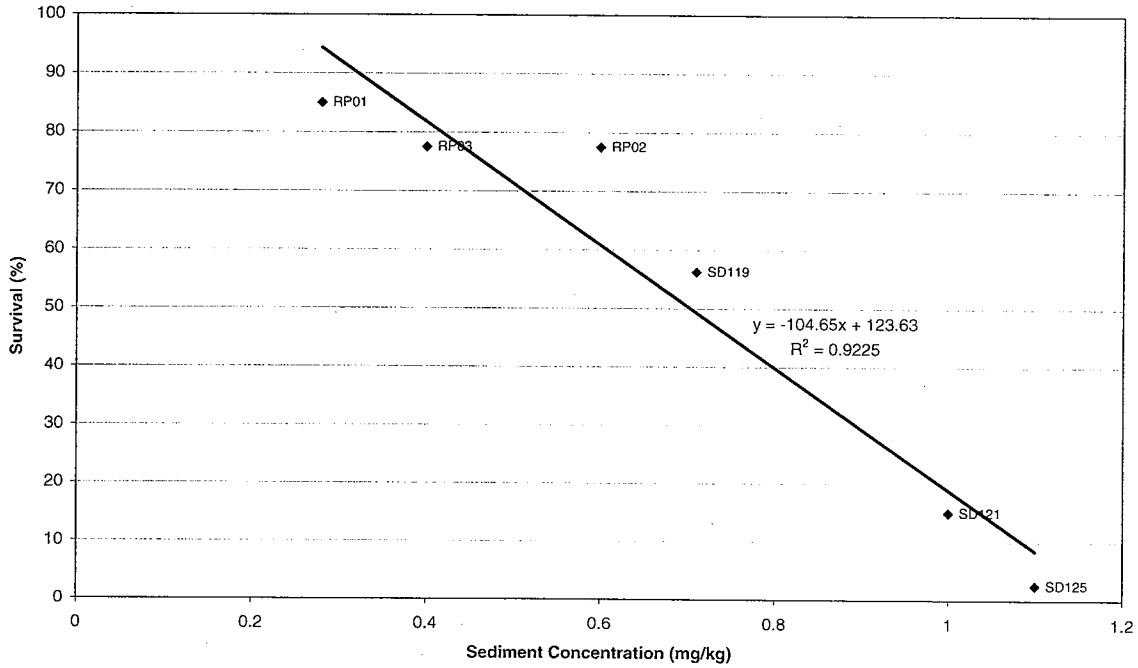
Concentration of Barium in Sediment vs Survival of Hyallella Azteca
Pond Samples



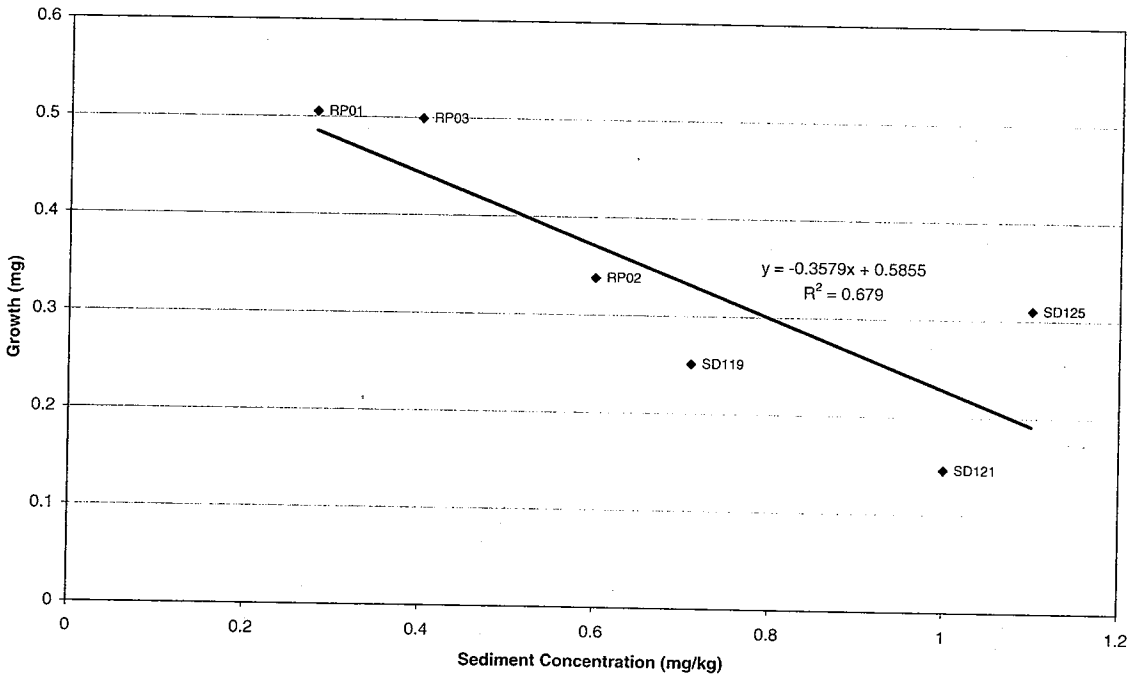
Concentration of Barium in Sediment vs Growth of Hyallella Azteca
Pond Samples



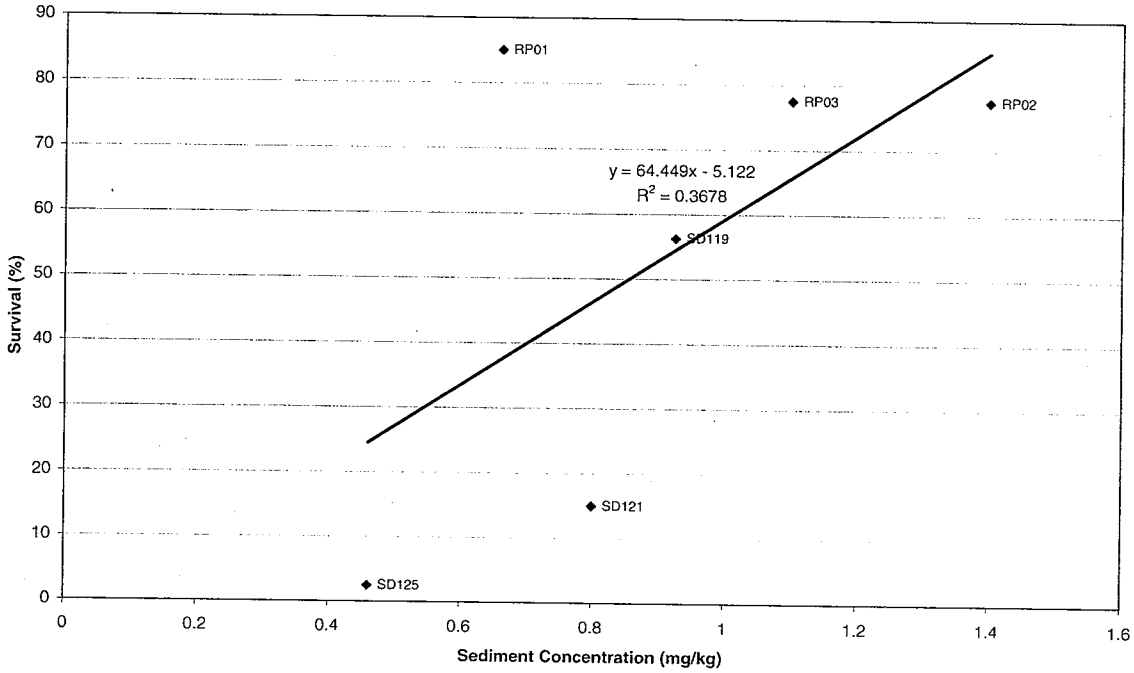
Concentration of Beryllium in Sediment vs Survival of Hyallella Azteca
Pond Samples



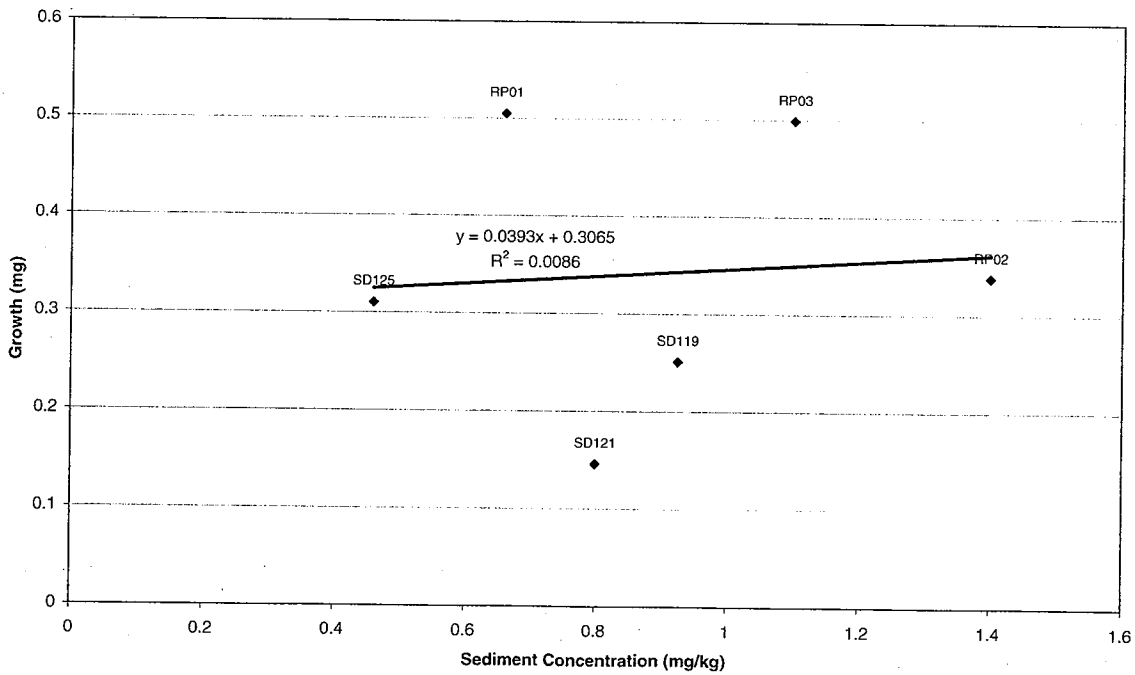
Concentration of Beryllium in Sediment vs Growth of Hyallella Azteca
Pond Samples



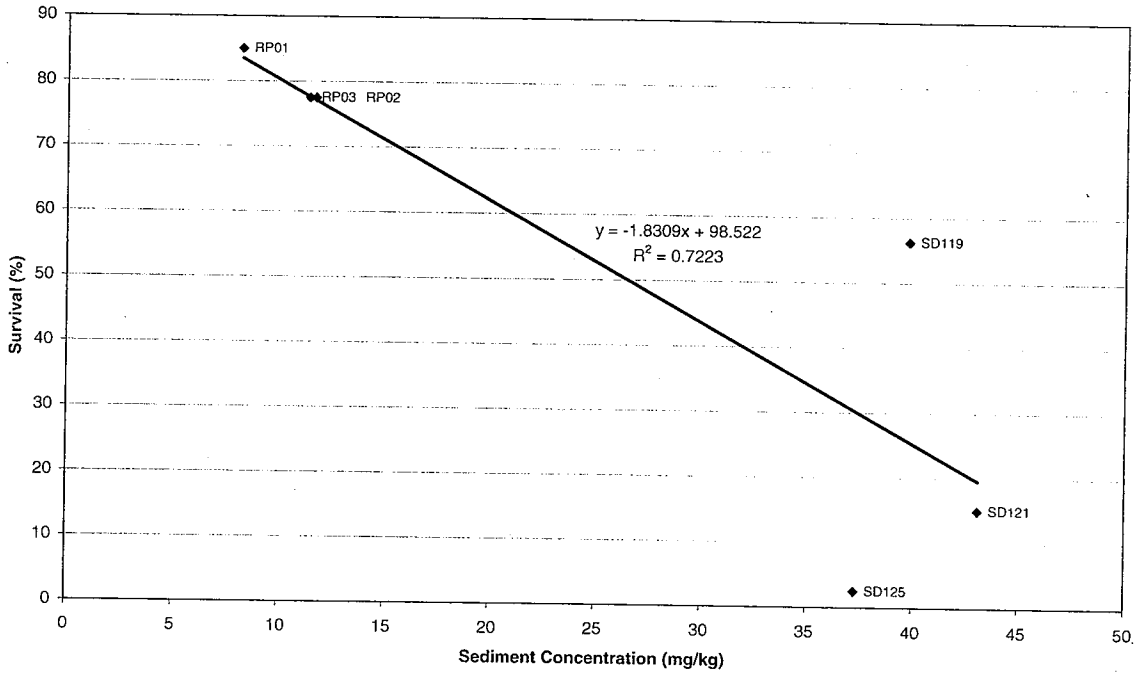
Concentration of Cadmium in Sediment vs Survival of Hyallella Azteca
Pond Samples



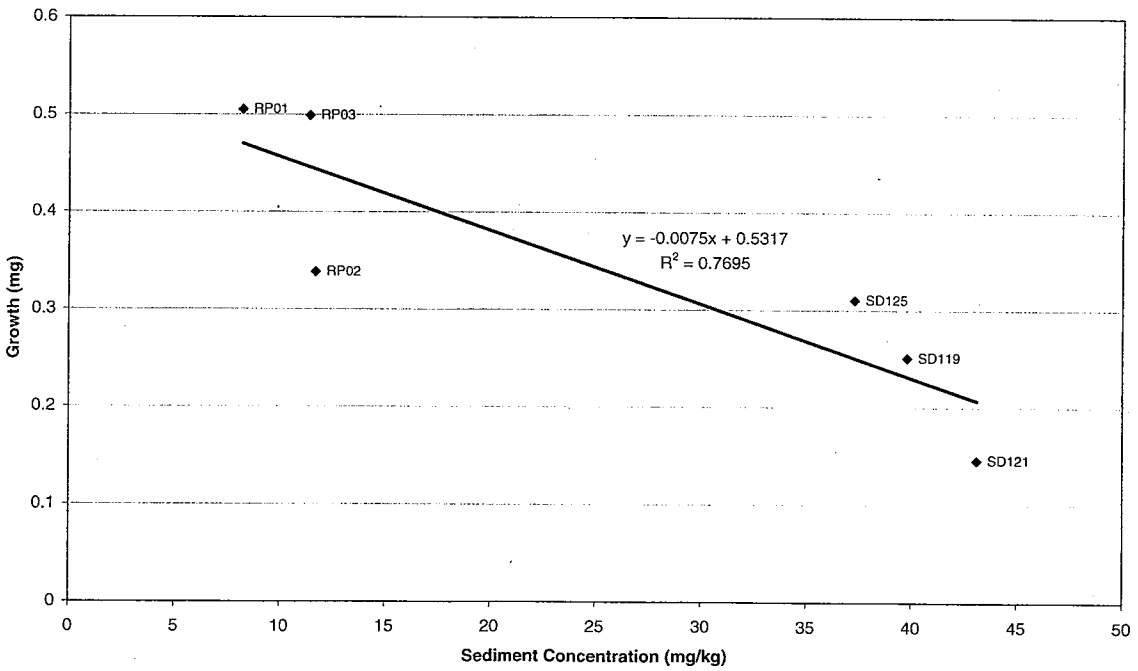
Concentration of Cadmium in Sediment vs Growth of Hyallella Azteca
Pond Samples



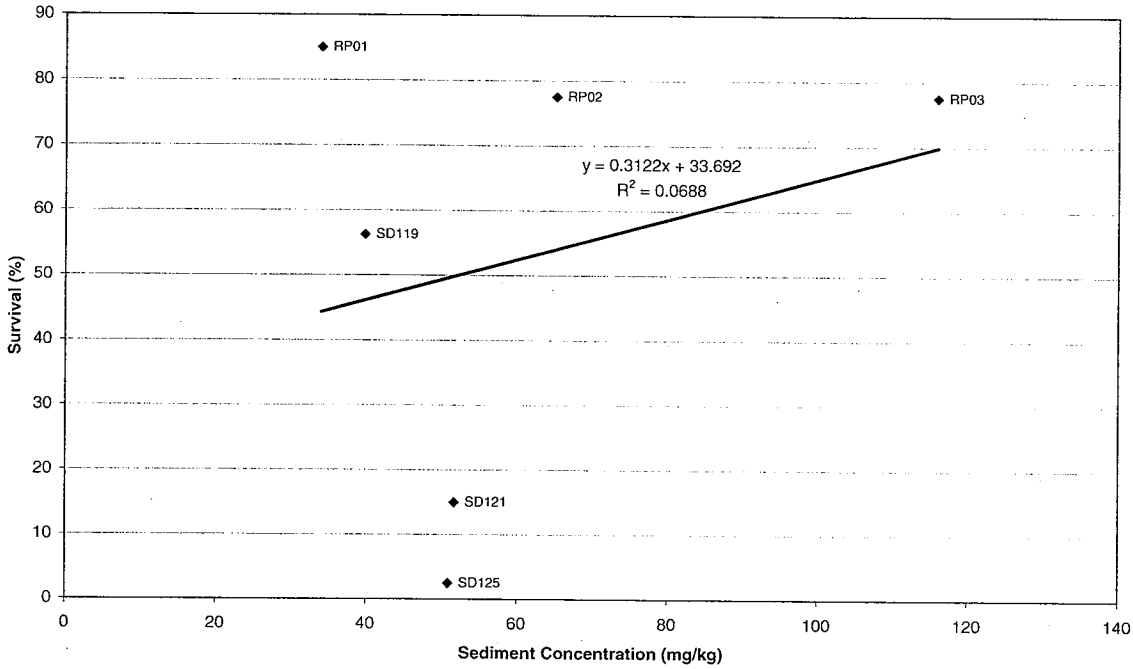
Concentration of Cobalt in Sediment vs Survival of Hyallella Azteca
Pond Samples



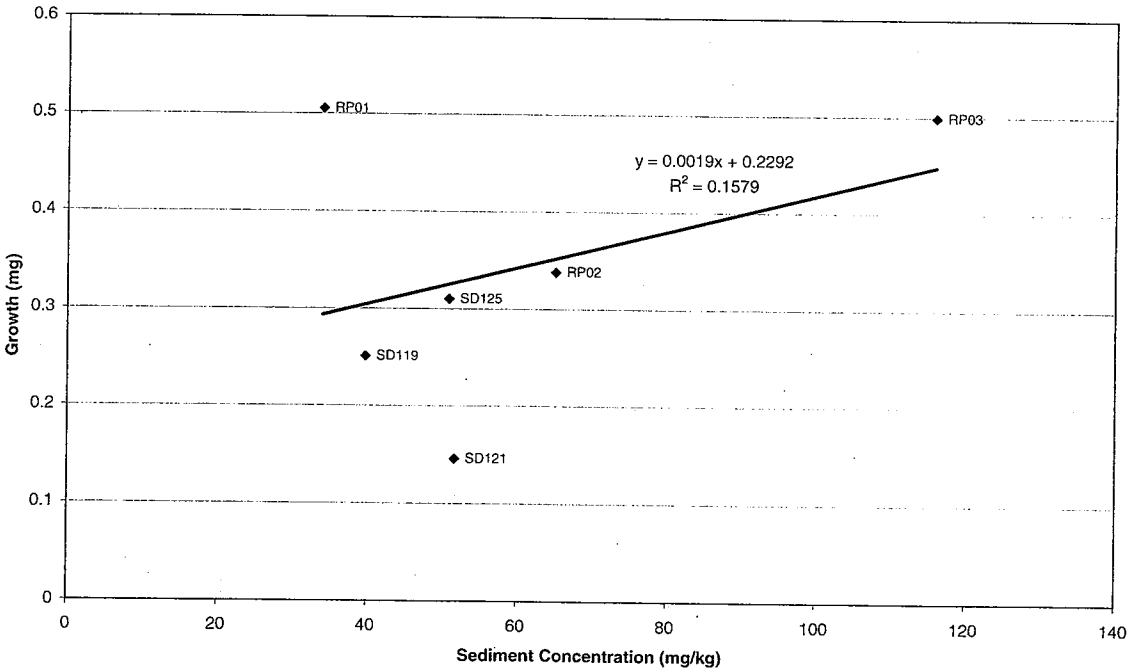
Concentration of Cobalt in Sediment vs Growth of Hyallella Azteca
Pond Samples



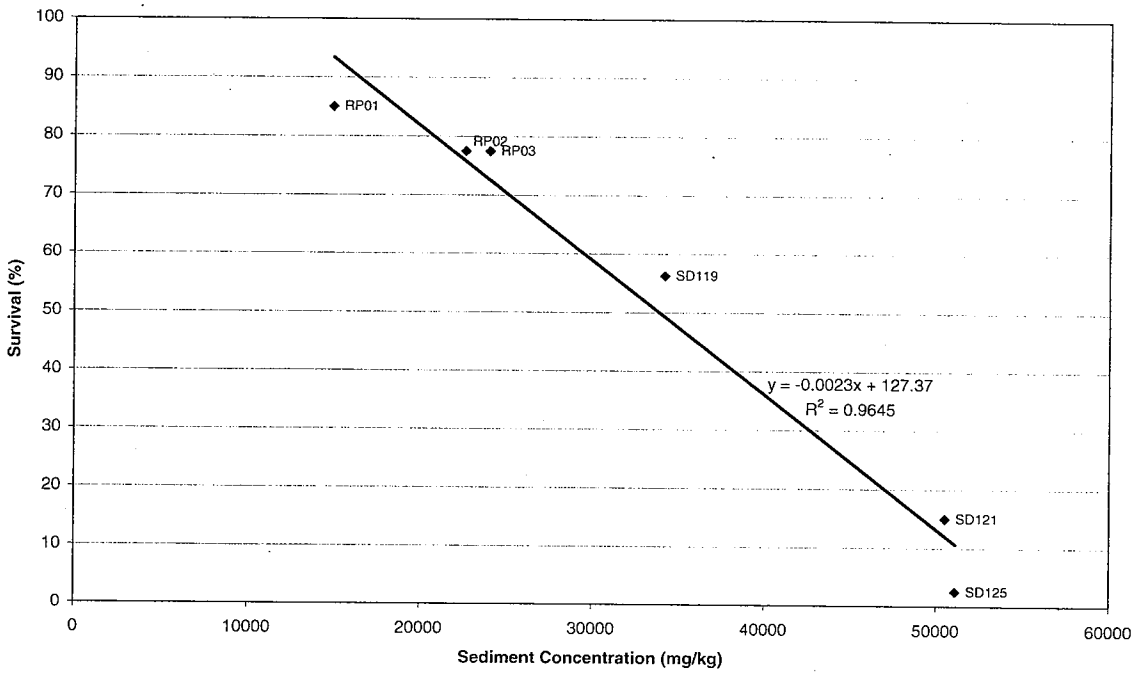
Concentration of Copper in Sediment vs Survival of Hyallella Azteca
Pond Samples



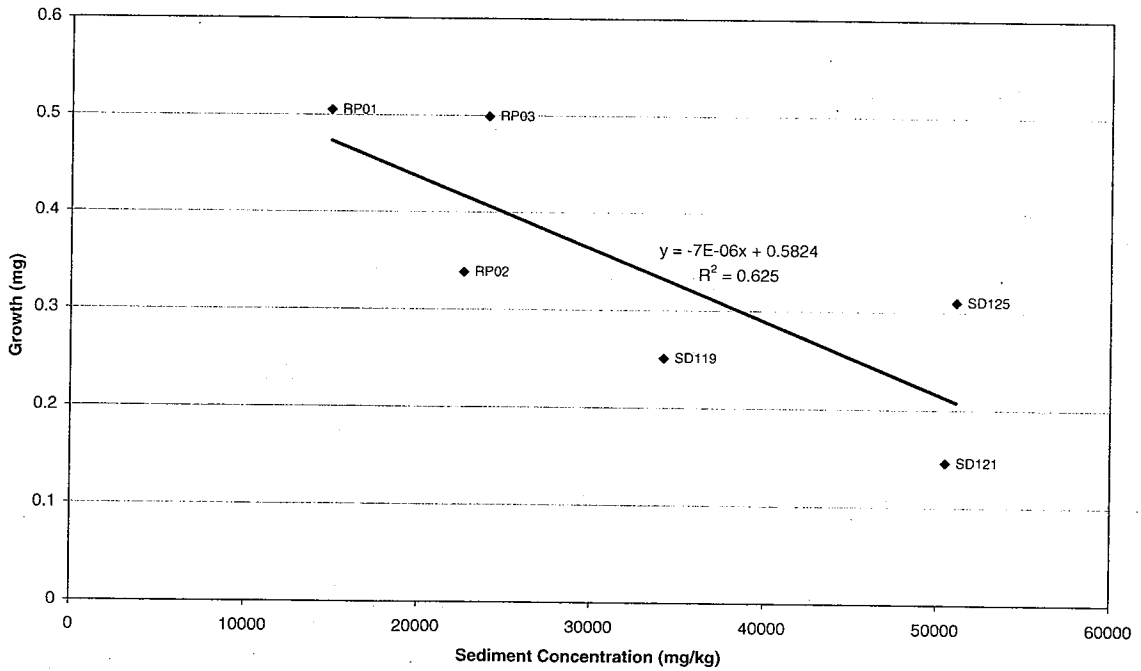
Concentration of Copper in Sediment vs Growth of Hyallella Azteca
Pond Samples



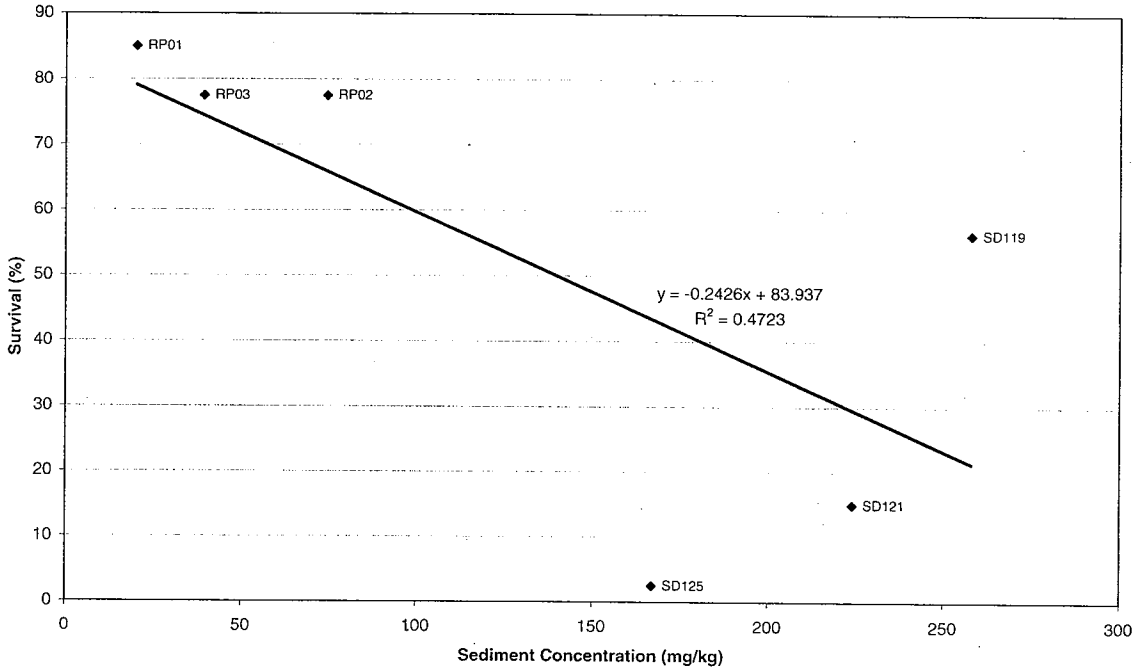
Concentration of Iron in Sediment vs Survival of Hyallella Azteca
Pond Samples



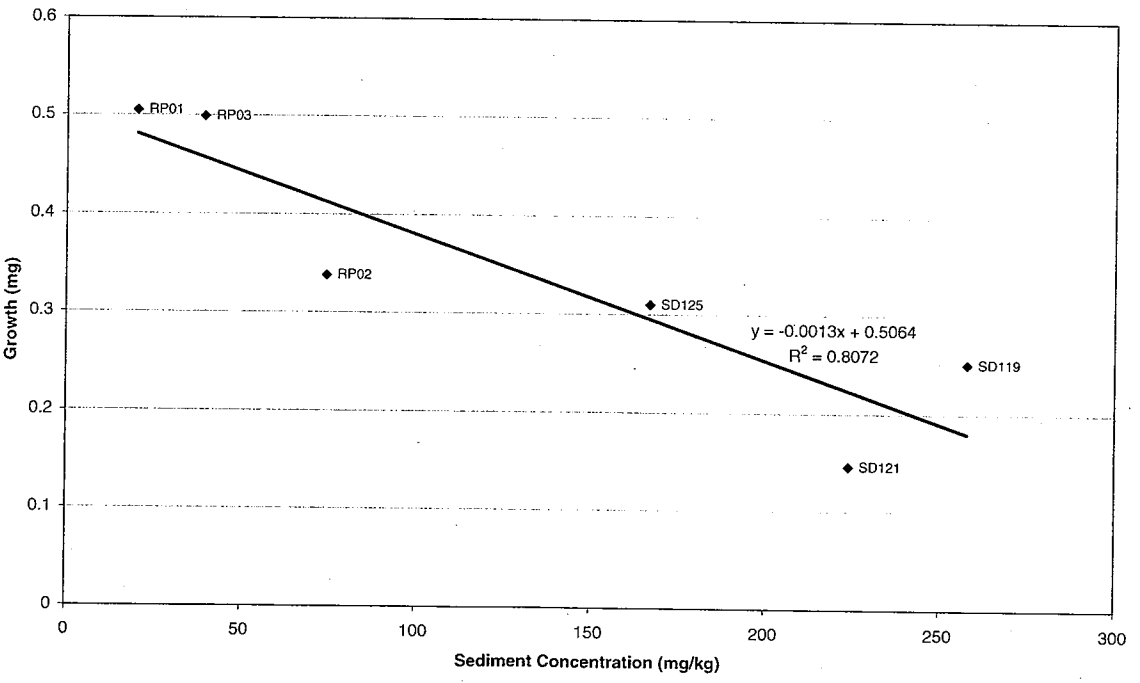
Concentration of Iron in Sediment vs Growth of Hyallella Azteca
Pond Samples



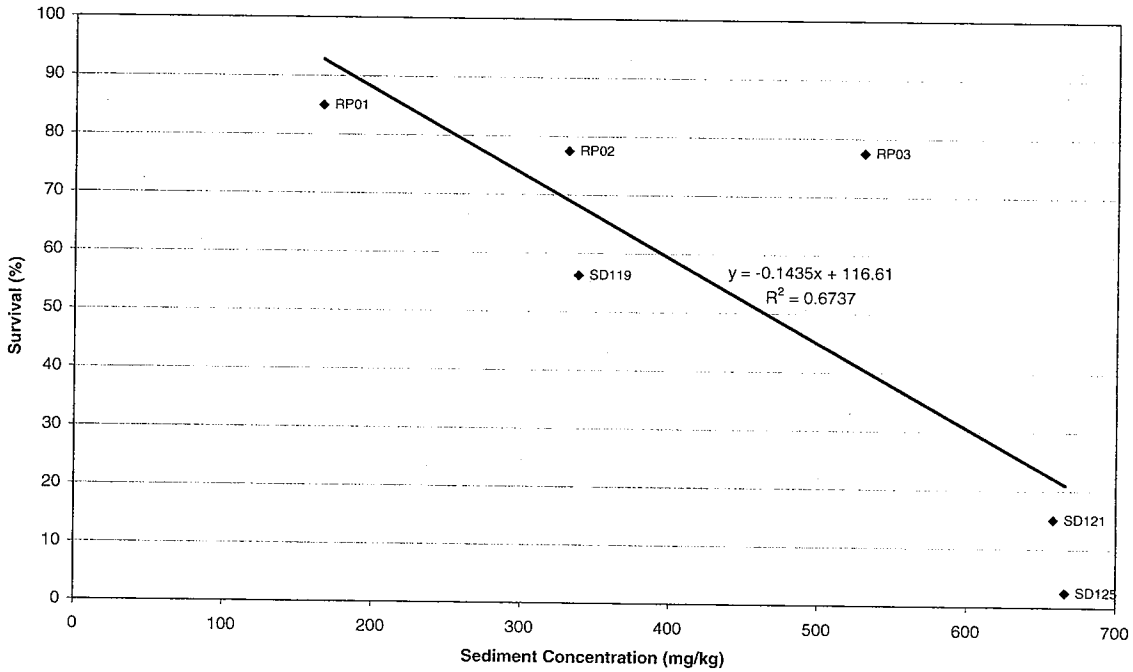
Concentration of Lead in Sediment vs Survival of Hyallella Azteca
Pond Samples



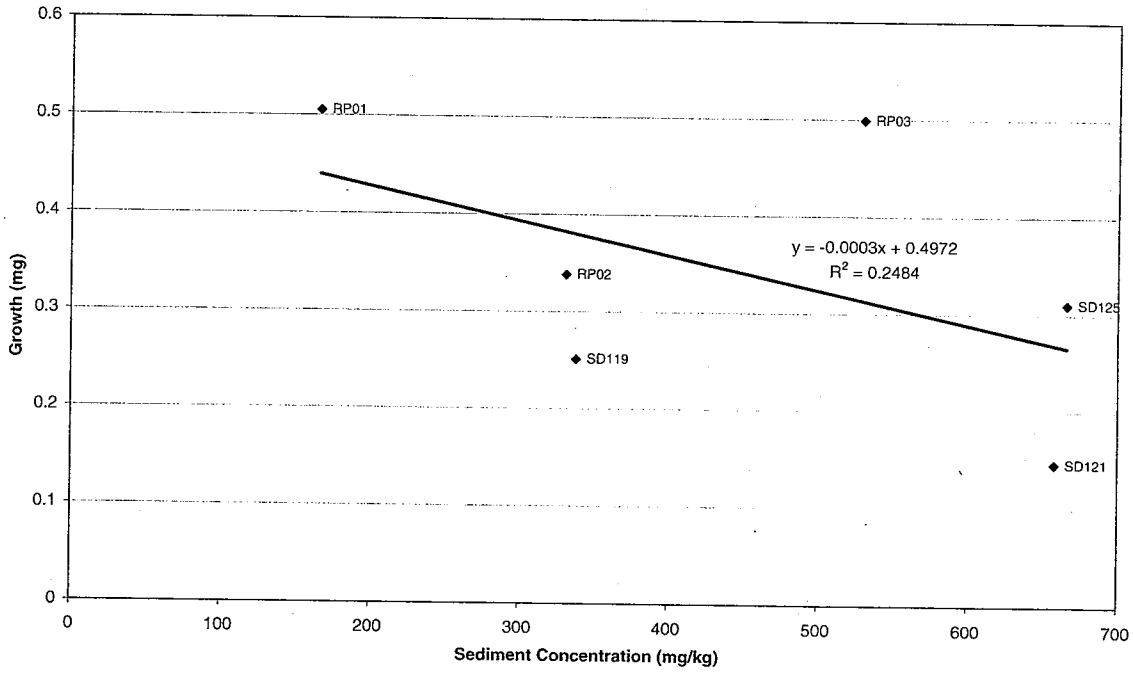
Concentration of Lead in Sediment vs Growth of Hyallella Azteca
Pond Samples



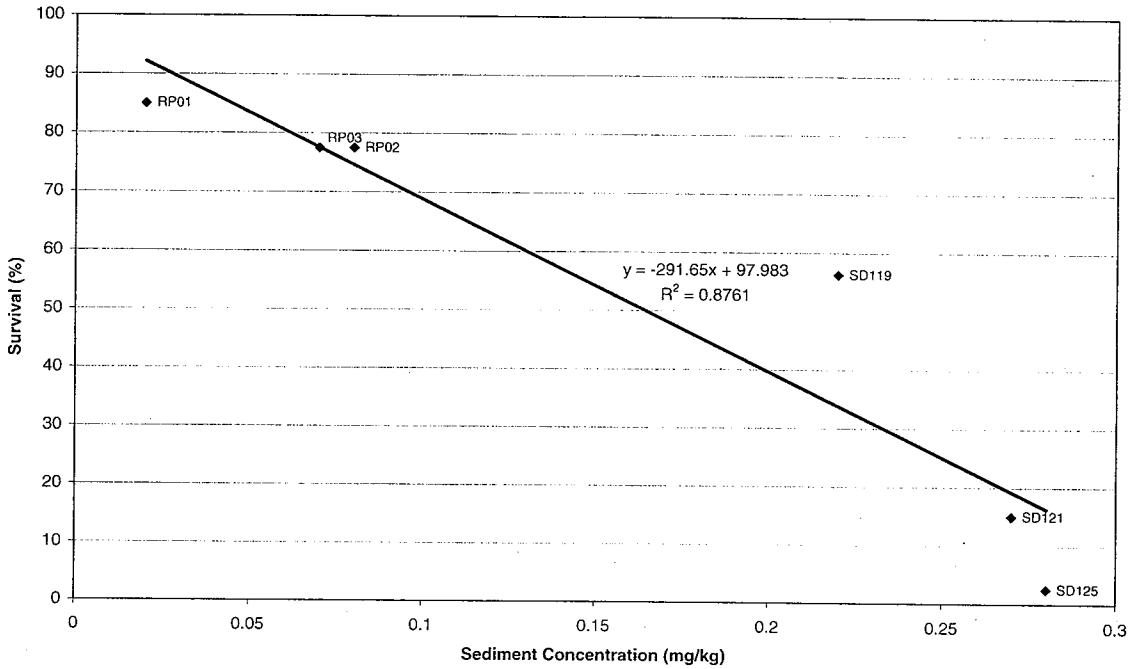
Concentration of Manganese in Sediment vs Survival of Hyallella Azteca
Pond Samples



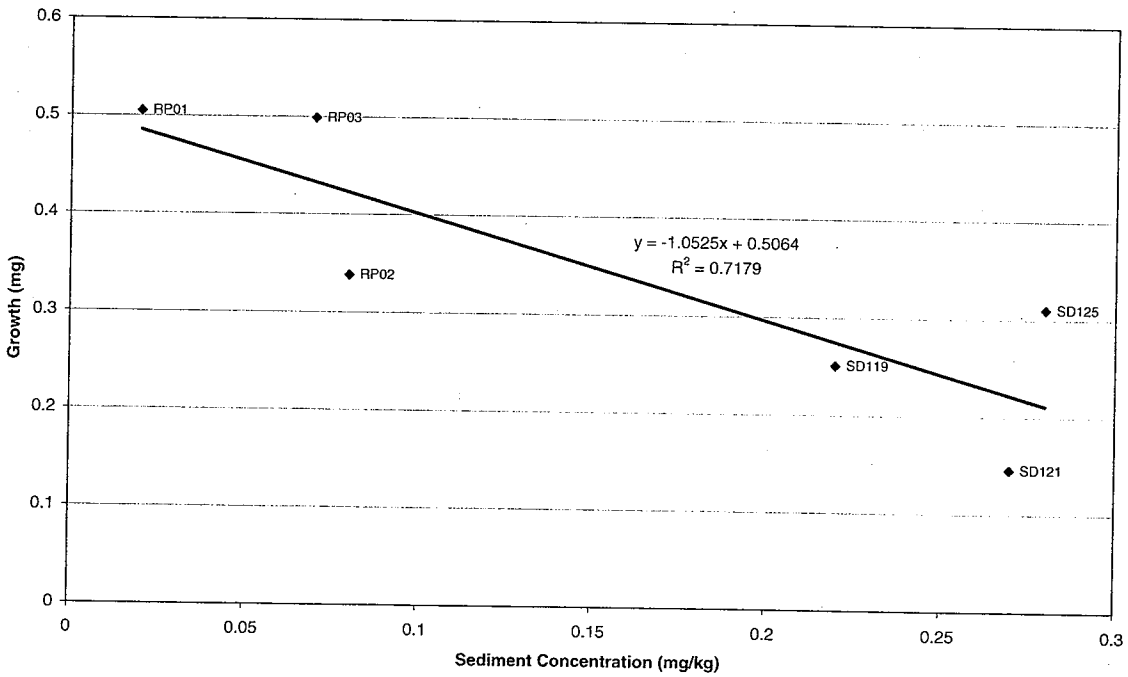
Concentration of Manganese in Sediment vs Growth of Hyallella Azteca
Pond Samples



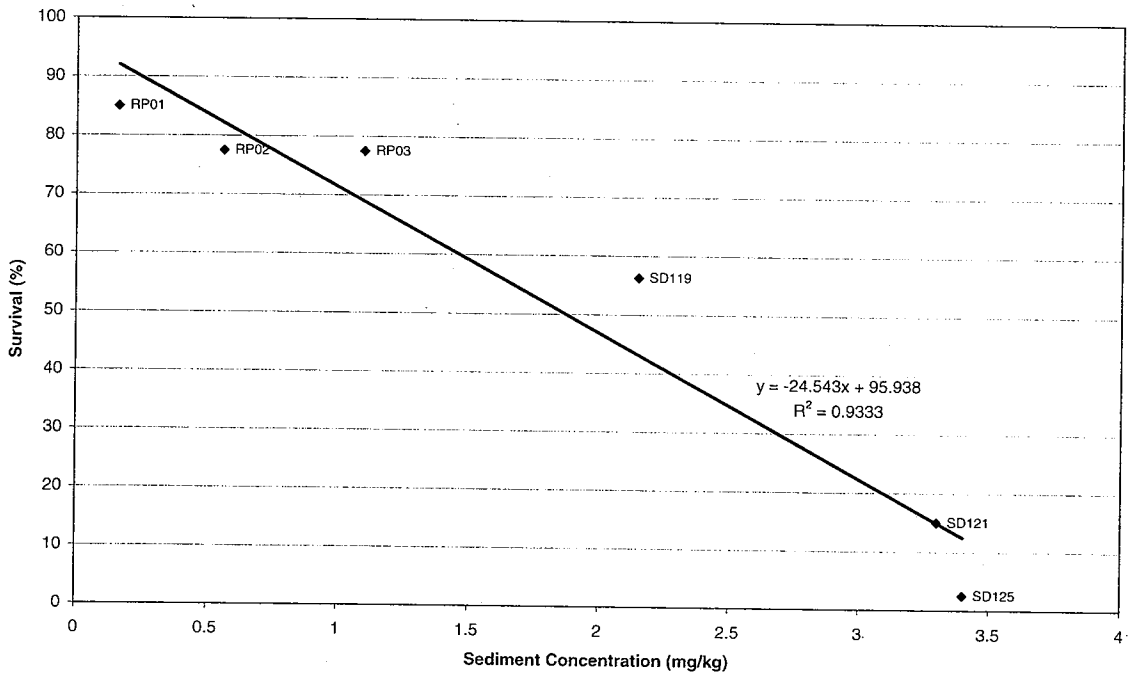
Concentration of Mercury in Sediment vs Survival of Hyallella Azteca
Pond Samples



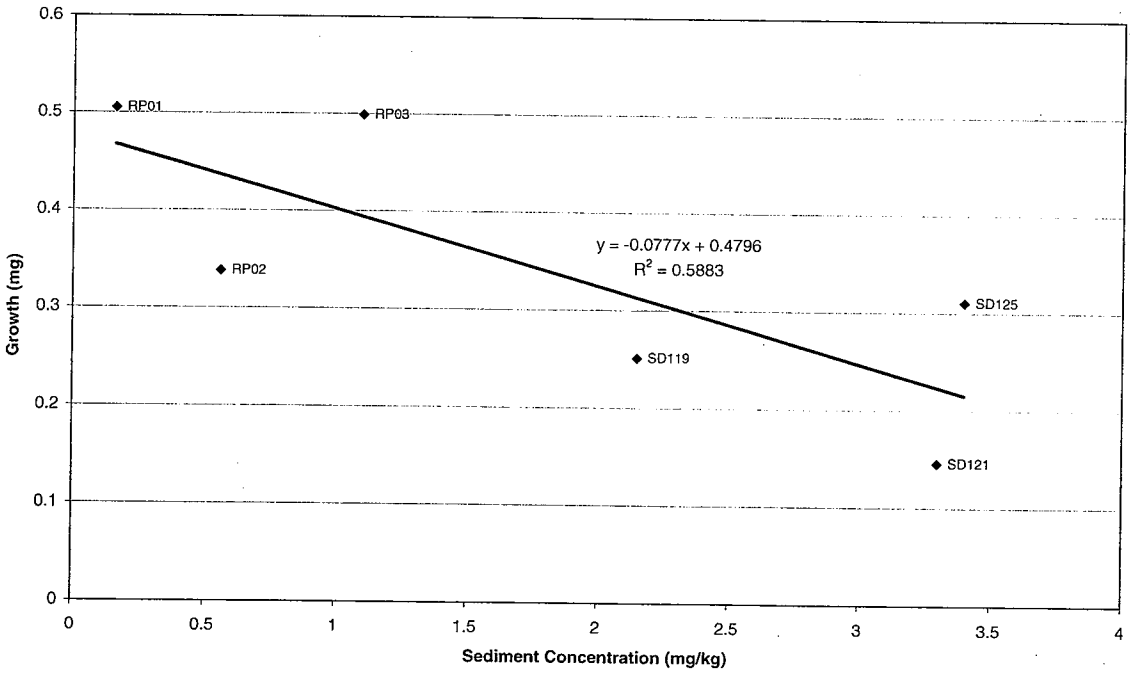
Concentration of Mercury in Sediment vs Growth of Hyallella Azteca
Pond Samples



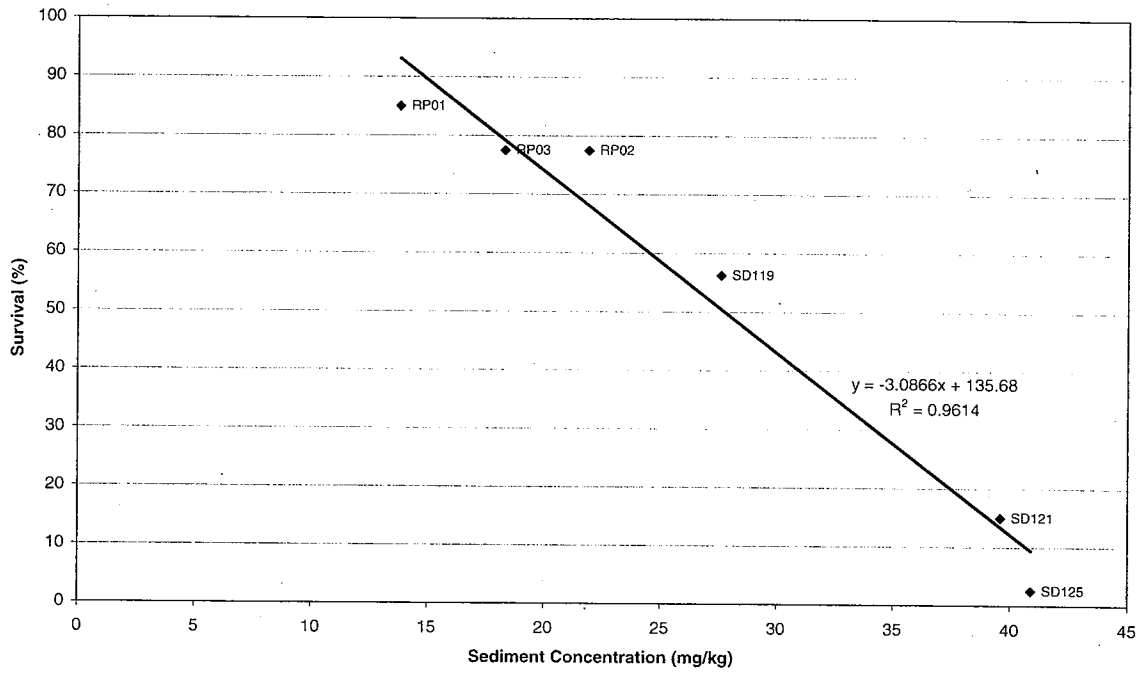
Concentration of Molybdenum in Sediment vs Survival of Hyallella Azteca Pond Samples



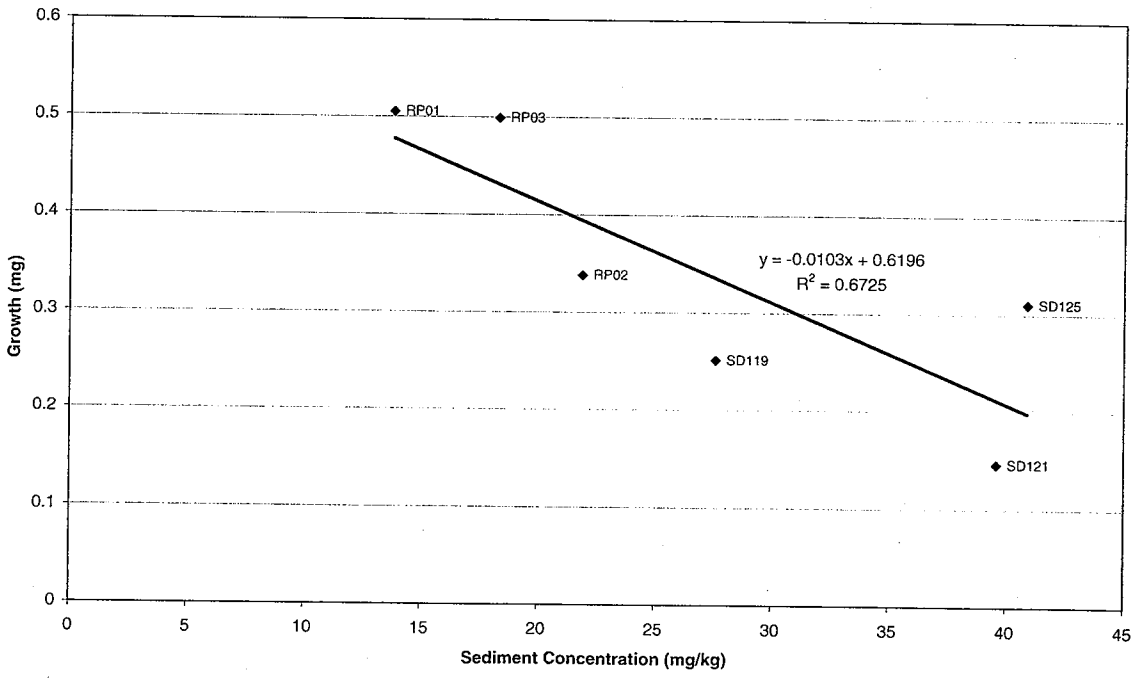
Concentration of Molybdenum in Sediment vs Growth of Hyallella Azteca Pond Samples



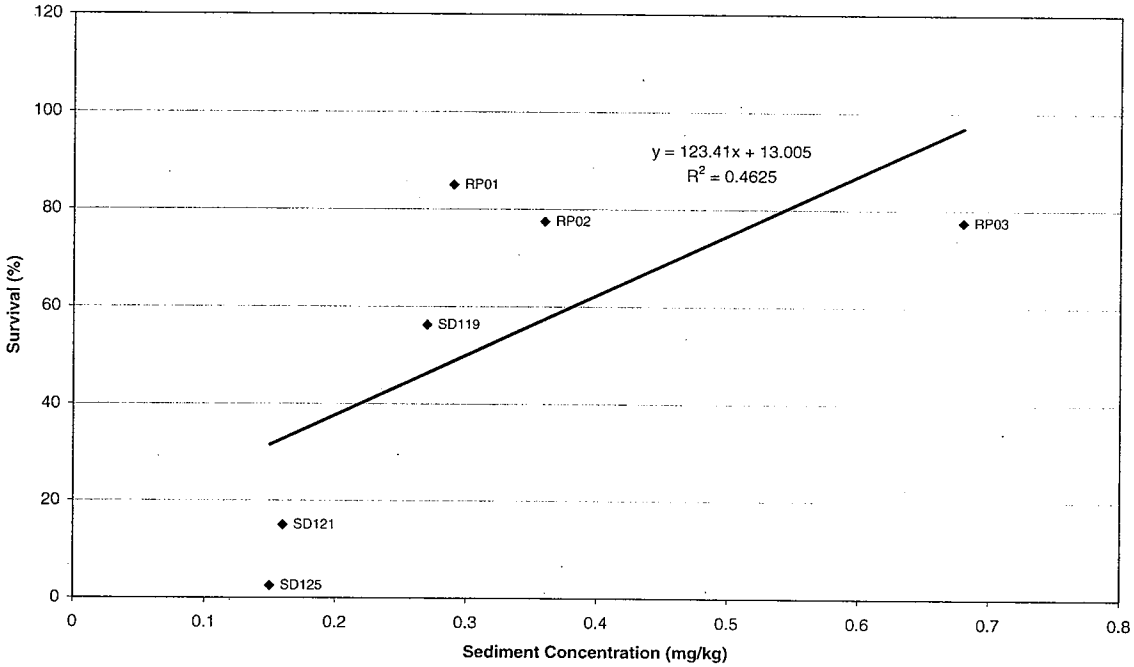
Concentration of Nickel in Sediment vs Survival of Hyallella Azteca
Pond Samples



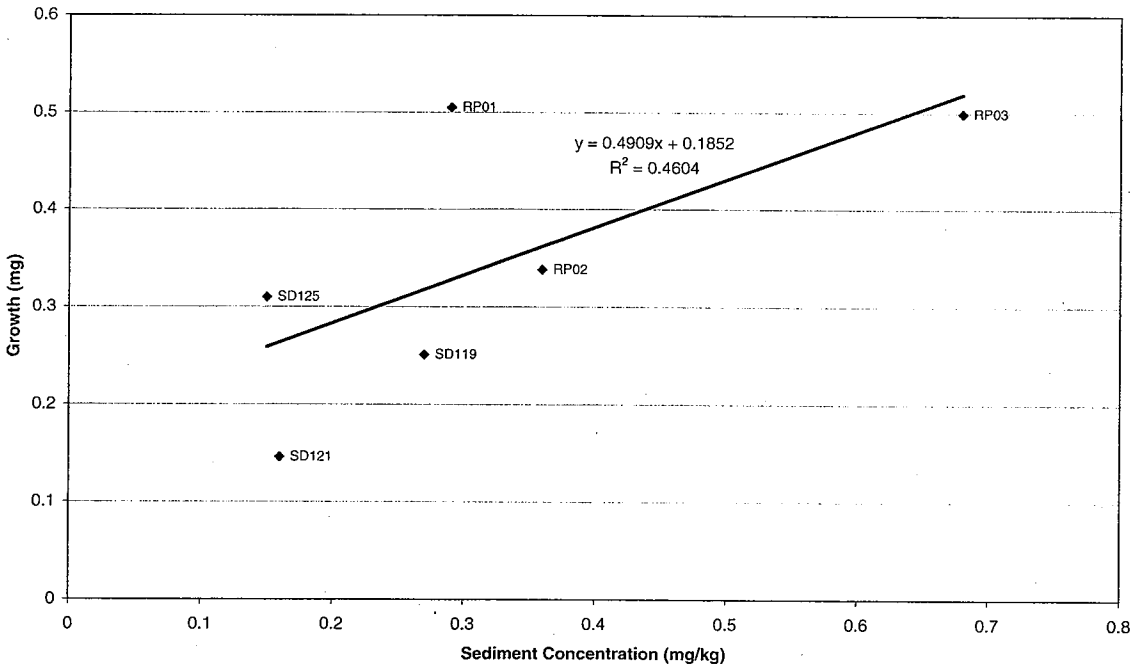
Concentration of Nickel in Sediment vs Growth of Hyallella Azteca
Pond Samples



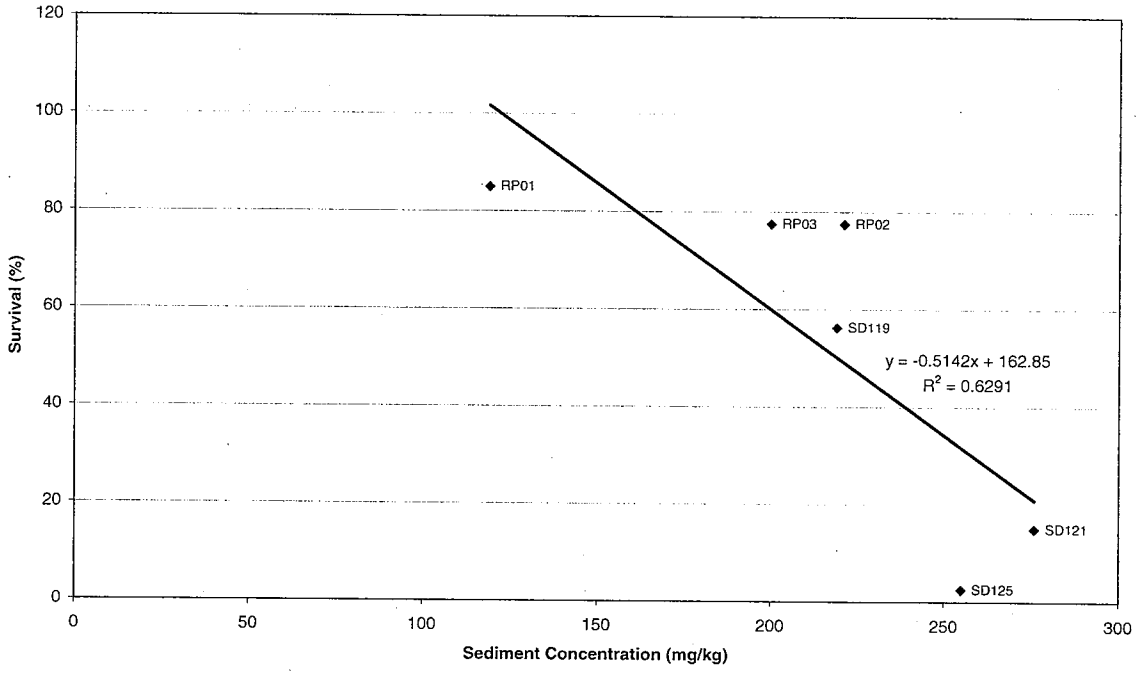
Concentration of Silver in Sediment vs Survival of Hyallella Azteca
Pond Samples



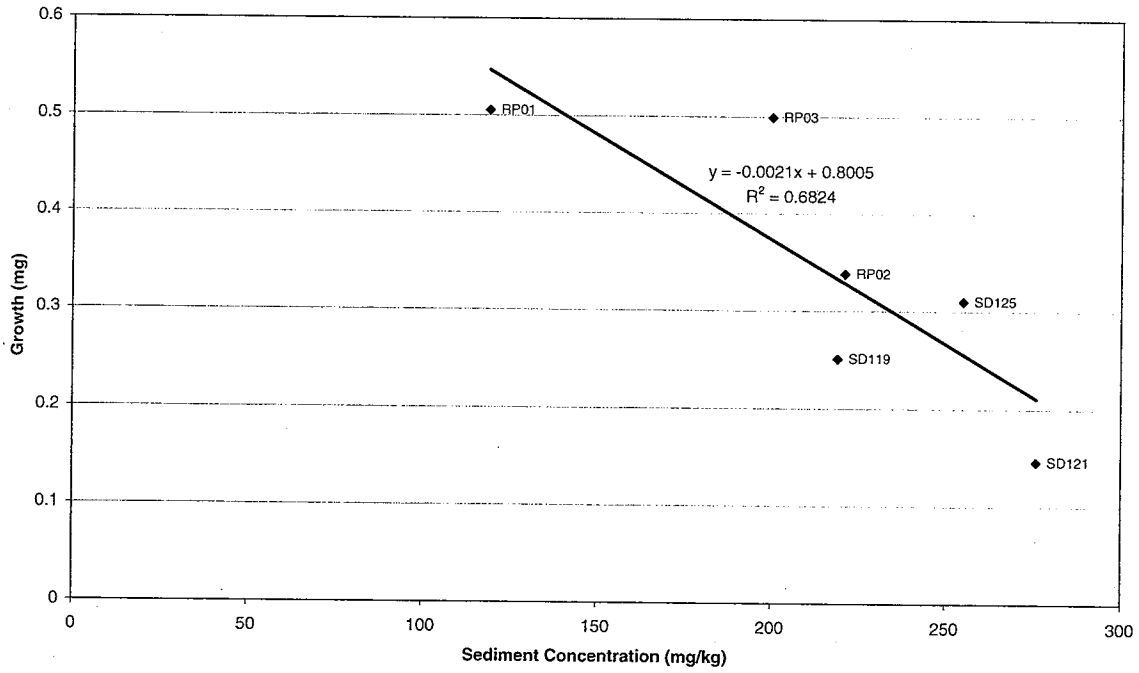
Concentration of Silver in Sediment vs Growth of Hyallella Azteca
Pond Samples



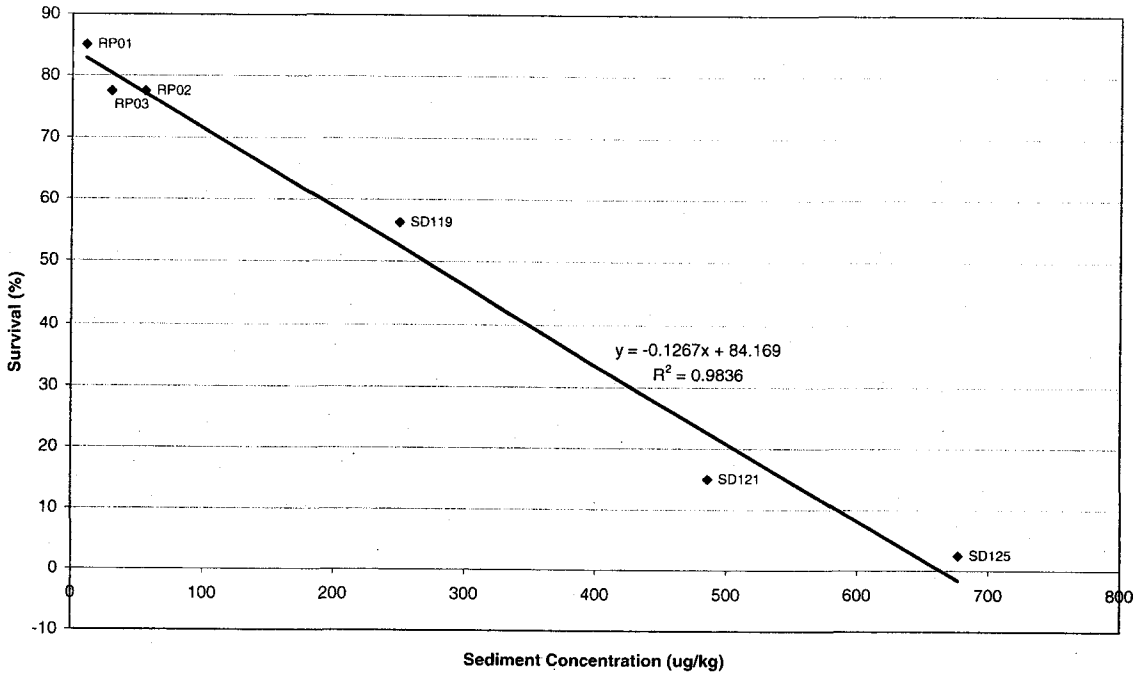
Concentration of Zinc in Sediment vs Survival of Hyallella Azteca
Pond Samples



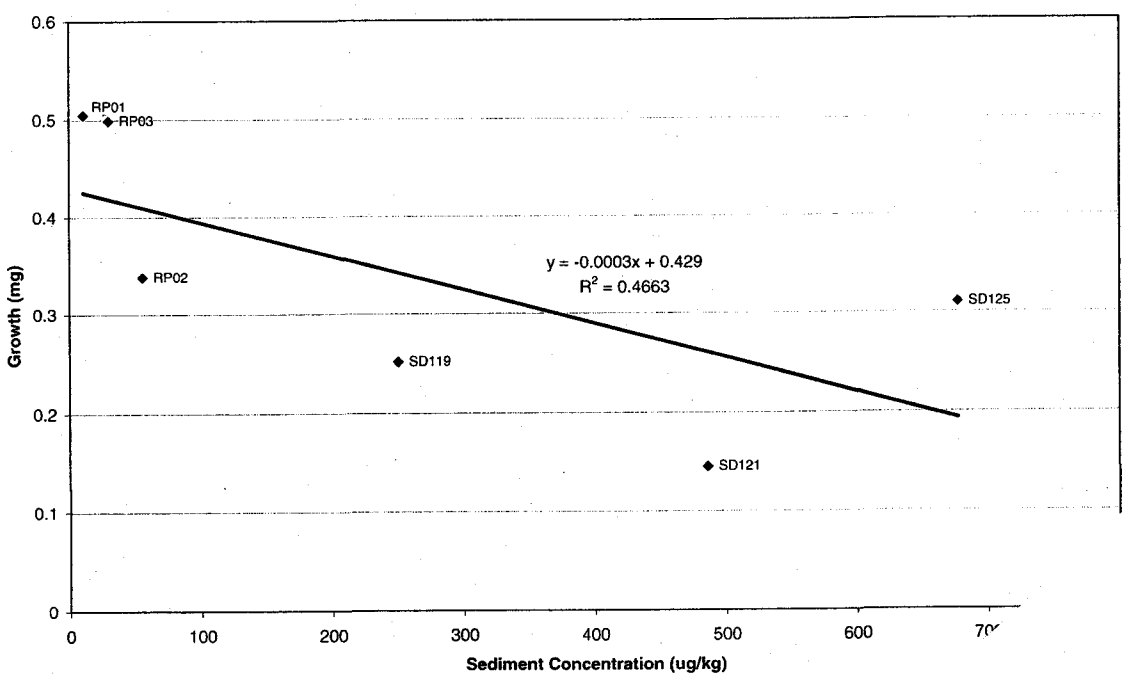
Concentration of Zinc in Sediment vs Growth of Hyallella Azteca
Pond Samples



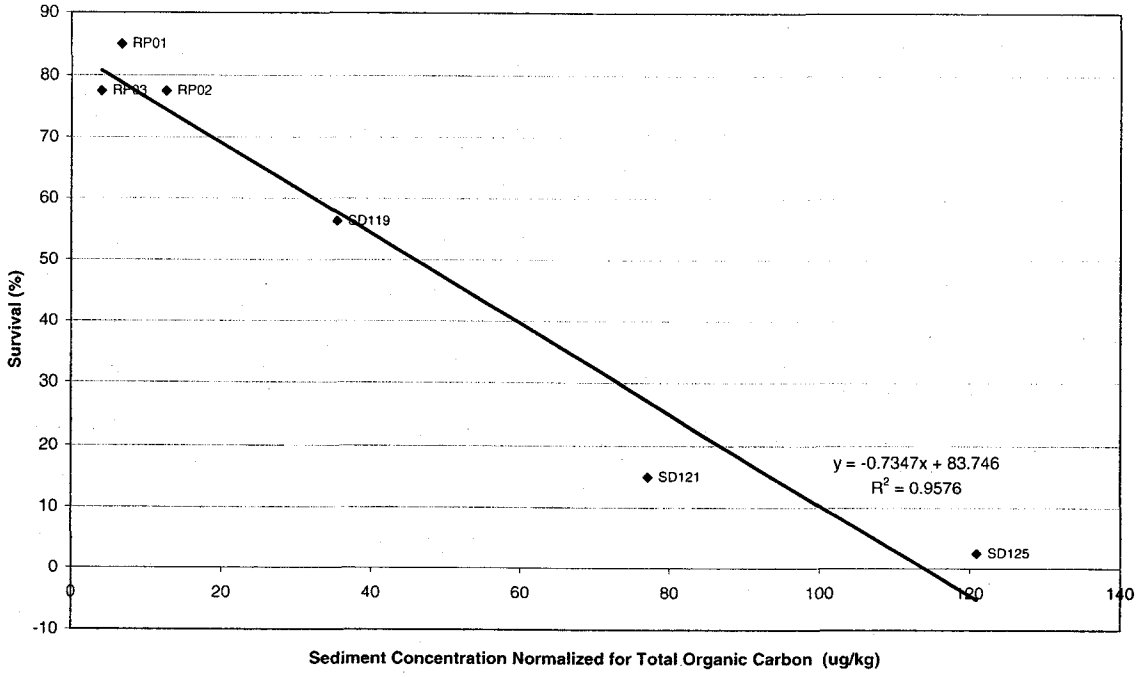
Concentration of Total DDD, DDE, DDT in Sediment vs Survival of Hyallella Azteca Pond Samples



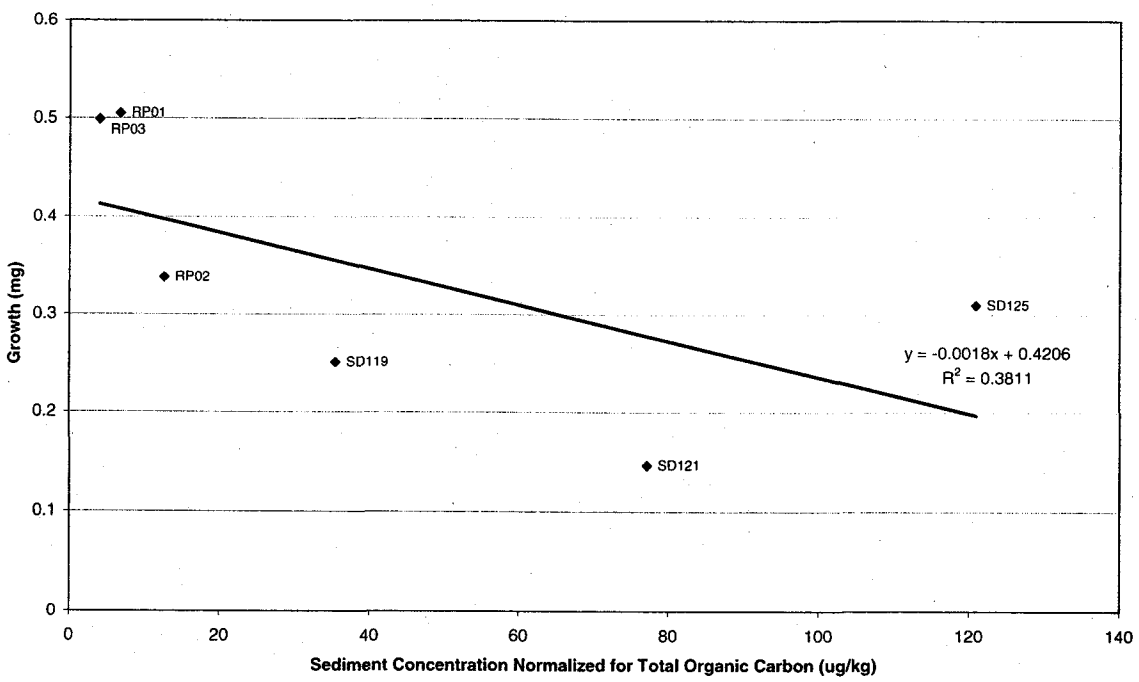
Concentration of Total DDD, DDE, DDT in Sediment vs Growth of Hyallella Azteca Pond Samples



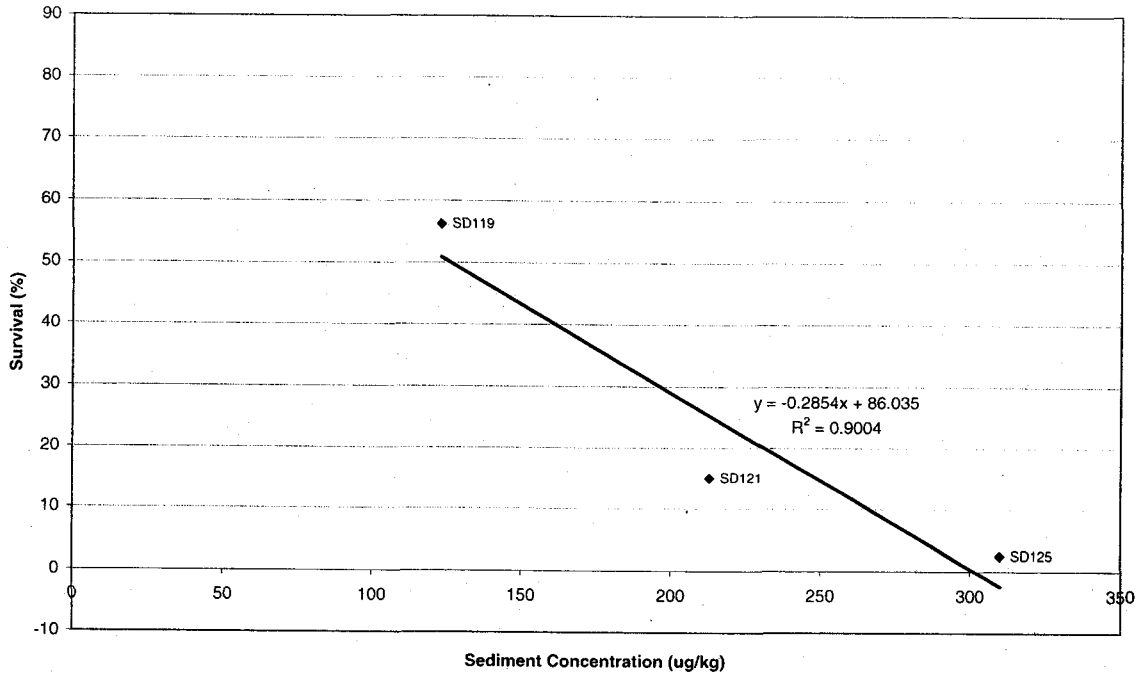
Normalized Concentration of Total DDD, DDE, DDT in Sediment vs Survival of Hyallella Azteca Pond Samples



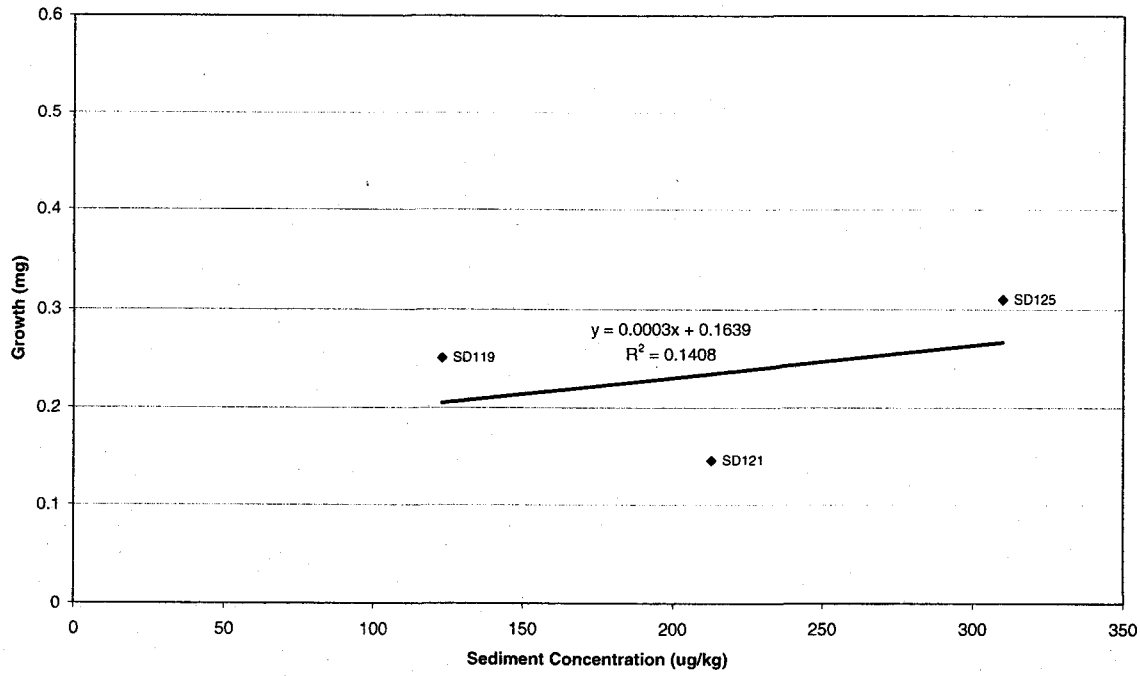
Normalized Concentration of Total DDD, DDE, DDT in Sediment vs Growth of Hyallella Azteca Pond Samples



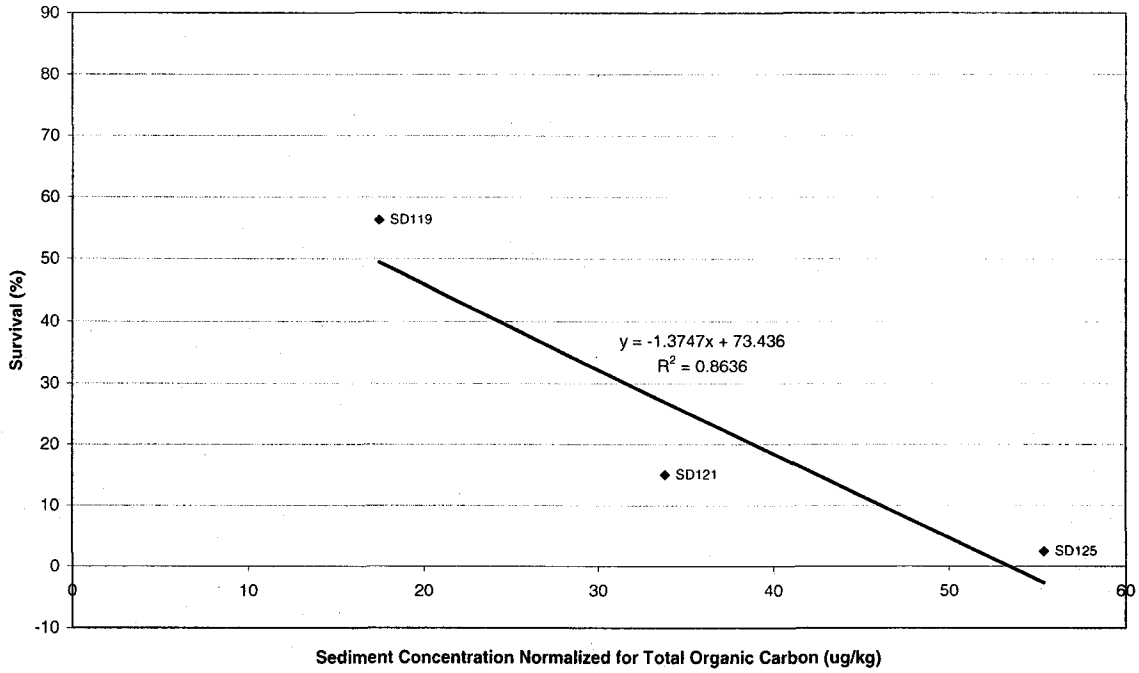
Concentration of Total Chlordane in Sediment vs Survival of Hyallella Azteca
Pond Samples



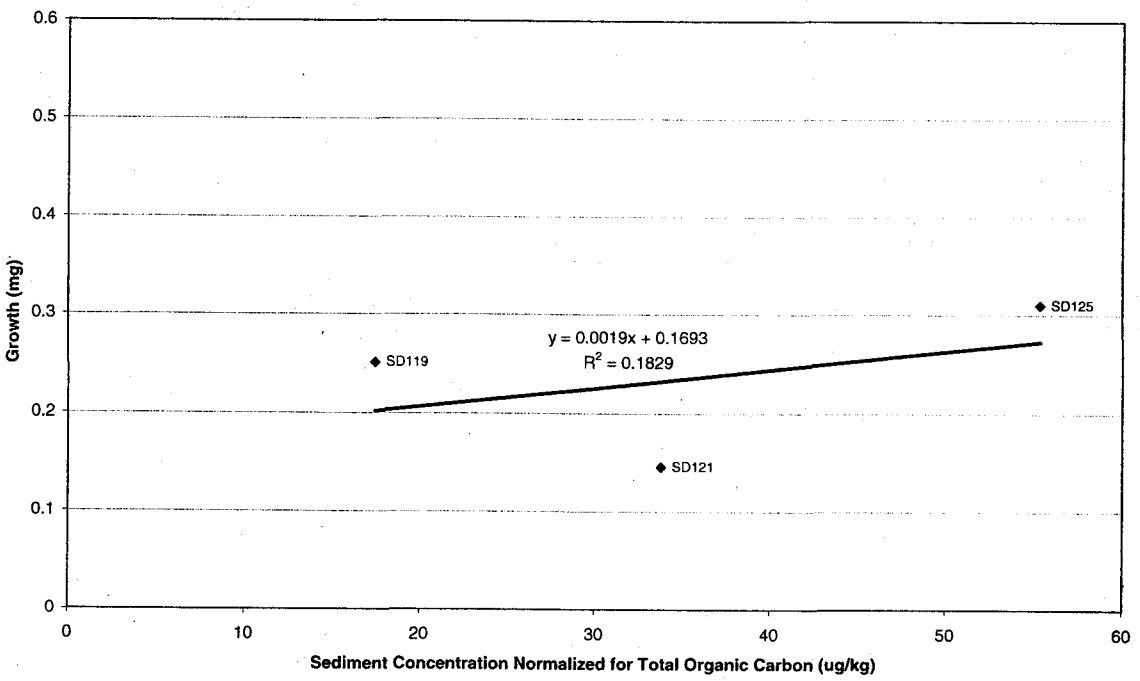
Concentration of Total Chlordane in Sediment vs Growth of Hyallella Azteca
Pond Samples



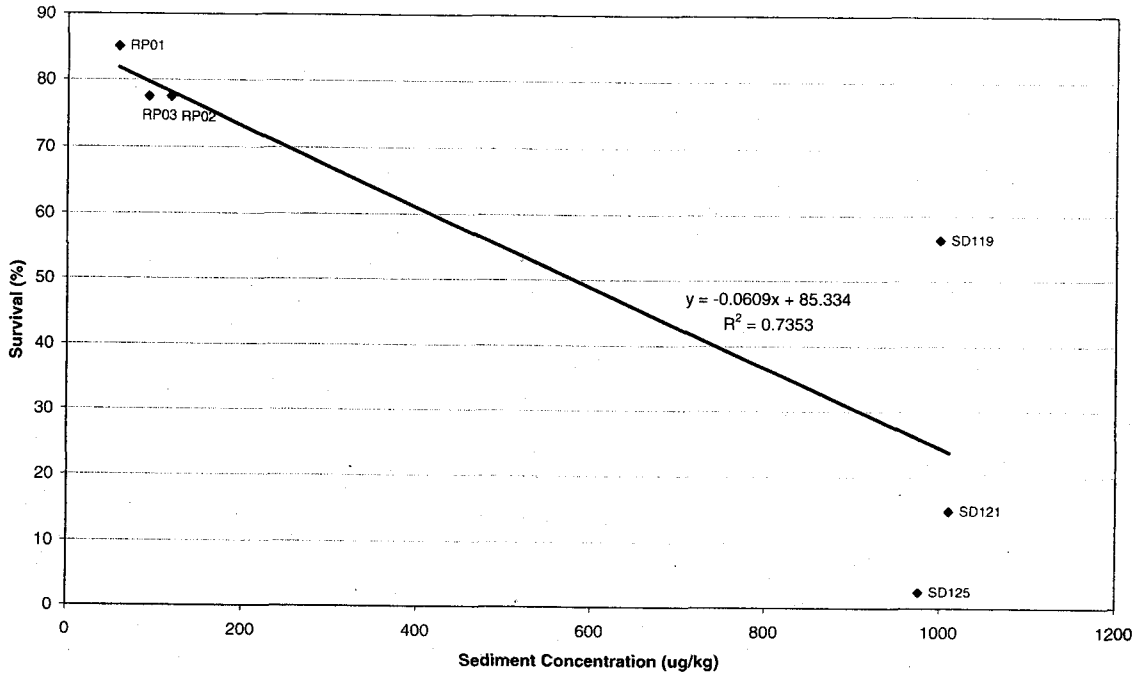
Normalized Concentration of Total Chlordane in Sediment vs Survival of Hyallella Azteca Pond Samples



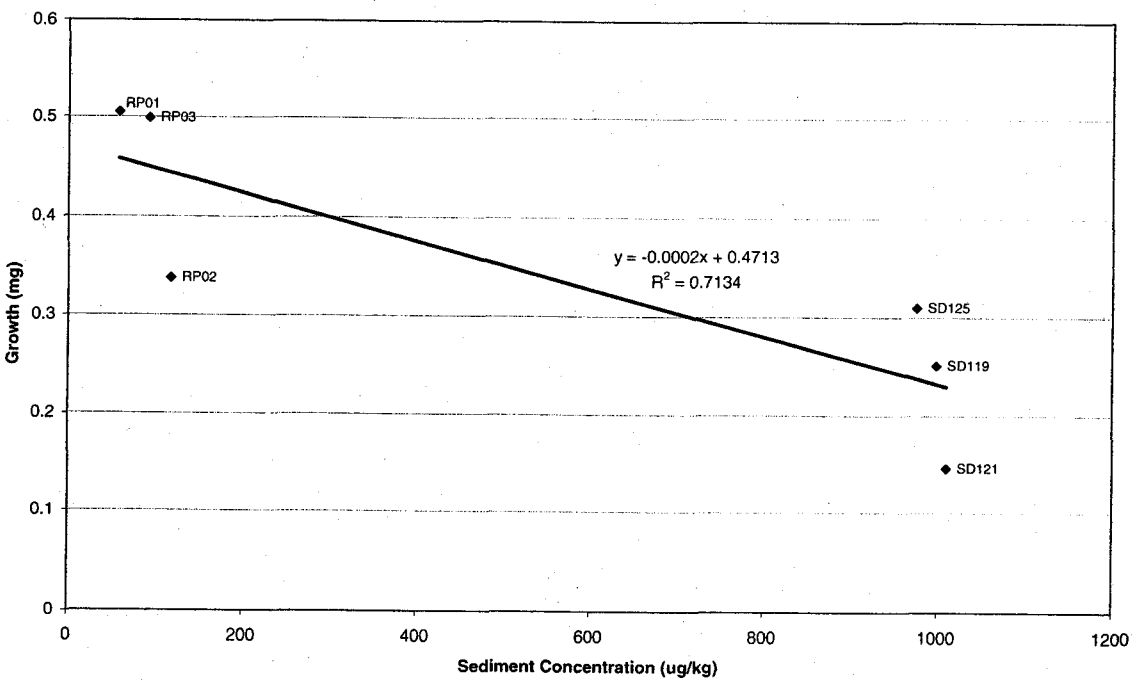
Normalized Concentration of Total Chlordane in Sediment vs Growth of Hyallella Azteca Pond Samples



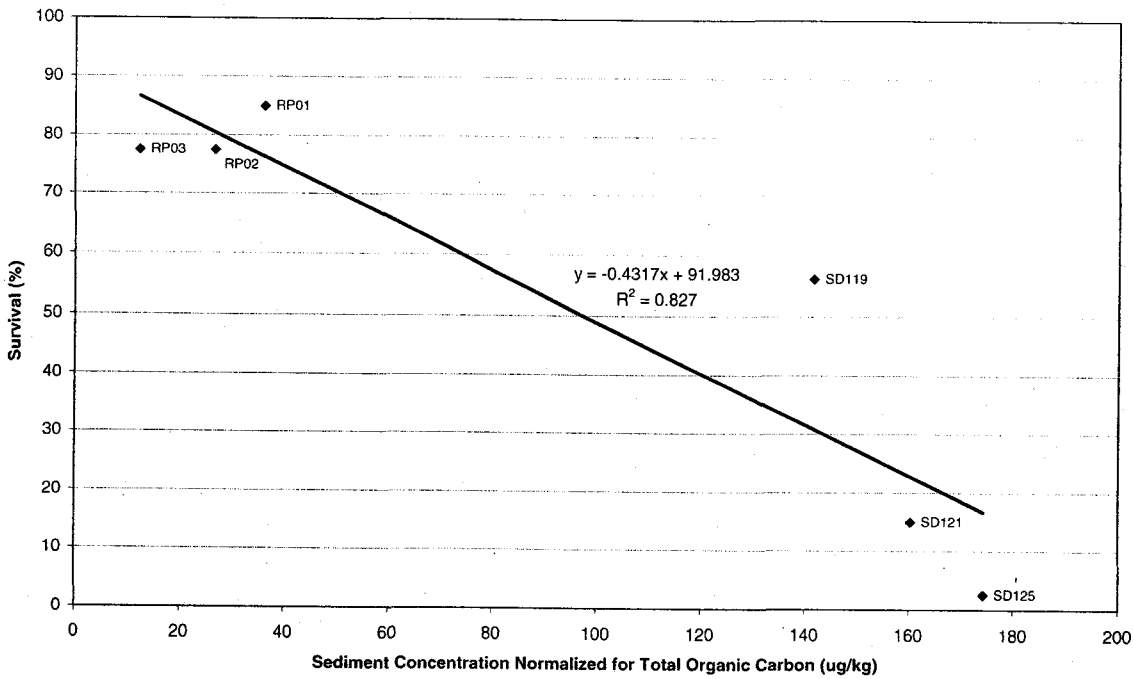
Concentration of LMW PAHs in Sediment vs Survival of Hyallella Azteca
Pond Samples



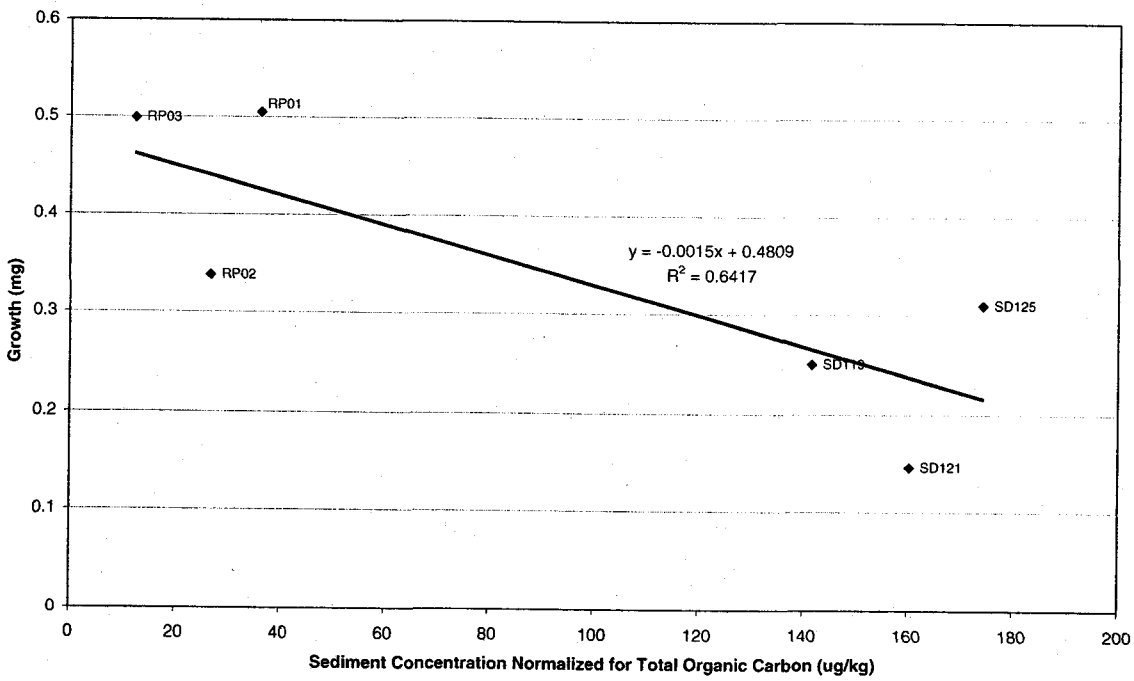
Concentration of LMW PAHs in Sediment vs Growth of Hyallella Azteca
Pond Samples



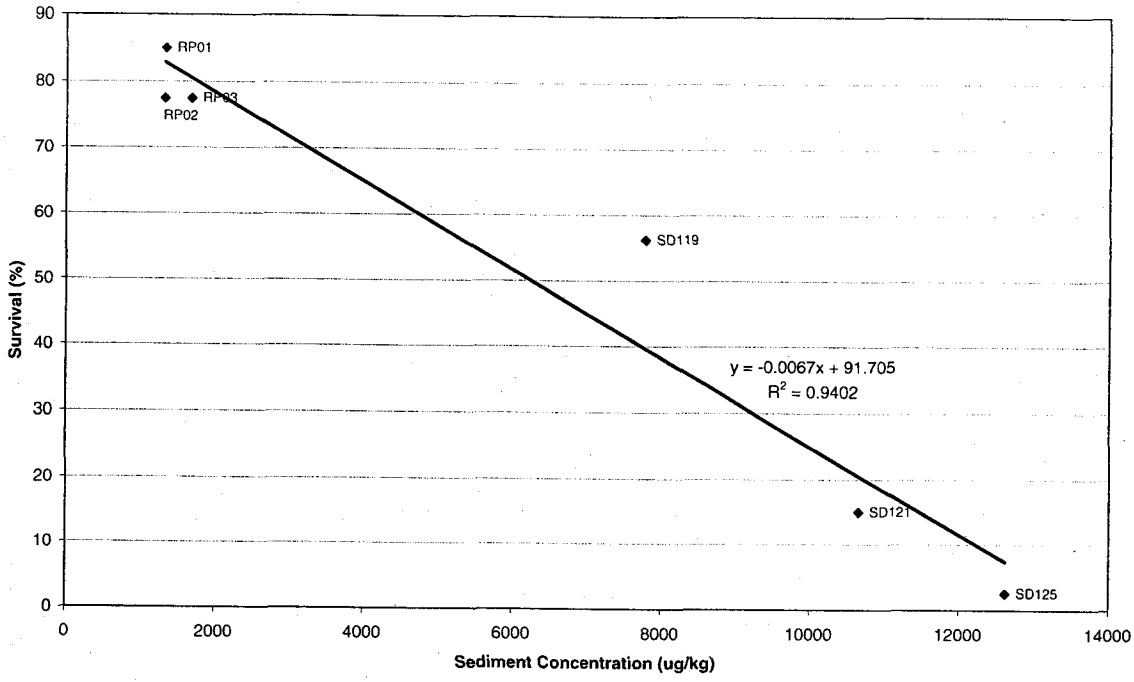
Normalized Concentration of LMW PAHs in Sediment vs Survival of Hyallella Azteca Pond Samples



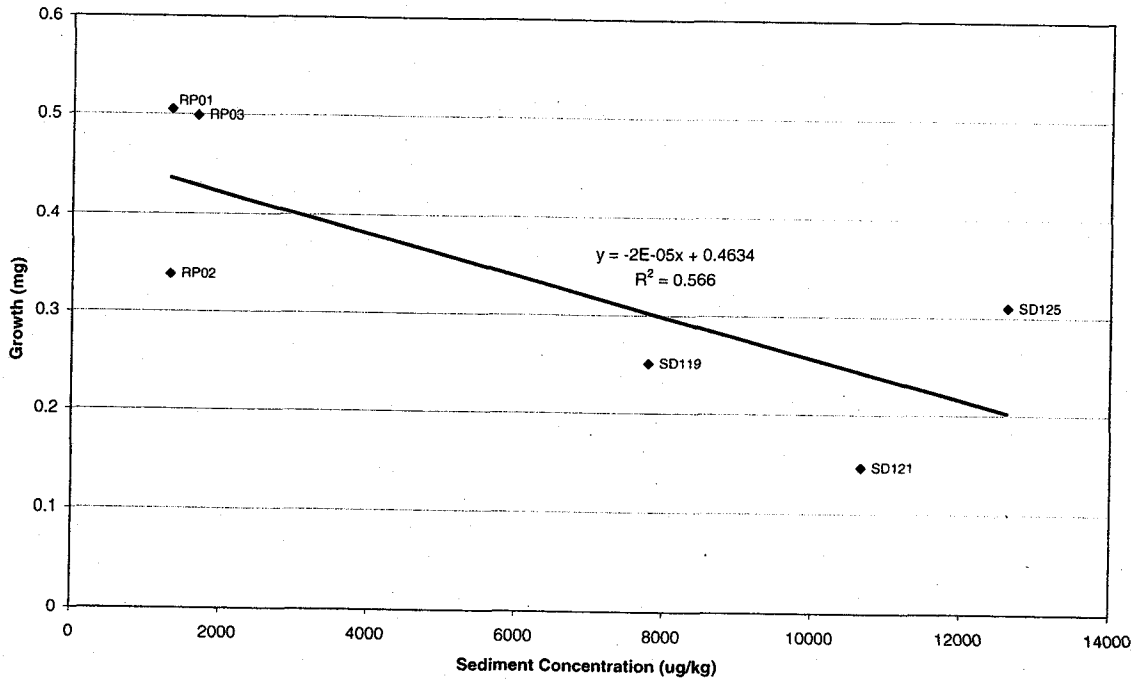
Normalized Concentration of LMW PAHs in Sediment vs Growth of Hyallella Azteca Pond Samples



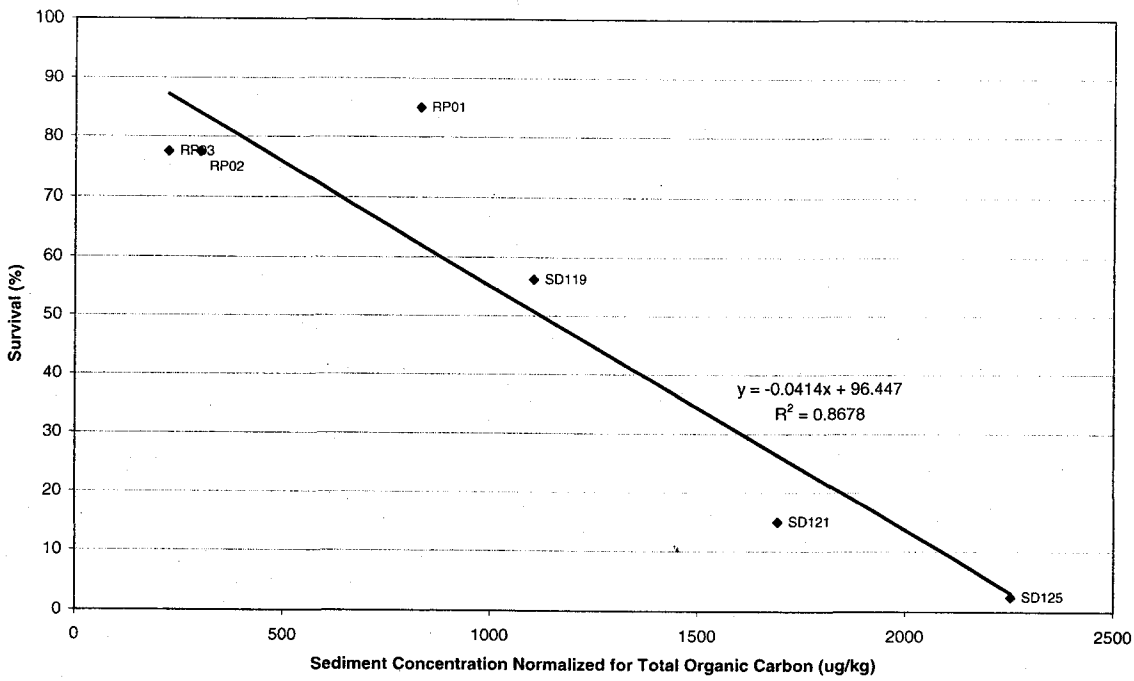
Concentration of HMW PAHs in Sediment vs Survival of Hyallella Azteca Pond Samples



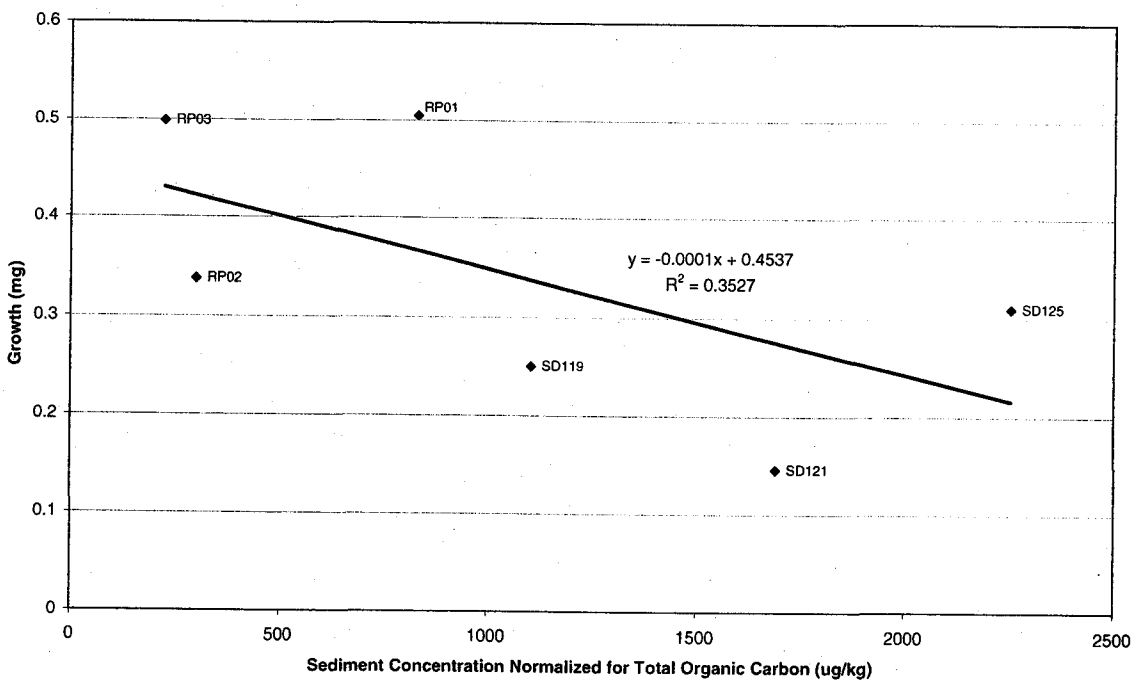
Concentration of HMW PAHs in Sediment vs Growth of Hyallella Azteca Pond Samples



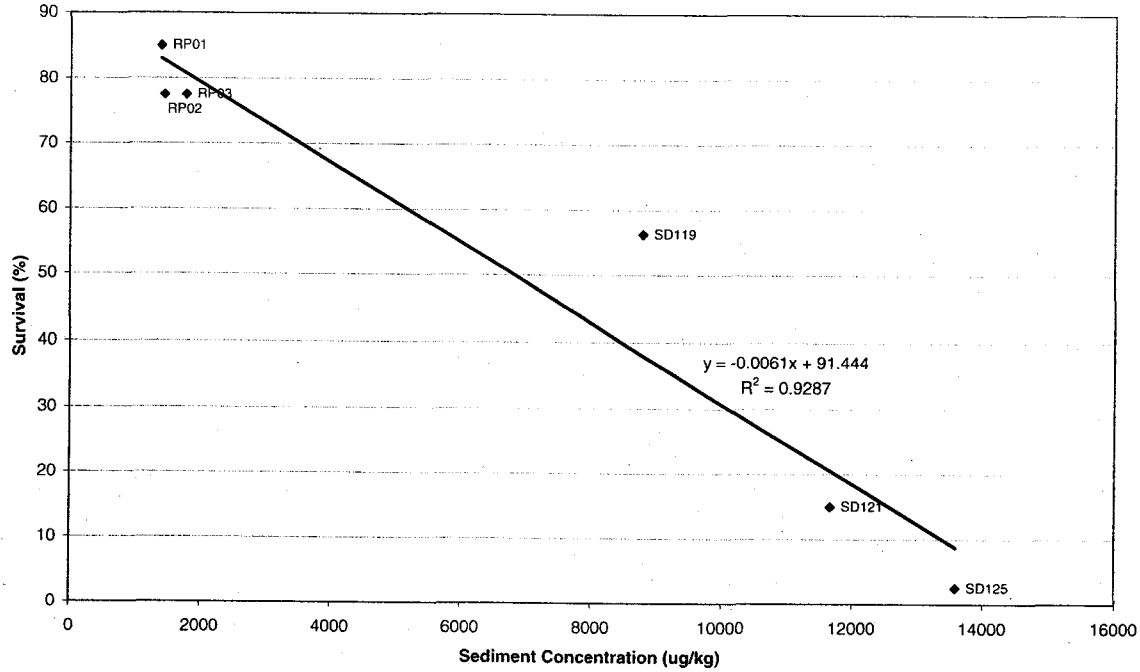
Normalized Concentration of HMW PAHs in Sediment vs Survival of Hyallella Azteca Pond Samples



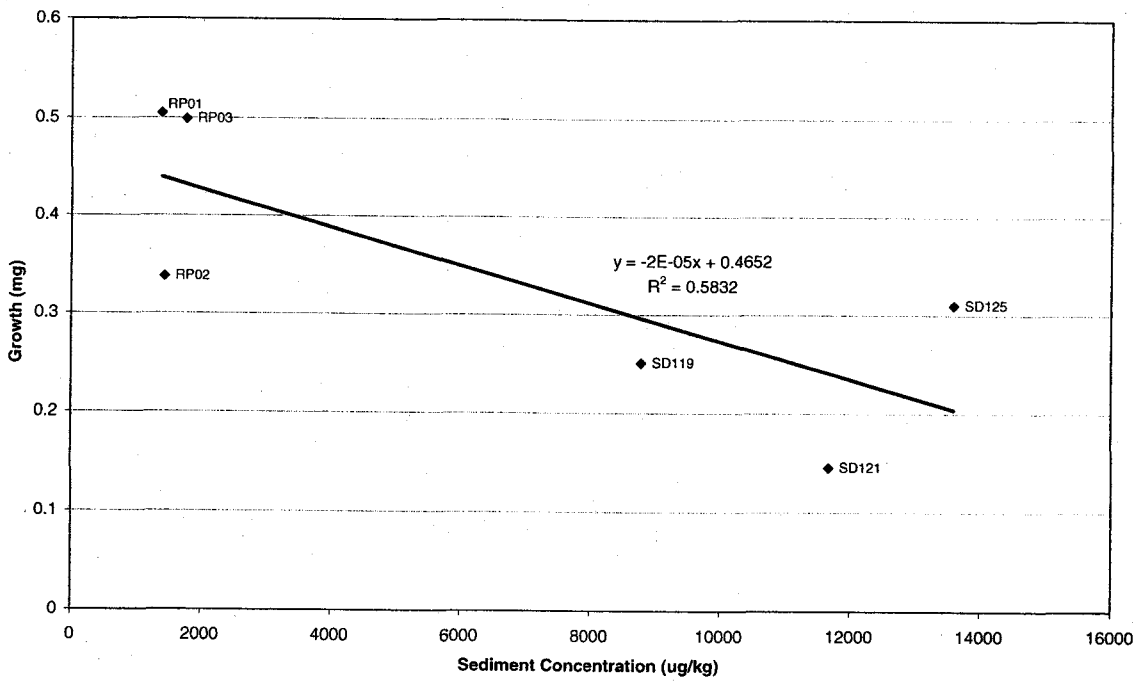
Normalized Concentration of HMW PAHs in Sediment vs Growth of Hyallella Azteca Pond Samples



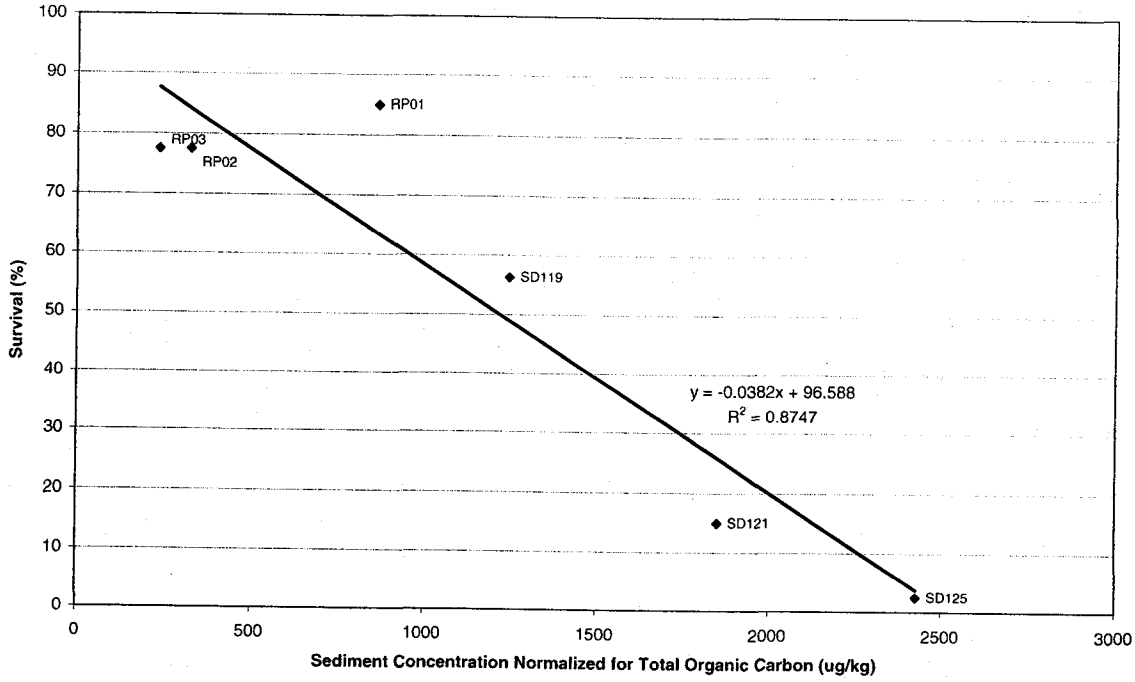
Concentration of Total PAHs in sediment vs Survival of Hyallella Azteca
Pond Samples



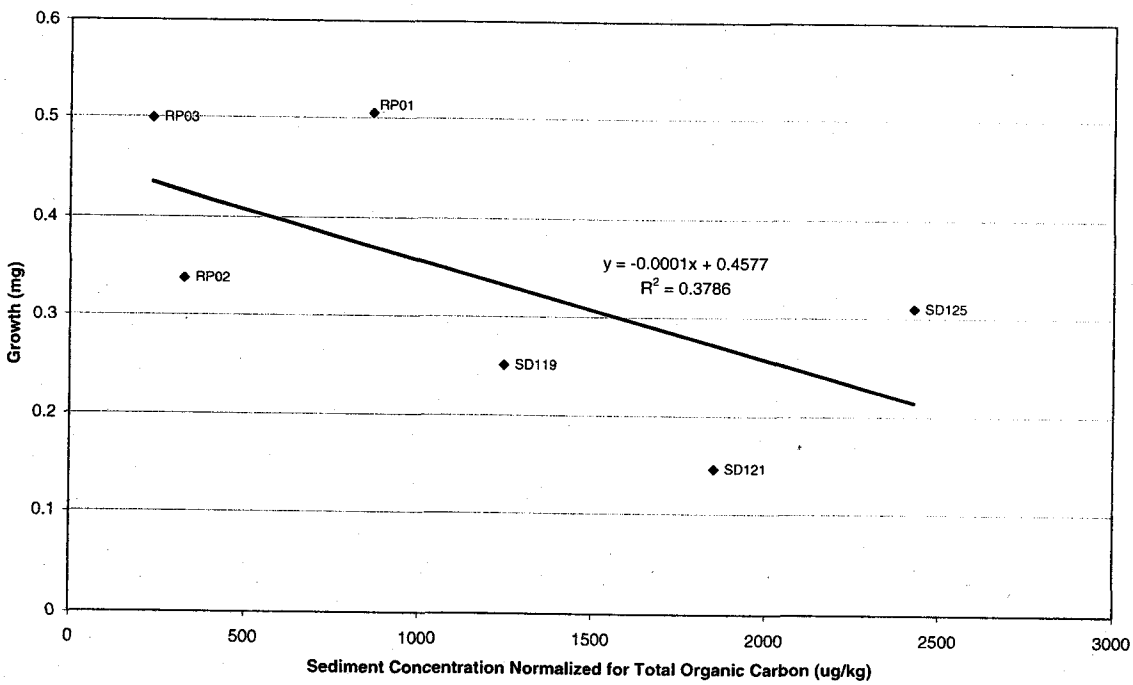
Concentration of Total PAHs in Sediment vs Growth of Hyallella Azteca
Pond Samples



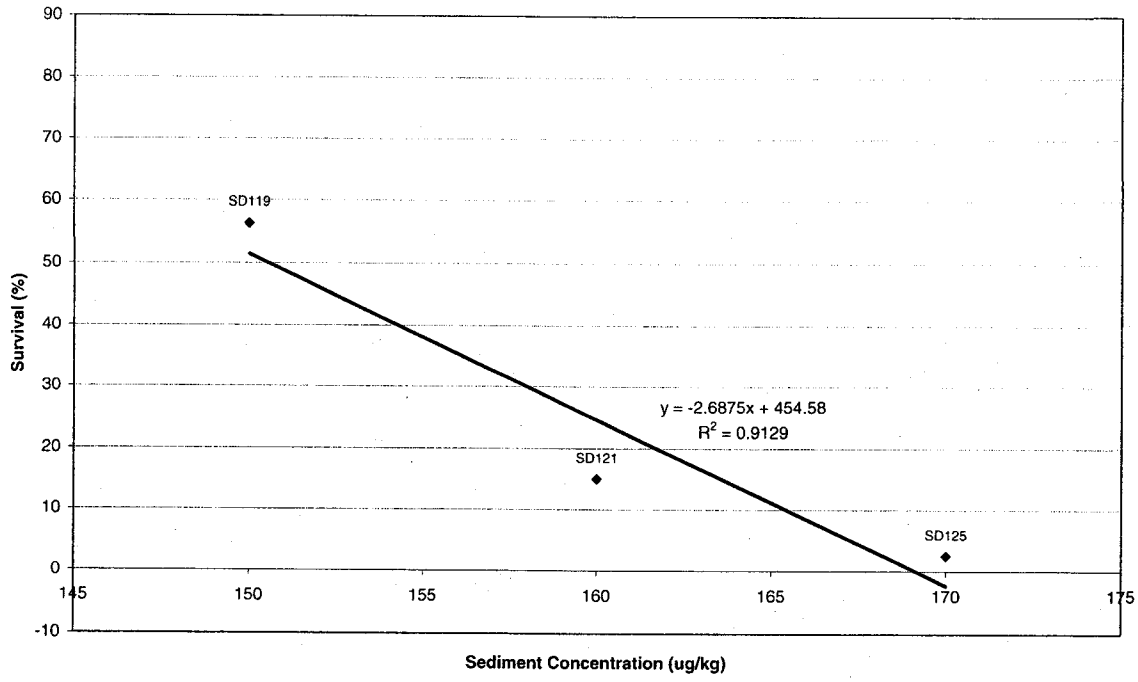
Normalized Concentration of Total PAHs in sediment vs Survival of Hyallella Azteca Pond Samples



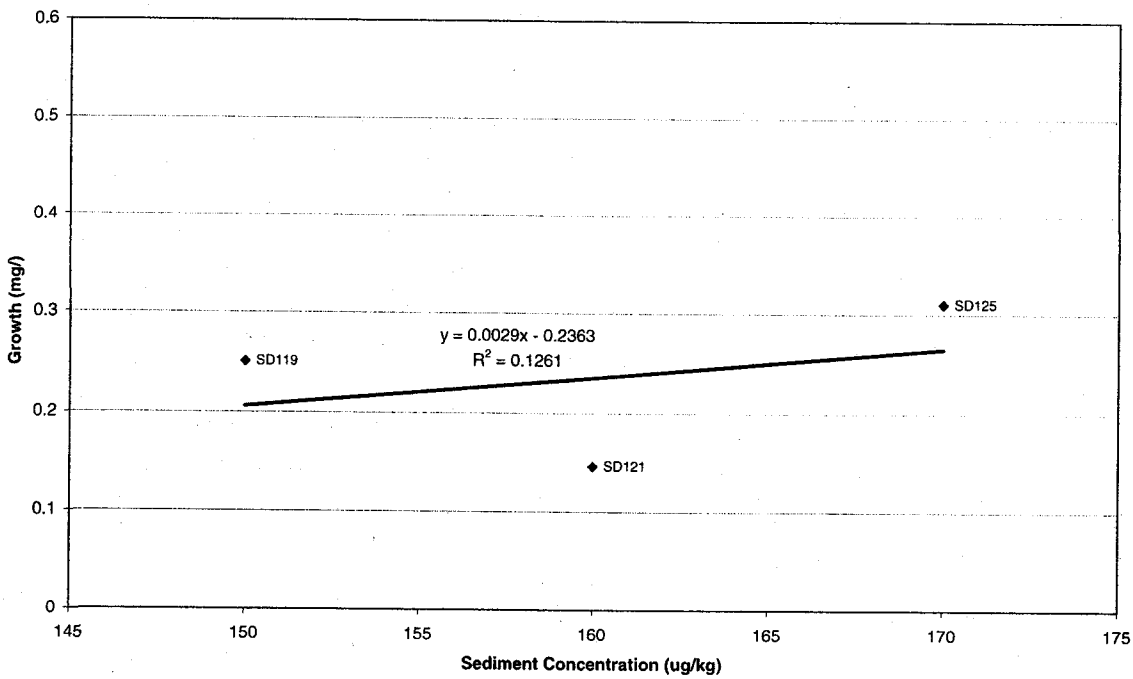
Normalized Concentration of Total PAHs in Sediment vs Growth of Hyallella Azteca Pond Samples



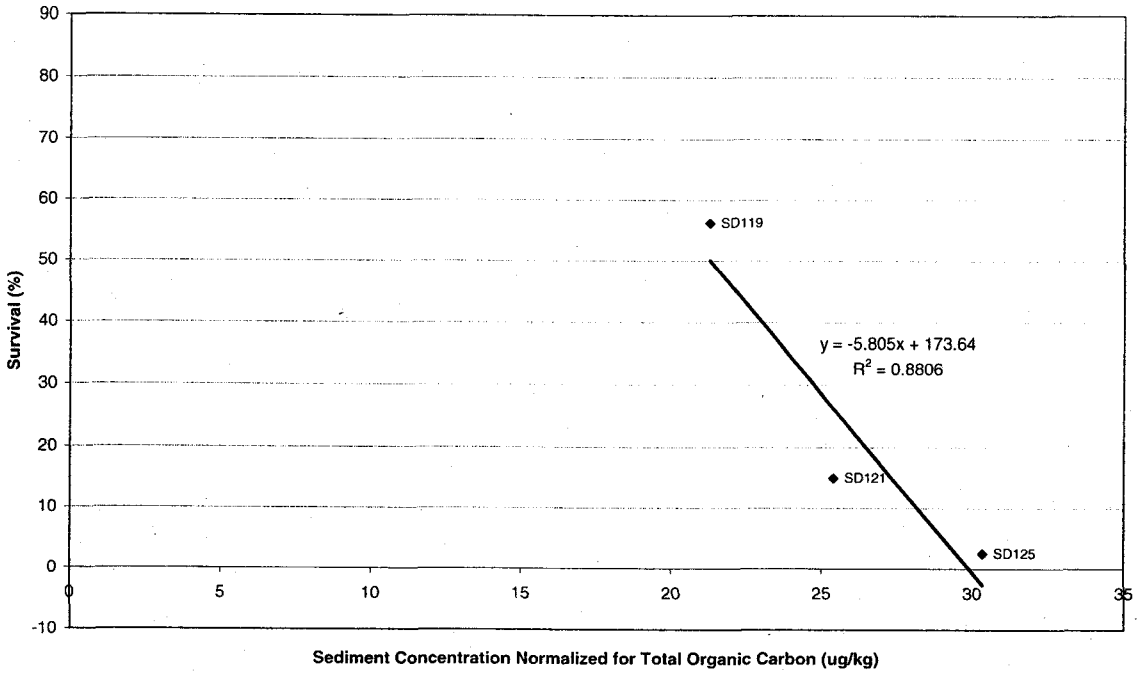
Concentration of Total PCBs in Sediment vs Survival of Hyallella Azteca Pond Samples



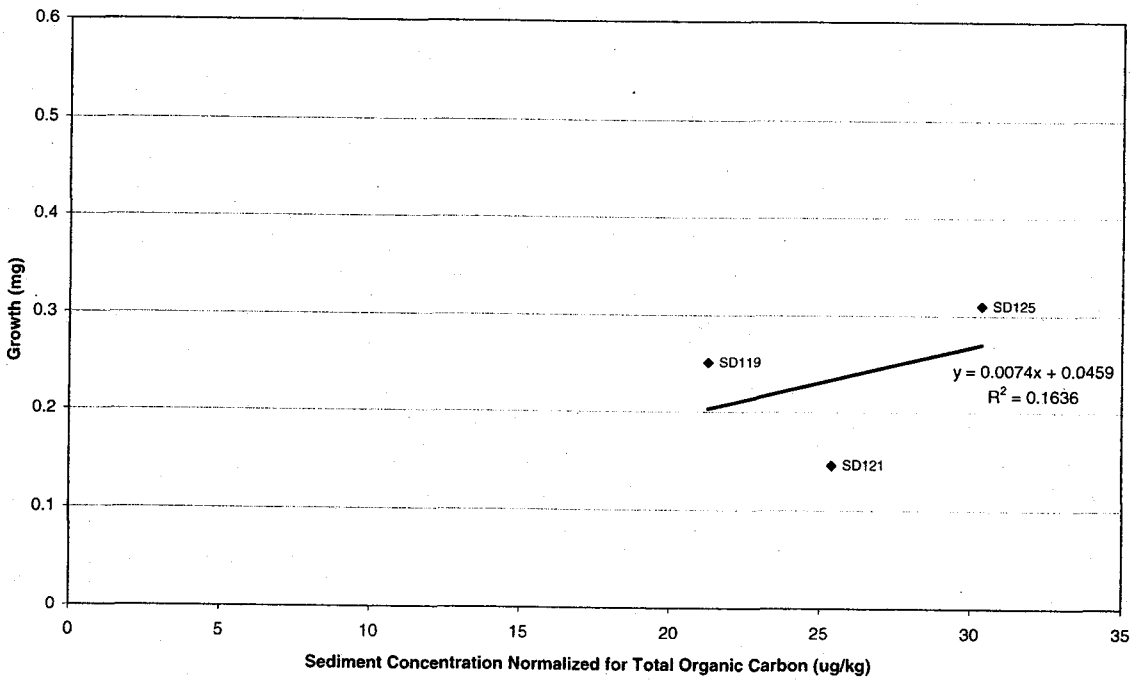
Concentration of Total PCBs in Sediment vs Growth of Hyallella Azteca Pond Samples



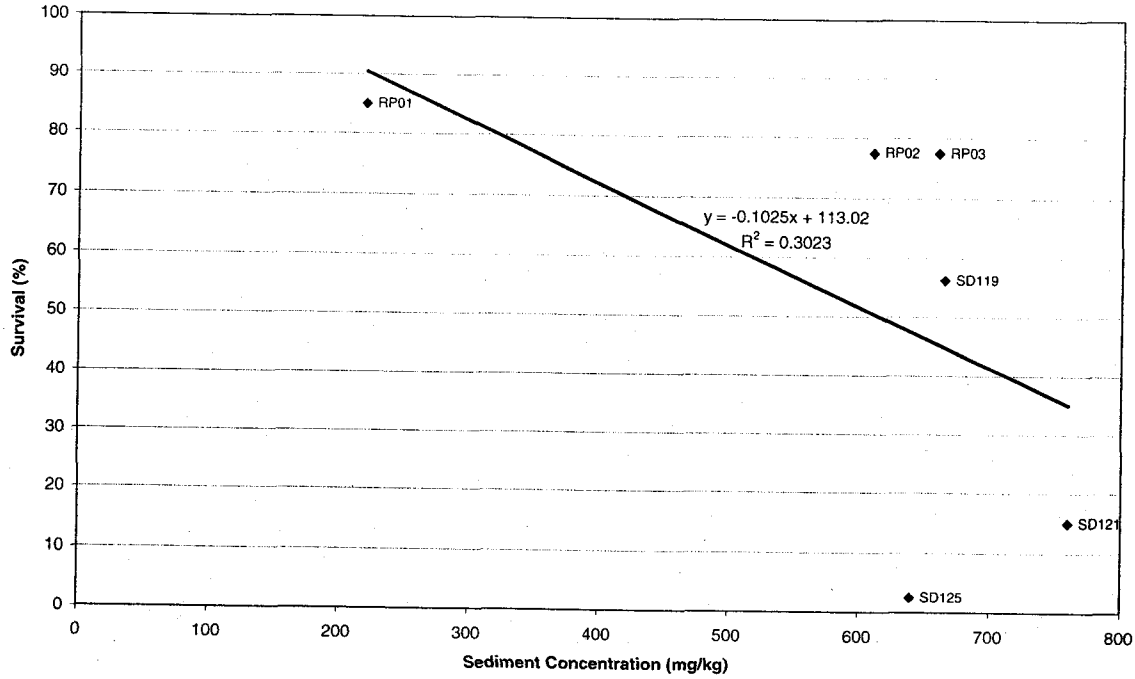
Normalized Concentration of Total PCBs in Sediment vs Survival of Hyallella Azteca Pond Samples



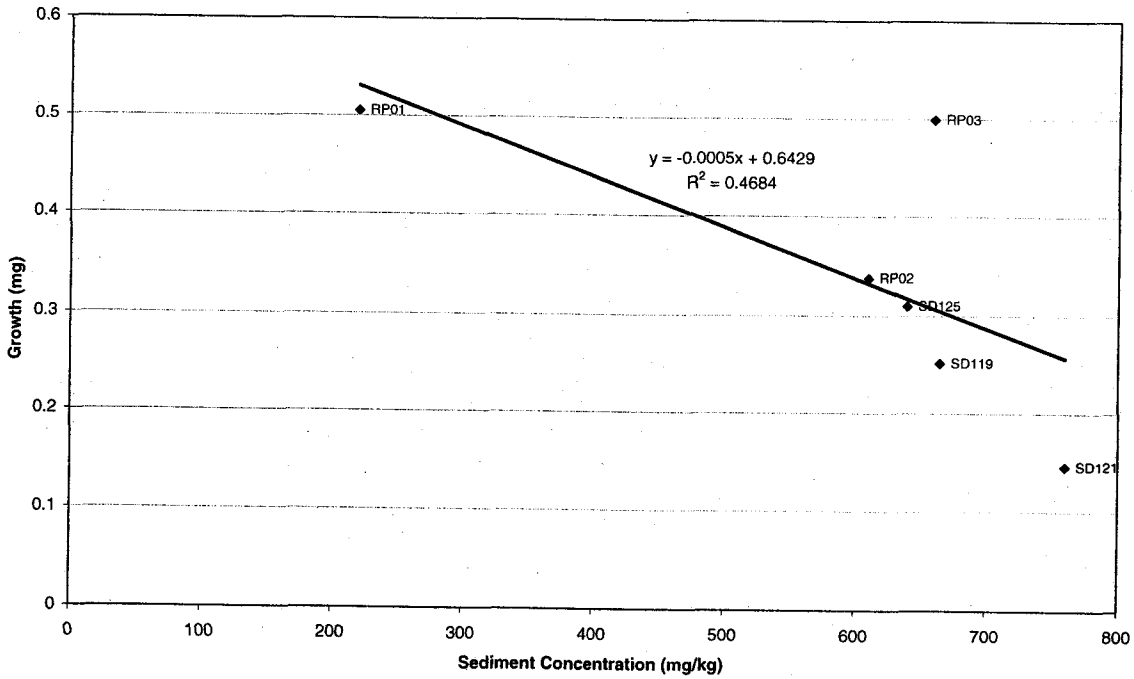
Normalized Concentration of Total PCBs in Sediment vs Growth of Hyallella Azteca Pond Samples



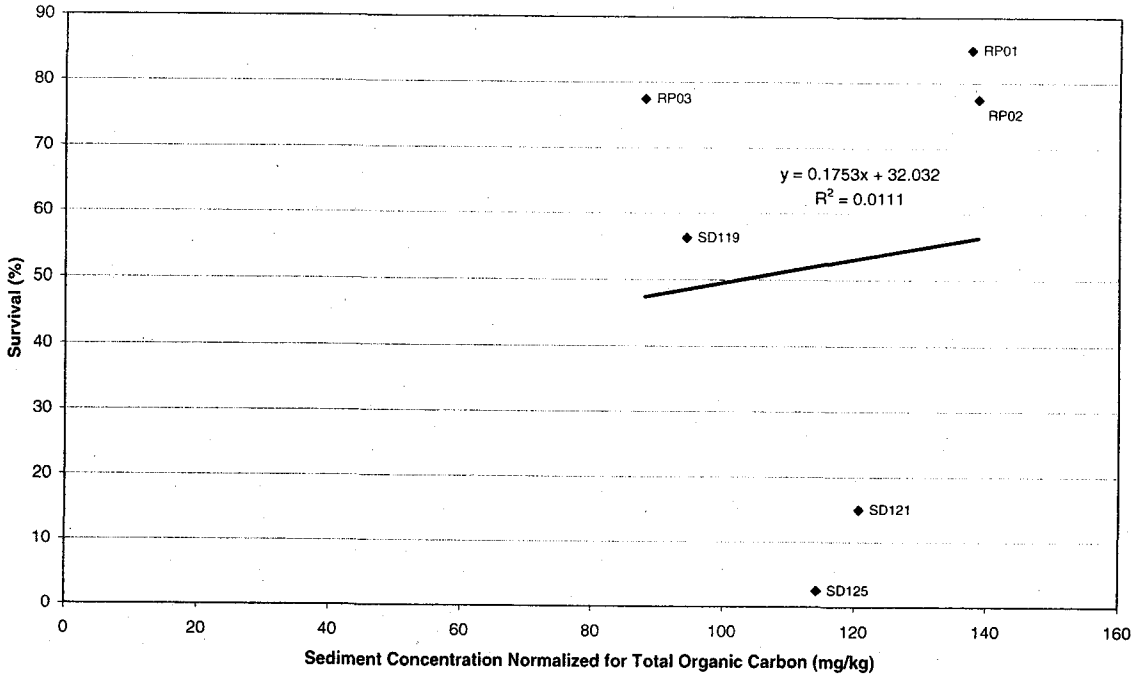
Concentration of TPH in Sediment vs Survival of Hyallella Azteca
Pond Samples



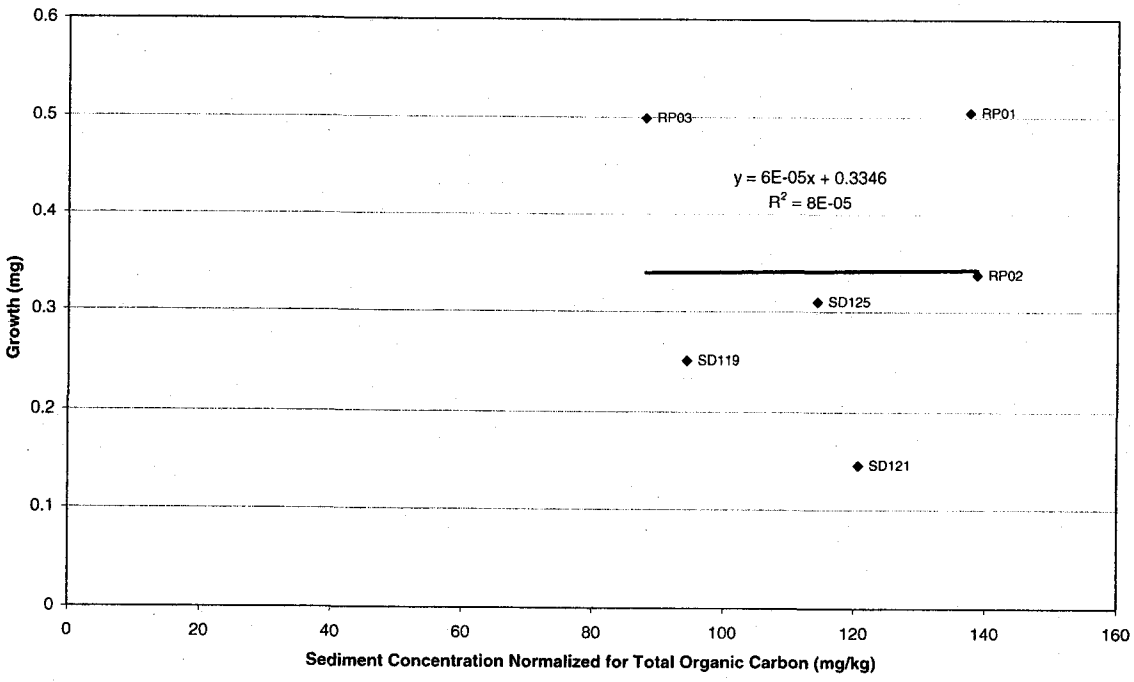
Concentration of TPH in Sediment vs Growth of Hyallella Azteca
Pond Samples



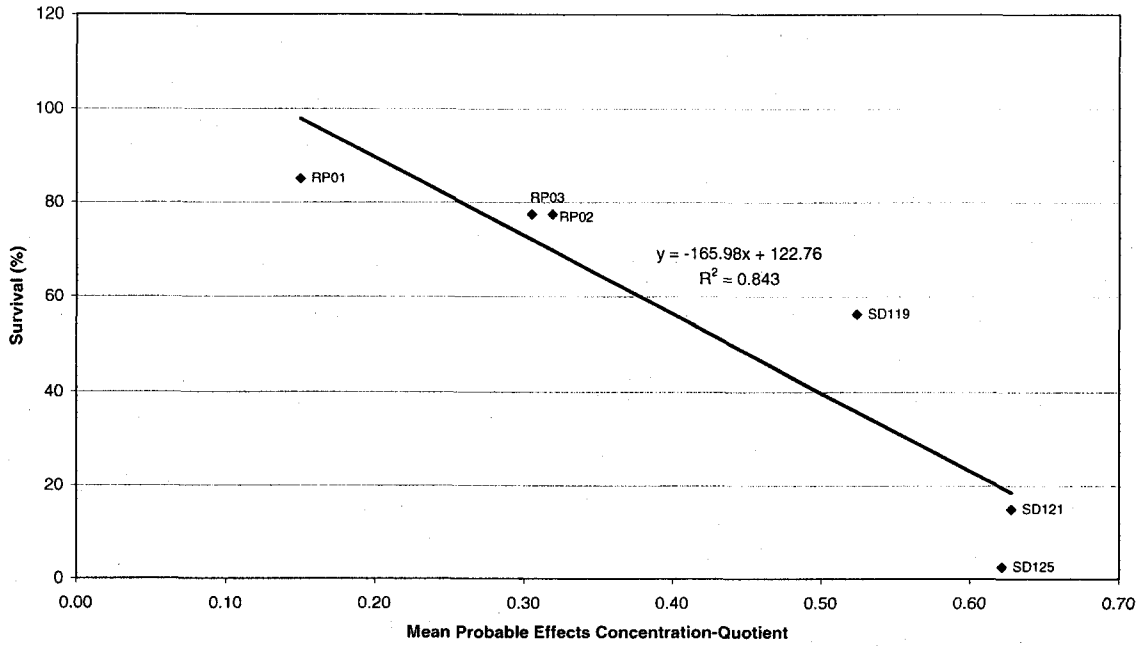
Normalized Concentration of TPH in Sediment vs Survival of Hyallella Azteca Pond Samples



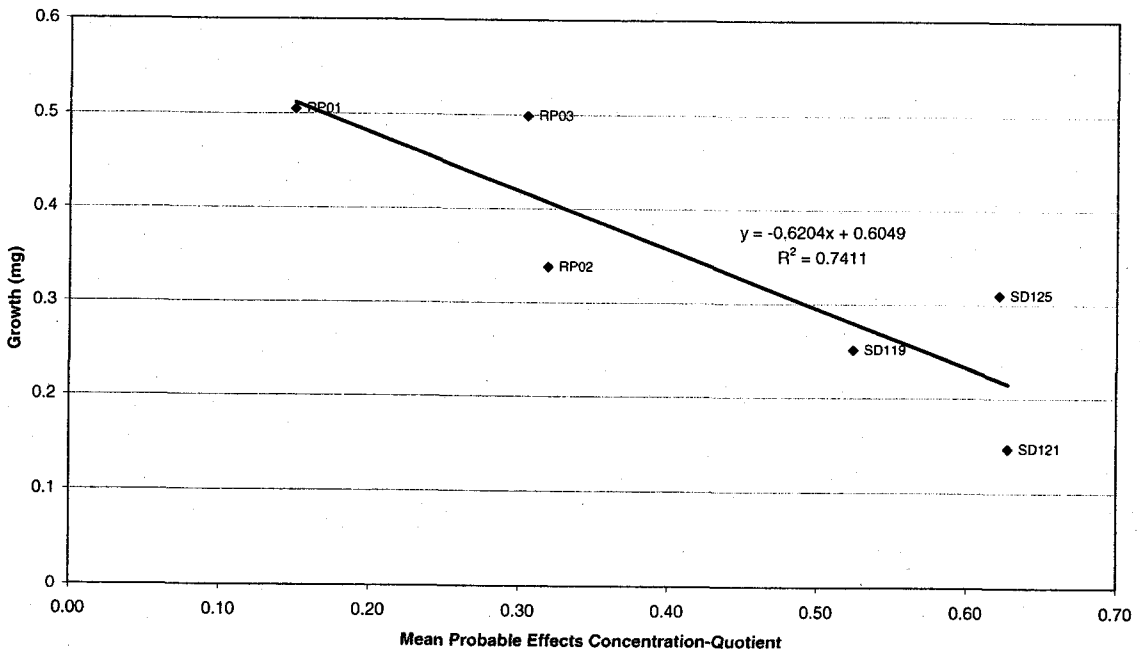
Normalized Concentration of TPH in Sediment vs Growth of Hyallella Azteca Pond Samples



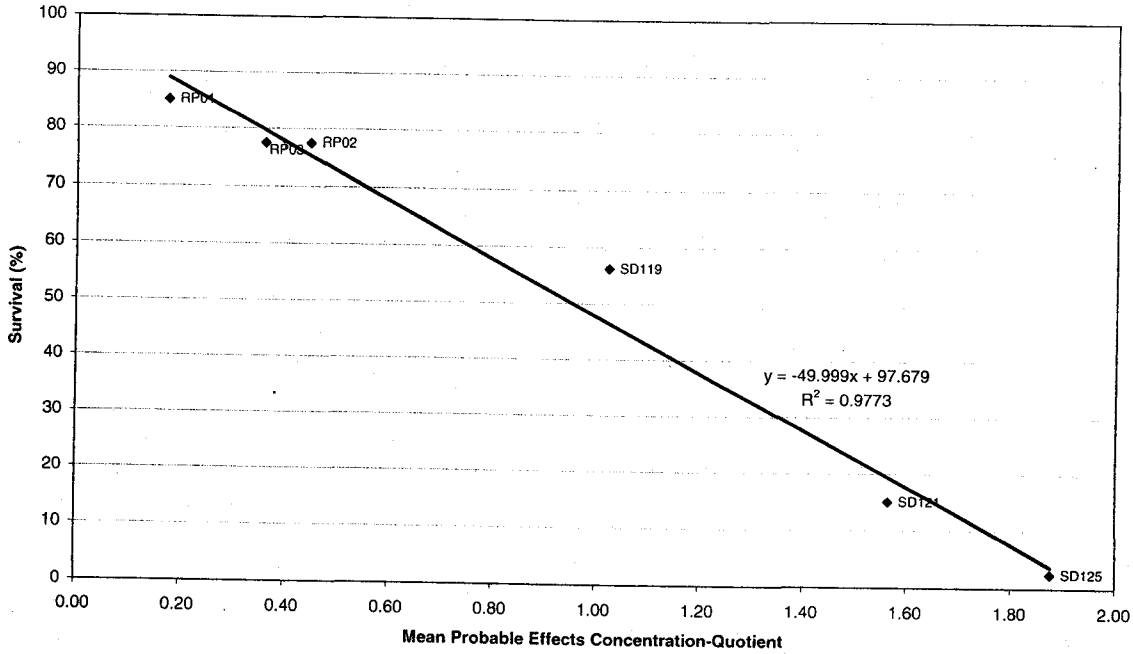
Overall Mean Probable Effects Concentration-Quotient (DDx) in Sediment vs Survival of Hyallella Azteca Pond Samples



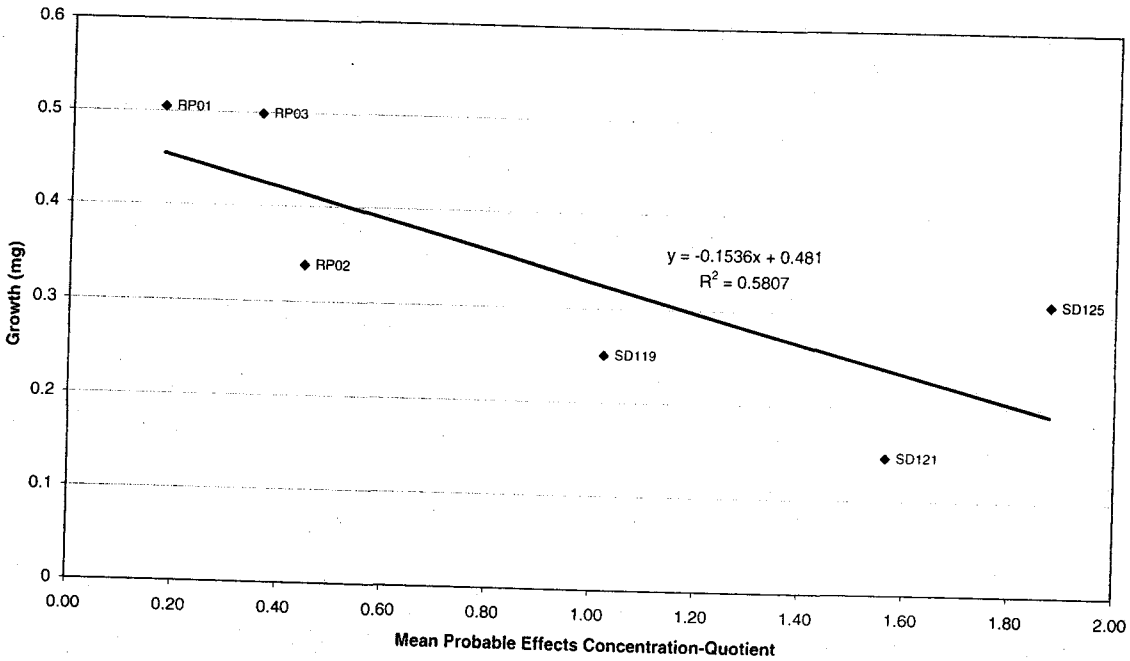
Overall Mean Probable Effects Concentration-Quotient (DDx) in Sediment vs Growth of Hyallella Azteca Pond Samples



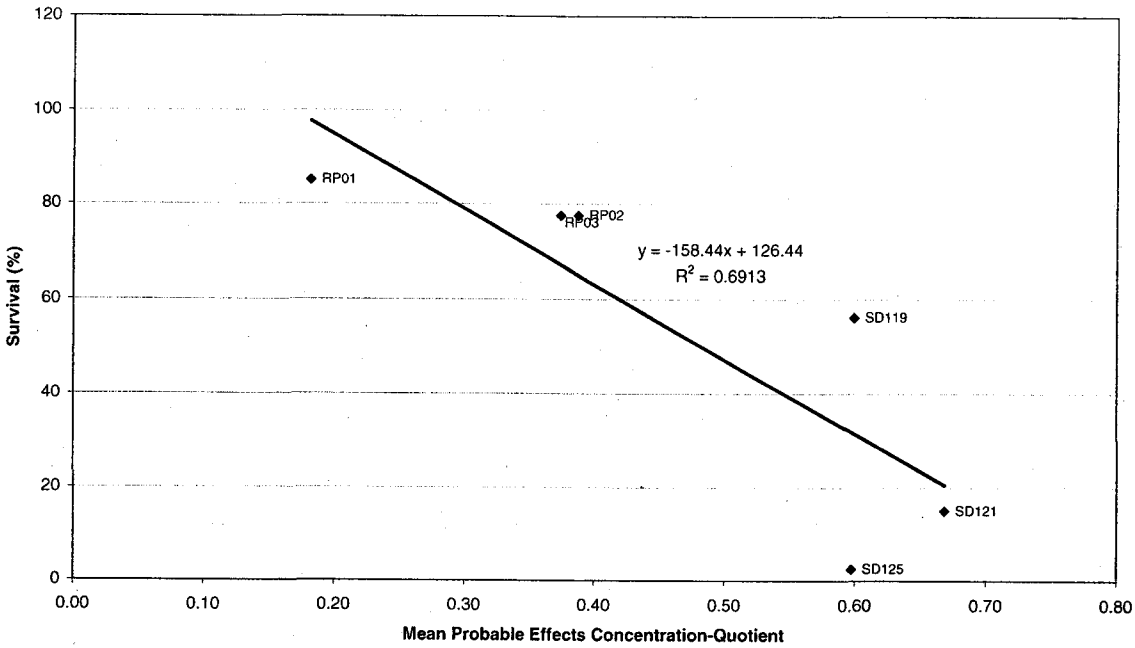
Overall Mean Probable Effects Concentration-Quotient (DDE) in Sediment vs Survival of Hyallella Azteca Pond Samples



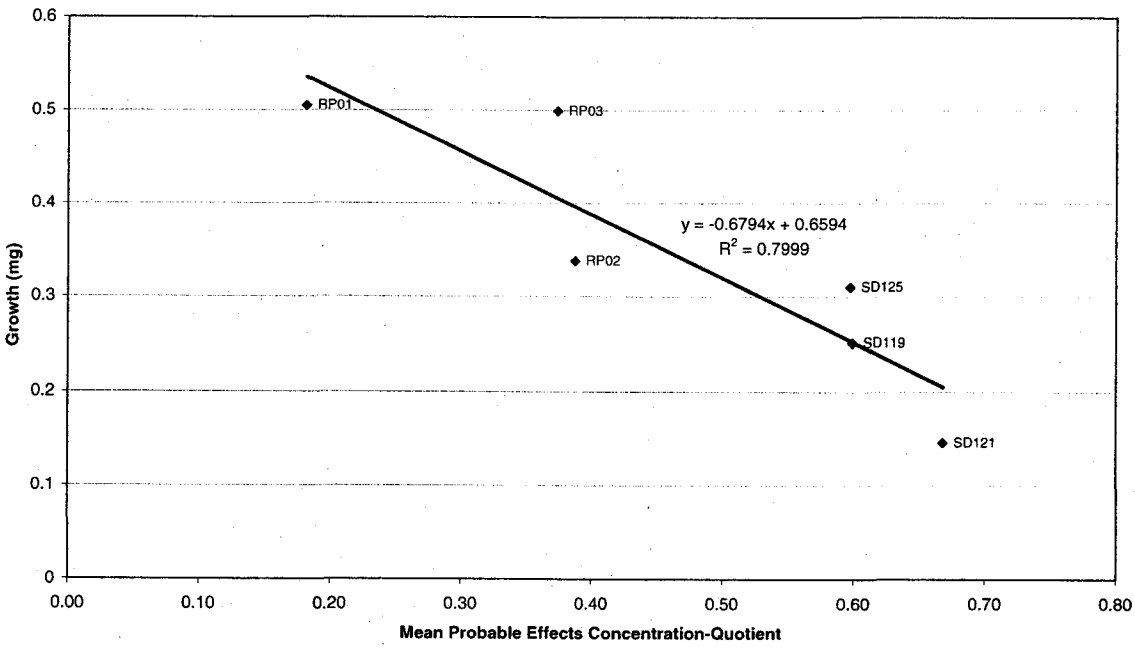
Overall Mean Probable Effects Concentration-Quotient (DDE) in Sediment vs Growth of Hyallella Azteca Pond Samples



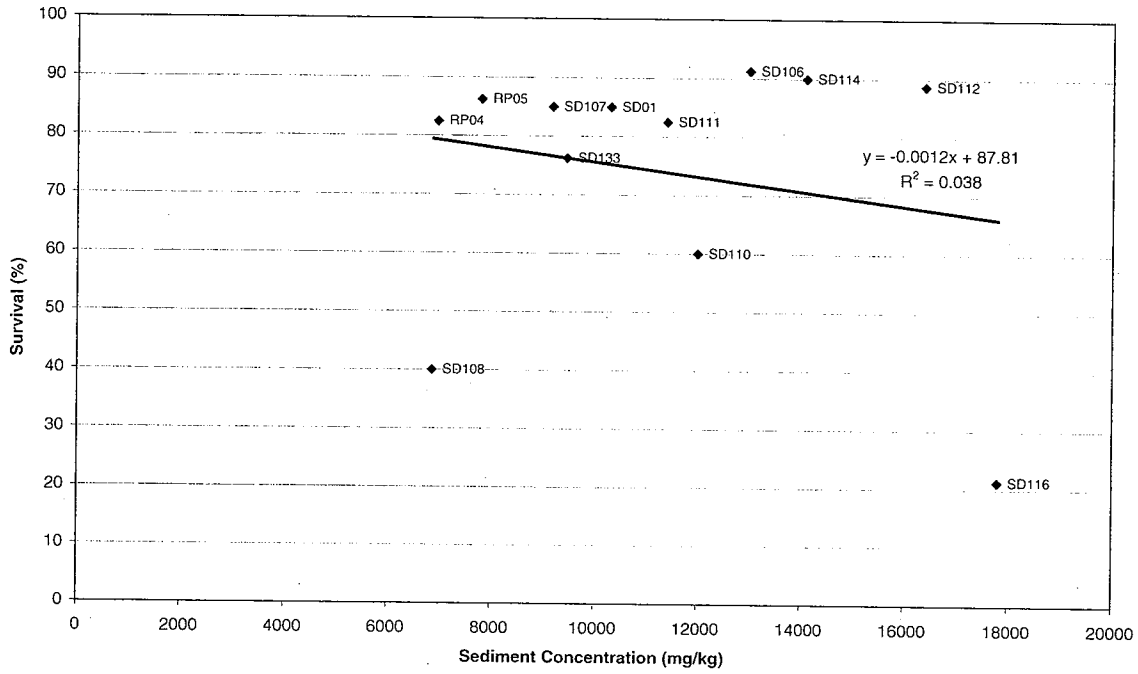
Overall Metals Mean Probable Effects Concentration-Quotient in Sediment vs Survival of Hyallella Azteca Pond Samples



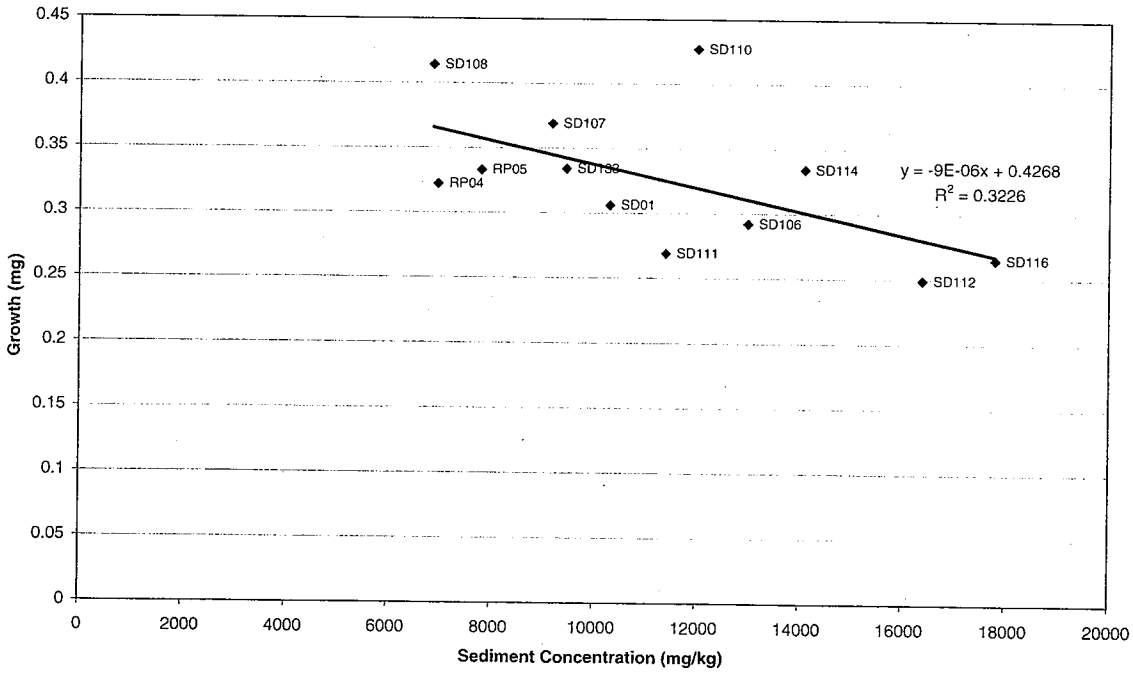
Overall Metals Mean Probable Effects Concentration-Quotient in Sediment vs Growth of Hyallella Azteca Pond Samples



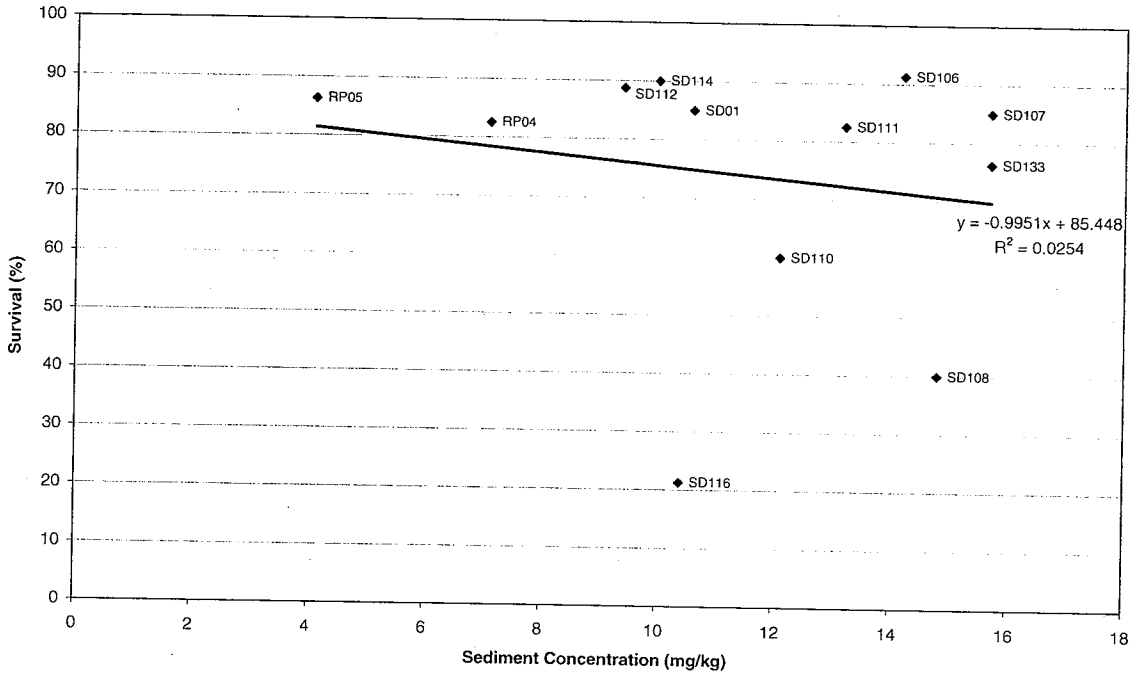
Concentration of Aluminum in Sediment vs Survival of Hyallella Azteca
Stream Samples



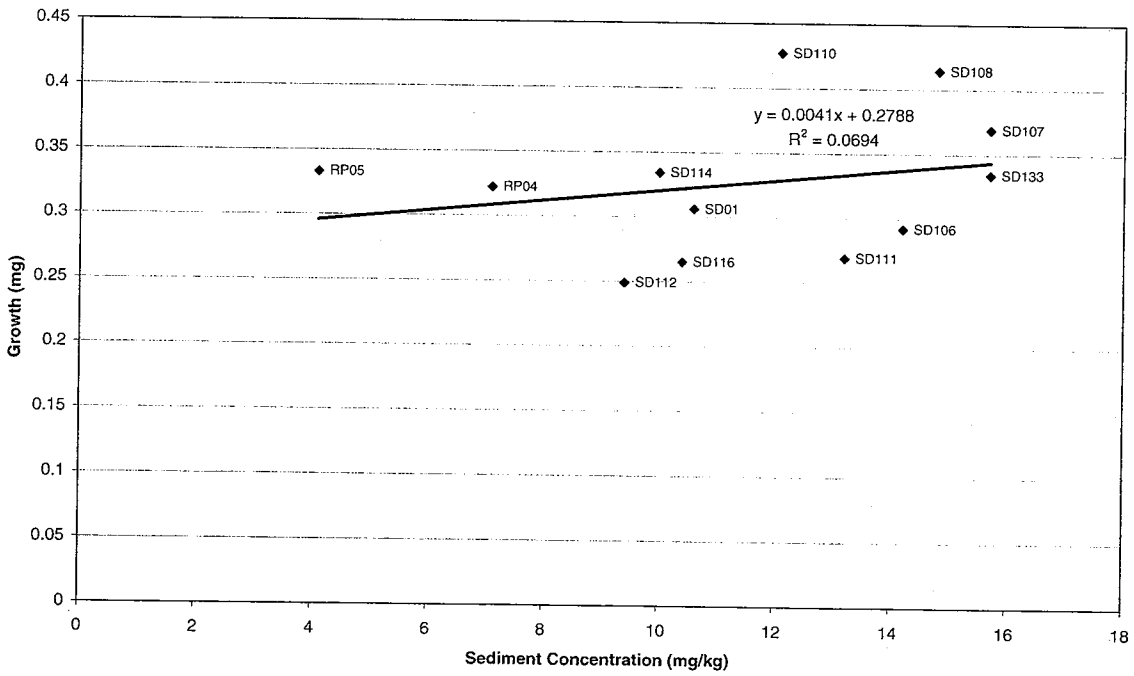
Concentration of Aluminum in Sediment vs Growth of Hyallella Azteca
Stream Samples



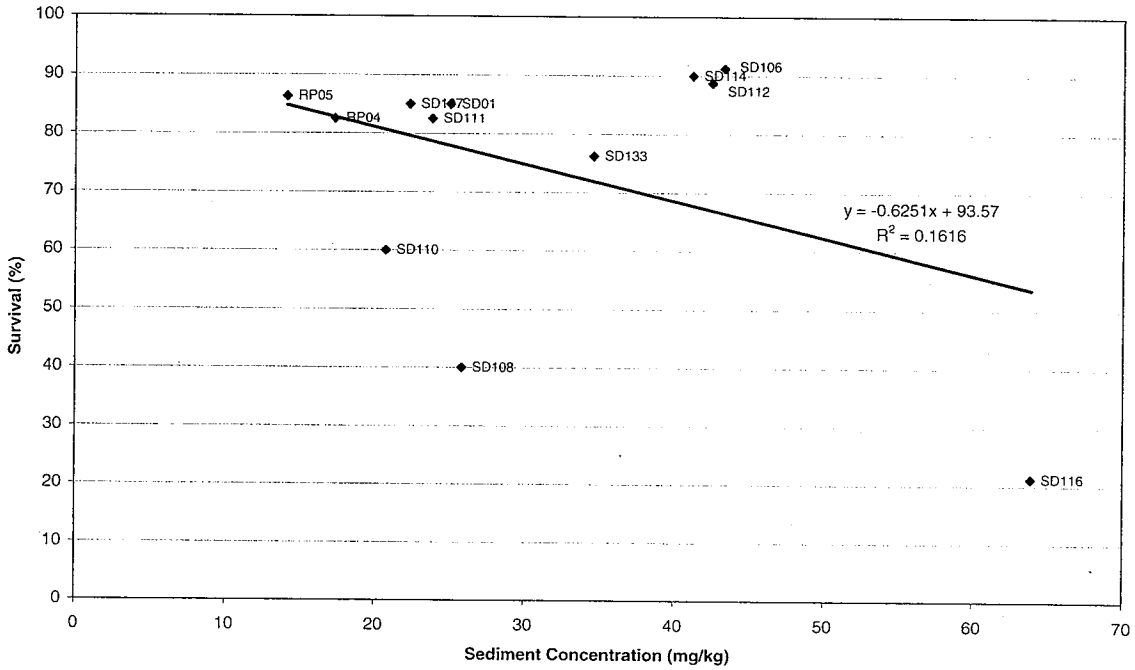
Concentration of Arsenic in Sediment vs Survival of Hyallella Azteca
Stream Samples



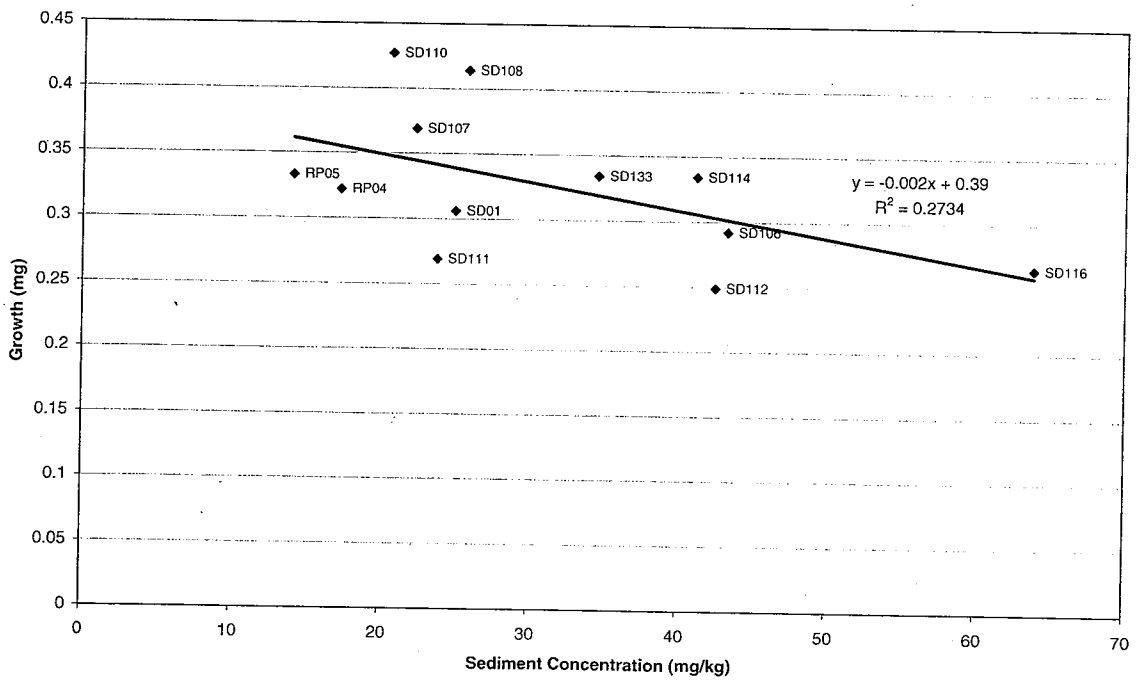
Concentration of Arsenic in Sediment vs Growth of Hyallella Azteca
Stream Samples



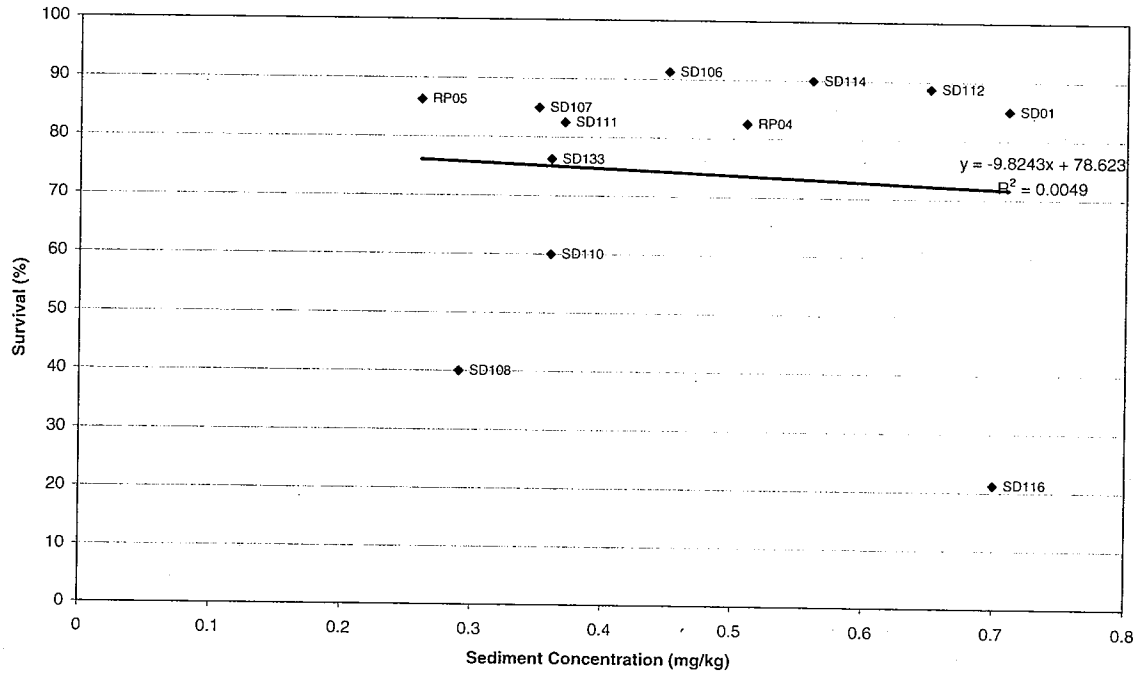
Concentration of Barium in Sediment vs Survival of Hyallella Azteca
Stream Samples



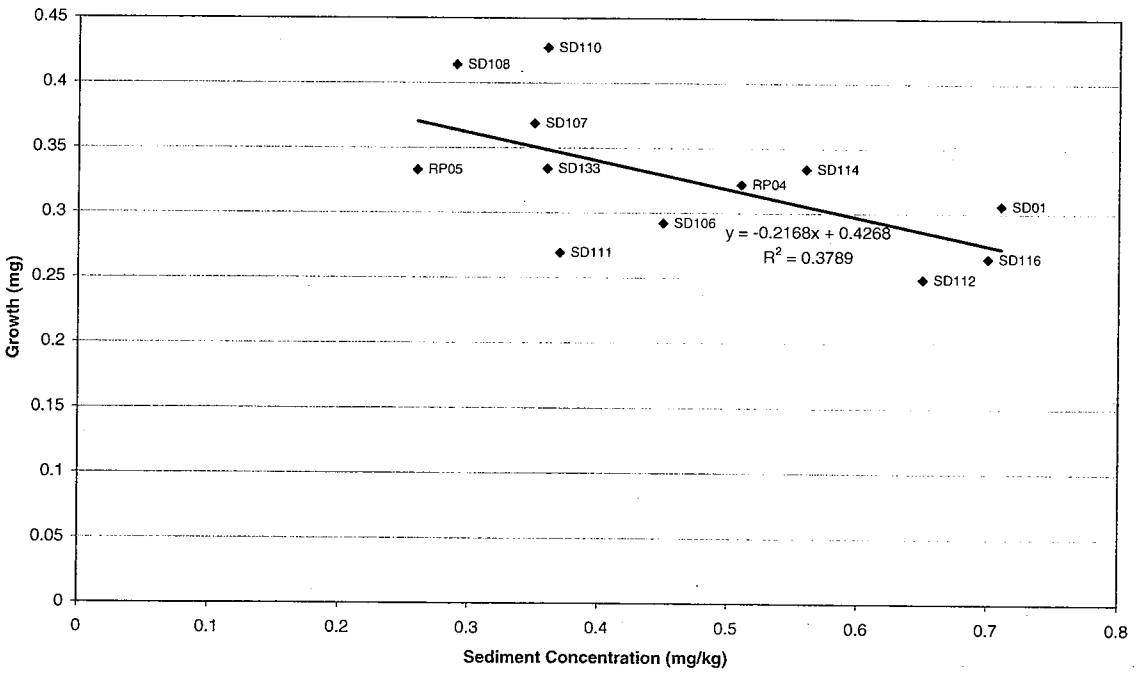
Concentration of Barium in Sediment vs Growth of Hyallella Azteca
Stream Samples



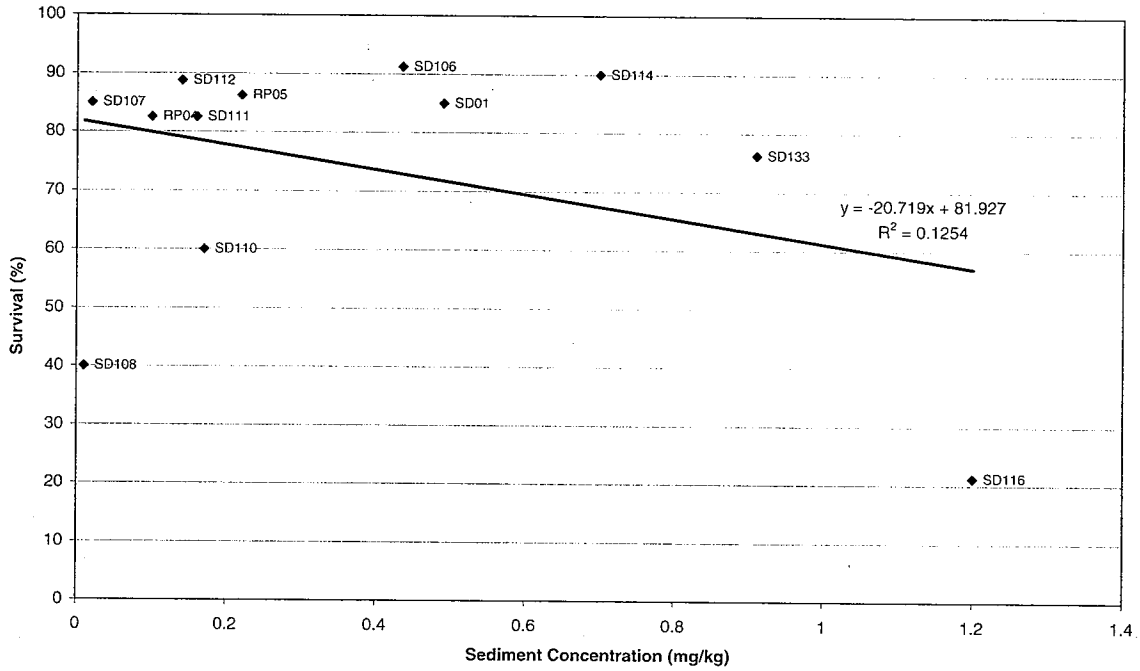
Concentration of Beryllium in Sediment vs Survival of Hyallella Azteca
Stream Samples



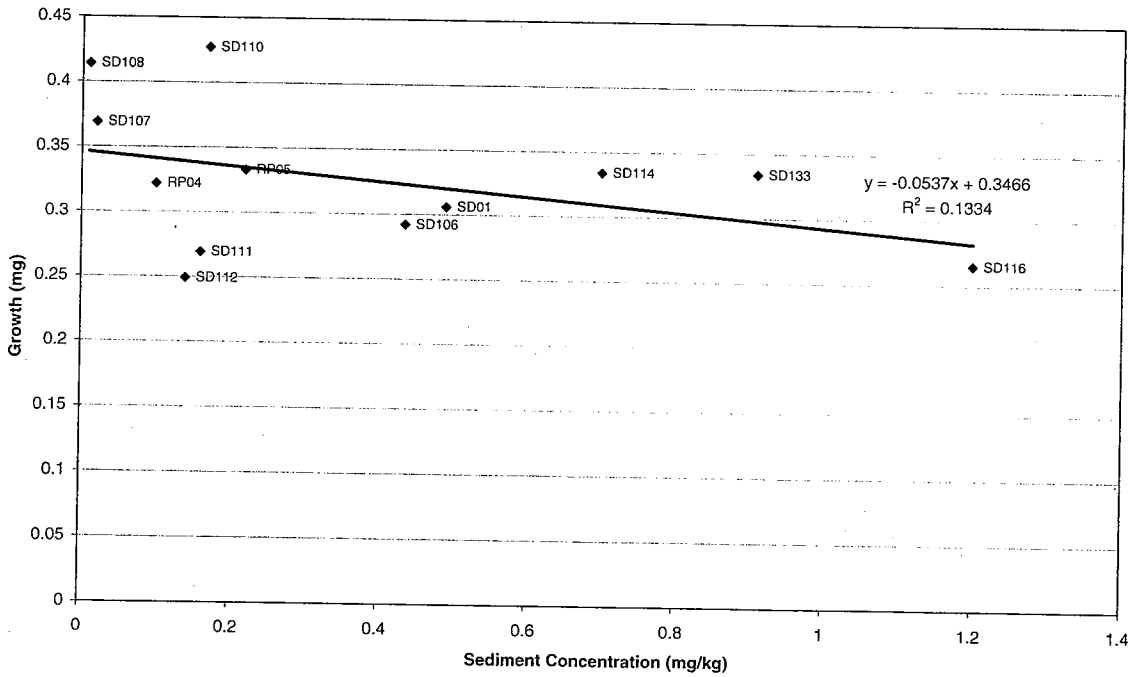
Concentration of Beryllium in Sediment vs Growth of Hyallella Azteca
Stream Samples



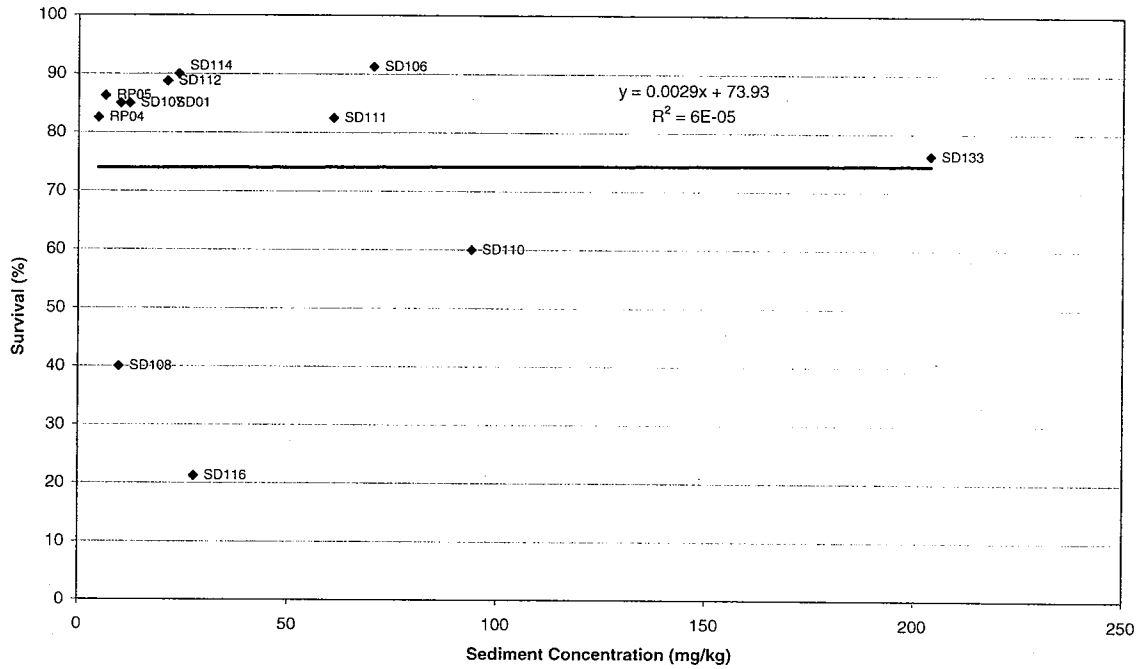
Concentration of Cadmium in Sediment vs Survival of Hyallella Azteca
Stream Samples



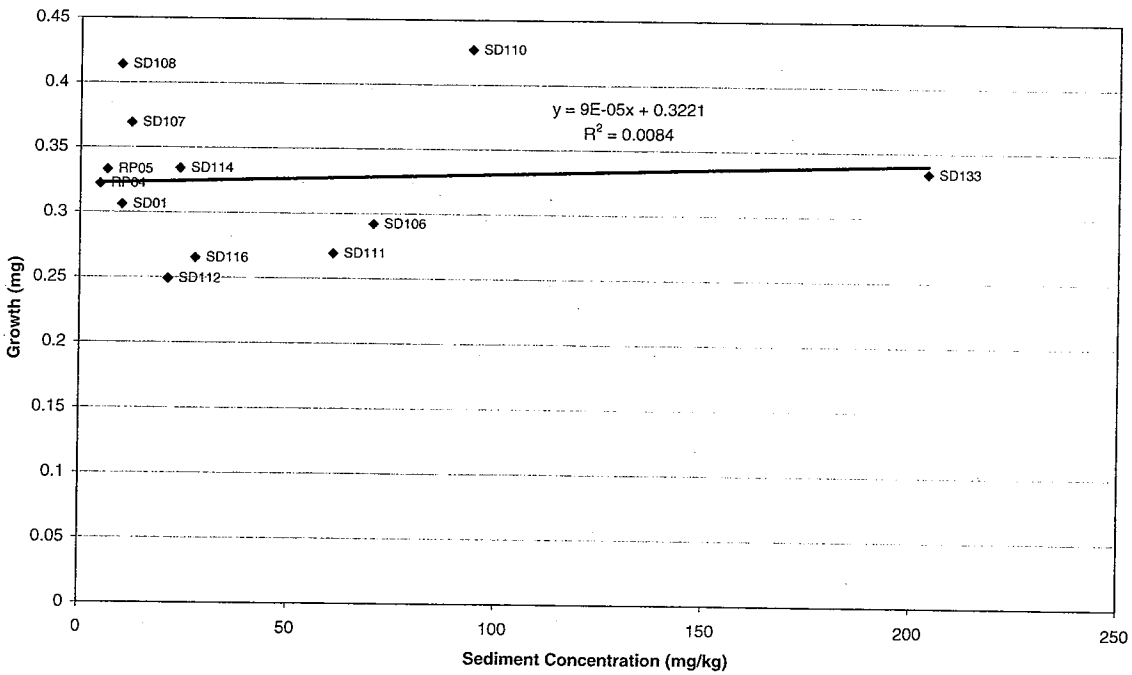
Concentration of Cadmium in Sediment vs Growth of Hyallella Azteca
Stream Samples



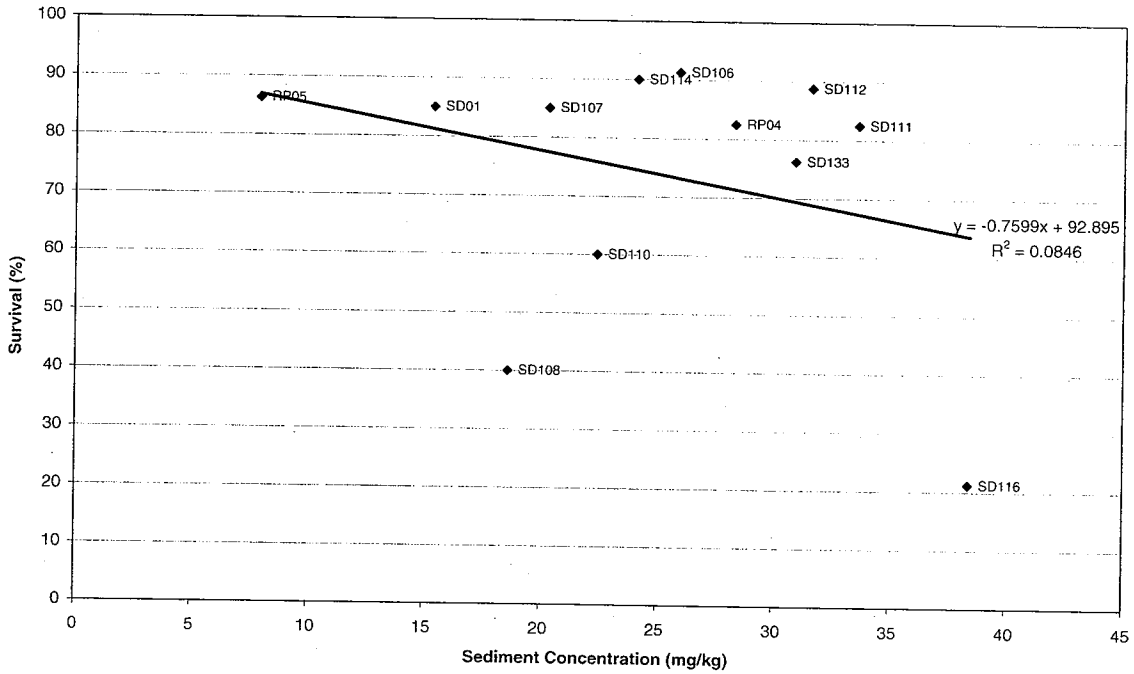
Concentration of Cobalt in Sediment vs Survival of Hyallella Azteca Stream Samples



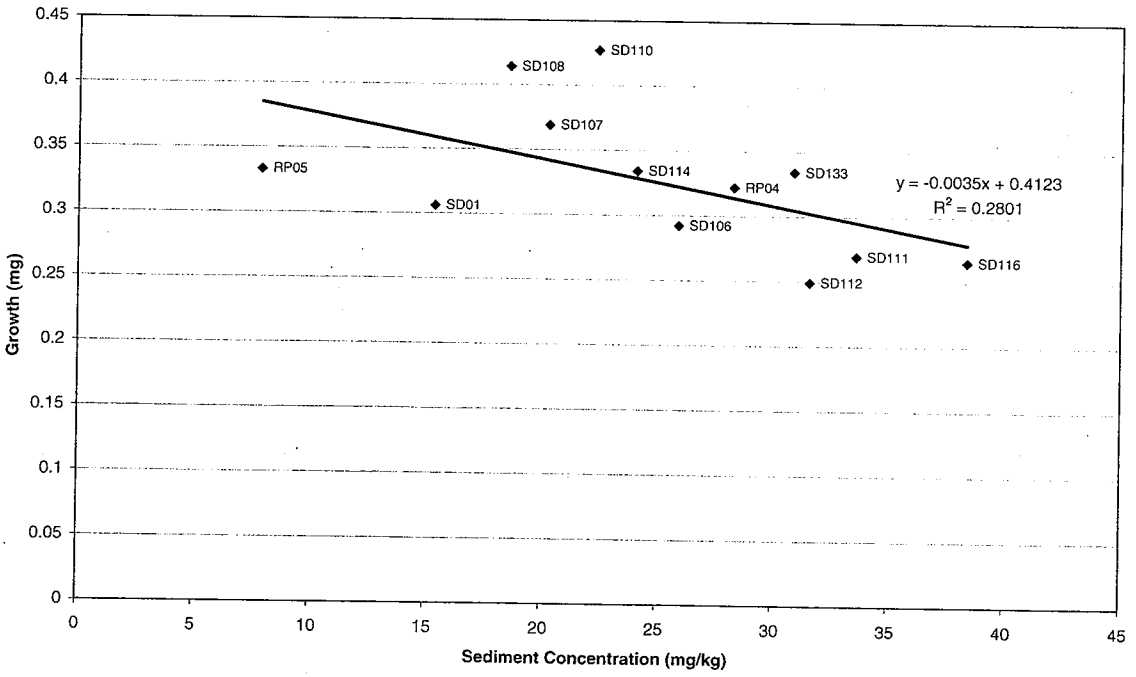
Concentration of Cobalt in Sediment vs Growth of Hyallella Azteca Stream Samples



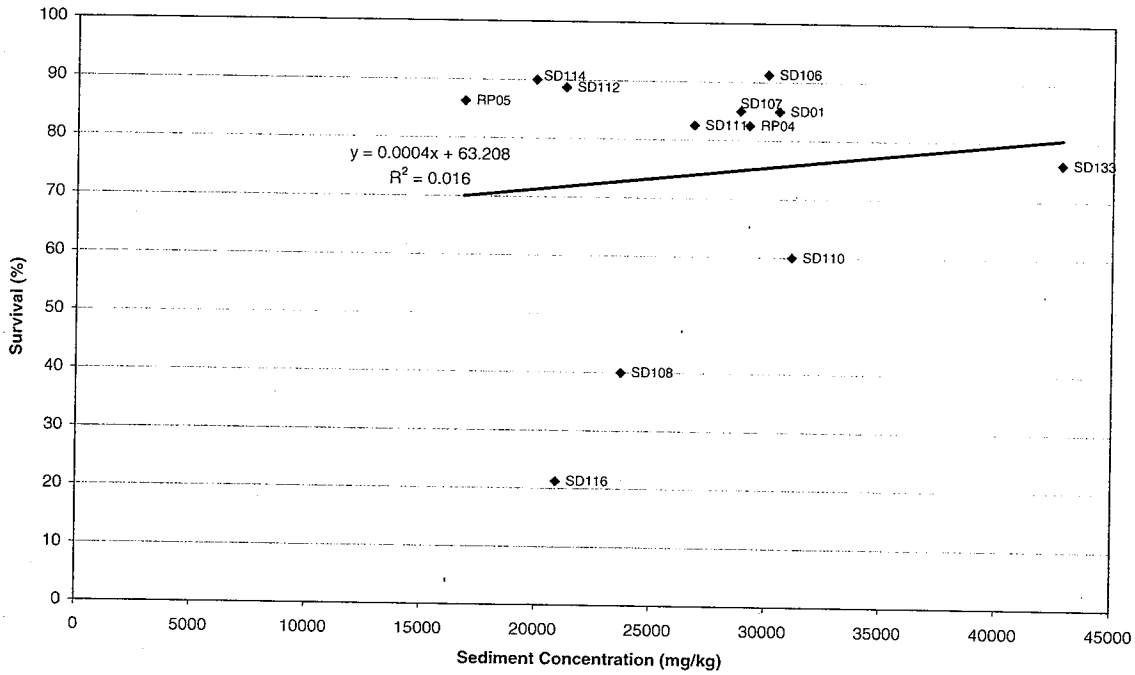
Concentration of Copper in Sediment vs Survival of Hyallella Azteca
Stream Samples



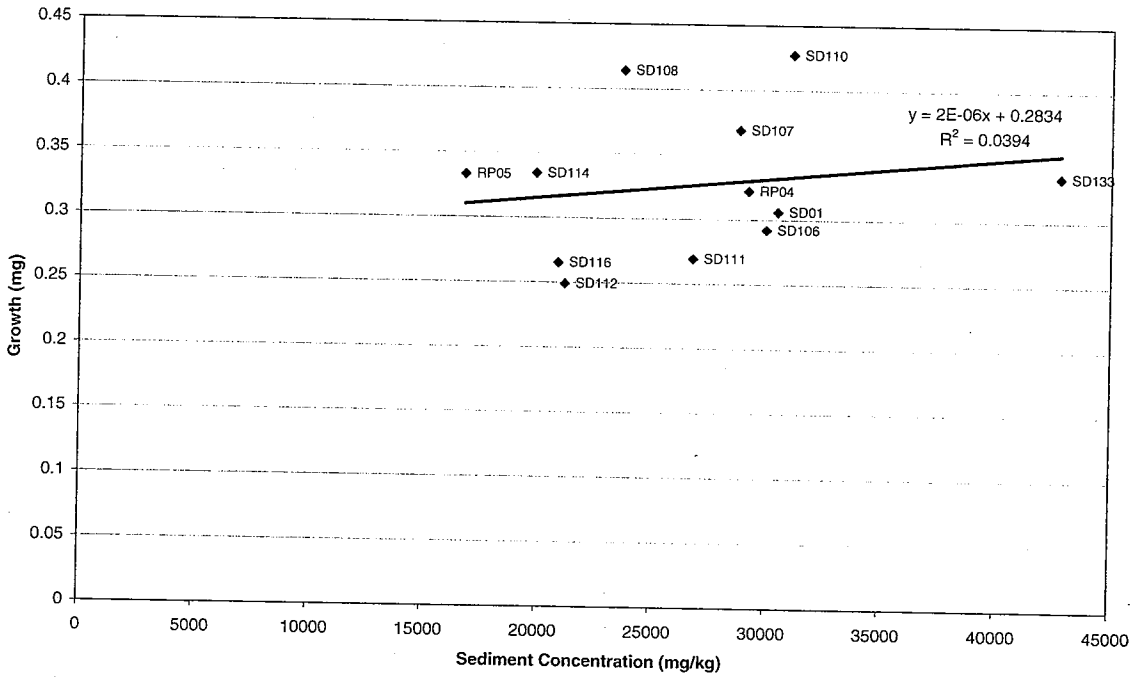
Concentration of Copper in Sediment vs Growth of Hyallella Azteca
Stream Samples



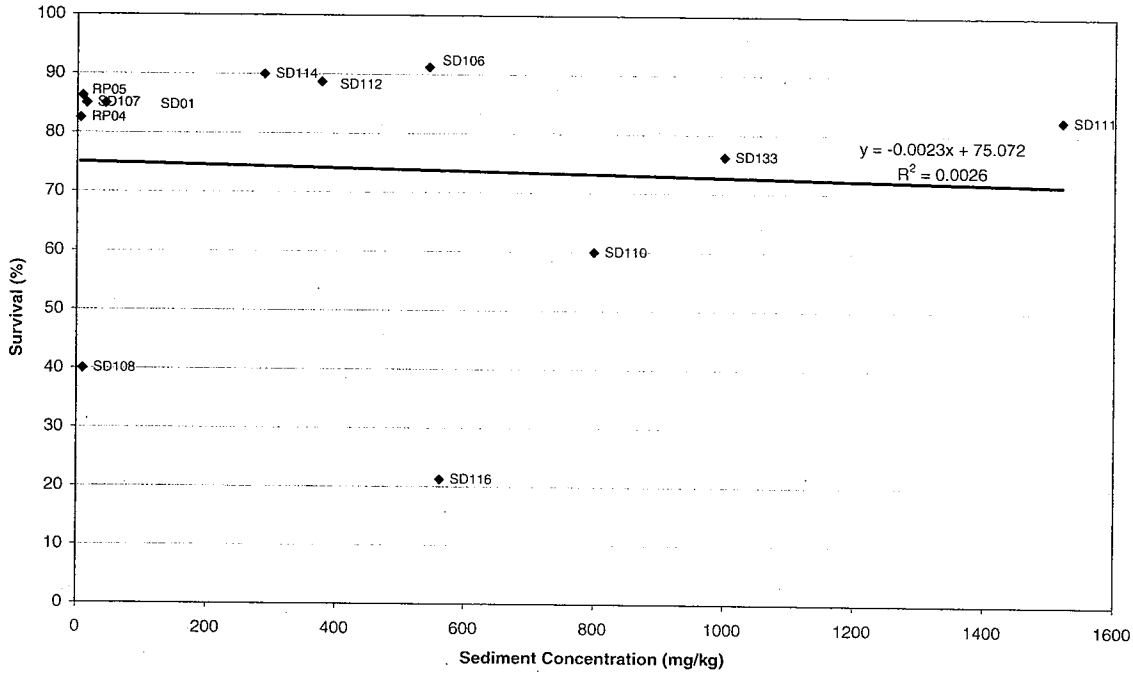
Concentration of Iron in Sediment vs Survival of Hyallella Azteca Stream Samples



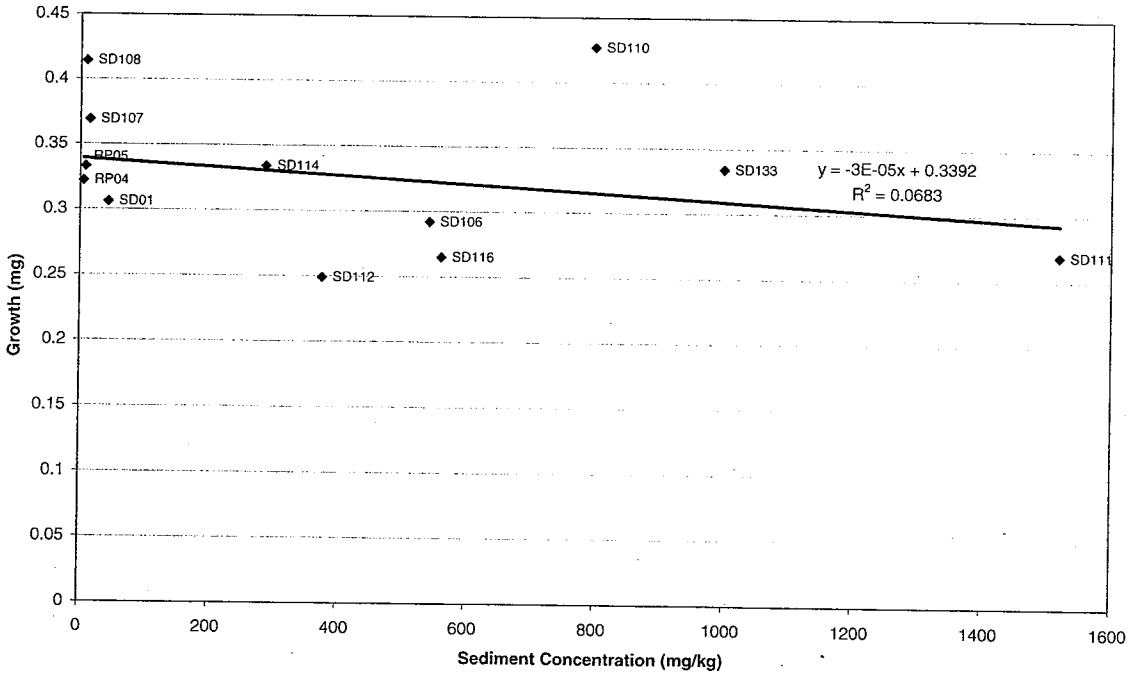
Concentration of Iron in Sediment vs Growth of Hyallella Azteca Stream Samples



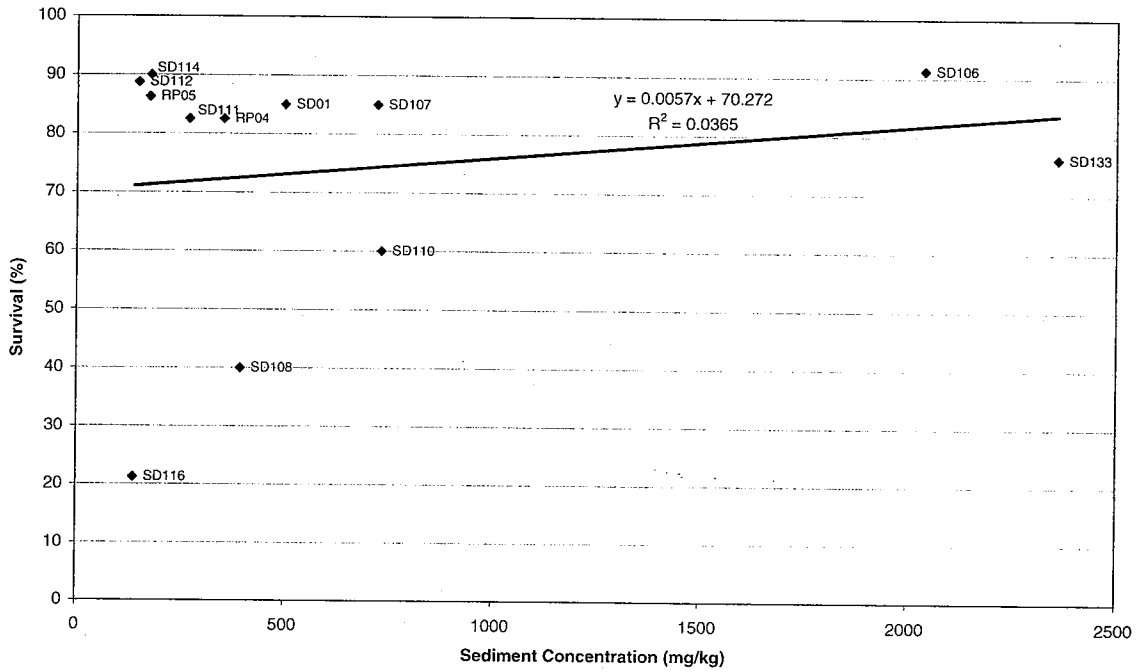
Concentration of Lead in Sediment vs Survival of Hyallella Azteca
Stream Samples



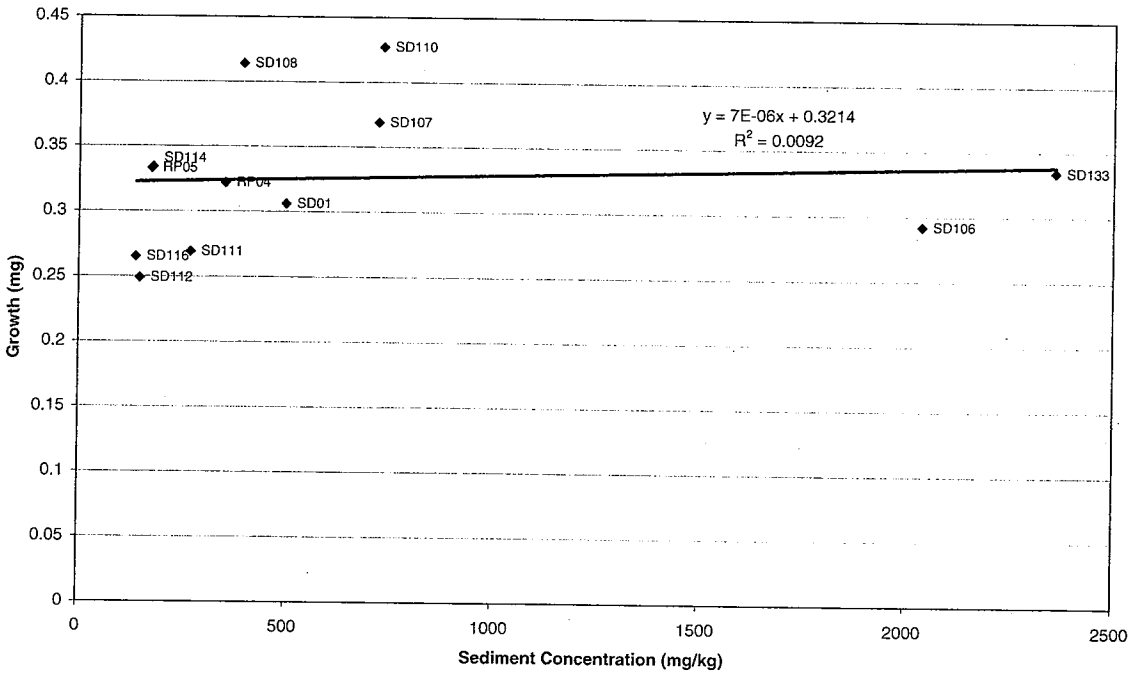
Concentration of Lead in Sediment vs Growth of Hyallella Azteca
Stream Samples



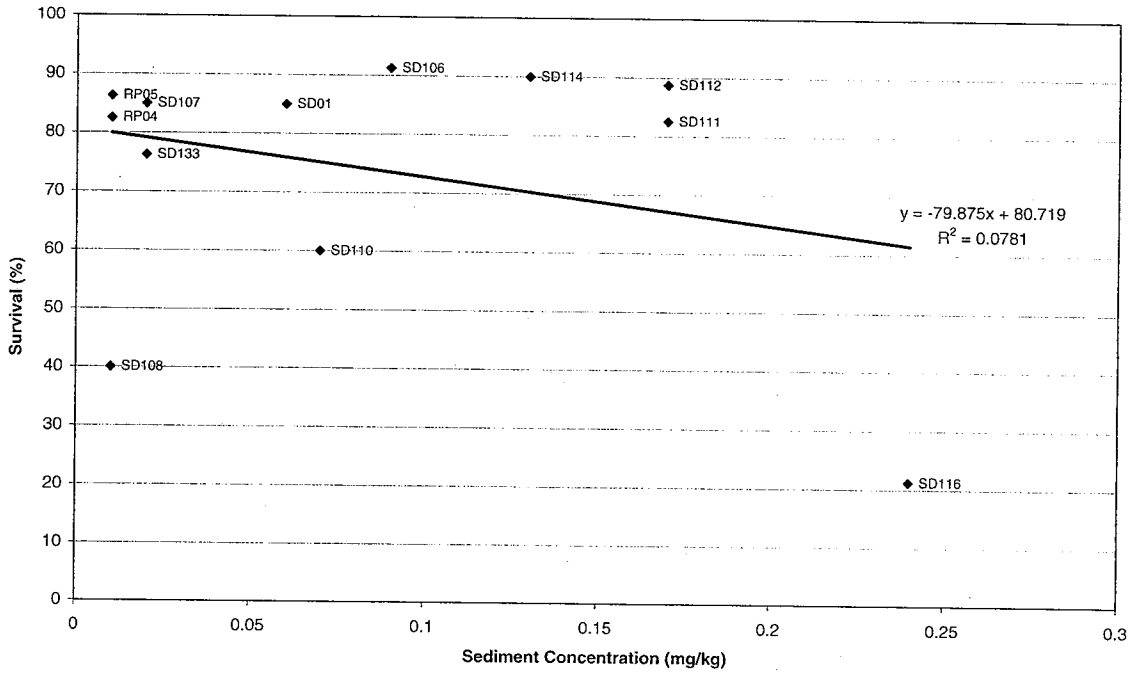
Concentration of Manganese in Sediment vs Survival of Hyallella Azteca Stream Samples



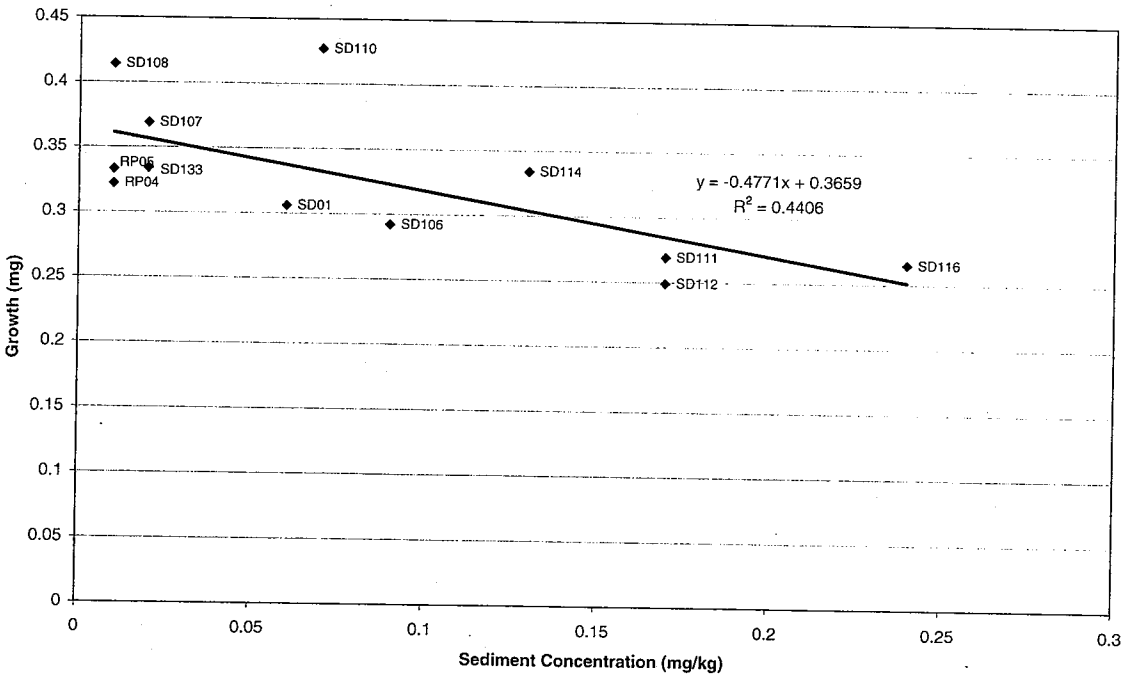
Concentration of Manganese in Sediment vs Growth of Hyallella Azteca Stream Samples



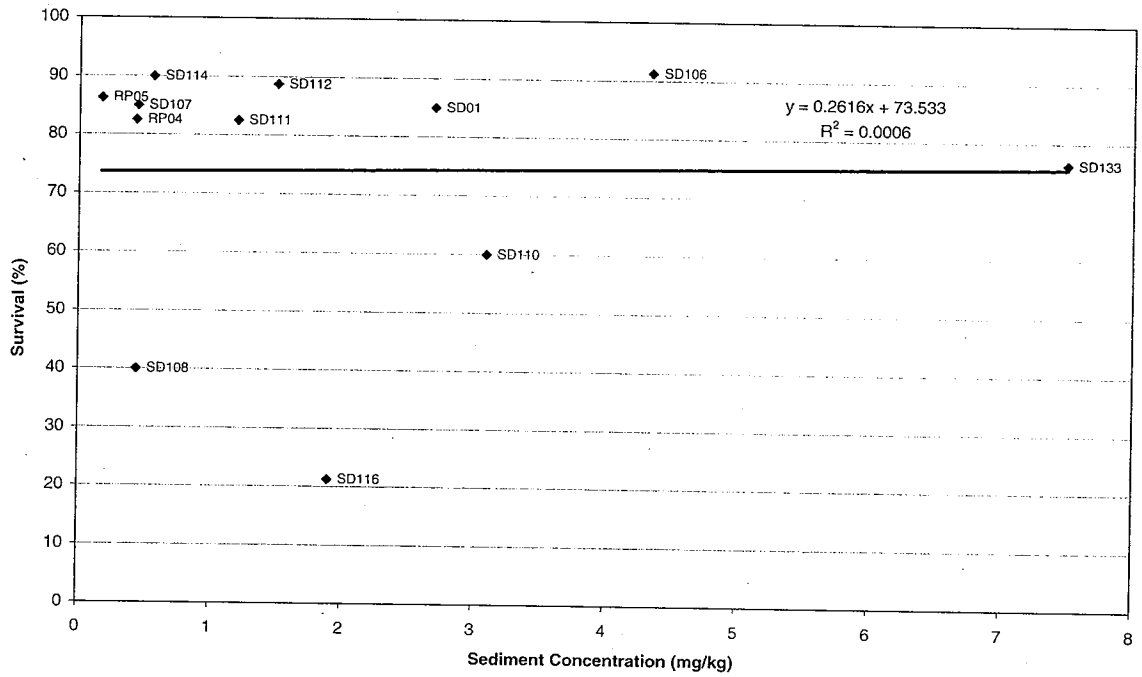
Concentration of Mercury in Sediment vs Survival of Hyallella Azteca
Stream Samples



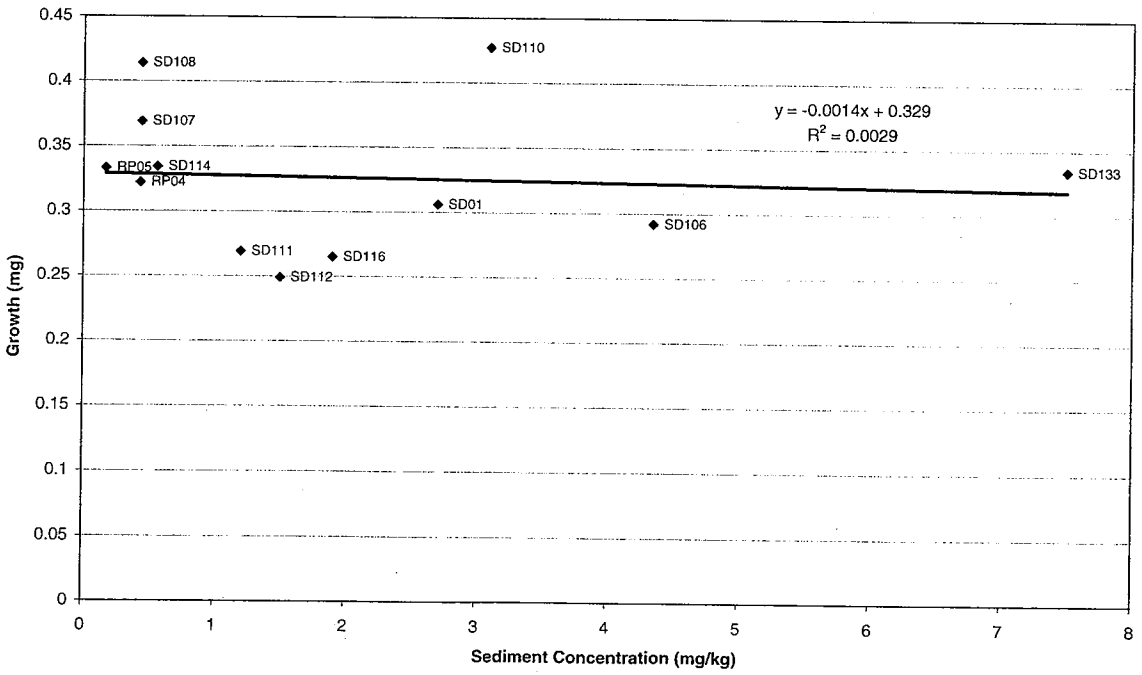
Concentration of Mercury in Sediment vs Growth of Hyallella Azteca
Stream Samples



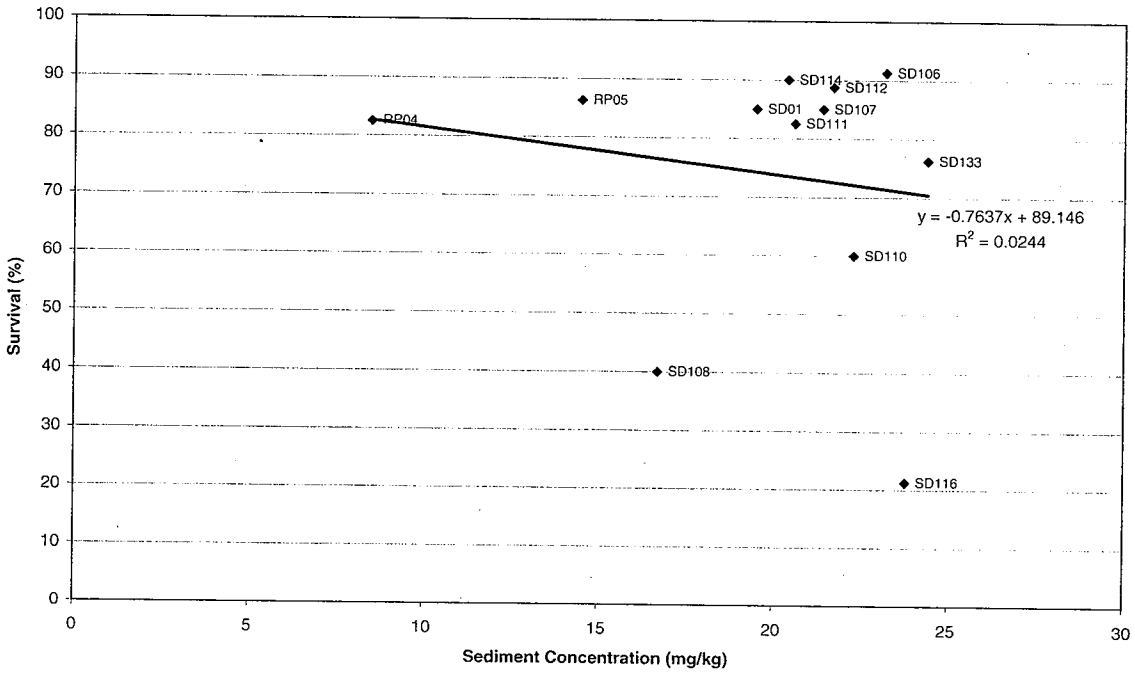
Concentration of Molybdenum in Sediment vs Survival of Hyallella Azteca Stream Samples



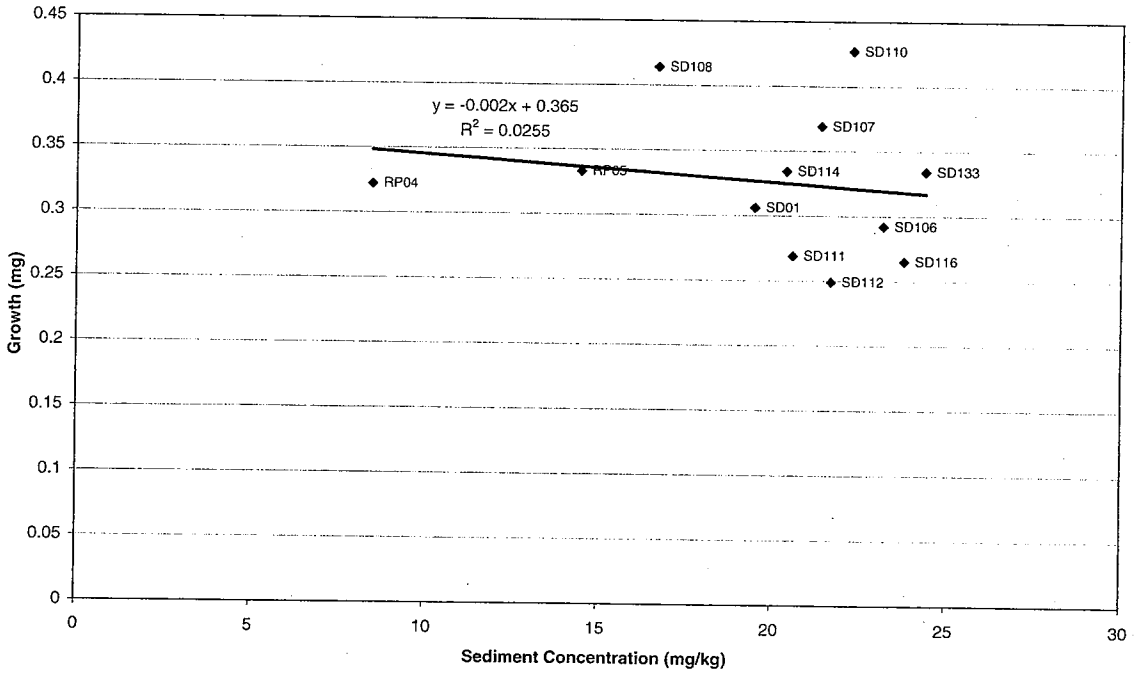
Concentration of Molybdenum in Sediment vs Growth of Hyallella Azteca Stream Samples



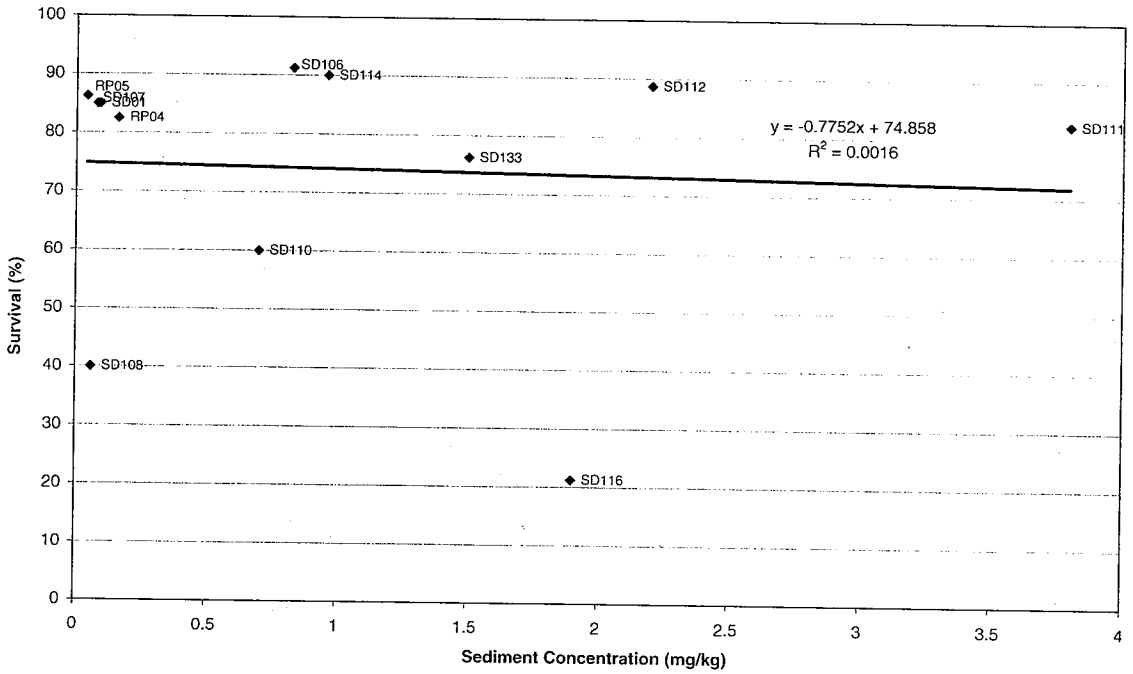
Concentration of Nickel in Sediment vs Survival of Hyallella Azteca Stream Samples



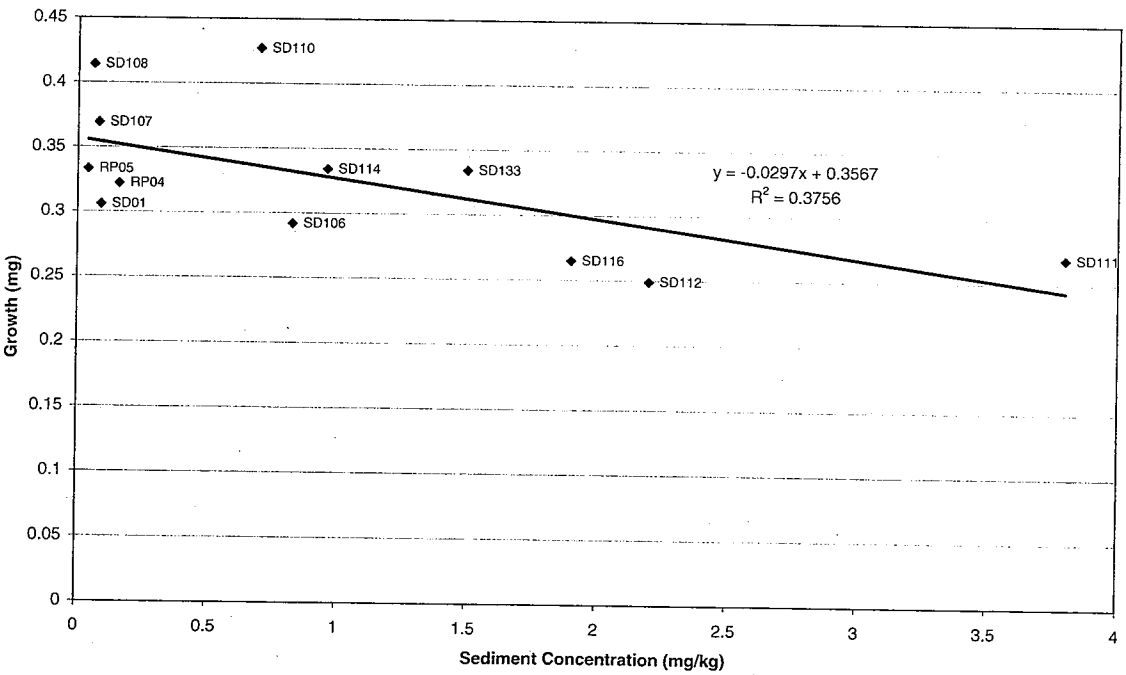
Concentration of Nickel in Sediment vs Growth of Hyallella Azteca Stream Samples



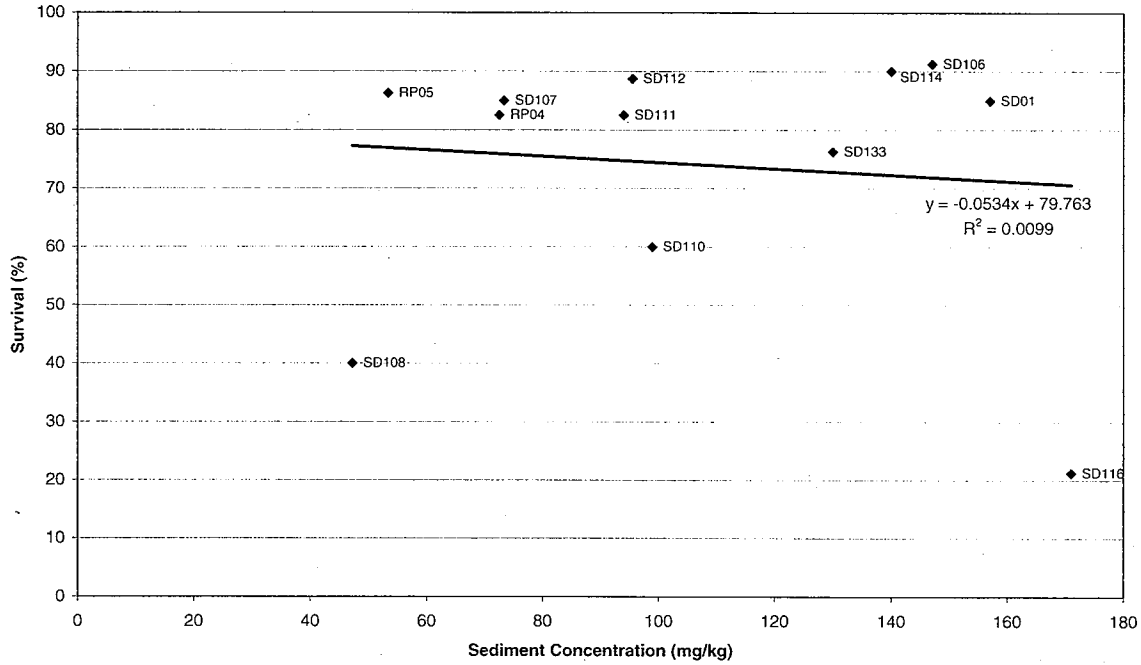
Concentration of Silver in Sediment vs Survival of Hyallella Azteca Stream Samples



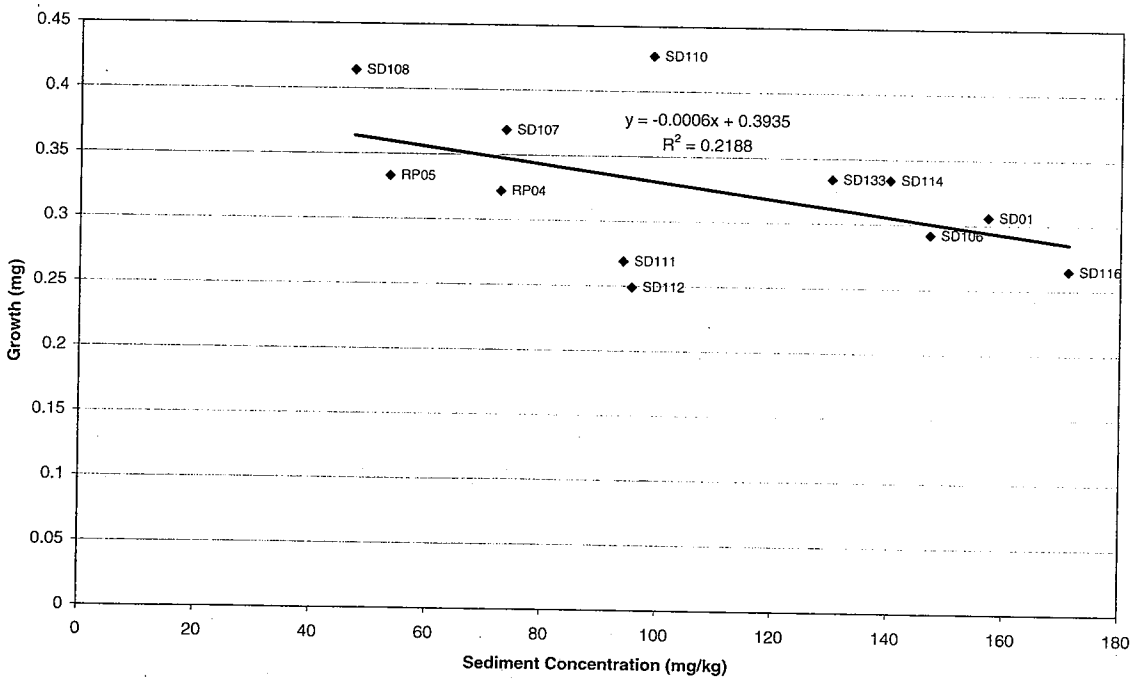
Concentration of Silver in Sediment vs Growth of Hyallella Azteca Stream Samples



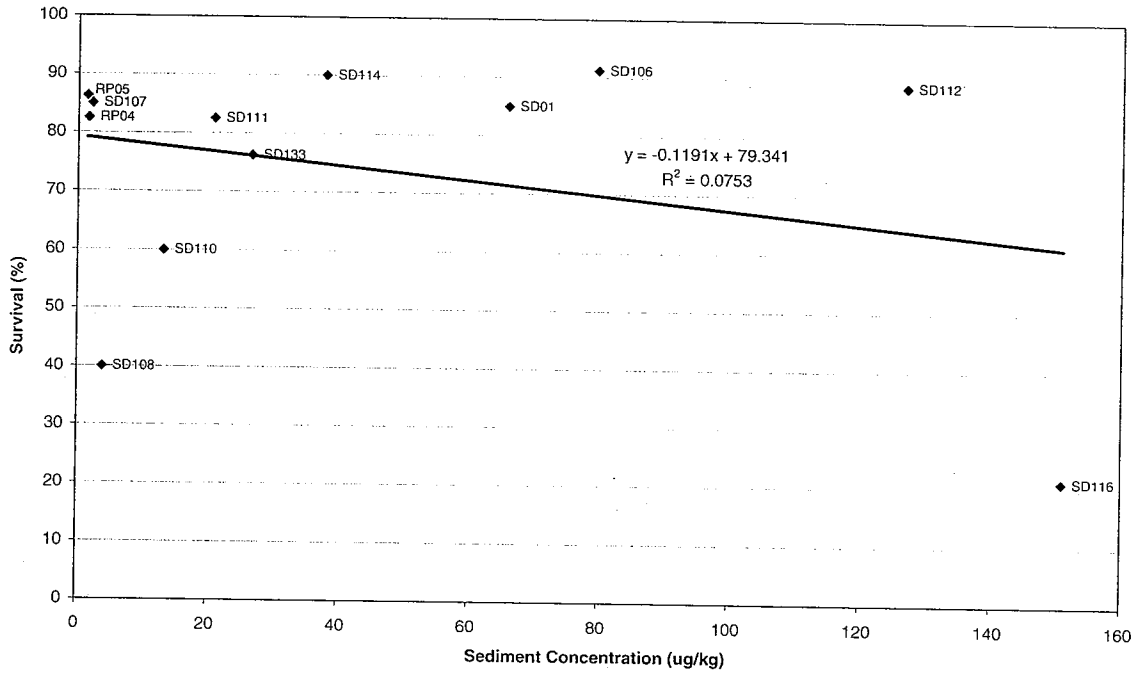
Concentration of Zinc in Sediment vs Survival of Hyallella Azteca
Stream Samples



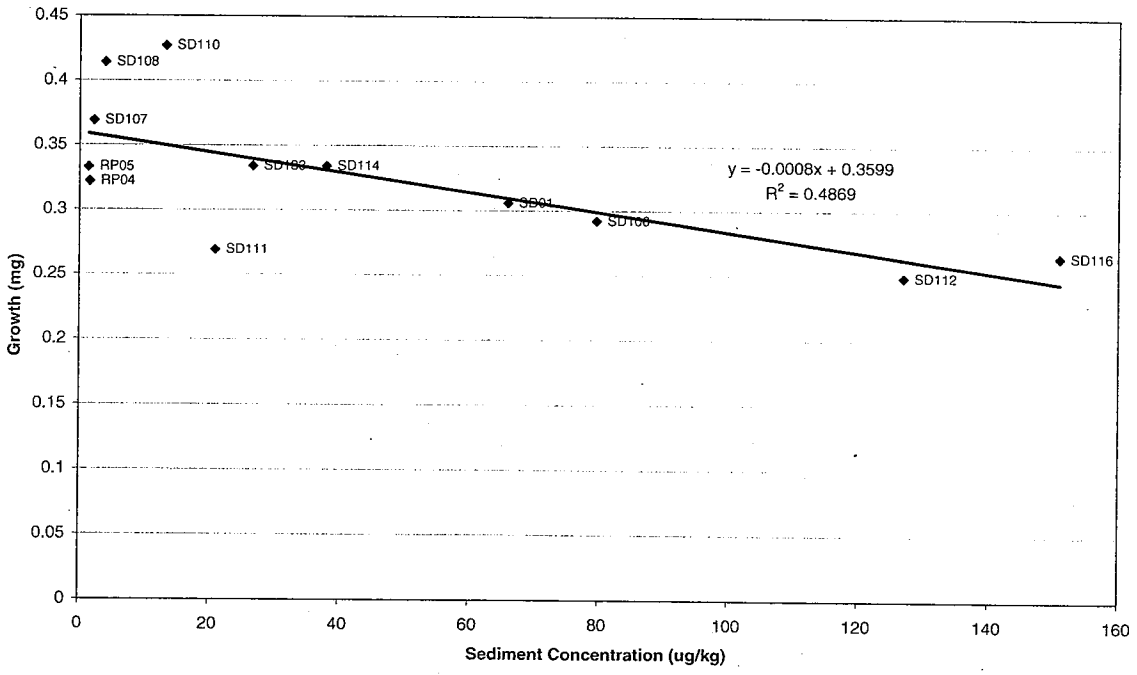
Concentration of Zinc in Sediment vs Growth of Hyallella Azteca
Stream Samples



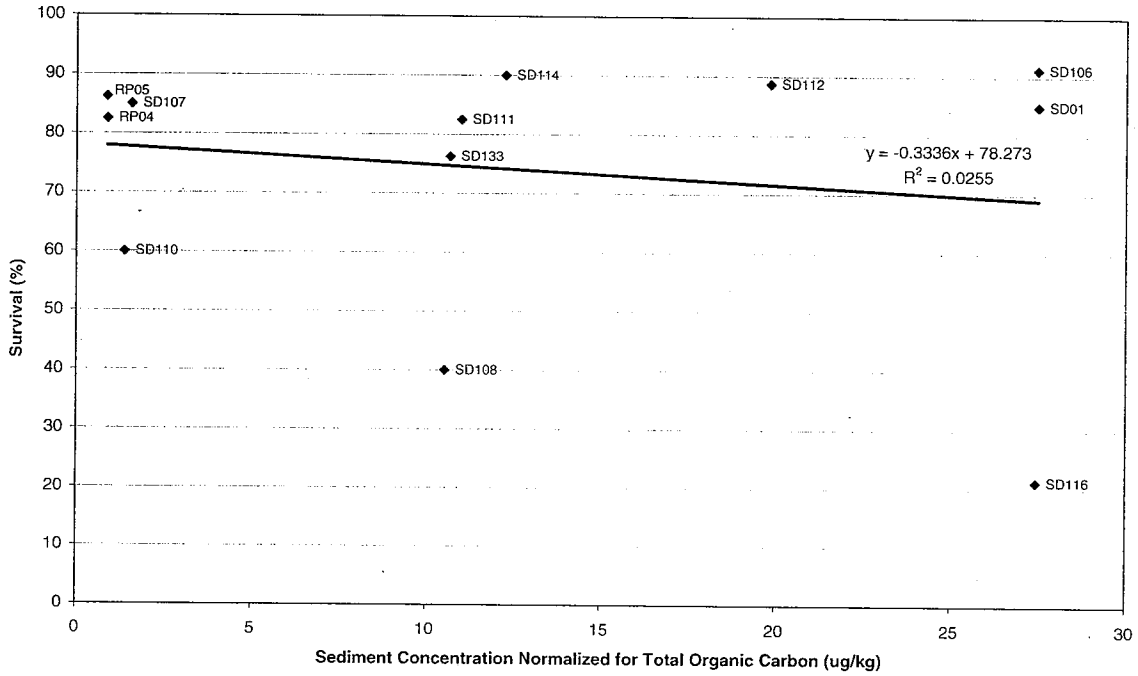
Concentration of Total DDD, DDE, DDT in Sediment vs Survival of Hyallella Azteca Stream Samples



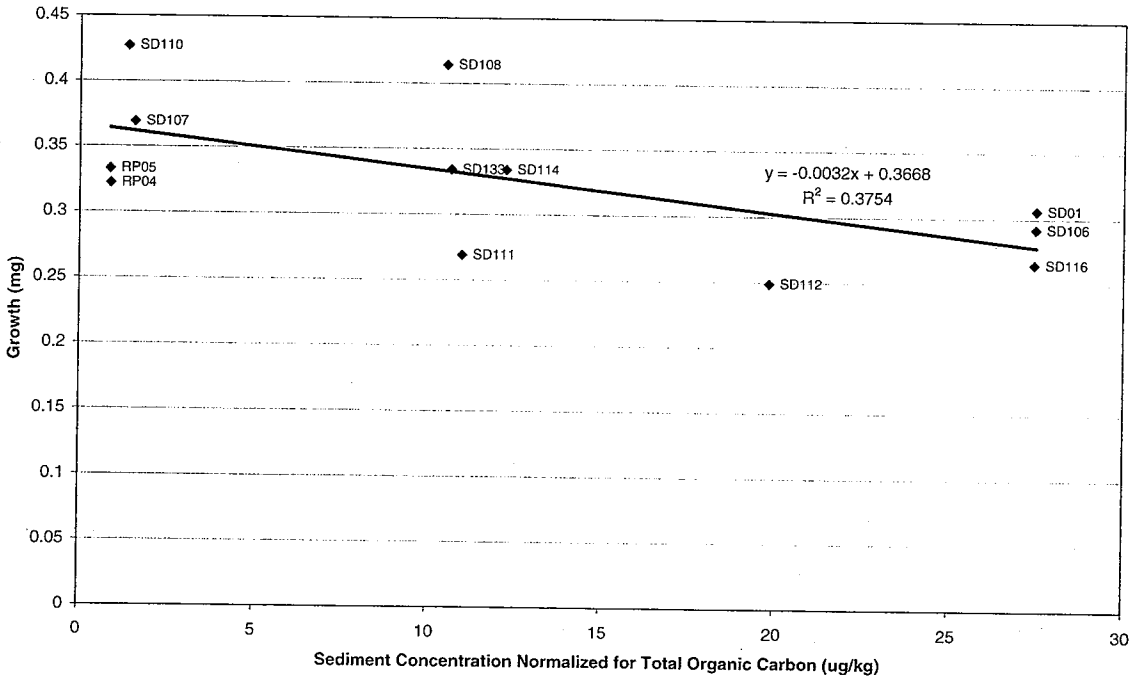
Concentration of Total DDD, DDE, DDT in Sediment vs Growth of Hyallella Azteca Stream Samples



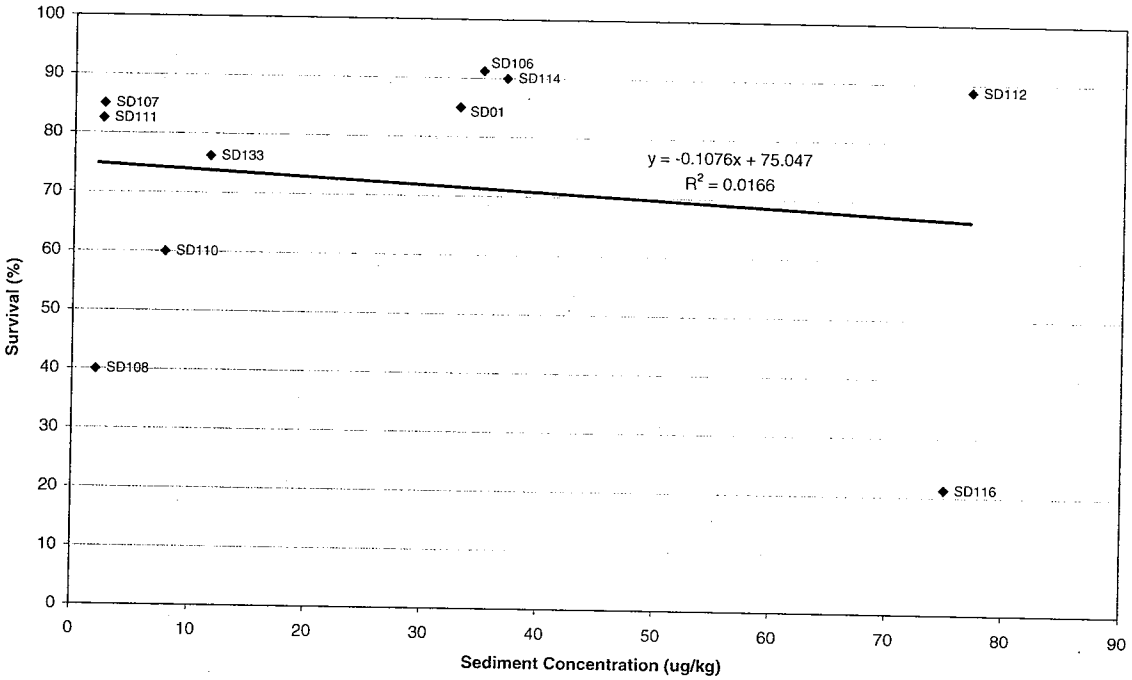
Normalized Concentration of Total DDD, DDE, DDT in Sediment vs Survival of Hyallella Azteca Stream Samples



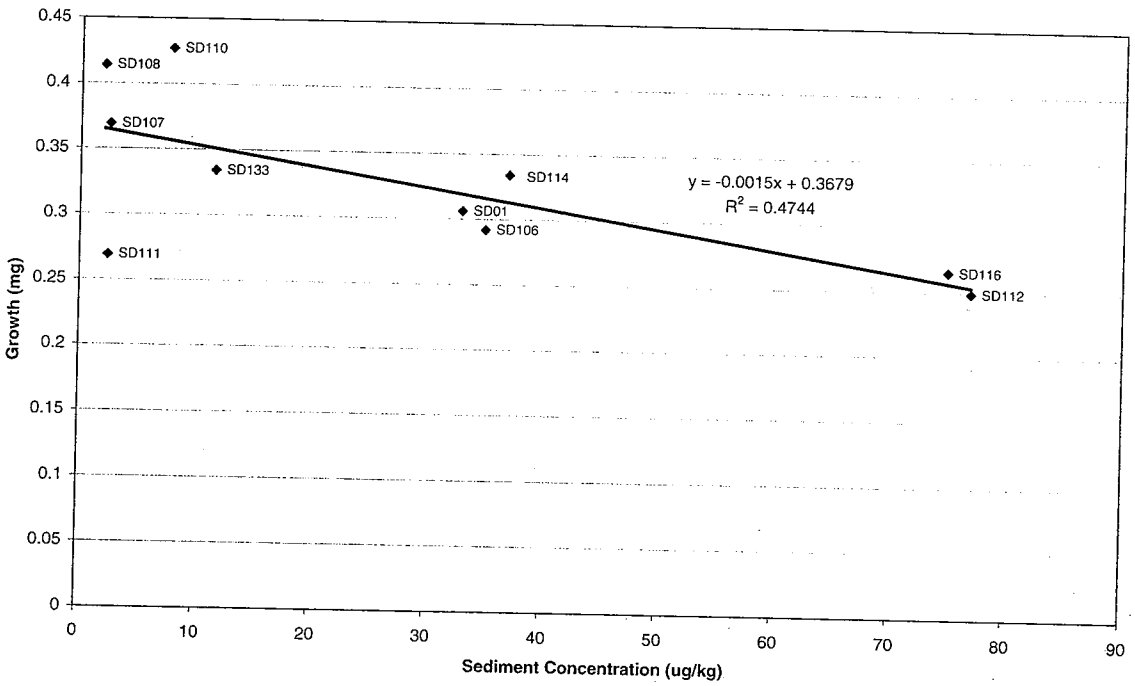
Normalized Concentration of Total DDD, DDE, DDT in Sediment vs Growth of Hyallella Azteca Stream Samples



Concentration of Total Chlordane in Sediment vs Survival of Hyallella Azteca Stream Samples



Concentration of Total Chlordane in Sediment vs Growth of Hyallella Azteca Stream Samples



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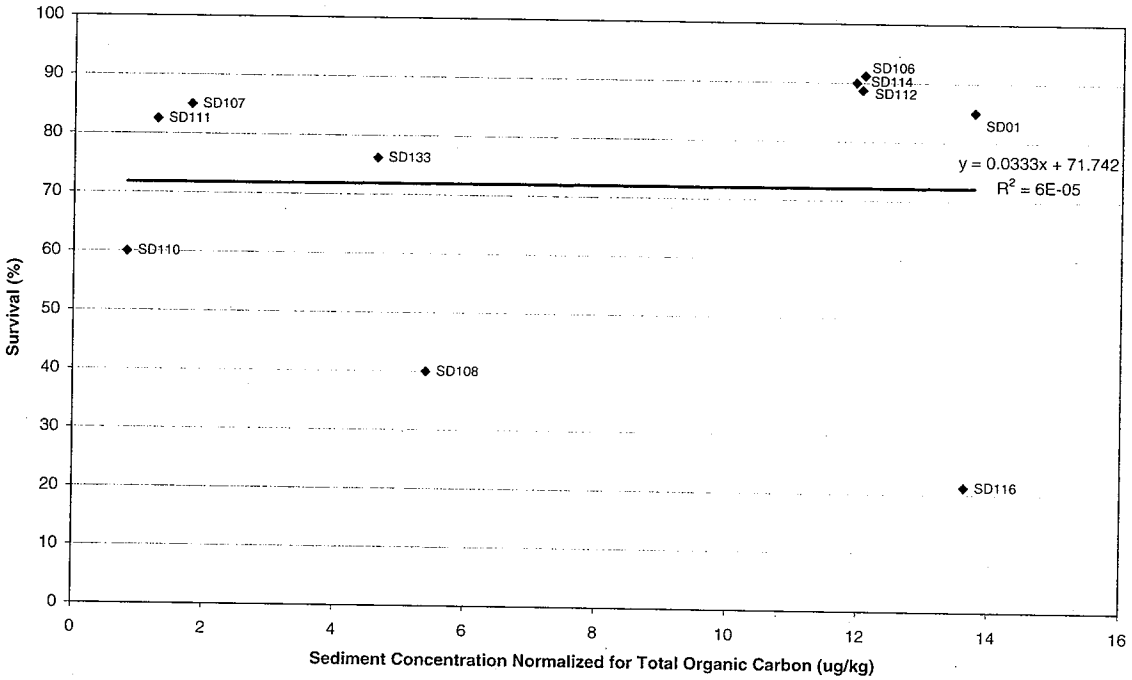
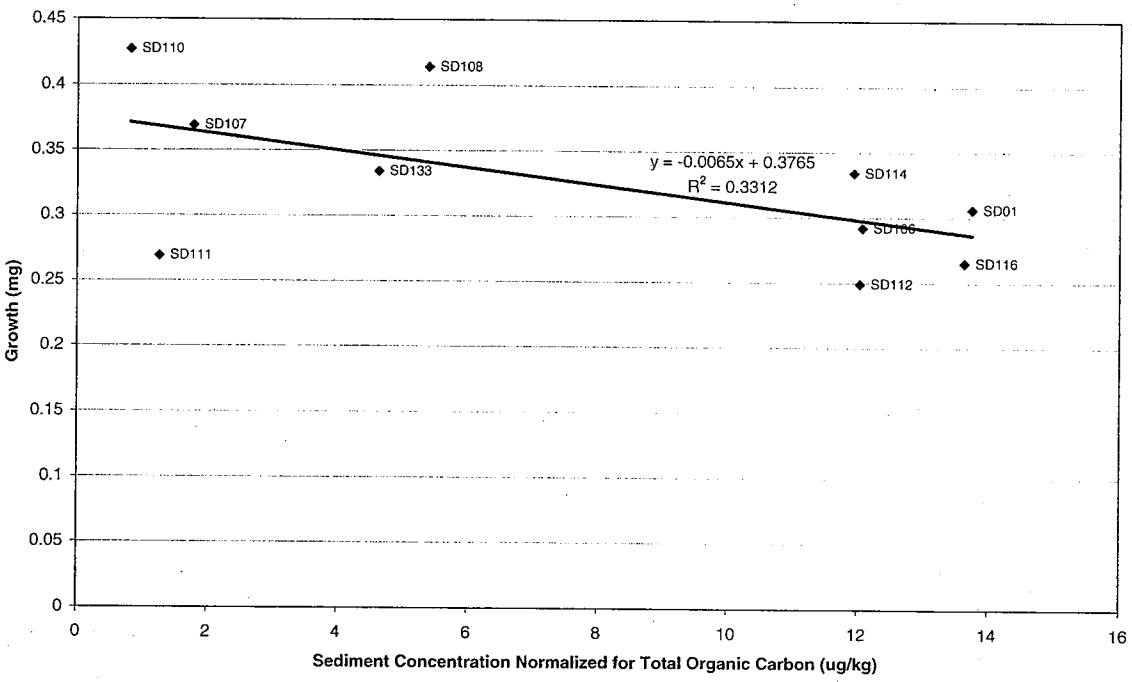
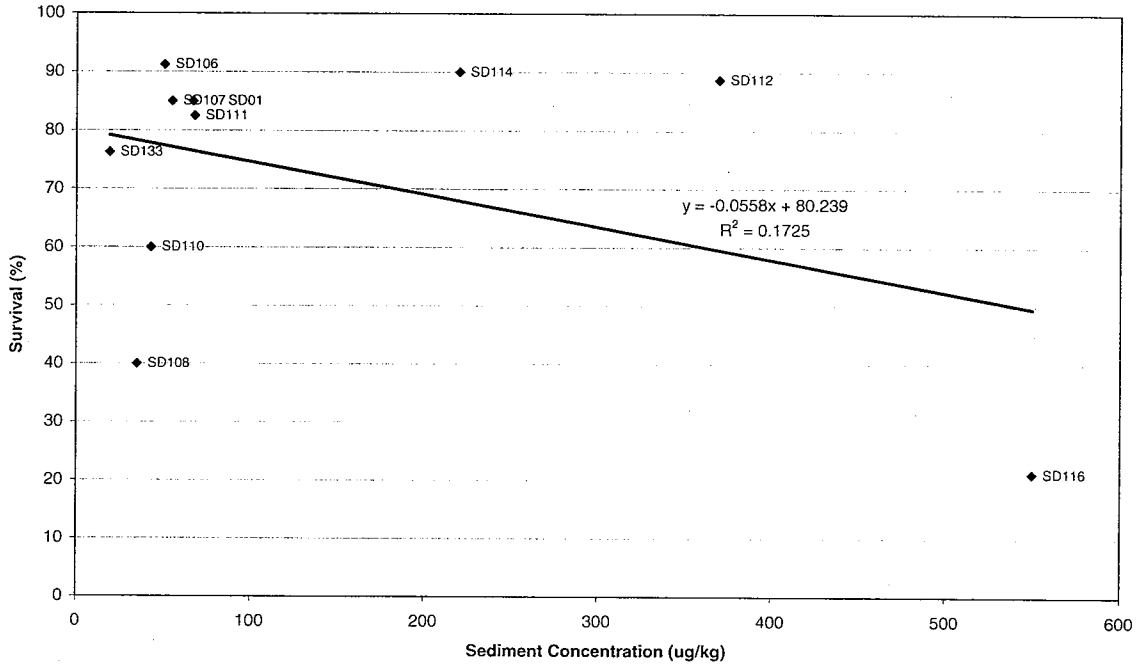


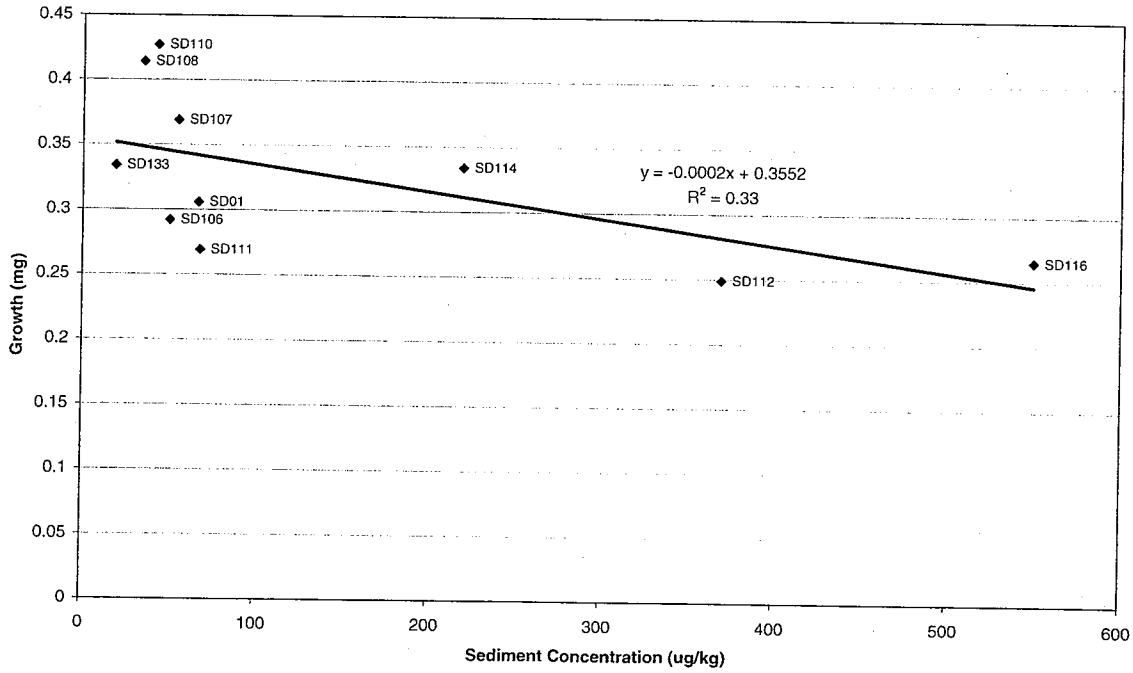
Normalized Concentration of Total Chlordane in Sediment vs Growth of Hyallella Azteca Stream Samples



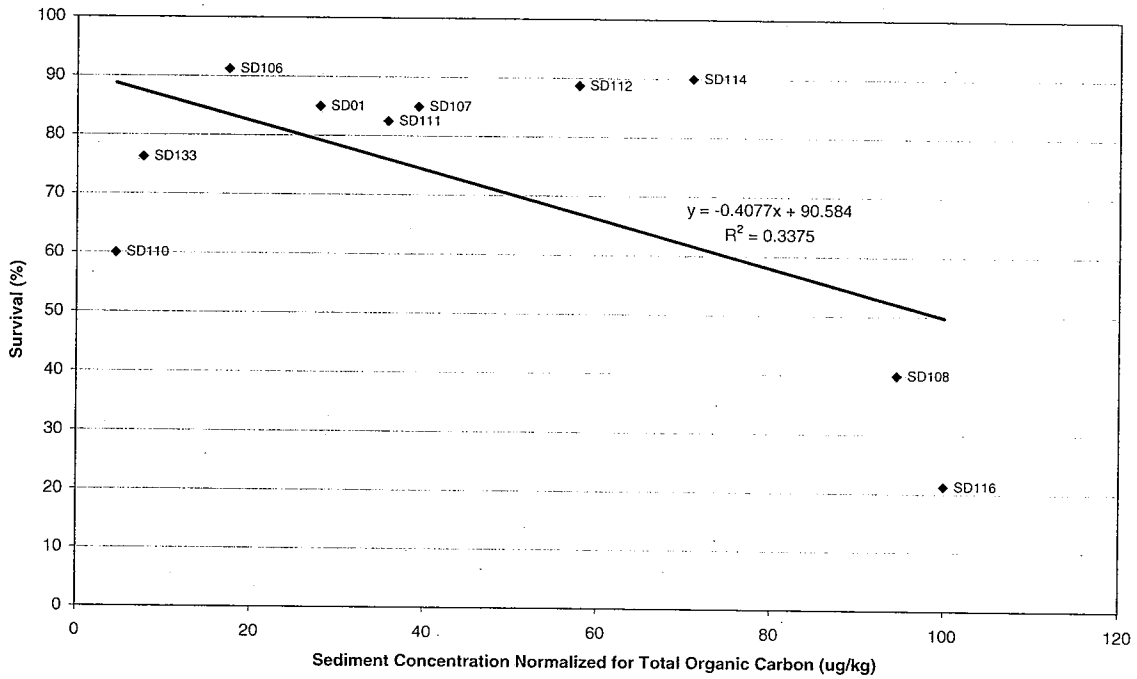
Concentration of Total PCBs in Sediment vs Survival of Hyallella Azteca Stream Samples



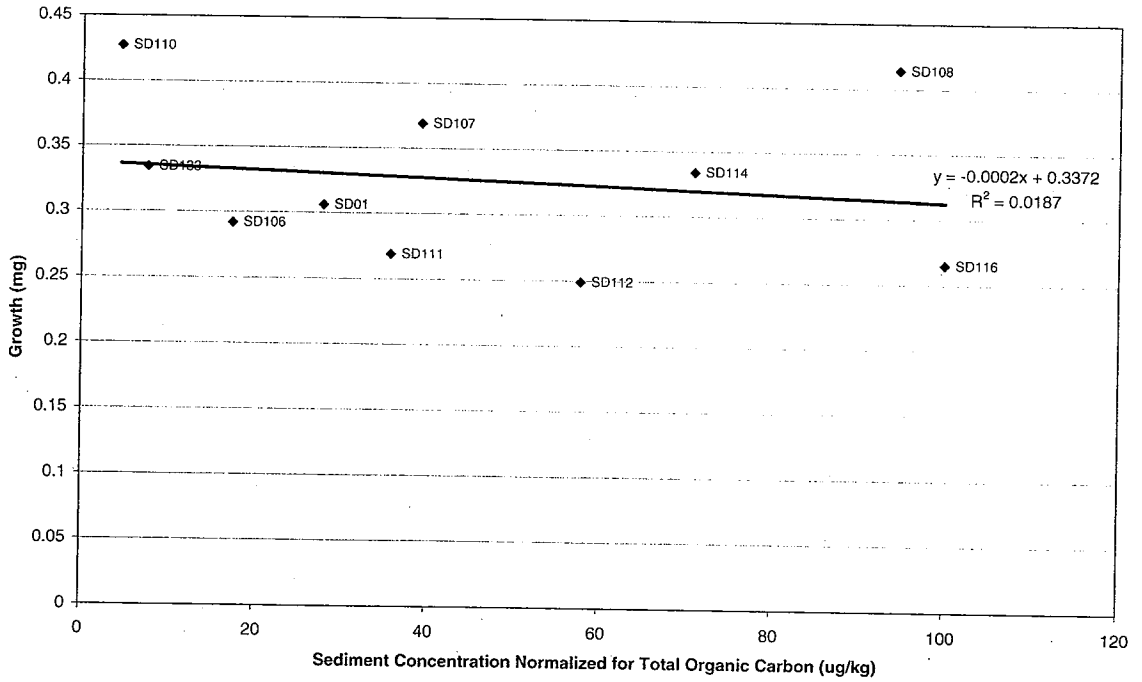
Concentration of Total PCBs in Sediment vs Growth of Hyallella Azteca Stream Samples



Normalized Concentration of Total PCBs in Sediment vs Survival of Hyallella Azteca Stream Samples



Normalized Concentration of Total PCBs in Sediment vs Growth of Hyallella Azteca Stream Samples



Concentration of LMW PAHs in Sediment vs Survival of Hyallella Azteca
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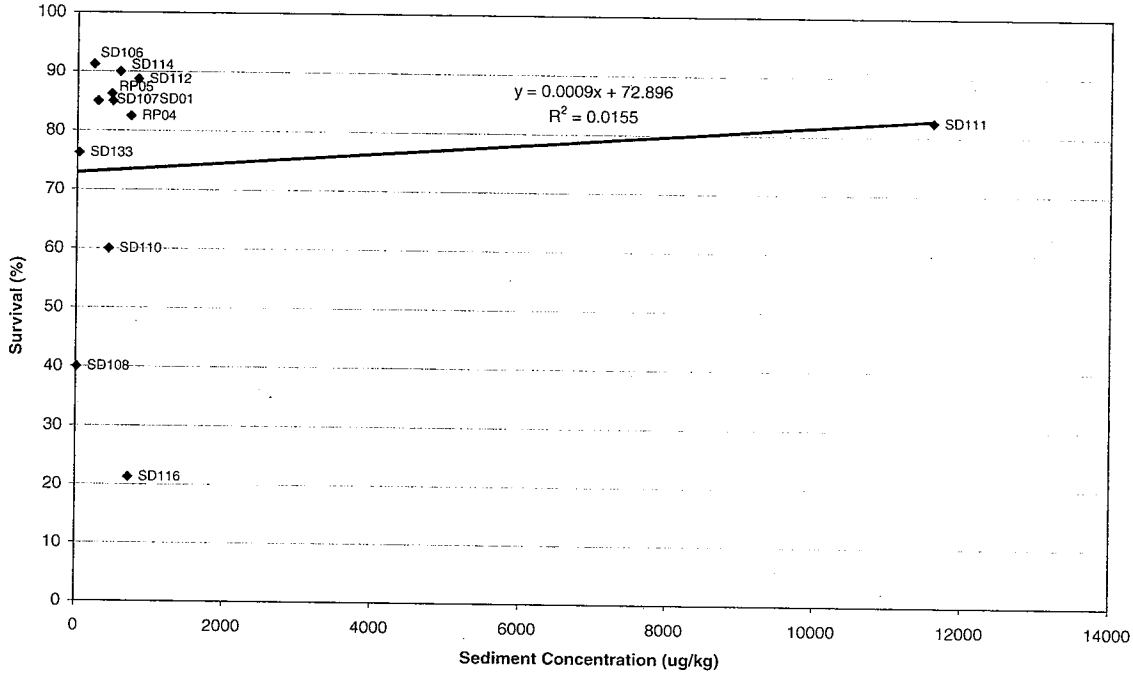

Concentration of LMW PAHs in Sediment vs Growth of Hyallella Azteca
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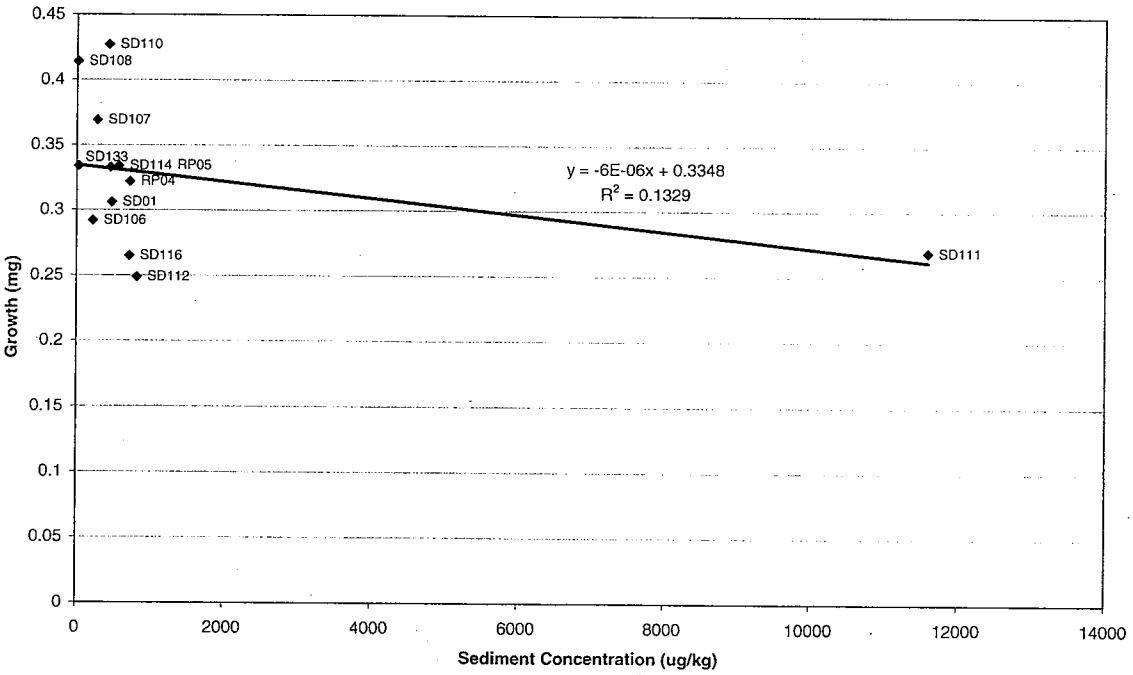

Concentration of LMW PAHs in Sediment vs Survival of Hyallella Azteca
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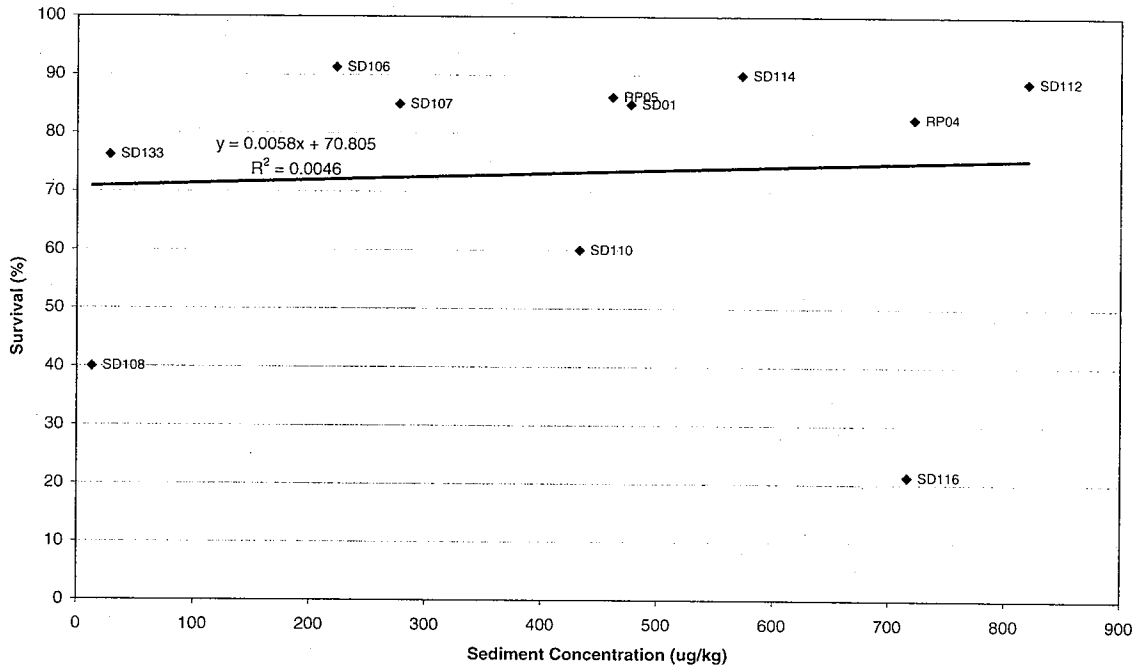

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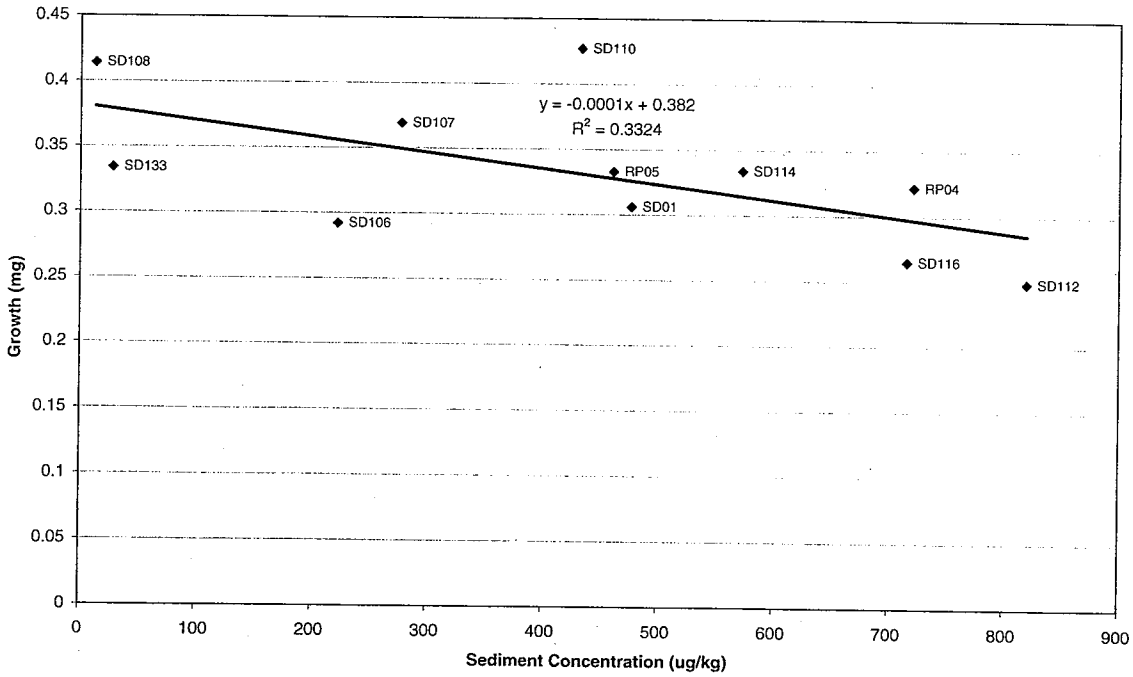
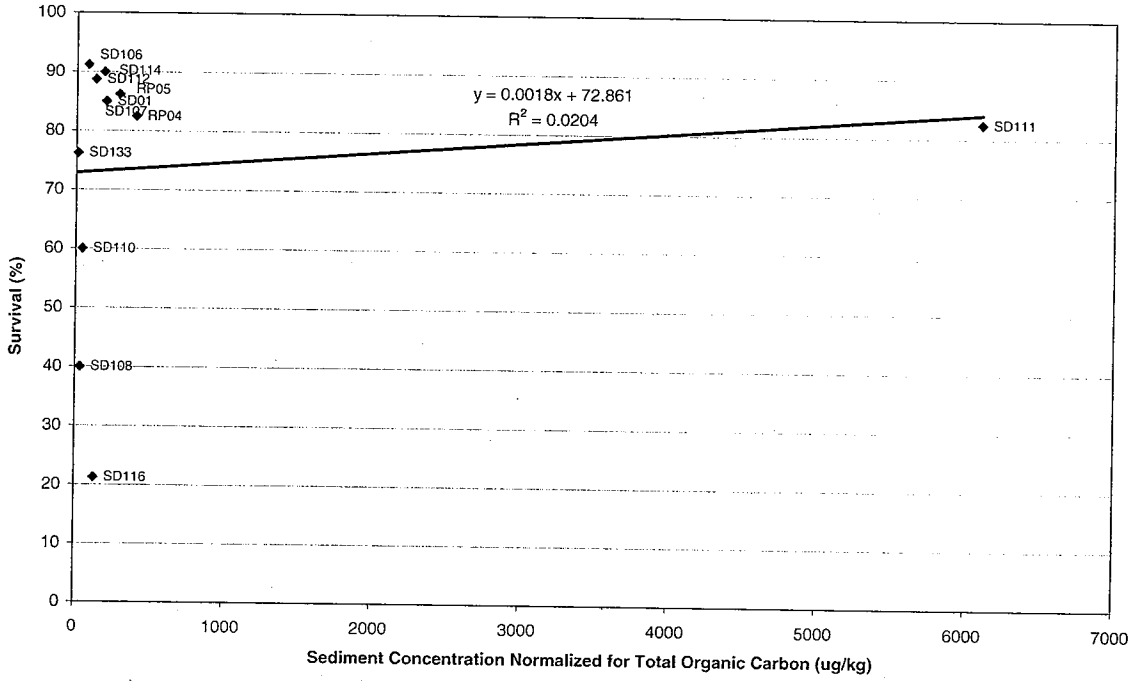
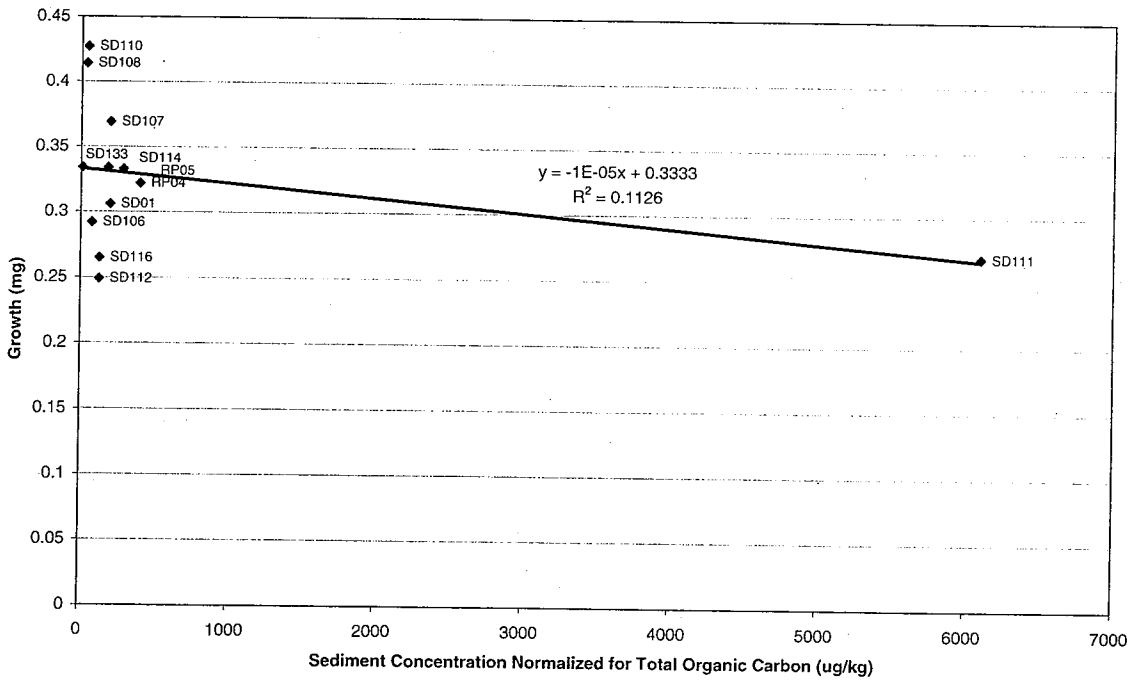


Normalized Concentration of LMW PAHs in Sediment vs Survival of Hyallella Azteca Stream Samples



Normalized Concentration of LMW PAHs in Sediment vs Growth of Hyallella Azteca Stream Samples



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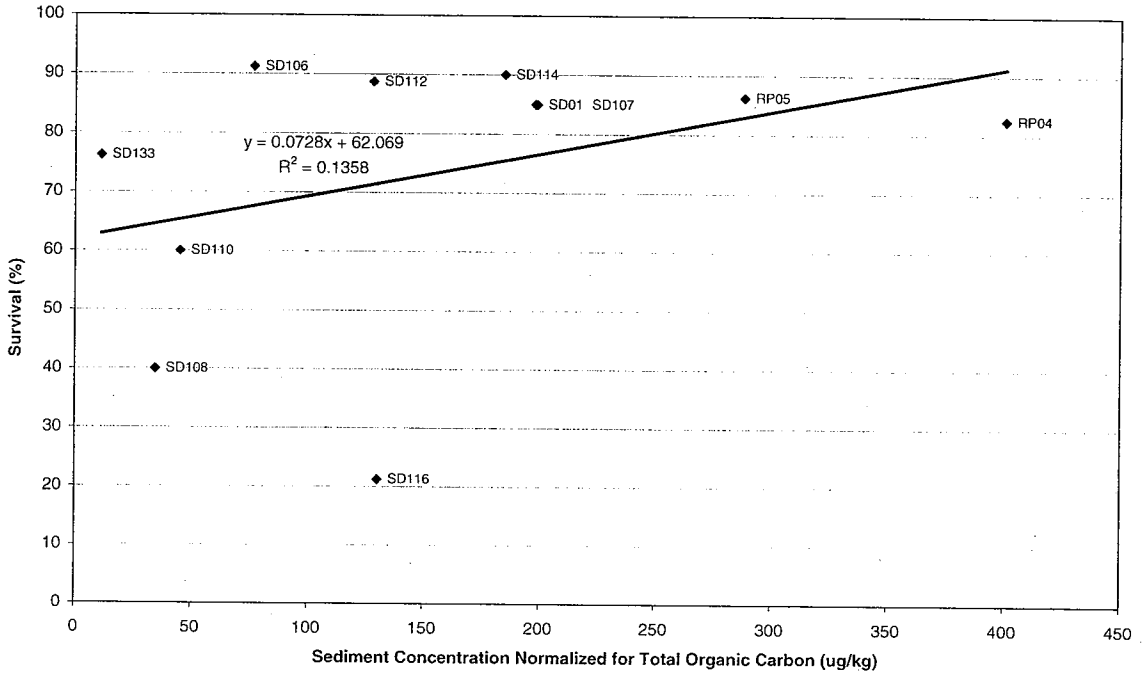
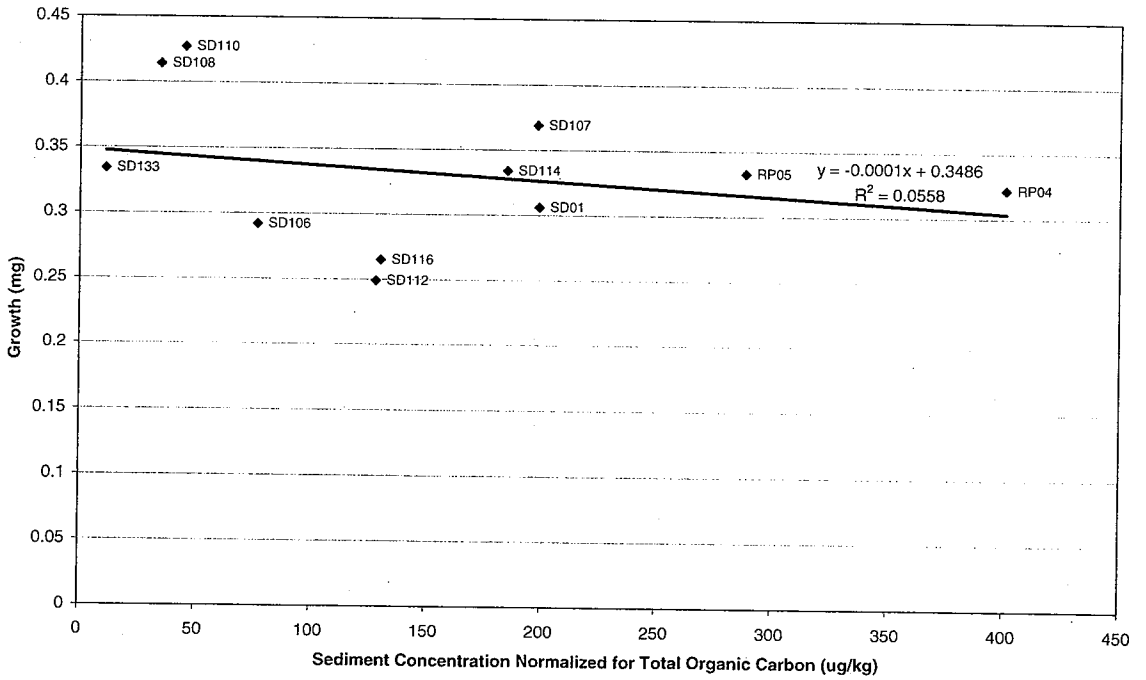
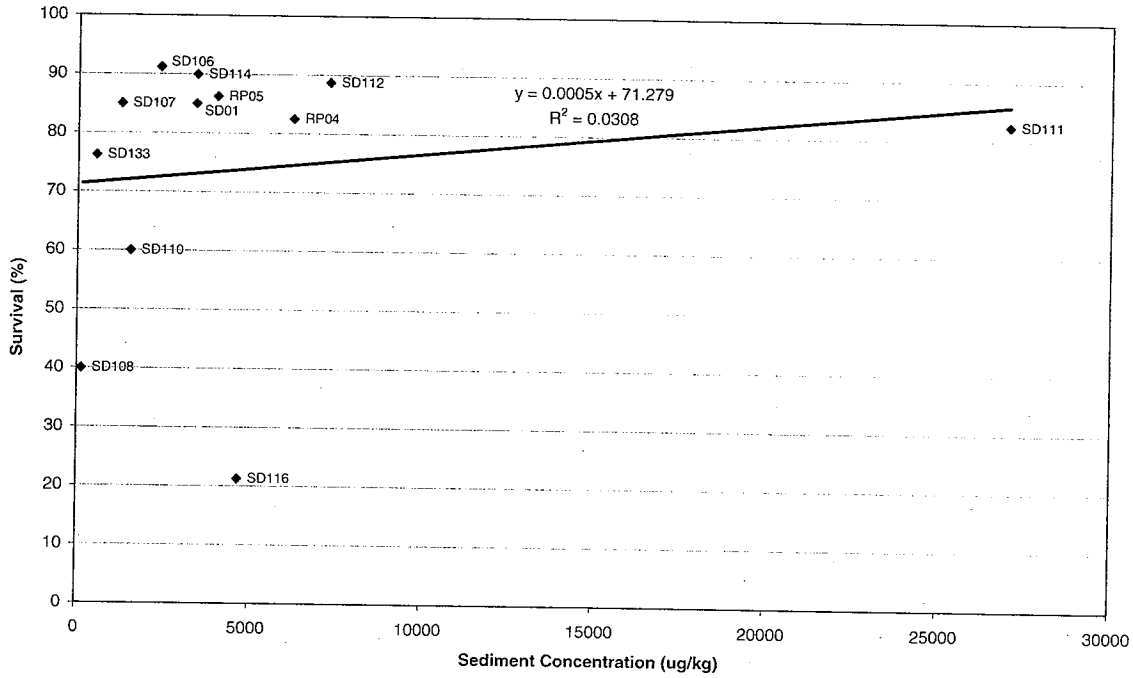


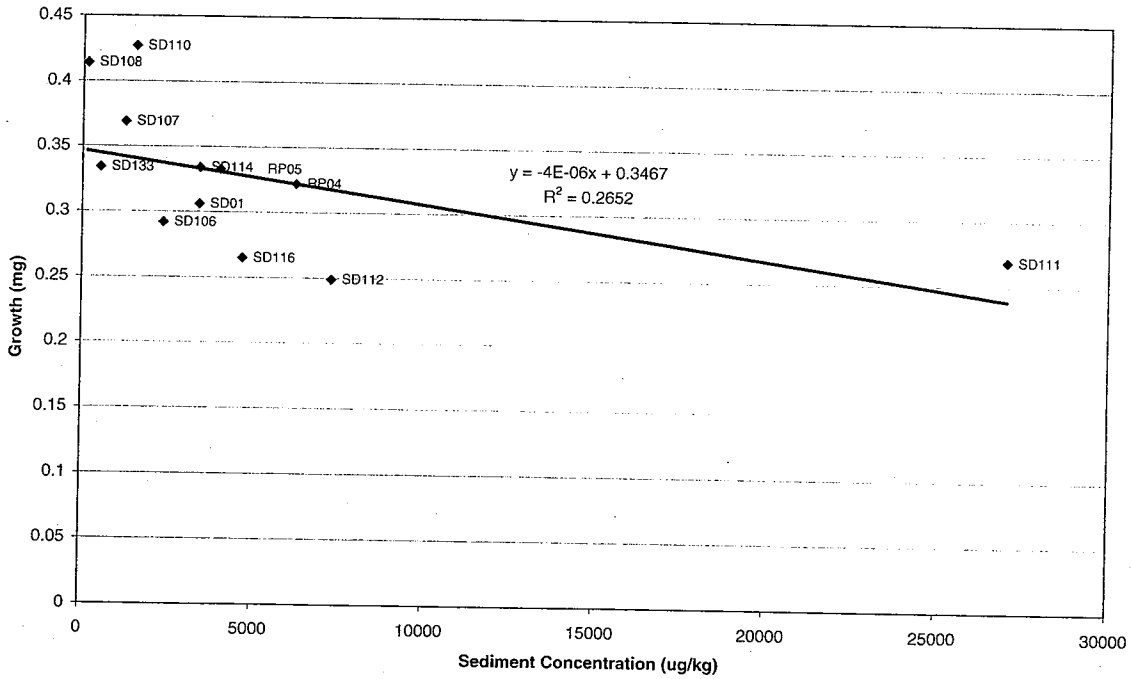
Normalized Concentration of LMW PAHs in Sediment vs Growth of Hyallella Azteca Stream Samples (Excluding Sample SD111)



Concentration of HMW PAHs in Sediment vs Survival of Hyallella Azteca Stream Samples



Concentration of HMW PAHs in Sediment vs Growth of Hyallella Azteca Stream Samples



Concentration of HMW PAHs in Sediment vs Survival of Hyallella Azteca
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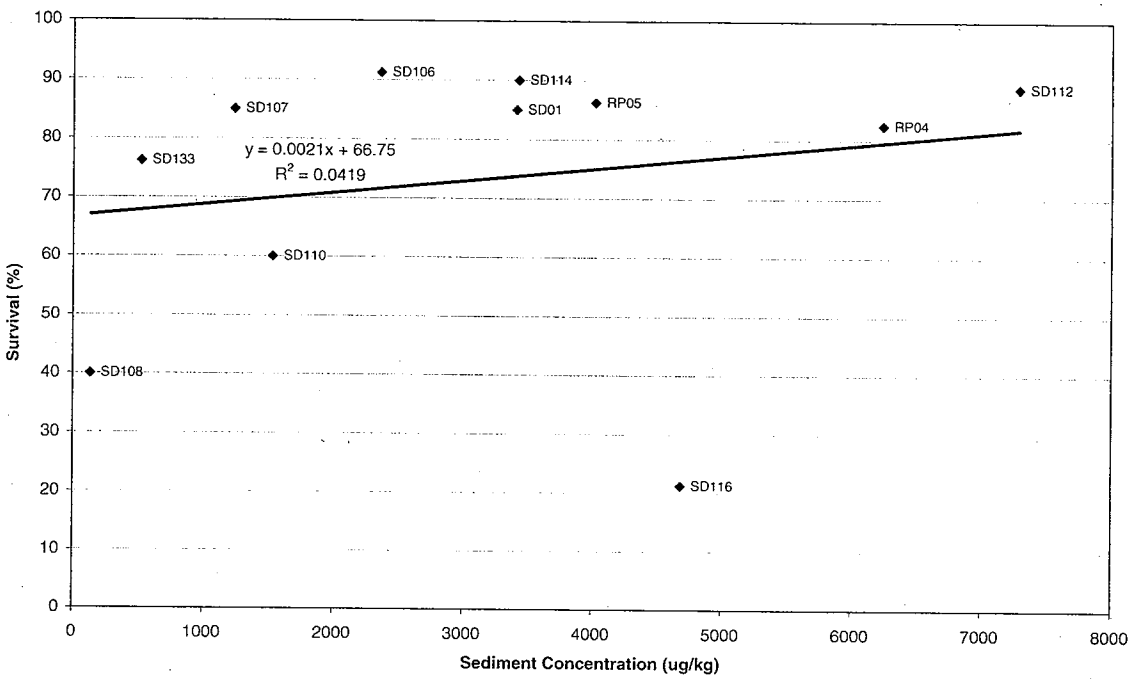

Concentration of HMW PAHs in Sediment vs Growth of Hyallella Azteca
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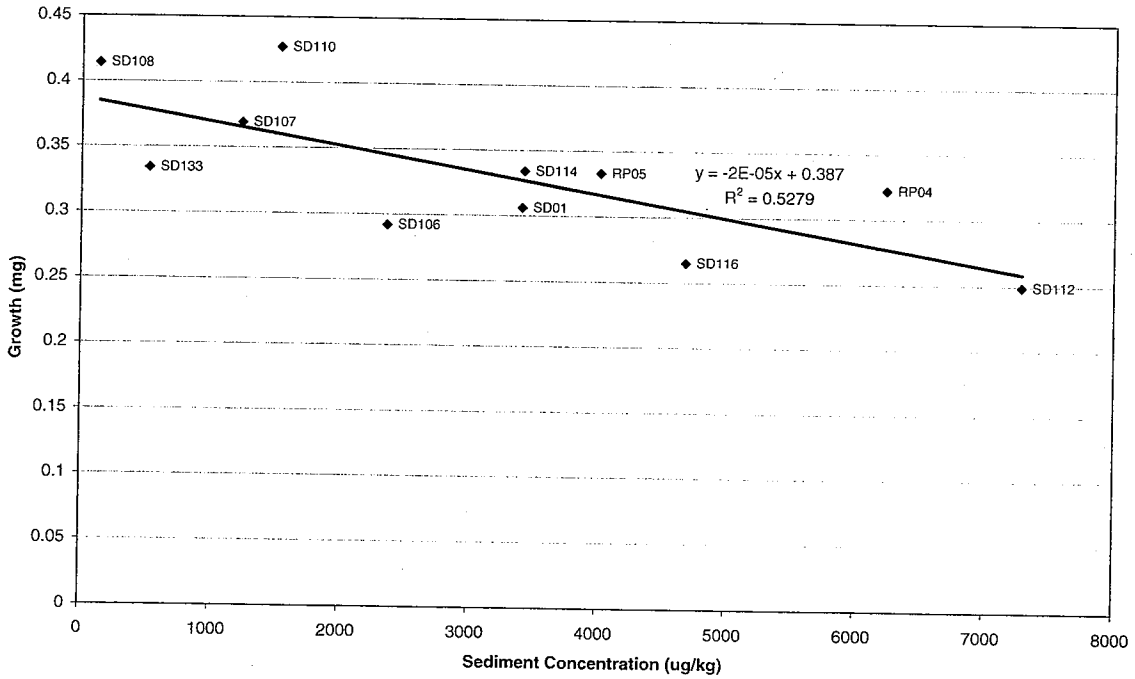
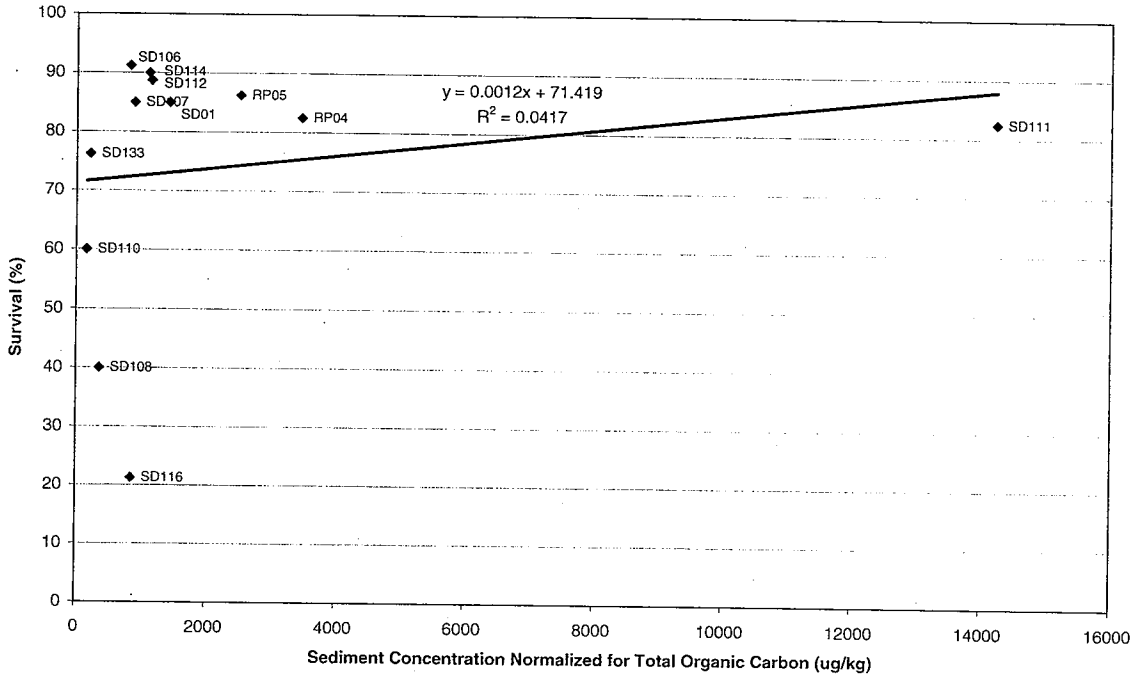
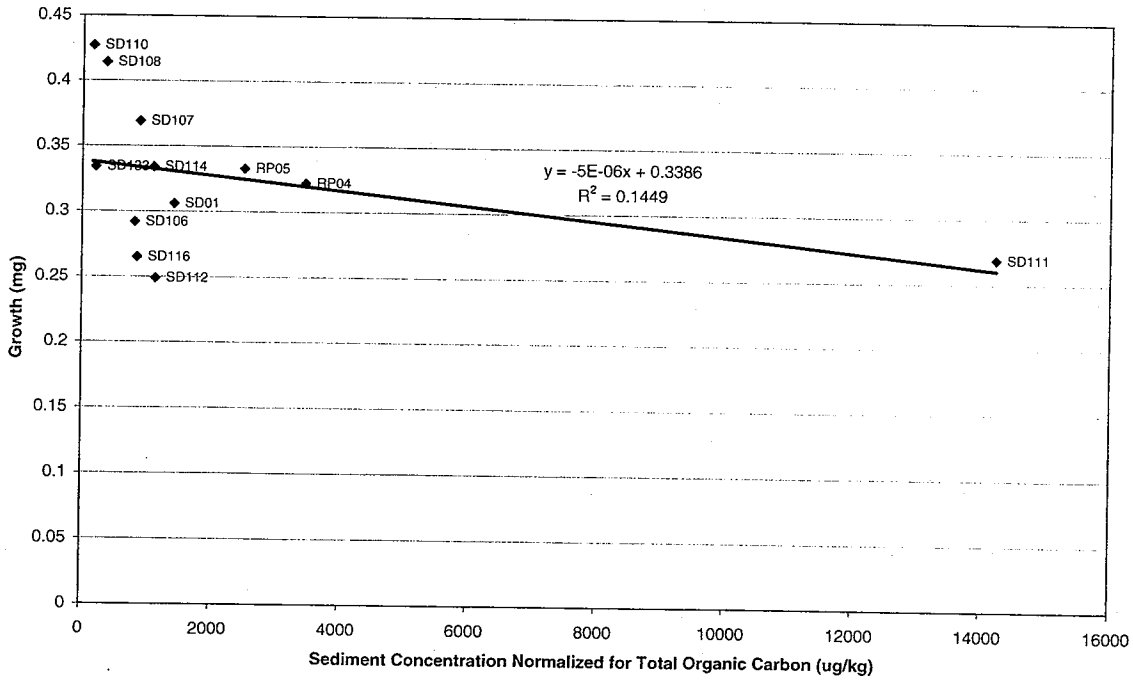


Normalized Concentration of HMW PAHs in Sediment vs Survival of Hyallella Azteca Stream Samples



Normalized Concentration of HMW PAHs in Sediment vs Growth of Hyallella Azteca Stream Samples



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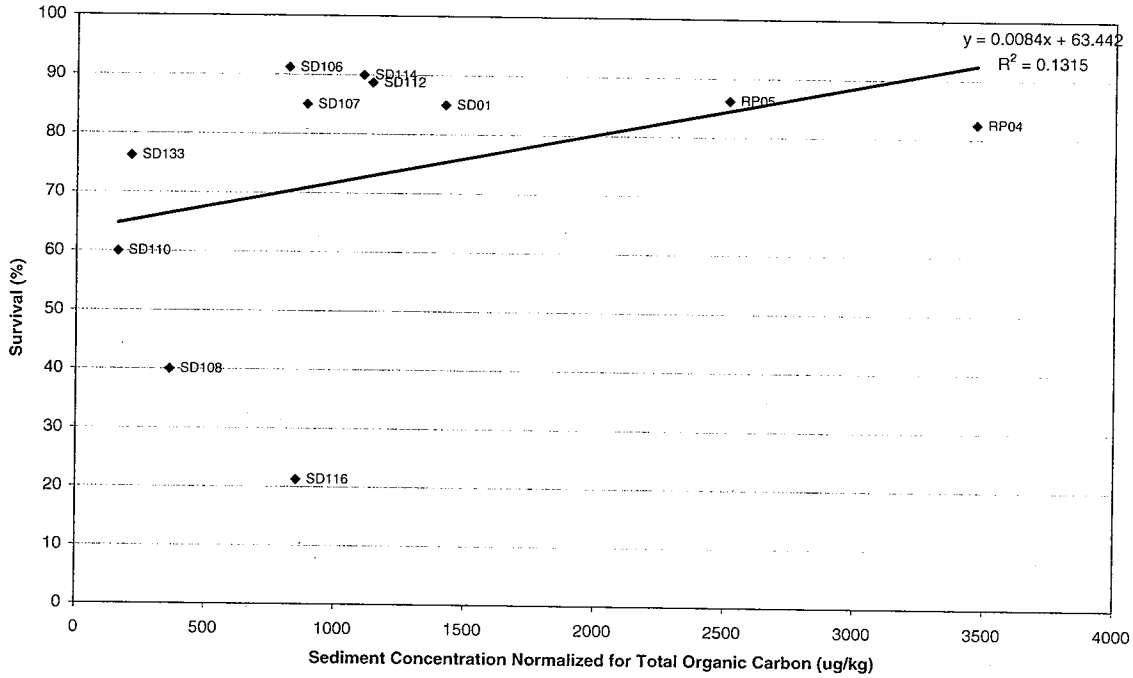

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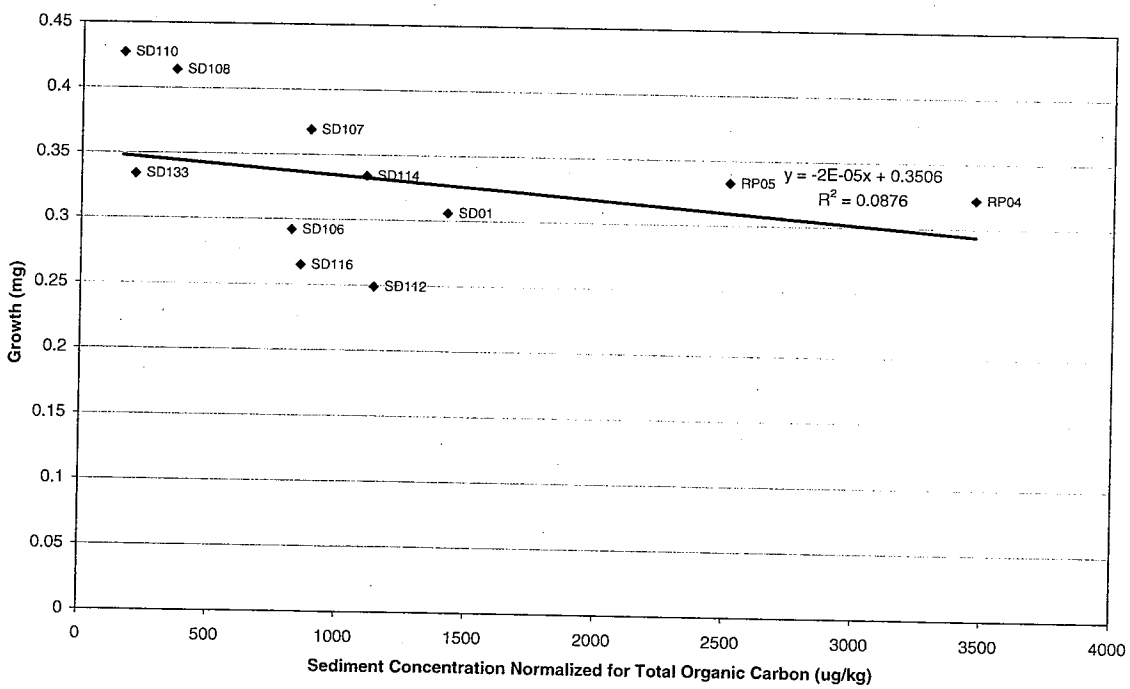

Concentration of Total PAHs in Sediment vs Survival of Hyallella Azteca
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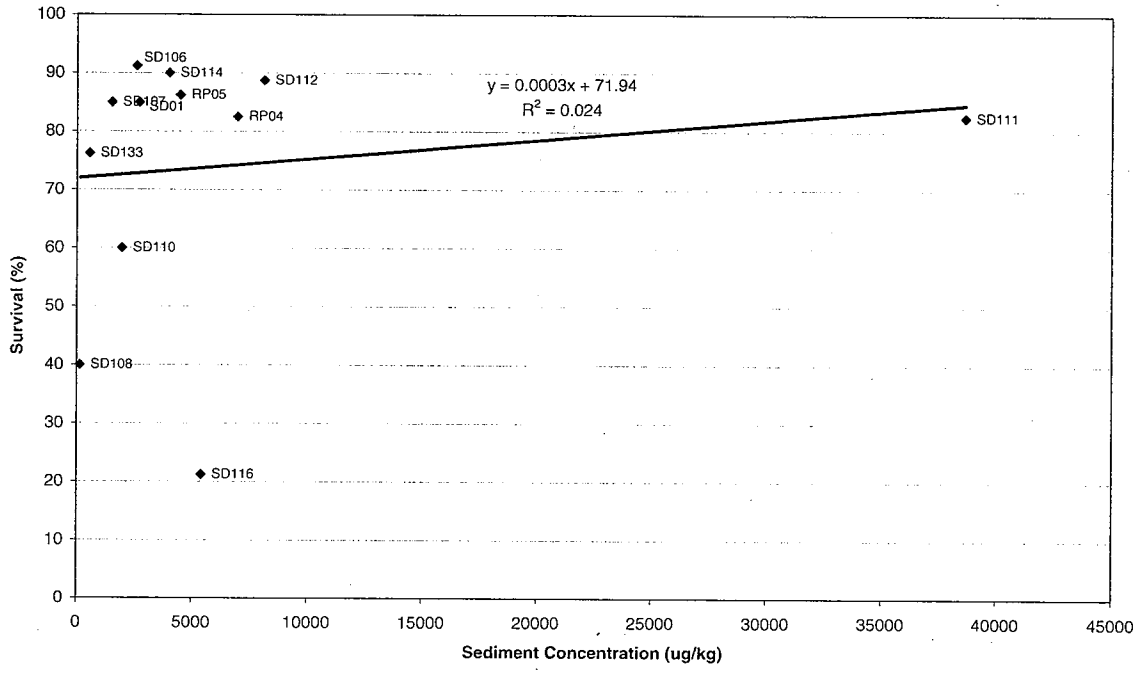

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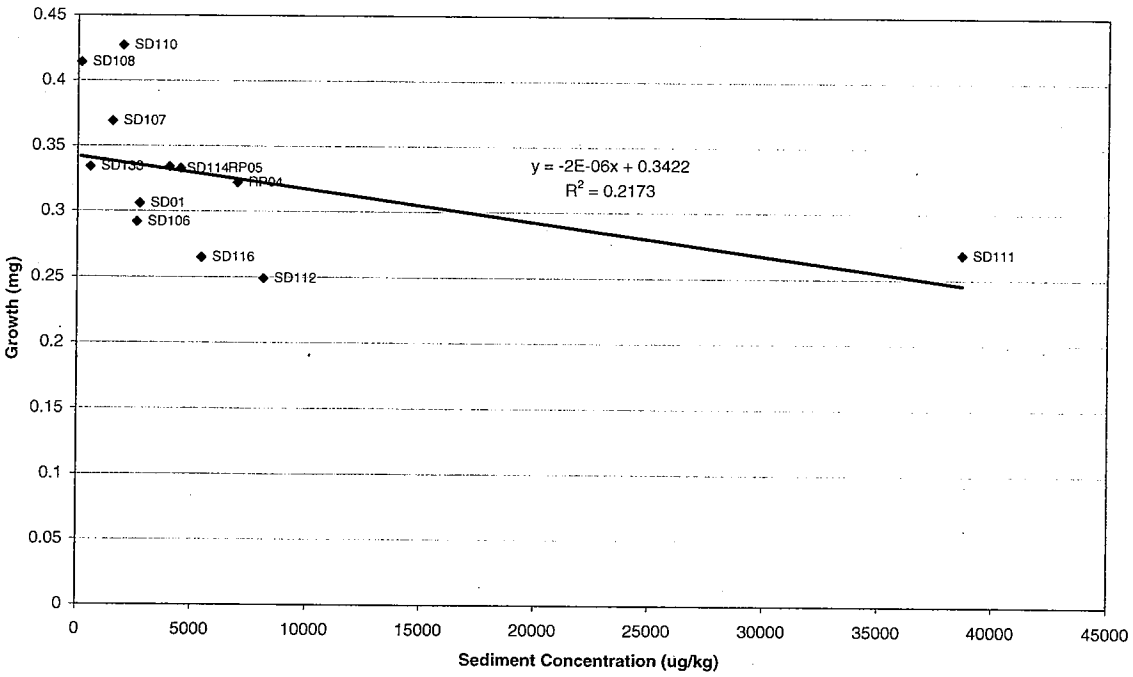

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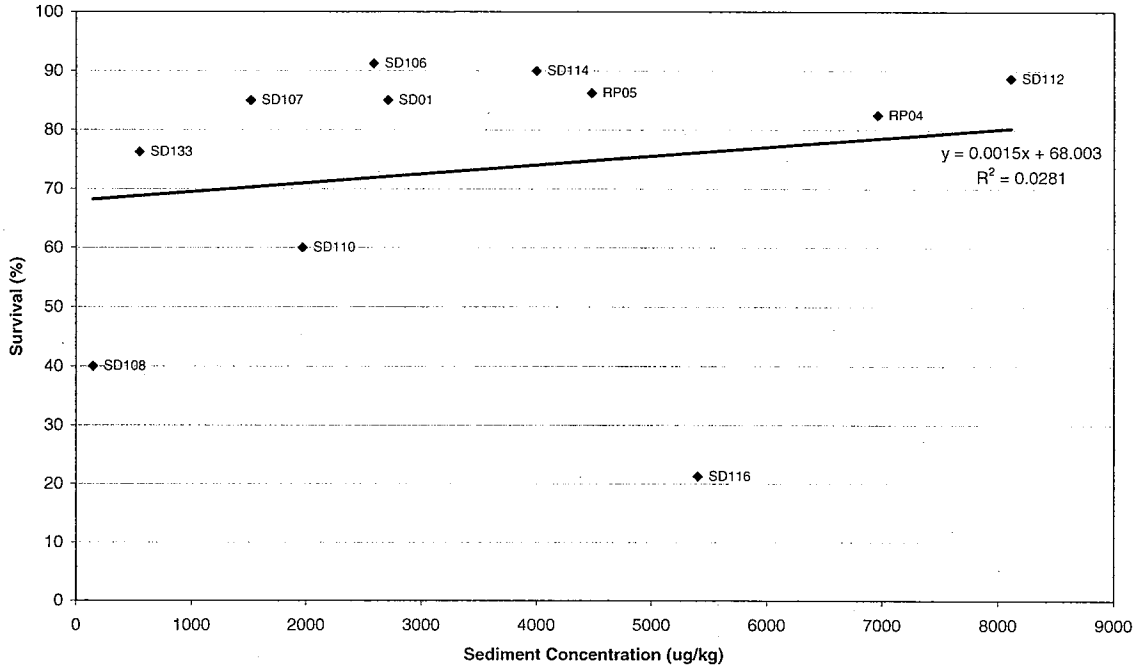

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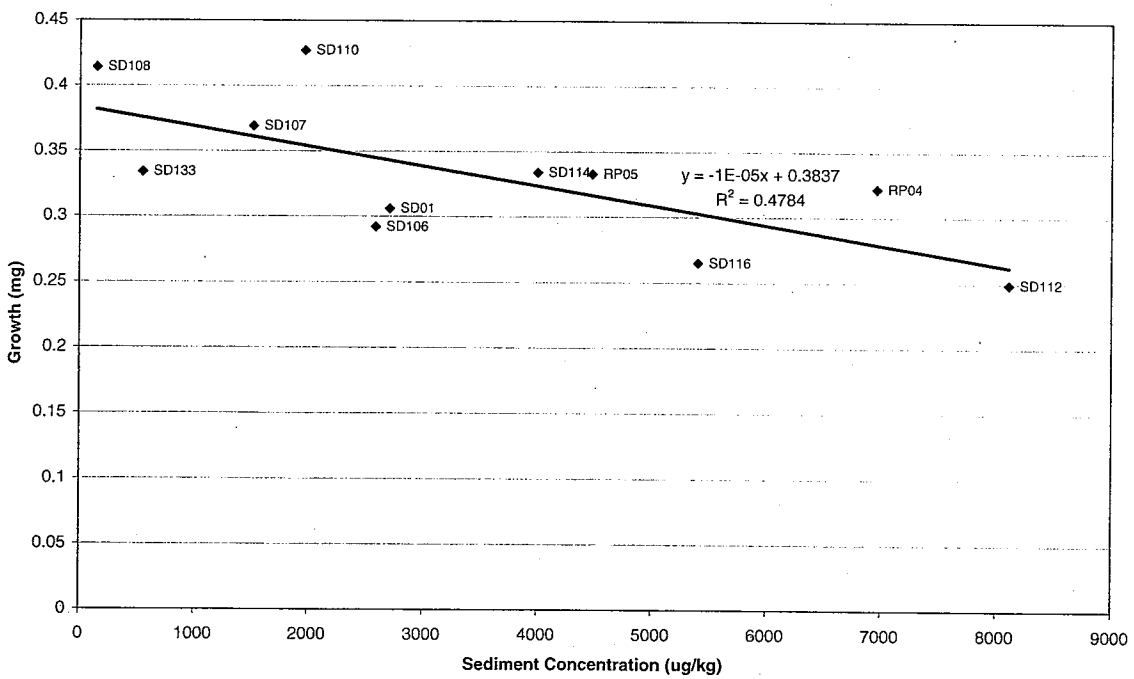

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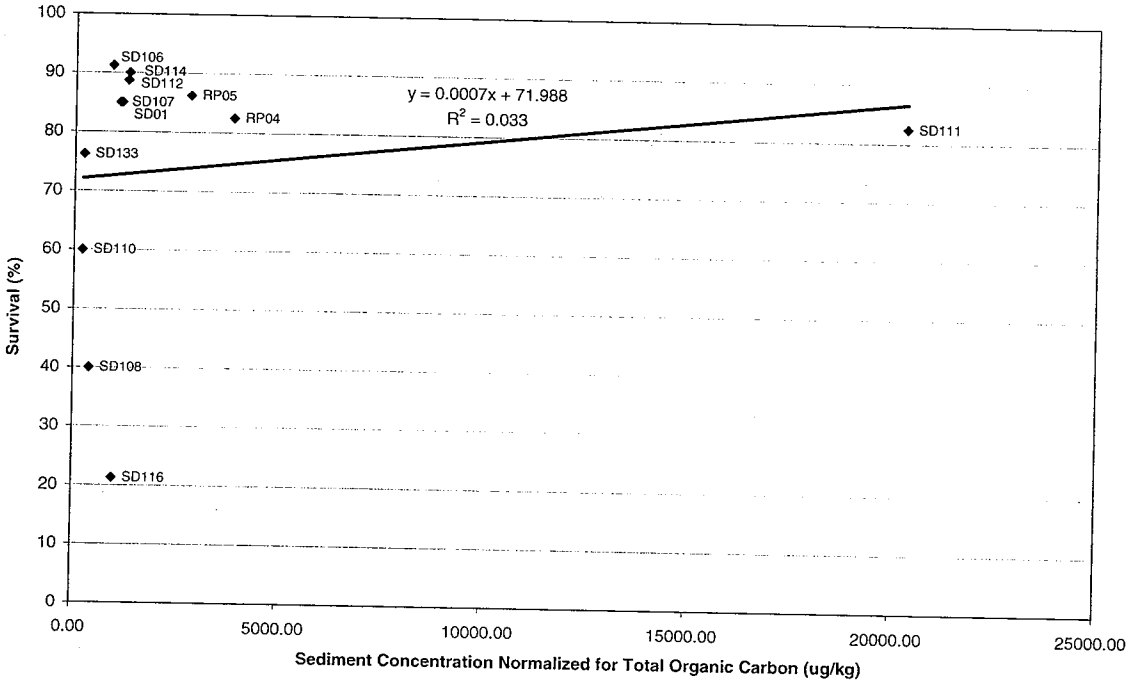

Normalized Concentration of Total PAHs in Sediment vs Growth of Hyallella Azteca
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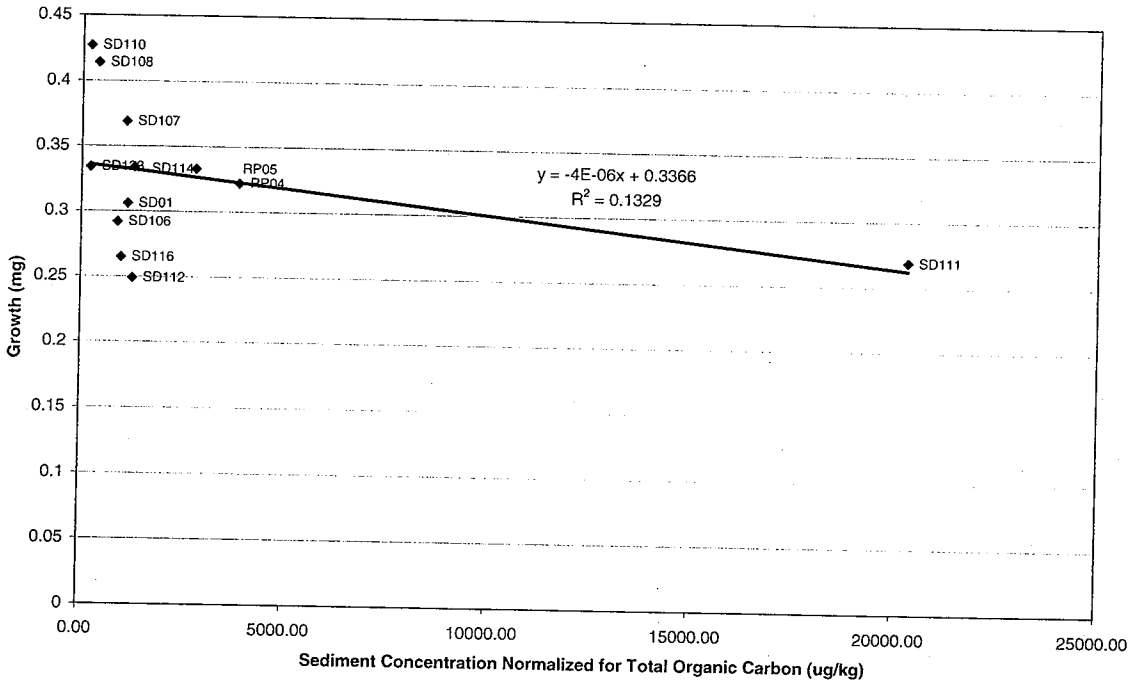

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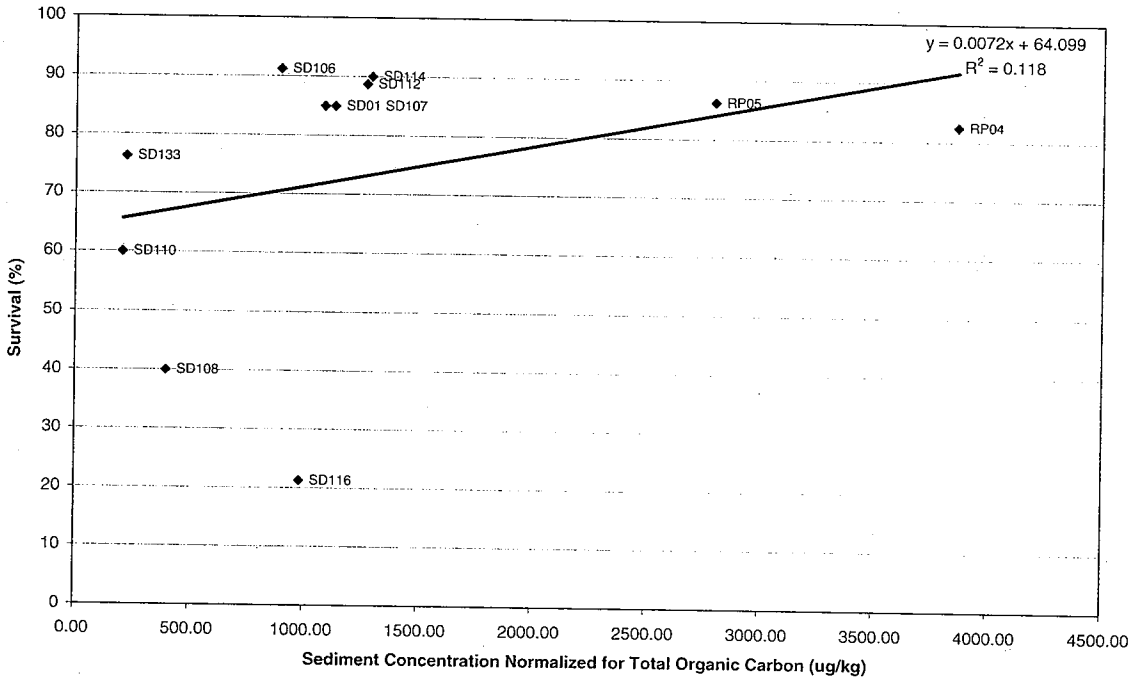
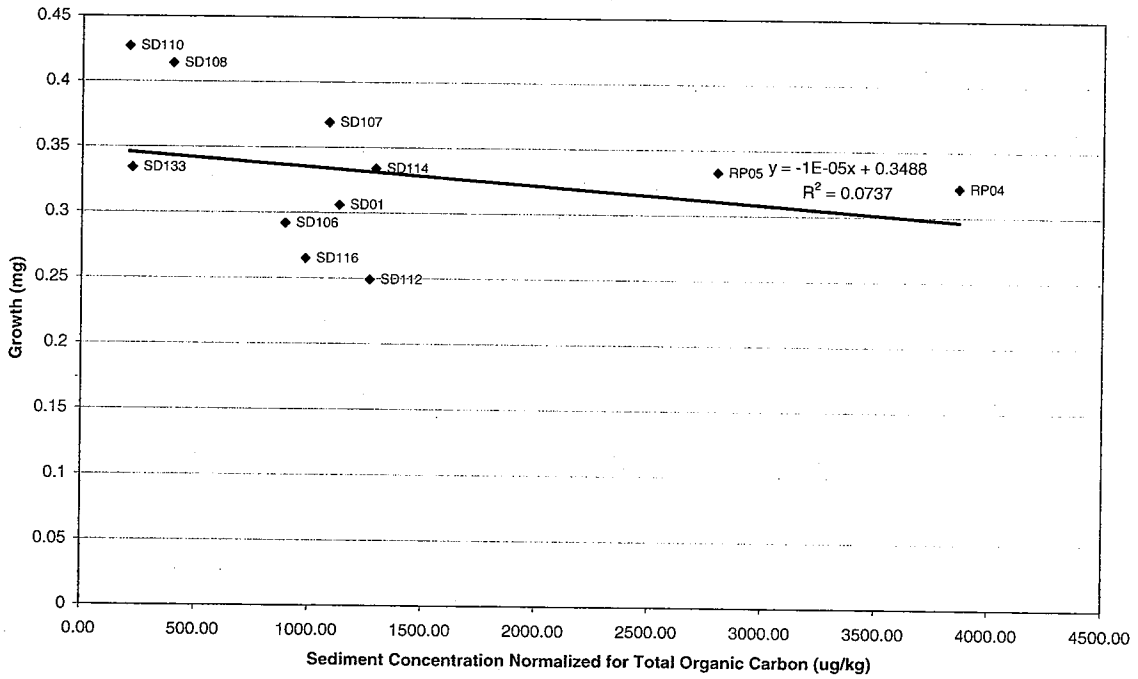
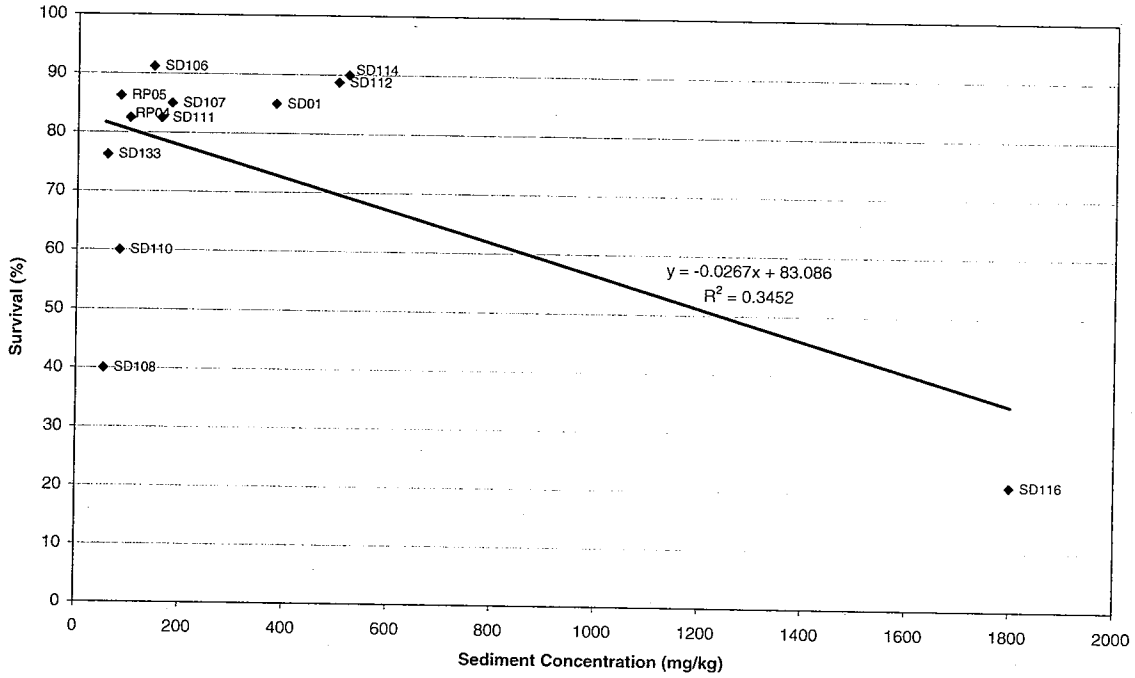


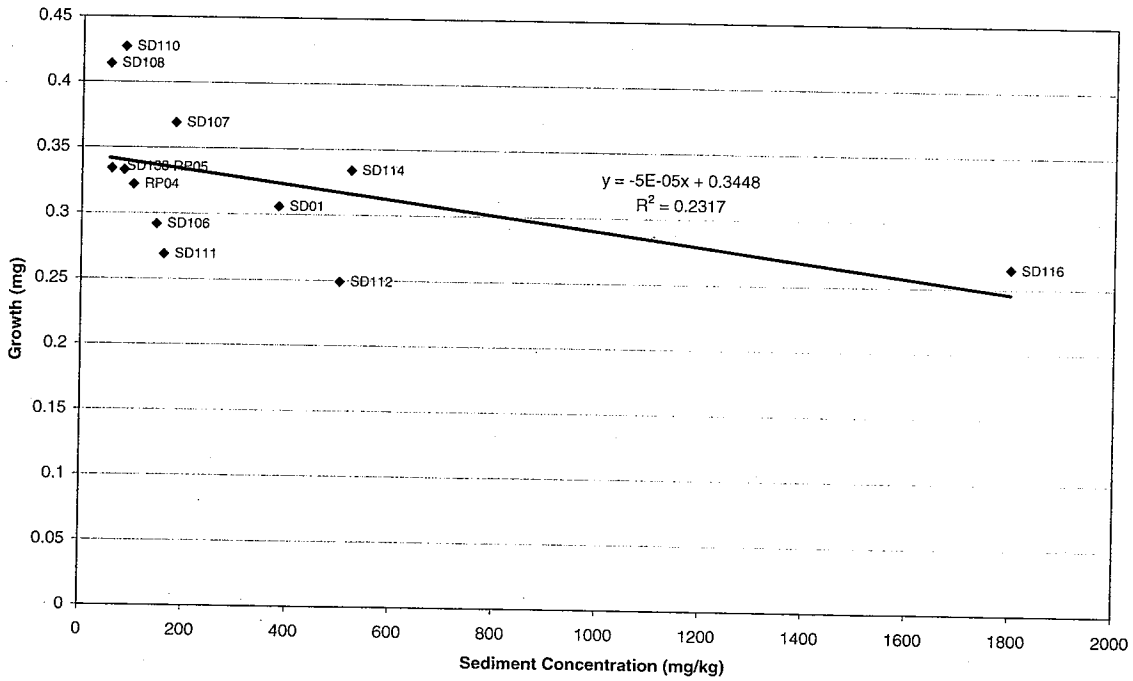
Normalized Concentration of Total PAHs in Sediment vs Growth of Hyallella Azteca Stream Samples (Excluding Sample SD111)



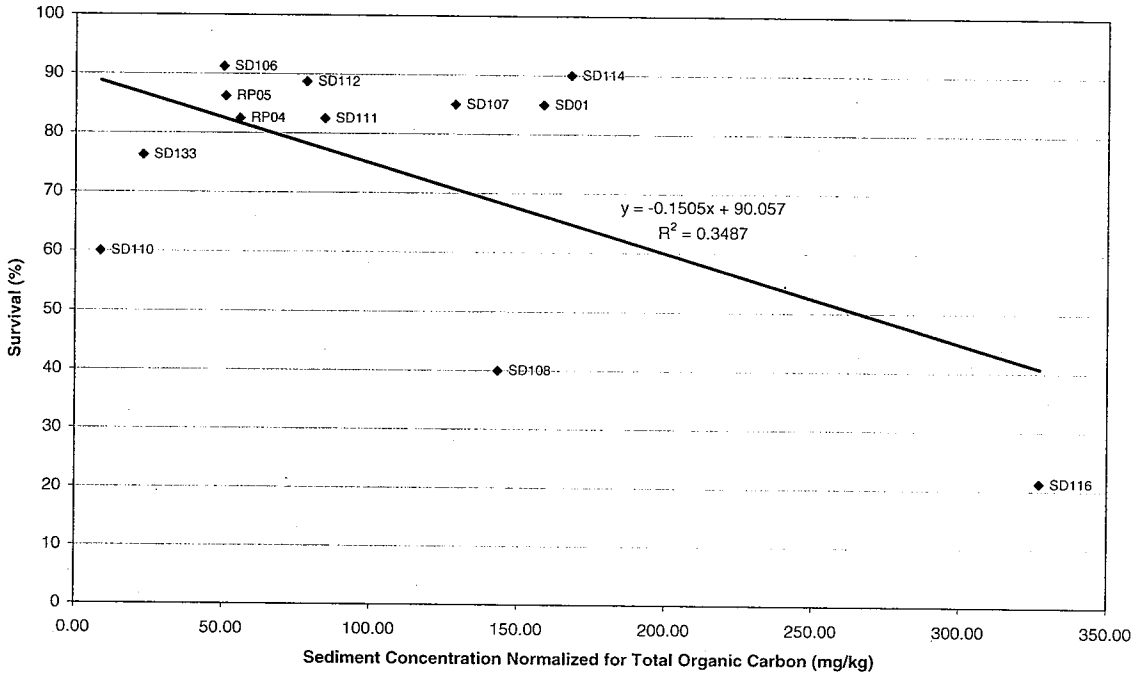
Concentration of TPH in Sediment vs Survival of Hyallella Azteca Stream Samples



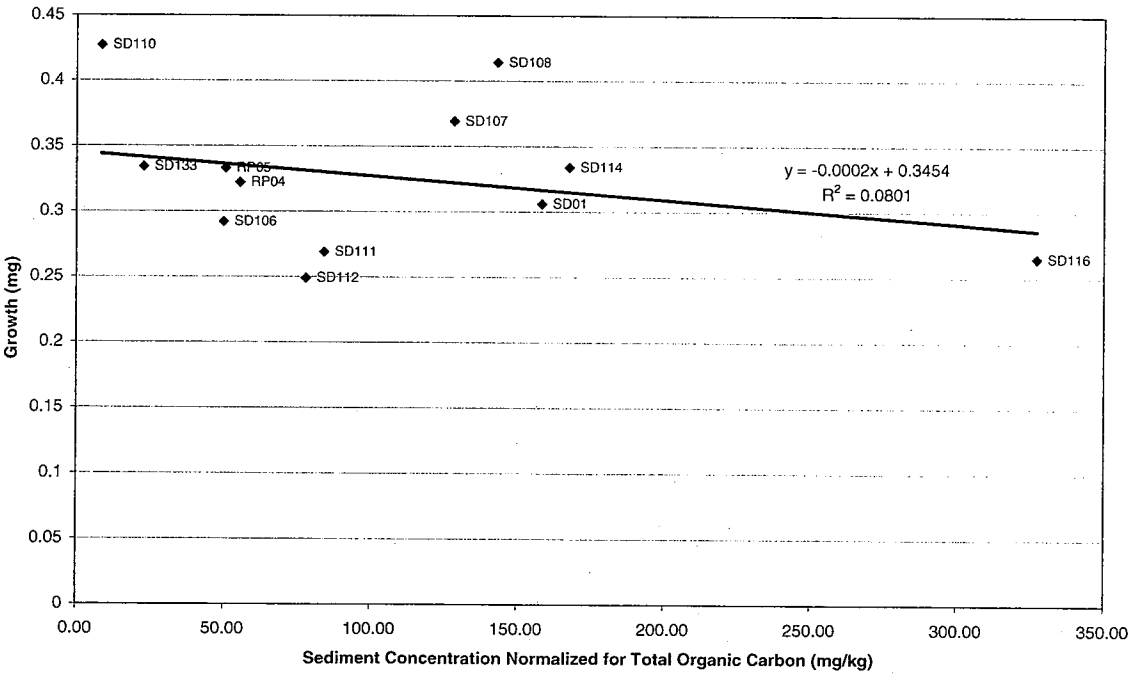
Concentration of TPH in Sediment vs Growth of Hyallella Azteca Stream Samples



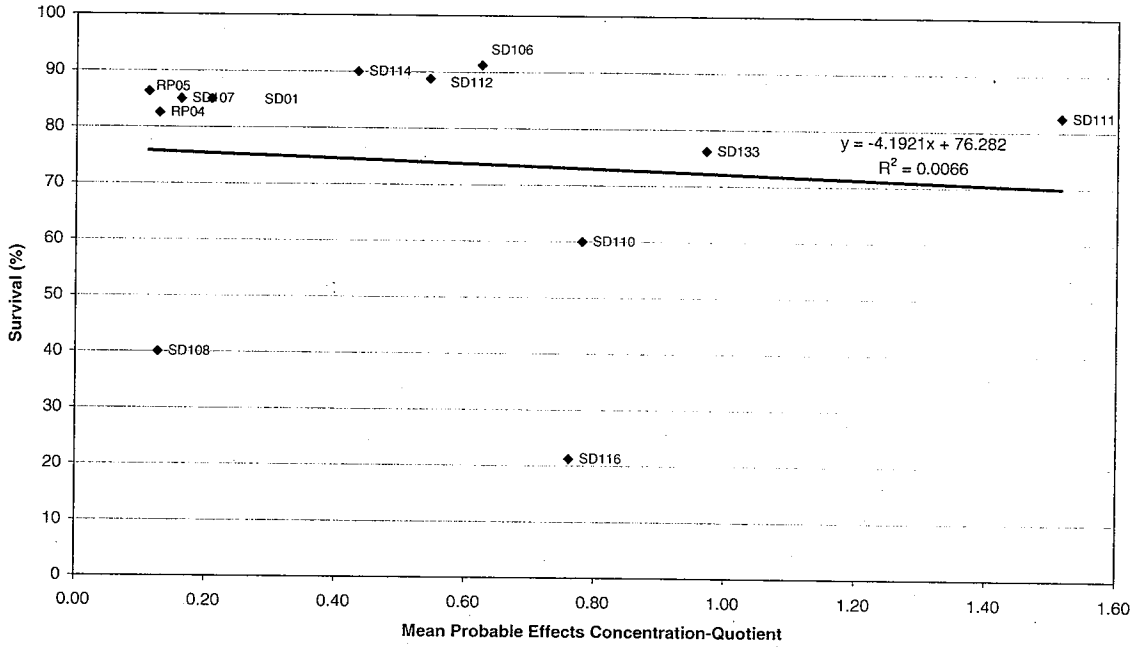
Normalized Concentration of TPH in Sediment vs Survival of Hyallella Azteca
Stream Samples



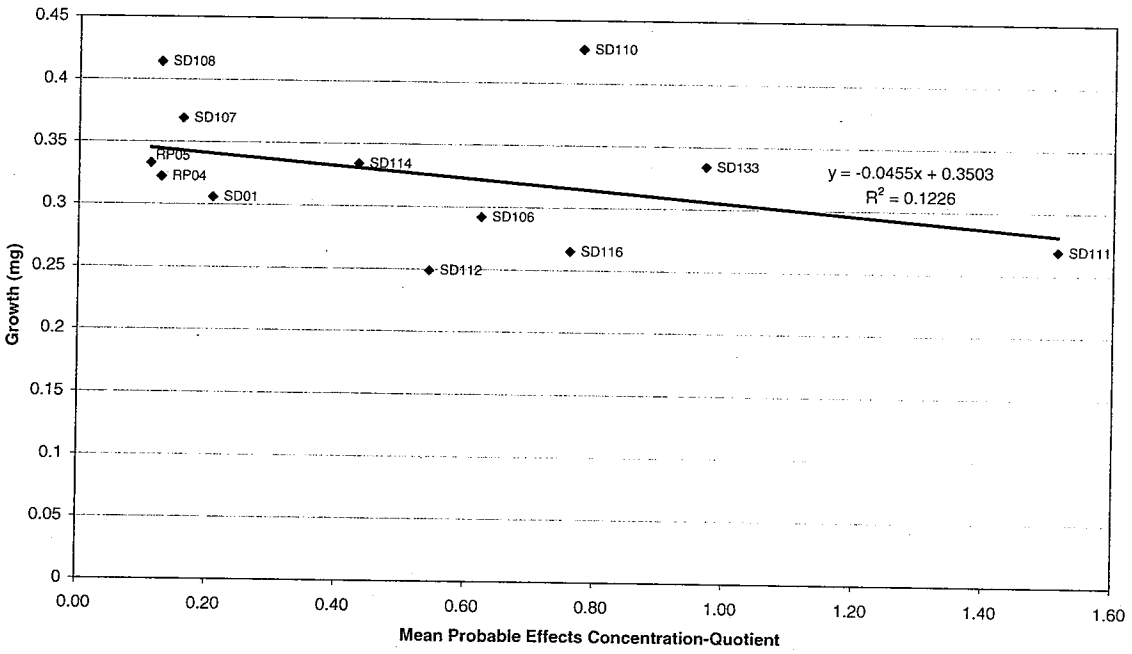
Normalized Concentration of TPH in Sediment vs Growth of Hyallella Azteca
Stream Samples



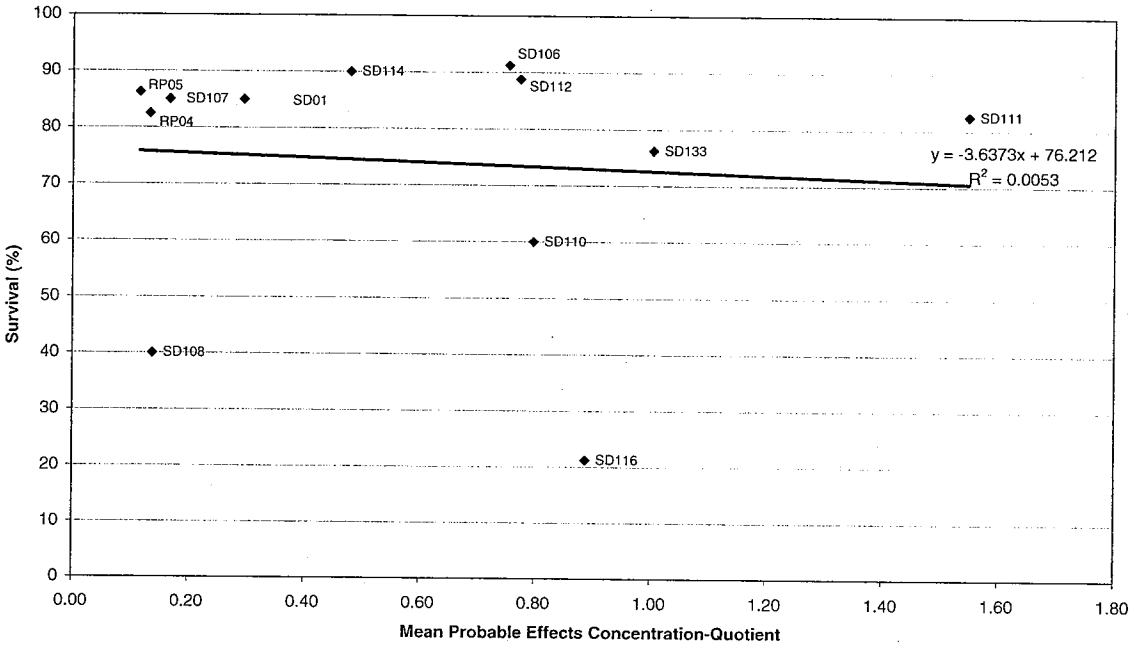
Overall Mean Probable Effects Concentration-Quotient (DDx) in Sediment vs Survival of Hyallella Azteca Stream Samples



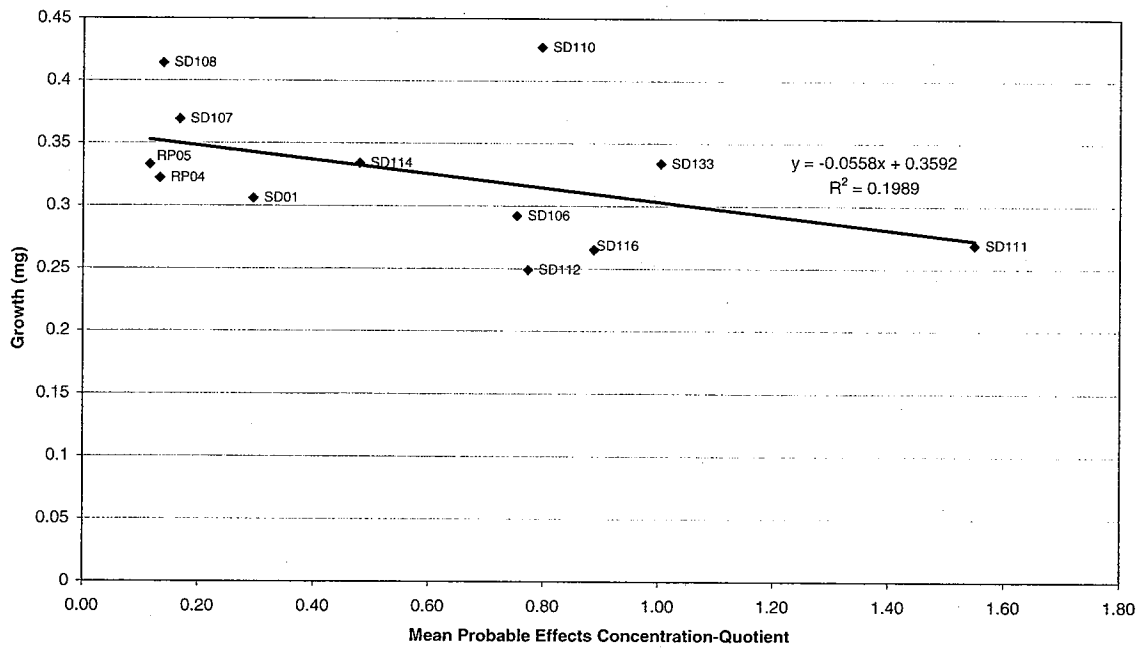
Overall Mean Probable Effects Concentration-Quotient (DDx) in Sediment vs Growth of Hyallella Azteca Stream Samples



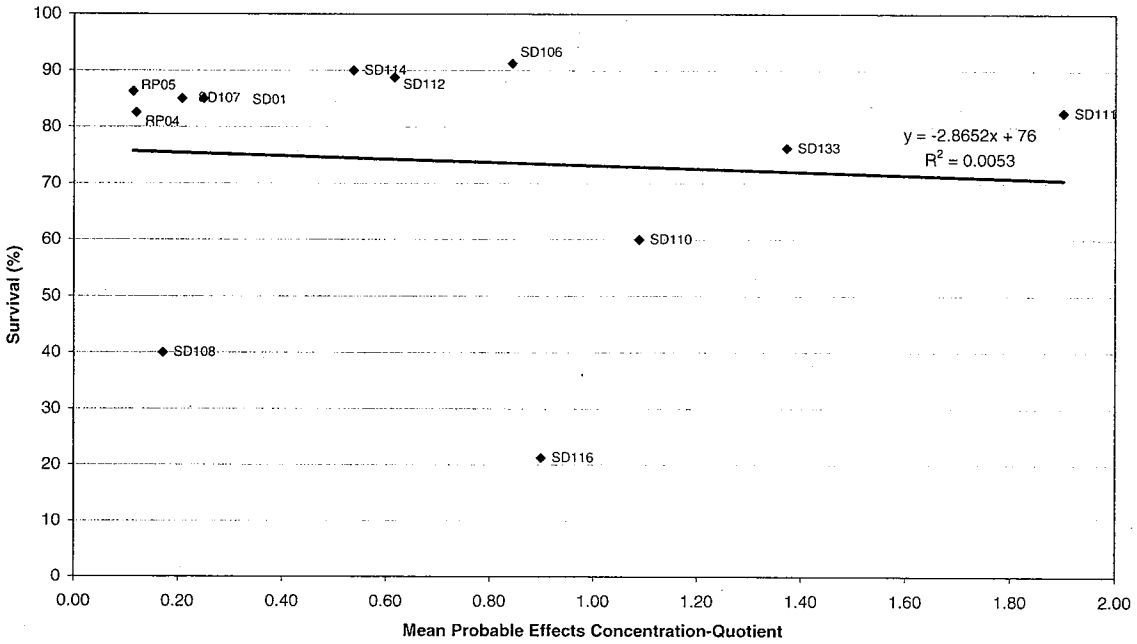
Overall Mean Probable Effects Concentration-Quotient (DDE) in Sediment vs Survival of Hyallella Azteca Stream Samples



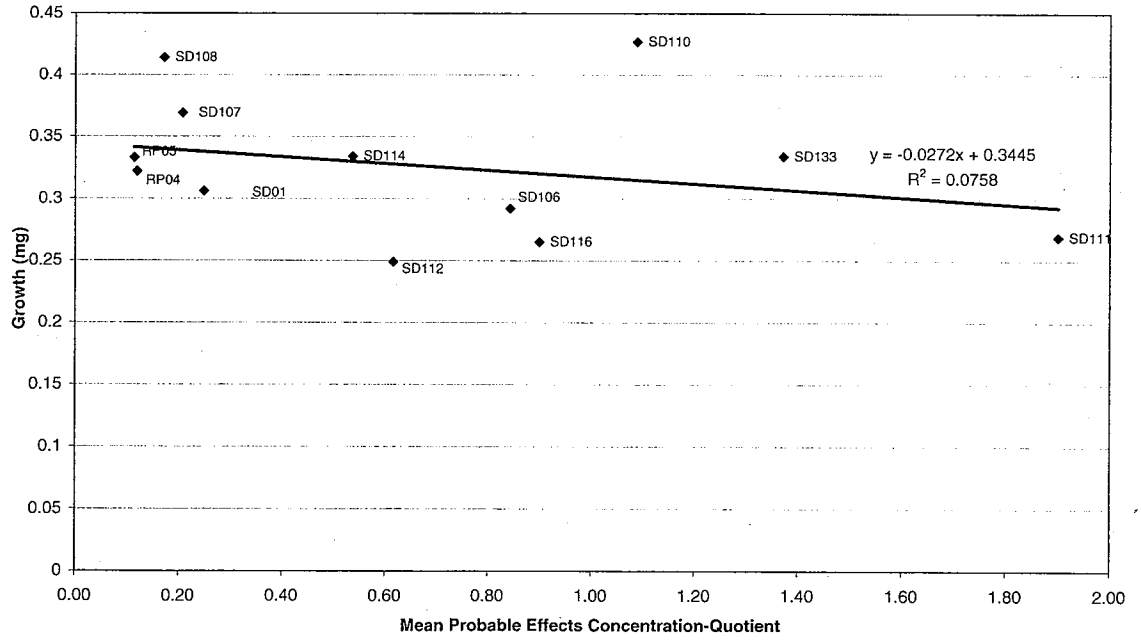
Overall Mean Probable Effects Concentration-Quotient (DDE) in Sediment vs Growth of Hyallella Azteca Stream Samples



Overall Metals Mean Probable Effects Concentration-Quotient in Sediment vs Survival of Hyallella Azteca Stream Samples



Overall Metals Mean Probable Effects Concentration-Quotient in Sediment vs Growth of Hyallella Azteca Stream Samples



APPENDIX I.5

CORRESPONDENCE

NUSC Disposal Site
Phase 1 Ecological RI
Biological Sampling Assessment
September 11, 2007

The NUSC Disposal Site was accessed with respect to benthic sampling opportunities with the intent of trying to relate biological conditions to lead concentrations in the sediment. A site visit was made on August 9, 2007 with the goal of determining biological sampling techniques, sampling locations, and sampling design, as appropriate for the site conditions. Participating in the site visit were the following Tetra Tech staff: Ben Jessop (Aquatic Biologist), Aaron Bernhardt (Ecological Risk Assessor), Cindy Woods (Human Health Risk Assessor), and James Forrelli (Project Manager).

Proposed macroinvertebrate sampling techniques presented in the Work Plan (TtNUS, 2007) included dip nets in flowing water or wetlands and a Ponar in the pond. Subsequent discussions with the regulators noted their preference for a using a Ponar for all sample locations to ensure that the benthic macroinvertebrates living in the sediment are collected.

In accordance with the Work Plan, sediment samples were collected from 30 locations along Deerfield Creek, along the unnamed stream and in NUWC Pond for lead analysis in July 2007. The results of the lead analyses will be used to support selection of ten sediment sample locations to undergo toxicity testing, benthic sampling, and corresponding laboratory analysis. The lead concentrations at each of the sediment stations sampled in July 2007, along with nine stations that were sampled in 2003 during the Study Area Screening Evaluation (SASE) are depicted on Figure 1. Photographs of some of the sediment stations sampled in July 2007 are provided in Attachment 1.

The areas of the site that were observed and assessed included 1) Deerfield Creek from the culvert under the Building 185 Complex access road to the NUWC Pond; 2) the unnamed stream tributary from the golf course to the pond; 3) Deerfield Creek and the wetland upstream of the culvert; and, 4) NUWC Pond. A description of each site area along with the 2003 and 2007 sediment lead concentrations are provided in Table 1.

Deerfield Creek Downstream of the Culvert

Water was flowing from the culvert and into the Deerfield Creek channel at a rate of about 0.1 cubic feet per second (cfs). At this immediate point the channel is mostly made up of bedrock and concrete slabs. Few cobbles and boulders were in the area for examination of benthic macroinvertebrates. The greatest lead concentrations were recorded ten meters below the culvert outfall, at sediment station SD100. Smaller substrates are common twenty meters below the culvert, mostly flat shale cobbles and small pockets of gravel. It is obvious that this upper portion of the channel is eroded and incised to the lowest possible point (bedrock). Recent and older debris were found throughout the stream channel.

Further down the stream channel, the substrates changed from coarse to fine particle sizes. These changes are consistent with degradation and aggradation patterns seen in urban streams that have higher gradients upstream and lower gradients downstream. Consolidated (less erodible) clay and silt deposits were found among the cobbles upstream of large areas of sand and silt.

The wetland contains shifting channels among sediment deposits and vegetative masses. Water flow went subterranean at some points. Due to the shifting nature of the stream channel in the wetlands, mixing of the contaminated and uncontaminated stream channels, and fluctuating water levels of the pond and wetland, it is suspected that contamination may be throughout the wetland in a diffuse and widespread pattern.

Deerfield Creek Upstream of the Culvert

The stream channel above the culvert is well defined for a short distance before it becomes inaccessible further upstream in the heavy vegetation. The road and culvert block the water above the culvert, causing low gradient, fine sediment stream channel conditions. These channel conditions are similar to conditions

in the downstream wetland. No defined channel or standing water was observed during an extensive walk-over through the upstream wetland.

Unnamed Stream (Tributary from the Golf Course)

The stream that begins as drainage swales in the golf course and beside the perimeter road is similar in many respects to Deerfield Creek. The channel is deeply incised and eroded below the road culvert, trash and debris are throughout the channel, substrates are cobble and gravel, and the channel is shifting and intermittent once it reaches the wetland and pond. It differs in the following respects. The furthest upstream drainage area is exposed to lawn maintenance (mowing, probable fertilization and pesticides). Bedrock and large substrates are not dominant directly below the culvert. Sand and gravel are more dominant in the substrate mix. There was no flow on August 9 and surface water was found only in shallow unconnected pools. The location of the unnamed stream channel in the wetland zone has changed since the SASE field work in 2003 as indicated on Figure 1.

NUWC Pond

The pond supported waterfowl, algae, and aquatic macrophytes. It was moderately turbid. Flow rate at the outfall was estimated at less than 1 cfs. The outfall structure was adjustable, allowing approximately 1.3 meters of additional depth through addition of weir boards. Pond bathymetry was previously estimated as deepest near the dammed end (20 ft). The littoral zone looked accessible by small boat.

Biological Sampling Design

Sampling for benthic macroinvertebrates could be conducted to associate biological conditions with contaminant levels. In the pond, comparison to a reference pond is essential because there are no points within the contaminated pond that are unaffected. In the stream, the physical scale over which contaminant levels vary is quite small. It may be difficult to sample the exact location of the highest contamination because longer stream reaches are usually required for collection of an adequate sample for analysis. Typically, 100 meters of stream channel defines a sampling reach. The variability in contamination levels and substrate types is too high over 100 meters in the subject stream channel to allow association of biological condition and contaminant levels within the contaminated stream. Possible solutions include evaluation of the entire contaminated reach in comparison to an uncontaminated reference reach and intensive sampling from shorter stream reaches. The stream sampling designs described below would need to entail more than just Ponar grab sampling, because a Ponar grab cannot be used in the more rocky areas where there is little sediment. The following subsections describe some potential approaches for conducting the benthic sampling at the site.

Reference sampling design (stream)

Biological samples from reference stream and pond sites should be compared to samples collected from the site water bodies. The unnamed stream could be used as a reference to Deerfield Creek. It is not a perfect reference, but is adequate. It is imperfect because of reasons noted above: the physical differences in channel characteristics and possible effects of golf course runoff. These differences are minor, considering the similarities in location, flow characteristics, and overall substrate composition. If the unnamed stream was used as a reference, samples from each reach could be collected and compared. Use of the unnamed stream as a reference would suffice to discern effects of lead contamination in streams of similar (poor) habitat conditions. It would not allow evaluation of the integrity of the benthic community in comparison to a natural reference condition.

Intensive sampling design (stream)

For Deerfield Creek, the sampling reach could be shorter than typical if sampling intensity within the reach is increased. This should ensure capture of sufficient organisms for assessment, if they are present. It is suggested to collect three samples from consecutive adjacent 30m reaches. These reaches would roughly relate to three zones of varying lead concentrations in Deerfield Creek: the location with the greatest lead concentrations and the bedrock substrate, the location with the moderate lead concentrations and more diverse substrates, and the location with the lowest lead concentrations and the aggrading substrates, possible including some wetland channel.

Integrated sampling design (stream)

Intensive and reference sampling designs could be combined to assure flexibility in data analysis. Such flexibility would allow analysis to answer different questions and give options if the samples were inadequate for certain analyses. In this design three samples from consecutive adjacent 30m reaches would be collected from both Deerfield Creek and the unnamed stream. These samples could be analyzed as representative of three levels of contamination if the individual samples are adequate (i.e, based on the number of organisms captured. Very small samples may not yield enough organisms to calculate dependable measures (and this possibility is very real, judging from cursory onsite observations). If the individual samples are inadequate, the three samples from each stream could be pooled to allow comparison among streams (but not among concentrations of lead within one stream). A more thorough sampling design would include three additional samples from a natural reference stream.

Pond sampling design

As outlined in the work plan, a Ponar grab sampler would be used to collect sediment samples from both NUWC Pond and the reference pond. Three grab samples will be composited to make up a single sample. Three samples (each consisting of three grabs) will be collected from each waterbody. These samples will be collected from similar depths, if possible, because the benthic communities in ponds are responsive to light levels, which are related to the depth and clarity of the overlying water.

Uncertainties

There will be significant uncertainties in conducting the benthic community study at the site and interpreting the results. Deerfield Creek and the unnamed stream from the golf course drain small areas that they occasionally dry up. Unconnected pools were observed in the unnamed stream during the August 9, 2007 visit and in Deerfield Creek during the July 2007 sampling event. This is a natural stress to the benthic community and evaluation techniques for intermittent streams are not well developed in any setting throughout the United States. This increases the difficulty in attributing observed ecological effects to lead in an already stressed system.

The techniques available for biological assessments may not be sensitive enough to detect an effect of lead in light of the natural stresses (intermittent flow), other human impacts (poor habitat), and confounding covariates (substrates types with lead concentration). This does not suggest a premature conclusion that effects from the lead will not be observed, but it is possible that the analysis will not detect an effect that is actually occurring (Type II error). Conversely, there may be an apparent effect of lead concentration that cannot be unquestionably discerned from natural substrate effects (Type I error). These caveats are necessary to describe the possibility of error in the proposed analyses.

References

Tetra Tech NUS, Inc. (TtNUS), 2005. Study Area Screening Evaluation for the NUSC Disposal Area. Contract Task Order 043 Northern Division Naval Facilities Engineering Command, Contract No. N62472-03-D-0057. Naval Station Newport, Middletown, Rhode Island. January.

Tetra Tech NUS, Inc. (TtNUS), 2007. Work Plan for Remedial Investigation (Revision 2) for Site 08 – NUSC Disposal Area, Contract Task Order 043 Northern Division Naval Facilities Engineering Command, Contract No. N62472-03-D-0057. Naval Station Newport, Middletown, Rhode Island. January.

Table 1
Biological Sampling Assessment Areas and Sediment Lead Concentrations
NUSC Disposal Site
Phase 1 Ecological RI

Area	Sediment Sample Location	Sediment Lead (mg/kg)	Description
Deerfield Creek upstream of the culvert	SD01*	76.0	Above the culvert under the paved road – assumed to be uncontaminated. The stream channel is well defined a short distance above the culvert to an unknown point that is inaccessible due to impassable vegetation. The wetland did not have standing water or a defined channel.
Deerfield Creek downstream of the culvert	SD100	27,200	From the culvert under the paved access road to the pond, including three portions with distinct characteristics: the highest lead concentration zone with bedrock substrate, the lower lead concentration zone with more diverse substrates, and the wetland zone with aggrading substrates.
	SD132	5,340	
	SD101	458	
	SD133	15,300	
	SD102	624	
	SD103	530	
	SD104	255	
	SD02*	610	
	SD105	314	
	SD106	824	
	SD03*	700	
	SD110	642	
	SD111	344	
	SD06*	770	
	SD112	508	
Unnamed Stream (tributary from the golf course)	SD04*	14.0	From the golf course and drainage ditch to the pond, including three portions with distinct characteristics: the drainage swales above the gravel road, the stream channel below the gravel road, and the wetland zone with aggrading substrates. (Note: SASE sediment sample SD05 collected along former stream channel location.)
	SD108	23.5	
	SD107	13.0	
	SD109	25.4	
	SD05*	130	
	SD113	77.9	
NUWC Pond	SD114	248	Pond receiving water from Deerfield Creek and the unnamed stream. Outlet is through a control structure in the dam on the opposite side of the pond from the Deerfield Creek and the unnamed stream.
	SD115	106	
	SD07*	350	
	SD116	441	
	SD117	inaccessible	
	SD118	187	
	SD119	230	
	SD120	220	
	SD121	199	
	SD122	176	
	SD08*	180	
	SD123	183	
	SD124	164	
	SD125	155.5	
	SD09*	150	
	SD126	104	
	SD127	142	

* Sample collected during 2003 SASE.

LEGEND:

- SW/SD101 — PROPOSED SURFACE WATER / SEDIMENT
- SD129 — PROPOSED SEDIMENT
- △ — EXISTING DRIVE POINT
- □ — EXISTING SURFACE WATER / SEDIMENT
- FISH SAMPLE LOCATIONS
- ☼ — LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- 23.5 — LEAD CONCENTRATION (mg/kg) JULY 2007
- * — INDICATES A DUPLICATE SAMPLE COLLECTED. CONCENTRATION GIVEN IS AN AVERAGE OF BOTH SAMPLES COLLECTED.
- 76.0 — LEAD CONCENTRATION (mg/kg) 2003

NOTES AND REFERENCES

1. PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.
2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.
3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.
4. HORIZONTAL DATUM = NAD 1983.
5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996.
6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.
7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.
8. LOCATIONS OF PHASE I & II EXCAVATION LIMITS, EXCAVATION LIMITS OF WORK AREA I (BURIED DRUM AREA), EXCAVATION LIMITS OF BURIED METAL CONTAINER AREA PHASE I & WORK AREA NO. 2, LOCATION OF RIP RAP AREA AND UTILITY POLE (BETWEEN BLDG. 180 & 185) LOCATION FROM A PLAN BY TN & ASSOCIATES, INC., "FIGURE 3, FINAL AS BUILT EXCAVATION LIMITS", IR SITE 08 – NUSC DISPOSAL AREA, NAVAL WARFARE CENTER MIDDLETOWN, RI, NO DATE.
9. GROUNDWATER MONITORING WELLS MW7 AND MW9 ASSOCIATED WITH BUILDING 179 ARE PART OF THE NUSC DISPOSAL AREA STUDY BUT ARE NOT SHOWN ON THE FIGURE.
10. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.
11. SAMPLES WERE COLLECTED BETWEEN JULY 11 AND JULY 17, 2007.

GRAPHIC SCALE
60' 0' 60' 120'

DRAWN BY: D.W. MACDOUGALL
PREPARED BY: L. ANDERSON
CHECKED BY: L. ANDERSON
PROJECT MANAGER: J. FORRELLI
PROGRAM MANAGER: J. TREPANOWSKI

TITLE: LEAD CONCENTRATION IN SEDIMENT
NUSC DISPOSAL AREA RI WORKPLAN
MIDDLETOWN, RHODE ISLAND

SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)

SCALE: AS SHOWN
DATE: SEPTEMBER 11, 2007
PROJ. NO: 00200
DRAWING NO: FIGURE 1
ACFILE NAME: \00200\0410\LEAD_SED.DWG
REV: 0

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TETRA TECH

C-NAVY-03-08-2656W

March 4, 2008

Project Number 112G00632

Mr. James Colter
Remedial Project Manager
NAVFAC Mid-Atlantic
Building Z-144
9742 Maryland Avenue
Norfolk VA, 23511-3095

Reference: CLEAN Contract No. N62472-03-D-0057
Contract Task Order No. 065

Subject: Final RPM Meeting Notes and Summary January 19, 2008
NAVSTA Newport, Newport Rhode Island

Dear Mr. Colter:

Attached for your records are the Final Notes and attachments that summarize the RPM meeting held for the NAVSTA Newport IR Program on January 16, 2008. This is a revised version of the draft provided on January 29, 2008, revised per comments received from USEPA on February 7, 2008.

If you have any questions on this material, please do not hesitate to contact me.

Very truly yours,

Stephen S. Parker, LSP
Project Manager

SSP/

attachments

c: K. Keckler, USEPA (2, w/encl.)
P. Kulpa, RIDEM (2, w/encl.)
C. Mueller, NAVSTA (2, w/encl.)
B. Lim, USEPA (2, w/encl)
P. Loht, Gannett Fleming (1, w/encl.)
G. Lombardo, USEPA (2, w/encl.)
J. Trepanowski, TtNUS (1, w/encl.)
G. Glenn, TtNUS (1, w/encl.)
File 0632-3.2 (w/o encl.) File 0632-8.0 (1, w/encl.)

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Meeting Notes
RPMs Meeting, January 16, 2008
NAVSTA Newport, Newport Rhode Island

The meeting convened at 3:10 PM

Attachments:

1. Agenda
2. RPM Document Tracking Sheets dated 1/16/08
3. Figure showing P-347 Fitness Facility
4. NUSC Geophysics Results and Proposed Test Pit Locations
5. Field Investigation Progress, NUSC Disposal Area 1/16/08
6. NUSC Disposal Site, Phase 1 RI Earthworm tissue and toxicity testing Sampling Locations
7. Table 1 Proposed location of sediment Samples for Toxicity Testing NUSC Disposal Area
8. Attendance List

Present:

Paul Kulpa, RIDEM
Ginny Lombardo, USEPA
Kymberlee Keckler, USEPA
Paula Loht, Gannett Fleming.
Jim Forrelli, Tetra Tech NUS, Inc.
Stephen Parker, Tetra Tech NUS, Inc.
James Colter, NAVFAC
Cornelia Mueller, NAVSTA

General

Kymberlee Keckler started the meeting with introductions of the newest EPA project manager, Ms. Ginny Lombardo. Kymberlee explained that the 3 EPA project managers will provide regulatory oversight to Newport as follows:

- Kymberlee Keckler – Derecktor Shipyard (IR Site 17) and Gould Island (IR Site 19);
- Robert Lim – OFFTA (IR Site 9) and the Tank Farms (IR Sites 7 & 10-13);
- Ginny Lombardo – McAllister Point (IR Site 1), Coddington Cove (IR Site 4), NUSC (IR Site 8), Melville Water Tower (IR Site 21), and Carr Point (UXO Site 1).

Derecktor Shipyard

S. Parker recalled that comments on the revised draft FS were responded to in September 2007, and EPA provided comments on the responses. The comments were

resolved at the RPM meeting November 14, 2007 and the minutes to that meeting reflect the resolutions. S. Parker recognized that the Draft Final FS is overdue and TtNUS will get it out as soon as possible. It was noted that the current delay is a result of confusion on who maintains responsibility for the underwater disposal cell at the mouth of the Providence River. It was noted that CRMC previously stated that it could accept the Coddington Cove sediment, but now TtNUS finds that RIDEM actually permits disposal. Details are still being researched and hopefully will be resolved for the draft final.

ACTION ITEM – Paul Kulpa will look into who approves waste to go into the CAD cell at the mouth of the Providence River. Note: As of the date of issuance of these minutes, Paul has provided the point of contact at RIDEM responsible for the Providence River CAD cell as being Mr. Ronald Gagnon, Chief of Technical and Customer Service.

J. Colter noted that comments on the Removal Action Completion Report (RACR) for the sandblast grit removal action were received from the USEPA but not from RIDEM and asked if RIDEM will be submitting comments. P. Kulpa stated that he was under the impression that RIDEM had 45 days to comment on the document and that timeframe has not yet expired. J. Colter reminded everyone that according to the FFA, the comment period for removal actions is only 30 days and pointed to Section 12.5(f) of the FFA. Paul asked if he could still provide comments to the RACR. J. Colter responded that because the final version is due out 2/3/08, the Navy should be able to still submit the the final report as scheduled as long as RIDEM didn't take too long to submit their comments. NOTE: As of the date of the issuance of these minutes, RIDEM has submitted their comments on the Draft RACR.

Gould Island

K. Keckler pointed out that the Navy has missed the latest submission date provided in the FFA for issuance of the draft work plan.

S. Parker noted that the Work Plan/ Quality Assurance Project Plan (QAPP) is behind schedule, this is due to the format changes required for UFP QAPP guidance implementation issued by the Navy in the fall of 2007. S. Parker stated that the internal draft would have to go to the Navy for their review and signature first (anticipated this week) allowing the draft to be sent out at the end of February 2008. As of the date of the issuance of these minutes, TtNUS has submitted the internal draft version to the Navy.

K. Keckler reminded the Navy that if a schedule extension request was not submitted updating the schedule for the draft work plan, that the Navy could be subject to enforcement actions.

ACTION ITEM – Jim Colter will submit a schedule extension request for the Gould Island Draft Phase 2 RI Work Plan.

Tank Farms 4 and 5

S. Parker summarized the DQO meeting at which the tank farms data gaps investigation was scoped out. Meeting minutes will be released, which will show that the sites were divided into portions where tanks 1) were present but did not leak; 2) where tanks were present that did leak; 3) where waste and oils were discharged to wetlands; 4) where a previous ROD is already in place; and 5) other areas of interest. J. Colter added that there is CERCLA data to be collected for the risk assessment, TPH data to be collected for the UST program, and for extent of contamination – the intention of this effort is to get all the remaining data needed to have a full characterization of the sites.

J. Colter noted that RIDEM did not attend, P. Kulpa explained that they could not review the EGIS because they first did not have an updated operating system on the computer with the ARCVIEW license, but when that was upgraded other problems prevented use. S. Parker noted that TtNUS GIS staff had been in touch to assist operations if needed.

P. Kulpa stated that all tank farms had different issues, all were suspected to have sludge pits, 53 and 56 had waste oil and releases with a ROD, all tank farms had transformers, and therefore all should be looked at separately.

J. Colter also pointed out that the EPA risk assessors were not present at the DQO meeting, and although there was consensus reached at the meeting about the approach and the sample areas to be evaluated, all should understand that the up-front process of meeting and agreeing on the investigation approach should circumvent the need for extensive comments on the draft documents. It is even possible that the draft final version could be eliminated if all the parties were motivated to move ahead with the work at hand.

J. Colter asked about the EPA's continued involvement at Tank Farms 4 & 5 due to the fact that the sole reason for inclusion into the FFA was predicated upon the potential presence of sludge pits that could have other non-petroleum contaminants but that all of the fieldwork that has been completed to date revealed no evidence as to the existence of the sludge pits leaving the Navy with only a petroleum-related investigation.

ACTION ITEM – Bob Lim will consult with EPA management and legal counsel regarding this issue.

OFFTA

S. Parker stated that the 90% design for replacement stone revetment is in progress, as discussed at the previous RPM meeting. Responses to comments on the revised 30% design will be out shortly which reflect the resolutions discussed previously.

Since the previous meeting, TtNUS has conducted the eelgrass and natural resource survey, identifying beach and other coastal features that will be used for the 90% design. As was noted at the previous meeting, the eelgrass survey will need to be redone in August before final limits can be determined in accordance with RIDEM regulations regarding the seasonal maximum extent of growth for eelgrass.

It was noted the revised draft FS for OFFTA has been released as of December 14, 2007, and is in the review period.

The Soil Removal Action began January 15, 2008, with the first construction meeting being held today (January 16, 2008), at which the plans were laid out for the week. The manhole previously identified as a possible oil water separator has been cracked open and found to be a valve chamber, and not an oil water separator at all. There was an ensuing discussion about whether this structure should be removed, and J. Colter stated that if there is no evidence it provides a continuing source of contamination, it should be left in place, or abandoned in place, it cannot be demolished with IR funding if there is no associated contamination.

C. Mueller provided a plan (Attachment 3) for a new building "P-347" planned fitness facility to the south of OFFTA, and east of the SWOS building. The plan shows the OFFTA site as parking areas for this facility, which is in compliance with the presumed land use that was anticipated in the revised FS.

McAllister Point Landfill

ECC has been on the site for the year 4 (2007) sampling effort and recently conducted gas vent readings. The draft Annual Report for year 4 will be prepared accordingly.

G. Lombardo asked about QAPPs for both McAllister Long Term Monitoring and NUSC. S. Parker and J. Colter stated that both have QAPPs within the document referred to as the "work plan" and by combining Sections 2 and 4, comply with the USEPA G4 QAPP guidance document which was the standard at the time of their preparation. Carr Point, which was prepared while the UFP QAPP guidance was being implemented, uses the "old" work plan format that is similar to McAllister and NUSC. However, it has a "crosswalk" table of contents that shows where the information for each UFP worksheet is presented in the text of the work plan.

ACTION ITEM – Ginny Lombardo to consult with EPA management regarding acceptance of these Work Plans as described above.

G. Lombardo asked if the 2007 reports would be issued late in the year as were the 2006 reports, J. Colter stated that he would follow up with ECC to determine a schedule for report release.

ACTION ITEM – Jim Colter to confirm schedule for deliverables from ECC. As of the date of the issuance of these minutes, J. Colter has contacted ECC regarding the schedule for deliverables and offers the following with regards to the Annual Monitoring Report and the Sediment Monitoring Report – Round 4:

Draft Reports – 2/29/2008 (delayed one month due to late receipt of toxicity data from lab in late December 2007)
Regulatory Comments – 4/14/008
Comment Resolution – 5/29/2008
Final Reports – 7/13/2008

The above dates will be reflected on the upcoming update to the Document Tracking Table issued at each RPM Meeting.

NUSC

J. Forrelli provided a map of the geophysical investigations results for discussion. (Attachment 4). He noted that the paved areas were inaccessible to the geophysics investigation and therefore are not evaluated. J. Colter stated that field work was planned for the paved operations (storage area) but a crane and staff with specialized training is needed to move large objects and missile tubes, and the cost for such activities is expected to be $250,000 or more. The paved area cannot be properly investigated while it is operational. So the proposed approach is to avoid the area now and investigate it later after it is no longer operational. He stated that we need to redefine the boundaries of the disposal site under the IR program around the paved operational area. There was a general discussion about who determines the site boundaries. J. Colter explained that IR money is to be spent on non-operational sites, and RCRA would cover operational properties where existing activities can provide new releases. K. Keckler did not agree that the Navy could redefine the boundaries of the site, and J. Colter stated that the decision to investigate the property would be above his authority level.

ACTION ITEM – Ginny Lombardo to consult with EPA management regarding the Navy's request to redefine the boundaries of the NUSC IR Site. As of the date of the issuance of these minutes, EPA has submitted a formal letter to the Navy stating that the boundaries of the NUSC IR Site have been determined and that the Navy is obligated to perform the remedial investigations in accordance with the "approved" Final Work Plan issued January 2007.

J. Forrelli provided a hard copy of the map with ten proposed test pit locations. J. Colter stated that the proposed locations are provided today, and if the Navy does not receive any opinions from RIDEM and EPA, the test pits will proceed as suggested on 2/4/08. P. Kulpa asked how deep the test pits would be excavated, and it was noted that the work plan allows for them to be excavated to approximately 10 feet, to top of bedrock or to the water table, whichever is encountered first.

J. Forrelli also provided a list of items completed at the site (Attachment 5). The biological sampling assessment was discussed again. A summary of the biological sampling assessment was provided in the fall of 2007, and discussed at the 11/14/07 RPM meeting, at which time, P. Kulpa requested another copy be e-mailed to him (provided 11/15/07), but the Navy has still no input from RIDEM or USEPA at this time, and J Forrelli requested comments or concurrence on the proposed toxicity testing locations, and reference pond locations. A discussion led to two questions from RIDEM: 1) where does water for upper Melville Pond originate from; and 2) Are there streams feeding the reservoirs that can be used for reference streams.

PAH soil screening was completed and earthworm tissue and toxicity sample stations are proposed. (Attachment 6) TtNUS and the Navy request acceptance of the proposed locations.

Toxicity sample stations in the streams are proposed based on sediment lead sample results (Attachment 7) TtNUS and the Navy request acceptance of these proposed locations.

The final issue was in regards to schedule – RIDEM previously requested sampling be done in August, and this will set the RI schedule back somewhat.

Action Items:

- **TtNUS to find source of water for upper Melville Pond**
- **TtNUS to determine if there are feeder streams for the reservoirs**
- **P. Kulpa to determine if earlier Tox and Benthic sampling can be conducted.**
- **EPA and RIDEM to consider and return opinion by Feb 4 2008 on the proposed locations for 1) test pits; 2) sediment toxicity stations; and 3) earthworm sample stations**

EPA has followed up: electronic mail 2/7/08 stated that NUSC work plan meets QAPP requirements, though the labortatory SOPs should be included. EPA provided comments on the test pit locations and questions on the sediment tox stations and earthworm stations.

In addition, outstanding technical questions on the work plan and biological sampling assessment have been forwarded to the Navy, and can be discussed at the meeting 3/19/08

P. Kulpa asked if the pipes from Buildings 185 A, B, C, and D were found south of these sheds. J. Forrelli showed their signature on the geophysics map. RIDEM requests soil samples at the terminus of the pipes: request that you first dig around to see if there is anything oily, and if not, just pick one location and sample that.

Carr Point

It was noted that the draft SI work plan was issued in November 2007, and comments were due 12/21/07. Comments have been received from EPA but no comments were received from RIDEM yet, and the Navy is inclined to move ahead. P. Kulpa stated that he needed a revision to the DSMOA work plan so that he could review the draft work plan. J. Colter stated he would add this effort to the DSMOA work plan. A discussion ensued on the comment cycles and the work plans, and K. Keckler stated that if RIDEM is going to comment, they would need to submit a request for schedule extension to the Navy. K. Keckler reminded the Navy that if the Navy agrees to RIDEMs schedule request, then The Navy would have to either absorb the time delay on their work or request another schedule extension to extend the delivery of the next FFA deliverable. J. Colter clarified that the next FFA deliverable is for the Draft SI report..

ACTION ITEM – J. Colter to revise the 2 year DSMOA work plan to reflect review of the draft Carr Point SI Work Plan. NOTE: As of the date of these draft minutes, J. Colter has provided this revision to RIDEM.

Melville Water Tower

EPA Comments have been received on the draft RACR, but none from RIDEM. P. Kulpa stated that he was under the impression that RIDEM had 45 days to comment on the document and that timeframe has not yet expired. J. Colter reminded everyone that according to the FFA, the comment period for removal actions is only 30 days and

pointed to Section 12.5(f) of the FFA. P. Kulpa stated that RIDEM does have comments on this report and they will be sending them shortly.

Other Items

J. Colter stated that the five year review will be coming up in 2009. He will fund the 5 year review in 2008 so as to complete it in 2009 since funding may be late 09 if the government is forced to operate under Continuing Resolution Authority (CRA) as they currently are which delays receipt of ER,N funding.

Basewide Background – Responses to comments on the draft report are being finished and will be issued soon. RIDEM requested tag maps in the document, and these are being prepared. J Colter induced a discussion regarding the comments submitted by RIDEM and their statement on the cover letter informing the Navy that they will not concur with the document or any use thereof since the basewide background report will not meet RIDEM requirements. As such, J Colter asked if it was necessary to offer responses to their comments if that were the case? K. Keckler stated that it would be a waste of time and money on the Navy's part to do so. J. Colter stated agreement with K. Keckler. K. Keckler clarified that EPA agrees that the basewide background approach is appropriate for collecting data to use on specific sites as long as the data is properly selected for each site, and it would be a distraction to discuss and scrutinize the data from each sample point.

The meeting adjourned at approximately 6:15 p.m.

NAVSTA NEWPORT
RPM DOCUMENT TRACKING AND 3-MONTH SCHEDULE PROJECTION

Revised At Meeting: 1/16/2008

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS
Site 1	**LONG TERM MONITORING 2003 (ECC)**					
McAllister Point	Final 2003 Report	1/10/2004	NA	10/1/2004		
	LONG TERM MONITORING 2004 (ECC)					
	Final 2004 Report (Air and Groundwater)	1/10/2005	NA	1/10/2005		
	LONG TERM MONITORING 2004 (Marine Sed) (TtNUS) - ROUND 1					
	Final 2004 Report (Marine Sediment)	9/5/2005	NA	3/9/2006		
	LONG TERM MONITORING WORK PLAN (Incorporates LFGas, GW and Marine Sed) (TtNUS)					
	EPA corresp on draft LTM work plan	NA	NA	8/31/2005		
	RIDEM Corresp. On draft LTM work plan	NA	NA	9/6/2005		
	Final LTM Work Plan	10/18/2005	10/18/2005	10/18/2005		
	RIDEM Notice to enter dispute on LTM Work Plan	NA	NA	11/14/2005		
	Navy response to RIDEM letter	NA	NA	1/6/2006		States that addendum paragraphs will be provided, but that RIDEM does not have jurisdication on LTM completion
	Draft Addendum to the Final LTM work plan	---	---	1/8/2007		RIDEM Letter 3/19/07 - Need discussion
	Final Addendum to the Final LTM work plan	TBD	---			
	LONG TERM MONITORING for 2005 - Air and Groundwater (ECC)					
	Final LTM Report for 2005	5/3/2006		4/18/2007		Draft Report misplaced due to closure of EFA NE office in June 2006. Report finalized and submitted with 2006 Draft Report
	LONG TERM MONITORING Marine Sediment 2005 (ECC) - ROUND 2					
	Draft LTM Marine Sed report for 2005	2/28/2007		4/18/2007		Draft Report misplaced due to closure of EFA NE office in June 2006. Report finalized and submitted with 2006 Draft Report
	LONG TERM MONITORING for 2006 - Air and Groundwater (ECC)					
	Draft LTM Report for 2006	2/28/2007		4/18/2007		
	Comments from Regulators	6/2/2007		5/24/2007	45 days after submission of draft document	EPA - 5/17/07, NOAA - 5/24/07, RIDEM - Not Commenting
	Comment Resolution	7/17/2007		8/21/2007	90 days after submission of draft document	Discussed at RPM Mtg of 7/18/07 - Addt'l info requested. Navy response sent 8/21/07.
	Final LTM Report for 2006	8/31/2007		12/12/2007	135 days after submission of draft document	
	LONG TERM MONITORING Marine Sediment 2006 (ECC) - ROUND 3					
	Draft LTM Marine Sed report for 2006	2/28/2007		4/18/2007		
	Comments from Regulators	6/2/2007		5/24/2007	45 days after submission of draft document	EPA - 5/22/07, NOAA - 5/24/07, RIDEM - Not Commenting
	Comment Resolution	7/17/2007		8/21/2007	90 days after submission of draft document	Discussed at RPM Mtg of 7/18/07 - Addt'l info requested. Navy response sent 8/21/07.
	Final LTM Marine Sed Report for 2006	8/31/2007		12/12/2007	135 days after submission of draft document	

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Site 1 **McAllister Point (Continued)**	**LONG TERM MONITORING for 2007 - Air and Groundwater (ECC)**					
	Draft LTM Report for 2007	1/30/2008				
	Comments from Regulators	3/15/2008			45 days after submission of draft document	
	Comment Resolution	4/29/2008			90 days after submission of draft document	
	Final LTM Report for 2007	6/13/2008			135 days after submission of draft document	
	LONG TERM MONITORING Marine Sediment 2007 (ECC) - ROUND 4					
	Draft LTM Marine Sed report for 2007	1/30/2008				
	Comments from Regulators	3/15/2008			45 days after submission of draft document	
	Comment Resolution	4/29/2008			90 days after submission of draft document	
	Final LTM Marine Sed Report for 2007	6/13/2008			135 days after submission of draft document	
	AIR MODELING (TtNUS)					
	Navy Assessment of Air monitoring data	11/11/2005	11/11/2005	11/11/2005		Resubmitted
	RIDEM Evaluation of data	12/11/2005	12/11/2005	---		RIDEM action, clarfied in email from C Frye 5/22/06 Evaluation never received as of 1/10/07
	Screening Air Model	---	---	---		Funding moved to Melville Water tower
	ITEM COMPLETE	---	---	---		Navy opted to not pursue air model, data collection continuing under LTM until next 5 year review
	EELGRASS RESTORATION (Battelle)					
	Final Completion Report	12/12/2006	12/12/2006	11/27/2006	60 Days after receipt of comments	
	ESD FOR LAND USE CONTROLS					
	Draft ESD	8/15/2007		8/10/2007		
	Comments from Regulators	9/24/2007		9/7/2007	45 days after submission of draft document	
	Comment Resolution	11/8/2007		9/12/2007	90 days after submission of draft document	
	Final ESD	12/21/2008		9/19/2007	135 days after submission of draft document	Navy signed 10/18, EPA signed 10/31
Site 2 **Melville North Landfill**	**GROUNDWATER MONITORING (TtNUS)**					
	Submit Draft Round 3 Monitoring report	10/15/2004	10/15/2004	10/15/2004		
	RIDEM Letter, Comments on monitoring report	---	---	7/1/2005		Letter states that sheens constitute free product
	Navy Response to RIDEM comment letter	---	---	---		Please see Navy letter to RIDEM defining position on sheens 11/6/06, see Site 9
	RIDEM Response Letter	---	---	1/21/2007		RIDEM Response on Sheens, See Site 09
Site 4 **Coddington Cove Rubble Fill Area**	**PRELIMINARY ASSESSMENT (TtNUS)**					
	Preliminary Assessment Report, Coddington Cove	4/14/2005	4/14/2005	4/14/2005		
	Comments on Preliminary Assessment Report	5/14/2005	5/14/2005	5/16/2005	30 days after receipt of report	EPA comments 5/16/05, RIDEM comments 5/27/05
	Draft SASE Work Plan	6/30/2010	---	---		Low Priority - Planned FY10
	Draft SASE Report	4/25/2011	---	---		

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Site 8 **NUSC Disposal Area**	**RI WORK PLAN (TtNUS)**					
	Submit Draft RI Work Plan	2/3/2006	---	2/3/2006		
	Submit Draft Final RI work Plan	6/15/2006	---	6/29/2006	90 days after receipt of comments	
	Submit final RI work plan	9/26/2006	---	---	60 days after receipt of comments	
	Submit final RI work plan REV 1	---	---	10/6/2006	Not Anticipated	Minor revisions to HHRA section of work plan
	Submit final RI work plan REV 2	1/15/2007	---	1/5/2007	Not Anticipated	Based on conference call 11/3/06 and resolution 11/15/06
	ITEM COMPLETE					
	DRUM REMOVAL REPORT (TN& Assoc)					
	Draft Drum Removal Report	6/26/2006	---	6/26/2006		
	Receive Regulator Comments	8/10/2006	---	8/10/2006	45 days after receipt of draft document	EPA (7/13/06) RIDEM 8/11/06
	ITEM COMPLETE					
	NUSC BACKGROUND REPORT (TtNUS)					
	Submit Draft Background Report	4/17/2006	---	4/17/2006		
	Receive Regulator Comments on Draft Report	6/1/2006	---	6/2/2006	45 days after receipt of draft document	EPA 5/9/06, RIDEM 6/2/06
	Concurrence on Final	10/5/2006	---	10/2/2006	30 days after submittal of final document	EPA concurs - 10/2/06, RIDEM - requests southern fill area delineated
	RIDEM Letter Clarification on Southern Fill Area	---	---	3/21/2007	NA	Map Showing southern fill area as to be determined. Map to be appended to meeting notes 3/21/07
	ITEM COMPLETE					**Data to be used in NUSC RI**
	REMEDIAL INVESTIGATION					
	Fieldwork Scoping Mtg & Site Walk	NA	12/19/2006	12/19/2006	As agreed 11/15/06	Complete - RIDEM requested Fill and pipes be investigated in RI
	Initiate Field Work NUSC RI	7/9/2007	---	7/10/2007		Refer to Field Schedule emailed from Colter 6/28/07
	Submit Draft RI Report for NUSC	12/1/2008	---	---		After completion of both phases of fieldwork (Eco/Hydro). Eco needs discussion
	Comments to the Draft RI Report	1/15/2009	---	---	45 days after submission of draft document	
	Response to Comments, Draft RI Report	3/1/2009	---	---	90 days after submission of draft document	
	Resolution of Comments & Draft Final RI Report	4/15/2009	---	---	135 days after submission of draft document	
	Concur/Disput Draft Final RI Report	5/15/2009	---	---	165 days after submission of draft document	
	Final RI Report for NUSC	7/14/2009	---	---	225 days after submission of draft document	Based on Concurrence.
	Submit Draft FS Report for NUSC	8/14/2009	---	---		
	Comments to the Draft FS Report	9/28/2009	---	---	45 days after submission of draft document	
	Response to Comments, Draft FS Report	11/12/2009	---	---	90 days after submission of draft document	
	Resolution of Comments & Draft Final FS Report	12/27/2009	---	---	135 days after submission of draft document	
	Concur/Disput Draft Final FS Report	1/26/2010	---	---	165 days after submission of draft document	
	Final FS Report for NUSC	3/27/2010	---	---	225 days after submission of draft document	Based on Concurrence.
	Submit Draft PRAP for NUSC	4/27/2010	---	---		
	Submit Draft ROD for NUSC	12/8/2010	---	---	225 days after submission of draft PRAP	

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Site 9 **Old Fire Fighting Training Area**	**SHEEN LETTER (TtNUS)**					
	Navy Position on NAPL and Sheens	NA	NA	11/6/2006		Defines position on Melville and OFFTA, Tank Farms
	RIDEM Response to Navy Letter	NA	NA	1/21/2007		RIDEM position on NAPL
	Revised FS for Site 09 will close this loop	---	---	---		
	RECREATIONAL LAND USE CLARIFICATION (TtNUS)					
	Navy Letter clarifying recreational land use	NA	NA	11/6/2006		Defines state criteria applicable to the site.
	RIDEM Response to Navy Letter	NA	NA	1/19/2006		RIDEM position on Recreational use and Land Use Controls
	Navy Letter 3/16/07	NA	NA	3/16/2007	**Item Closed**	Letter indicates concurrence on this matter, Revised FS will close this loop
	ACTION MEMORANDUM FOR SOIL REMOVAL (TtNUS)					
	Draft Action Memo for Soil Removal Actions	9/30/2006	9/30/2006	9/21/2006		
	Comments to Draft Action memo	10/21/2006	10/21/2006	11/7/2006	30 days after draft doc	EPA Comments 10/31/06, RIDEM Comments 11/7/06
	Resolution of Comments	12/7/2006	12/1/2006	12/1/2006	30 days after comments received	EPA 12/24/06, RIDEM 1/9/07
	Final Action Memo	12/21/2006	12/21/2006	2/9/2007	60 days after comments received	**ITEM COMPLETE** Signed 1/15/07, sent out 2/9/07, TtNUS Cover Letter
	PUBLIC OUTREACH - OFFTA REMOVAL ACTION (TtNUS)					
	RAB presentation by Tiger Team Rep	---	---	1/17/2007		
	Draft Fact Sheet Update	1/17/2007	---	1/15/2007		Handed out at RPMs meeting, Official version sent out 1/29/07
	Comments to Draft Fact Sheet Update	1/30/2007	---	3/12/2007	15 days	EPA Comments 2/26/07, RIDEM comments 3/12/07
	Final Fact Sheet Update	2/15/2007	---	5/1/2007	15 days	
	ITEM COMPLETE	2/15/2007	---	5/1/2007	15 days	
	REMOVAL ACTION WORK PLAN (TtNUS)					
	Draft Removal Action Work Plan	1/2/2007	1/2/2007	1/10/2007		
	Comments to Draft Removal Action Work Plan	2/9/2007	---	2/26/2007	30 days after submission of draft document. Actual is date email recv'd by RIDEM	EPA letter dated 1/29/07; RIDEM letter dated 2/23/07
	Response to comments, Draft RA Work Plan	3/28/2007	---	5/29/2007	60 days after submission of draft document or 30 days after receipt of last comments	Draft response discussed at RPMs Meetings 3/21/07 and 5/16/07
	Draft Final RA Work Plan	4/27/2007	6/12/2007	5/29/2007	90 days after submission of draft document or 60 days after receipt of draft comments	Revised schedule from 5/16/07 RPM Meeting
	Concurrence on Draft Final RA Work Plan	6/24/2007	7/20/2007	6/29/2007		EPA Comments 6/25/07; RIDEM 6/29/07
	Final RA Work Plan	7/29/2007	8/9/2007	9/14/2007	60 days after submission of draft final	
	Commence Fieldwork	TBD	---	1/7/2008		
	Draft Removal Action Completion Report	4/4/2008	---	---		

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Site 9	**REVETMENT DESIGN (TtNUS)**					
Old Fire Fighting Training Area (Continued)	30% Design	---	---	5/1/2007		Considered part of the Removal Action WP
	Comments to the 30% design	5/31/2007	---	6/12/2007	30 days after submission of 30% document. Actual is date recv'd by RIDEM	EPA - 5/21, CRMC - 5/23, RIDEM 6/12
	Response to comment, 30% Design	6/30/2007	---	8/13/2007		RPM Mtg 7/18/07: Will ReDesign based on RIDEM/CRMC comments
	30% Design (ReSubmission)	9/10/2007	---	9/26/2007		Comments on response above.
	Comments to the 30% design (Resubmission)	---	10/10/2007	11/5/2007	30 days after submission of 30% document	
	Response to comment, 30% Design (Resubmission)	---	11/9/2007	---	60 days after submission of 30% document	Comments resolved 11/14/07, Response anticipated 1/18/08
	90% Design	7/30/2007	12/7/2007	---	90 days after submission of 30% document	Anticipate 3/30/08
	Comments to the 90% design	8/29/2007	1/4/2008	---	30 days after submission of 90% document	Anticipate 4/30/08
	Response to comment, 90% Design	9/28/2007	2/1/2008	---	60 days after submission of 90% document	Anticipate 5/30/08
	Resolution of comments	10/28/2007	2/29/2008	---	90 days after submission of 90% document	Anticipate 6/30/08
	100% Design	11/27/2007	3/28/2008	---	120 days after submission of 90% document	Anticipate 7/30/08
	REVISED FS (TtNUS)					
	Draft FS Revision 1 Report	5/25/2007	10/1/2007	12/14/2007		
	Comments to the Draft FS Revision 1 Report	1/28/2008	---	---	45 days after submission of draft document	
	Response to Comments, Draft FS Revision 1 Report	3/13/2008	---	---	90 days after submission of draft document	
	Resolution of Comments & Draft Final FS Report	4/27/2008	---	---	135 days after submission of draft document	
	Concur/Disput Draft Final FS Report - Revision 1	5/27/2008	---	---	165 days after submission of draft document	
	Final FS Revision 1 Report	6/26/2008	---	---	225 days after submission of draft document	
	PROPOSED REMEDIAL ACTION PLAN (PRAP) and RECORD OF DECISION (ROD)- TtNUS					
	Draft PRAP	10/3/2008	---	---		
	Draft ROD	6/13/2009	---	---		
Site 12	**SITE CLOSURE REPORT (TtEC)**					
Tank Farm 4	Draft Report	10/20/2006	10/20/2006	10/20/2006		
	EPA Comments on Draft	11/18/2006	11/18/2006	11/7/2006	30 days after receipt of draft report	EPA 11/7/06; RIDEM 11/30/06 (RIDEM comments lost in mail, actually received by Navy via email 12/20/06)
	Comment Resolution/Draft Final Report	12/18/2006	1/19/2007	3/14/2007	30 days after receipt of comments	
	Comments on Draft Final Report	---	---	4/7/2007		EPA 4/3/07; RIDEM 4/17/07
	Final Report	---	---	6/19/2007		
	ITEM COMPLETE					

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Site 12 **Tank Farm 4 (Continued)**	**FEASIBILITY STUDY (TtNUS)**					
	Draft Technical Memorandum on Data Gaps For RA	6/3/2007	---	6/15/2007		
	Comments to Draft Tech Memo on Data Gaps	8/6/2007	---	8/6/2007	45 days after submission of draft document	EPA 7/16/07; RIDEM 8/6/07
	Response to Comments to Draft Tech Memo	9/20/2007	---	9/14/2007	90 days after submission of draft document	Comment Resolution - 11/14/07
	Final Tech Memo on Data Gaps	11/2/2007	TBD	1/4/2008	135 days after submission of draft document	
	DQO Meeting for Work Plan	---	---	1/9/2008		Proposed revised dates per DQO Meeting below.
	Draft Work Plan for Data Gaps	10/14/2007	TBD	---		2/29/2008
	Comments to Draft Work Plan	11/28/2007	TBD	---	45 days after submission of draft document	5/14/2008
	Response to comments, Draft Work Plan	1/12/2008	TBD	---	90 days after submission of draft document	6/29/2008
	Draft Final Work Plan	2/26/2008	TBD	---	135 days after submission of draft document	8/14/2008
	Concurrence on Draft Final Work Plan	3/27/2008	TBD	---	165 days after submission of draft document	9/13/2008
	Final Work Plan	5/26/2008	TBD	---	225 days after submission of draft document	10/13/2008
	Commence Fieldwork	TBD	TBD	---		9/13/2008 ?
	Draft Data Gap Report	10/26/2008	TBD	---		**1/13/2009**
	Draft HHRA and ERA Report	7/9/2009	TBD	---		3/13/2009
	Draft FS Report	3/12/2010	TBD	---		
	Final FS Report	10/22/2010	TBD	---		
	PROPOSED REMEDIAL ACTION PLAN (PRAP) and RECORD OF DECISION (ROD)- TtNUS					
	Draft PRAP	11/22/2010				
	Draft ROD	6/3/2011				
Site 13 **Tank Farm 5**	**SITE CLOSURE REPORT (TtEC)**					
	Draft Report	10/20/2006	10/20/2006	10/20/2006		
	EPA Comments on Draft	11/18/2006	11/18/2006	11/7/2006	30 days after receipt of draft report	EPA 11/7/06; RIDEM 11/30/06 (RIDEM comments lost in mail, actually received by Navy via email 12/20/06)
	Comment Resolution/Draft Final Report	12/18/2006	1/19/2007	3/14/2007	30 days after receipt of comments	
	Draft Final report	1/18/2007	1/18/2007	3/14/2007	60 days after receipt of comments	Discuss 3/21/07
	Final Report	---	---	6/19/2007		
	ITEM COMPLETE					
	FEASIBILITY STUDY (TtNUS)					
	Draft Technical Memorandum on Data Gaps For RA	6/3/2007	---	6/15/2007		
	Comments to Draft Tech Memo on Data Gaps	8/6/2007	---	8/6/2007	45 days after submission of draft document	EPA 7/16/07; RIDEM 8/6/07
	Response to Comments to Draft Tech Memo	9/20/2007	---	9/14/2007	90 days after submission of draft document	Comment Resolution - 11/14/07
	Final Tech Memo on Data Gaps	11/2/2007	TBD	1/4/2008	135 days after submission of draft document	
	DQO Meeting for Work Plan	---	---	1/9/2008		Proposed revised dates per DQO Meeting below.

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	Draft Work Plan for Data Gaps	10/14/2007	TBD	---		2/29/2008
	Comments to Draft Work Plan	11/28/2007	TBD	---	45 days after submission of draft document	5/14/2008
Site 13	Response to comments, Draft Work Plan	1/12/2008	TBD	---	90 days after submission of draft document	6/29/2008
	Draft Final Work Plan	2/26/2008	TBD	---	135 days after submission of draft document	8/14/2008
Tank Farm 5 (Continued	Concurrence on Draft Final Work Plan	3/27/2008	TBD	---	165 days after submission of draft document	9/13/2008
	Final Work Plan	5/26/2008	TBD	---	225 days after submission of draft document	10/13/2008
	Commence Fieldwork	TBD	TBD	---		9/13/2008 ?
	Draft Data Gap Report	10/26/2008	TBD	---		**1/13/2009**
	Draft HHRA and ERA Report	7/9/2009	TBD	---		3/13/2009
	Draft FS Report	3/12/2010	TBD	---		
	Final FS Report	10/22/2010	TBD	---		
	PROPOSED REMEDIAL ACTION PLAN (PRAP) and RECORD OF DECISION (ROD)- TtNUS					
	Draft PRAP	11/22/2010				
	Draft ROD	6/3/2011				
	TANKS 53 and 56 (TtNUS)					
	Draft Round 5 Groundwater report	10/30/2004	---	10/30/2004		
	Comments to Draft Report	11/30/2004	---	12/6/2004	30 day after receipt of report	EPA - 11/19/04, RIDEM - 12/6/04
	Response, Resolution to Comments	1/6/2005	---	1/18/2005	30 days after receipt of comments	
	Additional Comments	NA	---	1/25/2005	Not anticipated	EPA letter
	ITEM COMPLETE	---	---	---		Groundwater to be incorporated as part of overall ROD for OU 2
	TREATMENT PLANT DEMO					
	Internal Draft Basis of Design Report (TtNUS)	---	---	11/7/2007		
	Draft BOD (TtNUS)	---	---	1/3/2008		
	RIDEM Comments on Draft	2/2/2008			30 days after submission of draft report	
	Final BOD (TtNUS)	3/3/2008			60 days after submission of draft report	
	Treatment Plant Demo	TBD	TBD	TBD		Contract Vehicle to be determined

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Site 17 Gould Island	**REMEDIAL INVESTIGATION REPORT (TtNUS)**					
	Draft RI report	3/30/2006	3/30/2006	5/12/2006		
	Comments to the Draft RI	6/26/2006	6/26/2006	6/30/2006	45 days after receipt of draft document	EPA 6/22/06, RIDEM 6/30/06
	Response to comments, Draft RI/ Comment Resolution	8/14/2006	8/14/2006	8/22/2006	45 days after receipt of comments	Response 8/14/06
	Comments on Response	NA	NA	9/18/2006	Not anticipated	Draft Final RI report addresses clarifications.
	Draft Final RI report	9/30/2006	9/30/2006	10/25/2006	90 days after receipt of comments	
	EPA Concurrence on the Draft Final Report	11/25/2006	11/25/2006	11/16/2006	30 days after draft final doc	
	RIDEM Concurrence on the Draft Final Report	11/25/2006	11/25/2006	11/24/2006	30 days after draft final doc	Short comments instead of concurrence
	Final RI Report	12/25/2006	12/25/2006	12/29/2006	60 days after draft final doc	
	ITEM COMPLETE					
Site 17 Gould Island (Continued)	**PHASE 2 RI AND BASELINE ECOLOGICAL RISK ASSESSMENT (TtNUS)**					
	Maps Deliverable for RIDEM	NA	NA	12/29/2006	Anticipate 12/15/06	In accordance with RIDEM comment to draft RI report
	Technical Meeting to Discuss Phase 2 RI and BERA	1/18/2007	1/18/2007	---		Agreement at November 15 RPMs meeting.
	Draft Phase 2 RI and BERA Work Plan	11/23/2007	---	---		Conf Call 10/9/07, QAPP worksheets submitted 10/26/07. Minor comments, currently in Navy review. Anticipate 2/8/08
	Comments to Draft Work Plan	1/7/2008	---	---	45 days after submission of draft document	Anticipated 3/24/08
	Response to comments, Draft Work Plan	2/21/2008	---	---	90 days after submission of draft document	Anticipated 5/8/08
	Draft Final Work Plan	4/6/2008	---	---	135 days after submission of draft document	Anticipate 6/23/08
	Concurrence on Draft Final Work Plan	5/6/2008	---	---	165 days after submission of draft document	Anticipate 7/23/08
	Final Work Plan	7/4/2008	---	---	225 days after submission of draft document	Anticipate 8/23/08
	Commence Fieldwork	TBD	---	---		
	Draft Phase 2 RI and BERA Report	2/13/2009	---	---		
	Final Phase 2 RI and BERA Report	9/25/2009	---	---		
	FEASIBILITY STUDY (TtNUS)					
	Draft FS Report	7/15/2010	---	---		
	Final FS Report	2/24/2011	---	---	225 days after submission of draft document	
	PROPOSED REMEDIAL ACTION PLAN (PRAP) and RECORD OF DECISION (ROD)- TtNUS					
	Draft PRAP	3/25/2011	---	---		
	Draft ROD	11/4/2011	---	---		
Site 19 Former Derecktor Shipyard	**BUILDING 62 (TtNUS)**					
	Letter on Building 62 and IR Site Boundary			1/8/2007		
	SANDBLAST GRIT REMOVAL (TtEC)					
	Draft EECA for Sandblast Grit Removal	---	---	7/11/2006		

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS
	Public Comment Period starts	---	---	7/19/2006	30 day comment period	No comments
	Comments to Draft EECA	---	---	8/25/2006	45 days after draft submittal	EPA - 7/31/06, RIDEM 11/9/06 (comments to be incorporated into RA work plan)
	Final EECA for Sandblast Grit Removal	10/10/2006	---	10/10/2006		EPA concurs 10/18/06, RIDEM comments 11/9/06 (ARAR Comment to be incorporated into RA work plan).
	Action Memo For Removal	11/10/2006	11/10/2006	11/10/2006		EPA concurs 12/4/06, RIDEM no comments received
	Action memo signed by NAVSTA CO	---	---	11/16/2006		
	Draft Removal Action Work Plan	---	---	1/12/2007	secondary document	
	Comments to Draft RA Work Plan	2/26/2007	---	3/1/2007	45 days after submission of draft document	EPA letter of 1/19/07; RIDEM letter of 3/1/2007
	Response to comments, Draft RA work plan	4/12/2007	---	6/22/2007	90 days after submission of draft document	
	Comment Resolution to Draft RA Work Plan	5/28/2007	---	---	120 days after submission of draft document	
	Final RA Work Plan	6/28/2007	---	6/22/2007	150 days after submission of draft document	
Site 19	Fieldwork Completed	---	---	8/7/2007		
	Draft Removal Action Completion Report (RACR)	---	---	12/5/2007		
	Comments to Draft RACR	1/4/2008	---	---	30 days after submission of draft document	EPA - 12/27/07; RIDEM - Not Received
Former Derecktor Shipyard (Continued)	Response to comments, Draft RACR	2/3/2008	---	---	60 days after submission of draft document	
	Final RACR	3/4/2008	---	---	90 days after submission of draft document	
	FEASIBILITY STUDY FOR MARINE SEDIMENTS (TtNUS)					
	Disputed FS from April 1999	---	---	7/29/1999	Refer to meeting minutes 4/27/1999 and response to comments on Draft Final FS 4/16/1999	
	Meeting to discuss PRGs and Marine Sediment FS	---	---	11/15/2006		Addressed issues at Novemember 15 RPM meeting
	Draft Marine Sediment FS REV 1	2/20/2007	---	3/15/2007		Anticipate 4/3/07 to EPA and RIDEM
	Comments to the Draft Marine Sed FS Revision 1	5/6/2007	---	5/8/2007	45 days after submission of draft document	
	Navy Responses to comments	6/21/2007	---	9/14/2007	90 days after submission of draft document	
	Comment Resolution/Draft FS Revision 1	10/26/2007	---	---	45 days after submission of RTC document	Comments from EPA on the response summary were resolved 11/14/07 on table format and as documented in meeting notes.
	Concur/Dispute	11/25/2007	---	---	30 days after submission of Draft Final	
	Submit Draft Final Marine Sediment FS - Revision 1	12/25/2007	---	---	30 days after Concurrence	Anticipate submittal 1/25/08
	PRAP & ROD FOR MARINE SEDIMENTS (TtNUS)					
	Draft Proposed Plan	9/19/2008	---	---		Per the RPM Meeting 1/17/07, decision documents would address both the onshore portions of the site as well as the marine sediments. Per the RPM Meeting 7/18/07, Site will be split into two OUs (1 for offshore sediments and 1 for Onshore soil & GW). Paths forward will be independent of each other.
	Comments to Draft Proposed Plan	TBD	---	---		
	Resolution on Comments to PRAP	TBD	---	---		
	Final Proposed Plan	TBD	---	---		
	Public Comment Period	TBD	---	---		
	Draft ROD	5/1/2009	---	---		
	Comments to Draft ROD	TBD	---	---		
	Resolution on comments to Draft ROD	TBD	---	---		

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS
Site 19 Former Derecktor Shipyard (Continued)	Final ROD	TBD	---	---		
	ONSHORE SOILS & GROUNDWATER (TtNUS)					
	Draft Work Plan - Groundwater Sampling	9/19/2008	---	---		Per the RPM Meeting 1/17/07, decision documents would address both the onshore portions of the site as well as the marine sediments. Per the RPM Meeting 7/18/07, Site will be split into two OUs (1 for offshore sediments and 1 for Onshore soil & GW). Paths forward will be independent of each other.
	Comments to Draft Work Plan	TBD	---	---	45 days after submission of draft document	
	Resolution on Comments to Draft Work Plan	TBD	---	---	90 days after submission of draft document	
	Draft Final Work Plan	TBD	---	---	135 days after submission of draft document	
	Concur/Dispute	TBD	---	---	165 days after submission of draft document	
	Final Work Plan - Groundwater Sampling	TBD	---	---	225 days after submission of draft document	
	Fieldwork	TBD				
	Draft Report of Results - Groundwater Sampling	9/18/2009	---	---		
	Comments to Draft Report of Results	TBD	---	---	45 days after submission of draft document	
	Resolution on Comments to Draft Report of Results	TBD	---	---	90 days after submission of draft document	
	Draft Final Report of Results	TBD	---	---	135 days after submission of draft document	
	Concur/Dispute	TBD	---	---	165 days after submission of draft document	
	Final Report of Results - Groundwater Sampling	TBD	---	---	225 days after submission of draft document	
	FEASIBILITY STUDY FOR ONSHORE SOILS & GROUNDWATER (TtNUS)					
	Draft Onshore FS	9/17/2010	---	---		
	Comments to Draft Onshore FS	TBD	---	---	45 days after submission of draft document	
	Resolution on Comments to Draft Onshore FS	TBD	---	---	90 days after submission of draft document	
	Draft Final Onshore FS	TBD	---	---	135 days after submission of draft document	
	Concur/Dispute	TBD	---	---	165 days after submission of draft document	
	Final Onshore FS	TBD	---	---	225 days after submission of draft document	
	ONSHORE PRAP & ROD (TtNUS)					
	Draft Proposed Plan	4/29/2011	---	---		
	Comments to Draft Proposed Plan	TBD	---	---		
	Resolution on Comments to PRAP	TBD	---	---		
	Final Proposed Plan	TBD	---	---		
	Public Comment Period	TBD	---	---		
	Draft ROD	12/9/2011	---	---		
	Comments to Draft ROD	TBD	---	---		
	Resolution on comments to Draft ROD	TBD	---	---		
	Final ROD	TBD	---	---		
Study Area 20	**FOCUSED SI REPORT (TtNUS)**					

NAVSTA NEWPORT
RPM DOCUMENT TRACKING AND 3-MONTH SCHEDULE PROJECTION

Revised At Meeting: 1/16/2008

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS
SWOS	Final SWOS Focused SI report	6/1/2006		6/1/2006		Report concludes that SWOS will be addressed under Site 09 FS
	Concurrence on Report	7/1/2006		---	30 days after receipt of report	EPA 4/5/06 (concurrence on DF version) RIDEM comments 3/24 do not concur
	SITE IS COMPLETE, ACTIONS TO BE CONDUCTED WITH OFFTA					Adminstrative Closeout??
SA 21	**LEAD IN SOIL INVESTIGATION (TtNUS)**					
Melville Water Tower	Site Notification Letter	TBD	TBD	1/11/2007		
	SI Field Sampling Plan	NA	NA	6/2/2006		
	Comments to Field Sampling Plan	NA	NA	6/19/2006		EPA 6/19/06, RIDEM 6/14/06
	Response to Comments	7/19/2006	7/19/2006	7/27/2006		
	Revised Field Sampling Plan	8/19/2006	8/19/2006	8/1/2006		
	Data summary report (to be identifed as SASE)	11/17/2006	11/17/2006	11/21/2006		
	Comments on Data Summary report	12/21/2006	12/21/2006	1/18/2007	30 days after receipt of report	EPA 12/11/06, RIDEM 1/18/07
	Response to Comments	12/27/2006	12/27/2006	2/14/2007	30 days after receipt of comments	30 days from 1/18 is 2/19/07
SA 21	Final Data Summary Report	12/27/2006	12/27/2006	2/14/2007	30 days after receipt of comments	30 days from 1/18 is 2/19/07
Melville Water Tower (Continued)	Fence	10/30/2006	10/30/2006	---	6 month lease	Temp Fence is renewed through Nov 1, 2007
	ACTION MEMORANDUM/PUBLIC PARTICIPATION					
	Open House to Present Report and Fact Sheet	5/1/2007	5/1/2007	5/1/2007		
	Draft Action Memo	5/14/2007	---	6/11/2007		Anticpate 5/31
	Regulatory Review Complete	6/7/2007	---	6/28/2007		EPA - 6/25/07; RIDEM - 6/28/07
	Final Action memo	7/13/2007	---	7/23/2007		
	NON-TIME CRITICAL REMOVAL ACTION					
	Draft Removal Action RA Work Plan	5/31/2007	---	7/6/2007		
	Regulatory Review Complete	6/14/2007	---	7/20/2007		EPA 7/16/07; RIDEM 7/20/07
	Navy Response to Comments	---	---	8/9/2007		
	Final Removal Action Work Plan	6/19/2007	---	8/17/2007		EPA Concurrence 8/20/07
	Field Mobilization to Tower Property	7/16/2007	---	7/16/2007		
	Demobilization from Tower Property	8/17/2007	8/22/2007	8/31/2007		
	Complete T&D from Tank Farm 5	9/30/2007	---	8/31/2007		
	Draft Removal Action Completion Report	4/4/2008	---	11/21/2007		
	Regulatory Review Complete	12/21/2007			30 days after submission of draft RACR	No comments submitted. Navy will plan to finalize report.
	Final RACR	1/20/2008			60 days after submission of draft RACR	
UXO Site 1	**SITE INVESTIGATION**					
Carr Point	Site Notification Letter	---	---	1/11/2007		

NAVSTA NEWPORT
RPM DOCUMENT TRACKING AND 3-MONTH SCHEDULE PROJECTION

Revised At Meeting: 1/16/2008

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS
	Draft Site Investigation Work Plan	8/29/2007	9/28/2007	11/6/2007		
	Comments to Draft SI Work Plan	12/21/2007	---	---	45 days after submission of draft document	EPA - 11/27/07; RIDEM - No Comments Submitted
	Response to Comments	2/4/2008	---	---	90 days after submission of draft document	
	Draft Final SI Work Plan	3/20/2008	---	---	135 days after submission of draft document	
	Concurrence on Draft Final SI Work Plan	4/19/2008	---	---	165 days after submission of draft document	
	Final SI Work Plan	5/19/2008	---	---	225 days after submission of draft document	
	Commence Fieldwork	TBD	---	---		
	Draft SI Report	10/4/2008	---	---		Anticipated 1/29/09

NAVSTA NEWPORT
RPM DOCUMENT TRACKING AND 3-MONTH SCHEDULE PROJECTION

Revised At Meeting: 1/16/2008

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS
Basewide Background Study	**BASEWIDE BACKGROUND SOIL INVESTIGATION (TtNUS)**					
	Draft Work Plan	1/18/2006	1/18/2006	1/18/2006		
	Comments to Draft Work Plan	3/3/2006	3/3/2006	2/24/2006	45 days after receipt of draft document	EPA - 2/9/06, RIDEM - 2/29/06
	Response/ Resolution of Comments	4/10/2006	4/10/2006	NA	45 days after receipt of comments	
	Final Work Plan	5/25/2006	5/25/2006	5/12/2006	90 days after draft final doc	
	Response to Additional Comments	NA	NA	9/14/2006	not anticipated	Additioanl RIDEM comments 6/14/06, Response 9/15/06
	Field Investigation complete	2/28/2007	2/28/2007	3/30/2007		
	Internal Draft Report	6/15/2007	---	8/31/2007		
	Draft Basewide Background Report	9/11/2007	---	10/17/2007		
	Comments to Draft Basewide Background Report	12/1/2007	---	12/13/2007	45 days after submission of draft document	EPA - 11/27/07; RIDEM - 12/13/07
	Response to Comments	1/15/2008	---	---	90 days after submission of draft document	Additional Maps per RIDEM request in preparation, anticipate submittal any day.
	Draft Final Basewide Background Report	2/29/2008	---	---	135 days after submission of draft document	
	Concurrence on Draft Final Basewide Background Rpt	3/30/2008	---	---	165 days after submission of draft document	
	Final Basewide Background Report	5/29/2008	---	---	225 days after submission of draft document	
RPM Meeting Notes	Draft Notes to the Meeting 9/21/06	10/16/2006	---	---	2 weeks after meeting	Draft Sent to RIDEM and USEPA
	Final Notes to the Meeting 9/21/06	11/16/2006	---	11/16/2006		
	Draft Notes to the Meeting 11/15/06	11/30/2006	---	12/1/2006	2 weeks after meeting	No comments as of 1/5/07
	Final Notes to the Meeting 11/15/06	12/15/2006	---	1/8/2007		
	Draft Notes to the Meeting 1/17/07	1/30/2007	---	2/2/2007	2 weeks after meeting	No comments as of 3/2/07
	Final Notes to the Meeting 1/17/07	12/15/2006	---			
	Draft Notes to the meeting 3/21/07	3/21/2007	---	3/27/2007	2 weeks after meeting	EPA Comments 3/29
	Final notes to the Meeting 3/21/07	3/28/2007	---	6/6/2007		
	Draft notes to the Meeting 5/16/07	5/23/2007	---	5/25/2007	2 weeks after meeting	EPA Comments 5/29
	Final Notes to the Meeting 5/16/07	5/30/2007	---	6/6/2007		
	Draft Notes to the Meeting 7/18/07	8/1/2007		8/7/2007	2 weeks after meeting	
	Final Notes to the Meeting 7/18/07	---		8/21/2007		
	Draft Notes to the Meeting 9/19/07	10/3/2007		10/3/2007	2 weeks after meeting	
	Final Notes to the Meeting 9/19/07	---		10/10/2007		
	Draft Notes to the Meeting 11/14/07	11/28/2007		12/6/2007	2 weeks after meeting	
	Final Notes to the Meeting 11/14/07	---		1/16/2008		To be delivered at the January 16 RPM meeting
	Draft Notes to the Meeting 1/16/08	1/30/2008		---	2 weeks after meeting	
	Final Notes to the Meeting 1/16/08	---		---		

NAVSTA NEWPORT
RPM DOCUMENT TRACKING AND 3-MONTH SCHEDULE PROJECTION

Revised At Meeting: 1/16/2008

SITE	ACTIVITY	PLANNED DUE DATE	AGREED-ON DATE	ACTUAL DATE	FFA DURATIONS	COMMENTS

TBD - To Be Determined

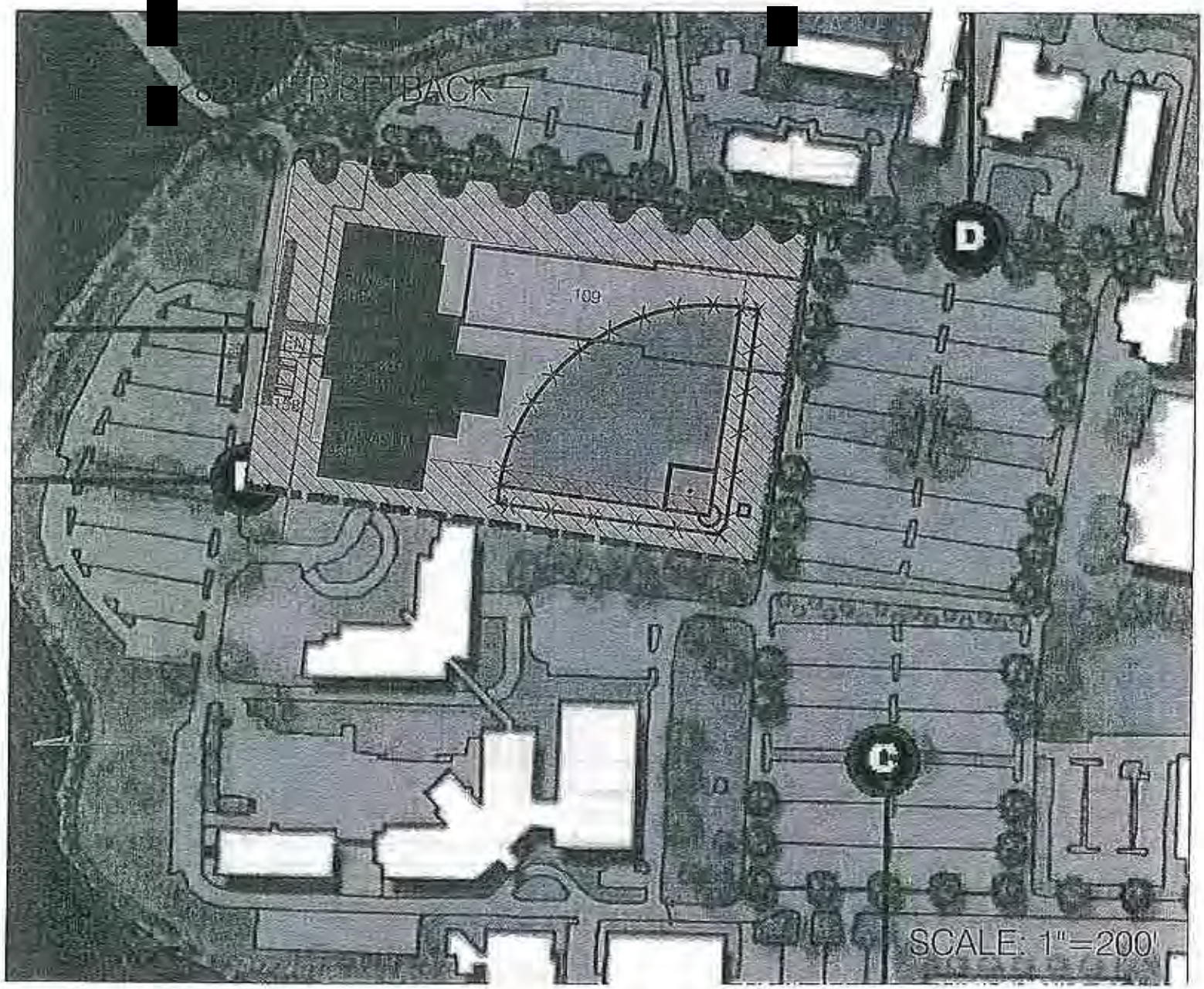
NA - Not Anticipated

Planned DUE DATES are based on FFA Durations unless noted

Red text indicates item not yet completed

Blue text indicates issued to be discussed at upcoming RPM Meeting

Yelow shading denotes item needs attention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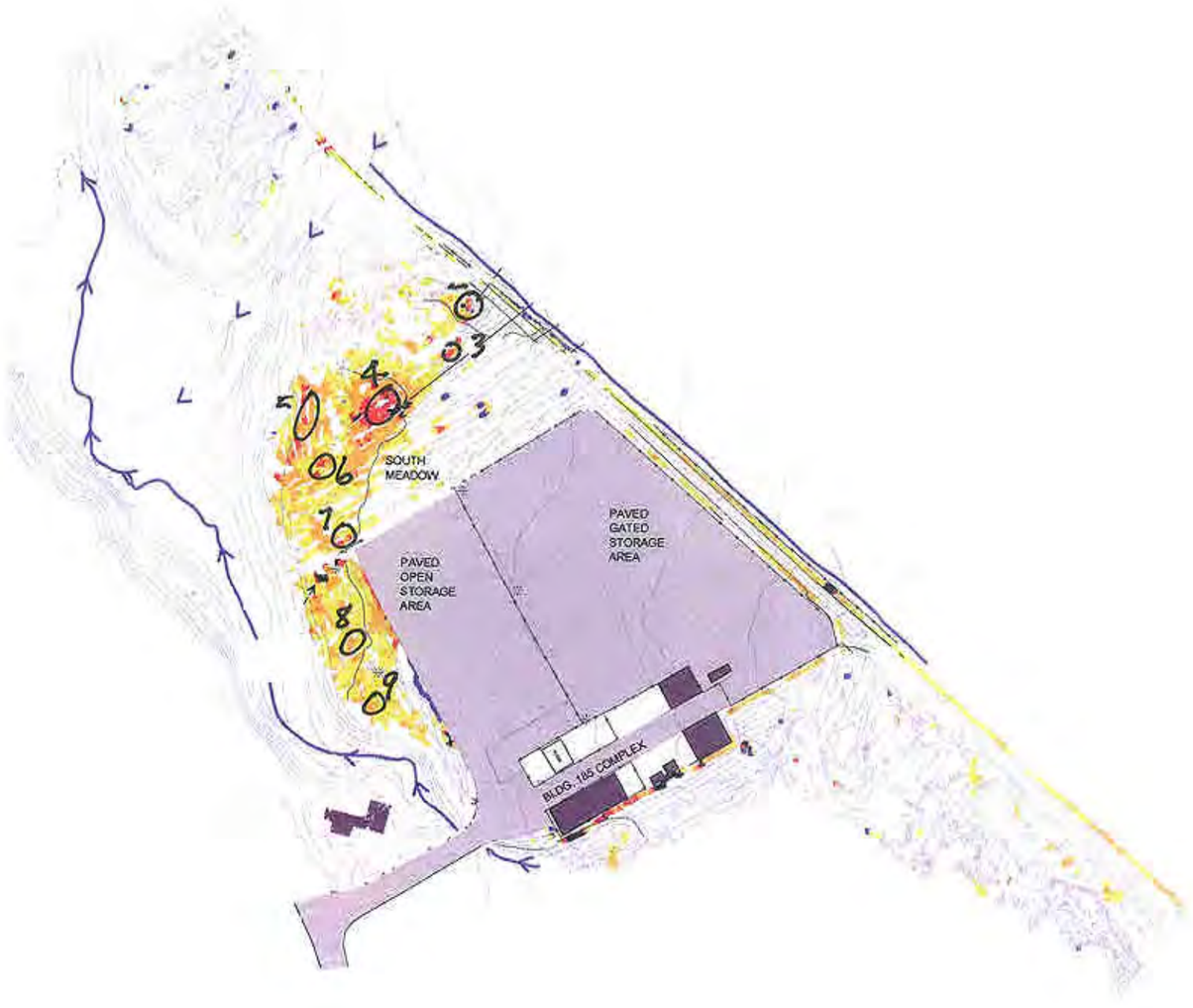
SOUTH
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[redacted] DA-

SS108 DA-

SS134 DA-

SS104 DA-

[redacted]13B DA-

SS103B DA-

SS130 DA-

SS121 DA-

SS105B DA-

SS123 DA-

SS127 DA-

[redacted]53 DA-

SS108	DA-
	DA-
	DA-
SS103B	DA-
SS130	DA-
SS110B	DA-
SS133	DA-
SS105B	DA-
	DA-
SS152	NA
SS153	NA

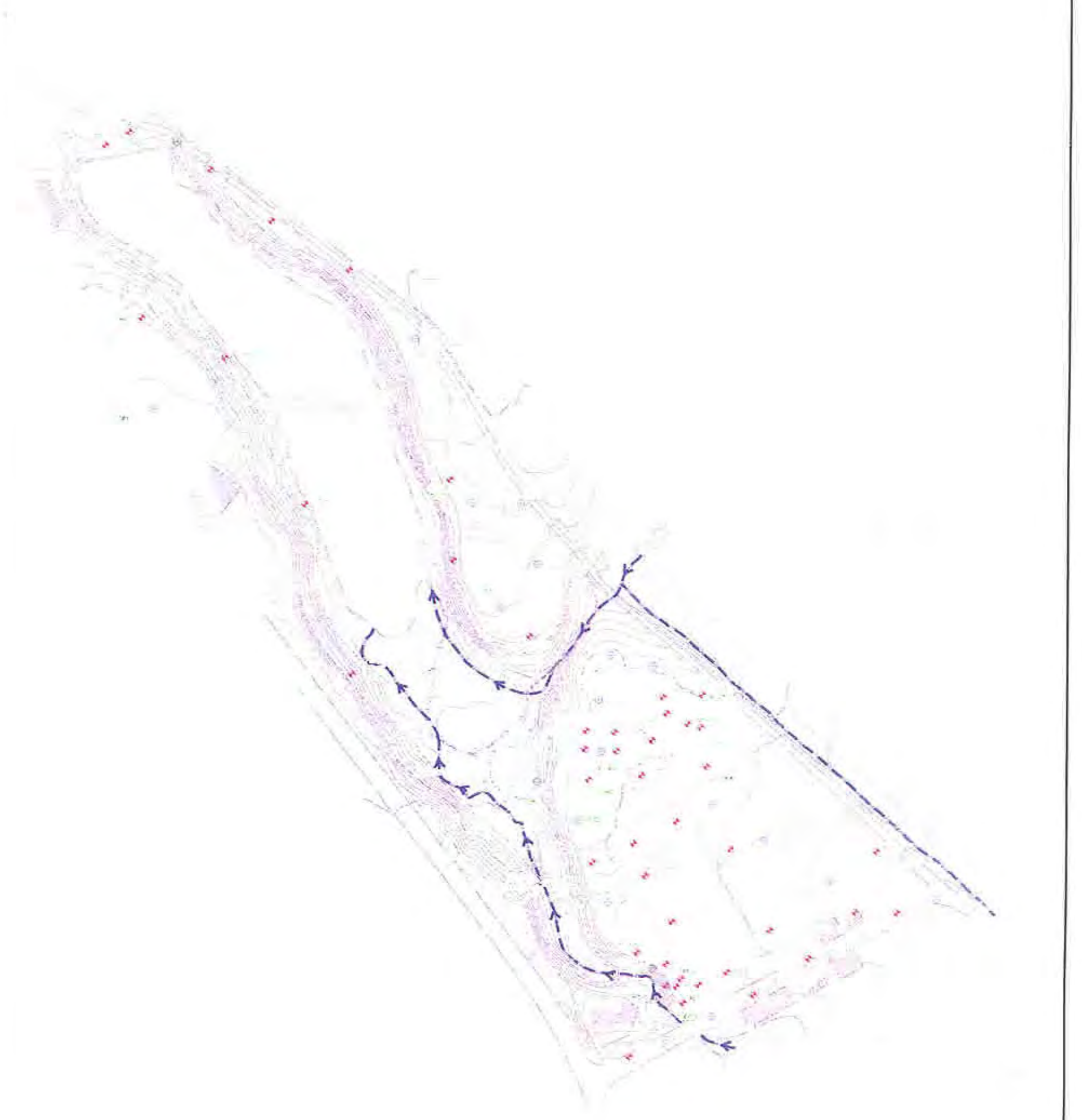
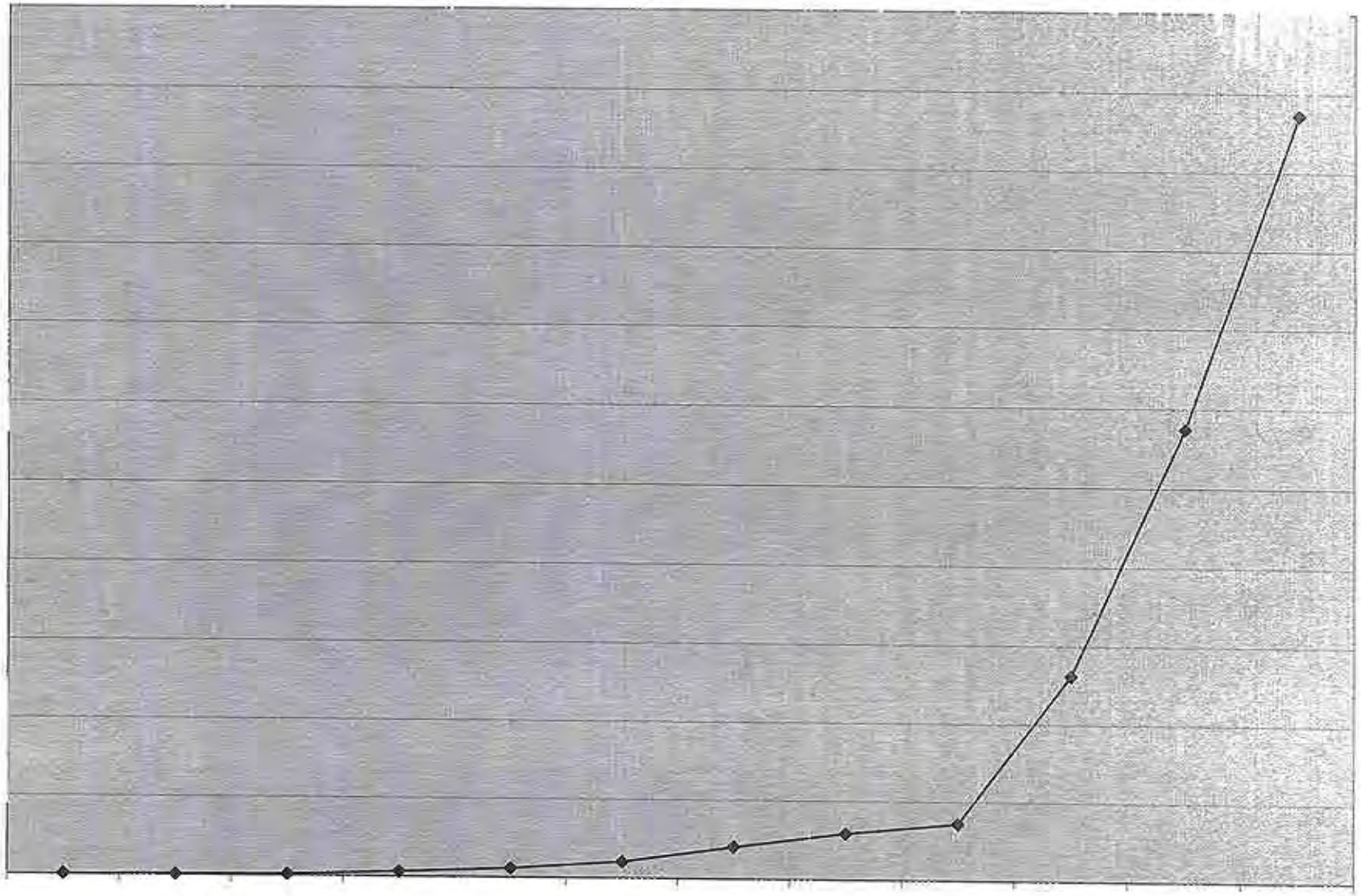
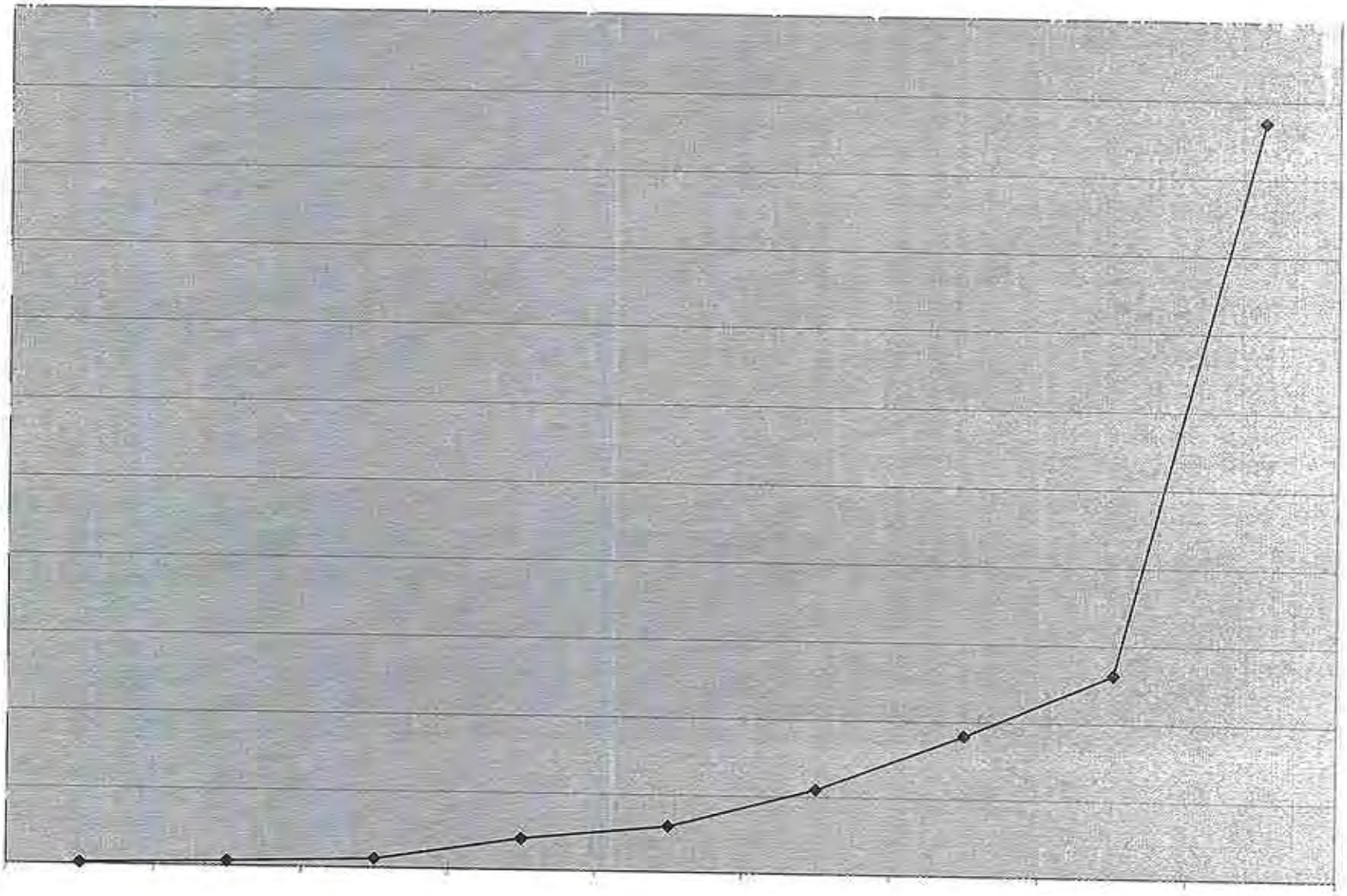


FIGURE 1





SD01*	76	Upstream
SD133	15,300	Selected reachv upstream
SD106	824	Selected
SD110	642	Selected
SD111	344	Selected present, area.
SD112	508	Selected present.
SD108	23.5	Reference
SD107	13	Reference
SD114	248	Actualiv lead
SD116	441	Actualiv lead
SD119	230	Selected the
SD121	199	Selected the
SD125	155.5	Selected the

142
164
104
155.5
183
178
199
220
230
187
106
248
77.9
INACCESSIBLE
441
23.6
508*
344
642
824
314
255
530
824*
15,300
458
5,940
27,300
13.0
23.5

James Ferrelli, Tenus 978-474-8412

TETRA TECH

C-Navy-04-08-2812W

April 25, 2008

Project Number 112G00816

Mr. James L. Colter, PE.
Remedial Project Manager (Code OPNEEV)
Facilities Engineering Command
Mid-Atlantic Naval Facilities Engineering Command
Bldg Z-144
9742 Maryland Avenue
Norfolk Virginia 23511-3095

Reference: CLEAN Contract No. N62467-04-D-0055
Contract Task Order (CTO) No. 402

Subject: Plan for Sediment and Biological Sampling
Remedial Investigation at NUSC Disposal Area, Site 08
Naval Station Newport, Newport RI

This letter has been prepared to clarify the approach and schedule for sediment and biological sampling for the Remedial Investigation at the NUSC Disposal Area, Site 08 at NUWC, which is part of NAVSTA Newport, and located in Middletown Rhode Island.

Biological sampling in accordance with the work plan for remedial investigation at NUSC includes the following elements:

- Bulk sediment sampling for chemistry and toxicity testing (samples collected at the same time): Twelve stations within the site (see Table 1 attached), three stations in the Reference Pond location (Upper Melville Pond) and three additional stations in a reference stream to be selected by Tetra Tech (action item from RPM meeting 3/19/08) (total 18 samples).

  A candidate reference stream has been selected, which is the outlet of the upper Melville Pond. After passing over a spillway on the north side of the pond, the outlet waters form a small stream similar in size and flow to that of Deerfield Creek at the NUSC site. These form a meandering channel through a red maple swamp and then pass the tent sites of the Melville Ponds Campground. The first 200 yards of the stream is suitable for use as a reference area for the lower portions of Deerfield Creek downstream of SD 128 and SD 103 because: 1) there are no known contaminant influences on this location, and 2) the vegetation and sediment types present are similar the lower portion of Deerfield Creek.

  No suitable off-site reference stream has been located for the rocky stream environment of Deerfield Creek between SD100 and SD103 However, the two sediment samples collected in the tributary from the golf course (by SD107 and SD108) will be used as reference samples for the samples collected in the rocky portion of Deerfield Creek. Although these samples are technically on the site, the lead concentrations are very low at these locations so they are appropriate for comparison purposes. *Sampling is planned for May 19-30, 2008.*

Tetra Tech NUS, Inc.
55 Jonspin Road, Wilmington, MA 01887-1020
Tel 978.658.7899 Fax 978.658.7870 www.ttnus.com

- Earthworm sampling for tissue analysis: Twelve stations, selected 1/16/08 (reference 5 below). *Sampling is planned for May 12-16, 2008.*

- Earthworm toxicity testing: Toxicity to surface soil is measured by the survival of earthworms exposed to selected surface soil samples collected from the site. This was completed in February 2008 (reference 5 below).

- Benthic community sampling: Samples of sediment will be collected and sieved to identify benthic invertebrates present at each area. Twelve stations within the site, three stations in the Reference Pond location (Upper Melville Pond) and three additional stations in a reference stream selected by Tetra Tech (refer to above) (total 18 samples). Benthic sampling in the rocky portions of the stream may not be located at the same exact positions as the chemistry and toxicity samples *Sampling is planned for May 19-30, 2008.*

- Fish sampling for tissue analysis: Fish samples will be collected from three distinct areas of the pond. In each area, one whole-body composite sample and one fillet composite sample will be collected for two different species. The target species for fillet samples are largemouth bass and brown bullhead. The target species for whole-body samples are bluegill, and either small (less than 10 inches) largemouth bass, yellow perch, or white perch, depending upon which species is most prevalent. Sampling is planned for early June.

As stated above, the sediment and biological sampling has been advance scheduled to assure data collection in the spring sampling window. Most field activities will be conducted in the period of May 19-May 30.

This information has been provided to the regulatory oversight parties as shown on the distribution list below so that they can schedule field oversight efforts. Field oversight should be coordinated with Cornelia Mueller at NAVSTA, Tom Cooke at NUWC, and Dabra Seiken at TtNUS.

If you have any questions, please do not hesitate to contact me.

Very Truly Yours,

Stephen S. Parker, LSP
Senior Project Manager

SSP/

Enclosure

c: A. Bernhardt TtNUS (w/encl.)
K. DeGoosh, RIDEM (w/encl.)
J. Forrelli, TtNUS (w/encl.)
P. Kulpa, RIDEM (w/encl.)
G. Lombardo, USEPA (w/encl.)
C. Mueller, NAVSTA (w/encl.)
D. Seiken, TtNUS (w/encl.)
J. Trepanowski, TtNUS (w/encl.)
File: 112G00816-3.1

References:

1) NUSC Disposal Site Biological Sampling Assessment, September 11, 2007. Electronic Mail dated November 15, 2007 from J. Forrelli, TtNUS to K. Keckler, USEPA and P. Kulpa, RIDEM

2) Electronic Mail from Katie DeGoosh, RIDEM to Chris Deacutis, Paul Kulpa, Stephen Parker April 8, 2008.

3) Proposed Locations of Sediment Samples for Toxicity Sampling, Provided at the RPM meeting January 16, 2008, Tetra Tech NUS, Inc. Final meeting notes dated 3/4/08.

4) Letter from Ginny Lombardo, USEPA To James Colter, US Navy. Comments on Biological Sampling Proposals March 19, 2008.

5) Earthworm tissue and Earthworm toxicity testing Sampling Locations Provided at the RPM meeting January 16, 2008, Tetra Tech NUS, Inc. Final meeting notes dated 3/4/08.

Table 1
Selected Locations for Bulk Sediment, Sediment Toxicity, and Benthic Community
Remedial Investigation at the NUSC Disposal Area
Middletown RI

Area	Sediment Sample Location	Sediment Lead (mg/kg)	Comments/Rationale For Selection
Deerfield Creek upstream of the culvert	SD01*	76	Upstream for Deerfield Creek. Chemical Samples to be collected only
Deerfield Creek downstream of the culvert	SD100	27,200	
	SD132	5,340	
	SD101	458	
	SD133	**15,300**	Selected because it has a very high lead concentration. Sediment may not be readily available at this location, but it should be more available than at the upstream locations.
	SD102	624	
	SD103	530	
	SD104	255	
	SD02*	610	
	SD105	314	
	SD106	**824**	Selected because it has a high lead concentration and sediment is present.
	SD03*	700	
	SD110	**642**	Selected because it has a high lead concentration and sediment is present.
	SD111	**344**	Selected because it has a low-to-moderate lead concentration and sediment is present. Also, this area is a little rockier than some of the other locations in this area.
	SD06*	770	
	SD112	**508**	Selected because it has a moderate-to-high lead concentration and sediment is present.
Unnamed Stream (tributary from the golf course)	SD04*	14	
	SD108	**23.5**	Reference for benthic sampling
	SD107	**13**	Reference for benthic sampling
	SD109	25.4	
	SD05*	130	
	SD113	77.9	
NUWC Pond	**SD114**	**248**	Actually in tributary before reaching pond. Selected because it has a moderate lead concentration and sediment is present.
	SD115	106	
	SD07*	350	
	SD116	**441**	Actually in tributary before reaching pond. Selected because it has a moderate lead concentration and sediment is present.
	SD117	inaccessible	
	SD118	187	
	SD119	**230**	Selected because it has a moderate lead concentration and is in the middle of the pond.
	SD120	220	
	SD121	**199**	Selected because it has a moderate lead concentration and is in the middle of the pond.
	SD122	176	
	SD08*	180	
	SD123	183	
	SD124	164	
	SD125	**155.5**	Selected because it has a moderate lead concentration and is in the middle of the pond.
	SD09*	150	
	SD126	104	
	SD127	142	

Selected locations for the sediment chemistry and toxicty testing

Selected for Sediment and Surface Water Chemistry testing only

* Sample collected during 2003 SASE.

LEGEND:

- SW/SD101 — PROPOSED SURFACE WATER / SEDIMENT
- SD129 — PROPOSED SEDIMENT
- △ — EXISTING DRIVE POINT
- □ — EXISTING SURFACE WATER / SEDIMENT
- FISH SAMPLE LOCATIONS
- ☼ — LIGHT POLE
- UTILITY POLE
- TRANSFORMER
- STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2007
- FORMER STREAM CHANNEL AS OBSERVED DURING FIELD ACTIVITIES, 2003
- VEGETATION BOUNDARY
- CATCH BASIN
- STORM DRAIN OUTLET
- 23.5 — LEAD CONCENTRATION (mg/kg) JULY 2007
- * — INDICATES A DUPLICATE SAMPLE COLLECTED. CONCENTRATION GIVEN IS AN AVERAGE OF BOTH SAMPLES COLLECTED.
- 76.0 — LEAD CONCENTRATION (mg/kg) 2003

NOTES AND REFERENCES

1. PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.
2. VERTICAL DATUM = NGVD 1929, SEE PLAN PROVIDED BY CLIENT ENTITLED "BUILDING 179 REMEDIAL INVESTIGATION FIGURE 2 EXISTING CONDITIONS PLAN", DATED 12/3/99, BY THE NAVAL UNDERSEA WARFARE CENTER DIVISION, PUBLISHED BY TRC, 12/99.
3. BENCH MARK FOUND SE CORNER O.W.S., SCRIBED X MARK TOP SE CORNER SLAB ABOVE BURIED OIL WATER SEPARATOR, ELEV. = 57.55, NGVD'29, AS DESCRIBED ABOVE.
4. HORIZONTAL DATUM = NAD 1983.
5. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996.
6. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.
7. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.
8. LOCATIONS OF PHASE I & II EXCAVATION LIMITS, EXCAVATION LIMITS OF WORK AREA I (BURIED DRUM AREA), EXCAVATION LIMITS OF BURIED METAL CONTAINER AREA PHASE I & WORK AREA NO. 2, LOCATION OF RIP RAP AREA AND UTILITY POLE (BETWEEN BLDG. 180 & 185) LOCATION FROM A PLAN BY TN & ASSOCIATES, INC., "FIGURE 3, FINAL AS BUILT EXCAVATION LIMITS", IR SITE 08 – NUSC DISPOSAL AREA, NAVAL WARFARE CENTER MIDDLETOWN, RI, NO DATE.
9. GROUNDWATER MONITORING WELLS MW7 AND MW9 ASSOCIATED WITH BUILDING 179 ARE PART OF THE NUSC DISPOSAL AREA STUDY BUT ARE NOT SHOWN ON THE FIGURE.
10. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.
11. SAMPLES WERE COLLECTED BETWEEN JULY 11 AND JULY 17, 2007.

GRAPHIC SCALE
60' 0' 60' 120'

DRAWN BY: D.W. MACDOUGALL
PREPARED BY: L. ANDERSON
CHECKED BY: L. ANDERSON
PROJECT MANAGER: J. FORRELLI
PROGRAM MANAGER: J. TREPANOWSKI

TITLE: LEAD CONCENTRATION IN SEDIMENT
NUSC DISPOSAL AREA RI WORKPLAN
MIDDLETOWN, RHODE ISLAND

SOURCE: PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES (SEE NOTES)

SCALE: AS SHOWN
DATE: SEPTEMBER 11, 2007
PROJ. NO: 00200
DRAWING NO: FIGURE 1
ACFILE NAME: \00200\0410\LEAD_SED.DWG
REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

APPENDIX I.6

NOEC INVERTEBRATES SCREENING LEVEL EXCEEDANCES

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	Greater of NOEC of Invertebrates Screening level	DA-SS103B-073007-AVG	DA-SS103B-011508-AVG	DA-SS104B-073007	DA-SS104B-011608	DA-SS105B-073007	DA-SS105B-011608	DA-B106B-0002	DA-SS110B-073007-AVG	DA-SS110B-011508	DA-SS111B-072607	DA-SS111B-011408	DA-SS112B-073007	DA-SS112B-011608-AVG	DA-SS113B-072607	DA-SS113B-011608	DA-SS114B-072507	DA-SS114B-011008	DA-SS115B-072507	DA-SS115B-011008	DA-SS116B-072507-AVG
	LOCATION ID		DA-MW103B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW116B
	TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE		07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/16/08	03/19/08	07/30/07	01/15/08	07/26/07	01/14/08	07/30/07	01/16/08	07/26/07	01/16/08	07/25/07	01/10/08	07/25/07	01/10/08	07/25/07
	SAMPLE CODE		AVG	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG
	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL		NA	380 U	NA	400 U	NA	390 U	380 U	NA	400 U	NA	390 U	NA	405 U	NA	410 U	NA	400 U	NA	410 U	NA
	2-METHYLNAPHTHALENE		11.5 J	36 J	11 J	6.9 J	2400 U	35 J	8.6 J	32.5	33	31	33	120	24.5 U	21 J	25 U	22 U	26 J	22 U	25 UJ	22.5 U
	3,3'-DICHLOROBENZIDINE		NA	380 U	NA	400 UJ	NA	390 UJ	380 UJ	NA	400 U	NA	390 U	NA	405 UJ	NA	410 UJ	NA	400 U	NA	410 U	NA
	ACENAPHTHENE		63	120	58	85	700 J	100	23 U	200 J	220	180	180	470 J	22.5 J	44	16 J	2.9 J	160	22 U	6.2 J	22.5 U
	ACENAPHTHYLENE		22 U	9.45 J	23 U	8.5 J	24 U	6.9 J	23 U	64.5	38	22 U	24 U	23 U	5.8 J	23 U	3.4 J	22 U	24 U	22 U	4.3 J	22.5 U
	ANTHRACENE		230 J	275 J	150	160 J	1200 J	220 J	23 U	540	410 J	NA	380	1700 J	94 J	120	35 J	6.5 J	220	22 U	9.3 J	22.5 U
	BENZO(A)ANTHRACENE		980	905	830	840	4200	920	15 J	1600	1200	NA	1100	5000	555 J	430	170	48	400	10 J	46	14 J
	BENZO(A)PYRENE		740	920	600	750	3700	850	23 U	1350	1100	NA	1000	2500	250	240	110	31	320	11 J	44	13 J
	BENZO(B)FLUORANTHENE		945	725	780	700	3800	500	23 U	1650	870	NA	790	3300	220 J	350	85	52	320	22 J	38	24.5
	BENZO(G,H,I)PERYLENE		470	340 J	330 J	280	1700 J	220	23 U	635	240	NA	250 J	790 J	97	86	43	16 J	140	4.9 J	24 J	6.6 J
	BENZO(K)FLUORANTHENE		370 J	615	680	750	3700	490 J	23 U	1120	780	NA	800	2900	225	120	82	18 J	290 J	7.1 J	31 J	8.95 J
	BENZOIC ACID		NA	940 U	NA	990 U	NA	960 U	940 U	NA	980 U	NA	970 U	NA	1000 U	NA	1000 U	NA	1000 U	NA	1000 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE		NA	380 U	NA	400 UJ	NA	390 UJ	380 U	NA	400 U	NA	390 UJ	NA	405 UJ	NA	410 UJ	NA	440 J	NA	410 UJ	NA
	BUTYL BENZYL PHTHALATE		NA	380 U	NA	400 UJ	NA	390 UJ	380 U	NA	400 U	NA	390 UJ	NA	405 UJ	NA	410 UJ	NA	400 UJ	NA	410 UJ	NA
	CARBAZOLE		NA	235 J	NA	400 U	NA	390 U	380 U	NA	400 U	NA	390 U	NA	405 U	NA	410 U	NA	400 U	NA	410 U	NA
	CHRYSENE		850	915	780	1200	4400	800 J	13 J	1550	1200	NA	960	3800	485 J	310	140	30	520	10 J	46	11 J
	DIBENZO(A,H)ANTHRACENE		107	150 J	180 J	120 J	950 J	110	23 U	235 J	140 J	54	120	670 J	57.5	24	26	22 U	73	22 U	13 J	22.5 U
	DIBENZOFURAN		NA	380 U	NA	400 U	NA	390 U	380 U	NA	400 U	NA	390 U	NA	405 U	NA	410 U	NA	400 U	NA	410 U	NA
	FLUORANTHENE		1950	1750 J	1600	2400	10000	1400	22 J	3050	2400	NA	2300	13000	1300	900	340	72	1100	26	81	29
	FLUORENE		79.5	97 J	69	76 J	790 J	69 J	23 U	195 J	200	140	150	800 J	23.5 J	69	14 J	2.8 J	100	22 U	25 U	22.5 U
	HIGH MOLECULAR WEIGHT PAHS	193100	8482 J	8720 J	7850 J	8910 J	41350 J	7810 J	66 J	14795 J	11180 J	54	9700 J	41760 J	4764.5 J	3188	1436	341 J	4323 J	112.3 J	418 J	134.9 J
	INDENO(1,2,3-CD)PYRENE		720	300 J	370 J	270 J	2000 J	220	23 U	855	250 J	NA	280	1000 J	125	78	60	14 J	180	5.3 J	32	5.35 J
	LOW MOLECULAR WEIGHT PAHS	89800	1235 J	1873.45 J	1231 J	1644.2 J	10990 J	1658.9 J	25.6 J	3312.5 J	3233 J	403	2297	13450 J	840.5 J	906 J	292.6 J	44.2 J	1434 J	7.2 J	51.8 J	9 J
	NAPHTHALENE		21 J	96 J	13 J	7.8 J	1100 J	28 J	23 U	30.5 J	32	52	54	360 J	4.7 J	42	4.2 J	22 U	88	22 U	25 U	22.5 U
	N-NITROSODIPHENYLAMINE		NA	380 U	NA	400 U	NA	390 U	380 U	NA	400 U	NA	390 U	NA	405 U	NA	410 U	NA	400 U	NA	410 U	NA
	PHENANTHRENE		830	1240 J	930	1300	7200	1200	17 J	2250	2300	NA	1500	10000	690 J	610	220	32	840	7.2 J	32	9 J
	PYRENE		1350	2100	1700	1600	6900	2300	16 J	2750	3000	NA	2100	8800	1450	650	380	60	980	16 J	63	22.5 J
	TOTAL PAHS	282900	9717 J	10593.45 J	9081 J	10554.2 J	52340 J	9468.9 J	91.6 J	18107.5 J	14413 J	457	11997 J	55210 J	5605 J	4094 J	1728.6 J	385.2 J	5757 J	119.5 J	469.8 J	143.9 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD		NA	3.8 U	NA	4 U	NA	3.9 U	3.8 UJ	NA	4 U	NA	3.9 U	NA	4.05 U	NA	4.1 U	NA	4 U	NA	4.1 UJ	NA
	4,4'-DDE		NA	5.35	NA	8.6 J	NA	3.9 U	3.8 UJ	NA	6.6	NA	3.9 U	NA	4.05 U	NA	4.1 U	NA	4 UJ	NA	4.1 UJ	NA
	4,4'-DDT		NA	5.5	NA	26 J	NA	13	3.8 UJ	NA	18 J	NA	3.9 U	NA	4.05 U	NA	4.1 U	NA	4 UJ	NA	2 J	NA
	ALPHA-CHLORDANE		NA	2 U	NA	2.1 U	NA	2 U	1.9 UJ	NA	2 U	NA	2 U	NA	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ	NA
	AROCLOR-1254		NA	20 U	NA	21 U	NA	20 U	19 UJ	NA	20 U	NA	20 U	NA	21 U	NA	21 U	NA	21 U	NA	21 U	NA
	AROCLOR-1260		NA	160 J	NA	94 J	NA	130	19 UJ	NA	220	NA	20 U	NA	21 UJ	NA	21 UJ	NA	21 U	NA	21 UJ	NA
	AROCLOR-1268		NA	580 J	NA	400 J	NA	20 U	19 UJ	NA	620	NA	20 U	NA	21 U	NA	21 U	NA	21 U	NA	21 U	NA
	DIELDRIN		NA	3.8 U	NA	4 U	NA	3.9 U	3.8 UJ	NA	4 U	NA	3.9 U	NA	4.05 U	NA	4.1 U	NA	4 UJ	NA	4.1 UJ	NA
	ENDRIN		NA	3.8 U	NA	4 U	NA	3.9 U	3.8 UJ	NA	4 U	NA	3.9 U	NA	4.05 U	NA	4.1 U	NA	4 UJ	NA	4.1 UJ	NA
	GAMMA-CHLORDANE		NA	2 U	NA	2.1 U	NA	2 U	1.9 UJ	NA	2 U	NA	2 U	NA	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	2.1 UJ	NA
	HEPTACHLOR		NA	2 U	NA	2.1 U	NA	2 U	1.9 UJ	NA	2 U	NA	2 U	NA	2.1 U	NA	2.1 U	NA	2.1 UJ	NA	1.7 J	NA
	TOTAL AROCLOR	33000	NA	740 J	NA	494 J	NA	130 J	19 UJ	NA	840	NA	20 U	NA	21 UJ	NA	21 UJ	NA	21 U	NA	21 UJ	NA
	TOTAL DDD/DDE/DDT	12000	NA	10.85	NA	34.6 J	NA	13	3.8 UJ	NA	24.6 J	NA	3.9 U	NA	4 U	NA	4.1 U	NA	4 UJ	NA	2 J	NA

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	Greater of NOEC of Invertebrates Screening level	DA-SS103B-073007-AVG	DA-SS103B-011508-AVG	DA-SS104B-073007	DA-SS104B-011608	DA-SS105B-073007	DA-SS105B-011608	DA-B106B-0002	DA-SS110B-073007-AVG	DA-SS110B-011508	DA-SS111B-072607	DA-SS111B-011408	DA-SS112B-073007	DA-SS112B-011608-AVG	DA-SS113B-072607	DA-SS113B-011608	DA-SS114B-072507	DA-SS114B-011008	DA-SS115B-072507	DA-SS115B-011008	DA-SS116B-072507-AVG
	LOCATION ID		DA-MW103B	DA-MW103B	DA-MW104B	DA-MW104B	DA-MW105B	DA-MW105B	DA-MW106B	DA-MW110B	DA-MW110B	DA-MW111B	DA-MW111B	DA-MW112B	DA-MW112B	DA-MW113B	DA-MW113B	DA-MW114B	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW116B
	TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE		07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/16/08	03/19/08	07/30/07	01/15/08	07/26/07	01/14/08	07/30/07	01/16/08	07/26/07	01/16/08	07/25/07	01/10/08	07/25/07	01/10/08	07/25/07
	SAMPLE CODE		AVG	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG
	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
METALS (MG/KG)	ALUMINUM	16900	NA	12000	NA	11500	NA	11900	9390	NA	13100	NA	13100	NA	13200	NA	15800	NA	12500	NA	15400	NA
	ANTIMONY		NA	0.145 U	NA	0.14 UJ	NA	0.19 UJ	0.14 UJ	NA	0.16 U	NA	0.18 U	NA	0.15 UJ	NA	0.16 UJ	NA	0.39 UJ	NA	0.17 UJ	NA
	ARSENIC	60	NA	16.4	NA	18.8	NA	22.4	7.6 J	NA	16.8	NA	20.4	NA	24	NA	26	NA	23	NA	14.2	NA
	BARIUM		NA	26	NA	35.8	NA	38.4	20.4	NA	41.6	NA	17	NA	17.9	NA	14.8	NA	22.8	NA	26.3	NA
	BERYLLIUM		NA	0.415 J	NA	0.5 J	NA	0.5 J	0.21 J	NA	0.4 J	NA	0.4 J	NA	0.385 J	NA	0.37 J	NA	0.48 J	NA	0.58 J	NA
	CADMIUM		NA	1.5 J	NA	0.57 J	NA	0.48 J	0.01 U	NA	0.74 J	NA	0.32 J	NA	0.02 UJ	NA	0.02 UJ	NA	0.3 UJ	NA	0.24 UJ	NA
	CALCIUM		NA	834	NA	1480	NA	8940	893 J	NA	1320	NA	472	NA	1130	NA	1240	NA	417 J	NA	411 J	NA
	CHROMIUM		NA	19	NA	22.8	NA	16	16.4 J	NA	19.5	NA	15.7	NA	16.8	NA	18.3	NA	16.2	NA	28.8	NA
	COBALT	27.7	NA	27.7	NA	12.9	NA	17.6	7.9	NA	10.8	NA	13	NA	15.4	NA	17.1	NA	13.6	NA	11.4	NA
	COPPER	80	NA	24.8	NA	26 J	NA	39 J	11.5	NA	24.9	NA	23.7	NA	24.9 J	NA	23.9 J	NA	43.4 J	NA	24 J	NA
	IRON		NA	27400	NA	24100	NA	30000	17600	NA	27100	NA	29000	NA	32800	NA	39400	NA	31300	NA	29200	NA
	LEAD	1700	NA	61.4	NA	36.5	NA	53.2	6.3	NA	33.4	NA	15.2	NA	12.2	NA	13.3	NA	21.8	NA	32.2	NA
	MAGNESIUM		NA	3360	NA	3370	NA	3770	2760 J	NA	3830	NA	3320	NA	4080	NA	4950	NA	3170 J	NA	3040 J	NA
	MANGANESE	450	NA	409	NA	333	NA	416	282	NA	314	NA	356	NA	479	NA	606	NA	358 J	NA	292 J	NA
	MERCURY		NA	0.035 J	NA	0.03 J	NA	0.09	0.01 U	NA	0.2	NA	0.02 J	NA	0.01 J	NA	0.03 J	NA	0.03 J	NA	0.02 J	NA
	MOLYBDENUM	0.7	NA	0.635 J	NA	0.68 J	NA	0.66 J	0.28 J	NA	0.43 J	NA	0.42 J	NA	0.328 J	NA	0.29 UJ	NA	0.43 UJ	NA	0.66 J	NA
	NICKEL		NA	22.2	NA	25.9	NA	30.4	13.7	NA	25.8	NA	24.5	NA	27.6	NA	30.2	NA	26.2	NA	28.9	NA
	POTASSIUM		NA	533	NA	476	NA	496	638 J	NA	496	NA	372	NA	498	NA	426	NA	488 J	NA	547 J	NA
	SELENIUM		NA	0.255 U	NA	0.62 J	NA	0.66 J	0.27 U	NA	0.27 U	NA	0.32 U	NA	0.44 J	NA	0.28 U	NA	0.44 UJ	NA	0.3 U	NA
	SILVER		NA	0.78 J	NA	0.07 UJ	NA	2 J	0.18 J	NA	1.8 J	NA	0.56 UJ	NA	0.085 UJ	NA	0.09 UJ	NA	0.1 UJ	NA	0.09 UJ	NA
	SODIUM		NA	45 UJ	NA	51.6 UJ	NA	65 UJ	45 J	NA	62.2 J	NA	31.7 UJ	NA	35.2 UJ	NA	28.2 UJ	NA	46.4 J	NA	40 J	NA
	THALLIUM		NA	0.045 UJ	NA	0.06 UJ	NA	0.04 U	0.03 UJ	NA	0.03 UJ	NA	0.04 U	NA	0.1 UJ	NA	0.03 U	NA	0.04 U	NA	0.06 UJ	NA
	VANADIUM		NA	19.7	NA	20.1	NA	19.9	15.8	NA	24.6	NA	19	NA	19	NA	21	NA	22	NA	29.2	NA
	ZINC	152	NA	105	NA	371	NA	152	32.8	NA	76.5	NA	53.5	NA	66.4	NA	76	NA	67.1	NA	58.2	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON		NA	19000	NA	NA	NA	30000	NA	NA	30000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH		NA	5.45	NA	NA	NA	5.2	NA	NA	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE PETROLEUM HYDROCARBONS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS		NA	3.1 U	NA	3.4 U	NA	2.6 U	2.7 U	NA	3 U	NA	2.6 U	NA	2.85 U	NA	3.0 U	NA	3.3 U	NA	3.2 UJ	NA
	TPH (C09-C36)	1600	NA	86.5	NA	96 J	NA	130 J	230	NA	150	NA	35	NA	30.5 J	NA	52 J	NA	71	NA	48	NA
PETROLEUM HYDROCARBONS (UG/KG)	DIESEL RANGE ORGANICS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID / LOCATION ID / TOP DEPTH / BOTTOM DEPTH / SAMPLE DATE / SAMPLE CODE / PARAMETER	Greater of NOEC of Invertebrates Screening level	DA-SS116B-011008 / DA-MW116B / 0 / 1 / 01/10/08 / NORMAL / EXPOSED	DA-SS117B-072507 / DA-MW117B / 0 / 1 / 07/25/07 / NORMAL / EXPOSED	DA-SS117B-011008 / DA-MW117B / 0 / 1 / 01/10/08 / NORMAL / EXPOSED	DA-SS118B-072507 / DA-MW118B / 0 / 1 / 07/25/07 / NORMAL / EXPOSED	DA-SS118B-011608 / DA-MW118B / 0 / 1 / 01/16/08 / NORMAL / EXPOSED	DA-SS119B-073007 / DA-MW119B / 0 / 1 / 07/30/07 / NORMAL / EXPOSED	DA-SS119B-011608-AVG / DA-MW119B / 0 / 1 / 01/16/08 / AVG / EXPOSED	DA-SS120B-080207 / DA-MW120B / 0 / 1 / 08/02/07 / NORMAL / EXPOSED	DA-SS120B-011708 / DA-MW120B / 0 / 1 / 01/17/08 / NORMAL / EXPOSED	DA-SS-B124B-0103-072108 / DA-MW124B / 1 / 3 / 07/21/08 / NORMAL / EXPOSED	DA-S-SB03-0102-01 / DA-SB-03 / 1 / 2 / 08/19/03 / NORMAL / EXPOSED	DA-S-SB07-0102-01 / DA-SB-07 / 1 / 2 / 08/18/03 / NORMAL / EXPOSED	DA-SS102B-073107 / DA-SB102B / 0 / 1 / 07/31/07 / NORMAL / EXPOSED	DA-SS102B-011508 / DA-SB102B / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SS103-011708 / DA-SB103 / 0 / 1 / 01/17/08 / NORMAL / EXPOSED	DA-SB103-0103 / DA-SB103 / 1 / 3 / 04/14/08 / NORMAL / EXPOSED	DA-SS104-073107 / DA-SB104 / 0 / 1 / 07/31/07 / NORMAL / EXPOSED	DA-SS104-011508 / DA-SB104 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SS105-073107 / DA-SB105 / 0 / 1 / 07/31/07 / NORMAL / EXPOSED	DA-SS105-011508 / DA-SB105 / 0 / 1 / 01/15/08 / NORMAL / EXPOSED	DA-SS106-073107 / DA-SB106 / 0 / 1 / 07/31/07 / NORMAL / EXPOSED
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL		390 U	NA	410 U	NA	400 U	NA	385 U	NA	410 U	380 U	NA	NA	NA	430 U	NA	NA	NA	390 U	NA	380 U	NA
	2-METHYLNAPHTHALENE		24 UJ	23 U	25 UJ	22 U	24 U	4.7 J	22 J	23 U	25 U	3.9 J	280 J	220 UJ	33	26 U	NA	NA	22 U	130	21 U	23 U	3.1 J
	3,3'-DICHLOROBENZIDINE		390 U	NA	410 U	NA	400 UJ	NA	385 UJ	NA	410 U	380 UJ	5600 UJ	100 UJ	NA	430 U	NA	NA	NA	390 U	NA	380 U	NA
	ACENAPHTHENE		4.4 J	23 U	6.9 J	22 U	3.8 J	18 J	52.4 J	2.4 J	3.2 J	4.7 J	560 U	67 U	170	14 J	NA	NA	19 J	150	3.7 J	5.2 J	15 J
	ACENAPHTHYLENE		3.3 J	23 U	4 J	22 U	24 U	5.1 J	6.8 J	7.4 J	25 U	23 U	560 U	87 U	21 U	6.7 J	NA	NA	3.8 J	24 U	5.3 J	10 J	3.9 J
	ANTHRACENE		5.9 J	23 U	9 J	22 U	3.6 J	36	112 J	8.3 J	6.4 J	7.2 J	560 U	44 U	470	28 J	NA	NA	43	520	24	19 J	35
	BENZO(A)ANTHRACENE		24	29	47	23	26	160	202 J	77	45	52 J	560 U	79 U	760	130	NA	NA	190	1400	120	90	200
	BENZO(A)PYRENE		24	22 J	47	19 J	22 J	160	170 J	79	48	53 J	560 U	82 U	530	120 J	NA	NA	160	720	74	79	150
	BENZO(B)FLUORANTHENE		19 J	39	35	32	20 J	240	136 J	110	52	65	560 U	100 U	680	96 J	NA	NA	220	600	98	49	210
	BENZO(G,H,I)PERYLENE		16 J	8.3 J	23 J	9.2 J	12 J	85	74 J	52	28	38	560 U	120 U	310 J	43 J	NA	NA	98	170	45	30 J	83
	BENZO(K)FLUORANTHENE		18 J	14 J	29 J	12 J	17 J	77	147 J	100	46	40 J	560 U	77 U	290 J	78 J	NA	NA	78	580	32	44 J	73
	BENZOIC ACID		980 U	NA	1100	NA	600 J	NA	960 U	NA	1000 U	940 UJ	5600 U	230 UJ	NA	1100 U	NA	NA	NA	980 U	NA	950 U	NA
	BIS(2-ETHYLHEXYL)PHTHALATE		390 UJ	NA	410 UJ	NA	400 UJ	NA	385 UJ	NA	410 UJ	380 U	400 J	420 U	NA	430 U	NA	NA	NA	390 U	NA	380 UJ	NA
	BUTYL BENZYL PHTHALATE		390 UJ	NA	410 UJ	NA	400 UJ	NA	385 UJ	NA	410 UJ	380 U	560 U	100 U	NA	430 U	NA	NA	NA	390 U	NA	380 UJ	NA
	CARBAZOLE		390 U	NA	410 U	NA	400 U	NA	385 U	NA	410 U	380 U	560 U	76 U	NA	430 U	NA	NA	NA	400	NA	380 U	NA
	CHRYSENE		24	22 J	43	22 J	29	220	325 J	85	54	63 J	560 U	81 U	660	120	NA	NA	180	1100	80	70	170
	DIBENZO(A,H)ANTHRACENE		24 U	23 U	13 J	22 U	24 U	25	37.5 J	34	25 U	16 J	560 U	140 U	98	28 J	NA	NA	26	96 J	12 J	19 J	30
	DIBENZOFURAN		390 U	NA	410 U	NA	400 U	NA	385 U	NA	410 U	380 U	560 U	120 U	NA	430 U	NA	NA	NA	210 J	NA	380 U	NA
	FLUORANTHENE		42	52	84	41	63	440	640 J	100	73	120 J	560 U	66 U	1800	230	NA	NA	510	3000	250	140	450
	FLUORENE		24 U	23 U	25 U	22 U	24 U	19 J	33.1 J	2.3 J	25 U	23 U	560 U	66 U	150	12 J	NA	NA	19 J	250	4.8 J	6 J	12 J
	HIGH MOLECULAR WEIGHT PAHS	193100	214 J	238.1 J	409 J	208.8 J	246 J	1857	2347 J	806	445	595 J	580 U	98 U	6728 J	1089 J	NA	NA	1952	10766 J	944 J	686 J	1796
	INDENO(1,2,3-CD)PYRENE		18 J	7.8 J	31	8.6 J	15 J	160	95.5 J	72	31	48	790 U	160 U	500	64 J	NA	NA	170	200 J	73	45	160
	LOW MOLECULAR WEIGHT PAHS	89800	29.6 J	21 J	53.9 J	18 J	45.4 J	292.8 J	851.1 J	54.4 J	41.6 J	82.3 J	280 J	79 UJ	1881	180.7 J	NA	NA	327.4 J	3820	116.8 J	113.2 J	232.3 J
	NAPHTHALENE		24 U	23 U	25 U	22 U	9 J	10 J	74.8 J	23 U	25 U	4.5 J	560 U	3.4 U	58	26 U	NA	NA	2.6 J	270	21 U	23 U	3.3 J
	N-NITROSODIPHENYLAMINE		390 U	NA	410 U	NA	400 U	NA	385 U	NA	410 U	380 U	1700 U	98 U	NA	430 U	NA	NA	NA	390 U	NA	380 U	NA
	PHENANTHRENE		16 J	21 J	34	18 J	29	200	550 J	34	32	62 J	560 U	66 U	1000	120	NA	NA	240	2500	79	73	160
	PYRENE		29	44	57	42	42	290	520 J	97	68	100 J	560 U	72 U	1100	180	NA	NA	320	2900	160	120 J	270
	TOTAL PAHS	282900	243.6 J	259.1 J	462.9 J	226.8 J	291.4 J	2149.8 J	3198.1 J	860.4 J	486.6 J	677.3 J	280 J	90 UJ	8609 J	1269.7 J	NA	NA	2279.4 J	14586 J	1060.8 J	799.2 J	2028.3 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD		3.9 U	NA	4.1 U	NA	4 U	NA	3.85 U	NA	4.1 U	NA	8.99 UJ	1.95 UJ	NA	4.3 U	4 U	3.7 UJ	NA	2.1 J	NA	3.8 U	NA
	4,4'-DDE		3.9 UJ	NA	4.1 UJ	NA	4 U	NA	6.45	NA	1.3 J	NA	8.99 UJ	0.92 UJ	NA	4 J	4 U	3.7 U	NA	5.1	NA	1.2 J	NA
	4,4'-DDT		3.9 UJ	NA	4.1 UJ	NA	4 U	NA	3.85 U	NA	3.2 J	NA	8.99 UJ	1.84 UJ	NA	5.7	4 UJ	3.7 UJ	NA	6.5	NA	1.8 J	NA
	ALPHA-CHLORDANE		2 UJ	NA	2.1 UJ	NA	2 U	NA	2 U	NA	2.1 U	NA	4.49 UJ	0.69 UJ	NA	2.2 U	2.1 U	1.9 U	NA	2 U	NA	2 U	NA
	AROCLOR-1254		20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	56.2 UJ	22.4 U	NA	22 U	21 U	19 U	NA	20 U	NA	20 U	NA
	AROCLOR-1260		20 U	NA	21 U	NA	20 U	NA	80.5	NA	21 UJ	NA	56.2 UJ	12.6 U	NA	22 U	230 J	96	NA	80	NA	20 U	NA
	AROCLOR-1268		20 U	NA	21 U	NA	20 U	NA	400	NA	21 U	NA	56.2 UJ	22.4 U	NA	22 U	21 U	19 U	NA	20 U	NA	20 U	NA
	DIELDRIN		3.9 UJ	NA	4.1 UJ	NA	4 U	NA	3.85 U	NA	4.1 U	NA	8.99 UJ	0.804 UJ	NA	4.3 U	4 U	3.7 U	NA	3.9 U	NA	3.8 U	NA
	ENDRIN		3.9 UJ	NA	4.1 UJ	NA	4 U	NA	3.85 U	NA	4.1 U	NA	8.99 UJ	0.92 UJ	NA	4.3 U	4 U	3.7 U	NA	3.9 U	NA	3.8 U	NA
	GAMMA-CHLORDANE		2 UJ	NA	2.1 UJ	NA	2 U	NA	2 U	NA	2.1 U	NA	4.49 UJ	0.575 UJ	NA	2.2 U	2.1 U	1.9 U	NA	2 U	NA	2 U	NA
	HEPTACHLOR		2 UJ	NA	2.1 UJ	NA	2 U	NA	2 U	NA	2.1 U	NA	4.49 UJ	0.69 UJ	NA	2.2 U	2.1 U	1.9 U	NA	2 U	NA	2 U	NA
	TOTAL AROCLOR	33000	20 U	NA	21 U	NA	20 U	NA	480.5	NA	21 UJ	NA	56 UJ	21 U	NA	22 U	230 J	96	NA	80	NA	20 U	NA
	TOTAL DDD/DDE/DDT	12000	3.9 UJ	NA	4.1 UJ	NA	4 U	NA	6.45	NA	4.5 J	NA	9 UJ	1.6 UJ	NA	9.7 J	4 UJ	3.7 UJ	NA	13.7 J	NA	3 J	NA

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	SAMPLE ID		DA-SS116B-011008	DA-SS117B-072507	DA-SS117B-011008	DA-SS118B-072507	DA-SS118B-011608	DA-SS119B-073007	DA-SS119B-011608-AVG	DA-SS120B-080207	DA-SS120B-011708	DA-SS-B124B-0103-072108	DA-S-SB03-0102-01	DA-S-SB07-0102-01	DA-SS102B-073107	DA-SS102B-011508	DA-SS103-011708	DA-SB103-0103	DA-SS104-073107	DA-SS104-011508	DA-SS105-073107	DA-SS105-011508	DA-SS106-073107
	LOCATION ID		DA-MW116B	DA-MW117B	DA-MW117B	DA-MW118B	DA-MW118B	DA-MW119B	DA-MW119B	DA-MW120B	DA-MW120B	DA-MW124B	DA-SB-03	DA-SB-07	DA-SB102B	DA-SB102B	DA-SB103	DA-SB103	DA-SB104	DA-SB104	DA-SB105	DA-SB105	DA-SB106
	TOP DEPTH		0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	3	2	2	1	1	1	3	1	1	1	1	1
	SAMPLE DATE	Greater of NOEC of Invertebrates Screening level	01/10/08	07/25/07	01/10/08	07/25/07	01/16/08	07/30/07	01/16/08	08/02/07	01/17/08	07/21/08	08/19/03	08/18/03	07/31/07	01/15/08	01/17/08	04/14/08	07/31/07	01/15/08	07/31/07	01/15/08	07/31/07
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
METALS (MG/KG)	ALUMINUM	16900	12400	NA	13100	NA	11500	NA	13000	NA	16200	NA	9500	5400	NA	11100	NA	NA	NA	13100	NA	6050	NA
	ANTIMONY		0.22 UJ	NA	0.35 UJ	NA	0.17 UJ	NA	0.17 UJ	NA	0.19 UJ	NA	0.6 U	0.30 U	NA	0.18 U	NA	NA	NA	0.13 U	NA	0.07 U	NA
	ARSENIC	60	21.3	NA	22.1	NA	23.8	NA	29.8	NA	16.2	NA	32	31 J	NA	13	NA	NA	NA	14.5	NA	1.6	NA
	BARIUM		20	NA	21.5	NA	20.2	NA	27.6	NA	28.3	NA	12	8.2	NA	25.9	NA	NA	NA	28.3	NA	18.6	NA
	BERYLLIUM		0.46 J	NA	0.4 J	NA	0.45 J	NA	0.5 J	NA	0.48 J	NA	0.4	0.33	NA	0.4 J	NA	NA	NA	0.42 J	NA	0.38	NA
	CADMIUM		0.17 UJ	NA	0.19 UJ	NA	0.02 UJ	NA	0.02 UJ	NA	6.5	NA	0.018 U	0.018 UJ	NA	1.1 J	NA	NA	NA	0.6 J	NA	0.09 J	NA
	CALCIUM		150 J	NA	211 J	NA	259	NA	760	NA	579 J	NA	690	45	NA	1490	NA	NA	NA	652	NA	936	NA
	CHROMIUM		16.5	NA	18.4	NA	15.2	NA	15.5	NA	17.6	NA	13 J	8.1	NA	16.2	NA	NA	NA	14.6	NA	5.4	NA
	COBALT	27.7	13.5	NA	12.9	NA	14.2	NA	14.8	NA	12.3	NA	16	14	NA	9.3	NA	NA	NA	11.1	NA	2.4	NA
	COPPER	80	25.8 J	NA	25.9 J	NA	23.4 J	NA	22 J	NA	18.7	NA	26	24	NA	19.4	NA	NA	NA	18.7	NA	6.7	NA
	IRON		30900	NA	33700	NA	29400	NA	33800	NA	30600	NA	29000	22000	NA	24400	NA	NA	NA	21800	NA	8660	NA
	LEAD	1700	13.7	NA	17.3	NA	17.1	NA	19.4	NA	18.7	NA	15	6.8	NA	36	NA	NA	NA	33.1	NA	14.5	NA
	MAGNESIUM		3180 J	NA	3290 J	NA	2850	NA	3450	NA	3660	NA	3100 J	1400	NA	2520	NA	NA	NA	2620	NA	1120	NA
	MANGANESE	450	383 J	NA	325 J	NA	339	NA	448	NA	415	NA	340	310	NA	324	NA	NA	NA	369	NA	251	NA
	MERCURY		0.01 J	NA	0.02 J	NA	0.02 J	NA	0.03 J	NA	0.03 J	NA	0.00821 J	0.012	NA	0.05	NA	NA	NA	0.05	NA	0.05	NA
	MOLYBDENUM	0.7	0.54 J	NA	0.60 J	NA	0.52 UJ	NA	0.37 UJ	NA	0.28 UJ	NA	0.39 U	0.47 U	NA	0.78 J	NA	NA	NA	0.40 J	NA	0.20 UJ	NA
	NICKEL		27	NA	29.1	NA	25.6	NA	25.8	NA	25.1	NA	24	20	NA	18.1	NA	NA	NA	17.4	NA	4.2	NA
	POTASSIUM		509 J	NA	558 J	NA	458	NA	511	NA	341 J	NA	160	140	NA	583	NA	NA	NA	546	NA	758	NA
	SELENIUM		0.32 U	NA	0.72 UJ	NA	0.44 J	NA	0.485 J	NA	0.39 UJ	NA	0.11 U	0.11 U	NA	0.31 U	NA	NA	NA	0.23 U	NA	0.11 U	NA
	SILVER		0.1 UJ	NA	0.1 UJ	NA	0.09 UJ	NA	0.085 UJ	NA	0.1 UJ	NA	0.031 U	0.032 U	NA	0.55 UJ	NA	NA	NA	0.44 UJ	NA	0.04 U	NA
	SODIUM		29.8 UJ	NA	39.5 J	NA	45.7 UJ	NA	46.4 UJ	NA	38.2 J	NA	28 U	75 U	NA	63.3 J	NA	NA	NA	46.9 J	NA	32.8 J	NA
	THALLIUM		0.04 U	NA	0.04 U	NA	0.05 UJ	NA	0.06 UJ	NA	0.08 UJ	NA	0.3 J	0.16 U	NA	0.05 UJ	NA	NA	NA	0.08 U	NA	0.06 UJ	NA
	VANADIUM		22.5	NA	29.1	NA	23.8	NA	19.8	NA	21.9	NA	13	9.8	NA	21	NA	NA	NA	22.5	NA	8.1	NA
	ZINC	152	60.5	NA	61.9	NA	64.3	NA	69.5	NA	79.7	NA	54 J	40 J	NA	118	NA	NA	NA	52.2	NA	24.2	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22000	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE PETROLEUM HYDROCARBONS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS		3.1 U	NA	4.4 U	NA	2.9 U	NA	2.7 U	NA	3.3 U	3.5 U	43	4.9 U	NA	3.8 U	NA	NA	NA	3 U	NA	3.3 U	NA
	TPH (C09-C36)	1600	15	NA	59	NA	69 J	NA	25 J	NA	21	130 J	NA	NA	NA	89	NA	NA	NA	23	NA	19	NA
PETROLEUM HYDROCARBONS (UG/KG)	DIESEL RANGE ORGANICS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14000	57000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

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ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	Greater of NOEC of Invertebrates Screening level	DA-SS106-011408	DA-SS107-073107	DA-SS107-011508	DA-SB107-0103	DA-SS108-073107	DA-SS108-011508	DA-SS109-073007	DA-SS109-011408	DA-SS110-073007	DA-SS110-011508	DA-SB118-0002	DA-SS121-072607	DA-SS121-011008	DA-SS122-073007	DA-SS122-011008	DA-SS123-072607	DA-SS123-011008	DA-SS124-072607	DA-SS124-011008	DA-SS125-072607	DA-SS125-011008-AVG	DA-SS126-072607-AVG	DA-SS126-011408
	LOCATION ID		DA-SB106	DA-SB107	DA-SB107	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-SB118	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB126	DA-SB126
	TOP DEPTH		0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE		01/14/08	07/31/07	01/15/08	02/29/08	07/31/07	01/15/08	07/30/07	01/14/08	07/30/07	01/15/08	03/04/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07	01/10/08	07/26/07	01/10/08	07/26/07	01/10/08	07/26/07	01/14/08
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	AVG	NORMAL
	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL		410 U	NA	370 U	380 U	NA	380 U	NA	390 U	NA	390 U	380 U	NA	410 U	NA	400 U	NA	400 U	NA	410 U	NA	380 U	NA	400 U
	2-METHYLNAPHTHALENE		25 U	22 U	22 U	23 U	21 U	23 U	11 J	24 U	76	17 J	220	16 J	25 U	14 J	7.9 J	4600 U	11 J	22 U	25 U	13 J	51 J	11.3 J	74
	3,3'-DICHLOROBENZIDINE		410 U	NA	370 U	380 UJ	NA	380 U	NA	390 U	NA	390 U	380 U	NA	410 U	NA	400 U	NA	400 U	NA	410 U	NA	380 U	NA	400 U
	ACENAPHTHENE		9.2 J	2.6 J	3 J	18 J	2.5 J	6.5 J	100	9.8 J	430 J	130	1400	120	57	42	22 J	2600 J	74	17 J	28	120	320 J	58.5	600 J
	ACENAPHTHYLENE		4.2 J	22 U	22 U	23 UJ	2.7 J	5.2 J	22 U	3.8 J	23 U	13 J	23 U	23 U	24 J	22 U	6.5 J	23 U	8.3 J	22 U	5 J	21 U	23 U	31.5	96
	ANTHRACENE		15 J	9.3 J	4 J	31	7.2 J	14 J	300 J	14 J	1300	310	2000	380 J	170	130	53	5600	220	37	55	320 J	500 J	142	1500
	BENZO(A)ANTHRACENE		83	42	22 U	180 J	33	49	630	61	2600	1100	2600	1200	410	680	270	10000	970	140	210	860	1320 J	1050	5100
	BENZO(A)PYRENE		78	27	22 U	240	30	45 J	380	55	1600	880	2000	1000	760	420	240	6100	730	100	190	700	1060 J	1100	3000
	BENZO(B)FLUORANTHENE		58	43	22 U	210	41	28 J	510	32	2100	690	1800	1600	760	540	220	10000	580	160	140	1200	765 J	2250	3300
	BENZO(G,H,I)PERYLENE		35 J	22	6 J	200	24	22 J	230 J	25 J	930	180 J	950	740	180	170	110	4100 J	190	45	85	470	425 J	850	1100 J
	BENZO(K)FLUORANTHENE		46 J	13 J	22 U	160	13 J	25 J	210 J	32 J	890 J	620	2000	680	570 J	440	220 J	3800 J	510 J	65	150 J	430	715 J	855	2900
	BENZOIC ACID		1000 U	NA	920 U	960 UJ	NA	940 U	NA	960 U	NA	970 U	940 U	NA	1000 U	NA	990 U	NA	990 U	NA	1000 U	NA	945 U	NA	1000 U
	BIS(2-ETHYLHEXYL)PHTHALATE		410 UJ	NA	370 U	380 U	NA	380 U	NA	390 UJ	NA	390 U	380 U	NA	410 UJ	NA	400 UJ	NA	400 UJ	NA	410 UJ	NA	380 UJ	NA	400 UJ
	BUTYL BENZYL PHTHALATE		410 UJ	NA	370 U	380 U	NA	380 U	NA	390 UJ	NA	390 U	380 U	NA	410 UJ	NA	400 UJ	NA	400 UJ	NA	410 UJ	NA	380 UJ	NA	400 UJ
	CARBAZOLE		410 U	NA	370 U	380 U	NA	380 U	NA	390 U	NA	390 U	1000	NA	410 U	NA	400 U	NA	400 U	NA	410 U	NA	315	NA	1200
	CHRYSENE		77	37	4.6 J	160	31	42	540	53	2200	970	2300	1200	1100	640	380	8500	880	120	250	820	1110 J	1200	4700
	DIBENZO(A,H)ANTHRACENE		20 J	5.8 J	22 UJ	85	6.6 J	11 J	61	14 J	180 J	110 J	270 J	140	100	140	63	1200 J	99	10 J	50	85	150 J	200 J	330
	DIBENZOFURAN		410 U	NA	370 U	380 U	NA	380 U	NA	390 U	NA	390 U	750	NA	410 U	NA	400 U	NA	400 U	NA	410 U	NA	200 J	NA	360 J
	FLUORANTHENE		140	86	7.1 J	370 J	62	70	1600	93	6300	2100	6000	2600	2000	1400	590	22000	1700	170	460	1900	2400 J	1180	8700
	FLUORENE		7 J	3.3 J	22 U	15 J	2.7 J	5.7 J	130	7.3 J	440 J	130	1100	120	46	38	15 J	2700 J	66	16 J	22 J	98	206 J	45.5	540 J
	HIGH MOLECULAR WEIGHT PAHS	193100	716 J	376.8 J	17.7 J	2125 J	332.6 J	375 J	5461 J	497 J	22600 J	9160 J	23920 J	12130 J	8500 J	5680	2833 J	84200 J	7879 J	1053 J	2065 J	8215 J	10845 J	11330 J	43630 J
	INDENO(1,2,3-CD)PYRENE		49	35	22 UJ	230	39	29 J	350	32	1500	210 J	1000	570 J	220	250	140	3500 J	220	43	110	350 J	300	745	1500
	LOW MOLECULAR WEIGHT PAHS	89800	102.4 J	55.2 J	13.3 J	224 J	46.1 J	71.4 J	1292 J	113.9 J	5976 J	1932 J	11720	2259 J	1134.9 J	899 J	373.7 J	30640 J	1388.3 J	210 J	343.4 J	1774 J	3061 J	903.8 J	8789 J
	NAPHTHALENE		25 U	22 U	22 U	23 U	21 U	23 U	11 J	24 U	130	32	1000	23 J	7.9 J	15 J	9.3 J	740 J	29	22 U	3.4 J	23	134 J	20 J	79
	N-NITROSODIPHENYLAMINE		410 U	NA	370 U	380 U	NA	380 U	NA	390 U	NA	390 U	380 U	NA	410 U	NA	400 U	NA	400 U	NA	410 U	NA	380 U	NA	400 U
	PHENANTHRENE		67	40	6.3 J	160	31	40	740	79	3600	1300	6000	1600	830	660	260	19000	980	140	230	1200	1850 J	595	5900 J
	PYRENE		130 J	66	22 U	290	53	54	950	100 J	4300	2300	5000	2400	2400	1000	600	15000	2000	200	420	1400	2600 J	1900	13000
	TOTAL PAHS	282900	818.4 J	432 J	31 J	2349 J	378.7 J	446.4 J	6753 J	610.9 J	28576 J	11092 J	35640 J	14389 J	9634.9 J	6579 J	3206.7 J	114840 J	9267.3 J	1263 J	2408.4 J	9989 J	13906 J	12233.8 J	52419 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD		4.1 U	NA	3.7 U	3.8 U	NA	3.8 U	NA	3.9 U	NA	3.9 U	3.8 U	NA	4.1 U	NA	4 U	NA	4 U	NA	4.1 U	NA	3.8 U	NA	4 U
	4,4'-DDE		5.9	NA	3.7 U	3.8 U	NA	1.1 J	NA	1.7 J	NA	3.9 U	3.8 UJ	NA	1.8 J	NA	4 UJ	NA	4 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	4 U
	4,4'-DDT		4.1 U	NA	3.7 U	3.8 U	NA	1.4 J	NA	3.3 J	NA	3.9 U	3.8 UJ	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	4 U
	ALPHA-CHLORDANE		2.1 U	NA	1.9 U	2 U	NA	2 U	NA	2 U	NA	2 U	2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2.1 U
	AROCLOR-1254		21 U	NA	19 U	20 U	NA	20 U	NA	20 U	NA	20 U	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	20 U	NA	21 U
	AROCLOR-1260		68	NA	19 U	20 U	NA	20 U	NA	20 U	NA	260	20 U	NA	170 J	NA	51 J	NA	110 J	NA	70 J	NA	44.5 J	NA	21 U
	AROCLOR-1268		21 U	NA	19 U	20 U	NA	20 U	NA	20 U	NA	20 U	20 U	NA	21 U	NA	20 U	NA	20 U	NA	21 U	NA	20 U	NA	21 U
	DIELDRIN		4.1 U	NA	3.7 U	3.8 U	NA	3.8 U	NA	3.9 U	NA	3.9 U	3.8 UJ	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	4 U
	ENDRIN		4.1 U	NA	3.7 U	3.8 U	NA	3.8 U	NA	3.9 U	NA	3.9 U	3.8 UJ	NA	4.1 UJ	NA	4 UJ	NA	4 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	4 U
	GAMMA-CHLORDANE		2.1 U	NA	1.9 U	2 U	NA	2 U	NA	2 U	NA	2 U	2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2.1 U
	HEPTACHLOR		2.1 U	NA	1.9 U	2 U	NA	2 U	NA	2 U	NA	2 U	2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2.1 U
	TOTAL AROCLOR	33000	68	NA	19 UJ	20 U	NA	20 U	NA	20 U	NA	260	20 U	NA	170 J	NA	51 J	NA	110 J	NA	70 J	NA	44.5 J	NA	21 U
	TOTAL DDD/DDE/DDT	12000	5.9	NA	3.7 U	3.8 U	NA	2.5 J	NA	5 J	NA	3.9 U	3.8 UJ	NA	1.8 J	NA	4 UJ	NA	4 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	4 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	SAMPLE ID		DA-SS106-011408	DA-SS107-073107	DA-SS107-011508	DA-SB107-0103	DA-SS108-073107	DA-SS108-011508	DA-SS109-073007	DA-SS109-011408	DA-SS110-073007	DA-SS110-011508	DA-SB118-0002	DA-SS121-072607	DA-SS121-011008	DA-SS122-073007	DA-SS122-011008	DA-SS123-072607	DA-SS123-011008	DA-SS124-072607	DA-SS124-011008	DA-SS125-072607	DA-SS125-011008-AVG	DA-SS126-072607-AVG	DA-SS126-011408
	LOCATION ID		DA-SB106	DA-SB107	DA-SB107	DA-SB107	DA-SB108	DA-SB108	DA-SB109	DA-SB109	DA-SB110	DA-SB110	DA-SB118	DA-SB121	DA-SB121	DA-SB122	DA-SB122	DA-SB123	DA-SB123	DA-SB124	DA-SB124	DA-SB125	DA-SB125	DA-SB126	DA-SB126
	TOP DEPTH		0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE	Greater of NOEC of Invertebrates Screening level	01/14/08	07/31/07	01/15/08	02/29/08	07/31/07	01/15/08	07/30/07	01/14/08	07/30/07	01/15/08	03/04/08	07/26/07	01/10/08	07/30/07	01/10/08	07/26/07	01/10/08	07/26/07	01/10/08	07/26/07	01/10/08	07/26/07	01/14/08
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	AVG	NORMAL
FRACTION (UNITS)	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
METALS (MG/KG)	ALUMINUM	16900	12100	NA	1800	8120	NA	4940	NA	5020	NA	8460	18000	NA	10800	NA	12000	NA	13100	NA	9550	NA	9860	NA	10600
	ANTIMONY		0.09 U	NA	0.08 U	0.05 UJ	NA	0.19 J	NA	0.08 U	NA	0.08 U	0.1 UJ	NA	0.19 UJ	NA	0.19 UJ	NA	0.18 UJ	NA	0.38 UJ	NA	0.09 UJ	NA	0.09 U
	ARSENIC	60	13.8	NA	0.29	6.8	NA	6.2	NA	2	NA	9.7	45.8	NA	23.9	NA	22.3	NA	18.6	NA	8.1	NA	11.4	NA	16.7
	BARIUM		22.9	NA	7.4	22.4	NA	32.4	NA	16.6	NA	23.1	17.3	NA	26.3	NA	39.6	NA	42.7	NA	30	NA	24.8	NA	19.1
	BERYLLIUM		0.37 J	NA	0.45 J	0.31 J	NA	0.4	NA	0.27 J	NA	0.31 J	0.53	NA	0.4 J	NA	0.57 J	NA	0.48 J	NA	0.42 J	NA	0.465 J	NA	0.32 J
	CADMIUM		0.38 J	NA	0.09 J	1.6	NA	1.4	NA	0.27 J	NA	0.72 J	0.01 UJ	NA	2.4 J	NA	1.6 J	NA	0.43 J	NA	1.5 J	NA	0.41 J	NA	0.73 J
	CALCIUM		547	NA	1350	1210	NA	862	NA	705	NA	903	1610 J	NA	1250 J	NA	1210 J	NA	1100 J	NA	1570 J	NA	1340 J	NA	949
	CHROMIUM		14.3	NA	1 J	11.8	NA	6.5	NA	5.4	NA	11.4	26.2	NA	19.6	NA	22.4	NA	17.2	NA	14.7	NA	16.5	NA	13.1
	COBALT	27.7	8.2	NA	0.82 J	20	NA	3.6	NA	3.4	NA	7.5	16.6	NA	11	NA	18.5	NA	10.9	NA	7.2	NA	7.55	NA	11.5
	COPPER	80	19	NA	2.3 U	15.9	NA	38.2	NA	8.6	NA	17.6	16.2	NA	26.5 J	NA	133 J	NA	24.3 J	NA	16.8 J	NA	17.3 J	NA	19
	IRON		20700	NA	5270	14800	NA	15400	NA	7850	NA	16300	43000	NA	25800	NA	31300	NA	28900	NA	16600	NA	19600	NA	23500
	LEAD	1700	36.6	NA	4.2	110	NA	44.1	NA	28.8	NA	32	13.1	NA	25.4	NA	86.1	NA	23	NA	23	NA	23.2	NA	55
	MAGNESIUM		2570	NA	407	1920	NA	980	NA	1720	NA	2220	6240	NA	2990 J	NA	2530 J	NA	3260 J	NA	2890 J	NA	2520 J	NA	2910
	MANGANESE	450	297	NA	351	312	NA	368	NA	186	NA	250	633	NA	355 J	NA	782 J	NA	395 J	NA	348 J	NA	364 J	NA	389
	MERCURY		0.11	NA	0.01 U	0.02 J	NA	0.03 J	NA	0.02 J	NA	0.06	0.02 U	NA	0.03 J	NA	0.08	NA	0.04	NA	0.06	NA	0.04 J	NA	0.04
	MOLYBDENUM	0.7	0.38 J	NA	0.10 UJ	0.32 J	NA	0.72 UJ	NA	0.18 UJ	NA	0.36 J	0.13 UJ	NA	0.47 J	NA	0.69 J	NA	0.57 J	NA	0.76 J	NA	0.41 J	NA	1.2 J
	NICKEL		16.5	NA	0.98 J	10.9	NA	28.9	NA	4.9	NA	13	38.5	NA	25.9	NA	22.1	NA	23.2	NA	14.4	NA	16.4	NA	18.7
	POTASSIUM		491	NA	771	681	NA	703	NA	886	NA	647	338	NA	592 J	NA	465 J	NA	552 J	NA	679 J	NA	784 J	NA	396
	SELENIUM		0.15 U	NA	0.14 U	0.32 UJ	NA	0.12 U	NA	0.14 U	NA	0.14 U	0.69 U	NA	0.16 U	NA	0.32 U	NA	0.37 UJ	NA	0.16 U	NA	0.15 UJ	NA	0.16 U
	SILVER		0.32 UJ	NA	0.04 U	1.3 J	NA	0.21 UJ	NA	0.08 UJ	NA	0.44 J	0.27 J	NA	0.05 UJ	NA	0.1 UJ	NA	0.09 UJ	NA	0.05 UJ	NA	0.045 UJ	NA	0.55 J
	SODIUM		33.3 J	NA	21.6 UJ	45.2 J	NA	30 J	NA	30.3 J	NA	36.4 J	53 J	NA	57.2 J	NA	54.8 J	NA	50.4 J	NA	52.8 J	NA	41.7 J	NA	28.6 UJ
	THALLIUM		0.06 UJ	NA	0.03 U	0.06 UJ	NA	0.06 UJ	NA	0.04 UJ	NA	0.04 UJ	0.04 UJ	NA	0.04 U	NA	0.08 UJ	NA	0.04 UJ	NA	0.04 U	NA	0.05 UJ	NA	0.04 U
	VANADIUM		22	NA	1.5 J	14.2	NA	9.5	NA	9.9	NA	16.3	31.9	NA	17.9	NA	19.6	NA	23.2	NA	17	NA	17.2	NA	17.7
	ZINC	152	44.6	NA	13.8	63.3	NA	86	NA	31.2	NA	57	80.9	NA	144	NA	663	NA	64.6	NA	109	NA	61.3	NA	57.2
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON		NA	NA	NA	NA	NA	4900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH		NA	NA	NA	NA	NA	5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE PETROLEUM HYDROCARBONS		NA	NA	NA	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS		3.3 UJ	NA	2.5 U	2.8 U	NA	2.8 U	NA	3 U	NA	3 U	2.8 UJ	NA	4.6 U	NA	60	NA	3.3 U	NA	3.5 U	NA	2.75 U	NA	3.2 U
	TPH (C09-C36)	1600	22	NA	9.5 U	NA	NA	18	NA	15	NA	260	160	NA	150	NA	110	NA	66	NA	60	NA	106	NA	260
PETROLEUM HYDROCARBONS (UG/KG)	DIESEL RANGE ORGANICS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	SAMPLE ID		DA-SS127-072607	DA-SS127-011508	DA-SS128-072607	DA-SS128-011608	DA-SS129-073007	DA-SS129-011408	DA-SS130-073007	DA-SS130-011508	DA-SS131-073007	DA-SS131-011608	DA-SS132-073007	DA-SS132-011408	DA-SS133-073007	DA-SS133-011508	DA-SB133-0102	DA-SS134-071907	DA-SS134-011508	DA-SS135-071907	DA-SS135-011108-AVG	DA-SS136-072507	DA-SS136-011008	DA-SS137-071907	DA-SS137-011608
	LOCATION ID		DA-SB127	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132	DA-SB133	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137	DA-SB137
	TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
	SAMPLE DATE	Greater of NOEC of Invertebrates Screening level	07/26/07	01/15/08	07/26/07	01/16/08	07/30/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07	01/15/08	02/27/08	07/19/07	01/15/08	07/19/07	01/11/08	07/25/07	01/10/08	07/19/07	01/16/08
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL		NA	660	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA	410 U	380 U	NA	420 U	NA	410 U	NA	390 U	NA	NA
	2-METHYLNAPHTHALENE		1500 J	2400 J	3 J	25 U	4.2 J	37	37	12 J	99	8.8 J	30	140	90	53	13 J	23 U	26 U	23 U	6.6 J	22 U	24 U	22 U	NA
	3,3'-DICHLOROBENZIDINE		NA	380 U	NA	410 UJ	NA	440 U	NA	390 U	NA	400 UJ	NA	400 U	NA	410 U	380 U	NA	420 U	NA	410 U	NA	390 U	NA	NA
	ACENAPHTHENE		8000	9500	24	6.7 J	48	210	260 J	60	190	67	110	240	610 J	110	76	10 J	4.6 J	23 U	25 U	2.8 J	9.9 J	10 J	NA
	ACENAPHTHYLENE		21 U	23 U	23 U	7.2 J	23 U	15 J	23 U	12 J	23 U	6.9 J	23 U	24 U	23 U	10 J	23 UJ	23 U	3.6 J	23 U	25 U	22 U	4.3 J	22 U	NA
	ANTHRACENE		9600	13000	70	15 J	120	580	650	160	340 J	140 J	330 J	390	1800	400	190	17 J	6.4 J	23 U	6.45 J	5.1 J	13 J	15 J	NA
	BENZO(A)ANTHRACENE		16000	20000	320	96	440	1400	930	370	1100	380	870	870 J	3000	1200	1100	130	21 J	12 J	38	62	110	130	NA
	BENZO(A)PYRENE		11000	17000	190	85	350	1200	680	370	740	270	560	750 J	2100	940	280	99	24 J	10 J	41.5 J	44	100	99	NA
	BENZO(B)FLUORANTHENE		15000	12000	480	55	380	910	880	390	890	280	650	520 J	2900	650	250	170	19 J	26	30.5 J	78	71	190	NA
	BENZO(G,H,I)PERYLENE		7200	7400 J	97	37	150	320 J	400 J	160 J	380 J	120	360 J	230 J	1300	300 J	130 J	64	15 J	7.9 J	31 J	19 J	48	46	NA
	BENZO(K)FLUORANTHENE		6100	12000	110	53	380	930	350 J	340	810	240 J	620	390 J	1200	610	280	66	19 J	9.6 J	32 J	30	68 J	74	NA
	BENZOIC ACID		NA	940 U	NA	1000 U	NA	1100 U	NA	980 U	NA	1000 U	NA	990 U	NA	1000 U	930 UJ	NA	1000 U	NA	1000 U	NA	520 J	NA	NA
	BIS(2-ETHYLHEXYL)PHTHALATE		NA	380 U	NA	410 UJ	NA	620 J	NA	390 UJ	NA	400 UJ	NA	400 UJ	NA	410 U	380 U	NA	420 U	NA	410 UJ	NA	390 UJ	NA	NA
	BUTYL BENZYL PHTHALATE		NA	380 U	NA	410 UJ	NA	440 UJ	NA	390 UJ	NA	400 UJ	NA	400 UJ	NA	410 U	380 U	NA	420 U	NA	410 UJ	NA	390 UJ	NA	NA
	CARBAZOLE		NA	7300	NA	410 U	NA	370 J	NA	390 U	NA	400 U	NA	400 U	NA	270 J	380	NA	420 U	NA	410 U	NA	390 U	NA	NA
	CHRYSENE		12000	17000	220	83	370	1300	850	540	920	550	780	970	2800	1100	1000	99	22 J	12 J	46.5 J	41	110	99	NA
	DIBENZO(A,H)ANTHRACENE		1800 J	3500	23	24 J	110	140	74	91	190 J	70	190	110	380 J	160	52	23 U	26 UJ	23 U	25 U	22 U	25	22 U	NA
	DIBENZOFURAN		NA	4700	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA	410 U	380 U	NA	420 U	NA	410 U	NA	390 U	NA	NA
	FLUORANTHENE		34000	45000	470	140	920	2900	2300	1100	2300	1300	1600	1400	7400	2300	2400	200	38	20 J	95.5	110	190	230	NA
	FLUORENE		5900	5900 J	27	5.3 J	47	260	180	56	240 J	63	140	190	640 J	130 J	81 J	8.9 J	26 U	23 U	25 UJ	2.6 J	6.8 J	9.3 J	NA
	HIGH MOLECULAR WEIGHT PAHS	193100	133000 J	193100 J	2746	774 J	3950	12210 J	8864 J	4841 J	9860 J	4340 J	7900 J	8640 J	28080 J	10140 J	7632 J	1073	201 J	131.4 J	396.5 J	483 J	967 J	1129	NA
	INDENO(1,2,3-CD)PYRENE		5900	9200	86	51	200	310	600	180	430 J	150	370 J	200	1900	280	140 J	55	17 J	8.9 J	33.5 J	17 J	65	41	NA
	LOW MOLECULAR WEIGHT PAHS	89800	61400 J	89800 J	506.3 J	86.2 J	774.9 J	3742 J	2917 J	1044 J	3069 J	1141.7 J	2131 J	3496	8280 J	2369 J	2494 J	145.9 J	32.6 J	12 J	61.85 J	51.5 J	112 J	136.6 J	NA
	NAPHTHALENE		5400	11000	2.3 J	25 U	5.7 J	40	90	24	300 J	16 J	21 J	36	140 J	66	34	23 U	26 U	23 U	6.8 J	22 U	24 U	2.3 J	NA
	N-NITROSODIPHENYLAMINE		NA	380 U	NA	410 U	NA	440 U	NA	390 U	NA	400 U	NA	400 U	NA	410 U	380 U	NA	420 U	NA	410 U	NA	390 U	NA	NA
	PHENANTHRENE		31000	48000 J	380	52 J	550	2600	1700	720	1900	840	1500	2500	5000	1600 J	2100	110	18 J	12 J	42	41	78	100	NA
	PYRENE		24000	50000	750	150	650	2800	1800	1300	2100	980	1900	3200	5100	2600	2000	190	26	25	48	82	180 J	220	NA
	TOTAL PAHS	282900	194400 J	282900 J	3252.3 J	860.2 J	4724.9 J	15952 J	11781 J	5885 J	12929 J	5481.7 J	10031 J	12136 J	36360 J	12509 J	10126 J	1218.9 J	233.6 J	143.4 J	458.35 J	534.5 J	1079 J	1265.6 J	NA
PESTICIDES/PCBS (UG/KG)	4,4'-DDD		NA	3.8 U	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA	4.1 U	3.8 U	NA	4.2 U	NA	4.1 UJ	NA	3.9 UJ	NA	NA
	4,4'-DDE		NA	3.8 U	NA	2.0 J	NA	7.9	NA	5.4	NA	2.4 J	NA	2.7 J	NA	2.2 J	3.8 UJ	NA	1.6 J	NA	1.62 J	NA	3.9 UJ	NA	NA
	4,4'-DDT		NA	3.8 U	NA	4.2 J	NA	12	NA	16 J	NA	4 U	NA	5.4	NA	4.1 U	3.8 U	NA	1.7 J	NA	2.98 J	NA	3.9 UJ	NA	NA
	ALPHA-CHLORDANE		NA	1.9 U	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA	2.1 U	1.9 UJ	NA	2.2 U	NA	2.1 UJ	NA	2 UJ	NA	NA
	AROCLOR-1254		NA	19 U	NA	21 U	NA	22 U	NA	20 U	NA	21 U	NA	20 U	NA	21 U	19 U	NA	22 U	NA	21 U	NA	20 U	NA	NA
	AROCLOR-1260		NA	19 U	NA	26 J	NA	120	NA	170	NA	81	NA	67	NA	130	19 U	NA	22 U	NA	32.2 J	NA	20 U	NA	NA
	AROCLOR-1268		NA	19 U	NA	21 U	NA	280	NA	460	NA	160	NA	290 J	NA	21 U	19 U	NA	22 U	NA	21 U	NA	20 U	NA	NA
	DIELDRIN		NA	3.8 U	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA	4.1 U	3.8 U	NA	4.2 U	NA	4.1 UJ	NA	3.9 UJ	NA	NA
	ENDRIN		NA	3.8 U	NA	4.1 U	NA	4.4 U	NA	3.9 U	NA	4 U	NA	4 U	NA	4.1 U	3.8 U	NA	4.2 U	NA	4.1 UJ	NA	3.9 UJ	NA	NA
	GAMMA-CHLORDANE		NA	1.9 U	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA	2.1 U	1.9 U	NA	2.2 U	NA	2.1 UJ	NA	2 UJ	NA	NA
	HEPTACHLOR		NA	1.9 U	NA	2.1 U	NA	2.2 U	NA	2 U	NA	2.1 U	NA	2 U	NA	2.1 U	1.9 UJ	NA	2.2 U	NA	2.1 UJ	NA	2 UJ	NA	NA
	TOTAL AROCLOR	33000	NA	19 U	NA	26 J	NA	400	NA	630	NA	241	NA	357 J	NA	130	19 U	NA	22 UJ	NA	32.2 J	NA	20 U	NA	NA
	TOTAL DDD/DDE/DDT	12000	NA	3.8 U	NA	6.2 J	NA	19.9	NA	21.4 J	NA	2.4 J	NA	8.1 J	NA	2.2 J	3.8 UJ	NA	3.3 J	NA	4.6 J	NA	3.9 UJ	NA	NA

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	Greater of NOEC of Invertebrates Screening level	DA-SS127-072607	DA-SS127-011508	DA-SS128-072607	DA-SS128-011608	DA-SS129-073007	DA-SS129-011408	DA-SS130-073007	DA-SS130-011508	DA-SS131-073007	DA-SS131-011608	DA-SS132-073007	DA-SS132-011408	DA-SS133-073007	DA-SS133-011508	DA-SB133-0102	DA-SS134-071907	DA-SS134-011508	DA-SS135-071907	DA-SS135-011108-AVG	DA-SS136-072507	DA-SS136-011008	DA-SS137-071907	DA-SS137-011608
	LOCATION ID		DA-SB127	DA-SB127	DA-SB128	DA-SB128	DA-SB129	DA-SB129	DA-SB130	DA-SB130	DA-SB131	DA-SB131	DA-SB132	DA-SB132	DA-SB133	DA-SB133	DA-SB133	DA-SB134	DA-SB134	DA-SB135	DA-SB135	DA-SB136	DA-SB136	DA-SB137	DA-SB137
	TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
	SAMPLE DATE		07/26/07	01/15/08	07/26/07	01/16/08	07/30/07	01/14/08	07/30/07	01/15/08	07/30/07	01/16/08	07/30/07	01/14/08	07/30/07	01/15/08	02/27/08	07/19/07	01/15/08	07/19/07	01/11/08	07/25/07	01/10/08	07/19/07	01/16/08
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
METALS (MG/KG)	ALUMINUM	16900	NA	7500	NA	10800	NA	13600	NA	12600	NA	12800	NA	15000	NA	11400	13600	NA	16900	NA	16200	NA	11500	NA	NA
	ANTIMONY		NA	0.08 U	NA	0.09 UJ	NA	0.16 U	NA	0.19 U	NA	0.16 UJ	NA	0.2 U	NA	0.16 U	0.1 UJ	NA	0.21 U	NA	0.215 UJ	NA	0.17 UJ	NA	NA
	ARSENIC	60	NA	8.3	NA	9.4	NA	20.8	NA	17.6	NA	15.6	NA	17.6	NA	18.2	23.1	NA	15.1	NA	13.6	NA	26.9	NA	NA
	BARIUM		NA	22.3	NA	21.2	NA	24.1	NA	22.6	NA	28.5	NA	30.9	NA	28.2	23.5	NA	26.4	NA	23.6	NA	19.4	NA	NA
	BERYLLIUM		NA	0.42 J	NA	0.31 J	NA	0.38 J	NA	0.36 J	NA	0.44 J	NA	0.43 J	NA	0.39 J	0.43 J	NA	0.48 J	NA	0.52 J	NA	0.45 J	NA	NA
	CADMIUM		NA	0.3 J	NA	0.01 UJ	NA	1.1 J	NA	0.44 J	NA	0.56 J	NA	0.81 J	NA	3.2	0.01 UJ	NA	0.46 J	NA	0.11 UJ	NA	0.24 UJ	NA	NA
	CALCIUM		NA	1370	NA	994	NA	1400	NA	1380	NA	1320	NA	607	NA	2990	2440	NA	442	NA	452 J	NA	251 J	NA	NA
	CHROMIUM		NA	8.3	NA	13.9	NA	28.1	NA	15.9	NA	16.4	NA	17.9	NA	18.9	16.5	NA	19.4	NA	17.6	NA	16.2	NA	NA
	COBALT	27.7	NA	6.2	NA	11.2	NA	13	NA	11.7	NA	12.7	NA	11.6	NA	11.7	13.6	NA	13.2	NA	7	NA	9.5	NA	NA
	COPPER	80	NA	11	NA	16.6 J	NA	25.2	NA	21.4	NA	23.1 J	NA	33.6	NA	41.2	19.4	NA	30.1	NA	19.4 J	NA	26.7 J	NA	NA
	IRON		NA	15500	NA	21600	NA	31400	NA	27200	NA	27100	NA	29500	NA	28800	29400	NA	32100	NA	30800	NA	31500	NA	NA
	LEAD	1700	NA	17.3	NA	63.7	NA	81.8	NA	22.8	NA	33.9	NA	35.6	NA	50.8	14.1	NA	20.8	NA	20	NA	20.6	NA	NA
	MAGNESIUM		NA	1860	NA	3270	NA	3780	NA	3550	NA	3660	NA	3560	NA	3190	3590	NA	4100	NA	3040 J	NA	2910 J	NA	NA
	MANGANESE	450	NA	381	NA	443	NA	424	NA	363	NA	397	NA	396	NA	337	411	NA	326	NA	220 J	NA	248 J	NA	NA
	MERCURY		NA	0.03 J	NA	0.05	NA	0.05	NA	0.04	NA	0.06	NA	0.12	NA	2	0.08	NA	0.04	NA	0.045	NA	0.03 J	NA	NA
	MOLYBDENUM	0.7	NA	0.29 J	NA	1.8 J	NA	0.68 J	NA	0.38 J	NA	0.53 J	NA	0.49 J	NA	0.70 J	0.34 J	NA	0.41 J	NA	0.535 J	NA	0.58 J	NA	NA
	NICKEL		NA	10.4	NA	18.3	NA	26.4	NA	22.6	NA	23.3	NA	27	NA	24.7	24.3	NA	27.3	NA	18.7	NA	24.3	NA	NA
	POTASSIUM		NA	784	NA	475	NA	626	NA	522	NA	608	NA	416	NA	441	572	NA	550	NA	468 J	NA	444 J	NA	NA
	SELENIUM		NA	0.13 U	NA	0.26 J	NA	0.27 U	NA	0.33 U	NA	0.67 J	NA	0.34 U	NA	0.27 U	0.7 UJ	NA	0.36 U	NA	0.495 UJ	NA	0.3 UJ	NA	NA
	SILVER		NA	0.2 UJ	NA	0.05 UJ	NA	0.66 J	NA	0.57 UJ	NA	0.58 J	NA	0.78 J	NA	0.98 J	0.79 J	NA	0.74 J	NA	0.095 UJ	NA	0.09 UJ	NA	NA
	SODIUM		NA	35.8 J	NA	26.6 UJ	NA	40.3 UJ	NA	45.8 UJ	NA	41.3 UJ	NA	41.8 UJ	NA	49.4 J	50.6 J	NA	47 UJ	NA	44.4 J	NA	38.4 J	NA	NA
	THALLIUM		NA	0.07 UJ	NA	0.07 UJ	NA	0.03 U	NA	0.04 U	NA	0.06 UJ	NA	0.05 UJ	NA	0.05 UJ	0.03 UJ	NA	0.05 UJ	NA	0.08 UJ	NA	0.04 UJ	NA	NA
	VANADIUM		NA	10.5	NA	17.9	NA	27.6	NA	19.6	NA	22.9	NA	21.3	NA	19.3	20.5	NA	25	NA	29.5	NA	36.7	NA	NA
	ZINC	152	NA	46.1	NA	56	NA	121	NA	80.7	NA	97.6	NA	87	NA	97.2	58.6	NA	62.7	NA	53.4	NA	58.5	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON		NA	8300	NA	NA	NA	NA	NA	30000	NA	NA	NA	NA	NA	76000	NA	NA	40000	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH		NA	5.1	NA	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA	5.3	NA	NA	5.1	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE PETROLEUM HYDROCARBONS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS		NA	2.5 U	NA	3.2 U	NA	3.2 U	NA	2.8 U	NA	3.2 U	NA	3.2 U	NA	3.2 U	3.3 U	NA	3.7 U	NA	5.4 U	NA	3.4 U	NA	4.0 U
	TPH (C09-C36)	1600	NA	1600	NA	26 J	NA	86	NA	42	NA	120 J	NA	90	NA	100	NA	NA	41	NA	95	NA	36	NA	NA
PETROLEUM HYDROCARBONS (UG/KG)	DIESEL RANGE ORGANICS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	Greater of NOEC of Invertebrates Screening level	DA-SS138-071907	DA-SS138-011108	DA-SS139-071907	DA-SS139-011108	DA-SS140-071907	DA-SS140-011108	DA-SS141-071907	DA-SS141-011108	DA-SS142-080207	DA-SS142-011708	DA-SS143-080207	DA-SS143-011708	DA-SS144-080207	DA-SS144-011708	DA-SS145-080207	DA-SS145-011708	DA-SS146-080207-AVG	DA-SS146-011708	DA-SS147-011708-AVG	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608	DA-S-TP01-0001-01
	LOCATION ID		DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153	DA-TP-01
	TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE		07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08	08/11/03
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL		NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA	480 U	NA	480 U	NA	430 U	NA	400 U	420 U	520 U	410 U	420 U	410 U	NA
	2-METHYLNAPHTHALENE		22 U	25 U	22 U	25 U	24 U	23 U	22 U	6.1 J	3.4 J	11 J	26 U	8.5 J	27 U	29 U	10 J	12 J	22 U	8.7 J	7.2 J	11 J	7.3 J	26 U	25 U	260 U
	3,3'-DICHLOROBENZIDINE		NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA	480 U	NA	480 U	NA	430 U	NA	400 U	420 U	520 U	410 U	420 UJ	410 UJ	120 U
	ACENAPHTHENE		22 U	25 U	6.5 J	21 J	3.2 J	23 U	6.7 J	3.6 J	36	48	11 J	9.1 J	2.1 J	2.4 J	90	52	4.2 J	21 J	3.15 J	17 J	10 J	3.8 J	46	130 J
	ACENAPHTHYLENE		22 U	25 U	22 U	7.1 J	24 U	23 U	22 U	23 U	24 U	10 J	3.3 J	2.8 J	27 U	29 U	30	24 J	6.65 J	9.9 J	2.05 J	49	3.1 J	3.1 J	5.6 J	100 U
	ANTHRACENE		22 U	25 UJ	8.4 J	30	5.6 J	23 UJ	8.8 J	10 J	75	110	21 J	31	4 J	29 U	400 J	210	15.5 J	50	4.4 J	110	33	5 J	180 J	370 J
	BENZO(A)ANTHRACENE		16 J	15 J	81	190	57	16 J	70	63	310	310	110	110	22 J	19 J	2400	1500 J	98.5	210	38.5	450 J	120	7.3 J	340	900
	BENZO(A)PYRENE		12 J	18 J	70	180 J	45	13 J	66	60	270	270	100	120	19 J	21 J	1800	1600	115	230	45	420	140 J	9.3 J	260	730
	BENZO(B)FLUORANTHENE		30	14 J	130	130 J	90	9.4 J	110	47	300	200	130	110	31	19 J	2600	1400	119	200	38.5	320	120 J	9.6 J	240	630 J
	BENZO(G,H,I)PERYLENE		9.7 J	14 J	32	98 J	25	8 J	30	40 J	130	160	58	77	12 J	16 J	1200	1200 J	68	140	29.5	250 J	98 J	8.8 J	99	500 J
	BENZO(K)FLUORANTHENE		11 J	16 J	49	140 J	29	18 J	47	46	270	230	100	93	22 J	16 J	2000	1300	120	190	38	340	110 J	10 J	220	680 J
	BENZOIC ACID		NA	1000 U	NA	1000 U	NA	950 U	NA	960 U	NA	940 U	NA	1200 U	NA	1200 U	NA	1100 U	NA	1000 U	1000 U	1300 U	1000 U	1000 U	1000 U	280 U
	BIS(2-ETHYLHEXYL)PHTHALATE		NA	420 UJ	NA	280 J	NA	380 UJ	NA	4300 J	NA	380 UJ	NA	480 UJ	NA	480 UJ	NA	4500 J	NA	400 UJ	420 UJ	520 UJ	410 UJ	420 UJ	410 UJ	560 J
	BUTYL BENZYL PHTHALATE		NA	420 UJ	NA	410 UJ	NA	380 UJ	NA	380 UJ	NA	380 U	NA	480 UJ	NA	480 UJ	NA	270 J	NA	400 UJ	420 UJ	520 U	410 U	420 UJ	410 UJ	130 U
	CARBAZOLE		NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA	480 U	NA	480 U	NA	430 U	NA	400 U	420 U	520 U	410 U	420 U	410 U	220 J
	CHRYSENE		15 J	20 J	70	250	45	17 J	58	71 J	260	350	100	140	21 J	24 J	2500	1900	98.5	290	49	690	180	9.6 J	380 J	910
	DIBENZO(A,H)ANTHRACENE		22 U	25 U	6.3 J	55 J	5.4 J	23 U	5.2 J	17 J	95	70	40	32	27 U	29 U	1100 U	320	51	64	25.5 U	110	40 J	26 U	68	170 U
	DIBENZOFURAN		NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA	480 U	NA	480 U	NA	430 U	NA	400 U	420 U	520 U	410 U	420 U	410 U	140 U
	FLUORANTHENE		29	36	140	430	91	34	110	130	560	700	NA	240	49	50	5900	3600	190	390	95.5	1400	250	16 J	910	2200
	FLUORENE		22 U	25 UJ	4.8 J	14 J	2.9 J	23 UJ	5.1 J	4 J	37	40	11 J	4.5 J	27 U	29 U	100	54	5.15 J	17 J	25.5 U	57	8.3 J	26 UJ	48 J	160 J
	HIGH MOLECULAR WEIGHT PAHS	193100	162.8 J	167 J	746.3 J	1983 J	502.4 J	141.1 J	660.2 J	596 J	2855	2960	916	1199	226 J	212 J	23900	16820 J	1104.5	2274	431	5210 J	1348 J	88.3 J	3657 J	8800 J
	INDENO(1,2,3-CD)PYRENE		8.1 J	15 J	28	110 J	20 J	7.7 J	24	45	180	180	78	87	15 J	19 J	1500	1300	89.5	160	35.5	280	110 J	6.7 J	140	450 J
	LOW MOLECULAR WEIGHT PAHS	89800	12 J	18.9 J	89.7 J	272.1 J	56.7 J	16.1 J	85.6 J	89.1 J	506 J	754 J	168.7 J	216.9 J	29.1 J	18.4 J	2646 J	1668 J	107 J	379.6 J	67.3 J	1088 J	221.2 J	21.9 J	1065 J	3040 J
	NAPHTHALENE		22 U	6.9 J	22 U	25 U	24 U	6.3 J	22 U	6.4 J	4.6 J	15 J	2.4 J	11 J	27 U	29 U	16 J	16 J	22 U	13 J	9.5 J	14 J	9.5 J	26 U	5.4 J	780 J
	N-NITROSODIPHENYLAMINE		NA	420 U	NA	410 U	NA	380 U	NA	380 U	NA	380 U	NA	480 UJ	NA	480 U	NA	430 U	NA	400 J	420 U	520 U	410 U	420 U	410 U	120 U
	PHENANTHRENE		12 J	12 J	70	200	45	9.8 J	65	59	350	520	120	150	23 J	16 J	2000	1300	75.5	260	41	830	150	10 J	780	1600
	PYRENE		32	19 J	140	400	95	18 J	140	77	480	490	200	190	35	28 J	4000	2700	155	400	61.5	950	180	11 J	1000	1800
	TOTAL PAHS	282900	174.8 J	185.9 J	836 J	2255.1 J	559.1 J	157.2 J	745.8 J	685.1 J	3361 J	3714 J	1084.7 J	1415.9 J	255.1 J	230.4 J	26546 J	18488 J	1211.5 J	2653.6 J	498.3 J	6298 J	1569.2 J	110.2 J	4722 J	11840 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD		NA	4.2 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	3.8 UJ	NA	3.8 U	NA	5.1 J	NA	2.6 J	NA	4.3 U	NA	4 U	4.2 U	5.2 U	5.2 J	4.2 U	4.1 U	94.4 U
	4,4'-DDE		NA	4.2 UJ	NA	2.4 J	NA	1.4 J	NA	1.5 J	NA	3.9 J	NA	8 J	NA	7.9	NA	4.3 U	NA	2.4 J	1.4 J	4.7 J	22	4.2 U	6.0	44.4 U
	4,4'-DDT		NA	4.2 UJ	NA	4.1 UJ	NA	1.2 J	NA	1.8 J	NA	14 J	NA	12 J	NA	5.1 J	NA	4.3 U	NA	16 J	2.7 J	5.2 U	38	4.2 U	4.1 U	184 J
	ALPHA-CHLORDANE		NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA	2.5 U	NA	3.2 J	NA	2.2 U	NA	2.1 U	2.2 U	2.7 U	16 J	2.2 U	2.1 U	33.3 U
	AROCLOR-1254		NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA	25 U	NA	24 U	NA	22 U	NA	21 U	22 UJ	27 U	21 U	22 U	21 U	152 J
	AROCLOR-1260		NA	22 UJ	NA	74 J	NA	20 UJ	NA	20 UJ	NA	250 J	NA	68 J	NA	24 UJ	NA	350 J	NA	140	22 UJ	74	46	22 UJ	510 J	15.3 U
	AROCLOR-1268		NA	22 U	NA	21 UJ	NA	20 U	NA	20 U	NA	20 U	NA	25 U	NA	24 U	NA	22 U	NA	21 U	22 U	27 U	21 U	22 U	21 U	134
	DIELDRIN		NA	4.2 UJ	NA	4.1 UJ	NA	1.3 J	NA	3.8 UJ	NA	3.8 U	NA	4.8 U	NA	4.1 J	NA	4.3 U	NA	4 U	4.2 U	5.2 U	23	4.2 U	4.1 U	38.9 U
	ENDRIN		NA	4.2 UJ	NA	4.1 UJ	NA	3.8 UJ	NA	3.8 UJ	NA	3.8 U	NA	2.4 J	NA	4.8 U	NA	4.3 U	NA	4 U	4.2 U	5.2 U	4.1 U	4.2 U	4.1 U	44.4 U
	GAMMA-CHLORDANE		NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA	2.5 U	NA	3.2	NA	2.2 U	NA	2.1 U	2.2 U	2.7 U	10	2.2 U	2.1 U	27.8 U
	HEPTACHLOR		NA	2.2 UJ	NA	2.1 UJ	NA	2 UJ	NA	2 UJ	NA	2 U	NA	2.5 U	NA	2.4 U	NA	2.2 U	NA	2.1 U	2.2 U	2.7 U	1.2 J	2.2 U	2.1 U	33.3 U
	TOTAL AROCLOR	33000	NA	22 UJ	NA	74 J	NA	20 UJ	NA	20 UJ	NA	250 J	NA	68 J	NA	24 UJ	NA	350 J	NA	140	22 UJ	74	46	22 UJ	510 J	286 J
	TOTAL DDD/DDE/DDT	12000	NA	4.2 UJ	NA	2.4 J	NA	2.6 J	NA	3.3 J	NA	17.9 J	NA	25.1 J	NA	15.6 J	NA	4.3 U	NA	18.4 J	4.1 J	4.7 J	65.2 J	4.2 U	6	184 J

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	SAMPLE ID	Greater of NOEC of Invertebrates Screening level	DA-SS138-071907	DA-SS138-011108	DA-SS139-071907	DA-SS139-011108	DA-SS140-071907	DA-SS140-011108	DA-SS141-071907	DA-SS141-011108	DA-SS142-080207	DA-SS142-011708	DA-SS143-080207	DA-SS143-011708	DA-SS144-080207	DA-SS144-011708	DA-SS145-080207	DA-SS145-011708	DA-SS146-080207-AVG	DA-SS146-011708	DA-SS147-011708-AVG	DA-SS148-011708	DA-SS149-011708	DA-SS152-011608	DA-SS153-011608	DA-S-TP01-0001-01
	LOCATION ID		DA-SB138	DA-SB138	DA-SB139	DA-SB139	DA-SB140	DA-SB140	DA-SB141	DA-SB141	DA-SB142	DA-SB142	DA-SB143	DA-SB143	DA-SB144	DA-SB144	DA-SB145	DA-SB145	DA-SB146	DA-SB146	DA-SB147	DA-SB148	DA-SB149	DA-SB152	DA-SB153	DA-TP-01
	TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SAMPLE DATE		07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	07/19/07	01/11/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	08/02/07	01/17/08	01/17/08	01/17/08	01/17/08	01/16/08	01/16/08	08/11/03
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
METALS (MG/KG)	ALUMINUM	16900	NA	17600	NA	15700	NA	14100	NA	12600	NA	12200	NA	17600	NA	16100	NA	12200	NA	11600	17200	20700	13800	14000	12100	9100
	ANTIMONY		NA	0.09 UJ	NA	0.21 UJ	NA	0.14 UJ	NA	0.16 UJ	NA	0.15 UJ	NA	0.19 UJ	NA	0.17 UJ	NA	0.43 J	NA	0.08 UJ	0.185 UJ	0.26 UJ	0.19 UJ	0.09 UJ	0.18 UJ	1.3
	ARSENIC	60	NA	7.5	NA	10.6	NA	26.6	NA	15.4	NA	14.5	NA	16.8	NA	13.9	NA	18.6	NA	10	7.8	19.4	19.4	6	31.6	19 J
	BARIUM		NA	25.3	NA	21.3	NA	27.5	NA	18.7	NA	22.9	NA	32.6	NA	27.6	NA	42.8	NA	16.1	19.5	42.2	32	24.8	27.9	39
	BERYLLIUM		NA	0.54	NA	0.49 J	NA	0.51 J	NA	0.43 J	NA	0.54 J	NA	0.58 J	NA	0.58 J	NA	0.49 J	NA	0.43 J	0.45 J	0.74 J	0.55 J	0.45 J	0.44 J	0.33
	CADMIUM		NA	0.24 UJ	NA	0.19 UJ	NA	0.02 U	NA	0.28 UJ	NA	0.26 J	NA	0.02 UJ	NA	0.02 UJ	NA	2.4	NA	0.82 J	0.02 UJ	1.2 J	1.2 J	0.08 J	0.02 UJ	11
	CALCIUM		NA	305 J	NA	363 J	NA	531 J	NA	732 J	NA	616 J	NA	491 J	NA	580 J	NA	1420 J	NA	817 J	528 J	2230 J	1550 J	602	1290	1400 J
	CHROMIUM		NA	15.2	NA	16.9	NA	22.5	NA	15.5	NA	16.1	NA	19	NA	16.1	NA	33.4	NA	16.1	19.9	26	19.1	14.3	15	26
	COBALT	27.7	NA	2.2 J	NA	4.7 J	NA	15.8	NA	10.8	NA	10.4	NA	28.4	NA	11.7	NA	20.7	NA	11.2	9.05	18.8	218	4.7	11.9	17 J
	COPPER	80	NA	9.1 J	NA	17.2 J	NA	23.5 J	NA	16.5 J	NA	21.2	NA	20.4	NA	12.7	NA	63	NA	48.8	14.9	28	50.4	12.9 J	21.1 J	51
	IRON		NA	18100	NA	21500	NA	37200	NA	24600	NA	25300	NA	33600	NA	30700	NA	28200	NA	21800	30600	38000	43700	17700	27300	21000
	LEAD	1700	NA	42.7	NA	43.5	NA	12.6	NA	69.7	NA	33.6	NA	45.9	NA	18.6	NA	112	NA	46.9	25.2	90.2	2870	14.5	23.4	120
	MAGNESIUM		NA	1210 J	NA	2220 J	NA	3720 J	NA	3450 J	NA	2950	NA	3140	NA	2520	NA	3650	NA	3070	3580	4550	3940	2270	3120	2500
	MANGANESE	450	NA	79.8 J	NA	150 J	NA	517 J	NA	359 J	NA	354	NA	866	NA	231	NA	444	NA	487	282	1210	2020	105	377	300
	MERCURY		NA	0.03 J	NA	0.06	NA	0.02 J	NA	0.02 J	NA	0.08	NA	0.08	NA	0.03 J	NA	0.08 J	NA	0.04 J	0.05 J	0.15	0.05 J	0.32	0.04 J	0.14 J
	MOLYBDENUM	0.7	NA	0.50 J	NA	0.63 J	NA	0.46 J	NA	0.22 J	NA	0.49 J	NA	0.53 J	NA	0.59 J	NA	3.2	NA	0.45 J	0.495 J	0.98 J	7.6	0.34 UJ	0.44 UJ	0.84
	NICKEL		NA	8.7 J	NA	15.3	NA	28.3	NA	21.1	NA	19.6	NA	27.4	NA	24.7	NA	27.9	NA	18.9	23	32.5	28.5	14.3	22.4	24
	POTASSIUM		NA	301 J	NA	354 J	NA	586 J	NA	421 J	NA	416 J	NA	380 J	NA	319 J	NA	505 J	NA	392 J	359 J	586 J	416 J	320	500	300
	SELENIUM		NA	0.6 UJ	NA	0.44 UJ	NA	0.24 U	NA	0.21 UJ	NA	0.36 UJ	NA	0.37 UJ	NA	0.3 UJ	NA	0.52 UJ	NA	0.34 UJ	0.605 UJ	0.67 UJ	0.33 U	0.6 J	0.58 J	0.14 UJ
	SILVER		NA	0.05 UJ	NA	0.05 UJ	NA	0.07 UJ	NA	0.05 UJ	NA	0.08 UJ	NA	0.1 UJ	NA	0.09 UJ	NA	0.16 J	NA	0.04 UJ	0.315 J	0.73 J	0.68 J	0.05 UJ	0.09 UJ	2
	SODIUM		NA	44.3 J	NA	40.6 J	NA	56.5 J	NA	52.4 J	NA	32.9 J	NA	34.5 J	NA	41.9 J	NA	274	NA	306	31.6 J	61.8 J	108 J	44.9 UJ	58.9 UJ	48 U
	THALLIUM		NA	0.1 UJ	NA	0.08 UJ	NA	0.05 UJ	NA	0.04 U	NA	0.1 UJ	NA	0.08 UJ	NA	0.1 UJ	NA	0.05 UJ	NA	0.17 UJ	0.09 UJ	0.1 UJ	0.04 UJ	0.1 UJ	0.04 UJ	0.97 U
	VANADIUM		NA	27.2	NA	47.2	NA	19.9	NA	21	NA	21.5	NA	36.2	NA	21.3	NA	27.1	NA	23.6	28.2	38.6	24.4	22.7	19.2	18
	ZINC	152	NA	31.5	NA	56.2	NA	63.9	NA	49.7	NA	59.1	NA	108	NA	65.3	NA	171	NA	158	64.4	125	175	58	68.8	120
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72000	28000	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2	5.3	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE PETROLEUM HYDROCARBONS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS		NA	3.3 UJ	NA	3.6 U	NA	2.8 U	NA	2.6 U	NA	3.2 U	NA	4.5 U	NA	4.4 U	NA	3.5 U	NA	3.3 U	4.2 U	5.0 UJ	8.1	3.6 U	3.1 U	27
	TPH (C09-C36)	1600	NA	68 J	NA	76	NA	19	NA	22	NA	57	NA	96	NA	24	NA	310 J	NA	100	64	58	72	56 J	60 J	NA
PETROLEUM HYDROCARBONS (UG/KG)	DIESEL RANGE ORGANICS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63000 J

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ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

FRACTION (UNITS)	PARAMETER	Greater of NOEC of Invertebrates Screening level	DA-S-TP05-0001-01	DA-S-TP06-0001-01	DA-S-TP07-0001-01	DA-S-TP08-0001-01	DA-S-TP09-0001-01	DA-S-TP09-0102-01-AVG	DA-S-TP10-0001-01	DA-S-TP10-0102-01	DA-S-TP11-0001-01	DA-S-TP12-0001-01	DA-S-TP12-0102-01	DA-S-TP12A-0001-01	DA-S-TP12B-0001-01	DA-S-TP13-0001-01	DA-S-TP15-0001-01
	LOCATION ID		DA-TP-05	DA-TP-06	DA-TP-07	DA-TP-08	DA-TP-09	DA-TP-09	DA-TP-10	DA-TP-10	DA-TP-11	DA-TP-12	DA-TP-12	DA-TP-12A	DA-TP-12B	DA-TP-13	DA-TP-15
	TOP DEPTH		0	0	0	0	0	1	0	1	0	0	1	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	2	1	2	1	1	2	1	1	1	1
	SAMPLE DATE		08/11/03	08/13/03	08/12/03	08/15/03	08/14/03	08/14/03	08/14/03	08/14/03	08/14/03	08/13/03	08/13/03	08/15/03	08/15/03	08/15/03	08/12/03
	SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SEMIVOLATILES (UG/KG)	1,1-BIPHENYL		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2-METHYLNAPHTHALENE		210 U	220 U	220 U	220 U	240 U	220 U	1300 U	240 U	240 U	230 U	220 U	240 U	250 U	220 U	220 U
	3,3'-DICHLOROBENZIDINE		100 U	110 U	100 U	100 U	110 U	110 U	600 U	110 U	110 U	110 J	100 U	110 U	120 U	100 U	100 U
	ACENAPHTHENE		66 U	69 U	110 J	120 J	74 U	69 U	390 U	72 U	74 U	70 U	68 U	73 U	78 U	67 U	960
	ACENAPHTHYLENE		86 U	90 U	88 U	89 U	97 U	90 U	510 U	95 U	97 U	92 U	89 U	290 J	100 U	87 U	87 U
	ANTHRACENE		160 J	52 J	270 J	520 J	48 U	45 U	610 J	47 U	48 U	46 U	44 U	420 J	51 U	44 U	3200
	BENZO(A)ANTHRACENE		590	170 J	580	1600	90 J	82 U	1300 J	120 J	88 U	83 U	81 U	810	150 J	79 U	8100
	BENZO(A)PYRENE		460 J	120 J	460 J	840	91 U	85 U	1100 J	89 J	91 U	86 U	84 U	740	96 U	82 U	4800
	BENZO(B)FLUORANTHENE		460 J	140 J	420 J	820	110 U	100 U	1300 J	110 U	110 U	110 U	100 U	1300	190 J	100 U	4500
	BENZO(G,H,I)PERYLENE		330 J	120 U	370 J	420 J	130 U	120 U	890 J	130 U	130 U	120 U	120 U	510 J	140 U	120 U	2400
	BENZO(K)FLUORANTHENE		470 J	130 J	430 J	880	86 U	79 U	1100 J	86 J	86 U	80 U	78 U	1100	160 J	77 U	4600
	BENZOIC ACID		230 U	240 UJ	230 U	240 UJ	5900 J	915 J	1400 U	1100 J	1600 J	1100 J	240 U	1500 J	3100 J	230 UJ	230 U
	BIS(2-ETHYLHEXYL)PHTHALATE		530 J	460 J	110 U	120 U	490 J	445 J	660 U	470 J	480 J	120 U	120 U	120 U	130 U	110 U	110 U
	BUTYL BENZYL PHTHALATE		100 U	110 U	110 U	110 U	120 U	110 U	620 U	110 U	120 U	110 U	110 U	120 U	120 U	100 U	100 U
	CARBAZOLE		76 U	79 U	160 J	470 J	85 U	79 U	480 J	83 U	85 U	80 U	78 U	410 J	90 U	76 U	2800
	CHRYSENE		610	180 J	570 J	1500	120 J	84 U	1500 J	130 J	91 U	85 U	83 U	1300	200 J	81 U	7900
	DIBENZO(A,H)ANTHRACENE		140 U	150 U	140 U	150 U	160 U	150 U	840 U	160 U	160 U	150 U	150 U	160 U	170 U	140 U	1000
	DIBENZOFURAN		120 U	120 U	120 U	120 U	130 U	120 U	710 U	130 U	130 U	130 U	120 U	130 U	140 U	120 U	670
	FLUORANTHENE		1300	370 J	1200	4100	230 J	68 U	2900 J	280 J	74 U	69 U	68 U	1700	320 J	66 U	21000
	FLUORENE		70 J	68 U	100 J	180 J	74 U	68 U	390 U	72 U	74 U	69 U	68 U	73 U	78 U	66 U	1300
	HIGH MOLECULAR WEIGHT PAHS	193100	5610 J	1420 J	5350 J	13880 J	640 J	100 U	12590 J	925 J	110 U	100 U	100 U	9800 J	1310 J	98 U	73800
	INDENO(1,2,3-CD)PYRENE		290 J	160 U	320 J	420 J	180 U	160 U	920 U	170 U	180 U	160 U	160 U	540 J	180 U	160 U	2500
	LOW MOLECULAR WEIGHT PAHS	89800	1020 J	282 J	1480 J	3220 J	140 J	81 U	2510 J	220 J	87 U	83 U	80 U	1010 J	140 J	79 U	20680 J
	NAPHTHALENE		4.1 U	5.3 U	4.6 U	4.2 U	5.3 UJ	3.9 U	6.2 UJ	5.5 U	5.1 U	4.4 U	4.2 U	4.4 U	5.7 U	4.6 U	220 J
	N-NITROSODIPHENYLAMINE		97 U	100 U	99 U	100 U	110 U	100 U	580 U	110 U	110 U	100 U	100 U	110 U	120 U	98 U	98 U
	PHENANTHRENE		790	230 J	1000	2400	140 J	68 U	1900 J	220 J	74 U	69 U	68 U	300 J	140 J	66 U	15000
	PYRENE		1100	310 J	1000	3300	200 J	75 U	2500 J	220 J	80 U	76 U	74 U	1800	290 J	72 U	17000
	TOTAL PAHS	282900	6630 J	1702 J	6830 J	17100 J	780 J	92 U	15100 J	1145 J	100 U	94 U	92 U	10810 J	1450 J	90 U	94480 J
PESTICIDES/PCBS (UG/KG)	4,4'-DDD		38.6 U	20.2 U	79.1 U	10 U	10.9 U	2.02 U	115 U	10.6 U	10.9 U	2.05 U	2 U	43 U	115 U	1.03 UJ	39.1 U
	4,4'-DDE		18.2 U	9.52 U	216	4.7 UJ	5.13 U	0.952 U	54 U	5 U	5.13 U	0.964 U	0.941 U	20.2 UJ	54 UJ	2.18 UJ	18.4 U
	4,4'-DDT		36.4 U	19 UJ	74.4 U	9.41 UJ	10.2 U	1.9 U	108 UJ	10 U	10.2 U	1.93 U	1.88 U	40.5 UJ	108 UJ	1.26 UJ	36.8 U
	ALPHA-CHLORDANE		13.6 U	7.14 U	235	3.53 U	3.85 U	0.714 U	40.5 U	3.75 U	3.85 U	0.723 U	0.706 U	15.2 U	40.5 U	0.575 UJ	13.8 U
	AROCLOR-1254		22.2 UJ	23.2 U	5220 J	22.9 U	25 U	23.2 U	26.4 U	24.4 U	25 U	23.5 U	22.9 U	24.7 UJ	26.4 U	22.4 U	22.4 UJ
	AROCLOR-1260		94.8	13.1 U	12.8 U	12.9 U	14.1 U	13.1 U	117	13.8 U	14.1 U	13.2 U	12.9 U	115 J	14.9 U	12.6 U	12.6 U
	AROCLOR-1268		22.2 U	23.2 U	22.7 U	22.9 U	25 U	23.2 U	26.4 U	24.4 U	25 U	23.5 U	22.9 U	24.7 UJ	26.4 U	22.4 U	22.4 U
	DIELDRIN		15.9 U	8.33 U	32.6 U	4.12 UJ	4.49 U	0.833 U	47.3 U	4.38 U	4.49 U	0.843 U	0.824 U	17.7 UJ	47.3 UJ	2.18 UJ	16.1 U
	ENDRIN		18.2 U	9.52 U	37.2 U	4.7 U	5.13 U	0.952 U	54 U	5 U	5.13 U	0.964 U	0.941 U	20.2 U	54 U	1.03 UJ	18.4 U
	GAMMA-CHLORDANE		11.4 U	5.95 U	23.2 U	2.94 U	3.2 U	0.595 U	33.8 U	3.12 U	3.2 U	0.602 U	0.588 U	12.6 U	33.8 U	1.15 UJ	11.5 U
	HEPTACHLOR		13.6 U	7.14 U	27.9 U	3.53 U	3.85 U	0.714 U	40.5 U	3.75 U	3.85 U	0.723 U	0.706 U	15.2 U	40.5 U	1.72 UJ	13.8 U
	TOTAL AROCLOR	33000	94.8 J	22 U	5220 J	22 U	24 U	22 U	117	23 U	24 U	22 U	22 U	115 J	25 U	21 U	21 UJ
	TOTAL DDD/DDE/DDT	12000	31 U	16 UJ	216	8 UJ	8.7 U	1.6 U	92 UJ	8.5 U	8.7 U	1.6 U	1.6 U	35 UJ	92 UJ	1.5 UJ	31 U

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

ANALYTICAL RESULTS IN EXPOSED SURFACE SOIL SAMPLES COMPARED TO GREATER ON EARTHWORM NOEC OR INVERTEBRATES SCREENNG LEVEL
SITE 08, NUSIC DISPOSAL AREA
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

	SAMPLE ID		DA-S-TP05-0001-01	DA-S-TP06-0001-01	DA-S-TP07-0001-01	DA-S-TP08-0001-01	DA-S-TP09-0001-01	DA-S-TP09-0102-01-AVG	DA-S-TP10-0001-01	DA-S-TP10-0102-01	DA-S-TP11-0001-01	DA-S-TP12-0001-01	DA-S-TP12-0102-01	DA-S-TP12A-0001-01	DA-S-TP12B-0001-01	DA-S-TP13-0001-01	DA-S-TP15-0001-01
	LOCATION ID		DA-TP-05	DA-TP-06	DA-TP-07	DA-TP-08	DA-TP-09	DA-TP-09	DA-TP-10	DA-TP-10	DA-TP-11	DA-TP-12	DA-TP-12	DA-TP-12A	DA-TP-12B	DA-TP-13	DA-TP-15
	TOP DEPTH		0	0	0	0	0	1	0	1	0	0	1	0	0	0	0
	BOTTOM DEPTH		1	1	1	1	1	2	1	2	1	1	2	1	1	1	1
	SAMPLE DATE		08/11/03	08/13/03	08/12/03	08/15/03	08/14/03	08/14/03	08/14/03	08/14/03	08/14/03	08/13/03	08/13/03	08/15/03	08/15/03	08/15/03	08/12/03
	SAMPLE CODE	Greater of NOEC of Invertebrates Screening level	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	AVG	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
FRACTION (UNITS)	PARAMETER		EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED	EXPOSED
METALS (MG/KG)	ALUMINUM	16900	7000	9500	5400	9400	8800	12500	9200	11000	11000	9500 J	8200	9000	10000	8700	8000
	ANTIMONY		0.33 U	0.45 U	0.22 U	0.25 U	0.4 U	0.107 U	5.5 J	1.1 U	0.33 U	0.23 U	0.32 U	1.3	0.74 U	0.41 U	0.27 U
	ARSENIC	60	13 J	18 J	19 J	25	11 J	10.5 J	15 J	13 J	19 J	14 J	19 J	15	14	90	21 J
	BARIUM		17	17	26	12	10	10.25	36	17	16	16	16	19	28	13	17
	BERYLLIUM		0.34	0.23 J	0.26	0.3	0.26 J	0.325 J	0.29 J	0.35 J	0.36 J	0.32 J	0.39 J	0.3	0.38	0.42	0.33
	CADMIUM		0.92 J	0.24 U	0.2 J	0.019 UJ	0.09 U	0.105 U	0.84 J	0.14 U	0.065 U	0.13 U	0.019 U	0.02 UJ	0.022 UJ	0.018 UJ	0.27 J
	CALCIUM		800 J	1400 J	1200 J	590	280 J	270 J	2500 J	480 J	120 J	220 J	83 J	460	370	39	600 J
	CHROMIUM		9.3 J	13 J	7.1 J	11 J	11 J	14.5 J	64 J	13 J	12 J	12 J	11 J	13	12	9.5 J	9.2 J
	COBALT	27.7	9.2 J	8.3	9 J	14	5.9	11	10	9	7.4	11	13	8.9	7.3	20	10 J
	COPPER	80	24	19	17	20	16	19.5	560	20	18	20	24	24	18	30	18
	IRON		24000	24000 J	14000	26000	23000 J	30000 J	27000 J	25000 J	30000	27000 J	27000	24000	24000	28000	21000
	LEAD	1700	22	26	23	9.7	25	9.65	160	15	17	7.8	6.4	36	40	11	14
	MAGNESIUM		2200	3200 J	1400	2900	2100 J	3750 J	2900 J	2600 J	2300 J	2600 J	2200 J	2400	2000	2400	2200
	MANGANESE	450	380	240	240	410	140	215	360	210	190	260	300	310	240	410	310
	MERCURY		0.084 J	0.072	0.14 J	0.00815 U	0.12	0.023	0.098	0.041	0.061	0.028	0.011 J	0.0426	0.0742	0.00813 U	0.029 J
	MOLYBDENUM	0.7	0.44	0.39 U	0.32 U	0.29 U	0.39 U	0.225 U	0.48 U	0.33 U	0.63 U	0.24 U	0.46 U	0.44 U	0.45 U	0.3 U	0.19 U
	NICKEL		15	17	12	21	14	22	18	18	17	19	21	17	16	26	16
	POTASSIUM		240	180	170	180	130	125	270	150	180	200	170	170	170	150	180
	SELENIUM		0.11 UJ	0.12 U	0.11 UJ	0.12 U	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.19 J	0.11 U	0.11 UJ
	SILVER		0.094 U	0.054 U	0.56 U	0.049 U	0.35	0.033 U	0.3 U	0.22 U	0.23 U	0.034 U	0.033 U	0.17 U	0.74	0.032 U	0.064 U
	SODIUM		29 U	26 U	22 U	23 U	26 U	20 U	37 U	32 U	30 U	21 U	18 U	20 U	23 U	17 U	29 U
	THALLIUM		0.79 U	0.83 U	0.8 U	0.81 U	0.89 U	0.825 U	0.94 U	0.87 U	0.88 U	0.84 U	0.82 U	0.88 U	0.94 U	0.79 U	0.79 U
	VANADIUM		14	18	13	14	19	17	29	20	24	15	15	24	28	14	14
	ZINC	152	71	65 J	40	46	35 J	49 J	280 J	50 J	44 J	46 J	46 J	72	68	59	48
MISCELLANEOUS PARAMETERS (MG/KG)	TOTAL ORGANIC CARBON		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (S.U.)	PH		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/KG)	EXTRACTABLE PETROLEUM HYDROCARBONS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GASOLINE RANGE ORGANICS		0.56 J	1.6 J	0.75 J	7 U	2.3 J	0.955 J	1.2 J	2.9 J	1.4 J	5.6 J	1.7 J	7 U	7.9 U	8.6 U	0.7 J
	TPH (C09-C36)	1600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/KG)	DIESEL RANGE ORGANICS		52000 J	20000 J	430000	59000 U	96000	60000 U	180000	62000 U	55000 J	17000 U	60000 U	11000	12000	57000 U	110000

DARK SHADING - EXCEEDS CRITERION; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - QUANTITATION APPROXIMATE; R - REJECTED; NA - NOT ANALYZED

APPENDIX I.7

TOXICITY TESTING LABORATORY REPORTS

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, NH 03843-0778
603-926-3345

March 3, 2008

Jim Forrelli
Tetra Tech NUS, Inc.
55 Jonspin Road
Wilmington, MA 01887

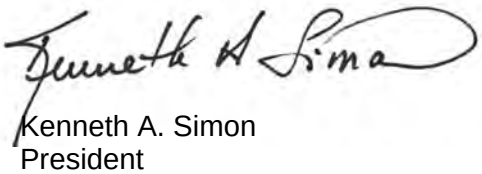
Dear Mr. Forrelli;

Please find attached two copies, one bound, one unbound, of our report evaluating the toxicity of soil samples collected as part of the Naval Station Newport Site 8 NVSCDA CTO-402 Soil Evaluation. The 14 day survival and growth evaluation was conducted using the earthworm species *Eisenia fetida.*

Please call me or Renee McIsaac should you have any questions.

Sincerely,

EnviroSystems, Incorporated



Kenneth A. Simon
President

Attachment
Two (2) copies: One (1) bound, One (1) unbound
Report: 16770-08-01

TOXICOLOGICAL EVALUATION OF SOIL SAMPLES

Naval Station Newport
Site 8 NVSCDA CTO-402
Ecological Risk Assessment

Prepared For

Tetra Tech NUS, Inc.
55 Jonspin Road
Wilmington, MA 01887

By

EnviroSystems, Incorporated
1 Lafayette Road
Hampton, New Hampshire 03842

January 2008
Reference Number 16770-08-01

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TOXICOLOGICAL EVALUATION
OF SOIL SAMPLES

Naval Station Newport
Site 8 NVSCDA CTO-402
Ecological Risk Assessment

1.0 INTRODUCTION

This report, prepared for TetraTech NUS, Inc., presents the results of acute toxicity tests conducted on soil samples collected from the Naval Station Newport Site 8 NVSCDA CTO-402 project site. Testing was based on programs and protocols developed by the ASTM (2007) and US EPA (1989). The toxicity of the samples was assessed by conducting 14 day exposure assays with the earthworm, *Eisenia fetida*. Assays were performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire.

Toxicity tests expose groups of organisms to environmental samples and laboratory controls for a specified period to assess potential impacts. Endpoints evaluated as part of the assays may include survival, growth, and/or reproduction. Analysis of variance techniques are used to determine if differences in a measured endpoint for organisms exposed to a test sample are significantly different from responses obtained from organisms exposed to field reference sites or laboratory control materials.

2.0 MATERIALS AND METHODS

2.1 General Methods, Biological Evaluations

Toxicological and analytical protocols used in this program follow procedures outlined in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition (APHA 1998), *Standard Guide For Conductiong Laboratory Soil Toxicity or Bioaccumulation Tests With the Lumbricid Earthworm Eisenia Fetida*, (ASTM 2007), and *Protocol for Short Term Toxicity Screening of Hazardous Waste Sites* (US EPA 1989). These protocols provide standard approaches for physical and chemical analysis and for the evaluation of toxicological effects of soils on terrestrial organisms.

2.2 Test Samples

Soil samples were provided by Tetra Tech NUS, Inc. staff of Wilmington, Massachusetts. Upon arrival at the laboratory, the samples were given an internal sample control number and logged into the project sample control system. Prior to testing, samples were placed in a secure refrigerator and stored at a temperature of 2-4°C until test initiation. Sample identification, collection and receipt information is summarized in Table 1.

2.3 Test Species

E. fetida were obtained from cultures maintained by EnviroSystems, Inc. The original source of the worms was Smith's Worm Supply, Boston, Georgia. *E. fetida* were cultured in a mixture of peat moss and organic compost. During culture worms were fed a mixture of corn meal, finely ground oat bran and commercially prepared "Starter Mash". Temperature during the culture and holding prior to testing was maintained at approximately 20°C. Worms used in the assays were adults with a well-developed clitellum.

2.4 *Eisenia fetida* 14 Day Survival and Growth Assay

The assays were carried out following protocol provided by ASTM (2007). The 14 day earthworm assay was conducted in static exposure mode. Endpoints for the assay were survival and growth, expressed as mean wet weight per surviving worm.

Samples were sieved through a 6.25 mm stainless steel screen to remove large stones, sticks, roots, and man-made material. Prior to testing, moisture content, total organic content and pH were determined for each sample. Target moisture content for the samples was 75%. If necessary, samples were either dried, at

room temperature, or hydrated, using deionized water to approximate the target moisture content. As received soil moisture and pH were measured prior to testing and adjusted as required.

Soil used as a laboratory control in the earthworm assay was an artificial soil prepared according to protocol developed by the EPA (1989). The soil consisted of 10% sphagnum peat moss, 20% kaolinite clay and 70% fine silica sand (200 mesh) by dry weight. The peat moss was blended and screened prior to use to break-up clods and remove any large sticks and twigs. The moisture content of the control soil was adjusted to approximately 75% using deionized water. The pH of the control soil was checked to insure values were within the range of 7.0±1 SU.

The assay utilized 4 replicates with 10 worms per replicate. Approximately 250 g of soil was added to each 500 mL glass jar. The jars were covered with translucent film, "Parafilm" with a hole of approximately 1.5 mm diameter in the top to allow for ventilation. Containers were placed in an incubator at 20 ±2°C. Lighting was set at 24 hours illumination. Light intensity was approximately 50 foot candles. During the exposure period, incubator temperature was checked daily for the duration of the assay. Temperature was also monitored on a hourly basis using a data logger housed in a surrogate test vessel. The worms were not fed during the assay.

Approximately 2 hours after placement of the worms in the test chambers general behavior was observed. Instances of worms not burrowing or actively attempting to avoid the sample were noted. After 14 days exposure, chambers were uncovered and the contents removed onto trays. Living worms were removed from the soil and counted. Once counted, the worms were rinsed with deionized water to remove soil particles and placed on moist filter paper for a 24 hour depuration period. After depuration worms were rinsed with deionized water, blotted dry and weighed. Weight data was used for statistical comparison of growth. After weight data was recorded the worms from each replicate were transferred to glass vials and stored frozen at approximately -18°C.

2.5 Statistical Analysis

Endpoints were analyzed using CETIS® (Comprehensive Environmental Toxicity Information System) software to determine significant differences between the test soils and the laboratory control soil. Data sets were evaluated using EPA Decision Tree protocol to select the most appropriate statistical model for analysis of the data. Statistical difference was evaluated at α=0.05. Statistical comparisons were made against the laboratory control treatment and project reference sites.

2.6 Quality Control

As part of the laboratory quality control program, reference toxicant evaluations are conducted on a regular basis by ESI for the test species. These results provide relative health and response data while allowing for comparison with historic data collected from ESI-conducted reference toxicity tests. Results of these tests are presented in Table 2.

2.7 Protocol Deviations

Review of data generated during these assays indicated one deviation from standard protocol methods or procedures. For approximately 11 hours during the assay temperatures in the test incubator exceeded the upper limit, 22°C, specified by ESI's SOP and method protocol. The temperature excursion was due to a malfunction in the incubator control unit. Once temperatures in the incubator exceeded the upper range for the method the unit shut down to minimize the excursion. As soon as the elevated temperature was noted, test chambers were transferred to an alternate incubator. The overall mean temperature during the assay was 20.3°C, which was within the limit of 20±2°C specified by the protocol. Temperatures ranged from 19.7 to 26.6°C. The excursion did not appear to impact the outcome of the assay.

3.0 RESULTS AND DISCUSSION

A summary of the physical and chemical characteristics of the test soils is provided in Table 3. Survival and growth data from the *E. fetida* assay are summarized in Tables 4 and 5, respectively. Support data including laboratory bench sheets are included in Appendix A.

3.1 *Eisenia fetida* 14 Day Survival and Growth Assay

At the end of the 14 day exposure period, the mean worm survival in the laboratory control soil was 100%. Worms recovered from the laboratory control soil had a mean wet weight of 587.3 mg/surviving worm. The minimum acceptability criteria for survival in the laboratory control is 90%. These data indicate that the organisms were healthy and not stressed by handling. The mean temperature recorded during the assay of 20.3°C was within the limit of 20±2°C specified by the protocol. Temperatures ranged from 19.7 to 26.6°C. Temperatures exceeded the upper limit for the protocol for a period of approximately 11 hours.

Observations made after the initial 2 hours of exposure showed all worms had burrowed into the soil samples. There were no signs of distressed test organisms.

Survival in the two samples sites, DA-SS152-011608 and DA-SS153-011608, identified as "Reference" sites at the end of the 14 day exposure period ranged from 87.5 to 92.5%. Mean survival in the project soils ranged from 80% to 97.5%.

3.2 Summary

Review of survival data as compared to laboratory control survival indicates that six of the site soils exhibited a significant negative impact on worm survival. All of the site soils and the two reference soils exhibited a significant negative impact on worm growth as compared to the laboratory control. However, statistical comparisons made against the two project reference sites documented only a few significant reductions in survival or growth in site soils.

4.0 REFERENCES

APHA. 1998. *Standard Methods for the Examination of Water and Wastewater,* 20th Edition.

ASTM. 2007. Volume 11.05. *Standard Guide for Conducting Laboratory Soil Toxicity or Bioaccumulation Tests With the Lumbricid Earthworm Eisenia Fetida.* E1676-97

US EPA. 1989. *Protocol for Short Term Toxicity Screening of Hazardous Waste Sites*. EPA/600/3-88/029.

TABLE 1. Summary of Sample Collection Information. *Eisenia fetida* Soil Evaluation. Naval Station Newport - Site 8 NVSCDA CTO-402 Ecological Risk Assessment. Tetra Tech NUS, Inc. January 2008.

Field ID	ESI Code	Matrix	Date Sampled		Date Received	
DA-SS104-011508	16770-001	Solid	01/15/08	1030	01/17/08	0731
DA-SS133-011508	16770-002	Solid	01/15/08	0845	01/17/08	0731
DA-SS127-011508	16770-003	Solid	01/15/08	0815	01/17/08	0731
DA-SS130-011508	16770-004	Solid	01/15/08	0935	01/17/08	0731
DA-SS103B-011508	16770-005	Solid	01/15/08	1400	01/17/08	0731
DA-SS108-011508	16770-006	Solid	01/15/08	1115	01/17/08	0731
DA-SS110B-011508	16770-007	Solid	01/15/08	1600	01/17/08	0731
DA-SS134-011508	16770-008	Solid	01/15/08	1525	01/17/08	0731
DA-SS152-011608	16770-009	Solid	01/16/08	0825	01/17/08	0731
DA-SS153-011608	16770-010	Solid	01/16/08	0920	01/17/08	0731
DA-SS105B-011608	16770-011	Solid	01/16/08	1015	01/17/08	0731

TABLE 2. Summary of Reference Toxicant Data. Naval Station Newport - Site 8 NVSCDA CTO-402 Ecological Risk Assessment. Tetra Tech NUS, Inc. January 2008.

Date	Endpoint		Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
Eisenia fetida						
01/31/08	Survival	LC-50	3162	2882	473 - 4401	Cadmium (mg/L)

TABLE 3. Summary of Soil Characteristics. *Eisenia fetida* Soil Evaluation. Naval Station Newport - Site 8 NVSCDA CTO-402 Ecological Risk Assessment. Tetra Tech NUS, Inc. January 2008.

Field ID	ESI Code	pH (SU)	Soil Moisture (%)	Total Organic Content* (%)
DA-SS104-011508	16770-001	5.21	15.1	2.85
DA-SS133-011508	16770-002	7.42	17.2	3.66
DA-SS127-011508	16770-003	7.73	9.8	0.87
DA-SS130-011508	16770-004	6.10	16.8	3.40
DA-SS103B-011508	16770-005	5.99	11.7	1.85
DA-SS108-011508	16770-006	6.73	10.7	1.04
DA-SS110B-011508	16770-007	6.07	16.0	2.82
DA-SS134-011508	16770-008	4.73	21.2	4.61
DA-SS152-011608	16770-009	4.53	21.6	5.00
DA-SS153-011608	16770-010	6.02	18.1	3.19
DA-SS105B-011608	16770-011	7.80	14.4	2.68

***** Total Organic Content measured by Loss on Ignition, ashing at 450°C

TABLE 4. Summary of Day 14 *Eisenia fetida* Survival. Naval Station Newport - Site 8 NVSCDA CTO-402 Ecological Risk Assessment. Tetra Tech NUS, Inc. January 2008.

Day 14 Survival Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	16770-000	4	100.0%	100.0%	100.0%	0.00%
DA-SS152-011608	16770-009	4	92.5%	90.0%	100.0%	5.41%
DA-SS153-011608	16770-010	4	87.5%	70.0%	100.0%	17.14%
DA-SS104-011508	16770-001	4	87.5%	80.0%	90.0%	5.71%
DA-SS133-011508	16770-002	4	92.5%	80.0%	100.0%	10.35%
DA-SS127-011508	16770-003	4	80.0%	70.0%	90.0%	10.21%
DA-SS130-011508	16770-004	4	87.5%	50.0%	100.0%	28.57%
DA-SS103B-011508	16770-005	4	87.5%	80.0%	100.0%	10.94%
DA-SS108-011508	16770-006	4	80.0%	60.0%	90.0%	17.68%
DA-SS110B-011508	16770-007	4	80.0%	50.0%	100.0%	27.00%
DA-SS134-011508	16770-008	4	85.0%	70.0%	100.0%	15.19%
DA-SS105B-011608	16770-011	4	97.5%	90.0%	100.0%	5.13%

Day 14 Survival Statistical Analysis

Field ID	ESI Code	Mean	Statistically Significant Difference as Compared to Lab Control		DA-SS152 16770-009		DA-SS153 16770-010	
			p Value		p Value		p Value	
Lab Control	16770-000	100.0%	-	-	-	-	-	-
DA-SS152-011608	16770-009	92.5%	0.0571	NO	-	-	-	-
DA-SS153-011608	16770-010	87.5%	0.0949	NO	0.3123	NO	-	-
DA-SS104-011508	16770-001	87.5%	0.0143	YES	0.1040	NO	0.4427	NO
DA-SS133-011508	16770-002	92.5%	0.0813	NO	0.5240	NO	0.6811	NO
DA-SS127-011508	16770-003	80.0%	0.0007	YES	0.0192	YES	0.1830	NO
DA-SS130-011508	16770-004	87.5%	0.3429	NO	0.6571	NO	0.5498	NO
DA-SS103B-011508	16770-005	87.5%	0.0187	YES	0.2133	NO	0.4654	NO
DA-SS108-011508	16770-006	80.0%	0.0075	YES	0.0645	NO	0.2314	NO
DA-SS110B-011508	16770-007	80.0%	0.0428	YES	0.1593	NO	0.3047	NO
DA-SS134-011508	16770-008	85.0%	0.0251	YES	0.1772	NO	0.3909	NO
DA-SS105B-011608	16770-011	97.5%	0.3429	NO	0.8965	NO	0.8667	NO

TABLE 5. Summary of Day 14 *Eisenia fetida* Wet Weight Data. Naval Station Newport - Site 8 NVSCDA CTO-402 Ecological Risk Assessment. Tetra Tech NUS, Inc. January 2008.

Day 14 Wet Weight Summary (mg/worm)

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	16770-000	4	587.3	496.6	698.0	15.66%
DA-SS152-011608	16770-009	4	367.5	285.3	467.7	23.60%
DA-SS153-011608	16770-010	4	264.7	222.8	322.7	17.94%
DA-SS104-011508	16770-001	4	354.3	243.3	398.4	20.95%
DA-SS133-011508	16770-002	4	376.5	310.6	412.6	12.17%
DA-SS127-011508	16770-003	4	291.0	241.8	329.6	14.78%
DA-SS130-011508	16770-004	4	383.3	194.4	477.1	34.77%
DA-SS103B-011508	16770-005	4	376.1	289.0	429.2	17.60%
DA-SS108-011508	16770-006	4	265.5	148.5	389.3	40.05%
DA-SS110B-011508	16770-007	4	300.3	234.4	405.0	24.96%
DA-SS134-011508	16770-008	4	278.6	223.7	331.7	17.63%
DA-SS105B-011608	16770-011	4	235.1	189.6	257.5	13.43%

Day 14 Wet Weight Statistical Analysis

Field ID	ESI Code	Mean	Statistically Significant Difference as Compared to Lab Control		DA-SS152 16770-009		DA-SS153 16770-010	
			p Value		p Value		p Value	
Lab Control	16770-000	587.3	-	-	-	-	-	-
DA-SS152-011608	16770-009	367.5	0.0066	YES	-	-	-	-
DA-SS153-011608	16770-010	264.7	0.0004	YES	0.0414	YES	-	-
DA-SS104-011508	16770-001	354.3	0.0038	YES	0.4122	NO	0.9559	NO
DA-SS133-011508	16770-002	376.5	0.0032	YES	0.5696	NO	0.9926	NO
DA-SS127-011508	16770-003	291.0	0.0006	YES	0.0825	NO	0.7785	NO
DA-SS130-011508	16770-004	383.3	0.0227	YES	0.5755	NO	0.9277	NO
DA-SS103B-011508	16770-005	376.1	0.0049	YES	0.5597	NO	0.9830	NO
DA-SS108-011508	16770-006	265.5	0.0019	YES	0.0938	NO	0.5054	NO
DA-SS110B-011508	16770-007	300.3	0.0014	YES	0.1426	NO	0.7735	NO
DA-SS134-011508	16770-008	278.6	0.0005	YES	0.0623	NO	0.6509	NO
DA-SS105B-011608	16770-011	235.1	0.0002	YES	0.0142	YES	0.1694	NO

APPENDIX A: RAW DATA AND STATISTICAL SUPPORT

Contents	Number of Pages
E. fetida Daily Temperature Data and Observations	1
E. fetida 14 Day Recovery Bench Sheets	3
E. fetida 14 Day Wet Weight Bench Sheet	1
Survival and Growth Statistical Analysis Report	64
Soil pH	1
Soil Moisture and Organic Content Date	1
Temperature Profile	1
Sample Receipt Record	1
Chain of Custody	1
Total Appendix Pages	74

Eisenia fetida Survival Assay

STUDY NUMBER: 16770 **CLIENT:** Tetra Tech

START DATE: 1/30/08 **PROJECT:**

DAY	DATE	TEMP (°C) INC # 5	INITIALS	GENERAL OBSERVATIONS
0	1/30/08	20	RAM	Starting to burrow
1	1/31	21	RAM	all burrowed
2	2/1	20	DM	
3	2/2	20	RAM	
4	2/3	20	DM	
5	2/4	21	SJ	
6	2/5	20	UB	
7	2/6/08	20	BB	
8	2/7/08	20	UB	
9	2/8/08	20	RAM	
10	2/9/08	20	RAM	
11	2/10/08	20	SJ	
12	2/11/08	20	UB	
13	2/12/08	20	BB	
14	2/13/08	20	DM	

NOTES:

Value recorded here is incubator temperature. "Telatemp" unit is continuously recording vessel temperature.

1/30/08
DM -002 contained 1 worm before the start
-004 contained 1 grub before the start
* Both were removed

Day 3 Incubator not working properly, samples were moved into a new incubator

Copy

Eisenia fetida Survival Assay

STUDY NUMBER: 16770 **CLIENT:** Tetra Tech

DAY 14

SAMPLE ID	TIME	# LIVE	COMMENTS
Lab A	1600	10	
Lab B		10	
Lab C		10	
Lab D	1610	10	
-001 A	1720	9	
-001 B		9	
-001 C		9	
-001 D		8	
-002 A		10	
-002 B		8	
-002 C		10	
-002 D		9	
-003 A		9	
-003 B		8	
-003 C		7	
-003 D	1800	8	

ANALYST: RAM

DATE: 2/13/08

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Eisenia fetida Survival Assay

STUDY NUMBER: 16770 **CLIENT:** Tetra Tech

DAY 14

SAMPLE ID	TIME	# LIVE	COMMENTS
-004 A	1735	10	
-004 B	1738	10	
-004 C	1740	10	
-004 D	1742	~~6~~ 5	
-005 A	1744	9	
-005 B	1746	~~10~~ 8	
-005 C	1748	10	
-005 D	1756	8	
-006 A	1752	9	
-006 B	1754	9	
-006 C	1756	8	
-006 D	1758	6	
-007 A	1800	8	
-007 B	1802	9	
-007 C	1802	5	
-007 D	1805	10	

ANALYST: DM

DATE: 2/13/08

Copy

Eisenia fetida Survival Assay

STUDY NUMBER: 16770 **CLIENT:** Tetra Tech

DAY 14

SAMPLE ID	TIME	# LIVE	COMMENTS
-008 A	1725	9	
-008 B	1729	8	
-008 C	1733	10	
-008 D	1735	7	
-009 A	1715	9	1 tiny scrub in soil
-009 B	1718	9	
-009 C	1720	10	
-009 D	1721	9	
-010 A	1700	10	
-010 B	1704	7	
-010 C	1708	8	
-010 D	1712	10	
-011 A	1610 RAM 2/13/08 +6 E3	10	
-011 B		10	
-011 C		9	
-91 D		10	

ANALYST: NM

DATE: 2/13/08

Eisenia fetida 14 Day Survival and Growth Assay

STUDY NUMBER: 16770 Copy **CLIENT:** TetraTech

WET WEIGHT DATA:

Sample Identification	Rep	Wet Weight (g)	Sample Identification	Rep	Wet Weight (g)
Lab	A	4.966	-008	A	3.317
	B	6.980 (E3) RAM 2/14/08		B	2.530
	C	5.289 (E3)		C	3.060
	D	6.257		D	2.237
-001	A	3.907	-009	A	3.056
	B	3.848		B	2.853
	C	3.984		C	4.115
	D	2.433		D	4.677
-002	A	4.017	-010	A	2.291 (E3)
	B	3.106		B	2.228 2/14 RAM
	C	3.811		C	3.227 (E3)
	D	4.126		D	(E3) ~~2.553~~ 2.842
-003	A	3.244	-011	A	1.896
	B	3.296		B	2.575
	C	2.418		C	2.379
	D	2.682		D	2.553
-004	A	3.847		A	
	B	4.771		B	
	C	4.771		C	
	D	1.944		D	
-005	A	3.602		A	
	B	2.890		B	
	C	4.292		C	
	D	4.259		D	
-006	A	3.893		A	
	B	3.116		B	
	C	1.485		C	
	D	2.127		D	
-007	A	2.609		A	
	B	3.009		B	
	C	2.344		C	
	D	4.050		D	
INITIALS:		RAM			RAM
DATE:		2/14/08			2/14/08

CETIS Test Summary

Report Date: 15 Feb-08 2:04 PM
Link: 09-8312-8831

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Sample No:	07-0887-4007	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Feb-08 01:24 PM	**Code:**	16770-000	**Project:**	Ecological Risk Assessment
Receive Date:		**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	N/A	**Station:**	Lab Control 16770-000		

Sample No:	02-5772-0444	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 10:30 AM	**Code:**	16770-001	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	15d 1h	**Station:**	DA-SS104-011508; 16770-001		

Sample No:	03-7344-2218	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 08:45 AM	**Code:**	16770-002	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	15d 3h	**Station:**	DA-SS133-011508; 16770-002		

Sample No:	16-8216-9978	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 08:15 AM	**Code:**	16770-003	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	15d 3h	**Station:**	DA-SS127-011508; 16770-003		

Sample No:	10-5712-3965	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 09:35 AM	**Code:**	16770-004	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	15d 2h	**Station:**	DA-SS130-011508; 16770-004		

Sample No:	11-9106-6653	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 02:00 PM	**Code:**	16770-005	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	14d 22h	**Station:**	DA-SS103B-011508; 16770-005		

Sample No:	12-9685-8036	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 11:15 AM	**Code:**	16770-006	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	15d 0h	**Station:**	DA-SS108-011508; 16770-006		

Sample No:	00-6295-5885	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 04:00 PM	**Code:**	16770-007	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	14d 20h	**Station:**	DA-SS110B-011508; 16770-007		

Sample No:	12-2243-8437	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 03:25 PM	**Code:**	16770-008	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	14d 20h	**Station:**	DA-SS134-011508; 16770-008		

Sample No:	16-8441-1872	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	16 Jan-08 08:25 AM	**Code:**	16770-009	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	14d 3h	**Station:**	DA-SS152-011608; 16770-009		

Sample No:	02-6316-0289	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	16 Jan-08 09:20 AM	**Code:**	16770-010	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	14d 2h	**Station:**	DA-SS153-011608; 16770-010		

CETIS Test Summary

Report Date: 15 Feb-08 2:04 PM
Link: 09-8312-8831

Sample No:	01-5040-9607	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	16 Jan-08 10:15 AM	**Code:**	16770-011	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA S		
Sample Age:	14d 1h	**Station:**	DA-SS105B-011608; 16770-011		

Proportion Survived Summary

Sample Code	Reps	Mean	Minimum	Maximum	SE	SD	CV
16770-000	4	1.00000	1.00000	1.00000	0.00000	0.00000	0.00%
16770-009	4	0.92500	0.90000	1.00000	0.02500	0.05000	5.41%
16770-010	4	0.87500	0.70000	1.00000	0.07500	0.15000	17.14%
16770-001	4	0.87500	0.80000	0.90000	0.02500	0.05000	5.71%
16770-002	4	0.92500	0.80000	1.00000	0.04787	0.09574	10.35%
16770-003	4	0.80000	0.70000	0.90000	0.04082	0.08165	10.21%
16770-004	4	0.87500	0.50000	1.00000	0.12500	0.25000	28.57%
16770-005	4	0.87500	0.80000	1.00000	0.04787	0.09574	10.94%
16770-006	4	0.80000	0.60000	0.90000	0.07071	0.14142	17.68%
16770-007	4	0.80000	0.50000	1.00000	0.10801	0.21602	27.00%
16770-008	4	0.85000	0.70000	1.00000	0.06455	0.12910	15.19%
16770-011	4	0.97500	0.90000	1.00000	0.02500	0.05000	5.13%

Proportion Survived Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4
16770-000	1.00000	1.00000	1.00000	1.00000
16770-009	0.90000	0.90000	1.00000	0.90000
16770-010	1.00000	0.70000	0.80000	1.00000
16770-001	0.90000	0.90000	0.90000	0.80000
16770-002	1.00000	0.80000	1.00000	0.90000
16770-003	0.90000	0.80000	0.70000	0.80000
16770-004	1.00000	1.00000	1.00000	0.50000
16770-005	0.90000	0.80000	1.00000	0.80000
16770-006	0.90000	0.90000	0.80000	0.60000
16770-007	0.80000	0.90000	0.50000	1.00000
16770-008	0.90000	0.80000	1.00000	0.70000
16770-011	1.00000	1.00000	0.90000	1.00000

CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Mann-Whitney U	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	1.00000	13.74502	0.35592	Equal Variances
Distribution	Shapiro-Wilk W	0.70640	0.74935	0.00324	Non-normal Distribution

ANOVA Table

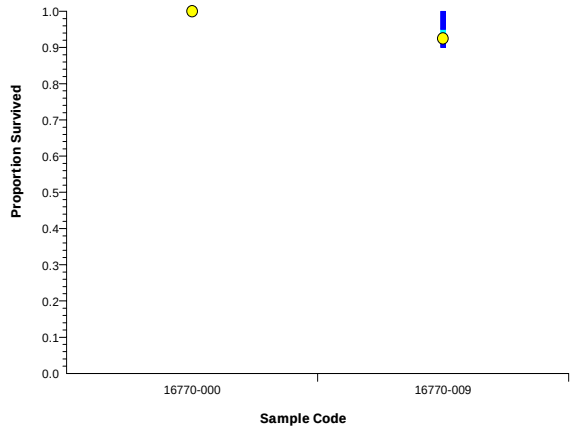
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0298793	0.0298793	1	9.00	0.02401	Significant Effect
Error	0.0199195	0.0033199	6			
Total	0.04979875	0.0331992	7			

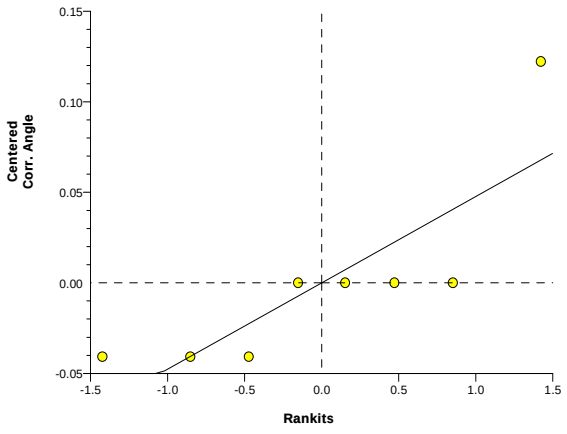
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	Ties	Decision(0.05)
16770-000		16770-009	14		0.0571	2	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Unequal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	39.14618	13.74502	0.00077	Unequal Variances
Distribution	Shapiro-Wilk W	0.89103	0.74935	0.22944	Normal Distribution

ANOVA Table

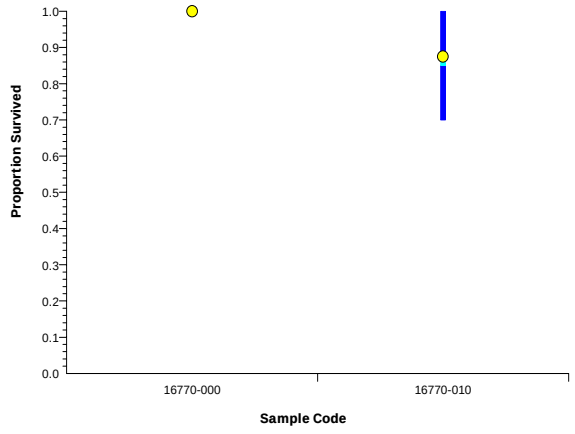
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.065835	0.065835	1	2.85	0.14210	Non-Significant Effect
Error	0.138397	0.0230662	6			
Total	0.20423193	0.0889011	7			

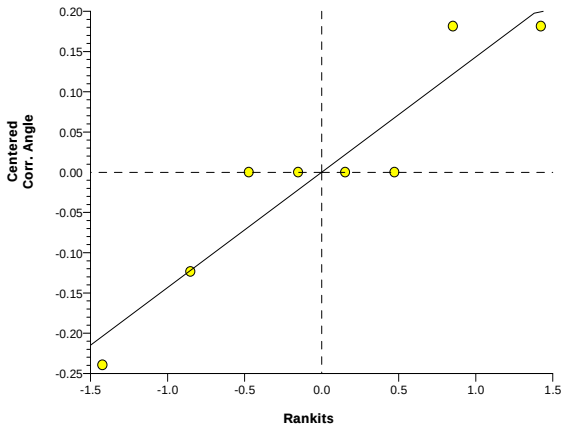
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-010	1.68943	2.35336	0.0949	0.25273	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Mann-Whitney U	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	1.00000	13.74502	0.35592	Equal Variances
Distribution	Shapiro-Wilk W	0.70640	0.74935	0.00324	Non-normal Distribution

ANOVA Table

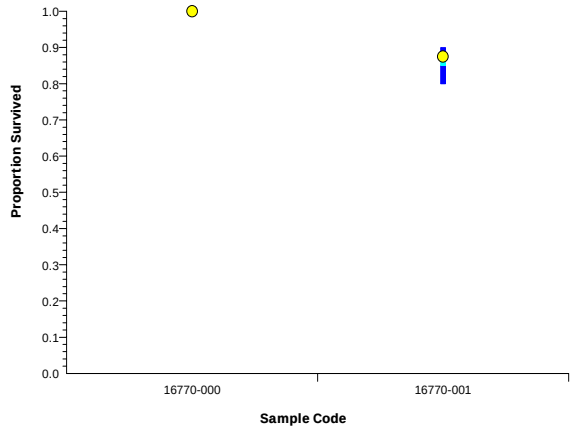
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0787605	0.0787605	1	31.29	0.00139	Significant Effect
Error	0.0151011	0.0025168	6			
Total	0.09386160	0.0812774	7			

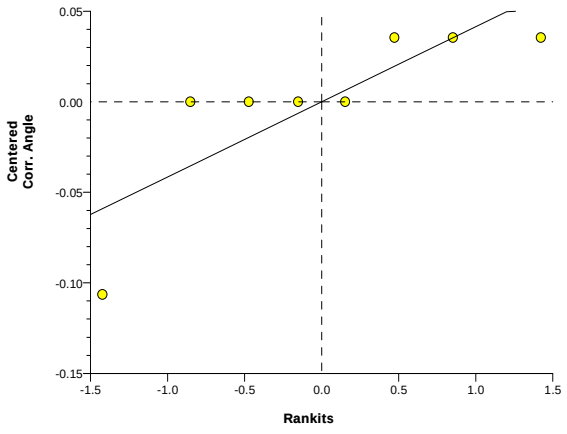
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	Ties	Decision(0.05)
16770-000		16770-001	16		0.0143	2	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-001	4	0.87500	0.80000	0.90000	0.05000	1.21357	1.10715	1.24905	0.07095

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	10.87036	13.74502	0.01647	Equal Variances
Distribution	Shapiro-Wilk W	0.86021	0.74935	0.12247	Normal Distribution

ANOVA Table

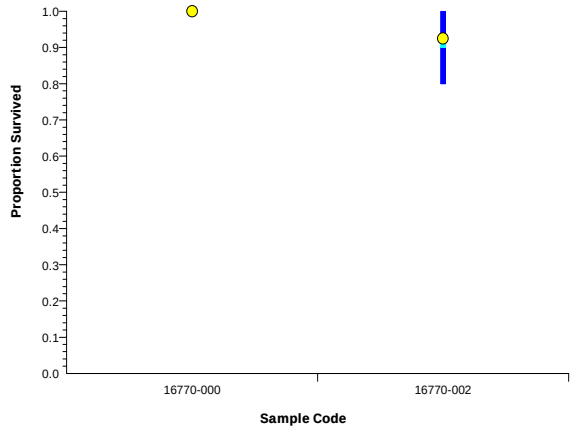
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0273590	0.0273590	1	2.53	0.16254	Non-Significant Effect
Error	0.0647854	0.0107976	6			
Total	0.09214444	0.0381566	7			

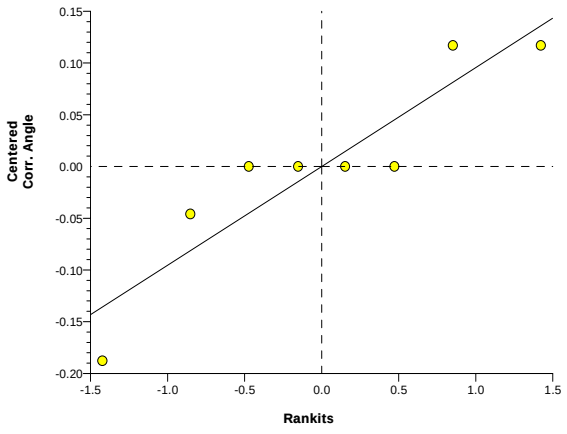
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-002	1.5918	1.94318	0.0813	0.14278	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-002	4	0.92500	0.80000	1.00000	0.09574	1.29506	1.10715	1.41202	0.14695

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	2.94066	13.74502	0.13720	Equal Variances
Distribution	Shapiro-Wilk W	0.75884	0.74935	0.01264	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.1780746	0.1780746	1	31.97	0.00131	Significant Effect
Error	0.0334212	0.0055702	6			
Total	0.21149575	0.1836448	7			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-003	5.65413	1.94318	0.0007	0.10255	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-003	4	0.80000	0.70000	0.90000	0.08165	1.11362	0.99116	1.24905	0.10555

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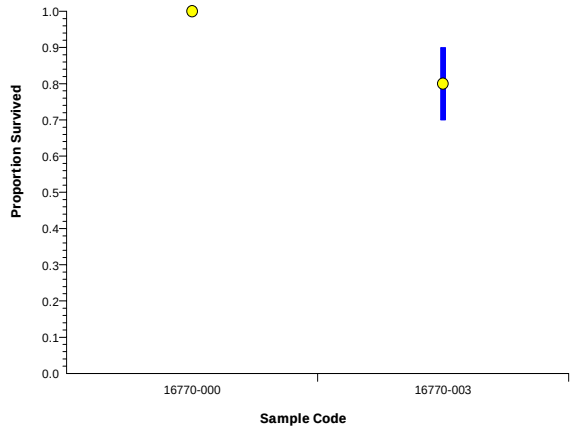
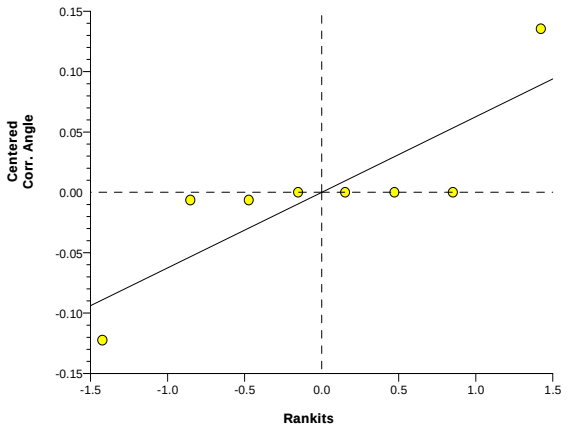




CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 2:00 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Mann-Whitney U	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	1.00000	13.74502	0.35592	Equal Variances
Distribution	Shapiro-Wilk W	0.70640	0.74935	0.00324	Non-normal Distribution

ANOVA Table

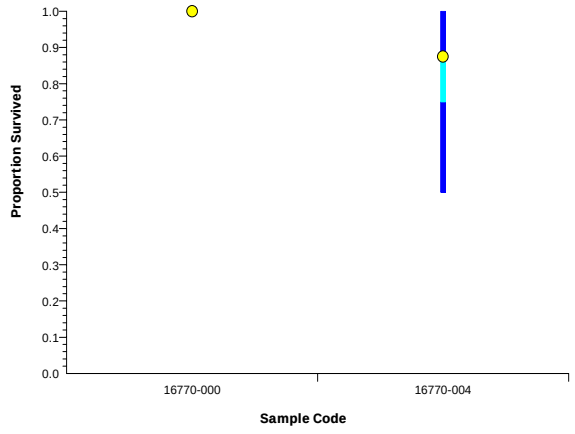
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0490813	0.0490813	1	1.00	0.35592	Non-Significant Effect
Error	0.2944875	0.0490813	6			
Total	0.34356879	0.0981625	7			

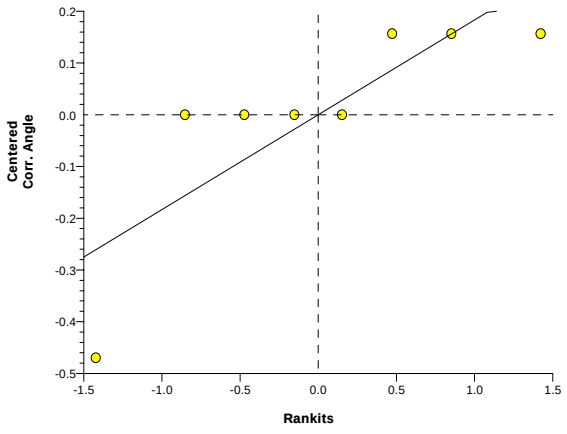
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	Ties	Decision(0.05)
16770-000		16770-004	10		0.3429	1	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-004	4	0.87500	0.50000	1.00000	0.25000	1.25536	0.78540	1.41202	0.31331

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	7.51519	13.74502	0.03367	Equal Variances
Distribution	Shapiro-Wilk W	0.83295	0.74935	0.06876	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0746342	0.0746342	1	7.09	0.03741	Significant Effect
Error	0.0631793	0.0105299	6			
Total	0.13781343	0.0851640	7			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-005	2.66230	1.94318	0.0187	0.141	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-005	4	0.87500	0.80000	1.00000	0.09574	1.21884	1.10715	1.41202	0.14512

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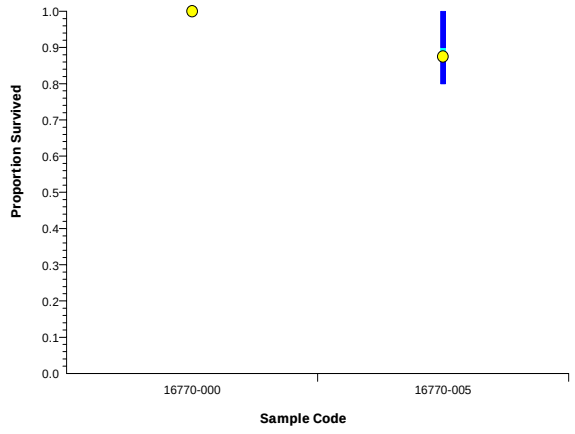
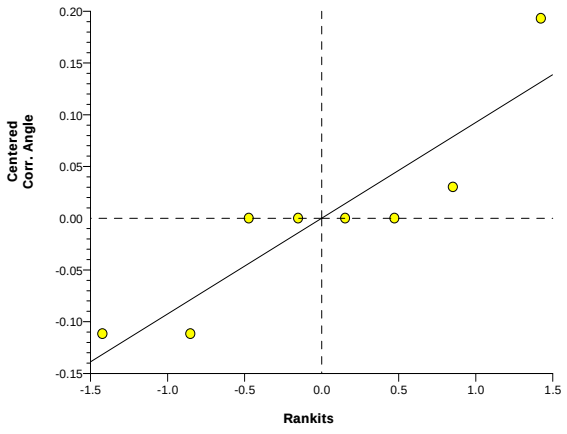




CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	5.21538	13.74502	0.06248	Equal Variances
Distribution	Shapiro-Wilk W	0.79396	0.74935	0.02895	Normal Distribution

ANOVA Table

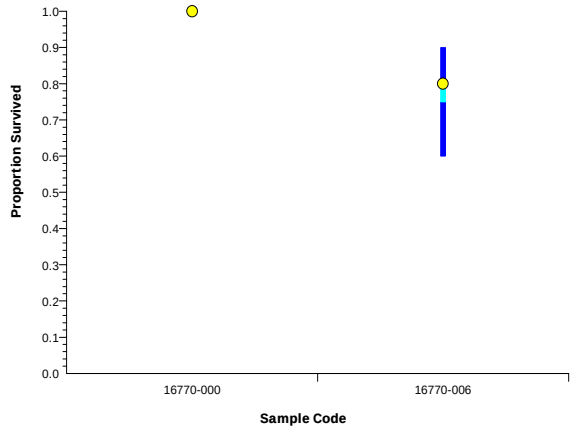
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.167258	0.167258	1	11.38	0.01497	Significant Effect
Error	0.0881587	0.0146931	6			
Total	0.25541663	0.1819511	7			

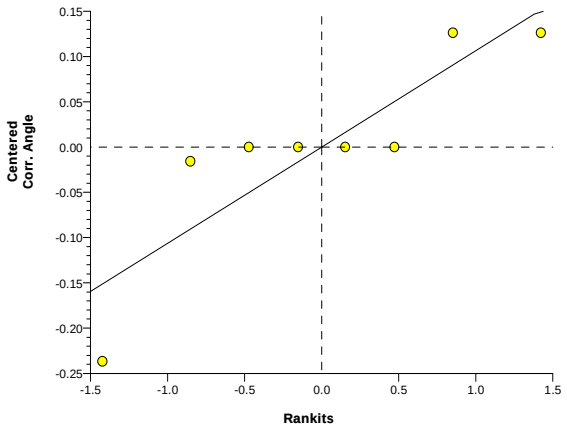
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-006	3.37393	1.94318	0.0075	0.16655	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-006	4	0.80000	0.60000	0.90000	0.14142	1.12283	0.88608	1.24905	0.17142

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	6.20880	13.74502	0.04705	Equal Variances
Distribution	Shapiro-Wilk W	0.84573	0.74935	0.09036	Normal Distribution

ANOVA Table

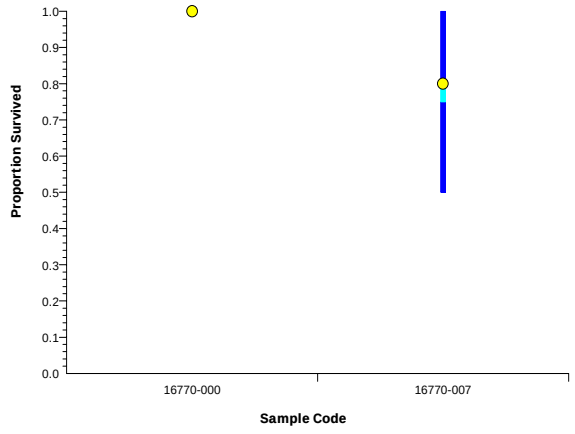
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.1497292	0.1497292	1	4.22	0.08563	Non-Significant Effect
Error	0.2126952	0.0354492	6			
Total	0.36242436	0.1851784	7			

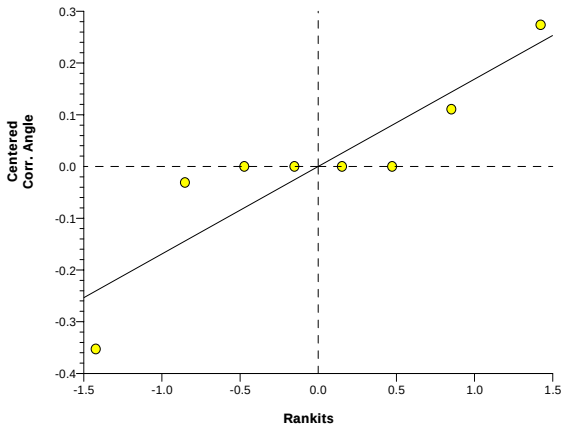
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-007	2.05518	1.94318	0.0428	0.25870	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-007	4	0.80000	0.50000	1.00000	0.21602	1.13840	0.78540	1.41202	0.26627

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:41 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	11.55344	13.74502	0.01451	Equal Variances
Distribution	Shapiro-Wilk W	0.90502	0.74935	0.30200	Normal Distribution

ANOVA Table

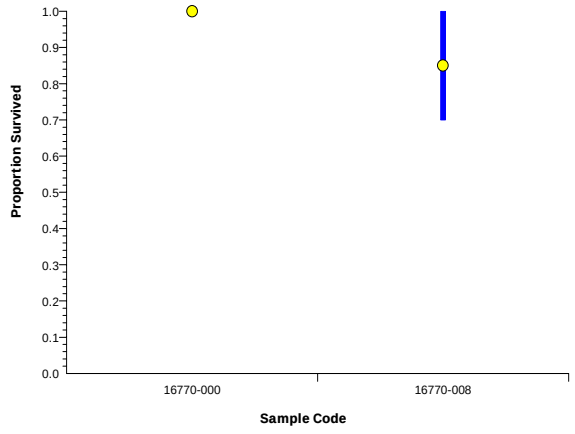
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0987229	0.0987229	1	5.97	0.05021	Non-Significant Effect
Error	0.0991805	0.0165301	6			
Total	0.19790335	0.1152529	7			

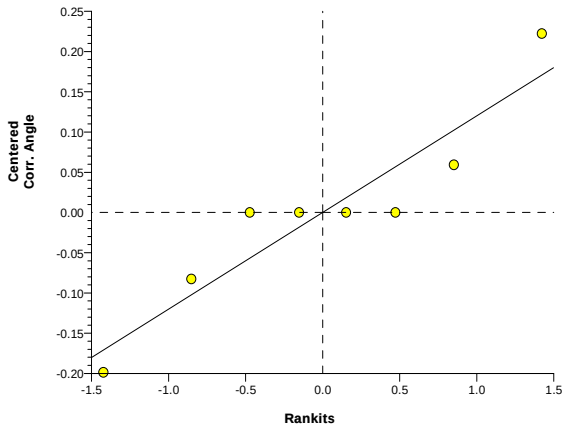
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-008	2.44383	1.94318	0.0251	0.17666	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-008	4	0.85000	0.70000	1.00000	0.12910	1.18984	0.99116	1.41202	0.18182

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:42 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Mann-Whitney U	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Modified Levene	1.00000	13.74502	0.35592	Equal Variances
Distribution	Shapiro-Wilk W	0.70640	0.74935	0.00324	Non-normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0033199	0.0033199	1	1.00	0.35592	Non-Significant Effect
Error	0.0199195	0.0033199	6			
Total	0.02323941	0.0066398	7			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	Ties	Decision(0.05)
16770-000		16770-011	10		0.3429	1	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00027
16770-011	4	0.97500	0.90000	1.00000	0.05000	1.37127	1.24905	1.41202	0.08149

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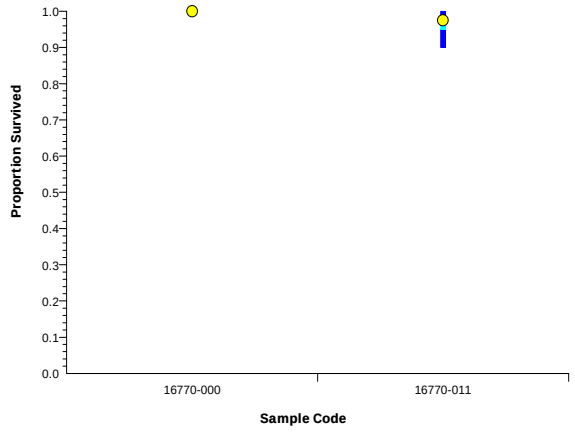
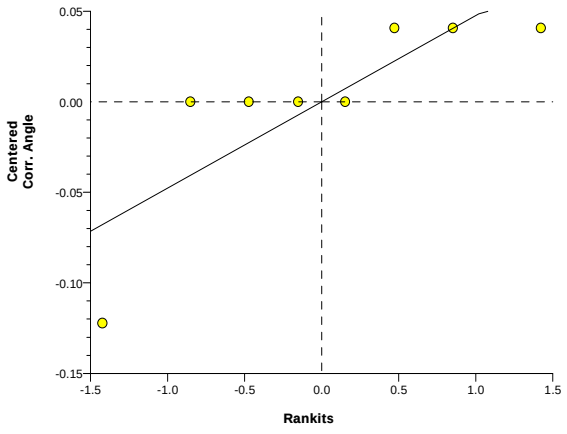




CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	6.94781	47.46723	0.14568	Equal Variances
Distribution	Shapiro-Wilk W	0.91003	0.74935	0.33261	Normal Distribution

ANOVA Table

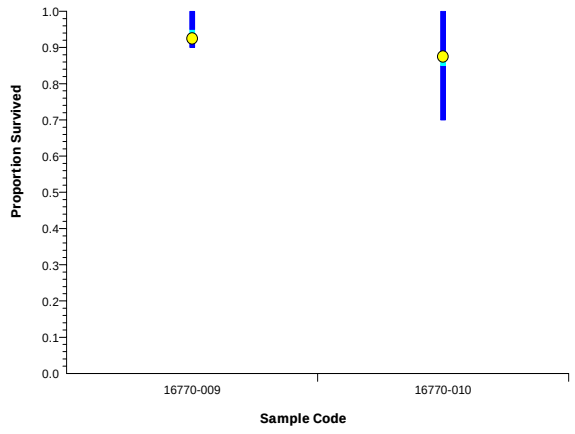
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0070102	0.0070102	1	0.27	0.62468	Non-Significant Effect
Error	0.1583165	0.0263861	6			
Total	0.1653267	0.0333963	7			

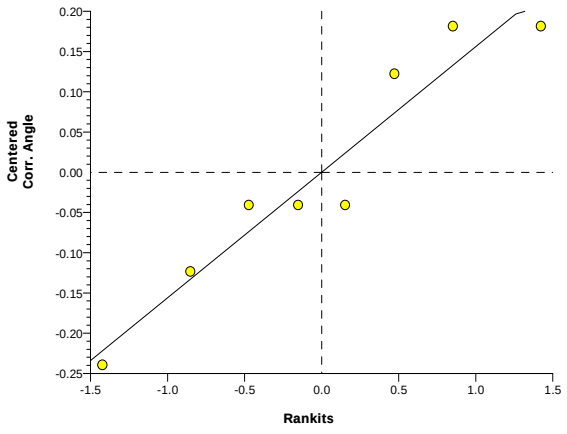
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-010	0.51544	1.94318	0.3123	0.2232	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.31908	47.46723	0.82537	Equal Variances
Distribution	Shapiro-Wilk W	0.92573	0.74935	0.44624	Normal Distribution

ANOVA Table

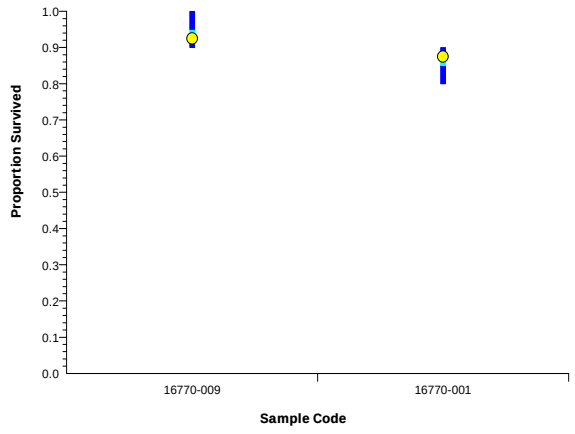
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0116180	0.0116180	1	1.99	0.20797	Non-Significant Effect
Error	0.0350206	0.0058368	6			
Total	0.04663859	0.0174548	7			

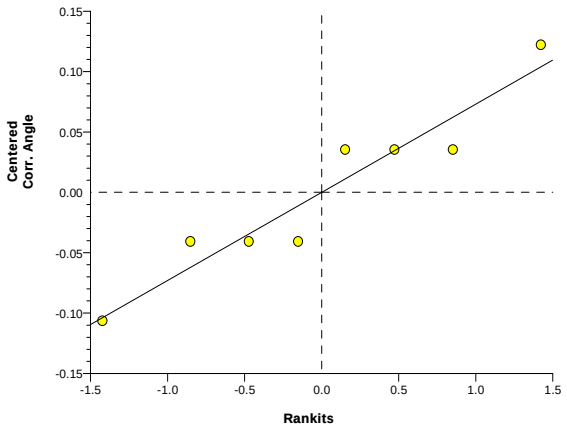
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-001	1.41085	1.94318	0.1040	0.10497	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-001	4	0.87500	0.80000	0.90000	0.05000	1.21357	1.10715	1.24905	0.07095

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.25236	47.46723	0.35862	Equal Variances
Distribution	Shapiro-Wilk W	0.84001	0.74935	0.08001	Normal Distribution

ANOVA Table

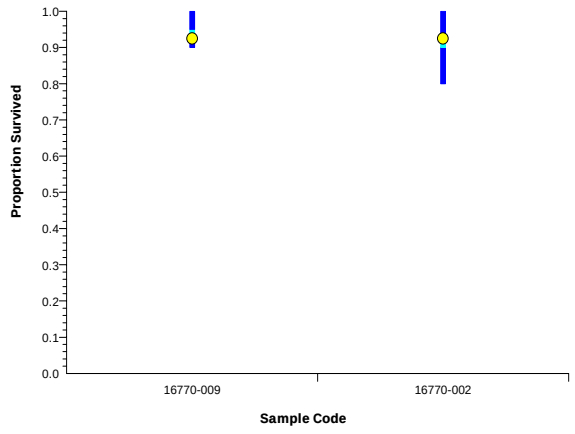
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	5.551E-05	5.551E-05	1	0.00	0.95204	Non-Significant Effect
Error	0.0847049	0.0141175	6			
Total	0.08476043	0.014173	7			

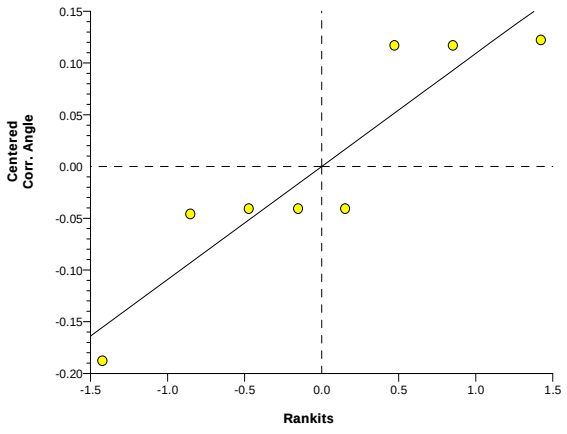
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-002	-0.0627	1.94318	0.5240	0.16326	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-002	4	0.92500	0.80000	1.00000	0.09574	1.29506	1.10715	1.41202	0.14695

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.67781	47.46723	0.68119	Equal Variances
Distribution	Shapiro-Wilk W	0.87090	0.74935	0.15276	Normal Distribution

ANOVA Table

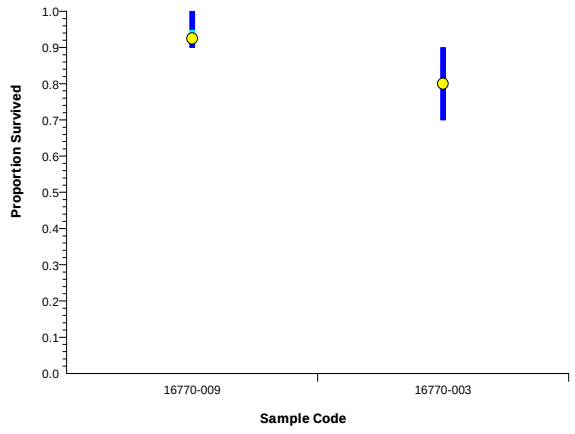
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0620671	0.0620671	1	6.98	0.03842	Significant Effect
Error	0.0533407	0.0088901	6			
Total	0.11540777	0.0709572	7			

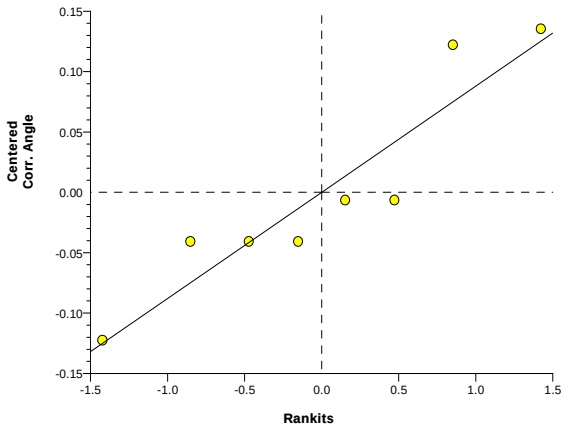
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-003	2.64227	1.94318	0.0192	0.12955	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-003	4	0.80000	0.70000	0.90000	0.08165	1.11362	0.99116	1.24905	0.10555

Graphics





CETIS Analysis Detail

Comparisons:
Report Date: 15 Feb-08 2:02 PM
Analysis: 15-3288-4198

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 2:02 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Mann-Whitney U	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	14.78388	47.46723	0.05310	Equal Variances
Distribution	Shapiro-Wilk W	0.74888	0.74935	0.00988	Non-normal Distribution

ANOVA Table

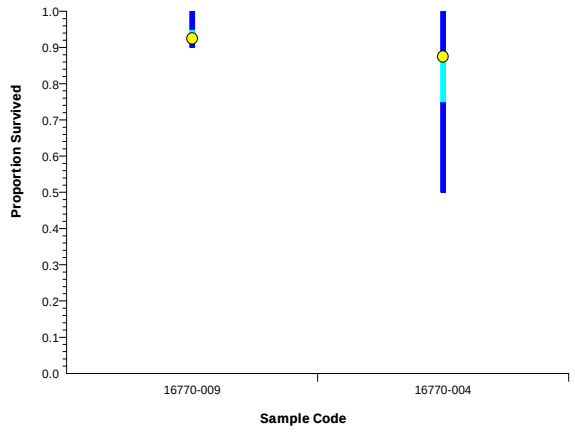
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0023704	0.0023704	1	0.05	0.83861	Non-Significant Effect
Error	0.3144071	0.0524012	6			
Total	0.31677745	0.0547716	7			

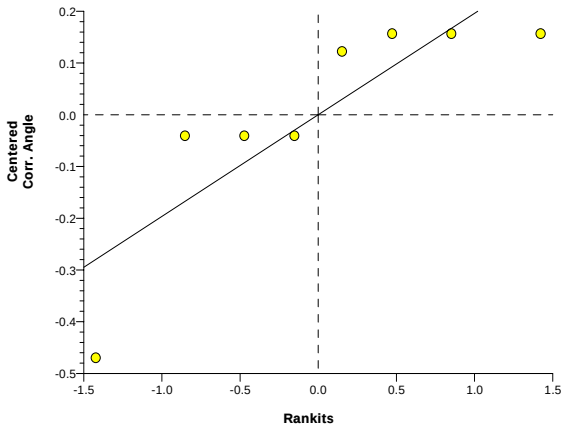
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	Ties	Decision(0.05)
16770-009		16770-004	5.5		0.6571	2	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-004	4	0.87500	0.50000	1.00000	0.25000	1.25536	0.78540	1.41202	0.31331

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.17173	47.46723	0.36847	Equal Variances
Distribution	Shapiro-Wilk W	0.88302	0.74935	0.19544	Normal Distribution

ANOVA Table

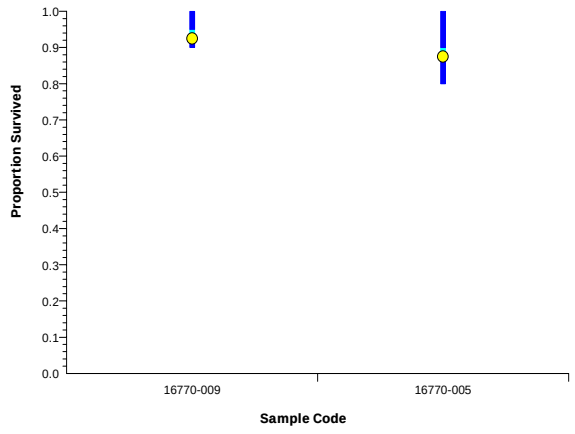
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0100674	0.0100674	1	0.73	0.42661	Non-Significant Effect
Error	0.0830988	0.0138498	6			
Total	0.09316617	0.0239172	7			

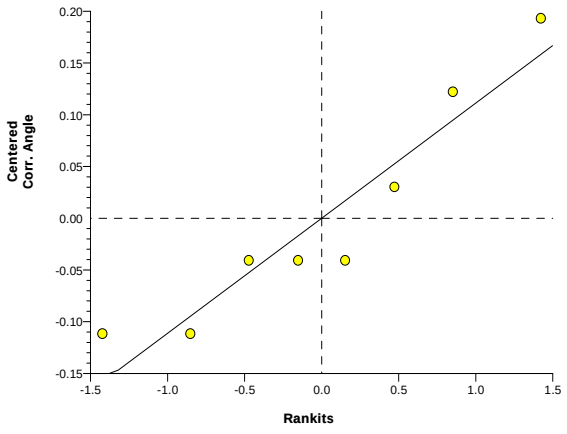
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-005	0.85258	1.94318	0.2133	0.16170	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-005	4	0.87500	0.80000	1.00000	0.09574	1.21884	1.10715	1.41202	0.14512

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.42575	47.46723	0.25327	Equal Variances
Distribution	Shapiro-Wilk W	0.84558	0.74935	0.09009	Normal Distribution

ANOVA Table

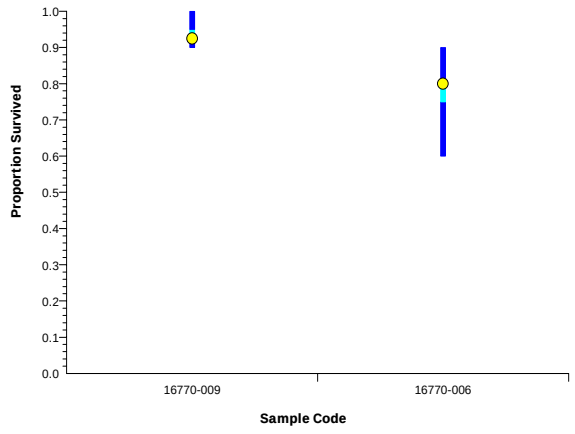
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0557506	0.0557506	1	3.10	0.12903	Non-Significant Effect
Error	0.1080782	0.0180130	6			
Total	0.16382879	0.0737637	7			

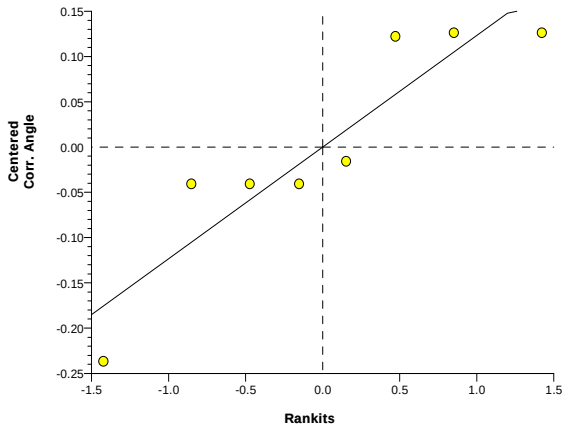
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-006	1.75927	1.94318	0.0645	0.18441	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-006	4	0.80000	0.60000	0.90000	0.14142	1.12283	0.88608	1.24905	0.17142

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	10.67774	47.46723	0.08286	Equal Variances
Distribution	Shapiro-Wilk W	0.90063	0.74935	0.27728	Normal Distribution

ANOVA Table

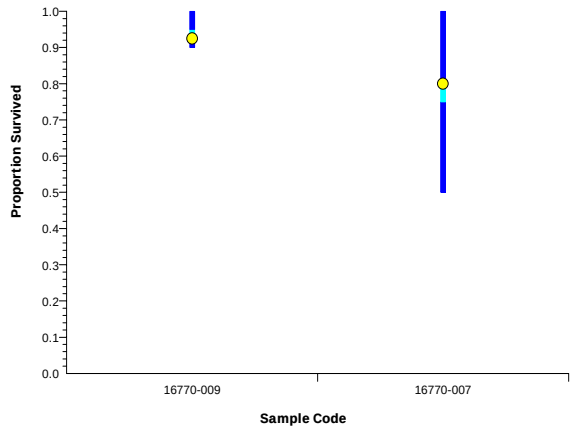
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0458355	0.0458355	1	1.18	0.31863	Non-Significant Effect
Error	0.2326147	0.0387691	6			
Total	0.27845024	0.0846047	7			

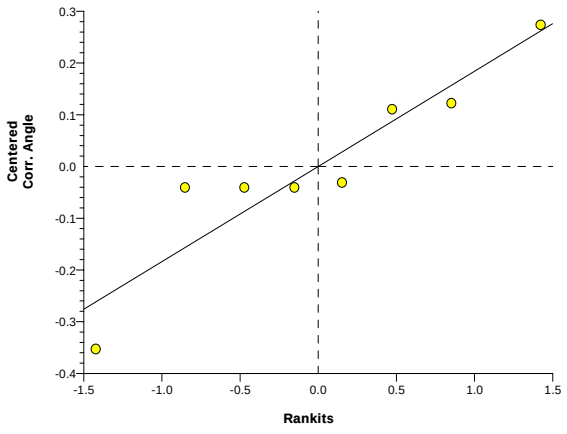
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-007	1.08732	1.94318	0.1593	0.27055	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-007	4	0.80000	0.50000	1.00000	0.21602	1.13840	0.78540	1.41202	0.26627

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.97907	47.46723	0.22021	Equal Variances
Distribution	Shapiro-Wilk W	0.95334	0.74935	0.71061	Normal Distribution

ANOVA Table

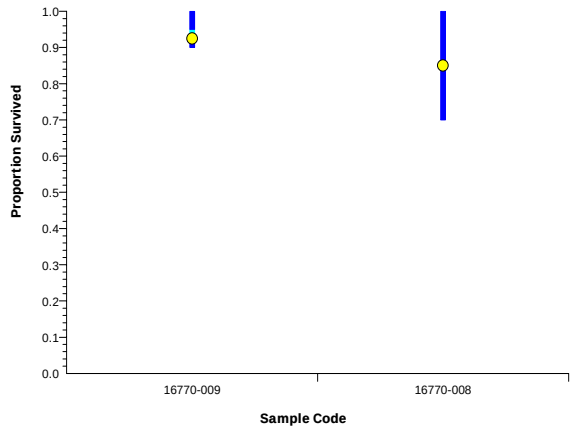
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0199786	0.0199786	1	1.01	0.35448	Non-Significant Effect
Error	0.1191	0.01985	6			
Total	0.13907863	0.0398286	7			

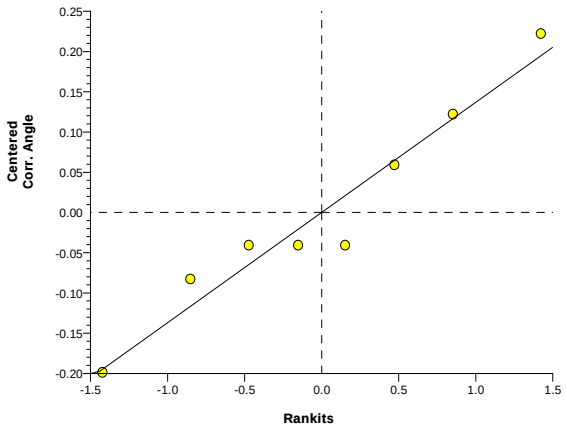
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-008	1.00324	1.94318	0.1772	0.19359	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-008	4	0.85000	0.70000	1.00000	0.12910	1.18984	0.99116	1.41202	0.18182

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:44 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.00000	47.46723	1.00000	Equal Variances
Distribution	Shapiro-Wilk W	0.93016	0.74935	0.48335	Normal Distribution

ANOVA Table

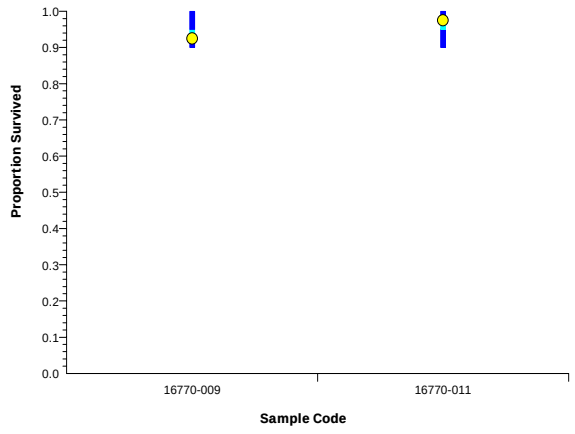
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0132797	0.0132797	1	2.00	0.20703	Non-Significant Effect
Error	0.039839	0.0066398	6			
Total	0.05311866	0.0199195	7			

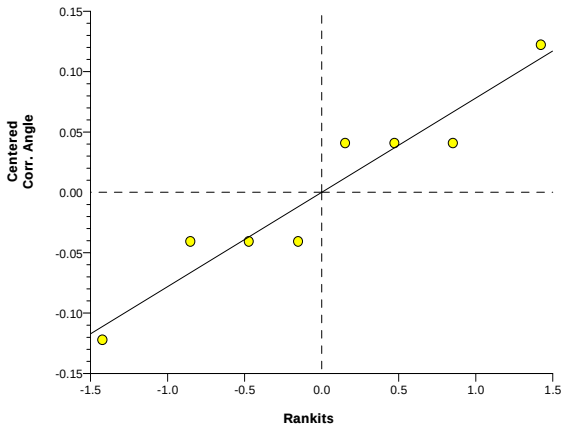
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-011	-1.4142	1.94318	0.8965	0.11196	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	0.92500	0.90000	1.00000	0.05000	1.28979	1.24905	1.41202	0.08149
16770-011	4	0.97500	0.90000	1.00000	0.05000	1.37127	1.24905	1.41202	0.08149

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	9.16471	47.46723	0.10162	Equal Variances
Distribution	Shapiro-Wilk W	0.92052	0.74935	0.40543	Normal Distribution

ANOVA Table

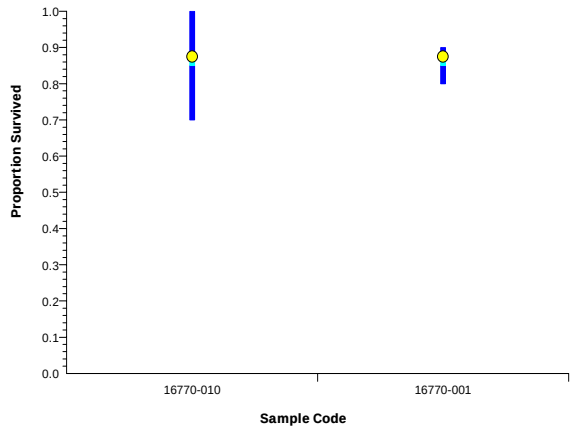
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0005789	0.0005789	1	0.02	0.88536	Non-Significant Effect
Error	0.1534981	0.0255830	6			
Total	0.15407693	0.0261619	7			

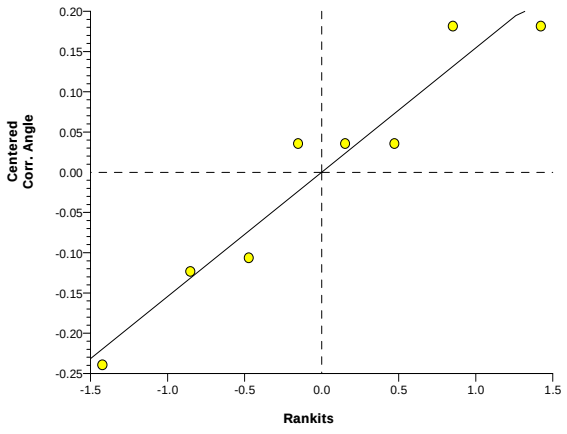
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-001	0.15042	1.94318	0.4427	0.21977	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-001	4	0.87500	0.80000	0.90000	0.05000	1.21357	1.10715	1.24905	0.07095

Graphics





CETIS Analysis Detail

Comparisons:
Report Date: 15 Feb-08 1:48 PM
Analysis: 02-1935-5052

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.13624	47.46723	0.54901	Equal Variances
Distribution	Shapiro-Wilk W	0.87900	0.74935	0.18016	Normal Distribution

ANOVA Table

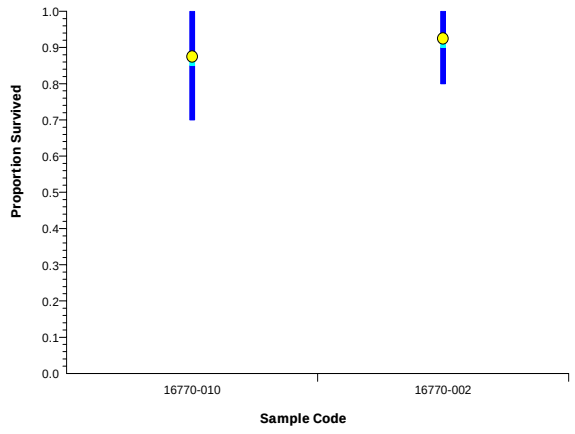
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0083134	0.0083134	1	0.25	0.63789	Non-Significant Effect
Error	0.2031824	0.0338637	6			
Total	0.21149575	0.0421771	7			

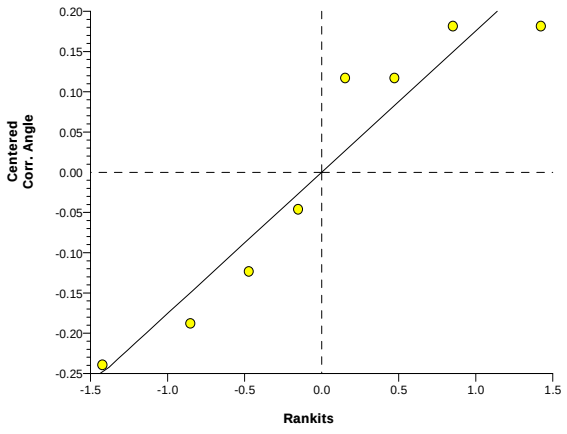
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-002	-0.4955	1.94318	0.6811	0.25285	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-002	4	0.92500	0.80000	1.00000	0.09574	1.29506	1.10715	1.41202	0.14695

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.14100	47.46723	0.27364	Equal Variances
Distribution	Shapiro-Wilk W	0.91321	0.74935	0.35340	Normal Distribution

ANOVA Table

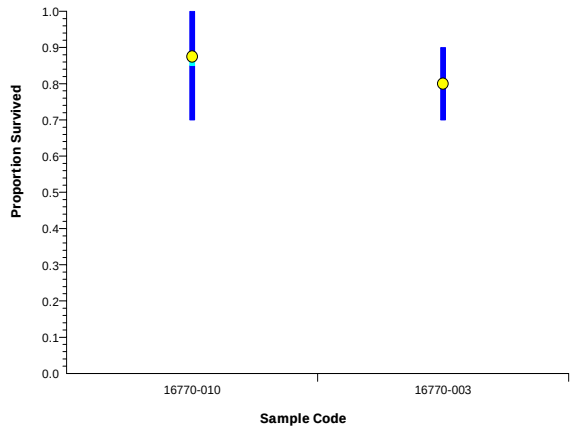
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0273590	0.0273590	1	0.96	0.36610	Non-Significant Effect
Error	0.1718182	0.0286364	6			
Total	0.19917719	0.0559954	7			

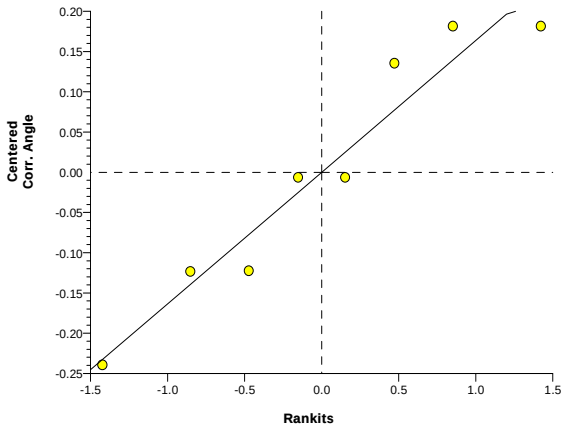
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-003	0.97744	1.94318	0.1830	0.23252	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-003	4	0.80000	0.70000	0.90000	0.08165	1.11362	0.99116	1.24905	0.10555

Graphics





CETIS Analysis Detail

Comparisons:
Report Date: 15 Feb-08 2:04 PM
Analysis: 06-3381-5687

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 2:03 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.12785	47.46723	0.55104	Equal Variances
Distribution	Shapiro-Wilk W	0.76697	0.74935	0.01539	Normal Distribution

ANOVA Table

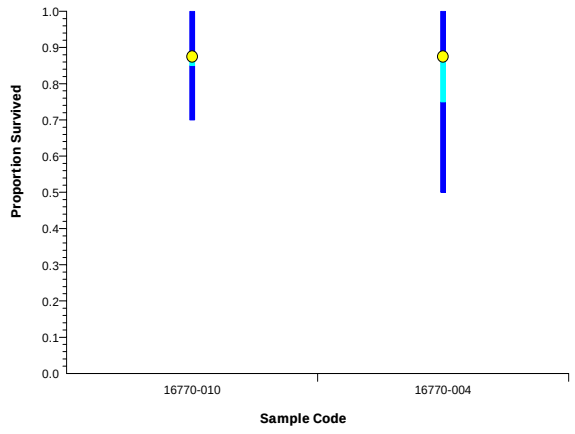
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0012278	0.0012278	1	0.02	0.90047	Non-Significant Effect
Error	0.4328845	0.0721474	6			
Total	0.43411234	0.0733752	7			

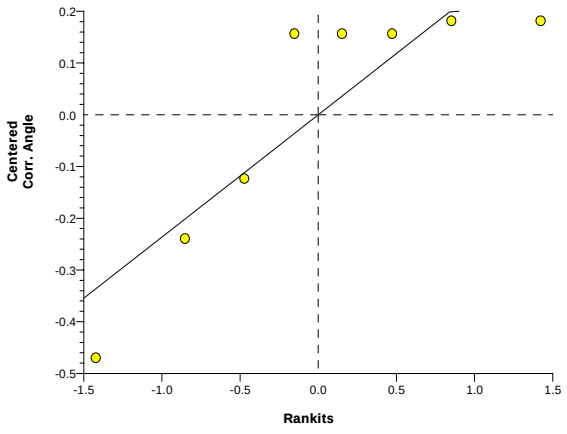
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-004	-0.1305	1.94318	0.5498	0.36907	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-004	4	0.87500	0.50000	1.00000	0.25000	1.25536	0.78540	1.41202	0.31331

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.19054	47.46723	0.53616	Equal Variances
Distribution	Shapiro-Wilk W	0.86399	0.74935	0.13247	Normal Distribution

ANOVA Table

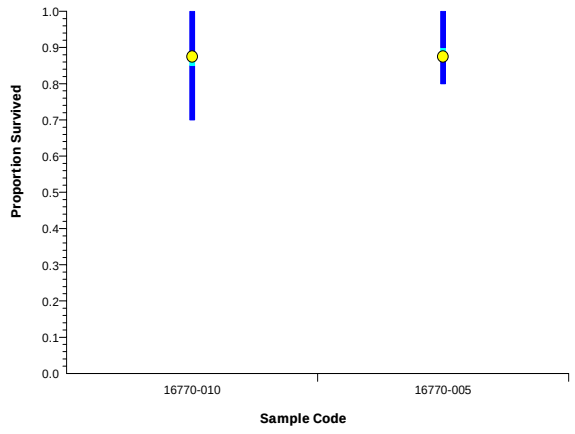
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0002759	0.0002759	1	0.01	0.93075	Non-Significant Effect
Error	0.2015763	0.0335960	6			
Total	0.20185213	0.0338719	7			

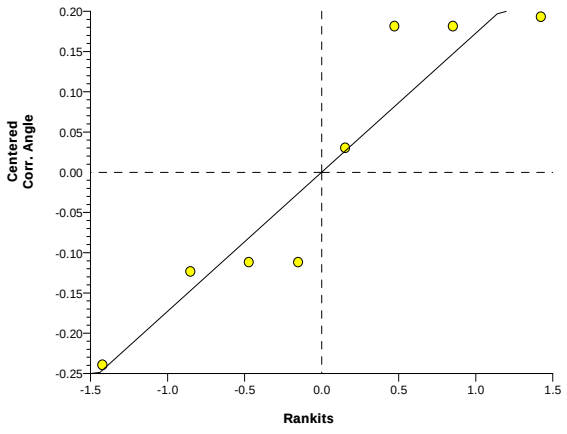
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-005	0.09062	1.94318	0.4654	0.25185	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-005	4	0.87500	0.80000	1.00000	0.09574	1.21884	1.10715	1.41202	0.14512

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.56986	47.46723	0.71999	Equal Variances
Distribution	Shapiro-Wilk W	0.84869	0.74935	0.09621	Normal Distribution

ANOVA Table

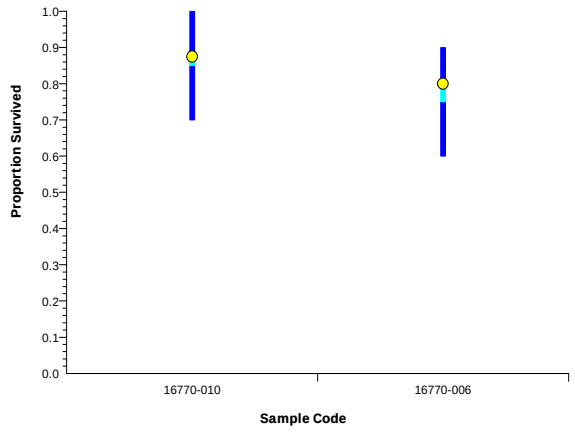
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0232223	0.0232223	1	0.62	0.46274	Non-Significant Effect
Error	0.2265556	0.0377593	6			
Total	0.24977794	0.0609816	7			

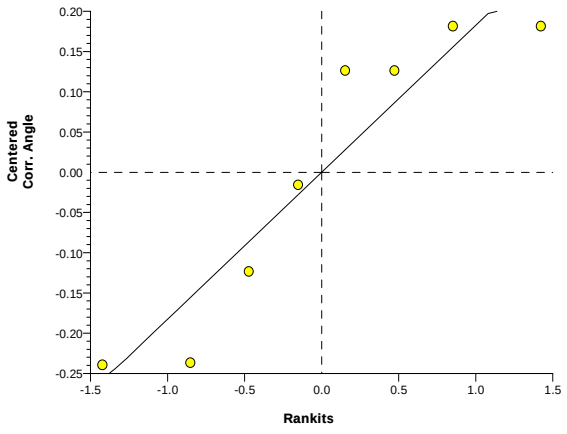
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-006	0.78423	1.94318	0.2314	0.267	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-006	4	0.80000	0.60000	0.90000	0.14142	1.12283	0.88608	1.24905	0.17142

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.53685	47.46723	0.73258	Equal Variances
Distribution	Shapiro-Wilk W	0.93676	0.74935	0.54289	Normal Distribution

ANOVA Table

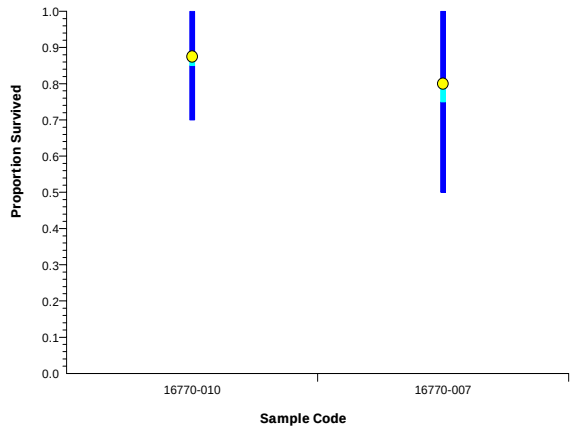
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0169951	0.0169951	1	0.29	0.60934	Non-Significant Effect
Error	0.3510922	0.0585154	6			
Total	0.36808730	0.0755105	7			

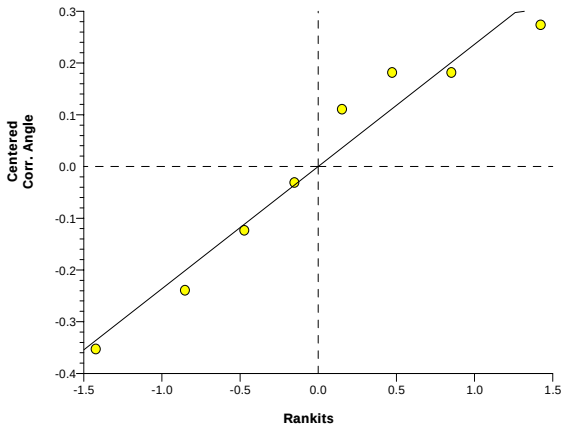
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-007	0.53892	1.94318	0.3047	0.33238	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-007	4	0.80000	0.50000	1.00000	0.21602	1.13840	0.78540	1.41202	0.26627

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.39541	47.46723	0.79079	Equal Variances
Distribution	Shapiro-Wilk W	0.89348	0.74935	0.24088	Normal Distribution

ANOVA Table

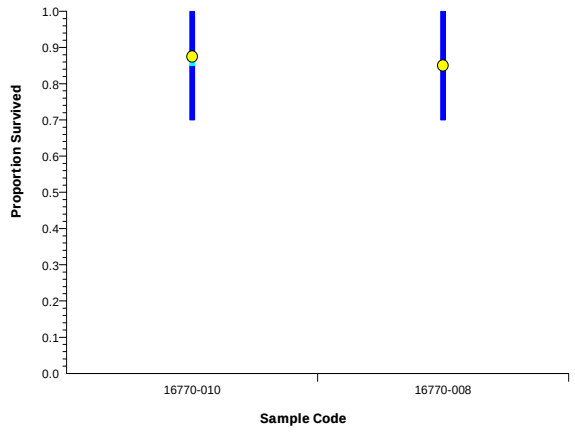
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0033199	0.0033199	1	0.08	0.78190	Non-Significant Effect
Error	0.2375775	0.0395962	6			
Total	0.24089738	0.0429162	7			

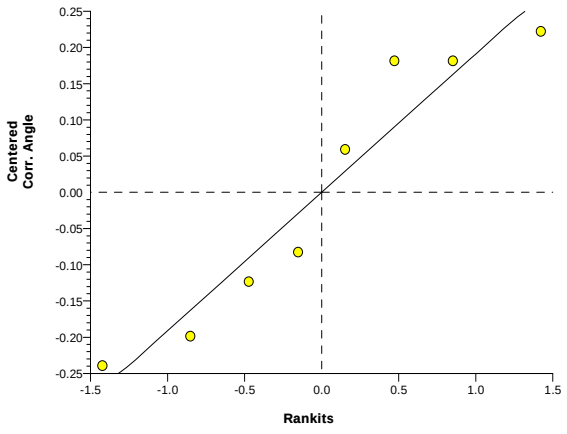
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-008	0.28956	1.94318	0.3909	0.27342	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-008	4	0.85000	0.70000	1.00000	0.12910	1.18984	0.99116	1.41202	0.18182

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	09-8312-8831	09-8312-8831	15 Feb-08 1:47 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	6.94781	47.46723	0.14568	Equal Variances
Distribution	Shapiro-Wilk W	0.91003	0.74935	0.33261	Normal Distribution

ANOVA Table

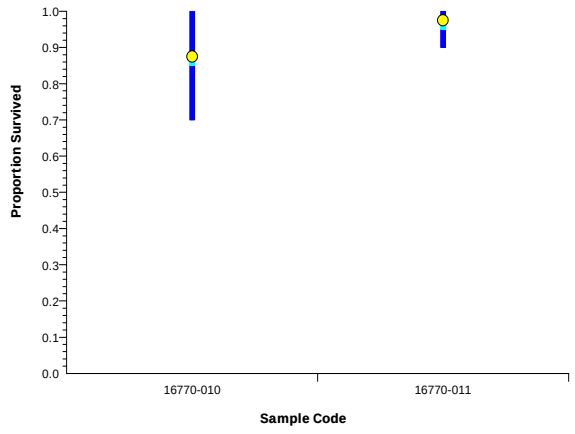
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0395869	0.0395869	1	1.50	0.26653	Non-Significant Effect
Error	0.1583165	0.0263861	6			
Total	0.19790335	0.065973	7			

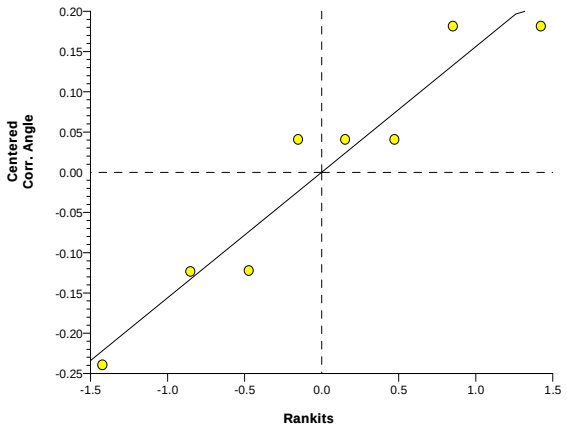
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-011	-1.2249	1.94318	0.8667	0.2232	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	0.87500	0.70000	1.00000	0.15000	1.23058	0.99116	1.41202	0.21478
16770-011	4	0.97500	0.90000	1.00000	0.05000	1.37127	1.24905	1.41202	0.08149

Graphics





CETIS Test Summary

Report Date: 18 Feb-08 7:11 PM
Link: 09-8312-8831

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Sample No:	07-0887-4007	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Feb-08 01:24 PM	**Code:**	16770-000	**Project:**	Ecological Risk Assessment
Receive Date:		**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	N/A	**Station:**	Lab Control 16770-000		

Sample No:	02-5772-0444	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 10:30 AM	**Code:**	16770-001	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	15d 1h	**Station:**	DA-SS104-011508; 16770-001		

Sample No:	03-7344-2218	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 08:45 AM	**Code:**	16770-002	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	15d 3h	**Station:**	DA-SS133-011508; 16770-002		

Sample No:	16-8216-9978	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 08:15 AM	**Code:**	16770-003	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	15d 3h	**Station:**	DA-SS127-011508; 16770-003		

Sample No:	10-5712-3965	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 09:35 AM	**Code:**	16770-004	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	15d 2h	**Station:**	DA-SS130-011508; 16770-004		

Sample No:	11-9106-6653	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 02:00 PM	**Code:**	16770-005	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	14d 22h	**Station:**	DA-SS103B-011508; 16770-005		

Sample No:	12-9685-8036	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 11:15 AM	**Code:**	16770-006	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	15d 0h	**Station:**	DA-SS108-011508; 16770-006		

Sample No:	00-6295-5885	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 04:00 PM	**Code:**	16770-007	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	14d 20h	**Station:**	DA-SS110B-011508; 16770-007		

Sample No:	12-2243-8437	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	15 Jan-08 03:25 PM	**Code:**	16770-008	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	14d 20h	**Station:**	DA-SS134-011508; 16770-008		

Sample No:	16-8441-1872	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	16 Jan-08 08:25 AM	**Code:**	16770-009	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	14d 3h	**Station:**	DA-SS152-011608; 16770-009		

Sample No:	02-6316-0289	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	16 Jan-08 09:20 AM	**Code:**	16770-010	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	14d 2h	**Station:**	DA-SS153-011608; 16770-010		

CETIS Test Summary

Report Date: 18 Feb-08 7:11 PM
Link: 09-8312-8831

Sample No:	01-5040-9607	**Material:**	Soil	**Client:**	Tetra Tech NUS
Sample Date:	16 Jan-08 10:15 AM	**Code:**	16770-011	**Project:**	Ecological Risk Assessment
Receive Date:	17 Jan-08 07:31 AM	**Source:**	Naval Station Newport Site NVSCDA		
Sample Age:	14d 1h	**Station:**	DA-SS105B-011608; 16770-011		

Mean Dry Biomass-mg Summary

Sample Code	Reps	Mean	Minimum	Maximum	SE	SD	CV
16770-000	4	587.300	496.600	698	45.9765	91.9531	15.66%
16770-009	4	367.525	285.3	467.700	43.3633	86.7266	23.60%
16770-010	4	264.700	222.800	322.700	23.7473	47.4946	17.94%
16770-001	4	354.3	243.300	398.4	37.1046	74.2092	20.95%
16770-002	4	376.500	310.600	412.600	22.9169	45.8339	12.17%
16770-003	4	291.000	241.800	329.600	21.4981	42.9961	14.78%
16770-004	4	383.325	194.4	477.100	66.6346	133.269	34.77%
16770-005	4	376.075	289	429.200	33.0894	66.1787	17.60%
16770-006	4	265.525	148.5	389.3	53.1731	106.346	40.05%
16770-007	4	300.3	234.4	405	37.4807	74.9614	24.96%
16770-008	4	278.600	223.7	331.700	24.5624	49.1248	17.63%
16770-011	4	235.075	189.600	257.5	15.7794	31.5589	13.43%

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4
16770-000	496.600	698	528.900	625.700
16770-009	305.600	285.3	411.5	467.700
16770-010	322.700	222.800	229.100	284.200
16770-001	390.700	384.8	398.4	243.300
16770-002	401.700	310.600	381.100	412.600
16770-003	324.4	329.600	241.800	268.200
16770-004	384.700	477.100	477.100	194.4
16770-005	360.200	289	429.200	425.9
16770-006	389.3	311.600	148.5	212.7
16770-007	260.9	300.9	234.4	405
16770-008	331.700	253	306	223.7
16770-011	189.600	257.5	237.9	255.300

CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:09 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.12416	47.46723	0.92562	Equal Variances
Distribution	Shapiro-Wilk W	0.86390	0.74935	0.13222	Normal Distribution

ANOVA Table

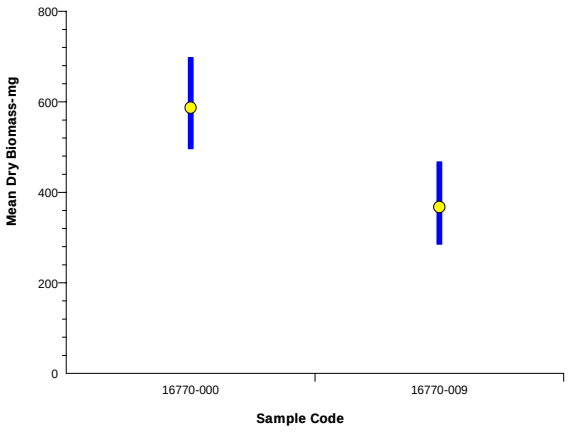
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	96602.11	96602.11	1	12.09	0.01318	Significant Effect
Error	47930.59	7988.431	6			
Total	144532.699	104590.54	7			

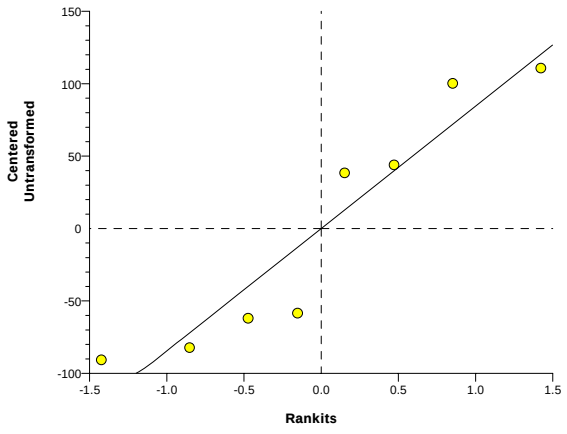
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-009	3.47746	1.94318	0.0066	122.809	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-009	4	367.525	285.3	467.7	86.7266				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.74838	47.46723	0.30656	Equal Variances
Distribution	Shapiro-Wilk W	0.96183	0.74935	0.80064	Normal Distribution

ANOVA Table

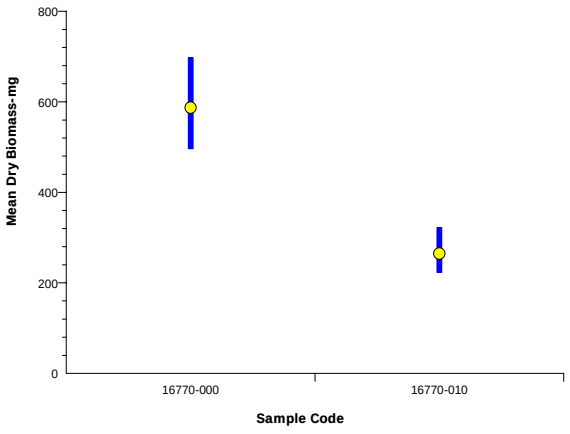
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	208141.5	208141.5	1	38.86	0.00079	Significant Effect
Error	32133.32	5355.553	6			
Total	240274.834	213497.07	7			

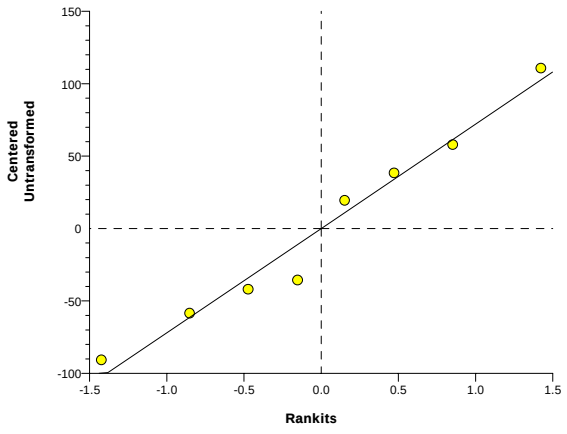
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-010	6.23415	1.94318	0.0004	100.554	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-010	4	264.700	222.8	322.7	47.4946				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.53538	47.46723	0.73315	Equal Variances
Distribution	Shapiro-Wilk W	0.89876	0.74935	0.26728	Normal Distribution

ANOVA Table

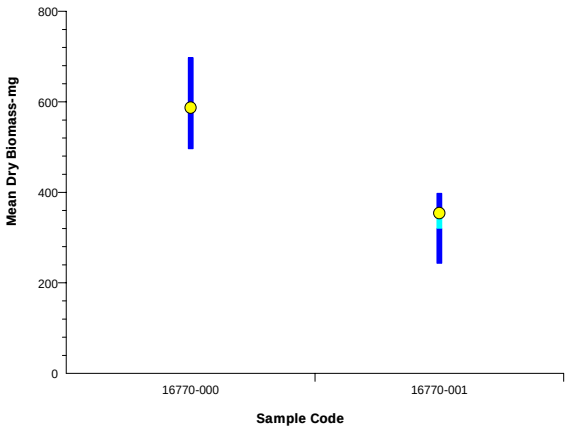
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	108578	108578	1	15.55	0.00759	Significant Effect
Error	41887.12	6981.186	6			
Total	150465.125	115559.19	7			

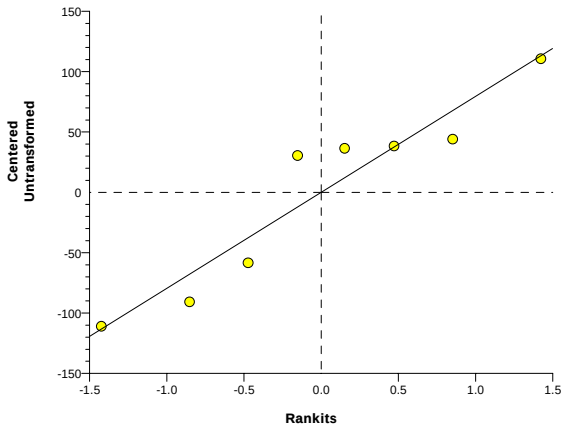
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-001	3.94372	1.94318	0.0038	114.806	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-001	4	354.3	243.3	398.4	74.2092				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.02495	47.46723	0.28274	Equal Variances
Distribution	Shapiro-Wilk W	0.93978	0.74935	0.57174	Normal Distribution

ANOVA Table

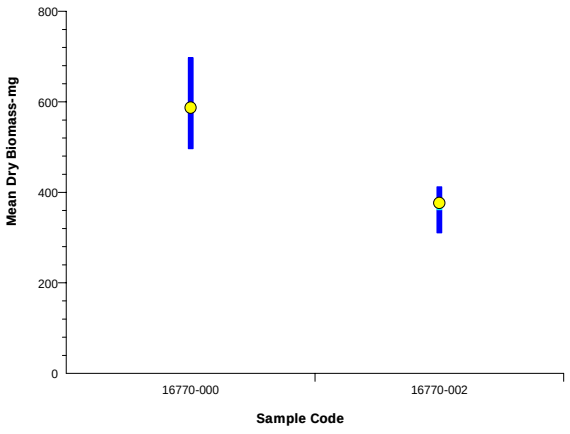
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	88873.28	88873.28	1	16.84	0.00633	Significant Effect
Error	31668.32	5278.053	6			
Total	120541.598	94151.334	7			

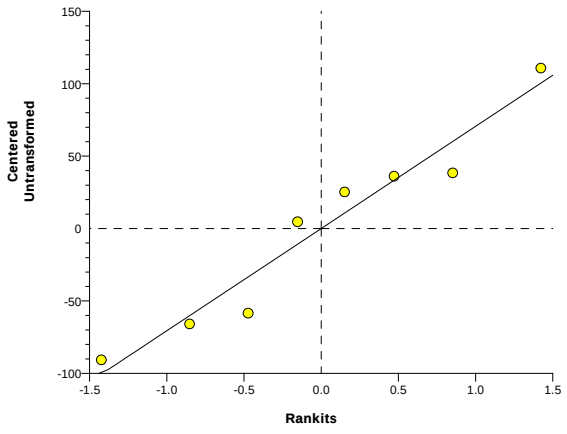
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-002	4.10345	1.94318	0.0032	99.8240	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-002	4	376.500	310.6	412.6	45.8339				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.57376	47.46723	0.24365	Equal Variances
Distribution	Shapiro-Wilk W	0.94594	0.74935	0.63312	Normal Distribution

ANOVA Table

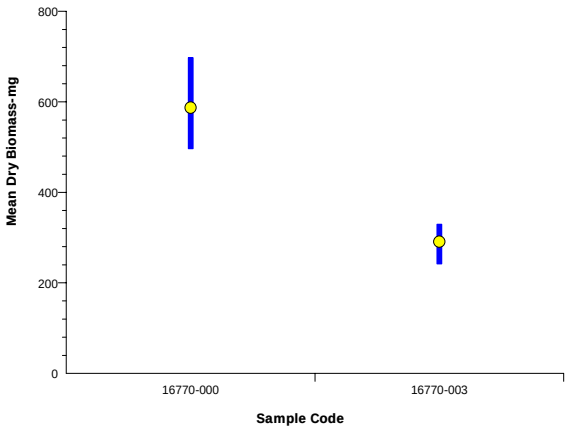
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	175587.4	175587.4	1	34.08	0.00111	Significant Effect
Error	30912.1	5152.016	6			
Total	206499.486	180739.41	7			

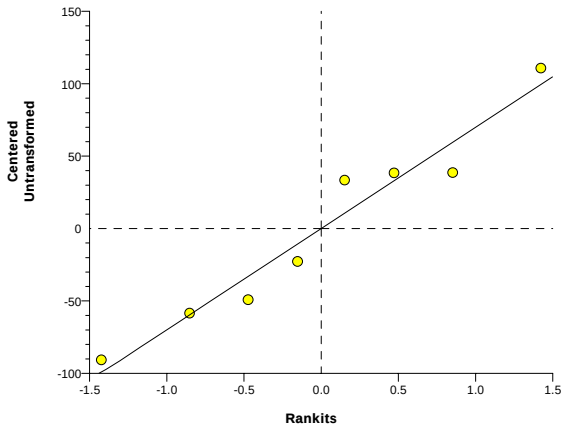
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-003	5.83792	1.94318	0.0006	98.6249	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-003	4	291.000	241.8	329.6	42.9961				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.10052	47.46723	0.55774	Equal Variances
Distribution	Shapiro-Wilk W	0.91529	0.74935	0.36759	Normal Distribution

ANOVA Table

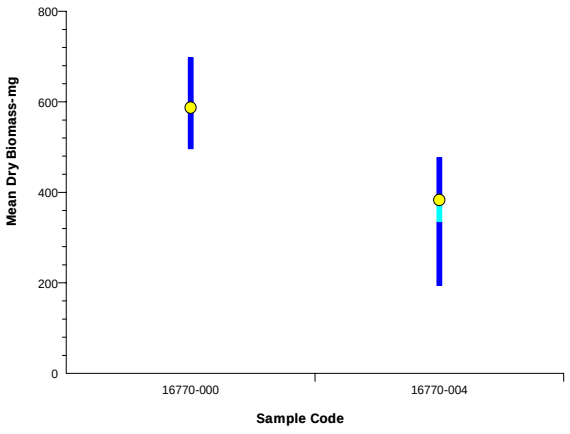
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	83211.61	83211.61	1	6.35	0.04531	Significant Effect
Error	78648.15	13108.02	6			
Total	161859.758	96319.634	7			

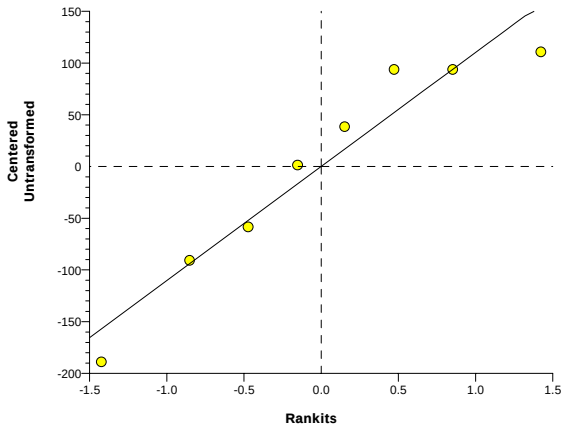
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-004	2.51955	1.94318	0.0227	157.314	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-004	4	383.325	194.4	477.1	133.269				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.93062	47.46723	0.60259	Equal Variances
Distribution	Shapiro-Wilk W	0.91942	0.74935	0.39721	Normal Distribution

ANOVA Table

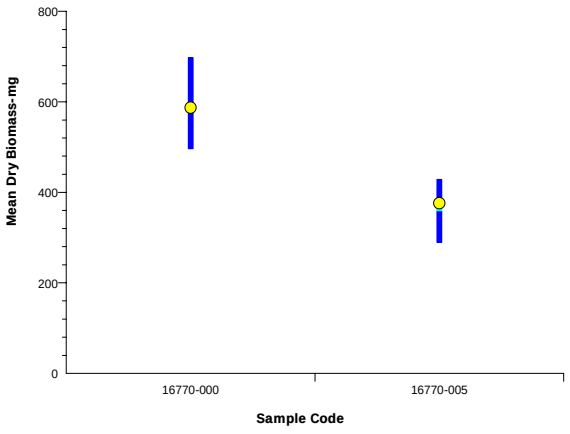
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	89232.01	89232.01	1	13.90	0.00975	Significant Effect
Error	38504.96	6417.494	6			
Total	127736.973	95649.502	7			

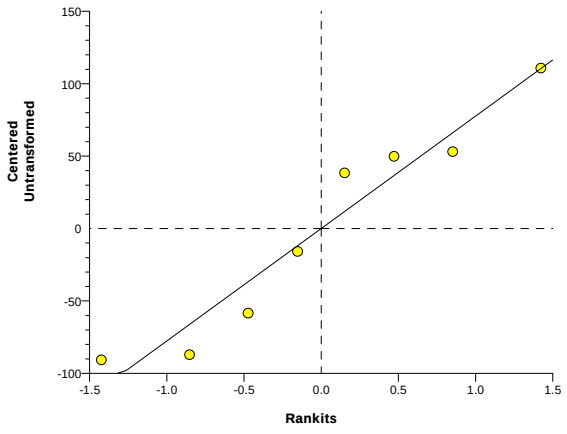
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-005	3.72887	1.94318	0.0049	110.073	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-005	4	376.075	289	429.2	66.1787				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.33755	47.46723	0.81678	Equal Variances
Distribution	Shapiro-Wilk W	0.91388	0.74935	0.35787	Normal Distribution

ANOVA Table

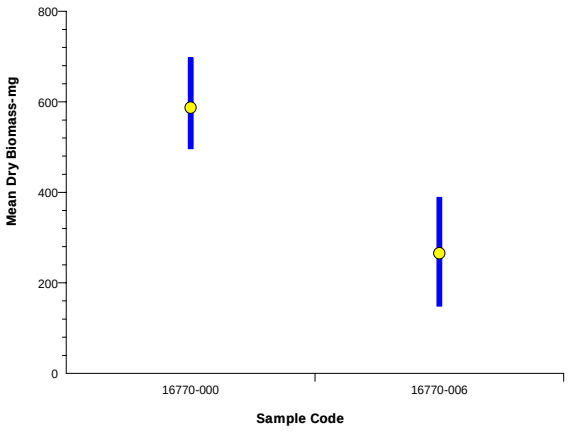
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	207078.3	207078.3	1	20.95	0.00378	Significant Effect
Error	59294.58	9882.431	6			
Total	266372.895	216960.74	7			

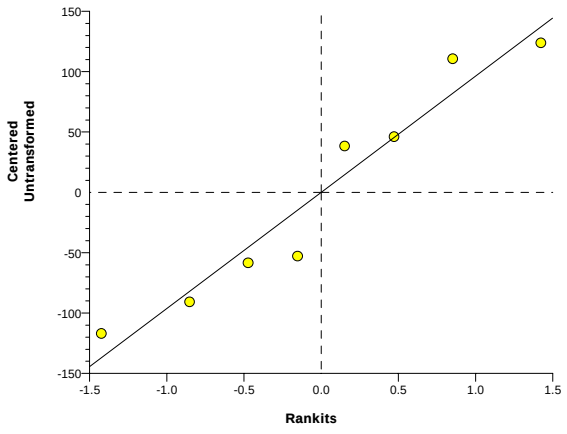
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-006	4.57758	1.94318	0.0019	136.594	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-006	4	265.525	148.5	389.3	106.346				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.50473	47.46723	0.74518	Equal Variances
Distribution	Shapiro-Wilk W	0.90039	0.74935	0.27596	Normal Distribution

ANOVA Table

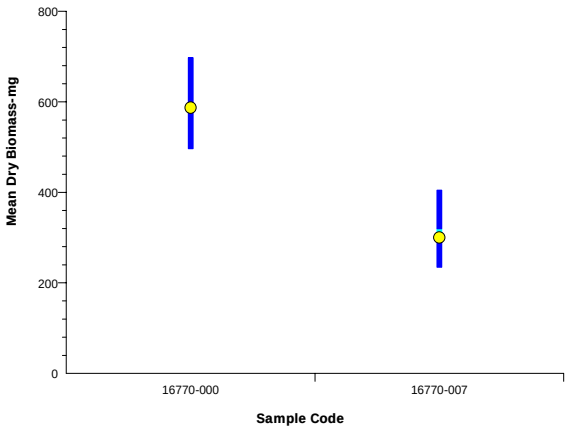
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	164738	164738	1	23.41	0.00289	Significant Effect
Error	42223.72	7037.286	6			
Total	206961.734	171775.30	7			

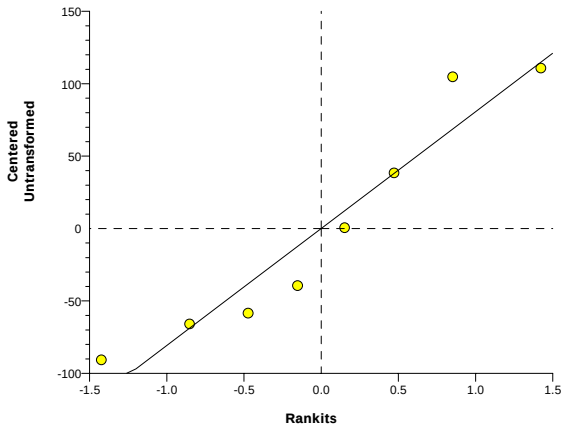
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-007	4.83832	1.94318	0.0014	115.266	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-007	4	300.3	234.4	405	74.9614				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.50373	47.46723	0.33055	Equal Variances
Distribution	Shapiro-Wilk W	0.95435	0.74935	0.72133	Normal Distribution

ANOVA Table

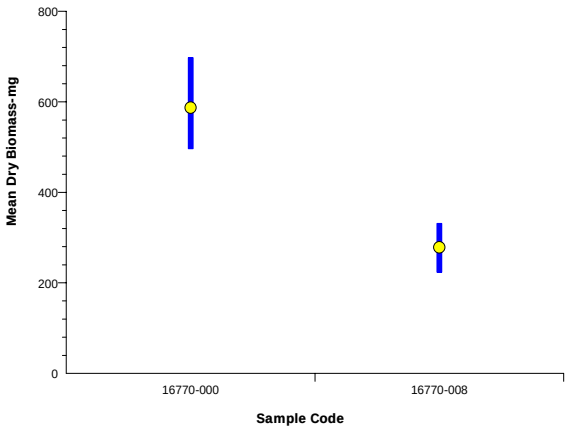
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	190591.4	190591.4	1	35.07	0.00103	Significant Effect
Error	32605.84	5434.307	6			
Total	223197.229	196025.7	7			

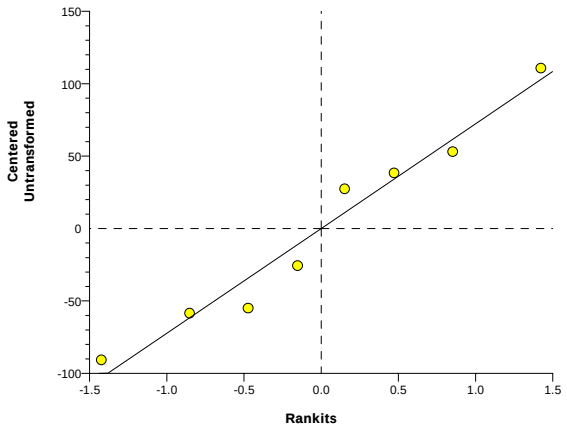
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-008	5.92215	1.94318	0.0005	101.291	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-008	4	278.600	223.7	331.7	49.1248				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:10 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	8.48964	47.46723	0.11240	Equal Variances
Distribution	Shapiro-Wilk W	0.96398	0.74935	0.82285	Normal Distribution

ANOVA Table

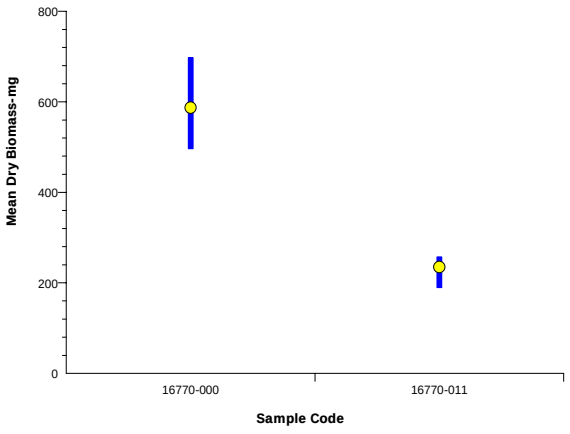
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	248124.9	248124.9	1	52.51	0.00035	Significant Effect
Error	28353.98	4725.664	6			
Total	276478.906	252850.59	7			

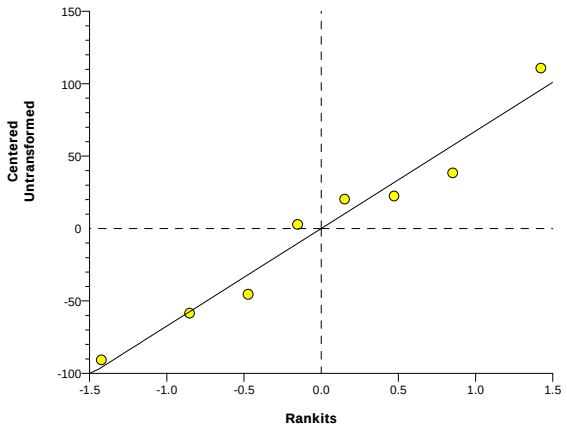
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-000		16770-011	7.24609	1.94318	0.0002	94.456	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-000	4	587.300	496.6	698	91.9531				
16770-011	4	235.075	189.6	257.5	31.5589				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:15 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.33438	47.46723	0.34904	Equal Variances
Distribution	Shapiro-Wilk W	0.94390	0.74935	0.61247	Normal Distribution

ANOVA Table

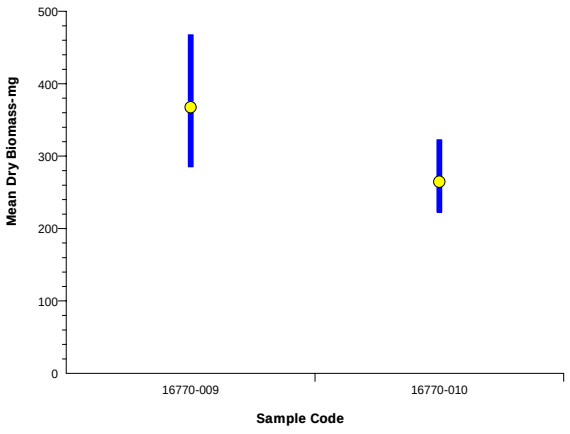
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	21145.96	21145.96	1	4.33	0.08276	Non-Significant Effect
Error	29331.71	4888.619	6			
Total	50477.6719	26034.578	7			

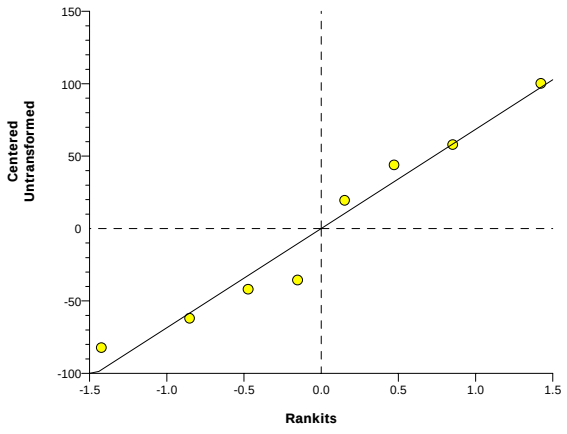
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-010	2.0798	1.94318	0.0414	96.0708	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-010	4	264.700	222.8	322.7	47.4946				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.36581	47.46723	0.80392	Equal Variances
Distribution	Shapiro-Wilk W	0.89049	0.74935	0.22698	Normal Distribution

ANOVA Table

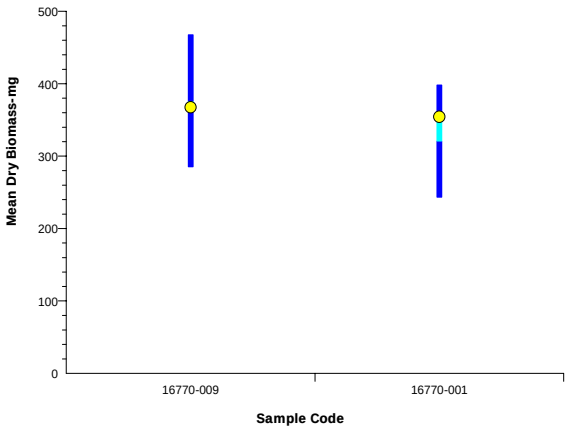
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	349.8014	349.8014	1	0.05	0.82445	Non-Significant Effect
Error	39085.51	6514.251	6			
Total	39435.3131	6864.0528	7			

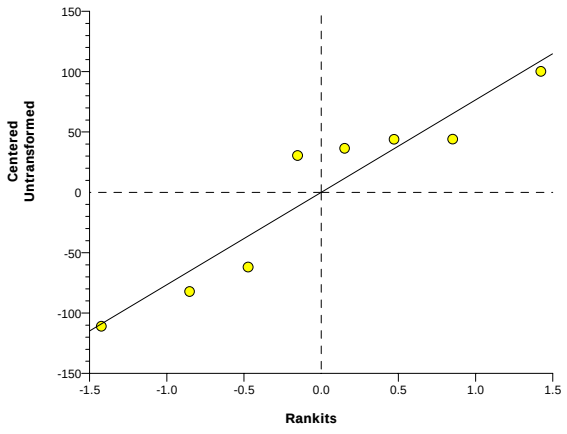
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-001	0.23173	1.94318	0.4122	110.9	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-001	4	354.3	243.3	398.4	74.2092				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.58040	47.46723	0.32270	Equal Variances
Distribution	Shapiro-Wilk W	0.92486	0.74935	0.43920	Normal Distribution

ANOVA Table

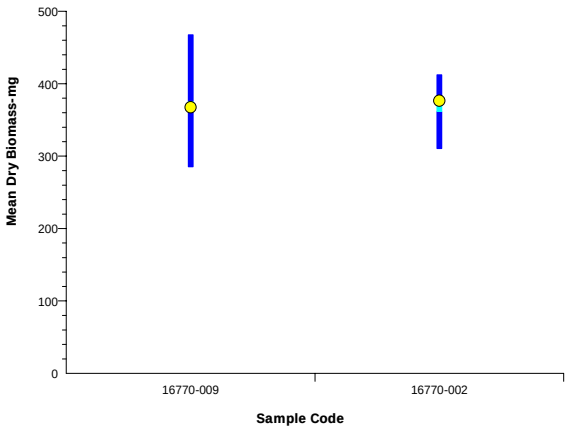
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	161.1015	161.1015	1	0.03	0.86083	Non-Significant Effect
Error	28866.71	4811.119	6			
Total	29027.8124	4972.2201	7			

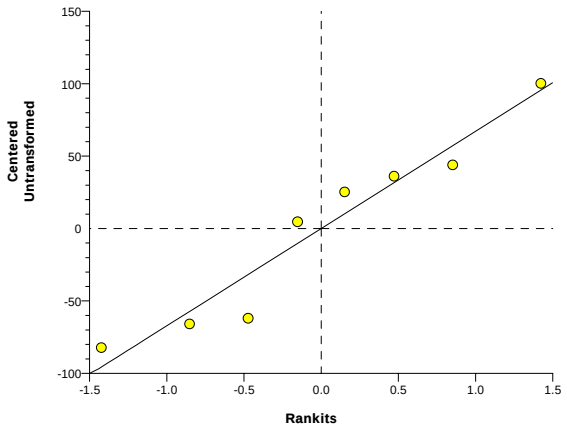
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-002	-0.183	1.94318	0.5696	95.3062	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-002	4	376.500	310.6	412.6	45.8339				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.06861	47.46723	0.27926	Equal Variances
Distribution	Shapiro-Wilk W	0.93766	0.74935	0.55138	Normal Distribution

ANOVA Table

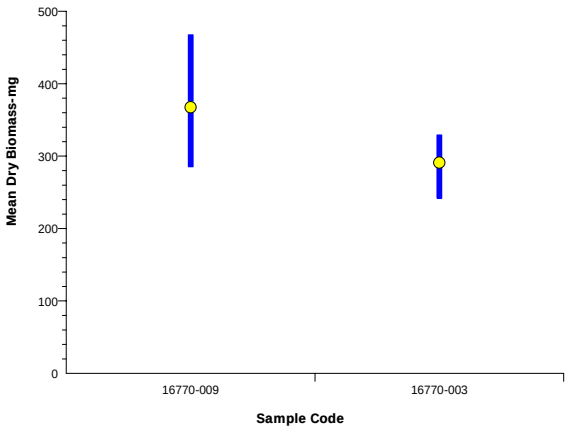
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	11712.15	11712.15	1	2.50	0.16494	Non-Significant Effect
Error	28110.49	4685.082	6			
Total	39822.6406	16397.232	7			

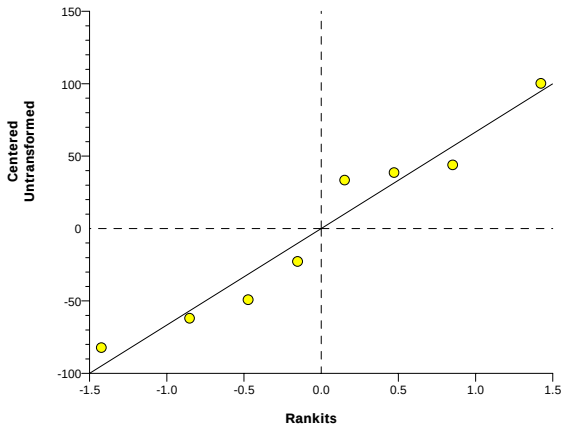
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-003	1.58110	1.94318	0.0825	94.0496	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-003	4	291.000	241.8	329.6	42.9961				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.36132	47.46723	0.49881	Equal Variances
Distribution	Shapiro-Wilk W	0.89249	0.74935	0.23620	Normal Distribution

ANOVA Table

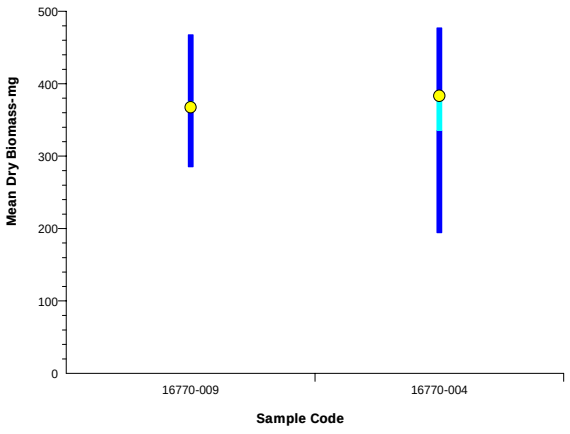
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	499.2802	499.2802	1	0.04	0.84903	Non-Significant Effect
Error	75846.55	12641.09	6			
Total	76345.8271	13140.371	7			

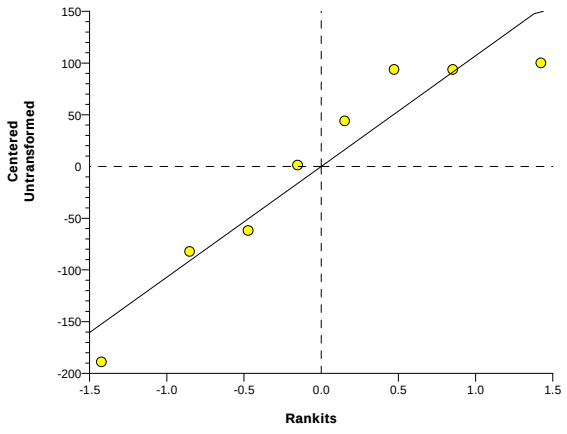
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-004	-0.1987	1.94318	0.5755	154.487	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-004	4	383.325	194.4	477.1	133.269				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.71738	47.46723	0.66781	Equal Variances
Distribution	Shapiro-Wilk W	0.89726	0.74935	0.25954	Normal Distribution

ANOVA Table

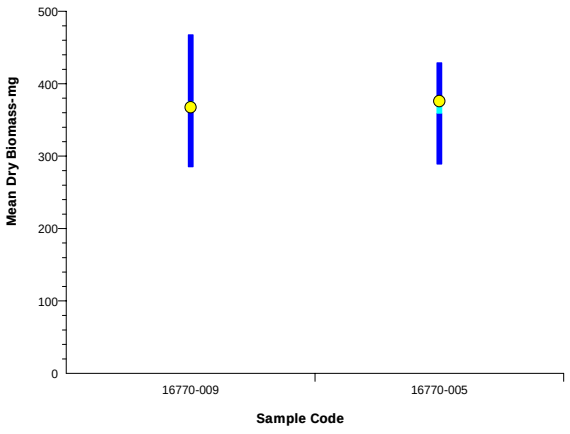
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	146.2051	146.2051	1	0.02	0.88058	Non-Significant Effect
Error	35703.36	5950.56	6			
Total	35849.5645	6096.7652	7			

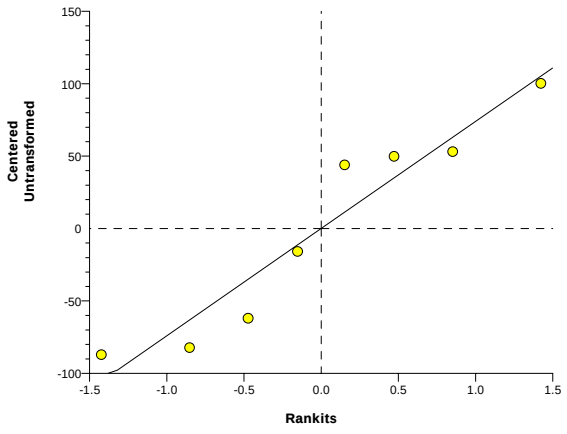
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-005	-0.1567	1.94318	0.5597	105.993	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-005	4	376.075	289	429.2	66.1787				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.50362	47.46723	0.74562	Equal Variances
Distribution	Shapiro-Wilk W	0.91775	0.74935	0.38500	Normal Distribution

ANOVA Table

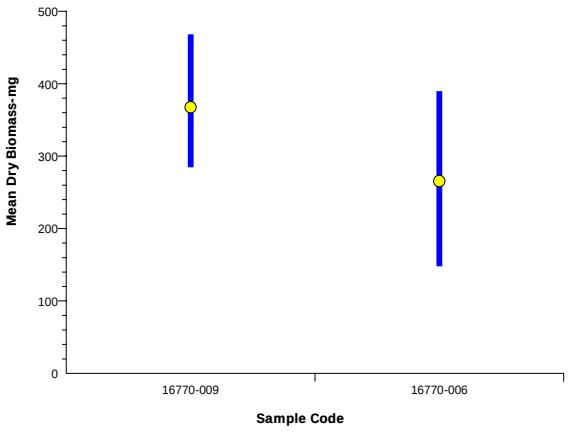
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	20808	20808	1	2.21	0.18767	Non-Significant Effect
Error	56492.98	9415.496	6			
Total	77300.9785	30223.498	7			

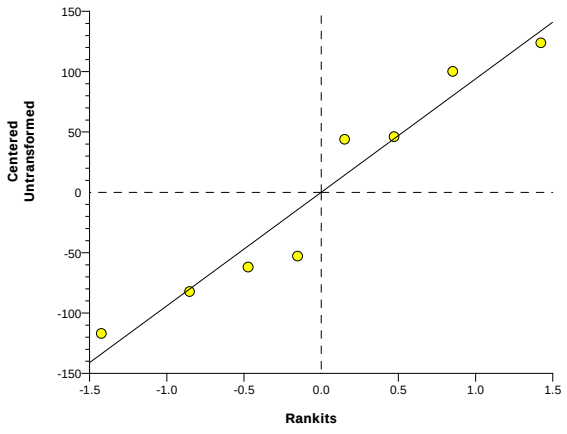
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-006	1.4866	1.94318	0.0938	133.328	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-006	4	265.525	148.5	389.3	106.346				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.33853	47.46723	0.81633	Equal Variances
Distribution	Shapiro-Wilk W	0.88113	0.74935	0.18809	Normal Distribution

ANOVA Table

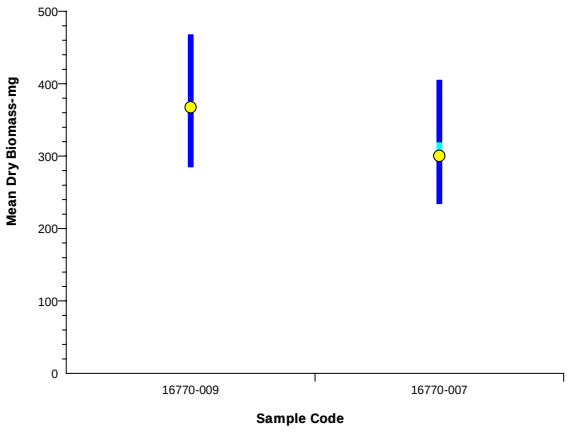
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	9038.403	9038.403	1	1.38	0.28530	Non-Significant Effect
Error	39422.11	6570.352	6			
Total	48460.5166	15608.755	7			

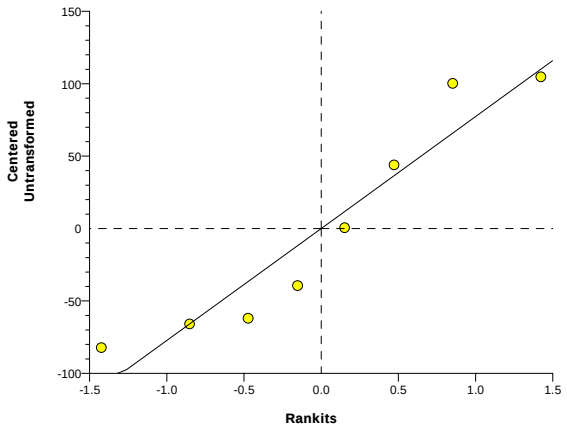
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-007	1.17287	1.94318	0.1426	111.376	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-007	4	300.3	234.4	405	74.9614				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.11675	47.46723	0.37544	Equal Variances
Distribution	Shapiro-Wilk W	0.93562	0.74935	0.53231	Normal Distribution

ANOVA Table

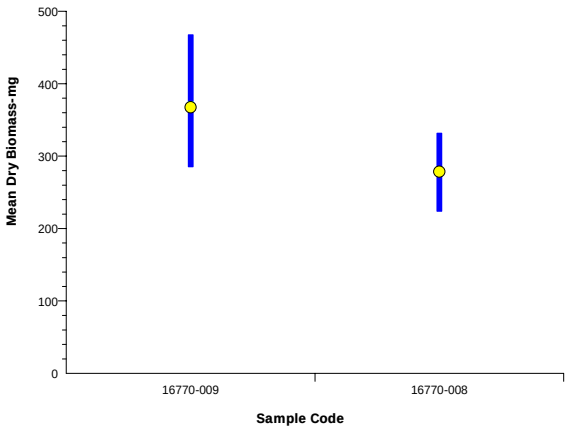
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	15815.31	15815.31	1	3.18	0.12463	Non-Significant Effect
Error	29804.23	4967.372	6			
Total	45619.543	20782.683	7			

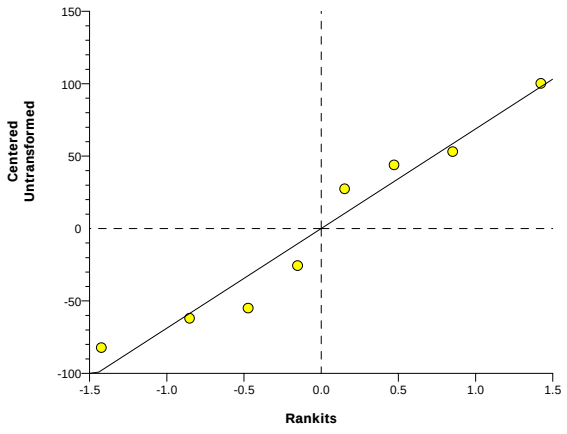
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-008	1.78433	1.94318	0.0623	96.8415	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-008	4	278.600	223.7	331.7	49.1248				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:16 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	7.55199	47.46723	0.13090	Equal Variances
Distribution	Shapiro-Wilk W	0.96104	0.74935	0.79233	Normal Distribution

ANOVA Table

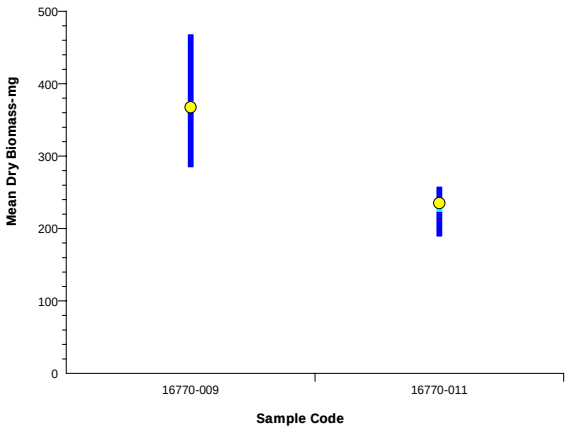
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	35086	35086	1	8.24	0.02842	Significant Effect
Error	25552.38	4258.729	6			
Total	60638.3828	39344.733	7			

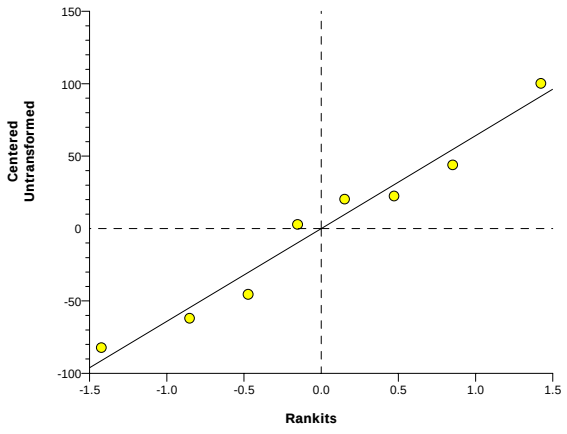
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-009		16770-011	2.8703	1.94318	0.0142	89.6681	Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-009	4	367.525	285.3	467.7	86.7266				
16770-011	4	235.075	189.6	257.5	31.5589				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.44133	47.46723	0.48276	Equal Variances
Distribution	Shapiro-Wilk W	0.87386	0.74935	0.16229	Normal Distribution

ANOVA Table

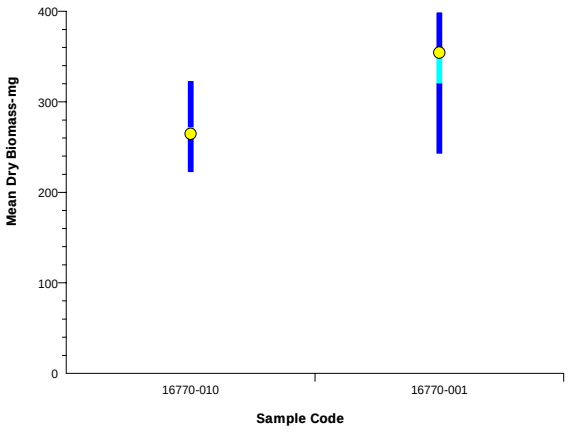
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	16056.32	16056.32	1	4.14	0.08819	Non-Significant Effect
Error	23288.24	3881.373	6			
Total	39344.5566	19937.69	7			

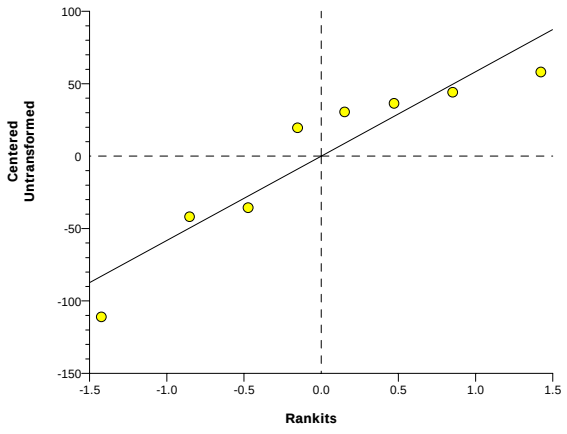
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-001	-2.0339	1.94318	0.9559	85.6034	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-001	4	354.3	243.3	398.4	74.2092				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.07378	47.46723	0.95471	Equal Variances
Distribution	Shapiro-Wilk W	0.94438	0.74935	0.61728	Normal Distribution

ANOVA Table

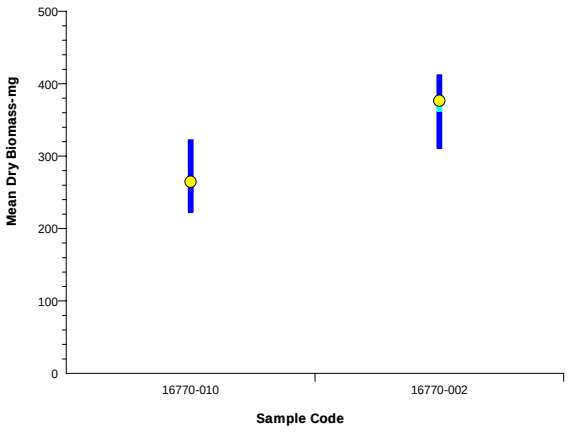
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	24998.48	24998.48	1	11.48	0.01472	Significant Effect
Error	13069.44	2178.24	6			
Total	38067.9219	27176.721	7			

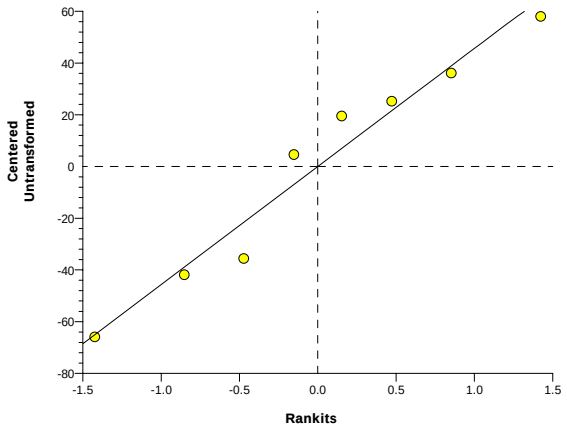
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-002	-3.3877	1.94318	0.9926	64.1285	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-002	4	376.500	310.6	412.6	45.8339				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.22020	47.46723	0.87393	Equal Variances
Distribution	Shapiro-Wilk W	0.89108	0.74935	0.22964	Normal Distribution

ANOVA Table

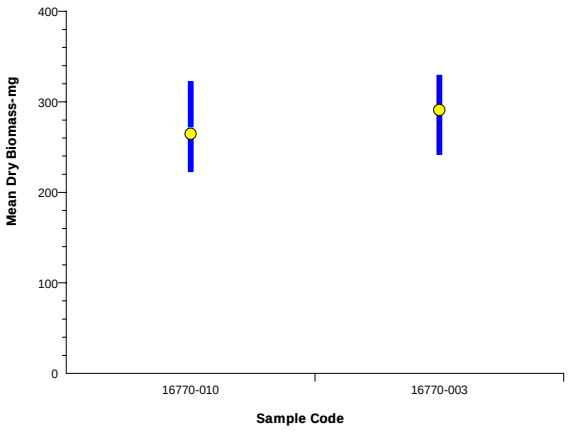
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	1383.38	1383.38	1	0.67	0.44302	Non-Significant Effect
Error	12313.22	2052.203	6			
Total	13696.6002	3435.5829	7			

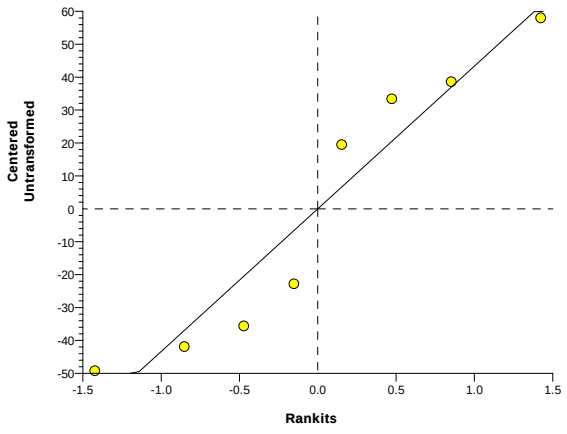
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-003	-0.8210	1.94318	0.7785	62.2456	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-003	4	291.000	241.8	329.6	42.9961				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	7.87355	47.46723	0.12402	Equal Variances
Distribution	Shapiro-Wilk W	0.89131	0.74935	0.23069	Normal Distribution

ANOVA Table

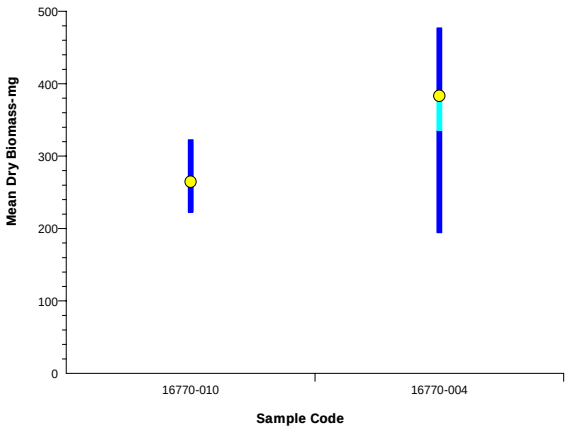
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	28143.78	28143.78	1	2.81	0.14457	Non-Significant Effect
Error	60049.27	10008.21	6			
Total	88193.0527	38151.991	7			

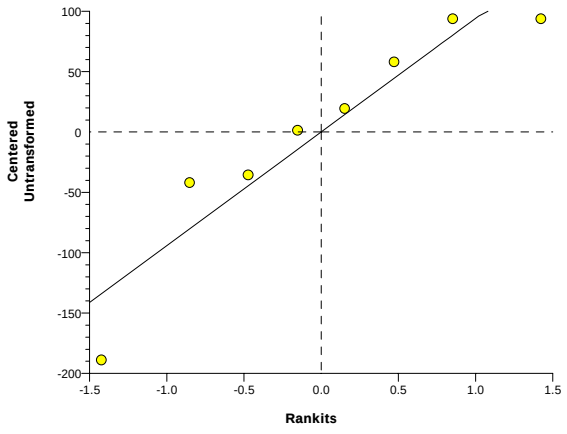
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-004	-1.6769	1.94318	0.9277	137.46	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-004	4	383.325	194.4	477.1	133.269				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.94155	47.46723	0.59952	Equal Variances
Distribution	Shapiro-Wilk W	0.91202	0.74935	0.34546	Normal Distribution

ANOVA Table

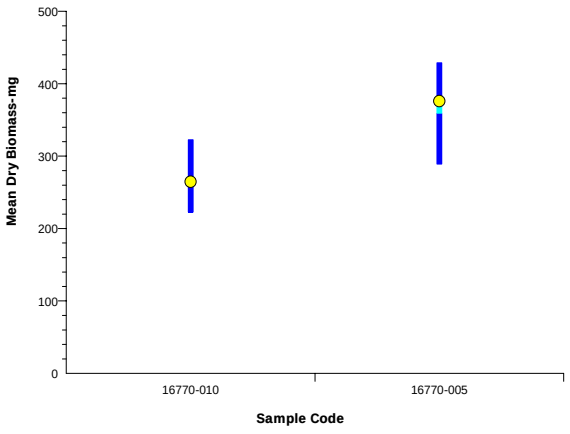
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	24808.78	24808.78	1	7.48	0.03398	Significant Effect
Error	19906.09	3317.681	6			
Total	44714.8691	28126.461	7			

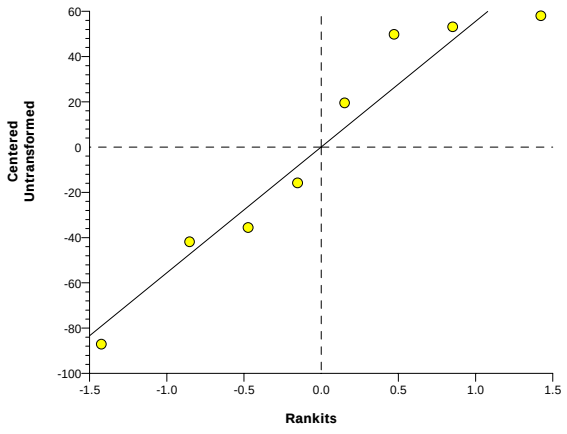
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-005	-2.7345	1.94318	0.9830	79.1435	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-005	4	376.075	289	429.2	66.1787				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	5.01365	47.46723	0.21838	Equal Variances
Distribution	Shapiro-Wilk W	0.97528	0.74935	0.92720	Normal Distribution

ANOVA Table

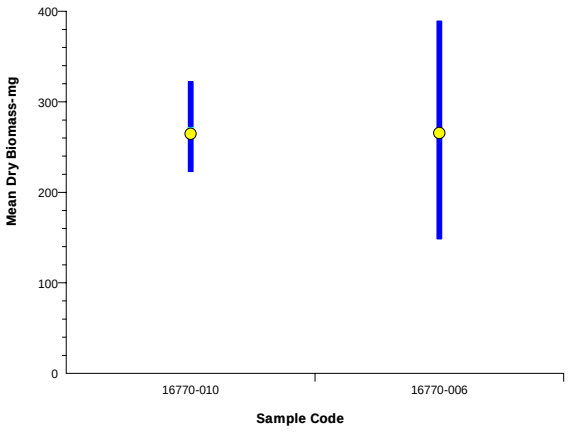
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	1.361215	1.361215	1	0.00	0.98916	Non-Significant Effect
Error	40695.71	6782.618	6			
Total	40697.0682	6783.9789	7			

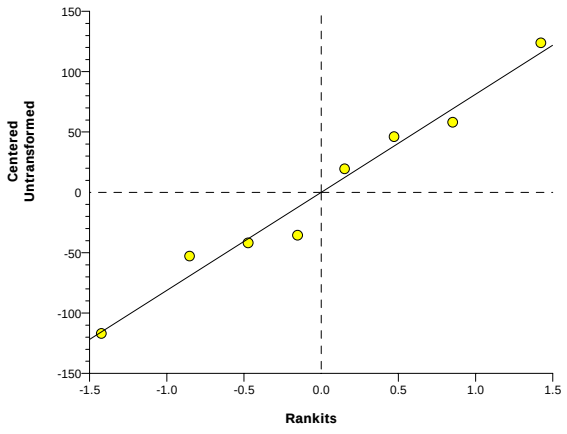
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-006	-0.0142	1.94318	0.5054	113.161	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-006	4	265.525	148.5	389.3	106.346				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt	H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T		Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.49107	47.46723	0.47321	Equal Variances
Distribution	Shapiro-Wilk W	0.91657	0.74935	0.37657	Normal Distribution

ANOVA Table

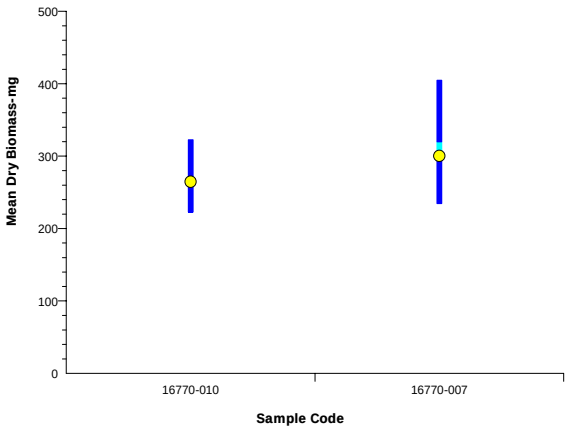
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	2534.718	2534.718	1	0.64	0.45296	Non-Significant Effect
Error	23624.84	3937.474	6			
Total	26159.5601	6472.1919	7			

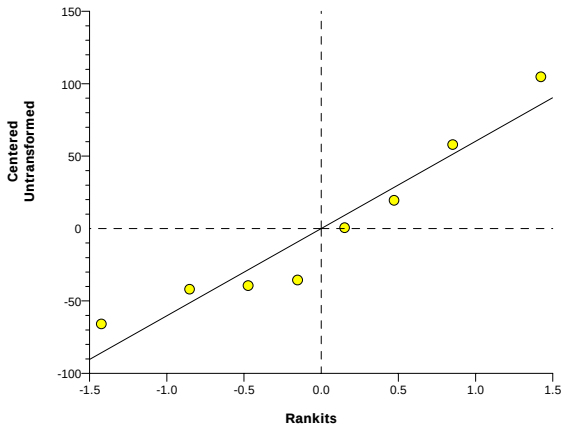
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-007	-0.8023	1.94318	0.7735	86.2198	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-007	4	300.3	234.4	405	74.9614				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.06982	47.46723	0.95706	Equal Variances
Distribution	Shapiro-Wilk W	0.89389	0.74935	0.24285	Normal Distribution

ANOVA Table

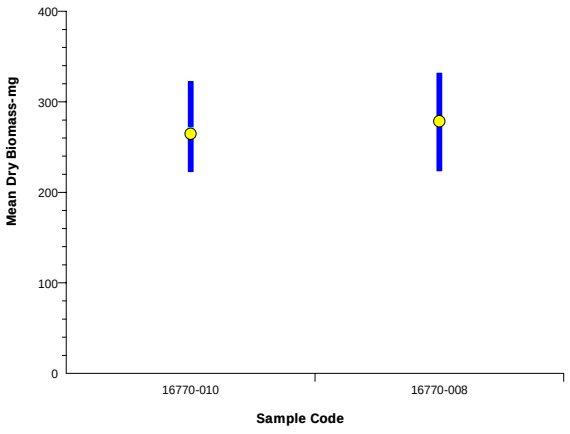
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	386.4196	386.4196	1	0.17	0.69823	Non-Significant Effect
Error	14006.96	2334.494	6			
Total	14393.3825	2720.9135	7			

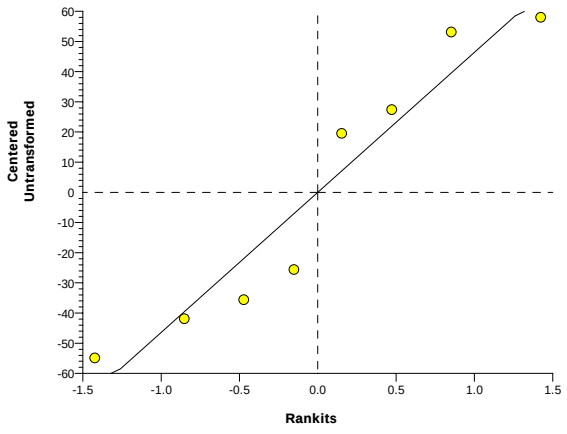
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-008	-0.4068	1.94318	0.6509	66.3888	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-008	4	278.600	223.7	331.7	49.1248				

Graphics





CETIS Analysis Detail

Eisenia 14-d Survival Soil Test — **EnviroSystems, Inc.**

Test No:	15-8027-0411	**Test Type:**	Survival-Growth	**Duration:**	14d 0h
Start Date:	30 Jan-08 12:00 PM	**Protocol:**	EPA/600/R-92/183 (1992)	**Species:**	Eisenia fetida
Ending Date:	13 Feb-08 12:00 PM	**Dil Water:**	Not Applicable	**Source:**	In-House Culture
Setup Date:	30 Jan-08 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Mean Dry Biomass-mg	Comparison	09-8312-8831	09-8312-8831	18 Feb-08 7:19 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Untransformed				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.26489	47.46723	0.51935	Equal Variances
Distribution	Shapiro-Wilk W	0.89888	0.74935	0.26793	Normal Distribution

ANOVA Table

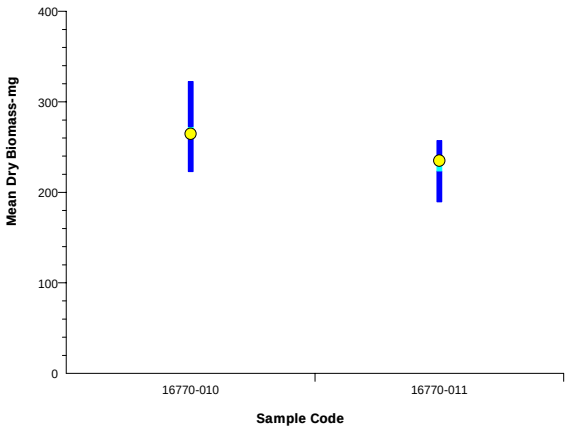
Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	1755.282	1755.282	1	1.08	0.33883	Non-Significant Effect
Error	9755.108	1625.851	6			
Total	11510.3905	3381.1334	7			

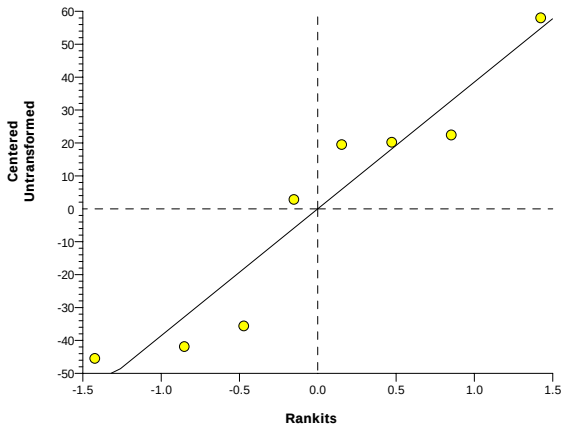
Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
16770-010		16770-011	1.03904	1.94318	0.1694	55.4037	Non-Significant Effect

Data Summary		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
16770-010	4	264.700	222.8	322.7	47.4946				
16770-011	4	235.075	189.6	257.5	31.5589				

Graphics





SOIL pH

STUDY NUMBER: 16770 **CLIENT:** Tetra Tech

	As Received pH	Adjusted pH
Sample ID	pH	pH
-001	5.21	
-002	7.42	
-003	7.73	
-004	6.10	
-005	5.99	
-006	6.73	
-007	6.07	
-008	4.73	
-009	4.53	
-010	6.02	
-011	7.80	
RECORDED BY:	RAM	
DATE:	1/22/08	

NOTES: pH meter used: 470

STUDY: 16770
CLIENT: Tetra Tech NUS
PROJECT: Naval Air Station Newport - Site 8 CTO-402
ASSAY: Eisenia fetida 14-day Assay
ELEMENT/TASK: Soil Characteristics
PARAMETER: Percent moisture
METHOD: 160.3 EPA 600/4/79/020

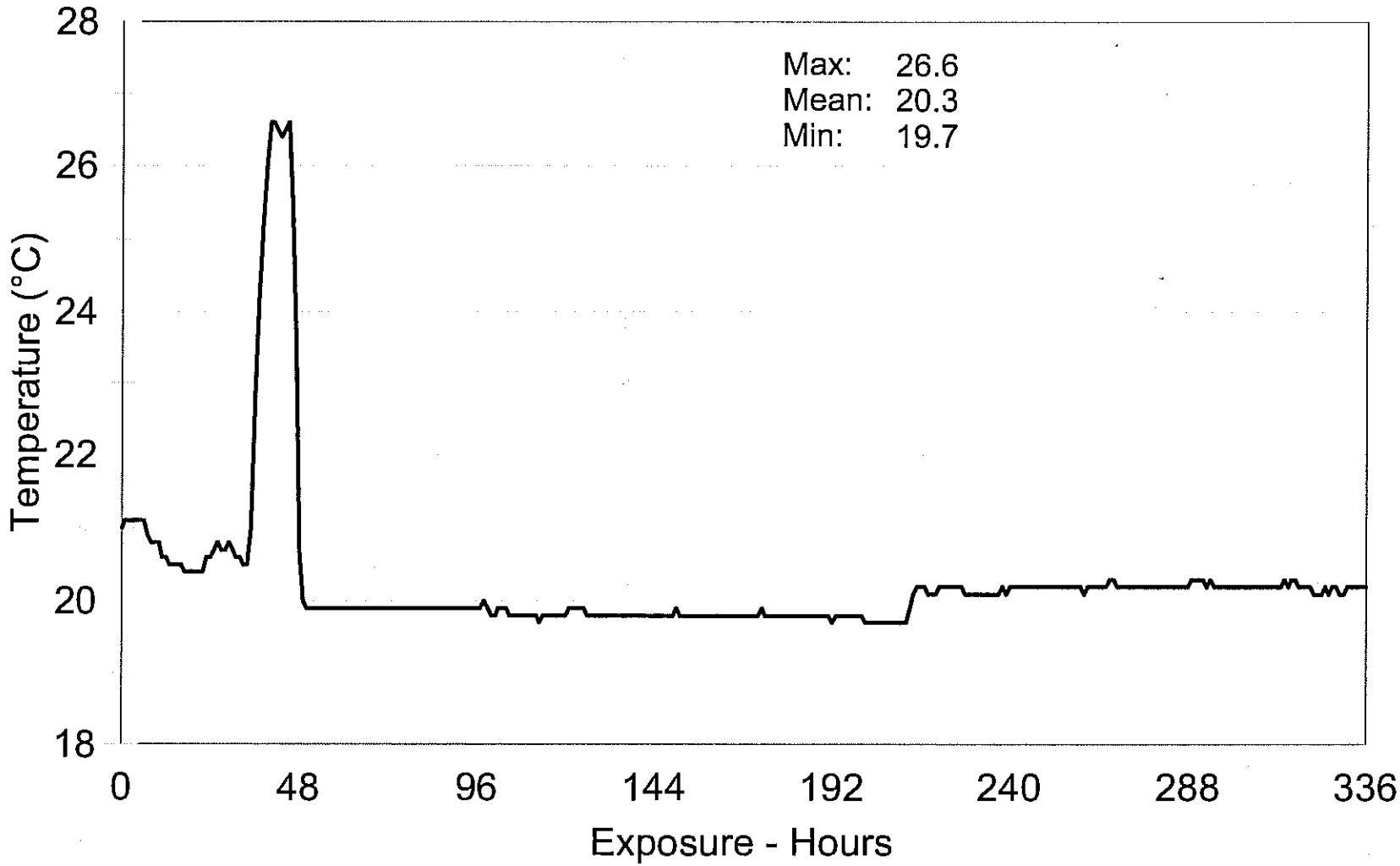
ID	LAB ID	RESULT	QUAL	QLIMIT	UNITS	SAMPLED	ANALYZED
DA-SS104-011508	16770-001	15.1		0.1	%	01/15/08 1030	01/22/08
DA-SS133-011508	16770-002	17.2		0.1	%	01/15/08 0845	01/22/08
DA-SS127-011508	16770-003	9.8		0.1	%	01/15/08 0815	01/22/08
DA-SS130-011508	16770-004	16.8		0.1	%	01/15/08 0935	01/22/08
DA-SS103B-011508	16770-005	11.7		0.1	%	01/15/08 1400	01/22/08
DA-SS108-011508	16770-006	10.7		0.1	%	01/15/08 1115	01/22/08
DA-SS110B-011508	16770-007	16.0		0.1	%	01/15/08 1600	01/22/08
DA-SS134-011508	16770-008	21.2		0.1	%	01/15/08 1525	01/22/08
DA-SS152-011608	16770-009	21.6		0.1	%	01/16/08 0825	01/22/08
DA-SS153-011608	16770-010	18.1		0.1	%	01/16/08 0920	01/22/08
DA-SS105B-011608	16770-011	14.4		0.1	%	01/16/08 1015	01/22/08

STUDY: 16770
CLIENT: Tetra Tech NUS
PROJECT: Naval Air Station Newport - Site 8 CTO-402
ASSAY: Eisenia fetida 14-day Assay
ELEMENT/TASK: Soil Characteristics
PARAMETER: Volatile Solids
METHOD: SM 2540 E

ID	LAB ID	RESULT	QUAL	QLIMIT	UNITS	SAMPLED	ANALYZED
DA-SS104-011508	16770-001	2.85		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS133-011508	16770-002	3.66		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS127-011508	16770-003	0.87		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS130-011508	16770-004	3.40		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS103B-011508	16770-005	1.85		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS108-011508	16770-006	1.04		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS110B-011508	16770-007	2.82		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS134-011508	16770-008	4.61		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS152-011608	16770-009	5.00		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS153-011608	16770-010	3.19		0.1	% dry wt	01/16/08 1015	01/22/08
DA-SS105B-011608	16770-011	2.68		0.1	% dry wt	01/16/08 1015	01/22/08

Temperature Profile

Eisenia fetida 14 Day Assay



ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, NH 03843-0778
Telephone: 603-926-3345

SAMPLE RECEIPT RECORD

ESI STUDY NUMBER: 16770 **CLIENT:** Tetra Tech NUS

SAMPLE RECEIPT:
DATE: 1/17/08 TIME: 0731 BY: DG

DELIVERED VIA: ☐ FEDEX ☐ CLIENT ☒ ESI ☐ UPS ☐ OTHER

LOGGED INTO LAB:
DATE: 1/17/08 TIME: 1200 BY: RAM

SAMPLE CONDITION:

CHAIN OF CUSTODY:	☒ YES		☐ NO
CHAIN OF CUSTODY SIGNED:	☒ YES		☐ NO
CHAIN OF CUSTODY COMPLETE:	☒ YES		☐ NO
SAMPLE DATE:	☒ YES		☐ NO
SAMPLE TIME RECORDED:	☒ YES		☐ NO
SAMPLE TYPE IDENTIFIED:	☒ YES		☐ NO
CUSTODY SEAL IN PLACE:	☐ YES	☒ NA	☐ NO
SHIPPING CONTAINER INTACT:	☒ YES		☐ NO

SAMPLE TEMPERATURE (AT ARRIVAL): 4 °C

DOES CLIENT NEED NOTIFICATION OF TEMPERATURE?
☐ YES ☒ NO

SAMPLE ARRIVED ON ICE: ☒ YES ☐ NO

COMMENTS: See C.O.C.

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 16770

CHAIN OF CUSTODY DOCUMENTATION

Client: Tetratech NUS	Contact: Jim Forrelli	Project Name: Site 08 NUSCDA Naval Station Newport	Page 1 of
Report to: Jim Forrelli	Address: 55 Jonspin Rd	Project Number: CTO 402	
Invoice to: See SOW 8/8/07	Address: Wilmington MA 01887	Project Manager: Jim Forrelli	
Voice: 978-474-8412	Fax: 978-474-8499	email: Jim.Forrelli@tetratech.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other ASTM

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	DA-SS104-0115-08	1-15-08	1030	LA MH	C	gal	P	None	S	N	Toxicity
-002	DA-SS133-011508	1-15-08	0845	LA MH	C	gal	P	None	S	N	
-003	DA-SS127-011508	1-15-08	0815	LA MH	C	gal	P	None	S	N	
-004	DA-SS130-011508	1-15-08	0935	LA MH	C	gal	P	None	S	N	
-005	DA-SS103B-011508	1-15-08	1400	LA MH	C	gal	P	None	S	N	
-006	DA-SS108-011508	1-15-08	1115	LA MH	C	gal	P	None	S	N	
-007	DA-SS110B-011508	1-15-08	1600	LA MH	C	gal	P	None	S	N	
-008	DA-SS134-011508	1-15-08	1525	LA MH	C	gal	P	None	S	N	
-009	DA-SS152-011608	~~1-16-08~~ 1-16-08	0825	LA MH	C	gal	P	None	S	N	
-010	DA-SS153-011608	1-16-08	0920	LA MH	C	gal	P	None	S	N	
-011	DA-SS105B-011608	1-16-08	1015	LA MH	C	gal	P	None	S	N	Toxicity

Relinquished By: [signature] Date: 1/17/08 Time: 0731

Received By: [signature] Date: 1/17/08 Time: 0731

Relinquished By: Date: Time:

Received at Lab By: Date: Time:

Comments:

No: Nº 2767

Sample Delivery Group No:

Page of

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, NH 03843-0778
603-926-3345

July 17, 2008

Mr. Steve Parker
Tetra Tech, Inc.
55 Jonspin Road
Wilmington, MA 01887

Dear Mr. Parker;

Enclosed, please find two (2) copies of our report evaluating the toxicity of sediment samples collected in support of the ecological risk assessment for the Site 08 - NUSC Disposal Area Newport Naval Station. Toxicity was evaluated using the amphipod, *Hyalella azteca*. This report includes statistical comparisons made against a composite reference site sample.

Please do not hesitate to call me or Renée McIsaac should you have any questions or comments on the report.

Sincerely,

EnviroSystems, Incorporated

Kenneth A. Simon
President

Enclosure
Two (2) Copies: One (1) Bound, One (1) Unbound.
Report Number 17237-08-05

TOXICOLOGICAL EVALUATION
OF FRESHWATER SEDIMENT SAMPLES

Hyalella azteca Survival and Growth Sediment Toxicity Test
Site 08 - NUSC Disposal Area Newport Naval Station
CTO-0402

Prepared For

Tetra Tech, Inc.
55 Jonspin Road
Wilmington, MA 01887

By

EnviroSystems, Incorporated
1 Lafayette Road
Hampton, New Hampshire 03842

May 2008
Reference Number 17237-08-05

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TOXICOLOGICAL EVALUATION
OF SEDIMENT SAMPLES

Hyalella azteca Survival and Growth Sediment Toxicity Test
Site 08 - NUSC Disposal Area Newport Naval Station Sediment Evaluation
CTO-0402

1.0 INTRODUCTION

This report presents the results of chronic exposure partial life cycle toxicity tests conducted on sediment samples collected from the Site 08 - NUSC Disposal Area Newport Naval Station, CTO-0402, project site. Samples were provided by Tetra Tech, Inc. staff of Okemos, MI. Testing was based on programs and protocols developed by the ASTM (2007) and US EPA (2000). The toxicity of the samples was assessed by conducting long term survival and growth tests using the freshwater amphipod, *Hyalella azteca*. Toxicity tests and supporting analyses were performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire.

Toxicity tests expose groups of organisms to environmental samples, a laboratory control and field reference sites for a specified period to assess potential impacts on a variety of endpoints, such as survival, growth or reproduction. Analysis of variance techniques are used to determine the relative toxicity of the samples as compared to the laboratory control and/or field reference sites.

2.0 MATERIALS AND METHODS

2.1 General Methods, Biological Evaluations

Toxicological and analytical protocols used in this program follow procedures outlined in *Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates* (ASTM Method E 1706-05, 2007), *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates* (US EPA 2000) and *Standard Methods for the Examination of Water and Wastewater*, 20th Edition (APHA 1998). These protocols provide standard approaches for physical and chemical analysis and for the evaluation of toxicological effects of sediments on aquatic invertebrates.

2.2 Test Species

H. azteca were obtained from Aquatic Research Organisms, Hampton, New Hampshire. Organisms used in the 28-day chronic exposure assay were approximately 7 days old at the start of the assay.

2.3 Test Samples and Laboratory Control Sediment

Sediment samples collected from the Site 08 - NUSC Disposal Area Newport Naval Station project site were received at ESI under chain of custody. Once received, samples were inspected to determine integrity, given unique sample numbers and logged into the laboratory sample management database. Once logged in the samples were placed in a secure refrigerated, 2 - 4 °C, storage area. A listing of sample sites, sample collection, and receipt information is summarized in Table 1.

The control substrate was a natural sediment field collected from the upper reaches of the Taylor River watershed in Hampton Falls, New Hampshire. Overlying water for the sediment toxicity tests was a mixture of natural surface water, also collected from the upper portion of the Taylor River watershed in Hampton Falls, New Hampshire, and moderately hard reconstituted water. Use of natural surface water mixed with artificial reconstituted water is recommended by the protocol (EPA 2000, ASTM 2007).

2.4 *Hyalella azteca* Survival and Growth Toxicity Tests

The 28-day amphipod survival and growth test endpoints are survival and growth, measured as dry weight. The site, reference, and laboratory control sediment treatments consisted of 8 replicates with 10

organisms/replicate. Test vessels were 400 mL glass beakers containing approximately 100 mL of sediment and 250 mL of overlying water. The overlying water volume to sediment surface area ratio was approximately 7:1. Test vessels were drilled at a consistent height above their bases and the hole covered with Nytex® screen to facilitate water exchange without compromising organisms. Vessels were maintained in a water bath during the assay. Depth of the water in the bath was set to be approximately 1 cm below the drain hole in the test vessel to eliminate flow of water from the bath into the test vessel. The water bath was maintained in a limited-access temperature controlled room. Temperatures in the room and water bath were independently maintained at 23 ±1°C. The photoperiod in the test chamber was set at 16:8 hour light:dark. Light was provided by cool white flourescent bulbs.

One day prior to test initiation (Day -1), control and test sediments were sieved using a 2 mm sieve to remove rocks, twigs, and other debris. Prior to sieving, test sediments were mixed to insure a representative sample was obtained from the sample container. Sieved sediments were placed in the test vessels. Overlying water was immediately added, and the vessels were left undisturbed overnight to settle. Floating detritus was removed the next morning. The next day (Day 0), organisms were added to test chambers. Organisms were added below the water surface at test initiation using a large-bore glass pipet.

Overlying water in each replicate was renewed daily after collection of water quality data. The volume of water added to each test chamber was approximately 500 mL or two volumes. Water exchanges were facilitated by use of a distribution system designed to provide equal, regulated, flow to each chamber. The system was activated manually by the addition of water during the assay.

Prior to the daily overlying water renewal, temperature, specific conductance, pH, and dissolved oxygen were measured in one replicate of each treatment. Alkalinity, hardness and ammonia of the overlying water were measured weekly from test initiation until day 28. Additionally, total organic carbon was measured in overlying waters at the start and end of the 28 day study period. Each replicate was fed 1.0 mL of a yeast/trout chow/alfalfa suspension after the daily renewal.

After 28 days exposure, all replicates of each test treatment were terminated to collect data for initial survival. Each test chamber was gently swirled to loosen the sediments and the test material was dumped into an 8" stainless steel sieve with a 0.35 mm mesh screen. The sediments were washed through the sieve using synthetic, moderately hard reconstituted water and material left on the screen was sorted to recover the organisms. This process was continued until the entire sample was evaluated. Surviving amphipods were counted and placed on tared weighing pans. Pans were dried overnight at 104°C to obtain dry weight to the nearest 0.01 mg. The mean dry weight of surviving organisms was determined to assess growth.

2.5 Statistical Analysis

Survival, growth and reproduction data were analyzed using CETIS® software to determine significant differences between the test sediments and both the associated laboratory control and reference sediments. Data sets were evaluated to determine normality of distribution and homogeneity of sample variance. Data sets were subsequently evaluated using the appropriate parametric or non-parametric Analysis of Variance (ANOVA) statistic. Statistical comparisons were made against the following endpoints; survival on day 28 and dry weight on day 28. Pair-wise comparisons were made using the appropriate statistical evaluation. Statistical difference was evaluated at α=0.05.

2.6 Quality Control

As part of the laboratory quality control program, reference toxicant evaluations are conducted by ESI on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. Results are summarized in Table 2.

2.7 Protocol Deviations

Review of data generated during the 28-day exposure period documented the following deviations for either the method protocol or ESI's standard operating procedures. A single method protocol deviation was

recorded during the study. While obtaining final dry weights data was lost from a total of 4 replicates due to a laboratory incident where the weigh boats were accidently spilled. A single standard operating procedure deviation was also recorded. During the assay the data logger collecting hourly temperature data failed to start collecting data when the assay was initiated. A check of the logger at the 72 hour point of the assay documented the issue and the unit was replaced. Hourly data was collected for the remainder of the assay. Temperature data collected during the daily observations for the first three days of the study documented that temperatures were within method limits. Historic data for the test chamber and data collected during the remaining 25 days of the assay document that the test chamber has the capability to maintain temperatures within method specification.

3.0 RESULTS AND DISCUSSION

Survival data from day 28 are summarized in Table 3. Table 4 provides a summary of day 28 growth data. Overlying water quality data collected during the assays are summarized in Table 5. Support data, including copies of laboratory bench sheets, statistical analyses and individual endpoint summaries, are provided in Appendix A.

3.1 *Hyalella azteca* Survival, Growth and Reproduction Evaluation

At the end of the initial 28 day exposure period, mean survival in laboratory control sediment was 96.25% with a coefficient of variation (CV) of 5.38%. Amphipods recovered from laboratory control sediment had a mean dry weight of 0.327 mg/amphipod, with a CV of 27.88%. The dry weight of a representative group of amphipods at the start of the assay was 0.010 mg/individual. The minimum test acceptability criteria for survival in the laboratory control is $\geq$80%. The minimum acceptable criteria for growth is a demonstration of increased dry weight after 28 days exposure. These criteria were met indicating that the organisms were healthy and not stressed by handling.

Survival of amphipods and growth of amphipod in the project reference sites are summarized in the following matrix. Survival varied from 77.5 to 86.25%, samples DA-SD-RP02 and DA-SD-RP05, respectively. Mean dry weights of amphipods in the

Field ID	ESI Code	Mean Survival	Mean Dry Weight (mg)
DA-SD-RP01-0006	17237-016	85.00%	0.505
DA-SD-RP02-0006	17237-017	77.50%	0.338
DA-SD-RP03-0006	17237-018	77.50%	0.499
DA-SD-RP04-0006	17237-019	82.50%	0.322
DA-SD-RP05-0006	17237-020	86.25%	0.333

Temperature data collected in a surrogate test chamber during 25 days of the assay documented values ranging from 21.4 to 25.8°C with a mean value of 23.2°C. Test acceptability criteria requires a mean temperature of 23±1°C, with maximum temporary fluctuations of 23±3°C. Review of water quality parameters, Table 5 and Appendix A, document that variation in conductivity, alkalinity, hardness and ammonia between the start and end of the assay were within protocol limits.

3.2 Summary

The following matrix provides a summary of endpoints for each sample site where at least one of the monitored endpoints was significantly different ,less than, the corresponding laboratory control or reference site.

Field ID	ESI Code	Lab	SD-RP01	SD-RP02	SD-RP03	SD-RP04	SD-RP05
DA-SD107-0006	17237-001	✓	✓		✓		
DA-SD108-0006	17237-002	✓	✓	✓	✓	✓	✓
DA-SD111-0006	17237-003	✓	✓		✓		✓
DA-SD112-0006	17237-004	✓	✓		✓		✓
DA-SD106-0006	17237-005		✓		✓		
DA-SD-DUP01	17237-006		✓		✓		
DA-SD110-0006	17237-007	✓	✓	✓	✓	✓	✓
DA-SD133-0006	17237-008	✓	✓		✓		✓
DA-SD01-0006	17237-009	✓	✓		✓		
DA-SD116-0006	17237-010	✓	✓	✓	✓	✓	✓
DA-SD114-0006	17237-011		✓		✓		
DA-SD119-0006	17237-012	✓	✓	✓	✓	✓	✓
DA-SD-DUP02	17237-013	✓	✓		✓	✓	✓
DA-SD121-0006	17237-014	✓	✓	✓	✓	✓	✓
DA-SD125-0006	17237-015	✓	✓	✓	✓	✓	✓

4.0 REFERENCES

APHA. 1998. *Standard Methods for the Examination of Water and Wastewater*, 20th Edition. Washington D.C.

ASTM. 2007. Annual Book of ASTM Standards. Volume 11.06. *Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates*. E 1706-05. ASTM, Philadelphia.

EnviroSystems SOP QA-1466: 42 Day Assessment Toxicity of Sediments To The Amphipod, *Hyalella azteca* based on Survival and Growth.

U.S. EPA. 2000. *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates.* Second Edition. EPA/600-R-99/064.

Table 1. Summary of Sample Collection Information. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

			Sample Collected		Sample Received	
Field ID	ESI Code	Matrix	Date	Time	Date	Time
DA-SD107-0006	17237-001	Sediment	05/19/08	1400	05/23/08	1430
DA-SD108-0006	17237-002	Sediment	05/19/08	1445	05/23/08	1430
DA-SD111-0006	17237-003	Sediment	05/19/08	1600	05/23/08	1430
DA-SD112-0006	17237-004	Sediment	05/19/08	1545	05/23/08	1430
DA-SD106-0006	17237-005	Sediment	05/20/08	0930	05/23/08	1430
DA-SD-DUP01	17237-006	Sediment	05/20/08	0945	05/23/08	1430
DA-SD110-0006	17237-007	Sediment	05/20/08	0800	05/23/08	1430
DA-SD133-0006	17237-008	Sediment	05/20/08	1000	05/23/08	1430
DA-SD01-0006	17237-009	Sediment	05/20/08	1130	05/23/08	1430
DA-SD116-0006	17237-010	Sediment	05/20/08	1500	05/23/08	1430
DA-SD114-0006	17237-011	Sediment	05/20/08	1600	05/23/08	1430
DA-SD119-0006	17237-012	Sediment	05/21/08	1000	05/23/08	1430
DA-SD-DUP02	17237-013	Sediment	05/21/08	1015	05/23/08	1430
DA-SD121-0006	17237-014	Sediment	05/21/08	1215	05/23/08	1430
DA-SD125-0006	17237-015	Sediment	05/21/08	1330	05/23/08	1430
DA-SD-RP01-0006	17237-016	Sediment	05/22/08	0930	05/23/08	1430
DA-SD-RP02-0006	17237-017	Sediment	05/22/08	1045	05/23/08	1430
DA-SD-RP03-0006	17237-018	Sediment	05/22/08	1200	05/23/08	1430
DA-SD-RP04-0006	17237-019	Sediment	05/22/08	1445	05/23/08	1430
DA-SD-RP05-0006	17237-020	Sediment	05/22/08	1515	05/23/08	1430

Table 2. Reference Toxicant Evaluation. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

Date	Endpoint		Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
Hyalella azteca						
06/26/08	Survival	LC-50	0.0053	0.0027	0.000 - 0.008	Cadmium (mg/L)

Table 3. Day 28 *Hyalella azteca* Survival Summary and Statistical Analysis. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

Day 28 Survival Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Lab Control	17237-000	8	96.25%	90.0%	100.0%	5.38%
DA-SD-RP01-0006	17237-016	8	85.00%	60.0%	100.0%	18.87%
DA-SD-RP02-0006	17237-017	8	77.50%	30.0%	100.0%	28.23%
DA-SD-RP03-0006	17237-018	8	77.50%	40.0%	100.0%	27.37%
DA-SD-RP04-0006	17237-019	8	82.50%	50.0%	100.0%	20.23%
DA-SD-RP05-0006	17237-020	8	86.25%	60.0%	100.0%	15.10%
DA-SD107-0006	17237-001	8	85.00%	70.0%	100.0%	12.58%
DA-SD108-0006	17237-002	8	40.00%	10.0%	50.0%	40.09%
DA-SD111-0006	17237-003	8	82.50%	60.0%	100.0%	18.04%
DA-SD112-0006	17237-004	8	88.75%	60.0%	100.0%	16.43%
DA-SD106-0006	17237-005	8	91.25%	80.0%	100.0%	7.02%
DA-SD-DUP01	17237-006	8	88.75%	70.0%	100.0%	12.69%
DA-SD110-0006	17237-007	8	60.00%	20.0%	80.0%	33.33%
DA-SD133-0006	17237-008	8	76.25%	70.0%	80.0%	6.79%
DA-SD01-0006	17237-009	8	85.00%	70.0%	100.0%	12.58%
DA-SD116-0006	17237-010	8	21.25%	0.0%	40.0%	88.71%
DA-SD114-0006	17237-011	8	90.00%	70.0%	100.0%	13.28%
DA-SD119-0006	17237-012	8	56.25%	30.0%	80.0%	28.41%
DA-SD-DUP02	17237-013	8	67.50%	40.0%	80.0%	18.99%
DA-SD121-0006	17237-014	8	15.00%	0.0%	40.0%	87.29%
DA-SD125-0006	17237-015	8	2.50%	0.0%	10.0%	185.20%

Table 3. Day 28 *Hyalella azteca* Survival Summary and Statistical Analysis. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

Day 28 Survival Analysis			Statistically Significant Difference, "<" as Compared to:											
Sample ID	Lab Code	Mean	Lab Control-000		SD-RP01		SD-RP02		SD-RP03		SD-RP04		SD-RP05	
			p Value		p Value		p Value		p Value		p Value		p Value	
Lab Control	17234-000	96.25%	-	-	-	-	-	-	-	-	-	-	-	-
SD-RP01-0006	17237-016	85.00%	0.0455	YES	-	-	-	-	-	-	-	-	-	-
SD-RP02-0006	17237-017	77.50%	0.0101	YES	0.2091	NO	-	-	-	-	-	-	-	-
SD-RP03-0006	17237-018	77.50%	0.0127	YES	0.2258	NO	0.5178	NO	-	-	-	-	-	-
SD-RP04-0006	17237-019	82.50%	0.0176	YES	0.3627	NO	0.6927	NO	0.6732	NO	-	-	-	-
SD-RP05-0006	17237-020	86.25%	0.0270	YES	0.5245	NO	0.8241	NO	0.8071	NO	0.6740	NO	-	-
SD107-0006	17237-001	85.00%	0.0075	YES	0.4347	NO	0.7824	NO	0.7624	NO	0.5980	NO	0.3953	NO
SD108-0006	17237-002	40.00%	0.0001	YES	0.0001	YES	0.0009	YES	0.0009	YES	0.0001	YES	0.0000	YES
SD111-0006	17237-003	82.50%	0.0129	YES	0.3519	NO	0.6916	NO	0.6716	NO	0.4927	NO	0.3125	NO
SD112-0006	17237-004	88.75%	0.0990	NO	0.6697	NO	0.8883	NO	0.8760	NO	0.7897	NO	0.6650	NO
SD106-0006	17237-005	91.25%	0.0543	NO	0.7885	NO	0.9483	NO	0.9392	NO	0.8939	NO	0.8084	NO
SD-DUP01	17237-006	88.75%	0.0600	NO	0.6627	NO	0.8939	NO	0.8809	NO	0.7929	NO	0.6584	NO
SD110-0006	17237-007	60.00%	0.0000	YES	0.0058	YES	0.0454	YES	0.0435	YES	0.0110	YES	0.0027	YES
SD133-0006	17237-008	76.25%	0.0001	YES	0.0522	NO	0.3372	NO	0.3188	NO	0.1098	NO	0.0213	YES
SD01-0006	17237-009	85.00%	0.0075	YES	0.4347	NO	0.7824	NO	0.7624	NO	0.5980	NO	0.3953	NO
SD116-0006	17237-010	21.25%	0.0000	YES	0.0001	YES	0.0001	YES	0.0001	YES	0.0000	YES	0.0000	YES
SD114-0006	17237-011	90.00%	0.1069	NO	0.7263	NO	0.9171	NO	0.9063	NO	0.8382	NO	0.7301	NO
SD119-0006	17237-012	56.25%	0.0000	YES	0.0014	YES	0.0173	YES	0.0168	YES	0.0027	YES	0.0004	YES
SD-DUP02	17237-013	67.50%	0.0000	YES	0.0110	YES	0.1044	NO	0.0992	NO	0.0229	YES	0.0041	YES
SD121-0006	17237-014	15.00%	0.0000	YES	0.0000	YES	0.0000	YES	0.0000	YES	0.0000	YES	0.0000	YES
SD125-0006	17237-015	2.50%	0.0000	YES	0.0000	YES	0.0000	YES	0.0000	YES	0.0000	YES	0.0000	YES

Table 4. Day 28 *Hyalella azteca* Dry Weight Summary and Statistical Analysis. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

Day 28 Survival Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Lab Control	17237-000	8	0.325	0.273	0.393	12.89%
DA-SD-RP01-0006	17237-016	8	0.505	0.388	0.808	25.99%
DA-SD-RP02-0006	17237-017	8	0.338	0.008	0.903	88.11%
DA-SD-RP03-0006	17237-018	8	0.499	0.297	0.585	20.47%
DA-SD-RP04-0006	17237-019	8	0.322	0.204	0.378	19.29%
DA-SD-RP05-0006	17237-020	8	0.333	0.189	0.409	22.27%
DA-SD107-0006	17237-001	8	0.369	0.297	0.526	23.55%
DA-SD108-0006	17237-002	8	0.414	0.128	1.165	78.59%
DA-SD111-0006	17237-003	8	0.269	0.191	0.353	20.24%
DA-SD112-0006	17237-004	8	0.249	0.213	0.309	11.52%
DA-SD106-0006	17237-005	8	0.292	0.230	0.384	19.13%
DA-SD-DUP01	17237-006	8	0.306	0.211	0.384	18.91%
DA-SD110-0006	17237-007	8	0.427	0.263	0.755	35.14%
DA-SD133-0006	17237-008	8	0.334	0.233	0.414	17.32%
DA-SD01-0006	17237-009	8	0.306	0.190	0.369	17.10%
DA-SD116-0006	17237-010	8	0.265	0.155	0.418	37.51%
DA-SD114-0006	17237-011	8	0.344	0.207	0.590	37.34%
DA-SD119-0006	17237-012	8	0.251	0.083	0.523	53.64%
DA-SD-DUP02	17237-013	8	0.233	0.206	0.264	9.50%
DA-SD121-0006	17237-014	8	0.146	0.070	0.225	40.81%
DA-SD125-0006	17237-015	8	0.310	0.230	0.390	36.50%

Table 4. Day 28 *Hyalella azteca* Dry Weight Summary and Statistical Analysis. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

Day 28 Growth (Dry Weight) Analysis			Statistically Significant Difference, "<" as Compared to:											
Sample ID	Lab Code	Mean	Lab Control-000		SD-RP01		SD-RP02		SD-RP03		SD-RP04		SD-RP05	
			p Value		p Value		p Value		p Value		p Value		p Value	
Lab Control	17234-000	0.325	-	-	-	-	-	-	-	-	-	-	-	-
-SD-RP01-0006	17237-016	0.505	0.9998	NO	-	-	-	-	-	-	-	-	-	-
-SD-RP02-0006	17237-017	0.338	0.5473	NO	0.0840	NO	-	-	-	-	-	-	-	-
-SD-RP03-0006	17237-018	0.499	0.9997	NO	0.4581	NO	0.9150	NO	-	-	-	-	-	-
-SD-RP04-0006	17237-019	0.322	0.4487	NO	0.0001	YES	0.4407	NO	0.0004	YES	-	-	-	-
-SD-RP05-0006	17237-020	0.333	0.5950	NO	0.0030	YES	0.4802	NO	0.0011	YES	0.6223	NO	-	-
-SD107-0006	17237-001	0.369	0.8912	NO	0.0141	YES	0.6098	NO	0.0080	YES	0.8856	NO	0.8105	NO
-SD108-0006	17237-002	0.414	0.4392	NO	0.0415	YES	0.7473	NO	0.0525	NO	0.4796	NO	0.4392	NO
-SD111-0006	17237-003	0.269	0.0189	YES	0.0001	YES	0.2658	NO	0.0000	YES	0.0475	YES	0.0363	YES
-SD112-0006	17237-004	0.249	0.0004	YES	0.0001	YES	0.4796	NO	0.0000	YES	0.0477	YES	0.0050	YES
-SD106-0006	17237-005	0.292	0.0994	NO	0.0001	YES	0.3365	NO	0.0001	YES	0.1647	NO	0.1176	NO
-SD-DUP01	17237-006	0.306	0.2268	NO	0.0001	YES	0.3837	NO	0.0002	YES	0.3011	NO	0.2163	NO
-SD110-0006	17237-007	0.427	0.9585	NO	0.0525	NO	0.7688	NO	0.1407	NO	0.9562	NO	0.9939	NO
-SD133-0006	17237-008	0.334	0.6273	NO	0.0002	YES	0.4835	NO	0.0007	YES	0.6506	NO	0.5116	NO
-SD01-0006	17237-009	0.306	0.2108	NO	0.0001	YES	0.3829	NO	0.0001	YES	0.2914	NO	0.2069	NO
-SD116-0006	17237-010	0.265	0.0763	NO	0.0025	YES	0.3058	NO	0.0009	YES	0.1137	NO	0.0935	NO
-SD114-0006	17237-011	0.344	0.6506	NO	0.0131	YES	0.5205	NO	0.0091	YES	0.6678	NO	0.5852	NO
-SD119-0006	17237-012	0.251	0.0797	NO	0.0009	YES	0.2321	NO	0.0005	YES	0.0996	NO	0.0780	NO
-SD-DUP02	17237-013	0.233	0.0005	YES	0.0008	YES	0.1769	NO	0.0001	YES	0.0057	YES	0.0074	YES
-SD121-0006	17237-014	0.146	0.0000	YES	0.0008	YES	0.0598	NO	0.0000	YES	0.0002	YES	0.0003	YES
-SD125-0006	17237-015	0.310	0.3707	NO	0.0461	YES	0.4515	NO	0.0249	YES	0.4198	NO	0.3656	NO

Table 5. Summary of Overlying Water Qualities. Site 08 - NUSC Disposal Area Newport Naval Station CTO - 0402 Sediment Evaluation.

Field ID	ESI Code		Spec. Cond. (µS/cm)	Alkalinity (mg/L)	Ammonia (mg/L)	Hardness (mg/L)
Lab Control	17237-000	Day 0	267.2	41	<0.1	75
		Day 28	306.8	63	<0.1	82
-SD107-0006	17237-001	Day 0	288.7	98	0.95	110
		Day 28	294.2	76	0.72	89
-SD108-0006	17237-002	Day 0	287.4	73	0.45	94
		Day 28	325.2	79	<0.1	93
-SD111-0006	17237-003	Day 0	275.6	54	<0.1	82
		Day 28	306.4	71	<0.1	87
-SD112-0006	17237-004	Day 0	280.3	53	0.19	78
		Day 28	299.9	70	<0.1	84
-SD106-0006	17237-005	Day 0	316.1	63	0.14	87
		Day 28	292.1	85	<0.1	93
-SD-DUP01	17237-006	Day 0	286.4	60	0.14	86
		Day 28	315.0	86	<0.1	98
-SD110-0006	17237-007	Day 0	310.7	55	0.41	86
		Day 28	289.6	77	<0.1	88
-SD133-0006	17237-008	Day 0	315.1	62	0.12	92
		Day 28	309.3	77	<0.1	93
-SD01-0006	17237-009	Day 0	296.7	63	0.69	85
		Day 28	354.2	97	<0.1	120
-SD116-0006	17237-010	Day 0	303.7	51	<0.1	79
		Day 28	279.6	70	<0.1	83
-SD114-0006	17237-011	Day 0	282.3	55	0.23	77
		Day 28	306.0	70	<0.1	84
-SD119-0006	17237-012	Day 0	317.4	52	0.6	75
		Day 28	296.6	73	<0.1	93
-SD-DUP02	17237-013	Day 0	295.0	54	0.68	76
		Day 28	273.0	61	<0.1	77
-SD121-0006	17237-014	Day 0	266.6	63	2.2	77
		Day 28	296.9	71	<0.1	80
-SD125-0006	17237-015	Day 0	297.2	53	1.3	69
		Day 28	270.7	63	<0.1	82
-SD-RP01-0006	17237-016	Day 0	316.9	51	0.17	71
		Day 28	278.0	50	<0.1	87
-SD-RP02-0006	17237-017	Day 0	302.4	50	0.77	74
		Day 28	281.2	52	0.19	84
-SD-RP03-0006	17237-018	Day 0	396.2	75	0.96	68
		Day 28	300.9	33	<0.1	85
-SD-RP04-0006	17237-019	Day 0	310.6	32	0.12	89
		Day 28	285.5	73	<0.1	89
-SD-RP05-0006	17237-020	Day 0	281.1	44	<0.1	78
		Day 28	318.2	73	<0.1	88

Additional water quality data are provided in Appendix A.

APPENDIX A: RAW DATA & STATISTICAL SUPPORT

Contents	Number of Pages
H. azteca Survival and Reproduction Sediment Toxicity Tests	
Day 0 - 28 Daily Check List	1
Daily Water Quality Data Summary	6
Day 28 Organism Recovery Bench Sheets	3
Day 28 Survival Statistical Analysis	108
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Day 28 Growth Statistical Analysis	107
Analytical Chemistry Data Summaries	
Overlying Water Alkalinity	2
Overlying Water Hardness	3
Overlying Water Ammonia	3
Total Organic Carbon	1
Temperature Profile	1
Organism History Record	1
Sample Receipt Logs and Chain of Custody Records	2
Total Appendix Pages	243

Hyalella azteca
28 Day Sediment Assay

Study # 17237	Client: TetraTech		Overlying: MHR/Pond
Day	**Date**	**Renew/Feed**	**Initial**
0	6-4-08	✓	DM
1	6-5-08	✓	DM
2	6-6	✓	DM
3	06/07/08	✓	RAM
4	6-8-08	✓	APL
5	6-9-08	✓	APL
6	6-10-08	✓	APL
7	6-11-08	✓	APL
8	6/12/08	✓	RAM
9	6/13/08	✓	RAM
10	06/14/08	✓	RAM
11	6-15-08	✓	APL
12	6-16-08	✓	APL
13	06/17/08	✓	RAM
14	06/18/08	✓	RAM
15	06/19/08	✓	RAM
16	6-20-08	✓	DM
17	6-21-08	✓	DM
18	6-22-08	✓	APL
19	6-23-08	✓	APL
20	6-24-08	✓	DM
21	6-25-08	✓	DM
22	6-26-08	✓	APL
23	6-27-08	✓	DM
24	6-28-08	✓	DM
25	6-29-08	✓	APL
26	6-30-08	✓	APL
27	7-1-08	✓	APL
28	07/02/08		RAM

Alkalinity, Hardness & Ammonia on Days 0, 7, 14, 21, 28 TOC on Days 0 and 28	**Day 0**	**Initial:** DM
	Day 7	**Initial:** APL
	Day 14	**Initial:** RAM
	Day 21	**Initial:** DM
	Day 28	**Initial:** APL

Notes: 23 °C	**Feed 1 mL of YCT food**	**Aerate if DO is below 2.5**	**Two Volume Additions**

STUDY: 17237
CLIENT: TetraTech
PROJECT: Newport
ASSAY: 28 Day Hyalella azteca
TASK: Daily Water Quality Summary

Day	Lab Code	DateTime M/D/Y	Temp C	DO Conc mg/L	pH	SpCond uS/cm	Day	Lab Code	DateTime M/D/Y	Temp C	DO Conc mg/L	pH	SpCond uS/cm
0	Lab	06/04/08	22.19	6.78	7.44	267.2	15	Lab	06/19/08	21.18	8.73	8.22	340.5
	001	06/04/08	22.16	4.81	7.17	288.7		001	06/19/08	21.12	8.67	8.18	349.7
	002	06/04/08	22.20	6.07	7.35	287.4		002	06/19/08	21.06	8.60	8.18	374.3
	003	06/04/08	22.18	7.23	7.44	275.6		003	06/19/08	21.00	8.65	8.21	342.8
	004	06/04/08	22.08	7.29	7.43	280.3		004	06/19/08	20.88	8.74	8.20	336.7
	005	06/04/08	22.08	6.29	7.37	292.1		005	06/19/08	20.91	8.68	8.21	350.5
	006	06/04/08	22.10	6.66	7.38	286.4		006	06/19/08	20.90	8.78	8.22	360.1
	007	06/04/08	22.16	7.24	7.37	289.6		007	06/19/08	20.94	8.82	8.23	366.8
	008	06/04/08	22.19	6.56	7.39	309.3		008	06/19/08	20.98	8.72	8.21	369.2
	009	06/04/08	22.21	6.35	7.30	296.7		009	06/19/08	21.04	8.73	8.24	379.4
	010	06/04/08	22.22	6.68	7.05	279.6		010	06/19/08	21.15	8.68	8.23	354.6
	011	06/04/08	22.14	6.88	7.32	282.3		011	06/19/08	21.23	8.67	8.22	357.9
	012	06/04/08	22.16	4.90	7.10	296.6		012	06/19/08	21.14	8.71	8.22	349.5
	013	06/04/08	22.23	3.73	6.97	273.0		013	06/19/08	21.23	8.67	8.22	362.9
	014	06/04/08	22.25	1.17	6.73	266.6		014	06/19/08	21.32	8.63	8.23	362.6
	015	06/04/08	22.30	3.35	6.77	270.7		015	06/19/08	21.36	8.63	8.22	337.4
	016	06/04/08	22.34	3.55	6.73	278.0		016	06/19/08	21.34	8.63	8.10	442.2
	017	06/04/08	22.26	5.36	6.70	281.2		017	06/19/08	21.36	8.59	8.12	376.4
	018	06/04/08	22.32	4.18	6.60	396.2		018	06/19/08	21.38	8.30	8.11	381.7
	019	06/04/08	22.30	6.34	6.74	285.5		019	06/19/08	21.37	8.07	8.14	350.6
	020	06/04/08	22.33	6.63	6.97	281.1		020	06/19/08	21.40	8.47	8.17	359.0
1	Lab	06/05/08	21.86	7.96	7.98	295.5	16	Lab	06/20/08	22.33	8.63	7.92	332.4
	001	06/05/08	22.16	7.69	7.87	527.8		001	06/20/08	21.83	8.12	7.87	344.2
	002	06/05/08	22.02	8.15	8.00	555.3		002	06/20/08	21.98	7.96	7.85	366.1
	003	06/05/08	21.96	8.18	8.02	487.7		003	06/20/08	22.05	8.24	7.91	337.0
	004	06/05/08	21.90	8.69	7.72	316.6		004	06/20/08	22.03	8.37	7.89	331.6
	005	06/05/08	22.01	8.33	7.85	377.7		005	06/20/08	22.03	8.39	7.89	345.9
	006	06/05/08	22.16	7.89	7.69	345.8		006	06/20/08	21.93	8.42	7.91	356.7
	007	06/05/08	22.12	8.18	7.84	351.4		007	06/20/08	22.03	7.22	7.86	359.2
	008	06/05/08	22.16	8.20	7.87	357.8		008	06/20/08	22.01	8.28	7.89	357.9
	009	06/05/08	22.20	8.28	7.92	340.9		009	06/20/08	22.20	8.11	7.95	370.9
	010	06/05/08	22.27	8.24	7.71	314.8		010	06/20/08	22.25	8.05	7.95	303.2
	011	06/05/08	22.21	8.19	7.85	307.9		011	06/20/08	22.28	8.18	7.92	347.0
	012	06/05/08	22.28	8.24	7.76	349.7		012	06/20/08	22.08	7.96	7.89	342.0
	013	06/05/08	22.34	8.01	7.79	324.8		013	06/20/08	22.34	8.19	7.91	359.8
	014	06/05/08	22.39	7.95	7.82	296.4		014	06/20/08	22.43	7.61	7.91	366.0
	015	06/05/08	22.43	7.75	7.78	312.9		015	06/20/08	22.58	7.90	7.86	330.7
	016	06/05/08	22.47	7.95	7.78	311.3		016	06/20/08	22.51	8.06	7.91	417.5
	017	06/05/08	22.51	8.12	7.74	296.9		017	06/20/08	22.53	8.07	7.89	371.8
	018	06/05/08	22.44	8.43	7.58	654.5		018	06/20/08	22.50	7.38	7.73	371.8
	019	06/05/08	22.36	8.21	7.58	416.4		019	06/20/08	22.52	8.13	7.82	346.0
	020	06/05/08	22.23	8.30	7.64	309.0		020	06/20/08	22.72	7.98	7.85	357.7
2	Lab	06/06/08	22.20	8.11	7.86	306.6	17	Lab	06/21/08	21.15	8.50	8.19	328.3
	001	06/06/08	22.24	7.60	7.85	502.2		001	06/21/08	21.21	8.30	8.23	332.9
	002	06/06/08	22.07	8.15	7.92	507.8		002	06/21/08	21.15	8.35	8.17	347.1
	003	06/06/08	21.98	8.31	7.99	454.4		003	06/21/08	21.11	8.49	8.18	327.5
	004	06/06/08	21.96	8.36	8.01	327.9		004	06/21/08	21.13	8.36	8.14	319.3
	005	06/06/08	21.90	8.26	7.98	376.3		005	06/21/08	21.10	8.60	8.14	333.8
	006	06/06/08	22.09	8.18	7.89	360.0		006	06/21/08	20.99	8.69	8.16	344.0
	007	06/06/08	22.04	8.23	7.93	363.4		007	06/21/08	21.11	8.12	8.14	335.2

008	06/06/08	22.01	8.57	7.83	369.9		008	06/21/08	21.27	8.56	8.14	342.3
009	06/06/08	22.07	8.19	7.95	354.9		009	06/21/08	21.39	8.19	8.22	352.4
010	06/06/08	22.12	8.19	7.98	332.6		010	06/21/08	21.46	8.17	7.91	326.1
011	06/06/08	22.11	8.33	7.90	322.5		011	06/21/08	21.43	8.23	7.72	330.3
012	06/06/08	22.21	7.56	7.87	351.7		012	06/21/08	21.43	8.53	8.00	269.7
013	06/06/08	22.27	7.97	7.86	334.0		013	06/21/08	21.55	8.12	8.10	347.8
014	06/06/08	22.30	8.10	7.86	315.5		014	06/21/08	21.57	8.29	8.06	351.1
015	06/06/08	22.34	7.97	7.86	327.3		015	06/21/08	21.65	8.23	8.08	316.2
016	06/06/08	22.33	8.07	7.85	327.8		016	06/21/08	21.57	7.92	8.12	401.5
017	06/06/08	22.39	8.05	7.82	352.6		017	06/21/08	21.59	8.13	8.12	352.4
018	06/06/08	22.37	8.02	7.80	549.1		018	06/21/08	21.59	8.20	8.08	347.5
019	06/06/08	22.32	8.15	7.91	378.9		019	06/21/08	21.68	8.35	8.10	328.2
020	06/06/08	22.28	8.21	7.91	327.6		020	06/21/08	21.87	8.25	8.11	338.7
3 Lab	06/07/08	22.19	8.38	8.26	314.6	18	Lab	06/22/08	22.24	8.06	8.15	314.9
001	06/07/08	22.28	8.28	8.13	483.3		001	06/22/08	22.40	8.15	8.27	338.2
002	06/07/08	22.18	8.29	8.18	444.8		002	06/22/08	21.51	8.88	8.26	359.5
003	06/07/08	22.15	8.38	8.20	406.2		003	06/22/08	22.24	8.43	8.26	336.5
004	06/07/08	22.37	8.29	8.16	329.2		004	06/22/08	22.35	8.39	8.24	324.9
005	06/07/08	22.25	8.28	8.16	361.6		005	06/22/08	22.39	8.38	8.21	340.6
006	06/07/08	22.43	8.19	8.11	353.2		006	06/22/08	22.45	8.37	8.21	350.4
007	06/07/08	22.34	8.19	8.11	346.0		007	06/22/08	22.58	8.35	8.19	343.2
008	06/07/08	22.34	8.21	8.12	372.1		008	06/22/08	22.61	8.21	8.19	346.3
009	06/07/08	22.27	8.44	8.16	360.5		009	06/22/08	22.72	8.23	8.22	363.1
010	06/07/08	22.47	8.21	8.12	197.1		010	06/22/08	22.81	8.28	8.24	328.1
011	06/07/08	22.43	8.23	8.10	324.7		011	06/22/08	22.89	8.30	8.21	333.2
012	06/07/08	22.52	8.18	8.03	343.6		012	06/22/08	22.82	8.26	8.21	329.4
013	06/07/08	22.54	8.13	8.01	324.3		013	06/22/08	22.83	8.22	8.22	359.4
014	06/07/08	22.52	8.20	8.02	319.2		014	06/22/08	22.82	8.17	8.22	352.2
015	06/07/08	22.62	8.23	8.00	320.8		015	06/22/08	22.91	8.12	8.21	315.3
016	06/07/08	22.56	8.33	7.99	326.5		016	06/22/08	22.96	8.11	8.15	409.1
017	06/07/08	22.76	8.13	7.88	331.2		017	06/22/08	22.92	8.15	8.16	359.3
018	06/07/08	22.53	8.25	8.03	476.3		018	06/22/08	22.87	8.15	8.14	358.6
019	06/07/08	22.41	8.34	8.07	345.4		019	06/22/08	22.88	8.22	8.15	333.9
020	06/07/08	22.32	8.34	8.08	334.0		020	06/22/08	22.97	8.26	8.16	347.9
4 Lab	06/08/08	22.12	8.75	7.80	317.7	19	Lab	06/23/08	21.88	7.71	8.07	308.0
001	06/08/08	22.11	8.83	8.08	414.6		001	06/23/08	22.14	8.08	8.30	319.3
002	06/08/08	22.09	8.95	8.23	423.7		002	06/23/08	22.14	7.90	8.30	334.2
003	06/08/08	22.01	8.72	8.17	369.8		003	06/23/08	22.11	8.12	8.27	315.2
004	06/08/08	21.99	8.76	8.17	326.0		004	06/23/08	22.11	8.22	8.25	308.8
005	06/08/08	22.01	8.77	8.13	344.7		005	06/23/08	22.14	8.18	8.23	322.9
006	06/08/08	22.14	8.58	8.10	346.4		006	06/23/08	22.20	8.17	8.23	333.1
007	06/08/08	22.22	8.11	8.07	339.7		007	06/23/08	22.23	8.14	8.23	321.4
008	06/08/08	22.16	8.38	8.07	350.5		008	06/23/08	22.29	8.28	8.19	324.1
009	06/08/08	22.16	8.71	7.91	351.7		009	06/23/08	22.43	8.16	8.19	311.2
010	06/08/08	22.20	8.53	7.77	325.1		010	06/23/08	22.53	8.19	8.22	310.3
011	06/08/08	22.23	8.55	7.82	318.4		011	06/23/08	22.52	8.12	8.23	310.0
012	06/08/08	22.26	8.56	7.89	329.7		012	06/23/08	22.53	8.09	8.23	333.3
013	06/08/08	22.32	8.43	7.91	314.7		013	06/23/08	22.51	8.04	8.23	334.2
014	06/08/08	22.36	8.43	7.95	314.2		014	06/23/08	22.59	8.00	8.23	299.9
015	06/08/08	22.37	8.36	7.94	309.6		015	06/23/08	22.62	8.02	8.17	383.7
016	06/08/08	22.34	8.42	7.92	317.4		016	06/23/08	22.60	7.97	8.18	329.4
017	06/08/08	22.36	8.57	7.92	332.4		017	06/23/08	22.59	7.95	8.16	329.7
018	06/08/08	22.34	8.68	7.89	398.4		018	06/23/08	22.64	8.10	8.17	312.5
019	06/08/08	22.34	8.48	7.94	327.5		019	06/23/08	22.76	8.08	8.19	320.0
020	06/08/08	22.27	8.61	7.90	326.4		020	06/23/08	22.59	8.35	8.24	384.5
5 Lab	06/09/08	22.31	7.72	7.82	335.6	20	Lab	06/24/08	21.69	8.40	8.21	335.6
001	06/09/08	22.17	7.82	8.11	392.0		001	06/24/08	22.02	7.84	8.17	321.1

002	06/09/08	22.07	7.95	8.10	424.1
003	06/09/08	22.01	8.08	8.13	360.7
004	06/09/08	22.00	8.16	8.13	335.2
005	06/09/08	22.03	8.21	8.10	352.2
006	06/09/08	22.19	8.01	8.06	359.0
007	06/09/08	22.19	7.81	8.06	353.0
008	06/09/08	22.16	7.98	8.06	358.7
009	06/09/08	22.18	8.12	8.03	366.0
010	06/09/08	22.23	8.13	8.03	336.2
011	06/09/08	22.23	8.17	8.05	331.5
012	06/09/08	22.27	8.19	8.05	337.9
013	06/09/08	22.38	7.99	8.04	323.5
014	06/09/08	22.45	7.83	8.02	326.5
015	06/09/08	22.43	7.71	8.01	321.9
016	06/09/08	22.40	7.95	8.00	328.6
017	06/09/08	22.42	7.99	7.98	339.7
018	06/09/08	22.42	7.98	7.94	388.7
019	06/09/08	22.40	7.93	7.96	339.1
020	06/09/08	22.34	8.10	7.99	339.4
6 Lab	06/10/08	22.12	8.00	8.09	332.5
001	06/10/08	22.18	7.67	8.18	395.3
002	06/10/08	22.05	7.92	8.15	388.9
003	06/10/08	22.00	8.16	8.14	361.5
004	06/10/08	21.98	8.19	8.10	335.6
005	06/10/08	21.97	8.20	8.09	348.7
006	06/10/08	22.16	7.74	8.06	357.3
007	06/10/08	22.12	7.57	8.06	351.7
008	06/10/08	22.05	7.94	8.07	361.9
009	06/10/08	22.08	8.07	8.08	346.5
010	06/10/08	22.16	8.28	8.10	337.5
011	06/10/08	22.09	8.04	8.09	325.1
012	06/10/08	22.12	8.01	8.07	323.0
013	06/10/08	22.19	7.84	8.06	314.6
014	06/10/08	22.28	7.85	8.04	315.2
015	06/10/08	22.32	7.87	8.03	314.7
016	06/10/08	22.29	7.91	8.02	326.0
017	06/10/08	22.29	7.98	8.01	329.0
018	06/10/08	22.23	7.99	7.98	359.6
019	06/10/08	22.23	8.02	8.00	325.0
020	06/10/08	22.24	8.10	8.00	330.3
7 Lab	06/11/08	21.48	8.05	7.41	372.5
001	06/11/08	21.72	8.40	8.09	373.4
002	06/11/08	21.64	8.26	8.10	345.8
003	06/11/08	21.60	8.40	8.10	351.9
004	06/11/08	21.59	8.42	8.11	323.3
005	06/11/08	21.58	8.49	8.10	330.6
006	06/11/08	21.73	8.23	8.08	337.9
007	06/11/08	21.73	8.07	8.08	334.9
008	06/11/08	21.73	8.17	8.08	347.1
009	06/11/08	21.60	8.48	8.03	333.1
010	06/11/08	21.70	8.40	8.09	330.4
011	06/11/08	21.65	8.35	8.10	317.8
012	06/11/08	21.65	8.36	8.10	313.4
013	06/11/08	21.72	8.14	8.08	308.4
014	06/11/08	21.75	8.18	8.06	308.8
015	06/11/08	21.76	8.20	8.05	308.6
016	06/11/08	21.71	8.19	8.05	319.7
017	06/11/08	21.79	8.31	8.04	319.2

002	06/24/08	22.02	8.18	8.19	340.4
003	06/24/08	21.98	8.08	8.11	319.1
004	06/24/08	22.06	8.30	8.09	309.4
005	06/24/08	22.16	8.09	8.06	325.4
006	06/24/08	22.20	8.32	8.09	334.3
007	06/24/08	22.25	7.93	8.10	325.9
008	06/24/08	22.25	8.21	8.10	329.1
009	06/24/08	22.38	8.04	8.17	340.4
010	06/24/08	22.50	7.95	8.08	318.0
011	06/24/08	22.57	8.48	8.01	318.5
012	06/24/08	22.48	8.34	8.05	320.5
013	06/24/08	22.52	8.25	8.09	343.3
014	06/24/08	22.50	7.96	8.05	334.2
015	06/24/08	22.63	7.78	8.04	302.2
016	06/24/08	22.60	8.09	8.00	378.7
017	06/24/08	22.54	8.06	7.99	325.3
018	06/24/08	22.47	8.07	7.96	325.1
019	06/24/08	22.54	8.10	8.00	315.0
020	06/24/08	22.73	8.00	8.03	331.3
21 Lab	06/25/08	21.92	7.97	8.13	358.4
001	06/25/08	22.03	7.33	8.11	319.5
002	06/25/08	21.98	7.83	8.14	343.1
003	06/25/08	21.94	7.89	8.11	323.5
004	06/25/08	21.93	7.83	8.08	312.9
005	06/25/08	21.92	7.98	8.11	327.0
006	06/25/08	21.95	8.29	8.12	337.8
007	06/25/08	22.03	7.32	8.12	326.8
008	06/25/08	22.03	8.01	8.10	329.3
009	06/25/08	22.22	7.79	8.21	347.6
010	06/25/08	22.36	7.72	8.10	315.7
011	06/25/08	22.18	7.95	8.10	311.3
012	06/25/08	22.30	6.33	8.17	325.9
013	06/25/08	22.39	7.65	8.12	342.4
014	06/25/08	22.39	7.27	8.08	328.8
015	06/25/08	22.53	7.68	8.04	298.6
016	06/25/08	22.49	7.92	8.02	376.6
017	06/25/08	22.47	7.51	7.98	324.1
018	06/25/08	22.35	7.84	7.94	322.3
019	06/25/08	22.45	7.85	8.05	316.0
020	06/25/08	22.64	7.75	8.11	338.1
22 Lab	06/26/08	22.18	8.05	8.33	343.0
001	06/26/08	21.70	8.12	8.27	313.1
002	06/26/08	21.82	8.09	8.24	325.6
003	06/26/08	21.64	8.10	8.23	323.9
004	06/26/08	21.76	8.15	8.23	316.0
005	06/26/08	21.89	8.10	8.22	323.5
006	06/26/08	22.00	8.03	8.23	328.8
007	06/26/08	22.04	8.17	8.24	325.6
008	06/26/08	22.17	8.13	8.24	328.8
009	06/26/08	22.28	8.03	8.25	341.1
010	06/26/08	22.13	8.13	8.24	319.3
011	06/26/08	22.03	8.08	8.23	318.9
012	06/26/08	22.08	7.95	8.23	323.2
013	06/26/08	22.12	7.95	8.22	326.3
014	06/26/08	22.16	7.77	8.20	317.8
015	06/26/08	22.17	7.91	8.19	302.6
016	06/26/08	22.23	7.96	8.08	355.8
017	06/26/08	22.26	7.42	7.96	321.6

018	06/11/08	21.77	8.37	8.02	334.9		018	06/26/08	22.22	7.20	7.94	314.7
019	06/11/08	21.80	8.24	8.02	316.3		019	06/26/08	22.35	7.80	8.03	314.8
020	06/11/08	21.83	8.24	8.03	320.5		020	06/26/08	22.48	7.89	8.13	331.4
8 Lab	06/12/08	20.12	8.61	8.12	337.1	23	Lab	06/27/08	22.35	7.99	7.91	363.4
001	06/12/08	20.04	8.66	8.04	342.1		001	06/27/08	22.18	8.03	7.98	303.2
002	06/12/08	20.14	8.33	8.01	337.0		002	06/27/08	22.25	7.47	8.03	325.3
003	06/12/08	20.17	8.19	8.01	328.6		003	06/27/08	22.16	7.97	8.04	302.7
004	06/12/08	20.11	8.53	8.03	307.8		004	06/27/08	22.22	8.12	8.03	296.5
005	06/12/08	20.16	8.67	8.04	326.8		005	06/27/08	22.24	8.10	8.02	309.4
006	06/12/08	20.17	8.60	8.02	334.2		006	06/27/08	22.30	8.32	8.04	317.7
007	06/12/08	20.26	8.12	8.00	334.6		007	06/27/08	22.20	8.11	8.06	321.4
008	06/12/08	20.22	8.43	8.01	344.2		008	06/27/08	22.24	8.05	8.04	314.7
009	06/12/08	20.27	8.49	8.03	331.6		009	06/27/08	22.41	7.76	8.08	338.4
010	06/12/08	20.48	8.05	8.00	327.7		010	06/27/08	22.29	8.11	8.09	304.5
011	06/12/08	20.32	8.32	7.98	323.8		011	06/27/08	22.33	8.08	8.06	305.1
012	06/12/08	20.34	8.58	7.97	322.1		012	06/27/08	22.67	7.47	7.76	311.8
013	06/12/08	20.43	8.43	7.97	309.5		013	06/27/08	22.54	7.86	7.97	309.5
014	06/12/08	20.39	8.54	7.95	316.5		014	06/27/08	22.54	7.78	7.98	306.1
015	06/12/08	20.45	8.53	7.95	321.5		015	06/27/08	22.59	7.80	7.95	291.2
016	06/12/08	20.43	8.51	7.94	324.6		016	06/27/08	22.64	7.87	7.90	333.9
017	06/12/08	20.49	8.57	7.95	331.8		017	06/27/08	22.59	7.34	7.70	299.0
018	06/12/08	20.45	8.55	7.93	342.8		018	06/27/08	22.51	7.92	7.77	290.9
019	06/12/08	20.44	8.54	7.93	327.0		019	06/27/08	22.56	7.99	7.87	301.5
020	06/12/08	20.32	8.49	7.97	327.4		020	06/27/08	22.73	8.00	7.95	316.7
9 Lab	06/13/08	21.67	8.25	8.30	336.6	24	Lab	06/28/08	22.42	7.77	8.06	325.5
001	06/13/08	21.38	8.43	8.23	342.6		001	06/28/08	22.30	8.21	8.27	283.3
002	06/13/08	21.33	8.48	8.21	345.3		002	06/28/08	22.45	7.48	8.28	300.7
003	06/13/08	21.25	8.57	8.19	333.4		003	06/28/08	22.39	8.23	8.27	296.0
004	06/13/08	21.26	8.62	8.21	323.0		004	06/28/08	22.33	8.30	8.26	284.7
005	06/13/08	21.29	8.63	8.20	335.6		005	06/28/08	22.39	8.21	8.26	298.1
006	06/13/08	21.38	8.60	8.19	344.8		006	06/28/08	22.47	8.71	8.29	308.4
007	06/13/08	21.32	8.56	8.19	339.8		007	06/28/08	22.41	8.05	8.30	313.4
008	06/13/08	21.38	8.57	8.19	348.7		008	06/28/08	22.44	7.76	8.21	311.2
009	06/13/08	21.43	8.57	8.21	338.8		009	06/28/08	22.63	8.03	8.33	334.0
010	06/13/08	21.37	8.58	8.21	331.1		010	06/28/08	22.57	8.07	7.72	300.9
011	06/13/08	21.25	8.61	8.19	328.5		011	06/28/08	22.60	7.89	8.25	303.1
012	06/13/08	21.20	8.62	8.17	322.6		012	06/28/08	22.78	7.65	8.28	314.3
013	06/13/08	21.26	8.54	8.14	314.7		013	06/28/08	22.74	8.02	8.27	299.3
014	06/13/08	21.31	8.52	8.12	319.8		014	06/28/08	22.77	8.21	8.25	290.0
015	06/13/08	21.36	8.32	8.07	327.5		015	06/28/08	22.83	8.09	8.22	281.5
016	06/13/08	21.35	7.48	8.02	337.8		016	06/28/08	22.87	7.68	8.13	322.0
017	06/13/08	21.39	8.03	8.08	334.3		017	06/28/08	22.91	7.94	8.10	287.8
018	06/13/08	21.46	8.33	8.10	340.7		018	06/28/08	22.82	7.98	8.04	281.3
019	06/13/08	21.48	8.40	8.11	327.6		019	06/28/08	22.84	8.13	8.23	295.5
020	06/13/08	21.52	8.48	8.12	332.7		020	06/28/08	22.97	8.12	8.26	309.5
10 Lab	06/14/08	22.13	8.38	8.28	339.8	25	Lab	06/29/08	22.48	8.19	8.44	309.4
001	06/14/08	22.09	8.20	8.18	344.0		001	06/29/08	22.24	8.57	8.04	289.9
002	06/14/08	21.99	8.25	8.14	354.4		002	06/29/08	22.30	8.31	8.19	306.3
003	06/14/08	21.99	8.23	8.14	337.4		003	06/29/08	22.30	8.44	8.28	307.3
004	06/14/08	21.93	8.34	8.16	328.9		004	06/29/08	22.34	8.48	8.32	296.4
005	06/14/08	21.91	8.40	8.18	341.7		005	06/29/08	22.33	8.47	8.33	307.7
006	06/14/08	21.96	8.40	8.14	351.9		006	06/29/08	22.32	8.52	8.34	318.3
007	06/14/08	21.84	8.40	8.17	341.3		007	06/29/08	22.33	8.49	8.36	300.0
008	06/14/08	21.90	8.43	8.18	346.6		008	06/29/08	22.33	8.52	8.36	303.1
009	06/14/08	22.04	8.40	8.20	345.9		009	06/29/08	22.42	8.46	8.36	335.2
010	06/14/08	22.10	8.40	8.21	331.3		010	06/29/08	22.40	8.46	8.39	294.4
011	06/14/08	22.11	8.42	8.20	330.4		011	06/29/08	22.30	8.48	8.36	296.2

012	06/14/08	22.14	8.36	8.18	323.4		012	06/29/08	22.38	8.46	8.35	316.7
013	06/14/08	22.20	8.26	8.12	316.0		013	06/29/08	22.50	8.37	8.35	292.8
014	06/14/08	22.28	8.23	8.12	321.6		014	06/29/08	22.63	8.39	8.34	282.8
015	06/14/08	22.32	8.25	8.10	325.1		015	06/29/08	22.72	8.44	8.31	279.4
016	06/14/08	22.34	8.22	8.11	354.9		016	06/29/08	22.75	8.40	8.24	315.3
017	06/14/08	22.34	8.25	8.19	341.3		017	06/29/08	22.76	8.31	8.21	287.5
018	06/14/08	22.32	8.27	8.17	340.3		018	06/29/08	22.72	8.25	8.18	277.9
019	06/14/08	22.28	8.26	8.13	328.8		019	06/29/08	22.75	8.28	8.17	291.0
020	06/14/08	22.30	8.33	8.14	337.9		020	06/29/08	22.93	8.34	8.25	303.2
11 Lab	06/15/08	21.43	8.20	7.88	329.4	26	Lab	06/30/08	22.39	8.32	8.24	379.4
001	06/15/08	21.28	8.56	8.15	341.2		001	06/30/08	22.50	8.16	8.12	292.2
002	06/15/08	21.38	8.13	8.18	343.6		002	06/30/08	22.29	8.61	8.15	309.8
003	06/15/08	21.46	8.17	8.17	331.7		003	06/30/08	22.42	8.78	8.31	294.6
004	06/15/08	21.37	8.34	8.17	325.0		004	06/30/08	22.46	8.48	8.32	287.2
005	06/15/08	21.38	8.40	8.16	336.9		005	06/30/08	22.48	8.40	8.33	302.9
006	06/15/08	21.38	8.42	8.15	343.5		006	06/30/08	22.59	8.32	8.36	312.7
007	06/15/08	21.35	8.32	8.15	332.2		007	06/30/08	22.67	8.30	8.37	305.3
008	06/15/08	21.37	8.25	8.15	338.4		008	06/30/08	22.69	8.29	8.38	309.1
009	06/15/08	21.45	8.25	8.16	339.1		009	06/30/08	22.81	8.27	8.39	327.4
010	06/15/08	21.56	8.30	8.18	325.5		010	06/30/08	22.80	8.31	8.40	300.0
011	06/15/08	21.61	8.30	8.18	323.4		011	06/30/08	22.76	8.32	8.37	303.0
012	06/15/08	21.63	8.27	8.16	315.2		012	06/30/08	22.88	8.28	8.32	322.2
013	06/15/08	21.75	8.14	8.15	307.8		013	06/30/08	22.97	8.28	8.32	294.8
014	06/15/08	21.85	8.08	8.13	314.9		014	06/30/08	22.98	8.20	8.31	289.3
015	06/15/08	21.89	8.14	8.12	315.6		015	06/30/08	22.99	8.25	8.30	287.0
016	06/15/08	21.90	8.08	8.11	364.5		016	06/30/08	23.00	8.29	8.24	312.7
017	06/15/08	21.91	8.06	8.17	341.4		017	06/30/08	23.04	8.17	8.21	294.3
018	06/15/08	21.87	7.99	8.16	335.0		018	06/30/08	22.97	8.00	8.11	289.0
019	06/15/08	21.80	7.97	8.14	322.7		019	06/30/08	22.99	8.01	8.14	299.1
020	06/15/08	21.82	8.19	8.14	333.9		020	06/30/08	23.09	8.22	8.24	313.4
12 Lab	06/16/08	20.82	7.95	8.06	338.7	27	Lab	07/01/08	22.67	8.11	8.30	316.2
001	06/16/08	20.78	8.42	8.18	349.9		001	07/01/08	22.48	8.30	8.26	298.3
002	06/16/08	20.78	8.03	8.15	362.1		002	07/01/08	22.55	8.23	8.23	321.2
003	06/16/08	20.72	8.28	8.16	342.3		003	07/01/08	22.55	8.20	8.25	306.2
004	06/16/08	20.64	8.36	8.16	336.8		004	07/01/08	22.55	8.29	8.23	298.3
005	06/16/08	20.63	8.36	8.14	348.3		005	07/01/08	22.58	8.23	8.23	312.8
006	06/16/08	20.69	8.38	8.13	356.0		006	07/01/08	22.63	8.32	8.25	320.2
007	06/16/08	20.61	8.27	8.12	345.9		007	07/01/08	22.58	8.43	8.26	314.1
008	06/16/08	20.64	8.28	8.12	350.0		008	07/01/08	22.57	8.29	8.26	318.1
009	06/16/08	20.70	8.31	8.12	363.2		009	07/01/08	22.70	8.27	8.29	344.2
010	06/16/08	20.79	8.36	8.14	337.2		010	07/01/08	22.66	8.32	8.30	308.3
011	06/16/08	20.86	8.32	8.14	335.3		011	07/01/08	22.64	8.28	8.26	309.3
012	06/16/08	20.89	8.36	8.13	328.9		012	07/01/08	22.72	8.20	8.22	326.0
013	06/16/08	20.89	8.28	8.11	322.9		013	07/01/08	22.79	8.14	8.22	301.3
014	06/16/08	20.91	8.19	8.09	333.7		014	07/01/08	22.80	8.19	8.21	300.1
015	06/16/08	20.97	8.15	8.07	334.0		015	07/01/08	22.84	8.21	8.19	298.9
016	06/16/08	20.99	8.10	8.06	396.3		016	07/01/08	22.85	8.29	8.13	320.1
017	06/16/08	21.01	8.14	8.14	366.3		017	07/01/08	22.87	8.29	8.10	305.6
018	06/16/08	20.96	8.17	8.15	360.6		018	07/01/08	22.83	8.14	8.03	303.4
019	06/16/08	20.89	8.26	8.14	346.8		019	07/01/08	22.89	8.12	8.04	312.0
020	06/16/08	20.96	8.33	8.12	353.9		020	07/01/08	23.07	8.17	8.16	323.9
13 Lab	06/17/08	22.18	8.04	8.30	340.5	28	Lab	07/02/08	21.94	8.63	8.09	306.8
001	06/17/08	22.21	8.33	8.22	341.8		001	07/02/08	21.88	8.43	8.00	294.2
002	06/17/08	22.14	8.33	8.22	370.2		002	07/02/08	21.88	8.51	8.01	325.2
003	06/17/08	22.06	8.42	8.23	337.0		003	07/02/08	21.86	8.70	8.06	306.4
004	06/17/08	22.03	8.48	8.24	331.8		004	07/02/08	21.84	8.74	8.05	299.9
005	06/17/08	22.03	8.50	8.22	345.1		005	07/02/08	21.90	8.74	8.05	316.1

006	06/17/08	22.11	8.43	8.19	353.2
007	06/17/08	22.10	8.40	8.20	351.8
008	06/17/08	22.10	8.42	8.21	354.3
009	06/17/08	22.20	8.46	8.25	360.3
010	06/17/08	22.32	8.44	8.26	341.6
011	06/17/08	22.34	8.44	8.25	339.0
012	06/17/08	22.38	8.44	8.23	332.8
013	06/17/08	22.42	8.39	8.20	336.3
014	06/17/08	22.48	8.35	8.20	341.3
015	06/17/08	22.57	8.29	8.16	333.1
016	06/17/08	22.57	8.28	8.27	411.9
017	06/17/08	22.60	8.31	8.32	368.9
018	06/17/08	22.55	8.27	8.29	368.1
019	06/17/08	22.38	8.28	8.27	345.5
020	06/17/08	22.40	8.42	8.25	351.9

14 Lab	06/18/08	20.95	8.88	8.18	341.4
001	06/18/08	20.97	8.74	8.10	353.3
002	06/18/08	20.79	8.81	8.12	371.0
003	06/18/08	20.75	8.86	8.13	345.5
004	06/18/08	20.74	8.87	8.12	339.3
005	06/18/08	20.70	8.90	8.12	353.7
006	06/18/08	20.67	8.85	8.08	361.9
007	06/18/08	20.59	8.83	8.10	351.8
008	06/18/08	20.57	8.90	8.10	351.0
009	06/18/08	20.66	8.87	8.13	372.0
010	06/18/08	20.76	8.84	8.15	336.6
011	06/18/08	20.72	8.85	8.13	338.4
012	06/18/08	20.72	8.86	8.10	332.4
013	06/18/08	20.91	8.77	8.09	341.5
014	06/18/08	20.99	8.73	8.09	353.7
015	06/18/08	21.11	8.67	8.07	339.1
016	06/18/08	21.15	8.66	8.14	431.2
017	06/18/08	21.16	8.72	8.19	379.1
018	06/18/08	21.09	8.70	8.19	385.5
019	06/18/08	20.97	8.69	8.18	351.4
020	06/18/08	21.06	8.79	8.14	362.4

006	07/02/08	21.95	8.71	8.08	315.0
007	07/02/08	21.91	8.74	8.10	310.7
008	07/02/08	21.88	8.77	8.10	315.1
009	07/02/08	22.01	8.72	8.12	354.2
010	07/02/08	22.02	8.73	8.11	303.7
011	07/02/08	22.05	8.72	8.07	306.0
012	07/02/08	22.14	8.66	8.01	317.4
013	07/02/08	22.18	8.68	7.99	295.0
014	07/02/08	22.16	8.65	7.99	296.9
015	07/02/08	22.17	8.65	7.99	297.2
016	07/02/08	22.19	8.64	7.93	316.9
017	07/02/08	22.24	8.61	7.88	302.4
018	07/02/08	22.19	8.56	7.84	300.9
019	07/02/08	22.21	8.52	7.88	310.6
020	07/02/08	22.34	8.58	7.98	318.2

	Temp C	DO Conc (mg/L)	pH (SU)	SpCond (uS/cm)
Max:	23.09	8.95	8.44	654.5
Mean:	22.00	8.16	8.07	334.1
Min:	20.04	1.17	6.60	197.1

H. azteca 28 Day Survival

STUDY NUMBER: 17237 **CLIENT:** TetraTech

ESI SAMPLE ID	REP	# Alive	ESI SAMPLE ID	REP	# Alive
Lab	A	9	004	A	6
	B	(12) 10		B	10
	C	10		C	10
	D	9		D	8
	E	10 (11)		E	10
	F	~~10~~ (13) 10		F	9
	G	9		G	10
	H	10		H	8
001	A	8	005	A	9
	B	10		B	9
	C	9		C	9
	D	7		D	11
	E	9		E	8
	F	7		F	9
	G	9		G	10
	H	9		H	9
002	A	1	006	A	7
	B	5		B	11
	C	5		C	8
	D	5		D	8
	E	5 (*)		E	11
	F	2		F	9
	G	4		G	9
	H	5		H	10
003	A	(E3) ~~4~~ 6	007	A	7
	B	9		B	2
	C	9		C	8
	D	7		D	8
	E	7		E	6
	F	8		F	5
	G	10		G	7
	H	10		H	5
RECORDED BY:					
DATE:					

NOTES: (*) 2 juveniles found in sample, not included in pan count or weight

H. azteca 28 Day Survival

STUDY NUMBER:	17237	CLIENT:	TetraTech

ESI SAMPLE ID	REP	# Alive	ESI SAMPLE ID	REP	# Alive
008	A	8	012	A	4
	B	7		B	5
	C	8		C	6
	D	7		D	7
	E	8		E	3
	F	8		F	6
	G	7		G	8
	H	8		H	6
009	A	9	013	A	7
	B	10		B	7
	C	9		C	7
	D	9		D	7
	E	8		E	8
	F	9		F	4
	G	7		G	6
	H	7		H	8
010	A	0	014	A	2
	B	3		B	1
	C	4		C	0
	D	4		D	2
	E	2		E	2
	F	4		F	1
	G	0		G	4
	H	0		H	0
011	A	7	015	A	0
	B	9		B	0
	C	8		C	1
	D	8		D	0
	E	10		E	0
	F	10		F	1
	G	11		G	0
	H	10		H	0
RECORDED BY:					
DATE:					

NOTES: _____

H. azteca 28 Day Survival

STUDY NUMBER: 17237 **CLIENT:** TetraTech

ESI SAMPLE ID	REP	# Alive	ESI SAMPLE ID	REP	# Alive
016	A	~~13~~ 7	020	A	9
	B	10		B	8
	C	10		C	9
	D	9		D	10
	E	9		E	9
	F	7		F	10
	G	13		G	6
	H	6		H	8
017	A	8		A	
	B	9		B	
	C	7		C	
	D	9		D	
	E	3		E	
	F	10		F	
	G	9		G	
	H	7		H	
018	A	6		A	
	B	4		B	
	C	9		C	
	D	7		D	
	E	10		E	
	F	7		F	
	G	9		G	
	H	10		H	
019	A	10		A	
	B	9		B	
	C	9		C	
	D	10		D	
	E	7		E	
	F	8		F	
	G	8		G	
	H	5		H	
RECORDED BY:					
DATE:					

NOTES: _____

Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Test Run No:	05-0315-7700	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	04 Jun-08 11:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	02 Jul-08 11:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	28d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Sample Code	Sample No	Sample Date	Receive Date	Sample Age	Client Name	Project
17237-000	02-1378-4426	02 Jun-08 10:00	02 Jun-08 10:00	49h	Tetra Tech NUS	Ecological Risk Assessme
17237-016	20-0269-5618	22 May-08 09:30	23 May-08 14:30	13d 2h		
17237-017	13-4140-4927	22 May-08 10:45	23 May-08 14:30	13d 0h		
17237-018	11-1617-8660	22 May-08 12:00	23 May-08 14:30	12d 23h		
17237-019	04-1529-9092	22 May-08 14:45	23 May-08 14:30	12d 20h		
17237-020	03-8843-5793	22 May-08 15:15	23 May-08 14:30	12d 20h		
17237-001	20-6585-5221	19 May-08 14:00	23 May-08 14:30	15d 21h		
17237-002	12-3361-3086	19 May-08 14:45	23 May-08 14:30	15d 20h		
17237-003	19-8953-4786	19 May-08 16:00	23 May-08 14:30	15d 19h		
17237-004	16-4291-0595	19 May-08 15:45	23 May-08 14:30	15d 19h		
17237-005	02-4408-9840	20 May-08 09:30	23 May-08 14:30	15d 2h		
17237-006	15-8316-3648	20 May-08 09:45	23 May-08 14:30	15d 1h		
17237-007	07-2571-4388	20 May-08 08:00	23 May-08 14:30	15d 3h		
17237-008	12-6251-4060	20 May-08 10:00	23 May-08 14:30	15d 1h		
17237-009	13-5769-4122	20 May-08 11:30	23 May-08 14:30	15d		
17237-010	01-4607-3514	20 May-08 15:00	23 May-08 14:30	14d 20h		
17237-011	18-8388-9106	20 May-08 16:00	23 May-08 14:30	14d 19h		
17237-012	10-7638-1293	21 May-08 10:00	23 May-08 14:30	14d 1h		
17237-013	05-4152-2147	21 May-08 10:15	23 May-08 14:30	14d 1h		
17237-014	01-0987-3659	21 May-08 12:15	23 May-08 14:30	13d 23h		
17237-015	15-5076-3816	21 May-08 13:30	23 May-08 14:30	13d 22h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
17237-000	Freshwater Sediment	Naval Station Newport Site NUSC	Lab Control; 17237-000		
17237-016	Freshwater Sediment	Naval Station Newport Site NUSC	SD-RP01-0006; 17237-016		
17237-017	Freshwater Sediment	Naval Station Newport Site NUSC	SD-RP02-0006; 17237-017		
17237-018	Freshwater Sediment	Naval Station Newport Site NUSC	SD-RP03-0006; 17237-018		
17237-019	Freshwater Sediment	Naval Station Newport Site NUSC	SD-RP04-0006; 17237-019		
17237-020	Freshwater Sediment	Naval Station Newport Site NUSC	SD-RP05-0006; 17237-020		
17237-001	Freshwater Sediment	Naval Station Newport Site NUSC	SD107-0006; 17237-001		
17237-002	Freshwater Sediment	Naval Station Newport Site NUSC	SD108-0006; 17237-002		
17237-003	Freshwater Sediment	Naval Station Newport Site NUSC	SD111-0006; 17237-003		
17237-004	Freshwater Sediment	Naval Station Newport Site NUSC	SD112-0006; 17237-004		
17237-005	Freshwater Sediment	Naval Station Newport Site NUSC	SD106-0006; 17237-005		
17237-006	Freshwater Sediment	Naval Station Newport Site NUSC	SD-Dup01; 17237-006		
17237-007	Freshwater Sediment	Naval Station Newport Site NUSC	SD110-0006; 17237-007		
17237-008	Freshwater Sediment	Naval Station Newport Site NUSC	SD133-0006; 17237-008		
17237-009	Freshwater Sediment	Naval Station Newport Site NUSC	SD01-0006; 17237-009		
17237-010	Freshwater Sediment	Naval Station Newport Site NUSC	SD116-0006; 17237-010		
17237-011	Freshwater Sediment	Naval Station Newport Site NUSC	SD114-0006; 17237-011		
17237-012	Freshwater Sediment	Naval Station Newport Site NUSC	SD119-0006; 17237-012		
17237-013	Freshwater Sediment	Naval Station Newport Site NUSC	SD-DUP02; 17237-013		
17237-014	Freshwater Sediment	Naval Station Newport Site NUSC	SD121-0006; 17237-014		
17237-015	Freshwater Sediment	Naval Station Newport Site NUSC	SD125-0006; 17237-015		

Hyalella 28-d Survival and Growth Sediment Test **EnviroSystems, Inc.**

Test Acceptability

Analysis No	Endpoint	Attribute	Test Stat	Acceptabilty Limits	Overlap	Decision
00-1075-5643	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
00-1311-8730	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
01-0053-2276	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
01-3232-0647	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
01-5748-9045	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
04-8856-1659	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
05-9634-5887	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
06-5162-0498	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
07-5613-9934	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
08-2374-1778	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
09-0298-6933	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
10-1339-6985	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
10-4138-7514	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
11-5829-5638	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
11-8426-7747	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
17-0210-9604	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
18-3459-3191	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
20-6216-1779	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
20-8686-7690	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria
21-0823-1714	Proportion Survived	Control Resp	0.9625	0.8 - NL	Yes	Passes acceptability criteria

Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9432	0.9818	0.9	1	0.009449	0.05175	5.38%	0.0%
17237-016	8	0.85	0.7901	0.9099	0.6	1	0.02928	0.1604	18.87%	11.69%
17237-017	8	0.775	0.6933	0.8567	0.3	1	0.03994	0.2188	28.23%	19.48%
17237-018	8	0.775	0.6958	0.8542	0.4	1	0.03873	0.2121	27.37%	19.48%
17237-019	8	0.825	0.7627	0.8873	0.5	1	0.03047	0.1669	20.23%	14.29%
17237-020	8	0.8625	0.8139	0.9111	0.6	1	0.02378	0.1302	15.1%	10.39%
17237-001	8	0.85	0.8101	0.8899	0.7	1	0.01952	0.1069	12.58%	11.69%
17237-002	8	0.4	0.3401	0.4599	0.1	0.5	0.02928	0.1604	40.09%	58.44%
17237-003	8	0.825	0.7694	0.8806	0.6	1	0.02717	0.1488	18.04%	14.29%
17237-004	8	0.8875	0.8331	0.9419	0.6	1	0.02661	0.1458	16.43%	7.79%
17237-005	8	0.9125	0.8886	0.9364	0.8	1	0.0117	0.06409	7.02%	5.2%
17237-006	8	0.8875	0.8455	0.9295	0.7	1	0.02056	0.1126	12.69%	7.79%
17237-007	8	0.6	0.5253	0.6747	0.2	0.8	0.03651	0.2	33.33%	37.66%
17237-008	8	0.7625	0.7432	0.7818	0.7	0.8	0.009449	0.05175	6.79%	20.78%
17237-009	8	0.85	0.8101	0.8899	0.7	1	0.01952	0.1069	12.58%	11.69%
17237-010	8	0.2125	0.1421	0.2829	0	0.4	0.03442	0.1885	88.71%	77.92%
17237-011	8	0.9	0.8554	0.9446	0.7	1	0.02182	0.1195	13.28%	6.49%
17237-012	8	0.5625	0.5028	0.6222	0.3	0.8	0.02918	0.1598	28.41%	41.56%
17237-013	8	0.675	0.6271	0.7229	0.4	0.8	0.0234	0.1282	18.99%	29.87%
17237-014	8	0.15	0.1011	0.1989	0	0.4	0.0239	0.1309	87.29%	84.42%
17237-015	8	0.025	0.007715	0.04229	0	0.1	0.008452	0.04629	185.2%	97.4%

Hyalella 28-d Survival and Growth Sediment Test **EnviroSystems, Inc.**

Proportion Survived Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
17237-000	0.9	1	1	0.9	1	1	0.9	1
17237-016	0.7	1	1	0.9	0.9	0.7	1	0.6
17237-017	0.8	0.9	0.7	0.9	0.3	1	0.9	0.7
17237-018	0.6	0.4	0.9	0.7	1	0.7	0.9	1
17237-019	1	0.9	0.9	1	0.7	0.8	0.8	0.5
17237-020	0.9	0.8	0.9	1	0.9	1	0.6	0.8
17237-001	0.8	1	0.9	0.7	0.9	0.7	0.9	0.9
17237-002	0.1	0.5	0.5	0.5	0.5	0.2	0.4	0.5
17237-003	0.6	0.9	0.9	0.7	0.7	0.8	1	1
17237-004	0.6	1	1	0.8	1	0.9	1	0.8
17237-005	0.9	0.9	0.9	1	0.8	0.9	1	0.9
17237-006	0.7	1	0.8	0.8	1	0.9	0.9	1
17237-007	0.7	0.2	0.8	0.8	0.6	0.5	0.7	0.5
17237-008	0.8	0.7	0.8	0.7	0.8	0.8	0.7	0.8
17237-009	0.9	1	0.9	0.9	0.8	0.9	0.7	0.7
17237-010	0	0.3	0.4	0.4	0.2	0.4	0	0
17237-011	0.7	0.9	0.8	0.8	1	1	1	1
17237-012	0.4	0.5	0.6	0.7	0.3	0.6	0.8	0.6
17237-013	0.7	0.7	0.7	0.7	0.8	0.4	0.6	0.8
17237-014	0.2	0.1	0	0.2	0.2	0.1	0.4	0
17237-015	0	0	0.1	0	0	0.1	0	0

Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-5945-6065 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:18 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					8.78%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-015	15.04	1.761	0.1182	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	4.075716	4.075716	1	226.3	0.0000	Significant Effect
Error	0.2521076	0.0180077	14			
Total	4.327824	4.093724	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.328	8.885	0.0422	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9098		0.1155	Normal Distribution

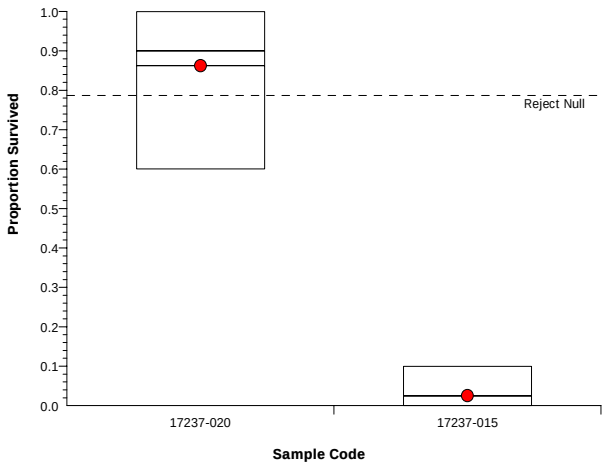
Proportion Survived Summary

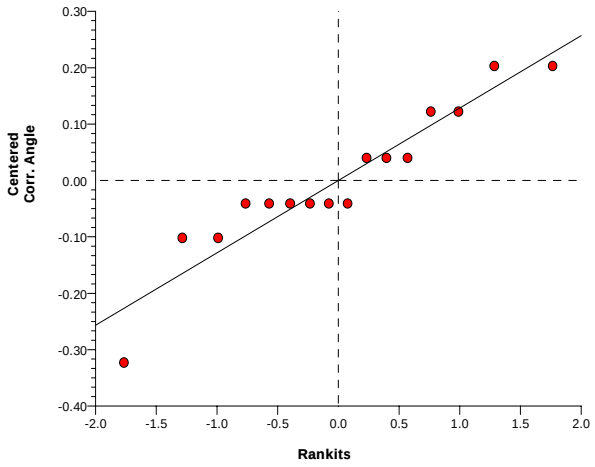
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-015	8	0.025	0.007392	0.04261	0	0.1	0.008596	0.04629	185.2%	97.1%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-015	8	0.1995	0.1708	0.2282	0.1588	0.3218	0.01401	0.07544	37.81%	83.5%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-1324-6899 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:18 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.32%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-014	9.456	1.761	0.1545	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.751303	2.751303	1	89.42	0.0000	Significant Effect
Error	0.4307742	0.0307696	14			
Total	3.182077	2.782072	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.029	8.885	0.9705	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9711		0.8568	Normal Distribution

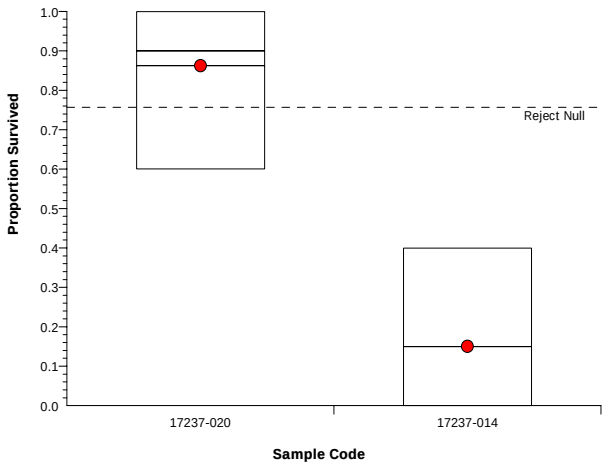
Proportion Survived Summary

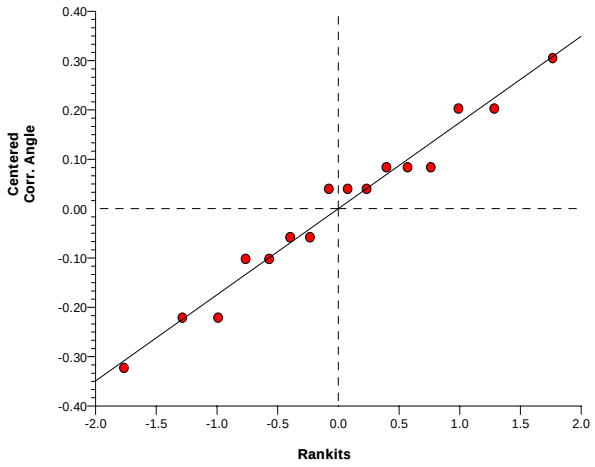
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-014	8	0.15	0.1002	0.1998	0	0.4	0.02431	0.1309	87.29%	82.61%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-014	8	0.3796	0.3124	0.4468	0.1588	0.6847	0.03281	0.1767	46.54%	68.6%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-3152-8976 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:18 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					10.62%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-013	3.083	1.761	0.1373	0.0041	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.230838	0.230838	1	9.502	0.0081	Significant Effect
Error	0.3400935	0.0242924	14			
Total	0.5709315	0.2551304	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.661	8.885	0.5194	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9023		0.0875	Normal Distribution

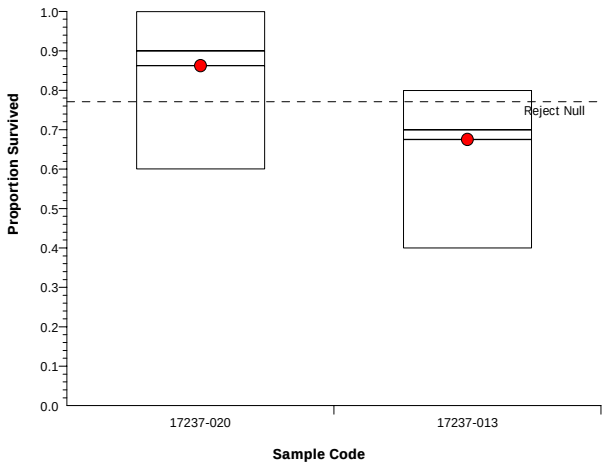
Proportion Survived Summary

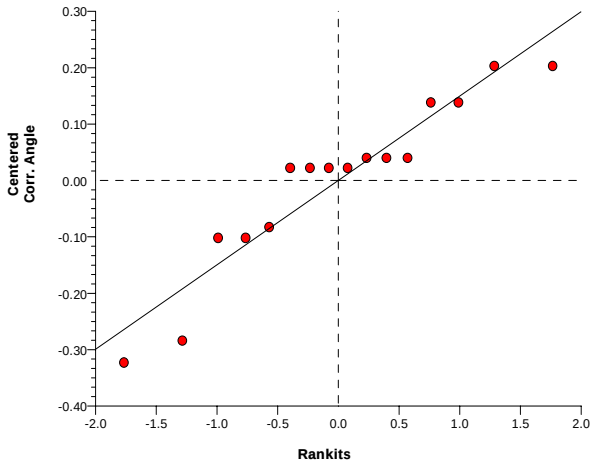
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-013	8	0.675	0.6262	0.7238	0.4	0.8	0.0238	0.1282	18.99%	21.74%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-013	8	0.9687	0.9173	1.02	0.6847	1.107	0.02509	0.1351	13.95%	19.87%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-7554-4682 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:18 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.88%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-012	4.202	1.761	0.1501	0.0004	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.5131037	0.5131037	1	17.66	0.0009	Significant Effect
Error	0.4068048	0.0290575	14			
Total	0.9199085	0.5421612	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.091	8.885	0.9113	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9459		0.4273	Normal Distribution

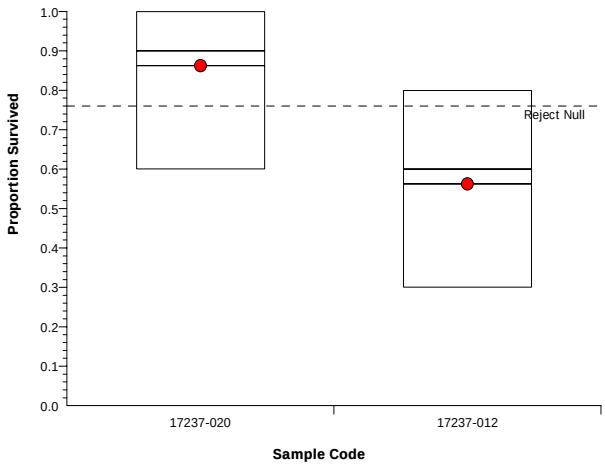
Proportion Survived Summary

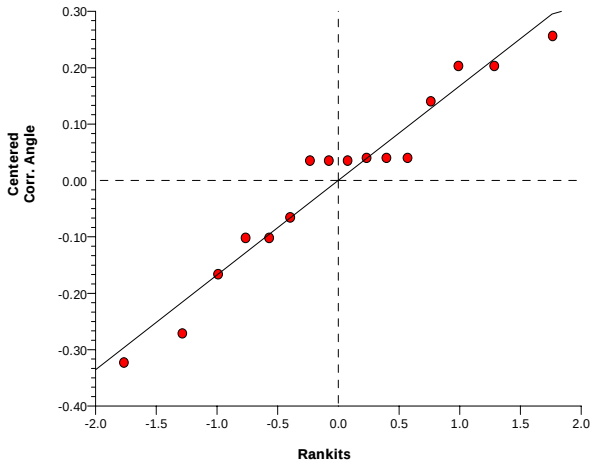
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-012	8	0.5625	0.5017	0.6233	0.3	0.8	0.02967	0.1598	28.41%	34.78%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-012	8	0.8508	0.7874	0.9142	0.5796	1.107	0.03096	0.1667	19.59%	29.63%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-3111-7967 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.23%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-011	-0.6284	1.761	0.1536	0.7301	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0120159	0.0120159	1	0.3949	0.5399	Non-Significant Effect
Error	0.4260352	0.0304311	14			
Total	0.438051	0.042447	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.007	8.885	0.9928	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9166		0.1488	Normal Distribution

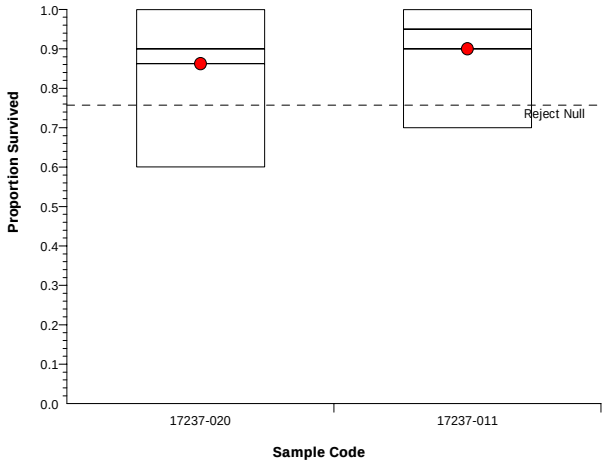
Proportion Survived Summary

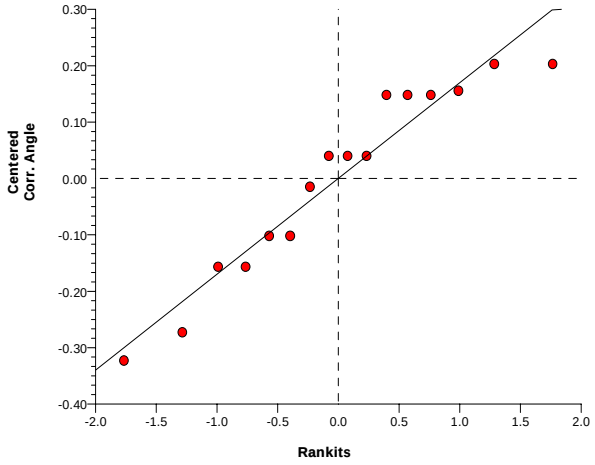
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-011	8	0.9	0.8545	0.9455	0.7	1	0.02219	0.1195	13.28%	-4.35%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-011	8	1.264	1.197	1.33	0.9912	1.419	0.03245	0.1748	13.83%	-4.53%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-3733-6381 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.88%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-010	7.081	1.761	0.1896	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.323916	2.323916	1	50.14	0.0000	Significant Effect
Error	0.6488816	0.0463487	14			
Total	2.972798	2.370265	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.057	8.885	0.3621	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8748		0.0323	Normal Distribution

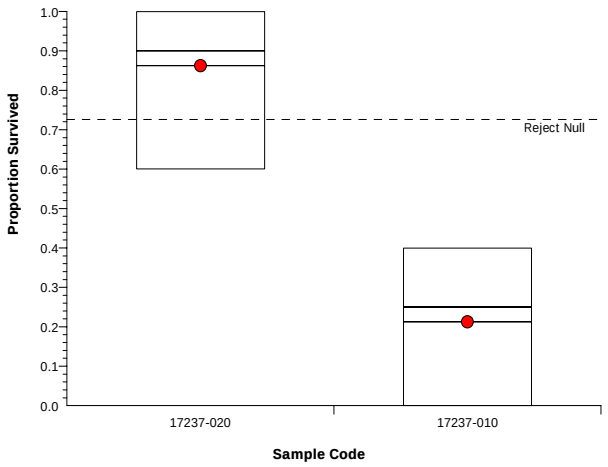
Proportion Survived Summary

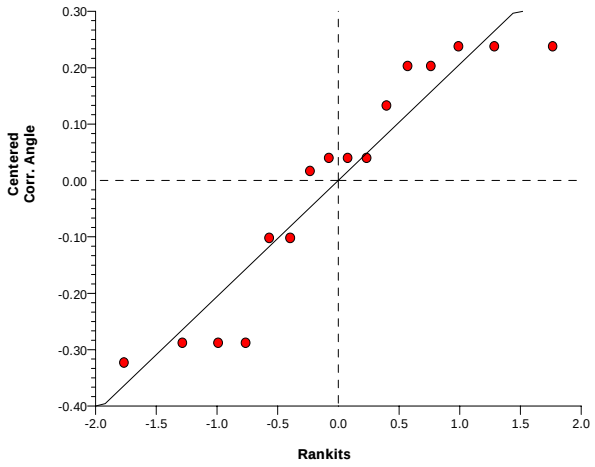
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-010	8	0.2125	0.1408	0.2842	0	0.4	0.03501	0.1885	88.71%	75.36%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-010	8	0.4467	0.3517	0.5417	0.1588	0.6847	0.04638	0.2497	55.91%	63.05%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-6502-6512 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.03%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-009	0.2706	1.761	0.1415	0.3953	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0018897	0.0018897	1	0.07321	0.7907	Non-Significant Effect
Error	0.3613847	0.0258132	14			
Total	0.3632744	0.0277029	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.424	8.885	0.6529	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9301		0.2444	Normal Distribution

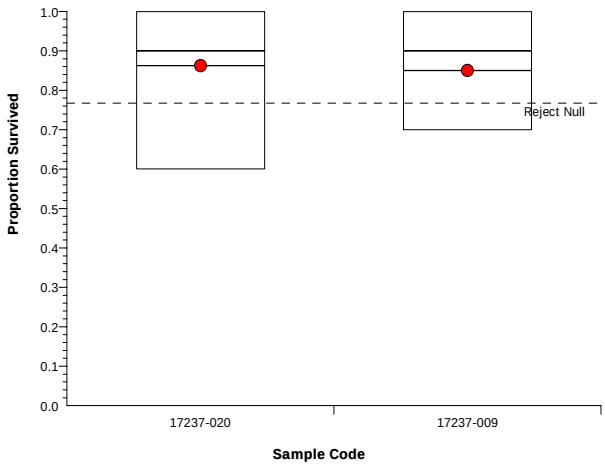
Proportion Survived Summary

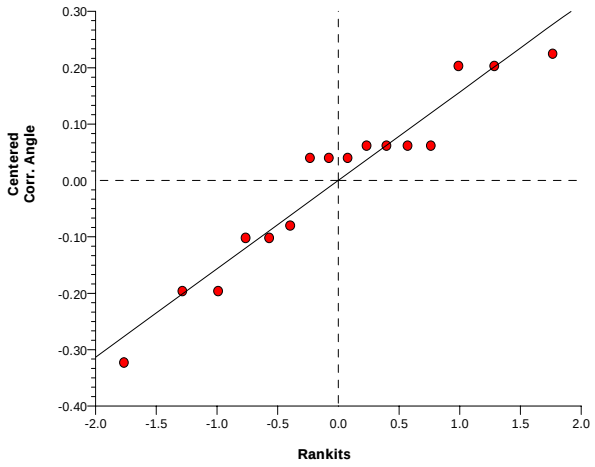
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-009	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	1.45%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-009	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	1.8%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-4927-9238 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					8.46%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-008	2.231	1.761	0.1147	0.0213	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0844383	0.0844383	1	4.978	0.0426	Significant Effect
Error	0.2374952	0.0169639	14			
Total	0.3219335	0.1014022	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	8.414	8.885	0.0117	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8681		0.0254	Normal Distribution

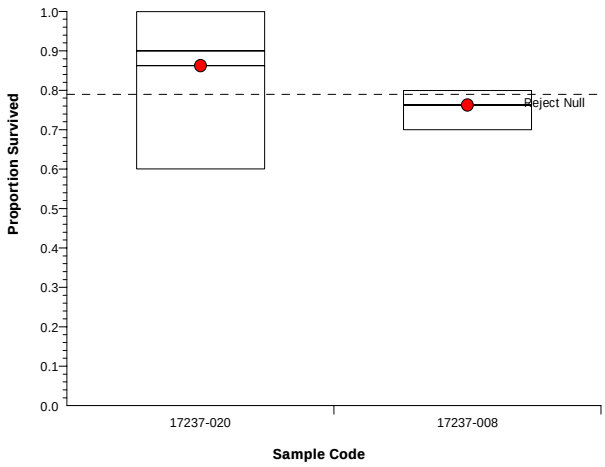
Proportion Survived Summary

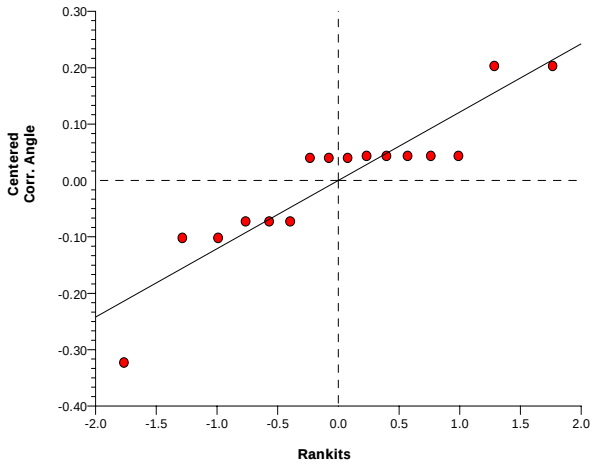
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-008	8	0.7625	0.7428	0.7822	0.7	0.8	0.009611	0.05176	6.79%	11.59%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-008	8	1.064	1.041	1.086	0.9912	1.107	0.01115	0.06003	5.64%	12.02%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-7853-1442 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.02%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-007	3.28	1.761	0.1715	0.0027	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.4078139	0.4078139	1	10.76	0.0055	Significant Effect
Error	0.5307149	0.0379082	14			
Total	0.9385288	0.4457221	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.5	8.885	0.6058	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9042		0.0940	Normal Distribution

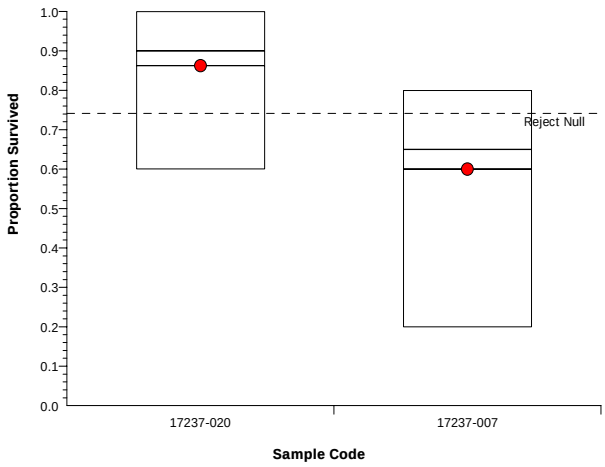
Proportion Survived Summary

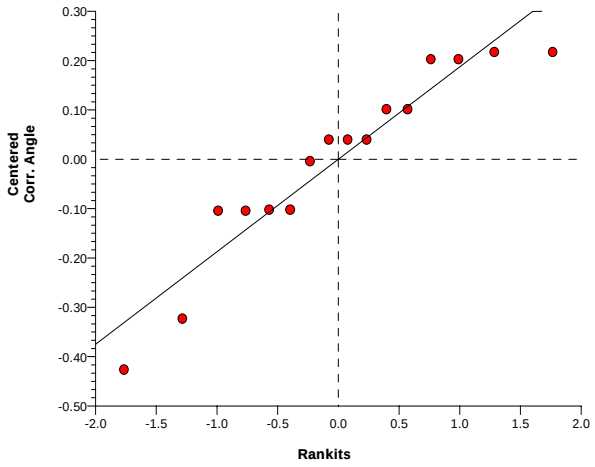
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-007	8	0.6	0.5239	0.6761	0.2	0.8	0.03714	0.2	33.33%	30.43%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-007	8	0.8896	0.8085	0.9708	0.4636	1.107	0.03961	0.2133	23.97%	26.41%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-9951-9136 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.82%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-006	-0.4167	1.761	0.1495	0.6584	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0050036	0.0050036	1	0.1736	0.6832	Non-Significant Effect
Error	0.4035095	0.0288221	14			
Total	0.4085131	0.0338257	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.11	8.885	0.8941	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9264		0.2139	Normal Distribution

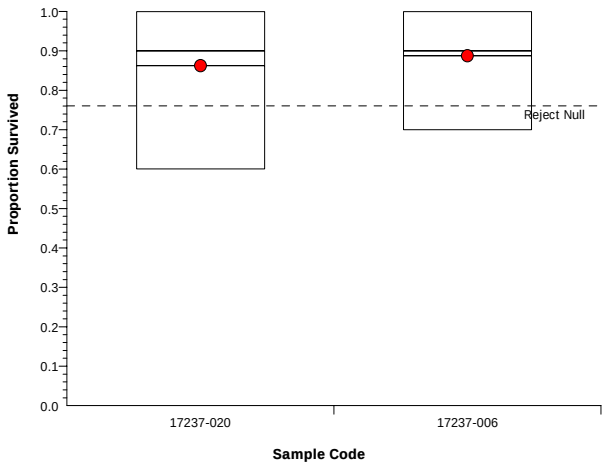
Proportion Survived Summary

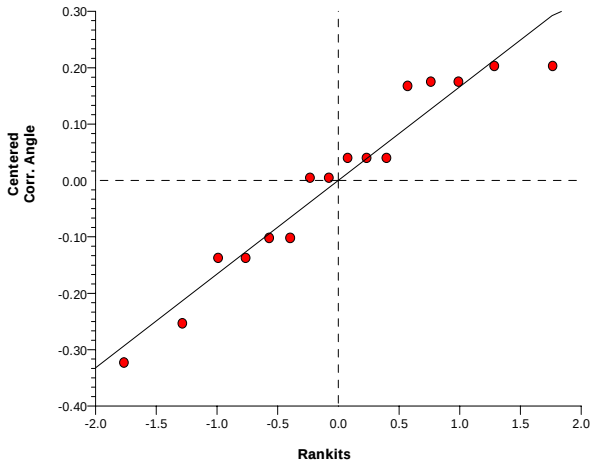
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-006	8	0.8875	0.8447	0.9303	0.7	1	0.02091	0.1126	12.69%	-2.9%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-006	8	1.244	1.181	1.307	0.9912	1.419	0.03069	0.1653	13.28%	-2.93%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-4436-6937 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					9.46%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-005	-0.9002	1.761	0.1253	0.8084	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0164041	0.0164041	1	0.8103	0.3833	Non-Significant Effect
Error	0.2834214	0.0202444	14			
Total	0.2998254	0.0366484	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.983	8.885	0.1726	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9398		0.3461	Normal Distribution

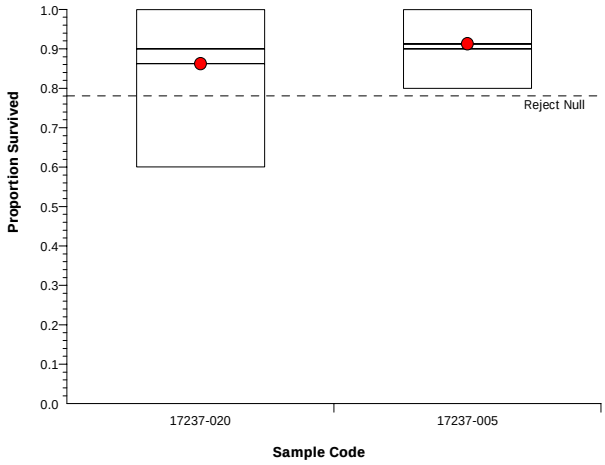
Proportion Survived Summary

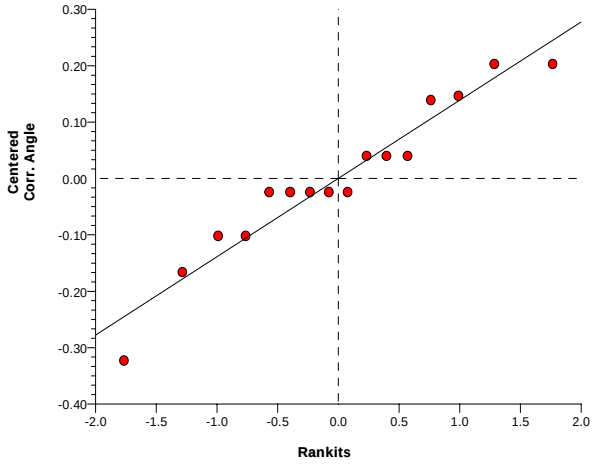
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-005	8	0.9125	0.8881	0.9369	0.8	1	0.0119	0.06409	7.02%	-5.8%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-005	8	1.273	1.235	1.311	1.107	1.419	0.01872	0.1008	7.92%	-5.3%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-9383-1527 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.36%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-004	-0.4353	1.761	0.1648	0.6650	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0066398	0.0066398	1	0.1895	0.6700	Non-Significant Effect
Error	0.4905185	0.0350370	14			
Total	0.4971583	0.0416769	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.311	8.885	0.7301	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8956		0.0684	Normal Distribution

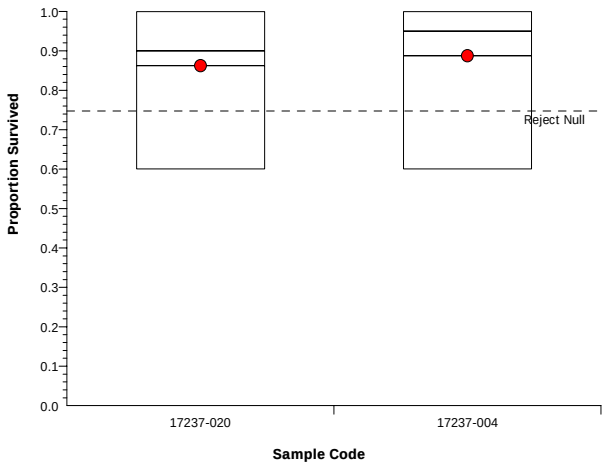
Proportion Survived Summary

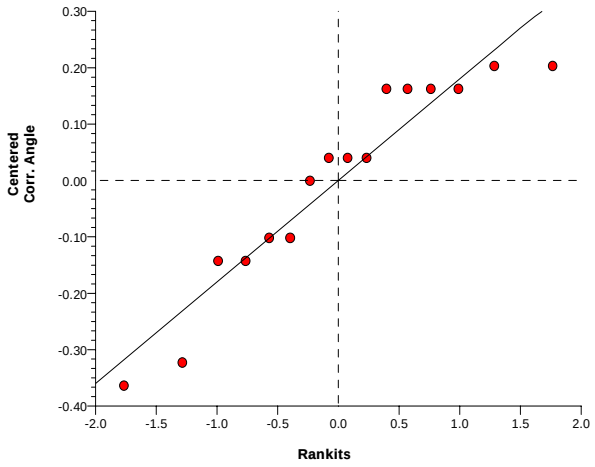
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-004	8	0.8875	0.8321	0.9429	0.6	1	0.02707	0.1458	16.43%	-2.9%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-004	8	1.25	1.174	1.326	0.8861	1.412	0.03702	0.1994	15.95%	-3.37%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-6754-9553 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.35%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-003	0.4996	1.761	0.1647	0.3125	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0087367	0.0087367	1	0.2496	0.6251	Non-Significant Effect
Error	0.4899553	0.0349968	14			
Total	0.498692	0.0437335	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.308	8.885	0.7320	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9476		0.4526	Normal Distribution

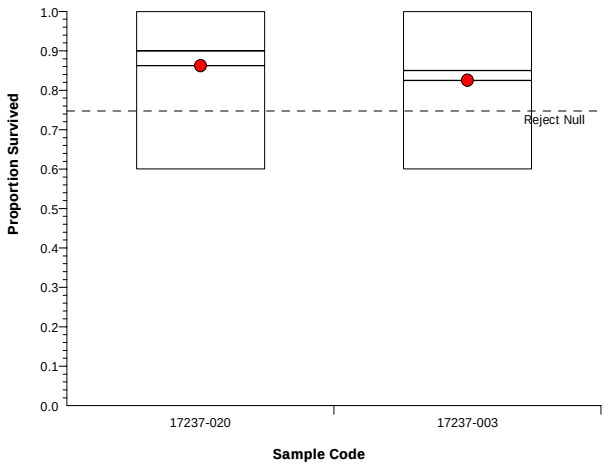
Proportion Survived Summary

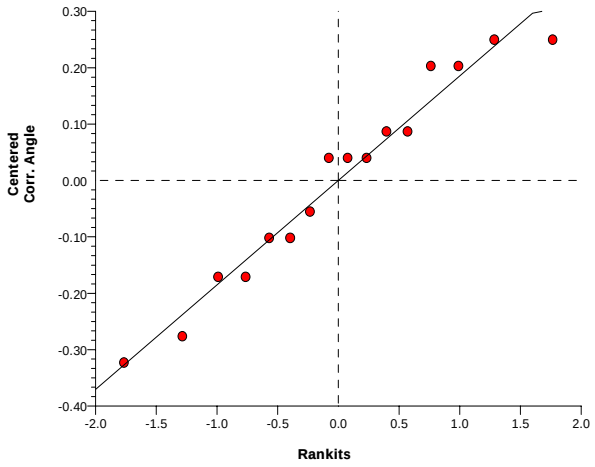
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-003	8	0.825	0.7684	0.8816	0.6	1	0.02763	0.1488	18.04%	4.35%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-003	8	1.162	1.086	1.238	0.8861	1.412	0.03699	0.1992	17.14%	3.87%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-6595-4333 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.53%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-002	6.009	1.761	0.1566	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.141925	1.141925	1	36.11	0.0000	Significant Effect
Error	0.4427558	0.0316254	14			
Total	1.584681	1.17355	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.086	8.885	0.9163	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8727		0.0299	Normal Distribution

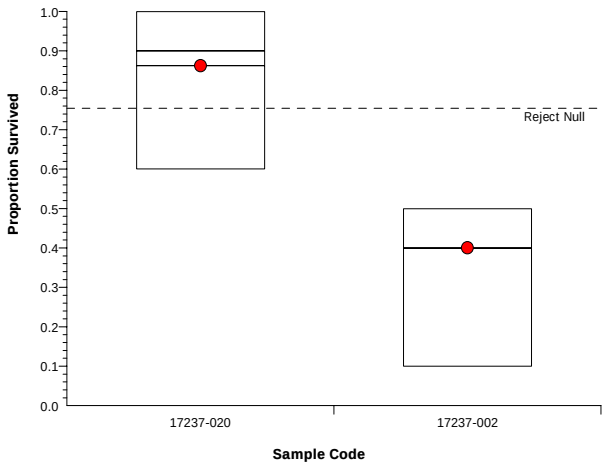
Proportion Survived Summary

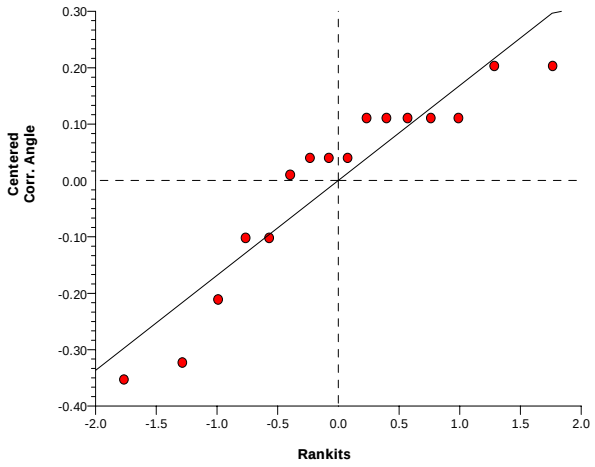
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-002	8	0.4	0.339	0.461	0.1	0.5	0.02978	0.1604	40.09%	53.62%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-002	8	0.6746	0.6056	0.7437	0.3218	0.7854	0.0337	0.1815	26.9%	44.2%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-1648-6032 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.03%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-001	0.2706	1.761	0.1415	0.3953	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0018897	0.0018897	1	0.07321	0.7907	Non-Significant Effect
Error	0.3613847	0.0258132	14			
Total	0.3632744	0.0277029	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.424	8.885	0.6529	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9301		0.2444	Normal Distribution

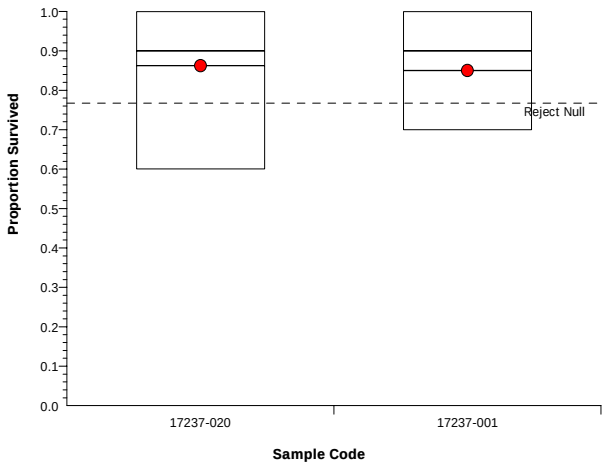
Proportion Survived Summary

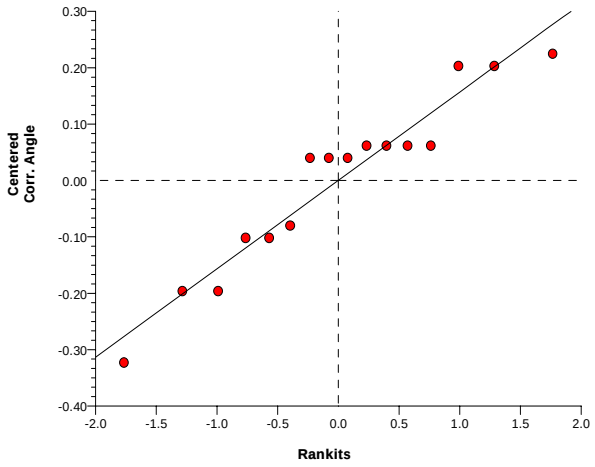
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	0.0%
17237-001	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	1.45%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	0.0%
17237-001	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	1.8%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-7237-6812 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.61%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-015	12.08	1.761	0.1406	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.721807	3.721807	1	146	0.0000	Significant Effect
Error	0.3570068	0.0255005	14			
Total	4.078813	3.747307	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	7.961	8.885	0.0138	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8977		0.0739	Normal Distribution

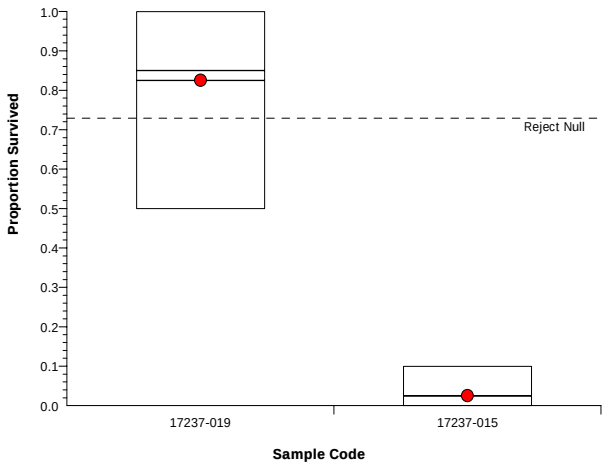
Proportion Survived Summary

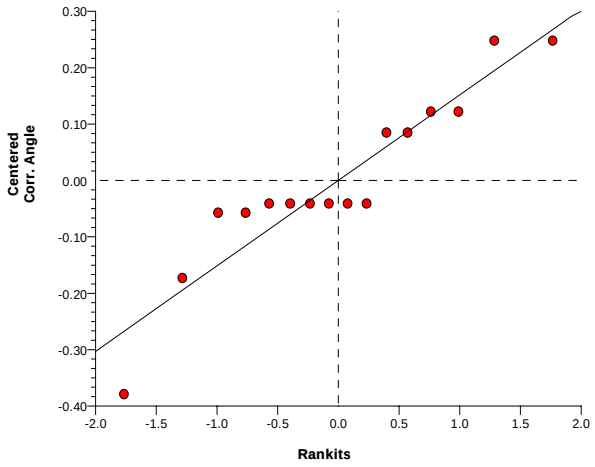
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-015	8	0.025	0.007392	0.04261	0	0.1	0.008596	0.04629	185.2%	96.97%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-015	8	0.1995	0.1708	0.2282	0.1588	0.3218	0.01401	0.07544	37.81%	82.86%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-7776-9935 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.07%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-014	8.021	1.761	0.1723	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.461959	2.461959	1	64.34	0.0000	Significant Effect
Error	0.5356734	0.0382624	14			
Total	2.997632	2.500221	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.452	8.885	0.6352	Equal Variances
Distribution	Shapiro-Wilk Normality	0.952		0.5226	Normal Distribution

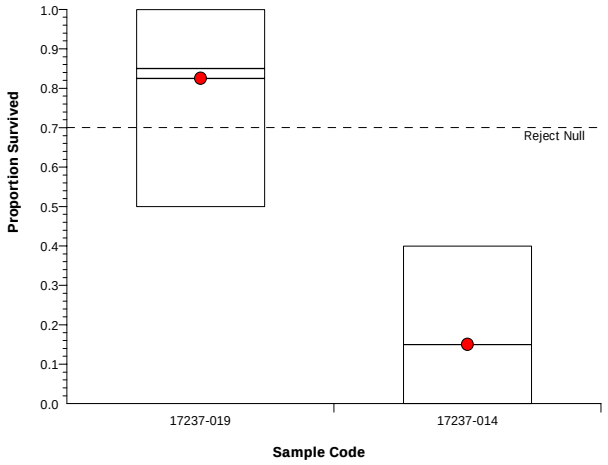
Proportion Survived Summary

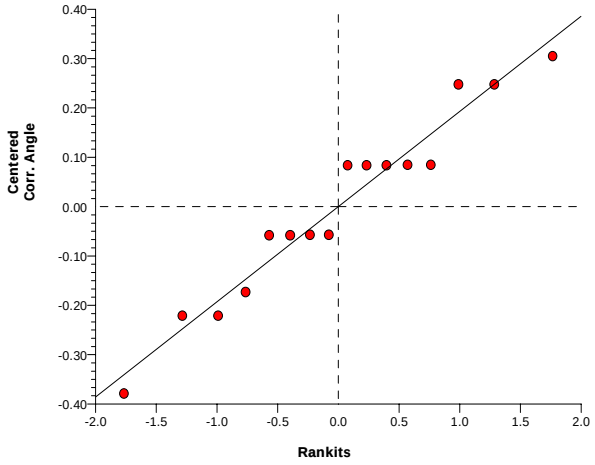
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-014	8	0.15	0.1002	0.1998	0	0.4	0.02431	0.1309	87.29%	81.82%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-014	8	0.3796	0.3124	0.4468	0.1588	0.6847	0.03281	0.1767	46.54%	67.39%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-8174-8321 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.39%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-013	2.192	1.761	0.157	0.0229	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1527355	0.1527355	1	4.805	0.0458	Significant Effect
Error	0.4449927	0.0317852	14			
Total	0.5977283	0.1845207	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.481	8.885	0.2535	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9437		0.3974	Normal Distribution

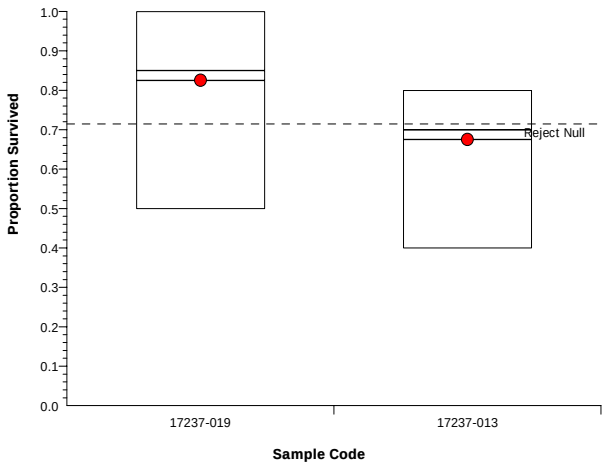
Proportion Survived Summary

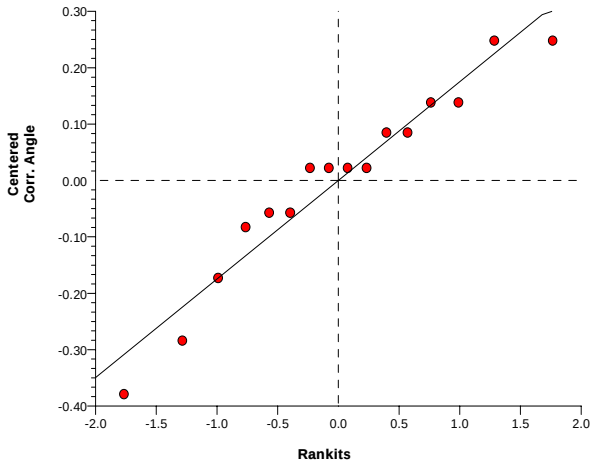
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-013	8	0.675	0.6262	0.7238	0.4	0.8	0.0238	0.1282	18.99%	18.18%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-013	8	0.9687	0.9173	1.02	0.6847	1.107	0.02509	0.1351	13.95%	16.79%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-0365-0329 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.64%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-012	3.278	1.761	0.1684	0.0027	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.392716	0.392716	1	10.74	0.0055	Significant Effect
Error	0.511704	0.0365503	14			
Total	0.9044199	0.4292662	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.63	8.885	0.5345	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9545		0.5638	Normal Distribution

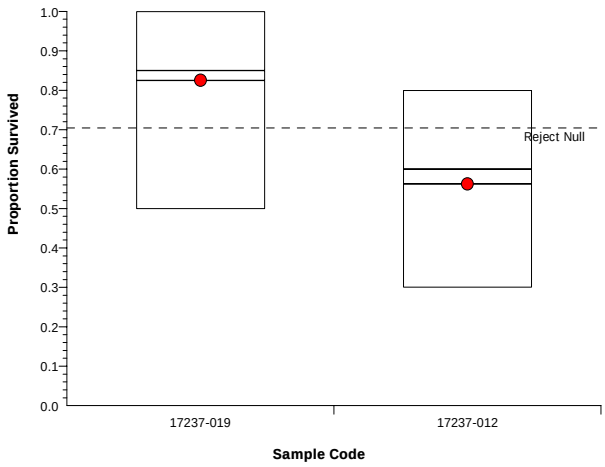
Proportion Survived Summary

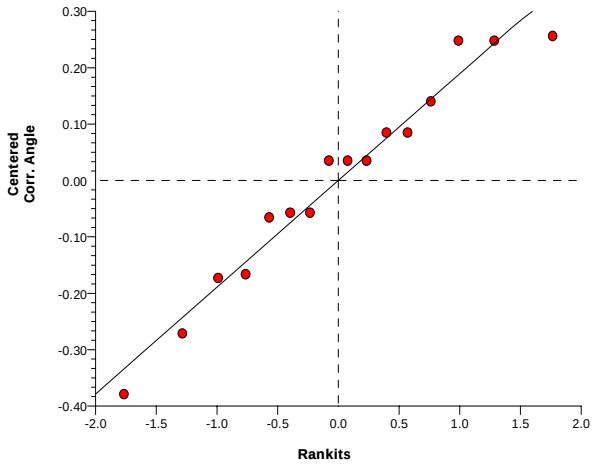
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-012	8	0.5625	0.5017	0.6233	0.3	0.8	0.02967	0.1598	28.41%	31.82%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-012	8	0.8508	0.7874	0.9142	0.5796	1.107	0.03096	0.1667	19.59%	26.92%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 02-1965-7849 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.99%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-011	-1.023	1.761	0.1715	0.8382	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0397041	0.0397041	1	1.047	0.3236	Non-Significant Effect
Error	0.5309343	0.0379239	14			
Total	0.5706385	0.0776280	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.484	8.885	0.6156	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9368		0.3115	Normal Distribution

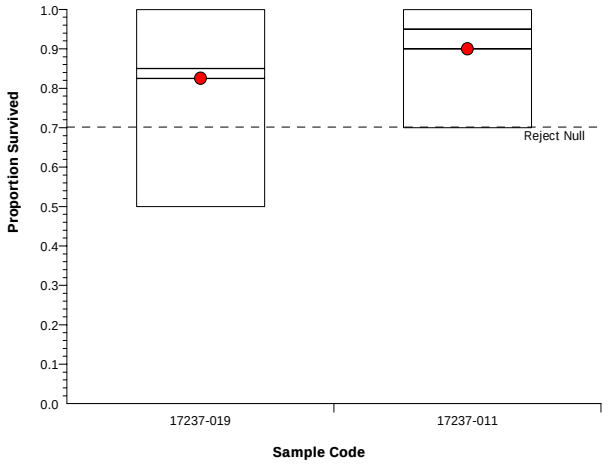
Proportion Survived Summary

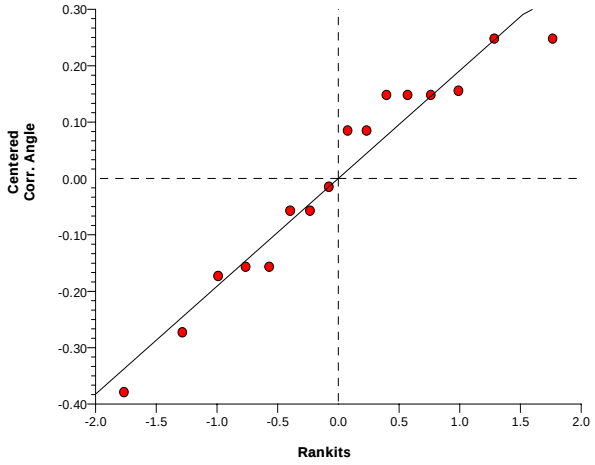
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-011	8	0.9	0.8545	0.9455	0.7	1	0.02219	0.1195	13.28%	-9.09%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-011	8	1.264	1.197	1.33	0.9912	1.419	0.03245	0.1748	13.83%	-8.56%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-5635-6514 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					18.68%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-010	6.183	1.761	0.2043	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.058644	2.058644	1	38.24	0.0000	Significant Effect
Error	0.7537808	0.0538415	14			
Total	2.812425	2.112486	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.377	8.885	0.6839	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8833		0.0436	Normal Distribution

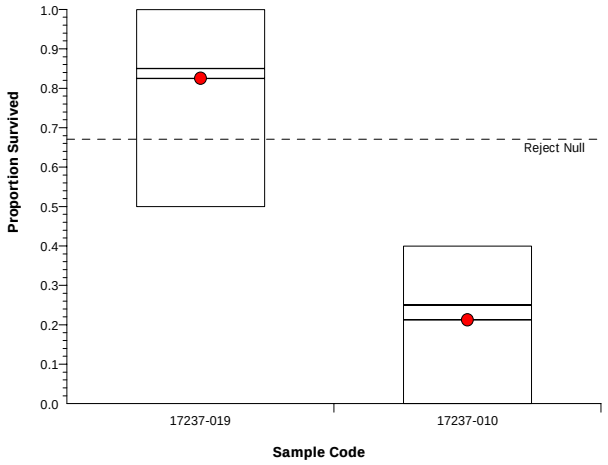
Proportion Survived Summary

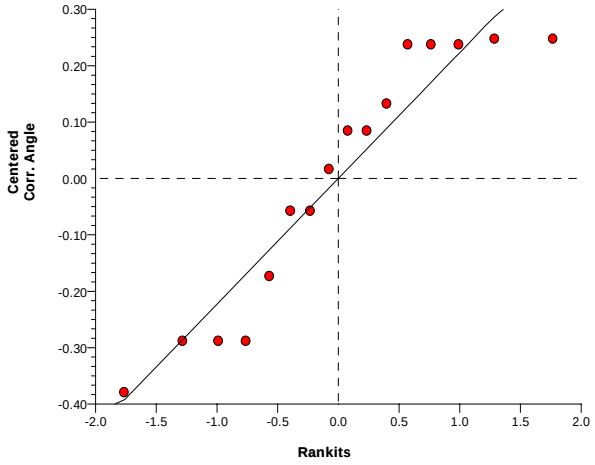
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-010	8	0.2125	0.1408	0.2842	0	0.4	0.03501	0.1885	88.71%	74.24%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-010	8	0.4467	0.3517	0.5417	0.1588	0.6847	0.04638	0.2497	55.91%	61.63%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-2053-0801 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-009	-0.253	1.761	0.1607	0.5980	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0021318	0.0021318	1	0.06401	0.8039	Non-Significant Effect
Error	0.4662839	0.033306	14			
Total	0.4684157	0.0354378	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.127	8.885	0.3407	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9393		0.3407	Normal Distribution

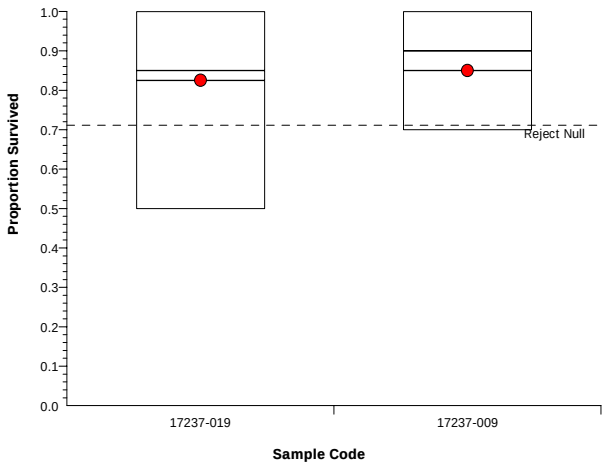
Proportion Survived Summary

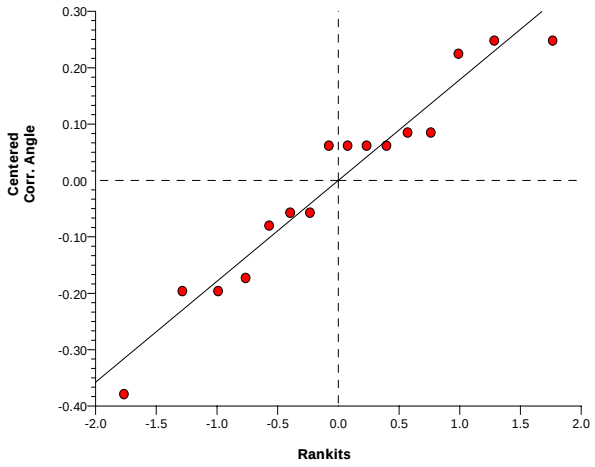
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-009	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	-3.03%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-009	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	-1.98%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-3426-1187 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-008	1.285	1.761	0.1377	0.1098	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0403771	0.0403771	1	1.651	0.2197	Non-Significant Effect
Error	0.3423944	0.0244567	14			
Total	0.3827715	0.0648339	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	12.57	8.885	0.0035	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9108		0.1201	Normal Distribution

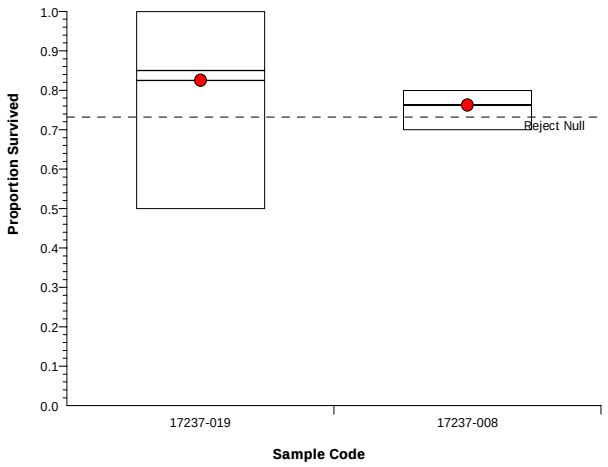
Proportion Survived Summary

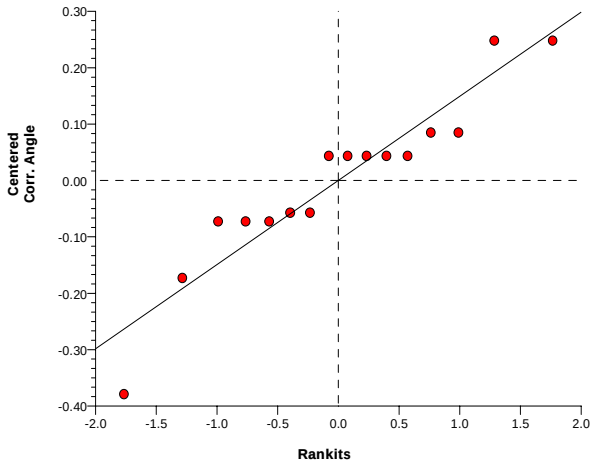
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-008	8	0.7625	0.7428	0.7822	0.7	0.8	0.009611	0.05176	6.79%	7.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-008	8	1.064	1.041	1.086	0.9912	1.107	0.01115	0.06003	5.64%	8.63%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-5688-7641 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					16.79%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-007	2.576	1.761	0.1876	0.0110	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.3013583	0.3013583	1	6.638	0.0220	Significant Effect
Error	0.635614	0.045401	14			
Total	0.9369723	0.3467593	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.004	8.885	0.9959	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9175		0.1535	Normal Distribution

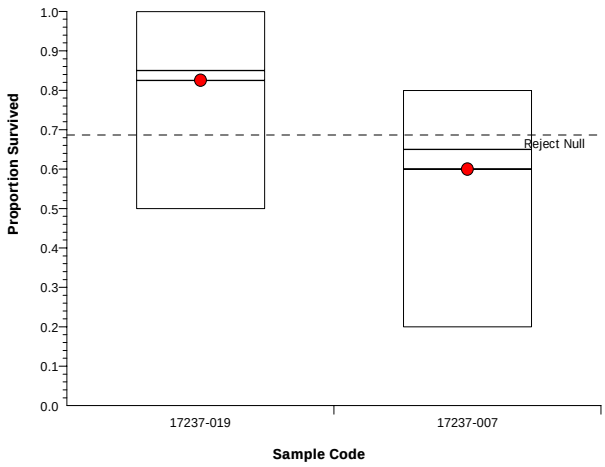
Proportion Survived Summary

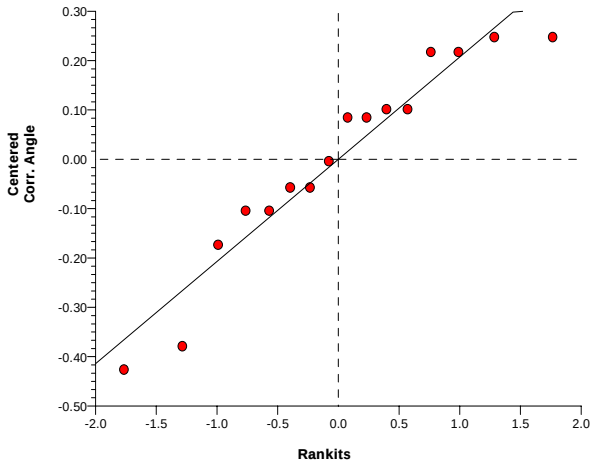
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-007	8	0.6	0.5239	0.6761	0.2	0.8	0.03714	0.2	33.33%	27.27%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-007	8	0.8896	0.8085	0.9708	0.4636	1.107	0.03961	0.2133	23.97%	23.58%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-7739-1630 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.58%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-006	-0.8416	1.761	0.1678	0.7929	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0257212	0.0257212	1	0.7083	0.4142	Non-Significant Effect
Error	0.5084087	0.0363149	14			
Total	0.5341299	0.0620361	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.658	8.885	0.5205	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9551		0.5745	Normal Distribution

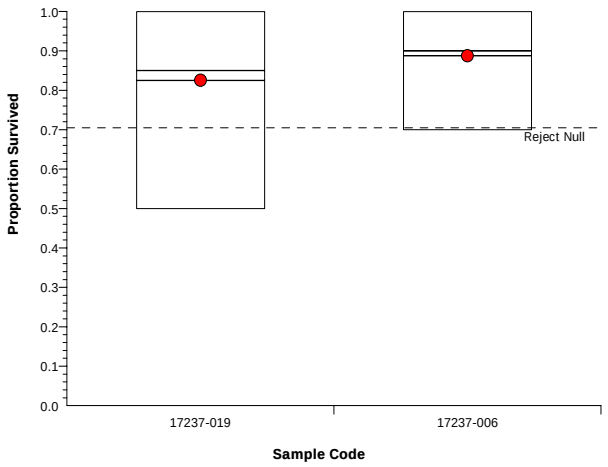
Proportion Survived Summary

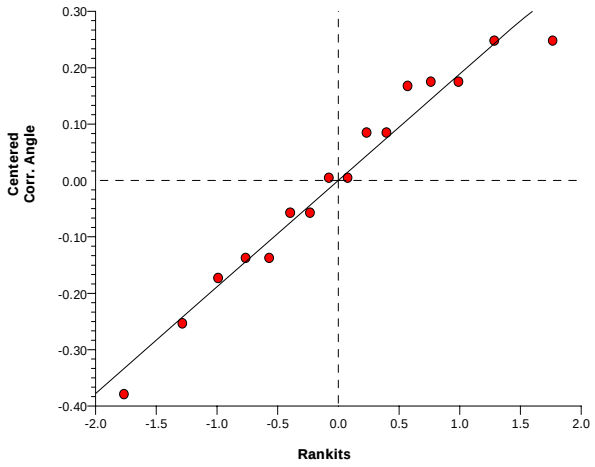
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-006	8	0.8875	0.8447	0.9303	0.7	1	0.02091	0.1126	12.69%	-7.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-006	8	1.244	1.181	1.307	0.9912	1.419	0.03069	0.1653	13.28%	-6.89%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-8573-0048 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.26%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-005	-1.307	1.761	0.1467	0.8939	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0474022	0.0474022	1	1.709	0.2122	Non-Significant Effect
Error	0.3883205	0.0277372	14			
Total	0.4357227	0.0751393	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.458	8.885	0.0670	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9379		0.3245	Normal Distribution

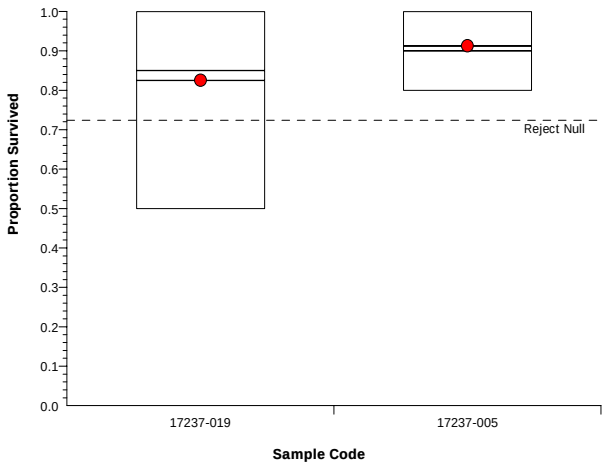
Proportion Survived Summary

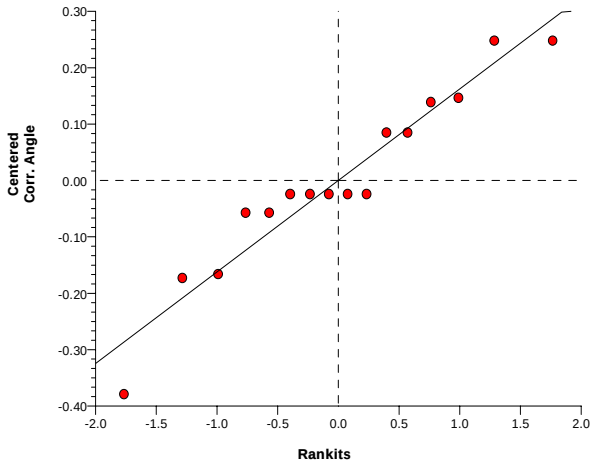
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-005	8	0.9125	0.8881	0.9369	0.8	1	0.0119	0.06409	7.02%	-10.61%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-005	8	1.273	1.235	1.311	1.107	1.419	0.01872	0.1008	7.92%	-9.35%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-3377-9832 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					16.12%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-004	-0.8298	1.761	0.1816	0.7897	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0292845	0.0292845	1	0.6886	0.4206	Non-Significant Effect
Error	0.5954176	0.0425298	14			
Total	0.6247022	0.0718144	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.14	8.885	0.8673	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9148		0.1392	Normal Distribution

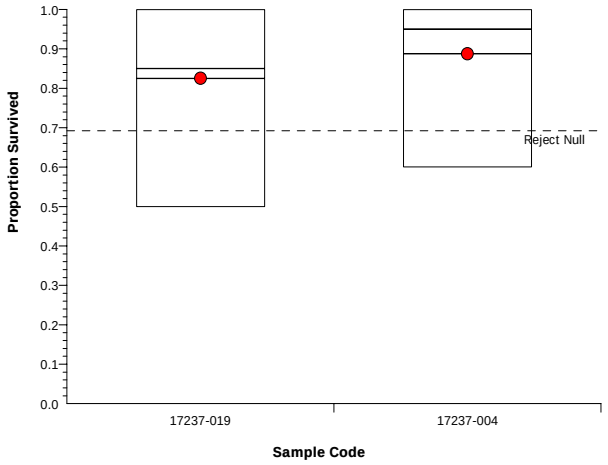
Proportion Survived Summary

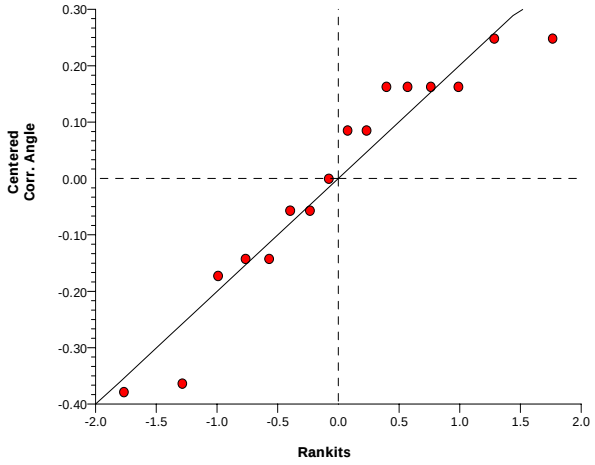
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-004	8	0.8875	0.8321	0.9429	0.6	1	0.02707	0.1458	16.43%	-7.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-004	8	1.25	1.174	1.326	0.8861	1.412	0.03702	0.1994	15.95%	-7.35%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-5441-6742 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					16.11%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-003	0.01857	1.761	0.1815	0.4927	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.466E-05	1.466E-05	1	0.0003449	0.9854	Non-Significant Effect
Error	0.5948545	0.0424896	14			
Total	0.5948692	0.0425043	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.142	8.885	0.8653	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9233		0.1907	Normal Distribution

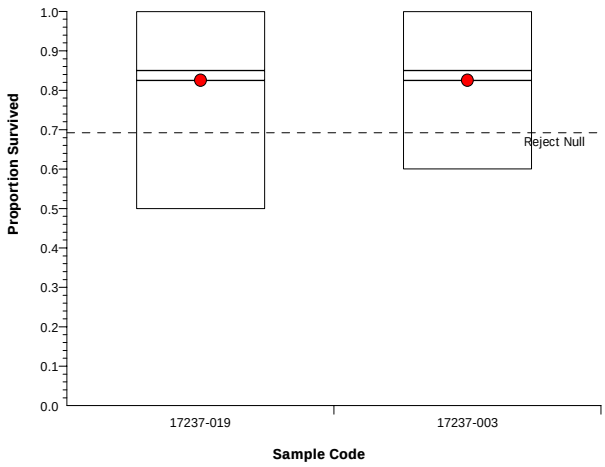
Proportion Survived Summary

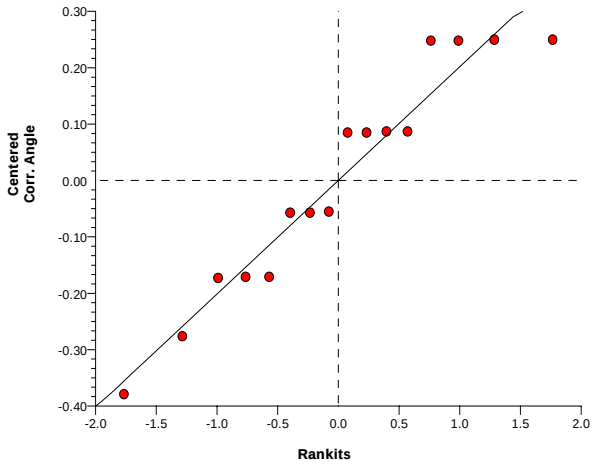
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-003	8	0.825	0.7684	0.8816	0.6	1	0.02763	0.1488	18.04%	0.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-003	8	1.162	1.086	1.238	0.8861	1.412	0.03699	0.1992	17.14%	0.16%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 19-5291-7201 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.29%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-002	4.95	1.761	0.1742	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.9583763	0.9583763	1	24.5	0.0002	Significant Effect
Error	0.547655	0.0391182	14			
Total	1.506031	0.9974945	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.376	8.885	0.6842	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8891		0.0540	Normal Distribution

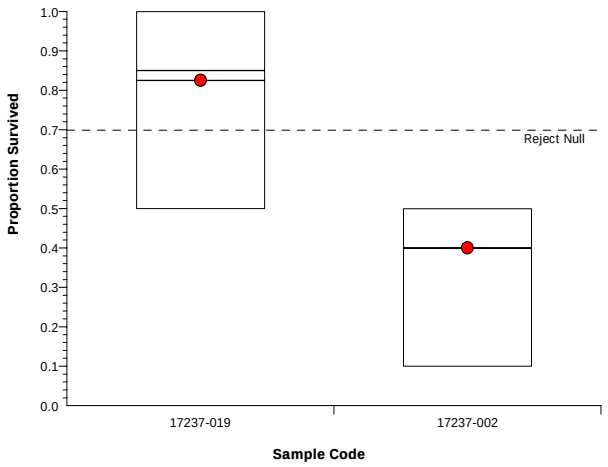
Proportion Survived Summary

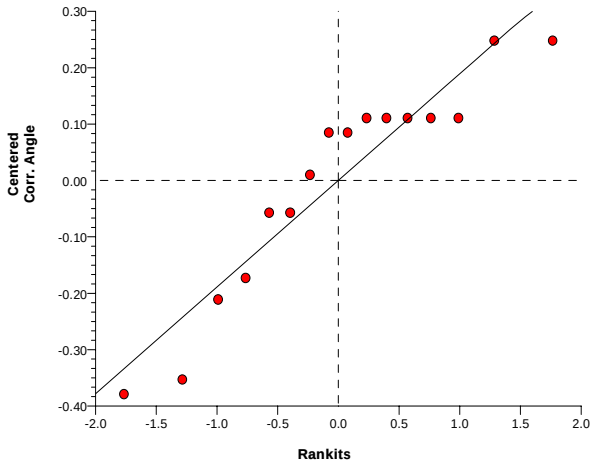
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-002	8	0.4	0.339	0.461	0.1	0.5	0.02978	0.1604	40.09%	51.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-002	8	0.6746	0.6056	0.7437	0.3218	0.7854	0.0337	0.1815	26.9%	42.05%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 02-1120-7095 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-001	-0.253	1.761	0.1607	0.5980	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0021318	0.0021318	1	0.06401	0.8039	Non-Significant Effect
Error	0.4662839	0.033306	14			
Total	0.4684157	0.0354378	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.127	8.885	0.3407	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9393		0.3407	Normal Distribution

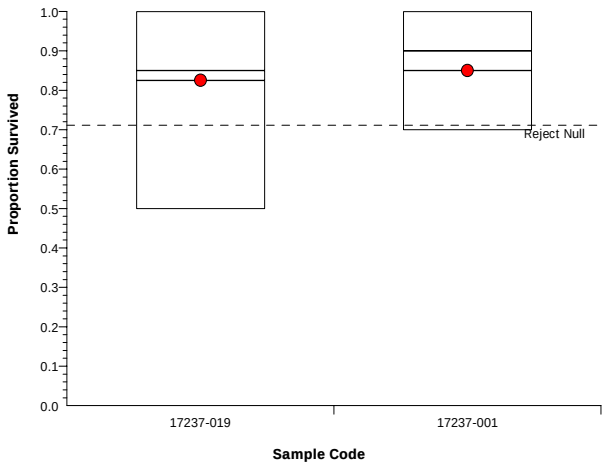
Proportion Survived Summary

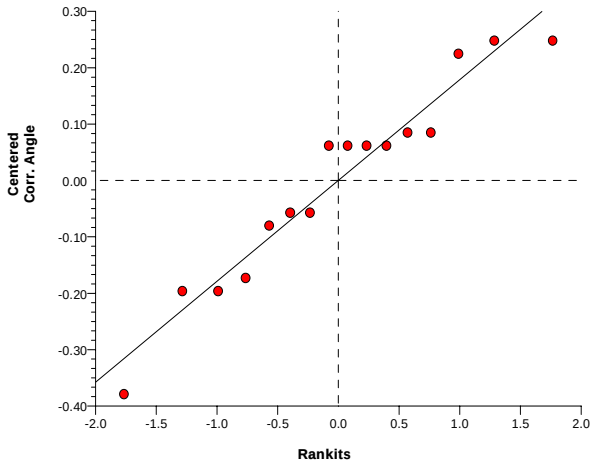
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-001	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	-3.03%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-001	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	-1.98%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-1220-1615 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.96%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-020	-0.461	1.761	0.1713	0.6740	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0080357	0.0080357	1	0.2125	0.6519	Non-Significant Effect
Error	0.5294363	0.0378169	14			
Total	0.5374721	0.0458526	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.494	8.885	0.6093	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9404		0.3539	Normal Distribution

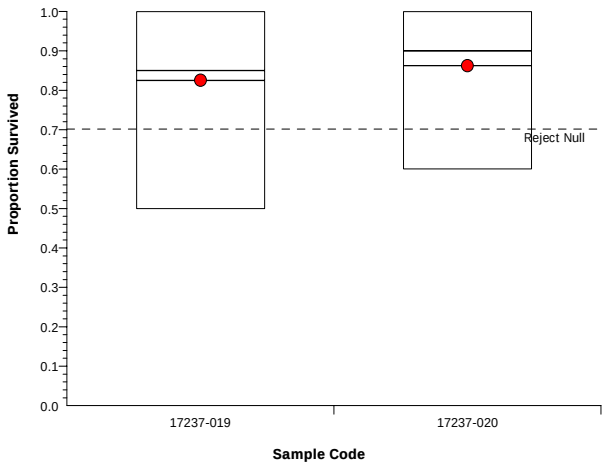
Proportion Survived Summary

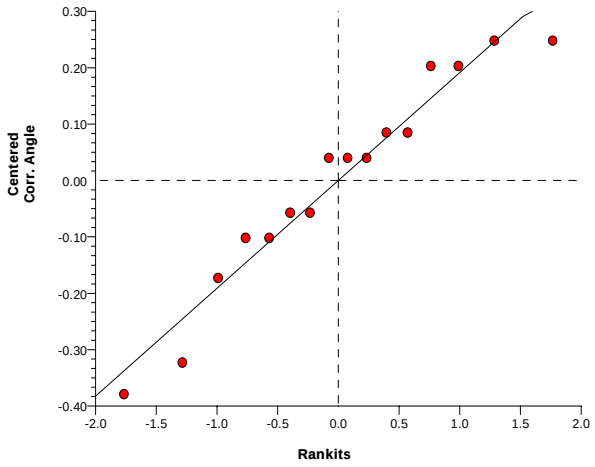
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	0.0%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	-4.54%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	0.0%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	-3.85%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-3235-4114 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.89%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-015	9.441	1.761	0.1698	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.311536	3.311536	1	89.13	0.0000	Significant Effect
Error	0.5201838	0.037156	14			
Total	3.83172	3.348692	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	12.06	8.885	0.0040	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9308		0.2511	Normal Distribution

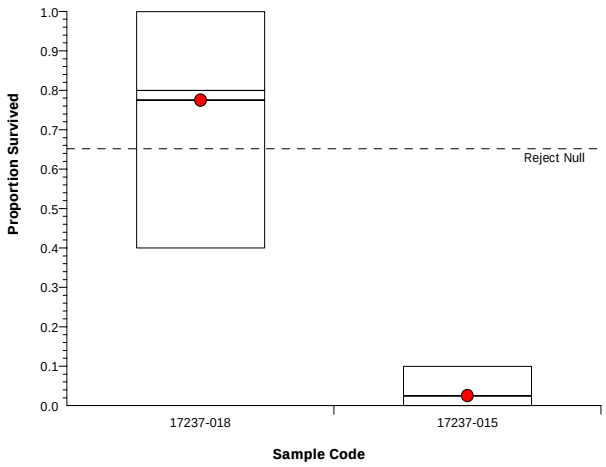
Proportion Survived Summary

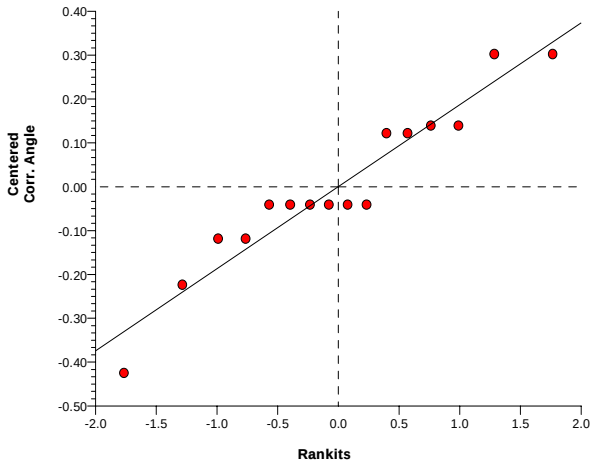
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-015	8	0.025	0.007392	0.04261	0	0.1	0.008596	0.04629	185.2%	96.77%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-015	8	0.1995	0.1708	0.2282	0.1588	0.3218	0.01401	0.07544	37.81%	82.02%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-3165-5507 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.24%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-014	6.533	1.761	0.1968	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.130512	2.130512	1	42.68	0.0000	Significant Effect
Error	0.6988504	0.0499179	14			
Total	2.829363	2.18043	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.198	8.885	0.3205	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9451		0.4159	Normal Distribution

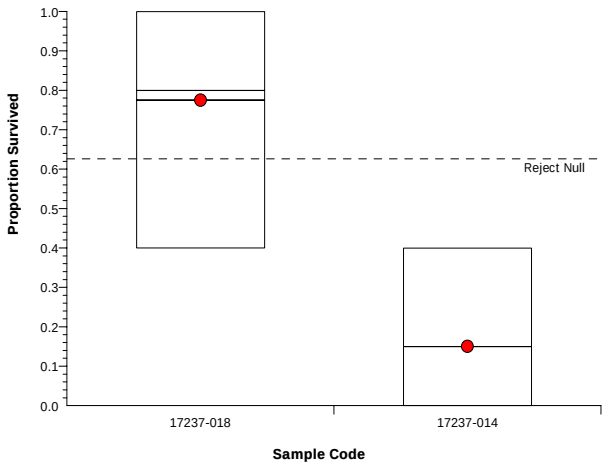
Proportion Survived Summary

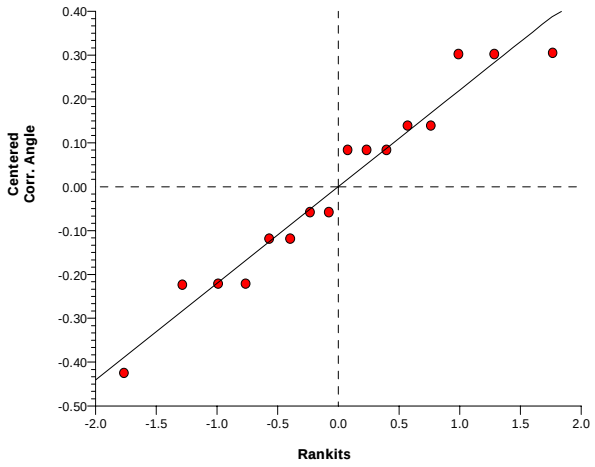
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-014	8	0.15	0.1002	0.1998	0	0.4	0.02431	0.1309	87.29%	80.65%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-014	8	0.3796	0.3124	0.4468	0.1588	0.6847	0.03281	0.1767	46.54%	65.78%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-5249-1025 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:15 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.6%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-013	1.35	1.761	0.1835	0.0992	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0791737	0.0791737	1	1.823	0.1984	Non-Significant Effect
Error	0.6081697	0.0434407	14			
Total	0.6873435	0.1226144	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.758	8.885	0.1019	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9539		0.5543	Normal Distribution

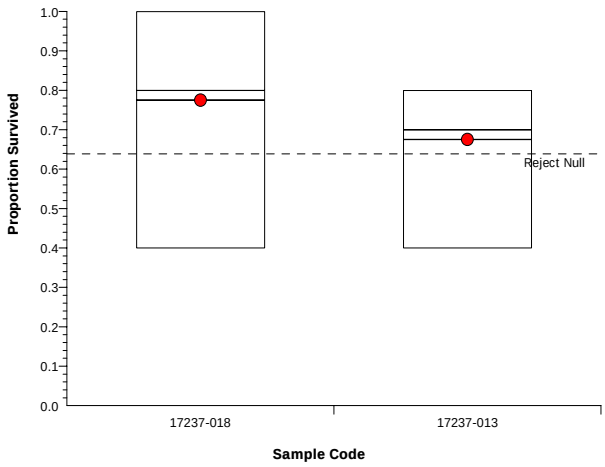
Proportion Survived Summary

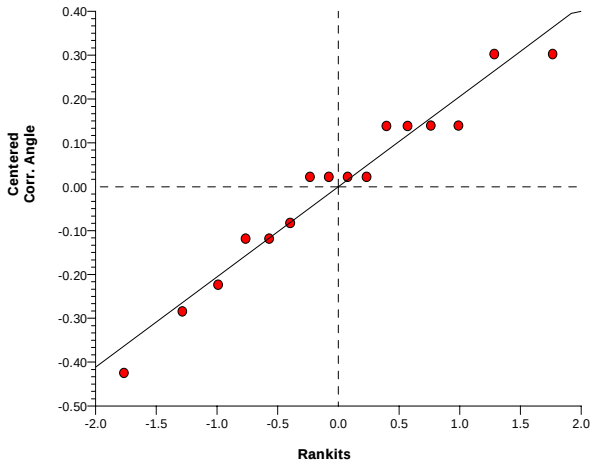
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-013	8	0.675	0.6262	0.7238	0.4	0.8	0.0238	0.1282	18.99%	12.9%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-013	8	0.9687	0.9173	1.02	0.6847	1.107	0.02509	0.1351	13.95%	12.68%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-6182-6503 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					18.82%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-012	2.356	1.761	0.1934	0.0168	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.2675319	0.2675319	1	5.55	0.0336	Significant Effect
Error	0.674881	0.0482058	14			
Total	0.9424129	0.3157377	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.469	8.885	0.2560	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9627		0.7118	Normal Distribution

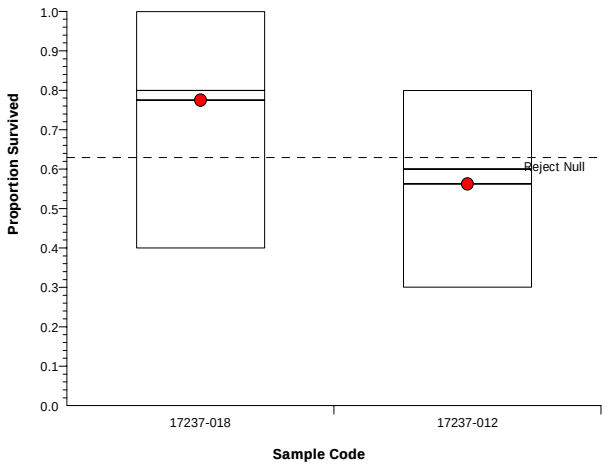
Proportion Survived Summary

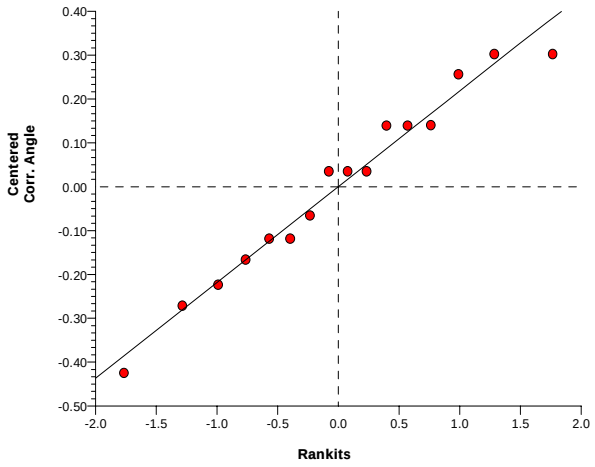
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-012	8	0.5625	0.5017	0.6233	0.3	0.8	0.02967	0.1598	28.41%	27.42%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-012	8	0.8508	0.7874	0.9142	0.5796	1.107	0.03096	0.1667	19.59%	23.31%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-2113-0818 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.16%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-011	-1.386	1.761	0.1961	0.9063	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0952924	0.0952924	1	1.922	0.1873	Non-Significant Effect
Error	0.6941114	0.0495794	14			
Total	0.7894038	0.1448718	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.247	8.885	0.3075	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9243		0.1977	Normal Distribution

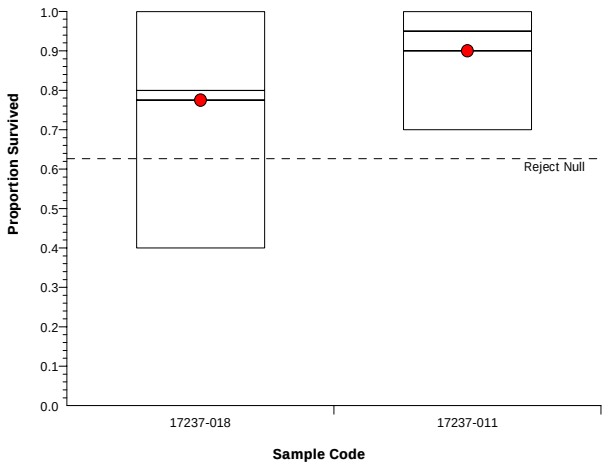
Proportion Survived Summary

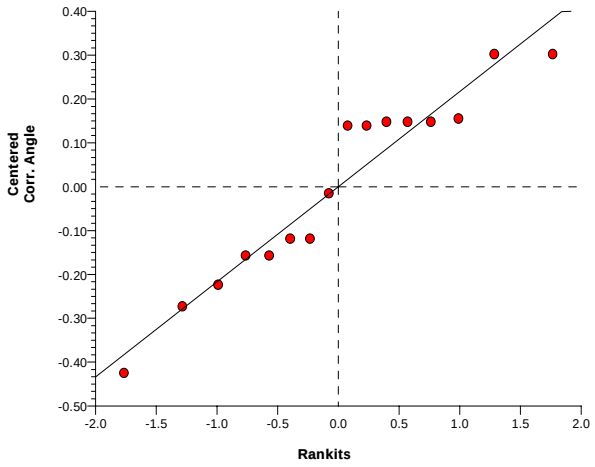
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-011	8	0.9	0.8545	0.9455	0.7	1	0.02219	0.1195	13.28%	-16.13%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-011	8	1.264	1.197	1.33	0.9912	1.419	0.03245	0.1748	13.83%	-13.91%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-3841-0371 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					22.84%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-010	5.179	1.761	0.2254	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.756584	1.756584	1	26.82	0.0001	Significant Effect
Error	0.9169578	0.065497	14			
Total	2.673542	1.822081	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.1	8.885	0.9030	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8969		0.0717	Normal Distribution

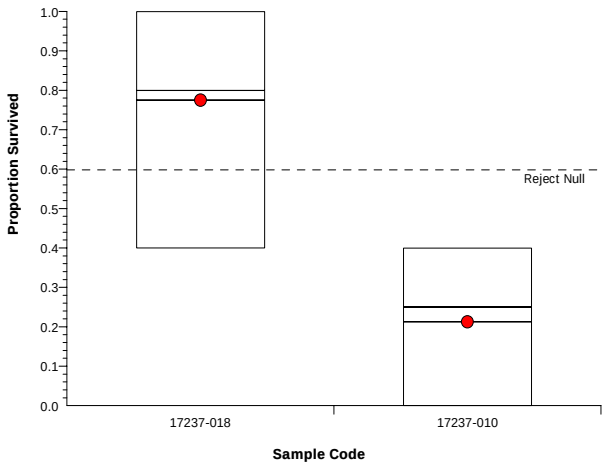
Proportion Survived Summary

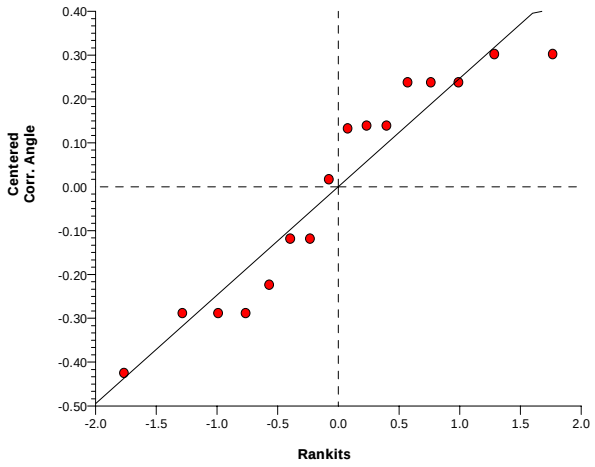
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-010	8	0.2125	0.1408	0.2842	0	0.4	0.03501	0.1885	88.71%	72.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-010	8	0.4467	0.3517	0.5417	0.1588	0.6847	0.04638	0.2497	55.91%	59.73%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-9957-0931 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.99%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-009	-0.7339	1.761	0.1867	0.7624	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0242135	0.0242135	1	0.5385	0.4752	Non-Significant Effect
Error	0.6294609	0.0449615	14			
Total	0.6536745	0.0691750	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.221	8.885	0.1456	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9562		0.5932	Normal Distribution

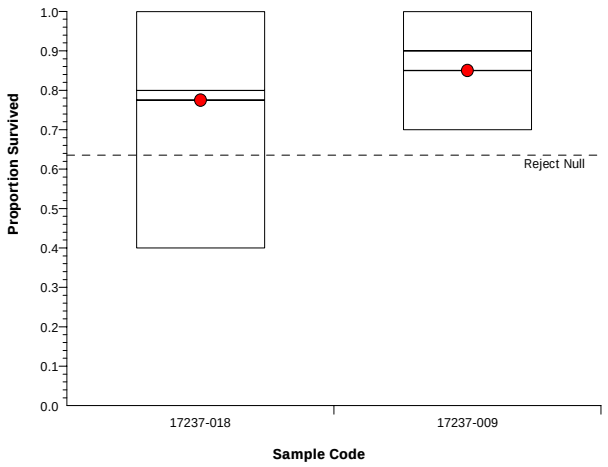
Proportion Survived Summary

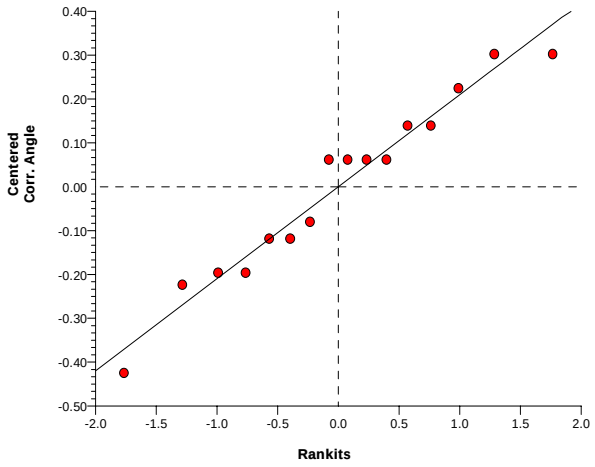
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-009	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	-9.68%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-009	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	-7.01%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-6056-4361 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.6%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-008	0.4815	1.761	0.1674	0.3188	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0083732	0.0083732	1	0.2319	0.6376	Non-Significant Effect
Error	0.5055714	0.0361122	14			
Total	0.5139445	0.0444854	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	19.04	8.885	0.0009	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.945		0.4145	Normal Distribution

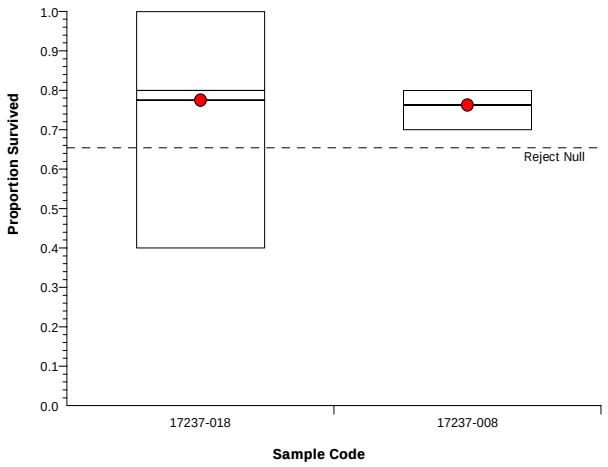
Proportion Survived Summary

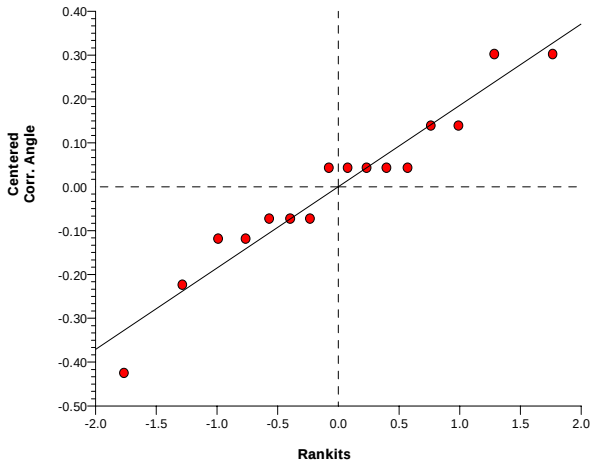
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-008	8	0.7625	0.7428	0.7822	0.7	0.8	0.009611	0.05176	6.79%	1.61%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-008	8	1.064	1.041	1.086	0.9912	1.107	0.01115	0.06003	5.64%	4.12%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-8509-2526 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					20.95%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-007	1.84	1.761	0.2104	0.0435	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1931826	0.1931826	1	3.386	0.0870	Non-Significant Effect
Error	0.7987911	0.0570565	14			
Total	0.9919736	0.2502391	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.508	8.885	0.6010	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9262		0.2118	Normal Distribution

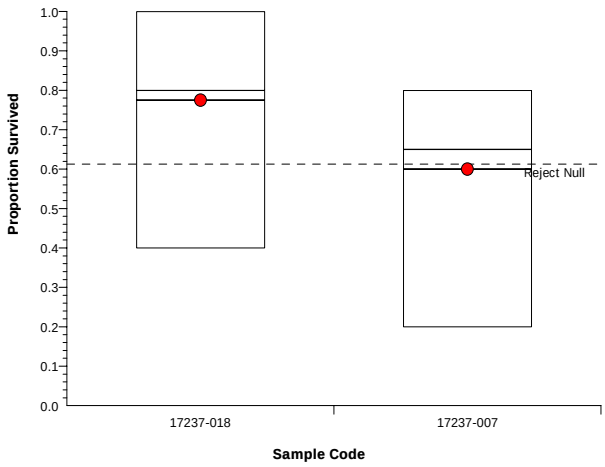
Proportion Survived Summary

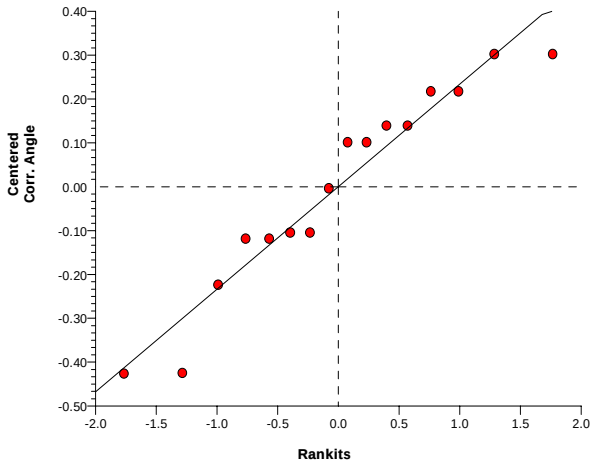
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-007	8	0.6	0.5239	0.6761	0.2	0.8	0.03714	0.2	33.33%	22.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-007	8	0.8896	0.8085	0.9708	0.4636	1.107	0.03961	0.2133	23.97%	19.81%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-0270-5697 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					18.76%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-006	-1.232	1.761	0.1929	0.8809	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0727996	0.0727996	1	1.518	0.2383	Non-Significant Effect
Error	0.6715857	0.0479704	14			
Total	0.7443853	0.12077	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.512	8.885	0.2474	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9458		0.4267	Normal Distribution

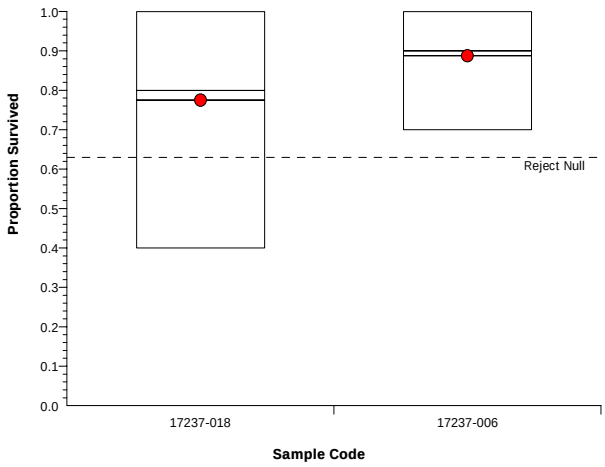
Proportion Survived Summary

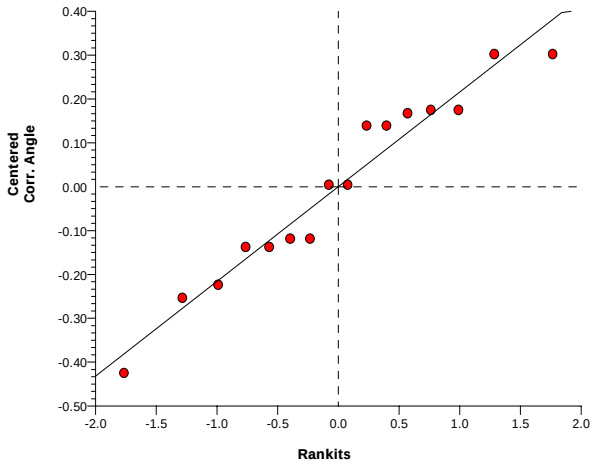
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-006	8	0.8875	0.8447	0.9303	0.7	1	0.02091	0.1126	12.69%	-14.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-006	8	1.244	1.181	1.307	0.9912	1.419	0.03069	0.1653	13.28%	-12.16%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-5795-9688 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					16.51%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-005	-1.648	1.761	0.1748	0.9392	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1070311	0.1070311	1	2.717	0.1215	Non-Significant Effect
Error	0.5514976	0.0393927	14			
Total	0.6585286	0.1464238	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.751	8.885	0.0221	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9486		0.4671	Normal Distribution

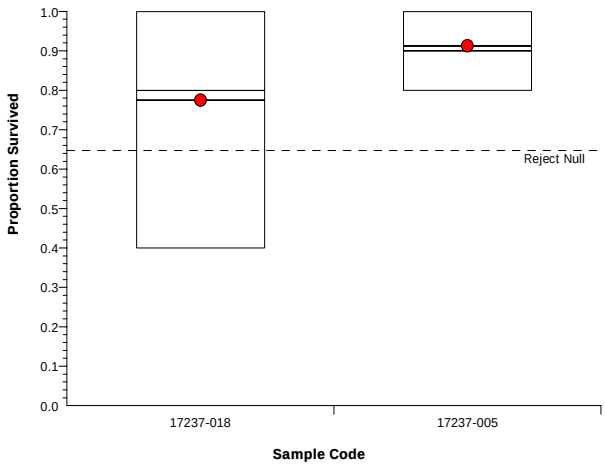
Proportion Survived Summary

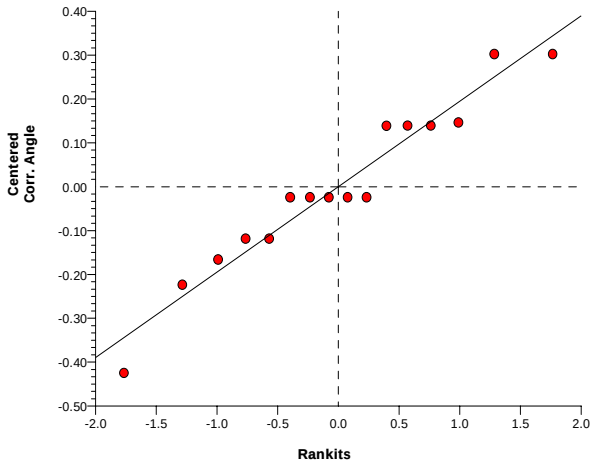
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-005	8	0.9125	0.8881	0.9369	0.8	1	0.0119	0.06409	7.02%	-17.74%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-005	8	1.273	1.235	1.311	1.107	1.419	0.01872	0.1008	7.92%	-14.74%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-7864-3166 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					20.27%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-004	-1.205	1.761	0.205	0.8760	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0787155	0.0787155	1	1.453	0.2481	Non-Significant Effect
Error	0.7585946	0.0541853	14			
Total	0.8373101	0.1329009	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.726	8.885	0.4884	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9164		0.1475	Normal Distribution

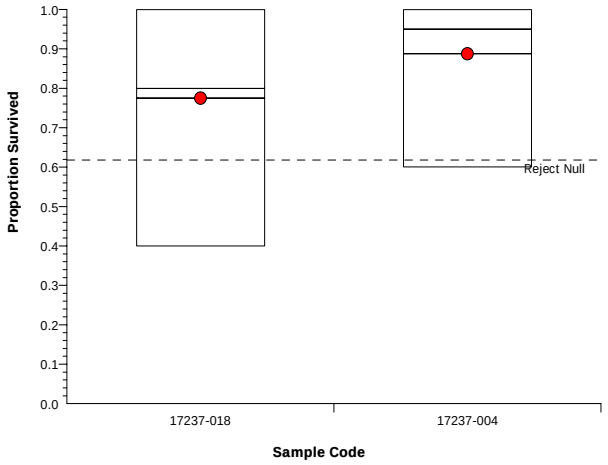
Proportion Survived Summary

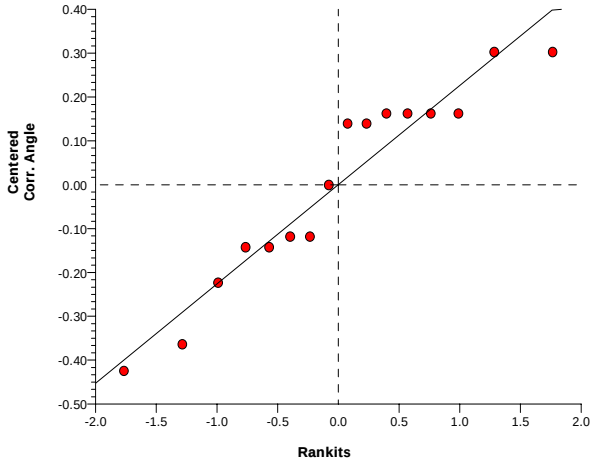
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-004	8	0.8875	0.8321	0.9429	0.6	1	0.02707	0.1458	16.43%	-14.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-004	8	1.25	1.174	1.326	0.8861	1.412	0.03702	0.1994	15.95%	-12.64%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 21-4491-9441 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					20.26%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-003	-0.4539	1.761	0.2049	0.6716	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0111529	0.0111529	1	0.206	0.6569	Non-Significant Effect
Error	0.7580315	0.0541451	14			
Total	0.7691845	0.0652980	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.73	8.885	0.4868	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9417		0.3701	Normal Distribution

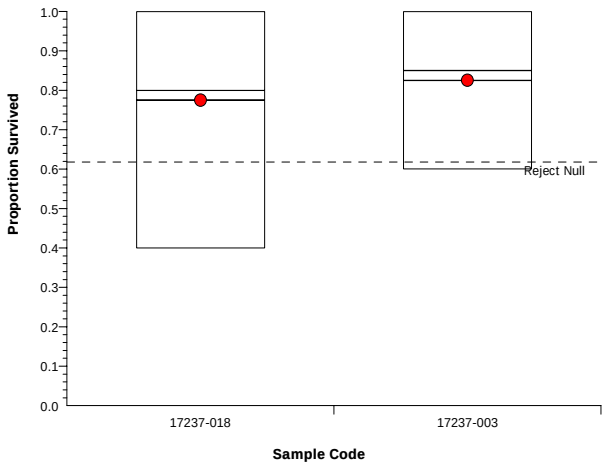
Proportion Survived Summary

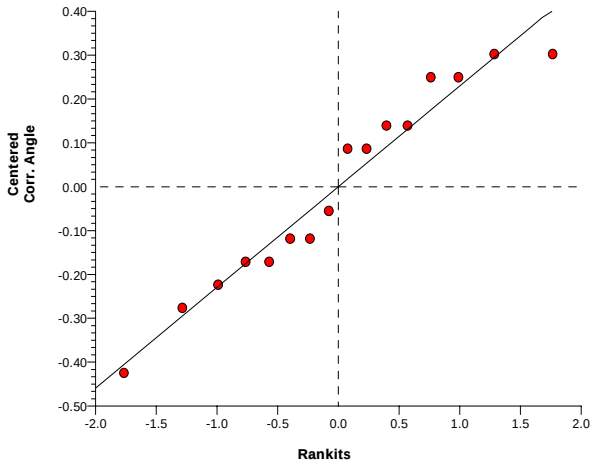
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-003	8	0.825	0.7684	0.8816	0.6	1	0.02763	0.1488	18.04%	-6.45%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-003	8	1.162	1.086	1.238	0.8861	1.412	0.03699	0.1992	17.14%	-4.76%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 19-7732-2754 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.45%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-002	3.859	1.761	0.1984	0.0009	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.7560846	0.7560846	1	14.89	0.0017	Significant Effect
Error	0.710832	0.0507737	14			
Total	1.466917	0.8068584	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.084	8.885	0.3536	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9119		0.1250	Normal Distribution

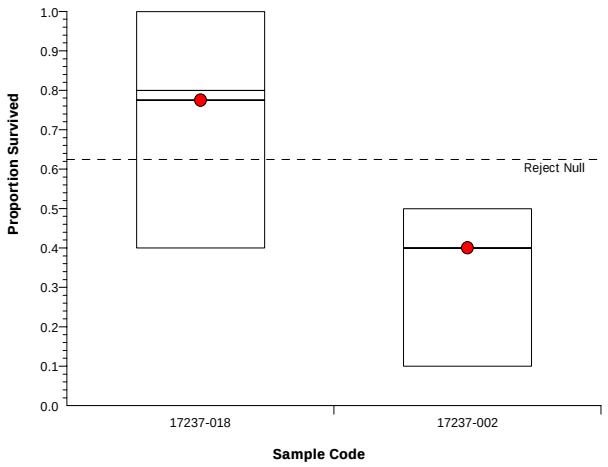
Proportion Survived Summary

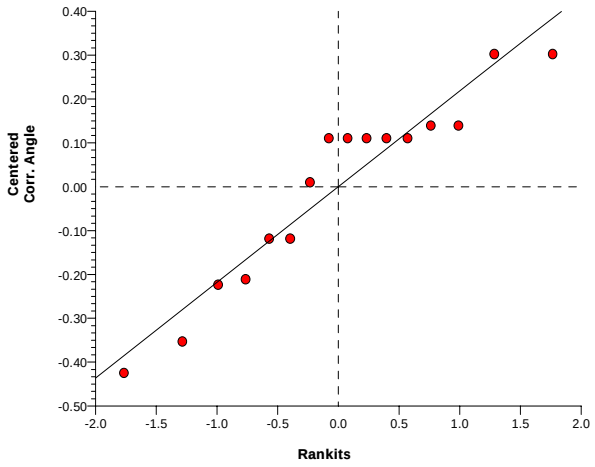
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-002	8	0.4	0.339	0.461	0.1	0.5	0.02978	0.1604	40.09%	48.39%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-002	8	0.6746	0.6056	0.7437	0.3218	0.7854	0.0337	0.1815	26.9%	39.19%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-6366-4781 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.99%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-001	-0.7339	1.761	0.1867	0.7624	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0242135	0.0242135	1	0.5385	0.4752	Non-Significant Effect
Error	0.6294609	0.0449615	14			
Total	0.6536745	0.0691750	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.221	8.885	0.1456	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9562		0.5932	Normal Distribution

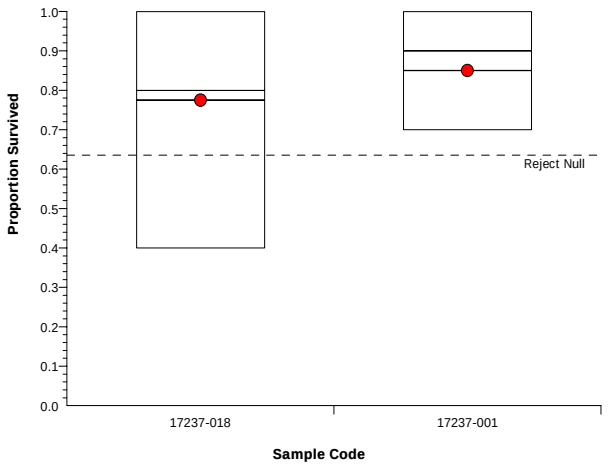
Proportion Survived Summary

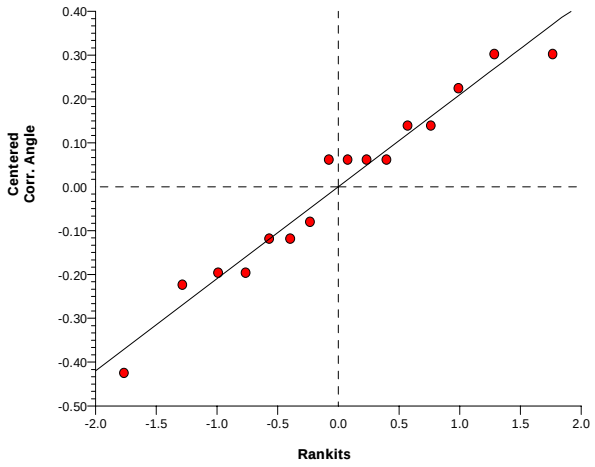
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-001	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	-9.68%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-001	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	-7.01%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-3884-8537 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:14 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.13%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-020	-0.895	1.761	0.1959	0.8071	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0396319	0.0396319	1	0.8011	0.3859	Non-Significant Effect
Error	0.6926134	0.0494724	14			
Total	0.7322453	0.0891043	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.263	8.885	0.3034	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9552		0.5764	Normal Distribution

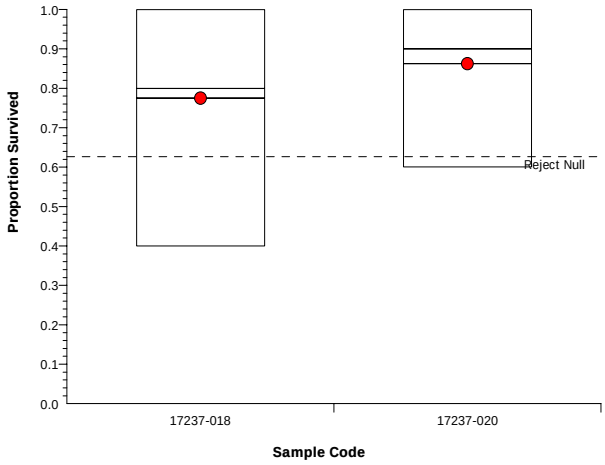
Proportion Survived Summary

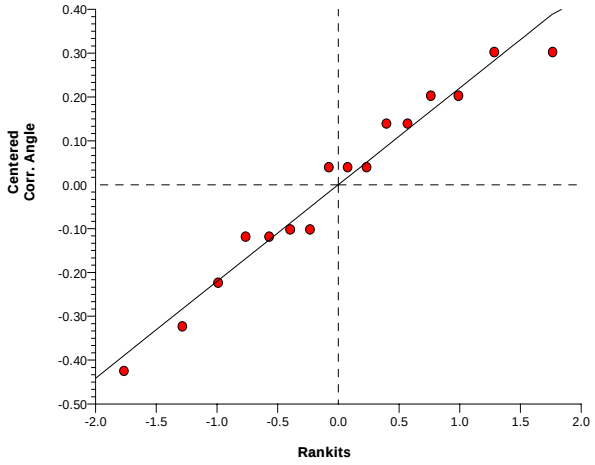
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	-11.29%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	-8.97%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-4895-6526 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					20.92%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-019	-0.4585	1.761	0.2102	0.6732	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0119762	0.0119762	1	0.2102	0.6536	Non-Significant Effect
Error	0.7975126	0.0569652	14			
Total	0.8094888	0.0689414	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.514	8.885	0.5974	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9421		0.3755	Normal Distribution

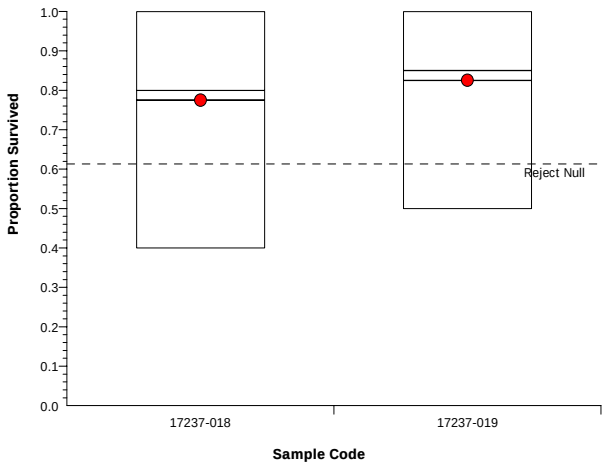
Proportion Survived Summary

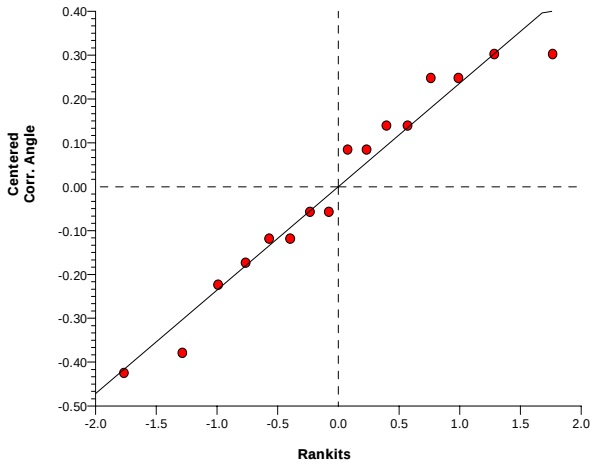
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	-6.45%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	0.0%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	-4.93%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 21-2701-6471 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					16.17%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-015	9.584	1.761	0.1661	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.26893	3.26893	1	91.85	0.0000	Significant Effect
Error	0.4982569	0.0355898	14			
Total	3.767187	3.304519	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	11.51	8.885	0.0046	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8464		0.0121	Normal Distribution

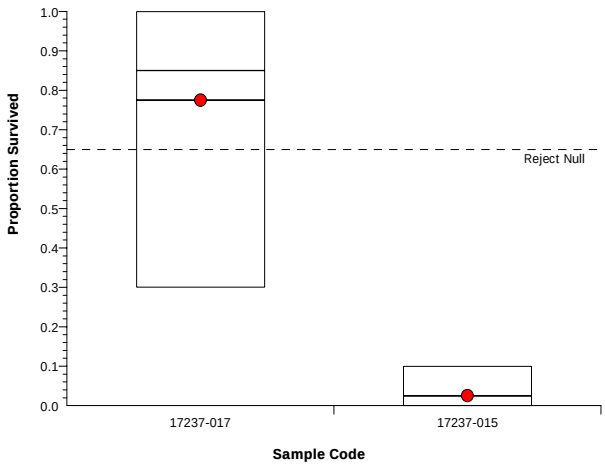
Proportion Survived Summary

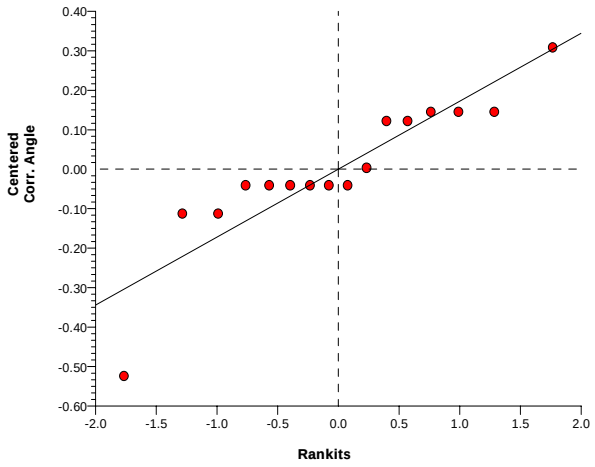
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-015	8	0.025	0.007392	0.04261	0	0.1	0.008596	0.04629	185.2%	96.77%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-015	8	0.1995	0.1708	0.2282	0.1588	0.3218	0.01401	0.07544	37.81%	81.92%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-7173-7323 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.59%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-014	6.585	1.761	0.1936	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.096365	2.096365	1	43.36	0.0000	Significant Effect
Error	0.6769235	0.0483517	14			
Total	2.773288	2.144717	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.098	8.885	0.3494	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9404		0.3542	Normal Distribution

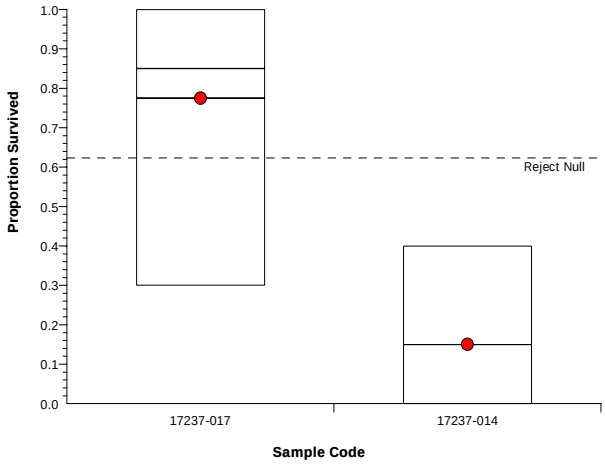
Proportion Survived Summary

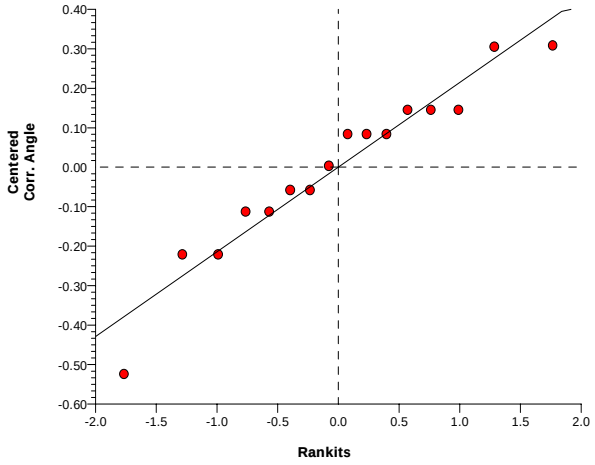
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-014	8	0.15	0.1002	0.1998	0	0.4	0.02431	0.1309	87.29%	80.65%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-014	8	0.3796	0.3124	0.4468	0.1588	0.6847	0.03281	0.1767	46.54%	65.6%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-2941-1973 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.91%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-013	1.318	1.761	0.1802	0.1044	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0727024	0.0727024	1	1.736	0.2088	Non-Significant Effect
Error	0.5862428	0.0418745	14			
Total	0.6589451	0.1145768	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.586	8.885	0.1138	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8911		0.0580	Normal Distribution

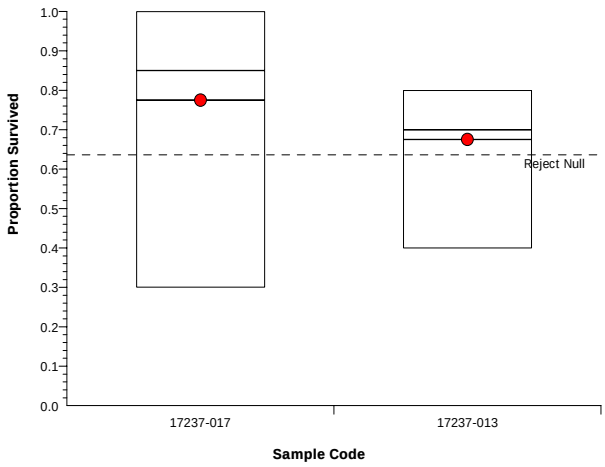
Proportion Survived Summary

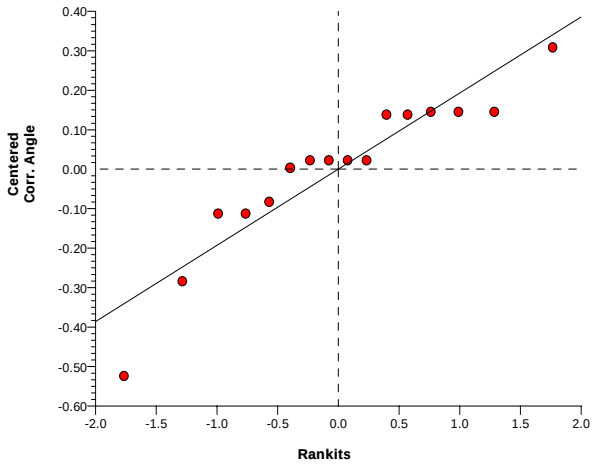
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-013	8	0.675	0.6262	0.7238	0.4	0.8	0.0238	0.1282	18.99%	12.9%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-013	8	0.9687	0.9173	1.02	0.6847	1.107	0.02509	0.1351	13.95%	12.22%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-4744-3397 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.15%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-012	2.341	1.761	0.1902	0.0173	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.2555205	0.2555205	1	5.479	0.0346	Significant Effect
Error	0.652954	0.0466396	14			
Total	0.9084745	0.30216	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.356	8.885	0.2807	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9388		0.3341	Normal Distribution

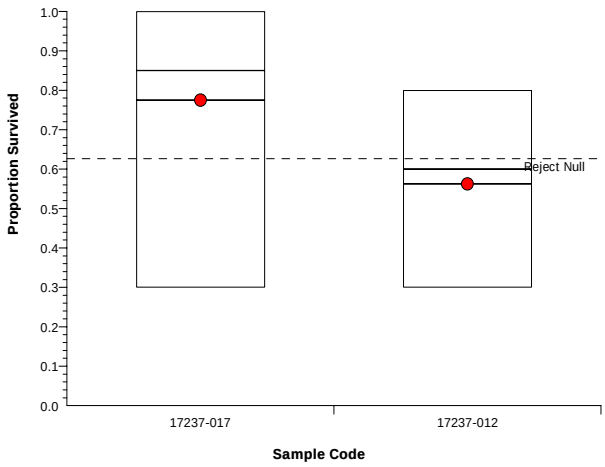
Proportion Survived Summary

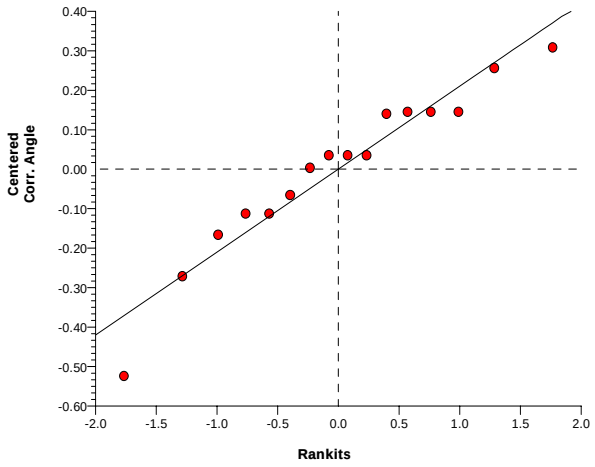
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-012	8	0.5625	0.5017	0.6233	0.3	0.8	0.02967	0.1598	28.41%	27.42%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-012	8	0.8508	0.7874	0.9142	0.5796	1.107	0.03096	0.1667	19.59%	22.9%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-9342-7326 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-011	-1.462	1.761	0.193	0.9171	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1026813	0.1026813	1	2.139	0.1657	Non-Significant Effect
Error	0.6721845	0.0480132	14			
Total	0.7748657	0.1506944	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.144	8.885	0.3356	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8906		0.0570	Normal Distribution

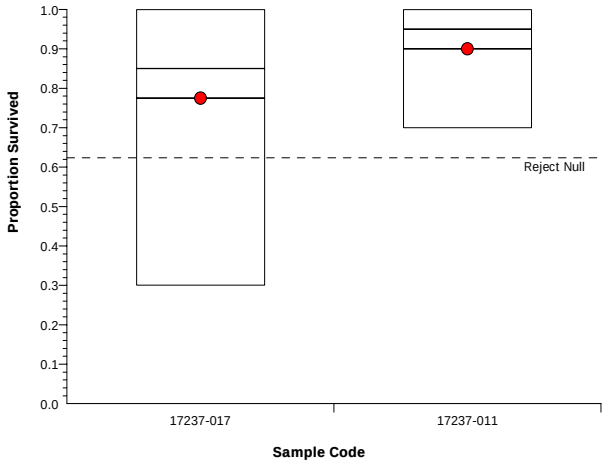
Proportion Survived Summary

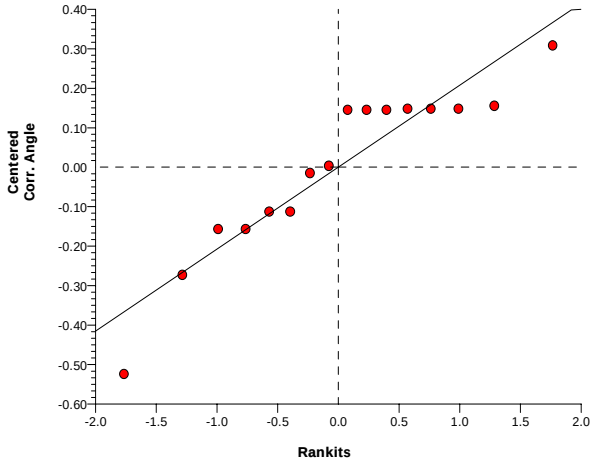
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-011	8	0.9	0.8545	0.9455	0.7	1	0.02219	0.1195	13.28%	-16.13%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-011	8	1.264	1.197	1.33	0.9912	1.419	0.03245	0.1748	13.83%	-14.52%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-6657-5778 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					23.24%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-010	5.195	1.761	0.2227	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.725591	1.725591	1	26.99	0.0001	Significant Effect
Error	0.8950309	0.0639308	14			
Total	2.620621	1.789521	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.05	8.885	0.9504	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9097		0.1152	Normal Distribution

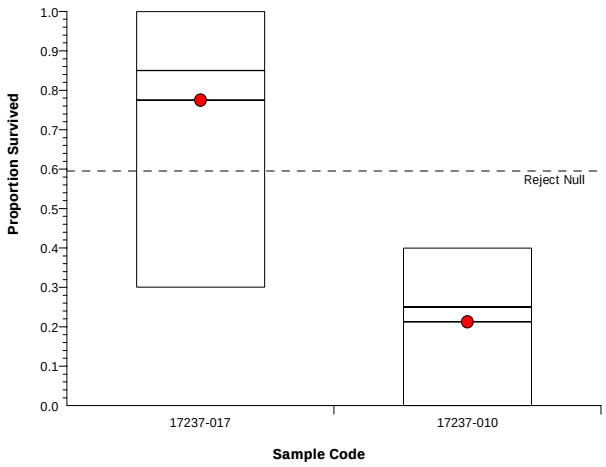
Proportion Survived Summary

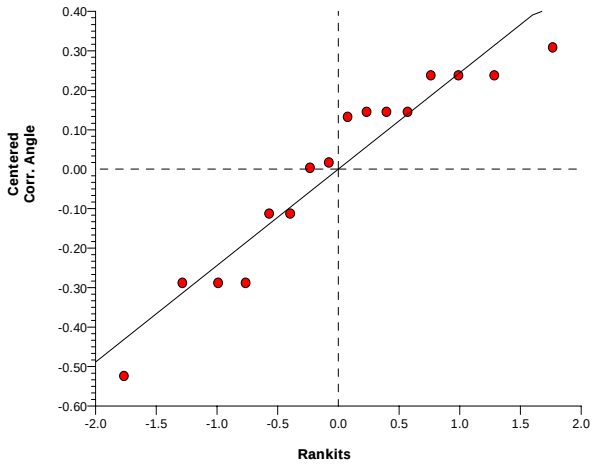
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-010	8	0.2125	0.1408	0.2842	0	0.4	0.03501	0.1885	88.71%	72.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-010	8	0.4467	0.3517	0.5417	0.1588	0.6847	0.04638	0.2497	55.91%	59.52%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-6995-6117 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:13 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					18.32%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-009	-0.8034	1.761	0.1835	0.7824	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0280065	0.0280065	1	0.6454	0.4352	Non-Significant Effect
Error	0.607534	0.0433953	14			
Total	0.6355405	0.0714018	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.074	8.885	0.1616	Equal Variances
Distribution	Shapiro-Wilk Normality	0.927		0.2187	Normal Distribution

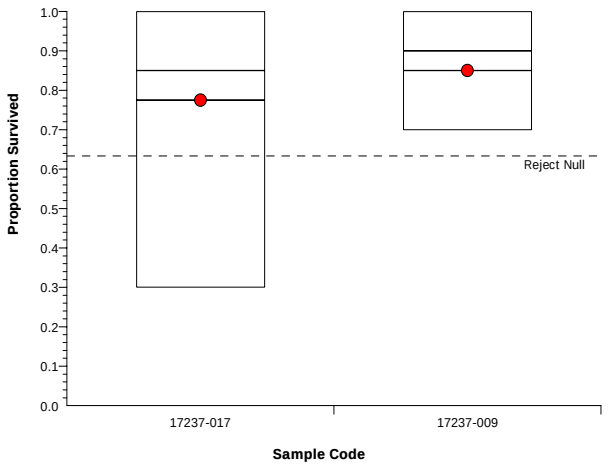
Proportion Survived Summary

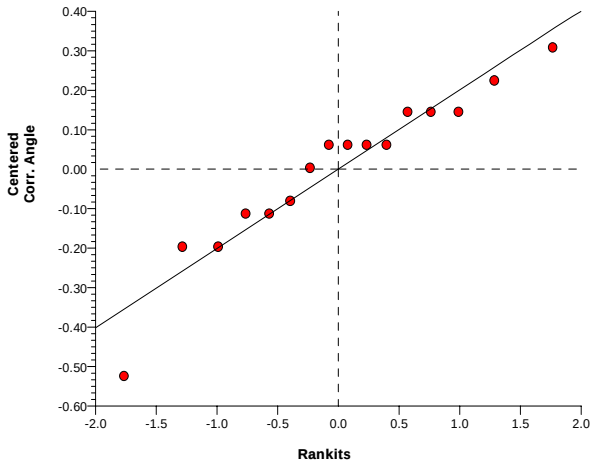
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-009	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	-9.68%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-009	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	-7.58%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-1633-1100 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.87%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-008	0.4291	1.761	0.1637	0.3372	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0063617	0.0063617	1	0.1842	0.6744	Non-Significant Effect
Error	0.4836445	0.0345460	14			
Total	0.4900062	0.0409078	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	18.17	8.885	0.0011	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8569		0.0172	Normal Distribution

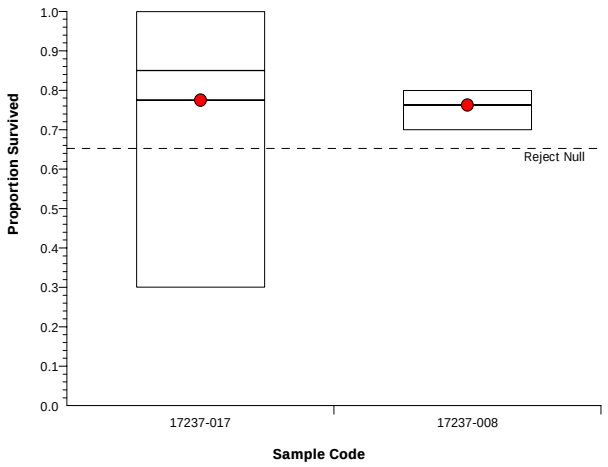
Proportion Survived Summary

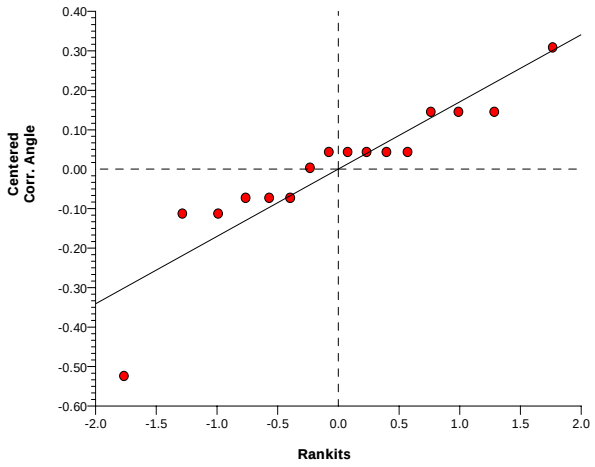
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-008	8	0.7625	0.7428	0.7822	0.7	0.8	0.009611	0.05176	6.79%	1.61%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-008	8	1.064	1.041	1.086	0.9912	1.107	0.01115	0.06003	5.64%	3.61%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-8262-6401 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					21.32%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-007	1.816	1.761	0.2075	0.0454	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1829965	0.1829965	1	3.298	0.0908	Non-Significant Effect
Error	0.7768641	0.0554903	14			
Total	0.9598606	0.2384867	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.44	8.885	0.6427	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8981		0.0749	Normal Distribution

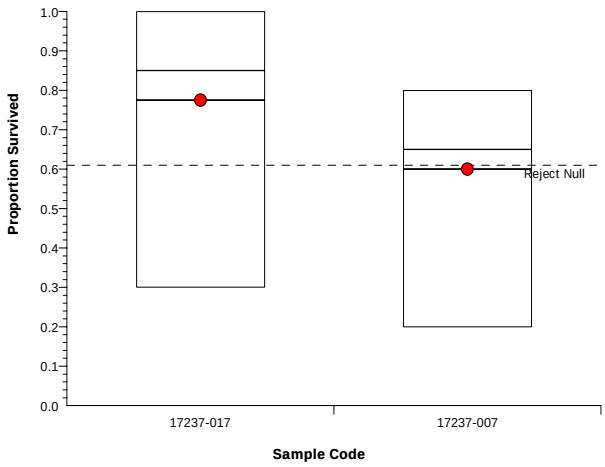
Proportion Survived Summary

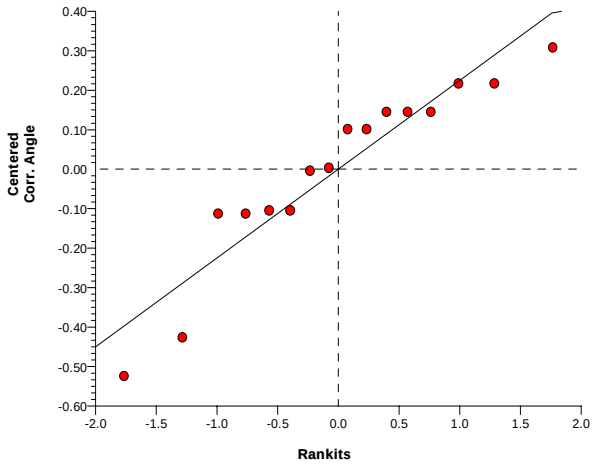
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-007	8	0.6	0.5239	0.6761	0.2	0.8	0.03714	0.2	33.33%	22.58%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-007	8	0.8896	0.8085	0.9708	0.4636	1.107	0.03961	0.2133	23.97%	19.38%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-1006-2078 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.09%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-006	-1.307	1.761	0.1897	0.8939	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0792752	0.0792752	1	1.708	0.2123	Non-Significant Effect
Error	0.6496588	0.0464042	14			
Total	0.728934	0.1256794	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.397	8.885	0.2715	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9158		0.1443	Normal Distribution

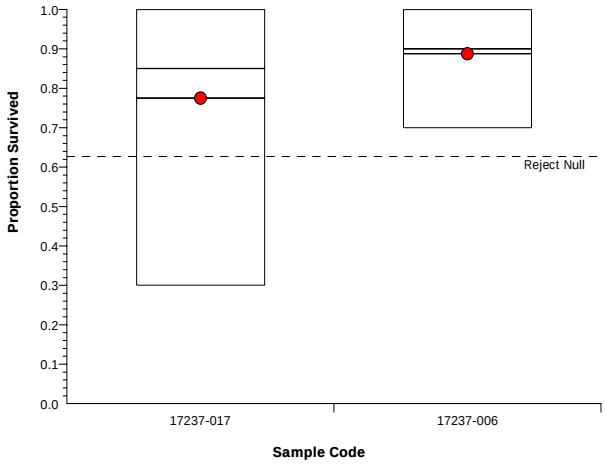
Proportion Survived Summary

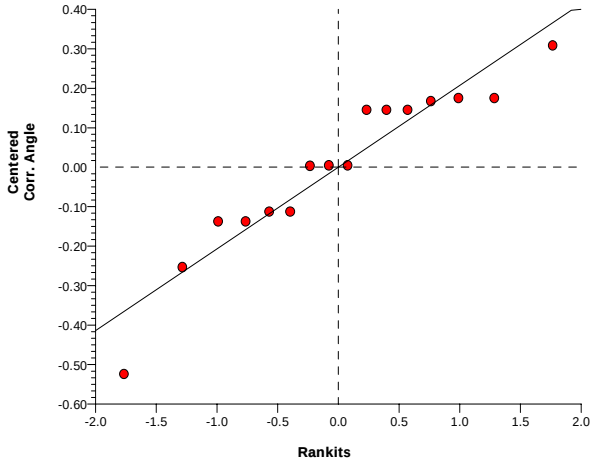
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-006	8	0.8875	0.8447	0.9303	0.7	1	0.02091	0.1126	12.69%	-14.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-006	8	1.244	1.181	1.307	0.9912	1.419	0.03069	0.1653	13.28%	-12.76%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-1693-3415 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					16.81%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-005	-1.743	1.761	0.1713	0.9483	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1148536	0.1148536	1	3.036	0.1033	Non-Significant Effect
Error	0.5295706	0.0378265	14			
Total	0.6444243	0.1526801	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.443	8.885	0.0252	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8761		0.0338	Normal Distribution

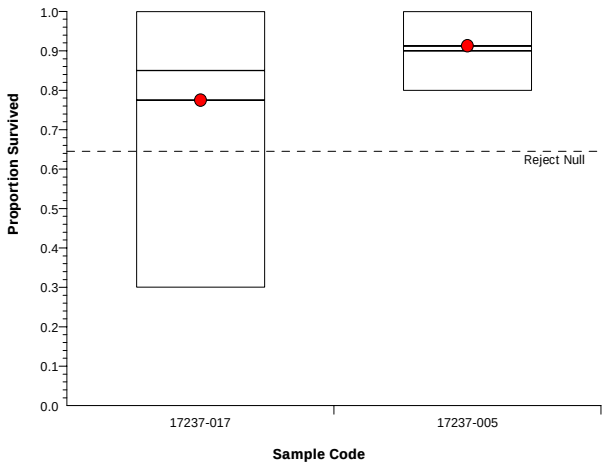
Proportion Survived Summary

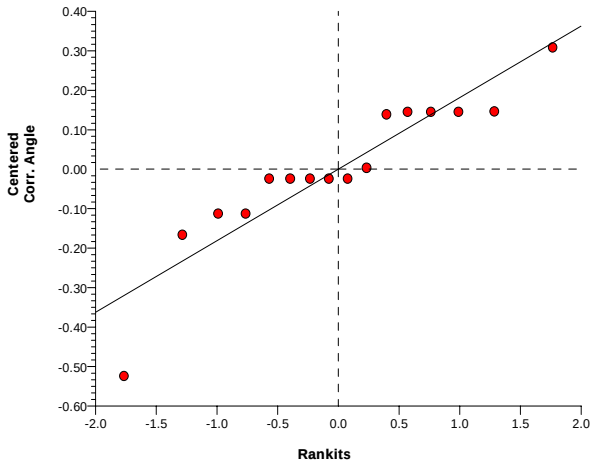
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-005	8	0.9125	0.8881	0.9369	0.8	1	0.0119	0.06409	7.02%	-17.74%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-005	8	1.273	1.235	1.311	1.107	1.419	0.01872	0.1008	7.92%	-15.36%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-7457-0550 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					20.63%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-004	-1.274	1.761	0.202	0.8883	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0854436	0.0854436	1	1.624	0.2233	Non-Significant Effect
Error	0.7366677	0.0526191	14			
Total	0.8221113	0.1380627	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.648	8.885	0.5259	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8843		0.0452	Normal Distribution

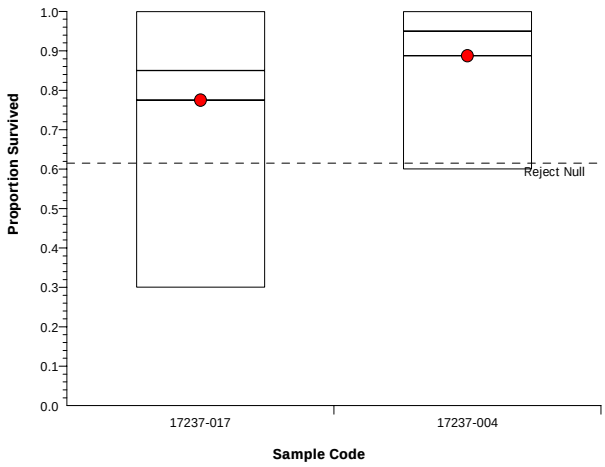
Proportion Survived Summary

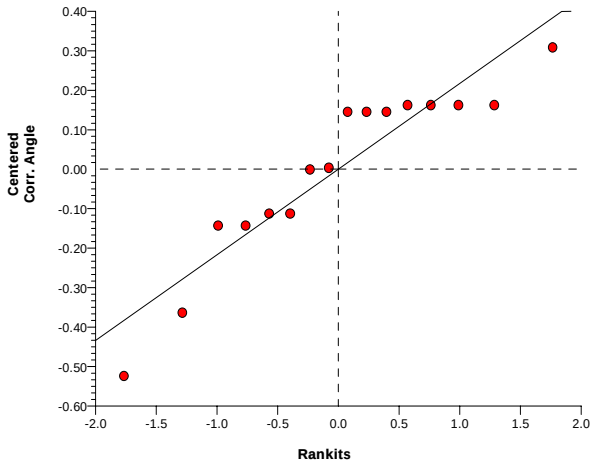
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-004	8	0.8875	0.8321	0.9429	0.6	1	0.02707	0.1458	16.43%	-14.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-004	8	1.25	1.174	1.326	0.8861	1.412	0.03702	0.1994	15.95%	-13.24%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-2010-3260 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					20.63%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-003	-0.5118	1.761	0.2019	0.6916	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0137715	0.0137715	1	0.2619	0.6168	Non-Significant Effect
Error	0.7361046	0.0525789	14			
Total	0.7498761	0.0663504	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.651	8.885	0.5243	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9465		0.4361	Normal Distribution

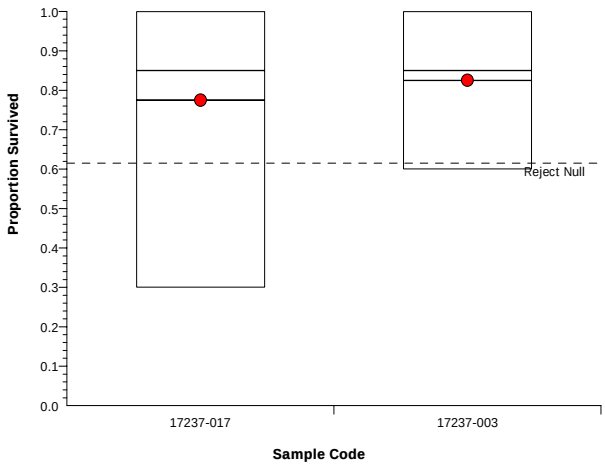
Proportion Survived Summary

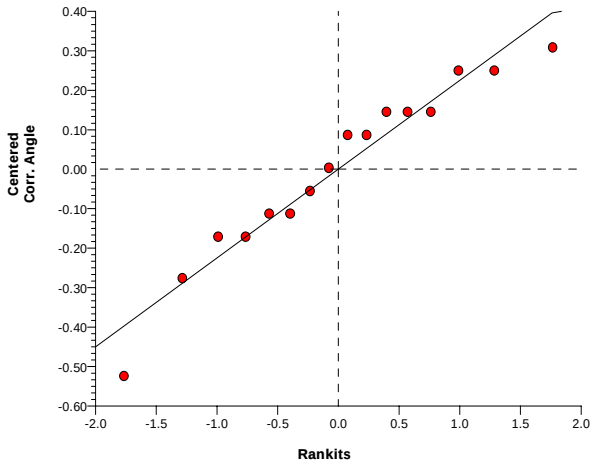
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-003	8	0.825	0.7684	0.8816	0.6	1	0.02763	0.1488	18.04%	-6.45%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-003	8	1.162	1.086	1.238	0.8861	1.412	0.03699	0.1992	17.14%	-5.32%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-9081-9945 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-002	3.867	1.761	0.1954	0.0009	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.7357981	0.7357981	1	14.95	0.0017	Significant Effect
Error	0.6889051	0.0492075	14			
Total	1.424703	0.7850056	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.989	8.885	0.3845	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8691		0.0263	Normal Distribution

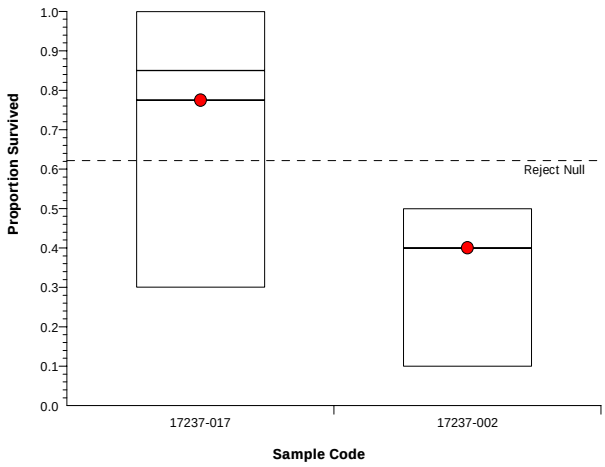
Proportion Survived Summary

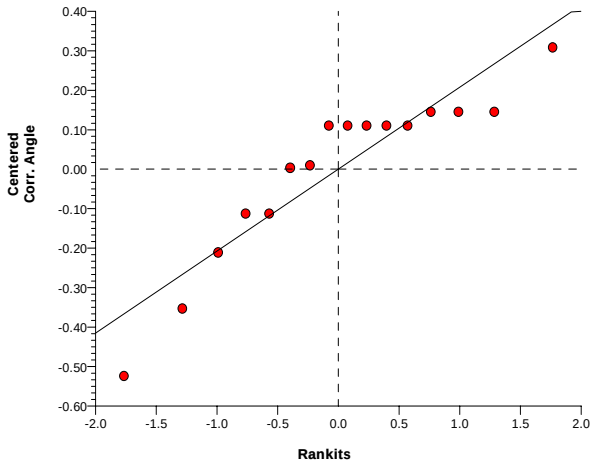
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-002	8	0.4	0.339	0.461	0.1	0.5	0.02978	0.1604	40.09%	48.39%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-002	8	0.6746	0.6056	0.7437	0.3218	0.7854	0.0337	0.1815	26.9%	38.87%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-3908-9933 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					18.32%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-001	-0.8034	1.761	0.1835	0.7824	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0280065	0.0280065	1	0.6454	0.4352	Non-Significant Effect
Error	0.607534	0.0433953	14			
Total	0.6355405	0.0714018	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.074	8.885	0.1616	Equal Variances
Distribution	Shapiro-Wilk Normality	0.927		0.2187	Normal Distribution

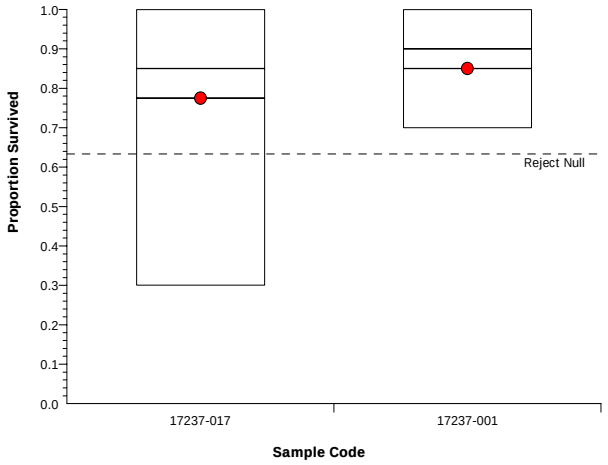
Proportion Survived Summary

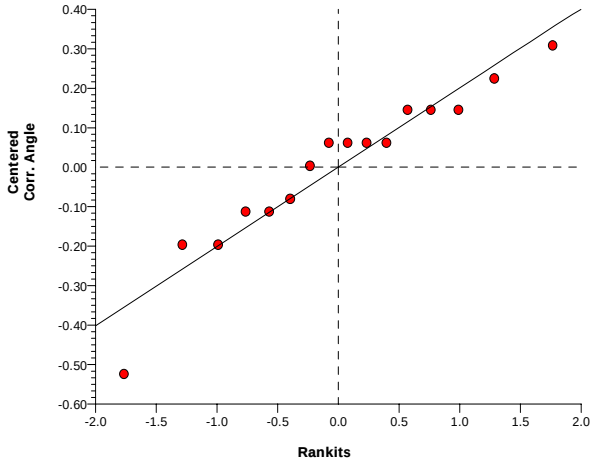
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-001	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	-9.68%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-001	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	-7.58%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-5757-2685 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					19.47%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-020	-0.9632	1.761	0.1928	0.8241	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0444460	0.0444460	1	0.9278	0.3518	Non-Significant Effect
Error	0.6706865	0.0479062	14			
Total	0.7151325	0.0923522	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.16	8.885	0.3313	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9219		0.1808	Normal Distribution

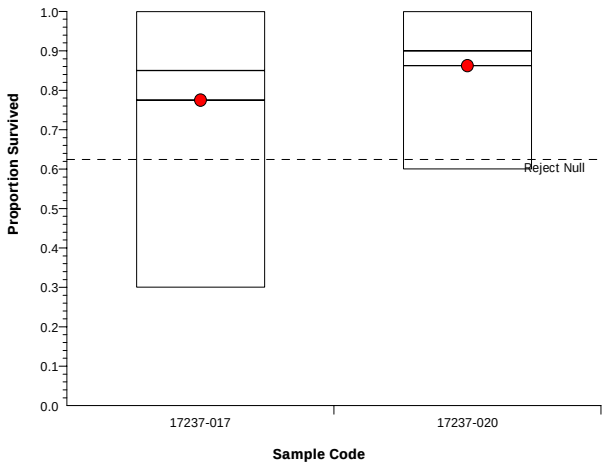
Proportion Survived Summary

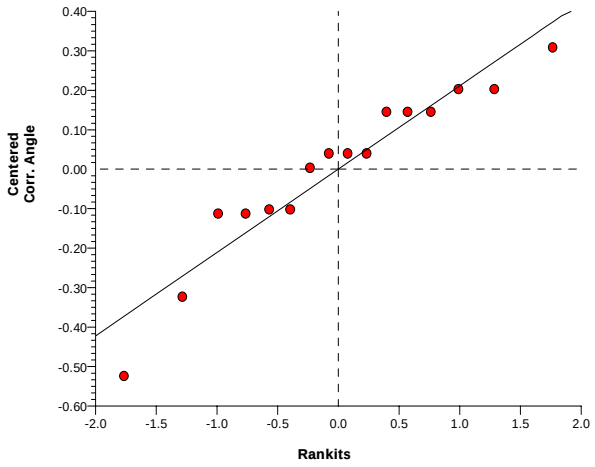
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	-11.29%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	-9.55%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-7020-1689 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					21.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-019	-0.5149	1.761	0.2073	0.6927	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0146847	0.0146847	1	0.2651	0.6147	Non-Significant Effect
Error	0.7755857	0.055399	14			
Total	0.7902703	0.0700836	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.445	8.885	0.6391	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9335		0.2764	Normal Distribution

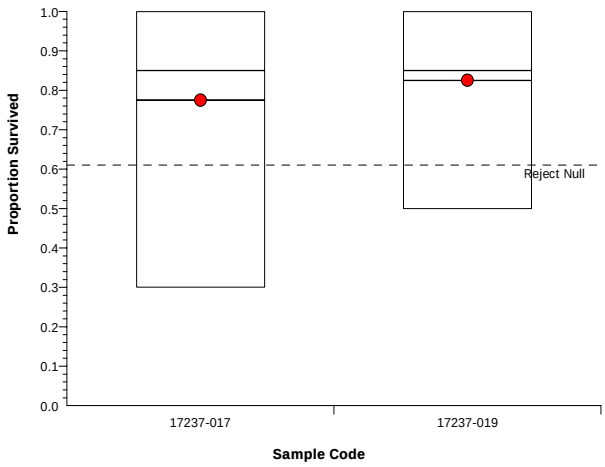
Proportion Survived Summary

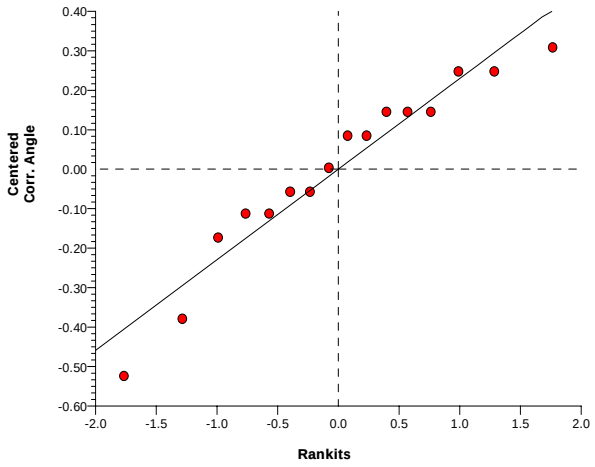
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	-6.45%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	-5.49%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-3190-0792 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:12 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					23.92%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-018	-0.04535	1.761	0.228	0.5178	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0001379	0.0001379	1	0.002057	0.9645	Non-Significant Effect
Error	0.9387627	0.0670545	14			
Total	0.9389006	0.0671924	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.048	8.885	0.9524	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9127		0.1287	Normal Distribution

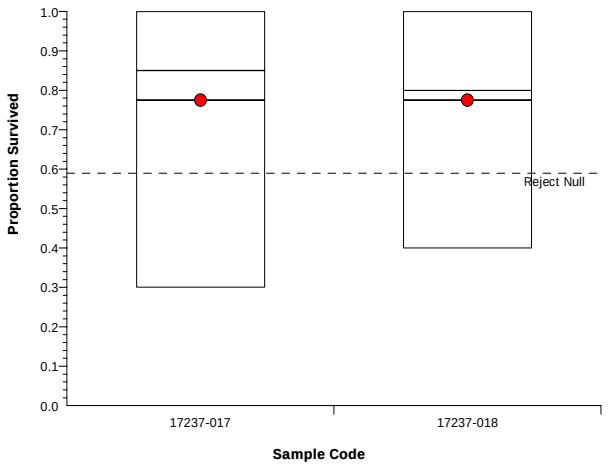
Proportion Survived Summary

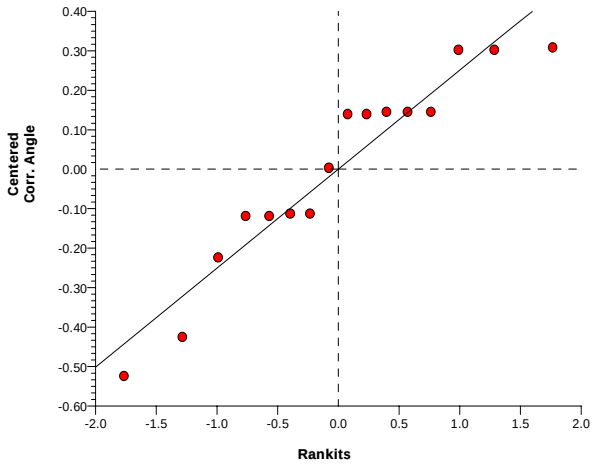
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	0.0%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	0.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	0.0%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	-0.53%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-0099-5323 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					10.59%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-015	12.28	1.761	0.1439	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	4.026047	4.026047	1	150.7	0.0000	Significant Effect
Error	0.3739412	0.0267101	14			
Total	4.399988	4.052757	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	8.386	8.885	0.0119	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9292		0.2366	Normal Distribution

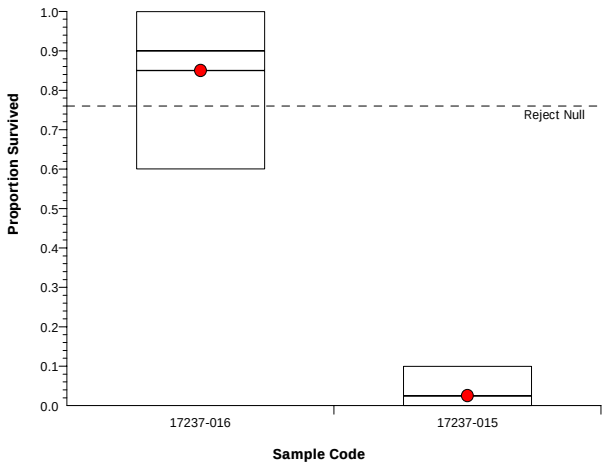
Proportion Survived Summary

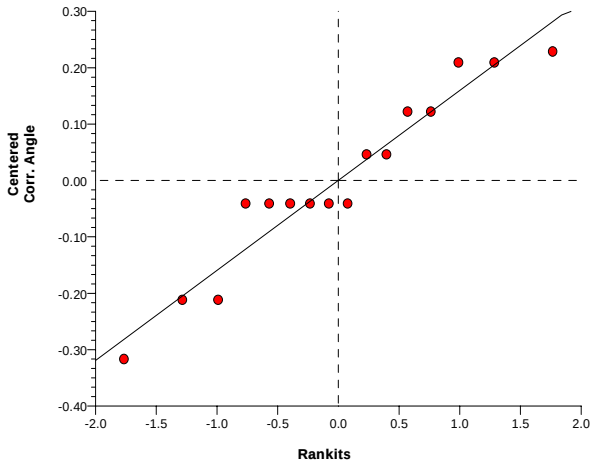
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-015	8	0.025	0.007392	0.04261	0	0.1	0.008596	0.04629	185.2%	97.06%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-015	8	0.1995	0.1708	0.2282	0.1588	0.3218	0.01401	0.07544	37.81%	83.41%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-3350-4190 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.76%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-014	8.287	1.761	0.175	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.710521	2.710521	1	68.67	0.0000	Significant Effect
Error	0.5526078	0.039472	14			
Total	3.263128	2.749992	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.529	8.885	0.5891	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9324		0.2661	Normal Distribution

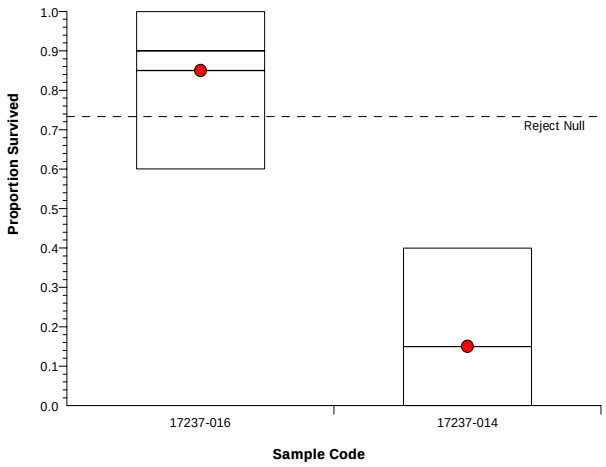
Proportion Survived Summary

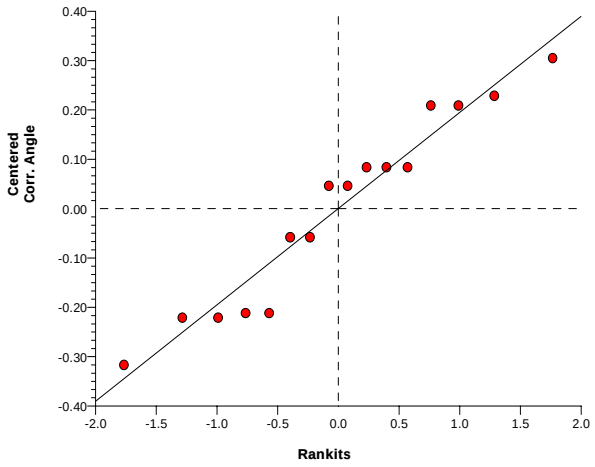
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-014	8	0.15	0.1002	0.1998	0	0.4	0.02431	0.1309	87.29%	82.35%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-014	8	0.3796	0.3124	0.4468	0.1588	0.6847	0.03281	0.1767	46.54%	68.44%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 04-9172-3137 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.21%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-013	2.577	1.761	0.16	0.0110	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.2191333	0.2191333	1	6.641	0.0219	Significant Effect
Error	0.4619271	0.0329948	14			
Total	0.6810603	0.2521281	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.614	8.885	0.2282	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9087		0.1107	Normal Distribution

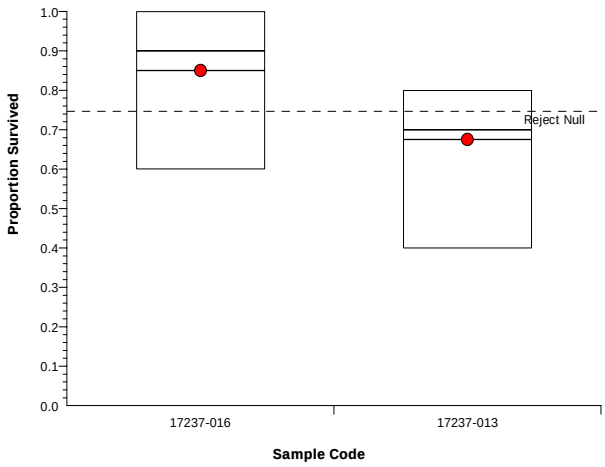
Proportion Survived Summary

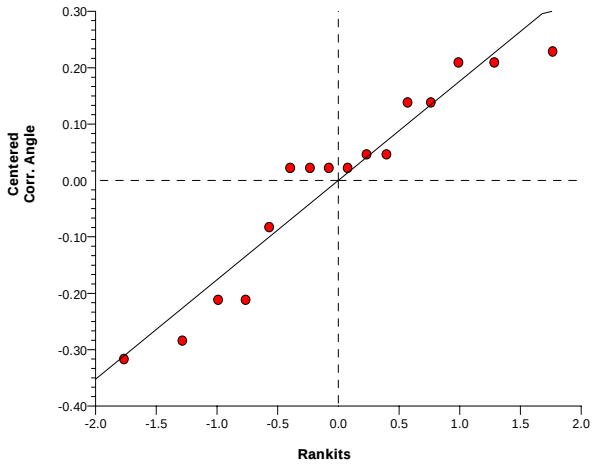
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-013	8	0.675	0.6262	0.7238	0.4	0.8	0.0238	0.1282	18.99%	20.59%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-013	8	0.9687	0.9173	1.02	0.6847	1.107	0.02509	0.1351	13.95%	19.46%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-3793-4498 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.36%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-012	3.623	1.761	0.1711	0.0014	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.4955784	0.4955784	1	13.12	0.0028	Significant Effect
Error	0.5286384	0.0377599	14			
Total	1.024217	0.5333383	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.717	8.885	0.4924	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9221		0.1821	Normal Distribution

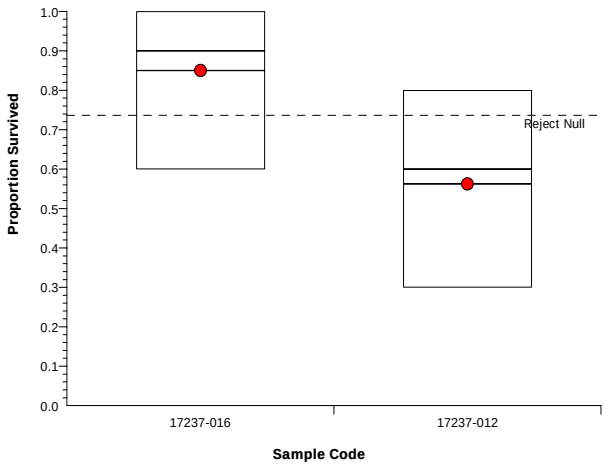
Proportion Survived Summary

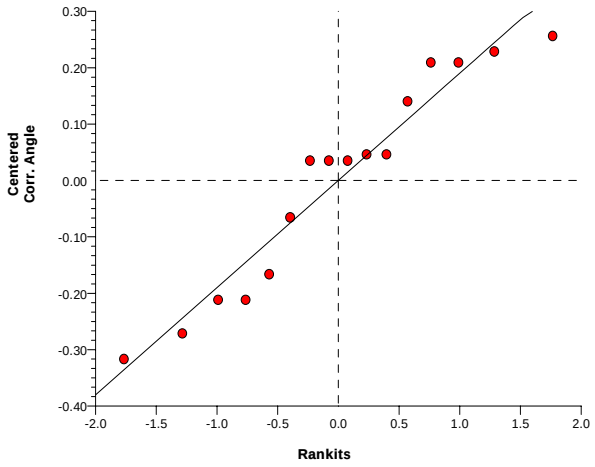
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-012	8	0.5625	0.5017	0.6233	0.3	0.8	0.02967	0.1598	28.41%	33.82%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-012	8	0.8508	0.7874	0.9142	0.5796	1.107	0.03096	0.1667	19.59%	29.26%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-5229-8487 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.68%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-011	-0.6165	1.761	0.1742	0.7263	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0148733	0.0148733	1	0.3801	0.5475	Non-Significant Effect
Error	0.5478687	0.0391335	14			
Total	0.5627421	0.0540068	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.563	8.885	0.5701	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8846		0.0458	Normal Distribution

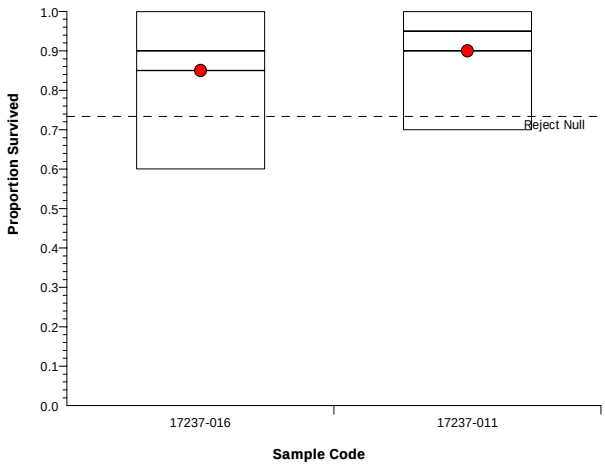
Proportion Survived Summary

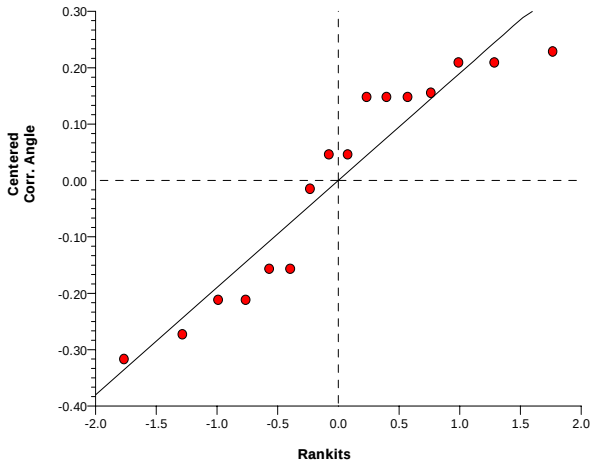
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-011	8	0.9	0.8545	0.9455	0.7	1	0.02219	0.1195	13.28%	-5.88%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-011	8	1.264	1.197	1.33	0.9912	1.419	0.03245	0.1748	13.83%	-5.07%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-3693-7194 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.11%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-010	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	2.286448	2.286448	1	41.53	0.0000	Significant Effect
Error	0.7707152	0.0550511	14			
Total	3.057163	2.341499	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.307	8.885	0.7330	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8229		0.0056	Non-normal Distribution

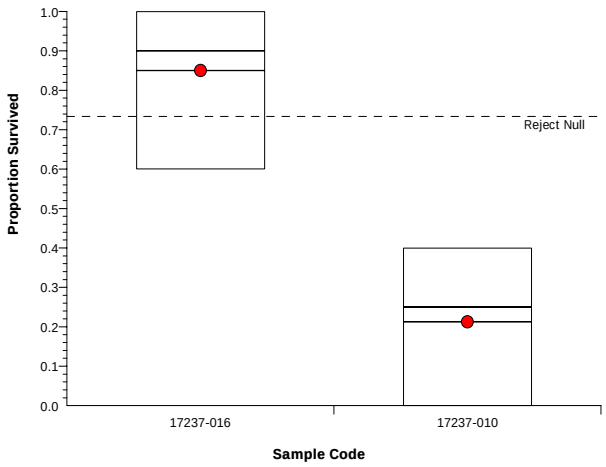
Proportion Survived Summary

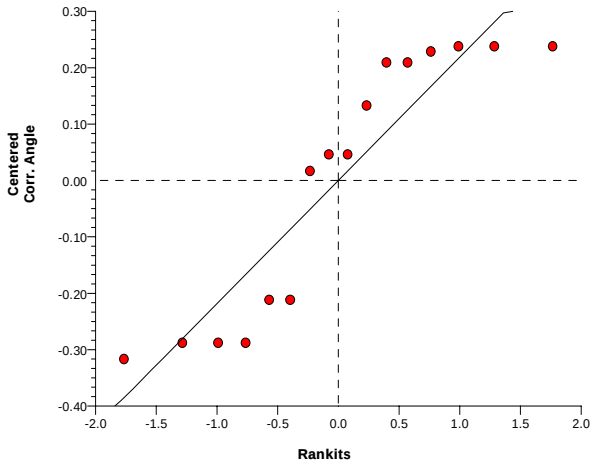
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-010	8	0.2125	0.1408	0.2842	0	0.4	0.03501	0.1885	88.71%	75.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-010	8	0.4467	0.3517	0.5417	0.1588	0.6847	0.04638	0.2497	55.91%	62.86%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 15-4538-8634 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.59%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-009	0.1676	1.761	0.1636	0.4347	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0009692	0.0009692	1	0.02808	0.8693	Non-Significant Effect
Error	0.4832183	0.0345156	14			
Total	0.4841875	0.0354848	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.241	8.885	0.3092	Equal Variances
Distribution	Shapiro-Wilk Normality	0.893		0.0621	Normal Distribution

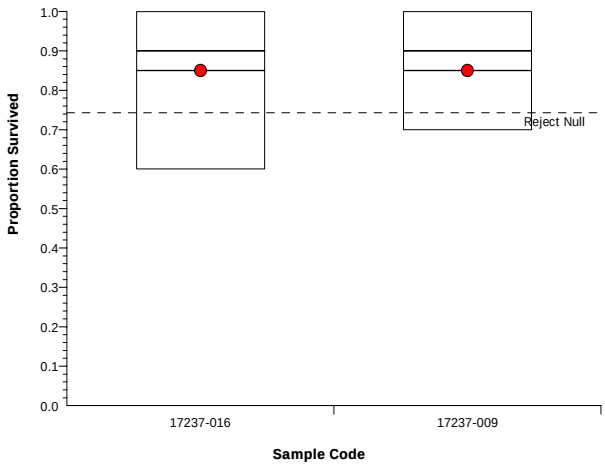
Proportion Survived Summary

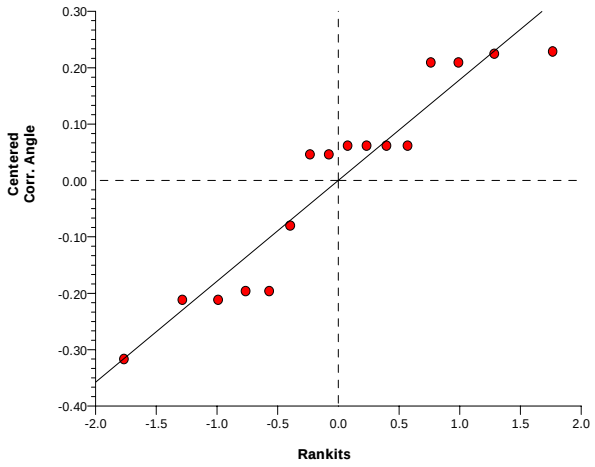
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-009	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	0.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-009	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	1.29%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-7362-5380 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					10.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-008	1.737	1.761	0.1411	0.0522	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0774194	0.0774194	1	3.016	0.1044	Non-Significant Effect
Error	0.3593287	0.0256663	14			
Total	0.4367481	0.1030857	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	13.24	8.885	0.0030	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9113		0.1220	Normal Distribution

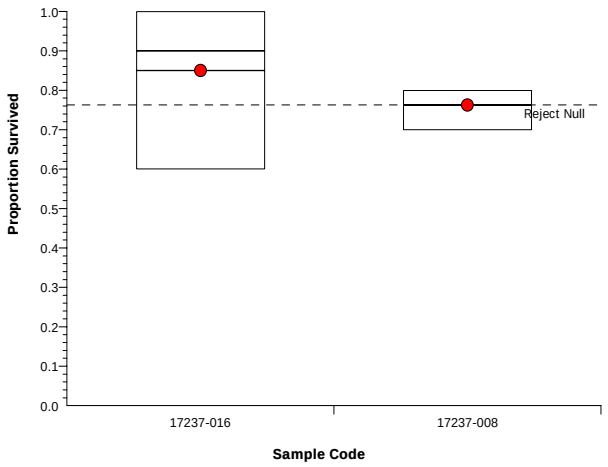
Proportion Survived Summary

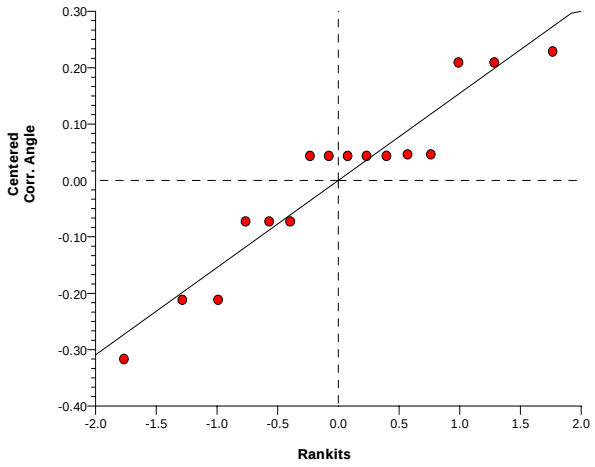
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-008	8	0.7625	0.7428	0.7822	0.7	0.8	0.009611	0.05176	6.79%	10.29%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-008	8	1.064	1.041	1.086	0.9912	1.107	0.01115	0.06003	5.64%	11.57%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-1799-3266 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.35%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-007	2.901	1.761	0.1901	0.0058	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.3922064	0.3922064	1	8.415	0.0116	Significant Effect
Error	0.6525484	0.0466106	14			
Total	1.044755	0.438817	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.049	8.885	0.9511	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9061		0.1008	Normal Distribution

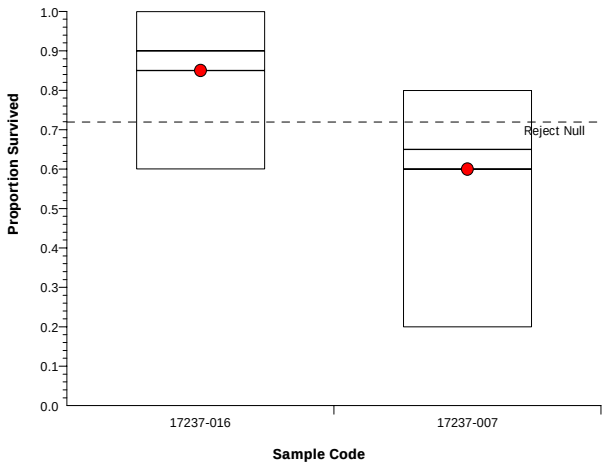
Proportion Survived Summary

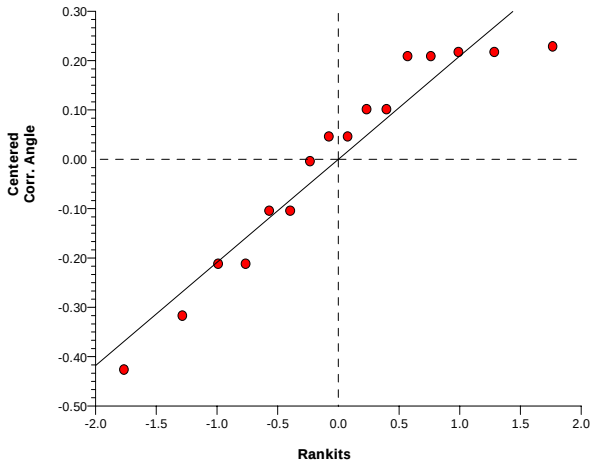
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-007	8	0.6	0.5239	0.6761	0.2	0.8	0.03714	0.2	33.33%	29.41%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-007	8	0.8896	0.8085	0.9708	0.4636	1.107	0.03961	0.2133	23.97%	26.03%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-9444-6571 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:11 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.31%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-006	-0.4289	1.761	0.1706	0.6627	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0069015	0.0069015	1	0.1839	0.6746	Non-Significant Effect
Error	0.5253431	0.0375245	14			
Total	0.5322446	0.0444261	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.747	8.885	0.4790	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9016		0.0851	Normal Distribution

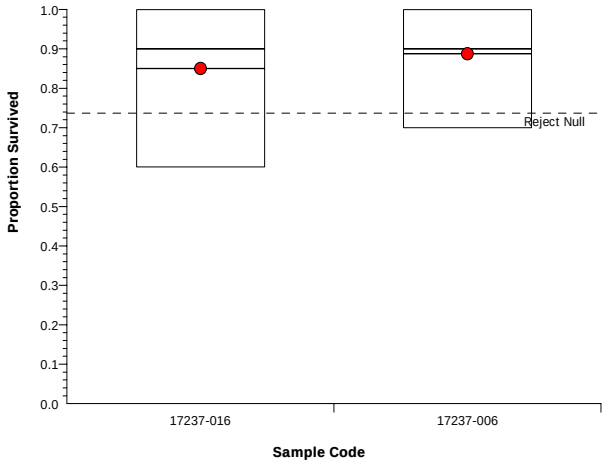
Proportion Survived Summary

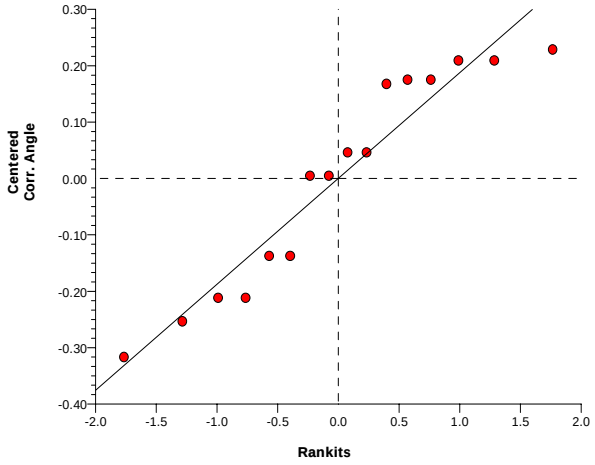
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-006	8	0.8875	0.8447	0.9303	0.7	1	0.02091	0.1126	12.69%	-4.41%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-006	8	1.244	1.181	1.307	0.9912	1.419	0.03069	0.1653	13.28%	-3.45%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-4709-9838 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.18%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-005	-0.8253	1.761	0.1498	0.7885	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0197171	0.0197171	1	0.6812	0.4230	Non-Significant Effect
Error	0.4052549	0.0289468	14			
Total	0.424972	0.0486639	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.696	8.885	0.0587	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9355		0.2972	Normal Distribution

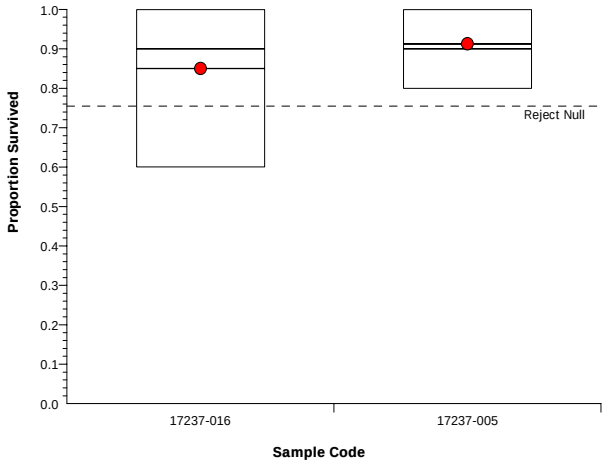
Proportion Survived Summary

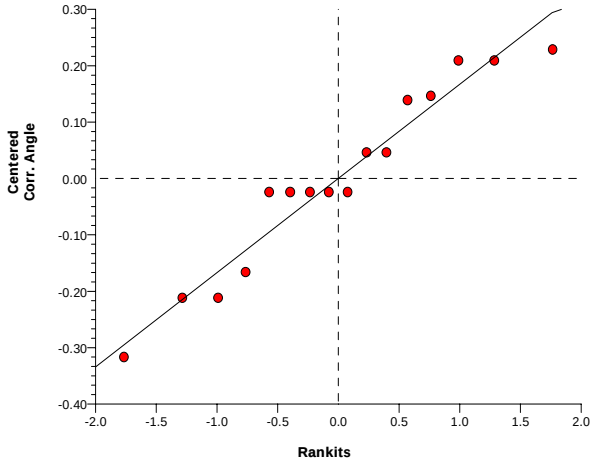
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-005	8	0.9125	0.8881	0.9369	0.8	1	0.0119	0.06409	7.02%	-7.35%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-005	8	1.273	1.235	1.311	1.107	1.419	0.01872	0.1008	7.92%	-5.84%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 19-0162-4784 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.73%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-004	-0.4486	1.761	0.1842	0.6697	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0088030	0.0088030	1	0.2013	0.6606	Non-Significant Effect
Error	0.612352	0.0437394	14			
Total	0.621155	0.0525425	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.201	8.885	0.8155	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8839		0.0446	Normal Distribution

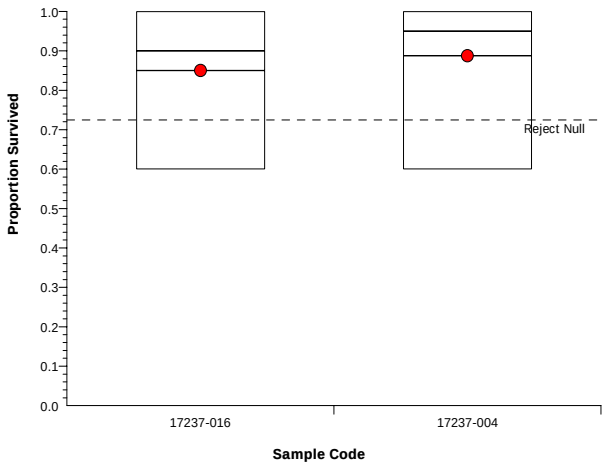
Proportion Survived Summary

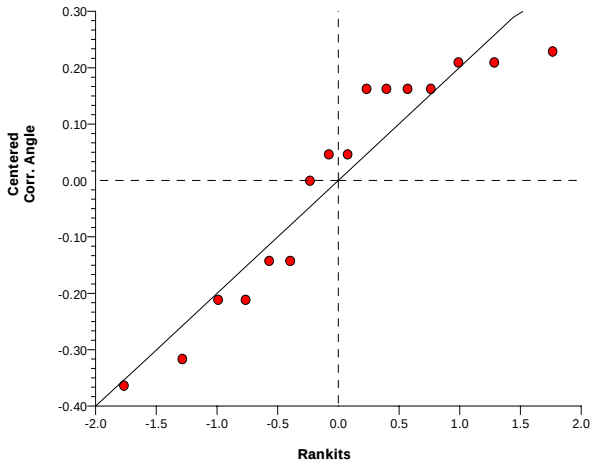
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-004	8	0.8875	0.8321	0.9429	0.6	1	0.02707	0.1458	16.43%	-4.41%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-004	8	1.25	1.174	1.326	0.8861	1.412	0.03702	0.1994	15.95%	-3.9%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-8583-5284 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					14.72%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-003	0.3881	1.761	0.1841	0.3519	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0065822	0.0065822	1	0.1506	0.7038	Non-Significant Effect
Error	0.6117889	0.0436992	14			
Total	0.6183712	0.0502815	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.203	8.885	0.8135	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8988		0.0768	Normal Distribution

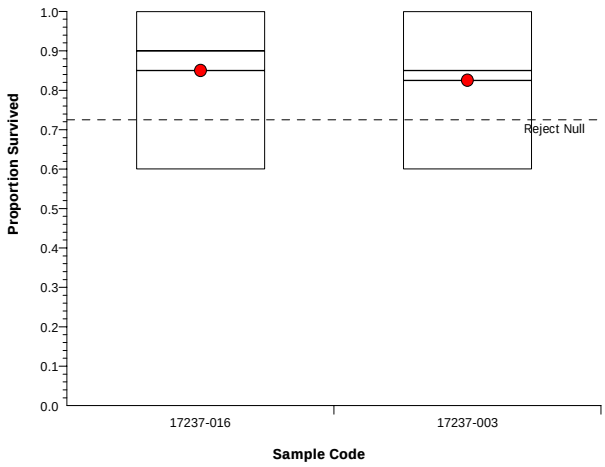
Proportion Survived Summary

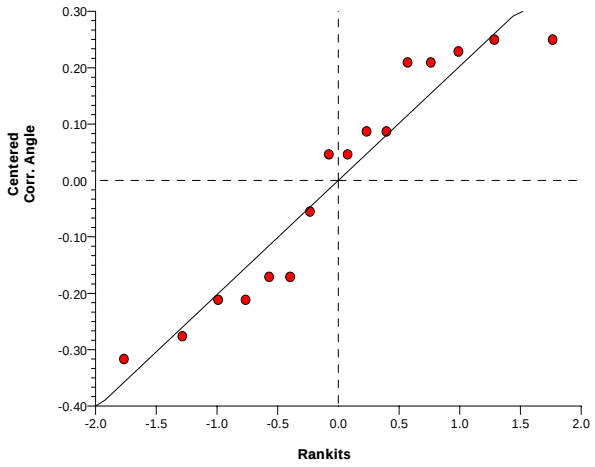
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-003	8	0.825	0.7684	0.8816	0.6	1	0.02763	0.1488	18.04%	2.94%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-003	8	1.162	1.086	1.238	0.8861	1.412	0.03699	0.1992	17.14%	3.37%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-1902-1807 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.96%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-002	5.26	1.761	0.1769	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.115706	1.115706	1	27.67	0.0001	Significant Effect
Error	0.5645894	0.0403278	14			
Total	1.680295	1.156034	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.45	8.885	0.6365	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8619		0.0205	Normal Distribution

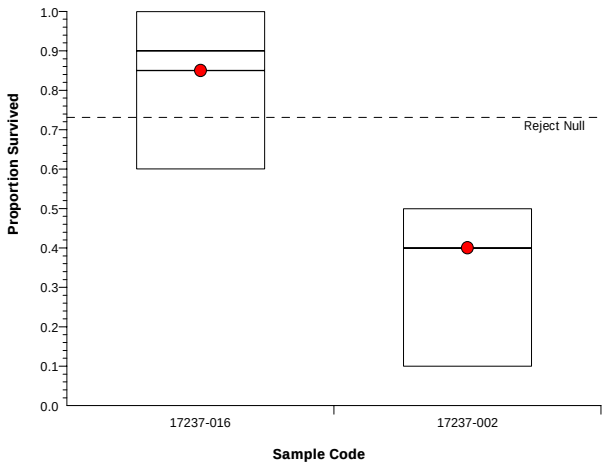
Proportion Survived Summary

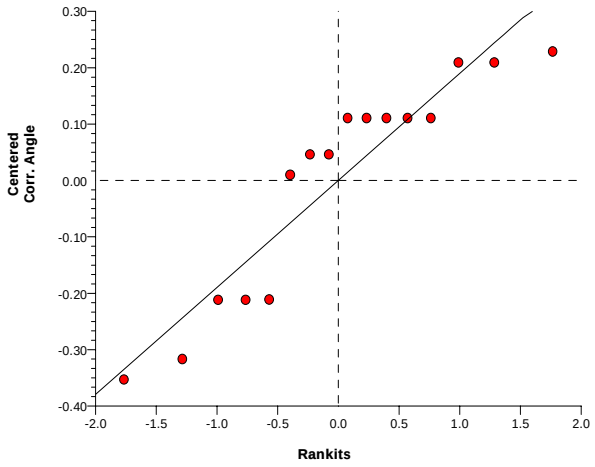
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-002	8	0.4	0.339	0.461	0.1	0.5	0.02978	0.1604	40.09%	52.94%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-002	8	0.6746	0.6056	0.7437	0.3218	0.7854	0.0337	0.1815	26.9%	43.91%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-8294-1189 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					12.59%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-001	0.1676	1.761	0.1636	0.4347	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0009692	0.0009692	1	0.02808	0.8693	Non-Significant Effect
Error	0.4832183	0.0345156	14			
Total	0.4841875	0.0354848	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.241	8.885	0.3092	Equal Variances
Distribution	Shapiro-Wilk Normality	0.893		0.0621	Normal Distribution

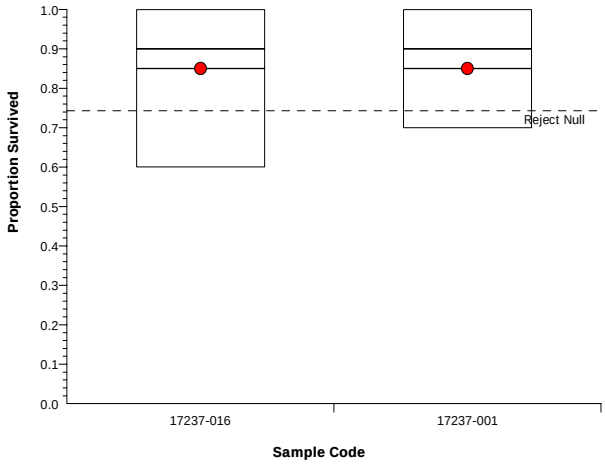
Proportion Survived Summary

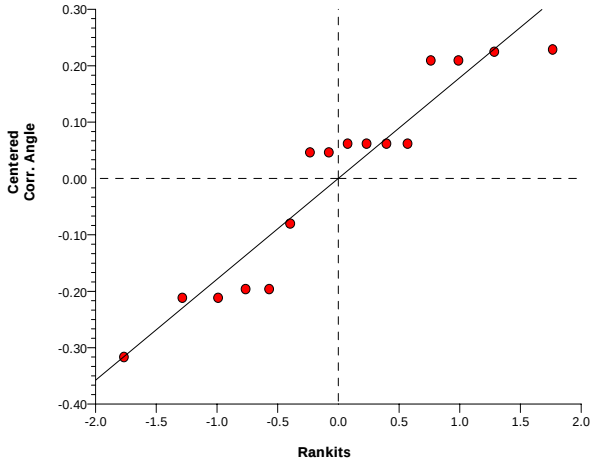
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-001	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	0.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-001	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	1.29%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-2444-1245 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					13.66%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-020	-0.06246	1.761	0.174	0.5245	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0001523	0.0001523	1	0.003901	0.9511	Non-Significant Effect
Error	0.5463707	0.0390265	14			
Total	0.546523	0.0391787	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.574	8.885	0.5641	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8914		0.0587	Normal Distribution

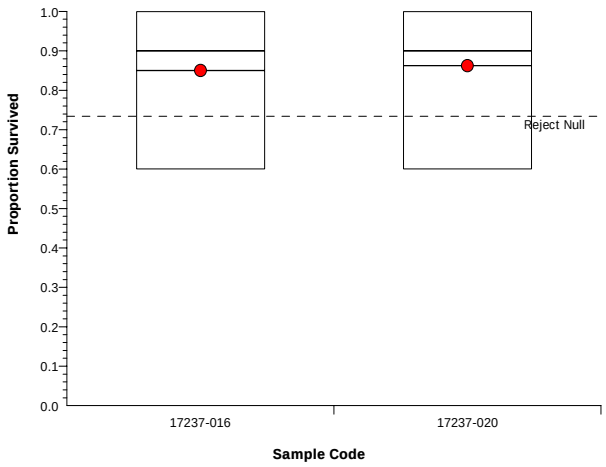
Proportion Survived Summary

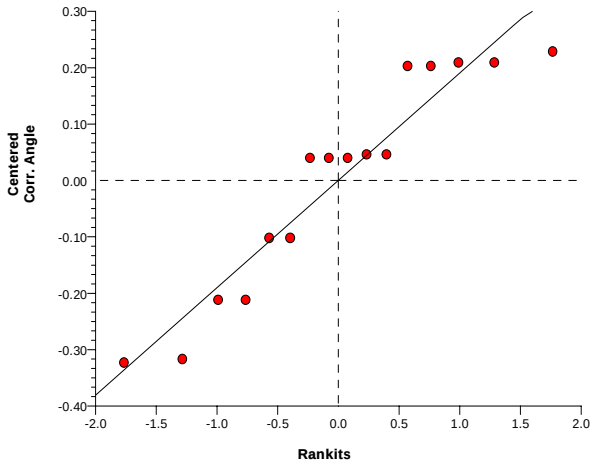
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	-1.47%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	-0.51%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-5423-4674 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					15.33%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-019	0.3584	1.761	0.1899	0.3627	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0059757	0.0059757	1	0.1285	0.7254	Non-Significant Effect
Error	0.6512699	0.0465193	14			
Total	0.6572456	0.052495	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.053	8.885	0.9471	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9181		0.1571	Normal Distribution

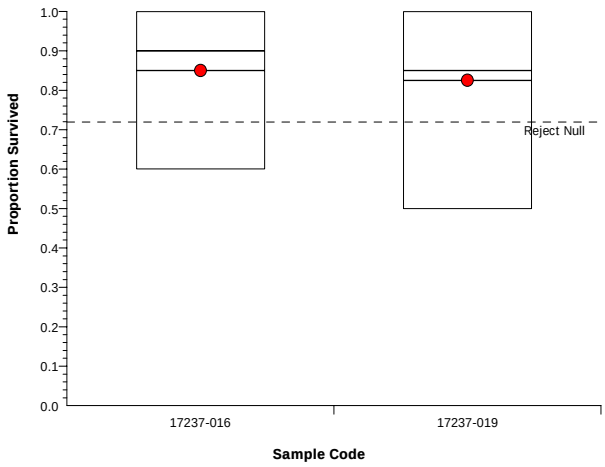
Proportion Survived Summary

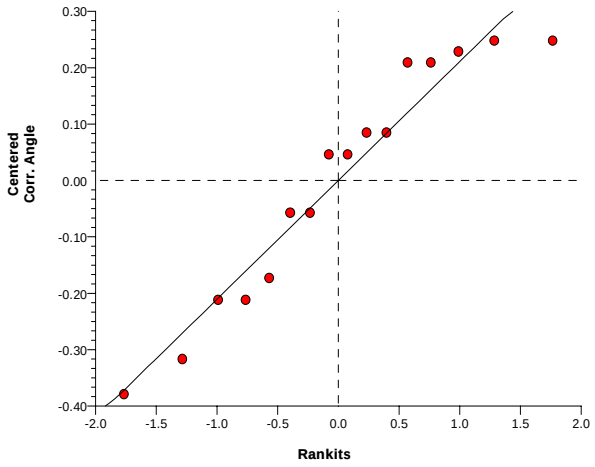
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	2.94%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	3.21%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-2039-3983 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.73%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-018	0.7742	1.761	0.2124	0.2258	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0348712	0.0348712	1	0.5994	0.4517	Non-Significant Effect
Error	0.814447	0.0581748	14			
Total	0.8493182	0.0930460	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.438	8.885	0.6439	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9278		0.2252	Normal Distribution

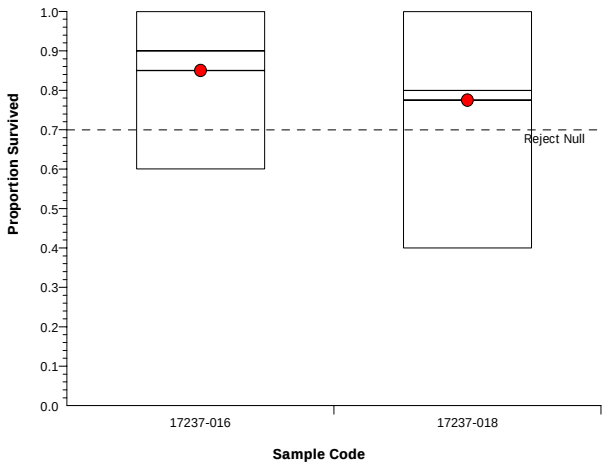
Proportion Survived Summary

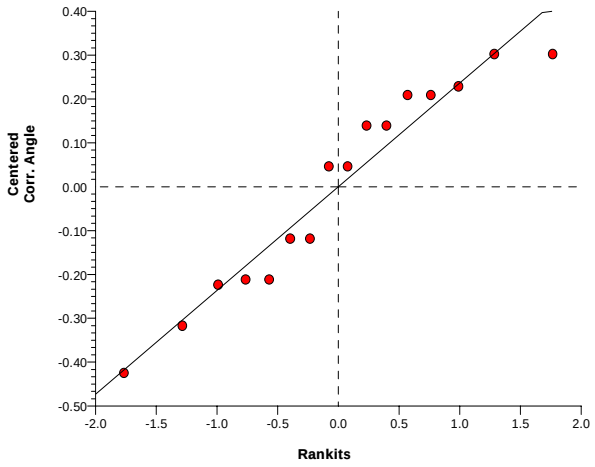
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	8.82%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	7.76%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-7369-0499 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 11:10 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					17.42%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-017	0.8342	1.761	0.2095	0.2091	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0393955	0.0393955	1	0.6959	0.4182	Non-Significant Effect
Error	0.79252	0.0566086	14			
Total	0.8319156	0.0960041	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.372	8.885	0.6869	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9327		0.2688	Normal Distribution

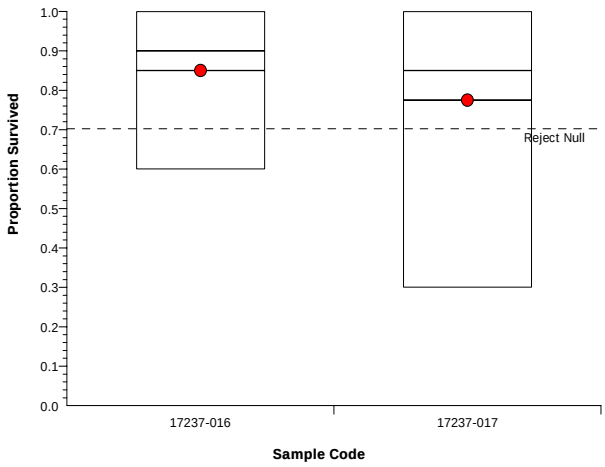
Proportion Survived Summary

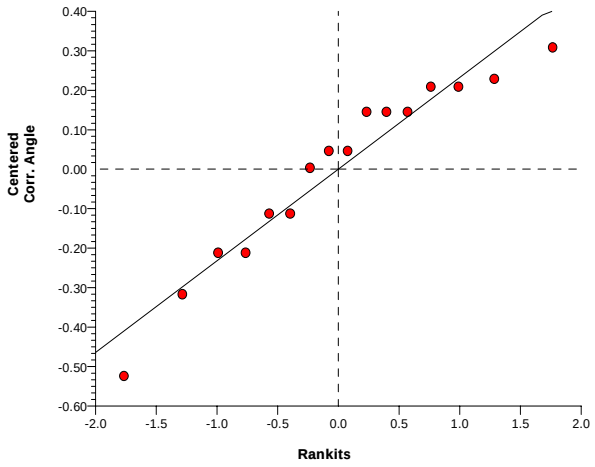
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	0.0%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	8.82%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	0.0%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	8.25%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-1075-5643 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					4.53%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-015	28.4	1.761	0.07156	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	5.327348	5.327348	1	806.8	0.0000	Significant Effect
Error	0.0924440	0.0066031	14			
Total	5.419792	5.333951	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.32	8.885	0.7231	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8771		0.0350	Normal Distribution

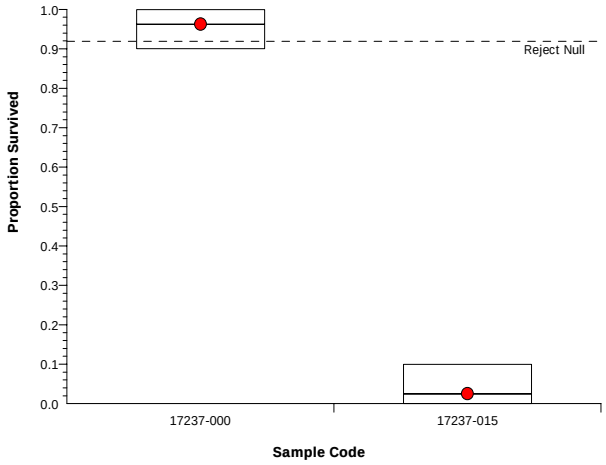
Proportion Survived Summary

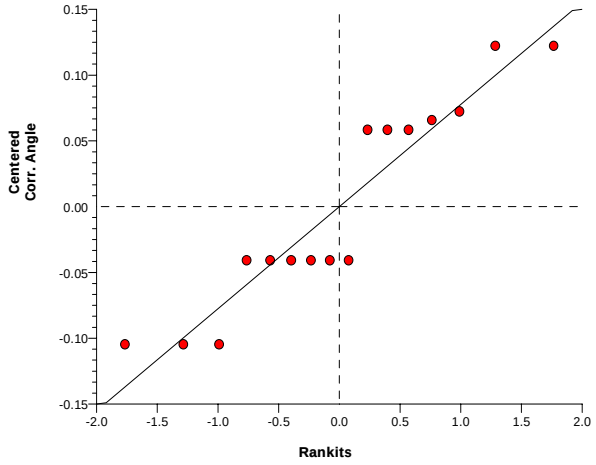
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-015	8	0.025	0.007392	0.04261	0	0.1	0.008596	0.04629	185.2%	97.4%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-015	8	0.1995	0.1708	0.2282	0.1588	0.3218	0.01401	0.07544	37.81%	85.26%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-6216-1779 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					7.64%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-014	14	1.761	0.1226	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.794586	3.794586	1	196	0.0000	Significant Effect
Error	0.2711107	0.0193651	14			
Total	4.065696	3.813951	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.154	8.885	0.0799	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9049		0.0965	Normal Distribution

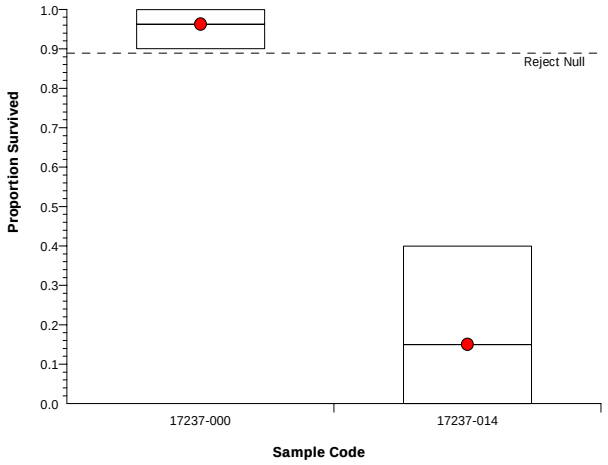
Proportion Survived Summary

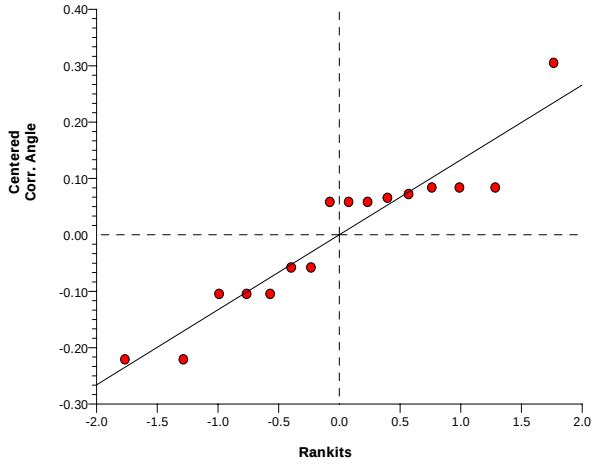
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-014	8	0.15	0.1002	0.1998	0	0.4	0.02431	0.1309	87.29%	84.42%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-014	8	0.3796	0.3124	0.4468	0.1588	0.6847	0.03281	0.1767	46.54%	71.96%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-5162-0498 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					6.21%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-013	6.78	1.761	0.09998	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.5924697	0.5924697	1	45.97	0.0000	Significant Effect
Error	0.18043	0.0128879	14			
Total	0.7728996	0.6053575	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.43	8.885	0.2643	Equal Variances
Distribution	Shapiro-Wilk Normality	0.875		0.0325	Normal Distribution

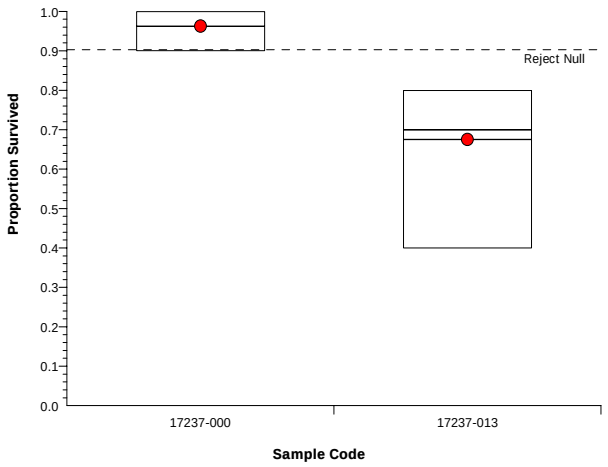
Proportion Survived Summary

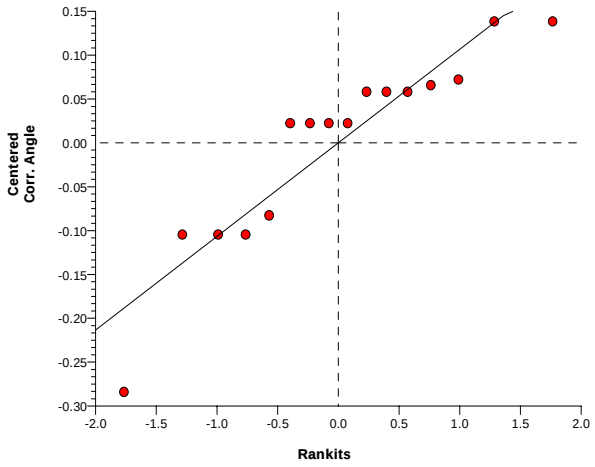
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-013	8	0.675	0.6262	0.7238	0.4	0.8	0.0238	0.1282	18.99%	29.87%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-013	8	0.9687	0.9173	1.02	0.6847	1.107	0.02509	0.1351	13.95%	28.43%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-8426-7747 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					7.28%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-012	7.568	1.761	0.117	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.011185	1.011185	1	57.28	0.0000	Significant Effect
Error	0.2471412	0.0176529	14			
Total	1.258327	1.028838	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.698	8.885	0.1058	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9425		0.3807	Normal Distribution

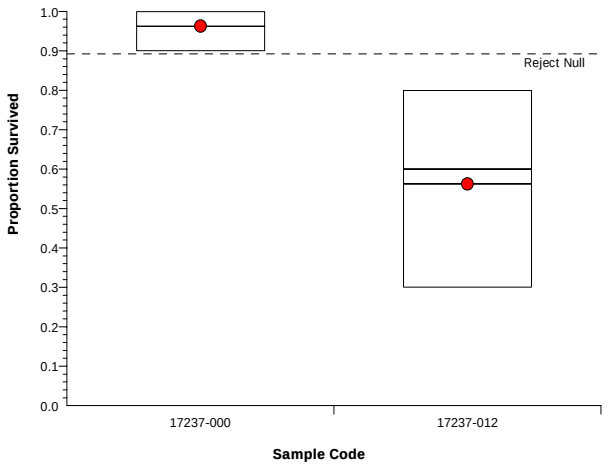
Proportion Survived Summary

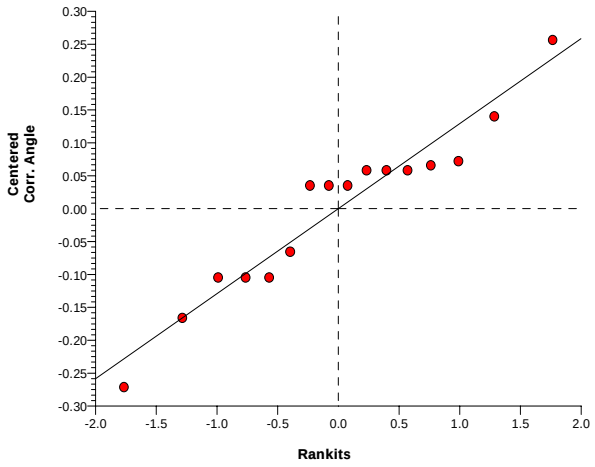
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-012	8	0.5625	0.5017	0.6233	0.3	0.8	0.02967	0.1598	28.41%	41.56%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-012	8	0.8508	0.7874	0.9142	0.5796	1.107	0.03096	0.1667	19.59%	37.15%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-5613-9934 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					7.57%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-011	1.302	1.761	0.1215	0.1069	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0322733	0.0322733	1	1.696	0.2138	Non-Significant Effect
Error	0.2663716	0.0190265	14			
Total	0.2986449	0.0512998	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.064	8.885	0.0843	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9006		0.0821	Normal Distribution

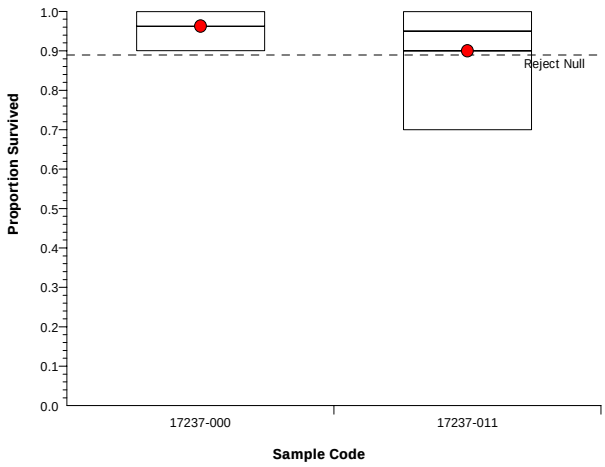
Proportion Survived Summary

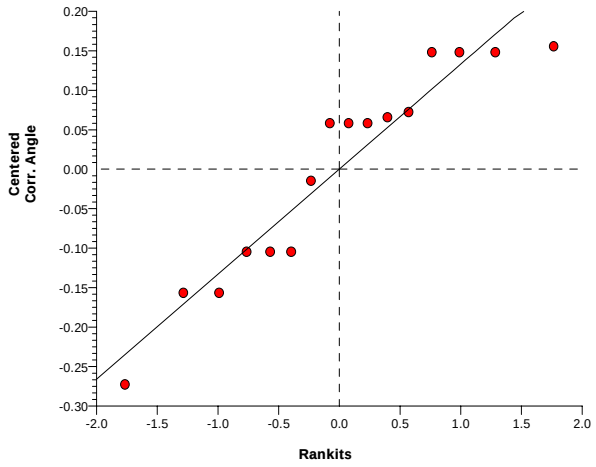
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-011	8	0.9	0.8545	0.9455	0.7	1	0.02219	0.1195	13.28%	6.49%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-011	8	1.264	1.197	1.33	0.9912	1.419	0.03245	0.1748	13.83%	6.64%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-2374-1778 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					10.53%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-010	9.702	1.761	0.1646	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.289523	3.289523	1	94.14	0.0000	Significant Effect
Error	0.4892181	0.0349442	14			
Total	3.778741	3.324467	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	8.3	8.885	0.0122	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8977		0.0739	Normal Distribution

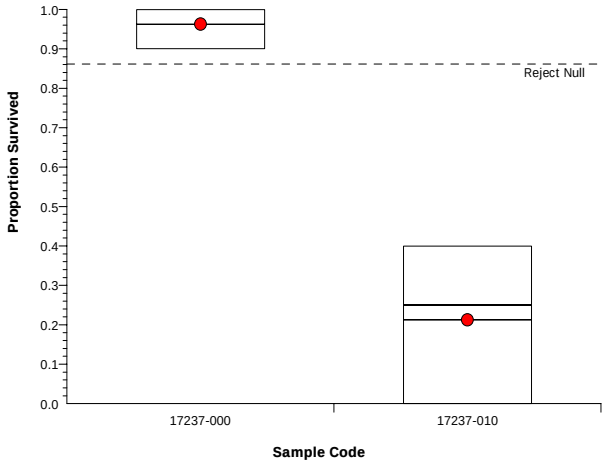
Proportion Survived Summary

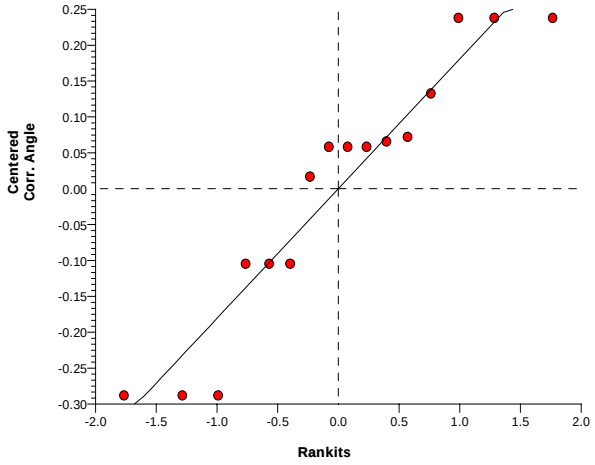
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-010	8	0.2125	0.1408	0.2842	0	0.4	0.03501	0.1885	88.71%	77.92%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-010	8	0.4467	0.3517	0.5417	0.1588	0.6847	0.04638	0.2497	55.91%	67.0%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 04-8856-1659 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					6.57%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-009	2.772	1.761	0.1057	0.0075	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1107128	0.1107128	1	7.684	0.0150	Significant Effect
Error	0.2017212	0.0144087	14			
Total	0.3124339	0.1251214	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.835	8.885	0.1926	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8534		0.0153	Normal Distribution

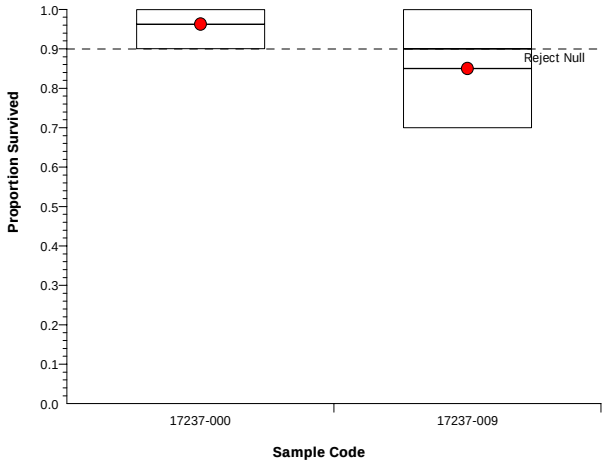
Proportion Survived Summary

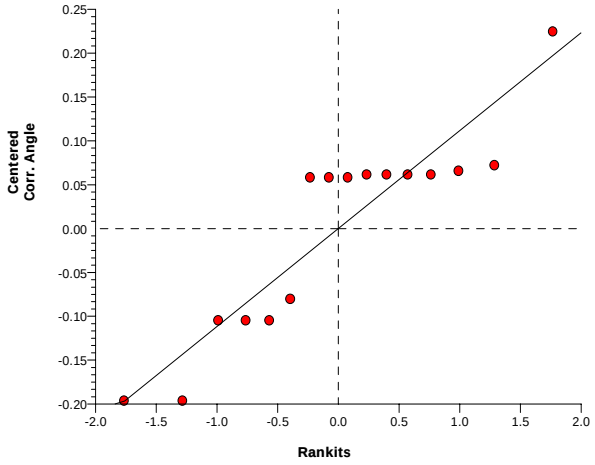
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-009	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	11.69%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-009	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	12.29%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-1339-6985 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:56 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					4.2%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-000		17237-008	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.3362228	0.3362228	1	60.48	0.0000	Significant Effect
Error	0.0778316	0.0055594	14			
Total	0.4140544	0.3417822	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.085	8.885	0.3532	Equal Variances
Distribution	Shapiro-Wilk Normality	0.7561		0.0008	Non-normal Distribution

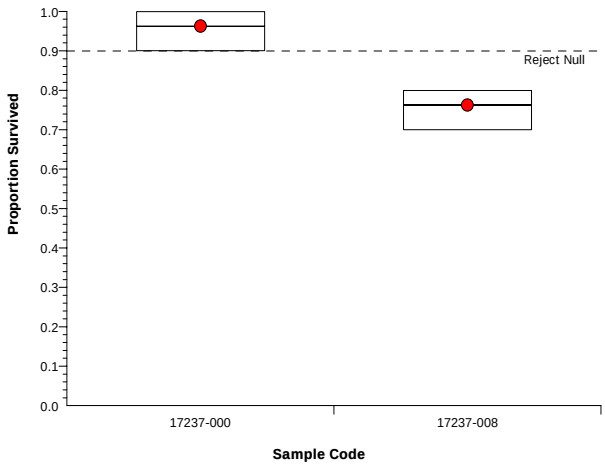
Proportion Survived Summary

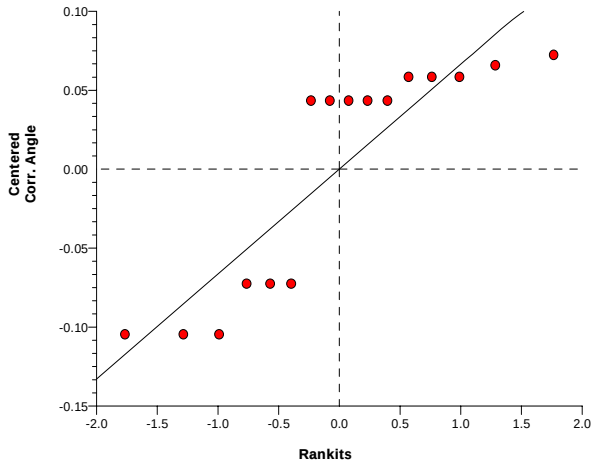
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-008	8	0.7625	0.7428	0.7822	0.7	0.8	0.009611	0.05176	6.79%	20.78%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-008	8	1.064	1.041	1.086	0.9912	1.107	0.01115	0.06003	5.64%	21.42%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-0298-6933 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					9.04%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-007	5.699	1.761	0.1434	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.8609383	0.8609383	1	32.48	0.0001	Significant Effect
Error	0.3710513	0.0265037	14			
Total	1.23199	0.887442	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.054	8.885	0.0299	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8744		0.0317	Normal Distribution

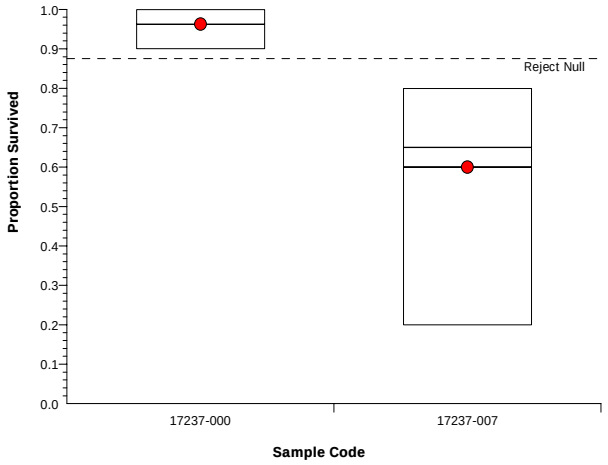
Proportion Survived Summary

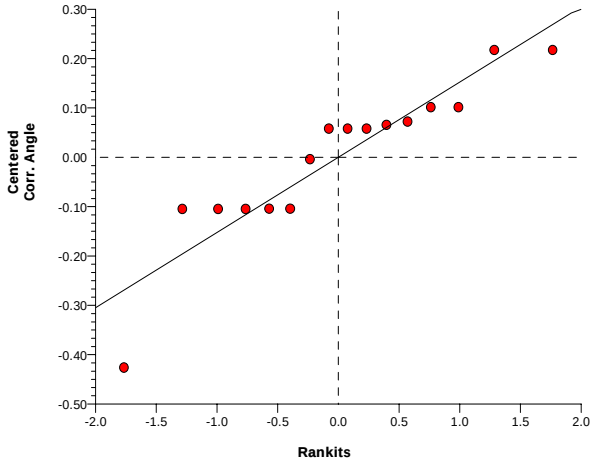
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-007	8	0.6	0.5239	0.6761	0.2	0.8	0.03714	0.2	33.33%	37.66%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-007	8	0.8896	0.8085	0.9708	0.4636	1.107	0.03961	0.2133	23.97%	34.27%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-4138-7514 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					7.23%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-006	1.656	1.761	0.1162	0.0600	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0477546	0.0477546	1	2.742	0.1200	Non-Significant Effect
Error	0.243846	0.0174176	14			
Total	0.2916006	0.0651722	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.635	8.885	0.1102	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9281		0.2277	Normal Distribution

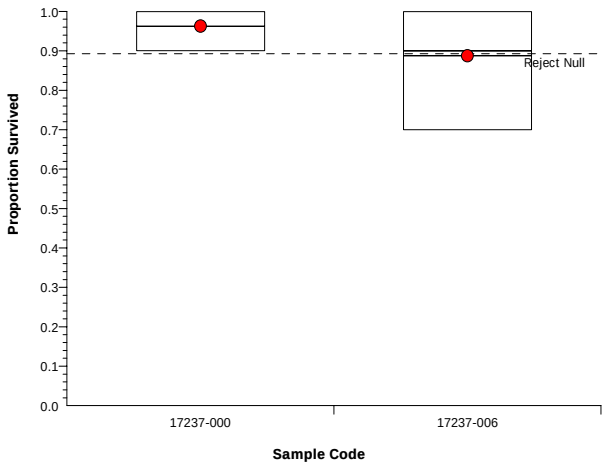
Proportion Survived Summary

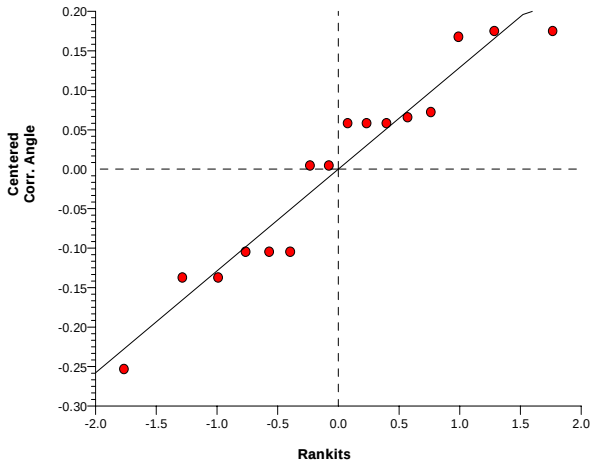
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-006	8	0.8875	0.8447	0.9303	0.7	1	0.02091	0.1126	12.69%	7.79%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-006	8	1.244	1.181	1.307	0.9912	1.419	0.03069	0.1653	13.28%	8.07%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-3232-0647 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					5.18%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-005	1.714	1.761	0.0828	0.0543	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.025981	0.025981	1	2.939	0.1085	Non-Significant Effect
Error	0.1237578	0.0088398	14			
Total	0.1497388	0.0348208	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.353	8.885	0.7003	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9384		0.3300	Normal Distribution

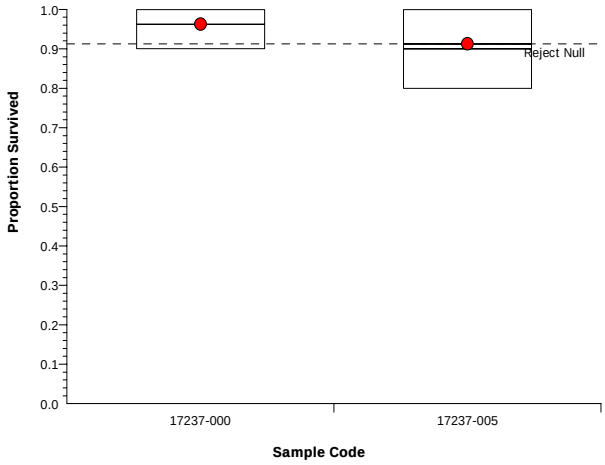
Proportion Survived Summary

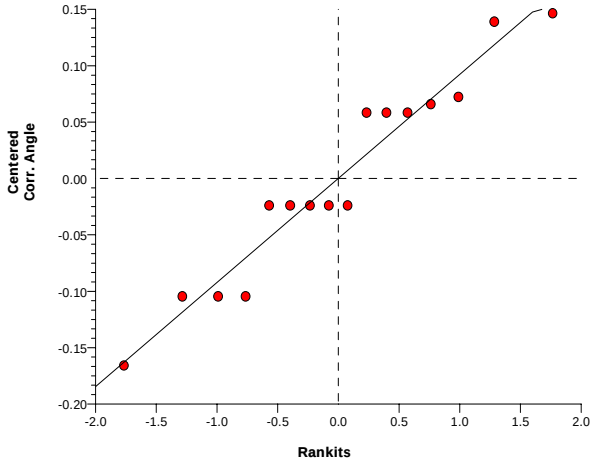
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-005	8	0.9125	0.8881	0.9369	0.8	1	0.0119	0.06409	7.02%	5.2%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-005	8	1.273	1.235	1.311	1.107	1.419	0.01872	0.1008	7.92%	5.95%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-3459-3191 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					8.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-004	1.352	1.761	0.1354	0.0990	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0431723	0.0431723	1	1.827	0.1979	Non-Significant Effect
Error	0.3308549	0.0236325	14			
Total	0.3740272	0.0668048	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.289	8.885	0.0430	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8847		0.0460	Normal Distribution

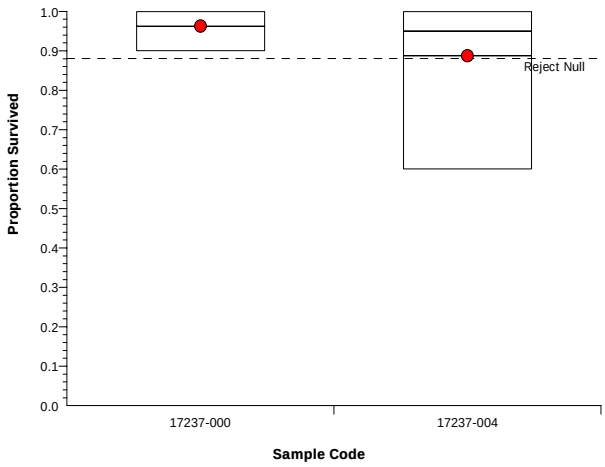
Proportion Survived Summary

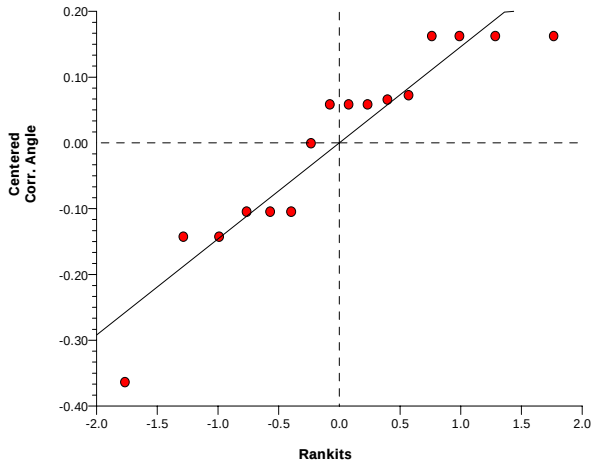
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-004	8	0.8875	0.8321	0.9429	0.6	1	0.02707	0.1458	16.43%	7.79%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-004	8	1.25	1.174	1.326	0.8861	1.412	0.03702	0.1994	15.95%	7.68%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-0210-9604 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					8.49%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-003	2.492	1.761	0.1353	0.0129	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.146486	0.146486	1	6.209	0.0259	Significant Effect
Error	0.3302918	0.0235923	14			
Total	0.4767777	0.1700782	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.279	8.885	0.0432	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9361		0.3035	Normal Distribution

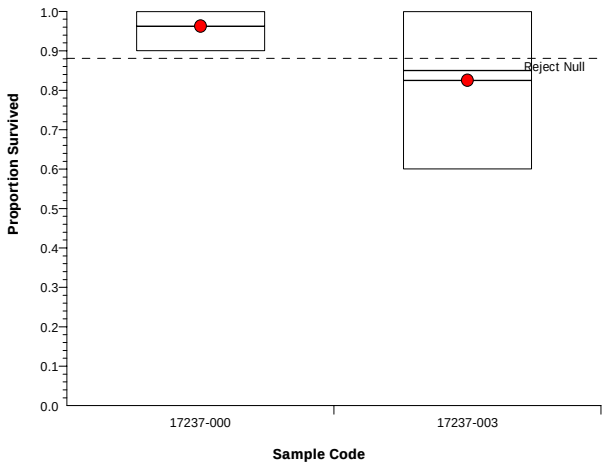
Proportion Survived Summary

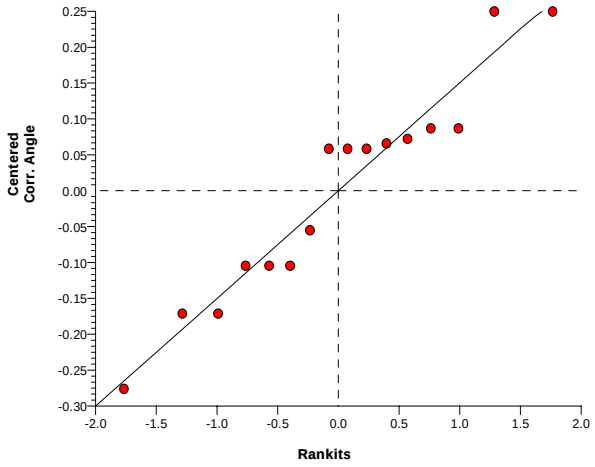
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-003	8	0.825	0.7684	0.8816	0.6	1	0.02763	0.1488	18.04%	14.29%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-003	8	1.162	1.086	1.238	0.8861	1.412	0.03699	0.1992	17.14%	14.14%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-5829-5638 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					7.82%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-000		17237-002	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	1.84382	1.84382	1	91.18	0.0000	Significant Effect
Error	0.2830922	0.0202209	14			
Total	2.126913	1.864041	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.381	8.885	0.0699	Equal Variances
Distribution	Shapiro-Wilk Normality	0.7943		0.0023	Non-normal Distribution

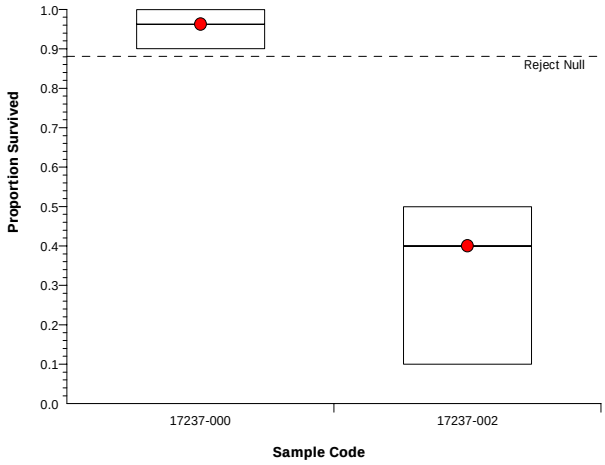
Proportion Survived Summary

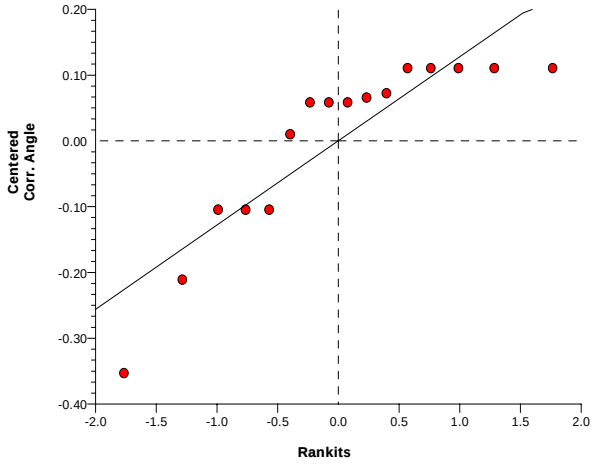
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-002	8	0.4	0.339	0.461	0.1	0.5	0.02978	0.1604	40.09%	58.44%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-002	8	0.6746	0.6056	0.7437	0.3218	0.7854	0.0337	0.1815	26.9%	50.16%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-0053-2276 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					6.57%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-001	2.772	1.761	0.1057	0.0075	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1107128	0.1107128	1	7.684	0.0150	Significant Effect
Error	0.2017212	0.0144087	14			
Total	0.3124339	0.1251214	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.835	8.885	0.1926	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8534		0.0153	Normal Distribution

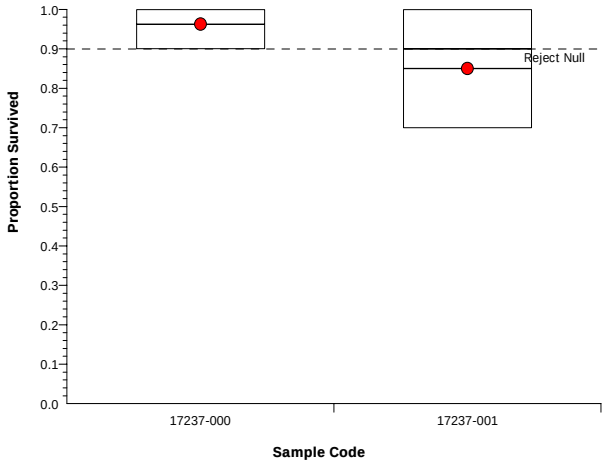
Proportion Survived Summary

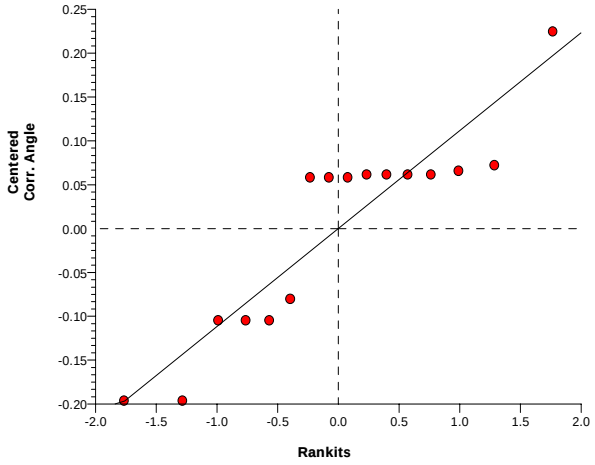
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-001	8	0.85	0.8093	0.8907	0.7	1	0.01985	0.1069	12.58%	11.69%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-001	8	1.187	1.132	1.243	0.9912	1.412	0.0271	0.146	12.29%	12.29%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 21-0823-1714 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					7.55%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-020	2.103	1.761	0.1211	0.0270	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.083674	0.083674	1	4.423	0.0540	Non-Significant Effect
Error	0.2648737	0.0189196	14			
Total	0.3485476	0.1025935	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.035	8.885	0.0858	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8888		0.0533	Normal Distribution

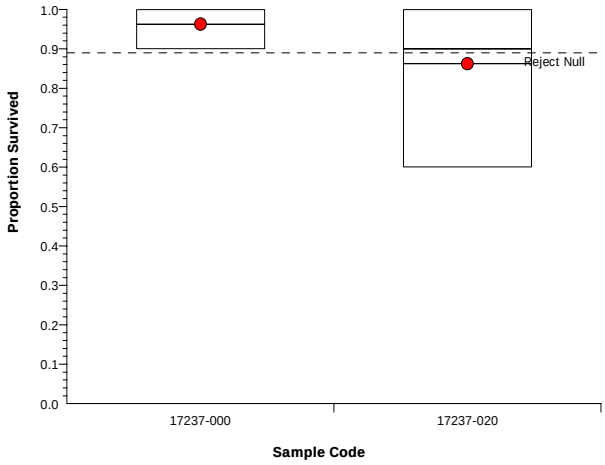
Proportion Survived Summary

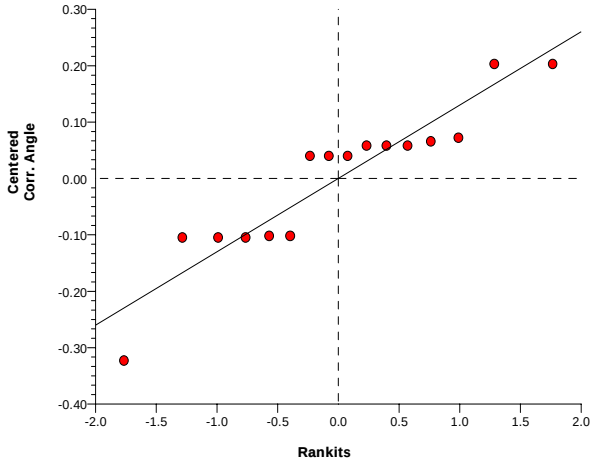
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-020	8	0.8625	0.813	0.912	0.6	1	0.02419	0.1302	15.1%	10.39%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-020	8	1.209	1.143	1.275	0.8861	1.412	0.03234	0.1741	14.4%	10.69%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-9634-5887 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					9.02%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-019	2.331	1.761	0.1431	0.0176	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.1435702	0.1435702	1	5.436	0.0352	Significant Effect
Error	0.3697728	0.0264123	14			
Total	0.513343	0.1699825	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.029	8.885	0.0302	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9245		0.1992	Normal Distribution

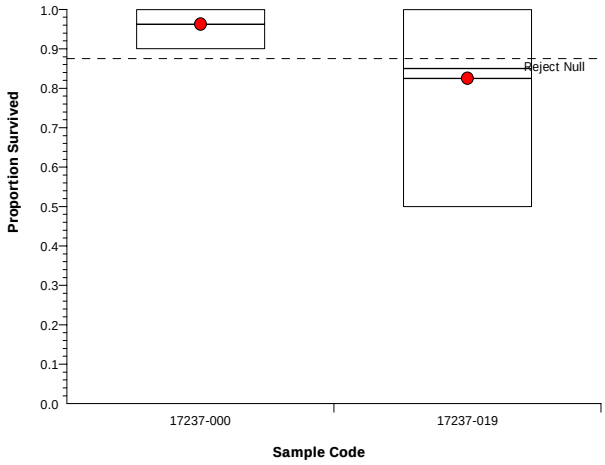
Proportion Survived Summary

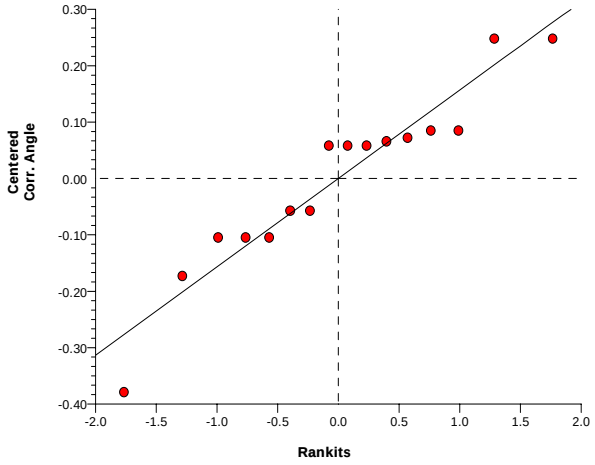
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-019	8	0.825	0.7615	0.8885	0.5	1	0.03099	0.1669	20.23%	14.29%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-019	8	1.164	1.083	1.245	0.7854	1.412	0.03953	0.2129	18.29%	14.0%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-1311-8730 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:55 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					11.05%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-018	2.503	1.761	0.1718	0.0127	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.2384781	0.2384781	1	6.265	0.0253	Significant Effect
Error	0.5329499	0.0380679	14			
Total	0.771428	0.276546	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	9.131	8.885	0.0092	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9413		0.3655	Normal Distribution

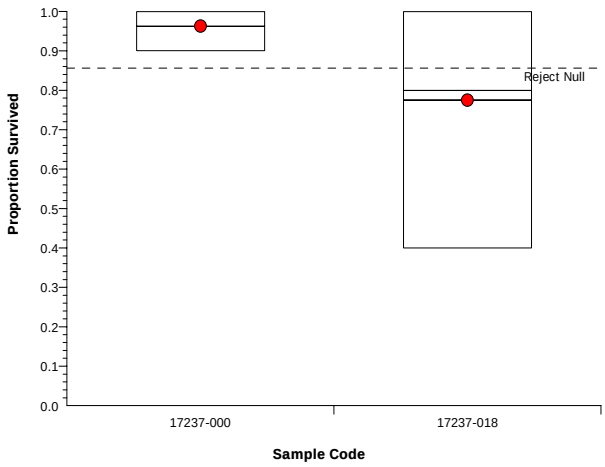
Proportion Survived Summary

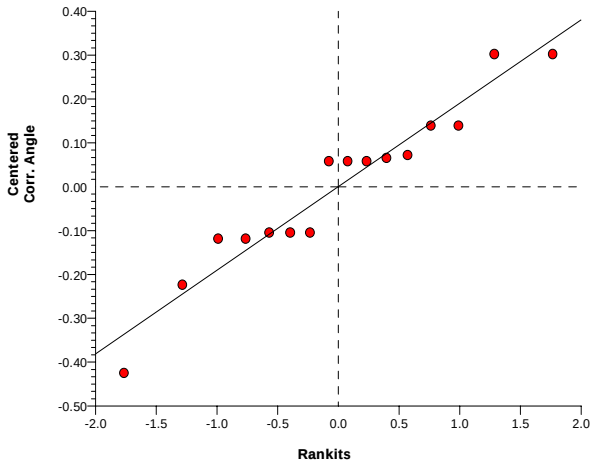
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-018	8	0.775	0.6943	0.8557	0.4	1	0.03939	0.2121	27.37%	19.48%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-018	8	1.109	1.01	1.209	0.6847	1.412	0.04864	0.262	23.61%	18.04%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-5748-9045 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:54 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					10.79%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-017	2.618	1.761	0.1683	0.0101	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.2500868	0.2500868	1	6.851	0.0203	Significant Effect
Error	0.5110229	0.0365016	14			
Total	0.7611097	0.2865884	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	8.714	8.885	0.0106	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8658		0.0235	Normal Distribution

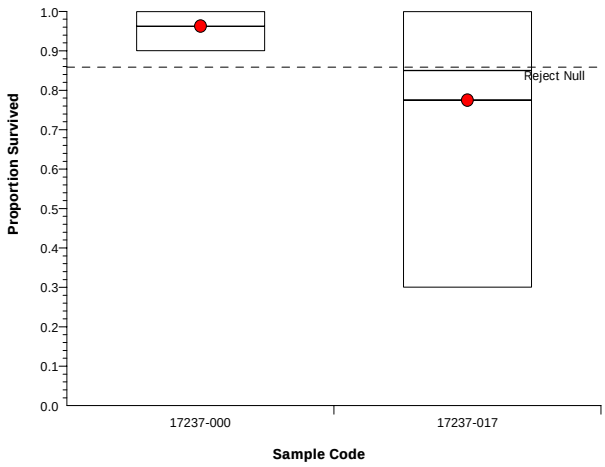
Proportion Survived Summary

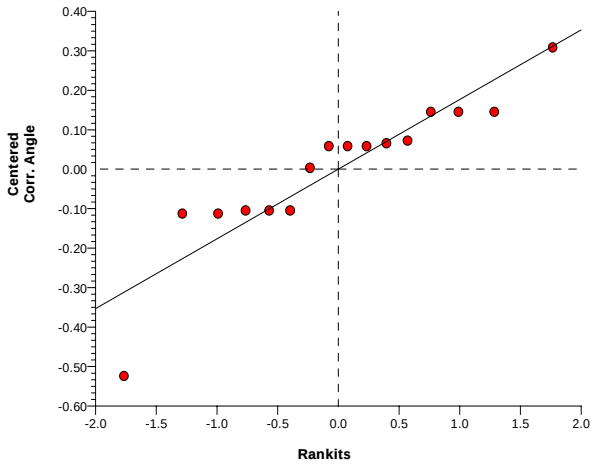
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-017	8	0.775	0.6918	0.8582	0.3	1	0.04062	0.2188	28.23%	19.48%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-017	8	1.104	1.006	1.201	0.5796	1.412	0.04752	0.2559	23.19%	18.47%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-8686-7690 **Endpoint:** Proportion Survived **CETIS Version:** CETISv1.6.4
Analyzed: 03 Jul-08 10:54 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)		C > T	Not Run					9.24%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-016	1.815	1.761	0.1464	0.0455	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0909649	0.0909649	1	3.293	0.0910	Non-Significant Effect
Error	0.3867072	0.0276219	14			
Total	0.477672	0.1185868	15			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.351	8.885	0.0262	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9206		0.1728	Normal Distribution

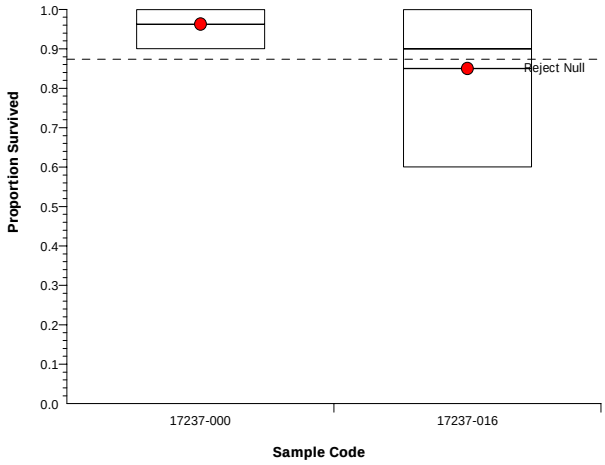
Proportion Survived Summary

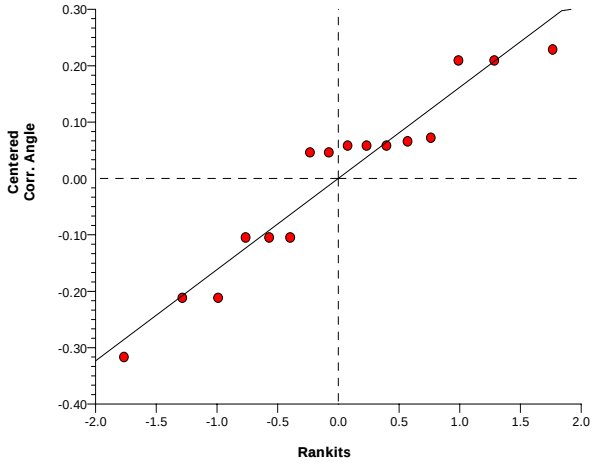
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.9625	0.9428	0.9822	0.9	1	0.009611	0.05175	5.38%	0.0%
17237-016	8	0.85	0.789	0.911	0.6	1	0.02978	0.1604	18.87%	11.69%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	1.354	1.321	1.387	1.249	1.426	0.0161	0.08669	6.4%	0.0%
17237-016	8	1.203	1.12	1.286	0.8861	1.432	0.04057	0.2185	18.16%	11.14%

Graphics





Hyalella azteca Sediment Evaluation

STUDY NUMBER: 17237 **CLIENT:** TetraTech

PROJECT: Newport **START DATE:** 06/04/08

	REP	TARE WEIGHT (mg)	*H. azteca*+ FOIL (mg)	NET WEIGHT (mg)	# *H. azteca*	MEAN DRY WEIGHT PER Individual (mg)
START ORGANISMS	A	210.95	211.16	0.21	10	0.021
	B	210.94	211.04	0.10	10	0.010
	C	210.81	210.91	0.10	10	0.010
	D	211.35	211.47	0.12	10	0.012
RECORDED BY:		RAM	GL			Average:
DATE:		06/4/08	6/5/08			0.013

NOTES: Use 10 Amphipods per replicate to set start weight

STUDY: 17237
CLIENT: TetraTech
PROJECT: Newport
ASSAY: 28 Day Hyalella azteca
TASK: Balance Output - mg

Lab Code	Rep	Total Wt	Tare Wt
17237-000	1	212.05	209.02
17237-000	2	211.21	207.28
17237-000	3	211.55	208.82
17237-000	4	211.81	208.82
17237-000	5	211.10	208.20
17237-000	6	211.11	208.23
17237-000	7	212.11	208.77
17237-000	8	211.25	208.08
17237-016	1	212.06	208.21
17237-016	2	213.99	209.34
17237-016	3	212.90	208.72
17237-016	4	212.80	209.31
17237-016	5	211.87	207.57
17237-016	6	212.33	208.98
17237-016	7	214.54	208.60
17237-016	8	213.68	208.83
17237-017	1	213.75	211.12
17237-017	2	212.66	211.20
17237-017	3	210.44	209.65
17237-017	4	209.12	207.00
17237-017	5	210.38	207.67
17237-017	6	214.47	207.95
17237-017	7	211.49	211.42
17237-017	8	210.97	208.86
17237-018	1	211.85	208.79
17237-018	2	212.41	210.07
17237-018	3	212.56	207.53
17237-018	4	215.16	211.67
17237-018	5	210.23	206.25
17237-018	6	214.23	210.22
17237-018	7	211.50	208.83
17237-018	8	215.42	209.70
17237-019	1	211.94	208.20
17237-019	2	212.04	208.81
17237-019	3	210.65	207.39
17237-019	4	209.51	207.47
17237-019	5	211.44	209.07
17237-019	6	210.94	208.63
17237-019	7	209.72	207.57
17237-019	8	211.60	209.71
17237-020	1	211.52	208.46
17237-020	2	214.03	210.87
17237-020	3	214.61	210.93

17237-020	4	213.19	210.45
17237-020	5	212.02	209.14
17237-020	6	212.01	208.66
17237-020	7	213.22	210.83
17237-020	8	210.86	209.35
17237-001	1	210.46	207.99
17237-001	2	213.47	209.67
17237-001	3	211.65	208.61
17237-001	4	212.57	208.89
17237-001	5	212.88	208.58
17237-001	6	210.56	208.46
17237-001	7	212.12	209.18
17237-001	8	211.63	208.96
17237-002	1	208.89	208.37
17237-002	2	209.10	207.94
17237-002	3	210.09	208.87
17237-002	4	208.13	207.49
17237-002	5	210.52	208.99
17237-002	6	211.99	209.66
17237-002	7	211.44	210.21
17237-002	8	210.52	208.46
17237-003	1	211.42	210.15
17237-003	2	211.13	208.63
17237-003	3	212.59	209.70
17237-003	4	210.17	208.16
17237-003	5	210.80	208.33
17237-003	6	210.25	208.72
17237-003	7	212.67	209.88
17237-003	8	210.20	207.86
17237-004	1	209.76	208.18
17237-004	2	212.36	209.84
17237-004	3	210.59	208.12
17237-004	4	208.76	207.06
17237-004	5	212.13	209.76
17237-004	6	212.27	210.09
17237-004	7	214.18	211.90
17237-004	8	210.88	208.41
17237-005	1	212.11	209.66
17237-005	2	215.05	211.59
17237-005	3	213.14	210.86
17237-005	4	214.24	211.71
17237-005	5	211.61	209.28
17237-005	6	213.71	211.14
17237-005	7	212.08	209.58
17237-005	8	214.94	211.63
17237-006	1	213.07	211.21
17237-006	2	213.17	209.97
17237-006	3	212.71	210.00
17237-006	4	213.20	210.13
17237-006	5	213.24	209.59

17237-006	6	212.35	209.11
17237-006	7	211.91	209.54
17237-006	8	213.30	211.19
17237-007	1	213.38	211.13
17237-007	2	210.49	208.98
17237-007	3	214.63	211.87
17237-007	4	212.77	210.67
17237-007	5	213.90	211.07
17237-007	6	210.87	208.55
17237-007	7	213.71	210.86
17237-007	8	212.32	210.37
17237-008	1	212.15	210.29
17237-008	2	213.32	210.42
17237-008	3	211.56	208.88
17237-008	4	215.50	212.86
17237-008	5	212.48	210.31
17237-008	6	212.97	210.19
17237-008	7	213.19	210.87
17237-008	8	212.28	209.41
17237-009	1	211.76	208.85
17237-009	2	212.02	208.79
17237-009	3	211.37	208.71
17237-009	4	212.36	209.34
17237-009	5	212.79	209.84
17237-009	6	206.79	203.98
17237-009	7	209.95	208.62
17237-009	8	210.84	208.77
17237-010	1		
17237-010	2	208.02	207.21
17237-010	3	208.68	207.56
17237-010	4	209.90	208.23
17237-010	5	208.22	207.91
17237-010	6	208.29	207.48
17237-010	7		
17237-010	8		
17237-011	1	212.21	208.08
17237-011	2	211.41	208.31
17237-011	3	211.33	208.16
17237-011	4	211.12	207.60
17237-011	5	211.56	208.61
17237-011	6	212.41	209.94
17237-011	7	210.67	208.39
17237-011	8	210.26	207.94
17237-012	1	210.33	208.98
17237-012	2	208.69	207.51
17237-012	3	209.84	208.83
17237-012	4	210.42	209.11
17237-012	5	210.80	209.23
17237-012	6	210.30	208.57
17237-012	7	209.71	209.05

17237-012	8	210.08	208.97
17237-013	1	210.43	208.84
17237-013	2	210.37	208.66
17237-013	3	210.08	208.23
17237-013	4	210.36	208.80
17237-013	5		
17237-013	6		
17237-013	7		
17237-013	8	211.71	210.06
17237-014	1	206.58	206.31
17237-014	2	212.01	211.83
17237-014	3		
17237-014	4	209.33	208.88
17237-014	5	209.69	209.55
17237-014	6		
17237-014	7	209.39	208.92
17237-014	8		
17237-015	1		
17237-015	2	209.85	210.33
17237-015	3	209.82	210.05
17237-015	4		
17237-015	5		
17237-015	6	209.50	209.11
17237-015	7		
17237-015	8		

Hyalella 28-d Survival and Growth Sediment Test **EnviroSystems, Inc.**

Test Run No:	05-0315-7700	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	04 Jun-08 11:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	02 Jul-08 11:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	28d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Sample Code	Sample No	Sample Date	Receive Date	Sample Age	Client Name	Project
17237-000	02-1378-4426	02 Jun-08 10:00	02 Jun-08 10:00	49h	Tetra Tech NUS	Ecological Risk Assessm
17237-016	20-0269-5618	22 May-08 09:30	23 May-08 14:30	13d 2h		
17237-017	13-4140-4927	22 May-08 10:45	23 May-08 14:30	13d 0h		
17237-018	11-1617-8660	22 May-08 12:00	23 May-08 14:30	12d 23h		
17237-019	04-1529-9092	22 May-08 14:45	23 May-08 14:30	12d 20h		
17237-020	03-8843-5793	22 May-08 15:15	23 May-08 14:30	12d 20h		
17237-001	20-6585-5221	19 May-08 14:00	23 May-08 14:30	15d 21h		
17237-002	12-3361-3086	19 May-08 14:45	23 May-08 14:30	15d 20h		
17237-003	19-8953-4786	19 May-08 16:00	23 May-08 14:30	15d 19h		
17237-004	16-4291-0595	19 May-08 15:45	23 May-08 14:30	15d 19h		
17237-005	02-4408-9840	20 May-08 09:30	23 May-08 14:30	15d 2h		
17237-006	15-8316-3648	20 May-08 09:45	23 May-08 14:30	15d 1h		
17237-007	07-2571-4388	20 May-08 08:00	23 May-08 14:30	15d 3h		
17237-008	12-6251-4060	20 May-08 10:00	23 May-08 14:30	15d 1h		
17237-009	13-5769-4122	20 May-08 11:30	23 May-08 14:30	15d		
17237-010	01-4607-3514	20 May-08 15:00	23 May-08 14:30	14d 20h		
17237-011	18-8388-9106	20 May-08 16:00	23 May-08 14:30	14d 19h		
17237-012	10-7638-1293	21 May-08 10:00	23 May-08 14:30	14d 1h		
17237-013	05-4152-2147	21 May-08 10:15	23 May-08 14:30	14d 1h		
17237-014	01-0987-3659	21 May-08 12:15	23 May-08 14:30	13d 23h		
17237-015	15-5076-3816	21 May-08 13:30	23 May-08 14:30	13d 22h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
17237-000	Freshwater Sediment	Naval Station Newport Site NUS	Lab Control; 17237-000		
17237-016	Freshwater Sediment	Naval Station Newport Site NUS	SD-RP01-0006; 17237-016		
17237-017	Freshwater Sediment	Naval Station Newport Site NUS	SD-RP02-0006; 17237-017		
17237-018	Freshwater Sediment	Naval Station Newport Site NUS	SD-RP03-0006; 17237-018		
17237-019	Freshwater Sediment	Naval Station Newport Site NUS	SD-RP04-0006; 17237-019		
17237-020	Freshwater Sediment	Naval Station Newport Site NUS	SD-RP05-0006; 17237-020		
17237-001	Freshwater Sediment	Naval Station Newport Site NUS	SD107-0006; 17237-001		
17237-002	Freshwater Sediment	Naval Station Newport Site NUS	SD108-0006; 17237-002		
17237-003	Freshwater Sediment	Naval Station Newport Site NUS	SD111-0006; 17237-003		
17237-004	Freshwater Sediment	Naval Station Newport Site NUS	SD112-0006; 17237-004		
17237-005	Freshwater Sediment	Naval Station Newport Site NUS	SD106-0006; 17237-005		
17237-006	Freshwater Sediment	Naval Station Newport Site NUS	SD-Dup01; 17237-006		
17237-007	Freshwater Sediment	Naval Station Newport Site NUS	SD110-0006; 17237-007		
17237-008	Freshwater Sediment	Naval Station Newport Site NUS	SD133-0006; 17237-008		
17237-009	Freshwater Sediment	Naval Station Newport Site NUS	SD01-0006; 17237-009		
17237-010	Freshwater Sediment	Naval Station Newport Site NUS	SD116-0006; 17237-010		
17237-011	Freshwater Sediment	Naval Station Newport Site NUS	SD114-0006; 17237-011		
17237-012	Freshwater Sediment	Naval Station Newport Site NUS	SD119-0006; 17237-012		
17237-013	Freshwater Sediment	Naval Station Newport Site NUS	SD-DUP02; 17237-013		
17237-014	Freshwater Sediment	Naval Station Newport Site NUS	SD121-0006; 17237-014		
17237-015	Freshwater Sediment	Naval Station Newport Site NUS	SD125-0006; 17237-015		

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3095	0.3408	0.273	0.393	0.007653	0.04192	12.89%	0.0%
17237-016	8	0.5053	0.4563	0.5543	0.3878	0.8083	0.02397	0.1313	25.99%	-55.42%
17237-017	8	0.338	0.2268	0.4492	0.007779	0.9033	0.05437	0.2978	88.11%	-3.96%

Hyalella 28-d Survival and Growth Sediment Test **EnviroSystems, Inc.**

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4609	0.5371	0.2967	0.585	0.01865	0.1021	20.47%	-53.48%
17237-019	8	0.3216	0.2985	0.3448	0.204	0.378	0.01133	0.06206	19.29%	1.07%
17237-020	8	0.3325	0.3048	0.3601	0.1887	0.4089	0.01352	0.07405	22.27%	-2.27%
17237-001	8	0.3692	0.3367	0.4016	0.2967	0.5257	0.01587	0.08693	23.55%	-13.55%
17237-002	8	0.4143	0.2927	0.5359	0.128	1.165	0.05944	0.3256	78.59%	-27.43%
17237-003	8	0.2694	0.249	0.2897	0.1912	0.3529	0.009955	0.05452	20.24%	17.15%
17237-004	8	0.2489	0.2381	0.2596	0.2125	0.3088	0.005233	0.02866	11.52%	23.46%
17237-005	8	0.2918	0.271	0.3127	0.23	0.3844	0.01019	0.05584	19.13%	10.24%
17237-006	8	0.3057	0.2841	0.3272	0.211	0.3837	0.01055	0.05781	18.91%	5.99%
17237-007	8	0.4271	0.3711	0.4831	0.2625	0.755	0.0274	0.1501	35.14%	-31.36%
17237-008	8	0.3335	0.3119	0.355	0.2325	0.4143	0.01054	0.05775	17.32%	-2.57%
17237-009	8	0.3055	0.286	0.325	0.19	0.3687	0.009539	0.05225	17.1%	6.03%
17237-010	5	0.265	0.2279	0.3021	0.155	0.4175	0.01815	0.09939	37.51%	18.49%
17237-011	8	0.344	0.296	0.392	0.2073	0.59	0.02345	0.1285	37.34%	-5.8%
17237-012	8	0.251	0.2007	0.3013	0.0825	0.5233	0.02458	0.1347	53.64%	22.79%
17237-013	5	0.233	0.2247	0.2412	0.2063	0.2643	0.00404	0.02213	9.5%	28.35%
17237-014	5	0.1455	0.1233	0.1677	0.07	0.225	0.01084	0.05938	40.81%	55.25%
17237-015	2	0.31	0.2678	0.3522	0.23	0.39	0.02066	0.1131	36.5%	4.65%

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
17237-000	0.3367	0.393	0.273	0.3322	0.29	0.288	0.3711	0.317
17237-016	0.55	0.465	0.418	0.3878	0.4778	0.4786	0.4569	0.8083
17237-017	0.3288	0.1622	0.1129	0.2356	0.9033	0.652	0.007779	0.3014
17237-018	0.51	0.585	0.5589	0.4986	0.398	0.5729	0.2967	0.572
17237-019	0.374	0.3589	0.3622	0.204	0.3386	0.2887	0.2687	0.378
17237-020	0.34	0.395	0.4089	0.274	0.32	0.335	0.3983	0.1887
17237-001	0.3088	0.38	0.3378	0.5257	0.4778	0.3	0.3267	0.2967
17237-002	0.52	0.232	0.244	0.128	0.306	1.165	0.3075	0.412
17237-003	0.2117	0.2778	0.3211	0.2871	0.3529	0.1912	0.279	0.234
17237-004	0.2633	0.252	0.247	0.2125	0.237	0.2422	0.228	0.3088
17237-005	0.2722	0.3844	0.2533	0.23	0.2913	0.2856	0.25	0.3678
17237-006	0.2657	0.2909	0.3388	0.3837	0.3318	0.36	0.2633	0.211
17237-007	0.3214	0.755	0.345	0.2625	0.4717	0.464	0.4071	0.39
17237-008	0.2325	0.4143	0.335	0.3771	0.2712	0.3475	0.3314	0.3587
17237-009	0.3233	0.323	0.2956	0.3356	0.3687	0.3122	0.19	0.2957
17237-010	0.27	0.28	0.4175	0.155	0.2025			
17237-011	0.59	0.3444	0.3962	0.44	0.295	0.247	0.2073	0.232
17237-012	0.3375	0.236	0.1683	0.1871	0.5233	0.2883	0.0825	0.185
17237-013	0.2271	0.2443	0.2643	0.2229	0.2063			
17237-014	0.135	0.18	0.225	0.07	0.1175			
17237-015	0.23	0.39						

Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-9013-4597 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 22:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					35.36%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-015	0.3558	1.86	0.1176	0.3656	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.00081	0.00081	1	0.1266	0.7312	Non-Significant Effect
Error	0.051181	0.006398	8			
Total	0.051991	0.007208	9			

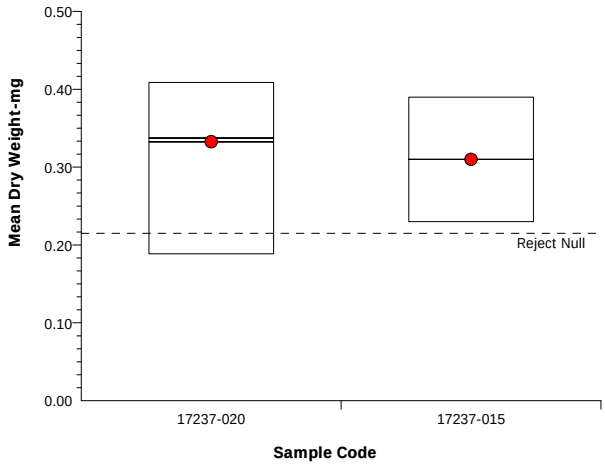
ANOVA Assumptions

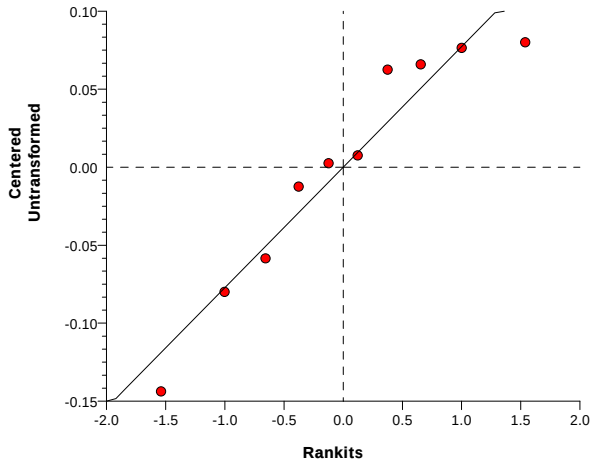
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.335	16.24	0.3407	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9105		0.2848	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-015	2	0.31	0.267	0.353	0.23	0.39	0.02101	0.1131	36.5%	6.77%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-5360-9370 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:46 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					21.27%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-014	4.749	1.796	0.07072	0.0003	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.107595	0.107595	1	22.55	0.0006	Significant Effect
Error	0.052485	0.004771	11			
Total	0.16008	0.112366	12			

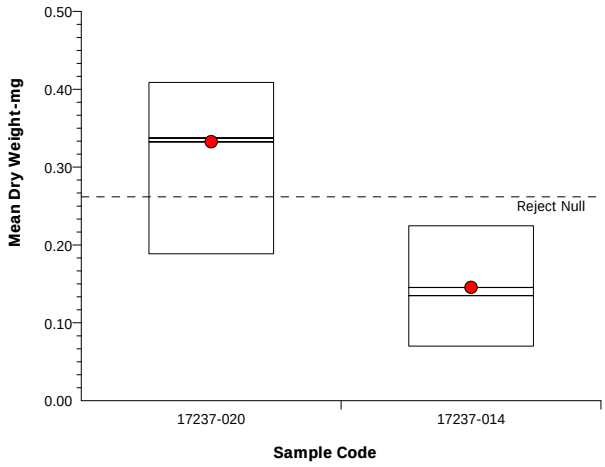
ANOVA Assumptions

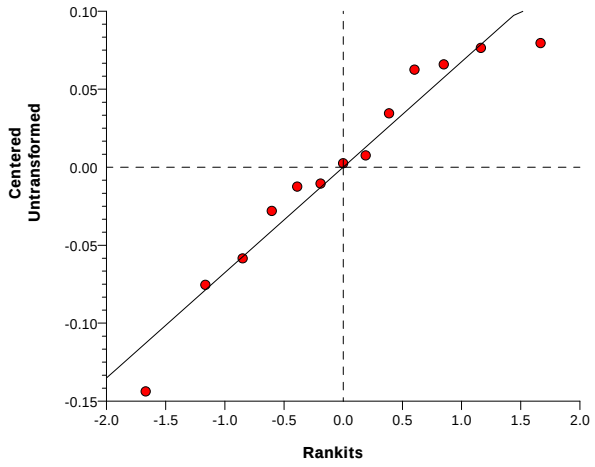
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.555	21.62	0.7021	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9365		0.4131	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-014	5	0.1455	0.1229	0.1681	0.07	0.225	0.01103	0.05938	40.81%	56.24%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-8162-0442 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:46 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					18.65%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-013	2.883	1.796	0.062	0.0074	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.030482	0.030482	1	8.312	0.0149	Significant Effect
Error	0.04034	0.003667	11			
Total	0.070822	0.034149	12			

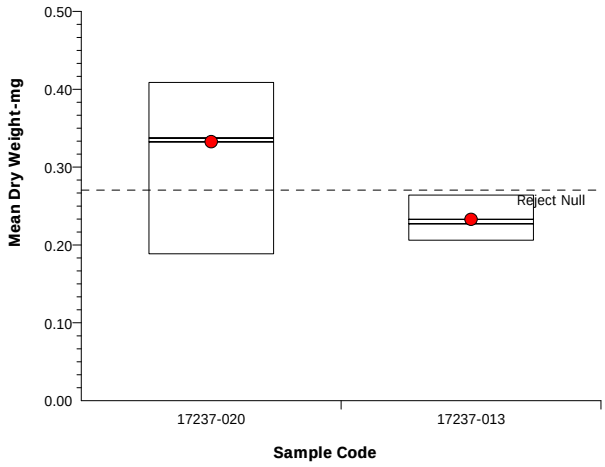
ANOVA Assumptions

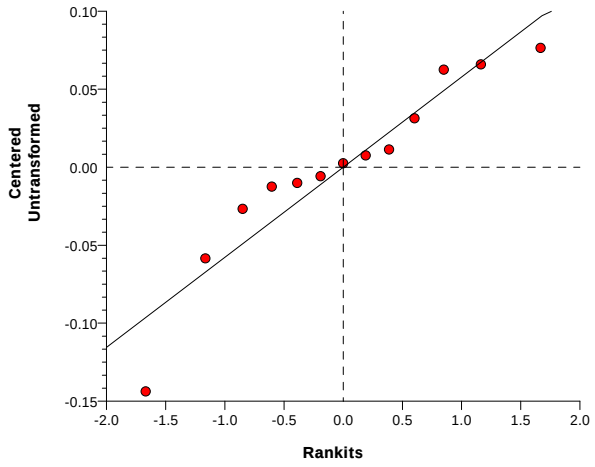
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	11.2	21.62	0.0342	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9078		0.1712	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-013	5	0.233	0.2245	0.2414	0.2063	0.2643	0.004109	0.02213	9.5%	29.93%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 19-1586-7064 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:46 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					28.78%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-012	1.5	1.761	0.0957	0.0780	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.026555	0.026555	1	2.249	0.1559	Non-Significant Effect
Error	0.165309	0.011808	14			
Total	0.191863	0.038363	15			

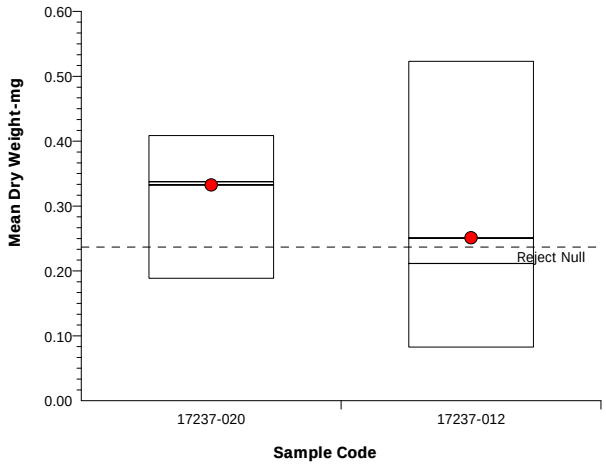
ANOVA Assumptions

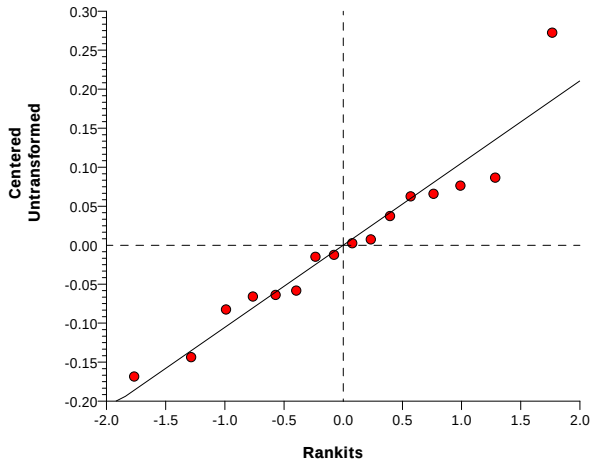
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.307	8.885	0.1372	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9385		0.3308	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-012	8	0.251	0.1998	0.3022	0.0825	0.5233	0.02501	0.1347	53.64%	24.5%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-8984-3089 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:46 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					27.77%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-011	-0.2194	1.761	0.09233	0.5852	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000529	0.000529	1	0.04812	0.8295	Non-Significant Effect
Error	0.153892	0.010992	14			
Total	0.154421	0.011521	15			

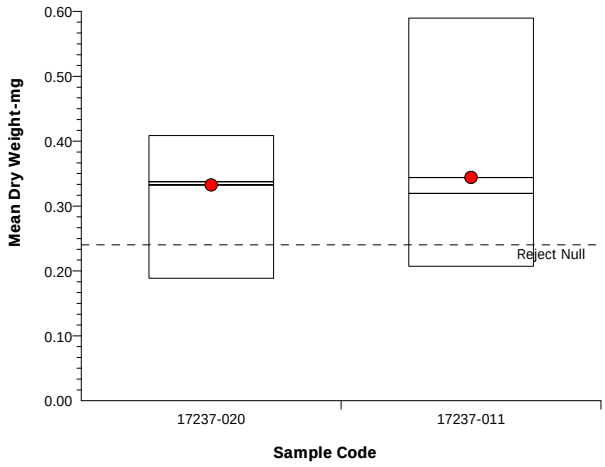
ANOVA Assumptions

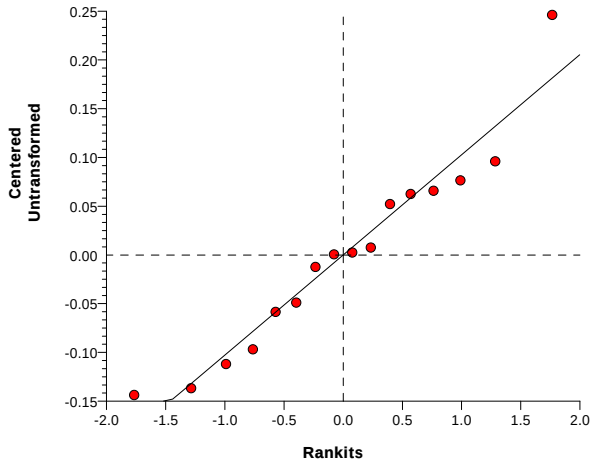
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.01	8.885	0.1693	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9463		0.4335	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-011	8	0.344	0.2951	0.3929	0.2073	0.59	0.02385	0.1285	37.34%	-3.46%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-8426-6903 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:46 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					25.91%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-010	1.407	1.796	0.08615	0.0935	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.014018	0.014018	1	1.98	0.1871	Non-Significant Effect
Error	0.077894	0.007081	11			
Total	0.091912	0.021099	12			

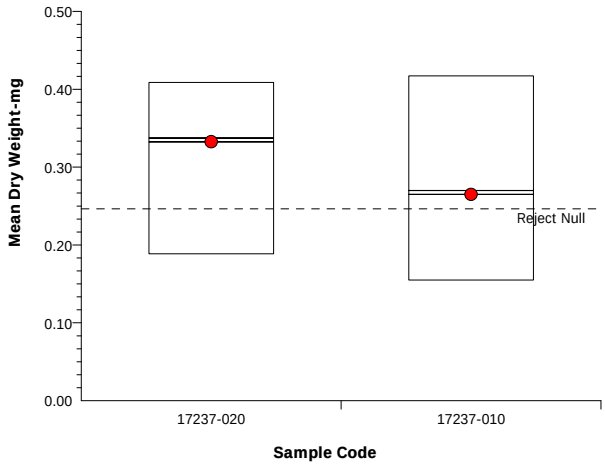
ANOVA Assumptions

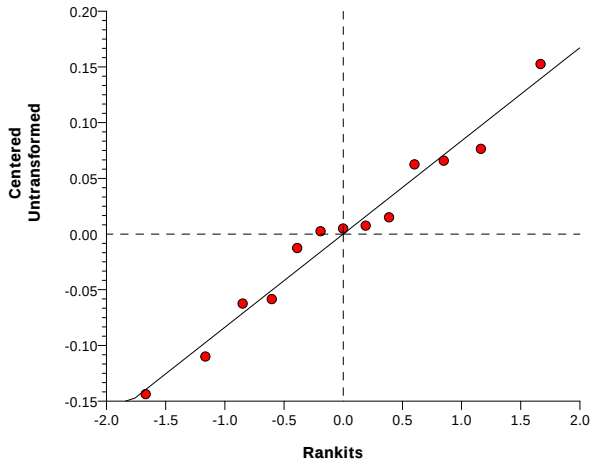
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.802	10.05	0.4661	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9753		0.9482	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-010	5	0.265	0.2272	0.3028	0.155	0.4175	0.01846	0.09939	37.51%	20.3%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-9675-7619 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.97%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-009	0.8421	1.761	0.05643	0.2069	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.002912	0.002912	1	0.7091	0.4139	Non-Significant Effect
Error	0.057489	0.004106	14			
Total	0.060401	0.007018	15			

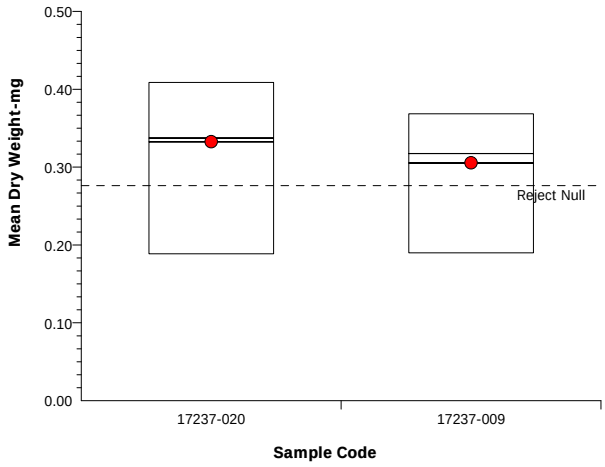
ANOVA Assumptions

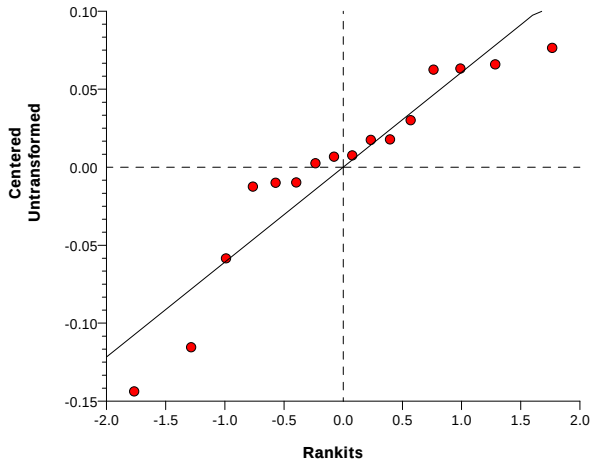
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.009	8.885	0.3778	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8859		0.0480	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-009	8	0.3055	0.2856	0.3254	0.19	0.3687	0.009702	0.05225	17.1%	8.12%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-2058-1181 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.59%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-008	-0.02969	1.761	0.05848	0.5116	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.89E-06	3.89E-06	1	0.000881	0.9767	Non-Significant Effect
Error	0.061728	0.004409	14			
Total	0.061732	0.004413	15			

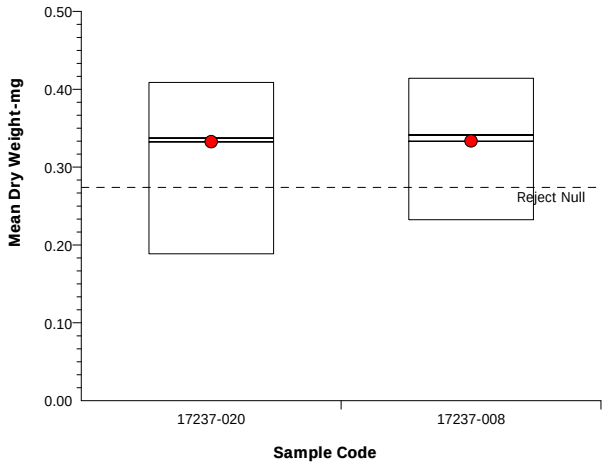
ANOVA Assumptions

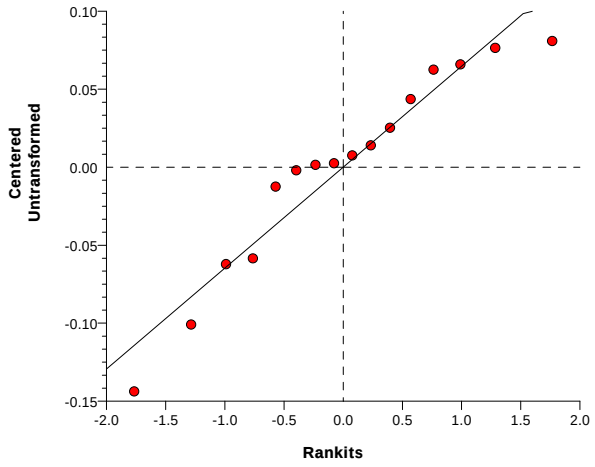
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.644	8.885	0.5277	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9281		0.2274	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-008	8	0.3335	0.3115	0.3555	0.2325	0.4143	0.01072	0.05775	17.32%	-0.3%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 15-4898-7721 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					31.34%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-007	-1.599	1.761	0.1042	0.9339	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.035794	0.035794	1	2.556	0.1322	Non-Significant Effect
Error	0.196024	0.014002	14			
Total	0.231818	0.049796	15			

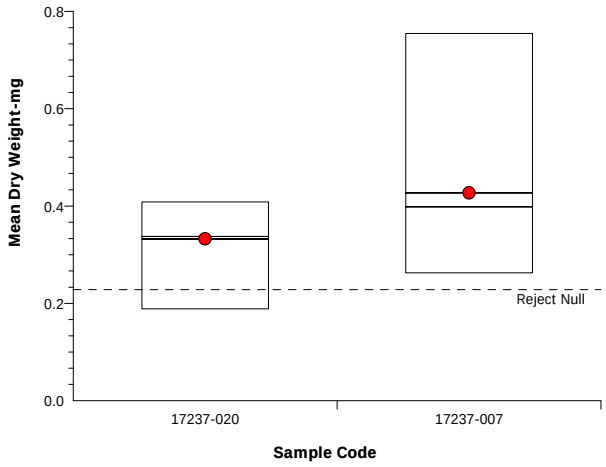
ANOVA Assumptions

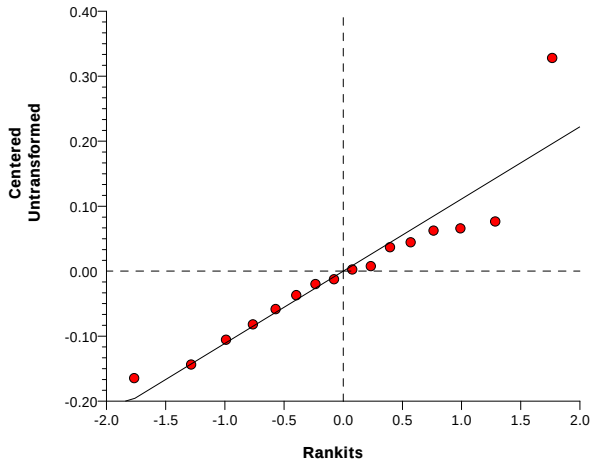
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.107	8.885	0.0821	Equal Variances
Distribution	Shapiro-Wilk Normality	0.887		0.0500	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-007	8	0.4271	0.37	0.4842	0.2625	0.755	0.02787	0.1501	35.14%	-28.45%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-6921-7920 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.59%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-006	0.808	1.761	0.0585	0.2163	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.002881	0.002881	1	0.6529	0.4326	Non-Significant Effect
Error	0.061776	0.004413	14			
Total	0.064657	0.007293	15			

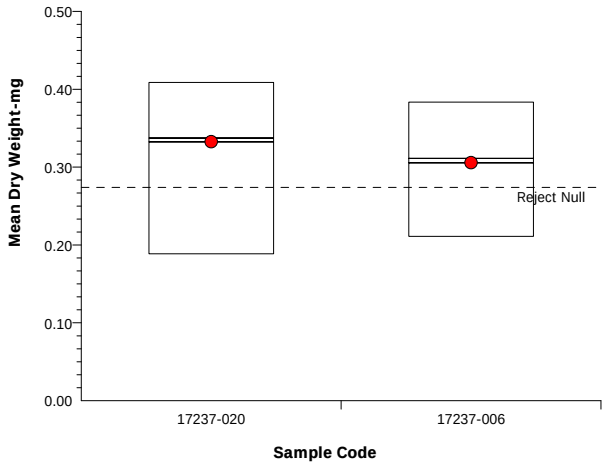
ANOVA Assumptions

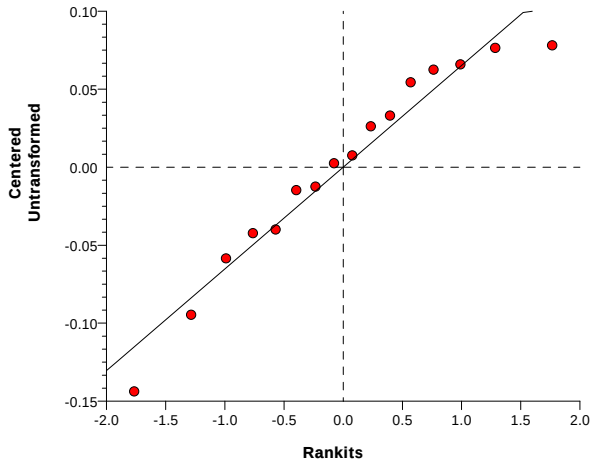
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.641	8.885	0.5294	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9399		0.3480	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-006	8	0.3057	0.2837	0.3277	0.211	0.3837	0.01074	0.05781	18.91%	8.07%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-4776-9179 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.37%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-005	1.24	1.761	0.05775	0.1176	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.006617	0.006617	1	1.539	0.2352	Non-Significant Effect
Error	0.060205	0.004300	14			
Total	0.066823	0.010918	15			

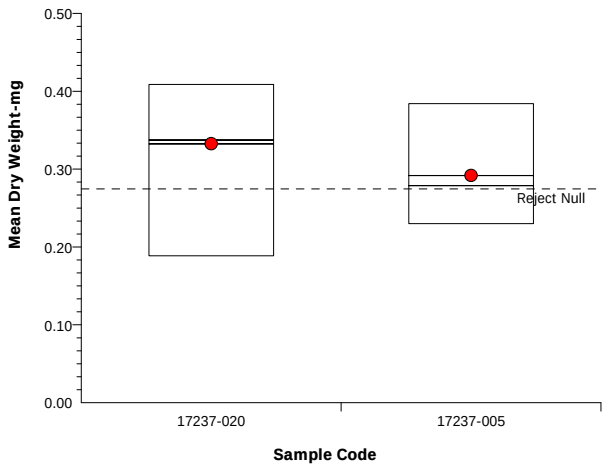
ANOVA Assumptions

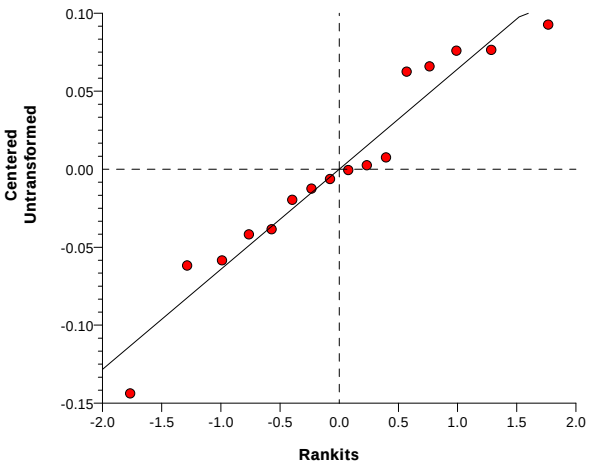
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.759	8.885	0.4739	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9415		0.3675	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-005	8	0.2918	0.2706	0.3131	0.23	0.3844	0.01037	0.05584	19.13%	12.23%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-2853-3056 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.87%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-004	2.98	1.761	0.04944	0.0050	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.027986	0.027986	1	8.878	0.0099	Significant Effect
Error	0.044132	0.003152	14			
Total	0.072119	0.031139	15			

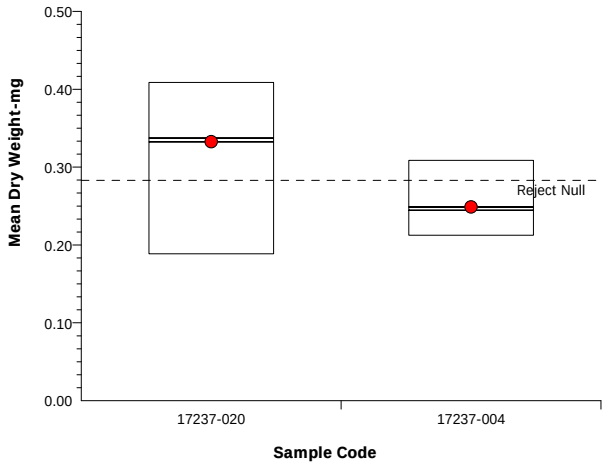
ANOVA Assumptions

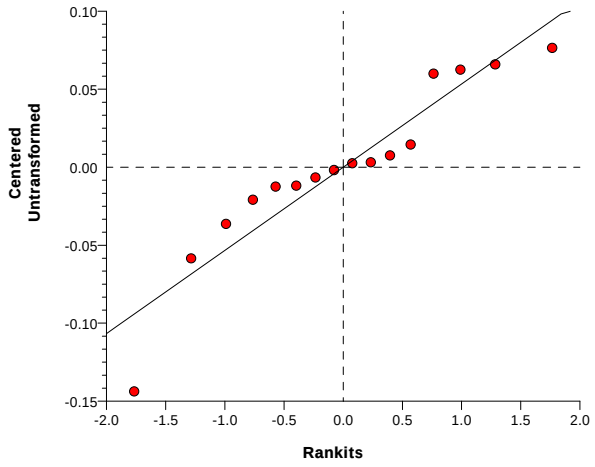
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.673	8.885	0.0228	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9		0.0803	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-004	8	0.2489	0.2379	0.2598	0.2125	0.3088	0.005323	0.02866	11.52%	25.16%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-1849-5425 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.22%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-003	1.942	1.761	0.05726	0.0363	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.01595	0.01595	1	3.772	0.0725	Non-Significant Effect
Error	0.059191	0.004228	14			
Total	0.075141	0.020178	15			

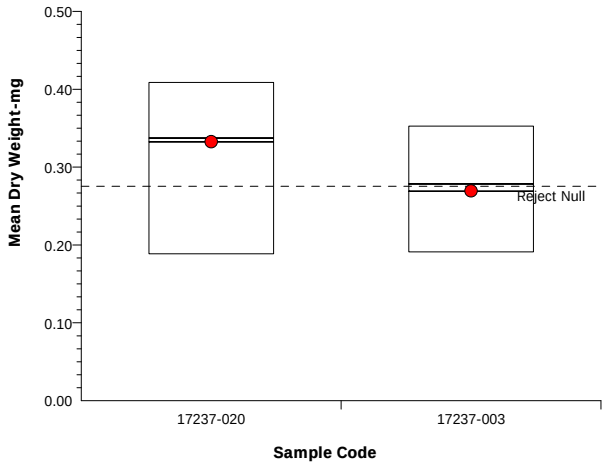
ANOVA Assumptions

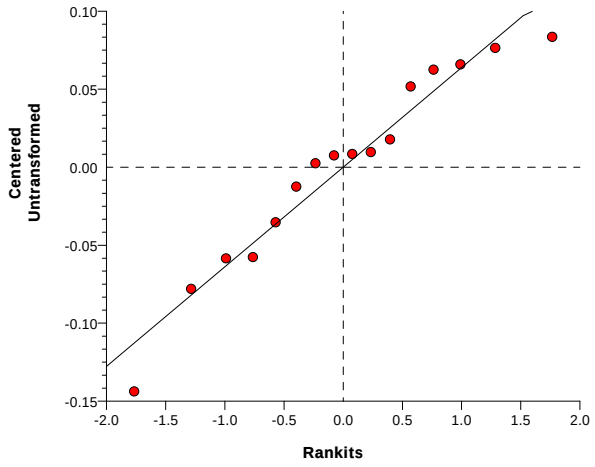
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.844	8.885	0.4379	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9447		0.4105	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-003	8	0.2694	0.2486	0.2901	0.1912	0.3529	0.01012	0.05452	20.24%	18.99%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-5043-6754 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					62.54%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-020		17237-002	66		0	0.4392	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.026776	0.026776	1	0.4803	0.4996	Non-Significant Effect
Error	0.78045	0.055746	14			
Total	0.807225	0.082522	15			

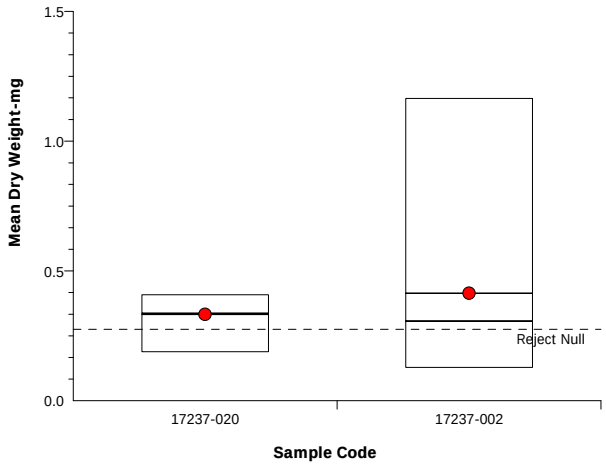
ANOVA Assumptions

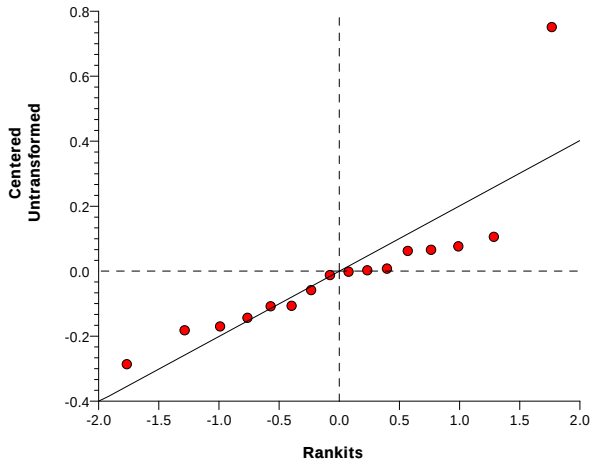
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	19.33	8.885	0.0009	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7438		0.0005	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-002	8	0.4143	0.2905	0.5382	0.128	1.165	0.06046	0.3256	78.59%	-24.61%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-7888-2913 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					21.39%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-020		17237-001	-0.9083	1.761	0.07111	0.8105	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.00538	0.00538	1	0.825	0.3791	Non-Significant Effect
Error	0.091284	0.006520	14			
Total	0.096664	0.0119	15			

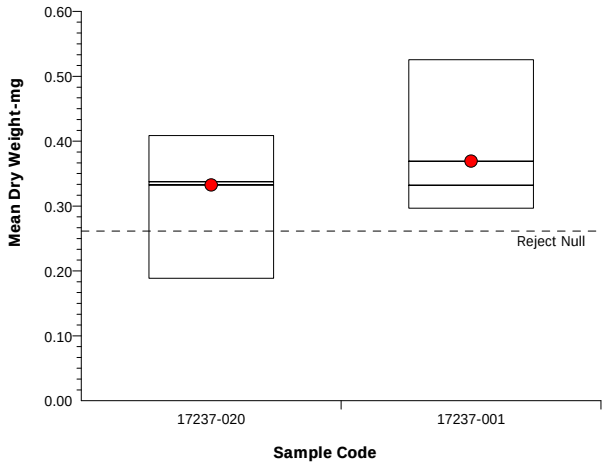
ANOVA Assumptions

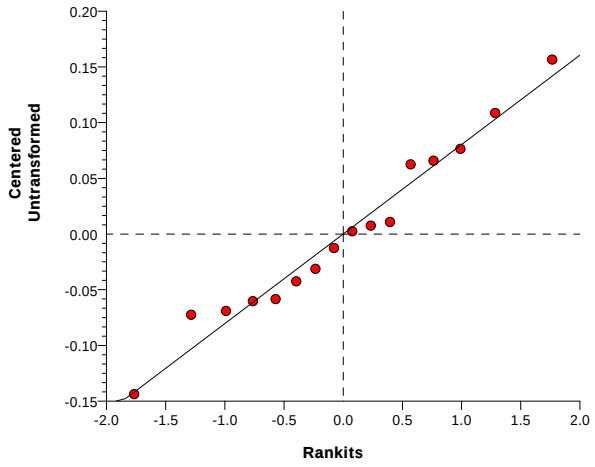
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.378	8.885	0.6827	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9733		0.8887	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	0.0%
17237-001	8	0.3692	0.3361	0.4022	0.2967	0.5257	0.01614	0.08693	23.55%	-11.03%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-0739-3841 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 22:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					32.22%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-015	0.209	1.86	0.1036	0.4198	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000217	0.000217	1	0.04369	0.8396	Non-Significant Effect
Error	0.039758	0.00497	8			
Total	0.039975	0.005187	9			

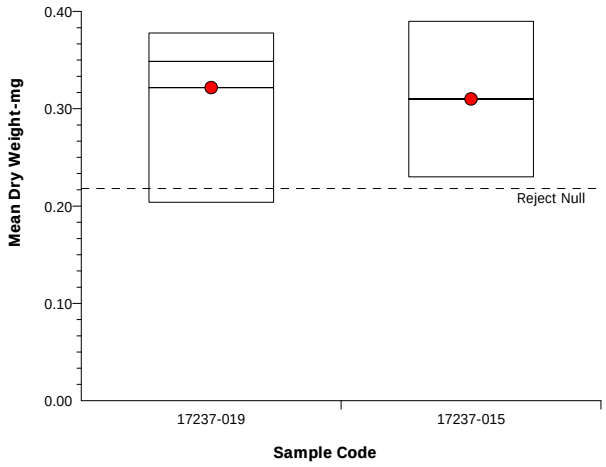
ANOVA Assumptions

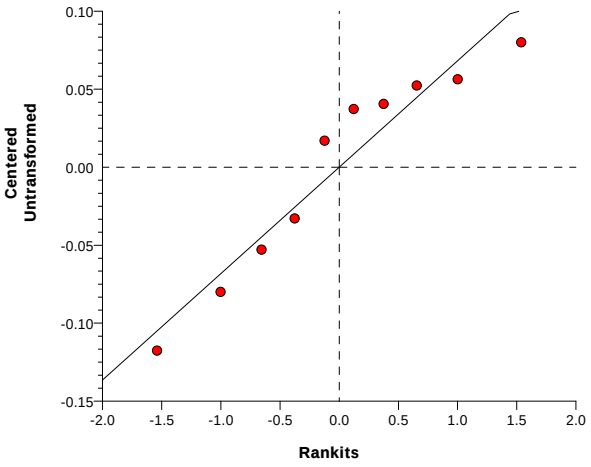
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.324	16.24	0.2221	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9142		0.3110	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-015	2	0.31	0.267	0.353	0.23	0.39	0.02101	0.1131	36.5%	3.62%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-6002-9466 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:45 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					19.45%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-014	5.057	1.796	0.06255	0.0002	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.095472	0.095472	1	25.58	0.0004	Significant Effect
Error	0.041062	0.003733	11			
Total	0.136534	0.099205	12			

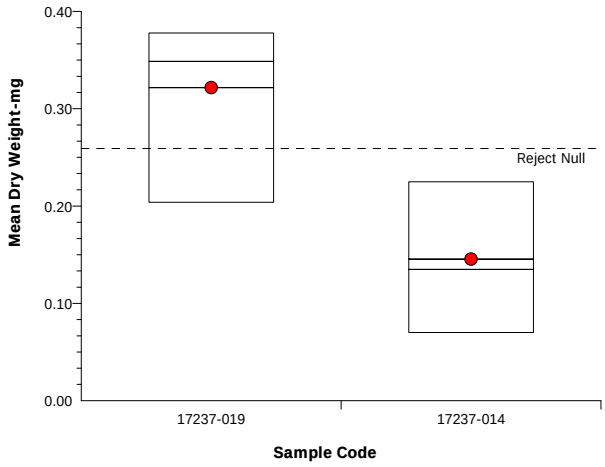
ANOVA Assumptions

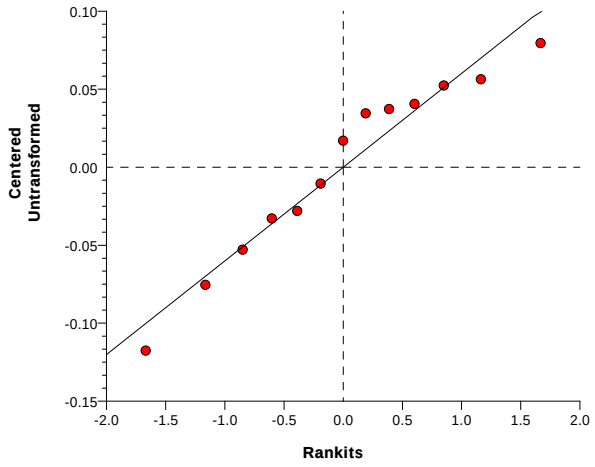
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.092	21.62	0.9902	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9453		0.5285	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-014	5	0.1455	0.1229	0.1681	0.07	0.225	0.01103	0.05938	40.81%	54.76%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-8063-1452 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.32%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-013	3.034	1.796	0.05249	0.0057	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.024199	0.024199	1	9.205	0.0114	Significant Effect
Error	0.028916	0.002629	11			
Total	0.053116	0.026828	12			

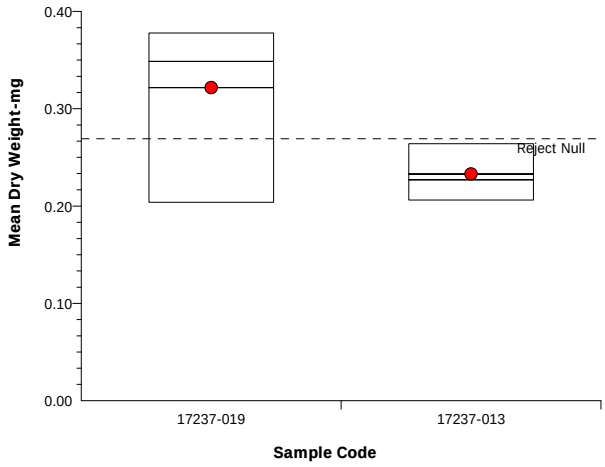
ANOVA Assumptions

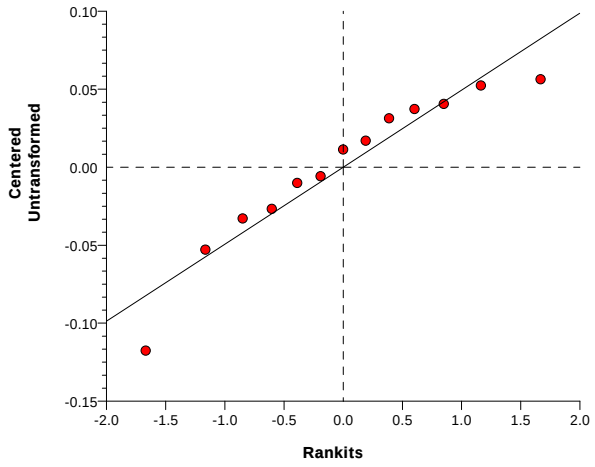
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	7.864	21.62	0.0644	Equal Variances
Distribution	Shapiro-Wilk Normality	0.915		0.2144	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-013	5	0.233	0.2245	0.2414	0.2063	0.2643	0.004109	0.02213	9.5%	27.57%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-9296-8920 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					28.71%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-012	1.347	1.761	0.09233	0.0996	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.019954	0.019954	1	1.815	0.1993	Non-Significant Effect
Error	0.153885	0.010992	14			
Total	0.173839	0.030946	15			

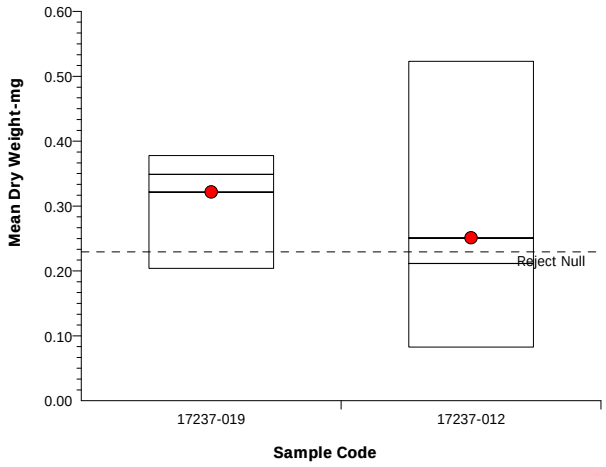
ANOVA Assumptions

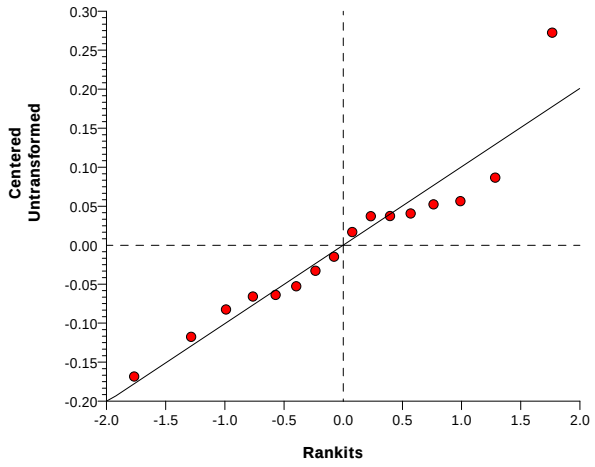
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.708	8.885	0.0583	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9238		0.1944	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-012	8	0.251	0.1998	0.3022	0.0825	0.5233	0.02501	0.1347	53.64%	21.96%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-0266-9614 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					27.62%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-011	-0.4431	1.761	0.08884	0.6678	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001998	0.001998	1	0.1963	0.6645	Non-Significant Effect
Error	0.142468	0.010176	14			
Total	0.144466	0.012174	15			

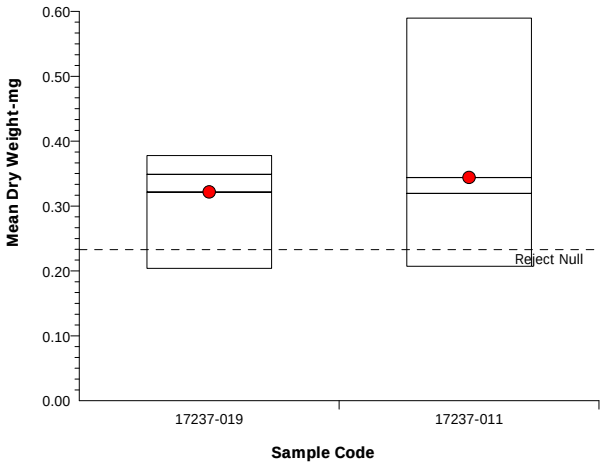
ANOVA Assumptions

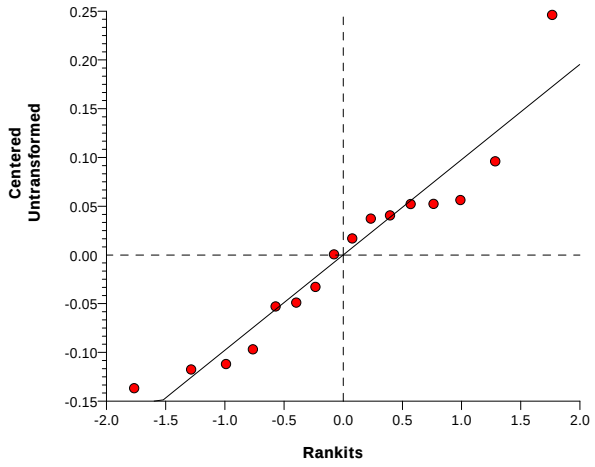
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.285	8.885	0.0740	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9296		0.2400	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-011	8	0.344	0.2951	0.3929	0.2073	0.59	0.02385	0.1285	37.34%	-6.95%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 04-0163-4508 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					24.74%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-010	1.278	1.796	0.07959	0.1137	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.009874	0.009874	1	1.634	0.2275	Non-Significant Effect
Error	0.066470	0.006043	11			
Total	0.076344	0.015917	12			

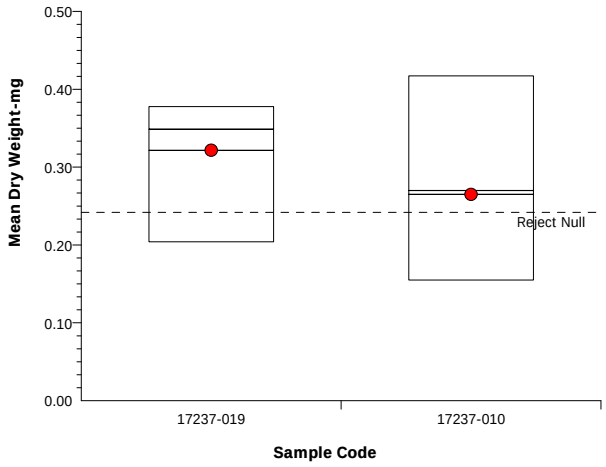
ANOVA Assumptions

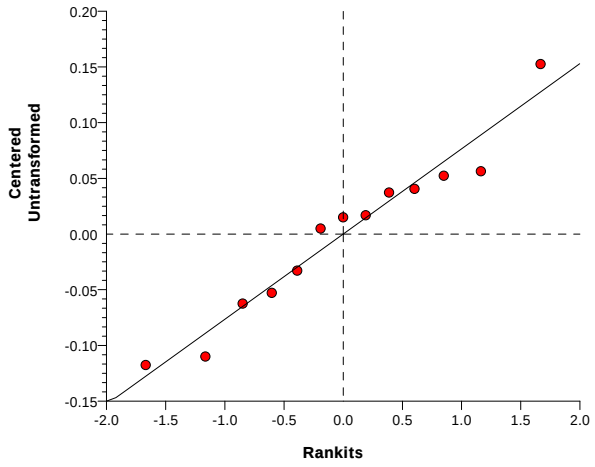
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.565	10.05	0.2617	Equal Variances
Distribution	Shapiro-Wilk Normality	0.956		0.6919	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-010	5	0.265	0.2272	0.3028	0.155	0.4175	0.01846	0.09939	37.51%	17.61%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 21-0382-3144 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					15.71%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-009	0.5624	1.761	0.05052	0.2914	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001041	0.001041	1	0.3163	0.5827	Non-Significant Effect
Error	0.046066	0.003290	14			
Total	0.047107	0.004331	15			

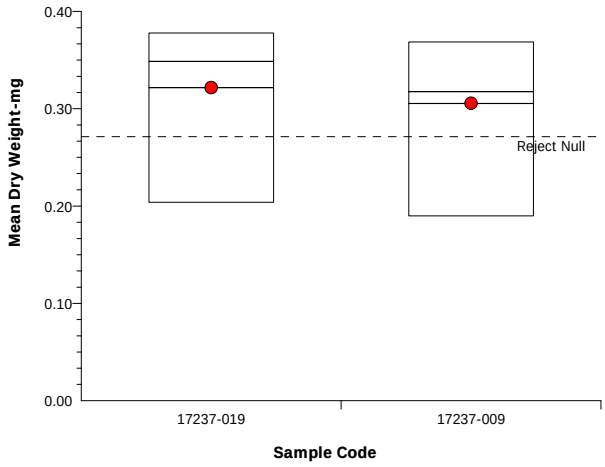
ANOVA Assumptions

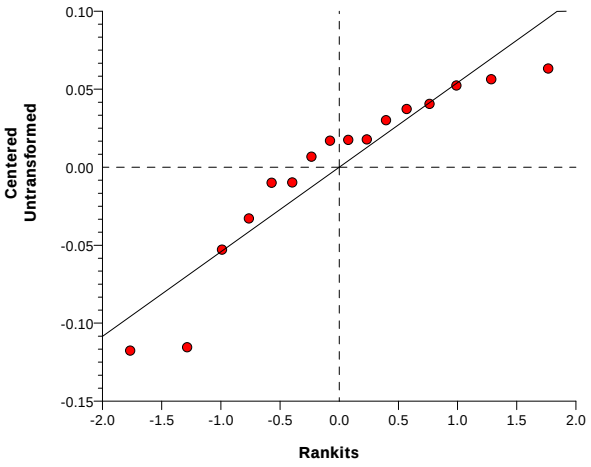
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.411	8.885	0.6612	Equal Variances
Distribution	Shapiro-Wilk Normality	0.871		0.0281	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-009	8	0.3055	0.2856	0.3254	0.19	0.3687	0.009702	0.05225	17.1%	5.01%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-9180-4056 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.41%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-008	-0.3949	1.761	0.05279	0.6506	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000560	0.000560	1	0.1559	0.6989	Non-Significant Effect
Error	0.050305	0.003593	14			
Total	0.050865	0.004153	15			

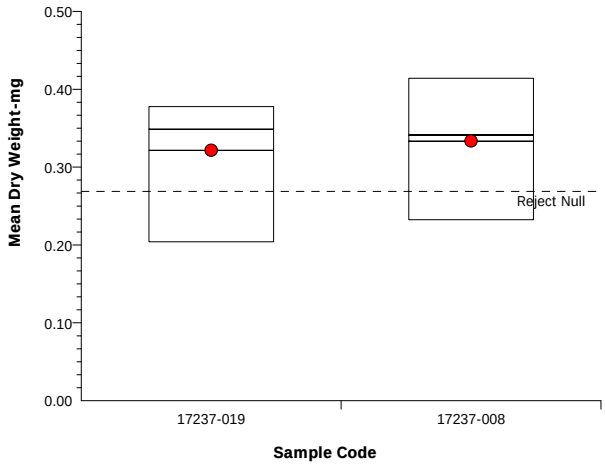
ANOVA Assumptions

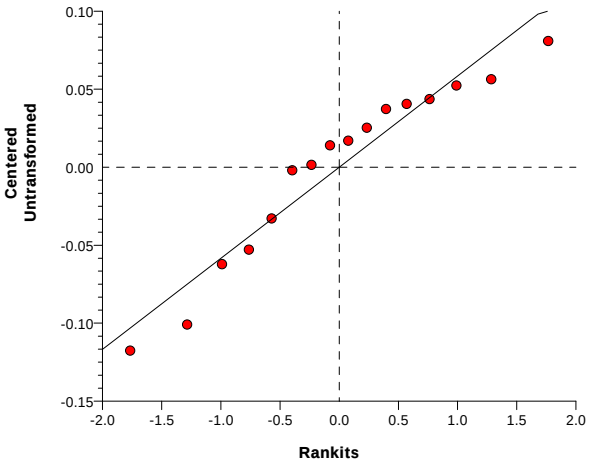
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.155	8.885	0.8544	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9255		0.2065	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-008	8	0.3335	0.3115	0.3555	0.2325	0.4143	0.01072	0.05775	17.32%	-3.68%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-5016-3314 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					31.44%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-007	-1.837	1.761	0.1011	0.9562	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.044475	0.044475	1	3.373	0.0876	Non-Significant Effect
Error	0.184601	0.013186	14			
Total	0.229076	0.057661	15			

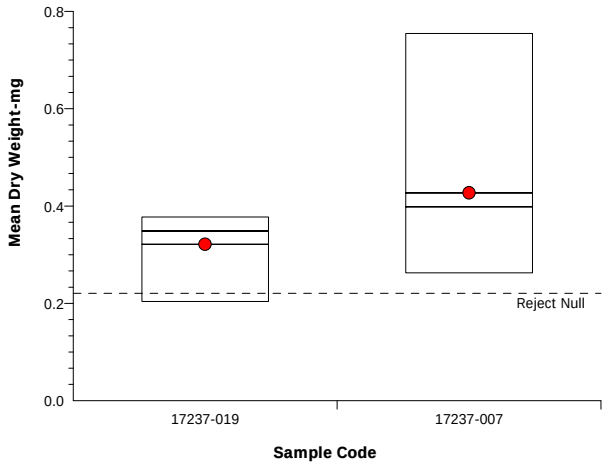
ANOVA Assumptions

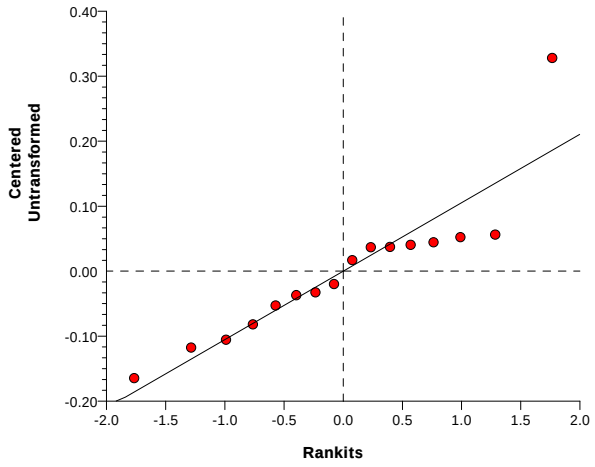
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.848	8.885	0.0329	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8517		0.0144	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-007	8	0.4271	0.37	0.4842	0.2625	0.755	0.02787	0.1501	35.14%	-32.78%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-7568-0438 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.42%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-006	0.5332	1.761	0.05281	0.3011	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001022	0.001022	1	0.2843	0.6023	Non-Significant Effect
Error	0.050353	0.003597	14			
Total	0.051375	0.004619	15			

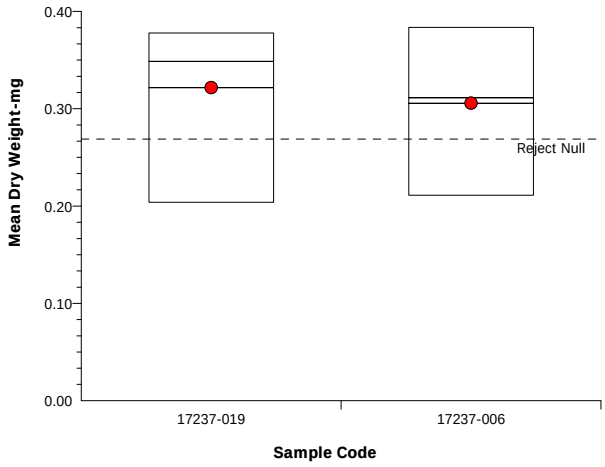
ANOVA Assumptions

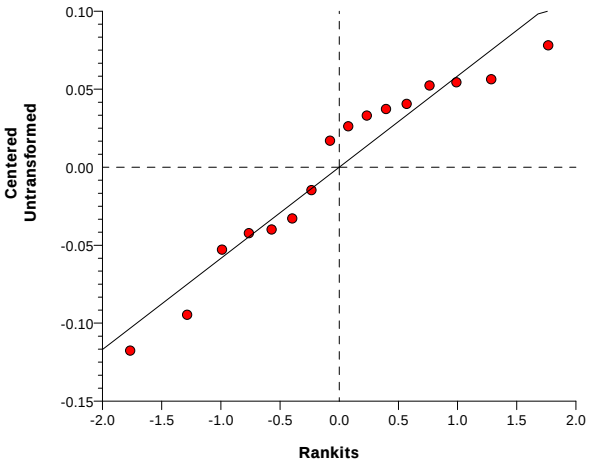
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.152	8.885	0.8565	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9247		0.2008	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-006	8	0.3057	0.2837	0.3277	0.211	0.3837	0.01074	0.05781	18.91%	4.97%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-7543-7498 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.16%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-005	1.01	1.761	0.05198	0.1647	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.003558	0.003558	1	1.021	0.3294	Non-Significant Effect
Error	0.048782	0.003484	14			
Total	0.052340	0.007042	15			

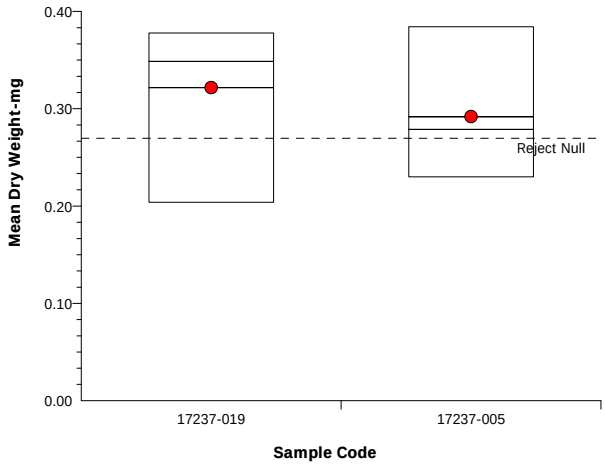
ANOVA Assumptions

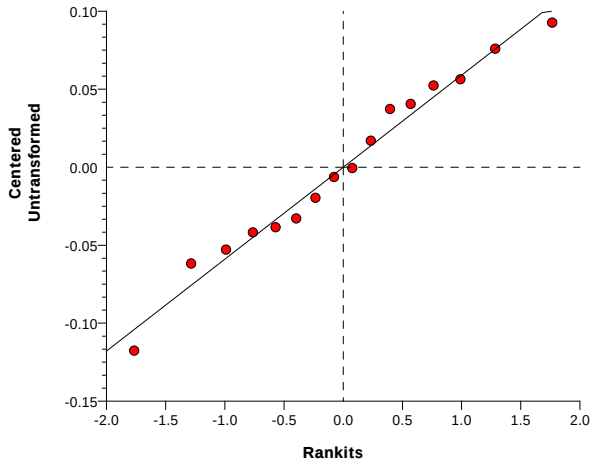
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.235	8.885	0.7876	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9762		0.9266	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-005	8	0.2918	0.2706	0.3131	0.23	0.3844	0.01037	0.05584	19.13%	9.27%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-8043-8464 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					13.23%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-004	3.012	1.761	0.04257	0.0047	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.021197	0.021197	1	9.073	0.0093	Significant Effect
Error	0.032709	0.002336	14			
Total	0.053906	0.023534	15			

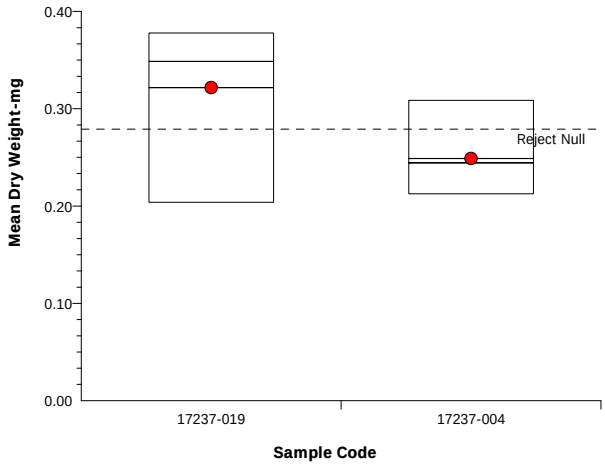
ANOVA Assumptions

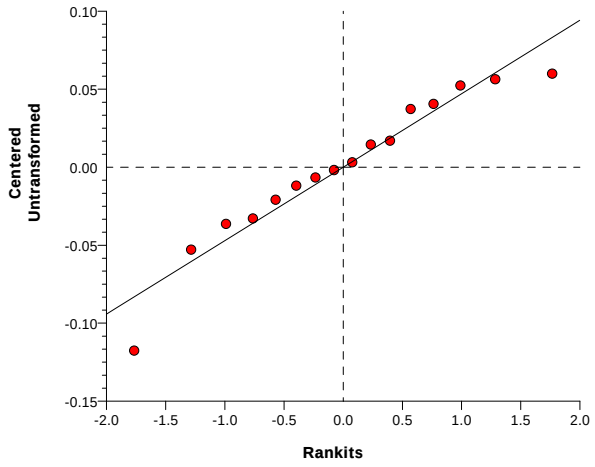
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.687	8.885	0.0589	Equal Variances
Distribution	Shapiro-Wilk Normality	0.936		0.3025	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-004	8	0.2489	0.2379	0.2598	0.2125	0.3088	0.005323	0.02866	11.52%	22.63%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-7709-5173 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					15.99%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-003	1.791	1.761	0.05144	0.0475	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.01094	0.01094	1	3.206	0.0950	Non-Significant Effect
Error	0.047768	0.003412	14			
Total	0.058707	0.014352	15			

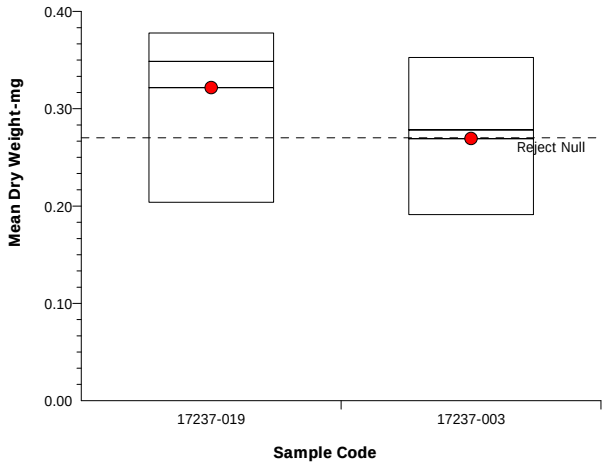
ANOVA Assumptions

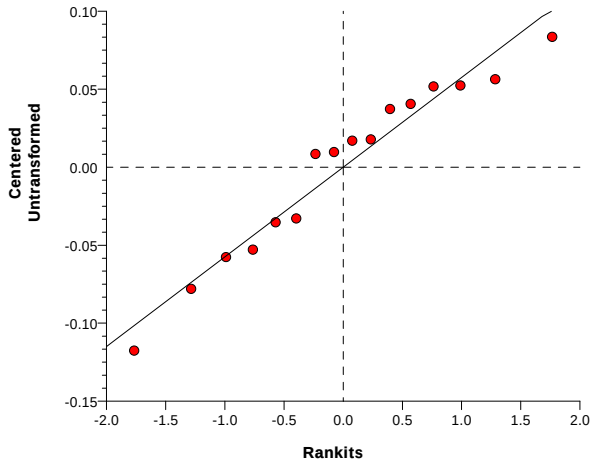
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.295	8.885	0.7414	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9472		0.4472	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-003	8	0.2694	0.2486	0.2901	0.1912	0.3529	0.01012	0.05452	20.24%	16.26%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-4622-8713 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					64.17%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-019		17237-002	68		0	0.4796	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.034348	0.034348	1	0.6253	0.4423	Non-Significant Effect
Error	0.769026	0.054930	14			
Total	0.803374	0.089278	15			

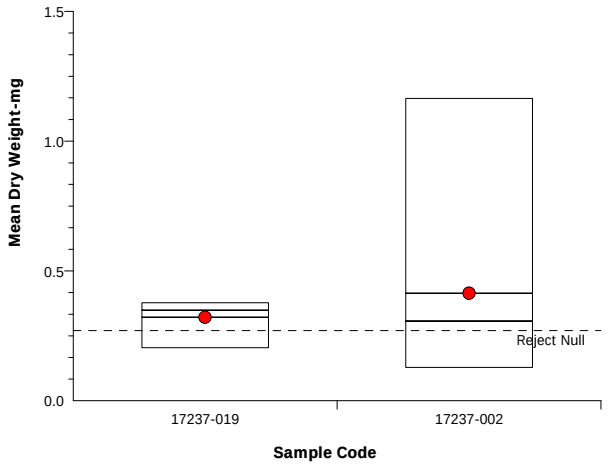
ANOVA Assumptions

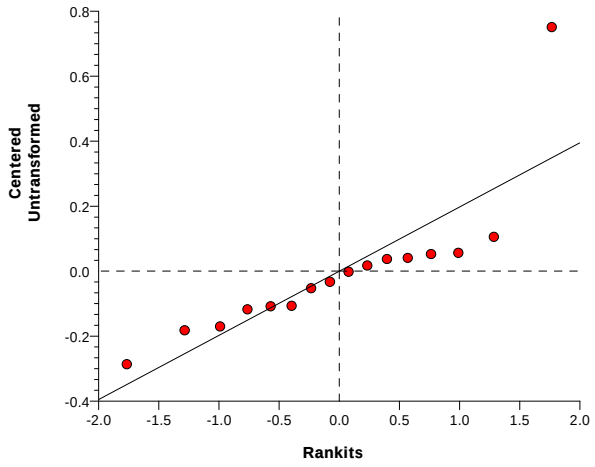
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	27.53	8.885	0.0003	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7313		0.0004	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-002	8	0.4143	0.2905	0.5382	0.128	1.165	0.06046	0.3256	78.59%	-28.81%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-6777-9083 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					20.68%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-001	-1.258	1.761	0.06651	0.8856	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.009033	0.009033	1	1.584	0.2288	Non-Significant Effect
Error	0.079861	0.005704	14			
Total	0.088894	0.014738	15			

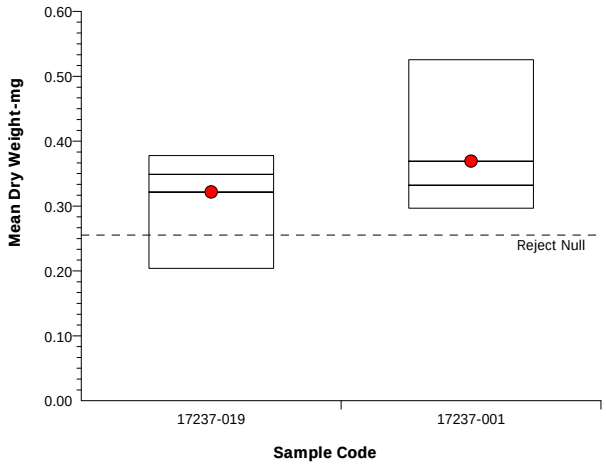
ANOVA Assumptions

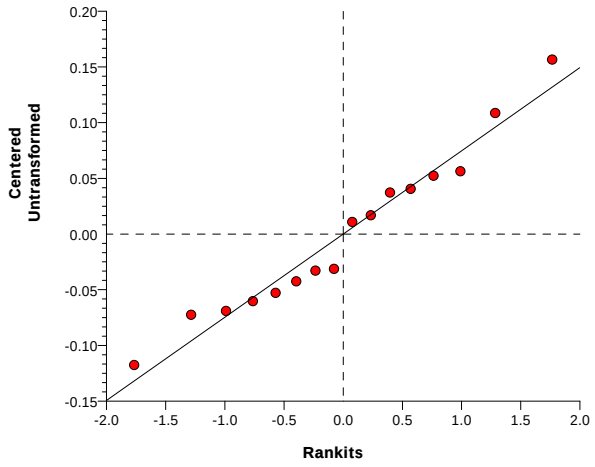
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.962	8.885	0.3936	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9613		0.6860	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-001	8	0.3692	0.3361	0.4022	0.2967	0.5257	0.01614	0.08693	23.55%	-14.77%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-3537-4877 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:44 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					18.7%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-019		17237-020	-0.3176	1.761	0.06016	0.6223	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000471	0.000471	1	0.1009	0.7555	Non-Significant Effect
Error	0.065338	0.004667	14			
Total	0.065809	0.005138	15			

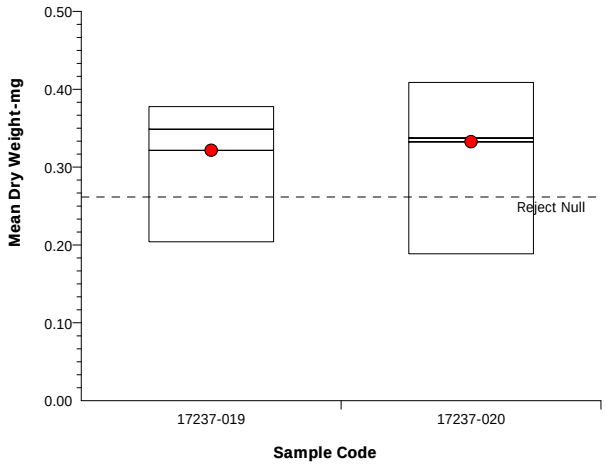
ANOVA Assumptions

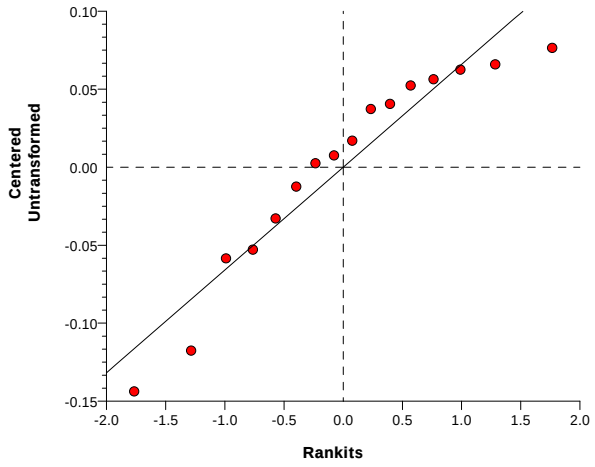
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.424	8.885	0.6528	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9059		0.1001	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	0.0%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	-3.37%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-4997-8359 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 22:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					30.52%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-015	2.308	1.86	0.1523	0.0249	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.057154	0.057154	1	5.327	0.0498	Significant Effect
Error	0.085828	0.010729	8			
Total	0.142982	0.067882	9			

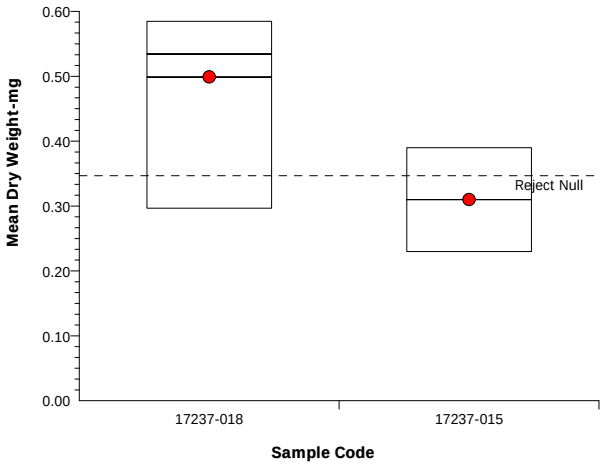
ANOVA Assumptions

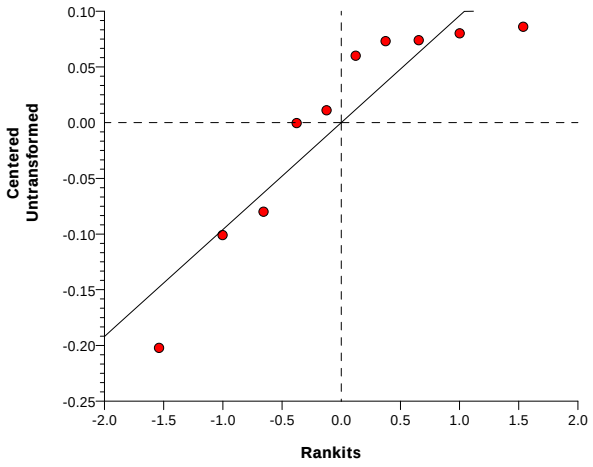
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.227	16.24	0.6092	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8426		0.0474	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-015	2	0.31	0.267	0.353	0.23	0.39	0.02101	0.1131	36.5%	37.88%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 15-7481-2500 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					18.26%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-014	6.967	1.796	0.09112	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.384498	0.384498	1	48.54	0.0000	Significant Effect
Error	0.087132	0.007921	11			
Total	0.47163	0.392419	12			

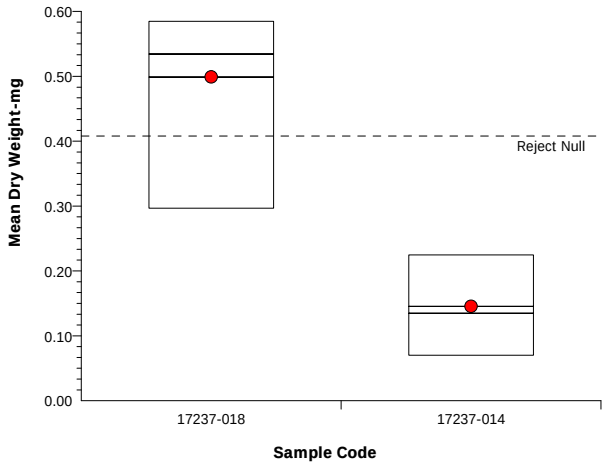
ANOVA Assumptions

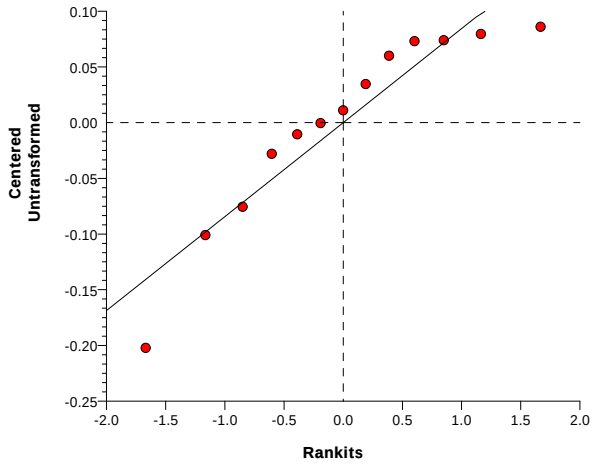
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.959	21.62	0.3113	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8832		0.0787	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-014	5	0.1455	0.1229	0.1681	0.07	0.225	0.01103	0.05938	40.81%	70.84%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-0942-8286 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.94%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-013	5.652	1.796	0.08453	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.217766	0.217766	1	31.94	0.0001	Significant Effect
Error	0.074986	0.006817	11			
Total	0.292753	0.224583	12			

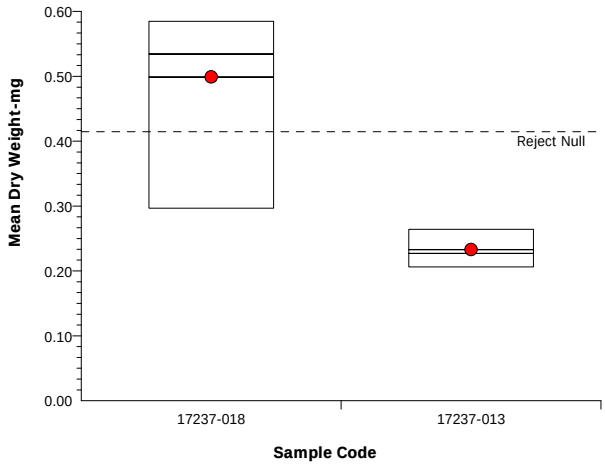
ANOVA Assumptions

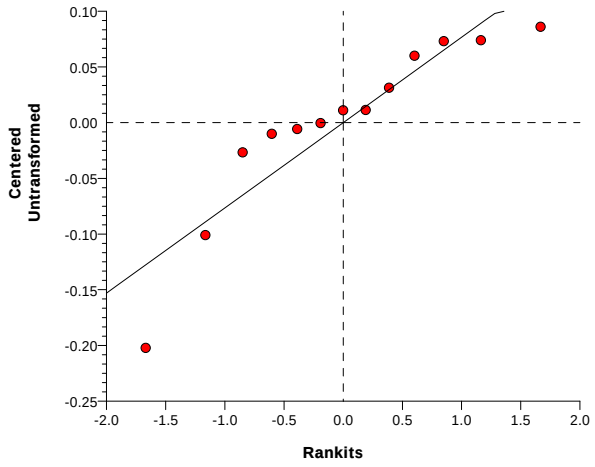
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	21.3	21.62	0.0103	Equal Variances
Distribution	Shapiro-Wilk Normality	0.856		0.0342	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-013	5	0.233	0.2245	0.2414	0.2063	0.2643	0.004109	0.02213	9.5%	53.31%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-2497-3313 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					21.09%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-012	4.15	1.761	0.1052	0.0005	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.245976	0.245976	1	17.22	0.0010	Significant Effect
Error	0.199955	0.014283	14			
Total	0.445931	0.260258	15			

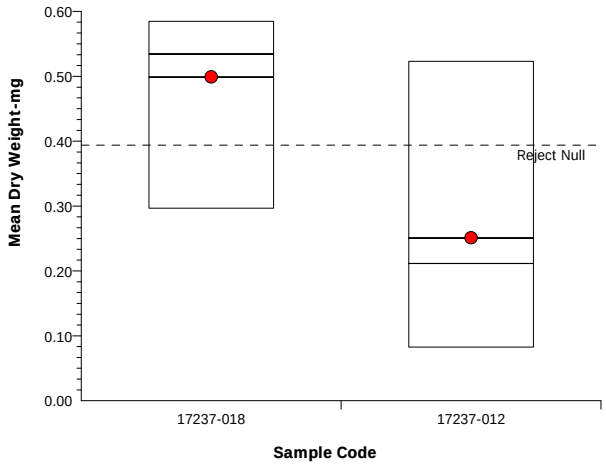
ANOVA Assumptions

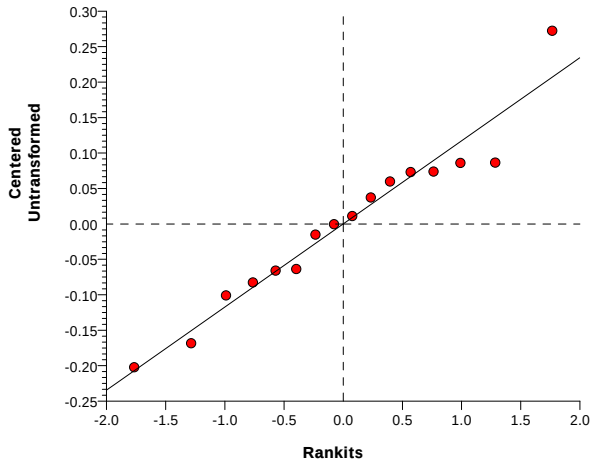
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.738	8.885	0.4830	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9563		0.5958	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-012	8	0.251	0.1998	0.3022	0.0825	0.5233	0.02501	0.1347	53.64%	49.7%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-8205-0577 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					20.48%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-011	2.671	1.761	0.1022	0.0091	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.096103	0.096103	1	7.136	0.0182	Significant Effect
Error	0.188538	0.013467	14			
Total	0.284641	0.10957	15			

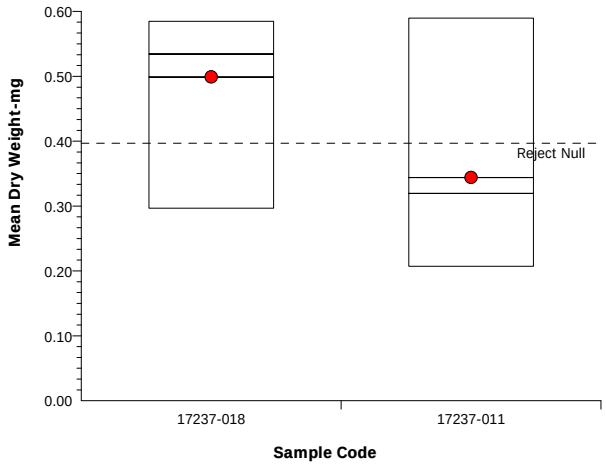
ANOVA Assumptions

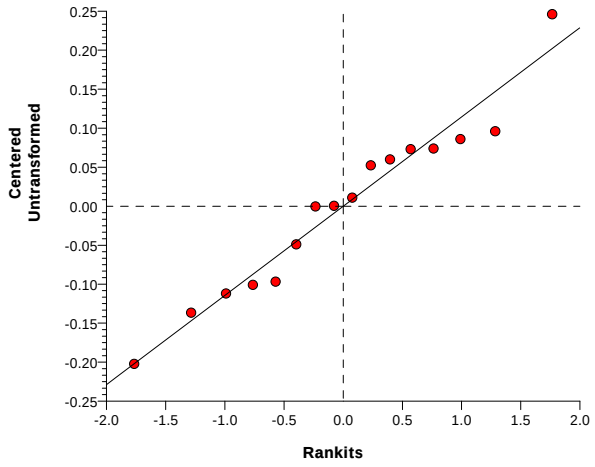
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.582	8.885	0.5599	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9623		0.7042	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-011	8	0.344	0.2951	0.3929	0.2073	0.59	0.02385	0.1285	37.34%	31.06%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-7097-6807 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					20.75%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-010	4.058	1.796	0.1036	0.0009	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.168479	0.168479	1	16.47	0.0019	Significant Effect
Error	0.112540	0.010231	11			
Total	0.281019	0.178709	12			

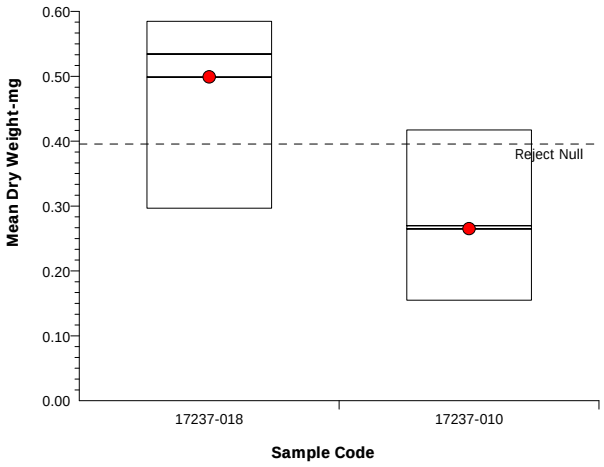
ANOVA Assumptions

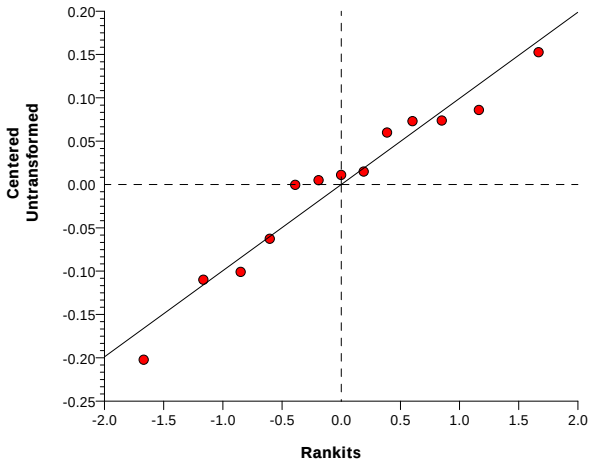
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.056	21.62	1.0190	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9546		0.6699	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-010	5	0.265	0.2272	0.3028	0.155	0.4175	0.01846	0.09939	37.51%	46.89%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-5337-9215 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.32%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-009	4.77	1.761	0.07144	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.149741	0.149741	1	22.75	0.0003	Significant Effect
Error	0.092136	0.006581	14			
Total	0.241877	0.156322	15			

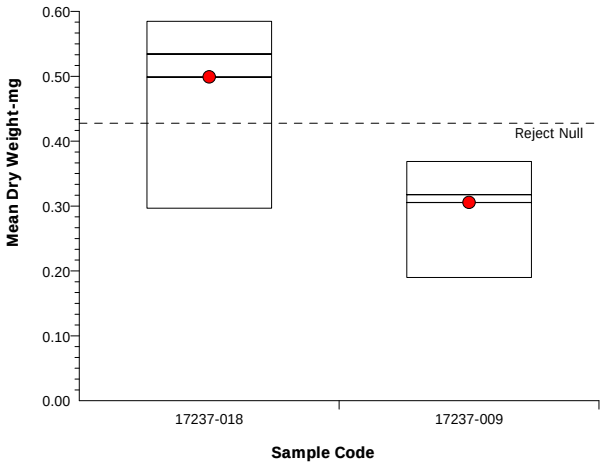
ANOVA Assumptions

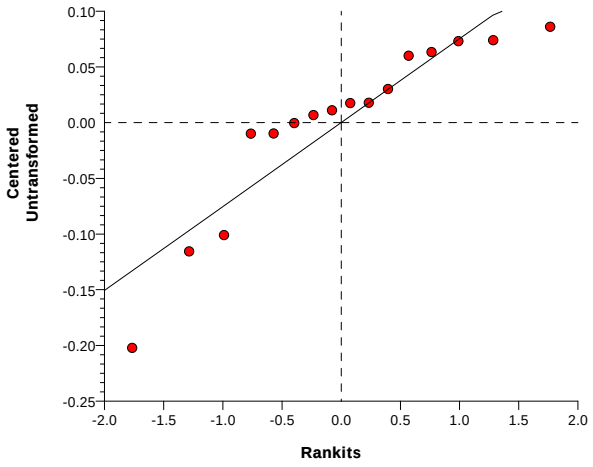
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.822	8.885	0.0978	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8513		0.0142	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-009	8	0.3055	0.2856	0.3254	0.19	0.3687	0.009702	0.05225	17.1%	38.77%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-8692-7114 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:28 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.64%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-008	3.99	1.761	0.07307	0.0007	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.109582	0.109582	1	15.92	0.0013	Significant Effect
Error	0.096375	0.006884	14			
Total	0.205957	0.116466	15			

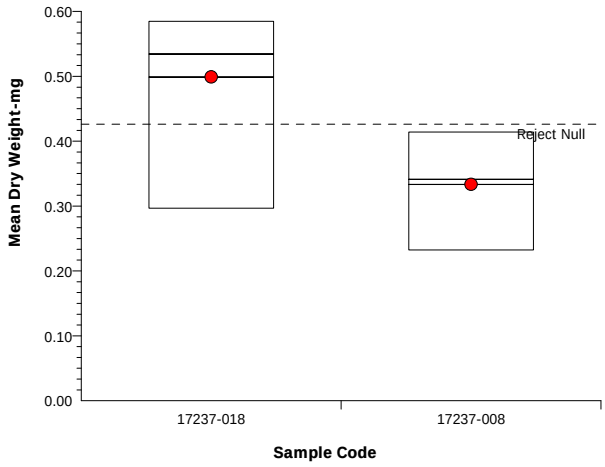
ANOVA Assumptions

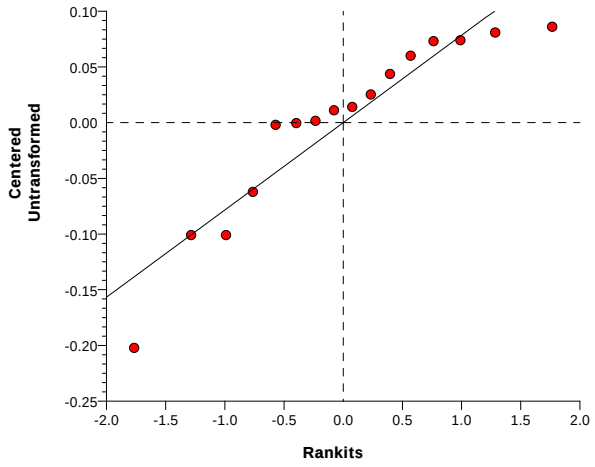
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.128	8.885	0.1555	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8771		0.0349	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-008	8	0.3335	0.3115	0.3555	0.2325	0.4143	0.01072	0.05775	17.32%	33.17%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-8078-9183 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					22.65%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-007	1.12	1.761	0.113	0.1407	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.020681	0.020681	1	1.255	0.2814	Non-Significant Effect
Error	0.230671	0.016476	14			
Total	0.251352	0.037158	15			

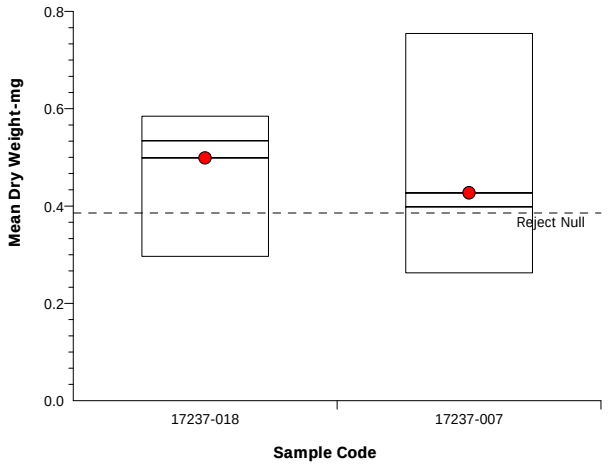
ANOVA Assumptions

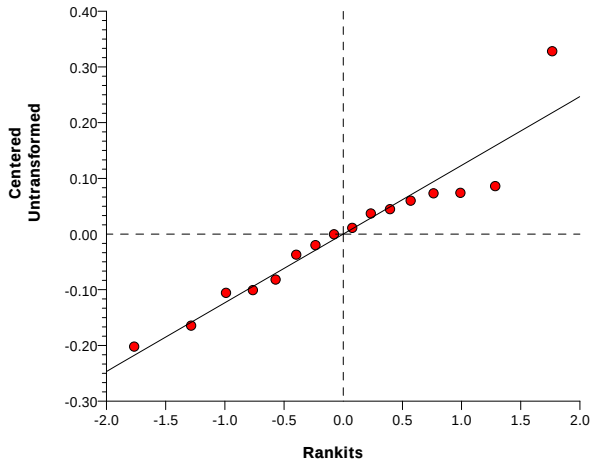
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.159	8.885	0.3315	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9249		0.2025	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-007	8	0.4271	0.37	0.4842	0.2625	0.755	0.02787	0.1501	35.14%	14.41%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-6330-8600 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.65%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-006	4.659	1.761	0.07309	0.0002	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.149519	0.149519	1	21.71	0.0004	Significant Effect
Error	0.096423	0.006887	14			
Total	0.245942	0.156406	15			

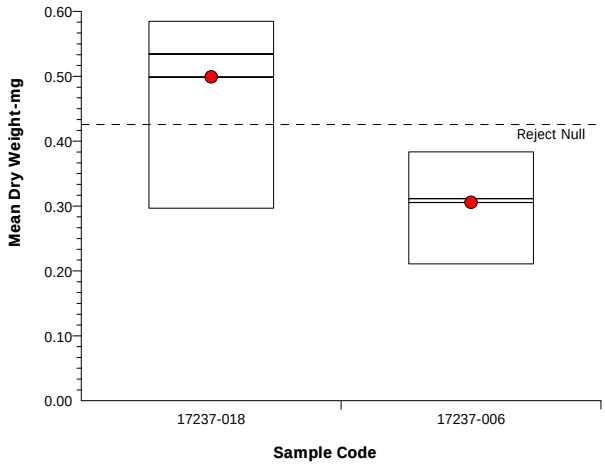
ANOVA Assumptions

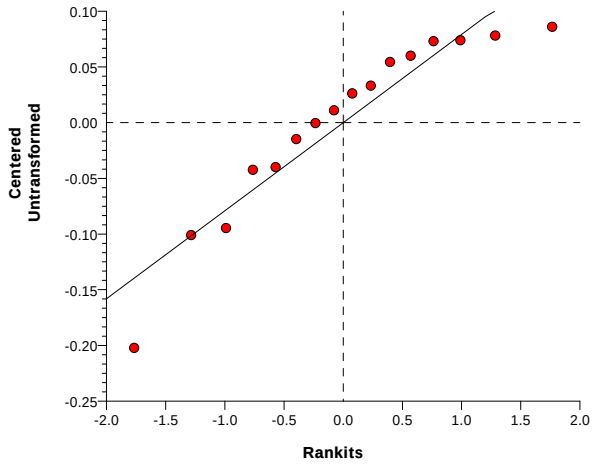
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.121	8.885	0.1562	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8917		0.0592	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-006	8	0.3057	0.2837	0.3277	0.211	0.3837	0.01074	0.05781	18.91%	38.75%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-9593-5748 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.53%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-005	5.034	1.761	0.07249	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.171686	0.171686	1	25.34	0.0002	Significant Effect
Error	0.094852	0.006775	14			
Total	0.266538	0.178461	15			

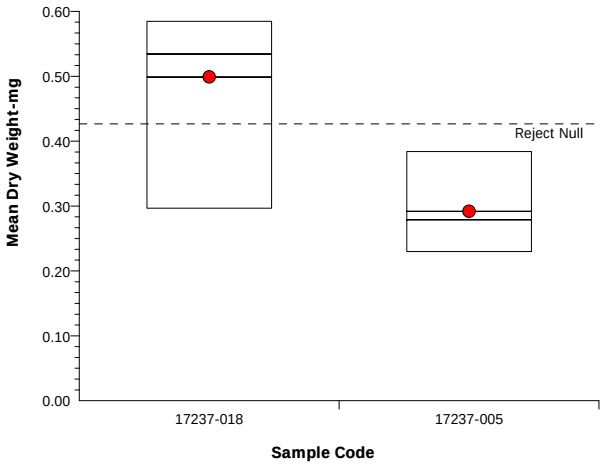
ANOVA Assumptions

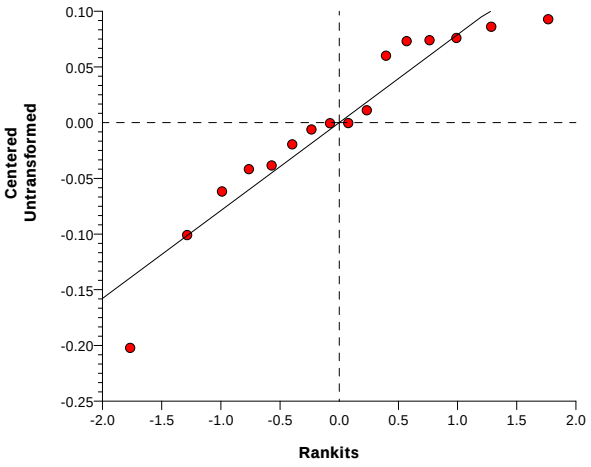
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.346	8.885	0.1336	Equal Variances
Distribution	Shapiro-Wilk Normality	0.905		0.0966	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-005	8	0.2918	0.2706	0.3131	0.23	0.3844	0.01037	0.05584	19.13%	41.52%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-9990-8801 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					13.24%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-004	6.669	1.761	0.06606	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.250294	0.250294	1	44.48	0.0000	Significant Effect
Error	0.078779	0.005627	14			
Total	0.329073	0.255921	15			

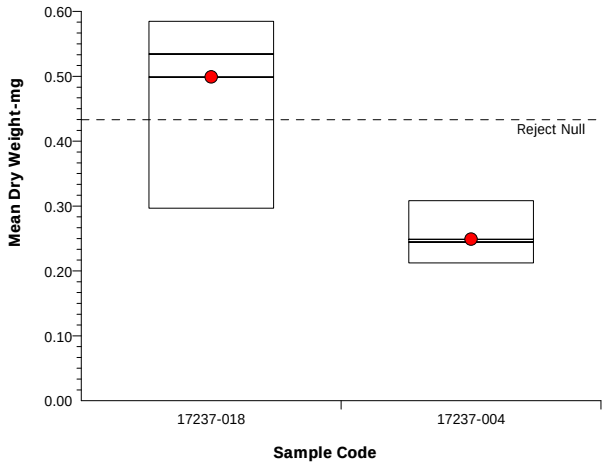
ANOVA Assumptions

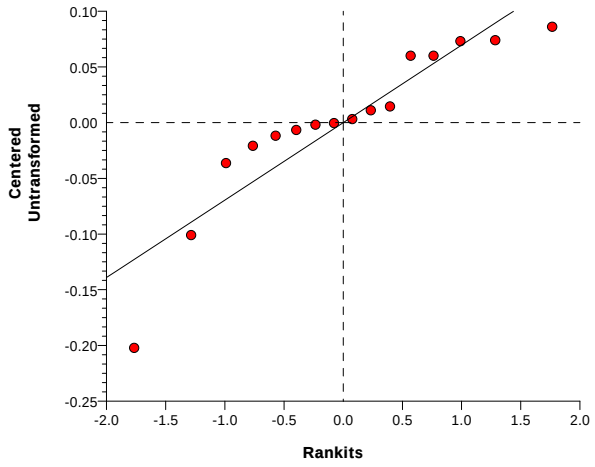
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	12.7	8.885	0.0034	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8573		0.0175	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-004	8	0.2489	0.2379	0.2598	0.2125	0.3088	0.005323	0.02866	11.52%	50.13%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-6550-9461 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.45%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-003	5.61	1.761	0.0721	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.210952	0.210952	1	31.47	0.0001	Significant Effect
Error	0.093837	0.006703	14			
Total	0.304789	0.217655	15			

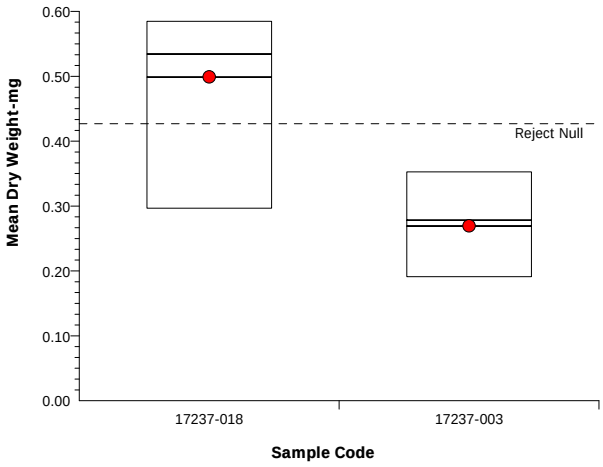
ANOVA Assumptions

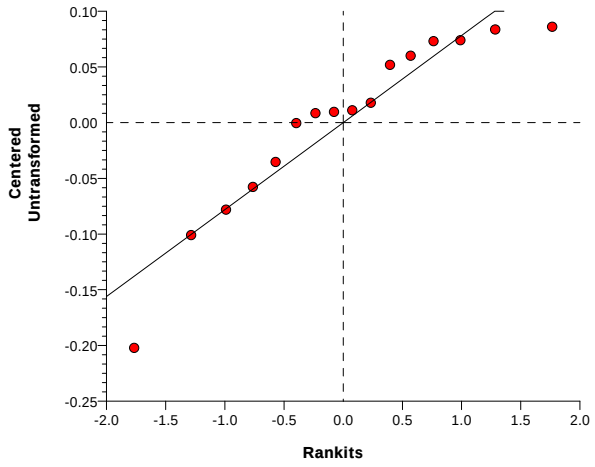
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.509	8.885	0.1197	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8946		0.0660	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-003	8	0.2694	0.2486	0.2901	0.1912	0.3529	0.01012	0.05452	20.24%	46.02%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 19-0389-0794 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					42.58%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-018		17237-002	52		0	0.0525	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.028686	0.028686	1	0.4927	0.4942	Non-Significant Effect
Error	0.815096	0.058221	14			
Total	0.843782	0.086907	15			

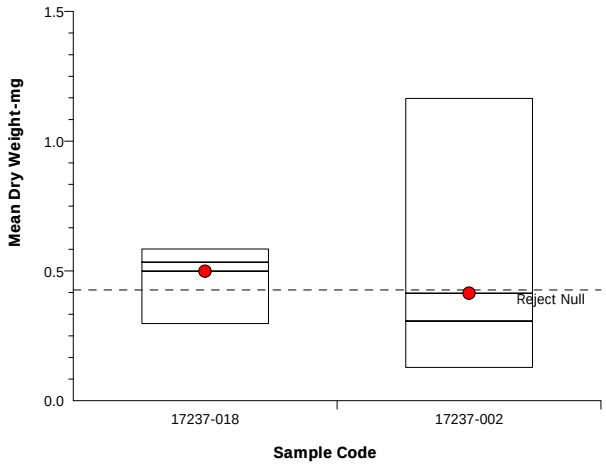
ANOVA Assumptions

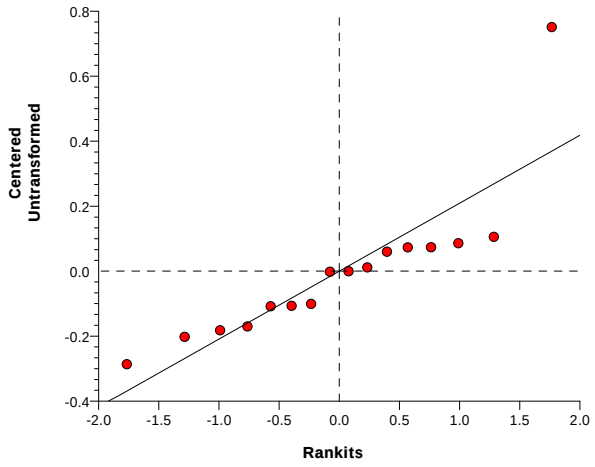
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	10.16	8.885	0.0067	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7663		0.0010	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-002	8	0.4143	0.2905	0.5382	0.128	1.165	0.06046	0.3256	78.59%	16.97%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 15-4143-3141 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.74%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-001	2.738	1.761	0.08352	0.0080	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.067422	0.067422	1	7.495	0.0160	Significant Effect
Error	0.125931	0.008995	14			
Total	0.193353	0.076417	15			

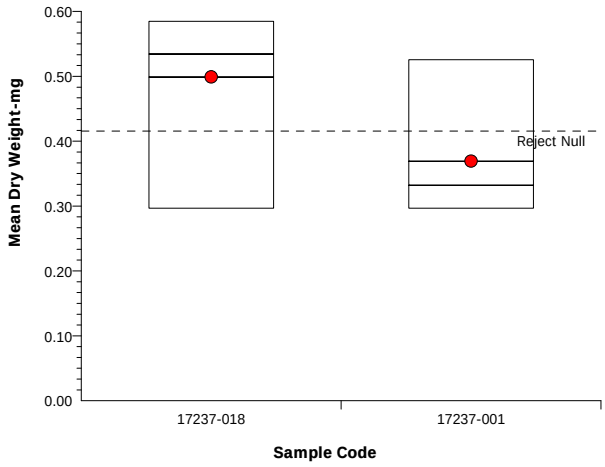
ANOVA Assumptions

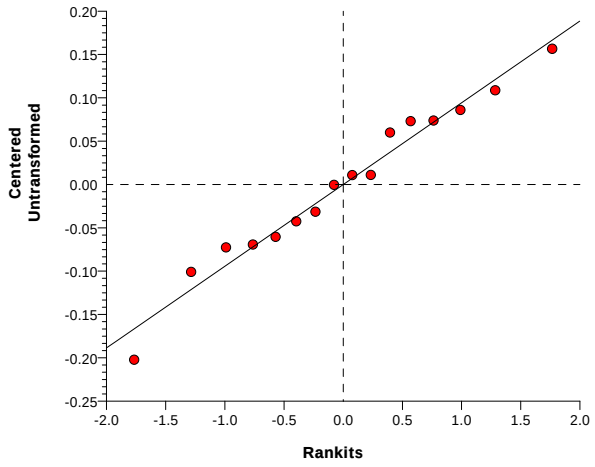
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.38	8.885	0.6813	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9753		0.9154	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-001	8	0.3692	0.3361	0.4022	0.2967	0.5257	0.01614	0.08693	23.55%	26.02%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-4814-3764 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					15.74%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-020	3.733	1.761	0.07856	0.0011	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.110891	0.110891	1	13.93	0.0022	Significant Effect
Error	0.111408	0.007958	14			
Total	0.222299	0.118849	15			

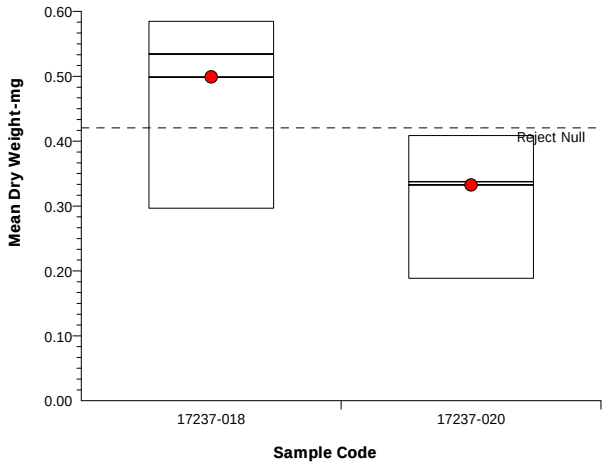
ANOVA Assumptions

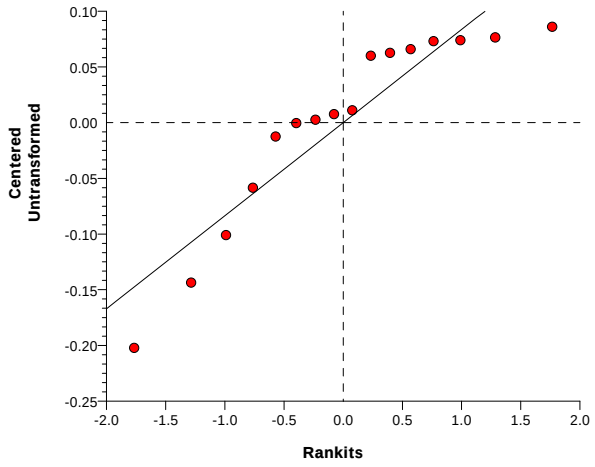
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.903	8.885	0.4153	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8566		0.0171	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	33.37%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-0181-1615 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:27 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.91%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-018		17237-019	4.197	1.761	0.07442	0.0004	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.125813	0.125813	1	17.62	0.0009	Significant Effect
Error	0.099985	0.007142	14			
Total	0.225798	0.132955	15			

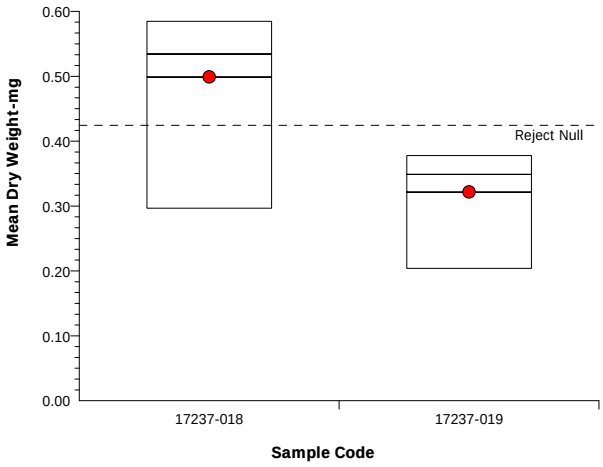
ANOVA Assumptions

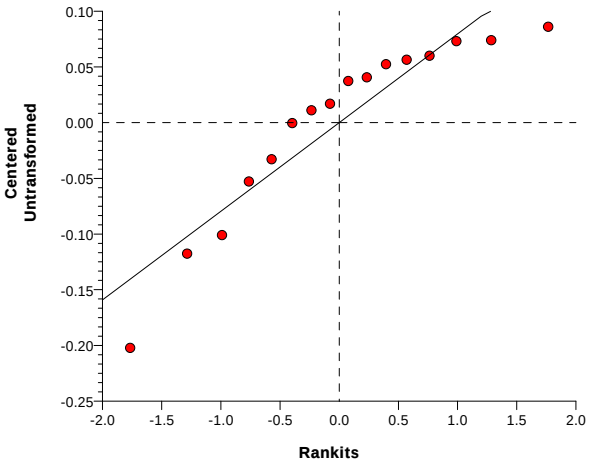
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.709	8.885	0.2119	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8697		0.0269	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	0.0%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	35.54%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-6785-2046 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 22:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					122.4%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-015	0.1258	1.86	0.4137	0.4515	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001254	0.001254	1	0.01583	0.9030	Non-Significant Effect
Error	0.633552	0.079194	8			
Total	0.634806	0.080448	9			

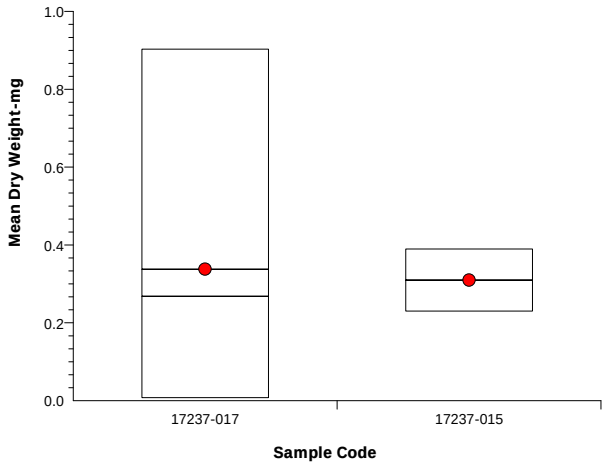
ANOVA Assumptions

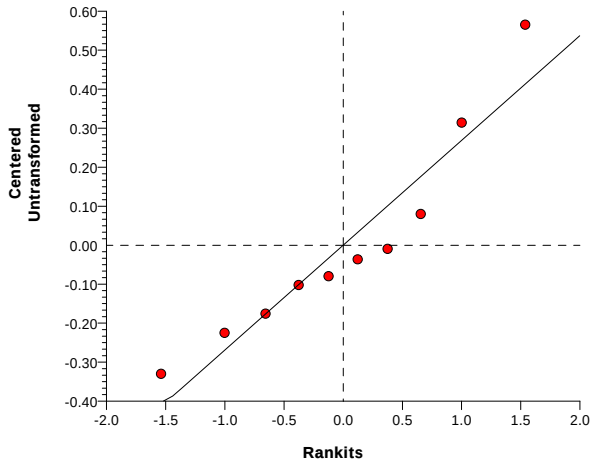
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.928	23710	0.5695	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9097		0.2788	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-015	2	0.31	0.267	0.353	0.23	0.39	0.02101	0.1131	36.5%	8.28%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 04-9024-1207 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					60.86%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-014	1.773	1.895	0.2057	0.0598	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.114011	0.114011	1	1.975	0.1875	Non-Significant Effect
Error	0.634855	0.057714	11			
Total	0.748866	0.171725	12			

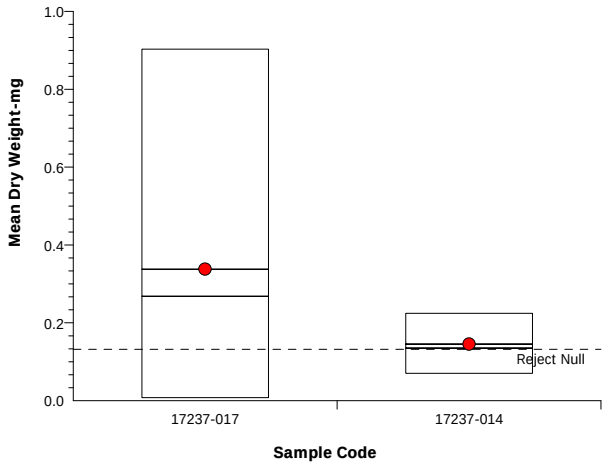
ANOVA Assumptions

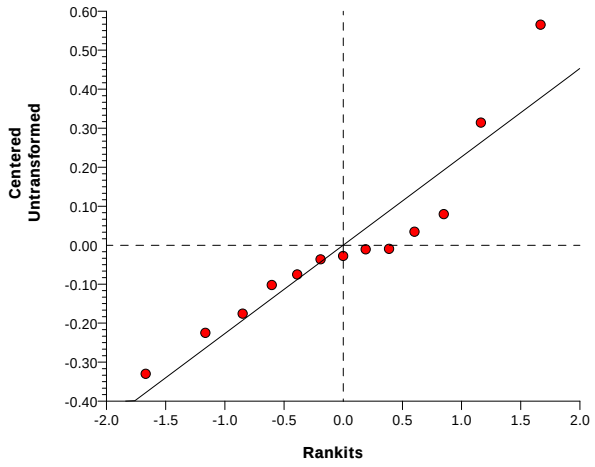
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	25.15	21.62	0.0075	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8926		0.1059	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-014	5	0.1455	0.1229	0.1681	0.07	0.225	0.01103	0.05938	40.81%	56.95%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-4369-2035 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					59.28%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-013	0.9932	1.895	0.2003	0.1769	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.033941	0.033941	1	0.5996	0.4551	Non-Significant Effect
Error	0.62271	0.05661	11			
Total	0.656651	0.090551	12			

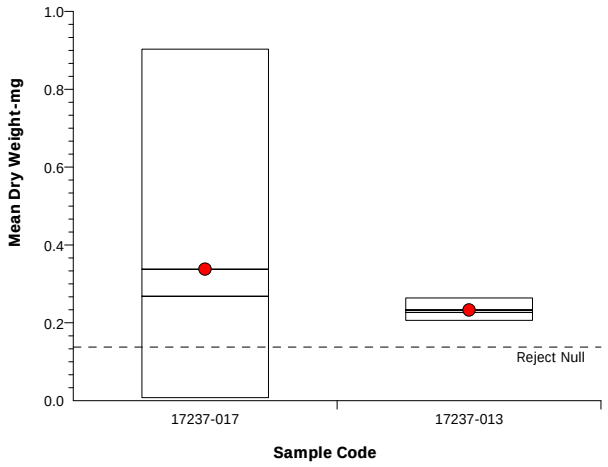
ANOVA Assumptions

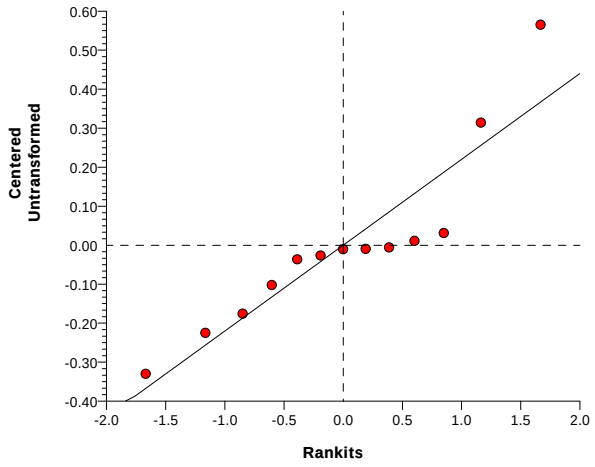
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	181.1	21.62	0.0002	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8624		0.0415	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-013	5	0.233	0.2245	0.2414	0.2063	0.2643	0.004109	0.02213	9.5%	31.07%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-3455-0838 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					60.21%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-012	0.7527	1.761	0.2035	0.2321	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.030257	0.030257	1	0.5666	0.4641	Non-Significant Effect
Error	0.747679	0.053406	14			
Total	0.777936	0.083663	15			

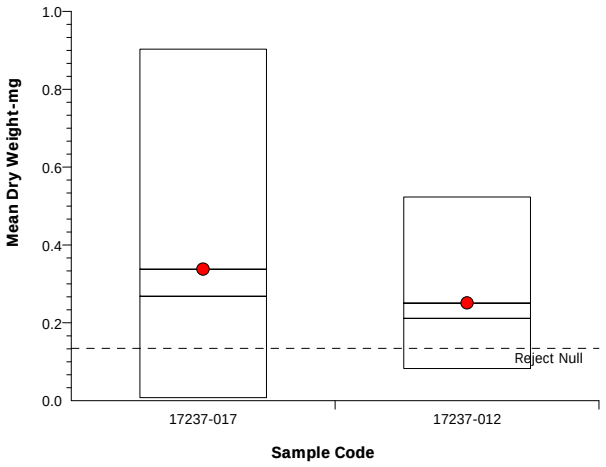
ANOVA Assumptions

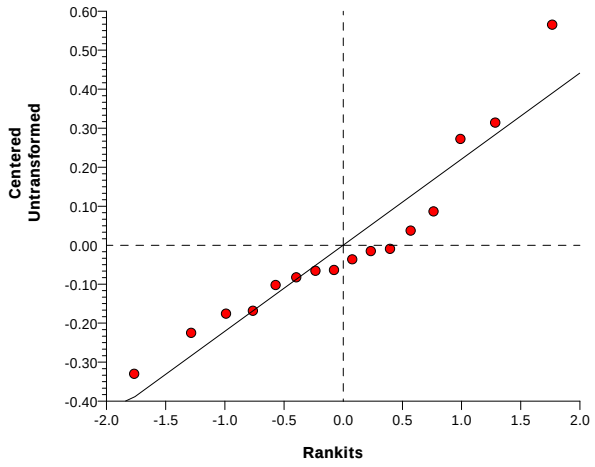
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.891	8.885	0.0528	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9075		0.1060	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-012	8	0.251	0.1998	0.3022	0.0825	0.5233	0.02501	0.1347	53.64%	25.73%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-3631-7281 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					59.75%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-011	-0.05237	1.761	0.202	0.5205	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000144	0.000144	1	0.002742	0.9590	Non-Significant Effect
Error	0.736262	0.052590	14			
Total	0.736406	0.052734	15			

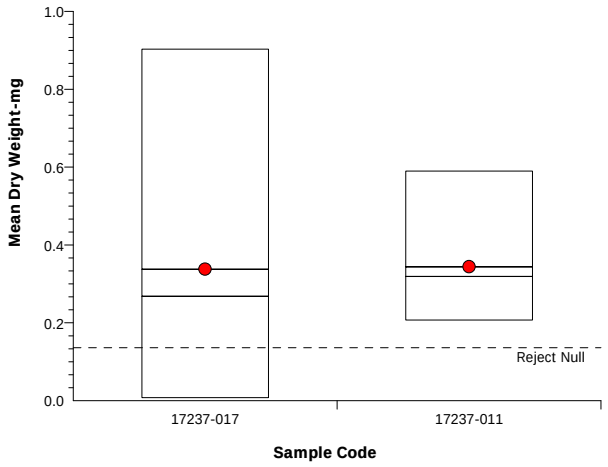
ANOVA Assumptions

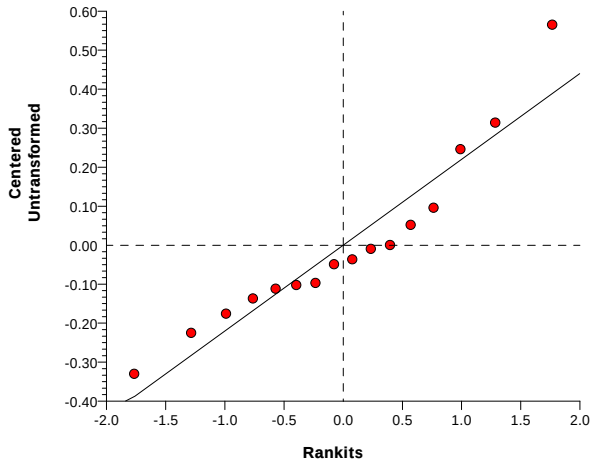
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.374	8.885	0.0412	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9159		0.1449	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-011	8	0.344	0.2951	0.3929	0.2073	0.59	0.02385	0.1285	37.34%	-1.78%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-9526-8105 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					74.21%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-010	0.5226	1.796	0.2508	0.3058	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.016393	0.016393	1	0.2731	0.6116	Non-Significant Effect
Error	0.660264	0.060024	11			
Total	0.676657	0.076417	12			

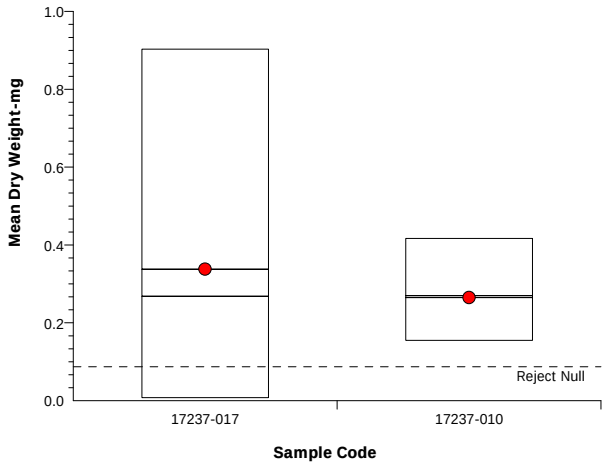
ANOVA Assumptions

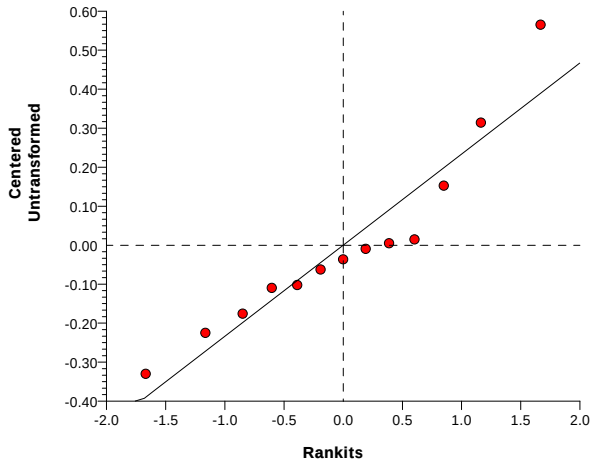
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	8.977	21.62	0.0510	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9081		0.1726	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-010	5	0.265	0.2272	0.3028	0.155	0.4175	0.01846	0.09939	37.51%	21.6%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-9950-5910 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					55.7%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-009	0.3038	1.761	0.1883	0.3829	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.004219	0.004219	1	0.0923	0.7657	Non-Significant Effect
Error	0.639859	0.045704	14			
Total	0.644078	0.049923	15			

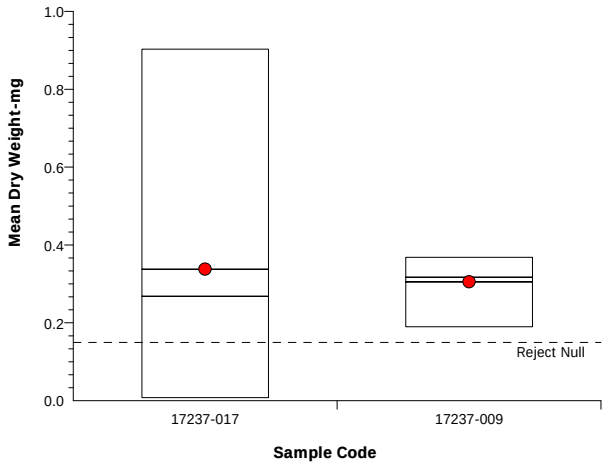
ANOVA Assumptions

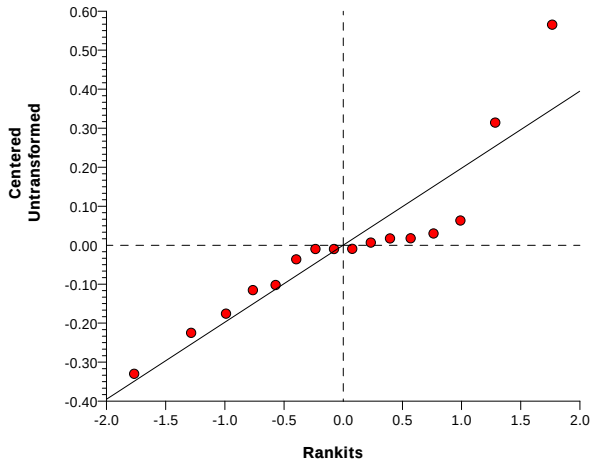
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	32.49	8.885	0.0002	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8618		0.0204	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-009	8	0.3055	0.2856	0.3254	0.19	0.3687	0.009702	0.05225	17.1%	9.61%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-4807-4829 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					55.89%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-008	0.04204	1.761	0.1889	0.4835	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	8.13E-05	8.13E-05	1	0.001768	0.9671	Non-Significant Effect
Error	0.644099	0.046007	14			
Total	0.64418	0.046088	15			

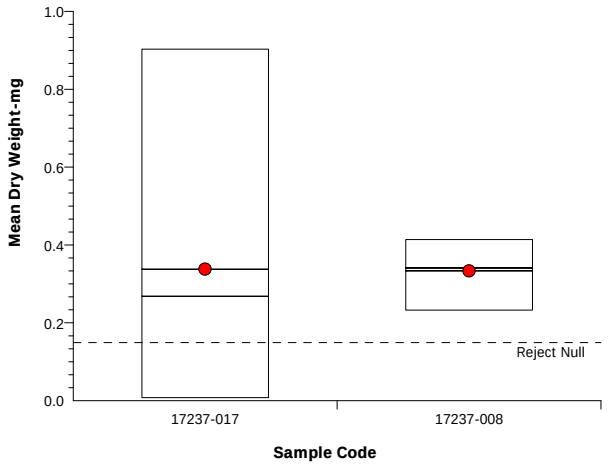
ANOVA Assumptions

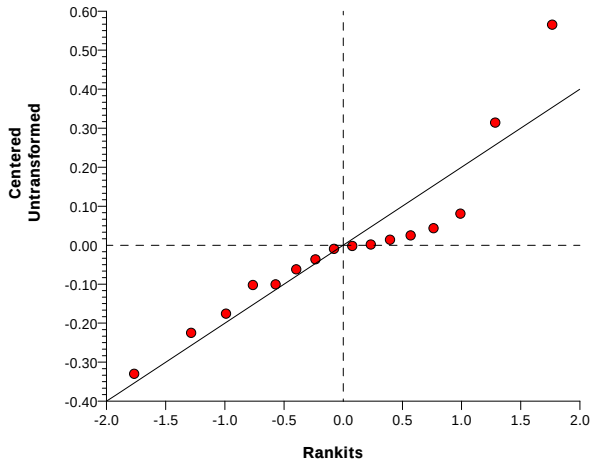
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	26.59	8.885	0.0003	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8771		0.0349	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-008	8	0.3335	0.3115	0.3555	0.2325	0.4143	0.01072	0.05775	17.32%	1.33%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 01-2623-8373 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					61.44%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-007	-0.7558	1.761	0.2077	0.7688	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.031757	0.031757	1	0.5712	0.4623	Non-Significant Effect
Error	0.778394	0.0556	14			
Total	0.810151	0.087356	15			

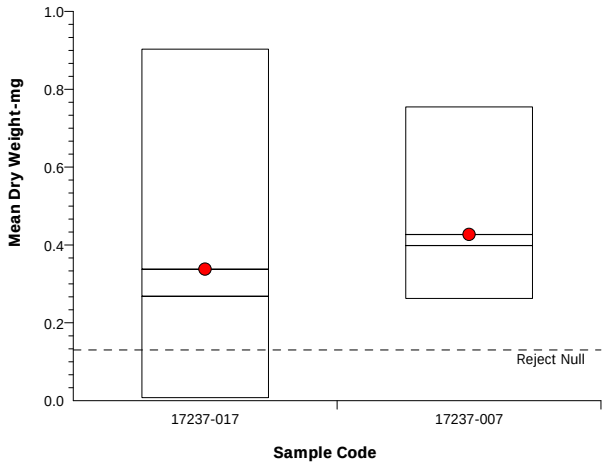
ANOVA Assumptions

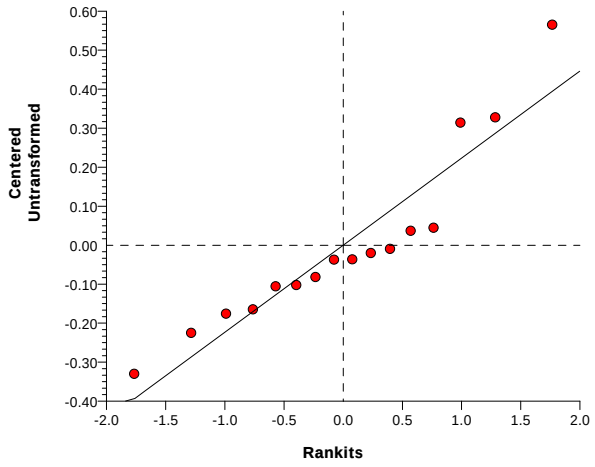
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.938	8.885	0.0910	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8902		0.0561	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-007	8	0.4271	0.37	0.4842	0.2625	0.755	0.02787	0.1501	35.14%	-26.36%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-5063-0616 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					55.89%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-006	0.3015	1.761	0.1889	0.3837	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.004181	0.004181	1	0.09088	0.7675	Non-Significant Effect
Error	0.644146	0.046010	14			
Total	0.648328	0.050192	15			

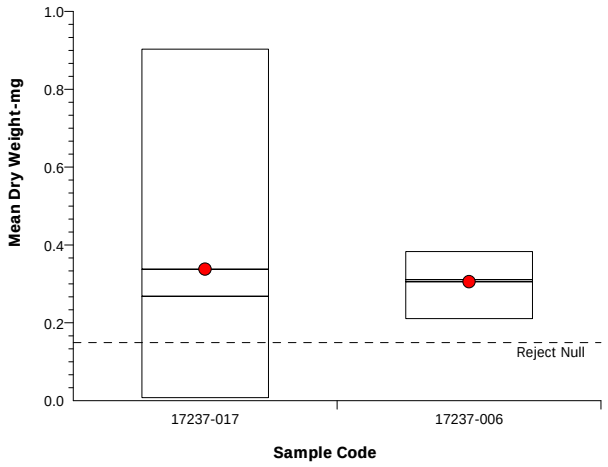
ANOVA Assumptions

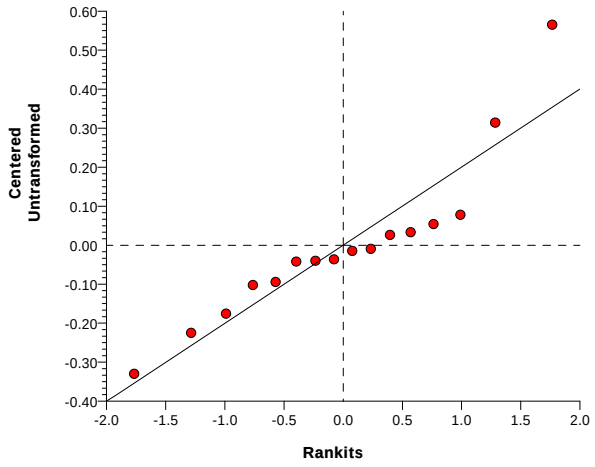
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	26.53	8.885	0.0003	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8786		0.0369	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-006	8	0.3057	0.2837	0.3277	0.211	0.3837	0.01074	0.05781	18.91%	9.57%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-5677-8998 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					55.82%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-005	0.431	1.761	0.1887	0.3365	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.008526	0.008526	1	0.1858	0.6730	Non-Significant Effect
Error	0.642576	0.045898	14			
Total	0.651102	0.054424	15			

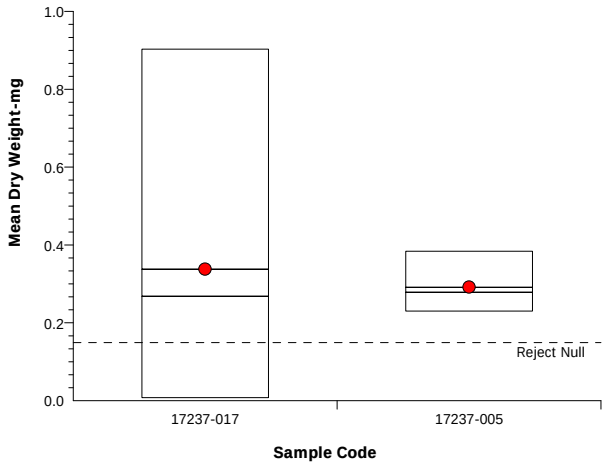
ANOVA Assumptions

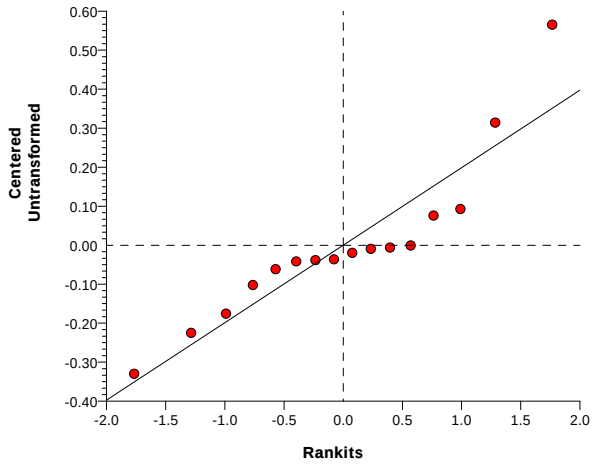
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	28.44	8.885	0.0003	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8684		0.0257	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-005	8	0.2918	0.2706	0.3131	0.23	0.3844	0.01037	0.05584	19.13%	13.66%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-5093-3167 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					55.12%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-017		17237-004	67		0	0.4796	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.031784	0.031784	1	0.7103	0.4135	Non-Significant Effect
Error	0.626503	0.044750	14			
Total	0.658287	0.076534	15			

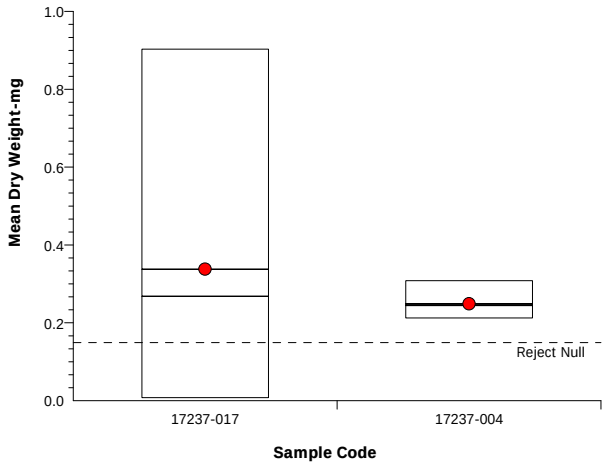
ANOVA Assumptions

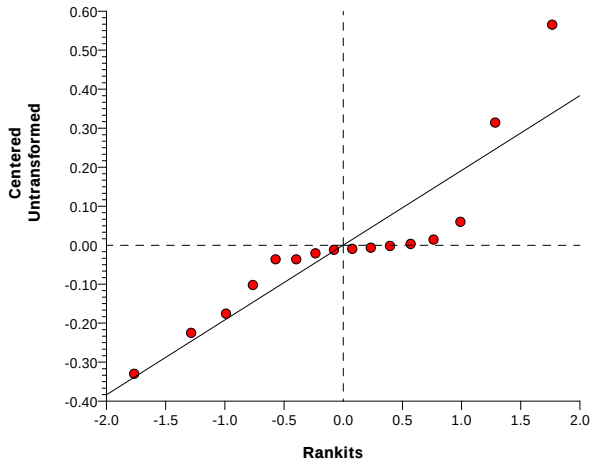
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	107.9	8.885	0.0000	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8331		0.0078	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-004	8	0.2489	0.2379	0.2598	0.2125	0.3088	0.005323	0.02866	11.52%	26.37%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-8842-8217 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					55.78%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-003	0.6413	1.761	0.1885	0.2658	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.018846	0.018846	1	0.4113	0.5317	Non-Significant Effect
Error	0.641561	0.045826	14			
Total	0.660407	0.064672	15			

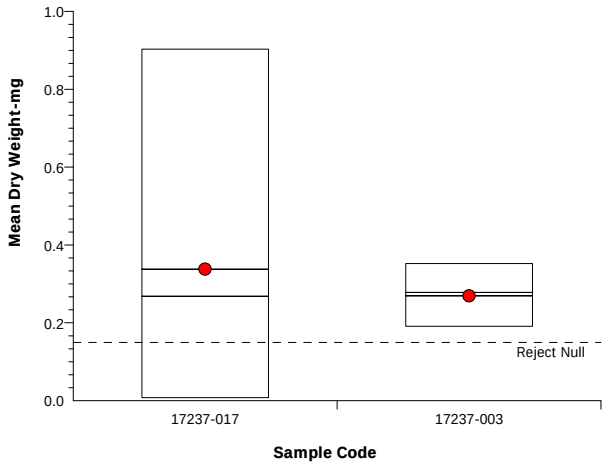
ANOVA Assumptions

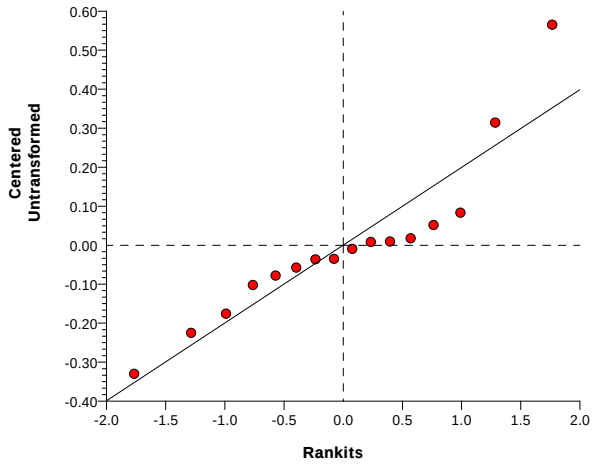
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	29.83	8.885	0.0002	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8752		0.0327	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-003	8	0.2694	0.2486	0.2901	0.1912	0.3529	0.01012	0.05452	20.24%	20.31%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-6029-1874 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:26 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					81.29%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-017		17237-002	75		0	0.7473	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.023300	0.023300	1	0.2394	0.6322	Non-Significant Effect
Error	1.36282	0.097344	14			
Total	1.38612	0.120644	15			

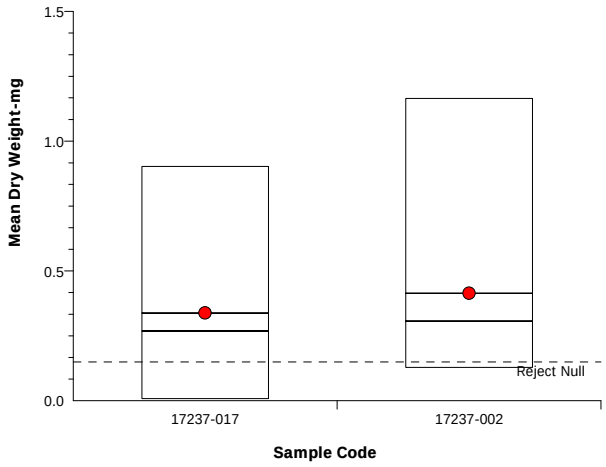
ANOVA Assumptions

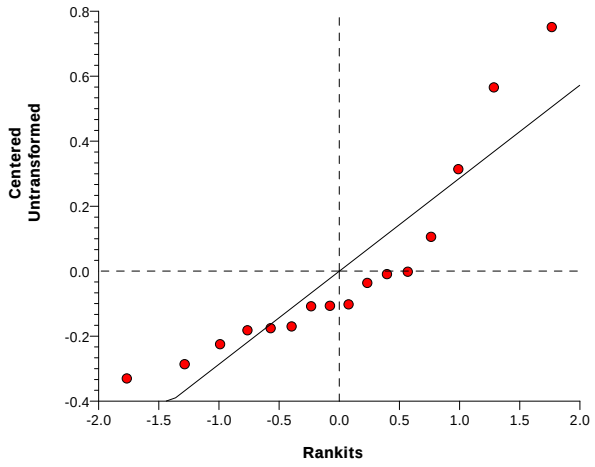
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.195	8.885	0.8198	Equal Variances
Distribution	Shapiro-Wilk Normality	0.831		0.0072	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-002	8	0.4143	0.2905	0.5382	0.128	1.165	0.06046	0.3256	78.59%	-22.58%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-7403-6603 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					57.16%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-001	-0.2843	1.761	0.1932	0.6098	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.003888	0.003888	1	0.08081	0.7804	Non-Significant Effect
Error	0.673655	0.048118	14			
Total	0.677543	0.052006	15			

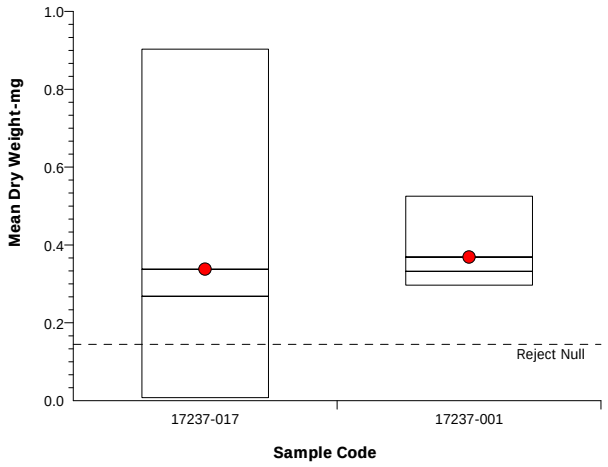
ANOVA Assumptions

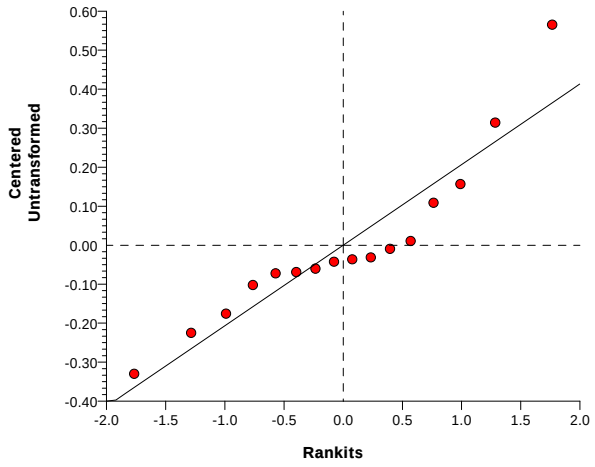
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	11.73	8.885	0.0043	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8912		0.0582	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-001	8	0.3692	0.3361	0.4022	0.2967	0.5257	0.01614	0.08693	23.55%	-9.22%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-5449-0191 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					56.54%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-020	0.05065	1.761	0.1911	0.4802	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000121	0.000121	1	0.002565	0.9603	Non-Significant Effect
Error	0.659132	0.047081	14			
Total	0.659253	0.047202	15			

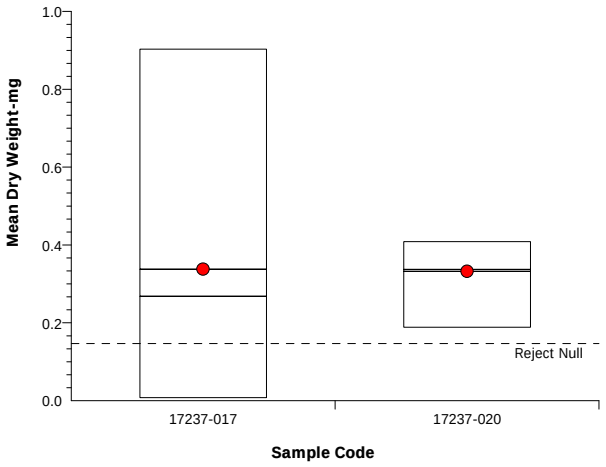
ANOVA Assumptions

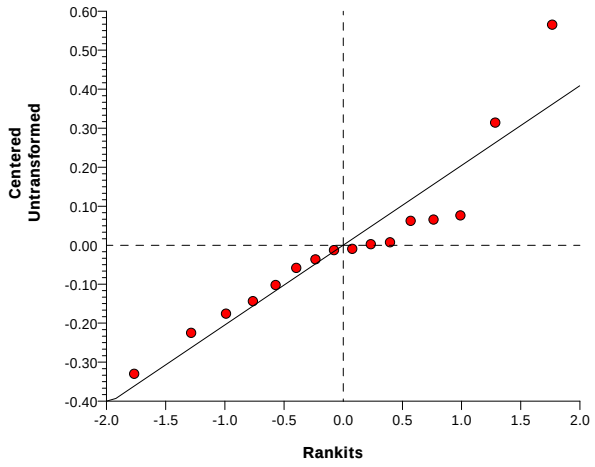
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	16.17	8.885	0.0016	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8934		0.0630	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	1.63%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-0349-9353 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					56.04%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-019	0.152	1.761	0.1894	0.4407	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001068	0.001068	1	0.02309	0.8814	Non-Significant Effect
Error	0.647709	0.046265	14			
Total	0.648777	0.047333	15			

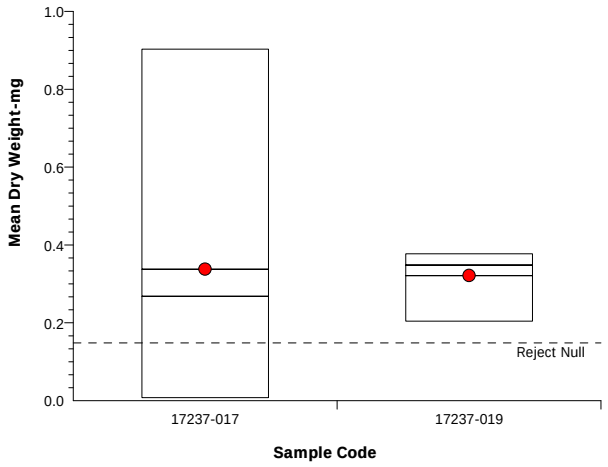
ANOVA Assumptions

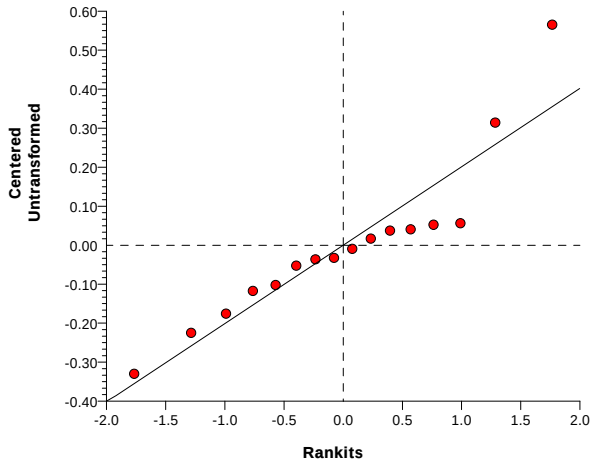
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	23.03	8.885	0.0005	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8804		0.0394	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	4.84%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 07-8133-5673 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					58.0%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-017		17237-018	-1.447	1.761	0.196	0.9150	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.103693	0.103693	1	2.092	0.1700	Non-Significant Effect
Error	0.693779	0.049556	14			
Total	0.797471	0.153248	15			

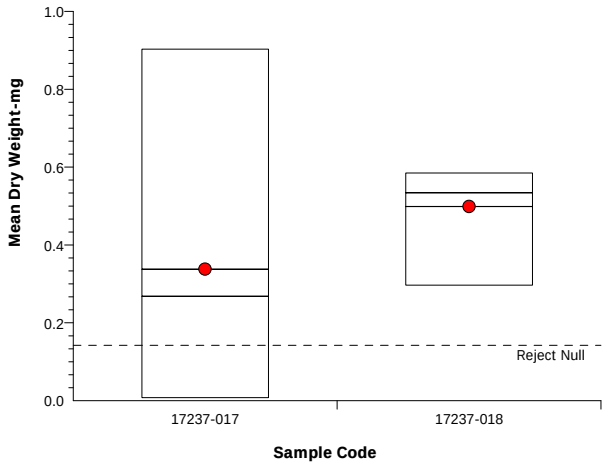
ANOVA Assumptions

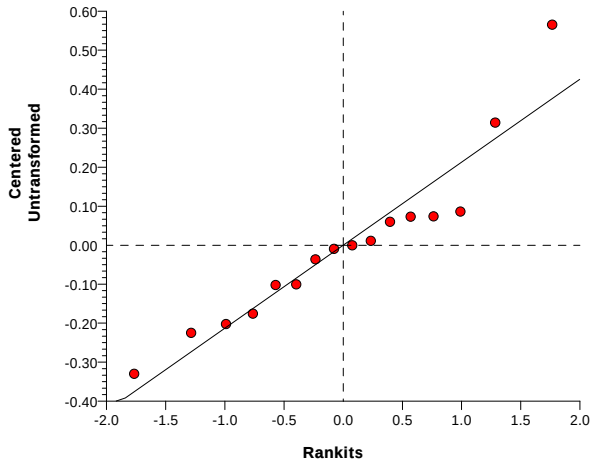
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	8.5	8.885	0.0114	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9131		0.1304	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	0.0%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	-47.64%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-5527-4131 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 22:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					37.58%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-015	1.912	1.86	0.1899	0.0461	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.061027	0.061027	1	3.657	0.0922	Non-Significant Effect
Error	0.133496	0.016687	8			
Total	0.194523	0.077714	9			

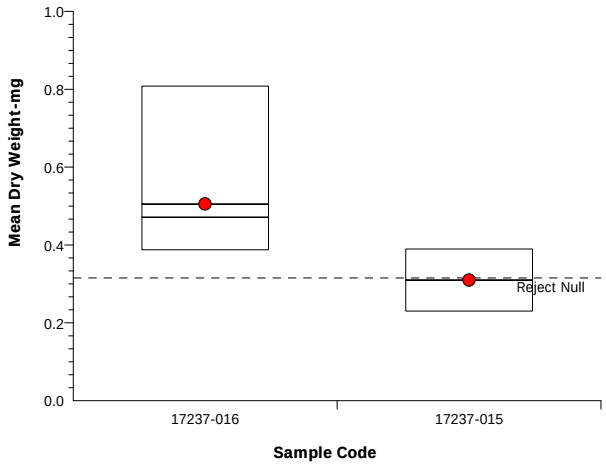
ANOVA Assumptions

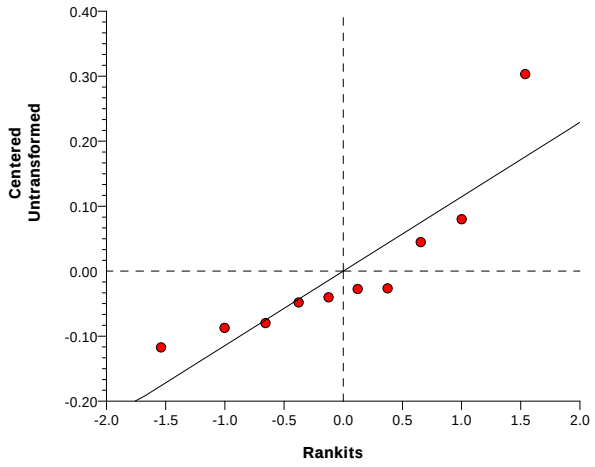
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.347	23710	1.1650	Equal Variances
Distribution	Shapiro-Wilk Normality	0.7971		0.0134	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-015	2	0.31	0.267	0.353	0.23	0.39	0.02101	0.1131	36.5%	38.65%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-2104-7536 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					22.43%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-014	15		0	0.0008	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.398324	0.398324	1	32.5	0.0001	Significant Effect
Error	0.1348	0.012255	11			
Total	0.533123	0.410578	12			

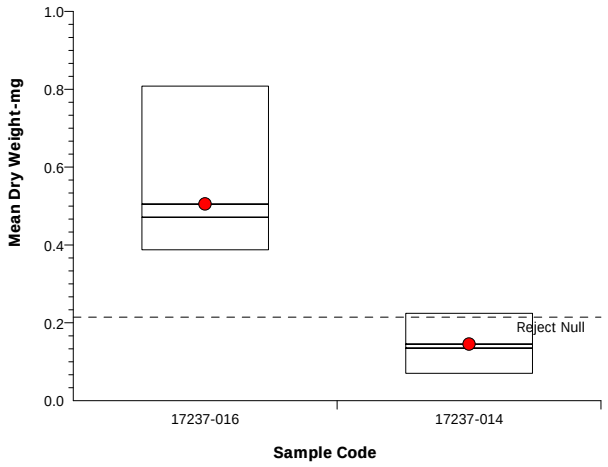
ANOVA Assumptions

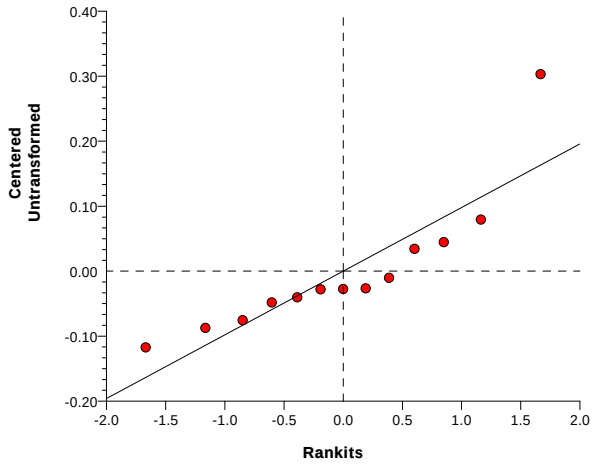
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.89	21.62	0.1441	Equal Variances
Distribution	Shapiro-Wilk Normality	0.7946		0.0059	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-014	5	0.1455	0.1229	0.1681	0.07	0.225	0.01103	0.05938	40.81%	71.21%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-0318-9345 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					21.4%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-013	15		0	0.0008	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.228201	0.228201	1	20.47	0.0009	Significant Effect
Error	0.122654	0.011150	11			
Total	0.350855	0.239352	12			

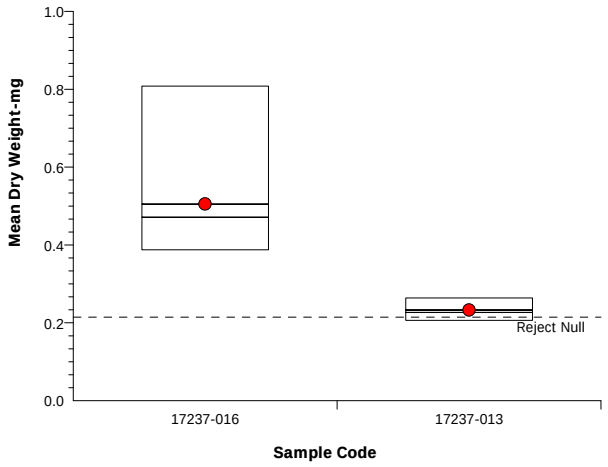
ANOVA Assumptions

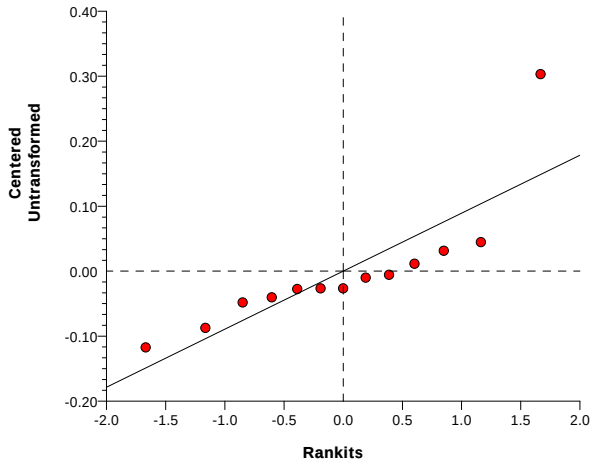
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	35.21	21.62	0.0039	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7364		0.0013	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-013	5	0.233	0.2245	0.2414	0.2063	0.2643	0.004109	0.02213	9.5%	53.9%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-3362-5480 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					23.18%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-012	3.824	1.761	0.1171	0.0009	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.258632	0.258632	1	14.62	0.0019	Significant Effect
Error	0.247623	0.017687	14			
Total	0.506255	0.276319	15			

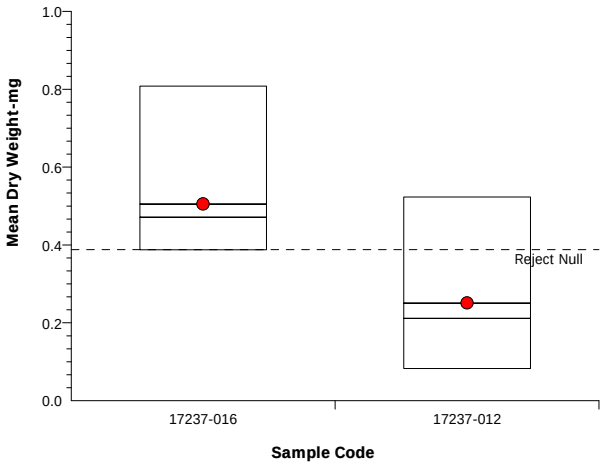
ANOVA Assumptions

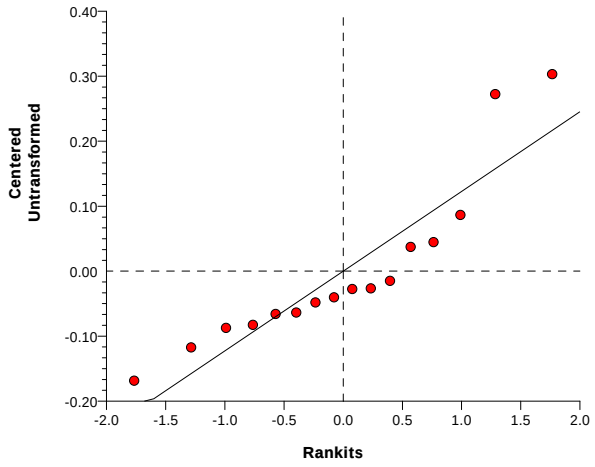
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.052	8.885	0.9488	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8422		0.0105	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-012	8	0.251	0.1998	0.3022	0.0825	0.5233	0.02501	0.1347	53.64%	50.32%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 17-6172-0838 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					22.64%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-011	2.484	1.761	0.1144	0.0131	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.104073	0.104073	1	6.168	0.0263	Significant Effect
Error	0.236206	0.016872	14			
Total	0.340279	0.120945	15			

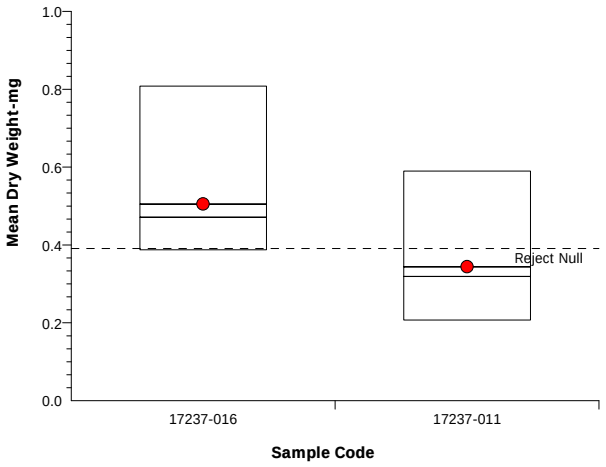
ANOVA Assumptions

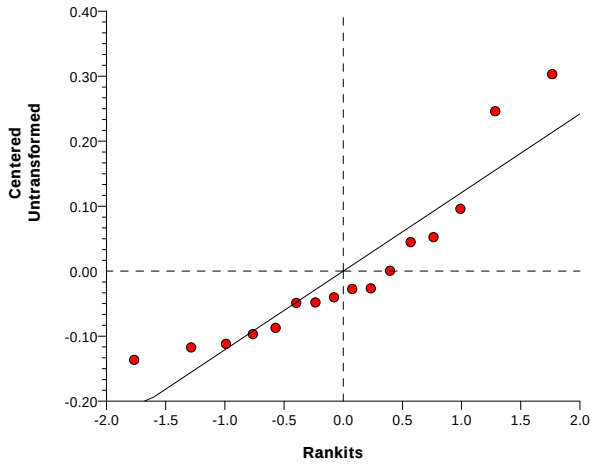
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.045	8.885	0.9553	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8534		0.0153	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-011	8	0.344	0.2951	0.3929	0.2073	0.59	0.02385	0.1285	37.34%	31.92%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-1786-6051 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					24.45%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-010	3.493	1.796	0.1236	0.0025	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.177672	0.177672	1	12.2	0.0050	Significant Effect
Error	0.160208	0.014564	11			
Total	0.33788	0.192236	12			

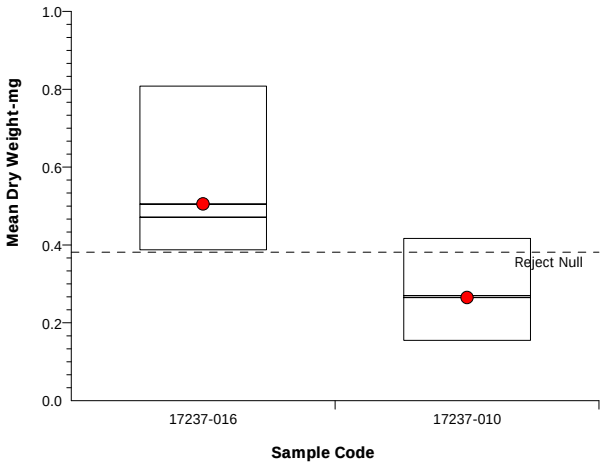
ANOVA Assumptions

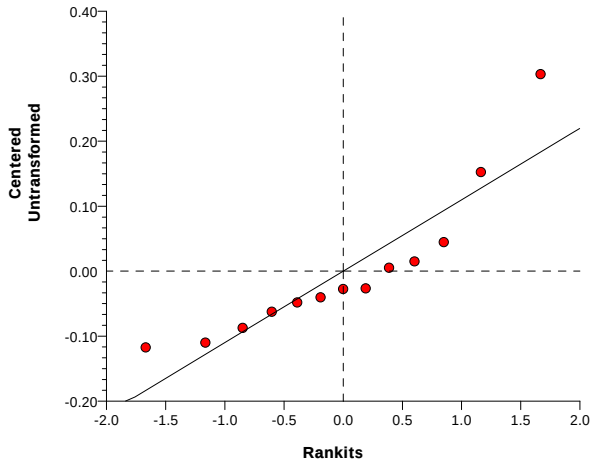
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.745	21.62	0.6170	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8284		0.0151	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-010	5	0.265	0.2272	0.3028	0.155	0.4175	0.01846	0.09939	37.51%	47.56%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-4324-3221 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:25 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.42%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-009	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.159651	0.159651	1	15.99	0.0013	Significant Effect
Error	0.139804	0.009986	14			
Total	0.299454	0.169637	15			

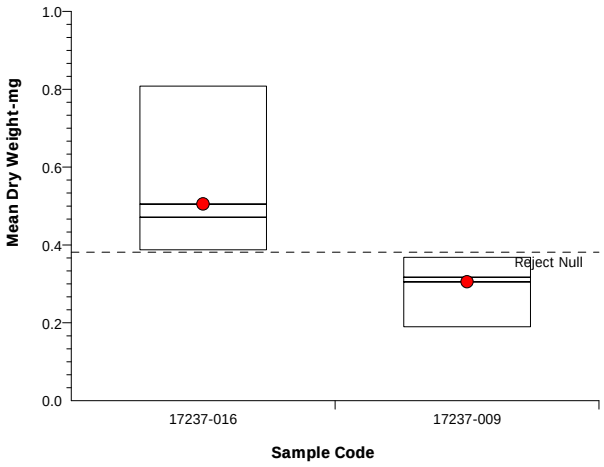
ANOVA Assumptions

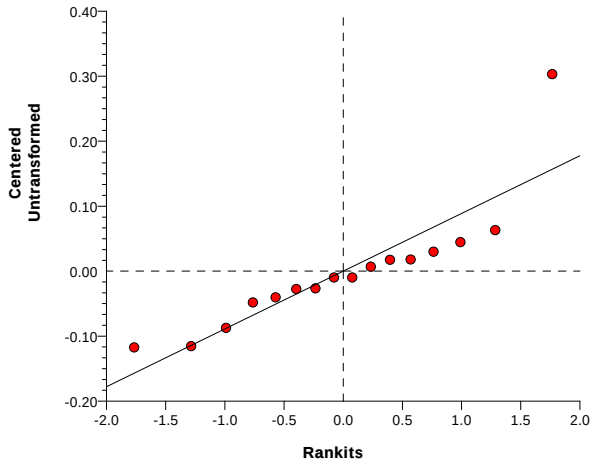
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.316	8.885	0.0266	Equal Variances
Distribution	Shapiro-Wilk Normality	0.802		0.0029	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-009	8	0.3055	0.2856	0.3254	0.19	0.3687	0.009702	0.05225	17.1%	39.54%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-5877-5283 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.68%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-008	37		0	0.0002	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.118082	0.118082	1	11.48	0.0044	Significant Effect
Error	0.144043	0.010289	14			
Total	0.262125	0.128371	15			

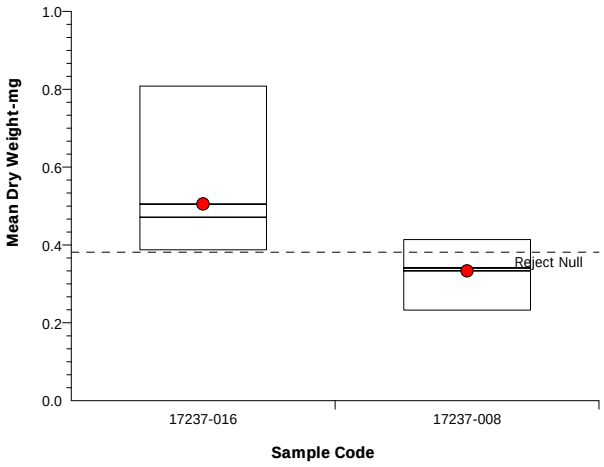
ANOVA Assumptions

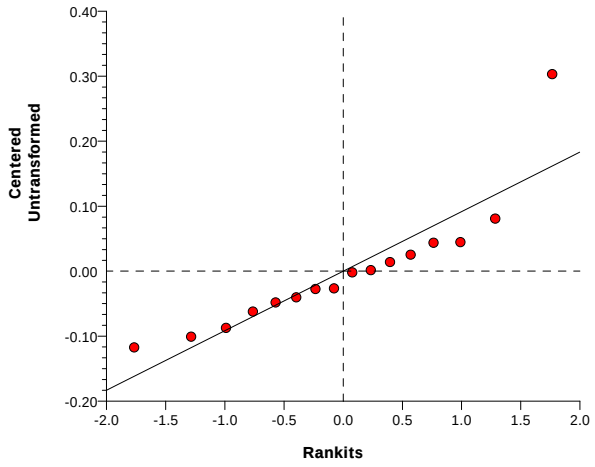
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.17	8.885	0.0457	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8243		0.0058	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-008	8	0.3335	0.3115	0.3555	0.2325	0.4143	0.01072	0.05775	17.32%	34.0%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-8368-0917 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					24.57%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-007	52		0	0.0525	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.024464	0.024464	1	1.23	0.2860	Non-Significant Effect
Error	0.278339	0.019881	14			
Total	0.302802	0.044345	15			

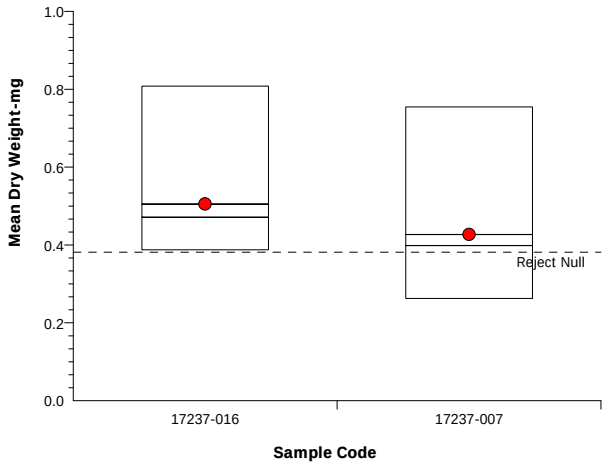
ANOVA Assumptions

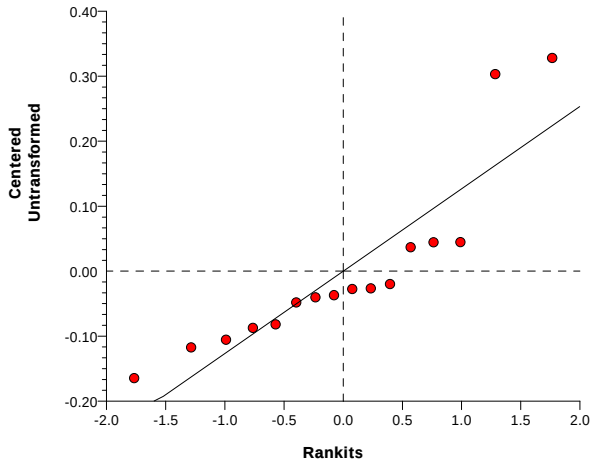
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.306	8.885	0.7335	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8005		0.0028	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-007	8	0.4271	0.37	0.4842	0.2625	0.755	0.02787	0.1501	35.14%	15.48%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-5306-4833 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.68%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-006	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.159421	0.159421	1	15.49	0.0015	Significant Effect
Error	0.144091	0.010292	14			
Total	0.303512	0.169713	15			

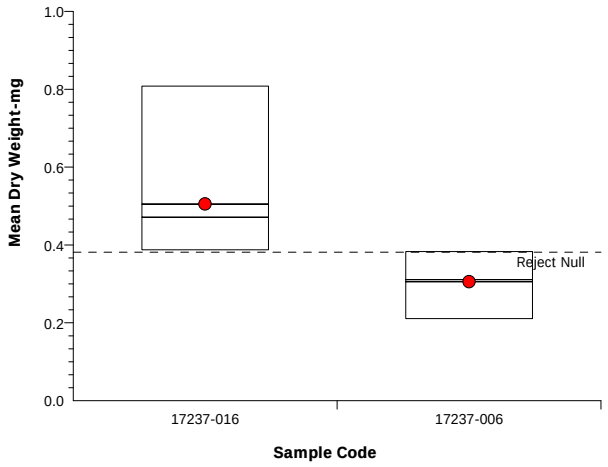
ANOVA Assumptions

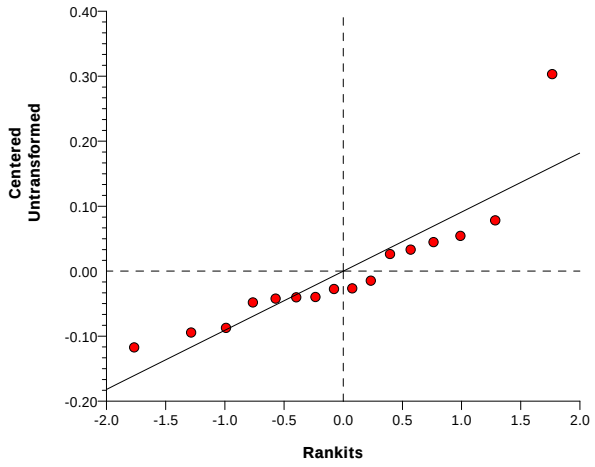
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.159	8.885	0.0459	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8133		0.0041	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-006	8	0.3057	0.2837	0.3277	0.211	0.3837	0.01074	0.05781	18.91%	39.51%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-0993-3202 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.58%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-005	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.182285	0.182285	1	17.91	0.0008	Significant Effect
Error	0.14252	0.01018	14			
Total	0.324805	0.192465	15			

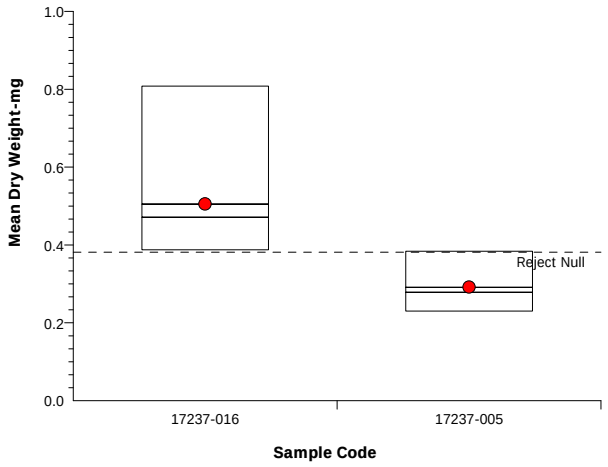
ANOVA Assumptions

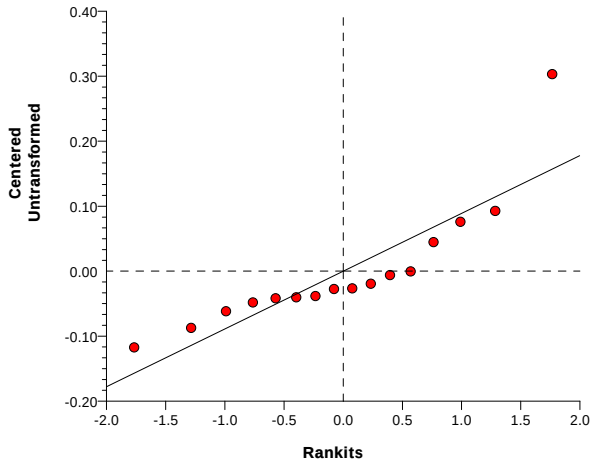
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.53	8.885	0.0382	Equal Variances
Distribution	Shapiro-Wilk Normality	0.788		0.0019	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-005	8	0.2918	0.2706	0.3131	0.23	0.3844	0.01037	0.05584	19.13%	42.25%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-2632-6254 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.56%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-004	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.263059	0.263059	1	29.13	0.0001	Significant Effect
Error	0.126447	0.009032	14			
Total	0.389506	0.272091	15			

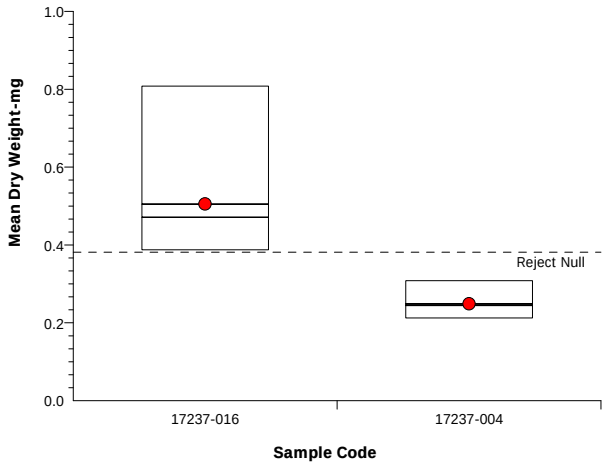
ANOVA Assumptions

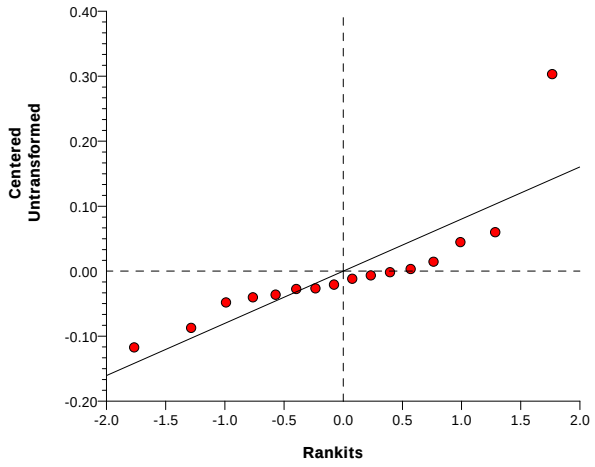
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	20.98	8.885	0.0007	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7348		0.0004	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-004	8	0.2489	0.2379	0.2598	0.2125	0.3088	0.005323	0.02866	11.52%	50.75%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-1844-5231 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.52%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-003	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.222684	0.222684	1	22.03	0.0003	Significant Effect
Error	0.141505	0.010108	14			
Total	0.364189	0.232791	15			

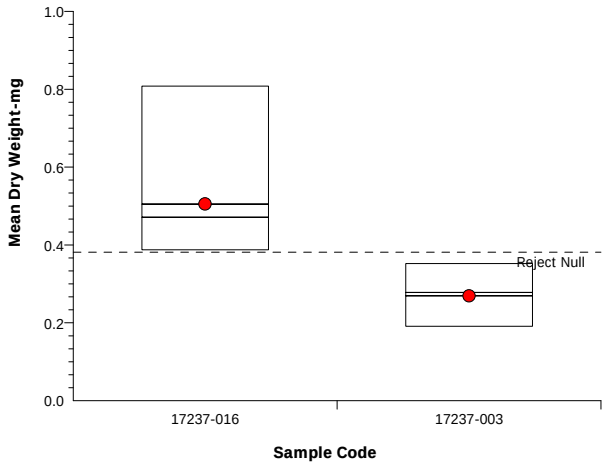
ANOVA Assumptions

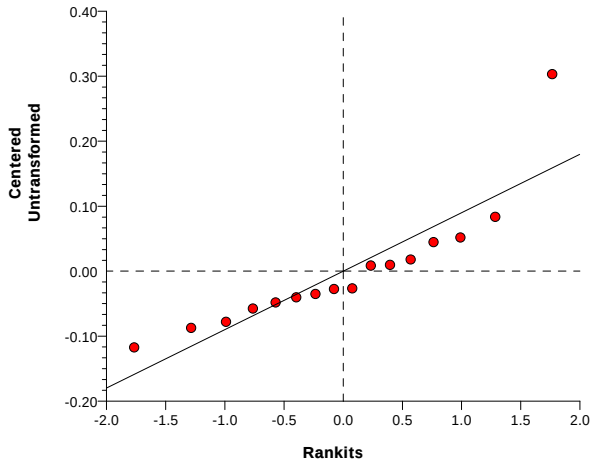
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.8	8.885	0.0336	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8104		0.0038	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-003	8	0.2694	0.2486	0.2901	0.1912	0.3529	0.01012	0.05452	20.24%	46.69%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-4579-6109 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					43.27%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-002	51		0	0.0415	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.033113	0.033113	1	0.5373	0.4756	Non-Significant Effect
Error	0.862764	0.061626	14			
Total	0.895877	0.094739	15			

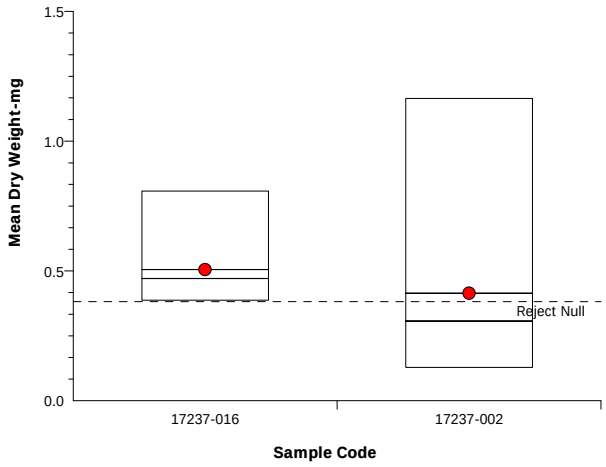
ANOVA Assumptions

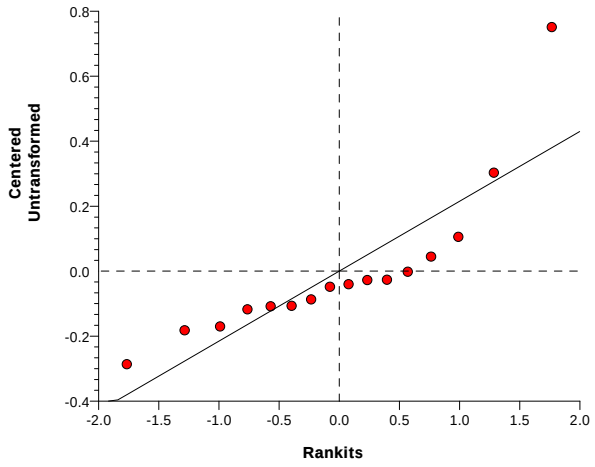
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	6.148	8.885	0.0286	Equal Variances
Distribution	Shapiro-Wilk Normality	0.7645		0.0010	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-002	8	0.4143	0.2905	0.5382	0.128	1.165	0.06046	0.3256	78.59%	18.01%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-0271-5637 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					19.41%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-001	47		0	0.0141	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.074124	0.074124	1	5.978	0.0283	Significant Effect
Error	0.173599	0.0124	14			
Total	0.247723	0.086524	15			

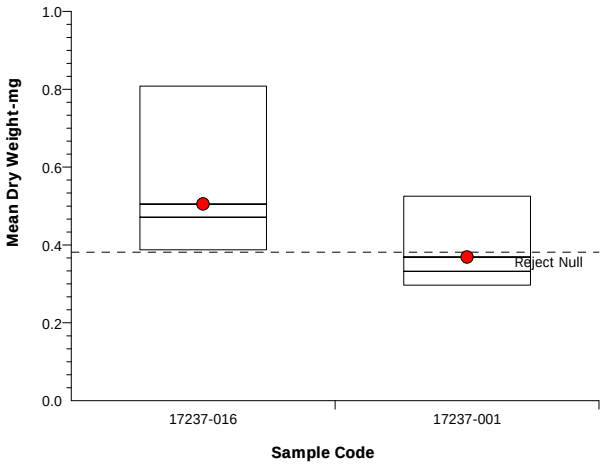
ANOVA Assumptions

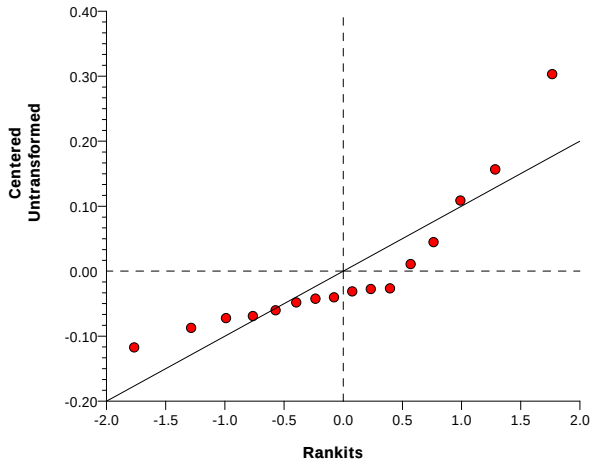
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.281	8.885	0.2988	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8064		0.0033	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-001	8	0.3692	0.3361	0.4022	0.2967	0.5257	0.01614	0.08693	23.55%	26.94%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 19-0266-3538 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					18.58%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-020	3.242	1.761	0.09387	0.0030	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.119441	0.119441	1	10.51	0.0059	Significant Effect
Error	0.159076	0.011363	14			
Total	0.278517	0.130803	15			

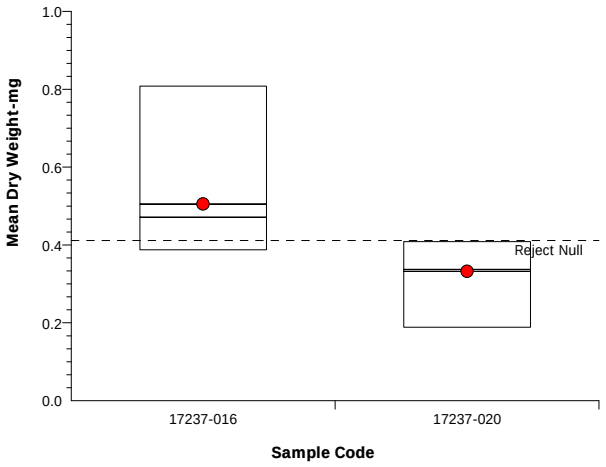
ANOVA Assumptions

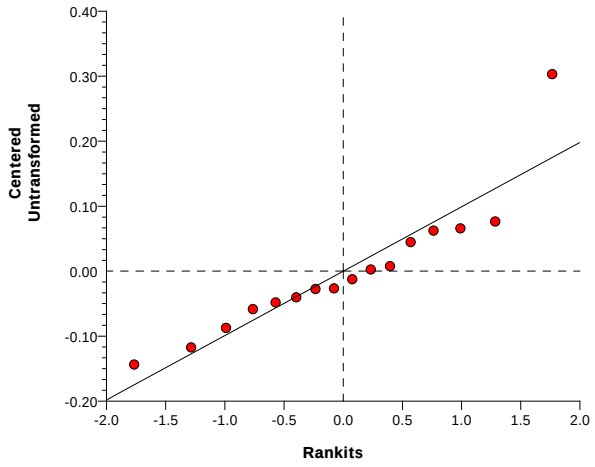
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.145	8.885	0.1537	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8704		0.0275	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	34.2%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 04-6942-8592 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					17.9%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-016		17237-019	36		0	0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.134909	0.134909	1	12.79	0.0030	Significant Effect
Error	0.147653	0.010547	14			
Total	0.282562	0.145456	15			

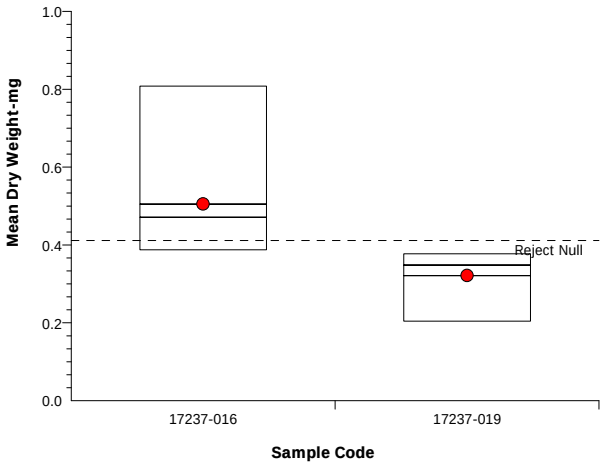
ANOVA Assumptions

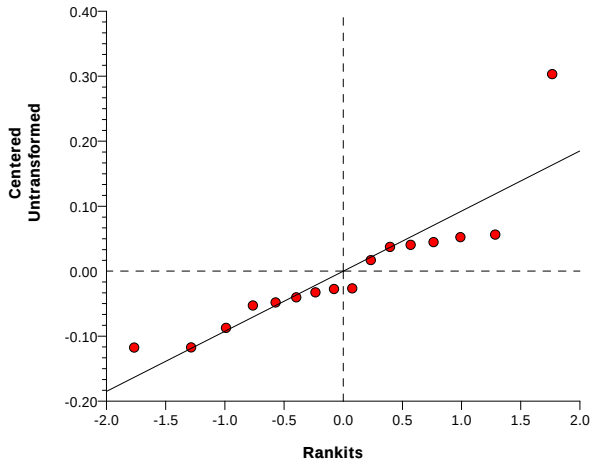
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.477	8.885	0.0662	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8187		0.0049	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	36.34%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 18-4440-2264 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					20.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-018	0.1071	1.761	0.1036	0.4581	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000159	0.000159	1	0.01147	0.9162	Non-Significant Effect
Error	0.193723	0.013837	14			
Total	0.193882	0.013996	15			

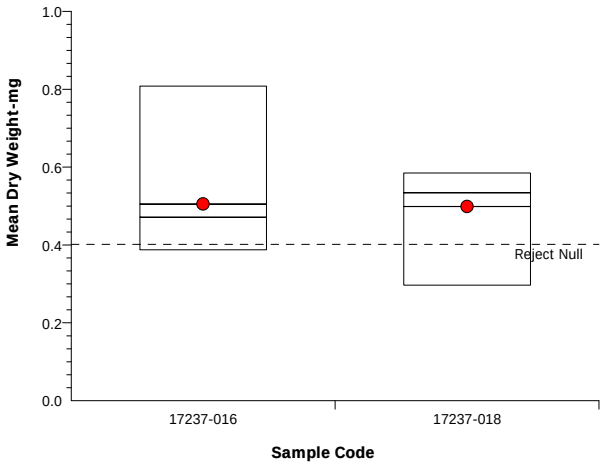
ANOVA Assumptions

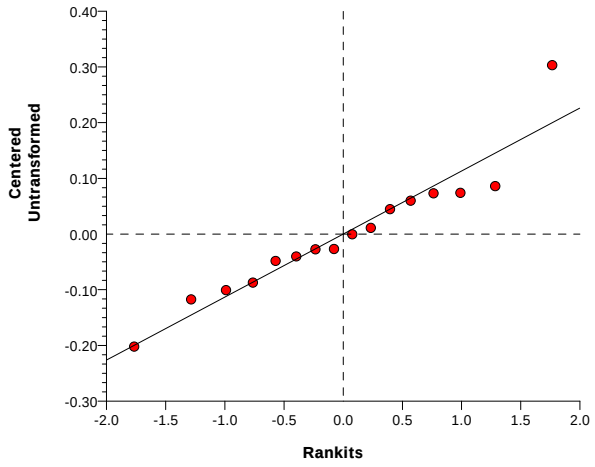
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.653	8.885	0.5233	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9308		0.2513	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	1.25%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 21-4606-1233 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:24 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					40.11%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-016		17237-017	1.454	1.761	0.2027	0.0840	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.111966	0.111966	1	2.114	0.1680	Non-Significant Effect
Error	0.741446	0.052960	14			
Total	0.853412	0.164926	15			

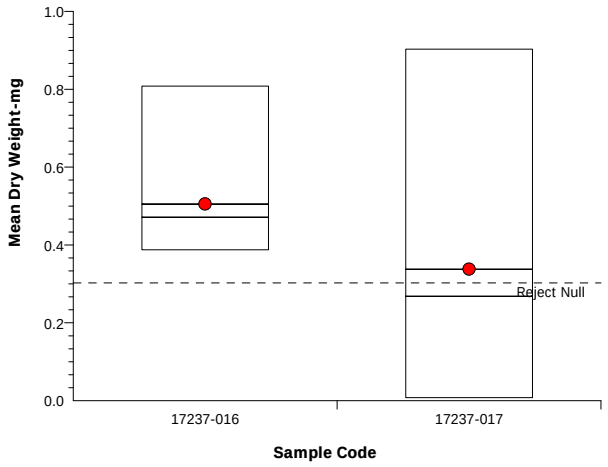
ANOVA Assumptions

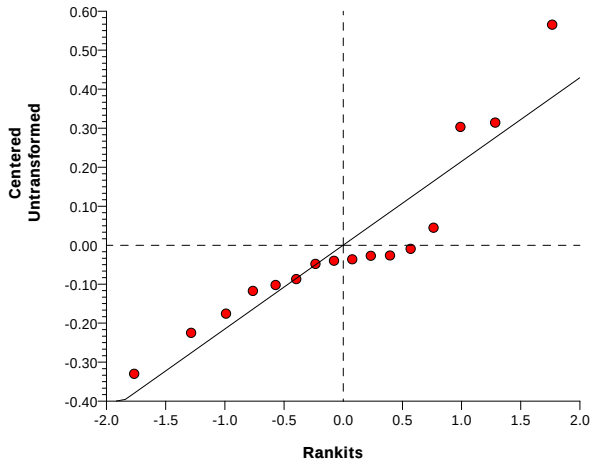
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.143	8.885	0.0463	Equal Variances
Distribution	Shapiro-Wilk Normality	0.87		0.0272	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	0.0%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	33.11%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 12-8489-3407 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 22:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					25.33%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-015	0.3416	1.86	0.08235	0.3707	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000366	0.000366	1	0.1167	0.7414	Non-Significant Effect
Error	0.025101	0.003138	8			
Total	0.025467	0.003504	9			

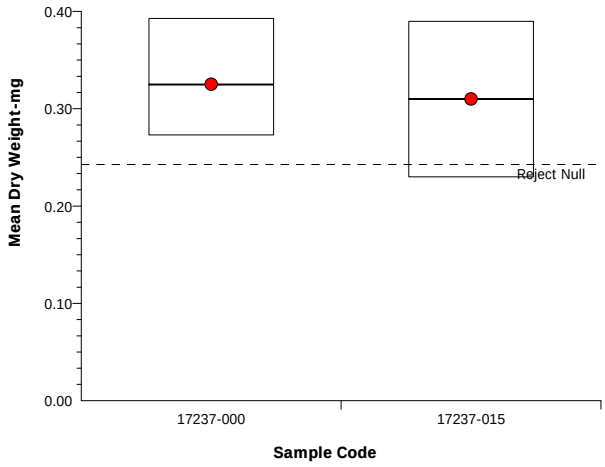
ANOVA Assumptions

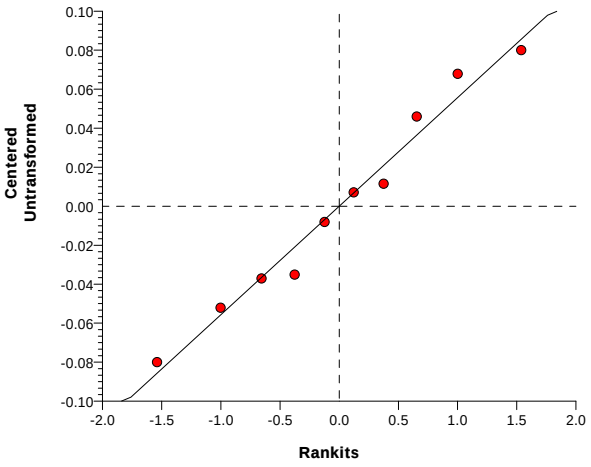
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	7.285	16.24	0.0614	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9624		0.8132	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-015	2	0.31	0.267	0.353	0.23	0.39	0.02101	0.1131	36.5%	4.65%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 11-9513-4631 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					15.43%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-014	6.431	1.796	0.05016	0.0000	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.099279	0.099279	1	41.36	0.0000	Significant Effect
Error	0.026405	0.002400	11			
Total	0.125684	0.101679	12			

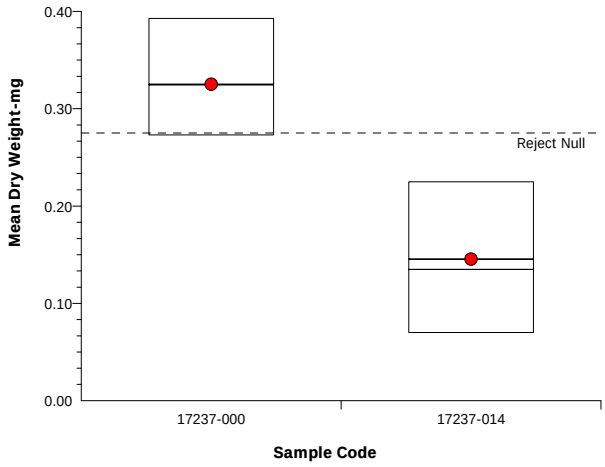
ANOVA Assumptions

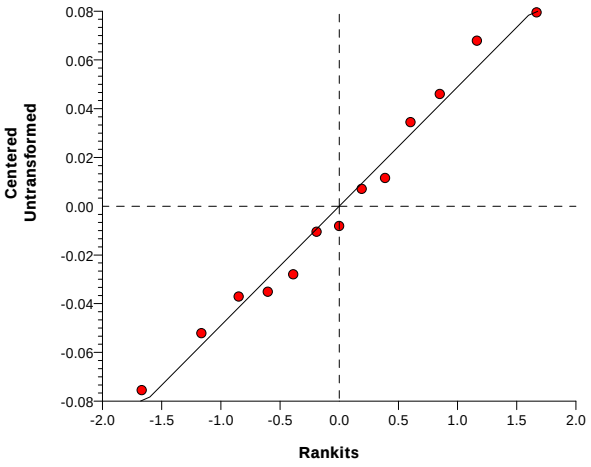
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.007	10.05	0.3960	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9718		0.9147	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-014	5	0.1455	0.1229	0.1681	0.07	0.225	0.01103	0.05938	40.81%	55.25%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-6655-5790 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					11.34%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-013	4.49	1.796	0.03686	0.0005	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.026134	0.026134	1	20.16	0.0009	Significant Effect
Error	0.014259	0.001296	11			
Total	0.040393	0.027430	12			

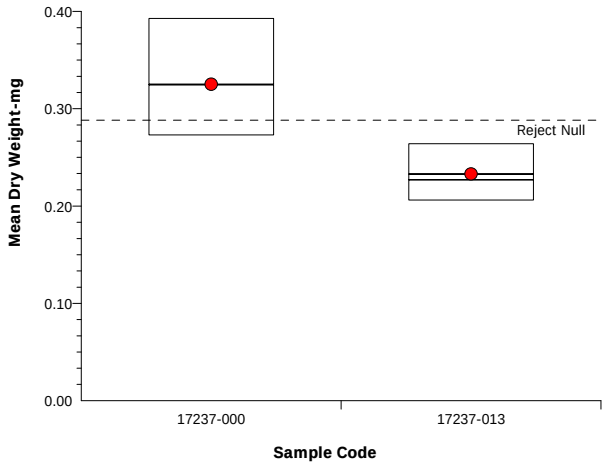
ANOVA Assumptions

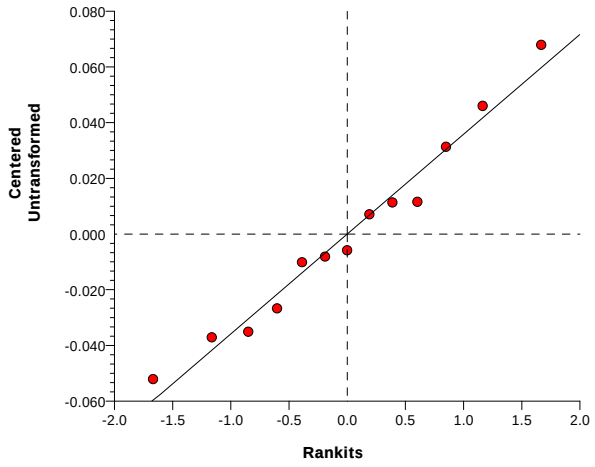
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.588	21.62	0.2343	Equal Variances
Distribution	Shapiro-Wilk Normality	0.971		0.9057	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-013	5	0.233	0.2245	0.2414	0.2063	0.2643	0.004109	0.02213	9.5%	28.35%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 13-0790-2009 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					27.01%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-012	1.486	1.761	0.08782	0.0797	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.021967	0.021967	1	2.209	0.1594	Non-Significant Effect
Error	0.139228	0.009945	14			
Total	0.161195	0.031912	15			

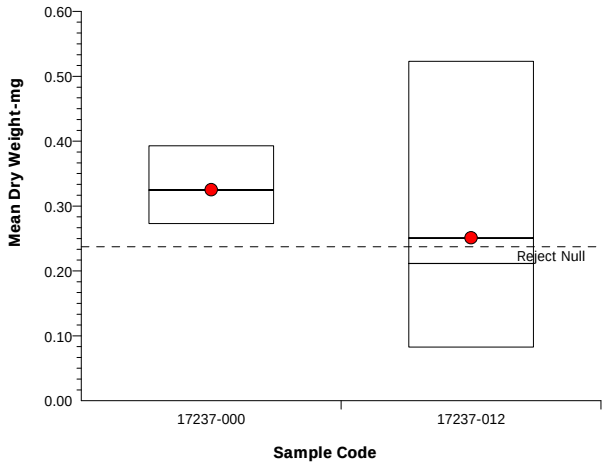
ANOVA Assumptions

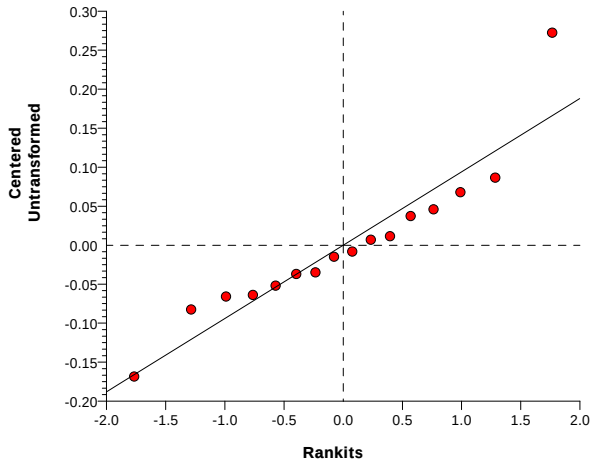
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	10.32	8.885	0.0064	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9005		0.0818	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-012	8	0.251	0.1998	0.3022	0.0825	0.5233	0.02501	0.1347	53.64%	22.79%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 20-8910-3079 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					25.88%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-011	-0.395	1.761	0.08414	0.6506	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001424	0.001424	1	0.156	0.6988	Non-Significant Effect
Error	0.127811	0.009129	14			
Total	0.129236	0.010554	15			

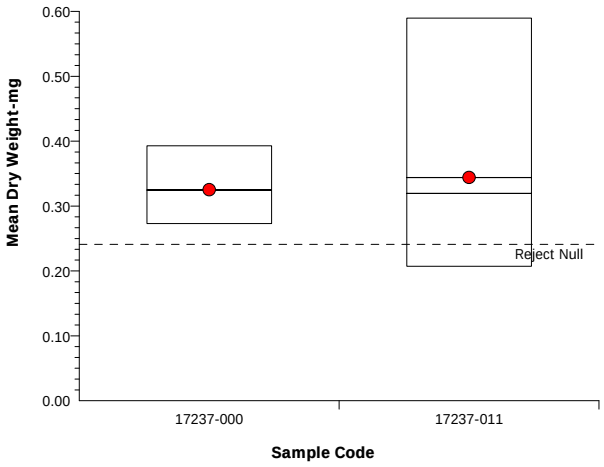
ANOVA Assumptions

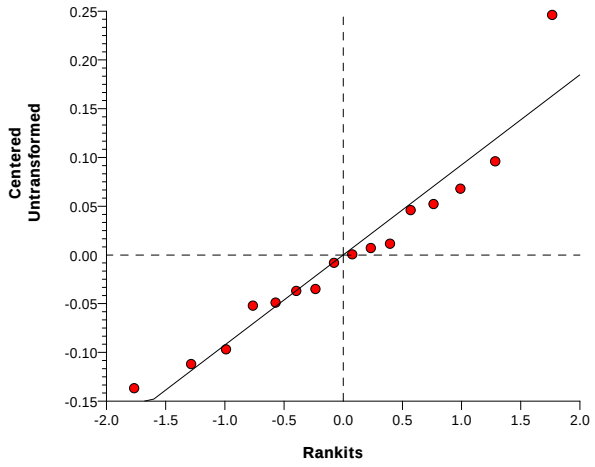
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	9.391	8.885	0.0085	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.9315		0.2579	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-011	8	0.344	0.2951	0.3929	0.2073	0.59	0.02385	0.1285	37.34%	-5.8%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 06-3988-4720 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					21.61%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-010	1.537	1.796	0.07027	0.0763	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.011123	0.011123	1	2.362	0.1526	Non-Significant Effect
Error	0.051813	0.004710	11			
Total	0.062936	0.015834	12			

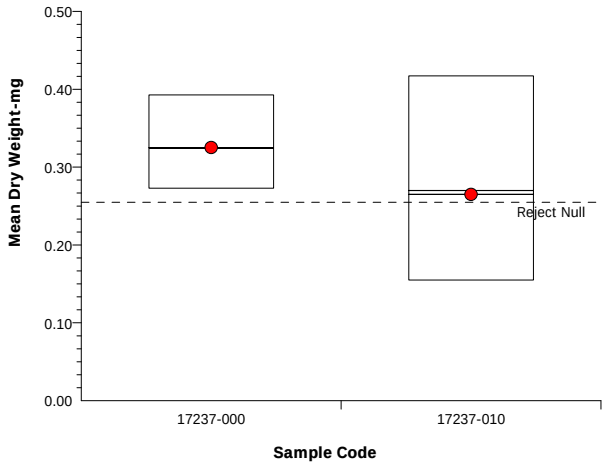
ANOVA Assumptions

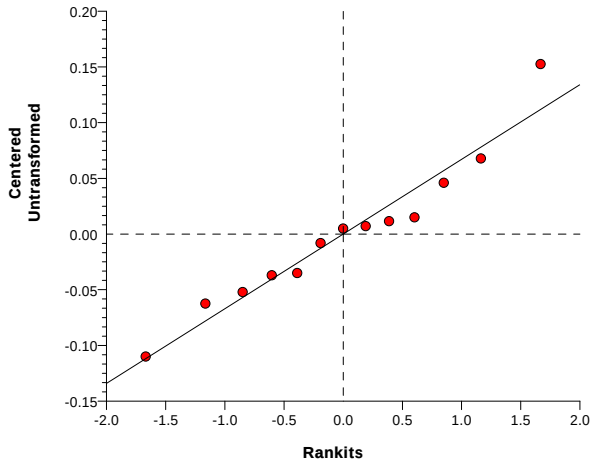
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.622	10.05	0.0478	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9556		0.6853	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-010	5	0.265	0.2272	0.3028	0.155	0.4175	0.01846	0.09939	37.51%	18.49%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-6671-1314 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					12.83%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-009	0.828	1.761	0.04171	0.2108	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001538	0.001538	1	0.6856	0.4216	Non-Significant Effect
Error	0.031409	0.002243	14			
Total	0.032947	0.003782	15			

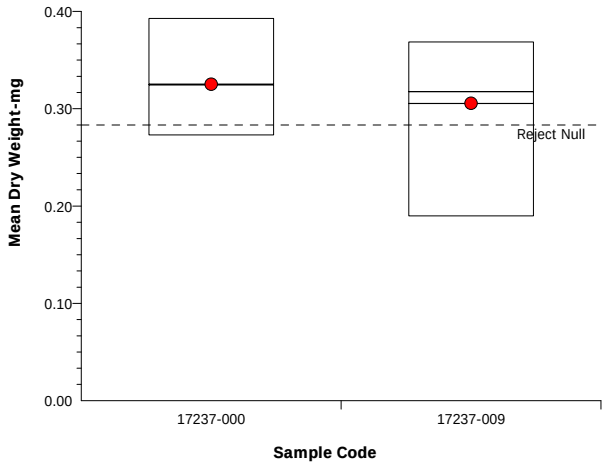
ANOVA Assumptions

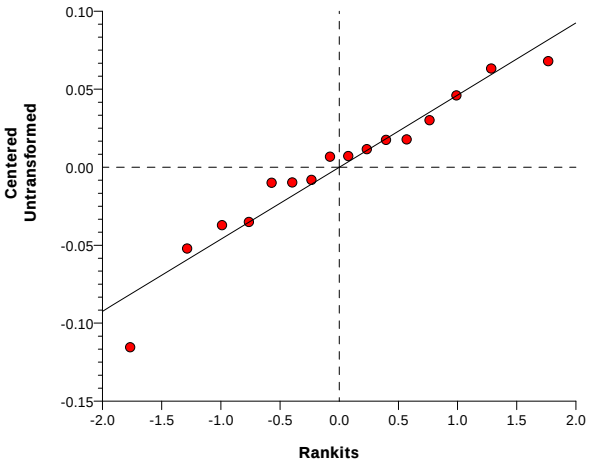
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.553	8.885	0.5754	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9441		0.4029	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-009	8	0.3055	0.2856	0.3254	0.19	0.3687	0.009702	0.05225	17.1%	6.03%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 16-3827-8907 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					13.67%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-008	-0.3312	1.761	0.04444	0.6273	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000279	0.000279	1	0.1097	0.7454	Non-Significant Effect
Error	0.035648	0.002546	14			
Total	0.035927	0.002826	15			

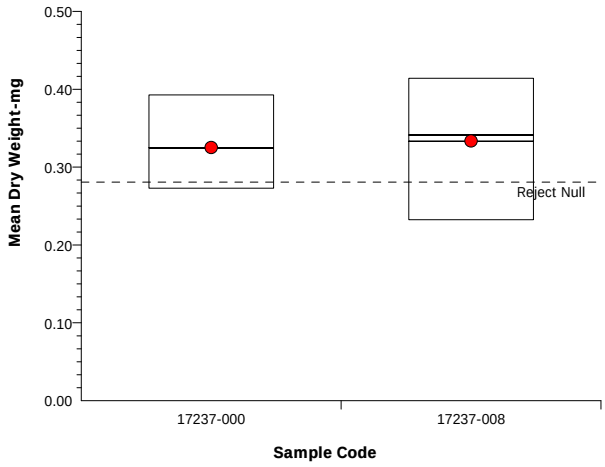
ANOVA Assumptions

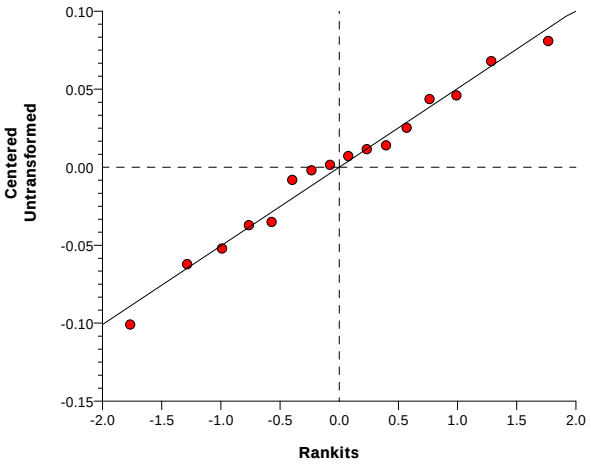
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.898	8.885	0.4171	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9809		0.9706	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-008	8	0.3335	0.3115	0.3555	0.2325	0.4143	0.01072	0.05775	17.32%	-2.57%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-1799-6754 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					29.84%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-000		17237-007	85		0	0.9585	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.04159	0.04159	1	3.426	0.0854	Non-Significant Effect
Error	0.169944	0.012139	14			
Total	0.211534	0.053729	15			

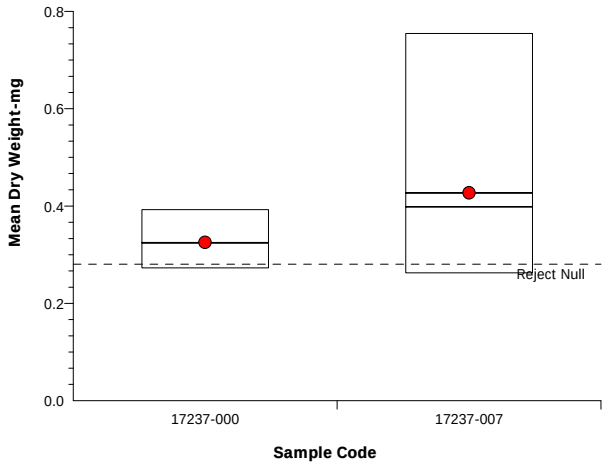
ANOVA Assumptions

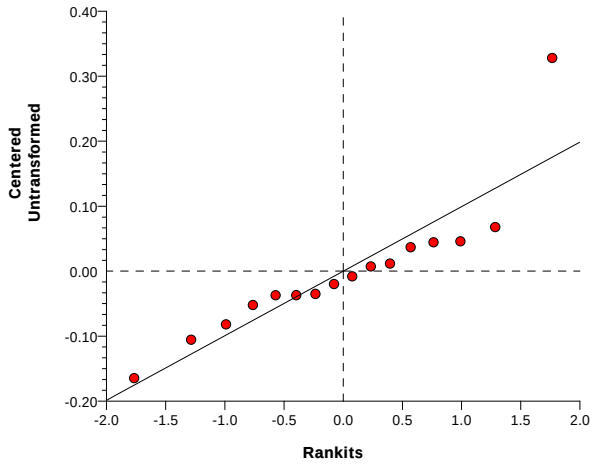
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	12.82	8.885	0.0033	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8296		0.0069	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-007	8	0.4271	0.37	0.4842	0.2625	0.755	0.02787	0.1501	35.14%	-31.36%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 10-5298-2716 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					13.68%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-006	0.771	1.761	0.04447	0.2268	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.001516	0.001516	1	0.5944	0.4535	Non-Significant Effect
Error	0.035696	0.00255	14			
Total	0.037211	0.004065	15			

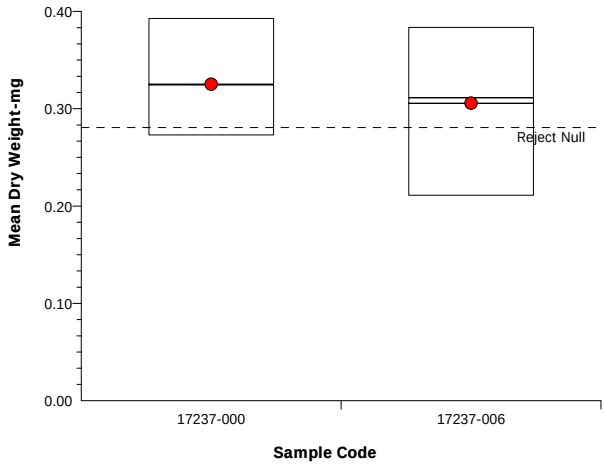
ANOVA Assumptions

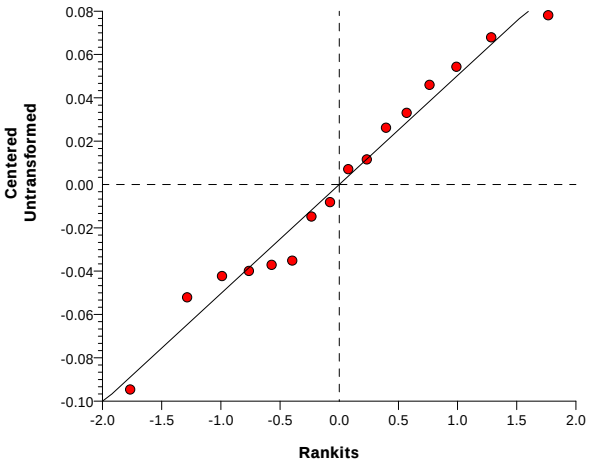
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.902	8.885	0.4156	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9696		0.8326	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-006	8	0.3057	0.2837	0.3277	0.211	0.3837	0.01074	0.05781	18.91%	5.99%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-6029-6005 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					13.37%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-005	1.349	1.761	0.04348	0.0994	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.004436	0.004436	1	1.82	0.1987	Non-Significant Effect
Error	0.034125	0.002437	14			
Total	0.038561	0.006874	15			

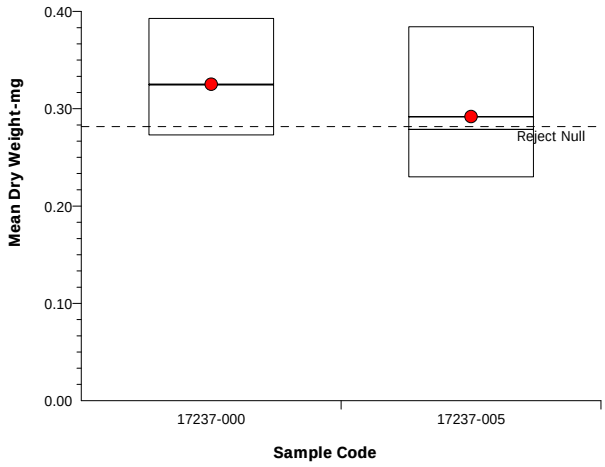
ANOVA Assumptions

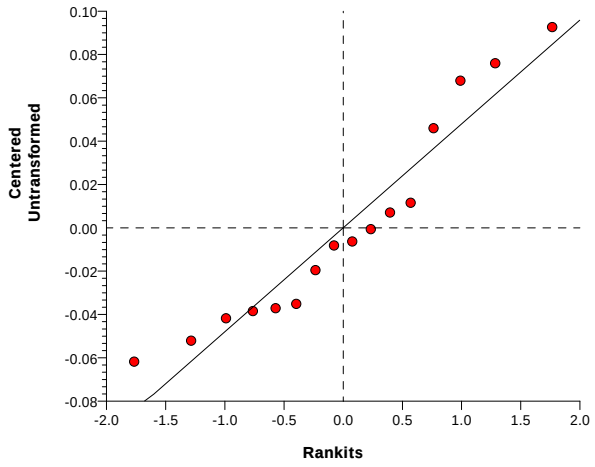
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.774	8.885	0.4671	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9151		0.1404	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-005	8	0.2918	0.2706	0.3131	0.23	0.3844	0.01037	0.05584	19.13%	10.24%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-5793-8403 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					9.73%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-004	4.248	1.761	0.03162	0.0004	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.023271	0.023271	1	18.05	0.0008	Significant Effect
Error	0.018052	0.001289	14			
Total	0.041323	0.024560	15			

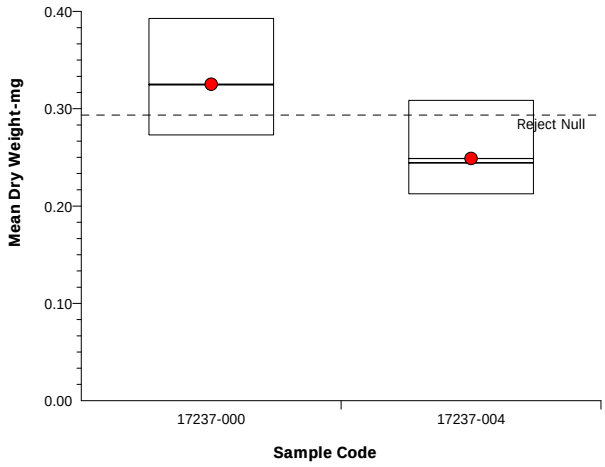
ANOVA Assumptions

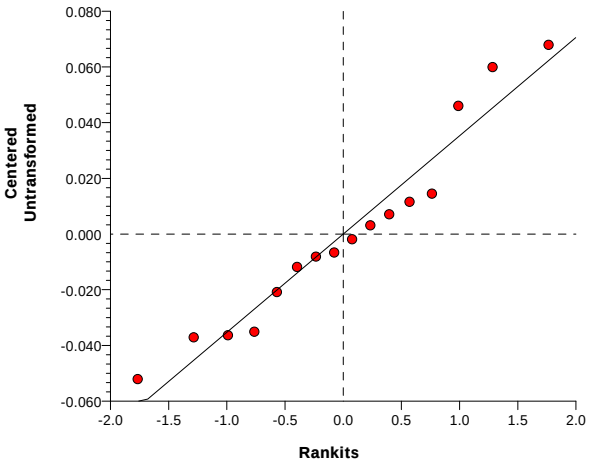
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.139	8.885	0.3373	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9408		0.3589	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-004	8	0.2489	0.2379	0.2598	0.2125	0.3088	0.005323	0.02866	11.52%	23.46%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 08-9094-3708 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:17 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					13.17%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-003	2.294	1.761	0.04283	0.0189	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.012443	0.012443	1	5.261	0.0378	Significant Effect
Error	0.033110	0.002365	14			
Total	0.045553	0.014808	15			

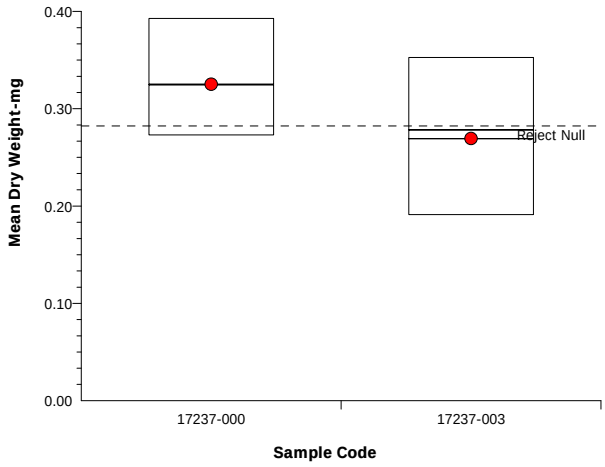
ANOVA Assumptions

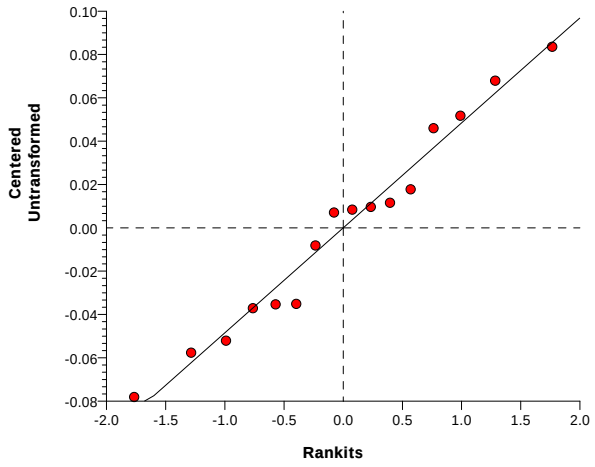
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.692	8.885	0.5044	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9654		0.7593	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-003	8	0.2694	0.2486	0.2901	0.1912	0.3529	0.01012	0.05452	20.24%	17.15%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-7638-8034 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					62.88%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-000		17237-002	66		0	0.4392	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.031818	0.031818	1	0.5905	0.4550	Non-Significant Effect
Error	0.754369	0.053884	14			
Total	0.786187	0.085702	15			

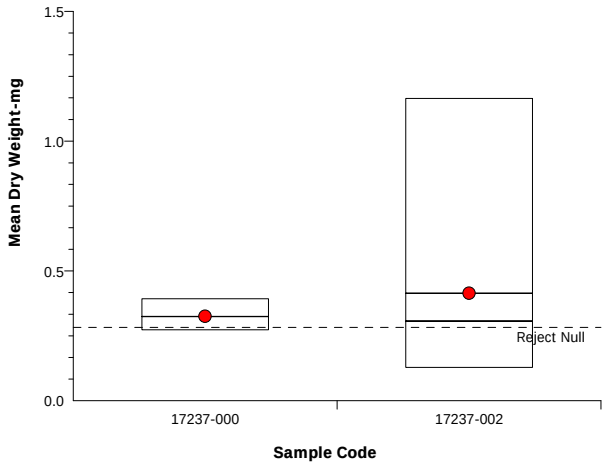
ANOVA Assumptions

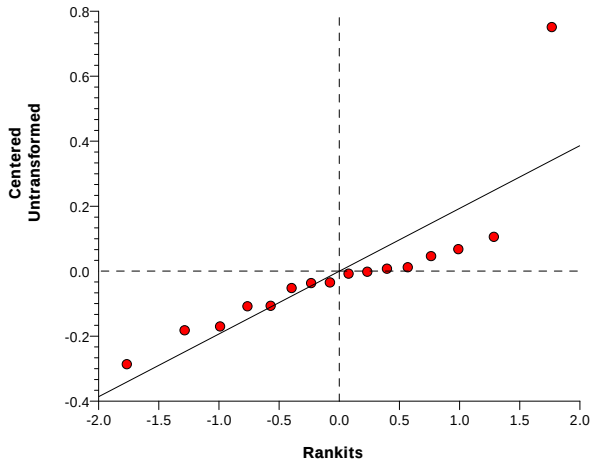
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	60.33	8.885	0.0000	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7155		0.0003	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-002	8	0.4143	0.2905	0.5382	0.128	1.165	0.06046	0.3256	78.59%	-27.43%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 14-1439-1902 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					18.49%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-001	-1.291	1.761	0.0601	0.8912	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.00776	0.00776	1	1.666	0.2177	Non-Significant Effect
Error	0.065204	0.004657	14			
Total	0.072963	0.012417	15			

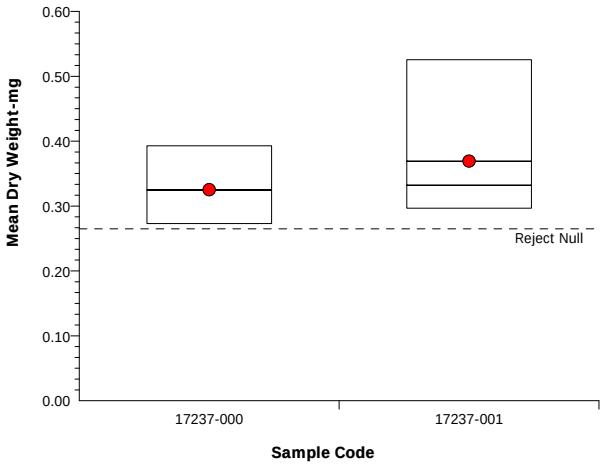
ANOVA Assumptions

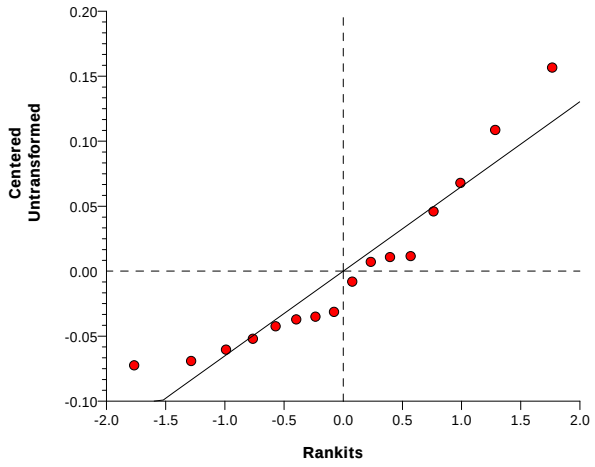
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	4.301	8.885	0.0733	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8928		0.0617	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-001	8	0.3692	0.3361	0.4022	0.2967	0.5257	0.01614	0.08693	23.55%	-13.55%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 09-5971-2427 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					16.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-020	-0.245	1.761	0.05299	0.5950	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000217	0.000217	1	0.06004	0.8100	Non-Significant Effect
Error	0.050681	0.003620	14			
Total	0.050899	0.003837	15			

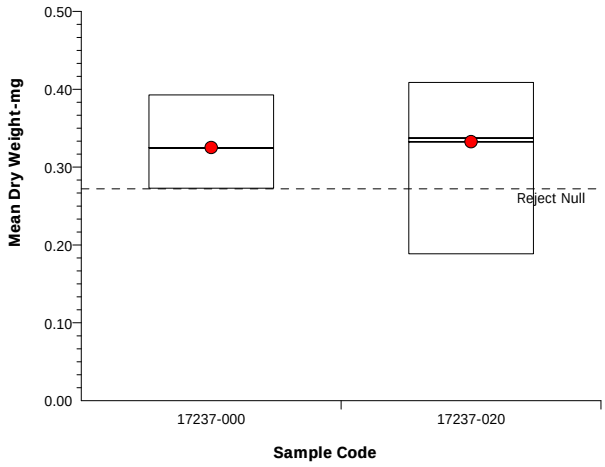
ANOVA Assumptions

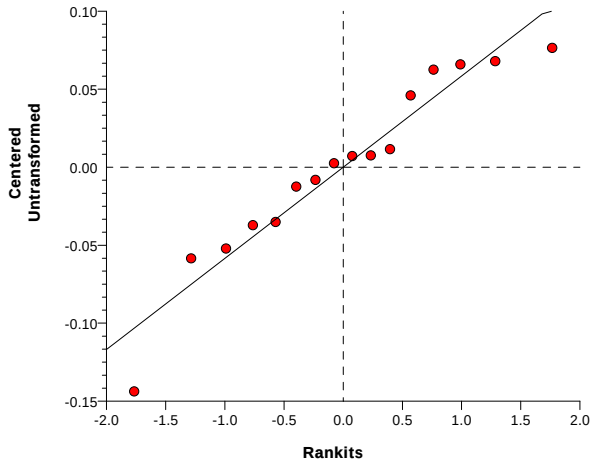
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	3.12	8.885	0.1563	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9299		0.2433	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-020	8	0.3325	0.3043	0.3607	0.1887	0.4089	0.01375	0.07405	22.27%	-2.27%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 00-1102-4730 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					14.34%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-019	0.1313	1.761	0.04663	0.4487	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	4.84E-05	4.84E-05	1	0.01725	0.8974	Non-Significant Effect
Error	0.039258	0.002804	14			
Total	0.039306	0.002853	15			

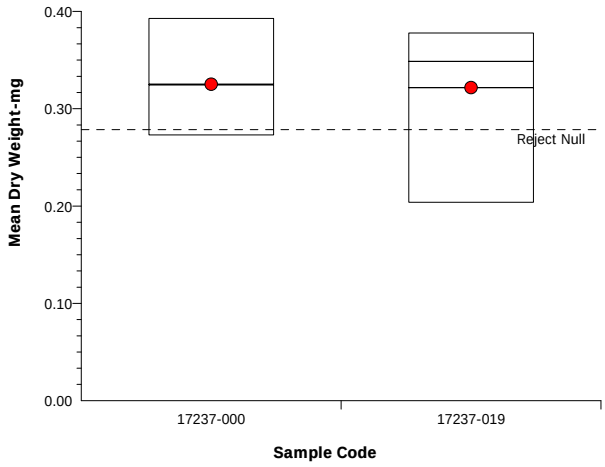
ANOVA Assumptions

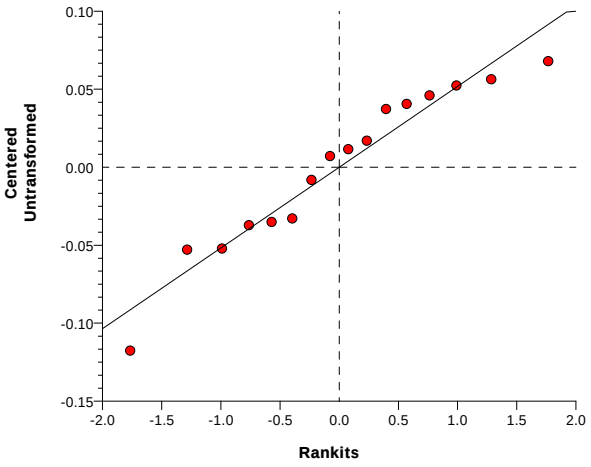
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	2.192	8.885	0.3223	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9368		0.3120	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-019	8	0.3216	0.298	0.3453	0.204	0.378	0.01152	0.06206	19.29%	1.07%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 05-5136-0832 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					21.15%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-018	-4.454	1.761	0.06875	0.9997	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.120927	0.120927	1	19.84	0.0005	Significant Effect
Error	0.085328	0.006095	14			
Total	0.206255	0.127022	15			

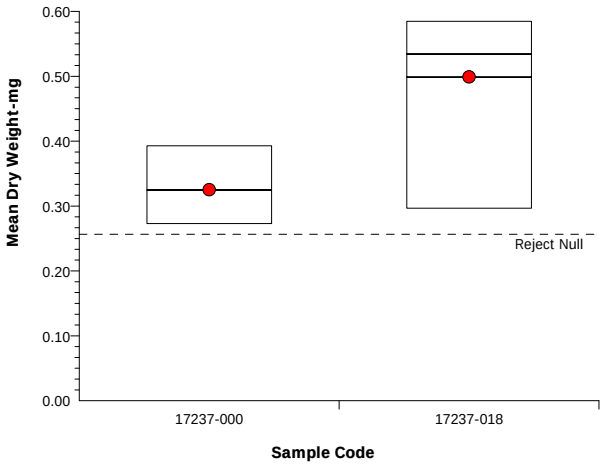
ANOVA Assumptions

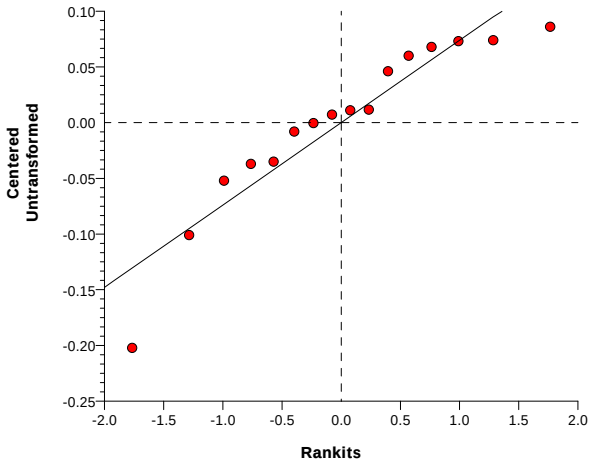
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	5.937	8.885	0.0315	Equal Variances
Distribution	Shapiro-Wilk Normality	0.8876		0.0510	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-018	8	0.499	0.4601	0.5378	0.2967	0.585	0.01897	0.1021	20.47%	-53.48%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 03-9284-1212 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					57.6%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	MSD	P-Value	Decision(5%)
17237-000		17237-017	-0.121	1.761	0.1873	0.5473	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.000662	0.000662	1	0.01464	0.9054	Non-Significant Effect
Error	0.633052	0.045218	14			
Total	0.633714	0.045880	15			

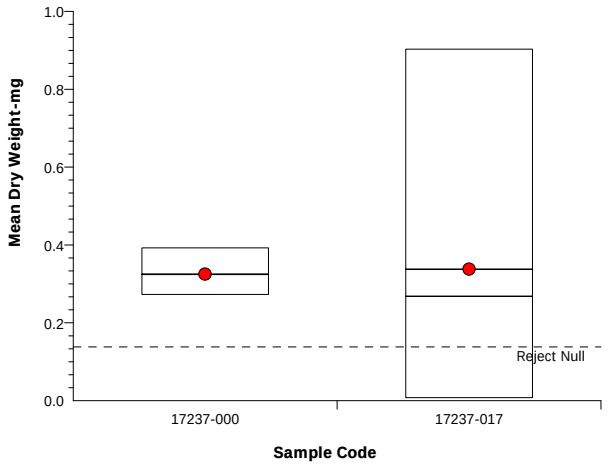
ANOVA Assumptions

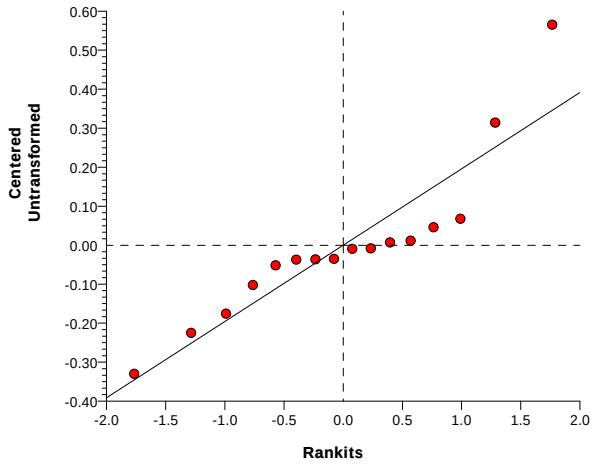
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	50.47	8.885	0.0000	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.8564		0.0170	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-017	8	0.338	0.2247	0.4513	0.007779	0.9033	0.0553	0.2978	88.11%	-3.96%

Graphics





Hyalella 28-d Survival and Growth Sediment Test — **EnviroSystems, Inc.**

Analysis No: 04-9290-8003 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.6.4
Analyzed: 15 Jul-08 21:16 **Analysis:** Nonparametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	Not Run					26.4%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	Ties	P-Value	Decision(5%)
17237-000		17237-016	99		0	0.9998	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.129849	0.129849	1	13.67	0.0024	Significant Effect
Error	0.132996	0.0095	14			
Total	0.262844	0.139348	15			

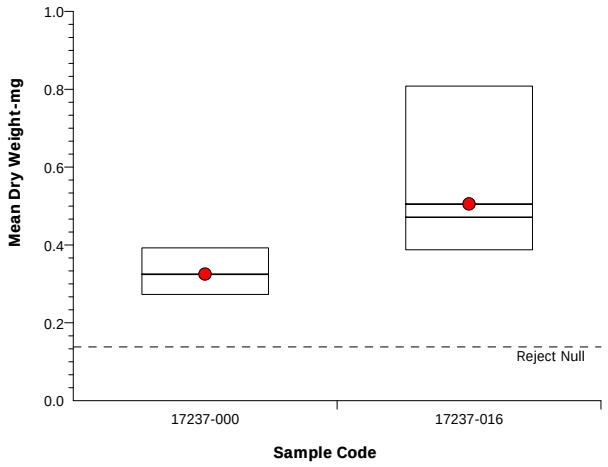
ANOVA Assumptions

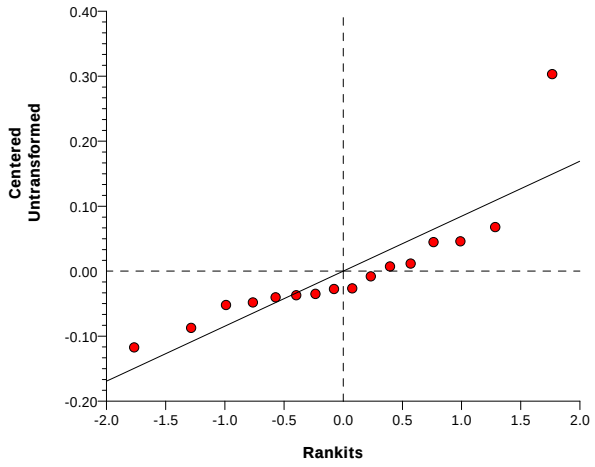
Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	9.812	8.885	0.0074	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.7702		0.0011	Non-normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
17237-000	8	0.3251	0.3092	0.3411	0.273	0.393	0.007784	0.04192	12.89%	0.0%
17237-016	8	0.5053	0.4554	0.5552	0.3878	0.8083	0.02438	0.1313	25.99%	-55.42%

Graphics





STUDY: 17237
CLIENT: Tetra Tech, Inc.
PROJECT: Site 08 - NUSC Disposal Area Newport Naval Station, CTO-0402
ASSAY: Hyalella azteca 28-day
ELEMENT/TASK: Water Quality
PARAMETER: Alkalinity
METHOD: EPA 310.2

ID	LAB ID	RESULT	QUAL	QLIMIT	UNITS	SAMPLED	ANALYZED
000 Day 00 HA	17280-100	41		2	mg/L	6/4/08	06/10/08
001 Day 00 HA	17237-101	98		2	mg/L	6/4/08	06/09/08
002 Day 00 HA	17237-102	73		2	mg/L	6/4/08	06/09/08
003 Day 00 HA	17237-103	54		2	mg/L	6/4/08	06/09/08
004 Day 00 HA	17237-104	53		2	mg/L	6/4/08	06/09/08
005 Day 00 HA	17237-105	63		2	mg/L	6/4/08	06/09/08
006 Day 00 HA	17237-106	60		2	mg/L	6/4/08	06/09/08
007 Day 00 HA	17237-107	55		2	mg/L	6/4/08	06/09/08
008 Day 00 HA	17237-108	62		2	mg/L	6/4/08	06/09/08
009 Day 00 HA	17237-109	63		2	mg/L	6/4/08	06/09/08
010 Day 00 HA	17237-110	51		2	mg/L	6/4/08	06/09/08
011 Day 00 HA	17237-111	55		2	mg/L	6/4/08	06/09/08
012 Day 00 HA	17237-112	52		2	mg/L	6/4/08	06/09/08
013 Day 00 HA	17237-113	54		2	mg/L	6/4/08	06/09/08
014 Day 00 HA	17237-114	63		2	mg/L	6/4/08	06/09/08
015 Day 00 HA	17237-115	53		2	mg/L	6/4/08	06/09/08
016 Day 00 HA	17237-116	51		2	mg/L	6/4/08	06/09/08
017 Day 00 HA	17237-117	50		2	mg/L	6/4/08	06/09/08
018 Day 00 HA	17237-118	75		2	mg/L	6/4/08	06/09/08
019 Day 00 HA	17237-119	32		2	mg/L	6/4/08	06/09/08
020 Day 00 HA	17237-120	44		2	mg/L	6/4/08	06/09/08
000 Day 07 HA	17237-200	65		2	mg/L	6/11/08	06/16/08
001 Day 07 HA	17237-201	86		2	mg/L	6/11/08	06/16/08
002 Day 07 HA	17237-202	71		2	mg/L	6/11/08	06/16/08
003 Day 07 HA	17237-203	63		2	mg/L	6/11/08	06/16/08
004 Day 07 HA	17237-204	65		2	mg/L	6/11/08	06/16/08
005 Day 07 HA	17237-205	70		2	mg/L	6/11/08	06/16/08
006 Day 07 HA	17237-206	74		2	mg/L	6/11/08	06/16/08
007 Day 07 HA	17237-207	64		2	mg/L	6/11/08	06/16/08
008 Day 07 HA	17237-208	71		2	mg/L	6/11/08	06/16/08
009 Day 07 HA	17237-209	73		2	mg/L	6/11/08	06/16/08
010 Day 07 HA	17237-210	59		2	mg/L	6/11/08	06/16/08
011 Day 07 HA	17237-211	64		2	mg/L	6/11/08	06/16/08
012 Day 07 HA	17237-212	64		2	mg/L	6/11/08	06/16/08
013 Day 07 HA	17237-213	64		2	mg/L	6/11/08	06/16/08
014 Day 07 HA	17237-214	72		2	mg/L	6/11/08	06/16/08
015 Day 07 HA	17237-215	65		2	mg/L	6/11/08	06/16/08
016 Day 07 HA	17237-216	55		2	mg/L	6/11/08	06/16/08
017 Day 07 HA	17237-217	64		2	mg/L	6/11/08	06/16/08
018 Day 07 HA	17237-218	64		2	mg/L	6/11/08	06/16/08
019 Day 07 HA	17237-219	71		2	mg/L	6/11/08	06/16/08
020 Day 07 HA	17237-220	72		2	mg/L	6/11/08	06/16/08
000 Day 14 HA	17237-300	71		2	mg/L	6/18/08	07/01/08
001 Day 14 HA	17237-301	86		2	mg/L	6/18/08	07/01/08
002 Day 14 HA	17237-302	85		2	mg/L	6/18/08	07/01/08
003 Day 14 HA	17237-303	78		2	mg/L	6/18/08	07/01/08
004 Day 14 HA	17237-304	75		2	mg/L	6/18/08	07/01/08
005 Day 14 HA	17237-305	84		2	mg/L	6/18/08	07/01/08

006 Day 14 HA	17237-306	86	2 mg/L	6/18/08	07/01/08
007 Day 14 HA	17237-307	78	2 mg/L	6/18/08	07/01/08
008 Day 14 HA	17237-308	84	2 mg/L	6/18/08	07/01/08
009 Day 14 HA	17237-309	92	2 mg/L	6/18/08	07/01/08
010 Day 14 HA	17237-310	78	2 mg/L	6/18/08	07/01/08
011 Day 14 HA	17237-311	73	2 mg/L	6/18/08	07/01/08
012 Day 14 HA	17237-312	74	2 mg/L	6/18/08	07/01/08
013 Day 14 HA	17237-313	76	2 mg/L	6/18/08	07/01/08
014 Day 14 HA	17237-314	82	2 mg/L	6/18/08	07/01/08
015 Day 14 HA	17237-315	71	2 mg/L	6/18/08	07/01/08
016 Day 14 HA	17237-316	100	4 mg/L	6/18/08	07/01/08
017 Day 14 HA	17237-317	85	2 mg/L	6/18/08	07/01/08
018 Day 14 HA	17237-318	86	2 mg/L	6/18/08	07/01/08
019 Day 14 HA	17237-319	73	2 mg/L	6/18/08	07/01/08
020 Day 14 HA	17237-320	69	2 mg/L	6/18/08	07/01/08
000 Day 21 HA	17280-400	70	2 mg/L	6/25/08	07/01/08
001 Day 21 HA	17237-400	80	2 mg/L	6/25/08	07/01/08
002 Day 21 HA	17237-401	83	2 mg/L	6/25/08	07/01/08
003 Day 21 HA	17237-402	75	2 mg/L	6/25/08	07/01/08
004 Day 21 HA	17237-403	76	2 mg/L	6/25/08	07/01/08
005 Day 21 HA	17237-404	81	2 mg/L	6/25/08	07/01/08
006 Day 21 HA	17237-405	83	2 mg/L	6/25/08	07/01/08
007 Day 21 HA	17237-406	77	2 mg/L	6/25/08	07/01/08
008 Day 21 HA	17237-407	80	2 mg/L	6/25/08	07/01/08
009 Day 21 HA	17237-408	92	2 mg/L	6/25/08	07/01/08
010 Day 21 HA	17237-409	72	2 mg/L	6/25/08	07/01/08
011 Day 21 HA	17237-410	67	2 mg/L	6/25/08	07/01/08
012 Day 21 HA	17237-411	91	2 mg/L	6/25/08	07/01/08
013 Day 21 HA	17237-412	80	2 mg/L	6/25/08	07/01/08
021 Day 21 HA	17237-413	69	2 mg/L	6/25/08	07/01/08
015 Day 21 HA	17237-414	67	2 mg/L	6/25/08	07/01/08
016 Day 21 HA	17237-415	67	2 mg/L	6/25/08	07/01/08
017 Day 21 HA	17237-416	53	2 mg/L	6/25/08	07/01/08
018 Day 21 HA	17237-417	58	2 mg/L	6/25/08	07/01/08
019 Day 21 HA	17237-418	76	2 mg/L	6/25/08	07/01/08
020 Day 21 HA	17237-419	76	2 mg/L	6/25/08	07/01/08
000 Day 28 HA	17280-500	63	2 mg/L	7/2/08	07/11/08
001 Day 28 HA	17237-500	76	2 mg/L	7/2/08	07/11/08
002 Day 28 HA	17237-501	79	2 mg/L	7/2/08	07/11/08
003 Day 28 HA	17237-502	71	2 mg/L	7/2/08	07/11/08
004 Day 28 HA	17237-503	70	2 mg/L	7/2/08	07/11/08
005 Day 28 HA	17237-504	85	2 mg/L	7/2/08	07/11/08
006 Day 28 HA	17237-505	86	2 mg/L	7/2/08	07/11/08
007 Day 28 HA	17237-506	77	2 mg/L	7/2/08	07/11/08
008 Day 28 HA	17237-507	77	2 mg/L	7/2/08	07/11/08
009 Day 28 HA	17237-508	97	2 mg/L	7/2/08	07/11/08
010 Day 28 HA	17237-509	70	2 mg/L	7/2/08	07/11/08
011 Day 28 HA	17237-510	70	2 mg/L	7/2/08	07/11/08
012 Day 28 HA	17237-511	73	2 mg/L	7/2/08	07/11/08
013 Day 28 HA	17237-512	61	2 mg/L	7/2/08	07/11/08
014 Day 28 HA	17237-513	71	2 mg/L	7/2/08	07/11/08
015 Day 28 HA	17237-514	63	2 mg/L	7/2/08	07/11/08
016 Day 28 HA	17237-515	50	2 mg/L	7/2/08	07/11/08
017 Day 28 HA	17237-516	52	2 mg/L	7/2/08	07/11/08
018 Day 28 HA	17237-517	33	2 mg/L	7/2/08	07/11/08
019 Day 28 HA	17237-518	73	2 mg/L	7/2/08	07/11/08
020 Day 28 HA	17237-519	73	2 mg/L	7/2/08	07/11/08

STUDY: 17237
CLIENT: Tetra Tech, Inc.
PROJECT: Site 08 - NUSC Disposal Area Newport Naval Station, CTO-0402
ASSAY: Hyalella azteca 28-day
ELEMENT/TASK: Water Quality
PARAMETER: Hardness
METHOD: SW846 3rd Ed. 6010

ID	LAB ID	RESULT	QUAL	QLIMIT	UNITS	SAMPLED	ANALYZED
000 Day 00 HA	17280-108	75		0.3	mg/L	06/04/08	06/12/08
001 Day 00 HA	17237-121	110		0.3	mg/L	06/04/08	06/12/08
002 Day 00 HA	17237-122	94		0.3	mg/L	06/04/08	06/12/08
003 Day 00 HA	17237-123	82		0.3	mg/L	06/04/08	06/12/08
004 Day 00 HA	17237-124	78		0.3	mg/L	06/04/08	06/12/08
005 Day 00 HA	17237-125	87		0.3	mg/L	06/04/08	06/12/08
006 Day 00 HA	17237-126	86		0.3	mg/L	06/04/08	06/12/08
007 Day 00 HA	17237-127	86		0.3	mg/L	06/04/08	06/12/08
008 Day 00 HA	17237-128	92		0.3	mg/L	06/04/08	06/12/08
009 Day 00 HA	17237-129	85		0.3	mg/L	06/04/08	06/12/08
010 Day 00 HA	17237-130	79		0.3	mg/L	06/04/08	06/12/08
011 Day 00 HA	17237-131	77		0.3	mg/L	06/04/08	06/12/08
012 Day 00 HA	17237-132	75		0.3	mg/L	06/04/08	06/12/08
013 Day 00 HA	17237-133	76		0.3	mg/L	06/04/08	06/12/08
014 Day 00 HA	17237-134	77		0.3	mg/L	06/04/08	06/12/08
015 Day 00 HA	17237-135	69		0.3	mg/L	06/04/08	06/12/08
016 Day 00 HA	17237-136	71		0.3	mg/L	06/04/08	06/12/08
017 Day 00 HA	17237-137	74		0.3	mg/L	06/04/08	06/12/08
018 Day 00 HA	17237-138	68		0.3	mg/L	06/04/08	06/12/08
019 Day 00 HA	17237-139	89		0.3	mg/L	06/04/08	06/12/08
020 Day 00 HA	17237-140	78		0.3	mg/L	06/04/08	06/12/08
000 Day 07 HA	17237-221	93		0.3	mg/L	06/11/08	06/12/08
001 Day 07 HA	17237-222	110		0.3	mg/L	06/11/08	06/12/08
002 Day 07 HA	17237-223	100		0.3	mg/L	06/11/08	06/12/08
003 Day 07 HA	17237-224	95		0.3	mg/L	06/11/08	06/12/08
004 Day 07 HA	17237-225	88		0.3	mg/L	06/11/08	06/12/08
005 Day 07 HA	17237-226	92		0.3	mg/L	06/11/08	06/12/08
006 Day 07 HA	17237-227	92		0.3	mg/L	06/11/08	06/12/08
007 Day 07 HA	17237-228	88		0.3	mg/L	06/11/08	06/12/08
008 Day 07 HA	17237-229	100		0.3	mg/L	06/11/08	06/12/08
009 Day 07 HA	17237-230	94		0.3	mg/L	06/11/08	06/12/08
010 Day 07 HA	17237-231	90		0.3	mg/L	06/11/08	06/12/08
011 Day 07 HA	17237-232	89		0.3	mg/L	06/11/08	06/12/08
012 Day 07 HA	17237-233	82		0.3	mg/L	06/11/08	06/12/08
013 Day 07 HA	17237-234	80		0.3	mg/L	06/11/08	06/12/08
014 Day 07 HA	17237-235	83		0.3	mg/L	06/11/08	06/15/08
015 Day 07 HA	17237-236	84		0.3	mg/L	06/11/08	06/15/08
016 Day 07 HA	17237-237	78		0.3	mg/L	06/11/08	06/15/08
017 Day 07 HA	17237-238	88		0.3	mg/L	06/11/08	06/15/08
018 Day 07 HA	17237-239	97		0.3	mg/L	06/11/08	06/15/08
019 Day 07 HA	17237-240	90		0.3	mg/L	06/11/08	06/15/08
000 Day 14 HA	17237-321	92		0.3	mg/L	06/18/08	06/19/08
001 Day 14 HA	17237-322	100		0.3	mg/L	06/18/08	06/19/08

002 Day 14 HA	17237-323	110	0.3	mg/L	06/18/08	06/19/08
003 Day 14 HA	17237-324	97	0.3	mg/L	06/18/08	06/19/08
004 Day 14 HA	17237-325	93	0.3	mg/L	06/18/08	06/19/08
005 Day 14 HA	17237-326	99	0.3	mg/L	06/18/08	06/19/08
006 Day 14 HA	17237-327	100	0.3	mg/L	06/18/08	06/19/08
007 Day 14 HA	17237-328	94	0.3	mg/L	06/18/08	06/19/08
008 Day 14 HA	17237-329	99	0.3	mg/L	06/18/08	06/19/08
009 Day 14 HA	17237-330	110	0.3	mg/L	06/18/08	06/19/08
010 Day 14 HA	17237-331	93	0.3	mg/L	06/18/08	06/19/08
011 Day 14 HA	17237-332	92	0.3	mg/L	06/18/08	06/19/08
012 Day 14 HA	17237-333	87	0.3	mg/L	06/18/08	06/19/08
013 Day 14 HA	17237-334	90	0.3	mg/L	06/18/08	06/19/08
014 Day 14 HA	17237-335	94	0.3	mg/L	06/18/08	06/19/08
015 Day 14 HA	17237-336	90	0.3	mg/L	06/18/08	06/19/08
016 Day 14 HA	17237-337	130	0.3	mg/L	06/18/08	06/19/08
017 Day 14 HA	17237-338	110	0.3	mg/L	06/18/08	06/19/08
018 Day 14 HA	17237-339	110	0.3	mg/L	06/18/08	06/19/08
019 Day 14 HA	17237-340	96	0.3	mg/L	06/18/08	06/19/08
020 Day 14 HA	17237-341	100	0.3	mg/L	06/18/08	06/19/08
001 Day 21 HA	17237-420	97	0.3	mg/L	06/25/08	06/27/08
002 Day 21 HA	17237-421	100	0.3	mg/L	06/25/08	06/27/08
003 Day 21 HA	17237-422	98	0.3	mg/L	06/25/08	06/27/08
004 Day 21 HA	17237-423	96	0.3	mg/L	06/25/08	06/27/08
005 Day 21 HA	17237-424	100	0.3	mg/L	06/25/08	06/27/08
006 Day 21 HA	17237-425	100	0.3	mg/L	06/25/08	06/27/08
007 Day 21 HA	17237-426	98	0.3	mg/L	06/25/08	06/27/08
008 Day 21 HA	17237-427	100	0.3	mg/L	06/25/08	06/27/08
009 Day 21 HA	17237-428	110	0.3	mg/L	06/25/08	06/27/08
010 Day 21 HA	17237-429	92	0.3	mg/L	06/25/08	06/27/08
011 Day 21 HA	17237-430	92	0.3	mg/L	06/25/08	06/27/08
012 Day 21 HA	17237-431	110	0.3	mg/L	06/25/08	06/27/08
013 Day 21 HA	17237-432	110	0.3	mg/L	06/25/08	06/27/08
021 Day 21 HA	17237-433	97	0.3	mg/L	06/25/08	06/27/08
015 Day 21 HA	17237-434	86	0.3	mg/L	06/25/08	06/27/08
016 Day 21 HA	17237-435	120	0.3	mg/L	06/25/08	06/27/08
017 Day 21 HA	17237-436	99	0.3	mg/L	06/25/08	06/27/08
018 Day 21 HA	17237-437	97	0.3	mg/L	06/25/08	06/27/08
019 Day 21 HA	17237-438	95	0.3	mg/L	06/25/08	06/27/08
020 Day 21 HA	17237-439	100	0.3	mg/L	06/25/08	06/27/08
000 Day 28 HA	17280-508	82	0.3	mg/L	07/02/08	07/03/08
001 Day 28 HA	17237-520	89	0.3	mg/L	07/02/08	07/03/08
002 Day 28 HA	17237-521	93	0.3	mg/L	07/02/08	07/03/08
003 Day 28 HA	17237-522	87	0.3	mg/L	07/02/08	07/03/08
004 Day 28 HA	17237-523	84	0.3	mg/L	07/02/08	07/03/08
005 Day 28 HA	17237-524	93	0.3	mg/L	07/02/08	07/03/08
006 Day 28 HA	17237-525	98	0.3	mg/L	07/02/08	07/03/08
007 Day 28 HA	17237-526	88	0.3	mg/L	07/02/08	07/03/08
008 Day 28 HA	17237-527	93	0.3	mg/L	07/02/08	07/03/08
009 Day 28 HA	17237-528	120	0.3	mg/L	07/02/08	07/03/08
010 Day 28 HA	17237-529	83	0.3	mg/L	07/02/08	07/03/08
011 Day 28 HA	17237-530	84	0.3	mg/L	07/02/08	07/03/08
012 Day 28 HA	17237-531	93	0.3	mg/L	07/02/08	07/03/08
013 Day 28 HA	17237-532	77	0.3	mg/L	07/02/08	07/03/08

014 Day 28 HA	17237-533	80	0.3	mg/L	07/02/08	07/03/08
015 Day 28 HA	17237-534	82	0.3	mg/L	07/02/08	07/03/08
016 Day 28 HA	17237-535	87	0.3	mg/L	07/02/08	07/03/08
017 Day 28 HA	17237-536	84	0.3	mg/L	07/02/08	07/03/08
018 Day 28 HA	17237-537	85	0.3	mg/L	07/02/08	07/03/08
019 Day 28 HA	17237-538	89	0.3	mg/L	07/02/08	07/03/08
020 Day 28 HA	17237-539	88	0.3	mg/L	07/02/08	07/03/08

STUDY: 17237
CLIENT: Tetra Tech, Inc.
PROJECT: Site 08 - NUSC Disposal Area Newport Naval Station, CTO-0402
ASSAY: Hyalella azteca 28-day
ELEMENT/TASK: Water Quality
PARAMETER: Ammonia
METHOD: SM 4500-NH3 G

ID	LAB ID	RESULT	QUAL	QLIMIT	UNITS	SAMPLED	ANALYZED
000 Day 00 HA	17280-116	ND			0.1 mg/L as N	06/04/08	06/06/08
001 Day 00 HA	17237-141	0.95			0.1 mg/L as N	06/04/08	06/05/08
002 Day 00 HA	17237-142	0.45			0.1 mg/L as N	06/04/08	06/05/08
003 Day 00 HA	17237-143	ND			0.1 mg/L as N	06/04/08	06/05/08
004 Day 00 HA	17237-144	0.19			0.1 mg/L as N	06/04/08	06/05/08
005 Day 00 HA	17237-145	0.14			0.1 mg/L as N	06/04/08	06/05/08
006 Day 00 HA	17237-146	0.14			0.1 mg/L as N	06/04/08	06/05/08
007 Day 00 HA	17237-147	0.41			0.1 mg/L as N	06/04/08	06/05/08
008 Day 00 HA	17237-148	0.12			0.1 mg/L as N	06/04/08	06/05/08
009 Day 00 HA	17237-149	0.69			0.1 mg/L as N	06/04/08	06/05/08
010 Day 00 HA	17237-150	ND			0.1 mg/L as N	06/04/08	06/05/08
011 Day 00 HA	17237-151	0.23			0.1 mg/L as N	06/04/08	06/05/08
012 Day 00 HA	17237-152	0.6			0.1 mg/L as N	06/04/08	06/05/08
013 Day 00 HA	17237-153	0.68			0.1 mg/L as N	06/04/08	06/05/08
014 Day 00 HA	17237-154	2.2			0.1 mg/L as N	06/04/08	06/05/08
015 Day 00 HA	17237-155	1.3			0.1 mg/L as N	06/04/08	06/06/08
016 Day 00 HA	17237-156	0.17			0.1 mg/L as N	06/04/08	06/06/08
017 Day 00 HA	17237-157	0.77			0.1 mg/L as N	06/04/08	06/06/08
018 Day 00 HA	17237-158	0.96			0.1 mg/L as N	06/04/08	06/06/08
019 Day 00 HA	17237-159	0.12			0.1 mg/L as N	06/04/08	06/06/08
020 Day 00 HA	17237-160	ND			0.1 mg/L as N	06/04/08	06/06/08
000 Day 07 HA	17237-242	ND			0.1 mg/L as N	06/11/08	06/18/08
001 Day 07 HA	17237-243	ND			0.1 mg/L as N	06/11/08	06/18/08
002 Day 07 HA	17237-244	ND			0.1 mg/L as N	06/11/08	06/18/08
003 Day 07 HA	17237-245	ND			0.1 mg/L as N	06/11/08	06/18/08
004 Day 07 HA	17237-246	ND			0.1 mg/L as N	06/11/08	06/18/08
005 Day 07 HA	17237-247	0.13			0.1 mg/L as N	06/11/08	06/18/08
006 Day 07 HA	17237-248	ND			0.1 mg/L as N	06/11/08	06/18/08
007 Day 07 HA	17237-249	ND			0.1 mg/L as N	06/11/08	06/18/08
008 Day 07 HA	17237-250	ND			0.1 mg/L as N	06/11/08	06/18/08
009 Day 07 HA	17237-251	ND			0.1 mg/L as N	06/11/08	06/18/08
010 Day 07 HA	17237-252	ND			0.1 mg/L as N	06/11/08	06/18/08
011 Day 07 HA	17237-253	ND			0.1 mg/L as N	06/11/08	06/18/08
012 Day 07 HA	17237-254	ND			0.1 mg/L as N	06/11/08	06/18/08
013 Day 07 HA	17237-255	ND			0.1 mg/L as N	06/11/08	06/18/08
014 Day 07 HA	17237-256	ND			0.1 mg/L as N	06/11/08	06/18/08
015 Day 07 HA	17237-257	0.24			0.1 mg/L as N	06/11/08	06/18/08
016 Day 07 HA	17237-258	0.22			0.1 mg/L as N	06/11/08	06/18/08
017 Day 07 HA	17237-259	ND			0.1 mg/L as N	06/11/08	06/18/08
018 Day 07 HA	17237-260	0.21			0.1 mg/L as N	06/11/08	06/18/08
019 Day 07 HA	17237-261	ND			0.1 mg/L as N	06/11/08	06/18/08
020 Day 07 HA	17237-262	0.24			0.1 mg/L as N	06/11/08	06/18/08

000 Day 14 HA	17237-342		0.11	0.1 mg/L as N	06/18/08	06/25/08
001 Day 14 HA	17237-343	ND		0.1 mg/L as N	06/18/08	06/25/08
002 Day 14 HA	17237-344	ND		0.1 mg/L as N	06/18/08	06/25/08
003 Day 14 HA	17237-345	ND		0.1 mg/L as N	06/18/08	06/25/08
004 Day 14 HA	17237-346	ND		0.1 mg/L as N	06/18/08	06/25/08
005 Day 14 HA	17237-347	ND		0.1 mg/L as N	06/18/08	06/25/08
006 Day 14 HA	17237-348	ND		0.1 mg/L as N	06/18/08	06/25/08
007 Day 14 HA	17237-349	ND		0.1 mg/L as N	06/18/08	06/25/08
008 Day 14 HA	17237-350	ND		0.1 mg/L as N	06/18/08	06/25/08
009 Day 14 HA	17237-351	ND		0.1 mg/L as N	06/18/08	06/25/08
010 Day 14 HA	17237-352		0.11	0.1 mg/L as N	06/18/08	06/25/08
011 Day 14 HA	17237-353	ND		0.1 mg/L as N	06/18/08	06/25/08
012 Day 14 HA	17237-354	ND		0.1 mg/L as N	06/18/08	06/25/08
013 Day 14 HA	17237-355	ND		0.1 mg/L as N	06/18/08	06/25/08
014 Day 14 HA	17237-356	ND		0.1 mg/L as N	06/18/08	06/25/08
015 Day 14 HA	17237-357		0.19	0.1 mg/L as N	06/18/08	06/25/08
016 Day 14 HA	17237-358	ND		0.1 mg/L as N	06/18/08	06/25/08
017 Day 14 HA	17237-359	ND		0.1 mg/L as N	06/18/08	06/25/08
018 Day 14 HA	17237-360	ND		0.1 mg/L as N	06/18/08	06/25/08
019 Day 14 HA	17237-361	ND		0.1 mg/L as N	06/18/08	06/25/08
020 Day 14 HA	17237-362	ND		0.1 mg/L as N	06/18/08	06/25/08
000 Day 21 HA	17280-416	ND		0.1 mg/L as N	06/25/08	06/27/08
001 Day 21 HA	17237-440	ND		0.1 mg/L as N	06/25/08	06/27/08
002 Day 21 HA	17237-441	ND		0.1 mg/L as N	06/25/08	06/27/08
003 Day 21 HA	17237-442	ND		0.1 mg/L as N	06/25/08	06/27/08
004 Day 21 HA	17237-443	ND		0.1 mg/L as N	06/25/08	06/27/08
005 Day 21 HA	17237-444	ND		0.1 mg/L as N	06/25/08	06/27/08
006 Day 21 HA	17237-445	ND		0.1 mg/L as N	06/25/08	06/27/08
007 Day 21 HA	17237-446	ND		0.1 mg/L as N	06/25/08	06/27/08
008 Day 21 HA	17237-447	ND		0.1 mg/L as N	06/25/08	06/27/08
009 Day 21 HA	17237-448	ND		0.1 mg/L as N	06/25/08	06/27/08
010 Day 21 HA	17237-449	ND		0.1 mg/L as N	06/25/08	06/27/08
011 Day 21 HA	17237-450	ND		0.1 mg/L as N	06/25/08	06/27/08
012 Day 21 HA	17237-451	ND		0.1 mg/L as N	06/25/08	06/27/08
013 Day 21 HA	17237-452	ND		0.1 mg/L as N	06/25/08	06/27/08
021 Day 21 HA	17237-453	ND		0.1 mg/L as N	06/25/08	06/27/08
015 Day 21 HA	17237-454	ND		0.1 mg/L as N	06/25/08	06/27/08
016 Day 21 HA	17237-455	ND		0.1 mg/L as N	06/25/08	06/27/08
017 Day 21 HA	17237-456	ND		0.1 mg/L as N	06/25/08	06/27/08
018 Day 21 HA	17237-457	ND		0.1 mg/L as N	06/25/08	06/27/08
019 Day 21 HA	17237-458	ND		0.1 mg/L as N	06/25/08	06/27/08
020 Day 21 HA	17237-459	ND		0.1 mg/L as N	06/25/08	06/27/08
000 Day 28 HA	17280-516	ND		0.1 mg/L as N	07/02/08	07/02/08
001 Day 28 HA	17237-540		0.72	0.1 mg/L as N	07/02/08	07/02/08
002 Day 28 HA	17237-541	ND		0.1 mg/L as N	07/02/08	07/02/08
003 Day 28 HA	17237-542	ND		0.1 mg/L as N	07/02/08	07/02/08
004 Day 28 HA	17237-543	ND		0.1 mg/L as N	07/02/08	07/02/08
005 Day 28 HA	17237-544	ND		0.1 mg/L as N	07/02/08	07/02/08
006 Day 28 HA	17237-545	ND		0.1 mg/L as N	07/02/08	07/02/08
007 Day 28 HA	17237-546	ND		0.1 mg/L as N	07/02/08	07/02/08
008 Day 28 HA	17237-547	ND		0.1 mg/L as N	07/02/08	07/02/08
009 Day 28 HA	17237-548	ND		0.1 mg/L as N	07/02/08	07/03/08

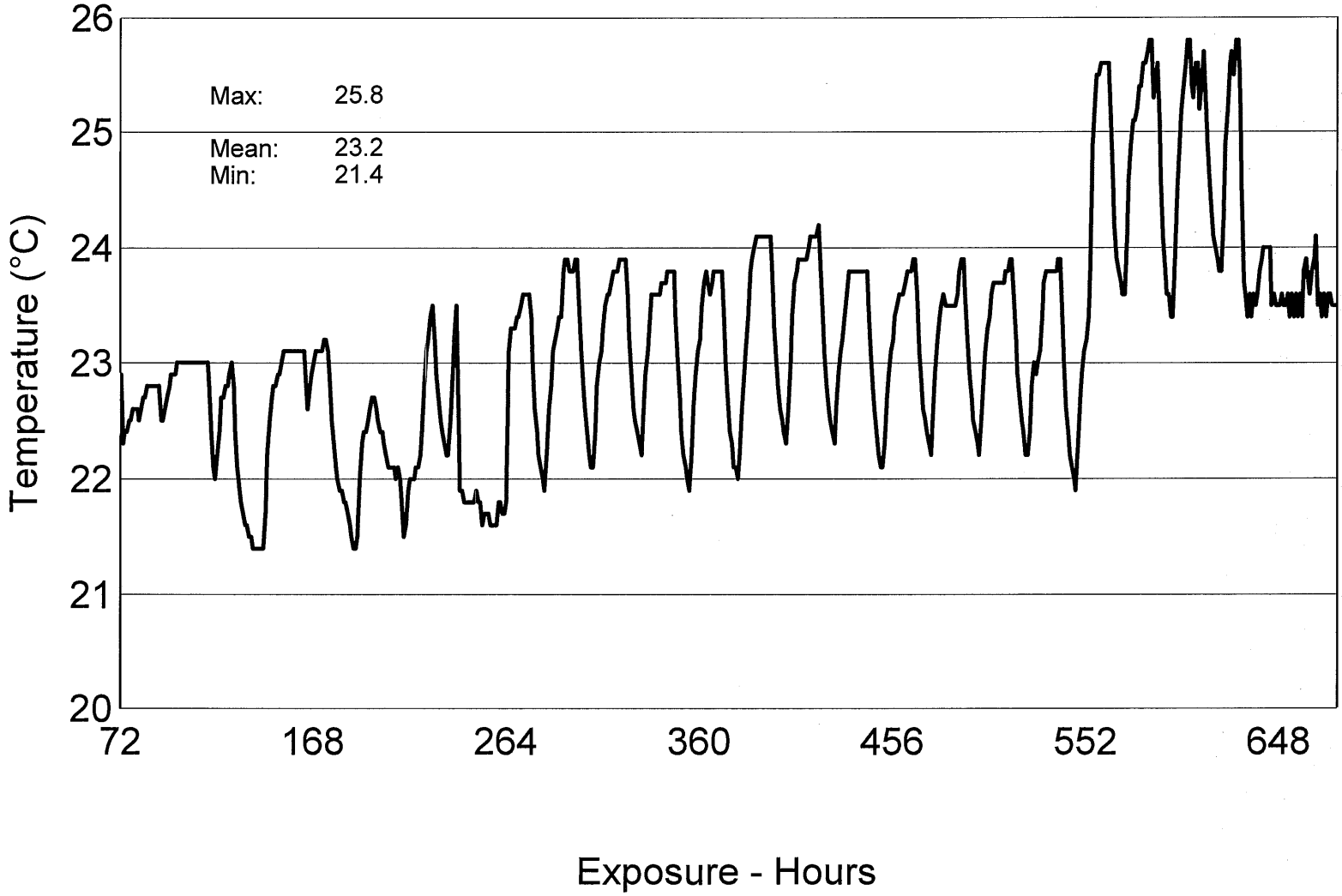
010 Day 28 HA	17237-549	ND		0.1 mg/L as N	07/02/08	07/03/08
011 Day 28 HA	17237-550	ND		0.1 mg/L as N	07/02/08	07/03/08
012 Day 28 HA	17237-551	ND		0.1 mg/L as N	07/02/08	07/03/08
013 Day 28 HA	17237-552	ND		0.1 mg/L as N	07/02/08	07/03/08
014 Day 28 HA	17237-553	ND		0.1 mg/L as N	07/02/08	07/03/08
015 Day 28 HA	17237-554	ND		0.1 mg/L as N	07/02/08	07/03/08
016 Day 28 HA	17237-555	ND		0.1 mg/L as N	07/02/08	07/03/08
017 Day 28 HA	17237-556		0.19	0.1 mg/L as N	07/02/08	07/03/08
018 Day 28 HA	17237-557	ND		0.1 mg/L as N	07/02/08	07/03/08
019 Day 28 HA	17237-558	ND		0.1 mg/L as N	07/02/08	07/03/08
020 Day 28 HA	17237-559	ND		0.1 mg/L as N	07/02/08	07/03/08

STUDY: 17237
CLIENT: Tetra Tech, Inc.
PROJECT: Site 08 - NUSC Disposal Area Newport Naval Station, CTO-0402
ASSAY: Hyalella azteca 28-day
ELEMENT/TASK: Water Quality
PARAMETER: TOC
METHOD: SM 5310 C

ID	LAB ID	RESULT	QUAL	QLIMIT	UNITS	SAMPLED	ANALYZED
000 Day 00 HA	17280-124	3.1		0.4	mg/L	06/04/08	06/11/08
001 Day 00 HA	17237-161	8.3		0.4	mg/L	06/04/08	06/11/08
002 Day 00 HA	17237-162	7		0.4	mg/L	06/04/08	06/11/08
003 Day 00 HA	17237-163	6.1		0.4	mg/L	06/04/08	06/11/08
004 Day 00 HA	17237-164	6.5		0.4	mg/L	06/04/08	06/11/08
000 Day 28 HA	17280-524	5.4		0.4	mg/L	07/02/08	07/06/08
001 Day 28 HA	17237-560	9.7		0.4	mg/L	07/02/08	07/07/08
002 Day 28 HA	17237-561	5.8		0.4	mg/L	07/02/08	07/07/08
003 Day 28 HA	17237-562	5.2		0.4	mg/L	07/02/08	07/07/08
004 Day 28 HA	17237-563	5.7		0.4	mg/L	07/02/08	07/07/08
005 Day 28 HA	17237-564	5.6		0.4	mg/L	07/02/08	07/07/08
006 Day 28 HA	17237-565	5.3		0.4	mg/L	07/02/08	07/07/08
007 Day 28 HA	17237-566	4.5		0.4	mg/L	07/02/08	07/07/08
008 Day 28 HA	17237-567	4.8		0.4	mg/L	07/02/08	07/07/08
009 Day 28 HA	17237-568	5.3		0.4	mg/L	07/02/08	07/07/08
010 Day 28 HA	17237-569	5.1		0.4	mg/L	07/02/08	07/07/08
011 Day 28 HA	17237-570	5.1		0.4	mg/L	07/02/08	07/07/08
012 Day 28 HA	17237-571	5		0.4	mg/L	07/02/08	07/07/08
013 Day 28 HA	17237-572	4.8		0.4	mg/L	07/02/08	07/07/08
014 Day 28 HA	17237-573	5.1		0.4	mg/L	07/02/08	07/07/08
015 Day 28 HA	17237-574	5.3		0.4	mg/L	07/02/08	07/07/08
016 Day 28 HA	17237-575	4.7		0.4	mg/L	07/02/08	07/07/08
017 Day 28 HA	17237-576	4.9		0.4	mg/L	07/02/08	07/07/08
018 Day 28 HA	17237-577	4.7		0.4	mg/L	07/02/08	07/07/08
019 Day 28 HA	17237-578	5.5		0.4	mg/L	07/02/08	07/07/08
020 Day 28 HA	17237-579	5.6		0.4	mg/L	07/02/08	07/07/08

Hyalella azteca 28 Day Assay

Temperature Profile



Aquatic Research Organisms

Rec'd 6-4-08 1130 DM

DATA SHEET

I. Organism History

Species Hyalella azteca

Source: Lab reared ✓ Hatchery reared _____ Field collected _____

Hatch date 5/28/08 Receipt date _____

Lot number 052808HA Strain ARO

Brood origination USFWS MO

II. Water Quality

Temperature 23 °C Salinity — ppt D.O. Sat ppm

pH 7.4 su Hardness ≈ 120 ppm Alkalinity ≈ 150 ppm

III. Culture Conditions

Freshwater ✓ Saltwater _____ Other _____

Recirculating _____ Flow through _____ Static ✓

DIET: Flake food ✓ Phytoplankton _____ Trout chow ✓

Artemia _____ Rotifers _____ YCT _____ Other _____

Prophylactic treatments: _____

Comments: _____

_____

IV. Shipping Information

Client: ESS # of Organisms 2400

Carrier: PICKUP Date shipped 6/4/08

Biologist: Lisa Gentile

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 17237

CHAIN OF CUSTODY DOCUMENTATION

Client: Tetra Tech, Inc	Contact: Steve Parker	Project Name: NUSC Disposal Area	Page 1 of 2
Report to:	Address: 55 Jonspin Road	Project Number:	
Invoice to:	Address: Wilmington, MA 01887	Project Manager:	
Voice: 978-474-8434	Fax: 978-474-8499	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	DA-SP107-0006	5-19-08	1400hr	TC mlt	Grab	1gallon	P	ICE 4°C	S	N	Toxicity Test
-002	DA-SD108-0006		1445								
-003	DA-SD111-0006		1600								
-004	DA-SD112-0006		1545								
-005	DA-SD106-0006	5-20-08	0930								
-006	DA-SD-DUP01		0945								
-007	DA-SD110-0006		0800								
-008	DA-SD133-0006		1000								
-009	DA-SD01-0006		1130								
-010	DA-SD116-0006		1500								
-011	DA-SD114-0006		1600								
-012	DA-SD119-0006	5-21-08	1000								

Relinquished By: Tim A. Cuthell Date: 5/23/08 Time: 1340 hrs

Received By: [signature] Date: 5/23/08 Time: ~~14:30~~ 13:40 hrs

Relinquished By: [signature] Date: 5/23/08 Time: 1430

Received at Lab By: [signature] Date: 5/23/08 Time: 1430

Comments:

No: Nº 2962

Sample Delivery Group No:

Page of

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843
Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 17237

CHAIN OF CUSTODY DOCUMENTATION

Client: Tetra Tech, Inc	Contact: Steve Parker	Project Name:	Page 2 of 2
Report to:	Address: 55 Jonspin Road	Project Number:	
Invoice to:	Address: Wilmington, MA 01887	Project Manager:	
Voice: 978-474-8434	Fax: 978-474-8499	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-013	DA-SD-DUP02	5/21/08	1015	MH RC	G	1 gallon	P	ICE 4°C	S	N	Toxicity Test
-014	DA-SD121-0006	↓	1215	↓	↓	↓	↓	↓	↓	↓	↓
-015	DA-SD125-0006	↓	1330								
-016	DA-SD-RP01-0006	5/22/08	0930								
-017	DA-SD-RP02-0006	↓	1045								
-018	DA-SD-RP03-0006		1200								
-019	DA-SD-RP04-0006		1445								
-020	DA-SD-RP05-0006	↓	1515	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished By: T. A. Cahill Date: 5/23/08 Time: 1340 hrs Received By: [signature] Date: 5/23/08 Time: 1340 hrs

Relinquished By: [signature] Date: 5/23/08 Time: 1430 Received at Lab By: [signature] Date: 5/23/08 Time: 1430

Comments:

No: № 2963

Sample Delivery Group No: Page of

APPENDIX I.8

BENTHIC MACROINVERTEBRATE ASSESSMENT

RI NUSC Stream and Pond Assessment with Regards to Possible Toxic Effects

Ben Jessup
Tetra Tech, Inc.
Revised February 11, 2009

Introduction

This report presents the results of the benthic macroinvertebrate sampling that was conducted at the Naval Underwater Systems Command (NUSC), in Newport, Rhode Island. Attachment 1 contains the Biological Sampling Assessment that was provided to the regulators in September, 2007 to describe the biological conditions at the site, the potential sampling design, and the preliminary lead concentrations in the sediment samples. Attachment 1 also contains the Plan for Sediment and Biological Sampling that was submitted to the regulators on April 25, 2008. This plan listed the proposed sampling locations and the rationale for selecting each location.

Although several sample locations were selected to represent a range of lead concentrations in the various habitat types because lead was a primary chemical of concern in sediment, the evaluation in this report focuses primarily on the health of the biological community at each location, regardless of the contaminant concentrations at those locations. The impacts from all of the contaminant concentrations at each location (metals, volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls, and pesticides), are integrated into the evaluation in the ecological risk assessment, which is presented in Section 7.0 of the remedial investigation report.

The biological condition of the benthic macroinvertebrate assemblage was assessed in the NUSC streams, pond, and wetland/stream areas. Pond biological samples were compared between the NUSC pond and Upper Melville Pond, the local reference pond. The stream and wetland/stream sites were assessed by comparing NUSC samples to samples collected from the local reference stream (downstream of Upper Melville Pond) and a regional reference stream (Adamsville Brook). Biological metrics and indices that are sensitive to environmental stress or disturbance were the comparative measures. The stream indices included two multimetric calculations that have been used by the Rhode Island Department of Environmental Management (RIDEM); the Wadeable Stream Condition Index (RIDEM unpublished) and the Rapid Biassessment Protocol (RBP) comparison to a single regional reference site (RIDEM unpublished). Using both a local reference and a regional reference was useful for interpreting results at the site.

The three basic habitat types that were sampled at NUSC included pond, stream, and wetland-stream habitat (**Figure 1, Table 1**). Pond samples were taken from the south, middle and north portions of NUSC Pond. Stream samples were further divided among two channels (Deerfield Creek and the unnamed stream from the golf course) and either rocky or sandy dominant substrates. Considerable variability among stream samples due to the different substrate types and different pollutant concentrations was expected. Two wetland stream samples were taken where the two stream channels entered the pond and one wetland stream sample was taken in Deerfield Creek, just upstream of the site boundary, where the stream flowed slowly among dense scrubby vegetation.

Table 2 presents a description of each of the sample locations, along with the substrate type. Background stressors related to habitat quality were not quantified, but appear relatively consistent among site sites and were slightly better among local reference sites. The regional reference site was not visited (data were received from RI DEM).

Methods

To increase comparability among the site, local reference and regional reference samples, biological samples were collected using protocols similar to those used by RIDEM. The protocol applies only to stream samples and includes a timed, 3-5 minute D-frame net sample composited from three locations within each sampling reach. The samples were collected from moving water habitats, riffles if they existed, and covered a total of approximately 1 square meter of substrate. Sample detritus was preserved and sent to the laboratory for processing and identifications. Protocols for pond sites included collecting one composite sample per site made up of three grabs of the benthic sediments using a petite Ponar dredge.

Sample processing in the laboratory included picking all of the organisms from the detritus under magnification. All collected taxa were identified to the lowest practical level, usually genus. Abundant organisms were sub-sampled and multiplied up according to the subsample fraction, instead of counting each individual. Identification of the entire sample is not comparable to the RIDEM regional reference samples, which are sub-sampled to 100 organisms at the taxonomist's bench (i.e., only the first 100 organisms are identified). Therefore, the taxa list generated by the laboratory for the site and local reference samples was sub-sampled electronically to arrive at a comparable 100 organism sub-sample. The electronic subsampling was accomplished by assigning a random number to each individual in the sample, then sorting by random number and taking the first 100 as the sub-sample. Subsampling of the entire taxa list through computer randomization might under-count non-abundant taxa relative to bench subsampling techniques, resulting in fewer of the uncommon, and often more sensitive, insects. With this potential bias in mind, assessment based on comparisons to the regional reference condition will be experimental, but not conclusive.

The Ecological Data Analysis System (EDAS) customized for RIDEM, was used to organize and evaluate the data. This system is a Microsoft Access application with

automated functions for metric and index calculations. The taxa lists for each site and local reference sample were entered into EDAS, electronically sub-sampled, and metrics and indices were calculated on both the entire sample and the 100 organism subsample. Data from the regional reference site (Adamsville Brook) were also entered and assessed.

Analytical Methods

Three comparisons were used to assess the effects of potential contaminants in Deerfield Creek and the NUSC site pond: 1) comparison of biological indicators to the regional reference condition (streams only); 2) comparison to the local reference condition, and, 3) comparison among on-site samples in relation to habitat type and location. Comparison to the regional reference condition allows placement of the site biological conditions along a scale of overall biological potential. If there were only minimal site disturbances, the biological conditions in the site samples should be similar to the regional reference sample because both sets of samples are in the same ecological setting, the Narragansett-Bristol Lowlands Region (NBLR).

Comparisons of the sample taxa lists were made through ordination and cluster analysis for overall composition and through metrics and indices for assessment. Non-metric multidimensional scaling (NMS) is a multivariate method of comparing presence and absence of common taxa among samples. A similarity statistic (Bray-Curtis similarity) is calculated and samples are arranged on the diagram so that taxonomically similar samples are close to each other. Cluster analysis uses the same similarity statistic and arranges samples in a dendrogram, where similar samples are on the same branch.

The stream indices included the RIDEM Wadeable Stream Condition Index (WSCI) and the Rapid Bioassessment Protocol (RBP) comparison to a single regional reference site. The indices were calibrated using 100 organism subsamples. RIDEM has noted inconsistencies when the indices are used in small streams (personal communication with Connie Carey, RIDEM). Despite these possible sources of uncertainty, the indices were considered for lack of any other proven indicators. Individual metrics that are typically responsive to stressors were also considered. Taxa counts exclude those taxa that are not unique in the sample.

The regional reference site for the NBRL is Adamsville Brook (RWU03) in Tiverton/Little Compton (at the USGS gage on Rt. 81 [Crandall Rd.]). The local reference biological conditions, described through samples taken at Upper Melville Pond and its out-flowing stream, are what would be expected at the NUSC site if there were typical background stressors such as those generated by residential and urban development. Analysis of pond samples is limited to a comparison to the local reference conditions as there is no comparable regional reference site for ponds.

The standard deviations of the local reference stream and pond metrics and indices were calculated to help qualify differences in average values among sample sets. The habitat conditions among the reference sites were similar and the sites were relatively close to each other. Therefore, the standard deviation characterizes variability that we can attribute to sampling methods and minor environmental differences.

Site comparisons among individual stations and in relation to contamination levels can be made through examination of the sample taxa lists. The metrics and indices may not be sensitive to certain conditions of habitat and contamination. For instance, the dominant taxa in the samples may change with contaminant conditions.

Results

Benthic Composition

An overall comparison of benthic composition in all samples shows general relationships based on presence and absence of common taxa in the samples. The ordination diagram arranges samples according to their similarities and as expected, shows sites separated by location and habitat type (**Figure 2**). The regional reference stream sites are grouped together and opposite the NUSC and Upper Melville samples. This separation highlights significant differences that indicate either impairment or methodological inconsistencies, or both. Other stream samples group together in the lower left of the diagram, with slight but clear separation between the local reference stream, the NUSC streams, and the NUSC wetland/streams. The reference and NUSC pond samples were more variable (as indicated by wider separations, but were still grouped by pond.

Ordination results were confirmed by cluster analysis (**Figure 3**). In this analysis the greatest overlap in samples among site types was among NUSC steam samples and the NUSC wetland/stream samples. Regional reference and local reference samples were distinct from NUSC samples in their respective habitat types.

Comparison to regional reference conditions (stream sites only)

The reference conditions described by metrics and indices calculated on samples collected from Adamsville Brook appear to be different than conditions at either the local reference stream or the site stream. All three indices have values in Deerfield Creek that are about half of the average regional reference values (**Table 3**). RIDEM would consider a site with biological indicators at 50% of reference to be moderately impaired. Samples from the local reference would also be considered impaired, though the level of impairment varies among indicators, from “moderately impaired” for either calculation of the WSCI to “slightly impaired” for the RBP index. Though the substrate and habitat features in the wetland/stream sites are not typical for application of the indices, the values from these samples are similar to the values in the Deerfield Creek samples.

Individual metrics illustrate the major differences among reference and site streams (**Table 4**). Four metrics that are commonly used for assessment include total taxa, EPT taxa, % EPT individuals, and the HBI. EPT stands for the pollution sensitive insect orders Ephemeroptera, Plecoptera, and Trichoptera (mayflies, stoneflies, and caddisflies). HBI is the Hilsenhoff Biotic Index, which is the average community tolerance to generalized pollution levels. After standardizing for subsample size, the number of taxa collected in all samples was relatively equal among site types and the regional reference site had the

lowest values, on average. Taxa diversity is expected to be high in sites with minimal stressors.

However, the split between insect and non-insect taxa are unequal among reference site types, with the regional reference site having fewer of the more tolerant non-insect taxa than either the local reference or the site. The relative scarcity of insect taxa in the local reference site may be due to the high dominance of the isopod *Caecidotea* and snails, which are opportunistic and are apparently thriving in the pond outflow, which may be nutrient rich.

EPT taxa make up a much larger proportion of the taxa and individuals in the regional reference samples compared to the local reference or site samples. In the regional reference samples, there are about 4 EPT taxa per sample and 58% of individuals. In the local reference and NUSCsites EPT make up less than 1% of the individuals.

The HBI is lower in the regional reference samples compared to other site types. This indicates that more pollution tolerant individuals inhabit the local reference and NUSC sites. Percent scrapers (individuals that scrape algae from substrates for food) was high in the regional reference compared to the site stream, but not as high as in the local reference stream. While lack of scrapers can indicate toxicity or lack of substrate, overabundance can indicate overgrowth of algae, which is suspected in the local reference stream of nutrient rich pond water.

Comparison to the local reference

For two of the three indices, the values for the NUSC sites are lower than those in the local reference sites (**Table 3**). The WSCI adjusted to the 100 organism subsample is the oddity and shows better conditions in the NUSC sites compared to the local reference. This is probably due to the dominance of non-insect taxa that are retained in virtual subsampling, while the uncommon insect taxa were probably randomly removed. Because this comparison does not include the regional reference sample, the results from the entire samples can be used without electronic subsampling.

In contrast to the local reference samples, most site samples lack scrapers. Total taxa and % EPT are also lower in the site samples as opposed to local reference samples, though the difference is negligible for % EPT. The HBI is unexpectedly lower in site samples compared to the local reference, indicating that the local reference sites have more pollution tolerant organisms. The HBI was developed to detect organic pollution caused by nutrient enrichment and is not specifically responsive to pollution from toxicants. The ratio of insect taxa to non-insect taxa is higher in NUSC sites compared to local reference sites due to the high diversity of chironomids in the site stream samples and a dominance of isopods and snails in the local reference samples. The isopods and snails are pollution tolerant and thrive in high densities, probably due to high nutrient levels.

Metrics in the NUSC wetland/stream sites differ from those in the NUSC stream sites, on average. In wetland/stream samples chironomids make up much of the insect diversity.

The dominant organisms in these slower water habitats (Chironomus and tubificid worms) are more pollution tolerant than those in the stream.

Pond Samples

No index applicable for assessment of benthic pond organisms in RI was found. The foremost indicators would be metrics representing the diversity and composition of the samples, such as total taxa and % tubificid worms. Total taxa in the reference samples averaged about 16 taxa, compared to 6 in the site pond (**Table 5**). This is a meaningful reduction in taxa, indicating that the conditions in the site pond are inadequate for a diverse benthic community.

Most of the organisms in the NUSC pond are tubificid worms and the rest are chironomids. These are highly tolerant of polluted conditions and this is reflected in the highest possible values of the HBI. In the local reference pond a greater diversity of organisms and more pollution sensitive organisms were collected. Other than tubificids and chironomids, the reference samples included isopods, earthworms, flatworms, leeches, snails, clams, and several insect taxa. All of the metrics reflect diversity in the taxa, their pollution tolerance, and their feeding mechanisms.

Within Site Comparison

The NUSC site has three moving water habitats: Deerfield Creek, the unnamed tributary that runs from an adjacent golf course, and the wetland areas in Deerfield Creek just upstream of the site boundary and downstream at the mouths of the two streams. The wetland areas have slower moving water and finer substrates than in the streams, but they are even less comparable to the pond sites, regarding habitat conditions.

Differences among different habitat types on the NUSC site are apparent in the metrics (**Table 4**), though index values are similar (**Table 3**). The wetland/stream sites have more taxa and lower percent dominance on average, though this is due mostly to high diversity in the uppermost station, not in the stations at the pond edge. The mix of insects and non-insects is similar among habitat types, but other metrics are different. There are no EPT taxa, higher HBI values, and fewer scrapers in the wetland/stream stations, which may be responses to higher stress in the wetland stream stations.

Metrics from the two stations on the unnamed tributary were similar to those in Deerfield Creek in general (**Table 4**). The two stations on the unnamed tributary were not similar to each other in many respects, making it difficult to draw conclusions about possible differences in stressor sources in the two channels. However, scrapers were abundant only in the unnamed tributary, not in Deerfield Creek. Scrapers ingest sediments associated with algal mats as well as contaminants incorporated by the algae, providing a direct pathway for contaminants to affect the organisms. Scrapers may be absent from Deerfield Creek either because the algal mats are toxic to the organisms or because conditions in Deerfield Creek are unsuitable for algal growth (e.g., toxicity to plants, excessive shading, unsuitable substrates).

Conclusions

Biological conditions in Deerfield Creek, the unnamed tributary, and the NUSC pond show impairment in some stations. Site contamination may be responsible for impairment. These analyses alone are not adequate to prove causation between stressor sources, stressors, and biological responses. Variable nutrient enrichment levels among sites may be affecting results, but this cannot be confirmed because nutrient data were not reported. Multiple comparisons of biological index and metrics values were used to arrive at these conclusions. They are summarized in **Table 6** and the discussion below. **Table 7** gives final biological assessments for each site, weighting heavily on the comparison to the local reference conditions.

Relative to the regional reference (Adamsville Brook), both index values and individual metrics indicate moderate impairment in the NUSC stream and wetland/stream sites, as well as in the local reference stream (Upper Melville Pond). The main differences are that the NUSC stream samples have more non-insect taxa, fewer EPT taxa and individuals, more tolerant individuals. NUSC stream samples have fewer scraper individuals and local reference samples have more. So while the indices show impairment in both reference and NUSC sites, the metrics indicate that the type of impairment (and therefore the type of stressor) may be different. In addition, index values in Deerfield Creek are slightly worse than those in the local reference site.

These results should be qualified (**Table 8**) with the acknowledgement that the indices may not be appropriate for application in small (first order) streams like Deerfield Creek and the local reference stream. A second caveat is that the regional reference samples were processed differently than comparative samples and this variation may contribute to differences in sample results. Nevertheless, we are confident that the indices are the best measures of overall biological condition and the individual metrics can be used to further interpret comparative results.

The local reference site was selected as an example of a stream that has less exposure to certain contaminants and that is otherwise similar to the NUSC stream. From site visits and professional opinion, it was concluded that instream habitat conditions are similar among the local reference and NUSC sites. The immediate surrounding landscapes for the streams are not equal, however. Deerfield Creek originates in a wetland, the unnamed tributary originates in a golf course, and the local reference stream is just below Upper Melville Pond, which collects runoff from residential and urban areas. These differences may contribute to differences in nutrient concentrations, which were not analyzed. It is likely that nutrients are low in Deerfield Creek, slightly higher in the unnamed tributary, and higher still in the outflow of Upper Melville Pond. The NUSC pond may have high nutrients do to the high probability of fertilizer application on the upstream golf course.

The biological assemblage in the local reference site indicates nutrient enrichment. The dominant taxon is the isopod *Caecidotea*, which is tolerant of pollution. These organisms and other non-insect scrapers and collectors are thriving in the pond outflow. By contrast, the assemblage in Deerfield Creek has fewer non-insects and fewer scrapers. This may be

caused by contaminants acting on the organisms or their plant resources. Or the wetland at the head of Deerfield Creek is retaining nutrients and there is less productivity at the sampling sites, offering fewer food resources for scrapers.

The unnamed tributary on the NUSC site is biologically similar to the Deerfield Creek sites except for having relatively more scrapers. As in the comparison to the local reference stream this result may be due to either lower toxicity to the organisms or their food resources, or higher algal production.

The differences in the benthic pond communities are more stark and perhaps more conclusive. The habitats of the reference and NUSC ponds are similar and both apparently have contributing sources of nutrients. However, the diversity of organisms is much lower in the NUSC pond and they are all highly tolerant of pollution. By contrast, Upper Melville Pond has a relatively diverse community and some organisms are sensitive, or only moderately tolerant of pollution. If all other environmental conditions are relatively equal, we have some justification for attributing biological differences to differences in pollutant concentrations.

Table 1. Site identifiers by waterbody type and reference status

	Pond	Stream	Wetland/Stream
NUSC (Site)	ET 119, ET 121, ET 125	ET 106, ET 107, ET 108, ET 110, ET 111, ET 112, ET 133	ET 01, ET 114, ET 116
Upper Melville (Local Reference)	RP 01, RP 02, RP 03	RP 04, RP 05, RP 06	(none)
Adamsville Brook (Regional Reference)	(none)	RWU03	(none)

Table 2. Site Descriptions

Site ID	Description	Substrate	Total Organic Carbon	% Silt (% Clay)
Site Pond				
ET 119	Southern pond site	Muck	70500	73.8 (12.6)
ET 121	Middle pond site	Muck	63000	79.7 (17.4)
ET 125	Northern pond site	Muck	56000	75.9 (23.4)
Reference Pond				
RP 01	Pond site 1	Sand and muck	16000	22.0 (4.1)
RP 02	Pond site 2	Sand and muck	44000	71.7 (8.1)
RP 03	Pond site 3	Sand and muck	75000	44.9 (4.9)
Site Stream				
ET 106	In the Deerfield channel	Gravel and cobble embedded with finer materials	29000	17.9 (11.8)
ET 107	Lower site on the unnamed channel	Gravel embedded with finer materials, algal mat	14000	13.7 (4.3)
ET 108	Upper site on the unnamed channel	Gravel embedded with finer materials, algal mat	3700	2.7 (0.6)
ET 110	In the Deerfield channel	Gravel and cobble embedded with finer materials	96000	11.2 (4.2)
ET 111	In the Deerfield channel	Gravel and cobble embedded with finer materials	19000	12.9 (7.3)
ET 112	Lowest site on the Deerfield channel, low gradient	Gravel embedded with finer materials, grasses in stream	64000	61.3 (21.6)
ET 133	Uppermost flowing water site on the Deerfield channel, adjacent to rip-rap bank	Mostly bedrock with some sediment pockets	25000	3.2 (2.6)
Reference Stream				
RP 04	Upstream site, near dam overflow	Gravel, cobble and wood embedded with finer materials	18000	9 (1)
RP 05	Middle site	Gravel, cobble and wood embedded with finer materials	16000	2.7 (2.1)
RP 06	Downstream site	Gravel, cobble and wood embedded with finer materials	No data	No data
Site Wetland/Stream				
ET 01	Above culvert and emerging from scrubby wetland	Silty mud	24000	12.8 (4.5)
ET 114	Inlet to pond from unnamed stream	Sand and silty mud	31000	42.5 (12.3)
ET 116	Inlet to pond from Deerfield	Sand and silty mud	55000	67.0 (19.3)

Table 3. Index Results for stream samples.

Station ID	RI WSCI (entire)	RI WSCI (sub-sample 100)	Single Reference RBP
Regional Ref Avg [1]	**54.7**	**54.7**	**24**
RP 04	35.6	24.7	18
RP 05	27.2	15.7	15
RP 06	27.2	17.6	15
Local Ref Avg	**30.0**	**19.3**	**16**
Local Ref St Dev	**4.8**	**4.7**	**1.7**
ET 106	17.5	22.1	9
ET 107	35.5	26.4	15
ET 108	30.7	34.4	6
ET 110	25.5	28.5	6
ET 111	23.0	27.2	15
ET 112	21.4	25.4	12
ET 133	27.2	29.2	9
Site Stream Avg	**25.8**	**27.6**	**10.3**
ET 01	21.3	15.9	18
ET 114	21.6	24.0	12
ET 116	29.4	25.0	9
Wetland/Stream Avg	**24.1**	**21.6**	**13**

[1] The regional reference is a single site. The values shown are averages over time, from nine samples collected between 1991 and 2001.

Table 4. Metric results for stream samples.

Station ID	Total Taxa [1]	Total Taxa [2]	Insect Taxa [1]	Non-Insct [1]	EPT Taxa [2]	% Dom [2]	% EPT [2]	HBI [2]	% scrap [2]
Reg Ref Avg	9.6	9.6	7.6	2.0	3.6	41.2	58.0	5.1	12.6
RP 04	16	39	4	12	3	25.4	0.05	7.2	24.7
RP 05	13	28	2	11	1	63.3	0.21	7.8	19.7
RP 06	16	27	3	13	2	30.8	0.36	7.2	20.7
Local Ref Avg	15.0	31.3	3	12	2	39.8	0.21	7.4	21.7
Local Ref St. Dev.	1.7	6.7	1	1	1	20.5	0.16	0.36	2.6
ET 106	17	25	10	7	1	33.9	0.05	6.3	0.2
ET 107[3]	17	33	9	8	1	16.0	0.03	6.5	17.9
ET 108[3]	11	19	7	4	1	49.2	0.07	5.2	12.7
ET 110	10	18	7	3	2	66.3	0.07	5.3	0.0
ET 111	17	27	12	5	1	28.0	0.04	6.3	0.1
ET 112	9	19	6	3	1	32.9	0.01	6.4	0.0
ET 133	8	14	6	2	1	60.8	0.10	5.2	0.0
Site Stream Avg	12.7	22.1	8.1	4.6	1.1	41.1	0.05	5.9	4.4
ET 01	21	31	11	10	0	18.1	0	7.5	0.0
ET 114	11	29	8	3	0	30.5	0	7.8	0.4
ET 116	13	25	9	4	0	30.8	0	7.6	1.5
Wtlnd/Strm Avg	15.0	28.3	9.3	5.7	0	26.5	0	7.6	0.7

[1] Based on 100 organism subsample

[2] Based on entire sample

[3] Unnamed tributary stations

Table 5. Metric results for pond samples.

Site ID	Total Taxa	% Tubificidae	HBI	PredPct	% filterers
RP 01	19	41.2	8.9	1.4	0.76
RP 02	17	6.1	8.0	0.5	0.19
RP 03	11	28.0	9.1	0.6	1.27
Local Ref Avg	15.7	25.1	8.6	0.8	0.74
Local Ref St Dev	4.2	17.7	0.59	0.49	0.54
ET 119	8	92.0	9.9	0.0	0
ET 121	4	96.4	10.0	0.0	0
ET 125	5	96.9	10.0	0.0	0
NUSC Pond Avg	5.7	95.1	10.0	0	0

Table 6. Evidence from multiple comparisons.

Comparison	Result	Significance
Regional Reference (Stream, Indices)	Local reference and site stream samples are moderately impaired according to all index scores (**Table 3**)	Biological potential is reduced at both the local reference site and the NUSC site, indicating impairment. Sample processing differences may discount importance of comparison to the regional reference.
Regional Reference (Stream, Metrics)	The regional reference samples have more EPT representation, more sensitive individuals, and greater % scrapers (**Table 4**)	The local reference and site streams are not suitable for pollution tolerant taxa. Lack of scrapers in site stream stations indicates either a lack of hard substrate or toxicity to algae or organisms. Sample processing differences may discount importance of comparison to the regional reference.
Local Reference (Stream, Indices)	Index values are lower in the NUSC stream samples compared to regional reference samples (**Table 3**)	The biological conditions in the NUSC streams are slightly worse than those in the local reference stream.
Local Reference (Metrics)	Stream metrics were similar with the exception of % scrapers (**Table 4**). Pond samples were much less diverse in the NUSC pond and all taxa were pollution tolerant (**Table 5**).	The metrics indicate that the NUSC stream assemblages are slightly less diverse overall than the local reference stream, have fewer scrapers, and a greater proportion of insect taxa. The local reference assemblage appears to be responding to nutrient enrichment. The decreased diversity and increased pollution tolerance in the NUSC pond samples indicates relative impairment.
Within Site (Stream, Indices)	The WSCI was highest in the unnamed tributary (**Table 3**). The single reference index is highly variable.	When considering all three indices, results are variable and inconclusive. Results among wetland/stream samples are also inconclusive.
Within Site (Metrics)	Scrapers were only abundant in the unnamed tributary (**Table 4**). The upstream wetland/stream site is more diverse than the lower two. Metrics among pond sites were relatively invariable (**Table 5**)	If scrapers can only thrive in the unnamed tributary, then organisms that collect food resources by detaching algae from substrates may be inhibited in Deerfield Creek and the wetland/stream stations. Inhibition may be due to toxicity or the lack of food resources (unsuitable conditions for algal growth). The three pond sites had similar lead concentrations and we did not see variability in metrics. This may indicate that other environmental factors are also relatively invariable among pond sites.

Table 7. Site assessments

Site ID	Description	Indication
Site Pond		
ET 119	Diverse fauna, including predators, filterers, and moderately sensitive taxa; moderate tolerant tubificid abundance	Impaired relative to reference, marginal biological function
ET 121	Diverse fauna, including predators, filterers, and moderately sensitive taxa; low tolerant tubificid abundance	Impaired relative to reference, marginal biological function
ET 125	Diverse fauna, including predators, filterers, and moderately sensitive taxa;moderate tolerant tubificid abundance	Impaired relative to reference, marginal biological function
Reference Pond		
RP 01	Homogenous fauna, with no predators, filterers, or moderately sensitive taxa; high tolerant tubificid abundance	Not impacted, biologically functional
RP 02	Homogenous fauna, with no predators, filterers, or moderately sensitive taxa; high tolerant tubificid abundance	Not impacted, biologically functional
RP 03	Homogenous fauna, with no predators, filterers, or moderately sensitive taxa; high tolerant tubificid abundance	Not impacted, biologically functional
Site Stream		
ET 106	2 of 3 biological index values are low; diverse fauna, EPT and scrapers are few; dominant taxa include the worm *Nais*	Impaired relative to reference, marginal biological function
ET 107	High biological index values; diverse fauna, EPT are few; scrapers are abundant; dominant taxa include the midge *Chaetocladius*	Similar to reference
ET 108	2 of 3 biological index values are high; homogenous fauna, EPT are few; scrapers are abundant; dominant taxa include the midge *Chaetocladius*	Similar to reference
ET 110	2 of 3 biological index values are low; homogenous fauna, EPT are few; scrapers are absent; dominant taxa include the blackfly *Simulium*	Impaired relative to reference, marginal biological function
ET 111	2 of 3 biological index values are high; diverse fauna, EPT and scrapers are few; dominant taxa include the worm *Nais*	Similar to reference
ET 112	2 of 3 biological index values are low; homogenous fauna, EPT are few; scrapers are absent; dominant taxa include the midge *Chaetocladius*	Impaired relative to reference, marginal biological function
ET 133	2 of 3 biological index values are low; homogenous fauna, EPT are few; scrapers are absent; dominant taxa include the blackfly *Simulium*	Impaired relative to reference, marginal biological function
Reference Stream		
RP 04	High biological index values; diverse fauna, though more non-insects than insects; EPT are few, but diverse; scrapers are abundant; dominant taxa include the isopod *Caecidotea*	Not impacted, though probably nutrient enriched
RP 05	Moderately high biological index values; diverse fauna, though more non-insects than insects; EPT are relatively abundant; scrapers are abundant; dominant	Not impacted, though probably nutrient enriched

	taxa include the isopod *Caecidotea*	
RP 06	Moderately high biological index values; diverse fauna, though more non-insects than insects; EPT are relatively abundant; scrapers are abundant; dominant taxa include the isopod *Caecidotea*	Not impacted, though probably nutrient enriched
Site Wetland/Stream		
ET 01	2 of 3 biological index values are comparable to reference; diverse fauna; EPT and scrapers are absent, though this may be expected for slow-water habitat; dominant taxa include the earthworm *Enchytraeidae*	Similar to reference, considering slow-water habitat
ET 114	2 of 3 biological index values are low; homogenous fauna; EPT are absent, though this may be expected for slow-water habitat; scrapers are few; dominant taxa include the midge *Chironomus* and the pill clam *Pisidium*	Impaired relative to reference, marginal biological function
ET 116	2 of 3 biological index values are high; EPT are absent, though this may be expected for slow-water habitat; scrapers are few; dominant taxa include the midge *Chironomus*; mean density is low	Similar to reference, considering slow-water habitat

Table 8. Analytical caveats.

Caveat	Description
Inconsistent Sample Processing	Samples collected for at the regional reference site were processed with a 100 organism subsample of the sample detritus, whereas the NUSC and local reference samples were not subsampled or were subsampled through post-processing randomized re-pick.
Multiple Stressors	While efforts were made to find a local reference site that would be similar to the NUSC site in many respects, differences other than lead concentration remain. These differences may involve background contamination or habitat degradation that could not be factored out of the analysis.
Small Data Set	A data set with only three local reference samples may be too small to accurately assess variability.
Small Streams	Small streams such as the NUSC and Upper Melville Pond outflow are subject to variability due to low flow and the indices are suspected of high error rates in small streams.
Nutrients Assumed	Nutrient concentrations were not available for this analysis, though we can make assumptions based on local land uses.

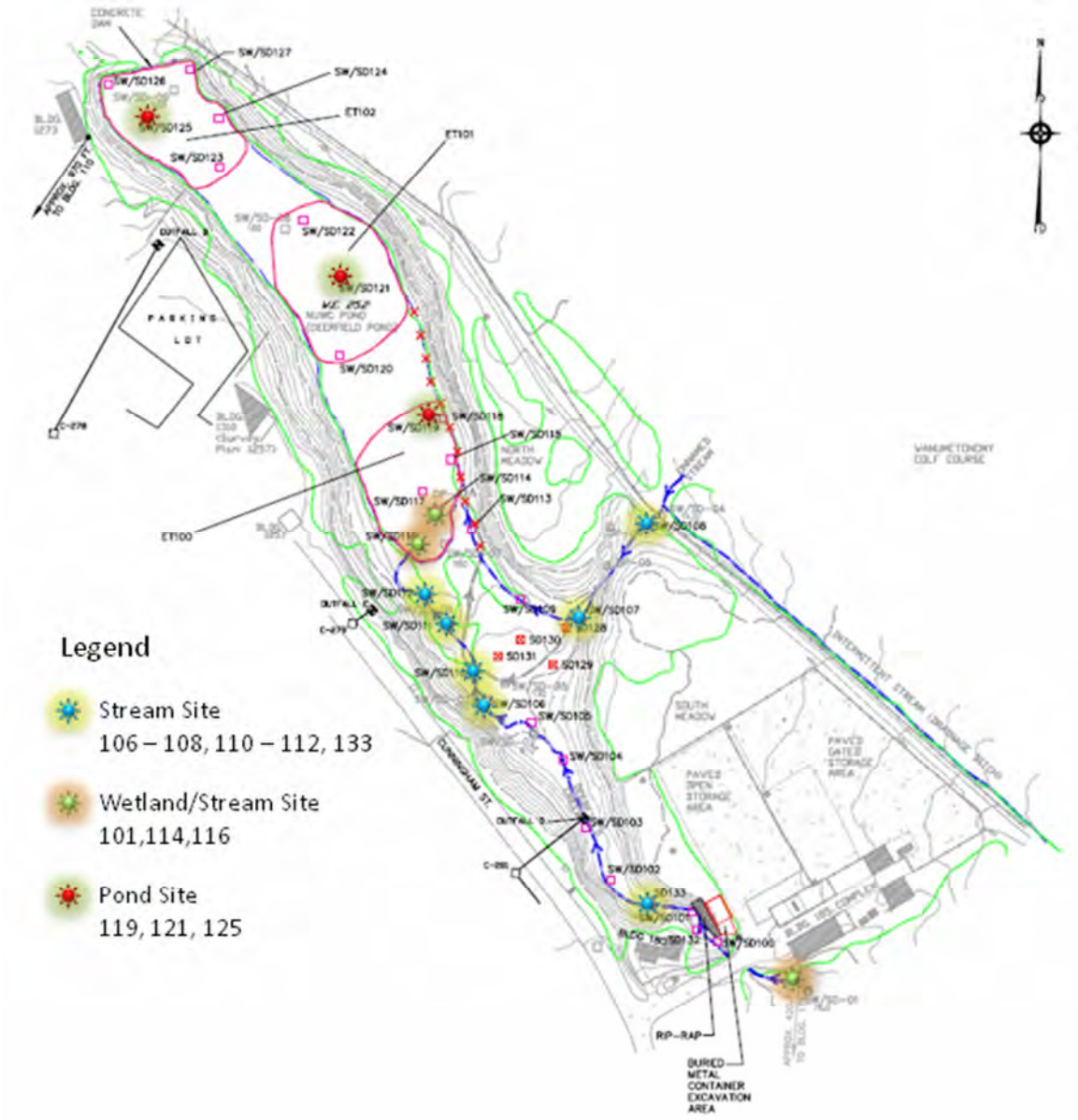


Figure 1. Sample location in the NUSC site, by habitat type.

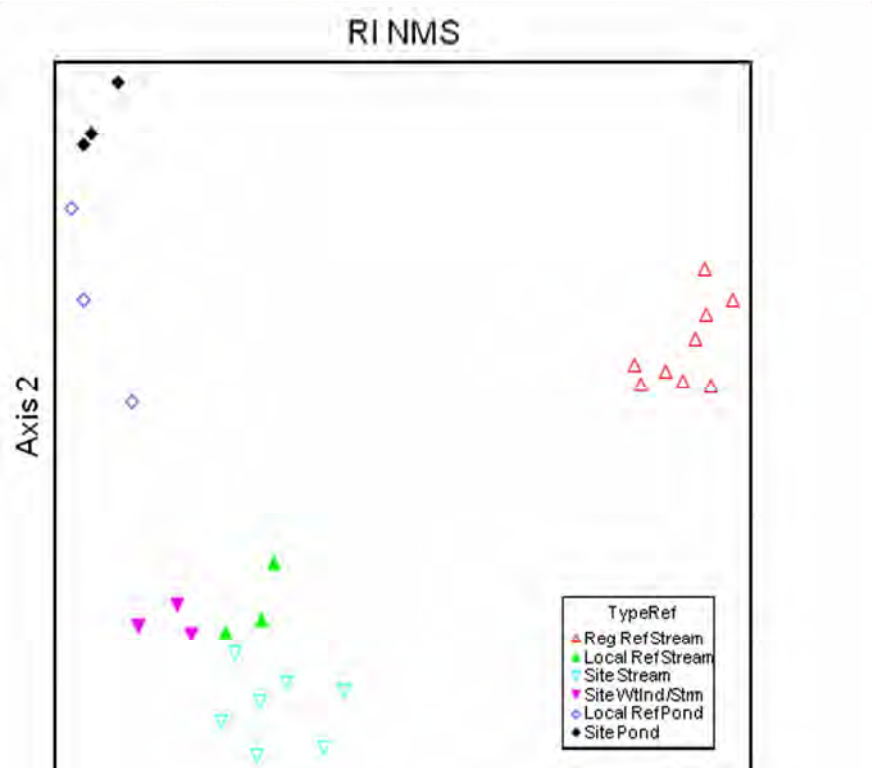


Figure 2. NMS ordination diagram of samples arranged by taxonomic similarity.

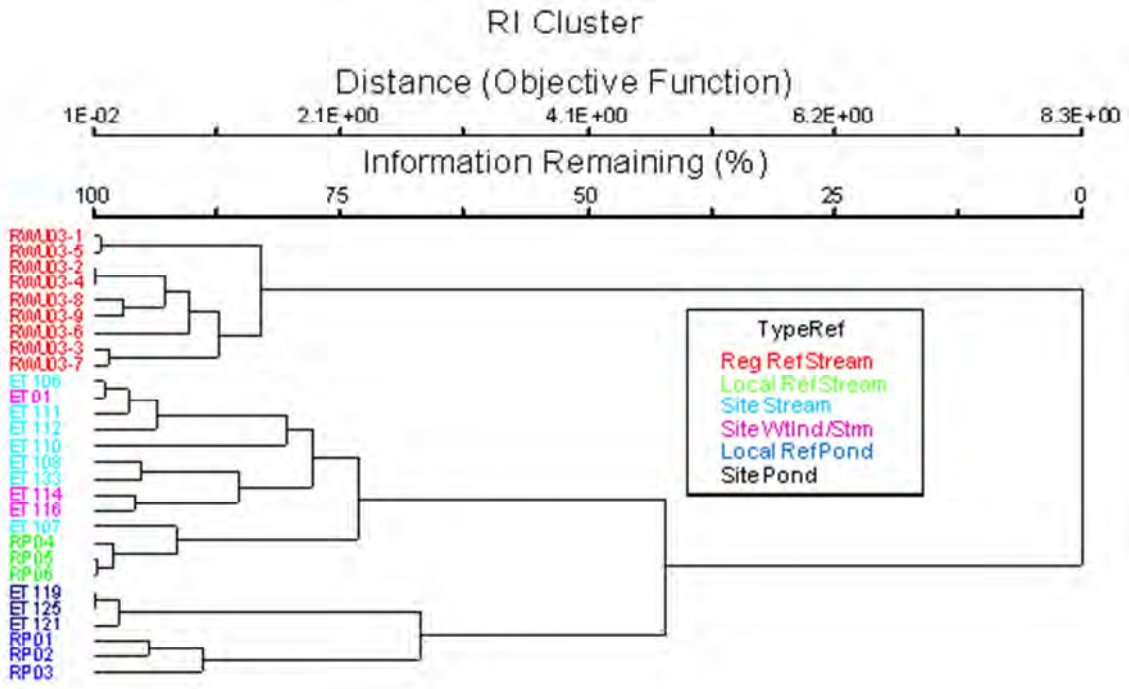


Figure 3. Cluster dendrogram of samples arranged by taxonomic similarity.

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14 August 2008

Mr. Steven Parker
Tetra tech NUS, Inc.
55 Jonspin Road
Wilmington, Massachusetts 01887

SUBJECT: CASE NARRATIVE

LABORATORY SERVICES: Naval Station Newport, Newport, Rhode Island – Aquatic Invertebrate Sample Analysis.
(Normandeau Associates, Inc. Project Number 21421.000)

Dear Mr. Parker:

Effective 13 May 2008 Normandeau Associates entered into an agreement with Tetra Tech NUS, Inc. to conduct a taxonomic analysis of a block of nineteen aquatic invertebrate samples collected from the Naval Station Newport Site 08 (NUSC Disposal Area) near Middletown, Rhode Island under Navy (Clean) Contract N62467-04-D-0055. Tetra Tech's Subcontract Number with Normandeau is 1033297 and the Contract Task Order Number is 0402. Tetra Tech's Task Managers for this project are Mssrs. Steven Parker and Aaron Bernhardt.

The Scope of Work for this project specifies: 1) removal of invertebrate specimens from each sample matrix; 2) identification of all specimens to the genus/species phylogenetic level; and 3) metric calculation.

Sediment samples containing invertebrate specimens were collected by Tetra Tech NUS Inc. during 27, 28 May 2008 from: a Reference Stream (n = 3), a Reference Pond (n = 3), a Site Pond (n = 3), a Site Wetland/Stream (n = 3), and a Site Stream (n = 7). Samples were collected with a Petite Ponar Grab or a D-frame Kick Net, as applicable from three habitat types - pond, depositional wetland/stream, and rocky fast-moving stream.

The preserved matrices were shipped from the site and received for processing and analysis on 1 July 2008, at Normandeau's laboratory in Stowe, Pennsylvania.

Methodology

Laboratory analyses were completed on 11 August 2008 according to Tetra Tech's "Statement of Work" pertaining to this project.

Sample Processing and Analysis

In the lab the sample matrices were rinsed and distributed into a pan partially filled with water. Invertebrate specimens were then removed under magnification and placed by type into glass vials. The matrices were processed in entirety and sub-sampling restricted to particularly abundant (> 100/sample) taxa. Following removal of all non-abundant forms, the processed matrices were placed into a Folsom

Splitter and divided into fractions. Abundant taxa were then removed from randomly selected fractions and their numbers estimated according to the amount of matrix re-processed.

Restricting sub-sampling to abundant forms reduces the loss of taxonomic richness information inherent to less rigorous fixed-count 100, 200, or -300-specimen methodologies. Any non-abundant taxa remaining in the fractions were also removed to produce a Quality Control estimate for sorting efficiency. Results were considered acceptable when 90 percent of the taxa and specimens were removed during the initial effort.

Specimens were identified to the genus/species level of phylogenetic classification (referred to as a taxon), given their developmental stage and condition, using dissection and compound microscopes. Quality Control was applied to the identification phase of the analysis by having a second biologist re-identify and count all specimens from one of the samples. An accuracy of 90 percent was again considered acceptable.

Metric Calculations

Data were reduced to a set of six ecological metrics:

1) Density (for Ponar samples)
2) Richness (total number of taxa)
3) Percent Dominant Taxon
4) Hilsenhoff Biotic Index
5) Shannon Diversity (base e)
6) Morisita's Index of Community Similarity

Density (the number of invertebrates per square meter of substrate) was calculated for the Ponar samples. Each sample consisted of a composite of three grabs encompassing a total area of 0.069 square meters.

Richness is a count of all taxa present at each station. For this analysis samples containing more than 20 taxa may be considered rich.

The Percent Dominant Taxon is the proportional abundance of the most common taxon present at each site. (these are shown in bold print on the data tables produced from the analysis). Dominance (e.g., >40%) by one (or very few) tolerant taxon is an indicator of impairment.

The Hilsenhoff Index is a weighted average calculated by multiplying a Tolerance Value (TV_1) for each individual taxon by the number of specimens represented by that taxon (N_1). Tolerance Values range between 0 and 10 (NY DEC, 1991 and CT DEP, 2002). Low values indicate pollution sensitivity.

These products are summed and then divided by total the number of specimens (N) in the sample. The formula is:

$$\sum \frac{TV_1 N_1}{N}$$

The resulting indices range between 0.00 and 10.00 and are interpreted in Hilsenhoff (1987) as follows:

Index Value	Water Quality	Index Value	Water Quality
0.00 – 3.50	Excellent	6.51 – 7.50	Fairly Poor
3.51 – 4.50	Very Good	7.51 – 8.50	Poor
4.51 – 5.50	Good	8.51 – 10.00	Very Poor
5.51 – 6.50	Fair		

The Shannon-Weaver Index of Diversity is a descriptive statistic that compares the distribution of individuals among all taxa present in a sample. Shannon-Weaver Diversity (H') is calculated according to the formula:

$$H' = -\sum p_i \log p_i ,$$

where:

p_i is the proportion of the total number of individuals occurring in species *i*.

Maximum diversity is obtained when the numbers of individuals among taxa are equally distributed. Diversity values tend to vary according to how samples are processed. For these collections values less than 2.00 (base e) can be considered low.

Morisita's Similarity Index (I_m) is a pair-wise comparison that incorporates the presence and relative abundance of each taxon into a value ranging between 0.00 and 1.00. Results near 1.00 indicate that the dominance hierarchy between the two communities is similar. The formula is:

$$I_m = \frac{X}{X-1}\ \frac{1}{u}\ \frac{(a^2 + u - 1),}{(u)}$$

where:

X = the number of individuals for each taxon
u = the average number of individuals per taxon
a^2 = the variance in the number of individuals per taxon

Results

A total of 96 taxa was identified from the block of nineteen samples (see enclosed data tables).

Most common in one or more of the samples from the **Reference Pond** were aquatic sow bugs in the genus *Caecidotea* , tube worms within the genus *Limnodrilus* and midges in the genus *Chironomus*. All are tolerant forms. A summary of the metric calculations is provided here:

Metric	RP 01	RP 02	RP 03
Density	9,565	15,130	2,275
Richness	19	17	12
Pct. Dom.	40.0%	77.4%	45.9%
Hilsenhoff	8.86	7.96	9.13
Diversity	1.46	1.00	1.76

Most common at the **Reference Stream** was *Caecidotea*.

Metric	RP 04	RP 05	RP 06
Richness	39	28	27
Pct. Dom.	25.4%	63.3%	30.8%
Hilsenhoff	7.21	7.80	7.22
Diversity	2.37	1.32	2.14

In the **Site Pond** *Limnodrilus* were particularly abundant.

Metric	ET 119	ET 121	ET 125
Density	5,797	3,188	4,188
Richness	9	5	6
Pct. Dom.	68.0%	43.6%	54.7%
Hilsenhoff	9.91	9.97	9.98
Diversity	0.98	1.17	0.99
Similarity (vs. RP 01)	0.08	0.09	0.39
Similarity (vs. RP 02)`	0.05	0.04	0.04
Similarity (vs. RP 03)	0.33	0.16	0.26

In the **Site/Wetland Stream** the earthworm Enchytraeidae, the clam *Pisidium* and *Chironomus* were most abundant. Enchytraeidae and *Chironomus* are very tolerant. *Pisidium* is facultative. Also common were *Limnodrilus* and a third tolerant worm *Nais*.

Metric	ET 01	ET 114	ET 116
Richness	31	29	26
Pct. Dom.	18.1%	30.5%	30.8%
Hilsenhoff	7.46	7.84	7.62
Diversity	2.57	2.03	2.32
Similarity (vs. RP 01)	0.22	0.17	0.16
Similarity (vs. RP 02)`	0.30	0.03	0.02
Similarity (vs. RP 03)	0.40	0.69	0.77

Nais, a midge *Chaetocladius*, and a black fly *Simulium* were most abundant in the **Site Stream**. *Chaetocladius* and *Simulium* are facultative.

Metric	ET 106	ET 107	ET 108	ET 110
Richness	25	33	19	18
Pct. Dom.	33.9%	16.6%	49.2%	66.3%
Hilsenhoff	6.30	6.53	5.18	5.32
Diversity	2.12	2.59	1.41	1.29
Similarity (vs. RP 04)	0.26	0.34	0.06	0.07
Similarity (vs. RP 05)`	0.07	0.09	0.02	0.01
Similarity (vs. RP 06)	0.36	0.33	0.07	0.05

Metric	ET 111	ET 112	ET 133
Richness	27	21	14
Pct. Dom.	28.0%	32.9%	60.8%
Hilsenhoff	6.28	6.43	5.22
Diversity	2.34	2.02	1.29
Similarity (vs. RP 04)	0.24	0.16	0.10
Similarity (vs. RP 05)`	0.06	0.04	0.02
Similarity (vs. RP 06)	0.38	0.21	0.10

Quality control

Estimates for sorting efficiency were produced for eighteen of the samples:

Sample	Taxa Removal	Specimen Removal
DA-ET-RP01-0006	100.0%	100.0%
DA-ET-RP02-0006	100.0%	98.7%
DA-ET-RP03-0006	100.0%	100.0%
DA-ET-RP04-0006	100.0%	99.5%
DA-ET-RP05-0006	100.0%	98.9%
DA-ET-RP06-0006	100.0%	97.0%
DA-ET 01-0006	96.7%	93.9%
DA-ET106-0006	96.0%	97.5%
DA-ET107-0006	96.9%	97.2%
DA-ET110-0006	100.0%	98.9%
DA-ET111-0006	96.3%	98.1%
DA-ET112-0006	95.2%	96.4%
DA-ET114-0006	96.6%	95.8%
DA-ET116-0006	100.0%	100.0%
DA-ET119-0006	100.0%	93.0%
DA-ET121-0006	100.0%	100.0%
DA-ET125-0006	100.0%	100.0%
DA-ET133-0006	100.0%	99.2%

All taxa from Station DA-ET-RP105-0006 were re-identified and counted. No taxonomic changes were applied to the data set. Percent accuracy for the count was 99.9%.

Attestation Statement

"Normandeau attests that all electronic diskette deliverables transmitted to Tetra Tech exactly match the data summary tables."

All Processing (tracking) Forms, and Laboratory Bench Sheets generated for this project are enclosed.

Respectively Submitted.

George M. Christian

George M. Christian
Project Biologist

encs.

cc. A. Bernhardt (Tetra Tech)
file

References:

Connecticut Department of Environmental Protection (CT DEP). 2002. "*Cumulative Macroinvertebrate Taxa List."* CT DEP, Bureau of Water Management, Hartford, Connecticut.

Hilsenhoff, W.L. 1988. "*An Improved Biotic Index of Organic Stream Pollution."* The Great Lakes Entomologist, Vol. 20, No. 1, pp. 31 – 39.

New York Department of Environmental Conservation (NY DEC). 1991. *"Macroinvertebrate Species list."* In "*Quality Assurance Work Plan for Biological Stream Monitoring in New York State."* NY DEC, Bureau of Monitoring and Assessment, Division of Water, Albany New York.

hic Macroinvertebrates collected from the Naval Station Newport Site near Middletown, Rhode Is

Sample Date:	May 28, 2008
Gear:	Petite Ponar (3-grab composite: area = 0.069 square meters)
Habitat Type:	Pond
Sample Locations:	DA-ET-RP01-0006 DA-ET-RP02-0006 DA-ET-RP-03-0006

Taxon:	Common Name	Tol. Value	Reference Pond RP 01	RP 02	RP 03	Density Total	(no./sq.m.)	Pct.
Nematoda	roundworm	6	2			2	10	0.1%
Tricladida								
Hymanella retenuova (tent.)	flatworm	6	2	2		4	19	0.2%
Lumbriculida								
Stylodrilus heringianus	earthworm	8		56		56	271	3.0%
Tubificida								
Dero. sp.	naid worm	10		8	12	20	97	1.1%
Ilyodrilus templetoni	tubeworm	10	8	8		16	77	0.9%
Limnodrilus sp.	tubeworm	10	**264**	40	28	332	1,604	**17.8%**
Limnodrilus hoffmeisteri	tubeworm	10		8	4	12	58	0.6%
Hirudinida								
Helobdella stagnalis	leech	7	1			1	5	0.1%
Basommatophora								
Gyraulus circumstraitus	orb snail	8	1	3		4	19	0.2%
Physa sp.	pouch snail	8	1	2		3	14	0.2%
Veneroidea								
Corbicula fluminea (tent.)	Asiatic clam	6			1	1	5	0.1%
Musculium securus	fingermail clam	6	2			2	10	0.1%
Pisidium sp.	pill clam	6	3	2	1	6	29	0.3%
Amphipoda								
Hyalella azteca	sideswimmer	8		6		6	29	0.3%
Isopoda								
Caecidotea sp		8	256	**808**	6	1,070	5,169	**57.5%**
Odonata								
Enallagma sp.	damselfly	8	1	2		3	14	0.2%
Trichoptera								
Oecetis sp.	caddisfly	5	2			2	10	0.1%
Diptera								
Bezzia sp.	biting midge	6	2	3		5	24	0.3%
Chironomus sp	midge	10	8	16	**72**	96	464	**5.2%**
Cladopelma sp.	midge	9	8			8	39	0.4%
Dicrotendipes sp.	midge	8			4	4	19	0.2%
Enfeldia sp.	midge	9	8			8	39	0.4%
Guttipelopia sp.	midge	5	16	56	4	76	367	4.1%
Polypedilum halterale gr.	midge	6		16		16	77	0.9%
Procladius sp.	midge	9	72	8	12	92	444	4.9%
Sphaeromias sp.	biting midge	6	3		1	4	19	0.2%
Zalutschia nr. *zalutschicola*	midge	4			12	12	58	0.6%
Total Specimens			660	1,044	157	1,861		100.0%
Mean Density (no./square meter)			9,565	15,130	2,275		8,990	

				Mean
Total Taxa (Richness)	**19**	**17**	**12**	**16**
Percent Dominant Taxon	**40.0%**	**77.4%**	**45.9%**	**54.4%**
Hilsenhoff Biotic Index (water quality rating)	**8.86**	**7.96**	**9.13**	**8.65** ("very poor")

Shannon Diversity (base e)	**1.46**	**1.00**	**1.76**	**1.40**